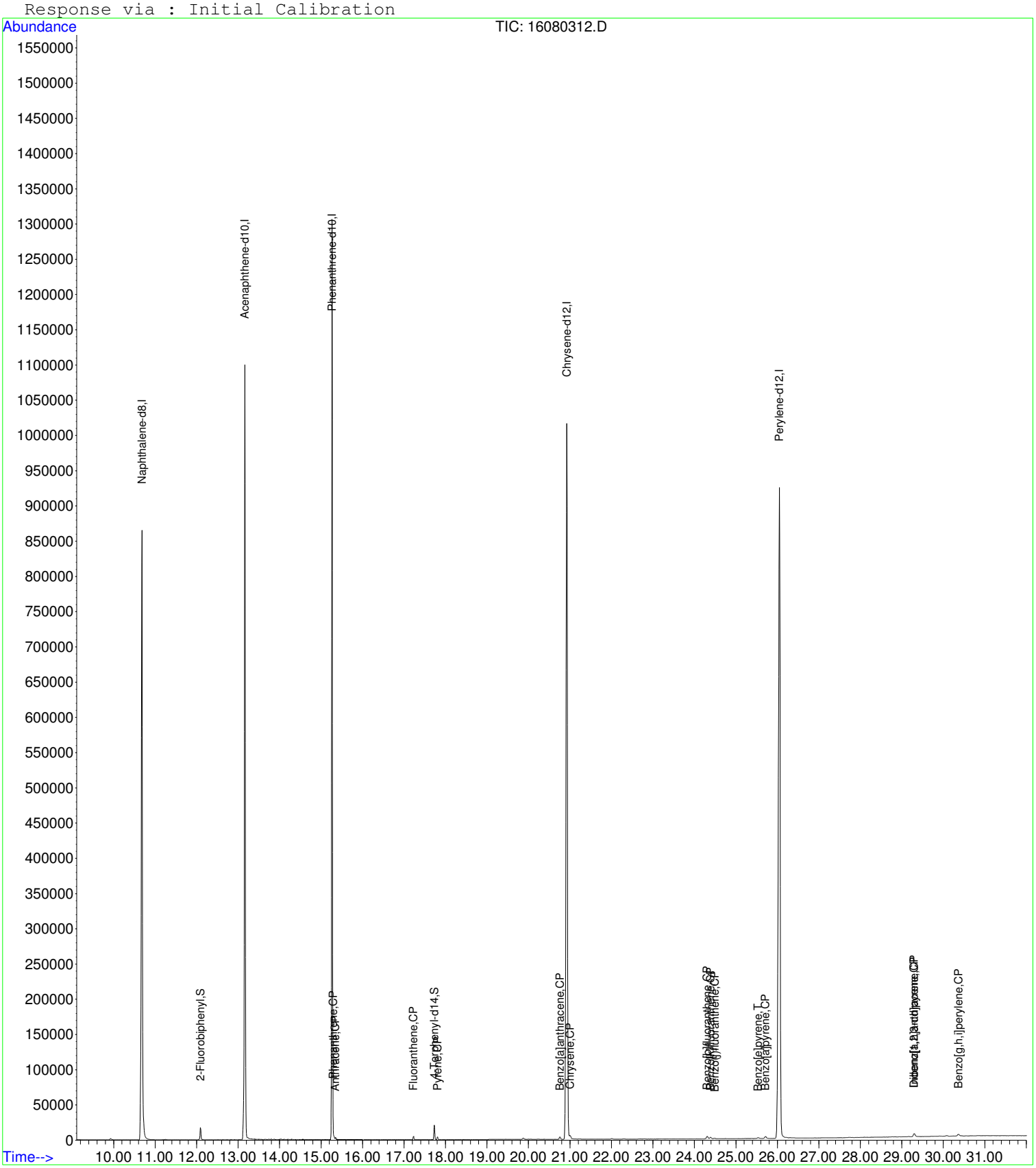
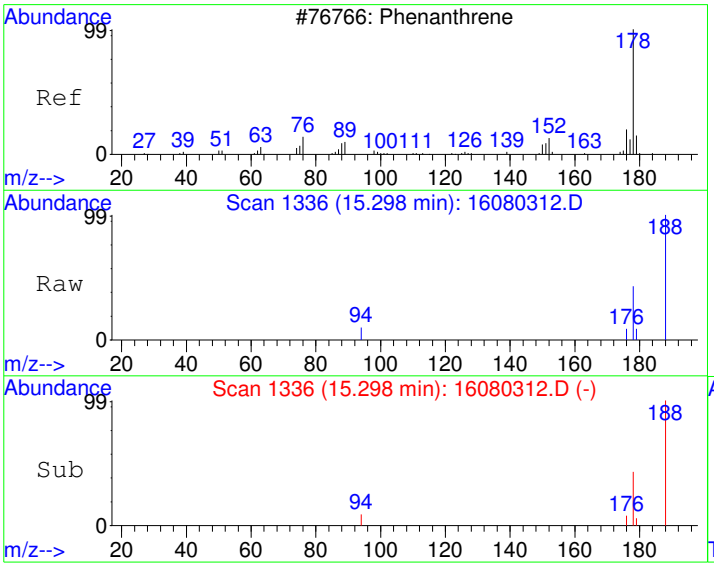
Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080312.D Vial: 12
Acq On : 3 Aug 2016 5:50 pm Operator: DEW
Sample : 1607239-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 8:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

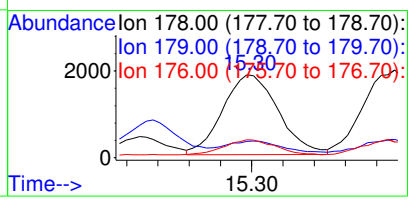


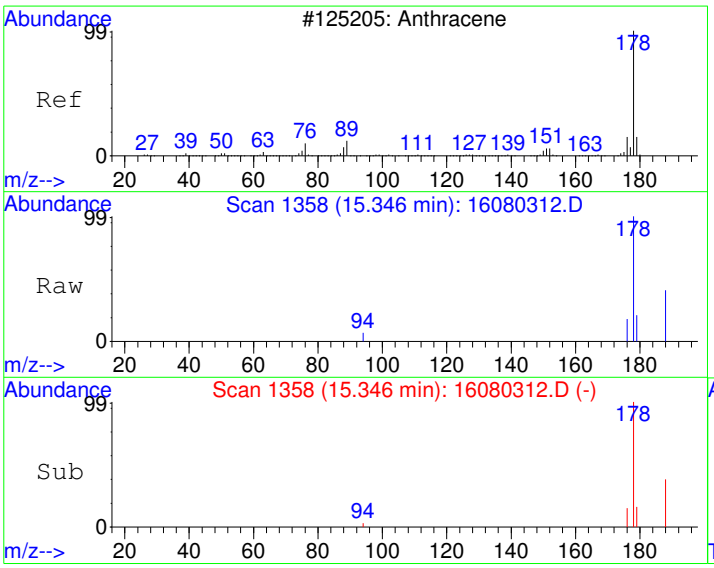


#12
Phenanthrene
Concen: 6.48 ug/kg
RT: 15.30 min Scan# 1336
Delta R.T. -0.01 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:178 Resp: 2282

Ion	Ratio	Lower	Upper
178	100		
179	14.5	0.0	45.7
176	19.7	0.0	48.7

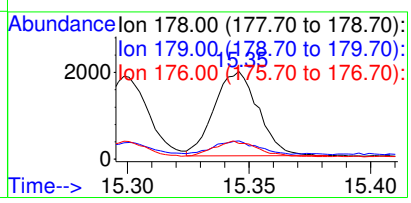


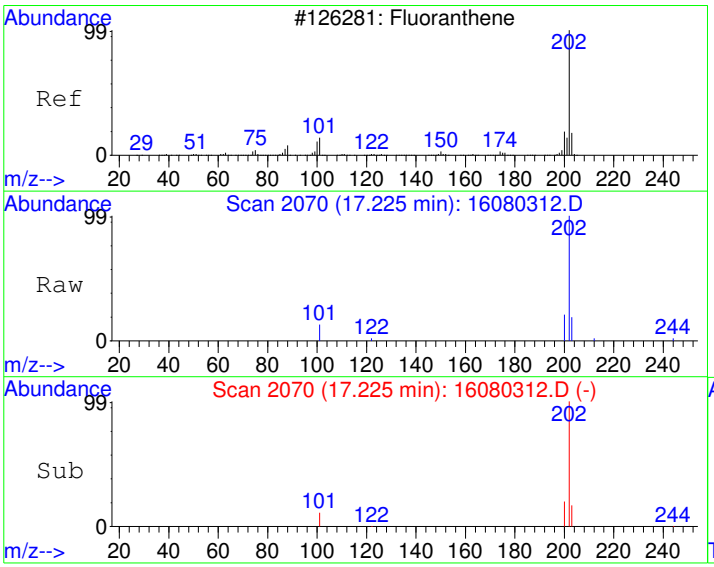


#13
Anthracene
Concen: 6.64 ug/kg
RT: 15.35 min Scan# 1358
Delta R.T. -0.00 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:178 Resp: 2460

Ion	Ratio	Lower	Upper
178	100		
179	16.2	0.0	45.7
176	15.8	0.0	47.9

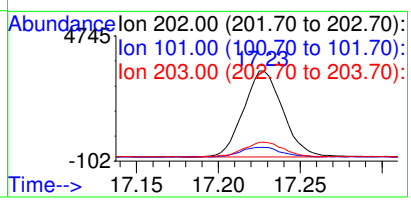


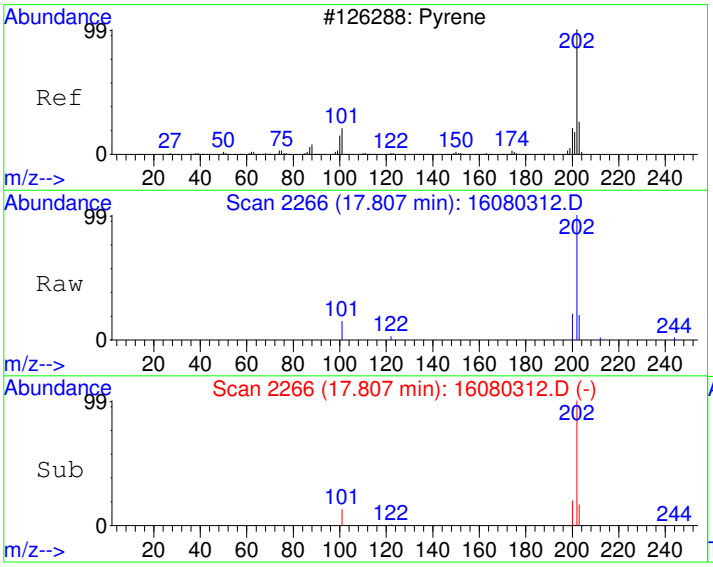


#14
Fluoranthene
Concen: 13.33 ug/kg
RT: 17.23 min Scan# 2070
Delta R.T. -0.01 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:202 Resp: 5563

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	42.1
203	17.0	0.0	47.9

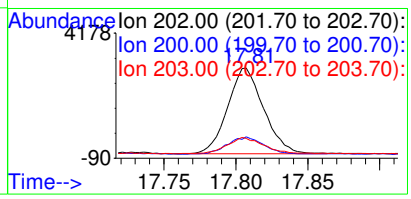


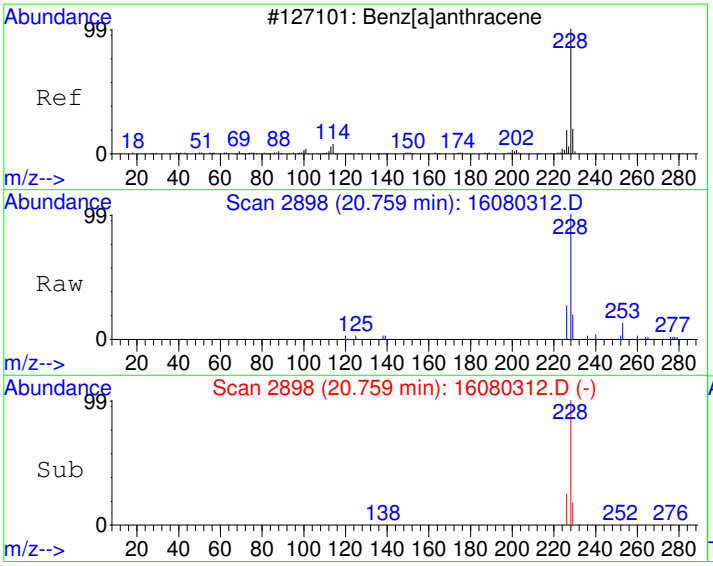


#15
Pyrene
Concen: 12.03 ug/kg
RT: 17.81 min Scan# 2266
Delta R.T. -0.01 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:202 Resp: 5088

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	49.7
203	17.7	0.0	47.8

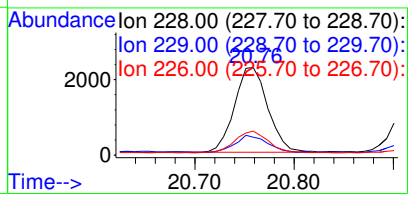


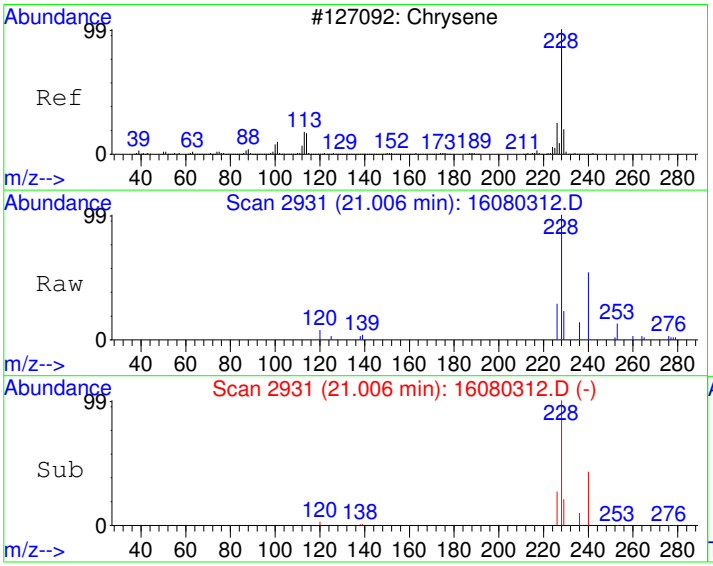


#18
Benzo[a]anthracene
Concen: 13.27 ug/kg
RT: 20.76 min Scan# 2898
Delta R.T. -0.01 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:228 Resp: 5259

Ion	Ratio	Lower	Upper
228	100		
229	18.0	0.0	49.8
226	25.5	0.0	55.8

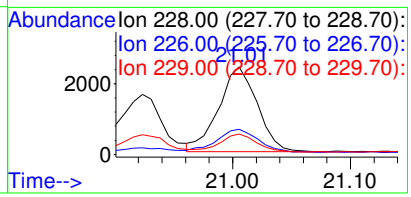


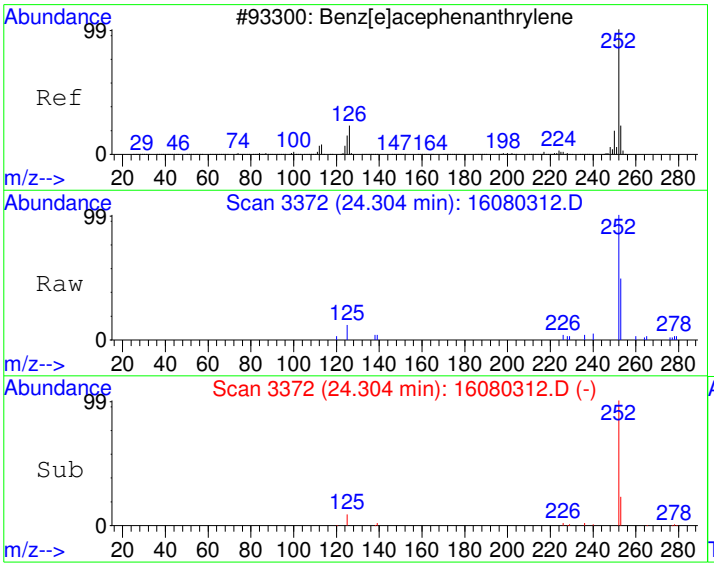


#19
Chrysene
Concen: 14.28 ug/kg
RT: 21.01 min Scan# 2931
Delta R.T. -0.02 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:228 Resp: 5446

Ion	Ratio	Lower	Upper
228	100		
226	27.1	0.0	58.1
229	21.2	0.0	50.0

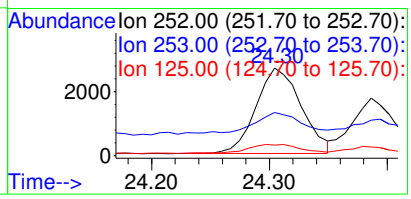


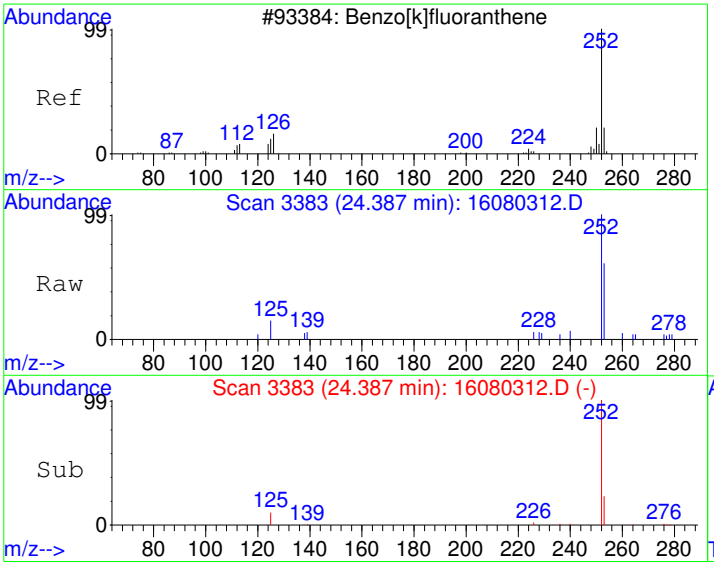


#21
Benzo[b]fluoranthene
Concen: 17.31 ug/kg
RT: 24.30 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:252 Resp: 7161

Ion	Ratio	Lower	Upper
252	100		
253	23.5	0.0	52.0
125	9.4	0.0	40.6

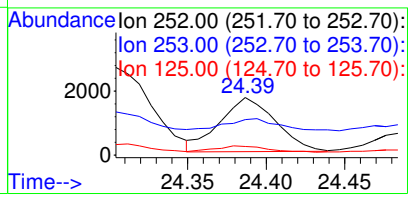


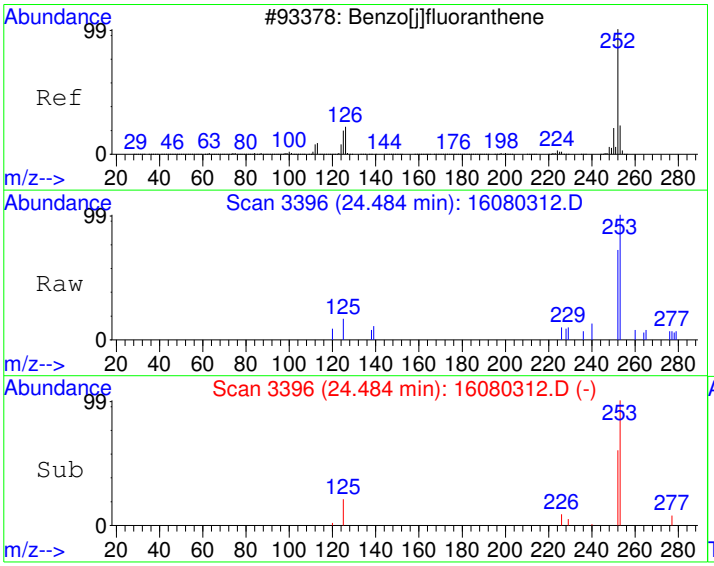


#22
Benzo[k]fluoranthene
Concen: 11.01 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.02 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:252 Resp: 4177

Ion	Ratio	Lower	Upper
252	100		
253	19.1	2.2	42.2
125	10.3	0.0	30.3

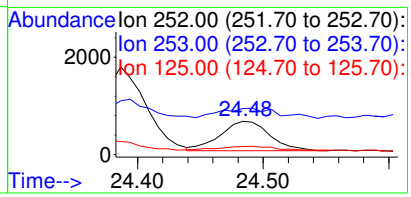


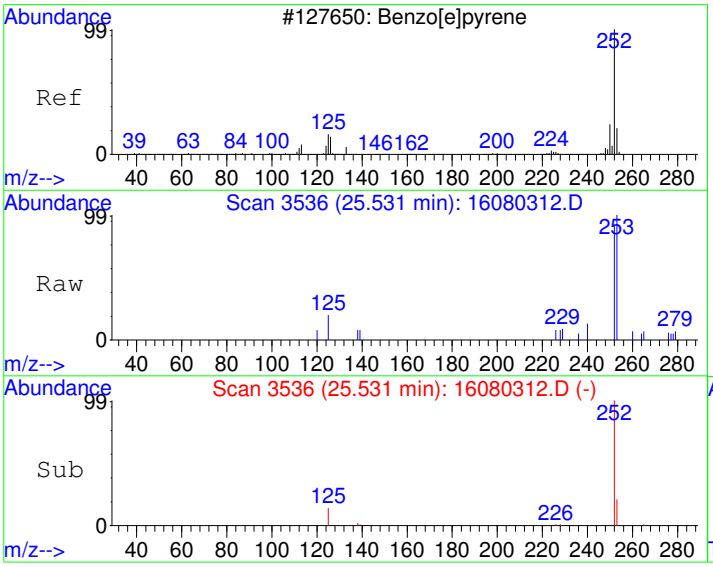


#23
Benzo(j)fluoranthene
Concen: 4.57 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.02 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:252 Resp: 1666

Ion	Ratio	Lower	Upper
252	100		
253	26.1	2.2	42.2
125	11.9	0.0	34.4

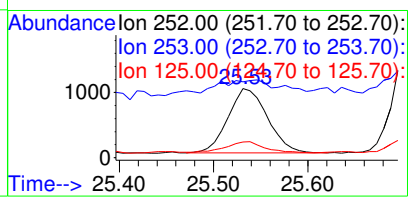


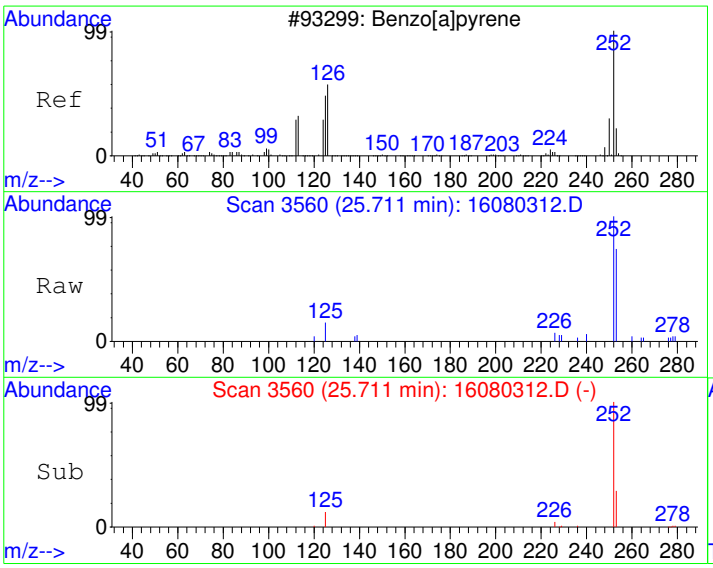


#24
Benzo[e]pyrene
Concen: 7.13 ug/kg
RT: 25.53 min Scan# 3536
Delta R.T. -0.02 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:252 Resp: 2864

Ion	Ratio	Lower	Upper
252	100		
253	14.2	2.2	42.2
125	16.0	0.0	35.7

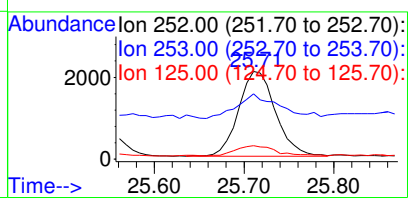


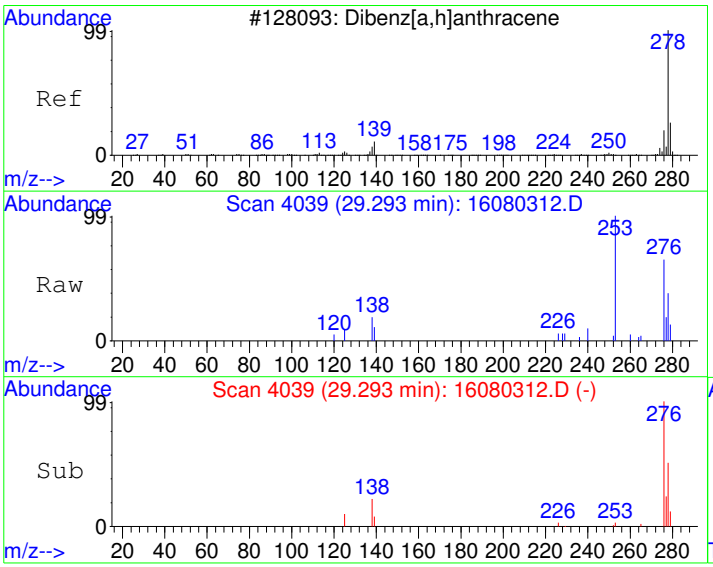


#25
Benzo[a]pyrene
Concen: 14.89 ug/kg
RT: 25.71 min Scan# 3560
Delta R.T. -0.02 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:252 Resp: 5954

Ion	Ratio	Lower	Upper
252	100		
253	24.8	2.0	42.0
125	11.8	0.0	31.6

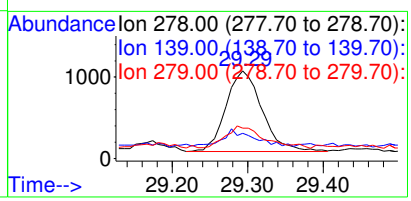


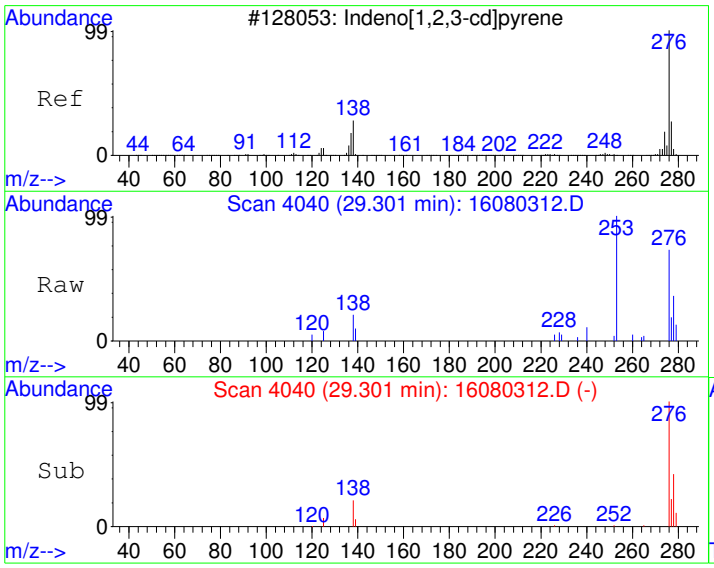


#26
Dibenz[a,h]anthracene
Concen: 8.51 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:278 Resp: 3291

Ion	Ratio	Lower	Upper
278	100		
139	14.0	0.0	33.8
279	24.5	3.9	43.9

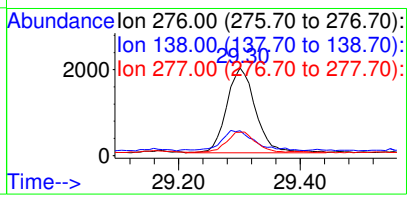


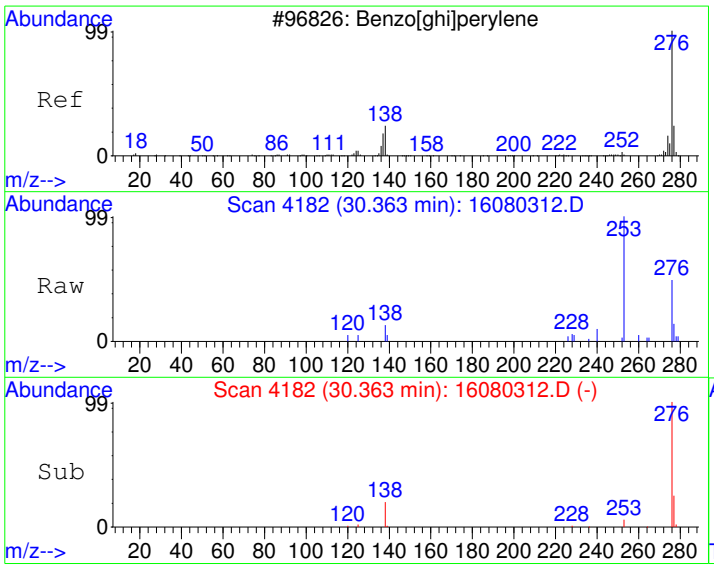


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.18 ug/kg
RT: 29.30 min Scan# 4040
Delta R.T. -0.02 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:276 Resp: 6511

Ion	Ratio	Lower	Upper
276	100		
138	23.3	4.8	44.8
277	23.4	5.6	45.6

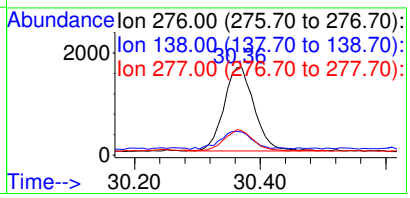




#28
Benzo[g,h,i]perylene
Concen: 14.32 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080312.D
Acq: 3 Aug 2016 5:50 pm

Tgt Ion:276 Resp: 5505

Ion	Ratio	Lower	Upper
276	100		
138	19.9	0.0	38.1
277	25.3	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080313.D Vial: 13
Acq On : 3 Aug 2016 6:30 pm Operator: DEW
Sample : CCV1-160803 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

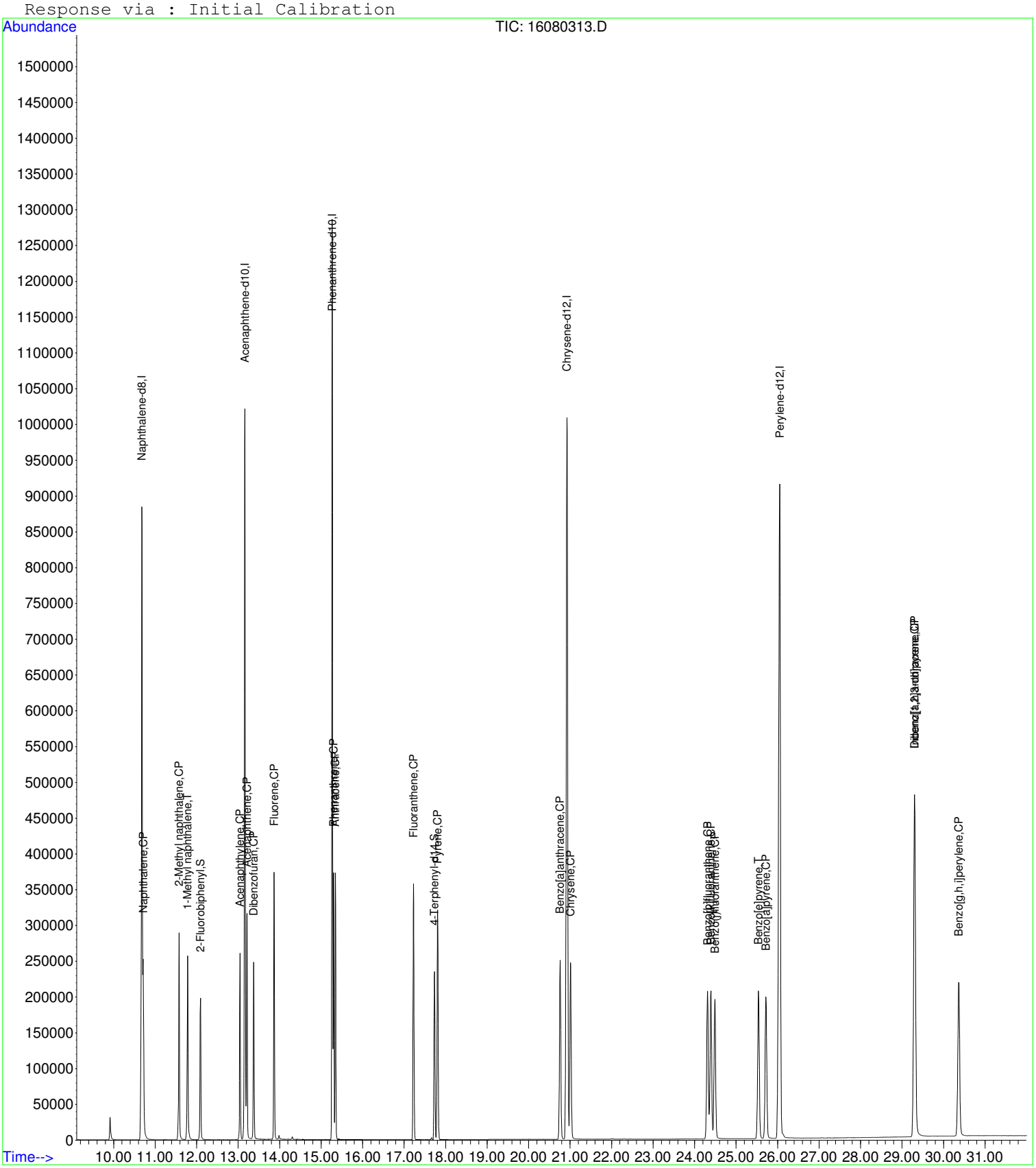
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1414208	4000.00	ug/kg	101
5) Acenaphthene-d10	13.16	164	634071	4000.00	ug/kg	106
11) Phenanthrene-d10	15.27	188	1492298	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1815282	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1898622	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	202961	917.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.94%#			
16) 4-Terphenyl-d14	17.73	244	325850	925.27	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.13%#			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	292629	909.45	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	191686	918.94	ug/kg	97
4) 1-Methyl naphthalene	11.78	142	170979	925.38	ug/kg	97
6) Dibenzofuran	13.37	168	239911	934.96	ug/kg	99
8) Acenaphthylene	13.04	152	263216	937.41	ug/kg	99
9) Acenaphthene	13.21	154	156008	959.33	ug/kg	98
10) Fluorene	13.87	166	201445	985.44	ug/kg	99
12) Phenanthrene	15.30	178	328312	927.96	ug/kg	99
13) Anthracene	15.34	178	341208	916.53	ug/kg	100
14) Fluoranthene	17.23	202	383678	915.08	ug/kg	99
15) Pyrene	17.81	202	380927	896.00	ug/kg	99
18) Benzo[a]anthracene	20.76	228	387502	947.08	ug/kg	99
19) Chrysene	21.01	228	369642	939.08	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	419147	956.29	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	399530	993.60	ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	369060	955.06	ug/kg	98
24) Benzo[e]pyrene	25.54	252	403786	949.31	ug/kg	99
25) Benzo[a]pyrene	25.72	252	397915	939.59	ug/kg	100
26) Dibenz[a,h]anthracene	29.30	278	453164	1105.76	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.31	276	534679	1099.43	ug/kg	98
28) Benzo[g,h,i]perylene	30.37	276	451153	1107.60	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080313.D Vial: 13
Acq On : 3 Aug 2016 6:30 pm Operator: DEW
Sample : CCV1-160803 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6_160804A
For

DHL Work Order
1607239

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160804A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		X
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)		X	

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			X
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	X
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			X
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X		X	X
2. Are all corrective actions included?		X		X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X		X	

Approved by: Don Winston Date: **VARIANCE APPROVED** By Sherri Herschmann at 11:51:24 AM, 8/11/2016

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
X ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

ICV2-160804: High recovery for Benzo[g,h,i]perylene (121.76%) - Client notified and approved this variance - see email

Analyst: Don Winston Date: 8/5/2016

Second-Level Review: Don Winston Date: **08/11/2016**

REVIEWED/APPROVED By Sherri Herschmann at 11:12:58 AM, 8/11/2016

DHL Analytical, Inc.

Run ID: GCMS6_160804A **Run No.:** 87447

Analytical Run Date: 8/4/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160804	1	PAH_LL_SDOD1	TUNE	R87447	8/4/2016 7:43:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160804	1	PAH_LL_SDOD1	ICV	R87447	8/4/2016 8:23:00 AM		
LCS-76457	1	PAH_LL_SDOD1	LCS	76457	8/4/2016 9:03:00 AM		
MB-76457	1	PAH_LL_SDOD1	MBLK	76457	8/4/2016 9:44:00 AM		
1607239-18A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 10:24:00 AM		
1607239-19A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:04:00 AM		
1607239-20A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:44:00 AM		
1607239-21A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 12:25:00 PM		
1607239-22A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 1:06:00 PM		
1607239-23A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 1:47:00 PM		
1607239-24A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 2:29:00 PM		
1607239-25A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 3:10:00 PM		
1607239-26A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 3:52:00 PM		
1607239-27A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 4:33:00 PM		
1607239-28A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 5:14:00 PM		
1607239-21AMS	10	PAH_LL_SDOD1	MS	76457	8/4/2016 5:55:00 PM		
1607239-21AMSD	10	PAH_LL_SDOD1	MSD	76457	8/4/2016 6:37:00 PM		
DFTPP2-160804	1	PAH_LL_SDOD1	TUNE	R87447	8/4/2016 7:17:00 PM		
ICV2-160804	1	PAH_LL_SDOD1	ICV	R87447	8/4/2016 7:57:00 PM		High recovery for Benzo[g,h,i]perylene (121.76%)
SB-160804	1	PAH_LL_SDOD1	SAMP	76457	8/4/2016 9:19:00 PM		
1607239-29A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 9:59:00 PM		
1607239-30A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 10:38:00 PM		
1607239-31A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:19:00 PM		
1607256-01A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:59:00 PM		
1607256-02A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 12:39:00 AM		
1607256-03A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 1:19:00 AM		
1607256-04A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 1:59:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

REVIEWED/APPROVED

By Sherri Herschmann at 11:14:32 AM, 8/11/2016

DHL Analytical, Inc.

Run ID: GCMS6_160804A **Run No.:** 87447

1607256-05A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 2:39:00 AM		
1607256-06A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 3:18:00 AM		
CCV1-160804	1	PAH_LL_SDOD1	CCV	R87447	8/5/2016 3:58:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

REVIEWED/APPROVED

By Sherri Herschmann at 11:30:25 AM, 8/11/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160804.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160804\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080401	DFTPPPAH	DFTPP-160804
2	Sample	2	16080402	PP160801	ICV-160804
3	Sample	3	16080403	PP160801	LCS-76457
4	Sample	4	16080404	PP160801	MB-76457
5	Sample	5	16080405	PP160801	1607239-18A
6	Sample	6	16080406	PP160801	1607239-19A
7	Sample	7	16080407	PP160801	1607239-20A
8	Sample	8	16080408	PP160801	1607239-21A
9	Sample	9	16080409	PP160801	1607239-22A
10	Sample	10	16080410	PP160801	1607239-23A
11	Sample	11	16080411	PP160801	1607239-24A
12	Sample	12	16080412	PP160801	1607239-25A
13	Sample	13	16080413	PP160801	1607239-26A
14	Sample	14	16080414	PP160801	1607239-27A
15	Sample	15	16080415	PP160801	1607239-28A
16	Sample	16	16080416	PP160801	1607239-21AMS
17	Sample	17	16080417	PP160801	1607239-21AMSD
18	Sample	18	16080418	DFTPPPAH	DFTPP2-160804
19	Sample	19	16080419	PP160801	ICV2-160804
20	Sample	20	16080420	PP160801	SBLK
21	Sample	21	16080421	PP160801	SB-160804
22	Sample	22	16080422	PP160801	1607239-29A
23	Sample	23	16080423	PP160801	1607239-30A
24	Sample	24	16080424	PP160801	1607239-31A
25	Sample	25	16080425	PP160801	1607256-01A
26	Sample	26	16080426	PP160801	1607256-02A
27	Sample	27	16080427	PP160801	1607256-03A
28	Sample	28	16080428	PP160801	1607256-04A
29	Sample	29	16080429	PP160801	1607256-05A
30	Sample	30	16080430	PP160801	1607256-06A
31	Sample	31	16080431	PP160801	CCV1-160804

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 9:30:13 AM**
Digestion:
Prep End Date: 7/26/16 1:00 PM

Prep Batch **76457** Prep Code: **3550_PAHDOD** Technician: **ADMIN**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-18A	Soil		10.27	10	1.000	1 of 1	
1607239-19A	Soil		10.08	10	1.000	1 of 1	
1607239-20A	Soil		10.00	10	1.000	1 of 1	
1607239-21A	Soil		10.20	10	1.000	1 of 3	
1607239-21AMS	Soil		10.01	10	1.000	1 of	
1607239-21AMSD	Soil		10.02	10	1.000	1 of	
1607239-22A	Soil		10.33	10	1.000	1 of 1	
1607239-23A	Soil		10.37	10	1.000	1 of 1	
1607239-24A	Soil		10.17	10	1.000	1 of 1	
1607239-25A	Soil		10.09	10	1.000	1 of 1	
1607239-26A	Soil		10.18	10	1.000	1 of 1	
1607239-27A	Soil		10.17	10	1.000	1 of 1	
1607239-28A	Soil		10.16	10	1.000	1 of 1	
1607239-29A	Soil		10.10	10	1.000	1 of 1	
1607239-30A	Soil		10.59	10	1.000	1 of 1	
1607239-31A	Soil		10.47	10	1.000	1 of 1	
1607256-01A	Soil		10.02	10	1.000	1 of 1	
1607256-02A	Soil		10.13	10	1.000	1 of 1	
1607256-03A	Soil		10.17	10	1.000	1 of 1	
1607256-04A	Soil		10.03	10	1.000	1 of 1	
1607256-05A	Soil		10.03	10	1.000	1 of 1	
1607256-06A	Soil		10.09	10	1.000	1 of 1	
LCS-76457	Soil		10	10	1.000	of	
MB-76457	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:30:28 AM, 8/11/2016

AR 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 9:30:13 AM**
Digestion:
Prep End Date: **7/26/2016 1:00:00 PM**

Prep Batch **76457** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1607239-18A	Soil		10.22	10	0.978	1	of	1	
1607239-19A	Soil		10.08	10	0.992	1	of	1	
1607239-20A	Soil		10.08	10	0.992	1	of	1	
1607239-21A	Soil		10.2	10	0.980		of	3	
1607239-21AMS	Soil		10.01	10	0.999		of		
1607239-21AMSD	Soil		10.02	10	0.998		of		
1607239-22A	Soil		10.33	10	0.968	1	of	1	
1607239-23A	Soil		10.37	10	0.964	1	of	1	
1607239-24A	Soil		10.17	10	0.983	1	of	1	
1607239-25A	Soil		10.09	10	0.991	1	of	1	
1607239-26A	Soil		10.18	10	0.982	1	of	1	
1607239-27A	Soil		10.17	10	0.983	1	of	1	
1607239-28A	Soil		10.16	10	0.984	1	of	1	
1607239-29A	Soil		10.1	10	0.990	1	of	1	
1607239-30A	Soil		10.59	10	0.944	1	of	1	
1607239-31A	Soil		10.47	10	0.955	1	of	1	
1607256-01A	Soil		10.02	10	0.998	1	of	1	
1607256-02A	Soil		10.13	10	0.987	1	of	1	
1607256-03A	Soil		10.17	10	0.983	1	of	1	
1607256-04A	Soil		10.03	10	0.997	1	of	1	
1607256-05A	Soil		10.03	10	0.997	1	of	1	
1607256-06A	Soil		10.09	10	0.991	1	of	1	
LCS-76457	Soil		10	10	1.000		of		
MB-76457	Soil		10	10	1.000		of		

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:44:46 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-01A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-06A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-13A	Soil		0	0	#Num!	1 of 1	
SS							



Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-14A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-18A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-19A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-21A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-22A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-23A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-27A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:10 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-28A SS	Soil		0	0	#Num!	1 of 1	
1607239-29A SS	Soil		0	0	#Num!	1 of 1	
1607239-30A SS	Soil		0	0	#Num!	1 of 1	
1607239-31A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:11 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A SS	Soil		0	0	#Num!	1 of 1	
1607256-02A SS	Soil		0	0	#Num!	1 of 1	
1607256-03A SS	Soil		0	0	#Num!	1 of 1	
1607256-04A SS	Soil		0	0	#Num!	1 of 1	
1607256-05A SS	Soil		0	0	#Num!	1 of 1	
1607256-06A SS	Soil		0	0	#Num!	1 of 1	
1607256-07A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607256-08A SS	Soil		0	0	#Num!	1 of 1	
1607256-09A SS	Soil		0	0	#Num!	1 of 1	
1607256-10A SS	Soil		0	0	#Num!	1 of 1	
1607256-11A SS	Soil		0	0	#Num!	1 of 1	
1607256-12A SS	Soil		0	0	#Num!	1 of 1	
1607256-14A SS	Soil		0	0	#Num!	1 of 1	



Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:15 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

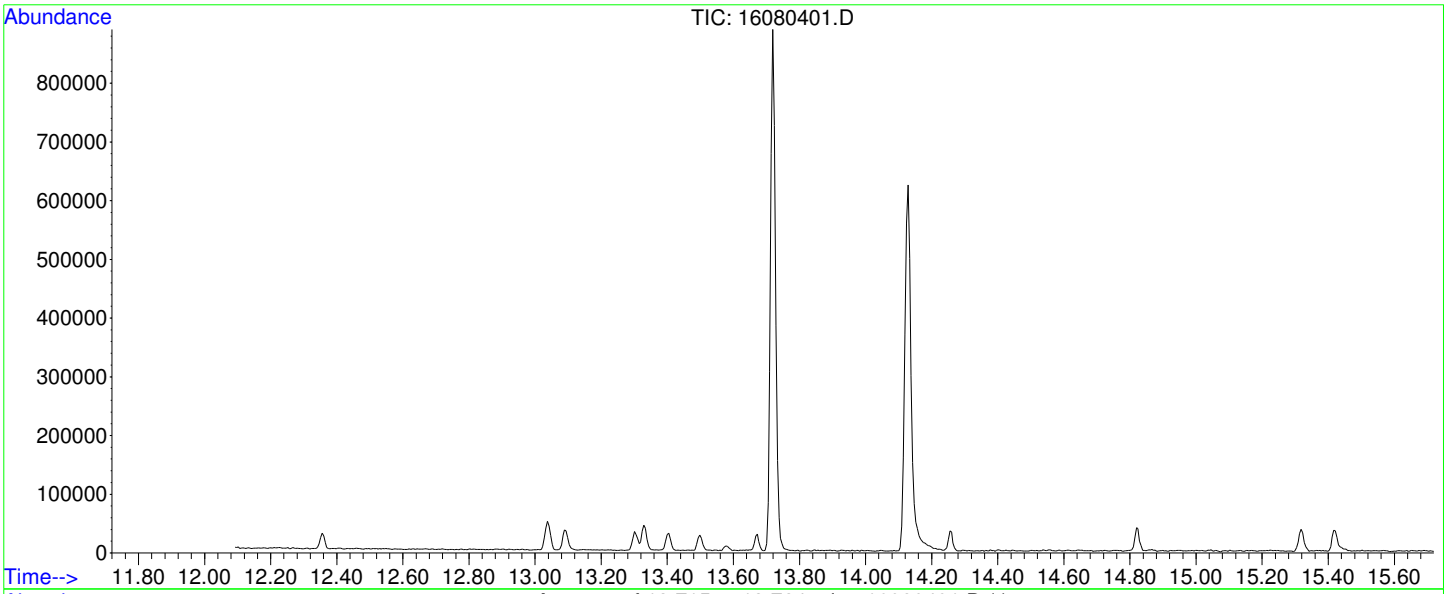
Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:16 AM, 8/11/2016

Data File : C:\HPCHEM\1\DATA\160804\16080401.D Vial: 1
Acq On : 4 Aug 2016 7:43 am Operator: DEW
Sample : DFTPP-160804 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

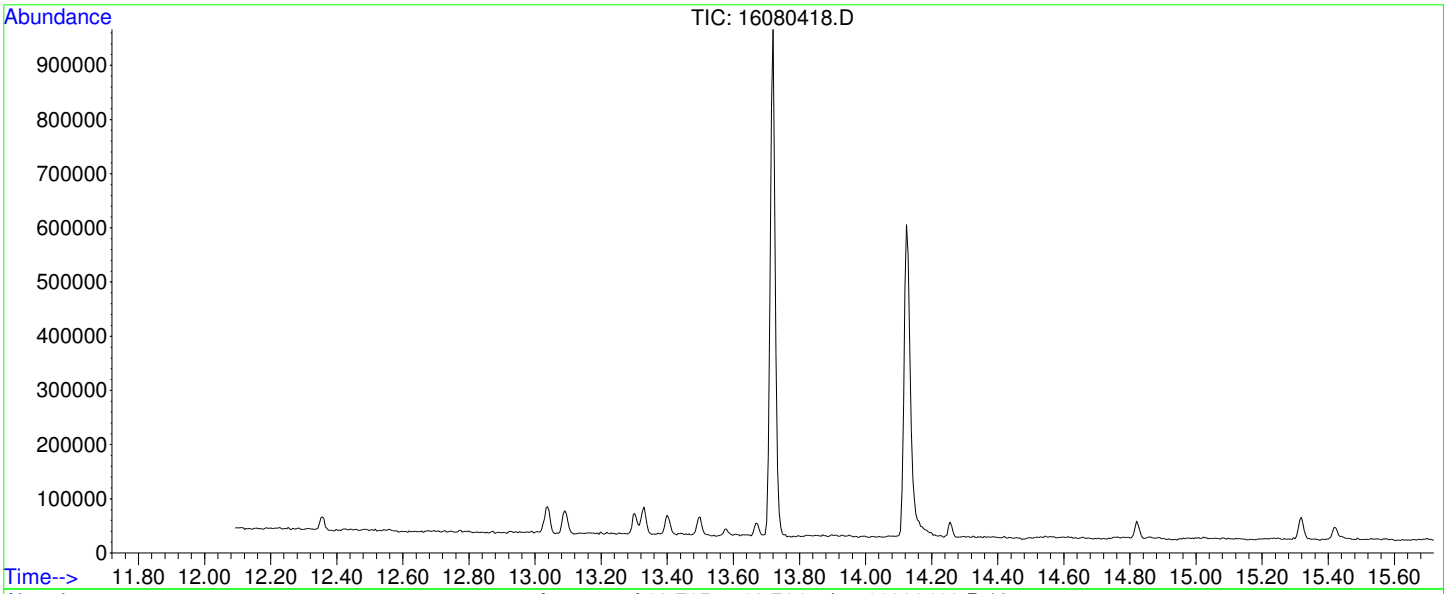


AutoFind: Scans 346, 347, 348; Background Corrected with Scan 340

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.9	30150	PASS
68	69	0.00	2	0.5	175	PASS
69	198	0.00	100	39.5	32291	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	42115	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	81677	PASS
199	198	5	9	7.0	5677	PASS
275	198	10	60	29.2	23813	PASS
365	198	1	200	4.1	3344	PASS
441	442	0.01	24	14.2	14678	PASS
442	198	50	400	126.3	103176	PASS
443	442	15	24	19.9	20582	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:19 AM, 8/11/2016

Data File : C:\HPCHEM\1\DATA\160804\16080418.D Vial: 18
Acq On : 4 Aug 2016 7:17 pm Operator: DEW
Sample : DFTPP2-160804 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 346, 347, 348; Background Corrected with Scan 340

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.2	29135	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	38.3	32613	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	42672	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	85176	PASS
199	198	5	9	6.4	5480	PASS
275	198	10	60	29.1	24805	PASS
365	198	1	200	4.1	3466	PASS
441	442	0.01	24	14.4	16361	PASS
442	198	50	400	133.0	113272	PASS
443	442	15	24	19.4	22029	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:46:05 AM, 8/11/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080402.D Vial: 2
Acq On : 4 Aug 2016 8:23 am Operator: DEW
Sample : ICV-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

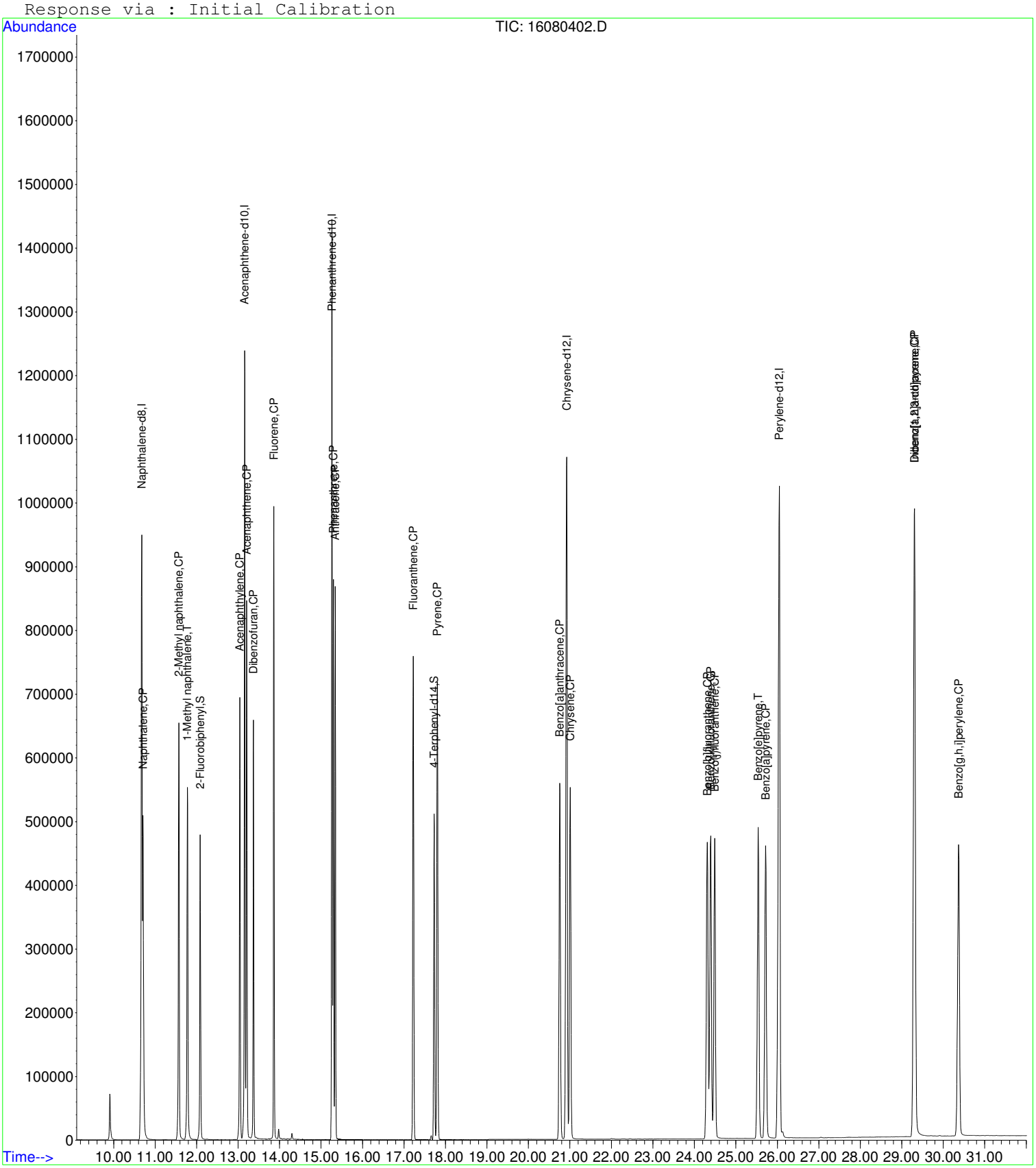
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1498198	4000.00	ug/kg	107
5) Acenaphthene-d10	13.16	164	763671	4000.00	ug/kg	127
11) Phenanthrene-d10	15.26	188	1664629	4000.00	ug/kg	105
17) Chrysene-d12	20.92	240	1917189	4000.00	ug/kg	105
20) Perylene-d12	26.05	264	2118511	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	481709	1808.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.21%			
16) 4-Terphenyl-d14	17.73	244	708532	1803.64	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.09%			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	658864	1932.85	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	435497	1970.73	ug/kg	96
4) 1-Methyl naphthalene	11.78	142	389181	1988.26	ug/kg	98
6) Dibenzofuran	13.37	168	635808	2057.31	ug/kg	100
8) Acenaphthylene	13.04	152	681687	2015.74	ug/kg	100
9) Acenaphthene	13.21	154	403772	2061.52	ug/kg	100
10) Fluorene	13.86	166	543332	2206.85	ug/kg	99
12) Phenanthrene	15.30	178	768581	1947.47	ug/kg	100
13) Anthracene	15.34	178	793046	1909.70	ug/kg	100
14) Fluoranthene	17.22	202	837347	1790.35	ug/kg	100
15) Pyrene	17.80	202	835781	1762.37	ug/kg	100
18) Benzo[a]anthracene	20.75	228	876163	2027.57	ug/kg	100
19) Chrysene	21.01	228	824684	1983.76	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	995630	2035.76	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	909957	2028.11	ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	871132	2020.35	ug/kg	99
24) Benzo[e]pyrene	25.54	252	959016	2020.64	ug/kg	99
25) Benzo[a]pyrene	25.72	252	957255	2025.74	ug/kg	100
26) Dibenz[a,h]anthracene	29.30	278	989512	2163.89	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.31	276	1163089	2143.36	ug/kg	100
28) Benzo[g,h,i]perylene	30.37	276	968872	2131.74	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080402.D Vial: 2
Acq On : 4 Aug 2016 8:23 am Operator: DEW
Sample : ICV-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

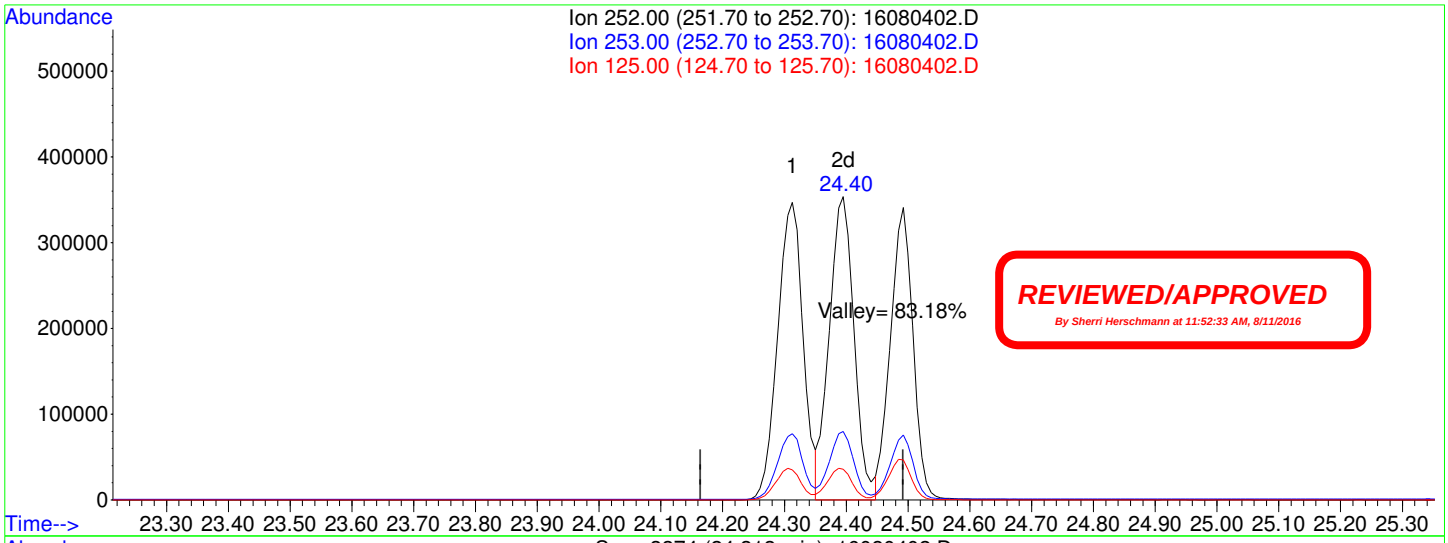
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

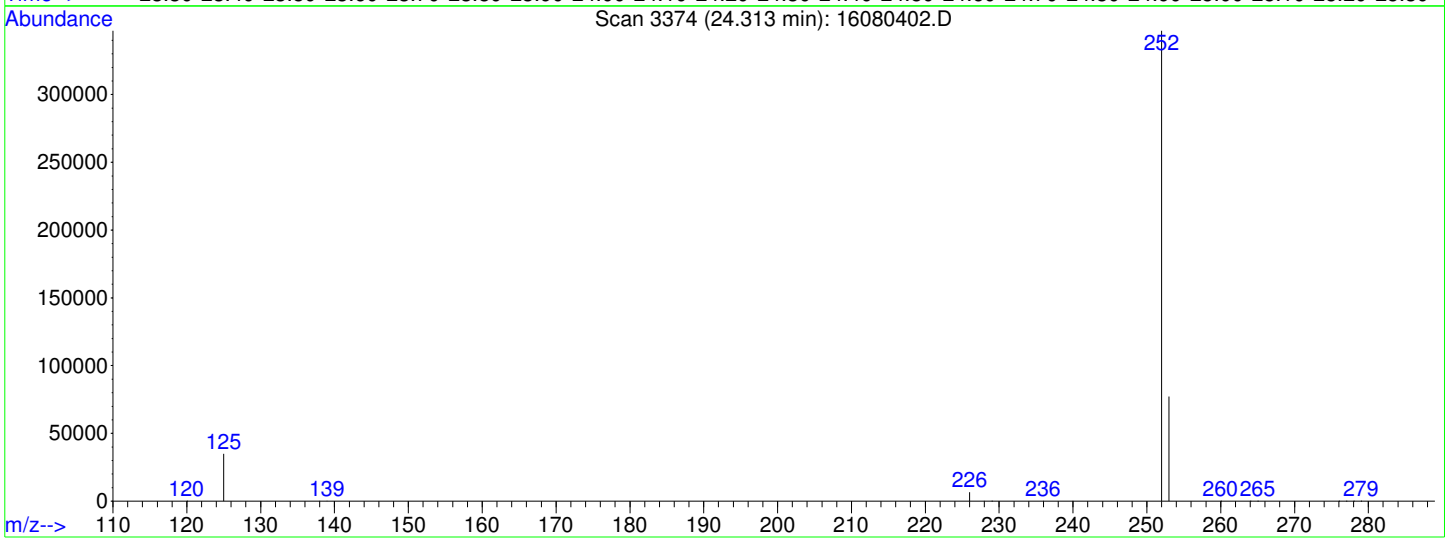


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160804\16080402.D Vial: 2
Acq On : 4 Aug 2016 8:23 am Operator: DEW
Sample : ICV-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 8:55 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080402.D

(21) Benzo[b]fluoranthene (CP)

24.31min 2035.76ug/kg

response 995630

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	21.99
125.00	10.60	10.08
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080403.D Vial: 3
Acq On : 4 Aug 2016 9:03 am Operator: DEW
Sample : LCS-76457 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

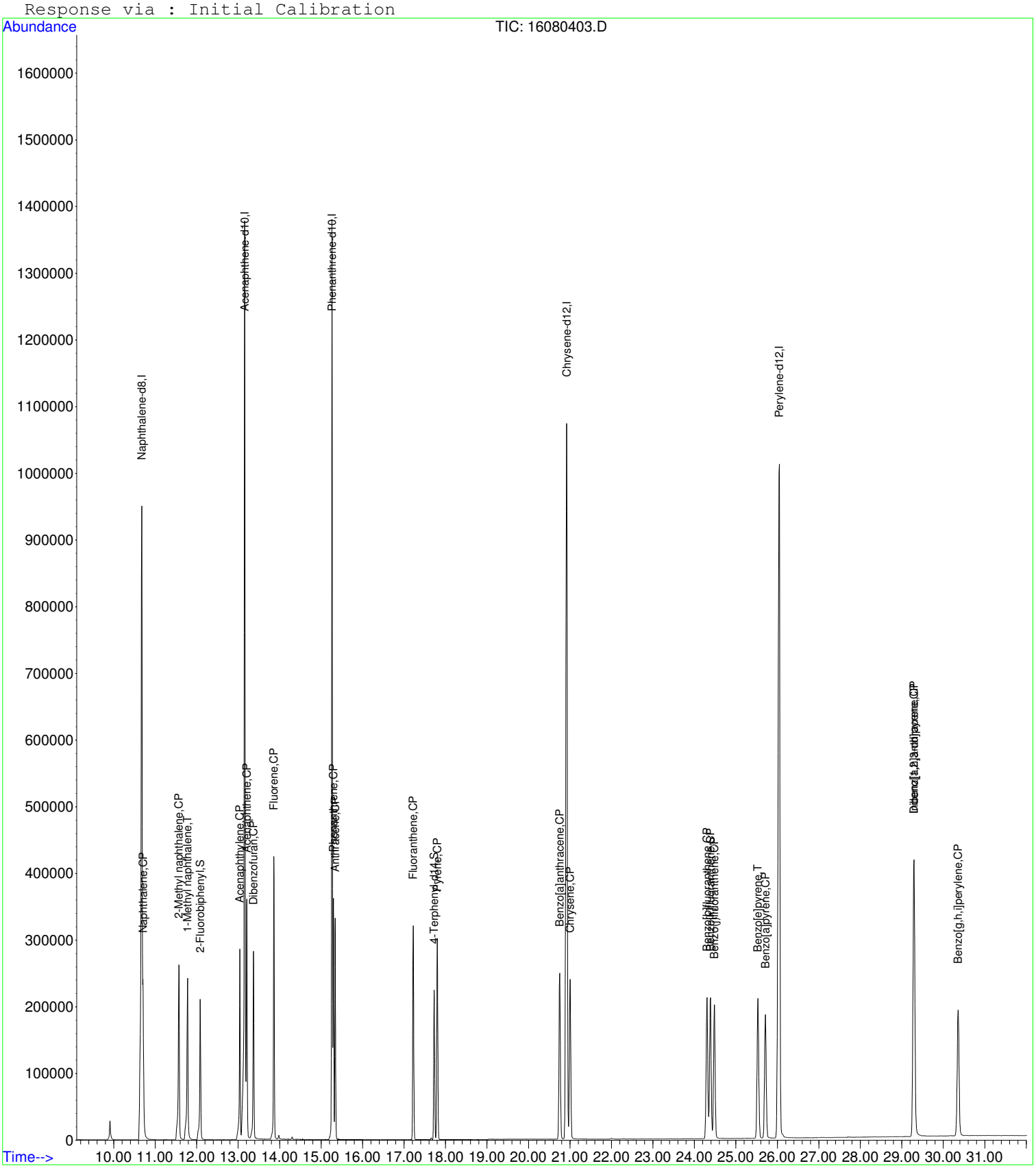
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1777313	4000.00	ug/kg	127
5) Acenaphthene-d10	13.16	164	942616	4000.00	ug/kg	157
11) Phenanthrene-d10	15.26	188	1601587	4000.00	ug/kg	101
17) Chrysene-d12	20.92	240	1992439	4000.00	ug/kg	109
20) Perylene-d12	26.05	264	2091854	4000.00	ug/kg	108
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	252327	767.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.19%#			
16) 4-Terphenyl-d14	17.72	244	309967	820.11	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.50%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	307662	760.82	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	220521	841.20	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	198863	856.41	ug/kg	99
6) Dibenzofuran	13.37	168	310224	813.24	ug/kg	100
8) Acenaphthylene	13.04	152	341073	817.09	ug/kg	100
9) Acenaphthene	13.21	154	203906	843.44	ug/kg	98
10) Fluorene	13.86	166	247577	814.68	ug/kg	100
12) Phenanthrene	15.30	178	320042	842.86	ug/kg	99
13) Anthracene	15.34	178	308357	771.77	ug/kg	100
14) Fluoranthene	17.22	202	353294	785.12	ug/kg	99
15) Pyrene	17.80	202	357022	782.47	ug/kg	100
18) Benzo[a]anthracene	20.75	228	387678	863.26	ug/kg	100
19) Chrysene	21.00	228	365463	845.91	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	426734	883.66	ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	406562	917.69	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	381584	896.25	ug/kg	98
24) Benzo[e]pyrene	25.53	252	421612	899.65	ug/kg	99
25) Benzo[a]pyrene	25.71	252	383734	822.41	ug/kg	100
26) Dibenz[a,h]anthracene	29.29	278	403896	894.51	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.29	276	480733	897.19	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	398366	887.67	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080403.D Vial: 3
Acq On : 4 Aug 2016 9:03 am Operator: DEW
Sample : LCS-76457 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080404.D Vial: 4
Acq On : 4 Aug 2016 9:44 am Operator: DEW
Sample : MB-76457 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

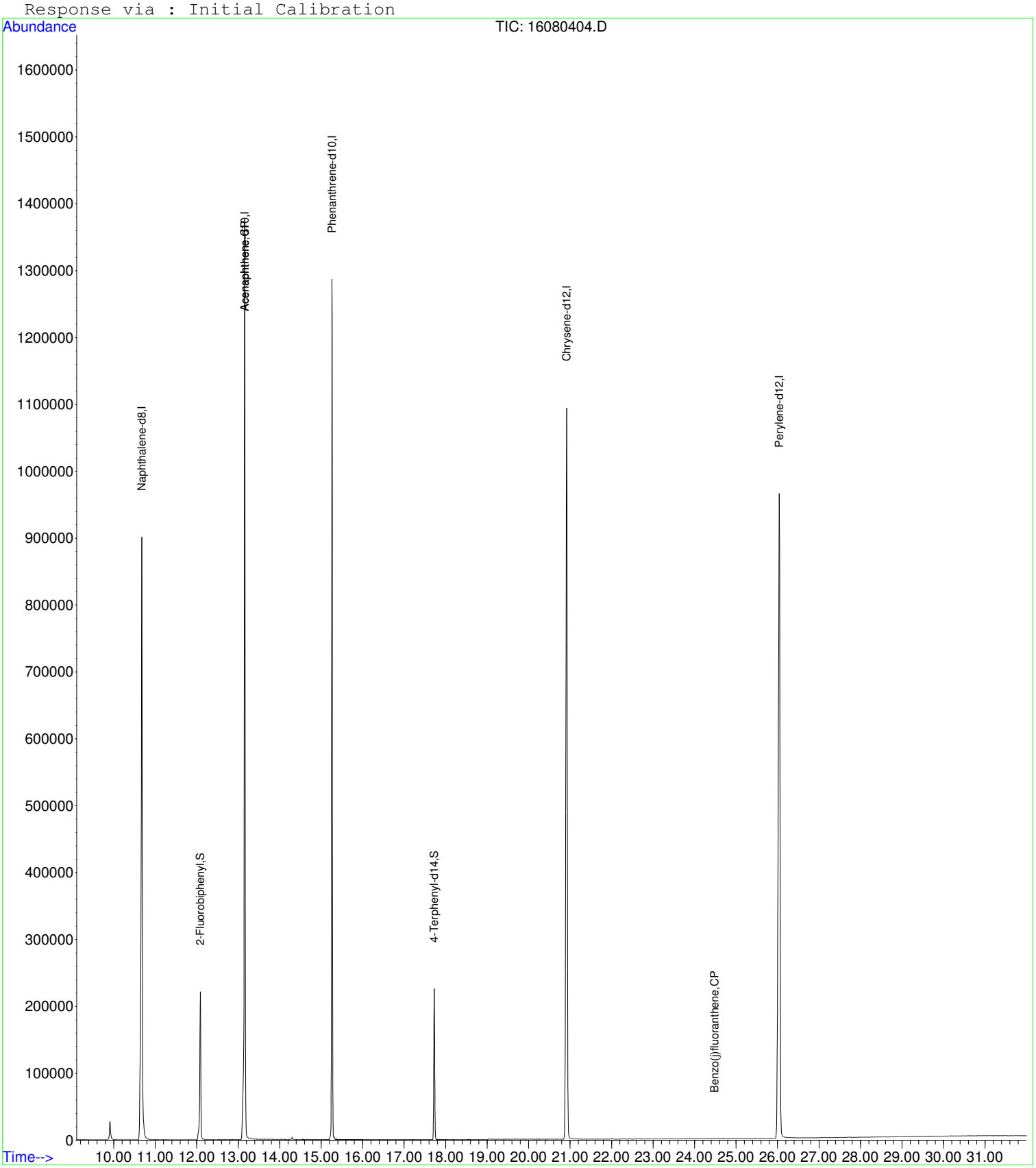
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1666382	4000.00	ug/kg	119
5) Acenaphthene-d10	13.16	164	917428	4000.00	ug/kg	153
11) Phenanthrene-d10	15.26	188	1481811	4000.00	ug/kg	93
17) Chrysene-d12	20.92	240	1891404	4000.00	ug/kg	103
20) Perylene-d12	26.04	264	1920096	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	262934	821.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.54%#			
16) 4-Terphenyl-d14	17.73	244	312851	894.65	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.37%#			
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3183	13.53	ug/kg#	1
23) Benzo(j)fluoranthene	24.49	252	144	0.37	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080404.D Vial: 4
Acq On : 4 Aug 2016 9:44 am Operator: DEW
Sample : MB-76457 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080405.D Vial: 5
Acq On : 4 Aug 2016 10:24 am Operator: DEW
Sample : 1607239-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

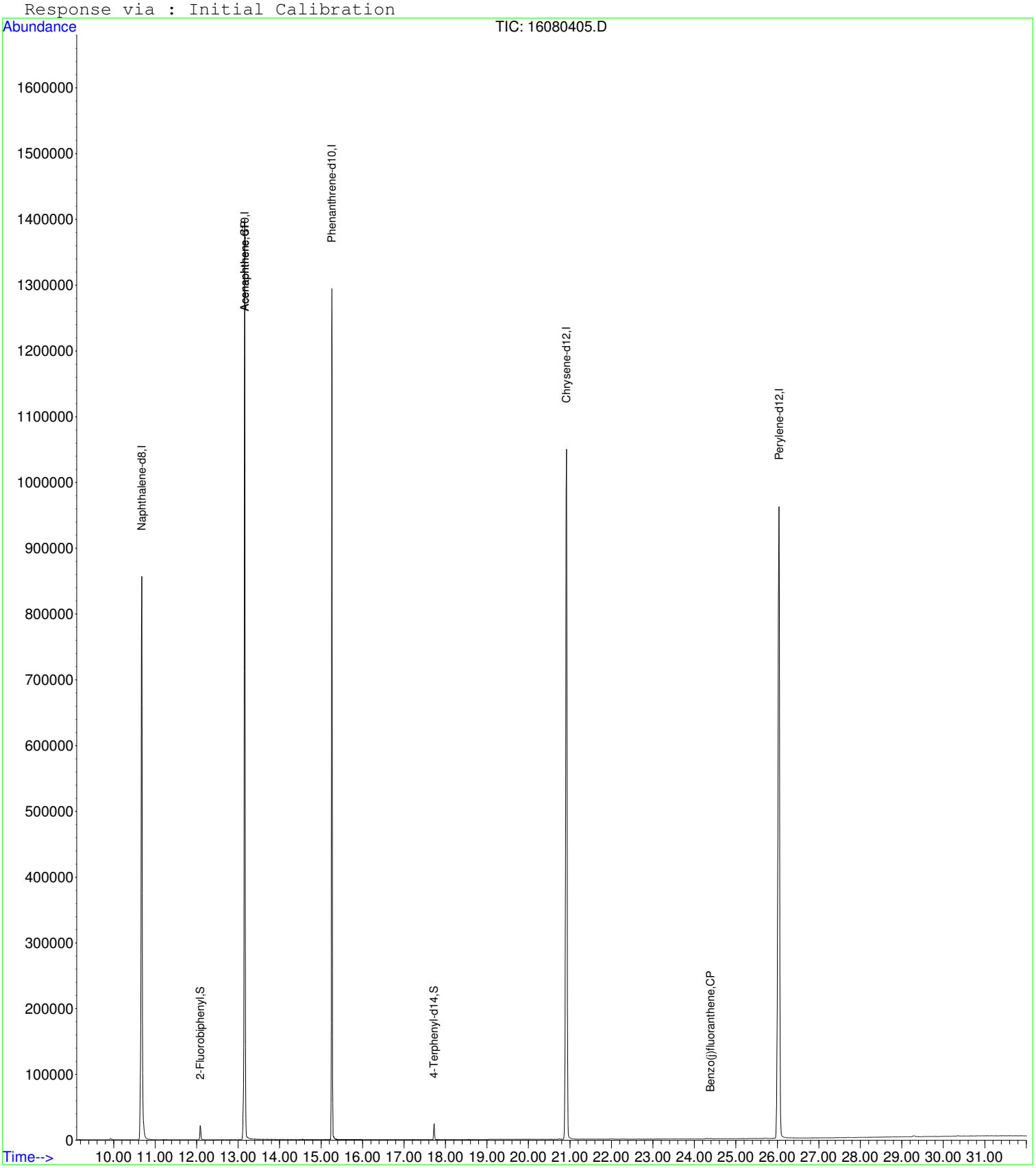
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1487083	4000.00	ug/kg	106
5) Acenaphthene-d10	13.16	164	870599	4000.00	ug/kg	145
11) Phenanthrene-d10	15.26	188	1524231	4000.00	ug/kg	96
17) Chrysene-d12	20.92	240	1813156	4000.00	ug/kg	99
20) Perylene-d12	26.04	264	1883998	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25970	85.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#		
16) 4-Terphenyl-d14	17.73	244	34076	94.73	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.37%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3020	~~13.53 ug/kg#~~		~~11~~
23) Benzo(j)fluoranthene	24.38	252	1226	3.20	ug/kg	96

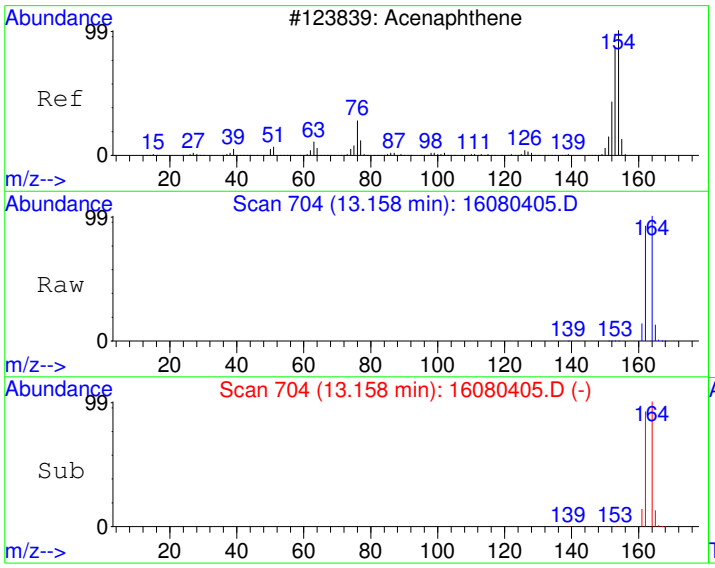
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080405.D Vial: 5
Acq On : 4 Aug 2016 10:24 am Operator: DEW
Sample : 1607239-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

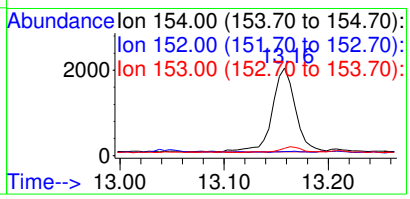


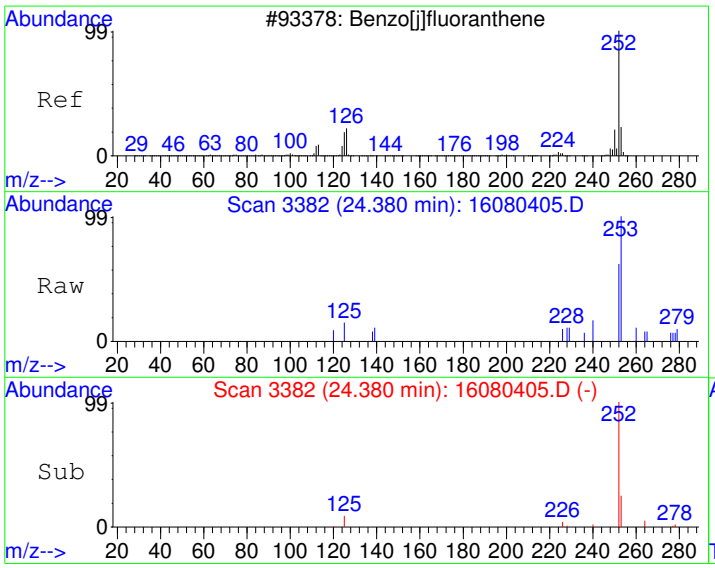


#9
Acenaphthene
Concen: ~~13.53 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080405.D
Acq: 4 Aug 2016 10:24 am

Tgt Ion:154 Resp: 3020

Ion	Ratio	Lower	Upper
154	100		
152	0.4	19.1	79.1#
153	5.1	76.2	136.2#

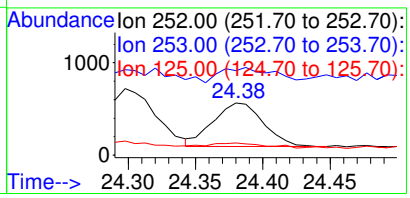




#23
Benzo(j)fluoranthene
Concen: 3.20 ug/kg
RT: 24.38 min Scan# 3382
Delta R.T. -0.13 min
Lab File: 16080405.D
Acq: 4 Aug 2016 10:24 am

Tgt Ion:252 Resp: 1226

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.2	42.2
125	11.7	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080406.D Vial: 6
Acq On : 4 Aug 2016 11:04 am Operator: DEW
Sample : 1607239-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

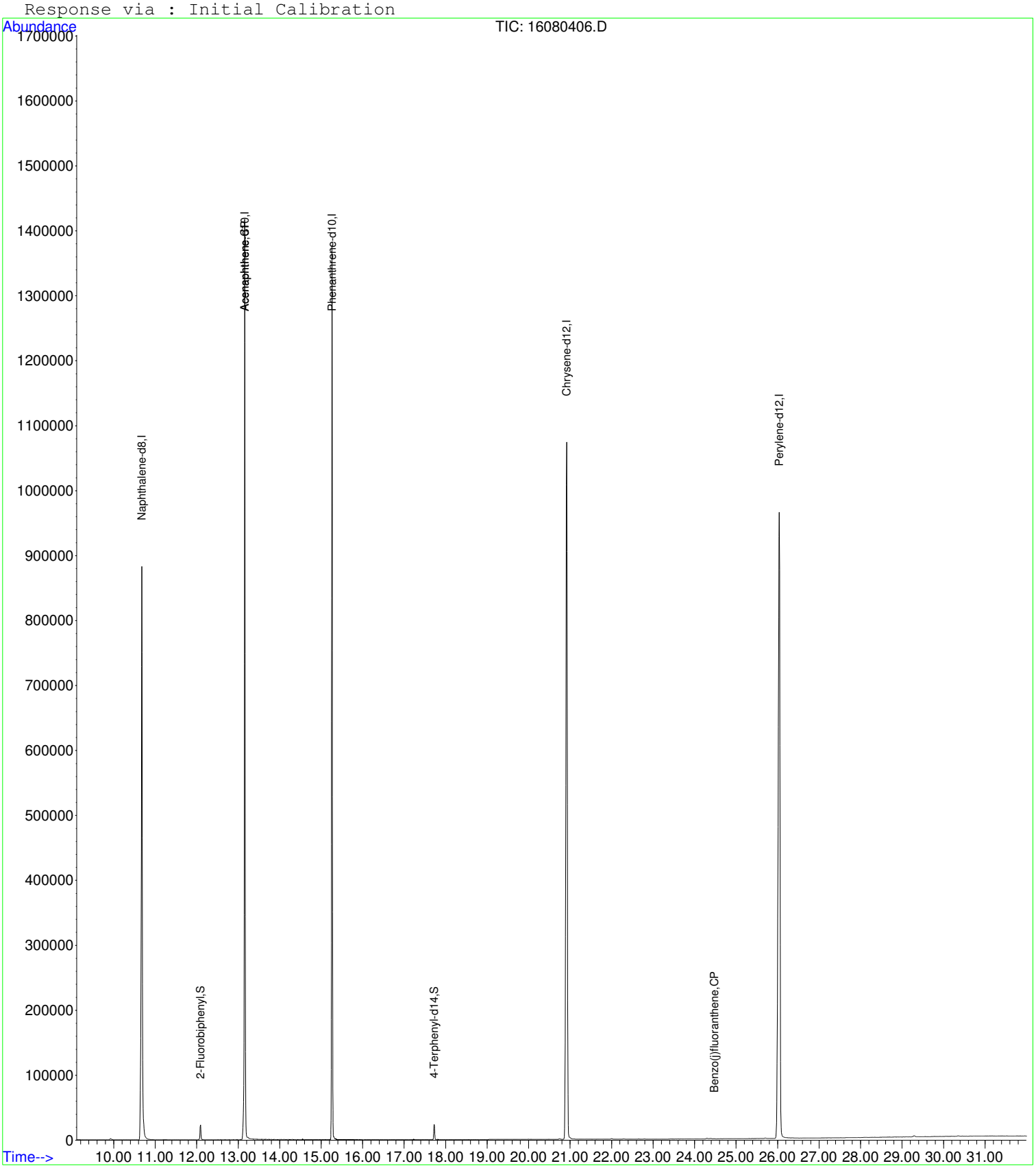
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1521748	4000.00	ug/kg	108
5) Acenaphthene-d10	13.16	164	883574	4000.00	ug/kg	147
11) Phenanthrene-d10	15.26	188	1566256	4000.00	ug/kg	98
17) Chrysene-d12	20.92	240	1890773	4000.00	ug/kg	103
20) Perylene-d12	26.04	264	1991971	4000.00	ug/kg	103
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25567	82.96	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
16) 4-Terphenyl-d14	17.72	244	34002	91.99	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.30%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3076	~~13.57~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.48	252	214	0.53	ug/kg#	12

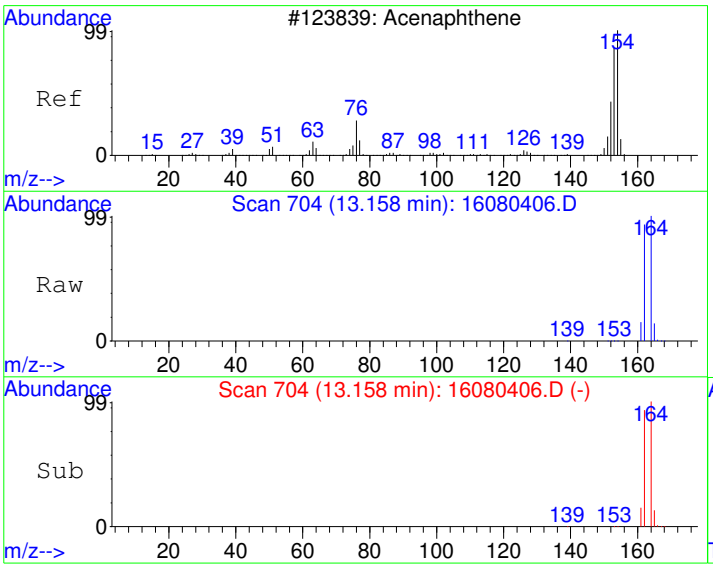
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080406.D Vial: 6
Acq On : 4 Aug 2016 11:04 am Operator: DEW
Sample : 1607239-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

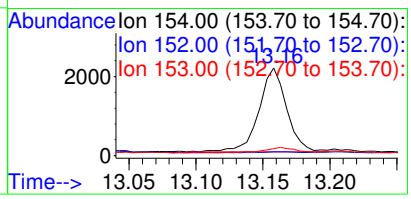


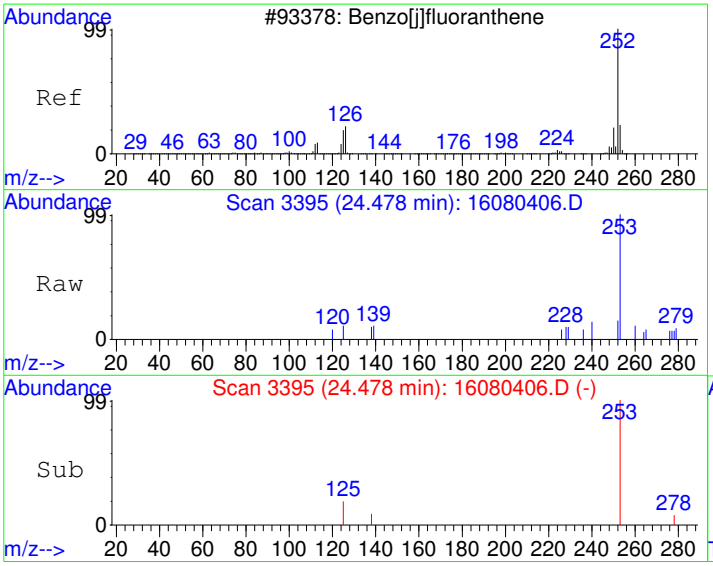


#9
Acenaphthene
Concen: ~~13.57 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080406.D
Acq: 4 Aug 2016 11:04 am

Tgt Ion:154 Resp: 3076

Ion	Ratio	Lower	Upper
154	100		
152	1.3	19.1	79.1#
153	5.1	76.2	136.2#

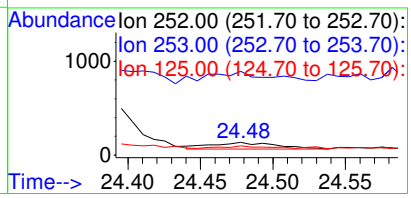




#23
Benzo(j)fluoranthene
Concen: 0.53 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080406.D
Acq: 4 Aug 2016 11:04 am

Tgt Ion:252 Resp: 214

Ion	Ratio	Lower	Upper
252	100		
253	71.4	2.2	42.2#
125	41.4	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080407.D Vial: 7
Acq On : 4 Aug 2016 11:44 am Operator: DEW
Sample : 1607239-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

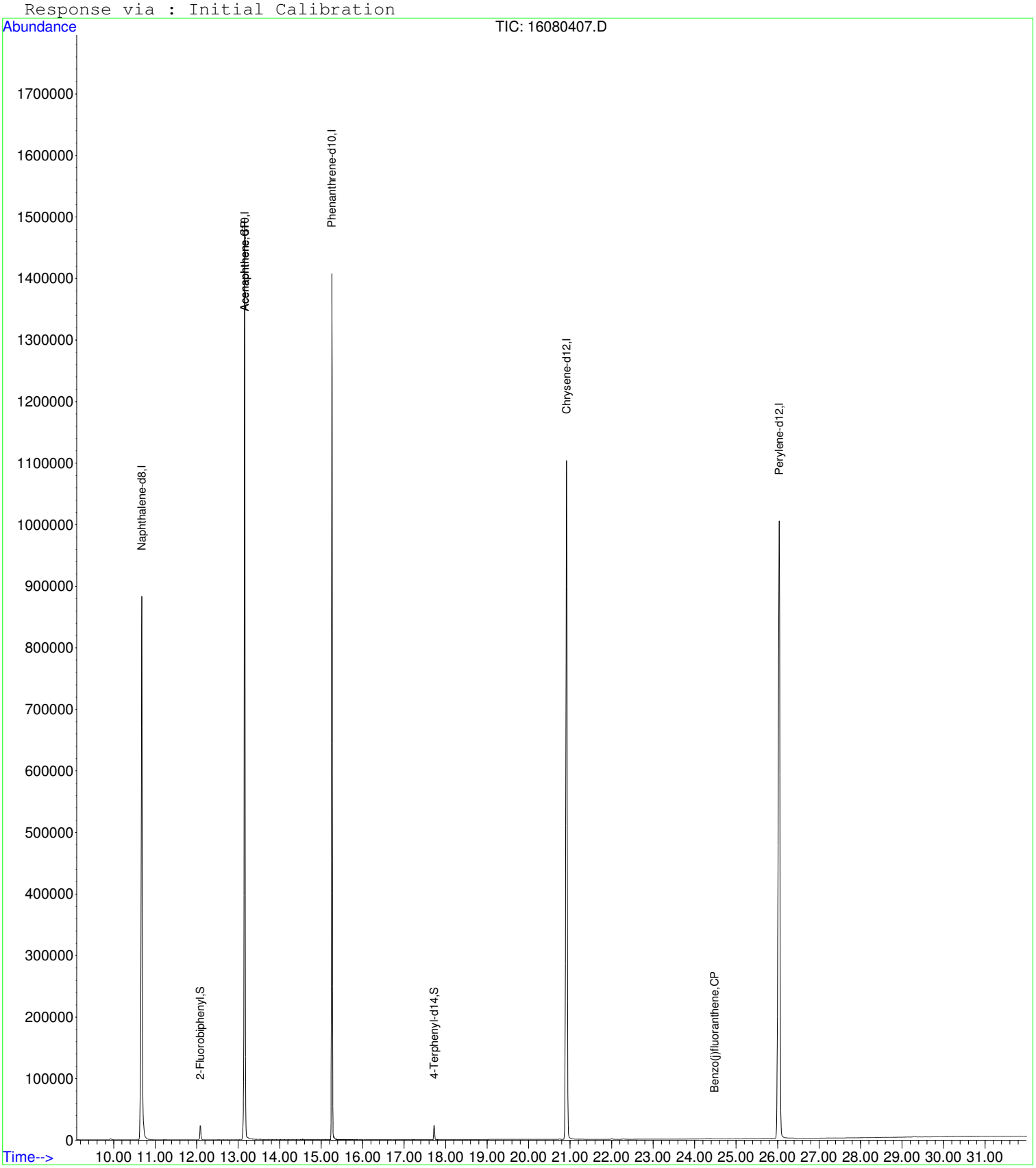
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1575532	4000.00	ug/kg	112
5) Acenaphthene-d10	13.16	164	936862	4000.00	ug/kg	156
11) Phenanthrene-d10	15.26	188	1626318	4000.00	ug/kg	102
17) Chrysene-d12	20.92	240	1879135	4000.00	ug/kg	102
20) Perylene-d12	26.04	264	1973264	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	26679	81.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.04%#		
16) 4-Terphenyl-d14	17.72	244	33561	87.45	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.19%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3346	13.93	ug/kg#	11
23) Benzo(j)fluoranthene	24.49	252	59	0.15	ug/kg#	10

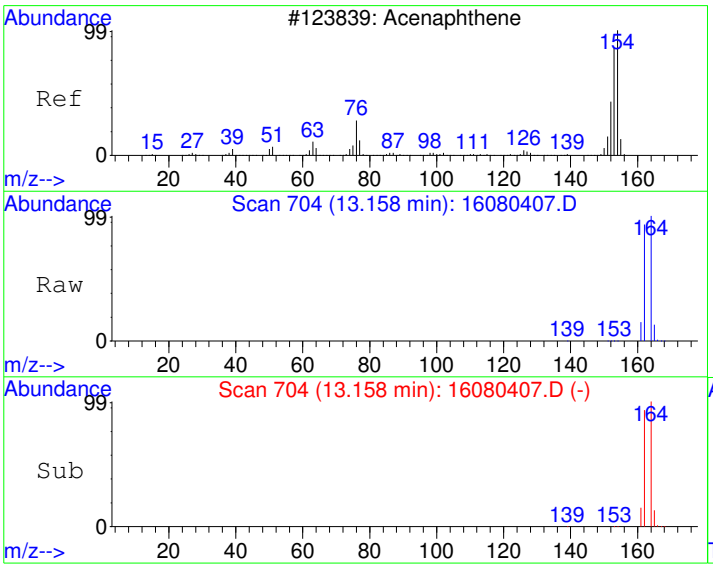
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080407.D Vial: 7
Acq On : 4 Aug 2016 11:44 am Operator: DEW
Sample : 1607239-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

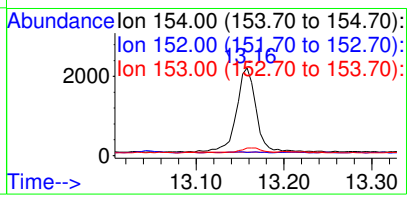


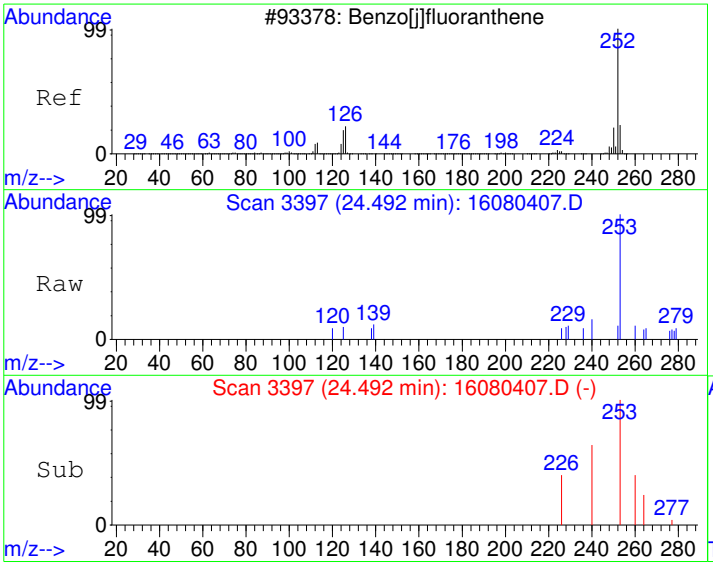


#9
Acenaphthene
Concen: ~~13.93 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080407.D
Acq: 4 Aug 2016 11:44 am

Tgt Ion:154 Resp: 3346

Ion	Ratio	Lower	Upper
154	100		
152	0.0	19.1	79.1#
153	5.7	76.2	136.2#

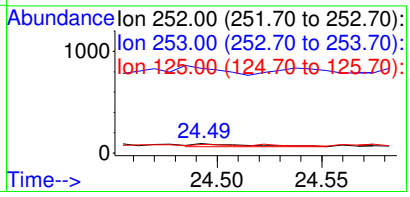




#23
Benzo(j)fluoranthene
Concen: 0.15 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080407.D
Acq: 4 Aug 2016 11:44 am

Tgt Ion:252 Resp: 59

Ion	Ratio	Lower	Upper
252	100		
253	70.6	2.2	42.2#
125	44.1	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080408.D Vial: 8
Acq On : 4 Aug 2016 12:25 pm Operator: DEW
Sample : 1607239-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

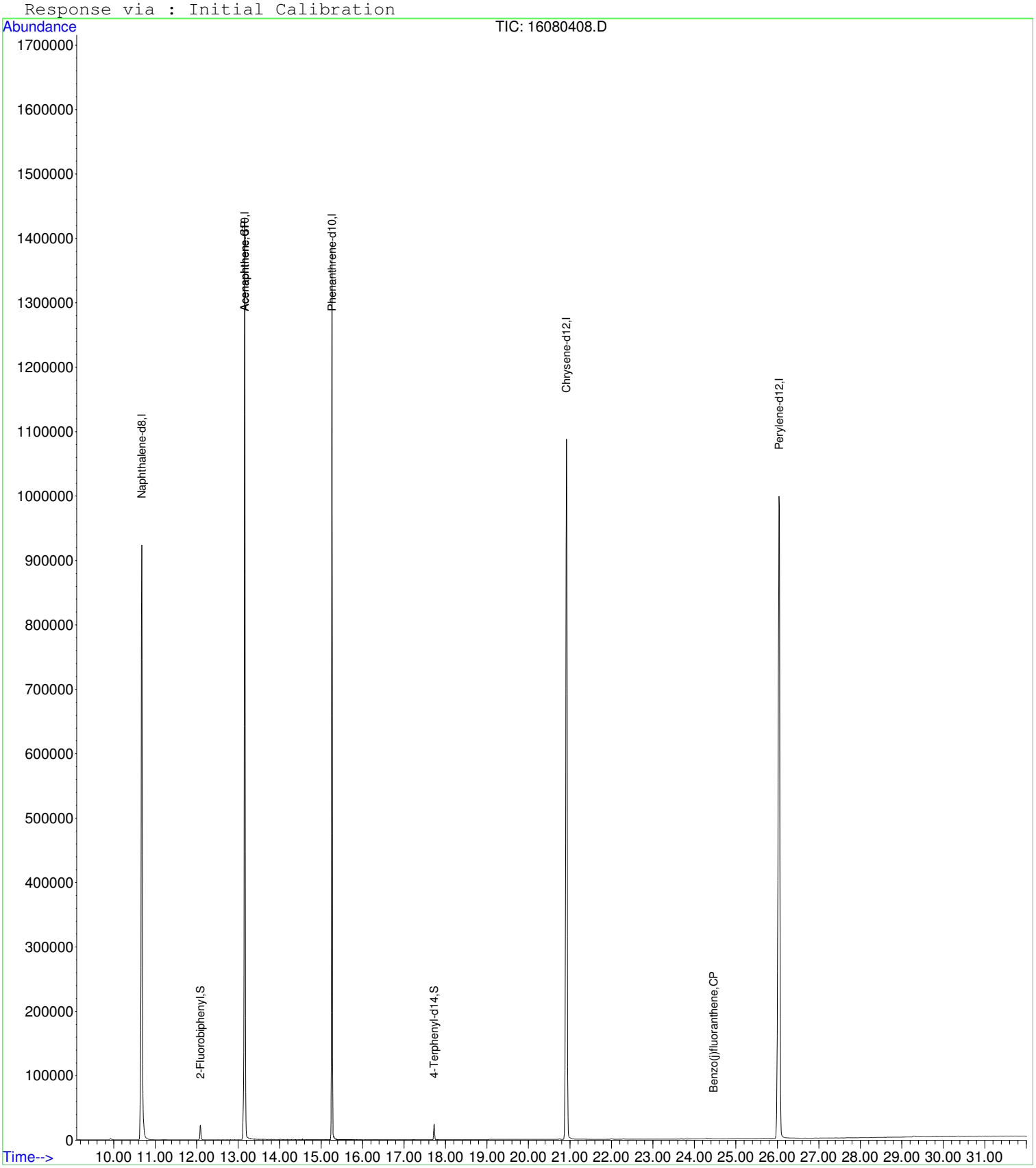
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1581280	4000.00	ug/kg	113
5) Acenaphthene-d10	13.16	164	908515	4000.00	ug/kg	152
11) Phenanthrene-d10	15.26	188	1593245	4000.00	ug/kg	100
17) Chrysene-d12	20.92	240	1913686	4000.00	ug/kg	104
20) Perylene-d12	26.04	264	2005758	4000.00	ug/kg	104
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	26348	83.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
16) 4-Terphenyl-d14	17.73	244	34546	91.88	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.30%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3175	~~13.63~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.48	252	44	0.11	ug/kg#	1

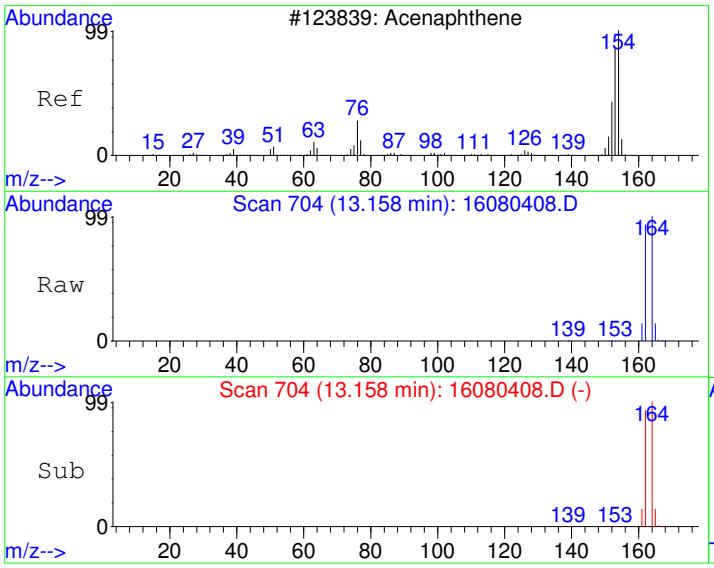
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080408.D Vial: 8
Acq On : 4 Aug 2016 12:25 pm Operator: DEW
Sample : 1607239-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

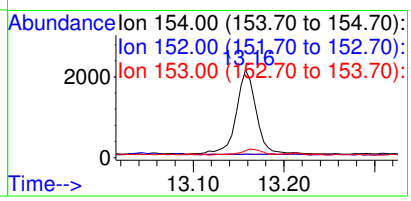


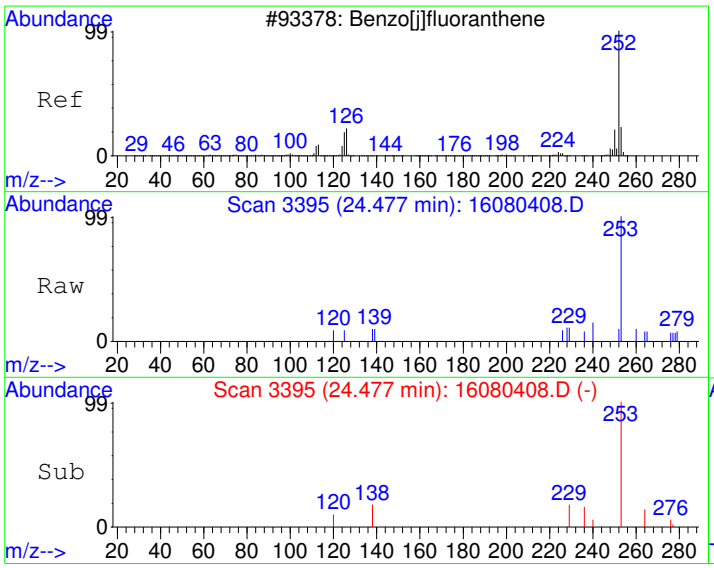


#9
Acenaphthene
Concen: ~~13.63 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080408.D
Acq: 4 Aug 2016 12:25 pm

Tgt Ion:154 Resp: 3175

Ion	Ratio	Lower	Upper
154	100		
152	1.0	19.1	79.1#
153	5.1	76.2	136.2#

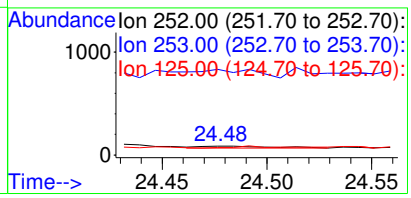




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080408.D
Acq: 4 Aug 2016 12:25 pm

Tgt Ion:252 Resp: 44

Ion	Ratio	Lower	Upper
252	100		
253	200.0	2.2	42.2#
125	16.7	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080409.D Vial: 9
Acq On : 4 Aug 2016 1:06 pm Operator: DEW
Sample : 1607239-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

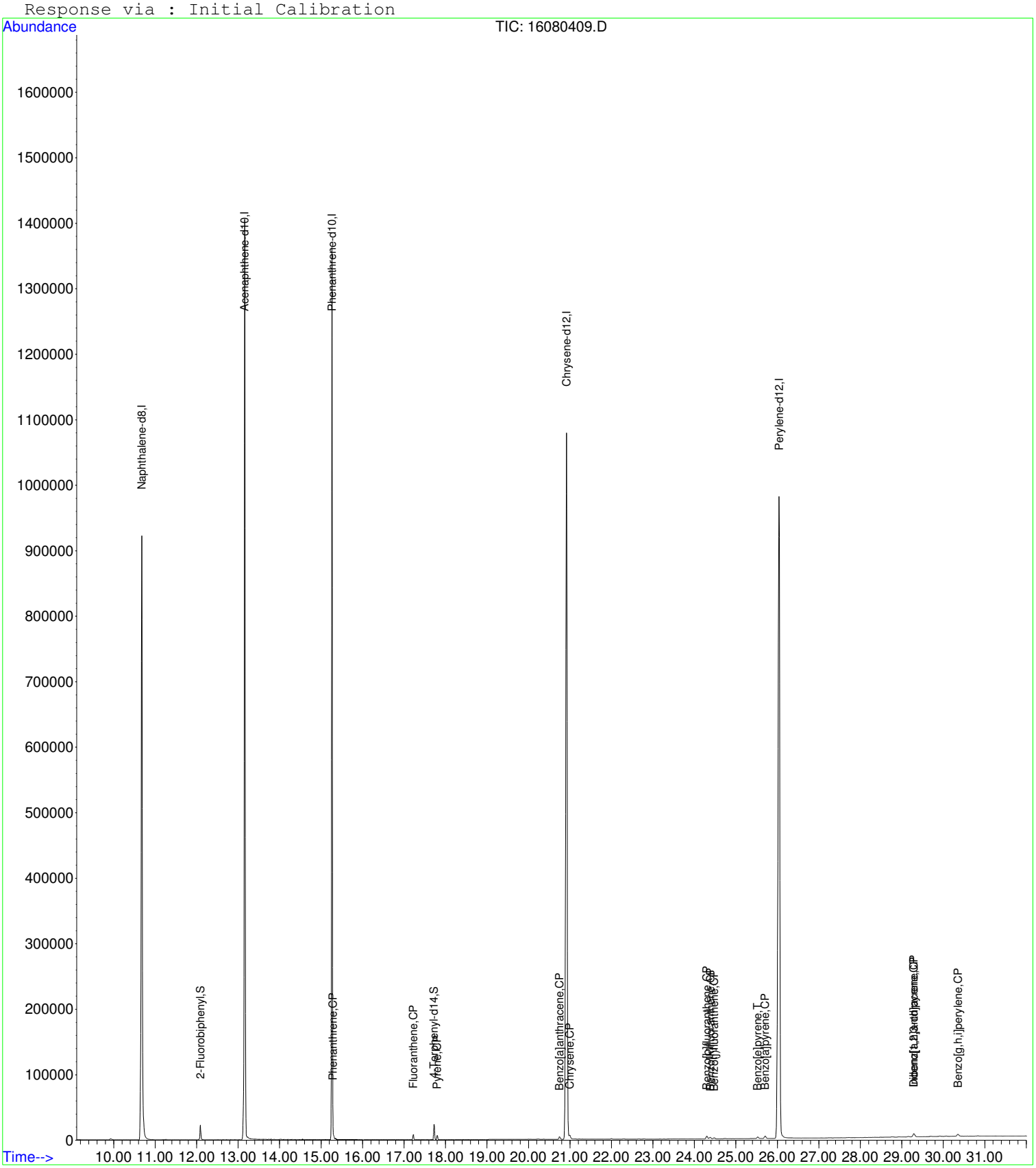
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1578646	4000.00	ug/kg	113
5) Acenaphthene-d10	13.16	164	890971	4000.00	ug/kg	149
11) Phenanthrene-d10	15.26	188	1573197	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	1933873	4000.00	ug/kg	105
20) Perylene-d12	26.04	264	1999276	4000.00	ug/kg	104
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25000	80.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
16) 4-Terphenyl-d14	17.72	244	34077	91.79	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.29%#		
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	3527	9.46	ug/kg	98
14) Fluoranthene	17.22	202	9212	20.84	ug/kg	97
15) Pyrene	17.80	202	8264	18.44	ug/kg	98
18) Benzo[a]anthracene	20.75	228	6130	14.06	ug/kg	99
19) Chrysene	21.00	228	7252	17.29	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	8445	18.30	ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	4650	10.98	ug/kg	91
23) Benzo(j)fluoranthene	24.48	252	3045	7.48	ug/kg	93
24) Benzo[e]pyrene	25.52	252	5413	12.09	ug/kg	97
25) Benzo[a]pyrene	25.70	252	7753	17.39	ug/kg	97
26) Dibenz[a,h]anthracene	29.29	278	2808	6.51	ug/kg	91
27) Indeno[1,2,3-cd]pyrene	29.29	276	7993	15.61	ug/kg	91
28) Benzo[g,h,i]perylene	30.36	276	7222	16.84	ug/kg	98

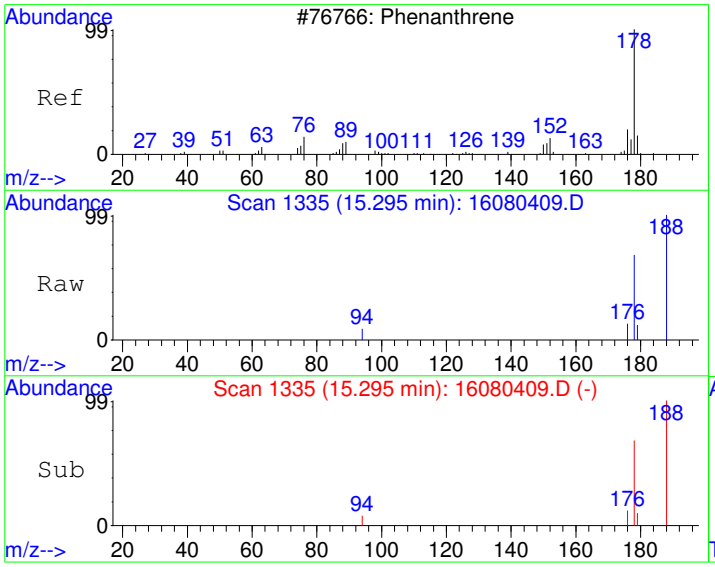
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080409.D Vial: 9
Acq On : 4 Aug 2016 1:06 pm Operator: DEW
Sample : 1607239-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

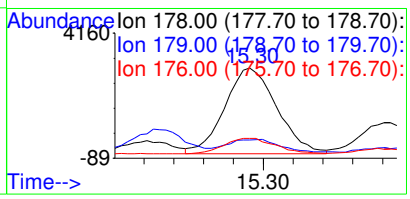


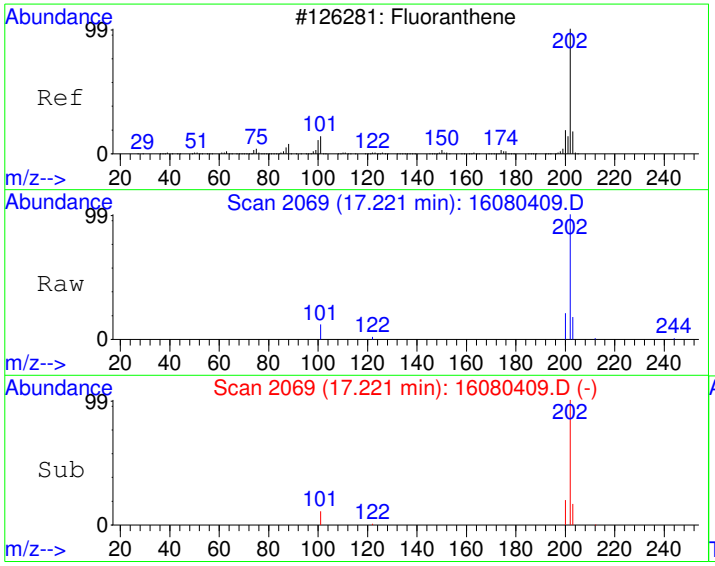


#12
Phenanthrene
Concen: 9.46 ug/kg
RT: 15.30 min Scan# 1335
Delta R.T. -0.01 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:178 Resp: 3527

Ion	Ratio	Lower	Upper
178	100		
179	14.2	0.0	45.7
176	18.6	0.0	48.7

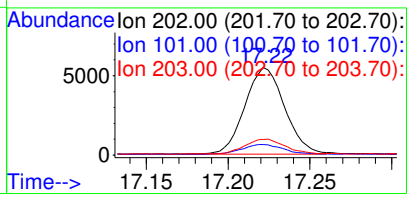


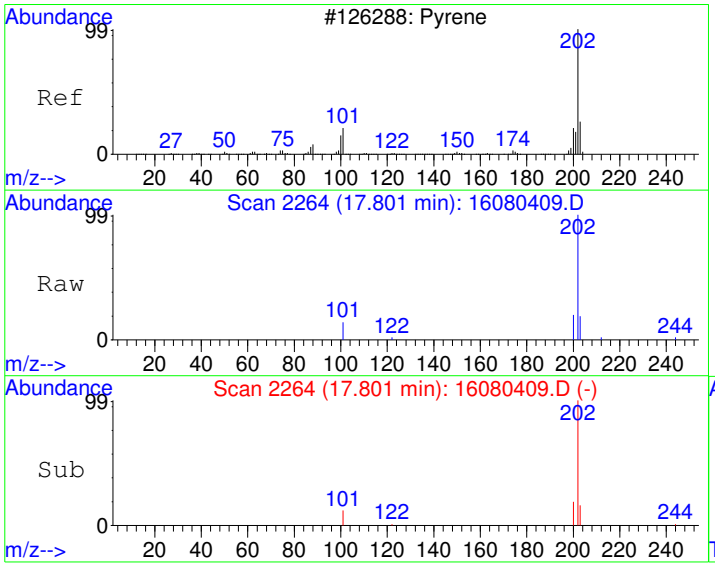


#14
Fluoranthene
Concen: 20.84 ug/kg
RT: 17.22 min Scan# 2069
Delta R.T. -0.01 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:202 Resp: 9212

Ion	Ratio	Lower	Upper
202	100		
101	10.9	0.0	42.1
203	16.7	0.0	47.9

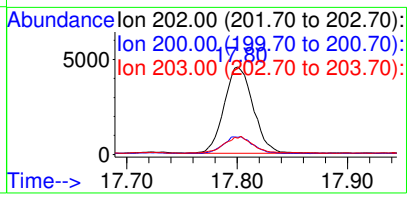


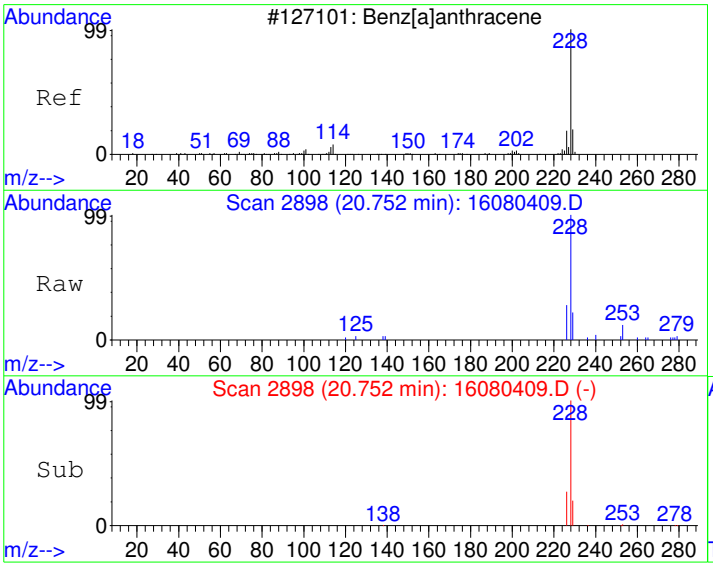


#15
Pyrene
Concen: 18.44 ug/kg
RT: 17.80 min Scan# 2264
Delta R.T. -0.01 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:202 Resp: 8264

Ion	Ratio	Lower	Upper
202	100		
200	18.8	0.0	49.7
203	17.3	0.0	47.8

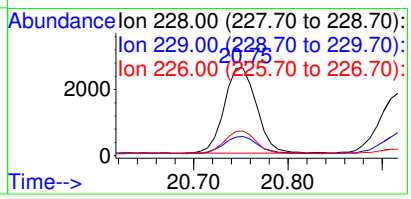


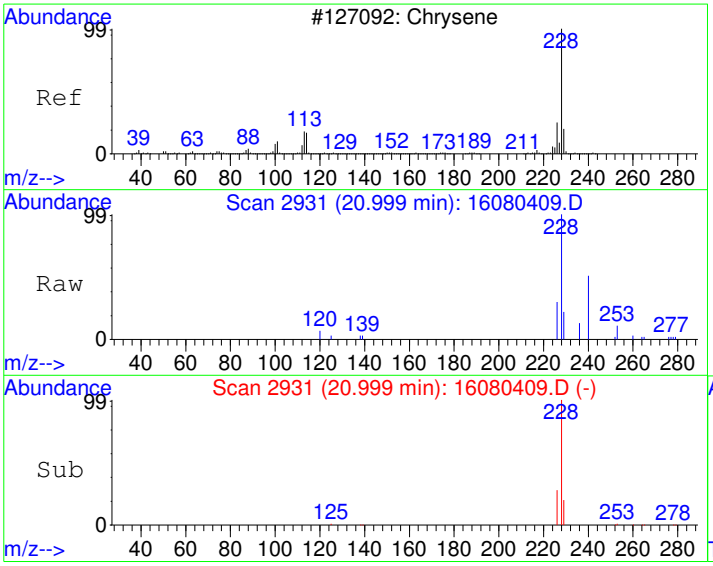


#18
Benzo[a]anthracene
Concen: 14.06 ug/kg
RT: 20.75 min Scan# 2898
Delta R.T. -0.02 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:228 Resp: 6130

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	49.8
226	26.8	0.0	55.8

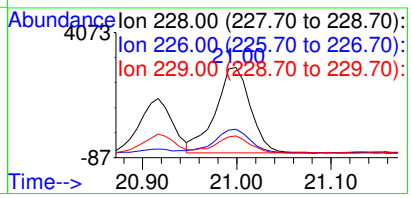


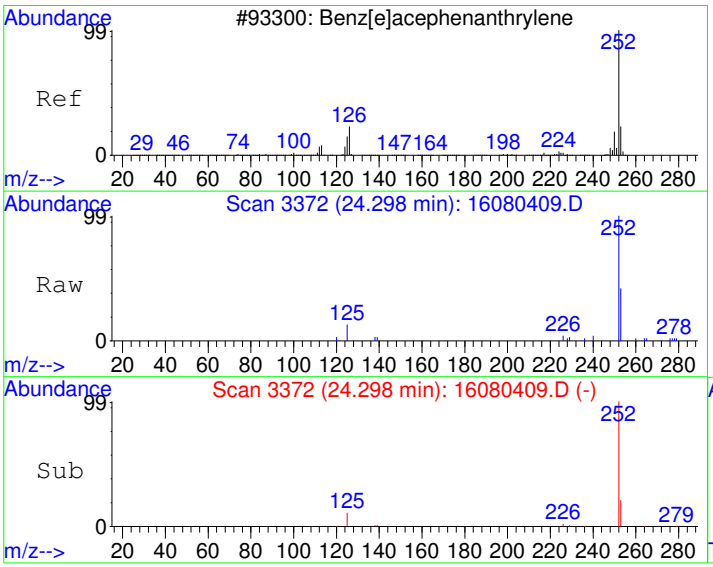


#19
Chrysene
Concen: 17.29 ug/kg
RT: 21.00 min Scan# 2931
Delta R.T. -0.02 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:228 Resp: 7252

Ion	Ratio	Lower	Upper
228	100		
226	27.8	0.0	58.1
229	19.7	0.0	50.0

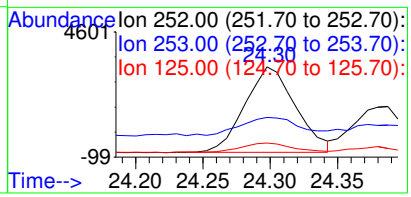


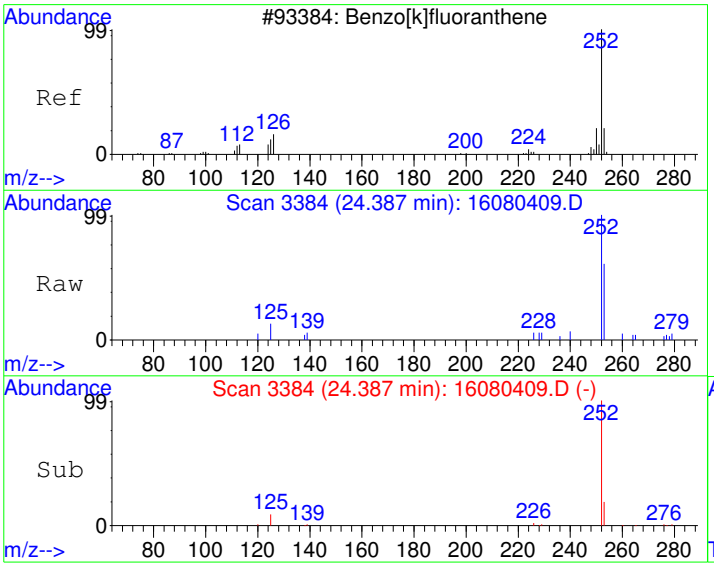


#21
Benzo[b]fluoranthene
Concen: 18.30 ug/kg
RT: 24.30 min Scan# 3372
Delta R.T. -0.03 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:252 Resp: 8445

Ion	Ratio	Lower	Upper
252	100		
253	21.3	0.0	52.0
125	10.7	0.0	40.6

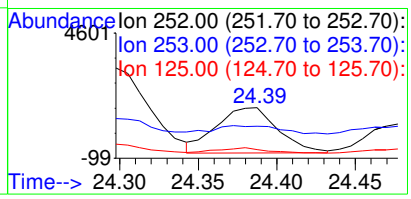


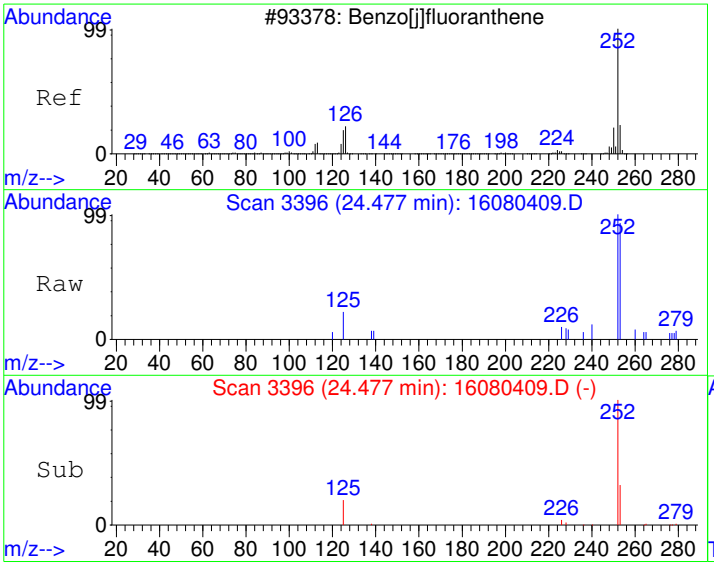


#22
Benzo[k]fluoranthene
Concen: 10.98 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.02 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:252 Resp: 4650

Ion	Ratio	Lower	Upper
252	100		
253	17.6	2.2	42.2
125	7.9	0.0	30.3

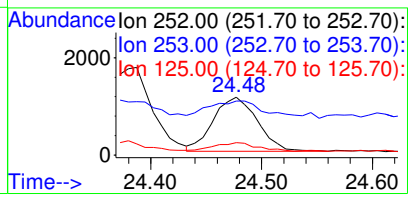


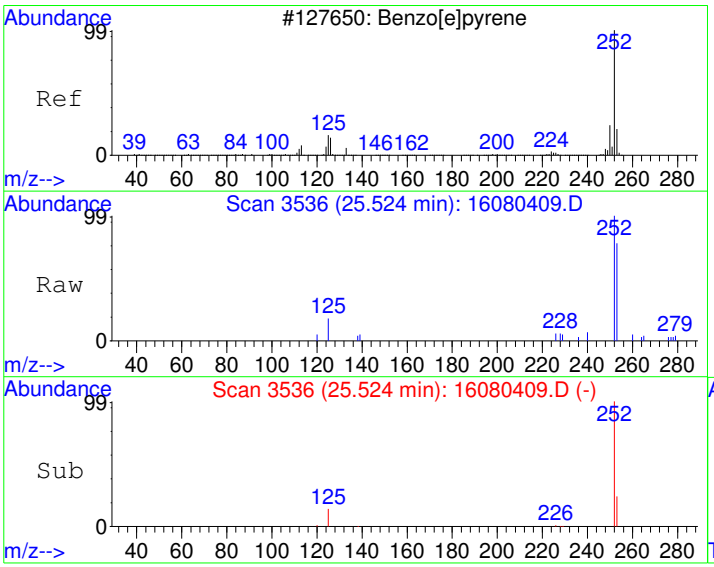


#23
Benzo(j)fluoranthene
Concen: 7.48 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.03 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:252 Resp: 3045

Ion	Ratio	Lower	Upper
252	100		
253	26.7	2.2	42.2
125	16.3	0.0	34.4

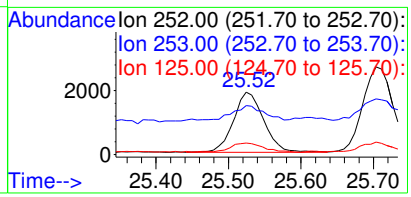


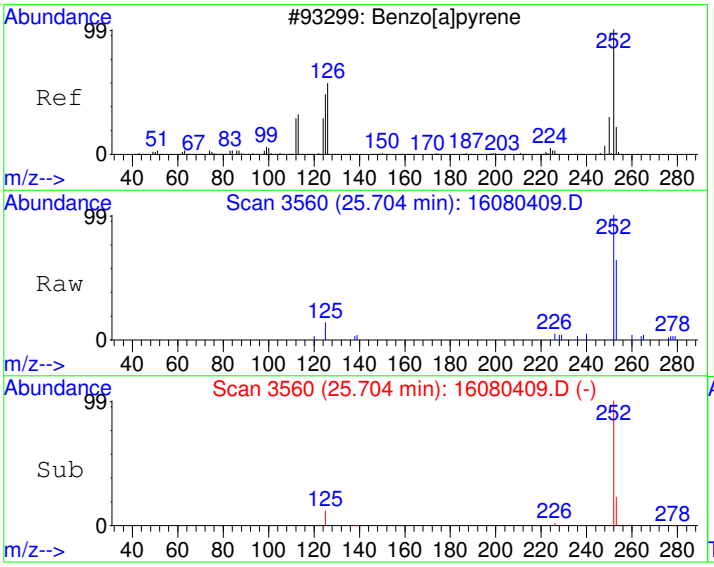


#24
Benzo[e]pyrene
Concen: 12.09 ug/kg
RT: 25.52 min Scan# 3536
Delta R.T. -0.03 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:252 Resp: 5413

Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.2	42.2
125	14.1	0.0	35.7

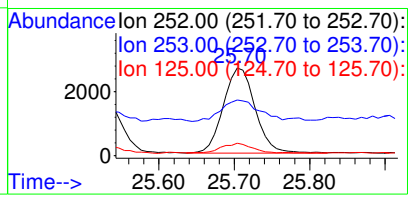


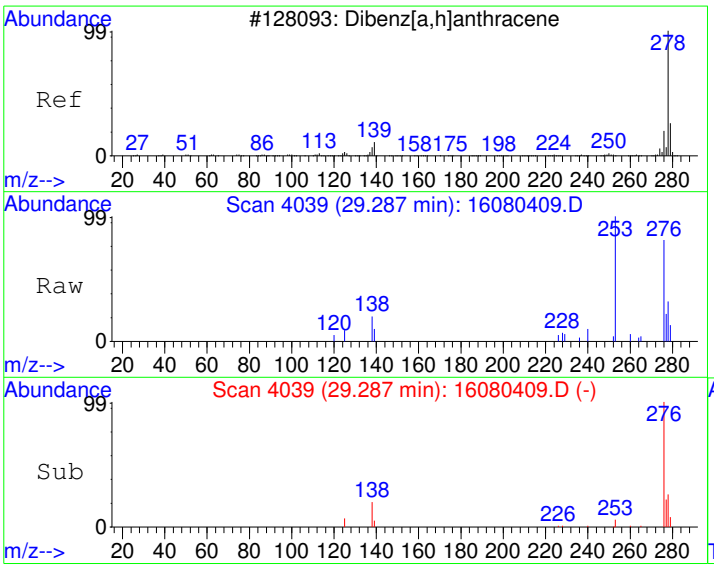


#25
Benzo[a]pyrene
Concen: 17.39 ug/kg
RT: 25.70 min Scan# 3560
Delta R.T. -0.03 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:252 Resp: 7753

Ion	Ratio	Lower	Upper
252	100		
253	24.3	2.0	42.0
125	11.4	0.0	31.6

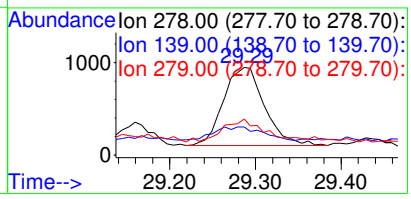


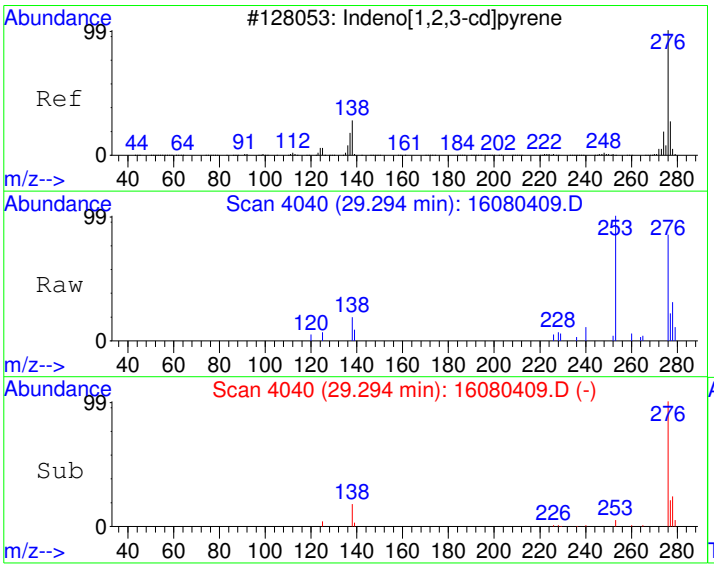


#26
Dibenz[a,h]anthracene
Concen: 6.51 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.04 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:278 Resp: 2808

Ion	Ratio	Lower	Upper
278	100		
139	16.4	0.0	33.8
279	29.3	3.9	43.9

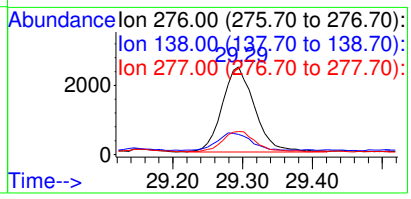


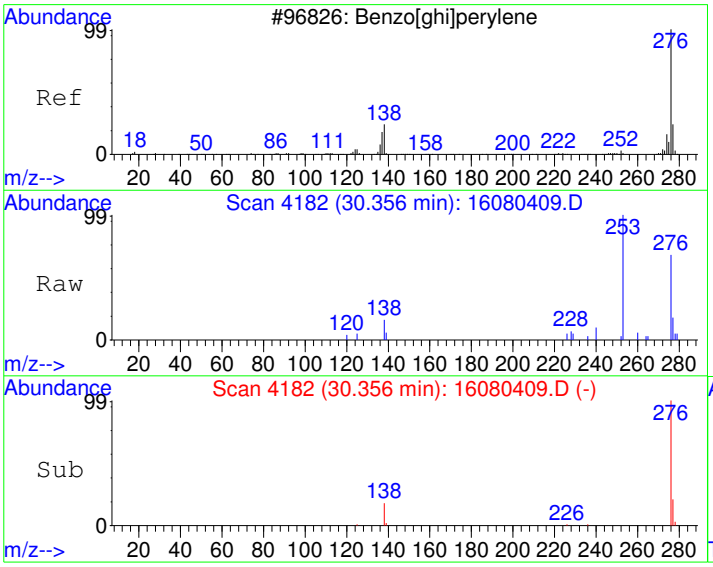


#27
Indeno[1,2,3-cd]pyrene
Concen: 15.61 ug/kg
RT: 29.29 min Scan# 4040
Delta R.T. -0.03 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:276 Resp: 7993

Ion	Ratio	Lower	Upper
276	100		
138	18.1	4.8	44.8
277	23.6	5.6	45.6

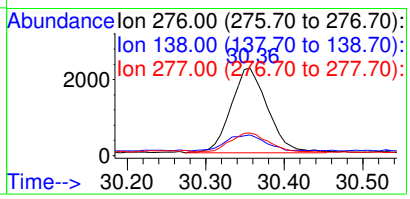




#28
Benzo[g,h,i]perylene
Concen: 16.84 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.04 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:06 pm

Tgt Ion:276 Resp: 7222

Ion	Ratio	Lower	Upper
276	100		
138	18.7	0.0	38.1
277	22.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080410.D Vial: 10
Acq On : 4 Aug 2016 1:47 pm Operator: DEW
Sample : 1607239-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

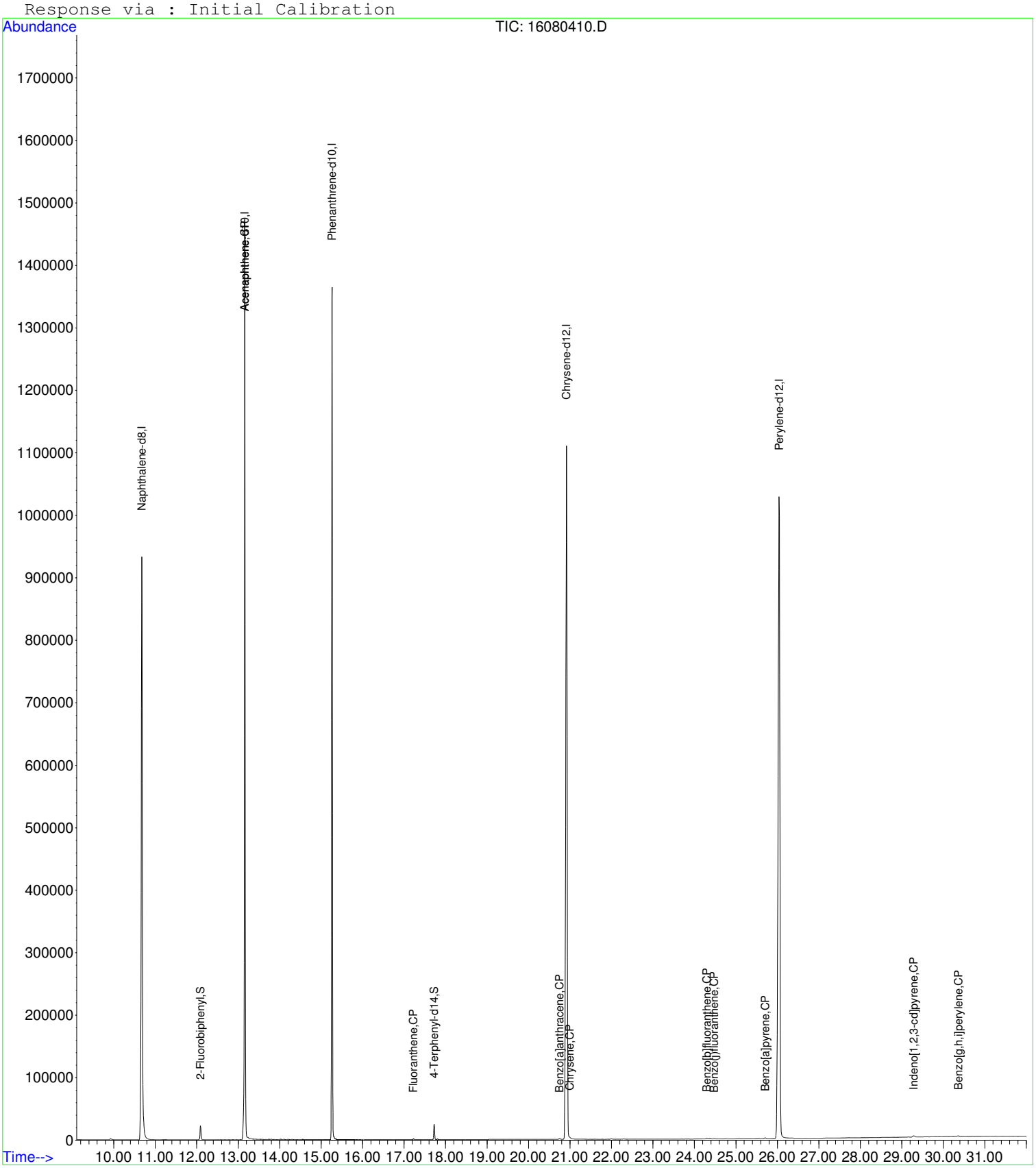
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1599475	4000.00	ug/kg	114
5) Acenaphthene-d10	13.16	164	888853	4000.00	ug/kg	148
11) Phenanthrene-d10	15.26	188	1578293	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	1940848	4000.00	ug/kg	106
20) Perylene-d12	26.04	264	2042202	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25458	82.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.73	244	34914	93.74	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.34%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3075	13.49	ug/kg#	10
14) Fluoranthene	17.22	202	2235	5.04	ug/kg	95
18) Benzo[a]anthracene	20.75	228	2374	5.43	ug/kg	97
19) Chrysene	21.00	228	2507	5.96	ug/kg	95
21) Benzo[b]fluoranthene	24.30	252	3209	6.81	ug/kg	92
23) Benzo(j)fluoranthene	24.48	252	744	1.79	ug/kg	88
25) Benzo[a]pyrene	25.71	252	2703	5.93	ug/kg	94
27) Indeno[1,2,3-cd]pyrene	29.29	276	3061	5.85	ug/kg	100
28) Benzo[g,h,i]perylene	30.36	276	2592	5.92	ug/kg	97

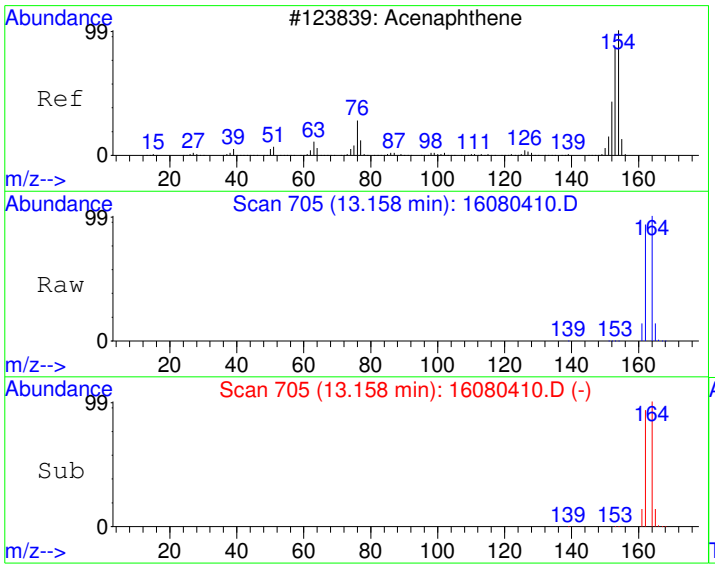
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080410.D Vial: 10
Acq On : 4 Aug 2016 1:47 pm Operator: DEW
Sample : 1607239-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:30 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

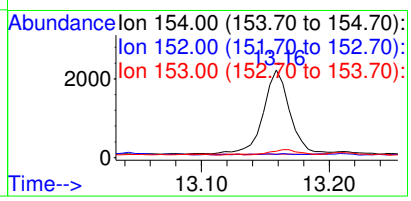


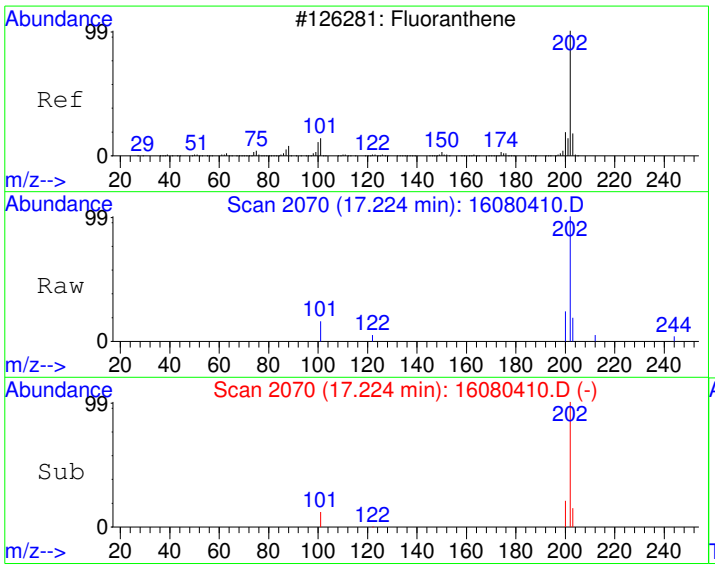


#9
Acenaphthene
Concen: ~~13.49 ug/kg~~
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:154 Resp: 3075

Ion	Ratio	Lower	Upper
154	100		
152	0.1	19.1	79.1#
153	3.8	76.2	136.2#

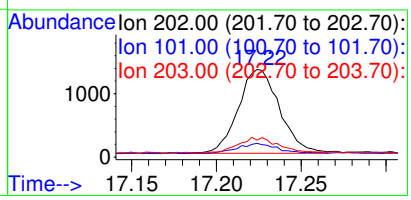


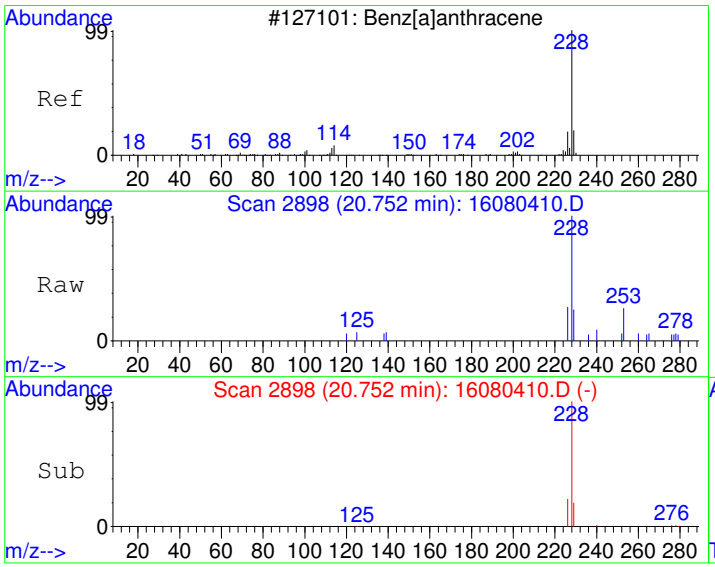


#14
Fluoranthene
Concen: 5.04 ug/kg
RT: 17.22 min Scan# 2070
Delta R.T. -0.01 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:202 Resp: 2235

Ion	Ratio	Lower	Upper
202	100		
101	11.7	0.0	42.1
203	14.7	0.0	47.9

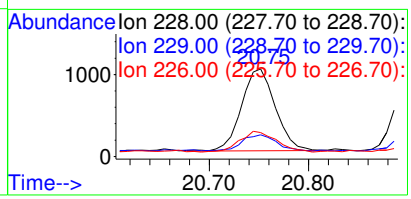


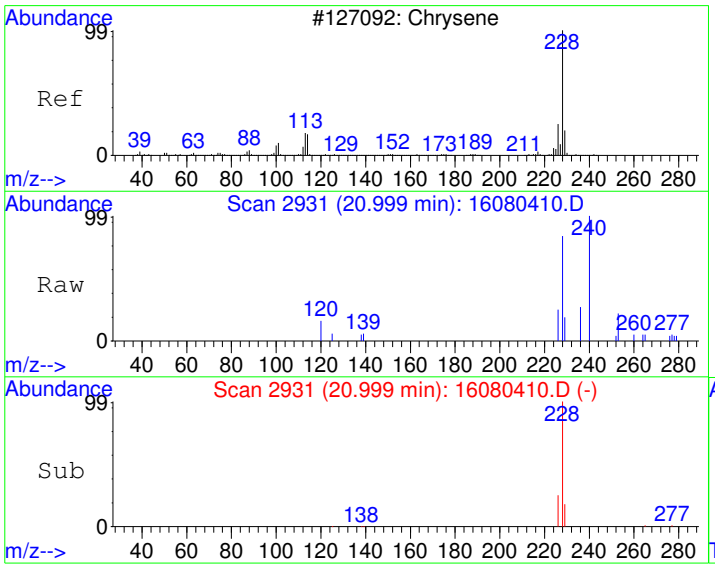


#18
Benzo[a]anthracene
Concen: 5.43 ug/kg
RT: 20.75 min Scan# 2898
Delta R.T. -0.02 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:228 Resp: 2374

Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.0	49.8
226	23.3	0.0	55.8

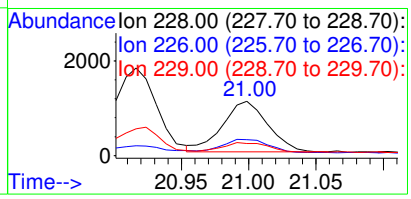


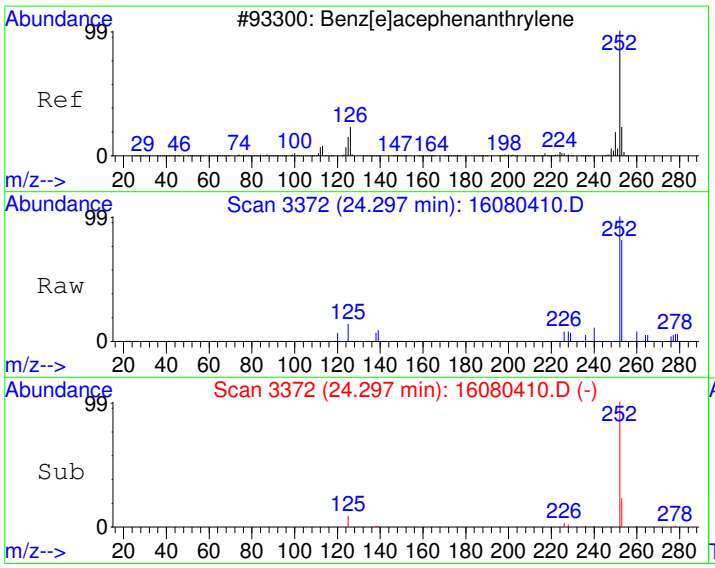


#19
Chrysene
Concen: 5.96 ug/kg
RT: 21.00 min Scan# 2931
Delta R.T. -0.02 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:228 Resp: 2507

Ion	Ratio	Lower	Upper
228	100		
226	25.4	0.0	58.1
229	17.4	0.0	50.0

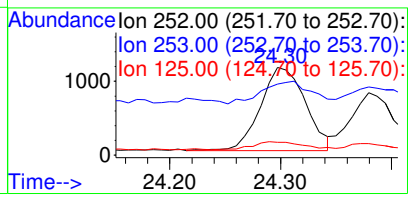


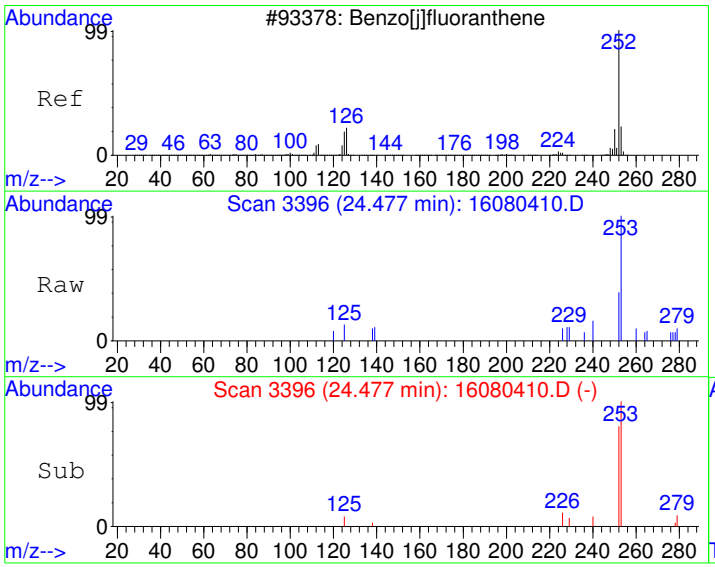


#21
Benzo[b]fluoranthene
Concen: 6.81 ug/kg
RT: 24.30 min Scan# 3372
Delta R.T. -0.03 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:252 Resp: 3209

Ion	Ratio	Lower	Upper
252	100		
253	17.9	0.0	52.0
125	8.1	0.0	40.6

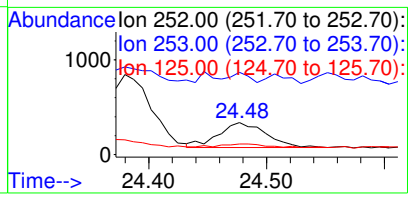


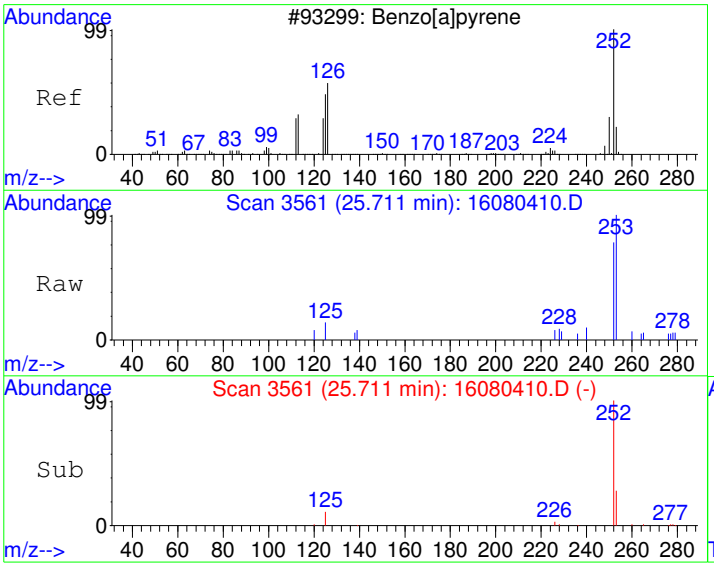


#23
Benzo(j)fluoranthene
Concen: 1.79 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.03 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:252 Resp: 744

Ion	Ratio	Lower	Upper
252	100		
253	31.2	2.2	42.2
125	14.1	0.0	34.4

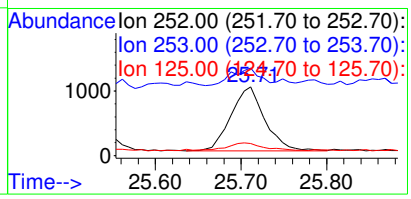


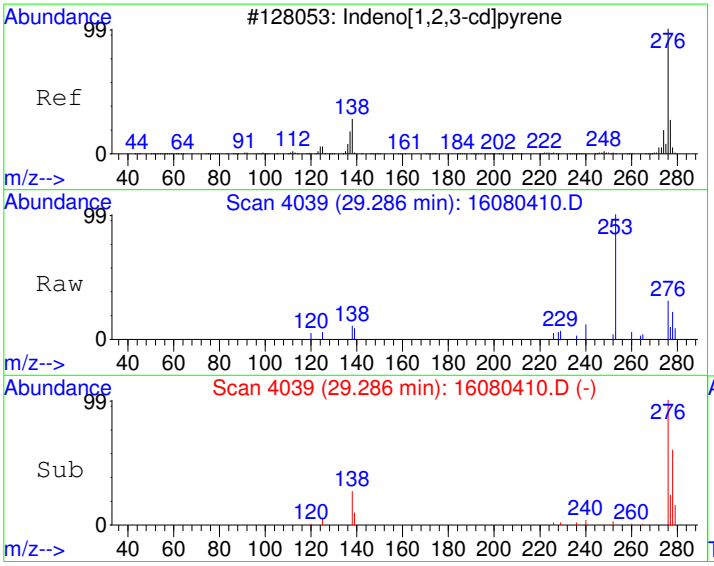


#25
Benzo[a]pyrene
Concen: 5.93 ug/kg
RT: 25.71 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:252 Resp: 2703

Ion	Ratio	Lower	Upper
252	100		
253	25.6	2.0	42.0
125	10.0	0.0	31.6

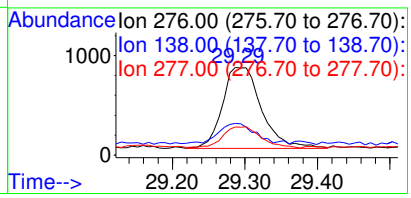


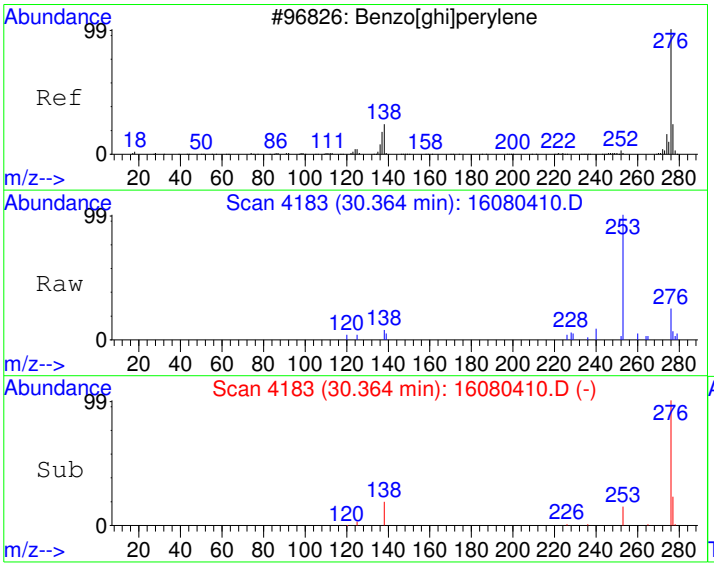


#27
Indeno[1,2,3-cd]pyrene
Concen: 5.85 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.04 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:276 Resp: 3061

Ion	Ratio	Lower	Upper
276	100		
138	24.7	4.8	44.8
277	25.6	5.6	45.6

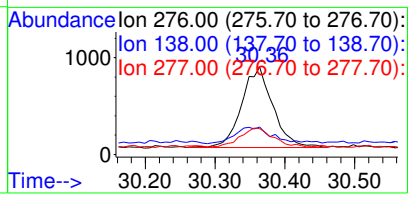




#28
Benzo[g,h,i]perylene
Concen: 5.92 ug/kg
RT: 30.36 min Scan# 4183
Delta R.T. -0.03 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:47 pm

Tgt Ion:276 Resp: 2592

Ion	Ratio	Lower	Upper
276	100		
138	19.1	0.0	38.1
277	22.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080411.D Vial: 11
Acq On : 4 Aug 2016 2:29 pm Operator: DEW
Sample : 1607239-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

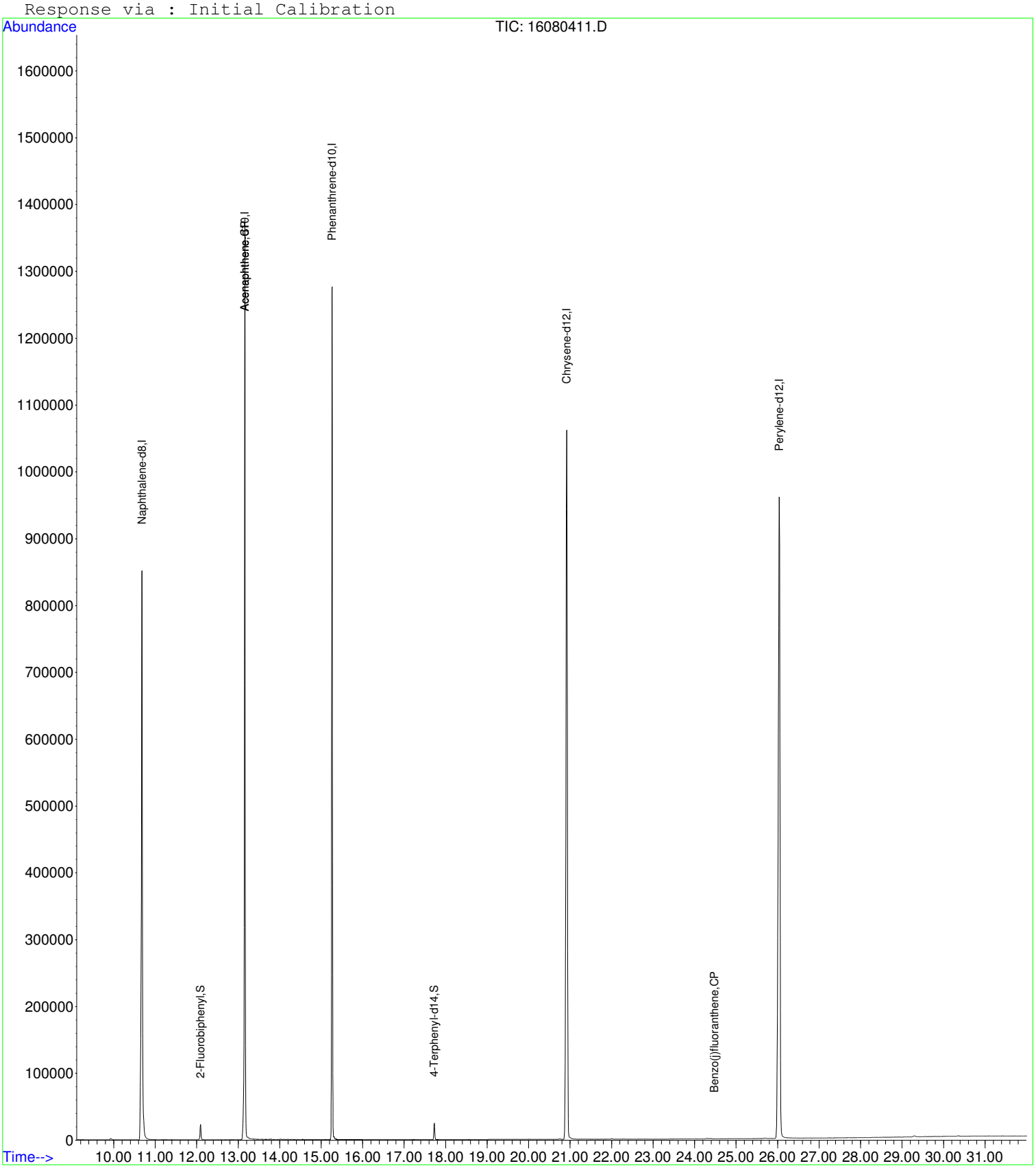
Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

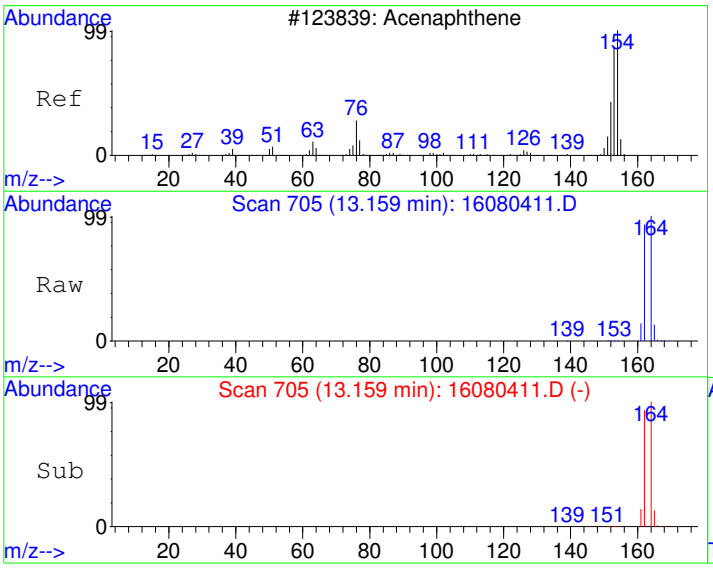
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1564603	4000.00	ug/kg	112
5) Acenaphthene-d10	13.16	164	855441	4000.00	ug/kg	143
11) Phenanthrene-d10	15.26	188	1491464	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1858927	4000.00	ug/kg	101
20) Perylene-d12	26.04	264	1928178	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	26370	88.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.21%#		
16) 4-Terphenyl-d14	17.73	244	35182	99.96	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.50%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2960	~~13.49~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.48	252	123	0.31	ug/kg#	67

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

Data File : C:\HPCHEM\1\DATA\160804\16080411.D Vial: 11
Acq On : 4 Aug 2016 2:29 pm Operator: DEW
Sample : 1607239-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

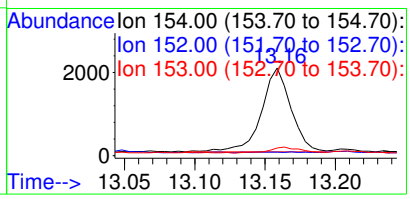


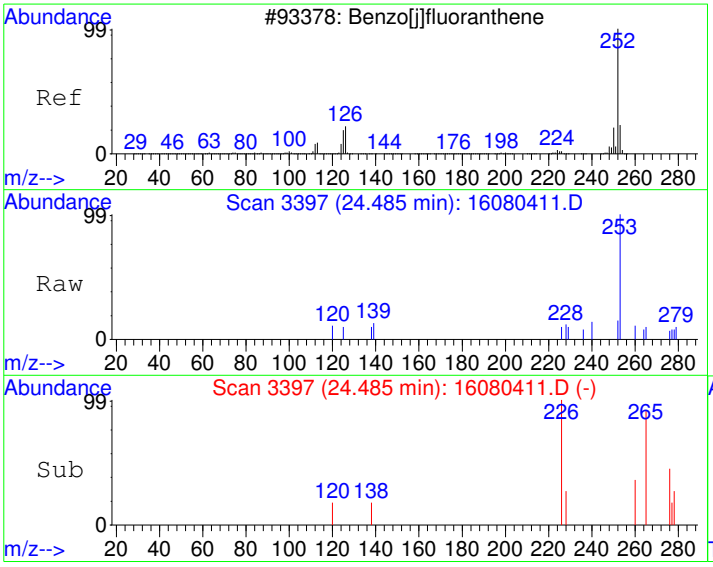


#9
Acenaphthene
Concen: 13.49 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080411.D
Acq: 4 Aug 2016 2:29 pm

Tgt Ion:154 Resp: 2960

Ion	Ratio	Lower	Upper
154	100		
152	0.2	19.1	79.1#
153	5.5	76.2	136.2#

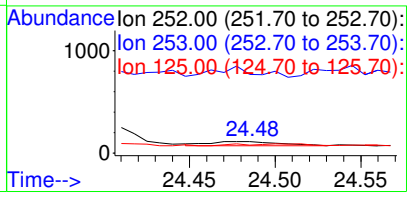




#23
Benzo(j)fluoranthene
Concen: 0.31 ug/kg
RT: 24.48 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080411.D
Acq: 4 Aug 2016 2:29 pm

Tgt Ion:252 Resp: 123

Ion	Ratio	Lower	Upper
252	100		
253	44.2	2.2	42.2#
125	9.3	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080412.D Vial: 12
Acq On : 4 Aug 2016 3:10 pm Operator: DEW
Sample : 1607239-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

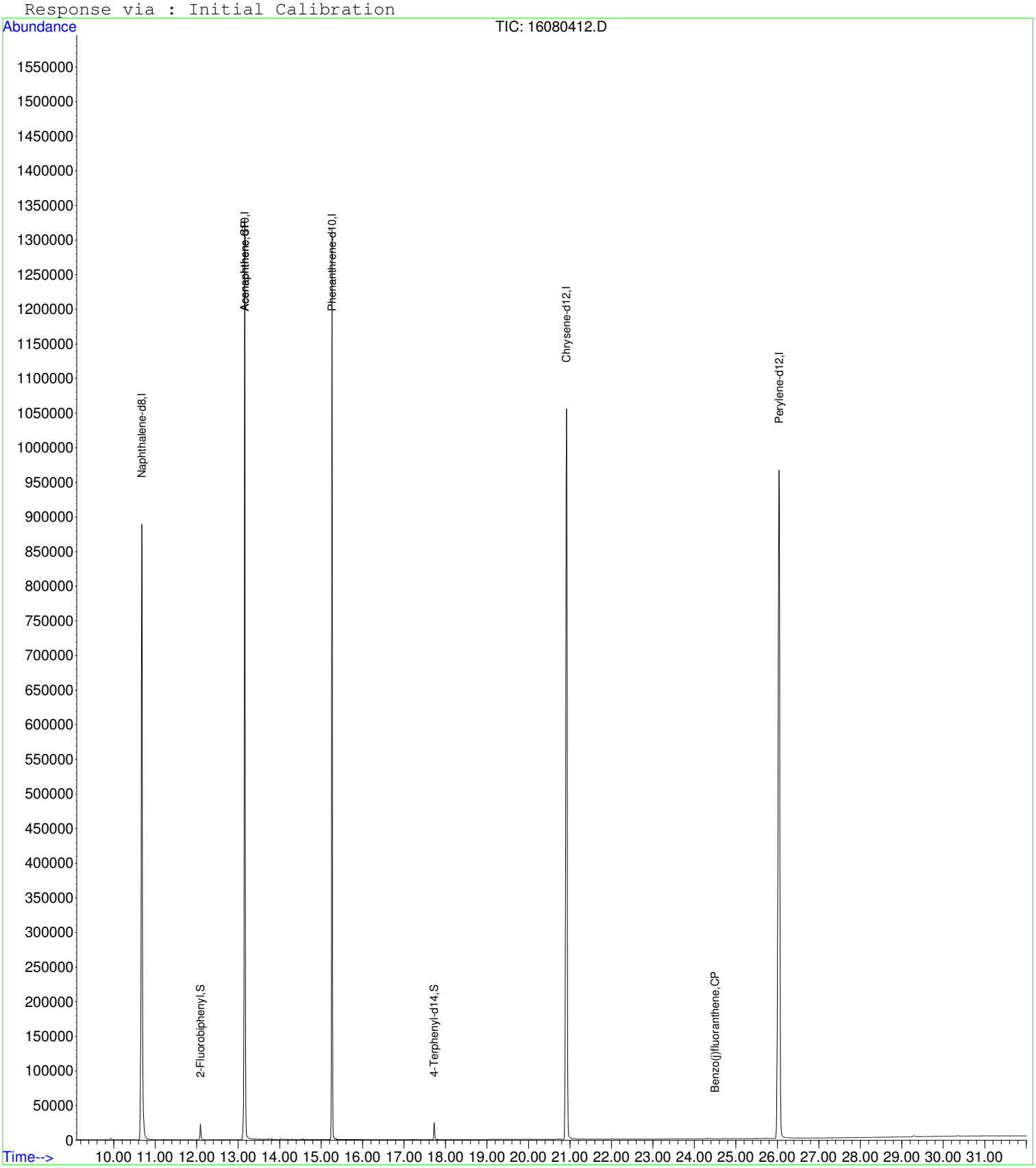
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1568137	4000.00	ug/kg	112
5) Acenaphthene-d10	13.16	164	860586	4000.00	ug/kg	144
11) Phenanthrene-d10	15.26	188	1513716	4000.00	ug/kg	95
17) Chrysene-d12	20.92	240	1864385	4000.00	ug/kg	102
20) Perylene-d12	26.04	264	1958225	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25969	86.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#		
16) 4-Terphenyl-d14	17.73	244	34722	97.20	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.43%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3086	~~13.98~~	~~ug/kg#~~	~~10~~
23) Benzo(j)fluoranthene	24.49	252	45	0.11	ug/kg#	34

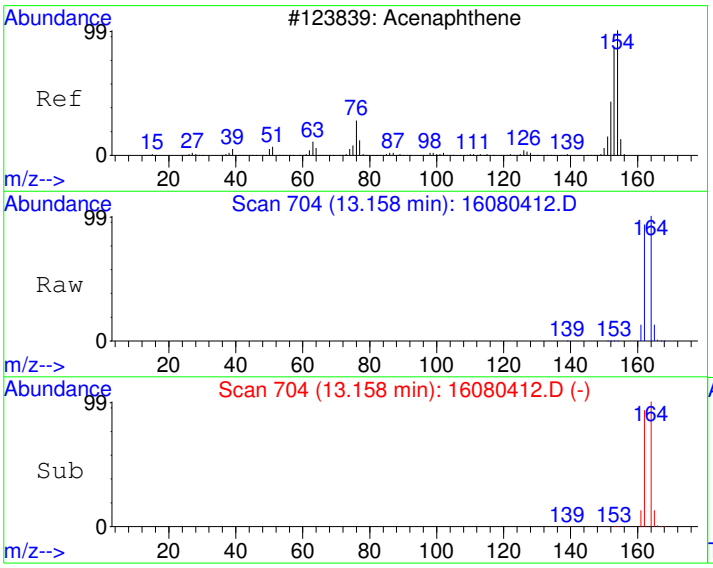
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080412.D Vial: 12
Acq On : 4 Aug 2016 3:10 pm Operator: DEW
Sample : 1607239-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

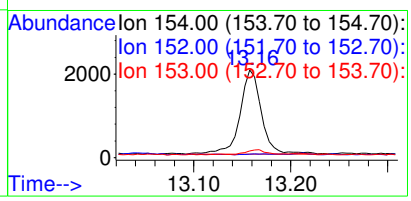


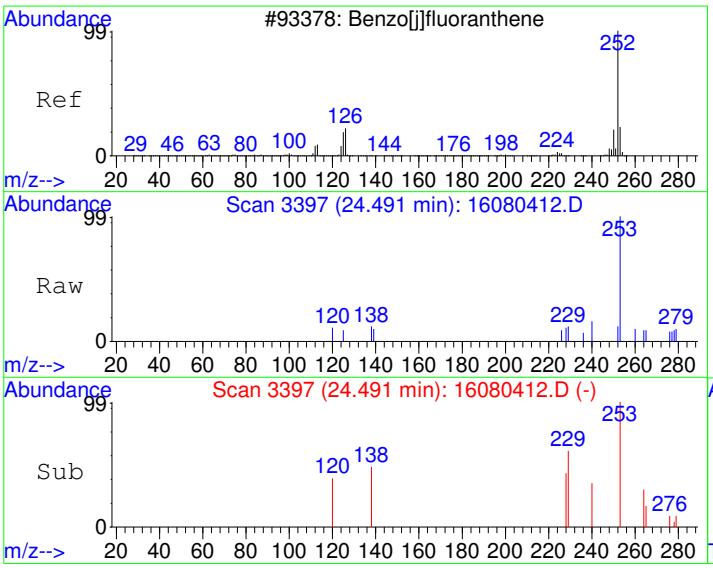


#9
Acenaphthene
Concen: ~~13.98 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:10 pm

Tgt Ion:154 Resp: 3086

Ion	Ratio	Lower	Upper
154	100		
152	0.5	19.1	79.1#
153	4.2	76.2	136.2#

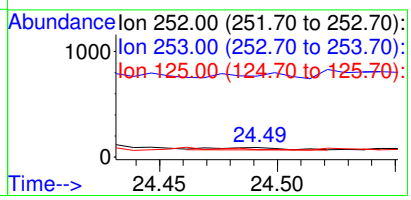




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:10 pm

Tgt Ion:252 Resp: 45

Ion	Ratio	Lower	Upper
252	100		
253	63.6	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080413.D Vial: 13
Acq On : 4 Aug 2016 3:52 pm Operator: DEW
Sample : 1607239-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

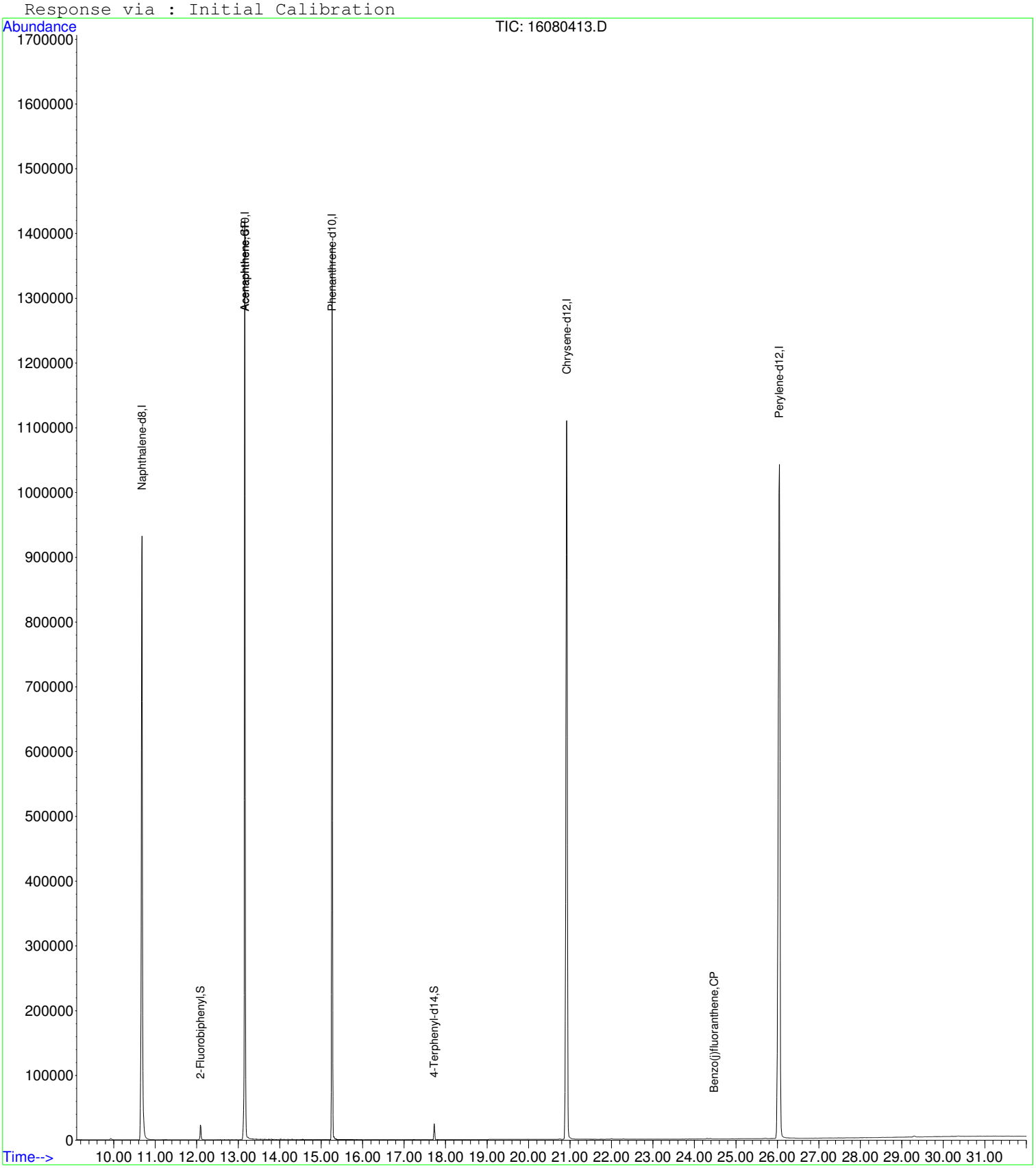
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1620567	4000.00	ug/kg	115
5) Acenaphthene-d10	13.16	164	899177	4000.00	ug/kg	150
11) Phenanthrene-d10	15.26	188	1596929	4000.00	ug/kg	100
17) Chrysene-d12	20.92	240	1986527	4000.00	ug/kg	108
20) Perylene-d12	26.05	264	2094572	4000.00	ug/kg	109
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25740	82.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.73	244	35321	93.73	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.34%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3120	~~13.53~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.47	252	40	0.09	ug/kg#	64

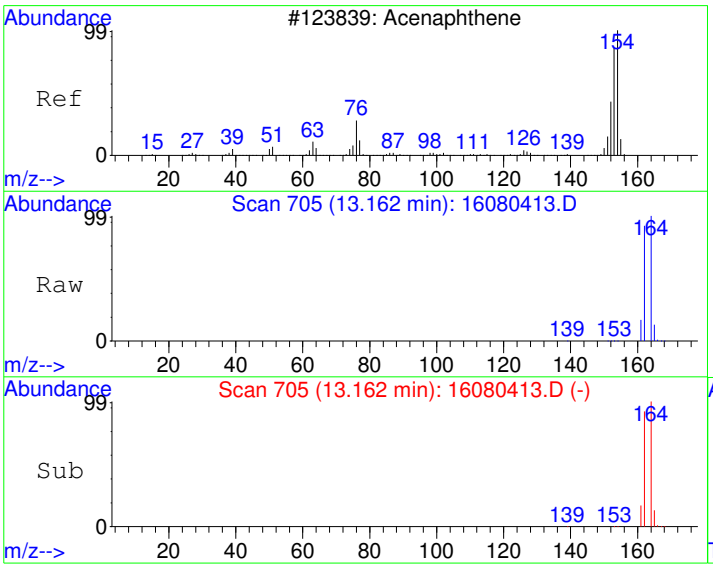
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080413.D Vial: 13
Acq On : 4 Aug 2016 3:52 pm Operator: DEW
Sample : 1607239-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

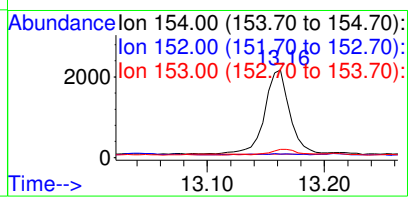


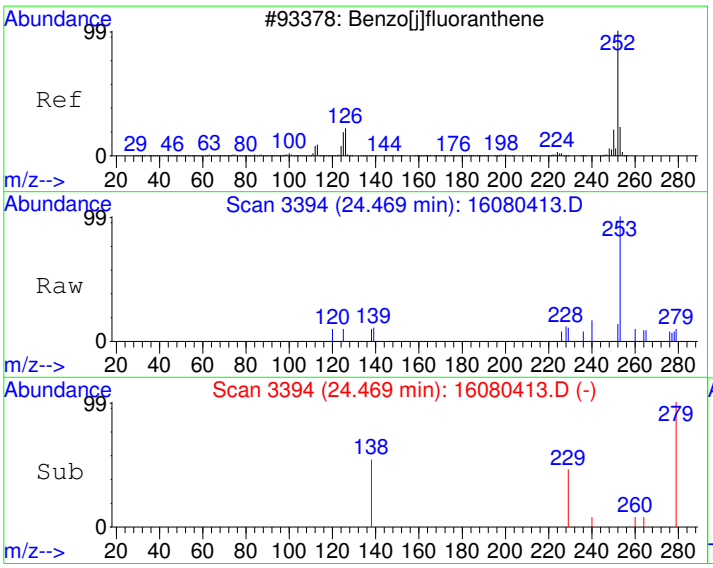


#9
Acenaphthene
Concen: ~~13.53 ug/kg~~
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080413.D
Acq: 4 Aug 2016 3:52 pm

Tgt Ion:154 Resp: 3120

Ion	Ratio	Lower	Upper
154	100		
152	0.4	19.1	79.1#
153	6.1	76.2	136.2#

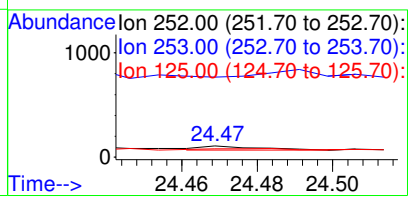




#23
Benzo(j)fluoranthene
Concen: 0.09 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080413.D
Acq: 4 Aug 2016 3:52 pm

Tgt Ion:252 Resp: 40

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	23.1	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080414.D Vial: 14
Acq On : 4 Aug 2016 4:33 pm Operator: DEW
Sample : 1607239-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1515253	4000.00	ug/kg	108
5) Acenaphthene-d10	13.16	164	837054	4000.00	ug/kg	140
11) Phenanthrene-d10	15.26	188	1497656	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1805048	4000.00	ug/kg	98
20) Perylene-d12	26.04	264	1888564	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	26637	91.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.28%#		
16) 4-Terphenyl-d14	17.73	244	35688	100.98	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.52%#		

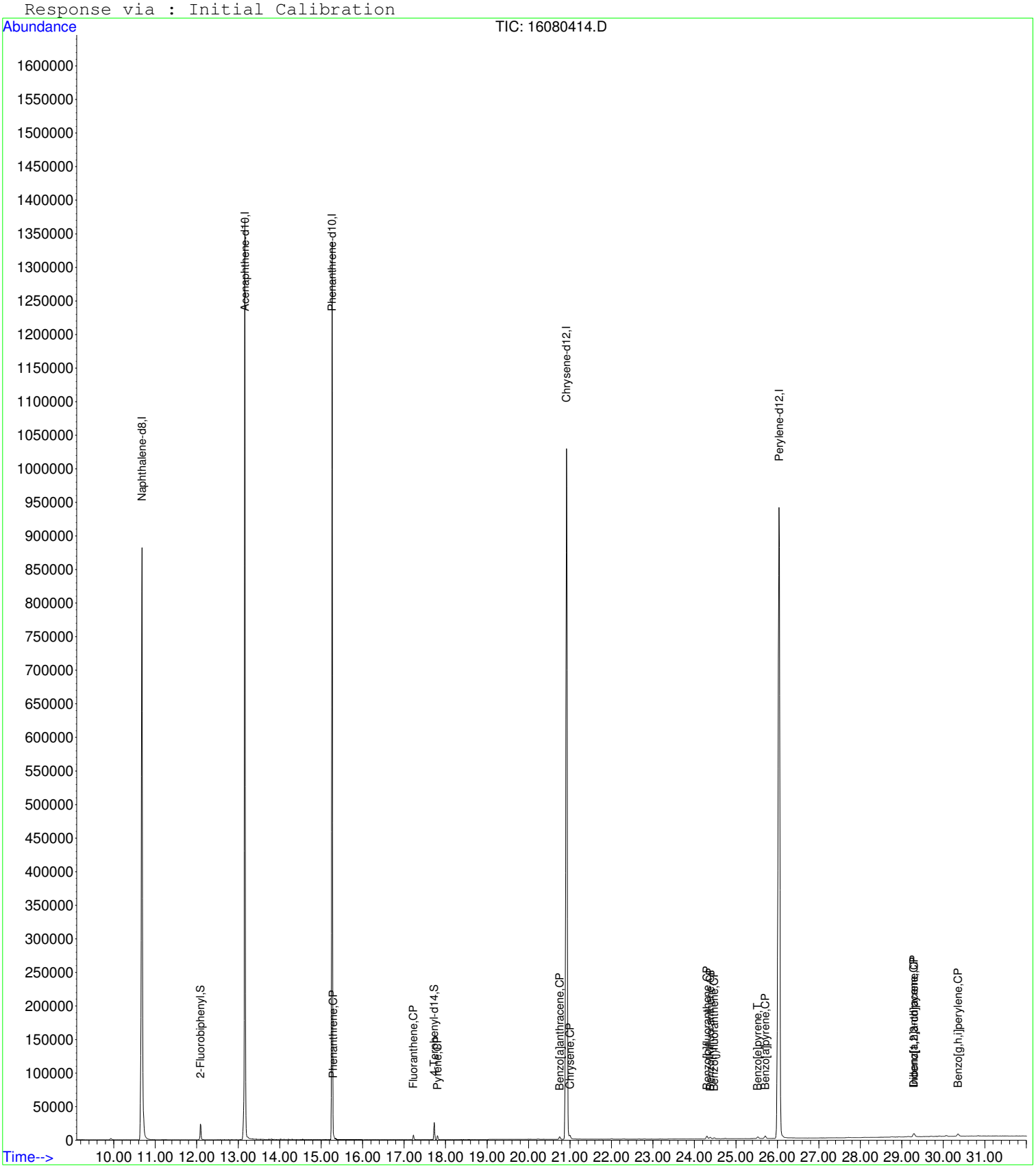
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	3006	8.47	ug/kg	99
14) Fluoranthene	17.22	202	8147	19.36	ug/kg	100
15) Pyrene	17.80	202	7531	17.65	ug/kg	99
18) Benzo[a]anthracene	20.75	228	6021	14.80	ug/kg	99
19) Chrysene	21.00	228	6831	17.45	ug/kg	98
21) Benzo[b]fluoranthene	24.30	252	8657	19.86	ug/kg	95
22) Benzo[k]fluoranthene	24.38	252	4364	10.91	ug/kg	96
23) Benzo(j)fluoranthene	24.48	252	2937	7.64	ug/kg	89
24) Benzo[e]pyrene	25.52	252	5416	12.80	ug/kg	98
25) Benzo[a]pyrene	25.71	252	7847	18.63	ug/kg	96
26) Dibenz[a,h]anthracene	29.28	278	2833	6.95	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.30	276	8084	16.71	ug/kg	94
28) Benzo[g,h,i]perylene	30.36	276	7433	18.35	ug/kg	96

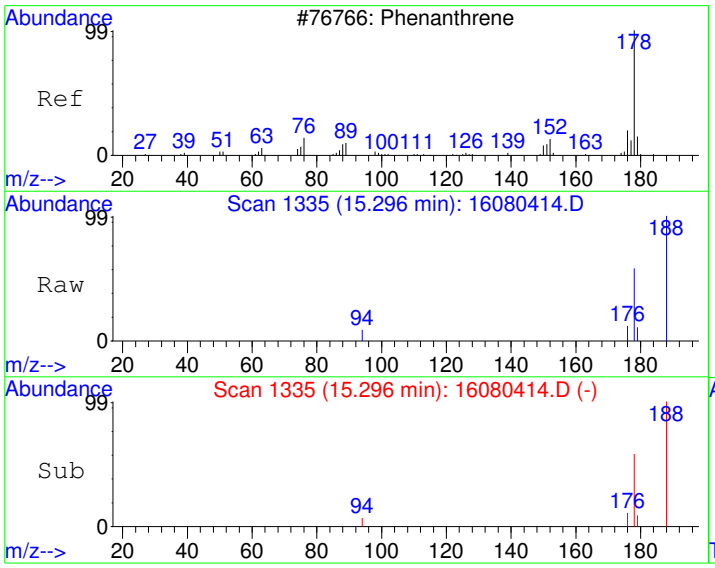
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080414.D Vial: 14
Acq On : 4 Aug 2016 4:33 pm Operator: DEW
Sample : 1607239-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

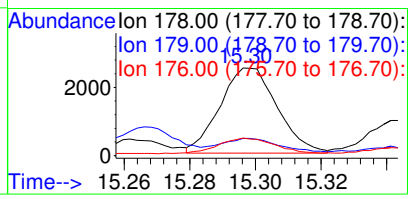


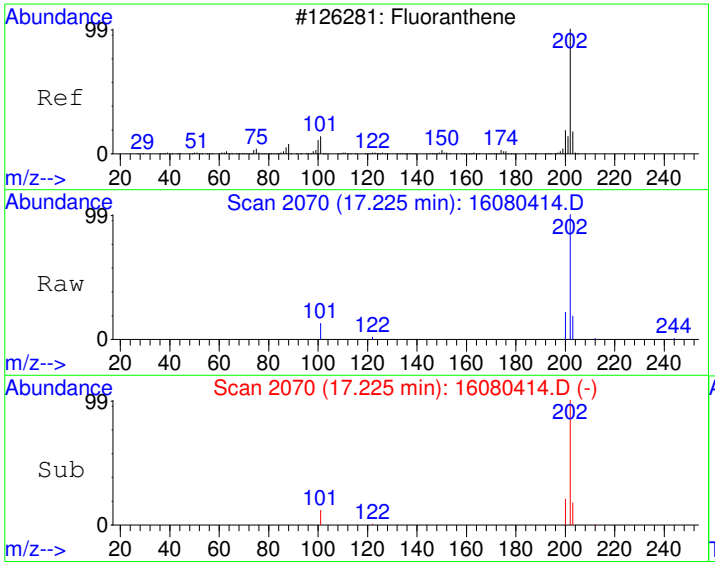


#12
Phenanthrene
Concen: 8.47 ug/kg
RT: 15.30 min Scan# 1335
Delta R.T. -0.01 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:178 Resp: 3006

Ion	Ratio	Lower	Upper
178	100		
179	16.1	0.0	45.7
176	17.9	0.0	48.7

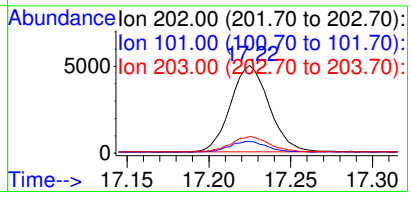


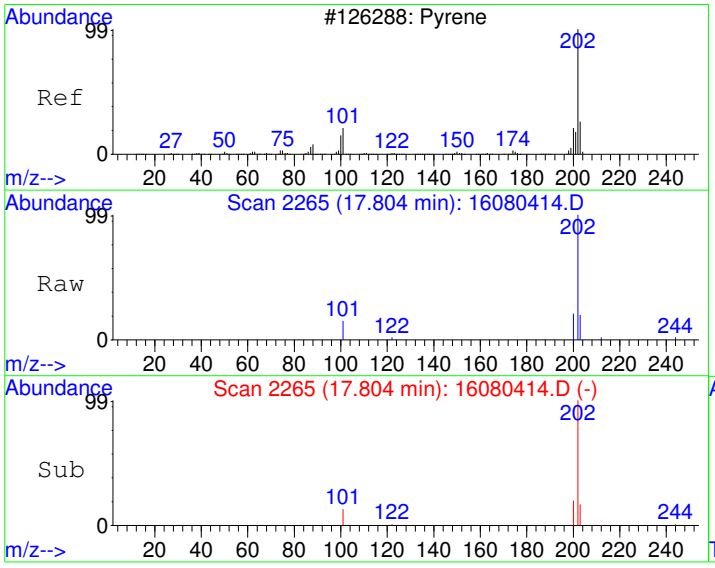


#14
Fluoranthene
Concen: 19.36 ug/kg
RT: 17.22 min Scan# 2070
Delta R.T. -0.01 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:202 Resp: 8147

Ion	Ratio	Lower	Upper
202	100		
101	12.1	0.0	42.1
203	17.7	0.0	47.9

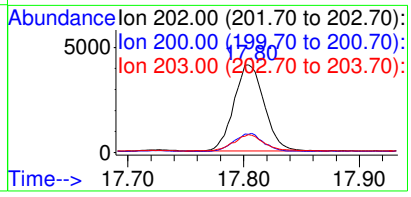


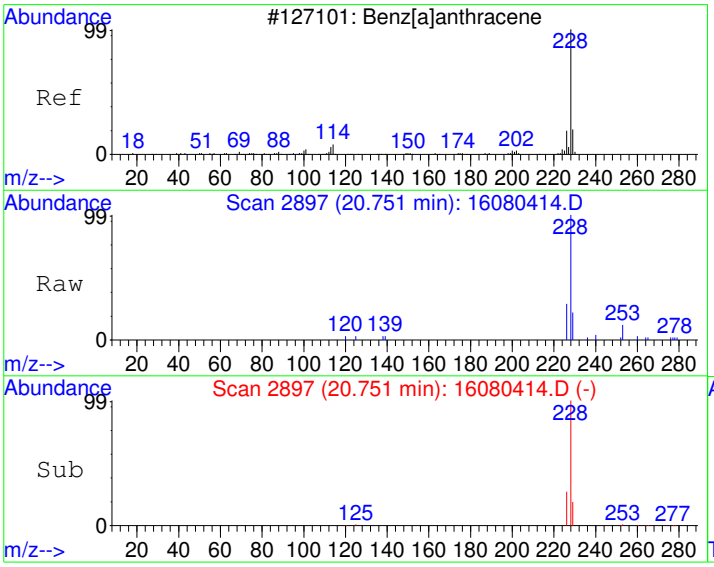


#15
Pyrene
Concen: 17.65 ug/kg
RT: 17.80 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:202 Resp: 7531

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	49.7
203	19.1	0.0	47.8

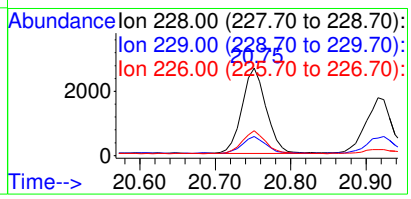


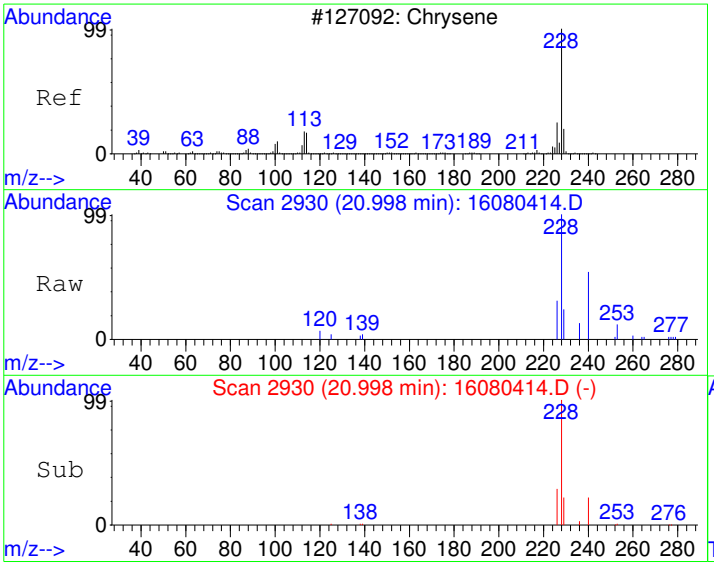


#18
Benzo[a]anthracene
Concen: 14.80 ug/kg
RT: 20.75 min Scan# 2897
Delta R.T. -0.02 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:228 Resp: 6021

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	49.8
226	26.9	0.0	55.8

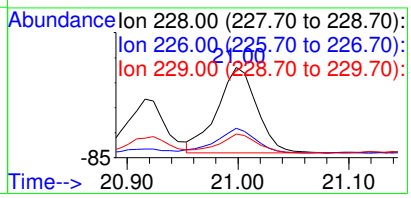


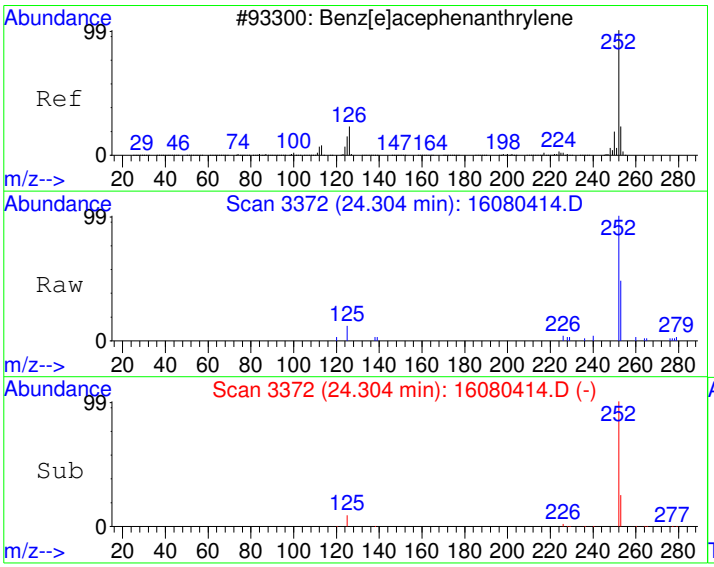


#19
Chrysene
Concen: 17.45 ug/kg
RT: 21.00 min Scan# 2930
Delta R.T. -0.02 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:228 Resp: 6831

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	22.0	0.0	50.0

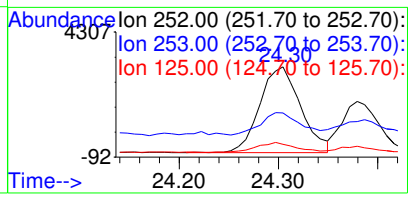


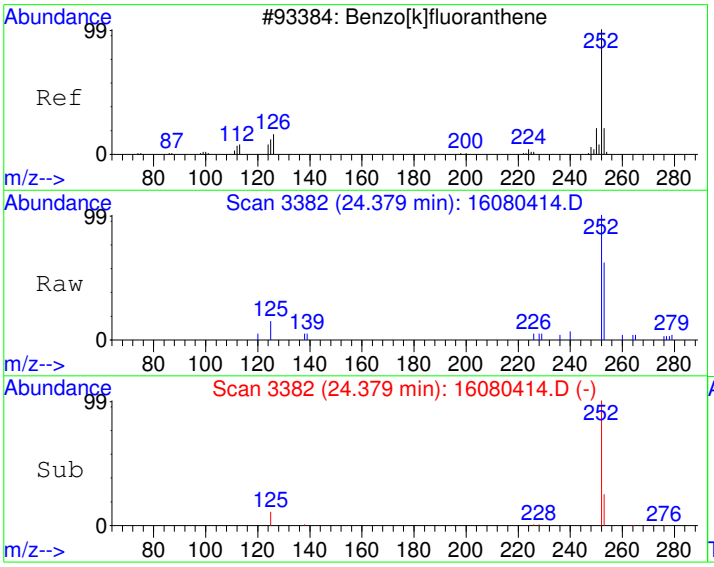


#21
Benzo[b]fluoranthene
Concen: 19.86 ug/kg
RT: 24.30 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:252 Resp: 8657

Ion	Ratio	Lower	Upper
252	100		
253	24.5	0.0	52.0
125	9.1	0.0	40.6

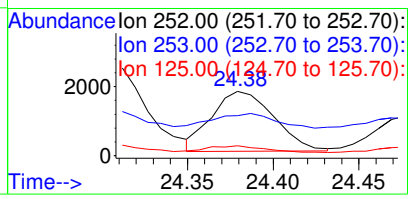


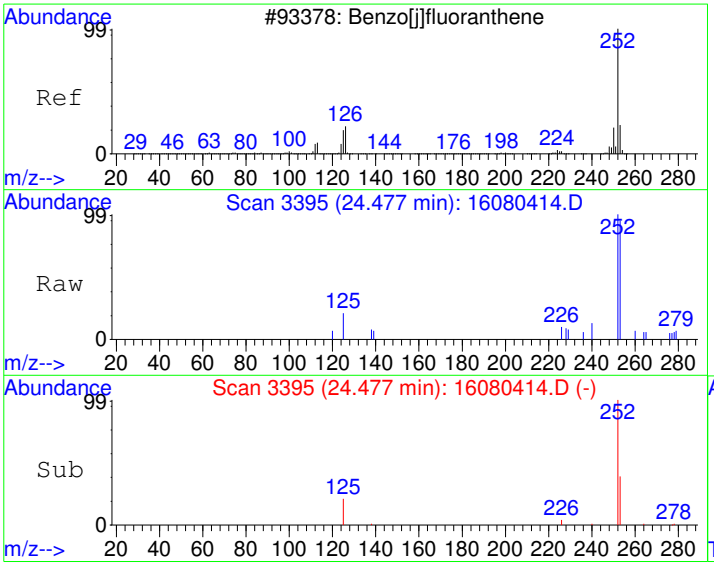


#22
Benzo[k]fluoranthene
Concen: 10.91 ug/kg
RT: 24.38 min Scan# 3382
Delta R.T. -0.03 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:252 Resp: 4364

Ion	Ratio	Lower	Upper
252	100		
253	20.2	2.2	42.2
125	11.7	0.0	30.3

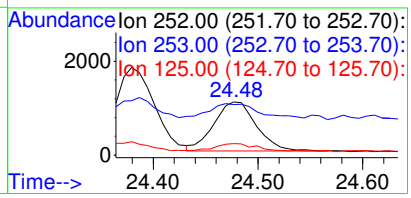


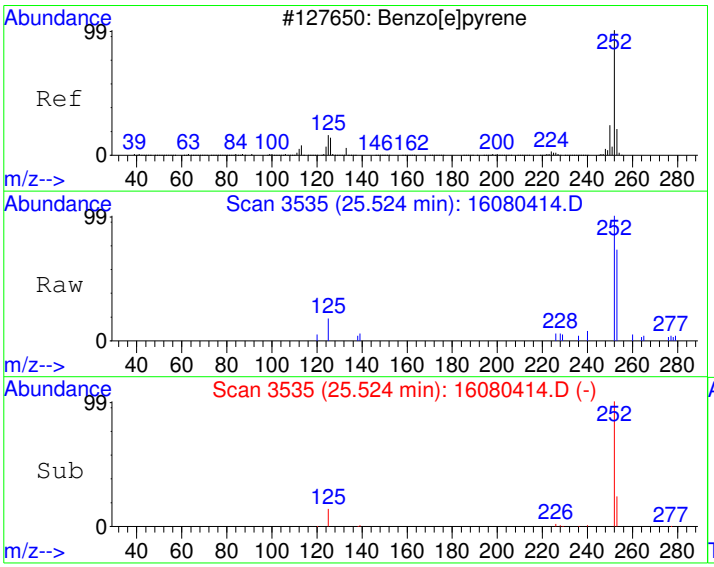


#23
Benzo(j)fluoranthene
Concen: 7.64 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:252 Resp: 2937

Ion	Ratio	Lower	Upper
252	100		
253	30.7	2.2	42.2
125	14.4	0.0	34.4

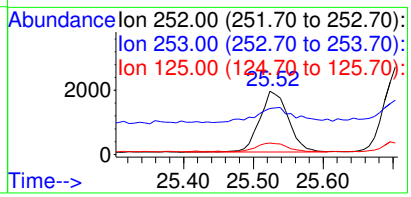


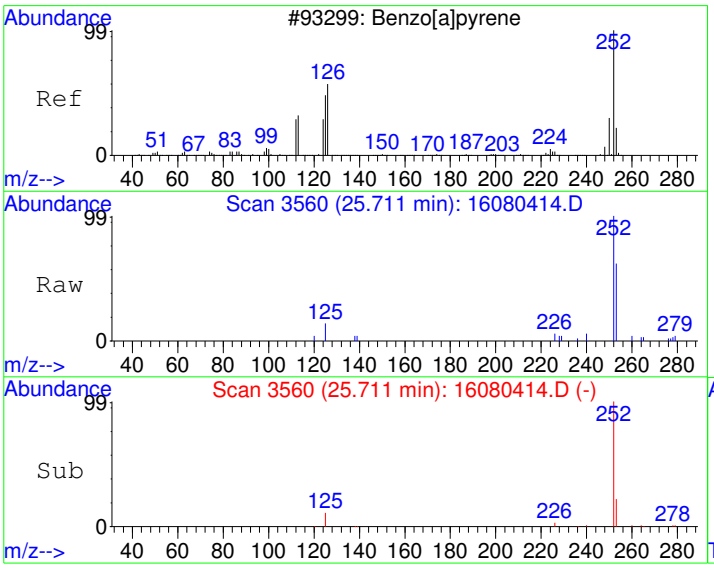


#24
Benzo[e]pyrene
Concen: 12.80 ug/kg
RT: 25.52 min Scan# 3535
Delta R.T. -0.03 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:252 Resp: 5416

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.2	42.2
125	14.2	0.0	35.7

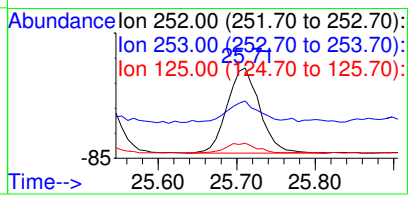


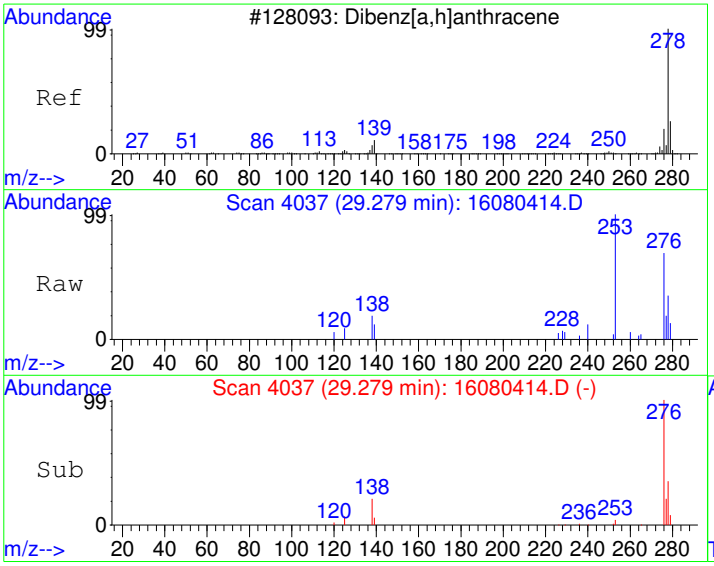


#25
Benzo[a]pyrene
Concen: 18.63 ug/kg
RT: 25.71 min Scan# 3560
Delta R.T. -0.02 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:252 Resp: 7847

Ion	Ratio	Lower	Upper
252	100		
253	25.2	2.0	42.0
125	11.5	0.0	31.6

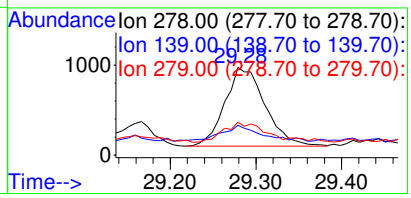


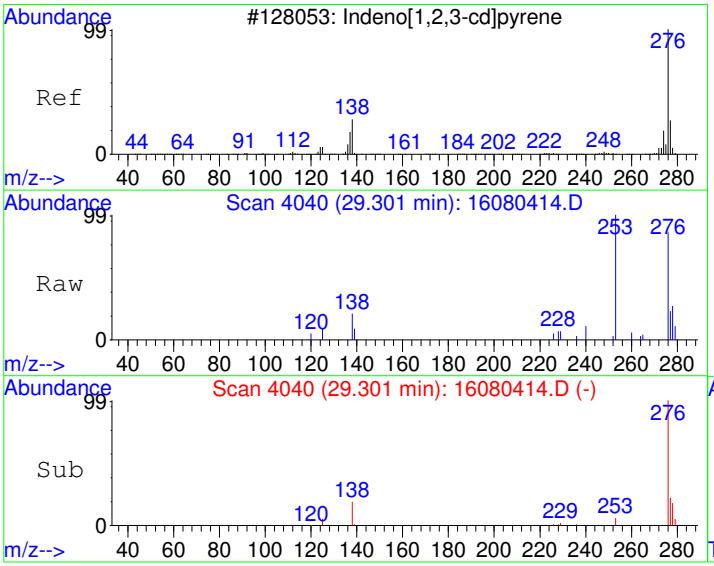


#26
Dibenz[a,h]anthracene
Concen: 6.95 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:278 Resp: 2833

Ion	Ratio	Lower	Upper
278	100		
139	19.0	0.0	33.8
279	24.3	3.9	43.9

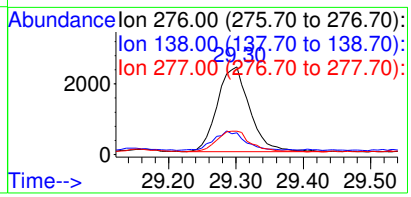


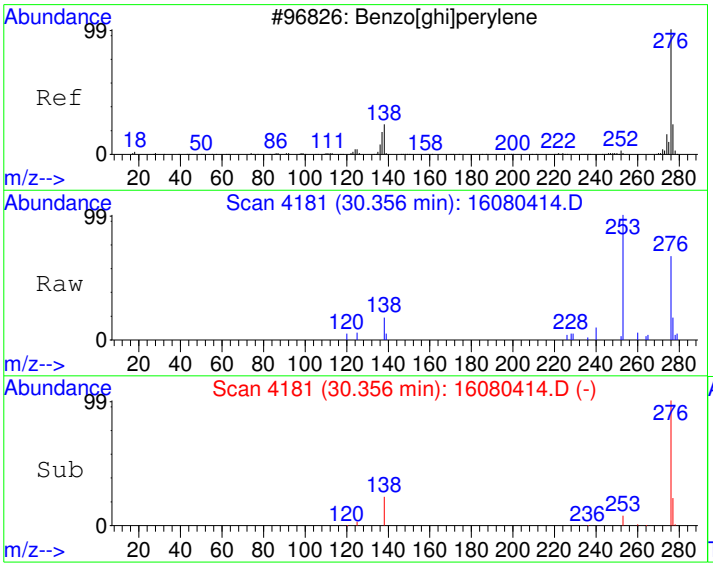


#27
Indeno[1,2,3-cd]pyrene
Concen: 16.71 ug/kg
RT: 29.30 min Scan# 4040
Delta R.T. -0.02 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:276 Resp: 8084

Ion	Ratio	Lower	Upper
276	100		
138	20.4	4.8	44.8
277	24.4	5.6	45.6

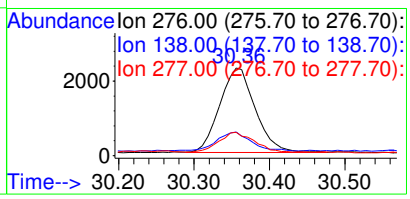




#28
Benzo[g,h,i]perylene
Concen: 18.35 ug/kg
RT: 30.36 min Scan# 4181
Delta R.T. -0.04 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:33 pm

Tgt Ion:276 Resp: 7433

Ion	Ratio	Lower	Upper
276	100		
138	22.1	0.0	38.1
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080415.D Vial: 15
Acq On : 4 Aug 2016 5:14 pm Operator: DEW
Sample : 1607239-28A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

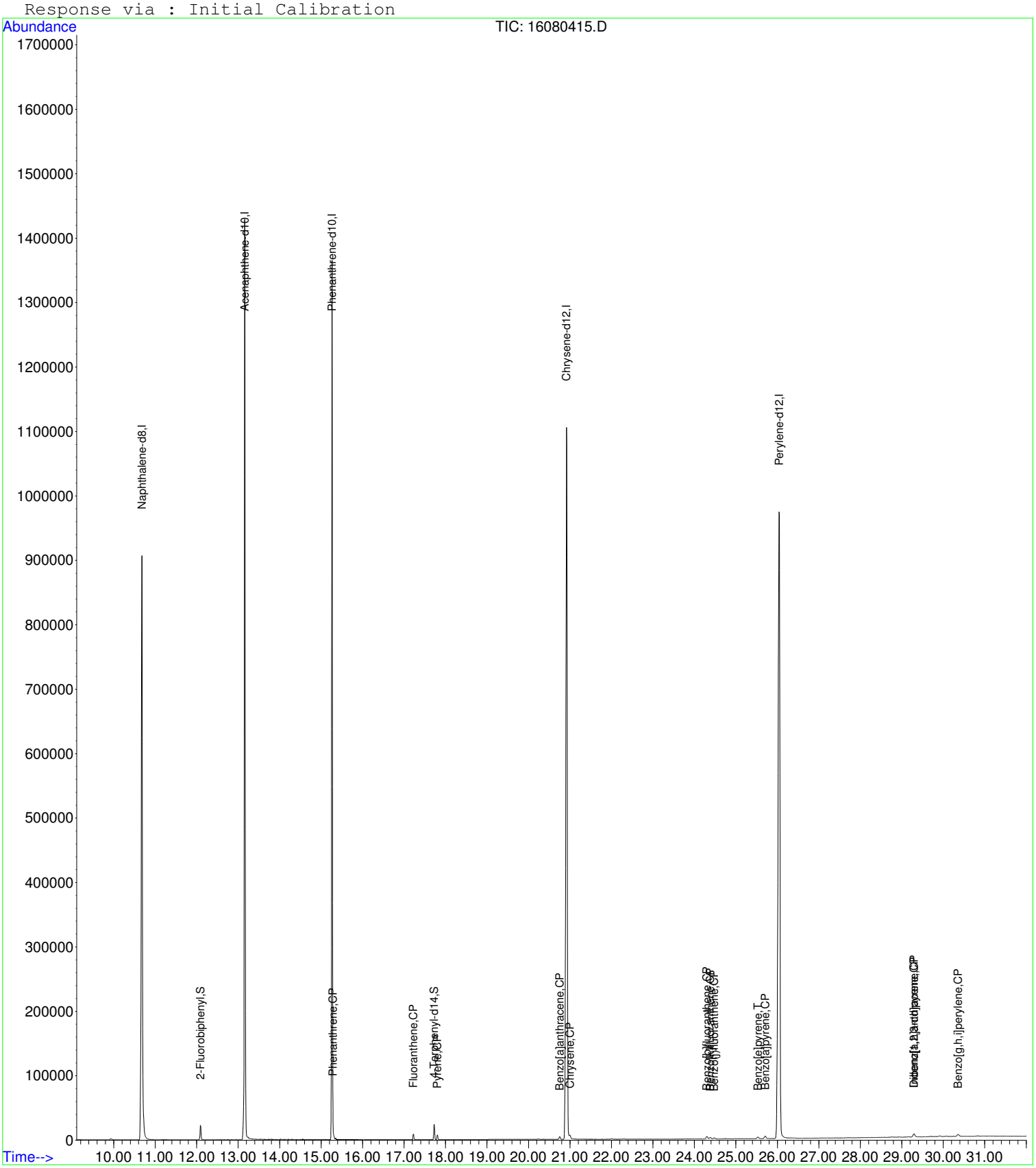
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1620759	4000.00	ug/kg	116
5) Acenaphthene-d10	13.16	164	891398	4000.00	ug/kg	149
11) Phenanthrene-d10	15.26	188	1574368	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	1932420	4000.00	ug/kg	105
20) Perylene-d12	26.04	264	2017305	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25633	82.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
16) 4-Terphenyl-d14	17.73	244	34824	93.73	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.34%#		
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	4298	11.51	ug/kg	97
14) Fluoranthene	17.22	202	10073	22.77	ug/kg	98
15) Pyrene	17.80	202	9272	20.67	ug/kg	99
18) Benzo[a]anthracene	20.75	228	6700	15.38	ug/kg	99
19) Chrysene	21.00	228	7868	18.78	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	8287	17.79	ug/kg	91
22) Benzo[k]fluoranthene	24.38	252	4617	10.81	ug/kg	88
23) Benzo(j)fluoranthene	24.48	252	3271	7.97	ug/kg	88
24) Benzo[e]pyrene	25.53	252	5072	11.22	ug/kg	97
25) Benzo[a]pyrene	25.71	252	8181	18.18	ug/kg	98
26) Dibenz[a,h]anthracene	29.29	278	2772	6.37	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	7510	14.53	ug/kg	97
28) Benzo[g,h,i]perylene	30.36	276	7128	16.47	ug/kg	98

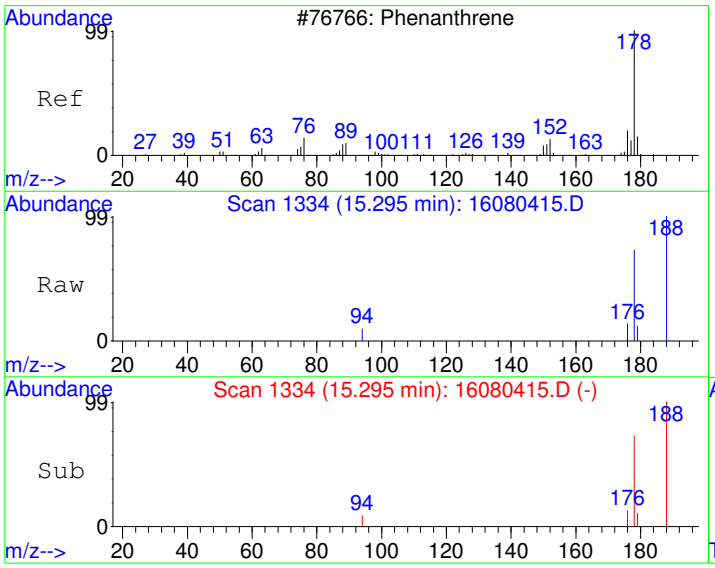
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080415.D Vial: 15
Acq On : 4 Aug 2016 5:14 pm Operator: DEW
Sample : 1607239-28A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

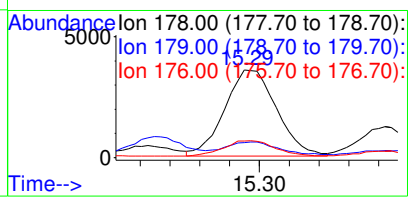


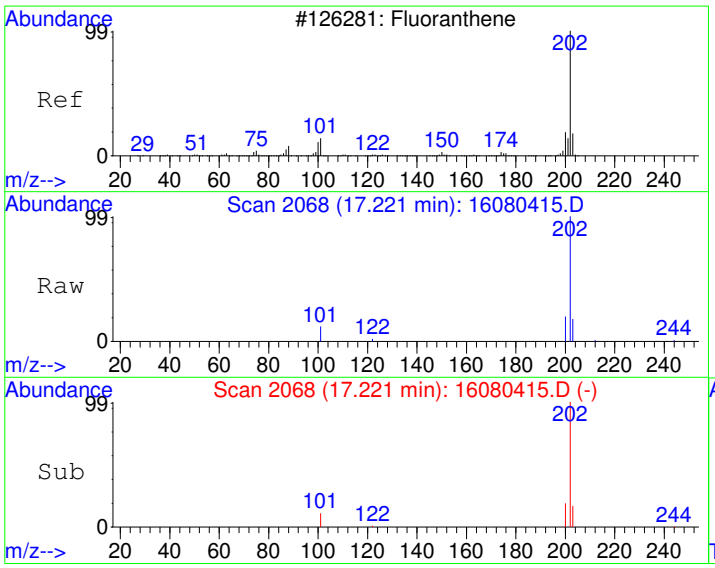


#12
Phenanthrene
Concen: 11.51 ug/kg
RT: 15.29 min Scan# 1334
Delta R.T. -0.01 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:178 Resp: 4298

Ion	Ratio	Lower	Upper
178	100		
179	14.0	0.0	45.7
176	18.1	0.0	48.7

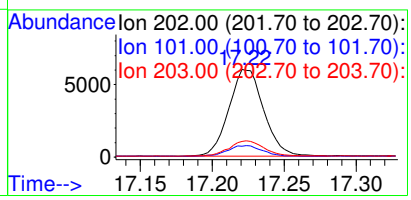


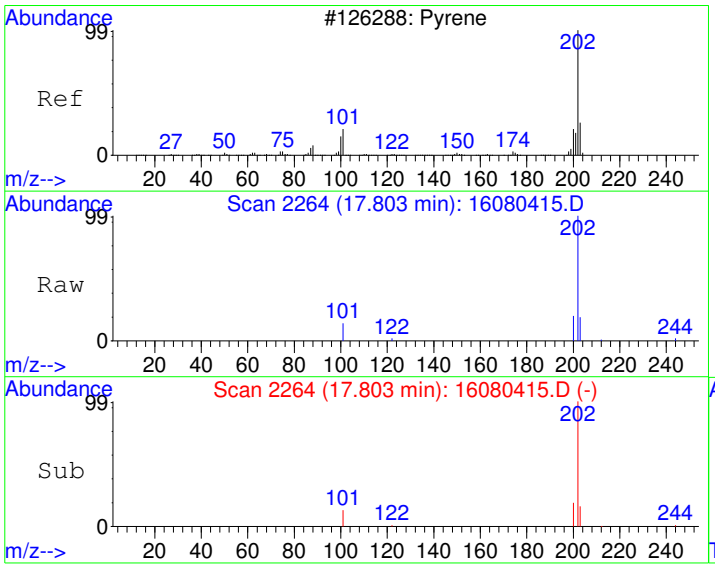


#14
Fluoranthene
Concen: 22.77 ug/kg
RT: 17.22 min Scan# 2068
Delta R.T. -0.01 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:202 Resp: 10073

Ion	Ratio	Lower	Upper
202	100		
101	11.3	0.0	42.1
203	16.8	0.0	47.9

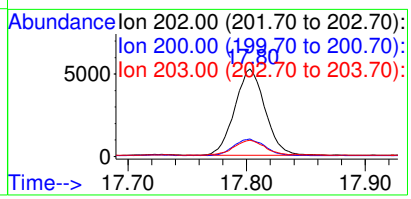


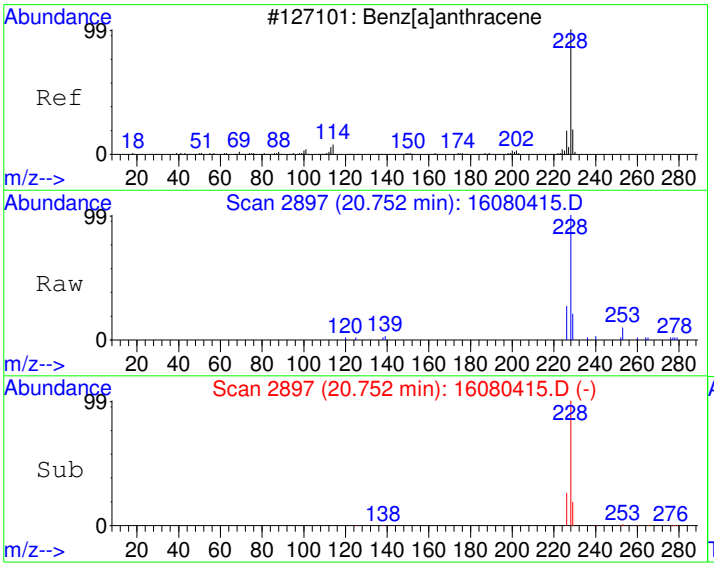


#15
Pyrene
Concen: 20.67 ug/kg
RT: 17.80 min Scan# 2264
Delta R.T. -0.01 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:202 Resp: 9272

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	49.7
203	17.3	0.0	47.8

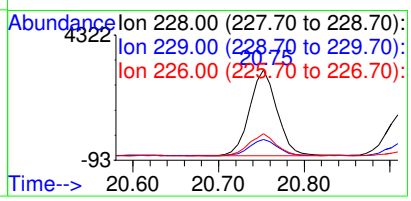


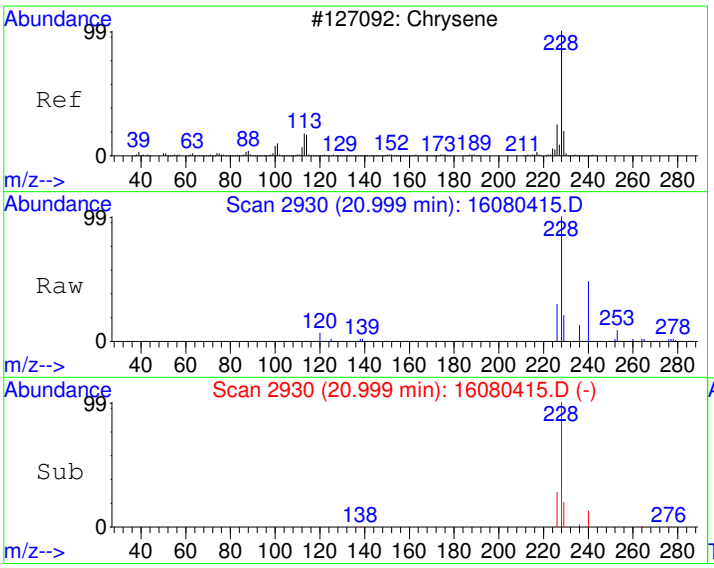


#18
Benzo[a]anthracene
Concen: 15.38 ug/kg
RT: 20.75 min Scan# 2897
Delta R.T. -0.02 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:228 Resp: 6700

Ion	Ratio	Lower	Upper
228	100		
229	19.0	0.0	49.8
226	25.9	0.0	55.8

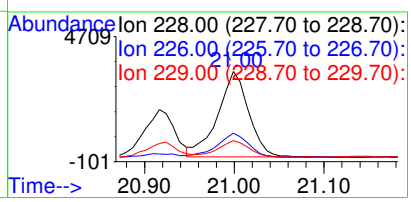


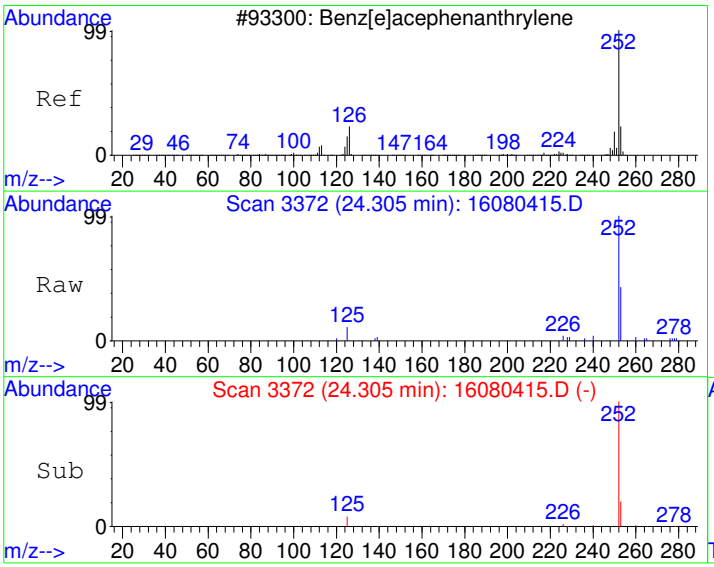


#19
Chrysene
Concen: 18.78 ug/kg
RT: 21.00 min Scan# 2930
Delta R.T. -0.02 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:228 Resp: 7868

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	58.1
229	19.5	0.0	50.0

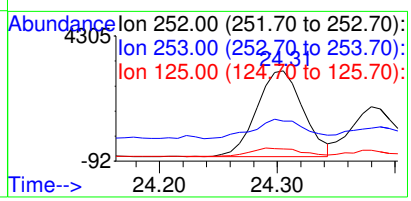


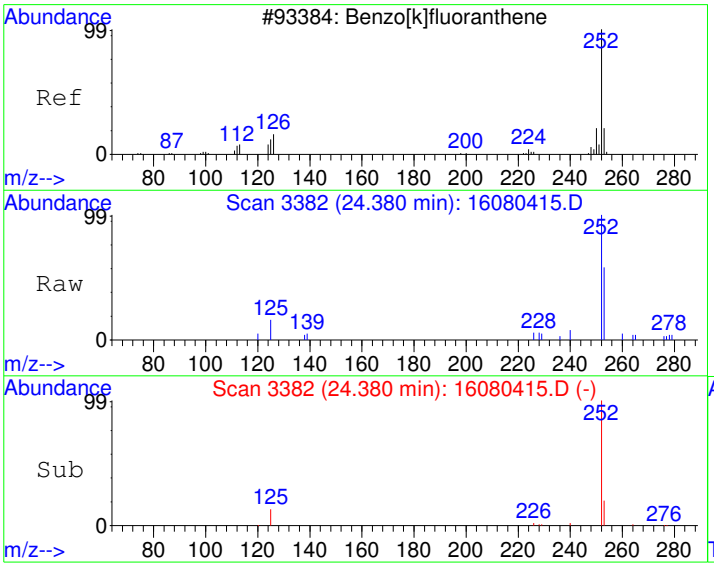


#21
Benzo[b]fluoranthene
Concen: 17.79 ug/kg
RT: 24.31 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:252 Resp: 8287

Ion	Ratio	Lower	Upper
252	100		
253	16.9	0.0	52.0
125	8.6	0.0	40.6

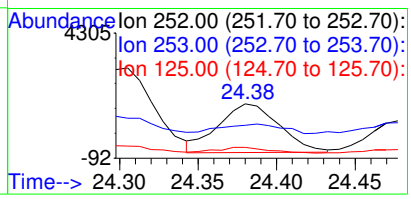


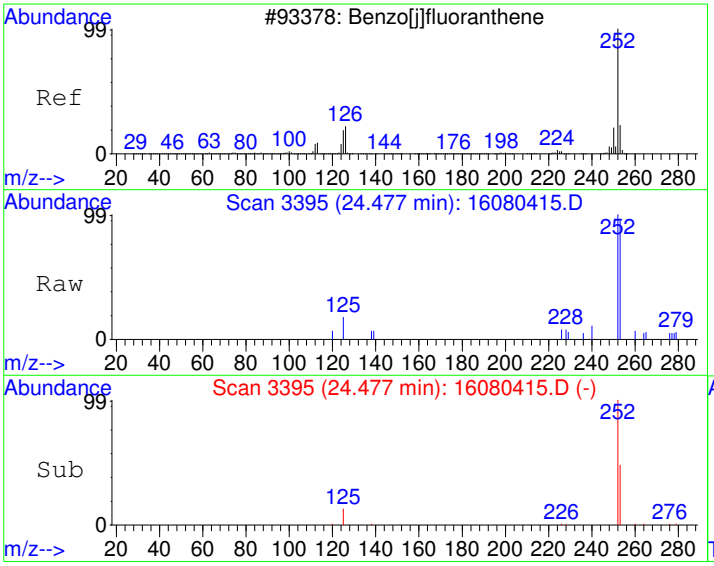


#22
Benzo[k]fluoranthene
Concen: 10.81 ug/kg
RT: 24.38 min Scan# 3382
Delta R.T. -0.03 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:252 Resp: 4617

Ion	Ratio	Lower	Upper
252	100		
253	14.9	2.2	42.2
125	11.8	0.0	30.3

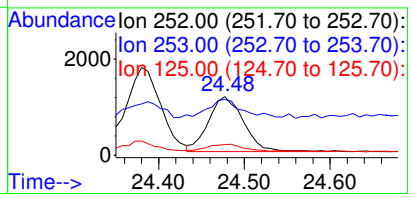


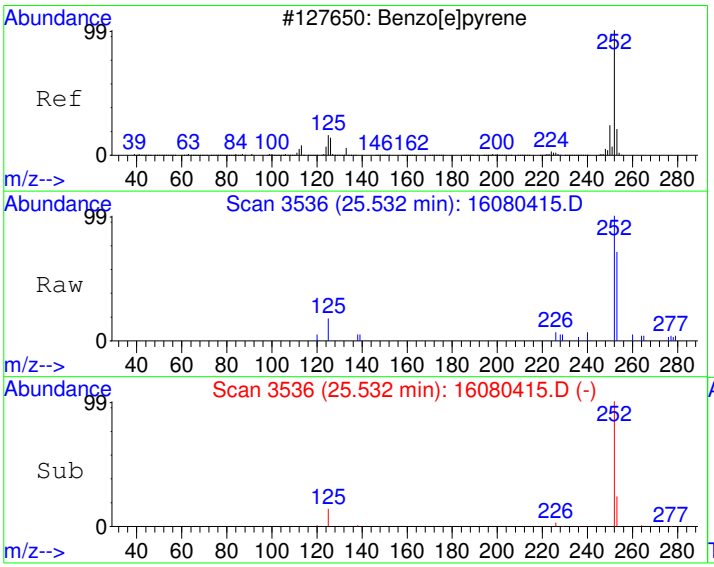


#23
Benzo(j)fluoranthene
Concen: 7.97 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:252 Resp: 3271

Ion	Ratio	Lower	Upper
252	100		
253	29.6	2.2	42.2
125	11.7	0.0	34.4

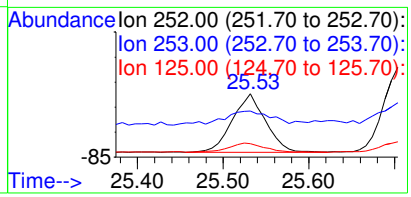


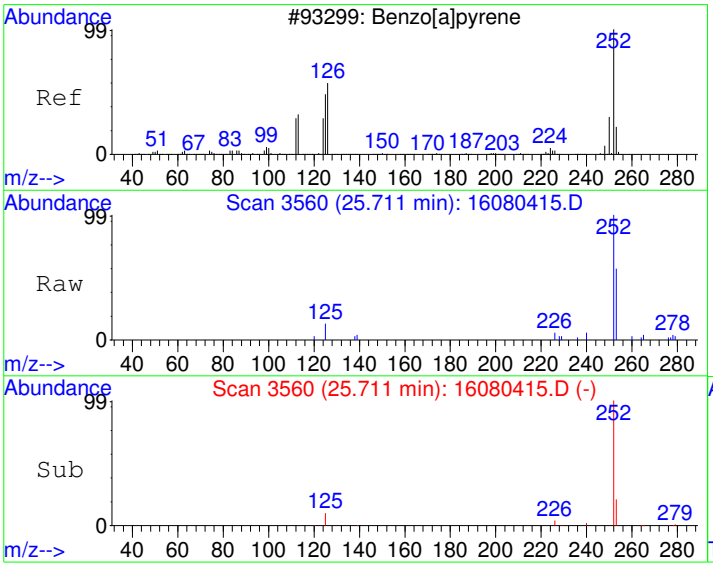


#24
Benzo[e]pyrene
Concen: 11.22 ug/kg
RT: 25.53 min Scan# 3536
Delta R.T. -0.02 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:252 Resp: 5072

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.2	42.2
125	14.9	0.0	35.7

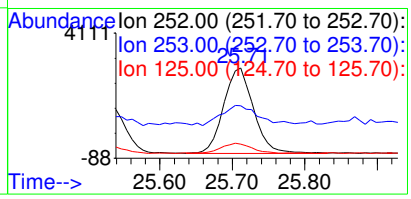


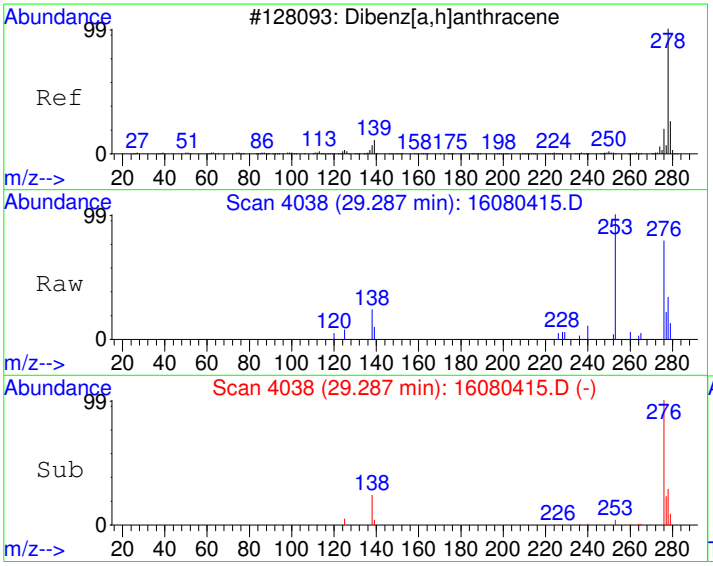


#25
Benzo[a]pyrene
Concen: 18.18 ug/kg
RT: 25.71 min Scan# 3560
Delta R.T. -0.02 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:252 Resp: 8181

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.0	42.0
125	10.3	0.0	31.6

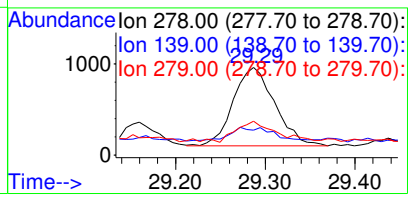


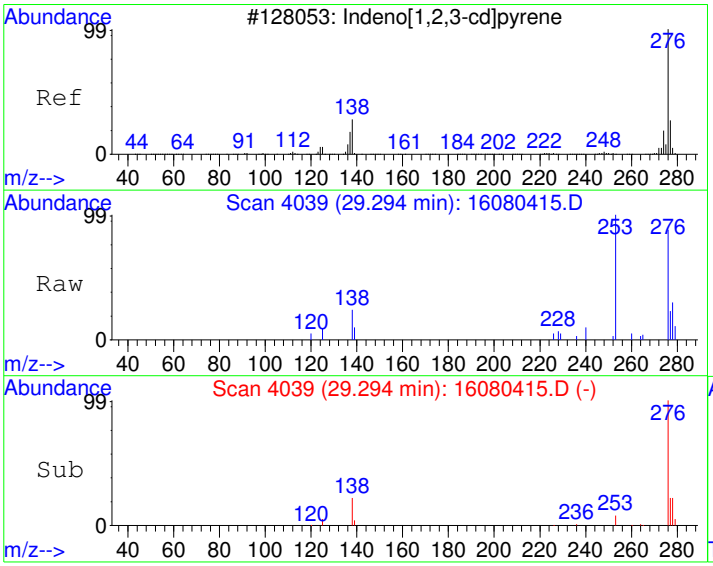


#26
Dibenz[a,h]anthracene
Concen: 6.37 ug/kg
RT: 29.29 min Scan# 4038
Delta R.T. -0.04 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:278 Resp: 2772

Ion	Ratio	Lower	Upper
278	100		
139	13.9	0.0	33.8
279	25.1	3.9	43.9

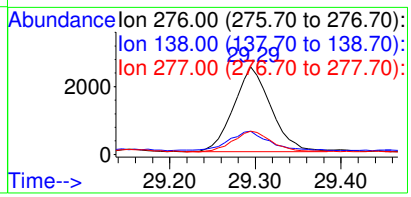


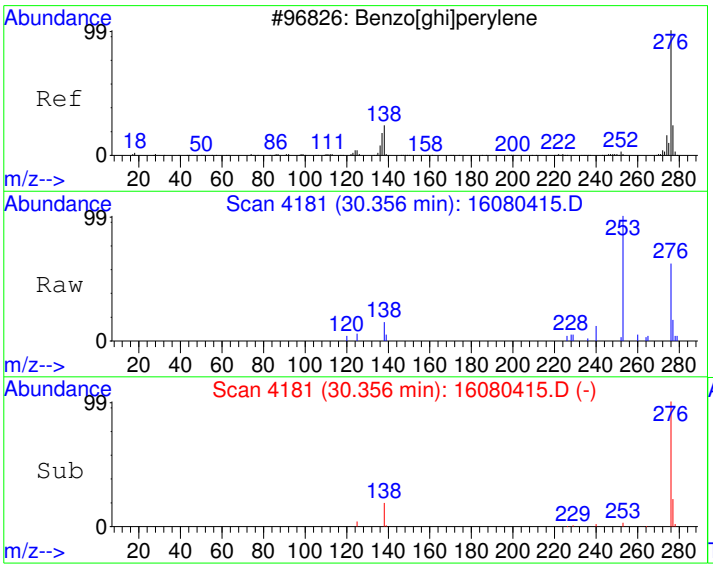


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.53 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:276 Resp: 7510

Ion	Ratio	Lower	Upper
276	100		
138	22.8	4.8	44.8
277	24.5	5.6	45.6

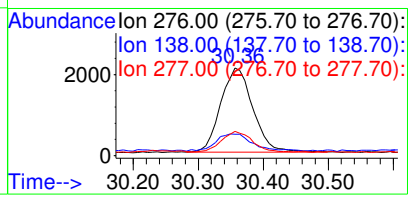




#28
Benzo[g,h,i]perylene
Concen: 16.47 ug/kg
RT: 30.36 min Scan# 4181
Delta R.T. -0.04 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:276 Resp: 7128

Ion	Ratio	Lower	Upper
276	100		
138	20.1	0.0	38.1
277	24.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080416.D Vial: 16
Acq On : 4 Aug 2016 5:55 pm Operator: DEW
Sample : 1607239-21AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

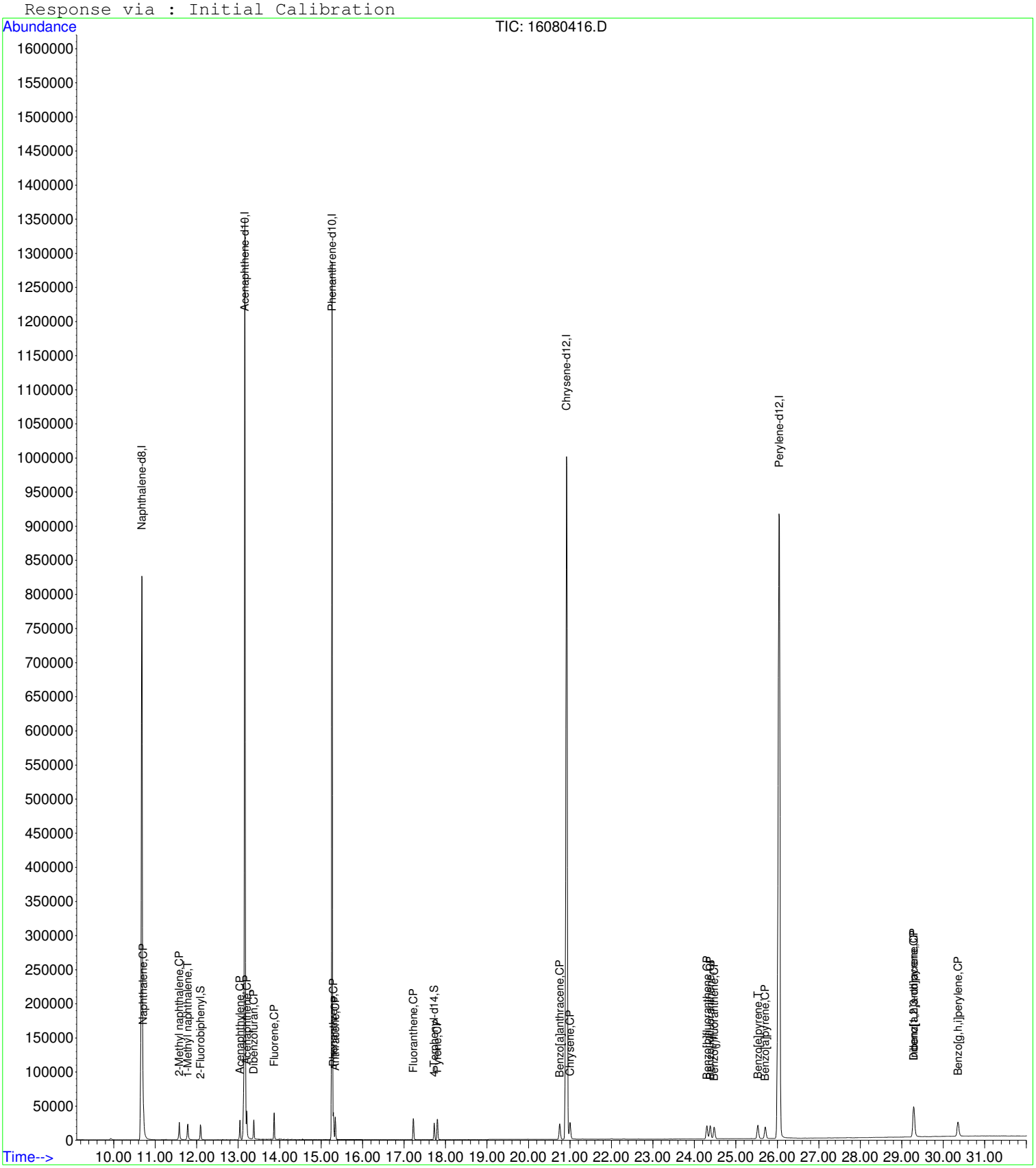
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1506248	4000.00	ug/kg	107
5) Acenaphthene-d10	13.16	164	835479	4000.00	ug/kg	139
11) Phenanthrene-d10	15.26	188	1475062	4000.00	ug/kg	93
17) Chrysene-d12	20.92	240	1824281	4000.00	ug/kg	99
20) Perylene-d12	26.04	264	1917840	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25542	87.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.19%#		
16) 4-Terphenyl-d14	17.73	244	34281	98.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.46%#		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	28377	82.80	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	20844	93.82	ug/kg	97
4) 1-Methyl naphthalene	11.79	142	18681	94.93	ug/kg	99
6) Dibenzofuran	13.38	168	29559	87.42	ug/kg	99
8) Acenaphthylene	13.05	152	31273	84.53	ug/kg	99
9) Acenaphthene	13.21	154	18455	86.13	ug/kg	98
10) Fluorene	13.87	166	23358	86.72	ug/kg	99
12) Phenanthrene	15.30	178	31001	88.65	ug/kg	98
13) Anthracene	15.34	178	30441	82.72	ug/kg	99
14) Fluoranthene	17.22	202	34706	83.74	ug/kg	98
15) Pyrene	17.80	202	35446	84.35	ug/kg	99
18) Benzo[a]anthracene	20.75	228	35513	86.37	ug/kg	99
19) Chrysene	21.00	228	34371	86.89	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	40044	90.45	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	35979	88.58	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	34177	87.56	ug/kg	99
24) Benzo[e]pyrene	25.53	252	39280	91.42	ug/kg	99
25) Benzo[a]pyrene	25.70	252	35911	83.95	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	45120	108.99	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.29	276	53421	108.75	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	44613	108.43	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080416.D Vial: 16
Acq On : 4 Aug 2016 5:55 pm Operator: DEW
Sample : 1607239-21AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080417.D Vial: 17
Acq On : 4 Aug 2016 6:37 pm Operator: DEW
Sample : 1607239-21AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

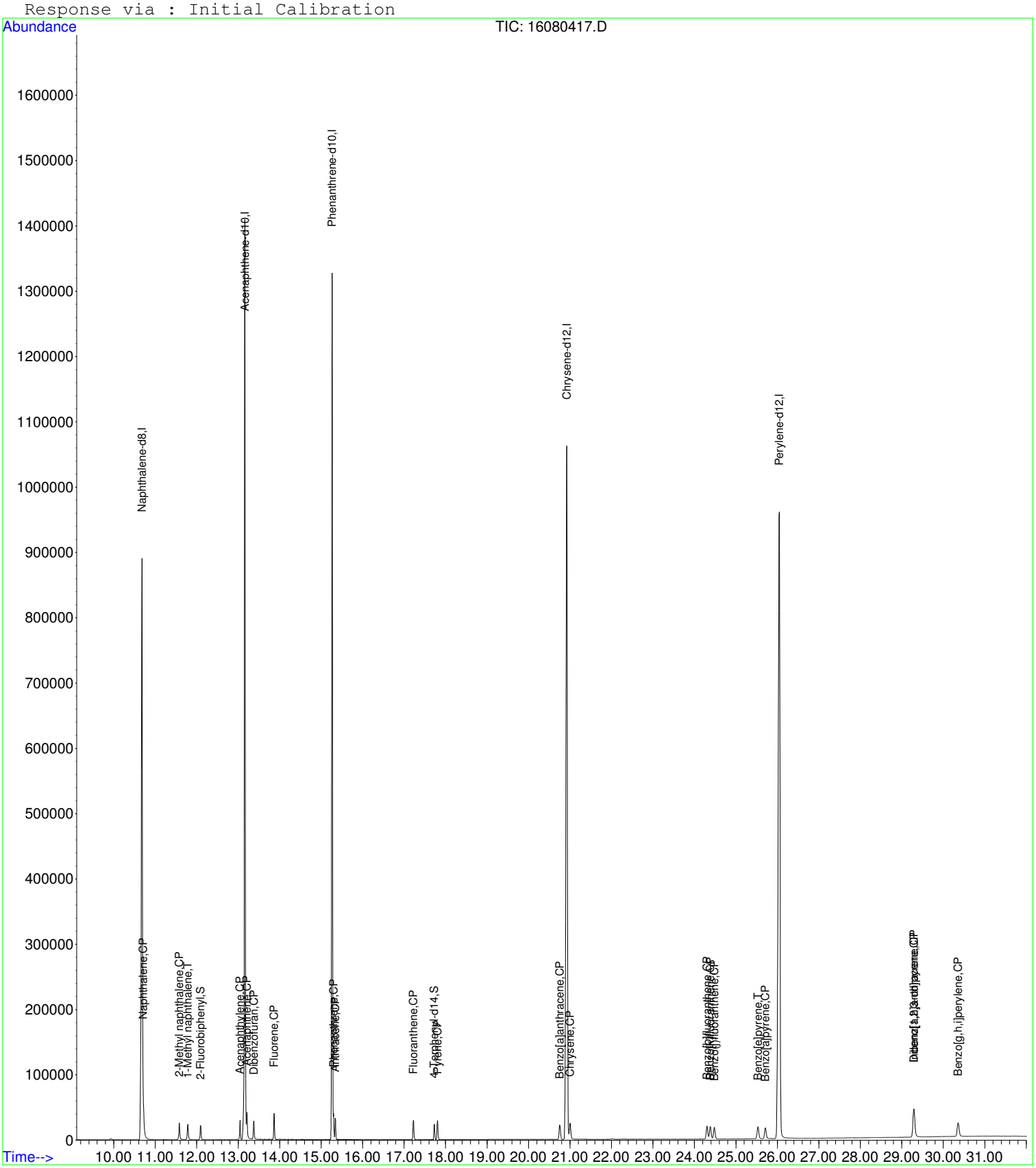
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1584621	4000.00	ug/kg	113
5) Acenaphthene-d10	13.16	164	891771	4000.00	ug/kg	149
11) Phenanthrene-d10	15.26	188	1552732	4000.00	ug/kg	98
17) Chrysene-d12	20.92	240	1865699	4000.00	ug/kg	102
20) Perylene-d12	26.05	264	1936725	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	26300	84.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
16) 4-Terphenyl-d14	17.73	244	34193	93.31	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.33%#		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	28635	79.42	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	21152	90.50	ug/kg	95
4) 1-Methyl naphthalene	11.79	142	19053	92.03	ug/kg	99
6) Dibenzofuran	13.38	168	30291	83.93	ug/kg	100
8) Acenaphthylene	13.05	152	32354	81.93	ug/kg	98
9) Acenaphthene	13.21	154	18729	81.89	ug/kg	99
10) Fluorene	13.86	166	23882	83.07	ug/kg	98
12) Phenanthrene	15.30	178	31394	85.28	ug/kg	99
13) Anthracene	15.34	178	30624	79.06	ug/kg	99
14) Fluoranthene	17.22	202	34314	78.65	ug/kg	99
15) Pyrene	17.80	202	35063	79.26	ug/kg	99
18) Benzo[a]anthracene	20.75	228	34854	82.88	ug/kg	99
19) Chrysene	21.01	228	34348	84.90	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	39248	87.78	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	36966	90.12	ug/kg	98
23) Benzo(j)fluoranthene	24.48	252	34465	87.43	ug/kg	97
24) Benzo[e]pyrene	25.53	252	38572	88.90	ug/kg	98
25) Benzo[a]pyrene	25.71	252	35168	81.41	ug/kg	100
26) Dibenz[a,h]anthracene	29.29	278	44118	105.53	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.29	276	52589	106.01	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	44785	107.79	ug/kg	95

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080417.D Vial: 17
Acq On : 4 Aug 2016 6:37 pm Operator: DEW
Sample : 1607239-21AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080419.D Vial: 19
Acq On : 4 Aug 2016 7:57 pm Operator: DEW
Sample : ICV2-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

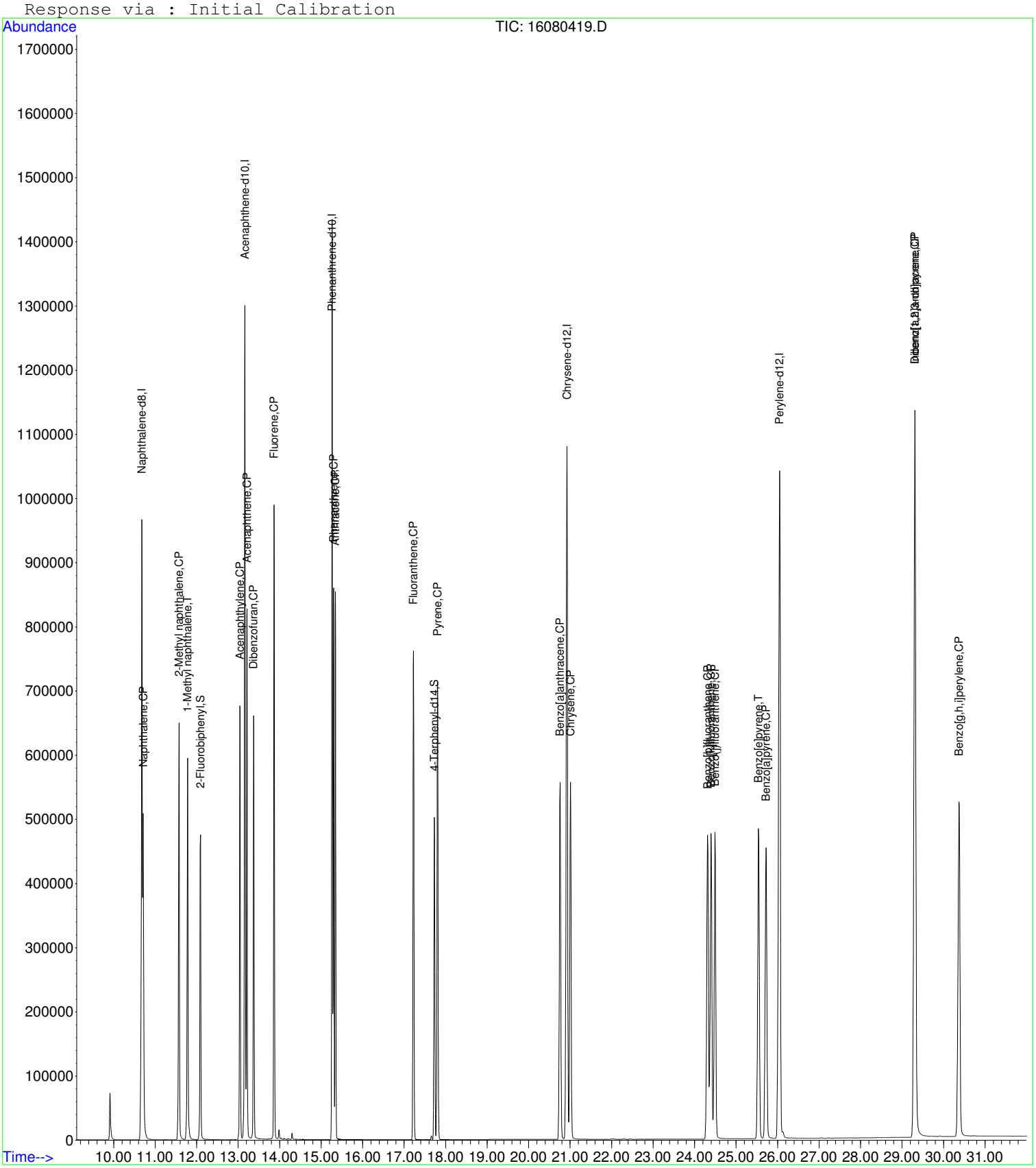
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1493554	4000.00	ug/kg	106
5) Acenaphthene-d10	13.16	164	779917	4000.00	ug/kg	130
11) Phenanthrene-d10	15.26	188	1649947	4000.00	ug/kg	104
17) Chrysene-d12	20.93	240	1905364	4000.00	ug/kg	104
20) Perylene-d12	26.05	264	2115310	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	493474	1813.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.35%			
16) 4-Terphenyl-d14	17.73	244	696263	1788.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.70%			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	657885	1935.98	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	440203	1998.22	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	396484	2031.87	ug/kg	99
6) Dibenzofuran	13.37	168	638076	2021.64	ug/kg	99
8) Acenaphthylene	13.04	152	685294	1984.19	ug/kg	99
9) Acenaphthene	13.21	154	409076	2045.10	ug/kg	99
10) Fluorene	13.86	166	540804	2150.82	ug/kg	99
12) Phenanthrene	15.30	178	762059	1948.13	ug/kg	100
13) Anthracene	15.34	178	779343	1893.41	ug/kg	100
14) Fluoranthene	17.22	202	828804	1787.85	ug/kg	100
15) Pyrene	17.81	202	826660	1758.65	ug/kg	100
18) Benzo[a]anthracene	20.76	228	878365	2045.28	ug/kg	99
19) Chrysene	21.01	228	826155	1999.63	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	987186	2021.55	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	903954	2017.78	ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	874175	2030.47	ug/kg	100
24) Benzo[e]pyrene	25.54	252	960424	2026.67	ug/kg	100
25) Benzo[a]pyrene	25.72	252	953228	2020.27	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	1086014	2378.52	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	1273344	2350.09	ug/kg	100
28) Benzo[g,h,i]perylene	30.38	276	1105144	2435.25	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080419.D Vial: 19
Acq On : 4 Aug 2016 7:57 pm Operator: DEW
Sample : ICV2-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

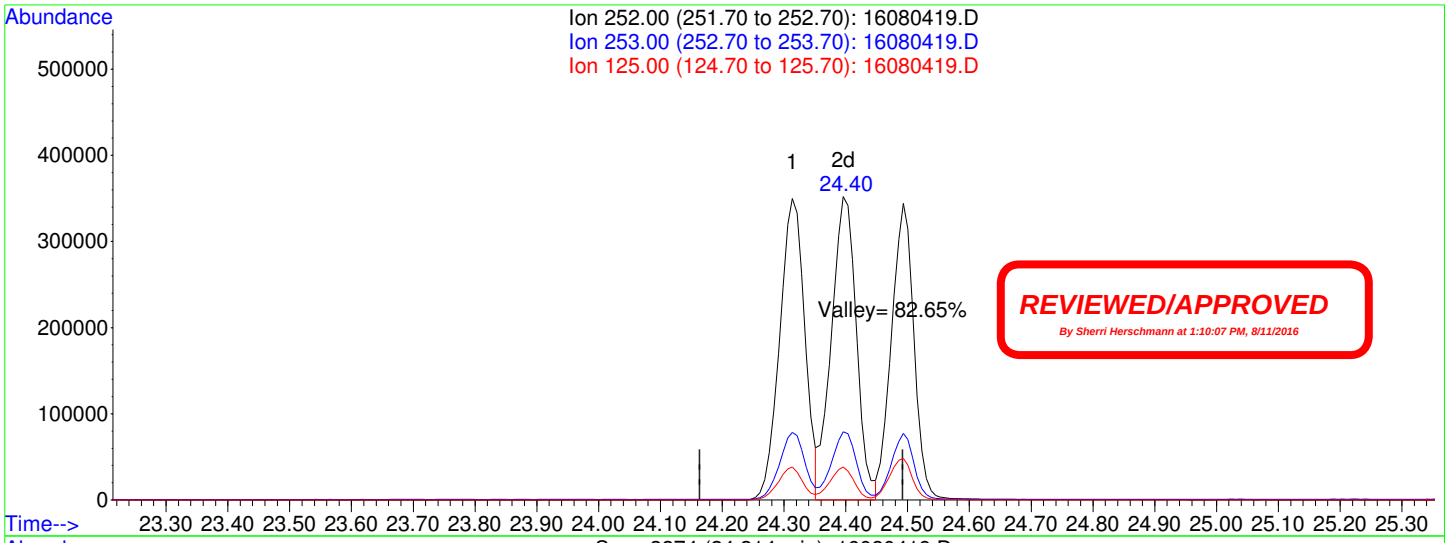
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

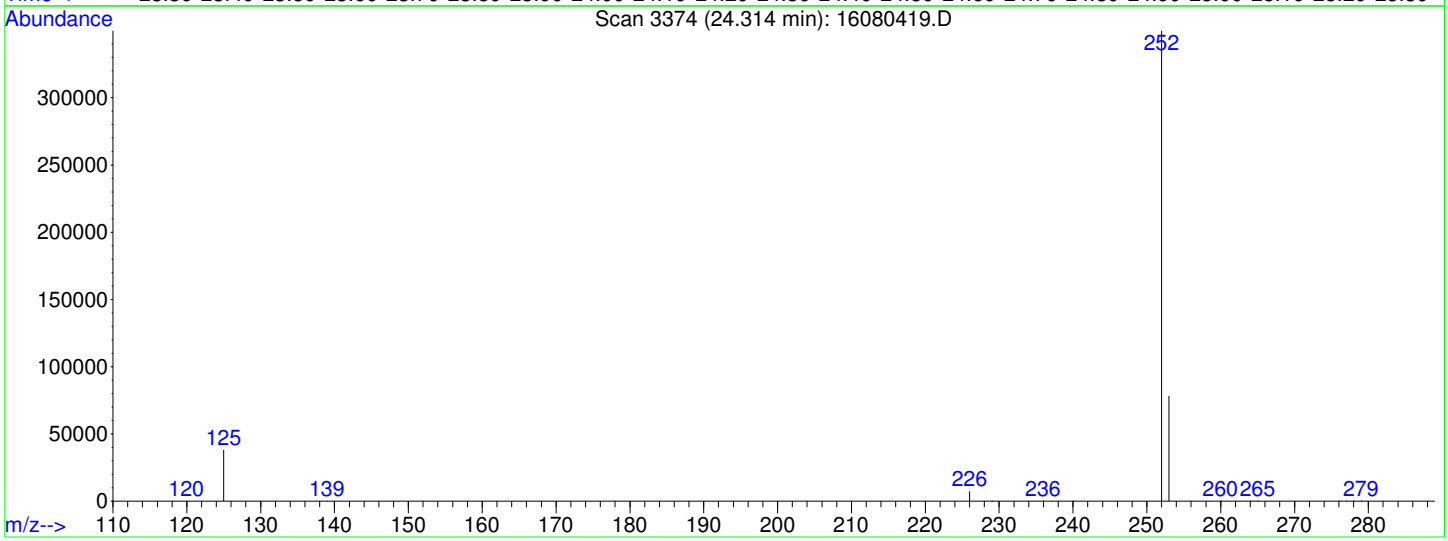


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160804\16080419.D Vial: 19
Acq On : 4 Aug 2016 7:57 pm Operator: DEW
Sample : ICV2-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 20:29 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080419.D

(21) Benzo[b]fluoranthene (CP)

24.31min 2021.55ug/kg

response 987186

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.22
125.00	10.60	10.90
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080421.D Vial: 21
Acq On : 4 Aug 2016 9:19 pm Operator: DEW
Sample : SB-160804 Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

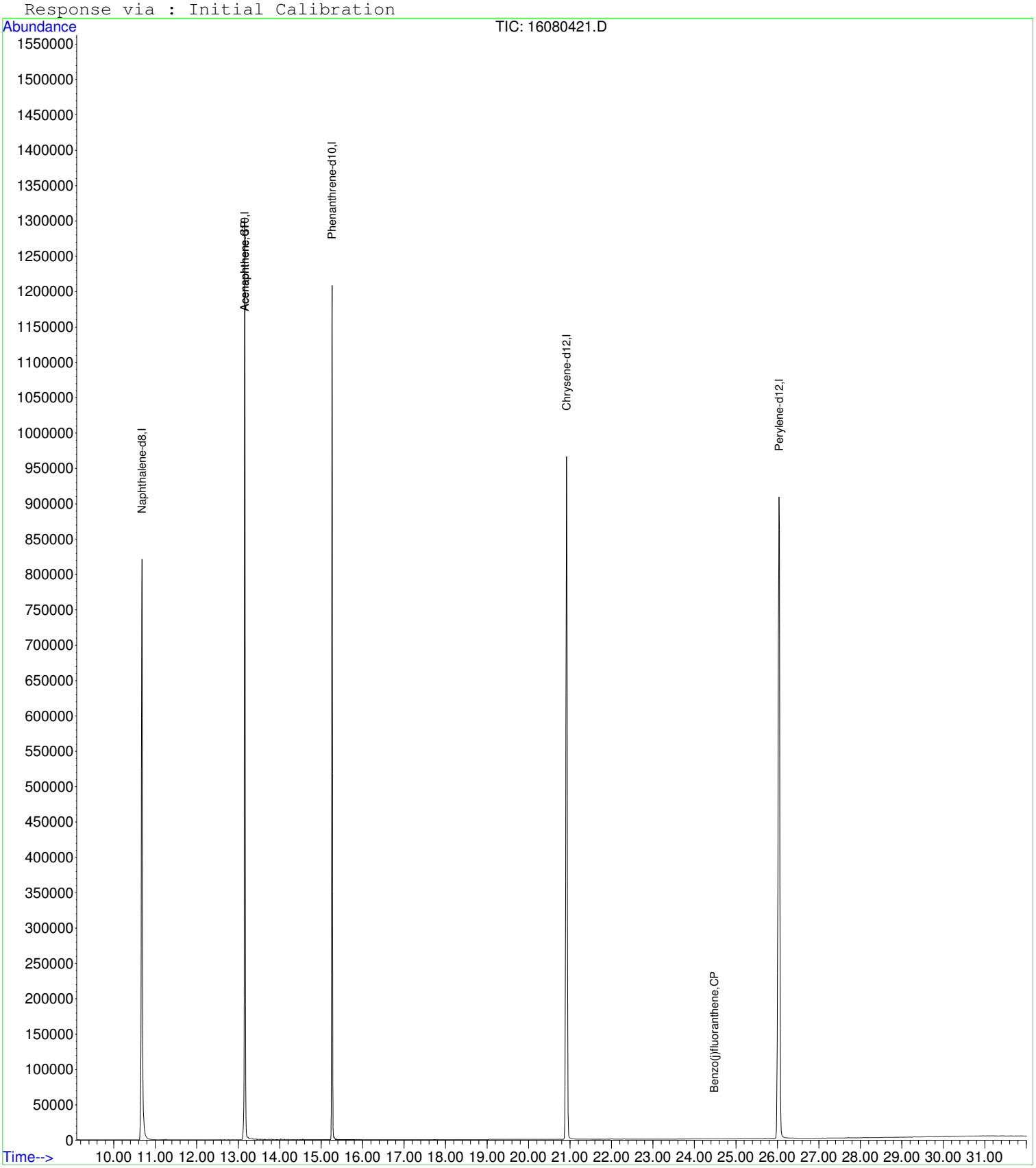
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1391376	4000.00	ug/kg	99
5) Acenaphthene-d10	13.16	164	807415	4000.00	ug/kg	135
11) Phenanthrene-d10	15.26	188	1374950	4000.00	ug/kg	86
17) Chrysene-d12	20.92	240	1695806	4000.00	ug/kg	92
20) Perylene-d12	26.04	264	1803093	4000.00	ug/kg	93
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	172	0.61	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#		
16) 4-Terphenyl-d14	17.73	244	768	2.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2790	13.47	ug/kg#	10
23) Benzo(j)fluoranthene	24.48	252	19	0.05	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080421.D Vial: 21
Acq On : 4 Aug 2016 9:19 pm Operator: DEW
Sample : SB-160804 Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080422.D Vial: 22
Acq On : 4 Aug 2016 9:59 pm Operator: DEW
Sample : 1607239-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

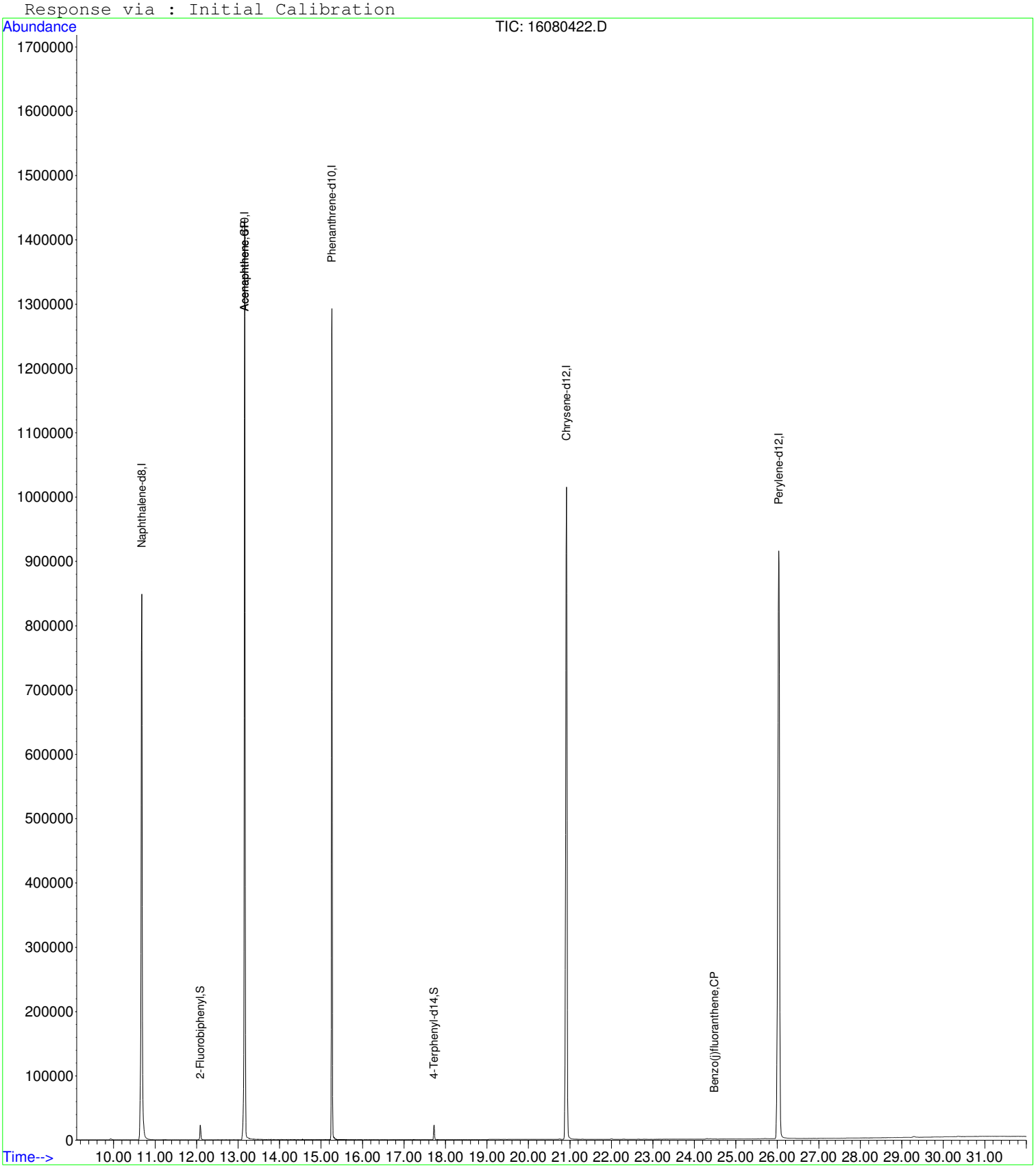
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1488820	4000.00	ug/kg	106
5) Acenaphthene-d10	13.16	164	882614	4000.00	ug/kg	147
11) Phenanthrene-d10	15.26	188	1455646	4000.00	ug/kg	92
17) Chrysene-d12	20.92	240	1737573	4000.00	ug/kg	95
20) Perylene-d12	26.03	264	1829828	4000.00	ug/kg	95
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	27202	88.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.21%#		
16) 4-Terphenyl-d14	17.72	244	32330	94.11	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.35%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2918	~~12.89~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.48	252	152	0.41	ug/kg	80

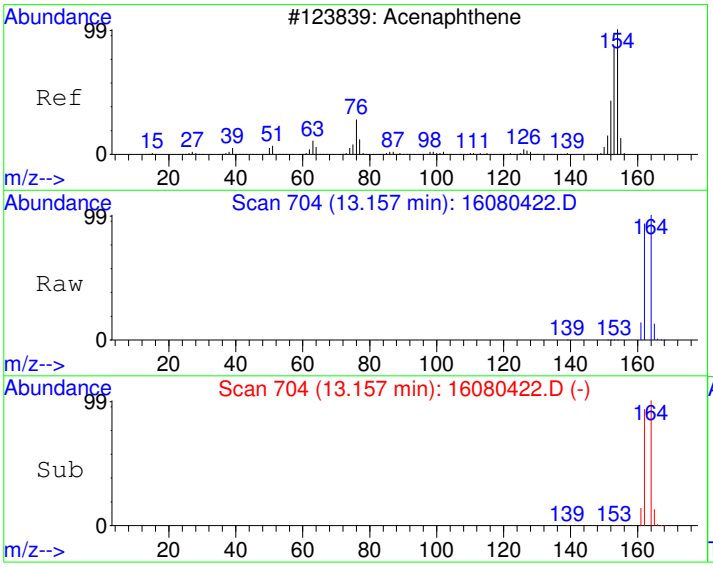
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080422.D Vial: 22
Acq On : 4 Aug 2016 9:59 pm Operator: DEW
Sample : 1607239-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:31 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

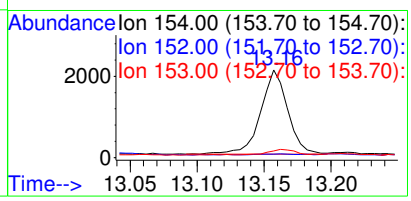


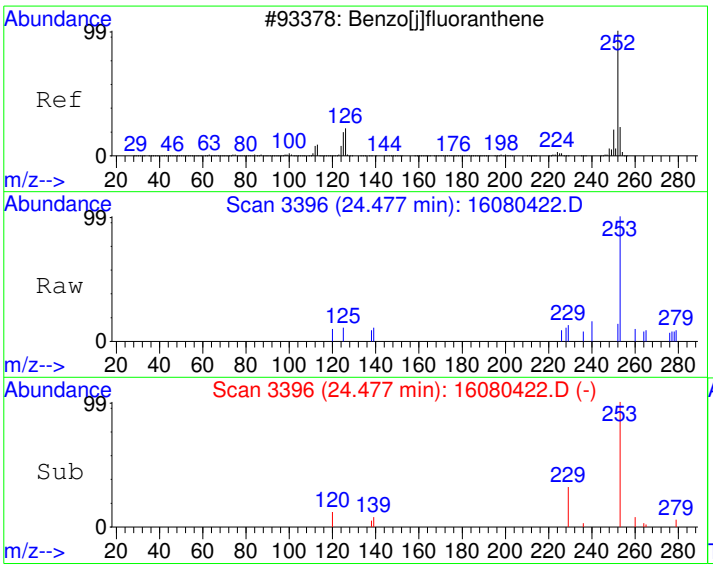


#9
Acenaphthene
Concen: ~~12.89 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080422.D
Acq: 4 Aug 2016 9:59 pm

Tgt Ion:154 Resp: 2918

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	4.7	76.2	136.2#

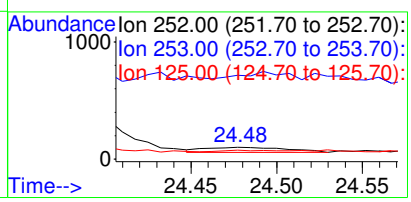




#23
Benzo(j)fluoranthene
Concen: 0.41 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.03 min
Lab File: 16080422.D
Acq: 4 Aug 2016 9:59 pm

Tgt Ion:252 Resp: 152

Ion	Ratio	Lower	Upper
252	100		
253	15.6	2.2	42.2
125	26.7	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080423.D Vial: 23
Acq On : 4 Aug 2016 10:38 pm Operator: DEW
Sample : 1607239-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

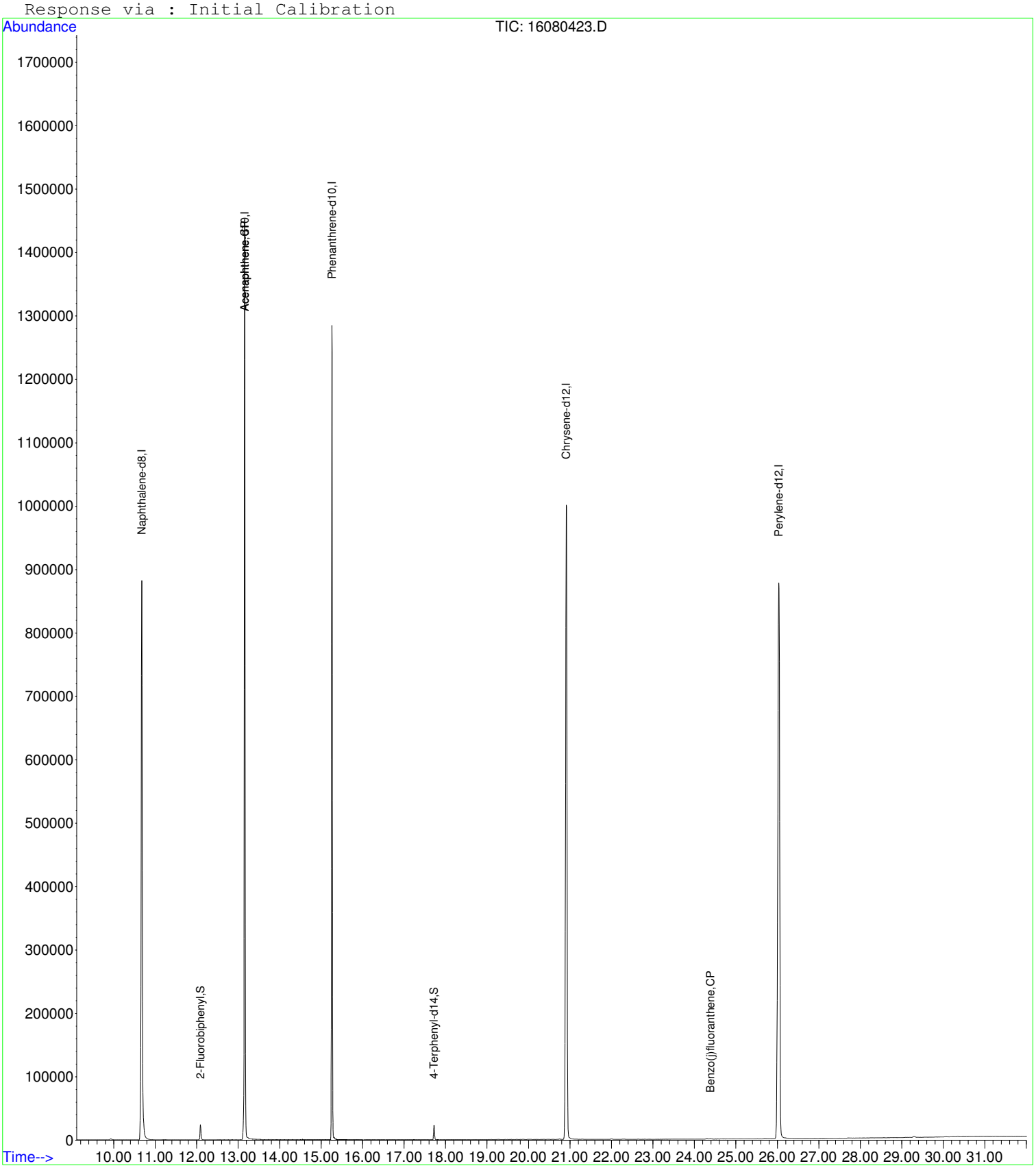
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1473648	4000.00	ug/kg	105
5) Acenaphthene-d10	13.16	164	867447	4000.00	ug/kg	145
11) Phenanthrene-d10	15.26	188	1479877	4000.00	ug/kg	93
17) Chrysene-d12	20.92	240	1775153	4000.00	ug/kg	97
20) Perylene-d12	26.03	264	1883588	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	26324	87.00	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.17%#		
16) 4-Terphenyl-d14	17.72	244	33186	95.03	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.38%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2990	~~13.44 ug/kg#~~		~~10~~
23) Benzo(j)fluoranthene	24.39	252	1237	3.23	ug/kg	90

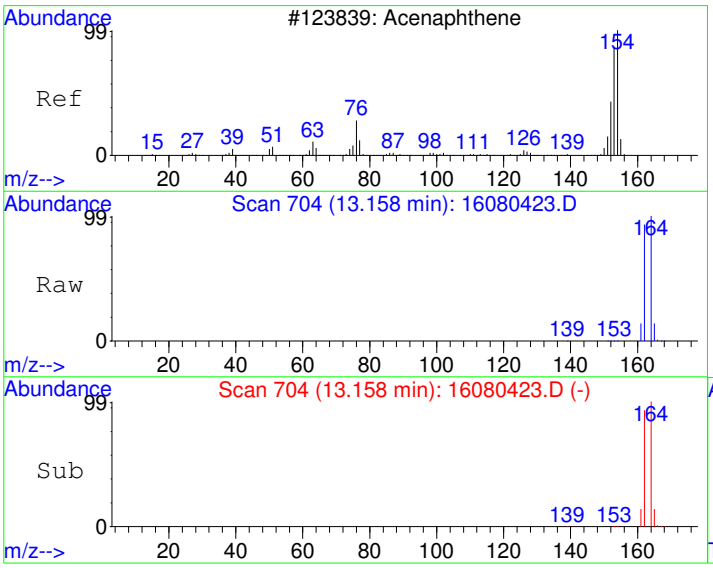
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080423.D Vial: 23
Acq On : 4 Aug 2016 10:38 pm Operator: DEW
Sample : 1607239-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

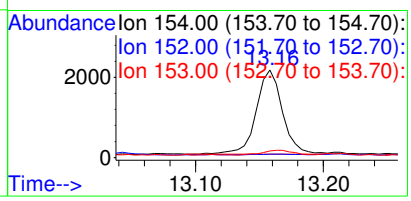


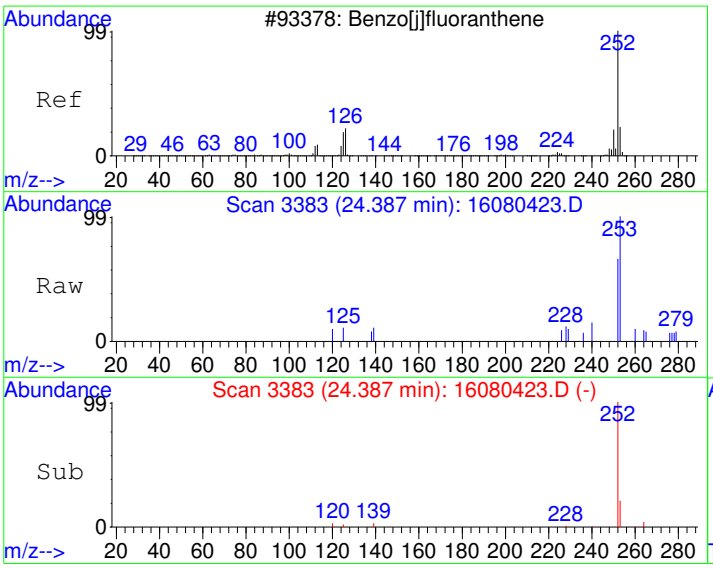


#9
Acenaphthene
Concen: ~~13.44 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080423.D
Acq: 4 Aug 2016 10:38 pm

Tgt Ion:154 Resp: 2990

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	4.3	76.2	136.2#

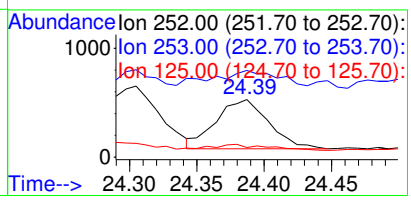




#23
Benzo(j)fluoranthene
Concen: 3.23 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.12 min
Lab File: 16080423.D
Acq: 4 Aug 2016 10:38 pm

Tgt Ion:252 Resp: 1237

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.2	42.2
125	6.2	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080424.D Vial: 24
Acq On : 4 Aug 2016 11:19 pm Operator: DEW
Sample : 1607239-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

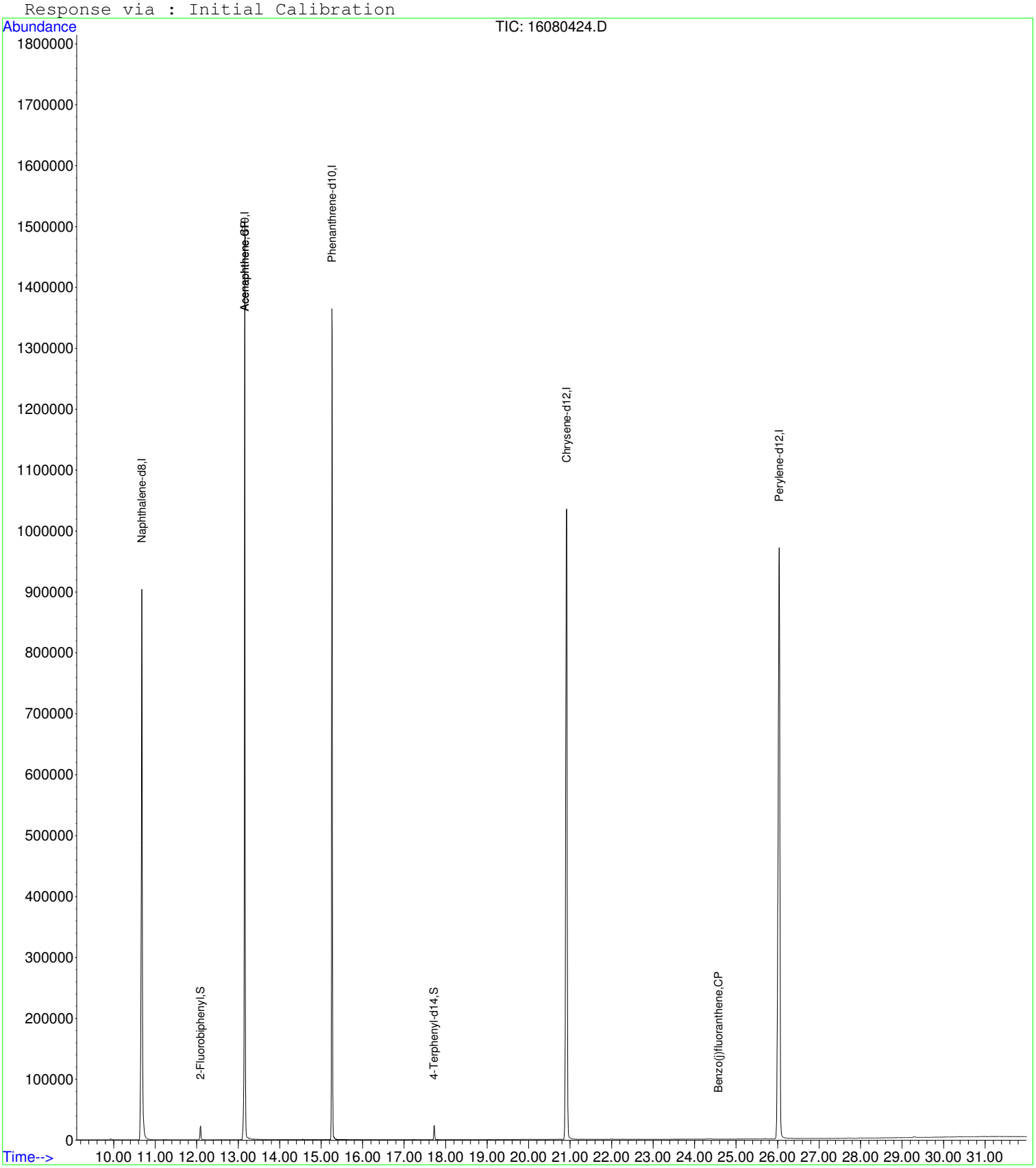
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1589520	4000.00	ug/kg	113
5) Acenaphthene-d10	13.16	164	913049	4000.00	ug/kg	152
11) Phenanthrene-d10	15.26	188	1582221	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	1865042	4000.00	ug/kg	102
20) Perylene-d12	26.04	264	1956472	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25990	81.61	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.04%#		
16) 4-Terphenyl-d14	17.72	244	33575	89.92	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.25%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3204	~~13.68~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.57	252	43	0.11	ug/kg#	19

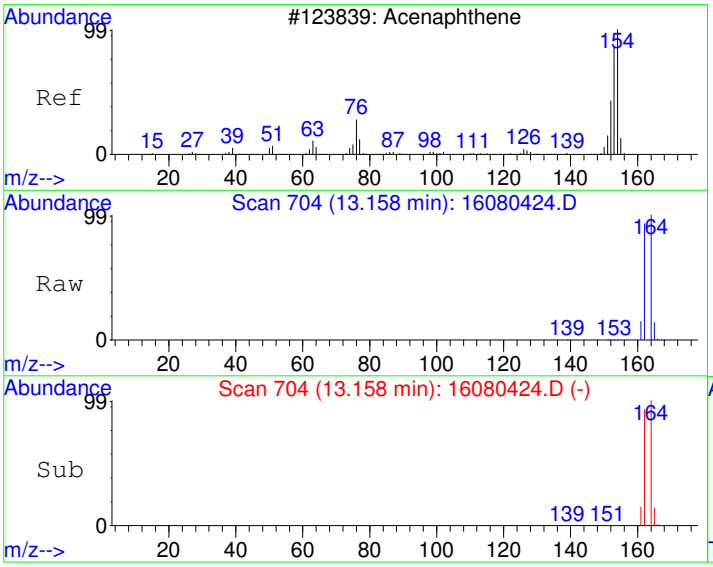
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080424.D Vial: 24
Acq On : 4 Aug 2016 11:19 pm Operator: DEW
Sample : 1607239-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

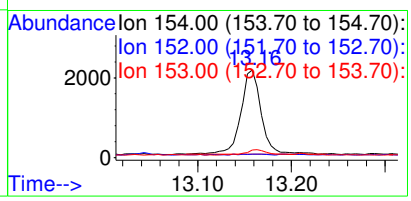


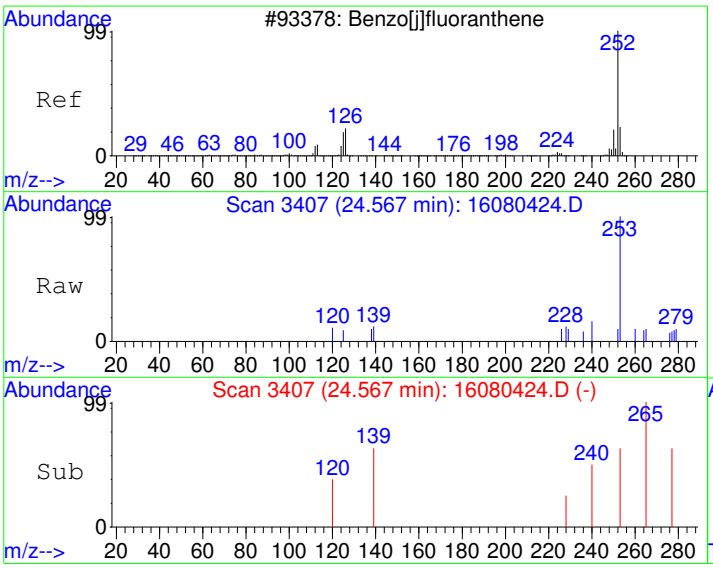


#9
Acenaphthene
Concen: ~~13.68 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080424.D
Acq: 4 Aug 2016 11:19 pm

Tgt Ion:154 Resp: 3204

Ion	Ratio	Lower	Upper
154	100		
152	0.8	19.1	79.1#
153	6.0	76.2	136.2#

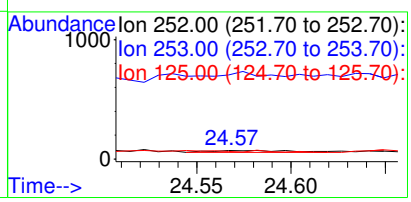




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 24.57 min Scan# 3407
Delta R.T. 0.06 min
Lab File: 16080424.D
Acq: 4 Aug 2016 11:19 pm

Tgt Ion:252 Resp: 43

Ion	Ratio	Lower	Upper
252	100		
253	68.8	2.2	42.2#
125	37.5	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080431.D Vial: 31
Acq On : 5 Aug 2016 3:58 am Operator: DEW
Sample : CCV1-160804 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

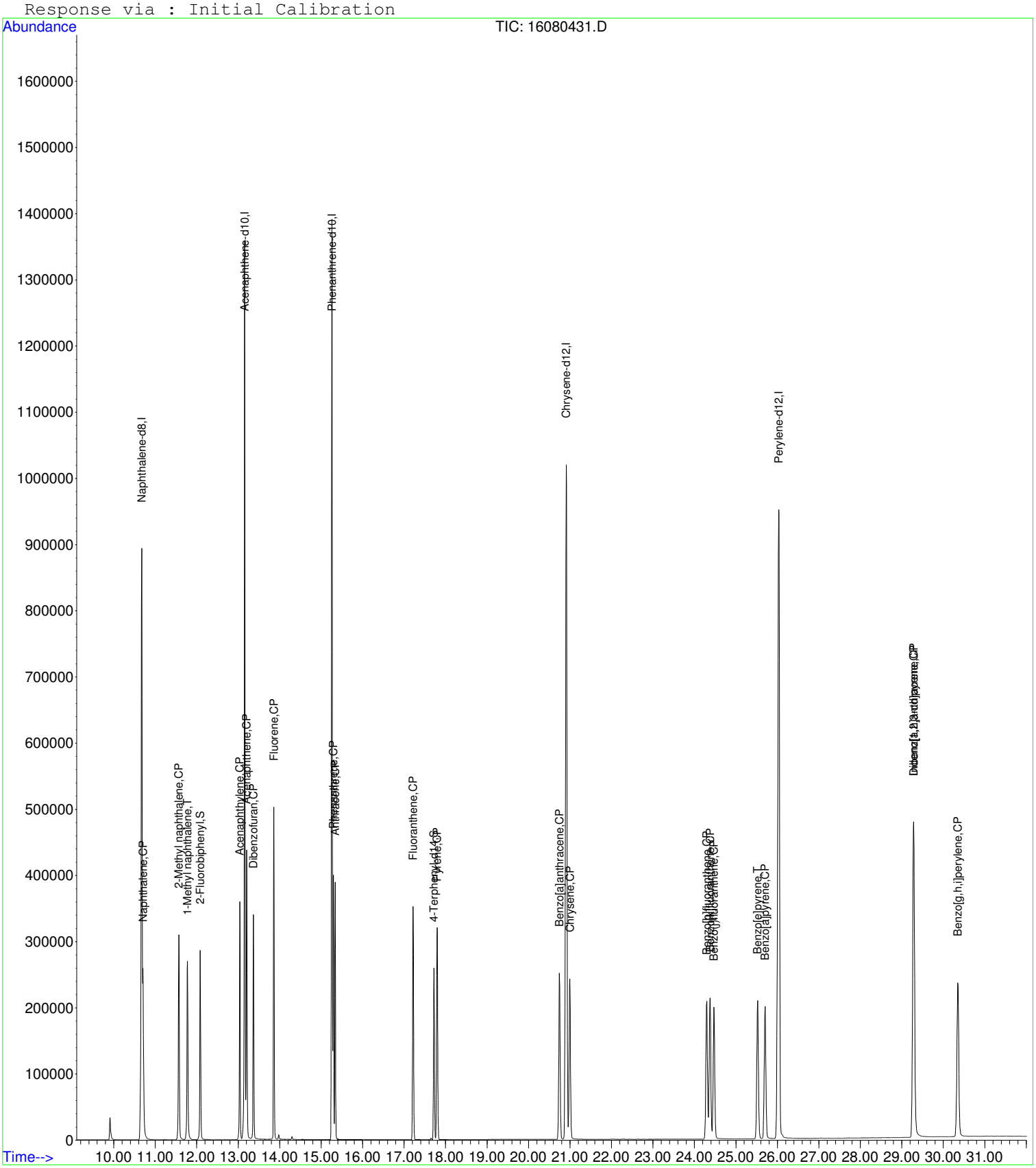
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1440503	4000.00	ug/kg	103
5) Acenaphthene-d10	13.16	164	836103	4000.00	ug/kg	139
11) Phenanthrene-d10	15.26	188	1622422	4000.00	ug/kg	102
17) Chrysene-d12	20.91	240	1856539	4000.00	ug/kg	101
20) Perylene-d12	26.03	264	1942760	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	288003	987.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.69%#			
16) 4-Terphenyl-d14	17.72	244	361260	943.55	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.59%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	306625	935.55	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	218052	1026.26	ug/kg	95
4) 1-Methyl naphthalene	11.78	142	195135	1036.84	ug/kg	99
6) Dibenzofuran	13.37	168	327802	968.80	ug/kg	100
8) Acenaphthylene	13.04	152	354014	956.13	ug/kg	100
9) Acenaphthene	13.20	154	212056	988.89	ug/kg	99
10) Fluorene	13.86	166	269603	1000.18	ug/kg	99
12) Phenanthrene	15.29	178	358296	931.49	ug/kg	99
13) Anthracene	15.34	178	355138	877.44	ug/kg	99
14) Fluoranthene	17.22	202	374319	821.16	ug/kg	99
15) Pyrene	17.80	202	372395	805.68	ug/kg	100
18) Benzo[a]anthracene	20.74	228	381659	912.07	ug/kg	100
19) Chrysene	21.00	228	358197	889.78	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	422095	941.13	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	393249	955.76	ug/kg	99
23) Benzo(j)fluoranthene	24.47	252	366691	927.37	ug/kg	99
24) Benzo[e]pyrene	25.52	252	409084	939.91	ug/kg	99
25) Benzo[a]pyrene	25.70	252	400858	925.04	ug/kg	99
26) Dibenz[a,h]anthracene	29.28	278	459710	1096.25	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	553444	1112.16	ug/kg	97
28) Benzo[g,h,i]perylene	30.35	276	480138	1151.98	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080431.D Vial: 31
Acq On : 5 Aug 2016 3:58 am Operator: DEW
Sample : CCV1-160804 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1607239

CAL ID: 676

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PP160725.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160725	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160725-1	1

Standards Used for the Calibration Curve

Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160725**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160725-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Karyn Lane Date: 07/25/2016

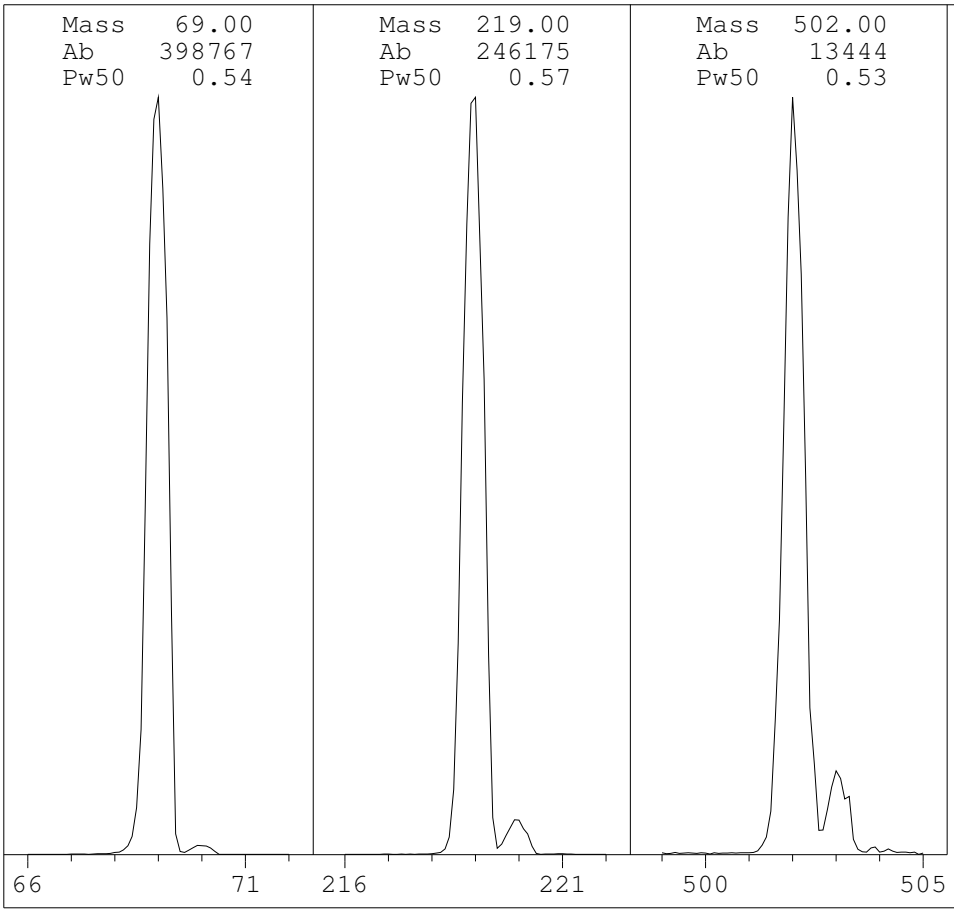
Second-Level Review: Don Winston Date: 07/29/2016

Spiked and ran by Don Winston. Reviewed by Karyn Lane.

HP5973

Instrument: GC/MS #6

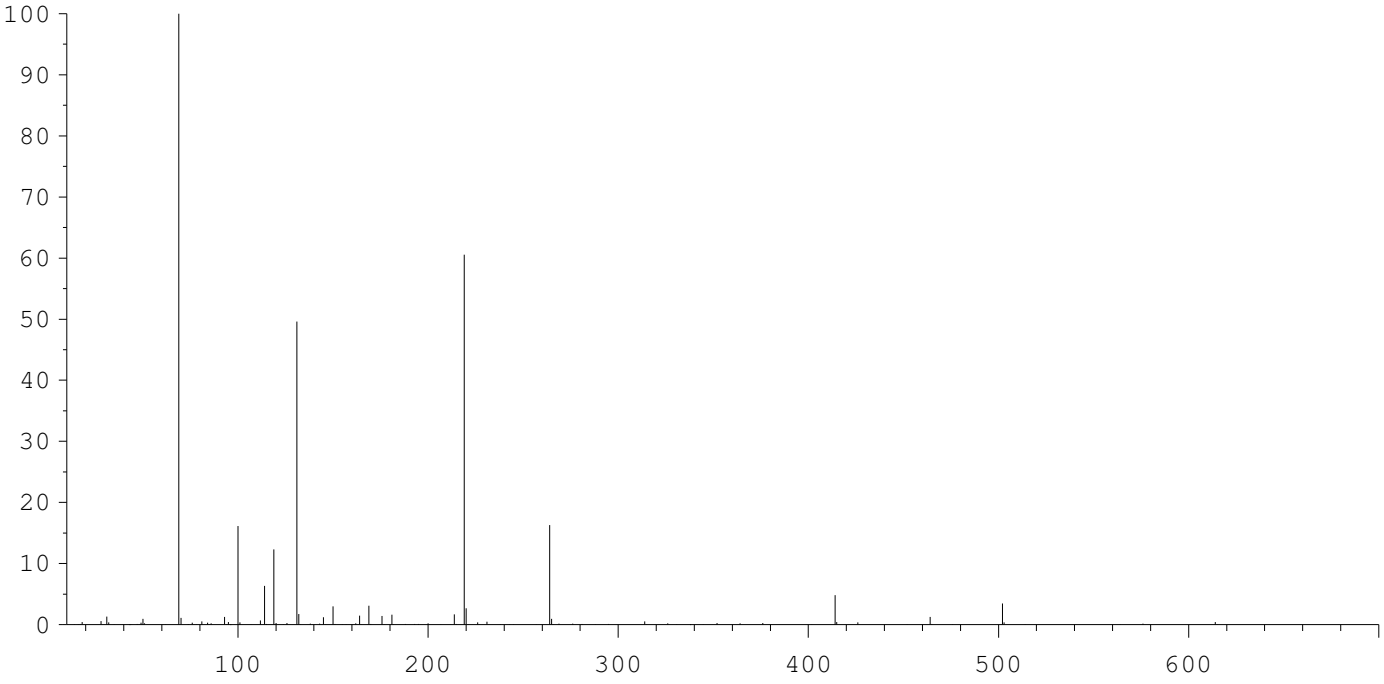
Mon Jul 25 13:16:58 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2195
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	80.7	HED	ON
EntLens	14.0	EMVolts	1565
EntOffs	16.06		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	82
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

113 peaks Base: 69.00 Abundance: 355392



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	355392	100.00	70.00	3847	1.08
219.00	215296	60.58	220.00	9408	4.37
502.00	12326	3.47	503.00	1362	11.05

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	49.6	44.6	4.8	3.5

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160725.M
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response Via : Initial Calibration

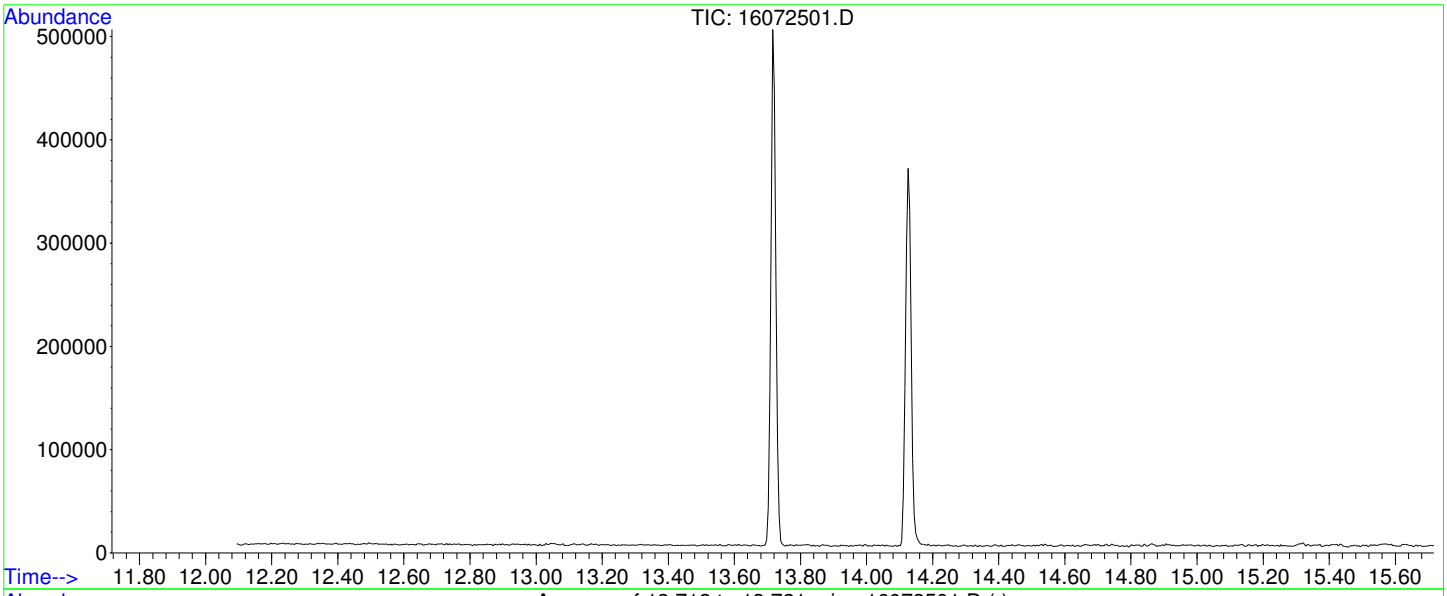
REVIEWED/APPROVED
By Sherri Herschmann at 10:01:48 AM, 7/29/2016

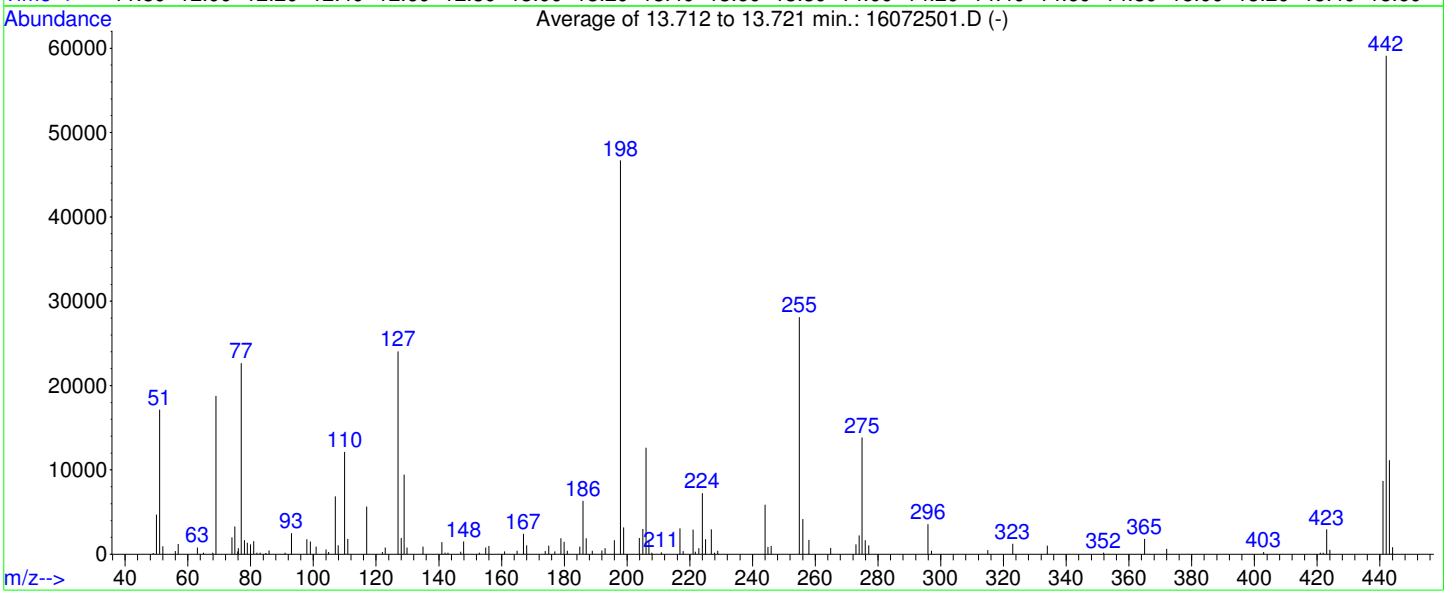
Calibration Files
1 =16072502.D 2 =16072503.D 3 =16072504.D 4 =16072505.D 5 =16072506.D 6 =16072507.D 7 =16072508.D
8 =16072509.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------	ISTD	----------												
2)	CP	Naphthalene	1.190	0.956	0.872	0.883	0.854	0.825	0.857	0.840	0.910	13.19	A	0.1319	0.0000	0.9096	0.0000
3)	CP	2-Methyl napht...	0.690	0.707	0.650	0.677	0.635	0.620	0.647	0.633	0.657	4.67	A	0.0467	0.0000	0.6574	0.0000
4)	T	1-Methyl napht...	0.682	0.616	0.595	0.622	0.584	0.567	0.592	0.580	0.605	5.98	A	0.0598	0.0000	0.6047	0.0000
5)	I	Acenaphthene-d10	----------	ISTD	----------												
6)	CP	Dibenzofuran	2.017	1.701	1.513	1.580	1.513	1.444	1.489	1.449	1.588	12.08#	A	0.1208	0.0000	1.5882	0.0000
7)	S	2-Fluorobiphenyl	2.420	1.811	1.425	1.392	1.317	1.275	1.301	1.298	1.530	26.11	*Q	0.9999	0.0014	1.2904	0.0053
8)	CP	Acenaphthylene	2.010	1.771	1.654	1.718	1.689	1.659	1.714	1.708	1.741	6.61	A	0.0661	0.0000	1.7405	0.0000
9)	CP	Acenaphthene	1.169	1.084	1.013	1.035	1.006	0.967	0.999	0.998	1.034	6.21	A	0.0621	0.0000	1.0338	0.0000
10)	CP	Fluorene	1.478	1.317	1.267	1.306	1.266	1.203	1.256	1.242	1.292	6.43	A	0.0643	0.0000	1.2918	0.0000
11)	I	Phenanthrene-d10	----------	ISTD	----------												
12)	CP	Phenanthrene	0.924	0.831	0.758	0.738	0.715	0.688	0.703	0.700	0.757	10.75	A	0.1075	0.0000	0.7569	0.0000
13)	CP	Anthracene	0.911	0.831	0.776	0.766	0.752	0.713	0.724	0.726	0.775	8.61	A	0.0861	0.0000	0.7748	0.0000
14)	CP	Fluoranthene	1.135	0.980	0.966	0.895	0.918	0.870	0.849	0.832	0.931	10.50	A	0.1050	0.0000	0.9307	0.0000
15)	CP	Pyrene	1.243	1.023	0.995	0.917	0.923	0.874	0.848	0.845	0.958	13.76	A	0.1376	0.0000	0.9584	0.0000
16)	S	4-Terphenyl-d14		2.590	1.312	1.045	0.937	0.870	0.827	0.820	1.200	53.03	*Q	0.9995	0.0046	0.8576	-0.0351
17)	I	Chrysene-d12	----------	ISTD	----------												
18)	CP	Benzo[a]anthra...	0.968	0.906	0.811	0.825	0.839	0.822	0.845	0.847	0.858	6.19	A	0.0619	0.0000	0.8576	0.0000
19)	CP	Chrysene	0.935	0.872	0.779	0.789	0.779	0.762	0.774	0.772	0.808	7.66	A	0.0766	0.0000	0.8077	0.0000
20)	I	Perylene-d12	----------	ISTD	----------												
21)	CP	Benzo[b]fluora...	1.089	0.949	0.862	0.882	0.873	0.853	0.902	0.902	0.914	8.41	A	0.0841	0.0000	0.9140	0.0000
22)	CP	Benzo[k]fluora...	1.018	0.909	0.812	0.836	0.788	0.811	0.779	0.752	0.838	10.30	A	0.1030	0.0000	0.8379	0.0000
23)	CP	Benzo(j)fluora...	0.875	0.837	0.755	0.787	0.775	0.761	0.778	0.779	0.793	5.21	A	0.0521	0.0000	0.7933	0.0000
24)	T	Benzo[e]pyrene	1.003	0.927	0.833	0.854	0.836	0.814	0.843	0.835	0.868	7.37	A	0.0737	0.0000	0.8683	0.0000
25)	CP	Benzo[a]pyrene	1.056	0.887	0.812	0.830	0.818	0.814	0.835	0.841	0.862	9.54	A	0.0954	0.0000	0.8617	0.0000
26)	CP	Dibenz[a,h]ant...	1.037	0.946	0.874	0.873	0.857	0.842	0.859	0.857	0.893	7.40	A	0.0740	0.0000	0.8930	0.0000
27)	CP	Indeno[1,2,3-c...	1.277	1.161	1.037	1.045	1.025	1.000	1.017	1.018	1.072	9.01	A	0.0901	0.0000	1.0725	0.0000
28)	CP	Benzo[g,h,i]pe...	0.895	0.811	0.722	0.736	0.709	0.691	0.830	0.832	0.778	9.41	A	0.0941	0.0000	0.7783	0.0000

(#) = Out of Range

Data File : C:\HPCHEM\1\DATA\160725\16072501.D Vial: 1
Acq On : 25 Jul 2016 1:19 pm Operator: DEW
Sample : DFTPP-160725 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration





AutoFind: Scans 345, 346, 347; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.7	17151	PASS
68	69	0.00	2	1.1	209	PASS
69	198	0.00	100	40.2	18768	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	24075	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	46696	PASS
199	198	5	9	6.8	3193	PASS
275	198	10	60	29.6	13841	PASS
365	198	1	200	3.9	1815	PASS
441	442	0.01	24	14.7	8680	PASS
442	198	50	400	126.6	59117	PASS
443	442	15	24	18.8	11143	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 10:04:29 AM, 7/29/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072502.D Vial: 2
Acq On : 25 Jul 2016 1:58 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

This is the lowest point, but 10 ppb is the lowest RL for any PAH test code. See next for reprocessed low point.

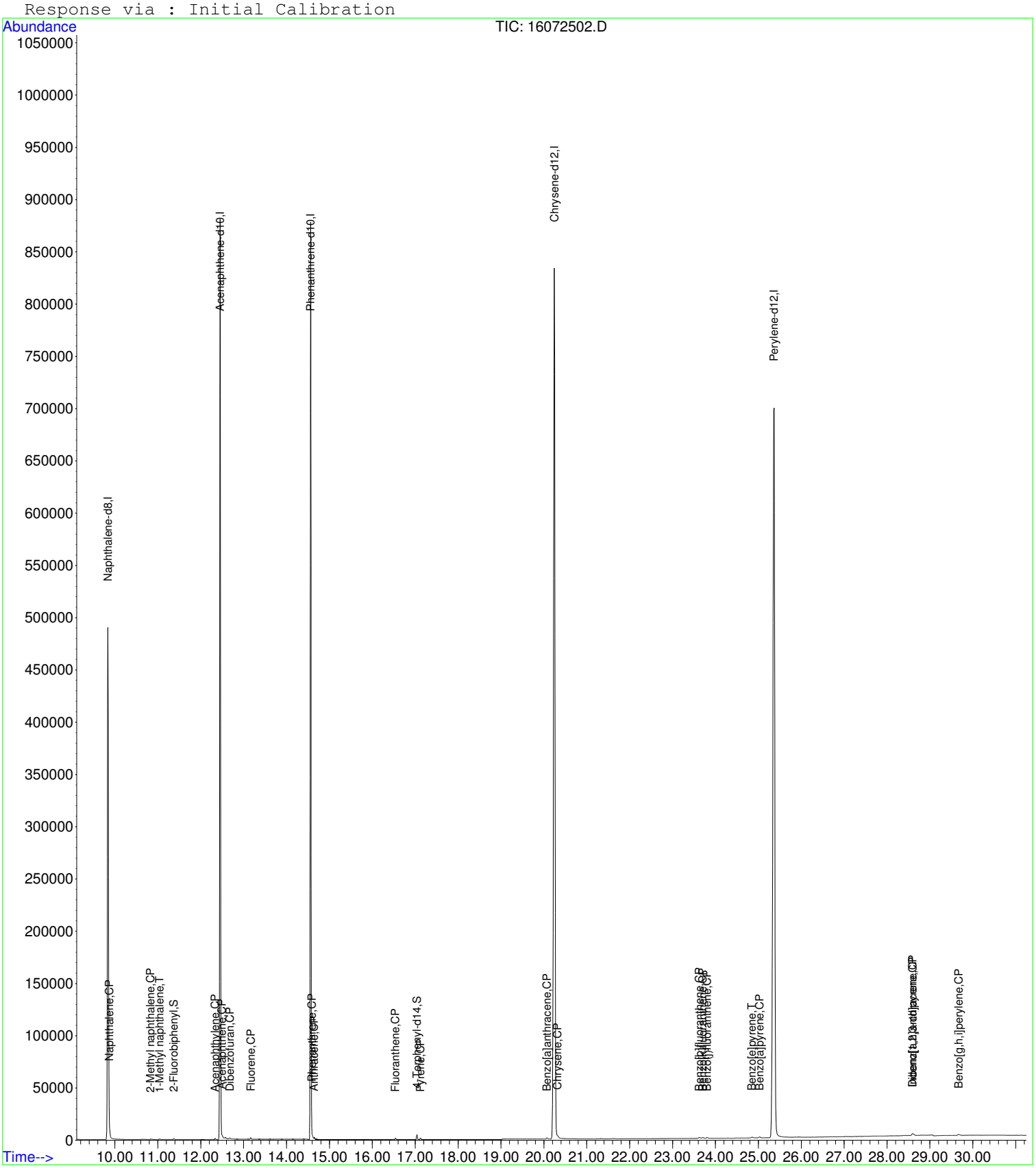
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	771810	4000.00	ug/kg	86
5) Acenaphthene-d10	12.45	164	494285	4000.00	ug/kg	87
11) Phenanthrene-d10	14.56	188	1234283	4000.00	ug/kg	82
17) Chrysene-d12	20.24	240	1461357	4000.00	ug/kg	91
20) Perylene-d12	25.37	264	1454753	4000.00	ug/kg	88
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	1495	4.95	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.12%#		
16) 4-Terphenyl-d14	17.04	244	7127	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	1148	6.54	ug/kg	97
3) 2-Methyl naphthalene	10.83	142	666	5.25	ug/kg	95
4) 1-Methyl naphthalene	11.04	142	658	5.64	ug/kg	95
6) Dibenzofuran	12.68	168	1246	6.35	ug/kg	93
8) Acenaphthylene	12.34	152	1242	5.77	ug/kg	97
9) Acenaphthene	12.50	154	722	5.65	ug/kg	99
10) Fluorene	13.17	166	913	5.72	ug/kg	98
12) Phenanthrene	14.60	178	1425	6.10	ug/kg	97
13) Anthracene	14.64	178	1406	5.88	ug/kg	95
14) Fluoranthene	16.54	202	1751	6.10	ug/kg	98
15) Pyrene	17.12	202	1918	6.49	ug/kg	99
18) Benzo[a]anthracene	20.07	228	1768	5.64	ug/kg	93
19) Chrysene	20.33	228	1708	5.79	ug/kg	98
21) Benzo[b]fluoranthene	23.62	252	1981	5.96	ug/kg	97
22) Benzo[k]fluoranthene	23.71	252	1851	6.07	ug/kg	97
23) Benzo(j)fluoranthene	23.80	252	1591	5.51	ug/kg	92
24) Benzo[e]pyrene	24.85	252	1824	5.78	ug/kg	81
25) Benzo[a]pyrene	25.03	252	1921	6.13	ug/kg	84
26) Dibenz[a,h]anthracene	28.60	278	1885	5.80	ug/kg	90
27) Indeno[1,2,3-cd]pyrene	28.61	276	2322	5.95	ug/kg	96
28) Benzo[g,h,i]perylene	29.67	276	1627	5.75	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072502.D Vial: 2
Acq On : 25 Jul 2016 1:58 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072503.D Vial: 3
Acq On : 25 Jul 2016 2:35 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

Reprocessed low point.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	886665	4000.00	ug/kg	99
5) Acenaphthene-d10	12.45	164	586227	4000.00	ug/kg	103
11) Phenanthrene-d10	14.56	188	1416475	4000.00	ug/kg	94
17) Chrysene-d12	20.24	240	1600505	4000.00	ug/kg	99
20) Perylene-d12	25.37	264	1621058	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	2654	9.61	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.24%#		
16) 4-Terphenyl-d14	17.04	244	9173	8.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.22%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	2120	10.51	ug/kg	99
3) 2-Methyl naphthalene	10.83	142	1568	10.76	ug/kg	98
4) 1-Methyl naphthalene	11.05	142	1365	10.18	ug/kg	98
6) Dibenzofuran	12.68	168	2493	10.71	ug/kg	99
8) Acenaphthylene	12.33	152	2596	10.18	ug/kg	99
9) Acenaphthene	12.50	154	1589	10.49	ug/kg	95
10) Fluorene	13.16	166	1930	10.19	ug/kg	89
12) Phenanthrene	14.60	178	2942	10.98	ug/kg	94
13) Anthracene	14.64	178	2942	10.72	ug/kg	99
14) Fluoranthene	16.53	202	3470	10.53	ug/kg	99
15) Pyrene	17.12	202	3623	10.67	ug/kg	97
18) Benzo[a]anthracene	20.08	228	3625	10.56	ug/kg	96
19) Chrysene	20.33	228	3488	10.79	ug/kg	96
21) Benzo[b]fluoranthene	23.62	252	3844	10.38	ug/kg	89
22) Benzo[k]fluoranthene	23.71	252	3682	10.84	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	3393	10.55	ug/kg	95
24) Benzo[e]pyrene	24.85	252	3757	10.68	ug/kg	98
25) Benzo[a]pyrene	25.03	252	3593	10.29	ug/kg	92
26) Dibenz[a,h]anthracene	28.60	278	3834	10.59	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.60	276	4706	10.83	ug/kg	96
28) Benzo[g,h,i]perylene	29.67	276	3288	10.42	ug/kg	91

Phenanthrene and Anthracene have the same area response, but the spectra was verified that 2 distinct peaks are observed (RT 14.60 and 14.64) and identified.

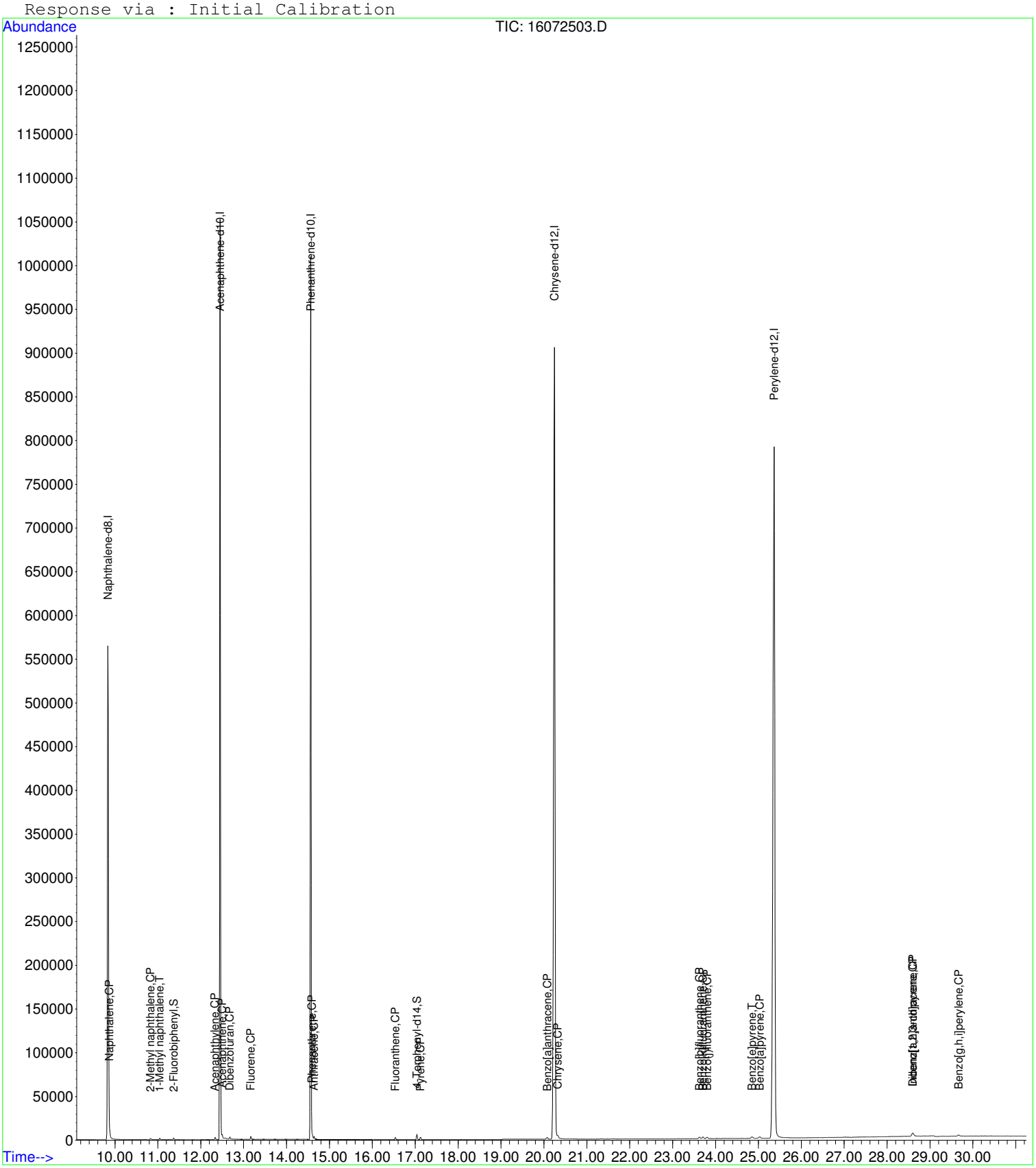
REVIEWED/APPROVED
By Sherri Herschmann at 10:16:08 AM, 7/29/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072503.D Vial: 3
Acq On : 25 Jul 2016 2:35 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072504.D Vial: 4
Acq On : 25 Jul 2016 3:13 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

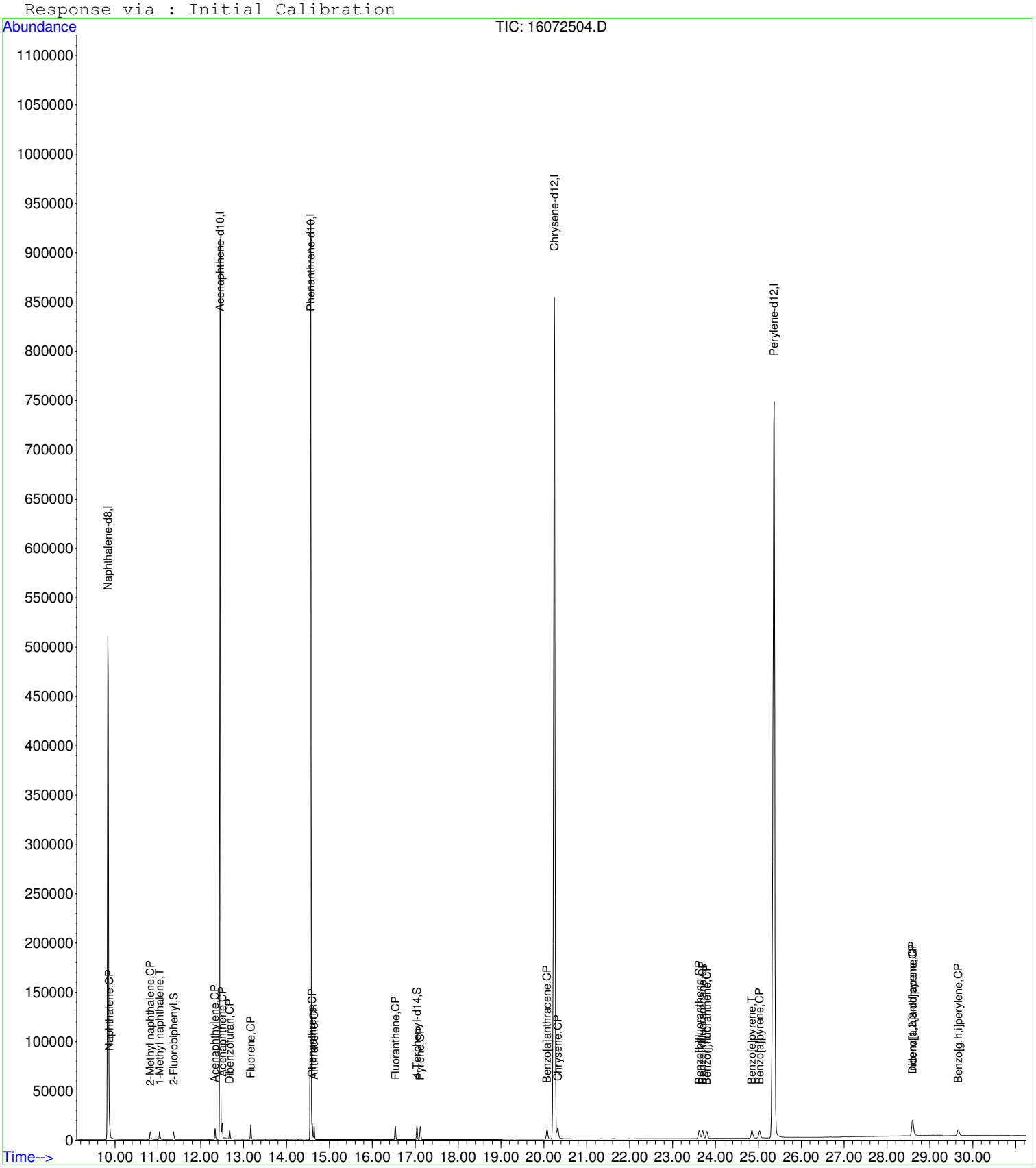
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	813295	4000.00	ug/kg	91
5) Acenaphthene-d10	12.45	164	521014	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1285991	4000.00	ug/kg	86
17) Chrysene-d12	20.24	240	1522749	4000.00	ug/kg	94
20) Perylene-d12	25.37	264	1548606	4000.00	ug/kg	93
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	9280	50.79	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#		
16) 4-Terphenyl-d14	17.04	244	21093	54.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.37%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	8869	47.96	ug/kg	99
3) 2-Methyl naphthalene	10.82	142	6605	49.41	ug/kg	98
4) 1-Methyl naphthalene	11.04	142	6047	49.18	ug/kg	95
6) Dibenzofuran	12.67	168	9854	47.63	ug/kg	99
8) Acenaphthylene	12.33	152	10775	47.53	ug/kg	99
9) Acenaphthene	12.50	154	6596	48.98	ug/kg	97
10) Fluorene	13.16	166	8249	49.03	ug/kg	98
12) Phenanthrene	14.60	178	12182	50.06	ug/kg	97
13) Anthracene	14.64	178	12477	50.09	ug/kg	100
14) Fluoranthene	16.54	202	15526	51.89	ug/kg	98
15) Pyrene	17.12	202	15993	51.90	ug/kg	100
18) Benzo[a]anthracene	20.07	228	15434	47.27	ug/kg	99
19) Chrysene	20.33	228	14821	48.20	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	16689	47.16	ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	15714	48.44	ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	14610	47.57	ug/kg	99
24) Benzo[e]pyrene	24.85	252	16134	48.00	ug/kg	99
25) Benzo[a]pyrene	25.03	252	15723	47.13	ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	16914	48.92	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	20076	48.35	ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	13977	46.39	ug/kg	93

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072504.D Vial: 4
Acq On : 25 Jul 2016 3:13 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072505.D Vial: 5
Acq On : 25 Jul 2016 3:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

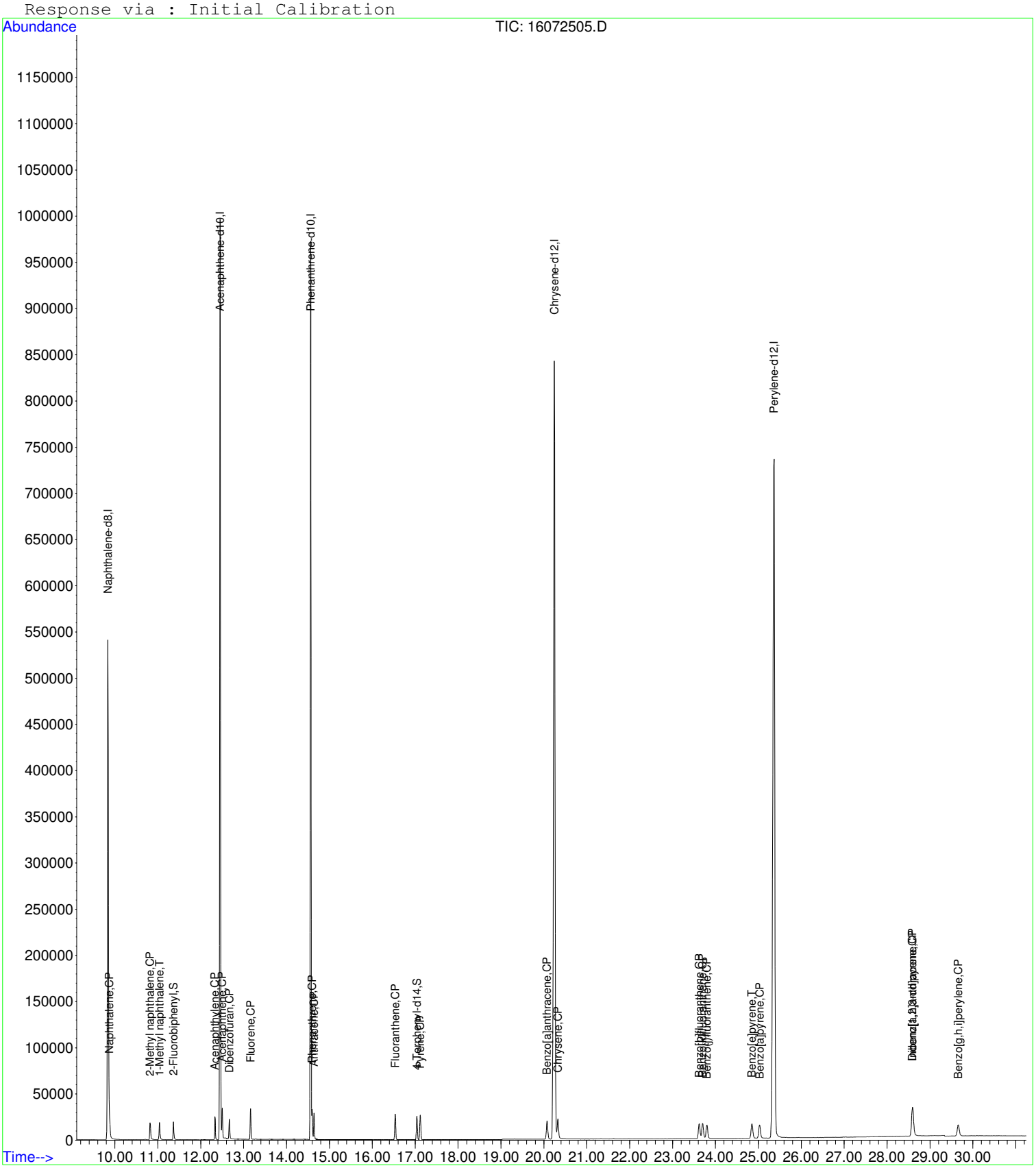
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	837791	4000.00	ug/kg	94
5) Acenaphthene-d10	12.45	164	557652	4000.00	ug/kg	98
11) Phenanthrene-d10	14.56	188	1391417	4000.00	ug/kg	93
17) Chrysene-d12	20.24	240	1514650	4000.00	ug/kg	94
20) Perylene-d12	25.37	264	1532166	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	19410	103.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.59%#		
16) 4-Terphenyl-d14	17.04	244	36336	100.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.51%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	18486	97.03	ug/kg	99
3) 2-Methyl naphthalene	10.82	142	14170	102.91	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	13038	102.94	ug/kg	99
6) Dibenzofuran	12.67	168	22026	99.48	ug/kg	100
8) Acenaphthylene	12.33	152	23958	98.73	ug/kg	100
9) Acenaphthene	12.50	154	14426	100.10	ug/kg	99
10) Fluorene	13.16	166	18210	101.12	ug/kg	97
12) Phenanthrene	14.60	178	25671	97.50	ug/kg	99
13) Anthracene	14.64	178	26632	98.81	ug/kg	98
14) Fluoranthene	16.53	202	31136	96.18	ug/kg	99
15) Pyrene	17.12	202	31891	95.66	ug/kg	99
18) Benzo[a]anthracene	20.07	228	31231	96.17	ug/kg	99
19) Chrysene	20.33	228	29877	97.68	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	33778	96.48	ug/kg	100
22) Benzo[k]fluoranthene	23.70	252	32004	99.71	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	30131	99.16	ug/kg	97
24) Benzo[e]pyrene	24.85	252	32705	98.34	ug/kg	100
25) Benzo[a]pyrene	25.03	252	31797	96.34	ug/kg	97
26) Dibenz[a,h]anthracene	28.59	278	33456	97.81	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.60	276	40036	97.46	ug/kg	95
28) Benzo[g,h,i]perylene	29.66	276	28208	94.62	ug/kg	95

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072505.D Vial: 5
Acq On : 25 Jul 2016 3:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072506.D Vial: 6
Acq On : 25 Jul 2016 4:29 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

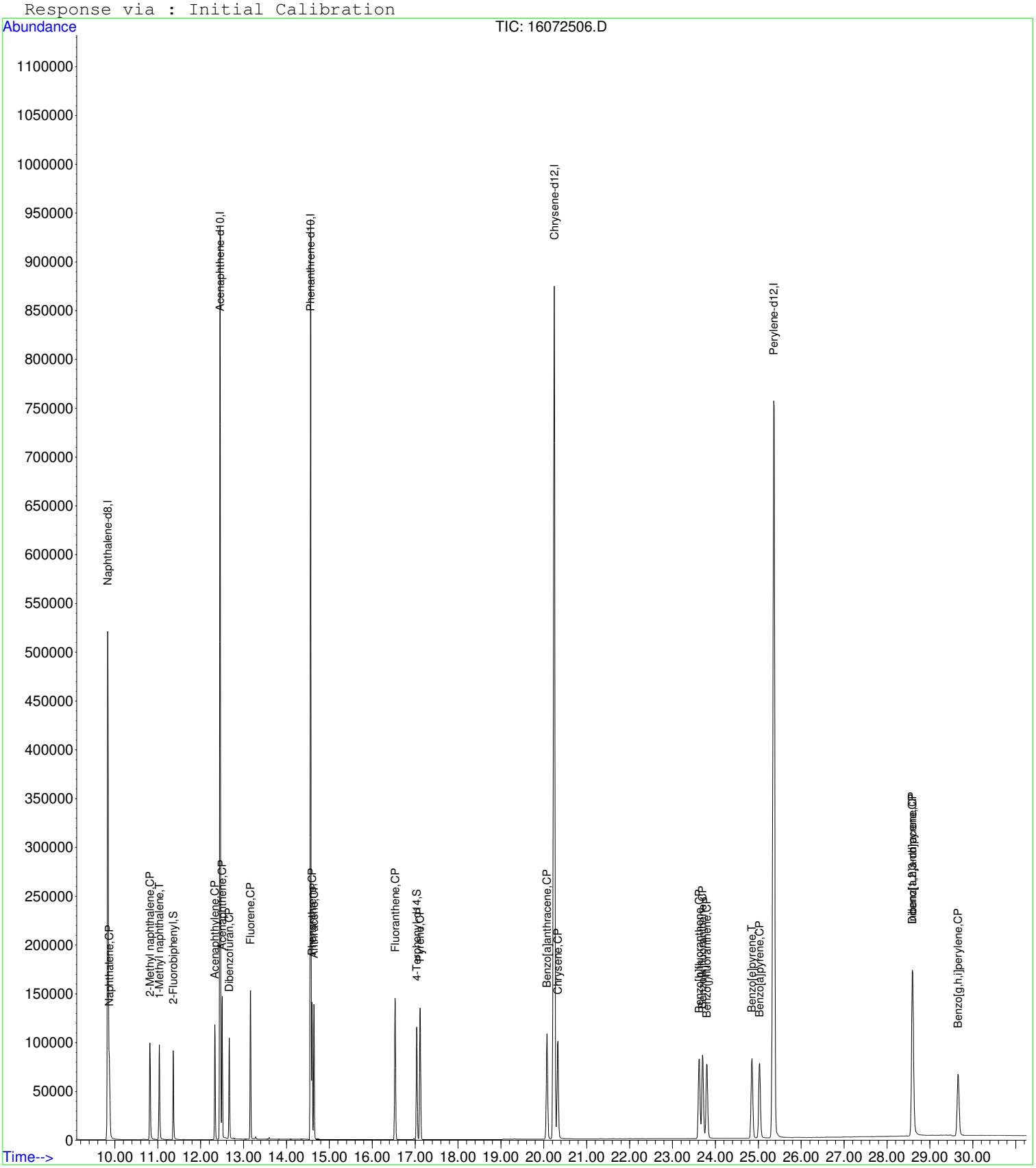
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	846228	4000.00	ug/kg	95
5) Acenaphthene-d10	12.45	164	526478	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1360044	4000.00	ug/kg	91
17) Chrysene-d12	20.24	240	1546839	4000.00	ug/kg	96
20) Perylene-d12	25.36	264	1587092	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	86694	505.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.64%#			
16) 4-Terphenyl-d14	17.04	244	159353	527.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 13.19%#			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	90292	469.22	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	67178	483.01	ug/kg	96
4) 1-Methyl naphthalene	11.04	142	61741	482.62	ug/kg	99
6) Dibenzofuran	12.67	168	99559	476.28	ug/kg	100
8) Acenaphthylene	12.33	152	111171	485.28	ug/kg	99
9) Acenaphthene	12.50	154	66191	486.46	ug/kg	98
10) Fluorene	13.16	166	83296	489.92	ug/kg	100
12) Phenanthrene	14.60	178	121487	472.04	ug/kg	99
13) Anthracene	14.64	178	127861	485.32	ug/kg	100
14) Fluoranthene	16.53	202	156088	493.27	ug/kg	99
15) Pyrene	17.11	202	156852	481.33	ug/kg	100
18) Benzo[a]anthracene	20.07	228	162167	488.96	ug/kg	98
19) Chrysene	20.33	228	150562	482.02	ug/kg	99
21) Benzo[b]fluoranthene	23.63	252	173263	477.76	ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	156303	470.13	ug/kg	100
23) Benzo(j)fluoranthene	23.81	252	153717	488.36	ug/kg	98
24) Benzo[e]pyrene	24.85	252	165850	481.41	ug/kg	100
25) Benzo[a]pyrene	25.03	252	162319	474.78	ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	170041	479.91	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	203279	477.71	ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	140559	455.16	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072506.D Vial: 6
Acq On : 25 Jul 2016 4:29 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072507.D Vial: 7
Acq On : 25 Jul 2016 5:07 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

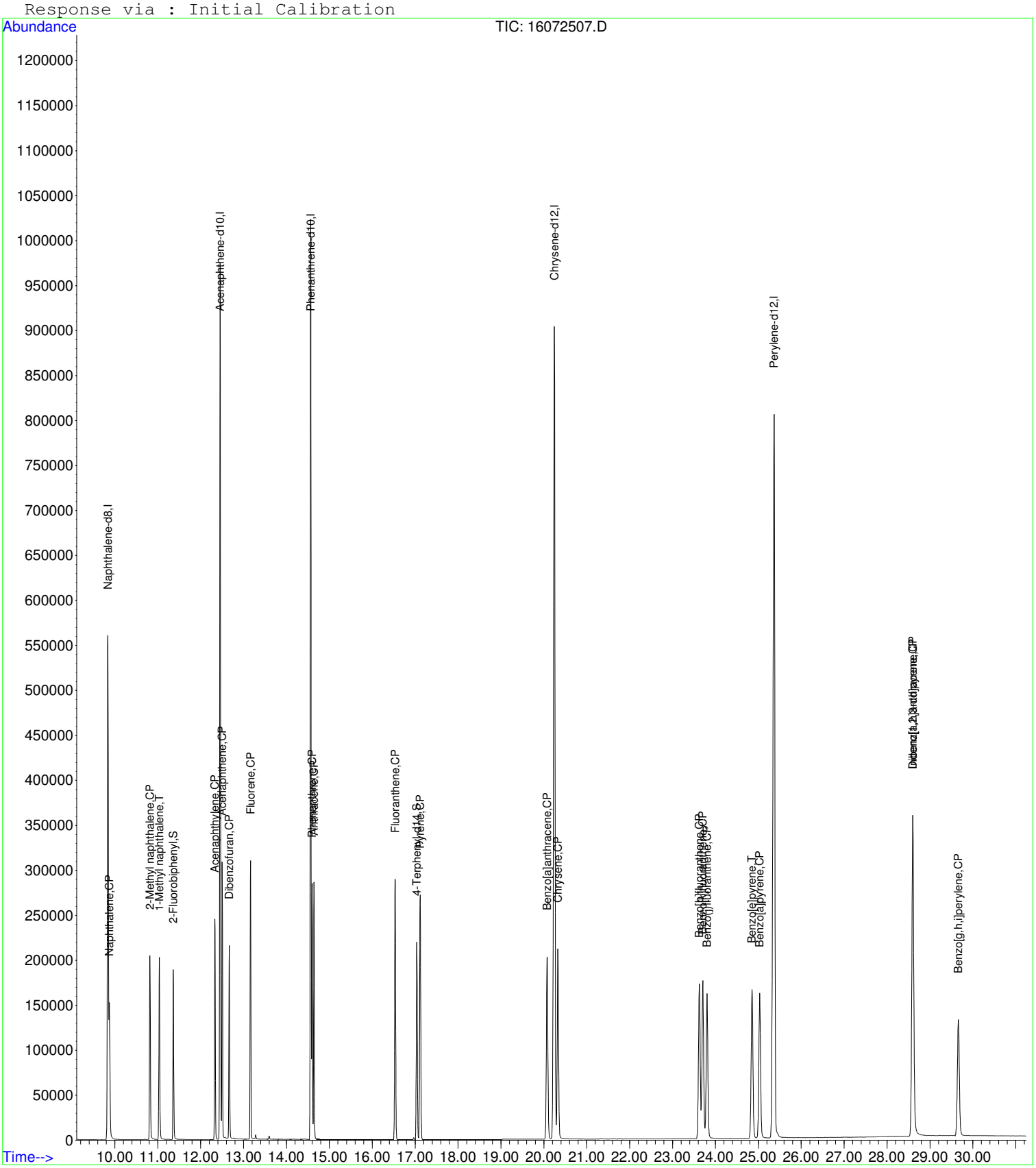
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	892069	4000.00	ug/kg	100
5) Acenaphthene-d10	12.45	164	554192	4000.00	ug/kg	97
11) Phenanthrene-d10	14.57	188	1448014	4000.00	ug/kg	96
17) Chrysene-d12	20.24	240	1606432	4000.00	ug/kg	100
20) Perylene-d12	25.37	264	1651631	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	176645	982.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.57%#			
16) 4-Terphenyl-d14	17.04	244	314932	1003.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.08%#			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	183994	907.02	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	138321	943.43	ug/kg	95
4) 1-Methyl naphthalene	11.04	142	126440	937.57	ug/kg	98
6) Dibenzofuran	12.67	168	200090	909.34	ug/kg	100
8) Acenaphthylene	12.33	152	229782	952.88	ug/kg	100
9) Acenaphthene	12.50	154	133955	935.25	ug/kg	99
10) Fluorene	13.16	166	166733	931.62	ug/kg	100
12) Phenanthrene	14.60	178	249124	909.18	ug/kg	99
13) Anthracene	14.64	178	258111	920.19	ug/kg	99
14) Fluoranthene	16.53	202	314797	934.39	ug/kg	99
15) Pyrene	17.12	202	316235	911.46	ug/kg	100
18) Benzo[a]anthracene	20.08	228	329954	957.97	ug/kg	99
19) Chrysene	20.33	228	306140	943.74	ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	352025	932.76	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	334806	967.68	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	314090	958.87	ug/kg	99
24) Benzo[e]pyrene	24.85	252	336290	938.00	ug/kg	99
25) Benzo[a]pyrene	25.03	252	336097	944.67	ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	347573	942.63	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	412755	932.07	ug/kg	98
28) Benzo[g,h,i]perylene	29.66	276	285458	888.26	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072507.D Vial: 7
Acq On : 25 Jul 2016 5:07 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

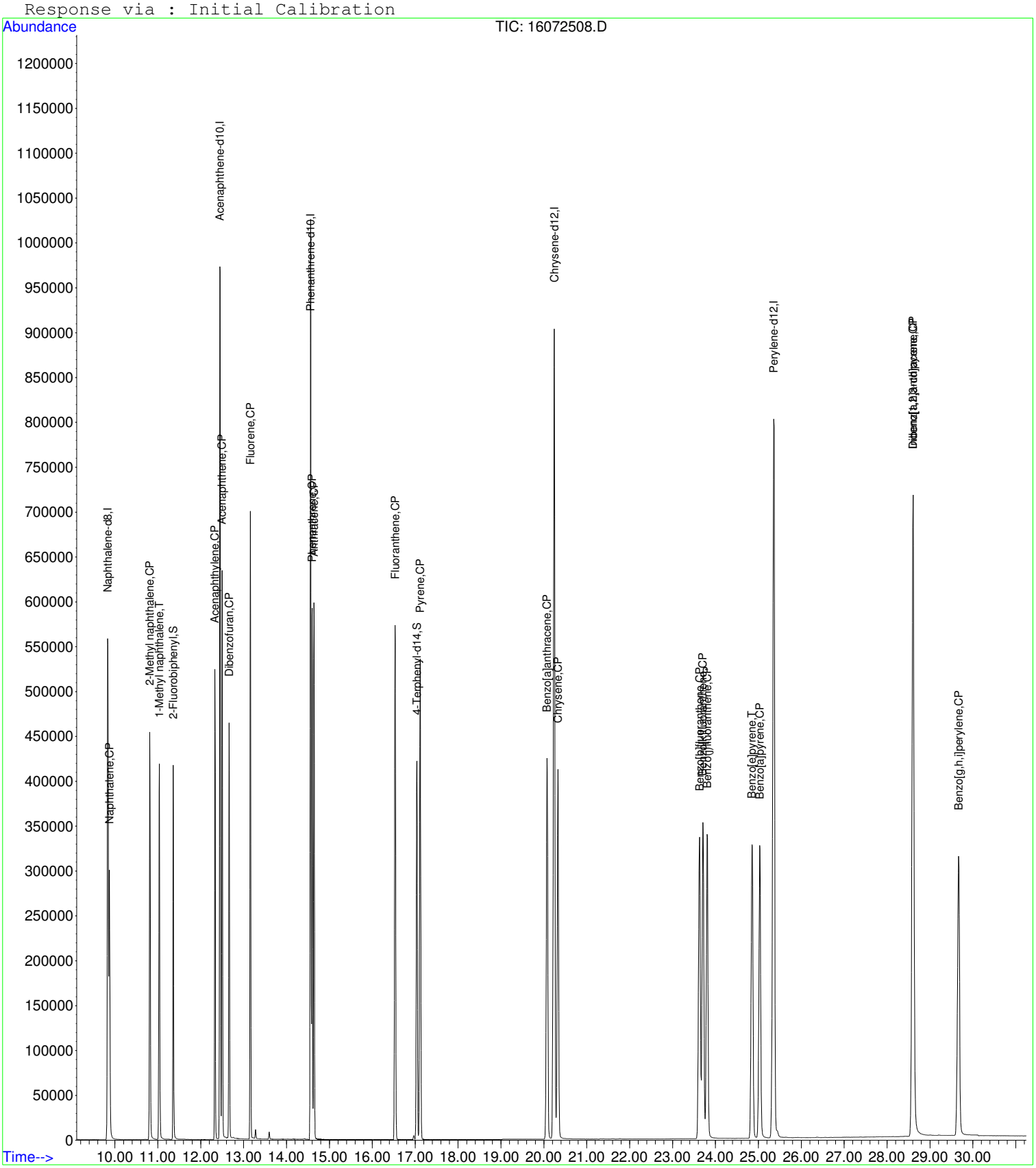
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	893544	4000.00	ug/kg	100
5) Acenaphthene-d10	12.45	164	569368	4000.00	ug/kg	100
11) Phenanthrene-d10	14.56	188	1501720	4000.00	ug/kg	100
17) Chrysene-d12	20.24	240	1612205	4000.00	ug/kg	100
20) Perylene-d12	25.36	264	1660133	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	370433	2008.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.21%			
16) 4-Terphenyl-d14	17.04	244	621041	1946.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.65%			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	382786	1883.87	ug/kg	100
3) 2-Methyl naphthalene	10.81	142	289201	1969.26	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	264551	1958.45	ug/kg	100
6) Dibenzofuran	12.66	168	423892	1875.10	ug/kg	100
8) Acenaphthylene	12.33	152	488021	1969.83	ug/kg	100
9) Acenaphthene	12.50	154	284372	1932.52	ug/kg	100
10) Fluorene	13.16	166	357547	1944.55	ug/kg	100
12) Phenanthrene	14.60	178	527567	1856.50	ug/kg	100
13) Anthracene	14.64	178	543808	1869.39	ug/kg	100
14) Fluoranthene	16.53	202	637819	1825.48	ug/kg	100
15) Pyrene	17.12	202	636934	1770.14	ug/kg	100
18) Benzo[a]anthracene	20.07	228	680755	1969.38	ug/kg	100
19) Chrysene	20.33	228	623920	1916.47	ug/kg	100
21) Benzo[b]fluoranthene	23.63	252	749017	1974.51	ug/kg	100
22) Benzo[k]fluoranthene	23.71	252	647006	1860.45	ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	646202	1962.65	ug/kg	100
24) Benzo[e]pyrene	24.86	252	699821	1941.99	ug/kg	100
25) Benzo[a]pyrene	25.03	252	692886	1937.52	ug/kg	100
26) Dibenz[a,h]anthracene	28.61	278	712622	1922.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.61	276	843959	1896.04	ug/kg	100
28) Benzo[g,h,i]perylene	29.67	276	689230	2133.68	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

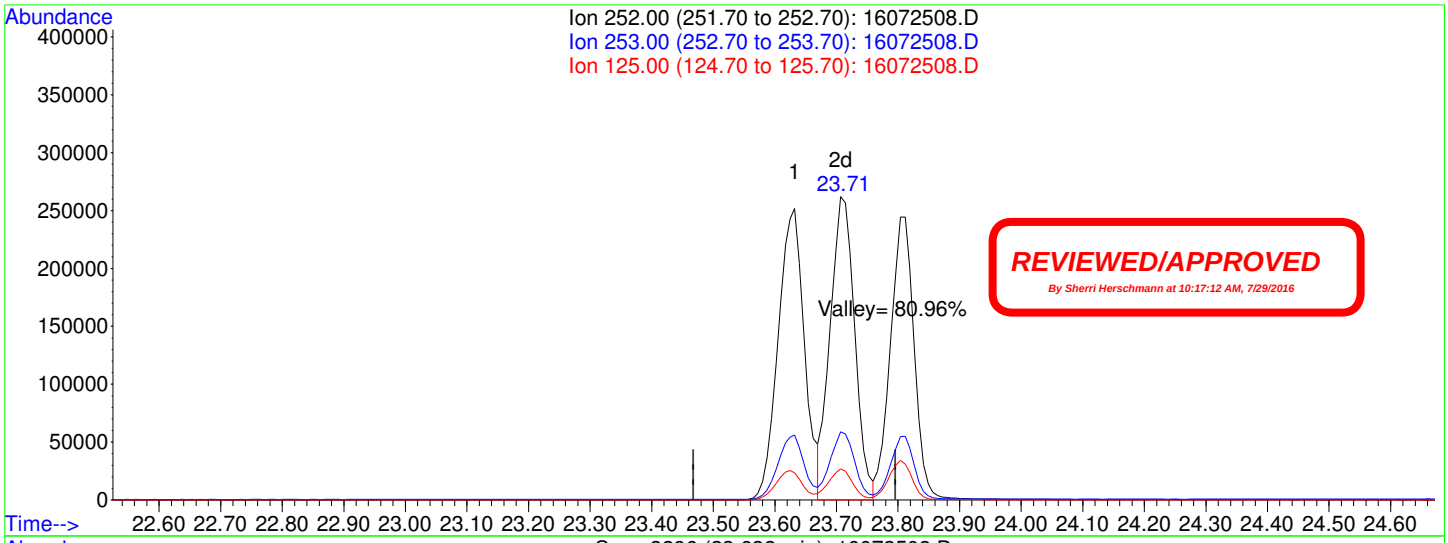
Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration

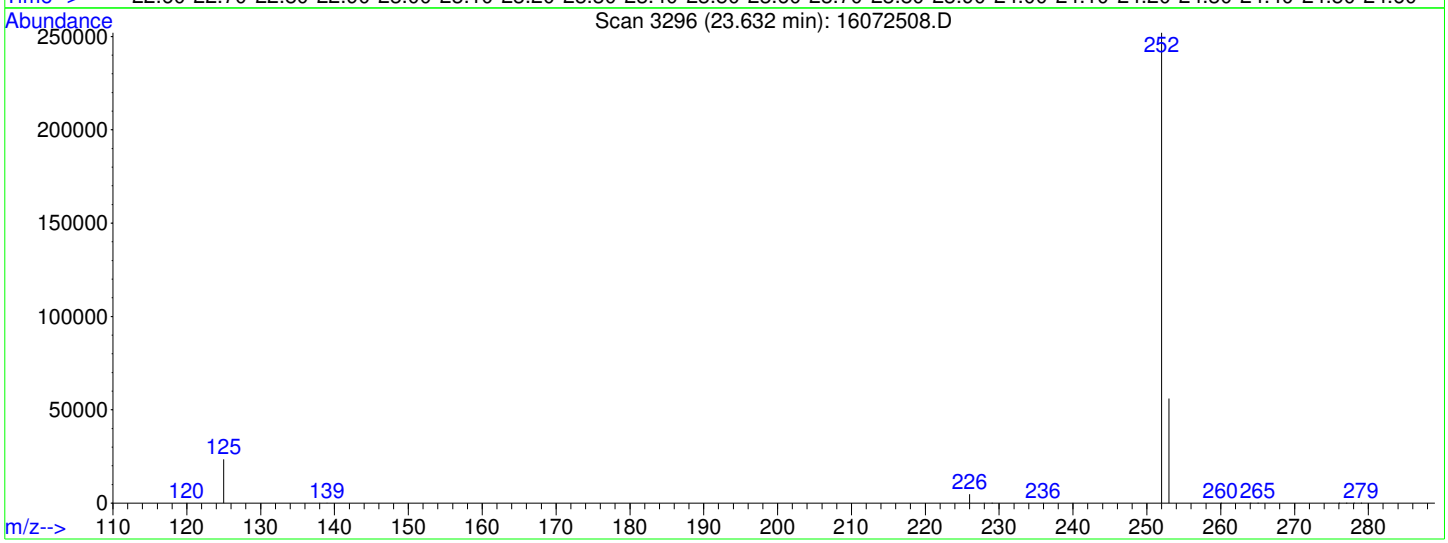


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Multiple Level Calibration





TIC: 16072508.D

(21) Benzo[b]fluoranthene (CP)

23.63min 1974.51ug/kg

response 749017

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.06
125.00	9.30	9.31
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072509.D Vial: 9
Acq On : 25 Jul 2016 6:22 pm Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

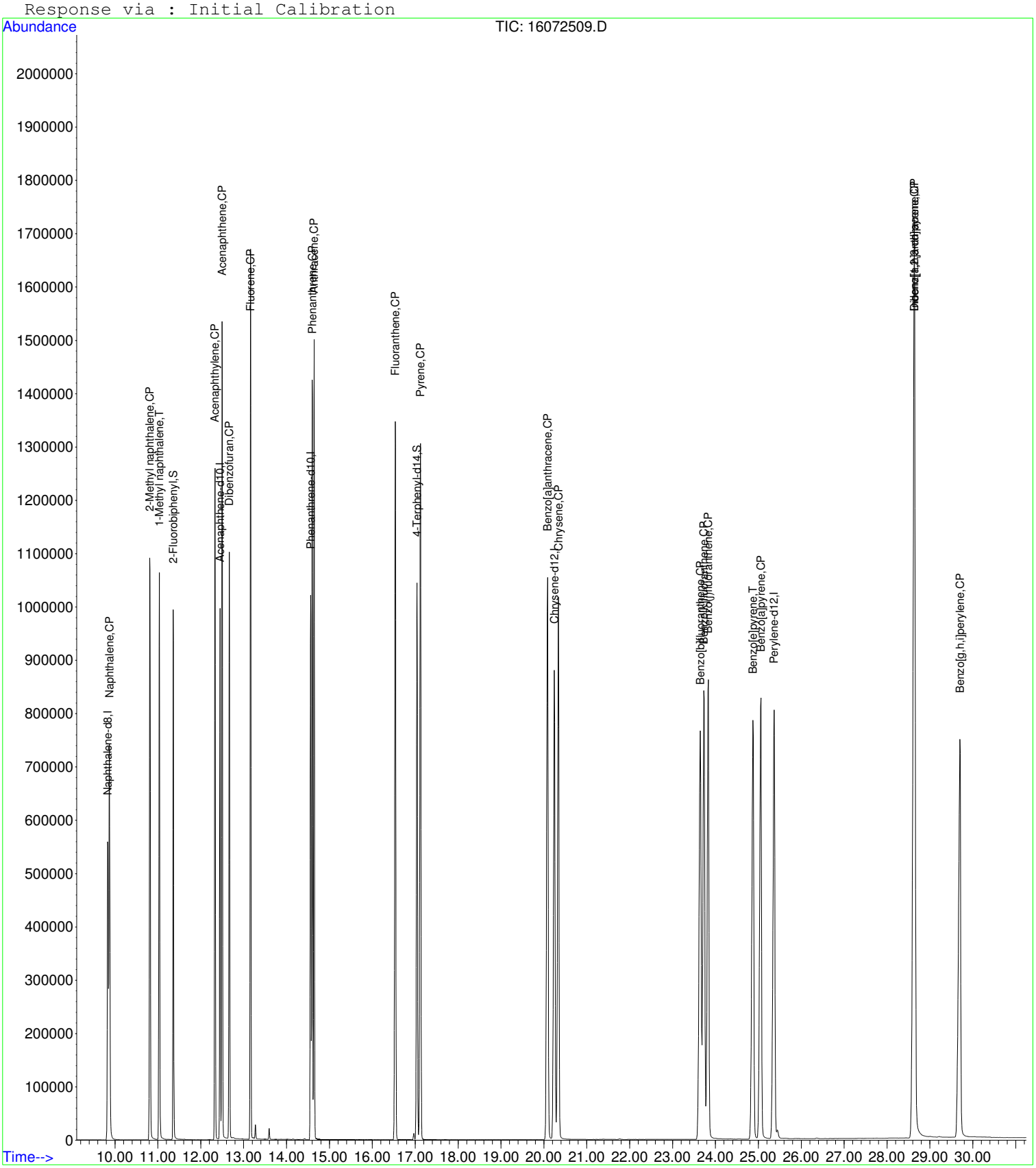
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	900189	4000.00	ug/kg	101
5) Acenaphthene-d10	12.45	164	554329	4000.00	ug/kg	97
11) Phenanthrene-d10	14.56	188	1477514	4000.00	ug/kg	98
17) Chrysene-d12	20.24	240	1621785	4000.00	ug/kg	101
20) Perylene-d12	25.37	264	1683225	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	899373	4999.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 124.99%			
16) 4-Terphenyl-d14	17.04	244	1515060	5019.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 125.48%			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	945249	4617.68	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	712021	4812.58	ug/kg	94
4) 1-Methyl naphthalene	11.03	142	652309	4793.34	ug/kg	99
6) Dibenzofuran	12.66	168	1003833	4560.96	ug/kg	99
8) Acenaphthylene	12.33	152	1183229	4905.50	ug/kg	100
9) Acenaphthene	12.50	154	691782	4828.73	ug/kg	99
10) Fluorene	13.16	166	860301	4805.77	ug/kg	99
12) Phenanthrene	14.60	178	1292431	4622.56	ug/kg	99
13) Anthracene	14.64	178	1339990	4681.82	ug/kg	99
14) Fluoranthene	16.54	202	1537244	4471.78	ug/kg	99
15) Pyrene	17.12	202	1560586	4408.17	ug/kg	99
18) Benzo[a]anthracene	20.09	228	1716692	4936.94	ug/kg	99
19) Chrysene	20.34	228	1566005	4781.82	ug/kg	100
21) Benzo[b]fluoranthene	23.65	252	1897650	4933.82	ug/kg	99
22) Benzo[k]fluoranthene	23.73	252	1581216	4484.36	ug/kg	99
23) Benzo(j)fluoranthene	23.83	252	1638939	4909.50	ug/kg	99
24) Benzo[e]pyrene	24.87	252	1757456	4809.99	ug/kg	98
25) Benzo[a]pyrene	25.06	252	1769480	4880.11	ug/kg	99
26) Dibenz[a,h]anthracene	28.64	278	1802648	4797.08	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.64	276	2142679	4747.72	ug/kg	98
28) Benzo[g,h,i]perylene	29.70	276	1750074	5343.47	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072509.D Vial: 9
Acq On : 25 Jul 2016 6:22 pm Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072510.D Vial: 10
Acq On : 25 Jul 2016 6:59 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

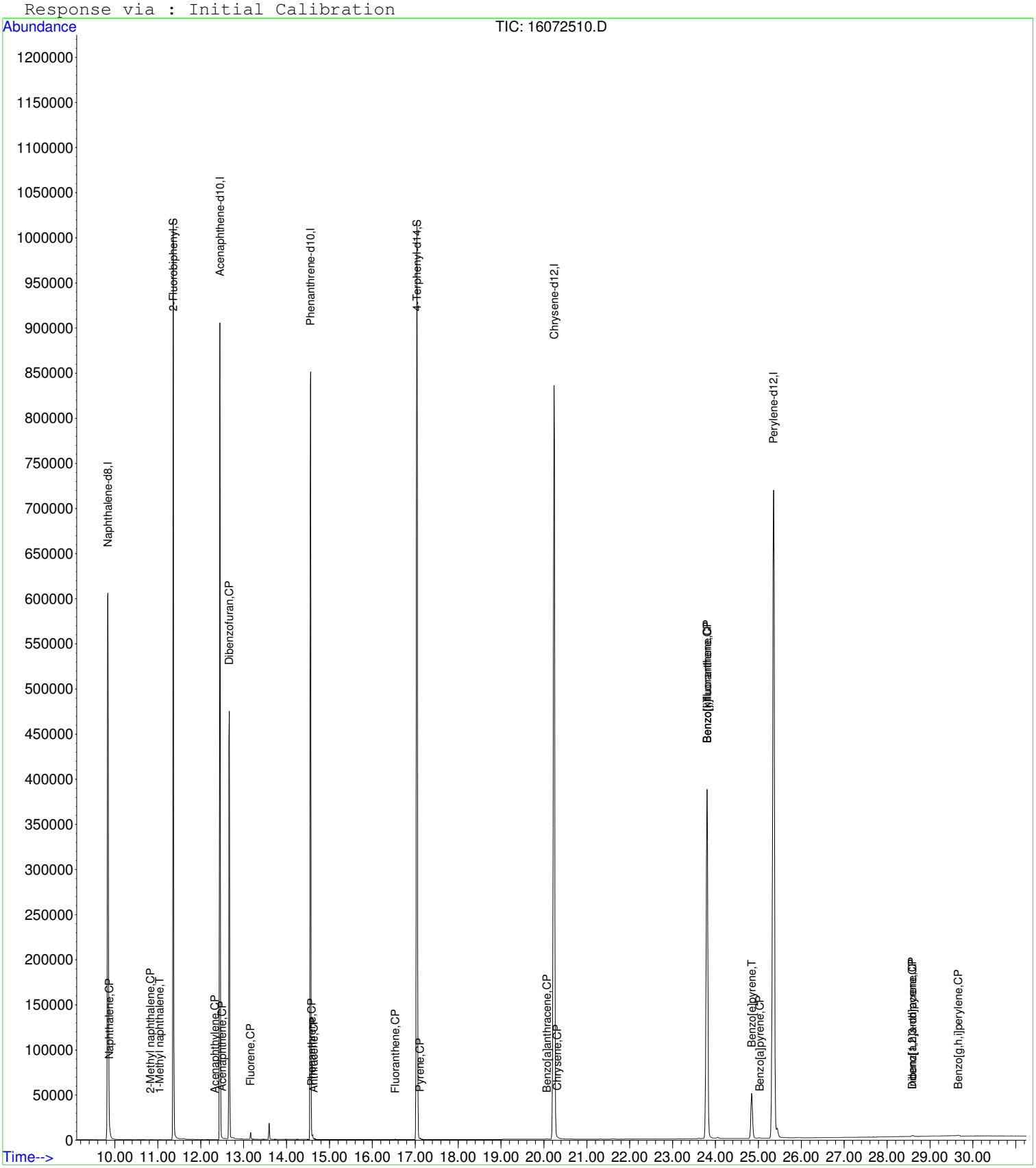
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)	
1) Naphthalene-d8	9.84	136	979604	4000.00	ug/kg	110	
5) Acenaphthene-d10	12.45	164	521111	4000.00	ug/kg	92	
11) Phenanthrene-d10	14.56	188	1257978	4000.00	ug/kg	84	
17) Chrysene-d12	20.24	240	1491548	4000.00	ug/kg	93	
20) Perylene-d12	25.36	264	1509342	4000.00	ug/kg	91	
System Monitoring Compounds							
7) 2-Fluorobiphenyl	11.36	172	908651	5371.37	ug/kg	0.00	
Spiked Amount 4000.000	Range 40 - 140		Recovery = 134.28%				
16) 4-Terphenyl-d14	17.04	244	1494054	5871.06	ug/kg	0.00	
Spiked Amount 4000.000	Range 40 - 140		Recovery = 146.78%#				
Target Compounds						Qvalue	
2) Naphthalene	9.87	128	610	2.74	ug/kg	61	
3) 2-Methyl naphthalene	10.82	142	196	1.22	ug/kg	78	
4) 1-Methyl naphthalene	11.03	142	107	0.72	ug/kg	75	
6) Dibenzofuran	12.66	168	452411	2186.58	ug/kg	100	87.46%
8) Acenaphthylene	12.33	152	390	1.72	ug/kg	98	
9) Acenaphthene	12.50	154	287	2.13	ug/kg#	72	
10) Fluorene	13.16	166	4126	24.52	ug/kg	97	
12) Phenanthrene	14.59	178	776	3.26	ug/kg	93	
13) Anthracene	14.64	178	730	3.00	ug/kg	92	
14) Fluoranthene	16.53	202	863	2.95	ug/kg	98	
15) Pyrene	17.11	202	955	3.17	ug/kg	91	
18) Benzo[a]anthracene	20.07	228	1073	3.36	ug/kg	93	
19) Chrysene	20.32	228	950	3.15	ug/kg	94	
21) Benzo[b]fluoranthene	0.00	252	0	N.D.			
22) Benzo[k]fluoranthene	23.80	252	749242	2369.66	ug/kg	97	
23) Benzo(j)fluoranthene	23.80	252	759467	2537.10	ug/kg	99	101.48%
24) Benzo[e]pyrene	24.84	252	100312	306.17	ug/kg	99	
25) Benzo[a]pyrene	25.03	252	1314	4.04	ug/kg	79	
26) Dibenz[a,h]anthracene	28.59	278	1199	3.56	ug/kg	86	
27) Indeno[1,2,3-cd]pyrene	28.60	276	1458	3.60	ug/kg	99	
28) Benzo[g,h,i]perylene	29.66	276	1157	3.94	ug/kg	95	

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072510.D Vial: 10
Acq On : 25 Jul 2016 6:59 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072511.D Vial: 11
Acq On : 25 Jul 2016 7:36 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	905392	4000.00	ug/kg	101
5) Acenaphthene-d10	12.45	164	590244	4000.00	ug/kg	104
11) Phenanthrene-d10	14.56	188	1554090	4000.00	ug/kg	103
17) Chrysene-d12	20.24	240	1627985	4000.00	ug/kg	101
20) Perylene-d12	25.36	264	1634563	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	458904	2399.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	60.00%		
16) 4-Terphenyl-d14	17.03	244	776605	2366.57	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	59.16%		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	452244	2196.58	ug/kg	99
3) 2-Methyl naphthalene	10.81	142	413442	2778.42	ug/kg	97
4) 1-Methyl naphthalene	11.03	142	372594	2722.19	ug/kg	96
6) Dibenzofuran	12.67	168	1589	6.78	ug/kg	97
8) Acenaphthylene	12.33	152	586057	2281.87	ug/kg	99
9) Acenaphthene	12.50	154	361494	2369.74	ug/kg	97
10) Fluorene	13.16	166	452940	2376.23	ug/kg	100
12) Phenanthrene	14.60	178	639751	2175.41	ug/kg	100
13) Anthracene	14.64	178	634391	2107.29	ug/kg	100
14) Fluoranthene	16.53	202	770651	2131.33	ug/kg	100
15) Pyrene	17.12	202	780634	2096.39	ug/kg	100
18) Benzo[a]anthracene	20.07	228	813076	2329.38	ug/kg	100
19) Chrysene	20.32	228	675322	2054.25	ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	873661	2339.11	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	873137	2549.96	ug/kg	100
23) Benzo(j)fluoranthene	23.71	252	877969	2708.28	ug/kg	96
24) Benzo[e]pyrene	24.86	252	872011	2457.66	ug/kg	100
25) Benzo[a]pyrene	25.04	252	836568	2375.89	ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	847494	2322.43	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.61	276	998578	2278.51	ug/kg	98
28) Benzo[g,h,i]perylene	29.67	276	832538	2617.65	ug/kg	99

All analytes %R within ±20%

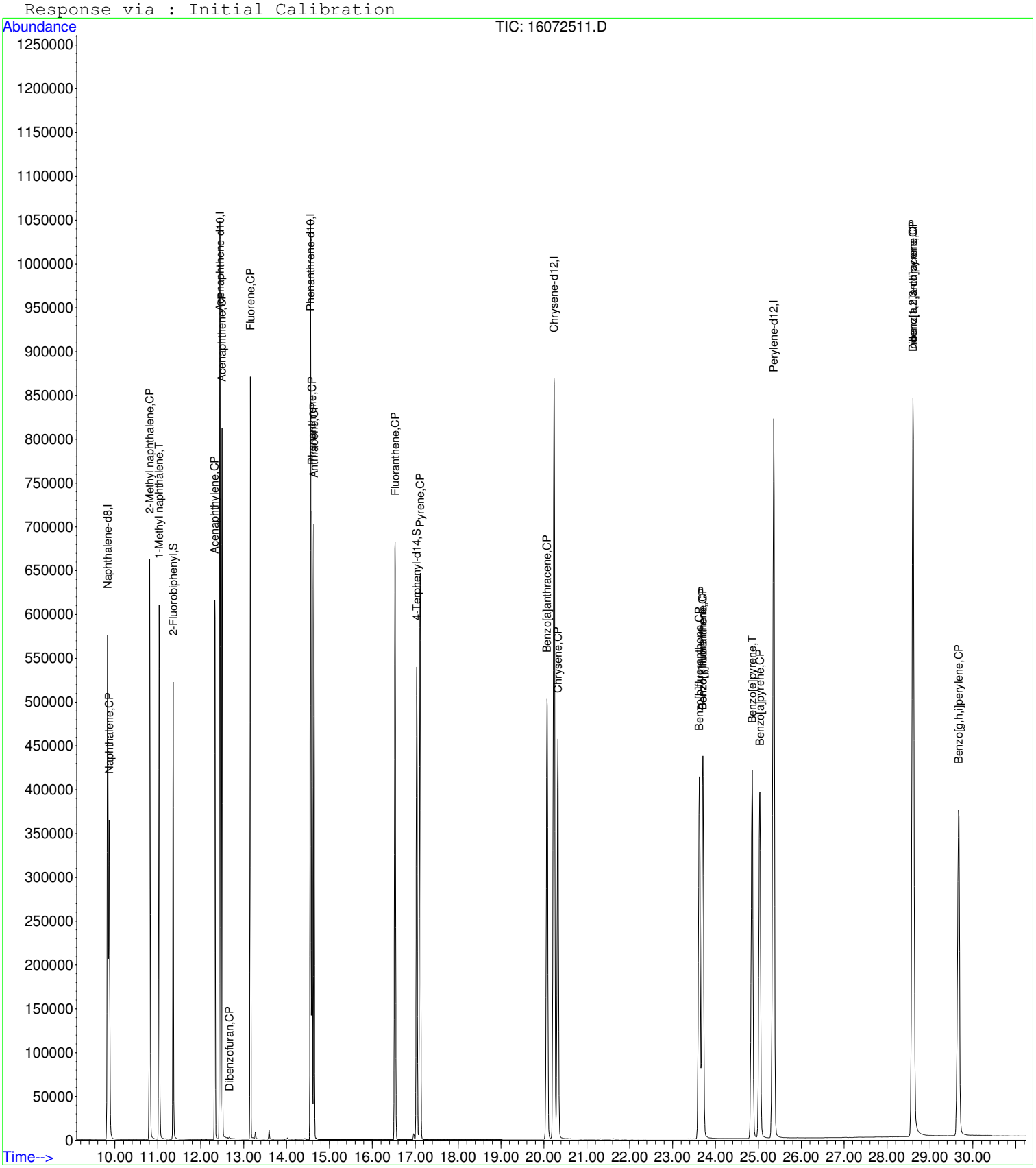
REVIEWED/APPROVED
By Sherri Herschmann at 10:27:24 AM, 7/29/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072511.D Vial: 11
Acq On : 25 Jul 2016 7:36 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



CAL ID: 680

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160801.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

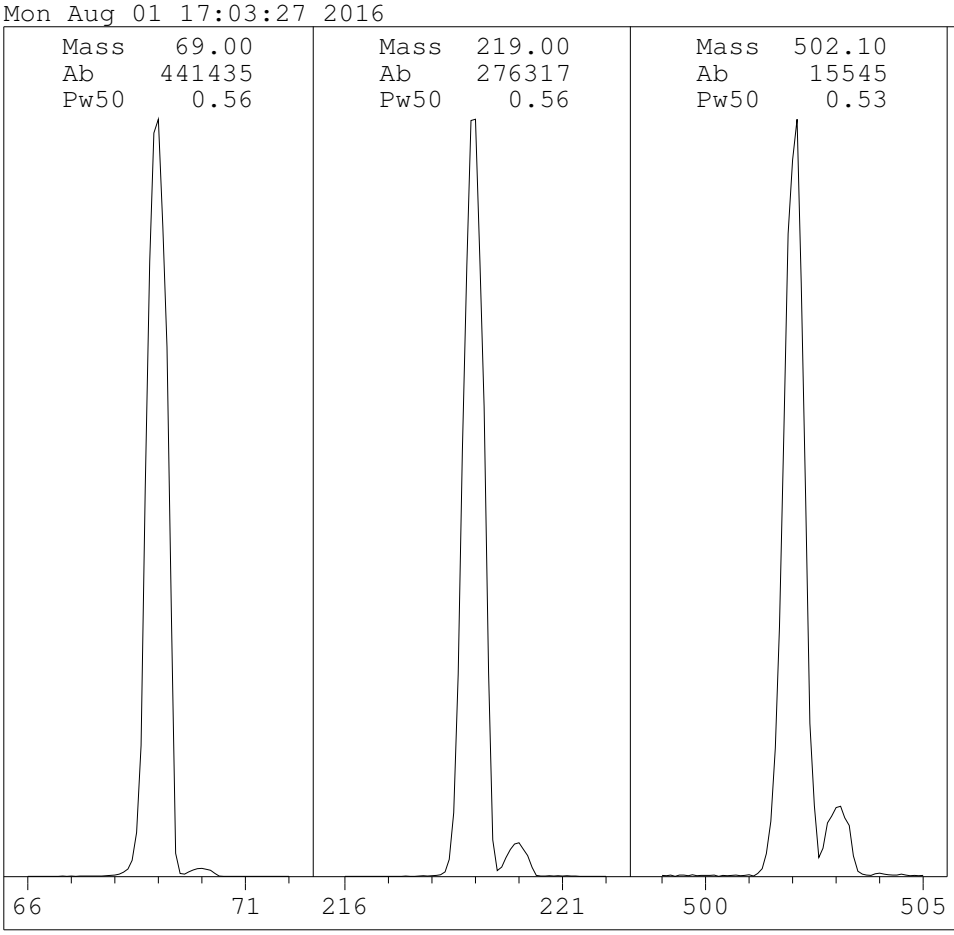
Analyst: Karyn Lane Date: 08/2/2016

Second-Level Review: Date: 08/02/2016

HP5973

Instrument: GC/MS #6

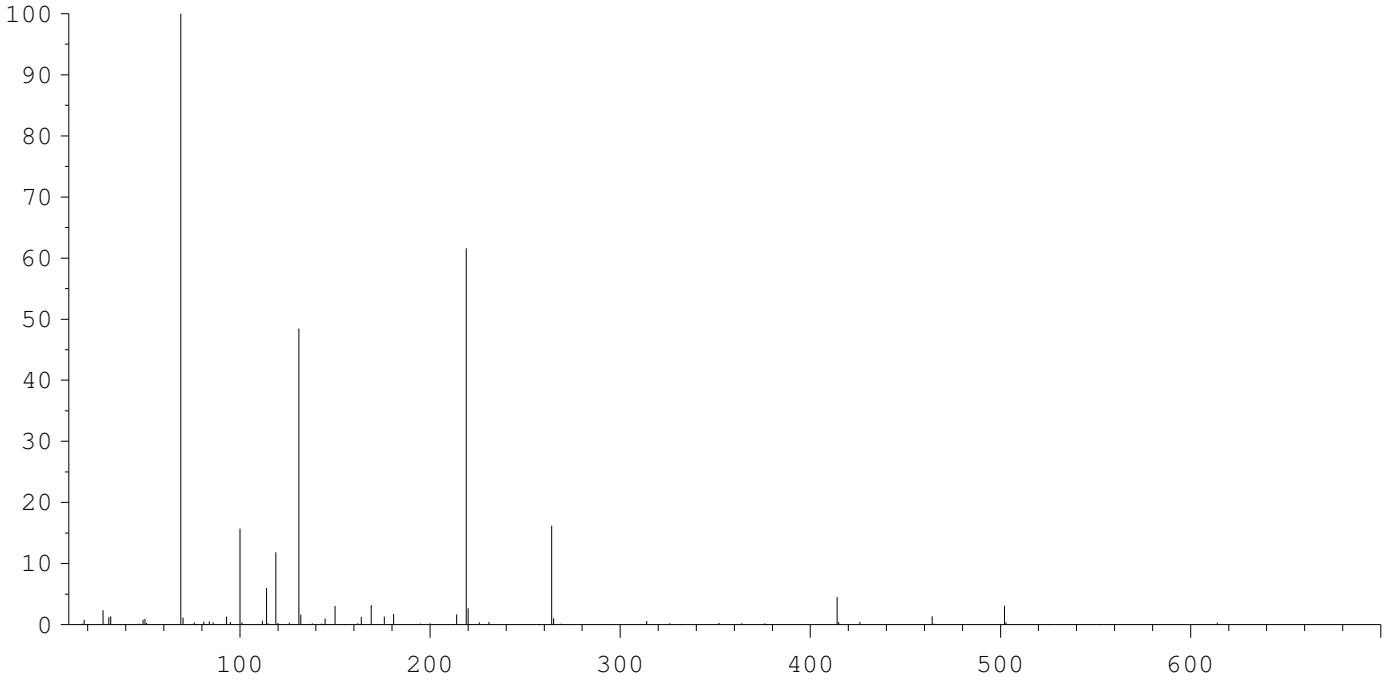
Mon Aug 01 17:03:27 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2205
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	79.7	HED	ON
EntLens	11.5	EMVolts	1635
EntOffs	17.32		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	73
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

130 peaks Base: 69.00 Abundance: 387008



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	387008	100.00	70.00	4591	1.19
219.00	238464	61.62	220.00	10470	4.39
502.00	12051	3.11	503.00	1348	11.19

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	48.4	61.6	4.5	3.1

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160801.M
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response Via : Initial Calibration

Calibration Files
1 =16080115.D 2 =16080116.D 3 =16080117.D 4 =16080118.D 5 =16080119.D 6 =16080120.D 7 =16080121.D
8 =16080122.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	CP	Naphthalene	1.062	0.956	0.902	0.953	0.875	0.840	0.843	0.850	0.910	8.46	A	0.0846	0.0000	0.9101	0.0000
3)	CP	2-Methyl napht...	0.657	0.607	0.603	0.634	0.582	0.556	0.544	0.538	0.590	7.26	A	0.0726	0.0000	0.5900	0.0000
4)	T	1-Methyl napht...	0.569	0.527	0.538	0.561	0.520	0.499	0.489	0.478	0.523	6.27	A	0.0627	0.0000	0.5226	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	1.855	1.646	1.595	1.674	1.561	1.494	1.545	1.580	1.619	6.85#	A	0.0685	0.0000	1.6187	0.0000
7)	S	2-Fluorobiphenyl	1.505	1.419	1.418	1.499	1.403	1.331	1.331	1.257	1.395	6.13	A	0.0613	0.0000	1.3953	0.0000
8)	CP	Acenaphthylene	1.909	1.776	1.725	1.858	1.776	1.710	1.719	1.699	1.771	4.29	A	0.0429	0.0000	1.7714	0.0000
9)	CP	Acenaphthene	1.094	1.023	0.977	1.046	1.046	1.000	1.006	1.015	1.026	3.51	A	0.0351	0.0000	1.0259	0.0000
10)	CP	Fluorene	1.255	1.199	1.247	1.317	1.265	1.228	1.349	1.457	1.290	6.43	A	0.0643	0.0000	1.2896	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	1.053	0.952	0.964	1.011	0.939	0.892	0.894	0.882	0.948	6.41	A	0.0641	0.0000	0.9483	0.0000
13)	CP	Anthracene	1.058	0.990	1.011	1.126	1.000	0.942	0.934	0.923	0.998	6.90	A	0.0690	0.0000	0.9979	0.0000
14)	CP	Fluoranthene	1.205	1.113	1.161	1.264	1.157	1.075	1.023	0.994	1.124	8.12	A	0.0812	0.0000	1.1239	0.0000
15)	CP	Pyrene	1.253	1.151	1.189	1.277	1.155	1.066	1.023	1.001	1.140	8.94	A	0.0894	0.0000	1.1396	0.0000
16)	S	4-Terphenyl-d14	1.010	0.954	0.994	1.028	0.963	0.903	0.855	0.845	0.944	7.36	A	0.0736	0.0000	0.9440	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	0.947	0.855	0.875	0.990	0.923	0.876	0.891	0.855	0.902	5.32	A	0.0532	0.0000	0.9016	0.0000
19)	CP	Chrysene	0.947	0.853	0.845	0.946	0.876	0.826	0.841	0.805	0.867	6.08	A	0.0608	0.0000	0.8673	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	0.973	0.828	0.891	1.032	0.948	0.917	0.914	0.883	0.923	6.71	A	0.0671	0.0000	0.9234	0.0000
22)	CP	Benzo[k]fluora...	0.907	0.808	0.852	0.933	0.865	0.858	0.833	0.721	0.847	7.59	A	0.0759	0.0000	0.8471	0.0000
23)	CP	Benzo(j)fluora...	0.829	0.817	0.829	0.855	0.825	0.798	0.801	0.759	0.814	3.49	A	0.0349	0.0000	0.8141	0.0000
24)	T	Benzo[e]pyrene	0.975	0.872	0.898	0.928	0.898	0.875	0.887	0.836	0.896	4.63	A	0.0463	0.0000	0.8961	0.0000
25)	CP	Benzo[a]pyrene	0.935	0.858	0.875	0.982	0.895	0.872	0.887	0.833	0.892	5.25	A	0.0525	0.0000	0.8922	0.0000
26)	CP	Dibenz[a,h]ant...	0.893	0.809	0.838	0.933	0.879	0.864	0.878	0.812	0.863	4.86	A	0.0486	0.0000	0.8634	0.0000
27)	CP	Indeno[1,2,3-c...	1.061	0.963	0.998	1.125	1.039	1.019	1.033	0.957	1.025	5.33	A	0.0533	0.0000	1.0246	0.0000
28)	CP	Benzo[g,h,i]pe...	0.926	0.814	0.832	0.928	0.863	0.850	0.863	0.790	0.858	5.73	A	0.0573	0.0000	0.8581	0.0000

(#) = Out of Range

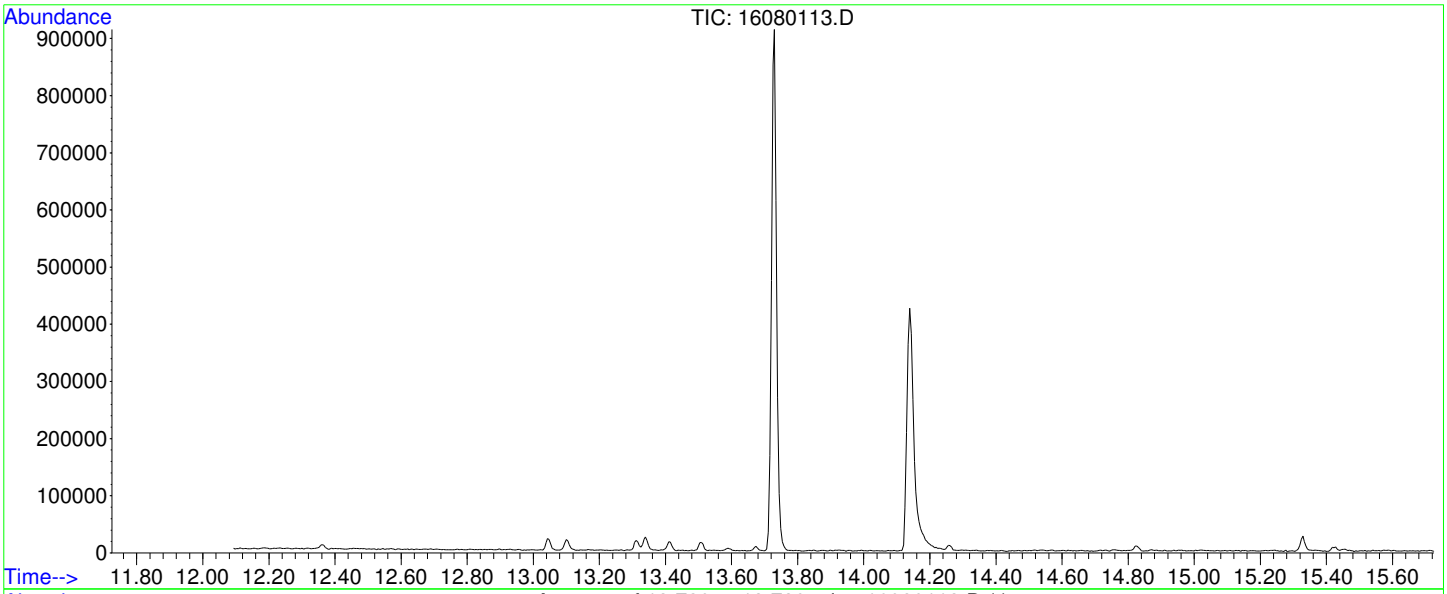
Sequence Name: C:\HPCHEM\1\SEQUENCE\160801.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160801\
Pre-Seq Cmd:
Post-Seq Cmd:

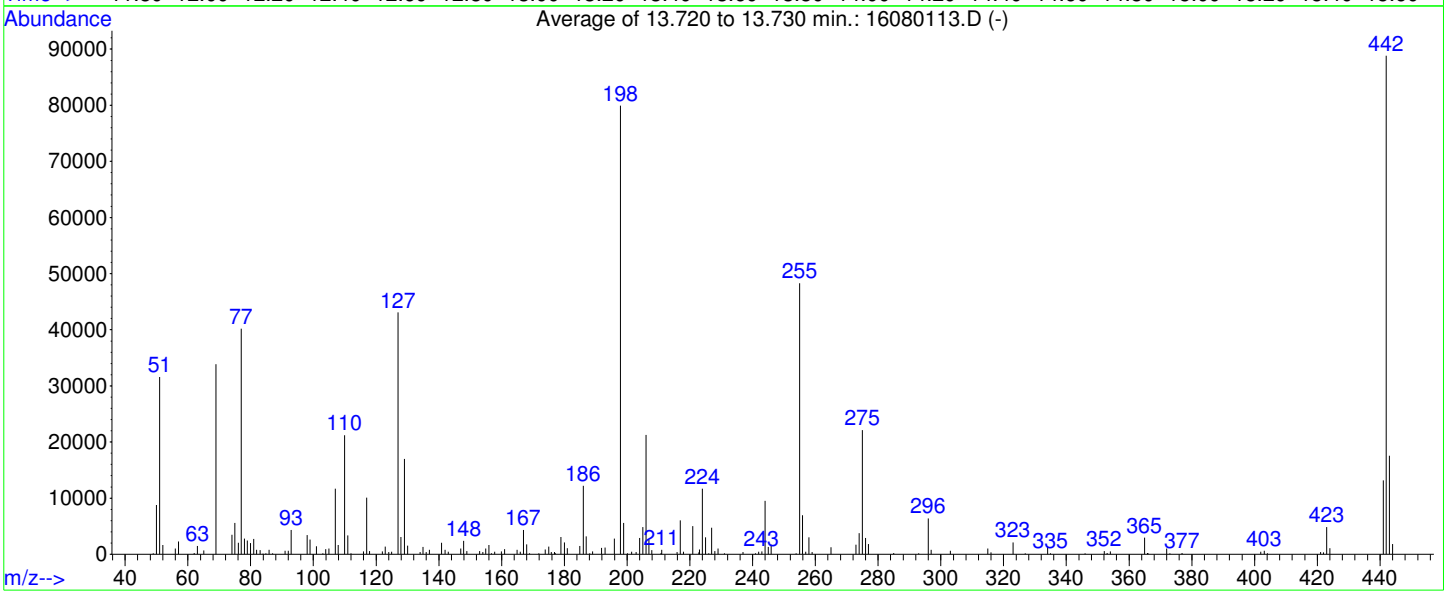
Method Sections To Run
(X) Full Method
( ) Reprocessing Only

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080101	PP160725	SBLK
2	Sample	2	16080102	DFTPPPAH	DFTPP-160801
3	Sample	3	16080103	PP160725	ICV-160801
4	Sample	4	16080104	PP160725	ICV-160801
5	Sample	5	16080105	PP160725	SB-160801
6	Sample	6	16080106	PP160725	1607269-12B
7					

Data File : C:\HPCHEM\1\DATA\160801\16080113.D Vial: 2
Acq On : 1 Aug 2016 6:30 pm Operator: DEW
Sample : DFTPP-160801 Inst : GC/MS #6
Misc : TUNE Multiplr: 5.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration





AutoFind: Scans 347, 348, 349; Background Corrected with Scan 341

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.5	31591	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.4	33861	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.9	43101	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	79947	PASS
199	198	5	9	7.0	5582	PASS
275	198	10	60	27.7	22112	PASS
365	198	1	200	3.7	2989	PASS
441	442	0.01	24	14.9	13202	PASS
442	198	50	400	111.1	88832	PASS
443	442	15	24	19.8	17564	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:24:00 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

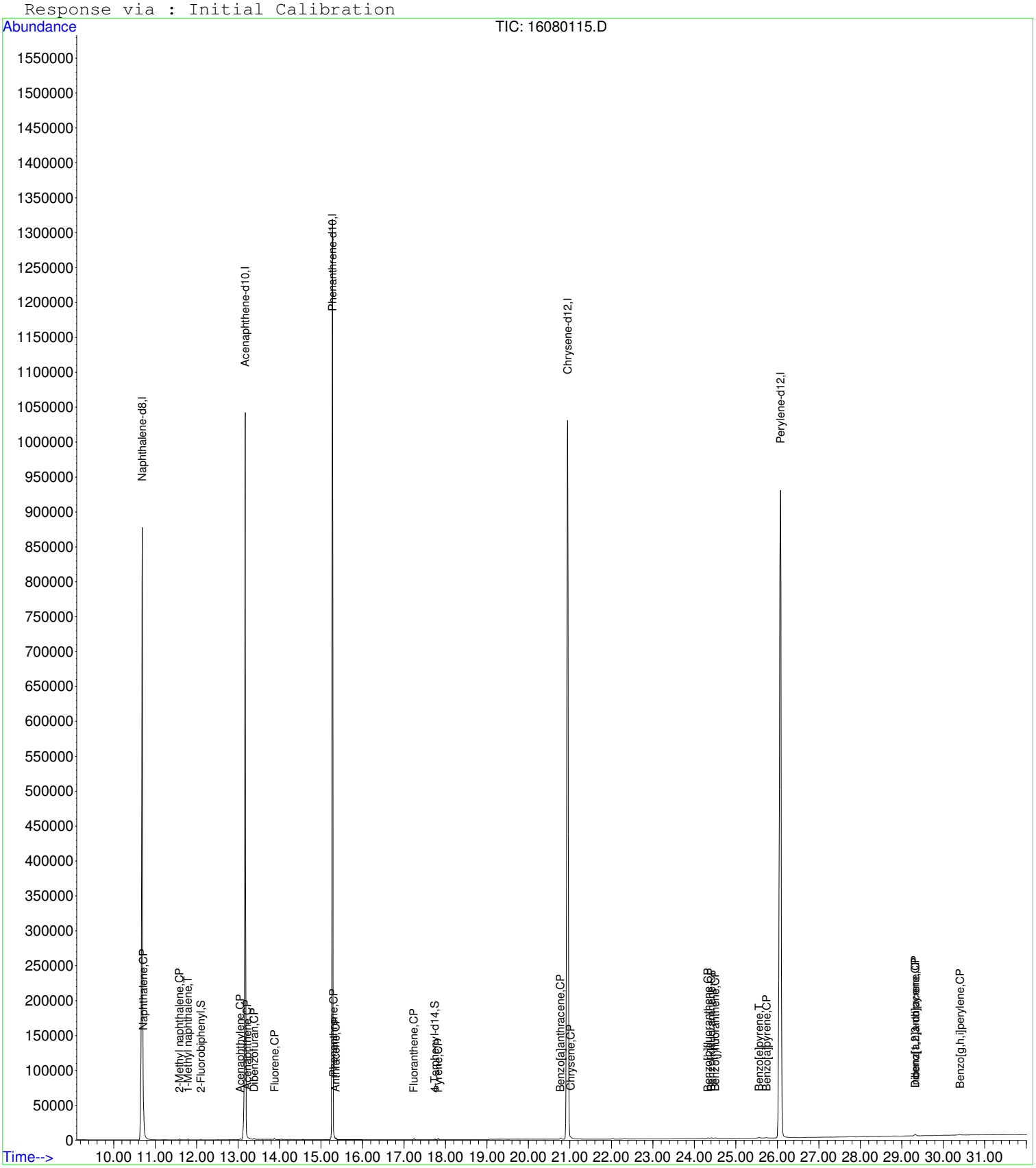
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1503719	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	680588	4000.00	ug/kg	114
11) Phenanthrene-d10	15.28	188	1532486	4000.00	ug/kg	96
17) Chrysene-d12	20.95	240	1863885	4000.00	ug/kg	102
20) Perylene-d12	26.08	264	1934687	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	1280	5.39	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
16) 4-Terphenyl-d14	17.74	244	1935	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1997	5.84	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	1234	5.56	ug/kg	96
4) 1-Methyl naphthalene	11.79	142	1069	5.44	ug/kg	98
6) Dibenzofuran	13.39	168	1578	5.73	ug/kg	92
8) Acenaphthylene	13.06	152	1624	5.39	ug/kg	95
9) Acenaphthene	13.22	154	931	5.33	ug/kg	89
10) Fluorene	13.87	166	1068	4.87	ug/kg	99
12) Phenanthrene	15.31	178	2017	5.55	ug/kg	96
13) Anthracene	15.35	178	2027	5.30	ug/kg	98
14) Fluoranthene	17.24	202	2308	5.36	ug/kg	96
15) Pyrene	17.82	202	2400	5.50	ug/kg	98
18) Benzo[a]anthracene	20.77	228	2207	5.25	ug/kg	92
19) Chrysene	21.02	228	2206	5.46	ug/kg	96
21) Benzo[b]fluoranthene	24.34	252	2354	5.27	ug/kg	99
22) Benzo[k]fluoranthene	24.41	252	2193	5.35	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	2005	5.09	ug/kg	90
24) Benzo[e]pyrene	25.56	252	2359	5.44	ug/kg	79
25) Benzo[a]pyrene	25.74	252	2262	5.24	ug/kg	98
26) Dibenz[a,h]anthracene	29.32	278	2159	5.17	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.33	276	2567	5.18	ug/kg	90
28) Benzo[g,h,i]perylene	30.39	276	2240	5.40	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Reprocessed low point.

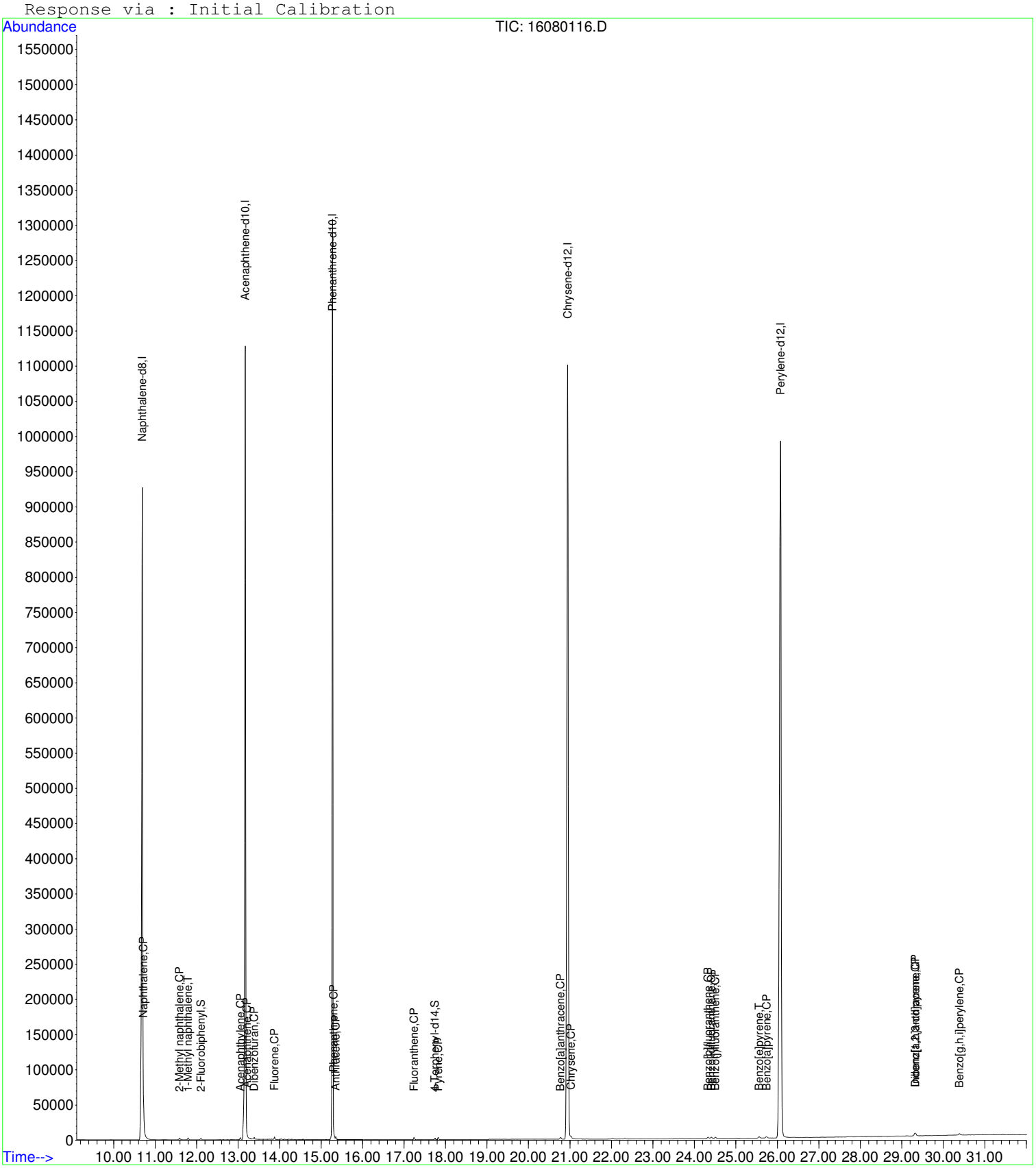
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1613626	4000.00	ug/kg	115
5) Acenaphthene-d10	13.17	164	738139	4000.00	ug/kg	123
11) Phenanthrene-d10	15.28	188	1503918	4000.00	ug/kg	95
17) Chrysene-d12	20.95	240	1941488	4000.00	ug/kg	106
20) Perylene-d12	26.08	264	2020745	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	2618	10.17	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
16) 4-Terphenyl-d14	17.74	244	3587	10.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	3857	10.51	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	2448	10.29	ug/kg	94
4) 1-Methyl naphthalene	11.79	142	2127	10.09	ug/kg	97
6) Dibenzofuran	13.39	168	3037	10.17	ug/kg	97
8) Acenaphthylene	13.05	152	3277	10.03	ug/kg	98
9) Acenaphthene	13.22	154	1887	9.97	ug/kg	98
10) Fluorene	13.87	166	2212	9.30	ug/kg	95
12) Phenanthrene	15.31	178	3581	10.04	ug/kg	99
13) Anthracene	15.35	178	3721	9.92	ug/kg	99
14) Fluoranthene	17.24	202	4183	9.90	ug/kg	96
15) Pyrene	17.82	202	4329	10.10	ug/kg	97
18) Benzo[a]anthracene	20.77	228	4152	9.49	ug/kg	99
19) Chrysene	21.02	228	4140	9.83	ug/kg	95
21) Benzo[b]fluoranthene	24.33	252	4184	8.97	ug/kg	91
22) Benzo[k]fluoranthene	24.41	252	4082	9.54	ug/kg	91
23) Benzo(j)fluoranthene	24.51	252	4125	10.03	ug/kg	96
24) Benzo[e]pyrene	25.56	252	4403	9.73	ug/kg	95
25) Benzo[a]pyrene	25.74	252	4335	9.62	ug/kg	97
26) Dibenz[a,h]anthracene	29.32	278	4089	9.37	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	4864	9.40	ug/kg	97
28) Benzo[g,h,i]perylene	30.39	276	4112	9.49	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

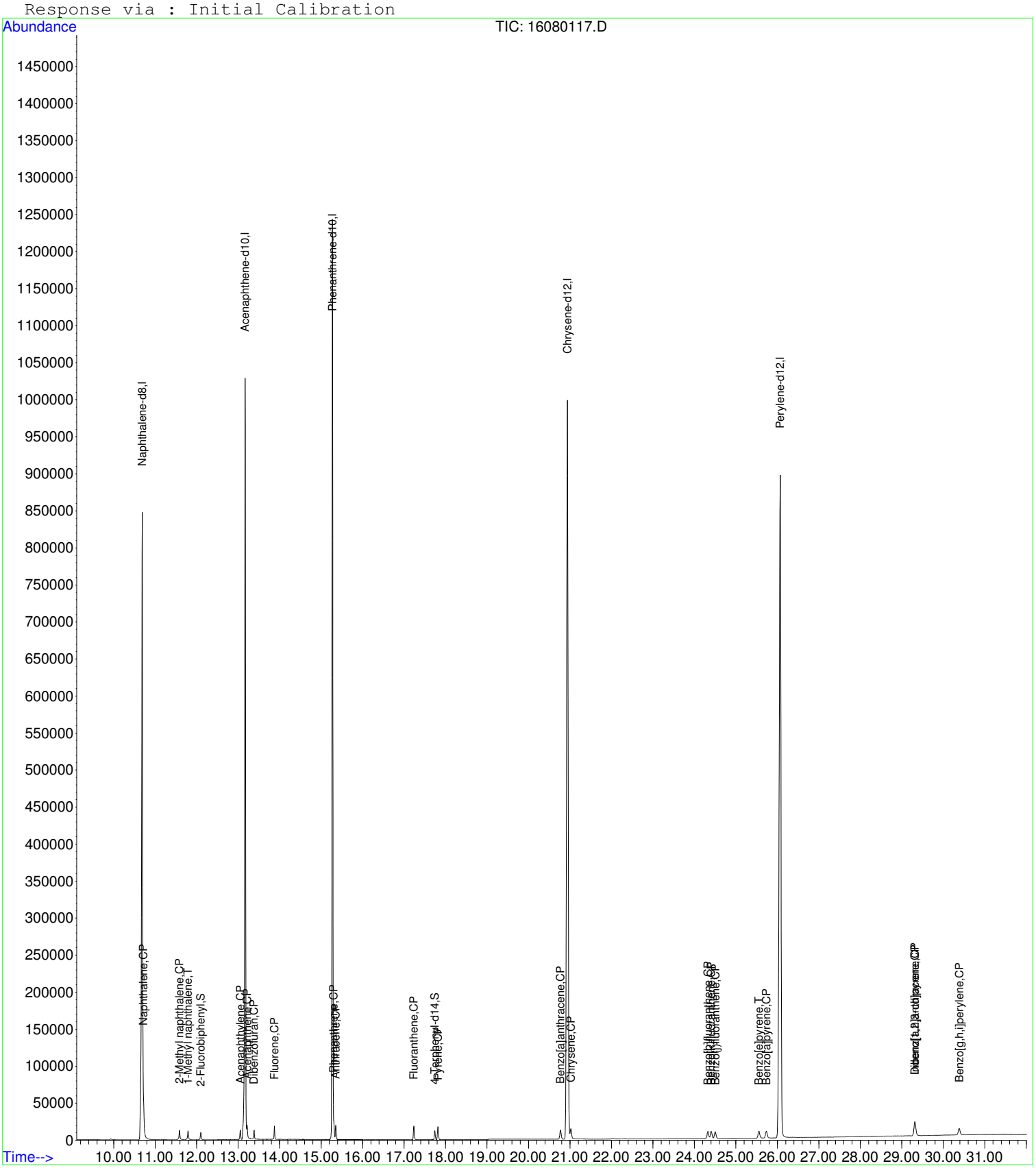
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1483617	4000.00	ug/kg	106
5) Acenaphthene-d10	13.17	164	671495	4000.00	ug/kg	112
11) Phenanthrene-d10	15.27	188	1461166	4000.00	ug/kg	92
17) Chrysene-d12	20.94	240	1828455	4000.00	ug/kg	100
20) Perylene-d12	26.07	264	1813783	4000.00	ug/kg	94
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	11900	50.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#		
16) 4-Terphenyl-d14	17.74	244	18151	52.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.32%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	16729	49.56	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	11175	51.07	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	9975	51.46	ug/kg	99
6) Dibenzofuran	13.38	168	13386	49.26	ug/kg	99
8) Acenaphthylene	13.05	152	14476	48.68	ug/kg	99
9) Acenaphthene	13.22	154	8199	47.61	ug/kg	98
10) Fluorene	13.87	166	10463	48.33	ug/kg	99
12) Phenanthrene	15.31	178	17603	50.81	ug/kg	98
13) Anthracene	15.35	178	18474	50.68	ug/kg	98
14) Fluoranthene	17.24	202	21208	51.66	ug/kg	98
15) Pyrene	17.82	202	21714	52.16	ug/kg	98
18) Benzo[a]anthracene	20.77	228	20007	48.55	ug/kg	98
19) Chrysene	21.02	228	19314	48.71	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	20206	48.26	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	19325	50.31	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	18806	50.94	ug/kg	99
24) Benzo[e]pyrene	25.55	252	20368	50.13	ug/kg	98
25) Benzo[a]pyrene	25.73	252	19849	49.06	ug/kg	99
26) Dibenz[a,h]anthracene	29.32	278	19000	48.53	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	22630	48.71	ug/kg	96
28) Benzo[g,h,i]perylene	30.39	276	18855	48.46	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

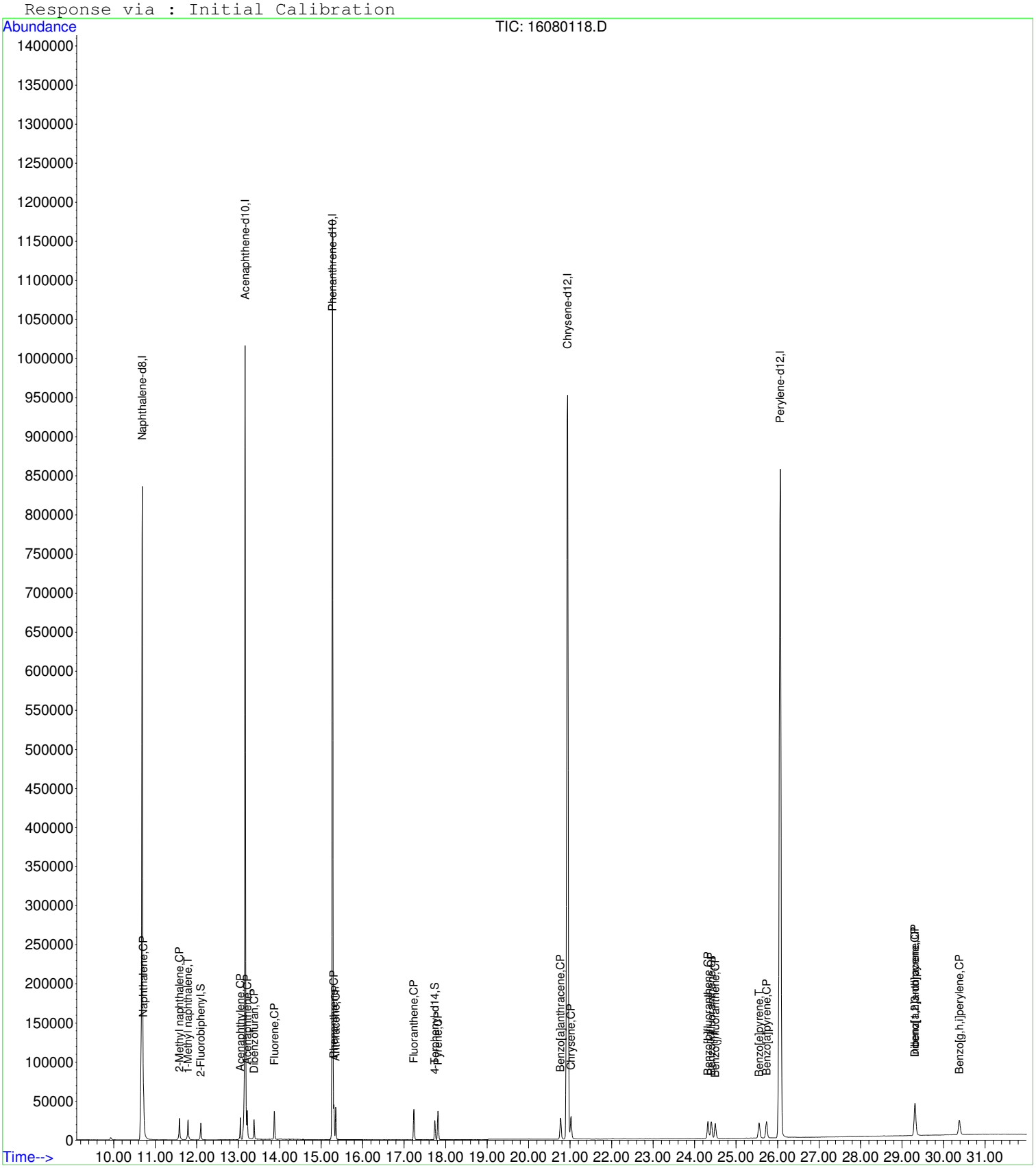
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1417424	4000.00	ug/kg	101
5) Acenaphthene-d10	13.17	164	638853	4000.00	ug/kg	107
11) Phenanthrene-d10	15.27	188	1381998	4000.00	ug/kg	87
17) Chrysene-d12	20.94	240	1743437	4000.00	ug/kg	95
20) Perylene-d12	26.06	264	1747505	4000.00	ug/kg	91
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	23943	107.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.69%#		
16) 4-Terphenyl-d14	17.74	244	35511	108.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.72%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	33760	104.68	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	22472	107.49	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	19870	107.30	ug/kg	99
6) Dibenzofuran	13.38	168	26743	103.44	ug/kg	100
8) Acenaphthylene	13.05	152	29673	104.89	ug/kg	98
9) Acenaphthene	13.22	154	16709	101.98	ug/kg	100
10) Fluorene	13.87	166	21036	102.14	ug/kg	99
12) Phenanthrene	15.31	178	34943	106.65	ug/kg	98
13) Anthracene	15.35	178	38892	112.81	ug/kg	99
14) Fluoranthene	17.23	202	43667	112.46	ug/kg	99
15) Pyrene	17.82	202	44128	112.08	ug/kg	100
18) Benzo[a]anthracene	20.77	228	43135	109.77	ug/kg	99
19) Chrysene	21.02	228	41212	109.01	ug/kg	99
21) Benzo[b]fluoranthene	24.32	252	45107	111.81	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	40745	110.09	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	37339	104.98	ug/kg	97
24) Benzo[e]pyrene	25.55	252	40550	103.58	ug/kg	100
25) Benzo[a]pyrene	25.73	252	42902	110.06	ug/kg	98
26) Dibenz[a,h]anthracene	29.31	278	40760	108.06	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	49167	109.84	ug/kg	95
28) Benzo[g,h,i]perylene	30.38	276	40533	108.12	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

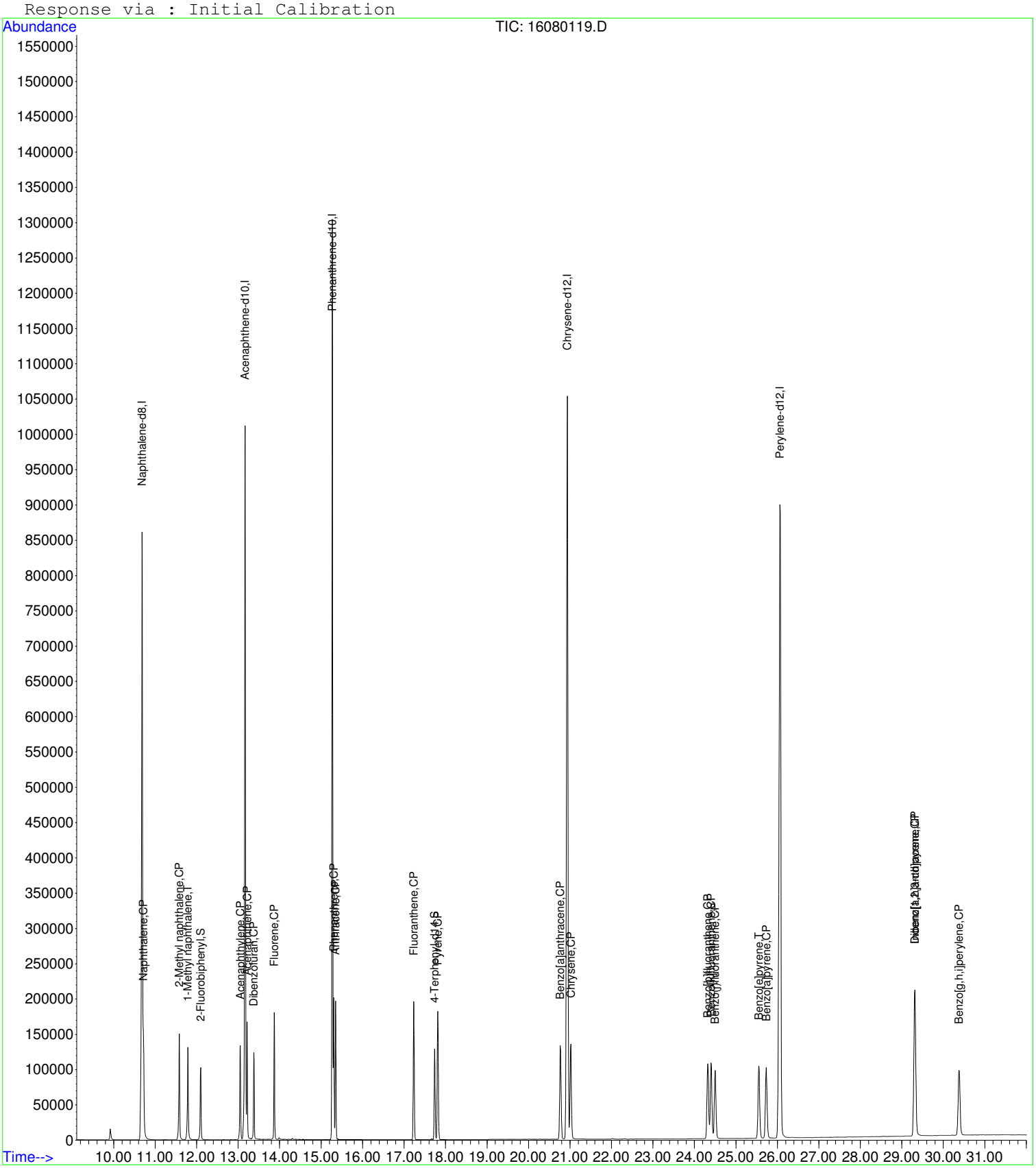
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1438697	4000.00	ug/kg	103
5) Acenaphthene-d10	13.17	164	632331	4000.00	ug/kg	105
11) Phenanthrene-d10	15.27	188	1502812	4000.00	ug/kg	94
17) Chrysene-d12	20.94	240	1837823	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1862883	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	110883	502.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	12.57%#		
16) 4-Terphenyl-d14	17.74	244	180912	510.12	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	12.75%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	157338	480.66	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	104597	492.90	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	93561	497.76	ug/kg	97
6) Dibenzofuran	13.38	168	123371	482.11	ug/kg	100
8) Acenaphthylene	13.05	152	140359	501.25	ug/kg	99
9) Acenaphthene	13.22	154	82644	509.59	ug/kg	98
10) Fluorene	13.87	166	99953	490.30	ug/kg	100
12) Phenanthrene	15.30	178	176305	494.83	ug/kg	99
13) Anthracene	15.35	178	187904	501.21	ug/kg	99
14) Fluoranthene	17.23	202	217298	514.64	ug/kg	99
15) Pyrene	17.81	202	217006	506.86	ug/kg	99
18) Benzo[a]anthracene	20.77	228	212082	511.98	ug/kg	99
19) Chrysene	21.02	228	201242	504.99	ug/kg	100
21) Benzo[b]fluoranthene	24.32	252	220851	513.54	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	201349	510.35	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	192031	506.48	ug/kg	99
24) Benzo[e]pyrene	25.55	252	208998	500.78	ug/kg	99
25) Benzo[a]pyrene	25.73	252	208397	501.53	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	204642	508.93	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	241930	507.01	ug/kg	98
28) Benzo[g,h,i]perylene	30.39	276	200928	502.75	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

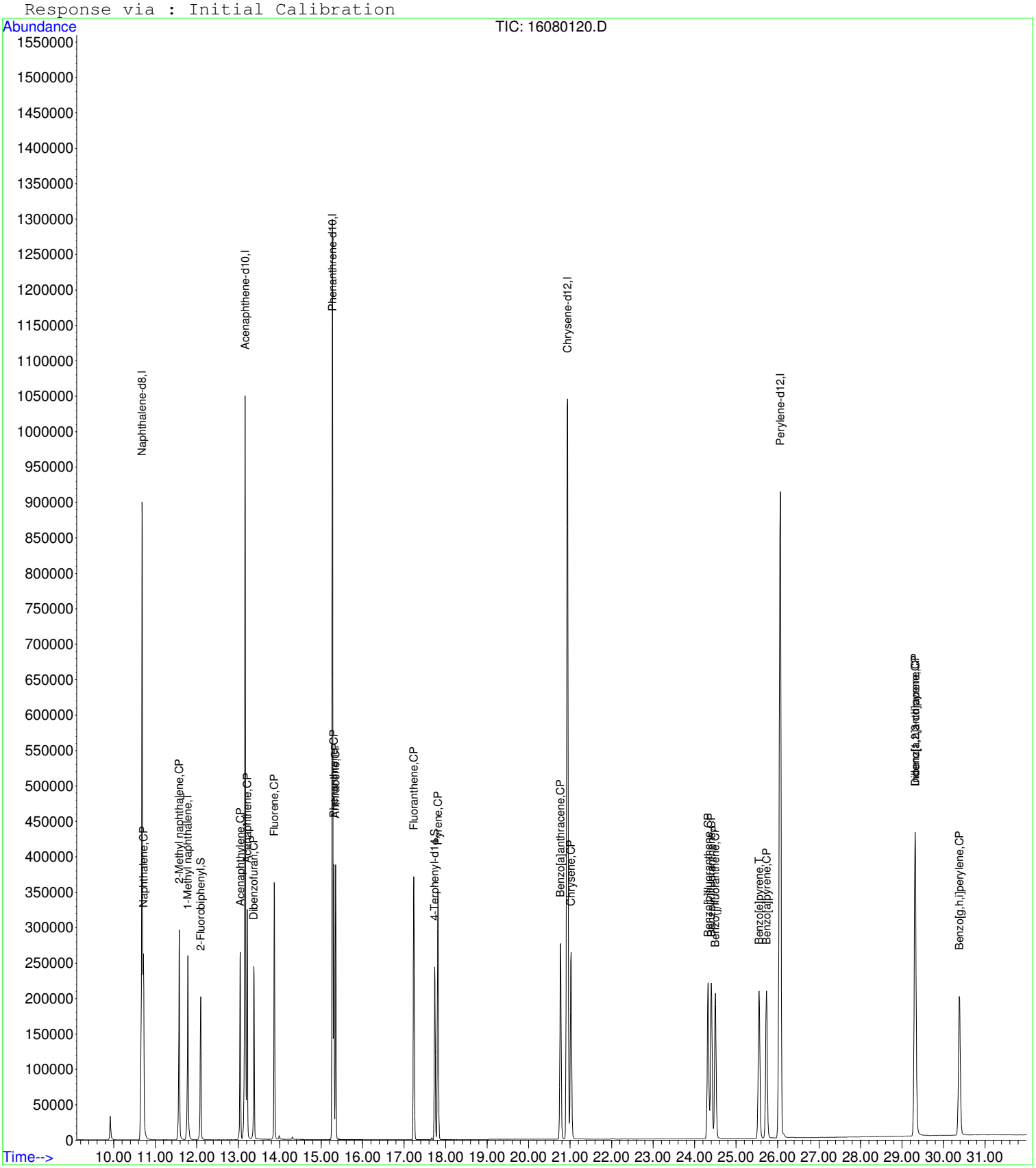
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1499252	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	657692	4000.00	ug/kg	110
11) Phenanthrene-d10	15.27	188	1538575	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1921341	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	1969102	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	218820	953.83	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.85%#		
16) 4-Terphenyl-d14	17.74	244	347243	956.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.91%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	314807	922.87	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	208479	942.76	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	186882	954.08	ug/kg	98
6) Dibenzofuran	13.38	168	245676	923.04	ug/kg	100
8) Acenaphthylene	13.05	152	281204	965.50	ug/kg	100
9) Acenaphthene	13.22	154	164497	975.20	ug/kg	99
10) Fluorene	13.87	166	201948	952.42	ug/kg	100
12) Phenanthrene	15.30	178	342999	940.32	ug/kg	100
13) Anthracene	15.35	178	362165	943.57	ug/kg	99
14) Fluoranthene	17.23	202	413506	956.56	ug/kg	99
15) Pyrene	17.81	202	410166	935.76	ug/kg	100
18) Benzo[a]anthracene	20.77	228	420793	971.67	ug/kg	99
19) Chrysene	21.02	228	396650	952.07	ug/kg	99
21) Benzo[b]fluoranthene	24.33	252	451182	992.53	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	422580	1013.31	ug/kg	100
23) Benzo(j)fluoranthene	24.50	252	392898	980.36	ug/kg	99
24) Benzo[e]pyrene	25.55	252	430721	976.39	ug/kg	99
25) Benzo[a]pyrene	25.73	252	429307	977.43	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	425555	1001.23	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	501658	994.61	ug/kg	96
28) Benzo[g,h,i]perylene	30.38	276	418580	990.85	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

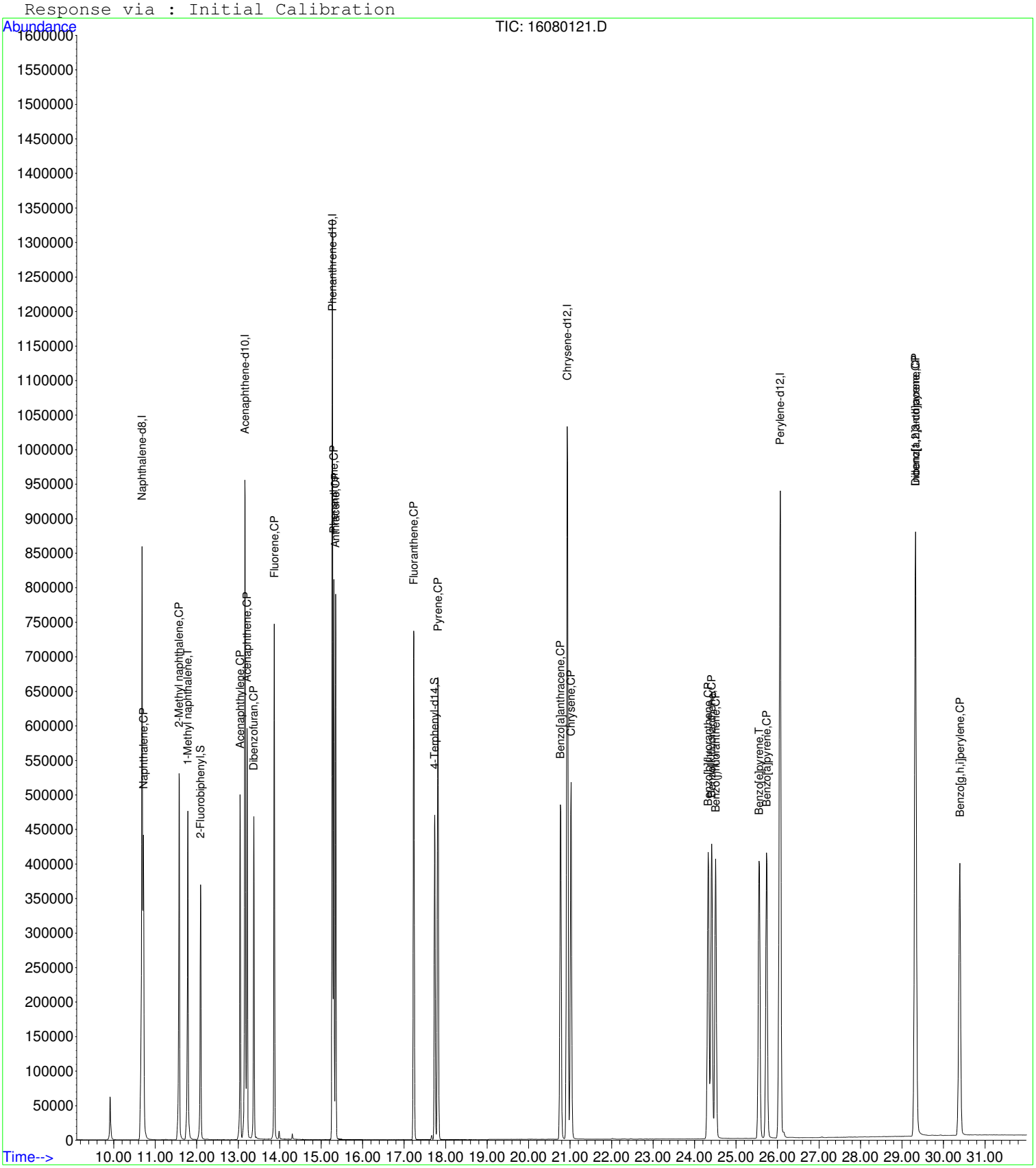
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1403212	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	599493	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	1590654	4000.00	ug/kg	100
17) Chrysene-d12	20.93	240	1834195	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1928719	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	398885	1907.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.69%		
16) 4-Terphenyl-d14	17.74	244	679973	1811.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	45.29%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	591164	1851.64	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	381572	1843.59	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	343340	1872.80	ug/kg	100
6) Dibenzofuran	13.38	168	463067	1908.71	ug/kg	100
8) Acenaphthylene	13.05	152	515239	1940.79	ug/kg	100
9) Acenaphthene	13.21	154	301528	1961.11	ug/kg	100
10) Fluorene	13.87	166	404242	2091.56	ug/kg	100
12) Phenanthrene	15.30	178	710635	1884.39	ug/kg	100
13) Anthracene	15.35	178	742459	1871.03	ug/kg	100
14) Fluoranthene	17.23	202	813605	1820.49	ug/kg	100
15) Pyrene	17.81	202	813802	1795.83	ug/kg	100
18) Benzo[a]anthracene	20.77	228	817037	1976.30	ug/kg	100
19) Chrysene	21.02	228	771703	1940.31	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	881066	1978.79	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	803567	1967.23	ug/kg	100
23) Benzo(j)fluoranthene	24.51	252	772683	1968.36	ug/kg	100
24) Benzo[e]pyrene	25.55	252	855110	1979.00	ug/kg	100
25) Benzo[a]pyrene	25.73	252	855355	1988.22	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	847106	2034.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	996633	2017.34	ug/kg	100
28) Benzo[g,h,i]perylene	30.39	276	831770	2010.17	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

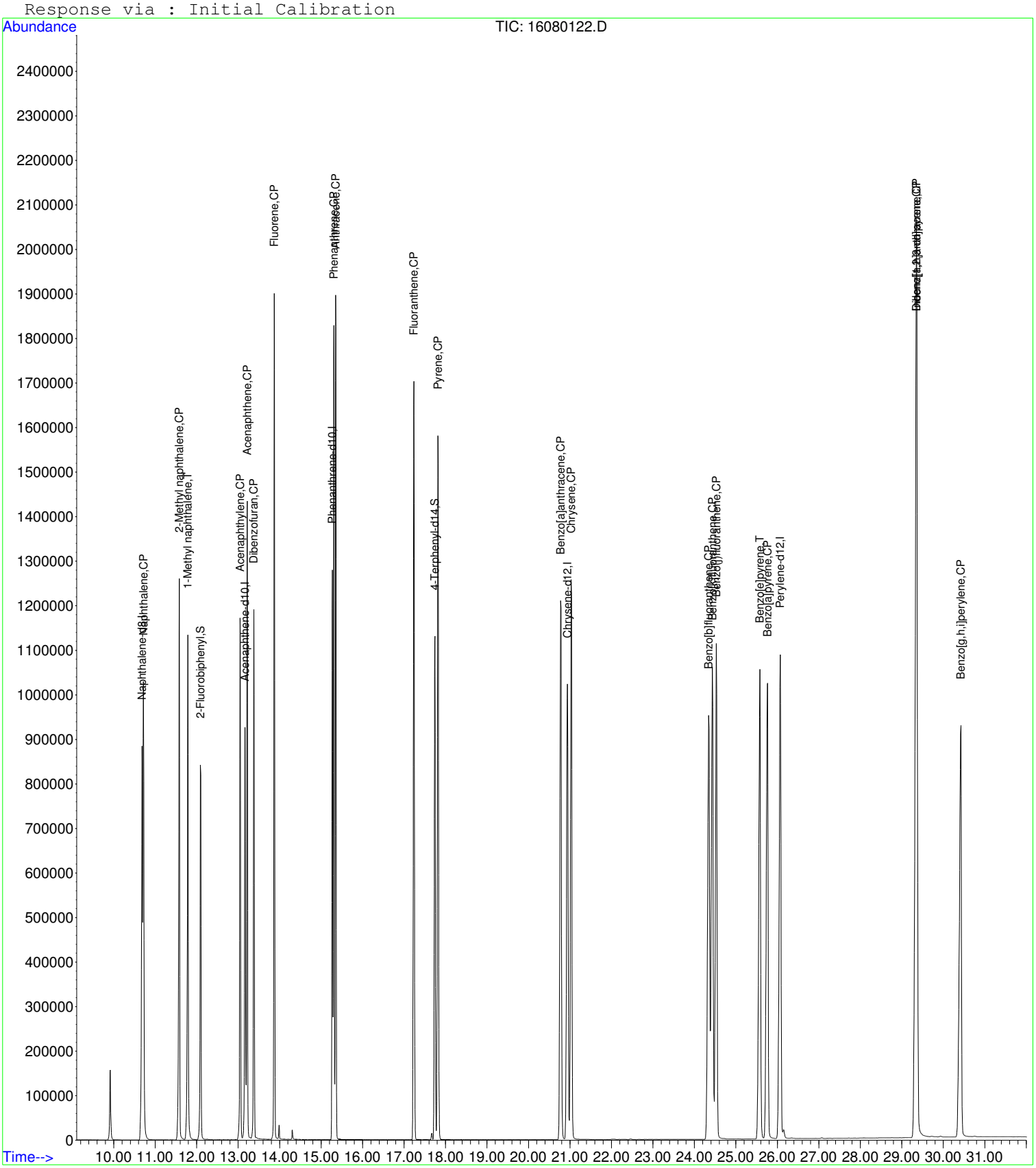
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1300974	4000.00	ug/kg	93
5) Acenaphthene-d10	13.16	164	578980	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1540055	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1926331	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	2158387	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	910049	4506.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 112.65%			
16) 4-Terphenyl-d14	17.74	244	1626864	4476.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 111.91%			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1382400	4670.22	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	875199	4560.89	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	777314	4573.18	ug/kg	98
6) Dibenzofuran	13.38	168	1143687	4881.17	ug/kg	99
8) Acenaphthylene	13.05	152	1229331	4794.69	ug/kg	99
9) Acenaphthene	13.22	154	734765	4948.15	ug/kg	98
10) Fluorene	13.87	166	1054816	5651.02	ug/kg	99
12) Phenanthrene	15.31	178	1698584	4652.11	ug/kg	99
13) Anthracene	15.35	178	1776151	4623.05	ug/kg	99
14) Fluoranthene	17.24	202	1912825	4420.67	ug/kg	99
15) Pyrene	17.82	202	1927732	4393.72	ug/kg	99
18) Benzo[a]anthracene	20.77	228	2058265	4740.53	ug/kg	99
19) Chrysene	21.03	228	1938788	4641.58	ug/kg	99
21) Benzo[b]fluoranthene	24.34	252	2383619	4783.74	ug/kg	99
22) Benzo[k]fluoranthene	24.43	252	1945183	4255.32	ug/kg	99
23) Benzo(j)fluoranthene	24.53	252	2048212	4662.49	ug/kg	99
24) Benzo[e]pyrene	25.58	252	2256081	4665.72	ug/kg	99
25) Benzo[a]pyrene	25.76	252	2246996	4667.24	ug/kg	99
26) Dibenz[a,h]anthracene	29.35	278	2191792	4704.51	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.36	276	2582958	4671.97	ug/kg	98
28) Benzo[g,h,i]perylene	30.42	276	2131025	4602.12	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



489

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Dibenzofuran and benzo(J)fluoranthene SSCV.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1325276	4000.00	ug/kg	94
5) Acenaphthene-d10	13.16	164	707178	4000.00	ug/kg	118
11) Phenanthrene-d10	15.27	188	1448385	4000.00	ug/kg	91
17) Chrysene-d12	20.93	240	1824407	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1845448	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	49	0.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
16) 4-Terphenyl-d14	17.74	244	223	0.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	159	0.53	ug/kg	88
3) 2-Methyl naphthalene	11.58	142	146	0.75	ug/kg	83
4) 1-Methyl naphthalene	11.79	142	32	0.18	ug/kg	89
6) Dibenzofuran	13.38	168	646698	2259.71	ug/kg	100
8) Acenaphthylene	13.05	152	144	0.46	ug/kg	70
9) Acenaphthene	13.21	154	171	0.94	ug/kg	87
10) Fluorene	13.87	166	5788	25.39	ug/kg	99
12) Phenanthrene	15.30	178	1058	3.08	ug/kg	95
13) Anthracene	15.35	178	2627	7.27	ug/kg	96
14) Fluoranthene	17.23	202	1405	3.45	ug/kg	94
15) Pyrene	17.81	202	1483	3.59	ug/kg	99
18) Benzo[a]anthracene	20.77	228	3151	7.66	ug/kg	98
19) Chrysene	21.01	228	2940	7.43	ug/kg	99
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) Benzo[k]fluoranthene	24.50	252	927856	~~2374.00~~	~~ug/kg~~	~~96~~
23) Benzo(j)fluoranthene	24.50	252	935770	2491.38	ug/kg	100
24) Benzo[e]pyrene	25.55	252	6358	15.38	ug/kg	98
25) Benzo[a]pyrene	25.73	252	3099	7.53	ug/kg	97
26) Dibenz[a,h]anthracene	29.30	278	2935	7.37	ug/kg	92
27) Indeno[1,2,3-cd]pyrene	29.32	276	3735	7.90	ug/kg	98
28) Benzo[g,h,i]perylene	30.38	276	2800	7.07	ug/kg	96

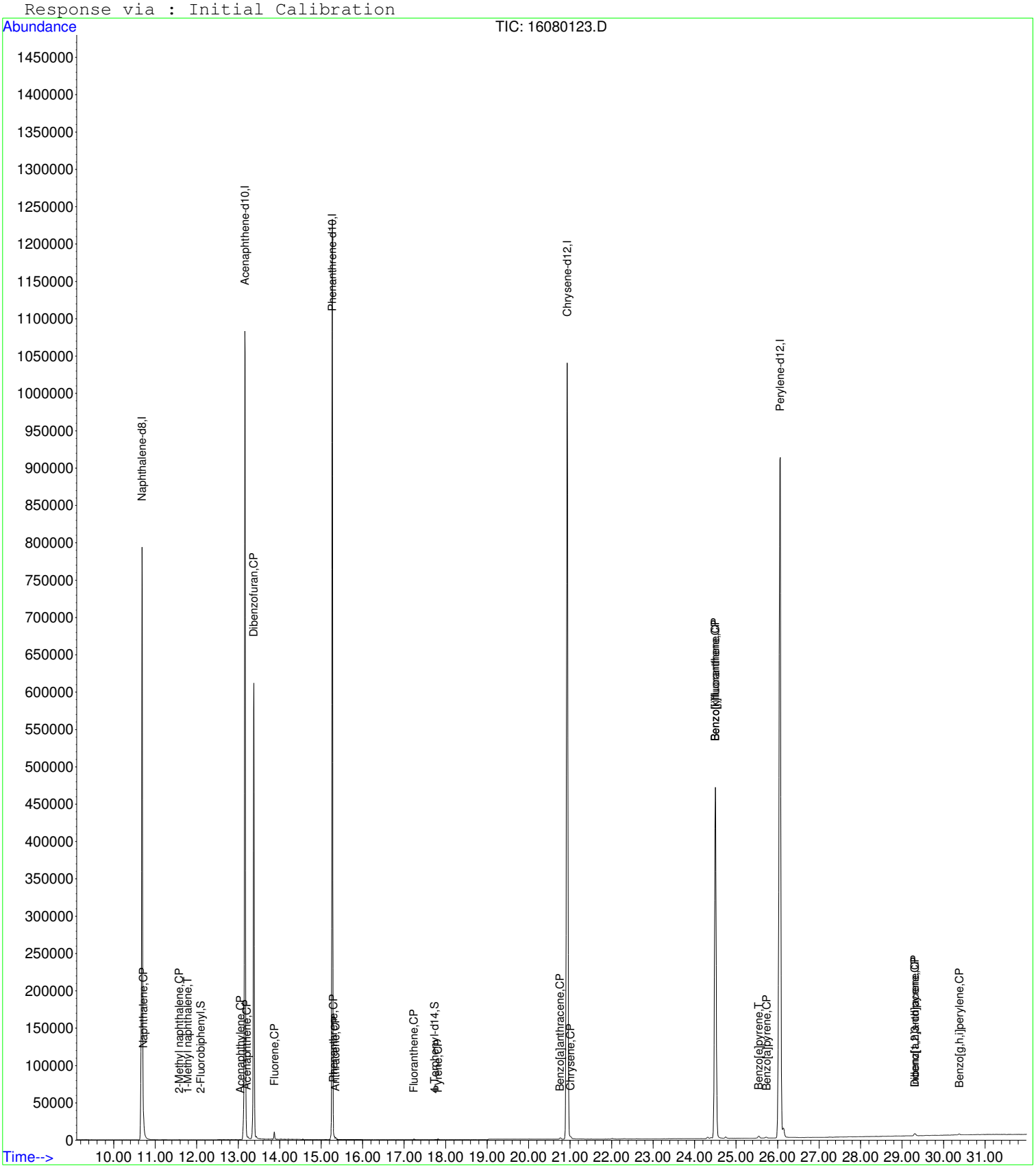
REVIEWED/APPROVED
By Sherri Herschmann at 9:39:32 AM, 8/10/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

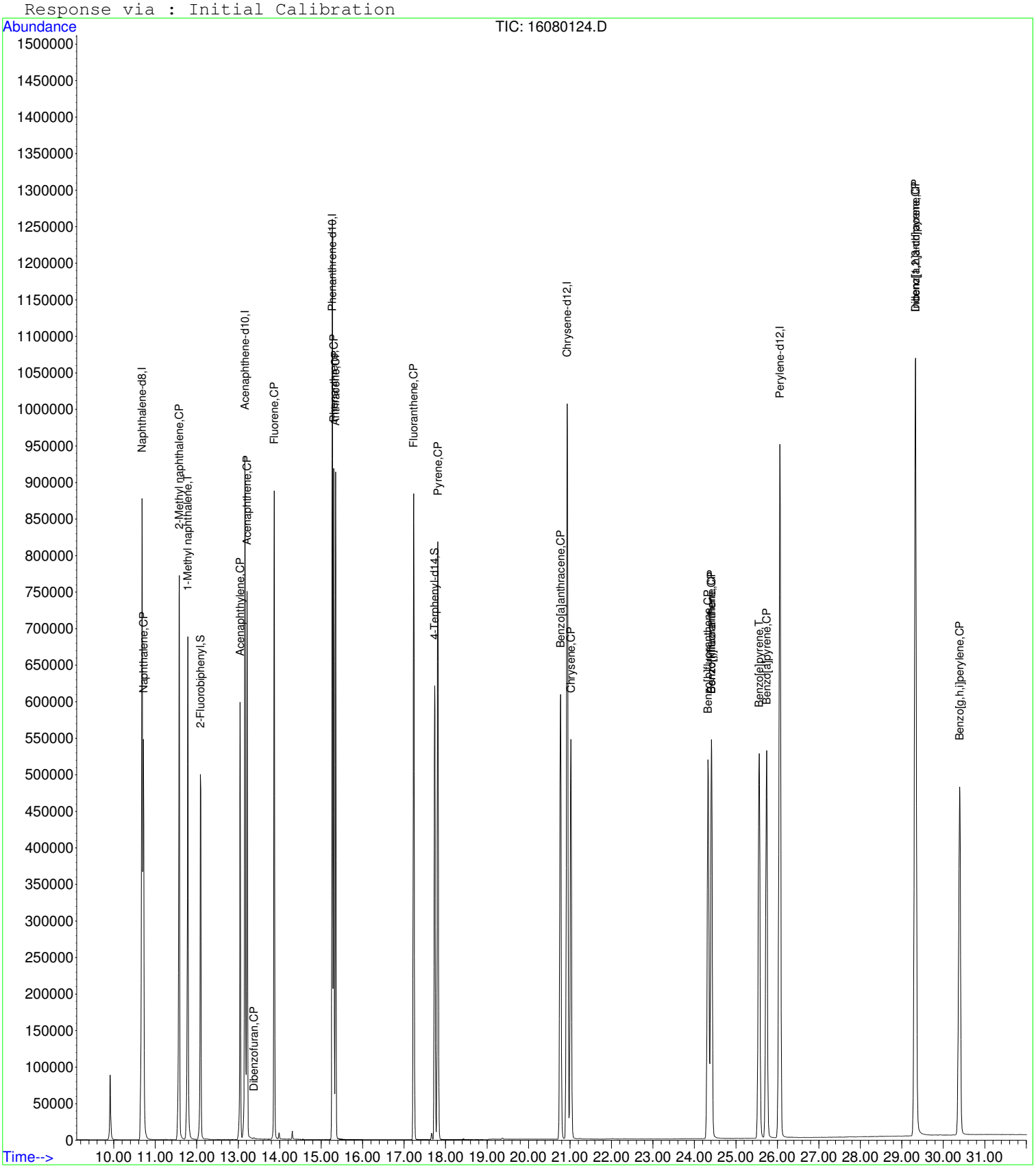
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1382829	4000.00	ug/kg	99
5) Acenaphthene-d10	13.16	164	584199	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1507995	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	1806763	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1922214	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	535064	2625.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	65.64%		
16) 4-Terphenyl-d14	17.74	244	917932	2579.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	64.48%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	729433	2318.41	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	557797	2734.76	ug/kg	100
4) 1-Methyl naphthalene	11.78	142	488333	2702.95	ug/kg	99
6) Dibenzofuran	13.38	168	1665	7.04	ug/kg	92
8) Acenaphthylene	13.05	152	618455	2390.57	ug/kg	100
9) Acenaphthene	13.21	154	377577	2520.01	ug/kg	99
10) Fluorene	13.87	166	493842	2622.05	ug/kg	99
12) Phenanthrene	15.31	178	836523	2339.79	ug/kg	100
13) Anthracene	15.35	178	838710	2229.45	ug/kg	100
14) Fluoranthene	17.23	202	984348	2323.26	ug/kg	100
15) Pyrene	17.81	202	987430	2298.41	ug/kg	100
18) Benzo[a]anthracene	20.77	228	984666	2417.93	ug/kg	99
19) Chrysene	21.02	228	825681	2107.55	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	1115953	2514.81	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	1060340	2604.62	ug/kg	100
23) Benzo(j)fluoranthene	24.41	252	1065428	2723.30	ug/kg	96
24) Benzo[e]pyrene	25.56	252	1115693	2590.81	ug/kg	99
25) Benzo[a]pyrene	25.74	252	1079860	2518.56	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	1039354	2504.99	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.33	276	1238582	2515.56	ug/kg	99
28) Benzo[g,h,i]perylene	30.39	276	1033552	2506.28	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



ICP-MS3
For

DHL Work Order
1607239

ICP-MS3_160805A
For

DHL Work Order
1607239

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160805A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

ISTDs fail low at the end of the run - not reporting the data. Corrective action - rerun the last bracket of samples.

Analyst: Karyn Lane Date of Completion: 08/08/2016

Second-Level Review: Janice Whitt Date Stamp: 8/9/2016

REVIEWED BY
By Janice Whitt at 3:58:56 PM, 8/9/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160805A** **Run No.:** 87466

Analytical Run Date: 8/5/2016 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 11:46:00 AM		
L2-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 11:52:00 AM		
L-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 11:58:00 AM		
10X-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:04:00 PM		
5X-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:10:00 PM		
2X-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:16:00 PM		
H-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:22:00 PM		
H2-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:27:00 PM		
ICSA-160805	1	ICPMS_TWDOD	ICSA	R87466	8/5/2016 12:45:00 PM		
ICSAB-160805	1	ICPMS_TWDOD	ICSB	R87466	8/5/2016 12:51:00 PM		
ICV1-160805	1	ICPMS_TWDOD	ICV	R87466	8/5/2016 1:09:00 PM		
ICB1-160805	1	ICPMS_TWDOD	ICB	R87466	8/5/2016 1:15:00 PM		
ILCVL-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 1:21:00 PM		
MB-76602	5	ICPMS_TSDOD1	MBLK	76602	8/5/2016 1:27:00 PM		
LCS-76602	5	ICPMS_TSDOD1	LCS	76602	8/5/2016 1:33:00 PM		
LCSD-76602	5	ICPMS_TSDOD1	LCSD	76602	8/5/2016 1:39:00 PM		
1607239-01A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 1:50:00 PM		
1607239-01A SD	25	ICPMS_TSDOD1	SD	76602	8/5/2016 1:56:00 PM		
1607219-22A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:02:00 PM		
1607219-23A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:08:00 PM		
1607219-24A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:14:00 PM		
1607219-25A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:20:00 PM		
1607239-02A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:26:00 PM		
1607239-03A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:31:00 PM		
1607239-04A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:37:00 PM		
1607239-05A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:43:00 PM		
1607239-06A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:49:00 PM		
1607239-01A PDS	5	ICPMS_TSDOD1	PDS	76602	8/5/2016 2:55:00 PM		
1607239-01A MS	5	ICPMS_TSDOD1	MS	76602	8/5/2016 3:01:00 PM		
1607239-01A MSD	5	ICPMS_TSDOD1	MSD	76602	8/5/2016 3:06:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160805A **Run No.:** 87466

CCV1-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 3:12:00 PM		
LCVL1-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 3:24:00 PM		
CCB1-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 3:31:00 PM		
1607239-07A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:37:00 PM		
1607239-08A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:42:00 PM		
1607239-09A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:48:00 PM		
1607239-10A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:54:00 PM		
1607239-11A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:00:00 PM		
1607239-12A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:12:00 PM		
1607239-13A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:18:00 PM		
1607239-14A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:24:00 PM		
1607239-15A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:30:00 PM		
1607239-17A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:36:00 PM		
CCV2-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 4:48:00 PM		
CCB2-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 4:54:00 PM		
LCVL2-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 5:00:00 PM		
MB-76623	5	ICPMS_TSDOD1	MBLK	76623	8/5/2016 5:06:00 PM		
LCS-76623	5	ICPMS_TSDOD1	LCS	76623	8/5/2016 5:12:00 PM		
LCSD-76623	5	ICPMS_TSDOD1	LCSD	76623	8/5/2016 5:18:00 PM		
1607239-21A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:30:00 PM		
1607239-21A SD	25	ICPMS_TSDOD1	SD	76623	8/5/2016 5:36:00 PM		
1607239-18A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:42:00 PM		
1607239-19A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:48:00 PM		
1607239-20A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:54:00 PM		
1607239-22A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:00:00 PM		
1607239-23A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:12:00 PM		
1607239-24A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:18:00 PM		
1607239-25A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:24:00 PM		
1607239-26A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:30:00 PM		
1607239-27A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:36:00 PM		
1607239-21A PDS	5	ICPMS_TSDOD1	PDS	76623	8/5/2016 6:42:00 PM		
1607239-21A MS	5	ICPMS_TSDOD1	MS	76623	8/5/2016 6:47:00 PM		
1607239-21A MSD	5	ICPMS_TSDOD1	MSD	76623	8/5/2016 6:53:00 PM		
CCV3-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 7:05:00 PM		
LCVL3-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 7:17:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160805A **Run No.:** 87466

CCB3-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 7:24:00 PM		
1607239-28A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:30:00 PM		
1607239-29A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:36:00 PM		
1607239-30A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:42:00 PM		
1607239-31A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:48:00 PM		
1607256-01A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:54:00 PM		
1607256-02A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:06:00 PM		
1607256-03A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:12:00 PM		
1607256-04A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:18:00 PM		
1607256-05A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:24:00 PM		
1607256-06A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:29:00 PM		
CCV4-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 8:42:00 PM		
LCVL4-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 8:54:00 PM		
CCB4-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 9:00:00 PM		
MB-76649	5	ICPMS_TSDOD1	MBLK	76649	8/5/2016 9:06:00 PM		
LCS-76649	5	ICPMS_TSDOD1	LCS	76649	8/5/2016 9:12:00 PM		
LCSD-76649	5	ICPMS_TSDOD1	LCSD	76649	8/5/2016 9:18:00 PM		
1607256-07A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:30:00 PM		
1607256-07A SD	25	ICPMS_TSDOD1	SD	76649	8/5/2016 9:36:00 PM		
1607256-08A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:42:00 PM		
1607256-09A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:48:00 PM		
1607256-10A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:54:00 PM		
1607256-11A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:00:00 PM		
1607256-12A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:12:00 PM		
1607256-14A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:18:00 PM		
1607256-15A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:24:00 PM		
1607256-16A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:30:00 PM		
1607256-17A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:36:00 PM		
1607256-07A PDS	5	ICPMS_TSDOD1	PDS	76649	8/5/2016 10:42:00 PM		
1607256-07A MS	5	ICPMS_TSDOD1	MS	76649	8/5/2016 10:48:00 PM		
1607256-07A MSD	5	ICPMS_TSDOD1	MSD	76649	8/5/2016 10:54:00 PM		
CCV5-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 11:06:00 PM		
LCVL5-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 11:18:00 PM		
CCB5-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 11:24:00 PM		
1607256-18A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:31:00 PM		DNR remainder of run. Low ISTDS. See rerun.

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160805A **Run No.:** 87466

1607256-19A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:37:00 PM		
1607256-20A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:43:00 PM		
1607256-21A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:49:00 PM		
1607256-22A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:55:00 PM		
1607256-23A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:07:00 AM		
1607256-24A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:13:00 AM		
1607256-25A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:19:00 AM		
1607256-29A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:25:00 AM		
1607256-30A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:31:00 AM		
CCV6-160805	1	ICPMS_TWDOD	CCV	R87466	8/6/2016 12:43:00 AM		
LCVL6-160805	1	ICPMS_TWDOD	LCVL	R87466	8/6/2016 1:19:00 AM		
CCB6-160805	1	ICPMS_TWDOD	CCB	R87466	8/6/2016 1:25:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160805	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160805	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160805	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160805	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160805	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160805	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160805	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160805	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160805	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160805	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160805	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160805	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76602	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76602	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76602	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607239-01A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607239-01A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607219-22A	SAMPICPMS_TSDOD1	5.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607219-23A	SAMPICPMS_TSDOD1	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607219-24A	SAMPICPMS_TSDOD1	5.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607219-25A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607239-02A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607239-03A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607239-04A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607239-05A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607239-06A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607239-01A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607239-01A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607239-01A MSD	MSD ICPMS_TSOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160805	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160805	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160805	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160805	CCB ICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607239-07A	SAMPICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607239-08A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607239-09A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1607239-10A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1607239-11A	SAMPICPMS_TSDOD1	5.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1607239-12A	SAMPICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1607239-13A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1607239-14A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1607239-15A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2410		1607239-17A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160805	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160805	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160805	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76623	MBLKICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76623	LCS ICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76623	LCSDICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607239-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607239-21A SD	SD ICPMS_TSDOD1	25.00				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607239-18A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607239-19A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607239-20A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607239-22A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607239-23A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607239-24A	SAMPICPMS_TSDOD1	5.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607239-25A	SAMPICPMS_TSDOD1	5.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607239-26A	SAMPICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607239-27A	SAMPICPMS_TSDOD1	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607239-21A PDS	PDS ICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607239-21A MS	MS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607239-21A MSD	MSD ICPMS_TSOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160805	CCV ICPMS_TW	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160805	CCB ICPMS_TW	1.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160805	LCVLICPMS_TW	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160805	CCB ICPMS_TW	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607239-28A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607239-29A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607239-30A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3304		1607239-31A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1607256-01A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1607256-02A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3307		1607256-03A	SAMPICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1607256-04A	SAMPICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1607256-05A	SAMPICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1607256-06A	SAMPICPMS_TSDOD1	5.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160805	CCV ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160805	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160805	LCVLICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160805	CCB ICPMS_TW	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-76649	MBLKICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-76649	LCS ICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-76649	LCSDICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607256-07A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607256-07A SD	SD ICPMS_TSDOD1	25.00				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1607256-08A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1607256-09A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1607256-10A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1607256-11A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1607256-12A	SAMPICPMS_TSDOD1	5.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1607256-14A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1607256-15A	SAMPICPMS_TSDOD1	5.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1607256-16A	SAMPICPMS_TSDOD1	5.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1607256-17A	SAMPICPMS_TSDOD1	5.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607256-07A PDS	PDS ICPMS_TSDOD1	5.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1607256-07A MS	MS_ICPMS_TSDOD1	5.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1607256-07A MSD	MSD ICPMS_TSOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160805	CCV ICPMS_TW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160805	CCB ICPMS_TW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160805	LCVLICPMS_TW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160805	CCB ICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4101		1607256-18A	SAMPICPMS_TSDOD1	5.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4102		1607256-19A	SAMPICPMS_TSDOD1	5.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4103		1607256-20A	SAMPICPMS_TSDOD1	5.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4104		1607256-21A	SAMPICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4105		1607256-22A	SAMPICPMS_TSDOD1	5.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4106		1607256-23A	SAMPICPMS_TSDOD1	5.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4107		1607256-24A	SAMPICPMS_TSDOD1	5.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4108		1607256-25A	SAMPICPMS_TSDOD1	5.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4109		1607256-29A	SAMPICPMS_TSDOD1	5.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4110		1607256-30A	SAMPICPMS_TSDOD1	5.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160805	CCV ICPMS_TW	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160805	CCB ICPMS_TW	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160805	LCVLICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160805	CCB ICPMS_TW	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
153		Keyword		StandBy							
154		Keyword		SMPLEND	End of SMPL						
155		Keyword		End	End of Sequence						
156		Keyword		CCVBEG	Start of CCV						
157		Keyword		CCVEND	End of CCV						
158		Keyword		BLKBEG	Start of BLANK						
159		Keyword		BLKEND	End of BLANK						
160		Keyword		ERRBEG	Start of ERRTERM						
161		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/2/2016 8:01:03 AM**
Digestion:
Prep End Date:

Prep Batch **76602** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke** Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		Cleanup
1607219-22A	Soil		1 .14	50	50.000	1 of	1	
1607219-23A	Soil		1 .06	50	50.000	1 of	1	
1607219-24A	Soil		1 .13	50	50.000	1 of	1	
1607219-25A	Soil		1 .04	50	50.000	1 of	1	
1607239-01A	Soil		1 .03	50	50.000	of	3	
1607239-01A MS	Soil		1 .06	50	50.000	of		
1607239-01A MSD	Soil		1 .02	50	50.000	of		
1607239-02A	Soil		1 .05	50	50.000	1 of	1	
1607239-03A	Soil		1 .06	50	50.000	1 of	1	
1607239-04A	Soil		1 .06	50	50.000	1 of	1	
1607239-05A	Soil		1 .09	50	50.000	1 of	1	
1607239-06A	Soil		1 .15	50	50.000	1 of	1	
1607239-07A	Soil		1 .06	50	50.000	1 of	1	
1607239-08A	Soil		1 .07	50	50.000	1 of	1	
1607239-09A	Soil		1 .06	50	50.000	1 of	1	
1607239-10A	Soil		1 .06	50	50.000	1 of	1	
1607239-11A	Soil		1 .07	50	50.000	1 of	1	
1607239-12A	Soil		1 .02	50	50.000	1 of	1	
1607239-13A	Soil		1 .08	50	50.000	1 of	1	
1607239-14A	Soil		1 .04	50	50.000	1 of	1	
1607239-15A	Soil		1 .16	50	50.000	1 of	1	
1607239-17A	Soil		1 .15	50	50.000	1 of	1	
LCS-76602	Soil		1	50	50.000	of		
LCSD-76602	Soil		1	50	50.000	of		
MB-76602	Soil		1	50	50.000	of		

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

8:54 - 9:04
9:06 - 11:06
11:35 - 13:35
13:57 - 14:12

REVIEWED BY
By Janice Whitt at 3:24:46 PM, 8/9/2016

8/3/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**
Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**
Prep End Date: **7/22/2016 6:00:00 PM**

Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-01A	Soil		0	0	#Num!	1 of 1	
SS - All samples were subsampled							
1607219-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-03A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607219-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:24:51 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**
Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**
Prep End Date: **7/22/2016 6:00:00 PM**

Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-15A SS	Soil		0	0	#Num!	1 of 1	
1607219-16A SS	Soil		0	0	#Num!	1 of 1	
1607219-17A SS	Soil		0	0	#Num!	1 of 1	
1607219-18A SS	Soil		0	0	#Num!	1 of 1	
1607219-19A SS	Soil		0	0	#Num!	1 of 1	
1607219-20A SS	Soil		0	0	#Num!	1 of 1	
1607219-21A SS	Soil		0	0	#Num!	1 of 1	
1607219-22A SS	Soil		0	0	#Num!	1 of 1	
1607219-23A SS	Soil		0	0	#Num!	1 of 1	
1607219-24A SS	Soil		0	0	#Num!	1 of 1	
1607219-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 3:24:54 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-01A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-06A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-13A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:24:58 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-14A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-18A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-19A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-21A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-22A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-23A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-27A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:25:02 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-28A SS	Soil		0	0	#Num!	1 of 1	
1607239-29A SS	Soil		0	0	#Num!	1 of 1	
1607239-30A SS	Soil		0	0	#Num!	1 of 1	
1607239-31A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 3:25:15 PM, 8/9/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/03/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0189	5.0290	100.58	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9825	4.9925	99.85		
3		5.0074	5.0174	100.35		
AVERAGE (MEAN)		5.003	5.013	100.26		0.372
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2003	0.2007	100.35	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2010	0.2014	100.70		
3		0.2017	0.2021	101.05		
AVERAGE (MEAN)		0.201	0.201	100.70		0.348
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

Analyst / Date 8/3/16

REVIEWED BY
By Janice Whitt at 3:26:11 PM, 8/9/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 8:30:00 AM**
Digestion: **Start: 8/3/2016 8:54:00 AM / Stop: 8/3/2016 2:12:00 PM**
Prep End Date: **8/3/2016 5:57:22 PM**

Prep Batch **76602** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-22A	Soil		1.14	50	43.860	1 of 1	
1607219-23A	Soil		1.06	50	47.170	1 of 1	
1607219-24A	Soil		1.13	50	44.248	1 of 1	
1607219-25A	Soil		1.04	50	48.077	1 of 1	
1607239-01A	Soil		1.03	50	48.544	of 3	
1607239-01A MS	Soil		1.06	50	47.170	of	
1607239-01A MSD	Soil		1.02	50	49.020	of	
1607239-01A PDS	Soil		1.03	50	48.544	of	
1607239-01A SD	Soil		1.03	50	48.544	of	
1607239-02A	Soil		1.05	50	47.619	1 of 1	
1607239-03A	Soil		1.06	50	47.170	1 of 1	
1607239-04A	Soil		1.06	50	47.170	1 of 1	
1607239-05A	Soil		1.09	50	45.872	1 of 1	
1607239-06A	Soil		1.15	50	43.478	1 of 1	
1607239-07A	Soil		1.06	50	47.170	1 of 1	
1607239-08A	Soil		1.07	50	46.729	1 of 1	
1607239-09A	Soil		1.06	50	47.170	1 of 1	
1607239-10A	Soil		1.06	50	47.170	1 of 1	
1607239-11A	Soil		1.07	50	46.729	1 of 1	
1607239-12A	Soil		1.02	50	49.020	1 of 1	
1607239-13A	Soil		1.08	50	46.296	1 of 1	
1607239-14A	Soil		1.04	50	48.077	1 of 1	
1607239-15A	Soil		1.16	50	43.103	1 of 1	
1607239-17A	Soil		1.1	50	45.455	1 of 1	
LCS-76602	Soil		1	50	50.000	of	
LCSD-76602	Soil		1	50	50.000	of	
MB-76602	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

REVIEWED BY
By Janice Whitt at 3:28:36 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 7:22:34 AM**
Digestion: **Start: 8/4/2016 7:26:00 AM / Stop: 8/4/2016 12:31:00 PM**
Prep End Date: **8/4/2016 1:57:22 PM**

Prep Batch **76623** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-18A	Soil		1.15	50	43.478	1 of 1	
1607239-19A	Soil		1.09	50	45.872	1 of 1	
1607239-20A	Soil		1.05	50	47.619	1 of 1	
1607239-21A	Soil		1.08	50	46.296	of 3	
1607239-21A MS	Soil		1.05	50	47.619	of	
1607239-21A MSD	Soil		1.06	50	47.170	of	
1607239-21A PDS	Soil		1.08	50	46.296	of	
1607239-21A SD	Soil		1.08	50	46.296	of	
1607239-22A	Soil		1.02	50	49.020	1 of 1	
1607239-23A	Soil		1.18	50	42.373	1 of 1	
1607239-24A	Soil		1.17	50	42.735	1 of 1	
1607239-25A	Soil		1.09	50	45.872	1 of 1	
1607239-26A	Soil		1.03	50	48.544	1 of 1	
1607239-27A	Soil		1.01	50	49.505	1 of 1	
1607239-28A	Soil		1.12	50	44.643	1 of 1	
1607239-29A	Soil		1.05	50	47.619	1 of 1	
1607239-30A	Soil		1.07	50	46.729	1 of 1	
1607239-31A	Soil		1.06	50	47.170	1 of 1	
1607256-01A	Soil		1.01	50	49.505	1 of 1	
1607256-02A	Soil		1.02	50	49.020	1 of 1	
1607256-03A	Soil		1.06	50	47.170	1 of 1	
1607256-04A	Soil		1.08	50	46.296	1 of 1	
1607256-05A	Soil		1.02	50	49.020	1 of 1	
1607256-06A	Soil		1.07	50	46.729	1 of 1	
LCS-76623	Soil		1	50	50.000	of	
LCSD-76623	Soil		1	50	50.000	of	
MB-76623	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

REVIEWED BY
By Janice Whitt at 3:29:48 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 7:22:34 AM**
Digestion:
Prep End Date:

Prep Batch **76623** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-18A	Soil		1.15	50	50.000	1 of 1	
1607239-19A	Soil		1.09	50	50.000	1 of 1	
1607239-20A	Soil		1.05	50	50.000	1 of 1	
1607239-21A	Soil		1.08	50	50.000	1 of 3	
1607239-21AMS	Soil		1.05	50	50.000	1 of 3	
1607239-21AMSD	Soil		1.06	50	50.000	1 of 3	
1607239-22A	Soil		1.02	50	50.000	1 of 1	
1607239-23A	Soil		1.18	50	50.000	1 of 1	
1607239-24A	Soil		1.17	50	50.000	1 of 1	
1607239-25A	Soil		1.09	50	50.000	1 of 1	
1607239-26A	Soil		1.03	50	50.000	1 of 1	
1607239-27A	Soil		1.01	50	50.000	1 of 1	
1607239-28A	Soil		1.12	50	50.000	1 of 1	
1607239-29A	Soil		1.05	50	50.000	1 of 1	
1607239-30A	Soil		1.07	50	50.000	1 of 1	
1607239-31A	Soil		1.06	50	50.000	1 of 1	
1607256-01A	Soil		1.01	50	50.000	1 of 1	
1607256-02A	Soil		1.02	50	50.000	1 of 1	
1607256-03A	Soil		1.06	50	50.000	1 of 1	
1607256-04A	Soil		1.08	50	50.000	1 of 1	
1607256-05A	Soil		1.02	50	50.000	1 of 1	
1607256-06A	Soil		1.07	50	50.000	1 of 1	
LCS-76623	Soil		1	50	50.000	of	
LCSD-76623	Soil		1	50	50.000	of	
MB-76623	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

7:26 - 7:36
7:42 - 9:42
10:04 - 12:04
12:16 - 12:31

8/14/16

REVIEWED BY
By Janice Whitt at 3:29:45 PM, 8/9/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/04/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0690	5.0792	101.58	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0436	5.0537	101.07		
3		5.0046	5.0146	100.29		
AVERAGE (MEAN)		5.039	5.049	100.98		0.644
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2000	0.2004	100.20	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2015	0.2019	100.95		
3		0.2014	0.2018	100.90		
AVERAGE (MEAN)		0.201	0.201	100.68		0.417
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

8/4/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 3:28:43 PM, 8/9/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-01A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-06A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-13A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:29:58 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-14A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-18A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-19A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-21A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-22A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-23A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-27A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:30:05 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-28A SS	Soil		0	0	#Num!	1 of 1	
1607239-29A SS	Soil		0	0	#Num!	1 of 1	
1607239-30A SS	Soil		0	0	#Num!	1 of 1	
1607239-31A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 3:30:08 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-07A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607256-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:30:17 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:30:20 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 3:30:23 PM, 8/9/2016

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 05 2016 12:30 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 5 2016 11:46 am	c:\icpchem\1\data\16h05l00.b\006calb.d\
L2-160805	Aug 5 2016 11:52 am	c:\icpchem\1\data\16h05l00.b\007cals.d\
L-160805	Aug 5 2016 11:58 am	c:\icpchem\1\data\16h05l00.b\008cals.d\
10X-160805	Aug 5 2016 12:04 pm	c:\icpchem\1\data\16h05l00.b\009cals.d\
5X-160805	Aug 5 2016 12:10 pm	c:\icpchem\1\data\16h05l00.b\010cals.d\
2X-160805	Aug 5 2016 12:16 pm	c:\icpchem\1\data\16h05l00.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.2598	0.02046	1.05	253	495		2001	
Be	0.9997	0.07523	0.001268	1.05	259	495	99%	--------	######
B	1.0000	0.06291	0.05011	1.04	253	510	102%	1,997	100%
Na	0.9999	0.2873	11.17	12.14	5,221	10,190	102%	24,870	99%
Mg	0.9999	0.136	0.3958	20.69	4,982	10,340	103%	24,860	99%
Al	1.0000	0.03828	0.1495	20.67	5,034	9,977	100%	--------	######
K	1.0000	0.08374	5.11	14.65	4,889	9,819	98%	25,100	100%
Ca	0.9994	0.00888	0.2633	58.75	5,212	10,140	101%	24,900	100%
Ti	1.0000	0.02928	0.000982	0.72	242	484	97%	2,005	100%
V	1.0000	1.065	0.1846	1.05	244	486	97%	2,004	100%
Cr	0.9980	1.334	0.08571	8.45	250	494	99%	2,001	100%
Mn	1.0000	0.6262	0.2285	1.36	245	488	98%	2,004	100%
Fe	0.9989	1.933	3.956	49.37	5,038	9,948	99%	--------	######
Co	0.9999	4.168	0.04274	1.06	253	522	104%	1,994	100%
Ni	0.9991	1.18	0.171	5.74	250	493	99%	2,001	100%
Cu	1.0000	3.1	0.8194	1.03	256	508	102%	1,997	100%
Zn	0.9966	0.353	5.176	10.36	259	508	102%	1,996	100%
As	1.0000	0.2212	0.09905	0.98	252	497	99%	2,000	100%
Se	1.0000	0.0148	0.009398	1.22	257	503	101%	1,998	100%
Sr	1.0000	0.3448	0.02465	0.95	247	489	98%	2,003	100%
Mo	0.9992	0.06102	0.001159	1.72	239	507	101%	--------	######
Ag	1.0000	0.1515	0.001539	1.01	254	498	100%	--------	######
Cd	1.0000	0.03191	0.0004205	1.00	247	495	99%	2,001	100%
Sn	1.0000	0.08969	0.02218	0.81	246	514	103%	1,997	100%
Sb	0.9999	0.1075	0.002011	0.95	245	503	101%	--------	######
Ba	1.0000	0.04223	0.001947	0.95	241	483	97%	2,006	100%
Tl	1.0000	0.3287	0.005325	0.95	253	506	101%	1,998	100%
Pb	1.0000	0.442	0.01726	0.98	249	507	101%	1,999	100%

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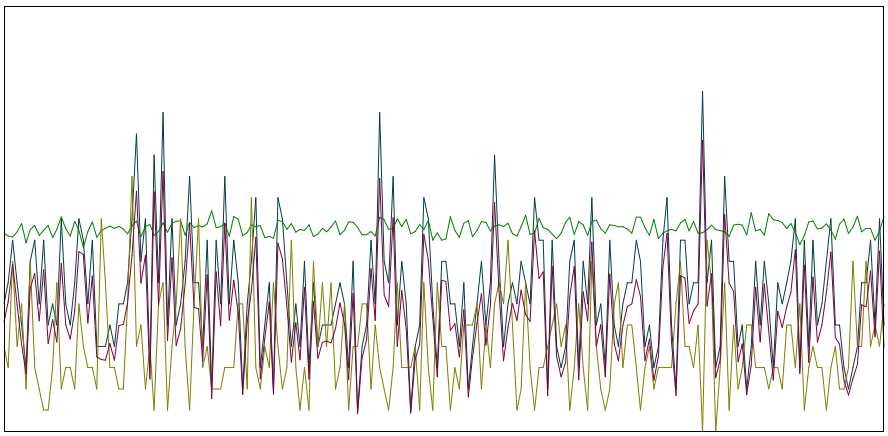
By Janice Whitt at 3:32:15 PM, 8/9/2016

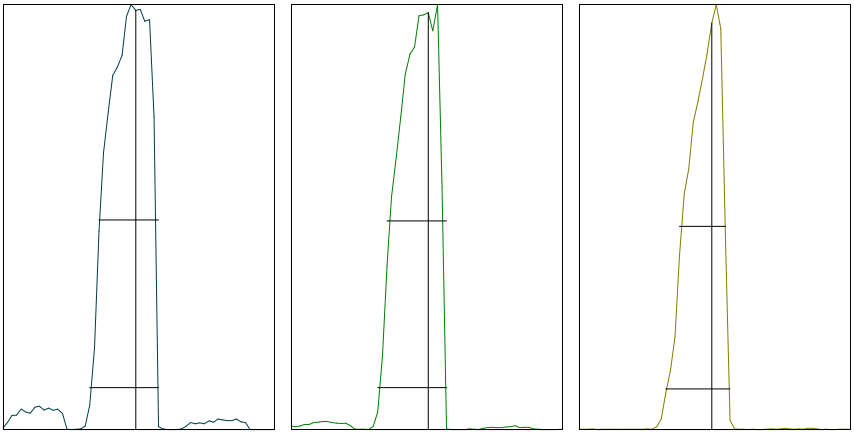
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.461%
Doubly Charged:	70/140	2.404%

m/z	Range	Count	Mean	RSD%	Background
51	20	5.0	6.6	42.22	0.30
59	5,000	2524.0	2390.8	3.25	1.10
75	20	6.0	4.0	56.83	1.00
51/59	1	0.198%	0.276%	41.89	



m/z:	59	89	205
Height:	2,405	1,514	3,750
Axis:	59.00	89.05	205.00
W-50%:	0.65	0.65	0.50
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 05, 2016 10:40:46
Printed : Aug 05, 2016 10:40:48

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-130	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

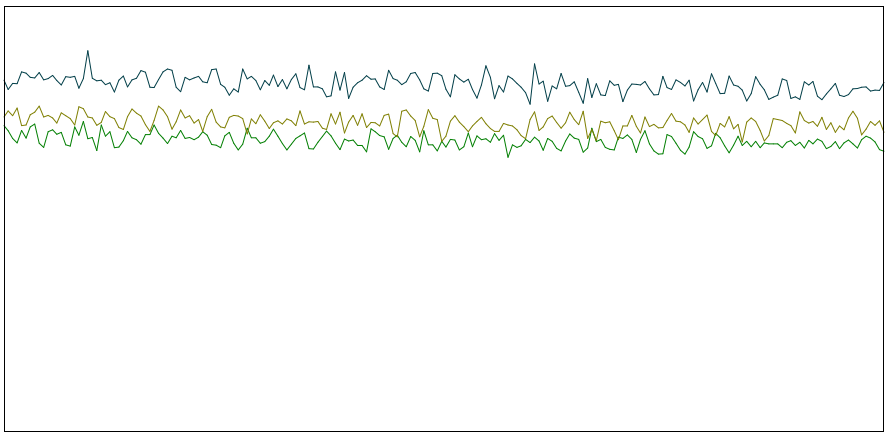
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.5	mL/min	Optional Gas	:	---	%

Generated : Aug 05, 2016 10:40:46
Printed : Aug 05, 2016 10:40:50

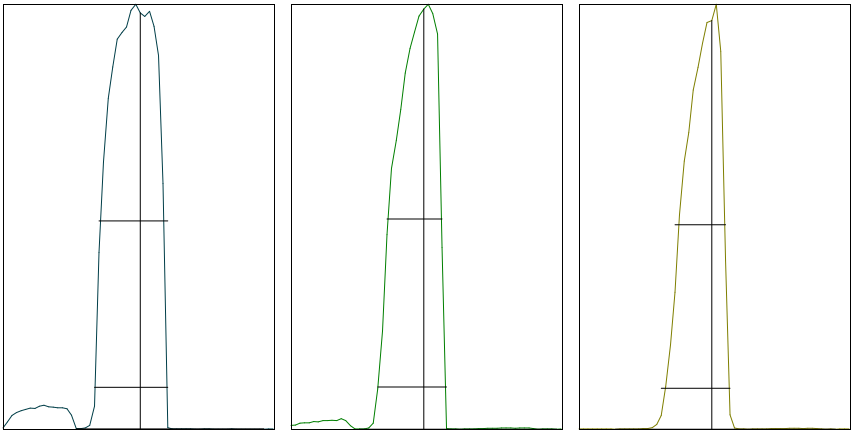
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.094%
Doubly Charged:	70/140	2.351%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8209.0	8170.5	2.49	2.20
89	20,000	13180.0	13677.0	2.35	4.80
205	10,000	7033.0	7271.6	2.46	13.60
156/140	2	0.910%	1.045%	9.94	
70/140	5	2.348%	2.260%	7.66	
63	20,000	11191.0	11329.8	2.54	3.90
23	50,000	31139.0	32824.2	4.07	2.30



m/z:	7	89	205
Height:	7,912	13,614	7,133
Axis:	7.05	89.00	205.00
W-50%:	0.75	0.60	0.55
W-10%:	0.800	0.7500	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 05, 2016 10:25:28
Printed : Aug 05, 2016 10:25:31

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-130	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-0.6	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-30	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

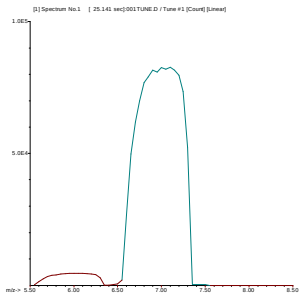
Generated : Aug 05, 2016 10:25:28
Printed : Aug 05, 2016 10:25:33

6020 QC Tune Report

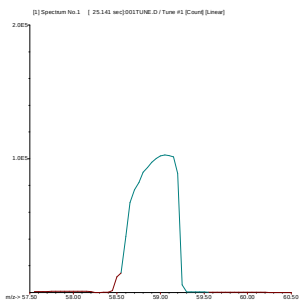
Data File: C:\ICPCHEM\1\DATA\16H05k00.B\001TUNE.D
Date Acquired: Aug 5 2016 10:58 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.51	5.00	
59 Co	2.05	5.00	
115 In	2.47	5.00	
205 Tl	2.34	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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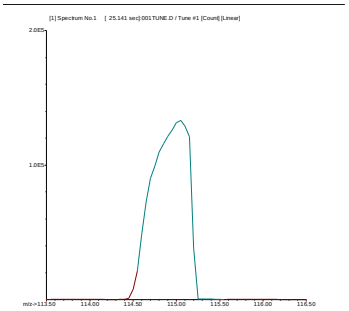


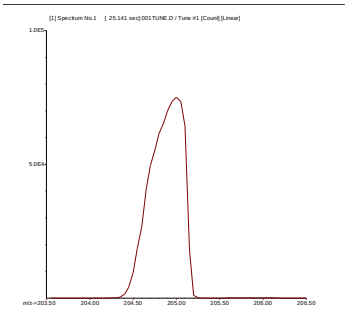
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	204.95	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

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By Janice Whitt at 3:32:32 PM, 8/9/2016

P/A Factor Tuning Report

Acquired:Aug 5 2016 10:55 am

Mass[amu]	Element	P/A Factor
6	Li	0.064293
23	Na	0.078679
24	Mg	0.082211
27	Al	0.084832
39	K	0.084913
44	Ca	Sensitivity too low
45	Sc	0.086239
47	Ti	Sensitivity too low
51	V	0.088192
52	Cr	0.090261
55	Mn	0.091742
59	Co	0.094555
60	Ni	0.096170
63	Cu	0.097681
66	Zn	0.097388
72	Ge	0.096388
75	As	0.095906
78	Se	Sensitivity too low
88	Sr	0.096960
95	Mo	0.095894
106	(Cd)	0.101052
107	Ag	Sensitivity too low
108	(Cd)	0.101366
111	Cd	0.102412
115	In	0.102277
118	Sn	0.101646
121	Sb	0.101416
137	Ba	Sensitivity too low
205	Tl	0.109191
206	(Pb)	0.109223
207	(Pb)	0.109340
208	Pb	0.109406
209	Bi	0.109172
238		0.108740

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1750 V
       Pulse HV: 1520 V

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By Janice Whitt at 3:32:37 PM, 8/9/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 05 2016 11:50 am
Date Acquired: Aug 5 2016 11:46 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	15.28	P	14.39	94.18
7	Li	2	45	626.71	P	46.67	7.45
9	Be	2	45	38.89	P	13.88	35.69
11	B	2	45	1535.72	P	80.05	5.21
23	Na	1	45	10191.22	P	188.70	1.85
24	Mg	1	45	361.13	P	32.03	8.87
27	Al	1	45	136.45	P	15.34	11.24
39	K	1	45	4662.19	P	179.20	3.84
44	Ca	2	45	8066.29	P	182.40	2.26
45	Sc	1	---	182515.09	P	1342.00	0.74
45	Sc	2	---	6126961.00	A	89670.00	1.46
47	Ti	1	45	0.89	P	1.54	173.25
51	V	1	45	168.45	P	17.76	10.54
51	V	2	---		P		
52	Cr	1	45	78.22	P	12.95	16.56
55	Mn	1	45	208.45	P	17.71	8.50
56	Fe	1	72	1933.52	P	65.51	3.39
59	Co	1	72	20.89	P	3.36	16.07
60	Ni	1	72	83.56	P	6.30	7.54
60	Ni	2	---		P		
63	Cu	1	72	400.46	P	20.84	5.20
63	Cu	2	---		P		
66	Zn	1	72	2530.09	P	444.70	17.58
66	Zn	2	---		P		
72	Ge	1	---	97742.99	P	120.70	0.12
72	Ge	2	---		A		
75	As	1	72	48.41	P	1.70	3.51
78	Se	1	72	4.59	P	1.19	25.87
88	Sr	2	###	802.28	P	38.64	4.82
95	Mo	2	###	37.78	P	13.88	36.74
107	Ag	2	###	50.00	P	10.00	20.00
111	Cd	2	###	13.66	P	3.08	22.54
115	In	2	---	6508671.00	A	81320.00	1.25
118	Sn	2	###	722.27	P	71.22	9.86
121	Sb	2	###	65.56	P	13.47	20.55
137	Ba	2	###	63.34	P	13.33	21.05
205	Tl	2	###	115.56	P	16.44	14.23
208	Pb	2	###	374.46	P	37.47	10.01
209	Bi	2	---	4337985.00	A	24910.00	0.57

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 11:52 am
Last Cal. Update: Aug 05 2016 11:50 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-355.67	P	29.50	8.29	ISFail
7	Li	2	45	8863.41	P	316.80	3.57	
9	Be	2	45	2432.56	P	70.68	2.91	
11	B	2	45	3486.18	P	106.30	3.05	
23	Na	1	45	13245.25	P	388.10	2.93	
24	Mg	1	45	2900.46	P	108.10	3.73	
27	Al	1	45	849.82	P	24.96	2.94	
39	K	1	45	5725.98	P	269.80	4.71	
44	Ca	2	45	23727.93	P	997.60	4.20	
45	Sc	1	---	180709.80	P	1592.00	0.88	
45	Sc	2	---	6044453.00	A	68130.00	1.13	
47	Ti	1	45	20.00	P	4.62	23.10	
51	V	1	45	1172.96	P	21.35	1.82	
51	V	2	---		P			
52	Cr	1	45	10255.94	P	26.03	0.25	
55	Mn	1	45	978.28	P	93.70	9.58	
56	Fe	1	72	48019.91	P	575.20	1.20	
59	Co	1	72	2151.78	P	28.52	1.33	
60	Ni	1	72	3353.40	P	77.50	2.31	
60	Ni	2	---		P			
63	Cu	1	72	1931.74	P	48.27	2.50	
63	Cu	2	---		P			
66	Zn	1	72	4270.15	P	531.70	12.45	
66	Zn	2	---		P			
72	Ge	1	---	96651.97	P	629.00	0.65	
72	Ge	2	---		A			
75	As	1	72	152.37	P	3.44	2.26	
78	Se	1	72	13.26	P	0.28	2.11	
88	Sr	2	115	11414.70	P	315.90	2.77	
95	Mo	2	115	3433.96	P	51.77	1.51	
107	Ag	2	115	5016.81	P	83.45	1.66	
111	Cd	2	115	1045.55	P	157.40	15.05	
115	In	2	---	6467078.00	A	69410.00	1.07	
118	Sn	2	115	3077.19	P	154.60	5.02	
121	Sb	2	115	3363.97	P	101.70	3.02	
137	Ba	2	115	1365.69	P	30.25	2.22	
205	Tl	2	209	6799.00	P	26.05	0.38	
208	Pb	2	209	9626.47	P	302.60	3.14	
209	Bi	2	---	4286684.00	A	28120.00	0.66	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-355.67	8.29	15.28	-2327.8	70 - 120	ISFail
45	Sc	1	180709.86	0.88	182515.06	99.0	70 - 120	
45	Sc	2	6044453.50	1.13	6126960.50	98.7	70 - 120	
72	Ge	1	96651.97	0.65	97742.99	98.9	70 - 120	
115	In	2	6467078.00	1.07	6508670.50	99.4	70 - 120	
209	Bi	2	4286683.50	0.66	4337985.50	98.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 11:58 am
Last Cal. Update: Aug 05 2016 11:56 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3589.68	P	82.43	2.30	ISFail
7	Li	2	45	81262.26	P	1555.00	1.91	Fail
9	Be	2	45	23346.78	P	483.60	2.07	Fail
11	B	2	45	21841.82	P	312.20	1.43	Fail
23	Na	1	45	81350.00	P	198.40	0.24	Fail
24	Mg	1	45	26675.66	P	307.00	1.15	Fail
27	Al	1	45	7620.64	P	139.70	1.83	Fail
39	K	1	45	20334.01	P	97.25	0.48	Fail
44	Ca	2	45	293517.91	P	6533.00	2.23	Fail
45	Sc	1	---	180829.91	P	1305.00	0.72	
45	Sc	2	---	6058079.00	A	72160.00	1.19	
47	Ti	1	45	258.23	P	22.95	8.89	Fail
51	V	1	45	10041.09	P	173.80	1.73	Fail
51	V	2	---		P			
52	Cr	1	45	160901.00	P	2262.00	1.41	
55	Mn	1	45	12135.88	P	188.10	1.55	Fail
56	Fe	1	72	655965.88	P	11700.00	1.78	Fail
59	Co	1	72	22110.21	P	447.70	2.02	
60	Ni	1	72	53132.02	P	621.70	1.17	
60	Ni	2	---		P			
63	Cu	1	72	17989.38	P	162.70	0.90	Fail
63	Cu	2	---		P			
66	Zn	1	72	32332.04	P	1126.00	3.48	Fail
66	Zn	2	---		P			
72	Ge	1	---	96644.66	P	915.90	0.95	
72	Ge	2	---		A			
75	As	1	72	1157.09	P	21.29	1.84	Fail
78	Se	1	72	80.56	P	1.74	2.16	Fail
88	Sr	2	115	112499.00	P	1488.00	1.32	Fail
95	Mo	2	115	43024.26	P	934.00	2.17	Fail
107	Ag	2	115	49292.40	P	675.30	1.37	Fail
111	Cd	2	115	10233.76	P	263.20	2.57	Fail
115	In	2	---	6512881.00	A	66930.00	1.03	
118	Sn	2	115	28870.21	P	602.40	2.09	Fail
121	Sb	2	115	34377.27	P	590.40	1.72	Fail
137	Ba	2	115	13290.23	P	225.80	1.70	Fail
205	Tl	2	209	66554.41	P	972.70	1.46	Fail
208	Pb	2	209	92789.13	P	2215.00	2.39	Fail
209	Bi	2	---	4271242.00	A	31270.00	0.73	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3589.68	2.30	15.28	-23493.7	70 - 120	ISFail
45	Sc	1	180829.94	0.72	182515.06	99.1	70 - 120	
45	Sc	2	6058078.50	1.19	6126960.50	98.9	70 - 120	
72	Ge	1	96644.66	0.95	97742.99	98.9	70 - 120	
115	In	2	6512881.50	1.03	6508670.50	100.1	70 - 120	
209	Bi	2	4271241.50	0.73	4337985.50	98.5	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:04 pm
Last Cal. Update: Aug 05 2016 12:02 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-17707.77	P	55.00	0.31	ISFail
7	Li	2	45	398054.41	P	5244.00	1.32	Fail
9	Be	2	45	115649.90	P	1620.00	1.40	Fail
11	B	2	45	96286.02	P	831.60	0.86	Fail
23	Na	1	45	272397.81	P	905.30	0.33	Fail
24	Mg	1	45	124755.50	P	1443.00	1.16	Fail
27	Al	1	45	35454.14	P	301.90	0.85	Fail
39	K	1	45	79723.33	P	627.30	0.79	Fail
44	Ca	2	45	268092.50	P	5121.00	1.91	Fail
45	Sc	1	---	184134.59	P	1636.00	0.89	
45	Sc	2	---	6097443.00	A	46770.00	0.77	
47	Ti	1	45	1268.53	P	40.59	3.20	
51	V	1	45	48011.07	P	416.20	0.87	Fail
51	V	2	---		P			
52	Cr	1	45	61475.93	P	685.10	1.11	Fail
55	Mn	1	45	28374.60	P	270.20	0.95	Fail
56	Fe	1	72	977398.63	A	5907.00	0.60	
59	Co	1	72	102540.30	P	724.90	0.71	
60	Ni	1	72	29024.09	P	247.30	0.85	Fail
60	Ni	2	---		P			
63	Cu	1	72	78220.50	P	81.19	0.10	Fail
63	Cu	2	---		P			
66	Zn	1	72	11545.60	P	655.40	5.68	Fail
66	Zn	2	---		P			
72	Ge	1	---	97423.37	P	285.10	0.29	
72	Ge	2	---		A			
75	As	1	72	5449.99	P	68.94	1.27	Fail
78	Se	1	72	378.78	P	9.35	2.47	Fail
88	Sr	2	115	526316.00	P	8990.00	1.71	Fail
95	Mo	2	115	92491.40	P	1171.00	1.27	Fail
107	Ag	2	115	242067.50	P	3898.00	1.61	Fail
111	Cd	2	115	51447.84	P	1044.00	2.03	Fail
115	In	2	---	6564767.00	A	38840.00	0.59	
118	Sn	2	115	140518.91	P	3303.00	2.35	Fail
121	Sb	2	115	167491.20	P	1810.00	1.08	Fail
137	Ba	2	115	64790.92	P	1350.00	2.08	Fail
205	Tl	2	209	331721.59	P	4872.00	1.47	Fail
208	Pb	2	209	449909.31	P	6099.00	1.36	Fail
209	Bi	2	---	4282186.00	A	33320.00	0.78	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-17707.78	0.31	15.28	-115893.8	70 - 120	ISFail
45	Sc	1	184134.61	0.89	182515.06	100.9	70 - 120	
45	Sc	2	6097443.50	0.77	6126960.50	99.5	70 - 120	
72	Ge	1	97423.38	0.29	97742.99	99.7	70 - 120	
115	In	2	6564767.00	0.59	6508670.50	100.9	70 - 120	
209	Bi	2	4282186.00	0.78	4337985.50	98.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:10 pm
Last Cal. Update: Aug 05 2016 12:08 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-36435.48	P	841.40	2.31	ISFail
7	Li	2	45	812821.13	A	14640.00	1.80	Fail
9	Be	2	45	234749.91	P	3822.00	1.63	Fail
11	B	2	45	192478.00	P	3125.00	1.62	Fail
23	Na	1	45	538948.50	P	4748.00	0.88	Fail
24	Mg	1	45	248686.09	P	3611.00	1.45	Fail
27	Al	1	45	70264.97	P	1664.00	2.37	Fail
39	K	1	45	154862.59	P	2379.00	1.54	Fail
44	Ca	2	45	538839.88	P	8132.00	1.51	Fail
45	Sc	1	---	180634.80	P	1431.00	0.79	
45	Sc	2	---	5970456.00	A	47230.00	0.79	
47	Ti	1	45	2627.88	P	127.30	4.84	
51	V	1	45	95580.50	P	1163.00	1.22	Fail
51	V	2	---		A			
52	Cr	1	45	122152.20	P	1001.00	0.82	
55	Mn	1	45	56813.85	P	608.70	1.07	Fail
56	Fe	1	72	1938002.00	A	40590.00	2.09	
59	Co	1	72	204249.30	P	2879.00	1.41	
60	Ni	1	72	57637.83	P	540.40	0.94	
60	Ni	2	---		P			
63	Cu	1	72	155723.91	P	435.00	0.28	Fail
63	Cu	2	---		P			
66	Zn	1	72	20424.72	P	557.70	2.73	Fail
66	Zn	2	---		P			
72	Ge	1	---	95580.08	P	529.70	0.55	
72	Ge	2	---		A			
75	As	1	72	10892.53	P	102.50	0.94	Fail
78	Se	1	72	739.50	P	12.66	1.71	Fail
88	Sr	2	115	1102789.00	A	19280.00	1.75	Fail
95	Mo	2	115	187257.59	P	3590.00	1.92	Fail
107	Ag	2	115	488220.00	P	10950.00	2.24	Fail
111	Cd	2	115	103312.50	P	1679.00	1.63	Fail
115	In	2	---	6410655.00	A	83780.00	1.31	
118	Sn	2	115	284513.09	P	5767.00	2.03	Fail
121	Sb	2	115	338771.09	P	6957.00	2.05	Fail
137	Ba	2	115	130700.40	P	2474.00	1.89	Fail
205	Tl	2	209	670071.13	P	11060.00	1.65	Fail
208	Pb	2	209	908126.00	P	15070.00	1.66	Fail
209	Bi	2	---	4192952.00	A	48230.00	1.15	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-36435.49	2.31	15.28	-238462.9	70 - 120	ISFail
45	Sc	1	180634.83	0.79	182515.06	99.0	70 - 120	
45	Sc	2	5970456.00	0.79	6126960.50	97.4	70 - 120	
72	Ge	1	95580.09	0.55	97742.99	97.8	70 - 120	
115	In	2	6410655.50	1.31	6508670.50	98.5	70 - 120	
209	Bi	2	4192952.50	1.15	4337985.50	96.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:16 pm
Last Cal. Update: Aug 05 2016 12:14 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-87424.07	P	957.10	1.09	ISFail
7	Li	2	45	1976899.00	A	4496.00	0.23	Fail
9	Be	2	45	585551.00	P	5137.00	0.88	Fail
11	B	2	45	481023.09	P	9247.00	1.92	Fail
23	Na	1	45	1369915.00	A	11130.00	0.81	Fail
24	Mg	1	45	614712.81	P	7659.00	1.25	
27	Al	1	45	174797.41	P	1284.00	0.73	
39	K	1	45	375775.69	P	2923.00	0.78	Fail
44	Ca	2	45	1400160.00	A	34240.00	2.45	Fail
45	Sc	1	---	181294.41	P	1045.00	0.58	
45	Sc	2	---	6015870.00	A	120500.00	2.00	
47	Ti	1	45	6431.98	P	163.50	2.54	
51	V	1	45	235464.00	P	3179.00	1.35	
51	V	2	---		A			
52	Cr	1	45	302147.81	P	3701.00	1.22	
55	Mn	1	45	139392.00	P	1071.00	0.77	Fail
56	Fe	1	72	4633670.00	A	42730.00	0.92	
59	Co	1	72	502053.50	P	3691.00	0.74	
60	Ni	1	72	140575.00	P	181.40	0.13	
60	Ni	2	---		P			
63	Cu	1	72	378207.09	P	2077.00	0.55	
63	Cu	2	---		A			
66	Zn	1	72	45998.90	P	586.00	1.27	Fail
66	Zn	2	---		P			
72	Ge	1	---	95135.32	P	295.10	0.31	
72	Ge	2	---		A			
75	As	1	72	26562.50	P	196.80	0.74	
78	Se	1	72	1811.51	P	13.28	0.73	Fail
88	Sr	2	115	2719336.00	A	48810.00	1.79	Fail
95	Mo	2	115	465269.41	P	8412.00	1.81	Fail
107	Ag	2	115	1226524.00	A	29780.00	2.43	Fail
111	Cd	2	115	251604.70	P	5266.00	2.09	Fail
115	In	2	---	6381501.00	A	88940.00	1.39	
118	Sn	2	115	704199.69	P	11520.00	1.64	Fail
121	Sb	2	115	840329.69	P	13240.00	1.58	Fail
137	Ba	2	115	325236.31	P	3707.00	1.14	Fail
205	Tl	2	209	1739581.00	A	2174.00	0.12	Fail
208	Pb	2	209	2301626.00	A	32210.00	1.40	Fail
209	Bi	2	---	4178835.00	A	49600.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-87424.07	1.09	15.28	-572173.0	70 - 120	ISFail
45	Sc	1	181294.39	0.58	182515.06	99.3	70 - 120	
45	Sc	2	6015870.00	2.00	6126960.50	98.2	70 - 120	
72	Ge	1	95135.32	0.31	97742.99	97.3	70 - 120	
115	In	2	6381500.50	1.39	6508670.50	98.0	70 - 120	
209	Bi	2	4178835.30	1.19	4337985.50	96.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:22 pm
Last Cal. Update: Aug 05 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-167559.59	P	476.90	0.28	ISFail
7	Li	2	45	3858018.00	A	10710.00	0.28	Fail
9	Be	2	45	1117563.00	A	3656.00	0.33	Fail
11	B	2	45	965554.63	A	5682.00	0.59	Fail
23	Na	1	45	2662483.00	A	23780.00	0.89	Fail
24	Mg	1	45	1274598.00	A	13560.00	1.06	
27	Al	1	45	345911.91	P	5372.00	1.55	
39	K	1	45	749109.88	P	3634.00	0.49	Fail
44	Ca	2	45	2712259.00	A	35730.00	1.32	Fail
45	Sc	1	---	181092.20	P	1329.00	0.73	
45	Sc	2	---	6006447.00	A	55910.00	0.93	
47	Ti	1	45	12828.57	P	127.40	0.99	
51	V	1	45	468108.41	P	5537.00	1.18	
51	V	2	---		A			
52	Cr	1	45	596561.88	P	8249.00	1.38	
55	Mn	1	45	276705.09	P	1958.00	0.71	
56	Fe	1	72	9068696.00	A	125300.00	1.38	
59	Co	1	72	1024977.00	A	12720.00	1.24	
60	Ni	1	72	274359.41	P	2282.00	0.83	
60	Ni	2	---		A			
63	Cu	1	72	742553.88	P	7097.00	0.96	
63	Cu	2	---		A			
66	Zn	1	72	87066.82	P	1635.00	1.88	Fail
66	Zn	2	---		P			
72	Ge	1	---	94321.59	P	477.80	0.51	
72	Ge	2	---		A			
75	As	1	72	51876.52	P	396.60	0.76	
78	Se	1	72	3516.69	P	21.46	0.61	
88	Sr	2	115	5387592.00	A	78800.00	1.46	Fail
95	Mo	2	115	986967.50	A	12410.00	1.26	Fail
107	Ag	2	115	2410083.00	A	22550.00	0.94	
111	Cd	2	115	504640.81	P	6646.00	1.32	
115	In	2	---	6385254.00	A	36880.00	0.58	
118	Sn	2	115	1472817.00	A	7451.00	0.51	Fail
121	Sb	2	115	1727513.00	A	20170.00	1.17	Fail
137	Ba	2	115	651603.00	P	1589.00	0.24	Fail
205	Tl	2	209	3419430.00	A	27730.00	0.81	
208	Pb	2	209	4608430.00	A	20750.00	0.45	Fail
209	Bi	2	---	4115315.00	A	29010.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-167559.67	0.28	15.28	#########	70 - 120	ISFail
45	Sc	1	181092.19	0.73	182515.06	99.2	70 - 120	
45	Sc	2	6006447.50	0.93	6126960.50	98.0	70 - 120	
72	Ge	1	94321.59	0.51	97742.99	96.5	70 - 120	
115	In	2	6385253.50	0.58	6508670.50	98.1	70 - 120	
209	Bi	2	4115315.30	0.70	4337985.50	94.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:27 pm
Last Cal. Update: Aug 05 2016 12:25 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-654088.31	M	15580.00	2.38	ISFail
7	Li	2	45	15254010.00	A	47710.00	0.31	Fail
9	Be	2	45	4115047.00	A	13340.00	0.32	
11	B	2	45	3688486.00	A	21680.00	0.59	Fail
23	Na	1	45	6444514.00	A	102700.00	1.59	Fail
24	Mg	1	45	3045287.00	A	25020.00	0.82	
27	Al	1	45	638.70	P	45.40	7.11	Fail
39	K	1	45	1896580.00	A	20210.00	1.07	Fail
44	Ca	2	45	6496214.00	A	92400.00	1.42	Fail
45	Sc	1	---	180044.70	P	719.30	0.40	
45	Sc	2	---	5869727.00	A	52620.00	0.90	
47	Ti	1	45	52853.99	P	636.30	1.20	
51	V	1	45	1921068.00	A	9563.00	0.50	
51	V	2	---		A			
52	Cr	1	45	2402812.00	A	25030.00	1.04	
55	Mn	1	45	1129731.00	A	3898.00	0.35	
56	Fe	1	72	9751.28	P	1171.00	12.01	Fail
59	Co	1	72	3868529.00	A	38860.00	1.00	
60	Ni	1	72	1098897.00	A	8899.00	0.81	
60	Ni	2	---		A			
63	Cu	1	72	2882398.00	A	8615.00	0.30	
63	Cu	2	---		A			
66	Zn	1	72	330292.31	P	2880.00	0.87	Fail
66	Zn	2	---		A			
72	Ge	1	---	93101.85	P	324.90	0.35	
72	Ge	2	---		A			
75	As	1	72	206005.20	P	1116.00	0.54	
78	Se	1	72	13774.87	P	75.50	0.55	
88	Sr	2	115	21411570.00	A	166100.00	0.78	Fail
95	Mo	2	115	3792157.00	A	37500.00	0.99	
107	Ag	2	115	1944.80	P	778.30	40.02	Fail
111	Cd	2	115	1979936.00	A	5899.00	0.30	
115	In	2	---	6200617.00	A	30470.00	0.49	
118	Sn	2	115	5553687.00	A	35370.00	0.64	Fail
121	Sb	2	115	2534.88	P	552.00	21.78	Fail
137	Ba	2	115	2625558.00	A	28270.00	1.08	
205	Tl	2	209	13125170.00	A	83480.00	0.64	
208	Pb	2	209	17654450.00	A	69810.00	0.40	
209	Bi	2	---	3996650.00	A	31760.00	0.79	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-654088.38	2.38	15.28	#########	70 -	120	ISFail
45	Sc	1		180044.70	0.40	182515.06	98.6	70 -	120	
45	Sc	2		5869726.50	0.90	6126960.50	95.8	70 -	120	
72	Ge	1		93101.85	0.35	97742.99	95.3	70 -	120	
115	In	2		6200617.50	0.49	6508670.50	95.3	70 -	120	
209	Bi	2		3996650.30	0.79	4337985.50	92.1	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 5 2016 12:45 pm	Sample Name:	**ICSA-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.330	ppb	7.71	8.00	5.00	
9	Be	2	45	0.140	ppb	25.28	0.32	0.80	
11	B	2	45	7.998	ppb	3.85	30.00	30.00	
23	Na	1	45	106100.000	ppb	1.73	#######	#######	
24	Mg	1	45	93140.000	ppb	2.17	#######	#######	
27	Al	1	45	104000.000	ppb	3.08	#######	#######	
39	K	1	45	98250.000	ppb	2.26	#######	#######	
44	Ca	2	45	98220.000	ppb	2.25	#######	#######	
47	Ti	1	45	2086.000	ppb	2.09	10.00	10.00	
51	V	1	45	0.174	ppb	6.75	10.00	10.00	
52	Cr	1	45	0.941	ppb	3.89	8.00	5.00	
55	Mn	1	45	0.610	ppb	2.26	8.00	10.00	
56	Fe	1	72	99670.000	ppb	1.77	#######	#######	
59	Co	1	72	1.459	ppb	2.03	8.00	10.00	
60	Ni	1	72	0.482	ppb	10.38	8.00	10.00	
63	Cu	1	72	2.135	ppb	1.25	8.00	10.00	
66	Zn	1	72	-2.186	ppb	18.58	10.00	5.00	
75	As	1	72	0.572	ppb	1.73	4.00	5.00	
78	Se	1	72	0.719	ppb	6.77	2.00	5.00	
88	Sr	2	115	1.247	ppb	2.31	10.00	10.00	
95	Mo	2	115	1988.000	ppb	1.67	8.00	5.00	
107	Ag	2	115	0.099	ppb	9.90	0.80	2.00	
111	Cd	2	115	0.440	ppb	12.73	1.20	1.00	
118	Sn	2	115	0.450	ppb	7.71	10.00	10.00	
121	Sb	2	115	0.135	ppb	6.85	4.00	2.50	
137	Ba	2	115	0.583	ppb	10.29	8.00	10.00	
205	Tl	2	209	0.257	ppb	12.76	4.00	1.50	
208	Pb	2	209	0.486	ppb	4.01	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-54.59	117.23	15.28	-357.3	70 - 120	ISFail
45	Sc	1	174279.20	1.00	182515.06	95.5	70 - 120	
45	Sc	2	5726262.50	1.69	6126960.50	93.5	70 - 120	
72	Ge	1	90186.56	1.13	97742.99	92.3	70 - 120	
115	In	2	6236712.50	1.46	6508670.50	95.8	70 - 120	
209	Bi	2	3848808.80	1.75	4337985.50	88.7	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 5 2016 12:51 pm	Sample Name:	**ICSAB-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.26	ppb	6.33	---	80 -	120		
9	Be	2	45	0.06	ppb	13.72	---	80 -	120		
11	B	2	45	6.46	ppb	2.40	---	80 -	120		
23	Na	1	45	97200.00	ppb	1.23	100000.00	80 -	120		
24	Mg	1	45	92480.00	ppb	1.48	100000.00	80 -	120		
27	Al	1	45	100800.00	ppb	1.07	100000.00	80 -	120		
39	K	1	45	95950.00	ppb	0.63	100000.00	80 -	120		
44	Ca	2	45	95370.00	ppb	1.84	100000.00	80 -	120		
47	Ti	1	45	1997.00	ppb	0.57	---	80 -	120		
51	V	1	45	39.54	ppb	1.52	40.00	80 -	120		
52	Cr	1	45	20.92	ppb	1.52	20.00	80 -	120		
55	Mn	1	45	19.21	ppb	0.55	20.00	80 -	120		
56	Fe	1	72	96620.00	ppb	1.27	100000.00	80 -	120		
59	Co	1	72	40.26	ppb	0.83	40.00	80 -	120		
60	Ni	1	72	37.09	ppb	0.50	40.00	80 -	120		
63	Cu	1	72	20.27	ppb	0.50	20.00	80 -	120		
66	Zn	1	72	15.23	ppb	7.67	20.00	80 -	120		Fail
75	As	1	72	20.45	ppb	0.06	20.00	80 -	120		
78	Se	1	72	19.61	ppb	1.24	20.00	80 -	120		
88	Sr	2	115	1.11	ppb	3.06	---	80 -	120		
95	Mo	2	115	1951.00	ppb	1.84	---	80 -	120		
107	Ag	2	115	18.26	ppb	2.86	20.00	80 -	120		
111	Cd	2	115	9.51	ppb	3.14	10.00	80 -	120		
118	Sn	2	115	0.45	ppb	4.61	---	80 -	120		
121	Sb	2	115	0.06	ppb	16.57	---	80 -	120		
137	Ba	2	115	0.49	ppb	9.05	---	80 -	120		
205	Tl	2	209	0.15	ppb	17.43	---	80 -	120		
208	Pb	2	209	0.35	ppb	0.41	---	80 -	120		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-63.16	31.60	15.28	-413.4	70 -	120		ISFail
45	Sc	1	168981.05	0.32	182515.06	92.6	70 -	120		
45	Sc	2	5655311.50	1.35	6126960.50	92.3	70 -	120		
72	Ge	1	87241.88	0.50	97742.99	89.3	70 -	120		
115	In	2	6066657.50	1.16	6508670.50	93.2	70 -	120		
209	Bi	2	3784597.00	1.52	4337985.50	87.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 5 2016 01:09 pm	Sample Name:	**ICV1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	107.10	ppb	1.42	100.00	90 -	110	107.1	
9	Be	2	45	106.10	ppb	1.58	100.00	90 -	110	106.1	
11	B	2	45	104.40	ppb	1.78	100.00	90 -	110	104.4	
23	Na	1	45	2610.00	ppb	0.73	2500.00	90 -	110	104.4	
24	Mg	1	45	2579.00	ppb	1.31	2500.00	90 -	110	103.2	
27	Al	1	45	2516.00	ppb	1.18	2500.00	90 -	110	100.6	
39	K	1	45	2501.00	ppb	1.02	2500.00	90 -	110	100.0	
44	Ca	2	45	2454.00	ppb	2.65	2500.00	90 -	110	98.2	
47	Ti	1	45	98.95	ppb	0.14	100.00	90 -	110	99.0	
51	V	1	45	99.03	ppb	1.08	100.00	90 -	110	99.0	
52	Cr	1	45	103.90	ppb	1.29	100.00	90 -	110	103.9	
55	Mn	1	45	97.90	ppb	1.57	100.00	90 -	110	97.9	
56	Fe	1	72	2565.00	ppb	1.06	2500.00	90 -	110	102.6	
59	Co	1	72	101.50	ppb	1.32	100.00	90 -	110	101.5	
60	Ni	1	72	100.80	ppb	0.66	100.00	90 -	110	100.8	
63	Cu	1	72	101.80	ppb	0.55	100.00	90 -	110	101.8	
66	Zn	1	72	97.48	ppb	2.28	100.00	90 -	110	97.5	
75	As	1	72	98.81	ppb	0.63	100.00	90 -	110	98.8	
78	Se	1	72	99.61	ppb	1.67	100.00	90 -	110	99.6	
88	Sr	2	115	101.60	ppb	1.34	100.00	90 -	110	101.6	
95	Mo	2	115	93.38	ppb	2.41	100.00	90 -	110	93.4	
107	Ag	2	115	98.29	ppb	2.57	100.00	90 -	110	98.3	
111	Cd	2	115	97.77	ppb	2.13	100.00	90 -	110	97.8	
118	Sn	2	115	98.21	ppb	1.79	100.00	90 -	110	98.2	
121	Sb	2	115	97.11	ppb	1.48	100.00	90 -	110	97.1	
137	Ba	2	115	95.84	ppb	2.18	100.00	90 -	110	95.8	
205	Tl	2	209	95.43	ppb	1.73	100.00	90 -	110	95.4	
208	Pb	2	209	96.72	ppb	1.50	100.00	90 -	110	96.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-20831.76	1.06	15.28	-136339.7	70 -	120		ISFail
45	Sc	1	176047.23	0.74	182515.06	96.5	70 -	120		
45	Sc	2	5960792.00	1.81	6126960.50	97.3	70 -	120		
72	Ge	1	93303.45	0.46	97742.99	95.5	70 -	120		
115	In	2	6234210.00	1.59	6508670.50	95.8	70 -	120		
209	Bi	2	4074975.80	0.79	4337985.50	93.9	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 5 2016 01:15 pm	Sample Name:	**ICB1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.23	ppb	11.70	2.00	
9	Be	2	45	0.08	ppb	2.33	0.40	
11	B	2	45	2.53	ppb	1.79	10.00	
23	Na	1	45	3.75	ppb	3.97	50.00	
24	Mg	1	45	6.23	ppb	8.12	50.00	
27	Al	1	45	5.43	ppb	14.71	50.00	
39	K	1	45	3.75	ppb	2.62	50.00	
44	Ca	2	45	4.94	ppb	4.64	50.00	
47	Ti	1	45	0.19	ppb	35.26	4.00	
51	V	1	45	0.12	ppb	6.32	4.00	
52	Cr	1	45	0.12	ppb	21.29	2.00	
55	Mn	1	45	0.13	ppb	4.53	2.00	
56	Fe	1	72	6.92	ppb	13.84	50.00	
59	Co	1	72	0.11	ppb	18.23	2.00	
60	Ni	1	72	0.06	ppb	17.75	2.00	
63	Cu	1	72	0.11	ppb	8.03	2.00	
66	Zn	1	72	-7.14	ppb	19.74	4.00	
75	As	1	72	0.11	ppb	3.47	2.00	
78	Se	1	72	0.20	ppb	7.24	0.60	
88	Sr	2	115	0.09	ppb	9.14	4.00	
95	Mo	2	115	0.29	ppb	8.59	2.00	
107	Ag	2	115	0.07	ppb	6.14	0.40	
111	Cd	2	115	0.08	ppb	7.23	0.40	
118	Sn	2	115	0.14	ppb	10.49	20.00	
121	Sb	2	115	0.12	ppb	13.32	2.00	
137	Ba	2	115	0.08	ppb	7.36	2.00	
205	Tl	2	209	0.20	ppb	3.04	2.00	
208	Pb	2	209	0.13	ppb	4.26	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-27.73	91.82	15.28	-181.5	70 - 120	ISFail
45	Sc	1	176153.36	1.24	182515.06	96.5	70 - 120	
45	Sc	2	5921205.50	1.53	6126960.50	96.6	70 - 120	
72	Ge	1	94047.59	0.79	97742.99	96.2	70 - 120	
115	In	2	6181767.50	1.24	6508670.50	95.0	70 - 120	
209	Bi	2	4107489.50	1.29	4337985.50	94.7	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 5 2016 01:21 pm	Sample Name:	**ILCVL-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.37	ppb	2.65	10.00	70 -	130	113.7	
9	Be	2	45	1.15	ppb	4.31	1.00	70 -	130	114.6	
11	B	2	45	23.15	ppb	1.29	20.00	70 -	130	115.8	
23	Na	1	45	97.59	ppb	0.68	100.00	70 -	130	97.6	
24	Mg	1	45	105.10	ppb	2.56	100.00	70 -	130	105.1	
27	Al	1	45	105.10	ppb	0.79	100.00	70 -	130	105.1	
39	K	1	45	102.30	ppb	0.88	100.00	70 -	130	102.3	
44	Ca	2	45	93.06	ppb	2.26	100.00	70 -	130	93.1	
47	Ti	1	45	5.61	ppb	10.35	5.00	70 -	130	112.2	
51	V	1	45	1.05	ppb	1.72	1.00	70 -	130	104.9	
52	Cr	1	45	5.30	ppb	1.49	5.00	70 -	130	105.9	
55	Mn	1	45	4.74	ppb	2.80	5.00	70 -	130	94.8	
56	Fe	1	72	110.50	ppb	0.79	100.00	70 -	130	110.5	
59	Co	1	72	5.28	ppb	0.20	5.00	70 -	130	105.5	
60	Ni	1	72	5.16	ppb	0.57	5.00	70 -	130	103.1	
63	Cu	1	72	5.27	ppb	1.73	5.00	70 -	130	105.5	
66	Zn	1	72	-5.91	ppb	3.88	5.00	70 -	130	-118.2	Fail
75	As	1	72	5.22	ppb	1.25	5.00	70 -	130	104.4	
78	Se	1	72	5.62	ppb	4.89	5.00	70 -	130	112.3	
88	Sr	2	115	5.05	ppb	2.84	5.00	70 -	130	100.9	
95	Mo	2	115	4.87	ppb	3.83	5.00	70 -	130	97.4	
107	Ag	2	115	2.06	ppb	1.14	2.00	70 -	130	103.1	
111	Cd	2	115	1.05	ppb	4.06	1.00	70 -	130	104.5	
118	Sn	2	115	4.97	ppb	1.38	5.00	70 -	130	99.4	
121	Sb	2	115	2.01	ppb	1.65	2.00	70 -	130	100.5	
137	Ba	2	115	4.90	ppb	5.98	5.00	70 -	130	97.9	
205	Tl	2	209	1.06	ppb	1.51	1.00	70 -	130	105.7	
208	Pb	2	209	1.01	ppb	2.65	1.00	70 -	130	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2306.97	3.81	15.28	-15098.6	70 -	120	ISFail
45	Sc	1	175462.75	0.94	182515.06	96.1	70 -	120	
45	Sc	2	5957784.00	1.59	6126960.50	97.2	70 -	120	
72	Ge	1	93968.90	1.39	97742.99	96.1	70 -	120	
115	In	2	6234465.00	1.87	6508670.50	95.8	70 -	120	
209	Bi	2	4101612.80	0.61	4337985.50	94.6	70 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\023__PB.D\023__PB.D#

Date Acquired:	Aug 5 2016 01:27 pm	Sample Name:	MB-76602
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.093	ppb	4.07	2.0	8.00	
9	Be	2	45	0.014	ppb	20.76	0.4	1.20	
11	B	2	45	1.881	ppb	1.95	10.0	30.00	
23	Na	1	45	-11.050	ppb	1.73	50.0	#####	
24	Mg	1	45	1.930	ppb	12.09	50.0	#####	
27	Al	1	45	2.873	ppb	6.00	50.0	#####	
39	K	1	45	-1.632	ppb	5.99	50.0	#####	
44	Ca	2	45	3.336	ppb	3.56	50.0	#####	
47	Ti	1	45	0.085	ppb	65.47	4.0	10.00	
51	V	1	45	0.013	ppb	5.97	4.0	10.00	
52	Cr	1	45	0.128	ppb	4.07	2.0	8.00	
55	Mn	1	45	-0.065	ppb	11.25	2.0	8.00	
56	Fe	1	72	3.389	ppb	0.65	50.0	#####	
59	Co	1	72	0.014	ppb	35.05	2.0	8.00	
60	Ni	1	72	0.031	ppb	15.95	2.0	8.00	
63	Cu	1	72	0.171	ppb	5.24	2.0	8.00	
66	Zn	1	72	-12.530	ppb	14.69	4.0	10.00	
75	As	1	72	-0.041	ppb	6.86	2.0	4.00	
78	Se	1	72	0.092	ppb	26.96	0.6	2.00	
88	Sr	2	115	0.020	ppb	1.91	4.0	10.00	
95	Mo	2	115	0.128	ppb	9.05	2.0	8.00	
107	Ag	2	115	0.008	ppb	29.00	0.4	0.80	
111	Cd	2	115	0.012	ppb	117.88	0.4	1.20	
118	Sn	2	115	4.625	ppb	1.51	20.0	40.00	
121	Sb	2	115	0.023	ppb	22.48	2.0	4.00	
137	Ba	2	115	0.004	ppb	24.02	2.0	8.00	
205	Tl	2	209	0.043	ppb	8.70	2.0	4.00	
208	Pb	2	209	0.070	ppb	2.30	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	10.48	73.02	15.28	68.6	70 - 120	ISFail
45	Sc	1		178866.17	0.54	182515.06	98.0	70 - 120	
45	Sc	2		5985713.50	1.37	6126960.50	97.7	70 - 120	
72	Ge	1		93521.28	0.84	97742.99	95.7	70 - 120	
115	In	2		6205739.00	0.87	6508670.50	95.3	70 - 120	
209	Bi	2		4096051.30	1.07	4337985.50	94.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\024_LCS.D\024_LCS.D#

Date Acquired:	Aug 5 2016 01:33 pm	Sample Name:	**LCS-76602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	216.70	ppb	0.47	200.00	80 -	120	108.4	
9	Be	2	45	204.70	ppb	0.96	200.00	80 -	120	102.4	
11	B	2	45	205.60	ppb	1.27	200.00	80 -	120	102.8	
23	Na	1	45	5205.00	ppb	1.69	5000.00	80 -	120	104.1	
24	Mg	1	45	4997.00	ppb	0.80	5000.00	80 -	120	99.9	
27	Al	1	45	1002.00	ppb	0.61	1000.00	80 -	120	100.2	
39	K	1	45	4946.00	ppb	1.17	5000.00	80 -	120	98.9	
44	Ca	2	45	5191.00	ppb	1.05	5000.00	80 -	120	103.8	
47	Ti	1	45	195.70	ppb	3.59	200.00	80 -	120	97.9	
51	V	1	45	195.30	ppb	1.15	200.00	80 -	120	97.7	
52	Cr	1	45	199.40	ppb	0.91	200.00	80 -	120	99.7	
55	Mn	1	45	196.40	ppb	1.64	200.00	80 -	120	98.2	
56	Fe	1	72	1057.00	ppb	2.32	1000.00	80 -	120	105.7	
59	Co	1	72	205.90	ppb	0.71	200.00	80 -	120	103.0	
60	Ni	1	72	201.90	ppb	0.18	200.00	80 -	120	101.0	
63	Cu	1	72	207.10	ppb	1.20	200.00	80 -	120	103.6	
66	Zn	1	72	189.10	ppb	1.20	200.00	80 -	120	94.6	
75	As	1	72	193.70	ppb	0.75	200.00	80 -	120	96.9	
78	Se	1	72	187.40	ppb	0.98	200.00	80 -	120	93.7	
88	Sr	2	115	206.50	ppb	1.69	200.00	80 -	120	103.3	
95	Mo	2	115	194.80	ppb	2.11	200.00	80 -	120	97.4	
107	Ag	2	115	196.00	ppb	2.26	200.00	80 -	120	98.0	
111	Cd	2	115	193.80	ppb	2.16	200.00	80 -	120	96.9	
118	Sn	2	115	204.40	ppb	1.47	200.00	80 -	120	102.2	
121	Sb	2	115	189.20	ppb	1.47	200.00	80 -	120	94.6	
137	Ba	2	115	193.80	ppb	1.04	200.00	80 -	120	96.9	
205	Tl	2	209	206.50	ppb	0.72	200.00	80 -	120	103.3	
208	Pb	2	209	196.60	ppb	0.97	200.00	80 -	120	98.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-74524.27	0.85	15.28	-487746.4	70 -	120	ISFail
45	Sc	1	182017.00	0.75	182515.06	99.7	70 -	120	
45	Sc	2	6008782.50	1.44	6126960.50	98.1	70 -	120	
72	Ge	1	94133.34	0.36	97742.99	96.3	70 -	120	
115	In	2	6180379.00	0.91	6508670.50	95.0	70 -	120	
209	Bi	2	4019652.50	0.87	4337985.50	92.7	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\025_LCS.D\025_LCS.D#

Date Acquired:	Aug 5 2016 01:39 pm	Sample Name:	**LCSD-76602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	212.30	ppb	1.25	200.00	80 -	120	106.2	
9	Be	2	45	203.20	ppb	1.24	200.00	80 -	120	101.6	
11	B	2	45	204.00	ppb	0.48	200.00	80 -	120	102.0	
23	Na	1	45	5273.00	ppb	1.61	5000.00	80 -	120	105.5	
24	Mg	1	45	5011.00	ppb	1.36	5000.00	80 -	120	100.2	
27	Al	1	45	1022.00	ppb	1.43	1000.00	80 -	120	102.2	
39	K	1	45	4994.00	ppb	0.87	5000.00	80 -	120	99.9	
44	Ca	2	45	5123.00	ppb	2.40	5000.00	80 -	120	102.5	
47	Ti	1	45	196.30	ppb	3.57	200.00	80 -	120	98.2	
51	V	1	45	193.60	ppb	0.91	200.00	80 -	120	96.8	
52	Cr	1	45	197.30	ppb	0.70	200.00	80 -	120	98.7	
55	Mn	1	45	197.00	ppb	1.08	200.00	80 -	120	98.5	
56	Fe	1	72	1051.00	ppb	0.85	1000.00	80 -	120	105.1	
59	Co	1	72	202.10	ppb	0.21	200.00	80 -	120	101.1	
60	Ni	1	72	198.60	ppb	0.38	200.00	80 -	120	99.3	
63	Cu	1	72	203.50	ppb	0.71	200.00	80 -	120	101.8	
66	Zn	1	72	184.90	ppb	0.74	200.00	80 -	120	92.5	
75	As	1	72	191.60	ppb	0.71	200.00	80 -	120	95.8	
78	Se	1	72	188.30	ppb	0.61	200.00	80 -	120	94.2	
88	Sr	2	115	201.90	ppb	0.56	200.00	80 -	120	101.0	
95	Mo	2	115	190.00	ppb	1.95	200.00	80 -	120	95.0	
107	Ag	2	115	190.60	ppb	1.84	200.00	80 -	120	95.3	
111	Cd	2	115	190.80	ppb	1.51	200.00	80 -	120	95.4	
118	Sn	2	115	200.50	ppb	1.48	200.00	80 -	120	100.3	
121	Sb	2	115	186.30	ppb	1.48	200.00	80 -	120	93.2	
137	Ba	2	115	190.00	ppb	0.89	200.00	80 -	120	95.0	
205	Tl	2	209	203.40	ppb	0.99	200.00	80 -	120	101.7	
208	Pb	2	209	194.50	ppb	1.08	200.00	80 -	120	97.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-72044.63	1.01	15.28	-471517.6	70 -	120	ISFail
45	Sc	1	181972.63	0.65	182515.06	99.7	70 -	120	
45	Sc	2	5964076.50	1.18	6126960.50	97.3	70 -	120	
72	Ge	1	94412.44	0.44	97742.99	96.6	70 -	120	
115	In	2	6217191.00	1.69	6508670.50	95.5	70 -	120	
209	Bi	2	4004459.50	1.24	4337985.50	92.3	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\027AREF.D\027AREF.D#

Date Acquired:	Aug 5 2016 01:50 pm	Sample Name:	**1607239-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	78.080	ppb	#REF!	2.38	2000.00	>RL
9	Be	2	45	3.193	ppb	#REF!	1.54	2000.00	>RL
11	B	2	45	98.710	ppb	#REF!	1.18	2000.00	>RL
23	Na	1	45	1817.000	ppb	#REF!	0.89	25000.00	>RL
24	Mg	1	45	17690.000	ppb	#REF!	1.53	25000.00	>RL
27	Al	1	45	86410.000	ppb	#REF!	1.86	10000.00	OUTCAL
39	K	1	45	19300.000	ppb	#REF!	1.19	25000.00	>RL
44	Ca	2	45	119500.000	ppb	#REF!	0.85	25000.00	OUTCAL
47	Ti	1	45	256.000	ppb	#REF!	2.19	2000.00	>RL
51	V	1	45	124.200	ppb	#REF!	0.63	2000.00	>RL
52	Cr	1	45	74.540	ppb	#REF!	1.09	2000.00	>RL
55	Mn	1	45	666.900	ppb	#REF!	0.75	2000.00	>RL
56	Fe	1	72	83390.000	ppb	#REF!	1.59	10000.00	OUTCAL
59	Co	1	72	28.880	ppb	#REF!	0.26	2000.00	>RL
60	Ni	1	72	43.970	ppb	#REF!	0.75	2000.00	>RL
63	Cu	1	72	26.380	ppb	#REF!	0.95	2000.00	>RL
66	Zn	1	72	200.600	ppb	#REF!	0.79	2000.00	>RL
75	As	1	72	28.380	ppb	#REF!	1.43	2000.00	>RL
78	Se	1	72	13.220	ppb	#REF!	2.23	2000.00	>RL
88	Sr	2	115	408.500	ppb	#REF!	1.43	2000.00	>RL
95	Mo	2	115	2.570	ppb	#REF!	2.84	2000.00	J
107	Ag	2	115	0.224	ppb	#REF!	3.26	500.00	ND
111	Cd	2	115	1.174	ppb	#REF!	6.07	2000.00	J
118	Sn	2	115	6.400	ppb	#REF!	1.84	2000.00	J
121	Sb	2	115	3.416	ppb	#REF!	4.30	500.00	J
137	Ba	2	115	438.100	ppb	#REF!	1.81	2000.00	>RL
205	Tl	2	209	0.759	ppb	#REF!	3.72	2000.00	ND
208	Pb	2	209	191.900	ppb	#REF!	1.24	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13063.76	9.08	RHigh	15.28	-85499.7	70 - 120	ISFail
45	Sc	1	182605.88	1.33		182515.06	100.0	70 - 120	
45	Sc	2	6157525.50	1.70		6126960.50	100.5	70 - 120	
72	Ge	1	92640.01	0.36		97742.99	94.8	70 - 120	
115	In	2	6415610.50	1.64		6508670.50	98.6	70 - 120	
209	Bi	2	3985526.50	0.98		4337985.50	91.9	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\028DT1.D\028DT1.D#

Date Acquired:	Aug 5 2016 01:56 pm	Sample Name:	**1607239-01A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	15.13	ppb	0.77	-2496.65	90 - 110	-3.0	
9	Be	2	45	0.69	ppb	4.71	3.19	90 - 110	108.1	GOOD
11	B	2	45	21.68	ppb	2.49	98.71	90 - 110	109.8	GOOD
23	Na	1	45	336.40	ppb	0.22	1817.00	90 - 110	92.6	GOOD
24	Mg	1	45	3376.00	ppb	0.71	17690.00	90 - 110	95.4	GOOD
27	Al	1	45	16470.00	ppb	1.15	86410.00	90 - 110	95.3	GOOD
39	K	1	45	3573.00	ppb	0.95	19300.00	90 - 110	92.6	GOOD
44	Ca	2	45	23410.00	ppb	1.58	119500.00	90 - 110	97.9	GOOD
47	Ti	1	45	47.29	ppb	2.10	256.00	90 - 110	92.4	GOOD
51	V	1	45	23.97	ppb	1.33	124.20	90 - 110	96.5	GOOD
52	Cr	1	45	14.36	ppb	1.27	74.54	90 - 110	96.3	GOOD
55	Mn	1	45	129.20	ppb	1.15	666.90	90 - 110	96.9	GOOD
56	Fe	1	72	15890.00	ppb	1.28	83390.00	90 - 110	95.3	GOOD
59	Co	1	72	5.47	ppb	1.52	28.88	90 - 110	94.7	GOOD
60	Ni	1	72	8.52	ppb	1.38	43.97	90 - 110	96.9	GOOD
63	Cu	1	72	5.22	ppb	2.11	26.38	90 - 110	98.8	GOOD
66	Zn	1	72	30.85	ppb	2.45	200.60	90 - 110	76.9	
75	As	1	72	5.77	ppb	2.12	28.38	90 - 110	101.7	GOOD
78	Se	1	72	2.75	ppb	6.11	13.22	90 - 110	104.0	GOOD
88	Sr	2	115	76.66	ppb	1.96	408.50	90 - 110	93.8	GOOD
95	Mo	2	115	0.53	ppb	2.18	2.57	90 - 110	102.3	GOOD
107	Ag	2	115	0.05	ppb	5.97	0.22	90 - 110	118.2	
111	Cd	2	115	0.26	ppb	8.44	1.17	90 - 110	111.3	
118	Sn	2	115	1.10	ppb	4.25	6.40	90 - 110	85.6	
121	Sb	2	115	0.71	ppb	2.40	3.42	90 - 110	104.3	GOOD
137	Ba	2	115	83.81	ppb	1.06	438.10	90 - 110	95.7	GOOD
205	Tl	2	209	0.18	ppb	3.61	0.76	90 - 110	120.3	
208	Pb	2	209	35.99	ppb	1.63	191.90	90 - 110	93.8	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-2496.65	2.53	15.28	-16340.0	70 - 120	ISFail
45	Sc	1	185907.23	1.19	182515.06	101.9	70 - 120	
45	Sc	2	6148123.50	1.82	6126960.50	100.3	70 - 120	
72	Ge	1	97392.03	0.67	97742.99	99.6	70 - 120	
115	In	2	6434394.50	1.13	6508670.50	98.9	70 - 120	
209	Bi	2	4141211.30	0.87	4337985.50	95.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\033SMPL.D\033SMPL.D#

Date Acquired:	Aug 5 2016 02:26 pm	Sample Name:	**1607239-02A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	83.000	ppb	#REF!	3.24	2000.00	>RL
9	Be	2	45	2.809	ppb	#REF!	0.71	2000.00	>RL
11	B	2	45	89.970	ppb	#REF!	2.24	2000.00	>RL
23	Na	1	45	4848.000	ppb	#REF!	0.89	25000.00	>RL
24	Mg	1	45	15070.000	ppb	#REF!	1.39	25000.00	>RL
27	Al	1	45	70160.000	ppb	#REF!	1.22	10000.00	OUTCAL
39	K	1	45	13720.000	ppb	#REF!	0.39	25000.00	>RL
44	Ca	2	45	430000.000	ppb	#REF!	2.36	25000.00	OUTCAL
47	Ti	1	45	177.600	ppb	#REF!	2.85	2000.00	>RL
51	V	1	45	153.100	ppb	#REF!	0.95	2000.00	>RL
52	Cr	1	45	70.700	ppb	#REF!	0.65	2000.00	>RL
55	Mn	1	45	863.900	ppb	#REF!	1.04	2000.00	>RL
56	Fe	1	72	109100.000	ppb	#REF!	1.03	10000.00	OUTCAL
59	Co	1	72	25.250	ppb	#REF!	0.93	2000.00	>RL
60	Ni	1	72	41.870	ppb	#REF!	1.21	2000.00	>RL
63	Cu	1	72	14.020	ppb	#REF!	1.17	2000.00	>RL
66	Zn	1	72	151.800	ppb	#REF!	0.46	2000.00	>RL
75	As	1	72	36.330	ppb	#REF!	1.01	2000.00	>RL
78	Se	1	72	12.460	ppb	#REF!	3.18	2000.00	>RL
88	Sr	2	115	756.100	ppb	#REF!	2.98	2000.00	>RL
95	Mo	2	115	5.527	ppb	#REF!	4.06	2000.00	J
107	Ag	2	115	0.125	ppb	#REF!	4.79	500.00	ND
111	Cd	2	115	1.094	ppb	#REF!	11.78	2000.00	J
118	Sn	2	115	5.918	ppb	#REF!	3.52	2000.00	ND
121	Sb	2	115	0.399	ppb	#REF!	2.63	500.00	ND
137	Ba	2	115	1867.000	ppb	#REF!	2.19	2000.00	>RL
205	Tl	2	209	0.496	ppb	#REF!	6.94	2000.00	ND
208	Pb	2	209	43.010	ppb	#REF!	1.65	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14859.87	1.18	15.28	-97254.9	70 - 120	ISFail
45	Sc	1	183972.64	0.51	182515.06	100.8	70 - 120	
45	Sc	2	6734677.50	1.87	6126960.50	109.9	70 - 120	
72	Ge	1	92881.13	0.58	97742.99	95.0	70 - 120	
115	In	2	7103500.50	2.43	6508670.50	109.1	70 - 120	
209	Bi	2	4235567.50	1.14	4337985.50	97.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\034SMPL.D\034SMPL.D#

Date Acquired:	Aug 5 2016 02:31 pm	Sample Name:	**1607239-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	87.710	ppb	#REF!	1.49	2000.00	>RL
9	Be	2	45	2.440	ppb	#REF!	1.21	2000.00	>RL
11	B	2	45	89.020	ppb	#REF!	1.58	2000.00	>RL
23	Na	1	45	3813.000	ppb	#REF!	0.68	25000.00	>RL
24	Mg	1	45	12060.000	ppb	#REF!	0.36	25000.00	>RL
27	Al	1	45	54390.000	ppb	#REF!	0.74	10000.00	OUTCAL
39	K	1	45	11540.000	ppb	#REF!	0.82	25000.00	>RL
44	Ca	2	45	357500.000	ppb	#REF!	1.46	25000.00	OUTCAL
47	Ti	1	45	176.300	ppb	#REF!	1.90	2000.00	>RL
51	V	1	45	97.130	ppb	#REF!	0.61	2000.00	>RL
52	Cr	1	45	62.700	ppb	#REF!	0.61	2000.00	>RL
55	Mn	1	45	404.700	ppb	#REF!	0.39	2000.00	>RL
56	Fe	1	72	79180.000	ppb	#REF!	0.39	10000.00	OUTCAL
59	Co	1	72	22.550	ppb	#REF!	0.65	2000.00	>RL
60	Ni	1	72	31.290	ppb	#REF!	0.58	2000.00	>RL
63	Cu	1	72	11.010	ppb	#REF!	1.98	2000.00	>RL
66	Zn	1	72	128.200	ppb	#REF!	1.36	2000.00	>RL
75	As	1	72	26.250	ppb	#REF!	1.01	2000.00	>RL
78	Se	1	72	8.912	ppb	#REF!	1.95	2000.00	>RL
88	Sr	2	115	1534.000	ppb	#REF!	1.96	2000.00	>RL
95	Mo	2	115	3.491	ppb	#REF!	6.11	2000.00	J
107	Ag	2	115	0.105	ppb	#REF!	4.47	500.00	ND
111	Cd	2	115	0.806	ppb	#REF!	10.11	2000.00	J
118	Sn	2	115	6.016	ppb	#REF!	2.28	2000.00	ND
121	Sb	2	115	0.312	ppb	#REF!	2.60	500.00	ND
137	Ba	2	115	442.200	ppb	#REF!	1.59	2000.00	>RL
205	Tl	2	209	0.355	ppb	#REF!	1.75	2000.00	ND
208	Pb	2	209	25.900	ppb	#REF!	1.10	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15055.34	2.01	15.28	-98534.2	70 - 120	ISFail
45	Sc	1	179954.44	0.45	182515.06	98.6	70 - 120	
45	Sc	2	6769799.50	1.15	6126960.50	110.5	70 - 120	
72	Ge	1	90716.03	0.87	97742.99	92.8	70 - 120	
115	In	2	6962105.00	0.94	6508670.50	107.0	70 - 120	
209	Bi	2	4184525.80	0.33	4337985.50	96.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\035SMPL.D\035SMPL.D#

Date Acquired:	Aug 5 2016 02:37 pm	Sample Name:	**1607239-04A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	91.150	ppb	#REF!	2.14	2000.00	>RL
9	Be	2	45	2.685	ppb	#REF!	3.42	2000.00	>RL
11	B	2	45	103.300	ppb	#REF!	1.70	2000.00	>RL
23	Na	1	45	2849.000	ppb	#REF!	0.58	25000.00	>RL
24	Mg	1	45	10490.000	ppb	#REF!	1.93	25000.00	>RL
27	Al	1	45	46180.000	ppb	#REF!	1.21	10000.00	OUTCAL
39	K	1	45	13410.000	ppb	#REF!	0.92	25000.00	>RL
44	Ca	2	45	230900.000	ppb	#REF!	1.50	25000.00	OUTCAL
47	Ti	1	45	147.800	ppb	#REF!	2.91	2000.00	>RL
51	V	1	45	83.160	ppb	#REF!	1.82	2000.00	>RL
52	Cr	1	45	58.460	ppb	#REF!	1.39	2000.00	>RL
55	Mn	1	45	597.700	ppb	#REF!	1.00	2000.00	>RL
56	Fe	1	72	75660.000	ppb	#REF!	1.91	10000.00	OUTCAL
59	Co	1	72	36.670	ppb	#REF!	1.02	2000.00	>RL
60	Ni	1	72	46.350	ppb	#REF!	0.77	2000.00	>RL
63	Cu	1	72	5.881	ppb	#REF!	2.10	2000.00	J
66	Zn	1	72	141.100	ppb	#REF!	0.34	2000.00	>RL
75	As	1	72	37.860	ppb	#REF!	0.60	2000.00	>RL
78	Se	1	72	12.280	ppb	#REF!	3.26	2000.00	>RL
88	Sr	2	115	1283.000	ppb	#REF!	2.39	2000.00	>RL
95	Mo	2	115	3.065	ppb	#REF!	1.96	2000.00	J
107	Ag	2	115	0.160	ppb	#REF!	2.66	500.00	ND
111	Cd	2	115	0.787	ppb	#REF!	1.56	2000.00	J
118	Sn	2	115	5.761	ppb	#REF!	1.50	2000.00	ND
121	Sb	2	115	0.387	ppb	#REF!	6.47	500.00	ND
137	Ba	2	115	383.300	ppb	#REF!	1.72	2000.00	>RL
205	Tl	2	209	0.303	ppb	#REF!	7.05	2000.00	ND
208	Pb	2	209	21.100	ppb	#REF!	0.88	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15803.68	2.54	15.28	########	70 - 120	ISFail
45	Sc	1	182776.63	0.90	182515.06	100.1	70 - 120	
45	Sc	2	6699590.50	1.34	6126960.50	109.3	70 - 120	
72	Ge	1	92920.13	0.61	97742.99	95.1	70 - 120	
115	In	2	6823274.00	1.84	6508670.50	104.8	70 - 120	
209	Bi	2	4112799.00	1.13	4337985.50	94.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\036SMPL.D\036SMPL.D#

Date Acquired:	Aug 5 2016 02:43 pm	Sample Name:	**1607239-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	75.460	ppb	#REF!	0.80	2000.00	>RL
9	Be	2	45	2.042	ppb	#REF!	2.65	2000.00	>RL
11	B	2	45	103.800	ppb	#REF!	2.41	2000.00	>RL
23	Na	1	45	6316.000	ppb	#REF!	1.91	25000.00	>RL
24	Mg	1	45	9627.000	ppb	#REF!	2.26	25000.00	>RL
27	Al	1	45	53040.000	ppb	#REF!	2.04	10000.00	OUTCAL
39	K	1	45	7869.000	ppb	#REF!	1.49	25000.00	>RL
44	Ca	2	45	244300.000	ppb	#REF!	1.61	25000.00	OUTCAL
47	Ti	1	45	110.600	ppb	#REF!	2.52	2000.00	>RL
51	V	1	45	85.520	ppb	#REF!	1.04	2000.00	>RL
52	Cr	1	45	55.460	ppb	#REF!	1.47	2000.00	>RL
55	Mn	1	45	107.500	ppb	#REF!	0.73	2000.00	>RL
56	Fe	1	72	85410.000	ppb	#REF!	1.12	10000.00	OUTCAL
59	Co	1	72	12.660	ppb	#REF!	1.26	2000.00	>RL
60	Ni	1	72	29.720	ppb	#REF!	0.87	2000.00	>RL
63	Cu	1	72	9.550	ppb	#REF!	1.39	2000.00	>RL
66	Zn	1	72	150.000	ppb	#REF!	1.04	2000.00	>RL
75	As	1	72	26.000	ppb	#REF!	1.41	2000.00	>RL
78	Se	1	72	7.285	ppb	#REF!	3.68	2000.00	>RL
88	Sr	2	115	801.200	ppb	#REF!	1.72	2000.00	>RL
95	Mo	2	115	2.173	ppb	#REF!	3.28	2000.00	J
107	Ag	2	115	0.087	ppb	#REF!	6.03	500.00	ND
111	Cd	2	115	0.643	ppb	#REF!	14.66	2000.00	J
118	Sn	2	115	6.182	ppb	#REF!	3.30	2000.00	ND
121	Sb	2	115	0.161	ppb	#REF!	9.10	500.00	ND
137	Ba	2	115	49.650	ppb	#REF!	1.53	2000.00	>RL
205	Tl	2	209	0.368	ppb	#REF!	1.19	2000.00	ND
208	Pb	2	209	26.270	ppb	#REF!	1.05	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13278.97	8.39	RHigh	15.28	-86908.2	70 - 120	ISFail
45	Sc	1	183124.55	1.08		182515.06	100.3	70 - 120	
45	Sc	2	6748018.50	1.98		6126960.50	110.1	70 - 120	
72	Ge	1	91642.22	1.33		97742.99	93.8	70 - 120	
115	In	2	6894374.50	1.28		6508670.50	105.9	70 - 120	
209	Bi	2	4129883.80	1.09		4337985.50	95.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\037SMPL.D\037SMPL.D#

Date Acquired:	Aug 5 2016 02:49 pm	Sample Name:	**1607239-06A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	81.280	ppb	#REF!	0.84	2000.00	>RL
9	Be	2	45	3.174	ppb	#REF!	2.34	2000.00	>RL
11	B	2	45	94.290	ppb	#REF!	0.85	2000.00	>RL
23	Na	1	45	2341.000	ppb	#REF!	0.50	25000.00	>RL
24	Mg	1	45	18810.000	ppb	#REF!	1.12	25000.00	>RL
27	Al	1	45	90440.000	ppb	#REF!	1.45	10000.00	OUTCAL
39	K	1	45	20240.000	ppb	#REF!	0.03	25000.00	>RL
44	Ca	2	45	152800.000	ppb	#REF!	1.41	25000.00	OUTCAL
47	Ti	1	45	249.100	ppb	#REF!	0.88	2000.00	>RL
51	V	1	45	136.300	ppb	#REF!	0.62	2000.00	>RL
52	Cr	1	45	81.100	ppb	#REF!	0.54	2000.00	>RL
55	Mn	1	45	678.400	ppb	#REF!	0.89	2000.00	>RL
56	Fe	1	72	88080.000	ppb	#REF!	1.28	10000.00	OUTCAL
59	Co	1	72	30.400	ppb	#REF!	0.64	2000.00	>RL
60	Ni	1	72	47.880	ppb	#REF!	0.69	2000.00	>RL
63	Cu	1	72	24.850	ppb	#REF!	0.15	2000.00	>RL
66	Zn	1	72	201.700	ppb	#REF!	1.42	2000.00	>RL
75	As	1	72	28.860	ppb	#REF!	1.24	2000.00	>RL
78	Se	1	72	14.180	ppb	#REF!	4.91	2000.00	>RL
88	Sr	2	115	460.200	ppb	#REF!	2.04	2000.00	>RL
95	Mo	2	115	2.693	ppb	#REF!	2.73	2000.00	J
107	Ag	2	115	0.184	ppb	#REF!	5.99	500.00	ND
111	Cd	2	115	1.167	ppb	#REF!	4.06	2000.00	J
118	Sn	2	115	6.195	ppb	#REF!	0.41	2000.00	ND
121	Sb	2	115	2.964	ppb	#REF!	1.42	500.00	J
137	Ba	2	115	541.600	ppb	#REF!	1.30	2000.00	>RL
205	Tl	2	209	0.692	ppb	#REF!	1.52	2000.00	ND
208	Pb	2	209	163.000	ppb	#REF!	1.24	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13941.37	4.11	15.28	-91243.5	70 - 120	ISFail
45	Sc	1	178125.94	1.10	182515.06	97.6	70 - 120	
45	Sc	2	6266472.00	1.86	6126960.50	102.3	70 - 120	
72	Ge	1	90761.77	0.93	97742.99	92.9	70 - 120	
115	In	2	6392270.50	2.44	6508670.50	98.2	70 - 120	
209	Bi	2	3883637.00	1.45	4337985.50	89.5	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\038_PDS.D\038_PDS.D#

Date Acquired:	Aug 5 2016 02:55 pm	Sample Name:	**1607239-01A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	281.50	ppb	1.84	-49875.43	200	75-125	######	Fail
9	Be	2	45	200.00	ppb	2.04	3.19	200	75-125	98.4	
11	B	2	45	287.00	ppb	2.15	98.71	200	75-125	94.1	
23	Na	1	45	7734.00	ppb	1.53	1817.00	5000	75-125	118.3	
24	Mg	1	45	24260.00	ppb	0.95	17690.00	5000	75-125	131.4	Fail
27	Al	1	45	98890.00	ppb	0.30	86410.00	5000	75-125	249.6	Fail
39	K	1	45	26300.00	ppb	1.12	19300.00	5000	75-125	140.0	Fail
44	Ca	2	45	132300.00	ppb	2.32	119500.00	5000	75-125	256.0	Fail
47	Ti	1	45	497.00	ppb	0.19	256.00	200	75-125	120.5	
51	V	1	45	354.80	ppb	1.00	124.20	200	75-125	115.3	
52	Cr	1	45	302.70	ppb	0.93	74.54	200	75-125	114.1	
55	Mn	1	45	938.60	ppb	0.82	666.90	200	75-125	135.8	Fail
56	Fe	1	72	96550.00	ppb	0.65	83390.00	5000	75-125	263.2	Fail
59	Co	1	72	256.60	ppb	1.32	28.88	200	75-125	113.9	
60	Ni	1	72	262.20	ppb	1.42	43.97	200	75-125	109.1	
63	Cu	1	72	240.80	ppb	1.19	26.38	200	75-125	107.2	
66	Zn	1	72	420.00	ppb	1.07	200.60	200	75-125	109.7	
75	As	1	72	242.20	ppb	0.95	28.38	200	75-125	106.9	
78	Se	1	72	216.30	ppb	1.44	13.22	200	75-125	101.5	
88	Sr	2	115	657.00	ppb	1.71	408.50	200	75-125	124.3	
95	Mo	2	115	208.10	ppb	2.66	2.57	200	75-125	102.8	
107	Ag	2	115	202.30	ppb	2.78	0.22	200	75-125	101.0	
111	Cd	2	115	198.30	ppb	2.59	1.17	200	75-125	98.6	
118	Sn	2	115	220.70	ppb	2.13	6.40	200	75-125	107.1	
121	Sb	2	115	209.00	ppb	1.96	3.42	200	75-125	102.8	
137	Ba	2	115	680.40	ppb	1.98	438.10	200	75-125	121.1	
205	Tl	2	209	226.30	ppb	2.17	0.76	200	75-125	112.8	
208	Pb	2	209	424.60	ppb	1.71	191.90	200	75-125	116.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-49875.43	3.20	15.28	-326424.7	70 - 120	ISFail
45	Sc	1	169917.80	0.05	182515.06	93.1	70 - 120	
45	Sc	2	5802569.50	2.24	6126960.50	94.7	70 - 120	
72	Ge	1	85830.66	0.10	97742.99	87.8	70 - 120	
115	In	2	5916060.50	1.37	6508670.50	90.9	70 - 120	
209	Bi	2	3629892.80	0.47	4337985.50	83.7	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\039_MS.D\039_MS.D#

Date Acquired:	Aug 5 2016 03:01 pm	Sample Name:	**1607239-01A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	273.20	ppb	1.43	########	200	80-120	######	Fail
9	Be	2	45	191.10	ppb	1.46	3.19	200	80-120	94.0	
11	B	2	45	274.80	ppb	1.74	98.71	200	80-120	88.0	
23	Na	1	45	7117.00	ppb	0.38	1817.00	5000	80-120	106.0	
24	Mg	1	45	23120.00	ppb	0.86	17690.00	5000	80-120	108.6	
27	Al	1	45	94880.00	ppb	0.81	86410.00	1000	80-120	847.0	Fail
39	K	1	45	25000.00	ppb	1.12	19300.00	5000	80-120	114.0	
44	Ca	2	45	131400.00	ppb	1.73	########	5000	80-120	238.0	Fail
47	Ti	1	45	472.30	ppb	0.91	256.00	200	80-120	108.2	
51	V	1	45	334.00	ppb	0.38	124.20	200	80-120	104.9	
52	Cr	1	45	279.80	ppb	0.59	74.54	200	80-120	102.6	
55	Mn	1	45	854.80	ppb	0.50	666.90	200	80-120	93.9	
56	Fe	1	72	87870.00	ppb	1.23	83390.00	1000	80-120	448.0	Fail
59	Co	1	72	233.20	ppb	0.60	28.88	200	80-120	102.2	
60	Ni	1	72	241.70	ppb	0.20	43.97	200	80-120	98.9	
63	Cu	1	72	225.10	ppb	0.68	26.38	200	80-120	99.4	
66	Zn	1	72	392.70	ppb	0.26	200.60	200	80-120	96.0	
75	As	1	72	224.00	ppb	0.18	28.38	200	80-120	97.8	
78	Se	1	72	200.70	ppb	0.47	13.22	200	80-120	93.7	
88	Sr	2	115	639.60	ppb	2.35	408.50	200	80-120	115.6	
95	Mo	2	115	188.70	ppb	1.98	2.57	200	80-120	93.1	
107	Ag	2	115	187.40	ppb	1.75	0.22	200	80-120	93.6	
111	Cd	2	115	192.20	ppb	2.00	1.17	200	80-120	95.5	
118	Sn	2	115	208.80	ppb	2.40	6.40	200	80-120	101.2	
121	Sb	2	115	71.03	ppb	1.12	3.42	200	80-120	33.8	Fail
137	Ba	2	115	637.20	ppb	2.00	438.10	200	80-120	99.5	
205	Tl	2	209	216.60	ppb	1.21	0.76	200	80-120	107.9	
208	Pb	2	209	427.50	ppb	1.08	191.90	200	80-120	117.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-72904.95	0.72	15.28	########	70 - 120	ISFail
45	Sc	1	167082.70	0.31	182515.06	91.5	70 - 120	
45	Sc	2	5543651.50	1.49	6126960.50	90.5	70 - 120	
72	Ge	1	84659.40	0.61	97742.99	86.6	70 - 120	
115	In	2	5672386.50	1.62	6508670.50	87.2	70 - 120	
209	Bi	2	3518521.50	0.60	4337985.50	81.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\040_MS.D\040_MS.D#

Date Acquired:	Aug 5 2016 03:06 pm	Sample Name:	**1607239-01A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	262.30	ppb	0.70	########	200	80-120	######	Fail
9	Be	2	45	183.10	ppb	1.57	3.19	200	80-120	90.0	
11	B	2	45	265.40	ppb	0.83	98.71	200	80-120	83.3	
23	Na	1	45	6775.00	ppb	0.24	1817.00	5000	80-120	99.2	
24	Mg	1	45	21690.00	ppb	0.56	17690.00	5000	80-120	80.0	
27	Al	1	45	87150.00	ppb	0.77	86410.00	1000	80-120	74.0	Fail
39	K	1	45	23520.00	ppb	0.57	19300.00	5000	80-120	84.4	
44	Ca	2	45	115000.00	ppb	2.12	########	5000	80-120	-90.0	Fail
47	Ti	1	45	464.80	ppb	0.64	256.00	200	80-120	104.4	
51	V	1	45	326.90	ppb	0.50	124.20	200	80-120	101.4	
52	Cr	1	45	266.80	ppb	0.95	74.54	200	80-120	96.1	
55	Mn	1	45	873.20	ppb	0.45	666.90	200	80-120	103.1	
56	Fe	1	72	86200.00	ppb	0.26	83390.00	1000	80-120	281.0	Fail
59	Co	1	72	224.40	ppb	0.33	28.88	200	80-120	97.8	
60	Ni	1	72	233.30	ppb	0.13	43.97	200	80-120	94.7	
63	Cu	1	72	218.70	ppb	0.26	26.38	200	80-120	96.2	
66	Zn	1	72	377.30	ppb	0.18	200.60	200	80-120	88.3	
75	As	1	72	217.40	ppb	0.54	28.38	200	80-120	94.5	
78	Se	1	72	194.30	ppb	1.13	13.22	200	80-120	90.5	
88	Sr	2	115	596.30	ppb	1.86	408.50	200	80-120	93.9	
95	Mo	2	115	184.10	ppb	1.80	2.57	200	80-120	90.8	
107	Ag	2	115	183.80	ppb	2.00	0.22	200	80-120	91.8	
111	Cd	2	115	187.10	ppb	0.55	1.17	200	80-120	93.0	
118	Sn	2	115	204.20	ppb	1.29	6.40	200	80-120	98.9	
121	Sb	2	115	69.12	ppb	1.46	3.42	200	80-120	32.9	Fail
137	Ba	2	115	626.80	ppb	1.38	438.10	200	80-120	94.3	
205	Tl	2	209	211.80	ppb	1.82	0.76	200	80-120	105.5	
208	Pb	2	209	388.00	ppb	1.39	191.90	200	80-120	98.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-70571.80	3.11	15.28	########	70 - 120	ISFail
45	Sc	1	165132.59	0.30	182515.06	90.5	70 - 120	
45	Sc	2	5408150.00	1.66	6126960.50	88.3	70 - 120	
72	Ge	1	83602.56	0.15	97742.99	85.5	70 - 120	
115	In	2	5509372.00	1.08	6508670.50	84.6	70 - 120	
209	Bi	2	3436368.30	0.83	4337985.50	79.2	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\041CCV1.D\041CCV1.D#

Date Acquired:	Aug 5 2016 03:12 pm	Sample Name:	**CCV1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	203.90	ppb	0.69	200.00	90 -	110	102.0	
9	Be	2	45	199.40	ppb	1.02	200.00	90 -	110	99.7	
11	B	2	45	196.20	ppb	1.62	200.00	90 -	110	98.1	
23	Na	1	45	5300.00	ppb	1.10	5000.00	90 -	110	106.0	
24	Mg	1	45	5048.00	ppb	0.82	5000.00	90 -	110	101.0	
27	Al	1	45	5233.00	ppb	1.07	5000.00	90 -	110	104.7	
39	K	1	45	5149.00	ppb	1.01	5000.00	90 -	110	103.0	
44	Ca	2	45	5390.00	ppb	1.69	5000.00	90 -	110	107.8	
47	Ti	1	45	198.50	ppb	3.52	200.00	90 -	110	99.3	
51	V	1	45	197.90	ppb	0.58	200.00	90 -	110	99.0	
52	Cr	1	45	201.50	ppb	0.56	200.00	90 -	110	100.8	
55	Mn	1	45	203.80	ppb	0.91	200.00	90 -	110	101.9	
56	Fe	1	72	5243.00	ppb	1.03	5000.00	90 -	110	104.9	
59	Co	1	72	207.10	ppb	0.69	200.00	90 -	110	103.6	
60	Ni	1	72	204.30	ppb	0.85	200.00	90 -	110	102.2	
63	Cu	1	72	208.80	ppb	0.85	200.00	90 -	110	104.4	
66	Zn	1	72	197.60	ppb	1.20	200.00	90 -	110	98.8	
75	As	1	72	205.00	ppb	0.65	200.00	90 -	110	102.5	
78	Se	1	72	209.90	ppb	2.54	200.00	90 -	110	105.0	
88	Sr	2	115	209.80	ppb	1.51	200.00	90 -	110	104.9	
95	Mo	2	115	198.60	ppb	1.81	200.00	90 -	110	99.3	
107	Ag	2	115	205.70	ppb	1.43	200.00	90 -	110	102.9	
111	Cd	2	115	201.20	ppb	1.59	200.00	90 -	110	100.6	
118	Sn	2	115	200.00	ppb	1.25	200.00	90 -	110	100.0	
121	Sb	2	115	198.90	ppb	1.33	200.00	90 -	110	99.5	
137	Ba	2	115	199.70	ppb	1.13	200.00	90 -	110	99.9	
205	Tl	2	209	210.00	ppb	0.78	200.00	90 -	110	105.0	
208	Pb	2	209	199.10	ppb	1.15	200.00	90 -	110	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-62773.12	0.33	15.28	-410837.4	70 -	120		ISFail
45	Sc	1	161949.66	0.37	182515.06	88.7	70 -	120		
45	Sc	2	5385562.50	1.41	6126960.50	87.9	70 -	120		
72	Ge	1	84350.12	0.31	97742.99	86.3	70 -	120		
115	In	2	5374916.00	0.94	6508670.50	82.6	70 -	120		
209	Bi	2	3479269.00	1.17	4337985.50	80.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\043LCVL.D\043LCVL.D#

Date Acquired:	Aug 5 2016 03:24 pm	Sample Name:	**LCVL1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.52	ppb	2.04	10.00	70 -	130	105.2	
9	Be	2	45	1.03	ppb	5.32	1.00	70 -	130	103.3	
11	B	2	45	22.36	ppb	0.53	20.00	70 -	130	111.8	
23	Na	1	45	89.51	ppb	0.92	100.00	70 -	130	89.5	
24	Mg	1	45	104.30	ppb	1.74	100.00	70 -	130	104.3	
27	Al	1	45	118.70	ppb	4.84	100.00	70 -	130	118.7	
39	K	1	45	100.50	ppb	1.04	100.00	70 -	130	100.5	
44	Ca	2	45	105.10	ppb	1.46	100.00	70 -	130	105.1	
47	Ti	1	45	5.16	ppb	6.72	5.00	70 -	130	103.1	
51	V	1	45	1.11	ppb	1.46	1.00	70 -	130	110.5	
52	Cr	1	45	5.15	ppb	1.58	5.00	70 -	130	103.0	
55	Mn	1	45	4.90	ppb	3.30	5.00	70 -	130	98.0	
56	Fe	1	72	120.20	ppb	2.43	100.00	70 -	130	120.2	
59	Co	1	72	5.11	ppb	1.46	5.00	70 -	130	102.2	
60	Ni	1	72	5.10	ppb	0.38	5.00	70 -	130	101.9	
63	Cu	1	72	5.06	ppb	1.10	5.00	70 -	130	101.2	
66	Zn	1	72	-8.83	ppb	1.43	5.00	70 -	130	-176.6	Fail
75	As	1	72	5.26	ppb	1.15	5.00	70 -	130	105.2	
78	Se	1	72	5.69	ppb	6.20	5.00	70 -	130	113.7	
88	Sr	2	115	5.18	ppb	2.95	5.00	70 -	130	103.5	
95	Mo	2	115	4.93	ppb	2.60	5.00	70 -	130	98.7	
107	Ag	2	115	2.11	ppb	2.58	2.00	70 -	130	105.5	
111	Cd	2	115	1.12	ppb	9.81	1.00	70 -	130	111.8	
118	Sn	2	115	4.96	ppb	0.89	5.00	70 -	130	99.2	
121	Sb	2	115	2.06	ppb	0.96	2.00	70 -	130	103.1	
137	Ba	2	115	5.10	ppb	1.51	5.00	70 -	130	102.0	
205	Tl	2	209	1.12	ppb	2.59	1.00	70 -	130	112.4	
208	Pb	2	209	1.08	ppb	3.53	1.00	70 -	130	107.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1883.23	4.70	15.28	-12325.4	70 -	120	ISFail
45	Sc	1	163221.86	1.06	182515.06	89.4	70 -	120	
45	Sc	2	5221868.50	1.40	6126960.50	85.2	70 -	120	
72	Ge	1	86139.48	0.87	97742.99	88.1	70 -	120	
115	In	2	5310410.00	0.90	6508670.50	81.6	70 -	120	
209	Bi	2	3526863.80	0.11	4337985.50	81.3	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\044_CCB.D\044_CCB.D#

Date Acquired:	Aug 5 2016 03:31 pm	Sample Name:	**CCB1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.145	ppb	7.84	2.00	2.00	
9	Be	2	45	0.030	ppb	26.71	0.40	0.30	
11	B	2	45	2.047	ppb	1.75	10.00	10.00	
23	Na	1	45	-8.384	ppb	1.48	50.00	#####	
24	Mg	1	45	0.280	ppb	21.27	50.00	#####	
27	Al	1	45	3.829	ppb	1.12	50.00	10.00	
39	K	1	45	-2.470	ppb	3.99	50.00	#####	
44	Ca	2	45	-0.881	ppb	5.31	50.00	#####	
47	Ti	1	45	0.099	ppb	24.74	4.00	3.00	
51	V	1	45	0.066	ppb	5.58	4.00	3.00	
52	Cr	1	45	0.011	ppb	16.35	2.00	2.00	
55	Mn	1	45	-0.113	ppb	13.79	2.00	3.00	
56	Fe	1	72	4.660	ppb	14.35	50.00	30.00	
59	Co	1	72	0.050	ppb	16.06	2.00	3.00	
60	Ni	1	72	-0.016	ppb	0.00	2.00	3.00	
63	Cu	1	72	0.763	ppb	141.30	2.00	2.00	
66	Zn	1	72	-14.010	ppb	11.86	4.00	2.00	
75	As	1	72	-0.019	ppb	8.89	2.00	2.00	
78	Se	1	72	0.131	ppb	9.25	0.60	2.00	
88	Sr	2	115	0.045	ppb	1.40	4.00	3.00	
95	Mo	2	115	0.057	ppb	14.43	2.00	2.00	
107	Ag	2	115	0.037	ppb	14.52	0.40	1.00	
111	Cd	2	115	0.048	ppb	21.16	0.40	0.30	
118	Sn	2	115	-0.061	ppb	13.14	20.00	3.00	
121	Sb	2	115	0.053	ppb	8.33	2.00	0.80	
137	Ba	2	115	0.032	ppb	25.95	2.00	3.00	
205	Tl	2	209	0.078	ppb	13.68	2.00	0.50	
208	Pb	2	209	0.073	ppb	4.30	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-15.34	106.79	15.28	-100.4	70 - 120	ISFail
45	Sc	1		160342.11	0.69	182515.06	87.9	70 - 120	
45	Sc	2		5110273.50	1.49	6126960.50	83.4	70 - 120	
72	Ge	1		85578.78	0.58	97742.99	87.6	70 - 120	
115	In	2		5184991.00	0.47	6508670.50	79.7	70 - 120	
209	Bi	2		3446338.50	0.32	4337985.50	79.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\045SMPL.D\045SMPL.D#

Date Acquired:	Aug 5 2016 03:37 pm	Sample Name:	**1607239-07A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	87.370	ppb	#REF!	1.47	2000.00	>RL
9	Be	2	45	3.067	ppb	#REF!	2.28	2000.00	>RL
11	B	2	45	89.200	ppb	#REF!	0.71	2000.00	>RL
23	Na	1	45	3308.000	ppb	#REF!	2.15	25000.00	>RL
24	Mg	1	45	15710.000	ppb	#REF!	2.08	25000.00	>RL
27	Al	1	45	73120.000	ppb	#REF!	2.61	10000.00	OUTCAL
39	K	1	45	15150.000	ppb	#REF!	1.78	25000.00	>RL
44	Ca	2	45	281400.000	ppb	#REF!	1.58	25000.00	OUTCAL
47	Ti	1	45	186.200	ppb	#REF!	1.70	2000.00	>RL
51	V	1	45	139.900	ppb	#REF!	2.62	2000.00	>RL
52	Cr	1	45	70.590	ppb	#REF!	2.61	2000.00	>RL
55	Mn	1	45	661.200	ppb	#REF!	2.20	2000.00	>RL
56	Fe	1	72	93000.000	ppb	#REF!	2.43	10000.00	OUTCAL
59	Co	1	72	29.450	ppb	#REF!	3.39	2000.00	>RL
60	Ni	1	72	41.550	ppb	#REF!	2.48	2000.00	>RL
63	Cu	1	72	11.630	ppb	#REF!	1.61	2000.00	>RL
66	Zn	1	72	153.200	ppb	#REF!	2.88	2000.00	>RL
75	As	1	72	27.690	ppb	#REF!	1.80	2000.00	>RL
78	Se	1	72	11.160	ppb	#REF!	6.54	2000.00	>RL
88	Sr	2	115	499.000	ppb	#REF!	1.23	2000.00	>RL
95	Mo	2	115	3.376	ppb	#REF!	5.88	2000.00	J
107	Ag	2	115	0.121	ppb	#REF!	6.91	500.00	ND
111	Cd	2	115	1.140	ppb	#REF!	5.54	2000.00	J
118	Sn	2	115	5.869	ppb	#REF!	0.36	2000.00	ND
121	Sb	2	115	0.319	ppb	#REF!	3.76	500.00	ND
137	Ba	2	115	1030.000	ppb	#REF!	0.37	2000.00	>RL
205	Tl	2	209	0.517	ppb	#REF!	2.65	2000.00	ND
208	Pb	2	209	36.350	ppb	#REF!	0.68	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13717.79	1.35	15.28	-89780.2	70 - 120	ISFail
45	Sc	1	167586.14	2.11	182515.06	91.8	70 - 120	
45	Sc	2	5728452.00	1.29	6126960.50	93.5	70 - 120	
72	Ge	1	84538.13	2.23	97742.99	86.5	70 - 120	
115	In	2	5977401.00	0.98	6508670.50	91.8	70 - 120	
209	Bi	2	3579622.80	0.70	4337985.50	82.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\046SMPL.D\046SMPL.D#

Date Acquired:	Aug 5 2016 03:42 pm	Sample Name:	**1607239-08A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	84.240	ppb	#REF!	1.86	2000.00	>RL
9	Be	2	45	2.670	ppb	#REF!	0.59	2000.00	>RL
11	B	2	45	93.040	ppb	#REF!	1.93	2000.00	>RL
23	Na	1	45	3524.000	ppb	#REF!	1.18	25000.00	>RL
24	Mg	1	45	12200.000	ppb	#REF!	0.55	25000.00	>RL
27	Al	1	45	54710.000	ppb	#REF!	1.46	10000.00	OUTCAL
39	K	1	45	14690.000	ppb	#REF!	0.43	25000.00	>RL
44	Ca	2	45	293500.000	ppb	#REF!	2.43	25000.00	OUTCAL
47	Ti	1	45	179.600	ppb	#REF!	2.55	2000.00	>RL
51	V	1	45	90.370	ppb	#REF!	0.15	2000.00	>RL
52	Cr	1	45	68.290	ppb	#REF!	1.12	2000.00	>RL
55	Mn	1	45	404.200	ppb	#REF!	0.87	2000.00	>RL
56	Fe	1	72	79870.000	ppb	#REF!	1.18	10000.00	OUTCAL
59	Co	1	72	24.670	ppb	#REF!	0.82	2000.00	>RL
60	Ni	1	72	35.470	ppb	#REF!	0.71	2000.00	>RL
63	Cu	1	72	9.349	ppb	#REF!	0.40	2000.00	>RL
66	Zn	1	72	139.200	ppb	#REF!	0.83	2000.00	>RL
75	As	1	72	21.960	ppb	#REF!	0.99	2000.00	>RL
78	Se	1	72	9.336	ppb	#REF!	4.84	2000.00	>RL
88	Sr	2	115	796.000	ppb	#REF!	2.35	2000.00	>RL
95	Mo	2	115	3.865	ppb	#REF!	1.65	2000.00	J
107	Ag	2	115	0.112	ppb	#REF!	13.87	500.00	ND
111	Cd	2	115	0.874	ppb	#REF!	1.48	2000.00	J
118	Sn	2	115	5.965	ppb	#REF!	1.72	2000.00	ND
121	Sb	2	115	0.243	ppb	#REF!	7.74	500.00	ND
137	Ba	2	115	673.400	ppb	#REF!	1.62	2000.00	>RL
205	Tl	2	209	0.354	ppb	#REF!	5.20	2000.00	ND
208	Pb	2	209	31.830	ppb	#REF!	1.45	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13759.16	4.65	15.28	-90050.9	70 - 120	ISFail
45	Sc	1	174296.23	0.95	182515.06	95.5	70 - 120	
45	Sc	2	5897386.00	1.97	6126960.50	96.3	70 - 120	
72	Ge	1	87716.09	1.54	97742.99	89.7	70 - 120	
115	In	2	6142138.00	1.68	6508670.50	94.4	70 - 120	
209	Bi	2	3680015.00	1.42	4337985.50	84.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\047SMPL.D\047SMPL.D#

Date Acquired:	Aug 5 2016 03:48 pm	Sample Name:	**1607239-09A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	83.490	ppb	#REF!	2.18	2000.00	>RL
9	Be	2	45	2.764	ppb	#REF!	4.75	2000.00	>RL
11	B	2	45	95.680	ppb	#REF!	2.10	2000.00	>RL
23	Na	1	45	3562.000	ppb	#REF!	1.07	25000.00	>RL
24	Mg	1	45	10220.000	ppb	#REF!	0.82	25000.00	>RL
27	Al	1	45	49240.000	ppb	#REF!	0.94	10000.00	OUTCAL
39	K	1	45	13410.000	ppb	#REF!	0.94	25000.00	>RL
44	Ca	2	45	280000.000	ppb	#REF!	1.49	25000.00	OUTCAL
47	Ti	1	45	148.400	ppb	#REF!	1.23	2000.00	>RL
51	V	1	45	73.880	ppb	#REF!	1.00	2000.00	>RL
52	Cr	1	45	55.370	ppb	#REF!	1.15	2000.00	>RL
55	Mn	1	45	1026.000	ppb	#REF!	1.03	2000.00	>RL
56	Fe	1	72	65430.000	ppb	#REF!	1.15	10000.00	OUTCAL
59	Co	1	72	91.610	ppb	#REF!	0.65	2000.00	>RL
60	Ni	1	72	89.820	ppb	#REF!	0.88	2000.00	>RL
63	Cu	1	72	5.232	ppb	#REF!	1.91	2000.00	J
66	Zn	1	72	159.700	ppb	#REF!	0.63	2000.00	>RL
75	As	1	72	20.530	ppb	#REF!	0.93	2000.00	>RL
78	Se	1	72	16.690	ppb	#REF!	6.48	2000.00	>RL
88	Sr	2	115	1760.000	ppb	#REF!	1.54	2000.00	>RL
95	Mo	2	115	3.299	ppb	#REF!	1.53	2000.00	J
107	Ag	2	115	0.093	ppb	#REF!	9.49	500.00	ND
111	Cd	2	115	0.955	ppb	#REF!	6.61	2000.00	J
118	Sn	2	115	5.739	ppb	#REF!	0.81	2000.00	ND
121	Sb	2	115	0.139	ppb	#REF!	17.68	500.00	ND
137	Ba	2	115	135.600	ppb	#REF!	1.35	2000.00	>RL
205	Tl	2	209	0.354	ppb	#REF!	2.42	2000.00	ND
208	Pb	2	209	20.860	ppb	#REF!	0.83	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13523.94	3.04	15.28	-88511.5	70 - 120	ISFail
45	Sc	1	172787.48	1.34	182515.06	94.7	70 - 120	
45	Sc	2	5946365.50	1.71	6126960.50	97.1	70 - 120	
72	Ge	1	87159.99	0.82	97742.99	89.2	70 - 120	
115	In	2	6071692.50	1.47	6508670.50	93.3	70 - 120	
209	Bi	2	3647268.30	0.92	4337985.50	84.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\048SMPL.D\048SMPL.D#

Date Acquired:	Aug 5 2016 03:54 pm	Sample Name:	**1607239-10A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	91.700	ppb	#REF!	0.84	2000.00	>RL
9	Be	2	45	2.573	ppb	#REF!	2.81	2000.00	>RL
11	B	2	45	129.200	ppb	#REF!	1.14	2000.00	>RL
23	Na	1	45	9876.000	ppb	#REF!	0.75	25000.00	>RL
24	Mg	1	45	12180.000	ppb	#REF!	0.54	25000.00	>RL
27	Al	1	45	67270.000	ppb	#REF!	1.02	10000.00	OUTCAL
39	K	1	45	10140.000	ppb	#REF!	1.06	25000.00	>RL
44	Ca	2	45	234300.000	ppb	#REF!	1.47	25000.00	OUTCAL
47	Ti	1	45	142.000	ppb	#REF!	4.61	2000.00	>RL
51	V	1	45	101.300	ppb	#REF!	0.87	2000.00	>RL
52	Cr	1	45	64.010	ppb	#REF!	1.13	2000.00	>RL
55	Mn	1	45	487.900	ppb	#REF!	1.50	2000.00	>RL
56	Fe	1	72	85050.000	ppb	#REF!	1.23	10000.00	OUTCAL
59	Co	1	72	63.830	ppb	#REF!	1.03	2000.00	>RL
60	Ni	1	72	46.240	ppb	#REF!	0.47	2000.00	>RL
63	Cu	1	72	8.678	ppb	#REF!	0.92	2000.00	>RL
66	Zn	1	72	175.400	ppb	#REF!	0.86	2000.00	>RL
75	As	1	72	29.040	ppb	#REF!	1.19	2000.00	>RL
78	Se	1	72	11.850	ppb	#REF!	2.90	2000.00	>RL
88	Sr	2	115	1354.000	ppb	#REF!	1.92	2000.00	>RL
95	Mo	2	115	2.322	ppb	#REF!	0.27	2000.00	J
107	Ag	2	115	0.084	ppb	#REF!	2.97	500.00	ND
111	Cd	2	115	0.894	ppb	#REF!	7.62	2000.00	J
118	Sn	2	115	6.293	ppb	#REF!	1.12	2000.00	ND
121	Sb	2	115	0.176	ppb	#REF!	7.74	500.00	ND
137	Ba	2	115	955.100	ppb	#REF!	0.69	2000.00	>RL
205	Tl	2	209	0.469	ppb	#REF!	3.14	2000.00	ND
208	Pb	2	209	32.430	ppb	#REF!	1.36	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14260.31	4.25	15.28	-93330.9	70 - 120	ISFail
45	Sc	1	170789.48	0.99	182515.06	93.6	70 - 120	
45	Sc	2	5855945.50	1.86	6126960.50	95.6	70 - 120	
72	Ge	1	85537.61	1.07	97742.99	87.5	70 - 120	
115	In	2	5967338.50	1.75	6508670.50	91.7	70 - 120	
209	Bi	2	3577794.50	1.03	4337985.50	82.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\049SMPL.D\049SMPL.D#

Date Acquired:	Aug 5 2016 04:00 pm	Sample Name:	**1607239-11A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	67.020	ppb	#REF!	2.11	2000.00	>RL
9	Be	2	45	2.716	ppb	#REF!	3.29	2000.00	>RL
11	B	2	45	89.080	ppb	#REF!	2.12	2000.00	>RL
23	Na	1	45	1652.000	ppb	#REF!	0.32	25000.00	>RL
24	Mg	1	45	16620.000	ppb	#REF!	1.05	25000.00	>RL
27	Al	1	45	79470.000	ppb	#REF!	1.44	10000.00	OUTCAL
39	K	1	45	17630.000	ppb	#REF!	0.48	25000.00	>RL
44	Ca	2	45	116300.000	ppb	#REF!	2.06	25000.00	OUTCAL
47	Ti	1	45	278.000	ppb	#REF!	0.70	2000.00	>RL
51	V	1	45	118.400	ppb	#REF!	0.78	2000.00	>RL
52	Cr	1	45	69.420	ppb	#REF!	0.63	2000.00	>RL
55	Mn	1	45	660.700	ppb	#REF!	0.76	2000.00	>RL
56	Fe	1	72	74510.000	ppb	#REF!	0.59	10000.00	OUTCAL
59	Co	1	72	25.580	ppb	#REF!	0.89	2000.00	>RL
60	Ni	1	72	40.170	ppb	#REF!	0.48	2000.00	>RL
63	Cu	1	72	32.680	ppb	#REF!	0.09	2000.00	>RL
66	Zn	1	72	202.300	ppb	#REF!	0.91	2000.00	>RL
75	As	1	72	30.250	ppb	#REF!	1.07	2000.00	>RL
78	Se	1	72	12.520	ppb	#REF!	5.26	2000.00	>RL
88	Sr	2	115	426.900	ppb	#REF!	1.57	2000.00	>RL
95	Mo	2	115	2.608	ppb	#REF!	4.64	2000.00	J
107	Ag	2	115	0.205	ppb	#REF!	7.59	500.00	ND
111	Cd	2	115	1.094	ppb	#REF!	7.08	2000.00	J
118	Sn	2	115	6.122	ppb	#REF!	2.45	2000.00	ND
121	Sb	2	115	7.665	ppb	#REF!	2.02	500.00	>RL
137	Ba	2	115	461.800	ppb	#REF!	1.78	2000.00	>RL
205	Tl	2	209	0.646	ppb	#REF!	2.10	2000.00	ND
208	Pb	2	209	582.700	ppb	#REF!	1.25	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10152.90	3.10	15.28	-66448.7	70 - 120	ISFail
45	Sc	1	166139.73	0.72	182515.06	91.0	70 - 120	
45	Sc	2	5478044.00	2.51	6126960.50	89.4	70 - 120	
72	Ge	1	84275.91	0.71	97742.99	86.2	70 - 120	
115	In	2	5485674.50	1.82	6508670.50	84.3	70 - 120	
209	Bi	2	3411328.30	1.38	4337985.50	78.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\051SMPL.D\051SMPL.D#

Date Acquired:	Aug 5 2016 04:12 pm	Sample Name:	**1607239-12A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	71.840	ppb	#REF!	1.35	2000.00	>RL
9	Be	2	45	2.250	ppb	#REF!	1.88	2000.00	>RL
11	B	2	45	80.410	ppb	#REF!	1.87	2000.00	>RL
23	Na	1	45	4458.000	ppb	#REF!	0.99	25000.00	>RL
24	Mg	1	45	13220.000	ppb	#REF!	1.23	25000.00	>RL
27	Al	1	45	67580.000	ppb	#REF!	1.59	10000.00	OUTCAL
39	K	1	45	11250.000	ppb	#REF!	1.01	25000.00	>RL
44	Ca	2	45	416100.000	ppb	#REF!	1.84	25000.00	OUTCAL
47	Ti	1	45	199.200	ppb	#REF!	1.87	2000.00	>RL
51	V	1	45	114.400	ppb	#REF!	2.18	2000.00	>RL
52	Cr	1	45	62.540	ppb	#REF!	1.49	2000.00	>RL
55	Mn	1	45	515.600	ppb	#REF!	1.06	2000.00	>RL
56	Fe	1	72	75430.000	ppb	#REF!	1.38	10000.00	OUTCAL
59	Co	1	72	24.430	ppb	#REF!	1.22	2000.00	>RL
60	Ni	1	72	35.370	ppb	#REF!	1.21	2000.00	>RL
63	Cu	1	72	11.540	ppb	#REF!	2.63	2000.00	>RL
66	Zn	1	72	131.000	ppb	#REF!	1.51	2000.00	>RL
75	As	1	72	25.860	ppb	#REF!	1.81	2000.00	>RL
78	Se	1	72	11.050	ppb	#REF!	6.42	2000.00	>RL
88	Sr	2	115	1096.000	ppb	#REF!	1.76	2000.00	>RL
95	Mo	2	115	3.027	ppb	#REF!	2.07	2000.00	J
107	Ag	2	115	0.117	ppb	#REF!	6.70	500.00	ND
111	Cd	2	115	1.080	ppb	#REF!	6.51	2000.00	J
118	Sn	2	115	5.871	ppb	#REF!	2.08	2000.00	ND
121	Sb	2	115	0.537	ppb	#REF!	4.04	500.00	ND
137	Ba	2	115	588.200	ppb	#REF!	1.84	2000.00	>RL
205	Tl	2	209	0.463	ppb	#REF!	4.23	2000.00	ND
208	Pb	2	209	52.480	ppb	#REF!	1.28	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10063.62	4.78	15.28	-65864.4	70 - 120	ISFail
45	Sc	1	158866.64	1.29	182515.06	87.0	70 - 120	
45	Sc	2	5407447.50	1.39	6126960.50	88.3	70 - 120	
72	Ge	1	79672.52	1.08	97742.99	81.5	70 - 120	
115	In	2	5664689.50	1.23	6508670.50	87.0	70 - 120	
209	Bi	2	3332091.30	0.17	4337985.50	76.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\052SMPL.D\052SMPL.D#

Date Acquired:	Aug 5 2016 04:18 pm	Sample Name:	**1607239-13A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	88.970	ppb	#REF!	2.01	2000.00	>RL
9	Be	2	45	3.031	ppb	#REF!	0.44	2000.00	>RL
11	B	2	45	100.800	ppb	#REF!	0.90	2000.00	>RL
23	Na	1	45	3762.000	ppb	#REF!	0.93	25000.00	>RL
24	Mg	1	45	13640.000	ppb	#REF!	0.52	25000.00	>RL
27	Al	1	45	61460.000	ppb	#REF!	0.89	10000.00	OUTCAL
39	K	1	45	16660.000	ppb	#REF!	0.36	25000.00	>RL
44	Ca	2	45	235700.000	ppb	#REF!	2.06	25000.00	OUTCAL
47	Ti	1	45	214.300	ppb	#REF!	1.89	2000.00	>RL
51	V	1	45	112.700	ppb	#REF!	0.91	2000.00	>RL
52	Cr	1	45	73.800	ppb	#REF!	1.53	2000.00	>RL
55	Mn	1	45	456.200	ppb	#REF!	1.15	2000.00	>RL
56	Fe	1	72	89140.000	ppb	#REF!	1.37	10000.00	OUTCAL
59	Co	1	72	26.170	ppb	#REF!	0.96	2000.00	>RL
60	Ni	1	72	37.560	ppb	#REF!	0.55	2000.00	>RL
63	Cu	1	72	8.946	ppb	#REF!	1.51	2000.00	>RL
66	Zn	1	72	160.500	ppb	#REF!	1.20	2000.00	>RL
75	As	1	72	23.730	ppb	#REF!	0.95	2000.00	>RL
78	Se	1	72	11.530	ppb	#REF!	4.39	2000.00	>RL
88	Sr	2	115	844.600	ppb	#REF!	1.69	2000.00	>RL
95	Mo	2	115	3.002	ppb	#REF!	3.12	2000.00	J
107	Ag	2	115	0.118	ppb	#REF!	6.21	500.00	ND
111	Cd	2	115	0.959	ppb	#REF!	6.31	2000.00	J
118	Sn	2	115	5.814	ppb	#REF!	1.96	2000.00	ND
121	Sb	2	115	0.295	ppb	#REF!	10.65	500.00	ND
137	Ba	2	115	1335.000	ppb	#REF!	1.04	2000.00	>RL
205	Tl	2	209	0.369	ppb	#REF!	5.01	2000.00	ND
208	Pb	2	209	29.180	ppb	#REF!	1.41	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12836.13	1.68	15.28	-84009.9	70 - 120	ISFail
45	Sc	1	158507.39	1.12	182515.06	86.8	70 - 120	
45	Sc	2	5365298.50	1.63	6126960.50	87.6	70 - 120	
72	Ge	1	80717.31	0.82	97742.99	82.6	70 - 120	
115	In	2	5521787.00	1.21	6508670.50	84.8	70 - 120	
209	Bi	2	3328096.50	0.75	4337985.50	76.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\053SMPL.D\053SMPL.D#

Date Acquired:	Aug 5 2016 04:24 pm	Sample Name:	**1607239-14A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	104.800	ppb	#REF!	1.64	2000.00	>RL
9	Be	2	45	3.006	ppb	#REF!	0.64	2000.00	>RL
11	B	2	45	115.100	ppb	#REF!	2.09	2000.00	>RL
23	Na	1	45	5189.000	ppb	#REF!	1.45	25000.00	>RL
24	Mg	1	45	13200.000	ppb	#REF!	1.54	25000.00	>RL
27	Al	1	45	57580.000	ppb	#REF!	1.60	10000.00	OUTCAL
39	K	1	45	17030.000	ppb	#REF!	1.33	25000.00	>RL
44	Ca	2	45	104700.000	ppb	#REF!	1.83	25000.00	OUTCAL
47	Ti	1	45	151.700	ppb	#REF!	4.44	2000.00	>RL
51	V	1	45	92.220	ppb	#REF!	1.85	2000.00	>RL
52	Cr	1	45	73.120	ppb	#REF!	1.15	2000.00	>RL
55	Mn	1	45	182.000	ppb	#REF!	1.07	2000.00	>RL
56	Fe	1	72	84950.000	ppb	#REF!	1.33	10000.00	OUTCAL
59	Co	1	72	20.180	ppb	#REF!	1.07	2000.00	>RL
60	Ni	1	72	31.460	ppb	#REF!	0.91	2000.00	>RL
63	Cu	1	72	5.852	ppb	#REF!	1.61	2000.00	J
66	Zn	1	72	153.600	ppb	#REF!	1.44	2000.00	>RL
75	As	1	72	20.610	ppb	#REF!	1.57	2000.00	>RL
78	Se	1	72	10.380	ppb	#REF!	1.06	2000.00	>RL
88	Sr	2	115	416.300	ppb	#REF!	1.60	2000.00	>RL
95	Mo	2	115	1.424	ppb	#REF!	5.91	2000.00	ND
107	Ag	2	115	0.112	ppb	#REF!	4.42	500.00	ND
111	Cd	2	115	0.758	ppb	#REF!	18.95	2000.00	J
118	Sn	2	115	5.920	ppb	#REF!	1.34	2000.00	ND
121	Sb	2	115	0.140	ppb	#REF!	9.55	500.00	ND
137	Ba	2	115	605.600	ppb	#REF!	1.03	2000.00	>RL
205	Tl	2	209	0.287	ppb	#REF!	8.10	2000.00	ND
208	Pb	2	209	24.180	ppb	#REF!	1.62	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15213.78	0.77	15.28	-99571.2	70 - 120	ISFail
45	Sc	1	157174.14	1.04	182515.06	86.1	70 - 120	
45	Sc	2	5199479.00	0.81	6126960.50	84.9	70 - 120	
72	Ge	1	80414.88	1.08	97742.99	82.3	70 - 120	
115	In	2	5248728.50	0.78	6508670.50	80.6	70 - 120	
209	Bi	2	3232043.50	0.73	4337985.50	74.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\054SMPL.D\054SMPL.D#

Date Acquired:	Aug 5 2016 04:30 pm	Sample Name:	**1607239-15A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	85.450	ppb	#REF!	1.72	2000.00	>RL
9	Be	2	45	3.838	ppb	#REF!	3.32	2000.00	>RL
11	B	2	45	121.200	ppb	#REF!	2.78	2000.00	>RL
23	Na	1	45	10200.000	ppb	#REF!	0.93	25000.00	>RL
24	Mg	1	45	11580.000	ppb	#REF!	1.52	25000.00	>RL
27	Al	1	45	59770.000	ppb	#REF!	2.39	10000.00	OUTCAL
39	K	1	45	9810.000	ppb	#REF!	1.08	25000.00	>RL
44	Ca	2	45	261800.000	ppb	#REF!	1.94	25000.00	OUTCAL
47	Ti	1	45	121.500	ppb	#REF!	2.36	2000.00	>RL
51	V	1	45	92.460	ppb	#REF!	0.73	2000.00	>RL
52	Cr	1	45	56.600	ppb	#REF!	1.44	2000.00	>RL
55	Mn	1	45	1017.000	ppb	#REF!	1.54	2000.00	>RL
56	Fe	1	72	122100.000	ppb	#REF!	1.51	10000.00	OUTCAL
59	Co	1	72	96.690	ppb	#REF!	2.01	2000.00	>RL
60	Ni	1	72	116.400	ppb	#REF!	1.64	2000.00	>RL
63	Cu	1	72	9.974	ppb	#REF!	2.03	2000.00	>RL
66	Zn	1	72	280.000	ppb	#REF!	1.09	2000.00	>RL
75	As	1	72	53.030	ppb	#REF!	1.06	2000.00	>RL
78	Se	1	72	49.320	ppb	#REF!	0.99	2000.00	>RL
88	Sr	2	115	1802.000	ppb	#REF!	1.05	2000.00	>RL
95	Mo	2	115	4.414	ppb	#REF!	0.97	2000.00	J
107	Ag	2	115	0.083	ppb	#REF!	4.52	500.00	ND
111	Cd	2	115	1.594	ppb	#REF!	4.27	2000.00	>RL
118	Sn	2	115	6.003	ppb	#REF!	3.09	2000.00	ND
121	Sb	2	115	0.314	ppb	#REF!	8.70	500.00	ND
137	Ba	2	115	750.100	ppb	#REF!	1.28	2000.00	>RL
205	Tl	2	209	0.535	ppb	#REF!	3.57	2000.00	ND
208	Pb	2	209	46.630	ppb	#REF!	0.99	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11928.60	5.41	RHigh	15.28	-78070.3	70 - 120	ISFail
45	Sc	1	151476.27	1.26		182515.06	83.0	70 - 120	
45	Sc	2	5207267.50	1.44		6126960.50	85.0	70 - 120	
72	Ge	1	77272.23	1.28		97742.99	79.1	70 - 120	
115	In	2	5361592.50	1.52		6508670.50	82.4	70 - 120	
209	Bi	2	3223069.30	1.06		4337985.50	74.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\055SMPL.D\055SMPL.D#

Date Acquired:	Aug 5 2016 04:36 pm	Sample Name:	**1607239-17A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	67.460	ppb	#REF!	2.21	2000.00	>RL
9	Be	2	45	2.767	ppb	#REF!	4.43	2000.00	>RL
11	B	2	45	112.600	ppb	#REF!	1.53	2000.00	>RL
23	Na	1	45	5498.000	ppb	#REF!	1.26	25000.00	>RL
24	Mg	1	45	17400.000	ppb	#REF!	0.86	25000.00	>RL
27	Al	1	45	83660.000	ppb	#REF!	0.56	10000.00	OUTCAL
39	K	1	45	19040.000	ppb	#REF!	0.98	25000.00	>RL
44	Ca	2	45	138700.000	ppb	#REF!	2.11	25000.00	OUTCAL
47	Ti	1	45	247.900	ppb	#REF!	1.33	2000.00	>RL
51	V	1	45	120.800	ppb	#REF!	0.29	2000.00	>RL
52	Cr	1	45	72.920	ppb	#REF!	0.62	2000.00	>RL
55	Mn	1	45	601.800	ppb	#REF!	0.39	2000.00	>RL
56	Fe	1	72	115600.000	ppb	#REF!	0.69	10000.00	OUTCAL
59	Co	1	72	22.220	ppb	#REF!	0.90	2000.00	>RL
60	Ni	1	72	38.290	ppb	#REF!	0.68	2000.00	>RL
63	Cu	1	72	28.840	ppb	#REF!	0.85	2000.00	>RL
66	Zn	1	72	184.700	ppb	#REF!	0.19	2000.00	>RL
75	As	1	72	37.940	ppb	#REF!	1.10	2000.00	>RL
78	Se	1	72	11.870	ppb	#REF!	5.91	2000.00	>RL
88	Sr	2	115	944.300	ppb	#REF!	2.33	2000.00	>RL
95	Mo	2	115	4.985	ppb	#REF!	1.99	2000.00	J
107	Ag	2	115	0.209	ppb	#REF!	11.17	500.00	ND
111	Cd	2	115	1.277	ppb	#REF!	11.28	2000.00	>RL
118	Sn	2	115	6.984	ppb	#REF!	2.77	2000.00	ND
121	Sb	2	115	4.824	ppb	#REF!	1.76	500.00	>RL
137	Ba	2	115	347.500	ppb	#REF!	1.67	2000.00	>RL
205	Tl	2	209	0.610	ppb	#REF!	2.60	2000.00	ND
208	Pb	2	209	527.900	ppb	#REF!	1.86	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8908.43	1.79	15.28	-58303.9	70 - 120	ISFail
45	Sc	1	147504.16	0.32	182515.06	80.8	70 - 120	
45	Sc	2	4795482.50	1.14	6126960.50	78.3	70 - 120	
72	Ge	1	75560.77	0.17	97742.99	77.3	70 - 120	
115	In	2	4839511.00	0.74	6508670.50	74.4	70 - 120	
209	Bi	2	3021339.00	1.20	4337985.50	69.6	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\057CCV1.D\057CCV1.D#

Date Acquired:	Aug 5 2016 04:48 pm	Sample Name:	**CCV2-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	204.50	ppb	0.21	200.00	90 -	110	102.3	
9	Be	2	45	193.50	ppb	1.27	200.00	90 -	110	96.8	
11	B	2	45	184.10	ppb	2.02	200.00	90 -	110	92.1	
23	Na	1	45	5213.00	ppb	0.14	5000.00	90 -	110	104.3	
24	Mg	1	45	4990.00	ppb	0.70	5000.00	90 -	110	99.8	
27	Al	1	45	5154.00	ppb	1.19	5000.00	90 -	110	103.1	
39	K	1	45	5181.00	ppb	0.51	5000.00	90 -	110	103.6	
44	Ca	2	45	5413.00	ppb	1.44	5000.00	90 -	110	108.3	
47	Ti	1	45	199.20	ppb	0.97	200.00	90 -	110	99.6	
51	V	1	45	197.20	ppb	0.41	200.00	90 -	110	98.6	
52	Cr	1	45	201.00	ppb	0.57	200.00	90 -	110	100.5	
55	Mn	1	45	203.50	ppb	0.82	200.00	90 -	110	101.8	
56	Fe	1	72	5181.00	ppb	0.81	5000.00	90 -	110	103.6	
59	Co	1	72	204.40	ppb	0.39	200.00	90 -	110	102.2	
60	Ni	1	72	201.00	ppb	0.46	200.00	90 -	110	100.5	
63	Cu	1	72	206.70	ppb	0.30	200.00	90 -	110	103.4	
66	Zn	1	72	194.20	ppb	1.44	200.00	90 -	110	97.1	
75	As	1	72	204.80	ppb	0.25	200.00	90 -	110	102.4	
78	Se	1	72	213.90	ppb	1.15	200.00	90 -	110	107.0	
88	Sr	2	115	211.20	ppb	1.48	200.00	90 -	110	105.6	
95	Mo	2	115	199.00	ppb	1.47	200.00	90 -	110	99.5	
107	Ag	2	115	204.70	ppb	1.12	200.00	90 -	110	102.4	
111	Cd	2	115	200.40	ppb	1.17	200.00	90 -	110	100.2	
118	Sn	2	115	198.60	ppb	0.72	200.00	90 -	110	99.3	
121	Sb	2	115	195.90	ppb	1.15	200.00	90 -	110	98.0	
137	Ba	2	115	199.40	ppb	0.68	200.00	90 -	110	99.7	
205	Tl	2	209	197.40	ppb	0.97	200.00	90 -	110	98.7	
208	Pb	2	209	197.80	ppb	0.49	200.00	90 -	110	98.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-52587.95	0.47	15.28	-344177.6	70 -	120		ISFail
45	Sc	1	135803.44	0.37	182515.06	74.4	70 -	120		
45	Sc	2	4400504.00	0.62	6126960.50	71.8	70 -	120		
72	Ge	1	71211.27	0.70	97742.99	72.9	70 -	120		
115	In	2	4310293.50	1.03	6508670.50	66.2	70 -	120		ISFail
209	Bi	2	2819500.30	0.44	4337985.50	65.0	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\058_CCB.D\058_CCB.D#

Date Acquired:	Aug 5 2016 04:54 pm	Sample Name:	**CCB2-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.274	ppb	6.50	2.00	2.00	
9	Be	2	45	0.158	ppb	13.85	0.40	0.30	
11	B	2	45	2.775	ppb	4.36	10.00	10.00	
23	Na	1	45	1.341	ppb	2.43	50.00	#####	
24	Mg	1	45	7.112	ppb	6.68	50.00	#####	
27	Al	1	45	14.080	ppb	12.02	50.00	10.00	FailAq
39	K	1	45	7.231	ppb	3.62	50.00	#####	
44	Ca	2	45	24.060	ppb	4.55	50.00	#####	
47	Ti	1	45	0.332	ppb	10.83	4.00	3.00	
51	V	1	45	0.221	ppb	7.31	4.00	3.00	
52	Cr	1	45	0.196	ppb	11.89	2.00	2.00	
55	Mn	1	45	0.290	ppb	8.37	2.00	3.00	
56	Fe	1	72	19.940	ppb	7.78	50.00	30.00	
59	Co	1	72	0.187	ppb	10.53	2.00	3.00	
60	Ni	1	72	0.162	ppb	8.45	2.00	3.00	
63	Cu	1	72	0.128	ppb	4.18	2.00	2.00	
66	Zn	1	72	-13.680	ppb	6.05	4.00	2.00	
75	As	1	72	0.121	ppb	2.53	2.00	2.00	
78	Se	1	72	0.437	ppb	4.97	0.60	2.00	
88	Sr	2	115	0.307	ppb	6.15	4.00	3.00	
95	Mo	2	115	0.261	ppb	9.52	2.00	2.00	
107	Ag	2	115	0.148	ppb	8.16	0.40	1.00	
111	Cd	2	115	0.164	ppb	21.11	0.40	0.30	
118	Sn	2	115	0.096	ppb	2.61	20.00	3.00	
121	Sb	2	115	0.229	ppb	1.41	2.00	0.80	
137	Ba	2	115	0.183	ppb	13.09	2.00	3.00	
205	Tl	2	209	0.314	ppb	2.03	2.00	0.50	
208	Pb	2	209	0.250	ppb	5.15	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-45.90	51.24	15.28	-300.4	70 - 120	ISFail
45	Sc	1		132871.17	0.60	182515.06	72.8	70 - 120	
45	Sc	2		4152631.00	1.21	6126960.50	67.8	70 - 120	ISFail
72	Ge	1		70954.86	0.48	97742.99	72.6	70 - 120	
115	In	2		4094570.80	0.32	6508670.50	62.9	70 - 120	ISFail
209	Bi	2		2736779.80	0.45	4337985.50	63.1	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\059LCVL.D\059LCVL.D#

Date Acquired:	Aug 5 2016 05:00 pm	Sample Name:	**LCVL2-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.12	ppb	2.17	10.00	70 -	130	101.2	
9	Be	2	45	0.99	ppb	6.49	1.00	70 -	130	98.5	
11	B	2	45	20.14	ppb	1.65	20.00	70 -	130	100.7	
23	Na	1	45	90.03	ppb	2.08	100.00	70 -	130	90.0	
24	Mg	1	45	101.20	ppb	0.35	100.00	70 -	130	101.2	
27	Al	1	45	107.20	ppb	0.95	100.00	70 -	130	107.2	
39	K	1	45	105.10	ppb	1.16	100.00	70 -	130	105.1	
44	Ca	2	45	99.98	ppb	2.49	100.00	70 -	130	100.0	
47	Ti	1	45	4.97	ppb	20.74	5.00	70 -	130	99.5	
51	V	1	45	1.06	ppb	2.89	1.00	70 -	130	105.7	
52	Cr	1	45	5.13	ppb	2.69	5.00	70 -	130	102.5	
55	Mn	1	45	4.80	ppb	1.15	5.00	70 -	130	96.0	
56	Fe	1	72	112.70	ppb	1.17	100.00	70 -	130	112.7	
59	Co	1	72	5.09	ppb	0.56	5.00	70 -	130	101.8	
60	Ni	1	72	5.05	ppb	3.32	5.00	70 -	130	101.0	
63	Cu	1	72	5.11	ppb	1.76	5.00	70 -	130	102.1	
66	Zn	1	72	-8.61	ppb	2.41	5.00	70 -	130	-172.2	Fail
75	As	1	72	5.19	ppb	0.30	5.00	70 -	130	103.9	
78	Se	1	72	5.86	ppb	2.84	5.00	70 -	130	117.1	
88	Sr	2	115	5.21	ppb	2.80	5.00	70 -	130	104.2	
95	Mo	2	115	4.90	ppb	3.68	5.00	70 -	130	98.1	
107	Ag	2	115	2.08	ppb	3.82	2.00	70 -	130	104.2	
111	Cd	2	115	1.03	ppb	6.47	1.00	70 -	130	102.5	
118	Sn	2	115	4.91	ppb	1.54	5.00	70 -	130	98.2	
121	Sb	2	115	2.01	ppb	1.59	2.00	70 -	130	100.5	
137	Ba	2	115	4.99	ppb	2.48	5.00	70 -	130	99.9	
205	Tl	2	209	1.08	ppb	3.17	1.00	70 -	130	108.2	
208	Pb	2	209	1.05	ppb	3.45	1.00	70 -	130	105.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1463.73	4.20	15.28	-9579.8	70 -	120	ISFail
45	Sc	1	130949.37	0.17	182515.06	71.7	70 -	120	
45	Sc	2	4105053.00	1.51	6126960.50	67.0	70 -	120	ISFail
72	Ge	1	70216.88	0.73	97742.99	71.8	70 -	120	
115	In	2	4011011.30	0.84	6508670.50	61.6	70 -	120	ISFail
209	Bi	2	2712062.00	0.32	4337985.50	62.5	70 -	120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\060__PB.D\060__PB.D#

Date Acquired:	Aug 5 2016 05:06 pm	Sample Name:	MB-76623
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.090	ppb	9.79	2.0	8.00	
9	Be	2	45	-0.005	ppb	79.57	0.4	1.20	
11	B	2	45	1.574	ppb	8.91	10.0	30.00	
23	Na	1	45	-8.816	ppb	0.90	50.0	#####	
24	Mg	1	45	1.309	ppb	14.04	50.0	#####	
27	Al	1	45	3.201	ppb	6.96	50.0	#####	
39	K	1	45	0.178	ppb	2.58	50.0	#####	
44	Ca	2	45	3.723	ppb	7.66	50.0	#####	
47	Ti	1	45	0.200	ppb	91.64	4.0	10.00	
51	V	1	45	0.038	ppb	1.90	4.0	10.00	
52	Cr	1	45	0.125	ppb	3.73	2.0	8.00	
55	Mn	1	45	-0.187	ppb	7.66	2.0	8.00	
56	Fe	1	72	5.277	ppb	6.71	50.0	#####	
59	Co	1	72	0.018	ppb	26.85	2.0	8.00	
60	Ni	1	72	-0.013	ppb	2.50	2.0	8.00	
63	Cu	1	72	-0.146	ppb	10.18	2.0	8.00	
66	Zn	1	72	-13.840	ppb	25.14	4.0	10.00	
75	As	1	72	-0.075	ppb	2.58	2.0	4.00	
78	Se	1	72	0.294	ppb	8.94	0.6	2.00	
88	Sr	2	115	0.059	ppb	19.63	4.0	10.00	
95	Mo	2	115	0.046	ppb	36.45	2.0	8.00	
107	Ag	2	115	0.018	ppb	30.20	0.4	0.80	
111	Cd	2	115	0.016	ppb	45.28	0.4	1.20	
118	Sn	2	115	4.429	ppb	3.71	20.0	40.00	
121	Sb	2	115	0.020	ppb	2.34	2.0	4.00	
137	Ba	2	115	0.036	ppb	37.24	2.0	8.00	
205	Tl	2	209	0.052	ppb	16.89	2.0	4.00	
208	Pb	2	209	0.068	ppb	13.57	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-17.25	72.02	15.28	-112.9	70 - 120	ISFail
45	Sc	1		130078.78	0.39	182515.06	71.3	70 - 120	
45	Sc	2		4057646.00	1.07	6126960.50	66.2	70 - 120	ISFail
72	Ge	1		68394.40	0.51	97742.99	70.0	70 - 120	ISFail
115	In	2		3917343.80	0.37	6508670.50	60.2	70 - 120	ISFail
209	Bi	2		2660415.00	0.69	4337985.50	61.3	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\061_LCS.D\061_LCS.D#

Date Acquired:	Aug 5 2016 05:12 pm	Sample Name:	**LCS-76623**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	194.70	ppb	1.97	200.00	80 -	120	97.4	
9	Be	2	45	179.00	ppb	1.06	200.00	80 -	120	89.5	
11	B	2	45	172.10	ppb	1.44	200.00	80 -	120	86.1	
23	Na	1	45	5044.00	ppb	0.30	5000.00	80 -	120	100.9	
24	Mg	1	45	4834.00	ppb	0.62	5000.00	80 -	120	96.7	
27	Al	1	45	1016.00	ppb	1.74	1000.00	80 -	120	101.6	
39	K	1	45	5079.00	ppb	0.74	5000.00	80 -	120	101.6	
44	Ca	2	45	5194.00	ppb	1.59	5000.00	80 -	120	103.9	
47	Ti	1	45	189.50	ppb	2.35	200.00	80 -	120	94.8	
51	V	1	45	191.50	ppb	0.44	200.00	80 -	120	95.8	
52	Cr	1	45	194.50	ppb	0.81	200.00	80 -	120	97.3	
55	Mn	1	45	199.70	ppb	0.76	200.00	80 -	120	99.9	
56	Fe	1	72	997.60	ppb	0.58	1000.00	80 -	120	99.8	
59	Co	1	72	196.60	ppb	0.57	200.00	80 -	120	98.3	
60	Ni	1	72	193.00	ppb	0.23	200.00	80 -	120	96.5	
63	Cu	1	72	197.20	ppb	0.25	200.00	80 -	120	98.6	
66	Zn	1	72	181.70	ppb	0.83	200.00	80 -	120	90.9	
75	As	1	72	192.20	ppb	0.72	200.00	80 -	120	96.1	
78	Se	1	72	194.10	ppb	0.89	200.00	80 -	120	97.1	
88	Sr	2	115	203.40	ppb	1.91	200.00	80 -	120	101.7	
95	Mo	2	115	192.90	ppb	1.74	200.00	80 -	120	96.5	
107	Ag	2	115	193.80	ppb	1.56	200.00	80 -	120	96.9	
111	Cd	2	115	188.00	ppb	1.83	200.00	80 -	120	94.0	
118	Sn	2	115	197.70	ppb	1.00	200.00	80 -	120	98.9	
121	Sb	2	115	183.80	ppb	0.82	200.00	80 -	120	91.9	
137	Ba	2	115	194.20	ppb	1.24	200.00	80 -	120	97.1	
205	Tl	2	209	192.30	ppb	1.19	200.00	80 -	120	96.2	
208	Pb	2	209	192.20	ppb	1.16	200.00	80 -	120	96.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-45472.61	2.83	15.28	-297609.1	70 -	120	ISFail
45	Sc	1	127024.15	0.63	182515.06	69.6	70 -	120	ISFail
45	Sc	2	3955222.80	1.13	6126960.50	64.6	70 -	120	ISFail
72	Ge	1	66741.87	0.70	97742.99	68.3	70 -	120	ISFail
115	In	2	3786410.30	0.88	6508670.50	58.2	70 -	120	ISFail
209	Bi	2	2512484.50	0.66	4337985.50	57.9	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\062_LCS.D\062_LCS.D#

Date Acquired:	Aug 5 2016 05:18 pm	Sample Name:	**LCSD-76623**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	192.80	ppb	2.08	200.00	80 -	120	96.4	
9	Be	2	45	177.30	ppb	1.65	200.00	80 -	120	88.7	
11	B	2	45	173.30	ppb	1.19	200.00	80 -	120	86.7	
23	Na	1	45	4993.00	ppb	1.66	5000.00	80 -	120	99.9	
24	Mg	1	45	4787.00	ppb	0.49	5000.00	80 -	120	95.7	
27	Al	1	45	1015.00	ppb	1.34	1000.00	80 -	120	101.5	
39	K	1	45	5040.00	ppb	0.30	5000.00	80 -	120	100.8	
44	Ca	2	45	5176.00	ppb	2.10	5000.00	80 -	120	103.5	
47	Ti	1	45	191.60	ppb	2.48	200.00	80 -	120	95.8	
51	V	1	45	189.90	ppb	1.06	200.00	80 -	120	95.0	
52	Cr	1	45	192.50	ppb	0.30	200.00	80 -	120	96.3	
55	Mn	1	45	198.80	ppb	0.54	200.00	80 -	120	99.4	
56	Fe	1	72	993.30	ppb	0.64	1000.00	80 -	120	99.3	
59	Co	1	72	195.00	ppb	0.36	200.00	80 -	120	97.5	
60	Ni	1	72	191.30	ppb	0.45	200.00	80 -	120	95.7	
63	Cu	1	72	195.70	ppb	0.28	200.00	80 -	120	97.9	
66	Zn	1	72	181.30	ppb	1.38	200.00	80 -	120	90.7	
75	As	1	72	191.20	ppb	0.41	200.00	80 -	120	95.6	
78	Se	1	72	196.20	ppb	1.38	200.00	80 -	120	98.1	
88	Sr	2	115	204.10	ppb	1.89	200.00	80 -	120	102.1	
95	Mo	2	115	193.20	ppb	1.14	200.00	80 -	120	96.6	
107	Ag	2	115	197.30	ppb	1.71	200.00	80 -	120	98.7	
111	Cd	2	115	187.50	ppb	1.31	200.00	80 -	120	93.8	
118	Sn	2	115	198.50	ppb	1.48	200.00	80 -	120	99.3	
121	Sb	2	115	186.70	ppb	0.82	200.00	80 -	120	93.4	
137	Ba	2	115	195.00	ppb	1.45	200.00	80 -	120	97.5	
205	Tl	2	209	191.50	ppb	1.00	200.00	80 -	120	95.8	
208	Pb	2	209	191.70	ppb	1.00	200.00	80 -	120	95.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-44084.74	3.33	15.28	-288525.7	70 -	120	ISFail
45	Sc	1	127009.59	0.52	182515.06	69.6	70 -	120	ISFail
45	Sc	2	3891415.00	1.35	6126960.50	63.5	70 -	120	ISFail
72	Ge	1	66390.02	0.77	97742.99	67.9	70 -	120	ISFail
115	In	2	3699871.50	0.39	6508670.50	56.8	70 -	120	ISFail
209	Bi	2	2481514.80	0.64	4337985.50	57.2	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\064AREF.D\064AREF.D#

Date Acquired:	Aug 5 2016 05:30 pm	Sample Name:	**1607239-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	118.500	ppb	#REF!	1.50	2000.00	>RL
9	Be	2	45	3.349	ppb	#REF!	2.93	2000.00	>RL
11	B	2	45	130.300	ppb	#REF!	1.08	2000.00	>RL
23	Na	1	45	9974.000	ppb	#REF!	1.16	25000.00	>RL
24	Mg	1	45	24950.000	ppb	#REF!	1.21	25000.00	>RL
27	Al	1	45	71080.000	ppb	#REF!	0.62	10000.00	OUTCAL
39	K	1	45	18280.000	ppb	#REF!	0.30	25000.00	>RL
44	Ca	2	45	41800.000	ppb	#REF!	1.73	25000.00	OUTCAL
47	Ti	1	45	167.000	ppb	#REF!	2.60	2000.00	>RL
51	V	1	45	110.900	ppb	#REF!	0.49	2000.00	>RL
52	Cr	1	45	73.810	ppb	#REF!	1.00	2000.00	>RL
55	Mn	1	45	1935.000	ppb	#REF!	0.32	2000.00	>RL
56	Fe	1	72	134600.000	ppb	#REF!	0.64	10000.00	OUTCAL
59	Co	1	72	36.910	ppb	#REF!	0.61	2000.00	>RL
60	Ni	1	72	51.040	ppb	#REF!	0.49	2000.00	>RL
63	Cu	1	72	10.680	ppb	#REF!	1.96	2000.00	>RL
66	Zn	1	72	244.900	ppb	#REF!	0.36	2000.00	>RL
75	As	1	72	26.490	ppb	#REF!	1.03	2000.00	>RL
78	Se	1	72	17.010	ppb	#REF!	1.65	2000.00	>RL
88	Sr	2	115	135.600	ppb	#REF!	1.65	2000.00	>RL
95	Mo	2	115	1.051	ppb	#REF!	6.76	2000.00	ND
107	Ag	2	115	0.182	ppb	#REF!	9.50	500.00	ND
111	Cd	2	115	1.468	ppb	#REF!	2.32	2000.00	>RL
118	Sn	2	115	6.484	ppb	#REF!	1.47	2000.00	J
121	Sb	2	115	0.222	ppb	#REF!	4.32	500.00	ND
137	Ba	2	115	85.750	ppb	#REF!	1.55	2000.00	>RL
205	Tl	2	209	1.215	ppb	#REF!	1.78	2000.00	ND
208	Pb	2	209	35.260	ppb	#REF!	1.37	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13699.41	3.18	15.28	-89659.9	70 - 120	ISFail
45	Sc	1	126939.04	0.63	182515.06	69.5	70 - 120	ISFail
45	Sc	2	3730047.00	1.30	6126960.50	60.9	70 - 120	ISFail
72	Ge	1	65491.25	0.50	97742.99	67.0	70 - 120	ISFail
115	In	2	3498493.30	0.73	6508670.50	53.8	70 - 120	ISFail
209	Bi	2	2328567.00	0.27	4337985.50	53.7	70 - 120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\065DT1.D\065DT1.D#

Date Acquired:	Aug 5 2016 05:36 pm	Sample Name:	**1607239-21A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	23.43	ppb	0.80	-2664.87	90 - 110	-4.4	
9	Be	2	45	0.69	ppb	6.82	3.35	90 - 110	102.5	GOOD
11	B	2	45	27.91	ppb	1.00	130.30	90 - 110	107.1	GOOD
23	Na	1	45	1934.00	ppb	0.86	9974.00	90 - 110	97.0	GOOD
24	Mg	1	45	4931.00	ppb	0.61	24950.00	90 - 110	98.8	GOOD
27	Al	1	45	14010.00	ppb	0.58	71080.00	90 - 110	98.6	GOOD
39	K	1	45	3577.00	ppb	0.43	18280.00	90 - 110	97.8	GOOD
44	Ca	2	45	8810.00	ppb	1.11	41800.00	90 - 110	105.4	GOOD
47	Ti	1	45	32.59	ppb	6.52	167.00	90 - 110	97.6	GOOD
51	V	1	45	22.34	ppb	1.19	110.90	90 - 110	100.7	GOOD
52	Cr	1	45	14.91	ppb	0.96	73.81	90 - 110	101.0	GOOD
55	Mn	1	45	396.40	ppb	0.65	1935.00	90 - 110	102.4	GOOD
56	Fe	1	72	26740.00	ppb	0.48	134600.00	90 - 110	99.3	GOOD
59	Co	1	72	7.37	ppb	1.17	36.91	90 - 110	99.8	GOOD
60	Ni	1	72	10.33	ppb	2.52	51.04	90 - 110	101.2	GOOD
63	Cu	1	72	2.05	ppb	1.29	10.68	90 - 110	96.1	GOOD
66	Zn	1	72	42.44	ppb	1.46	244.90	90 - 110	86.6	
75	As	1	72	5.51	ppb	1.66	26.49	90 - 110	103.9	GOOD
78	Se	1	72	3.48	ppb	8.19	17.01	90 - 110	102.3	GOOD
88	Sr	2	115	26.41	ppb	1.32	135.60	90 - 110	97.4	GOOD
95	Mo	2	115	0.25	ppb	10.20	1.05	90 - 110	118.3	
107	Ag	2	115	0.05	ppb	22.38	0.18	90 - 110	124.3	
111	Cd	2	115	0.29	ppb	26.44	1.47	90 - 110	98.6	GOOD
118	Sn	2	115	1.04	ppb	0.33	6.48	90 - 110	79.9	
121	Sb	2	115	0.06	ppb	10.12	0.22	90 - 110	144.4	
137	Ba	2	115	16.80	ppb	2.18	85.75	90 - 110	98.0	GOOD
205	Tl	2	209	0.26	ppb	2.20	1.22	90 - 110	105.2	GOOD
208	Pb	2	209	6.84	ppb	0.52	35.26	90 - 110	97.0	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-2664.87	5.66	15.28	-17441.0	70 -	120	ISFail
45	Sc	1		123962.26	0.27	182515.06	67.9	70 -	120	ISFail
45	Sc	2		3672007.80	0.42	6126960.50	59.9	70 -	120	ISFail
72	Ge	1		65678.38	0.39	97742.99	67.2	70 -	120	ISFail
115	In	2		3498058.30	0.47	6508670.50	53.7	70 -	120	ISFail
209	Bi	2		2384464.50	0.67	4337985.50	55.0	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\066SMPL.D\066SMPL.D#

Date Acquired:	Aug 5 2016 05:42 pm	Sample Name:	**1607239-18A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	60.370	ppb	#REF!	1.09	2000.00	>RL
9	Be	2	45	2.741	ppb	#REF!	1.89	2000.00	>RL
11	B	2	45	126.600	ppb	#REF!	1.31	2000.00	>RL
23	Na	1	45	20510.000	ppb	#REF!	0.15	25000.00	>RL
24	Mg	1	45	19920.000	ppb	#REF!	1.37	25000.00	>RL
27	Al	1	45	88000.000	ppb	#REF!	0.70	10000.00	OUTCAL
39	K	1	45	16760.000	ppb	#REF!	0.68	25000.00	>RL
44	Ca	2	45	72990.000	ppb	#REF!	1.54	25000.00	OUTCAL
47	Ti	1	45	118.000	ppb	#REF!	3.56	2000.00	>RL
51	V	1	45	90.550	ppb	#REF!	0.48	2000.00	>RL
52	Cr	1	45	70.330	ppb	#REF!	1.07	2000.00	>RL
55	Mn	1	45	171.300	ppb	#REF!	0.76	2000.00	>RL
56	Fe	1	72	119000.000	ppb	#REF!	0.81	10000.00	OUTCAL
59	Co	1	72	12.030	ppb	#REF!	0.42	2000.00	>RL
60	Ni	1	72	26.330	ppb	#REF!	0.92	2000.00	>RL
63	Cu	1	72	17.620	ppb	#REF!	0.82	2000.00	>RL
66	Zn	1	72	143.400	ppb	#REF!	0.67	2000.00	>RL
75	As	1	72	25.960	ppb	#REF!	0.78	2000.00	>RL
78	Se	1	72	13.460	ppb	#REF!	6.64	2000.00	>RL
88	Sr	2	115	541.800	ppb	#REF!	1.68	2000.00	>RL
95	Mo	2	115	2.119	ppb	#REF!	3.85	2000.00	J
107	Ag	2	115	0.134	ppb	#REF!	5.38	500.00	ND
111	Cd	2	115	0.816	ppb	#REF!	18.74	2000.00	J
118	Sn	2	115	5.210	ppb	#REF!	0.55	2000.00	ND
121	Sb	2	115	0.258	ppb	#REF!	4.15	500.00	ND
137	Ba	2	115	94.590	ppb	#REF!	1.25	2000.00	>RL
205	Tl	2	209	0.509	ppb	#REF!	2.23	2000.00	ND
208	Pb	2	209	48.720	ppb	#REF!	0.68	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6906.14	3.54	15.28	-45199.3	70 - 120	ISFail
45	Sc	1	124894.59	0.70	182515.06	68.4	70 - 120	ISFail
45	Sc	2	3724098.30	1.28	6126960.50	60.8	70 - 120	ISFail
72	Ge	1	64365.92	0.77	97742.99	65.9	70 - 120	ISFail
115	In	2	3541723.80	0.84	6508670.50	54.4	70 - 120	ISFail
209	Bi	2	2343087.30	0.37	4337985.50	54.0	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\067SMPL.D\067SMPL.D#

Date Acquired:	Aug 5 2016 05:48 pm	Sample Name:	**1607239-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	220.900	ppb	#REF!	1.25	2000.00	>RL
9	Be	2	45	10.200	ppb	#REF!	3.22	2000.00	>RL
11	B	2	45	133.000	ppb	#REF!	0.89	2000.00	>RL
23	Na	1	45	14370.000	ppb	#REF!	1.15	25000.00	>RL
24	Mg	1	45	17730.000	ppb	#REF!	1.02	25000.00	>RL
27	Al	1	45	89650.000	ppb	#REF!	1.04	10000.00	OUTCAL
39	K	1	45	16810.000	ppb	#REF!	1.21	25000.00	>RL
44	Ca	2	45	111400.000	ppb	#REF!	1.70	25000.00	OUTCAL
47	Ti	1	45	147.400	ppb	#REF!	1.66	2000.00	>RL
51	V	1	45	99.600	ppb	#REF!	1.19	2000.00	>RL
52	Cr	1	45	63.050	ppb	#REF!	1.72	2000.00	>RL
55	Mn	1	45	6546.000	ppb	#REF!	1.36	2000.00	OUTCAL
56	Fe	1	72	129600.000	ppb	#REF!	0.75	10000.00	OUTCAL
59	Co	1	72	381.200	ppb	#REF!	1.01	2000.00	>RL
60	Ni	1	72	402.500	ppb	#REF!	0.73	2000.00	>RL
63	Cu	1	72	18.680	ppb	#REF!	1.19	2000.00	>RL
66	Zn	1	72	815.500	ppb	#REF!	0.68	2000.00	>RL
75	As	1	72	45.900	ppb	#REF!	0.77	2000.00	>RL
78	Se	1	72	51.660	ppb	#REF!	1.22	2000.00	>RL
88	Sr	2	115	589.800	ppb	#REF!	1.55	2000.00	>RL
95	Mo	2	115	6.192	ppb	#REF!	3.24	2000.00	J
107	Ag	2	115	0.143	ppb	#REF!	6.11	500.00	ND
111	Cd	2	115	2.514	ppb	#REF!	6.82	2000.00	>RL
118	Sn	2	115	6.606	ppb	#REF!	2.42	2000.00	ND
121	Sb	2	115	0.433	ppb	#REF!	14.12	500.00	ND
137	Ba	2	115	303.400	ppb	#REF!	0.87	2000.00	>RL
205	Tl	2	209	1.575	ppb	#REF!	4.46	2000.00	ND
208	Pb	2	209	49.060	ppb	#REF!	0.96	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-26132.31	1.54	15.28	########	70 - 120	ISFail
45	Sc	1	126589.94	0.66	182515.06	69.4	70 - 120	ISFail
45	Sc	2	3901949.00	0.98	6126960.50	63.7	70 - 120	ISFail
72	Ge	1	66667.52	0.90	97742.99	68.2	70 - 120	ISFail
115	In	2	3785100.00	0.78	6508670.50	58.2	70 - 120	ISFail
209	Bi	2	2498983.80	0.94	4337985.50	57.6	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\068SMPL.D\068SMPL.D#

Date Acquired:	Aug 5 2016 05:54 pm	Sample Name:	**1607239-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	124.000	ppb	#REF!	1.34	2000.00	>RL
9	Be	2	45	3.922	ppb	#REF!	2.29	2000.00	>RL
11	B	2	45	136.700	ppb	#REF!	1.78	2000.00	>RL
23	Na	1	45	10360.000	ppb	#REF!	0.32	25000.00	>RL
24	Mg	1	45	23260.000	ppb	#REF!	0.80	25000.00	>RL
27	Al	1	45	76040.000	ppb	#REF!	0.69	10000.00	OUTCAL
39	K	1	45	20640.000	ppb	#REF!	0.18	25000.00	>RL
44	Ca	2	45	79870.000	ppb	#REF!	2.38	25000.00	OUTCAL
47	Ti	1	45	147.400	ppb	#REF!	1.08	2000.00	>RL
51	V	1	45	116.800	ppb	#REF!	0.40	2000.00	>RL
52	Cr	1	45	77.470	ppb	#REF!	0.78	2000.00	>RL
55	Mn	1	45	1316.000	ppb	#REF!	0.07	2000.00	>RL
56	Fe	1	72	126600.000	ppb	#REF!	0.36	10000.00	OUTCAL
59	Co	1	72	58.220	ppb	#REF!	0.76	2000.00	>RL
60	Ni	1	72	86.910	ppb	#REF!	1.34	2000.00	>RL
63	Cu	1	72	10.980	ppb	#REF!	1.26	2000.00	>RL
66	Zn	1	72	393.700	ppb	#REF!	0.46	2000.00	>RL
75	As	1	72	33.950	ppb	#REF!	1.28	2000.00	>RL
78	Se	1	72	26.350	ppb	#REF!	3.52	2000.00	>RL
88	Sr	2	115	180.200	ppb	#REF!	0.85	2000.00	>RL
95	Mo	2	115	1.739	ppb	#REF!	4.89	2000.00	ND
107	Ag	2	115	0.140	ppb	#REF!	20.41	500.00	ND
111	Cd	2	115	1.738	ppb	#REF!	11.81	2000.00	>RL
118	Sn	2	115	6.319	ppb	#REF!	1.75	2000.00	ND
121	Sb	2	115	0.160	ppb	#REF!	11.79	500.00	ND
137	Ba	2	115	151.700	ppb	#REF!	1.11	2000.00	>RL
205	Tl	2	209	1.306	ppb	#REF!	2.66	2000.00	ND
208	Pb	2	209	33.780	ppb	#REF!	0.94	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14653.55	2.51	15.28	-95904.5	70 - 120	ISFail
45	Sc	1	126278.66	0.25	182515.06	69.2	70 - 120	ISFail
45	Sc	2	3810427.80	0.70	6126960.50	62.2	70 - 120	ISFail
72	Ge	1	66315.41	0.16	97742.99	67.8	70 - 120	ISFail
115	In	2	3660910.30	0.56	6508670.50	56.2	70 - 120	ISFail
209	Bi	2	2423889.30	1.05	4337985.50	55.9	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\069SMPL.D\069SMPL.D#

Date Acquired:	Aug 5 2016 06:00 pm	Sample Name:	**1607239-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.880	ppb	#REF!	1.54	2000.00	>RL
9	Be	2	45	2.359	ppb	#REF!	1.05	2000.00	>RL
11	B	2	45	99.950	ppb	#REF!	1.07	2000.00	>RL
23	Na	1	45	7786.000	ppb	#REF!	0.86	25000.00	>RL
24	Mg	1	45	16550.000	ppb	#REF!	1.16	25000.00	>RL
27	Al	1	45	73540.000	ppb	#REF!	0.65	10000.00	OUTCAL
39	K	1	45	14020.000	ppb	#REF!	1.24	25000.00	>RL
44	Ca	2	45	111700.000	ppb	#REF!	1.79	25000.00	OUTCAL
47	Ti	1	45	243.000	ppb	#REF!	2.24	2000.00	>RL
51	V	1	45	99.680	ppb	#REF!	0.93	2000.00	>RL
52	Cr	1	45	64.480	ppb	#REF!	1.83	2000.00	>RL
55	Mn	1	45	484.800	ppb	#REF!	1.38	2000.00	>RL
56	Fe	1	72	81900.000	ppb	#REF!	1.69	10000.00	OUTCAL
59	Co	1	72	16.840	ppb	#REF!	1.39	2000.00	>RL
60	Ni	1	72	33.430	ppb	#REF!	0.67	2000.00	>RL
63	Cu	1	72	22.050	ppb	#REF!	0.96	2000.00	>RL
66	Zn	1	72	132.100	ppb	#REF!	1.64	2000.00	>RL
75	As	1	72	26.870	ppb	#REF!	1.36	2000.00	>RL
78	Se	1	72	9.802	ppb	#REF!	0.70	2000.00	>RL
88	Sr	2	115	1060.000	ppb	#REF!	1.78	2000.00	>RL
95	Mo	2	115	3.022	ppb	#REF!	6.71	2000.00	J
107	Ag	2	115	0.182	ppb	#REF!	1.79	500.00	ND
111	Cd	2	115	1.071	ppb	#REF!	9.98	2000.00	J
118	Sn	2	115	6.220	ppb	#REF!	0.77	2000.00	ND
121	Sb	2	115	5.619	ppb	#REF!	0.94	500.00	>RL
137	Ba	2	115	410.300	ppb	#REF!	1.23	2000.00	>RL
205	Tl	2	209	0.539	ppb	#REF!	3.38	2000.00	ND
208	Pb	2	209	361.400	ppb	#REF!	1.17	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6530.50	5.92	RHigh	15.28	-42740.8	70 - 120	ISFail
45	Sc	1	127304.62	0.81		182515.06	69.8	70 - 120	ISFail
45	Sc	2	4030579.80	1.26		6126960.50	65.8	70 - 120	ISFail
72	Ge	1	65635.18	0.75		97742.99	67.2	70 - 120	ISFail
115	In	2	3899784.50	1.00		6508670.50	59.9	70 - 120	ISFail
209	Bi	2	2547489.00	0.74		4337985.50	58.7	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\071SMPL.D\071SMPL.D#

Date Acquired:	Aug 5 2016 06:12 pm	Sample Name:	**1607239-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	66.210	ppb	#REF!	1.28	2000.00	>RL
9	Be	2	45	2.808	ppb	#REF!	3.06	2000.00	>RL
11	B	2	45	125.000	ppb	#REF!	1.08	2000.00	>RL
23	Na	1	45	16900.000	ppb	#REF!	0.61	25000.00	>RL
24	Mg	1	45	19720.000	ppb	#REF!	0.47	25000.00	>RL
27	Al	1	45	86750.000	ppb	#REF!	1.10	10000.00	OUTCAL
39	K	1	45	15890.000	ppb	#REF!	1.12	25000.00	>RL
44	Ca	2	45	121000.000	ppb	#REF!	1.41	25000.00	OUTCAL
47	Ti	1	45	156.400	ppb	#REF!	3.05	2000.00	>RL
51	V	1	45	100.100	ppb	#REF!	0.97	2000.00	>RL
52	Cr	1	45	71.750	ppb	#REF!	0.60	2000.00	>RL
55	Mn	1	45	203.000	ppb	#REF!	1.01	2000.00	>RL
56	Fe	1	72	121800.000	ppb	#REF!	0.53	10000.00	OUTCAL
59	Co	1	72	13.580	ppb	#REF!	1.34	2000.00	>RL
60	Ni	1	72	35.120	ppb	#REF!	1.13	2000.00	>RL
63	Cu	1	72	17.330	ppb	#REF!	1.09	2000.00	>RL
66	Zn	1	72	149.900	ppb	#REF!	0.73	2000.00	>RL
75	As	1	72	31.960	ppb	#REF!	1.06	2000.00	>RL
78	Se	1	72	13.670	ppb	#REF!	1.85	2000.00	>RL
88	Sr	2	115	1133.000	ppb	#REF!	1.50	2000.00	>RL
95	Mo	2	115	2.344	ppb	#REF!	4.99	2000.00	J
107	Ag	2	115	0.139	ppb	#REF!	9.06	500.00	ND
111	Cd	2	115	0.898	ppb	#REF!	6.64	2000.00	J
118	Sn	2	115	7.043	ppb	#REF!	1.15	2000.00	ND
121	Sb	2	115	1.434	ppb	#REF!	2.51	500.00	ND
137	Ba	2	115	133.800	ppb	#REF!	1.83	2000.00	>RL
205	Tl	2	209	0.511	ppb	#REF!	3.56	2000.00	ND
208	Pb	2	209	135.700	ppb	#REF!	1.01	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7818.24	2.89	15.28	-51168.8	70 - 120	ISFail
45	Sc	1	127754.99	0.32	182515.06	70.0	70 - 120	ISFail
45	Sc	2	3990099.80	0.74	6126960.50	65.1	70 - 120	ISFail
72	Ge	1	65849.51	0.61	97742.99	67.4	70 - 120	ISFail
115	In	2	3892615.00	0.42	6508670.50	59.8	70 - 120	ISFail
209	Bi	2	2531843.00	0.60	4337985.50	58.4	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\072SMPL.D\072SMPL.D#

Date Acquired:	Aug 5 2016 06:18 pm	Sample Name:	**1607239-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	112.300	ppb	#REF!	1.07	2000.00	>RL
9	Be	2	45	5.059	ppb	#REF!	0.69	2000.00	>RL
11	B	2	45	119.900	ppb	#REF!	1.73	2000.00	>RL
23	Na	1	45	16390.000	ppb	#REF!	0.82	25000.00	>RL
24	Mg	1	45	19650.000	ppb	#REF!	0.81	25000.00	>RL
27	Al	1	45	89070.000	ppb	#REF!	1.82	10000.00	OUTCAL
39	K	1	45	17050.000	ppb	#REF!	0.34	25000.00	>RL
44	Ca	2	45	140800.000	ppb	#REF!	1.83	25000.00	OUTCAL
47	Ti	1	45	146.200	ppb	#REF!	2.10	2000.00	>RL
51	V	1	45	93.070	ppb	#REF!	1.10	2000.00	>RL
52	Cr	1	45	65.990	ppb	#REF!	0.31	2000.00	>RL
55	Mn	1	45	3631.000	ppb	#REF!	0.53	2000.00	OUTCAL
56	Fe	1	72	98420.000	ppb	#REF!	0.68	10000.00	OUTCAL
59	Co	1	72	173.700	ppb	#REF!	0.79	2000.00	>RL
60	Ni	1	72	202.000	ppb	#REF!	0.15	2000.00	>RL
63	Cu	1	72	17.080	ppb	#REF!	0.59	2000.00	>RL
66	Zn	1	72	540.400	ppb	#REF!	0.48	2000.00	>RL
75	As	1	72	33.050	ppb	#REF!	1.21	2000.00	>RL
78	Se	1	72	35.750	ppb	#REF!	0.54	2000.00	>RL
88	Sr	2	115	556.900	ppb	#REF!	1.56	2000.00	>RL
95	Mo	2	115	3.019	ppb	#REF!	4.79	2000.00	J
107	Ag	2	115	0.124	ppb	#REF!	6.72	500.00	ND
111	Cd	2	115	2.531	ppb	#REF!	4.19	2000.00	>RL
118	Sn	2	115	6.980	ppb	#REF!	0.61	2000.00	ND
121	Sb	2	115	0.368	ppb	#REF!	6.92	500.00	ND
137	Ba	2	115	266.600	ppb	#REF!	0.91	2000.00	>RL
205	Tl	2	209	1.694	ppb	#REF!	2.27	2000.00	ND
208	Pb	2	209	44.500	ppb	#REF!	1.23	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13433.46	1.16	15.28	-87919.3	70 - 120	ISFail
45	Sc	1	127099.81	0.76	182515.06	69.6	70 - 120	ISFail
45	Sc	2	4070264.30	1.81	6126960.50	66.4	70 - 120	ISFail
72	Ge	1	66601.13	0.62	97742.99	68.1	70 - 120	ISFail
115	In	2	3940129.50	0.99	6508670.50	60.5	70 - 120	ISFail
209	Bi	2	2537886.50	0.58	4337985.50	58.5	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\073SMPL.D\073SMPL.D#

Date Acquired:	Aug 5 2016 06:24 pm	Sample Name:	**1607239-25A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	159.600	ppb	#REF!	2.00	2000.00	>RL
9	Be	2	45	4.795	ppb	#REF!	3.09	2000.00	>RL
11	B	2	45	132.900	ppb	#REF!	1.64	2000.00	>RL
23	Na	1	45	10730.000	ppb	#REF!	1.22	25000.00	>RL
24	Mg	1	45	19530.000	ppb	#REF!	0.85	25000.00	>RL
27	Al	1	45	79750.000	ppb	#REF!	0.27	10000.00	OUTCAL
39	K	1	45	20550.000	ppb	#REF!	0.75	25000.00	>RL
44	Ca	2	45	57250.000	ppb	#REF!	2.23	25000.00	OUTCAL
47	Ti	1	45	126.600	ppb	#REF!	0.63	2000.00	>RL
51	V	1	45	119.900	ppb	#REF!	0.68	2000.00	>RL
52	Cr	1	45	79.090	ppb	#REF!	0.91	2000.00	>RL
55	Mn	1	45	2155.000	ppb	#REF!	0.50	2000.00	OUTCAL
56	Fe	1	72	128400.000	ppb	#REF!	0.59	10000.00	OUTCAL
59	Co	1	72	125.900	ppb	#REF!	0.71	2000.00	>RL
60	Ni	1	72	135.600	ppb	#REF!	0.73	2000.00	>RL
63	Cu	1	72	12.350	ppb	#REF!	0.93	2000.00	>RL
66	Zn	1	72	456.500	ppb	#REF!	0.66	2000.00	>RL
75	As	1	72	35.780	ppb	#REF!	0.77	2000.00	>RL
78	Se	1	72	29.730	ppb	#REF!	2.77	2000.00	>RL
88	Sr	2	115	292.600	ppb	#REF!	1.54	2000.00	>RL
95	Mo	2	115	1.550	ppb	#REF!	5.96	2000.00	ND
107	Ag	2	115	0.125	ppb	#REF!	7.62	500.00	ND
111	Cd	2	115	1.732	ppb	#REF!	3.58	2000.00	>RL
118	Sn	2	115	6.112	ppb	#REF!	2.39	2000.00	ND
121	Sb	2	115	0.155	ppb	#REF!	4.36	500.00	ND
137	Ba	2	115	123.400	ppb	#REF!	0.77	2000.00	>RL
205	Tl	2	209	1.003	ppb	#REF!	3.64	2000.00	ND
208	Pb	2	209	51.640	ppb	#REF!	1.65	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18757.52	3.20	15.28	########	70 - 120	ISFail
45	Sc	1	122652.41	1.10	182515.06	67.2	70 - 120	ISFail
45	Sc	2	3739420.80	1.06	6126960.50	61.0	70 - 120	ISFail
72	Ge	1	64741.28	0.85	97742.99	66.2	70 - 120	ISFail
115	In	2	3570025.00	0.19	6508670.50	54.9	70 - 120	ISFail
209	Bi	2	2359335.50	0.65	4337985.50	54.4	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\074SMPL.D\074SMPL.D#

Date Acquired:	Aug 5 2016 06:30 pm	Sample Name:	**1607239-26A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	116.000	ppb	#REF!	1.91	2000.00	>RL
9	Be	2	45	3.375	ppb	#REF!	1.09	2000.00	>RL
11	B	2	45	128.600	ppb	#REF!	1.45	2000.00	>RL
23	Na	1	45	10400.000	ppb	#REF!	0.49	25000.00	>RL
24	Mg	1	45	19050.000	ppb	#REF!	0.90	25000.00	>RL
27	Al	1	45	75740.000	ppb	#REF!	1.05	10000.00	OUTCAL
39	K	1	45	19810.000	ppb	#REF!	0.80	25000.00	>RL
44	Ca	2	45	34750.000	ppb	#REF!	2.13	25000.00	OUTCAL
47	Ti	1	45	151.900	ppb	#REF!	1.79	2000.00	>RL
51	V	1	45	116.300	ppb	#REF!	1.03	2000.00	>RL
52	Cr	1	45	78.480	ppb	#REF!	0.94	2000.00	>RL
55	Mn	1	45	718.300	ppb	#REF!	0.82	2000.00	>RL
56	Fe	1	72	121700.000	ppb	#REF!	0.64	10000.00	OUTCAL
59	Co	1	72	49.850	ppb	#REF!	0.92	2000.00	>RL
60	Ni	1	72	55.170	ppb	#REF!	1.32	2000.00	>RL
63	Cu	1	72	11.740	ppb	#REF!	1.68	2000.00	>RL
66	Zn	1	72	281.200	ppb	#REF!	0.27	2000.00	>RL
75	As	1	72	30.020	ppb	#REF!	2.29	2000.00	>RL
78	Se	1	72	23.010	ppb	#REF!	1.66	2000.00	>RL
88	Sr	2	115	307.300	ppb	#REF!	1.85	2000.00	>RL
95	Mo	2	115	0.685	ppb	#REF!	6.71	2000.00	ND
107	Ag	2	115	0.138	ppb	#REF!	9.29	500.00	ND
111	Cd	2	115	1.558	ppb	#REF!	10.68	2000.00	>RL
118	Sn	2	115	6.338	ppb	#REF!	1.95	2000.00	ND
121	Sb	2	115	0.095	ppb	#REF!	21.95	500.00	ND
137	Ba	2	115	68.890	ppb	#REF!	2.30	2000.00	>RL
205	Tl	2	209	0.564	ppb	#REF!	3.64	2000.00	ND
208	Pb	2	209	42.170	ppb	#REF!	1.50	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12064.78	2.59	15.28	-78961.6	70 - 120	ISFail
45	Sc	1	114451.82	1.05	182515.06	62.7	70 - 120	ISFail
45	Sc	2	3391977.30	2.10	6126960.50	55.4	70 - 120	ISFail
72	Ge	1	59849.75	0.56	97742.99	61.2	70 - 120	ISFail
115	In	2	3138393.80	1.32	6508670.50	48.2	70 - 120	ISFail
209	Bi	2	2112722.00	0.28	4337985.50	48.7	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\075SMPL.D\075SMPL.D#

Date Acquired:	Aug 5 2016 06:36 pm	Sample Name:	**1607239-27A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	59.270	ppb	#REF!	0.87	2000.00	>RL
9	Be	2	45	2.301	ppb	#REF!	1.56	2000.00	>RL
11	B	2	45	90.860	ppb	#REF!	0.91	2000.00	>RL
23	Na	1	45	4523.000	ppb	#REF!	3.50	25000.00	>RL
24	Mg	1	45	15990.000	ppb	#REF!	1.69	25000.00	>RL
27	Al	1	45	71380.000	ppb	#REF!	2.54	10000.00	OUTCAL
39	K	1	45	13900.000	ppb	#REF!	1.47	25000.00	>RL
44	Ca	2	45	144600.000	ppb	#REF!	1.47	25000.00	OUTCAL
47	Ti	1	45	260.800	ppb	#REF!	1.70	2000.00	>RL
51	V	1	45	102.000	ppb	#REF!	1.48	2000.00	>RL
52	Cr	1	45	61.420	ppb	#REF!	2.70	2000.00	>RL
55	Mn	1	45	498.900	ppb	#REF!	1.42	2000.00	>RL
56	Fe	1	72	79780.000	ppb	#REF!	2.14	10000.00	OUTCAL
59	Co	1	72	18.320	ppb	#REF!	1.65	2000.00	>RL
60	Ni	1	72	31.780	ppb	#REF!	2.10	2000.00	>RL
63	Cu	1	72	23.490	ppb	#REF!	2.38	2000.00	>RL
66	Zn	1	72	147.600	ppb	#REF!	1.79	2000.00	>RL
75	As	1	72	26.670	ppb	#REF!	2.48	2000.00	>RL
78	Se	1	72	11.150	ppb	#REF!	3.83	2000.00	>RL
88	Sr	2	115	1199.000	ppb	#REF!	0.70	2000.00	>RL
95	Mo	2	115	3.294	ppb	#REF!	0.68	2000.00	J
107	Ag	2	115	0.169	ppb	#REF!	3.47	500.00	ND
111	Cd	2	115	1.103	ppb	#REF!	19.83	2000.00	J
118	Sn	2	115	6.263	ppb	#REF!	2.51	2000.00	ND
121	Sb	2	115	5.809	ppb	#REF!	1.13	500.00	>RL
137	Ba	2	115	362.000	ppb	#REF!	1.04	2000.00	>RL
205	Tl	2	209	0.507	ppb	#REF!	2.56	2000.00	ND
208	Pb	2	209	222.600	ppb	#REF!	0.57	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6460.21	2.82	15.28	-42280.8	70 - 120	ISFail
45	Sc	1	111975.13	2.09	182515.06	61.4	70 - 120	ISFail
45	Sc	2	3639135.00	0.51	6126960.50	59.4	70 - 120	ISFail
72	Ge	1	58649.40	1.61	97742.99	60.0	70 - 120	ISFail
115	In	2	3489265.50	0.62	6508670.50	53.6	70 - 120	ISFail
209	Bi	2	2293813.00	0.75	4337985.50	52.9	70 - 120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\076_PDS.D\076_PDS.D#

Date Acquired:	Aug 5 2016 06:42 pm	Sample Name:	**1607239-21A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	282.90	ppb	0.94	-33362.23	200	75-125	######	Fail
9	Be	2	45	160.50	ppb	1.22	3.35	200	75-125	78.6	
11	B	2	45	275.40	ppb	1.32	130.30	200	75-125	72.6	Fail
23	Na	1	45	14720.00	ppb	1.35	9974.00	5000	75-125	94.9	
24	Mg	1	45	29920.00	ppb	1.99	24950.00	5000	75-125	99.4	
27	Al	1	45	76870.00	ppb	1.52	71080.00	5000	75-125	115.8	
39	K	1	45	23200.00	ppb	1.47	18280.00	5000	75-125	98.4	
44	Ca	2	45	47290.00	ppb	1.65	41800.00	5000	75-125	109.8	
47	Ti	1	45	362.60	ppb	2.44	167.00	200	75-125	97.8	
51	V	1	45	302.40	ppb	1.80	110.90	200	75-125	95.8	
52	Cr	1	45	267.40	ppb	1.41	73.81	200	75-125	96.8	
55	Mn	1	45	2174.00	ppb	1.29	1935.00	200	75-125	119.5	
56	Fe	1	72	140600.00	ppb	1.29	134600.00	5000	75-125	120.0	
59	Co	1	72	223.30	ppb	1.59	36.91	200	75-125	93.2	
60	Ni	1	72	231.00	ppb	1.58	51.04	200	75-125	90.0	
63	Cu	1	72	188.30	ppb	1.71	10.68	200	75-125	88.8	
66	Zn	1	72	426.50	ppb	1.47	244.90	200	75-125	90.8	
75	As	1	72	209.00	ppb	1.42	26.49	200	75-125	91.3	
78	Se	1	72	195.20	ppb	2.77	17.01	200	75-125	89.1	
88	Sr	2	115	350.90	ppb	1.85	135.60	200	75-125	107.6	
95	Mo	2	115	190.00	ppb	1.40	1.05	200	75-125	94.5	
107	Ag	2	115	187.70	ppb	1.26	0.18	200	75-125	93.8	
111	Cd	2	115	180.20	ppb	1.45	1.47	200	75-125	89.4	
118	Sn	2	115	199.70	ppb	0.70	6.48	200	75-125	96.6	
121	Sb	2	115	184.30	ppb	1.01	0.22	200	75-125	92.0	
137	Ba	2	115	284.10	ppb	0.95	85.75	200	75-125	99.2	
205	Tl	2	209	189.90	ppb	1.09	1.22	200	75-125	94.3	
208	Pb	2	209	226.50	ppb	0.62	35.26	200	75-125	95.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-33362.23	0.64	15.28	-218349.1	70	-	120	ISFail
45	Sc	1	112181.99	1.83	182515.06	61.5	70	-	120	ISFail
45	Sc	2	3349373.30	1.71	6126960.50	54.7	70	-	120	ISFail
72	Ge	1	58752.98	1.44	97742.99	60.1	70	-	120	ISFail
115	In	2	3089465.80	0.49	6508670.50	47.5	70	-	120	ISFail
209	Bi	2	2076188.50	0.60	4337985.50	47.9	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\077_MS.D\077_MS.D#

Date Acquired:	Aug 5 2016 06:47 pm	Sample Name:	**1607239-21A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	274.80	ppb	0.42	########	200	80-120	######	Fail
9	Be	2	45	156.20	ppb	1.52	3.35	200	80-120	76.4	Fail
11	B	2	45	246.00	ppb	1.56	130.30	200	80-120	57.9	Fail
23	Na	1	45	14750.00	ppb	0.58	9974.00	5000	80-120	95.5	
24	Mg	1	45	30440.00	ppb	0.34	24950.00	5000	80-120	109.8	
27	Al	1	45	74490.00	ppb	0.59	71080.00	1000	80-120	341.0	Fail
39	K	1	45	21970.00	ppb	1.27	18280.00	5000	80-120	73.8	Fail
44	Ca	2	45	59250.00	ppb	2.16	41800.00	5000	80-120	349.0	Fail
47	Ti	1	45	266.90	ppb	2.25	167.00	200	80-120	50.0	Fail
51	V	1	45	288.60	ppb	0.19	110.90	200	80-120	88.9	
52	Cr	1	45	257.30	ppb	0.34	73.81	200	80-120	91.7	
55	Mn	1	45	1820.00	ppb	0.21	1935.00	200	80-120	-57.5	Fail
56	Fe	1	72	127100.00	ppb	0.21	########	1000	80-120	-750.0	Fail
59	Co	1	72	221.20	ppb	0.47	36.91	200	80-120	92.1	
60	Ni	1	72	221.40	ppb	0.37	51.04	200	80-120	85.2	
63	Cu	1	72	187.50	ppb	0.13	10.68	200	80-120	88.4	
66	Zn	1	72	413.60	ppb	0.08	244.90	200	80-120	84.4	
75	As	1	72	205.00	ppb	0.42	26.49	200	80-120	89.3	
78	Se	1	72	194.40	ppb	0.65	17.01	200	80-120	88.7	
88	Sr	2	115	361.60	ppb	1.19	135.60	200	80-120	113.0	
95	Mo	2	115	173.20	ppb	0.82	1.05	200	80-120	86.1	
107	Ag	2	115	185.30	ppb	1.05	0.18	200	80-120	92.6	
111	Cd	2	115	181.40	ppb	1.48	1.47	200	80-120	90.0	
118	Sn	2	115	192.20	ppb	1.01	6.48	200	80-120	92.9	
121	Sb	2	115	51.36	ppb	0.80	0.22	200	80-120	25.6	Fail
137	Ba	2	115	257.70	ppb	1.51	85.75	200	80-120	86.0	
205	Tl	2	209	190.60	ppb	0.85	1.22	200	80-120	94.7	
208	Pb	2	209	225.20	ppb	0.94	35.26	200	80-120	95.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-41034.40	0.80	15.28	########	70	-	120	ISFail
45	Sc	1	104713.27	0.58	182515.06	57.4	70	-	120	ISFail
45	Sc	2	3128943.30	1.35	6126960.50	51.1	70	-	120	ISFail
72	Ge	1	54708.18	0.40	97742.99	56.0	70	-	120	ISFail
115	In	2	2847770.80	0.47	6508670.50	43.8	70	-	120	ISFail
209	Bi	2	1934376.40	0.58	4337985.50	44.6	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\078_MS.D\078_MS.D#

Date Acquired:	Aug 5 2016 06:53 pm	Sample Name:	**1607239-21A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	277.10	ppb	1.31	########	200	80-120	######	Fail
9	Be	2	45	153.50	ppb	1.61	3.35	200	80-120	75.1	Fail
11	B	2	45	246.10	ppb	1.25	130.30	200	80-120	57.9	Fail
23	Na	1	45	15140.00	ppb	0.75	9974.00	5000	80-120	103.3	
24	Mg	1	45	30110.00	ppb	0.28	24950.00	5000	80-120	103.2	
27	Al	1	45	76570.00	ppb	0.57	71080.00	1000	80-120	549.0	Fail
39	K	1	45	22540.00	ppb	1.10	18280.00	5000	80-120	85.2	
44	Ca	2	45	65580.00	ppb	1.87	41800.00	5000	80-120	475.6	Fail
47	Ti	1	45	270.30	ppb	0.06	167.00	200	80-120	51.7	Fail
51	V	1	45	292.40	ppb	0.32	110.90	200	80-120	90.8	
52	Cr	1	45	259.90	ppb	0.46	73.81	200	80-120	93.0	
55	Mn	1	45	1856.00	ppb	0.51	1935.00	200	80-120	-39.5	Fail
56	Fe	1	72	133100.00	ppb	0.79	########	1000	80-120	-150.0	Fail
59	Co	1	72	228.30	ppb	0.55	36.91	200	80-120	95.7	
60	Ni	1	72	227.70	ppb	0.55	51.04	200	80-120	88.3	
63	Cu	1	72	187.50	ppb	0.97	10.68	200	80-120	88.4	
66	Zn	1	72	429.70	ppb	0.56	244.90	200	80-120	92.4	
75	As	1	72	206.40	ppb	0.46	26.49	200	80-120	90.0	
78	Se	1	72	194.80	ppb	2.00	17.01	200	80-120	88.9	
88	Sr	2	115	357.60	ppb	1.80	135.60	200	80-120	111.0	
95	Mo	2	115	172.00	ppb	1.82	1.05	200	80-120	85.5	
107	Ag	2	115	185.50	ppb	1.27	0.18	200	80-120	92.7	
111	Cd	2	115	177.30	ppb	1.33	1.47	200	80-120	87.9	
118	Sn	2	115	188.90	ppb	1.53	6.48	200	80-120	91.2	
121	Sb	2	115	50.91	ppb	1.22	0.22	200	80-120	25.3	Fail
137	Ba	2	115	250.00	ppb	0.51	85.75	200	80-120	82.1	
205	Tl	2	209	191.10	ppb	0.67	1.22	200	80-120	94.9	
208	Pb	2	209	224.40	ppb	0.96	35.26	200	80-120	94.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-40581.45	1.25	15.28	########	70	-	120	ISFail
45	Sc	1	102277.23	0.39	182515.06	56.0	70	-	120	ISFail
45	Sc	2	3048852.30	1.61	6126960.50	49.8	70	-	120	ISFail
72	Ge	1	53478.42	0.81	97742.99	54.7	70	-	120	ISFail
115	In	2	2781264.00	1.48	6508670.50	42.7	70	-	120	ISFail
209	Bi	2	1867216.30	0.31	4337985.50	43.0	70	-	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\080CCV1.D\080CCV1.D#

Date Acquired:	Aug 5 2016 07:05 pm	Sample Name:	**CCV3-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	178.00	ppb	0.92	200.00	90 -	110	89.0	Fail
9	Be	2	45	171.50	ppb	0.63	200.00	90 -	110	85.8	Fail
11	B	2	45	164.60	ppb	1.02	200.00	90 -	110	82.3	Fail
23	Na	1	45	4841.00	ppb	0.59	5000.00	90 -	110	96.8	
24	Mg	1	45	4864.00	ppb	0.62	5000.00	90 -	110	97.3	
27	Al	1	45	5073.00	ppb	1.16	5000.00	90 -	110	101.5	
39	K	1	45	5128.00	ppb	1.05	5000.00	90 -	110	102.6	
44	Ca	2	45	5067.00	ppb	0.93	5000.00	90 -	110	101.3	
47	Ti	1	45	199.30	ppb	2.85	200.00	90 -	110	99.7	
51	V	1	45	194.80	ppb	1.14	200.00	90 -	110	97.4	
52	Cr	1	45	198.10	ppb	1.32	200.00	90 -	110	99.1	
55	Mn	1	45	206.10	ppb	1.14	200.00	90 -	110	103.1	
56	Fe	1	72	5056.00	ppb	1.21	5000.00	90 -	110	101.1	
59	Co	1	72	194.60	ppb	0.60	200.00	90 -	110	97.3	
60	Ni	1	72	191.40	ppb	0.99	200.00	90 -	110	95.7	
63	Cu	1	72	196.80	ppb	0.51	200.00	90 -	110	98.4	
66	Zn	1	72	193.20	ppb	1.34	200.00	90 -	110	96.6	
75	As	1	72	201.60	ppb	0.71	200.00	90 -	110	100.8	
78	Se	1	72	213.20	ppb	1.64	200.00	90 -	110	106.6	
88	Sr	2	115	208.50	ppb	1.05	200.00	90 -	110	104.3	
95	Mo	2	115	197.80	ppb	0.51	200.00	90 -	110	98.9	
107	Ag	2	115	202.90	ppb	0.78	200.00	90 -	110	101.5	
111	Cd	2	115	195.00	ppb	0.80	200.00	90 -	110	97.5	
118	Sn	2	115	194.40	ppb	0.09	200.00	90 -	110	97.2	
121	Sb	2	115	191.80	ppb	0.51	200.00	90 -	110	95.9	
137	Ba	2	115	198.40	ppb	0.89	200.00	90 -	110	99.2	
205	Tl	2	209	194.20	ppb	0.70	200.00	90 -	110	97.1	
208	Pb	2	209	193.70	ppb	0.11	200.00	90 -	110	96.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-31974.19	0.63	15.28	-209264.7	70 -	120	ISFail
45	Sc	1	96559.91	0.96	182515.06	52.9	70 -	120	ISFail
45	Sc	2	2984361.30	0.59	6126960.50	48.7	70 -	120	ISFail
72	Ge	1	52381.95	0.12	97742.99	53.6	70 -	120	ISFail
115	In	2	2714493.00	0.58	6508670.50	41.7	70 -	120	ISFail
209	Bi	2	1860731.40	0.88	4337985.50	42.9	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\082LCVL.D\082LCVL.D#

Date Acquired:	Aug 5 2016 07:17 pm	Sample Name:	**LCVL3-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.87	ppb	0.44	10.00	70 -	130	88.7	
9	Be	2	45	0.87	ppb	4.06	1.00	70 -	130	87.2	
11	B	2	45	17.87	ppb	0.66	20.00	70 -	130	89.4	
23	Na	1	45	83.77	ppb	1.54	100.00	70 -	130	83.8	
24	Mg	1	45	99.55	ppb	1.16	100.00	70 -	130	99.6	
27	Al	1	45	108.60	ppb	1.08	100.00	70 -	130	108.6	
39	K	1	45	104.70	ppb	0.82	100.00	70 -	130	104.7	
44	Ca	2	45	95.44	ppb	2.38	100.00	70 -	130	95.4	
47	Ti	1	45	5.64	ppb	15.47	5.00	70 -	130	112.7	
51	V	1	45	1.06	ppb	7.41	1.00	70 -	130	106.4	
52	Cr	1	45	5.09	ppb	3.97	5.00	70 -	130	101.9	
55	Mn	1	45	4.86	ppb	3.27	5.00	70 -	130	97.2	
56	Fe	1	72	112.80	ppb	2.51	100.00	70 -	130	112.8	
59	Co	1	72	4.98	ppb	1.57	5.00	70 -	130	99.6	
60	Ni	1	72	4.82	ppb	2.55	5.00	70 -	130	96.4	
63	Cu	1	72	4.90	ppb	1.48	5.00	70 -	130	98.1	
66	Zn	1	72	-9.13	ppb	1.75	5.00	70 -	130	-182.5	Fail
75	As	1	72	5.09	ppb	2.94	5.00	70 -	130	101.8	
78	Se	1	72	5.81	ppb	7.56	5.00	70 -	130	116.2	
88	Sr	2	115	5.06	ppb	1.40	5.00	70 -	130	101.2	
95	Mo	2	115	5.03	ppb	1.95	5.00	70 -	130	100.5	
107	Ag	2	115	2.02	ppb	1.64	2.00	70 -	130	101.1	
111	Cd	2	115	1.00	ppb	0.74	1.00	70 -	130	99.6	
118	Sn	2	115	4.86	ppb	1.33	5.00	70 -	130	97.1	
121	Sb	2	115	2.02	ppb	6.93	2.00	70 -	130	101.0	
137	Ba	2	115	5.08	ppb	0.76	5.00	70 -	130	101.5	
205	Tl	2	209	1.10	ppb	1.13	1.00	70 -	130	109.5	
208	Pb	2	209	1.04	ppb	5.11	1.00	70 -	130	104.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl -880.69	9.26	15.28	-5764.0	70 -	120	ISFail
45	Sc	1	94270.70	0.39	182515.06	51.7	70 -	120	ISFail
45	Sc	2	2849036.00	0.71	6126960.50	46.5	70 -	120	ISFail
72	Ge	1	51779.20	0.65	97742.99	53.0	70 -	120	ISFail
115	In	2	2628129.50	0.41	6508670.50	40.4	70 -	120	ISFail
209	Bi	2	1840413.50	0.30	4337985.50	42.4	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\083_CCB.D\083_CCB.D#

Date Acquired:	Aug 5 2016 07:24 pm	Sample Name:	**CCB3-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.147	ppb	5.69	2.00	2.00	
9	Be	2	45	0.014	ppb	43.59	0.40	0.30	
11	B	2	45	1.391	ppb	1.03	10.00	10.00	
23	Na	1	45	-12.210	ppb	2.26	50.00	#####	
24	Mg	1	45	0.448	ppb	8.56	50.00	#####	
27	Al	1	45	1.930	ppb	9.54	50.00	10.00	
39	K	1	45	-0.926	ppb	1.57	50.00	#####	
44	Ca	2	45	-4.102	ppb	5.15	50.00	#####	
47	Ti	1	45	0.031	ppb	86.60	4.00	3.00	
51	V	1	45	0.055	ppb	12.86	4.00	3.00	
52	Cr	1	45	0.018	ppb	19.42	2.00	2.00	
55	Mn	1	45	-0.094	ppb	22.32	2.00	3.00	
56	Fe	1	72	4.447	ppb	8.36	50.00	30.00	
59	Co	1	72	0.044	ppb	2.65	2.00	3.00	
60	Ni	1	72	-0.031	ppb	27.74	2.00	3.00	
63	Cu	1	72	-0.111	ppb	15.28	2.00	2.00	
66	Zn	1	72	-13.820	ppb	4.64	4.00	2.00	
75	As	1	72	-0.063	ppb	7.87	2.00	2.00	
78	Se	1	72	0.317	ppb	18.45	0.60	2.00	
88	Sr	2	115	0.034	ppb	8.32	4.00	3.00	
95	Mo	2	115	0.056	ppb	33.33	2.00	2.00	
107	Ag	2	115	0.038	ppb	10.65	0.40	1.00	
111	Cd	2	115	0.043	ppb	51.04	0.40	0.30	
118	Sn	2	115	-0.075	ppb	21.89	20.00	3.00	
121	Sb	2	115	0.065	ppb	17.38	2.00	0.80	
137	Ba	2	115	0.033	ppb	30.76	2.00	3.00	
205	Tl	2	209	0.086	ppb	13.22	2.00	0.50	
208	Pb	2	209	0.041	ppb	11.32	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-22.51	81.75	15.28	-147.3	70 - 120	ISFail
45	Sc	1		93899.19	0.25	182515.06	51.4	70 - 120	ISFail
45	Sc	2		2837484.80	0.80	6126960.50	46.3	70 - 120	ISFail
72	Ge	1		51527.91	0.16	97742.99	52.7	70 - 120	ISFail
115	In	2		2606092.50	0.81	6508670.50	40.0	70 - 120	ISFail
209	Bi	2		1824827.00	1.07	4337985.50	42.1	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\084SMPL.D\084SMPL.D#

Date Acquired:	Aug 5 2016 07:30 pm	Sample Name:	**1607239-28A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	57.630	ppb	#REF!	0.53	2000.00	>RL
9	Be	2	45	2.476	ppb	#REF!	2.95	2000.00	>RL
11	B	2	45	98.320	ppb	#REF!	1.04	2000.00	>RL
23	Na	1	45	11790.000	ppb	#REF!	0.72	25000.00	>RL
24	Mg	1	45	17730.000	ppb	#REF!	1.89	25000.00	>RL
27	Al	1	45	86300.000	ppb	#REF!	0.96	10000.00	OUTCAL
39	K	1	45	19170.000	ppb	#REF!	0.18	25000.00	>RL
44	Ca	2	45	70070.000	ppb	#REF!	2.11	25000.00	OUTCAL
47	Ti	1	45	128.600	ppb	#REF!	3.04	2000.00	>RL
51	V	1	45	89.450	ppb	#REF!	0.59	2000.00	>RL
52	Cr	1	45	66.960	ppb	#REF!	1.00	2000.00	>RL
55	Mn	1	45	364.900	ppb	#REF!	1.09	2000.00	>RL
56	Fe	1	72	102200.000	ppb	#REF!	1.19	10000.00	OUTCAL
59	Co	1	72	16.710	ppb	#REF!	1.65	2000.00	>RL
60	Ni	1	72	30.270	ppb	#REF!	1.38	2000.00	>RL
63	Cu	1	72	16.990	ppb	#REF!	0.99	2000.00	>RL
66	Zn	1	72	150.600	ppb	#REF!	1.85	2000.00	>RL
75	As	1	72	28.670	ppb	#REF!	2.04	2000.00	>RL
78	Se	1	72	14.040	ppb	#REF!	3.69	2000.00	>RL
88	Sr	2	115	1597.000	ppb	#REF!	1.36	2000.00	>RL
95	Mo	2	115	2.919	ppb	#REF!	3.46	2000.00	J
107	Ag	2	115	0.150	ppb	#REF!	10.58	500.00	ND
111	Cd	2	115	0.988	ppb	#REF!	15.71	2000.00	J
118	Sn	2	115	7.018	ppb	#REF!	2.61	2000.00	ND
121	Sb	2	115	3.883	ppb	#REF!	3.11	500.00	J
137	Ba	2	115	267.800	ppb	#REF!	0.63	2000.00	>RL
205	Tl	2	209	0.513	ppb	#REF!	6.18	2000.00	ND
208	Pb	2	209	253.600	ppb	#REF!	1.12	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5337.89	2.11	15.28	-34935.4	70 - 120	ISFail
45	Sc	1	95660.27	0.67	182515.06	52.4	70 - 120	ISFail
45	Sc	2	2918995.30	0.83	6126960.50	47.6	70 - 120	ISFail
72	Ge	1	50622.21	0.65	97742.99	51.8	70 - 120	ISFail
115	In	2	2601829.00	0.57	6508670.50	40.0	70 - 120	ISFail
209	Bi	2	1778817.30	0.15	4337985.50	41.0	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\085SMPL.D\085SMPL.D#

Date Acquired:	Aug 5 2016 07:36 pm	Sample Name:	**1607239-29A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	83.760	ppb	#REF!	1.03	2000.00	>RL
9	Be	2	45	3.972	ppb	#REF!	5.93	2000.00	>RL
11	B	2	45	116.200	ppb	#REF!	1.34	2000.00	>RL
23	Na	1	45	11710.000	ppb	#REF!	0.66	25000.00	>RL
24	Mg	1	45	19310.000	ppb	#REF!	1.39	25000.00	>RL
27	Al	1	45	76770.000	ppb	#REF!	0.33	10000.00	OUTCAL
39	K	1	45	17600.000	ppb	#REF!	0.41	25000.00	>RL
44	Ca	2	45	98230.000	ppb	#REF!	1.73	25000.00	OUTCAL
47	Ti	1	45	141.500	ppb	#REF!	2.88	2000.00	>RL
51	V	1	45	94.600	ppb	#REF!	1.09	2000.00	>RL
52	Cr	1	45	69.530	ppb	#REF!	1.59	2000.00	>RL
55	Mn	1	45	1431.000	ppb	#REF!	1.32	2000.00	>RL
56	Fe	1	72	101000.000	ppb	#REF!	1.47	10000.00	OUTCAL
59	Co	1	72	36.030	ppb	#REF!	1.21	2000.00	>RL
60	Ni	1	72	106.300	ppb	#REF!	1.61	2000.00	>RL
63	Cu	1	72	13.100	ppb	#REF!	1.35	2000.00	>RL
66	Zn	1	72	416.200	ppb	#REF!	1.27	2000.00	>RL
75	As	1	72	30.900	ppb	#REF!	1.02	2000.00	>RL
78	Se	1	72	32.800	ppb	#REF!	4.71	2000.00	>RL
88	Sr	2	115	356.300	ppb	#REF!	0.71	2000.00	>RL
95	Mo	2	115	1.663	ppb	#REF!	7.46	2000.00	ND
107	Ag	2	115	0.138	ppb	#REF!	4.33	500.00	ND
111	Cd	2	115	1.914	ppb	#REF!	2.71	2000.00	>RL
118	Sn	2	115	6.517	ppb	#REF!	2.26	2000.00	ND
121	Sb	2	115	0.360	ppb	#REF!	10.67	500.00	ND
137	Ba	2	115	105.200	ppb	#REF!	0.67	2000.00	>RL
205	Tl	2	209	1.215	ppb	#REF!	1.88	2000.00	ND
208	Pb	2	209	41.150	ppb	#REF!	0.71	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7717.87	3.52	15.28	-50511.9	70 - 120	ISFail
45	Sc	1	98127.63	0.91	182515.06	53.8	70 - 120	ISFail
45	Sc	2	3048404.00	0.34	6126960.50	49.8	70 - 120	ISFail
72	Ge	1	52534.80	0.48	97742.99	53.7	70 - 120	ISFail
115	In	2	2766535.80	0.66	6508670.50	42.5	70 - 120	ISFail
209	Bi	2	1892936.00	0.24	4337985.50	43.6	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\086SMPL.D\086SMPL.D#

Date Acquired:	Aug 5 2016 07:42 pm	Sample Name:	**1607239-30A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	112.400	ppb	#REF!	1.48	2000.00	>RL
9	Be	2	45	3.892	ppb	#REF!	1.83	2000.00	>RL
11	B	2	45	121.900	ppb	#REF!	2.46	2000.00	>RL
23	Na	1	45	10430.000	ppb	#REF!	0.68	25000.00	>RL
24	Mg	1	45	21260.000	ppb	#REF!	0.68	25000.00	>RL
27	Al	1	45	81210.000	ppb	#REF!	0.91	10000.00	OUTCAL
39	K	1	45	19850.000	ppb	#REF!	0.22	25000.00	>RL
44	Ca	2	45	54890.000	ppb	#REF!	1.87	25000.00	OUTCAL
47	Ti	1	45	136.400	ppb	#REF!	2.76	2000.00	>RL
51	V	1	45	118.400	ppb	#REF!	0.71	2000.00	>RL
52	Cr	1	45	81.910	ppb	#REF!	0.33	2000.00	>RL
55	Mn	1	45	1136.000	ppb	#REF!	0.63	2000.00	>RL
56	Fe	1	72	122300.000	ppb	#REF!	0.62	10000.00	OUTCAL
59	Co	1	72	49.070	ppb	#REF!	0.78	2000.00	>RL
60	Ni	1	72	75.400	ppb	#REF!	0.94	2000.00	>RL
63	Cu	1	72	13.420	ppb	#REF!	0.76	2000.00	>RL
66	Zn	1	72	381.400	ppb	#REF!	0.62	2000.00	>RL
75	As	1	72	31.690	ppb	#REF!	0.88	2000.00	>RL
78	Se	1	72	23.270	ppb	#REF!	2.09	2000.00	>RL
88	Sr	2	115	307.400	ppb	#REF!	2.28	2000.00	>RL
95	Mo	2	115	1.344	ppb	#REF!	0.64	2000.00	ND
107	Ag	2	115	0.138	ppb	#REF!	2.60	500.00	ND
111	Cd	2	115	1.522	ppb	#REF!	9.47	2000.00	>RL
118	Sn	2	115	6.255	ppb	#REF!	1.06	2000.00	ND
121	Sb	2	115	0.175	ppb	#REF!	11.18	500.00	ND
137	Ba	2	115	78.900	ppb	#REF!	1.85	2000.00	>RL
205	Tl	2	209	0.884	ppb	#REF!	4.17	2000.00	ND
208	Pb	2	209	43.570	ppb	#REF!	0.66	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10204.42	4.00	15.28	-66785.8	70 - 120	ISFail
45	Sc	1	98089.06	0.49	182515.06	53.7	70 - 120	ISFail
45	Sc	2	2938207.80	1.12	6126960.50	48.0	70 - 120	ISFail
72	Ge	1	52265.47	0.33	97742.99	53.5	70 - 120	ISFail
115	In	2	2626842.80	0.98	6508670.50	40.4	70 - 120	ISFail
209	Bi	2	1799965.10	0.79	4337985.50	41.5	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\087SMPL.D\087SMPL.D#

Date Acquired:	Aug 5 2016 07:48 pm	Sample Name:	**1607239-31A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	126.000	ppb	#REF!	1.07	2000.00	>RL
9	Be	2	45	2.970	ppb	#REF!	2.39	2000.00	>RL
11	B	2	45	110.600	ppb	#REF!	1.55	2000.00	>RL
23	Na	1	45	10590.000	ppb	#REF!	0.54	25000.00	>RL
24	Mg	1	45	21490.000	ppb	#REF!	0.33	25000.00	>RL
27	Al	1	45	74950.000	ppb	#REF!	0.44	10000.00	OUTCAL
39	K	1	45	16620.000	ppb	#REF!	0.14	25000.00	>RL
44	Ca	2	45	49710.000	ppb	#REF!	1.30	25000.00	OUTCAL
47	Ti	1	45	150.900	ppb	#REF!	2.13	2000.00	>RL
51	V	1	45	114.000	ppb	#REF!	0.51	2000.00	>RL
52	Cr	1	45	79.020	ppb	#REF!	1.25	2000.00	>RL
55	Mn	1	45	1648.000	ppb	#REF!	0.69	2000.00	>RL
56	Fe	1	72	110500.000	ppb	#REF!	0.60	10000.00	OUTCAL
59	Co	1	72	56.890	ppb	#REF!	0.77	2000.00	>RL
60	Ni	1	72	64.960	ppb	#REF!	0.73	2000.00	>RL
63	Cu	1	72	12.300	ppb	#REF!	0.89	2000.00	>RL
66	Zn	1	72	306.100	ppb	#REF!	0.85	2000.00	>RL
75	As	1	72	24.610	ppb	#REF!	0.85	2000.00	>RL
78	Se	1	72	13.000	ppb	#REF!	4.68	2000.00	>RL
88	Sr	2	115	126.700	ppb	#REF!	1.88	2000.00	>RL
95	Mo	2	115	0.642	ppb	#REF!	10.96	2000.00	ND
107	Ag	2	115	0.122	ppb	#REF!	8.30	500.00	ND
111	Cd	2	115	1.032	ppb	#REF!	13.96	2000.00	J
118	Sn	2	115	6.369	ppb	#REF!	3.22	2000.00	ND
121	Sb	2	115	0.121	ppb	#REF!	7.30	500.00	ND
137	Ba	2	115	55.950	ppb	#REF!	1.69	2000.00	>RL
205	Tl	2	209	0.639	ppb	#REF!	4.27	2000.00	ND
208	Pb	2	209	38.640	ppb	#REF!	0.90	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11224.16	2.25	15.28	-73459.9	70 - 120	ISFail
45	Sc	1	92818.34	0.40	182515.06	50.9	70 - 120	ISFail
45	Sc	2	2790805.50	1.22	6126960.50	45.5	70 - 120	ISFail
72	Ge	1	48928.45	0.64	97742.99	50.1	70 - 120	ISFail
115	In	2	2457787.00	0.29	6508670.50	37.8	70 - 120	ISFail
209	Bi	2	1690027.60	0.42	4337985.50	39.0	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\096CCV1.D\096CCV1.D#

Date Acquired:	Aug 5 2016 08:42 pm	Sample Name:	**CCV4-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	184.50	ppb	1.59	200.00	90 -	110	92.3	
9	Be	2	45	175.80	ppb	1.17	200.00	90 -	110	87.9	Fail
11	B	2	45	166.80	ppb	0.99	200.00	90 -	110	83.4	Fail
23	Na	1	45	4933.00	ppb	1.04	5000.00	90 -	110	98.7	
24	Mg	1	45	4930.00	ppb	1.51	5000.00	90 -	110	98.6	
27	Al	1	45	5093.00	ppb	1.44	5000.00	90 -	110	101.9	
39	K	1	45	5189.00	ppb	1.13	5000.00	90 -	110	103.8	
44	Ca	2	45	5165.00	ppb	1.90	5000.00	90 -	110	103.3	
47	Ti	1	45	199.00	ppb	2.23	200.00	90 -	110	99.5	
51	V	1	45	198.50	ppb	0.94	200.00	90 -	110	99.3	
52	Cr	1	45	201.70	ppb	1.49	200.00	90 -	110	100.9	
55	Mn	1	45	208.10	ppb	0.96	200.00	90 -	110	104.1	
56	Fe	1	72	5157.00	ppb	1.10	5000.00	90 -	110	103.1	
59	Co	1	72	198.80	ppb	1.44	200.00	90 -	110	99.4	
60	Ni	1	72	194.80	ppb	1.05	200.00	90 -	110	97.4	
63	Cu	1	72	202.30	ppb	1.68	200.00	90 -	110	101.2	
66	Zn	1	72	194.60	ppb	1.52	200.00	90 -	110	97.3	
75	As	1	72	205.10	ppb	1.16	200.00	90 -	110	102.6	
78	Se	1	72	214.70	ppb	1.34	200.00	90 -	110	107.4	
88	Sr	2	115	213.60	ppb	1.25	200.00	90 -	110	106.8	
95	Mo	2	115	201.80	ppb	0.71	200.00	90 -	110	100.9	
107	Ag	2	115	206.30	ppb	0.72	200.00	90 -	110	103.2	
111	Cd	2	115	198.90	ppb	1.29	200.00	90 -	110	99.5	
118	Sn	2	115	196.30	ppb	1.05	200.00	90 -	110	98.2	
121	Sb	2	115	193.20	ppb	0.73	200.00	90 -	110	96.6	
137	Ba	2	115	200.50	ppb	1.52	200.00	90 -	110	100.3	
205	Tl	2	209	196.00	ppb	0.36	200.00	90 -	110	98.0	
208	Pb	2	209	195.70	ppb	0.18	200.00	90 -	110	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-32735.49	1.63	15.28	-214247.2	70 -	120	ISFail
45	Sc	1	92563.81	0.62	182515.06	50.7	70 -	120	ISFail
45	Sc	2	2991547.80	0.75	6126960.50	48.8	70 -	120	ISFail
72	Ge	1	50220.67	1.03	97742.99	51.4	70 -	120	ISFail
115	In	2	2688048.50	0.07	6508670.50	41.3	70 -	120	ISFail
209	Bi	2	1822637.50	0.68	4337985.50	42.0	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\098LCVL.D\098LCVL.D#

Date Acquired:	Aug 5 2016 08:54 pm	Sample Name:	**LCVL4-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.17	ppb	1.32	10.00	70 -	130	91.7	
9	Be	2	45	0.86	ppb	1.39	1.00	70 -	130	85.6	
11	B	2	45	17.66	ppb	1.43	20.00	70 -	130	88.3	
23	Na	1	45	83.84	ppb	2.90	100.00	70 -	130	83.8	
24	Mg	1	45	99.10	ppb	5.39	100.00	70 -	130	99.1	
27	Al	1	45	107.70	ppb	2.21	100.00	70 -	130	107.7	
39	K	1	45	106.60	ppb	1.37	100.00	70 -	130	106.6	
44	Ca	2	45	99.59	ppb	1.41	100.00	70 -	130	99.6	
47	Ti	1	45	5.90	ppb	8.15	5.00	70 -	130	118.0	
51	V	1	45	1.07	ppb	0.72	1.00	70 -	130	107.0	
52	Cr	1	45	5.24	ppb	3.59	5.00	70 -	130	104.8	
55	Mn	1	45	4.94	ppb	2.36	5.00	70 -	130	98.9	
56	Fe	1	72	109.00	ppb	1.77	100.00	70 -	130	109.0	
59	Co	1	72	4.95	ppb	1.29	5.00	70 -	130	99.0	
60	Ni	1	72	4.96	ppb	2.07	5.00	70 -	130	99.2	
63	Cu	1	72	4.92	ppb	3.09	5.00	70 -	130	98.5	
66	Zn	1	72	-8.97	ppb	3.65	5.00	70 -	130	-179.3	Fail
75	As	1	72	5.15	ppb	0.72	5.00	70 -	130	103.0	
78	Se	1	72	5.80	ppb	12.75	5.00	70 -	130	116.1	
88	Sr	2	115	5.22	ppb	0.29	5.00	70 -	130	104.3	
95	Mo	2	115	4.98	ppb	2.22	5.00	70 -	130	99.7	
107	Ag	2	115	2.05	ppb	0.37	2.00	70 -	130	102.3	
111	Cd	2	115	0.97	ppb	17.95	1.00	70 -	130	96.7	
118	Sn	2	115	4.78	ppb	2.99	5.00	70 -	130	95.5	
121	Sb	2	115	1.94	ppb	3.70	2.00	70 -	130	96.8	
137	Ba	2	115	4.83	ppb	1.38	5.00	70 -	130	96.7	
205	Tl	2	209	1.06	ppb	2.61	1.00	70 -	130	105.5	
208	Pb	2	209	1.01	ppb	1.93	1.00	70 -	130	101.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl -888.00	6.73	15.28	-5811.8	70 -	120	ISFail
45	Sc	1	84989.77	1.45	182515.06	46.6	70 -	120	ISFail
45	Sc	2	2764992.00	0.86	6126960.50	45.1	70 -	120	ISFail
72	Ge	1	47371.27	1.00	97742.99	48.5	70 -	120	ISFail
115	In	2	2513358.80	0.73	6508670.50	38.6	70 -	120	ISFail
209	Bi	2	1725185.90	1.54	4337985.50	39.8	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\099_CCB.D\099_CCB.D#

Date Acquired:	Aug 5 2016 09:00 pm	Sample Name:	**CCB4-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.124	ppb	9.85	2.00	2.00	
9	Be	2	45	0.011	ppb	52.03	0.40	0.30	
11	B	2	45	1.199	ppb	6.10	10.00	10.00	
23	Na	1	45	-12.490	ppb	2.42	50.00	#####	
24	Mg	1	45	0.118	ppb	3.81	50.00	#####	
27	Al	1	45	1.106	ppb	6.35	50.00	10.00	
39	K	1	45	-1.638	ppb	4.25	50.00	#####	
44	Ca	2	45	-4.524	ppb	7.90	50.00	#####	
47	Ti	1	45	0.069	ppb	0.00	4.00	3.00	
51	V	1	45	0.016	ppb	1.49	4.00	3.00	
52	Cr	1	45	0.021	ppb	18.65	2.00	2.00	
55	Mn	1	45	-0.115	ppb	33.30	2.00	3.00	
56	Fe	1	72	2.639	ppb	2.27	50.00	30.00	
59	Co	1	72	0.037	ppb	5.56	2.00	3.00	
60	Ni	1	72	0.001	ppb	24.11	2.00	3.00	
63	Cu	1	72	-0.106	ppb	12.15	2.00	2.00	
66	Zn	1	72	-14.020	ppb	23.67	4.00	2.00	
75	As	1	72	-0.061	ppb	9.71	2.00	2.00	
78	Se	1	72	0.221	ppb	7.14	0.60	2.00	
88	Sr	2	115	0.027	ppb	17.88	4.00	3.00	
95	Mo	2	115	0.067	ppb	21.79	2.00	2.00	
107	Ag	2	115	0.030	ppb	7.53	0.40	1.00	
111	Cd	2	115	0.022	ppb	22.88	0.40	0.30	
118	Sn	2	115	-0.095	ppb	11.70	20.00	3.00	
121	Sb	2	115	0.029	ppb	25.51	2.00	0.80	
137	Ba	2	115	0.029	ppb	30.05	2.00	3.00	
205	Tl	2	209	0.083	ppb	6.79	2.00	0.50	
208	Pb	2	209	0.039	ppb	20.35	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-13.65	179.47	15.28	-89.3	70 - 120	ISFail
45	Sc	1		88485.43	0.80	182515.06	48.5	70 - 120	ISFail
45	Sc	2		2787292.30	0.43	6126960.50	45.5	70 - 120	ISFail
72	Ge	1		49089.09	1.47	97742.99	50.2	70 - 120	ISFail
115	In	2		2540619.80	0.85	6508670.50	39.0	70 - 120	ISFail
209	Bi	2		1759292.30	0.71	4337985.50	40.6	70 - 120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\100__PB.D\100__PB.D#

Date Acquired:	Aug 5 2016 09:06 pm	Sample Name:	**MB-76649**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.084	ppb	3.00	2.0	8.00	
9	Be	2	45	-0.009	ppb	49.49	0.4	1.20	
11	B	2	45	0.908	ppb	6.93	10.0	30.00	
23	Na	1	45	-10.130	ppb	0.75	50.0	#####	
24	Mg	1	45	7.119	ppb	3.84	50.0	#####	
27	Al	1	45	4.991	ppb	12.46	50.0	#####	
39	K	1	45	-2.276	ppb	0.79	50.0	#####	
44	Ca	2	45	17.120	ppb	3.15	50.0	#####	
47	Ti	1	45	0.037	ppb	86.60	4.0	10.00	
51	V	1	45	0.041	ppb	14.00	4.0	10.00	
52	Cr	1	45	0.133	ppb	3.75	2.0	8.00	
55	Mn	1	45	-0.119	ppb	10.39	2.0	8.00	
56	Fe	1	72	3.418	ppb	3.44	50.0	#####	
59	Co	1	72	0.009	ppb	22.43	2.0	8.00	
60	Ni	1	72	-0.025	ppb	18.33	2.0	8.00	
63	Cu	1	72	-0.108	ppb	9.83	2.0	8.00	
66	Zn	1	72	-9.136	ppb	5.66	4.0	10.00	
75	As	1	72	-0.110	ppb	8.05	2.0	4.00	
78	Se	1	72	0.067	ppb	12.03	0.6	2.00	
88	Sr	2	115	0.062	ppb	9.23	4.0	10.00	
95	Mo	2	115	0.029	ppb	5.59	2.0	8.00	
107	Ag	2	115	0.008	ppb	47.79	0.4	0.80	
111	Cd	2	115	-0.023	ppb	261.24	0.4	1.20	
118	Sn	2	115	4.271	ppb	2.38	20.0	40.00	
121	Sb	2	115	0.002	ppb	37.50	2.0	4.00	
137	Ba	2	115	0.036	ppb	4.68	2.0	8.00	
205	Tl	2	209	0.029	ppb	14.00	2.0	4.00	
208	Pb	2	209	0.040	ppb	16.11	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-16.94	45.23	15.28	-110.9	70 - 120	ISFail
45	Sc	1		86661.85	0.19	182515.06	47.5	70 - 120	ISFail
45	Sc	2		2642436.80	0.75	6126960.50	43.1	70 - 120	ISFail
72	Ge	1		47058.06	0.20	97742.99	48.1	70 - 120	ISFail
115	In	2		2364656.80	0.56	6508670.50	36.3	70 - 120	ISFail
209	Bi	2		1636654.40	0.62	4337985.50	37.7	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\101_LCS.D\101_LCS.D#

Date Acquired:	Aug 5 2016 09:12 pm	Sample Name:	**LCS-76649**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	170.10	ppb	0.73	200.00	80 -	120	85.1	
9	Be	2	45	160.90	ppb	0.95	200.00	80 -	120	80.5	
11	B	2	45	153.00	ppb	0.98	200.00	80 -	120	76.5	Fail
23	Na	1	45	4689.00	ppb	0.75	5000.00	80 -	120	93.8	
24	Mg	1	45	4702.00	ppb	1.34	5000.00	80 -	120	94.0	
27	Al	1	45	1025.00	ppb	1.28	1000.00	80 -	120	102.5	
39	K	1	45	5017.00	ppb	0.26	5000.00	80 -	120	100.3	
44	Ca	2	45	4909.00	ppb	1.52	5000.00	80 -	120	98.2	
47	Ti	1	45	199.30	ppb	3.81	200.00	80 -	120	99.7	
51	V	1	45	192.60	ppb	1.38	200.00	80 -	120	96.3	
52	Cr	1	45	196.00	ppb	1.21	200.00	80 -	120	98.0	
55	Mn	1	45	203.30	ppb	0.70	200.00	80 -	120	101.7	
56	Fe	1	72	969.80	ppb	1.13	1000.00	80 -	120	97.0	
59	Co	1	72	191.30	ppb	1.44	200.00	80 -	120	95.7	
60	Ni	1	72	187.60	ppb	1.14	200.00	80 -	120	93.8	
63	Cu	1	72	192.50	ppb	0.78	200.00	80 -	120	96.3	
66	Zn	1	72	183.10	ppb	0.80	200.00	80 -	120	91.6	
75	As	1	72	191.20	ppb	1.32	200.00	80 -	120	95.6	
78	Se	1	72	199.60	ppb	1.45	200.00	80 -	120	99.8	
88	Sr	2	115	196.60	ppb	1.00	200.00	80 -	120	98.3	
95	Mo	2	115	194.40	ppb	0.55	200.00	80 -	120	97.2	
107	Ag	2	115	196.00	ppb	0.65	200.00	80 -	120	98.0	
111	Cd	2	115	185.20	ppb	0.94	200.00	80 -	120	92.6	
118	Sn	2	115	194.30	ppb	0.47	200.00	80 -	120	97.2	
121	Sb	2	115	182.80	ppb	0.77	200.00	80 -	120	91.4	
137	Ba	2	115	192.40	ppb	0.92	200.00	80 -	120	96.2	
205	Tl	2	209	192.00	ppb	1.02	200.00	80 -	120	96.0	
208	Pb	2	209	191.00	ppb	0.47	200.00	80 -	120	95.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-26300.06	0.42	15.28	-172128.6	70 -	120	ISFail
45	Sc	1	83368.56	0.39	182515.06	45.7	70 -	120	ISFail
45	Sc	2	2629841.00	0.30	6126960.50	42.9	70 -	120	ISFail
72	Ge	1	45584.79	1.04	97742.99	46.6	70 -	120	ISFail
115	In	2	2327440.00	0.31	6508670.50	35.8	70 -	120	ISFail
209	Bi	2	1577762.40	0.63	4337985.50	36.4	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\102_LCS.D\102_LCS.D#

Date Acquired:	Aug 5 2016 09:18 pm	Sample Name:	**LCSD-76649**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	169.60	ppb	0.63	200.00	80 -	120	84.8	
9	Be	2	45	159.20	ppb	1.02	200.00	80 -	120	79.6	Fail
11	B	2	45	151.30	ppb	0.44	200.00	80 -	120	75.7	Fail
23	Na	1	45	4760.00	ppb	0.48	5000.00	80 -	120	95.2	
24	Mg	1	45	4758.00	ppb	0.70	5000.00	80 -	120	95.2	
27	Al	1	45	994.80	ppb	0.70	1000.00	80 -	120	99.5	
39	K	1	45	5078.00	ppb	1.07	5000.00	80 -	120	101.6	
44	Ca	2	45	4892.00	ppb	1.47	5000.00	80 -	120	97.8	
47	Ti	1	45	199.40	ppb	3.58	200.00	80 -	120	99.7	
51	V	1	45	195.20	ppb	0.12	200.00	80 -	120	97.6	
52	Cr	1	45	199.30	ppb	0.67	200.00	80 -	120	99.7	
55	Mn	1	45	205.00	ppb	0.68	200.00	80 -	120	102.5	
56	Fe	1	72	987.00	ppb	0.65	1000.00	80 -	120	98.7	
59	Co	1	72	195.20	ppb	1.14	200.00	80 -	120	97.6	
60	Ni	1	72	191.60	ppb	1.08	200.00	80 -	120	95.8	
63	Cu	1	72	196.50	ppb	0.66	200.00	80 -	120	98.3	
66	Zn	1	72	185.50	ppb	0.40	200.00	80 -	120	92.8	
75	As	1	72	194.10	ppb	0.49	200.00	80 -	120	97.1	
78	Se	1	72	195.50	ppb	1.04	200.00	80 -	120	97.8	
88	Sr	2	115	195.70	ppb	1.54	200.00	80 -	120	97.9	
95	Mo	2	115	194.20	ppb	1.12	200.00	80 -	120	97.1	
107	Ag	2	115	194.30	ppb	1.18	200.00	80 -	120	97.2	
111	Cd	2	115	185.50	ppb	1.60	200.00	80 -	120	92.8	
118	Sn	2	115	193.20	ppb	0.53	200.00	80 -	120	96.6	
121	Sb	2	115	180.90	ppb	0.20	200.00	80 -	120	90.5	
137	Ba	2	115	192.00	ppb	0.62	200.00	80 -	120	96.0	
205	Tl	2	209	190.70	ppb	0.91	200.00	80 -	120	95.4	
208	Pb	2	209	189.60	ppb	0.15	200.00	80 -	120	94.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-27132.64	0.65	15.28	-177577.7	70 -	120	ISFail
45	Sc	1	83751.98	0.59	182515.06	45.9	70 -	120	ISFail
45	Sc	2	2676861.50	0.58	6126960.50	43.7	70 -	120	ISFail
72	Ge	1	45557.34	0.85	97742.99	46.6	70 -	120	ISFail
115	In	2	2372739.30	0.72	6508670.50	36.5	70 -	120	ISFail
209	Bi	2	1618426.60	1.06	4337985.50	37.3	70 -	120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\105DT1.D\105DT1.D#

Date Acquired:	Aug 5 2016 09:36 pm	Sample Name:	**1607256-07A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	16.79	ppb	0.74	-1494.53	90 -	110	-5.6	
9	Be	2	45	0.58	ppb	6.40	2.70	90 -	110	106.5	GOOD
11	B	2	45	16.50	ppb	0.88	76.60	90 -	110	107.7	GOOD
23	Na	1	45	807.10	ppb	0.32	4140.00	90 -	110	97.5	GOOD
24	Mg	1	45	2665.00	ppb	1.30	13840.00	90 -	110	96.3	GOOD
27	Al	1	45	10410.00	ppb	1.68	54980.00	90 -	110	94.7	GOOD
39	K	1	45	2956.00	ppb	0.79	14760.00	90 -	110	100.1	GOOD
44	Ca	2	45	37990.00	ppb	0.20	186900.00	90 -	110	101.6	GOOD
47	Ti	1	45	29.87	ppb	10.67	153.30	90 -	110	97.4	GOOD
51	V	1	45	18.67	ppb	1.26	93.41	90 -	110	99.9	GOOD
52	Cr	1	45	12.60	ppb	2.85	62.28	90 -	110	101.2	GOOD
55	Mn	1	45	109.30	ppb	0.91	539.70	90 -	110	101.3	GOOD
56	Fe	1	72	14330.00	ppb	1.67	71720.00	90 -	110	99.9	GOOD
59	Co	1	72	7.28	ppb	1.23	36.34	90 -	110	100.1	GOOD
60	Ni	1	72	9.10	ppb	1.30	44.71	90 -	110	101.8	GOOD
63	Cu	1	72	1.28	ppb	3.32	6.89	90 -	110	92.7	GOOD
66	Zn	1	72	22.55	ppb	1.22	149.70	90 -	110	75.3	
75	As	1	72	3.80	ppb	2.09	18.49	90 -	110	102.8	GOOD
78	Se	1	72	3.26	ppb	14.37	14.93	90 -	110	109.3	GOOD
88	Sr	2	115	65.43	ppb	0.73	344.30	90 -	110	95.0	GOOD
95	Mo	2	115	0.42	ppb	3.56	1.98	90 -	110	105.8	GOOD
107	Ag	2	115	0.03	ppb	12.00	0.15	90 -	110	102.6	GOOD
111	Cd	2	115	0.21	ppb	15.52	0.95	90 -	110	111.5	
118	Sn	2	115	0.84	ppb	4.42	5.42	90 -	110	77.8	
121	Sb	2	115	0.05	ppb	24.36	0.23	90 -	110	116.4	
137	Ba	2	115	86.69	ppb	1.12	439.90	90 -	110	98.5	GOOD
205	Tl	2	209	0.13	ppb	9.87	0.47	90 -	110	134.2	
208	Pb	2	209	4.80	ppb	1.97	24.45	90 -	110	98.2	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1494.53	10.93	15.28	-9781.4	70 -	120	ISFail
45	Sc	1		92809.38	0.50	182515.06	50.9	70 -	120	ISFail
45	Sc	2		2964303.80	0.77	6126960.50	48.4	70 -	120	ISFail
72	Ge	1		50575.75	1.20	97742.99	51.7	70 -	120	ISFail
115	In	2		2656894.30	0.63	6508670.50	40.8	70 -	120	ISFail
209	Bi	2		1819994.40	0.93	4337985.50	42.0	70 -	120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\116_PDS.D\116_PDS.D#

Date Acquired:	Aug 5 2016 10:42 pm	Sample Name:	**1607256-07A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	234.00	ppb	0.56	-22201.41	200	75-125	######	Fail
9	Be	2	45	146.60	ppb	0.13	2.70	200	75-125	71.9	Fail
11	B	2	45	203.70	ppb	0.90	76.60	200	75-125	63.6	Fail
23	Na	1	45	8875.00	ppb	2.02	4140.00	5000	75-125	94.7	
24	Mg	1	45	18100.00	ppb	0.87	13840.00	5000	75-125	85.2	
27	Al	1	45	58370.00	ppb	2.40	54980.00	5000	75-125	67.8	Fail
39	K	1	45	19290.00	ppb	1.03	14760.00	5000	75-125	90.6	
44	Ca	2	45	189600.00	ppb	1.78	186900.00	5000	75-125	54.0	Fail
47	Ti	1	45	341.00	ppb	2.58	153.30	200	75-125	93.9	
51	V	1	45	282.30	ppb	1.84	93.41	200	75-125	94.4	
52	Cr	1	45	252.20	ppb	1.54	62.28	200	75-125	95.0	
55	Mn	1	45	729.40	ppb	1.59	539.70	200	75-125	94.8	
56	Fe	1	72	75930.00	ppb	1.45	71720.00	5000	75-125	84.2	
59	Co	1	72	216.20	ppb	0.80	36.34	200	75-125	89.9	
60	Ni	1	72	216.30	ppb	1.35	44.71	200	75-125	85.8	
63	Cu	1	72	178.60	ppb	0.83	6.89	200	75-125	85.9	
66	Zn	1	72	319.40	ppb	2.08	149.70	200	75-125	84.9	
75	As	1	72	201.10	ppb	0.81	18.49	200	75-125	91.3	
78	Se	1	72	190.40	ppb	1.86	14.93	200	75-125	87.7	
88	Sr	2	115	548.20	ppb	0.95	344.30	200	75-125	102.0	
95	Mo	2	115	189.20	ppb	0.34	1.98	200	75-125	93.6	
107	Ag	2	115	180.80	ppb	1.20	0.15	200	75-125	90.3	
111	Cd	2	115	173.90	ppb	0.62	0.95	200	75-125	86.5	
118	Sn	2	115	190.20	ppb	0.68	5.42	200	75-125	92.4	
121	Sb	2	115	176.00	ppb	0.27	0.23	200	75-125	87.9	
137	Ba	2	115	625.10	ppb	0.30	439.90	200	75-125	92.6	
205	Tl	2	209	187.30	ppb	0.85	0.47	200	75-125	93.4	
208	Pb	2	209	209.70	ppb	0.22	24.45	200	75-125	92.6	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	-22201.41	5.77	15.28	-145303.8	70	-	120	ISFail
45	Sc	1		83310.10	1.50	182515.06	45.6	70	-	120	ISFail
45	Sc	2		2696177.00	1.40	6126960.50	44.0	70	-	120	ISFail
72	Ge	1		44510.19	0.76	97742.99	45.5	70	-	120	ISFail
115	In	2		2348260.80	0.40	6508670.50	36.1	70	-	120	ISFail
209	Bi	2		1531520.80	0.15	4337985.50	35.3	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\117_MS.D\117_MS.D#

Date Acquired:	Aug 5 2016 10:48 pm	Sample Name:	**1607256-07A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	247.50	ppb	1.04	########	200	80-120	######	Fail
9	Be	2	45	151.40	ppb	1.66	2.70	200	80-120	74.3	Fail
11	B	2	45	212.00	ppb	2.66	76.60	200	80-120	67.7	Fail
23	Na	1	45	8943.00	ppb	0.30	4140.00	5000	80-120	96.1	
24	Mg	1	45	18670.00	ppb	0.57	13840.00	5000	80-120	96.6	
27	Al	1	45	60850.00	ppb	1.40	54980.00	1000	80-120	587.0	Fail
39	K	1	45	20350.00	ppb	0.39	14760.00	5000	80-120	111.8	
44	Ca	2	45	164700.00	ppb	2.36	########	5000	80-120	-444.0	Fail
47	Ti	1	45	315.10	ppb	1.59	153.30	200	80-120	80.9	
51	V	1	45	295.60	ppb	0.43	93.41	200	80-120	101.1	
52	Cr	1	45	256.90	ppb	1.24	62.28	200	80-120	97.3	
55	Mn	1	45	813.30	ppb	1.11	539.70	200	80-120	136.8	Fail
56	Fe	1	72	75610.00	ppb	1.09	71720.00	1000	80-120	389.0	Fail
59	Co	1	72	230.20	ppb	0.84	36.34	200	80-120	96.9	
60	Ni	1	72	229.30	ppb	0.90	44.71	200	80-120	92.3	
63	Cu	1	72	190.30	ppb	0.88	6.89	200	80-120	91.7	
66	Zn	1	72	332.50	ppb	2.01	149.70	200	80-120	91.4	
75	As	1	72	207.50	ppb	0.79	18.49	200	80-120	94.5	
78	Se	1	72	203.00	ppb	1.42	14.93	200	80-120	94.0	
88	Sr	2	115	541.50	ppb	1.70	344.30	200	80-120	98.6	
95	Mo	2	115	188.60	ppb	2.23	1.98	200	80-120	93.3	
107	Ag	2	115	186.70	ppb	1.44	0.15	200	80-120	93.3	
111	Cd	2	115	180.50	ppb	1.60	0.95	200	80-120	89.8	
118	Sn	2	115	195.40	ppb	2.23	5.42	200	80-120	95.0	
121	Sb	2	115	58.91	ppb	1.40	0.23	200	80-120	29.3	Fail
137	Ba	2	115	750.70	ppb	1.61	439.90	200	80-120	155.4	Fail
205	Tl	2	209	197.60	ppb	1.29	0.47	200	80-120	98.6	
208	Pb	2	209	219.90	ppb	0.77	24.45	200	80-120	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-31687.79	0.89	15.28	########	70	-	120	ISFail
45	Sc	1	83056.76	0.13	182515.06	45.5	70	-	120	ISFail
45	Sc	2	2575829.50	1.40	6126960.50	42.0	70	-	120	ISFail
72	Ge	1	44040.97	0.37	97742.99	45.1	70	-	120	ISFail
115	In	2	2213409.00	0.51	6508670.50	34.0	70	-	120	ISFail
209	Bi	2	1443563.60	0.81	4337985.50	33.3	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\118_MS.D\118_MS.D#

Date Acquired:	Aug 5 2016 10:54 pm	Sample Name:	**1607256-07A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	250.10	ppb	1.39	########	200	80-120	######	Fail
9	Be	2	45	153.30	ppb	1.81	2.70	200	80-120	75.3	Fail
11	B	2	45	213.20	ppb	2.00	76.60	200	80-120	68.3	Fail
23	Na	1	45	8849.00	ppb	1.42	4140.00	5000	80-120	94.2	
24	Mg	1	45	18220.00	ppb	1.13	13840.00	5000	80-120	87.6	
27	Al	1	45	57440.00	ppb	1.76	54980.00	1000	80-120	246.0	Fail
39	K	1	45	19780.00	ppb	0.73	14760.00	5000	80-120	100.4	
44	Ca	2	45	141900.00	ppb	1.33	########	5000	80-120	-900.0	Fail
47	Ti	1	45	313.60	ppb	2.31	153.30	200	80-120	80.2	
51	V	1	45	287.10	ppb	0.99	93.41	200	80-120	96.8	
52	Cr	1	45	255.60	ppb	1.11	62.28	200	80-120	96.7	
55	Mn	1	45	619.90	ppb	1.03	539.70	200	80-120	40.1	Fail
56	Fe	1	72	73440.00	ppb	1.39	71720.00	1000	80-120	172.0	Fail
59	Co	1	72	221.90	ppb	0.83	36.34	200	80-120	92.8	
60	Ni	1	72	223.60	ppb	1.25	44.71	200	80-120	89.4	
63	Cu	1	72	189.00	ppb	0.86	6.89	200	80-120	91.1	
66	Zn	1	72	329.90	ppb	1.29	149.70	200	80-120	90.1	
75	As	1	72	205.00	ppb	1.07	18.49	200	80-120	93.3	
78	Se	1	72	197.60	ppb	1.37	14.93	200	80-120	91.3	
88	Sr	2	115	557.80	ppb	0.37	344.30	200	80-120	106.8	
95	Mo	2	115	187.80	ppb	1.02	1.98	200	80-120	92.9	
107	Ag	2	115	184.10	ppb	1.11	0.15	200	80-120	92.0	
111	Cd	2	115	180.30	ppb	0.96	0.95	200	80-120	89.7	
118	Sn	2	115	194.60	ppb	1.11	5.42	200	80-120	94.6	
121	Sb	2	115	57.93	ppb	1.02	0.23	200	80-120	28.8	Fail
137	Ba	2	115	1605.00	ppb	0.59	439.90	200	80-120	582.6	Fail
205	Tl	2	209	196.00	ppb	0.76	0.47	200	80-120	97.8	
208	Pb	2	209	216.20	ppb	0.25	24.45	200	80-120	95.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-34362.36	0.68	15.28	########	70	-	120	ISFail
45	Sc	1	84385.21	0.58	182515.06	46.2	70	-	120	ISFail
45	Sc	2	2744121.30	1.47	6126960.50	44.8	70	-	120	ISFail
72	Ge	1	44600.30	0.57	97742.99	45.6	70	-	120	ISFail
115	In	2	2366144.50	1.34	6508670.50	36.4	70	-	120	ISFail
209	Bi	2	1535965.80	0.26	4337985.50	35.4	70	-	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\120CCV1.D\120CCV1.D#

Date Acquired:	Aug 5 2016 11:06 pm	Sample Name:	**CCV5-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	173.30	ppb	0.61	200.00	90 -	110	86.7	Fail
9	Be	2	45	166.90	ppb	0.38	200.00	90 -	110	83.5	Fail
11	B	2	45	155.80	ppb	1.38	200.00	90 -	110	77.9	Fail
23	Na	1	45	4787.00	ppb	0.49	5000.00	90 -	110	95.7	
24	Mg	1	45	4780.00	ppb	1.40	5000.00	90 -	110	95.6	
27	Al	1	45	4983.00	ppb	1.25	5000.00	90 -	110	99.7	
39	K	1	45	5223.00	ppb	0.69	5000.00	90 -	110	104.5	
44	Ca	2	45	5107.00	ppb	1.73	5000.00	90 -	110	102.1	
47	Ti	1	45	196.70	ppb	2.09	200.00	90 -	110	98.4	
51	V	1	45	196.00	ppb	0.87	200.00	90 -	110	98.0	
52	Cr	1	45	197.50	ppb	1.11	200.00	90 -	110	98.8	
55	Mn	1	45	207.00	ppb	1.26	200.00	90 -	110	103.5	
56	Fe	1	72	5073.00	ppb	0.51	5000.00	90 -	110	101.5	
59	Co	1	72	193.10	ppb	0.65	200.00	90 -	110	96.6	
60	Ni	1	72	190.40	ppb	0.47	200.00	90 -	110	95.2	
63	Cu	1	72	195.60	ppb	0.81	200.00	90 -	110	97.8	
66	Zn	1	72	191.20	ppb	1.38	200.00	90 -	110	95.6	
75	As	1	72	203.50	ppb	0.79	200.00	90 -	110	101.8	
78	Se	1	72	215.00	ppb	0.82	200.00	90 -	110	107.5	
88	Sr	2	115	204.60	ppb	1.34	200.00	90 -	110	102.3	
95	Mo	2	115	200.70	ppb	1.17	200.00	90 -	110	100.4	
107	Ag	2	115	202.50	ppb	1.00	200.00	90 -	110	101.3	
111	Cd	2	115	194.10	ppb	0.87	200.00	90 -	110	97.1	
118	Sn	2	115	193.40	ppb	0.18	200.00	90 -	110	96.7	
121	Sb	2	115	190.40	ppb	0.38	200.00	90 -	110	95.2	
137	Ba	2	115	197.10	ppb	0.91	200.00	90 -	110	98.6	
205	Tl	2	209	195.60	ppb	0.42	200.00	90 -	110	97.8	
208	Pb	2	209	195.20	ppb	0.39	200.00	90 -	110	97.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-24609.43	0.35	15.28	-161063.8	70 -	120	ISFail
45	Sc	1	77280.65	0.25	182515.06	42.3	70 -	120	ISFail
45	Sc	2	2412794.80	1.74	6126960.50	39.4	70 -	120	ISFail
72	Ge	1	42262.75	0.57	97742.99	43.2	70 -	120	ISFail
115	In	2	2103436.50	1.21	6508670.50	32.3	70 -	120	ISFail
209	Bi	2	1407540.30	0.18	4337985.50	32.4	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\122LCVL.D\122LCVL.D#

Date Acquired:	Aug 5 2016 11:18 pm	Sample Name:	**LCVL5-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.50	ppb	0.84	10.00	70 -	130	85.0	
9	Be	2	45	0.76	ppb	3.98	1.00	70 -	130	76.0	
11	B	2	45	16.61	ppb	2.18	20.00	70 -	130	83.1	
23	Na	1	45	78.33	ppb	0.94	100.00	70 -	130	78.3	
24	Mg	1	45	95.82	ppb	2.74	100.00	70 -	130	95.8	
27	Al	1	45	100.40	ppb	1.77	100.00	70 -	130	100.4	
39	K	1	45	104.80	ppb	2.88	100.00	70 -	130	104.8	
44	Ca	2	45	93.46	ppb	0.09	100.00	70 -	130	93.5	
47	Ti	1	45	5.41	ppb	2.77	5.00	70 -	130	108.2	
51	V	1	45	1.02	ppb	8.68	1.00	70 -	130	101.7	
52	Cr	1	45	5.13	ppb	1.12	5.00	70 -	130	102.7	
55	Mn	1	45	5.11	ppb	0.74	5.00	70 -	130	102.1	
56	Fe	1	72	106.30	ppb	1.14	100.00	70 -	130	106.3	
59	Co	1	72	4.84	ppb	2.79	5.00	70 -	130	96.8	
60	Ni	1	72	4.75	ppb	3.09	5.00	70 -	130	95.0	
63	Cu	1	72	4.73	ppb	3.55	5.00	70 -	130	94.5	
66	Zn	1	72	-8.93	ppb	0.78	5.00	70 -	130	-178.5	Fail
75	As	1	72	5.20	ppb	4.35	5.00	70 -	130	104.0	
78	Se	1	72	5.74	ppb	7.07	5.00	70 -	130	114.8	
88	Sr	2	115	5.10	ppb	0.60	5.00	70 -	130	101.9	
95	Mo	2	115	4.89	ppb	2.14	5.00	70 -	130	97.9	
107	Ag	2	115	2.00	ppb	0.79	2.00	70 -	130	100.2	
111	Cd	2	115	0.98	ppb	6.06	1.00	70 -	130	98.2	
118	Sn	2	115	4.60	ppb	2.89	5.00	70 -	130	91.9	
121	Sb	2	115	1.90	ppb	7.65	2.00	70 -	130	95.1	
137	Ba	2	115	4.90	ppb	3.89	5.00	70 -	130	98.1	
205	Tl	2	209	1.14	ppb	6.37	1.00	70 -	130	113.9	
208	Pb	2	209	1.00	ppb	4.21	1.00	70 -	130	100.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl -703.29	9.58	15.28	-4602.9	70 -	120	ISFail
45	Sc	1	69681.74	0.85	182515.06	38.2	70 -	120	ISFail
45	Sc	2	2229149.50	0.61	6126960.50	36.4	70 -	120	ISFail
72	Ge	1	39006.03	0.79	97742.99	39.9	70 -	120	ISFail
115	In	2	1944748.50	0.90	6508670.50	29.9	70 -	120	ISFail
209	Bi	2	1347427.80	1.17	4337985.50	31.1	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\123_CCB.D\123_CCB.D#

Date Acquired:	Aug 5 2016 11:24 pm	Sample Name:	**CCB5-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.129	ppb	2.58	2.00	2.00	
9	Be	2	45	0.023	ppb	26.46	0.40	0.30	
11	B	2	45	1.410	ppb	4.39	10.00	10.00	
23	Na	1	45	-11.800	ppb	4.46	50.00	#####	
24	Mg	1	45	-0.496	ppb	11.44	50.00	#####	
27	Al	1	45	0.270	ppb	10.14	50.00	10.00	
39	K	1	45	1.477	ppb	5.60	50.00	#####	
44	Ca	2	45	-6.566	ppb	0.25	50.00	#####	
47	Ti	1	45	0.051	ppb	86.60	4.00	3.00	
51	V	1	45	0.055	ppb	4.68	4.00	3.00	
52	Cr	1	45	0.009	ppb	15.35	2.00	2.00	
55	Mn	1	45	-0.169	ppb	8.02	2.00	3.00	
56	Fe	1	72	2.195	ppb	2.63	50.00	30.00	
59	Co	1	72	0.044	ppb	19.10	2.00	3.00	
60	Ni	1	72	0.000	ppb	29.75	2.00	3.00	
63	Cu	1	72	-0.117	ppb	9.70	2.00	2.00	
66	Zn	1	72	-13.930	ppb	38.91	4.00	2.00	
75	As	1	72	-0.030	ppb	9.96	2.00	2.00	
78	Se	1	72	0.416	ppb	6.19	0.60	2.00	
88	Sr	2	115	0.012	ppb	12.78	4.00	3.00	
95	Mo	2	115	0.051	ppb	12.39	2.00	2.00	
107	Ag	2	115	0.029	ppb	18.55	0.40	1.00	
111	Cd	2	115	0.030	ppb	43.11	0.40	0.30	
118	Sn	2	115	-0.071	ppb	9.48	20.00	3.00	
121	Sb	2	115	0.065	ppb	31.48	2.00	0.80	
137	Ba	2	115	0.025	ppb	17.63	2.00	3.00	
205	Tl	2	209	0.142	ppb	10.31	2.00	0.50	
208	Pb	2	209	0.041	ppb	2.82	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-7.91	53.35	15.28	-51.8	70 - 120	ISFail
45	Sc	1		71690.66	1.05	182515.06	39.3	70 - 120	ISFail
45	Sc	2		2218592.30	0.81	6126960.50	36.2	70 - 120	ISFail
72	Ge	1		40033.76	0.91	97742.99	41.0	70 - 120	ISFail
115	In	2		1935095.00	0.51	6508670.50	29.7	70 - 120	ISFail
209	Bi	2		1332826.10	1.34	4337985.50	30.7	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\136CCV1.D\136CCV1.D#

Date Acquired:	Aug 6 2016 12:43 am	Sample Name:	**CCV6-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	165.50	ppb	0.86	200.00	90 -	110	82.8	Fail
9	Be	2	45	161.20	ppb	0.72	200.00	90 -	110	80.6	Fail
11	B	2	45	146.60	ppb	1.05	200.00	90 -	110	73.3	Fail
23	Na	1	45	4733.00	ppb	0.64	5000.00	90 -	110	94.7	
24	Mg	1	45	4731.00	ppb	0.34	5000.00	90 -	110	94.6	
27	Al	1	45	4983.00	ppb	1.45	5000.00	90 -	110	99.7	
39	K	1	45	5264.00	ppb	0.47	5000.00	90 -	110	105.3	
44	Ca	2	45	5124.00	ppb	1.15	5000.00	90 -	110	102.5	
47	Ti	1	45	197.20	ppb	6.87	200.00	90 -	110	98.6	
51	V	1	45	199.40	ppb	0.94	200.00	90 -	110	99.7	
52	Cr	1	45	200.70	ppb	1.12	200.00	90 -	110	100.4	
55	Mn	1	45	209.20	ppb	0.80	200.00	90 -	110	104.6	
56	Fe	1	72	5112.00	ppb	0.62	5000.00	90 -	110	102.2	
59	Co	1	72	193.50	ppb	0.59	200.00	90 -	110	96.8	
60	Ni	1	72	189.40	ppb	0.75	200.00	90 -	110	94.7	
63	Cu	1	72	196.40	ppb	0.20	200.00	90 -	110	98.2	
66	Zn	1	72	191.80	ppb	1.00	200.00	90 -	110	95.9	
75	As	1	72	205.20	ppb	1.00	200.00	90 -	110	102.6	
78	Se	1	72	216.80	ppb	1.34	200.00	90 -	110	108.4	
88	Sr	2	115	205.30	ppb	0.90	200.00	90 -	110	102.7	
95	Mo	2	115	199.70	ppb	0.86	200.00	90 -	110	99.9	
107	Ag	2	115	202.30	ppb	1.44	200.00	90 -	110	101.2	
111	Cd	2	115	192.80	ppb	0.78	200.00	90 -	110	96.4	
118	Sn	2	115	192.40	ppb	0.75	200.00	90 -	110	96.2	
121	Sb	2	115	189.90	ppb	0.56	200.00	90 -	110	95.0	
137	Ba	2	115	197.60	ppb	0.61	200.00	90 -	110	98.8	
205	Tl	2	209	196.70	ppb	0.28	200.00	90 -	110	98.4	
208	Pb	2	209	195.80	ppb	0.30	200.00	90 -	110	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-18611.64	0.68	15.28	-121809.4	70 -	120		ISFail
45	Sc	1	60857.29	0.29	182515.06	33.3	70 -	120		ISFail
45	Sc	2	1913185.50	1.01	6126960.50	31.2	70 -	120		ISFail
72	Ge	1	34028.88	0.67	97742.99	34.8	70 -	120		ISFail
115	In	2	1646933.90	0.50	6508670.50	25.3	70 -	120		ISFail
209	Bi	2	1100965.30	0.73	4337985.50	25.4	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\142LCVL.D\142LCVL.D#

Date Acquired:	Aug 6 2016 01:19 am	Sample Name:	**LCVL6-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.40	ppb	1.45	10.00	70 -	130	84.0	
9	Be	2	45	0.77	ppb	19.60	1.00	70 -	130	77.2	
11	B	2	45	15.26	ppb	0.42	20.00	70 -	130	76.3	
23	Na	1	45	87.32	ppb	3.23	100.00	70 -	130	87.3	
24	Mg	1	45	100.80	ppb	2.86	100.00	70 -	130	100.8	
27	Al	1	45	105.00	ppb	1.16	100.00	70 -	130	105.0	
39	K	1	45	116.60	ppb	4.52	100.00	70 -	130	116.6	
44	Ca	2	45	95.82	ppb	4.35	100.00	70 -	130	95.8	
47	Ti	1	45	5.73	ppb	32.09	5.00	70 -	130	114.5	
51	V	1	45	1.06	ppb	8.25	1.00	70 -	130	105.7	
52	Cr	1	45	5.14	ppb	3.37	5.00	70 -	130	102.9	
55	Mn	1	45	5.08	ppb	1.60	5.00	70 -	130	101.5	
56	Fe	1	72	108.90	ppb	1.98	100.00	70 -	130	108.9	
59	Co	1	72	4.69	ppb	0.89	5.00	70 -	130	93.9	
60	Ni	1	72	4.70	ppb	2.46	5.00	70 -	130	93.9	
63	Cu	1	72	4.76	ppb	2.98	5.00	70 -	130	95.3	
66	Zn	1	72	-8.66	ppb	10.26	5.00	70 -	130	-173.1	Fail
75	As	1	72	5.00	ppb	1.58	5.00	70 -	130	100.0	
78	Se	1	72	6.16	ppb	8.18	5.00	70 -	130	123.3	
88	Sr	2	115	5.16	ppb	1.37	5.00	70 -	130	103.1	
95	Mo	2	115	5.23	ppb	3.82	5.00	70 -	130	104.7	
107	Ag	2	115	1.98	ppb	0.73	2.00	70 -	130	99.2	
111	Cd	2	115	1.08	ppb	9.18	1.00	70 -	130	107.8	
118	Sn	2	115	4.51	ppb	1.51	5.00	70 -	130	90.3	
121	Sb	2	115	1.84	ppb	3.73	2.00	70 -	130	92.1	
137	Ba	2	115	4.53	ppb	4.72	5.00	70 -	130	90.5	
205	Tl	2	209	1.04	ppb	6.23	1.00	70 -	130	104.2	
208	Pb	2	209	1.04	ppb	3.05	1.00	70 -	130	104.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-507.37	16.88	15.28	-3320.6	70 -	120	ISFail
45	Sc	1	54313.11	0.36	182515.06	29.8	70 -	120	ISFail
45	Sc	2	1720754.60	0.92	6126960.50	28.1	70 -	120	ISFail
72	Ge	1	31293.64	0.75	97742.99	32.0	70 -	120	ISFail
115	In	2	1521615.90	1.36	6508670.50	23.4	70 -	120	ISFail
209	Bi	2	1001806.00	2.69	4337985.50	23.1	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\143_CCB.D\143_CCB.D#

Date Acquired:	Aug 6 2016 01:25 am	Sample Name:	**CCB6-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.104	ppb	8.85	2.00	2.00	
9	Be	2	45	0.003	ppb	15.75	0.40	0.30	
11	B	2	45	0.436	ppb	9.83	10.00	10.00	
23	Na	1	45	-7.964	ppb	4.13	50.00	#####	
24	Mg	1	45	1.868	ppb	18.24	50.00	#####	
27	Al	1	45	1.168	ppb	12.23	50.00	10.00	
39	K	1	45	5.184	ppb	1.63	50.00	#####	
44	Ca	2	45	-5.871	ppb	3.19	50.00	#####	
47	Ti	1	45	0.021	ppb	173.20	4.00	3.00	
51	V	1	45	0.097	ppb	0.97	4.00	3.00	
52	Cr	1	45	0.015	ppb	12.03	2.00	2.00	
55	Mn	1	45	-0.126	ppb	3.22	2.00	3.00	
56	Fe	1	72	3.260	ppb	8.22	50.00	30.00	
59	Co	1	72	0.023	ppb	14.14	2.00	3.00	
60	Ni	1	72	0.014	ppb	16.39	2.00	3.00	
63	Cu	1	72	-0.097	ppb	4.34	2.00	2.00	
66	Zn	1	72	-14.150	ppb	12.60	4.00	2.00	
75	As	1	72	-0.082	ppb	18.38	2.00	2.00	
78	Se	1	72	0.165	ppb	34.12	0.60	2.00	
88	Sr	2	115	0.006	ppb	6.11	4.00	3.00	
95	Mo	2	115	0.186	ppb	19.91	2.00	2.00	
107	Ag	2	115	0.023	ppb	18.18	0.40	1.00	
111	Cd	2	115	0.013	ppb	57.51	0.40	0.30	
118	Sn	2	115	-0.117	ppb	32.86	20.00	3.00	
121	Sb	2	115	0.015	ppb	69.60	2.00	0.80	
137	Ba	2	115	0.043	ppb	27.71	2.00	3.00	
205	Tl	2	209	0.042	ppb	17.08	2.00	0.50	
208	Pb	2	209	0.035	ppb	12.02	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-2.44	580.49	15.28	-15.9	70 - 120	ISFail
45	Sc	1		55367.06	0.40	182515.06	30.3	70 - 120	ISFail
45	Sc	2		1669667.50	0.81	6126960.50	27.3	70 - 120	ISFail
72	Ge	1		31319.03	0.52	97742.99	32.0	70 - 120	ISFail
115	In	2		1477070.90	0.57	6508670.50	22.7	70 - 120	ISFail
209	Bi	2		968656.63	1.31	4337985.50	22.3	70 - 120	ISFail

ICP-MS3_160809B
For

DHL Work Order
1607239

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160809B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		x		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	x			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	x			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		x			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cara Van Dyke Date of Completion: 08/10/2016

Second-Level Review: Janice Whitt Date Stamp: 8/10/2016

REVIEWED BY
By Janice Whitt at 2:34:49 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160809B** **Run No.:** 87530

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:19:00 PM		
L2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:25:00 PM		
L-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:31:00 PM		
10X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:37:00 PM		
5X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:43:00 PM		
2X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:49:00 PM		
H-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:55:00 PM		
H2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 1:01:00 PM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/9/2016 1:18:00 PM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/9/2016 1:24:00 PM		
ICV1-160809	1	ICPMS_TWDOD	ICV	R87530	8/9/2016 1:42:00 PM		
ICB1-160809	1	ICPMS_TWDOD	ICB	R87530	8/9/2016 1:48:00 PM		
ILCVL-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 1:54:00 PM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87530	8/9/2016 10:34:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 10:45:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87530	8/9/2016 10:51:00 PM		
MB-76687	1	ICPMS_TWDOD	MBLK	76687	8/9/2016 10:57:00 PM		
LCS-76687	1	ICPMS_TWDOD	LCS	76687	8/9/2016 11:03:00 PM		
LCSD-76687	1	ICPMS_TWDOD	LCSD	76687	8/9/2016 11:09:00 PM		
1607337-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:21:00 PM		
1607337-26A SD	5	ICPMS_TWDOD	SD	76687	8/9/2016 11:27:00 PM		DNR. Sample was misprepared at bench and sample was not detected. As per DOD QSM 5.0, criteria doesn't apply for samples with concentration <50x the LOQ, therefore no effect to data. PDS passes.
1607219-13A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:33:00 PM		
1607219-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:39:00 PM		
1607239-16A	1	ICPMS_TWDOD	SAMP	766a87	8/9/2016 11:45:00 PM		
1607239-32A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:51:00 PM		
1607256-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:03:00 AM		
1607256-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:09:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160809B **Run No.:** 87530

1607256-27A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:15:00 AM		
1607265-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:21:00 AM		
1607265-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:28:00 AM		
1607337-26A PDS	1	ICPMS_TWDOD	PDS	76687	8/10/2016 12:34:00 AM		
CCV6-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 12:40:00 AM		
LCVL6-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 12:52:00 AM		
CCB6-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 12:58:00 AM		
1607294-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:04:00 AM		
1607294-24A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:10:00 AM		
1607294-37A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:16:00 AM		
1607294-50A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:22:00 AM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/10/2016 1:28:00 AM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/10/2016 1:34:00 AM		
1607294-63A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:52:00 AM		
1607294-76A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:04:00 AM		
1607314-07A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:10:00 AM		
1607317-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:16:00 AM		
1607317-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:22:00 AM		
1607337-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:28:00 AM		
CCV7-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 2:34:00 AM		
LCVL7-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 2:46:00 AM		
CCB7-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 2:52:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160809	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160809	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160809	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160809	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160809	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160809	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160809	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160809	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160809	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160809	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160809	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160809	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76663	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76663	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76663	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607256-28A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607256-28A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607256-31A	SAMPICPMS_TSDOD1	5.000	Level 1			
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607256-32A	SAMPICPMS_TSDOD1	5.000	Level 1			
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607256-33A	SAMPICPMS_TSDOD1	5.000	Level 1			
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607256-34A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607256-35A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607256-36A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607256-37A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607256-38A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607256-39A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607256-28A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607256-28A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607256-28A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160809	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160809	LCVLICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160809	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2306		1607256-40A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2307		1607256-41A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2308		1607256-42A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2309		1607265-01A	SAMPICPMS_TSDOD1	50.00				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2310		1607265-02A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2311		1607265-03A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2312		1607265-04A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607265-05A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607265-06A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607265-07A	SAMPICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160809	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160809	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160809	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160809	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2501		1606256-18A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607256-19A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607256-20A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607256-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607256-22A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607256-23A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607256-24A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607256-25A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607256-29A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2510		1607256-30A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160809	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160809	LCVLICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76670	MBLKICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76670	LCS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76670	LCSDICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607294-09A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607294-09A SD	SD ICPMS_TSDOD1	25.00				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-04A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-05A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-06A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-07A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-08A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-10A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-11A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607294-12A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607294-14A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160809	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160809	LCVLICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160809	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607294-15A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607294-16A	SAMPICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607294-17A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607294-18A	SAMPICPMS_TSDOD1	50.00				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607294-19A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607294-20A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607294-21A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607294-22A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607294-23A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607294-25A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160809	CCV ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160809	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3401		MB-76663	MBLKICPMS_TWDOD1	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3402		LCS-76663	LCS ICPMS_TWDOD1	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3403		LCSD-766487	LCSDICPMS_TWDOD1	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607337-26A	SAMPICPMS_TWDOD1	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607337-26A SD	SD ICPMS_TWDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1607219-13A	SAMPICPMS_TWDOD1	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1607219-26A	SAMPICPMS_TWDOD1	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3408		1607239-16A	SAMPICPMS_TWDOD1	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3409		1607239-32A	SAMPICPMS_TWDOD1	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3410		1607256-13A	SAMPICPMS_TWDOD1	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3411		1607256-26A	SAMPICPMS_TWDOD1	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3412		1607256-27A	SAMPICPMS_TWDOD1	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3501		1607265-13A	SAMPICPMS_TWDOD1	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3502		1607265-26A	SAMPICPMS_TWDOD1	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607337-26A PDS	PDS ICPMS_TWDOD1	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160809	CCV ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160809	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160809	LCVLICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160809	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3504		1607294-13A	SAMPICPMS_TWDOD1	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3505		1607294-24A	SAMPICPMS_TWDOD1	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3506		1607294-37A	SAMPICPMS_TWDOD1	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3507		1607294-50A	SAMPICPMS_TWDOD1	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3508		1607294-63A	SAMPICPMS_TWDOD1	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3509		1607294-76A	SAMPICPMS_TWDOD1	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3510		1607314-07A	SAMPICPMS_TWDOD1	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3511		1607317-13A	SAMPICPMS_TWDOD1	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3512		1607317-26A	SAMPICPMS_TWDOD1	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3312		1607337-13A	SAMPICPMS_TWDOD1	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160809	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160809	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
163		Keyword		StandBy							
164		Keyword		SMPLEND	End of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
165		Keyword		End	End of Sequence						
166		Keyword		CCVBEG	Start of CCV						
167		Keyword		CCVEND	End of CCV						
168		Keyword		BLKBEG	Start of BLANK						
169		Keyword		BLKEND	End of BLANK						
170		Keyword		ERRBEG	Start of ERRTERM						
171		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion:
Prep End Date:

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

- Hot Block #6
- Thermometer #71
- Pipette #P-09-Spikes
- Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
wait til more project EQ BLANKS arrive to start this batch.							
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	Samp Type	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

~~10:53~~ CHO 8-5-16
12:32 - 18:16

REVIEWED BY
By Janice Whitt at 2:24:16 PM, 8/10/2016

8/5/18

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/05/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**5.00**	5.0031	5.0131	**100.26**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.9858	4.9958	**99.92**		
3		4.9726	4.9826	**99.65**		
AVERAGE (MEAN)		**4.987**	**4.997**	**99.94**		**0.307**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.20**	0.2014	0.2018	**100.90**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2021	0.2025	**101.25**		
3		0.2021	0.2025	**101.25**		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.14**		**0.200**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2						
3						
AVERAGE (MEAN)						

8/5/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:24 PM, 8/10/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion: **Start: 8/5/2016 12:32:00 PM / Stop: 8/5/2016 6:16:00 PM**
Prep End Date: **8/5/2016 6:34:00 PM**

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #6
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch.						
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
1607337-26A PDS	Aqueous		50	50	1.000	of	
1607337-26A SD	Aqueous		50	50	1.000	of	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

REVIEWED BY
By Janice Whitt at 2:24:21 PM, 8/10/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	3.9957	3.9877	99.69	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0006	3.9926	99.81		
3		4.0002	3.9922	99.80		
AVERAGE (MEAN)		**3.999**	**3.991**	**99.77**		**0.068**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	1.00	0.9962	0.9942	99.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.9969	0.9949	99.49		
3		0.9970	0.9950	99.50		
AVERAGE (MEAN)		**0.997**	**0.995**	**99.47**		**0.044**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.500	0.5031	0.5021	100.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5007	0.4997	99.94		
3		0.5000	0.4990	99.80		
AVERAGE (MEAN)		**0.501**	**0.500**	**100.05**		**0.324**
						PASS

8/9/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:29 PM, 8/10/2016

Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 09 2016 01:04 pm
Cal Type: Y=aX+[blank]

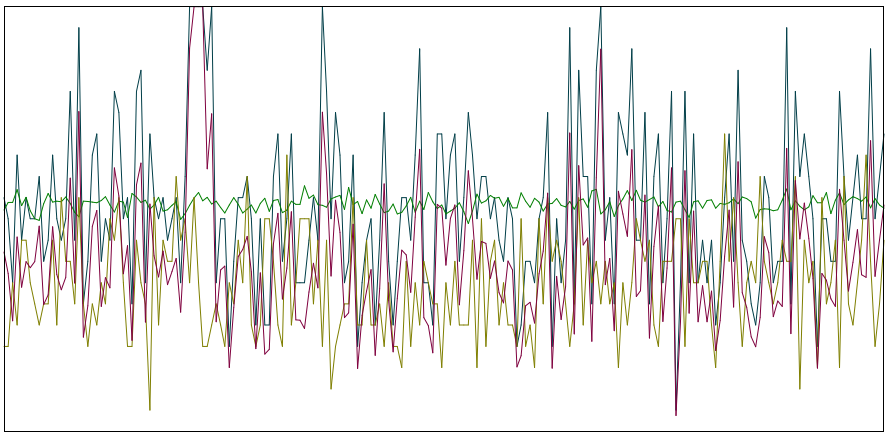
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
5X-160809	Aug 9 2016 12:43 pm	c:\icpchem\1\data\16h09l01.b\010cals.d\
2X-160809	Aug 9 2016 12:49 pm	c:\icpchem\1\data\16h09l01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.268	0.01985	0.99	249	499		2000	
Be	1.0000	0.08936	0.002333	0.99	249	500	100%	--------	######
B	1.0000	0.07365	0.1211	0.95	253	515	103%	1,996	100%
Na	0.9998	0.3335	28.74	19.01	5,319	10,360	104%	24,790	99%
Mg	0.9997	0.1475	0.5455	20.73	5,030	10,510	105%	24,790	99%
Al	1.0000	0.03438	0.4037	18.43	5,019	9,994	100%	--------	######
K	0.9999	0.07325	5.923	20.58	4,926	9,747	97%	25,120	100%
Ca	1.0000	0.008733	0.4669	16.00	5,206	10,090	101%	24,920	100%
Ti	1.0000	0.03017	0.002252	1.06	246	490	98%	2,003	100%
V	1.0000	1.245	0.2631	0.98	248	493	99%	2,002	100%
Cr	1.0000	1.669	0.2947	1.03	253	502	100%	1,999	100%
Mn	1.0000	0.6497	0.07648	1.05	248	488	98%	2,003	100%
Fe	1.0000	2.273	16.06	21.37	4,997	9,989	100%	--------	######
Co	0.9999	5.267	0.1233	1.02	258	530	106%	1,991	100%
Ni	1.0000	1.567	0.1314	1.05	254	500	100%	1,999	100%
Cu	0.9999	4.208	0.5701	1.10	261	525	105%	1,992	100%
Zn	0.9999	0.4055	0.1696	1.03	265	519	104%	1,993	100%
As	1.0000	0.2296	0.1832	1.12	254	505	101%	1,998	100%
Se	1.0000	0.01281	0.009769	1.02	257	508	102%	1,997	100%
Sr	1.0000	0.338	0.06304	0.95	249	488	98%	2,003	100%
Mo	0.9997	0.06146	0.00307	0.97	241	506	101%	--------	######
Ag	0.9999	0.1534	0.002437	1.02	255	498	100%	--------	######
Cd	1.0000	0.0328	0.001133	0.95	248	492	98%	2,002	100%
Sn	1.0000	0.08901	0.008757	0.98	247	507	101%	1,999	100%
Sb	0.9999	0.1054	0.002497	1.00	245	503	101%	--------	######
Ba	1.0000	0.04162	0.002829	0.95	242	486	97%	2,005	100%
Tl	1.0000	0.3276	0.008287	0.94	254	504	101%	1,999	100%
Pb	1.0000	0.4441	0.02947	0.95	251	509	102%	1,998	100%

REVIEWED BY
By Janice Whitt at 2:24:38 PM, 8/10/2016

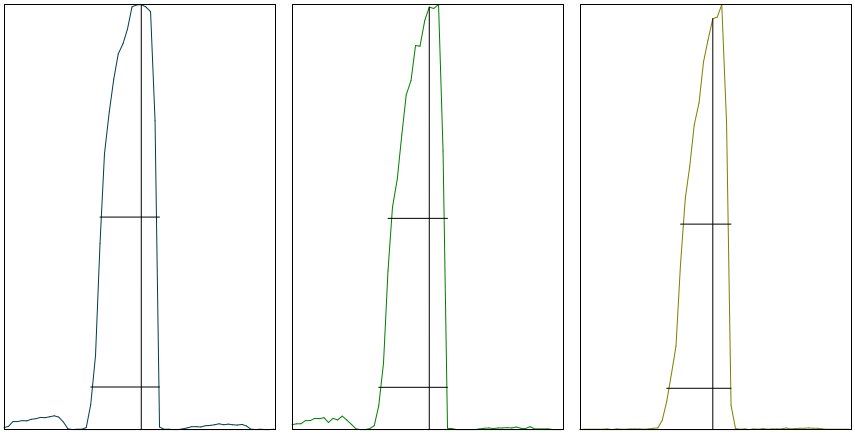
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.306%
Doubly Charged:	70/140	2.638%

m/z	Range	Count	Mean	RSD%	Background
51	20	14.0	10.9	46.06	1.60
59	5,000	2628.0	2678.1	2.98	1.10
75	20	9.0	7.0	35.60	1.00
51/59	1	0.533%	0.409%	45.59	



m/z:	59	89	205
Height:	2,706	1,269	4,406
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:36

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

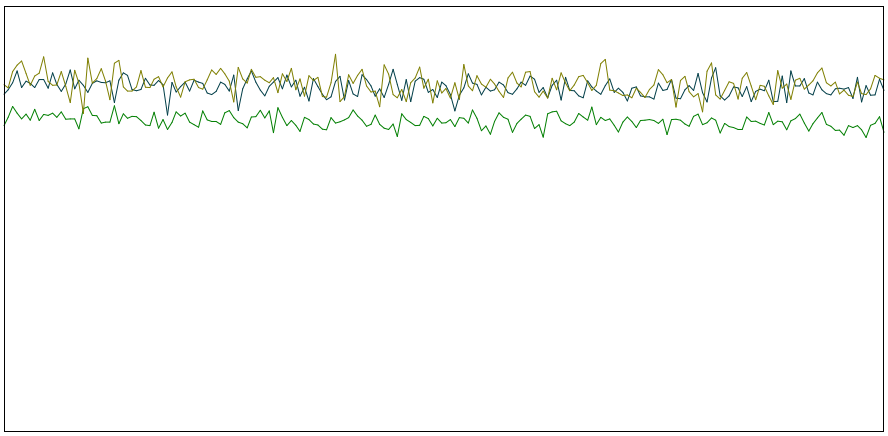
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:38

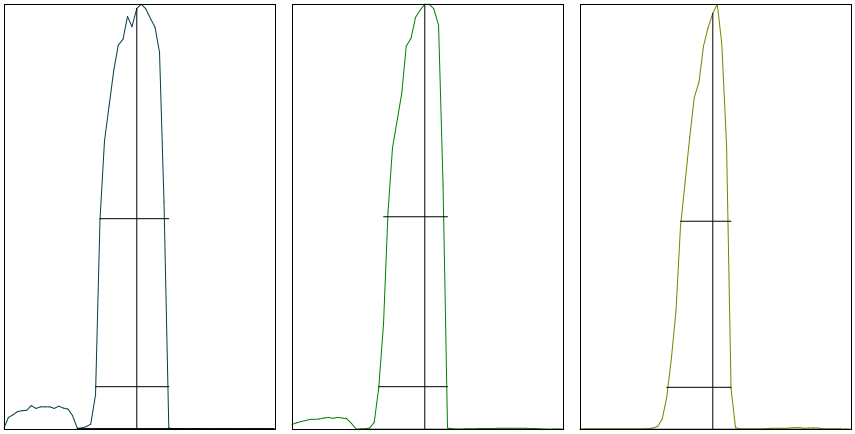
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.036%
Doubly Charged:	70/140	3.195%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8026.0	8085.8	2.44	4.20
89	20,000	14074.0	14604.4	2.06	7.20
205	10,000	8272.0	8182.5	3.16	16.80
156/140	2	0.948%	1.060%	9.87	
70/140	5	3.253%	3.102%	11.05	
63	20,000	10979.0	11198.9	2.42	5.30
23	100,000	69620.0	61786.5	11.40	4.40



m/z:	7	89	205
Height:	8,017	14,600	8,176
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.70	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:03

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1.4	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

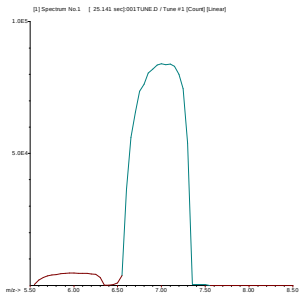
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

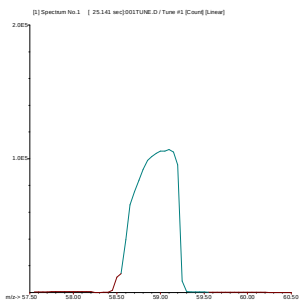
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.25	5.00	
59 Co	2.48	5.00	
115 In	2.60	5.00	
205 Tl	2.47	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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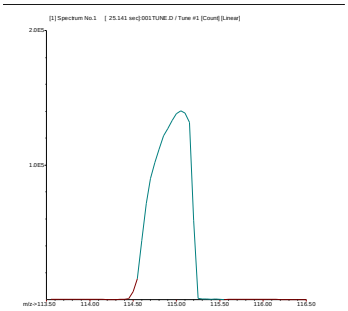
By Janice Whitt at 2:24:52 PM, 8/10/2016



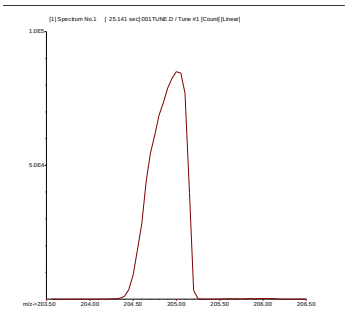
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

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By Janice Whitt at 2:24:54 PM, 8/10/2016

P/A Factor Tuning Report

Acquired:Aug 9 2016 11:20 am

Mass[amu]	Element	P/A Factor
6	Li	0.063716
23	Na	0.078069
24	Mg	0.081357
27	Al	0.083901
39	K	0.084057
44	Ca	Sensitivity too low
45	Sc	0.085164
47	Ti	Sensitivity too low
51	V	0.087056
52	Cr	0.089224
55	Mn	0.090623
59	Co	0.093388
60	Ni	0.094882
63	Cu	0.096643
66	Zn	0.096211
72	Ge	0.095488
75	As	0.094779
78	Se	Sensitivity too low
88	Sr	0.095797
95	Mo	0.094955
106	(Cd)	0.099887
107	Ag	Sensitivity too low
108	(Cd)	0.100044
111	Cd	0.100780
115	In	0.100761
118	Sn	0.100418
121	Sb	0.100203
137	Ba	Sensitivity too low
205	Tl	0.107503
206	(Pb)	0.107327
207	(Pb)	0.107559
208	Pb	0.107816
209	Bi	0.107471
238		0.107352

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1750 V
       Pulse HV: 1520 V

REVIEWED BY
By Janice Whitt at 2:25:00 PM, 8/10/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 09 2016 12:23 pm
Date Acquired: Aug 9 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	76.78	P	19.44	25.32
7	Li	2	45	635.60	P	13.88	2.18
9	Be	2	45	74.45	P	30.06	40.38
11	B	2	45	3880.74	P	124.70	3.21
23	Na	1	45	22714.67	P	247.20	1.09
24	Mg	1	45	431.14	P	27.15	6.30
27	Al	1	45	319.12	P	13.35	4.18
39	K	1	45	4681.08	P	182.30	3.89
44	Ca	2	45	14942.25	P	783.20	5.24
45	Sc	1	---	158070.20	P	400.30	0.25
45	Sc	2	---	6406945.00	A	148100.00	2.31
47	Ti	1	45	1.78	P	1.54	86.62
51	V	1	45	208.01	P	24.44	11.75
51	V	2	---		P		
52	Cr	1	45	232.89	P	13.88	5.96
55	Mn	1	45	60.45	P	5.05	8.35
56	Fe	1	72	7118.21	P	361.20	5.07
59	Co	1	72	54.67	P	2.31	4.22
60	Ni	1	72	58.22	P	5.55	9.53
60	Ni	2	---		P		
63	Cu	1	72	252.45	P	45.26	17.93
63	Cu	2	---		P		
66	Zn	1	72	75.11	P	8.15	10.85
66	Zn	2	---		P		
72	Ge	1	---	88651.82	P	776.40	0.88
72	Ge	2	---		A		
75	As	1	72	81.19	P	4.56	5.62
78	Se	1	72	4.33	P	0.73	16.81
88	Sr	2	###	2327.00	P	180.20	7.74
95	Mo	2	###	113.34	P	15.28	13.48
107	Ag	2	###	90.00	P	6.67	7.41
111	Cd	2	###	41.74	P	22.60	54.14
115	In	2	---	7384352.00	A	47310.00	0.64
118	Sn	2	###	323.35	P	16.67	5.16
121	Sb	2	###	92.23	P	7.70	8.35
137	Ba	2	###	104.45	P	22.20	21.25
205	Tl	2	###	215.57	P	21.17	9.82
208	Pb	2	###	766.71	P	129.90	16.94
209	Bi	2	---	5202967.00	A	16760.00	0.32

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:25 pm
Last Cal. Update: Aug 09 2016 12:23 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-276.34	P	37.83	13.69	ISFail
7	Li	2	45	9129.18	P	280.10	3.07	
9	Be	2	45	2910.46	P	77.69	2.67	
11	B	2	45	6155.09	P	170.80	2.77	
23	Na	1	45	28183.59	P	322.20	1.14	
24	Mg	1	45	2894.90	P	138.50	4.78	
27	Al	1	45	833.38	P	29.25	3.51	
39	K	1	45	5969.45	P	193.70	3.24	
44	Ca	2	45	19511.07	P	2212.00	11.34	
45	Sc	1	---	160684.70	P	2314.00	1.44	
45	Sc	2	---	6429131.00	A	68010.00	1.06	
47	Ti	1	45	27.56	P	1.54	5.59	
51	V	1	45	1194.74	P	39.62	3.32	
51	V	2	---		P			
52	Cr	1	45	1623.24	P	14.26	0.88	
55	Mn	1	45	608.03	P	25.44	4.18	
56	Fe	1	72	28900.35	P	2962.00	10.25	
59	Co	1	72	2465.62	P	87.97	3.57	
60	Ni	1	72	796.93	P	55.31	6.94	
60	Ni	2	---		P			
63	Cu	1	72	2316.25	P	46.28	2.00	
63	Cu	2	---		P			
66	Zn	1	72	261.79	P	17.71	6.77	
66	Zn	2	---		P			
72	Ge	1	---	89405.56	P	917.80	1.03	
72	Ge	2	---		A			
75	As	1	72	197.11	P	4.29	2.18	
78	Se	1	72	10.22	P	0.51	4.98	
88	Sr	2	115	14278.91	P	588.80	4.12	
95	Mo	2	115	2323.65	P	64.30	2.77	
107	Ag	2	115	5893.90	P	231.20	3.92	
111	Cd	2	115	1197.38	P	58.34	4.87	
115	In	2	---	7443953.00	A	81490.00	1.09	
118	Sn	2	115	3580.69	P	47.04	1.31	
121	Sb	2	115	4014.18	P	113.60	2.83	
137	Ba	2	115	1577.95	P	66.78	4.23	
205	Tl	2	209	8330.07	P	211.40	2.54	
208	Pb	2	209	11870.80	P	191.10	1.61	
209	Bi	2	---	5250363.00	A	48340.00	0.92	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-276.34	13.69	76.78	-359.9	70 - 120	ISFail
45	Sc	1	160684.72	1.44	158070.19	101.7	70 - 120	
45	Sc	2	6429130.50	1.06	6406944.50	100.3	70 - 120	
72	Ge	1	89405.56	1.03	88651.82	100.9	70 - 120	
115	In	2	7443953.00	1.09	7384352.50	100.8	70 - 120	
209	Bi	2	5250363.50	0.92	5202967.00	100.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:31 pm
Last Cal. Update: Aug 09 2016 12:29 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3881.67	P	60.33	1.55	ISFail
7	Li	2	45	86910.47	P	940.50	1.08	Fail
9	Be	2	45	29447.30	P	565.20	1.92	Fail
11	B	2	45	27210.25	P	574.80	2.11	Fail
23	Na	1	45	78668.42	P	825.80	1.05	Fail
24	Mg	1	45	25039.14	P	435.10	1.74	Fail
27	Al	1	45	5952.62	P	89.59	1.51	Fail
39	K	1	45	16334.60	P	268.70	1.65	Fail
44	Ca	2	45	70195.96	P	3159.00	4.50	Fail
45	Sc	1	---	161571.00	P	1929.00	1.19	
45	Sc	2	---	6453811.00	A	142600.00	2.21	
47	Ti	1	45	260.01	P	35.50	13.65	Fail
51	V	1	45	10266.17	P	219.20	2.14	Fail
51	V	2	---		P			
52	Cr	1	45	14166.06	P	190.20	1.34	Fail
55	Mn	1	45	5238.97	P	39.95	0.76	Fail
56	Fe	1	72	213754.41	P	1903.00	0.89	Fail
59	Co	1	72	24702.73	P	305.40	1.24	
60	Ni	1	72	7330.29	P	214.90	2.93	Fail
60	Ni	2	---		P			
63	Cu	1	72	20624.14	P	340.20	1.65	Fail
63	Cu	2	---		P			
66	Zn	1	72	2102.88	P	42.78	2.03	Fail
66	Zn	2	---		P			
72	Ge	1	---	90222.60	P	954.20	1.06	
72	Ge	2	---		A			
75	As	1	72	1138.61	P	9.52	0.84	Fail
78	Se	1	72	66.48	P	5.04	7.58	Fail
88	Sr	2	115	124450.40	P	2670.00	2.15	Fail
95	Mo	2	115	22071.00	P	419.80	1.90	Fail
107	Ag	2	115	57970.12	P	1503.00	2.59	Fail
111	Cd	2	115	12490.16	P	478.50	3.83	Fail
115	In	2	---	7406828.00	A	96950.00	1.31	
118	Sn	2	115	32855.11	P	416.50	1.27	Fail
121	Sb	2	115	38465.25	P	1177.00	3.06	Fail
137	Ba	2	115	15112.49	P	550.50	3.64	Fail
205	Tl	2	209	83036.09	P	850.40	1.02	Fail
208	Pb	2	209	115560.00	P	1813.00	1.57	Fail
209	Bi	2	---	5219492.00	A	55050.00	1.05	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3881.67	1.55	76.78	-5055.8	70 - 120	ISFail
45	Sc	1	161570.98	1.19	158070.19	102.2	70 - 120	
45	Sc	2	6453811.50	2.21	6406944.50	100.7	70 - 120	
72	Ge	1	90222.60	1.06	88651.82	101.8	70 - 120	
115	In	2	7406828.00	1.31	7384352.50	100.3	70 - 120	
209	Bi	2	5219491.50	1.05	5202967.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:37 pm
Last Cal. Update: Aug 09 2016 12:35 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-19629.23	P	383.20	1.95	ISFail
7	Li	2	45	432408.59	P	8261.00	1.91	Fail
9	Be	2	45	144443.50	P	2969.00	2.06	Fail
11	B	2	45	120068.30	P	1757.00	1.46	Fail
23	Na	1	45	295790.41	P	1604.00	0.54	Fail
24	Mg	1	45	119897.70	P	957.30	0.80	Fail
27	Al	1	45	27945.11	P	356.30	1.28	Fail
39	K	1	45	63314.89	P	311.10	0.49	Fail
44	Ca	2	45	290460.09	P	9086.00	3.13	Fail
45	Sc	1	---	163871.50	P	1400.00	0.85	
45	Sc	2	---	6441649.00	A	124900.00	1.94	
47	Ti	1	45	1160.08	P	42.92	3.70	Fail
51	V	1	45	50469.89	P	868.10	1.72	Fail
51	V	2	---		P			
52	Cr	1	45	68834.85	P	602.80	0.88	Fail
55	Mn	1	45	26142.08	P	417.90	1.60	Fail
56	Fe	1	72	1069612.00	A	24000.00	2.24	Fail
59	Co	1	72	121947.00	P	1160.00	0.95	
60	Ni	1	72	35924.11	P	658.70	1.83	
60	Ni	2	---		P			
63	Cu	1	72	100456.60	P	498.00	0.50	Fail
63	Cu	2	---		P			
66	Zn	1	72	9852.08	P	58.18	0.59	Fail
66	Zn	2	---		P			
72	Ge	1	---	90028.47	P	394.00	0.44	
72	Ge	2	---		A			
75	As	1	72	5389.93	P	49.54	0.92	Fail
78	Se	1	72	308.04	P	9.84	3.20	Fail
88	Sr	2	115	602337.50	P	12840.00	2.13	Fail
95	Mo	2	115	108354.30	P	2536.00	2.34	Fail
107	Ag	2	115	282736.09	P	5107.00	1.81	Fail
111	Cd	2	115	61328.21	P	1125.00	1.83	Fail
115	In	2	---	7387452.00	A	82820.00	1.12	
118	Sn	2	115	159923.91	P	2799.00	1.75	Fail
121	Sb	2	115	189023.00	P	4633.00	2.45	Fail
137	Ba	2	115	73661.36	P	1339.00	1.82	Fail
205	Tl	2	209	410096.00	P	4859.00	1.18	Fail
208	Pb	2	209	560275.31	P	9752.00	1.74	Fail
209	Bi	2	---	5195223.00	A	67090.00	1.29	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19629.24	1.95	76.78	-25566.9	70 - 120	ISFail
45	Sc	1	163871.55	0.85	158070.19	103.7	70 - 120	
45	Sc	2	6441649.50	1.94	6406944.50	100.5	70 - 120	
72	Ge	1	90028.47	0.44	88651.82	101.6	70 - 120	
115	In	2	7387452.50	1.12	7384352.50	100.0	70 - 120	
209	Bi	2	5195223.50	1.29	5202967.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:43 pm
Last Cal. Update: Aug 09 2016 12:41 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-39450.97	P	848.30	2.15	ISFail
7	Li	2	45	859389.31	A	4295.00	0.50	Fail
9	Be	2	45	288149.81	P	5638.00	1.96	Fail
11	B	2	45	237918.00	P	3433.00	1.44	Fail
23	Na	1	45	568962.38	P	7291.00	1.28	Fail
24	Mg	1	45	239276.80	P	2504.00	1.05	Fail
27	Al	1	45	55187.29	P	557.70	1.01	Fail
39	K	1	45	120214.40	P	144.40	0.12	Fail
44	Ca	2	45	556133.69	P	12600.00	2.27	Fail
45	Sc	1	---	160100.41	P	785.10	0.49	
45	Sc	2	---	6261295.00	A	110100.00	1.76	
47	Ti	1	45	2330.48	P	68.35	2.93	
51	V	1	45	98896.30	P	1086.00	1.10	Fail
51	V	2	---		A			
52	Cr	1	45	134880.20	P	1476.00	1.09	Fail
55	Mn	1	45	51629.94	P	259.30	0.50	
56	Fe	1	72	2048862.00	A	26700.00	1.30	Fail
59	Co	1	72	240143.91	P	3156.00	1.31	
60	Ni	1	72	70495.25	P	308.50	0.44	
60	Ni	2	---		P			
63	Cu	1	72	195537.50	P	2292.00	1.17	
63	Cu	2	---		P			
66	Zn	1	72	19348.32	P	160.80	0.83	Fail
66	Zn	2	---		P			
72	Ge	1	---	88032.42	P	653.70	0.74	
72	Ge	2	---		A			
75	As	1	72	10479.46	P	46.78	0.45	Fail
78	Se	1	72	601.65	P	3.54	0.59	Fail
88	Sr	2	115	1235870.00	A	19360.00	1.57	Fail
95	Mo	2	115	210659.70	P	2732.00	1.30	Fail
107	Ag	2	115	551580.50	P	10460.00	1.90	Fail
111	Cd	2	115	117569.70	P	2118.00	1.80	Fail
115	In	2	---	7231429.00	A	105800.00	1.46	
118	Sn	2	115	314553.91	P	5363.00	1.71	Fail
121	Sb	2	115	369819.19	P	6133.00	1.66	Fail
137	Ba	2	115	143935.50	P	2716.00	1.89	Fail
205	Tl	2	209	810074.38	P	14910.00	1.84	Fail
208	Pb	2	209	1102986.00	P	19000.00	1.72	Fail
209	Bi	2	---	5066186.00	A	31410.00	0.62	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39450.97	2.15	76.78	-51384.5	70 - 120	ISFail
45	Sc	1	160100.36	0.49	158070.19	101.3	70 - 120	
45	Sc	2	6261294.50	1.76	6406944.50	97.7	70 - 120	
72	Ge	1	88032.41	0.74	88651.82	99.3	70 - 120	
115	In	2	7231429.00	1.46	7384352.50	97.9	70 - 120	
209	Bi	2	5066186.00	0.62	5202967.00	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:49 pm
Last Cal. Update: Aug 09 2016 12:47 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-92547.78	P	610.90	0.66	ISFail
7	Li	2	45	2055320.00	A	6991.00	0.34	Fail
9	Be	2	45	683394.69	A	4914.00	0.72	Fail
11	B	2	45	576713.50	P	2557.00	0.44	Fail
23	Na	1	45	1404880.00	A	14730.00	1.05	Fail
24	Mg	1	45	578383.88	P	6434.00	1.11	
27	Al	1	45	134799.70	P	2720.00	2.02	Fail
39	K	1	45	285831.19	P	781.30	0.27	Fail
44	Ca	2	45	1412857.00	A	25870.00	1.83	Fail
45	Sc	1	---	155861.80	P	491.20	0.32	
45	Sc	2	---	6152547.00	A	97850.00	1.59	
47	Ti	1	45	5794.77	P	204.00	3.52	
51	V	1	45	240871.30	P	1410.00	0.59	
51	V	2	---		A			
52	Cr	1	45	329345.00	P	2941.00	0.89	
55	Mn	1	45	125528.70	P	257.30	0.20	
56	Fe	1	72	4881959.00	A	31120.00	0.64	
59	Co	1	72	583012.50	P	6102.00	1.05	
60	Ni	1	72	171085.50	P	356.40	0.21	
60	Ni	2	---		P			
63	Cu	1	72	471235.19	P	1321.00	0.28	
63	Cu	2	---		A			
66	Zn	1	72	46169.71	P	361.90	0.78	
66	Zn	2	---		P			
72	Ge	1	---	85858.36	P	473.70	0.55	
72	Ge	2	---		A			
75	As	1	72	25145.85	P	42.53	0.17	Fail
78	Se	1	72	1414.53	P	7.55	0.53	Fail
88	Sr	2	115	2920739.00	A	29390.00	1.01	Fail
95	Mo	2	115	513910.31	P	6728.00	1.31	Fail
107	Ag	2	115	1360042.00	A	20930.00	1.54	Fail
111	Cd	2	115	282658.91	P	4566.00	1.62	Fail
115	In	2	---	6950477.00	A	79190.00	1.14	
118	Sn	2	115	763250.19	P	7455.00	0.98	Fail
121	Sb	2	115	897868.50	P	9308.00	1.04	Fail
137	Ba	2	115	350302.50	P	4136.00	1.18	Fail
205	Tl	2	209	2058289.00	A	35310.00	1.72	Fail
208	Pb	2	209	2754049.00	A	37450.00	1.36	Fail
209	Bi	2	---	4942278.00	A	58580.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-92547.78	0.66	76.78	-120542.6	70 - 120	ISFail
45	Sc	1	155861.84	0.32	158070.19	98.6	70 - 120	
45	Sc	2	6152547.50	1.59	6406944.50	96.0	70 - 120	
72	Ge	1	85858.37	0.55	88651.82	96.8	70 - 120	
115	In	2	6950477.50	1.14	7384352.50	94.1	70 - 120	
209	Bi	2	4942278.00	1.19	5202967.00	95.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:55 pm
Last Cal. Update: Aug 09 2016 12:52 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-180102.91	P	1887.00	1.05	ISFail
7	Li	2	45	4028771.00	A	21070.00	0.52	Fail
9	Be	2	45	1346636.00	A	10300.00	0.76	Fail
11	B	2	45	1147521.00	A	18600.00	1.62	Fail
23	Na	1	45	2697100.00	A	7631.00	0.28	Fail
24	Mg	1	45	1199446.00	A	15020.00	1.25	
27	Al	1	45	266288.00	P	2957.00	1.11	
39	K	1	45	557212.69	P	4537.00	0.81	Fail
44	Ca	2	45	2670122.00	A	39330.00	1.47	Fail
45	Sc	1	---	154804.91	P	798.80	0.52	
45	Sc	2	---	6027486.00	A	99200.00	1.65	
47	Ti	1	45	11449.88	P	127.40	1.11	
51	V	1	45	474757.91	P	2110.00	0.44	
51	V	2	---		A			
52	Cr	1	45	648571.81	P	1651.00	0.25	
55	Mn	1	45	245434.30	P	883.90	0.36	
56	Fe	1	72	9536205.00	A	79560.00	0.83	
59	Co	1	72	1171404.00	A	11090.00	0.95	
60	Ni	1	72	329269.00	P	3471.00	1.05	
60	Ni	2	---		A			
63	Cu	1	72	927079.50	M	19060.00	2.06	
63	Cu	2	---		A			
66	Zn	1	72	88347.85	P	460.10	0.52	
66	Zn	2	---		P			
72	Ge	1	---	83956.57	P	181.70	0.22	
72	Ge	2	---		A			
75	As	1	72	48699.76	P	116.50	0.24	
78	Se	1	72	2737.60	P	10.85	0.40	
88	Sr	2	115	5612955.00	A	56370.00	1.00	Fail
95	Mo	2	115	1058171.00	A	4867.00	0.46	Fail
107	Ag	2	115	2596907.00	A	2732.00	0.11	Fail
111	Cd	2	115	549297.31	P	1150.00	0.21	Fail
115	In	2	---	6804297.00	A	14860.00	0.22	
118	Sn	2	115	1534882.00	A	13500.00	0.88	Fail
121	Sb	2	115	1803670.00	A	10380.00	0.58	Fail
137	Ba	2	115	687678.69	P	2013.00	0.29	Fail
205	Tl	2	209	4003026.00	A	37020.00	0.92	Fail
208	Pb	2	209	5483501.00	A	9428.00	0.17	Fail
209	Bi	2	---	4848076.00	A	33810.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-180102.91	1.05	76.78	-234582.3	70 - 120	ISFail
45	Sc	1	154804.94	0.52	158070.19	97.9	70 - 120	
45	Sc	2	6027486.00	1.65	6406944.50	94.1	70 - 120	
72	Ge	1	83956.57	0.22	88651.82	94.7	70 - 120	
115	In	2	6804297.50	0.22	7384352.50	92.1	70 - 120	
209	Bi	2	4848076.00	0.70	5202967.00	93.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 01:01 pm
Last Cal. Update: Aug 09 2016 12:58 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-695108.38	A	5548.00	0.80	ISFail
7	Li	2	45	16324680.00	A	45420.00	0.28	Fail
9	Be	2	45	5098597.00	A	45540.00	0.89	
11	B	2	45	4479131.00	A	27290.00	0.61	Fail
23	Na	1	45	6521873.00	A	60180.00	0.92	Fail
24	Mg	1	45	2874443.00	A	42430.00	1.48	
27	Al	1	45	2506.51	P	21.68	0.86	Fail
39	K	1	45	1451327.00	A	7604.00	0.52	Fail
44	Ca	2	45	6641747.00	A	83680.00	1.26	Fail
45	Sc	1	---	157244.80	P	431.30	0.27	
45	Sc	2	---	6089865.00	A	74730.00	1.23	
47	Ti	1	45	47519.80	P	854.10	1.80	
51	V	1	45	1959345.00	A	19960.00	1.02	
51	V	2	---		A			
52	Cr	1	45	2623501.00	A	40880.00	1.56	
55	Mn	1	45	1023403.00	A	19900.00	1.94	
56	Fe	1	72	16818.04	P	566.10	3.37	Fail
59	Co	1	72	4471216.00	A	68540.00	1.53	
60	Ni	1	72	1335689.00	A	16620.00	1.24	
60	Ni	2	---		A			
63	Cu	1	72	3573923.00	A	51580.00	1.44	
63	Cu	2	---		A			
66	Zn	1	72	344616.81	P	3985.00	1.16	
66	Zn	2	---		A			
72	Ge	1	---	85259.96	P	597.60	0.70	
72	Ge	2	---		A			
75	As	1	72	195626.80	P	2133.00	1.09	
78	Se	1	72	10908.70	P	95.50	0.88	
88	Sr	2	115	23456990.00	A	236000.00	1.01	Fail
95	Mo	2	115	4277989.00	A	26110.00	0.61	
107	Ag	2	115	1475.72	P	191.00	12.94	Fail
111	Cd	2	115	2274770.00	A	16520.00	0.73	
115	In	2	---	6927955.00	A	9047.00	0.13	
118	Sn	2	115	6163197.00	A	4526.00	0.07	Fail
121	Sb	2	115	2224.75	P	132.90	5.97	Fail
137	Ba	2	115	2890665.00	A	29900.00	1.03	Fail
205	Tl	2	209	15777200.00	A	100800.00	0.64	
208	Pb	2	209	21376310.00	A	153600.00	0.72	
209	Bi	2	---	4818865.00	A	41690.00	0.87	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-695108.44	0.80	76.78	-905371.9	70 - 120	ISFail
45	Sc	1	157244.86	0.27	158070.19	99.5	70 - 120	
45	Sc	2	6089865.50	1.23	6406944.50	95.1	70 - 120	
72	Ge	1	85259.96	0.70	88651.82	96.2	70 - 120	
115	In	2	6927955.50	0.13	7384352.50	93.8	70 - 120	
209	Bi	2	4818864.50	0.87	5202967.00	92.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 9 2016 01:18 pm	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.478	ppb	9.59	8.00	5.00	
9	Be	2	45	0.117	ppb	38.20	0.32	0.80	
11	B	2	45	8.638	ppb	3.46	30.00	30.00	
23	Na	1	45	101700.000	ppb	1.19	#######	#######	
24	Mg	1	45	89070.000	ppb	1.04	#######	#######	
27	Al	1	45	96290.000	ppb	0.44	#######	#######	
39	K	1	45	92830.000	ppb	0.95	#######	#######	
44	Ca	2	45	90970.000	ppb	2.83	#######	#######	
47	Ti	1	45	1967.000	ppb	0.21	10.00	10.00	
51	V	1	45	0.109	ppb	13.43	10.00	10.00	
52	Cr	1	45	0.894	ppb	4.88	8.00	5.00	
55	Mn	1	45	0.844	ppb	9.88	8.00	10.00	
56	Fe	1	72	92080.000	ppb	1.45	#######	#######	
59	Co	1	72	1.329	ppb	5.32	8.00	10.00	
60	Ni	1	72	0.485	ppb	11.46	8.00	10.00	
63	Cu	1	72	2.282	ppb	0.83	8.00	10.00	
66	Zn	1	72	2.100	ppb	1.97	10.00	5.00	
75	As	1	72	0.765	ppb	2.73	4.00	5.00	
78	Se	1	72	0.590	ppb	13.84	2.00	5.00	
88	Sr	2	115	1.237	ppb	5.49	10.00	10.00	
95	Mo	2	115	1909.000	ppb	2.87	8.00	5.00	
107	Ag	2	115	0.099	ppb	14.31	0.80	2.00	
111	Cd	2	115	0.197	ppb	22.45	1.20	1.00	
118	Sn	2	115	0.592	ppb	9.39	10.00	10.00	
121	Sb	2	115	0.145	ppb	7.64	4.00	2.50	
137	Ba	2	115	0.539	ppb	12.33	8.00	10.00	
205	Tl	2	209	0.265	ppb	18.78	4.00	1.50	
208	Pb	2	209	0.424	ppb	8.56	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	11.48	362.20	76.78	15.0	70 - 120	ISFail
45	Sc	1	148376.02	0.59	158070.19	93.9	70 - 120	
45	Sc	2	6156980.50	1.85	6406944.50	96.1	70 - 120	
72	Ge	1	80882.91	0.84	88651.82	91.2	70 - 120	
115	In	2	6870784.00	2.23	7384352.50	93.0	70 - 120	
209	Bi	2	4330707.50	1.99	5202967.00	83.2	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 9 2016 01:24 pm	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.40	ppb	2.58	---	80 -		120	
9	Be	2	45	0.03	ppb	8.03	---	80 -		120	
11	B	2	45	6.35	ppb	1.20	---	80 -		120	
23	Na	1	45	96960.00	ppb	0.63	100000.00	80 -		120	
24	Mg	1	45	90120.00	ppb	1.11	100000.00	80 -		120	
27	Al	1	45	93870.00	ppb	0.65	100000.00	80 -		120	
39	K	1	45	91490.00	ppb	0.58	100000.00	80 -		120	
44	Ca	2	45	91530.00	ppb	3.21	100000.00	80 -		120	
47	Ti	1	45	1935.00	ppb	1.62	---	80 -		120	
51	V	1	45	39.09	ppb	0.68	40.00	80 -		120	
52	Cr	1	45	20.74	ppb	1.41	20.00	80 -		120	
55	Mn	1	45	18.98	ppb	0.93	20.00	80 -		120	
56	Fe	1	72	92210.00	ppb	0.80	100000.00	80 -		120	
59	Co	1	72	39.88	ppb	0.42	40.00	80 -		120	
60	Ni	1	72	36.63	ppb	1.39	40.00	80 -		120	
63	Cu	1	72	20.22	ppb	0.75	20.00	80 -		120	
66	Zn	1	72	19.71	ppb	2.04	20.00	80 -		120	
75	As	1	72	19.81	ppb	0.30	20.00	80 -		120	
78	Se	1	72	18.75	ppb	2.32	20.00	80 -		120	
88	Sr	2	115	1.33	ppb	1.67	---	80 -		120	
95	Mo	2	115	1935.00	ppb	2.13	---	80 -		120	
107	Ag	2	115	17.74	ppb	2.73	20.00	80 -		120	
111	Cd	2	115	9.02	ppb	3.94	10.00	80 -		120	
118	Sn	2	115	0.55	ppb	2.97	---	80 -		120	
121	Sb	2	115	0.07	ppb	4.90	---	80 -		120	
137	Ba	2	115	0.45	ppb	15.68	---	80 -		120	
205	Tl	2	209	0.13	ppb	1.84	---	80 -		120	
208	Pb	2	209	0.35	ppb	3.71	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	39.32	24.84	76.78	51.2	70 -		120	ISFail
45	Sc	1	143697.27	0.32	158070.19	90.9	70 -		120	
45	Sc	2	6567728.50	2.23	6406944.50	102.5	70 -		120	
72	Ge	1	79282.91	0.67	88651.82	89.4	70 -		120	
115	In	2	7038518.00	2.36	7384352.50	95.3	70 -		120	
209	Bi	2	4336473.50	1.65	5202967.00	83.3	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 9 2016 01:42 pm	Sample Name:	**ICV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	129.30	ppb	1.81	100.00	90 -	110	129.3	Fail
9	Be	2	45	114.40	ppb	1.63	100.00	90 -	110	114.4	Fail
11	B	2	45	109.80	ppb	0.44	100.00	90 -	110	109.8	
23	Na	1	45	2933.00	ppb	0.80	2500.00	90 -	110	117.3	Fail
24	Mg	1	45	2666.00	ppb	0.48	2500.00	90 -	110	106.6	
27	Al	1	45	2371.00	ppb	2.40	2500.00	90 -	110	94.8	
39	K	1	45	2496.00	ppb	1.03	2500.00	90 -	110	99.8	
44	Ca	2	45	2519.00	ppb	5.00	2500.00	90 -	110	100.8	
47	Ti	1	45	98.48	ppb	3.15	100.00	90 -	110	98.5	
51	V	1	45	104.90	ppb	0.63	100.00	90 -	110	104.9	
52	Cr	1	45	110.20	ppb	0.50	100.00	90 -	110	110.2	Fail
55	Mn	1	45	97.83	ppb	0.85	100.00	90 -	110	97.8	
56	Fe	1	72	2550.00	ppb	0.86	2500.00	90 -	110	102.0	
59	Co	1	72	106.90	ppb	0.39	100.00	90 -	110	106.9	
60	Ni	1	72	105.20	ppb	0.60	100.00	90 -	110	105.2	
63	Cu	1	72	107.50	ppb	0.85	100.00	90 -	110	107.5	
66	Zn	1	72	103.10	ppb	0.74	100.00	90 -	110	103.1	
75	As	1	72	100.40	ppb	0.56	100.00	90 -	110	100.4	
78	Se	1	72	95.57	ppb	1.19	100.00	90 -	110	95.6	
88	Sr	2	115	112.40	ppb	1.71	100.00	90 -	110	112.4	Fail
95	Mo	2	115	98.76	ppb	1.83	100.00	90 -	110	98.8	
107	Ag	2	115	101.40	ppb	2.11	100.00	90 -	110	101.4	
111	Cd	2	115	98.66	ppb	2.13	100.00	90 -	110	98.7	
118	Sn	2	115	98.42	ppb	1.97	100.00	90 -	110	98.4	
121	Sb	2	115	98.00	ppb	1.85	100.00	90 -	110	98.0	
137	Ba	2	115	95.40	ppb	1.88	100.00	90 -	110	95.4	
205	Tl	2	209	96.22	ppb	1.09	100.00	90 -	110	96.2	
208	Pb	2	209	96.59	ppb	1.93	100.00	90 -	110	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-32746.34	1.14	76.78	-42651.8	70 -	120		ISFail
45	Sc	1	151304.55	0.27	158070.19	95.7	70 -	120		
45	Sc	2	7310796.00	1.80	6406944.50	114.1	70 -	120		
72	Ge	1	86412.31	0.52	88651.82	97.5	70 -	120		
115	In	2	7162118.00	1.91	7384352.50	97.0	70 -	120		
209	Bi	2	4628968.50	1.21	5202967.00	89.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 9 2016 01:48 pm	Sample Name:	**ICB1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.29	ppb	7.50	2.00	
9	Be	2	45	0.09	ppb	14.93	0.40	
11	B	2	45	4.74	ppb	3.28	10.00	
23	Na	1	45	11.32	ppb	2.07	50.00	
24	Mg	1	45	4.67	ppb	15.18	50.00	
27	Al	1	45	11.35	ppb	4.40	50.00	Failaq
39	K	1	45	9.77	ppb	1.38	50.00	
44	Ca	2	45	12.78	ppb	4.86	50.00	
47	Ti	1	45	0.21	ppb	52.92	4.00	
51	V	1	45	0.08	ppb	4.76	4.00	
52	Cr	1	45	0.13	ppb	4.27	2.00	
55	Mn	1	45	0.12	ppb	13.64	2.00	
56	Fe	1	72	3.53	ppb	8.32	50.00	
59	Co	1	72	0.09	ppb	13.04	2.00	
60	Ni	1	72	0.07	ppb	10.98	2.00	
63	Cu	1	72	0.14	ppb	8.26	2.00	
66	Zn	1	72	0.24	ppb	9.19	4.00	
75	As	1	72	0.21	ppb	2.42	2.00	
78	Se	1	72	-0.03	ppb	8.18	0.60	
88	Sr	2	115	0.26	ppb	4.89	4.00	
95	Mo	2	115	0.26	ppb	9.18	2.00	
107	Ag	2	115	0.06	ppb	7.48	0.40	
111	Cd	2	115	0.09	ppb	30.52	0.40	
118	Sn	2	115	0.20	ppb	2.23	20.00	
121	Sb	2	115	0.11	ppb	4.20	2.00	
137	Ba	2	115	0.11	ppb	12.13	2.00	
205	Tl	2	209	0.22	ppb	7.79	2.00	
208	Pb	2	209	0.12	ppb	7.88	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-12.64	######	76.78	-16.5	70 - 120	ISFail
45	Sc	1	154465.72	1.48	158070.19	97.7	70 - 120	
45	Sc	2	7434230.00	2.56	6406944.50	116.0	70 - 120	
72	Ge	1	88798.62	1.36	88651.82	100.2	70 - 120	
115	In	2	7172536.50	2.37	7384352.50	97.1	70 - 120	
209	Bi	2	4672709.00	1.72	5202967.00	89.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 9 2016 01:54 pm	Sample Name:	**ILCVL-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.80	ppb	2.27	10.00	70 -	130	138.0	Fail
9	Be	2	45	1.21	ppb	3.36	1.00	70 -	130	120.5	
11	B	2	45	24.35	ppb	1.79	20.00	70 -	130	121.8	
23	Na	1	45	129.60	ppb	1.83	100.00	70 -	130	129.6	
24	Mg	1	45	109.10	ppb	3.35	100.00	70 -	130	109.1	
27	Al	1	45	99.67	ppb	0.51	100.00	70 -	130	99.7	
39	K	1	45	110.80	ppb	4.64	100.00	70 -	130	110.8	
44	Ca	2	45	95.31	ppb	4.48	100.00	70 -	130	95.3	
47	Ti	1	45	5.34	ppb	2.11	5.00	70 -	130	106.8	
51	V	1	45	1.15	ppb	2.61	1.00	70 -	130	115.0	
52	Cr	1	45	5.66	ppb	1.07	5.00	70 -	130	113.2	
55	Mn	1	45	5.05	ppb	0.65	5.00	70 -	130	101.0	
56	Fe	1	72	108.90	ppb	1.07	100.00	70 -	130	108.9	
59	Co	1	72	5.53	ppb	1.64	5.00	70 -	130	110.6	
60	Ni	1	72	5.46	ppb	4.65	5.00	70 -	130	109.2	
63	Cu	1	72	5.63	ppb	1.11	5.00	70 -	130	112.5	
66	Zn	1	72	5.82	ppb	5.06	5.00	70 -	130	116.4	
75	As	1	72	5.41	ppb	1.94	5.00	70 -	130	108.1	
78	Se	1	72	5.64	ppb	4.93	5.00	70 -	130	112.8	
88	Sr	2	115	5.61	ppb	2.78	5.00	70 -	130	112.1	
95	Mo	2	115	5.26	ppb	2.68	5.00	70 -	130	105.2	
107	Ag	2	115	2.11	ppb	3.20	2.00	70 -	130	105.6	
111	Cd	2	115	1.06	ppb	8.62	1.00	70 -	130	106.1	
118	Sn	2	115	5.13	ppb	1.54	5.00	70 -	130	102.6	
121	Sb	2	115	2.05	ppb	1.64	2.00	70 -	130	102.4	
137	Ba	2	115	4.82	ppb	1.91	5.00	70 -	130	96.4	
205	Tl	2	209	1.09	ppb	2.13	1.00	70 -	130	108.5	
208	Pb	2	209	1.06	ppb	0.80	1.00	70 -	130	106.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3529.36	3.10	76.78	-4597.0	70 -	120	ISFail
45	Sc	1	155051.92	1.11	158070.19	98.1	70 -	120	
45	Sc	2	7390682.50	2.92	6406944.50	115.4	70 -	120	
72	Ge	1	88977.75	1.41	88651.82	100.4	70 -	120	
115	In	2	7193810.00	1.54	7384352.50	97.4	70 -	120	
209	Bi	2	4621289.00	1.35	5202967.00	88.8	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\110CCV1.D\110CCV1.D#

Date Acquired:	Aug 9 2016 10:34 pm	Sample Name:	**CCV5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	199.60	ppb	1.70	200.00	90 -	110	99.8	
9	Be	2	45	187.90	ppb	1.75	200.00	90 -	110	94.0	
11	B	2	45	183.10	ppb	2.34	200.00	90 -	110	91.6	
23	Na	1	45	5664.00	ppb	1.50	5000.00	90 -	110	113.3	Fail
24	Mg	1	45	5213.00	ppb	0.36	5000.00	90 -	110	104.3	
27	Al	1	45	4926.00	ppb	0.82	5000.00	90 -	110	98.5	
39	K	1	45	5156.00	ppb	0.14	5000.00	90 -	110	103.1	
44	Ca	2	45	5435.00	ppb	2.25	5000.00	90 -	110	108.7	
47	Ti	1	45	196.60	ppb	1.35	200.00	90 -	110	98.3	
51	V	1	45	205.10	ppb	0.86	200.00	90 -	110	102.6	
52	Cr	1	45	207.80	ppb	1.07	200.00	90 -	110	103.9	
55	Mn	1	45	197.10	ppb	0.56	200.00	90 -	110	98.6	
56	Fe	1	72	5067.00	ppb	0.66	5000.00	90 -	110	101.3	
59	Co	1	72	213.10	ppb	0.57	200.00	90 -	110	106.6	
60	Ni	1	72	210.30	ppb	0.93	200.00	90 -	110	105.2	
63	Cu	1	72	215.20	ppb	0.34	200.00	90 -	110	107.6	
66	Zn	1	72	206.50	ppb	0.33	200.00	90 -	110	103.3	
75	As	1	72	209.00	ppb	0.28	200.00	90 -	110	104.5	
78	Se	1	72	199.60	ppb	0.92	200.00	90 -	110	99.8	
88	Sr	2	115	217.20	ppb	1.12	200.00	90 -	110	108.6	
95	Mo	2	115	195.80	ppb	1.76	200.00	90 -	110	97.9	
107	Ag	2	115	201.30	ppb	3.08	200.00	90 -	110	100.7	
111	Cd	2	115	197.50	ppb	0.70	200.00	90 -	110	98.8	
118	Sn	2	115	196.10	ppb	1.09	200.00	90 -	110	98.1	
121	Sb	2	115	190.60	ppb	1.19	200.00	90 -	110	95.3	
137	Ba	2	115	191.80	ppb	1.26	200.00	90 -	110	95.9	
205	Tl	2	209	208.60	ppb	1.56	200.00	90 -	110	104.3	
208	Pb	2	209	203.40	ppb	1.51	200.00	90 -	110	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-75664.59	3.31	76.78	-98552.4	70 -	120		ISFail
45	Sc	1	124785.66	0.45	158070.19	78.9	70 -	120		
45	Sc	2	6302517.50	2.28	6406944.50	98.4	70 -	120		
72	Ge	1	68975.04	0.29	88651.82	77.8	70 -	120		
115	In	2	6306791.00	1.45	7384352.50	85.4	70 -	120		
209	Bi	2	4367557.00	1.66	5202967.00	83.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\112LCVL.D\112LCVL.D#

Date Acquired:	Aug 9 2016 10:45 pm	Sample Name:	**LCVL5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.98	ppb	1.41	10.00	70 -	130	99.8	
9	Be	2	45	0.98	ppb	5.81	1.00	70 -	130	97.8	
11	B	2	45	19.45	ppb	2.92	20.00	70 -	130	97.3	
23	Na	1	45	84.87	ppb	0.87	100.00	70 -	130	84.9	
24	Mg	1	45	105.80	ppb	2.40	100.00	70 -	130	105.8	
27	Al	1	45	107.10	ppb	2.86	100.00	70 -	130	107.1	
39	K	1	45	104.40	ppb	1.08	100.00	70 -	130	104.4	
44	Ca	2	45	104.20	ppb	5.11	100.00	70 -	130	104.2	
47	Ti	1	45	5.37	ppb	10.81	5.00	70 -	130	107.4	
51	V	1	45	1.18	ppb	3.25	1.00	70 -	130	118.0	
52	Cr	1	45	5.30	ppb	1.79	5.00	70 -	130	106.0	
55	Mn	1	45	5.07	ppb	3.86	5.00	70 -	130	101.5	
56	Fe	1	72	112.20	ppb	1.84	100.00	70 -	130	112.2	
59	Co	1	72	5.31	ppb	1.44	5.00	70 -	130	106.3	
60	Ni	1	72	5.38	ppb	1.03	5.00	70 -	130	107.6	
63	Cu	1	72	5.42	ppb	1.93	5.00	70 -	130	108.4	
66	Zn	1	72	5.16	ppb	2.52	5.00	70 -	130	103.2	
75	As	1	72	5.39	ppb	0.72	5.00	70 -	130	107.7	
78	Se	1	72	5.61	ppb	6.00	5.00	70 -	130	112.3	
88	Sr	2	115	5.30	ppb	3.19	5.00	70 -	130	106.0	
95	Mo	2	115	4.85	ppb	3.25	5.00	70 -	130	97.1	
107	Ag	2	115	2.06	ppb	3.77	2.00	70 -	130	102.9	
111	Cd	2	115	0.99	ppb	10.34	1.00	70 -	130	98.7	
118	Sn	2	115	5.09	ppb	3.09	5.00	70 -	130	101.9	
121	Sb	2	115	1.94	ppb	3.14	2.00	70 -	130	96.8	
137	Ba	2	115	4.99	ppb	1.12	5.00	70 -	130	99.8	
205	Tl	2	209	1.11	ppb	2.10	1.00	70 -	130	111.2	
208	Pb	2	209	1.07	ppb	1.69	1.00	70 -	130	106.9	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2404.03	9.12	76.78	-3131.2	70 -	120	ISFail
45	Sc	1		128353.91	1.92	158070.19	81.2	70 -	120	
45	Sc	2		6258815.50	2.46	6406944.50	97.7	70 -	120	
72	Ge	1		71743.65	1.57	88651.82	80.9	70 -	120	
115	In	2		6551750.50	1.40	7384352.50	88.7	70 -	120	
209	Bi	2		4522111.00	0.97	5202967.00	86.9	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\113_CCB.D\113_CCB.D#

Date Acquired:	Aug 9 2016 10:51 pm	Sample Name:	**CCB5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.149	ppb	3.32	2.00	2.00	
9	Be	2	45	0.022	ppb	25.44	0.40	0.30	
11	B	2	45	1.737	ppb	3.08	10.00	10.00	
23	Na	1	45	-17.590	ppb	1.87	50.00	#####	
24	Mg	1	45	2.279	ppb	10.45	50.00	#####	
27	Al	1	45	13.230	ppb	7.09	50.00	10.00	FailAq
39	K	1	45	4.012	ppb	5.52	50.00	#####	
44	Ca	2	45	18.890	ppb	4.87	50.00	#####	
47	Ti	1	45	0.106	ppb	21.65	4.00	3.00	
51	V	1	45	0.021	ppb	11.72	4.00	3.00	
52	Cr	1	45	-0.001	ppb	13.25	2.00	2.00	
55	Mn	1	45	0.126	ppb	16.10	2.00	3.00	
56	Fe	1	72	4.464	ppb	16.01	50.00	30.00	
59	Co	1	72	0.028	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.123	ppb	8.50	2.00	3.00	
63	Cu	1	72	0.069	ppb	13.63	2.00	2.00	
66	Zn	1	72	1.030	ppb	10.51	4.00	2.00	
75	As	1	72	0.068	ppb	3.47	2.00	2.00	
78	Se	1	72	0.168	ppb	15.60	0.60	2.00	
88	Sr	2	115	0.179	ppb	2.97	4.00	3.00	
95	Mo	2	115	0.045	ppb	7.02	2.00	2.00	
107	Ag	2	115	0.031	ppb	8.69	0.40	1.00	
111	Cd	2	115	0.020	ppb	14.59	0.40	0.30	
118	Sn	2	115	0.081	ppb	10.28	20.00	3.00	
121	Sb	2	115	0.036	ppb	14.80	2.00	0.80	
137	Ba	2	115	0.140	ppb	6.72	2.00	3.00	
205	Tl	2	209	0.062	ppb	3.96	2.00	0.50	
208	Pb	2	209	0.037	ppb	7.76	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-49.93	23.51	76.78	-65.0	70 - 120	ISFail
45	Sc	1		130748.68	1.01	158070.19	82.7	70 - 120	
45	Sc	2		6263012.50	1.31	6406944.50	97.8	70 - 120	
72	Ge	1		72650.02	0.98	88651.82	81.9	70 - 120	
115	In	2		6516653.50	0.83	7384352.50	88.2	70 - 120	
209	Bi	2		4580867.00	0.91	5202967.00	88.0	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\114__PB.D\114__PB.D#

76687

Date Acquired:	Aug 9 2016 10:57 pm	Sample Name:	MB-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TWDOD
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.116	ppb	3.19	2.0	5.00	
9	Be	2	45	-0.003	ppb	25.51	0.3	1.00	
11	B	2	45	1.221	ppb	2.79	10.0	30.00	
23	Na	1	45	-31.450	ppb	1.22	100.0	#####	
24	Mg	1	45	2.236	ppb	4.79	100.0	#####	
27	Al	1	45	2.962	ppb	5.20	10.0	30.00	
39	K	1	45	-6.666	ppb	1.69	100.0	#####	
44	Ca	2	45	19.140	ppb	5.33	100.0	#####	
47	Ti	1	45	0.063	ppb	49.99	3.0	10.00	
51	V	1	45	0.025	ppb	14.30	3.0	10.00	
52	Cr	1	45	-0.054	ppb	11.71	2.0	5.00	
55	Mn	1	45	0.051	ppb	11.45	3.0	10.00	
56	Fe	1	72	3.046	ppb	8.16	30.0	#####	
59	Co	1	72	-0.003	ppb	25.24	3.0	10.00	
60	Ni	1	72	-0.025	ppb	33.75	3.0	10.00	
63	Cu	1	72	0.015	ppb	3.83	2.0	10.00	
66	Zn	1	72	0.075	ppb	14.94	2.0	5.00	
75	As	1	72	-0.021	ppb	5.48	2.0	5.00	
78	Se	1	72	0.006	ppb	11.09	2.0	5.00	
88	Sr	2	115	0.061	ppb	4.52	3.0	10.00	
95	Mo	2	115	0.002	ppb	6.25	2.0	5.00	
107	Ag	2	115	0.009	ppb	18.42	1.0	2.00	
111	Cd	2	115	-0.005	ppb	35.37	0.3	1.00	
118	Sn	2	115	0.036	ppb	17.01	3.0	10.00	
121	Sb	2	115	0.014	ppb	16.13	0.8	2.50	
137	Ba	2	115	0.036	ppb	29.09	3.0	10.00	
205	Tl	2	209	0.034	ppb	5.09	0.5	1.50	
208	Pb	2	209	0.019	ppb	2.08	0.3	1.00	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-32.23	21.44	76.78	-42.0	70 - 120	ISFail
45	Sc	1		128496.87	0.88	158070.19	81.3	70 - 120	
45	Sc	2		6286610.50	2.57	6406944.50	98.1	70 - 120	
72	Ge	1		71501.47	1.37	88651.82	80.7	70 - 120	
115	In	2		6715174.00	1.12	7384352.50	90.9	70 - 120	
209	Bi	2		4679310.50	1.15	5202967.00	89.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\115_LCS.D\115_LCS.D#

76687

Date Acquired:	Aug 9 2016 11:03 pm	Sample Name:	LCS-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.50	ppb	1.15	200.00	80 -	120	95.8	
9	Be	2	45	182.90	ppb	1.81	200.00	80 -	120	91.5	
11	B	2	45	175.40	ppb	2.15	200.00	80 -	120	87.7	
23	Na	1	45	5311.00	ppb	0.77	5000.00	80 -	120	106.2	
24	Mg	1	45	4913.00	ppb	1.22	5000.00	80 -	120	98.3	
27	Al	1	45	4890.00	ppb	1.43	5000.00	80 -	120	97.8	
39	K	1	45	4927.00	ppb	0.25	5000.00	80 -	120	98.5	
44	Ca	2	45	5070.00	ppb	1.73	5000.00	80 -	120	101.4	
47	Ti	1	45	205.00	ppb	1.82	200.00	80 -	120	102.5	
51	V	1	45	201.20	ppb	0.64	200.00	80 -	120	100.6	
52	Cr	1	45	203.50	ppb	1.03	200.00	80 -	120	101.8	
55	Mn	1	45	194.70	ppb	1.43	200.00	80 -	120	97.4	
56	Fe	1	72	4929.00	ppb	1.41	5000.00	80 -	120	98.6	
59	Co	1	72	206.50	ppb	0.63	200.00	80 -	120	103.3	
60	Ni	1	72	202.80	ppb	1.09	200.00	80 -	120	101.4	
63	Cu	1	72	210.10	ppb	0.11	200.00	80 -	120	105.1	
66	Zn	1	72	205.90	ppb	0.75	200.00	80 -	120	103.0	
75	As	1	72	206.60	ppb	0.27	200.00	80 -	120	103.3	
78	Se	1	72	201.40	ppb	2.05	200.00	80 -	120	100.7	
88	Sr	2	115	214.70	ppb	2.21	200.00	80 -	120	107.4	
95	Mo	2	115	191.20	ppb	1.94	200.00	80 -	120	95.6	
107	Ag	2	115	191.50	ppb	1.83	200.00	80 -	120	95.8	
111	Cd	2	115	196.00	ppb	1.40	200.00	80 -	120	98.0	
118	Sn	2	115	190.50	ppb	1.62	200.00	80 -	120	95.3	
121	Sb	2	115	189.00	ppb	1.43	200.00	80 -	120	94.5	
137	Ba	2	115	191.40	ppb	1.34	200.00	80 -	120	95.7	
205	Tl	2	209	206.20	ppb	1.22	200.00	80 -	120	103.1	
208	Pb	2	209	200.40	ppb	0.49	200.00	80 -	120	100.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69491.88	0.76	76.78	-90512.5	70 -	120	ISFail
45	Sc	1	124534.90	0.24	158070.19	78.8	70 -	120	
45	Sc	2	5894832.50	2.54	6406944.50	92.0	70 -	120	
72	Ge	1	68815.20	0.39	88651.82	77.6	70 -	120	
115	In	2	6077147.00	1.53	7384352.50	82.3	70 -	120	
209	Bi	2	4346663.50	0.36	5202967.00	83.5	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\116_LCS.D\116_LCS.D#

766878

Date Acquired:	Aug 9 2016 11:09 pm	Sample Name:	LCSD-~~766487~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.20	ppb	2.31	200.00	80 -	120	95.6	
9	Be	2	45	182.50	ppb	1.60	200.00	80 -	120	91.3	
11	B	2	45	181.90	ppb	1.50	200.00	80 -	120	91.0	
23	Na	1	45	5591.00	ppb	1.73	5000.00	80 -	120	111.8	
24	Mg	1	45	5220.00	ppb	1.87	5000.00	80 -	120	104.4	
27	Al	1	45	4960.00	ppb	1.21	5000.00	80 -	120	99.2	
39	K	1	45	5231.00	ppb	1.18	5000.00	80 -	120	104.6	
44	Ca	2	45	5361.00	ppb	1.46	5000.00	80 -	120	107.2	
47	Ti	1	45	201.90	ppb	1.78	200.00	80 -	120	101.0	
51	V	1	45	197.70	ppb	1.43	200.00	80 -	120	98.9	
52	Cr	1	45	200.30	ppb	1.10	200.00	80 -	120	100.2	
55	Mn	1	45	192.80	ppb	1.51	200.00	80 -	120	96.4	
56	Fe	1	72	4923.00	ppb	1.39	5000.00	80 -	120	98.5	
59	Co	1	72	206.40	ppb	0.81	200.00	80 -	120	103.2	
60	Ni	1	72	201.30	ppb	1.07	200.00	80 -	120	100.7	
63	Cu	1	72	207.80	ppb	1.42	200.00	80 -	120	103.9	
66	Zn	1	72	209.40	ppb	0.58	200.00	80 -	120	104.7	
75	As	1	72	206.40	ppb	0.76	200.00	80 -	120	103.2	
78	Se	1	72	204.40	ppb	1.81	200.00	80 -	120	102.2	
88	Sr	2	115	215.10	ppb	1.65	200.00	80 -	120	107.6	
95	Mo	2	115	191.70	ppb	1.74	200.00	80 -	120	95.9	
107	Ag	2	115	187.70	ppb	1.74	200.00	80 -	120	93.9	
111	Cd	2	115	196.00	ppb	1.99	200.00	80 -	120	98.0	
118	Sn	2	115	190.40	ppb	1.09	200.00	80 -	120	95.2	
121	Sb	2	115	183.70	ppb	1.22	200.00	80 -	120	91.9	
137	Ba	2	115	191.30	ppb	1.70	200.00	80 -	120	95.7	
205	Tl	2	209	207.10	ppb	1.32	200.00	80 -	120	103.6	
208	Pb	2	209	201.40	ppb	1.61	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69421.23	3.58	76.78	-90420.5	70 -	120	ISFail
45	Sc	1	126307.20	0.83	158070.19	79.9	70 -	120	
45	Sc	2	5852857.50	1.30	6406944.50	91.4	70 -	120	
72	Ge	1	68626.96	0.51	88651.82	77.4	70 -	120	
115	In	2	5902131.00	1.44	7384352.50	79.9	70 -	120	
209	Bi	2	4282167.00	0.80	5202967.00	82.3	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\119DT1.D\119DT1.D#

Date Acquired:	Aug 9 2016 11:27 pm	Sample Name:	**1607337-26A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TWDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.02	ppb	3.26	-19.32	90 - 110	-0.6	
9	Be	2	45	-0.01	ppb	34.80	0.04	90 - 110	-188.5	
11	B	2	45	0.43	ppb	1.01	16.54	90 - 110	13.1	
23	Na	1	45	-51.29	ppb	1.59	131.00	90 - 110	-195.8	
24	Mg	1	45	-2.32	ppb	32.10	22.09	90 - 110	-52.4	
27	Al	1	45	-3.78	ppb	20.30	9.23	90 - 110	-204.5	
39	K	1	45	-42.82	ppb	2.32	8.69	90 - 110	######	
44	Ca	2	45	-29.56	ppb	2.42	69.33	90 - 110	-213.2	
47	Ti	1	45	0.03	ppb	24.74	0.09	90 - 110	141.6	
51	V	1	45	-0.16	ppb	3.90	0.05	90 - 110	######	
52	Cr	1	45	-0.11	ppb	21.60	0.03	90 - 110	######	
55	Mn	1	45	-0.07	ppb	61.76	0.09	90 - 110	-392.7	
56	Fe	1	72	-4.42	ppb	34.47	3.84	90 - 110	-574.7	
59	Co	1	72	-0.01	ppb	47.09	0.04	90 - 110	-98.8	
60	Ni	1	72	-0.06	ppb	16.54	0.05	90 - 110	-548.8	
63	Cu	1	72	-0.09	ppb	28.00	0.48	90 - 110	-90.8	
66	Zn	1	72	-0.25	ppb	32.97	0.70	90 - 110	-179.8	
75	As	1	72	-0.28	ppb	5.35	0.04	90 - 110	######	
78	Se	1	72	-0.28	ppb	30.99	0.11	90 - 110	######	
88	Sr	2	115	-0.06	ppb	7.29	1.23	90 - 110	-25.0	
95	Mo	2	115	0.00	ppb	16.95	0.10	90 - 110	-7.6	
107	Ag	2	115	0.00	ppb	12.48	0.04	90 - 110	21.3	
111	Cd	2	115	-0.01	ppb	16.29	0.04	90 - 110	-148.7	
118	Sn	2	115	0.00	ppb	8.48	0.14	90 - 110	6.9	
121	Sb	2	115	0.00	ppb	39.28	0.12	90 - 110	-6.2	
137	Ba	2	115	-0.03	ppb	31.39	0.15	90 - 110	-96.8	
205	Tl	2	209	-0.01	ppb	21.76	0.20	90 - 110	-13.8	
208	Pb	2	209	-0.02	ppb	10.64	0.06	90 - 110	-190.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-19.32	121.61	76.78	-25.2	70 -	120	ISFail
45	Sc	1		205868.92	1.08	158070.19	130.2	70 -	120	ISFail
45	Sc	2		9292643.00	0.62	6406944.50	145.0	70 -	120	ISFail
72	Ge	1		113752.76	1.31	88651.82	128.3	70 -	120	ISFail
115	In	2		10011364.00	0.59	7384352.50	135.6	70 -	120	ISFail
209	Bi	2		7018410.50	0.44	5202967.00	134.9	70 -	120	ISFail

DNR

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\122SMPL.D\122SMPL.D#

Date Acquired:	Aug 9 2016 11:45 pm	Sample Name:	**1607239-16A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.099	ppb	#REF!	7.76	2000.00	ND
9	Be	2	45	-0.010	ppb	#REF!	16.67	2000.00	ND
11	B	2	45	17.030	ppb	#REF!	0.99	2000.00	J
23	Na	1	45	70.120	ppb	#REF!	1.72	25000.00	ND
24	Mg	1	45	5.728	ppb	#REF!	6.89	25000.00	ND
27	Al	1	45	17.220	ppb	#REF!	7.49	10000.00	J
39	K	1	45	12.390	ppb	#REF!	2.70	25000.00	ND
44	Ca	2	45	26.080	ppb	#REF!	3.70	25000.00	ND
47	Ti	1	45	0.108	ppb	#REF!	43.31	2000.00	ND
51	V	1	45	0.020	ppb	#REF!	6.02	2000.00	ND
52	Cr	1	45	-0.012	ppb	#REF!	15.63	2000.00	ND
55	Mn	1	45	0.509	ppb	#REF!	8.81	2000.00	ND
56	Fe	1	72	20.530	ppb	#REF!	0.92	10000.00	ND
59	Co	1	72	-0.007	ppb	#REF!	36.73	2000.00	ND
60	Ni	1	72	0.024	ppb	#REF!	2.22	2000.00	ND
63	Cu	1	72	0.344	ppb	#REF!	1.34	2000.00	ND
66	Zn	1	72	0.863	ppb	#REF!	1.50	2000.00	ND
75	As	1	72	-0.017	ppb	#REF!	7.72	2000.00	ND
78	Se	1	72	0.085	ppb	#REF!	11.66	2000.00	ND
88	Sr	2	115	0.322	ppb	#REF!	3.25	2000.00	ND
95	Mo	2	115	-0.002	ppb	#REF!	14.61	2000.00	ND
107	Ag	2	115	0.002	ppb	#REF!	17.57	500.00	ND
111	Cd	2	115	-0.004	ppb	#REF!	30.12	2000.00	ND
118	Sn	2	115	0.044	ppb	#REF!	14.53	2000.00	ND
121	Sb	2	115	0.019	ppb	#REF!	26.02	500.00	ND
137	Ba	2	115	0.074	ppb	#REF!	15.16	2000.00	ND
205	Tl	2	209	0.042	ppb	#REF!	9.96	2000.00	ND
208	Pb	2	209	0.061	ppb	#REF!	7.05	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-22.31	78.98	RHigh	76.78	-29.1	70 - 120	ISFail
45	Sc	1	128943.71	1.82		158070.19	81.6	70 - 120	
45	Sc	2	5742600.50	1.85		6406944.50	89.6	70 - 120	
72	Ge	1	70985.00	1.41		88651.82	80.1	70 - 120	
115	In	2	6260250.50	0.43		7384352.50	84.8	70 - 120	
209	Bi	2	4535326.00	1.49		5202967.00	87.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\123SMPL.D\123SMPL.D#

Date Acquired:	Aug 9 2016 11:51 pm	Sample Name:	**1607239-32A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.085	ppb	#REF!	4.80	2000.00	ND
9	Be	2	45	-0.008	ppb	#REF!	35.72	2000.00	ND
11	B	2	45	15.380	ppb	#REF!	2.81	2000.00	J
23	Na	1	45	37.500	ppb	#REF!	1.39	25000.00	ND
24	Mg	1	45	3.449	ppb	#REF!	10.77	25000.00	ND
27	Al	1	45	12.300	ppb	#REF!	8.27	10000.00	J
39	K	1	45	-4.329	ppb	#REF!	2.86	25000.00	ND
44	Ca	2	45	15.620	ppb	#REF!	5.83	25000.00	ND
47	Ti	1	45	0.175	ppb	#REF!	56.78	2000.00	ND
51	V	1	45	0.024	ppb	#REF!	17.60	2000.00	ND
52	Cr	1	45	-0.031	ppb	#REF!	9.36	2000.00	ND
55	Mn	1	45	0.069	ppb	#REF!	10.59	2000.00	ND
56	Fe	1	72	3.084	ppb	#REF!	5.77	10000.00	ND
59	Co	1	72	-0.006	ppb	#REF!	20.27	2000.00	ND
60	Ni	1	72	-0.002	ppb	#REF!	25.63	2000.00	ND
63	Cu	1	72	0.355	ppb	#REF!	2.01	2000.00	ND
66	Zn	1	72	0.848	ppb	#REF!	0.85	2000.00	ND
75	As	1	72	-0.098	ppb	#REF!	8.93	2000.00	ND
78	Se	1	72	-0.019	ppb	#REF!	32.01	2000.00	ND
88	Sr	2	115	0.185	ppb	#REF!	5.37	2000.00	ND
95	Mo	2	115	-0.005	ppb	#REF!	8.11	2000.00	ND
107	Ag	2	115	0.004	ppb	#REF!	9.45	500.00	ND
111	Cd	2	115	-0.009	ppb	#REF!	56.59	2000.00	ND
118	Sn	2	115	0.023	ppb	#REF!	11.41	2000.00	ND
121	Sb	2	115	0.010	ppb	#REF!	13.21	500.00	ND
137	Ba	2	115	0.055	ppb	#REF!	10.84	2000.00	ND
205	Tl	2	209	0.020	ppb	#REF!	4.27	2000.00	ND
208	Pb	2	209	0.123	ppb	#REF!	2.13	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11.99	169.34	RHigh	76.78	-15.6	70 - 120	ISFail
45	Sc	1	129679.63	1.21		158070.19	82.0	70 - 120	
45	Sc	2	5727121.50	1.81		6406944.50	89.4	70 - 120	
72	Ge	1	70822.46	0.96		88651.82	79.9	70 - 120	
115	In	2	6175742.00	0.96		7384352.50	83.6	70 - 120	
209	Bi	2	4571294.50	0.93		5202967.00	87.9	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\130_PDS.D\130_PDS.D#

Date Acquired:	Aug 10 2016 12:34 am	Sample Name:	**1607337-26A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	158.80	ppb	1.14	-36628.96	200	75-125	######	Fail
9	Be	2	45	163.50	ppb	1.31	0.04	200	75-125	81.7	
11	B	2	45	172.10	ppb	1.02	16.54	200	75-125	77.8	
23	Na	1	45	5485.00	ppb	0.79	131.00	5000	75-125	107.1	
24	Mg	1	45	5002.00	ppb	0.39	22.09	5000	75-125	99.6	
27	Al	1	45	4968.00	ppb	1.14	9.23	5000	75-125	99.2	
39	K	1	45	5000.00	ppb	0.39	8.69	5000	75-125	99.8	
44	Ca	2	45	5075.00	ppb	2.92	69.33	5000	75-125	100.1	
47	Ti	1	45	194.80	ppb	1.20	0.09	200	75-125	97.4	
51	V	1	45	195.00	ppb	0.28	0.05	200	75-125	97.5	
52	Cr	1	45	198.80	ppb	0.36	0.03	200	75-125	99.4	
55	Mn	1	45	190.20	ppb	0.66	0.09	200	75-125	95.1	
56	Fe	1	72	4874.00	ppb	0.71	3.84	5000	75-125	97.4	
59	Co	1	72	200.20	ppb	0.29	0.04	200	75-125	100.1	
60	Ni	1	72	194.10	ppb	0.24	0.05	200	75-125	97.0	
63	Cu	1	72	196.80	ppb	0.03	0.48	200	75-125	98.2	
66	Zn	1	72	197.30	ppb	0.51	0.70	200	75-125	98.3	
75	As	1	72	196.00	ppb	0.53	0.04	200	75-125	98.0	
78	Se	1	72	192.40	ppb	1.58	0.11	200	75-125	96.1	
88	Sr	2	115	200.30	ppb	1.60	1.23	200	75-125	99.5	
95	Mo	2	115	177.70	ppb	1.78	0.10	200	75-125	88.8	
107	Ag	2	115	191.70	ppb	1.20	0.04	200	75-125	95.8	
111	Cd	2	115	184.10	ppb	1.39	0.04	200	75-125	92.0	
118	Sn	2	115	191.90	ppb	1.65	0.14	200	75-125	95.9	
121	Sb	2	115	181.40	ppb	1.54	0.12	200	75-125	90.6	
137	Ba	2	115	187.90	ppb	1.31	0.15	200	75-125	93.9	
205	Tl	2	209	199.10	ppb	1.51	0.20	200	75-125	99.4	
208	Pb	2	209	193.30	ppb	1.60	0.06	200	75-125	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-36628.96	4.68	76.78	-47708.9	70 - 120	ISFail
45	Sc	1	125599.98	0.73	158070.19	79.5	70 - 120	
45	Sc	2	5386959.00	1.27	6406944.50	84.1	70 - 120	
72	Ge	1	68421.66	0.57	88651.82	77.2	70 - 120	
115	In	2	5853272.50	1.15	7384352.50	79.3	70 - 120	
209	Bi	2	4369750.00	0.72	5202967.00	84.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\131CCV1.D\131CCV1.D#

Date Acquired:	Aug 10 2016 12:40 am	Sample Name:	**CCV6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	167.40	ppb	1.47	200.00	90 -	110	83.7	Fail
9	Be	2	45	171.80	ppb	1.06	200.00	90 -	110	85.9	Fail
11	B	2	45	166.70	ppb	1.71	200.00	90 -	110	83.4	Fail
23	Na	1	45	5465.00	ppb	1.87	5000.00	90 -	110	109.3	
24	Mg	1	45	5136.00	ppb	1.43	5000.00	90 -	110	102.7	
27	Al	1	45	5019.00	ppb	1.02	5000.00	90 -	110	100.4	
39	K	1	45	5195.00	ppb	1.89	5000.00	90 -	110	103.9	
44	Ca	2	45	5317.00	ppb	1.95	5000.00	90 -	110	106.3	
47	Ti	1	45	198.10	ppb	2.78	200.00	90 -	110	99.1	
51	V	1	45	193.60	ppb	0.91	200.00	90 -	110	96.8	
52	Cr	1	45	196.00	ppb	1.20	200.00	90 -	110	98.0	
55	Mn	1	45	193.30	ppb	1.32	200.00	90 -	110	96.7	
56	Fe	1	72	4978.00	ppb	1.21	5000.00	90 -	110	99.6	
59	Co	1	72	203.60	ppb	0.54	200.00	90 -	110	101.8	
60	Ni	1	72	198.10	ppb	1.04	200.00	90 -	110	99.1	
63	Cu	1	72	204.00	ppb	0.67	200.00	90 -	110	102.0	
66	Zn	1	72	204.20	ppb	1.22	200.00	90 -	110	102.1	
75	As	1	72	205.10	ppb	0.48	200.00	90 -	110	102.6	
78	Se	1	72	204.60	ppb	1.97	200.00	90 -	110	102.3	
88	Sr	2	115	204.10	ppb	1.67	200.00	90 -	110	102.1	
95	Mo	2	115	187.90	ppb	1.81	200.00	90 -	110	94.0	
107	Ag	2	115	192.90	ppb	1.47	200.00	90 -	110	96.5	
111	Cd	2	115	192.80	ppb	1.10	200.00	90 -	110	96.4	
118	Sn	2	115	195.80	ppb	1.49	200.00	90 -	110	97.9	
121	Sb	2	115	193.30	ppb	1.05	200.00	90 -	110	96.7	
137	Ba	2	115	191.20	ppb	1.01	200.00	90 -	110	95.6	
205	Tl	2	209	205.90	ppb	0.44	200.00	90 -	110	103.0	
208	Pb	2	209	199.00	ppb	1.90	200.00	90 -	110	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56261.30	1.15	76.78	-73279.8	70 -	120		ISFail
45	Sc	1	124555.60	0.67	158070.19	78.8	70 -	120		
45	Sc	2	5296972.00	1.77	6406944.50	82.7	70 -	120		
72	Ge	1	66748.51	0.64	88651.82	75.3	70 -	120		
115	In	2	5704471.00	0.52	7384352.50	77.3	70 -	120		
209	Bi	2	4283476.00	0.74	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\133LCVL.D\133LCVL.D#

Date Acquired:	Aug 10 2016 12:52 am	Sample Name:	**LCVL6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.36	ppb	0.41	10.00	70 -	130	83.6	
9	Be	2	45	0.93	ppb	6.23	1.00	70 -	130	92.7	
11	B	2	45	17.97	ppb	1.06	20.00	70 -	130	89.9	
23	Na	1	45	75.06	ppb	1.50	100.00	70 -	130	75.1	
24	Mg	1	45	106.10	ppb	2.21	100.00	70 -	130	106.1	
27	Al	1	45	107.20	ppb	1.50	100.00	70 -	130	107.2	
39	K	1	45	102.50	ppb	3.12	100.00	70 -	130	102.5	
44	Ca	2	45	96.05	ppb	1.13	100.00	70 -	130	96.1	
47	Ti	1	45	5.58	ppb	14.76	5.00	70 -	130	111.6	
51	V	1	45	1.01	ppb	3.86	1.00	70 -	130	100.9	
52	Cr	1	45	4.96	ppb	1.30	5.00	70 -	130	99.3	
55	Mn	1	45	5.15	ppb	2.02	5.00	70 -	130	103.0	
56	Fe	1	72	109.10	ppb	1.44	100.00	70 -	130	109.1	
59	Co	1	72	5.20	ppb	1.89	5.00	70 -	130	104.0	
60	Ni	1	72	5.19	ppb	3.60	5.00	70 -	130	103.9	
63	Cu	1	72	5.26	ppb	2.20	5.00	70 -	130	105.3	
66	Zn	1	72	5.39	ppb	4.12	5.00	70 -	130	107.7	
75	As	1	72	5.14	ppb	2.63	5.00	70 -	130	102.7	
78	Se	1	72	5.64	ppb	7.87	5.00	70 -	130	112.8	
88	Sr	2	115	5.01	ppb	0.98	5.00	70 -	130	100.2	
95	Mo	2	115	4.61	ppb	2.50	5.00	70 -	130	92.2	
107	Ag	2	115	2.02	ppb	1.23	2.00	70 -	130	100.8	
111	Cd	2	115	1.00	ppb	5.18	1.00	70 -	130	99.9	
118	Sn	2	115	5.02	ppb	0.81	5.00	70 -	130	100.5	
121	Sb	2	115	2.06	ppb	0.44	2.00	70 -	130	102.8	
137	Ba	2	115	4.84	ppb	1.77	5.00	70 -	130	96.8	
205	Tl	2	209	1.08	ppb	1.83	1.00	70 -	130	108.1	
208	Pb	2	209	1.04	ppb	3.49	1.00	70 -	130	103.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1894.92	0.81	76.78	-2468.1	70 -	120	ISFail
45	Sc	1	127512.96	1.28	158070.19	80.7	70 -	120	
45	Sc	2	5345241.50	1.84	6406944.50	83.4	70 -	120	
72	Ge	1	69017.09	0.78	88651.82	77.9	70 -	120	
115	In	2	5931265.50	0.47	7384352.50	80.3	70 -	120	
209	Bi	2	4508333.00	0.53	5202967.00	86.6	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\134_CCB.D\134_CCB.D#

Date Acquired:	Aug 10 2016 12:58 am	Sample Name:	**CCB6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.101	ppb	14.77	2.00	2.00	
9	Be	2	45	0.018	ppb	16.07	0.40	0.30	
11	B	2	45	1.904	ppb	2.17	10.00	10.00	
23	Na	1	45	-25.190	ppb	1.25	50.00	#####	
24	Mg	1	45	1.985	ppb	7.37	50.00	#####	
27	Al	1	45	12.990	ppb	11.78	50.00	10.00	FailAq
39	K	1	45	2.226	ppb	2.38	50.00	#####	
44	Ca	2	45	14.170	ppb	3.90	50.00	#####	
47	Ti	1	45	0.228	ppb	48.05	4.00	3.00	
51	V	1	45	0.067	ppb	5.49	4.00	3.00	
52	Cr	1	45	-0.014	ppb	11.68	2.00	2.00	
55	Mn	1	45	0.099	ppb	33.22	2.00	3.00	
56	Fe	1	72	2.892	ppb	10.97	50.00	30.00	
59	Co	1	72	0.042	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.107	ppb	18.76	2.00	3.00	
63	Cu	1	72	0.079	ppb	7.94	2.00	2.00	
66	Zn	1	72	0.873	ppb	10.21	4.00	2.00	
75	As	1	72	-0.028	ppb	6.15	2.00	2.00	
78	Se	1	72	0.106	ppb	9.27	0.60	2.00	
88	Sr	2	115	0.136	ppb	7.78	4.00	3.00	
95	Mo	2	115	0.048	ppb	13.97	2.00	2.00	
107	Ag	2	115	0.035	ppb	31.56	0.40	1.00	
111	Cd	2	115	0.016	ppb	17.44	0.40	0.30	
118	Sn	2	115	0.106	ppb	9.34	20.00	3.00	
121	Sb	2	115	0.114	ppb	2.32	2.00	0.80	
137	Ba	2	115	0.159	ppb	6.77	2.00	3.00	
205	Tl	2	209	0.122	ppb	9.29	2.00	0.50	
208	Pb	2	209	0.043	ppb	10.14	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-30.83	20.91	76.78	-40.2	70 - 120	ISFail
45	Sc	1		127231.00	1.85	158070.19	80.5	70 - 120	
45	Sc	2		5344402.50	0.65	6406944.50	83.4	70 - 120	
72	Ge	1		69252.09	1.04	88651.82	78.1	70 - 120	
115	In	2		6033401.00	0.52	7384352.50	81.7	70 - 120	
209	Bi	2		4493201.00	0.82	5202967.00	86.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\139ICSA.D\139ICSA.D#

Date Acquired:	Aug 10 2016 01:28 am	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.070	ppb	2.00	8.00	5.00	
9	Be	2	45	0.001	ppb	34.45	0.32	0.80	
11	B	2	45	2.312	ppb	1.17	30.00	30.00	
23	Na	1	45	105200.000	ppb	1.04	#######	#######	
24	Mg	1	45	90950.000	ppb	0.26	#######	#######	
27	Al	1	45	100500.000	ppb	0.69	#######	#######	
39	K	1	45	98300.000	ppb	0.71	#######	#######	
44	Ca	2	45	93690.000	ppb	1.88	#######	#######	
47	Ti	1	45	1967.000	ppb	2.25	10.00	10.00	
51	V	1	45	0.007	ppb	5.61	10.00	10.00	
52	Cr	1	45	0.736	ppb	2.29	8.00	5.00	
55	Mn	1	45	0.784	ppb	2.89	8.00	10.00	
56	Fe	1	72	92090.000	ppb	1.07	#######	#######	
59	Co	1	72	1.251	ppb	2.39	8.00	10.00	
60	Ni	1	72	0.367	ppb	8.44	8.00	10.00	
63	Cu	1	72	2.143	ppb	4.19	8.00	10.00	
66	Zn	1	72	1.740	ppb	10.89	10.00	5.00	
75	As	1	72	0.424	ppb	2.29	4.00	5.00	
78	Se	1	72	0.405	ppb	4.88	2.00	5.00	
88	Sr	2	115	1.102	ppb	1.24	10.00	10.00	
95	Mo	2	115	1840.000	ppb	1.36	8.00	5.00	
107	Ag	2	115	0.095	ppb	9.31	0.80	2.00	
111	Cd	2	115	0.358	ppb	4.48	1.20	1.00	
118	Sn	2	115	0.112	ppb	11.93	10.00	10.00	
121	Sb	2	115	0.124	ppb	4.55	4.00	2.50	
137	Ba	2	115	0.485	ppb	6.26	8.00	10.00	
205	Tl	2	209	0.030	ppb	4.63	4.00	1.50	
208	Pb	2	209	0.143	ppb	5.94	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-4.44	104.01	76.78	-5.8	70	-	120	ISFail
45	Sc	1	119130.96	0.54	158070.19	75.4	70	-	120	
45	Sc	2	5411480.50	1.58	6406944.50	84.5	70	-	120	
72	Ge	1	63381.42	0.44	88651.82	71.5	70	-	120	
115	In	2	6052545.50	0.79	7384352.50	82.0	70	-	120	
209	Bi	2	3898169.50	0.91	5202967.00	74.9	70	-	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\140ICSB.D\140ICSB.D#

Date Acquired:	Aug 10 2016 01:34 am	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.08	ppb	8.76	---	80 -		120	
9	Be	2	45	0.00	ppb	5.88	---	80 -		120	
11	B	2	45	2.18	ppb	2.39	---	80 -		120	
23	Na	1	45	99220.00	ppb	0.75	100000.00	80 -		120	
24	Mg	1	45	91000.00	ppb	2.16	100000.00	80 -		120	
27	Al	1	45	96240.00	ppb	1.82	100000.00	80 -		120	
39	K	1	45	96230.00	ppb	1.17	100000.00	80 -		120	
44	Ca	2	45	94120.00	ppb	2.58	100000.00	80 -		120	
47	Ti	1	45	1933.00	ppb	2.15	---	80 -		120	
51	V	1	45	39.34	ppb	1.11	40.00	80 -		120	
52	Cr	1	45	20.35	ppb	2.07	20.00	80 -		120	
55	Mn	1	45	18.52	ppb	1.26	20.00	80 -		120	
56	Fe	1	72	90510.00	ppb	1.66	100000.00	80 -		120	
59	Co	1	72	39.63	ppb	1.40	40.00	80 -		120	
60	Ni	1	72	36.01	ppb	2.48	40.00	80 -		120	
63	Cu	1	72	19.40	ppb	2.06	20.00	80 -		120	
66	Zn	1	72	17.91	ppb	1.30	20.00	80 -		120	
75	As	1	72	19.95	ppb	1.53	20.00	80 -		120	
78	Se	1	72	18.94	ppb	4.72	20.00	80 -		120	
88	Sr	2	115	1.26	ppb	1.03	---	80 -		120	
95	Mo	2	115	1869.00	ppb	1.21	---	80 -		120	
107	Ag	2	115	17.30	ppb	2.01	20.00	80 -		120	
111	Cd	2	115	8.66	ppb	2.03	10.00	80 -		120	
118	Sn	2	115	0.32	ppb	6.45	---	80 -		120	
121	Sb	2	115	0.06	ppb	8.76	---	80 -		120	
137	Ba	2	115	0.46	ppb	4.50	---	80 -		120	
205	Tl	2	209	0.03	ppb	1.19	---	80 -		120	
208	Pb	2	209	0.14	ppb	4.34	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-13.32	82.49	76.78	-17.4	70 -		120	ISFail
45	Sc	1	114294.10	0.74	158070.19	72.3	70 -		120	
45	Sc	2	5913222.00	2.49	6406944.50	92.3	70 -		120	
72	Ge	1	62531.31	0.48	88651.82	70.5	70 -		120	
115	In	2	6403232.00	2.00	7384352.50	86.7	70 -		120	
209	Bi	2	3877124.00	1.53	5202967.00	74.5	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 10 2016 02:34 am	Sample Name:	**CCV7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	211.40	ppb	1.98	200.00	90 -	110	105.7	
9	Be	2	45	193.30	ppb	2.54	200.00	90 -	110	96.7	
11	B	2	45	181.50	ppb	2.97	200.00	90 -	110	90.8	
23	Na	1	45	5794.00	ppb	0.74	5000.00	90 -	110	115.9	Fail
24	Mg	1	45	5243.00	ppb	0.99	5000.00	90 -	110	104.9	
27	Al	1	45	4782.00	ppb	0.93	5000.00	90 -	110	95.6	
39	K	1	45	5111.00	ppb	0.66	5000.00	90 -	110	102.2	
44	Ca	2	45	5330.00	ppb	2.78	5000.00	90 -	110	106.6	
47	Ti	1	45	195.70	ppb	1.93	200.00	90 -	110	97.9	
51	V	1	45	204.60	ppb	1.30	200.00	90 -	110	102.3	
52	Cr	1	45	207.40	ppb	0.93	200.00	90 -	110	103.7	
55	Mn	1	45	194.10	ppb	0.54	200.00	90 -	110	97.1	
56	Fe	1	72	4961.00	ppb	0.58	5000.00	90 -	110	99.2	
59	Co	1	72	211.40	ppb	0.42	200.00	90 -	110	105.7	
60	Ni	1	72	207.80	ppb	0.64	200.00	90 -	110	103.9	
63	Cu	1	72	212.40	ppb	0.87	200.00	90 -	110	106.2	
66	Zn	1	72	203.80	ppb	0.83	200.00	90 -	110	101.9	
75	As	1	72	206.40	ppb	0.19	200.00	90 -	110	103.2	
78	Se	1	72	193.90	ppb	1.18	200.00	90 -	110	97.0	
88	Sr	2	115	220.10	ppb	2.20	200.00	90 -	110	110.1	Fail
95	Mo	2	115	198.40	ppb	2.02	200.00	90 -	110	99.2	
107	Ag	2	115	204.10	ppb	2.60	200.00	90 -	110	102.1	
111	Cd	2	115	197.30	ppb	1.79	200.00	90 -	110	98.7	
118	Sn	2	115	193.70	ppb	2.33	200.00	90 -	110	96.9	
121	Sb	2	115	189.10	ppb	1.94	200.00	90 -	110	94.6	
137	Ba	2	115	189.90	ppb	2.75	200.00	90 -	110	95.0	
205	Tl	2	209	207.50	ppb	1.24	200.00	90 -	110	103.8	
208	Pb	2	209	201.00	ppb	1.74	200.00	90 -	110	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-82304.90	2.29	76.78	-107201.3	70 -	120		ISFail
45	Sc	1	125201.70	0.89	158070.19	79.2	70 -	120		
45	Sc	2	6585617.50	2.74	6406944.50	102.8	70 -	120		
72	Ge	1	69514.50	0.34	88651.82	78.4	70 -	120		
115	In	2	6265898.00	2.25	7384352.50	84.9	70 -	120		
209	Bi	2	4283931.00	1.41	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 10 2016 02:46 am	Sample Name:	**LCVL7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.55	ppb	1.67	10.00	70 -	130	105.5	
9	Be	2	45	1.02	ppb	5.20	1.00	70 -	130	102.4	
11	B	2	45	19.50	ppb	2.95	20.00	70 -	130	97.5	
23	Na	1	45	85.41	ppb	0.67	100.00	70 -	130	85.4	
24	Mg	1	45	105.90	ppb	2.49	100.00	70 -	130	105.9	
27	Al	1	45	102.10	ppb	5.06	100.00	70 -	130	102.1	
39	K	1	45	106.40	ppb	0.78	100.00	70 -	130	106.4	
44	Ca	2	45	97.15	ppb	2.11	100.00	70 -	130	97.2	
47	Ti	1	45	4.57	ppb	8.81	5.00	70 -	130	91.5	
51	V	1	45	1.08	ppb	5.50	1.00	70 -	130	108.1	
52	Cr	1	45	5.17	ppb	1.70	5.00	70 -	130	103.3	
55	Mn	1	45	4.99	ppb	1.78	5.00	70 -	130	99.7	
56	Fe	1	72	108.10	ppb	1.80	100.00	70 -	130	108.1	
59	Co	1	72	5.38	ppb	1.05	5.00	70 -	130	107.6	
60	Ni	1	72	5.19	ppb	3.22	5.00	70 -	130	103.9	
63	Cu	1	72	5.42	ppb	0.84	5.00	70 -	130	108.5	
66	Zn	1	72	5.42	ppb	1.94	5.00	70 -	130	108.3	
75	As	1	72	5.28	ppb	2.23	5.00	70 -	130	105.5	
78	Se	1	72	5.09	ppb	9.45	5.00	70 -	130	101.8	
88	Sr	2	115	5.36	ppb	2.63	5.00	70 -	130	107.3	
95	Mo	2	115	4.99	ppb	2.38	5.00	70 -	130	99.8	
107	Ag	2	115	2.12	ppb	0.86	2.00	70 -	130	105.9	
111	Cd	2	115	1.07	ppb	10.42	1.00	70 -	130	106.5	
118	Sn	2	115	4.91	ppb	2.17	5.00	70 -	130	98.2	
121	Sb	2	115	1.99	ppb	3.25	2.00	70 -	130	99.4	
137	Ba	2	115	4.87	ppb	2.38	5.00	70 -	130	97.4	
205	Tl	2	209	1.07	ppb	2.25	1.00	70 -	130	106.7	
208	Pb	2	209	1.05	ppb	2.01	1.00	70 -	130	105.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2645.24	4.55	76.78	-3445.4	70 -	120	ISFail
45	Sc	1	131958.09	1.68	158070.19	83.5	70 -	120	
45	Sc	2	6630638.50	2.20	6406944.50	103.5	70 -	120	
72	Ge	1	72498.49	1.39	88651.82	81.8	70 -	120	
115	In	2	6417149.50	1.31	7384352.50	86.9	70 -	120	
209	Bi	2	4487306.00	0.69	5202967.00	86.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 10 2016 02:52 am	Sample Name:	**CCB7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.099	ppb	4.55	2.00	2.00	
9	Be	2	45	0.028	ppb	6.74	0.40	0.30	
11	B	2	45	1.824	ppb	2.26	10.00	10.00	
23	Na	1	45	-17.230	ppb	0.69	50.00	#####	
24	Mg	1	45	2.846	ppb	8.80	50.00	#####	
27	Al	1	45	13.190	ppb	2.07	50.00	10.00	FailAq
39	K	1	45	4.196	ppb	0.71	50.00	#####	
44	Ca	2	45	15.510	ppb	3.58	50.00	#####	
47	Ti	1	45	0.361	ppb	63.82	4.00	3.00	
51	V	1	45	0.044	ppb	4.14	4.00	3.00	
52	Cr	1	45	-0.002	ppb	8.89	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.00	2.00	3.00	
56	Fe	1	72	4.111	ppb	5.89	50.00	30.00	
59	Co	1	72	0.045	ppb	16.88	2.00	3.00	
60	Ni	1	72	0.140	ppb	11.71	2.00	3.00	
63	Cu	1	72	0.128	ppb	3.06	2.00	2.00	
66	Zn	1	72	0.872	ppb	7.66	4.00	2.00	
75	As	1	72	0.128	ppb	1.55	2.00	2.00	
78	Se	1	72	-0.016	ppb	8.21	0.60	2.00	
88	Sr	2	115	0.190	ppb	4.02	4.00	3.00	
95	Mo	2	115	0.077	ppb	2.00	2.00	2.00	
107	Ag	2	115	0.037	ppb	12.69	0.40	1.00	
111	Cd	2	115	0.035	ppb	4.31	0.40	0.30	
118	Sn	2	115	0.078	ppb	10.84	20.00	3.00	
121	Sb	2	115	0.058	ppb	13.12	2.00	0.80	
137	Ba	2	115	0.170	ppb	3.65	2.00	3.00	
205	Tl	2	209	0.083	ppb	5.52	2.00	0.50	
208	Pb	2	209	0.034	ppb	6.00	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-43.63	4.42	76.78	-56.8	70 - 120	ISFail
45	Sc	1	128466.02	0.42	158070.19	81.3	70 - 120	
45	Sc	2	6564520.50	2.58	6406944.50	102.5	70 - 120	
72	Ge	1	71235.80	1.58	88651.82	80.4	70 - 120	
115	In	2	6498961.00	0.94	7384352.50	88.0	70 - 120	
209	Bi	2	4515668.00	1.20	5202967.00	86.8	70 - 120	

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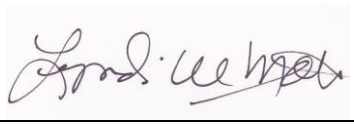

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DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
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Web: www.dhlanalytical.com
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№ 72237

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-21-16 PAGE 1 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1160725e
PROJECT LOCATION OR NAME: Laredo, SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8082 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8081 PEST ☐ T PHOS, AMMONIA ☐ | 8321 HERB ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ Lead | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU118(0-2)-A	01	7-21-16	0917	S	Bag	1				X		X X	
SGR-DU118(2-4)-A	02	7-21-16	0919	S	Bag	1				X		X X	
SGR-DU118(4-6)-A	03	7-21-16	0922	S	Bag	1				X		X X	
SGR-DU118(6-8)-A	04	7-21-16	0924	S	Bag	1				X		X X	
SGR-DU118(0-2)-B	05	7-21-16	0928	S	Bag	1				X		X X	
SGR-DU118(2-4)-B	06	7-21-16	0930	S	Bag	1				X		X X	
SGR-DU118(4-6)-B	07	7-21-16	0934	S	Bag	1				X		X X	
SGR-DU118(6-8)-B	08	7-21-16	0936	S	Bag	1				X		X X	
SGR-DU118(0-2)-C	09	7-21-16	0939	S	Bag	1				X		X X	
SGR-DU118(2-4)-C	10	7-21-16	0942	S	Bag	1				X		X X	
SGR-DU118(4-6)-C	11	7-21-16	0943	S	Bag	1				X		X X	
SGR-DU118(6-8)-C	12	7-21-16	0944	S	Bag	1				X		X X	
~~EB01(20160721)~~		~~7-21-16~~	~~W~~	~~GW~~									
EB01(20160721)	13	7-21-16	0950	W	Poly/Glass	2		X		X		X X	

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7/21/16/1730 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/22/16 9:20 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 04 / 02 / 0.8 / 1.0 / 0.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USE
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHE
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
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E-Mail: login@dhlanalytical.com

№ 72236

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-21-16 PAGE 2 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1160725e
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Boem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ T PHOS, AMMONIA ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ Lead | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	FIELD NOTES
SGR-DU183(0-2)-A	14	7-21-16	1231	S	Bag	1				X		
SGR-DU183(2-4)-A	15	7-21-16	1232	S	Bag	1				X		
SGR-DU183(4-6)-A	16	7-21-16	1235	S	Bag	1				X		
SGR-DU183(6-8)-A	17	7-21-16	1236	S	Bag	1				X		
SGR-DU183(0-2)-B	18	7-21-16	1239	S	Bag	1				X		
SGR-DU183(2-4)-B	19	7-21-16	1241	S	Bag	1				X		
SGR-DU183(4-6)-B	20	7-21-16	1243	S	Bag	1				X		
SGR-DU183(6-8)-B	21	7-21-16	1244	S	Bag	1				X		
SGR-DU183(0-2)-C	22	7-21-16	1247	S	Bag	1				X		
SGR-DU183(2-4)-C	23	7-21-16	1248	S	Bag	1				X		
SGR-DU183(4-6)-C	24	7-21-16	1250	S	Bag	1				X		
SGR-DU183(6-8)-C	25	7-21-16	1251	S	Bag	1				X		
EB02(20160721)	26	7-21-16	1255	W	Poly/Glass	2		X		X		
EB03(20160721)	27	7-21-16	1725	W	Poly/Glass	2		X		X		

RELINQUISHED BY: (Signature) Jordan Boem DATE/TIME 7-21-16/1730 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 7/22/16 9:30 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0.4 | 0.2 | 0.8 / 1.0 / 0.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USI
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHE
☐ COURIER DELIVERY
☐ HAND DELIVERED

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№ 72235

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-21-16 PAGE 3 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1100725le
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ❑ Yes ❑ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

PRESERVATION: HCl | HNO_3 | H_2SO_4 ❑ NaOH ❑ | ICE | UNPRESERVED

ANALYSES: BTEX ❑ MTBE ❑ [METHOD 8021] | TPH 1005 ❑ TPH 1006 ❑ HOLD 1006 ❑ | GRO [METHOD 8015] ❑ DRO [METHOD 8105] ❑ | VOC 8260 ❑ VOC 624 ❑ VOC 8260/5035 ❑ | SVOC 8270 ❑ PAH 8270 ❑ HOLD PAH ❑ SVOC 625 ❑ | 8270 PEST ❑ 625 PEST/PCB ❑ 608 PCB ❑ 8270 PCB ❑ | 8270 O-P PEST ❑ 8082 PCB ❑ T PHOS, AMMONIA ❑ | 8321 HERB ❑ T PHOS, AMMONIA ❑ | METALS 6020 ❑ METALS 2008 ❑ DISS. METALS ❑ | RCRA ❑ TX11 ❑ Lead | PH ❑ HEX CHROM ❑ ALKALINITY ❑ COD ❑ | CHLORIDE ❑ ANIONS | TCLP-SVOC ❑ VOC ❑ PEST ❑ HERB ❑ | TCLP-METALS ❑ RCRA 8 ❑ TX-11 ❑ Pb ❑ | RCI ❑ FLASHPOINT ❑ DGAS ❑ | TDS ❑ TSS ❑ % MOISTURE ❑ CYANIDE ❑

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DUO10-07(0-2)-A	28	7-21-16	1642	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(2-4)-A	29	7-21-16	1643	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(4-6)-A	30	7-21-16	1644	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(6-8)-A	31	7-21-16	1645	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(8-10)-A	32	7-21-16	1646	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(0-2)-B	33	7-21-16	1700	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(2-4)-B	34	7-21-16	1701	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(4-6)-B	35	7-21-16	1702	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(6-8)-B	36	7-21-16	1703	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(8-10)-B	37	7-21-16	1704	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(0-2)-C	38	7-21-16	1705	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(2-4)-C	39	7-21-16	1716	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(4-6)-C	40	7-21-16	1717	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(6-8)-C	41	7-21-16	1718	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	
SGR-DUO10-07(8-10)-C	42	7-21-16	1719	S	Bag	1				X		BTEX, VOC 8260, VOC 624, VOC 8260/5035, 8270 PEST, 8270 PCB, METALS 6020, METALS 2008, RCRA, Lead, TCLP-METALS, RCI, TDS	

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❑ DHL DISPOSAL @ $5.00 each ❑ Return

TURN AROUND TIME
RUSH ❑ CALL FIRST
1 DAY ❑ CALL FIRST
2 DAY ❑
NORMAL ❑
OTHER ❑ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0.4 / 1.0 / 0.2 / 0.4 THERM #: 78
CUSTODY SEALS: ❑ BROKEN ☒ INTACT ❑ NOT USE
CARRIER: ❑ LONE STAR ☒ FEDEX ❑ UPS ❑ OTHE
❑ COURIER DELIVERY
❑ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Arcadis | Date Received: 7/22/2016

Work Order Number 1607256 | Received by JT

Checklist completed by: _____ 7/22/2016 (Signature / Date) | Reviewed by _____ 7/22/2016 (Initials / Date)

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.0 °C |0.8|0.2|0.4|0.4
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NA		Checked by JT
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted Arcadis | Date contacted: 7/22/16 | Person contacted Alex Walter

Contacted by: JBarker | Regarding: Late cooler, temperature for samples

Comments: Samples 20A-21B arrived on Monday due to Fed ex error. Samples were out of temperature at 20.4. Per Alex proceed with analysis.

Corrective Action Filed data

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da□□: *12-Aug-16*

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D L A al cal I c

Da : *12-Aug-16*

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Da□□: *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da□□: *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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Da : *12-Aug-16*

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D L A al cal I c

Da : *12-Aug-16*

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r d r

August 12, 2016

Alex Walter
Arcadis
8725 Rosehill #350
Lenexa, Kansas 66215
TEL: (913) 492-0900
FAX (913) 492-0902

Order No.: 1607256

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 42 sample(s) on 7/22/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 5 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-16-16 & DoD-ELAP #L15-426

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ICP-MS3 Raw Data **596**

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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72237

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 380 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-21-16 PAGE 1 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607252
PROJECT LOCATION OR NAME: Laredo, SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 2008 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ Lead | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU118(0-2)-A	01	7-21-16	0917	S	Bag	1				X		X X	
SGR-DU118(2-4)-A	02	7-21-16	0919	S	Bag	1				X		X X	
SGR-DU118(4-6)-A	03	7-21-16	0922	S	Bag	1				X		X X	
SGR-DU118(6-8)-A	04	7-21-16	0924	S	Bag	1				X		X X	
SGR-DU118(0-2)-B	05	7-21-16	0928	S	Bag	1				X		X X	
SGR-DU118(2-4)-B	06	7-21-16	0930	S	Bag	1				X		X X	
SGR-DU118(4-6)-B	07	7-21-16	0934	S	Bag	1				X		X X	
SGR-DU118(6-8)-B	08	7-21-16	0936	S	Bag	1				X		X X	
SGR-DU118(0-2)-C	09	7-21-16	0939	S	Bag	1				X		X X	
SGR-DU118(2-4)-C	10	7-21-16	0942	S	Bag	1				X		X X	
SGR-DU118(4-6)-C	11	7-21-16	0943	S	Bag	1				X		X X	
SGR-DU118(6-8)-C	12	7-21-16	0944	S	Bag	1				X		X X	
~~EB01(20160721)~~		~~7-21-16~~	~~W~~	~~6B~~									
EB01(20160721)	13	7-21-16	0950	W	Poly/Glass	2		X		X		X X	

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7/21/16 1230 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/22/16 9:20 RECEIVED BY: (Signature) Ortiz
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 04 / 02 / 0.8 / 1.0 / 0.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USE
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHE
☐ COURIER DELIVERY
☐ HAND DELIVERED

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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72236

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-21-16 PAGE 2 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1160725e
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU183(0-2)-A	14	7-21-16	1231	S	Bag	1				X		X X	
SGR-DU183(2-4)-A	15	7-21-16	1232	S	Bag	1				X		X X	
SGR-DU183(4-6)-A	16	7-21-16	1235	S	Bag	1				X		X X	
SGR-DU183(6-8)-A	17	7-21-16	1236	S	Bag	1				X		X X	
SGR-DU183(0-2)-B	18	7-21-16	1239	S	Bag	1				X		X X	
SGR-DU183(2-4)-B	19	7-21-16	1241	S	Bag	1				X		X X	
SGR-DU183(4-6)-B	20	7-21-16	1243	S	Bag	1				X		X X	
SGR-DU183(6-8)-B	21	7-21-16	1244	S	Bag	1				X		X X	
SGR-DU183(0-2)-C	22	7-21-16	1247	S	Bag	1				X		X X	
SGR-DU183(2-4)-C	23	7-21-16	1248	S	Bag	1				X		X X	
SGR-DU183(4-6)-C	24	7-21-16	1250	S	Bag	1				X		X X	
SGR-DU183(6-8)-C	25	7-21-16	1251	S	Bag	1				X		X X	
EB02(20160721)	26	7-21-16	1255	W	Poly/Glass	2		X		X		X X	
EB03(20160721)	27	7-21-16	1725	W	Poly/Glass	2		X		X		X X	

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ RCRA ☐ TX11 ☐ Lead ☐ PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ CHLORIDE ☐ ANIONS ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ RCI ☐ FLASHPOINT ☐ DGAS ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Jordan Beem	7-21-16/1730	FedEx
FedEx	7/22/16 9:30	Howard

☐ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0.4 | 0.2 | 10.6 / 1.0 | 0.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USI
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHE
☐ COURIER DELIVERY
☐ HAND DELIVERED

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E-Mail: login@dhlanalytical.com

Nº 72235 CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-21-16 PAGE 3 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1100725le
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ❑ Yes ❑ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ❑ NaOH ❑	ICE	UNPRESERVED	ANALYSES: BTEX ❑ MTBE ❑ [METHOD 8021]	TPH 1005 ❑ TPH 1006 ❑ HOLD 1006 ❑	GRO [METHOD 8015] ❑ DRO [METHOD 8105] ❑	VOC 8260 ❑ VOC 624 ❑ VOC 8260/5035 ❑	SVOC 8270 ❑ PAH 8270 ❑ HOLD PAH ❑ SVOC 625 ❑	8270 PEST ❑ 625 PEST/PCB ❑ 608 PCB ❑	8270 O-P PEST ❑ 8082 PCB ❑ 8270 PCB ❑	8321 HERB ❑ T PHOS, AMMONIA ❑	METALS 6020 ❑ METALS 200.8 ❑ DISS. METALS ❑	RCRA ❑ TX11 ❑ Lead	PH ❑ HEX CHROM ❑ ALKALINITY ❑ COD ❑	CHLORIDE ❑ ANIONS ❑	TCLP-SVOC ❑ VOC ❑ PEST ❑ HERB ❑	TCLP-METALS ❑ RCRA 8 ❑ TX-11 ❑ Pb ❑	RCI ❑ FLASHPOINT ❑ DGAS ❑	TDS ❑ TSS ❑ % MOISTURE ❑ CYANIDE ❑	FIELD NOTES
SGR-DUO10-07(02)-A	28	7-21-16	1642	S	Bag	1				X					X					X								
SGR-DUO10-07(2-4)-A	29	7-21-16	1645	S	Bag	1				X					X					X								
SGR-DUO10-07(4-6)-A	30	7-21-16	1644	S	Bag	1				X					X					X								
SGR-DUO10-07(6-8)-A	31	7-21-16	1645	S	Bag	1				X					X					X								
SGR-DUO10-07(8-10)-A	32	7-21-16	1646	S	Bag	1				X					X					X								
SGR-DUO10-07(0-2)-B	33	7-21-16	1700	S	Bag	1				X					X					X								
SGR-DUO10-07(2-4)-B	34	7-21-16	1701	S	Bag	1				X					X					X								
SGR-DUO10-07(4-6)-B	35	7-21-16	1702	S	Bag	1				X					X					X								
SGR-DUO10-07(6-8)-B	36	7-21-16	1703	S	Bag	1				X					X					X								
SGR-DUO10-07(8-10)-B	37	7-21-16	1704	S	Bag	1				X					X					X								
SGR-DUO10-07(0-2)-C	38	7-21-16	1715	S	Bag	1				X					X					X								
SGR-DUO10-07(2-4)-C	39	7-21-16	1716	S	Bag	1				X					X					X								
SGR-DUO10-07(4-6)-C	40	7-21-16	1717	S	Bag	1				X					X					X								
SGR-DUO10-07(6-8)-C	41	7-21-16	1718	S	Bag	1				X					X					X								
SGR-DUO10-07(8-10)-C	42	7-21-16	1719	S	Bag	1				X					X					X								

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7-21-16 1750 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/22/16 9:20 RECEIVED BY: (Signature) [illegible]
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

❑ DHL DISPOSAL @ $5.00 each ❑ Return 5

TURN AROUND TIME
RUSH ❑ CALL FIRST
1 DAY ❑ CALL FIRST
2 DAY ❑
NORMAL ❑
OTHER ❑ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0.4 / 0.2 / 0.8 / 1.0 / 0.4 THERM #: 78
CUSTODY SEALS: ❑ BROKEN X INTACT ❑ NOT USE
CARRIER: ❑ LONE STAR X FEDEX ❑ UPS ❑ OTHE
❑ COURIER DELIVERY
❑ HAND DELIVERED



ORIGIN ID:LRDA (913) 492-0900
JORDON BEEM
ARCADIS
8725 ROSEHILL
SUITE 350
LENEXA, KS 66215
UNITED STATES US

S DATE: 16
ACTWGT: 57
CAD: 0068944/SSFE1704
DIMS: 24x14x4 IN
BILL THIRD PARTY

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR
04285071000000044
ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

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2 of 6
MPS# 0263 7836 3758 6156
Mstr# 7836 3758 6145 0201

FRI - 22 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

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CUSTODY SEAL
DATE 7-21-16
SIGNATURE

QEC
Quality Environmental Containers
800-255-3500 • 314-255-3900

ORIGIN ID:LRDA (913) 492-0900
JORDON BEEM
ARCADIS
8725 ROSEHILL
SUITE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 21JUL16
ACTWGT: 74.90 LB
CAD: 0069944647SSFE1704
DIMS: 24x14x14 IN

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2300 DOUBLE CREEK DR
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ROUND ROCK TX 78664
(512) 388-8222 REF:
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5 of 6

MPS# 0263 7836 3758 6189

Mstr# 7836 3758 6145 0201

FRI - 22 JUL 10:30A
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DATE 7-21-16
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ORIGIN ID:LRDA (913) 492-0900
JORDON BEEM
ARCADIS
8725 ROSEHILL
SUITE 350
LENEXA, KS 66215
UNITED STATES US

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TO SAMPLE RECEIVING
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PO: DEPT:

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3 of 6

MPS# 0263 7836 3758 6167

Mstr# 7836 3758 6145 0201

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ORIGIN ID:LRDA (913) 492-0900
JORDON BEEM
ARCADIS
8725 ROSEHILL
SUITE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 21JUL16
ACTWGT: [illegible]
CAD: [illegible]
DIMS: 24x14x14 IN

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TO **SAMPLE RECEIVING**
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2300 DOUBLE CREEK DR
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ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

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1 of 6
TRK# 0201 7836 3758 6145
MASTER

FRI - 22 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

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CUSTODY SEAL
DATE 7-21-16
SIGNATURE [signature]

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ORIGIN ID:LRDA (913) 492-0900
JORDON BEEM
ARCADIS
8725 ROSEHILL
SUITE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 21JUL16
ACTWGT: 79
CAD: 00698 [illegible] 1704
DIMS: 24x [illegible]

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TO **SAMPLE RECEIVING**
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04285071000000044
ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

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6 of 6
MPS# 0263 7836 3758 6190
Mstr# 7836 3758 6145 0201

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PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-21-16
SIGNATURE [signature]

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (913) 492-0900
JORDON BEEM
ARCADIS
8725 ROSEHILL
SUITE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 21JUL16
ACTWGT: 66.80 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

Part # 156297V

TO **SAMPLE RECEIVING**
DHL ANALYTICAL
2300 DOUBLE CREEK DR
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ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

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J162016070501ev

4 of 6

MPS# 0263 **7836 3758 6178**

Mstr# 7836 3758 6145 0201

FRI - 22 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US **AUS**

CUSTODY SEAL
DATE 7-21-16
SIGNATURE Jordon B

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Arcadis | Date Received: 7/22/2016

Work Order Number 1607256 | Received by JT

Checklist completed by: Signature 7/22/2016 Date | Reviewed by Initials 7/22/2016 Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.0 °C |0.8|0.2|0.4|0.4
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted Arcadis Date contacted: 7/22/14 Person contacted Alex Walter

Contacted by: Barker Regarding: Late cooler, temperature for samples

Comments: Samples 20A-21B arrived on Monday due to Fed ex error. Samples were out of temperature at 20.4. Per Alex proceed with analysis.

Corrective Action Filed data

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo SGR	**Date:** 8/12/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607256
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	X				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	X				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	X				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			**R4-02**
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				**R5-04**
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				**R7-02**
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo SGR | **Date:** 8/12/2016

Reviewer Name: Angie O'Donnell | **Laboratory Work Order:** 1607256

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	**X**				
		2) Were percent RSDs or correlation coefficient criteria met?	**X**				
		3) Was the number of standards recommended in the method used for all analytes?	**X**				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	**X**				
		5) Are ICAL data available for all instruments used?	**X**				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	**X**				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	**X**				
		2) Were percent differences for each analyte within the method-required QC limits?		**X**			**S2-02**
		3) Was the ICAL curve verified for each analyte?	**X**				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	**X**				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	**X**				
		2) Were ion abundance data within the method-required QC limits?	**X**				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	**X**				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	**X**				
		2) Were data associated with manual integrations flagged on the raw data?	**X**				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			**X**		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			**X**		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	**X**				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	**X**				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	**X**				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	**X**				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	**X**				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	**X**				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	**X**				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	**X**				
		2) Is documentation of the analyst's competency up-to-date and on file?	**X**				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	**X**				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

08/12/16

Date

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607256

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with DoD QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 7/22/2016 and 7/25/2016. A total of 42 samples were received and analyzed. One icechest containing 6 samples was delayed due to FedEx error. This icechest arrived on Monday (7/25/2016) outside of the method specified temperature for PAH Analysis. The client was notified and instructed the laboratory to proceed with the requested analysis. These results are "C" flagged in the Analytical Data Report. The remaining samples arrived in good condition and were properly packaged.

Exception Report R4-02

For PAH Analysis, for water Batch 76453, the recovery of surrogate 4-Terphenyl-d14 for equipment blank Sample EB02(20160721) and the Laboratory Control Spike Duplicate (LCSD-76453) was below the method control limits. The remaining surrogate for these samples was within method control limits. Additionally, the recoveries of both surrogates for equipment blank Sample EB01(20160721) were below the method control limits. These are flagged accordingly in the Analytical Data Report and the QC Summary Report. Client was informed and no further corrective action was taken.

Exception Report R5-04

For PAH Analysis, for soil samples performed on 8/2/2016, ten compounds were detected below the reporting limit (MQL) for System Blank-160802. These are reported in the QC Summary Report. These compounds were nondetect in the associated samples reported. No further corrective action was taken.

Exception Report R7-02

For PAH Analysis, for Batch 76453, an MS/SMD is not required for Equipment Blank matrices. An

LCS/LCSD was performed as Batch QC.

Exception Report R7-03

For PAH Analysis, for soil Batch 76511, the recoveries of three compounds for the Matrix Spike Duplicate (1607265-18 MSD) were above the method control limits. These are flagged accordingly in the QC Summary Report. These compounds were within method control limits in the associated LCS/MS. No further corrective action was taken.

Exception Report R10-01

For PAH Analysis, the soil samples were diluted due to observed color of extract; dilution meets project specifications.

For Metals Analysis, for Batch 76687, the Serial Dilution was mis-prepared which yielded unusable data and will not be reported. The associated samples were Equipment Blanks and were nondetect for the target analyte, Lead. The associated Post Digestion Spike was within method control limits and will be reported as Batch QC. Client was informed and no further corrective action was taken.

For all of the samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. All of the soil samples in this workorder consist of the following sample types: subsurface soil samples processed to pass a #10 sieve (2mm).

Exception Report S2-02

For PAH Analysis, performed on 8/4/2016 on Instruments GCMS_6 and GCMS_8, the recovery of one compound for the Initial Calibration Verification(s) was slightly outside of the method control limits. This was discussed with the client. The client approved of the corrective action taken by DHL Analytical to note in the case narrative and proceed with analysis. No further corrective action was taken.

A summary of project communication follows:

The Subcontract Agreement No. D16-003 for Arcadis Project No. 04285081.0000.00043 was sent to DHL Analytical from client and signed on 1/6/2016, the contract for work signed and approved by both parties on 1/12/2016. A Modification No. 01-D16-003 was signed by both parties on 4/21/2016.

The bottle kit was requested from Alex Walter of Arcadis sent via email to John DuPont on 7/5/2016. The following DHL Bottle Orders:
#7161 sent on 7/14/2016 via Lonestar Overnight Ground to arrive by 7/15/2016.
#7162 sent on 7/18/2016 via Lonestar Overnight Ground to arrive by 7/19/2016.

#7163 sent on 7/20/2016 via Lonestar Overnight Ground to arrive by 7/21/2016.
#7164 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.
#7196 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.

This sample delivery group arrives at DHL Analytical on 7/22/2016 and 7/25/2016. A Sample Summary was sent on 7/25/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
phone and email communications 7/22/2016 and 7/25/2016 - from Jennifer Barker to Alex Walter of Arcadis Kansas Laredo regarding misdirected cooler by FedEx, The client accepted the corrective action for the quality variances via email on 7/25/2016.
email communications 8/5/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding misdirected cooler by FedEx, surrogate(s) below control limits for some samples and QC samples and compounds outside of the control limits for ICV(s). The client accepted the corrective action for the quality variances on 8/8/2016.
email communications 8/10/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding request mis-prepared Serial Dilution for Batch 76687 and surrogate(s) below control limits for some samples and QC samples. The client accepted the corrective action for the quality variances on 8/10/2016.

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607256

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607256-01	SGR-DU118(0-2)-A		07/21/16 09:17 AM	7/22/2016
1607256-02	SGR-DU118(2-4)-A		07/21/16 09:19 AM	7/22/2016
1607256-03	SGR-DU118(4-6)-A		07/21/16 09:22 AM	7/22/2016
1607256-04	SGR-DU118(6-8)-A		07/21/16 09:24 AM	7/22/2016
1607256-05	SGR-DU118(0-2)-B		07/21/16 09:28 AM	7/22/2016
1607256-06	SGR-DU118(2-4)-B		07/21/16 09:30 AM	7/22/2016
1607256-07	SGR-DU118(4-6)-B		07/21/16 09:34 AM	7/22/2016
1607256-08	SGR-DU118(6-8)-B		07/21/16 09:36 AM	7/22/2016
1607256-09	SGR-DU118(0-2)-C		07/21/16 09:39 AM	7/22/2016
1607256-10	SGR-DU118(2-4)-C		07/21/16 09:42 AM	7/22/2016
1607256-11	SGR-DU118(4-6)-C		07/21/16 09:43 AM	7/22/2016
1607256-12	SGR-DU118(6-8)-C		07/21/16 09:44 AM	7/22/2016
1607256-13	EB01(20160721)		07/21/16 09:50 AM	7/22/2016
1607256-14	SGR-DU183(0-2)-A		07/21/16 12:31 PM	7/22/2016
1607256-15	SGR-DU183(2-4)-A		07/21/16 12:32 PM	7/22/2016
1607256-16	SGR-DU183(4-6)-A		07/21/16 12:35 PM	7/22/2016
1607256-17	SGR-DU183(6-8)-A		07/21/16 12:36 PM	7/22/2016
1607256-18	SGR-DU183(0-2)-B		07/21/16 12:39 PM	7/22/2016
1607256-19	SGR-DU183(2-4)-B		07/21/16 12:41 PM	7/22/2016
1607256-20	SGR-DU183(4-6)-B		07/21/16 12:43 PM	7/25/2016
1607256-21	SGR-DU183(6-8)-B		07/21/16 12:44 PM	7/25/2016
1607256-22	SGR-DU183(0-2)-C		07/21/16 12:47 PM	7/25/2016
1607256-23	SGR-DU183(2-4)-C		07/21/16 12:48 PM	7/25/2016
1607256-24	SGR-DU183(4-6)-C		07/21/16 12:50 PM	7/25/2016
1607256-25	SGR-DU183(6-8)-C		07/21/16 12:51 PM	7/25/2016
1607256-26	EB02(20160721)		07/21/16 12:55 PM	7/25/2016
1607256-27	EB03(20160721)		07/21/16 05:25 PM	7/22/2016
1607256-28	SGR-DU010-07(0-2)-A		07/21/16 04:42 PM	7/22/2016
1607256-29	SGR-DU010-07(2-4)-A		07/21/16 04:43 PM	7/22/2016
1607256-30	SGR-DU010-07(4-6)-A		07/21/16 04:44 PM	7/22/2016
1607256-31	SGR-DU010-07(6-8)-A		07/21/16 04:45 PM	7/22/2016
1607256-32	SGR-DU010-07(8-10)-A		07/21/16 04:46 PM	7/22/2016
1607256-33	SGR-DU010-07(0-2)-B		07/21/16 05:00 PM	7/22/2016
1607256-34	SGR-DU010-07(2-4)-B		07/21/16 05:01 PM	7/22/2016
1607256-35	SGR-DU010-07(4-6)-B		07/21/16 05:02 PM	7/22/2016
1607256-36	SGR-DU010-07(6-8)-B		07/21/16 05:03 PM	7/22/2016
1607256-37	SGR-DU010-07(8-10)-B		07/21/16 05:04 PM	7/22/2016
1607256-38	SGR-DU010-07(0-2)-C		07/21/16 05:15 PM	7/22/2016
1607256-39	SGR-DU010-07(2-4)-C		07/21/16 05:16 PM	7/22/2016
1607256-40	SGR-DU010-07(4-6)-C		07/21/16 05:17 PM	7/22/2016
1607256-41	SGR-DU010-07(6-8)-C		07/21/16 05:18 PM	7/22/2016
1607256-42	SGR-DU010-07(8-10)-C		07/21/16 05:19 PM	7/22/2016

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607256-01A	SGR-DU118(0-2)-A	07/21/16 09:17 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU118(0-2)-A	07/21/16 09:17 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607256-02A	SGR-DU118(2-4)-A	07/21/16 09:19 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU118(2-4)-A	07/21/16 09:19 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607256-03A	SGR-DU118(4-6)-A	07/21/16 09:22 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU118(4-6)-A	07/21/16 09:22 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607256-04A	SGR-DU118(6-8)-A	07/21/16 09:24 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU118(6-8)-A	07/21/16 09:24 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607256-05A	SGR-DU118(0-2)-B	07/21/16 09:28 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU118(0-2)-B	07/21/16 09:28 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607256-06A	SGR-DU118(2-4)-B	07/21/16 09:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU118(2-4)-B	07/21/16 09:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607256-07A	SGR-DU118(4-6)-B	07/21/16 09:34 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU118(4-6)-B	07/21/16 09:34 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-08A	SGR-DU118(6-8)-B	07/21/16 09:36 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU118(6-8)-B	07/21/16 09:36 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-09A	SGR-DU118(0-2)-C	07/21/16 09:39 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU118(0-2)-C	07/21/16 09:39 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-10A	SGR-DU118(2-4)-C	07/21/16 09:42 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU118(2-4)-C	07/21/16 09:42 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-11A	SGR-DU118(4-6)-C	07/21/16 09:43 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU118(4-6)-C	07/21/16 09:43 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-12A	SGR-DU118(6-8)-C	07/21/16 09:44 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU118(6-8)-C	07/21/16 09:44 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-13A	EB01(20160721)	07/21/16 09:50 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607256-13B	EB01(20160721)	07/21/16 09:50 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453
1607256-14A	SGR-DU183(0-2)-A	07/21/16 12:31 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU183(0-2)-A	07/21/16 12:31 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607256-15A	SGR-DU183(2-4)-A	07/21/16 12:32 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU183(2-4)-A	07/21/16 12:32 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-16A	SGR-DU183(4-6)-A	07/21/16 12:35 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU183(4-6)-A	07/21/16 12:35 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-17A	SGR-DU183(6-8)-A	07/21/16 12:36 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU183(6-8)-A	07/21/16 12:36 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-18A	SGR-DU183(0-2)-B	07/21/16 12:39 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU183(0-2)-B	07/21/16 12:39 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(0-2)-B	07/21/16 12:39 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-19A	SGR-DU183(2-4)-B	07/21/16 12:41 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU183(2-4)-B	07/21/16 12:41 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(2-4)-B	07/21/16 12:41 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-20A	SGR-DU183(4-6)-B	07/21/16 12:43 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU183(4-6)-B	07/21/16 12:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(4-6)-B	07/21/16 12:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-21A	SGR-DU183(6-8)-B	07/21/16 12:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU183(6-8)-B	07/21/16 12:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(6-8)-B	07/21/16 12:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-22A	SGR-DU183(0-2)-C	07/21/16 12:47 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU183(0-2)-C	07/21/16 12:47 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(0-2)-C	07/21/16 12:47 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-23A	SGR-DU183(2-4)-C	07/21/16 12:48 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU183(2-4)-C	07/21/16 12:48 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(2-4)-C	07/21/16 12:48 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-24A	SGR-DU183(4-6)-C	07/21/16 12:50 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU183(4-6)-C	07/21/16 12:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(4-6)-C	07/21/16 12:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-25A	SGR-DU183(6-8)-C	07/21/16 12:51 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607256-25A	SGR-DU183(6-8)-C	07/21/16 12:51 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU183(6-8)-C	07/21/16 12:51 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-26A	EB02(20160721)	07/21/16 12:55 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607256-26B	EB02(20160721)	07/21/16 12:55 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453
1607256-27A	EB03(20160721)	07/21/16 05:25 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607256-27B	EB03(20160721)	07/21/16 05:25 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453
1607256-28A	SGR-DU010-07(0-2)-A	07/21/16 04:42 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU010-07(0-2)-A	07/21/16 04:42 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-29A	SGR-DU010-07(2-4)-A	07/21/16 04:43 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(2-4)-A	07/21/16 04:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU010-07(2-4)-A	07/21/16 04:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-30A	SGR-DU010-07(4-6)-A	07/21/16 04:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(4-6)-A	07/21/16 04:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
	SGR-DU010-07(4-6)-A	07/21/16 04:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 03:53 PM	76649
1607256-31A	SGR-DU010-07(6-8)-A	07/21/16 04:45 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(6-8)-A	07/21/16 04:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-32A	SGR-DU010-07(8-10)-A	07/21/16 04:46 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(8-10)-A	07/21/16 04:46 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-33A	SGR-DU010-07(0-2)-B	07/21/16 05:00 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(0-2)-B	07/21/16 05:00 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(0-2)-B	07/21/16 05:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-34A	SGR-DU010-07(2-4)-B	07/21/16 05:01 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(2-4)-B	07/21/16 05:01 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-35A	SGR-DU010-07(4-6)-B	07/21/16 05:02 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(4-6)-B	07/21/16 05:02 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(4-6)-B	07/21/16 05:02 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-36A	SGR-DU010-07(6-8)-B	07/21/16 05:03 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 01:26 PM	76473
	SGR-DU010-07(6-8)-B	07/21/16 05:03 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607256-37A	SGR-DU010-07(8-10)-B	07/21/16 05:04 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU010-07(8-10)-B	07/21/16 05:04 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-38A	SGR-DU010-07(0-2)-C	07/21/16 05:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU010-07(0-2)-C	07/21/16 05:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-39A	SGR-DU010-07(2-4)-C	07/21/16 05:16 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU010-07(2-4)-C	07/21/16 05:16 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-40A	SGR-DU010-07(4-6)-C	07/21/16 05:17 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU010-07(4-6)-C	07/21/16 05:17 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-41A	SGR-DU010-07(6-8)-C	07/21/16 05:18 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU010-07(6-8)-C	07/21/16 05:18 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607256-42A	SGR-DU010-07(8-10)-C	07/21/16 05:19 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU010-07(8-10)-C	07/21/16 05:19 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

TCLP/SPLP PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607256-01A	SGR-DU118(0-2)-A	7/21/2016 9:17:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-02A	SGR-DU118(2-4)-A	7/21/2016 9:19:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-03A	SGR-DU118(4-6)-A	7/21/2016 9:22:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-04A	SGR-DU118(6-8)-A	7/21/2016 9:24:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-05A	SGR-DU118(0-2)-B	7/21/2016 9:28:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-06A	SGR-DU118(2-4)-B	7/21/2016 9:30:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-07A	SGR-DU118(4-6)-B	7/21/2016 9:34:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-08A	SGR-DU118(6-8)-B	7/21/2016 9:36:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-09A	SGR-DU118(0-2)-C	7/21/2016 9:39:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-10A	SGR-DU118(2-4)-C	7/21/2016 9:42:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-11A	SGR-DU118(4-6)-C	7/21/2016 9:43:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-12A	SGR-DU118(6-8)-C	7/21/2016 9:44:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-14A	SGR-DU183(0-2)-A	7/21/2016 12:31:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-15A	SGR-DU183(2-4)-A	7/21/2016 12:32:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-16A	SGR-DU183(4-6)-A	7/21/2016 12:35:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-17A	SGR-DU183(6-8)-A	7/21/2016 12:36:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-18A	SGR-DU183(0-2)-B	7/21/2016 12:39:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-19A	SGR-DU183(2-4)-B	7/21/2016 12:41:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-20A	SGR-DU183(4-6)-B	7/21/2016 12:43:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/25/2016 1:08:46 PM	76440
1607256-21A	SGR-DU183(6-8)-B	7/21/2016 12:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/25/2016 1:08:46 PM	76440
1607256-22A	SGR-DU183(0-2)-C	7/21/2016 12:47:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/25/2016 1:08:46 PM	76440
1607256-23A	SGR-DU183(2-4)-C	7/21/2016 12:48:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/25/2016 1:08:46 PM	76440
1607256-24A	SGR-DU183(4-6)-C	7/21/2016 12:50:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/25/2016 1:08:46 PM	76440
1607256-25A	SGR-DU183(6-8)-C	7/21/2016 12:51:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/25/2016 1:08:46 PM	76440
1607256-28A	SGR-DU010-07(0-2)-A	7/21/2016 4:42:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-29A	SGR-DU010-07(2-4)-A	7/21/2016 4:43:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-30A	SGR-DU010-07(4-6)-A	7/21/2016 4:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-31A	SGR-DU010-07(6-8)-A	7/21/2016 4:45:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

TCLP/SPLP PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607256-32A	SGR-DU010-07(8-10)-A	7/21/2016 4:46:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-33A	SGR-DU010-07(0-2)-B	7/21/2016 5:00:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-34A	SGR-DU010-07(2-4)-B	7/21/2016 5:01:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-35A	SGR-DU010-07(4-6)-B	7/21/2016 5:02:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-36A	SGR-DU010-07(6-8)-B	7/21/2016 5:03:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-37A	SGR-DU010-07(8-10)-B	7/21/2016 5:04:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-38A	SGR-DU010-07(0-2)-C	7/21/2016 5:15:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-39A	SGR-DU010-07(2-4)-C	7/21/2016 5:16:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-40A	SGR-DU010-07(4-6)-C	7/21/2016 5:17:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-41A	SGR-DU010-07(6-8)-C	7/21/2016 5:18:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406
1607256-42A	SGR-DU010-07(8-10)-C	7/21/2016 5:19:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/22/2016 1:56:25 PM	76406

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607256-01A	SGR-DU118(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 11:59 PM	GCMS6_160804A
	SGR-DU118(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 07:54 PM	ICP-MS3_160805A
1607256-02A	SGR-DU118(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/05/16 12:39 AM	GCMS6_160804A
	SGR-DU118(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 08:06 PM	ICP-MS3_160805A
1607256-03A	SGR-DU118(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/05/16 01:19 AM	GCMS6_160804A
	SGR-DU118(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 08:12 PM	ICP-MS3_160805A
1607256-04A	SGR-DU118(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/05/16 01:59 AM	GCMS6_160804A
	SGR-DU118(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 08:18 PM	ICP-MS3_160805A
1607256-05A	SGR-DU118(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/05/16 02:39 AM	GCMS6_160804A
	SGR-DU118(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 08:24 PM	ICP-MS3_160805A
1607256-06A	SGR-DU118(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/05/16 03:18 AM	GCMS6_160804A
	SGR-DU118(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 08:29 PM	ICP-MS3_160805A
1607256-07A	SGR-DU118(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 11:28 AM	GCMS6_160802B
	SGR-DU118(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 09:30 PM	ICP-MS3_160805A
1607256-08A	SGR-DU118(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 12:08 PM	GCMS6_160802B
	SGR-DU118(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 09:42 PM	ICP-MS3_160805A
1607256-09A	SGR-DU118(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 12:49 PM	GCMS6_160802B
	SGR-DU118(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 09:48 PM	ICP-MS3_160805A
1607256-10A	SGR-DU118(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 01:30 PM	GCMS6_160802B
	SGR-DU118(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 09:54 PM	ICP-MS3_160805A
1607256-11A	SGR-DU118(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 02:11 PM	GCMS6_160802B
	SGR-DU118(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 10:00 PM	ICP-MS3_160805A
1607256-12A	SGR-DU118(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 02:52 PM	GCMS6_160802B
	SGR-DU118(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 10:12 PM	ICP-MS3_160805A
1607256-13A	EB01(20160721)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 12:03 AM	ICP-MS3_160809B
1607256-13B	EB01(20160721)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 01:46 PM	GCMS6_160728A
1607256-14A	SGR-DU183(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 03:33 PM	GCMS6_160802B
	SGR-DU183(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 10:18 PM	ICP-MS3_160805A

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607256-15A	SGR-DU183(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 04:13 PM	GCMS6_160802B
	SGR-DU183(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 10:24 PM	ICP-MS3_160805A
1607256-16A	SGR-DU183(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 04:54 PM	GCMS6_160802B
	SGR-DU183(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 10:30 PM	ICP-MS3_160805A
1607256-17A	SGR-DU183(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 05:35 PM	GCMS6_160802B
	SGR-DU183(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 10:36 PM	ICP-MS3_160805A
1607256-18A	SGR-DU183(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 06:15 PM	GCMS6_160802B
	SGR-DU183(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 11:31 PM	ICP-MS3_160805A
	SGR-DU183(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 05:46 PM	ICP-MS3_160809A
1607256-19A	SGR-DU183(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 06:55 PM	GCMS6_160802B
	SGR-DU183(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 11:37 PM	ICP-MS3_160805A
	SGR-DU183(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 05:51 PM	ICP-MS3_160809A
1607256-20A	SGR-DU183(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 10:30 AM	GCMS8_160804A
	SGR-DU183(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 11:43 PM	ICP-MS3_160805A
	SGR-DU183(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 05:57 PM	ICP-MS3_160809A
1607256-21A	SGR-DU183(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 11:10 AM	GCMS8_160804A
	SGR-DU183(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 11:49 PM	ICP-MS3_160805A
	SGR-DU183(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 06:03 PM	ICP-MS3_160809A
1607256-22A	SGR-DU183(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 11:50 AM	GCMS8_160804A
	SGR-DU183(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 06:09 PM	ICP-MS3_160809A
	SGR-DU183(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/05/16 11:55 PM	ICP-MS3_160805A
1607256-23A	SGR-DU183(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 12:30 PM	GCMS8_160804A
	SGR-DU183(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/06/16 12:07 AM	ICP-MS3_160805A
	SGR-DU183(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 06:21 PM	ICP-MS3_160809A
1607256-24A	SGR-DU183(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 01:11 PM	GCMS8_160804A
	SGR-DU183(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/06/16 12:13 AM	ICP-MS3_160805A
	SGR-DU183(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 06:27 PM	ICP-MS3_160809A
1607256-25A	SGR-DU183(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 01:51 PM	GCMS8_160804A

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607256-25A	SGR-DU183(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/06/16 12:19 AM	ICP-MS3_160805A
	SGR-DU183(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 06:32 PM	ICP-MS3_160809A
1607256-26A	EB02(20160721)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 12:09 AM	ICP-MS3_160809B
1607256-26B	EB02(20160721)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 02:24 PM	GCMS6_160728A
1607256-27A	EB03(20160721)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 12:15 AM	ICP-MS3_160809B
1607256-27B	EB03(20160721)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 03:02 PM	GCMS6_160728A
1607256-28A	SGR-DU010-07(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/06/16 10:55 PM	GCMS8_160806B
	SGR-DU010-07(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 02:23 PM	ICP-MS3_160809A
1607256-29A	SGR-DU010-07(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 07:35 PM	GCMS6_160802B
	SGR-DU010-07(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/06/16 12:25 AM	ICP-MS3_160805A
	SGR-DU010-07(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 06:38 PM	ICP-MS3_160809A
1607256-30A	SGR-DU010-07(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 08:16 PM	GCMS6_160802B
	SGR-DU010-07(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/06/16 12:31 AM	ICP-MS3_160805A
	SGR-DU010-07(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76649	5	08/09/16 06:44 PM	ICP-MS3_160809A
1607256-31A	SGR-DU010-07(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 10:57 PM	GCMS6_160802B
	SGR-DU010-07(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 02:35 PM	ICP-MS3_160809A
1607256-32A	SGR-DU010-07(8-10)-A	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/02/16 11:37 PM	GCMS6_160802B
	SGR-DU010-07(8-10)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 02:41 PM	ICP-MS3_160809A
1607256-33A	SGR-DU010-07(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/03/16 12:17 AM	GCMS6_160802B
	SGR-DU010-07(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/03/16 01:03 PM	GCMS6_160803A
	SGR-DU010-07(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 02:47 PM	ICP-MS3_160809A
1607256-34A	SGR-DU010-07(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/03/16 12:58 AM	GCMS6_160802B
	SGR-DU010-07(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 02:53 PM	ICP-MS3_160809A
1607256-35A	SGR-DU010-07(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/03/16 01:38 AM	GCMS6_160802B
	SGR-DU010-07(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/03/16 01:44 PM	GCMS6_160803A
	SGR-DU010-07(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 02:58 PM	ICP-MS3_160809A
1607256-36A	SGR-DU010-07(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76473	10	08/03/16 02:19 AM	GCMS6_160802B
	SGR-DU010-07(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 03:04 PM	ICP-MS3_160809A

Lab Order: 1607256
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607256-37A	SGR-DU010-07(8-10)-B	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 02:32 PM	GCMS8_160804A
	SGR-DU010-07(8-10)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 03:10 PM	ICP-MS3_160809A
1607256-38A	SGR-DU010-07(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 03:13 PM	GCMS8_160804A
	SGR-DU010-07(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 03:16 PM	ICP-MS3_160809A
1607256-39A	SGR-DU010-07(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 03:53 PM	GCMS8_160804A
	SGR-DU010-07(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 03:22 PM	ICP-MS3_160809A
1607256-40A	SGR-DU010-07(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 04:34 PM	GCMS8_160804A
	SGR-DU010-07(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 04:17 PM	ICP-MS3_160809A
1607256-41A	SGR-DU010-07(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 05:14 PM	GCMS8_160804A
	SGR-DU010-07(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 04:23 PM	ICP-MS3_160809A
1607256-42A	SGR-DU010-07(8-10)-C	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 05:55 PM	GCMS8_160804A
	SGR-DU010-07(8-10)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 04:29 PM	ICP-MS3_160809A

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607256-01
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:17 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	16.1	0.0990	0.297	0.149		mg/Kg-dry	5	08/05/16 07:54 PM
IS: Bismuth	41.6	0	30-120	0		%REC	5	08/05/16 07:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/04/16 11:59 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/04/16 11:59 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/04/16 11:59 PM
Benzo[a]anthracene	0.122	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Benzo[a]pyrene	0.130	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Benzo[b]fluoranthene	0.139	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Benzo[e]pyrene	0.0797	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/04/16 11:59 PM
Benzo[g,h,i]perylene	0.129	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Benzo[j]fluoranthene	0.0511	0.0499	0.0998	0.0749	JN	mg/Kg-dry	10	08/04/16 11:59 PM
Benzo[k]fluoranthene	0.0786	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/04/16 11:59 PM
Chrysene	0.140	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Dibenz[a,h]anthracene	0.0532	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/04/16 11:59 PM
Fluoranthene	0.195	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/04/16 11:59 PM
Indeno[1,2,3-cd]pyrene	0.113	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Phenanthrene	0.112	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
Pyrene	0.161	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/04/16 11:59 PM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/04/16 11:59 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	10	08/04/16 11:59 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/04/16 11:59 PM
IS: Perylene-d12	99.1	0	50-200	0		%REC	10	08/04/16 11:59 PM
IS: Phenanthrene-d10	96.1	0	50-200	0		%REC	10	08/04/16 11:59 PM
Surr: 2-Fluorobiphenyl	85.8	0	46-115	0		%REC	10	08/04/16 11:59 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607256-01
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:17 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	94.6	0	58-133	0		%REC	10	08/04/16 11:59 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607256-02
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:19 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.73	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 08:06 PM
IS: Bismuth	50.0	0	30-120	0		%REC	5	08/05/16 08:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	08/05/16 12:39 AM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
Pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/05/16 12:39 AM
IS: Acenaphthene-d10	150	0	50-200	0		%REC	10	08/05/16 12:39 AM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/05/16 12:39 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/05/16 12:39 AM
IS: Perylene-d12	98.2	0	50-200	0		%REC	10	08/05/16 12:39 AM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	10	08/05/16 12:39 AM
Surr: 2-Fluorobiphenyl	86.7	0	46-115	0		%REC	10	08/05/16 12:39 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607256-02
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:19 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	92.9	0	58-133	0		%REC	10	08/05/16 12:39 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607256-03
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:22 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.04	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 08:12 PM
IS: Bismuth	50.9	0	30-120	0		%REC	5	08/05/16 08:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/05/16 01:19 AM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/05/16 01:19 AM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/05/16 01:19 AM
IS: Chrysene-d12	94.5	0	50-200	0		%REC	10	08/05/16 01:19 AM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/05/16 01:19 AM
IS: Perylene-d12	93.1	0	50-200	0		%REC	10	08/05/16 01:19 AM
IS: Phenanthrene-d10	92.0	0	50-200	0		%REC	10	08/05/16 01:19 AM
Surr: 2-Fluorobiphenyl	90.1	0	46-115	0		%REC	10	08/05/16 01:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607256-03
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:22 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	98.3	0	58-133	0		%REC	10	08/05/16 01:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607256-04
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:24 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.05	0.0926	0.278	0.139		mg/Kg-dry	5	08/05/16 08:18 PM
IS: Bismuth	47.6	0	30-120	0		%REC	5	08/05/16 08:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/05/16 01:59 AM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 01:59 AM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/05/16 01:59 AM
IS: Chrysene-d12	95.1	0	50-200	0		%REC	10	08/05/16 01:59 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/05/16 01:59 AM
IS: Perylene-d12	93.9	0	50-200	0		%REC	10	08/05/16 01:59 AM
IS: Phenanthrene-d10	92.7	0	50-200	0		%REC	10	08/05/16 01:59 AM
Surr: 2-Fluorobiphenyl	87.8	0	46-115	0		%REC	10	08/05/16 01:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607256-04
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:24 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	94.4	0	58-133	0		%REC	10	08/05/16 01:59 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607256-05
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:28 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	47.6	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 08:24 PM
IS: Bismuth	46.9	0	30-120	0		%REC	5	08/05/16 08:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Benzo[a]anthracene	0.0506	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	08/05/16 02:39 AM
Benzo[a]pyrene	0.0599	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	08/05/16 02:39 AM
Benzo[b]fluoranthene	0.0729	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	08/05/16 02:39 AM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Benzo[g,h,i]perylene	0.0709	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	08/05/16 02:39 AM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/05/16 02:39 AM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Chrysene	0.0597	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	08/05/16 02:39 AM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Fluoranthene	0.0501	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	08/05/16 02:39 AM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Indeno[1,2,3-cd]pyrene	0.0616	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	08/05/16 02:39 AM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/05/16 02:39 AM
IS: Acenaphthene-d10	148	0	50-200	0		%REC	10	08/05/16 02:39 AM
IS: Chrysene-d12	98.4	0	50-200	0		%REC	10	08/05/16 02:39 AM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/05/16 02:39 AM
IS: Perylene-d12	96.3	0	50-200	0		%REC	10	08/05/16 02:39 AM
IS: Phenanthrene-d10	98.3	0	50-200	0		%REC	10	08/05/16 02:39 AM
Surr: 2-Fluorobiphenyl	86.2	0	46-115	0		%REC	10	08/05/16 02:39 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607256-05
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:28 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	90.7	0	58-133	0		%REC	10	08/05/16 02:39 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607256-06
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:30 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.50	0.0935	0.280	0.140		mg/Kg-dry	5	08/05/16 08:29 PM
IS: Bismuth	47.1	0	30-120	0		%REC	5	08/05/16 08:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/05/16 03:18 AM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/05/16 03:18 AM
IS: Acenaphthene-d10	150	0	50-200	0		%REC	10	08/05/16 03:18 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/05/16 03:18 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/05/16 03:18 AM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	08/05/16 03:18 AM
IS: Phenanthrene-d10	99.3	0	50-200	0		%REC	10	08/05/16 03:18 AM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	08/05/16 03:18 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607256-06
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:30 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.1	0	58-133	0		%REC	10	08/05/16 03:18 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607256-07
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:34 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	5.51	0.0901	0.270	0.135		mg/Kg-dry	5	08/05/16 09:30 PM
IS: Bismuth	43.3	0	30-120	0		%REC	5	08/05/16 09:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	08/02/16 11:28 AM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/02/16 11:28 AM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/02/16 11:28 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/02/16 11:28 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/02/16 11:28 AM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/02/16 11:28 AM
IS: Phenanthrene-d10	97.4	0	50-200	0		%REC	10	08/02/16 11:28 AM
Surr: 2-Fluorobiphenyl	77.5	0	46-115	0		%REC	10	08/02/16 11:28 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607256-07
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:34 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.5	0	58-133	0		%REC	10	08/02/16 11:28 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607256-08
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:36 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.13	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 09:42 PM
IS: Bismuth	44.3	0	30-120	0		%REC	5	08/05/16 09:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/02/16 12:08 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 12:08 PM
IS: Acenaphthene-d10	146	0	50-200	0		%REC	10	08/02/16 12:08 PM
IS: Chrysene-d12	136	0	50-200	0		%REC	10	08/02/16 12:08 PM
IS: Naphthalene-d8	133	0	50-200	0		%REC	10	08/02/16 12:08 PM
IS: Perylene-d12	131	0	50-200	0		%REC	10	08/02/16 12:08 PM
IS: Phenanthrene-d10	116	0	50-200	0		%REC	10	08/02/16 12:08 PM
Surr: 2-Fluorobiphenyl	73.7	0	46-115	0		%REC	10	08/02/16 12:08 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607256-08
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:36 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.9	0	58-133	0		%REC	10	08/02/16 12:08 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607256-09
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:39 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	12.1	0.0893	0.268	0.134		mg/Kg-dry	5	08/05/16 09:48 PM
IS: Bismuth	41.9	0	30-120	0		%REC	5	08/05/16 09:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/02/16 12:49 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/02/16 12:49 PM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/02/16 12:49 PM
Benzo[a]anthracene	0.0934	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	08/02/16 12:49 PM
Benzo[a]pyrene	0.105	0.0494	0.0988	0.0741		mg/Kg-dry	10	08/02/16 12:49 PM
Benzo[b]fluoranthene	0.0981	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	08/02/16 12:49 PM
Benzo[e]pyrene	0.0780	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	08/02/16 12:49 PM
Benzo[g,h,i]perylene	0.0784	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	08/02/16 12:49 PM
Benzo[j]fluoranthene	0.0525	0.0494	0.0988	0.0741	JN	mg/Kg-dry	10	08/02/16 12:49 PM
Benzo[k]fluoranthene	0.0504	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	08/02/16 12:49 PM
Chrysene	0.110	0.0494	0.0988	0.0741		mg/Kg-dry	10	08/02/16 12:49 PM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/02/16 12:49 PM
Fluoranthene	0.210	0.0494	0.0988	0.0741		mg/Kg-dry	10	08/02/16 12:49 PM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/02/16 12:49 PM
Indeno[1,2,3-cd]pyrene	0.0680	0.0494	0.0988	0.0741	J	mg/Kg-dry	10	08/02/16 12:49 PM
Phenanthrene	0.117	0.0494	0.0988	0.0741		mg/Kg-dry	10	08/02/16 12:49 PM
Pyrene	0.173	0.0494	0.0988	0.0741		mg/Kg-dry	10	08/02/16 12:49 PM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/02/16 12:49 PM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	08/02/16 12:49 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/02/16 12:49 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/02/16 12:49 PM
IS: Phenanthrene-d10	96.2	0	50-200	0		%REC	10	08/02/16 12:49 PM
Surr: 2-Fluorobiphenyl	87.1	0	46-115	0		%REC	10	08/02/16 12:49 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607256-09
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:39 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	91.1	0	58-133	0		%REC	10	08/02/16 12:49 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607256-10
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:42 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.75	0.0971	0.291	0.146		mg/Kg-dry	5	08/05/16 09:54 PM
IS: Bismuth	41.4	0	30-120	0		%REC	5	08/05/16 09:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Benzo[a]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Benzo[a]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Benzo[b]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Benzo[g,h,i]perylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/02/16 01:30 PM
Benzo[k]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Chrysene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Phenanthrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
Pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/02/16 01:30 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/02/16 01:30 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/02/16 01:30 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/02/16 01:30 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/02/16 01:30 PM
IS: Phenanthrene-d10	97.4	0	50-200	0		%REC	10	08/02/16 01:30 PM
Surr: 2-Fluorobiphenyl	81.9	0	46-115	0		%REC	10	08/02/16 01:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607256-10
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:42 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.1	0	58-133	0		%REC	10	08/02/16 01:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607256-11
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:43 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	5.52	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 10:00 PM
IS: Bismuth	42.3	0	30-120	0		%REC	5	08/05/16 10:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Benzo[a]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Benzo[a]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Benzo[b]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Benzo[e]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Benzo[g,h,i]perylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Benzo[j]fluoranthene	0.0745	0.0497	0.0993	0.0745	NU	mg/Kg-dry	10	08/02/16 02:11 PM
Benzo[k]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Chrysene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Indeno[1,2,3-cd]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Phenanthrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
Pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 02:11 PM
IS: Acenaphthene-d10	129	0	50-200	0		%REC	10	08/02/16 02:11 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/02/16 02:11 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	08/02/16 02:11 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/02/16 02:11 PM
IS: Phenanthrene-d10	98.3	0	50-200	0		%REC	10	08/02/16 02:11 PM
Surr: 2-Fluorobiphenyl	74.0	0	46-115	0		%REC	10	08/02/16 02:11 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607256-11
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:43 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.8	0	58-133	0		%REC	10	08/02/16 02:11 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607256-12
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:44 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.62	0.0990	0.297	0.149		mg/Kg-dry	5	08/05/16 10:12 PM
IS: Bismuth	37.6	0	30-120	0		%REC	5	08/05/16 10:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Acenaphthylene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Anthracene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Benzo[a]anthracene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Benzo[a]pyrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Benzo[b]fluoranthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Benzo[e]pyrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Benzo[g,h,i]perylene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Benzo[j]fluoranthene	0.0694	0.0463	0.0925	0.0694	NU	mg/Kg-dry	10	08/02/16 02:52 PM
Benzo[k]fluoranthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Chrysene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Dibenz[a,h]anthracene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Fluoranthene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Fluorene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Indeno[1,2,3-cd]pyrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Phenanthrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
Pyrene	0.0694	0.0463	0.0925	0.0694	U	mg/Kg-dry	10	08/02/16 02:52 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/02/16 02:52 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/02/16 02:52 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/02/16 02:52 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/02/16 02:52 PM
IS: Phenanthrene-d10	95.2	0	50-200	0		%REC	10	08/02/16 02:52 PM
Surr: 2-Fluorobiphenyl	76.1	0	46-115	0		%REC	10	08/02/16 02:52 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU118(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607256-12
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:44 AM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.3	0	58-133	0		%REC	10	08/02/16 02:52 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: Arcadis **Client Sample ID:** EB01(20160721)
Project: Laredo SGR **Lab ID:** 1607256-13
Project No: 04285081.0000.00044 **Collection Date:** 07/21/16 09:50 AM
Lab Order: 1607256 **Matrix:** EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 12:03 AM
IS: Bismuth	88.0	0	30-120	0		%REC	1	08/10/16 12:03 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Acenaphthylene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Anthracene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Benzo[a]anthracene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Benzo[a]pyrene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Benzo[b]fluoranthene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Benzo[e]pyrene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Benzo[g,h,i]perylene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Benzo[j]fluoranthene	0.0000784	0.0000490	0.0000980	0.0000784	NU	mg/L	1	07/28/16 01:46 PM
Benzo[k]fluoranthene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Chrysene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Dibenz[a,h]anthracene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Fluoranthene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Fluorene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Indeno[1,2,3-cd]pyrene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Phenanthrene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
Pyrene	0.0000784	0.0000490	0.0000980	0.0000784	U	mg/L	1	07/28/16 01:46 PM
IS: Acenaphthene-d10	91.1	0	50-200	0		%REC	1	07/28/16 01:46 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	1	07/28/16 01:46 PM
IS: Naphthalene-d8	95.7	0	50-200	0		%REC	1	07/28/16 01:46 PM
IS: Perylene-d12	91.6	0	50-200	0		%REC	1	07/28/16 01:46 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	1	07/28/16 01:46 PM
Surr: 2-Fluorobiphenyl	52.0	0	53-106	0	S	%REC	1	07/28/16 01:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160721)
Project:	Laredo SGR	**Lab ID:**	1607256-13
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 09:50 AM
Lab Order:	1607256	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	49.1	0	58-132	0	S	%REC	1	07/28/16 01:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607256-14
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:31 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	31.5	0.0877	0.263	0.132		mg/Kg-dry	5	08/05/16 10:18 PM
IS: Bismuth	33.2	0	30-120	0		%REC	5	08/05/16 10:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Acenaphthylene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Benzo[a]anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Benzo[a]pyrene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Benzo[b]fluoranthene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Benzo[e]pyrene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Benzo[g,h,i]perylene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Benzo[j]fluoranthene	0.0750	0.0500	0.100	0.0750	NU	mg/Kg-dry	10	08/02/16 03:33 PM
Benzo[k]fluoranthene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Chrysene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Dibenz[a,h]anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Fluoranthene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Fluorene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Indeno[1,2,3-cd]pyrene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Phenanthrene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
Pyrene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/02/16 03:33 PM
IS: Acenaphthene-d10	128	0	50-200	0		%REC	10	08/02/16 03:33 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/02/16 03:33 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	08/02/16 03:33 PM
IS: Perylene-d12	110	0	50-200	0		%REC	10	08/02/16 03:33 PM
IS: Phenanthrene-d10	99.9	0	50-200	0		%REC	10	08/02/16 03:33 PM
Surr: 2-Fluorobiphenyl	67.1	0	46-115	0		%REC	10	08/02/16 03:33 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607256-14
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:31 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	68.7	0	58-133	0		%REC	10	08/02/16 03:33 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607256-15
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:32 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.50	0.0917	0.275	0.138		mg/Kg-dry	5	08/05/16 10:24 PM
IS: Bismuth	38.2	0	30-120	0		%REC	5	08/05/16 10:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Acenaphthylene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Anthracene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Benzo[a]anthracene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Benzo[a]pyrene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Benzo[b]fluoranthene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Benzo[e]pyrene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Benzo[g,h,i]perylene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Benzo[j]fluoranthene	0.0699	0.0466	0.0932	0.0699	NU	mg/Kg-dry	10	08/02/16 04:13 PM
Benzo[k]fluoranthene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Chrysene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Dibenz[a,h]anthracene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Fluoranthene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Fluorene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Indeno[1,2,3-cd]pyrene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Phenanthrene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
Pyrene	0.0699	0.0466	0.0932	0.0699	U	mg/Kg-dry	10	08/02/16 04:13 PM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/02/16 04:13 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/02/16 04:13 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	08/02/16 04:13 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/02/16 04:13 PM
IS: Phenanthrene-d10	99.3	0	50-200	0		%REC	10	08/02/16 04:13 PM
Surr: 2-Fluorobiphenyl	65.7	0	46-115	0		%REC	10	08/02/16 04:13 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607256-15
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:32 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.2	0	58-133	0		%REC	10	08/02/16 04:13 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607256-16
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:35 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	5.97	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 10:30 PM
IS: Bismuth	35.7	0	30-120	0		%REC	5	08/05/16 10:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Acenaphthylene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Benzo[a]anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Benzo[a]pyrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Benzo[b]fluoranthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Benzo[e]pyrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Benzo[g,h,i]perylene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Benzo[j]fluoranthene	0.0701	0.0467	0.0935	0.0701	NU	mg/Kg-dry	10	08/02/16 04:54 PM
Benzo[k]fluoranthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Chrysene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Dibenz[a,h]anthracene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Fluoranthene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Fluorene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Indeno[1,2,3-cd]pyrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Phenanthrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
Pyrene	0.0701	0.0467	0.0935	0.0701	U	mg/Kg-dry	10	08/02/16 04:54 PM
IS: Acenaphthene-d10	125	0	50-200	0		%REC	10	08/02/16 04:54 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	08/02/16 04:54 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/02/16 04:54 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/02/16 04:54 PM
IS: Phenanthrene-d10	96.6	0	50-200	0		%REC	10	08/02/16 04:54 PM
Surr: 2-Fluorobiphenyl	80.8	0	46-115	0		%REC	10	08/02/16 04:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607256-16
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:35 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.0	0	58-133	0		%REC	10	08/02/16 04:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607256-17
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:36 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.02	0.0971	0.291	0.146		mg/Kg-dry	5	08/05/16 10:36 PM
IS: Bismuth	36.1	0	30-120	0		%REC	5	08/05/16 10:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Benzo[a]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Benzo[a]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Benzo[b]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Benzo[e]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Benzo[g,h,i]perylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Benzo[j]fluoranthene	0.0730	0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	08/02/16 05:35 PM
Benzo[k]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Chrysene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Dibenz[a,h]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Phenanthrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
Pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/02/16 05:35 PM
IS: Acenaphthene-d10	124	0	50-200	0		%REC	10	08/02/16 05:35 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/02/16 05:35 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/02/16 05:35 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/02/16 05:35 PM
IS: Phenanthrene-d10	97.6	0	50-200	0		%REC	10	08/02/16 05:35 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	08/02/16 05:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607256-17
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:36 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.0	0	58-133	0		%REC	10	08/02/16 05:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607256-18
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:39 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	25.2	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 05:46 PM
IS: Bismuth	83.2	0	30-120	0		%REC	5	08/09/16 05:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Benzo[a]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Benzo[a]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Benzo[b]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Benzo[e]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Benzo[g,h,i]perylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Benzo[j]fluoranthene	0.0734	0.0489	0.0978	0.0734	NU	mg/Kg-dry	10	08/02/16 06:15 PM
Benzo[k]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Chrysene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Indeno[1,2,3-cd]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Phenanthrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
Pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/02/16 06:15 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	08/02/16 06:15 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	08/02/16 06:15 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/02/16 06:15 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/02/16 06:15 PM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	08/02/16 06:15 PM
Surr: 2-Fluorobiphenyl	85.3	0	46-115	0		%REC	10	08/02/16 06:15 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607256-18
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:39 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.2	0	58-133	0		%REC	10	08/02/16 06:15 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607256-19
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:41 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	7.59	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 05:51 PM
IS: Bismuth	81.0	0	30-120	0		%REC	5	08/09/16 05:51 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/02/16 06:55 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/02/16 06:55 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	08/02/16 06:55 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/02/16 06:55 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/02/16 06:55 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/02/16 06:55 PM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	10	08/02/16 06:55 PM
Surr: 2-Fluorobiphenyl	79.6	0	46-115	0		%REC	10	08/02/16 06:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607256-19
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:41 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.5	0	58-133	0		%REC	10	08/02/16 06:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607256-20
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:43 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.55	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 05:57 PM
IS: Bismuth	81.7	0	30-120	0		%REC	5	08/09/16 05:57 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Anthracene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	CNU	mg/Kg-dry	10	08/04/16 10:30 AM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Chrysene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Fluorene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
Pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 10:30 AM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/04/16 10:30 AM
IS: Chrysene-d12	90.1	0	50-200	0		%REC	10	08/04/16 10:30 AM
IS: Naphthalene-d8	97.5	0	50-200	0		%REC	10	08/04/16 10:30 AM
IS: Perylene-d12	93.4	0	50-200	0		%REC	10	08/04/16 10:30 AM
IS: Phenanthrene-d10	120	0	50-200	0		%REC	10	08/04/16 10:30 AM
Surr: 2-Fluorobiphenyl	96.2	0	46-115	0		%REC	10	08/04/16 10:30 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607256-20
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:43 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.6	0	58-133	0		%REC	10	08/04/16 10:30 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607256-21
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:44 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.90	0.0901	0.270	0.135		mg/Kg-dry	5	08/09/16 06:03 PM
IS: Bismuth	81.0	0	30-120	0		%REC	5	08/09/16 06:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Anthracene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	CNU	mg/Kg-dry	10	08/04/16 11:10 AM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Chrysene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Fluorene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
Pyrene	0.0737	0.0491	0.0982	0.0737	CU	mg/Kg-dry	10	08/04/16 11:10 AM
IS: Acenaphthene-d10	124	0	50-200	0		%REC	10	08/04/16 11:10 AM
IS: Chrysene-d12	90.5	0	50-200	0		%REC	10	08/04/16 11:10 AM
IS: Naphthalene-d8	98.6	0	50-200	0		%REC	10	08/04/16 11:10 AM
IS: Perylene-d12	92.9	0	50-200	0		%REC	10	08/04/16 11:10 AM
IS: Phenanthrene-d10	119	0	50-200	0		%REC	10	08/04/16 11:10 AM
Surr: 2-Fluorobiphenyl	94.9	0	46-115	0		%REC	10	08/04/16 11:10 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607256-21
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:44 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	69.7	0	58-133	0		%REC	10	08/04/16 11:10 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607256-22
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:47 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	16.4	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 06:09 PM
IS: Bismuth	83.1	0	30-120	0		%REC	5	08/09/16 06:09 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	CNU	mg/Kg-dry	10	08/04/16 11:50 AM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Chrysene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
Pyrene	0.0742	0.0495	0.0989	0.0742	CU	mg/Kg-dry	10	08/04/16 11:50 AM
IS: Acenaphthene-d10	124	0	50-200	0		%REC	10	08/04/16 11:50 AM
IS: Chrysene-d12	87.7	0	50-200	0		%REC	10	08/04/16 11:50 AM
IS: Naphthalene-d8	95.0	0	50-200	0		%REC	10	08/04/16 11:50 AM
IS: Perylene-d12	91.3	0	50-200	0		%REC	10	08/04/16 11:50 AM
IS: Phenanthrene-d10	119	0	50-200	0		%REC	10	08/04/16 11:50 AM
Surr: 2-Fluorobiphenyl	99.0	0	46-115	0		%REC	10	08/04/16 11:50 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607256-22
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:47 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	69.7	0	58-133	0		%REC	10	08/04/16 11:50 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607256-23
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:48 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	13.3	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 06:21 PM
IS: Bismuth	80.4	0	30-120	0		%REC	5	08/09/16 06:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Acenaphthylene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Anthracene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Benzo[a]anthracene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Benzo[a]pyrene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Benzo[b]fluoranthene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Benzo[e]pyrene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Benzo[g,h,i]perylene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Benzo[j]fluoranthene	0.0732	0.0488	0.0977	0.0732	CNU	mg/Kg-dry	10	08/04/16 12:30 PM
Benzo[k]fluoranthene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Chrysene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Fluoranthene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Fluorene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Phenanthrene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
Pyrene	0.0732	0.0488	0.0977	0.0732	CU	mg/Kg-dry	10	08/04/16 12:30 PM
IS: Acenaphthene-d10	128	0	50-200	0		%REC	10	08/04/16 12:30 PM
IS: Chrysene-d12	97.3	0	50-200	0		%REC	10	08/04/16 12:30 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	08/04/16 12:30 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/04/16 12:30 PM
IS: Phenanthrene-d10	124	0	50-200	0		%REC	10	08/04/16 12:30 PM
Surr: 2-Fluorobiphenyl	88.2	0	46-115	0		%REC	10	08/04/16 12:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607256-23
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:48 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	67.2	0	58-133	0		%REC	10	08/04/16 12:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607256-24
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:50 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.41	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 06:27 PM
IS: Bismuth	81.0	0	30-120	0		%REC	5	08/09/16 06:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Benzo[a]anthracene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Benzo[a]pyrene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Benzo[b]fluoranthene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Benzo[e]pyrene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Benzo[g,h,i]perylene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Benzo[j]fluoranthene	0.0745	0.0497	0.0993	0.0745	CNU	mg/Kg-dry	10	08/04/16 01:11 PM
Benzo[k]fluoranthene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Chrysene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Fluoranthene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Indeno[1,2,3-cd]pyrene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Phenanthrene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
Pyrene	0.0745	0.0497	0.0993	0.0745	CU	mg/Kg-dry	10	08/04/16 01:11 PM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/04/16 01:11 PM
IS: Chrysene-d12	90.3	0	50-200	0		%REC	10	08/04/16 01:11 PM
IS: Naphthalene-d8	100	0	50-200	0		%REC	10	08/04/16 01:11 PM
IS: Perylene-d12	92.4	0	50-200	0		%REC	10	08/04/16 01:11 PM
IS: Phenanthrene-d10	121	0	50-200	0		%REC	10	08/04/16 01:11 PM
Surr: 2-Fluorobiphenyl	84.0	0	46-115	0		%REC	10	08/04/16 01:11 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607256-24
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:50 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	66.2	0	58-133	0		%REC	10	08/04/16 01:11 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607256-25
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:51 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.42	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 06:32 PM
IS: Bismuth	80.9	0	30-120	0		%REC	5	08/09/16 06:32 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	CNU	mg/Kg-dry	10	08/04/16 01:51 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Fluoranthene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
Pyrene	0.0740	0.0494	0.0987	0.0740	CU	mg/Kg-dry	10	08/04/16 01:51 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/04/16 01:51 PM
IS: Chrysene-d12	90.0	0	50-200	0		%REC	10	08/04/16 01:51 PM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/04/16 01:51 PM
IS: Perylene-d12	91.3	0	50-200	0		%REC	10	08/04/16 01:51 PM
IS: Phenanthrene-d10	123	0	50-200	0		%REC	10	08/04/16 01:51 PM
Surr: 2-Fluorobiphenyl	84.1	0	46-115	0		%REC	10	08/04/16 01:51 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU183(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607256-25
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:51 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	67.5	0	58-133	0		%REC	10	08/04/16 01:51 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160721)
Project:	Laredo SGR	**Lab ID:**	1607256-26
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:55 PM
Lab Order:	1607256	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 12:09 AM
IS: Bismuth	87.6	0	30-120	0		%REC	1	08/10/16 12:09 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Acenaphthylene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Anthracene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Benzo[a]anthracene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Benzo[a]pyrene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Benzo[b]fluoranthene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Benzo[e]pyrene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Benzo[g,h,i]perylene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Benzo[j]fluoranthene	0.0000790	0.0000493	0.0000987	0.0000790	CNU	mg/L	1	07/28/16 02:24 PM
Benzo[k]fluoranthene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Chrysene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Dibenz[a,h]anthracene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Fluoranthene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Fluorene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Indeno[1,2,3-cd]pyrene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Phenanthrene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
Pyrene	0.0000790	0.0000493	0.0000987	0.0000790	CU	mg/L	1	07/28/16 02:24 PM
IS: Acenaphthene-d10	91.6	0	50-200	0		%REC	1	07/28/16 02:24 PM
IS: Chrysene-d12	96.6	0	50-200	0		%REC	1	07/28/16 02:24 PM
IS: Naphthalene-d8	94.8	0	50-200	0		%REC	1	07/28/16 02:24 PM
IS: Perylene-d12	87.6	0	50-200	0		%REC	1	07/28/16 02:24 PM
IS: Phenanthrene-d10	96.9	0	50-200	0		%REC	1	07/28/16 02:24 PM
Surr: 2-Fluorobiphenyl	60.0	0	53-106	0		%REC	1	07/28/16 02:24 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160721)
Project:	Laredo SGR	**Lab ID:**	1607256-26
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 12:55 PM
Lab Order:	1607256	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	53.7	0	58-132	0	S	%REC	1	07/28/16 02:24 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB03(20160721)
Project:	Laredo SGR	**Lab ID:**	1607256-27
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:25 PM
Lab Order:	1607256	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 12:15 AM
IS: Bismuth	89.0	0	30-120	0		%REC	1	08/10/16 12:15 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Acenaphthylene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Anthracene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Benzo[a]anthracene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Benzo[a]pyrene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Benzo[b]fluoranthene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Benzo[e]pyrene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Benzo[g,h,i]perylene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Benzo[j]fluoranthene	0.0000791	0.0000495	0.0000989	0.0000791	NU	mg/L	1	07/28/16 03:02 PM
Benzo[k]fluoranthene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Chrysene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Dibenz[a,h]anthracene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Fluoranthene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Fluorene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Indeno[1,2,3-cd]pyrene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Phenanthrene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
Pyrene	0.0000791	0.0000495	0.0000989	0.0000791	U	mg/L	1	07/28/16 03:02 PM
IS: Acenaphthene-d10	78.6	0	50-200	0		%REC	1	07/28/16 03:02 PM
IS: Chrysene-d12	92.6	0	50-200	0		%REC	1	07/28/16 03:02 PM
IS: Naphthalene-d8	88.5	0	50-200	0		%REC	1	07/28/16 03:02 PM
IS: Perylene-d12	83.9	0	50-200	0		%REC	1	07/28/16 03:02 PM
IS: Phenanthrene-d10	89.2	0	50-200	0		%REC	1	07/28/16 03:02 PM
Surr: 2-Fluorobiphenyl	59.5	0	53-106	0		%REC	1	07/28/16 03:02 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB03(20160721)
Project:	Laredo SGR	**Lab ID:**	1607256-27
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:25 PM
Lab Order:	1607256	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	57.6	0	58-132	0		%REC	1	07/28/16 03:02 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607256-28
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:42 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.18	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 02:23 PM
IS: Bismuth	82.3	0	30-120	0		%REC	5	08/09/16 02:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/06/16 10:55 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/06/16 10:55 PM
Anthracene	0.258	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Benzo[a]anthracene	1.10	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Benzo[a]pyrene	0.973	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Benzo[b]fluoranthene	0.977	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Benzo[e]pyrene	0.700	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Benzo[g,h,i]perylene	0.634	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Benzo[j]fluoranthene	0.503	0.0499	0.0998	0.0749	N	mg/Kg-dry	10	08/06/16 10:55 PM
Benzo[k]fluoranthene	0.507	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Chrysene	1.23	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Dibenz[a,h]anthracene	0.164	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Fluoranthene	2.44	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/06/16 10:55 PM
Indeno[1,2,3-cd]pyrene	0.547	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Phenanthrene	1.39	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
Pyrene	1.86	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/06/16 10:55 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	08/06/16 10:55 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/06/16 10:55 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/06/16 10:55 PM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/06/16 10:55 PM
IS: Phenanthrene-d10	95.1	0	50-200	0		%REC	10	08/06/16 10:55 PM
Surr: 2-Fluorobiphenyl	77.3	0	46-115	0		%REC	10	08/06/16 10:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607256-28
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:42 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	89.5	0	58-133	0		%REC	10	08/06/16 10:55 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

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Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607256-29
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:43 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.44	0.0935	0.280	0.140		mg/Kg-dry	5	08/09/16 06:38 PM
IS: Bismuth	81.2	0	30-120	0		%REC	5	08/09/16 06:38 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Benzo[a]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Benzo[a]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Benzo[b]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Benzo[e]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Benzo[g,h,i]perylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Benzo[j]fluoranthene	0.0745	0.0497	0.0993	0.0745	NU	mg/Kg-dry	10	08/02/16 07:35 PM
Benzo[k]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Chrysene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Indeno[1,2,3-cd]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Phenanthrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
Pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/02/16 07:35 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/02/16 07:35 PM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	08/02/16 07:35 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/02/16 07:35 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/02/16 07:35 PM
IS: Phenanthrene-d10	97.9	0	50-200	0		%REC	10	08/02/16 07:35 PM
Surr: 2-Fluorobiphenyl	78.2	0	46-115	0		%REC	10	08/02/16 07:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607256-29
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:43 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.3	0	58-133	0		%REC	10	08/02/16 07:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607256-30
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:44 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.07	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 06:44 PM
IS: Bismuth	80.7	0	30-120	0		%REC	5	08/09/16 06:44 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/02/16 08:16 PM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/02/16 08:16 PM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/02/16 08:16 PM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	08/02/16 08:16 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/02/16 08:16 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/02/16 08:16 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/02/16 08:16 PM
Surr: 2-Fluorobiphenyl	78.2	0	46-115	0		%REC	10	08/02/16 08:16 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607256-30
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:44 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.7	0	58-133	0		%REC	10	08/02/16 08:16 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607256-31
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:45 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	14.2	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 02:35 PM
IS: Bismuth	82.3	0	30-120	0		%REC	5	08/09/16 02:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	08/02/16 10:57 PM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
Pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/02/16 10:57 PM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/02/16 10:57 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/02/16 10:57 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/02/16 10:57 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/02/16 10:57 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/02/16 10:57 PM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	08/02/16 10:57 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607256-31
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:45 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.4	0	58-133	0		%REC	10	08/02/16 10:57 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607256-32
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:46 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	7.32	0.0909	0.273	0.136		mg/Kg-dry	5	08/09/16 02:41 PM
IS: Bismuth	79.4	0	30-120	0		%REC	5	08/09/16 02:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Benzo[a]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Benzo[a]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Benzo[b]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Benzo[e]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Benzo[g,h,i]perylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Benzo[j]fluoranthene	0.0716	0.0478	0.0955	0.0716	NU	mg/Kg-dry	10	08/02/16 11:37 PM
Benzo[k]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Chrysene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Indeno[1,2,3-cd]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Phenanthrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
Pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/02/16 11:37 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/02/16 11:37 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/02/16 11:37 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/02/16 11:37 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/02/16 11:37 PM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/02/16 11:37 PM
Surr: 2-Fluorobiphenyl	77.7	0	46-115	0		%REC	10	08/02/16 11:37 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607256-32
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 04:46 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.5	0	58-133	0		%REC	10	08/02/16 11:37 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607256-33
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:00 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.43	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 02:47 PM
IS: Bismuth	78.5	0	30-120	0		%REC	5	08/09/16 02:47 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/03/16 01:03 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/03/16 01:03 PM
Anthracene	0.0565	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/03/16 01:03 PM
Benzo[a]anthracene	0.329	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Benzo[a]pyrene	0.360	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Benzo[b]fluoranthene	0.354	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Benzo[e]pyrene	0.270	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Benzo[g,h,i]perylene	0.312	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Benzo[j]fluoranthene	0.185	0.0497	0.0993	0.0745	N	mg/Kg-dry	10	08/03/16 01:03 PM
Benzo[k]fluoranthene	0.185	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Chrysene	0.411	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Dibenz[a,h]anthracene	0.0679	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/03/16 01:03 PM
Fluoranthene	0.689	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/03/16 01:03 PM
Indeno[1,2,3-cd]pyrene	0.261	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Phenanthrene	0.330	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
Pyrene	0.580	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/03/16 01:03 PM
IS: Acenaphthene-d10	125	0	50-200	0		%REC	10	08/03/16 01:03 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/03/16 01:03 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/03/16 01:03 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/03/16 01:03 PM
IS: Phenanthrene-d10	99.4	0	50-200	0		%REC	10	08/03/16 01:03 PM
Surr: 2-Fluorobiphenyl	80.0	0	46-115	0		%REC	10	08/03/16 01:03 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607256-33
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:00 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.9	0	58-133	0		%REC	10	08/03/16 01:03 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607256-34
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:01 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.69	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 02:53 PM
IS: Bismuth	77.9	0	30-120	0		%REC	5	08/09/16 02:53 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/03/16 12:58 AM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/03/16 12:58 AM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	08/03/16 12:58 AM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	08/03/16 12:58 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/03/16 12:58 AM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/03/16 12:58 AM
IS: Phenanthrene-d10	97.9	0	50-200	0		%REC	10	08/03/16 12:58 AM
Surr: 2-Fluorobiphenyl	82.2	0	46-115	0		%REC	10	08/03/16 12:58 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607256-34
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:01 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.8	0	58-133	0		%REC	10	08/03/16 12:58 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607256-35
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:02 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.82	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 02:58 PM
IS: Bismuth	78.3	0	30-120	0		%REC	5	08/09/16 02:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Acenaphthylene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Benzo[a]anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Benzo[a]pyrene	0.0543	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	08/03/16 01:44 PM
Benzo[b]fluoranthene	0.0512	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	08/03/16 01:44 PM
Benzo[e]pyrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Benzo[g,h,i]perylene	0.0525	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	08/03/16 01:44 PM
Benzo[j]fluoranthene	0.0710	0.0473	0.0946	0.0710	NU	mg/Kg-dry	10	08/03/16 01:44 PM
Benzo[k]fluoranthene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Chrysene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Dibenz[a,h]anthracene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Fluoranthene	0.0669	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	08/03/16 01:44 PM
Fluorene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Indeno[1,2,3-cd]pyrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Phenanthrene	0.0710	0.0473	0.0946	0.0710	U	mg/Kg-dry	10	08/03/16 01:44 PM
Pyrene	0.0575	0.0473	0.0946	0.0710	J	mg/Kg-dry	10	08/03/16 01:44 PM
IS: Acenaphthene-d10	127	0	50-200	0		%REC	10	08/03/16 01:44 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/03/16 01:44 PM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	08/03/16 01:44 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/03/16 01:44 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/03/16 01:44 PM
Surr: 2-Fluorobiphenyl	80.1	0	46-115	0		%REC	10	08/03/16 01:44 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607256-35
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:02 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.0	0	58-133	0		%REC	10	08/03/16 01:44 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607256-36
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:03 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.83	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 03:04 PM
IS: Bismuth	76.5	0	30-120	0		%REC	5	08/09/16 03:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Benzo[a]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Benzo[a]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Benzo[b]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Benzo[e]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Benzo[g,h,i]perylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Benzo[j]fluoranthene	0.0716	0.0478	0.0955	0.0716	NU	mg/Kg-dry	10	08/03/16 02:19 AM
Benzo[k]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Chrysene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Indeno[1,2,3-cd]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Phenanthrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
Pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/03/16 02:19 AM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/03/16 02:19 AM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	08/03/16 02:19 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/03/16 02:19 AM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/03/16 02:19 AM
IS: Phenanthrene-d10	97.4	0	50-200	0		%REC	10	08/03/16 02:19 AM
Surr: 2-Fluorobiphenyl	79.3	0	46-115	0		%REC	10	08/03/16 02:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607256-36
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:03 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.1	0	58-133	0		%REC	10	08/03/16 02:19 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607256-37
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:04 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	7.39	0.0935	0.280	0.140		mg/Kg-dry	5	08/09/16 03:10 PM
IS: Bismuth	80.8	0	30-120	0		%REC	5	08/09/16 03:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Acenaphthylene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Anthracene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Benzo[a]anthracene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Benzo[a]pyrene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Benzo[b]fluoranthene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Benzo[e]pyrene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Benzo[g,h,i]perylene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Benzo[j]fluoranthene	0.0725	0.0484	0.0967	0.0725	NU	mg/Kg-dry	10	08/04/16 02:32 PM
Benzo[k]fluoranthene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Chrysene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Dibenz[a,h]anthracene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Fluoranthene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Fluorene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Indeno[1,2,3-cd]pyrene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Phenanthrene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
Pyrene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/04/16 02:32 PM
IS: Acenaphthene-d10	123	0	50-200	0		%REC	10	08/04/16 02:32 PM
IS: Chrysene-d12	93.0	0	50-200	0		%REC	10	08/04/16 02:32 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/04/16 02:32 PM
IS: Perylene-d12	94.8	0	50-200	0		%REC	10	08/04/16 02:32 PM
IS: Phenanthrene-d10	123	0	50-200	0		%REC	10	08/04/16 02:32 PM
Surr: 2-Fluorobiphenyl	87.2	0	46-115	0		%REC	10	08/04/16 02:32 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607256-37
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:04 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	69.2	0	58-133	0		%REC	10	08/04/16 02:32 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607256-38
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:15 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	11.5	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 03:16 PM
IS: Bismuth	76.2	0	30-120	0		%REC	5	08/09/16 03:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 03:13 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 03:13 PM
Anthracene	0.0680	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/04/16 03:13 PM
Benzo[a]anthracene	1.24	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Benzo[a]pyrene	1.64	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Benzo[b]fluoranthene	1.47	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Benzo[e]pyrene	1.17	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Benzo[g,h,i]perylene	1.25	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Benzo[j]fluoranthene	0.761	0.0496	0.0992	0.0744	N	mg/Kg-dry	10	08/04/16 03:13 PM
Benzo[k]fluoranthene	0.781	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Chrysene	1.51	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Dibenz[a,h]anthracene	0.274	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Fluoranthene	1.40	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 03:13 PM
Indeno[1,2,3-cd]pyrene	1.04	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Phenanthrene	0.438	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
Pyrene	1.25	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 03:13 PM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/04/16 03:13 PM
IS: Chrysene-d12	93.0	0	50-200	0		%REC	10	08/04/16 03:13 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/04/16 03:13 PM
IS: Perylene-d12	95.3	0	50-200	0		%REC	10	08/04/16 03:13 PM
IS: Phenanthrene-d10	120	0	50-200	0		%REC	10	08/04/16 03:13 PM
Surr: 2-Fluorobiphenyl	90.1	0	46-115	0		%REC	10	08/04/16 03:13 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607256-38
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:15 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.0	0	58-133	0		%REC	10	08/04/16 03:13 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607256-39
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:16 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	4.97	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 03:22 PM
IS: Bismuth	78.6	0	30-120	0		%REC	5	08/09/16 03:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Benzo[a]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Benzo[b]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/04/16 03:53 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
Pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/04/16 03:53 PM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	08/04/16 03:53 PM
IS: Chrysene-d12	88.6	0	50-200	0		%REC	10	08/04/16 03:53 PM
IS: Naphthalene-d8	99.6	0	50-200	0		%REC	10	08/04/16 03:53 PM
IS: Perylene-d12	90.2	0	50-200	0		%REC	10	08/04/16 03:53 PM
IS: Phenanthrene-d10	124	0	50-200	0		%REC	10	08/04/16 03:53 PM
Surr: 2-Fluorobiphenyl	85.8	0	46-115	0		%REC	10	08/04/16 03:53 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607256-39
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:16 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.0	0	58-133	0		%REC	10	08/04/16 03:53 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607256-40
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:17 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.19	0.0990	0.297	0.149		mg/Kg-dry	5	08/09/16 04:17 PM
IS: Bismuth	85.7	0	30-120	0		%REC	5	08/09/16 04:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Benzo[a]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Benzo[a]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Benzo[b]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Benzo[e]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Benzo[g,h,i]perylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Benzo[j]fluoranthene	0.0745	0.0497	0.0993	0.0745	NU	mg/Kg-dry	10	08/04/16 04:34 PM
Benzo[k]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Chrysene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Indeno[1,2,3-cd]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Phenanthrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
Pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/04/16 04:34 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	08/04/16 04:34 PM
IS: Chrysene-d12	87.3	0	50-200	0		%REC	10	08/04/16 04:34 PM
IS: Naphthalene-d8	97.3	0	50-200	0		%REC	10	08/04/16 04:34 PM
IS: Perylene-d12	88.8	0	50-200	0		%REC	10	08/04/16 04:34 PM
IS: Phenanthrene-d10	122	0	50-200	0		%REC	10	08/04/16 04:34 PM
Surr: 2-Fluorobiphenyl	86.6	0	46-115	0		%REC	10	08/04/16 04:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607256-40
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:17 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	64.6	0	58-133	0		%REC	10	08/04/16 04:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607256-41
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:18 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.31	0.0833	0.250	0.125		mg/Kg-dry	5	08/09/16 04:23 PM
IS: Bismuth	77.0	0	30-120	0		%REC	5	08/09/16 04:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[a]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[a]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[b]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[e]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[g,h,i]perylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[j]fluoranthene	0.0741	0.0494	0.0988	0.0741	NU	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[k]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Chrysene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Indeno[1,2,3-cd]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Phenanthrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
Pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/04/16 05:14 PM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Chrysene-d12	87.6	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Naphthalene-d8	97.9	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Perylene-d12	88.7	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Phenanthrene-d10	125	0	50-200	0		%REC	10	08/04/16 05:14 PM
Surr: 2-Fluorobiphenyl	88.9	0	46-115	0		%REC	10	08/04/16 05:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607256-41
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:18 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.9	0	58-133	0		%REC	10	08/04/16 05:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607256-42
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:19 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	16.7	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 04:29 PM
IS: Bismuth	78.9	0	30-120	0		%REC	5	08/09/16 04:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Benzo[a]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Benzo[a]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Benzo[b]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Benzo[e]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Benzo[g,h,i]perylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Benzo[j]fluoranthene	0.0738	0.0492	0.0984	0.0738	NU	mg/Kg-dry	10	08/04/16 05:55 PM
Benzo[k]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Chrysene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Dibenz[a,h]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Indeno[1,2,3-cd]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Phenanthrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
Pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:55 PM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/04/16 05:55 PM
IS: Chrysene-d12	94.2	0	50-200	0		%REC	10	08/04/16 05:55 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/04/16 05:55 PM
IS: Perylene-d12	96.6	0	50-200	0		%REC	10	08/04/16 05:55 PM
IS: Phenanthrene-d10	127	0	50-200	0		%REC	10	08/04/16 05:55 PM
Surr: 2-Fluorobiphenyl	87.7	0	46-115	0		%REC	10	08/04/16 05:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU010-07(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607256-42
Project No:	04285081.0000.00044	**Collection Date:**	07/21/16 05:19 PM
Lab Order:	1607256	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	68.3	0	58-133	0		%REC	10	08/04/16 05:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76274**	Batch ID: **76274**	TestNo: **SW6020A**	Units: **mg/Kg**		
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:13:00 PM**	Prep Date: **7/18/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.249	0.300	0.2500	0	99.7	80	120	0	0	
IS: Bismuth	50.0		200.0		97.1	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76458**	Batch ID: **76458**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:50:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000493	0.00100	0.000500	0	98.7	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160805A

The QC data in batch 76623 applies to the following samples: 1607256-01A, 1607256-02A, 1607256-03A, 1607256-04A, 1607256-05A, 1607256-06A

Sample ID	**MB-76623**	Batch ID:	**76623**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MBLK**	Run ID:	**ICP-MS3_160805A**	Analysis Date:	**8/5/2016 5:06:00 PM**	Prep Date:	**8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		61.3	30	120			

Sample ID	**LCS-76623**	Batch ID:	**76623**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**LCS**	Run ID:	**ICP-MS3_160805A**	Analysis Date:	**8/5/2016 5:12:00 PM**	Prep Date:	**8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	48.1	0.300	50.00	0	96.1	84	118			
IS: Bismuth	50.0		200.0		57.9	30	120			

Sample ID	**LCSD-76623**	Batch ID:	**76623**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**LCSD**	Run ID:	**ICP-MS3_160805A**	Analysis Date:	**8/5/2016 5:18:00 PM**	Prep Date:	**8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	47.9	0.300	50.00	0	95.9	84	118	0.260	20	
IS: Bismuth	50.0		200.0		57.2	30	120	0	0	

Sample ID	**1607239-21A SD**	Batch ID:	**76623**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**SD**	Run ID:	**ICP-MS3_160805A**	Analysis Date:	**8/5/2016 5:36:00 PM**	Prep Date:	**8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	7.92	1.39	0	8.162				3.01	10	
IS: Bismuth	231		185.2		55.0	30	120	0	0	

Sample ID	**1607239-21A PDS**	Batch ID:	**76623**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**PDS**	Run ID:	**ICP-MS3_160805A**	Analysis Date:	**8/5/2016 6:42:00 PM**	Prep Date:	**8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.4	0.278	46.30	8.162	95.6	80	120			
IS: Bismuth	46.3		925.9		47.9	30	120			

Sample ID	**1607239-21A MS**	Batch ID:	**76623**	TestNo:	**SW6020A**	Units:	**mg/Kg-dry**
SampType:	**MS**	Run ID:	**ICP-MS3_160805A**	Analysis Date:	**8/5/2016 6:47:00 PM**	Prep Date:	**8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	53.6	0.286	47.62	8.162	95.5	84	118			
IS: Bismuth	47.6		190.5		44.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160805A

Sample ID **1607239-21A MSD**	Batch ID: **76623**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 6:53:00 PM**	Prep Date: **8/3/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.9	0.283	47.17	8.162	94.9	84	118	1.30	20	
IS: Bismuth	47.2		188.7		43.0	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160805A

The QC data in batch 76649 applies to the following samples: 1607256-07A, 1607256-08A, 1607256-09A, 1607256-10A, 1607256-11A, 1607256-12A, 1607256-14A, 1607256-15A, 1607256-16A, 1607256-17A, 1607256-18A, 1607256-19A, 1607256-20A, 1607256-21A, 1607256-22A, 1607256-23A, 1607256-24A, 1607256-25A, 1607256-29A, 1607256-30A

Sample ID **MB-76649** Batch ID: **76649** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 9:06:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		37.7	30	120			

Sample ID **LCS-76649** Batch ID: **76649** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 9:12:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	47.8	0.300	50.00	0	95.5	84	118			
IS: Bismuth	50.0		200.0		36.4	30	120			

Sample ID **LCSD-76649** Batch ID: **76649** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 9:18:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	47.4	0.300	50.00	0	94.8	84	118	0.736	20	
IS: Bismuth	50.0		200.0		37.3	30	120	0	0	

Sample ID **1607256-07A SD** Batch ID: **76649** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 9:36:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	5.41	1.35	0	5.507				1.84	10	
IS: Bismuth	225		180.2		42.0	30	120	0	0	

Sample ID **1607256-07A PDS** Batch ID: **76649** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 10:42:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	47.2	0.270	45.05	5.507	92.6	80	120			
IS: Bismuth	45.0		900.9		35.3	30	120			

Sample ID **1607256-07A MS** Batch ID: **76649** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 10:48:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.9	0.283	47.17	5.507	98.3	84	118			
IS: Bismuth	47.2		188.7		33.3	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160805A

Sample ID **1607256-07A MSD**	Batch ID: **76649**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 10:54:00 PM**	Prep Date: **8/3/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.0	0.283	47.17	5.507	96.4	84	118	1.70	20	
IS: Bismuth	47.2		188.7		35.4	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160805A

Sample ID **ICV1-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 1:09:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0967	0.00100	0.100	0	96.7	90	110			
IS: Bismuth	0.200		0.200		93.9	30	120			

Sample ID **ILCVL-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 1:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	80	120			
IS: Bismuth	0.200		0.200		94.6	30	120			

Sample ID **CCV2-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 4:48:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.198	0.00100	0.200	0	98.9	90	110			
IS: Bismuth	0.200		0.200		65.0	30	120			

Sample ID **LCVL2-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 5:00:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00105	0.00100	0.00100	0	105	80	120			
IS: Bismuth	0.200		0.200		62.5	30	120			

Sample ID **CCV3-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 7:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.194	0.00100	0.200	0	96.8	90	110			
IS: Bismuth	0.200		0.200		42.9	30	120			

Sample ID **LCVL3-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 7:17:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		42.4	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160805A

Sample ID **CCV4-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 8:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.196	0.00100	0.200	0	97.8	90	110			
IS: Bismuth	0.200		0.200		42.0	30	120			

Sample ID **LCVL4-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 8:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	80	120			
IS: Bismuth	0.200		0.200		39.8	30	120			

Sample ID **CCV5-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 11:06:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.195	0.00100	0.200	0	97.6	90	110			
IS: Bismuth	0.200		0.200		32.4	30	120			

Sample ID **LCVL5-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 11:18:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00100	0.00100	0.00100	0	100	80	120			
IS: Bismuth	0.200		0.200		31.1	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

The QC data in batch 76663 applies to the following samples: 1607256-28A, 1607256-31A, 1607256-32A, 1607256-33A, 1607256-34A, 1607256-35A, 1607256-36A, 1607256-37A, 1607256-38A, 1607256-39A, 1607256-40A, 1607256-41A, 1607256-42A

Sample ID **MB-76663** Batch ID: **76663** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 2:00:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		89.4	30	120			

Sample ID **LCS-76663** Batch ID: **76663** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 2:06:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.6	0.300	50.00	0	101	84	118			
IS: Bismuth	50.0		200.0		87.3	30	120			

Sample ID **LCSD-76663** Batch ID: **76663** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 2:12:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.6	0.300	50.00	0	103	84	118	1.86	20	
IS: Bismuth	50.0		200.0		85.5	30	120	0	0	

Sample ID **1607256-28A SD** Batch ID: **76663** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 2:29:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	8.95	1.43	0	9.179				2.55	10	
IS: Bismuth	238		190.5		86.2	30	120	0	0	

Sample ID **1607256-28A PDS** Batch ID: **76663** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 3:28:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	56.4	0.286	47.62	9.179	99.1	80	120			
IS: Bismuth	47.6		952.4		78.8	30	120			

Sample ID **1607256-28A MS** Batch ID: **76663** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 3:33:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	58.4	0.286	47.62	9.179	103	84	118			
IS: Bismuth	47.6		190.5		78.1	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

Sample ID **1607256-28A MSD**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:39:00 PM**	Prep Date: **8/4/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	61.2	0.300	50.00	9.179	104	84	118	4.59	20	
IS: Bismuth	50.0		200.0		79.7	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

Sample ID **ICV1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.214	0.00100	0.200	0	107	90	110			
IS: Bismuth	0.200		0.200		85.9	30	120			

Sample ID **CCV1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		85.5	30	120			

Sample ID **LCVL1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 4:03:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00120	0.00100	0.00100	0	120	80	120			
IS: Bismuth	0.200		0.200		87.9	30	120			

Sample ID **CCV2-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 5:22:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		84.3	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

Sample ID **LCVL2-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 5:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00109	0.00100	0.00100	0	109	80	120			
IS: Bismuth	0.200		0.200		87.9	30	120			

Sample ID **CCV3-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 6:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.205	0.00100	0.200	0	103	90	110			
IS: Bismuth	0.200		0.200		82.8	30	120			

Sample ID **LCVL3-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 7:02:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00110	0.00100	0.00100	0	110	80	120			
IS: Bismuth	0.200		0.200		85.4	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

The QC data in batch 76687 applies to the following samples: 1607256-13A, 1607256-26A, 1607256-27A

Sample ID **MB-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MBLK**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:57:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		89.9	30	120			

Sample ID **LCS-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCS**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 11:03:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	88	115			
IS: Bismuth	0.200		0.200		83.5	30	120			

Sample ID **LCSD-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCSD**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 11:09:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115	0.498	20	
IS: Bismuth	0.200		0.200		82.3	30	120	0	0	

Sample ID **1607337-26A PDS**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:34:00 AM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.193	0.00100	0.200	0	96.6	80	120			
IS: Bismuth	0.200		0.200		84.0	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **ICV1-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		83.9	30	120			

Sample ID **LCVL5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		86.9	30	120			

Sample ID **CCV6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		86.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160509B

Sample ID **DCS-74985**	Batch ID: **74985**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS6_160509B**	Analysis Date: **5/9/2016 7:07:00 PM**	Prep Date: **5/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Acenaphthylene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Anthracene	0.0000402	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[a]anthracene	0.0000413	0.0000500	0.0000400	0	103	20	170	0	0	
Benzo[a]pyrene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[e]pyrene	0.0000386	0.0000500	0.0000400	0	96.6	20	170	0	0	
Benzo[g,h,i]perylene	0.0000354	0.0000500	0.0000400	0	88.5	20	170	0	0	
Benzo[j]fluoranthene	0.0000389	0.0000500	0.0000400	0	97.2	20	170	0	0	N
Benzo[k]fluoranthene	0.0000393	0.0000500	0.0000400	0	98.3	20	170	0	0	
Chrysene	0.0000398	0.0000500	0.0000400	0	99.5	20	170	0	0	
Dibenz[a,h]anthracene	0.0000333	0.0000500	0.0000400	0	83.2	20	170	0	0	
Fluoranthene	0.0000453	0.0000500	0.0000400	0	113	20	170	0	0	
Fluorene	0.0000429	0.0000500	0.0000400	0	107	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000336	0.0000500	0.0000400	0	84.1	20	170	0	0	
Phenanthrene	0.0000397	0.0000500	0.0000400	0	99.2	20	170	0	0	
Pyrene	0.0000403	0.0000500	0.0000400	0	101	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

The QC data in batch 76453 applies to the following samples: 1607256-13B, 1607256-26B, 1607256-27B

Sample ID **LCS-76453** Batch ID: **76453** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS6_160728A** Analysis Date: **7/28/2016 9:24:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00232	0.0000500	0.00400	0	57.9	48	114			
Acenaphthylene	0.00238	0.0000500	0.00400	0	59.4	35	121			
Anthracene	0.00242	0.0000500	0.00400	0	60.5	53	119			
Benzo[a]anthracene	0.00281	0.0000500	0.00400	0	70.1	59	120			
Benzo[a]pyrene	0.00274	0.0000500	0.00400	0	68.5	53	120			
Benzo[b]fluoranthene	0.00281	0.0000500	0.00400	0	70.2	53	126			
Benzo[e]pyrene	0.00286	0.0000500	0.00400	0	71.5	40	140			
Benzo[g,h,i]perylene	0.00292	0.0000500	0.00400	0	73.1	44	128			
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124			N
Benzo[k]fluoranthene	0.00264	0.0000500	0.00400	0	66.1	54	125			
Chrysene	0.00274	0.0000500	0.00400	0	68.4	57	120			
Dibenz[a,h]anthracene	0.00268	0.0000500	0.00400	0	67.0	44	131			
Fluoranthene	0.00259	0.0000500	0.00400	0	64.7	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.2	50	118			
Indeno[1,2,3-cd]pyrene	0.00261	0.0000500	0.00400	0	65.2	48	130			
Phenanthrene	0.00298	0.0000500	0.00400	0	74.4	53	115			
Pyrene	0.00251	0.0000500	0.00400	0	62.8	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		95.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		108	50	200			
IS: Naphthalene-d8	0.00800		0.00800		101	50	200			
IS: Perylene-d12	0.00800		0.00800		106	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	4.56		8.000		57.0	53	106			
Surr: 4-Terphenyl-d14	4.75		8.000		59.3	58	132			

Sample ID **LCSD-76453** Batch ID: **76453** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCSD** Run ID: **GCMS6_160728A** Analysis Date: **7/28/2016 10:01:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00239	0.0000500	0.00400	0	59.6	48	114	2.91	20	
Acenaphthylene	0.00244	0.0000500	0.00400	0	61.0	35	121	2.59	20	
Anthracene	0.00227	0.0000500	0.00400	0	56.6	53	119	6.66	20	
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.8	59	120	1.91	20	
Benzo[a]pyrene	0.00270	0.0000500	0.00400	0	67.4	53	120	1.56	20	
Benzo[b]fluoranthene	0.00275	0.0000500	0.00400	0	68.7	53	126	2.09	20	
Benzo[e]pyrene	0.00283	0.0000500	0.00400	0	70.8	40	140	1.01	20	
Benzo[g,h,i]perylene	0.00267	0.0000500	0.00400	0	66.8	44	128	8.96	20	
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124	0.002	2	N
Benzo[k]fluoranthene	0.00268	0.0000500	0.00400	0	66.9	54	125	1.22	20	
Chrysene	0.00268	0.0000500	0.00400	0	67.0	57	120	2.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **LCSD-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **LCSD**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:01:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00252	0.0000500	0.00400	0	63.1	44	131	5.98	20	
Fluoranthene	0.00249	0.0000500	0.00400	0	62.3	58	120	3.76	20	
Fluorene	0.00252	0.0000500	0.00400	0	63.1	50	118	1.67	20	
Indeno[1,2,3-cd]pyrene	0.00246	0.0000500	0.00400	0	61.5	48	130	5.77	20	
Phenanthrene	0.00291	0.0000500	0.00400	0	72.7	53	115	2.35	20	
Pyrene	0.00241	0.0000500	0.00400	0	60.2	53	121	4.29	20	
IS: Acenaphthene-d10	0.00800		0.00800		91.4	50	200	0	0	
IS: Chrysene-d12	0.00800		0.00800		104	50	200	0	0	
IS: Naphthalene-d8	0.00800		0.00800		97.4	50	200	0	0	
IS: Perylene-d12	0.00800		0.00800		99.9	50	200	0	0	
IS: Phenanthrene-d10	0.00800		0.00800		101	50	200	0	0	
Surr: 2-Fluorobiphenyl	4.37		8.000		54.7	53	106	0	0	
Surr: 4-Terphenyl-d14	4.49		8.000		56.1	58	132	0	0	S

Sample ID **MB-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:39:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		88.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		102	50	200			
IS: Naphthalene-d8	0.00800		0.00800		93.3	50	200			
IS: Perylene-d12	0.00800		0.00800		97.0	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		94.1	50	200			
Surr: 2-Fluorobiphenyl	4.65		8.000		58.1	53	106			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **MB-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**		Units:	**mg/L**
SampType: **MBLK**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:39:00 AM**		Prep Date:	**7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	5.02		8.000		62.7	58	132			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **ICV-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 8:46:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0000500	2.00	0	96.8	80	120			
Acenaphthylene	1.96	0.0000500	2.00	0	97.8	80	120			
Anthracene	1.80	0.0000500	2.00	0	89.9	80	120			
Benzo[a]anthracene	1.96	0.0000500	2.00	0	98.0	80	120			
Benzo[a]pyrene	1.95	0.0000500	2.00	0	97.3	80	120			
Benzo[b]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Benzo[e]pyrene	1.94	0.0000500	2.00	0	97.0	80	120			
Benzo[g,h,i]perylene	2.18	0.0000500	2.00	0	109	80	120			
Benzo[j]fluoranthene	1.98	0.0000500	2.00	0	99.2	80	120			N
Benzo[k]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Chrysene	1.91	0.0000500	2.00	0	95.5	80	120			
Dibenz[a,h]anthracene	1.93	0.0000500	2.00	0	96.6	80	120			
Fluoranthene	1.82	0.0000500	2.00	0	91.2	80	120			
Fluorene	1.96	0.0000500	2.00	0	97.9	80	120			
Indeno[1,2,3-cd]pyrene	1.90	0.0000500	2.00	0	95.2	80	120			
Phenanthrene	2.21	0.0000500	2.00	0	111	80	120			
Pyrene	1.79	0.0000500	2.00	0	89.4	80	120			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		117	50	200			
IS: Naphthalene-d8	4.00		4.00		111	50	200			
IS: Perylene-d12	4.00		4.00		115	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	2010		2000		101	65	120			
Surr: 4-Terphenyl-d14	2000		2000		99.9	65	120			

Sample ID **ICV2-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 5:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.82	0.0000500	2.00	0	91.1	50	150			
Acenaphthylene	1.86	0.0000500	2.00	0	92.9	50	150			
Anthracene	1.73	0.0000500	2.00	0	86.4	50	150			
Benzo[a]anthracene	1.84	0.0000500	2.00	0	92.1	50	150			
Benzo[a]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[b]fluoranthene	1.85	0.0000500	2.00	0	92.7	50	150			
Benzo[e]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[g,h,i]perylene	1.49	0.0000500	2.00	0	74.5	50	150			
Benzo[j]fluoranthene	1.88	0.0000500	2.00	0	94.1	50	150			N
Benzo[k]fluoranthene	1.85	0.0000500	2.00	0	92.5	50	150			
Chrysene	1.80	0.0000500	2.00	0	89.8	50	150			
Dibenz[a,h]anthracene	1.42	0.0000500	2.00	0	71.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **ICV2-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 5:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	86.2	50	150			
Fluorene	1.86	0.0000500	2.00	0	93.0	50	150			
Indeno[1,2,3-cd]pyrene	1.39	0.0000500	2.00	0	69.3	50	150			
Phenanthrene	2.09	0.0000500	2.00	0	104	50	150			
Pyrene	1.69	0.0000500	2.00	0	84.4	50	150			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		116	50	200			
IS: Naphthalene-d8	4.00		4.00		109	50	200			
IS: Perylene-d12	4.00		4.00		114	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	1900		2000		95.2	50	150			
Surr: 4-Terphenyl-d14	1880		2000		93.9	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802A

Sample ID **DCS-76288**	Batch ID: **76288**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS6_160802A**	Analysis Date: **8/3/2016 9:01:00 AM**	Prep Date: **7/18/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00764	0.0100	0.01000	0	76.4	20	200	0	0	
Acenaphthylene	0.00762	0.0100	0.01000	0	76.2	20	200	0	0	
Anthracene	0.00800	0.0100	0.01000	0	80.0	20	200	0	0	
Benzo[a]anthracene	0.00849	0.0100	0.01000	0	84.9	20	200	0	0	
Benzo[a]pyrene	0.00833	0.0100	0.01000	0	83.3	20	200	0	0	
Benzo[b]fluoranthene	0.00835	0.0100	0.01000	0	83.5	20	200	0	0	
Benzo[e]pyrene	0.00941	0.0100	0.01000	0	94.1	20	200	0	0	
Benzo[g,h,i]perylene	0.00998	0.0100	0.01000	0	99.8	20	200	0	0	
Benzo[j]fluoranthene	0.00886	0.0100	0.01000	0	88.6	20	200	0	0	N
Benzo[k]fluoranthene	0.00876	0.0100	0.01000	0	87.6	20	200	0	0	
Chrysene	0.00879	0.0100	0.01000	0	87.9	20	200	0	0	
Dibenz[a,h]anthracene	0.00939	0.0100	0.01000	0	93.9	20	200	0	0	
Fluoranthene	0.00799	0.0100	0.01000	0	79.9	20	200	0	0	
Fluorene	0.00780	0.0100	0.01000	0	78.0	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00980	0.0100	0.01000	0	98.0	20	200	0	0	
Phenanthrene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	
Pyrene	0.00754	0.0100	0.01000	0	75.4	20	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802B

The QC data in batch 76473 applies to the following samples: 1607256-07A, 1607256-08A, 1607256-09A, 1607256-10A, 1607256-11A, 1607256-12A, 1607256-14A, 1607256-15A, 1607256-16A, 1607256-17A, 1607256-18A, 1607256-19A, 1607256-29A, 1607256-30A, 1607256-31A, 1607256-32A, 1607256-33A, 1607256-34A, 1607256-35A, 1607256-36A

Sample ID **LCS-76473** Batch ID: **76473** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160802B** Analysis Date: **8/2/2016 10:08:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.922	0.0100	1.000	0	92.2	44	111			
Acenaphthylene	0.908	0.0100	1.000	0	90.8	39	116			
Anthracene	0.843	0.0100	1.000	0	84.3	50	114			
Benzo[a]anthracene	0.922	0.0100	1.000	0	92.2	54	122			
Benzo[a]pyrene	0.910	0.0100	1.000	0	91.0	50	125			
Benzo[b]fluoranthene	0.957	0.0100	1.000	0	95.7	53	128			
Benzo[e]pyrene	0.989	0.0100	1.000	0	98.9	43	140			
Benzo[g,h,i]perylene	0.919	0.0100	1.000	0	91.9	49	127			
Benzo[j]fluoranthene	0.999	0.0100	1.000	0	99.9	45	125			N
Benzo[k]fluoranthene	0.994	0.0100	1.000	0	99.4	56	123			
Chrysene	0.906	0.0100	1.000	0	90.6	57	118			
Dibenz[a,h]anthracene	0.933	0.0100	1.000	0	93.3	50	129			
Fluoranthene	0.847	0.0100	1.000	0	84.7	55	119			
Fluorene	0.898	0.0100	1.000	0	89.8	47	114			
Indeno[1,2,3-cd]pyrene	0.930	0.0100	1.000	0	93.0	49	130			
Phenanthrene	0.954	0.0100	1.000	0	95.4	49	113			
Pyrene	0.835	0.0100	1.000	0	83.5	55	117			
IS: Acenaphthene-d10	4.00		4.000		158	50	200			
IS: Chrysene-d12	4.00		4.000		118	50	200			
IS: Naphthalene-d8	4.00		4.000		135	50	200			
IS: Perylene-d12	4.00		4.000		114	50	200			
IS: Phenanthrene-d10	4.00		4.000		112	50	200			
Surr: 2-Fluorobiphenyl	0.829		1.000		82.9	46	115			
Surr: 4-Terphenyl-d14	0.801		1.000		80.1	58	133			

Sample ID **MB-76473** Batch ID: **76473** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160802B** Analysis Date: **8/2/2016 10:47:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802B

Sample ID **MB-76473**	Batch ID: **76473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160802B**	Analysis Date: **8/2/2016 10:47:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		154	50	200			
IS: Chrysene-d12	4.00		4.000		113	50	200			
IS: Naphthalene-d8	4.00		4.000		127	50	200			
IS: Perylene-d12	4.00		4.000		108	50	200			
IS: Phenanthrene-d10	4.00		4.000		109	50	200			
Surr: 2-Fluorobiphenyl	0.759		1.000		75.9	46	115			
Surr: 4-Terphenyl-d14	0.721		1.000		72.1	58	133			

Sample ID **SB-160802**	Batch ID: **76473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160802B**	Analysis Date: **8/2/2016 10:17:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00657	0.0100	0							
Benzo[a]anthracene	0.00691	0.0100	0							
Benzo[a]pyrene	0.00639	0.0100	0							
Benzo[b]fluoranthene	0.00910	0.0100	0							
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00674	0.0100	0							
Benzo[j]fluoranthene	0.00647	0.0100	0							N
Benzo[k]fluoranthene	0.00635	0.0100	0							
Chrysene	0.00645	0.0100	0							
Dibenz[a,h]anthracene	0.00719	0.0100	0							
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802B

Sample ID **SB-160802**	Batch ID: **76473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160802B**	Analysis Date: **8/2/2016 10:17:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.0000800		0							
Surr: 4-Terphenyl-d14	0.000280		0							

Sample ID **1607256-07AMS**	Batch ID: **76473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160802B**	Analysis Date: **8/3/2016 6:59:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.850	0.0983	0.9833	0	86.5	44	111			
Acenaphthylene	0.821	0.0983	0.9833	0	83.5	39	116			
Anthracene	0.807	0.0983	0.9833	0	82.1	50	114			
Benzo[a]anthracene	0.808	0.0983	0.9833	0	82.2	54	122			
Benzo[a]pyrene	0.783	0.0983	0.9833	0	79.6	50	125			
Benzo[b]fluoranthene	0.818	0.0983	0.9833	0	83.2	53	128			
Benzo[e]pyrene	0.881	0.0983	0.9833	0	89.6	43	140			
Benzo[g,h,i]perylene	0.960	0.0983	0.9833	0	97.6	49	127			
Benzo[j]fluoranthene	0.874	0.0983	0.9833	0	88.9	45	125			N
Benzo[k]fluoranthene	0.867	0.0983	0.9833	0	88.1	56	123			
Chrysene	0.832	0.0983	0.9833	0	84.6	57	118			
Dibenz[a,h]anthracene	0.948	0.0983	0.9833	0	96.4	50	129			
Fluoranthene	0.869	0.0983	0.9833	0	88.4	55	119			
Fluorene	0.895	0.0983	0.9833	0	91.1	47	114			
Indeno[1,2,3-cd]pyrene	0.959	0.0983	0.9833	0	97.5	49	130			
Phenanthrene	0.875	0.0983	0.9833	0	89.0	49	113			
Pyrene	0.866	0.0983	0.9833	0	88.1	55	117			
IS: Acenaphthene-d10	39.3		3.933		120	50	200			
IS: Chrysene-d12	39.3		3.933		109	50	200			
IS: Naphthalene-d8	39.3		3.933		109	50	200			
IS: Perylene-d12	39.3		3.933		103	50	200			
IS: Phenanthrene-d10	39.3		3.933		101	50	200			
Surr: 2-Fluorobiphenyl	0.825		0.9833		83.9	46	115			
Surr: 4-Terphenyl-d14	0.849		0.9833		86.3	58	133			

Sample ID **1607256-07AMSD**	Batch ID: **76473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160802B**	Analysis Date: **8/3/2016 7:40:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.803	0.0960	0.9597	0	83.7	44	111	5.70	20	
Acenaphthylene	0.759	0.0960	0.9597	0	79.1	39	116	7.90	20	
Anthracene	0.766	0.0960	0.9597	0	79.8	50	114	5.21	20	
Benzo[a]anthracene	0.766	0.0960	0.9597	0	79.8	54	122	5.34	20	
Benzo[a]pyrene	0.740	0.0960	0.9597	0	77.1	50	125	5.68	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802B

Sample ID **1607256-07AMSD**	Batch ID: **76473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160802B**	Analysis Date: **8/3/2016 7:40:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.781	0.0960	0.9597	0	81.4	53	128	4.65	20	
Benzo[e]pyrene	0.830	0.0960	0.9597	0	86.4	43	140	6.05	20	
Benzo[g,h,i]perylene	0.921	0.0960	0.9597	0	95.9	49	127	4.17	20	
Benzo[j]fluoranthene	0.828	0.0960	0.9597	0	86.3	45	125	5.39	20	N
Benzo[k]fluoranthene	0.824	0.0960	0.9597	0	85.9	56	123	4.99	20	
Chrysene	0.796	0.0960	0.9597	0	82.9	57	118	4.45	20	
Dibenz[a,h]anthracene	0.899	0.0960	0.9597	0	93.7	50	129	5.32	20	
Fluoranthene	0.816	0.0960	0.9597	0	85.1	55	119	6.21	20	
Fluorene	0.846	0.0960	0.9597	0	88.2	47	114	5.63	20	
Indeno[1,2,3-cd]pyrene	0.911	0.0960	0.9597	0	95.0	49	130	5.10	20	
Phenanthrene	0.830	0.0960	0.9597	0	86.5	49	113	5.33	20	
Pyrene	0.822	0.0960	0.9597	0	85.6	55	117	5.26	20	
IS: Acenaphthene-d10	38.4		3.839		118	50	200	0	0	
IS: Chrysene-d12	38.4		3.839		106	50	200	0	0	
IS: Naphthalene-d8	38.4		3.839		108	50	200	0	0	
IS: Perylene-d12	38.4		3.839		101	50	200	0	0	
IS: Phenanthrene-d10	38.4		3.839		95.8	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.800		0.9597		83.4	46	115	0	0	
Surr: 4-Terphenyl-d14	0.811		0.9597		84.5	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802B

Sample ID **ICV-160802**	Batch ID: **R87388**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160802B**	Analysis Date: **8/2/2016 9:27:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	97.8	80	120			
Acenaphthylene	1.95	0.0100	2.000	0	97.4	80	120			
Anthracene	1.87	0.0100	2.000	0	93.4	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.5	80	120			
Benzo[a]pyrene	1.99	0.0100	2.000	0	99.7	80	120			
Benzo[b]fluoranthene	1.99	0.0100	2.000	0	99.3	80	120			
Benzo[e]pyrene	2.00	0.0100	2.000	0	99.8	80	120			
Benzo[g,h,i]perylene	2.01	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	1.99	0.0100	2.000	0	99.4	80	120			N
Benzo[k]fluoranthene	1.96	0.0100	2.000	0	98.1	80	120			
Chrysene	1.94	0.0100	2.000	0	96.9	80	120			
Dibenz[a,h]anthracene	2.03	0.0100	2.000	0	102	80	120			
Fluoranthene	1.88	0.0100	2.000	0	94.0	80	120			
Fluorene	2.00	0.0100	2.000	0	100	80	120			
Indeno[1,2,3-cd]pyrene	2.02	0.0100	2.000	0	101	80	120			
Phenanthrene	1.89	0.0100	2.000	0	94.4	80	120			
Pyrene	1.85	0.0100	2.000	0	92.7	80	120			
IS: Acenaphthene-d10	4.00		4.000		103	50	200			
IS: Chrysene-d12	4.00		4.000		103	50	200			
IS: Naphthalene-d8	4.00		4.000		105	50	200			
IS: Perylene-d12	4.00		4.000		103	50	200			
IS: Phenanthrene-d10	4.00		4.000		95.2	50	200			
Surr: 2-Fluorobiphenyl	1.93		2.000		96.5	65	120			
Surr: 4-Terphenyl-d14	1.88		2.000		94.1	65	120			

Sample ID **ICV2-160802**	Batch ID: **R87388**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160802B**	Analysis Date: **8/2/2016 9:36:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.03	0.0100	2.000	0	101	80	120			
Acenaphthylene	2.00	0.0100	2.000	0	100	80	120			
Anthracene	1.92	0.0100	2.000	0	95.9	80	120			
Benzo[a]anthracene	2.03	0.0100	2.000	0	102	80	120			
Benzo[a]pyrene	2.04	0.0100	2.000	0	102	80	120			
Benzo[b]fluoranthene	2.07	0.0100	2.000	0	104	80	120			
Benzo[e]pyrene	2.05	0.0100	2.000	0	102	80	120			
Benzo[g,h,i]perylene	2.23	0.0100	2.000	0	111	80	120			
Benzo[j]fluoranthene	2.06	0.0100	2.000	0	103	80	120			N
Benzo[k]fluoranthene	2.06	0.0100	2.000	0	103	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.24	0.0100	2.000	0	112	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802B

Sample ID **ICV2-160802**	Batch ID: **R87388**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160802B**	Analysis Date: **8/2/2016 9:36:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.95	0.0100	2.000	0	97.6	80	120			
Fluorene	2.05	0.0100	2.000	0	103	80	120			
Indeno[1,2,3-cd]pyrene	2.22	0.0100	2.000	0	111	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.4	80	120			
Pyrene	1.93	0.0100	2.000	0	96.3	80	120			
IS: Acenaphthene-d10	4.00		4.000		103	50	200			
IS: Chrysene-d12	4.00		4.000		99.2	50	200			
IS: Naphthalene-d8	4.00		4.000		102	50	200			
IS: Perylene-d12	4.00		4.000		101	50	200			
IS: Phenanthrene-d10	4.00		4.000		91.5	50	200			
Surr: 2-Fluorobiphenyl	1.99		2.000		99.3	65	120			
Surr: 4-Terphenyl-d14	1.98		2.000		99.0	65	120			

Sample ID **CCV1-160802**	Batch ID: **R87388**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160802B**	Analysis Date: **8/3/2016 8:20:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.963	0.0100	1.000	0	96.3	50	150			
Acenaphthylene	0.938	0.0100	1.000	0	93.8	50	150			
Anthracene	0.916	0.0100	1.000	0	91.6	50	150			
Benzo[a]anthracene	0.947	0.0100	1.000	0	94.7	50	150			
Benzo[a]pyrene	0.950	0.0100	1.000	0	95.0	50	150			
Benzo[b]fluoranthene	0.958	0.0100	1.000	0	95.8	50	150			
Benzo[e]pyrene	0.955	0.0100	1.000	0	95.5	50	150			
Benzo[g,h,i]perylene	1.10	0.0100	1.000	0	110	50	150			
Benzo[j]fluoranthene	0.958	0.0100	1.000	0	95.8	50	150			N
Benzo[k]fluoranthene	1.00	0.0100	1.000	0	100	50	150			
Chrysene	0.944	0.0100	1.000	0	94.4	50	150			
Dibenz[a,h]anthracene	1.10	0.0100	1.000	0	110	50	150			
Fluoranthene	0.917	0.0100	1.000	0	91.7	50	150			
Fluorene	0.994	0.0100	1.000	0	99.4	50	150			
Indeno[1,2,3-cd]pyrene	1.10	0.0100	1.000	0	110	50	150			
Phenanthrene	0.928	0.0100	1.000	0	92.8	50	150			
Pyrene	0.899	0.0100	1.000	0	89.9	50	150			
IS: Acenaphthene-d10	4.00		4.000		103	50	200			
IS: Chrysene-d12	4.00		4.000		100	50	200			
IS: Naphthalene-d8	4.00		4.000		99.9	50	200			
IS: Perylene-d12	4.00		4.000		98.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		96.1	50	200			
Surr: 2-Fluorobiphenyl	0.936		1.000		93.6	50	150			
Surr: 4-Terphenyl-d14	0.920		1.000		92.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160803A

The QC data in batch 76473 applies to the following samples: 1607256-07A, 1607256-08A, 1607256-09A, 1607256-10A, 1607256-11A, 1607256-12A, 1607256-14A, 1607256-15A, 1607256-16A, 1607256-17A, 1607256-18A, 1607256-19A, 1607256-29A, 1607256-30A, 1607256-31A, 1607256-32A, 1607256-33A, 1607256-34A, 1607256-35A, 1607256-36A

Sample ID **SB-160803** Batch ID: **76473** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **SBLK** Run ID: **GCMS6_160803A** Analysis Date: **8/3/2016 12:23:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000630		0							
Surr: 4-Terphenyl-d14	0.00209		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160803A

Sample ID **ICV-160803**	Batch ID: **R87405**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160803A**	Analysis Date: **8/3/2016 11:02:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.03	0.0100	2.000	0	101	80	120			
Acenaphthylene	2.01	0.0100	2.000	0	101	80	120			
Anthracene	1.91	0.0100	2.000	0	95.3	80	120			
Benzo[a]anthracene	2.03	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Benzo[e]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.29	0.0100	2.000	0	115	80	120			
Benzo[j]fluoranthene	2.05	0.0100	2.000	0	102	80	120			N
Benzo[k]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.31	0.0100	2.000	0	115	80	120			
Fluoranthene	1.95	0.0100	2.000	0	97.5	80	120			
Fluorene	2.05	0.0100	2.000	0	102	80	120			
Indeno[1,2,3-cd]pyrene	2.29	0.0100	2.000	0	114	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.5	80	120			
Pyrene	1.93	0.0100	2.000	0	96.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		103	50	200			
IS: Perylene-d12	4.00		4.000		103	50	200			
IS: Phenanthrene-d10	4.00		4.000		92.2	50	200			
Surr: 2-Fluorobiphenyl	1.97		2.000		98.7	65	120			
Surr: 4-Terphenyl-d14	1.99		2.000		99.6	65	120			

Sample ID **CCV1-160803**	Batch ID: **R87405**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160803A**	Analysis Date: **8/3/2016 6:30:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.959	0.0100	1.000	0	95.9	50	150			
Acenaphthylene	0.937	0.0100	1.000	0	93.7	50	150			
Anthracene	0.917	0.0100	1.000	0	91.7	50	150			
Benzo[a]anthracene	0.947	0.0100	1.000	0	94.7	50	150			
Benzo[a]pyrene	0.940	0.0100	1.000	0	94.0	50	150			
Benzo[b]fluoranthene	0.956	0.0100	1.000	0	95.6	50	150			
Benzo[e]pyrene	0.949	0.0100	1.000	0	94.9	50	150			
Benzo[g,h,i]perylene	1.11	0.0100	1.000	0	111	50	150			
Benzo[j]fluoranthene	0.955	0.0100	1.000	0	95.5	50	150			N
Benzo[k]fluoranthene	0.994	0.0100	1.000	0	99.4	50	150			
Chrysene	0.939	0.0100	1.000	0	93.9	50	150			
Dibenz[a,h]anthracene	1.11	0.0100	1.000	0	111	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160803A

Sample ID **CCV1-160803**	Batch ID: **R87405**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160803A**	Analysis Date: **8/3/2016 6:30:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.915	0.0100	1.000	0	91.5	50	150			
Fluorene	0.985	0.0100	1.000	0	98.5	50	150			
Indeno[1,2,3-cd]pyrene	1.10	0.0100	1.000	0	110	50	150			
Phenanthrene	0.928	0.0100	1.000	0	92.8	50	150			
Pyrene	0.896	0.0100	1.000	0	89.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		99.0	50	200			
IS: Naphthalene-d8	4.00		4.000		101	50	200			
IS: Perylene-d12	4.00		4.000		98.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		93.8	50	200			
Surr: 2-Fluorobiphenyl	0.918		1.000		91.8	50	150			
Surr: 4-Terphenyl-d14	0.925		1.000		92.5	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160804A

The QC data in batch 76457 applies to the following samples: 1607256-01A, 1607256-02A, 1607256-03A, 1607256-04A, 1607256-05A, 1607256-06A

Sample ID **LCS-76457** Batch ID: **76457** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160804A** Analysis Date: **8/4/2016 9:03:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.843	0.0100	1.000	0	84.3	44	111			
Acenaphthylene	0.817	0.0100	1.000	0	81.7	39	116			
Anthracene	0.772	0.0100	1.000	0	77.2	50	114			
Benzo[a]anthracene	0.863	0.0100	1.000	0	86.3	54	122			
Benzo[a]pyrene	0.822	0.0100	1.000	0	82.2	50	125			
Benzo[b]fluoranthene	0.884	0.0100	1.000	0	88.4	53	128			
Benzo[e]pyrene	0.900	0.0100	1.000	0	90.0	43	140			
Benzo[g,h,i]perylene	0.888	0.0100	1.000	0	88.8	49	127			
Benzo[j]fluoranthene	0.896	0.0100	1.000	0	89.6	45	125			N
Benzo[k]fluoranthene	0.918	0.0100	1.000	0	91.8	56	123			
Chrysene	0.846	0.0100	1.000	0	84.6	57	118			
Dibenz[a,h]anthracene	0.895	0.0100	1.000	0	89.5	50	129			
Fluoranthene	0.785	0.0100	1.000	0	78.5	55	119			
Fluorene	0.815	0.0100	1.000	0	81.5	47	114			
Indeno[1,2,3-cd]pyrene	0.897	0.0100	1.000	0	89.7	49	130			
Phenanthrene	0.843	0.0100	1.000	0	84.3	49	113			
Pyrene	0.782	0.0100	1.000	0	78.2	55	117			
IS: Acenaphthene-d10	4.00		4.000		157	50	200			
IS: Chrysene-d12	4.00		4.000		109	50	200			
IS: Naphthalene-d8	4.00		4.000		127	50	200			
IS: Perylene-d12	4.00		4.000		108	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	0.767		1.000		76.7	46	115			
Surr: 4-Terphenyl-d14	0.820		1.000		82.0	58	133			

Sample ID **MB-76457** Batch ID: **76457** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160804A** Analysis Date: **8/4/2016 9:44:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160804A

Sample ID **MB-76457**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 9:44:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		153	50	200			
IS: Chrysene-d12	4.00		4.000		103	50	200			
IS: Naphthalene-d8	4.00		4.000		119	50	200			
IS: Perylene-d12	4.00		4.000		99.6	50	200			
IS: Phenanthrene-d10	4.00		4.000		93.2	50	200			
Surr: 2-Fluorobiphenyl	0.822		1.000		82.2	46	115			
Surr: 4-Terphenyl-d14	0.895		1.000		89.5	58	133			

Sample ID **1607239-21AMS**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 5:55:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.860	0.0999	0.9990	0	86.1	44	111			
Acenaphthylene	0.844	0.0999	0.9990	0	84.5	39	116			
Anthracene	0.826	0.0999	0.9990	0	82.7	50	114			
Benzo[a]anthracene	0.863	0.0999	0.9990	0	86.4	54	122			
Benzo[a]pyrene	0.839	0.0999	0.9990	0	84.0	50	125			
Benzo[b]fluoranthene	0.904	0.0999	0.9990	0	90.4	53	128			
Benzo[e]pyrene	0.913	0.0999	0.9990	0	91.4	43	140			
Benzo[g,h,i]perylene	1.08	0.0999	0.9990	0	108	49	127			
Benzo[j]fluoranthene	0.875	0.0999	0.9990	0	87.6	45	125			N
Benzo[k]fluoranthene	0.885	0.0999	0.9990	0	88.6	56	123			
Chrysene	0.868	0.0999	0.9990	0	86.9	57	118			
Dibenz[a,h]anthracene	1.09	0.0999	0.9990	0	109	50	129			
Fluoranthene	0.837	0.0999	0.9990	0	83.7	55	119			
Fluorene	0.866	0.0999	0.9990	0	86.7	47	114			
Indeno[1,2,3-cd]pyrene	1.09	0.0999	0.9990	0	109	49	130			
Phenanthrene	0.886	0.0999	0.9990	0	88.7	49	113			
Pyrene	0.843	0.0999	0.9990	0	84.4	55	117			
IS: Acenaphthene-d10	40.0		3.996		139	50	200			
IS: Chrysene-d12	40.0		3.996		99.5	50	200			
IS: Naphthalene-d8	40.0		3.996		107	50	200			
IS: Perylene-d12	40.0		3.996		99.4	50	200			
IS: Phenanthrene-d10	40.0		3.996		92.7	50	200			
Surr: 2-Fluorobiphenyl	0.876		0.9990		87.6	46	115			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160804A

Sample ID **1607239-21AMS**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 5:55:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.984		0.9990		98.5	58	133			

Sample ID **1607239-21AMSD**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 6:37:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.817	0.0998	0.9980	0	81.9	44	111	5.15	20	
Acenaphthylene	0.818	0.0998	0.9980	0	81.9	39	116	3.22	20	
Anthracene	0.789	0.0998	0.9980	0	79.1	50	114	4.62	20	
Benzo[a]anthracene	0.827	0.0998	0.9980	0	82.9	54	122	4.22	20	
Benzo[a]pyrene	0.812	0.0998	0.9980	0	81.4	50	125	3.17	20	
Benzo[b]fluoranthene	0.876	0.0998	0.9980	0	87.8	53	128	3.10	20	
Benzo[e]pyrene	0.887	0.0998	0.9980	0	88.9	43	140	2.89	20	
Benzo[g,h,i]perylene	1.08	0.0998	0.9980	0	108	49	127	0.692	20	
Benzo[j]fluoranthene	0.873	0.0998	0.9980	0	87.4	45	125	0.248	20	N
Benzo[k]fluoranthene	0.899	0.0998	0.9980	0	90.1	56	123	1.62	20	
Chrysene	0.847	0.0998	0.9980	0	84.9	57	118	2.42	20	
Dibenz[a,h]anthracene	1.05	0.0998	0.9980	0	106	50	129	3.33	20	
Fluoranthene	0.785	0.0998	0.9980	0	78.6	55	119	6.37	20	
Fluorene	0.829	0.0998	0.9980	0	83.1	47	114	4.40	20	
Indeno[1,2,3-cd]pyrene	1.06	0.0998	0.9980	0	106	49	130	2.65	20	
Phenanthrene	0.851	0.0998	0.9980	0	85.3	49	113	3.97	20	
Pyrene	0.791	0.0998	0.9980	0	79.3	55	117	6.32	20	
IS: Acenaphthene-d10	39.9		3.992		149	50	200	0	0	
IS: Chrysene-d12	39.9		3.992		102	50	200	0	0	
IS: Naphthalene-d8	39.9		3.992		113	50	200	0	0	
IS: Perylene-d12	39.9		3.992		100	50	200	0	0	
IS: Phenanthrene-d10	39.9		3.992		97.6	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.844		0.9980		84.6	46	115	0	0	
Surr: 4-Terphenyl-d14	0.931		0.9980		93.3	58	133	0	0	

Sample ID **SB-160804**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 9:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160804A

Sample ID **SB-160804**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 9:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000610		0							
Surr: 4-Terphenyl-d14	0.00237		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160804A

Sample ID **ICV-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 8:23:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.06	0.0100	2.000	0	103	80	120			
Acenaphthylene	2.02	0.0100	2.000	0	101	80	120			
Anthracene	1.91	0.0100	2.000	0	95.5	80	120			
Benzo[a]anthracene	2.03	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Benzo[e]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.13	0.0100	2.000	0	107	80	120			
Benzo[j]fluoranthene	2.02	0.0100	2.000	0	101	80	120			N
Benzo[k]fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Chrysene	1.98	0.0100	2.000	0	99.2	80	120			
Dibenz[a,h]anthracene	2.16	0.0100	2.000	0	108	80	120			
Fluoranthene	1.79	0.0100	2.000	0	89.5	80	120			
Fluorene	2.21	0.0100	2.000	0	110	80	120			
Indeno[1,2,3-cd]pyrene	2.14	0.0100	2.000	0	107	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.4	80	120			
Pyrene	1.76	0.0100	2.000	0	88.1	80	120			
IS: Acenaphthene-d10	4.00		4.000		127	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		107	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		105	50	200			
Surr: 2-Fluorobiphenyl	1.81		2.000		90.4	65	120			
Surr: 4-Terphenyl-d14	1.80		2.000		90.2	65	120			

Sample ID **ICV2-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 7:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.05	0.0100	2.000	0	102	80	120			
Acenaphthylene	1.98	0.0100	2.000	0	99.2	80	120			
Anthracene	1.89	0.0100	2.000	0	94.7	80	120			
Benzo[a]anthracene	2.05	0.0100	2.000	0	102	80	120			
Benzo[a]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Benzo[e]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.44	0.0100	2.000	0	122	80	120			S
Benzo[j]fluoranthene	2.03	0.0100	2.000	0	102	80	120			N
Benzo[k]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.38	0.0100	2.000	0	119	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160804A

Sample ID **ICV2-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 7:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.79	0.0100	2.000	0	89.4	80	120			
Fluorene	2.15	0.0100	2.000	0	108	80	120			
Indeno[1,2,3-cd]pyrene	2.35	0.0100	2.000	0	118	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.4	80	120			
Pyrene	1.76	0.0100	2.000	0	87.9	80	120			
IS: Acenaphthene-d10	4.00		4.000		130	50	200			
IS: Chrysene-d12	4.00		4.000		104	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		104	50	200			
Surr: 2-Fluorobiphenyl	1.81		2.000		90.7	65	120			
Surr: 4-Terphenyl-d14	1.79		2.000		89.4	65	120			

Sample ID **CCV1-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/5/2016 3:58:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.989	0.0100	1.000	0	98.9	50	150			
Acenaphthylene	0.956	0.0100	1.000	0	95.6	50	150			
Anthracene	0.877	0.0100	1.000	0	87.7	50	150			
Benzo[a]anthracene	0.912	0.0100	1.000	0	91.2	50	150			
Benzo[a]pyrene	0.925	0.0100	1.000	0	92.5	50	150			
Benzo[b]fluoranthene	0.941	0.0100	1.000	0	94.1	50	150			
Benzo[e]pyrene	0.940	0.0100	1.000	0	94.0	50	150			
Benzo[g,h,i]perylene	1.15	0.0100	1.000	0	115	50	150			
Benzo[j]fluoranthene	0.927	0.0100	1.000	0	92.7	50	150			N
Benzo[k]fluoranthene	0.956	0.0100	1.000	0	95.6	50	150			
Chrysene	0.890	0.0100	1.000	0	89.0	50	150			
Dibenz[a,h]anthracene	1.10	0.0100	1.000	0	110	50	150			
Fluoranthene	0.821	0.0100	1.000	0	82.1	50	150			
Fluorene	1.00	0.0100	1.000	0	100	50	150			
Indeno[1,2,3-cd]pyrene	1.11	0.0100	1.000	0	111	50	150			
Phenanthrene	0.931	0.0100	1.000	0	93.1	50	150			
Pyrene	0.806	0.0100	1.000	0	80.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		139	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		103	50	200			
IS: Perylene-d12	4.00		4.000		101	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	0.988		1.000		98.8	50	150			
Surr: 4-Terphenyl-d14	0.944		1.000		94.4	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803C

Sample ID **DCS-76288**	Batch ID: **76288**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS8_160803C**	Analysis Date: **8/3/2016 11:47:00 AM**	Prep Date: **7/18/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00792	0.0100	0.01000	0	79.2	20	200	0	0	
Acenaphthylene	0.00785	0.0100	0.01000	0	78.5	20	200	0	0	
Anthracene	0.00753	0.0100	0.01000	0	75.3	20	200	0	0	
Benzo[a]anthracene	0.00871	0.0100	0.01000	0	87.1	20	200	0	0	
Benzo[a]pyrene	0.00830	0.0100	0.01000	0	83.0	20	200	0	0	
Benzo[b]fluoranthene	0.00872	0.0100	0.01000	0	87.2	20	200	0	0	
Benzo[e]pyrene	0.00949	0.0100	0.01000	0	94.9	20	200	0	0	
Benzo[g,h,i]perylene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Benzo[j]fluoranthene	0.00913	0.0100	0.01000	0	91.3	20	200	0	0	N
Benzo[k]fluoranthene	0.00833	0.0100	0.01000	0	83.3	20	200	0	0	
Chrysene	0.00876	0.0100	0.01000	0	87.6	20	200	0	0	
Dibenz[a,h]anthracene	0.00901	0.0100	0.01000	0	90.1	20	200	0	0	
Fluoranthene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	
Fluorene	0.00767	0.0100	0.01000	0	76.7	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00954	0.0100	0.01000	0	95.4	20	200	0	0	
Phenanthrene	0.0101	0.0100	0.01000	0	101	20	200	0	0	
Pyrene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

The QC data in batch 76491 applies to the following samples: 1607256-20A, 1607256-21A, 1607256-22A, 1607256-23A, 1607256-24A, 1607256-25A, 1607256-37A, 1607256-38A, 1607256-39A, 1607256-40A, 1607256-41A, 1607256-42A

Sample ID **LCS-76491** Batch ID: **76491** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160804A** Analysis Date: **8/4/2016 9:10:00 AM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.678	0.0100	1.000	0	67.8	44	111			
Acenaphthylene	0.683	0.0100	1.000	0	68.3	39	116			
Anthracene	0.684	0.0100	1.000	0	68.4	50	114			
Benzo[a]anthracene	0.778	0.0100	1.000	0	77.8	54	122			
Benzo[a]pyrene	0.769	0.0100	1.000	0	76.9	50	125			
Benzo[b]fluoranthene	0.778	0.0100	1.000	0	77.8	53	128			
Benzo[e]pyrene	0.782	0.0100	1.000	0	78.2	43	140			
Benzo[g,h,i]perylene	0.845	0.0100	1.000	0	84.5	49	127			
Benzo[j]fluoranthene	0.815	0.0100	1.000	0	81.5	45	125			N
Benzo[k]fluoranthene	0.812	0.0100	1.000	0	81.2	56	123			
Chrysene	0.753	0.0100	1.000	0	75.3	57	118			
Dibenz[a,h]anthracene	0.864	0.0100	1.000	0	86.4	50	129			
Fluoranthene	0.645	0.0100	1.000	0	64.5	55	119			
Fluorene	0.667	0.0100	1.000	0	66.7	47	114			
Indeno[1,2,3-cd]pyrene	0.876	0.0100	1.000	0	87.6	49	130			
Phenanthrene	0.710	0.0100	1.000	0	71.0	49	113			
Pyrene	0.637	0.0100	1.000	0	63.7	55	117			
IS: Acenaphthene-d10	4.00		4.000		113	50	200			
IS: Chrysene-d12	4.00		4.000		77.4	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		85.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		87.8	50	200			
Surr: 2-Fluorobiphenyl	0.782		1.000		78.2	46	115			
Surr: 4-Terphenyl-d14	0.694		1.000		69.4	58	133			

Sample ID **MB-76491** Batch ID: **76491** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160804A** Analysis Date: **8/4/2016 9:50:00 AM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **MB-76491**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 9:50:00 AM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		118	50	200			
IS: Chrysene-d12	4.00		4.000		75.2	50	200			
IS: Naphthalene-d8	4.00		4.000		117	50	200			
IS: Perylene-d12	4.00		4.000		84.9	50	200			
IS: Phenanthrene-d10	4.00		4.000		88.2	50	200			
Surr: 2-Fluorobiphenyl	0.780		1.000		78.0	46	115			
Surr: 4-Terphenyl-d14	0.682		1.000		68.2	58	133			

Sample ID **SB-160804**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 9:15:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **SB-160804**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 9:15:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.000820		0							
Surr: 4-Terphenyl-d14	0.00161		0							

Sample ID **1607256-21AMS**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160804A**	Analysis Date: **8/5/2016 1:13:00 AM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.715	0.0994	0.9940	0	71.9	44	111			
Acenaphthylene	0.694	0.0994	0.9940	0	69.8	39	116			
Anthracene	0.641	0.0994	0.9940	0	64.4	50	114			
Benzo[a]anthracene	0.692	0.0994	0.9940	0	69.6	54	122			
Benzo[a]pyrene	0.649	0.0994	0.9940	0	65.3	50	125			
Benzo[b]fluoranthene	0.673	0.0994	0.9940	0	67.7	53	128			
Benzo[e]pyrene	0.717	0.0994	0.9940	0	72.1	43	140			
Benzo[g,h,i]perylene	0.776	0.0994	0.9940	0	78.1	49	127			
Benzo[j]fluoranthene	0.698	0.0994	0.9940	0	70.3	45	125			N
Benzo[k]fluoranthene	0.672	0.0994	0.9940	0	67.6	56	123			
Chrysene	0.693	0.0994	0.9940	0	69.7	57	118			
Dibenz[a,h]anthracene	0.732	0.0994	0.9940	0	73.7	50	129			
Fluoranthene	0.565	0.0994	0.9940	0	56.8	55	119			
Fluorene	0.805	0.0994	0.9940	0	81.0	47	114			
Indeno[1,2,3-cd]pyrene	0.765	0.0994	0.9940	0	76.9	49	130			
Phenanthrene	0.734	0.0994	0.9940	0	73.9	49	113			
Pyrene	0.554	0.0994	0.9940	0	55.7	55	117			
IS: Acenaphthene-d10	39.8		3.976		133	50	200			
IS: Chrysene-d12	39.8		3.976		89.6	50	200			
IS: Naphthalene-d8	39.8		3.976		100	50	200			
IS: Perylene-d12	39.8		3.976		92.7	50	200			
IS: Phenanthrene-d10	39.8		3.976		123	50	200			
Surr: 2-Fluorobiphenyl	0.908		0.9940		91.4	46	115			
Surr: 4-Terphenyl-d14	0.611		0.9940		61.5	58	133			

Sample ID **1607256-21AMSD**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160804A**	Analysis Date: **8/5/2016 1:53:00 AM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.713	0.0980	0.9804	0	72.7	44	111	0.304	20	
Acenaphthylene	0.696	0.0980	0.9804	0	71.0	39	116	0.309	20	
Anthracene	0.644	0.0980	0.9804	0	65.7	50	114	0.554	20	
Benzo[a]anthracene	0.693	0.0980	0.9804	0	70.7	54	122	0.200	20	
Benzo[a]pyrene	0.655	0.0980	0.9804	0	66.8	50	125	0.829	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **1607256-21AMSD**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160804A**	Analysis Date: **8/5/2016 1:53:00 AM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.705	0.0980	0.9804	0	71.9	53	128	4.55	20	
Benzo[e]pyrene	0.720	0.0980	0.9804	0	73.4	43	140	0.377	20	
Benzo[g,h,i]perylene	0.769	0.0980	0.9804	0	78.5	49	127	0.909	20	
Benzo[j]fluoranthene	0.708	0.0980	0.9804	0	72.2	45	125	1.41	20	N
Benzo[k]fluoranthene	0.673	0.0980	0.9804	0	68.7	56	123	0.144	20	
Chrysene	0.701	0.0980	0.9804	0	71.5	57	118	1.24	20	
Dibenz[a,h]anthracene	0.741	0.0980	0.9804	0	75.6	50	129	1.27	20	
Fluoranthene	0.569	0.0980	0.9804	0	58.0	55	119	0.708	20	
Fluorene	0.805	0.0980	0.9804	0	82.1	47	114	0.003	20	
Indeno[1,2,3-cd]pyrene	0.766	0.0980	0.9804	0	78.1	49	130	0.179	20	
Phenanthrene	0.741	0.0980	0.9804	0	75.6	49	113	0.986	20	
Pyrene	0.557	0.0980	0.9804	0	56.8	55	117	0.591	20	
IS: Acenaphthene-d10	39.2		3.922		137	50	200	0	0	
IS: Chrysene-d12	39.2		3.922		93.0	50	200	0	0	
IS: Naphthalene-d8	39.2		3.922		103	50	200	0	0	
IS: Perylene-d12	39.2		3.922		95.4	50	200	0	0	
IS: Phenanthrene-d10	39.2		3.922		126	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.893		0.9804		91.1	46	115	0	0	
Surr: 4-Terphenyl-d14	0.608		0.9804		62.0	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **ICV-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 8:31:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.99	0.0100	2.000	0	99.6	80	120			
Acenaphthylene	1.99	0.0100	2.000	0	99.5	80	120			
Anthracene	1.91	0.0100	2.000	0	95.5	80	120			
Benzo[a]anthracene	2.09	0.0100	2.000	0	105	80	120			
Benzo[a]pyrene	2.08	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.10	0.0100	2.000	0	105	80	120			
Benzo[e]pyrene	2.01	0.0100	2.000	0	100	80	120			
Benzo[g,h,i]perylene	2.15	0.0100	2.000	0	108	80	120			
Benzo[j]fluoranthene	2.16	0.0100	2.000	0	108	80	120			N
Benzo[k]fluoranthene	2.22	0.0100	2.000	0	111	80	120			
Chrysene	2.03	0.0100	2.000	0	101	80	120			
Dibenz[a,h]anthracene	2.25	0.0100	2.000	0	112	80	120			
Fluoranthene	1.71	0.0100	2.000	0	85.4	80	120			
Fluorene	2.24	0.0100	2.000	0	112	80	120			
Indeno[1,2,3-cd]pyrene	2.22	0.0100	2.000	0	111	80	120			
Phenanthrene	1.90	0.0100	2.000	0	95.2	80	120			
Pyrene	1.65	0.0100	2.000	0	82.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		118	50	200			
IS: Chrysene-d12	4.00		4.000		98.2	50	200			
IS: Naphthalene-d8	4.00		4.000		103	50	200			
IS: Perylene-d12	4.00		4.000		99.1	50	200			
IS: Phenanthrene-d10	4.00		4.000		125	50	200			
Surr: 2-Fluorobiphenyl	2.00		2.000		100	65	120			
Surr: 4-Terphenyl-d14	1.63		2.000		81.3	65	120			

Sample ID **ICV2-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 7:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	97.8	80	120			
Acenaphthylene	1.98	0.0100	2.000	0	99.0	80	120			
Anthracene	1.86	0.0100	2.000	0	92.8	80	120			
Benzo[a]anthracene	2.06	0.0100	2.000	0	103	80	120			
Benzo[a]pyrene	2.09	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.07	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.14	0.0100	2.000	0	107	80	120			
Benzo[j]fluoranthene	2.13	0.0100	2.000	0	106	80	120			N
Benzo[k]fluoranthene	2.18	0.0100	2.000	0	109	80	120			
Chrysene	2.02	0.0100	2.000	0	101	80	120			
Dibenz[a,h]anthracene	2.21	0.0100	2.000	0	110	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **ICV2-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 7:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.62	0.0100	2.000	0	80.9	80	120			
Fluorene	2.31	0.0100	2.000	0	116	80	120			
Indeno[1,2,3-cd]pyrene	2.19	0.0100	2.000	0	109	80	120			
Phenanthrene	1.93	0.0100	2.000	0	96.7	80	120			
Pyrene	1.54	0.0100	2.000	0	77.2	80	120			S
IS: Acenaphthene-d10	4.00		4.000		120	50	200			
IS: Chrysene-d12	4.00		4.000		93.1	50	200			
IS: Naphthalene-d8	4.00		4.000		98.2	50	200			
IS: Perylene-d12	4.00		4.000		91.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		131	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	65	120			
Surr: 4-Terphenyl-d14	1.53		2.000		76.5	65	120			

Sample ID **CCV1-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/5/2016 2:33:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.963	0.0100	1.000	0	96.3	50	150			
Acenaphthylene	0.969	0.0100	1.000	0	96.9	50	150			
Anthracene	0.920	0.0100	1.000	0	92.0	50	150			
Benzo[a]anthracene	0.994	0.0100	1.000	0	99.4	50	150			
Benzo[a]pyrene	0.999	0.0100	1.000	0	99.9	50	150			
Benzo[b]fluoranthene	0.996	0.0100	1.000	0	99.6	50	150			
Benzo[e]pyrene	0.976	0.0100	1.000	0	97.6	50	150			
Benzo[g,h,i]perylene	1.04	0.0100	1.000	0	104	50	150			
Benzo[j]fluoranthene	1.01	0.0100	1.000	0	101	50	150			N
Benzo[k]fluoranthene	1.03	0.0100	1.000	0	103	50	150			
Chrysene	0.980	0.0100	1.000	0	98.0	50	150			
Dibenz[a,h]anthracene	1.07	0.0100	1.000	0	107	50	150			
Fluoranthene	0.783	0.0100	1.000	0	78.3	50	150			
Fluorene	1.08	0.0100	1.000	0	108	50	150			
Indeno[1,2,3-cd]pyrene	1.07	0.0100	1.000	0	107	50	150			
Phenanthrene	0.955	0.0100	1.000	0	95.5	50	150			
Pyrene	0.758	0.0100	1.000	0	75.8	50	150			
IS: Acenaphthene-d10	4.00		4.000		142	50	200			
IS: Chrysene-d12	4.00		4.000		100	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		102	50	200			
IS: Phenanthrene-d10	4.00		4.000		135	50	200			
Surr: 2-Fluorobiphenyl	1.05		1.000		105	50	150			
Surr: 4-Terphenyl-d14	0.746		1.000		74.6	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

The QC data in batch 76511 applies to the following samples: 1607256-28A

Sample ID **LCS-76511** Batch ID: **76511** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160806B** Analysis Date: **8/6/2016 9:35:00 PM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.800	0.0100	1.000	0	80.0	44	111			
Acenaphthylene	0.844	0.0100	1.000	0	84.4	39	116			
Anthracene	0.799	0.0100	1.000	0	79.9	50	114			
Benzo[a]anthracene	0.846	0.0100	1.000	0	84.6	54	122			
Benzo[a]pyrene	0.830	0.0100	1.000	0	83.0	50	125			
Benzo[b]fluoranthene	0.856	0.0100	1.000	0	85.6	53	128			
Benzo[e]pyrene	0.864	0.0100	1.000	0	86.4	43	140			
Benzo[g,h,i]perylene	0.884	0.0100	1.000	0	88.4	49	127			
Benzo[j]fluoranthene	0.907	0.0100	1.000	0	90.7	45	125			N
Benzo[k]fluoranthene	0.928	0.0100	1.000	0	92.8	56	123			
Chrysene	0.847	0.0100	1.000	0	84.7	57	118			
Dibenz[a,h]anthracene	0.900	0.0100	1.000	0	90.0	50	129			
Fluoranthene	0.944	0.0100	1.000	0	94.4	55	119			
Fluorene	0.647	0.0100	1.000	0	64.7	47	114			
Indeno[1,2,3-cd]pyrene	0.904	0.0100	1.000	0	90.4	49	130			
Phenanthrene	0.851	0.0100	1.000	0	85.1	49	113			
Pyrene	0.971	0.0100	1.000	0	97.1	55	117			
IS: Acenaphthene-d10	4.00		4.000		91.1	50	200			
IS: Chrysene-d12	4.00		4.000		79.2	50	200			
IS: Naphthalene-d8	4.00		4.000		125	50	200			
IS: Perylene-d12	4.00		4.000		81.7	50	200			
IS: Phenanthrene-d10	4.00		4.000		66.6	50	200			
Surr: 2-Fluorobiphenyl	0.599		1.000		59.9	46	115			
Surr: 4-Terphenyl-d14	1.02		1.000		102	58	133			

Sample ID **MB-76511** Batch ID: **76511** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160806B** Analysis Date: **8/6/2016 10:15:00 PM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **MB-76511**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160806B**	Analysis Date: **8/6/2016 10:15:00 PM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		89.6	50	200			
IS: Chrysene-d12	4.00		4.000		82.8	50	200			
IS: Naphthalene-d8	4.00		4.000		128	50	200			
IS: Perylene-d12	4.00		4.000		87.2	50	200			
IS: Phenanthrene-d10	4.00		4.000		63.5	50	200			
Surr: 2-Fluorobiphenyl	0.555		1.000		55.5	46	115			
Surr: 4-Terphenyl-d14	1.06		1.000		106	58	133			

Sample ID **SB-160808**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 9:29:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **1607265-18AMS**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 2:08:00 PM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.890	0.0978	0.9775	0.1425	76.5	44	111			
Acenaphthylene	0.736	0.0978	0.9775	0	75.2	39	116			
Anthracene	0.983	0.0978	0.9775	0.2801	71.9	50	114			
Benzo[a]anthracene	3.96	0.0978	0.9775	2.983	99.8	54	122			
Benzo[a]pyrene	5.19	0.0978	0.9775	4.115	110	50	125			
Benzo[b]fluoranthene	4.77	0.0978	0.9775	3.825	96.4	53	128			
Benzo[e]pyrene	3.78	0.0978	0.9775	2.865	93.7	43	140			
Benzo[g,h,i]perylene	3.89	0.0978	0.9775	3.024	88.9	49	127			
Benzo[j]fluoranthene	2.96	0.0978	0.9775	1.891	109	45	125			N
Benzo[k]fluoranthene	2.88	0.0978	0.9775	1.932	97.0	56	123			
Chrysene	4.68	0.0978	0.9775	3.725	98.1	57	118			
Dibenz[a,h]anthracene	1.32	0.0978	0.9775	0.6303	70.4	50	129			
Fluoranthene	5.88	0.0978	0.9775	4.891	102	55	119			
Fluorene	0.723	0.0978	0.9775	0	74.0	47	114			
Indeno[1,2,3-cd]pyrene	3.45	0.0978	0.9775	2.513	95.6	49	130			
Phenanthrene	2.52	0.0978	0.9775	1.651	89.0	49	113			
Pyrene	5.43	0.0978	0.9775	4.404	105	55	117			
IS: Acenaphthene-d10	39.1		3.910		110	50	200			
IS: Chrysene-d12	39.1		3.910		95.9	50	200			
IS: Naphthalene-d8	39.1		3.910		112	50	200			
IS: Perylene-d12	39.1		3.910		98.0	50	200			
IS: Phenanthrene-d10	39.1		3.910		94.1	50	200			
Surr: 2-Fluorobiphenyl	0.704		0.9775		72.0	46	115			
Surr: 4-Terphenyl-d14	0.817		0.9775		83.6	58	133			

Sample ID **1607265-18AMSD**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 2:48:00 PM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.849	0.0986	0.9862	0.1425	71.6	44	111	4.76	20	
Acenaphthylene	0.701	0.0986	0.9862	0	71.1	39	116	4.77	20	
Anthracene	0.976	0.0986	0.9862	0.2801	70.6	50	114	0.710	20	
Benzo[a]anthracene	4.13	0.0986	0.9862	2.983	116	54	122	4.18	20	
Benzo[a]pyrene	5.21	0.0986	0.9862	4.115	111	50	125	0.493	20	
Benzo[b]fluoranthene	4.95	0.0986	0.9862	3.825	114	53	128	3.80	20	
Benzo[e]pyrene	3.85	0.0986	0.9862	2.865	100	43	140	1.87	20	
Benzo[g,h,i]perylene	3.83	0.0986	0.9862	3.024	82.2	49	127	1.52	20	
Benzo[j]fluoranthene	2.99	0.0986	0.9862	1.891	111	45	125	0.864	20	N
Benzo[k]fluoranthene	2.95	0.0986	0.9862	1.932	104	56	123	2.51	20	
Chrysene	4.90	0.0986	0.9862	3.725	119	57	118	4.46	20	S
Dibenz[a,h]anthracene	1.40	0.0986	0.9862	0.6303	77.8	50	129	5.80	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **1607265-18AMSD** Batch ID: **76511** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS8_160806B** Analysis Date: **8/7/2016 2:48:00 PM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	6.26	0.0986	0.9862	4.891	139	55	119	6.16	20	S
Fluorene	0.697	0.0986	0.9862	0	70.7	47	114	3.68	20	
Indeno[1,2,3-cd]pyrene	3.44	0.0986	0.9862	2.513	94.3	49	130	0.131	20	
Phenanthrene	2.70	0.0986	0.9862	1.651	106	49	113	6.85	20	
Pyrene	5.62	0.0986	0.9862	4.404	123	55	117	3.45	20	S
IS: Acenaphthene-d10	39.4		3.945		114	50	200	0	0	
IS: Chrysene-d12	39.4		3.945		99.3	50	200	0	0	
IS: Naphthalene-d8	39.4		3.945		116	50	200	0	0	
IS: Perylene-d12	39.4		3.945		102	50	200	0	0	
IS: Phenanthrene-d10	39.4		3.945		96.1	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.663		0.9862		67.2	46	115	0	0	
Surr: 4-Terphenyl-d14	0.776		0.9862		78.7	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **ICV-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/6/2016 8:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.00	0.0100	2.000	0	100	80	120			
Acenaphthylene	2.04	0.0100	2.000	0	102	80	120			
Anthracene	2.01	0.0100	2.000	0	100	80	120			
Benzo[a]anthracene	2.05	0.0100	2.000	0	102	80	120			
Benzo[a]pyrene	2.08	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.13	0.0100	2.000	0	106	80	120			
Benzo[e]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.00	0.0100	2.000	0	100	80	120			
Benzo[j]fluoranthene	2.16	0.0100	2.000	0	108	80	120			N
Benzo[k]fluoranthene	2.22	0.0100	2.000	0	111	80	120			
Chrysene	2.04	0.0100	2.000	0	102	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			
Fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Fluorene	2.04	0.0100	2.000	0	102	80	120			
Indeno[1,2,3-cd]pyrene	2.09	0.0100	2.000	0	105	80	120			
Phenanthrene	2.06	0.0100	2.000	0	103	80	120			
Pyrene	2.03	0.0100	2.000	0	102	80	120			
IS: Acenaphthene-d10	4.00		4.000		97.8	50	200			
IS: Chrysene-d12	4.00		4.000		93.7	50	200			
IS: Naphthalene-d8	4.00		4.000		96.9	50	200			
IS: Perylene-d12	4.00		4.000		94.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.4	50	200			
Surr: 2-Fluorobiphenyl	1.84		2.000		92.1	65	120			
Surr: 4-Terphenyl-d14	2.01		2.000		101	65	120			

Sample ID **ICV2-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 8:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	97.2	80	120			
Acenaphthylene	1.99	0.0100	2.000	0	99.7	80	120			
Anthracene	1.94	0.0100	2.000	0	97.1	80	120			
Benzo[a]anthracene	2.02	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.07	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	1.99	0.0100	2.000	0	99.3	80	120			
Benzo[g,h,i]perylene	1.98	0.0100	2.000	0	99.0	80	120			
Benzo[j]fluoranthene	2.19	0.0100	2.000	0	110	80	120			N
Benzo[k]fluoranthene	2.24	0.0100	2.000	0	112	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.11	0.0100	2.000	0	106	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **ICV2-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 8:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.03	0.0100	2.000	0	102	80	120			
Fluorene	1.93	0.0100	2.000	0	96.7	80	120			
Indeno[1,2,3-cd]pyrene	2.06	0.0100	2.000	0	103	80	120			
Phenanthrene	2.06	0.0100	2.000	0	103	80	120			
Pyrene	2.03	0.0100	2.000	0	102	80	120			
IS: Acenaphthene-d10	4.00		4.000		102	50	200			
IS: Chrysene-d12	4.00		4.000		102	50	200			
IS: Naphthalene-d8	4.00		4.000		104	50	200			
IS: Perylene-d12	4.00		4.000		103	50	200			
IS: Phenanthrene-d10	4.00		4.000		99.2	50	200			
Surr: 2-Fluorobiphenyl	1.73		2.000		86.4	65	120			
Surr: 4-Terphenyl-d14	2.05		2.000		102	65	120			

Sample ID **CCV1-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 3:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.988	0.0100	1.000	0	98.8	50	150			
Acenaphthylene	1.01	0.0100	1.000	0	101	50	150			
Anthracene	0.966	0.0100	1.000	0	96.6	50	150			
Benzo[a]anthracene	1.01	0.0100	1.000	0	101	50	150			
Benzo[a]pyrene	1.04	0.0100	1.000	0	104	50	150			
Benzo[b]fluoranthene	1.06	0.0100	1.000	0	106	50	150			
Benzo[e]pyrene	1.00	0.0100	1.000	0	100	50	150			
Benzo[g,h,i]perylene	1.03	0.0100	1.000	0	103	50	150			
Benzo[j]fluoranthene	1.10	0.0100	1.000	0	110	50	150			N
Benzo[k]fluoranthene	1.09	0.0100	1.000	0	109	50	150			
Chrysene	1.01	0.0100	1.000	0	101	50	150			
Dibenz[a,h]anthracene	1.07	0.0100	1.000	0	107	50	150			
Fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Fluorene	0.946	0.0100	1.000	0	94.6	50	150			
Indeno[1,2,3-cd]pyrene	1.05	0.0100	1.000	0	105	50	150			
Phenanthrene	1.04	0.0100	1.000	0	104	50	150			
Pyrene	1.01	0.0100	1.000	0	101	50	150			
IS: Acenaphthene-d10	4.00		4.000		116	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		102	50	200			
IS: Phenanthrene-d10	4.00		4.000		100	50	200			
Surr: 2-Fluorobiphenyl	0.914		1.000		91.4	50	150			
Surr: 4-Terphenyl-d14	0.980		1.000		98.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607256
Project: Laredo SGR

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Lead	0.100	0.300

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Lead	0.000300	0.00100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Acenaphthene	0.00500	0.0100
Acenaphthylene	0.00500	0.0100
Anthracene	0.00500	0.0100
Benzo[a]anthracene	0.00500	0.0100
Benzo[a]pyrene	0.00500	0.0100
Benzo[b]fluoranthene	0.00500	0.0100
Benzo[e]pyrene	0.00500	0.0100
Benzo[g,h,i]perylene	0.00500	0.0100
Benzo[j]fluoranthene	0.00500	0.0100
Benzo[k]fluoranthene	0.00500	0.0100
Chrysene	0.00500	0.0100
Dibenz[a,h]anthracene	0.00500	0.0100
Fluoranthene	0.00500	0.0100
Fluorene	0.00500	0.0100
Indeno[1,2,3-cd]pyrene	0.00500	0.0100
Phenanthrene	0.00500	0.0100
Pyrene	0.00500	0.0100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/L**	**mg/L**
Acenaphthene	0.0000250	0.0000500
Acenaphthylene	0.0000250	0.0000500
Anthracene	0.0000250	0.0000500
Benzo[a]anthracene	0.0000250	0.0000500
Benzo[a]pyrene	0.0000250	0.0000500
Benzo[b]fluoranthene	0.0000250	0.0000500
Benzo[e]pyrene	0.0000250	0.0000500
Benzo[g,h,i]perylene	0.0000250	0.0000500
Benzo[j]fluoranthene	0.0000250	0.0000500
Benzo[k]fluoranthene	0.0000250	0.0000500
Chrysene	0.0000250	0.0000500
Dibenz[a,h]anthracene	0.0000250	0.0000500
Fluoranthene	0.0000250	0.0000500
Fluorene	0.0000250	0.0000500
Indeno[1,2,3-cd]pyrene	0.0000250	0.0000500
Phenanthrene	0.0000250	0.0000500
Pyrene	0.0000250	0.0000500

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

GCMS6
For

DHL Work Order
1607256

GCMS6_160728A
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Project Number(s): SEE RUN LOG.	**Run ID: GCMS6_160728A**
Batch Number(s): SEE RUN LOG.	**SOP:** ORGANICS-PAH-01
Matrix: SEE RUN LOG.	

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS	X			
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)	X			
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #		X		x
Matrix Spike (MS)	Every Batch/20 samples	See LIMS			X	
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS			X	
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)			X	

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction	X			x
	14 days (Soil) - extraction			X	
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?		X			
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

QA APPROVED
By John DuPont at 3:55:50 PM, 8/10/2016

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___ LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
X Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		
		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data:

SEE RUN LOG - ONE SURROGATE OUT OF CONTROL LIMITS ON MANY RUNS. TWO SURROGATES FAIL FOR SAMPLE 1607256-13B. NO CORRECTIVE ACTION POSSIBLE DUE TO LACK OF HOLDING TIME AND ACCIDENTAL DISPOSAL OF 1 ML SAMPLE EXTRACT. CLIENT NOTIFIED AND APPROVED.

Analyst: Karyn Lane Date: 8/10/2016 15:05

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 3:52:17 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: GCMS6_160728A **Run No.:** 87529

Analytical Run Date: 7/28/2016 **InstrumentID:** GCMS6

Analyst: Karyn Lane **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 676 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160725.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 8:09:00 AM		
ICV-160728	1	PAH_LL_WDOD1	ICV	R87529	7/28/2016 8:46:00 AM		
LCS-76453	1	PAH_LL_WDOD1	LCS	76453	7/28/2016 9:24:00 AM		
LCSD-76453	1	PAH_LL_WDOD1	LCSD	76453	7/28/2016 10:01:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
MB-76453	1	PAH_LL_WDOD1	MBLK	76453	7/28/2016 10:39:00 AM		
1607219-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:16:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607219-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:54:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-16B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 12:31:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-32B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:08:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:46:00 PM		Both surrogates outside control limits (low). Sample past hold time and cannot be reanalyzed (extract accidentally disposed of) - see variance.
1607256-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 2:24:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-27B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:02:00 PM		
1607265-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:40:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607265-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 4:17:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
DFTPP2-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 4:55:00 PM		
ICV2-160728	1	PAH_LL_WDOD1	CCV	R87529	7/28/2016 5:31:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160728.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160728\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16072801	DFTPPPAH	DFTPP-160728
2	Sample	2	16072802	PP160725	ICV-160728
3	Sample	3	16072803	PP160725	LCS-76453
4	Sample	4	16072804	PP160725	LCSD-76453
5	Sample	5	16072805	PP160725	MB-76453
6	Sample	6	16072806	PP160725	1607219-13B
7	Sample	7	16072807	PP160725	1607219-26B
8	Sample	8	16072808	PP160725	1607239-16B
9	Sample	9	16072809	PP160725	1607239-32B
10	Sample	10	16072810	PP160725	1607256-13B
11	Sample	11	16072811	PP160725	1607256-26B
12	Sample	12	16072812	PP160725	1607256-27B
13	Sample	13	16072813	PP160725	1607265-13B
14	Sample	14	16072814	PP160725	1607265-26B
15	Sample	15	16072815	DFTPPPAH	DFTPP-160728
16	Sample	16	16072816	PP160725	ICV2-160728

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: 7/26/16 2:10PM

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup	
1607219-13B	Equip Blank	6	250	1	0.004	1 of 1		780.8 - 522.6 = 258.2
	wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction							
1607219-26B	Equip Blank	6	250	1	0.004	1 of 1		800.1 - 548.2 = 251.9
1607239-16B	Equip Blank	6	250	1	0.004	1 of 1		764.3 - 507.9 = 256.4
1607239-32B	Equip Blank	6	250	1	0.004	1 of 1		771.6 - 519.4 = 252.2
1607256-13B	Equip Blank	6	250	1	0.004	1 of 1		781.9 - 526.7 = 255.2
1607256-26B	Equip Blank	6	250	1	0.004	1 of 1		760.3 - 507.0 = 253.3
1607256-27B	Equip Blank	6	250	1	0.004	1 of 1		792.4 - 539.7 = 252.7
1607265-13B	Equip Blank	6	250	1	0.004	1 of 1		776.4 - 519.8 = 256.6
1607265-26B	Equip Blank	6	250	1	0.004	1 of 1		777.7 - 522.3 = 255.4
LCS-76453	Aqueous	6	500	1	0.002	of		777.1 - 277.1 = 500.0
LCSD-76453	Aqueous	6	500	1	0.002	of		776.9 - 276.9 = 500.0
	Insufficient volume for MS/MSD							
MB-76453	Aqueous	6	500	1	0.002	of		780.1 - 280.1 = 500.0

~~H607294-T5S~~ AR 7/27/16

~~Added @ 8:30AM 7/26/16~~ DB 7/26/16 7/27/16

Number	Reagent Name	Amt	Units	Exp. D
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS~~/MS/MSD~~ LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

DB 7/26/16

REVIEWED BY
By Janice Whitt at 3:41:08 PM, 8/10/2016

DB 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: **7/26/2016 2:10:00 PM**

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List

Turbo-Vap #1,2,3
Balance # 25, 29

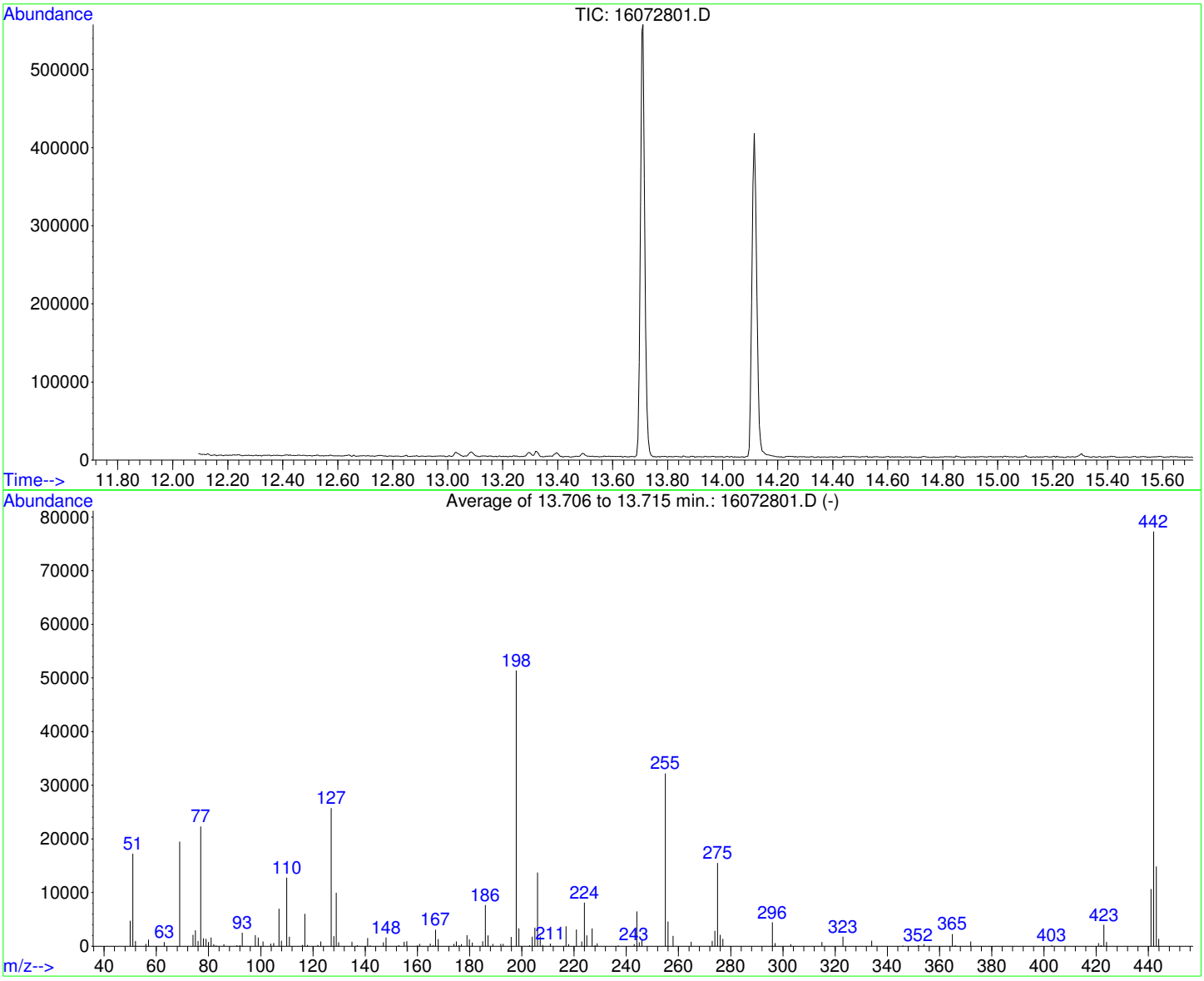
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13B	Equip Blank	6	258.2	1	0.004	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction						
1607219-26B	Equip Blank	6	251.9	1	0.004	1 of 1	
1607239-16B	Equip Blank	6	256.4	1	0.004	1 of 1	
1607239-32B	Equip Blank	6	252.2	1	0.004	1 of 1	
1607256-13B	Equip Blank	6	255.2	1	0.004	1 of 1	
1607256-26B	Equip Blank	6	253.3	1	0.004	1 of 1	
1607256-27B	Equip Blank	6	252.7	1	0.004	1 of 1	
1607265-13B	Equip Blank	6	256.6	1	0.004	1 of 1	
1607265-26B	Equip Blank	6	255.4	1	0.004	1 of 1	
LCS-76453	Aqueous	6	500	1	0.002	of	
LCSD-76453	Aqueous	6	500	1	0.002	of	
	Insufficient volume for MS/MSD						
MB-76453	Aqueous	6	500	1	0.002	of	

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

REVIEWED BY
By Janice Whitt at 3:41:09 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160728\16072801.D Vial: 1
Acq On : 28 Jul 2016 8:09 am Operator: DEW
Sample : DFTPP-160728 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

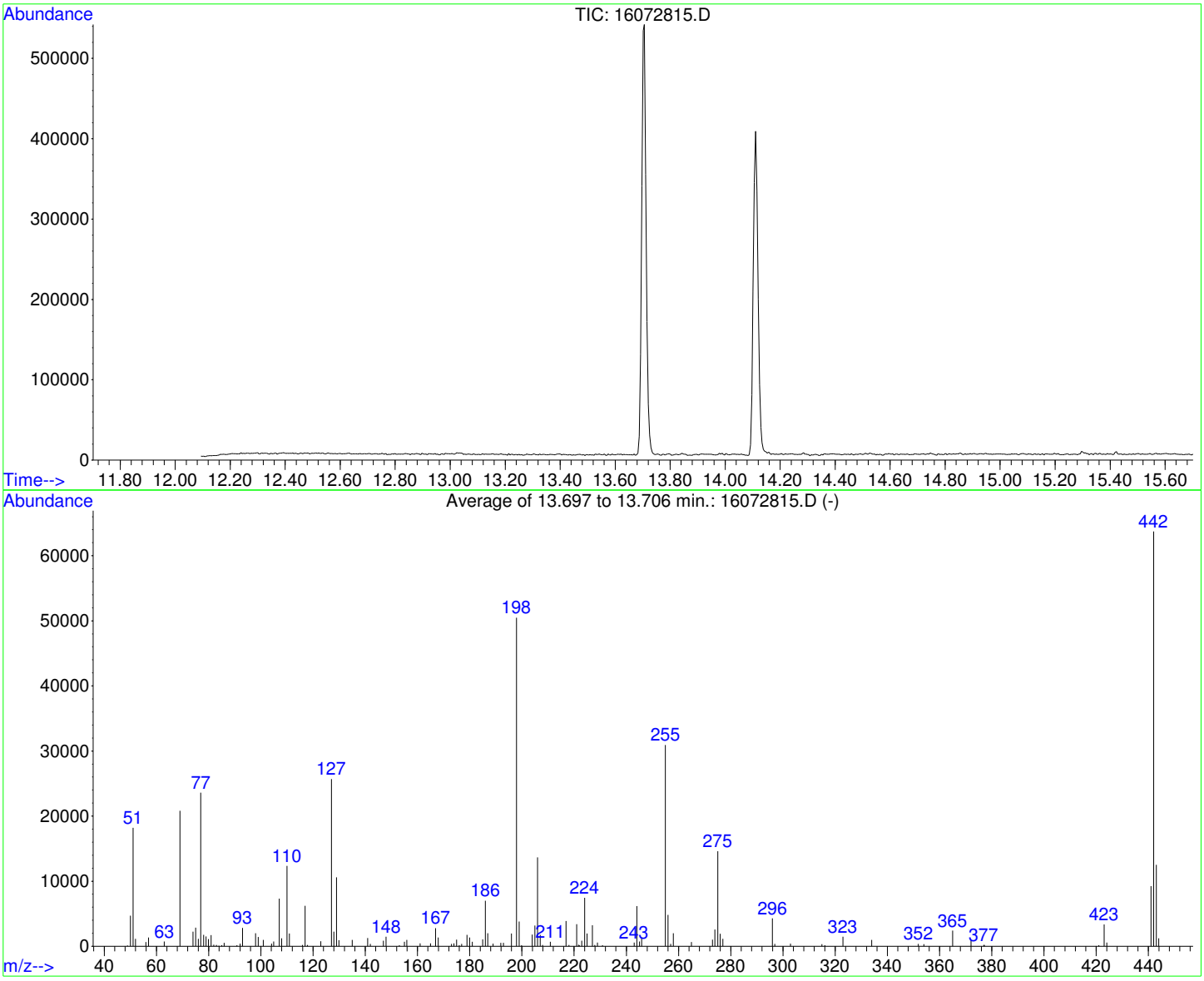


AutoFind: Scans 344, 345, 346; Background Corrected with Scan 337

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.5	17249	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.9	19492	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	25761	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	51429	PASS
199	198	5	9	6.5	3348	PASS
275	198	10	60	30.2	15554	PASS
365	198	1	200	4.5	2293	PASS
441	442	0.01	24	13.8	10659	PASS
442	198	50	400	150.3	77312	PASS
443	442	15	24	19.3	14910	PASS

REVIEWED BY
By Janice Whitt at 3:41:15 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160728\16072815.D Vial: 15
Acq On : 28 Jul 2016 4:55 pm Operator: DEW
Sample : ~~DFTPP-160728~~ DFTPP2-160728 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 342, 343, 344; Background Corrected with Scan 336

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.1	18208	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	41.3	20835	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.9	25701	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	50491	PASS
199	198	5	9	7.5	3798	PASS
275	198	10	60	29.0	14622	PASS
365	198	1	200	4.8	2403	PASS
441	442	0.01	24	14.5	9239	PASS
442	198	50	400	126.2	63736	PASS
443	442	15	24	19.6	12502	PASS

REVIEWED BY
By Janice Whitt at 3:41:17 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

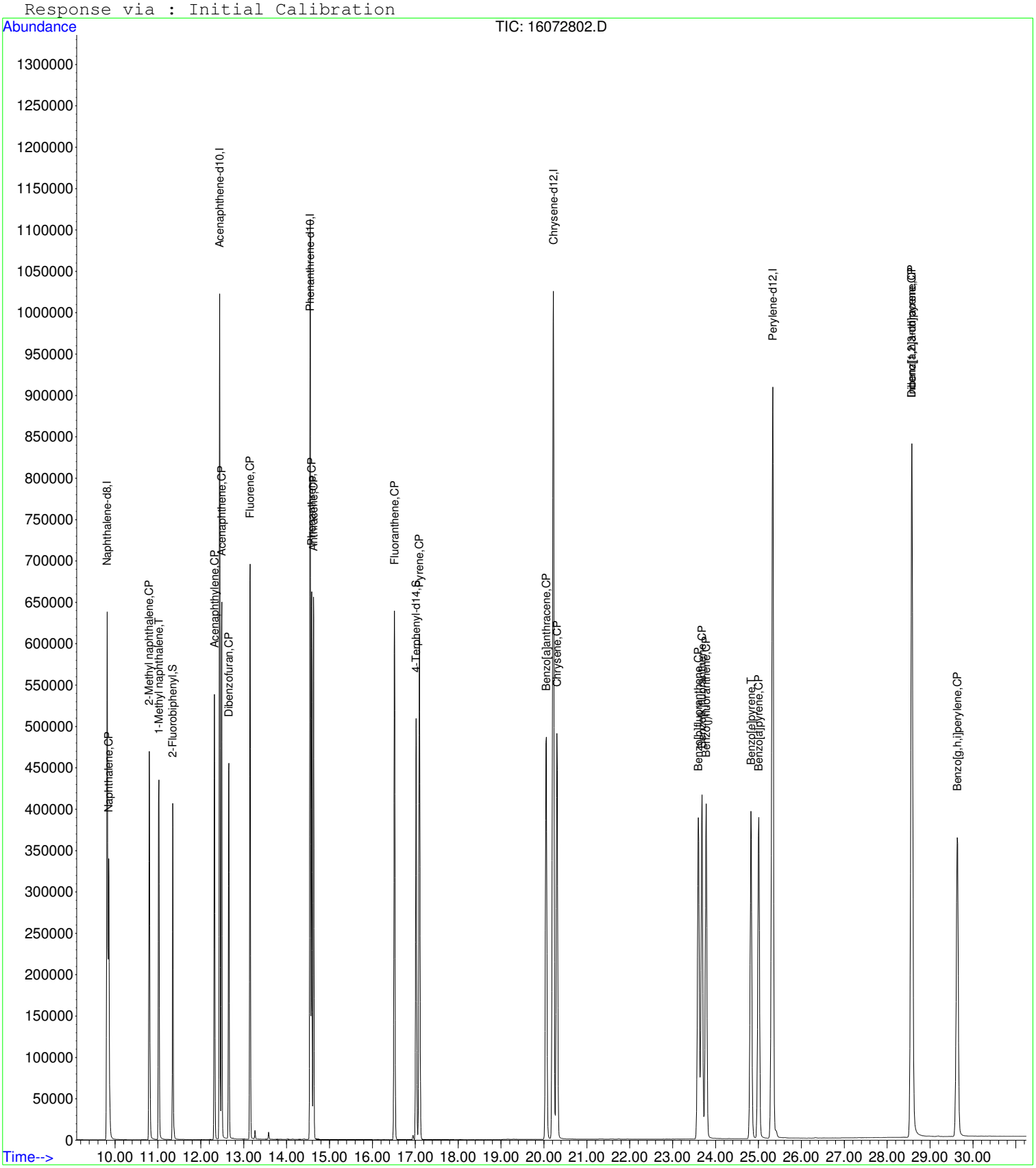
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	993161	4000.00	ug/kg	111
5) Acenaphthene-d10	12.44	164	595036	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1704067	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1889673	4000.00	ug/kg	117
20) Perylene-d12	25.34	264	1906547	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.34	172	388316	2014.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.36%			
16) 4-Terphenyl-d14	17.02	244	722939	1998.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.95%			
Target Compounds						Qvalue
2) Naphthalene	9.85	128	423506	1875.21	ug/kg	99
3) 2-Methyl naphthalene	10.80	142	308279	1888.62	ug/kg	100
4) 1-Methyl naphthalene	11.02	142	281900	1877.56	ug/kg	100
6) Dibenzofuran	12.65	168	443140	1875.68	ug/kg	100
8) Acenaphthylene	12.32	152	506453	1956.04	ug/kg	100
9) Acenaphthene	12.49	154	297830	1936.67	ug/kg	97
10) Fluorene	13.15	166	376267	1958.09	ug/kg	98
12) Phenanthrene	14.59	178	714088	2214.48	ug/kg	100
13) Anthracene	14.63	178	593513	1797.99	ug/kg	99
14) Fluoranthene	16.52	202	723353	1824.45	ug/kg	100
15) Pyrene	17.10	202	730341	1788.71	ug/kg	100
18) Benzo[a]anthracene	20.06	228	794030	1959.79	ug/kg	99
19) Chrysene	20.30	228	728842	1910.03	ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	849690	1950.39	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	778475	1949.17	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	750461	1984.71	ug/kg	99
24) Benzo[e]pyrene	24.83	252	802759	1939.72	ug/kg	99
25) Benzo[a]pyrene	25.01	252	799379	1946.40	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	822523	1932.45	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.58	276	973504	1904.41	ug/kg	97
28) Benzo[g,h,i]perylene	29.64	276	807352	2176.33	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

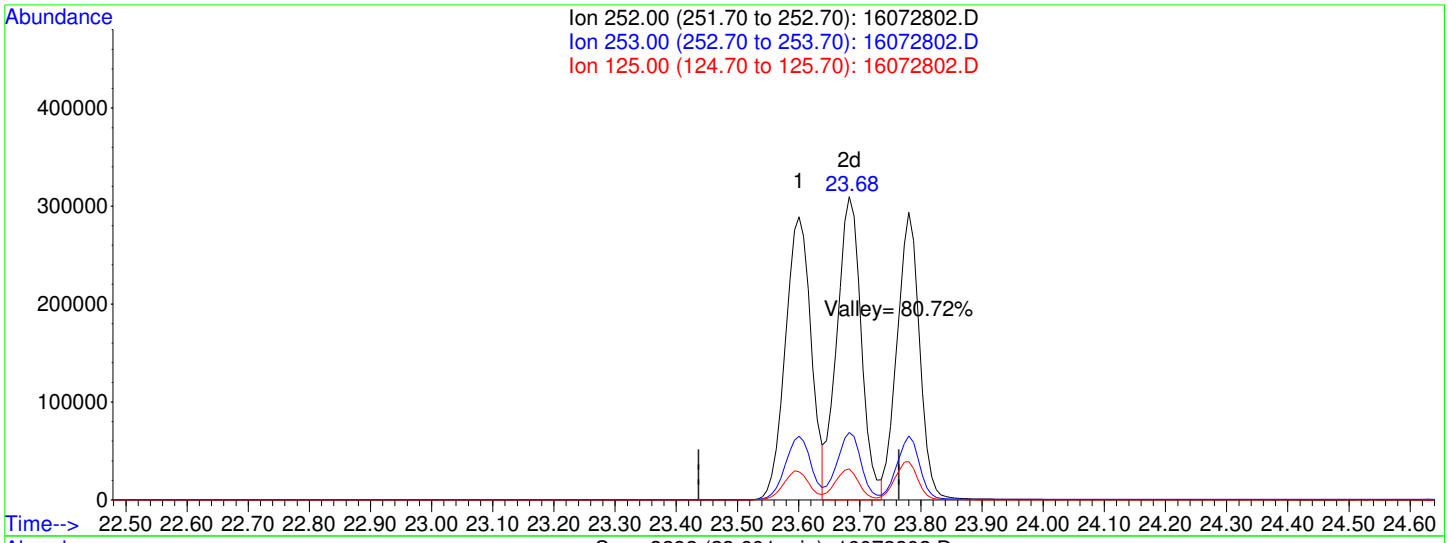
Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

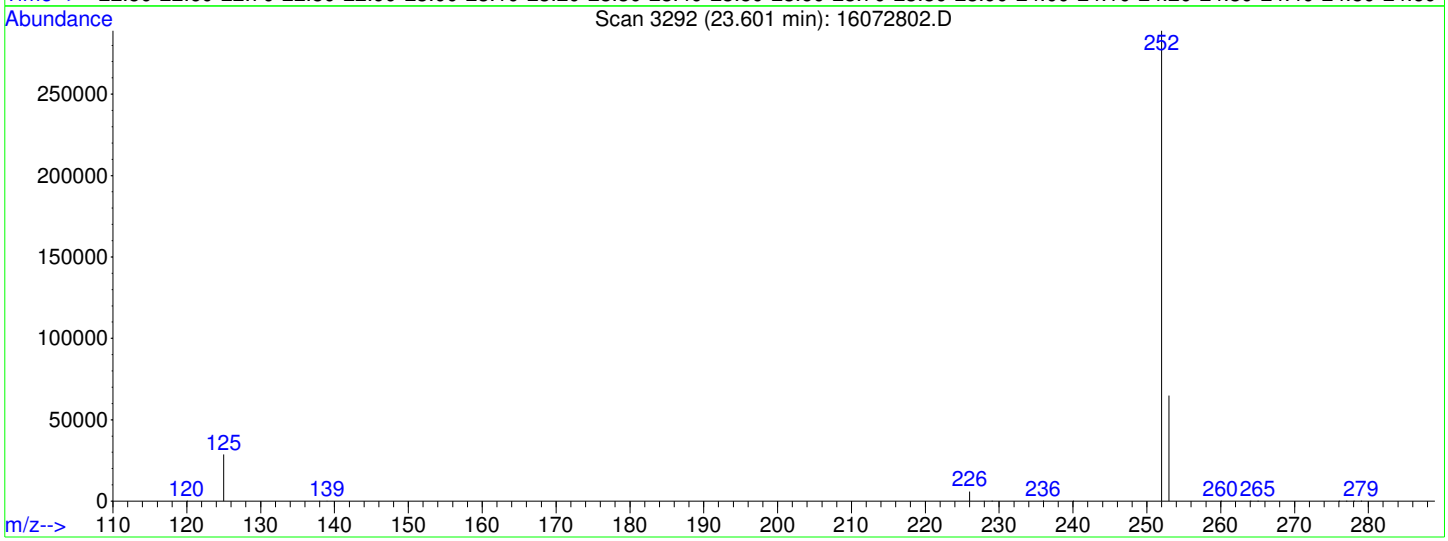


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Multiple Level Calibration





TIC: 16072802.D

(21) Benzo[b]fluoranthene (CP)

23.60min 1950.39ug/kg

response 849690

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.31
125.00	9.30	9.88
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072803.D Vial: 3
Acq On : 28 Jul 2016 9:24 am Operator: DEW
Sample : LCS-76453 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

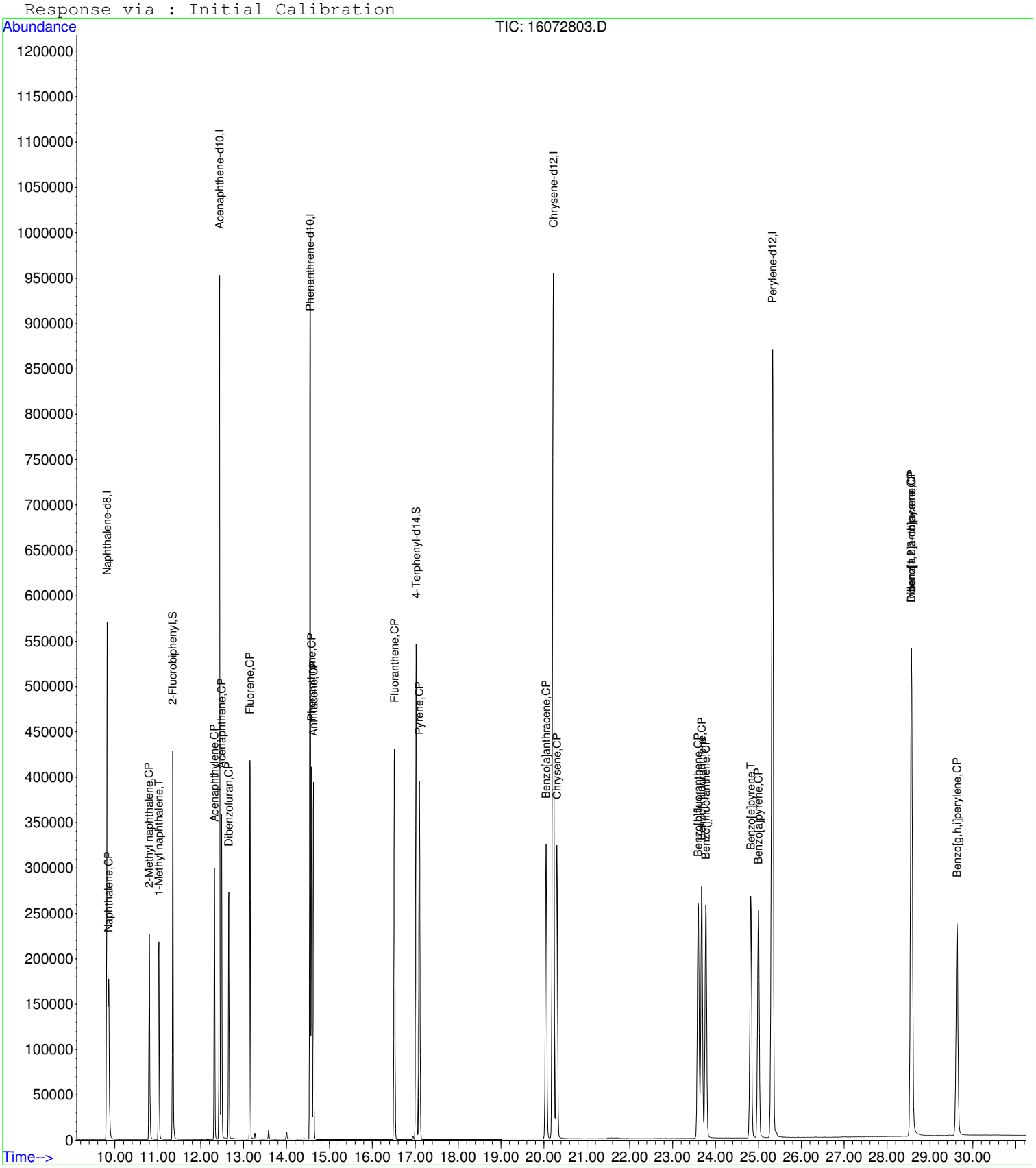
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	901224	4000.00	ug/kg	101
5) Acenaphthene-d10	12.44	164	544856	4000.00	ug/kg	96
11) Phenanthrene-d10	14.55	188	1553455	4000.00	ug/kg	103
17) Chrysene-d12	20.22	240	1740242	4000.00	ug/kg	108
20) Perylene-d12	25.33	264	1767452	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	402444	2279.92	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.00%			
16) 4-Terphenyl-d14	17.02	244	778310	2372.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 59.32%			
Target Compounds						Qvalue
2) Naphthalene	9.85	128	208183	1015.84	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	149322	1008.12	ug/kg	99
4) 1-Methyl naphthalene	11.02	142	139286	1022.34	ug/kg	100
6) Dibenzofuran	12.65	168	260519	1204.26	ug/kg	99
8) Acenaphthylene	12.32	152	281773	1188.50	ug/kg	100
9) Acenaphthene	12.49	154	163129	1158.46	ug/kg	97
10) Fluorene	13.14	166	225833	1283.47	ug/kg	98
12) Phenanthrene	14.58	178	437488	1488.24	ug/kg	100
13) Anthracene	14.63	178	364335	1210.73	ug/kg	99
14) Fluoranthene	16.51	202	467864	1294.47	ug/kg	100
15) Pyrene	17.10	202	467518	1256.03	ug/kg	100
18) Benzo[a]anthracene	20.05	228	523420	1402.81	ug/kg	100
19) Chrysene	20.30	228	480633	1367.72	ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	566646	1403.05	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	489447	1321.93	ug/kg	100
23) Benzo(j)fluoranthene	23.77	252	496835	1417.36	ug/kg	100
24) Benzo[e]pyrene	24.82	252	548539	1429.76	ug/kg	99
25) Benzo[a]pyrene	25.00	252	521378	1369.40	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	528608	1339.66	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.57	276	617831	1303.74	ug/kg	98
28) Benzo[g,h,i]perylene	29.63	276	502776	1461.96	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072803.D Vial: 3
Acq On : 28 Jul 2016 9:24 am Operator: DEW
Sample : LCS-76453 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072804.D Vial: 4
Acq On : 28 Jul 2016 10:01 am Operator: DEW
Sample : LCSD-76453 Inst : GC/MS #6
Misc : LCSD Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

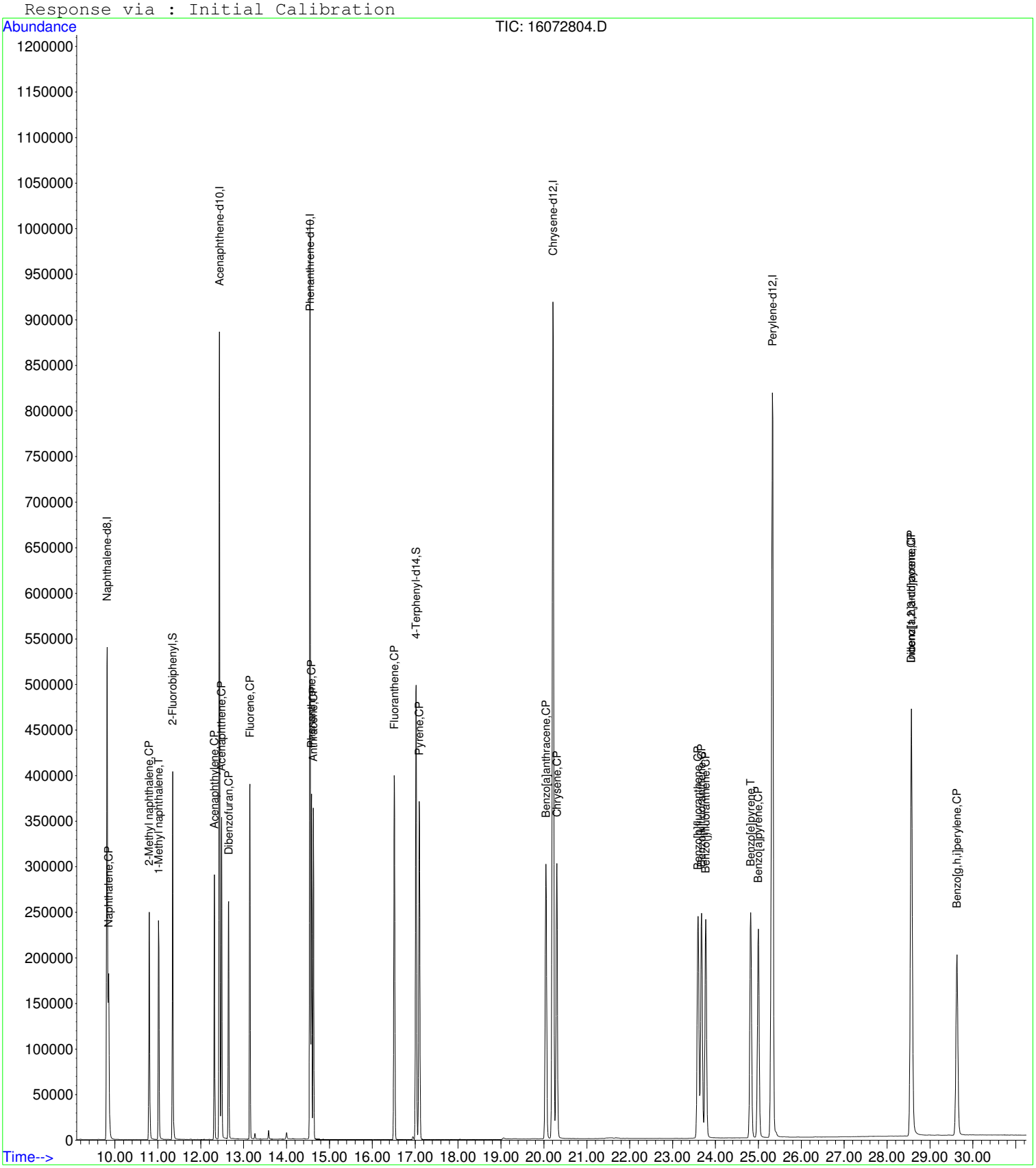
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	870249	4000.00	ug/kg	97
5) Acenaphthene-d10	12.44	164	520278	4000.00	ug/kg	91
11) Phenanthrene-d10	14.55	188	1521930	4000.00	ug/kg	101
17) Chrysene-d12	20.21	240	1670962	4000.00	ug/kg	104
20) Perylene-d12	25.33	264	1659219	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	368693	2187.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 54.69%			
16) 4-Terphenyl-d14	17.02	244	722203	2243.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 56.08%			
Target Compounds						Qvalue
2) Naphthalene	9.85	128	217995	1101.58	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	160448	1121.79	ug/kg	96
4) 1-Methyl naphthalene	11.02	142	147487	1121.06	ug/kg	96
6) Dibenzofuran	12.65	168	251400	1217.00	ug/kg	99
8) Acenaphthylene	12.32	152	276116	1219.66	ug/kg	100
9) Acenaphthene	12.49	154	160377	1192.72	ug/kg	96
10) Fluorene	13.15	166	212077	1262.23	ug/kg	100
12) Phenanthrene	14.58	178	418635	1453.61	ug/kg	100
13) Anthracene	14.63	178	333925	1132.66	ug/kg	99
14) Fluoranthene	16.51	202	441449	1246.68	ug/kg	100
15) Pyrene	17.09	202	438777	1203.24	ug/kg	99
18) Benzo[a]anthracene	20.05	228	493082	1376.30	ug/kg	100
19) Chrysene	20.30	228	452335	1340.56	ug/kg	99
21) Benzo[b]fluoranthene	23.59	252	520939	1374.02	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	465129	1338.20	ug/kg	99
23) Benzo(j)fluoranthene	23.77	252	466418	1417.39	ug/kg	99
24) Benzo[e]pyrene	24.82	252	509772	1415.38	ug/kg	99
25) Benzo[a]pyrene	25.00	252	481849	1348.14	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	467447	1261.93	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.57	276	547461	1230.61	ug/kg	96
28) Benzo[g,h,i]perylene	29.63	276	431526	1336.63	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072804.D Vial: 4
Acq On : 28 Jul 2016 10:01 am Operator: DEW
Sample : LCSD-76453 Inst : GC/MS #6
Misc : LCSD Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072805.D Vial: 5
Acq On : 28 Jul 2016 10:39 am Operator: DEW
Sample : MB-76453 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

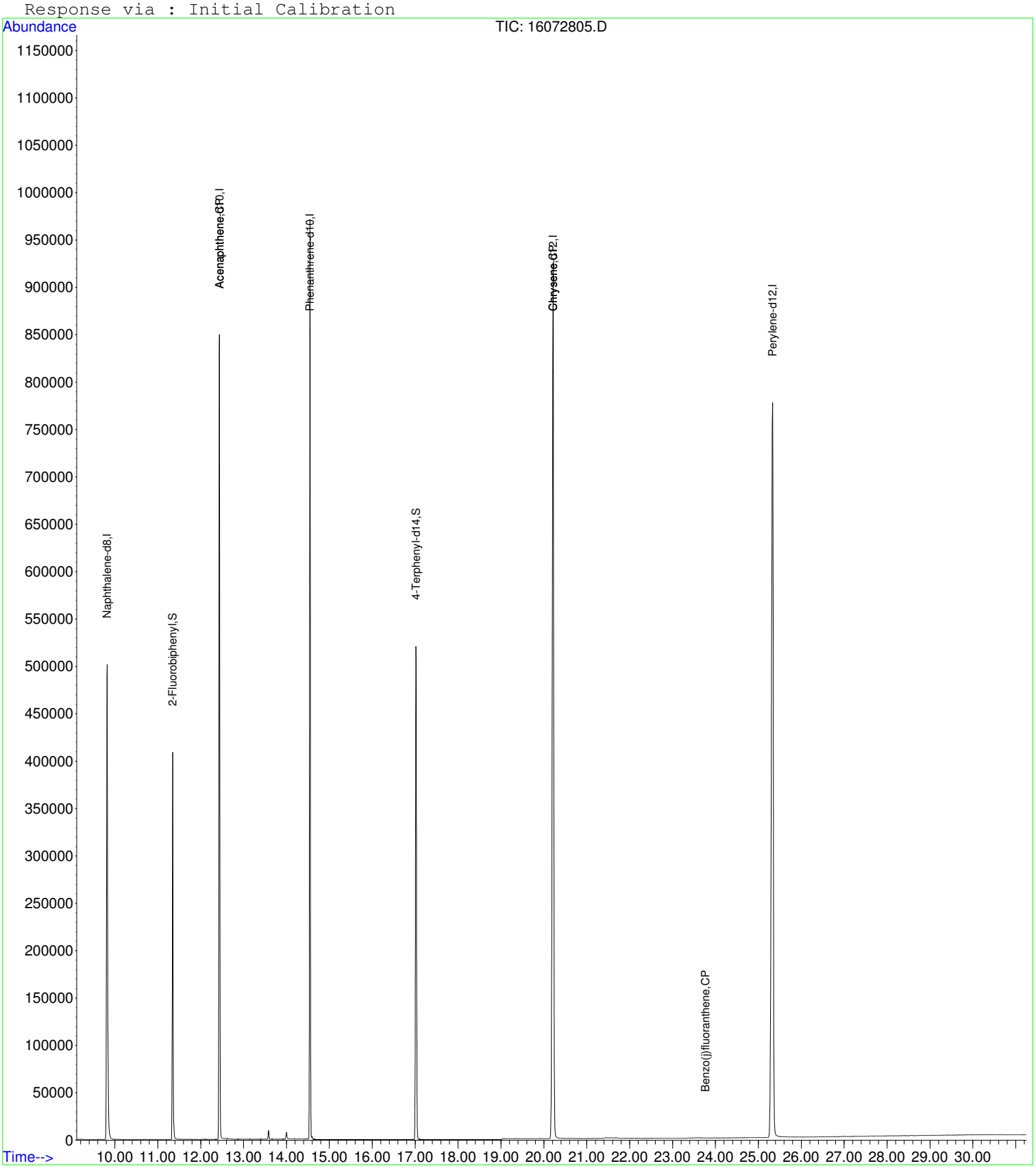
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	833741	4000.00	ug/kg	93
5) Acenaphthene-d10	12.44	164	505050	4000.00	ug/kg	89
11) Phenanthrene-d10	14.55	188	1412855	4000.00	ug/kg	94
17) Chrysene-d12	20.21	240	1642082	4000.00	ug/kg	102
20) Perylene-d12	25.33	264	1610987	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	380396	2324.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 58.12%			
16) 4-Terphenyl-d14	17.02	244	746608	2507.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 62.69%			
Target Compounds						Qvalue
9) Acenaphthene	12.43	154	1740	13.33	ug/kg#	9
19) Chrysene	20.21	228	3450	10.40	ug/kg	69
23) Benzo(j)fluoranthene	23.77	252	103	0.32	ug/kg#	37

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072805.D Vial: 5
Acq On : 28 Jul 2016 10:39 am Operator: DEW
Sample : MB-76453 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072810.D Vial: 10
Acq On : 28 Jul 2016 1:46 pm Operator: DEW
Sample : 1607256-13B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

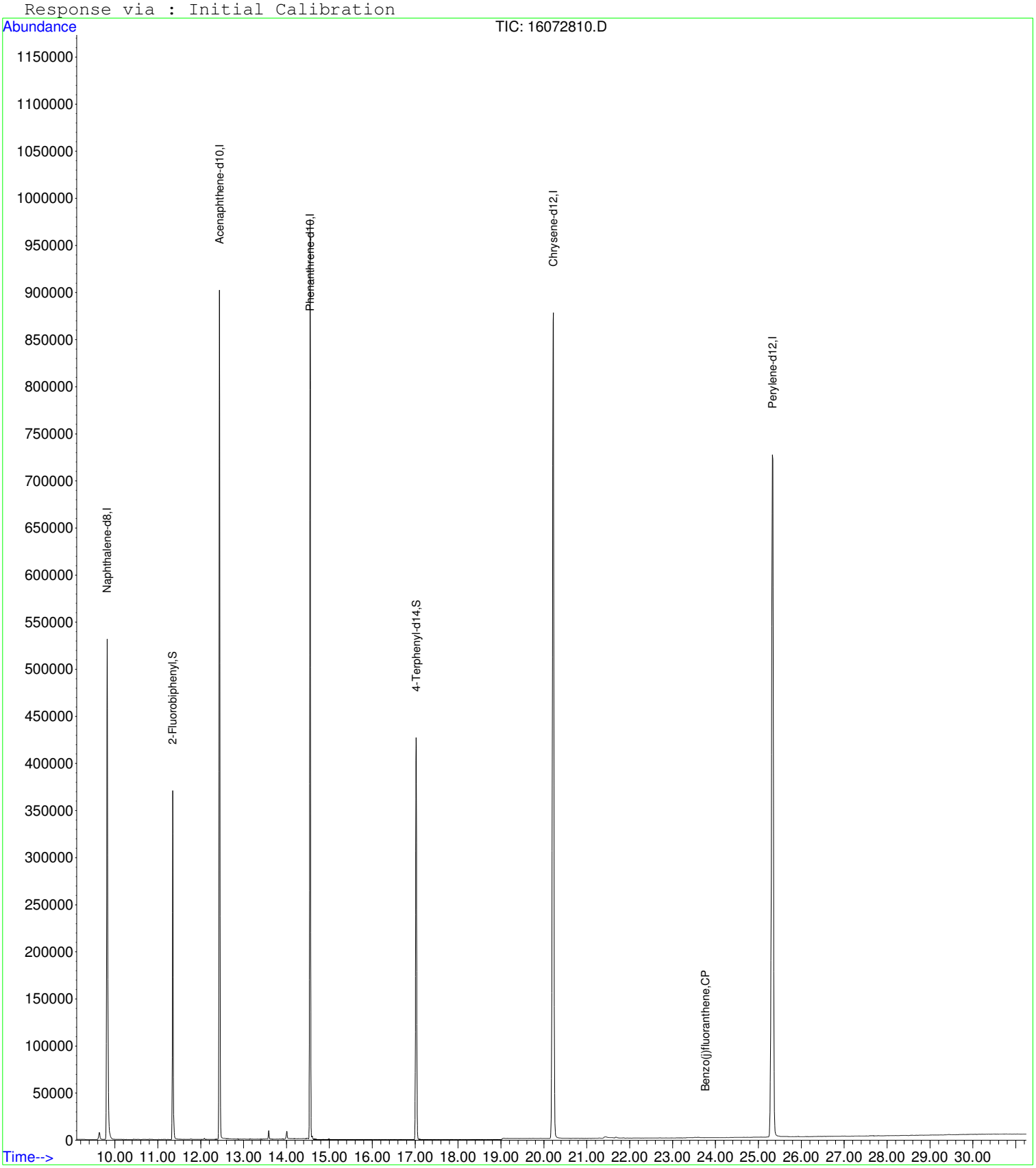
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	854767	4000.00	ug/kg	96
5) Acenaphthene-d10	12.44	164	518711	4000.00	ug/kg	91
11) Phenanthrene-d10	14.55	188	1486919	4000.00	ug/kg	99
17) Chrysene-d12	20.22	240	1612876	4000.00	ug/kg	100
20) Perylene-d12	25.33	264	1521349	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	349824	2081.75	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 52.04%			
16) 4-Terphenyl-d14	17.02	244	619923	1962.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.06%			
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	23.77	252	34	0.11	ug/kg#	1

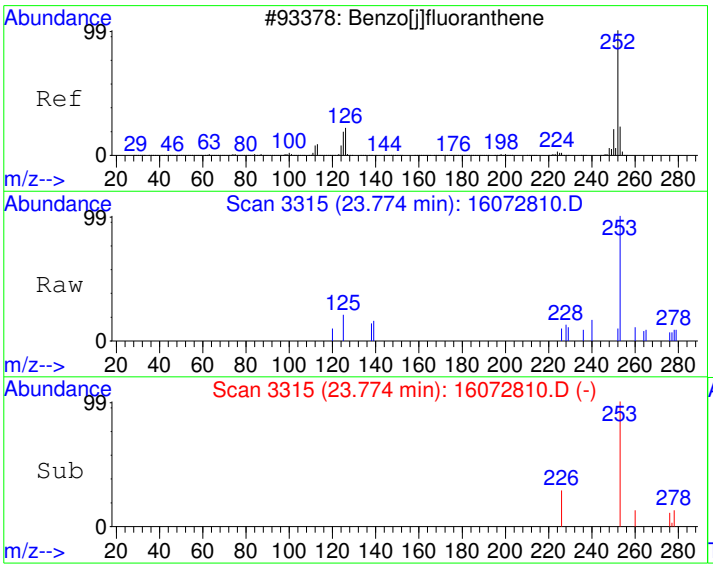
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072810.D Vial: 10
Acq On : 28 Jul 2016 1:46 pm Operator: DEW
Sample : 1607256-13B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

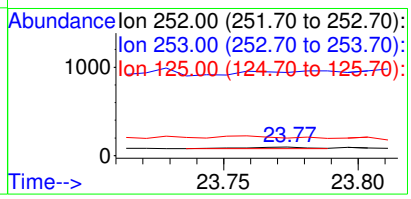




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 23.77 min Scan# 3315
Delta R.T. -0.01 min
Lab File: 16072810.D
Acq: 28 Jul 2016 1:46 pm

Tgt Ion:252 Resp: 34

Ion	Ratio	Lower	Upper
252	100		
253	195.2	2.1	42.1#
125	23.8	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072811.D Vial: 11
Acq On : 28 Jul 2016 2:24 pm Operator: DEW
Sample : 1607256-26B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

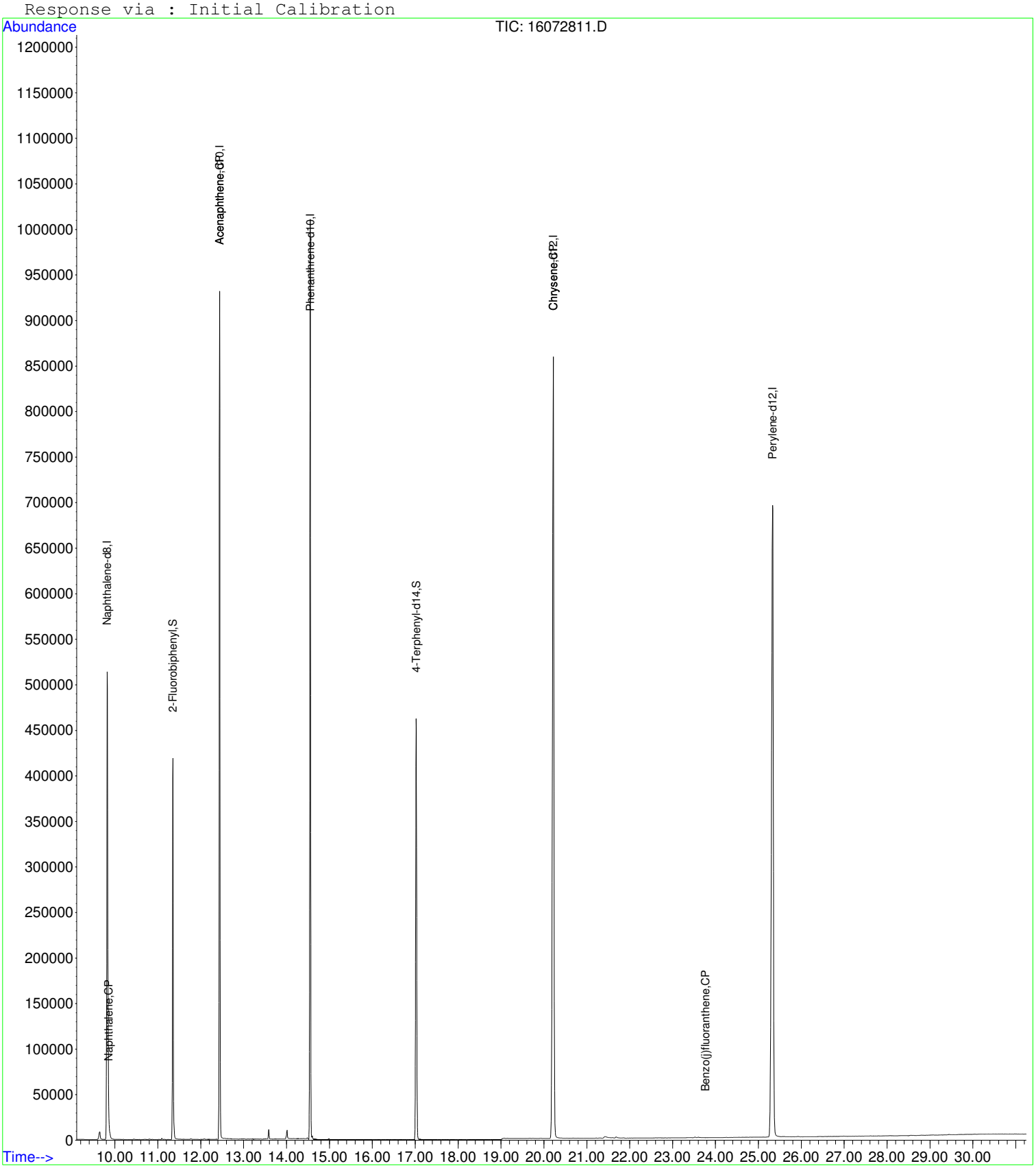
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	847141	4000.00	ug/kg	95
5) Acenaphthene-d10	12.44	164	521584	4000.00	ug/kg	92
11) Phenanthrene-d10	14.55	188	1455048	4000.00	ug/kg	97
17) Chrysene-d12	20.22	240	1556926	4000.00	ug/kg	97
20) Perylene-d12	25.33	264	1455052	4000.00	ug/kg	88
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	405702	2400.87	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 60.02%			
16) 4-Terphenyl-d14	17.02	244	662302	2148.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 53.72%			
Target Compounds						Qvalue
2) Naphthalene	9.86	128	976	5.07	ug/kg	64
9) Acenaphthene	12.44	154	1759	13.05	ug/kg#	10
19) Chrysene	20.22	228	3315	10.54	ug/kg	73
23) Benzo(j)fluoranthene	23.77	252	83	0.29	ug/kg#	1

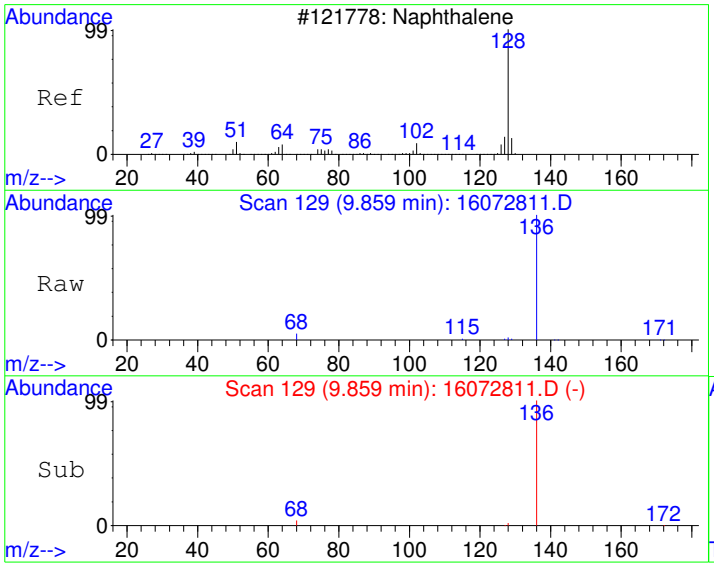
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072811.D Vial: 11
Acq On : 28 Jul 2016 2:24 pm Operator: DEW
Sample : 1607256-26B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

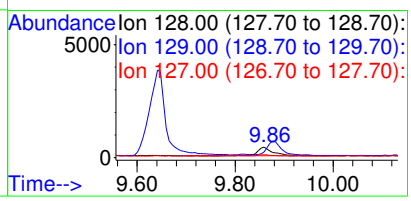


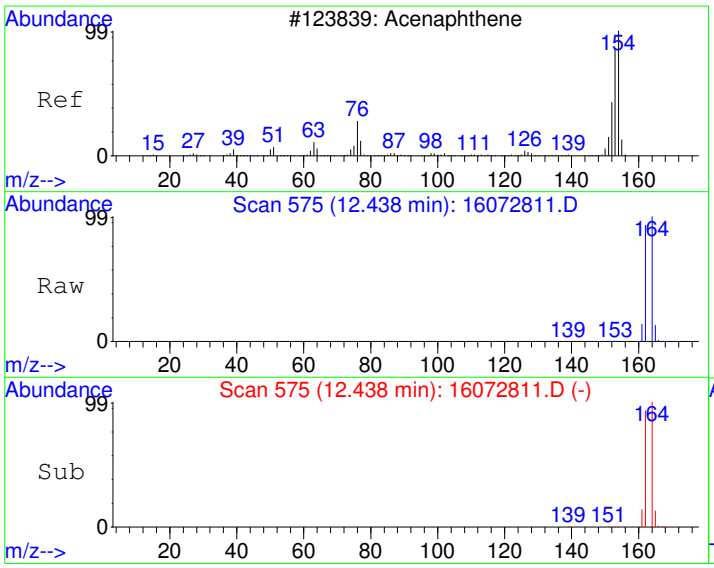


#2
Naphthalene
Concen: 5.07 ug/kg
RT: 9.86 min Scan# 129
Delta R.T. 0.01 min
Lab File: 16072811.D
Acq: 28 Jul 2016 2:24 pm

Tgt Ion:128 Resp: 976

Ion	Ratio	Lower	Upper
128	100		
129	38.8	0.0	41.2
127	11.4	0.0	42.5

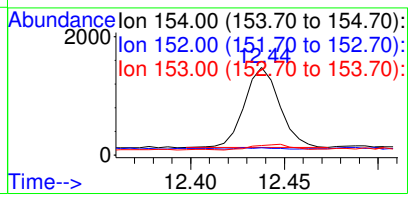


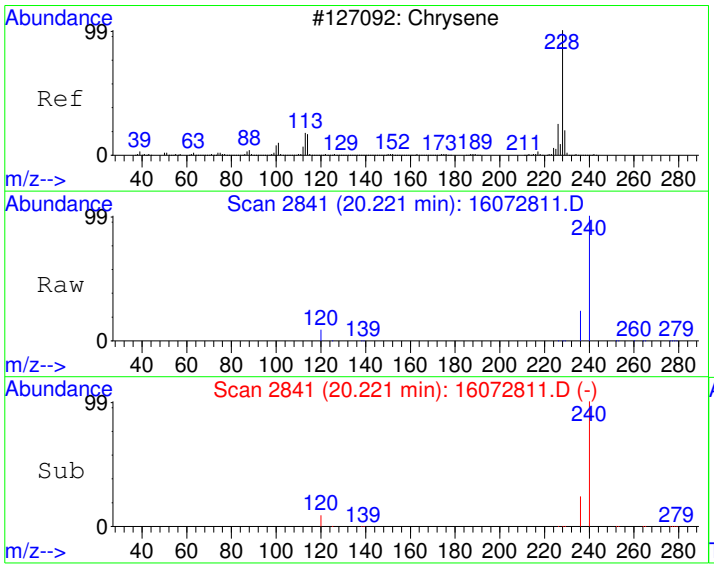


#9
Acenaphthene
Concen: 13.05 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.05 min
Lab File: 16072811.D
Acq: 28 Jul 2016 2:24 pm

Tgt Ion:154 Resp: 1759

Ion	Ratio	Lower	Upper
154	100		
152	0.8	20.4	80.4#
153	5.4	78.2	138.2#

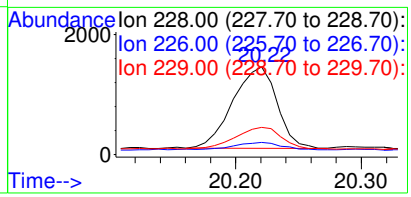


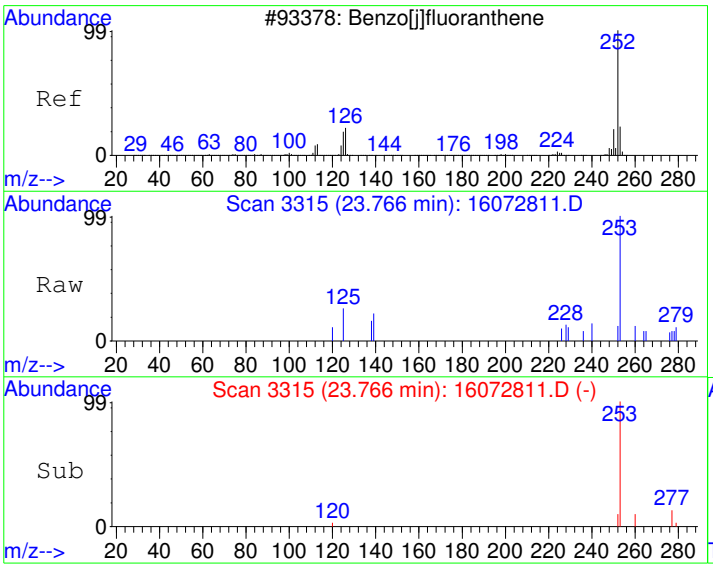


#19
Chrysene
Concen: 10.54 ug/kg
RT: 20.22 min Scan# 2841
Delta R.T. -0.08 min
Lab File: 16072811.D
Acq: 28 Jul 2016 2:24 pm

Tgt Ion:228 Resp: 3315

Ion	Ratio	Lower	Upper
228	100		
226	9.1	0.0	58.1
229	26.7	0.0	49.9

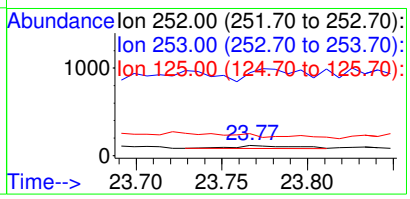




#23
Benzo(j)fluoranthene
Concen: 0.29 ug/kg
RT: 23.77 min Scan# 3315
Delta R.T. -0.01 min
Lab File: 16072811.D
Acq: 28 Jul 2016 2:24 pm

Tgt Ion:252 Resp: 83

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	117.6	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072812.D Vial: 12
Acq On : 28 Jul 2016 3:02 pm Operator: DEW
Sample : 1607256-27B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

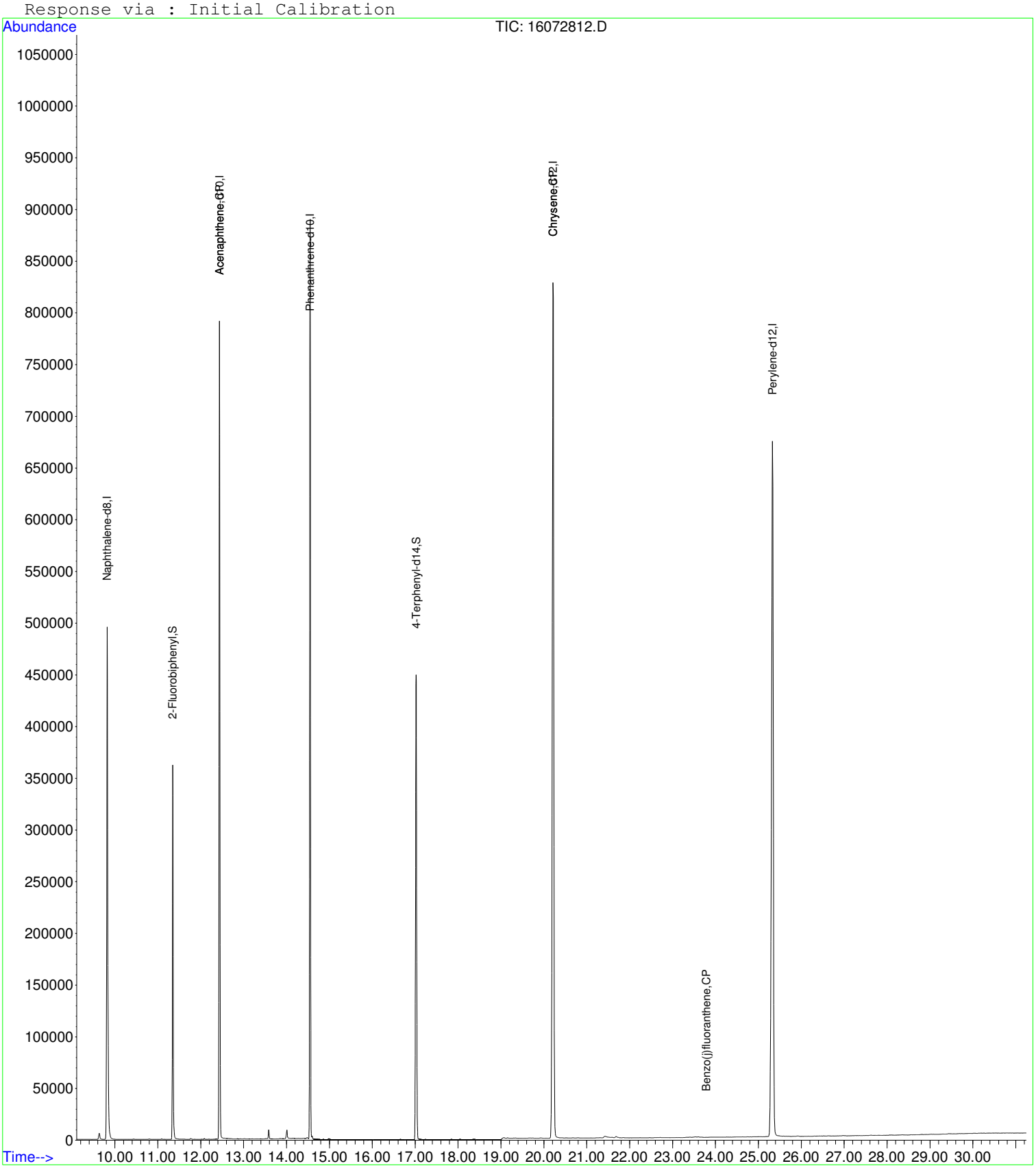
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	790580	4000.00	ug/kg	88
5) Acenaphthene-d10	12.44	164	447292	4000.00	ug/kg	79
11) Phenanthrene-d10	14.55	188	1340211	4000.00	ug/kg	89
17) Chrysene-d12	20.21	240	1492682	4000.00	ug/kg	93
20) Perylene-d12	25.33	264	1393215	4000.00	ug/kg	84
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	344914	2380.17	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 59.50%			
16) 4-Terphenyl-d14	17.02	244	652613	2304.02	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.60%			
Target Compounds						Qvalue
9) Acenaphthene	12.44	154	1568	13.56	ug/kg#	11
19) Chrysene	20.21	228	3254	10.80	ug/kg	72
23) Benzo(j)fluoranthene	23.78	252	56	0.20	ug/kg#	1

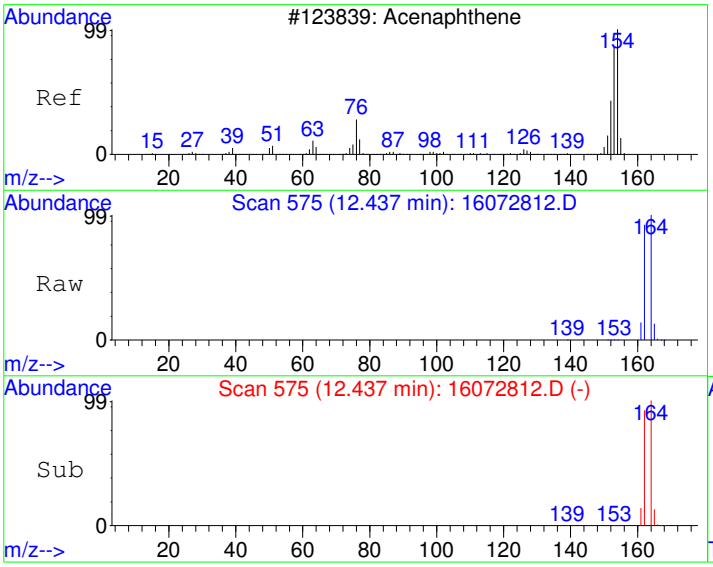
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072812.D Vial: 12
Acq On : 28 Jul 2016 3:02 pm Operator: DEW
Sample : 1607256-27B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

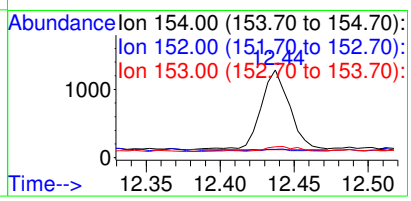


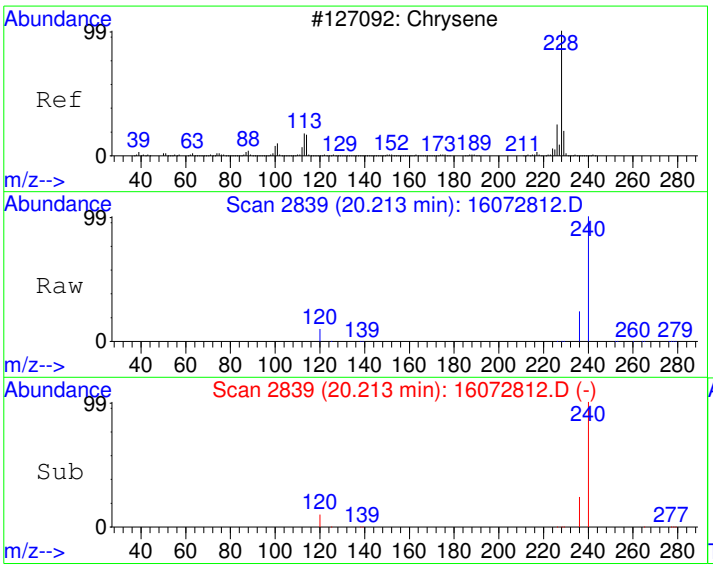


#9
Acenaphthene
Concen: 13.56 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.05 min
Lab File: 16072812.D
Acq: 28 Jul 2016 3:02 pm

Tgt Ion:154 Resp: 1568

Ion	Ratio	Lower	Upper
154	100		
152	2.0	20.4	80.4#
153	5.7	78.2	138.2#

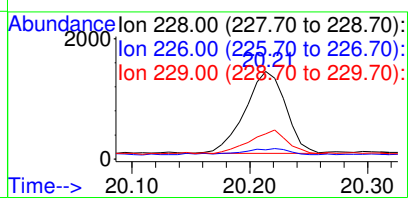


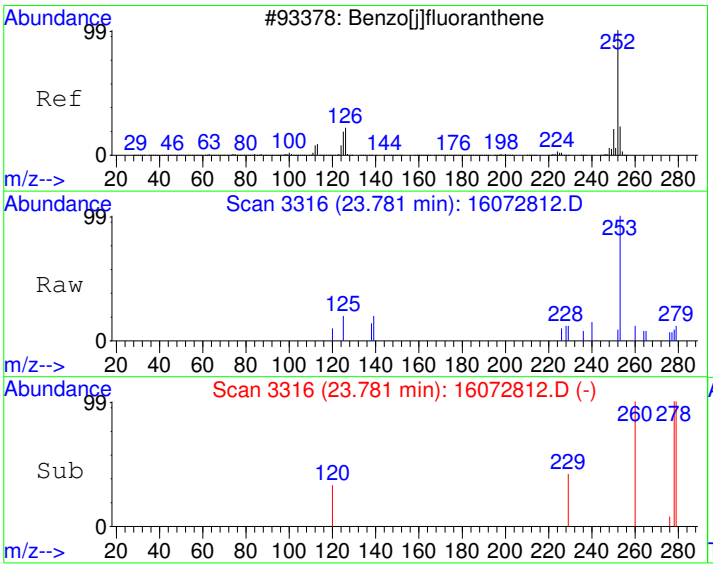


#19
Chrysene
Concen: 10.80 ug/kg
RT: 20.21 min Scan# 2839
Delta R.T. -0.09 min
Lab File: 16072812.D
Acq: 28 Jul 2016 3:02 pm

Tgt Ion:228 Resp: 3254

Ion	Ratio	Lower	Upper
228	100		
226	5.2	0.0	58.1
229	23.1	0.0	49.9

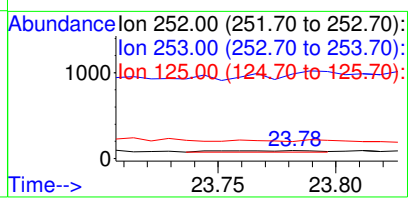




#23
Benzo(j)fluoranthene
Concen: 0.20 ug/kg
RT: 23.78 min Scan# 3316
Delta R.T. 0.00 min
Lab File: 16072812.D
Acq: 28 Jul 2016 3:02 pm

Tgt Ion:252 Resp: 56

Ion	Ratio	Lower	Upper
252	100		
253	305.3	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072816.D Vial: 16
Acq On : 28 Jul 2016 5:31 pm Operator: DEW
Sample : ICV2-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

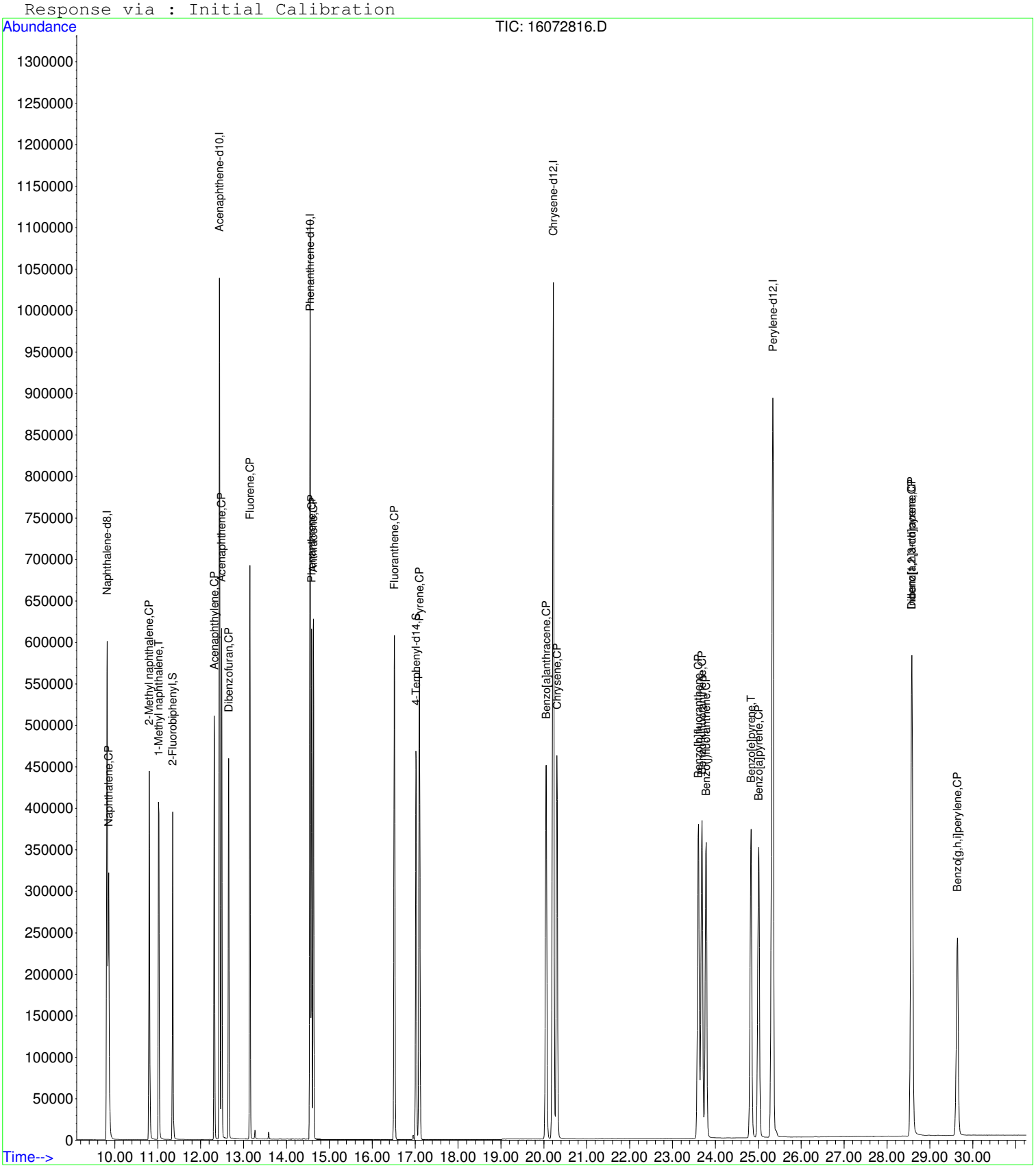
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	971538	4000.00	ug/kg	109
5) Acenaphthene-d10	12.44	164	596586	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1699263	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1873252	4000.00	ug/kg	116
20) Perylene-d12	25.34	264	1888346	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	367882	1903.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.59%			
16) 4-Terphenyl-d14	17.02	244	678598	1877.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.93%			
Target Compounds						Qvalue
2) Naphthalene	9.86	128	392628	1777.18	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	291499	1825.56	ug/kg	97
4) 1-Methyl naphthalene	11.02	142	266041	1811.37	ug/kg	98
6) Dibenzofuran	12.65	168	420847	1776.70	ug/kg	99
8) Acenaphthylene	12.32	152	482469	1858.57	ug/kg	99
9) Acenaphthene	12.49	154	280864	1821.60	ug/kg	97
10) Fluorene	13.15	166	358158	1859.01	ug/kg	100
12) Phenanthrene	14.59	178	671597	2088.60	ug/kg	100
13) Anthracene	14.63	178	568837	1728.11	ug/kg	100
14) Fluoranthene	16.52	202	681788	1724.48	ug/kg	100
15) Pyrene	17.10	202	686885	1687.04	ug/kg	100
18) Benzo[a]anthracene	20.06	228	740083	1842.65	ug/kg	99
19) Chrysene	20.30	228	679574	1796.53	ug/kg	100
21) Benzo[b]fluoranthene	23.60	252	799836	1853.65	ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	731652	1849.59	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	704600	1881.39	ug/kg	99
24) Benzo[e]pyrene	24.83	252	754358	1840.34	ug/kg	100
25) Benzo[a]pyrene	25.01	252	748553	1840.21	ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	598827	1420.46	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.58	276	701633	1385.79	ug/kg	94
28) Benzo[g,h,i]perylene	29.64	276	547403	1489.82	ug/kg	94

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072816.D Vial: 16
Acq On : 28 Jul 2016 5:31 pm Operator: DEW
Sample : ICV2-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



GCMS6_160802B
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160802B
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

QA APPROVED
By John DuPont at 2:33:23 PM, 8/10/2016

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
X MB/SYS BL out of control (> MDL / >½ RL)	X Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	X Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

All samples with detections will be reanalyzed. Only non-detect samples reported.

Analyst: Don Winston Date: 8/3/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:26:46 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: GCMS6_160802B **Run No.:** 87388

Analytical Run Date: 8/2/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160802	1	PAH_LL_SDOD1	TUNE	R87388	8/2/2016 8:47:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160802	1	PAH_LL_SDOD1	ICV	R87388	8/2/2016 9:27:00 AM		
LCS-76473	1	PAH_LL_SDOD1	LCS	76473	8/2/2016 10:08:00 AM		
MB-76473	1	PAH_LL_SDOD1	MBLK	76473	8/2/2016 10:47:00 AM		
1607256-07A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 11:28:00 AM		
1607256-08A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 12:08:00 PM		
1607256-09A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 12:49:00 PM		
1607256-10A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 1:30:00 PM		
1607256-11A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 2:11:00 PM		
1607256-12A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 2:52:00 PM		
1607256-14A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 3:33:00 PM		
1607256-15A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 4:13:00 PM		
1607256-16A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 4:54:00 PM		
1607256-17A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 5:35:00 PM		
1607256-18A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 6:15:00 PM		
1607256-19A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 6:55:00 PM		
1607256-29A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 7:35:00 PM		
1607256-30A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 8:16:00 PM		
DFTPP2-160802	1	PAH_LL_SDOD1	TUNE	R87388	8/2/2016 8:56:00 PM		
ICV2-160802	1	PAH_LL_SDOD1	ICV	R87388	8/2/2016 9:36:00 PM		
SB-160802	1	PAH_LL_SDOD1	SBLK	76473	8/2/2016 10:17:00 PM		J value hits present in System Blank. Only non-detect samples reported.
1607256-31A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 10:57:00 PM		
1607256-32A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 11:37:00 PM		
1607256-33A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 12:17:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607256-34A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 12:58:00 AM		
1607256-35A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:38:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.

DHL Analytical, Inc.

Run ID: **GCMS6_160802B** **Run No.:** 87388

1607256-36A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 2:19:00 AM		
1607219-18A	10	PAH_LL_SDOD1	SAMP	76420	8/3/2016 2:59:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:40:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 4:20:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:00:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:40:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 6:19:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607256-07AMS	10	PAH_LL_SDOD1	MS	76473	8/3/2016 6:59:00 AM		
1607256-07AMSD	10	PAH_LL_SDOD1	MSD	76473	8/3/2016 7:40:00 AM		
CCV1-160802	1	PAH_LL_SDOD1	CCV	R87388	8/3/2016 8:20:00 AM		

Sequence Name: C:\HPCHEM\1\SEQUENCE\160802.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160802\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080201	DFTPPPAH	DFTPP-160802
2	Sample	2	16080202	PP160801	ICV-160802
3	Sample	3	16080203	PP160801	LCS-76473
4	Sample	4	16080204	PP160801	MB-76473
5	Sample	5	16080205	PP160801	1607256-07A
6	Sample	6	16080206	PP160801	1607256-08A
7	Sample	7	16080207	PP160801	1607256-09A
8	Sample	8	16080208	PP160801	1607256-10A
9	Sample	9	16080209	PP160801	1607256-11A
10	Sample	10	16080210	PP160801	1607256-12A
11	Sample	11	16080211	PP160801	1607256-14A
12	Sample	12	16080212	PP160801	1607256-15A
13	Sample	13	16080213	PP160801	1607256-16A
14	Sample	14	16080214	PP160801	1607256-17A
15	Sample	15	16080215	PP160801	1607256-18A
16	Sample	16	16080216	PP160801	1607256-19A
17	Sample	17	16080217	PP160801	1607256-29A
18	Sample	18	16080218	PP160801	1607256-30A
19	Sample	19	16080219	DFTPPPAH	DFTPP2-160802
20	Sample	20	16080220	PP160801	ICV2-160802
21	Sample	21	16080221	PP160801	SB-160802
22	Sample	22	16080222	PP160801	1607256-31A
23	Sample	23	16080223	PP160801	1607256-32A
24	Sample	24	16080224	PP160801	1607256-33A
25	Sample	25	16080225	PP160801	1607256-34A
26	Sample	26	16080226	PP160801	1607256-35A
27	Sample	27	16080227	PP160801	1607256-36A
28	Sample	28	16080228	PP160801	1607219-18A
29	Sample	29	16080229	PP160801	1607219-22A
30	Sample	30	16080230	PP160801	1607239-01A
31	Sample	31	16080231	PP160801	1607239-05A
32	Sample	32	16080232	PP160801	1607239-11A
33	Sample	33	16080233	PP160801	1607239-17A
34	Sample	34	16080234	PP160801	1607256-07AMS
35	Sample	35	16080235	PP160801	1607256-07AMSD
36	Sample	36	16080236	PP160801	CCV1-160802
37	Sample	37	16080237	PP160801	DCS-~~73288~~ **76288**
38	Sample	38	16080238	PP160801	LQV1-~~73288~~**76288**

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 1:26:56 PM**
Digestion:
Prep End Date: **7/26/2016 4:48:00 PM**

Prep Batch **76473** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-07A	Soil		10.01	10	0.999	of 3	
1607256-07AMS	Soil		10.17	10	0.983	of	
1607256-07AMSD	Soil		10.42	10	0.960	of	
1607256-08A	Soil		10.03	10	0.997	1 of 1	
1607256-09A	Soil		10.12	10	0.988	1 of 1	
1607256-10A	Soil		10.05	10	0.995	1 of 1	
1607256-11A	Soil		10.07	10	0.993	1 of 1	
1607256-12A	Soil		10.81	10	0.925	1 of 1	
1607256-14A	Soil		10	10	1.000	1 of 1	
1607256-15A	Soil		10.73	10	0.932	1 of 1	
1607256-16A	Soil		10.7	10	0.935	1 of 1	
1607256-17A	Soil		10.28	10	0.973	1 of 1	
1607256-18A	Soil		10.22	10	0.978	1 of 1	
1607256-19A	Soil		10.03	10	0.997	1 of 1	
1607256-29A	Soil		10.07	10	0.993	1 of 1	
1607256-30A	Soil		10.09	10	0.991	1 of 1	
1607256-31A	Soil		10.18	10	0.982	1 of 1	
1607256-32A	Soil		10.47	10	0.955	1 of 1	
1607256-33A	Soil		10.07	10	0.993	1 of 1	
1607256-34A	Soil		10.04	10	0.996	1 of 1	
1607256-35A	Soil		10.57	10	0.946	1 of 1	
1607256-36A	Soil		10.47	10	0.955	1 of 1	
LCS-76473	Soil		10	10	1.000	of	
MB-76473	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED BY
By Janice Whitt at 1:11:26 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 1:26:56 PM**
Digestion:
Prep End Date:

Prep Batch **76473** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-07A	Soil		10 .01	10	1.000	1 of 3	
1607256-07AMS	Soil		10 .17	10	1.000	1 of	
1607256-07AMSD	Soil		10 .42	10	1.000	1 of	
1607256-08A	Soil		10 .03	10	1.000	1 of 1	
1607256-09A	Soil		10 .12	10	1.000	1 of 1	
1607256-10A	Soil		10 .05	10	1.000	1 of 1	
1607256-11A	Soil		10 .07	10	1.000	1 of 1	
1607256-12A	Soil		10 .81	10	1.000	1 of 1	
1607256-14A	Soil		10 .00	10	1.000	1 of 1	
1607256-15A	Soil		10 .73	10	1.000	1 of 1	
1607256-16A	Soil		10 .70	10	1.000	1 of 1	
1607256-17A	Soil		10 .28	10	1.000	1 of 1	
1607256-18A	Soil		10 .22	10	1.000	1 of 1	
1607256-19A	Soil		10 .05	10	1.000	1 of 1	
1607256-~~20A~~ 29	Soil		10 07	10	1.000	1 of 1	
1607256-~~21A~~ 30	Soil		10 .09	10	1.000	1 of 1	
1607256-~~22A~~ 31	Soil		10 18	10	1.000	1 of 1	
1607256-~~23A~~ 32	Soil		10 47	10	1.000	1 of 1	
1607256-~~24A~~ 33	Soil		10 07	10	1.000	1 of 1	
1607256-~~25A~~ 34	Soil		10 04	10	1.000	1 of 1	
1607256-~~28A~~ 35	Soil		10 57	10	1.000	1 of 1	
1607256-~~36A~~ 36	Soil		10 47	10	1.000	1 of 1	
LCS-76473	Soil		10	10	1.000	of	
MB-76473	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED BY
By Janice Whitt at 1:11:24 PM, 8/10/2016

AR 7/26/16 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A SS	Soil		0	0	#Num!	1 of 1	
1607256-02A SS	Soil		0	0	#Num!	1 of 1	
1607256-03A SS	Soil		0	0	#Num!	1 of 1	
1607256-04A SS	Soil		0	0	#Num!	1 of 1	
1607256-05A SS	Soil		0	0	#Num!	1 of 1	
1607256-06A SS	Soil		0	0	#Num!	1 of 1	
1607256-07A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607256-08A SS	Soil		0	0	#Num!	1 of 1	
1607256-09A SS	Soil		0	0	#Num!	1 of 1	
1607256-10A SS	Soil		0	0	#Num!	1 of 1	
1607256-11A SS	Soil		0	0	#Num!	1 of 1	
1607256-12A SS	Soil		0	0	#Num!	1 of 1	
1607256-14A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:11:30 PM, 8/10/2016

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:11:33 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

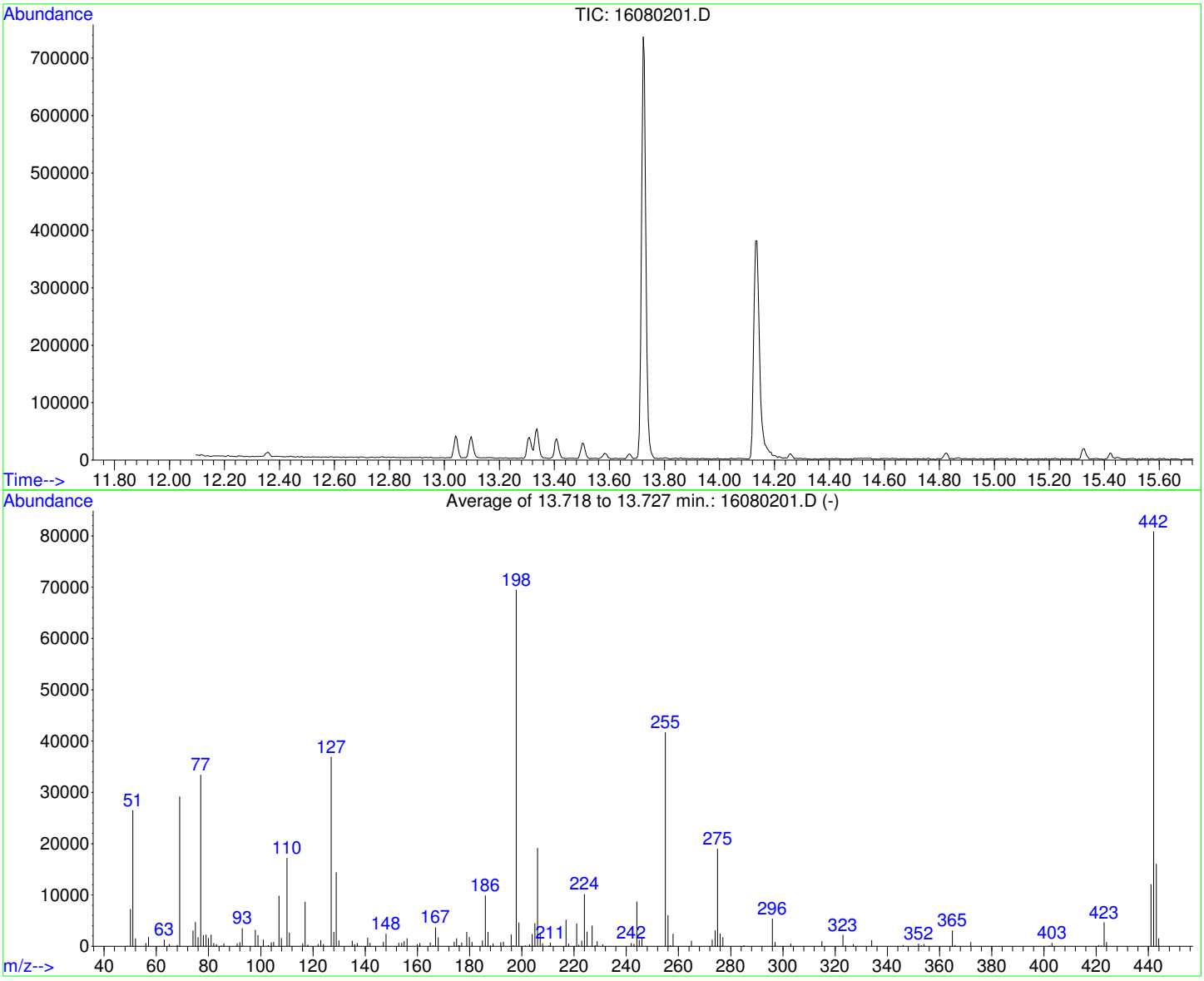
Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 1:11:36 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160802\16080201.D Vial: 1
Acq On : 2 Aug 2016 8:47 am Operator: DEW
Sample : DFTPP-160802 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

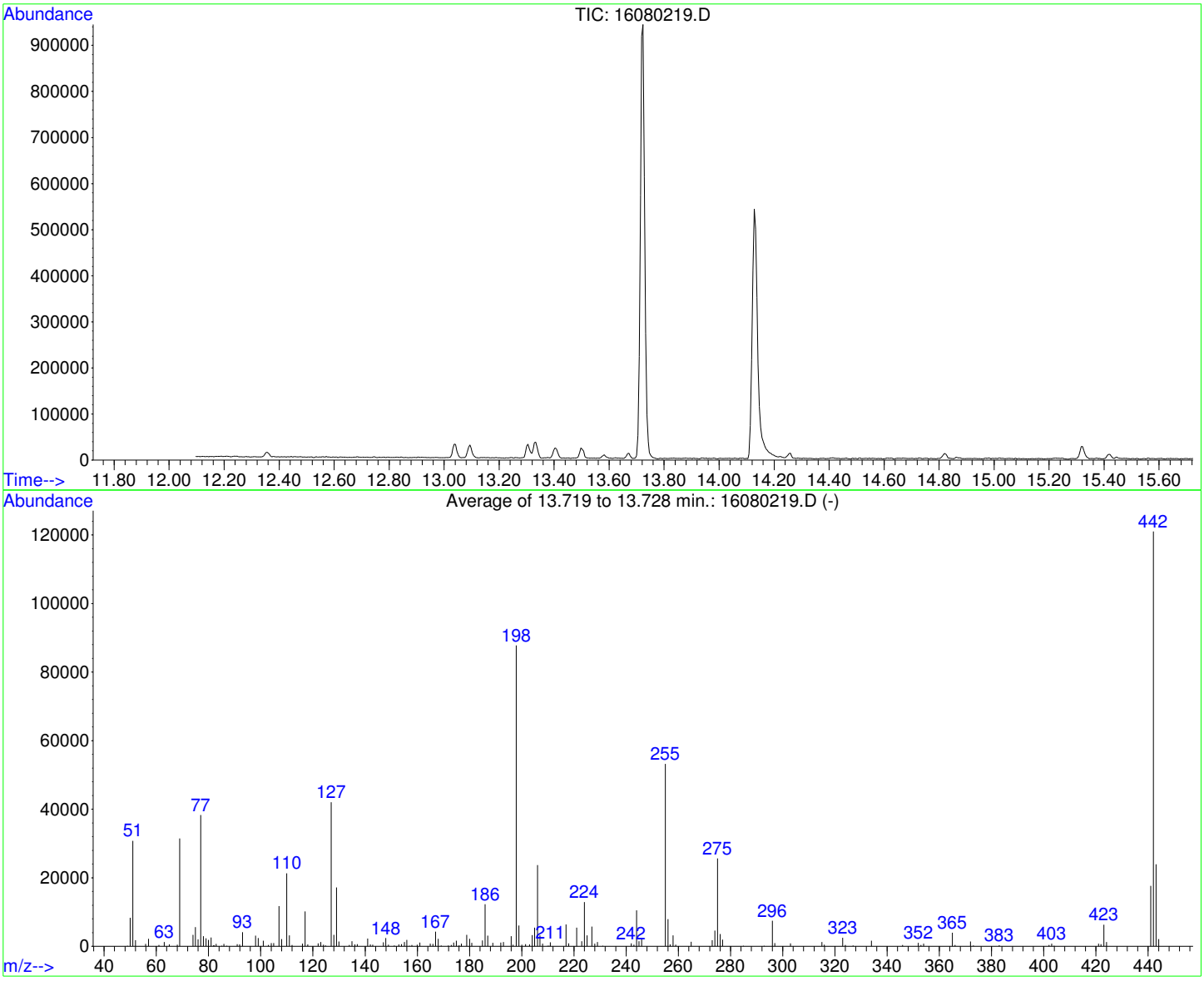


AutoFind: Scans 346, 347, 348; Background Corrected with Scan 340

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.2	26520	PASS
68	69	0.00	2	0.8	237	PASS
69	198	0.00	100	42.1	29245	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.2	36949	PASS
197	198	0.00	2	0.3	226	PASS
198	198	100	100	100.0	69507	PASS
199	198	5	9	6.7	4643	PASS
275	198	10	60	27.4	19018	PASS
365	198	1	200	4.4	3070	PASS
441	442	0.01	24	15.0	12104	PASS
442	198	50	400	116.4	80875	PASS
443	442	15	24	19.9	16087	PASS

REVIEWED BY
By Janice Whitt at 1:11:40 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160802\16080219.D Vial: 19
Acq On : 2 Aug 2016 8:56 pm Operator: DEW
Sample : DFTPP2-160802 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 346, 347, 348; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.1	30792	PASS
68	69	0.00	2	1.6	491	PASS
69	198	0.00	100	35.8	31435	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	47.9	42021	PASS
197	198	0.00	2	0.6	485	PASS
198	198	100	100	100.0	87760	PASS
199	198	5	9	6.9	6078	PASS
275	198	10	60	29.2	25605	PASS
365	198	1	200	4.5	3955	PASS
441	442	0.01	24	14.6	17673	PASS
442	198	50	400	137.9	121053	PASS
443	442	15	24	19.8	23925	PASS

REVIEWED BY
By Janice Whitt at 1:11:46 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080202.D Vial: 2
Acq On : 2 Aug 2016 9:27 am Operator: DEW
Sample : ICV-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

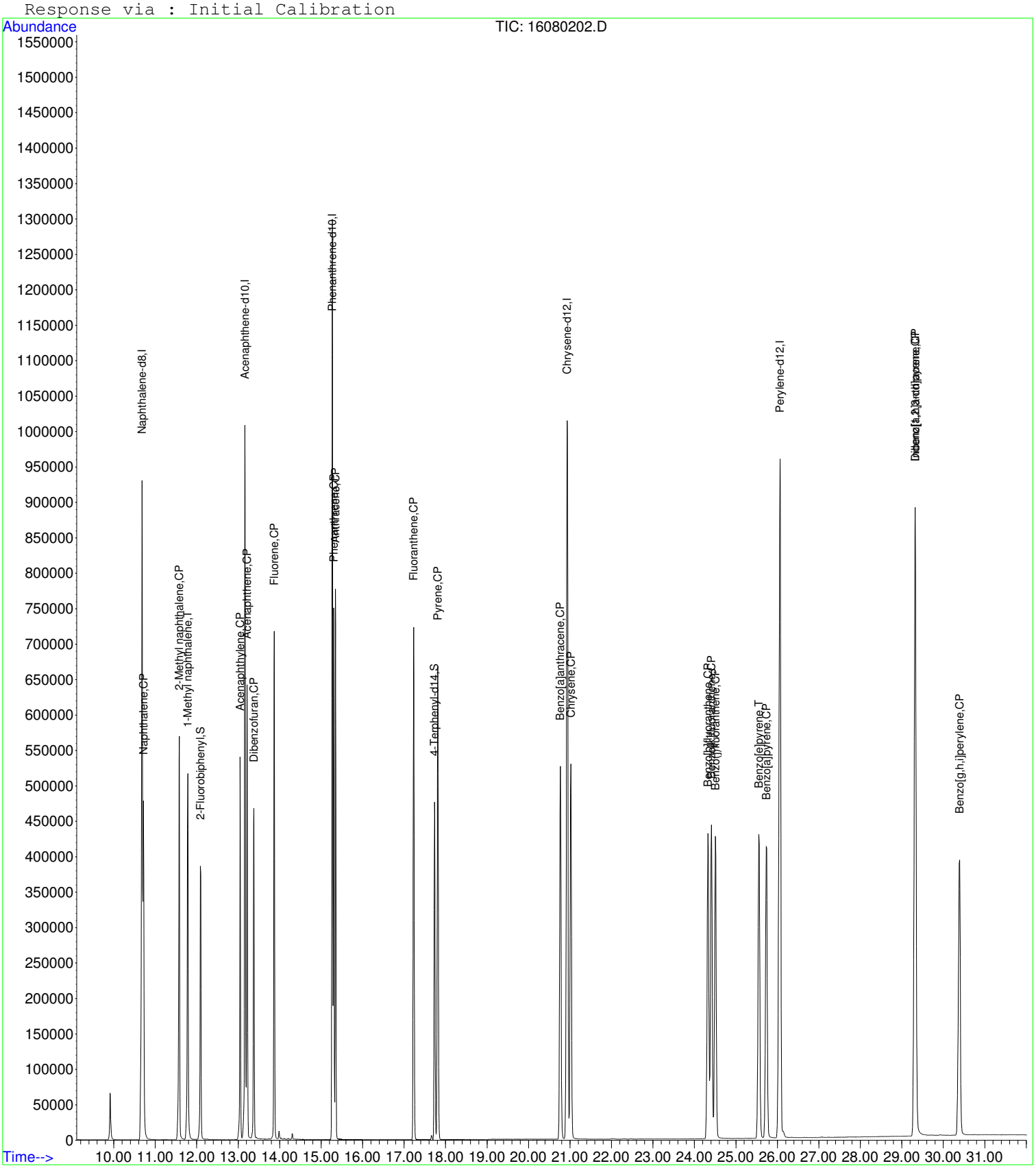
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1473446	4000.00	ug/kg	105
5) Acenaphthene-d10	13.16	164	614716	4000.00	ug/kg	103
11) Phenanthrene-d10	15.27	188	1514689	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	1883018	4000.00	ug/kg	103
20) Perylene-d12	26.06	264	1991822	4000.00	ug/kg	103
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	413910	1930.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.26%			
16) 4-Terphenyl-d14	17.73	244	672951	1882.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.07%			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	621794	1854.75	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	402999	1854.31	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	358716	1863.40	ug/kg	100
6) Dibenzofuran	13.38	168	462775	1860.27	ug/kg	100
8) Acenaphthylene	13.05	152	530337	1948.19	ug/kg	100
9) Acenaphthene	13.21	154	308432	1956.33	ug/kg	99
10) Fluorene	13.87	166	397172	2004.09	ug/kg	98
12) Phenanthrene	15.30	178	677652	1887.05	ug/kg	100
13) Anthracene	15.35	178	705762	1867.75	ug/kg	100
14) Fluoranthene	17.23	202	800055	1879.95	ug/kg	100
15) Pyrene	17.81	202	799778	1853.39	ug/kg	100
18) Benzo[a]anthracene	20.77	228	835938	1969.59	ug/kg	99
19) Chrysene	21.02	228	790987	1937.23	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	913080	1985.72	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	827924	1962.64	ug/kg	99
23) Benzo(j)fluoranthene	24.51	252	806179	1988.63	ug/kg	100
24) Benzo[e]pyrene	25.55	252	890597	1995.83	ug/kg	100
25) Benzo[a]pyrene	25.74	252	886141	1994.52	ug/kg	99
26) Dibenz[a,h]anthracene	29.32	278	874633	2034.32	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	1030665	2020.13	ug/kg	100
28) Benzo[g,h,i]perylene	30.39	276	860197	2013.01	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080202.D Vial: 2
Acq On : 2 Aug 2016 9:27 am Operator: DEW
Sample : ICV-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

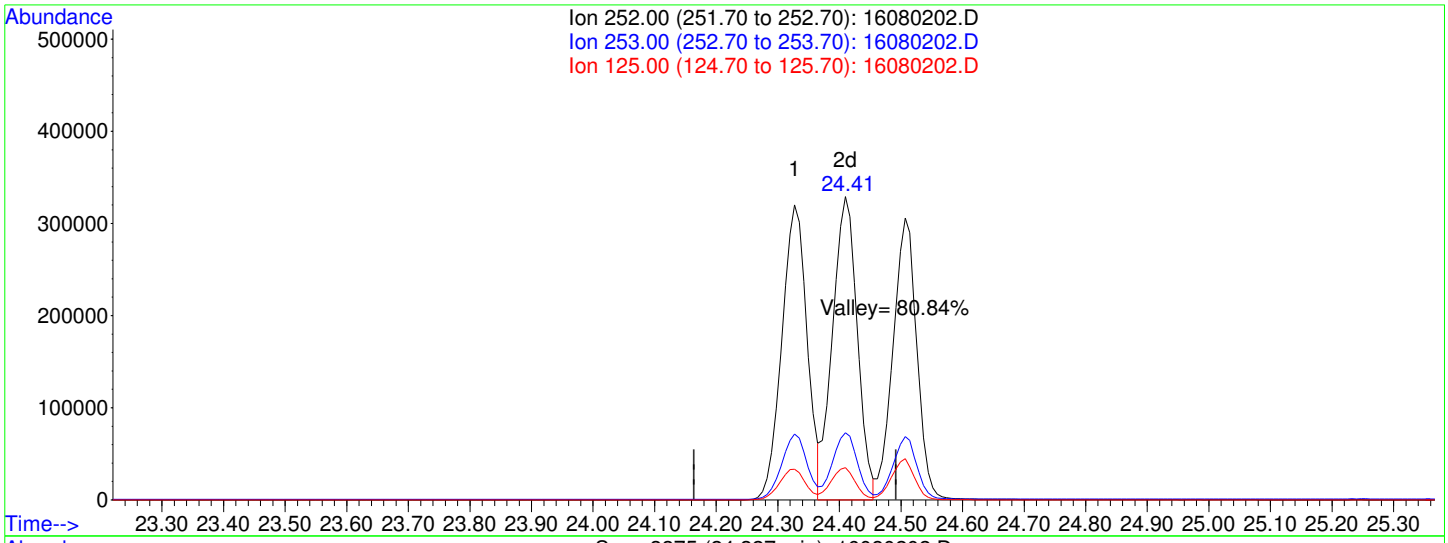
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

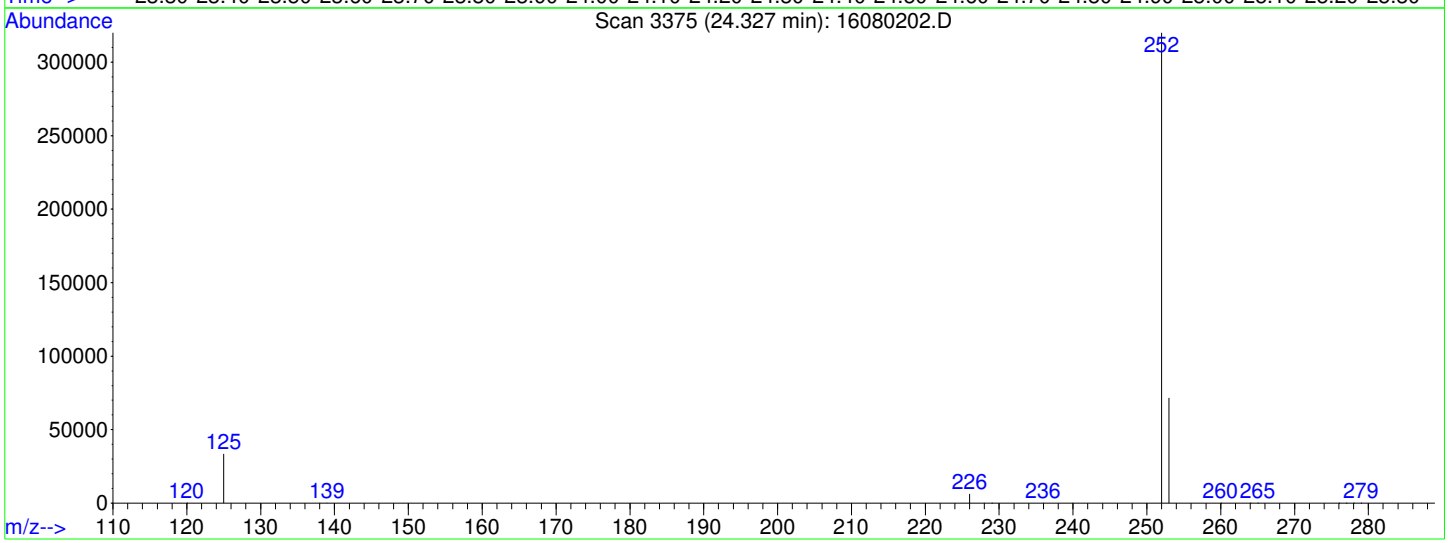


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160802\16080202.D Vial: 2
Acq On : 2 Aug 2016 9:27 am Operator: DEW
Sample : ICV-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:59 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080202.D

(21) Benzo[b]fluoranthene (CP)

24.33min 1985.72ug/kg

response 913080

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.12
125.00	10.60	10.44
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080203.D Vial: 3
Acq On : 2 Aug 2016 10:08 am Operator: DEW
Sample : LCS-76473 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

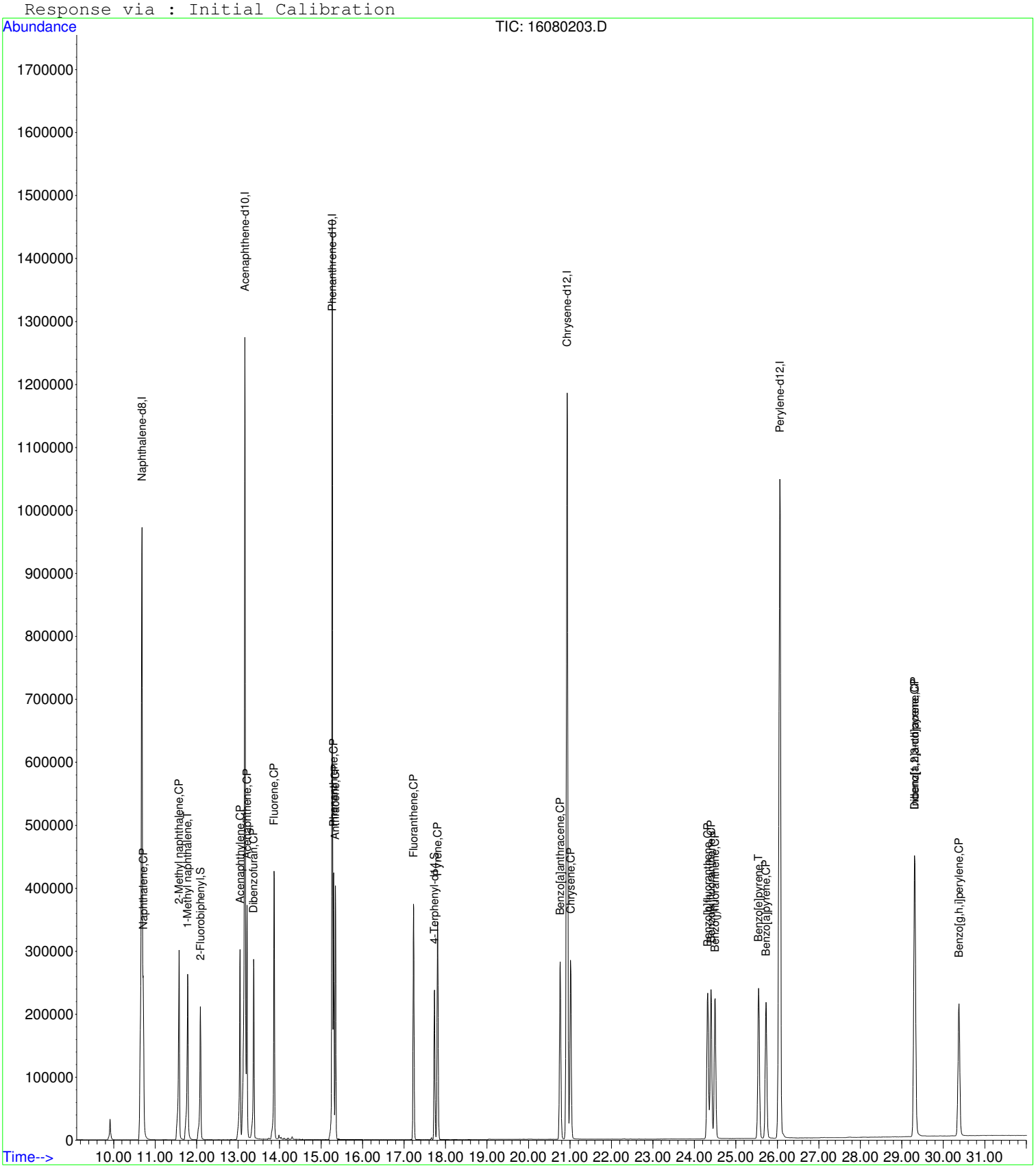
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1893675	4000.00	ug/kg	135
5) Acenaphthene-d10	13.16	164	946238	4000.00	ug/kg	158
11) Phenanthrene-d10	15.27	188	1778578	4000.00	ug/kg	112
17) Chrysene-d12	20.93	240	2163815	4000.00	ug/kg	118
20) Perylene-d12	26.06	264	2201421	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	273729	829.33	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.73%#			
16) 4-Terphenyl-d14	17.73	244	336376	801.42	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.04%#			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	358934	833.07	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	257188	920.78	ug/kg	97
4) 1-Methyl naphthalene	11.78	142	231617	936.17	ug/kg	96
6) Dibenzofuran	13.38	168	340284	888.63	ug/kg	99
8) Acenaphthylene	13.05	152	380315	907.61	ug/kg	100
9) Acenaphthene	13.21	154	223671	921.65	ug/kg	99
10) Fluorene	13.87	166	273934	897.96	ug/kg	98
12) Phenanthrene	15.30	178	402095	953.58	ug/kg	99
13) Anthracene	15.35	178	374145	843.24	ug/kg	100
14) Fluoranthene	17.23	202	423176	846.83	ug/kg	99
15) Pyrene	17.81	202	422896	834.61	ug/kg	100
18) Benzo[a]anthracene	20.77	228	449840	922.35	ug/kg	99
19) Chrysene	21.01	228	424924	905.64	ug/kg	100
21) Benzo[b]fluoranthene	24.32	252	486371	957.03	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	463309	993.73	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	447763	999.35	ug/kg	99
24) Benzo[e]pyrene	25.55	252	487702	988.88	ug/kg	99
25) Benzo[a]pyrene	25.73	252	446962	910.24	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	443518	933.37	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	524150	929.53	ug/kg	98
28) Benzo[g,h,i]perylene	30.38	276	434176	919.31	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080203.D Vial: 3
Acq On : 2 Aug 2016 10:08 am Operator: DEW
Sample : LCS-76473 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080204.D Vial: 4
Acq On : 2 Aug 2016 10:47 am Operator: DEW
Sample : MB-76473 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

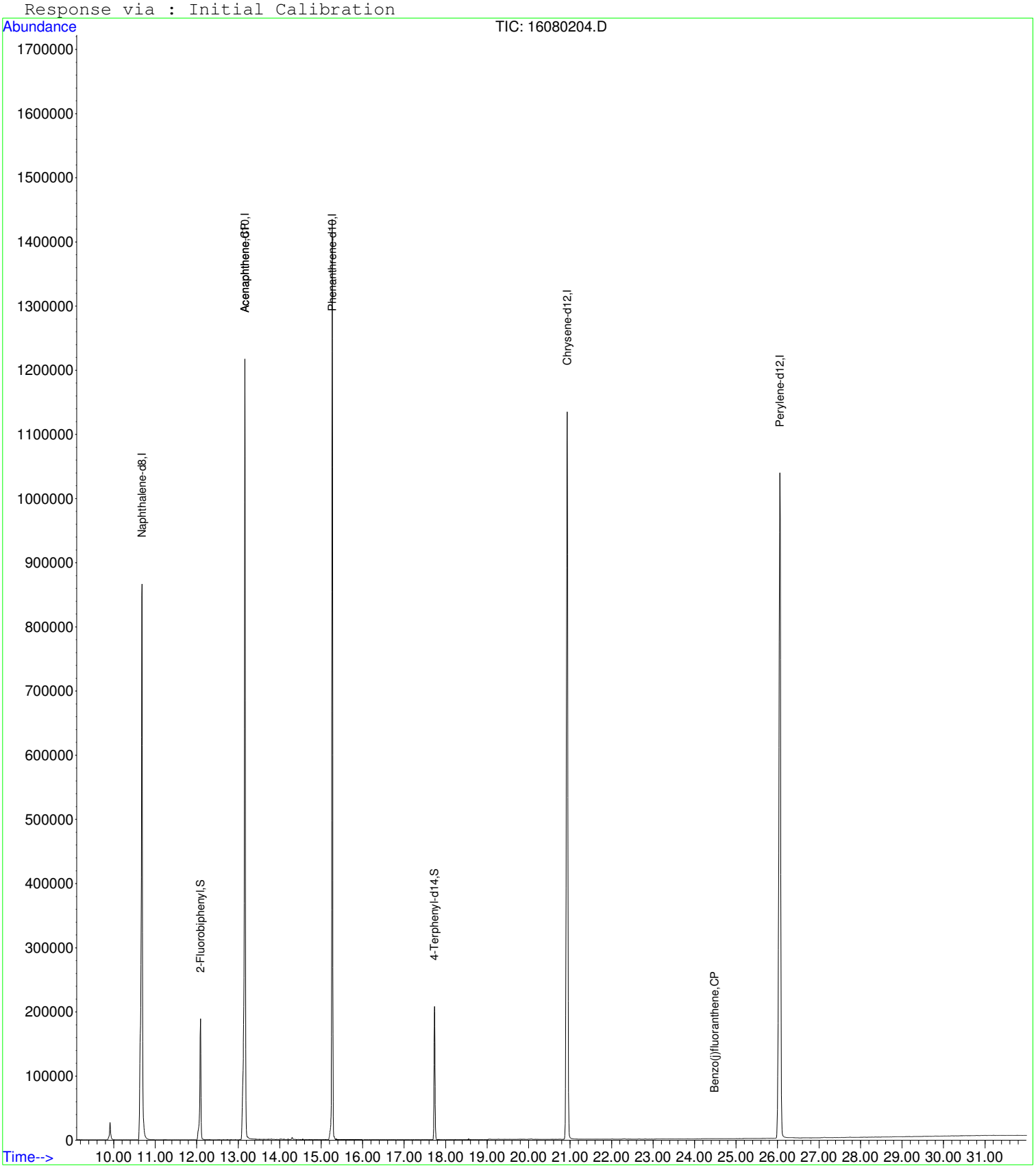
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1786404	4000.00	ug/kg	127
5) Acenaphthene-d10	13.16	164	921564	4000.00	ug/kg	154
11) Phenanthrene-d10	15.27	188	1729778	4000.00	ug/kg	109
17) Chrysene-d12	20.93	240	2066622	4000.00	ug/kg	113
20) Perylene-d12	26.06	264	2089664	4000.00	ug/kg	108
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	243964	758.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.97%#			
16) 4-Terphenyl-d14	17.73	244	294201	720.71	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.02%#			
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3214	~~13.60~~	~~ug/kg#~~	~~12~~
23) Benzo(j)fluoranthene	24.49	252	125	0.29	ug/kg#	64

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080204.D Vial: 4
Acq On : 2 Aug 2016 10:47 am Operator: DEW
Sample : MB-76473 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080205.D Vial: 5
Acq On : 2 Aug 2016 11:28 am Operator: DEW
Sample : 1607256-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

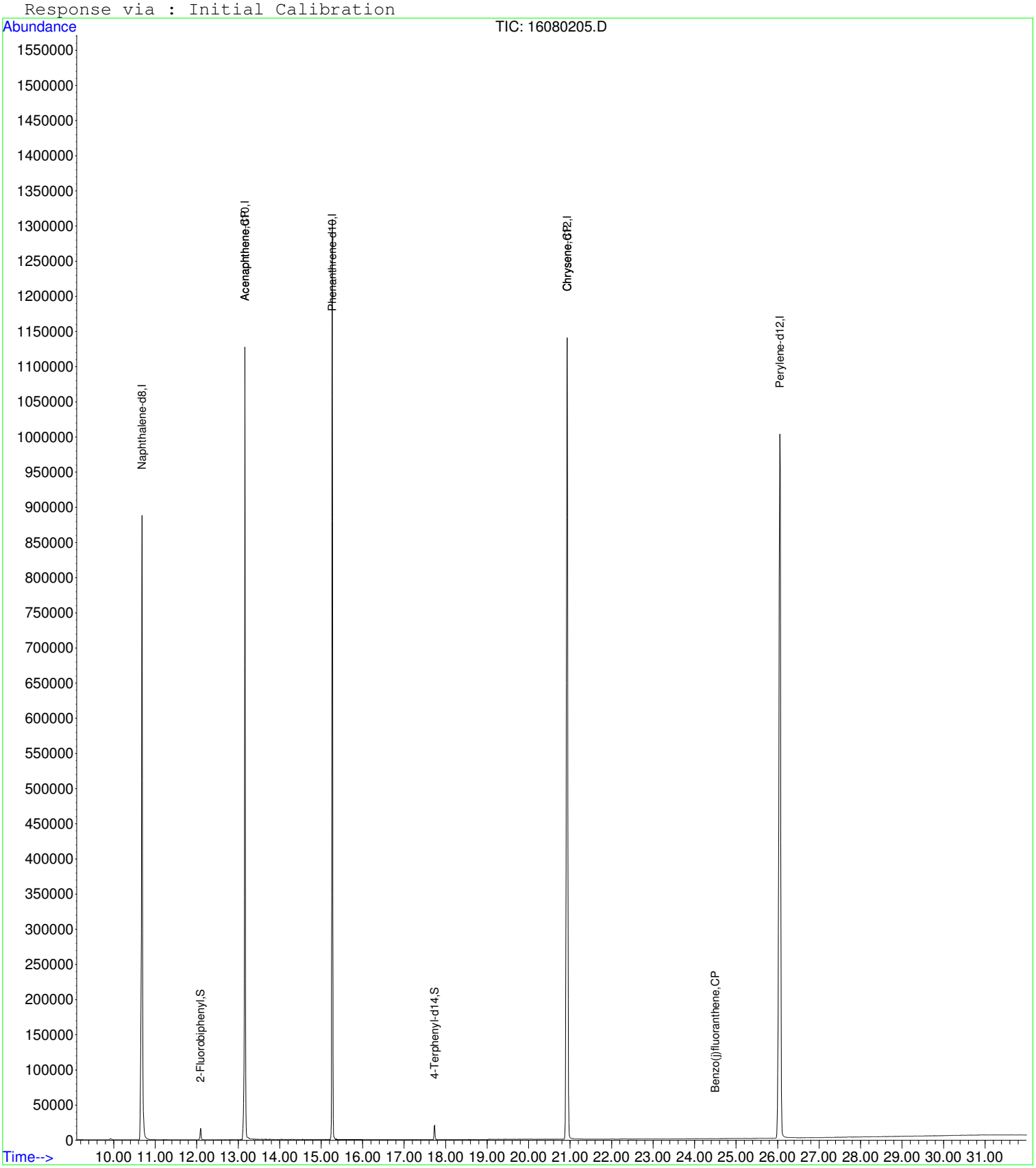
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1548663	4000.00	ug/kg	110
5) Acenaphthene-d10	13.16	164	726705	4000.00	ug/kg	121
11) Phenanthrene-d10	15.27	188	1548904	4000.00	ug/kg	97
17) Chrysene-d12	20.93	240	2056821	4000.00	ug/kg	112
20) Perylene-d12	26.06	264	2080581	4000.00	ug/kg	108
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	19647	77.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
16) 4-Terphenyl-d14	17.73	244	30522	83.50	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2511	13.47	ug/kg#	11
19) Chrysene	20.93	228	4545	10.19	ug/kg	70
23) Benzo(j)fluoranthene	24.51	252	49	0.12	ug/kg#	1

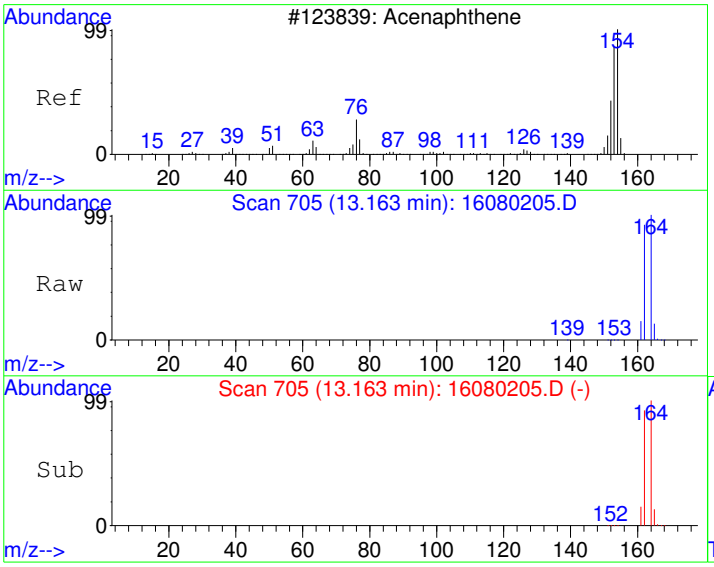
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080205.D Vial: 5
Acq On : 2 Aug 2016 11:28 am Operator: DEW
Sample : 1607256-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

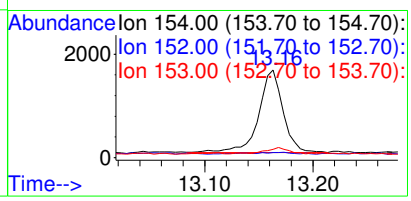


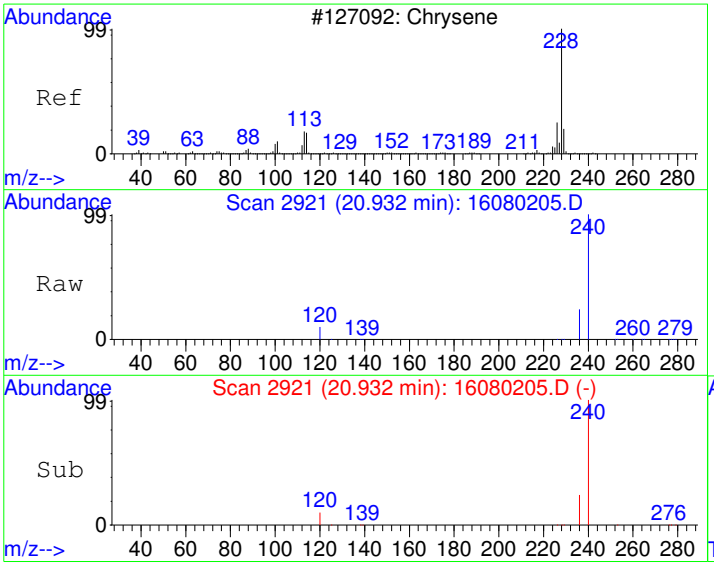


#9
Acenaphthene
Concen: 13.47 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080205.D
Acq: 2 Aug 2016 11:28 am

Tgt Ion:154 Resp: 2511

Ion	Ratio	Lower	Upper
154	100		
152	1.0	19.1	79.1#
153	5.3	76.2	136.2#

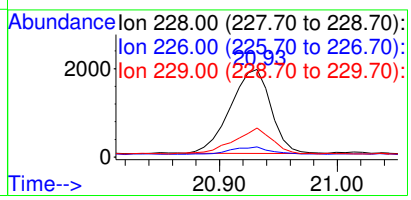


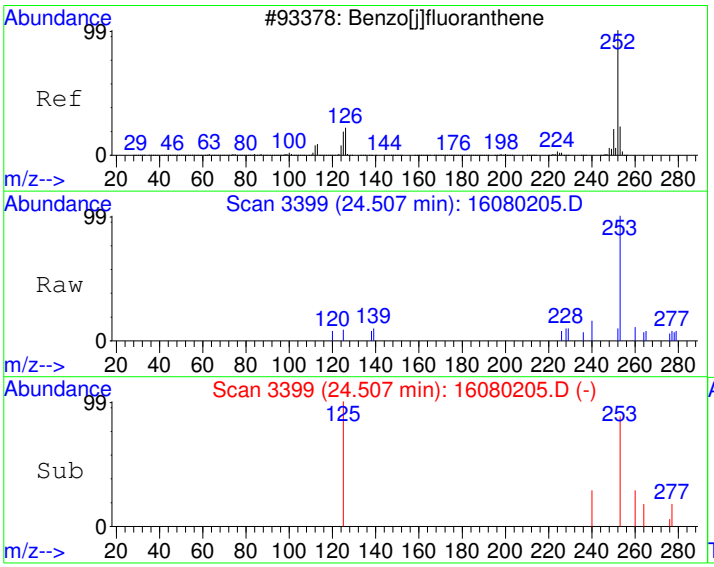


#19
Chrysene
Concen: 10.19 ug/kg
RT: 20.93 min Scan# 2921
Delta R.T. -0.09 min
Lab File: 16080205.D
Acq: 2 Aug 2016 11:28 am

Tgt Ion:228 Resp: 4545

Ion	Ratio	Lower	Upper
228	100		
226	9.0	0.0	58.1
229	30.0	0.0	50.0

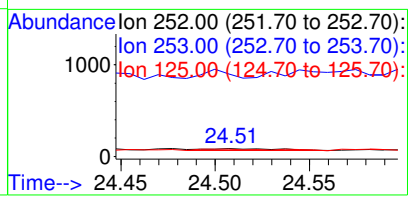




#23
Benzo(j)fluoranthene
Concen: 0.12 ug/kg
RT: 24.51 min Scan# 3399
Delta R.T. -0.00 min
Lab File: 16080205.D
Acq: 2 Aug 2016 11:28 am

Tgt Ion:252 Resp: 49

Ion	Ratio	Lower	Upper
252	100		
253	228.6	2.2	42.2#
125	85.7	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080206.D Vial: 6
Acq On : 2 Aug 2016 12:08 pm Operator: DEW
Sample : 1607256-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

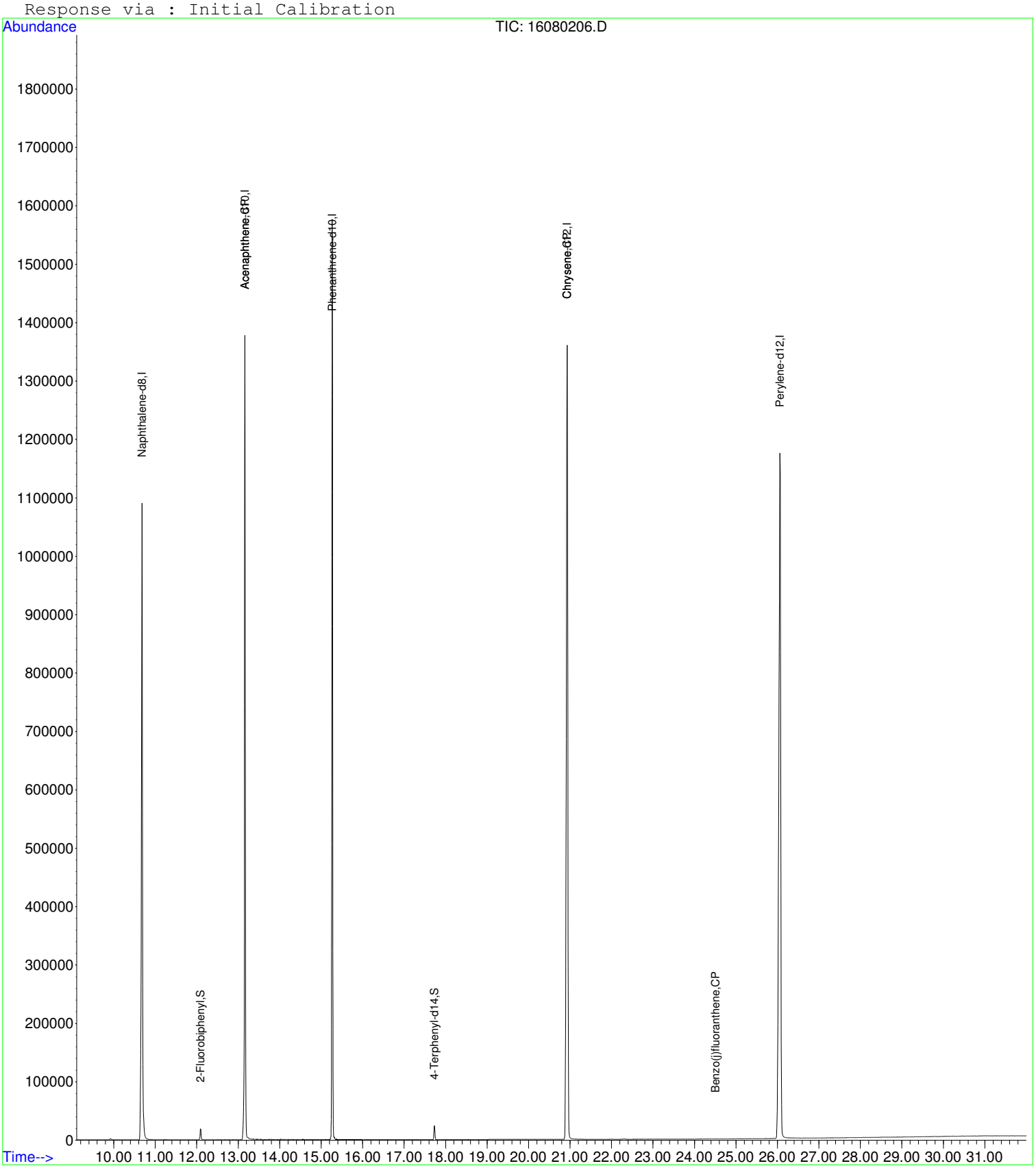
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1863009	4000.00	ug/kg	133
5) Acenaphthene-d10	13.16	164	875785	4000.00	ug/kg	146
11) Phenanthrene-d10	15.27	188	1841169	4000.00	ug/kg	116
17) Chrysene-d12	20.93	240	2500979	4000.00	ug/kg	136
20) Perylene-d12	26.06	264	2524867	4000.00	ug/kg	131
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	22523	73.73	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
16) 4-Terphenyl-d14	17.73	244	35154	80.91	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3036	13.52	ug/kg#	11
19) Chrysene	20.93	228	5451	10.05	ug/kg	70
23) Benzo(j)fluoranthene	24.51	252	28	0.05	ug/kg#	67

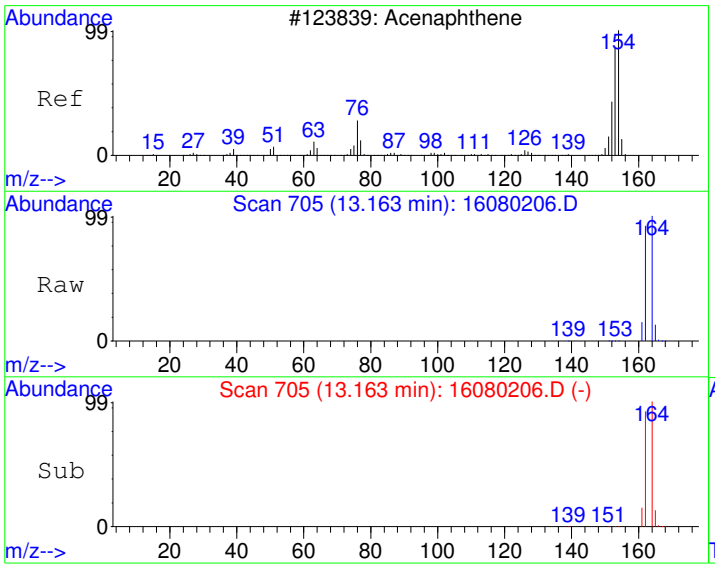
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080206.D Vial: 6
Acq On : 2 Aug 2016 12:08 pm Operator: DEW
Sample : 1607256-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

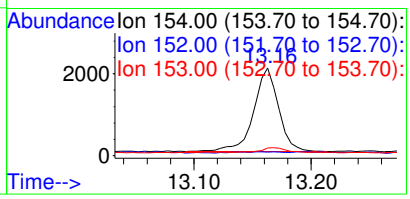


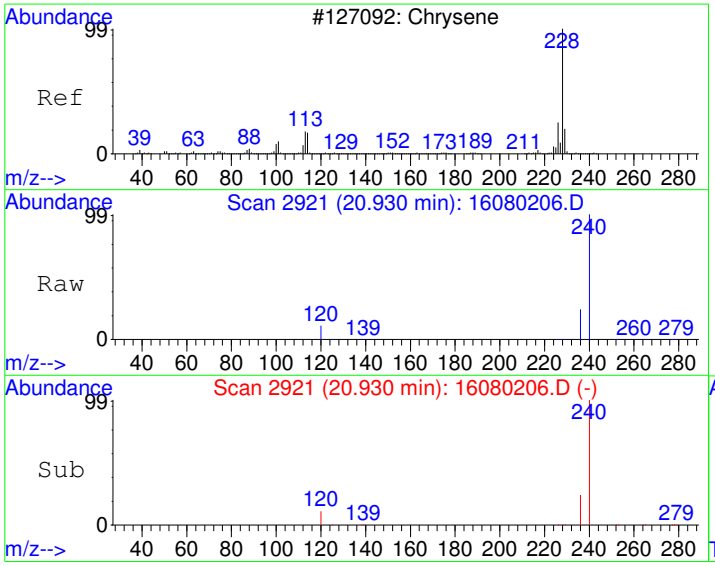


#9
Acenaphthene
Concen: 13.52 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080206.D
Acq: 2 Aug 2016 12:08 pm

Tgt Ion:154 Resp: 3036

Ion	Ratio	Lower	Upper
154	100		
152	1.1	19.1	79.1#
153	5.2	76.2	136.2#

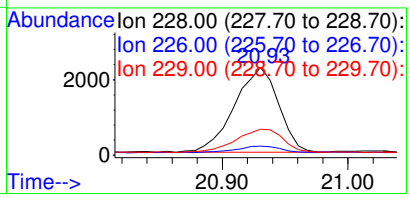


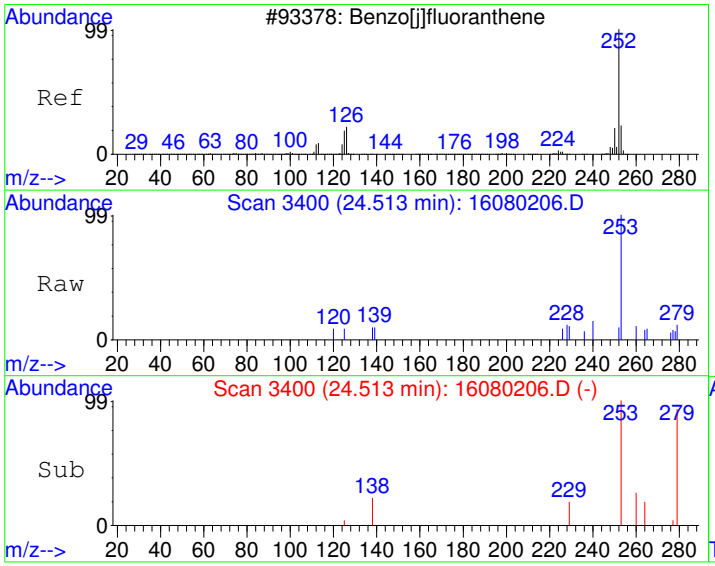


#19
Chrysene
Concen: 10.05 ug/kg
RT: 20.93 min Scan# 2921
Delta R.T. -0.09 min
Lab File: 16080206.D
Acq: 2 Aug 2016 12:08 pm

Tgt Ion:228 Resp: 5451

Ion	Ratio	Lower	Upper
228	100		
226	7.2	0.0	58.1
229	27.1	0.0	50.0

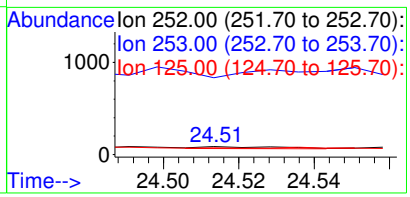




#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 24.51 min Scan# 3400
Delta R.T. 0.01 min
Lab File: 16080206.D
Acq: 2 Aug 2016 12:08 pm

Tgt Ion:252 Resp: 28

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	19.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080207.D Vial: 7
Acq On : 2 Aug 2016 12:49 pm Operator: DEW
Sample : 1607256-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

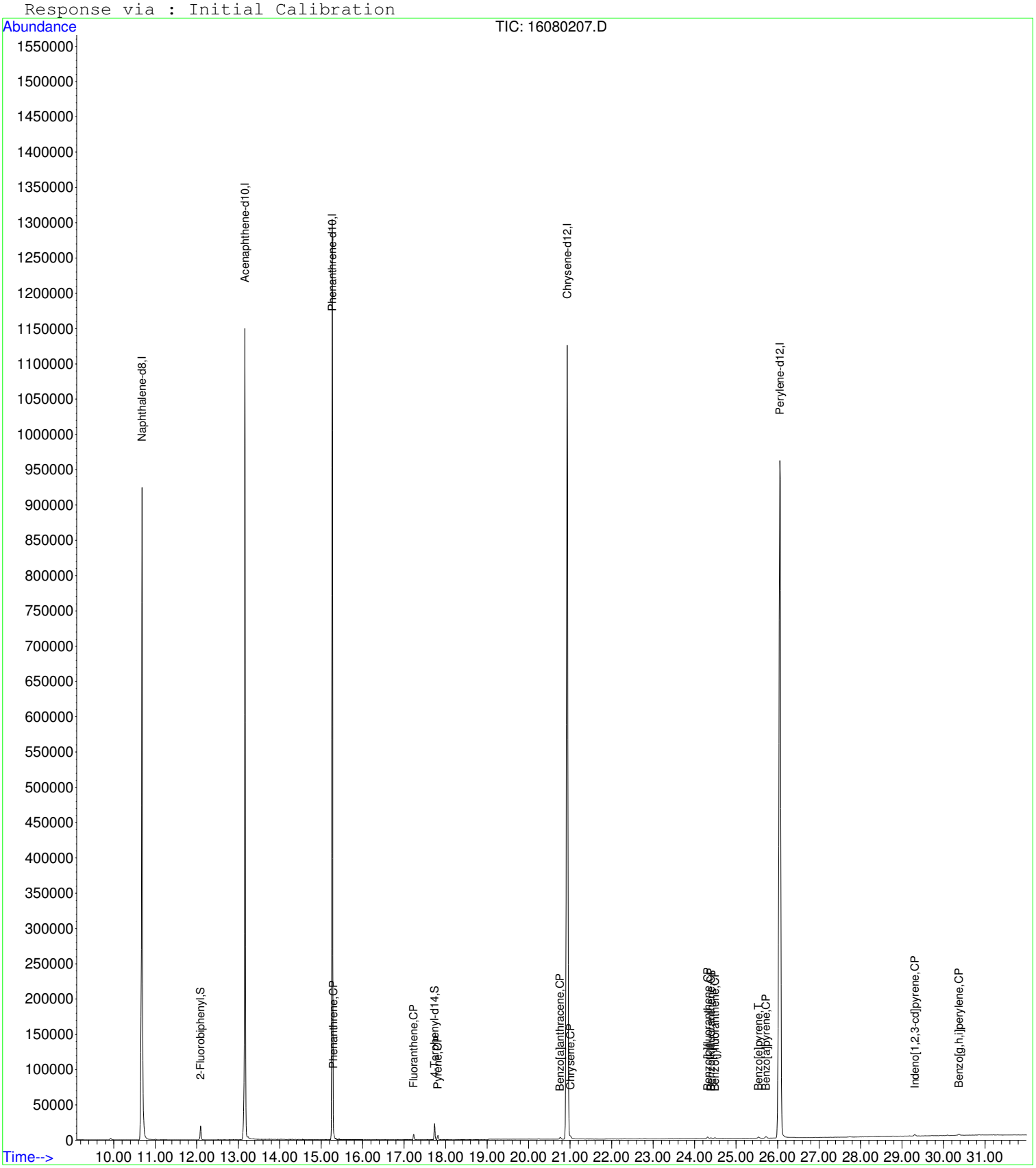
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1554761	4000.00	ug/kg	111
5) Acenaphthene-d10	13.16	164	724512	4000.00	ug/kg	121
11) Phenanthrene-d10	15.27	188	1530055	4000.00	ug/kg	96
17) Chrysene-d12	20.93	240	2015688	4000.00	ug/kg	110
20) Perylene-d12	26.06	264	2020832	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	22021	87.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#		
16) 4-Terphenyl-d14	17.73	244	32886	91.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.28%#		
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	4276	11.79	ug/kg	96
14) Fluoranthene	17.23	202	9140	21.26	ug/kg	97
15) Pyrene	17.81	202	7642	17.53	ug/kg	98
18) Benzo[a]anthracene	20.76	228	4294	9.45	ug/kg	98
19) Chrysene	21.01	228	4879	11.16	ug/kg	98
21) Benzo[b]fluoranthene	24.31	252	4633	9.93	ug/kg	97
22) Benzo[k]fluoranthene	24.39	252	2183	5.10	ug/kg	97
23) Benzo(j)fluoranthene	24.49	252	2182	5.31	ug/kg	83
24) Benzo[e]pyrene	25.54	252	3573	7.89	ug/kg	95
25) Benzo[a]pyrene	25.72	252	4786	10.62	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.31	276	3563	6.88	ug/kg	91
28) Benzo[g,h,i]perylene	30.37	276	3438	7.93	ug/kg	96

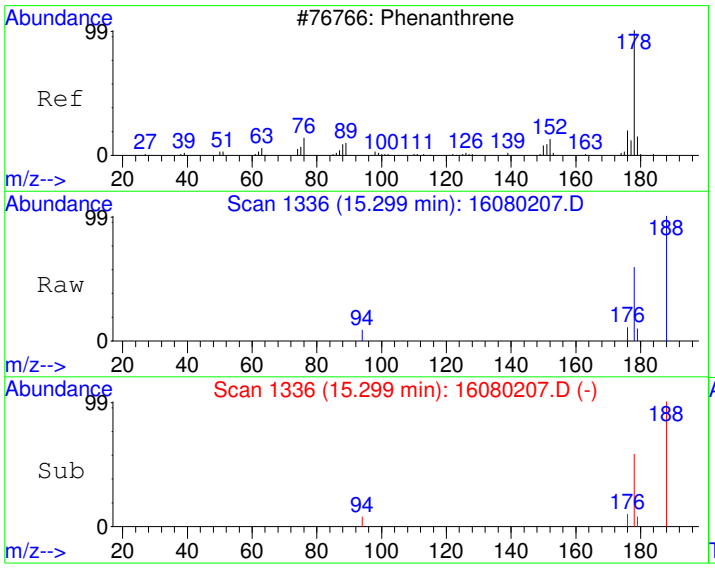
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080207.D Vial: 7
Acq On : 2 Aug 2016 12:49 pm Operator: DEW
Sample : 1607256-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

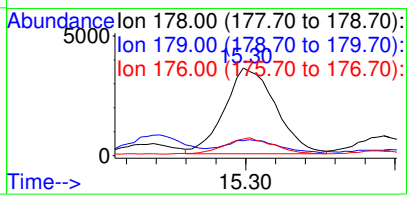


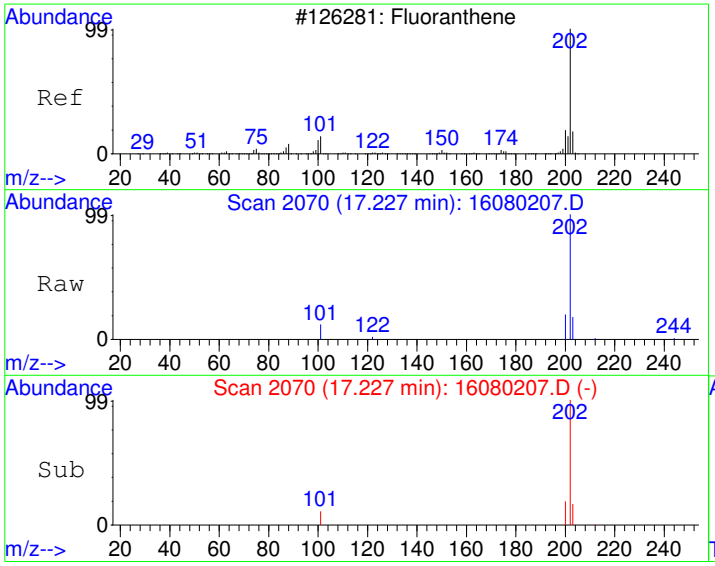


#12
Phenanthrene
Concen: 11.79 ug/kg
RT: 15.30 min Scan# 1336
Delta R.T. -0.01 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:178 Resp: 4276

Ion	Ratio	Lower	Upper
178	100		
179	13.4	0.0	45.7
176	17.5	0.0	48.7

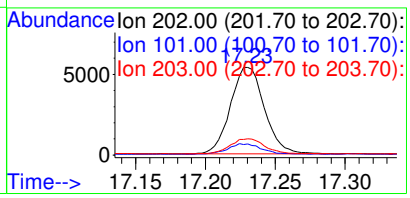


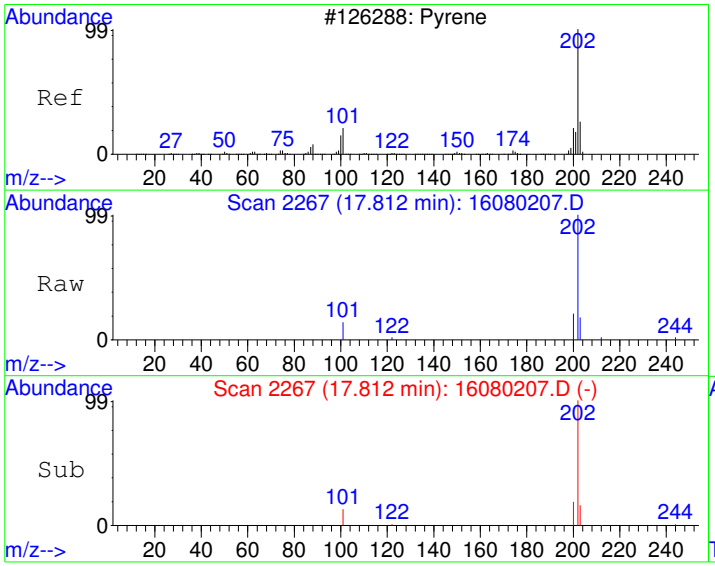


#14
Fluoranthene
Concen: 21.26 ug/kg
RT: 17.23 min Scan# 2070
Delta R.T. -0.00 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:202 Resp: 9140

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	42.1
203	16.7	0.0	47.9

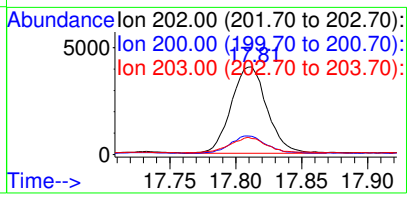


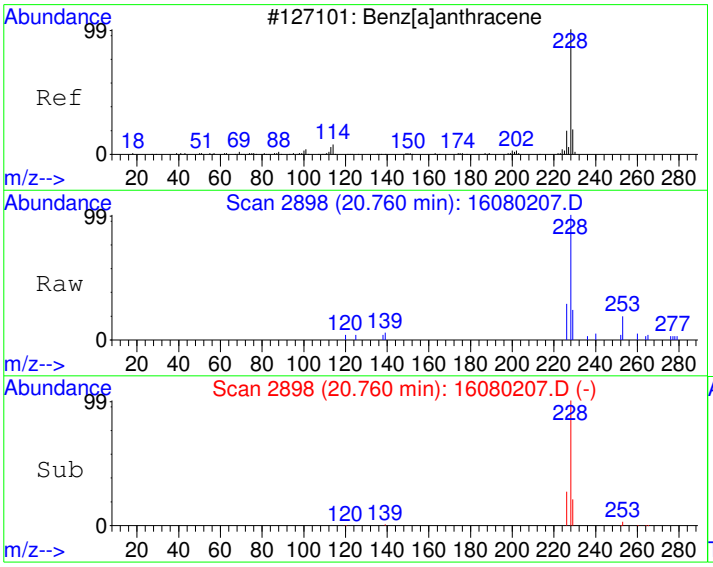


#15
Pyrene
Concen: 17.53 ug/kg
RT: 17.81 min Scan# 2267
Delta R.T. -0.00 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:202 Resp: 7642

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	49.7
203	16.6	0.0	47.8

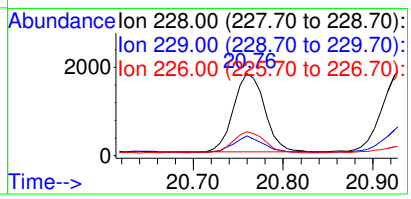


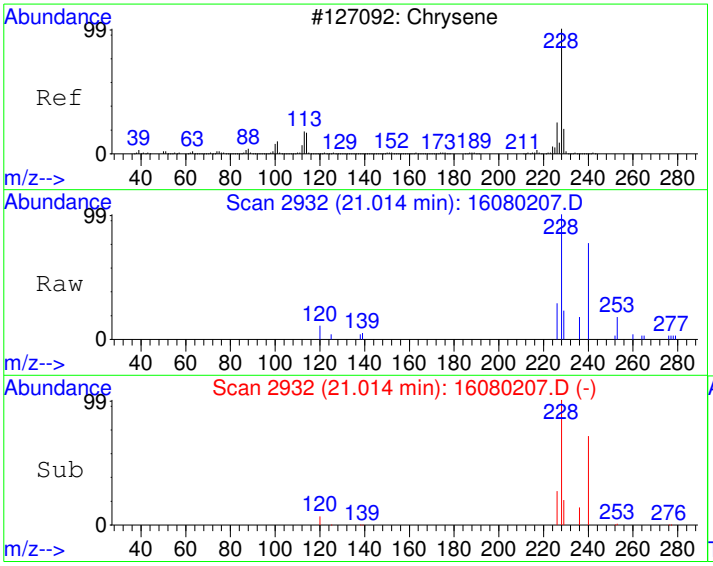


#18
Benzo[a]anthracene
Concen: 9.45 ug/kg
RT: 20.76 min Scan# 2898
Delta R.T. -0.01 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:228 Resp: 4294

Ion	Ratio	Lower	Upper
228	100		
229	21.0	0.0	49.8
226	26.6	0.0	55.8

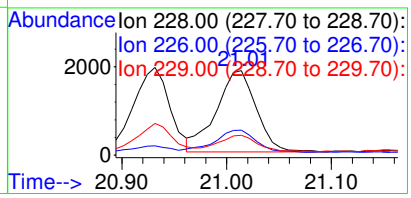


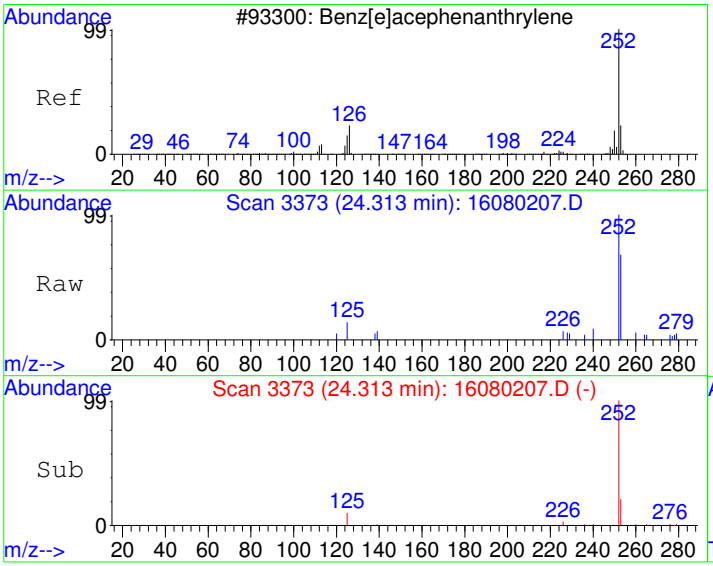


#19
Chrysene
Concen: 11.16 ug/kg
RT: 21.01 min Scan# 2932
Delta R.T. -0.01 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:228 Resp: 4879

Ion	Ratio	Lower	Upper
228	100		
226	26.8	0.0	58.1
229	19.5	0.0	50.0

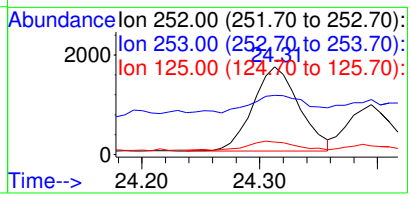


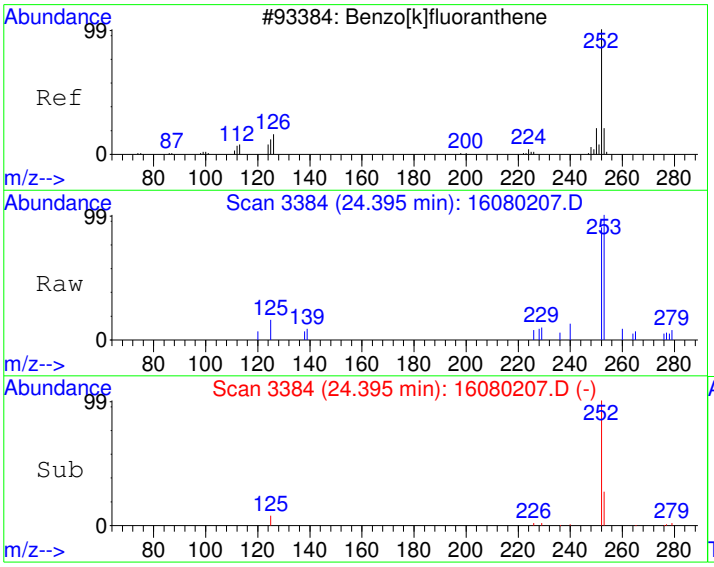


#21
Benzo[b]fluoranthene
Concen: 9.93 ug/kg
RT: 24.31 min Scan# 3373
Delta R.T. -0.02 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 4633

Ion	Ratio	Lower	Upper
252	100		
253	20.7	0.0	52.0
125	9.6	0.0	40.6

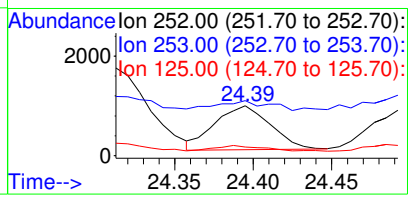


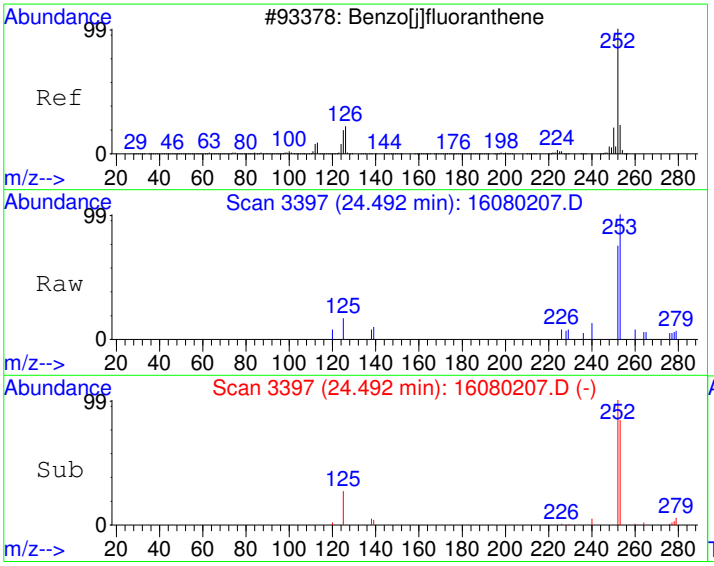


#22
Benzo[k]fluoranthene
Concen: 5.10 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.02 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 2183

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.2	42.2
125	9.3	0.0	30.3

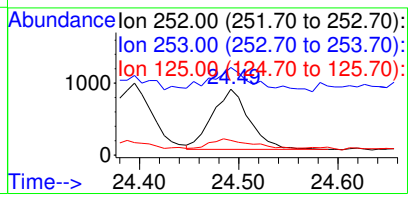


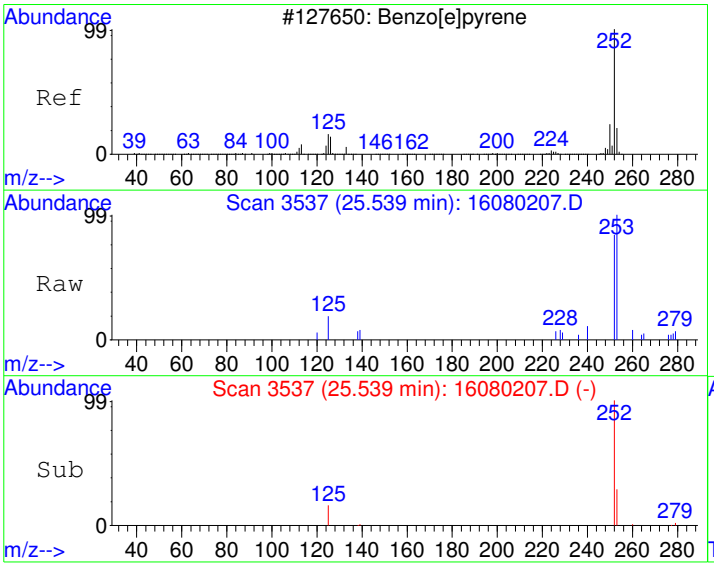


#23
Benzo(j)fluoranthene
Concen: 5.31 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 2182

Ion	Ratio	Lower	Upper
252	100		
253	34.5	2.2	42.2
125	13.2	0.0	34.4

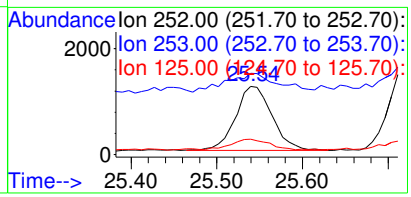


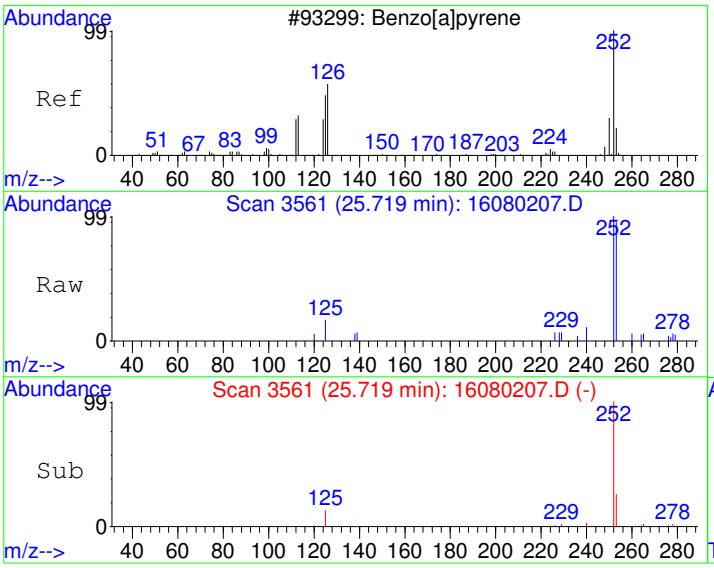


#24
Benzo[e]pyrene
Concen: 7.89 ug/kg
RT: 25.54 min Scan# 3537
Delta R.T. -0.02 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 3573

Ion	Ratio	Lower	Upper
252	100		
253	26.2	2.2	42.2
125	16.0	0.0	35.7

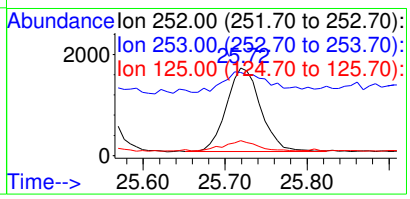


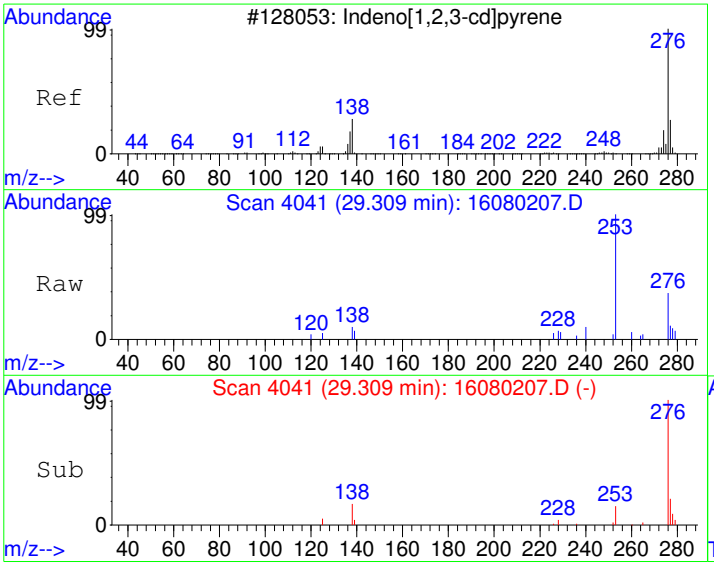


#25
Benzo[a]pyrene
Concen: 10.62 ug/kg
RT: 25.72 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 4786

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.0	42.0
125	12.3	0.0	31.6

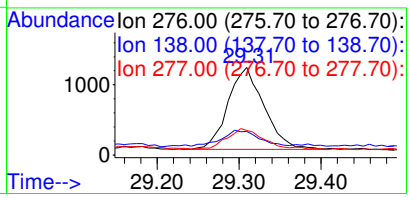


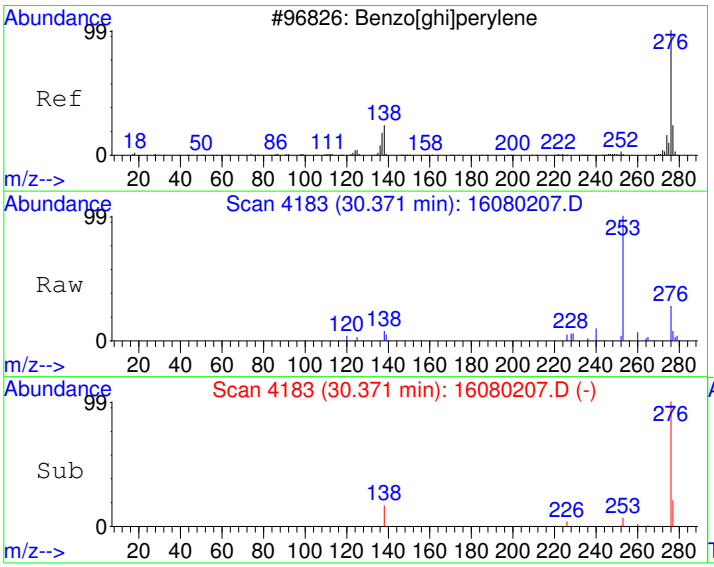


#27
Indeno[1,2,3-cd]pyrene
Concen: 6.88 ug/kg
RT: 29.31 min Scan# 4041
Delta R.T. -0.02 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:276 Resp: 3563

Ion	Ratio	Lower	Upper
276	100		
138	17.9	4.8	44.8
277	23.5	5.6	45.6

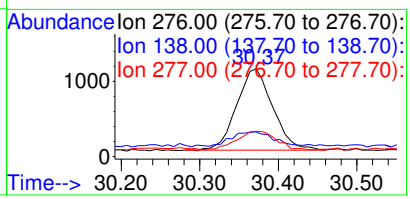




#28
Benzo[g,h,i]perylene
Concen: 7.93 ug/kg
RT: 30.37 min Scan# 4183
Delta R.T. -0.02 min
Lab File: 16080207.D
Acq: 2 Aug 2016 12:49 pm

Tgt Ion:276 Resp: 3438

Ion	Ratio	Lower	Upper
276	100		
138	17.0	0.0	38.1
277	21.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080208.D Vial: 8
Acq On : 2 Aug 2016 1:30 pm Operator: DEW
Sample : 1607256-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

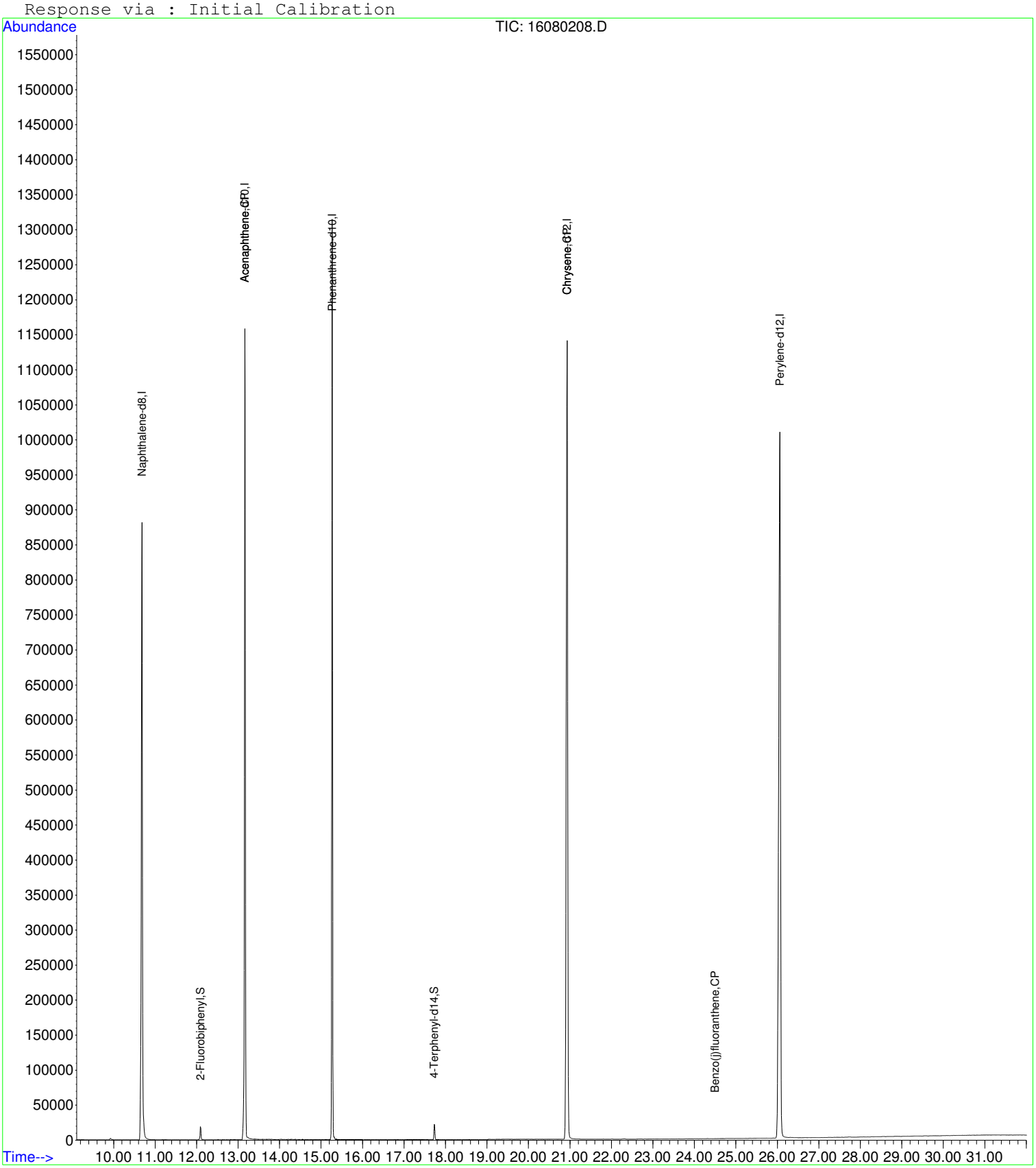
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1545190	4000.00	ug/kg	110
5) Acenaphthene-d10	13.16	164	731822	4000.00	ug/kg	122
11) Phenanthrene-d10	15.27	188	1548547	4000.00	ug/kg	97
17) Chrysene-d12	20.93	240	2047894	4000.00	ug/kg	112
20) Perylene-d12	26.06	264	2069820	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20901	81.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.73	244	31841	87.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2407	12.82	ug/kg#	10
19) Chrysene	20.93	228	4412	9.94	ug/kg	70
23) Benzo(j)fluoranthene	24.51	252	54	0.13	ug/kg#	56

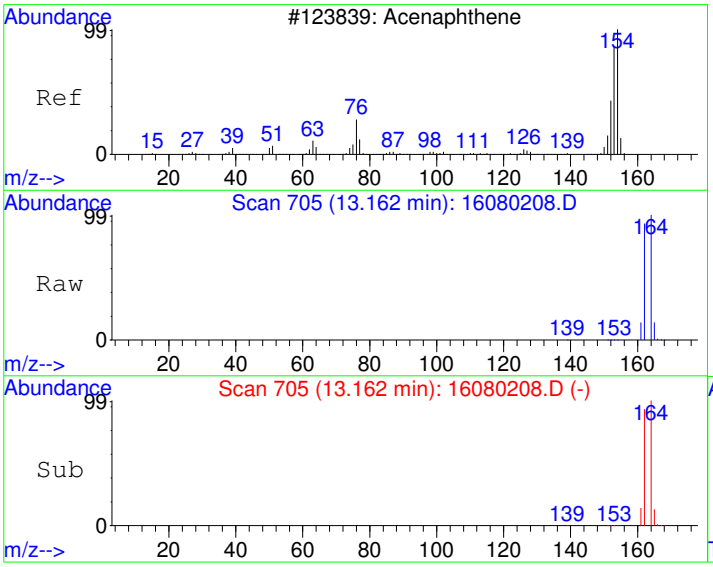
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080208.D Vial: 8
Acq On : 2 Aug 2016 1:30 pm Operator: DEW
Sample : 1607256-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

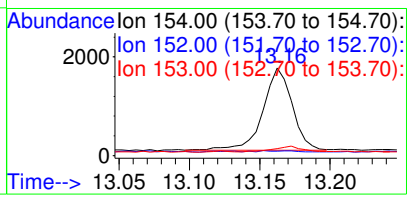


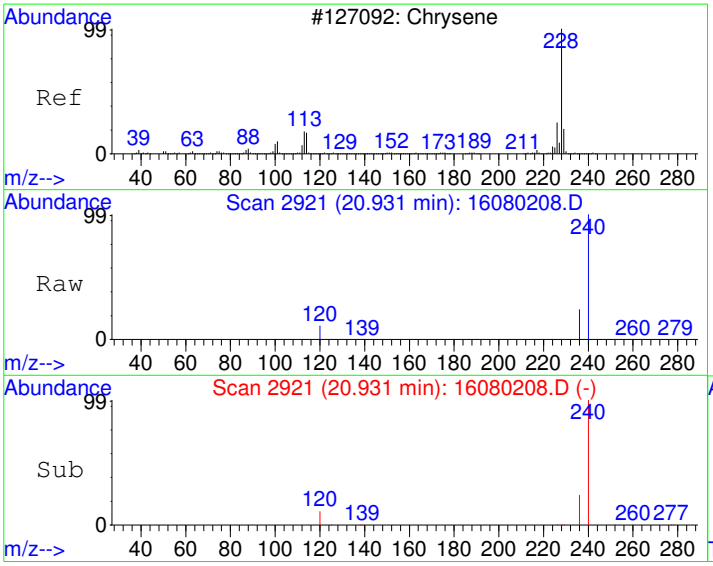


#9
Acenaphthene
Concen: 12.82 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080208.D
Acq: 2 Aug 2016 1:30 pm

Tgt Ion:154 Resp: 2407

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	3.7	76.2	136.2#

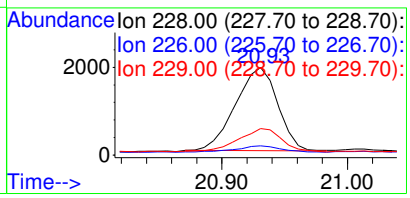


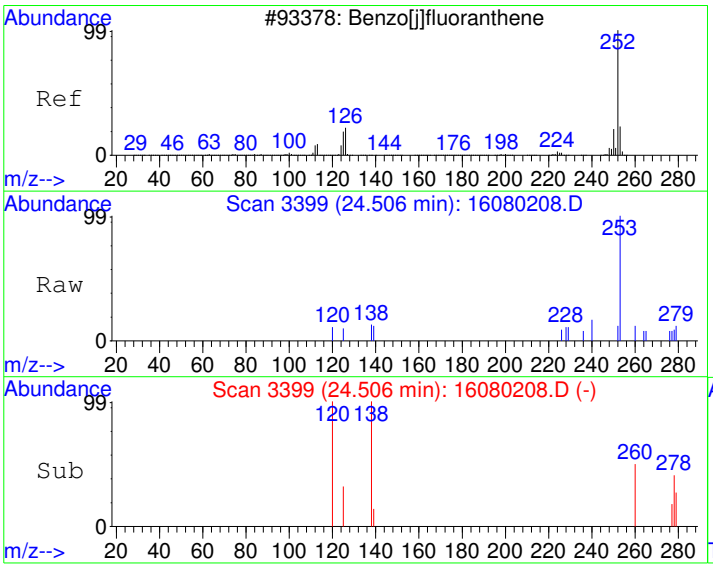


#19
Chrysene
Concen: 9.94 ug/kg
RT: 20.93 min Scan# 2921
Delta R.T. -0.09 min
Lab File: 16080208.D
Acq: 2 Aug 2016 1:30 pm

Tgt Ion:228 Resp: 4412

Ion	Ratio	Lower	Upper
228	100		
226	7.5	0.0	58.1
229	28.2	0.0	50.0

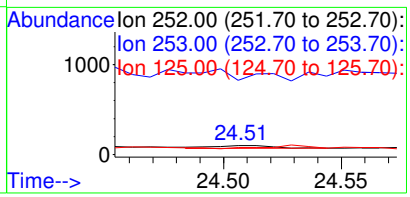




#23
Benzo(j)fluoranthene
Concen: 0.13 ug/kg
RT: 24.51 min Scan# 3399
Delta R.T. -0.00 min
Lab File: 16080208.D
Acq: 2 Aug 2016 1:30 pm

Tgt Ion:252 Resp: 54

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	31.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080209.D Vial: 9
Acq On : 2 Aug 2016 2:11 pm Operator: DEW
Sample : 1607256-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

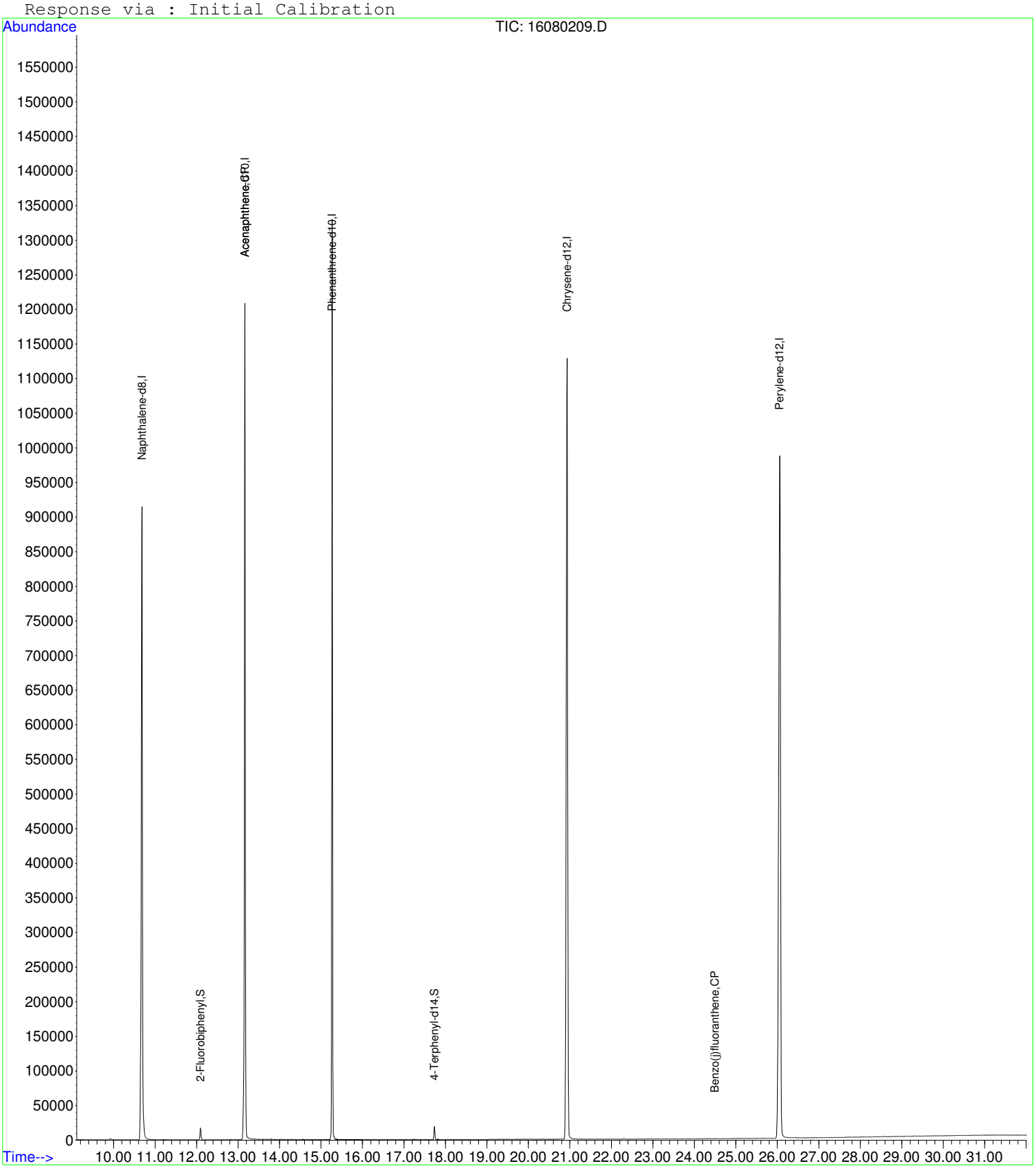
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1621644	4000.00	ug/kg	116
5) Acenaphthene-d10	13.16	164	775954	4000.00	ug/kg	129
11) Phenanthrene-d10	15.27	188	1562958	4000.00	ug/kg	98
17) Chrysene-d12	20.93	240	2053266	4000.00	ug/kg	112
20) Perylene-d12	26.06	264	2079051	4000.00	ug/kg	108
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20032	74.01	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#		
16) 4-Terphenyl-d14	17.73	244	28319	76.78	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2664	13.39	ug/kg#	12
23) Benzo(j)fluoranthene	24.49	252	281	0.66	ug/kg#	1

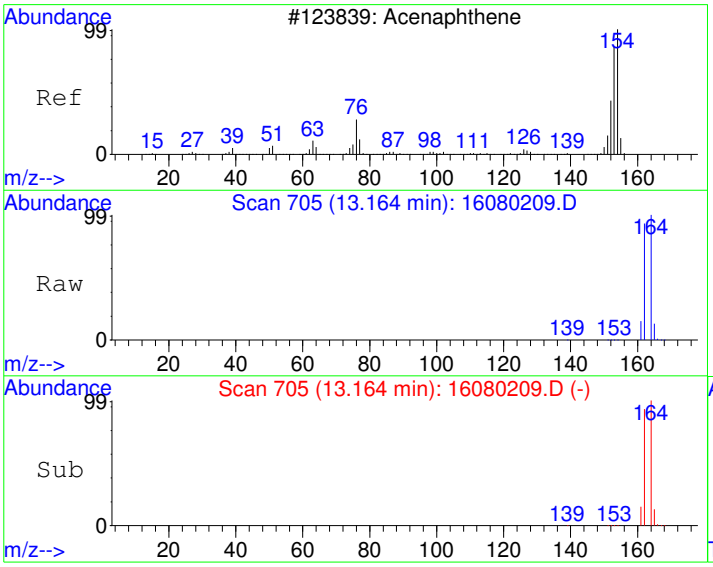
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080209.D Vial: 9
Acq On : 2 Aug 2016 2:11 pm Operator: DEW
Sample : 1607256-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

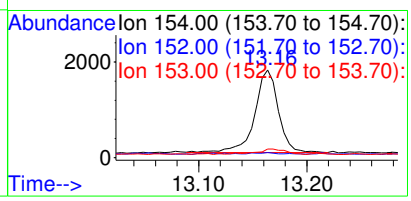


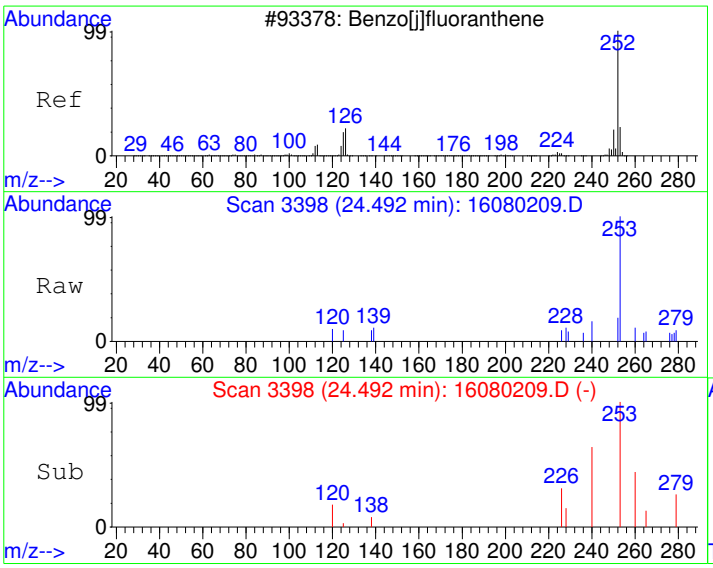


#9
Acenaphthene
Concen: 13.39 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080209.D
Acq: 2 Aug 2016 2:11 pm

Tgt Ion:154 Resp: 2664

Ion	Ratio	Lower	Upper
154	100		
152	1.7	19.1	79.1#
153	6.2	76.2	136.2#

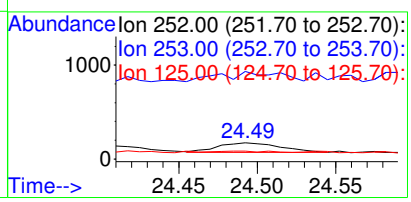




#23
Benzo(j)fluoranthene
Concen: 0.66 ug/kg
RT: 24.49 min Scan# 3398
Delta R.T. -0.02 min
Lab File: 16080209.D
Acq: 2 Aug 2016 2:11 pm

Tgt Ion:252 Resp: 281

Ion	Ratio	Lower	Upper
252	100		
253	104.9	2.2	42.2#
125	2.9	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080210.D Vial: 10
Acq On : 2 Aug 2016 2:52 pm Operator: DEW
Sample : 1607256-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

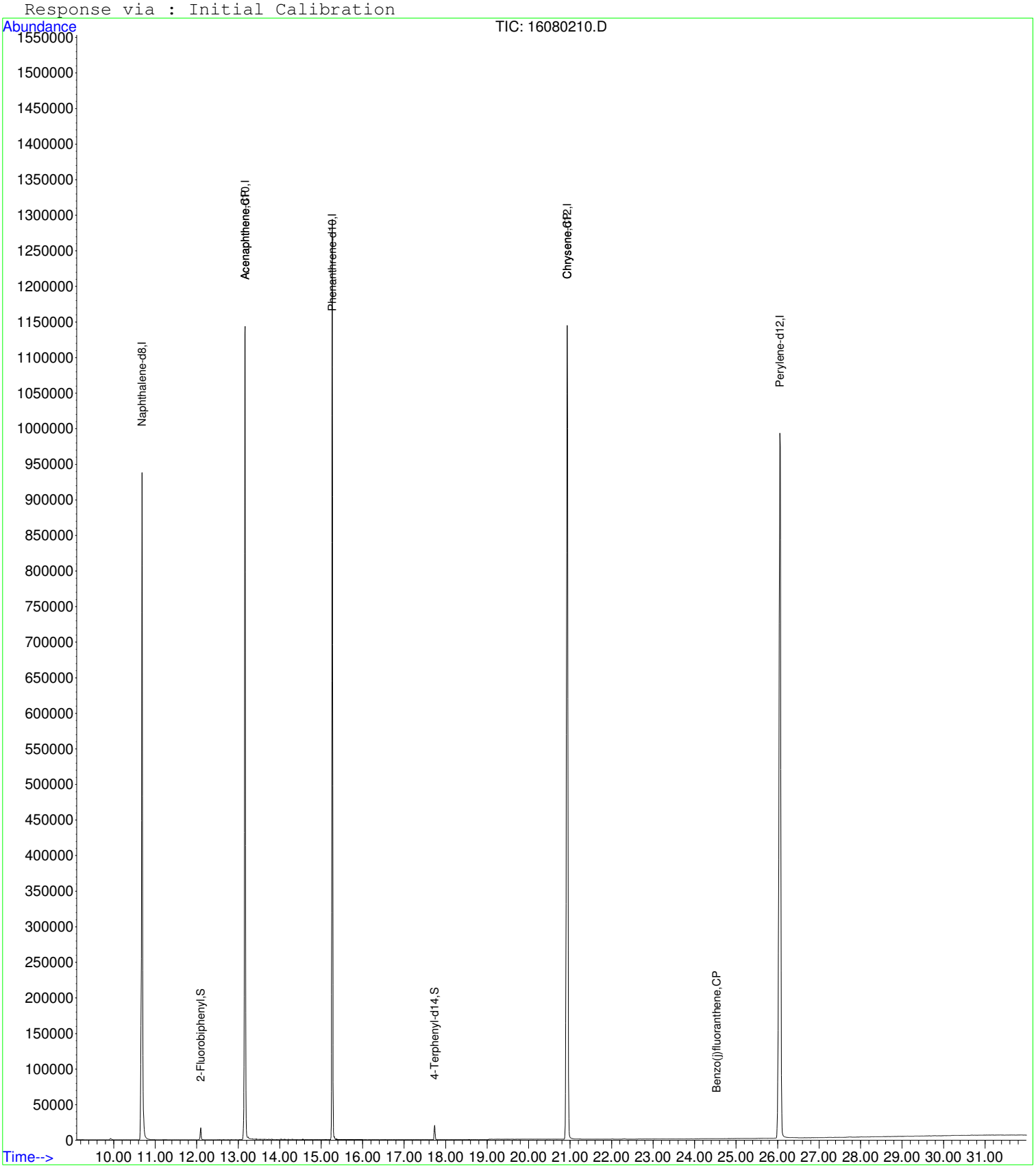
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1545269	4000.00	ug/kg	110
5) Acenaphthene-d10	13.17	164	731455	4000.00	ug/kg	122
11) Phenanthrene-d10	15.27	188	1513523	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	2059581	4000.00	ug/kg	112
20) Perylene-d12	26.06	264	2064768	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	19427	76.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#		
16) 4-Terphenyl-d14	17.73	244	29768	83.34	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2611	13.92	ug/kg#	10
19) Chrysene	20.93	228	4570	10.23	ug/kg	72
23) Benzo(j)fluoranthene	24.52	252	34	0.08	ug/kg#	1

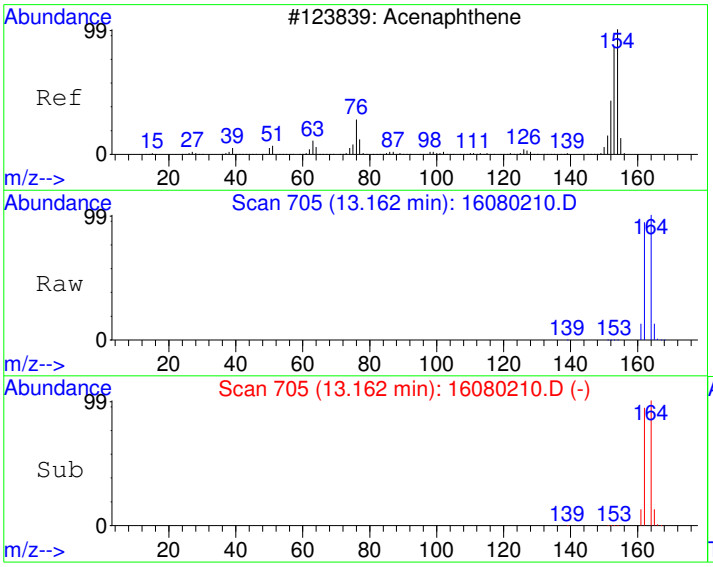
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080210.D Vial: 10
Acq On : 2 Aug 2016 2:52 pm Operator: DEW
Sample : 1607256-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

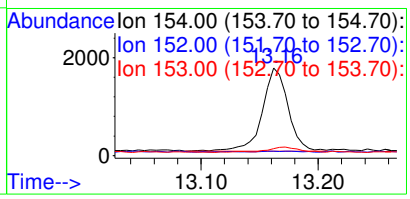


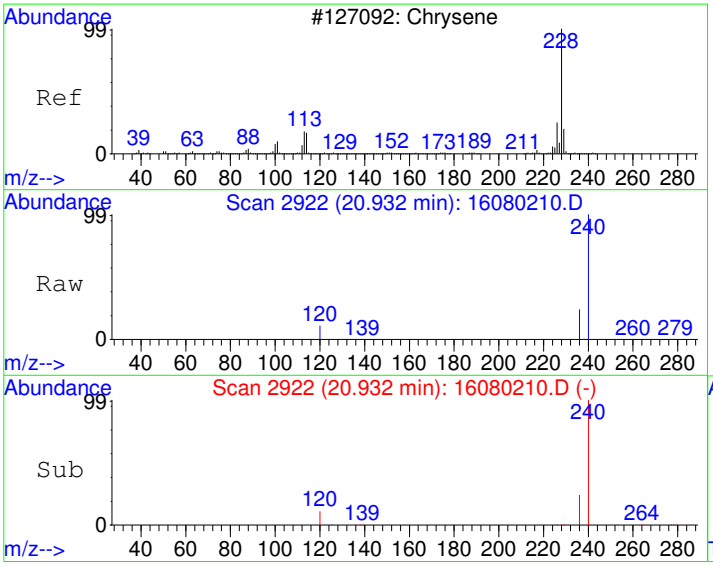


#9
Acenaphthene
Concen: 13.92 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080210.D
Acq: 2 Aug 2016 2:52 pm

Tgt Ion:154 Resp: 2611

Ion	Ratio	Lower	Upper
154	100		
152	0.4	19.1	79.1#
153	4.5	76.2	136.2#

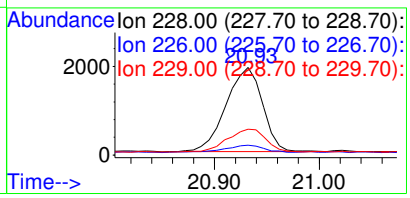


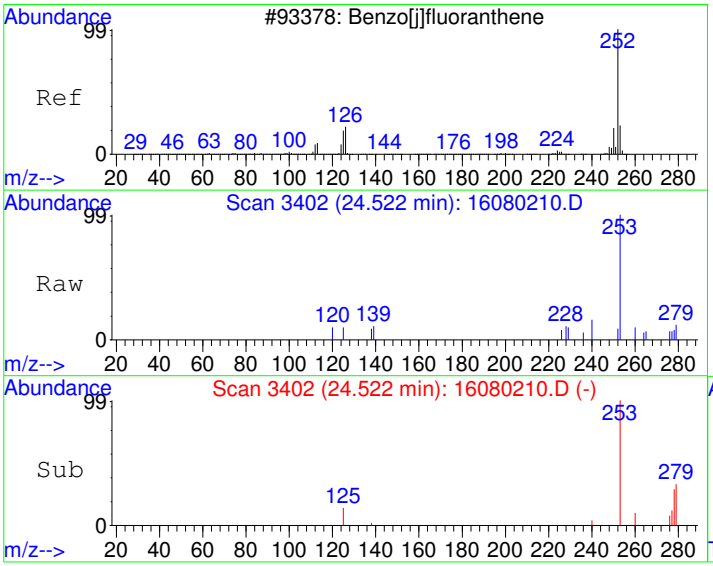


#19
Chrysene
Concen: 10.23 ug/kg
RT: 20.93 min Scan# 2922
Delta R.T. -0.09 min
Lab File: 16080210.D
Acq: 2 Aug 2016 2:52 pm

Tgt Ion:228 Resp: 4570

Ion	Ratio	Lower	Upper
228	100		
226	8.2	0.0	58.1
229	26.9	0.0	50.0

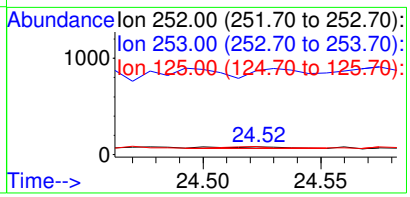




#23
Benzo(j)fluoranthene
Concen: 0.08 ug/kg
RT: 24.52 min Scan# 3402
Delta R.T. 0.01 min
Lab File: 16080210.D
Acq: 2 Aug 2016 2:52 pm

Tgt Ion:252 Resp: 34

Ion	Ratio	Lower	Upper
252	100		
253	135.3	2.2	42.2#
125	105.9	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080211.D Vial: 11
Acq On : 2 Aug 2016 3:33 pm Operator: DEW
Sample : 1607256-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

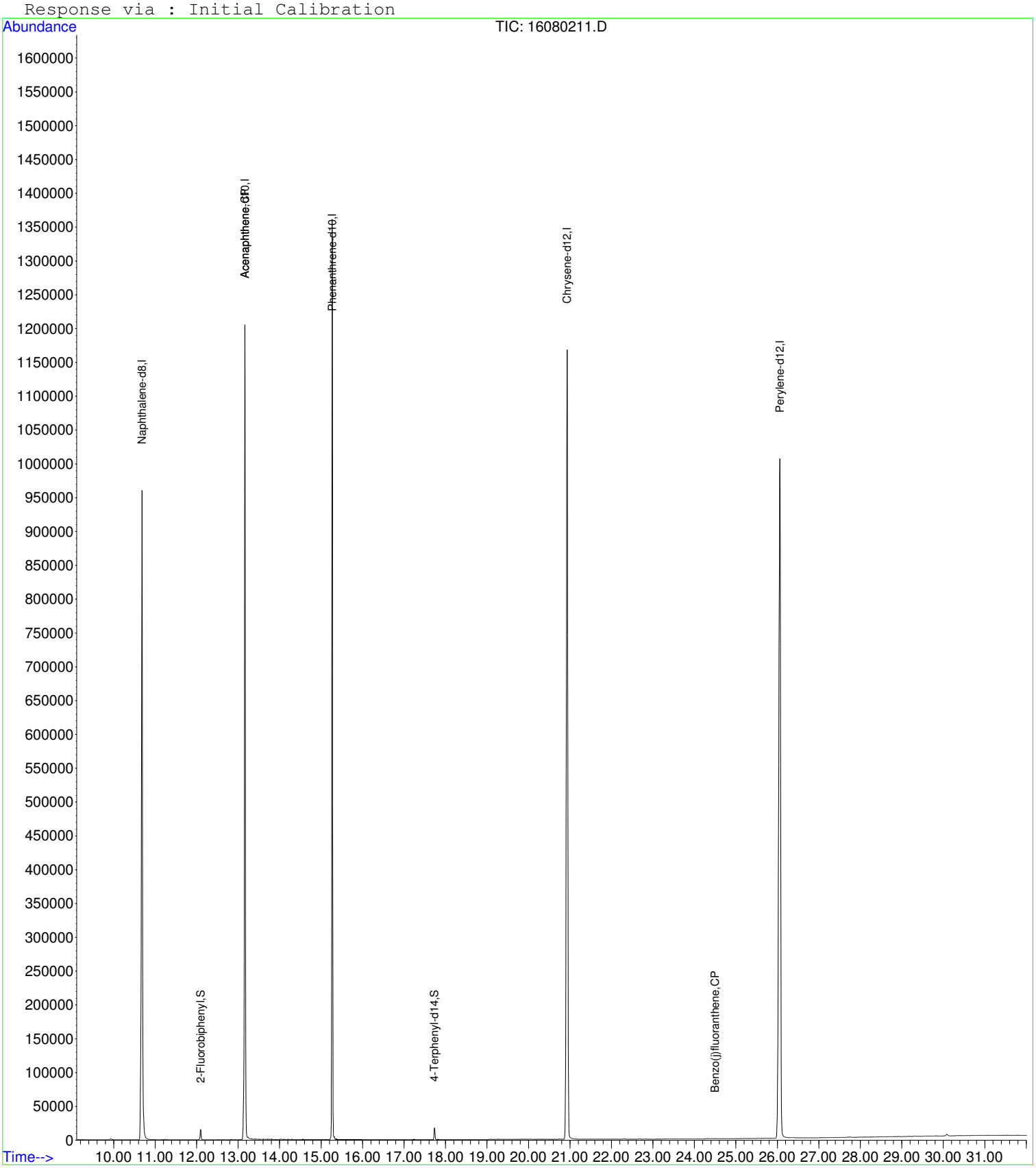
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1647650	4000.00	ug/kg	117
5) Acenaphthene-d10	13.16	164	769901	4000.00	ug/kg	128
11) Phenanthrene-d10	15.27	188	1588505	4000.00	ug/kg	100
17) Chrysene-d12	20.93	240	2090138	4000.00	ug/kg	114
20) Perylene-d12	26.06	264	2124621	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	18029	67.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.68%#		
16) 4-Terphenyl-d14	17.73	244	25757	68.71	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.72%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2671	~~13.53~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.49	252	373	0.86	ug/kg#	70

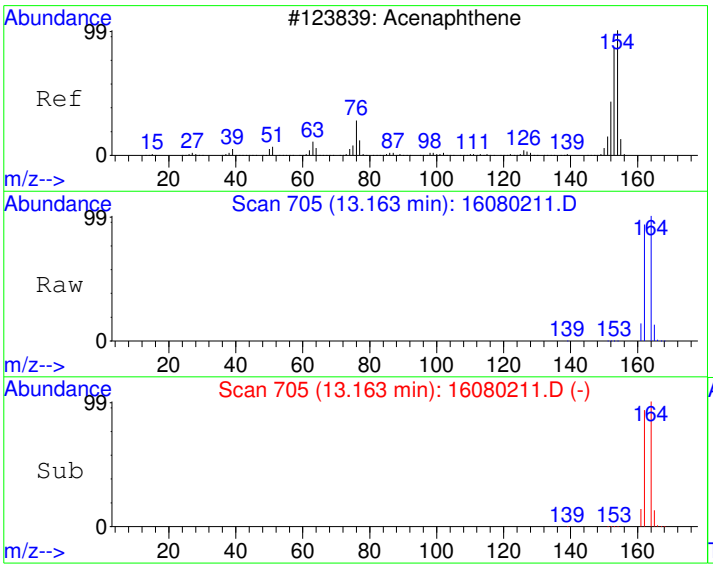
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080211.D Vial: 11
Acq On : 2 Aug 2016 3:33 pm Operator: DEW
Sample : 1607256-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

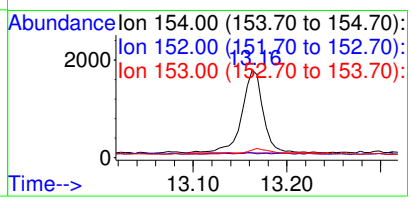


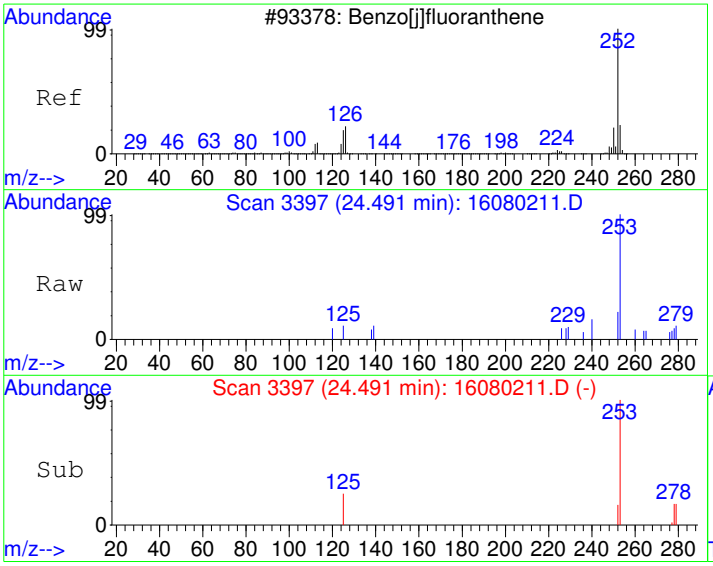


#9
Acenaphthene
Concen: 13.53 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080211.D
Acq: 2 Aug 2016 3:33 pm

Tgt Ion:154 Resp: 2671

Ion	Ratio	Lower	Upper
154	100		
152	1.4	19.1	79.1#
153	4.8	76.2	136.2#

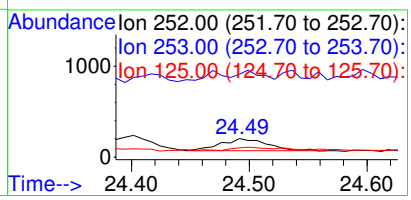




#23
Benzo(j)fluoranthene
Concen: 0.86 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080211.D
Acq: 2 Aug 2016 3:33 pm

Tgt Ion:252 Resp: 373

Ion	Ratio	Lower	Upper
252	100		
253	45.9	2.2	42.2#
125	14.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080212.D Vial: 12
Acq On : 2 Aug 2016 4:13 pm Operator: DEW
Sample : 1607256-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

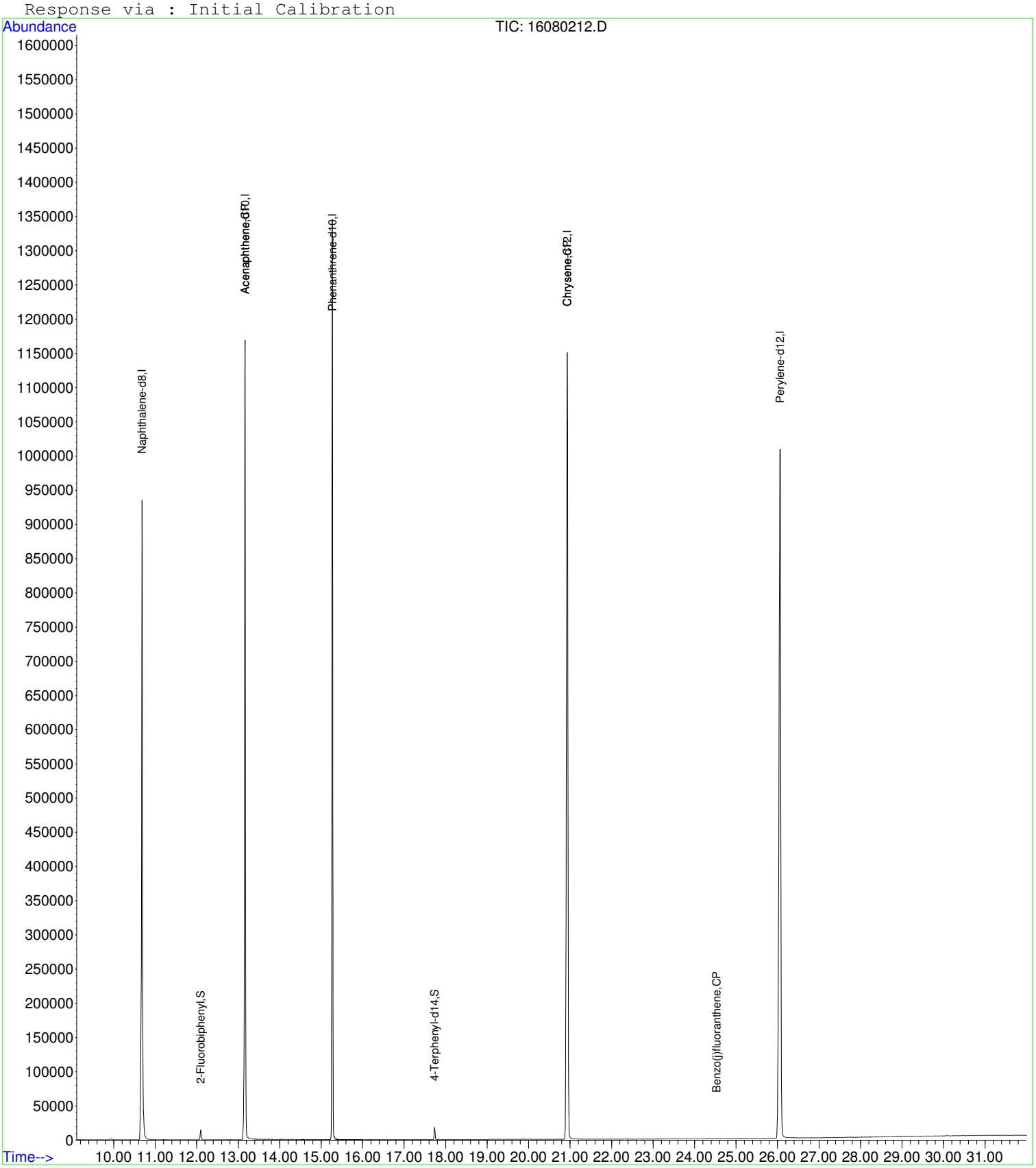
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1609818	4000.00	ug/kg	115
5) Acenaphthene-d10	13.17	164	753639	4000.00	ug/kg	126
11) Phenanthrene-d10	15.27	188	1578908	4000.00	ug/kg	99
17) Chrysene-d12	20.93	240	2081947	4000.00	ug/kg	114
20) Perylene-d12	26.06	264	2094718	4000.00	ug/kg	109
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	17263	65.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.64%#		
16) 4-Terphenyl-d14	17.73	244	26175	70.25	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
9) Acenaphthene	13.17	154	2540	13.14	ug/kg#	12
19) Chrysene	20.93	228	4520	10.01	ug/kg	68
23) Benzo(j)fluoranthene	24.52	252	47	0.11	ug/kg#	14

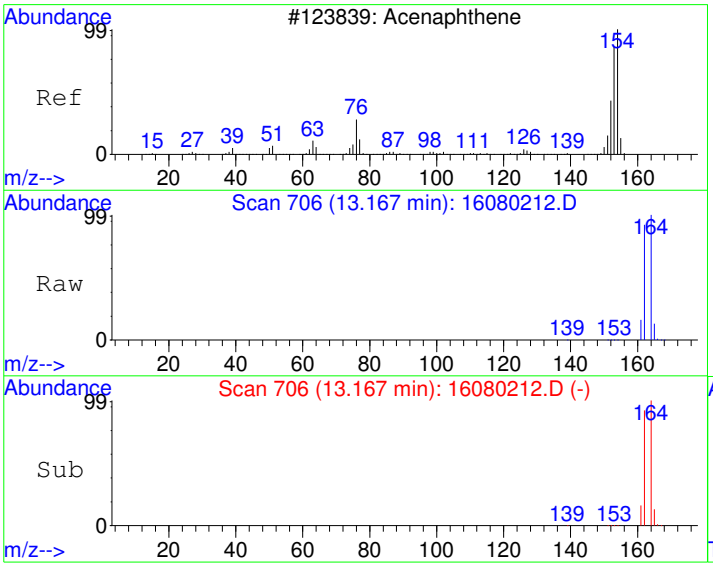
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080212.D Vial: 12
Acq On : 2 Aug 2016 4:13 pm Operator: DEW
Sample : 1607256-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:59 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

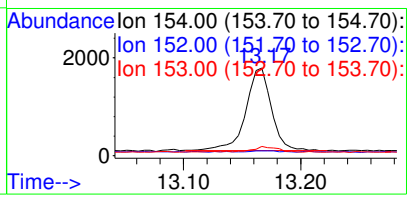


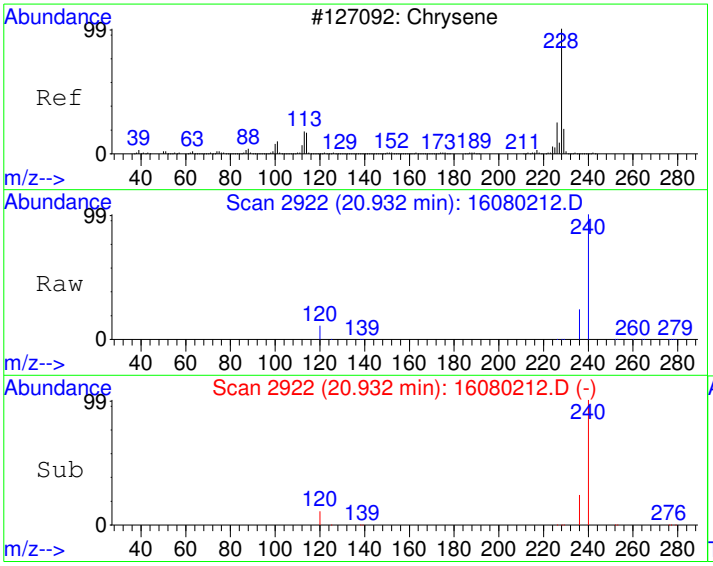


#9
Acenaphthene
Concen: 13.14 ug/kg
RT: 13.17 min Scan# 706
Delta R.T. -0.05 min
Lab File: 16080212.D
Acq: 2 Aug 2016 4:13 pm

Tgt Ion:154 Resp: 2540

Ion	Ratio	Lower	Upper
154	100		
152	1.5	19.1	79.1#
153	7.0	76.2	136.2#

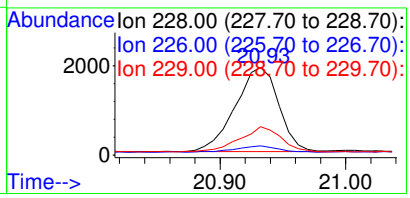


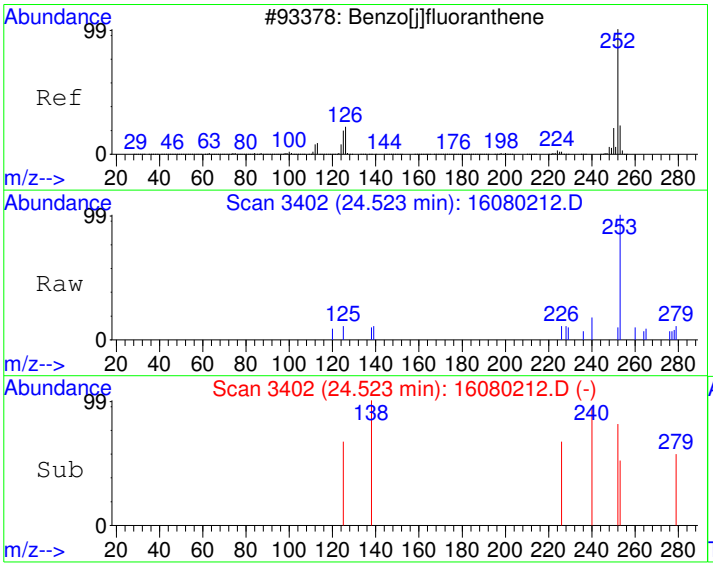


#19
Chrysene
Concen: 10.01 ug/kg
RT: 20.93 min Scan# 2922
Delta R.T. -0.09 min
Lab File: 16080212.D
Acq: 2 Aug 2016 4:13 pm

Tgt Ion:228 Resp: 4520

Ion	Ratio	Lower	Upper
228	100		
226	7.6	0.0	58.1
229	30.0	0.0	50.0

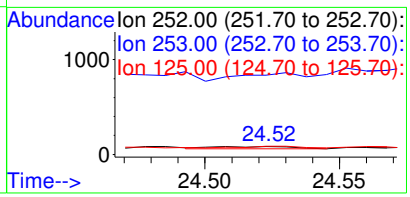




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 24.52 min Scan# 3402
Delta R.T. 0.02 min
Lab File: 16080212.D
Acq: 2 Aug 2016 4:13 pm

Tgt Ion:252 Resp: 47

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	75.0	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080213.D Vial: 13
Acq On : 2 Aug 2016 4:54 pm Operator: DEW
Sample : 1607256-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

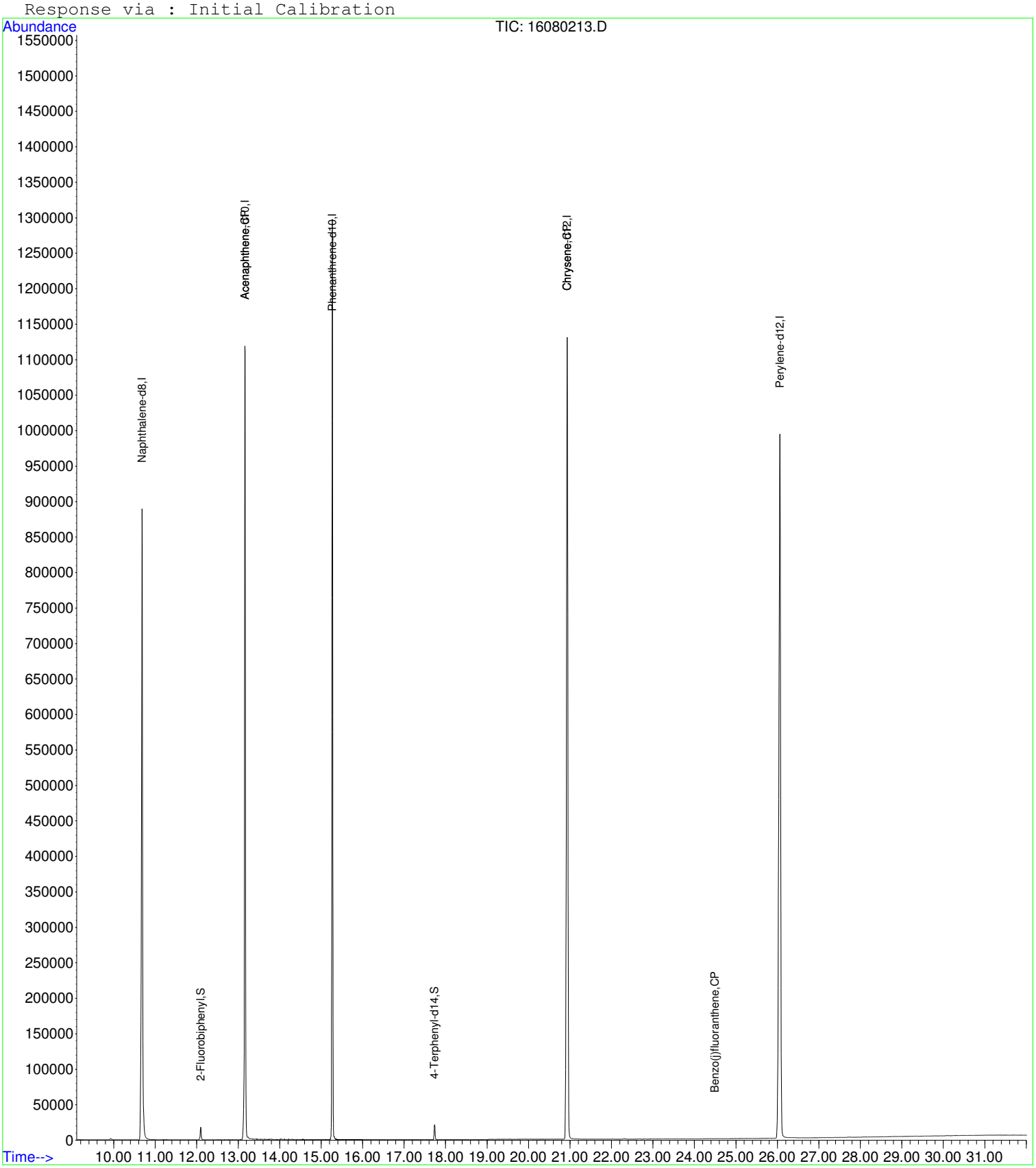
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1565375	4000.00	ug/kg	112
5) Acenaphthene-d10	13.16	164	747261	4000.00	ug/kg	125
11) Phenanthrene-d10	15.27	188	1536377	4000.00	ug/kg	97
17) Chrysene-d12	20.93	240	1974343	4000.00	ug/kg	108
20) Perylene-d12	26.06	264	1984582	4000.00	ug/kg	103
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	21064	80.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
16) 4-Terphenyl-d14	17.73	244	30102	83.02	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2560	13.36	ug/kg#	10
19) Chrysene	20.93	228	4338	10.13	ug/kg	71
23) Benzo(j)fluoranthene	24.49	252	44	0.11	ug/kg#	1

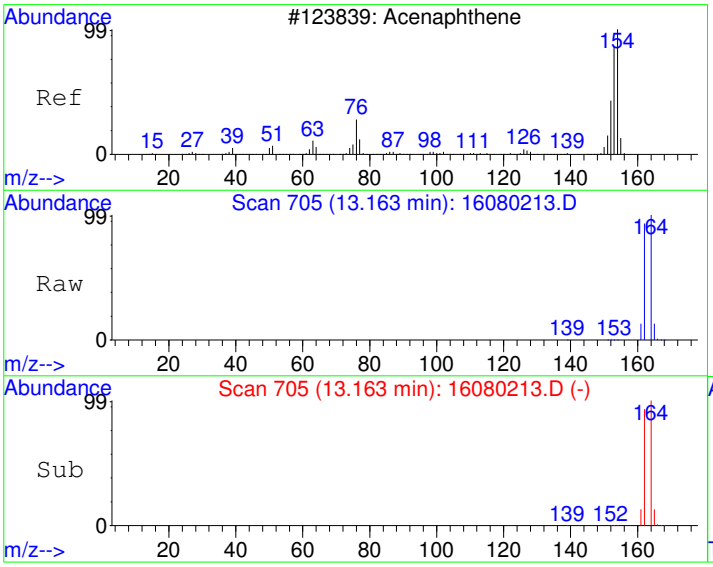
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080213.D Vial: 13
Acq On : 2 Aug 2016 4:54 pm Operator: DEW
Sample : 1607256-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

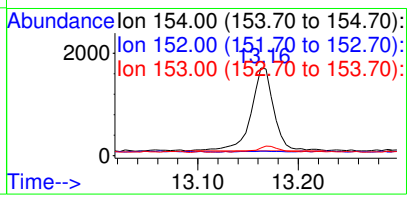


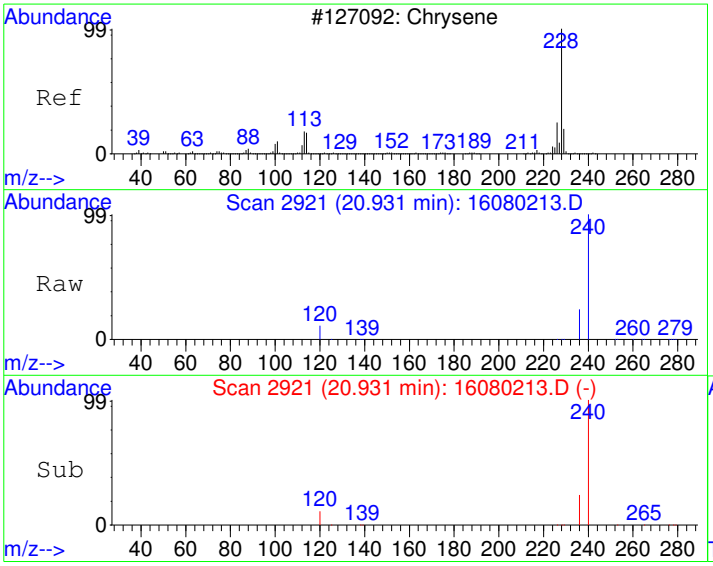


#9
Acenaphthene
Concen: 13.36 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080213.D
Acq: 2 Aug 2016 4:54 pm

Tgt Ion:154 Resp: 2560

Ion	Ratio	Lower	Upper
154	100		
152	0.2	19.1	79.1#
153	4.9	76.2	136.2#

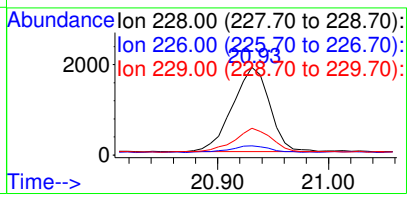


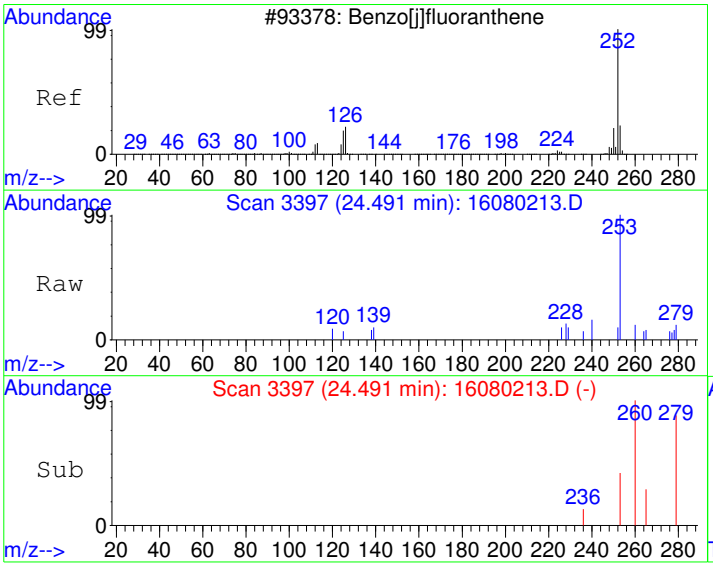


#19
Chrysene
Concen: 10.13 ug/kg
RT: 20.93 min Scan# 2921
Delta R.T. -0.09 min
Lab File: 16080213.D
Acq: 2 Aug 2016 4:54 pm

Tgt Ion:228 Resp: 4338

Ion	Ratio	Lower	Upper
228	100		
226	8.0	0.0	58.1
229	27.9	0.0	50.0

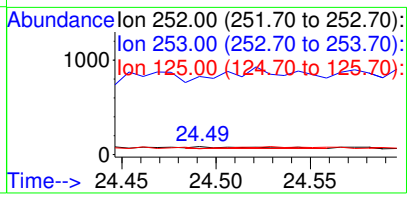




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080213.D
Acq: 2 Aug 2016 4:54 pm

Tgt Ion:252 Resp: 44

Ion	Ratio	Lower	Upper
252	100		
253	314.3	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080214.D Vial: 14
Acq On : 2 Aug 2016 5:35 pm Operator: DEW
Sample : 1607256-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

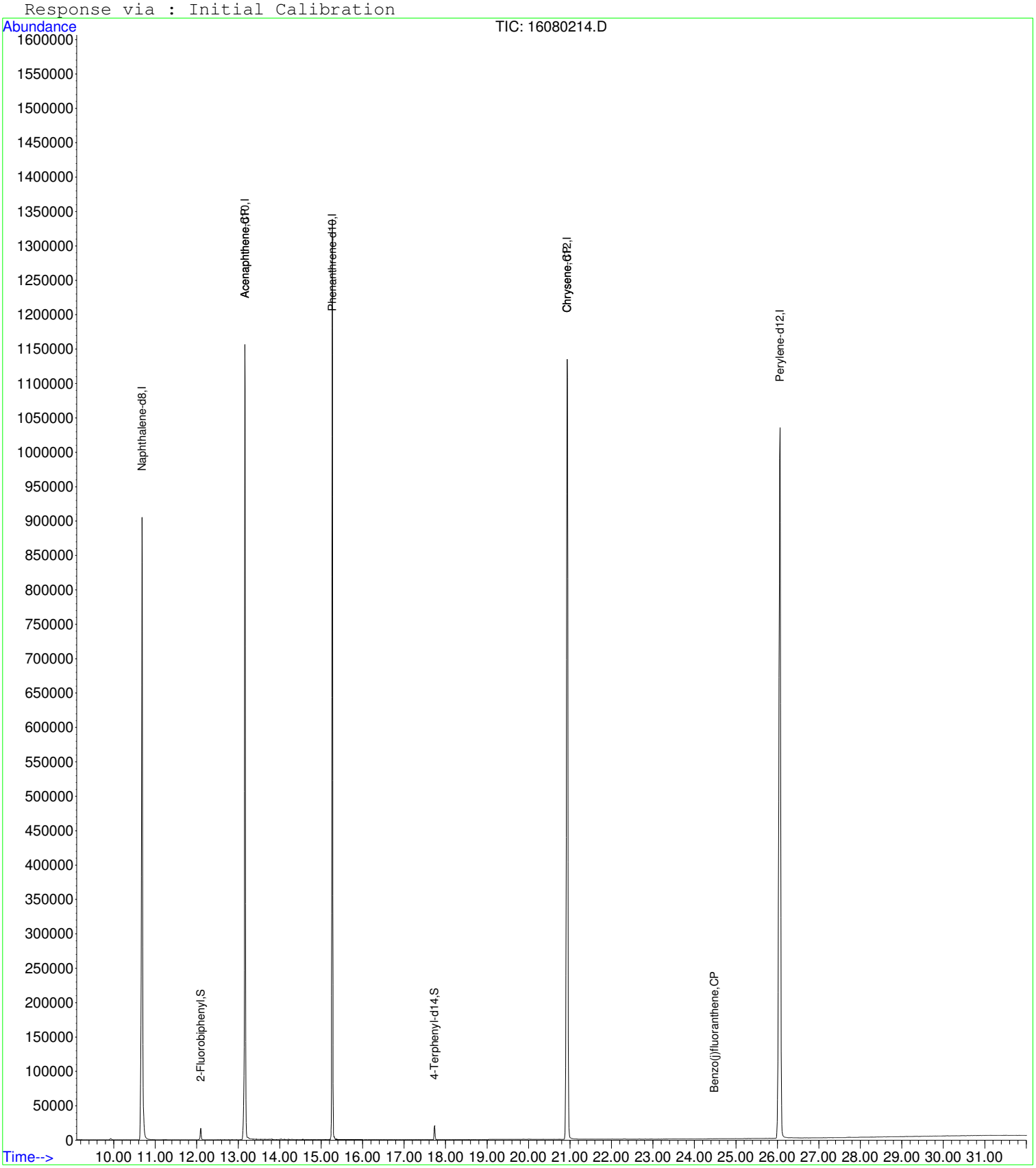
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1569146	4000.00	ug/kg	112
5) Acenaphthene-d10	13.16	164	744428	4000.00	ug/kg	124
11) Phenanthrene-d10	15.27	188	1551762	4000.00	ug/kg	98
17) Chrysene-d12	20.93	240	2040892	4000.00	ug/kg	111
20) Perylene-d12	26.06	264	2071893	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	19599	75.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#		
16) 4-Terphenyl-d14	17.73	244	29645	80.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2463	12.90	ug/kg#	10
19) Chrysene	20.93	228	4488	10.14	ug/kg	69
23) Benzo(j)fluoranthene	24.48	252	29	0.07	ug/kg	75

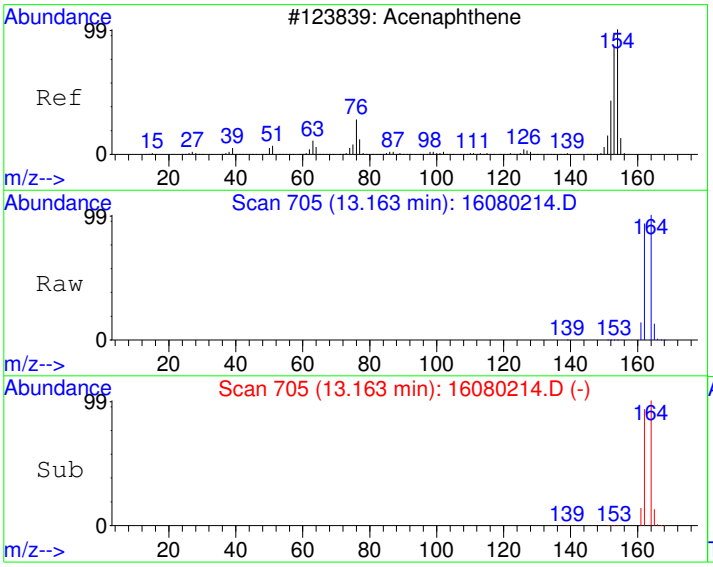
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080214.D Vial: 14
Acq On : 2 Aug 2016 5:35 pm Operator: DEW
Sample : 1607256-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

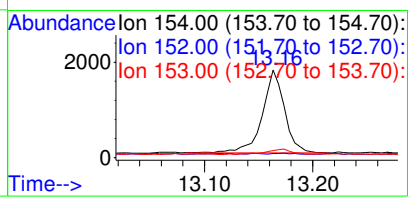


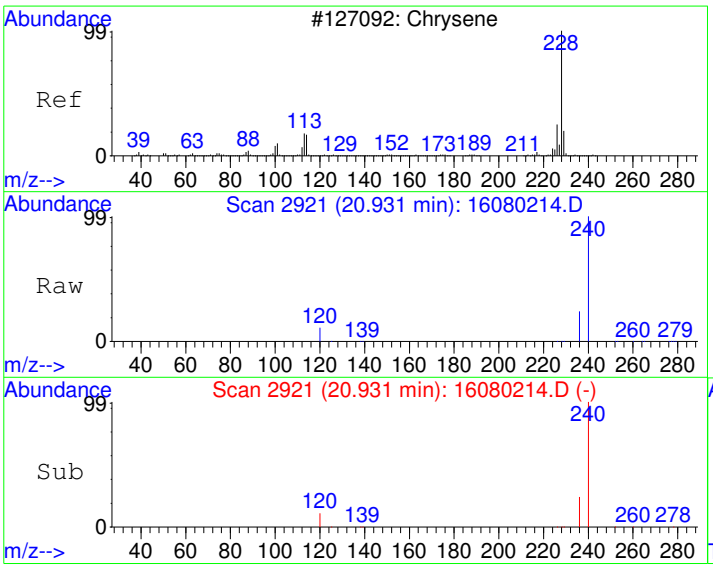


#9
Acenaphthene
Concen: 12.90 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080214.D
Acq: 2 Aug 2016 5:35 pm

Tgt Ion:154 Resp: 2463

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	4.6	76.2	136.2#

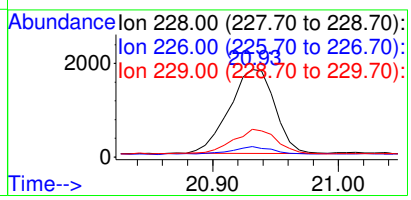


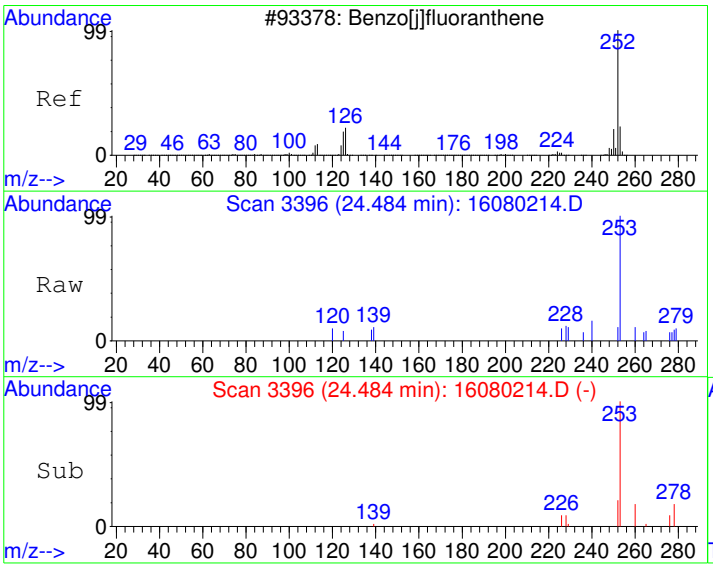


#19
Chrysene
Concen: 10.14 ug/kg
RT: 20.93 min Scan# 2921
Delta R.T. -0.09 min
Lab File: 16080214.D
Acq: 2 Aug 2016 5:35 pm

Tgt Ion:228 Resp: 4488

Ion	Ratio	Lower	Upper
228	100		
226	8.2	0.0	58.1
229	29.4	0.0	50.0

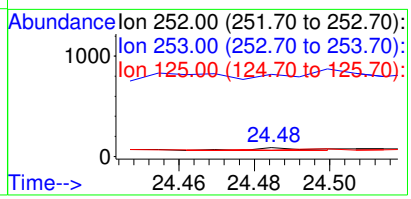




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.02 min
Lab File: 16080214.D
Acq: 2 Aug 2016 5:35 pm

Tgt Ion:252 Resp: 29

Ion	Ratio	Lower	Upper
252	100		
253	13.3	2.2	42.2
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080215.D Vial: 15
Acq On : 2 Aug 2016 6:15 pm Operator: DEW
Sample : 1607256-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

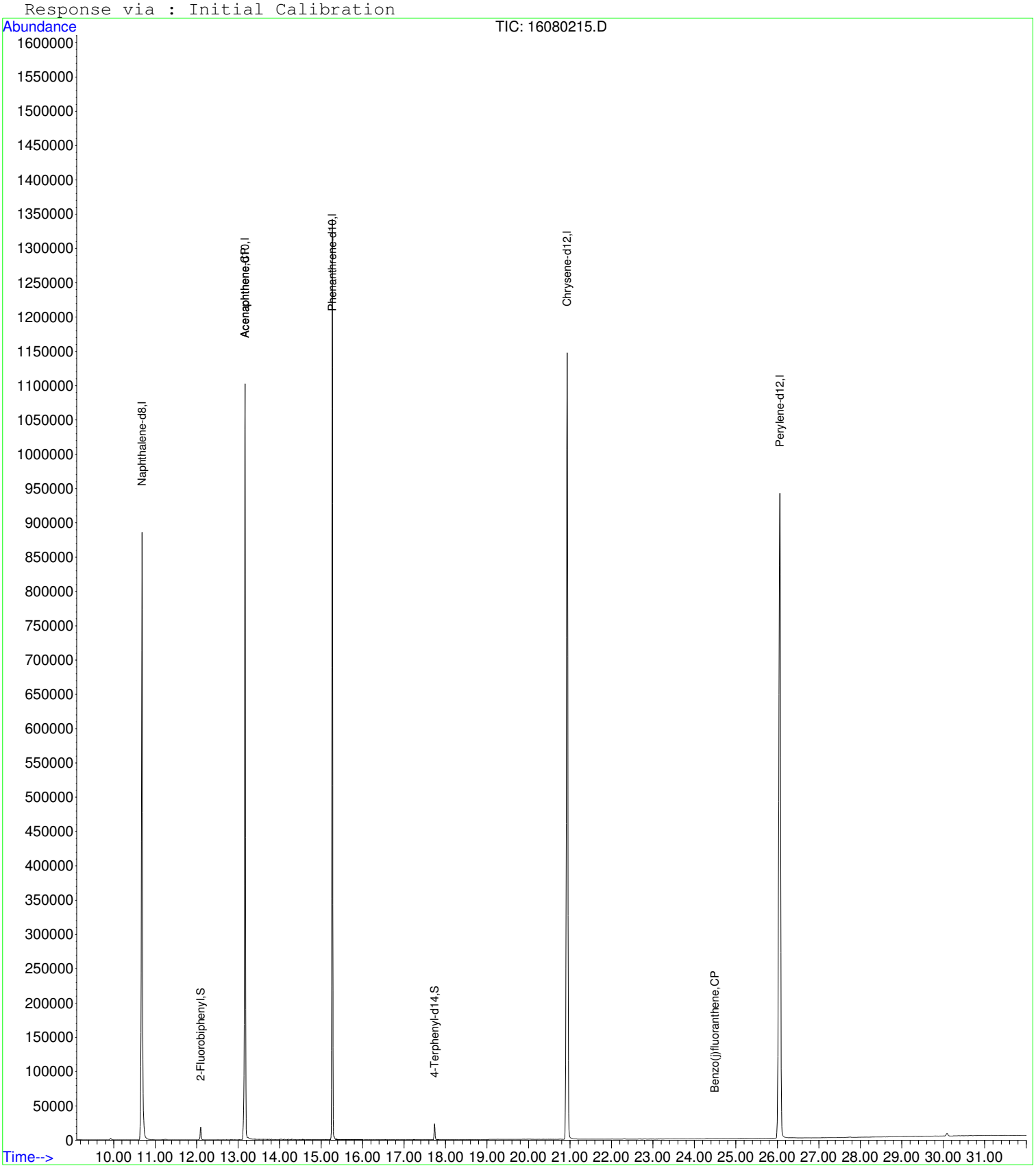
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1506402	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	697035	4000.00	ug/kg	116
11) Phenanthrene-d10	15.27	188	1575763	4000.00	ug/kg	99
17) Chrysene-d12	20.93	240	1996933	4000.00	ug/kg	109
20) Perylene-d12	26.06	264	1956614	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	20749	85.34	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#		
16) 4-Terphenyl-d14	17.74	244	32420	87.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#		
Target Compounds						Qvalue
9) Acenaphthene	13.17	154	2380	13.31	ug/kg#	11
23) Benzo(j)fluoranthene	24.50	252	276	0.69	ug/kg#	52

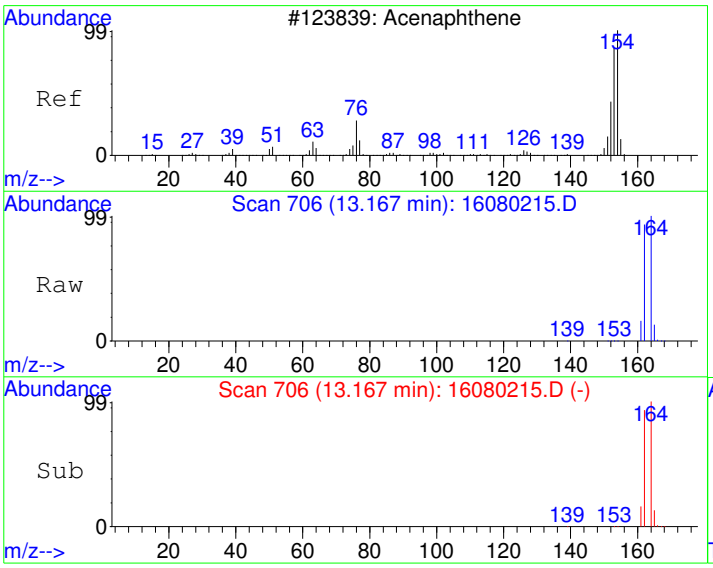
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080215.D Vial: 15
Acq On : 2 Aug 2016 6:15 pm Operator: DEW
Sample : 1607256-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

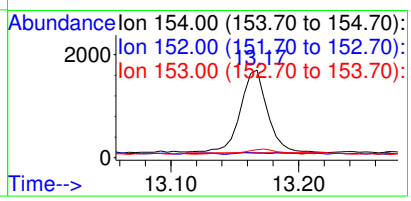


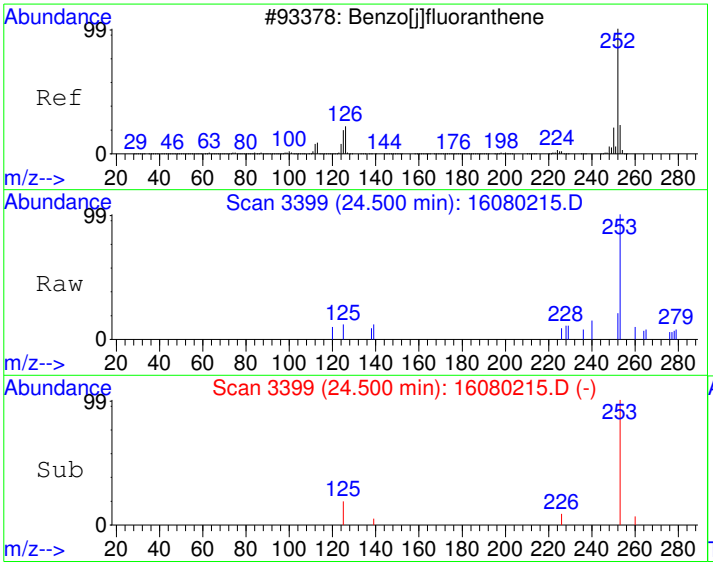


#9
Acenaphthene
Concen: 13.31 ug/kg
RT: 13.17 min Scan# 706
Delta R.T. -0.04 min
Lab File: 16080215.D
Acq: 2 Aug 2016 6:15 pm

Tgt Ion:154 Resp: 2380

Ion	Ratio	Lower	Upper
154	100		
152	0.9	19.1	79.1#
153	5.4	76.2	136.2#

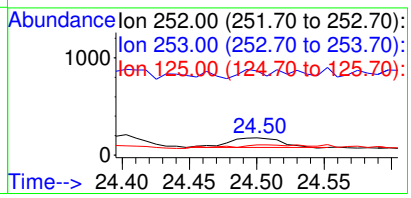




#23
Benzo(j)fluoranthene
Concen: 0.69 ug/kg
RT: 24.50 min Scan# 3399
Delta R.T. -0.01 min
Lab File: 16080215.D
Acq: 2 Aug 2016 6:15 pm

Tgt Ion:252 Resp: 276

Ion	Ratio	Lower	Upper
252	100		
253	44.6	2.2	42.2#
125	34.7	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080216.D Vial: 16
Acq On : 2 Aug 2016 6:55 pm Operator: DEW
Sample : 1607256-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

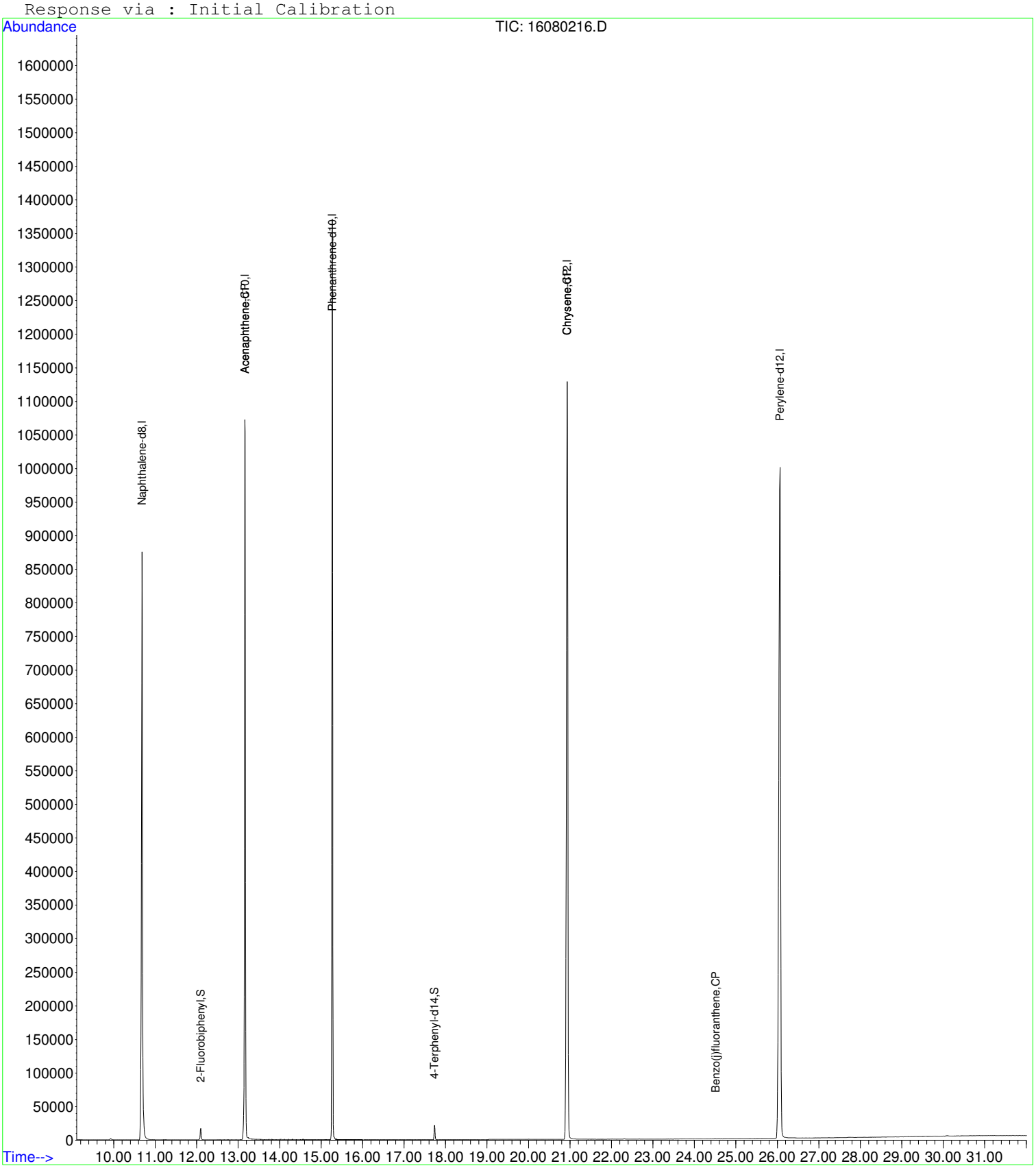
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1490383	4000.00	ug/kg	106
5) Acenaphthene-d10	13.16	164	702081	4000.00	ug/kg	117
11) Phenanthrene-d10	15.27	188	1582595	4000.00	ug/kg	99
17) Chrysene-d12	20.93	240	2030403	4000.00	ug/kg	111
20) Perylene-d12	26.06	264	2044395	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	19499	79.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
16) 4-Terphenyl-d14	17.73	244	30796	82.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2450	13.61	ug/kg#	10
19) Chrysene	20.93	228	4536	10.30	ug/kg	72
23) Benzo(j)fluoranthene	24.52	252	16	0.04	ug/kg#	58

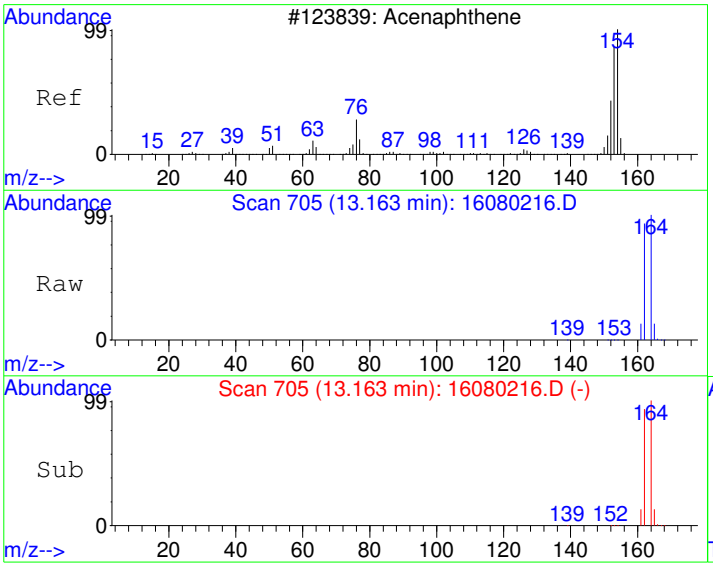
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080216.D Vial: 16
Acq On : 2 Aug 2016 6:55 pm Operator: DEW
Sample : 1607256-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

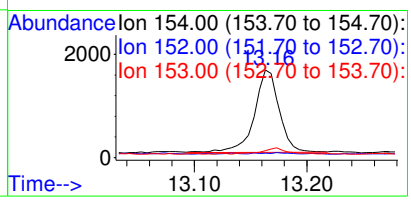


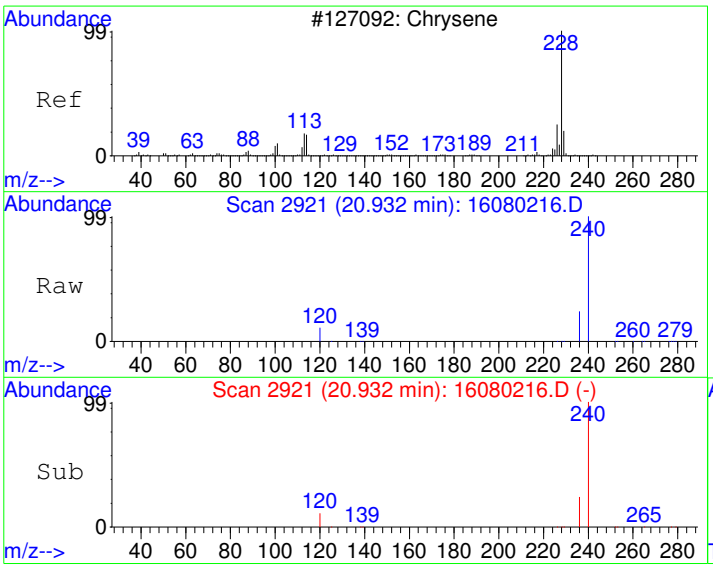


#9
Acenaphthene
Concen: 13.61 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080216.D
Acq: 2 Aug 2016 6:55 pm

Tgt Ion:154 Resp: 2450

Ion	Ratio	Lower	Upper
154	100		
152	1.2	19.1	79.1#
153	3.8	76.2	136.2#

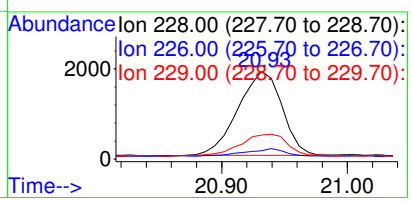


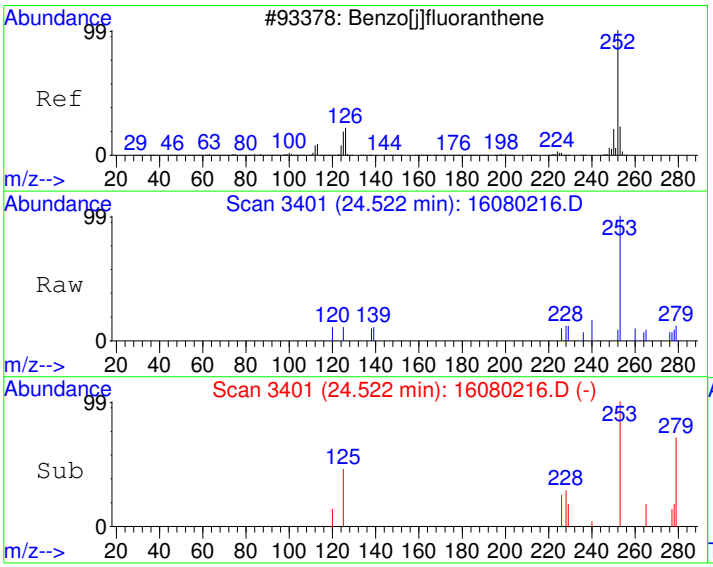


#19
Chrysene
Concen: 10.30 ug/kg
RT: 20.93 min Scan# 2921
Delta R.T. -0.09 min
Lab File: 16080216.D
Acq: 2 Aug 2016 6:55 pm

Tgt Ion:228 Resp: 4536

Ion	Ratio	Lower	Upper
228	100		
226	6.6	0.0	58.1
229	24.5	0.0	50.0

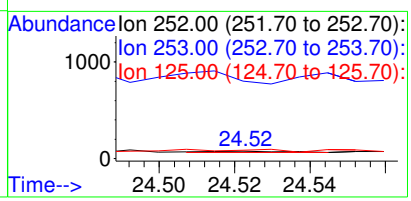




#23
Benzo(j)fluoranthene
Concen: 0.04 ug/kg
RT: 24.52 min Scan# 3401
Delta R.T. 0.01 min
Lab File: 16080216.D
Acq: 2 Aug 2016 6:55 pm

Tgt Ion:252 Resp: 16

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080217.D Vial: 17
Acq On : 2 Aug 2016 7:35 pm Operator: DEW
Sample : 1607256-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

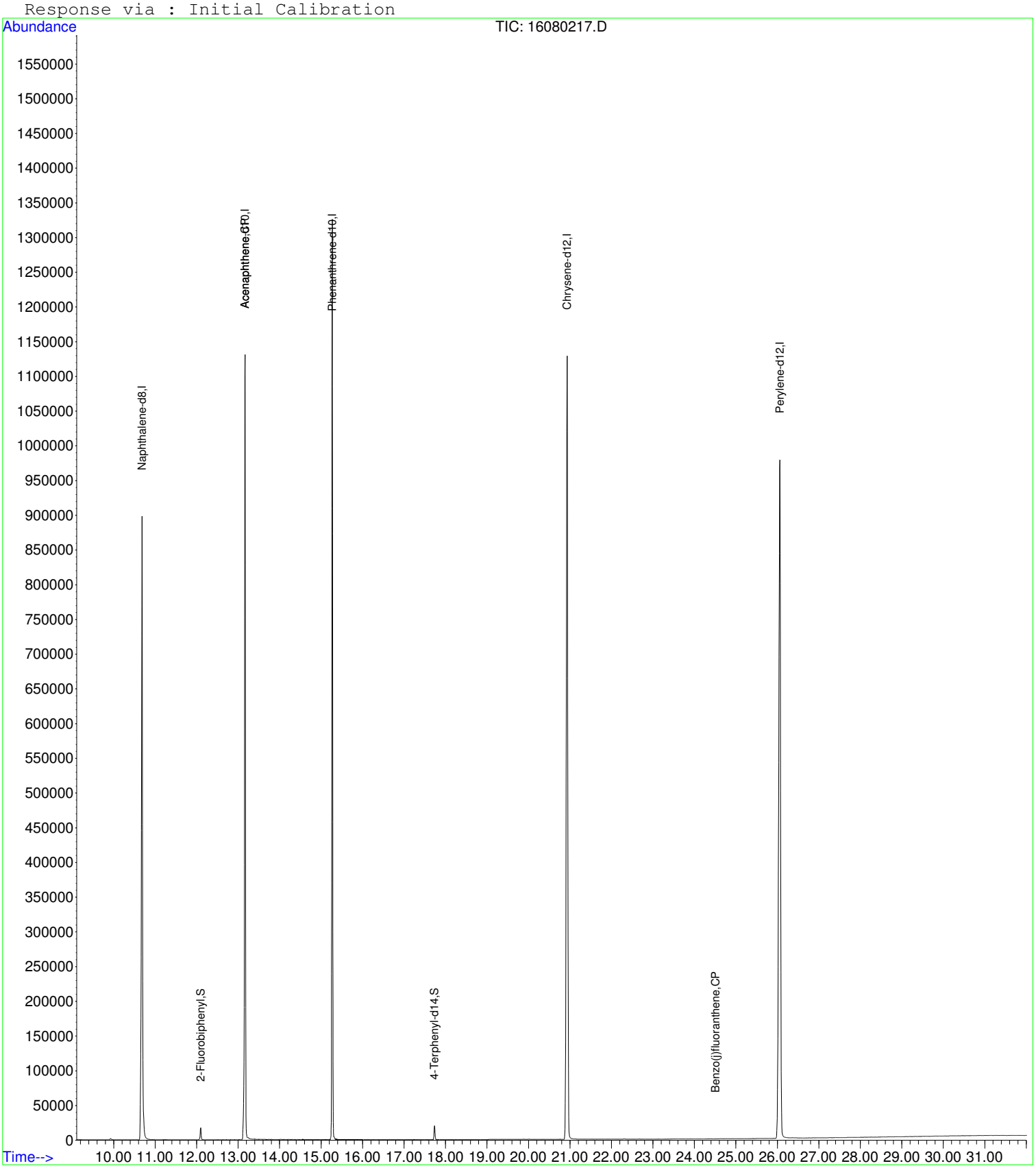
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1534729	4000.00	ug/kg	109
5) Acenaphthene-d10	13.17	164	730425	4000.00	ug/kg	122
11) Phenanthrene-d10	15.27	188	1557870	4000.00	ug/kg	98
17) Chrysene-d12	20.93	240	2012691	4000.00	ug/kg	110
20) Perylene-d12	26.06	264	2013213	4000.00	ug/kg	104
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	19932	78.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.73	244	29528	80.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.17	154	2488	~~13.28~~	~~ug/kg#~~	~~12~~
23) Benzo(j)fluoranthene	24.51	252	69	0.17	ug/kg#	3

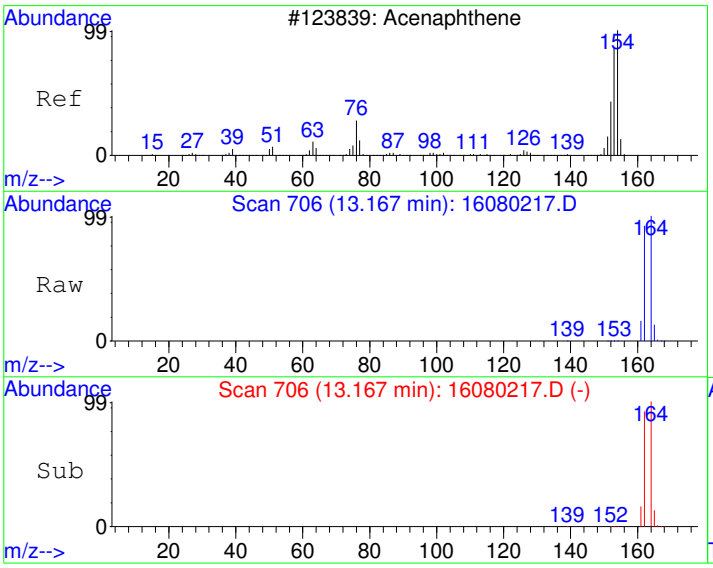
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080217.D Vial: 17
Acq On : 2 Aug 2016 7:35 pm Operator: DEW
Sample : 1607256-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

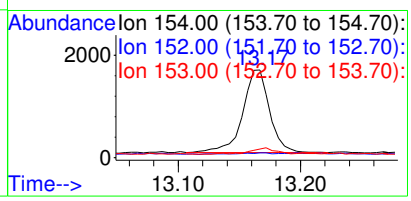


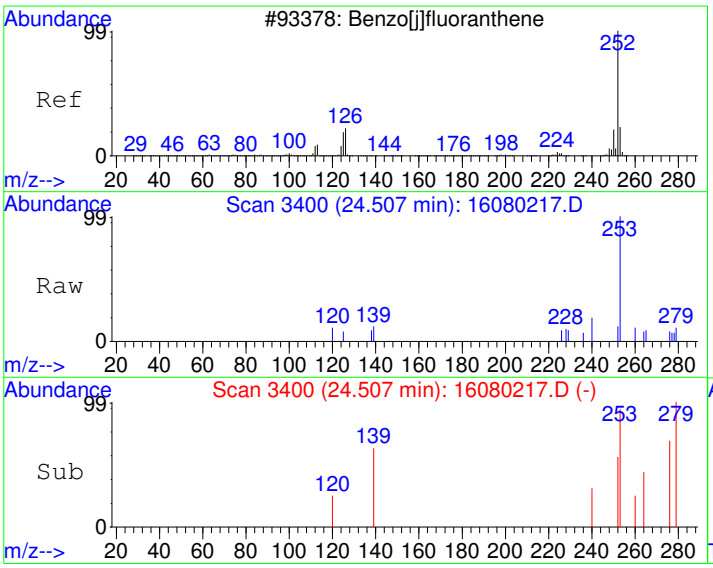


#9
Acenaphthene
Concen: 13.28 ug/kg
RT: 13.17 min Scan# 706
Delta R.T. -0.05 min
Lab File: 16080217.D
Acq: 2 Aug 2016 7:35 pm

Tgt Ion:154 Resp: 2488

Ion	Ratio	Lower	Upper
154	100		
152	1.7	19.1	79.1#
153	6.0	76.2	136.2#

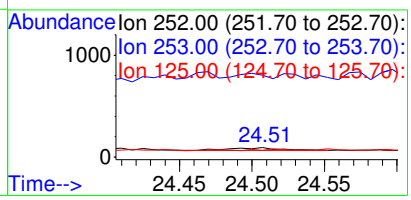




#23
Benzo(j)fluoranthene
Concen: 0.17 ug/kg
RT: 24.51 min Scan# 3400
Delta R.T. -0.00 min
Lab File: 16080217.D
Acq: 2 Aug 2016 7:35 pm

Tgt Ion:252 Resp: 69

Ion	Ratio	Lower	Upper
252	100		
253	96.7	2.2	42.2#
125	16.7	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080218.D Vial: 18
Acq On : 2 Aug 2016 8:16 pm Operator: DEW
Sample : 1607256-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

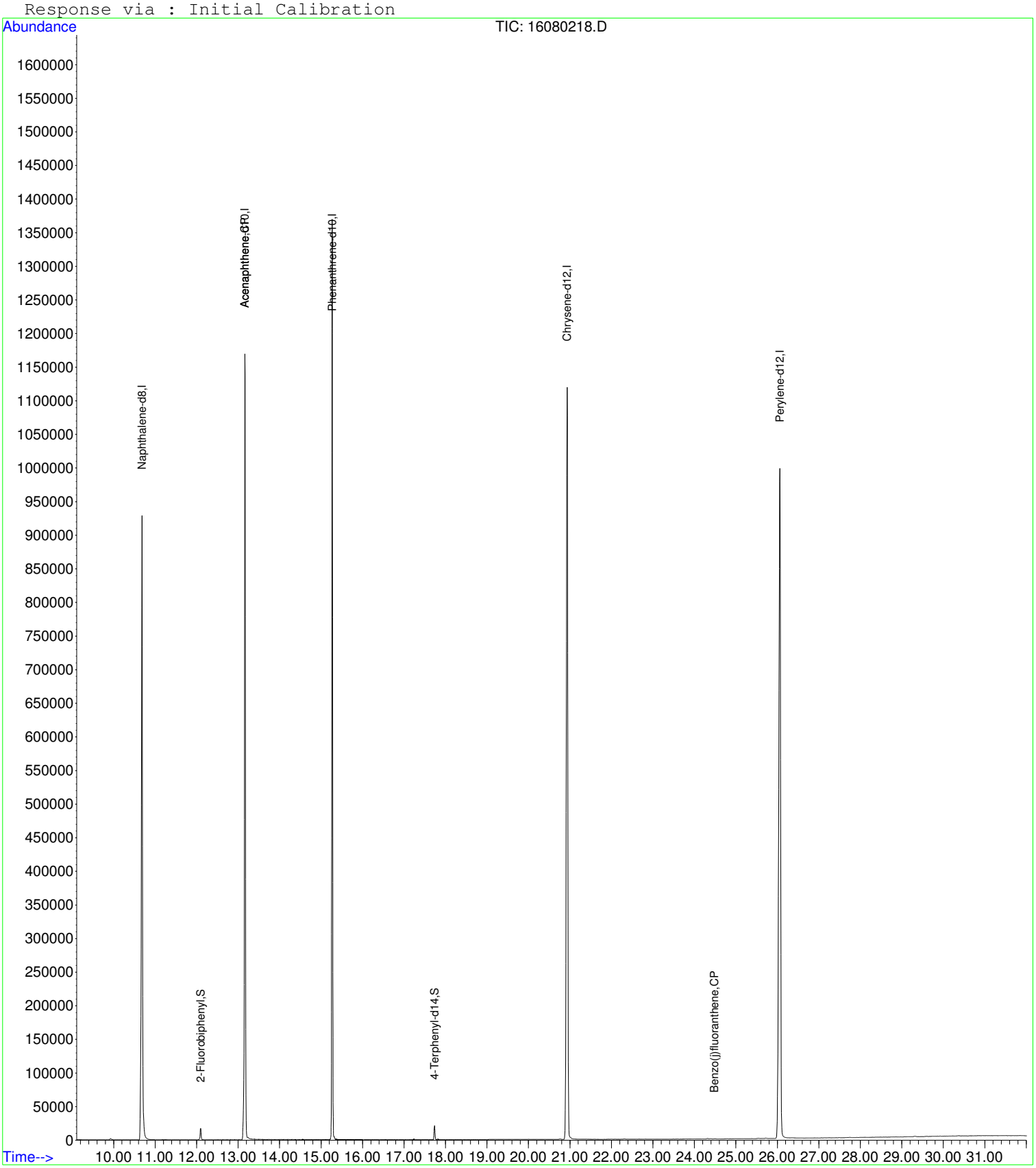
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1582623	4000.00	ug/kg	113
5) Acenaphthene-d10	13.16	164	758197	4000.00	ug/kg	126
11) Phenanthrene-d10	15.27	188	1593342	4000.00	ug/kg	100
17) Chrysene-d12	20.93	240	2020212	4000.00	ug/kg	110
20) Perylene-d12	26.06	264	2033353	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	20688	78.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.74	244	30344	80.70	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2590	13.32	ug/kg#	12
23) Benzo(j)fluoranthene	24.49	252	643	1.55	ug/kg#	68

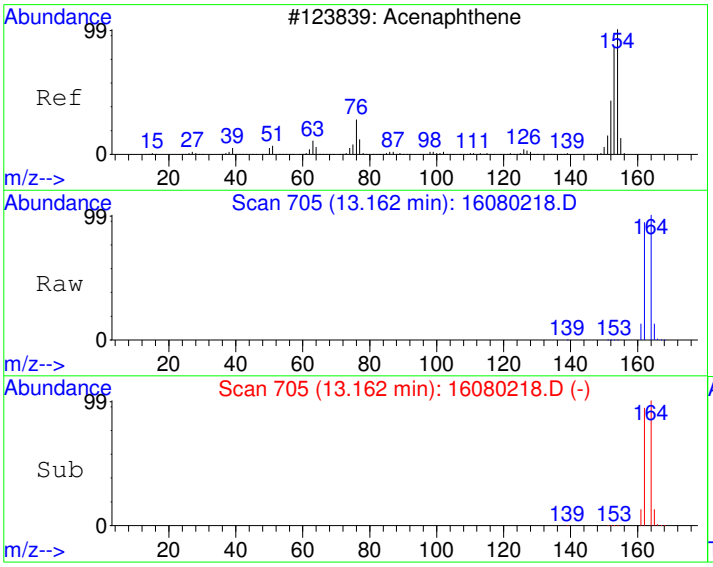
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080218.D Vial: 18
Acq On : 2 Aug 2016 8:16 pm Operator: DEW
Sample : 1607256-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

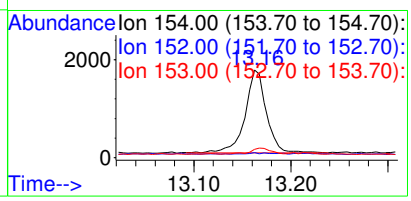


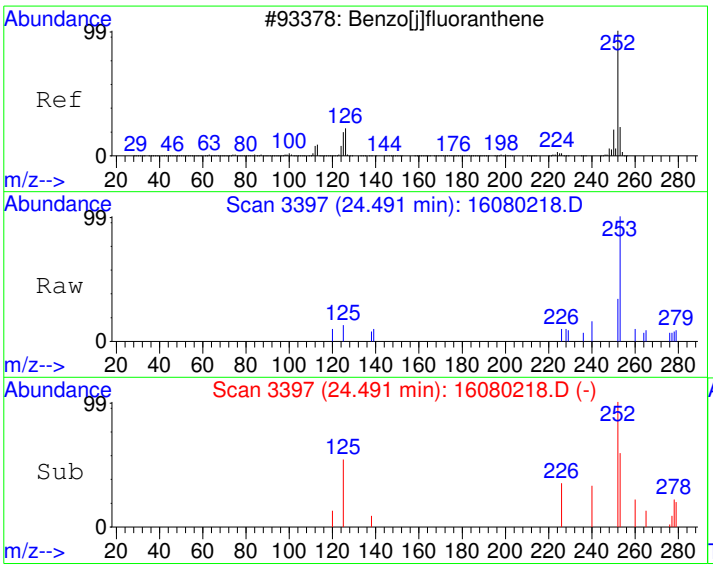


#9
Acenaphthene
Concen: 13.32 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080218.D
Acq: 2 Aug 2016 8:16 pm

Tgt Ion:154 Resp: 2590

Ion	Ratio	Lower	Upper
154	100		
152	2.0	19.1	79.1#
153	5.7	76.2	136.2#

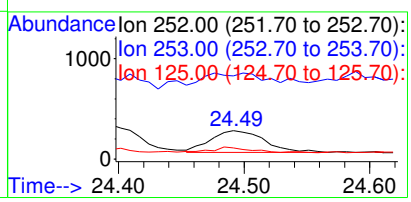




#23
Benzo(j)fluoranthene
Concen: 1.55 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080218.D
Acq: 2 Aug 2016 8:16 pm

Tgt Ion:252 Resp: 643

Ion	Ratio	Lower	Upper
252	100		
253	43.8	2.2	42.2#
125	18.9	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080220.D Vial: 20
Acq On : 2 Aug 2016 9:36 pm Operator: DEW
Sample : ICV2-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

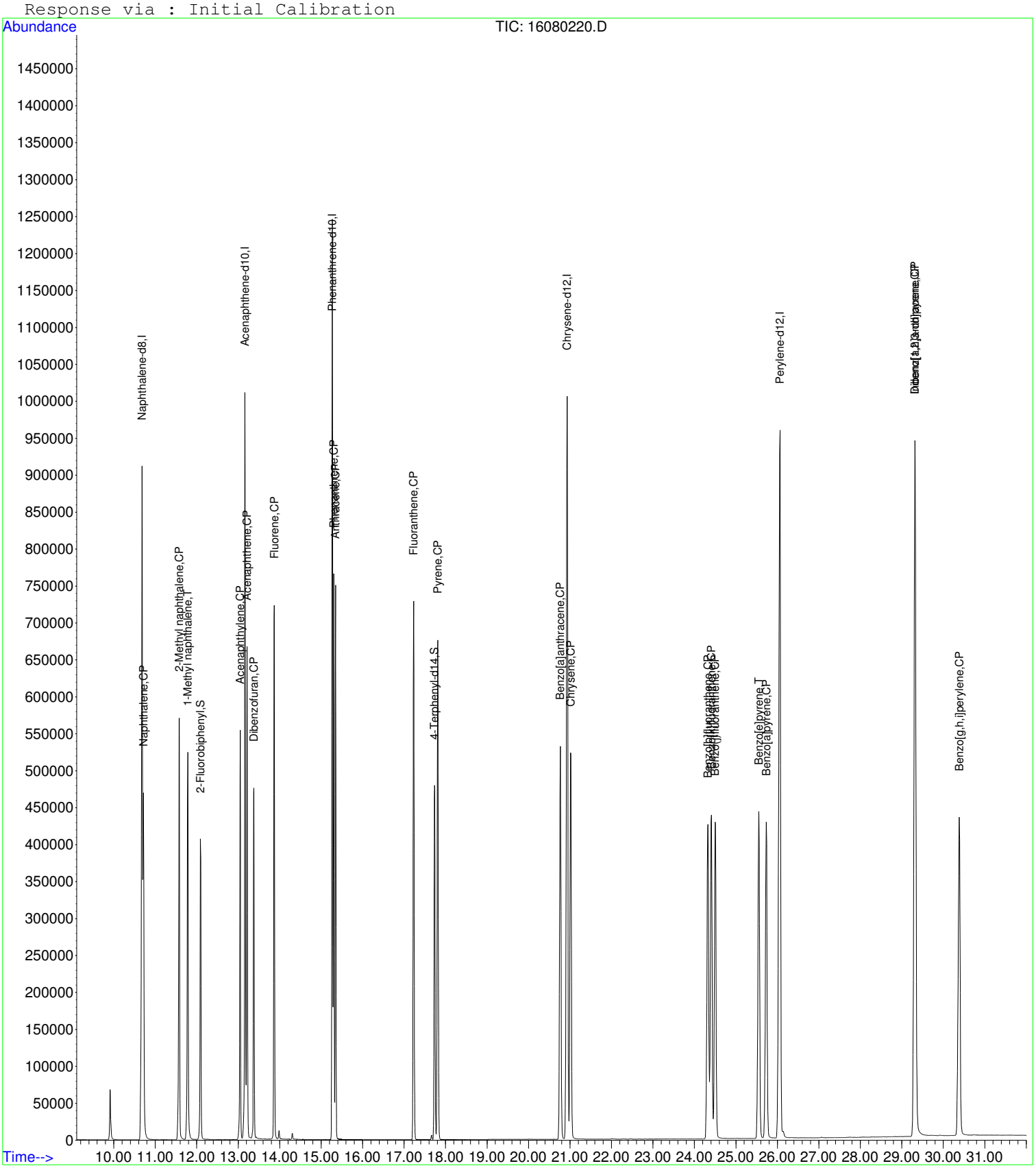
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1428404	4000.00	ug/kg	102
5) Acenaphthene-d10	13.16	164	616048	4000.00	ug/kg	103
11) Phenanthrene-d10	15.27	188	1455983	4000.00	ug/kg	92
17) Chrysene-d12	20.93	240	1819892	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1940069	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	426849	1986.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.66%			
16) 4-Terphenyl-d14	17.73	244	680429	1980.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.51%			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	625047	1923.24	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	405157	1923.02	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	363270	1946.57	ug/kg	100
6) Dibenzofuran	13.38	168	478316	1918.58	ug/kg	100
8) Acenaphthylene	13.05	152	546460	2003.08	ug/kg	100
9) Acenaphthene	13.21	154	320643	2029.39	ug/kg	99
10) Fluorene	13.87	166	408037	2054.46	ug/kg	98
12) Phenanthrene	15.30	178	672376	1947.85	ug/kg	100
13) Anthracene	15.35	178	696883	1918.62	ug/kg	100
14) Fluoranthene	17.23	202	798801	1952.68	ug/kg	99
15) Pyrene	17.81	202	798579	1925.23	ug/kg	100
18) Benzo[a]anthracene	20.77	228	833842	2032.80	ug/kg	99
19) Chrysene	21.02	228	791179	2004.91	ug/kg	99
21) Benzo[b]fluoranthene	24.33	252	929251	2074.80	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	847369	2062.32	ug/kg	99
23) Benzo(j)fluoranthene	24.51	252	811958	2056.31	ug/kg	98
24) Benzo[e]pyrene	25.55	252	890278	2048.34	ug/kg	99
25) Benzo[a]pyrene	25.73	252	881247	2036.42	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	939847	2244.32	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	1103464	2220.51	ug/kg	99
28) Benzo[g,h,i]perylene	30.39	276	926459	2225.91	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080220.D Vial: 20
Acq On : 2 Aug 2016 9:36 pm Operator: DEW
Sample : ICV2-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

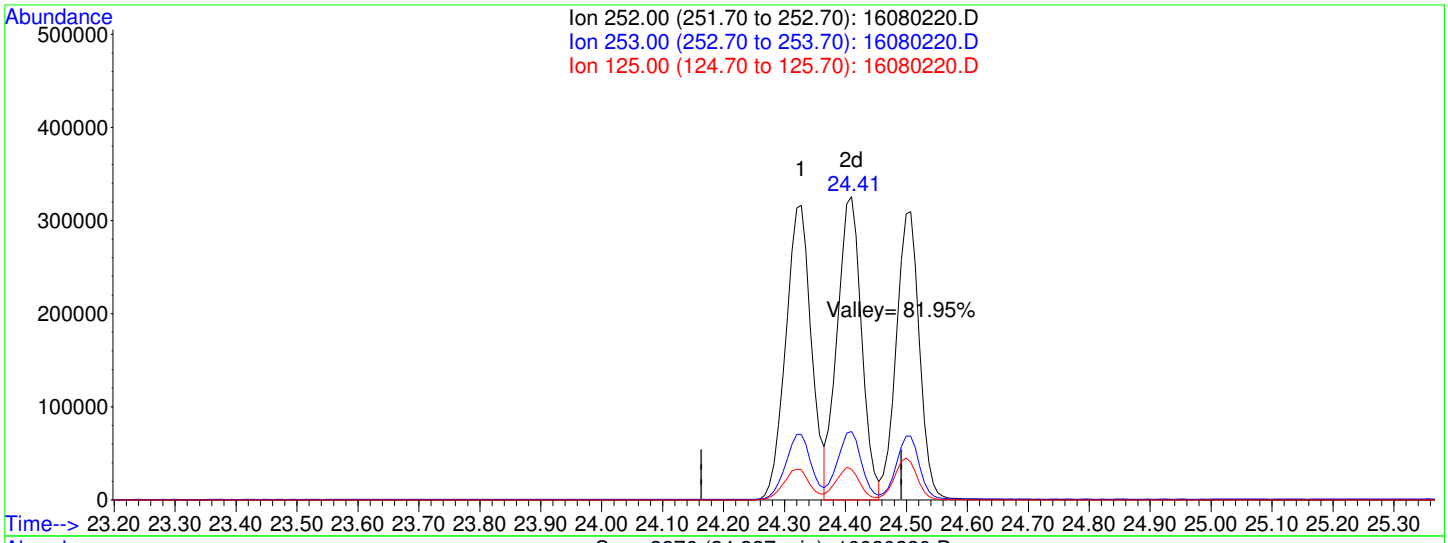
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

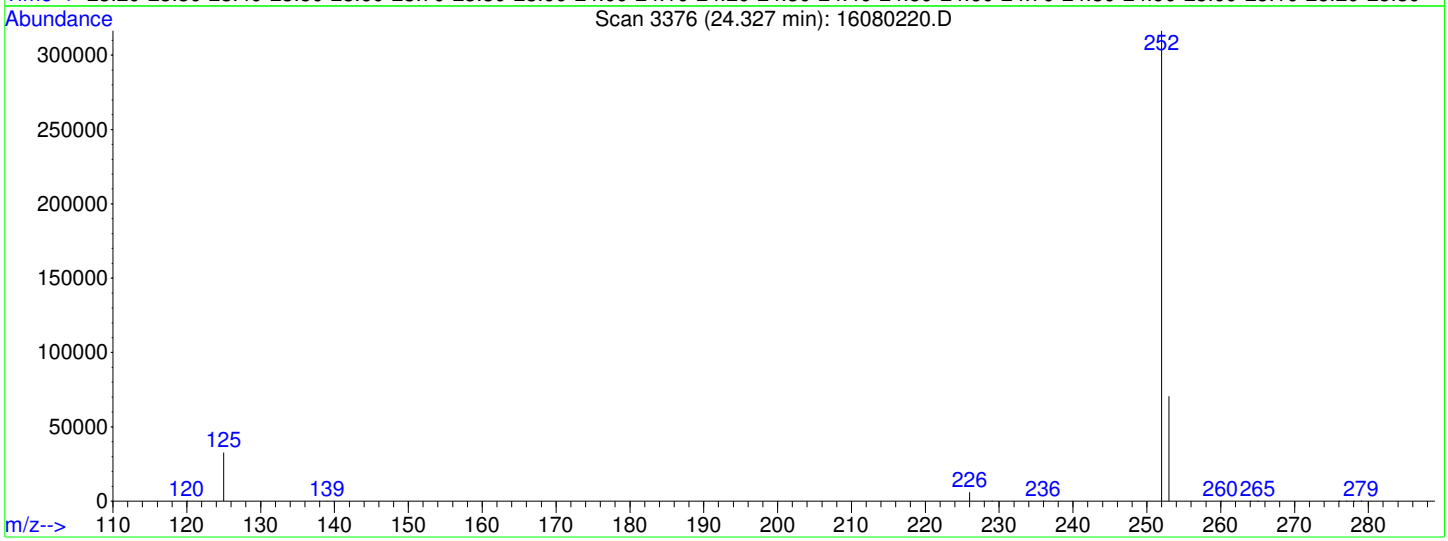


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160802\16080220.D Vial: 20
Acq On : 2 Aug 2016 9:36 pm Operator: DEW
Sample : ICV2-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 22:08 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080220.D

(21) Benzo[b]fluoranthene (CP)

24.33min 2074.80ug/kg

response 929251

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.07
125.00	10.60	10.35
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080221.D Vial: 21
Acq On : 2 Aug 2016 10:17 pm Operator: DEW
Sample : SB-160802 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 8:07 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

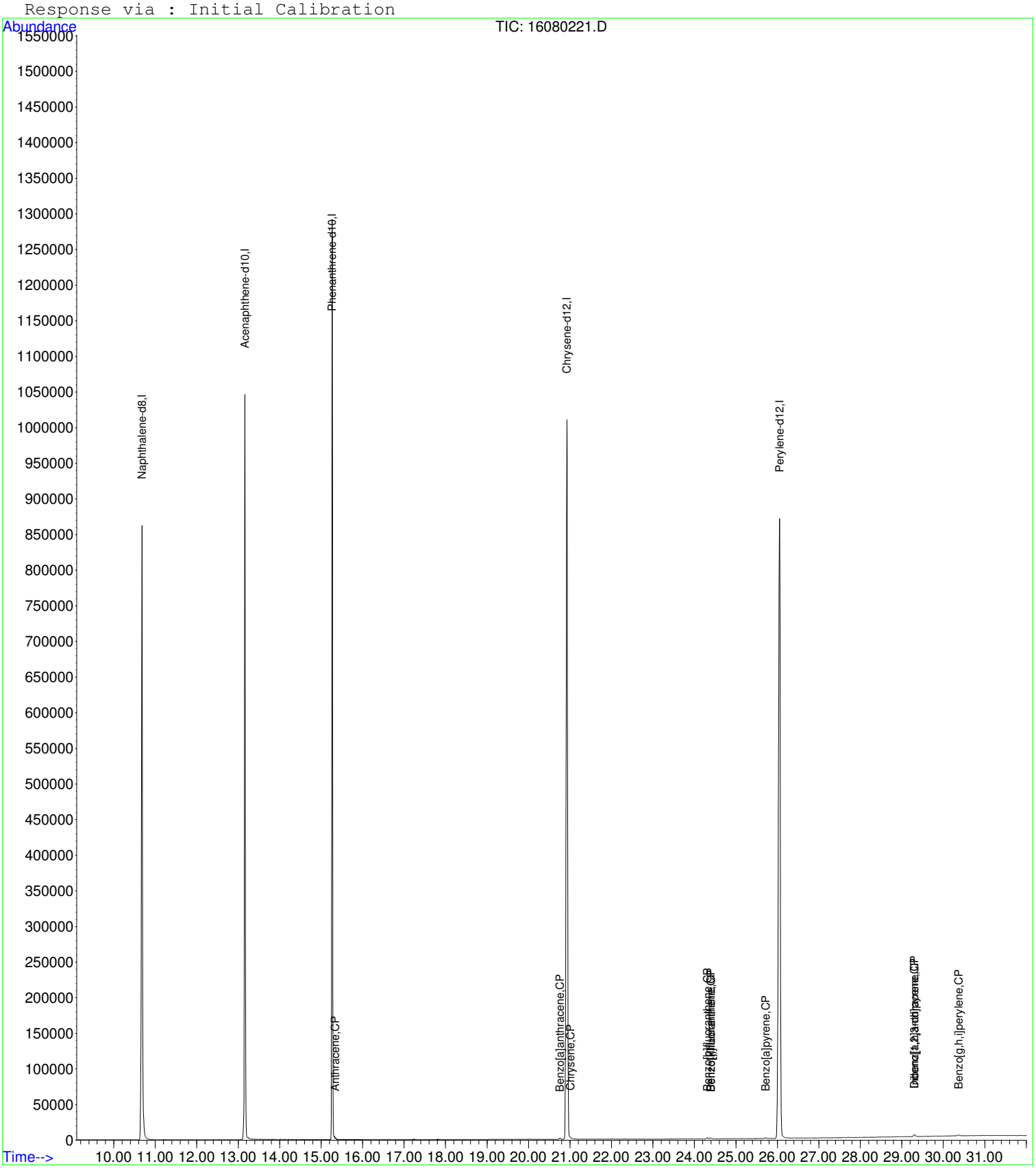
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1402621	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	638620	4000.00	ug/kg	107
11) Phenanthrene-d10	15.26	188	1500540	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1787462	4000.00	ug/kg	97
20) Perylene-d12	26.06	264	1781699	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	18	0.08	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.74	244	100	0.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
Target Compounds						Qvalue
13) Anthracene	15.35	178	2460	6.57	ug/kg	98
18) Benzo[a]anthracene	20.76	228	2783	6.91	ug/kg	95
19) Chrysene	21.01	228	2500	6.45	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	3744	9.10	ug/kg	95
22) Benzo[k]fluoranthene	24.39	252	2396	6.35	ug/kg	96
23) Benzo(j)fluoranthene	24.39	252	2346	6.47	ug/kg	93
25) Benzo[a]pyrene	25.72	252	2541	6.39	ug/kg	98
26) Dibenz[a,h]anthracene	29.30	278	2765	7.19	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.31	276	3424	7.50	ug/kg	96
28) Benzo[g,h,i]perylene	30.37	276	2576	6.74	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080221.D Vial: 21
Acq On : 2 Aug 2016 10:17 pm Operator: DEW
Sample : SB-160802 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 8:07 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080222.D Vial: 22
Acq On : 2 Aug 2016 10:57 pm Operator: DEW
Sample : 1607256-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

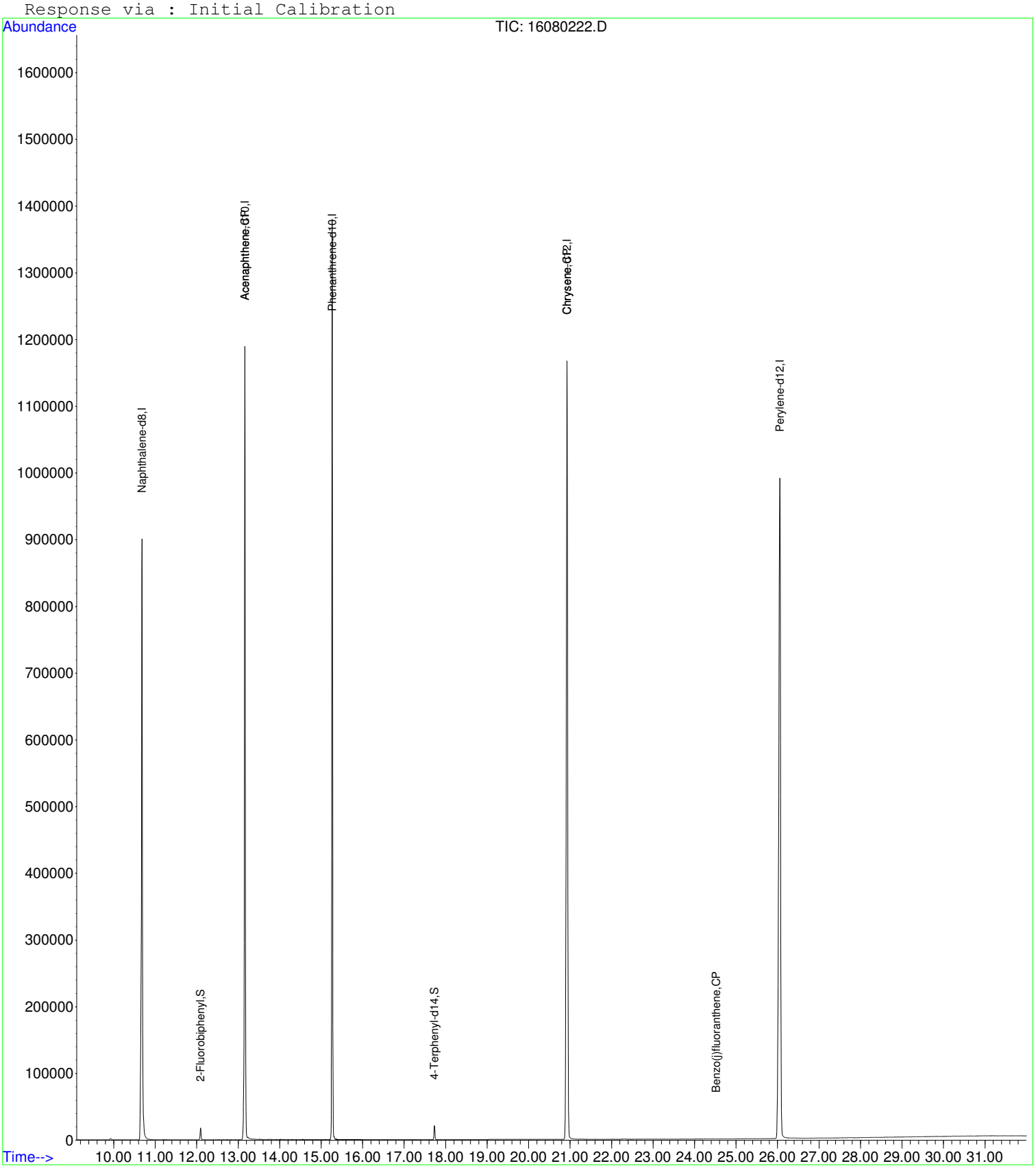
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1581354	4000.00	ug/kg	113
5) Acenaphthene-d10	13.16	164	754149	4000.00	ug/kg	126
11) Phenanthrene-d10	15.26	188	1600449	4000.00	ug/kg	101
17) Chrysene-d12	20.92	240	2043039	4000.00	ug/kg	111
20) Perylene-d12	26.06	264	2057387	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20371	77.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
16) 4-Terphenyl-d14	17.73	244	30380	80.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2564	13.26	ug/kg#	12
19) Chrysene	20.92	228	4517	10.20	ug/kg	70
23) Benzo(j)fluoranthene	24.52	252	18	0.04	ug/kg#	1

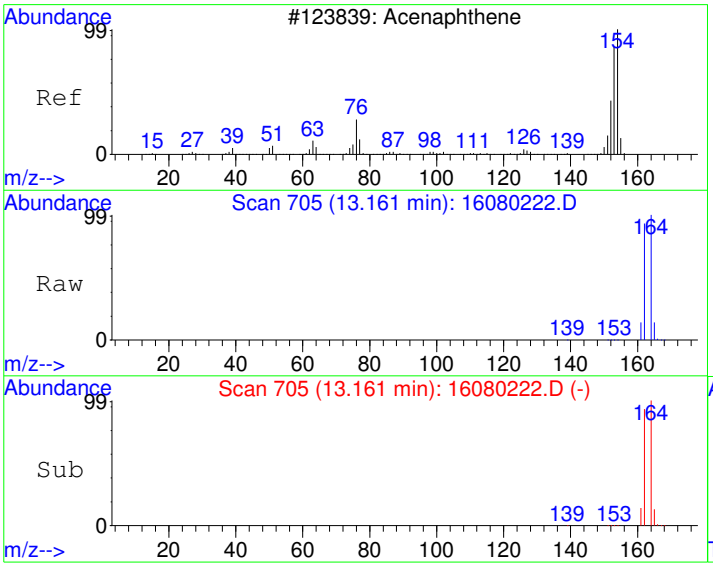
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080222.D Vial: 22
Acq On : 2 Aug 2016 10:57 pm Operator: DEW
Sample : 1607256-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

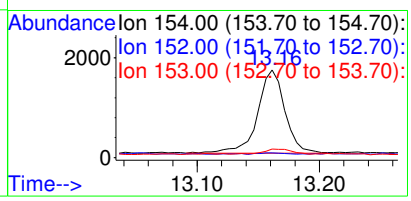


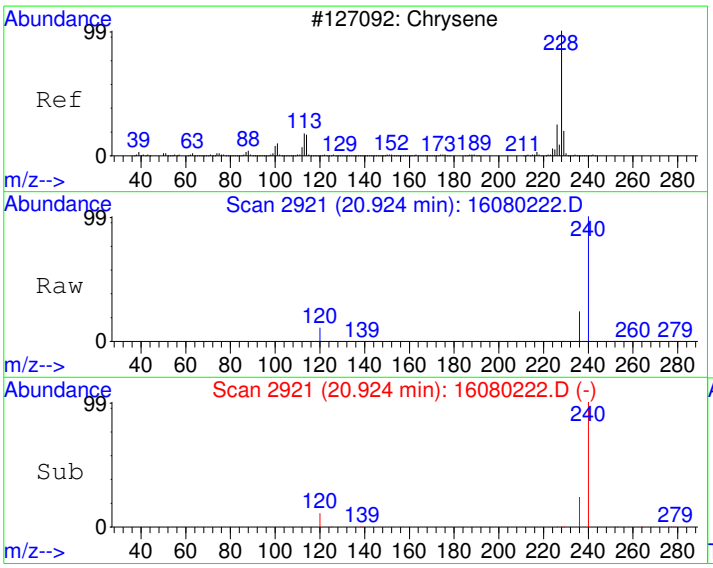


#9
Acenaphthene
Concen: 13.26 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080222.D
Acq: 2 Aug 2016 10:57 pm

Tgt Ion:154 Resp: 2564

Ion	Ratio	Lower	Upper
154	100		
152	1.2	19.1	79.1#
153	6.0	76.2	136.2#

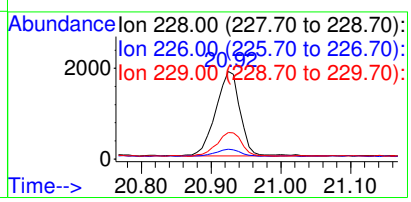


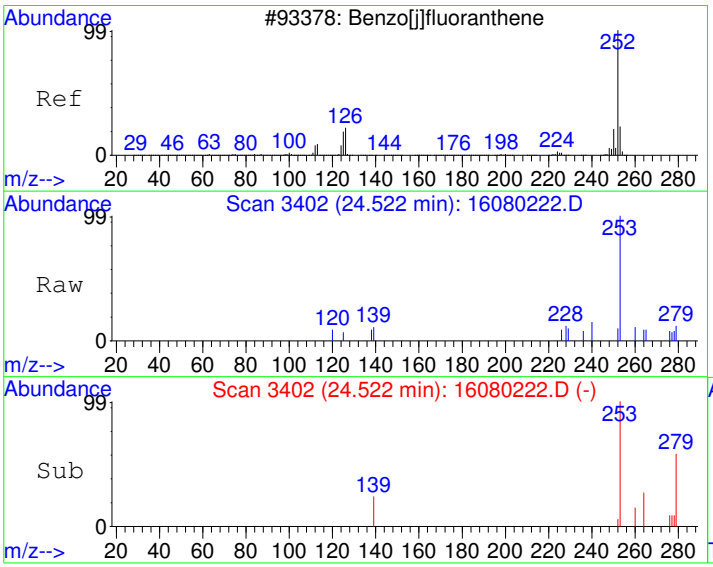


#19
Chrysene
Concen: 10.20 ug/kg
RT: 20.92 min Scan# 2921
Delta R.T. -0.10 min
Lab File: 16080222.D
Acq: 2 Aug 2016 10:57 pm

Tgt Ion:228 Resp: 4517

Ion	Ratio	Lower	Upper
228	100		
226	8.1	0.0	58.1
229	28.1	0.0	50.0

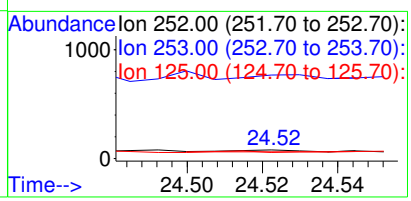




#23
Benzo(j)fluoranthene
Concen: 0.04 ug/kg
RT: 24.52 min Scan# 3402
Delta R.T. 0.01 min
Lab File: 16080222.D
Acq: 2 Aug 2016 10:57 pm

Tgt Ion:252 Resp: 18

Ion	Ratio	Lower	Upper
252	100		
253	188.2	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080223.D Vial: 23
Acq On : 2 Aug 2016 11:37 pm Operator: DEW
Sample : 1607256-32A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

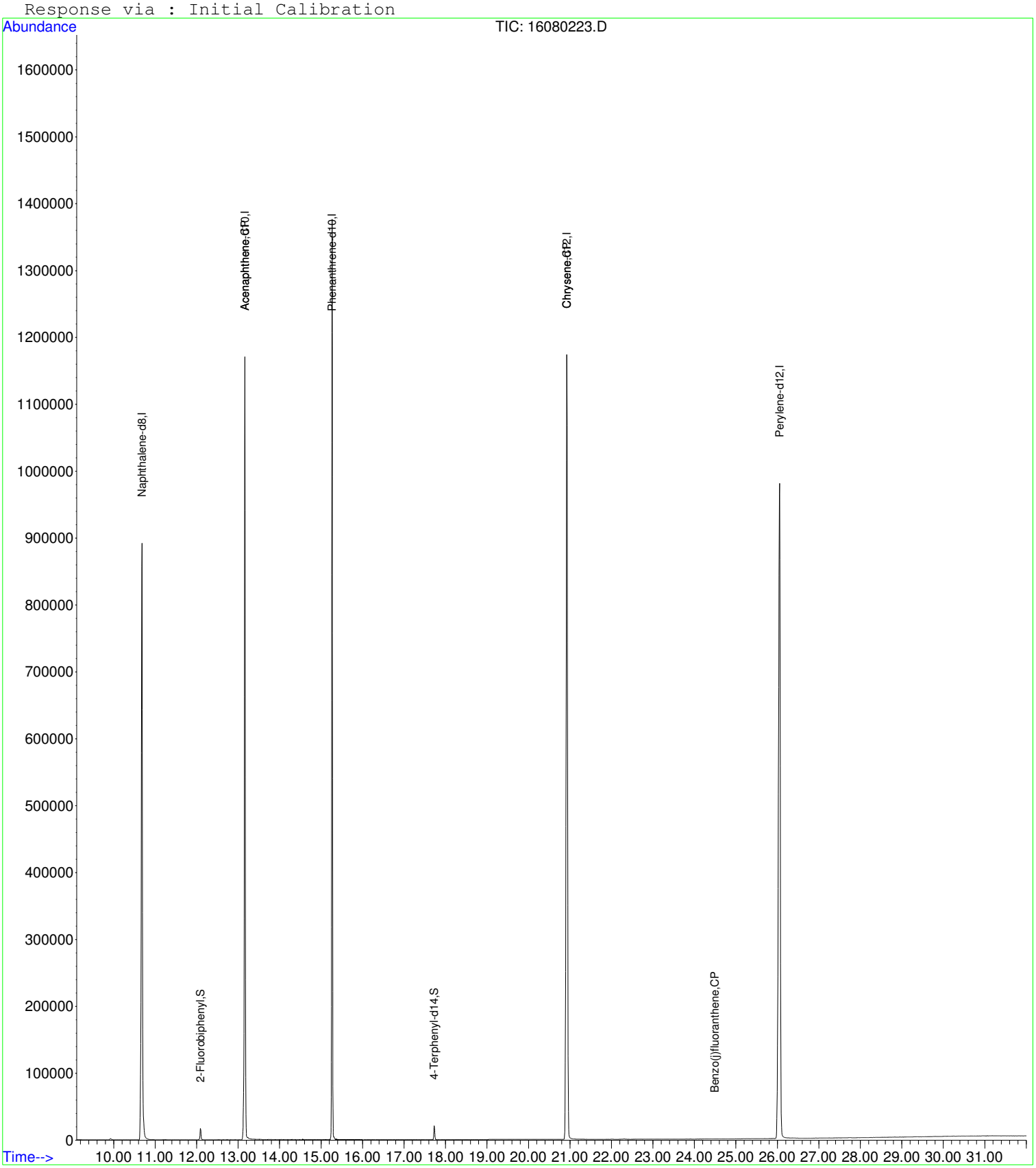
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1552861	4000.00	ug/kg	111
5) Acenaphthene-d10	13.16	164	733883	4000.00	ug/kg	122
11) Phenanthrene-d10	15.26	188	1585469	4000.00	ug/kg	100
17) Chrysene-d12	20.92	240	2050529	4000.00	ug/kg	112
20) Perylene-d12	26.06	264	2041784	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	19881	77.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
16) 4-Terphenyl-d14	17.73	244	30127	80.52	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2538	~~13.48~~	~~ug/kg#~~	~~11~~
19) Chrysene	20.92	228	4495	~~10.11~~	~~ug/kg~~	~~70~~
23) Benzo(j)fluoranthene	24.49	252	26	0.06	ug/kg#	16

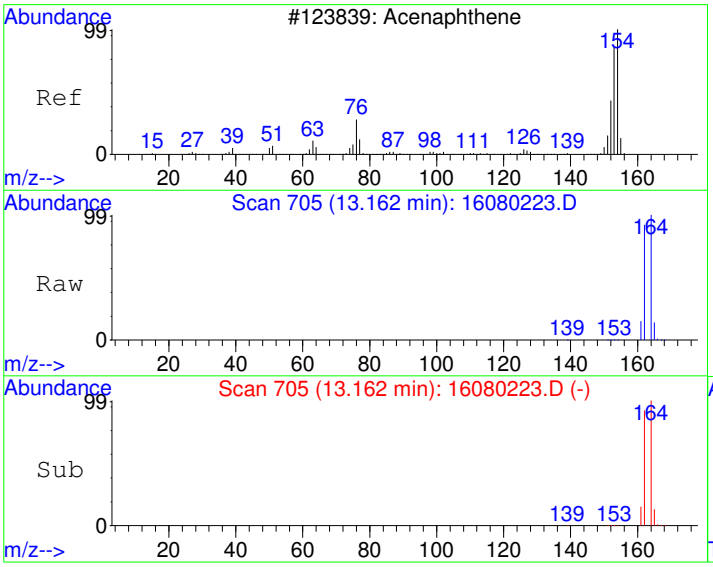
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080223.D Vial: 23
Acq On : 2 Aug 2016 11:37 pm Operator: DEW
Sample : 1607256-32A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

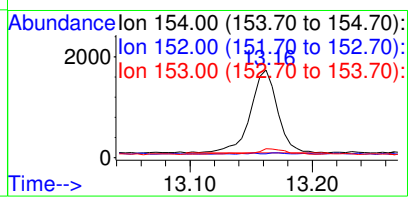


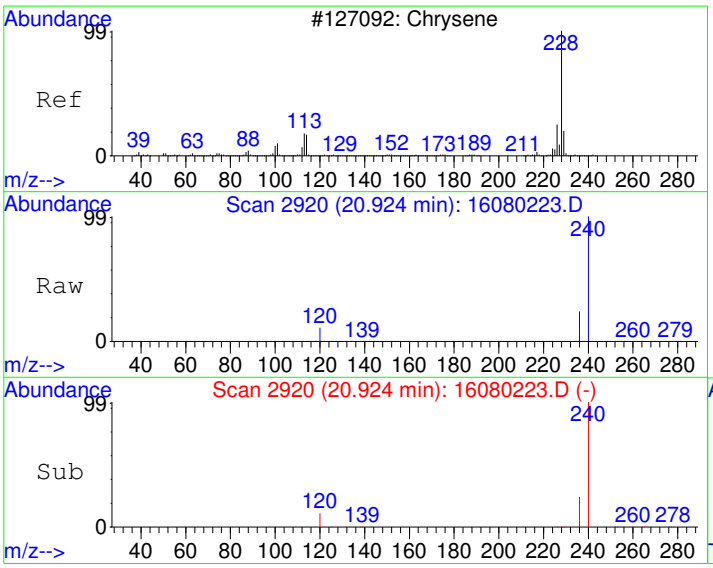


#9
Acenaphthene
Concen: 13.48 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080223.D
Acq: 2 Aug 2016 11:37 pm

Tgt Ion:154 Resp: 2538

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	6.2	76.2	136.2#

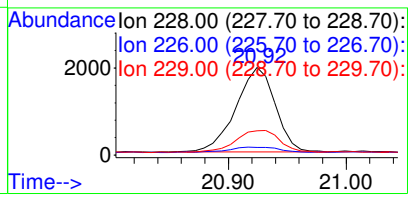


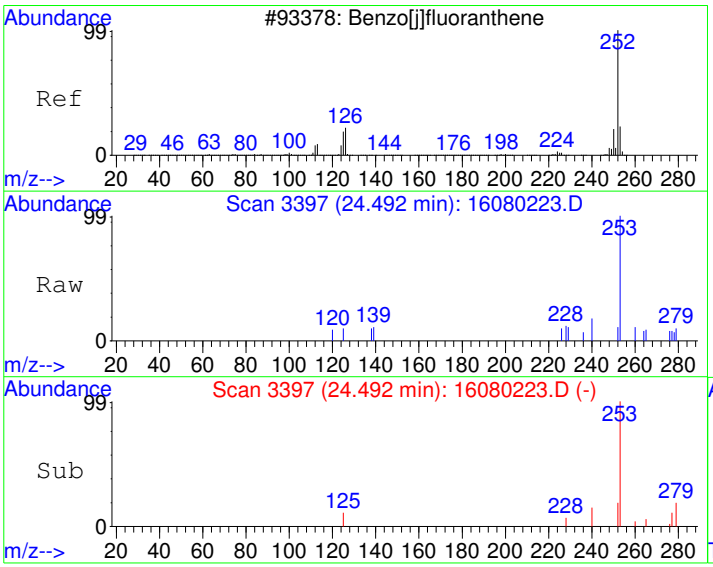


#19
Chrysene
Concen: 10.11 ug/kg
RT: 20.92 min Scan# 2920
Delta R.T. -0.10 min
Lab File: 16080223.D
Acq: 2 Aug 2016 11:37 pm

Tgt Ion:228 Resp: 4495

Ion	Ratio	Lower	Upper
228	100		
226	5.8	0.0	58.1
229	25.6	0.0	50.0

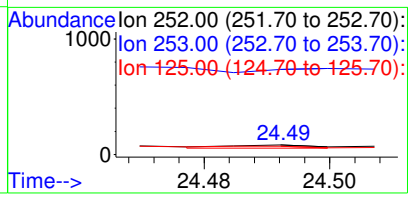




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080223.D
Acq: 2 Aug 2016 11:37 pm

Tgt Ion:252 Resp: 26

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	72.2	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080224.D Vial: 24
Acq On : 3 Aug 2016 12:17 am Operator: DEW
Sample : 1607256-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

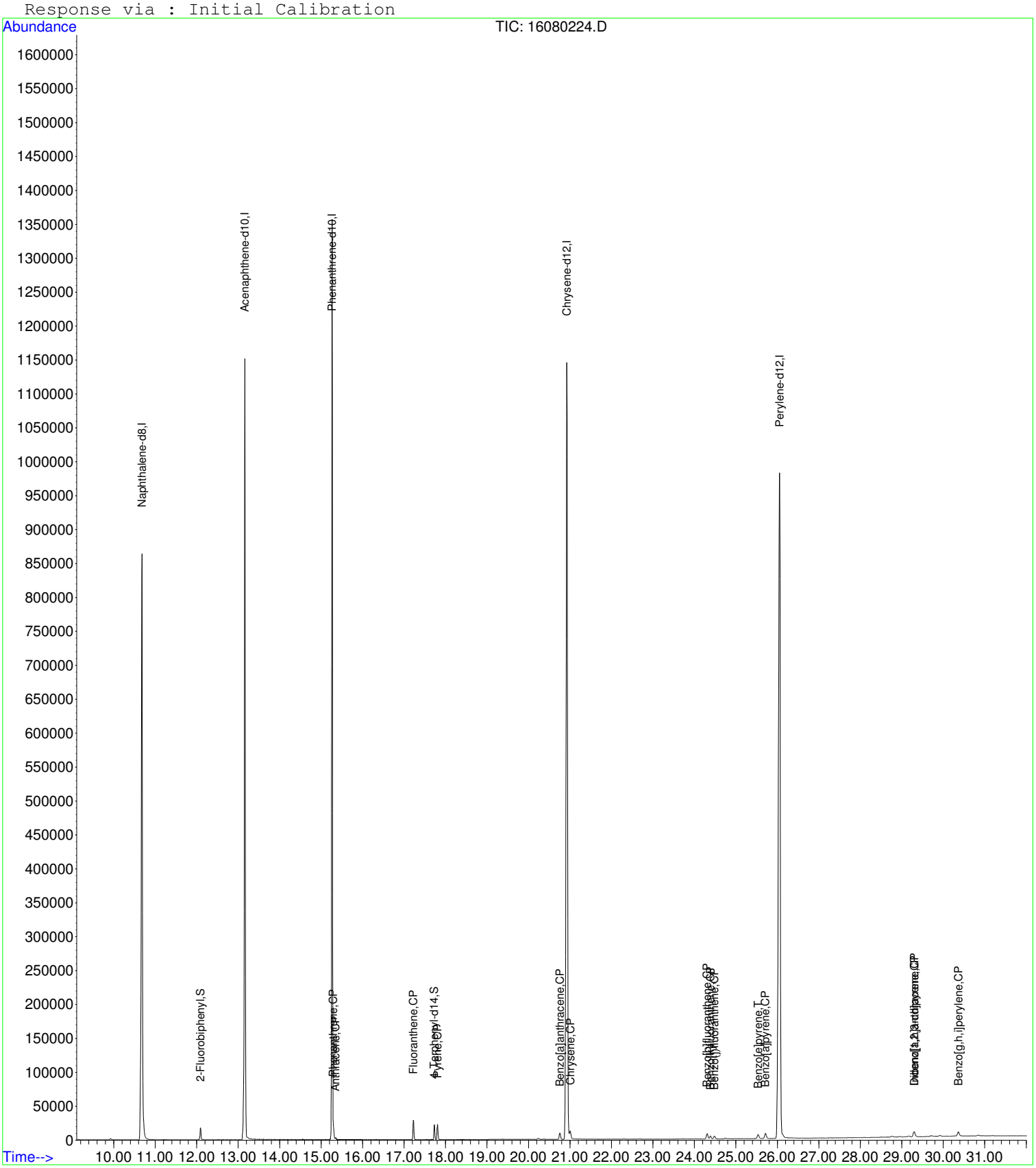
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1550258	4000.00	ug/kg	110
5) Acenaphthene-d10	13.16	164	734102	4000.00	ug/kg	122
11) Phenanthrene-d10	15.27	188	1579453	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	2024725	4000.00	ug/kg	110
20) Perylene-d12	26.06	264	2030127	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20761	81.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
16) 4-Terphenyl-d14	17.73	244	30966	83.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	12285	32.81	ug/kg	99
13) Anthracene	15.35	178	2257	5.73	ug/kg	99
14) Fluoranthene	17.22	202	31411	70.78	ug/kg	99
15) Pyrene	17.81	202	26893	59.77	ug/kg	99
18) Benzo[a]anthracene	20.76	228	15248	33.41	ug/kg	95
19) Chrysene	21.01	228	18174	41.40	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	16637	35.50	ug/kg	97
22) Benzo[k]fluoranthene	24.39	252	8208	19.09	ug/kg	96
23) Benzo(j)fluoranthene	24.48	252	7526	18.21	ug/kg	87
24) Benzo[e]pyrene	25.54	252	12566	27.63	ug/kg	99
25) Benzo[a]pyrene	25.71	252	16413	36.25	ug/kg	97
26) Dibenz[a,h]anthracene	29.29	278	2901	6.62	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.30	276	13302	25.58	ug/kg	93
28) Benzo[g,h,i]perylene	30.36	276	12951	29.74	ug/kg	97

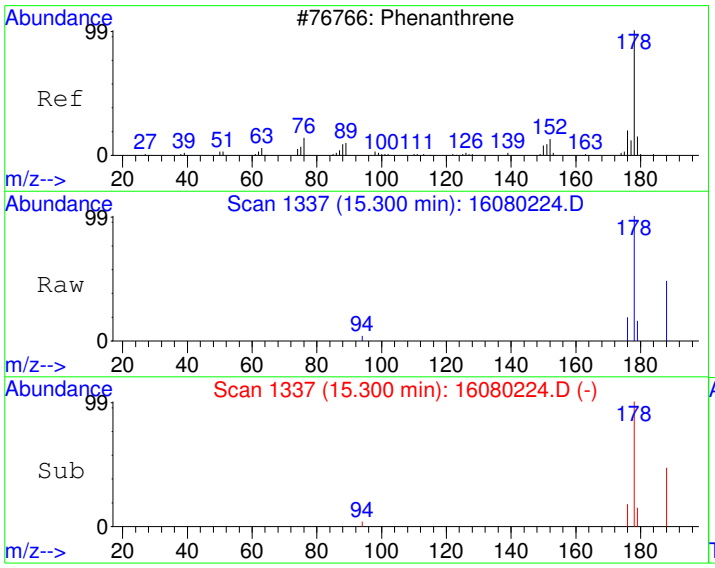
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080224.D Vial: 24
Acq On : 3 Aug 2016 12:17 am Operator: DEW
Sample : 1607256-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

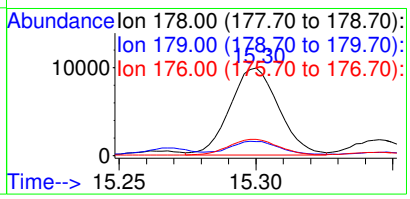


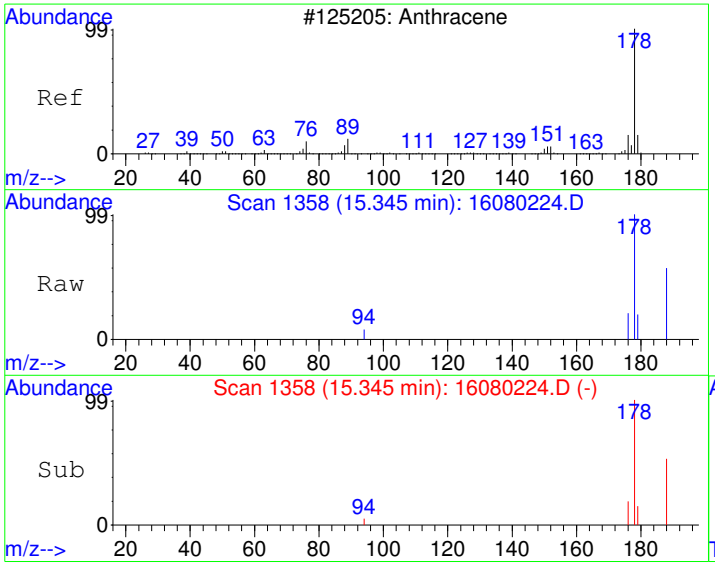


#12
Phenanthrene
Concen: 32.81 ug/kg
RT: 15.30 min Scan# 1337
Delta R.T. -0.00 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:178 Resp: 12285

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.7
176	18.5	0.0	48.7

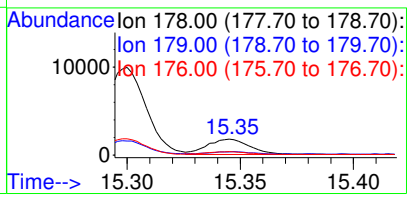


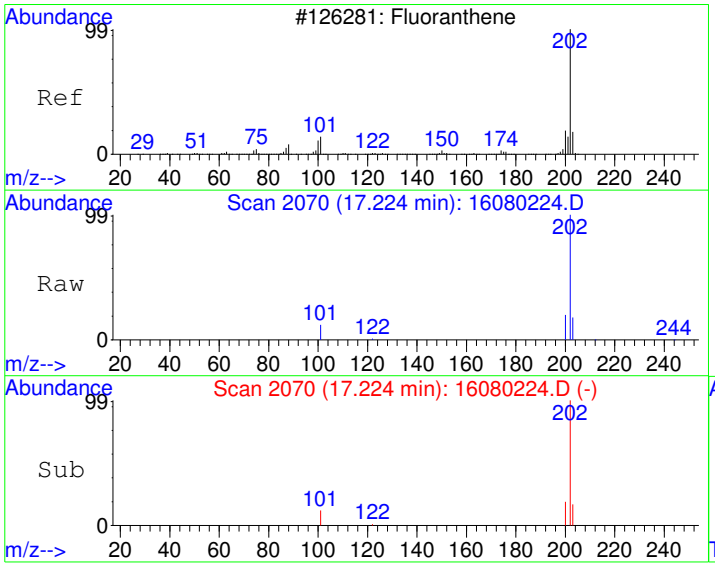


#13
Anthracene
Concen: 5.73 ug/kg
RT: 15.35 min Scan# 1358
Delta R.T. -0.00 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:178 Resp: 2257

Ion	Ratio	Lower	Upper
178	100		
179	14.6	0.0	45.7
176	17.9	0.0	47.9

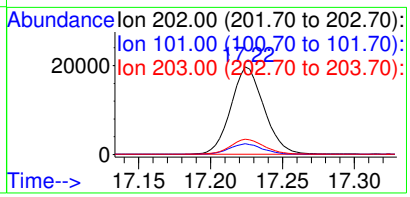


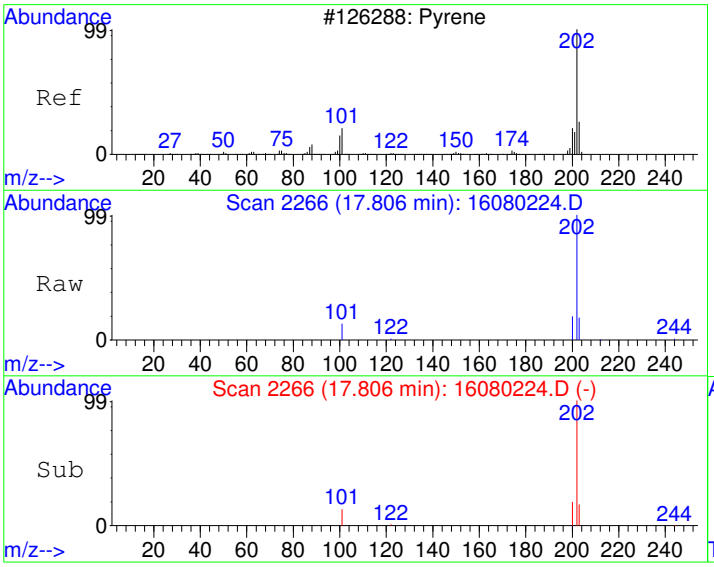


#14
Fluoranthene
Concen: 70.78 ug/kg
RT: 17.22 min Scan# 2070
Delta R.T. -0.01 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:202 Resp: 31411

Ion	Ratio	Lower	Upper
202	100		
101	12.0	0.0	42.1
203	17.2	0.0	47.9

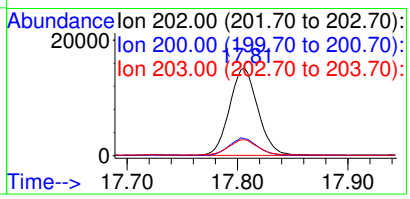


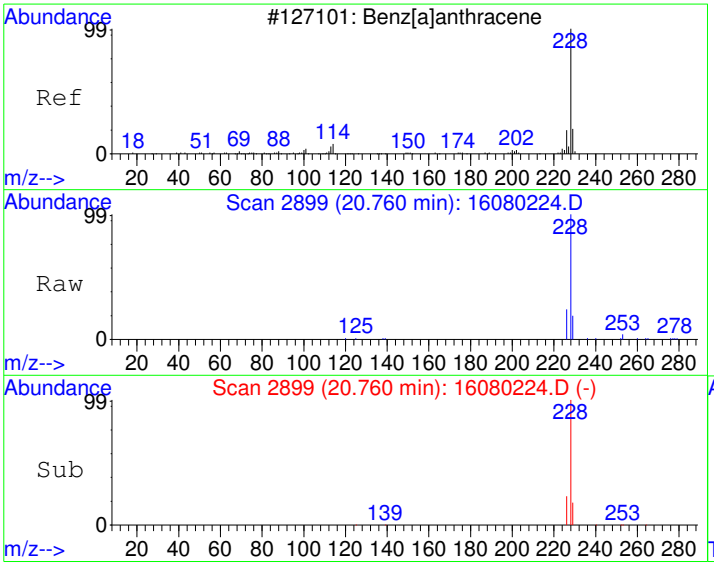


#15
Pyrene
Concen: 59.77 ug/kg
RT: 17.81 min Scan# 2266
Delta R.T. -0.01 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:202 Resp: 26893

Ion	Ratio	Lower	Upper
202	100		
200	19.1	0.0	49.7
203	18.0	0.0	47.8

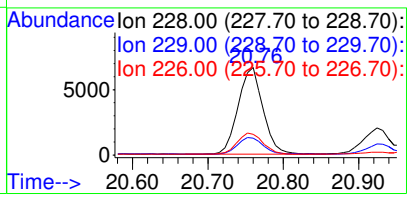


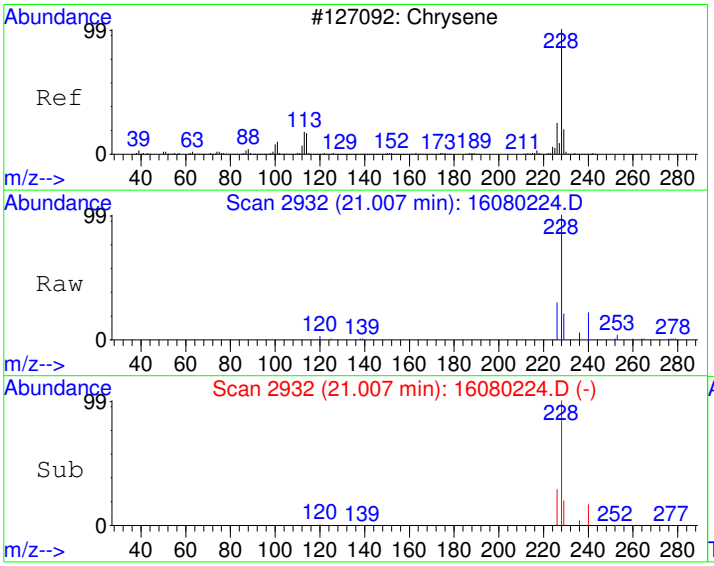


#18
Benzo[a]anthracene
Concen: 33.41 ug/kg
RT: 20.76 min Scan# 2899
Delta R.T. -0.01 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:228 Resp: 15248

Ion	Ratio	Lower	Upper
228	100		
229	18.3	0.0	49.8
226	22.9	0.0	55.8

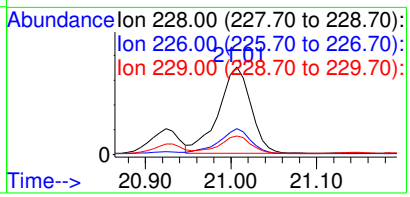


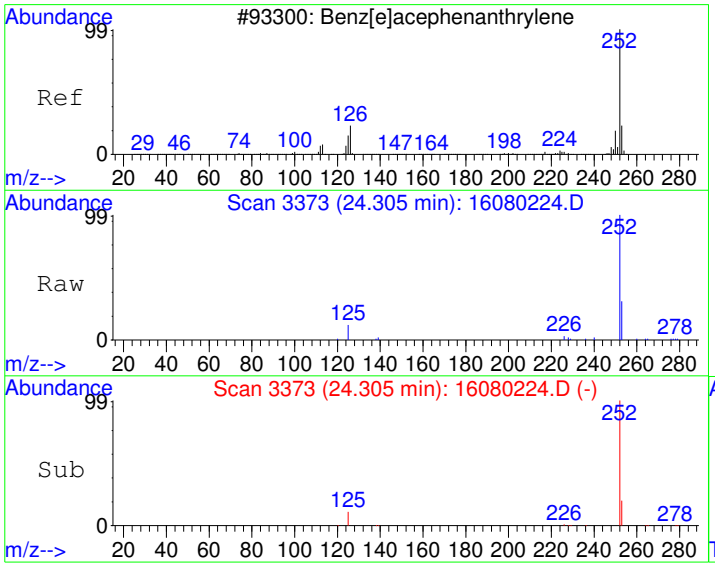


#19
Chrysene
Concen: 41.40 ug/kg
RT: 21.01 min Scan# 2932
Delta R.T. -0.02 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:228 Resp: 18174

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.1
229	20.4	0.0	50.0

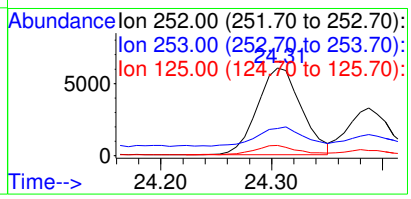


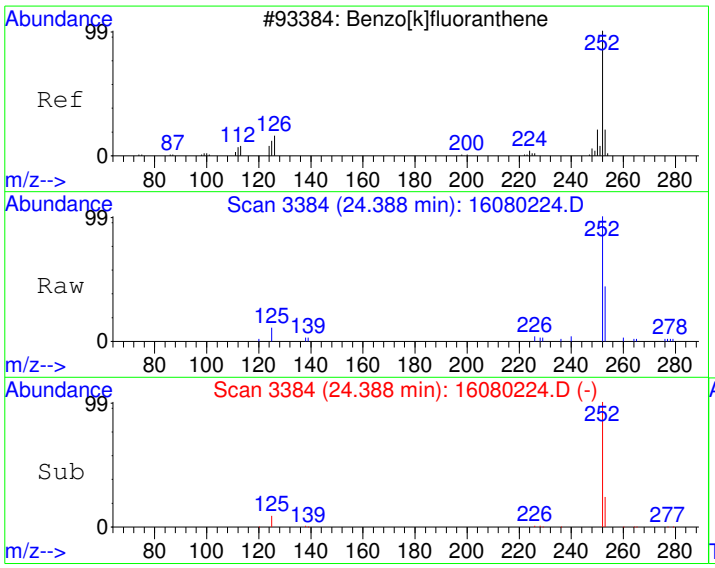


#21
Benzo[b]fluoranthene
Concen: 35.50 ug/kg
RT: 24.31 min Scan# 3373
Delta R.T. -0.02 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:252 Resp: 16637

Ion	Ratio	Lower	Upper
252	100		
253	19.8	0.0	52.0
125	10.6	0.0	40.6

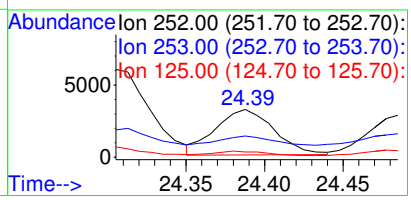


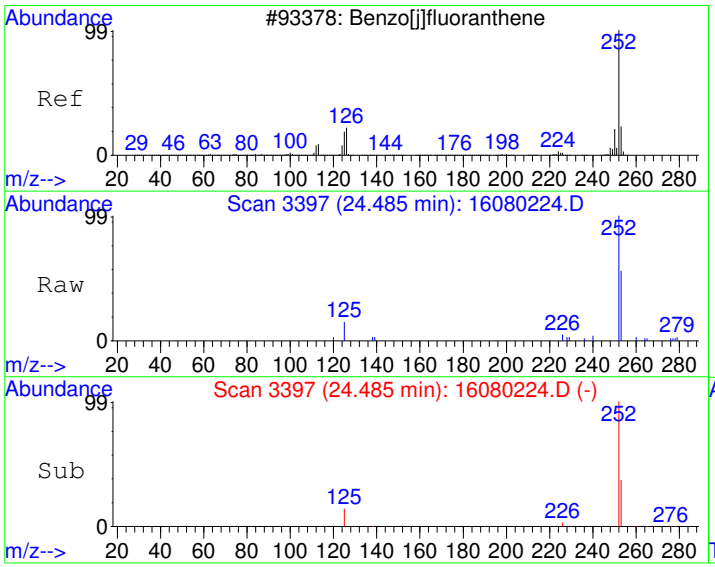


#22
Benzo[k]fluoranthene
Concen: 19.09 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.02 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:252 Resp: 8208

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.2	42.2
125	8.4	0.0	30.3

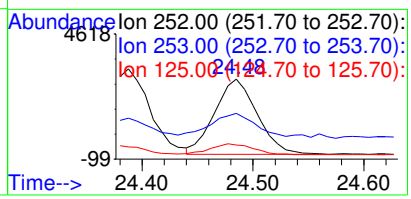


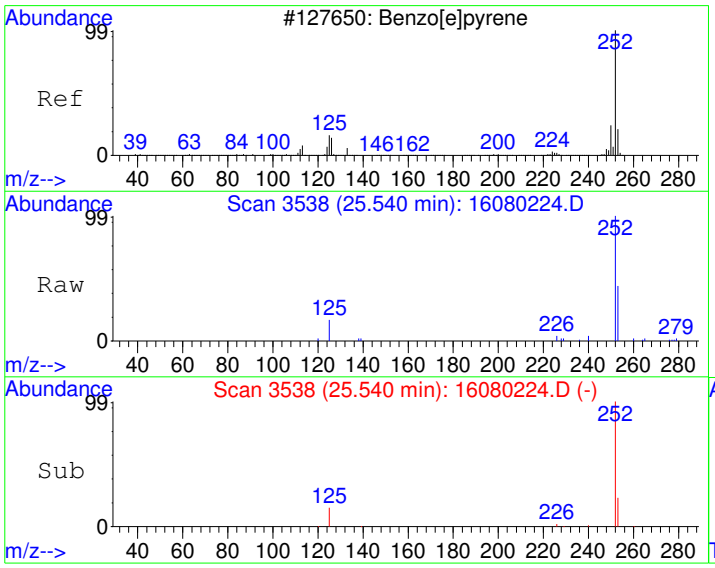


#23
Benzo(j)fluoranthene
Concen: 18.21 ug/kg
RT: 24.48 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:252 Resp: 7526

Ion	Ratio	Lower	Upper
252	100		
253	31.0	2.2	42.2
125	12.8	0.0	34.4

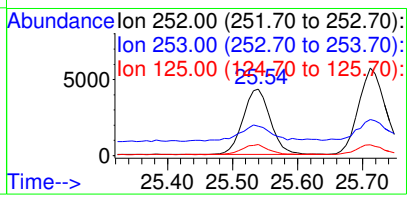


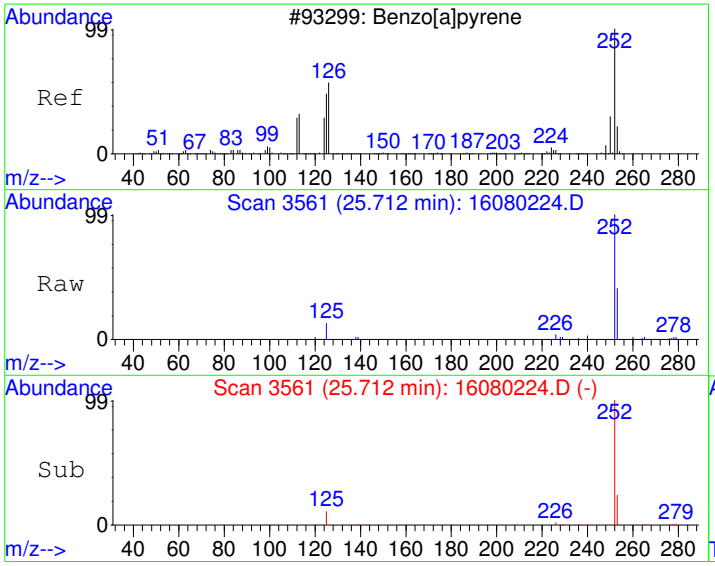


#24
Benzo[e]pyrene
Concen: 27.63 ug/kg
RT: 25.54 min Scan# 3538
Delta R.T. -0.02 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:252 Resp: 12566

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.2	42.2
125	15.3	0.0	35.7

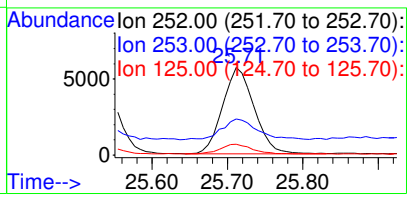


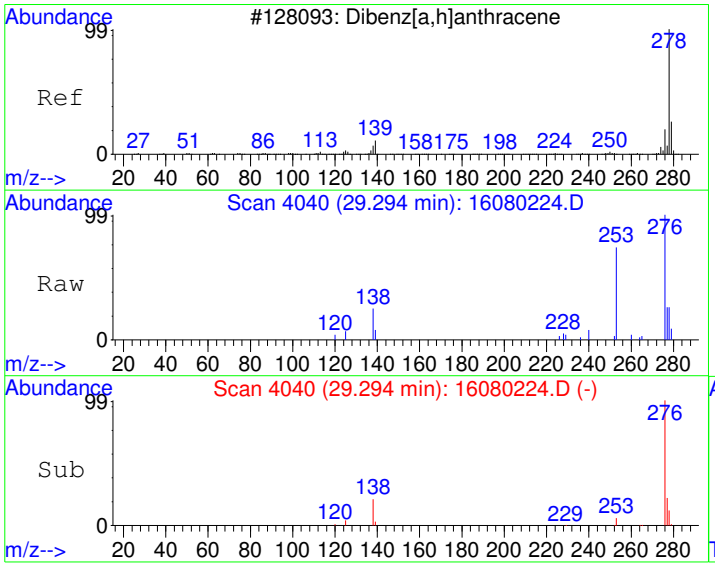


#25
Benzo[a]pyrene
Concen: 36.25 ug/kg
RT: 25.71 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:252 Resp: 16413

Ion	Ratio	Lower	Upper
252	100		
253	24.0	2.0	42.0
125	11.4	0.0	31.6

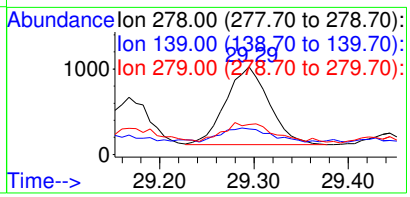


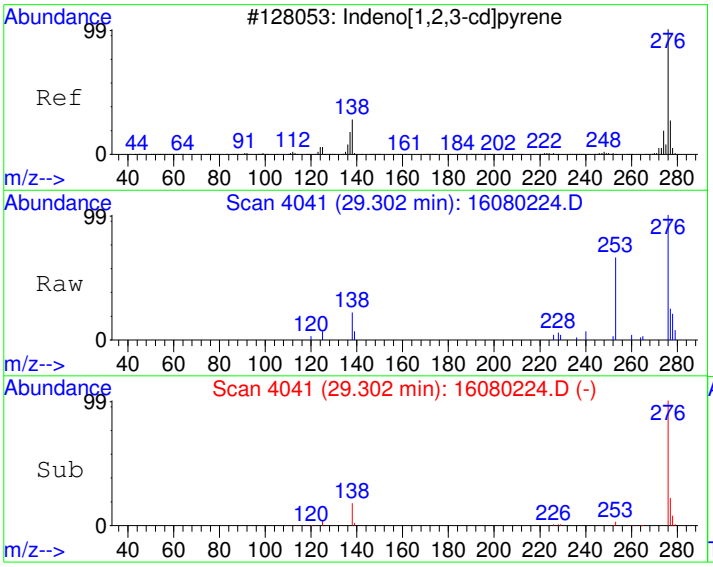


#26
Dibenz[a,h]anthracene
Concen: 6.62 ug/kg
RT: 29.29 min Scan# 4040
Delta R.T. -0.03 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:278 Resp: 2901

Ion	Ratio	Lower	Upper
278	100		
139	15.1	0.0	33.8
279	22.6	3.9	43.9

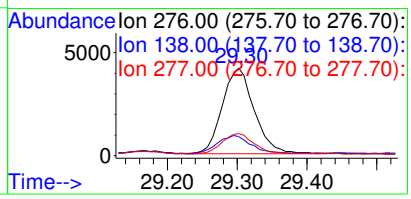


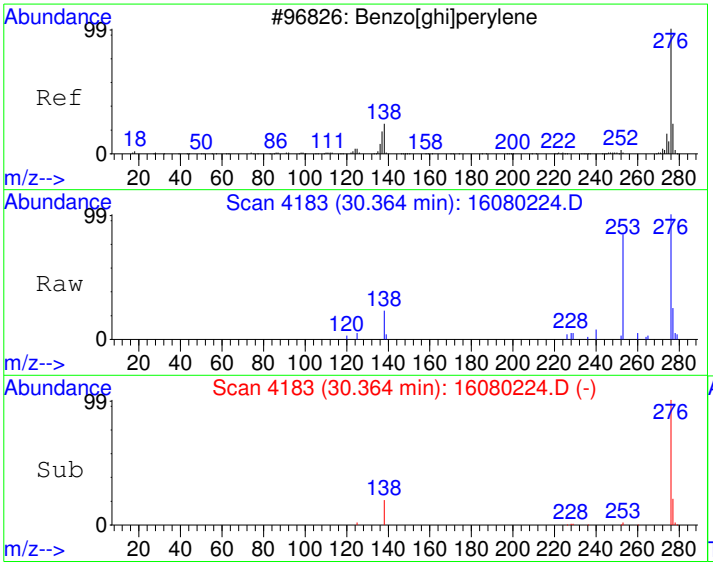


#27
Indeno[1,2,3-cd]pyrene
Concen: 25.58 ug/kg
RT: 29.30 min Scan# 4041
Delta R.T. -0.02 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:276 Resp: 13302

Ion	Ratio	Lower	Upper
276	100		
138	19.7	4.8	44.8
277	23.8	5.6	45.6

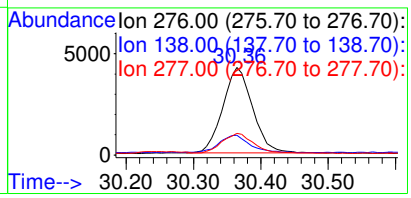




#28
Benzo[g,h,i]perylene
Concen: 29.74 ug/kg
RT: 30.36 min Scan# 4183
Delta R.T. -0.03 min
Lab File: 16080224.D
Acq: 3 Aug 2016 12:17 am

Tgt Ion:276 Resp: 12951

Ion	Ratio	Lower	Upper
276	100		
138	19.9	0.0	38.1
277	22.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080225.D Vial: 25
Acq On : 3 Aug 2016 12:58 am Operator: DEW
Sample : 1607256-34A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

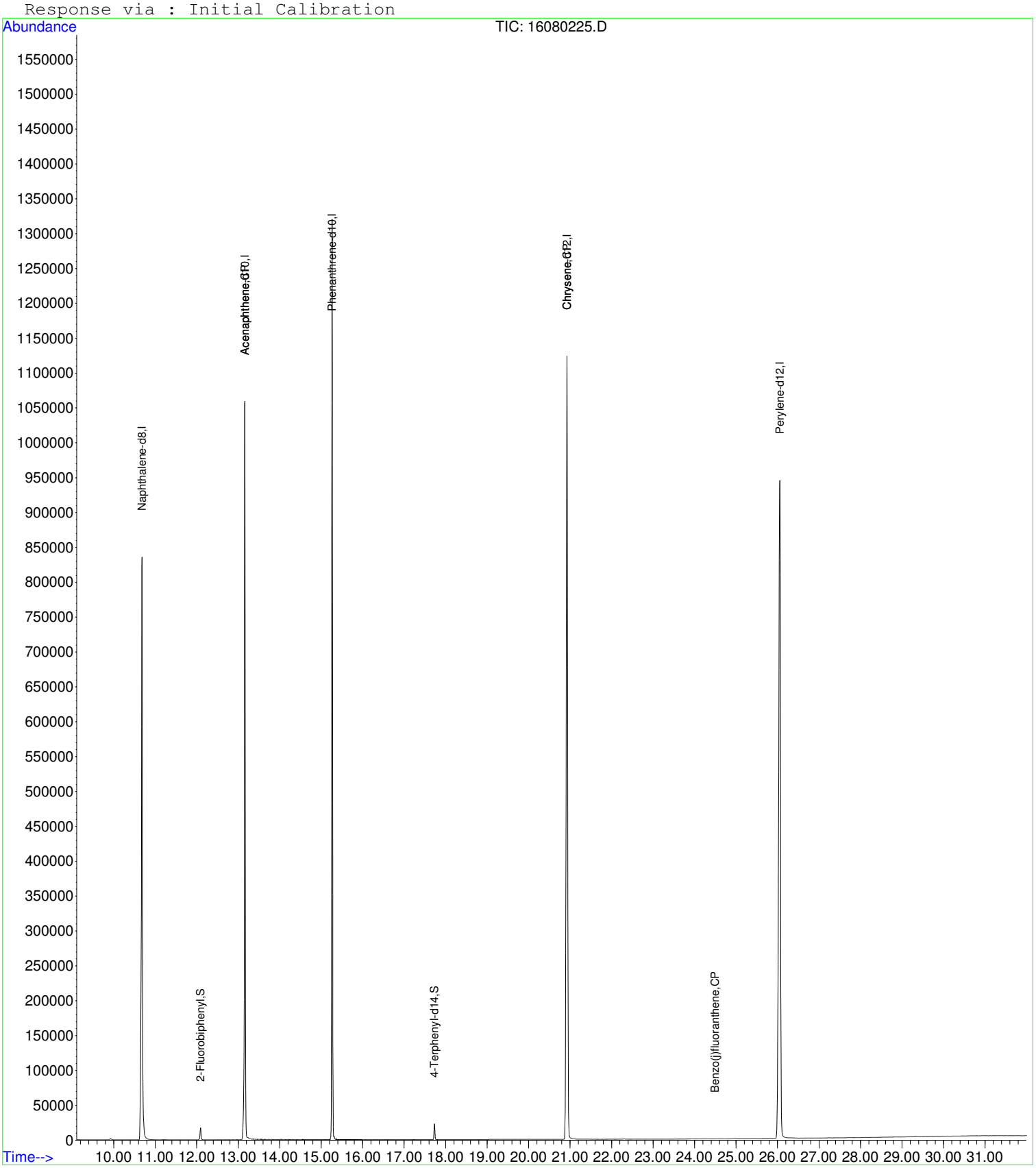
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1509079	4000.00	ug/kg	108
5) Acenaphthene-d10	13.16	164	711465	4000.00	ug/kg	119
11) Phenanthrene-d10	15.26	188	1557269	4000.00	ug/kg	98
17) Chrysene-d12	20.92	240	1989259	4000.00	ug/kg	108
20) Perylene-d12	26.06	264	1976223	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20409	82.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
16) 4-Terphenyl-d14	17.73	244	31532	85.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2454	13.45	ug/kg#	11
19) Chrysene	20.92	228	4334	10.05	ug/kg	70
23) Benzo(j)fluoranthene	24.49	252	61	0.15	ug/kg#	1

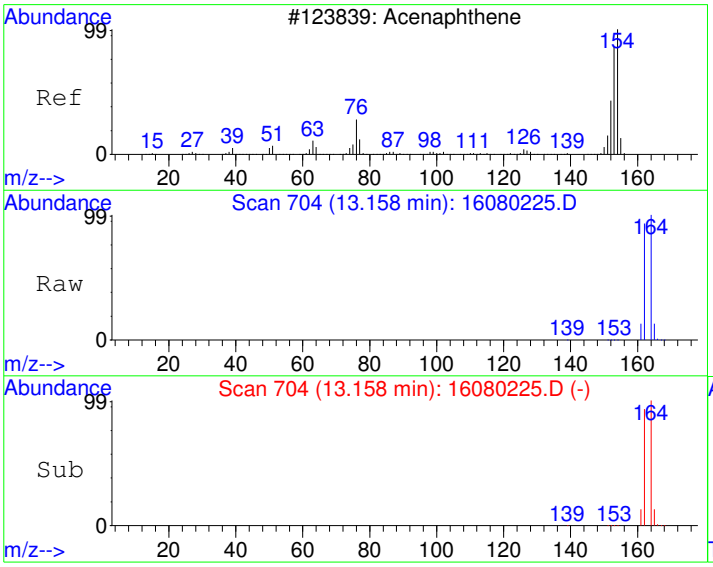
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080225.D Vial: 25
Acq On : 3 Aug 2016 12:58 am Operator: DEW
Sample : 1607256-34A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

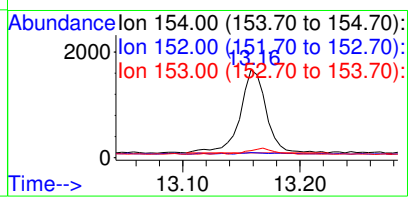


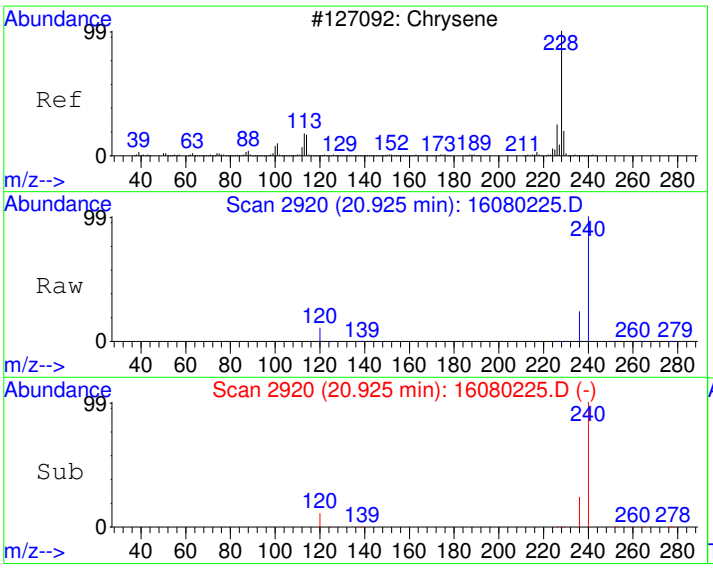


#9
Acenaphthene
Concen: 13.45 ug/kg
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080225.D
Acq: 3 Aug 2016 12:58 am

Tgt Ion:154 Resp: 2454

Ion	Ratio	Lower	Upper
154	100		
152	1.7	19.1	79.1#
153	4.2	76.2	136.2#

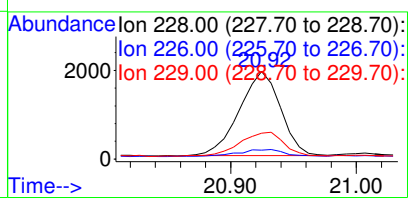


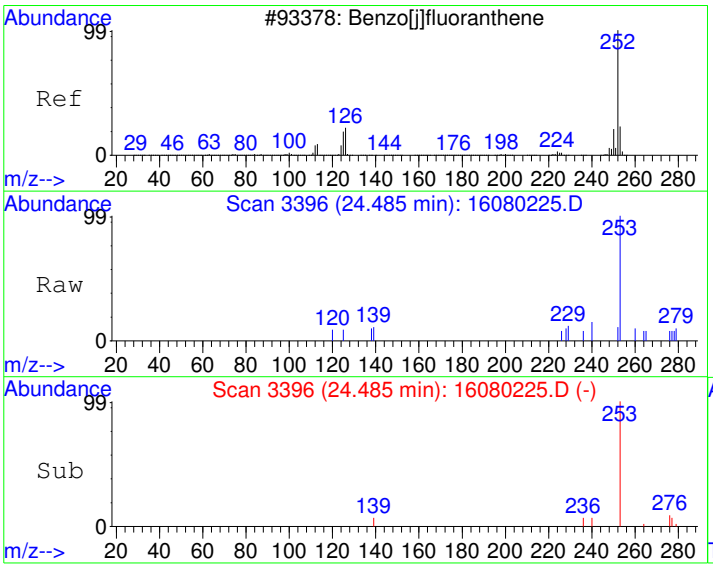


#19
Chrysene
Concen: 10.05 ug/kg
RT: 20.92 min Scan# 2920
Delta R.T. -0.10 min
Lab File: 16080225.D
Acq: 3 Aug 2016 12:58 am

Tgt Ion:228 Resp: 4334

Ion	Ratio	Lower	Upper
228	100		
226	7.3	0.0	58.1
229	27.3	0.0	50.0

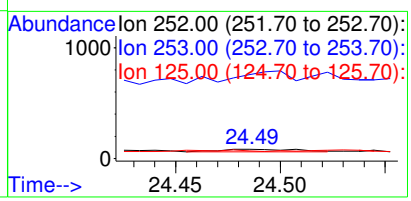




#23
Benzo(j)fluoranthene
Concen: 0.15 ug/kg
RT: 24.49 min Scan# 3396
Delta R.T. -0.02 min
Lab File: 16080225.D
Acq: 3 Aug 2016 12:58 am

Tgt Ion:252 Resp: 61

Ion	Ratio	Lower	Upper
252	100		
253	333.3	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080226.D Vial: 26
Acq On : 3 Aug 2016 1:38 am Operator: DEW
Sample : 1607256-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

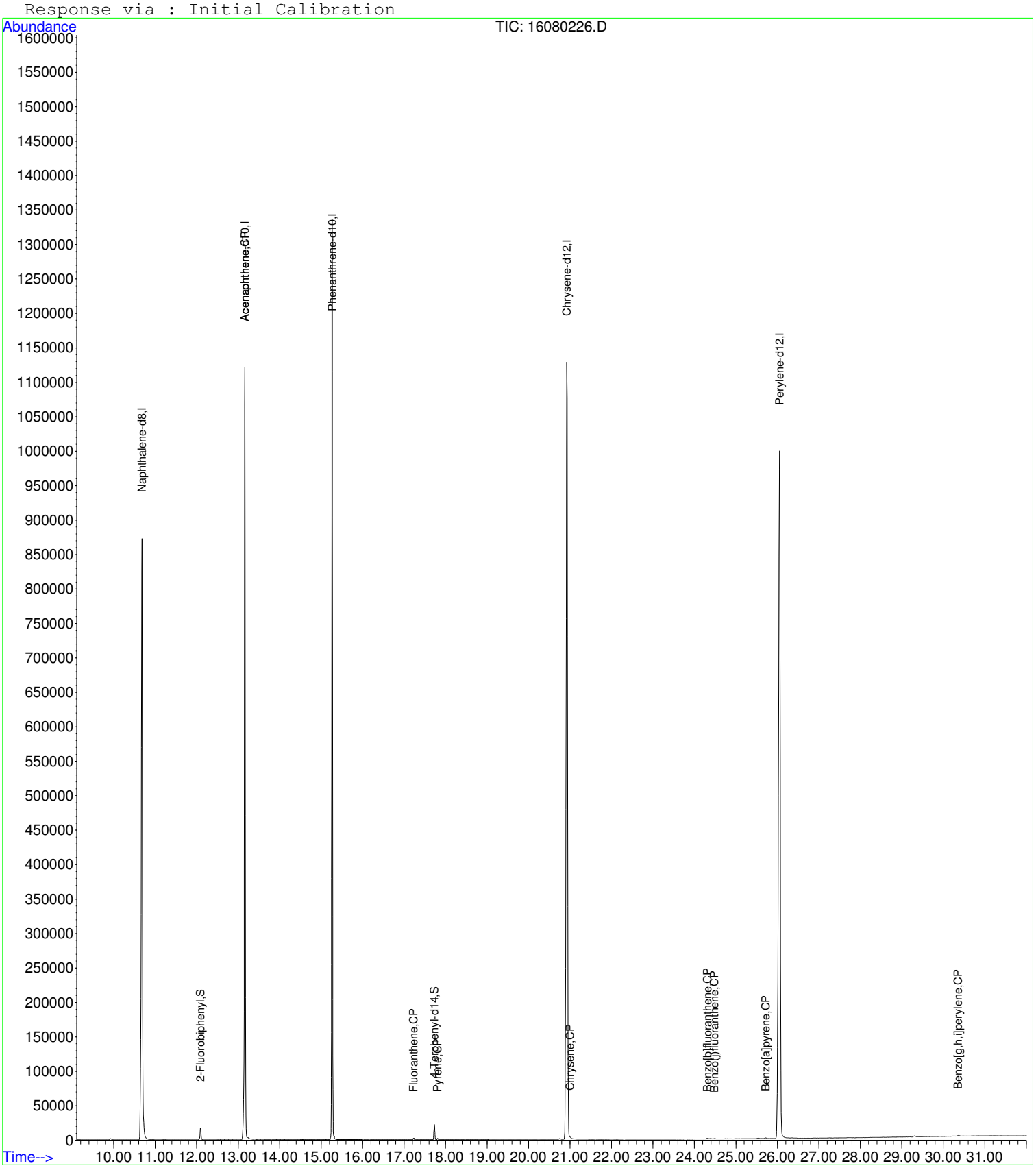
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1550528	4000.00	ug/kg	110
5) Acenaphthene-d10	13.16	164	734769	4000.00	ug/kg	123
11) Phenanthrene-d10	15.27	188	1593114	4000.00	ug/kg	100
17) Chrysene-d12	20.92	240	2030332	4000.00	ug/kg	111
20) Perylene-d12	26.05	264	2005656	4000.00	ug/kg	104
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20476	79.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.73	244	30811	81.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2428	12.88	ug/kg#	11
14) Fluoranthene	17.23	202	3119	6.97	ug/kg	99
15) Pyrene	17.81	202	2770	6.10	ug/kg	95
19) Chrysene	21.01	228	2233	5.07	ug/kg	95
21) Benzo[b]fluoranthene	24.31	252	2490	5.38	ug/kg	95
23) Benzo(j)fluoranthene	24.48	252	1156	2.83	ug/kg	93
25) Benzo[a]pyrene	25.72	252	2489	5.56	ug/kg	93
28) Benzo[g,h,i]perylene	30.36	276	2338	5.43	ug/kg	100

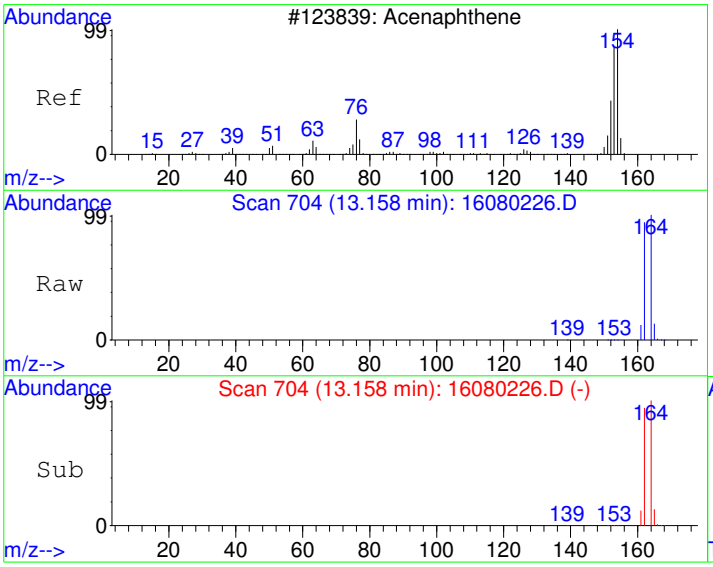
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080226.D Vial: 26
Acq On : 3 Aug 2016 1:38 am Operator: DEW
Sample : 1607256-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

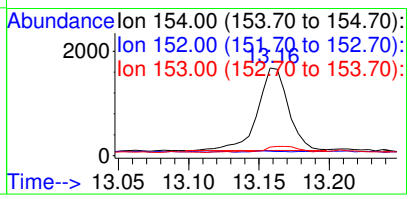


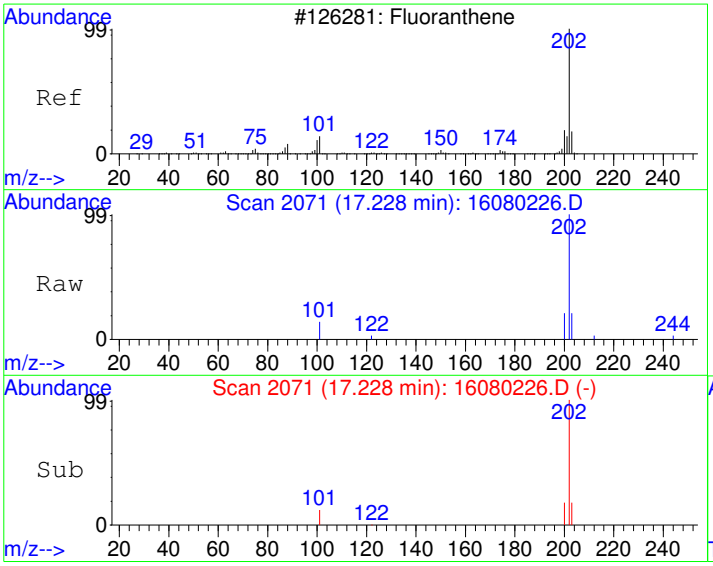


#9
Acenaphthene
Concen: 12.88 ug/kg
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:154 Resp: 2428

Ion	Ratio	Lower	Upper
154	100		
152	0.8	19.1	79.1#
153	5.6	76.2	136.2#

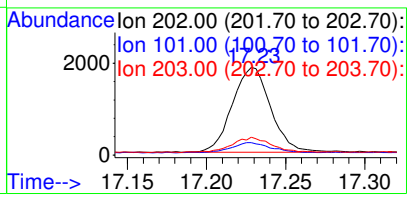


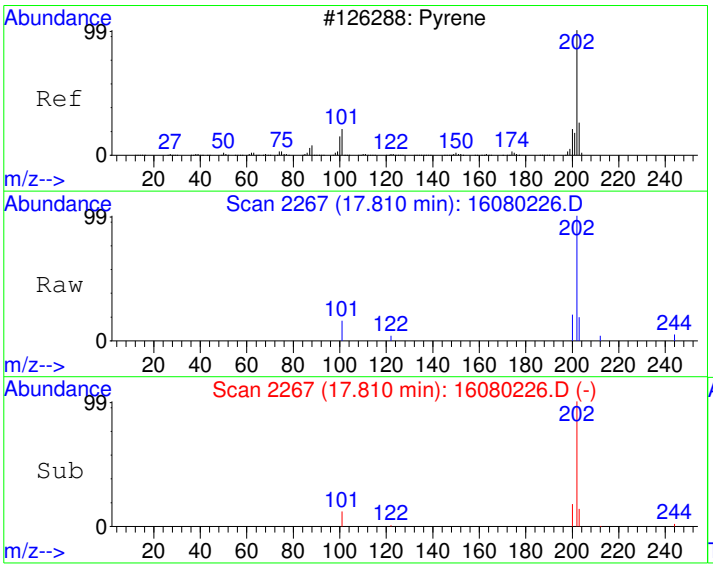


#14
Fluoranthene
Concen: 6.97 ug/kg
RT: 17.23 min Scan# 2071
Delta R.T. -0.00 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:202 Resp: 3119

Ion	Ratio	Lower	Upper
202	100		
101	11.7	0.0	42.1
203	17.7	0.0	47.9

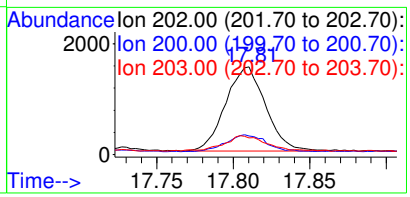


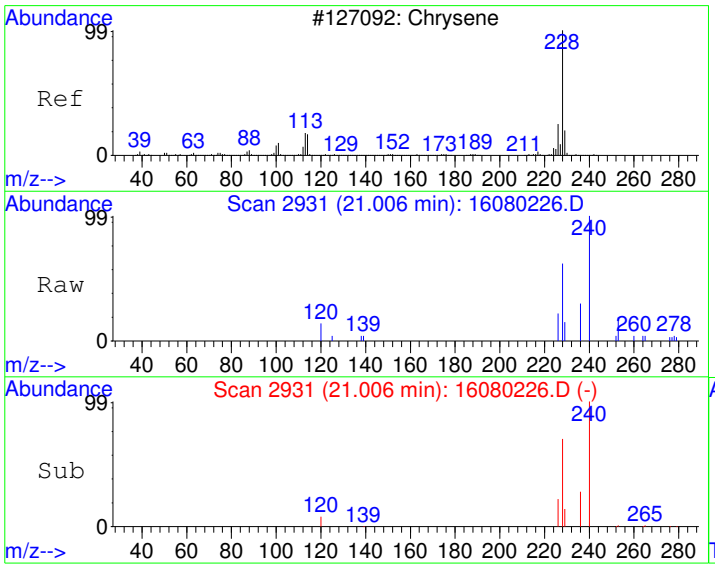


#15
Pyrene
Concen: 6.10 ug/kg
RT: 17.81 min Scan# 2267
Delta R.T. -0.00 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:202 Resp: 2770

Ion	Ratio	Lower	Upper
202	100		
200	18.4	0.0	49.7
203	14.7	0.0	47.8

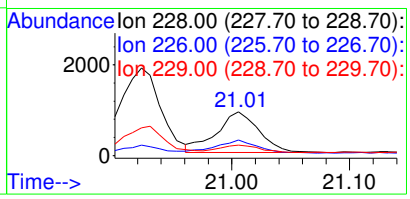


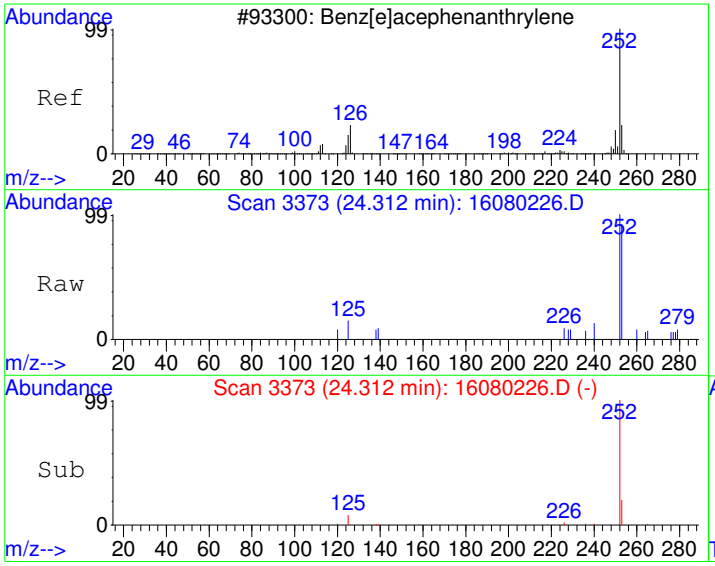


#19
Chrysene
Concen: 5.07 ug/kg
RT: 21.01 min Scan# 2931
Delta R.T. -0.02 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:228 Resp: 2233

Ion	Ratio	Lower	Upper
228	100		
226	31.0	0.0	58.1
229	18.2	0.0	50.0

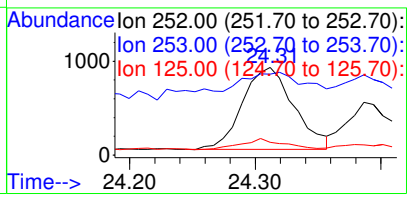


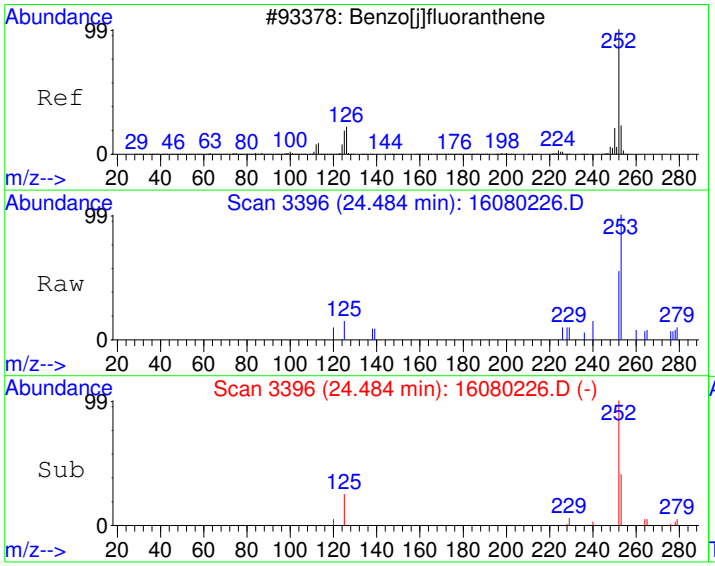


#21
Benzo[b]fluoranthene
Concen: 5.38 ug/kg
RT: 24.31 min Scan# 3373
Delta R.T. -0.02 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:252 Resp: 2490

Ion	Ratio	Lower	Upper
252	100		
253	20.2	0.0	52.0
125	8.2	0.0	40.6

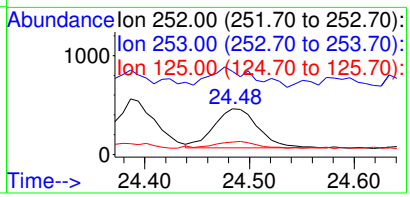


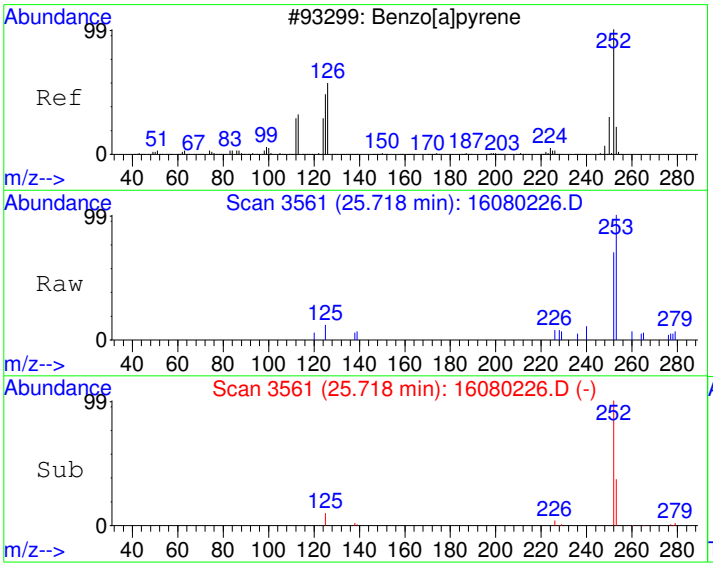


#23
Benzo(j)fluoranthene
Concen: 2.83 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.02 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:252 Resp: 1156

Ion	Ratio	Lower	Upper
252	100		
253	27.3	2.2	42.2
125	13.4	0.0	34.4

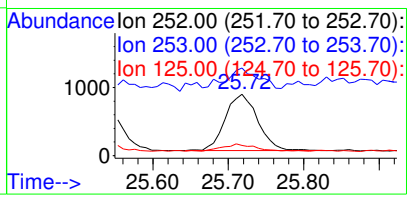


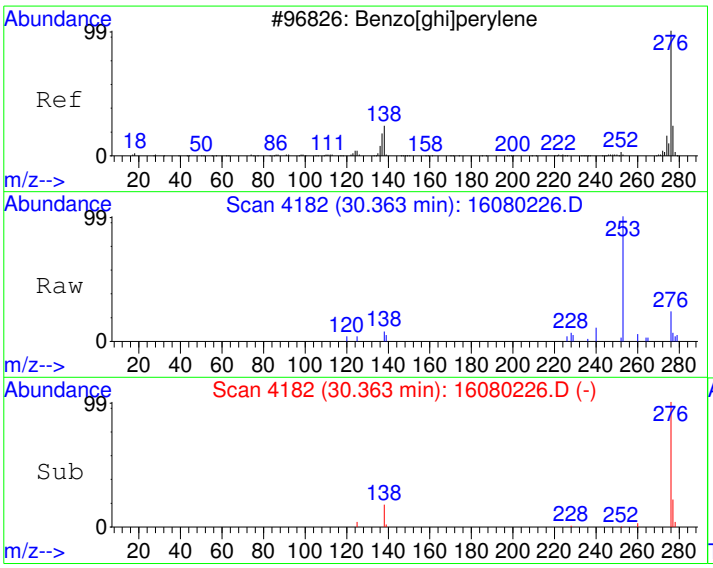


#25
Benzo[a]pyrene
Concen: 5.56 ug/kg
RT: 25.72 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:252 Resp: 2489

Ion	Ratio	Lower	Upper
252	100		
253	26.2	2.0	42.0
125	10.4	0.0	31.6

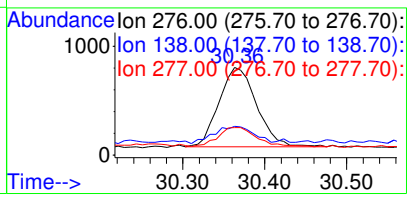




#28
Benzo[g,h,i]perylene
Concen: 5.43 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080226.D
Acq: 3 Aug 2016 1:38 am

Tgt Ion:276 Resp: 2338

Ion	Ratio	Lower	Upper
276	100		
138	18.4	0.0	38.1
277	24.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080227.D Vial: 27
Acq On : 3 Aug 2016 2:19 am Operator: DEW
Sample : 1607256-36A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

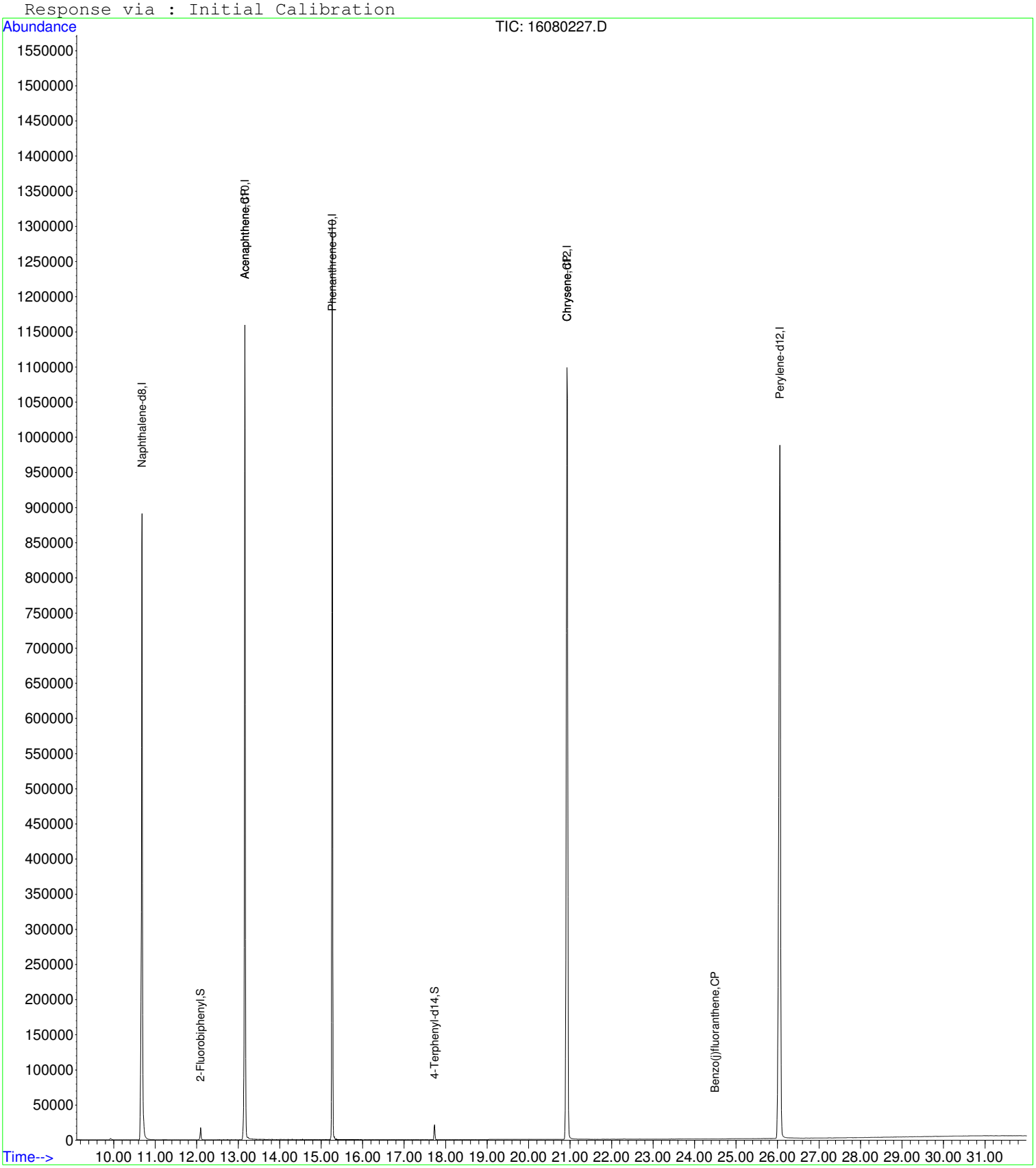
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1548424	4000.00	ug/kg	110
5) Acenaphthene-d10	13.16	164	726103	4000.00	ug/kg	121
11) Phenanthrene-d10	15.27	188	1549090	4000.00	ug/kg	97
17) Chrysene-d12	20.93	240	1987734	4000.00	ug/kg	108
20) Perylene-d12	26.06	264	1974810	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20096	79.34	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		
16) 4-Terphenyl-d14	17.73	244	30728	84.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2536	~~13.62~~	~~ug/kg#~~	~~11~~
19) Chrysene	20.93	228	4420	~~10.25~~	~~ug/kg~~	~~73~~
23) Benzo(j)fluoranthene	24.49	252	30	0.07	ug/kg	72

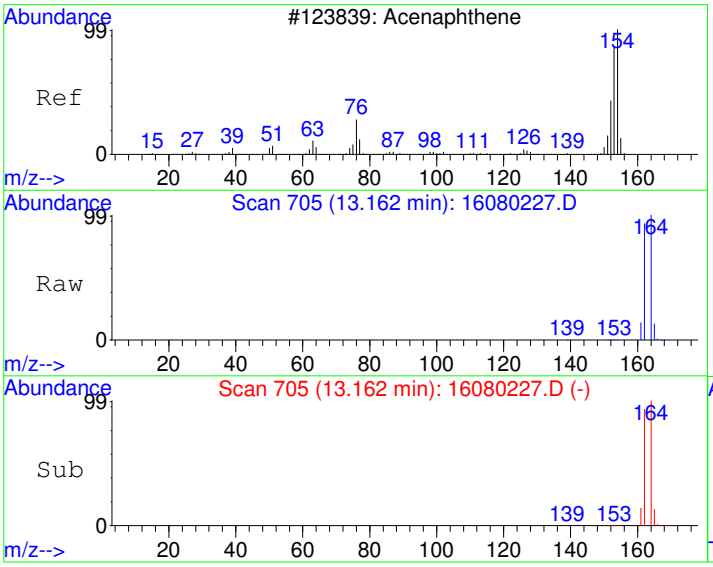
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080227.D Vial: 27
Acq On : 3 Aug 2016 2:19 am Operator: DEW
Sample : 1607256-36A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

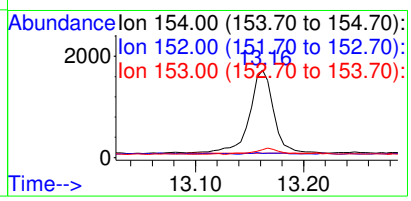


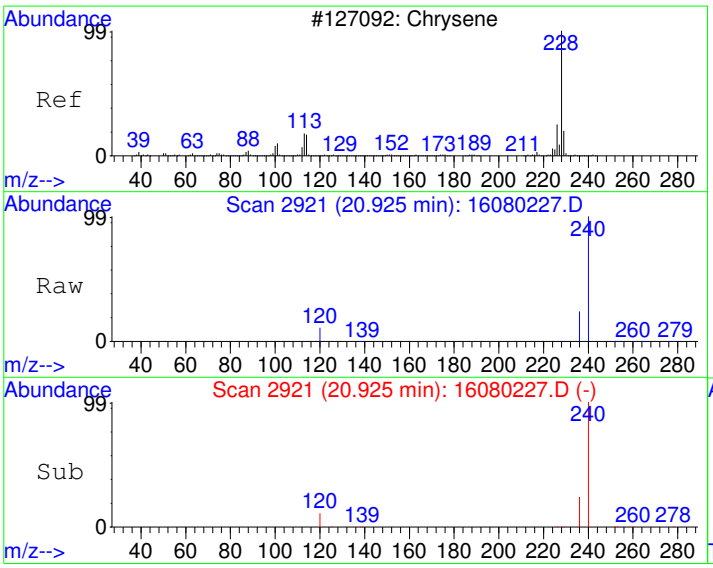


#9
Acenaphthene
Concen: 13.62 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080227.D
Acq: 3 Aug 2016 2:19 am

Tgt Ion:154 Resp: 2536

Ion	Ratio	Lower	Upper
154	100		
152	0.2	19.1	79.1#
153	5.5	76.2	136.2#

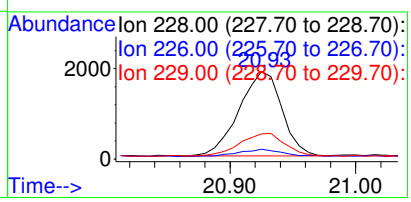


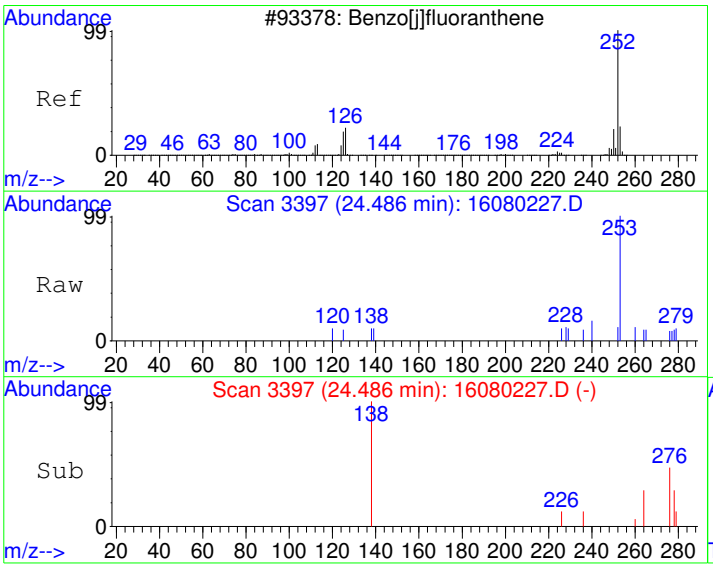


#19
Chrysene
Concen: 10.25 ug/kg
RT: 20.93 min Scan# 2921
Delta R.T. -0.10 min
Lab File: 16080227.D
Acq: 3 Aug 2016 2:19 am

Tgt Ion:228 Resp: 4420

Ion	Ratio	Lower	Upper
228	100		
226	8.6	0.0	58.1
229	26.4	0.0	50.0

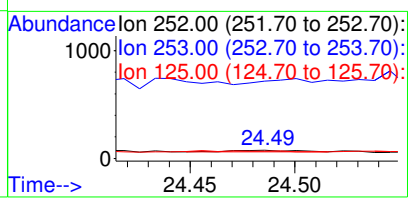




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080227.D
Acq: 3 Aug 2016 2:19 am

Tgt Ion:252 Resp: 30

Ion	Ratio	Lower	Upper
252	100		
253	31.3	2.2	42.2
125	31.3	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080234.D Vial: 34
Acq On : 3 Aug 2016 6:59 am Operator: DEW
Sample : 1607256-07AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

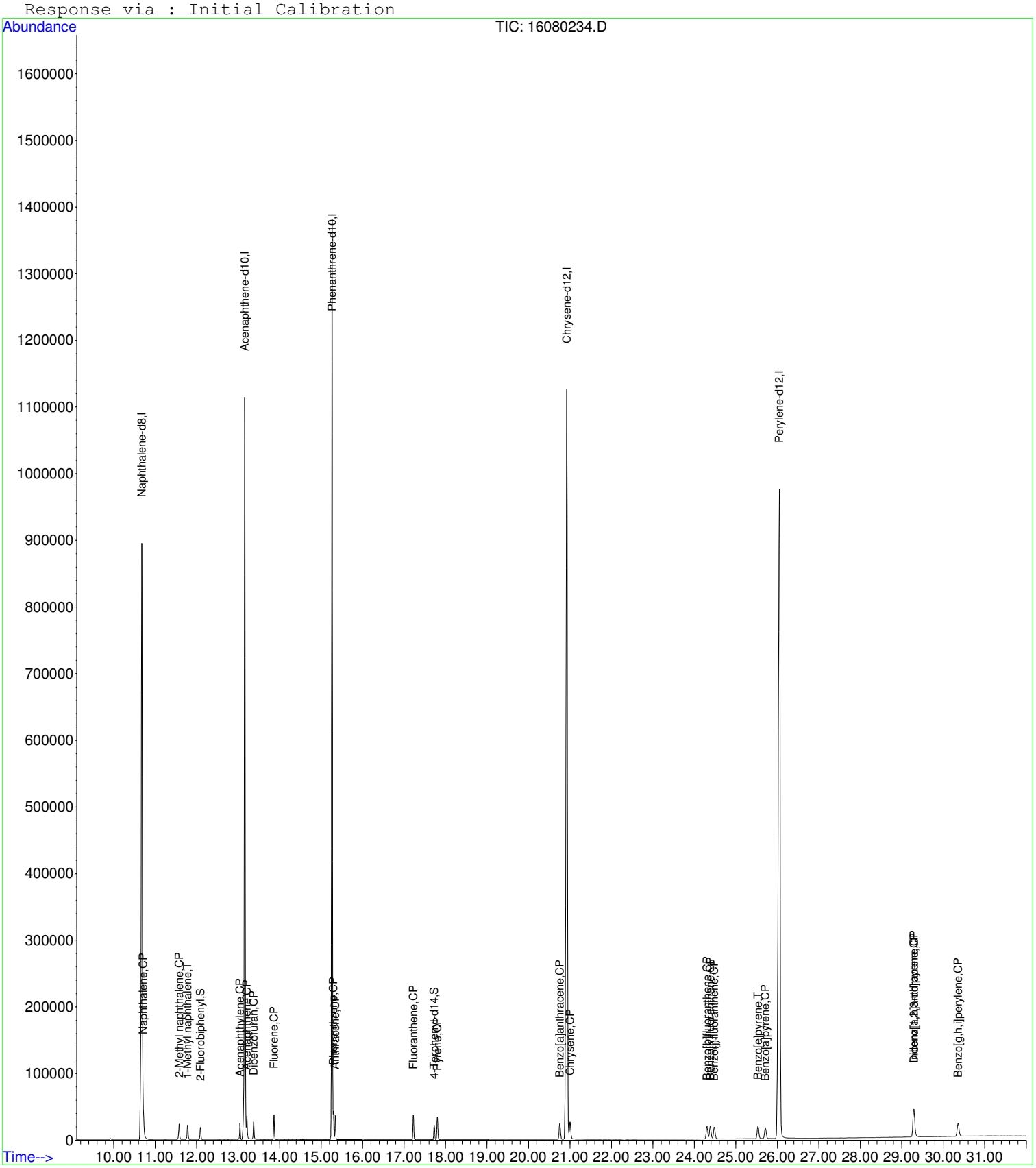
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1530817	4000.00	ug/kg	109
5) Acenaphthene-d10	13.16	164	718596	4000.00	ug/kg	120
11) Phenanthrene-d10	15.26	188	1601925	4000.00	ug/kg	101
17) Chrysene-d12	20.92	240	2002140	4000.00	ug/kg	109
20) Perylene-d12	26.05	264	1991745	4000.00	ug/kg	103
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21032	83.91	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#		
16) 4-Terphenyl-d14	17.73	244	32637	86.33	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	28868	82.88	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	19914	88.20	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	17732	88.66	ug/kg	96
6) Dibenzofuran	13.37	168	26665	91.69	ug/kg	99
8) Acenaphthylene	13.04	152	26583	83.54	ug/kg	100
9) Acenaphthene	13.21	154	15934	86.46	ug/kg	99
10) Fluorene	13.86	166	21098	91.07	ug/kg	100
12) Phenanthrene	15.30	178	33806	89.01	ug/kg	98
13) Anthracene	15.34	178	32798	82.07	ug/kg	99
14) Fluoranthene	17.22	202	39767	88.35	ug/kg	99
15) Pyrene	17.80	202	40197	88.08	ug/kg	100
18) Benzo[a]anthracene	20.75	228	37087	82.18	ug/kg	100
19) Chrysene	21.01	228	36729	84.60	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	38262	83.21	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	37175	88.13	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	36047	88.92	ug/kg	98
24) Benzo[e]pyrene	25.53	252	39993	89.63	ug/kg	98
25) Benzo[a]pyrene	25.71	252	35377	79.63	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	41460	96.44	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	49750	97.52	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	41713	97.62	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080234.D Vial: 34
Acq On : 3 Aug 2016 6:59 am Operator: DEW
Sample : 1607256-07AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080235.D Vial: 35
Acq On : 3 Aug 2016 7:40 am Operator: DEW
Sample : 1607256-07AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

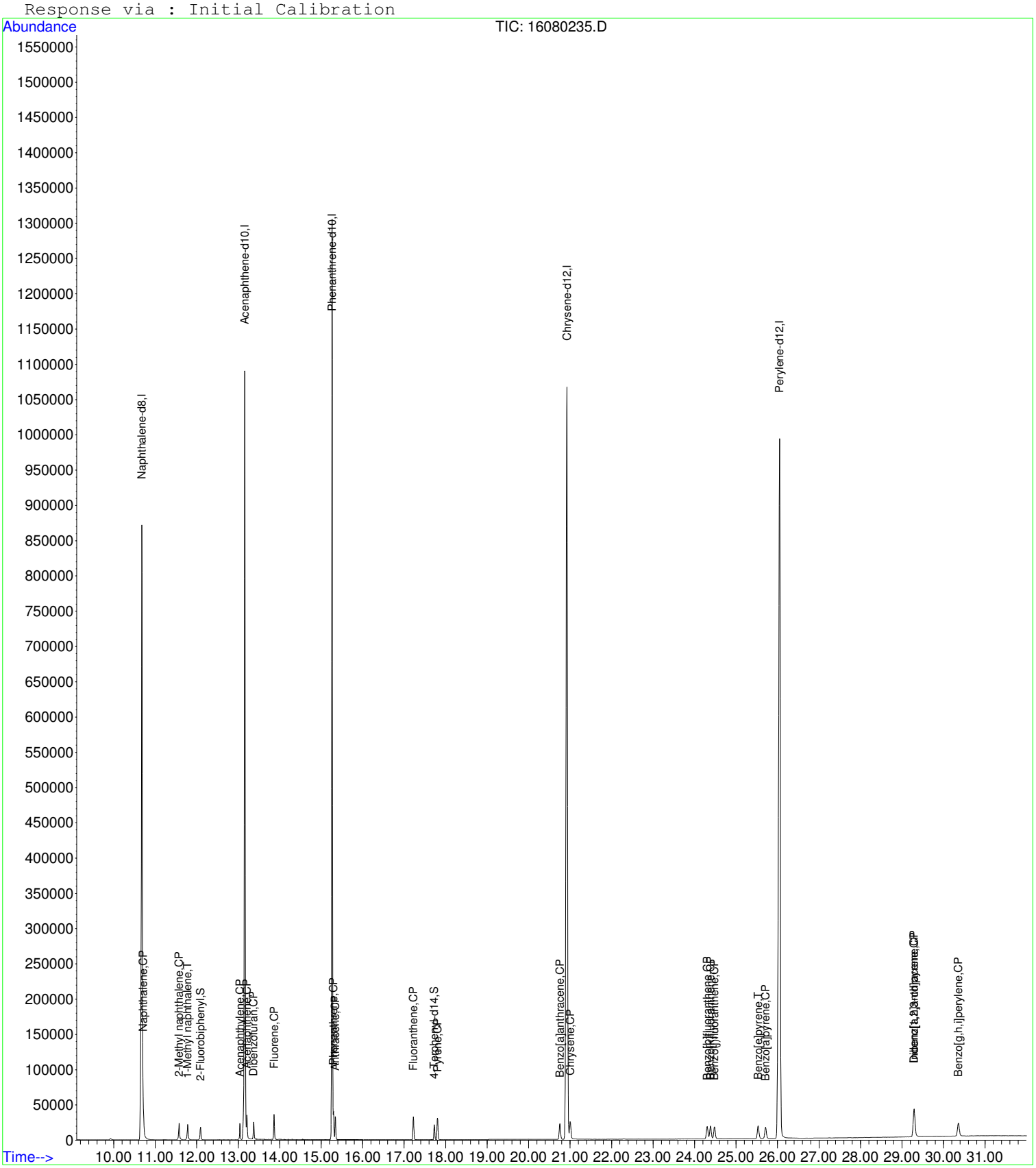
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1508836	4000.00	ug/kg	108
5) Acenaphthene-d10	13.16	164	709583	4000.00	ug/kg	118
11) Phenanthrene-d10	15.26	188	1524520	4000.00	ug/kg	96
17) Chrysene-d12	20.92	240	1944832	4000.00	ug/kg	106
20) Perylene-d12	26.05	264	1946871	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20633	83.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
16) 4-Terphenyl-d14	17.73	244	30386	84.46	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	28076	81.78	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	18866	84.77	ug/kg	94
4) 1-Methyl naphthalene	11.78	142	17150	87.00	ug/kg	96
6) Dibenzofuran	13.37	168	25646	89.31	ug/kg	99
8) Acenaphthylene	13.04	152	24854	79.09	ug/kg	100
9) Acenaphthene	13.21	154	15228	83.68	ug/kg	98
10) Fluorene	13.86	166	20176	88.20	ug/kg	98
12) Phenanthrene	15.30	178	31249	86.46	ug/kg	98
13) Anthracene	15.34	178	30358	79.82	ug/kg	99
14) Fluoranthene	17.22	202	36440	85.07	ug/kg	99
15) Pyrene	17.80	202	37187	85.62	ug/kg	99
18) Benzo[a]anthracene	20.75	228	34988	79.82	ug/kg	99
19) Chrysene	21.00	228	34964	82.91	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	36576	81.38	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	35419	85.90	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	34204	86.32	ug/kg	99
24) Benzo[e]pyrene	25.53	252	37703	86.44	ug/kg	99
25) Benzo[a]pyrene	25.71	252	33473	77.08	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	39371	93.69	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.30	276	47352	94.95	ug/kg	96
28) Benzo[g,h,i]perylene	30.36	276	40068	95.93	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080235.D Vial: 35
Acq On : 3 Aug 2016 7:40 am Operator: DEW
Sample : 1607256-07AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080236.D Vial: 36
Acq On : 3 Aug 2016 8:20 am Operator: DEW
Sample : CCV1-160802 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

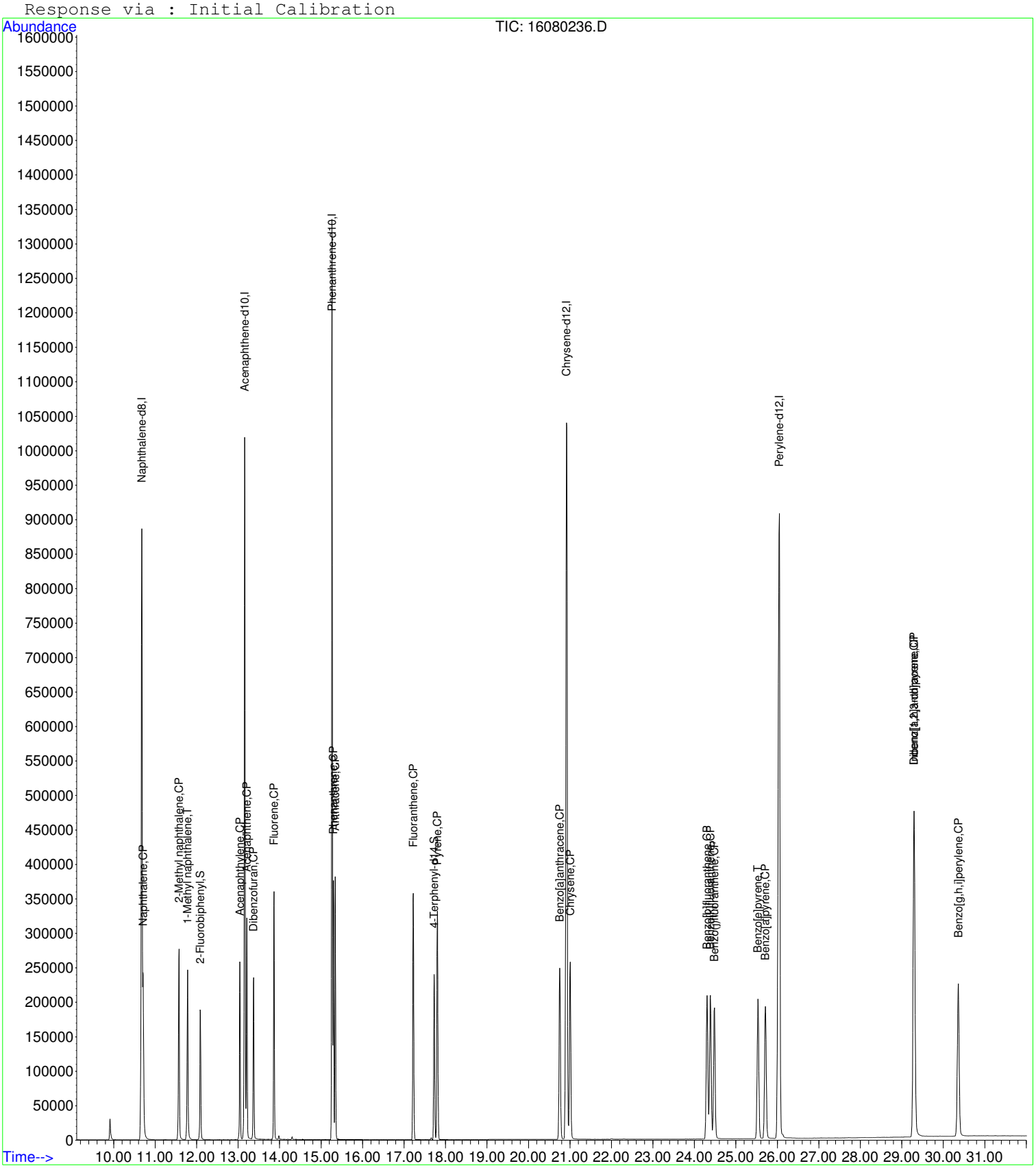
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1401297	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	618544	4000.00	ug/kg	103
11) Phenanthrene-d10	15.26	188	1528398	4000.00	ug/kg	96
17) Chrysene-d12	20.92	240	1841607	4000.00	ug/kg	100
20) Perylene-d12	26.05	264	1897432	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	201852	935.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.39%#		
16) 4-Terphenyl-d14	17.73	244	331877	920.13	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.00%#		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	290712	911.81	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	190576	922.04	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	169868	927.84	ug/kg	99
6) Dibenzofuran	13.37	168	234965	938.67	ug/kg	100
8) Acenaphthylene	13.04	152	257025	938.34	ug/kg	100
9) Acenaphthene	13.21	154	152836	963.41	ug/kg	99
10) Fluorene	13.86	166	198229	994.05	ug/kg	100
12) Phenanthrene	15.30	178	336106	927.55	ug/kg	99
13) Anthracene	15.34	178	349166	915.76	ug/kg	100
14) Fluoranthene	17.22	202	393886	917.24	ug/kg	99
15) Pyrene	17.80	202	391527	899.18	ug/kg	100
18) Benzo[a]anthracene	20.75	228	393265	947.43	ug/kg	100
19) Chrysene	21.01	228	376904	943.84	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	419605	957.93	ug/kg	100
22) Benzo[k]fluoranthene	24.39	252	401760	999.77	ug/kg	100
23) Benzo(j)fluoranthene	24.48	252	369844	957.69	ug/kg	99
24) Benzo[e]pyrene	25.53	252	405871	954.81	ug/kg	100
25) Benzo[a]pyrene	25.71	252	402215	950.34	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	452402	1104.59	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.30	276	533462	1097.61	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	446616	1097.15	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080236.D Vial: 36
Acq On : 3 Aug 2016 8:20 am Operator: DEW
Sample : CCV1-160802 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6_160803A
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160803A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS			X	
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS			X	
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS			X	
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)			X	

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/4/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:58:14 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: GCMS6_160803A **Run No.:** 87405

Analytical Run Date: 8/3/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160803	1	PAH_LL_SDOD1	TUNE	R87405	8/3/2016 10:22:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160803	1	PAH_LL_SDOD1	ICV	R87405	8/3/2016 11:02:00 AM		
SB-160803	1	PAH_LL_SDOD1	SBLK	76473	8/3/2016 12:23:00 PM		
1607256-33A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:03:00 PM		
1607256-35A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:44:00 PM		
1607219-18A	10	PAH_LL_SDOD1	SAMP	76420	8/3/2016 2:25:00 PM		
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:06:00 PM		
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:47:00 PM		
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 4:28:00 PM		
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:10:00 PM		
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:50:00 PM		
CCV1-160803	1	PAH_LL_SDOD1	CCV	R87405	8/3/2016 6:30:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160803.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160803\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080301	DFTPPPAH	DFTPP-160803
2	Sample	2	16080302	PP160801	ICV-160803
3	Sample	3	16080303	PP160801	SB-160803
4	Sample	4	16080304	PP160801	SB-160803
5	Sample	5	16080305	PP160801	1607256-33A
6	Sample	6	16080306	PP160801	1607256-35A
7	Sample	7	16080307	PP160801	1607219-18A
8	Sample	8	16080308	PP160801	1607219-22A
9	Sample	9	16080309	PP160801	1607239-01A
10	Sample	10	16080310	PP160801	1607239-05A
11	Sample	11	16080311	PP160801	1607239-11A
12	Sample	12	16080312	PP160801	1607239-17A
13	Sample	13	16080313	PP160801	CCV1-160803
14	Sample	14	16080314	DFTPPPAH	DFTPP-160803
15	Sample	15	16080315	PP160801	ICV-160803
16	Sample	16	16080316	PP160801	LCS-76642
17	Sample	17	16080317	PP160801	MB-76642
18	Sample	18	16080318	PP160801	1608019-01A
19	Sample	19	16080319	PP160801	1608019-02A
20	Sample	20	16080320	PP160801	1608019-03A
21	Sample	21	16080321	PP160801	1608019-04A
22	Sample	22	16080322	PP160801	1608019-05A
23	Sample	23	16080323	PP160801	1608019-06A
24	Sample	24	16080324	PP160801	1607254-05C
25	Sample	25	16080325	PP160801	1607260-01C
26	Sample	26	16080326	PP160801	1607260-04C
27	Sample	27	16080327	PP160801	1607254-02C
28	Sample	28	16080328	PP160801	1607260-11C
29	Sample	29	16080329	PP160801	1608019-03AMS
30	Sample	30	16080330	PP160801	1608019-03AMSD
31	Sample	31	16080331	PP160801	CCV1-160803

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 1:26:56 PM**
Digestion:
Prep End Date: **7/26/2016 4:48:00 PM**

Prep Batch **76473** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-07A	Soil		10.01	10	0.999	of 3	
1607256-07AMS	Soil		10.17	10	0.983	of	
1607256-07AMSD	Soil		10.42	10	0.960	of	
1607256-08A	Soil		10.03	10	0.997	1 of 1	
1607256-09A	Soil		10.12	10	0.988	1 of 1	
1607256-10A	Soil		10.05	10	0.995	1 of 1	
1607256-11A	Soil		10.07	10	0.993	1 of 1	
1607256-12A	Soil		10.81	10	0.925	1 of 1	
1607256-14A	Soil		10	10	1.000	1 of 1	
1607256-15A	Soil		10.73	10	0.932	1 of 1	
1607256-16A	Soil		10.7	10	0.935	1 of 1	
1607256-17A	Soil		10.28	10	0.973	1 of 1	
1607256-18A	Soil		10.22	10	0.978	1 of 1	
1607256-19A	Soil		10.03	10	0.997	1 of 1	
1607256-29A	Soil		10.07	10	0.993	1 of 1	
1607256-30A	Soil		10.09	10	0.991	1 of 1	
1607256-31A	Soil		10.18	10	0.982	1 of 1	
1607256-32A	Soil		10.47	10	0.955	1 of 1	
1607256-33A	Soil		10.07	10	0.993	1 of 1	
1607256-34A	Soil		10.04	10	0.996	1 of 1	
1607256-35A	Soil		10.57	10	0.946	1 of 1	
1607256-36A	Soil		10.47	10	0.955	1 of 1	
LCS-76473	Soil		10	10	1.000	of	
MB-76473	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED BY
By Janice Whitt at 1:11:26 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 1:26:56 PM**
Digestion:
Prep End Date:

Prep Batch **76473** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-07A	Soil		10 .01	10	1.000	1 of 3	
1607256-07AMS	Soil		10 .17	10	1.000	1 of	
1607256-07AMSD	Soil		10 .42	10	1.000	1 of	
1607256-08A	Soil		10 .03	10	1.000	1 of 1	
1607256-09A	Soil		10 .12	10	1.000	1 of 1	
1607256-10A	Soil		10 .05	10	1.000	1 of 1	
1607256-11A	Soil		10 .07	10	1.000	1 of 1	
1607256-12A	Soil		10 .81	10	1.000	1 of 1	
1607256-14A	Soil		10 .00	10	1.000	1 of 1	
1607256-15A	Soil		10 .73	10	1.000	1 of 1	
1607256-16A	Soil		10 .70	10	1.000	1 of 1	
1607256-17A	Soil		10 .28	10	1.000	1 of 1	
1607256-18A	Soil		10 .22	10	1.000	1 of 1	
1607256-19A	Soil		10 .05	10	1.000	1 of 1	
1607256-~~20A~~ 29	Soil		10 07	10	1.000	1 of 1	
1607256-~~21A~~ 30	Soil		10 .09	10	1.000	1 of 1	
1607256-~~22A~~ 31	Soil		10 18	10	1.000	1 of 1	
1607256-~~23A~~ 32	Soil		10 47	10	1.000	1 of 1	
1607256-~~24A~~ 33	Soil		10 07	10	1.000	1 of 1	
1607256-~~25A~~ 34	Soil		10 04	10	1.000	1 of 1	
1607256-~~28A~~ 35	Soil		10 57	10	1.000	1 of 1	
1607256-~~36A~~ 36	Soil		10 47	10	1.000	1 of 1	
LCS-76473	Soil		10	10	1.000	of	
MB-76473	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED BY
By Janice Whitt at 1:11:24 PM, 8/10/2016

AR 7/26/16 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A SS	Soil		0	0	#Num!	1 of 1	
1607256-02A SS	Soil		0	0	#Num!	1 of 1	
1607256-03A SS	Soil		0	0	#Num!	1 of 1	
1607256-04A SS	Soil		0	0	#Num!	1 of 1	
1607256-05A SS	Soil		0	0	#Num!	1 of 1	
1607256-06A SS	Soil		0	0	#Num!	1 of 1	
1607256-07A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607256-08A SS	Soil		0	0	#Num!	1 of 1	
1607256-09A SS	Soil		0	0	#Num!	1 of 1	
1607256-10A SS	Soil		0	0	#Num!	1 of 1	
1607256-11A SS	Soil		0	0	#Num!	1 of 1	
1607256-12A SS	Soil		0	0	#Num!	1 of 1	
1607256-14A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:11:30 PM, 8/10/2016

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:11:33 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

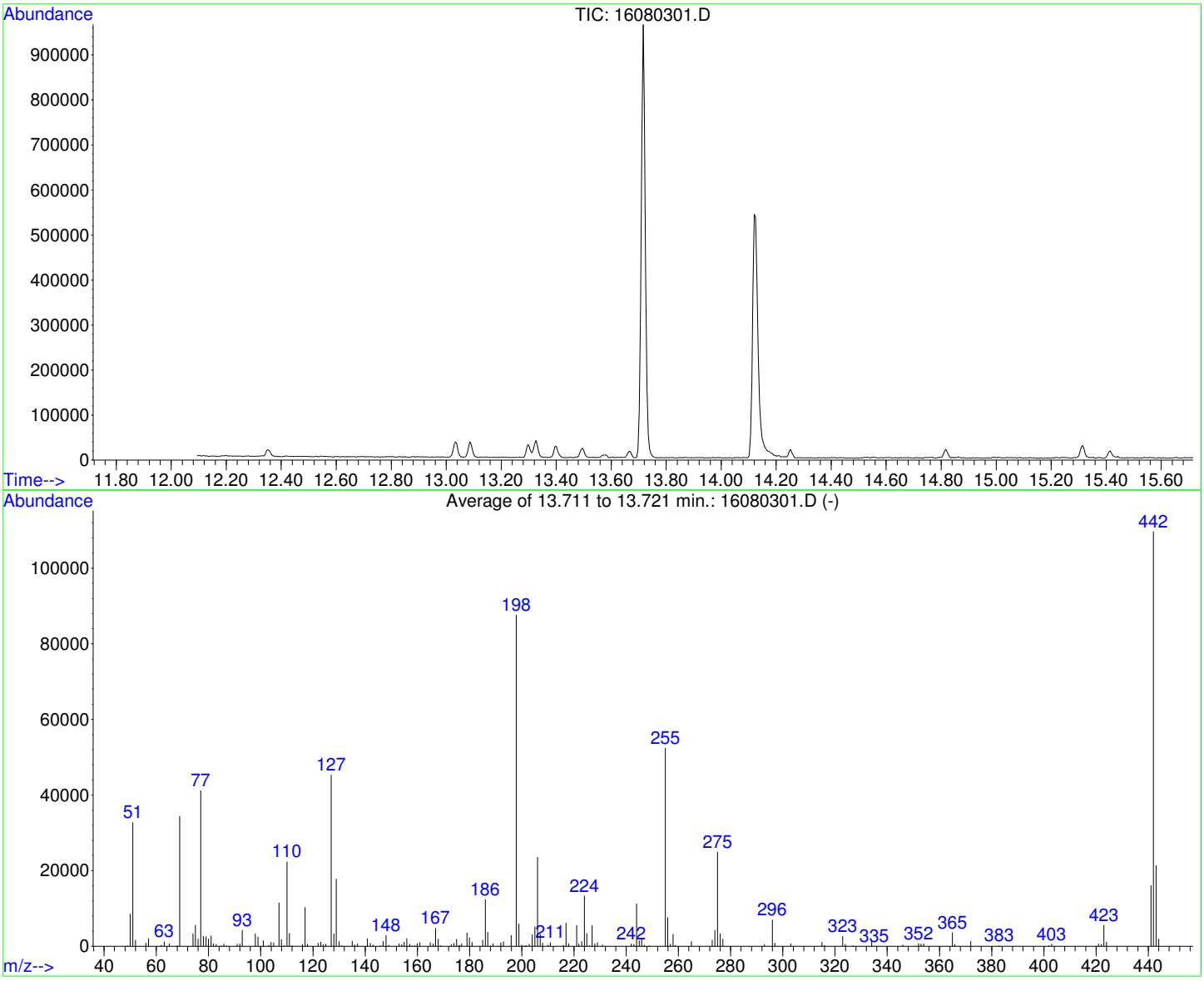
Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 1:11:36 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160803\16080301.D Vial: 1
Acq On : 3 Aug 2016 10:22 am Operator: DEW
Sample : DFTPP-160803 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 345, 346, 347; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	37.4	32792	PASS
68	69	0.00	2	0.6	202	PASS
69	198	0.00	100	39.3	34451	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.8	45389	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	87691	PASS
199	198	5	9	6.8	5986	PASS
275	198	10	60	28.5	25027	PASS
365	198	1	200	4.2	3673	PASS
441	442	0.01	24	14.7	16163	PASS
442	198	50	400	125.1	109723	PASS
443	442	15	24	19.5	21399	PASS

REVIEWED BY
By Janice Whitt at 1:33:22 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080302.D Vial: 2
Acq On : 3 Aug 2016 11:02 am Operator: DEW
Sample : ICV-160803 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

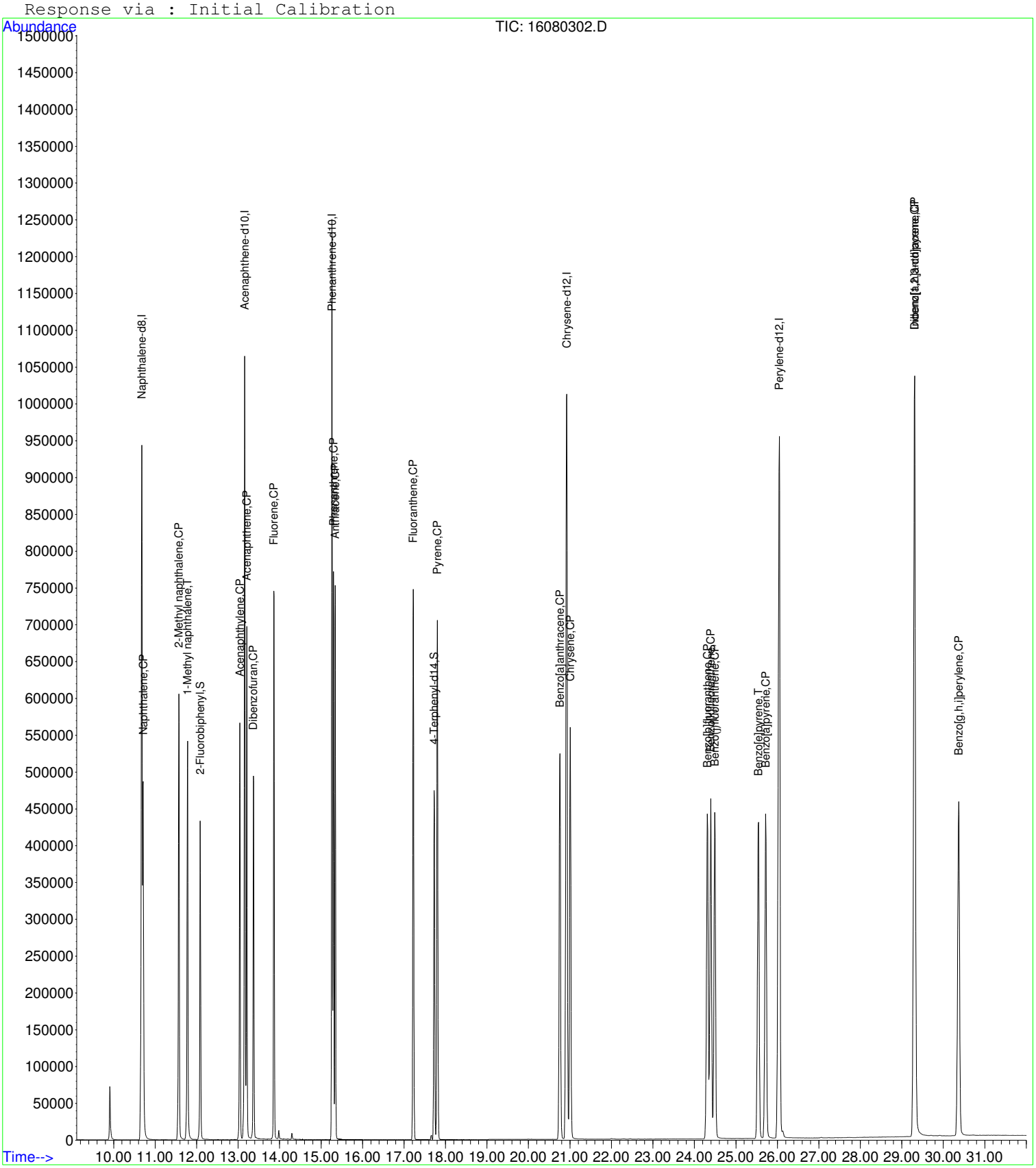
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1445514	4000.00	ug/kg	103
5) Acenaphthene-d10	13.16	164	632861	4000.00	ug/kg	106
11) Phenanthrene-d10	15.26	188	1466608	4000.00	ug/kg	92
17) Chrysene-d12	20.92	240	1857658	4000.00	ug/kg	101
20) Perylene-d12	26.05	264	1983483	4000.00	ug/kg	103
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	435940	1974.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.37%			
16) 4-Terphenyl-d14	17.73	244	689754	1992.92	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.82%			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	635694	1932.85	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	412884	1936.50	ug/kg	95
4) 1-Methyl naphthalene	11.78	142	370237	1960.42	ug/kg	99
6) Dibenzofuran	13.37	168	494207	1929.66	ug/kg	100
8) Acenaphthylene	13.04	152	563565	2010.90	ug/kg	100
9) Acenaphthene	13.21	154	329208	2028.24	ug/kg	98
10) Fluorene	13.86	166	418017	2048.80	ug/kg	97
12) Phenanthrene	15.30	178	677772	1949.26	ug/kg	100
13) Anthracene	15.34	178	697520	1906.46	ug/kg	100
14) Fluoranthene	17.22	202	803276	1949.40	ug/kg	100
15) Pyrene	17.80	202	805935	1928.89	ug/kg	100
18) Benzo[a]anthracene	20.76	228	849209	2028.17	ug/kg	99
19) Chrysene	21.01	228	805812	2000.48	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	935208	2042.40	ug/kg	100
22) Benzo[k]fluoranthene	24.39	252	850636	2024.96	ug/kg	100
23) Benzo(j)fluoranthene	24.49	252	826789	2048.04	ug/kg	100
24) Benzo[e]pyrene	25.55	252	900755	2027.08	ug/kg	99
25) Benzo[a]pyrene	25.72	252	893943	2020.54	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	988358	2308.50	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.31	276	1163348	2289.78	ug/kg	98
28) Benzo[g,h,i]perylene	30.37	276	975992	2293.60	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080302.D Vial: 2
Acq On : 3 Aug 2016 11:02 am Operator: DEW
Sample : ICV-160803 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

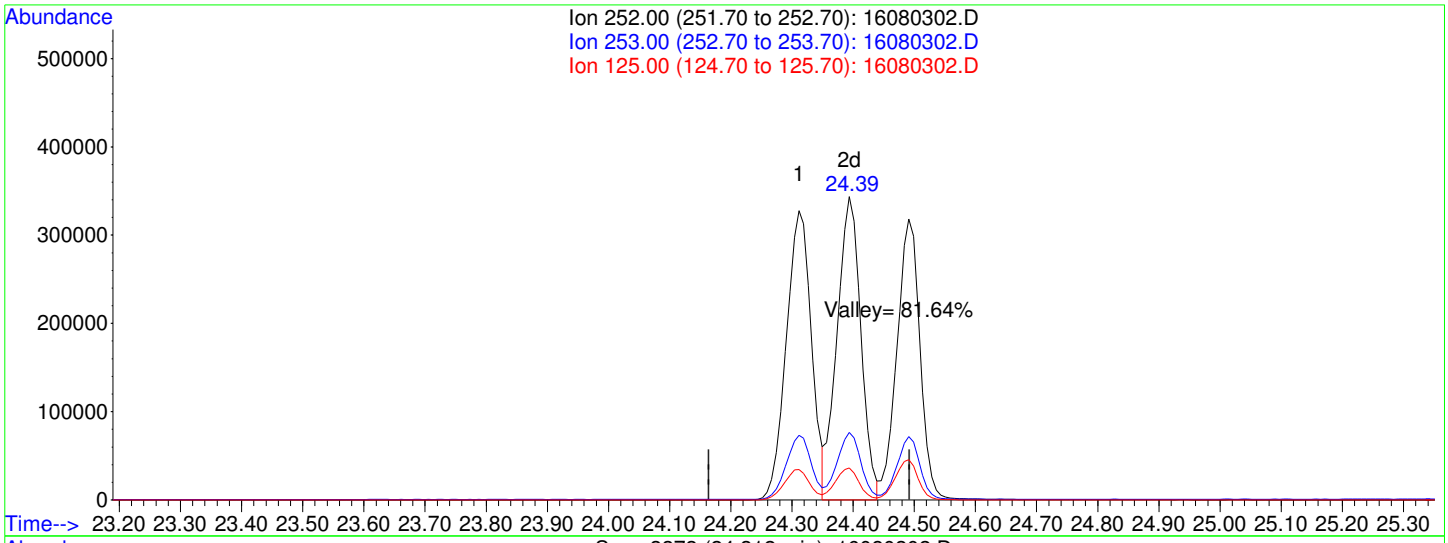
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

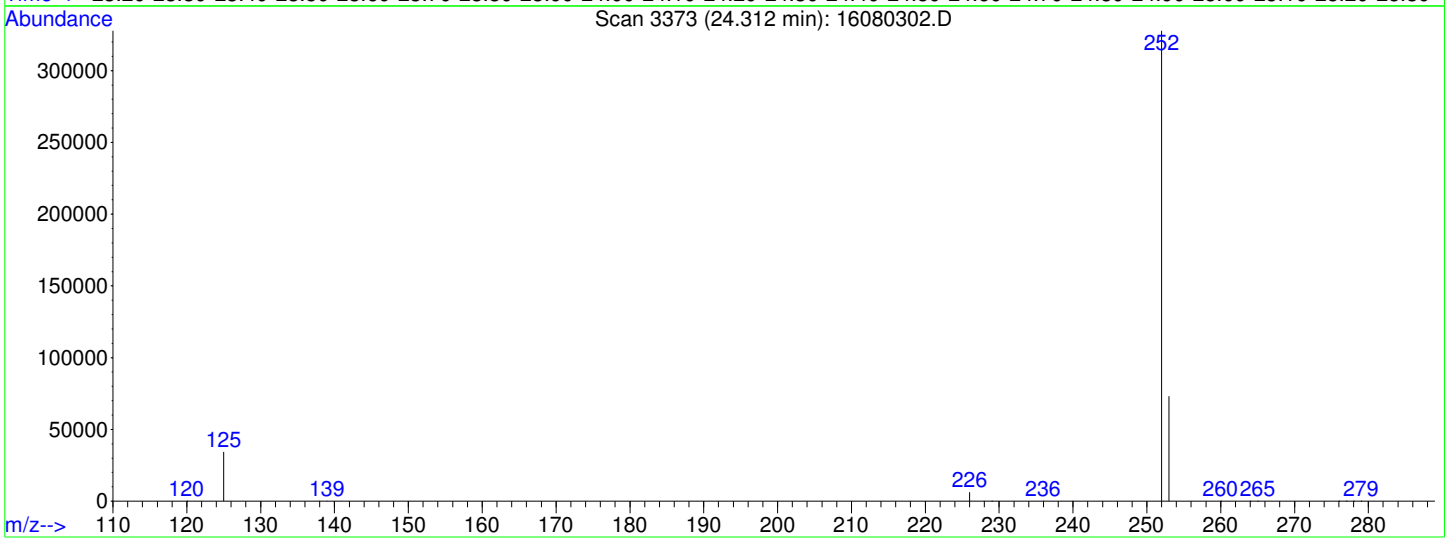


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160803\16080302.D Vial: 2
Acq On : 3 Aug 2016 11:02 am Operator: DEW
Sample : ICV-160803 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:53 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080302.D

(21) Benzo[b]fluoranthene (CP)

24.31min 2042.40ug/kg

response 935208

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.11
125.00	10.60	10.44
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080304.D Vial: 4
Acq On : 3 Aug 2016 12:23 pm Operator: DEW
Sample : SB-160803 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

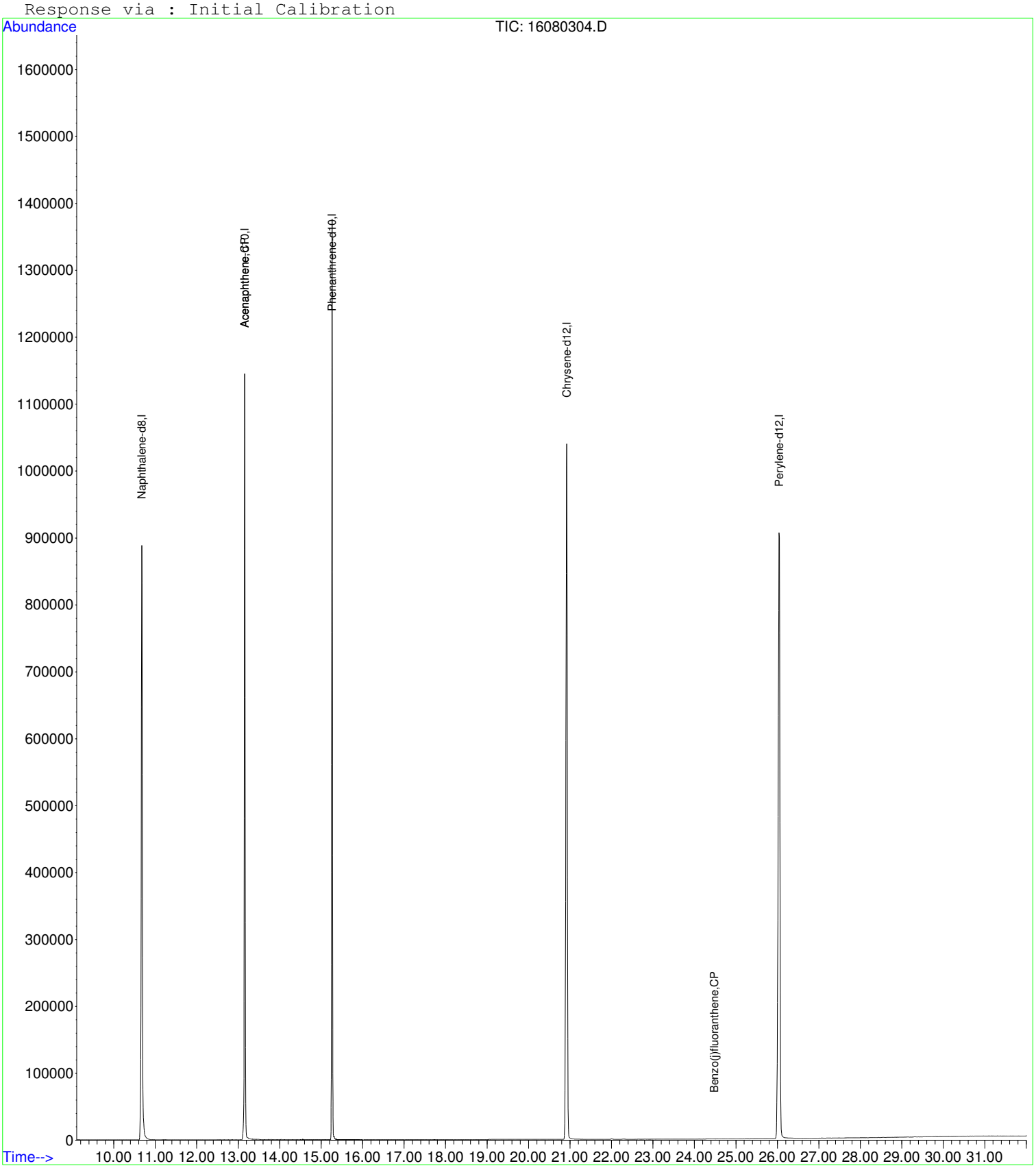
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1487401	4000.00	ug/kg	106
5) Acenaphthene-d10	13.16	164	693897	4000.00	ug/kg	116
11) Phenanthrene-d10	15.26	188	1578762	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	1831134	4000.00	ug/kg	100
20) Perylene-d12	26.04	264	1840899	4000.00	ug/kg	95
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	153	0.63	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#		
16) 4-Terphenyl-d14	17.73	244	778	2.09	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2370	~~13.32~~	~~ug/kg#~~	~~10~~
23) Benzo(j)fluoranthene	24.48	252	71	0.19	ug/kg	72

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080304.D Vial: 4
Acq On : 3 Aug 2016 12:23 pm Operator: DEW
Sample : SB-160803 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080305.D Vial: 5
Acq On : 3 Aug 2016 1:03 pm Operator: DEW
Sample : 1607256-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:58 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

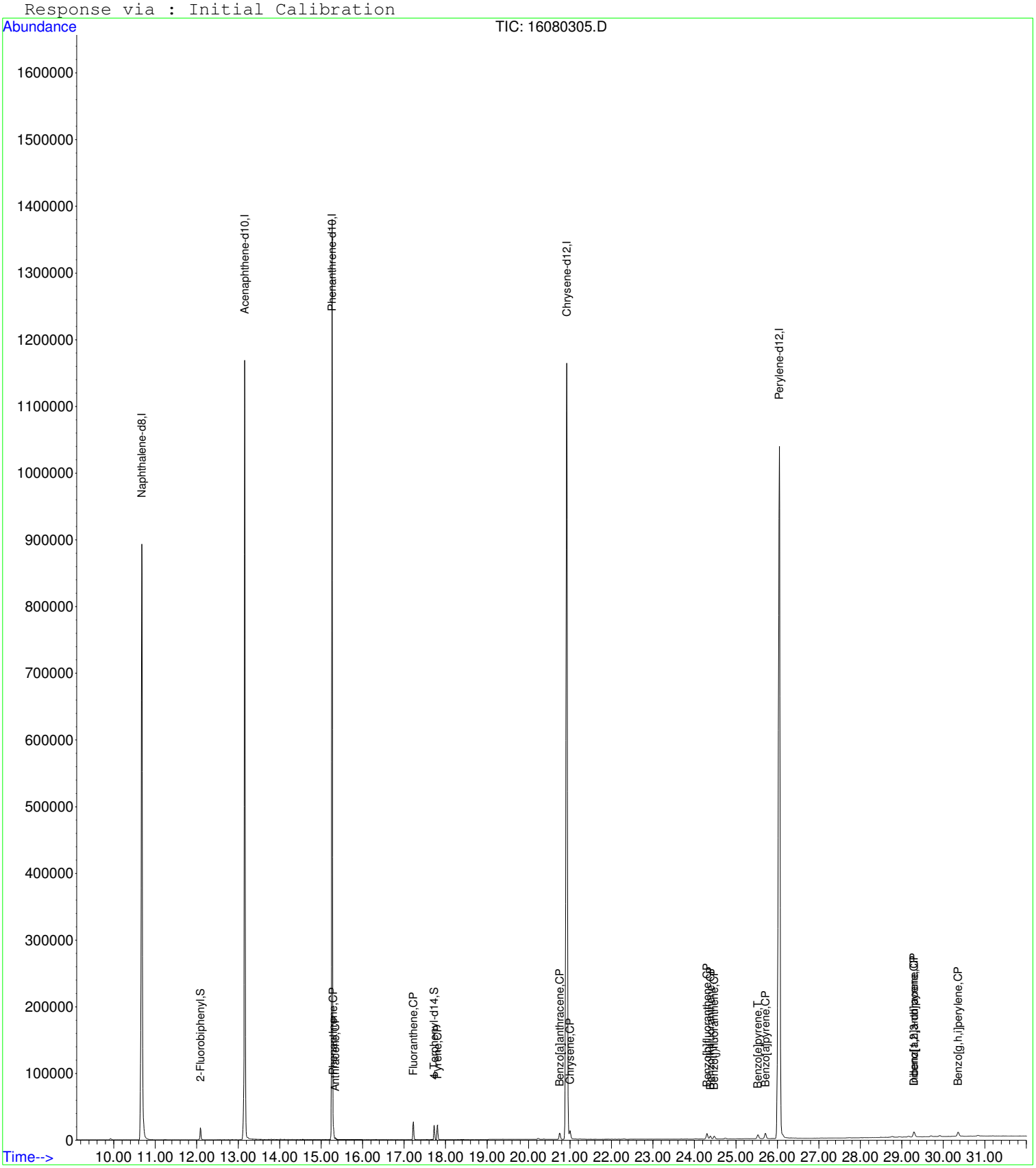
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1552453	4000.00	ug/kg	111
5) Acenaphthene-d10	13.16	164	747256	4000.00	ug/kg	125
11) Phenanthrene-d10	15.26	188	1581409	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	2039336	4000.00	ug/kg	111
20) Perylene-d12	26.05	264	2043493	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20856	80.01	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.72	244	30206	80.94	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	12456	33.22	ug/kg	99
13) Anthracene	15.34	178	2246	5.69	ug/kg	98
14) Fluoranthene	17.22	202	30817	69.36	ug/kg	99
15) Pyrene	17.80	202	26332	58.45	ug/kg	99
18) Benzo[a]anthracene	20.75	228	15234	33.14	ug/kg	97
19) Chrysene	21.00	228	18286	41.35	ug/kg	98
21) Benzo[b]fluoranthene	24.30	252	16833	35.68	ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	8051	18.60	ug/kg	94
23) Benzo(j)fluoranthene	24.48	252	7757	18.65	ug/kg	89
24) Benzo[e]pyrene	25.53	252	12423	27.14	ug/kg	95
25) Benzo[a]pyrene	25.71	252	16525	36.25	ug/kg	96
26) Dibenz[a,h]anthracene	29.29	278	3015	6.84	ug/kg	89
27) Indeno[1,2,3-cd]pyrene	29.29	276	13742	26.25	ug/kg	94
28) Benzo[g,h,i]perylene	30.36	276	13774	31.42	ug/kg	97

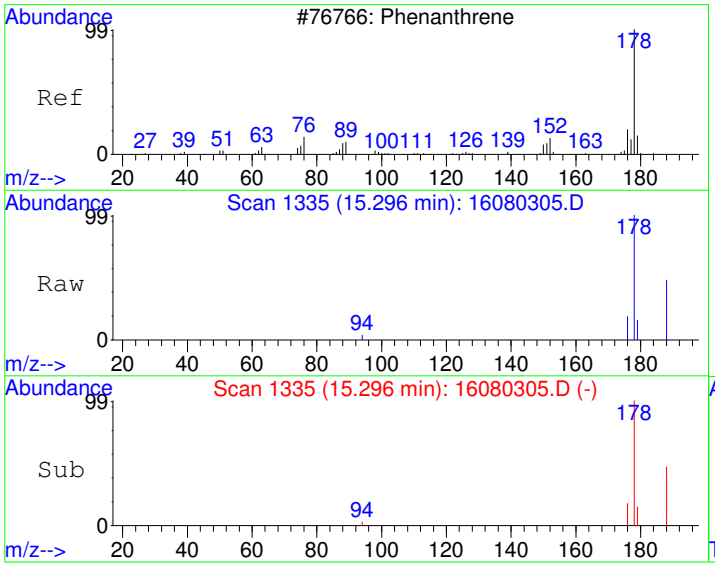
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080305.D Vial: 5
Acq On : 3 Aug 2016 1:03 pm Operator: DEW
Sample : 1607256-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:58 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

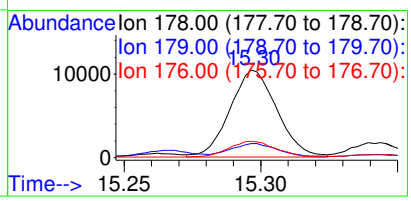


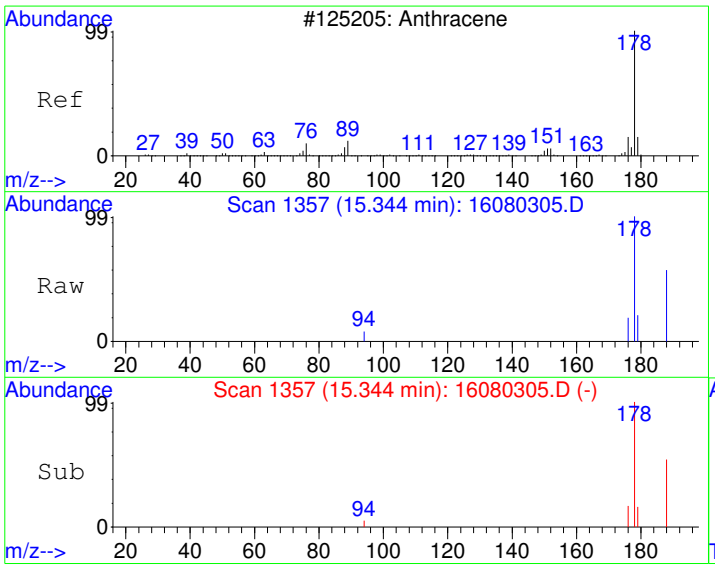


#12
Phenanthrene
Concen: 33.22 ug/kg
RT: 15.30 min Scan# 1335
Delta R.T. -0.01 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:178 Resp: 12456

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.7
176	18.4	0.0	48.7

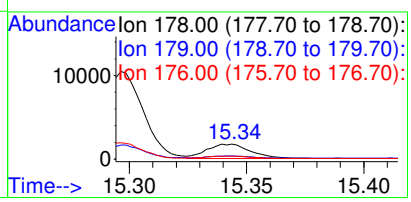


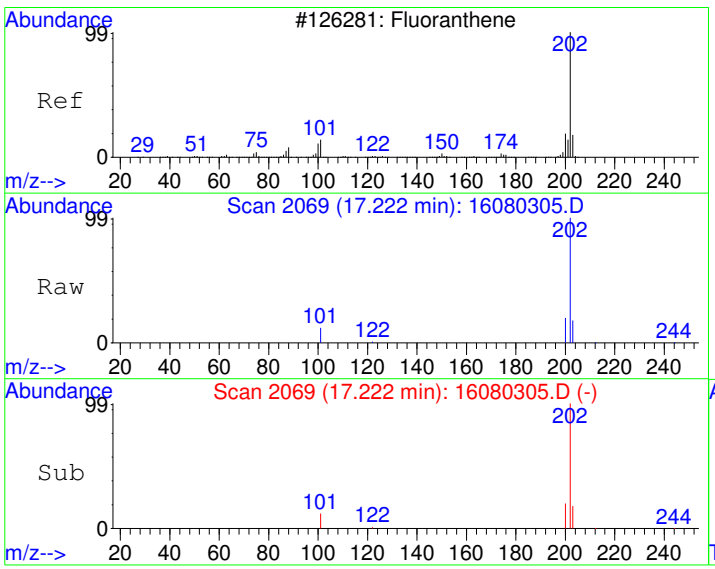


#13
Anthracene
Concen: 5.69 ug/kg
RT: 15.34 min Scan# 1357
Delta R.T. -0.01 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:178 Resp: 2246

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.7
176	16.6	0.0	47.9

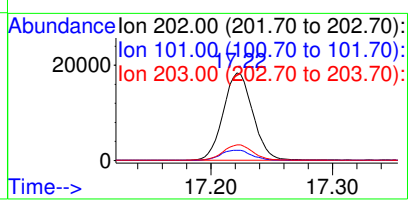


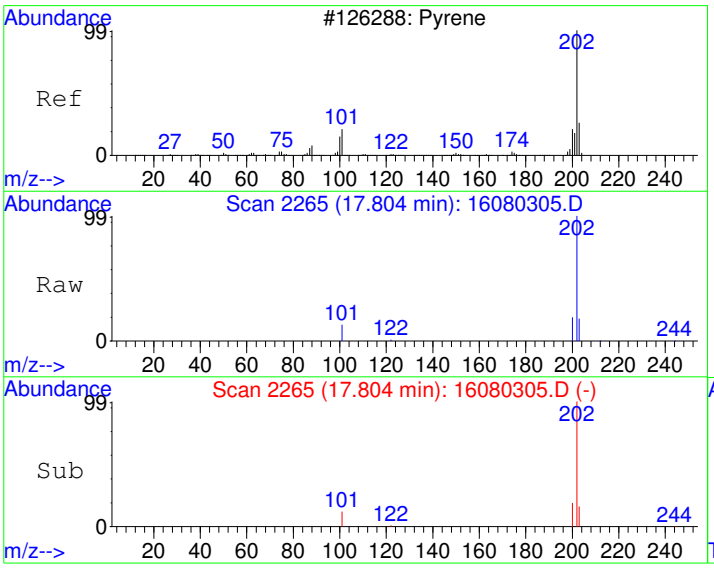


#14
Fluoranthene
Concen: 69.36 ug/kg
RT: 17.22 min Scan# 2069
Delta R.T. -0.01 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:202 Resp: 30817

Ion	Ratio	Lower	Upper
202	100		
101	11.5	0.0	42.1
203	17.6	0.0	47.9

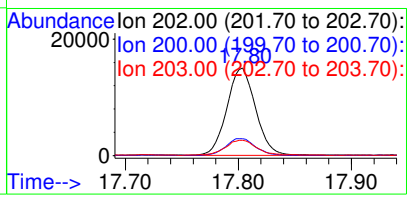


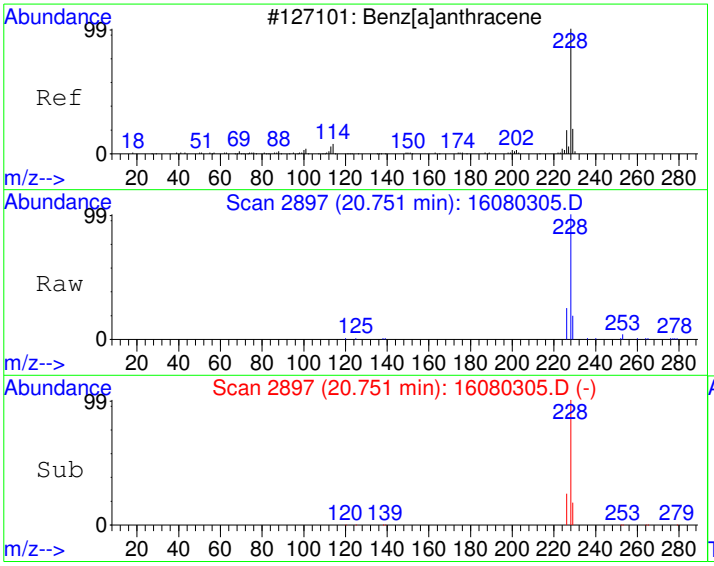


#15
Pyrene
Concen: 58.45 ug/kg
RT: 17.80 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:202 Resp: 26332

Ion	Ratio	Lower	Upper
202	100		
200	19.1	0.0	49.7
203	17.2	0.0	47.8

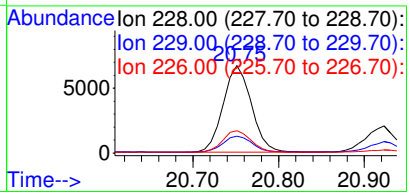


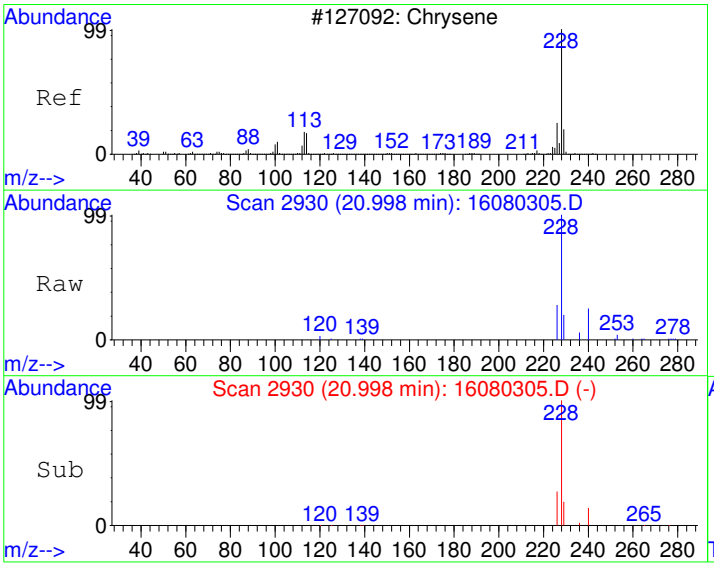


#18
Benzo[a]anthracene
Concen: 33.14 ug/kg
RT: 20.75 min Scan# 2897
Delta R.T. -0.02 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:228 Resp: 15234

Ion	Ratio	Lower	Upper
228	100		
229	18.3	0.0	49.8
226	24.7	0.0	55.8

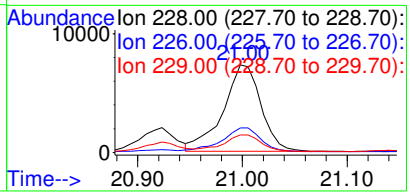


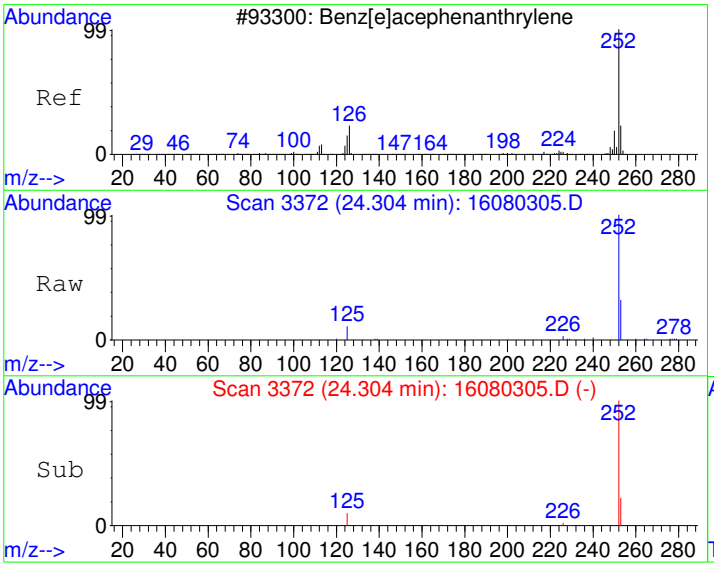


#19
Chrysene
Concen: 41.35 ug/kg
RT: 21.00 min Scan# 2930
Delta R.T. -0.02 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:228 Resp: 18286

Ion	Ratio	Lower	Upper
228	100		
226	27.2	0.0	58.1
229	19.2	0.0	50.0

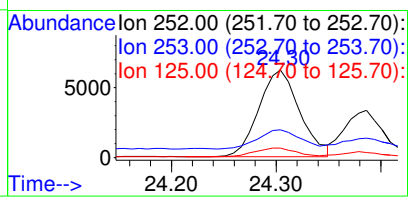


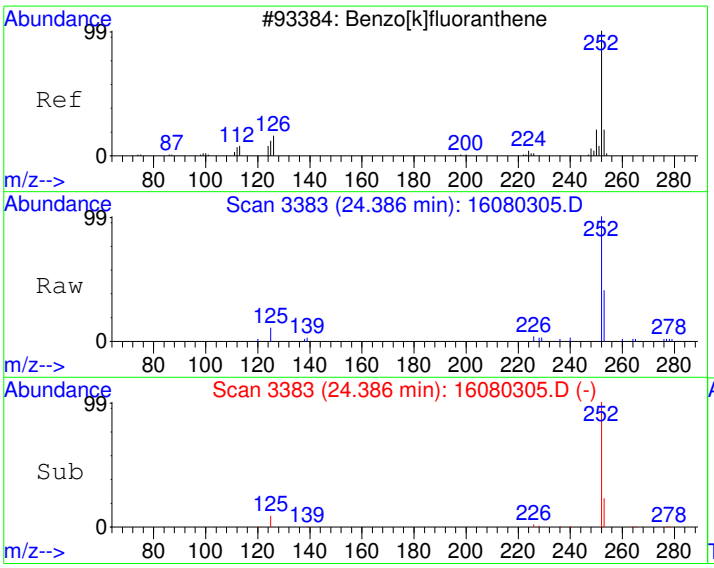


#21
Benzo[b]fluoranthene
Concen: 35.68 ug/kg
RT: 24.30 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:252 Resp: 16833

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	9.8	0.0	40.6

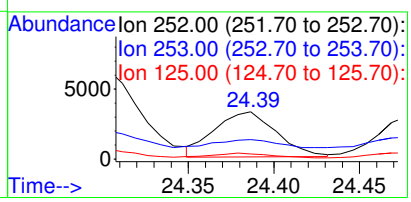


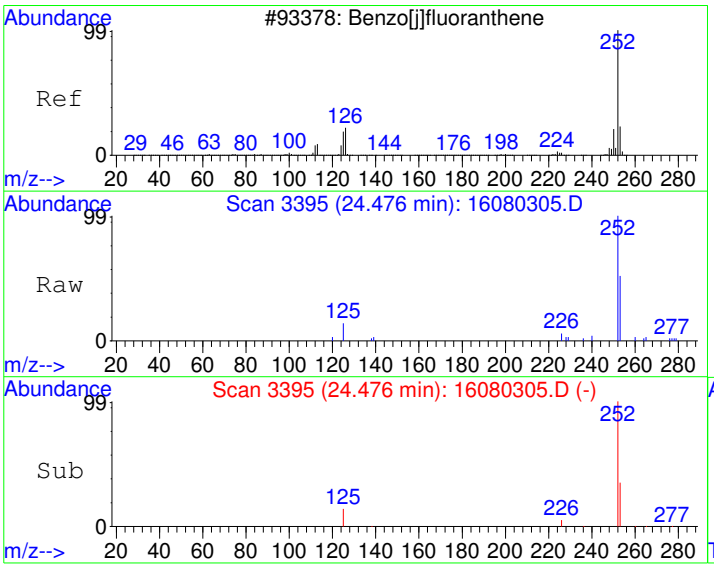


#22
Benzo[k]fluoranthene
Concen: 18.60 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.02 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:252 Resp: 8051

Ion	Ratio	Lower	Upper
252	100		
253	18.8	2.2	42.2
125	8.9	0.0	30.3

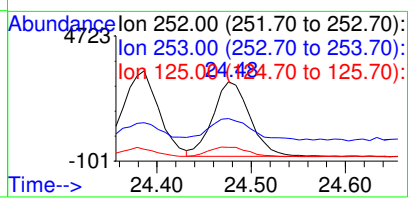


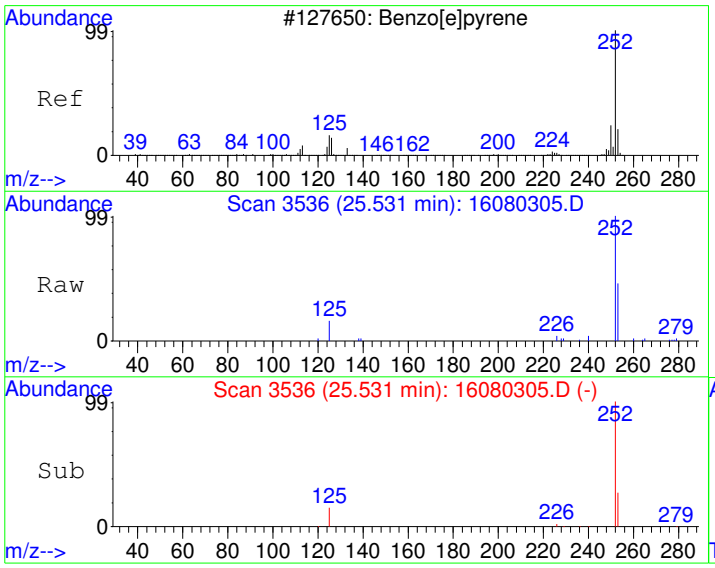


#23
Benzo(j)fluoranthene
Concen: 18.65 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:252 Resp: 7757

Ion	Ratio	Lower	Upper
252	100		
253	28.6	2.2	42.2
125	11.9	0.0	34.4

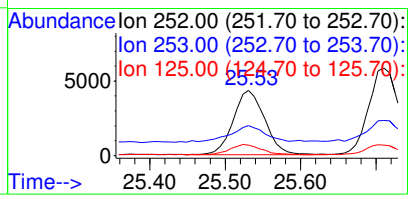


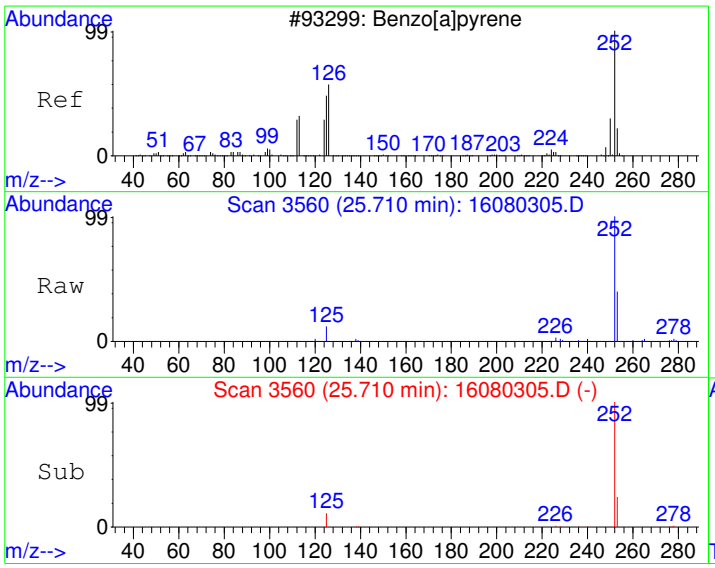


#24
Benzo[e]pyrene
Concen: 27.14 ug/kg
RT: 25.53 min Scan# 3536
Delta R.T. -0.02 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:252 Resp: 12423

Ion	Ratio	Lower	Upper
252	100		
253	25.7	2.2	42.2
125	14.9	0.0	35.7

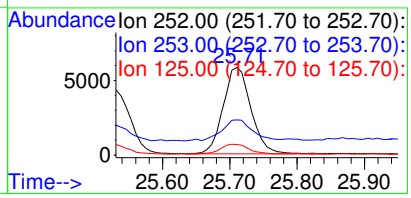


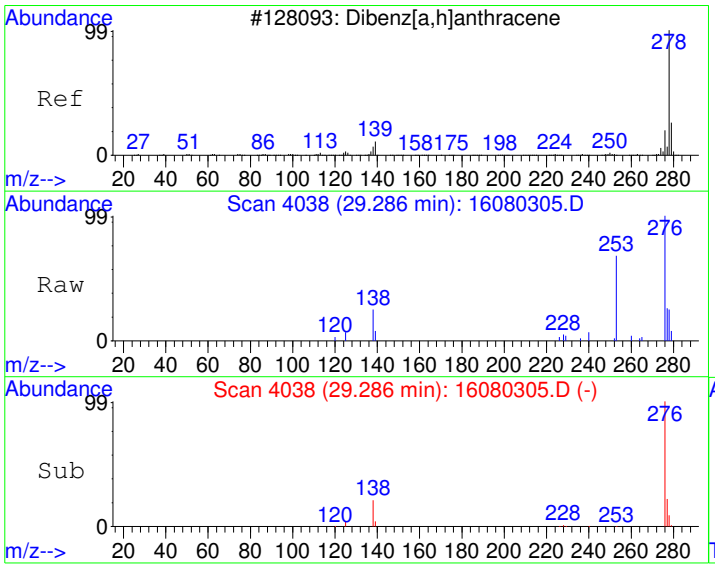


#25
Benzo[a]pyrene
Concen: 36.25 ug/kg
RT: 25.71 min Scan# 3560
Delta R.T. -0.02 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:252 Resp: 16525

Ion	Ratio	Lower	Upper
252	100		
253	24.1	2.0	42.0
125	10.9	0.0	31.6

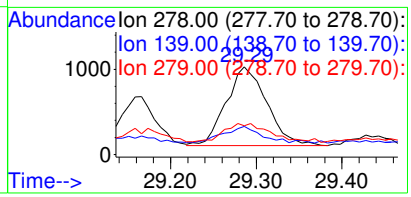


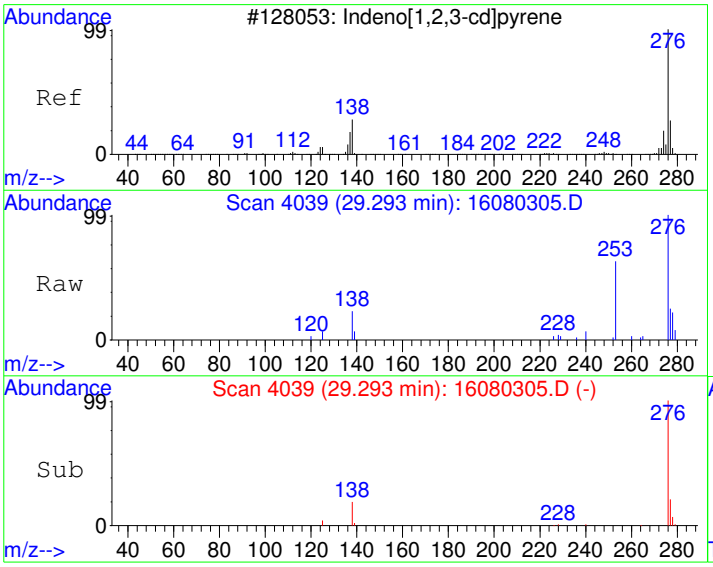


#26
Dibenz[a,h]anthracene
Concen: 6.84 ug/kg
RT: 29.29 min Scan# 4038
Delta R.T. -0.04 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:278 Resp: 3015

Ion	Ratio	Lower	Upper
278	100		
139	21.2	0.0	33.8
279	20.2	3.9	43.9

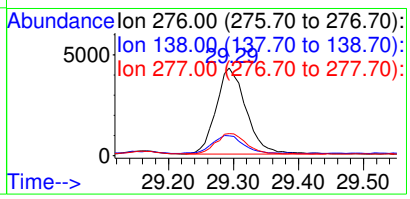


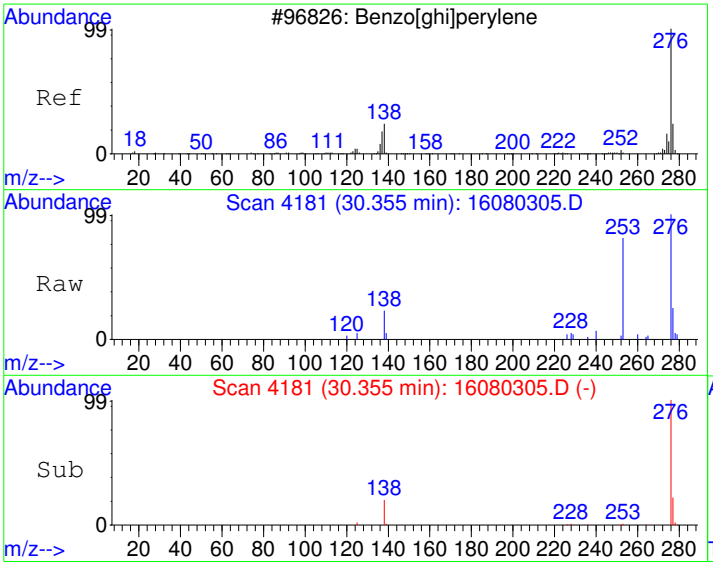


#27
Indeno[1,2,3-cd]pyrene
Concen: 26.25 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:276 Resp: 13742

Ion	Ratio	Lower	Upper
276	100		
138	20.4	4.8	44.8
277	23.6	5.6	45.6

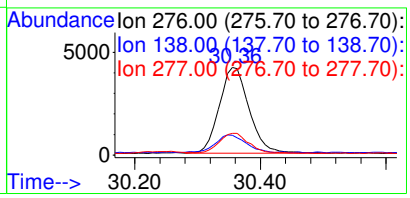




#28
Benzo[g,h,i]perylene
Concen: 31.42 ug/kg
RT: 30.36 min Scan# 4181
Delta R.T. -0.04 min
Lab File: 16080305.D
Acq: 3 Aug 2016 1:03 pm

Tgt Ion:276 Resp: 13774

Ion	Ratio	Lower	Upper
276	100		
138	20.3	0.0	38.1
277	23.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080306.D Vial: 6
Acq On : 3 Aug 2016 1:44 pm Operator: DEW
Sample : 1607256-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:58 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

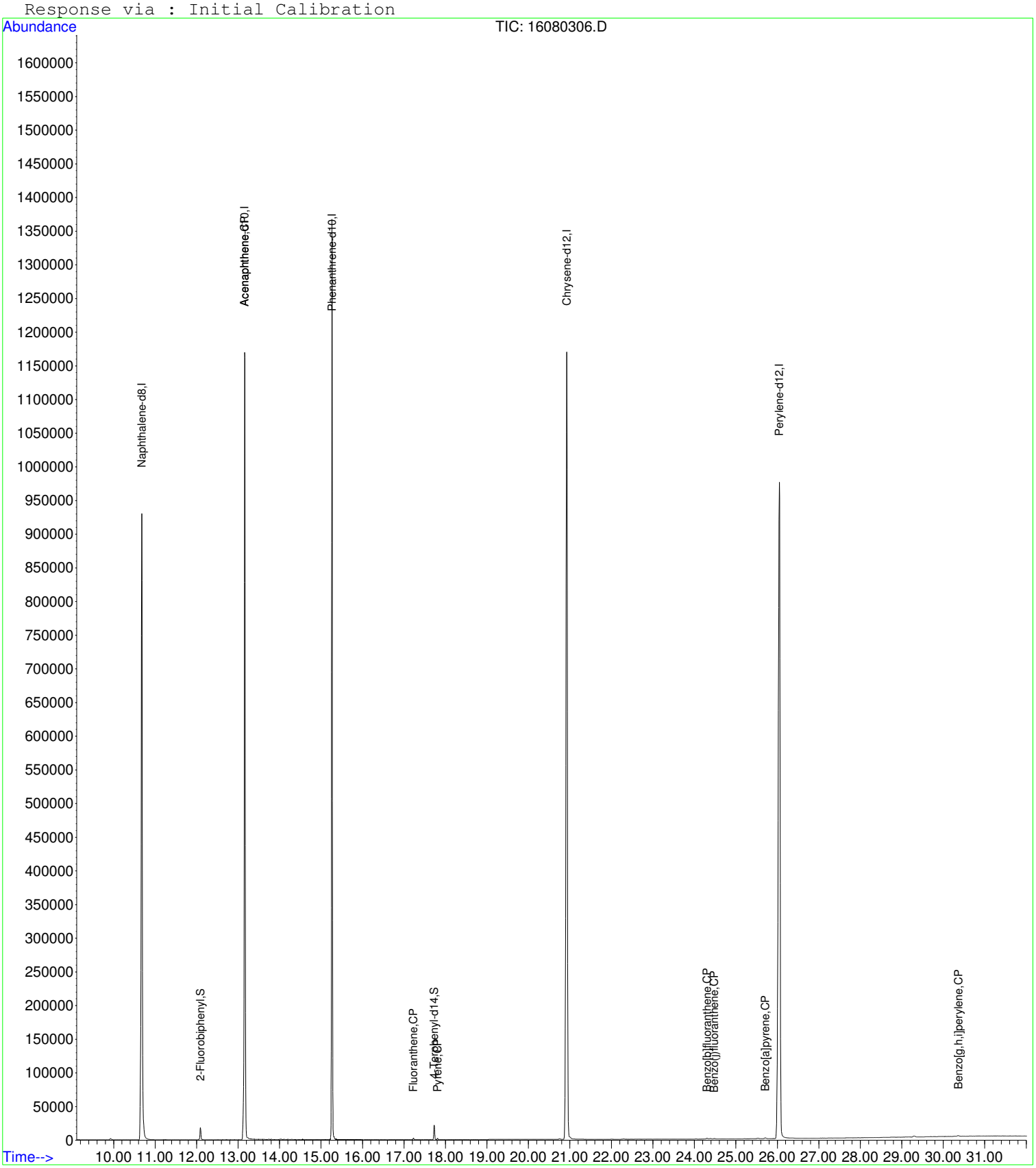
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1594843	4000.00	ug/kg	114
5) Acenaphthene-d10	13.16	164	759979	4000.00	ug/kg	127
11) Phenanthrene-d10	15.26	188	1592281	4000.00	ug/kg	100
17) Chrysene-d12	20.92	240	2062309	4000.00	ug/kg	112
20) Perylene-d12	26.05	264	2070091	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21224	80.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.73	244	30813	82.00	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2588	13.28	ug/kg#	11
14) Fluoranthene	17.23	202	3162	7.07	ug/kg	98
15) Pyrene	17.81	202	2759	6.08	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	2584	5.41	ug/kg	98
23) Benzo(j)fluoranthene	24.48	252	1213	2.88	ug/kg	97
25) Benzo[a]pyrene	25.71	252	2652	5.74	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	2464	5.55	ug/kg	92

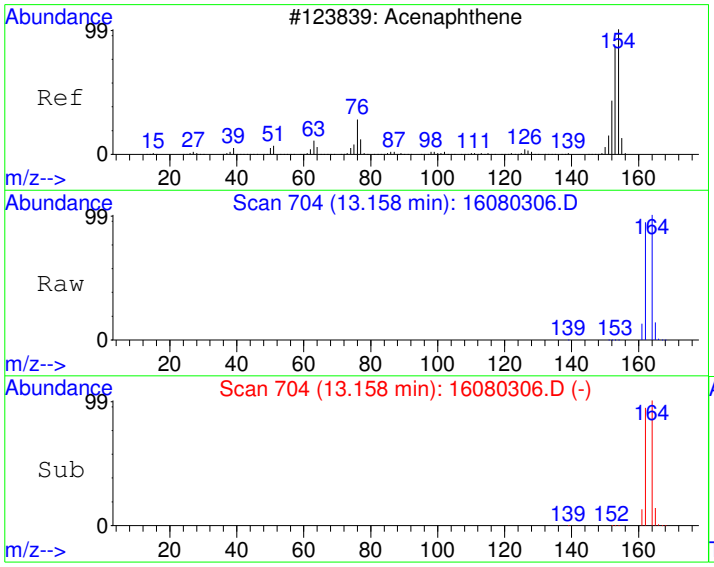
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080306.D Vial: 6
Acq On : 3 Aug 2016 1:44 pm Operator: DEW
Sample : 1607256-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:58 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

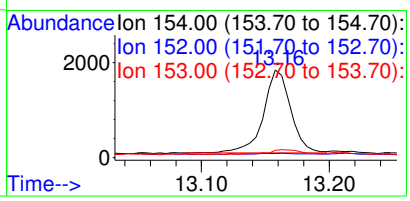


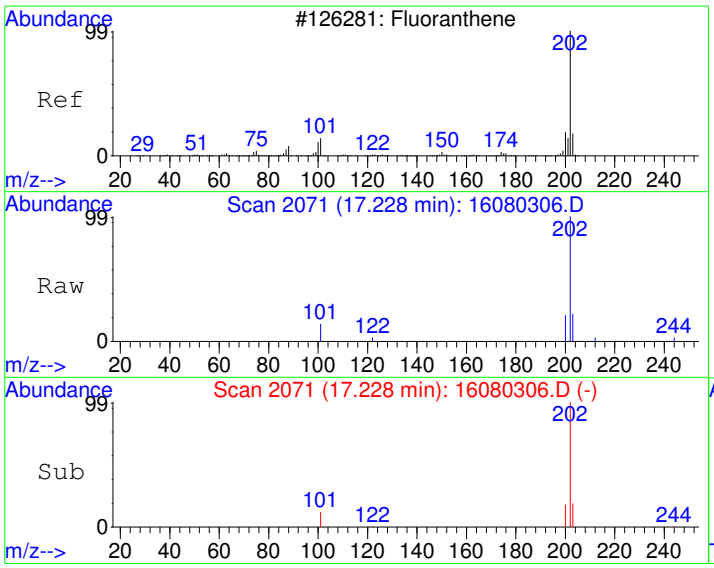


#9
Acenaphthene
Concen: 13.28 ug/kg
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080306.D
Acq: 3 Aug 2016 1:44 pm

Tgt Ion:154 Resp: 2588

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	4.9	76.2	136.2#

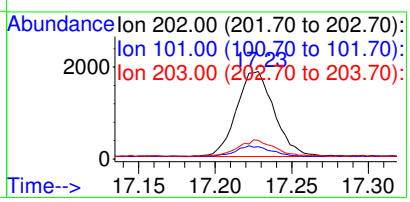


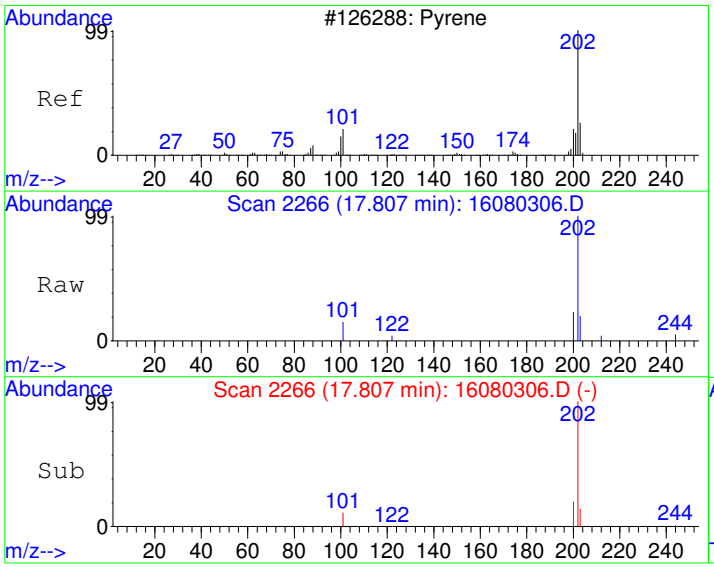


#14
Fluoranthene
Concen: 7.07 ug/kg
RT: 17.23 min Scan# 2071
Delta R.T. -0.00 min
Lab File: 16080306.D
Acq: 3 Aug 2016 1:44 pm

Tgt Ion:202 Resp: 3162

Ion	Ratio	Lower	Upper
202	100		
101	11.7	0.0	42.1
203	18.8	0.0	47.9

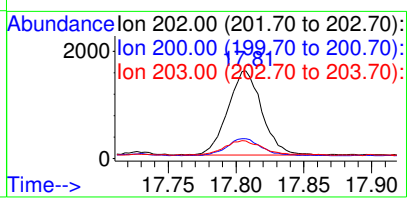


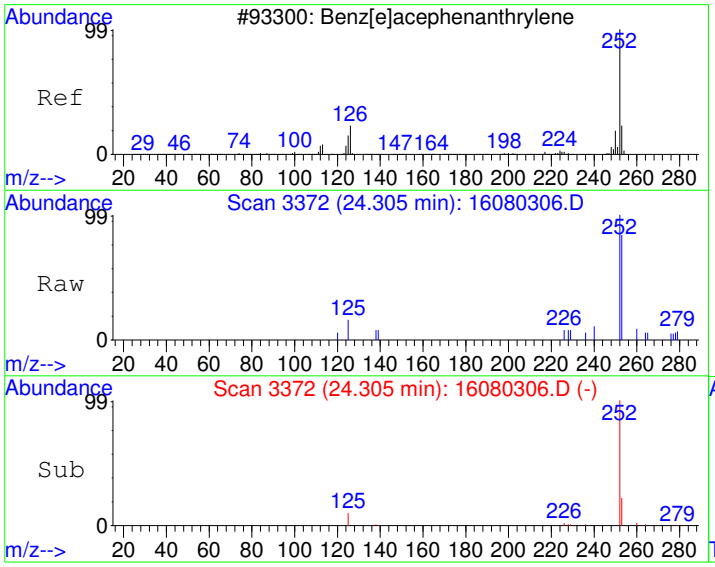


#15
Pyrene
Concen: 6.08 ug/kg
RT: 17.81 min Scan# 2266
Delta R.T. -0.01 min
Lab File: 16080306.D
Acq: 3 Aug 2016 1:44 pm

Tgt Ion:202 Resp: 2759

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	49.7
203	16.8	0.0	47.8

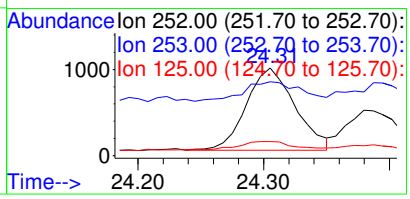


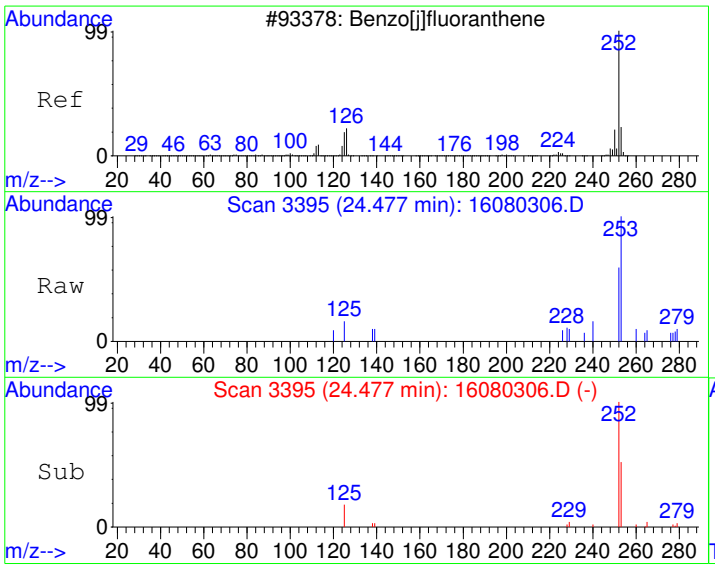


#21
Benzo[b]fluoranthene
Concen: 5.41 ug/kg
RT: 24.31 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080306.D
Acq: 3 Aug 2016 1:44 pm

Tgt Ion:252 Resp: 2584

Ion	Ratio	Lower	Upper
252	100		
253	21.2	0.0	52.0
125	10.1	0.0	40.6

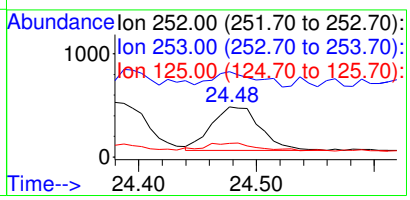


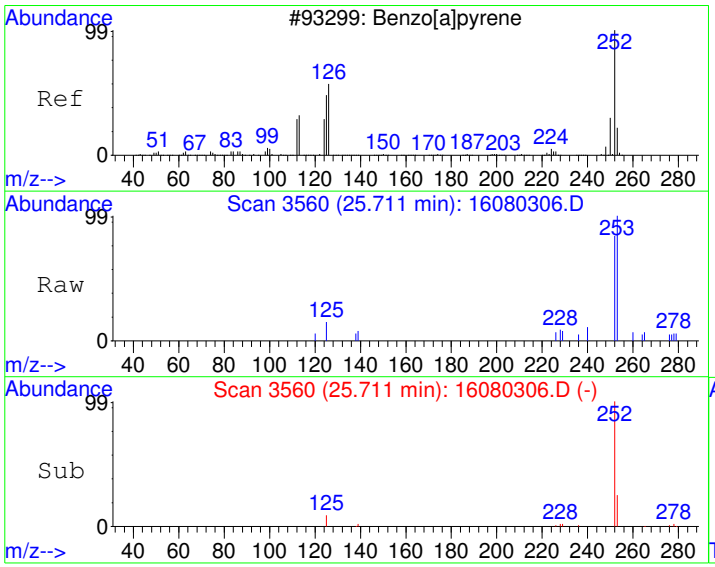


#23
Benzo(j)fluoranthene
Concen: 2.88 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080306.D
Acq: 3 Aug 2016 1:44 pm

Tgt Ion:252 Resp: 1213

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.2	42.2
125	16.1	0.0	34.4

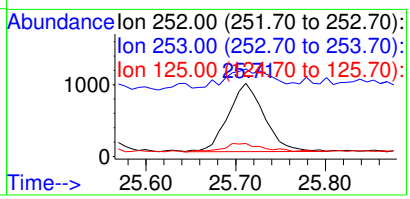


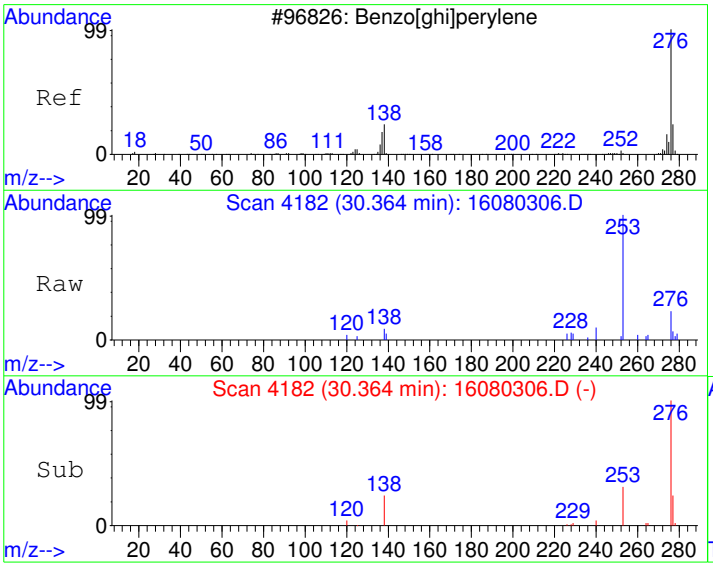


#25
Benzo[a]pyrene
Concen: 5.74 ug/kg
RT: 25.71 min Scan# 3560
Delta R.T. -0.02 min
Lab File: 16080306.D
Acq: 3 Aug 2016 1:44 pm

Tgt Ion:252 Resp: 2652

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.0	42.0
125	12.3	0.0	31.6

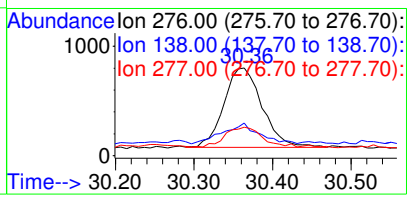




#28
Benzo[g,h,i]perylene
Concen: 5.55 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080306.D
Acq: 3 Aug 2016 1:44 pm

Tgt Ion:276 Resp: 2464

Ion	Ratio	Lower	Upper
276	100		
138	25.6	0.0	38.1
277	24.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080313.D Vial: 13
Acq On : 3 Aug 2016 6:30 pm Operator: DEW
Sample : CCV1-160803 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

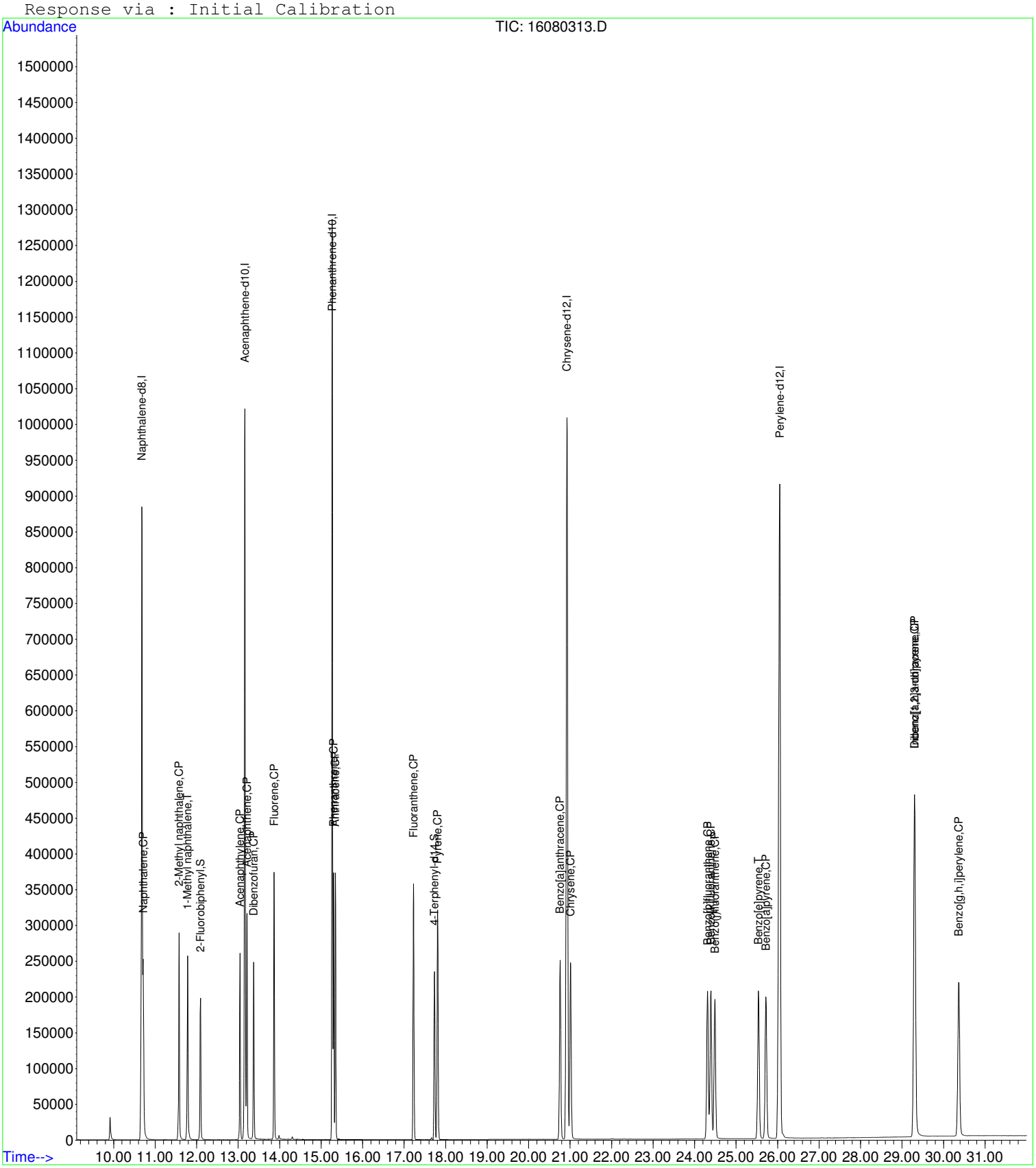
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1414208	4000.00	ug/kg	101
5) Acenaphthene-d10	13.16	164	634071	4000.00	ug/kg	106
11) Phenanthrene-d10	15.27	188	1492298	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1815282	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1898622	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	202961	917.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.94%#			
16) 4-Terphenyl-d14	17.73	244	325850	925.27	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.13%#			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	292629	909.45	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	191686	918.94	ug/kg	97
4) 1-Methyl naphthalene	11.78	142	170979	925.38	ug/kg	97
6) Dibenzofuran	13.37	168	239911	934.96	ug/kg	99
8) Acenaphthylene	13.04	152	263216	937.41	ug/kg	99
9) Acenaphthene	13.21	154	156008	959.33	ug/kg	98
10) Fluorene	13.87	166	201445	985.44	ug/kg	99
12) Phenanthrene	15.30	178	328312	927.96	ug/kg	99
13) Anthracene	15.34	178	341208	916.53	ug/kg	100
14) Fluoranthene	17.23	202	383678	915.08	ug/kg	99
15) Pyrene	17.81	202	380927	896.00	ug/kg	99
18) Benzo[a]anthracene	20.76	228	387502	947.08	ug/kg	99
19) Chrysene	21.01	228	369642	939.08	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	419147	956.29	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	399530	993.60	ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	369060	955.06	ug/kg	98
24) Benzo[e]pyrene	25.54	252	403786	949.31	ug/kg	99
25) Benzo[a]pyrene	25.72	252	397915	939.59	ug/kg	100
26) Dibenz[a,h]anthracene	29.30	278	453164	1105.76	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.31	276	534679	1099.43	ug/kg	98
28) Benzo[g,h,i]perylene	30.37	276	451153	1107.60	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080313.D Vial: 13
Acq On : 3 Aug 2016 6:30 pm Operator: DEW
Sample : CCV1-160803 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6_160804A
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160804A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		X
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)		X	

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			X
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	X
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			X
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X		X	X
2. Are all corrective actions included?		X		X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X		X	

Approved by: Don Winston Date: **VARIANCE APPROVED** By Sherri Herschmann at 11:51:24 AM, 8/11/2016

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
X ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

ICV2-160804: High recovery for Benzo[g,h,i]perylene (121.76%) - Client notified and approved this variance - see email

Analyst: Don Winston Date: 8/5/2016

Second-Level Review: Don Winston Date: **08/11/2016**

REVIEWED/APPROVED By Sherri Herschmann at 11:12:58 AM, 8/11/2016

DHL Analytical, Inc.

Run ID: GCMS6_160804A **Run No.:** 87447

Analytical Run Date: 8/4/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160804	1	PAH_LL_SDOD1	TUNE	R87447	8/4/2016 7:43:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160804	1	PAH_LL_SDOD1	ICV	R87447	8/4/2016 8:23:00 AM		
LCS-76457	1	PAH_LL_SDOD1	LCS	76457	8/4/2016 9:03:00 AM		
MB-76457	1	PAH_LL_SDOD1	MBLK	76457	8/4/2016 9:44:00 AM		
1607239-18A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 10:24:00 AM		
1607239-19A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:04:00 AM		
1607239-20A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:44:00 AM		
1607239-21A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 12:25:00 PM		
1607239-22A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 1:06:00 PM		
1607239-23A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 1:47:00 PM		
1607239-24A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 2:29:00 PM		
1607239-25A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 3:10:00 PM		
1607239-26A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 3:52:00 PM		
1607239-27A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 4:33:00 PM		
1607239-28A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 5:14:00 PM		
1607239-21AMS	10	PAH_LL_SDOD1	MS	76457	8/4/2016 5:55:00 PM		
1607239-21AMSD	10	PAH_LL_SDOD1	MSD	76457	8/4/2016 6:37:00 PM		
DFTPP2-160804	1	PAH_LL_SDOD1	TUNE	R87447	8/4/2016 7:17:00 PM		
ICV2-160804	1	PAH_LL_SDOD1	ICV	R87447	8/4/2016 7:57:00 PM		High recovery for Benzo[g,h,i]perylene (121.76%)
SB-160804	1	PAH_LL_SDOD1	SAMP	76457	8/4/2016 9:19:00 PM		
1607239-29A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 9:59:00 PM		
1607239-30A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 10:38:00 PM		
1607239-31A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:19:00 PM		
1607256-01A	10	PAH_LL_SDOD1	SAMP	76457	8/4/2016 11:59:00 PM		
1607256-02A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 12:39:00 AM		
1607256-03A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 1:19:00 AM		
1607256-04A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 1:59:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

REVIEWED/APPROVED

By Sherri Herschmann at 11:14:32 AM, 8/11/2016

DHL Analytical, Inc.

Run ID: GCMS6_160804A **Run No.:** 87447

1607256-05A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 2:39:00 AM		
1607256-06A	10	PAH_LL_SDOD1	SAMP	76457	8/5/2016 3:18:00 AM		
CCV1-160804	1	PAH_LL_SDOD1	CCV	R87447	8/5/2016 3:58:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

REVIEWED/APPROVED

By Sherri Herschmann at 11:30:25 AM, 8/11/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160804.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160804\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080401	DFTPPPAH	DFTPP-160804
2	Sample	2	16080402	PP160801	ICV-160804
3	Sample	3	16080403	PP160801	LCS-76457
4	Sample	4	16080404	PP160801	MB-76457
5	Sample	5	16080405	PP160801	1607239-18A
6	Sample	6	16080406	PP160801	1607239-19A
7	Sample	7	16080407	PP160801	1607239-20A
8	Sample	8	16080408	PP160801	1607239-21A
9	Sample	9	16080409	PP160801	1607239-22A
10	Sample	10	16080410	PP160801	1607239-23A
11	Sample	11	16080411	PP160801	1607239-24A
12	Sample	12	16080412	PP160801	1607239-25A
13	Sample	13	16080413	PP160801	1607239-26A
14	Sample	14	16080414	PP160801	1607239-27A
15	Sample	15	16080415	PP160801	1607239-28A
16	Sample	16	16080416	PP160801	1607239-21AMS
17	Sample	17	16080417	PP160801	1607239-21AMSD
18	Sample	18	16080418	DFTPPPAH	DFTPP2-160804
19	Sample	19	16080419	PP160801	ICV2-160804
20	Sample	20	16080420	PP160801	SBLK
21	Sample	21	16080421	PP160801	SB-160804
22	Sample	22	16080422	PP160801	1607239-29A
23	Sample	23	16080423	PP160801	1607239-30A
24	Sample	24	16080424	PP160801	1607239-31A
25	Sample	25	16080425	PP160801	1607256-01A
26	Sample	26	16080426	PP160801	1607256-02A
27	Sample	27	16080427	PP160801	1607256-03A
28	Sample	28	16080428	PP160801	1607256-04A
29	Sample	29	16080429	PP160801	1607256-05A
30	Sample	30	16080430	PP160801	1607256-06A
31	Sample	31	16080431	PP160801	CCV1-160804

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 9:30:13 AM**
Digestion:
Prep End Date: 7/26/16 1:00 PM

Prep Batch **76457** Prep Code: **3550_PAHDOD** Technician: **ADMIN**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-18A	Soil		10.22	10	1.000	1 of 1	
1607239-19A	Soil		10.08	10	1.000	1 of 1	
1607239-20A	Soil		10.00	10	1.000	1 of 1	
1607239-21A	Soil		10.20	10	1.000	1 of 3	
1607239-21AMS	Soil		10.01	10	1.000	1 of	
1607239-21AMSD	Soil		10.02	10	1.000	1 of	
1607239-22A	Soil		10.33	10	1.000	1 of 1	
1607239-23A	Soil		10.37	10	1.000	1 of 1	
1607239-24A	Soil		10.17	10	1.000	1 of 1	
1607239-25A	Soil		10.09	10	1.000	1 of 1	
1607239-26A	Soil		10.18	10	1.000	1 of 1	
1607239-27A	Soil		10.17	10	1.000	1 of 1	
1607239-28A	Soil		10.16	10	1.000	1 of 1	
1607239-29A	Soil		10.10	10	1.000	1 of 1	
1607239-30A	Soil		10.59	10	1.000	1 of 1	
1607239-31A	Soil		10.47	10	1.000	1 of 1	
1607256-01A	Soil		10.02	10	1.000	1 of 1	
1607256-02A	Soil		10.13	10	1.000	1 of 1	
1607256-03A	Soil		10.17	10	1.000	1 of 1	
1607256-04A	Soil		10.03	10	1.000	1 of 1	
1607256-05A	Soil		10.03	10	1.000	1 of 1	
1607256-06A	Soil		10.09	10	1.000	1 of 1	
LCS-76457	Soil		10	10	1.000	of	
MB-76457	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:30:28 AM, 8/11/2016

AR 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 9:30:13 AM**
Digestion:
Prep End Date: **7/26/2016 1:00:00 PM**

Prep Batch **76457** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1607239-18A	Soil		10.22	10	0.978	1	of	1
1607239-19A	Soil		10.08	10	0.992	1	of	1
1607239-20A	Soil		10.08	10	0.992	1	of	1
1607239-21A	Soil		10.2	10	0.980		of	3
1607239-21AMS	Soil		10.01	10	0.999		of	
1607239-21AMSD	Soil		10.02	10	0.998		of	
1607239-22A	Soil		10.33	10	0.968	1	of	1
1607239-23A	Soil		10.37	10	0.964	1	of	1
1607239-24A	Soil		10.17	10	0.983	1	of	1
1607239-25A	Soil		10.09	10	0.991	1	of	1
1607239-26A	Soil		10.18	10	0.982	1	of	1
1607239-27A	Soil		10.17	10	0.983	1	of	1
1607239-28A	Soil		10.16	10	0.984	1	of	1
1607239-29A	Soil		10.1	10	0.990	1	of	1
1607239-30A	Soil		10.59	10	0.944	1	of	1
1607239-31A	Soil		10.47	10	0.955	1	of	1
1607256-01A	Soil		10.02	10	0.998	1	of	1
1607256-02A	Soil		10.13	10	0.987	1	of	1
1607256-03A	Soil		10.17	10	0.983	1	of	1
1607256-04A	Soil		10.03	10	0.997	1	of	1
1607256-05A	Soil		10.03	10	0.997	1	of	1
1607256-06A	Soil		10.09	10	0.991	1	of	1
LCS-76457	Soil		10	10	1.000		of	
MB-76457	Soil		10	10	1.000		of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:44:46 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-01A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-06A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-13A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:05 AM, 8/11/2016

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-14A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-18A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-19A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-21A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-22A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-23A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-27A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:10 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-28A SS	Soil		0	0	#Num!	1 of 1	
1607239-29A SS	Soil		0	0	#Num!	1 of 1	
1607239-30A SS	Soil		0	0	#Num!	1 of 1	
1607239-31A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:11 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A SS	Soil		0	0	#Num!	1 of 1	
1607256-02A SS	Soil		0	0	#Num!	1 of 1	
1607256-03A SS	Soil		0	0	#Num!	1 of 1	
1607256-04A SS	Soil		0	0	#Num!	1 of 1	
1607256-05A SS	Soil		0	0	#Num!	1 of 1	
1607256-06A SS	Soil		0	0	#Num!	1 of 1	
1607256-07A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607256-08A SS	Soil		0	0	#Num!	1 of 1	
1607256-09A SS	Soil		0	0	#Num!	1 of 1	
1607256-10A SS	Soil		0	0	#Num!	1 of 1	
1607256-11A SS	Soil		0	0	#Num!	1 of 1	
1607256-12A SS	Soil		0	0	#Num!	1 of 1	
1607256-14A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:13 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:15 AM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

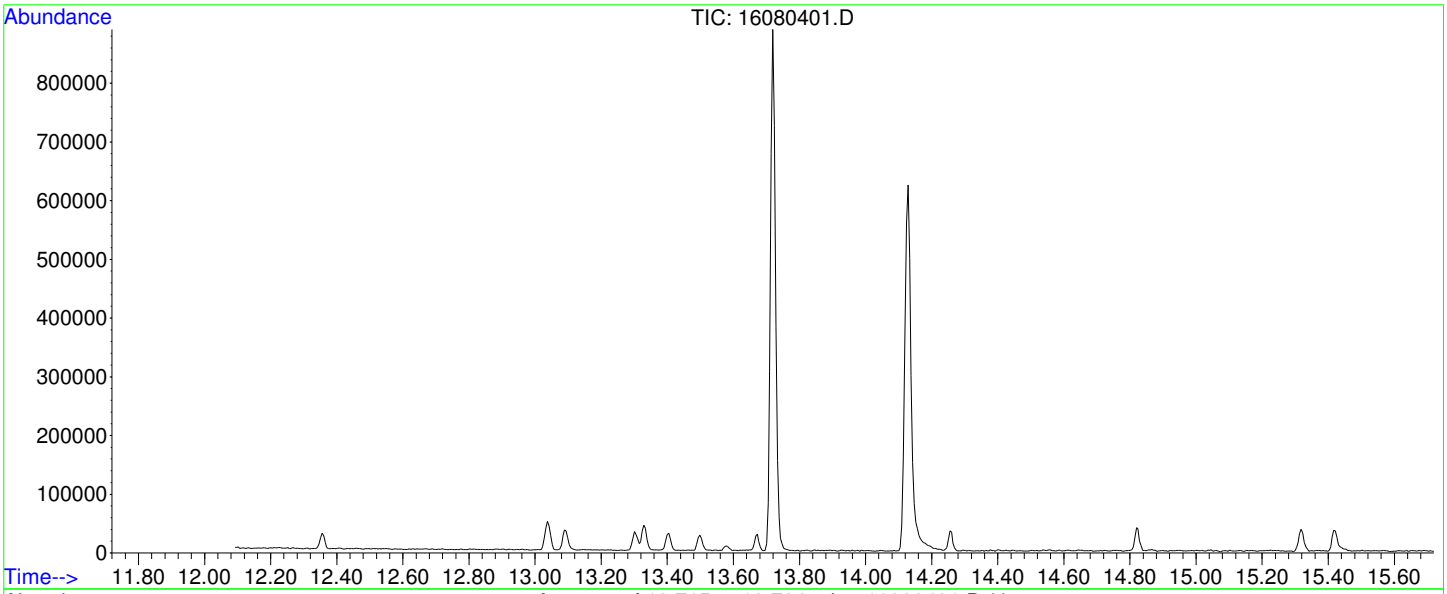
Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:16 AM, 8/11/2016

Data File : C:\HPCHEM\1\DATA\160804\16080401.D Vial: 1
Acq On : 4 Aug 2016 7:43 am Operator: DEW
Sample : DFTPP-160804 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

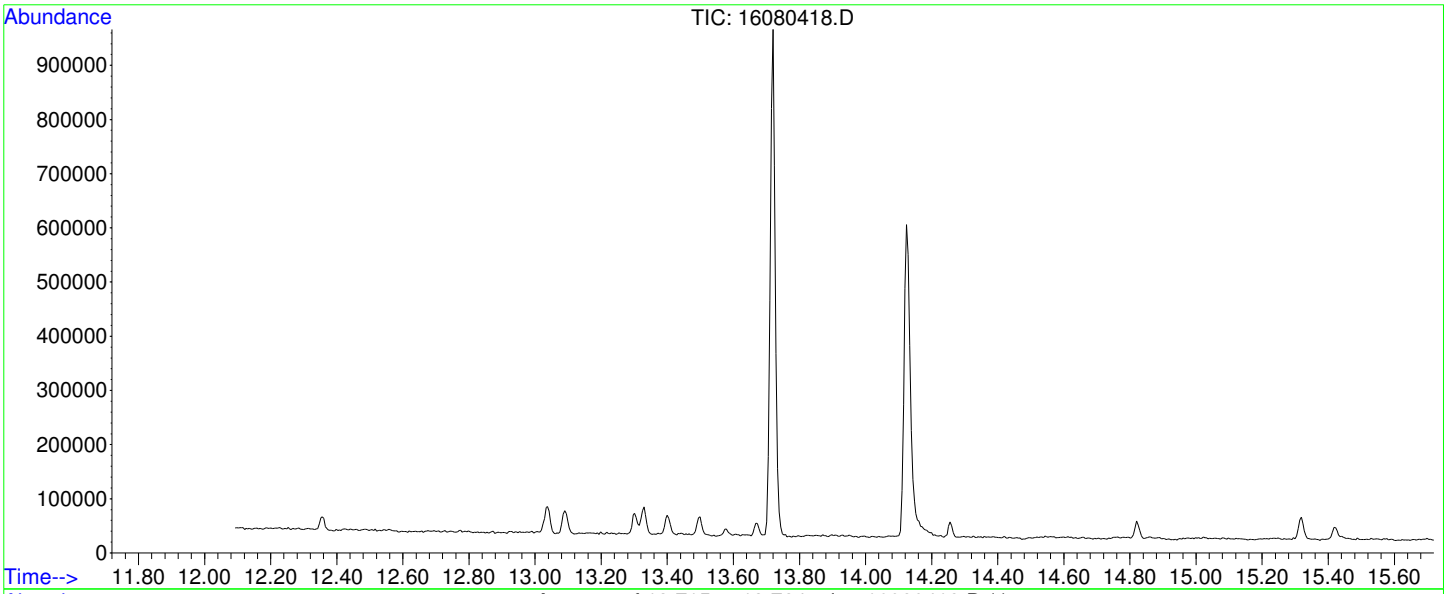


AutoFind: Scans 346, 347, 348; Background Corrected with Scan 340

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.9	30150	PASS
68	69	0.00	2	0.5	175	PASS
69	198	0.00	100	39.5	32291	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	42115	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	81677	PASS
199	198	5	9	7.0	5677	PASS
275	198	10	60	29.2	23813	PASS
365	198	1	200	4.1	3344	PASS
441	442	0.01	24	14.2	14678	PASS
442	198	50	400	126.3	103176	PASS
443	442	15	24	19.9	20582	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:45:19 AM, 8/11/2016

Data File : C:\HPCHEM\1\DATA\160804\16080418.D Vial: 18
Acq On : 4 Aug 2016 7:17 pm Operator: DEW
Sample : DFTPP2-160804 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 346, 347, 348; Background Corrected with Scan 340

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.2	29135	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	38.3	32613	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	42672	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	85176	PASS
199	198	5	9	6.4	5480	PASS
275	198	10	60	29.1	24805	PASS
365	198	1	200	4.1	3466	PASS
441	442	0.01	24	14.4	16361	PASS
442	198	50	400	133.0	113272	PASS
443	442	15	24	19.4	22029	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:46:05 AM, 8/11/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080402.D Vial: 2
Acq On : 4 Aug 2016 8:23 am Operator: DEW
Sample : ICV-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

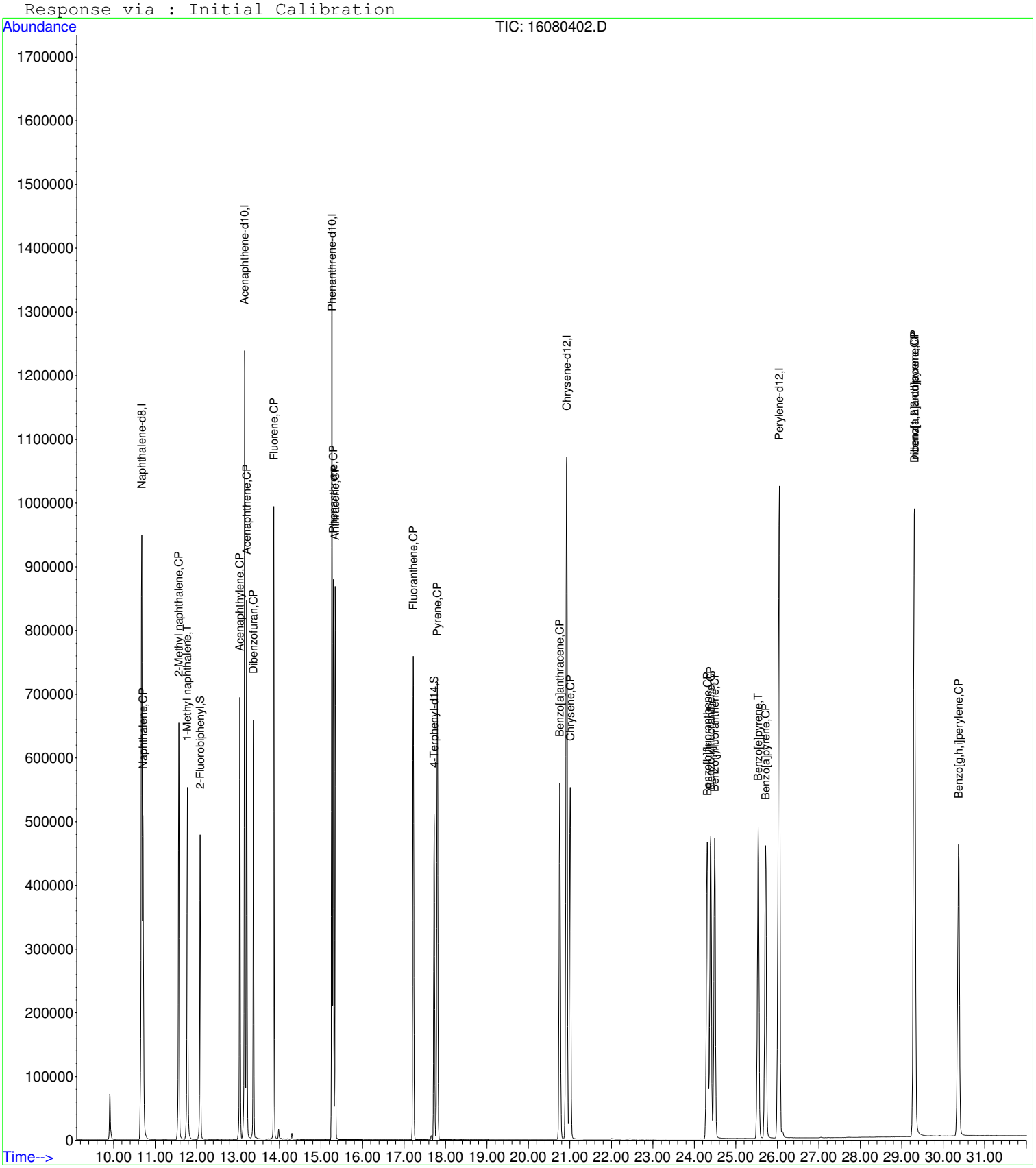
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1498198	4000.00	ug/kg	107
5) Acenaphthene-d10	13.16	164	763671	4000.00	ug/kg	127
11) Phenanthrene-d10	15.26	188	1664629	4000.00	ug/kg	105
17) Chrysene-d12	20.92	240	1917189	4000.00	ug/kg	105
20) Perylene-d12	26.05	264	2118511	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	481709	1808.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.21%			
16) 4-Terphenyl-d14	17.73	244	708532	1803.64	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.09%			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	658864	1932.85	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	435497	1970.73	ug/kg	96
4) 1-Methyl naphthalene	11.78	142	389181	1988.26	ug/kg	98
6) Dibenzofuran	13.37	168	635808	2057.31	ug/kg	100
8) Acenaphthylene	13.04	152	681687	2015.74	ug/kg	100
9) Acenaphthene	13.21	154	403772	2061.52	ug/kg	100
10) Fluorene	13.86	166	543332	2206.85	ug/kg	99
12) Phenanthrene	15.30	178	768581	1947.47	ug/kg	100
13) Anthracene	15.34	178	793046	1909.70	ug/kg	100
14) Fluoranthene	17.22	202	837347	1790.35	ug/kg	100
15) Pyrene	17.80	202	835781	1762.37	ug/kg	100
18) Benzo[a]anthracene	20.75	228	876163	2027.57	ug/kg	100
19) Chrysene	21.01	228	824684	1983.76	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	995630	2035.76	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	909957	2028.11	ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	871132	2020.35	ug/kg	99
24) Benzo[e]pyrene	25.54	252	959016	2020.64	ug/kg	99
25) Benzo[a]pyrene	25.72	252	957255	2025.74	ug/kg	100
26) Dibenz[a,h]anthracene	29.30	278	989512	2163.89	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.31	276	1163089	2143.36	ug/kg	100
28) Benzo[g,h,i]perylene	30.37	276	968872	2131.74	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080402.D Vial: 2
Acq On : 4 Aug 2016 8:23 am Operator: DEW
Sample : ICV-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

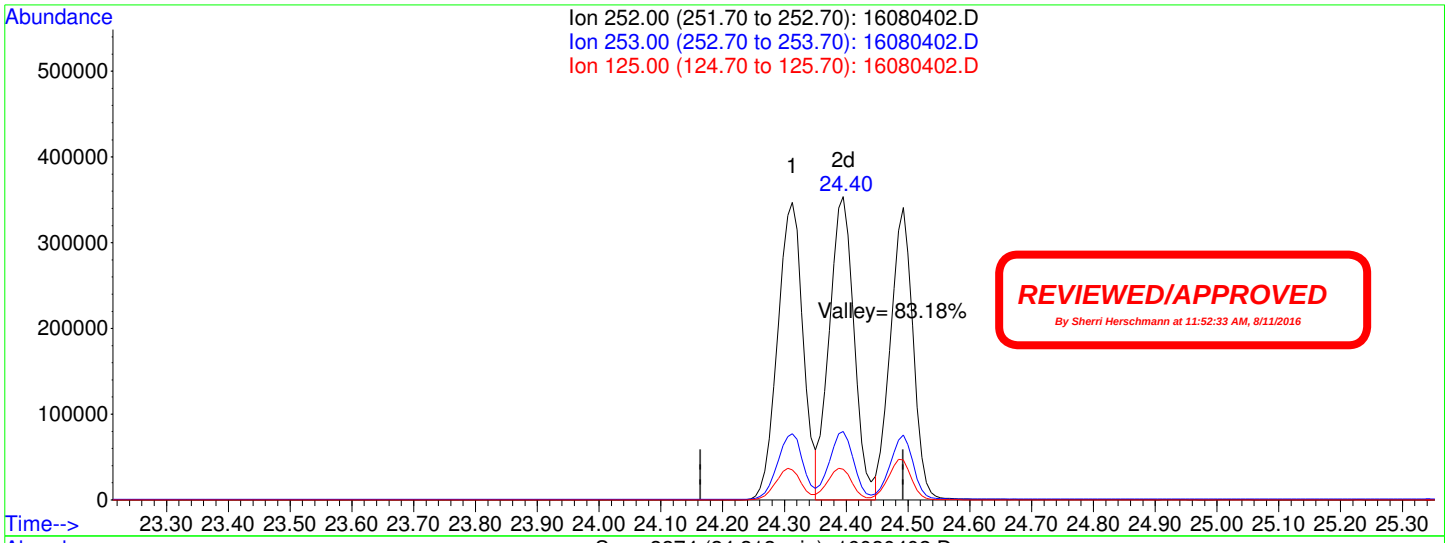
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

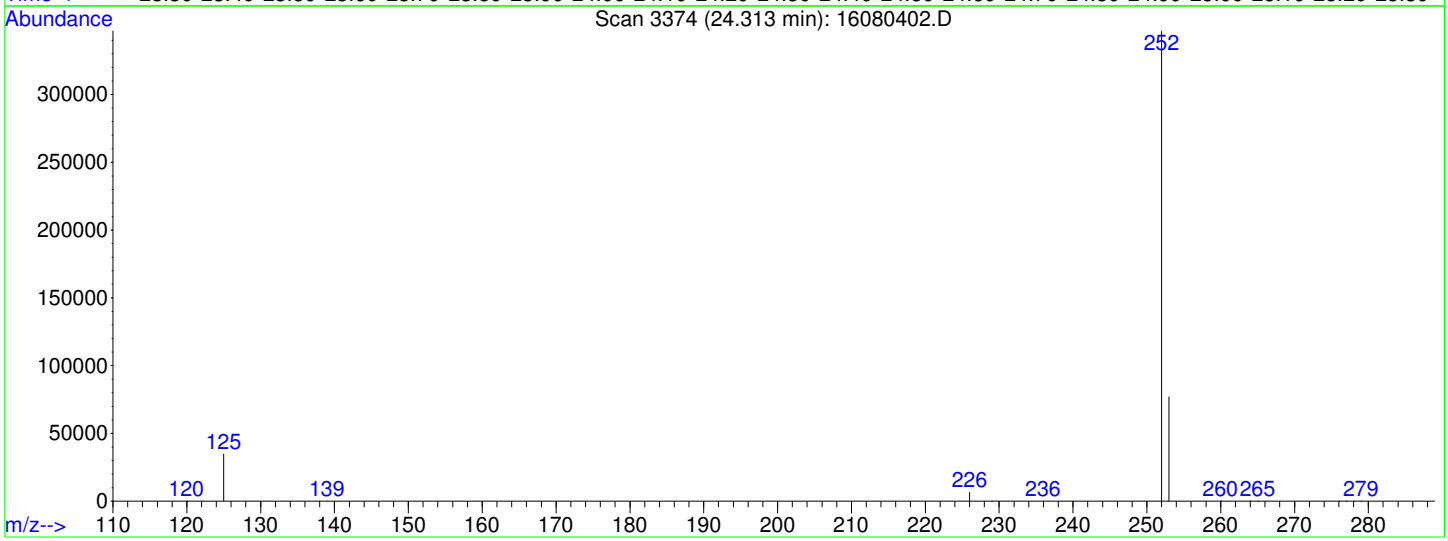


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160804\16080402.D Vial: 2
Acq On : 4 Aug 2016 8:23 am Operator: DEW
Sample : ICV-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 8:55 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080402.D

(21) Benzo[b]fluoranthene (CP)

24.31min 2035.76ug/kg

response 995630

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	21.99
125.00	10.60	10.08
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080403.D Vial: 3
Acq On : 4 Aug 2016 9:03 am Operator: DEW
Sample : LCS-76457 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

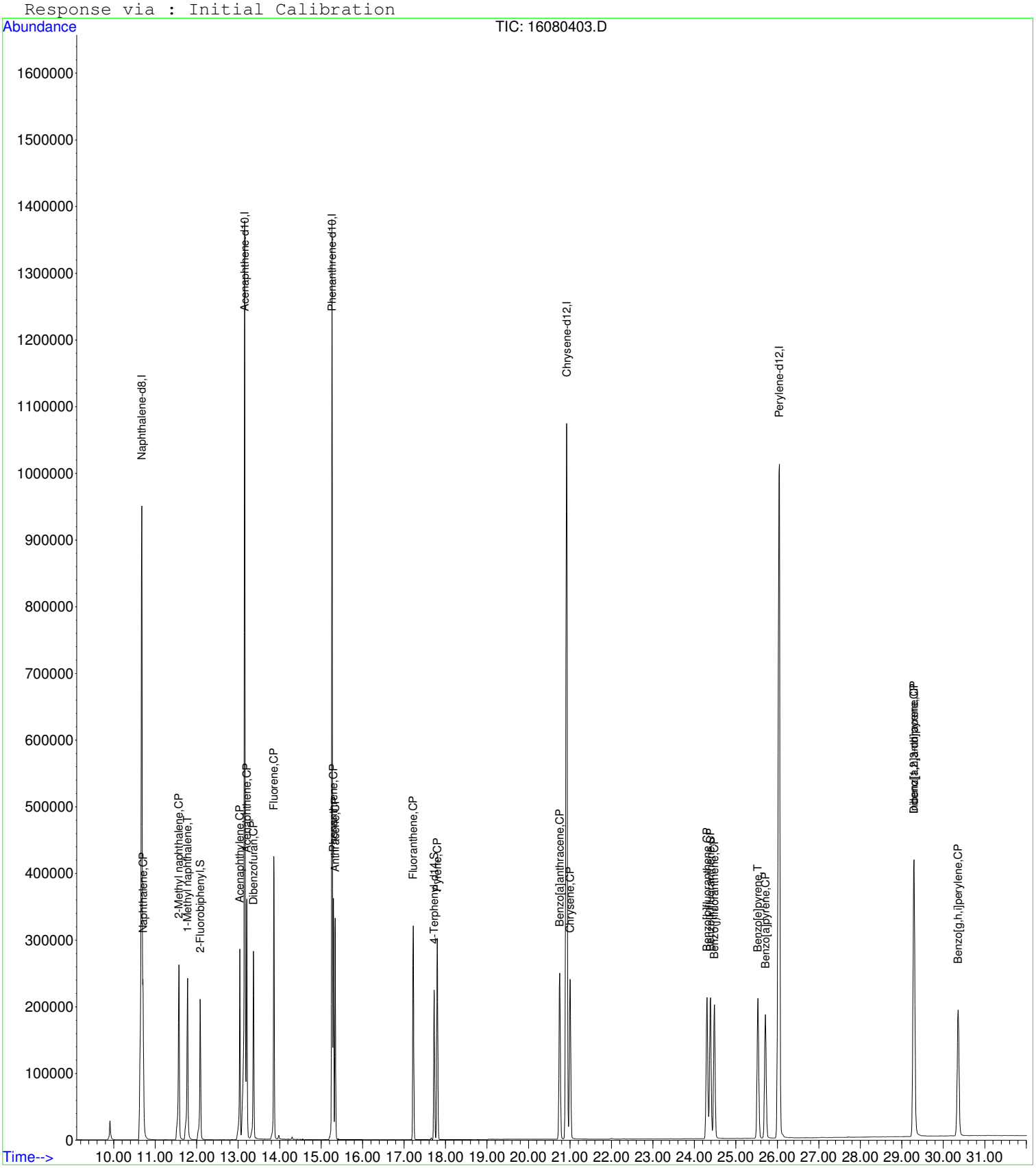
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1777313	4000.00	ug/kg	127
5) Acenaphthene-d10	13.16	164	942616	4000.00	ug/kg	157
11) Phenanthrene-d10	15.26	188	1601587	4000.00	ug/kg	101
17) Chrysene-d12	20.92	240	1992439	4000.00	ug/kg	109
20) Perylene-d12	26.05	264	2091854	4000.00	ug/kg	108
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	252327	767.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.19%#			
16) 4-Terphenyl-d14	17.72	244	309967	820.11	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.50%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	307662	760.82	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	220521	841.20	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	198863	856.41	ug/kg	99
6) Dibenzofuran	13.37	168	310224	813.24	ug/kg	100
8) Acenaphthylene	13.04	152	341073	817.09	ug/kg	100
9) Acenaphthene	13.21	154	203906	843.44	ug/kg	98
10) Fluorene	13.86	166	247577	814.68	ug/kg	100
12) Phenanthrene	15.30	178	320042	842.86	ug/kg	99
13) Anthracene	15.34	178	308357	771.77	ug/kg	100
14) Fluoranthene	17.22	202	353294	785.12	ug/kg	99
15) Pyrene	17.80	202	357022	782.47	ug/kg	100
18) Benzo[a]anthracene	20.75	228	387678	863.26	ug/kg	100
19) Chrysene	21.00	228	365463	845.91	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	426734	883.66	ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	406562	917.69	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	381584	896.25	ug/kg	98
24) Benzo[e]pyrene	25.53	252	421612	899.65	ug/kg	99
25) Benzo[a]pyrene	25.71	252	383734	822.41	ug/kg	100
26) Dibenz[a,h]anthracene	29.29	278	403896	894.51	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.29	276	480733	897.19	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	398366	887.67	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080403.D Vial: 3
Acq On : 4 Aug 2016 9:03 am Operator: DEW
Sample : LCS-76457 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080404.D Vial: 4
Acq On : 4 Aug 2016 9:44 am Operator: DEW
Sample : MB-76457 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

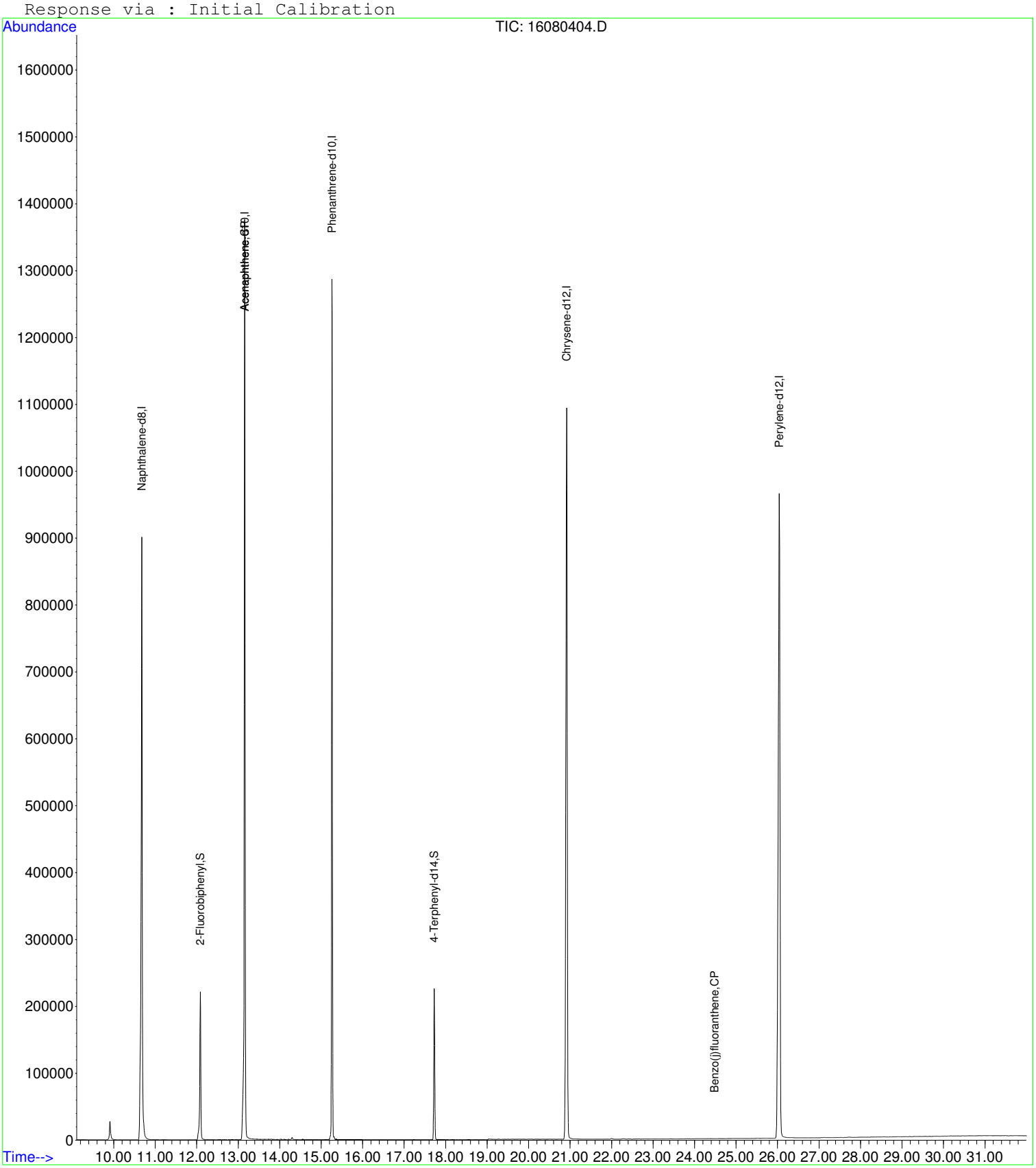
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1666382	4000.00	ug/kg	119
5) Acenaphthene-d10	13.16	164	917428	4000.00	ug/kg	153
11) Phenanthrene-d10	15.26	188	1481811	4000.00	ug/kg	93
17) Chrysene-d12	20.92	240	1891404	4000.00	ug/kg	103
20) Perylene-d12	26.04	264	1920096	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	262934	821.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.54%#			
16) 4-Terphenyl-d14	17.73	244	312851	894.65	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.37%#			
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3183	~~13.53 ug/kg#~~		~~1~~1
23) Benzo(j)fluoranthene	24.49	252	144	0.37 ug/kg#		1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080404.D Vial: 4
Acq On : 4 Aug 2016 9:44 am Operator: DEW
Sample : MB-76457 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:22 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080416.D Vial: 16
Acq On : 4 Aug 2016 5:55 pm Operator: DEW
Sample : 1607239-21AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

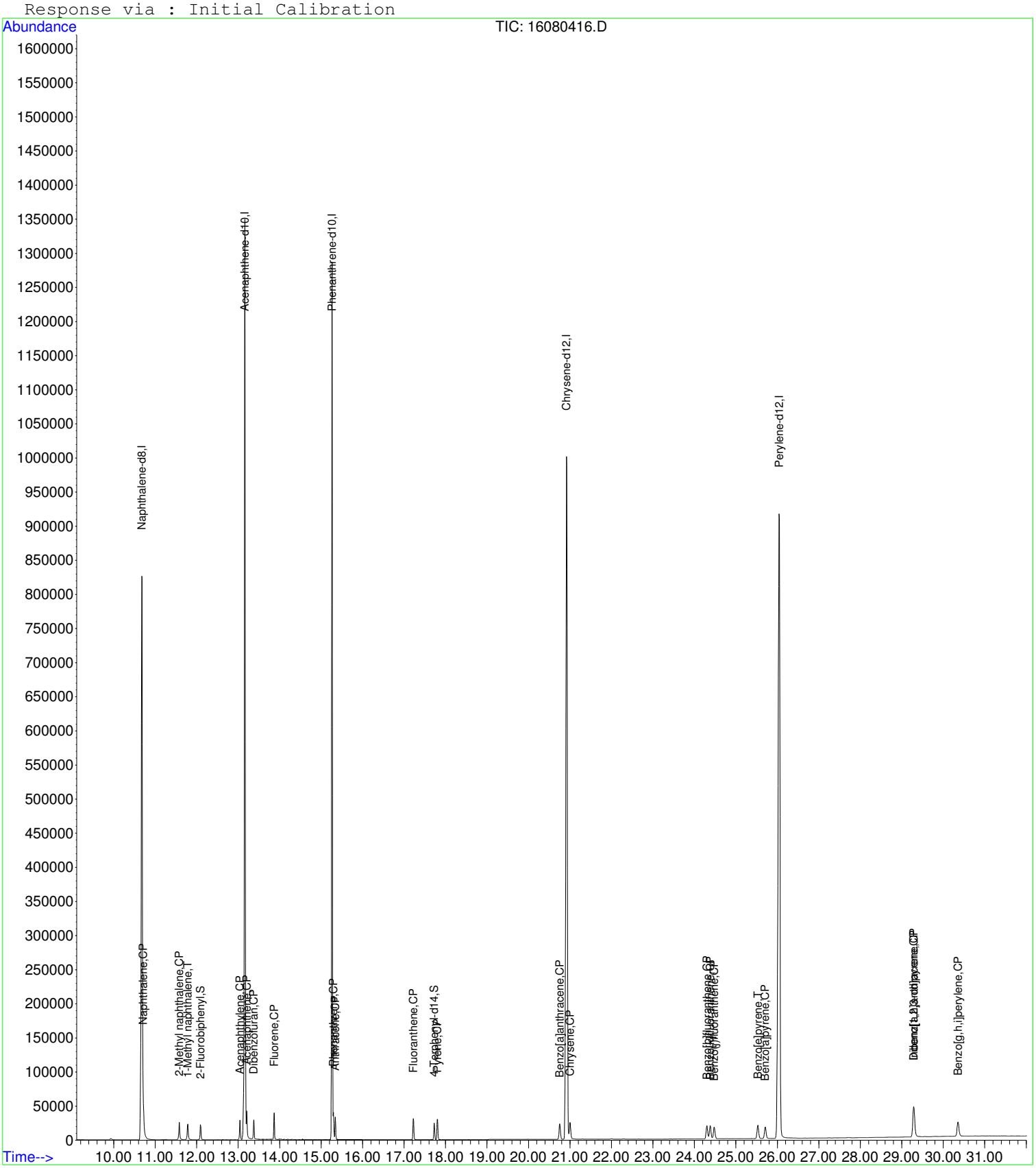
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1506248	4000.00	ug/kg	107
5) Acenaphthene-d10	13.16	164	835479	4000.00	ug/kg	139
11) Phenanthrene-d10	15.26	188	1475062	4000.00	ug/kg	93
17) Chrysene-d12	20.92	240	1824281	4000.00	ug/kg	99
20) Perylene-d12	26.04	264	1917840	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25542	87.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.19%#		
16) 4-Terphenyl-d14	17.73	244	34281	98.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.46%#		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	28377	82.80	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	20844	93.82	ug/kg	97
4) 1-Methyl naphthalene	11.79	142	18681	94.93	ug/kg	99
6) Dibenzofuran	13.38	168	29559	87.42	ug/kg	99
8) Acenaphthylene	13.05	152	31273	84.53	ug/kg	99
9) Acenaphthene	13.21	154	18455	86.13	ug/kg	98
10) Fluorene	13.87	166	23358	86.72	ug/kg	99
12) Phenanthrene	15.30	178	31001	88.65	ug/kg	98
13) Anthracene	15.34	178	30441	82.72	ug/kg	99
14) Fluoranthene	17.22	202	34706	83.74	ug/kg	98
15) Pyrene	17.80	202	35446	84.35	ug/kg	99
18) Benzo[a]anthracene	20.75	228	35513	86.37	ug/kg	99
19) Chrysene	21.00	228	34371	86.89	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	40044	90.45	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	35979	88.58	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	34177	87.56	ug/kg	99
24) Benzo[e]pyrene	25.53	252	39280	91.42	ug/kg	99
25) Benzo[a]pyrene	25.70	252	35911	83.95	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	45120	108.99	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.29	276	53421	108.75	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	44613	108.43	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080416.D Vial: 16
Acq On : 4 Aug 2016 5:55 pm Operator: DEW
Sample : 1607239-21AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080417.D Vial: 17
Acq On : 4 Aug 2016 6:37 pm Operator: DEW
Sample : 1607239-21AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

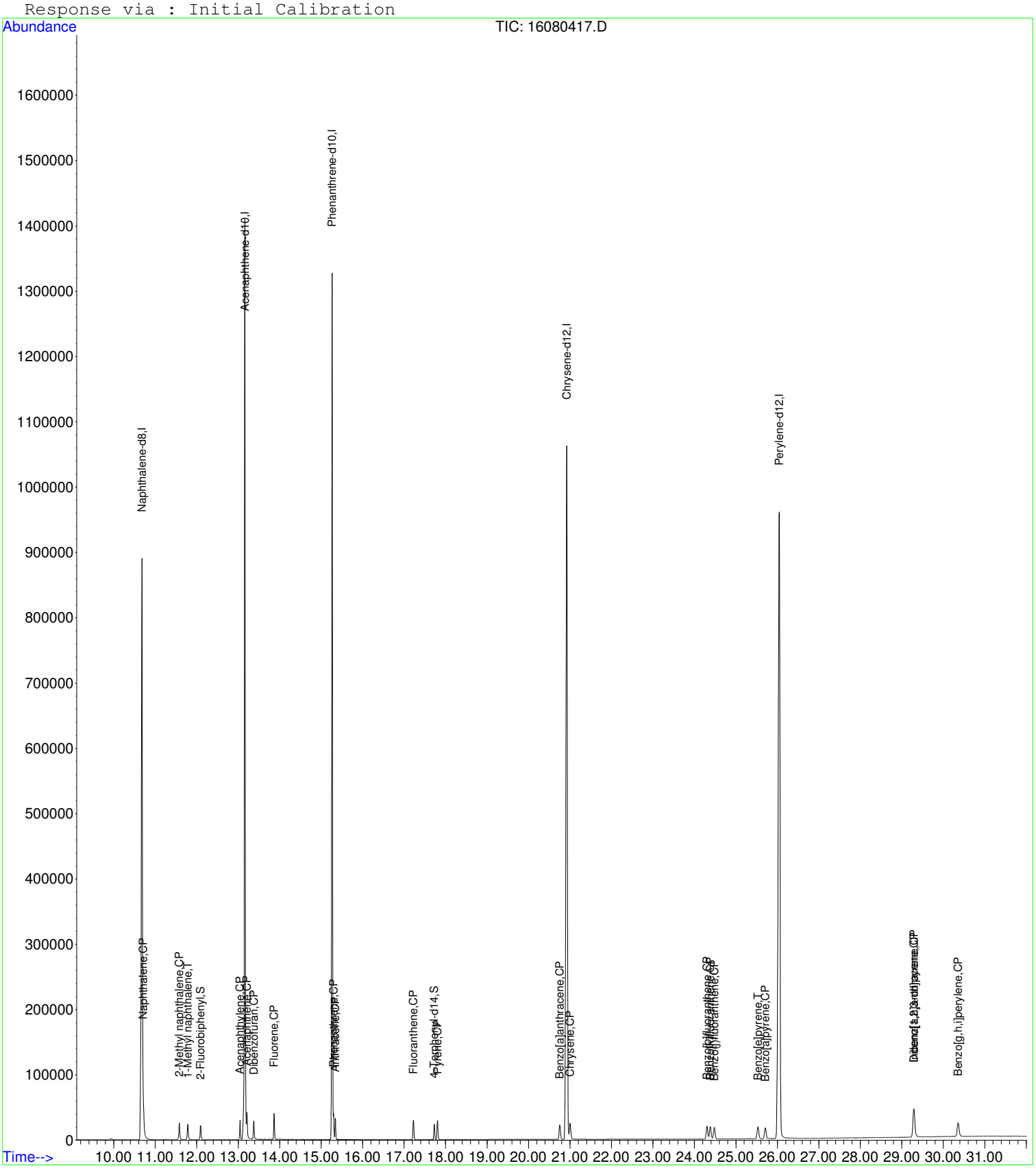
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1584621	4000.00	ug/kg	113
5) Acenaphthene-d10	13.16	164	891771	4000.00	ug/kg	149
11) Phenanthrene-d10	15.26	188	1552732	4000.00	ug/kg	98
17) Chrysene-d12	20.92	240	1865699	4000.00	ug/kg	102
20) Perylene-d12	26.05	264	1936725	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	26300	84.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
16) 4-Terphenyl-d14	17.73	244	34193	93.31	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.33%#		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	28635	79.42	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	21152	90.50	ug/kg	95
4) 1-Methyl naphthalene	11.79	142	19053	92.03	ug/kg	99
6) Dibenzofuran	13.38	168	30291	83.93	ug/kg	100
8) Acenaphthylene	13.05	152	32354	81.93	ug/kg	98
9) Acenaphthene	13.21	154	18729	81.89	ug/kg	99
10) Fluorene	13.86	166	23882	83.07	ug/kg	98
12) Phenanthrene	15.30	178	31394	85.28	ug/kg	99
13) Anthracene	15.34	178	30624	79.06	ug/kg	99
14) Fluoranthene	17.22	202	34314	78.65	ug/kg	99
15) Pyrene	17.80	202	35063	79.26	ug/kg	99
18) Benzo[a]anthracene	20.75	228	34854	82.88	ug/kg	99
19) Chrysene	21.01	228	34348	84.90	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	39248	87.78	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	36966	90.12	ug/kg	98
23) Benzo(j)fluoranthene	24.48	252	34465	87.43	ug/kg	97
24) Benzo[e]pyrene	25.53	252	38572	88.90	ug/kg	98
25) Benzo[a]pyrene	25.71	252	35168	81.41	ug/kg	100
26) Dibenz[a,h]anthracene	29.29	278	44118	105.53	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.29	276	52589	106.01	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	44785	107.79	ug/kg	95

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080417.D Vial: 17
Acq On : 4 Aug 2016 6:37 pm Operator: DEW
Sample : 1607239-21AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080419.D Vial: 19
Acq On : 4 Aug 2016 7:57 pm Operator: DEW
Sample : ICV2-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

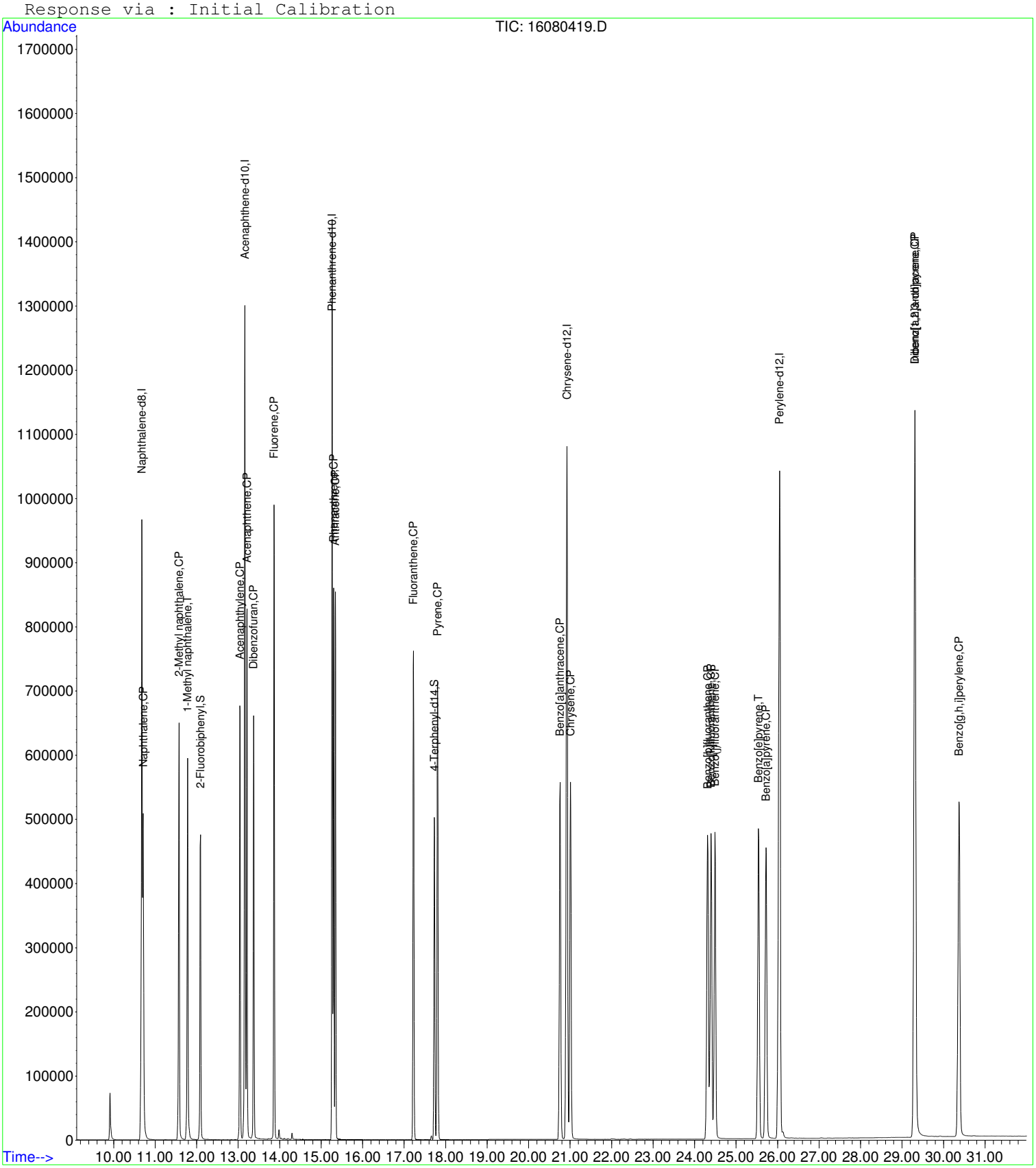
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1493554	4000.00	ug/kg	106
5) Acenaphthene-d10	13.16	164	779917	4000.00	ug/kg	130
11) Phenanthrene-d10	15.26	188	1649947	4000.00	ug/kg	104
17) Chrysene-d12	20.93	240	1905364	4000.00	ug/kg	104
20) Perylene-d12	26.05	264	2115310	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	493474	1813.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.35%			
16) 4-Terphenyl-d14	17.73	244	696263	1788.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.70%			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	657885	1935.98	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	440203	1998.22	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	396484	2031.87	ug/kg	99
6) Dibenzofuran	13.37	168	638076	2021.64	ug/kg	99
8) Acenaphthylene	13.04	152	685294	1984.19	ug/kg	99
9) Acenaphthene	13.21	154	409076	2045.10	ug/kg	99
10) Fluorene	13.86	166	540804	2150.82	ug/kg	99
12) Phenanthrene	15.30	178	762059	1948.13	ug/kg	100
13) Anthracene	15.34	178	779343	1893.41	ug/kg	100
14) Fluoranthene	17.22	202	828804	1787.85	ug/kg	100
15) Pyrene	17.81	202	826660	1758.65	ug/kg	100
18) Benzo[a]anthracene	20.76	228	878365	2045.28	ug/kg	99
19) Chrysene	21.01	228	826155	1999.63	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	987186	2021.55	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	903954	2017.78	ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	874175	2030.47	ug/kg	100
24) Benzo[e]pyrene	25.54	252	960424	2026.67	ug/kg	100
25) Benzo[a]pyrene	25.72	252	953228	2020.27	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	1086014	2378.52	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	1273344	2350.09	ug/kg	100
28) Benzo[g,h,i]perylene	30.38	276	1105144	2435.25	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080419.D Vial: 19
Acq On : 4 Aug 2016 7:57 pm Operator: DEW
Sample : ICV2-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

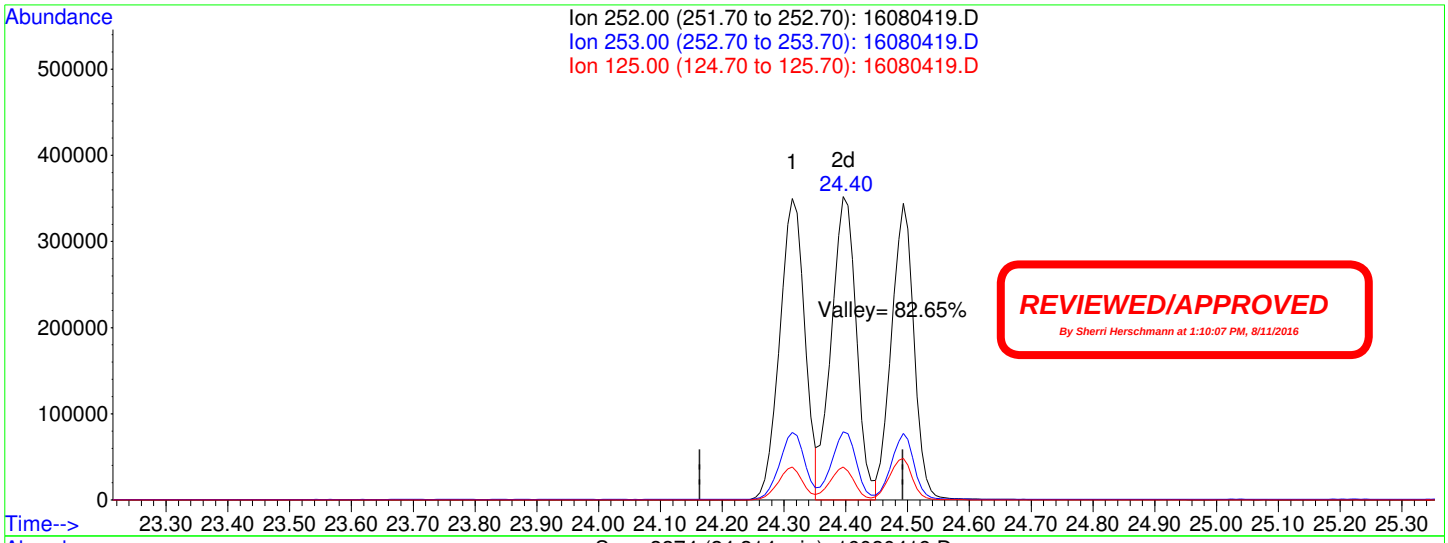
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

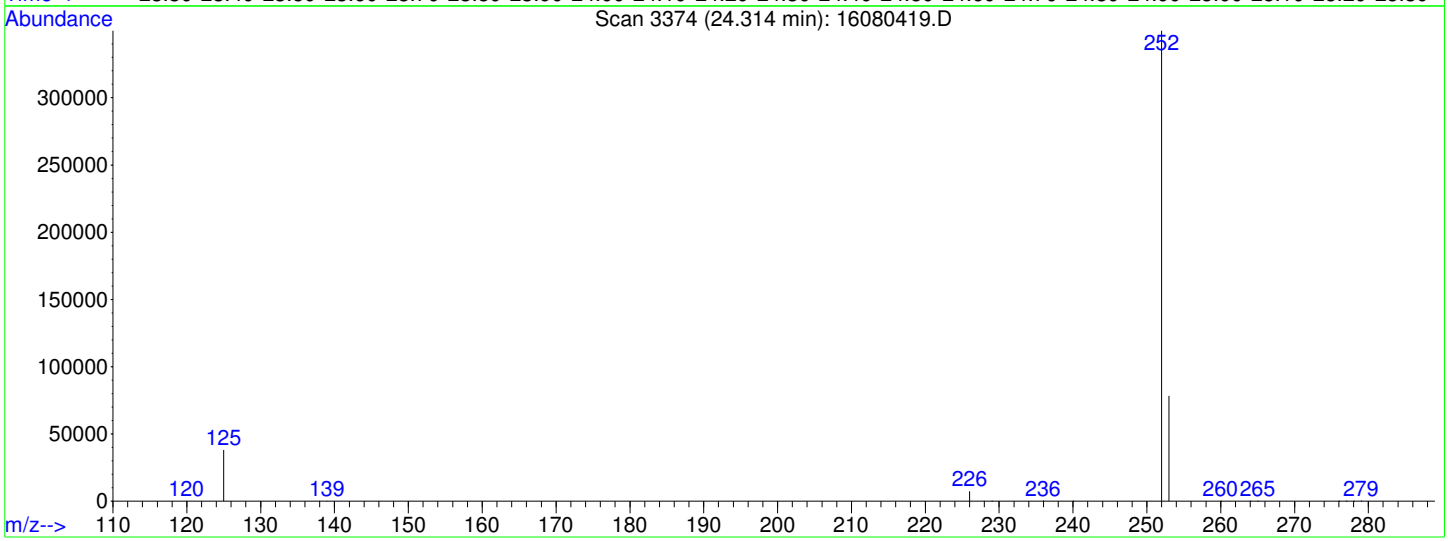


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160804\16080419.D Vial: 19
Acq On : 4 Aug 2016 7:57 pm Operator: DEW
Sample : ICV2-160804 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 20:29 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080419.D

(21) Benzo[b]fluoranthene (CP)

24.31min 2021.55ug/kg

response 987186

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.22
125.00	10.60	10.90
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080421.D Vial: 21
Acq On : 4 Aug 2016 9:19 pm Operator: DEW
Sample : SB-160804 Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

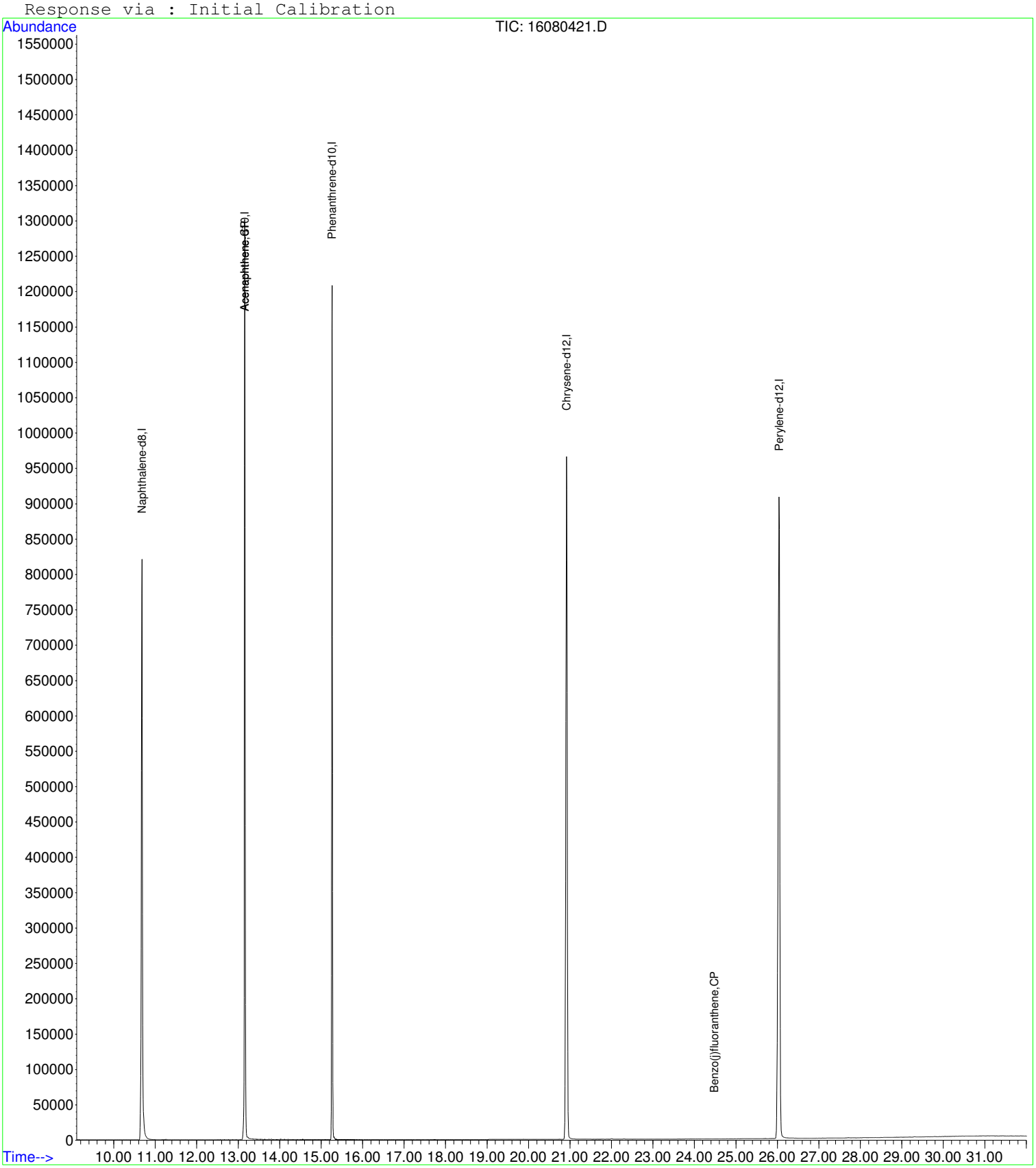
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1391376	4000.00	ug/kg	99
5) Acenaphthene-d10	13.16	164	807415	4000.00	ug/kg	135
11) Phenanthrene-d10	15.26	188	1374950	4000.00	ug/kg	86
17) Chrysene-d12	20.92	240	1695806	4000.00	ug/kg	92
20) Perylene-d12	26.04	264	1803093	4000.00	ug/kg	93
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	172	0.61	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#		
16) 4-Terphenyl-d14	17.73	244	768	2.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2790	13.47	ug/kg#	10
23) Benzo(j)fluoranthene	24.48	252	19	0.05	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080421.D Vial: 21
Acq On : 4 Aug 2016 9:19 pm Operator: DEW
Sample : SB-160804 Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080425.D Vial: 25
Acq On : 4 Aug 2016 11:59 pm Operator: DEW
Sample : 1607256-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

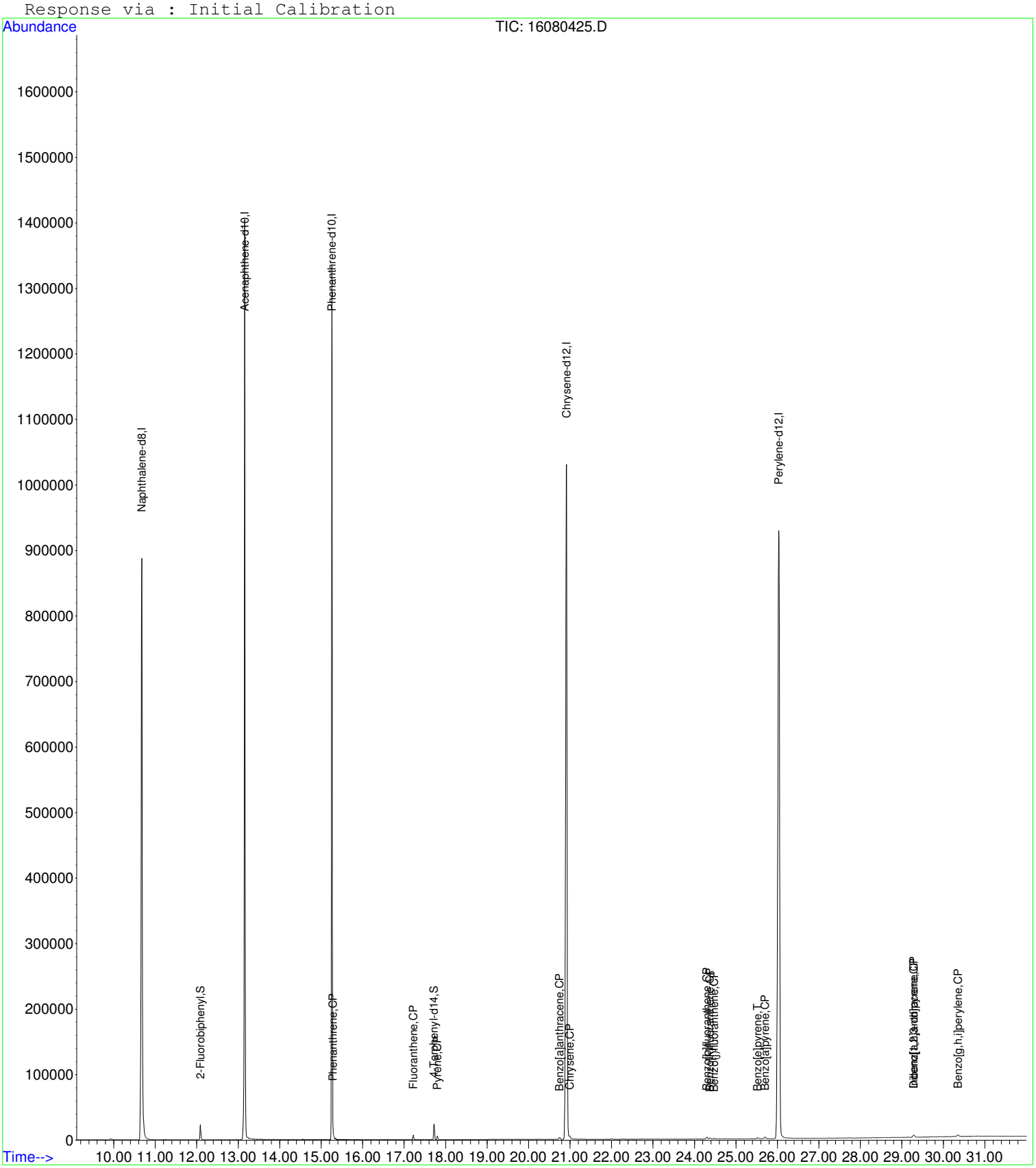
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1514229	4000.00	ug/kg	108
5) Acenaphthene-d10	13.16	164	865245	4000.00	ug/kg	144
11) Phenanthrene-d10	15.26	188	1528333	4000.00	ug/kg	96
17) Chrysene-d12	20.92	240	1838070	4000.00	ug/kg	100
20) Perylene-d12	26.03	264	1910877	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25907	85.84	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#		
16) 4-Terphenyl-d14	17.72	244	34104	94.56	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.36%#		
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	4077	11.25	ug/kg	100
14) Fluoranthene	17.22	202	8403	19.57	ug/kg	100
15) Pyrene	17.80	202	7034	16.15	ug/kg	99
18) Benzo[a]anthracene	20.74	228	5064	12.22	ug/kg	98
19) Chrysene	20.99	228	5576	13.99	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	6149	13.94	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	3191	7.88	ug/kg	86
23) Benzo(j)fluoranthene	24.47	252	1992	5.12	ug/kg	93
24) Benzo[e]pyrene	25.52	252	3422	7.99	ug/kg	82
25) Benzo[a]pyrene	25.70	252	5548	13.02	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	2198	5.33	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.29	276	5526	11.29	ug/kg	94
28) Benzo[g,h,i]perylene	30.36	276	5311	12.96	ug/kg	96

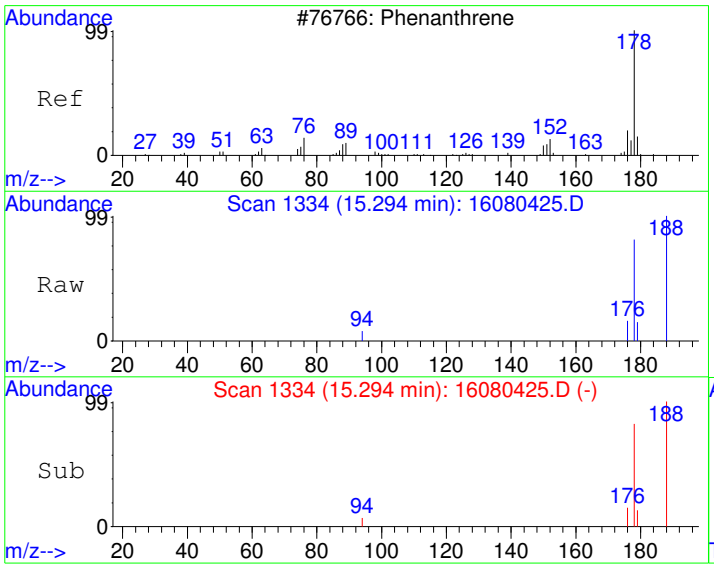
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080425.D Vial: 25
Acq On : 4 Aug 2016 11:59 pm Operator: DEW
Sample : 1607256-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

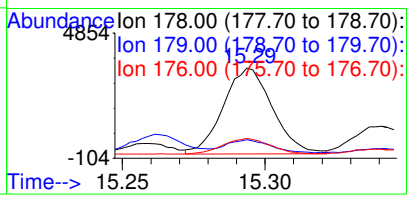


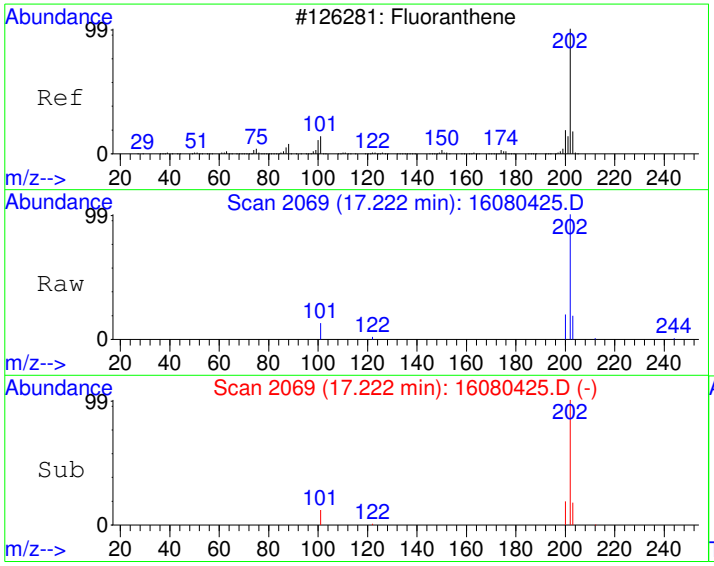


#12
Phenanthrene
Concen: 11.25 ug/kg
RT: 15.29 min Scan# 1334
Delta R.T. -0.01 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:178 Resp: 4077

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	45.7
176	18.9	0.0	48.7

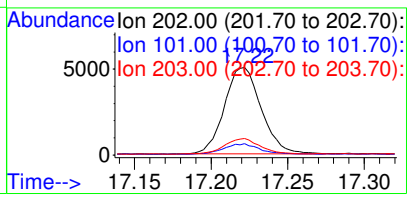


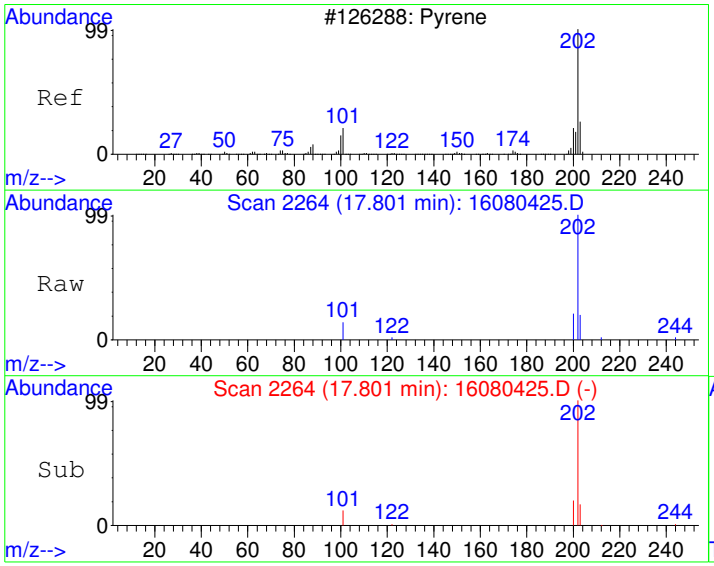


#14
Fluoranthene
Concen: 19.57 ug/kg
RT: 17.22 min Scan# 2069
Delta R.T. -0.01 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:202 Resp: 8403

Ion	Ratio	Lower	Upper
202	100		
101	12.0	0.0	42.1
203	17.9	0.0	47.9

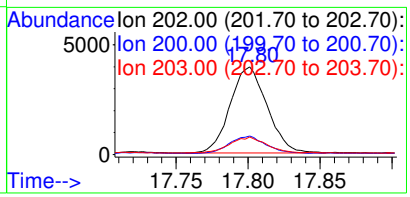


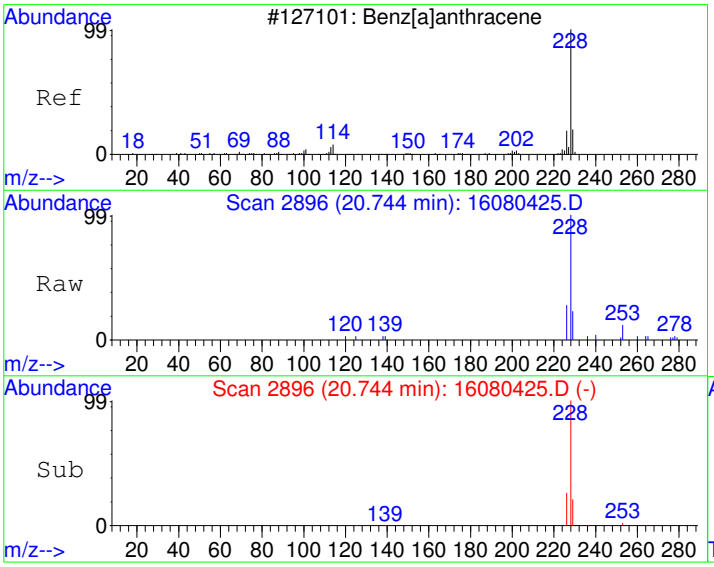


#15
Pyrene
Concen: 16.15 ug/kg
RT: 17.80 min Scan# 2264
Delta R.T. -0.01 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:202 Resp: 7034

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	49.7
203	18.6	0.0	47.8

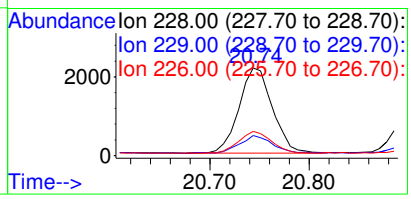


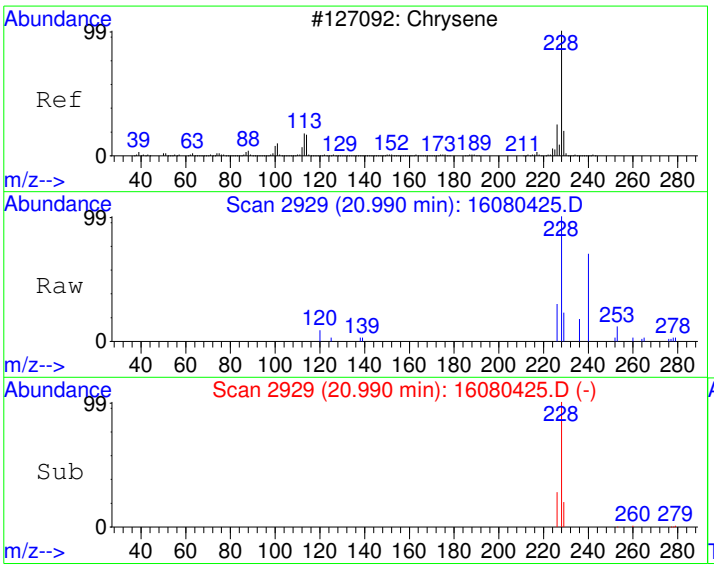


#18
Benzo[a]anthracene
Concen: 12.22 ug/kg
RT: 20.74 min Scan# 2896
Delta R.T. -0.02 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:228 Resp: 5064

Ion	Ratio	Lower	Upper
228	100		
229	21.1	0.0	49.8
226	25.5	0.0	55.8

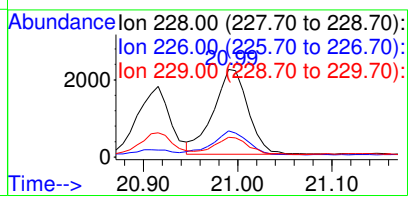


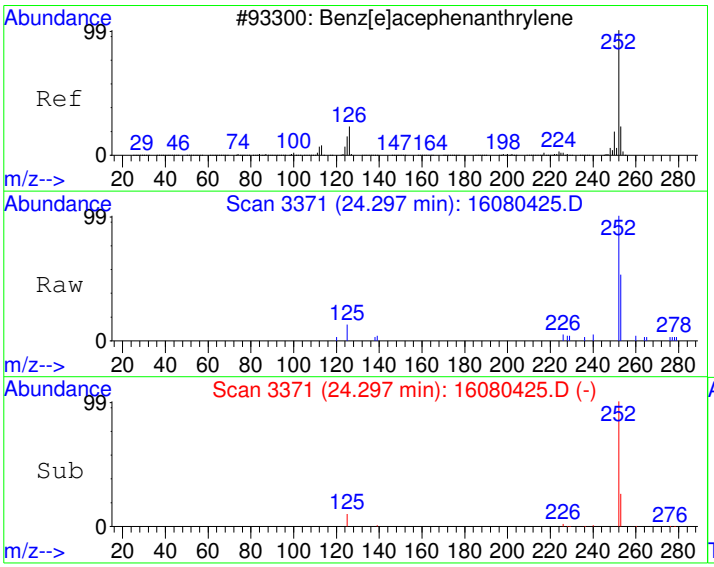


#19
Chrysene
Concen: 13.99 ug/kg
RT: 20.99 min Scan# 2929
Delta R.T. -0.03 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:228 Resp: 5576

Ion	Ratio	Lower	Upper
228	100		
226	27.7	0.0	58.1
229	19.4	0.0	50.0

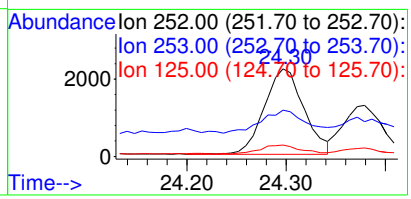


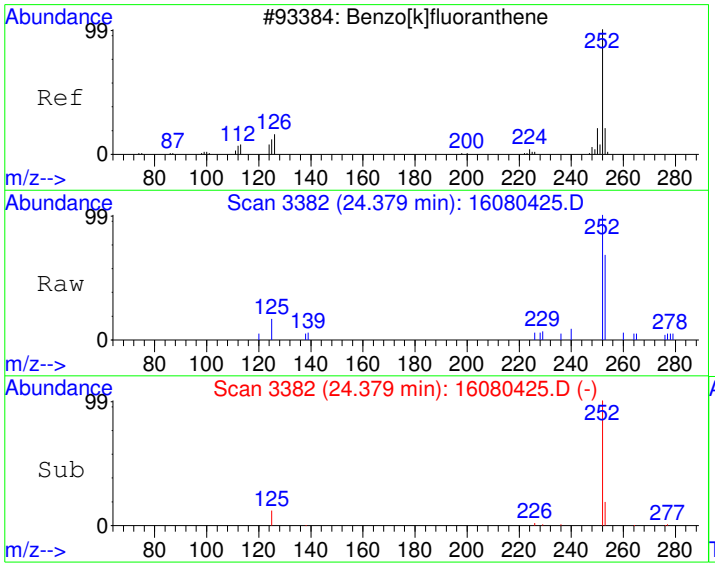


#21
Benzo[b]fluoranthene
Concen: 13.94 ug/kg
RT: 24.30 min Scan# 3371
Delta R.T. -0.03 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:252 Resp: 6149

Ion	Ratio	Lower	Upper
252	100		
253	21.4	0.0	52.0
125	10.0	0.0	40.6

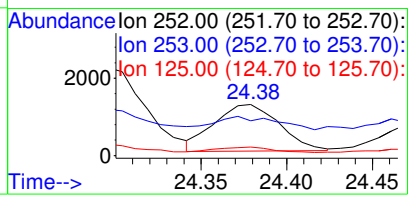


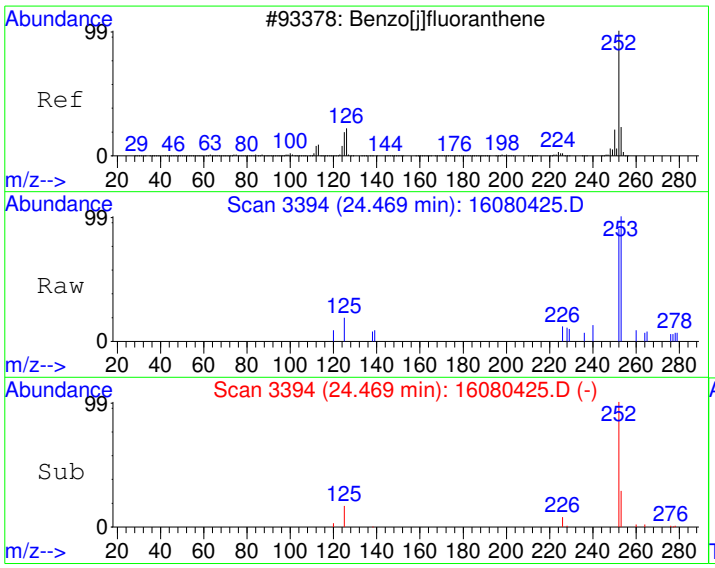


#22
Benzo[k]fluoranthene
Concen: 7.88 ug/kg
RT: 24.38 min Scan# 3382
Delta R.T. -0.03 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:252 Resp: 3191

Ion	Ratio	Lower	Upper
252	100		
253	13.3	2.2	42.2
125	11.4	0.0	30.3

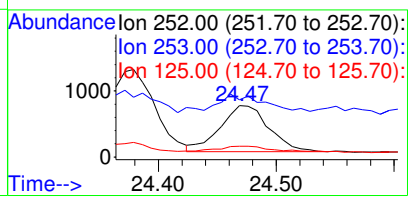


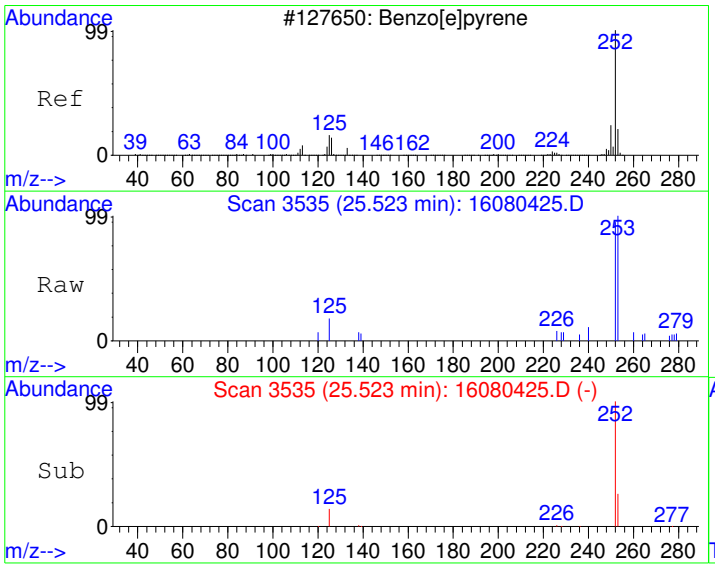


#23
Benzo(j)fluoranthene
Concen: 5.12 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:252 Resp: 1992

Ion	Ratio	Lower	Upper
252	100		
253	18.4	2.2	42.2
125	11.8	0.0	34.4

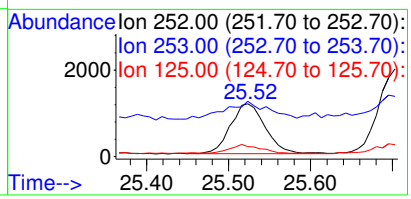


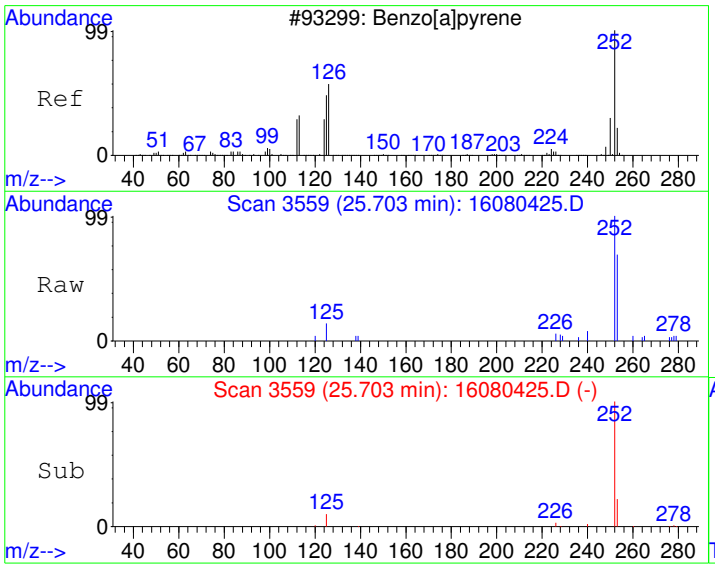


#24
Benzo[e]pyrene
Concen: 7.99 ug/kg
RT: 25.52 min Scan# 3535
Delta R.T. -0.03 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:252 Resp: 3422

Ion	Ratio	Lower	Upper
252	100		
253	36.0	2.2	42.2
125	14.0	0.0	35.7

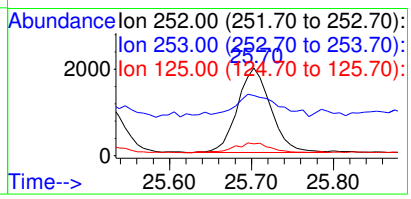


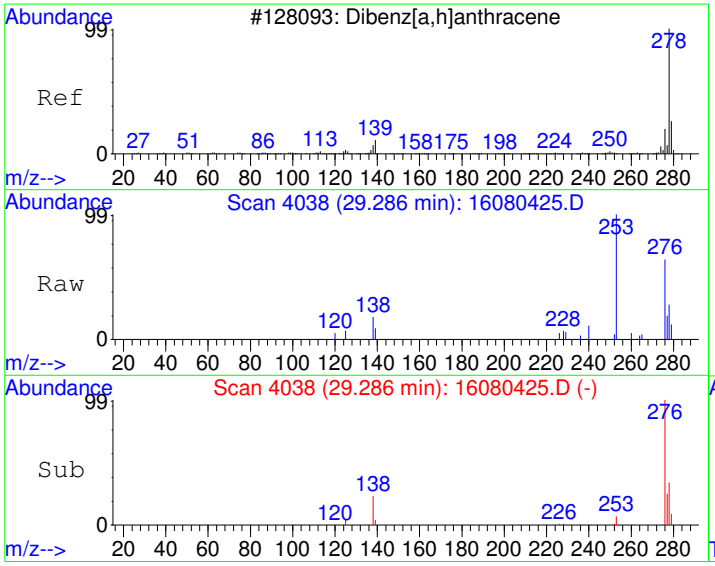


#25
Benzo[a]pyrene
Concen: 13.02 ug/kg
RT: 25.70 min Scan# 3559
Delta R.T. -0.03 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:252 Resp: 5548

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.0	42.0
125	10.7	0.0	31.6

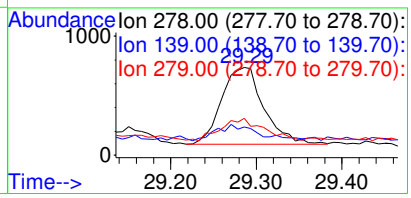


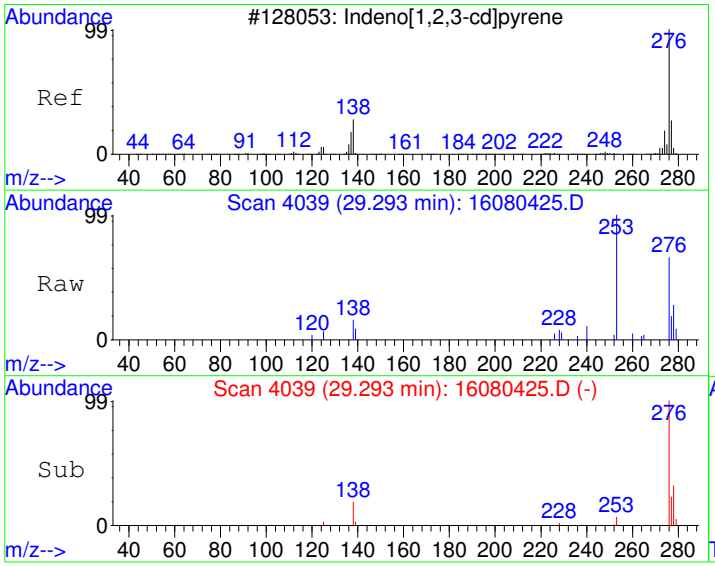


#26
Dibenz[a,h]anthracene
Concen: 5.33 ug/kg
RT: 29.29 min Scan# 4038
Delta R.T. -0.04 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:278 Resp: 2198

Ion	Ratio	Lower	Upper
278	100		
139	15.2	0.0	33.8
279	28.7	3.9	43.9

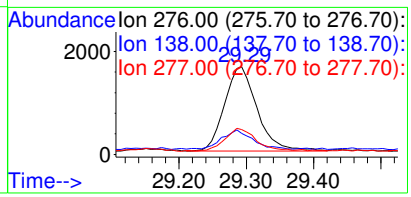


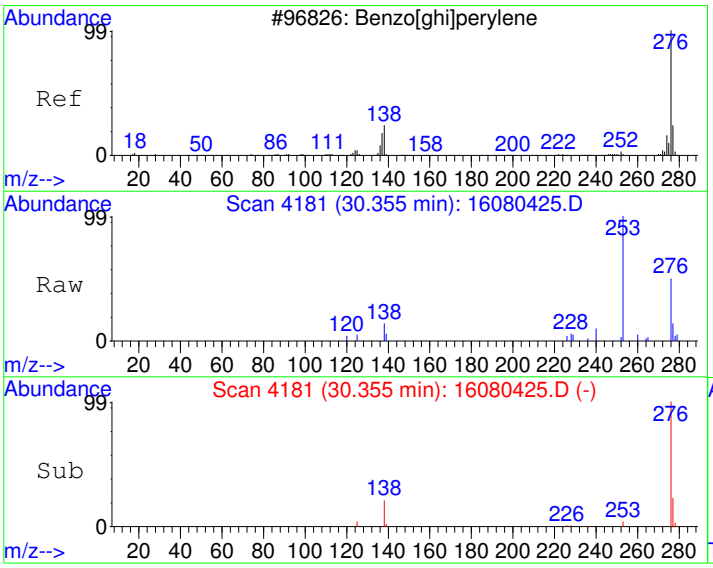


#27
Indeno[1,2,3-cd]pyrene
Concen: 11.29 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:276 Resp: 5526

Ion	Ratio	Lower	Upper
276	100		
138	19.2	4.8	44.8
277	25.3	5.6	45.6

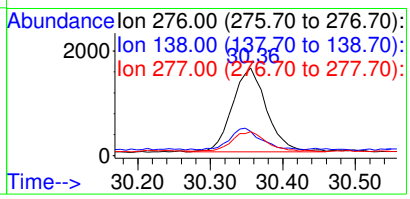




#28
Benzo[g,h,i]perylene
Concen: 12.96 ug/kg
RT: 30.36 min Scan# 4181
Delta R.T. -0.04 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:59 pm

Tgt Ion:276 Resp: 5311

Ion	Ratio	Lower	Upper
276	100		
138	22.0	0.0	38.1
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080426.D Vial: 26
Acq On : 5 Aug 2016 12:39 am Operator: DEW
Sample : 1607256-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

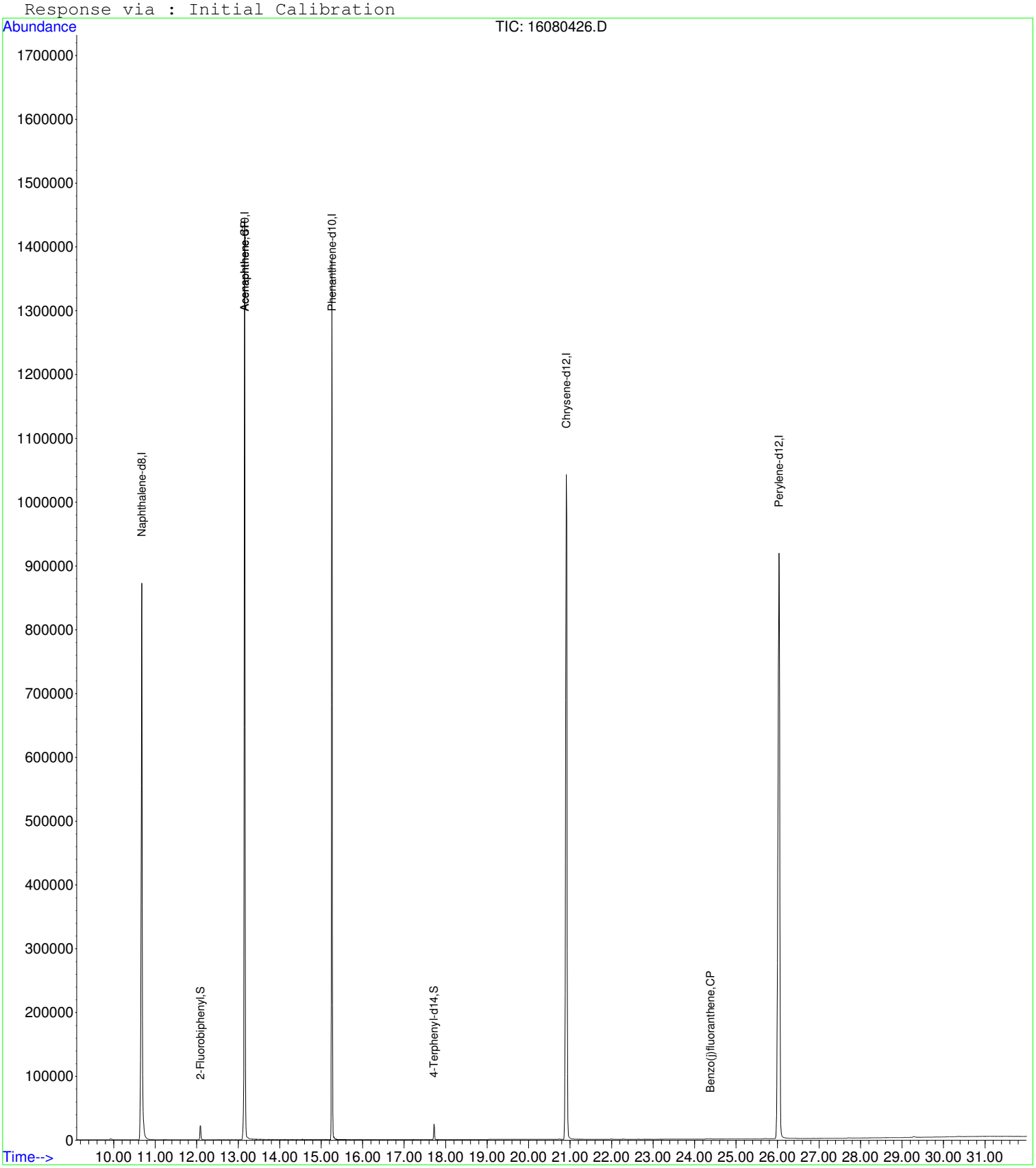
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1540147	4000.00	ug/kg	110
5) Acenaphthene-d10	13.16	164	896378	4000.00	ug/kg	150
11) Phenanthrene-d10	15.26	188	1575407	4000.00	ug/kg	99
17) Chrysene-d12	20.91	240	1846816	4000.00	ug/kg	101
20) Perylene-d12	26.03	264	1893972	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	27110	86.71	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.17%#		
16) 4-Terphenyl-d14	17.72	244	34539	92.90	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.32%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3219	~~14.00~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.37	252	1174	3.05	ug/kg	81

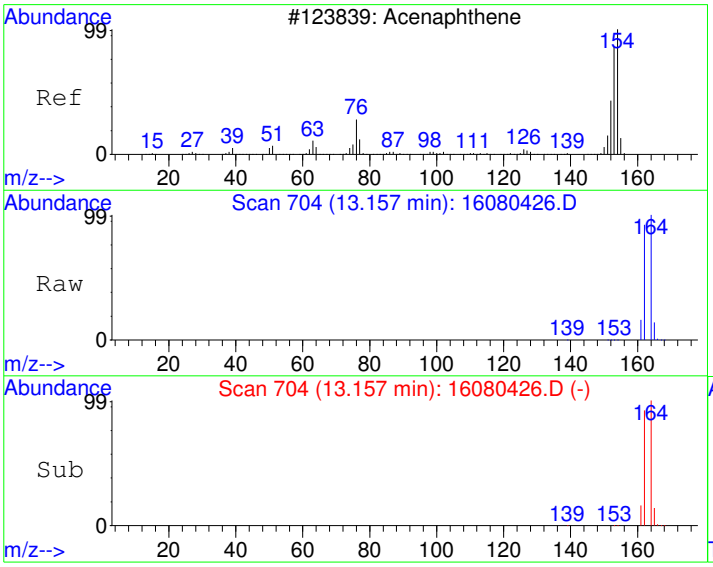
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080426.D Vial: 26
Acq On : 5 Aug 2016 12:39 am Operator: DEW
Sample : 1607256-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

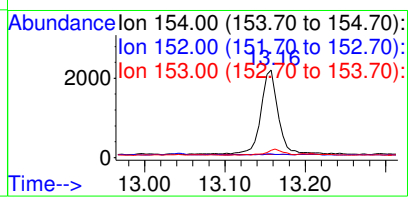


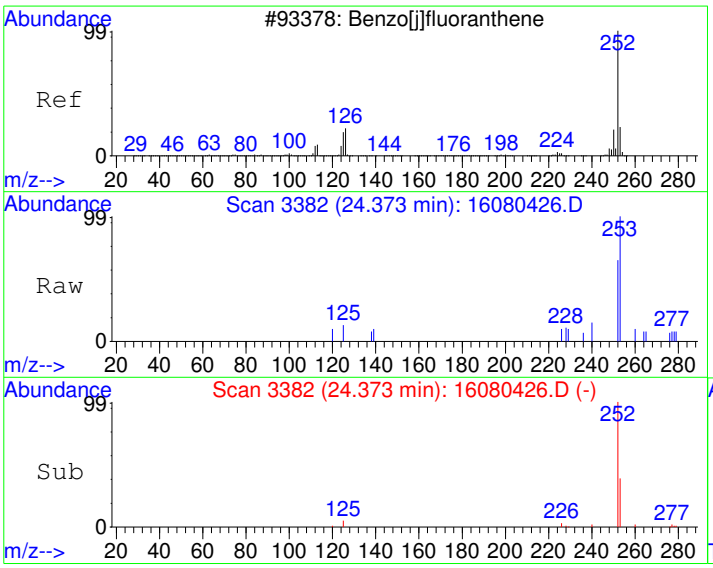


#9
Acenaphthene
Concen: ~~14.00 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:39 am

Tgt Ion:154 Resp: 3219

Ion	Ratio	Lower	Upper
154	100		
152	1.2	19.1	79.1#
153	5.7	76.2	136.2#

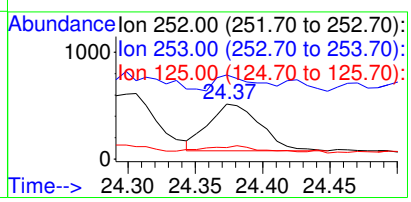




#23
Benzo(j)fluoranthene
Concen: 3.05 ug/kg
RT: 24.37 min Scan# 3382
Delta R.T. -0.13 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:39 am

Tgt Ion:252 Resp: 1174

Ion	Ratio	Lower	Upper
252	100		
253	34.7	2.2	42.2
125	11.2	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080427.D Vial: 27
Acq On : 5 Aug 2016 1:19 am Operator: DEW
Sample : 1607256-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

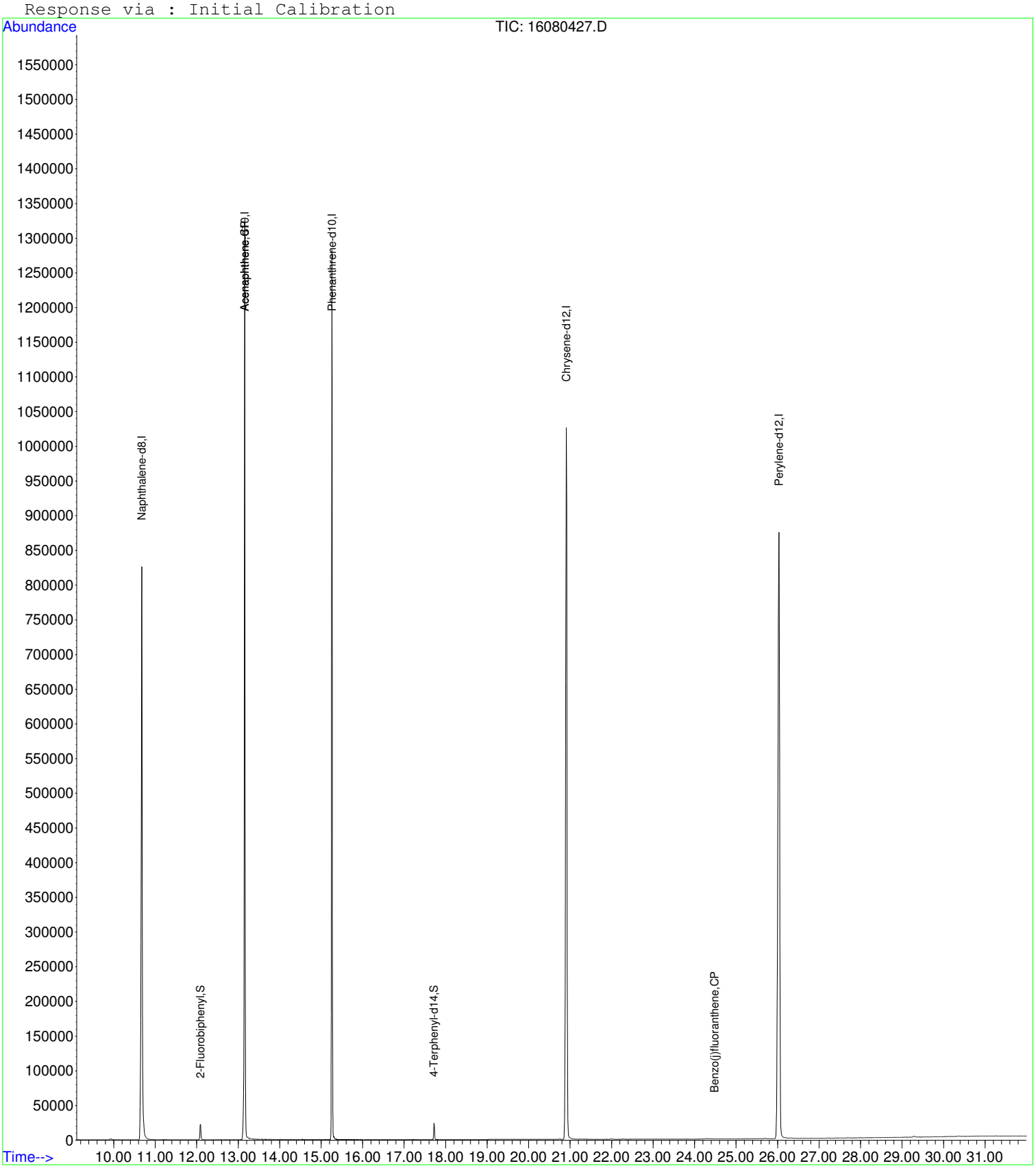
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1454729	4000.00	ug/kg	104
5) Acenaphthene-d10	13.16	164	840272	4000.00	ug/kg	140
11) Phenanthrene-d10	15.26	188	1463154	4000.00	ug/kg	92
17) Chrysene-d12	20.91	240	1733499	4000.00	ug/kg	95
20) Perylene-d12	26.03	264	1795271	4000.00	ug/kg	93
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	26418	90.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.25%#		
16) 4-Terphenyl-d14	17.72	244	33948	98.32	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.46%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2910	13.50	ug/kg#	10
23) Benzo(j)fluoranthene	24.48	252	62	0.17	ug/kg#	1

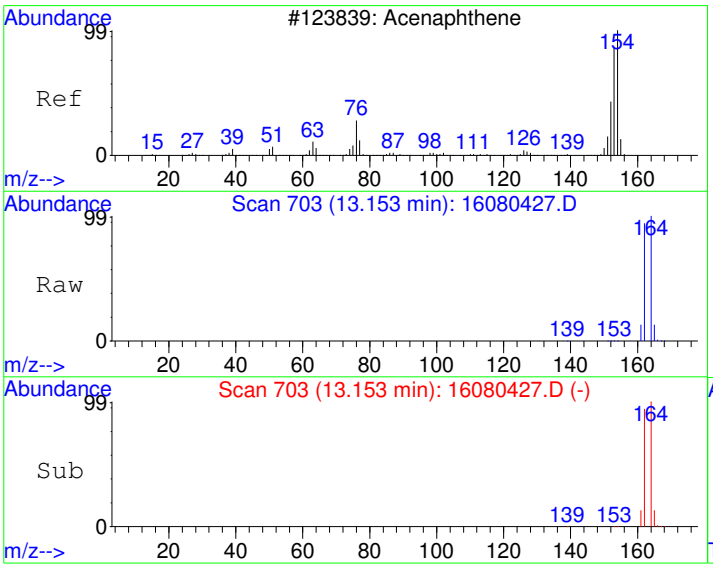
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080427.D Vial: 27
Acq On : 5 Aug 2016 1:19 am Operator: DEW
Sample : 1607256-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

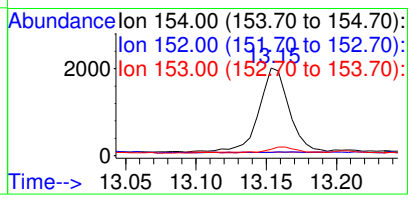


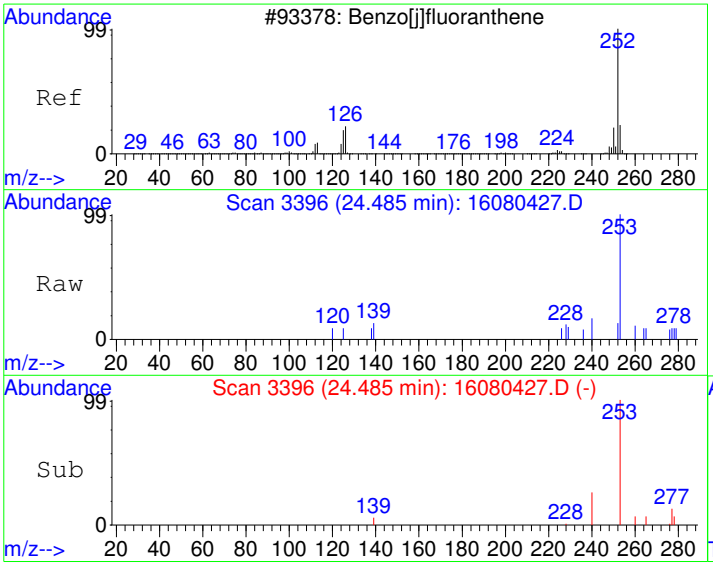


#9
Acenaphthene
Concen: ~~13.50 ug/kg~~
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080427.D
Acq: 5 Aug 2016 1:19 am

Tgt Ion:154 Resp: 2910

Ion	Ratio	Lower	Upper
154	100		
152	0.2	19.1	79.1#
153	4.5	76.2	136.2#

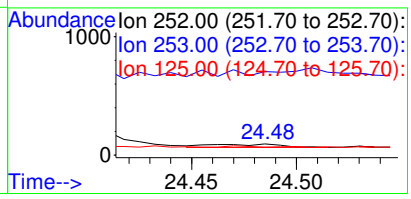




#23
Benzo(j)fluoranthene
Concen: 0.17 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.02 min
Lab File: 16080427.D
Acq: 5 Aug 2016 1:19 am

Tgt Ion:252 Resp: 62

Ion	Ratio	Lower	Upper
252	100		
253	160.7	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080428.D Vial: 28
Acq On : 5 Aug 2016 1:59 am Operator: DEW
Sample : 1607256-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:33 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

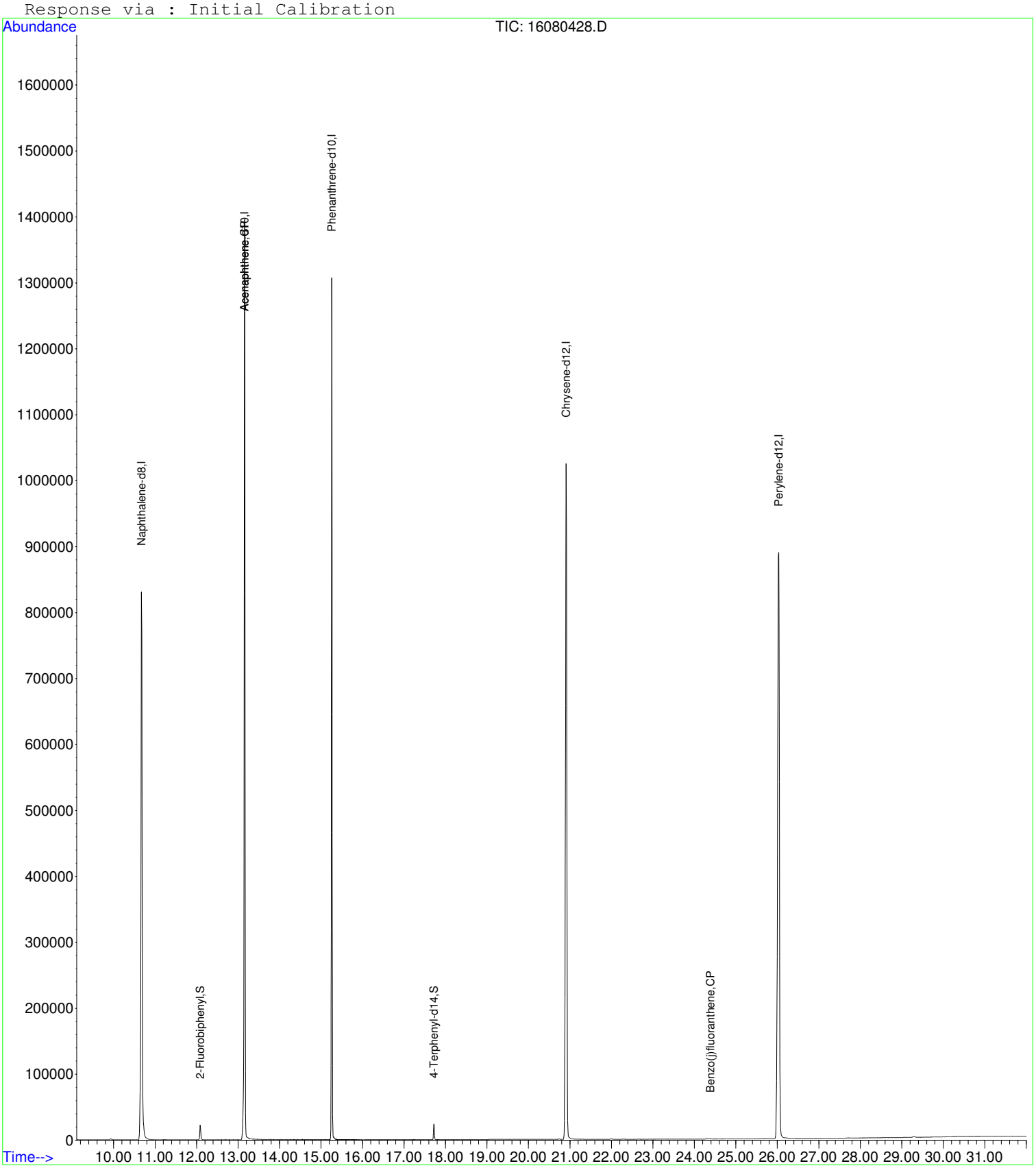
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1494319	4000.00	ug/kg	106
5) Acenaphthene-d10	13.16	164	866478	4000.00	ug/kg	145
11) Phenanthrene-d10	15.26	188	1474847	4000.00	ug/kg	93
17) Chrysene-d12	20.91	240	1744440	4000.00	ug/kg	95
20) Perylene-d12	26.03	264	1810420	4000.00	ug/kg	94
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	26551	87.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.20%#		
16) 4-Terphenyl-d14	17.72	244	32855	94.40	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.36%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3000	~~13.50 ug/kg#~~		~~10~~
23) Benzo(j)fluoranthene	24.39	252	1227	3.33	ug/kg	69

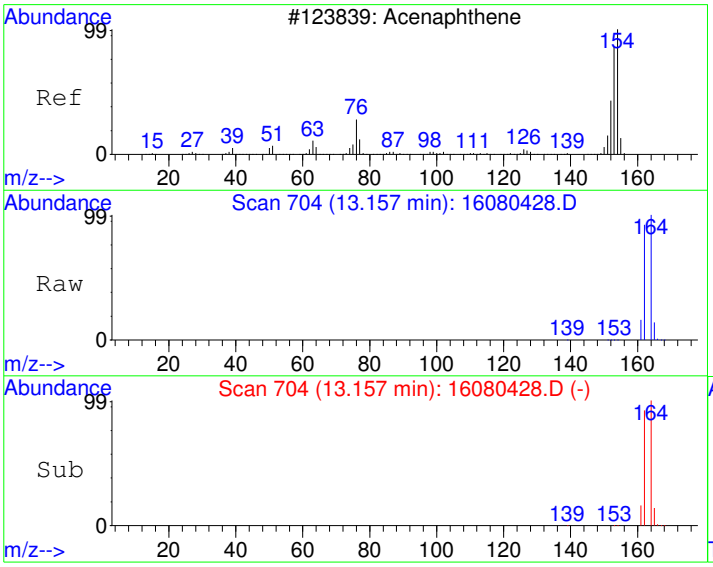
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080428.D Vial: 28
Acq On : 5 Aug 2016 1:59 am Operator: DEW
Sample : 1607256-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:33 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

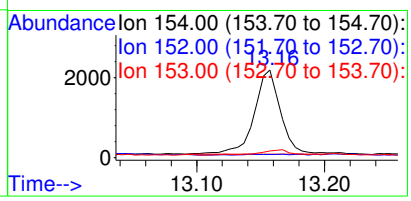


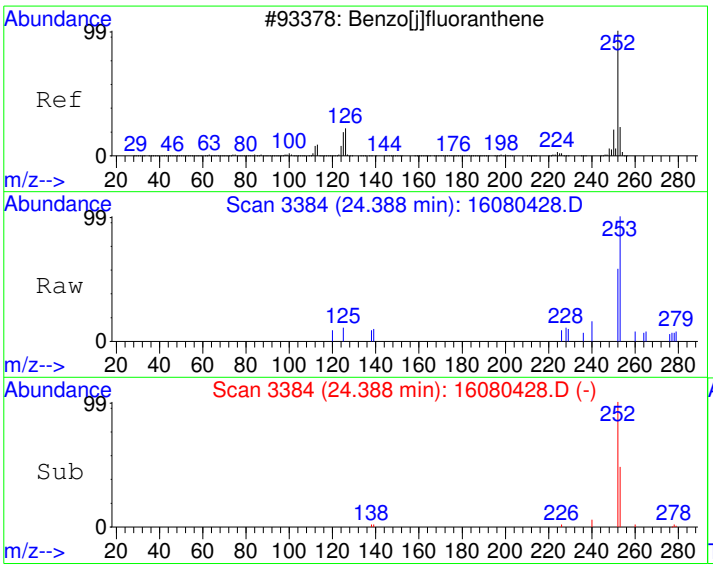


#9
Acenaphthene
Concen: ~~13.50 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.06 min
Lab File: 16080428.D
Acq: 5 Aug 2016 1:59 am

Tgt Ion:154 Resp: 3000

Ion	Ratio	Lower	Upper
154	100		
152	0.1	19.1	79.1#
153	4.3	76.2	136.2#

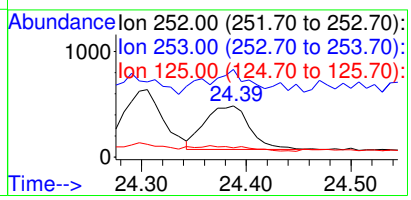




#23
Benzo(j)fluoranthene
Concen: 3.33 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.12 min
Lab File: 16080428.D
Acq: 5 Aug 2016 1:59 am

Tgt Ion:252 Resp: 1227

Ion	Ratio	Lower	Upper
252	100		
253	38.9	2.2	42.2
125	3.9	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080429.D Vial: 29
Acq On : 5 Aug 2016 2:39 am Operator: DEW
Sample : 1607256-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:33 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

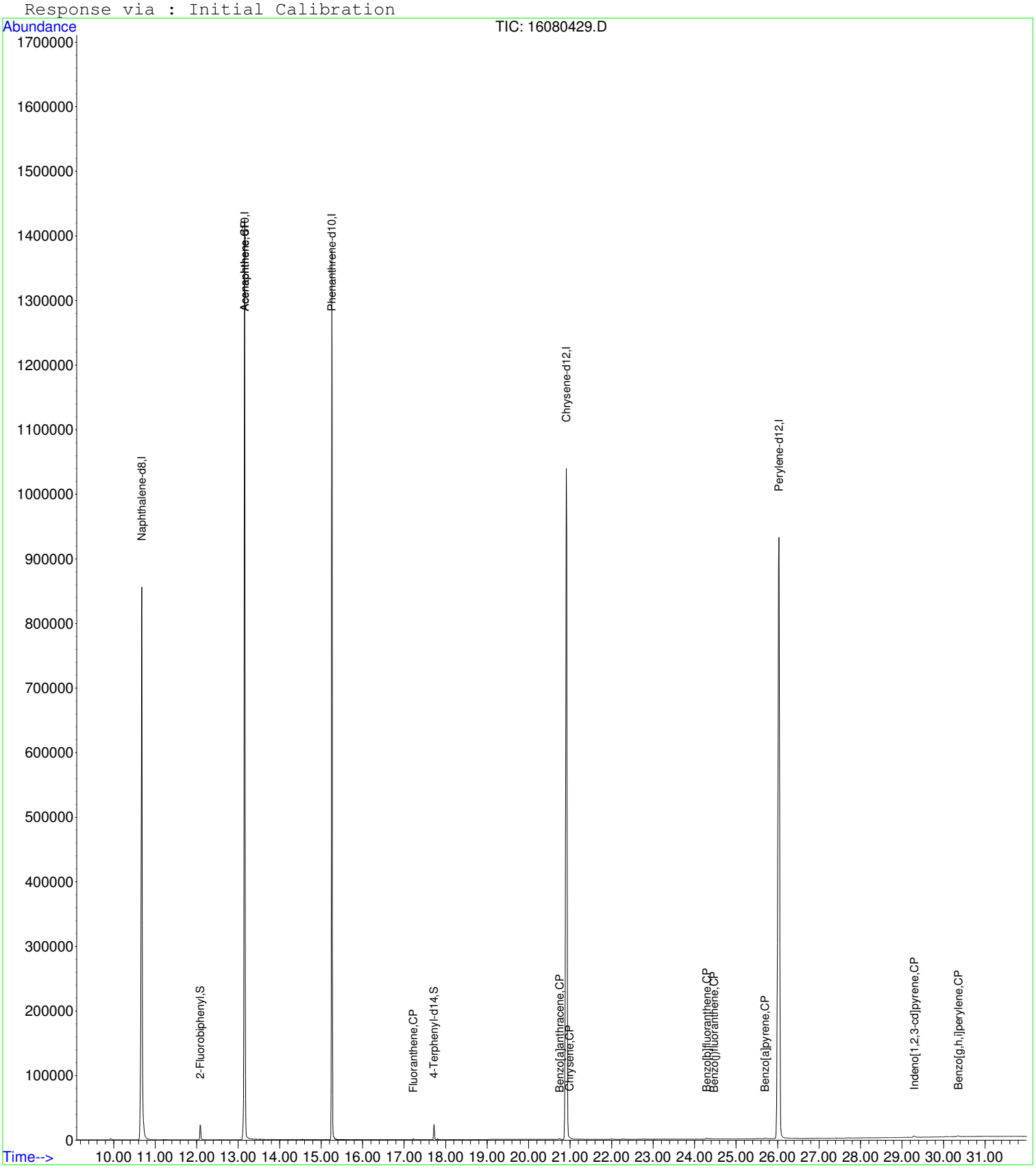
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1499845	4000.00 ug/kg	107
5) Acenaphthene-d10	13.16	164	887704	4000.00 ug/kg	148
11) Phenanthrene-d10	15.26	188	1562827	4000.00 ug/kg	98
17) Chrysene-d12	20.91	240	1804350	4000.00 ug/kg	98
20) Perylene-d12	26.03	264	1857199	4000.00 ug/kg	96
System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.09	172	26693	86.21 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#	
16) 4-Terphenyl-d14	17.72	244	33465	90.74 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.27%#	
Target Compounds					Qvalue
9) Acenaphthene	13.15	154	3041	13.36 ug/kg#	10
14) Fluoranthene	17.22	202	2210	5.03 ug/kg	97
18) Benzo[a]anthracene	20.75	228	2064	5.08 ug/kg	97
19) Chrysene	20.99	228	2342	5.99 ug/kg	96
21) Benzo[b]fluoranthene	24.29	252	3135	7.31 ug/kg	96
23) Benzo(j)fluoranthene	24.48	252	673	1.78 ug/kg	91
25) Benzo[a]pyrene	25.70	252	2488	6.01 ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.29	276	2941	6.18 ug/kg	90
28) Benzo[g,h,i]perylene	30.35	276	2834	7.11 ug/kg	98

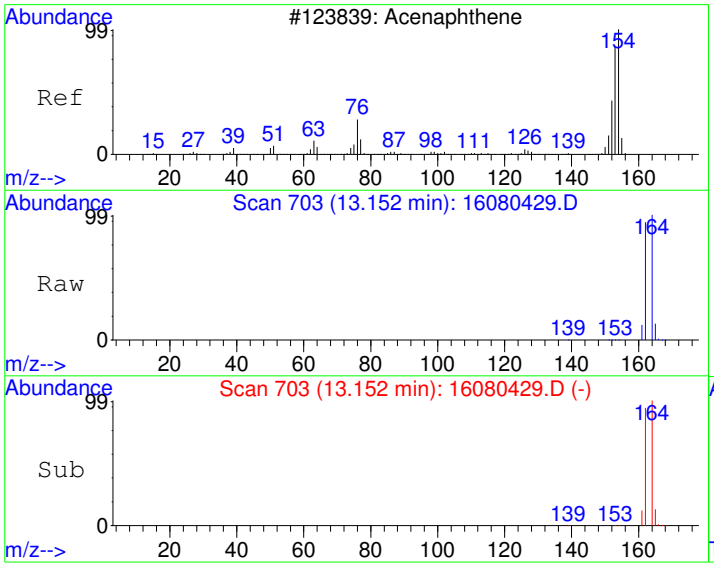
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080429.D Vial: 29
Acq On : 5 Aug 2016 2:39 am Operator: DEW
Sample : 1607256-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:33 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

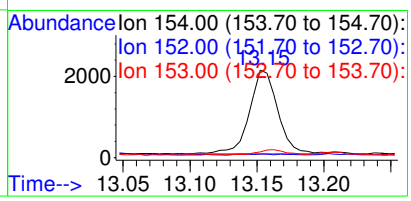


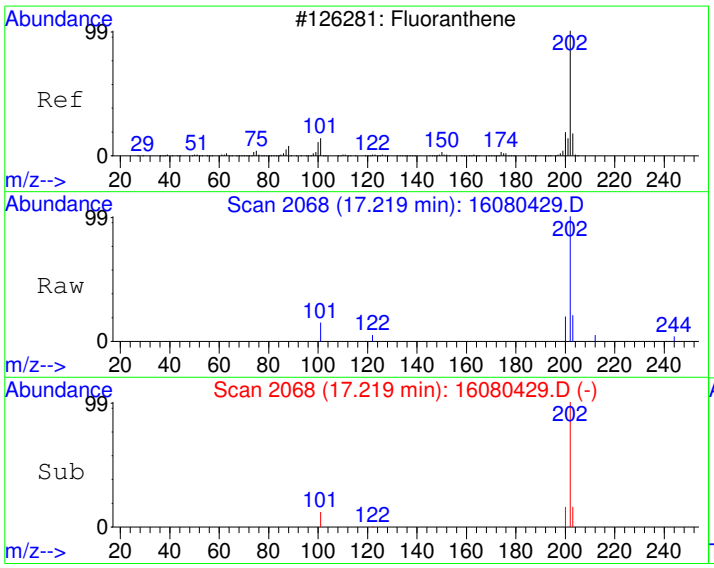


#9
Acenaphthene
Concen: ~~13.36 ug/kg~~
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:154 Resp: 3041

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	3.4	76.2	136.2#

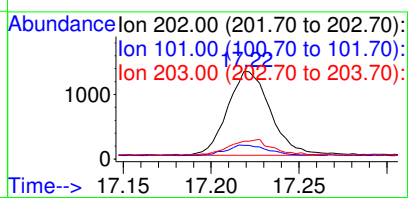


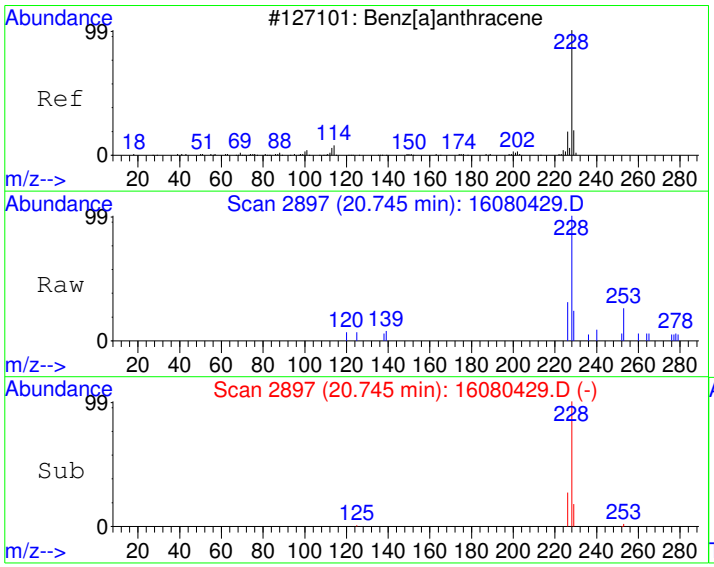


#14
Fluoranthene
Concen: 5.03 ug/kg
RT: 17.22 min Scan# 2068
Delta R.T. -0.01 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:202 Resp: 2210

Ion	Ratio	Lower	Upper
202	100		
101	11.6	0.0	42.1
203	16.0	0.0	47.9

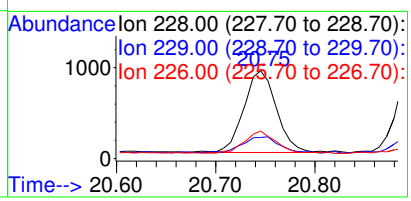


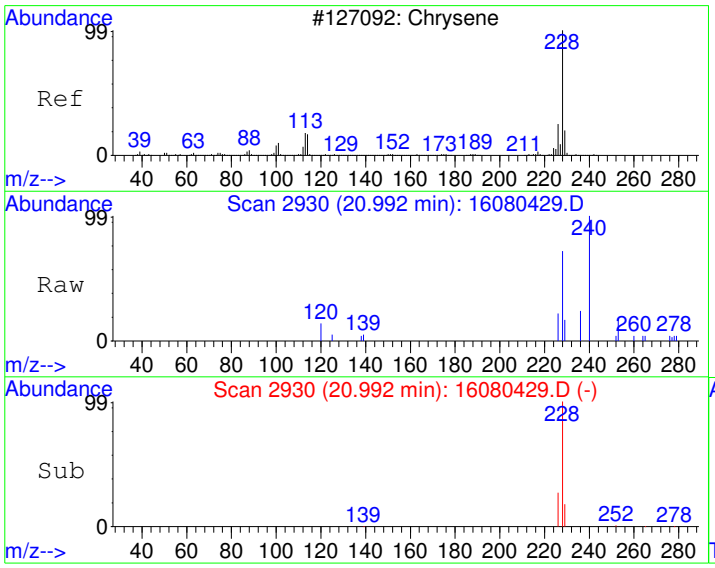


#18
Benzo[a]anthracene
Concen: 5.08 ug/kg
RT: 20.75 min Scan# 2897
Delta R.T. -0.02 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:228 Resp: 2064

Ion	Ratio	Lower	Upper
228	100		
229	18.6	0.0	49.8
226	27.1	0.0	55.8

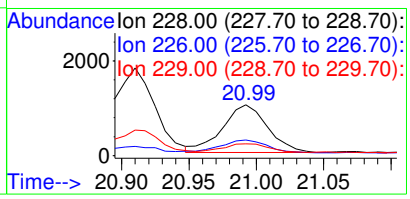


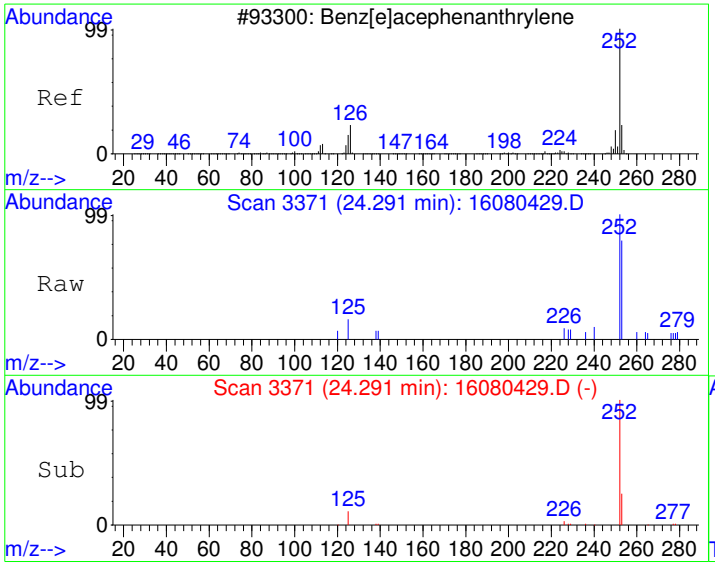


#19
Chrysene
Concen: 5.99 ug/kg
RT: 20.99 min Scan# 2930
Delta R.T. -0.03 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:228 Resp: 2342

Ion	Ratio	Lower	Upper
228	100		
226	27.2	0.0	58.1
229	16.9	0.0	50.0

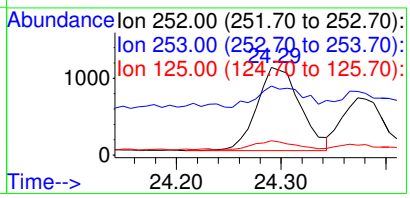


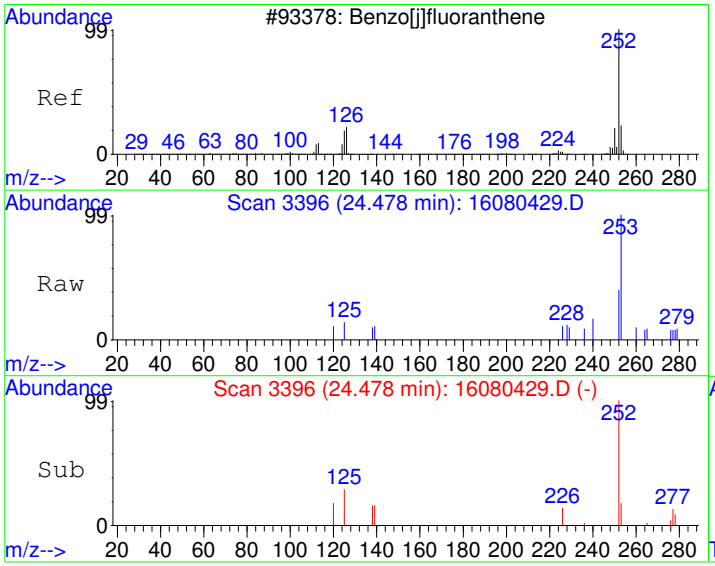


#21
Benzo[b]fluoranthene
Concen: 7.31 ug/kg
RT: 24.29 min Scan# 3371
Delta R.T. -0.04 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:252 Resp: 3135

Ion	Ratio	Lower	Upper
252	100		
253	24.4	0.0	52.0
125	10.1	0.0	40.6

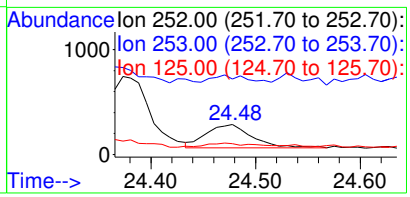


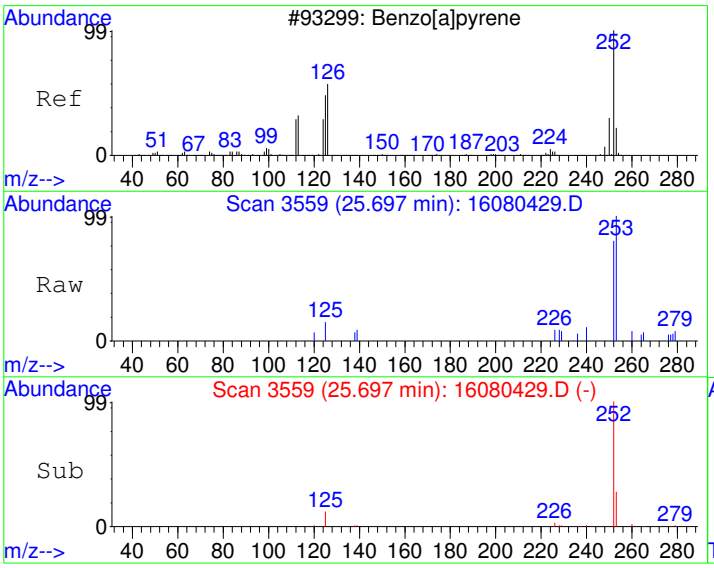


#23
Benzo(j)fluoranthene
Concen: 1.78 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.03 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:252 Resp: 673

Ion	Ratio	Lower	Upper
252	100		
253	26.7	2.2	42.2
125	10.9	0.0	34.4

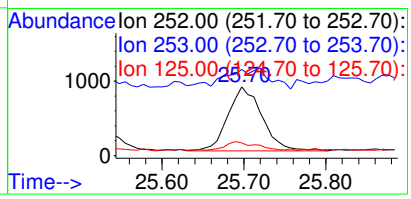


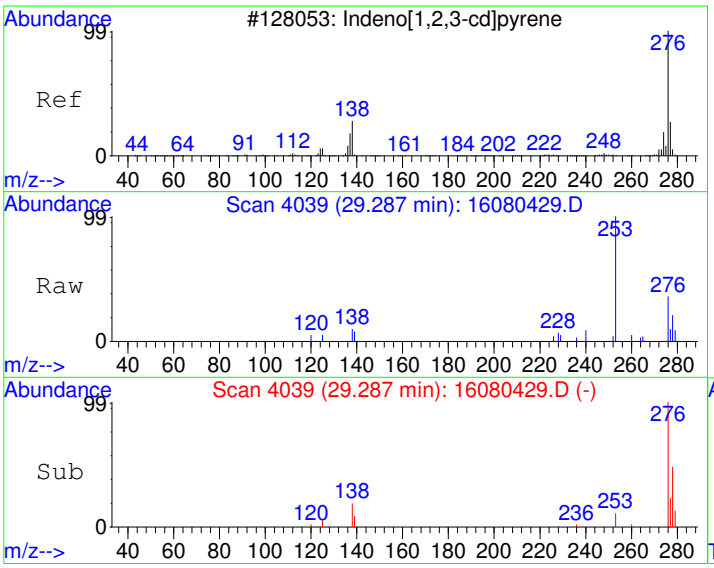


#25
Benzo[a]pyrene
Concen: 6.01 ug/kg
RT: 25.70 min Scan# 3559
Delta R.T. -0.04 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:252 Resp: 2488

Ion	Ratio	Lower	Upper
252	100		
253	25.6	2.0	42.0
125	11.6	0.0	31.6

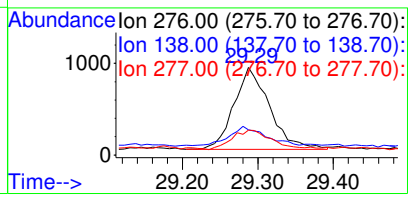


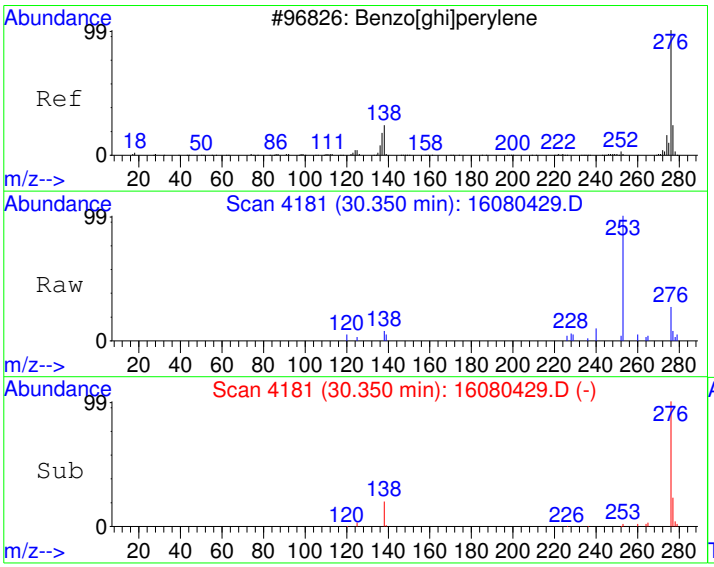


#27
Indeno[1,2,3-cd]pyrene
Concen: 6.18 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.04 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:276 Resp: 2941

Ion	Ratio	Lower	Upper
276	100		
138	18.7	4.8	44.8
277	21.5	5.6	45.6

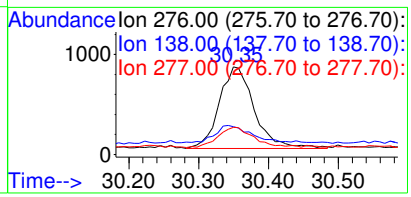




#28
Benzo[g,h,i]perylene
Concen: 7.11 ug/kg
RT: 30.35 min Scan# 4181
Delta R.T. -0.04 min
Lab File: 16080429.D
Acq: 5 Aug 2016 2:39 am

Tgt Ion:276 Resp: 2834

Ion	Ratio	Lower	Upper
276	100		
138	19.2	0.0	38.1
277	24.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080430.D Vial: 30
Acq On : 5 Aug 2016 3:18 am Operator: DEW
Sample : 1607256-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:33 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

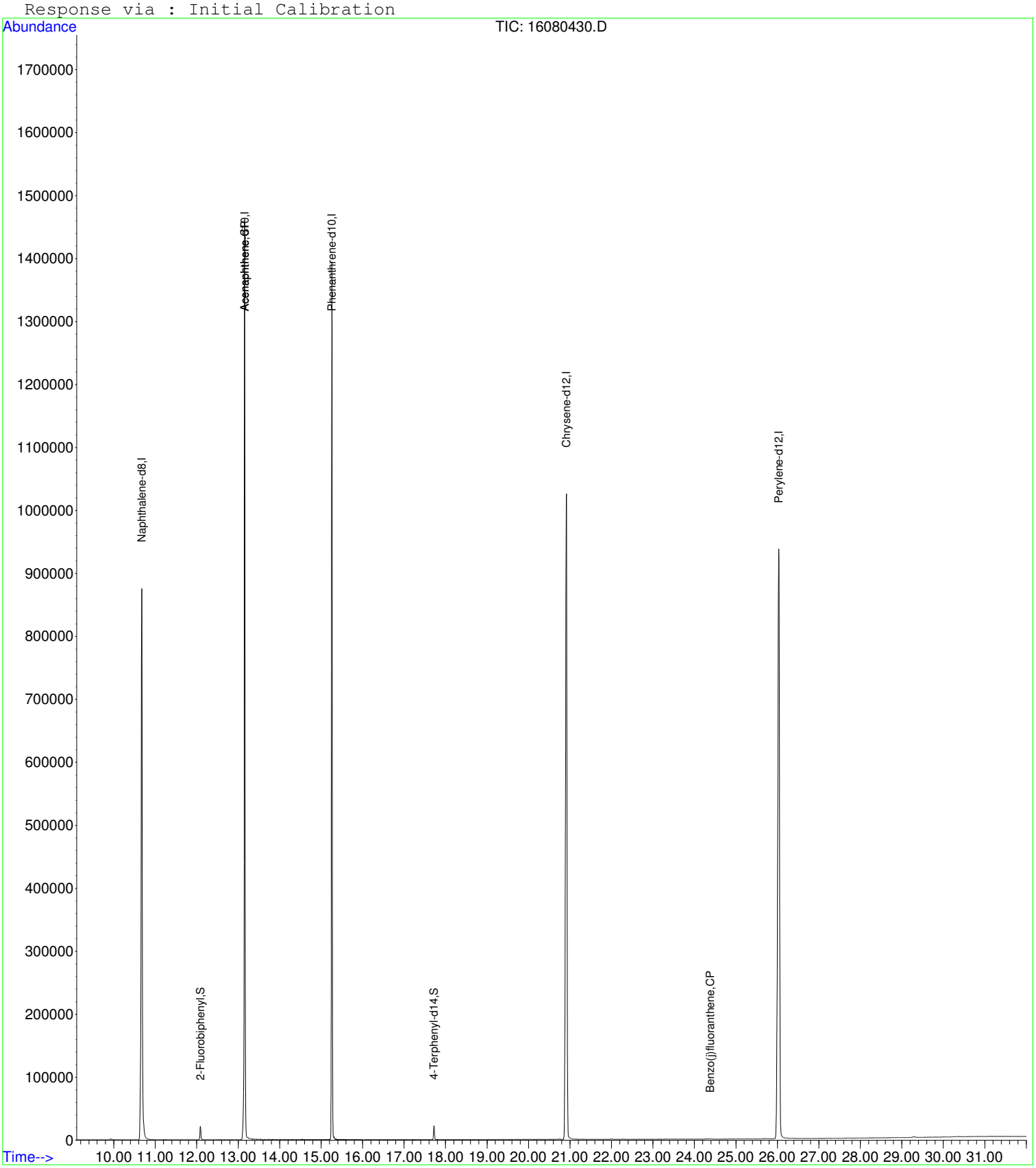
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1542110	4000.00	ug/kg	110
5) Acenaphthene-d10	13.16	164	899971	4000.00	ug/kg	150
11) Phenanthrene-d10	15.26	188	1579130	4000.00	ug/kg	99
17) Chrysene-d12	20.92	240	1864101	4000.00	ug/kg	102
20) Perylene-d12	26.03	264	1907045	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	25223	80.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
16) 4-Terphenyl-d14	17.72	244	32439	87.05	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#		
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	3052	~~13.22 ug/kg#~~		~~11~~
23) Benzo(j)fluoranthene	24.37	252	1276	3.29	ug/kg	83

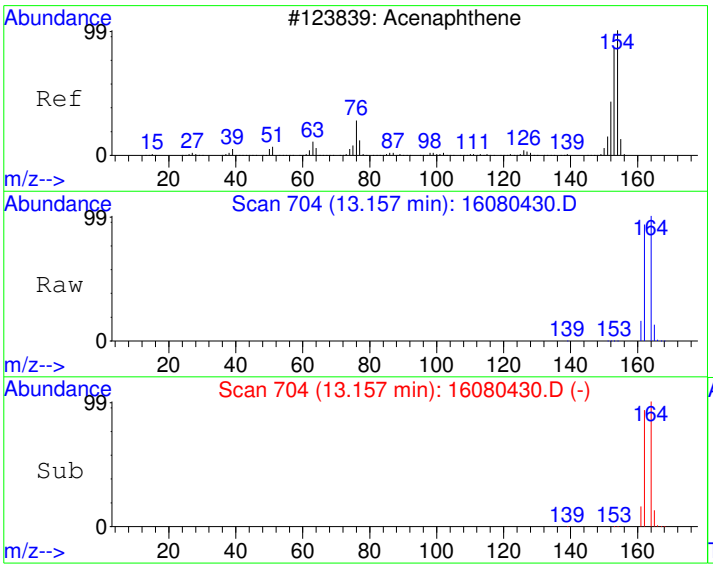
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080430.D Vial: 30
Acq On : 5 Aug 2016 3:18 am Operator: DEW
Sample : 1607256-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:33 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

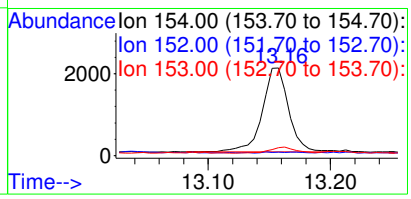


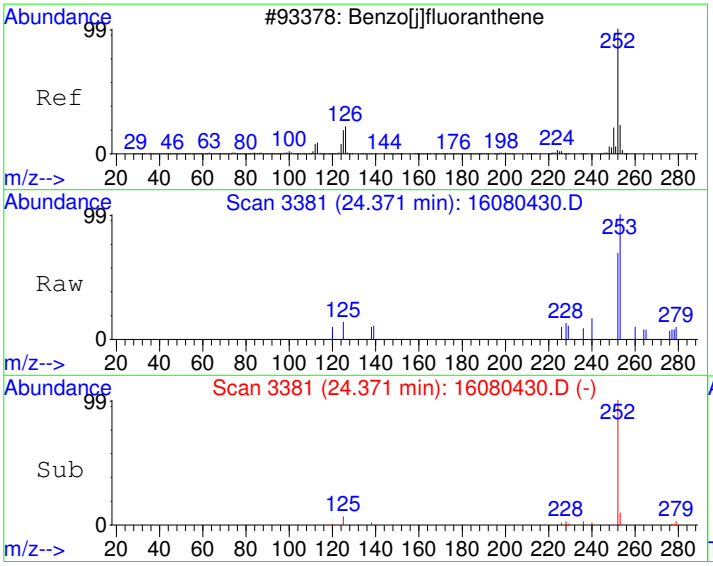


#9
Acenaphthene
Concen: ~~13.22 ug/kg~~
RT: 13.16 min Scan# 704
Delta R.T. -0.05 min
Lab File: 16080430.D
Acq: 5 Aug 2016 3:18 am

Tgt Ion:154 Resp: 3052

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	6.0	76.2	136.2#

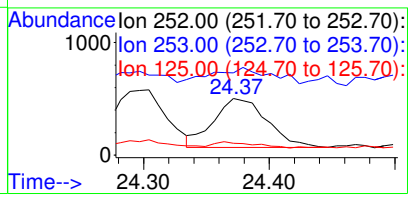




#23
Benzo(j)fluoranthene
Concen: 3.29 ug/kg
RT: 24.37 min Scan# 3381
Delta R.T. -0.14 min
Lab File: 16080430.D
Acq: 5 Aug 2016 3:18 am

Tgt Ion:252 Resp: 1276

Ion	Ratio	Lower	Upper
252	100		
253	13.9	2.2	42.2
125	7.6	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160804\16080431.D Vial: 31
Acq On : 5 Aug 2016 3:58 am Operator: DEW
Sample : CCV1-160804 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

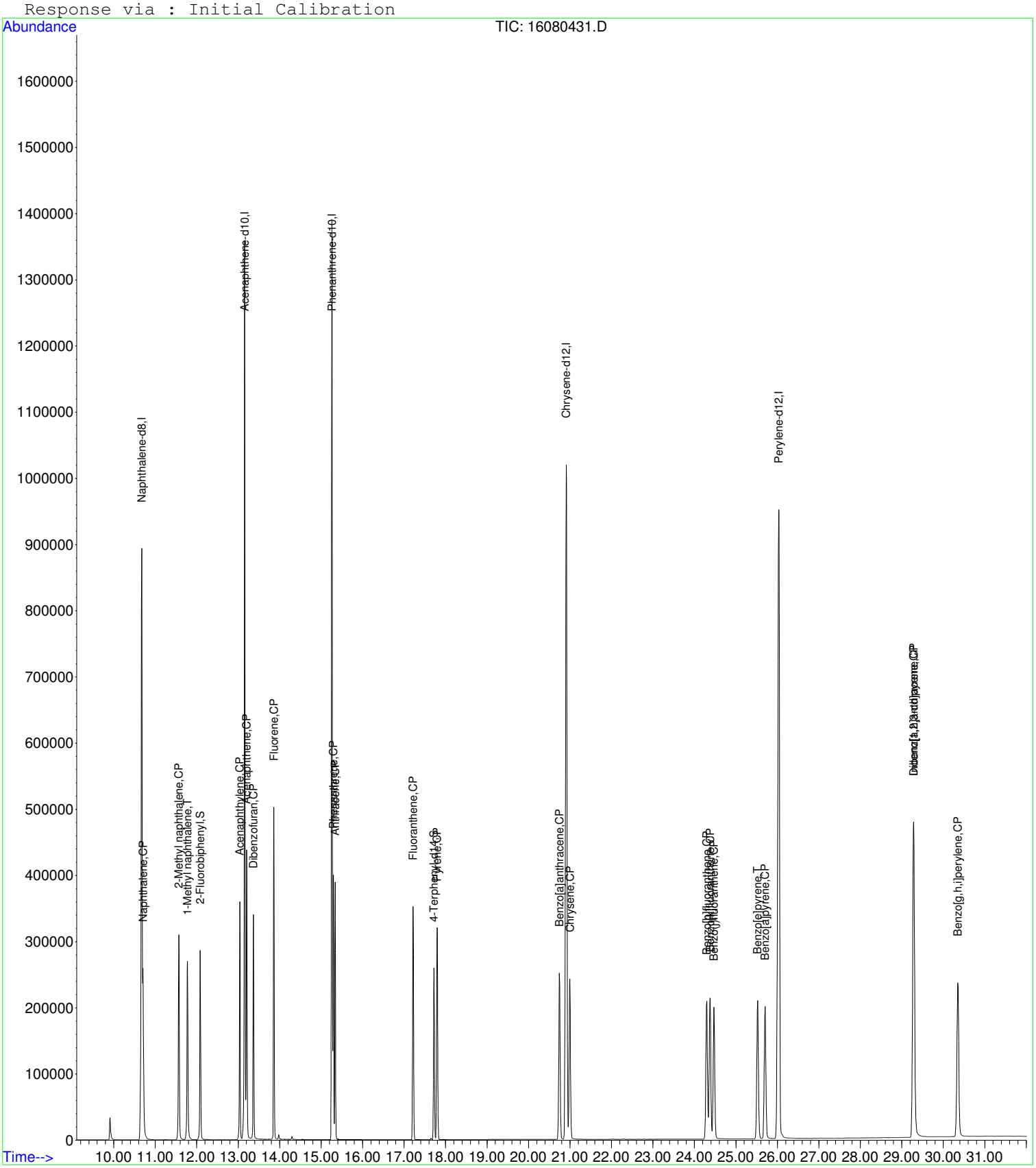
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1440503	4000.00	ug/kg	103
5) Acenaphthene-d10	13.16	164	836103	4000.00	ug/kg	139
11) Phenanthrene-d10	15.26	188	1622422	4000.00	ug/kg	102
17) Chrysene-d12	20.91	240	1856539	4000.00	ug/kg	101
20) Perylene-d12	26.03	264	1942760	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	288003	987.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.69%#			
16) 4-Terphenyl-d14	17.72	244	361260	943.55	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.59%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	306625	935.55	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	218052	1026.26	ug/kg	95
4) 1-Methyl naphthalene	11.78	142	195135	1036.84	ug/kg	99
6) Dibenzofuran	13.37	168	327802	968.80	ug/kg	100
8) Acenaphthylene	13.04	152	354014	956.13	ug/kg	100
9) Acenaphthene	13.20	154	212056	988.89	ug/kg	99
10) Fluorene	13.86	166	269603	1000.18	ug/kg	99
12) Phenanthrene	15.29	178	358296	931.49	ug/kg	99
13) Anthracene	15.34	178	355138	877.44	ug/kg	99
14) Fluoranthene	17.22	202	374319	821.16	ug/kg	99
15) Pyrene	17.80	202	372395	805.68	ug/kg	100
18) Benzo[a]anthracene	20.74	228	381659	912.07	ug/kg	100
19) Chrysene	21.00	228	358197	889.78	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	422095	941.13	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	393249	955.76	ug/kg	99
23) Benzo(j)fluoranthene	24.47	252	366691	927.37	ug/kg	99
24) Benzo[e]pyrene	25.52	252	409084	939.91	ug/kg	99
25) Benzo[a]pyrene	25.70	252	400858	925.04	ug/kg	99
26) Dibenz[a,h]anthracene	29.28	278	459710	1096.25	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	553444	1112.16	ug/kg	97
28) Benzo[g,h,i]perylene	30.35	276	480138	1151.98	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160804\16080431.D Vial: 31
Acq On : 5 Aug 2016 3:58 am Operator: DEW
Sample : CCV1-160804 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 5 13:23 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1607256

CAL ID: 676

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PP160725.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160725	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160725-1	1

Standards Used for the Calibration Curve

Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160725**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160725-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Karyn Lane Date: 07/25/2016

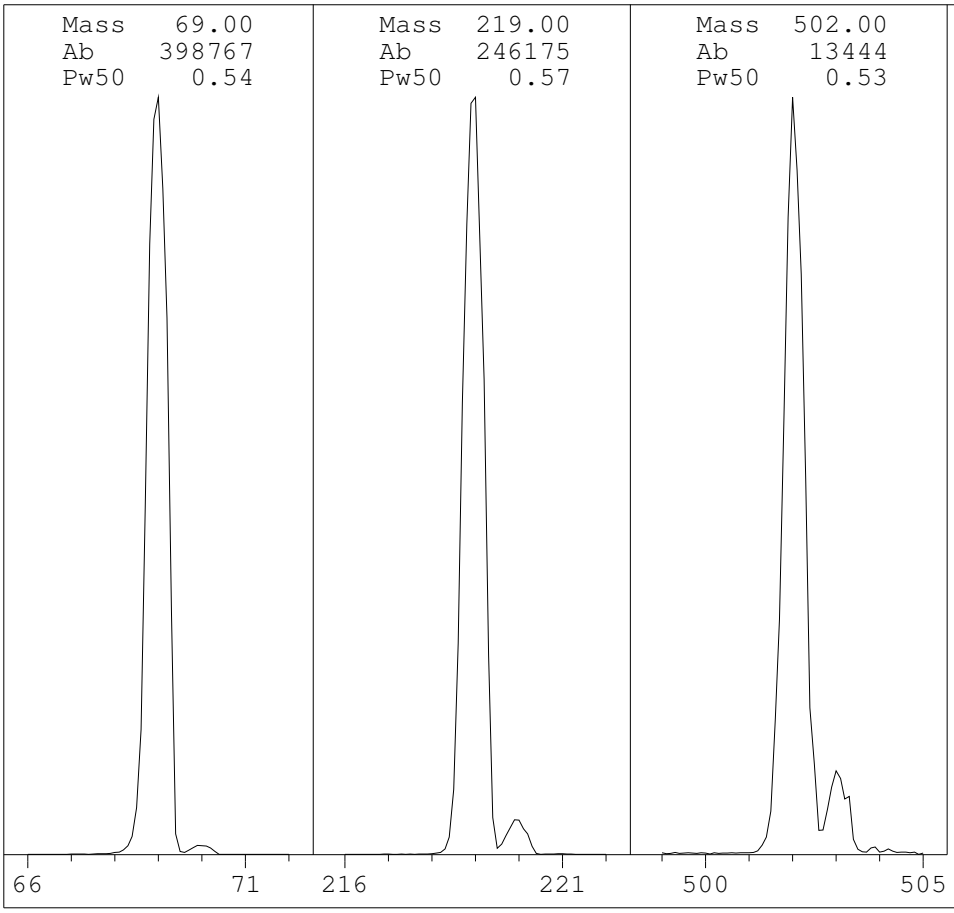
Second-Level Review: Don Winston Date: 07/29/2016

Spiked and ran by Don Winston. Reviewed by Karyn Lane.

HP5973

Instrument: GC/MS #6

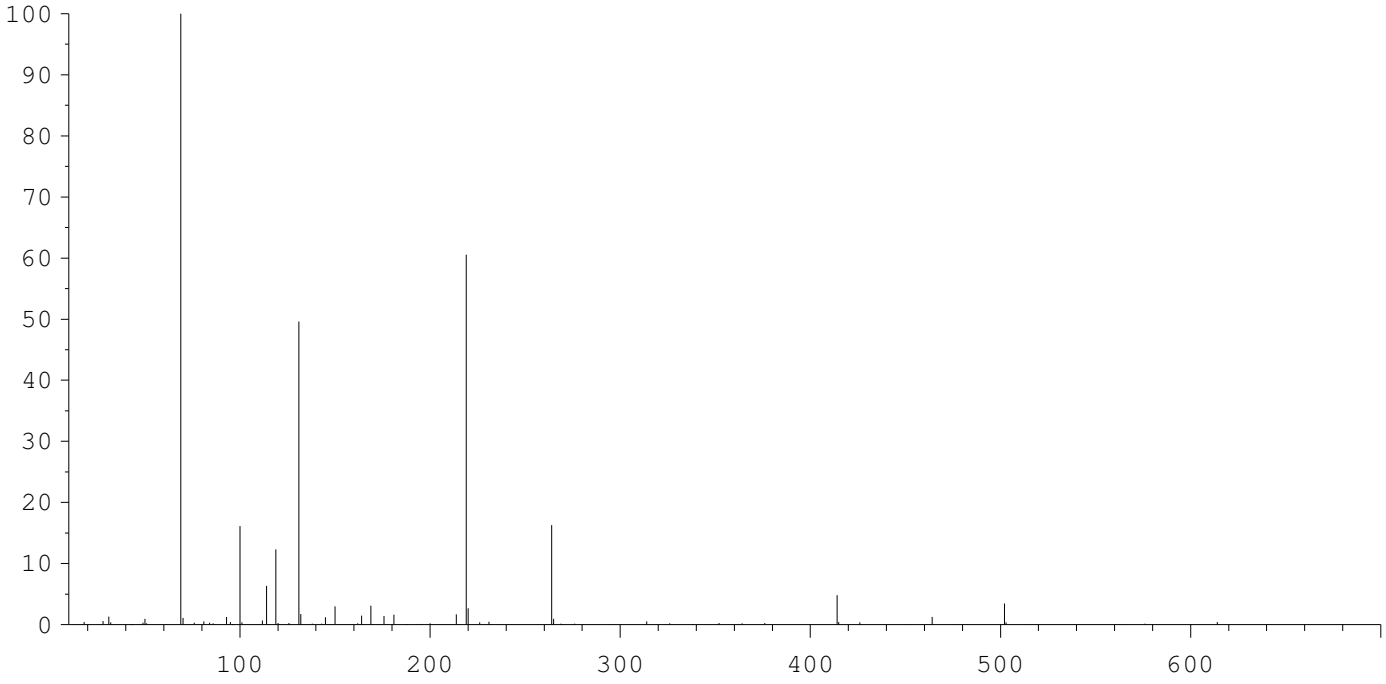
Mon Jul 25 13:16:58 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2195
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	80.7	HED	ON
EntLens	14.0	EMVolts	1565
EntOffs	16.06		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	82
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

113 peaks Base: 69.00 Abundance: 355392



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	355392	100.00	70.00	3847	1.08
219.00	215296	60.58	220.00	9408	4.37
502.00	12326	3.47	503.00	1362	11.05

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	49.6	38.6	4.8	3.5

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160725.M
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response Via : Initial Calibration

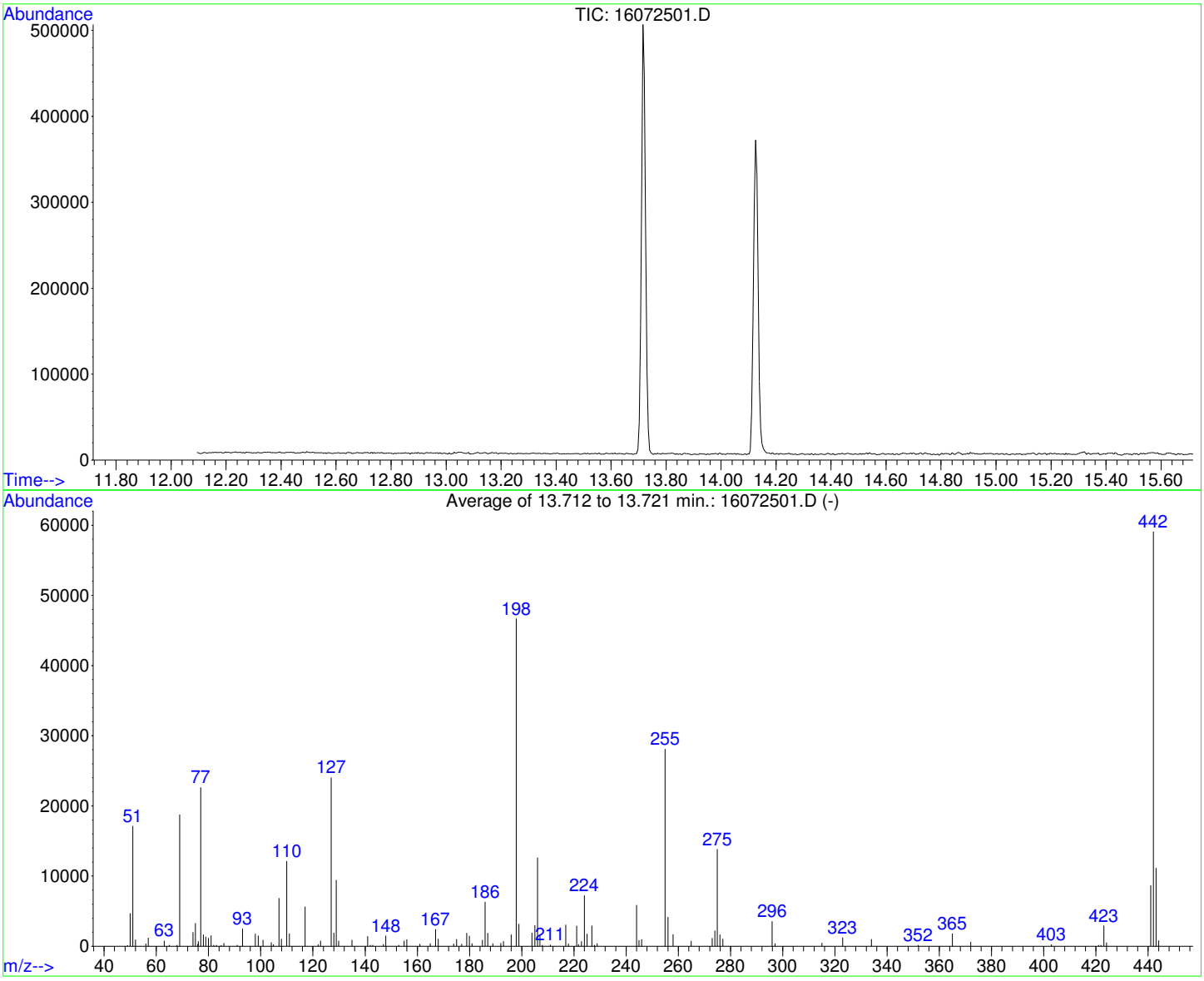
REVIEWED/APPROVED
By Sherri Herschmann at 10:01:48 AM, 7/29/2016

Calibration Files
1 =16072502.D 2 =16072503.D 3 =16072504.D 4 =16072505.D 5 =16072506.D 6 =16072507.D 7 =16072508.D
8 =16072509.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	CP	Naphthalene	1.190	0.956	0.872	0.883	0.854	0.825	0.857	0.840	0.910	13.19	A	0.1319	0.0000	0.9096	0.0000
3)	CP	2-Methyl napht...	0.690	0.707	0.650	0.677	0.635	0.620	0.647	0.633	0.657	4.67	A	0.0467	0.0000	0.6574	0.0000
4)	T	1-Methyl napht...	0.682	0.616	0.595	0.622	0.584	0.567	0.592	0.580	0.605	5.98	A	0.0598	0.0000	0.6047	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	2.017	1.701	1.513	1.580	1.513	1.444	1.489	1.449	1.588	12.08#	A	0.1208	0.0000	1.5882	0.0000
7)	S	2-Fluorobiphenyl	2.420	1.811	1.425	1.392	1.317	1.275	1.301	1.298	1.530	26.11	*Q	0.9999	0.0014	1.2904	0.0053
8)	CP	Acenaphthylene	2.010	1.771	1.654	1.718	1.689	1.659	1.714	1.708	1.741	6.61	A	0.0661	0.0000	1.7405	0.0000
9)	CP	Acenaphthene	1.169	1.084	1.013	1.035	1.006	0.967	0.999	0.998	1.034	6.21	A	0.0621	0.0000	1.0338	0.0000
10)	CP	Fluorene	1.478	1.317	1.267	1.306	1.266	1.203	1.256	1.242	1.292	6.43	A	0.0643	0.0000	1.2918	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	0.924	0.831	0.758	0.738	0.715	0.688	0.703	0.700	0.757	10.75	A	0.1075	0.0000	0.7569	0.0000
13)	CP	Anthracene	0.911	0.831	0.776	0.766	0.752	0.713	0.724	0.726	0.775	8.61	A	0.0861	0.0000	0.7748	0.0000
14)	CP	Fluoranthene	1.135	0.980	0.966	0.895	0.918	0.870	0.849	0.832	0.931	10.50	A	0.1050	0.0000	0.9307	0.0000
15)	CP	Pyrene	1.243	1.023	0.995	0.917	0.923	0.874	0.848	0.845	0.958	13.76	A	0.1376	0.0000	0.9584	0.0000
16)	S	4-Terphenyl-d14		2.590	1.312	1.045	0.937	0.870	0.827	0.820	1.200	53.03	*Q	0.9995	0.0046	0.8576	-0.0351
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	0.968	0.906	0.811	0.825	0.839	0.822	0.845	0.847	0.858	6.19	A	0.0619	0.0000	0.8576	0.0000
19)	CP	Chrysene	0.935	0.872	0.779	0.789	0.779	0.762	0.774	0.772	0.808	7.66	A	0.0766	0.0000	0.8077	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	1.089	0.949	0.862	0.882	0.873	0.853	0.902	0.902	0.914	8.41	A	0.0841	0.0000	0.9140	0.0000
22)	CP	Benzo[k]fluora...	1.018	0.909	0.812	0.836	0.788	0.811	0.779	0.752	0.838	10.30	A	0.1030	0.0000	0.8379	0.0000
23)	CP	Benzo(j)fluora...	0.875	0.837	0.755	0.787	0.775	0.761	0.778	0.779	0.793	5.21	A	0.0521	0.0000	0.7933	0.0000
24)	T	Benzo[e]pyrene	1.003	0.927	0.833	0.854	0.836	0.814	0.843	0.835	0.868	7.37	A	0.0737	0.0000	0.8683	0.0000
25)	CP	Benzo[a]pyrene	1.056	0.887	0.812	0.830	0.818	0.814	0.835	0.841	0.862	9.54	A	0.0954	0.0000	0.8617	0.0000
26)	CP	Dibenz[a,h]ant...	1.037	0.946	0.874	0.873	0.857	0.842	0.859	0.857	0.893	7.40	A	0.0740	0.0000	0.8930	0.0000
27)	CP	Indeno[1,2,3-c...	1.277	1.161	1.037	1.045	1.025	1.000	1.017	1.018	1.072	9.01	A	0.0901	0.0000	1.0725	0.0000
28)	CP	Benzo[g,h,i]pe...	0.895	0.811	0.722	0.736	0.709	0.691	0.830	0.832	0.778	9.41	A	0.0941	0.0000	0.7783	0.0000

(#) = Out of Range

Data File : C:\HPCHEM\1\DATA\160725\16072501.D Vial: 1
Acq On : 25 Jul 2016 1:19 pm Operator: DEW
Sample : DFTPP-160725 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 345, 346, 347; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.7	17151	PASS
68	69	0.00	2	1.1	209	PASS
69	198	0.00	100	40.2	18768	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	24075	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	46696	PASS
199	198	5	9	6.8	3193	PASS
275	198	10	60	29.6	13841	PASS
365	198	1	200	3.9	1815	PASS
441	442	0.01	24	14.7	8680	PASS
442	198	50	400	126.6	59117	PASS
443	442	15	24	18.8	11143	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 10:04:29 AM, 7/29/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072502.D Vial: 2
Acq On : 25 Jul 2016 1:58 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

This is the lowest point, but 10 ppb is the lowest RL for any PAH test code. See next for reprocessed low point.

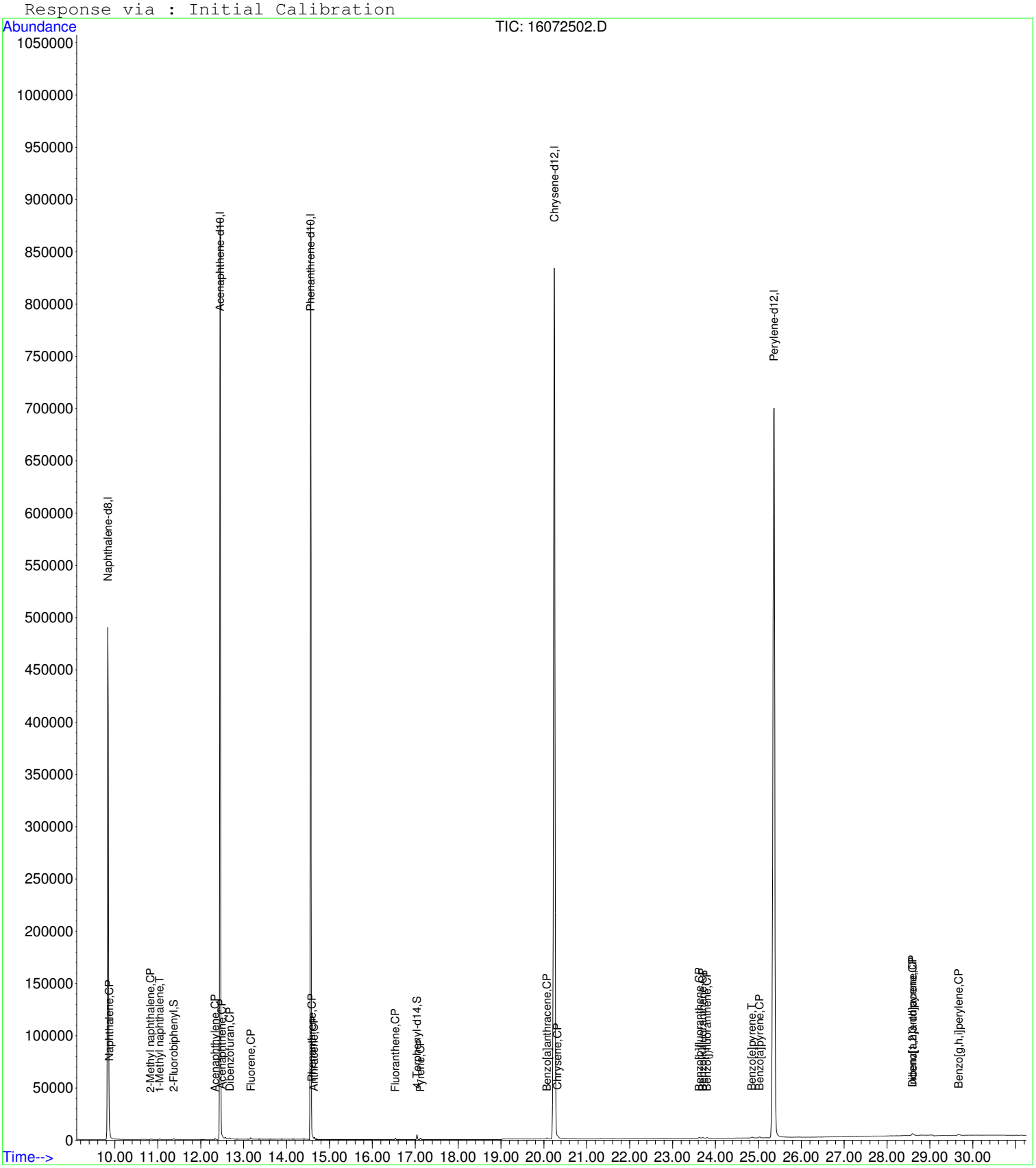
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	771810	4000.00	ug/kg	86
5) Acenaphthene-d10	12.45	164	494285	4000.00	ug/kg	87
11) Phenanthrene-d10	14.56	188	1234283	4000.00	ug/kg	82
17) Chrysene-d12	20.24	240	1461357	4000.00	ug/kg	91
20) Perylene-d12	25.37	264	1454753	4000.00	ug/kg	88
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	1495	4.95	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.12%#		
16) 4-Terphenyl-d14	17.04	244	7127	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	1148	6.54	ug/kg	97
3) 2-Methyl naphthalene	10.83	142	666	5.25	ug/kg	95
4) 1-Methyl naphthalene	11.04	142	658	5.64	ug/kg	95
6) Dibenzofuran	12.68	168	1246	6.35	ug/kg	93
8) Acenaphthylene	12.34	152	1242	5.77	ug/kg	97
9) Acenaphthene	12.50	154	722	5.65	ug/kg	99
10) Fluorene	13.17	166	913	5.72	ug/kg	98
12) Phenanthrene	14.60	178	1425	6.10	ug/kg	97
13) Anthracene	14.64	178	1406	5.88	ug/kg	95
14) Fluoranthene	16.54	202	1751	6.10	ug/kg	98
15) Pyrene	17.12	202	1918	6.49	ug/kg	99
18) Benzo[a]anthracene	20.07	228	1768	5.64	ug/kg	93
19) Chrysene	20.33	228	1708	5.79	ug/kg	98
21) Benzo[b]fluoranthene	23.62	252	1981	5.96	ug/kg	97
22) Benzo[k]fluoranthene	23.71	252	1851	6.07	ug/kg	97
23) Benzo(j)fluoranthene	23.80	252	1591	5.51	ug/kg	92
24) Benzo[e]pyrene	24.85	252	1824	5.78	ug/kg	81
25) Benzo[a]pyrene	25.03	252	1921	6.13	ug/kg	84
26) Dibenz[a,h]anthracene	28.60	278	1885	5.80	ug/kg	90
27) Indeno[1,2,3-cd]pyrene	28.61	276	2322	5.95	ug/kg	96
28) Benzo[g,h,i]perylene	29.67	276	1627	5.75	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072502.D Vial: 2
Acq On : 25 Jul 2016 1:58 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072503.D Vial: 3
Acq On : 25 Jul 2016 2:35 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

Reprocessed low point.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	886665	4000.00	ug/kg	99
5) Acenaphthene-d10	12.45	164	586227	4000.00	ug/kg	103
11) Phenanthrene-d10	14.56	188	1416475	4000.00	ug/kg	94
17) Chrysene-d12	20.24	240	1600505	4000.00	ug/kg	99
20) Perylene-d12	25.37	264	1621058	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	2654	9.61	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.24%#		
16) 4-Terphenyl-d14	17.04	244	9173	8.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.22%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	2120	10.51	ug/kg	99
3) 2-Methyl naphthalene	10.83	142	1568	10.76	ug/kg	98
4) 1-Methyl naphthalene	11.05	142	1365	10.18	ug/kg	98
6) Dibenzofuran	12.68	168	2493	10.71	ug/kg	99
8) Acenaphthylene	12.33	152	2596	10.18	ug/kg	99
9) Acenaphthene	12.50	154	1589	10.49	ug/kg	95
10) Fluorene	13.16	166	1930	10.19	ug/kg	89
12) Phenanthrene	14.60	178	2942	10.98	ug/kg	94
13) Anthracene	14.64	178	2942	10.72	ug/kg	99
14) Fluoranthene	16.53	202	3470	10.53	ug/kg	99
15) Pyrene	17.12	202	3623	10.67	ug/kg	97
18) Benzo[a]anthracene	20.08	228	3625	10.56	ug/kg	96
19) Chrysene	20.33	228	3488	10.79	ug/kg	96
21) Benzo[b]fluoranthene	23.62	252	3844	10.38	ug/kg	89
22) Benzo[k]fluoranthene	23.71	252	3682	10.84	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	3393	10.55	ug/kg	95
24) Benzo[e]pyrene	24.85	252	3757	10.68	ug/kg	98
25) Benzo[a]pyrene	25.03	252	3593	10.29	ug/kg	92
26) Dibenz[a,h]anthracene	28.60	278	3834	10.59	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.60	276	4706	10.83	ug/kg	96
28) Benzo[g,h,i]perylene	29.67	276	3288	10.42	ug/kg	91

Phenanthrene and Anthracene have the same area response, but the spectra was verified that 2 distinct peaks are observed (RT 14.60 and 14.64) and identified.

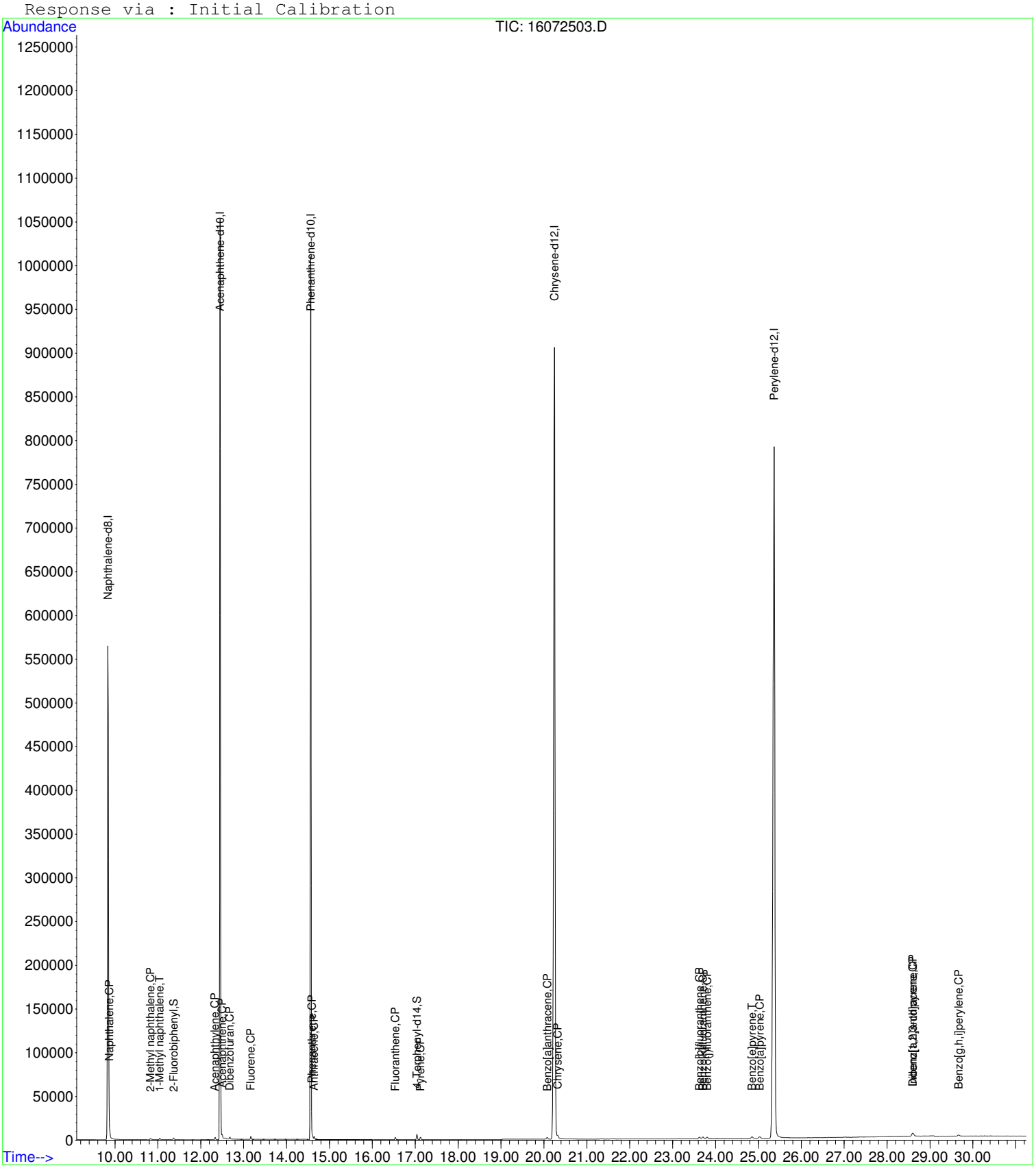
REVIEWED/APPROVED
By Sherri Herschmann at 10:16:08 AM, 7/29/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072503.D Vial: 3
Acq On : 25 Jul 2016 2:35 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072504.D Vial: 4
Acq On : 25 Jul 2016 3:13 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

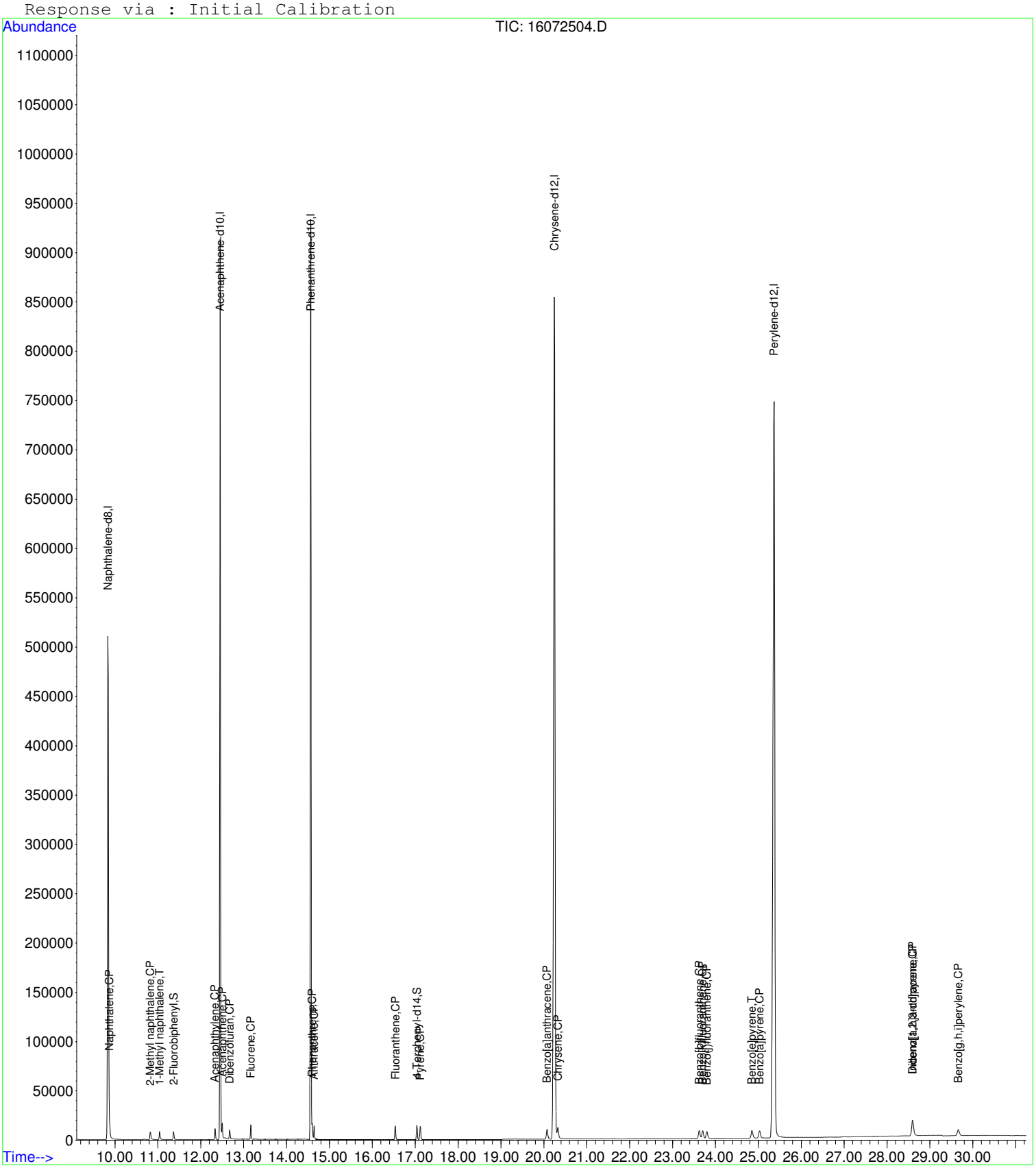
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	813295	4000.00	ug/kg	91
5) Acenaphthene-d10	12.45	164	521014	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1285991	4000.00	ug/kg	86
17) Chrysene-d12	20.24	240	1522749	4000.00	ug/kg	94
20) Perylene-d12	25.37	264	1548606	4000.00	ug/kg	93
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	9280	50.79	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#		
16) 4-Terphenyl-d14	17.04	244	21093	54.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.37%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	8869	47.96	ug/kg	99
3) 2-Methyl naphthalene	10.82	142	6605	49.41	ug/kg	98
4) 1-Methyl naphthalene	11.04	142	6047	49.18	ug/kg	95
6) Dibenzofuran	12.67	168	9854	47.63	ug/kg	99
8) Acenaphthylene	12.33	152	10775	47.53	ug/kg	99
9) Acenaphthene	12.50	154	6596	48.98	ug/kg	97
10) Fluorene	13.16	166	8249	49.03	ug/kg	98
12) Phenanthrene	14.60	178	12182	50.06	ug/kg	97
13) Anthracene	14.64	178	12477	50.09	ug/kg	100
14) Fluoranthene	16.54	202	15526	51.89	ug/kg	98
15) Pyrene	17.12	202	15993	51.90	ug/kg	100
18) Benzo[a]anthracene	20.07	228	15434	47.27	ug/kg	99
19) Chrysene	20.33	228	14821	48.20	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	16689	47.16	ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	15714	48.44	ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	14610	47.57	ug/kg	99
24) Benzo[e]pyrene	24.85	252	16134	48.00	ug/kg	99
25) Benzo[a]pyrene	25.03	252	15723	47.13	ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	16914	48.92	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	20076	48.35	ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	13977	46.39	ug/kg	93

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072504.D Vial: 4
Acq On : 25 Jul 2016 3:13 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072505.D Vial: 5
Acq On : 25 Jul 2016 3:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

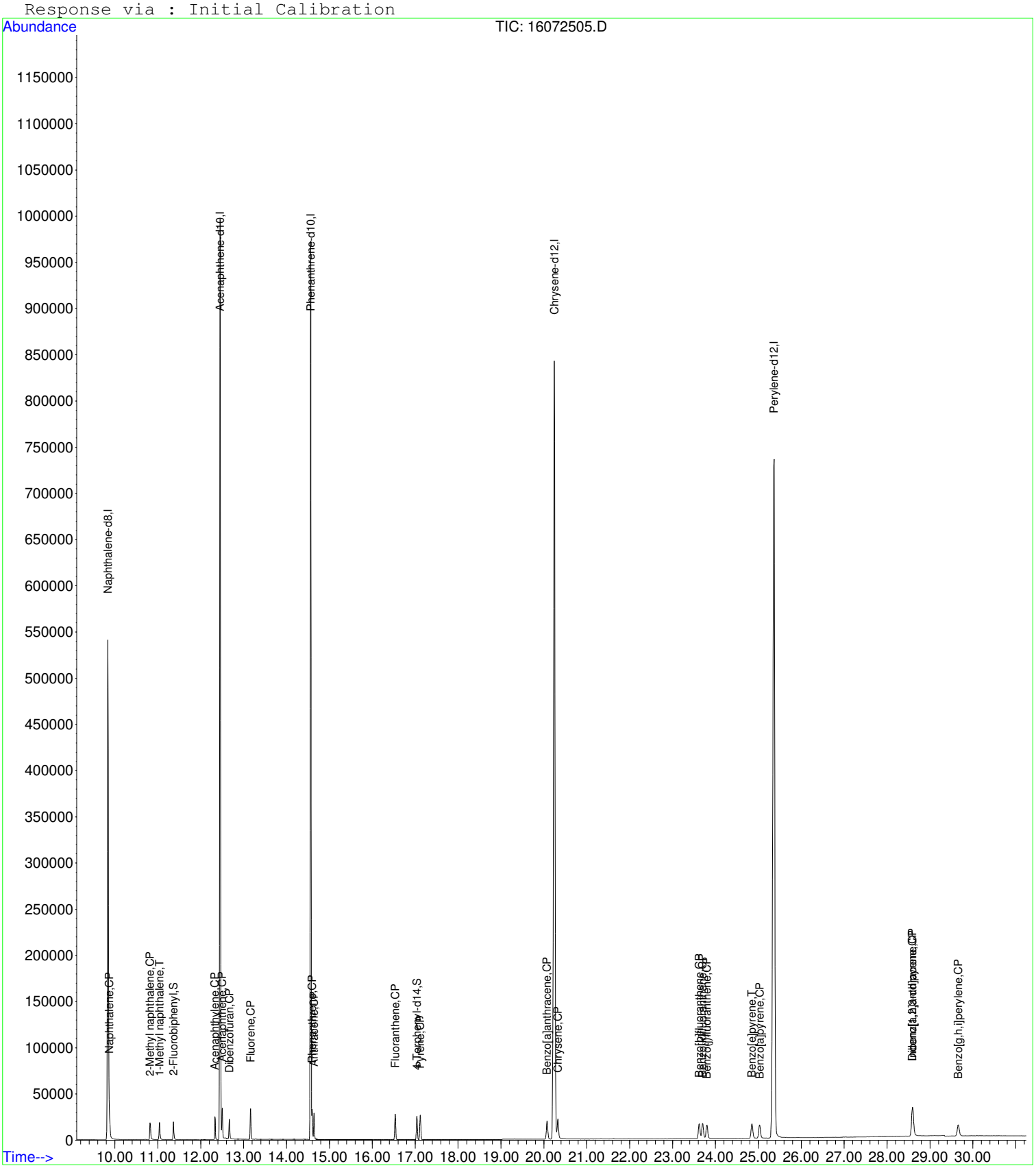
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	837791	4000.00	ug/kg	94
5) Acenaphthene-d10	12.45	164	557652	4000.00	ug/kg	98
11) Phenanthrene-d10	14.56	188	1391417	4000.00	ug/kg	93
17) Chrysene-d12	20.24	240	1514650	4000.00	ug/kg	94
20) Perylene-d12	25.37	264	1532166	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	19410	103.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.59%#		
16) 4-Terphenyl-d14	17.04	244	36336	100.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.51%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	18486	97.03	ug/kg	99
3) 2-Methyl naphthalene	10.82	142	14170	102.91	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	13038	102.94	ug/kg	99
6) Dibenzofuran	12.67	168	22026	99.48	ug/kg	100
8) Acenaphthylene	12.33	152	23958	98.73	ug/kg	100
9) Acenaphthene	12.50	154	14426	100.10	ug/kg	99
10) Fluorene	13.16	166	18210	101.12	ug/kg	97
12) Phenanthrene	14.60	178	25671	97.50	ug/kg	99
13) Anthracene	14.64	178	26632	98.81	ug/kg	98
14) Fluoranthene	16.53	202	31136	96.18	ug/kg	99
15) Pyrene	17.12	202	31891	95.66	ug/kg	99
18) Benzo[a]anthracene	20.07	228	31231	96.17	ug/kg	99
19) Chrysene	20.33	228	29877	97.68	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	33778	96.48	ug/kg	100
22) Benzo[k]fluoranthene	23.70	252	32004	99.71	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	30131	99.16	ug/kg	97
24) Benzo[e]pyrene	24.85	252	32705	98.34	ug/kg	100
25) Benzo[a]pyrene	25.03	252	31797	96.34	ug/kg	97
26) Dibenz[a,h]anthracene	28.59	278	33456	97.81	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.60	276	40036	97.46	ug/kg	95
28) Benzo[g,h,i]perylene	29.66	276	28208	94.62	ug/kg	95

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072505.D Vial: 5
Acq On : 25 Jul 2016 3:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072506.D Vial: 6
Acq On : 25 Jul 2016 4:29 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

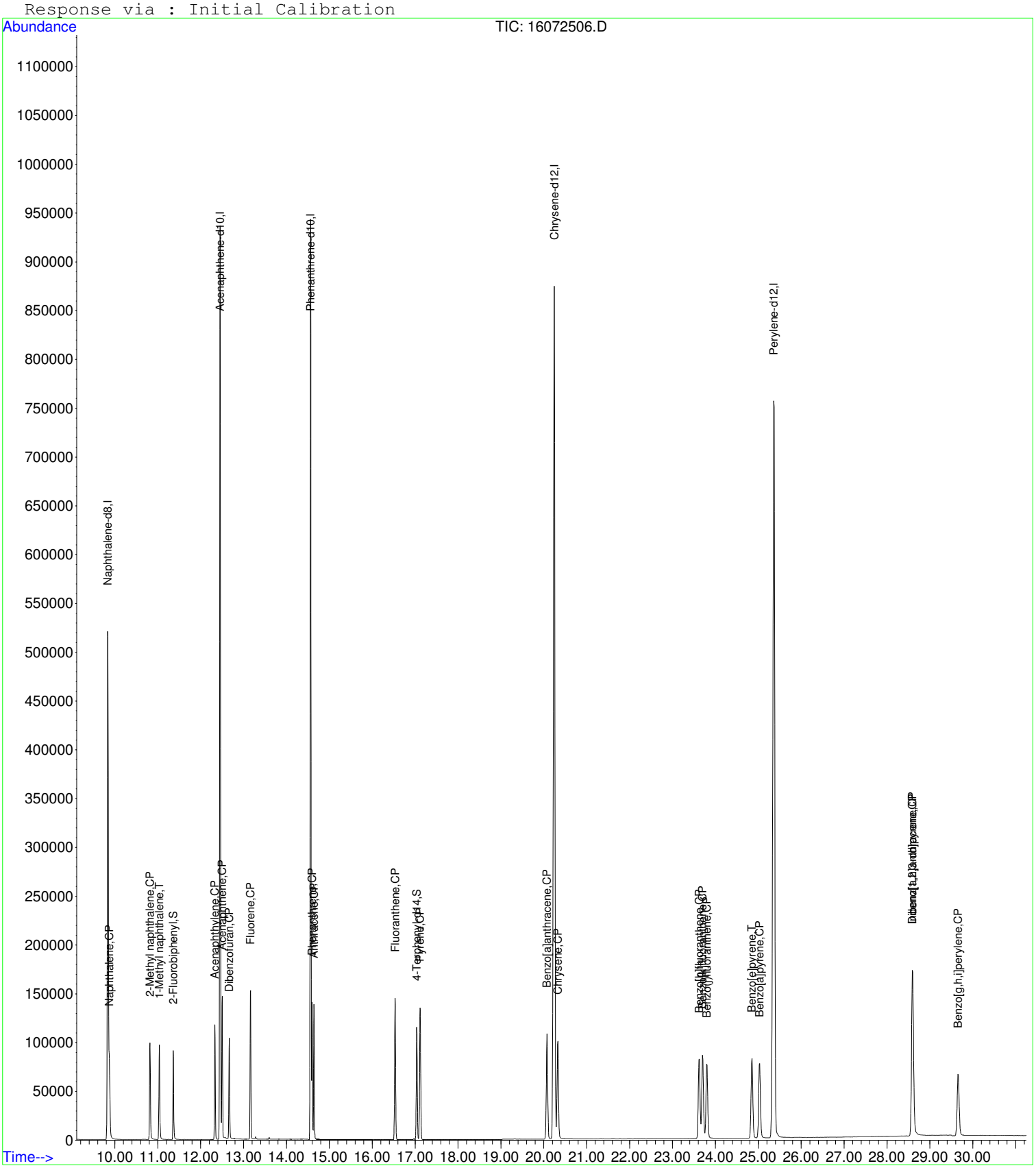
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	846228	4000.00	ug/kg	95
5) Acenaphthene-d10	12.45	164	526478	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1360044	4000.00	ug/kg	91
17) Chrysene-d12	20.24	240	1546839	4000.00	ug/kg	96
20) Perylene-d12	25.36	264	1587092	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	86694	505.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.64%#			
16) 4-Terphenyl-d14	17.04	244	159353	527.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 13.19%#			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	90292	469.22	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	67178	483.01	ug/kg	96
4) 1-Methyl naphthalene	11.04	142	61741	482.62	ug/kg	99
6) Dibenzofuran	12.67	168	99559	476.28	ug/kg	100
8) Acenaphthylene	12.33	152	111171	485.28	ug/kg	99
9) Acenaphthene	12.50	154	66191	486.46	ug/kg	98
10) Fluorene	13.16	166	83296	489.92	ug/kg	100
12) Phenanthrene	14.60	178	121487	472.04	ug/kg	99
13) Anthracene	14.64	178	127861	485.32	ug/kg	100
14) Fluoranthene	16.53	202	156088	493.27	ug/kg	99
15) Pyrene	17.11	202	156852	481.33	ug/kg	100
18) Benzo[a]anthracene	20.07	228	162167	488.96	ug/kg	98
19) Chrysene	20.33	228	150562	482.02	ug/kg	99
21) Benzo[b]fluoranthene	23.63	252	173263	477.76	ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	156303	470.13	ug/kg	100
23) Benzo(j)fluoranthene	23.81	252	153717	488.36	ug/kg	98
24) Benzo[e]pyrene	24.85	252	165850	481.41	ug/kg	100
25) Benzo[a]pyrene	25.03	252	162319	474.78	ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	170041	479.91	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	203279	477.71	ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	140559	455.16	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072506.D Vial: 6
Acq On : 25 Jul 2016 4:29 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072507.D Vial: 7
Acq On : 25 Jul 2016 5:07 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

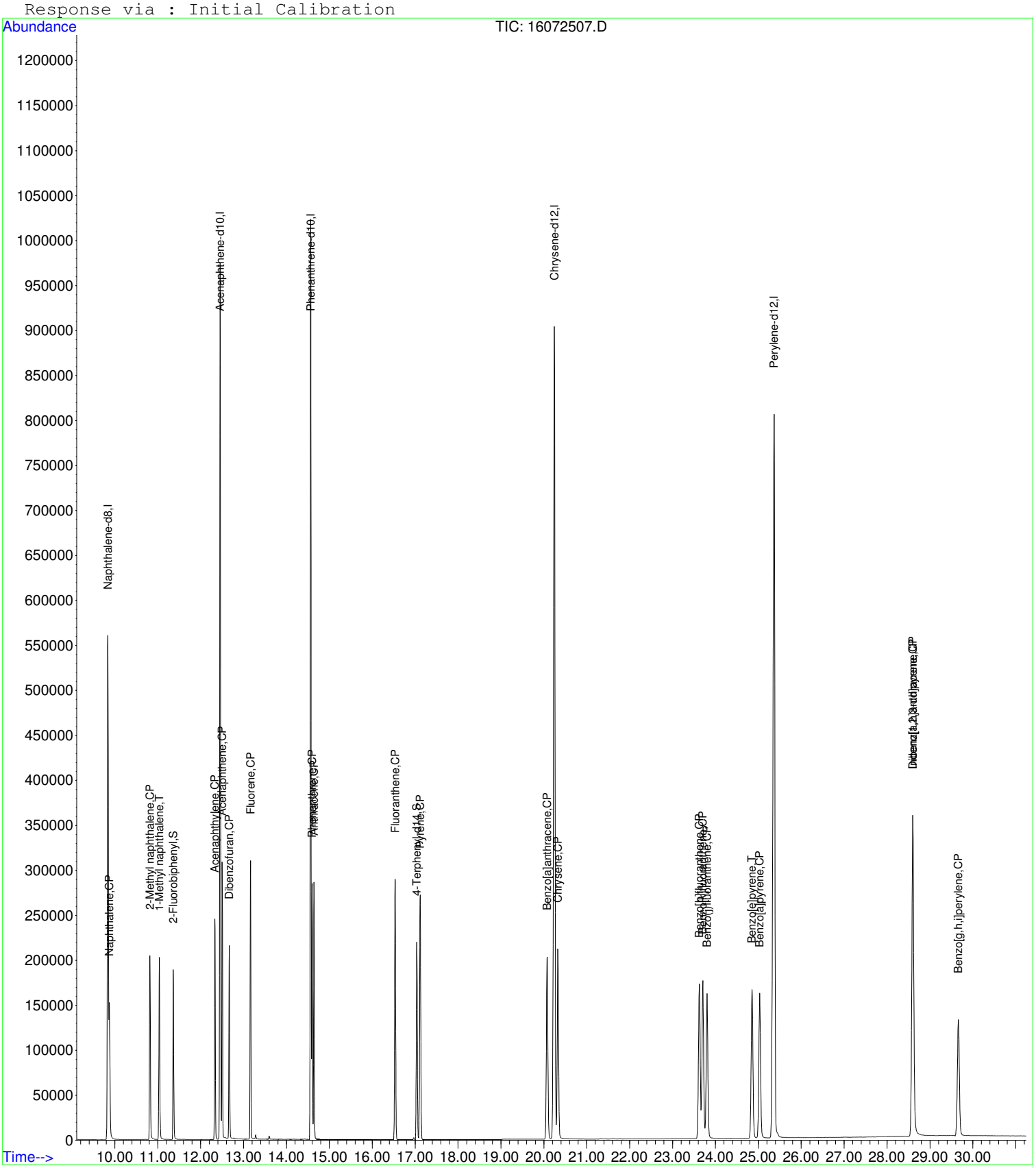
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	892069	4000.00	ug/kg	100
5) Acenaphthene-d10	12.45	164	554192	4000.00	ug/kg	97
11) Phenanthrene-d10	14.57	188	1448014	4000.00	ug/kg	96
17) Chrysene-d12	20.24	240	1606432	4000.00	ug/kg	100
20) Perylene-d12	25.37	264	1651631	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	176645	982.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.57%#			
16) 4-Terphenyl-d14	17.04	244	314932	1003.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.08%#			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	183994	907.02	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	138321	943.43	ug/kg	95
4) 1-Methyl naphthalene	11.04	142	126440	937.57	ug/kg	98
6) Dibenzofuran	12.67	168	200090	909.34	ug/kg	100
8) Acenaphthylene	12.33	152	229782	952.88	ug/kg	100
9) Acenaphthene	12.50	154	133955	935.25	ug/kg	99
10) Fluorene	13.16	166	166733	931.62	ug/kg	100
12) Phenanthrene	14.60	178	249124	909.18	ug/kg	99
13) Anthracene	14.64	178	258111	920.19	ug/kg	99
14) Fluoranthene	16.53	202	314797	934.39	ug/kg	99
15) Pyrene	17.12	202	316235	911.46	ug/kg	100
18) Benzo[a]anthracene	20.08	228	329954	957.97	ug/kg	99
19) Chrysene	20.33	228	306140	943.74	ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	352025	932.76	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	334806	967.68	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	314090	958.87	ug/kg	99
24) Benzo[e]pyrene	24.85	252	336290	938.00	ug/kg	99
25) Benzo[a]pyrene	25.03	252	336097	944.67	ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	347573	942.63	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	412755	932.07	ug/kg	98
28) Benzo[g,h,i]perylene	29.66	276	285458	888.26	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072507.D Vial: 7
Acq On : 25 Jul 2016 5:07 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

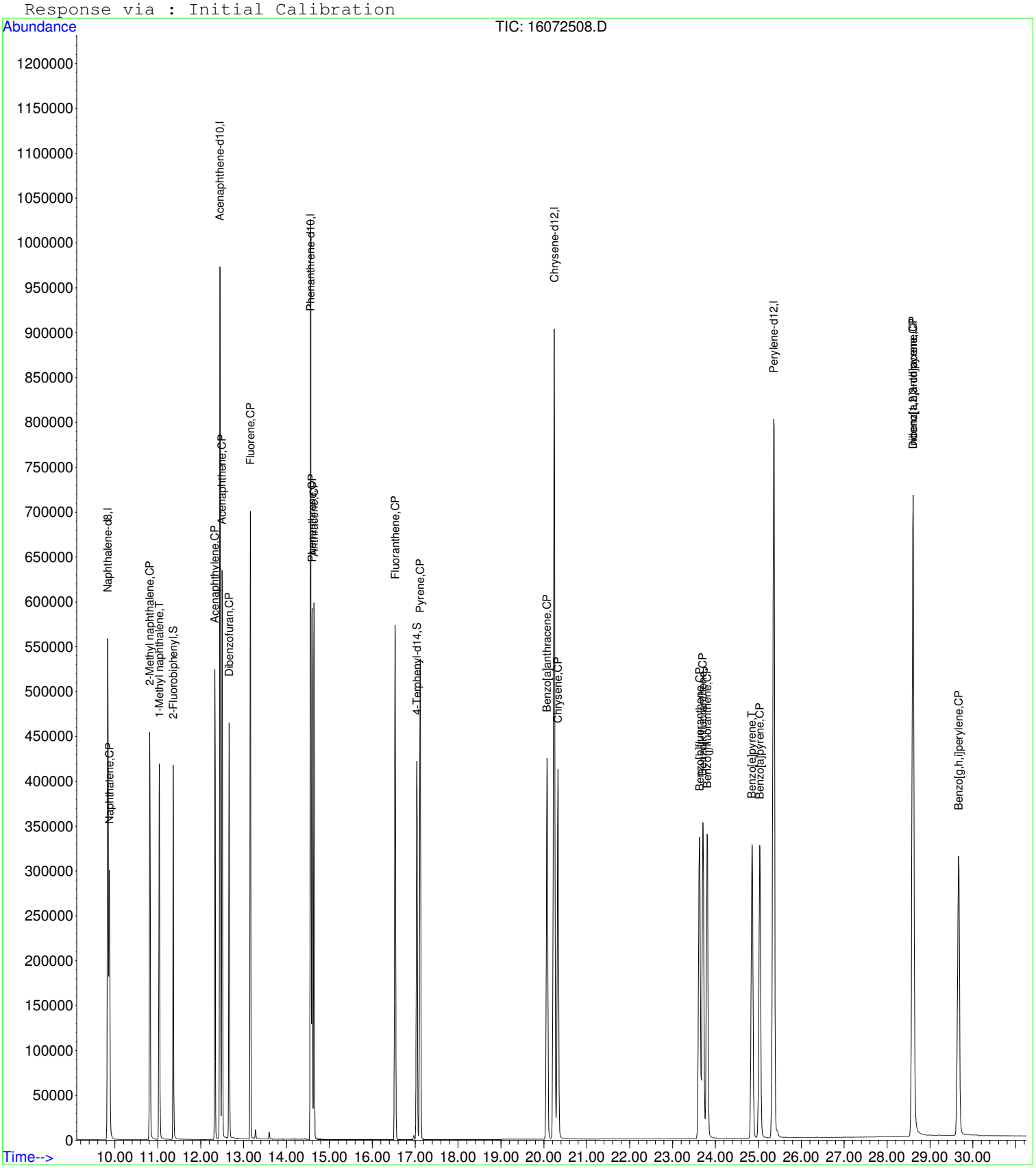
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	893544	4000.00	ug/kg	100
5) Acenaphthene-d10	12.45	164	569368	4000.00	ug/kg	100
11) Phenanthrene-d10	14.56	188	1501720	4000.00	ug/kg	100
17) Chrysene-d12	20.24	240	1612205	4000.00	ug/kg	100
20) Perylene-d12	25.36	264	1660133	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	370433	2008.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.21%			
16) 4-Terphenyl-d14	17.04	244	621041	1946.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.65%			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	382786	1883.87	ug/kg	100
3) 2-Methyl naphthalene	10.81	142	289201	1969.26	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	264551	1958.45	ug/kg	100
6) Dibenzofuran	12.66	168	423892	1875.10	ug/kg	100
8) Acenaphthylene	12.33	152	488021	1969.83	ug/kg	100
9) Acenaphthene	12.50	154	284372	1932.52	ug/kg	100
10) Fluorene	13.16	166	357547	1944.55	ug/kg	100
12) Phenanthrene	14.60	178	527567	1856.50	ug/kg	100
13) Anthracene	14.64	178	543808	1869.39	ug/kg	100
14) Fluoranthene	16.53	202	637819	1825.48	ug/kg	100
15) Pyrene	17.12	202	636934	1770.14	ug/kg	100
18) Benzo[a]anthracene	20.07	228	680755	1969.38	ug/kg	100
19) Chrysene	20.33	228	623920	1916.47	ug/kg	100
21) Benzo[b]fluoranthene	23.63	252	749017	1974.51	ug/kg	100
22) Benzo[k]fluoranthene	23.71	252	647006	1860.45	ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	646202	1962.65	ug/kg	100
24) Benzo[e]pyrene	24.86	252	699821	1941.99	ug/kg	100
25) Benzo[a]pyrene	25.03	252	692886	1937.52	ug/kg	100
26) Dibenz[a,h]anthracene	28.61	278	712622	1922.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.61	276	843959	1896.04	ug/kg	100
28) Benzo[g,h,i]perylene	29.67	276	689230	2133.68	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

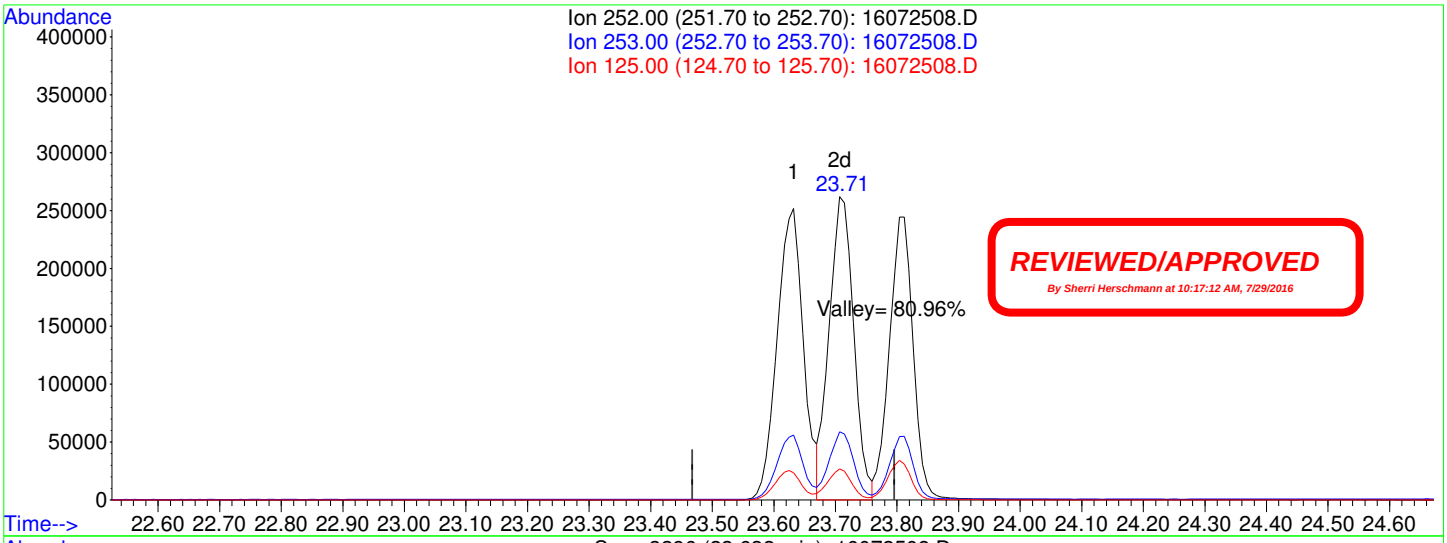
Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration

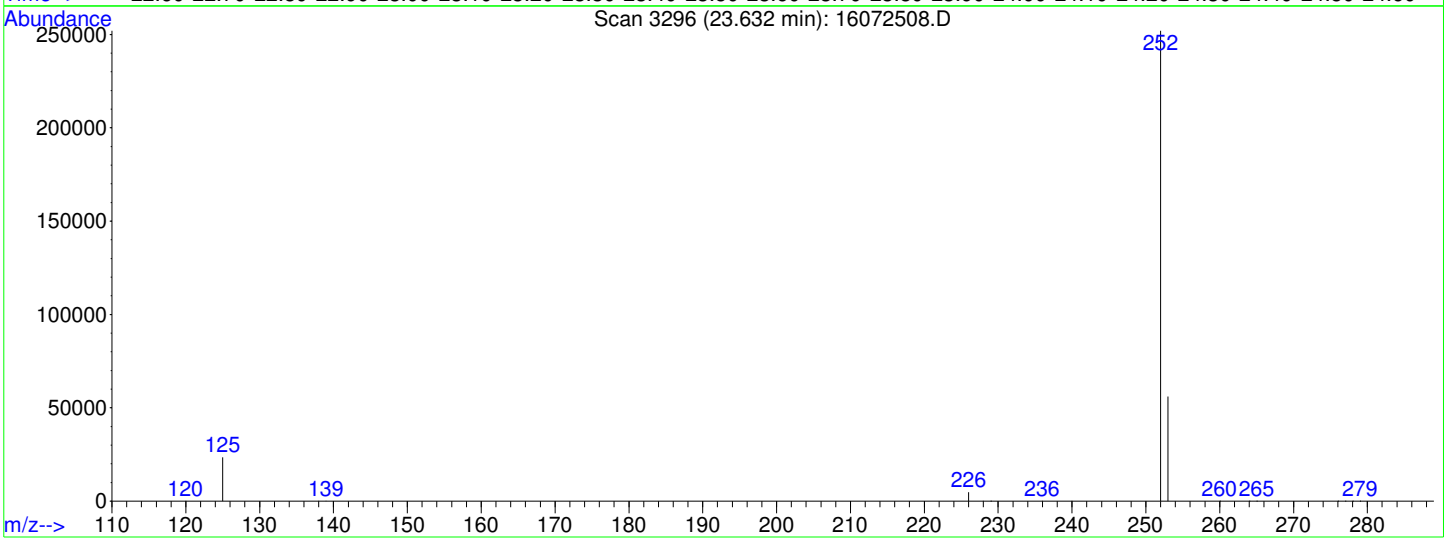


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Multiple Level Calibration





TIC: 16072508.D

(21) Benzo[b]fluoranthene (CP)

23.63min 1974.51ug/kg

response 749017

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.06
125.00	9.30	9.31
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072509.D Vial: 9
Acq On : 25 Jul 2016 6:22 pm Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

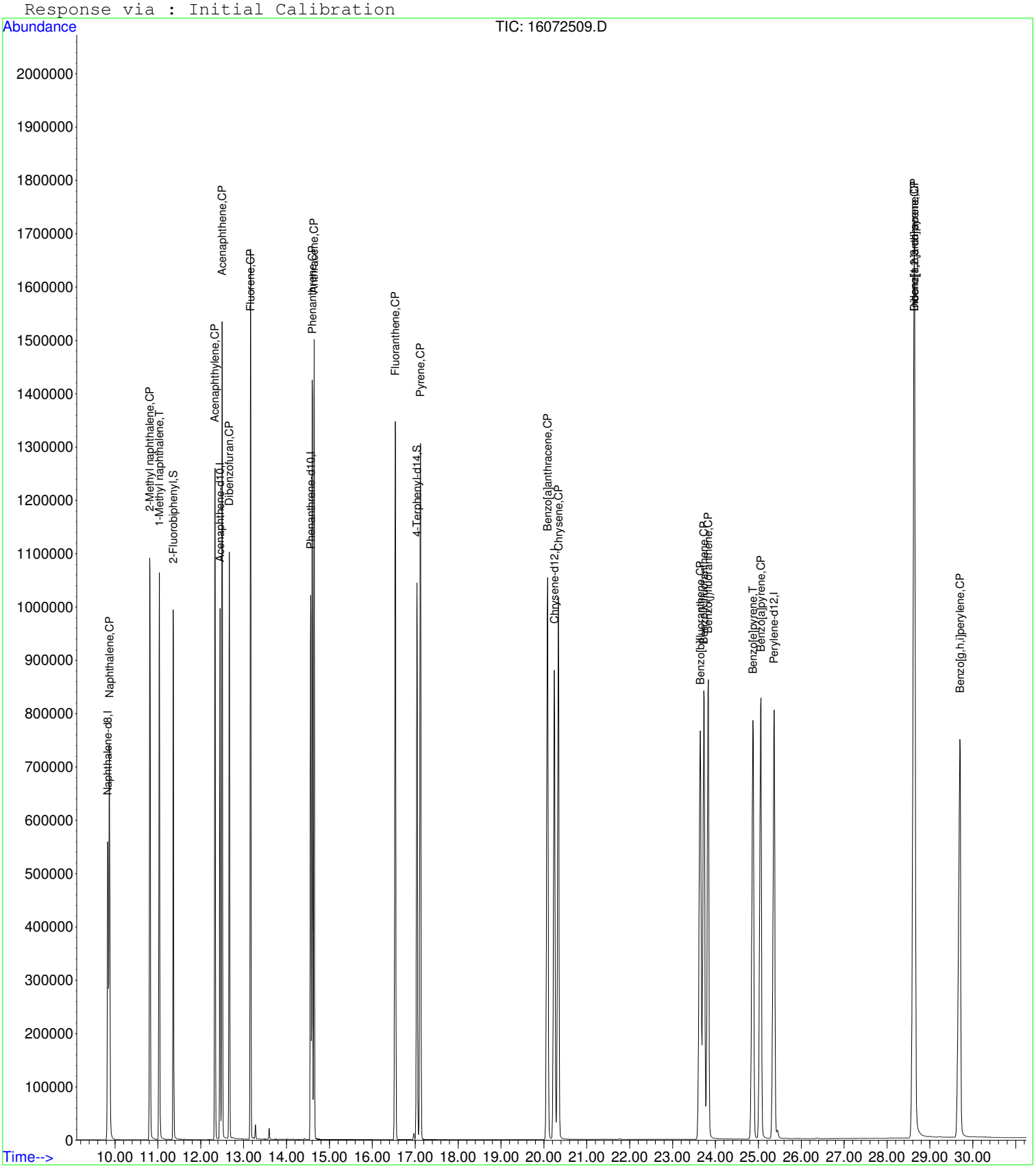
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	900189	4000.00	ug/kg	101
5) Acenaphthene-d10	12.45	164	554329	4000.00	ug/kg	97
11) Phenanthrene-d10	14.56	188	1477514	4000.00	ug/kg	98
17) Chrysene-d12	20.24	240	1621785	4000.00	ug/kg	101
20) Perylene-d12	25.37	264	1683225	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	899373	4999.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 124.99%			
16) 4-Terphenyl-d14	17.04	244	1515060	5019.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 125.48%			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	945249	4617.68	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	712021	4812.58	ug/kg	94
4) 1-Methyl naphthalene	11.03	142	652309	4793.34	ug/kg	99
6) Dibenzofuran	12.66	168	1003833	4560.96	ug/kg	99
8) Acenaphthylene	12.33	152	1183229	4905.50	ug/kg	100
9) Acenaphthene	12.50	154	691782	4828.73	ug/kg	99
10) Fluorene	13.16	166	860301	4805.77	ug/kg	99
12) Phenanthrene	14.60	178	1292431	4622.56	ug/kg	99
13) Anthracene	14.64	178	1339990	4681.82	ug/kg	99
14) Fluoranthene	16.54	202	1537244	4471.78	ug/kg	99
15) Pyrene	17.12	202	1560586	4408.17	ug/kg	99
18) Benzo[a]anthracene	20.09	228	1716692	4936.94	ug/kg	99
19) Chrysene	20.34	228	1566005	4781.82	ug/kg	100
21) Benzo[b]fluoranthene	23.65	252	1897650	4933.82	ug/kg	99
22) Benzo[k]fluoranthene	23.73	252	1581216	4484.36	ug/kg	99
23) Benzo(j)fluoranthene	23.83	252	1638939	4909.50	ug/kg	99
24) Benzo[e]pyrene	24.87	252	1757456	4809.99	ug/kg	98
25) Benzo[a]pyrene	25.06	252	1769480	4880.11	ug/kg	99
26) Dibenz[a,h]anthracene	28.64	278	1802648	4797.08	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.64	276	2142679	4747.72	ug/kg	98
28) Benzo[g,h,i]perylene	29.70	276	1750074	5343.47	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072509.D Vial: 9
Acq On : 25 Jul 2016 6:22 pm Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072510.D Vial: 10
Acq On : 25 Jul 2016 6:59 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

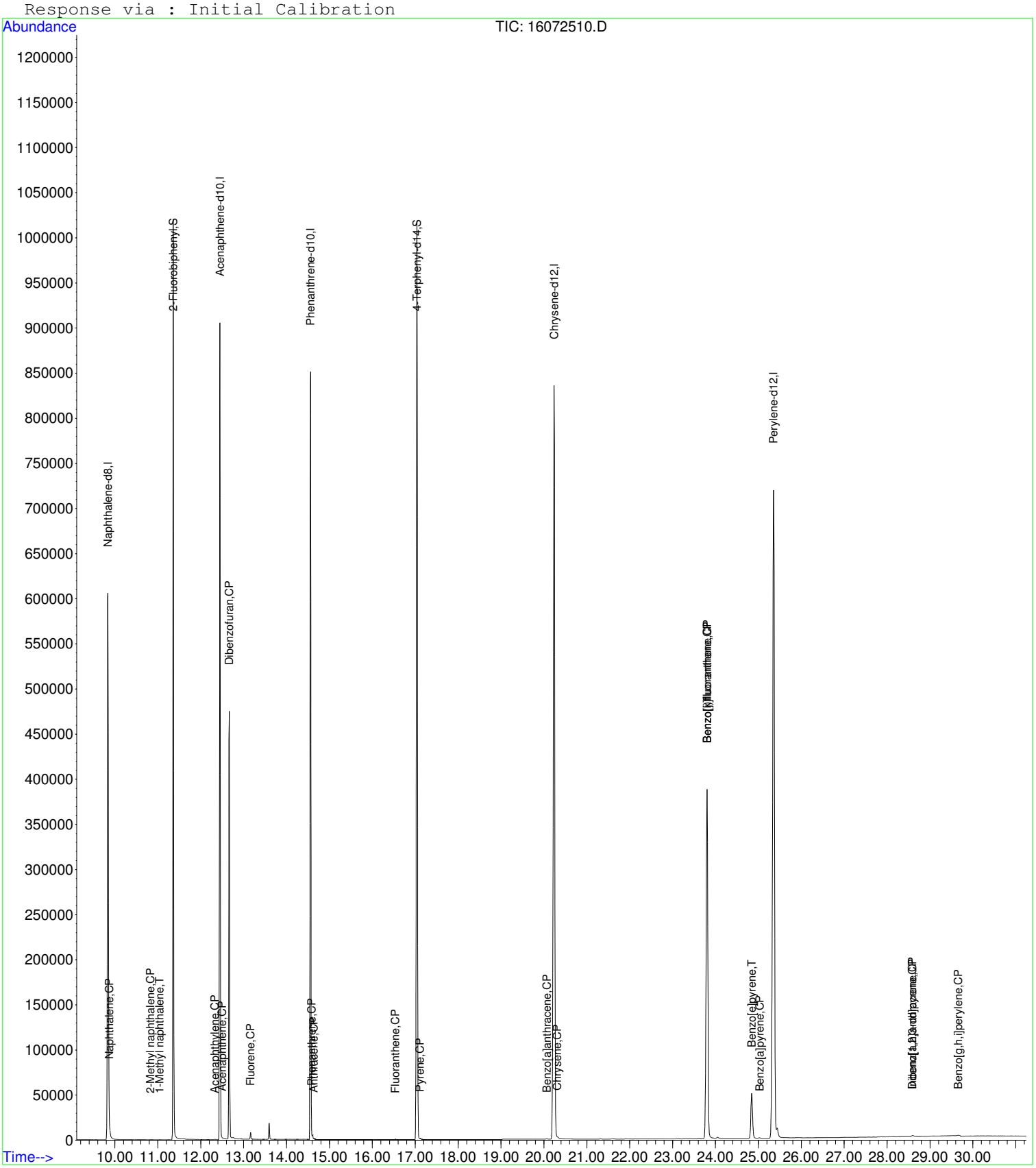
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)	
1) Naphthalene-d8	9.84	136	979604	4000.00	ug/kg	110	
5) Acenaphthene-d10	12.45	164	521111	4000.00	ug/kg	92	
11) Phenanthrene-d10	14.56	188	1257978	4000.00	ug/kg	84	
17) Chrysene-d12	20.24	240	1491548	4000.00	ug/kg	93	
20) Perylene-d12	25.36	264	1509342	4000.00	ug/kg	91	
System Monitoring Compounds							
7) 2-Fluorobiphenyl	11.36	172	908651	5371.37	ug/kg	0.00	
Spiked Amount 4000.000	Range 40 - 140		Recovery = 134.28%				
16) 4-Terphenyl-d14	17.04	244	1494054	5871.06	ug/kg	0.00	
Spiked Amount 4000.000	Range 40 - 140		Recovery = 146.78%#				
Target Compounds						Qvalue	
2) Naphthalene	9.87	128	610	2.74	ug/kg	61	
3) 2-Methyl naphthalene	10.82	142	196	1.22	ug/kg	78	
4) 1-Methyl naphthalene	11.03	142	107	0.72	ug/kg	75	
6) Dibenzofuran	12.66	168	452411	2186.58	ug/kg	100	87.46%
8) Acenaphthylene	12.33	152	390	1.72	ug/kg	98	
9) Acenaphthene	12.50	154	287	2.13	ug/kg#	72	
10) Fluorene	13.16	166	4126	24.52	ug/kg	97	
12) Phenanthrene	14.59	178	776	3.26	ug/kg	93	
13) Anthracene	14.64	178	730	3.00	ug/kg	92	
14) Fluoranthene	16.53	202	863	2.95	ug/kg	98	
15) Pyrene	17.11	202	955	3.17	ug/kg	91	
18) Benzo[a]anthracene	20.07	228	1073	3.36	ug/kg	93	
19) Chrysene	20.32	228	950	3.15	ug/kg	94	
21) Benzo[b]fluoranthene	0.00	252	0	N.D.			
22) Benzo[k]fluoranthene	23.80	252	749242	2369.66	ug/kg	97	
23) Benzo(j)fluoranthene	23.80	252	759467	2537.10	ug/kg	99	101.48%
24) Benzo[e]pyrene	24.84	252	100312	306.17	ug/kg	99	
25) Benzo[a]pyrene	25.03	252	1314	4.04	ug/kg	79	
26) Dibenz[a,h]anthracene	28.59	278	1199	3.56	ug/kg	86	
27) Indeno[1,2,3-cd]pyrene	28.60	276	1458	3.60	ug/kg	99	
28) Benzo[g,h,i]perylene	29.66	276	1157	3.94	ug/kg	95	

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072510.D Vial: 10
Acq On : 25 Jul 2016 6:59 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072511.D Vial: 11
Acq On : 25 Jul 2016 7:36 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	905392	4000.00	ug/kg	101
5) Acenaphthene-d10	12.45	164	590244	4000.00	ug/kg	104
11) Phenanthrene-d10	14.56	188	1554090	4000.00	ug/kg	103
17) Chrysene-d12	20.24	240	1627985	4000.00	ug/kg	101
20) Perylene-d12	25.36	264	1634563	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	458904	2399.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	60.00%		
16) 4-Terphenyl-d14	17.03	244	776605	2366.57	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	59.16%		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	452244	2196.58	ug/kg	99
3) 2-Methyl naphthalene	10.81	142	413442	2778.42	ug/kg	97
4) 1-Methyl naphthalene	11.03	142	372594	2722.19	ug/kg	96
6) Dibenzofuran	12.67	168	1589	6.78	ug/kg	97
8) Acenaphthylene	12.33	152	586057	2281.87	ug/kg	99
9) Acenaphthene	12.50	154	361494	2369.74	ug/kg	97
10) Fluorene	13.16	166	452940	2376.23	ug/kg	100
12) Phenanthrene	14.60	178	639751	2175.41	ug/kg	100
13) Anthracene	14.64	178	634391	2107.29	ug/kg	100
14) Fluoranthene	16.53	202	770651	2131.33	ug/kg	100
15) Pyrene	17.12	202	780634	2096.39	ug/kg	100
18) Benzo[a]anthracene	20.07	228	813076	2329.38	ug/kg	100
19) Chrysene	20.32	228	675322	2054.25	ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	873661	2339.11	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	873137	2549.96	ug/kg	100
23) Benzo(j)fluoranthene	23.71	252	877969	2708.28	ug/kg	96
24) Benzo[e]pyrene	24.86	252	872011	2457.66	ug/kg	100
25) Benzo[a]pyrene	25.04	252	836568	2375.89	ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	847494	2322.43	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.61	276	998578	2278.51	ug/kg	98
28) Benzo[g,h,i]perylene	29.67	276	832538	2617.65	ug/kg	99

All analytes %R within ±20%

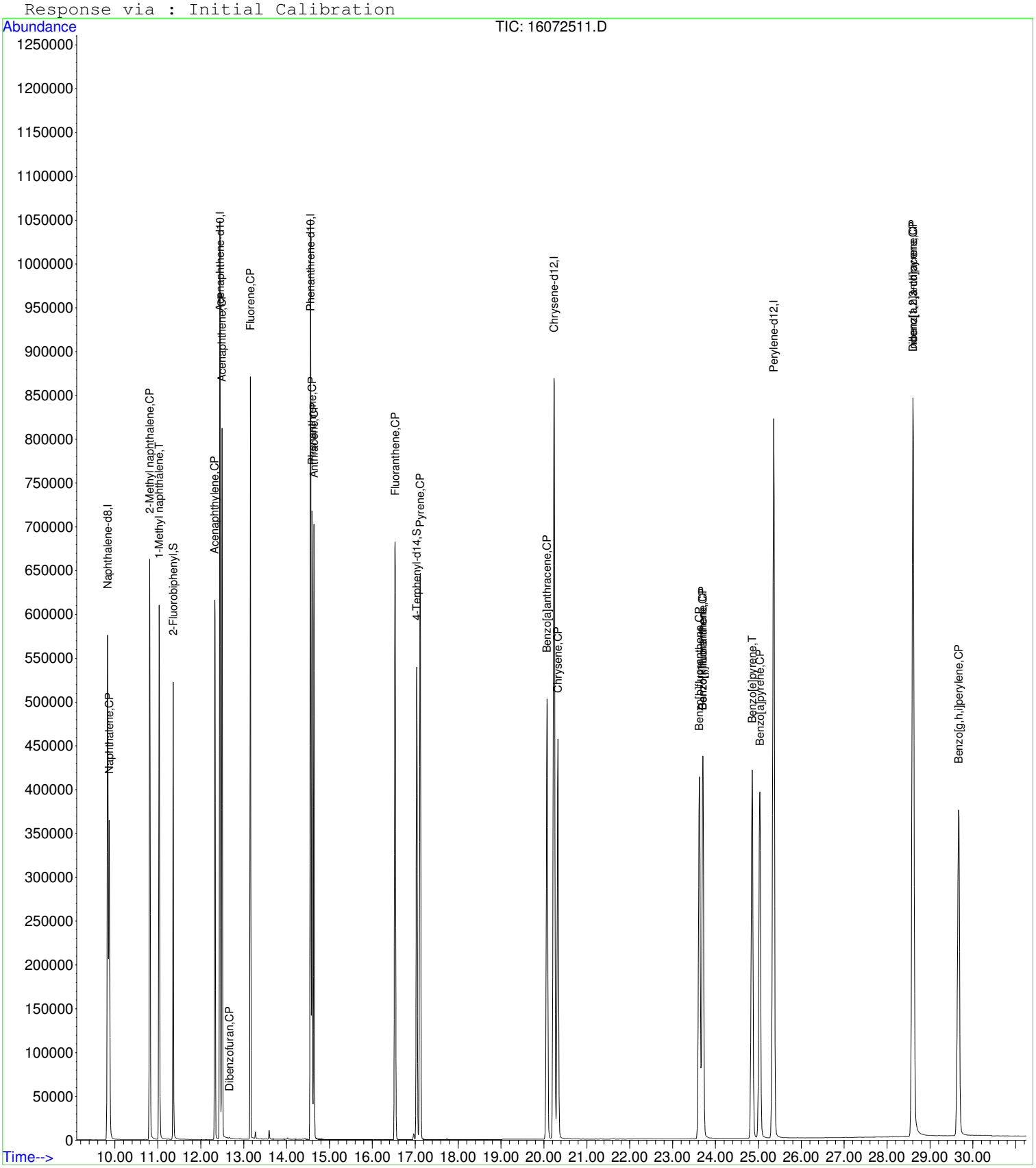
REVIEWED/APPROVED
By Sherri Herschmann at 10:27:24 AM, 7/29/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072511.D Vial: 11
Acq On : 25 Jul 2016 7:36 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



CAL ID: 680

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160801.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

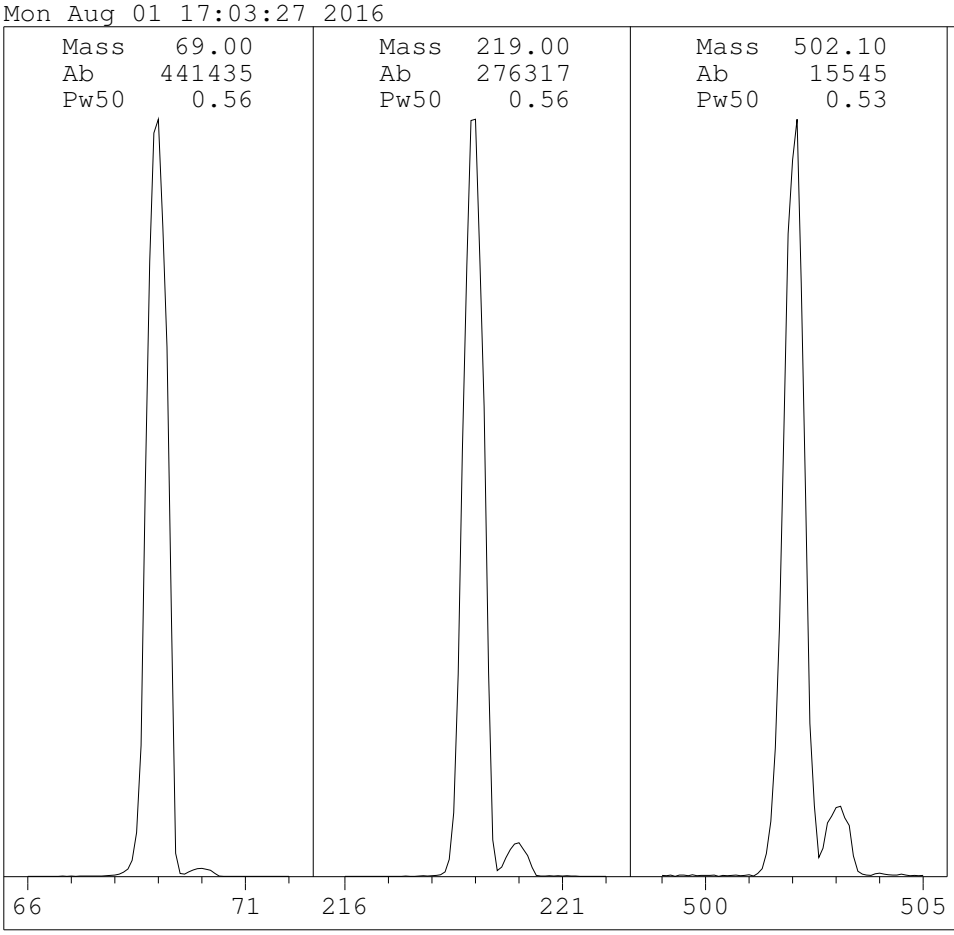
Analyst: Karyn Lane Date: 08/2/2016

Second-Level Review: Date: 08/02/2016

HP5973

Instrument: GC/MS #6

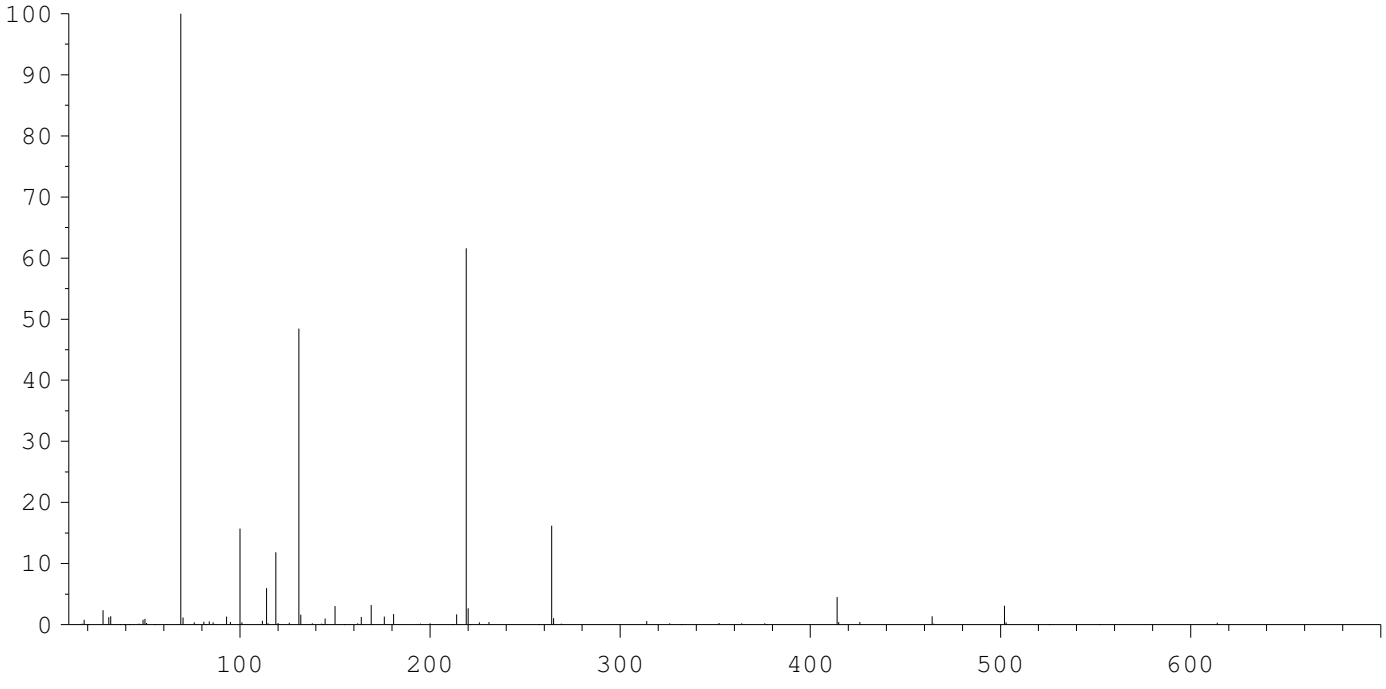
Mon Aug 01 17:03:27 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2205
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	79.7	HED	ON
EntLens	11.5	EMVolts	1635
EntOffs	17.32		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	73
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

130 peaks Base: 69.00 Abundance: 387008



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	387008	100.00	70.00	4591	1.19
219.00	238464	61.62	220.00	10470	4.39
502.00	12051	3.11	503.00	1348	11.19

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	48.4	41.6	4.5	3.1

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160801.M
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response Via : Initial Calibration

Calibration Files
1 =16080115.D 2 =16080116.D 3 =16080117.D 4 =16080118.D 5 =16080119.D 6 =16080120.D 7 =16080121.D
8 =16080122.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	CP	Naphthalene	1.062	0.956	0.902	0.953	0.875	0.840	0.843	0.850	0.910	8.46	A	0.0846	0.0000	0.9101	0.0000
3)	CP	2-Methyl napht...	0.657	0.607	0.603	0.634	0.582	0.556	0.544	0.538	0.590	7.26	A	0.0726	0.0000	0.5900	0.0000
4)	T	1-Methyl napht...	0.569	0.527	0.538	0.561	0.520	0.499	0.489	0.478	0.523	6.27	A	0.0627	0.0000	0.5226	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	1.855	1.646	1.595	1.674	1.561	1.494	1.545	1.580	1.619	6.85#	A	0.0685	0.0000	1.6187	0.0000
7)	S	2-Fluorobiphenyl	1.505	1.419	1.418	1.499	1.403	1.331	1.331	1.257	1.395	6.13	A	0.0613	0.0000	1.3953	0.0000
8)	CP	Acenaphthylene	1.909	1.776	1.725	1.858	1.776	1.710	1.719	1.699	1.771	4.29	A	0.0429	0.0000	1.7714	0.0000
9)	CP	Acenaphthene	1.094	1.023	0.977	1.046	1.046	1.000	1.006	1.015	1.026	3.51	A	0.0351	0.0000	1.0259	0.0000
10)	CP	Fluorene	1.255	1.199	1.247	1.317	1.265	1.228	1.349	1.457	1.290	6.43	A	0.0643	0.0000	1.2896	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	1.053	0.952	0.964	1.011	0.939	0.892	0.894	0.882	0.948	6.41	A	0.0641	0.0000	0.9483	0.0000
13)	CP	Anthracene	1.058	0.990	1.011	1.126	1.000	0.942	0.934	0.923	0.998	6.90	A	0.0690	0.0000	0.9979	0.0000
14)	CP	Fluoranthene	1.205	1.113	1.161	1.264	1.157	1.075	1.023	0.994	1.124	8.12	A	0.0812	0.0000	1.1239	0.0000
15)	CP	Pyrene	1.253	1.151	1.189	1.277	1.155	1.066	1.023	1.001	1.140	8.94	A	0.0894	0.0000	1.1396	0.0000
16)	S	4-Terphenyl-d14	1.010	0.954	0.994	1.028	0.963	0.903	0.855	0.845	0.944	7.36	A	0.0736	0.0000	0.9440	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	0.947	0.855	0.875	0.990	0.923	0.876	0.891	0.855	0.902	5.32	A	0.0532	0.0000	0.9016	0.0000
19)	CP	Chrysene	0.947	0.853	0.845	0.946	0.876	0.826	0.841	0.805	0.867	6.08	A	0.0608	0.0000	0.8673	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	0.973	0.828	0.891	1.032	0.948	0.917	0.914	0.883	0.923	6.71	A	0.0671	0.0000	0.9234	0.0000
22)	CP	Benzo[k]fluora...	0.907	0.808	0.852	0.933	0.865	0.858	0.833	0.721	0.847	7.59	A	0.0759	0.0000	0.8471	0.0000
23)	CP	Benzo(j)fluora...	0.829	0.817	0.829	0.855	0.825	0.798	0.801	0.759	0.814	3.49	A	0.0349	0.0000	0.8141	0.0000
24)	T	Benzo[e]pyrene	0.975	0.872	0.898	0.928	0.898	0.875	0.887	0.836	0.896	4.63	A	0.0463	0.0000	0.8961	0.0000
25)	CP	Benzo[a]pyrene	0.935	0.858	0.875	0.982	0.895	0.872	0.887	0.833	0.892	5.25	A	0.0525	0.0000	0.8922	0.0000
26)	CP	Dibenz[a,h]ant...	0.893	0.809	0.838	0.933	0.879	0.864	0.878	0.812	0.863	4.86	A	0.0486	0.0000	0.8634	0.0000
27)	CP	Indeno[1,2,3-c...	1.061	0.963	0.998	1.125	1.039	1.019	1.033	0.957	1.025	5.33	A	0.0533	0.0000	1.0246	0.0000
28)	CP	Benzo[g,h,i]pe...	0.926	0.814	0.832	0.928	0.863	0.850	0.863	0.790	0.858	5.73	A	0.0573	0.0000	0.8581	0.0000

(#) = Out of Range

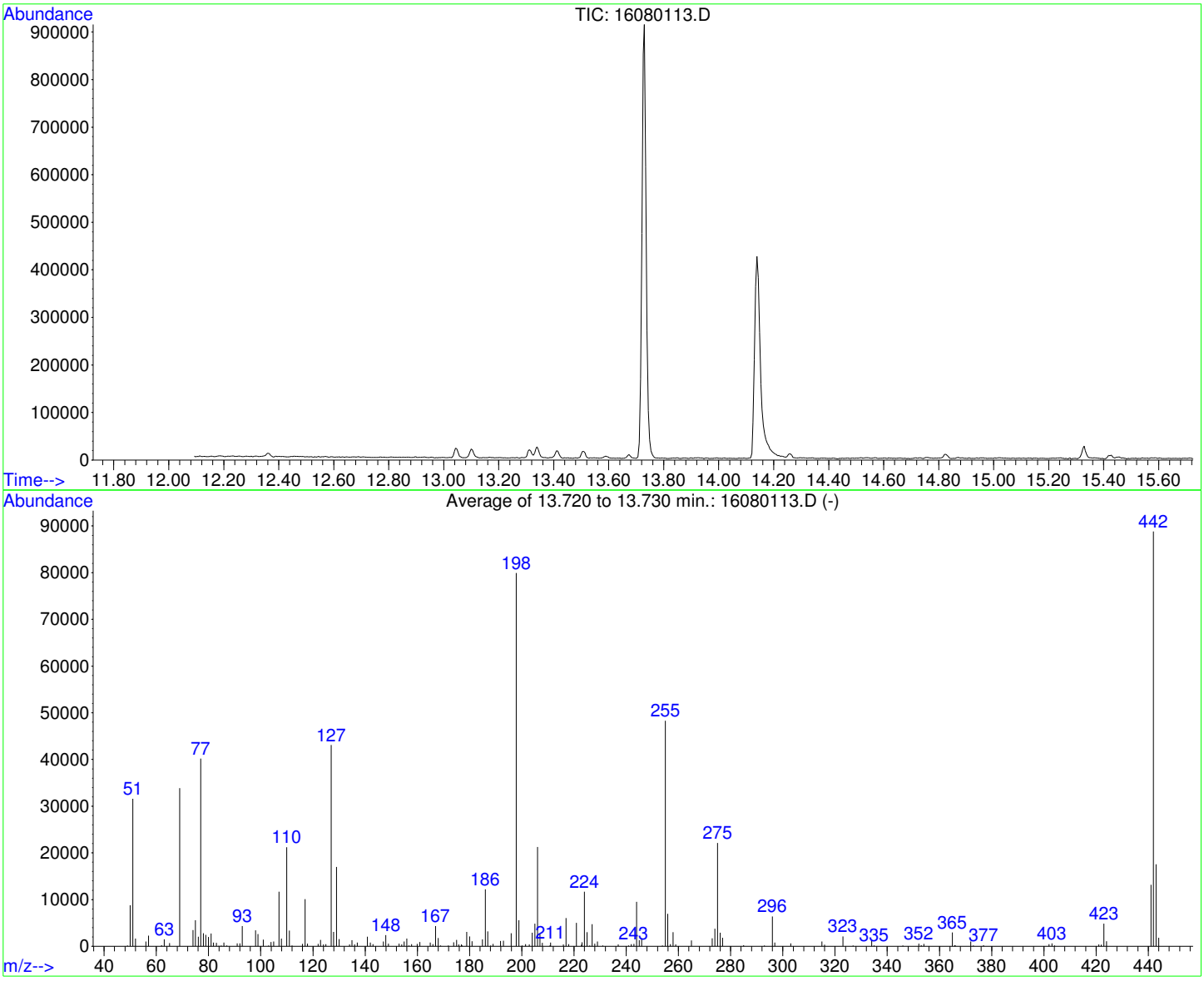
Sequence Name: C:\HPCHEM\1\SEQUENCE\160801.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160801\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080101	PP160725	SBLK
2	Sample	2	16080102	DFTPPPAH	DFTPP-160801
3	Sample	3	16080103	PP160725	ICV-160801
4	Sample	4	16080104	PP160725	ICV-160801
5	Sample	5	16080105	PP160725	SB-160801
6	Sample	6	16080106	PP160725	1607269-12B
7					

Data File : C:\HPCHEM\1\DATA\160801\16080113.D Vial: 2
Acq On : 1 Aug 2016 6:30 pm Operator: DEW
Sample : DFTPP-160801 Inst : GC/MS #6
Misc : TUNE Multiplr: 5.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 347, 348, 349; Background Corrected with Scan 341

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.5	31591	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.4	33861	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.9	43101	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	79947	PASS
199	198	5	9	7.0	5582	PASS
275	198	10	60	27.7	22112	PASS
365	198	1	200	3.7	2989	PASS
441	442	0.01	24	14.9	13202	PASS
442	198	50	400	111.1	88832	PASS
443	442	15	24	19.8	17564	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:24:00 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

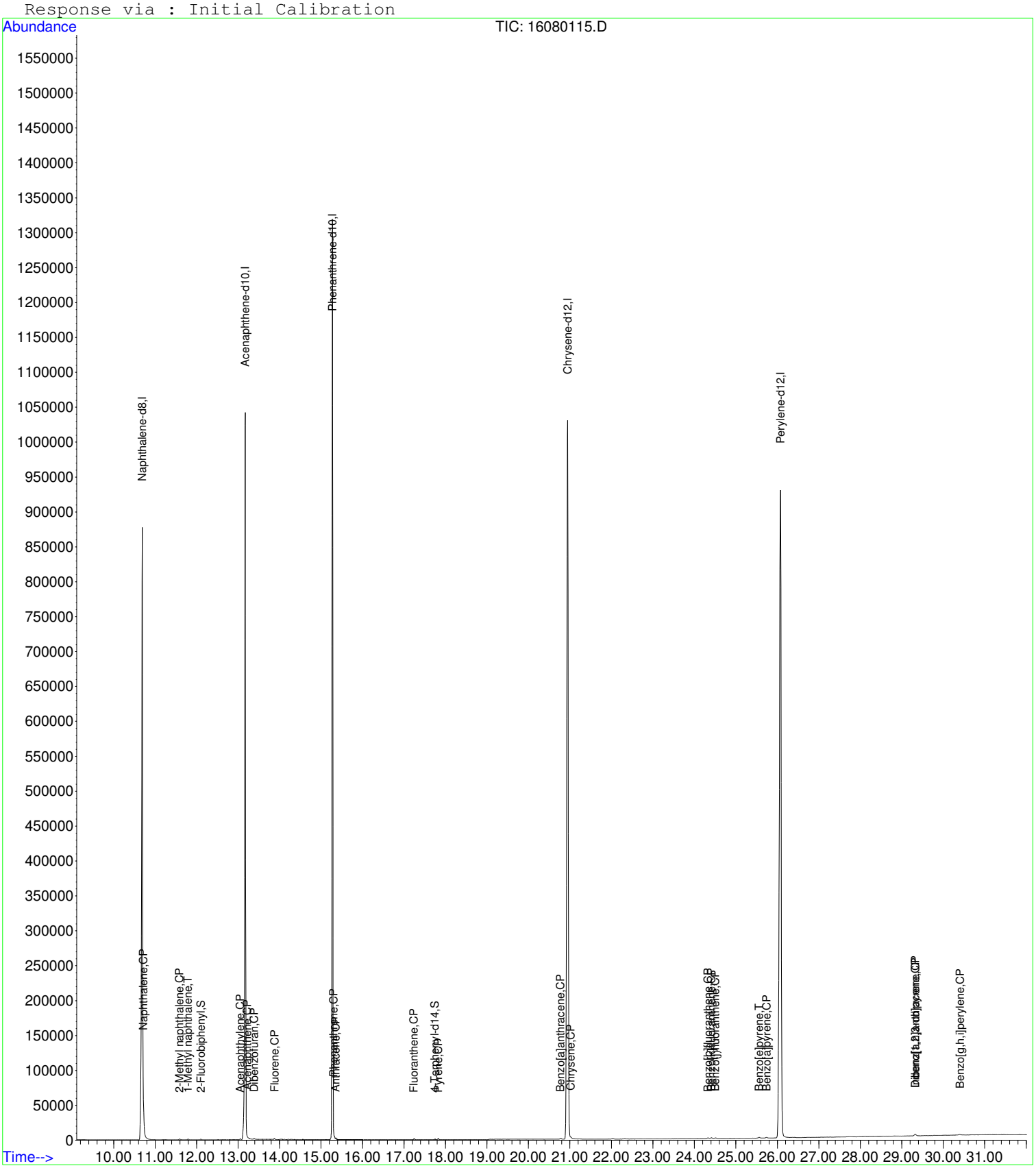
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1503719	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	680588	4000.00	ug/kg	114
11) Phenanthrene-d10	15.28	188	1532486	4000.00	ug/kg	96
17) Chrysene-d12	20.95	240	1863885	4000.00	ug/kg	102
20) Perylene-d12	26.08	264	1934687	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	1280	5.39	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
16) 4-Terphenyl-d14	17.74	244	1935	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1997	5.84	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	1234	5.56	ug/kg	96
4) 1-Methyl naphthalene	11.79	142	1069	5.44	ug/kg	98
6) Dibenzofuran	13.39	168	1578	5.73	ug/kg	92
8) Acenaphthylene	13.06	152	1624	5.39	ug/kg	95
9) Acenaphthene	13.22	154	931	5.33	ug/kg	89
10) Fluorene	13.87	166	1068	4.87	ug/kg	99
12) Phenanthrene	15.31	178	2017	5.55	ug/kg	96
13) Anthracene	15.35	178	2027	5.30	ug/kg	98
14) Fluoranthene	17.24	202	2308	5.36	ug/kg	96
15) Pyrene	17.82	202	2400	5.50	ug/kg	98
18) Benzo[a]anthracene	20.77	228	2207	5.25	ug/kg	92
19) Chrysene	21.02	228	2206	5.46	ug/kg	96
21) Benzo[b]fluoranthene	24.34	252	2354	5.27	ug/kg	99
22) Benzo[k]fluoranthene	24.41	252	2193	5.35	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	2005	5.09	ug/kg	90
24) Benzo[e]pyrene	25.56	252	2359	5.44	ug/kg	79
25) Benzo[a]pyrene	25.74	252	2262	5.24	ug/kg	98
26) Dibenz[a,h]anthracene	29.32	278	2159	5.17	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.33	276	2567	5.18	ug/kg	90
28) Benzo[g,h,i]perylene	30.39	276	2240	5.40	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Reprocessed low point.

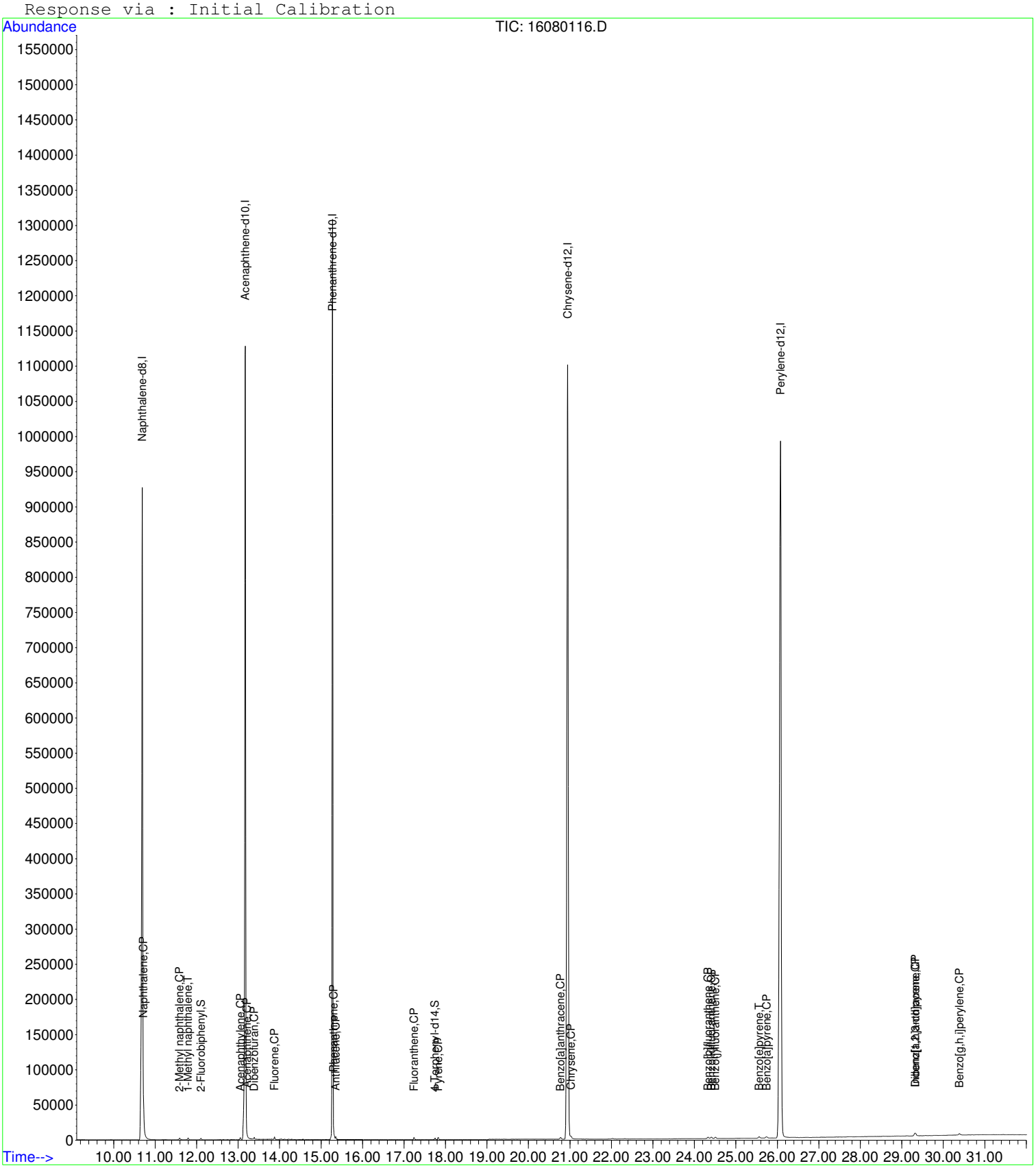
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1613626	4000.00	ug/kg	115
5) Acenaphthene-d10	13.17	164	738139	4000.00	ug/kg	123
11) Phenanthrene-d10	15.28	188	1503918	4000.00	ug/kg	95
17) Chrysene-d12	20.95	240	1941488	4000.00	ug/kg	106
20) Perylene-d12	26.08	264	2020745	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	2618	10.17	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
16) 4-Terphenyl-d14	17.74	244	3587	10.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	3857	10.51	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	2448	10.29	ug/kg	94
4) 1-Methyl naphthalene	11.79	142	2127	10.09	ug/kg	97
6) Dibenzofuran	13.39	168	3037	10.17	ug/kg	97
8) Acenaphthylene	13.05	152	3277	10.03	ug/kg	98
9) Acenaphthene	13.22	154	1887	9.97	ug/kg	98
10) Fluorene	13.87	166	2212	9.30	ug/kg	95
12) Phenanthrene	15.31	178	3581	10.04	ug/kg	99
13) Anthracene	15.35	178	3721	9.92	ug/kg	99
14) Fluoranthene	17.24	202	4183	9.90	ug/kg	96
15) Pyrene	17.82	202	4329	10.10	ug/kg	97
18) Benzo[a]anthracene	20.77	228	4152	9.49	ug/kg	99
19) Chrysene	21.02	228	4140	9.83	ug/kg	95
21) Benzo[b]fluoranthene	24.33	252	4184	8.97	ug/kg	91
22) Benzo[k]fluoranthene	24.41	252	4082	9.54	ug/kg	91
23) Benzo(j)fluoranthene	24.51	252	4125	10.03	ug/kg	96
24) Benzo[e]pyrene	25.56	252	4403	9.73	ug/kg	95
25) Benzo[a]pyrene	25.74	252	4335	9.62	ug/kg	97
26) Dibenz[a,h]anthracene	29.32	278	4089	9.37	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	4864	9.40	ug/kg	97
28) Benzo[g,h,i]perylene	30.39	276	4112	9.49	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

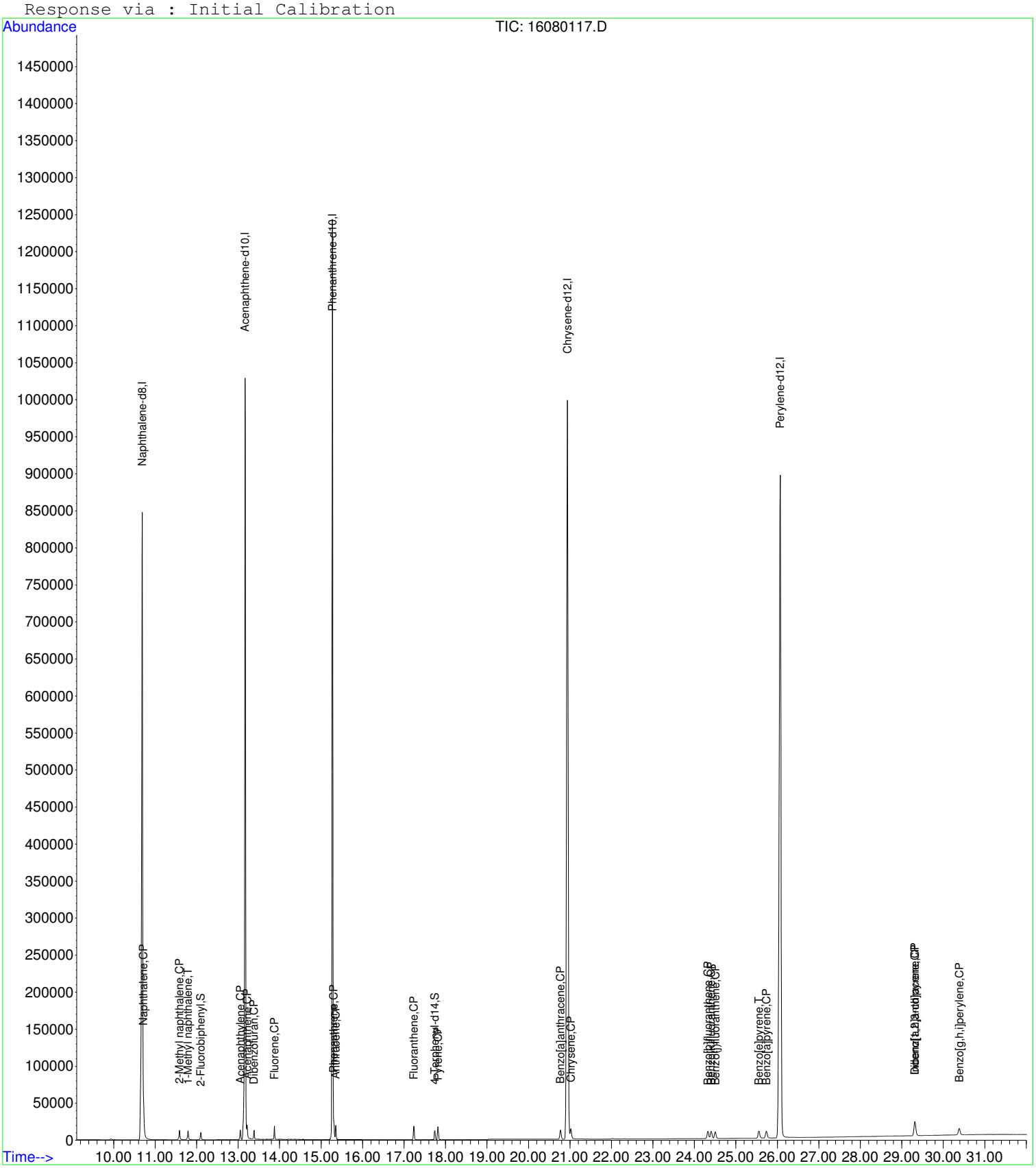
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1483617	4000.00	ug/kg	106
5) Acenaphthene-d10	13.17	164	671495	4000.00	ug/kg	112
11) Phenanthrene-d10	15.27	188	1461166	4000.00	ug/kg	92
17) Chrysene-d12	20.94	240	1828455	4000.00	ug/kg	100
20) Perylene-d12	26.07	264	1813783	4000.00	ug/kg	94
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	11900	50.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#		
16) 4-Terphenyl-d14	17.74	244	18151	52.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.32%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	16729	49.56	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	11175	51.07	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	9975	51.46	ug/kg	99
6) Dibenzofuran	13.38	168	13386	49.26	ug/kg	99
8) Acenaphthylene	13.05	152	14476	48.68	ug/kg	99
9) Acenaphthene	13.22	154	8199	47.61	ug/kg	98
10) Fluorene	13.87	166	10463	48.33	ug/kg	99
12) Phenanthrene	15.31	178	17603	50.81	ug/kg	98
13) Anthracene	15.35	178	18474	50.68	ug/kg	98
14) Fluoranthene	17.24	202	21208	51.66	ug/kg	98
15) Pyrene	17.82	202	21714	52.16	ug/kg	98
18) Benzo[a]anthracene	20.77	228	20007	48.55	ug/kg	98
19) Chrysene	21.02	228	19314	48.71	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	20206	48.26	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	19325	50.31	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	18806	50.94	ug/kg	99
24) Benzo[e]pyrene	25.55	252	20368	50.13	ug/kg	98
25) Benzo[a]pyrene	25.73	252	19849	49.06	ug/kg	99
26) Dibenz[a,h]anthracene	29.32	278	19000	48.53	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	22630	48.71	ug/kg	96
28) Benzo[g,h,i]perylene	30.39	276	18855	48.46	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

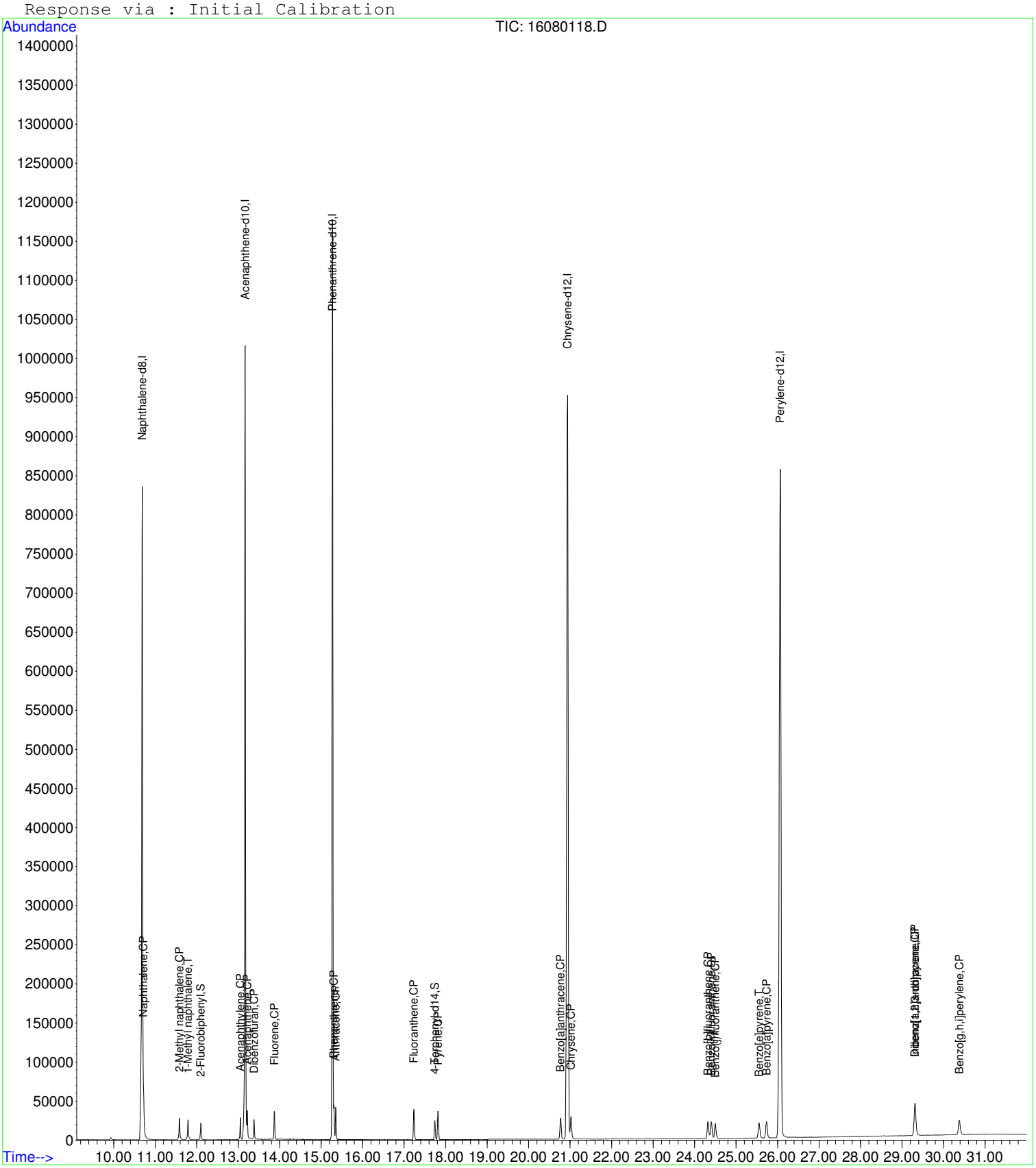
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1417424	4000.00	ug/kg	101
5) Acenaphthene-d10	13.17	164	638853	4000.00	ug/kg	107
11) Phenanthrene-d10	15.27	188	1381998	4000.00	ug/kg	87
17) Chrysene-d12	20.94	240	1743437	4000.00	ug/kg	95
20) Perylene-d12	26.06	264	1747505	4000.00	ug/kg	91
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	23943	107.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.69%#		
16) 4-Terphenyl-d14	17.74	244	35511	108.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.72%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	33760	104.68	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	22472	107.49	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	19870	107.30	ug/kg	99
6) Dibenzofuran	13.38	168	26743	103.44	ug/kg	100
8) Acenaphthylene	13.05	152	29673	104.89	ug/kg	98
9) Acenaphthene	13.22	154	16709	101.98	ug/kg	100
10) Fluorene	13.87	166	21036	102.14	ug/kg	99
12) Phenanthrene	15.31	178	34943	106.65	ug/kg	98
13) Anthracene	15.35	178	38892	112.81	ug/kg	99
14) Fluoranthene	17.23	202	43667	112.46	ug/kg	99
15) Pyrene	17.82	202	44128	112.08	ug/kg	100
18) Benzo[a]anthracene	20.77	228	43135	109.77	ug/kg	99
19) Chrysene	21.02	228	41212	109.01	ug/kg	99
21) Benzo[b]fluoranthene	24.32	252	45107	111.81	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	40745	110.09	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	37339	104.98	ug/kg	97
24) Benzo[e]pyrene	25.55	252	40550	103.58	ug/kg	100
25) Benzo[a]pyrene	25.73	252	42902	110.06	ug/kg	98
26) Dibenz[a,h]anthracene	29.31	278	40760	108.06	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	49167	109.84	ug/kg	95
28) Benzo[g,h,i]perylene	30.38	276	40533	108.12	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

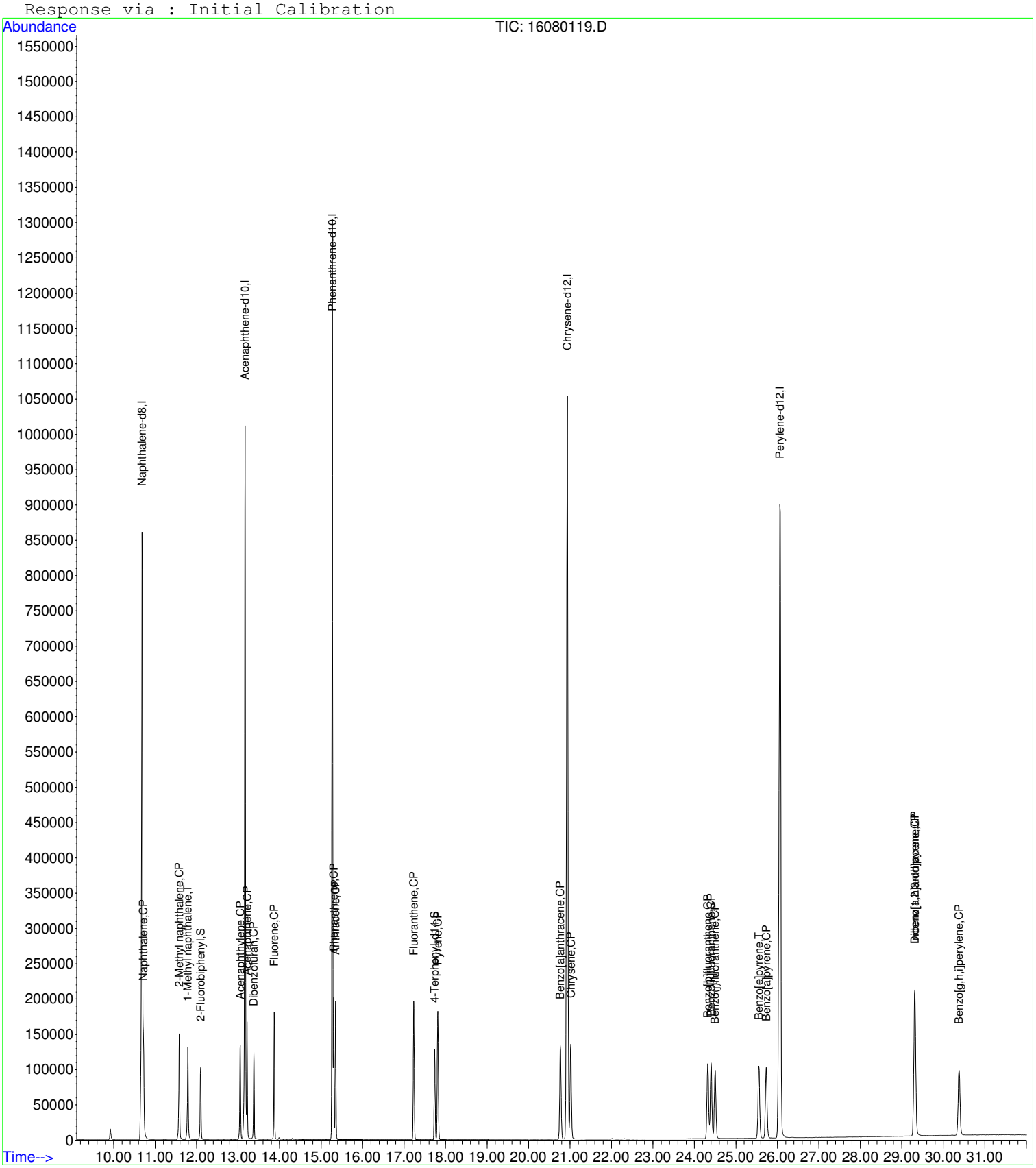
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1438697	4000.00	ug/kg	103
5) Acenaphthene-d10	13.17	164	632331	4000.00	ug/kg	105
11) Phenanthrene-d10	15.27	188	1502812	4000.00	ug/kg	94
17) Chrysene-d12	20.94	240	1837823	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1862883	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	110883	502.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.57%#			
16) 4-Terphenyl-d14	17.74	244	180912	510.12	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.75%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	157338	480.66	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	104597	492.90	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	93561	497.76	ug/kg	97
6) Dibenzofuran	13.38	168	123371	482.11	ug/kg	100
8) Acenaphthylene	13.05	152	140359	501.25	ug/kg	99
9) Acenaphthene	13.22	154	82644	509.59	ug/kg	98
10) Fluorene	13.87	166	99953	490.30	ug/kg	100
12) Phenanthrene	15.30	178	176305	494.83	ug/kg	99
13) Anthracene	15.35	178	187904	501.21	ug/kg	99
14) Fluoranthene	17.23	202	217298	514.64	ug/kg	99
15) Pyrene	17.81	202	217006	506.86	ug/kg	99
18) Benzo[a]anthracene	20.77	228	212082	511.98	ug/kg	99
19) Chrysene	21.02	228	201242	504.99	ug/kg	100
21) Benzo[b]fluoranthene	24.32	252	220851	513.54	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	201349	510.35	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	192031	506.48	ug/kg	99
24) Benzo[e]pyrene	25.55	252	208998	500.78	ug/kg	99
25) Benzo[a]pyrene	25.73	252	208397	501.53	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	204642	508.93	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	241930	507.01	ug/kg	98
28) Benzo[g,h,i]perylene	30.39	276	200928	502.75	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

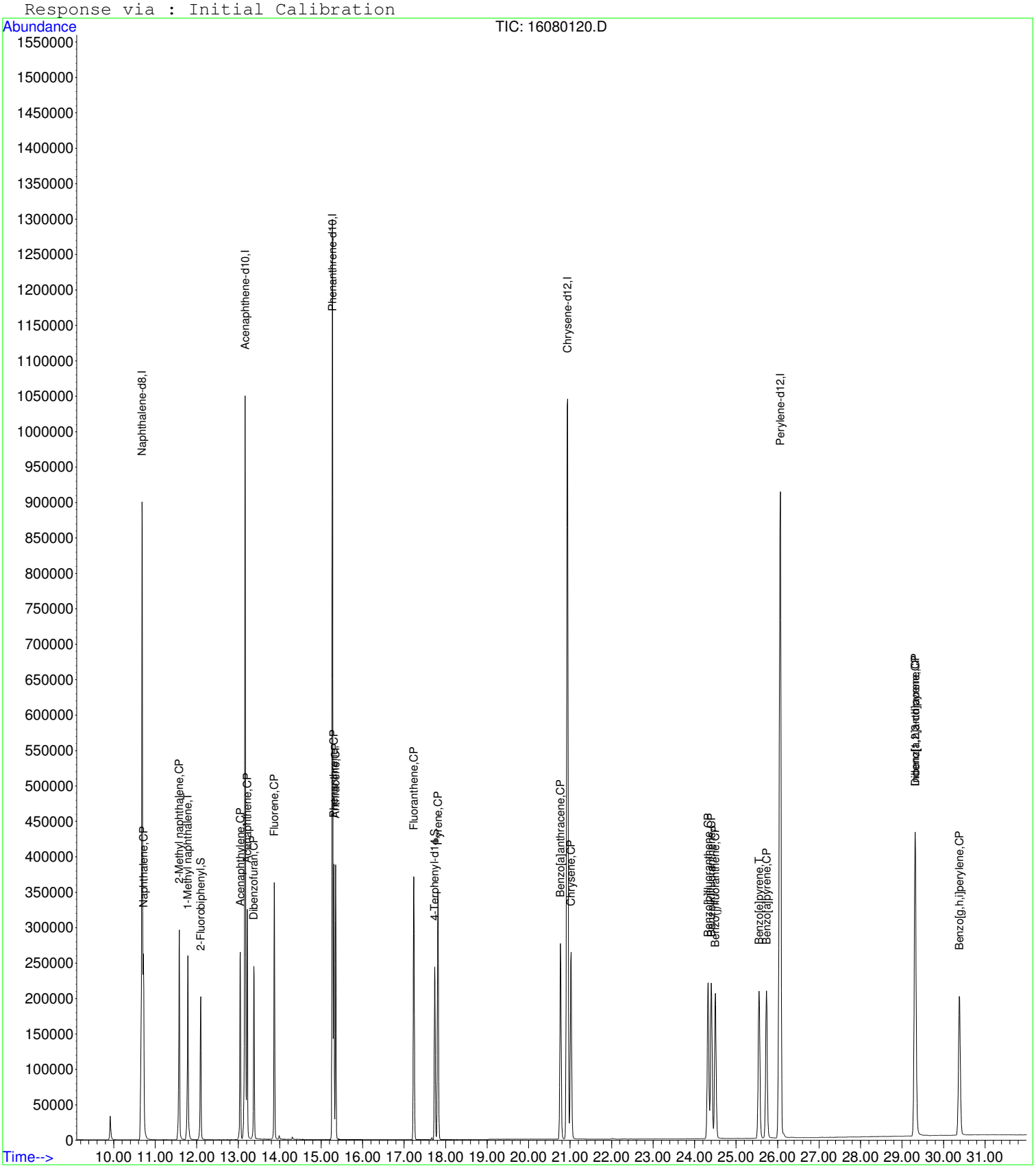
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1499252	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	657692	4000.00	ug/kg	110
11) Phenanthrene-d10	15.27	188	1538575	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1921341	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	1969102	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	218820	953.83	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.85%#			
16) 4-Terphenyl-d14	17.74	244	347243	956.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.91%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	314807	922.87	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	208479	942.76	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	186882	954.08	ug/kg	98
6) Dibenzofuran	13.38	168	245676	923.04	ug/kg	100
8) Acenaphthylene	13.05	152	281204	965.50	ug/kg	100
9) Acenaphthene	13.22	154	164497	975.20	ug/kg	99
10) Fluorene	13.87	166	201948	952.42	ug/kg	100
12) Phenanthrene	15.30	178	342999	940.32	ug/kg	100
13) Anthracene	15.35	178	362165	943.57	ug/kg	99
14) Fluoranthene	17.23	202	413506	956.56	ug/kg	99
15) Pyrene	17.81	202	410166	935.76	ug/kg	100
18) Benzo[a]anthracene	20.77	228	420793	971.67	ug/kg	99
19) Chrysene	21.02	228	396650	952.07	ug/kg	99
21) Benzo[b]fluoranthene	24.33	252	451182	992.53	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	422580	1013.31	ug/kg	100
23) Benzo(j)fluoranthene	24.50	252	392898	980.36	ug/kg	99
24) Benzo[e]pyrene	25.55	252	430721	976.39	ug/kg	99
25) Benzo[a]pyrene	25.73	252	429307	977.43	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	425555	1001.23	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	501658	994.61	ug/kg	96
28) Benzo[g,h,i]perylene	30.38	276	418580	990.85	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

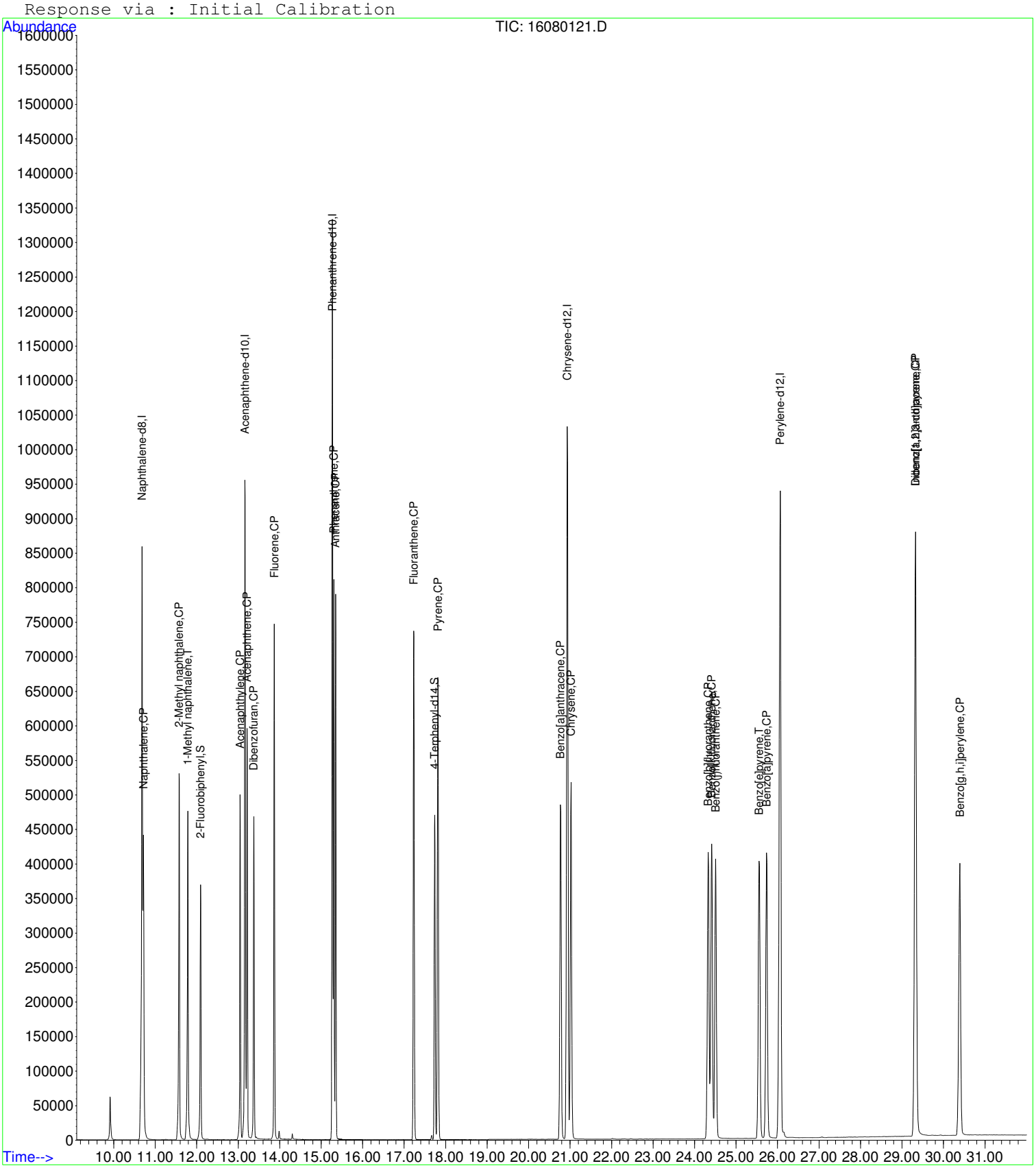
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1403212	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	599493	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	1590654	4000.00	ug/kg	100
17) Chrysene-d12	20.93	240	1834195	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1928719	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	398885	1907.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.69%		
16) 4-Terphenyl-d14	17.74	244	679973	1811.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	45.29%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	591164	1851.64	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	381572	1843.59	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	343340	1872.80	ug/kg	100
6) Dibenzofuran	13.38	168	463067	1908.71	ug/kg	100
8) Acenaphthylene	13.05	152	515239	1940.79	ug/kg	100
9) Acenaphthene	13.21	154	301528	1961.11	ug/kg	100
10) Fluorene	13.87	166	404242	2091.56	ug/kg	100
12) Phenanthrene	15.30	178	710635	1884.39	ug/kg	100
13) Anthracene	15.35	178	742459	1871.03	ug/kg	100
14) Fluoranthene	17.23	202	813605	1820.49	ug/kg	100
15) Pyrene	17.81	202	813802	1795.83	ug/kg	100
18) Benzo[a]anthracene	20.77	228	817037	1976.30	ug/kg	100
19) Chrysene	21.02	228	771703	1940.31	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	881066	1978.79	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	803567	1967.23	ug/kg	100
23) Benzo(j)fluoranthene	24.51	252	772683	1968.36	ug/kg	100
24) Benzo[e]pyrene	25.55	252	855110	1979.00	ug/kg	100
25) Benzo[a]pyrene	25.73	252	855355	1988.22	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	847106	2034.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	996633	2017.34	ug/kg	100
28) Benzo[g,h,i]perylene	30.39	276	831770	2010.17	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

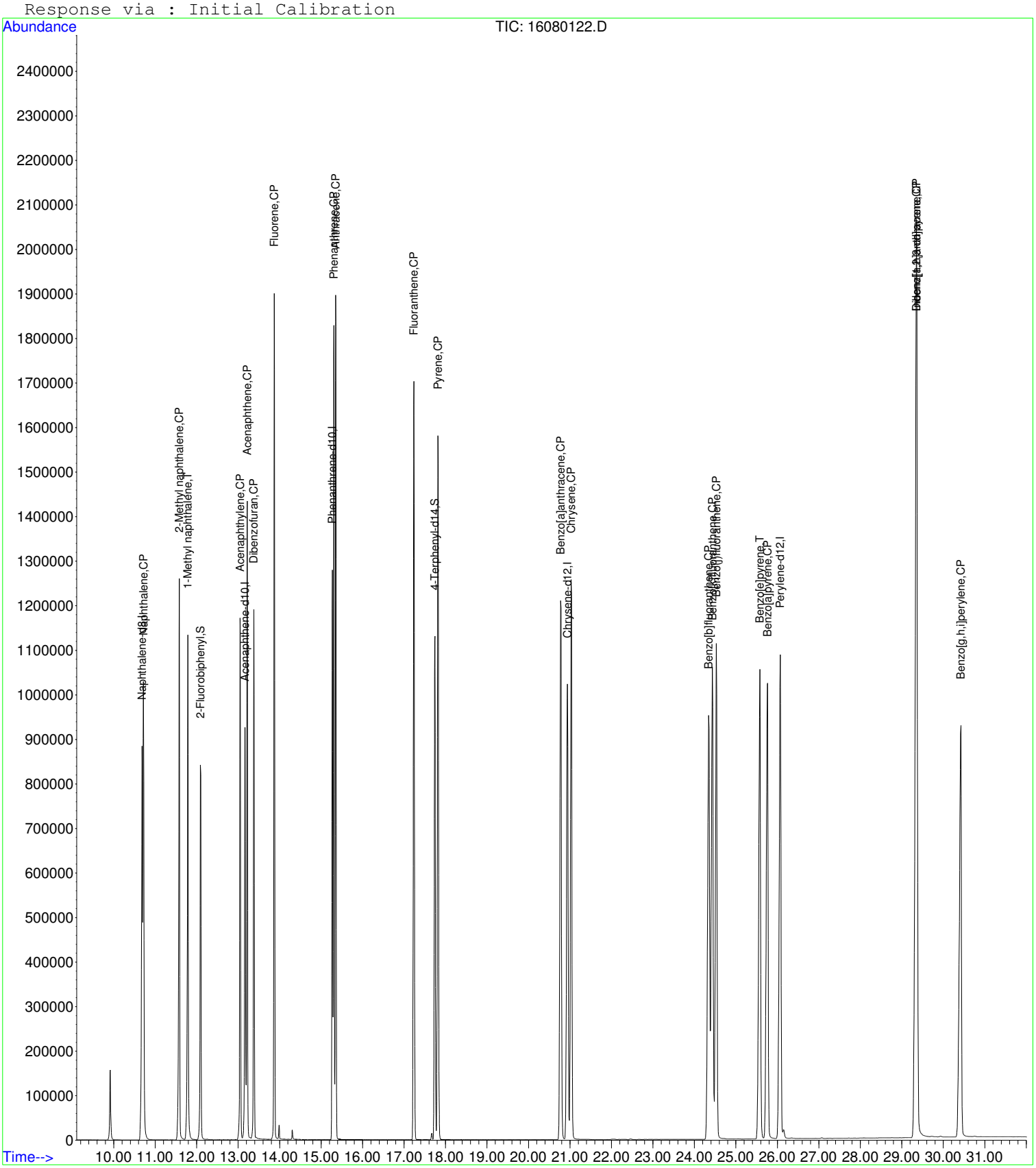
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1300974	4000.00	ug/kg	93
5) Acenaphthene-d10	13.16	164	578980	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1540055	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1926331	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	2158387	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	910049	4506.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 112.65%			
16) 4-Terphenyl-d14	17.74	244	1626864	4476.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 111.91%			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1382400	4670.22	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	875199	4560.89	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	777314	4573.18	ug/kg	98
6) Dibenzofuran	13.38	168	1143687	4881.17	ug/kg	99
8) Acenaphthylene	13.05	152	1229331	4794.69	ug/kg	99
9) Acenaphthene	13.22	154	734765	4948.15	ug/kg	98
10) Fluorene	13.87	166	1054816	5651.02	ug/kg	99
12) Phenanthrene	15.31	178	1698584	4652.11	ug/kg	99
13) Anthracene	15.35	178	1776151	4623.05	ug/kg	99
14) Fluoranthene	17.24	202	1912825	4420.67	ug/kg	99
15) Pyrene	17.82	202	1927732	4393.72	ug/kg	99
18) Benzo[a]anthracene	20.77	228	2058265	4740.53	ug/kg	99
19) Chrysene	21.03	228	1938788	4641.58	ug/kg	99
21) Benzo[b]fluoranthene	24.34	252	2383619	4783.74	ug/kg	99
22) Benzo[k]fluoranthene	24.43	252	1945183	4255.32	ug/kg	99
23) Benzo(j)fluoranthene	24.53	252	2048212	4662.49	ug/kg	99
24) Benzo[e]pyrene	25.58	252	2256081	4665.72	ug/kg	99
25) Benzo[a]pyrene	25.76	252	2246996	4667.24	ug/kg	99
26) Dibenz[a,h]anthracene	29.35	278	2191792	4704.51	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.36	276	2582958	4671.97	ug/kg	98
28) Benzo[g,h,i]perylene	30.42	276	2131025	4602.12	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Dibenzofuran and benzo(J)fluoranthene SSCV.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1325276	4000.00	ug/kg	94
5) Acenaphthene-d10	13.16	164	707178	4000.00	ug/kg	118
11) Phenanthrene-d10	15.27	188	1448385	4000.00	ug/kg	91
17) Chrysene-d12	20.93	240	1824407	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1845448	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	49	0.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
16) 4-Terphenyl-d14	17.74	244	223	0.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	159	0.53	ug/kg	88
3) 2-Methyl naphthalene	11.58	142	146	0.75	ug/kg	83
4) 1-Methyl naphthalene	11.79	142	32	0.18	ug/kg	89
6) Dibenzofuran	13.38	168	646698	2259.71	ug/kg	100
8) Acenaphthylene	13.05	152	144	0.46	ug/kg	70
9) Acenaphthene	13.21	154	171	0.94	ug/kg	87
10) Fluorene	13.87	166	5788	25.39	ug/kg	99
12) Phenanthrene	15.30	178	1058	3.08	ug/kg	95
13) Anthracene	15.35	178	2627	7.27	ug/kg	96
14) Fluoranthene	17.23	202	1405	3.45	ug/kg	94
15) Pyrene	17.81	202	1483	3.59	ug/kg	99
18) Benzo[a]anthracene	20.77	228	3151	7.66	ug/kg	98
19) Chrysene	21.01	228	2940	7.43	ug/kg	99
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) Benzo[k]fluoranthene	24.50	252	927856	2374.00	ug/kg	96
23) Benzo(j)fluoranthene	24.50	252	935770	2491.38	ug/kg	100
24) Benzo[e]pyrene	25.55	252	6358	15.38	ug/kg	98
25) Benzo[a]pyrene	25.73	252	3099	7.53	ug/kg	97
26) Dibenz[a,h]anthracene	29.30	278	2935	7.37	ug/kg	92
27) Indeno[1,2,3-cd]pyrene	29.32	276	3735	7.90	ug/kg	98
28) Benzo[g,h,i]perylene	30.38	276	2800	7.07	ug/kg	96

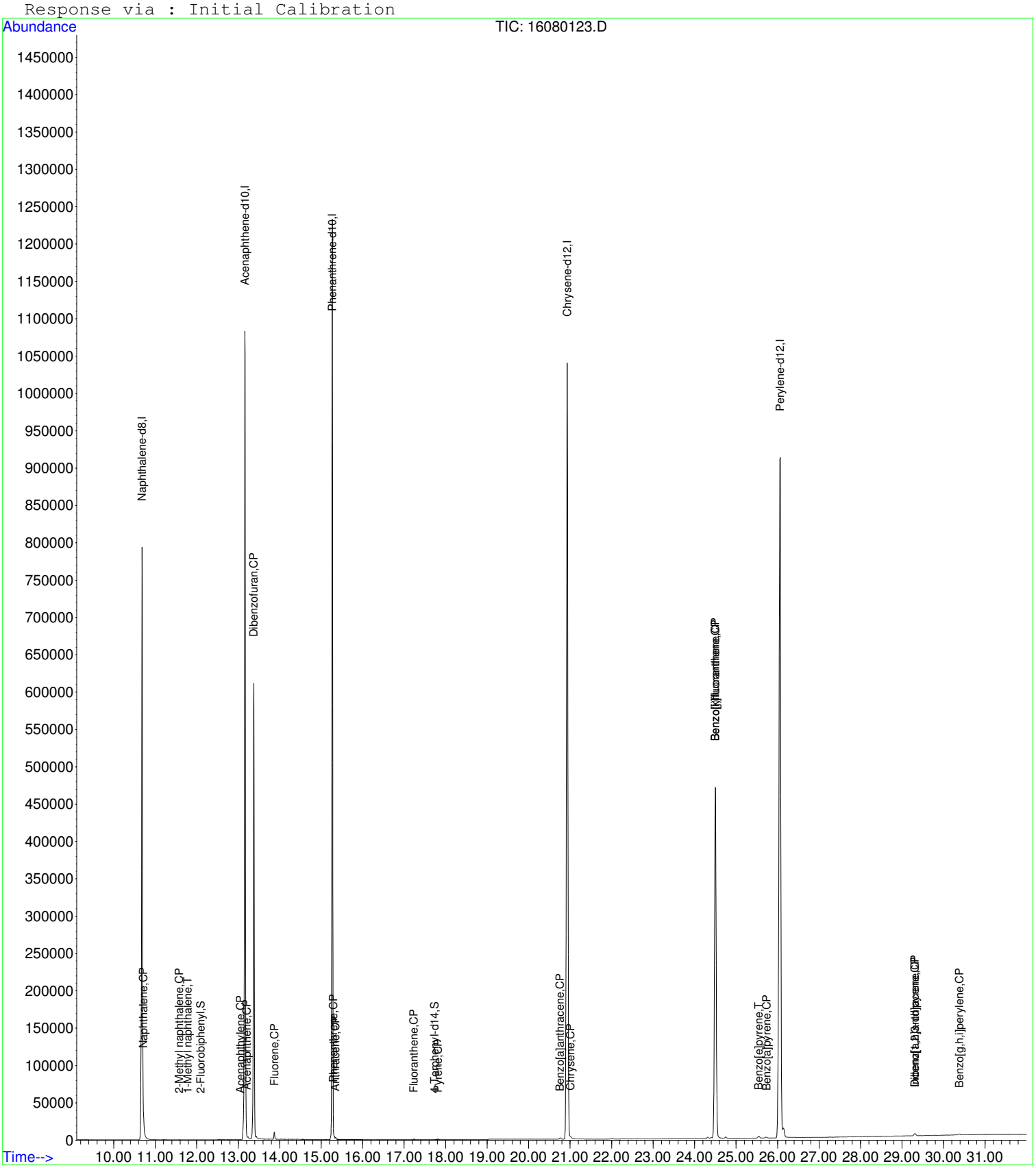
REVIEWED/APPROVED
By Sherri Herschmann at 9:39:32 AM, 8/10/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

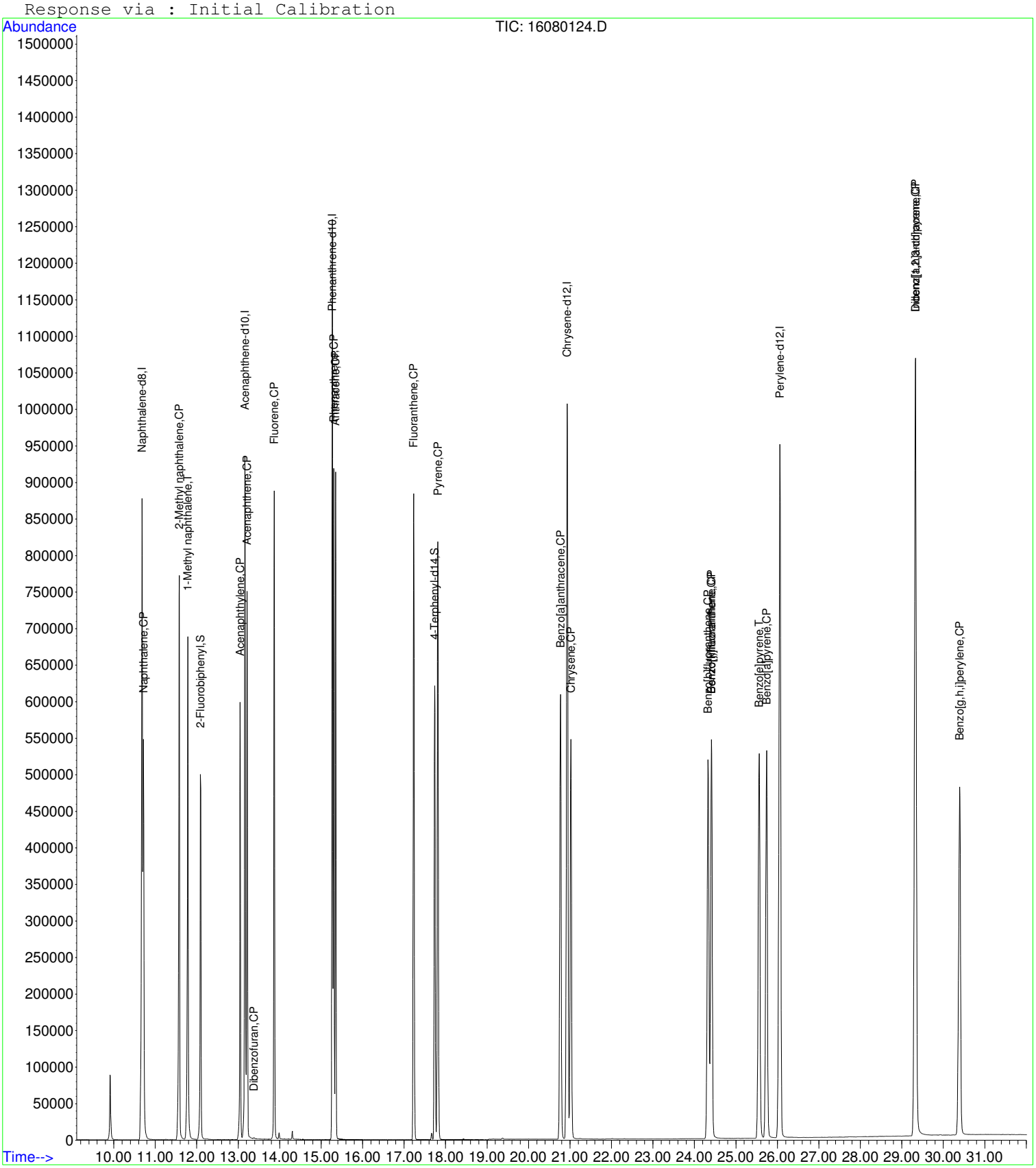
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1382829	4000.00	ug/kg	99
5) Acenaphthene-d10	13.16	164	584199	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1507995	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	1806763	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1922214	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	535064	2625.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	65.64%		
16) 4-Terphenyl-d14	17.74	244	917932	2579.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	64.48%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	729433	2318.41	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	557797	2734.76	ug/kg	100
4) 1-Methyl naphthalene	11.78	142	488333	2702.95	ug/kg	99
6) Dibenzofuran	13.38	168	1665	7.04	ug/kg	92
8) Acenaphthylene	13.05	152	618455	2390.57	ug/kg	100
9) Acenaphthene	13.21	154	377577	2520.01	ug/kg	99
10) Fluorene	13.87	166	493842	2622.05	ug/kg	99
12) Phenanthrene	15.31	178	836523	2339.79	ug/kg	100
13) Anthracene	15.35	178	838710	2229.45	ug/kg	100
14) Fluoranthene	17.23	202	984348	2323.26	ug/kg	100
15) Pyrene	17.81	202	987430	2298.41	ug/kg	100
18) Benzo[a]anthracene	20.77	228	984666	2417.93	ug/kg	99
19) Chrysene	21.02	228	825681	2107.55	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	1115953	2514.81	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	1060340	2604.62	ug/kg	100
23) Benzo(j)fluoranthene	24.41	252	1065428	2723.30	ug/kg	96
24) Benzo[e]pyrene	25.56	252	1115693	2590.81	ug/kg	99
25) Benzo[a]pyrene	25.74	252	1079860	2518.56	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	1039354	2504.99	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.33	276	1238582	2515.56	ug/kg	99
28) Benzo[g,h,i]perylene	30.39	276	1033552	2506.28	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS8
For

DHL Work Order
1607256

GCMS8_160804A
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160804A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)		X	

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

QA APPROVED
By John DuPont at 3:37:12 PM, 8/11/2016

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
X ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/5/2016

Second-Level Review: Janice Whitt Date: 8/11/2016

REVIEWED BY
By Janice Whitt at 3:32:52 PM, 8/11/2016

DHL Analytical, Inc.

Run ID: GCMS8_160804A **Run No.:** 87450

Analytical Run Date: 8/4/2016 **InstrumentID:** GCMS8

Analyst: Don Winston **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 681 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160802.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160804	1	PAH_LL_SDOD1	TUNE	R87450	8/4/2016 7:52:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160804	1	PAH_LL_SDOD1	ICV	R87450	8/4/2016 8:31:00 AM		
LCS-76491	1	PAH_LL_SDOD1	LCS	76491	8/4/2016 9:10:00 AM		
MB-76491	1	PAH_LL_SDOD1	MBLK	76491	8/4/2016 9:50:00 AM		
1607256-20A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 10:30:00 AM		
1607256-21A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:10:00 AM		
1607256-22A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:50:00 AM		
1607256-23A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 12:30:00 PM		
1607256-24A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 1:11:00 PM		
1607256-25A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 1:51:00 PM		
1607256-37A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 2:32:00 PM		
1607256-38A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 3:13:00 PM		
1607256-39A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 3:53:00 PM		
1607256-40A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 4:34:00 PM		
1607256-41A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 5:14:00 PM		
1607256-42A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 5:55:00 PM		
1607265-01A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 6:35:00 PM		
DFTPP2-160804	1	PAH_LL_SDOD1	TUNE	R87450	8/4/2016 7:16:00 PM		
ICV2-160804	1	PAH_LL_SDOD1	ICV	R87450	8/4/2016 7:55:00 PM		Low recpvery for Pyrene (77.18%)
SB-160804	1	PAH_LL_SDOD1	SBLK	76491	8/4/2016 9:15:00 PM		
1607265-02A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 9:54:00 PM		
1607265-03A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 10:34:00 PM		
1607265-04A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:14:00 PM		
1607265-05A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:54:00 PM		
1607265-06A	10	PAH_LL_SDOD1	SAMP	76491	8/5/2016 12:33:00 AM		
1607256-21AMS	10	PAH_LL_SDOD1	MS	76491	8/5/2016 1:13:00 AM		
1607256-21AMSD	10	PAH_LL_SDOD1	MSD	76491	8/5/2016 1:53:00 AM		
CCV1-160804	1	PAH_LL_SDOD1	CCV	R87450	8/5/2016 2:33:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\msdchem\1\sequence\160804.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160804\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

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

Line		Sample Name/Misc Info		
1)	Sample 1	16080401	DFTPPPAH	DFTPP-160804
2)	Sample 2	16080402	PAH160802	ICV-160804
3)	Sample 3	16080403	PAH160802	LCS-76491
4)	Sample 4	16080404	PAH160802	MB-76491
5)	Sample 5	16080405	PAH160802	1607256-20A
6)	Sample 6	16080406	PAH160802	1607256-21A
7)	Sample 7	16080407	PAH160802	1607256-22A
8)	Sample 8	16080408	PAH160802	1607256-23A
9)	Sample 9	16080409	PAH160802	1607256-24A
10)	Sample 10	16080410	PAH160802	1607256-25A
11)	Sample 11	16080411	PAH160802	1607256-37A
12)	Sample 12	16080412	PAH160802	1607256-38A
13)	Sample 13	16080413	PAH160802	1607256-39A
14)	Sample 14	16080414	PAH160802	1607256-40A
15)	Sample 15	16080415	PAH160802	1607256-41A
16)	Sample 16	16080416	PAH160802	1607256-42A
17)	Sample 17	16080417	PAH160802	1607265-01A
18)	Sample 18	16080418	DFTPPPAH	DFTPP2-160804
19)	Sample 19	16080419	PAH160802	ICV2-160804
20)	Sample 20	16080420	PAH160802	SBLK
21)	Sample 21	16080421	PAH160802	SB-160804
22)	Sample 22	16080422	PAH160802	1607265-02A
23)	Sample 23	16080423	PAH160802	1607265-03A
24)	Sample 24	16080424	PAH160802	1607265-04A
25)	Sample 25	16080425	PAH160802	1607265-05A
26)	Sample 26	16080426	PAH160802	1607265-06A
27)	Sample 27	16080427	PAH160802	1607256-21AMS
28)	Sample 28	16080428	PAH160802	1607256-21AMSD
29)	Sample 29	16080429	PAH160802	CCV1-160804

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: **7/27/2016 1:00:00 PM**

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10.18	10	0.982	1 of 1	
1607256-21A	Soil		10.18	10	0.982	1 of 1	
1607256-22A	Soil		10.11	10	0.989	1 of 1	
1607256-23A	Soil		10.24	10	0.977	1 of 1	
1607256-24A	Soil		10.07	10	0.993	1 of 1	
1607256-25A	Soil		10.13	10	0.987	1 of 1	
1607256-37A	Soil		10.34	10	0.967	1 of 1	
1607256-38A	Soil		10.08	10	0.992	1 of 1	
1607256-39A	Soil		10.06	10	0.994	1 of 1	
1607256-40A	Soil		10.07	10	0.993	1 of 1	
1607256-41A	Soil		10.12	10	0.988	1 of 1	
1607256-42A	Soil		10.16	10	0.984	1 of 1	
1607265-01A	Soil		10.08	10	0.992	1 of 1	
1607265-02A	Soil		10.04	10	0.996	1 of 1	
1607265-03A	Soil		10.01	10	0.999	1 of 1	
1607265-04A	Soil		10.03	10	0.997	1 of 1	
1607265-05A	Soil		10.05	10	0.995	1 of 1	
1607265-06A	Soil		10.19	10	0.981	1 of 1	
1607269-20B	Soil		10.41	10	0.961	1 of 1	
1607269-20BMS	Soil		10.07	10	0.993	1 of	
Associated w/76490							
1607269-20BMSD	Soil		10.82	10	0.924	1 of	
Associated w/76490							
LCS-76491	Soil		10	10	1.000	of	
Associated w/76490							
MB-76491	Soil		10	10	1.000	of	
Associated w/76490							

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: 7/27/2016 1:00 PM

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10 .18	10	1.000	1 of 1	
1607256-21A	Soil		10 .18	10	1.000	1 of 1	
1607256-22A	Soil		10 .11	10	1.000	1 of 1	
1607256-23A	Soil		10 .24	10	1.000	1 of 1	
1607256-24A	Soil		10 .07	10	1.000	1 of 1	
1607256-25A	Soil	TM 7/27	.13 10 ~~.35~~	10	1.000	1 of 1	
1607256-37A	Soil		10 .34	10	1.000	1 of 1	
1607256-38A	Soil		10 .08	10	1.000	1 of 1	
1607256-39A	Soil		10 .06	10	1.000	1 of 1	
1607256-40A	Soil		10 .07	10	1.000	1 of 1	
1607256-41A	Soil		10 .12	10	1.000	1 of 1	
1607256-42A	Soil		10 .16	10	1.000	1 of 1	
1607265-01A	Soil		10 .06	10	1.000	1 of 1	
1607265-02A	Soil		10 .04	10	1.000	1 of 1	
1607265-03A	Soil		10 .01	10	1.000	1 of 1	
1607265-04A	Soil		10 .03	10	1.000	1 of 1	
1607265-05A	Soil		10 .05	10	1.000	1 of 1	
1607265-06A	Soil		10 .19	10	1.000	1 of 1	
1607269-20B	Soil		10 .41	10	1.000	1 of 1	
1607269-20BMS	Soil		10 .07	10	1.000	1 of	
Associated w/76490							
1607269-20BMSD	Soil		10 .32	10	1.000	1 of	
Associated w/76490							
LCS-76491	Soil		10	10	1.000	1 of	
Associated w/76490							
MB-76491	Soil		10	10	1.000	of	
Associated w/76490							

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160~~609~~ 7/27	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160~~71~~ 10 20 7/27/16	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

TM 7/27/16 7/27/16 7/27/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A SS	Soil		0	0	#Num!	1 of 1	
1607256-02A SS	Soil		0	0	#Num!	1 of 1	
1607256-03A SS	Soil		0	0	#Num!	1 of 1	
1607256-04A SS	Soil		0	0	#Num!	1 of 1	
1607256-05A SS	Soil		0	0	#Num!	1 of 1	
1607256-06A SS	Soil		0	0	#Num!	1 of 1	
1607256-07A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607256-08A SS	Soil		0	0	#Num!	1 of 1	
1607256-09A SS	Soil		0	0	#Num!	1 of 1	
1607256-10A SS	Soil		0	0	#Num!	1 of 1	
1607256-11A SS	Soil		0	0	#Num!	1 of 1	
1607256-12A SS	Soil		0	0	#Num!	1 of 1	
1607256-14A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:27:57 PM, 8/11/2016

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:28:00 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 1:28:02 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-07A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-08A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-11A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-12A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:28:09 PM, 8/11/2016

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-18A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607265-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-23A	Soil		0	0	#Num!	1 of 1	
Sieve Ony Hard Clay							
1607265-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-25A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:28:15 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:08:46 PM**
Digestion: **Start: 7/25/2016 1:20:00 PM / Stop: 7/26/2016 2:30:00 PM**
Prep End Date: **7/26/2016 3:20:00 PM**

Prep Batch **76440** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A SS	Soil		0	0	#Num!	1 of 1	
1607256-21A SS	Soil		0	0	#Num!	1 of 1	
1607256-22A SS	Soil		0	0	#Num!	1 of 1	
1607256-23A SS	Soil		0	0	#Num!	1 of 1	
1607256-24A SS	Soil		0	0	#Num!	1 of 1	
1607256-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:28:19 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: 7/27/2016 1:00 PM

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia** Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10 .18	10	1.000	1 of 1	
1607256-21A	Soil		10 .18	10	1.000	1 of 1	
1607256-22A	Soil		10 .11	10	1.000	1 of 1	
1607256-23A	Soil		10 .24	10	1.000	1 of 1	
1607256-24A	Soil		10 .07	10	1.000	1 of 1	
1607256-25A	Soil		7/27 .13 10 ~~.34~~	10	1.000	1 of 1	
1607256-37A	Soil		10 .34	10	1.000	1 of 1	
1607256-38A	Soil		10 .08	10	1.000	1 of 1	
1607256-39A	Soil		10 .00	10	1.000	1 of 1	
1607256-40A	Soil		10 .07	10	1.000	1 of 1	
1607256-41A	Soil		10 .12	10	1.000	1 of 1	
1607256-42A	Soil		10 .16	10	1.000	1 of 1	
1607265-01A	Soil		10 .00	10	1.000	1 of 1	
1607265-02A	Soil		10 .04	10	1.000	1 of 1	
1607265-03A	Soil		10 .01	10	1.000	1 of 1	
1607265-04A	Soil		10 .03	10	1.000	1 of 1	
1607265-05A	Soil		10 .05	10	1.000	1 of 1	
1607265-06A	Soil		10 .19	10	1.000	1 of 1	
~~1607269-20B~~	Soil		10 .41	10	1.000	1 of 1	
~~1607269-20BMS~~	Soil		10 .07	10	1.000	1 of	
Associated w/76490							
~~1607269-20BMSD~~	Soil		10 .32	10	1.000	1 of	
Associated w/76490							
LCS-76491	Soil		10	10	1.000	1 of	
Associated w/76490							
MB-76491	Soil		10	10	1.000	of	
Associated w/76490							

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160~~609~~ 7/27	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP1607~~13~~ 20	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

256 -21MS
-21MSD

10.06
10.20

7/27/16 7/27/16 7/27/16

REVIEWED BY
By Janice Whitt at 3:12:44 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: **7/27/2016 1:00:00 PM**

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10.18	10	0.982	1 of 1	
1607256-21A	Soil		10.18	10	0.982	1 of 1	
1607256-21AMS	Soil		10.06	10	0.994	1 of	
1607256-21AMSD	Soil		10.2	10	0.980	1 of	
1607256-22A	Soil		10.11	10	0.989	1 of 1	
1607256-23A	Soil		10.24	10	0.977	1 of 1	
1607256-24A	Soil		10.07	10	0.993	1 of 1	
1607256-25A	Soil		10.13	10	0.987	1 of 1	
1607256-37A	Soil		10.34	10	0.967	1 of 1	
1607256-38A	Soil		10.08	10	0.992	1 of 1	
1607256-39A	Soil		10.06	10	0.994	1 of 1	
1607256-40A	Soil		10.07	10	0.993	1 of 1	
1607256-41A	Soil		10.12	10	0.988	1 of 1	
1607256-42A	Soil		10.16	10	0.984	1 of 1	
1607265-01A	Soil		10.08	10	0.992	1 of 1	
1607265-02A	Soil		10.04	10	0.996	1 of 1	
1607265-03A	Soil		10.01	10	0.999	1 of 1	
1607265-04A	Soil		10.03	10	0.997	1 of 1	
1607265-05A	Soil		10.05	10	0.995	1 of 1	
1607265-06A	Soil		10.19	10	0.981	1 of 1	
LCS-76491	Soil		10	10	1.000	of	
	Associated w/76490						
MB-76491	Soil		10	10	1.000	of	
	Associated w/76490						

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

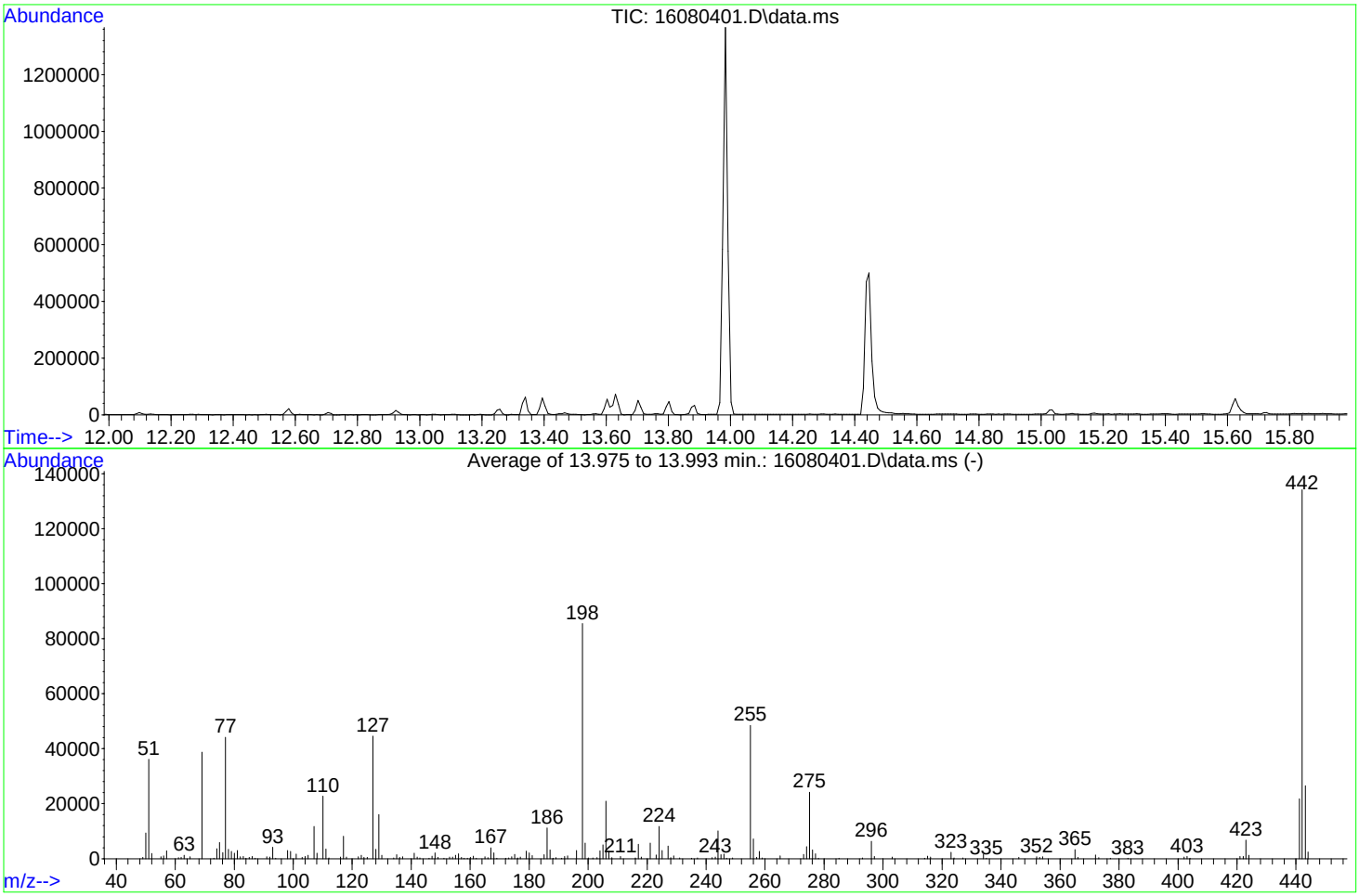
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

REVIEWED BY
By Janice Whitt at 3:12:57 PM, 8/11/2016

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080401.D
Acq On : 4 Aug 2016 7:52 am
Operator :
Sample : DFTPP-160804
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

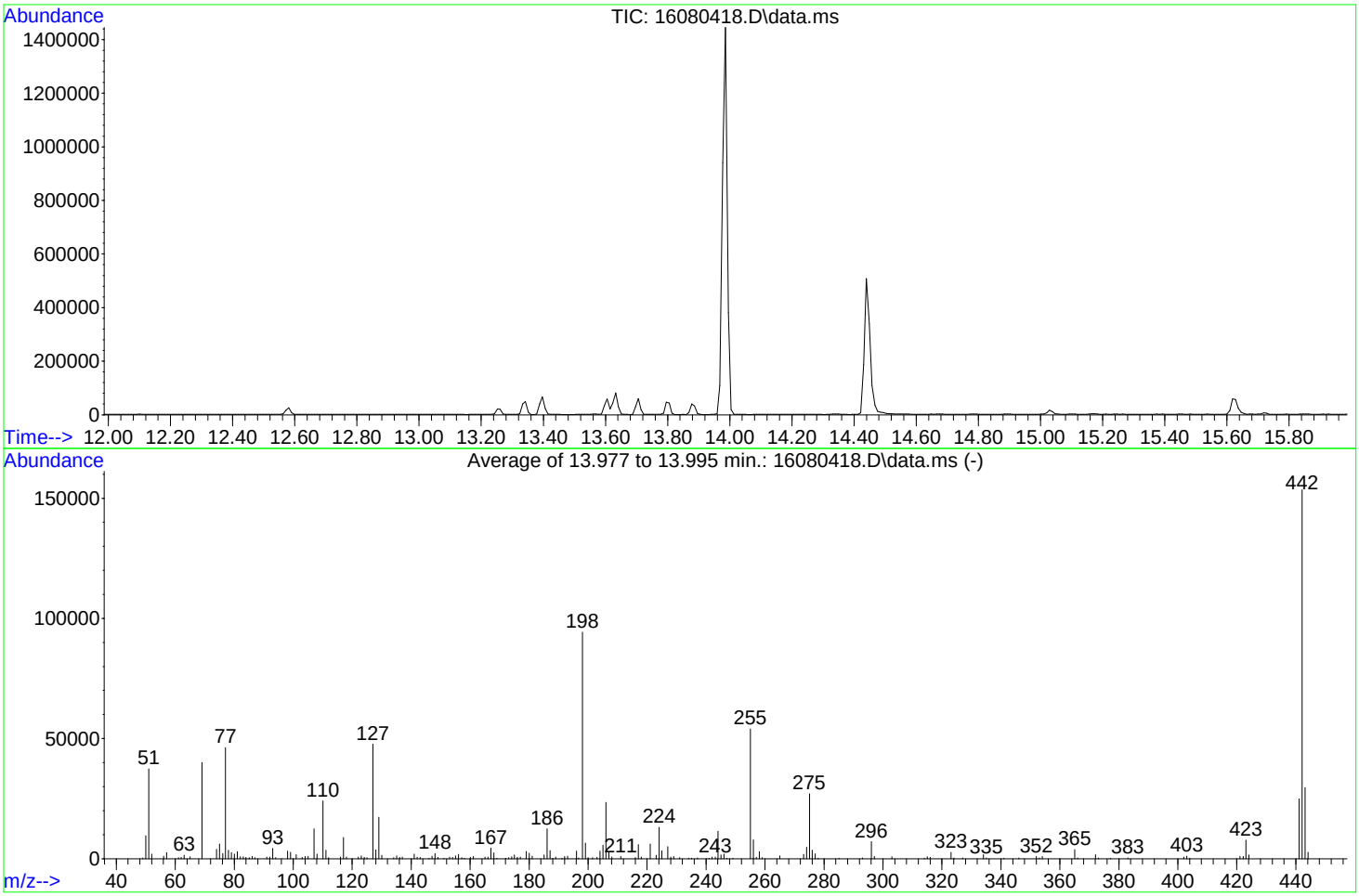
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.3	36135	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.3	38725	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	52.1	44544	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	85517	PASS
199	198	5	9	6.7	5722	PASS
275	198	10	60	28.3	24170	PASS
365	198	1	200	3.9	3325	PASS
441	442	0.01	24	16.2	21788	PASS
442	198	50	400	156.9	134218	PASS
443	442	15	24	19.8	26566	PASS

REVIEWED BY
By Janice Whitt at 1:28:23 PM, 8/11/2016

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080418.D
Acq On : 4 Aug 2016 7:16 pm
Operator :
Sample : DFTPP2-160804
Misc : TUNE
ALS Vial : 18 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.7	37430	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.4	39997	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.6	47694	PASS
197	198	0.00	2	0.4	340	PASS
198	198	100	100	100.0	94312	PASS
199	198	5	9	6.8	6449	PASS
275	198	10	60	28.6	26981	PASS
365	198	1	200	4.0	3787	PASS
441	442	0.01	24	16.2	24868	PASS
442	198	50	400	162.8	153584	PASS
443	442	15	24	19.3	29673	PASS

REVIEWED BY
By Janice Whitt at 1:28:28 PM, 8/11/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080402.D
Acq On : 4 Aug 2016 8:31 am
Operator :
Sample : ICV-160804
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 05 14:34:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

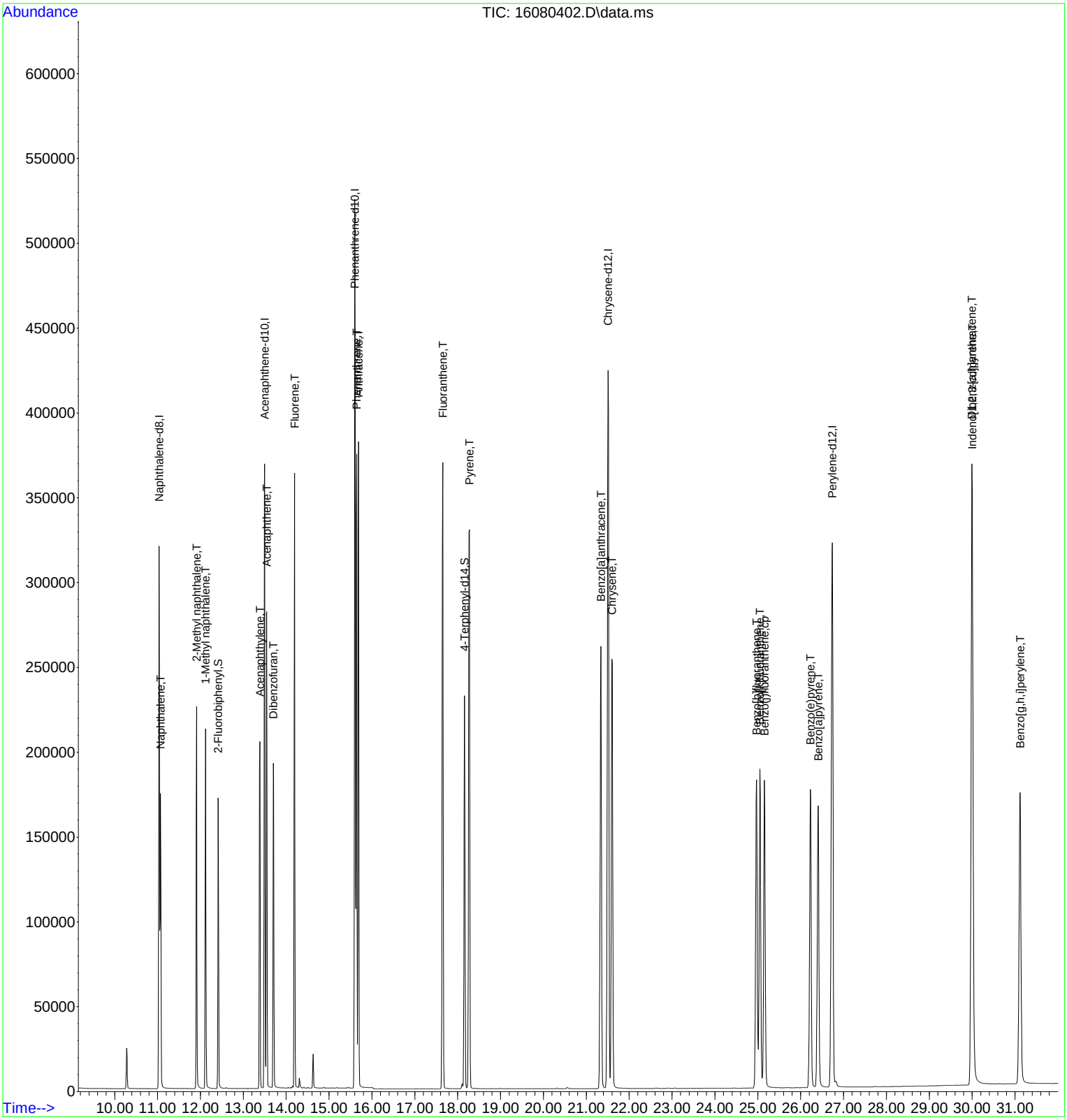
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	403751	4000.00	ug/kg	103
6) Acenaphthene-d10	13.499	164	214740	4000.00	ug/kg	118
11) Phenanthrene-d10	15.600	188	623853	4000.00	ug/kg	125
17) Chrysene-d12	21.508	240	660918	4000.00	ug/kg	98
20) Perylene-d12	26.741	264	607473	4000.00	ug/kg	99
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	134171	2003.86	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.10%			
15) 4-Terphenyl-d14	18.158	244	252613	1625.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 40.65%#			
Target Compounds						Qvalue
2) Naphthalene	11.068	128	184630	1880.73	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	122364	1980.77	ug/kg	98
4) 1-Methyl naphthalene	12.118	142	112208	1978.12	ug/kg	99
7) Acenaphthylene	13.386	152	204963	1990.73	ug/kg	100
8) Acenaphthene	13.542	153	129895	1991.37	ug/kg	99
9) Dibenzofuran	13.707	168	193729	2096.07	ug/kg	99
10) Fluorene	14.193	166	174892	2242.13	ug/kg	99
12) Phenanthrene	15.643	178	321014	1903.34	ug/kg	100
13) Anthracene	15.687	178	329398	1909.47	ug/kg	100
14) Fluoranthene	17.651	202	386717	1708.85	ug/kg	96
16) Pyrene	18.271	202	387570	1649.80	ug/kg	96
18) Benzo[a]anthracene	21.339	228	358944	2094.63	ug/kg	100
19) Chrysene	21.604	228	331850	2029.47	ug/kg	99
21) Benzo[b]fluoranthene	24.970	252	343624	2096.46	ug/kg	100
22) Benzo[k]fluoranthene	25.050	252	311234	2219.64	ug/kg	100
23) Benzo(j)fluoranthene	25.155	252	295630	2158.61	ug/kg	100
24) Benzo(e)pyrene	26.226	252	318558	2008.47	ug/kg	100
25) Benzo[a]pyrene	26.411	252	313797	2084.77	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.010	276	395338	2223.91	ug/kg	92
27) Dibenz[a,h]anthracene	29.994	278	328716	2248.86	ug/kg	100
28) Benzo[g,h,i]perylene	31.121	276	335834	2150.67	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080402.D
Acq On : 4 Aug 2016 8:31 am
Operator :
Sample : ICV-160804
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

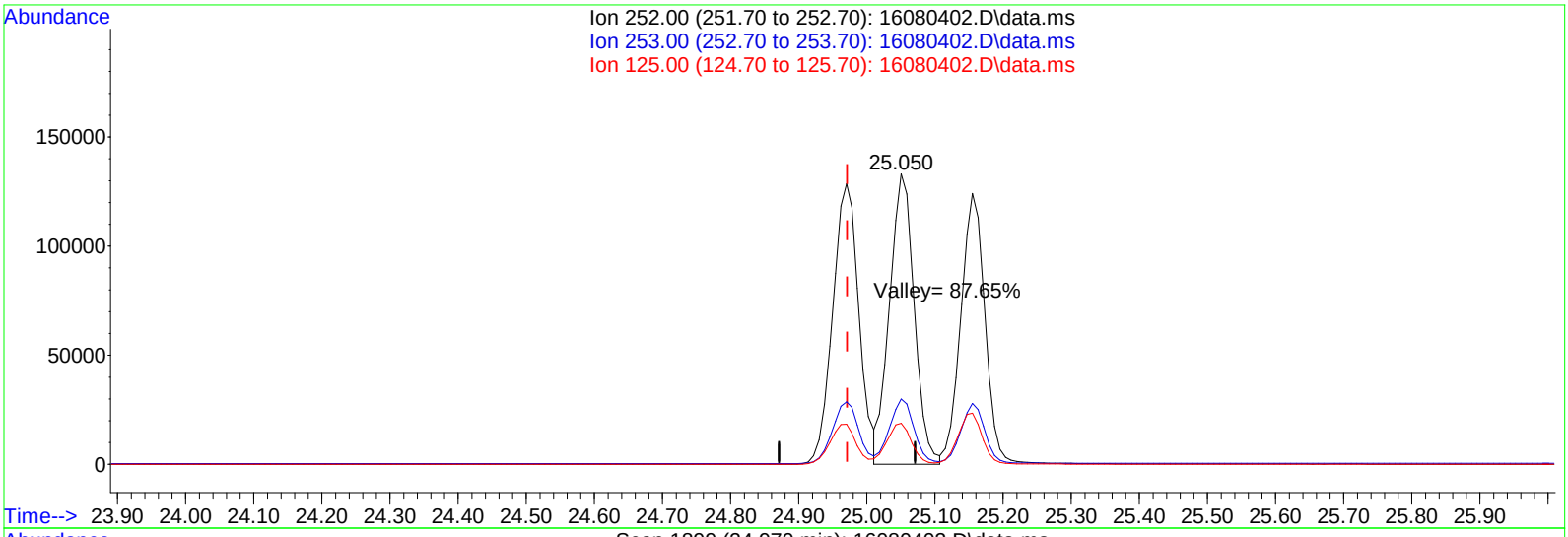
Quant Time: Aug 05 14:34:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

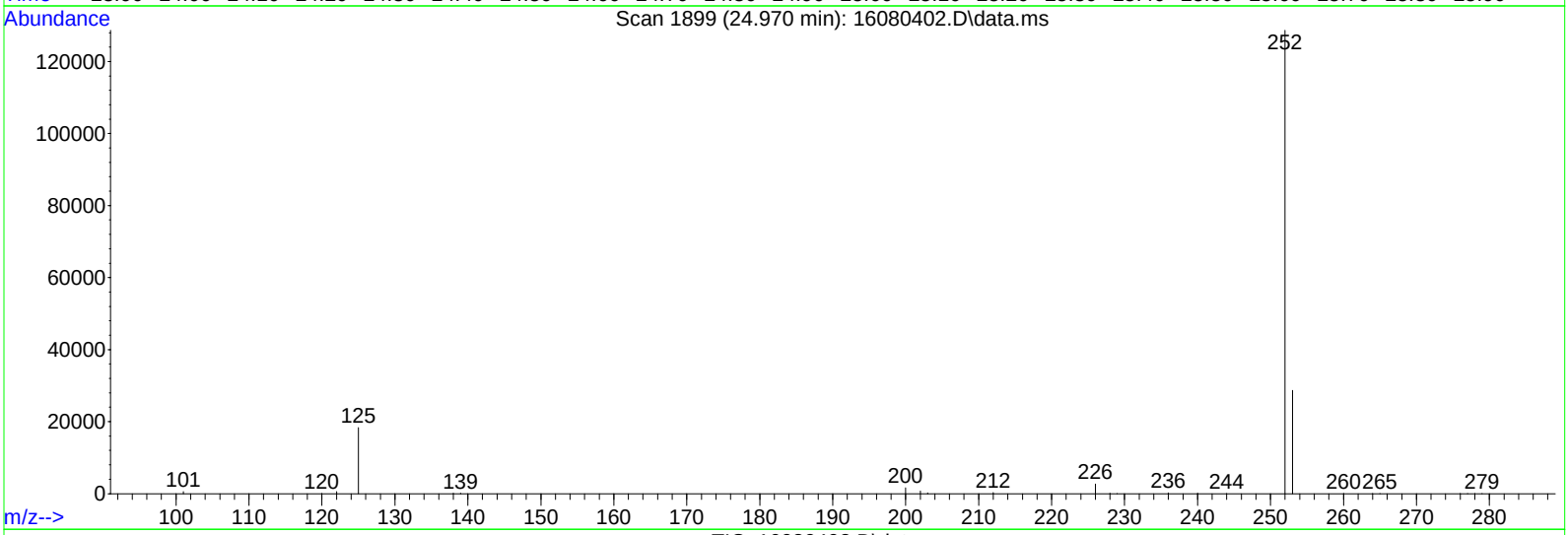


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080402.D
Acq On : 4 Aug 2016 8:31 am
Operator :
Sample : ICV-160804
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 04 09:03:18 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration





TIC: 16080402.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.970min (-0.001) 2096.46ug/kg

response 343624

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	21.96
125.00	13.90	14.22
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080403.D
Acq On : 4 Aug 2016 9:10 am
Operator :
Sample : LCS-76491
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 05 14:34:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	434555	4000.00	ug/kg	111
6) Acenaphthene-d10	13.497	164	205716	4000.00	ug/kg	113
11) Phenanthrene-d10	15.598	188	438440	4000.00	ug/kg	88
17) Chrysene-d12	21.501	240	520940	4000.00	ug/kg	77
20) Perylene-d12	26.735	264	523600	4000.00	ug/kg	85

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.412	172	56359	782.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.55%#			
15) 4-Terphenyl-d14	18.160	244	75779	693.98	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 17.35%#			

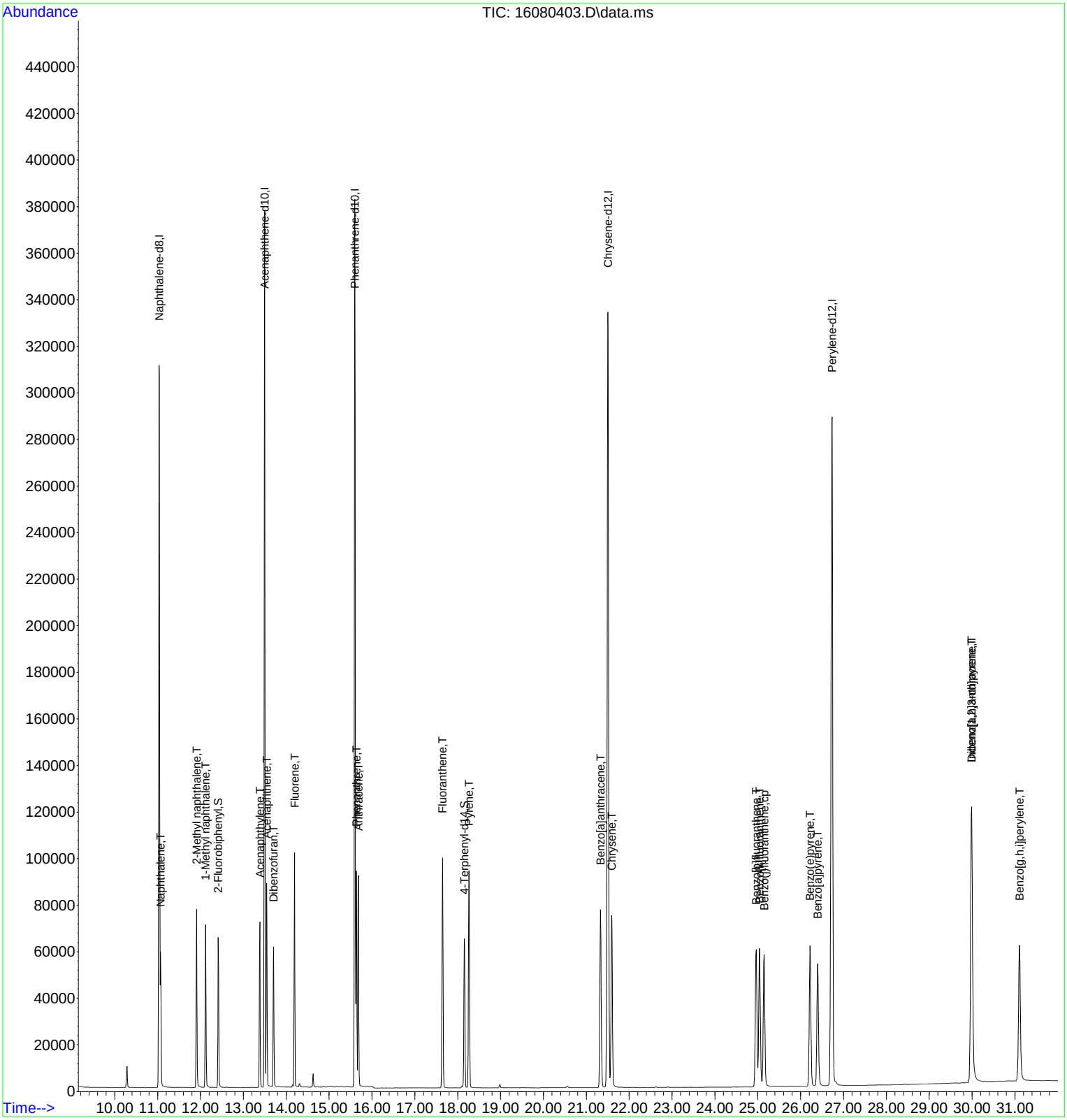
Target Compounds						Qvalue
2) Naphthalene	11.066	128	63081	597.02	ug/kg	100
3) 2-Methyl naphthalene	11.908	142	43462	653.67	ug/kg	99
4) 1-Methyl naphthalene	12.117	142	40188	658.25	ug/kg	100
7) Acenaphthylene	13.384	152	67392	683.27	ug/kg	100
8) Acenaphthene	13.540	153	42381	678.23	ug/kg	100
9) Dibenzofuran	13.705	168	59657	673.78	ug/kg	97
10) Fluorene	14.192	166	49849	667.10	ug/kg	100
12) Phenanthrene	15.641	178	84103	709.54	ug/kg	99
13) Anthracene	15.685	178	82975	684.40	ug/kg	99
14) Fluoranthene	17.644	202	102550	644.79	ug/kg	97
16) Pyrene	18.264	202	105212	637.26	ug/kg	96
18) Benzo[a]anthracene	21.332	228	105131	778.34	ug/kg	100
19) Chrysene	21.590	228	97064	753.11	ug/kg	100
21) Benzo[b]fluoranthene	24.963	252	109868	777.68	ug/kg	99
22) Benzo[k]fluoranthene	25.044	252	98093	811.63	ug/kg	98
23) Benzo(j)fluoranthene	25.148	252	96171	814.70	ug/kg	99
24) Benzo(e)pyrene	26.219	252	106951	782.33	ug/kg	100
25) Benzo[a]pyrene	26.396	252	99707	768.53	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.995	276	134149	875.52	ug/kg	92
27) Dibenz[a,h]anthracene	29.979	278	108801	863.58	ug/kg	99
28) Benzo[g,h,i]perylene	31.107	276	113727	844.97	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080403.D
Acq On : 4 Aug 2016 9:10 am
Operator :
Sample : LCS-76491
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 05 14:34:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080404.D
Acq On : 4 Aug 2016 9:50 am
Operator :
Sample : MB-76491
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 05 14:34:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	460995	4000.00	ug/kg	117
6) Acenaphthene-d10	13.498	164	215159	4000.00	ug/kg	118
11) Phenanthrene-d10	15.599	188	440296	4000.00	ug/kg	88
17) Chrysene-d12	21.501	240	506181	4000.00	ug/kg	75
20) Perylene-d12	26.727	264	520426	4000.00	ug/kg	85

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	59619	779.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.50%#			
15) 4-Terphenyl-d14	18.160	244	74749	681.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 17.04%#			

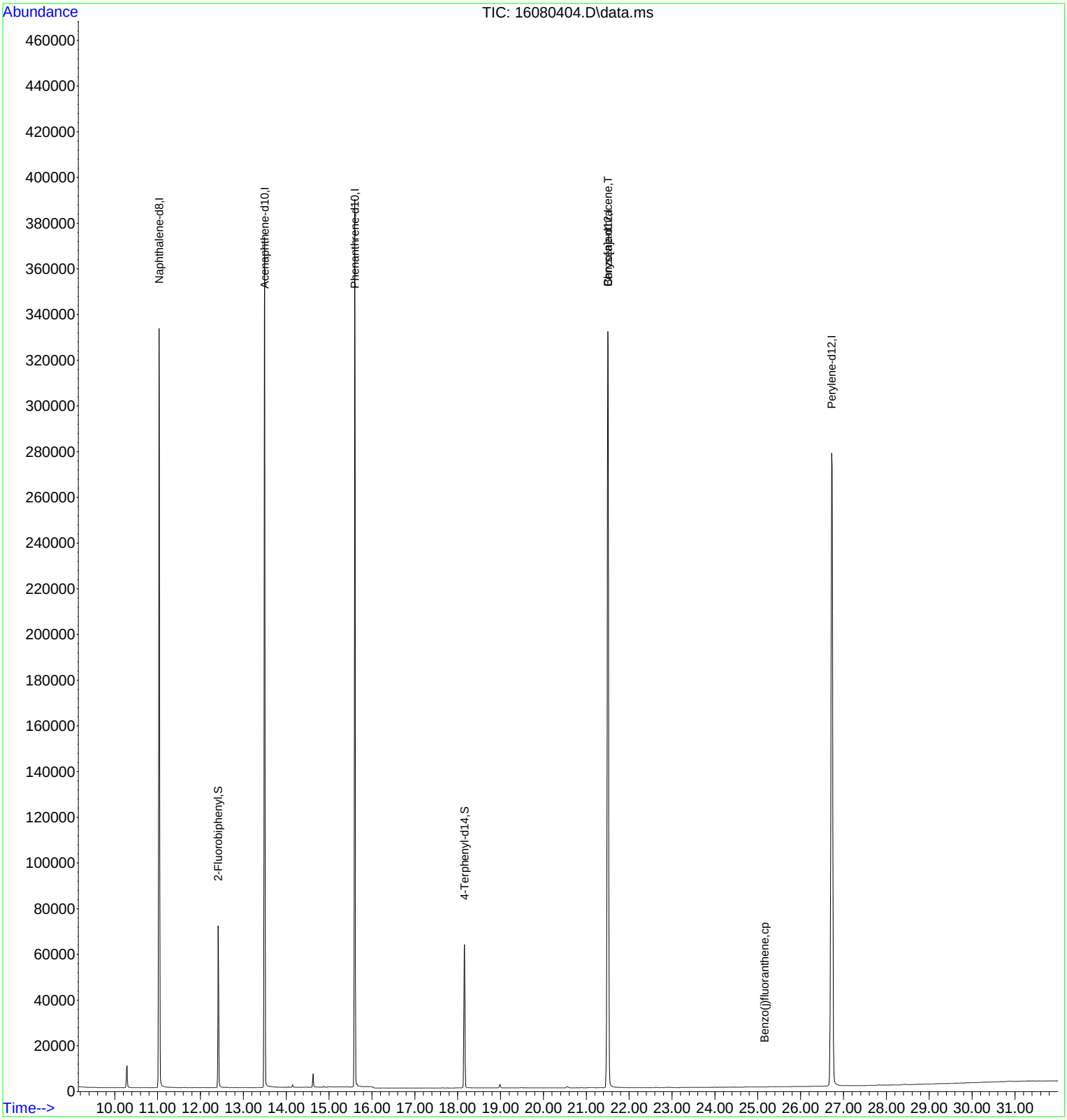
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.501	228	1398	10.65	ug/kg	72
23) Benzo(j)fluoranthene	25.149	252	12	0.10	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080404.D
Acq On : 4 Aug 2016 9:50 am
Operator :
Sample : MB-76491
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 05 14:34:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080405.D
Acq On : 4 Aug 2016 10:30 am
Operator :
Sample : 1607256-20A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 05 14:35:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.034	136	382750	4000.00	ug/kg	98
6) Acenaphthene-d10	13.491	164	230287	4000.00	ug/kg	126
11) Phenanthrene-d10	15.601	188	597468	4000.00	ug/kg	120
17) Chrysene-d12	21.509	240	606332	4000.00	ug/kg	90
20) Perylene-d12	26.734	264	572098	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.415	172	6105	96.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.40%#			
15) 4-Terphenyl-d14	18.151	244	10511	70.64	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.77%#			

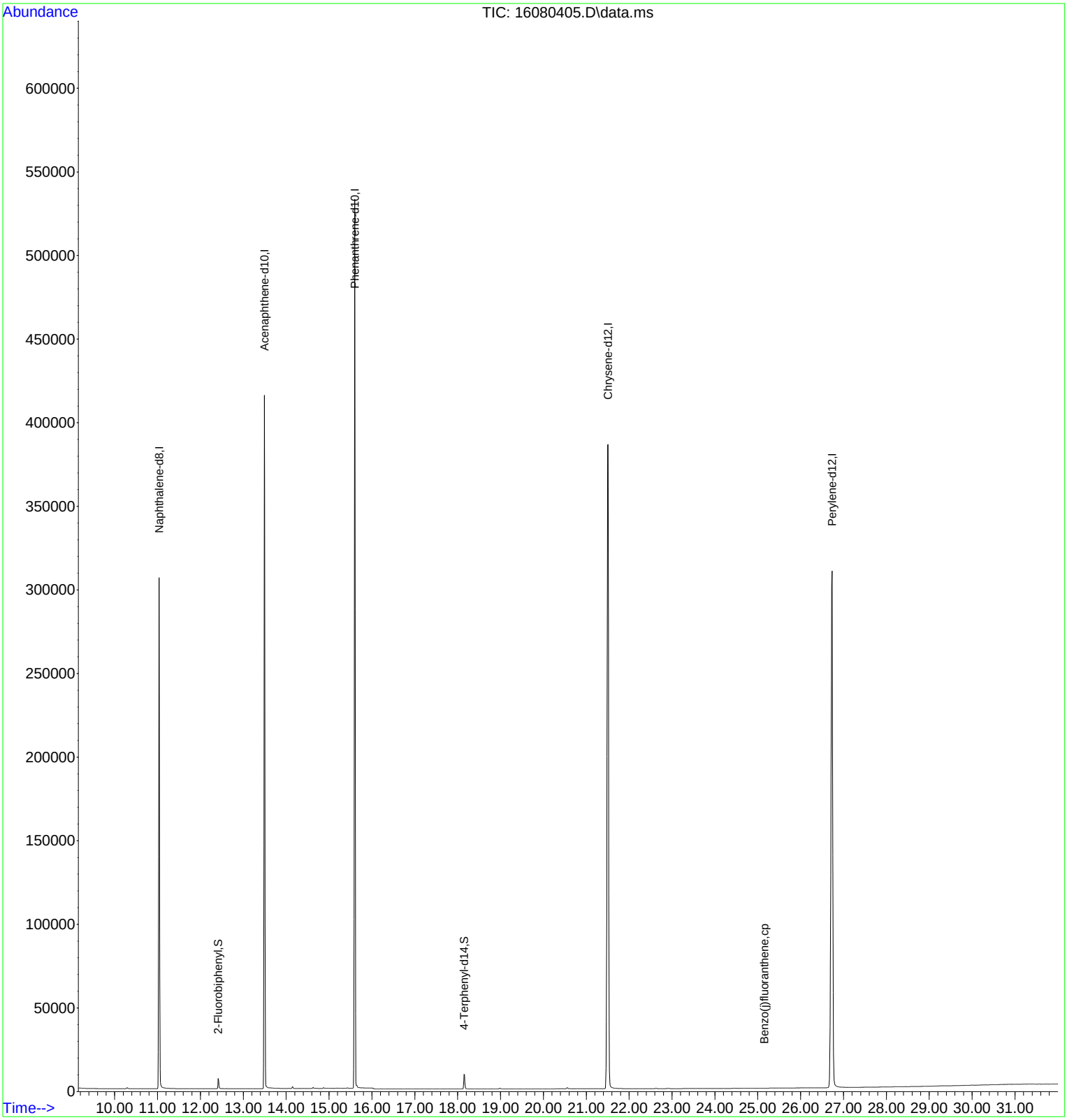
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.140	252	14	0.11	ug/kg#	1

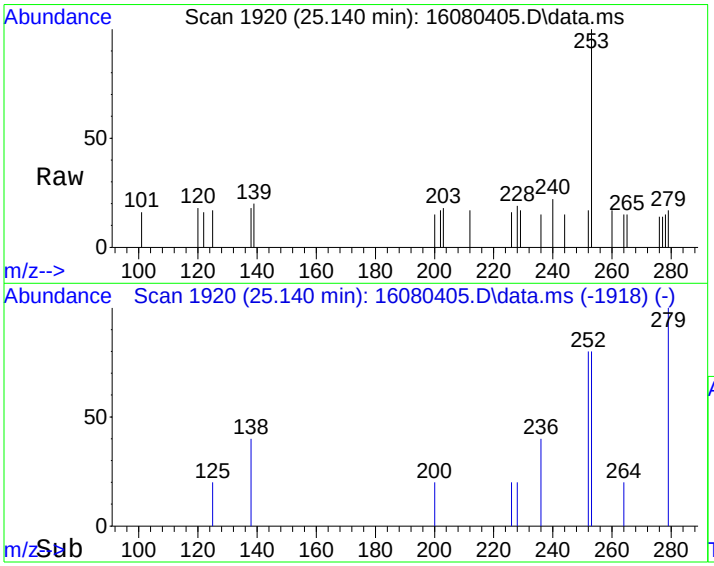
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080405.D
Acq On : 4 Aug 2016 10:30 am
Operator :
Sample : 1607256-20A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 05 14:35:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

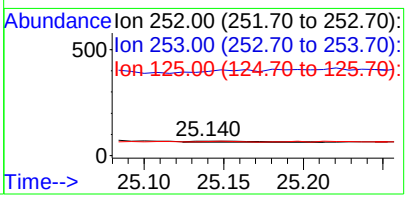




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 25.140 min Scan# 1920
Delta R.T. -0.016 min
Lab File: 16080405.D
Acq: 4 Aug 2016 10:30 am

Tgt Ion:252 Resp: 14

Ion	Ratio	Lower	Upper
252	100		
253	242.9	2.0	42.0#
125	42.9	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080406.D
Acq On : 4 Aug 2016 11:10 am
Operator :
Sample : 1607256-21A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 05 14:35:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	386818	4000.00	ug/kg	99
6) Acenaphthene-d10	13.497	164	227233	4000.00	ug/kg	124
11) Phenanthrene-d10	15.598	188	595323	4000.00	ug/kg	119
17) Chrysene-d12	21.509	240	609381	4000.00	ug/kg	91
20) Perylene-d12	26.734	264	569507	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	6089	94.92	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.37%#		
15) 4-Terphenyl-d14	18.159	244	10336	69.71	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.74%#		

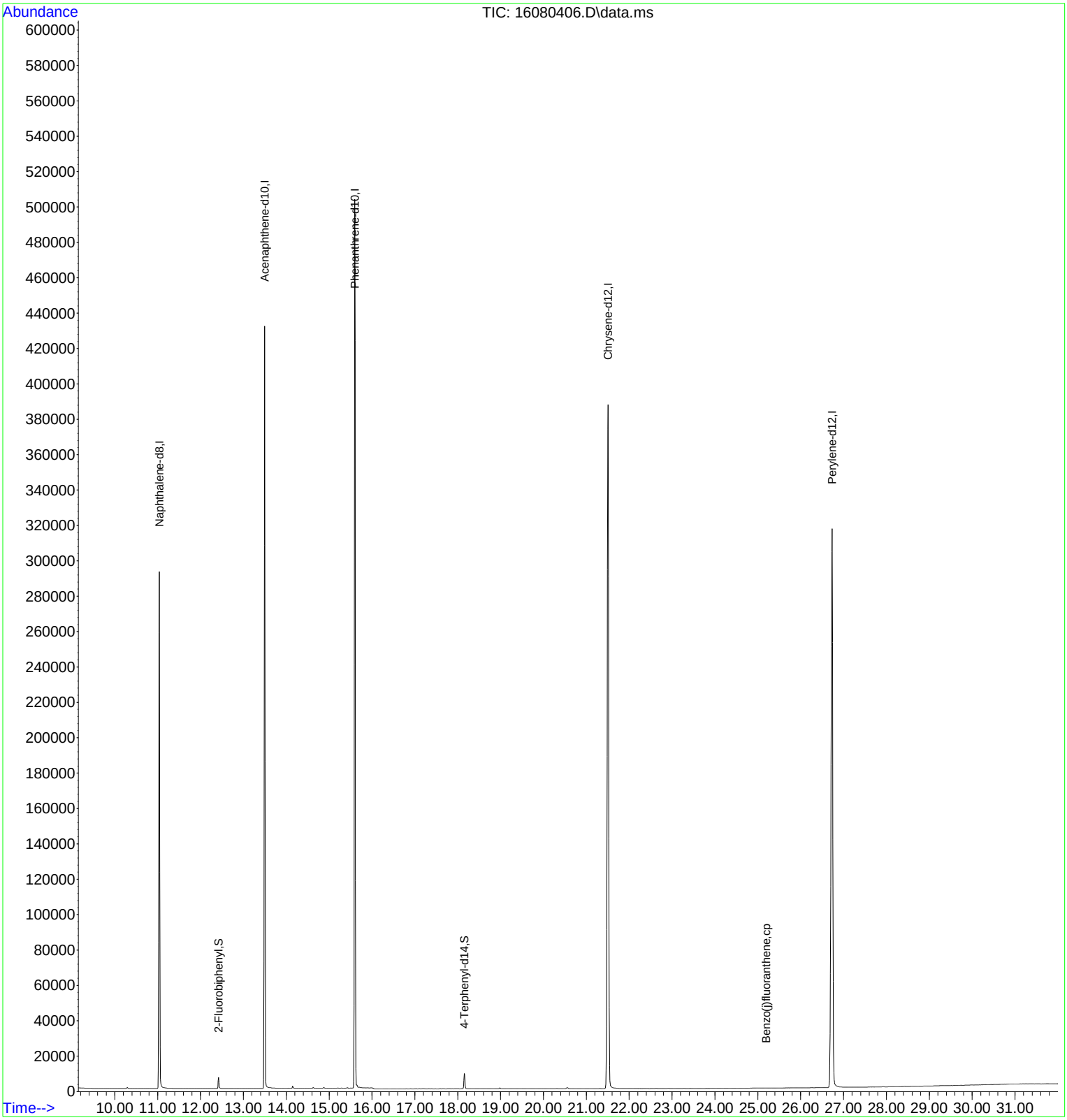
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.196	252	4	0.03	ug/kg#	1

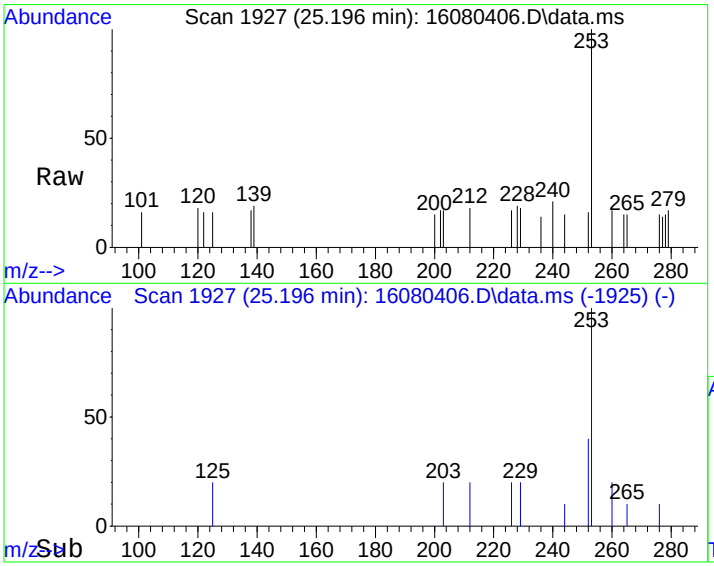
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080406.D
Acq On : 4 Aug 2016 11:10 am
Operator :
Sample : 1607256-21A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 05 14:35:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

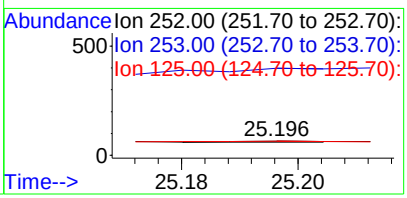




#23
Benzo(j)fluoranthene
Concen: 0.03 ug/kg
RT: 25.196 min Scan# 1927
Delta R.T. 0.040 min
Lab File: 16080406.D
Acq: 4 Aug 2016 11:10 am

Tgt Ion:252 Resp: 4

Ion	Ratio	Lower	Upper
252	100		
253	1000.0	2.0	42.0#
125	100.0	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080407.D
Acq On : 4 Aug 2016 11:50 am
Operator :
Sample : 1607256-22A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 05 14:35:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	372922	4000.00	ug/kg	95
6) Acenaphthene-d10	13.496	164	225728	4000.00	ug/kg	124
11) Phenanthrene-d10	15.597	188	592626	4000.00	ug/kg	119
17) Chrysene-d12	21.509	240	590100	4000.00	ug/kg	88
20) Perylene-d12	26.734	264	559335	4000.00	ug/kg	91

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	6120	98.96	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.47%#			
15) 4-Terphenyl-d14	18.159	244	10289	69.71	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.74%#			

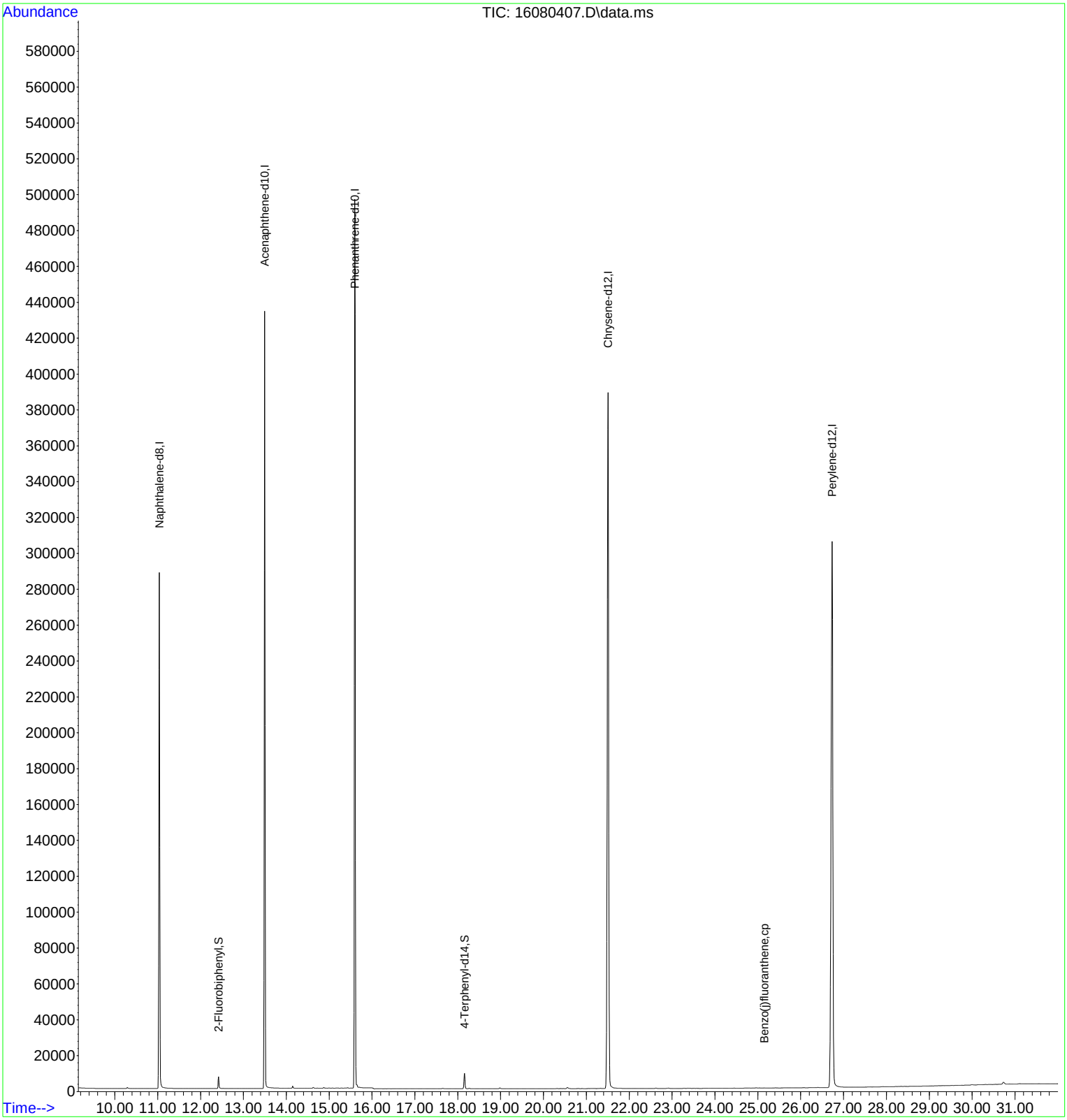
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.148	252	105	0.83	ug/kg	73

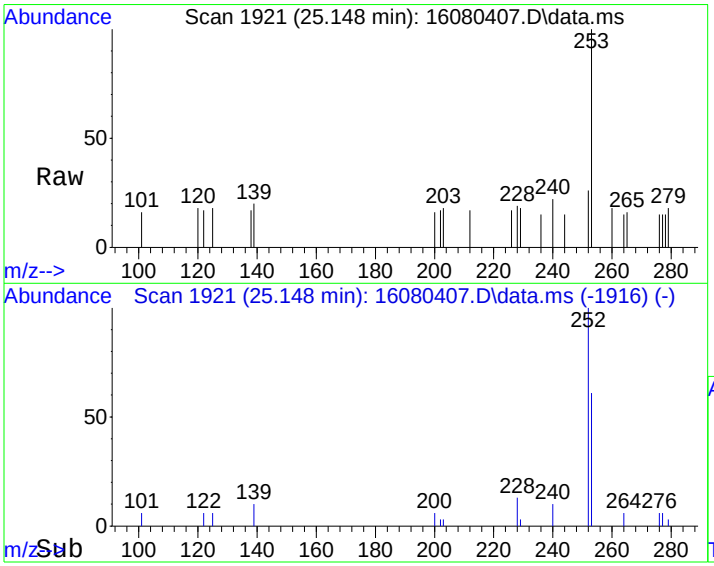
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080407.D
Acq On : 4 Aug 2016 11:50 am
Operator :
Sample : 1607256-22A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 05 14:35:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

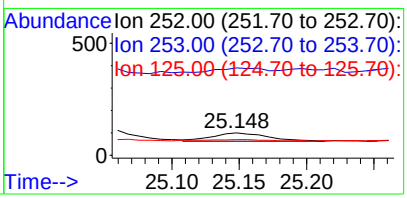




#23
Benzo(j)fluoranthene
Concen: 0.83 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.008 min
Lab File: 16080407.D
Acq: 4 Aug 2016 11:50 am

Tgt Ion:252 Resp: 105

Ion	Ratio	Lower	Upper
252	100		
253	41.9	2.0	42.0
125	14.3	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080408.D
Acq On : 4 Aug 2016 12:30 pm
Operator :
Sample : 1607256-23A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: Aug 05 14:35:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	404393	4000.00	ug/kg	103
6) Acenaphthene-d10	13.497	164	234262	4000.00	ug/kg	128
11) Phenanthrene-d10	15.607	188	620690	4000.00	ug/kg	124
17) Chrysene-d12	21.510	240	654646	4000.00	ug/kg	97
20) Perylene-d12	26.735	264	617863	4000.00	ug/kg	101

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	5912	88.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.20%#			
15) 4-Terphenyl-d14	18.160	244	10394	67.24	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.68%#			

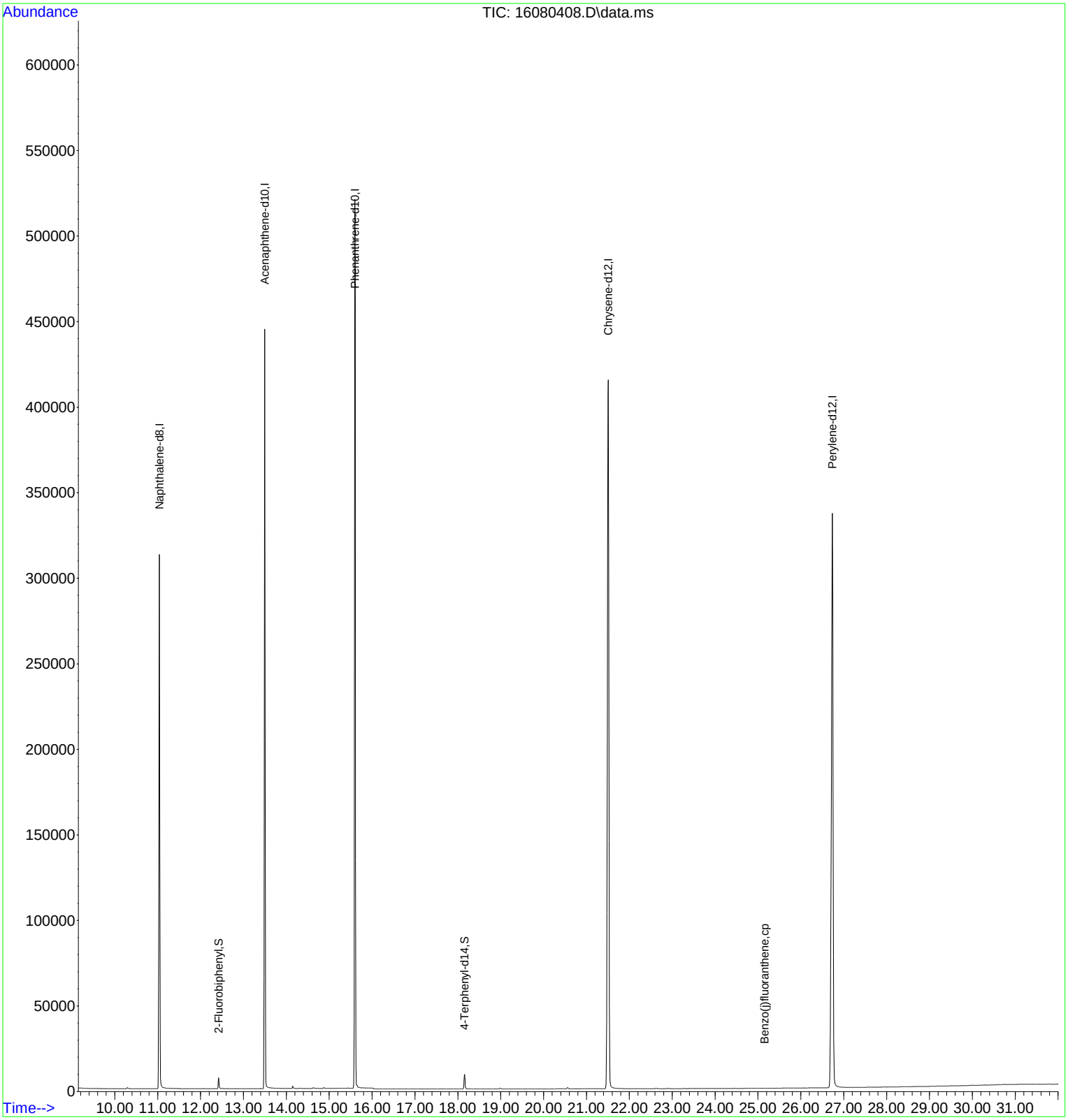
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.141	252	18	0.13	ug/kg#	1

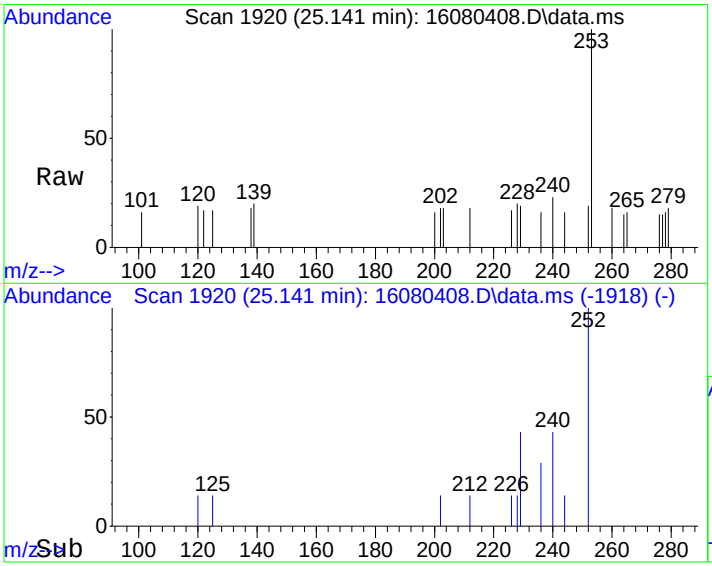
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080408.D
Acq On : 4 Aug 2016 12:30 pm
Operator :
Sample : 1607256-23A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: Aug 05 14:35:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

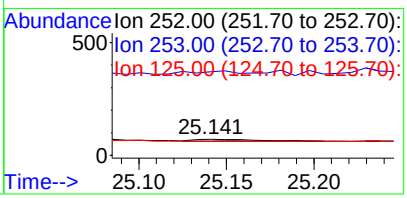




#23
Benzo(j)fluoranthene
Concen: 0.13 ug/kg
RT: 25.141 min Scan# 1920
Delta R.T. -0.015 min
Lab File: 16080408.D
Acq: 4 Aug 2016 12:30 pm

Tgt Ion:252 Resp: 18

Ion	Ratio	Lower	Upper
252	100		
253	205.6	2.0	42.0#
125	22.2	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080409.D
Acq On : 4 Aug 2016 1:11 pm
Operator :
Sample : 1607256-24A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 05 14:35:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	392935	4000.00	ug/kg	100
6) Acenaphthene-d10	13.496	164	221365	4000.00	ug/kg	121
11) Phenanthrene-d10	15.606	188	602484	4000.00	ug/kg	121
17) Chrysene-d12	21.508	240	608057	4000.00	ug/kg	90
20) Perylene-d12	26.734	264	566326	4000.00	ug/kg	92

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	5472	83.97	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.10%#			
15) 4-Terphenyl-d14	18.159	244	9937	66.22	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.66%#			

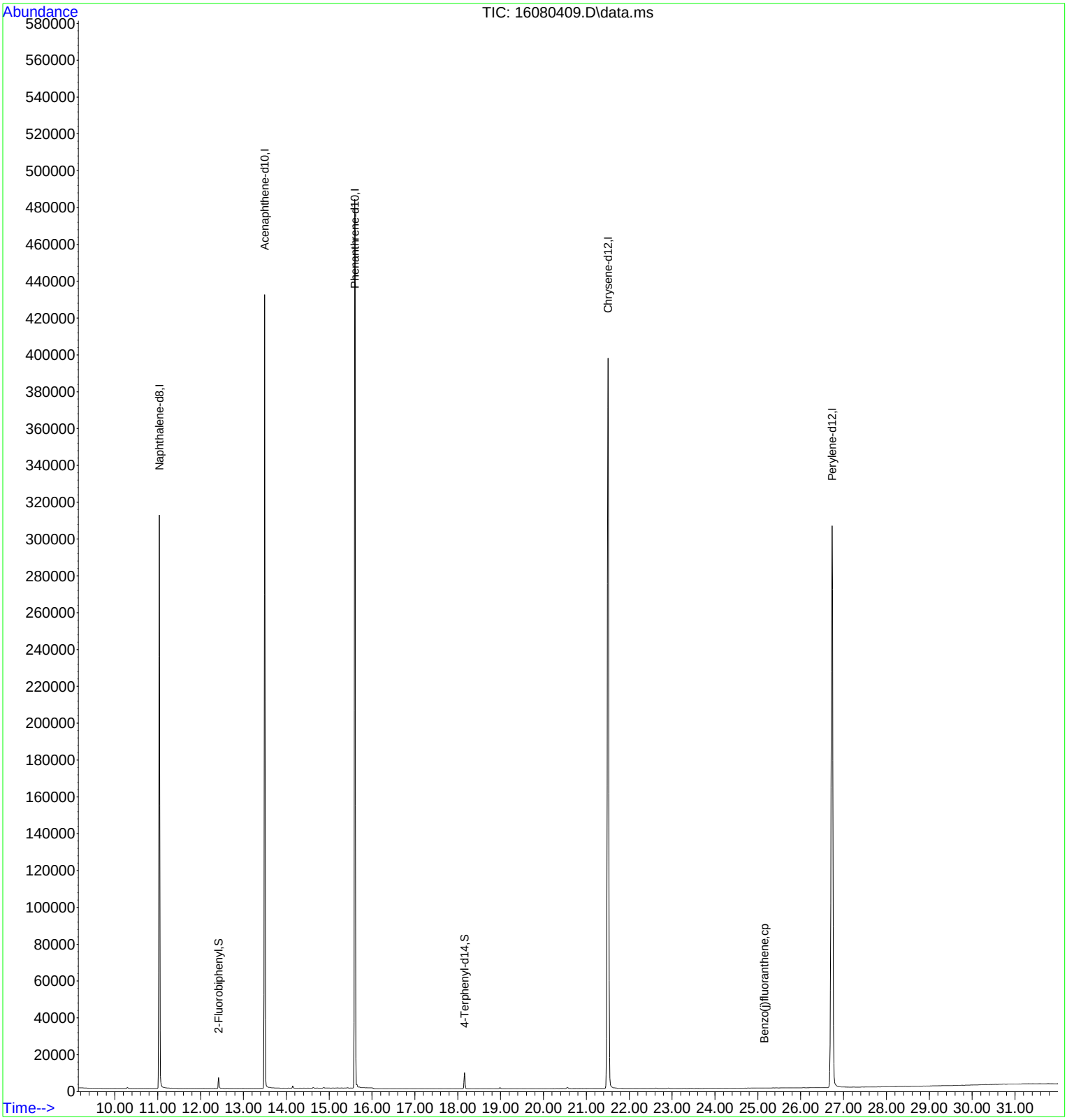
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.156	252	8	0.06	ug/kg#	1

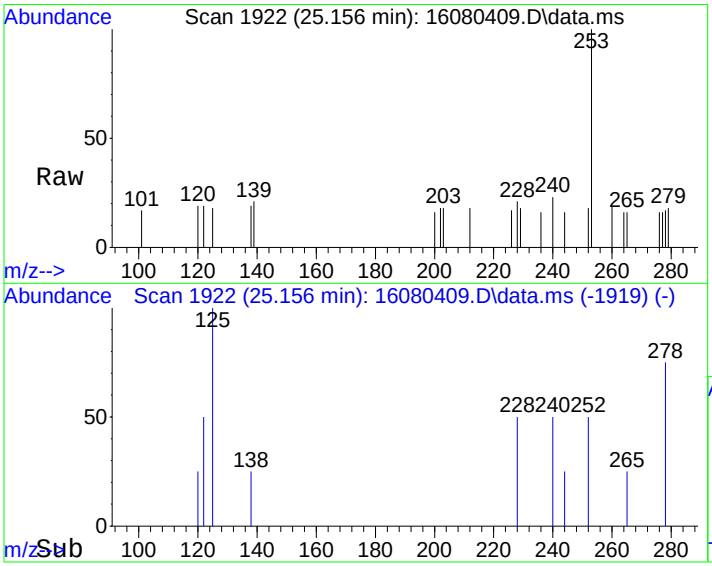
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080409.D
Acq On : 4 Aug 2016 1:11 pm
Operator :
Sample : 1607256-24A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 05 14:35:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

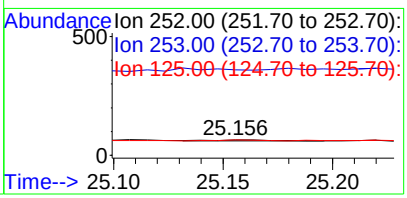




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 25.156 min Scan# 1922
Delta R.T. -0.001 min
Lab File: 16080409.D
Acq: 4 Aug 2016 1:11 pm

Tgt Ion:252 Resp: 8

Ion	Ratio	Lower	Upper
252	100		
253	387.5	2.0	42.0#
125	62.5	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080410.D
Acq On : 4 Aug 2016 1:51 pm
Operator :
Sample : 1607256-25A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 05 14:35:40 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	398250	4000.00	ug/kg	101
6) Acenaphthene-d10	13.498	164	215887	4000.00	ug/kg	118
11) Phenanthrene-d10	15.599	188	612832	4000.00	ug/kg	123
17) Chrysene-d12	21.509	240	605615	4000.00	ug/kg	90
20) Perylene-d12	26.734	264	559744	4000.00	ug/kg	91

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	5553	84.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.10%#			
15) 4-Terphenyl-d14	18.160	244	10298	67.47	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.69%#			

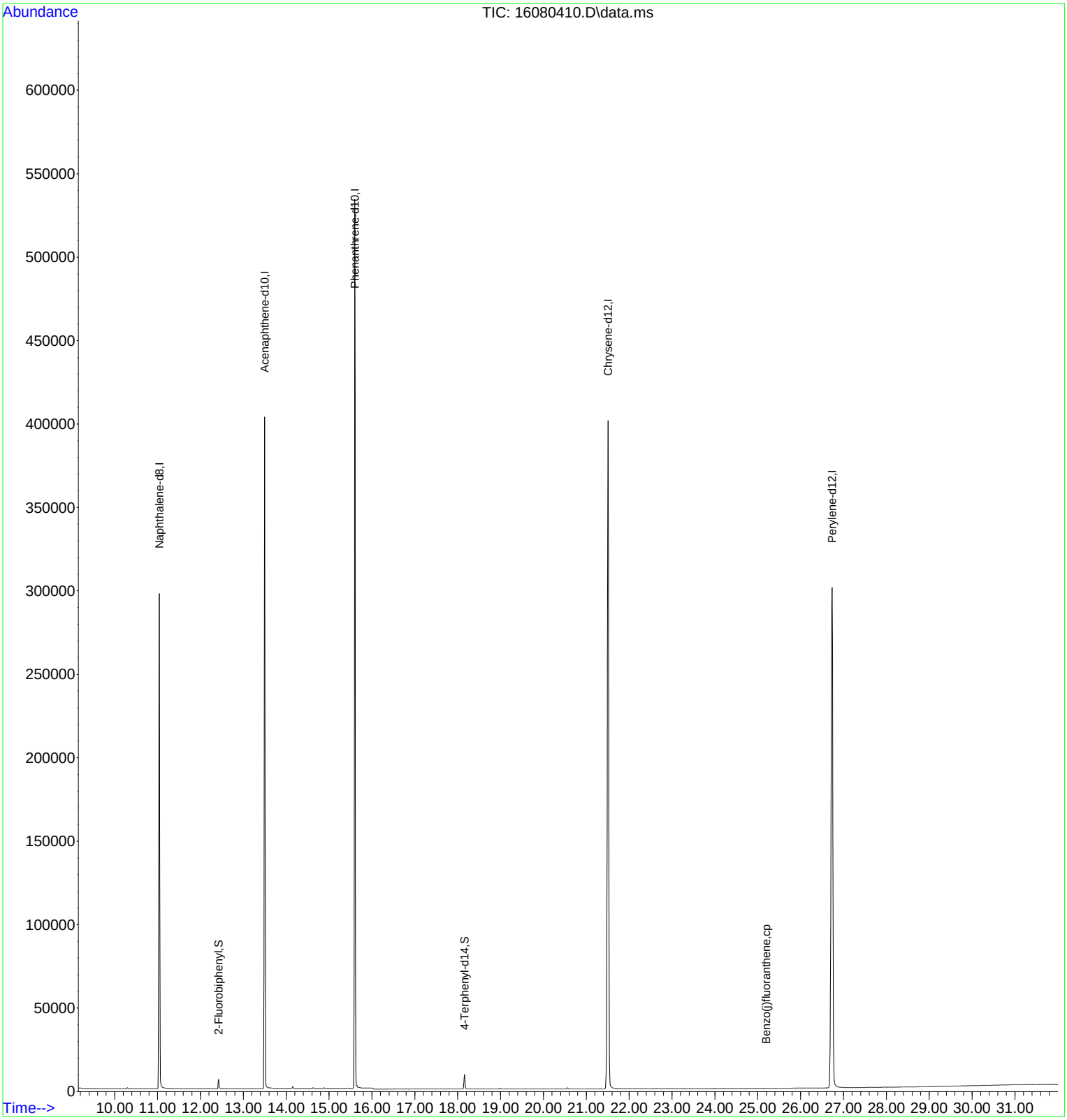
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.189	252	3	0.02	ug/kg#	1

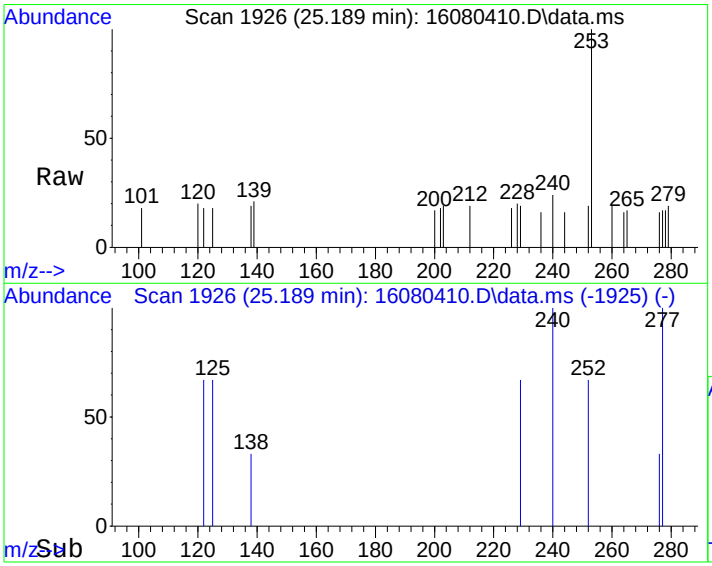
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080410.D
Acq On : 4 Aug 2016 1:51 pm
Operator :
Sample : 1607256-25A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 05 14:35:40 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

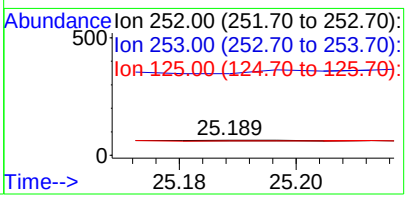




#23
Benzo(j)fluoranthene
Concen: 0.02 ug/kg
RT: 25.189 min Scan# 1926
Delta R.T. 0.032 min
Lab File: 16080410.D
Acq: 4 Aug 2016 1:51 pm

Tgt Ion:252 Resp: 3

Ion	Ratio	Lower	Upper
252	100		
253	2066.7	2.0	42.0#
125	66.7	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080411.D
Acq On : 4 Aug 2016 2:32 pm
Operator :
Sample : 1607256-37A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 05 14:35:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	414772	4000.00	ug/kg	106
6) Acenaphthene-d10	13.496	164	225375	4000.00	ug/kg	123
11) Phenanthrene-d10	15.606	188	615289	4000.00	ug/kg	123
17) Chrysene-d12	21.509	240	626001	4000.00	ug/kg	93
20) Perylene-d12	26.734	264	580789	4000.00	ug/kg	95

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	5999	87.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.18%#			
15) 4-Terphenyl-d14	18.159	244	10604	69.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.73%#			

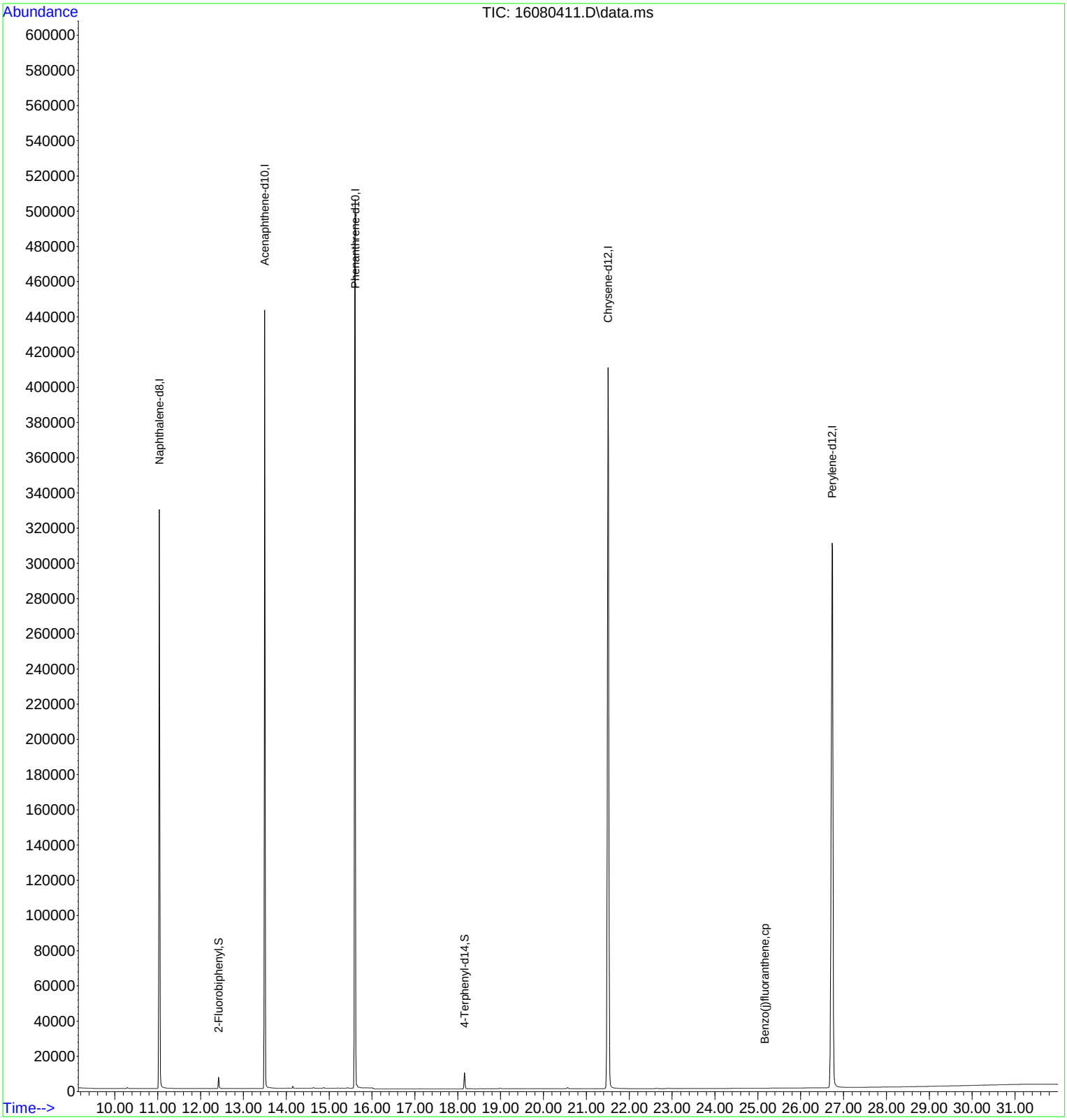
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.172	252	3	0.02	ug/kg#	1

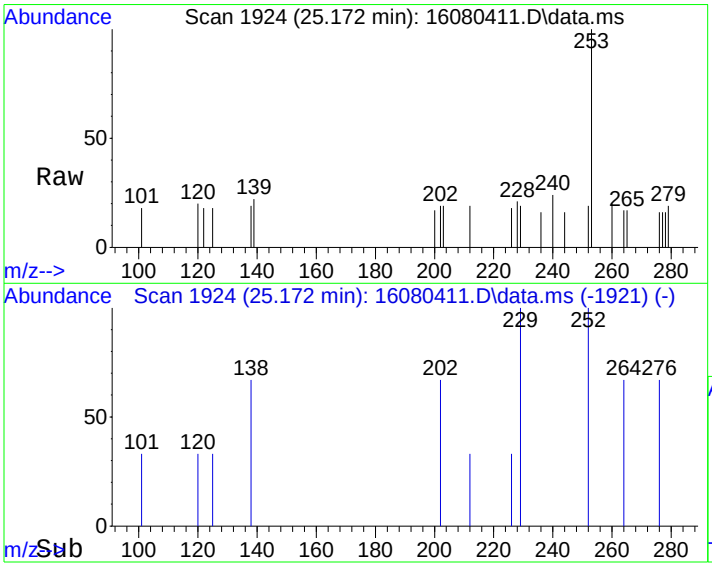
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080411.D
Acq On : 4 Aug 2016 2:32 pm
Operator :
Sample : 1607256-37A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 05 14:35:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

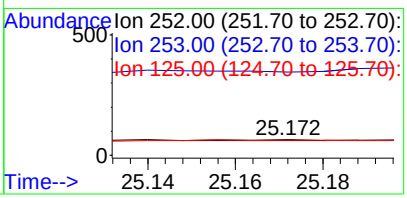




#23
Benzo(j)fluoranthene
Concen: 0.02 ug/kg
RT: 25.172 min Scan# 1924
Delta R.T. 0.016 min
Lab File: 16080411.D
Acq: 4 Aug 2016 2:32 pm

Tgt Ion:252 Resp: 3

Ion	Ratio	Lower	Upper
252	100		
253	600.0	2.0	42.0#
125	200.0	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080412.D
Acq On : 4 Aug 2016 3:13 pm
Operator :
Sample : 1607256-38A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 05 14:35:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.042	136	412316	4000.00	ug/kg	105
6) Acenaphthene-d10	13.499	164	220806	4000.00	ug/kg	121
11) Phenanthrene-d10	15.600	188	600622	4000.00	ug/kg	120
17) Chrysene-d12	21.509	240	626019	4000.00	ug/kg	93
20) Perylene-d12	26.734	264	584151	4000.00	ug/kg	95

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.423	172	6157	90.05	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.25%#			
15) 4-Terphenyl-d14	18.160	244	11063	73.96	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.85%#			

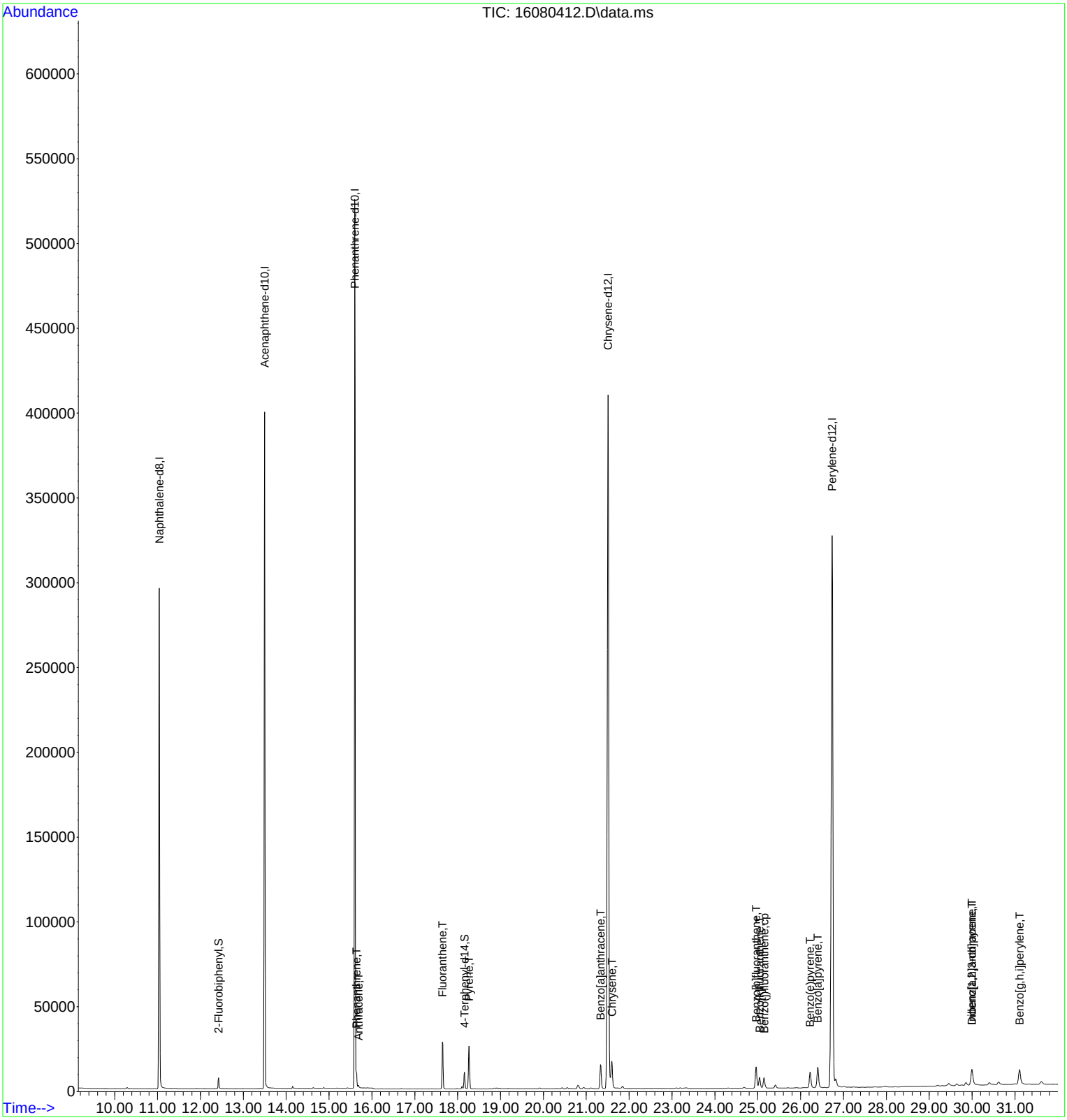
Target Compounds						Qvalue
12) Phenanthrene	15.644	178	7173	44.17	ug/kg	99
13) Anthracene	15.687	178	1138	6.85	ug/kg	100
14) Fluoranthene	17.644	202	30671	140.77	ug/kg	99
16) Pyrene	18.264	202	28513	126.07	ug/kg	97
18) Benzo[a]anthracene	21.332	228	20281	124.95	ug/kg	100
19) Chrysene	21.598	228	23619	152.50	ug/kg	100
21) Benzo[b]fluoranthene	24.963	252	23419	148.58	ug/kg	99
22) Benzo[k]fluoranthene	25.044	252	10618	78.75	ug/kg	96
23) Benzo(j)fluoranthene	25.148	252	10098	76.68	ug/kg	90
24) Benzo(e)pyrene	26.219	252	17939	117.62	ug/kg	96
25) Benzo[a]pyrene	26.396	252	23855	164.81	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.995	276	17842	104.37	ug/kg	90
27) Dibenz[a,h]anthracene	29.987	278	3882	27.62	ug/kg	96
28) Benzo[g,h,i]perylene	31.106	276	18860	125.60	ug/kg	99

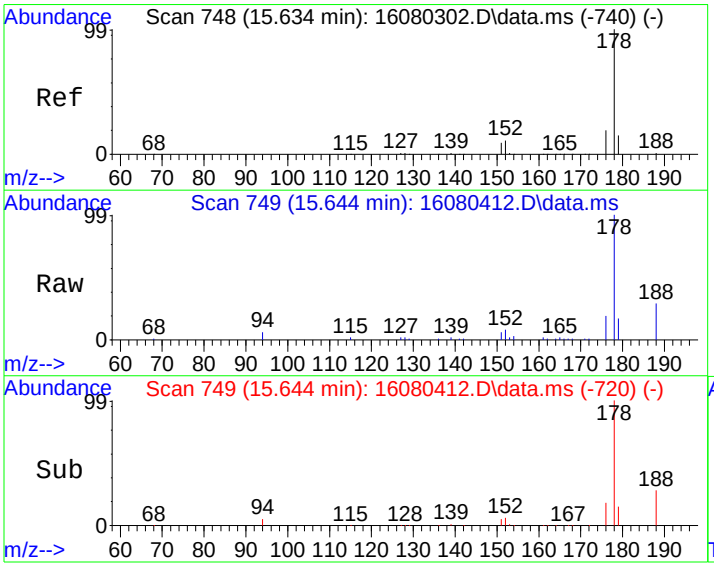
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080412.D
Acq On : 4 Aug 2016 3:13 pm
Operator :
Sample : 1607256-38A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 05 14:35:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

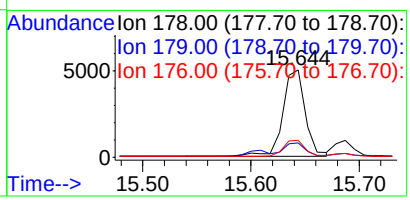


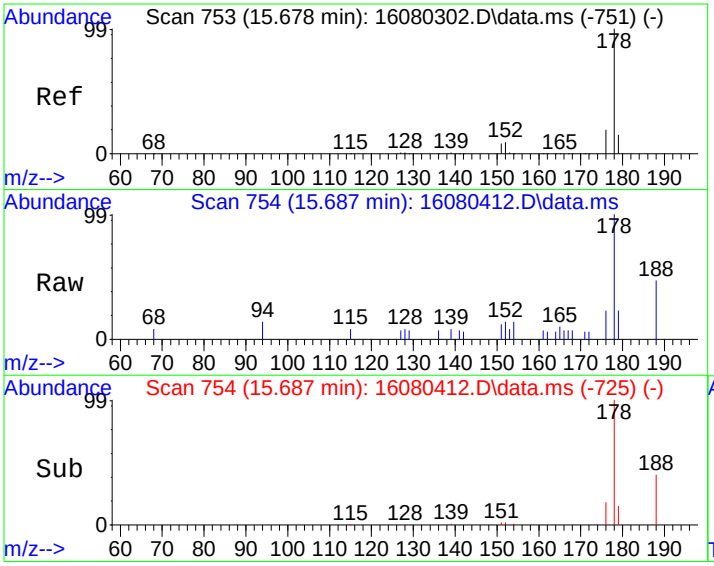


#12
Phenanthrene
Concen: 44.17 ug/kg
RT: 15.644 min Scan# 749
Delta R.T. 0.002 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:178 Resp: 7173

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.5
176	18.5	0.0	38.8

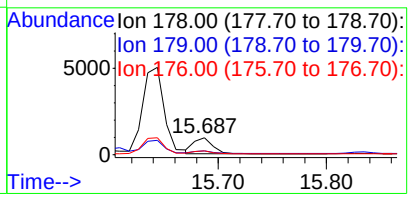


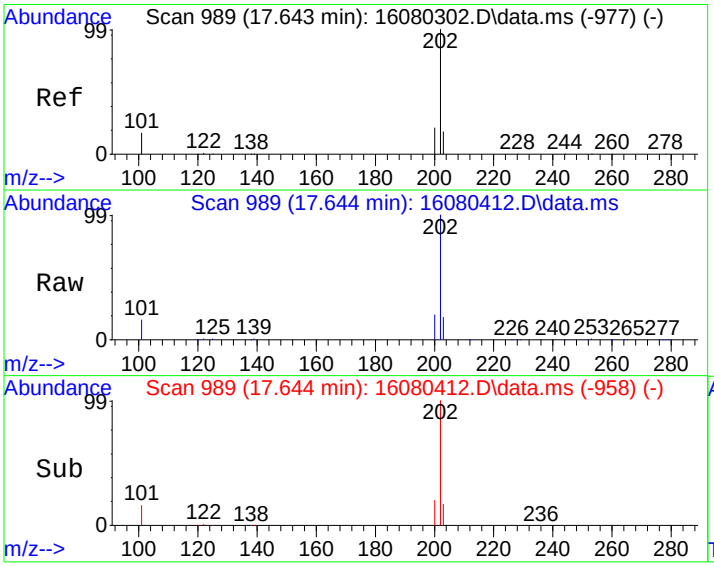


#13
Anthracene
Concen: 6.85 ug/kg
RT: 15.687 min Scan# 754
Delta R.T. 0.002 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:178 Resp: 1138

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	35.6
176	18.1	0.0	38.2

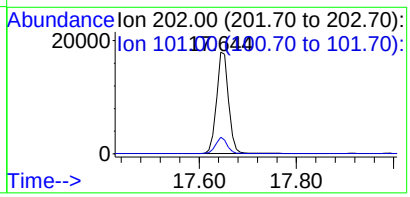


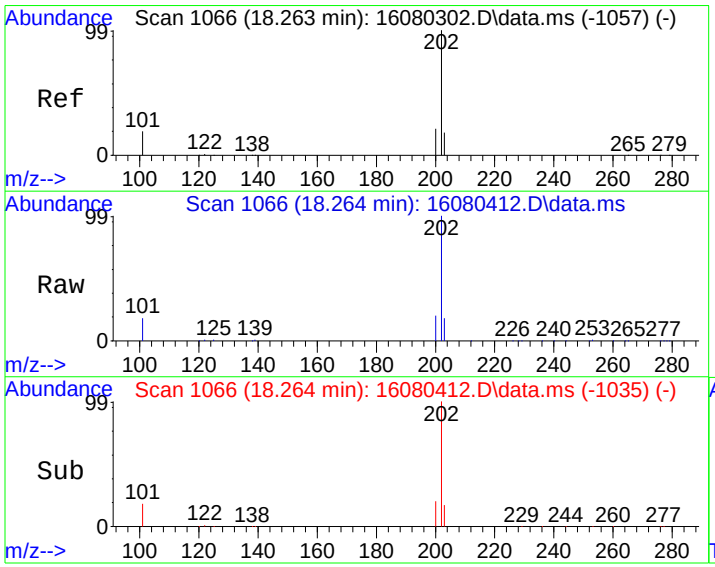


#14
Fluoranthene
Concen: 140.77 ug/kg
RT: 17.644 min Scan# 989
Delta R.T. 0.000 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:202 Resp: 30671

Ion	Ratio	Lower	Upper
202	100		
101	16.2	0.0	36.7

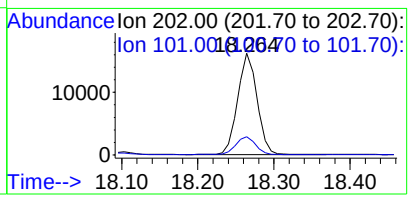


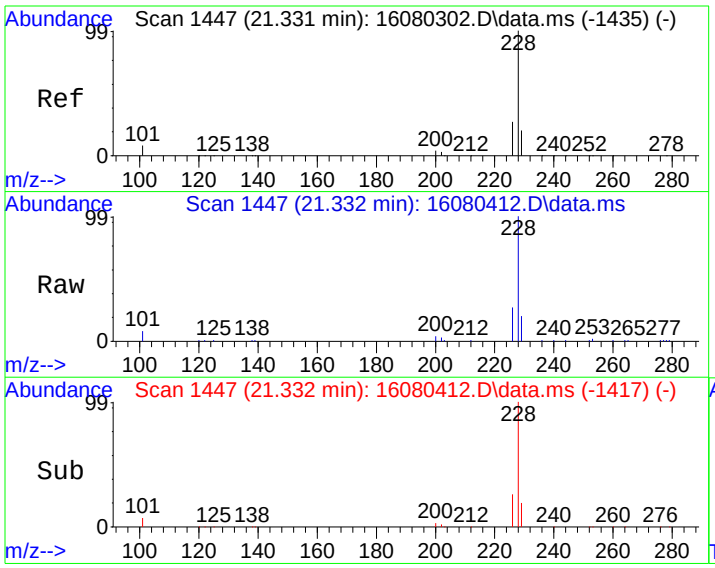


#16
Pyrene
Concen: 126.07 ug/kg
RT: 18.264 min Scan# 1066
Delta R.T. 0.000 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:202 Resp: 28513

Ion	Ratio	Lower	Upper
202	100		
101	17.6	0.0	38.7

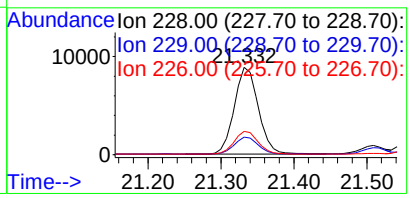


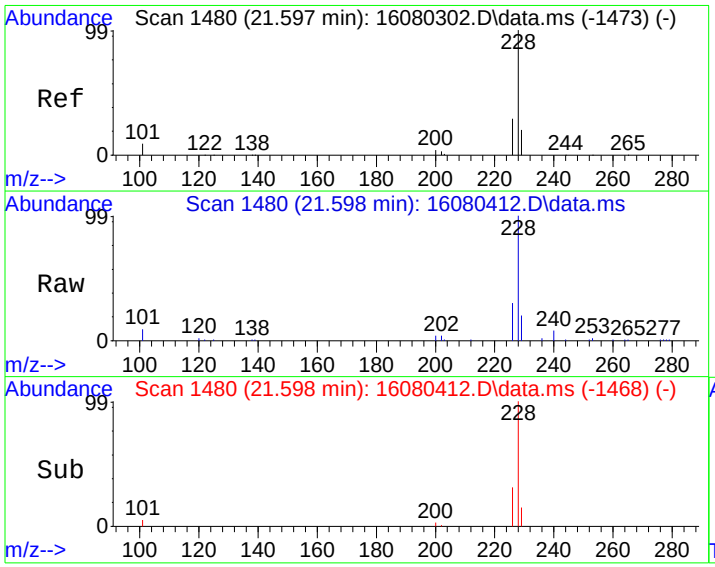


#18
Benzo[a]anthracene
Concen: 124.95 ug/kg
RT: 21.332 min Scan# 1447
Delta R.T. -0.007 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:228 Resp: 20281

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	39.9
226	26.4	6.5	46.5

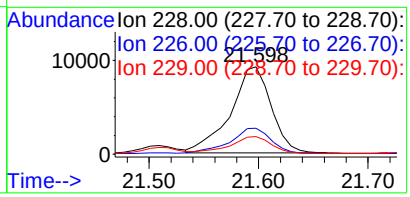


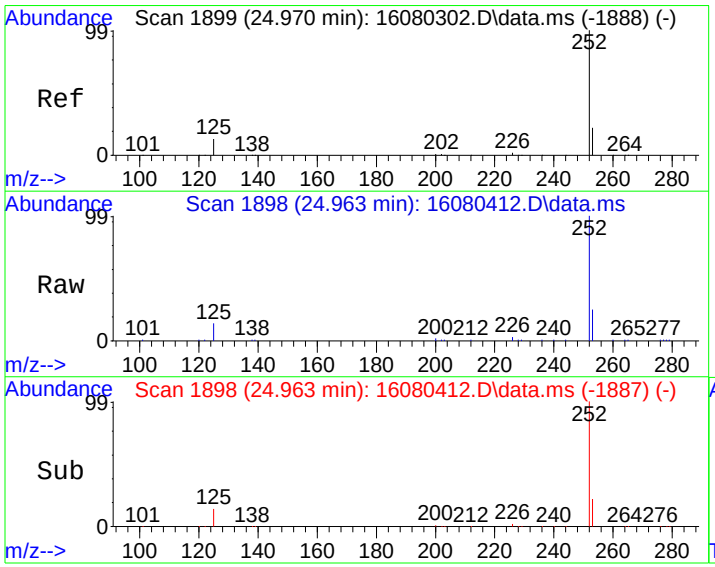


#19
Chrysene
Concen: 152.50 ug/kg
RT: 21.598 min Scan# 1480
Delta R.T. 0.001 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:228 Resp: 23619

Ion	Ratio	Lower	Upper
228	100		
226	29.4	9.5	49.5
229	19.8	0.0	40.0

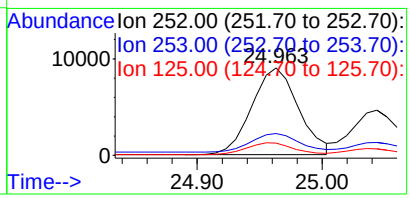


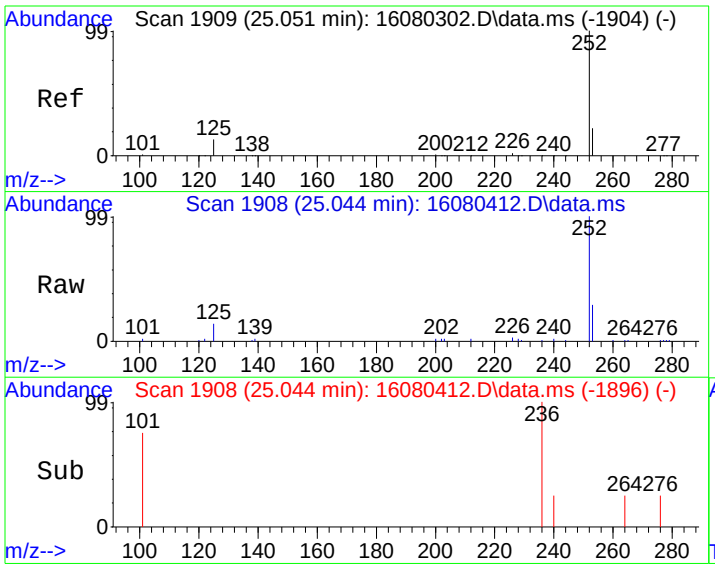


#21
Benzo[b]fluoranthene
Concen: 148.58 ug/kg
RT: 24.963 min Scan# 1898
Delta R.T. -0.008 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:252 Resp: 23419

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.1	42.1
125	13.5	0.0	33.9

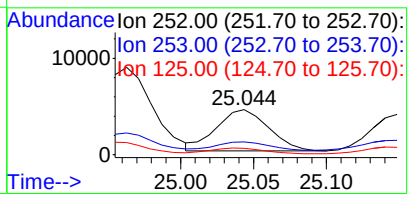


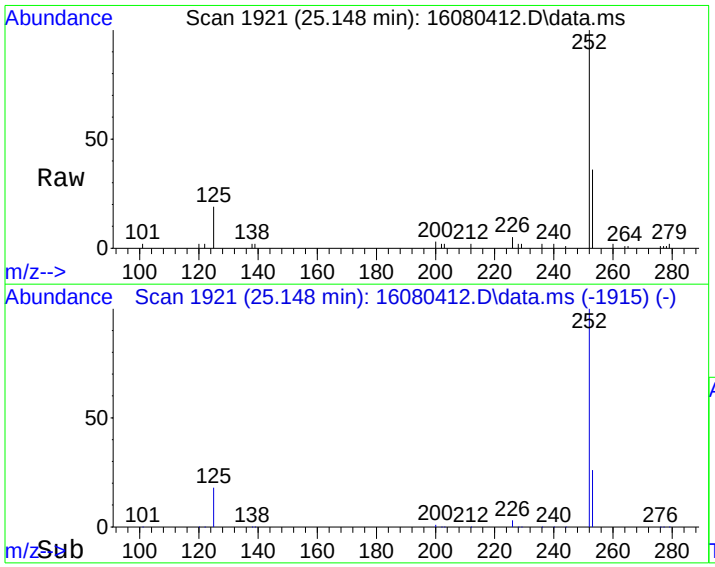


#22
Benzo[k]fluoranthene
Concen: 78.75 ug/kg
RT: 25.044 min Scan# 1908
Delta R.T. -0.007 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:252 Resp: 10618

Ion	Ratio	Lower	Upper
252	100		
253	19.8	2.2	42.2
125	12.5	0.0	34.0

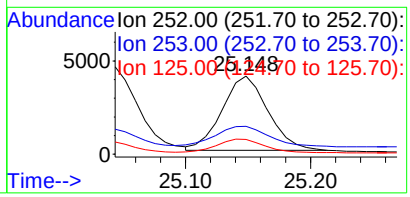


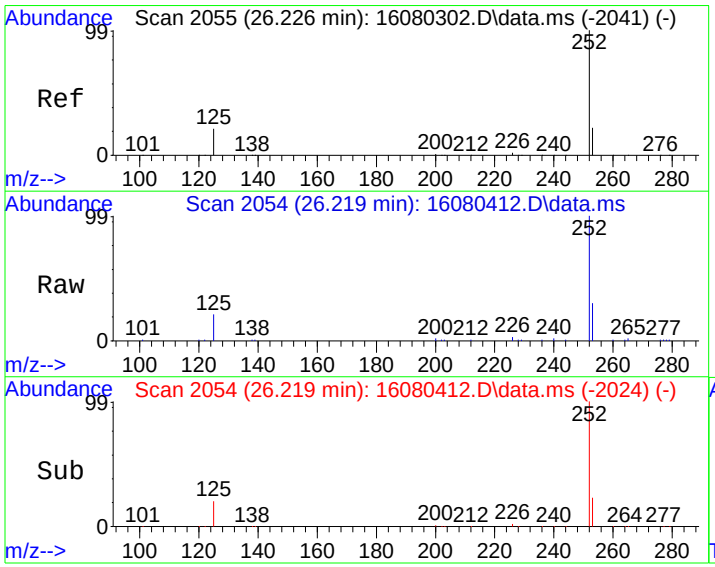


#23
Benzo(j)fluoranthene
Concen: 76.68 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.008 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:252 Resp: 10098

Ion	Ratio	Lower	Upper
252	100		
253	30.5	2.0	42.0
125	18.8	0.0	39.3

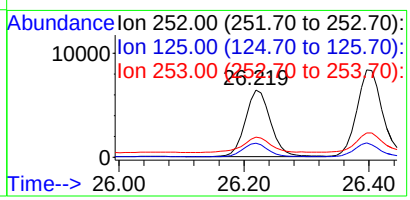


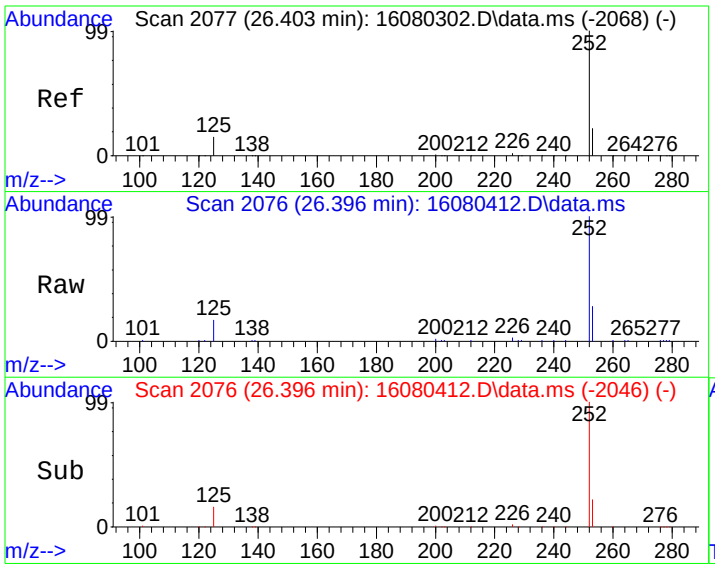


#24
Benzo(e)pyrene
Concen: 117.62 ug/kg
RT: 26.219 min Scan# 2054
Delta R.T. -0.008 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:252 Resp: 17939

Ion	Ratio	Lower	Upper
252	100		
125	20.0	0.5	40.5
253	25.4	2.1	42.1

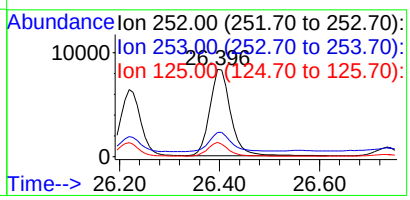


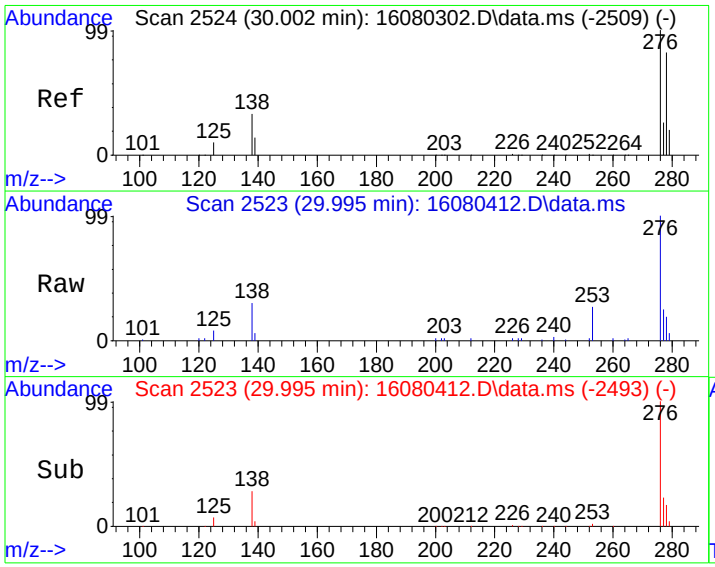


#25
Benzo[a]pyrene
Concen: 164.81 ug/kg
RT: 26.396 min Scan# 2076
Delta R.T. -0.008 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:252 Resp: 23855

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.1	42.1
125	16.0	0.0	36.2

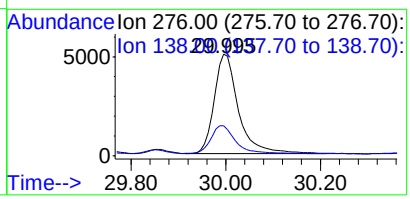


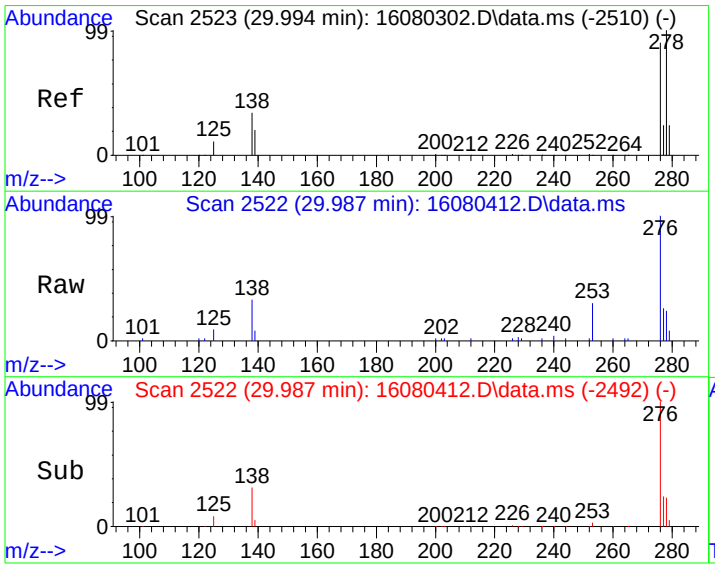


#26
Indeno[1,2,3-cd]pyrene
Concen: 104.37 ug/kg
RT: 29.995 min Scan# 2523
Delta R.T. -0.008 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:276 Resp: 17842

Ion	Ratio	Lower	Upper
276	100		
138	28.1	14.0	54.0

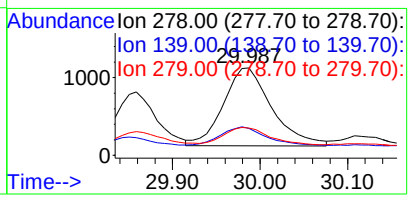


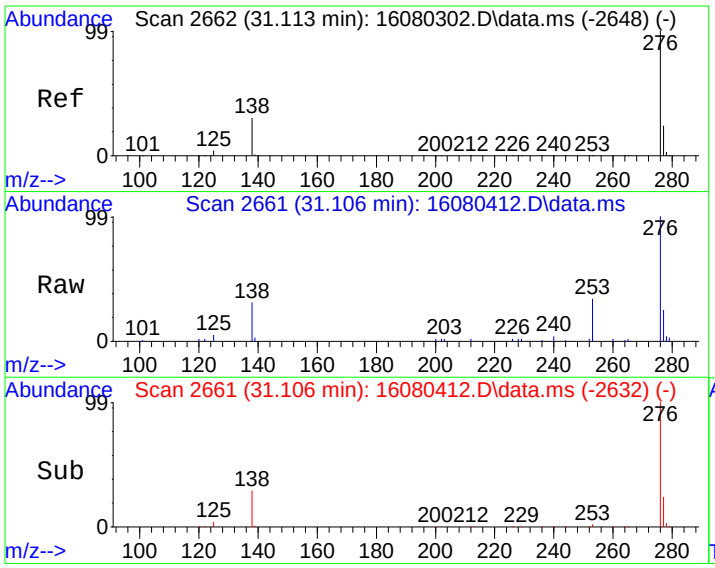


#27
Dibenz[a,h]anthracene
Concen: 27.62 ug/kg
RT: 29.987 min Scan# 2522
Delta R.T. -0.008 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:278 Resp: 3882

Ion	Ratio	Lower	Upper
278	100		
139	23.4	1.3	41.3
279	22.7	4.1	44.1

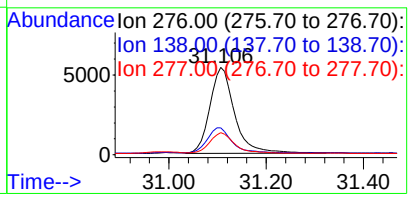




#28
Benzo[g,h,i]perylene
Concen: 125.60 ug/kg
RT: 31.106 min Scan# 2661
Delta R.T. -0.016 min
Lab File: 16080412.D
Acq: 4 Aug 2016 3:13 pm

Tgt Ion:276 Resp: 18860

Ion	Ratio	Lower	Upper
276	100		
138	29.1	7.8	47.8
277	24.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080413.D
Acq On : 4 Aug 2016 3:53 pm
Operator :
Sample : 1607256-39A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 05 14:35:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	390814	4000.00	ug/kg	100
6) Acenaphthene-d10	13.496	164	218239	4000.00	ug/kg	119
11) Phenanthrene-d10	15.606	188	617282	4000.00	ug/kg	124
17) Chrysene-d12	21.508	240	596072	4000.00	ug/kg	89
20) Perylene-d12	26.734	264	552986	4000.00	ug/kg	90

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	5563	85.83	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.15%#			
15) 4-Terphenyl-d14	18.159	244	9986	64.96	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.62%#			

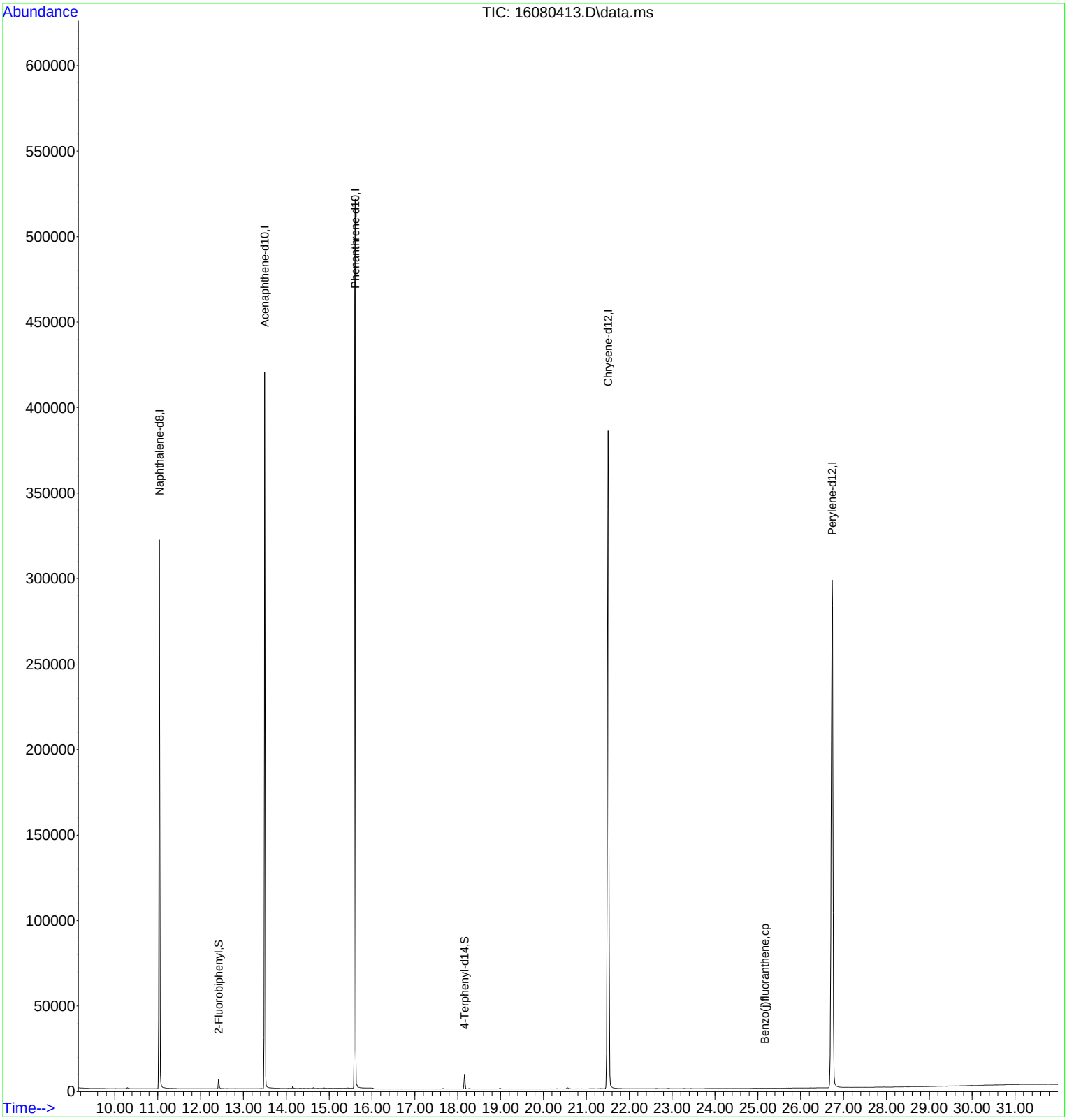
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.155	252	55	0.44	ug/kg#	57

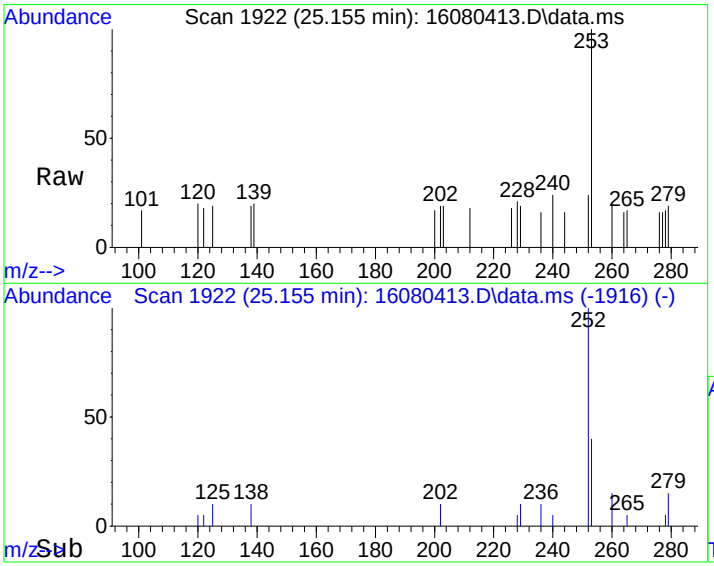
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080413.D
Acq On : 4 Aug 2016 3:53 pm
Operator :
Sample : 1607256-39A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 05 14:35:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

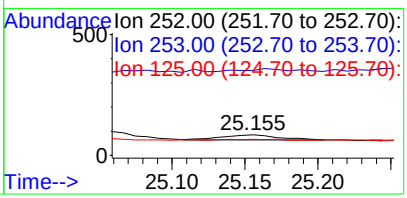




#23
Benzo(j)fluoranthene
Concen: 0.44 ug/kg
RT: 25.155 min Scan# 1922
Delta R.T. -0.001 min
Lab File: 16080413.D
Acq: 4 Aug 2016 3:53 pm

Tgt Ion:252 Resp: 55

Ion	Ratio	Lower	Upper
252	100		
253	49.1	2.0	42.0#
125	7.3	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080414.D
Acq On : 4 Aug 2016 4:34 pm
Operator :
Sample : 1607256-40A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 05 14:35:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	381695	4000.00	ug/kg	97
6) Acenaphthene-d10	13.496	164	219815	4000.00	ug/kg	120
11) Phenanthrene-d10	15.606	188	609287	4000.00	ug/kg	122
17) Chrysene-d12	21.508	240	587574	4000.00	ug/kg	87
20) Perylene-d12	26.734	264	544375	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	5484	86.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.17%#			
15) 4-Terphenyl-d14	18.159	244	9804	64.61	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.62%#			

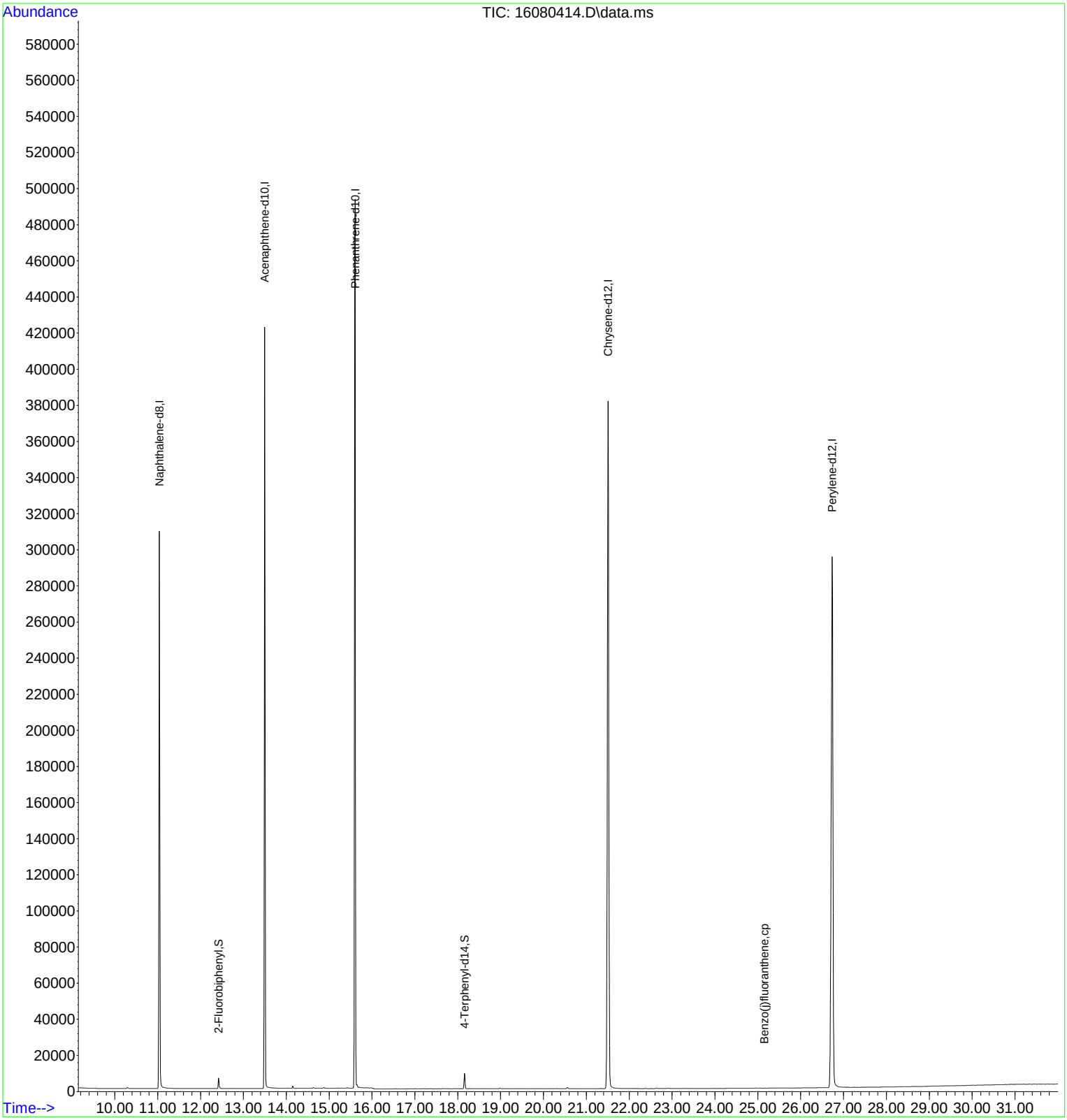
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.148	252	49	0.40	ug/kg	89

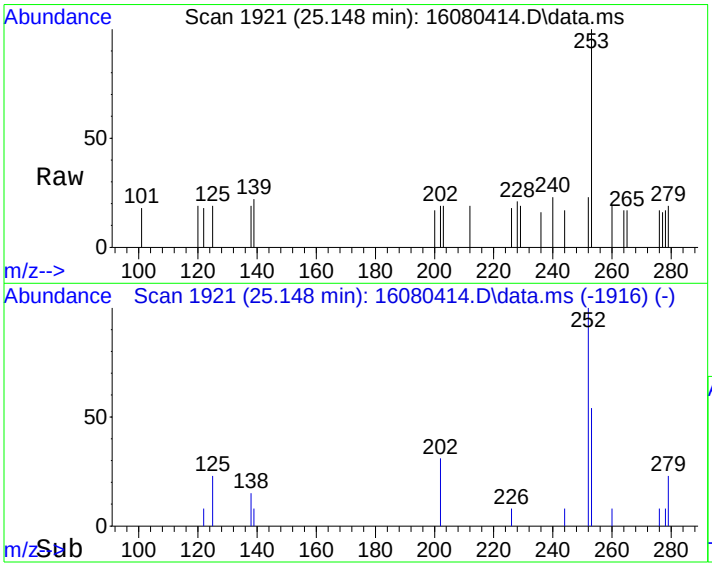
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080414.D
Acq On : 4 Aug 2016 4:34 pm
Operator :
Sample : 1607256-40A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 05 14:35:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

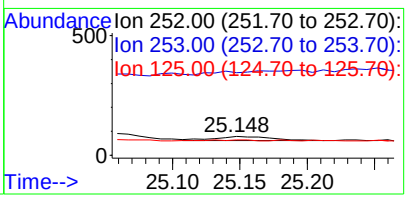




#23
Benzo(j)fluoranthene
Concen: 0.40 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.009 min
Lab File: 16080414.D
Acq: 4 Aug 2016 4:34 pm

Tgt Ion:252 Resp: 49

Ion	Ratio	Lower	Upper
252	100		
253	28.6	2.0	42.0
125	22.4	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080415.D
Acq On : 4 Aug 2016 5:14 pm
Operator :
Sample : 1607256-41A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 05 14:36:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.042	136	384366	4000.00	ug/kg	98
6) Acenaphthene-d10	13.500	164	221010	4000.00	ug/kg	121
11) Phenanthrene-d10	15.601	188	623089	4000.00	ug/kg	125
17) Chrysene-d12	21.509	240	589703	4000.00	ug/kg	88
20) Perylene-d12	26.734	264	543294	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.423	172	5666	88.89	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.22%#			
15) 4-Terphenyl-d14	18.159	244	10221	65.86	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.65%#			

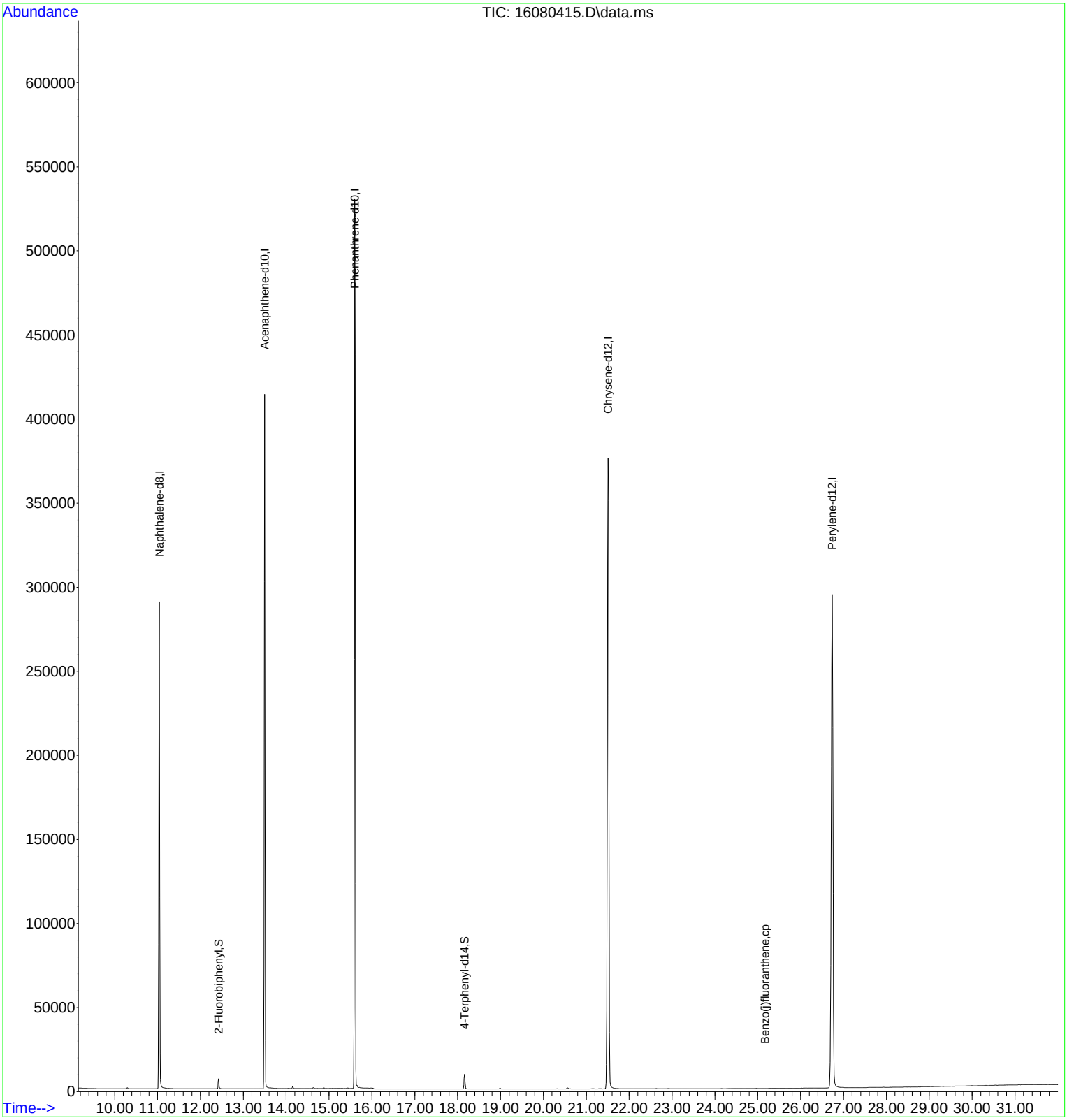
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.164	252	12	0.10	ug/kg#	1

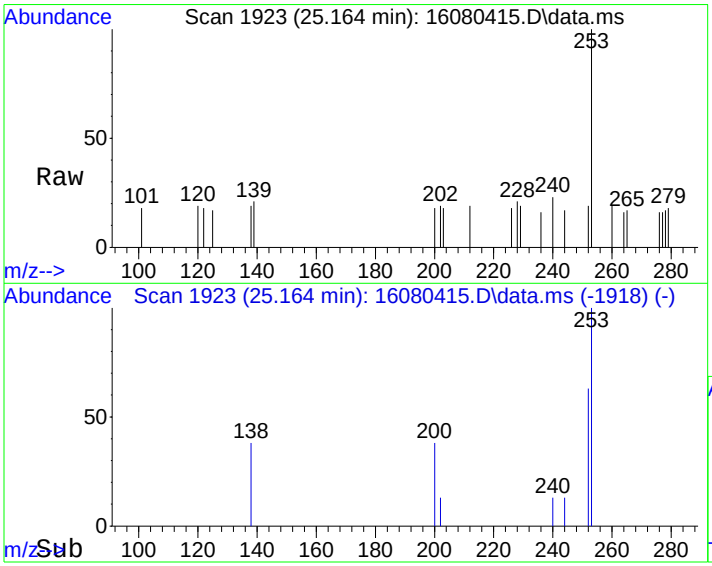
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080415.D
Acq On : 4 Aug 2016 5:14 pm
Operator :
Sample : 1607256-41A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 05 14:36:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

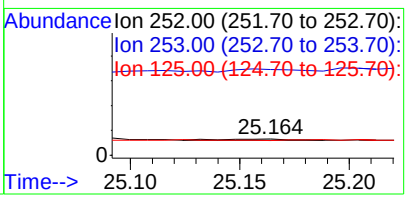




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 25.164 min Scan# 1923
Delta R.T. 0.008 min
Lab File: 16080415.D
Acq: 4 Aug 2016 5:14 pm

Tgt Ion:252 Resp: 12

Ion	Ratio	Lower	Upper
252	100		
253	216.7	2.0	42.0#
125	0.0	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080416.D
Acq On : 4 Aug 2016 5:55 pm
Operator :
Sample : 1607256-42A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 05 14:36:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	419358	4000.00	ug/kg	107
6) Acenaphthene-d10	13.498	164	229793	4000.00	ug/kg	126
11) Phenanthrene-d10	15.608	188	631861	4000.00	ug/kg	127
17) Chrysene-d12	21.517	240	633982	4000.00	ug/kg	94
20) Perylene-d12	26.742	264	592298	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	6096	87.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.19%#		
15) 4-Terphenyl-d14	18.159	244	10750	68.31	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.71%#		

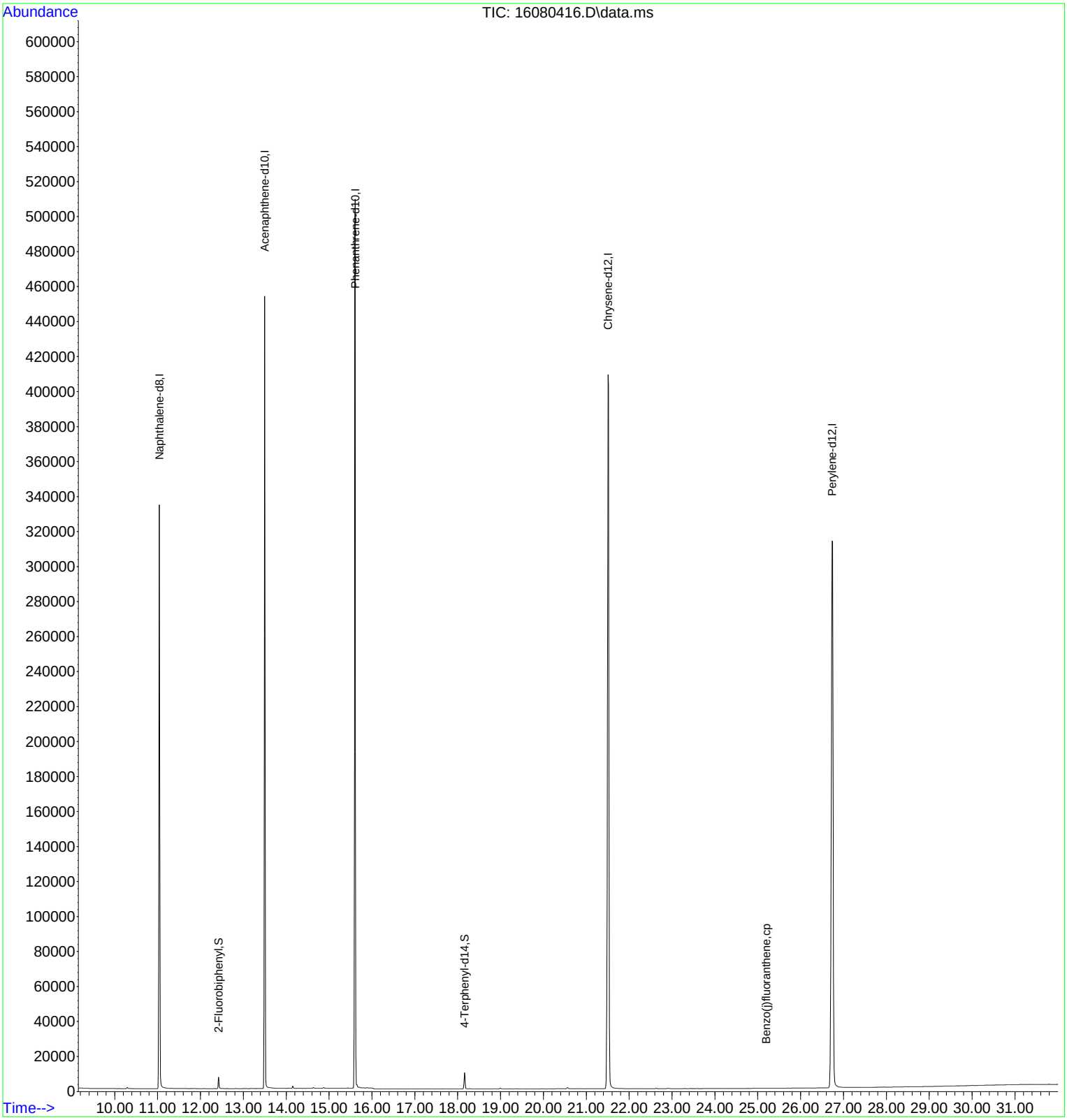
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.188	252	2	0.01	ug/kg#	1

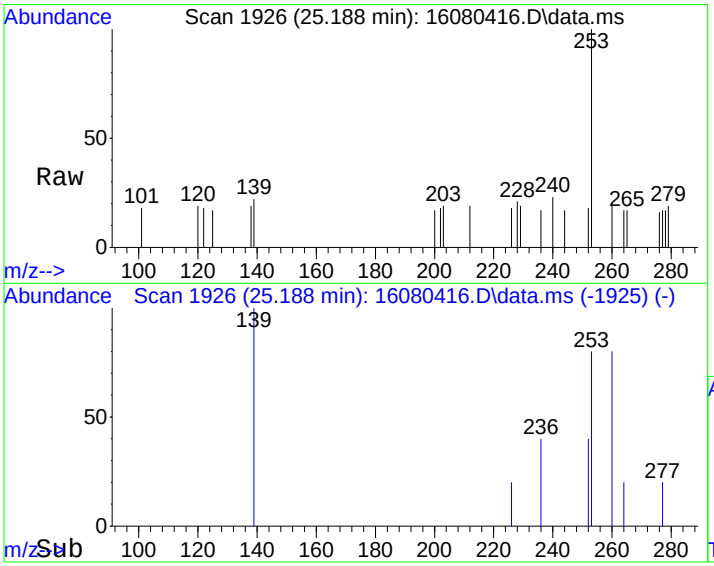
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080416.D
Acq On : 4 Aug 2016 5:55 pm
Operator :
Sample : 1607256-42A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 05 14:36:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

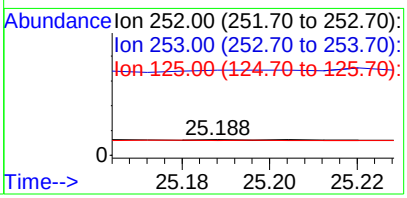




#23
Benzo(j)fluoranthene
Concen: 0.01 ug/kg
RT: 25.188 min Scan# 1926
Delta R.T. 0.032 min
Lab File: 16080416.D
Acq: 4 Aug 2016 5:55 pm

Tgt Ion:252 Resp: 2

Ion	Ratio	Lower	Upper
252	100		
253	1500.0	2.0	42.0#
125	200.0	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080419.D
Acq On : 4 Aug 2016 7:55 pm
Operator :
Sample : ICV2-160804
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 05 14:34:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

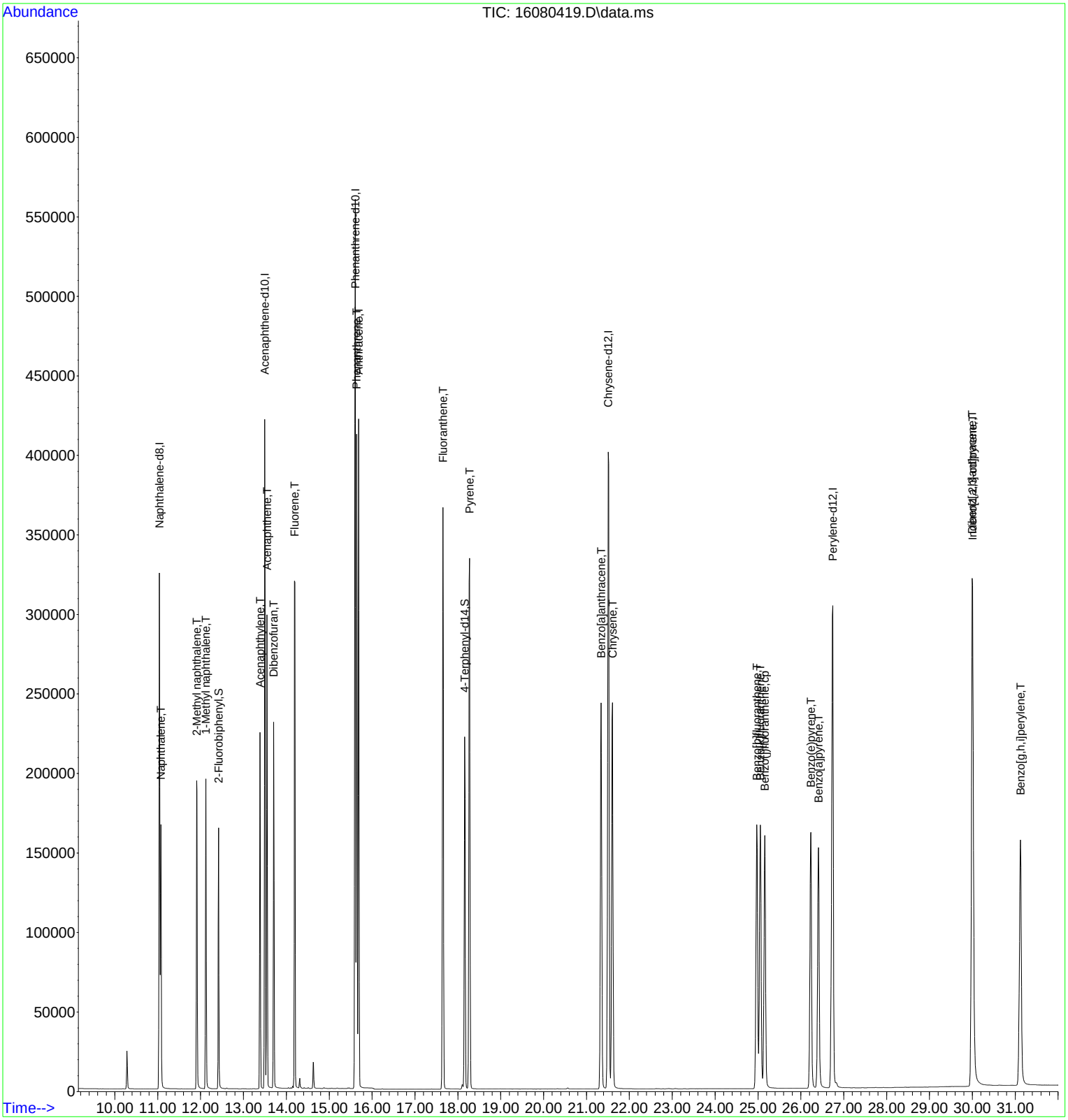
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	385471	4000.00	ug/kg	98
6) Acenaphthene-d10	13.496	164	220062	4000.00	ug/kg	120
11) Phenanthrene-d10	15.605	188	653475	4000.00	ug/kg	131
17) Chrysene-d12	21.518	240	626541	4000.00	ug/kg	93
20) Perylene-d12	26.743	264	557910	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	130531	2041.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.05%		
15) 4-Terphenyl-d14	18.160	244	248886	1529.25	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	38.23%#		
Target Compounds						Qvalue
2) Naphthalene	11.073	128	175522	1872.74	ug/kg	99
3) 2-Methyl naphthalene	11.916	142	118422	2007.87	ug/kg	96
4) 1-Methyl naphthalene	12.124	142	108271	1999.23	ug/kg	96
7) Acenaphthylene	13.383	152	208902	1979.92	ug/kg	99
8) Acenaphthene	13.548	153	130684	1955.02	ug/kg	98
9) Dibenzofuran	13.704	168	203079	2144.09	ug/kg	81
10) Fluorene	14.199	166	184803	2311.89	ug/kg	98
12) Phenanthrene	15.640	178	341566	1933.39	ug/kg	99
13) Anthracene	15.684	178	335406	1856.16	ug/kg	99
14) Fluoranthene	17.653	202	383716	1618.73	ug/kg	97
16) Pyrene	18.273	202	379856	1543.66	ug/kg	98
18) Benzo[a]anthracene	21.340	228	335113	2062.86	ug/kg	100
19) Chrysene	21.606	228	312797	2017.91	ug/kg	99
21) Benzo[b]fluoranthene	24.972	252	311211	2067.38	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	281211	2183.68	ug/kg	100
23) Benzo(j)fluoranthene	25.157	252	267602	2127.54	ug/kg	100
24) Benzo(e)pyrene	26.236	252	294011	2018.38	ug/kg	100
25) Benzo[a]pyrene	26.413	252	288328	2085.73	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.012	276	357071	2187.09	ug/kg	95
27) Dibenz[a,h]anthracene	29.996	278	296643	2209.73	ug/kg	99
28) Benzo[g,h,i]perylene	31.123	276	307104	2141.40	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080419.D
Acq On : 4 Aug 2016 7:55 pm
Operator :
Sample : ICV2-160804
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

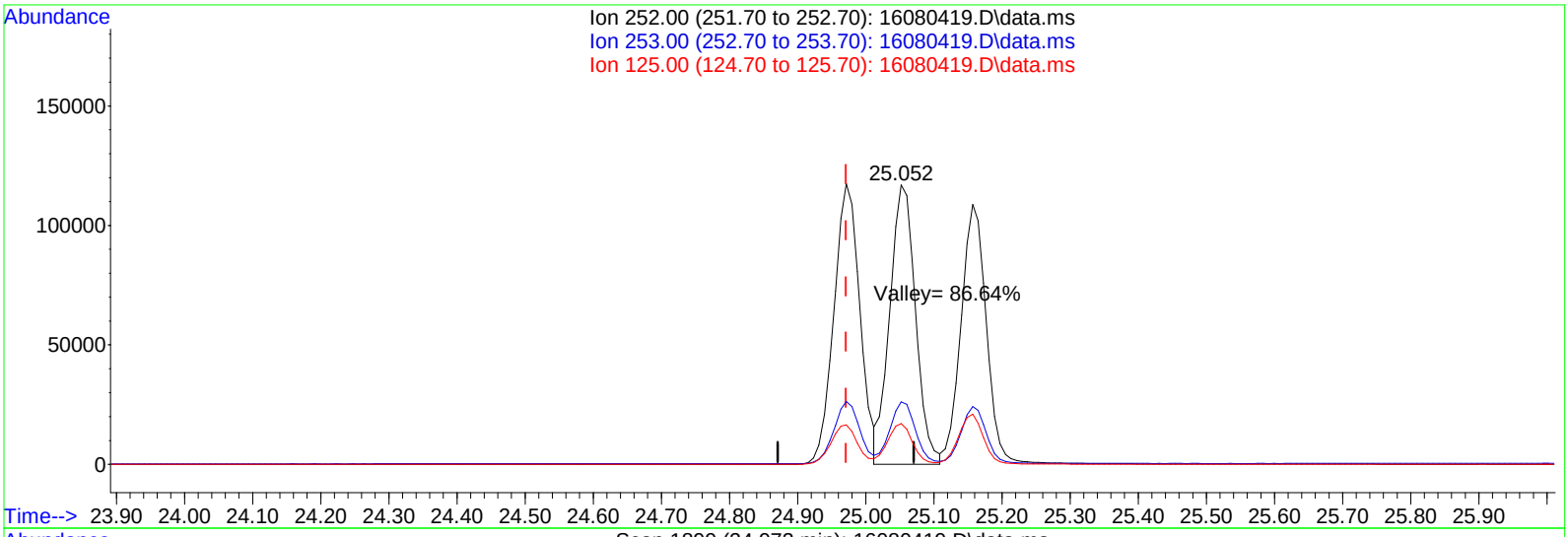
Quant Time: Aug 05 14:34:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

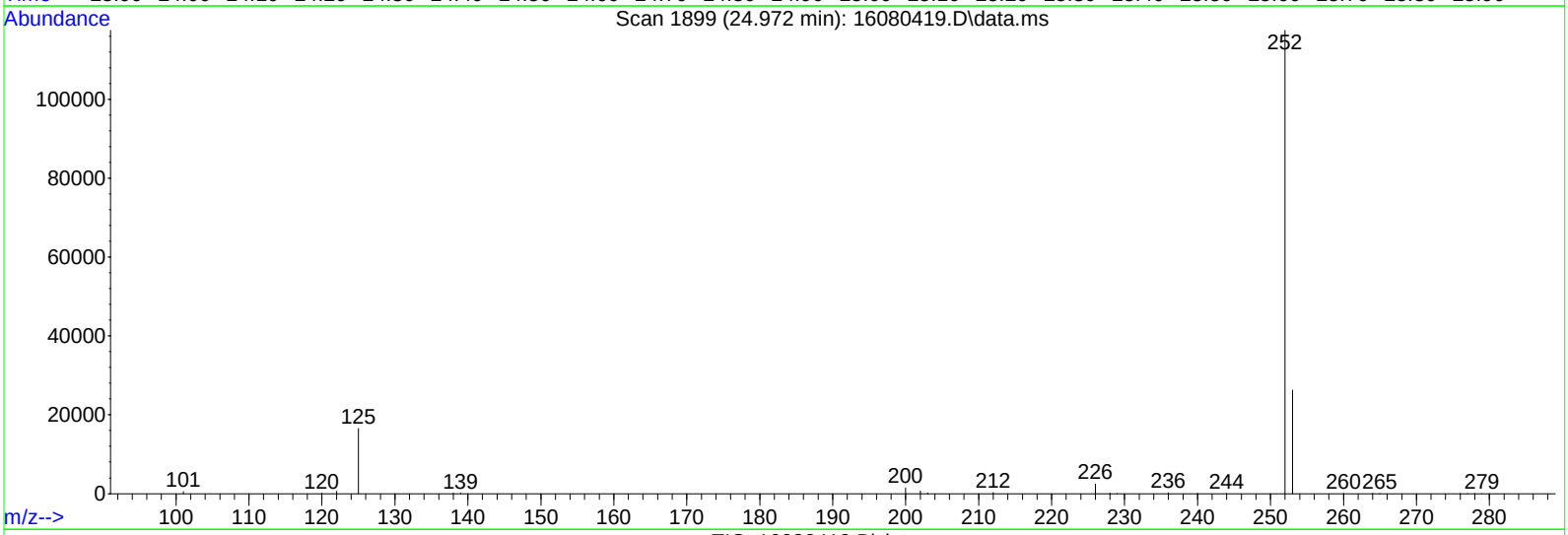


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080419.D
Acq On : 4 Aug 2016 7:55 pm
Operator :
Sample : ICV2-160804
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 20:27:44 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration





TIC: 16080419.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.972min (+0.001) 2067.38ug/kg

response 311211

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.10
125.00	13.90	13.98
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080421.D
Acq On : 4 Aug 2016 9:15 pm
Operator :
Sample : SB-160804
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 05 14:34:40 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	398015	4000.00	ug/kg	101
6) Acenaphthene-d10	13.497	164	270770	4000.00	ug/kg	148
11) Phenanthrene-d10	15.607	188	664280	4000.00	ug/kg	133
17) Chrysene-d12	21.509	240	619647	4000.00	ug/kg	92
20) Perylene-d12	26.734	264	578952	4000.00	ug/kg	94

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.429	172	54	0.82	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			
15) 4-Terphenyl-d14	18.160	244	266	1.61	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.04%#			

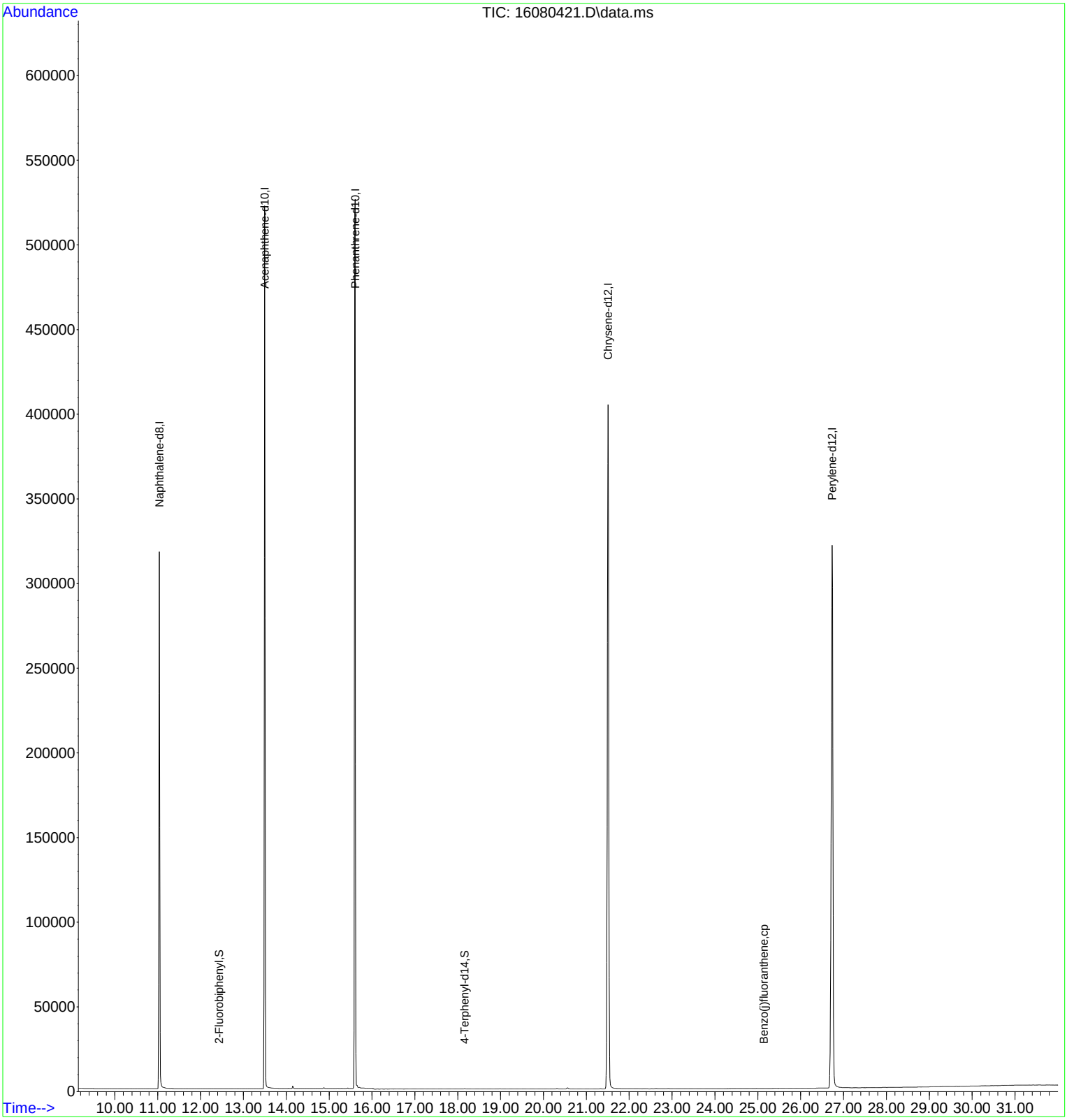
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.148	252	5	0.04	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080421.D
Acq On : 4 Aug 2016 9:15 pm
Operator :
Sample : SB-160804
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 05 14:34:40 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080427.D
Acq On : 5 Aug 2016 1:13 am
Operator :
Sample : 1607256-21AMS
Misc : MS
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 05 14:34:42 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

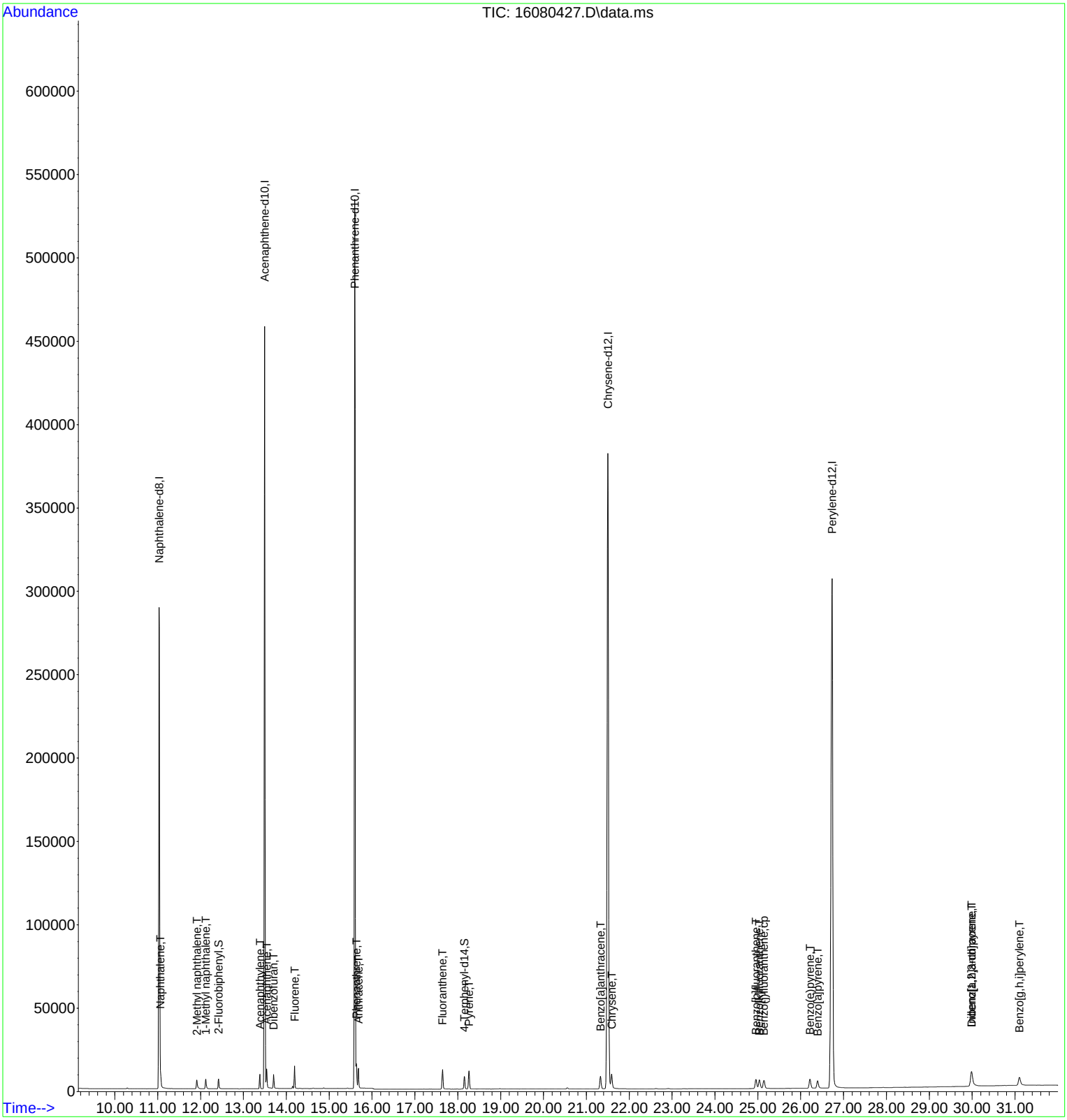
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.030	136	394067	4000.00	ug/kg	100
6) Acenaphthene-d10	13.496	164	243709	4000.00	ug/kg	133
11) Phenanthrene-d10	15.597	188	611839	4000.00	ug/kg	123
17) Chrysene-d12	21.500	240	603256	4000.00	ug/kg	90
20) Perylene-d12	26.734	264	568325	4000.00	ug/kg	93
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	5971	91.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.28%#			
15) 4-Terphenyl-d14	18.159	244	9367	61.47	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.54%#			
Target Compounds						Qvalue
2) Naphthalene	11.065	128	6530	68.15	ug/kg	100
3) 2-Methyl naphthalene	11.916	142	4518	74.93	ug/kg	98
4) 1-Methyl naphthalene	12.124	142	4216	76.15	ug/kg	97
7) Acenaphthylene	13.383	152	8152	69.77	ug/kg	100
8) Acenaphthene	13.539	153	5325	71.93	ug/kg	99
9) Dibenzofuran	13.704	168	8507	81.10	ug/kg	87
10) Fluorene	14.190	166	7168	80.97	ug/kg	99
12) Phenanthrene	15.640	178	12218	73.86	ug/kg	99
13) Anthracene	15.684	178	10902	64.44	ug/kg	99
14) Fluoranthene	17.644	202	12609	56.81	ug/kg	96
16) Pyrene	18.264	202	12833	55.70	ug/kg	96
18) Benzo[a]anthracene	21.331	228	10890	69.62	ug/kg	99
19) Chrysene	21.589	228	10399	69.68	ug/kg	99
21) Benzo[b]fluoranthene	24.954	252	10387	67.74	ug/kg	99
22) Benzo[k]fluoranthene	25.035	252	8874	67.65	ug/kg	99
23) Benzo(j)fluoranthene	25.148	252	9002	70.26	ug/kg	98
24) Benzo(e)pyrene	26.218	252	10705	72.14	ug/kg	98
25) Benzo[a]pyrene	26.396	252	9197	65.31	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.995	276	12793	76.92	ug/kg	92
27) Dibenz[a,h]anthracene	29.978	278	10071	73.65	ug/kg	99
28) Benzo[g,h,i]perylene	31.106	276	11410	78.10	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080427.D
Acq On : 5 Aug 2016 1:13 am
Operator :
Sample : 1607256-21AMS
Misc : MS
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 05 14:34:42 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080428.D
Acq On : 5 Aug 2016 1:53 am
Operator :
Sample : 1607256-21AMSD
Misc : MSD
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 05 14:34:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

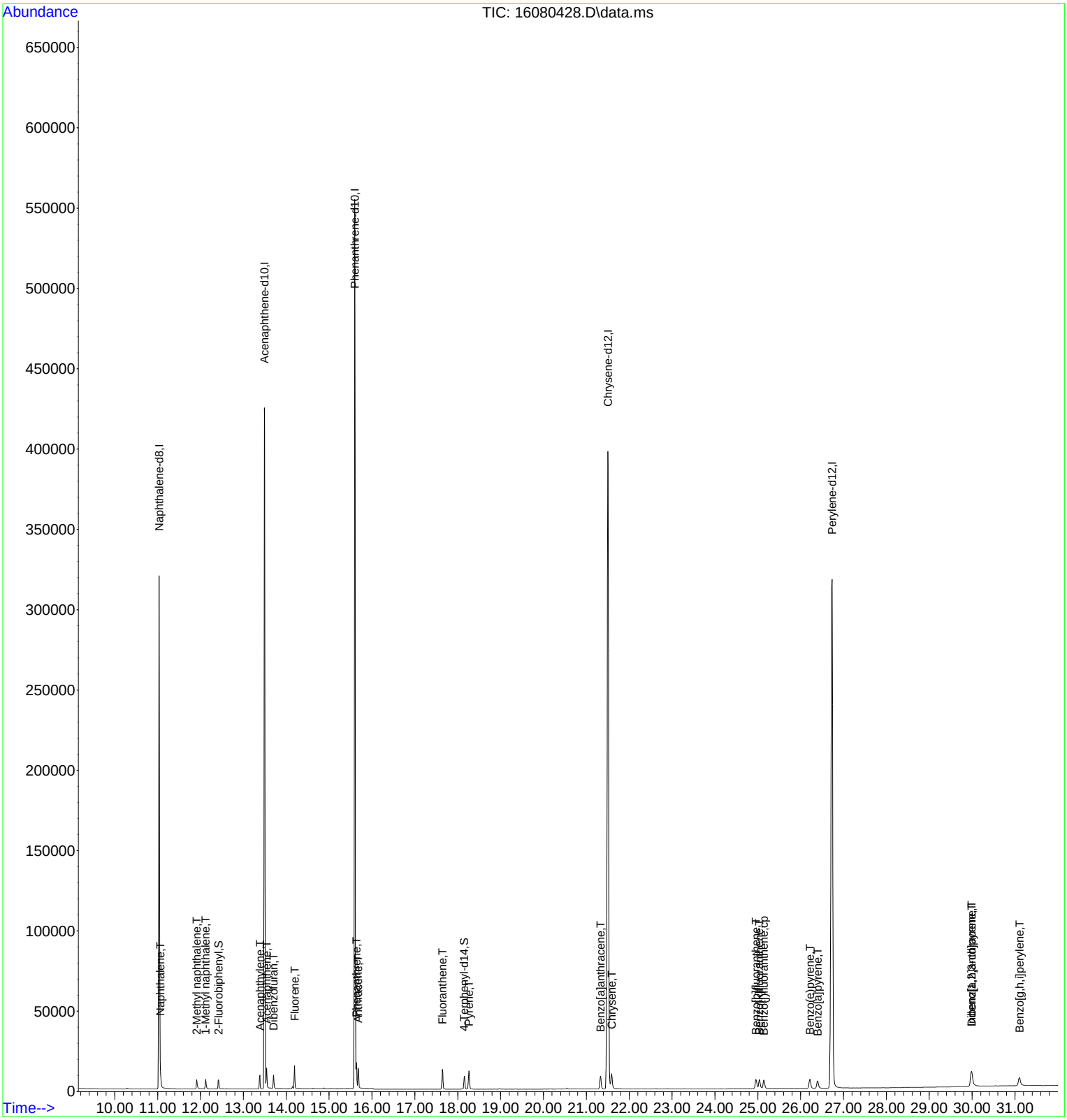
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.031	136	404876	4000.00	ug/kg	103
6) Acenaphthene-d10	13.488	164	249803	4000.00	ug/kg	137
11) Phenanthrene-d10	15.598	188	630538	4000.00	ug/kg	126
17) Chrysene-d12	21.499	240	625657	4000.00	ug/kg	93
20) Perylene-d12	26.733	264	584925	4000.00	ug/kg	95
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	6117	91.10	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.28%#			
15) 4-Terphenyl-d14	18.158	244	9731	61.97	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.55%#			
Target Compounds						Qvalue
2) Naphthalene	11.066	128	6820	69.28	ug/kg	100
3) 2-Methyl naphthalene	11.908	142	4619	74.56	ug/kg	98
4) 1-Methyl naphthalene	12.117	142	4295	75.51	ug/kg	99
7) Acenaphthylene	13.384	152	8499	70.96	ug/kg	100
8) Acenaphthene	13.540	153	5517	72.71	ug/kg	100
9) Dibenzofuran	13.705	168	8757	81.45	ug/kg	92
10) Fluorene	14.192	166	7450	82.10	ug/kg	99
12) Phenanthrene	15.633	178	12892	75.63	ug/kg	99
13) Anthracene	15.676	178	11455	65.70	ug/kg	99
14) Fluoranthene	17.643	202	13268	58.01	ug/kg	97
16) Pyrene	18.263	202	13489	56.81	ug/kg	97
18) Benzo[a]anthracene	21.330	228	11474	70.73	ug/kg	99
19) Chrysene	21.588	228	11073	71.53	ug/kg	99
21) Benzo[b]fluoranthene	24.954	252	11344	71.88	ug/kg	99
22) Benzo[k]fluoranthene	25.042	252	9274	68.69	ug/kg	97
23) Benzo(j)fluoranthene	25.139	252	9528	72.25	ug/kg	98
24) Benzo(e)pyrene	26.218	252	11212	73.42	ug/kg	98
25) Benzo[a]pyrene	26.395	252	9677	66.77	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.994	276	13374	78.13	ug/kg	92
27) Dibenz[a,h]anthracene	29.978	278	10644	75.63	ug/kg	99
28) Benzo[g,h,i]perylene	31.105	276	11799	78.47	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080428.D
Acq On : 5 Aug 2016 1:53 am
Operator :
Sample : 1607256-21AMSD
Misc : MSD
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 05 14:34:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080429.D
Acq On : 5 Aug 2016 2:33 am
Operator :
Sample : CCV1-160804
Misc : CCV
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 05 14:34:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	435991	4000.00	ug/kg	111
6) Acenaphthene-d10	13.490	164	259013	4000.00	ug/kg	142
11) Phenanthrene-d10	15.600	188	672128	4000.00	ug/kg	135
17) Chrysene-d12	21.508	240	674053	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	623546	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	76151	1053.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.33%#			
15) 4-Terphenyl-d14	18.159	244	124839	745.77	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 18.64%#			

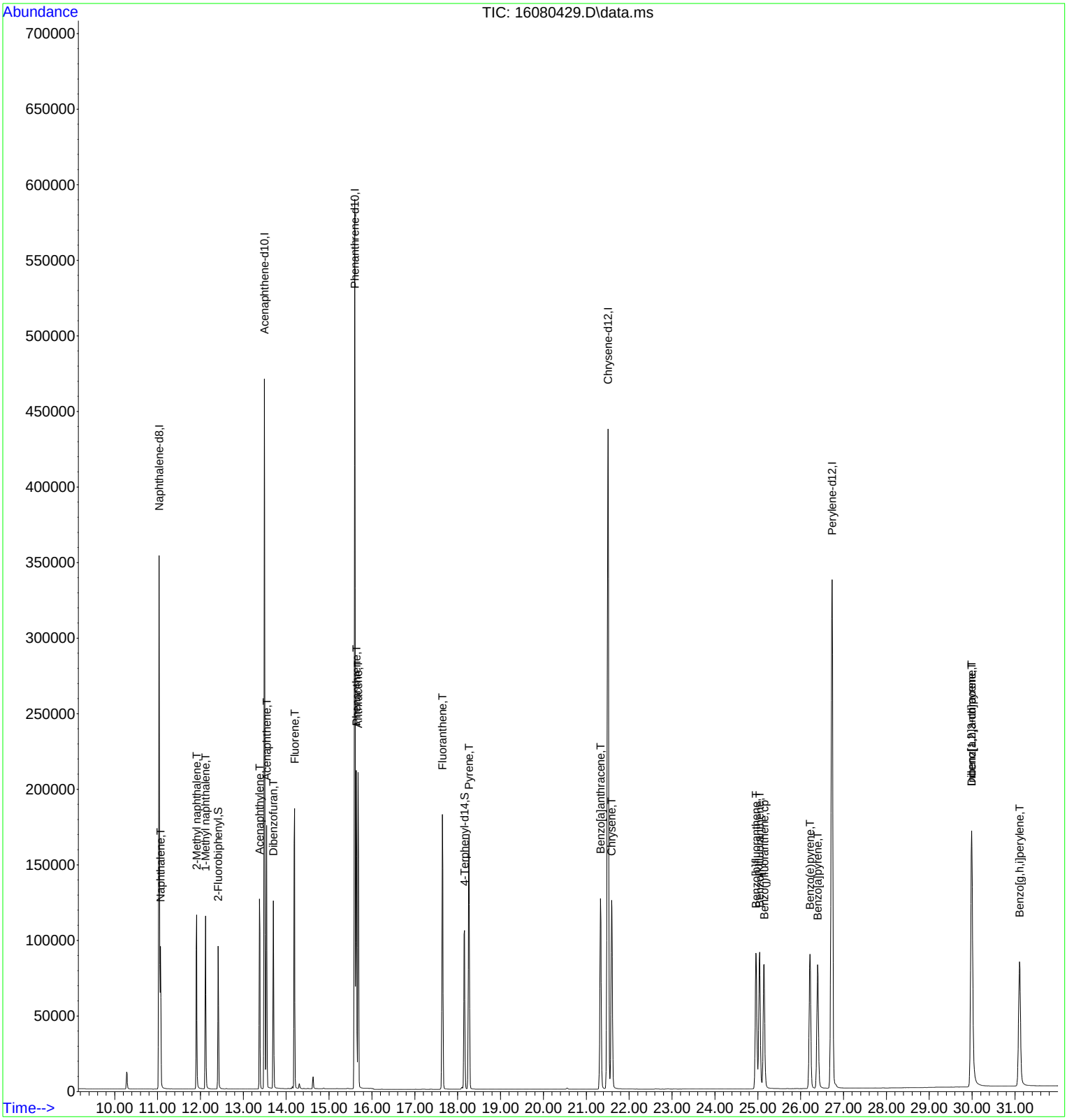
Target Compounds						Qvalue
2) Naphthalene	11.068	128	98236	926.68	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	67378	1010.03	ug/kg	98
4) 1-Methyl naphthalene	12.118	142	62017	1012.45	ug/kg	98
7) Acenaphthylene	13.377	152	120309	968.78	ug/kg	99
8) Acenaphthene	13.542	153	75777	963.14	ug/kg	99
9) Dibenzofuran	13.698	168	116205	1042.38	ug/kg	73
10) Fluorene	14.193	166	101904	1083.11	ug/kg	99
12) Phenanthrene	15.634	178	173565	955.18	ug/kg	100
13) Anthracene	15.678	178	170947	919.78	ug/kg	100
14) Fluoranthene	17.643	202	190901	782.98	ug/kg	97
16) Pyrene	18.263	202	191729	757.53	ug/kg	98
18) Benzo[a]anthracene	21.331	228	173713	993.95	ug/kg	100
19) Chrysene	21.589	228	163453	980.14	ug/kg	100
21) Benzo[b]fluoranthene	24.962	252	167645	996.44	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	148481	1031.63	ug/kg	99
23) Benzo(j)fluoranthene	25.147	252	141720	1008.13	ug/kg	100
24) Benzo(e)pyrene	26.218	252	158885	975.93	ug/kg	100
25) Benzo[a]pyrene	26.395	252	154355	999.05	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.994	276	194999	1068.66	ug/kg	97
27) Dibenz[a,h]anthracene	29.986	278	160466	1069.51	ug/kg	98
28) Benzo[g,h,i]perylene	31.106	276	167045	1042.18	ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080429.D
Acq On : 5 Aug 2016 2:33 am
Operator :
Sample : CCV1-160804
Misc : CCV
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 05 14:34:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



GCMS8_160806B
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160806B
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS		X		
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard	X			
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality				
1. Are all non-conformances included and noted?				X	x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/8/2016

Second-Level Review: Janice Whitt Date: 8/12/2016

REVIEWED BY
By Janice Whitt at 9:07:28 AM, 8/12/2016

DHL Analytical, Inc.

Run ID: GCMS8_160806B **Run No.:** 87473

Analytical Run Date: 8/6/2016 **InstrumentID:** GCMS8

Analyst: Don Winston **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 682 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160805	1	PAH_LL_SDOD1	TUNE	R87473	8/6/2016 8:16:00 PM		
ICV-160806	1	PAH_LL_SDOD1	ICV	R87473	8/6/2016 8:55:00 PM		
LCS-76511	1	PAH_LL_SDOD1	LCS	76511	8/6/2016 9:35:00 PM		
MB-76511	1	PAH_LL_SDOD1	MBLK	76511	8/6/2016 10:15:00 PM		
1607256-28A	10	PAH_LL_SDOD1	SAMP	76511	8/6/2016 10:55:00 PM		
1607265-07A	10	PAH_LL_SDOD1	SAMP	76511	8/6/2016 11:35:00 PM		
1607265-08A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:15:00 AM		
1607265-09A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:54:00 AM		
1607265-10A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 1:34:00 AM		
1607265-11A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 2:14:00 AM		
1607265-12A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 2:54:00 AM		
1607265-14A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 3:34:00 AM		
1607265-15A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 4:13:00 AM		
1607265-16A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 4:53:00 AM		
1607265-17A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 5:32:00 AM		
1607265-18A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 6:12:00 AM		
1607265-19A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 6:51:00 AM		
DFTPP2-160806	1	PAH_LL_SDOD1	TUNE	R87473	8/7/2016 7:30:00 AM		
ICV2-160806	1	PAH_LL_SDOD1	ICV	R87473	8/7/2016 8:09:00 AM		
SB-160808	1	PAH_LL_SDOD1	SBLK	76511	8/7/2016 9:29:00 AM		
1607265-20A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 10:09:00 AM		
1607265-21A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 10:49:00 AM		
1607265-22A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 11:29:00 AM		
1607265-23A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:09:00 PM		
1607265-24A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:49:00 PM		
1607265-25A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 1:29:00 PM		
1607265-18AMS	10	PAH_LL_SDOD1	MS	76511	8/7/2016 2:08:00 PM		
1607265-18AMSD	10	PAH_LL_SDOD1	MSD	76511	8/7/2016 2:48:00 PM		High recovery for Chrysene, Fluoranthene, and Pyrene. %RPD with MS is acceptable.
CCV1-160806	1	PAH_LL_SDOD1	CCV	R87473	8/7/2016 3:27:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\msdchem\1\sequence\160806.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160806\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

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

Line			Sample Name/Misc Info		
1)	Sample	12	16080612	DFTPPPAH	DFTPP-160805
2)	Sample	13	16080613	PAH160802	ICV-160806
3)	Sample	14	16080614	PAH160802	LCS-76511
4)	Sample	15	16080615	PAH160802	MB-76511
5)	Sample	16	16080616	PAH160802	1607256-28A
6)	Sample	17	16080617	PAH160802	1607265-07A
7)	Sample	18	16080618	PAH160802	1607265-08A
8)	Sample	19	16080619	PAH160802	1607265-09A
9)	Sample	20	16080620	PAH160802	1607265-10A
10)	Sample	21	16080621	PAH160802	1607265-11A
11)	Sample	22	16080622	PAH160802	1607265-12A
12)	Sample	23	16080623	PAH160802	1607265-14A
13)	Sample	24	16080624	PAH160802	1607265-15A
14)	Sample	25	16080625	PAH160802	1607265-16A
15)	Sample	26	16080626	PAH160802	1607265-17A
16)	Sample	27	16080627	PAH160802	1607265-18A
17)	Sample	28	16080628	PAH160802	1607265-19A
18)	Sample	29	16080629	DFTPPPAH	DFTPP2-160806
19)	Sample	30	16080630	PAH160802	ICV2-160806
20)	Sample	31	16080631	PAH160802	SBLK
21)	Sample	32	16080632	PAH160802	SB-160808
22)	Sample	33	16080633	PAH160802	1607265-20A
23)	Sample	34	16080634	PAH160802	1607265-21A
24)	Sample	35	16080635	PAH160802	1607265-22A
25)	Sample	36	16080636	PAH160802	1607265-23A
26)	Sample	37	16080637	PAH160802	1607265-24A
27)	Sample	38	16080638	PAH160802	1607265-25A
28)	Sample	39	16080639	PAH160802	1607265-18AMS
29)	Sample	40	16080640	PAH160802	1607265-18AMSD
30)	Sample	41	16080641	PAH160802	CCV1-160806

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 2:13:18 PM**
Digestion:
Prep End Date: **7/27/2016 5:00:00 PM**

Prep Batch **76511** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-28A	Soil		10.02	10	0.998	1 of 3	
1607265-07A	Soil		10.82	10	0.924	1 of 1	
1607265-08A	Soil		10.26	10	0.975	1 of 1	
1607265-09A	Soil		10.01	10	0.999	1 of 1	
1607265-10A	Soil		10.02	10	0.998	1 of 1	
1607265-11A	Soil		10.78	10	0.928	1 of 1	
1607265-12A	Soil		10.42	10	0.960	1 of 1	
1607265-14A	Soil		10.04	10	0.996	1 of 1	
1607265-15A	Soil		10.06	10	0.994	1 of 1	
1607265-16A	Soil		10.55	10	0.948	1 of 1	
1607265-17A	Soil		10.32	10	0.969	1 of 1	
1607265-18A	Soil		10.27	10	0.974	1 of 3	
1607265-18AMS	Soil		10.23	10	0.978	1 of	
1607265-18AMSD	Soil		10.14	10	0.986	1 of	
1607265-19A	Soil		10.06	10	0.994	1 of 1	
1607265-20A	Soil		10.53	10	0.950	1 of 1	
1607265-21A	Soil		10.27	10	0.974	1 of 1	
1607265-22A	Soil		10.21	10	0.979	1 of 1	
1607265-23A	Soil		10.82	10	0.924	1 of 1	
1607265-24A	Soil		10.11	10	0.989	1 of 1	
1607265-25A	Soil		10.04	10	0.996	1 of 1	
LCS-76511	Soil		10	10	1.000	of	
MB-76511	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

REVIEWED BY
By Janice Whitt at 8:36:00 AM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 2:13:18 PM**
Digestion:
Prep End Date: 7/27/16 5:00PM

Prep Batch **76511** Prep Code: **3550_PAHDOD** Technician: ~~ADMIN~~ AR

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1607256-28A	Soil		10.02	10	1.000	1	of	3
~~1607256-28AMS~~	Soil		10.13	10	1.000	1	of	
~~1607256-28AMSD~~	Soil		10.16	10	1.000	1	of	
1607265-07A	Soil		10.82	10	1.000	1	of	1
1607265-08A	Soil		10.26	10	1.000	1	of	1
1607265-09A	Soil		10.01	10	1.000	1	of	1
1607265-10A	Soil		10.02	10	1.000	1	of	1
1607265-11A	Soil		10.73	10	1.000	1	of	1
1607265-12A	Soil		10.92	10	1.000	1	of	1
1607265-14A	Soil		10.64	10	1.000	1	of	1
1607265-15A	Soil		10.06	10	1.000	1	of	1
1607265-16A	Soil		10.55	10	1.000	1	of	1
1607265-17A	Soil		10.32	10	1.000	1	of	1
1607265-18A	Soil		10.27	10	1.000	1	of	3
1607265-18AMS	Soil		10.23	10	1.000	1	of	↓
1607265-18AMSD	Soil		10.14	10	1.000	1	of	↓
1607265-19A	Soil		10.06	10	1.000	1	of	1
1607265-20A	Soil		10.53	10	1.000	1	of	1
1607265-21A	Soil		10.27	10	1.000	1	of	1
1607265-22A	Soil		10.21	10	1.000	1	of	1
1607265-23A	Soil		10.82	10	1.000	1	of	1
1607265-24A	Soil		10.11	10	1.000	1	of	1
1607265-25A	Soil		10.04	10	1.000	1	of	1
LCS-76511	Soil		10	10	1.000		of	
MB-76511	Soil		10	10	1.000		of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

REVIEWED BY
By Janice Whitt at 8:35:57 AM, 8/12/2016

7/27/16

AR 7/27/16

fg 7/27/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-07A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-08A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-11A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-12A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 8:36:05 AM, 8/12/2016

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

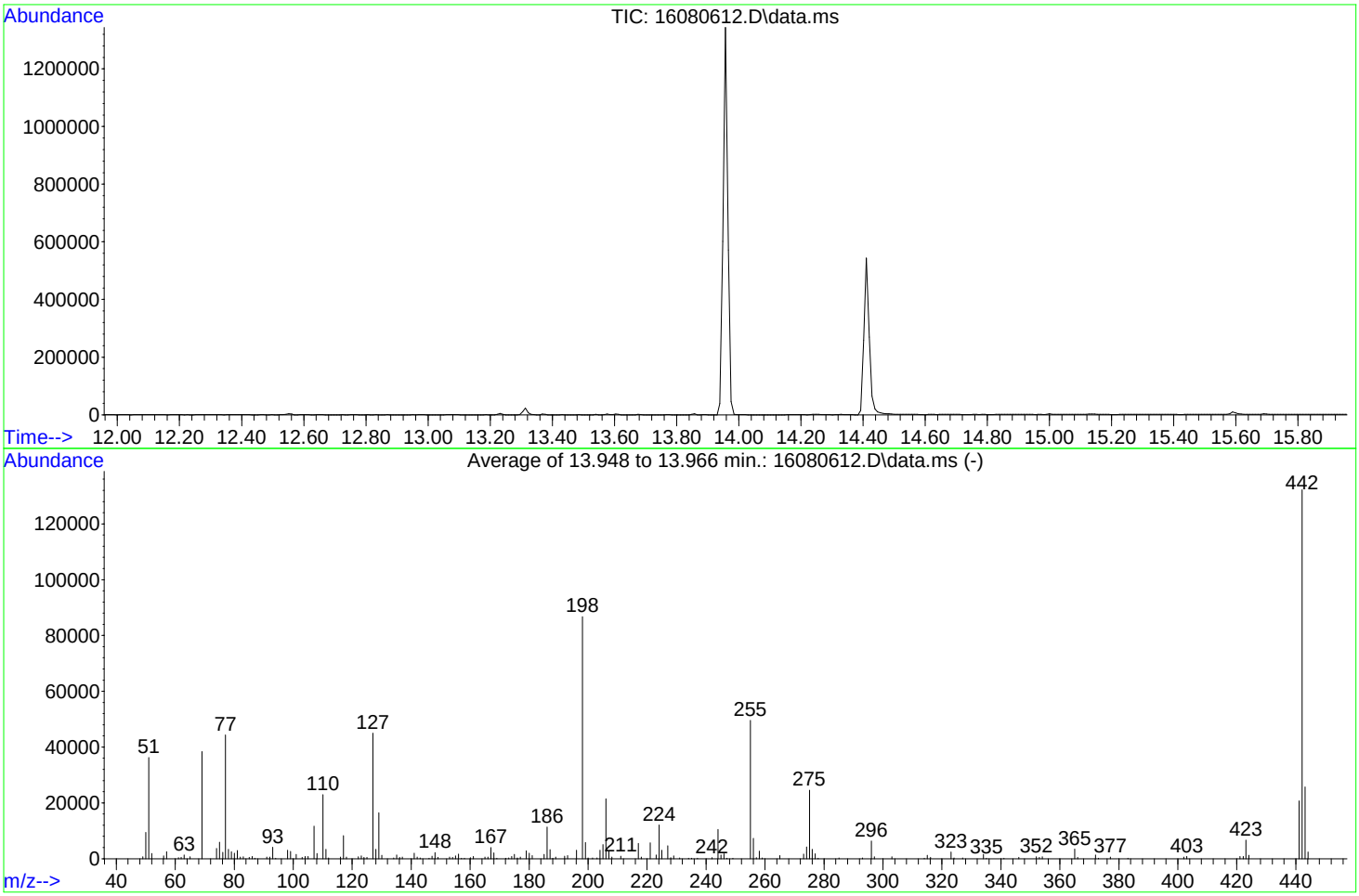
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-18A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607265-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-23A	Soil		0	0	#Num!	1 of 1	
Sieve Ony Hard Clay							
1607265-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-25A	Soil		0	0	#Num!	1 of 1	
SS							



Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080612.D
Acq On : 6 Aug 2016 8:16 pm
Operator :
Sample : DFTPP-160806
Misc : TUNE
ALS Vial : 12 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

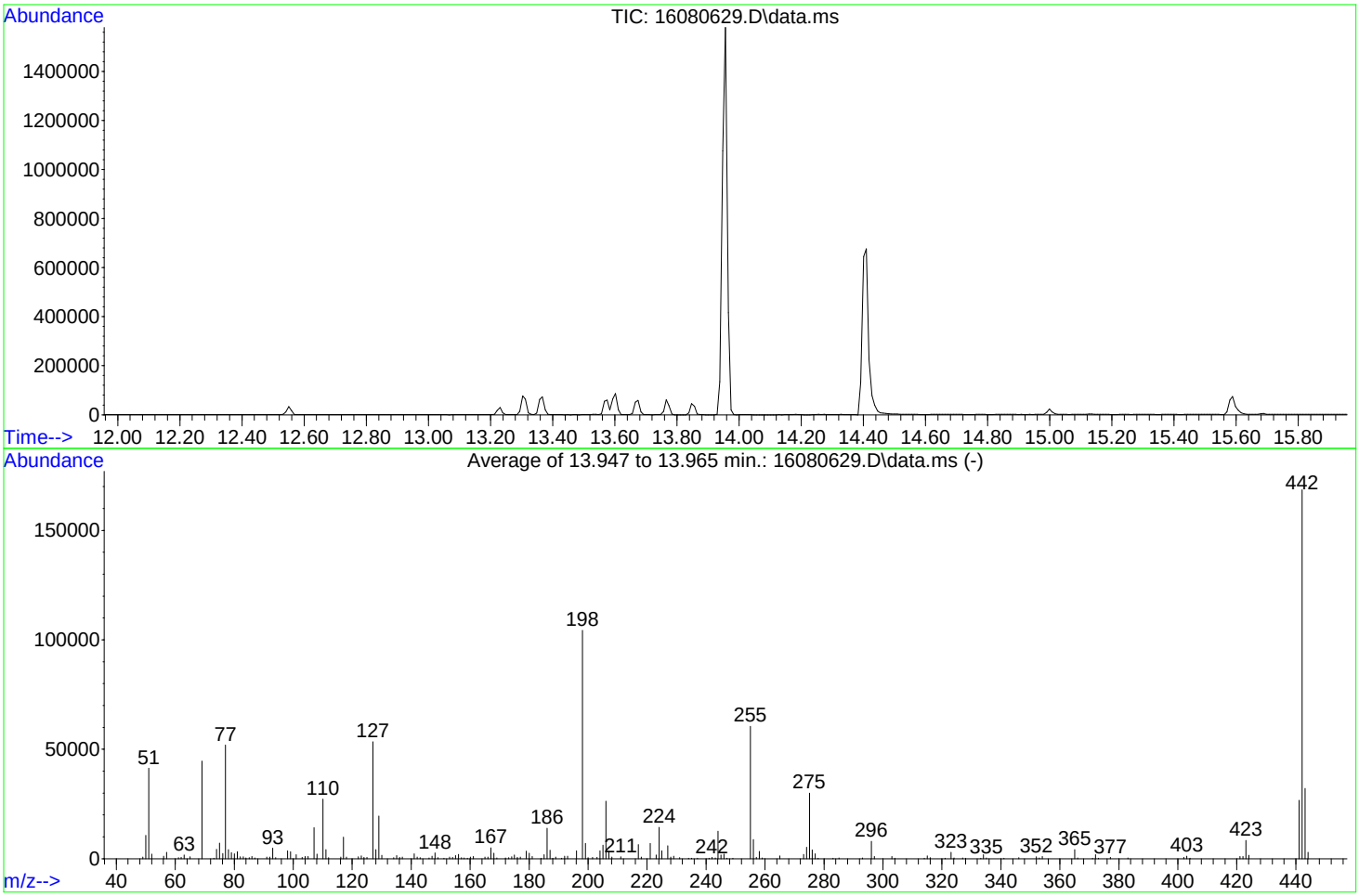
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.8	36304	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.3	38433	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.8	44960	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	86760	PASS
199	198	5	9	6.7	5778	PASS
275	198	10	60	28.3	24531	PASS
365	198	1	200	4.0	3440	PASS
441	442	0.01	24	15.7	20713	PASS
442	198	50	400	152.4	132264	PASS
443	442	15	24	19.5	25747	PASS

REVIEWED BY
By Janice Whitt at 8:36:09 AM, 8/12/2016

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080629.D
Acq On : 7 Aug 2016 7:30 am
Operator :
Sample : DFTPP2-160806
Misc : TUNE
ALS Vial : 29 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.7	41402	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.7	44579	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.2	53393	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	104306	PASS
199	198	5	9	6.8	7064	PASS
275	198	10	60	28.7	29895	PASS
365	198	1	200	4.0	4199	PASS
441	442	0.01	24	15.8	26626	PASS
442	198	50	400	161.6	168610	PASS
443	442	15	24	19.1	32124	PASS

REVIEWED BY
By Janice Whitt at 8:36:12 AM, 8/12/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080613.D
Acq On : 6 Aug 2016 8:55 pm
Operator :
Sample : ICV-160806
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 08 12:20:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

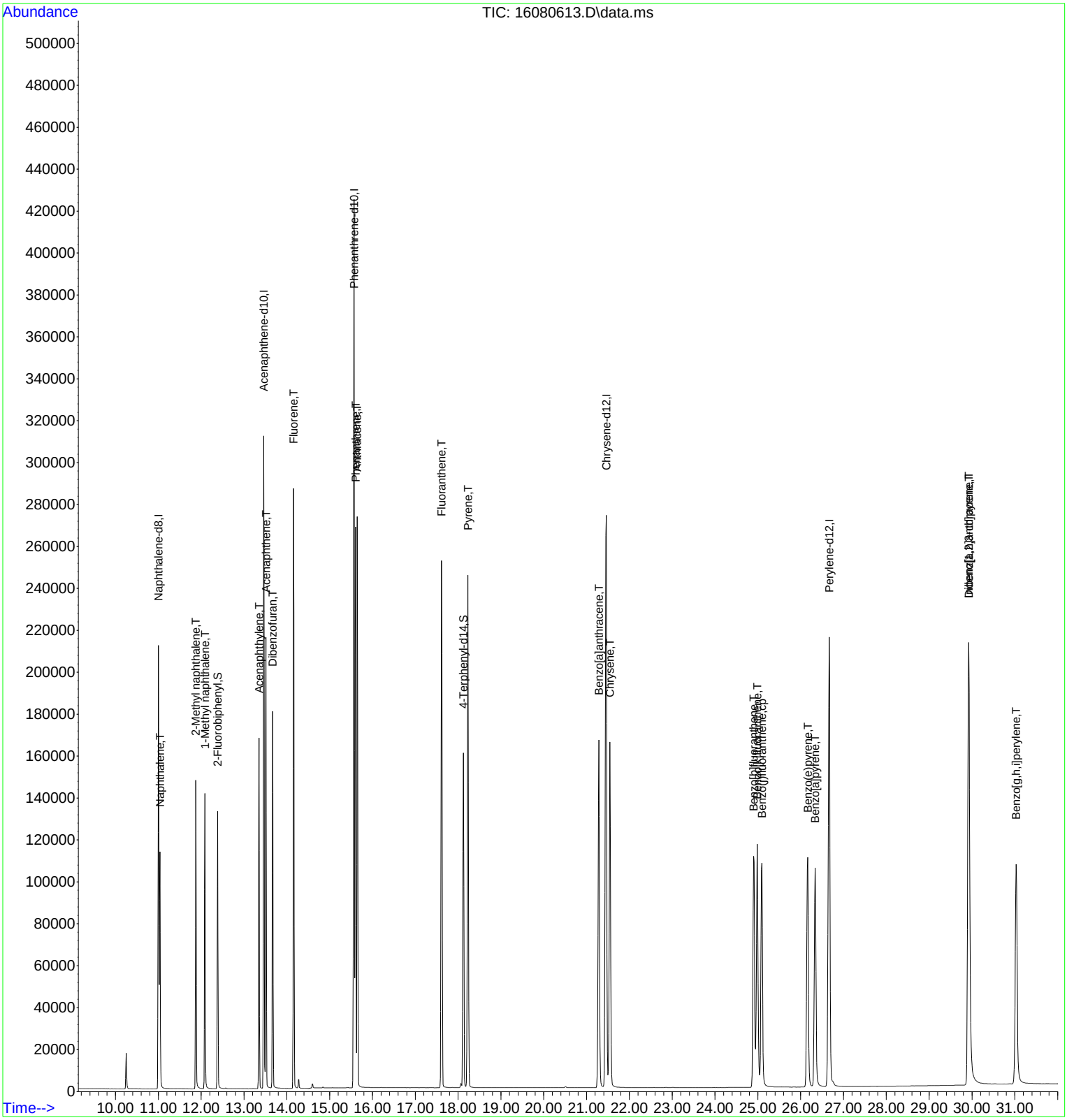
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	256641	4000.00	ug/kg	97
6) Acenaphthene-d10	13.461	164	158552	4000.00	ug/kg	98
11) Phenanthrene-d10	15.568	188	486144	4000.00	ug/kg	94
17) Chrysene-d12	21.458	240	433795	4000.00	ug/kg	94
20) Perylene-d12	26.664	264	395244	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	105182	1842.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.06%			
15) 4-Terphenyl-d14	18.123	244	171951	2011.88	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 50.30%			
Target Compounds						Qvalue
2) Naphthalene	11.036	128	119306	1948.86	ug/kg	100
3) 2-Methyl naphthalene	11.873	142	82179	1969.33	ug/kg	99
4) 1-Methyl naphthalene	12.085	142	74907	1952.60	ug/kg	100
7) Acenaphthylene	13.348	152	149413	2036.89	ug/kg	100
8) Acenaphthene	13.511	153	95892	2000.31	ug/kg	99
9) Dibenzofuran	13.667	168	161745	1965.77	ug/kg	95
10) Fluorene	14.156	166	145342	2042.72	ug/kg	99
12) Phenanthrene	15.607	178	254408	2057.01	ug/kg	100
13) Anthracene	15.645	178	254696	2007.11	ug/kg	100
14) Fluoranthene	17.612	202	267625	2028.17	ug/kg	99
16) Pyrene	18.229	202	267887	2030.55	ug/kg	98
18) Benzo[a]anthracene	21.285	228	223965	2049.95	ug/kg	100
19) Chrysene	21.545	228	210634	2036.95	ug/kg	100
21) Benzo[b]fluoranthene	24.910	252	213370	2129.20	ug/kg	99
22) Benzo[k]fluoranthene	24.987	252	185453	2221.58	ug/kg	99
23) Benzo(j)fluoranthene	25.093	252	175350	2164.90	ug/kg	100
24) Benzo(e)pyrene	26.163	252	202290	2028.54	ug/kg	100
25) Benzo[a]pyrene	26.336	252	195205	2081.57	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.932	276	243273	2091.20	ug/kg	97
27) Dibenz[a,h]anthracene	29.923	278	199166	2135.09	ug/kg	99
28) Benzo[g,h,i]perylene	31.031	276	206935	2003.81	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080613.D
Acq On : 6 Aug 2016 8:55 pm
Operator :
Sample : ICV-160806
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

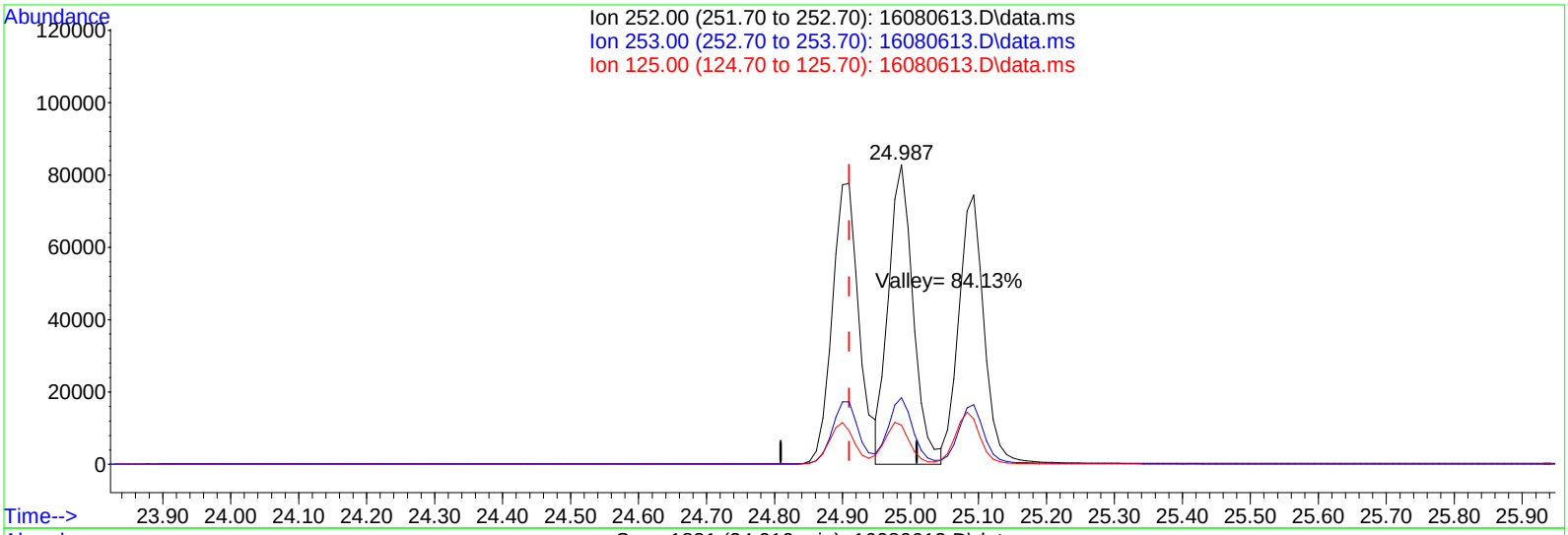
Quant Time: Aug 08 12:20:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

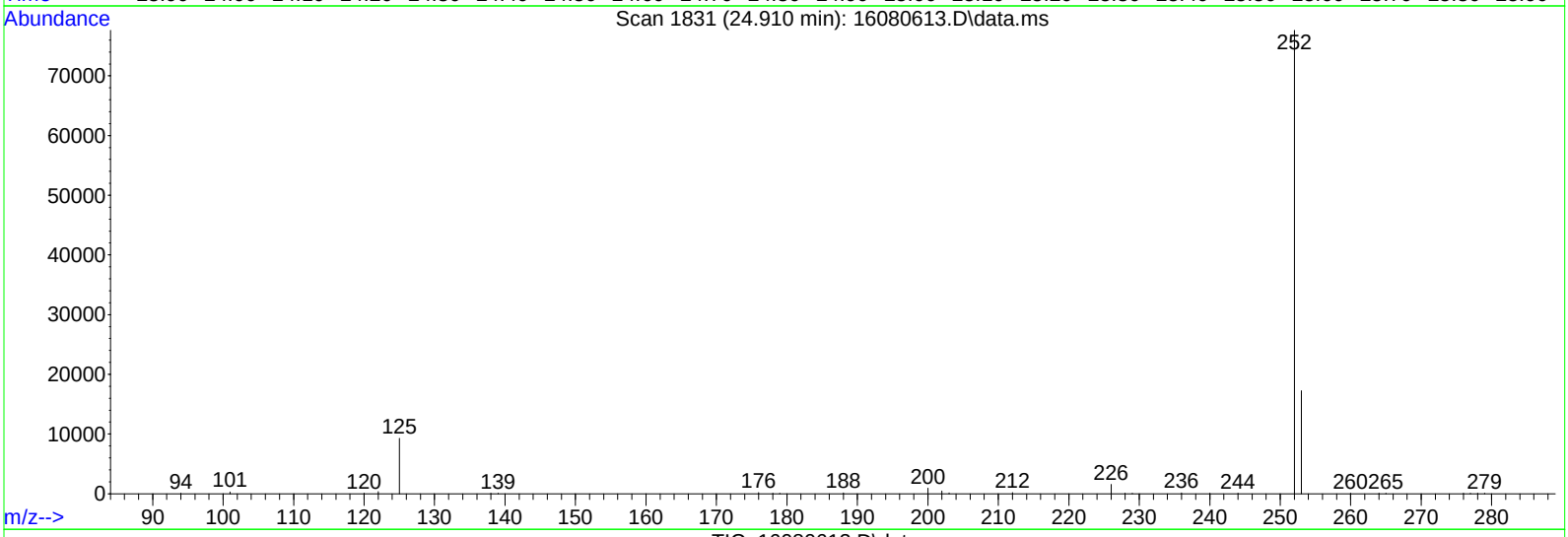


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080613.D
Acq On : 6 Aug 2016 8:55 pm
Operator :
Sample : ICV-160806
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 07 12:46:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080613.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.910min (+0.000) 2129.20ug/kg

response 213370

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	21.97
125.00	13.20	11.89
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080614.D
Acq On : 6 Aug 2016 9:35 pm
Operator :
Sample : LCS-76511
Misc : LCS
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 08 12:21:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.004	136	331622	4000.00	ug/kg	125
6) Acenaphthene-d10	13.458	164	147719	4000.00	ug/kg	91
11) Phenanthrene-d10	15.567	188	342723	4000.00	ug/kg	67
17) Chrysene-d12	21.448	240	366650	4000.00	ug/kg	79
20) Perylene-d12	26.664	264	343228	4000.00	ug/kg	82

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	44164	598.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.97%#			
15) 4-Terphenyl-d14	18.122	244	61547	1021.47	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 25.54%#			

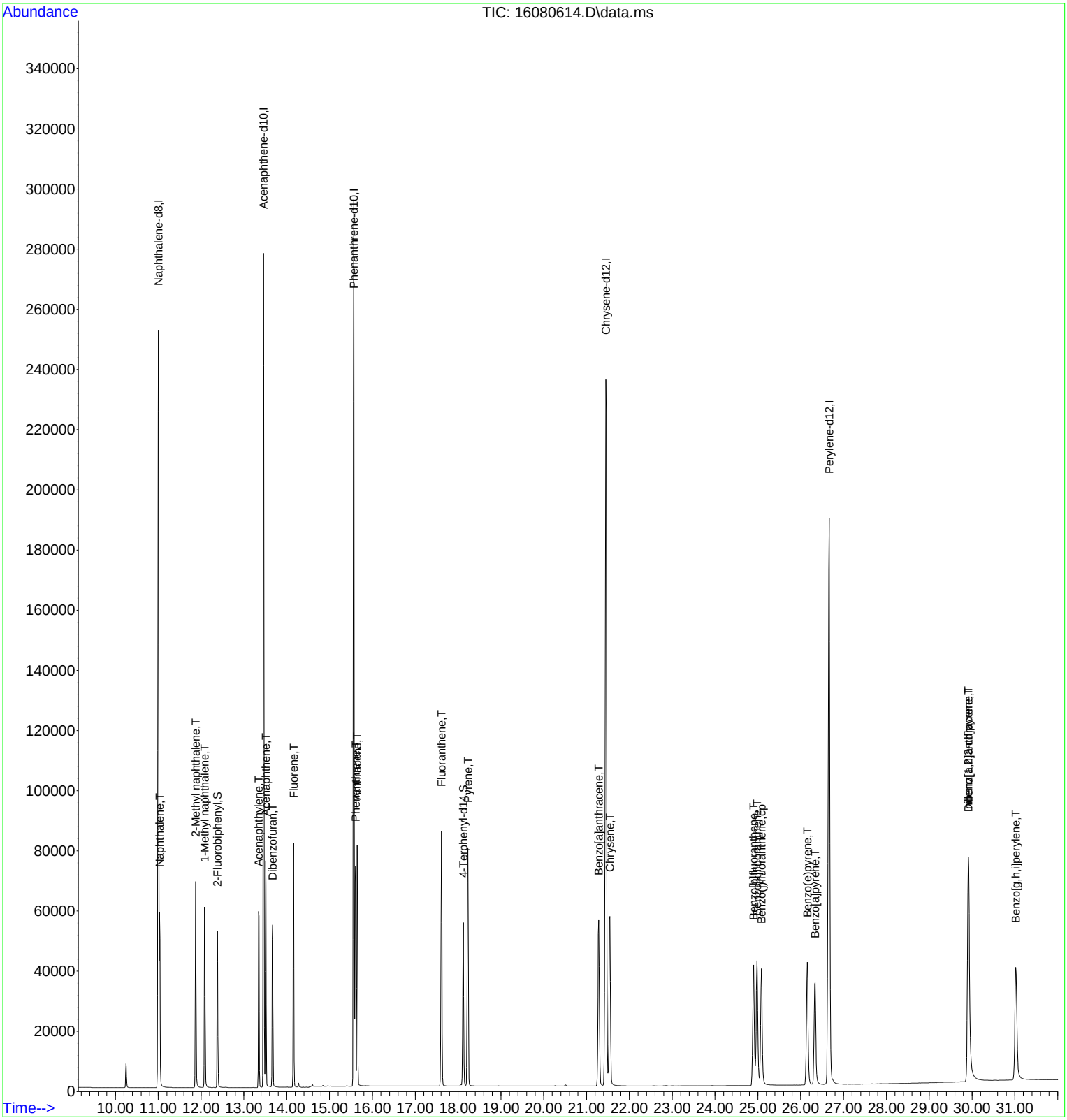
Target Compounds						Qvalue
2) Naphthalene	11.032	128	61035	771.58	ug/kg	100
3) 2-Methyl naphthalene	11.876	142	39450	731.62	ug/kg	98
4) 1-Methyl naphthalene	12.082	142	35929	724.80	ug/kg	96
7) Acenaphthylene	13.344	152	57651	843.57	ug/kg	99
8) Acenaphthene	13.507	153	35743	800.28	ug/kg	97
9) Dibenzofuran	13.670	168	51603	673.15	ug/kg	89
10) Fluorene	14.160	166	42895	647.08	ug/kg	99
12) Phenanthrene	15.606	178	75442	851.02	ug/kg	99
13) Anthracene	15.645	178	71469	798.89	ug/kg	99
14) Fluoranthene	17.611	202	87804	943.87	ug/kg	95
16) Pyrene	18.228	202	90329	971.20	ug/kg	97
18) Benzo[a]anthracene	21.284	228	78084	845.59	ug/kg	99
19) Chrysene	21.545	228	74003	846.71	ug/kg	99
21) Benzo[b]fluoranthene	24.899	252	74489	855.97	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	67282	928.13	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	63800	907.06	ug/kg	100
24) Benzo(e)pyrene	26.153	252	74802	863.78	ug/kg	100
25) Benzo[a]pyrene	26.336	252	67560	829.61	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.922	276	91315	903.91	ug/kg	97
27) Dibenz[a,h]anthracene	29.913	278	72931	900.32	ug/kg	100
28) Benzo[g,h,i]perylene	31.021	276	79306	884.32	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080614.D
Acq On : 6 Aug 2016 9:35 pm
Operator :
Sample : LCS-76511
Misc : LCS
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 08 12:21:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080615.D
Acq On : 6 Aug 2016 10:15 pm
Operator :
Sample : MB-76511
Misc : MBLK
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 08 12:21:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

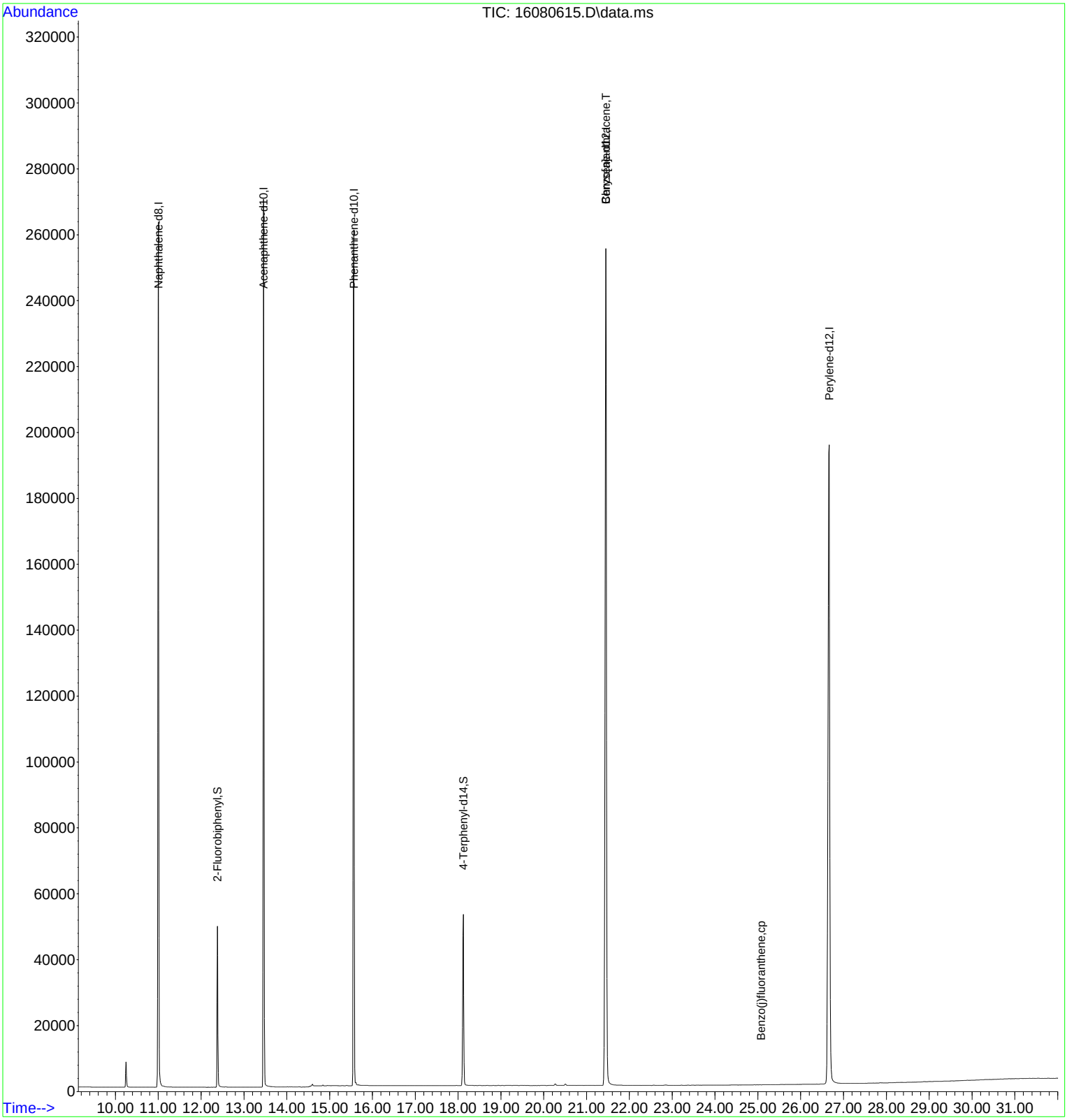
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	338778	4000.00	ug/kg	128
6) Acenaphthene-d10	13.457	164	145404	4000.00	ug/kg	90
11) Phenanthrene-d10	15.567	188	327072	4000.00	ug/kg	64
17) Chrysene-d12	21.448	240	383068	4000.00	ug/kg	83
20) Perylene-d12	26.664	264	366438	4000.00	ug/kg	87
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	41858	555.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 13.89%#			
15) 4-Terphenyl-d14	18.122	244	60799	1057.34	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 26.43%#			
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1027	10.64	ug/kg	72
23) Benzo(j)fluoranthene	25.083	252	9	0.12	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080615.D
Acq On : 6 Aug 2016 10:15 pm
Operator :
Sample : MB-76511
Misc : MBLK
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 08 12:21:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080616.D
Acq On : 6 Aug 2016 10:55 pm
Operator :
Sample : 1607256-28A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 08 12:22:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	284012	4000.00	ug/kg	107
6) Acenaphthene-d10	13.461	164	174060	4000.00	ug/kg	107
11) Phenanthrene-d10	15.569	188	489780	4000.00	ug/kg	95
17) Chrysene-d12	21.449	240	467565	4000.00	ug/kg	101
20) Perylene-d12	26.665	264	430333	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	4882	77.27	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.93%#			
15) 4-Terphenyl-d14	18.123	244	7709	89.53	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.24%#			

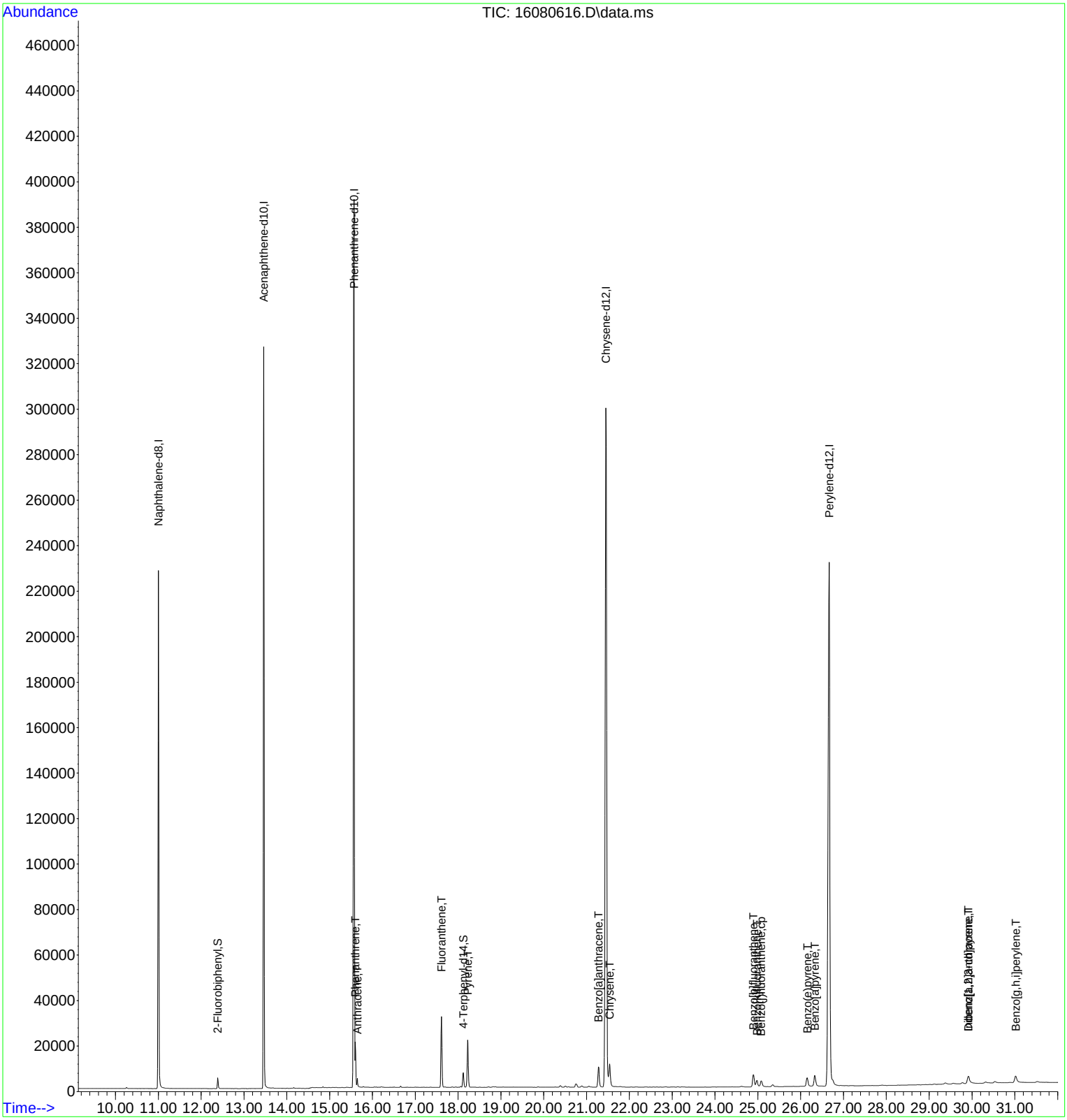
Target Compounds						Qvalue
12) Phenanthrene	15.598	178	18112	139.76	ug/kg	100
13) Anthracene	15.646	178	3307	25.87	ug/kg	99
14) Fluoranthene	17.612	202	32556	244.89	ug/kg	92
16) Pyrene	18.220	202	24774	186.39	ug/kg	97
18) Benzo[a]anthracene	21.276	228	12995	110.35	ug/kg	99
19) Chrysene	21.536	228	13765	123.50	ug/kg	100
21) Benzo[b]fluoranthene	24.891	252	10681	97.89	ug/kg	98
22) Benzo[k]fluoranthene	24.978	252	4615	50.78	ug/kg	93
23) Benzo(j)fluoranthene	25.084	252	4448	50.44	ug/kg	93
24) Benzo(e)pyrene	26.154	252	7619	70.17	ug/kg	96
25) Benzo[a]pyrene	26.327	252	9958	97.53	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.923	276	6939	54.78	ug/kg	88
27) Dibenz[a,h]anthracene	29.904	278	1673	16.47	ug/kg	94
28) Benzo[g,h,i]perylene	31.022	276	7145	63.55	ug/kg	99

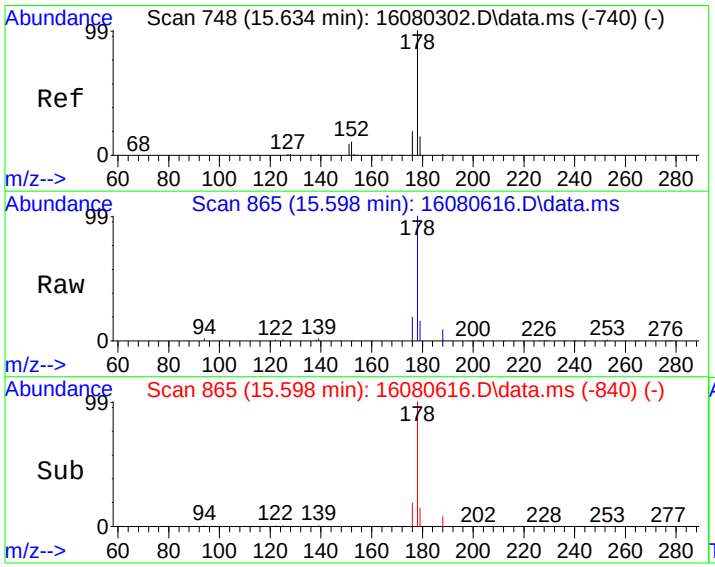
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080616.D
Acq On : 6 Aug 2016 10:55 pm
Operator :
Sample : 1607256-28A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 08 12:22:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

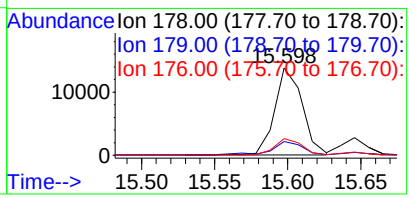


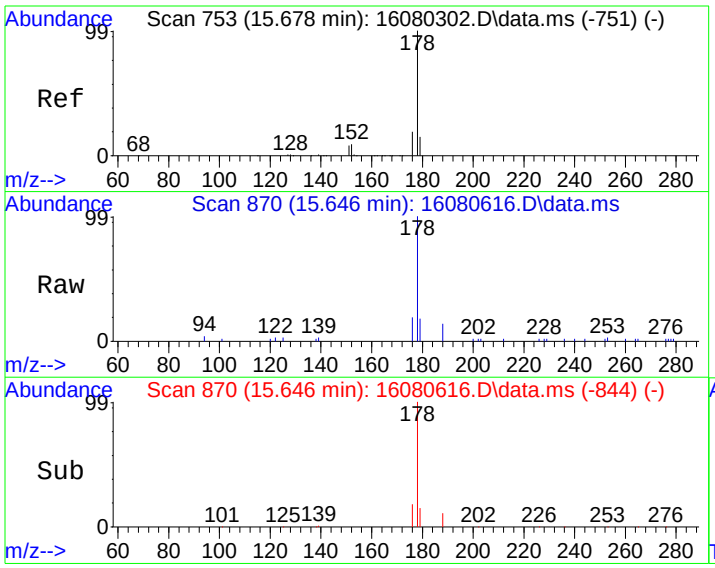


#12
Phenanthrene
Concen: 139.76 ug/kg
RT: 15.598 min Scan# 865
Delta R.T. -0.008 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:178 Resp: 18112

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.7
176	18.8	0.0	38.8

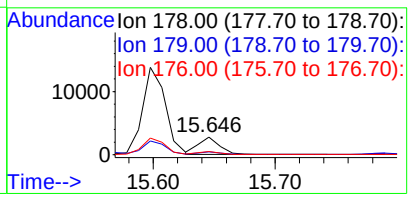


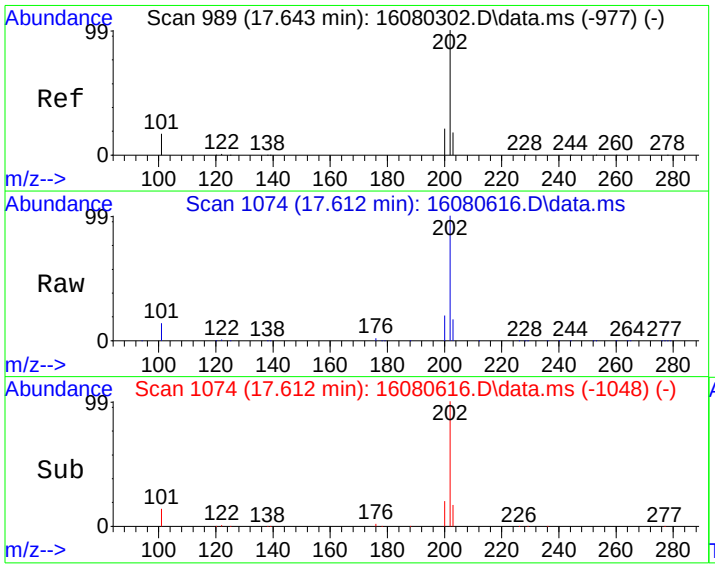


#13
Anthracene
Concen: 25.87 ug/kg
RT: 15.646 min Scan# 870
Delta R.T. 0.001 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:178 Resp: 3307

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	35.5
176	17.8	0.0	38.7

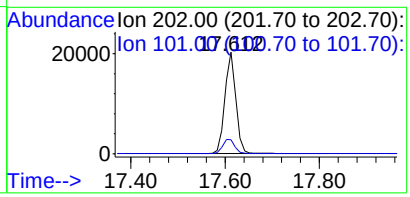


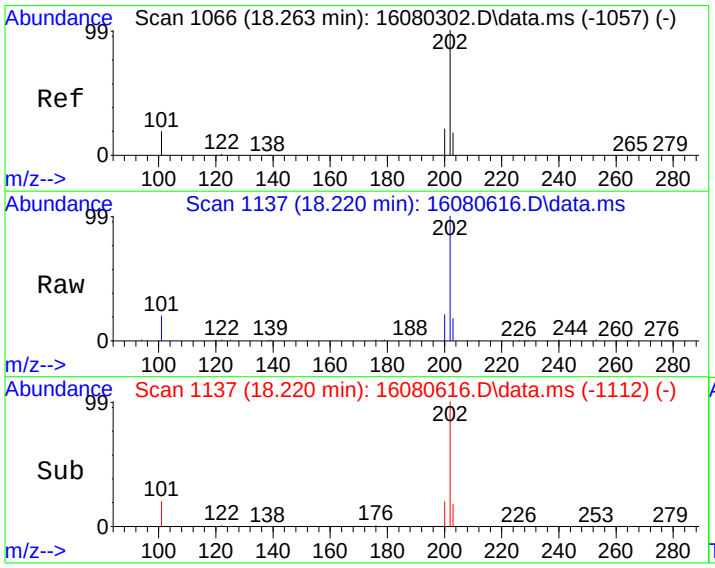


#14
Fluoranthene
Concen: 244.89 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.001 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:202 Resp: 32556

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	37.2

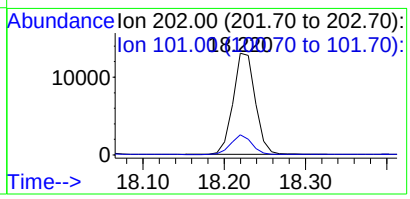


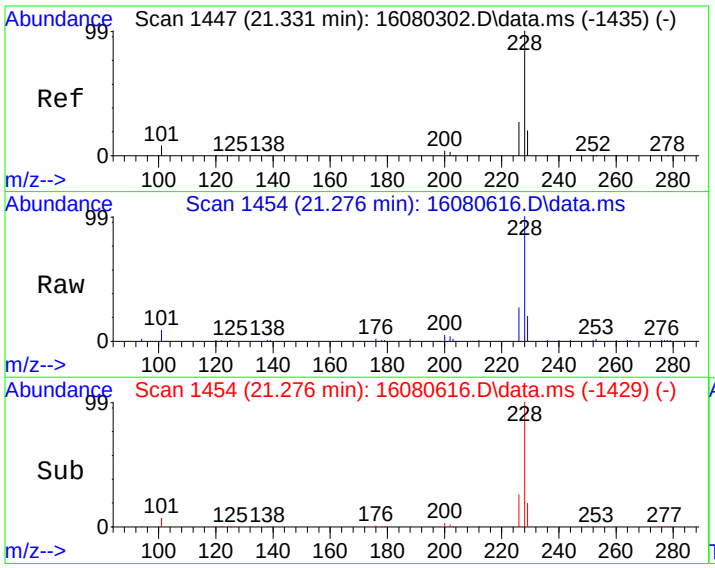


#16
Pyrene
Concen: 186.39 ug/kg
RT: 18.220 min Scan# 1137
Delta R.T. -0.009 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:202 Resp: 24774

Ion	Ratio	Lower	Upper
202	100		
101	19.5	0.0	38.0

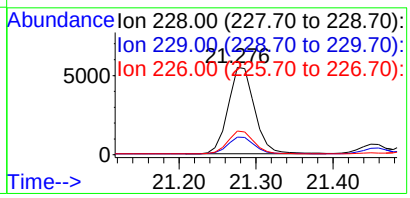


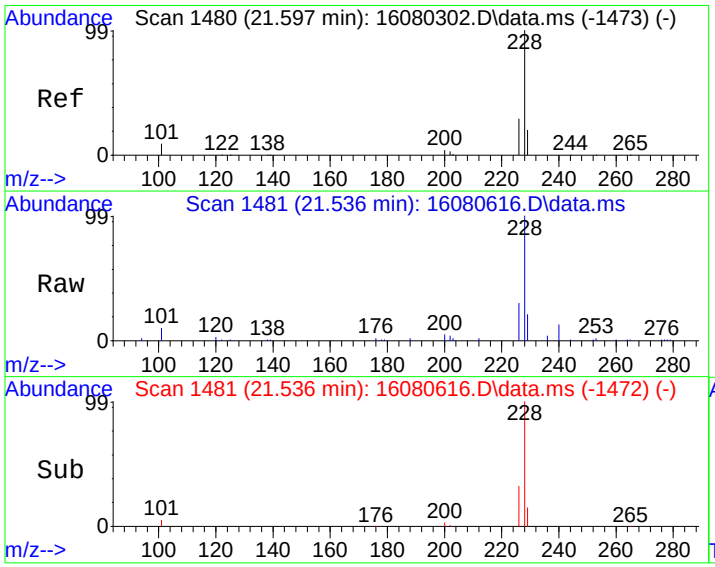


#18
Benzo[a]anthracene
Concen: 110.35 ug/kg
RT: 21.276 min Scan# 1454
Delta R.T. -0.009 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:228 Resp: 12995

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	39.9
226	26.4	6.7	46.7

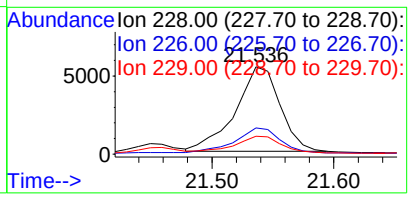


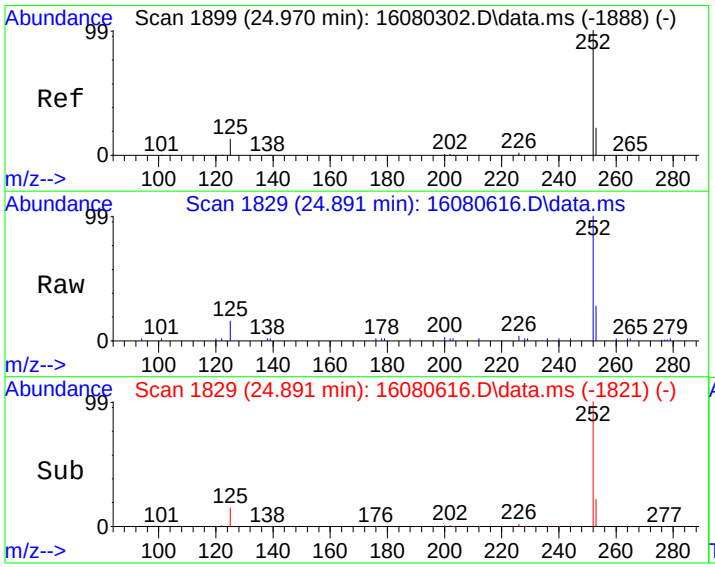


#19
Chrysene
Concen: 123.50 ug/kg
RT: 21.536 min Scan# 1481
Delta R.T. -0.009 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:228 Resp: 13765

Ion	Ratio	Lower	Upper
228	100		
226	29.2	9.3	49.3
229	19.7	0.0	39.8

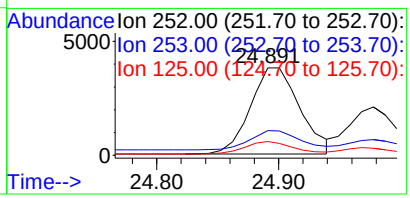


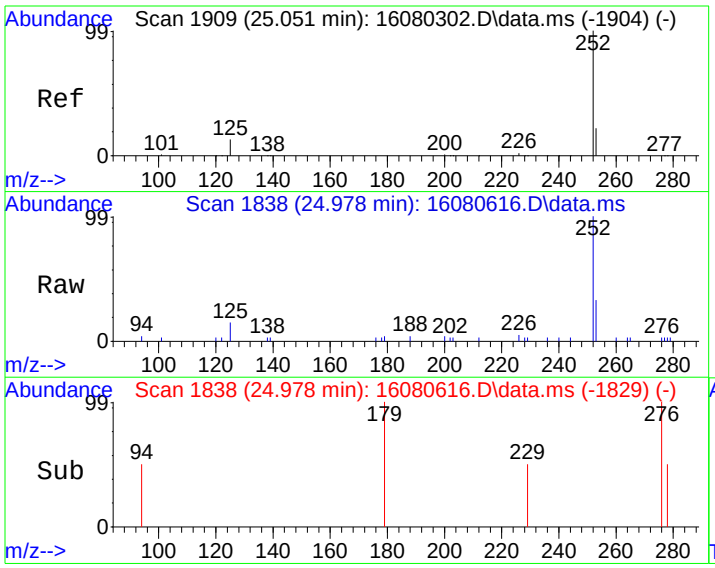


#21
Benzo[b]fluoranthene
Concen: 97.89 ug/kg
RT: 24.891 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:252 Resp: 10681

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	14.6	0.0	33.2

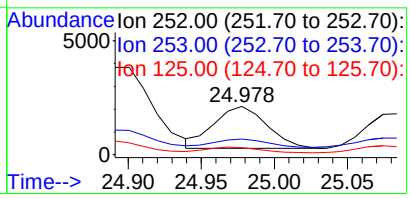


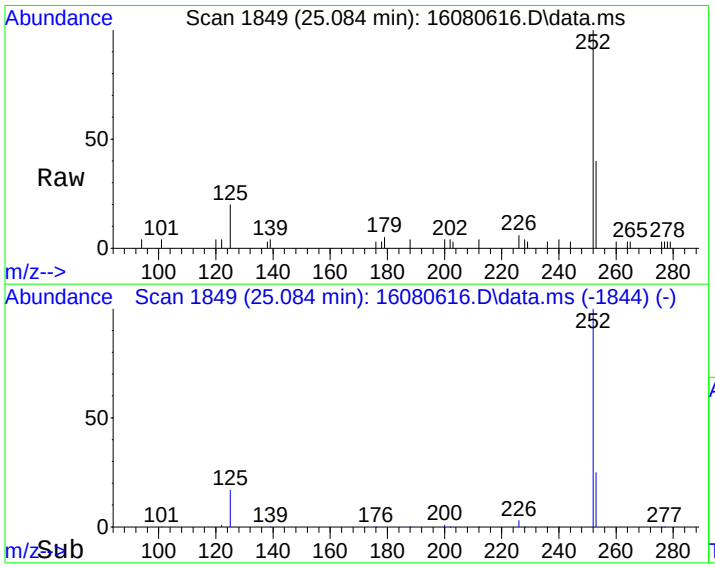


#22
Benzo[k]fluoranthene
Concen: 50.78 ug/kg
RT: 24.978 min Scan# 1838
Delta R.T. -0.009 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:252 Resp: 4615

Ion	Ratio	Lower	Upper
252	100		
253	18.5	2.1	42.1
125	11.3	0.0	33.9

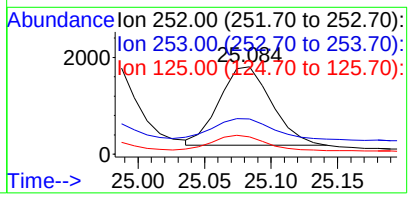


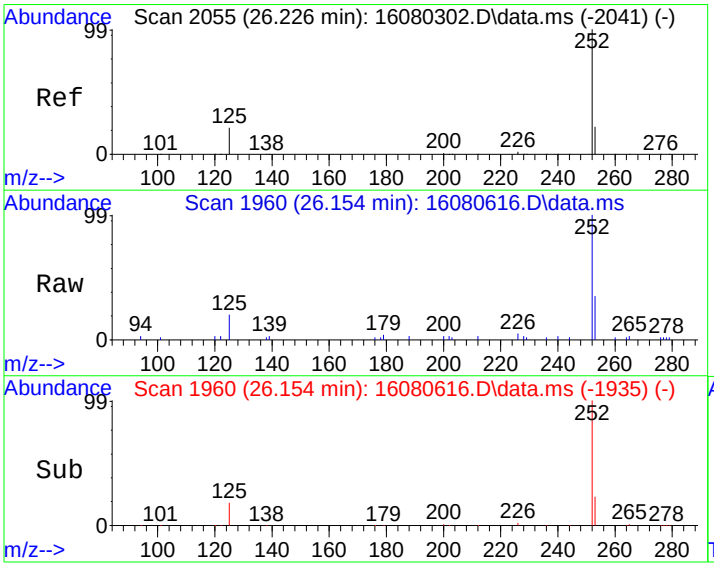


#23
Benzo(j)fluoranthene
Concen: 50.44 ug/kg
RT: 25.084 min Scan# 1849
Delta R.T. -0.009 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:252 Resp: 4448

Ion	Ratio	Lower	Upper
252	100		
253	28.4	1.9	41.9
125	19.3	0.0	39.4

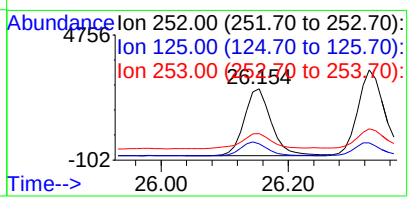


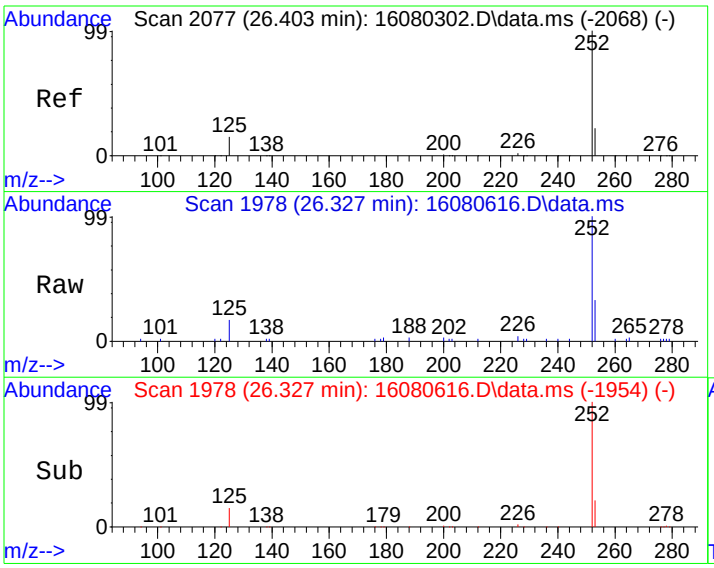


#24
Benzo(e)pyrene
Concen: 70.17 ug/kg
RT: 26.154 min Scan# 1960
Delta R.T. -0.009 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:252 Resp: 7619

Ion	Ratio	Lower	Upper
252	100		
125	20.5	0.5	40.5
253	25.4	2.1	42.1

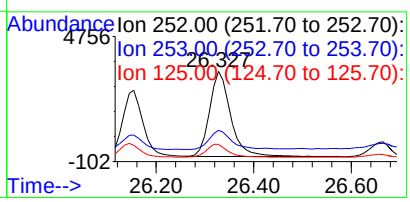


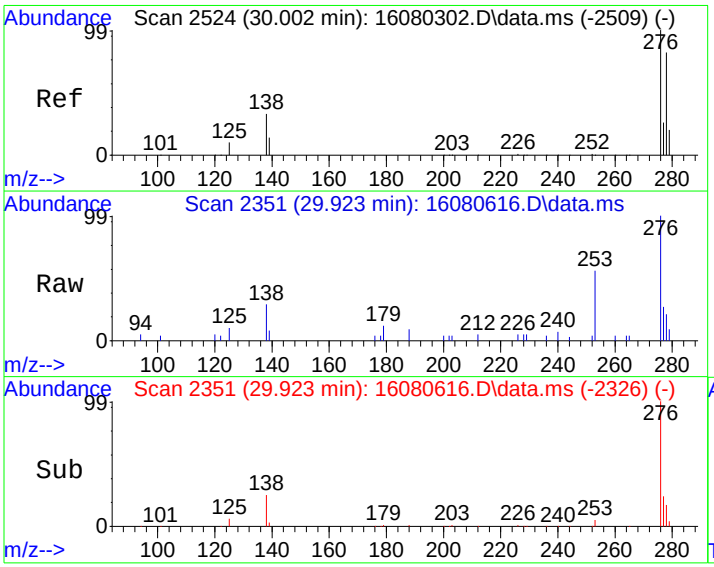


#25
Benzo[a]pyrene
Concen: 97.53 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:252 Resp: 9958

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	15.0	0.0	33.5

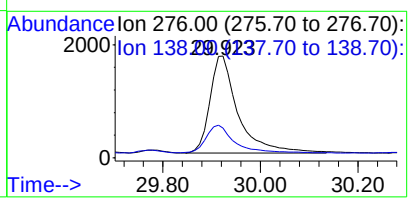


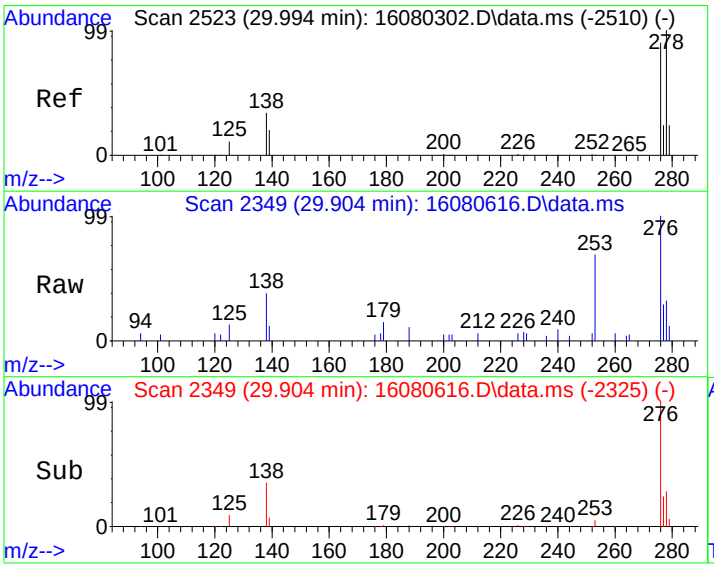


#26
Indeno[1,2,3-cd]pyrene
Concen: 54.78 ug/kg
RT: 29.923 min Scan# 2351
Delta R.T. -0.009 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:276 Resp: 6939

Ion	Ratio	Lower	Upper
276	100		
138	25.3	12.2	52.2

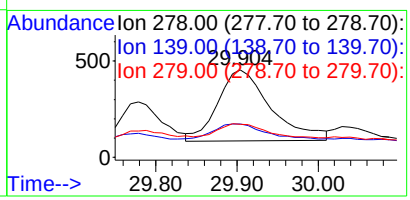


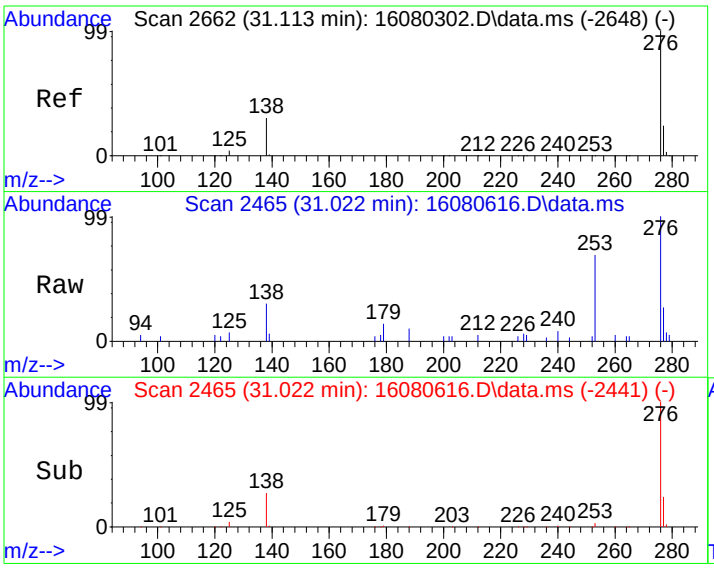


#27
Dibenz[a,h]anthracene
Concen: 16.47 ug/kg
RT: 29.904 min Scan# 2349
Delta R.T. -0.019 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:278 Resp: 1673

Ion	Ratio	Lower	Upper
278	100		
139	23.3	0.2	40.2
279	20.8	3.9	43.9

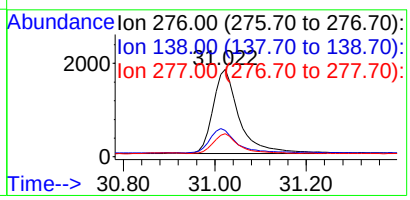




#28
Benzo[g,h,i]perylene
Concen: 63.55 ug/kg
RT: 31.022 min Scan# 2465
Delta R.T. -0.019 min
Lab File: 16080616.D
Acq: 6 Aug 2016 10:55 pm

Tgt Ion:276 Resp: 7145

Ion	Ratio	Lower	Upper
276	100		
138	26.5	6.9	46.9
277	23.5	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080630.D
Acq On : 7 Aug 2016 8:09 am
Operator :
Sample : ICV2-160806
Misc : ICV
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Aug 08 12:21:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

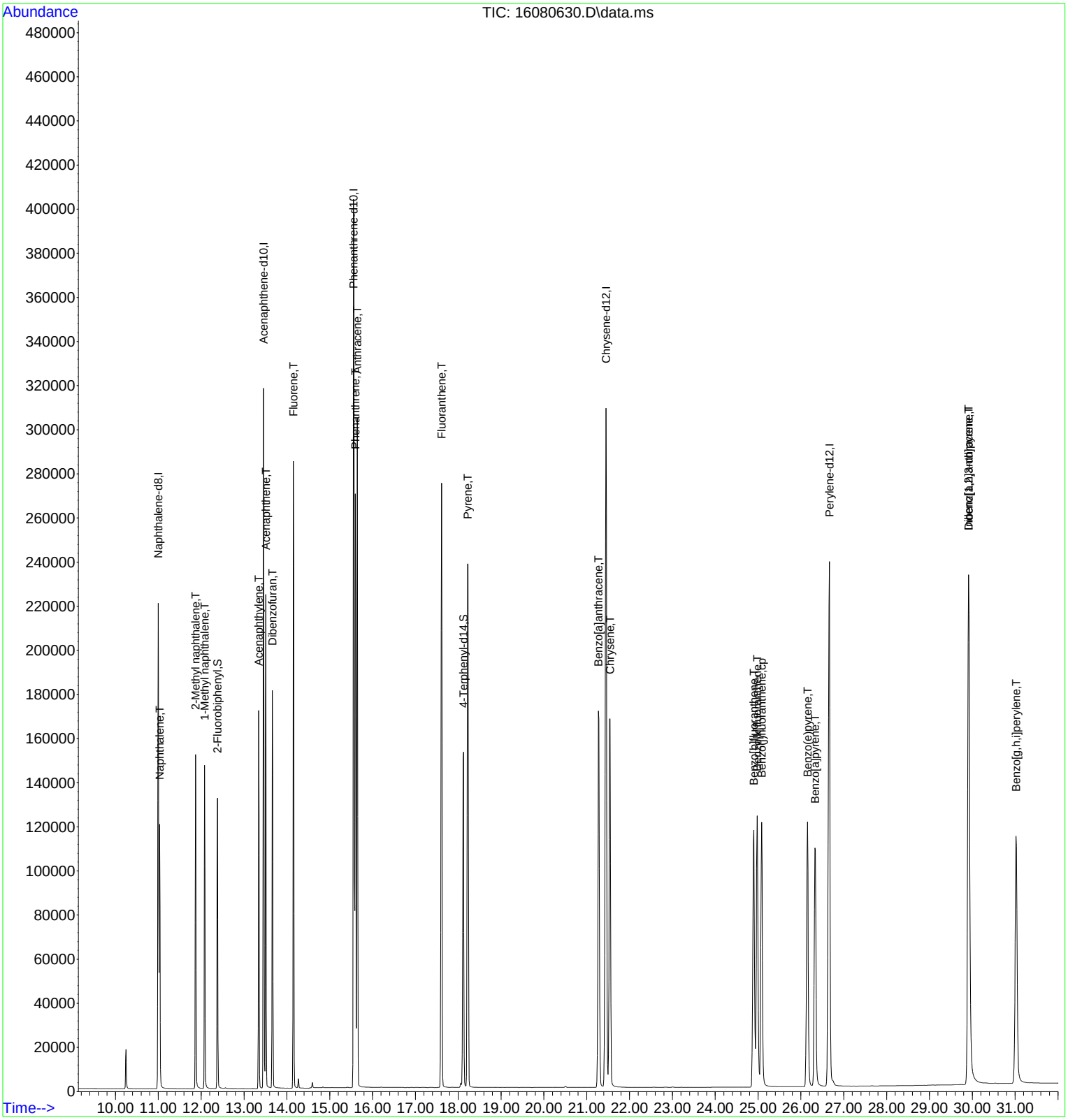
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	276273	4000.00	ug/kg	104
6) Acenaphthene-d10	13.457	164	166029	4000.00	ug/kg	102
11) Phenanthrene-d10	15.558	188	510642	4000.00	ug/kg	99
17) Chrysene-d12	21.448	240	473125	4000.00	ug/kg	102
20) Perylene-d12	26.664	264	432658	4000.00	ug/kg	103
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	106181	1727.63	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 43.19%			
15) 4-Terphenyl-d14	18.122	244	183778	2047.10	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 51.18%			
Target Compounds						Qvalue
2) Naphthalene	11.032	128	125495	1904.29	ug/kg	100
3) 2-Methyl naphthalene	11.869	142	84761	1886.87	ug/kg	99
4) 1-Methyl naphthalene	12.082	142	77731	1882.23	ug/kg	99
7) Acenaphthylene	13.344	152	153189	1994.32	ug/kg	100
8) Acenaphthene	13.507	153	97607	1944.39	ug/kg	99
9) Dibenzofuran	13.663	168	161890	1878.93	ug/kg	95
10) Fluorene	14.152	166	144138	1934.57	ug/kg	99
12) Phenanthrene	15.596	178	267944	2062.67	ug/kg	99
13) Anthracene	15.644	178	258726	1941.06	ug/kg	99
14) Fluoranthene	17.611	202	281907	2033.91	ug/kg	94
16) Pyrene	18.228	202	281710	2032.88	ug/kg	95
18) Benzo[a]anthracene	21.275	228	240971	2022.26	ug/kg	100
19) Chrysene	21.544	228	226128	2005.00	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	226529	2065.03	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	204646	2239.50	ug/kg	100
23) Benzo(j)fluoranthene	25.083	252	194512	2193.81	ug/kg	100
24) Benzo(e)pyrene	26.153	252	216829	1986.31	ug/kg	100
25) Benzo[a]pyrene	26.336	252	211394	2059.27	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.922	276	262448	2060.94	ug/kg	99
27) Dibenz[a,h]anthracene	29.912	278	215508	2110.50	ug/kg	100
28) Benzo[g,h,i]perylene	31.021	276	223745	1979.23	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080630.D
Acq On : 7 Aug 2016 8:09 am
Operator :
Sample : ICV2-160806
Misc : ICV
ALS Vial : 30 Sample Multiplier: 1

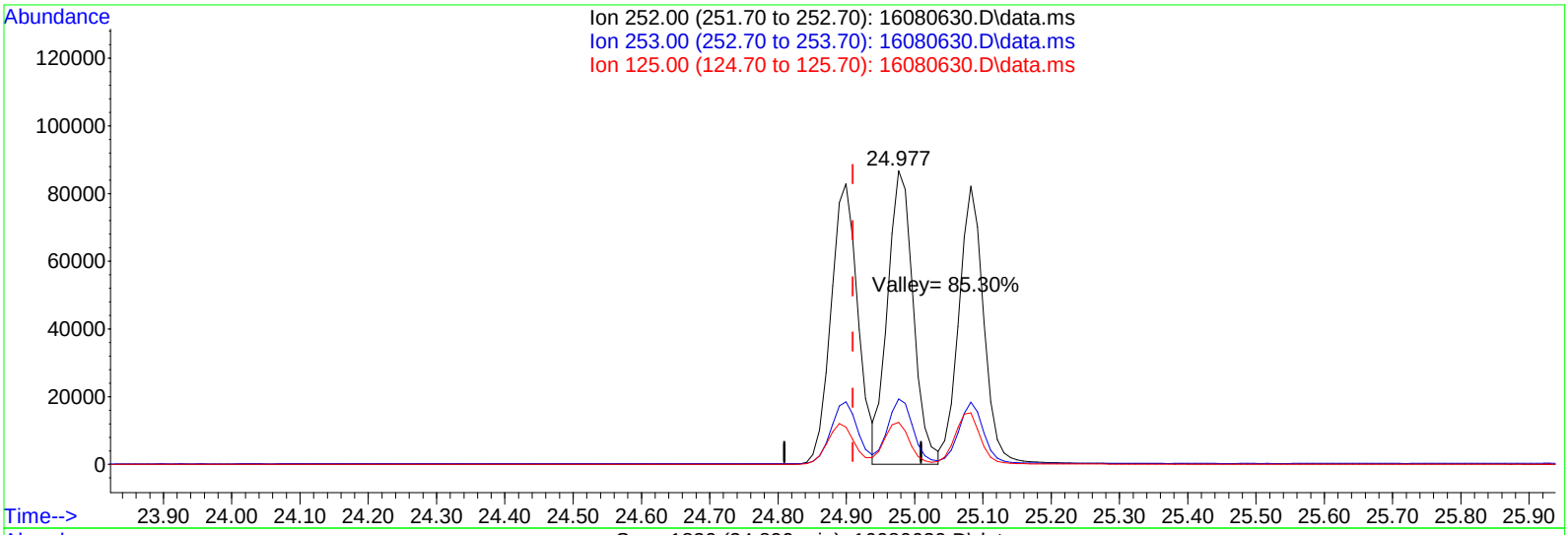
Quant Time: Aug 08 12:21:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

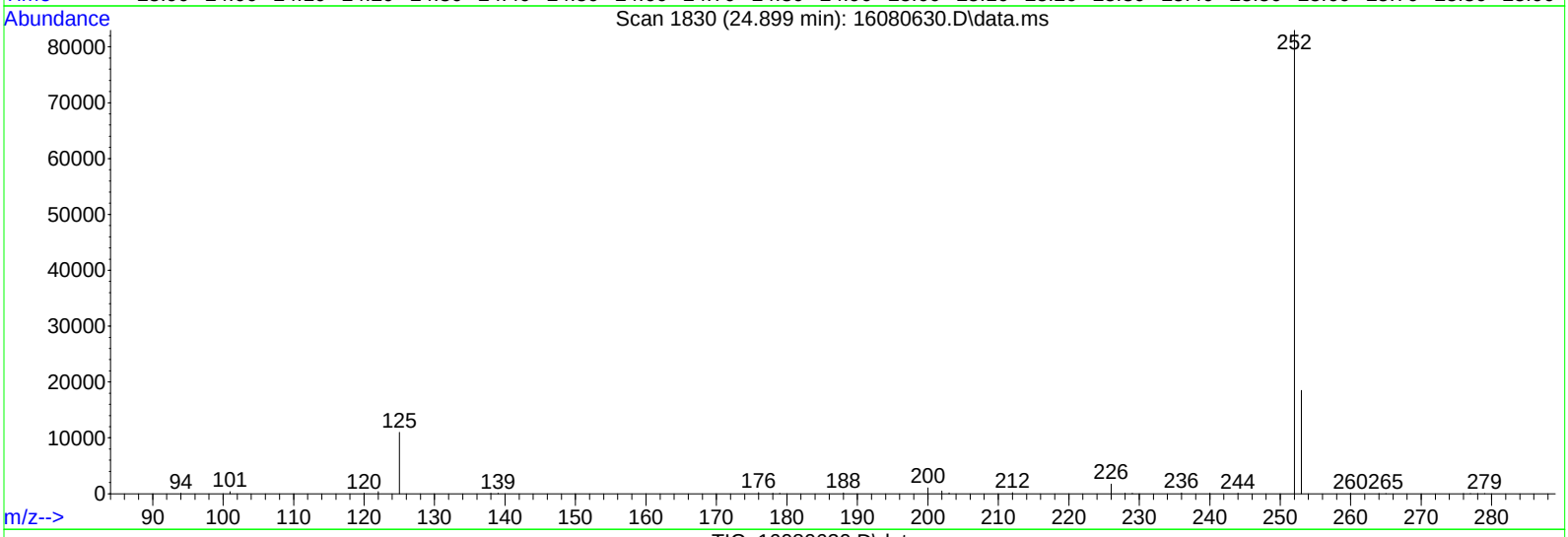


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080630.D
Acq On : 7 Aug 2016 8:09 am
Operator :
Sample : ICV2-160806
Misc : ICV
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Aug 07 12:45:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080630.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.899min (-0.010) 2065.03ug/kg

response 226529

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	22.03
125.00	13.20	13.18
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080632.D
Acq On : 7 Aug 2016 9:29 am
Operator :
Sample : SB-160808
Misc : SBLK
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Aug 08 12:21:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	261392	4000.00	ug/kg	99
6) Acenaphthene-d10	13.454	164	178833	4000.00	ug/kg	110
11) Phenanthrene-d10	15.558	188	488278	4000.00	ug/kg	95
17) Chrysene-d12	21.449	240	433638	4000.00	ug/kg	94
20) Perylene-d12	26.655	264	392890	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.390	172	14	0.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
15) 4-Terphenyl-d14	18.123	244	108	1.26	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	0.03%#		

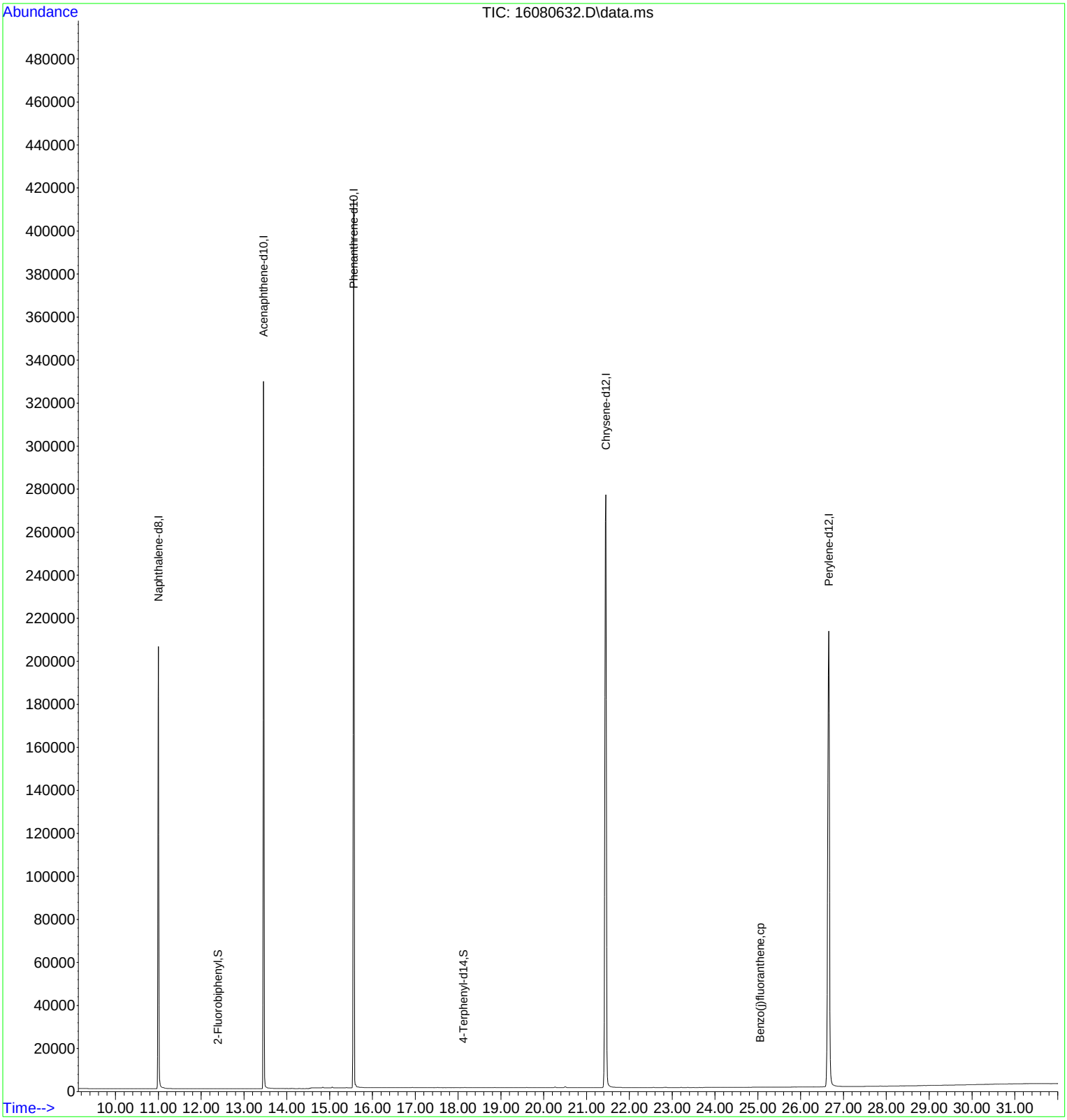
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.064	252	7	0.09	ug/kg#	24

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080632.D
Acq On : 7 Aug 2016 9:29 am
Operator :
Sample : SB-160808
Misc : SBLK
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Aug 08 12:21:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080639.D
Acq On : 7 Aug 2016 2:08 pm
Operator :
Sample : 1607265-18AMS
Misc : MS
ALS Vial : 39 Sample Multiplier: 10

Quant Time: Aug 08 12:21:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

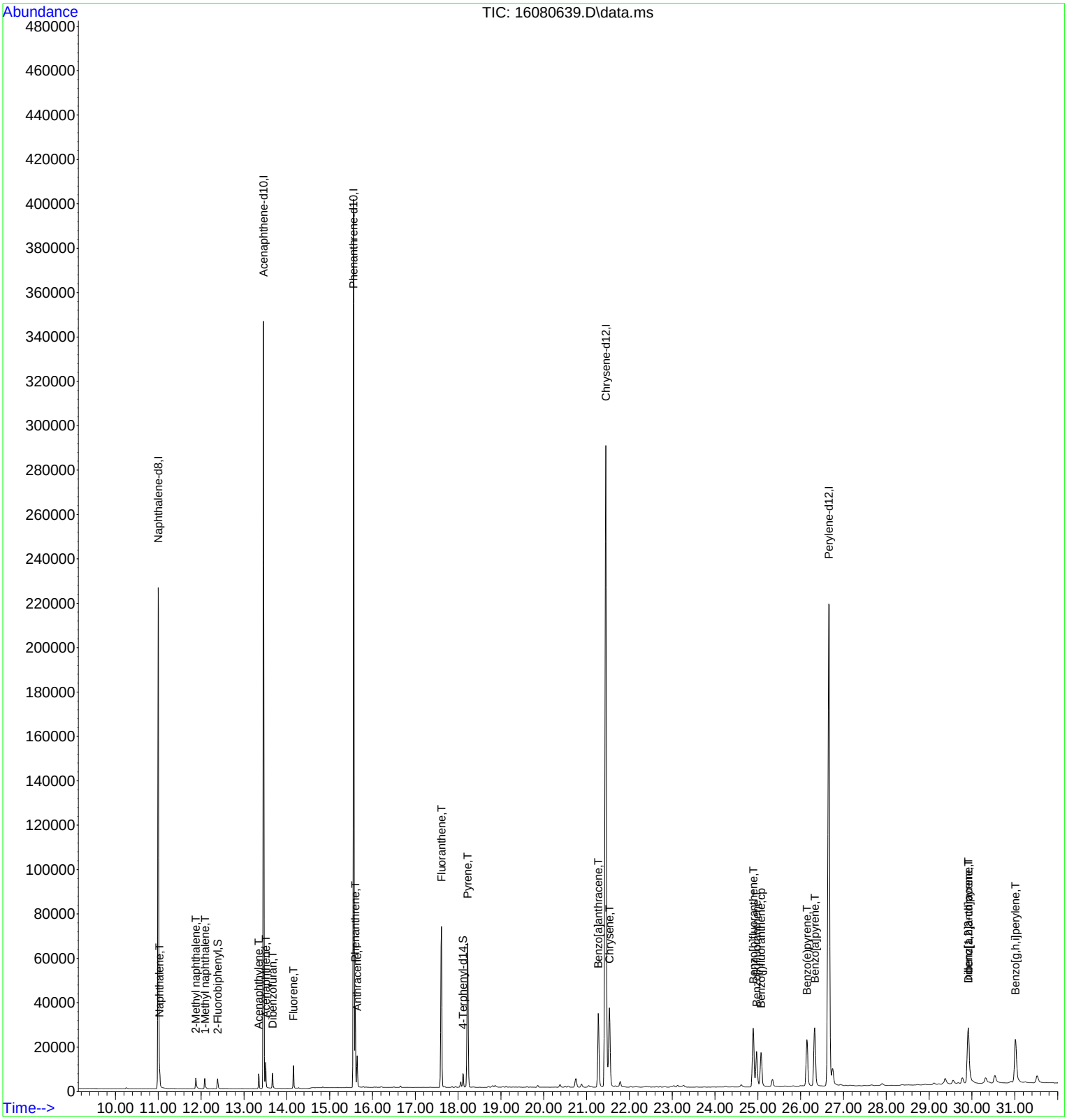
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	297085	4000.00	ug/kg	112
6) Acenaphthene-d10	13.457	164	179099	4000.00	ug/kg	110
11) Phenanthrene-d10	15.558	188	484537	4000.00	ug/kg	94
17) Chrysene-d12	21.448	240	443684	4000.00	ug/kg	96
20) Perylene-d12	26.664	264	411979	4000.00	ug/kg	98
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	4760	72.02	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.80%#			
15) 4-Terphenyl-d14	18.122	244	7122	83.61	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.09%#			
Target Compounds						Qvalue
2) Naphthalene	11.032	128	5792	81.73	ug/kg	100
3) 2-Methyl naphthalene	11.876	142	3634	75.23	ug/kg	99
4) 1-Methyl naphthalene	12.088	142	3291	74.11	ug/kg	99
7) Acenaphthylene	13.344	152	6235	75.25	ug/kg	99
8) Acenaphthene	13.507	153	4931	91.06	ug/kg	98
9) Dibenzofuran	13.670	168	6911	74.36	ug/kg	91
10) Fluorene	14.152	166	5944	73.96	ug/kg	99
12) Phenanthrene	15.597	178	32774	257.96	ug/kg	99
13) Anthracene	15.645	178	12722	100.59	ug/kg	99
14) Fluoranthene	17.611	202	79171	601.98	ug/kg	91
16) Pyrene	18.219	202	72992	555.10	ug/kg	97
18) Benzo[a]anthracene	21.275	228	45256	405.00	ug/kg	99
19) Chrysene	21.535	228	50677	479.15	ug/kg	100
21) Benzo[b]fluoranthene	24.890	252	50940	487.68	ug/kg	99
22) Benzo[k]fluoranthene	24.967	252	25644	294.72	ug/kg	98
23) Benzo(j)fluoranthene	25.073	252	25565	302.81	ug/kg	94
24) Benzo(e)pyrene	26.143	252	40206	386.80	ug/kg	98
25) Benzo[a]pyrene	26.327	252	51889	530.84	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.913	276	42763	352.66	ug/kg	93
27) Dibenz[a,h]anthracene	29.903	278	13114	134.87	ug/kg	97
28) Benzo[g,h,i]perylene	31.012	276	42869	398.25	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080639.D
Acq On : 7 Aug 2016 2:08 pm
Operator :
Sample : 1607265-18AMS
Misc : MS
ALS Vial : 39 Sample Multiplier: 10

Quant Time: Aug 08 12:21:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080640.D
Acq On : 7 Aug 2016 2:48 pm
Operator :
Sample : 1607265-18AMSD
Misc : MSD
ALS Vial : 40 Sample Multiplier: 10

Quant Time: Aug 08 12:21:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

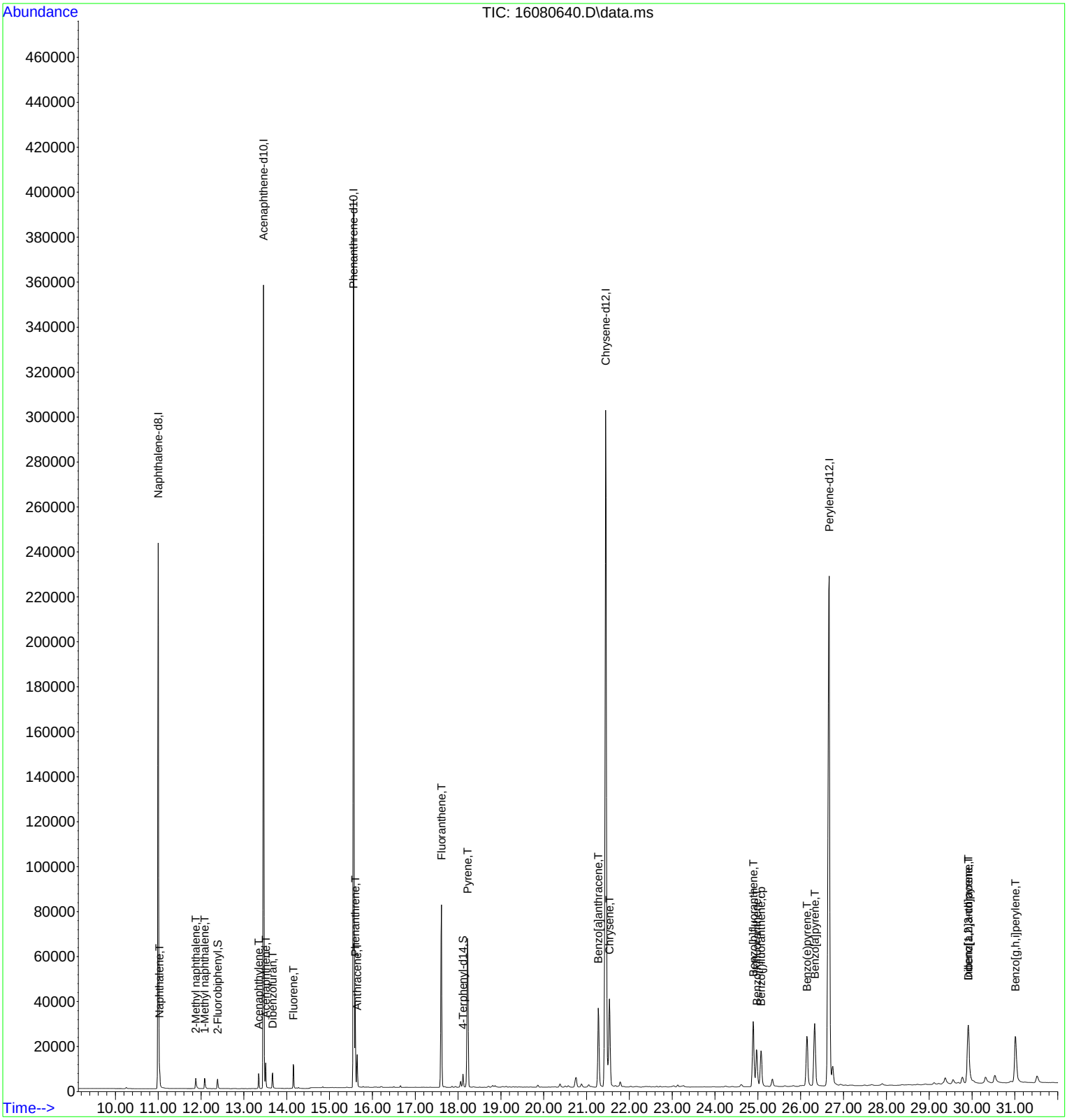
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.997	136	307871	4000.00	ug/kg	116
6) Acenaphthene-d10	13.458	164	185696	4000.00	ug/kg	114
11) Phenanthrene-d10	15.558	188	495004	4000.00	ug/kg	96
17) Chrysene-d12	21.448	240	459600	4000.00	ug/kg	99
20) Perylene-d12	26.664	264	428805	4000.00	ug/kg	102
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.387	172	4604	67.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.68%#			
15) 4-Terphenyl-d14	18.113	244	6851	78.72	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.97%#			
Target Compounds						Qvalue
2) Naphthalene	11.032	128	5961	81.17	ug/kg	100
3) 2-Methyl naphthalene	11.876	142	3498	69.88	ug/kg	99
4) 1-Methyl naphthalene	12.082	142	3228	70.14	ug/kg	96
7) Acenaphthylene	13.345	152	6109	71.11	ug/kg	99
8) Acenaphthene	13.508	153	4832	86.06	ug/kg	98
9) Dibenzofuran	13.671	168	6930	71.91	ug/kg	88
10) Fluorene	14.153	166	5888	70.66	ug/kg	99
12) Phenanthrene	15.597	178	35517	273.84	ug/kg	100
13) Anthracene	15.645	178	12792	99.00	ug/kg	99
14) Fluoranthene	17.611	202	85266	634.61	ug/kg	92
16) Pyrene	18.219	202	76508	569.54	ug/kg	97
18) Benzo[a]anthracene	21.275	228	48452	418.58	ug/kg	100
19) Chrysene	21.535	228	54405	496.59	ug/kg	100
21) Benzo[b]fluoranthene	24.890	252	54590	502.11	ug/kg	99
22) Benzo[k]fluoranthene	24.977	252	27128	299.54	ug/kg	97
23) Benzo(j)fluoranthene	25.073	252	26604	302.75	ug/kg	93
24) Benzo(e)pyrene	26.143	252	42263	390.64	ug/kg	98
25) Benzo[a]pyrene	26.326	252	53797	528.77	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.913	276	44060	349.10	ug/kg	94
27) Dibenz[a,h]anthracene	29.903	278	14337	141.67	ug/kg	98
28) Benzo[g,h,i]perylene	31.021	276	43559	388.78	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080640.D
Acq On : 7 Aug 2016 2:48 pm
Operator :
Sample : 1607265-18AMSD
Misc : MSD
ALS Vial : 40 Sample Multiplier: 10

Quant Time: Aug 08 12:21:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080641.D
Acq On : 7 Aug 2016 3:27 pm
Operator :
Sample : CCV1-160806
Misc : CCV
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Aug 08 12:21:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

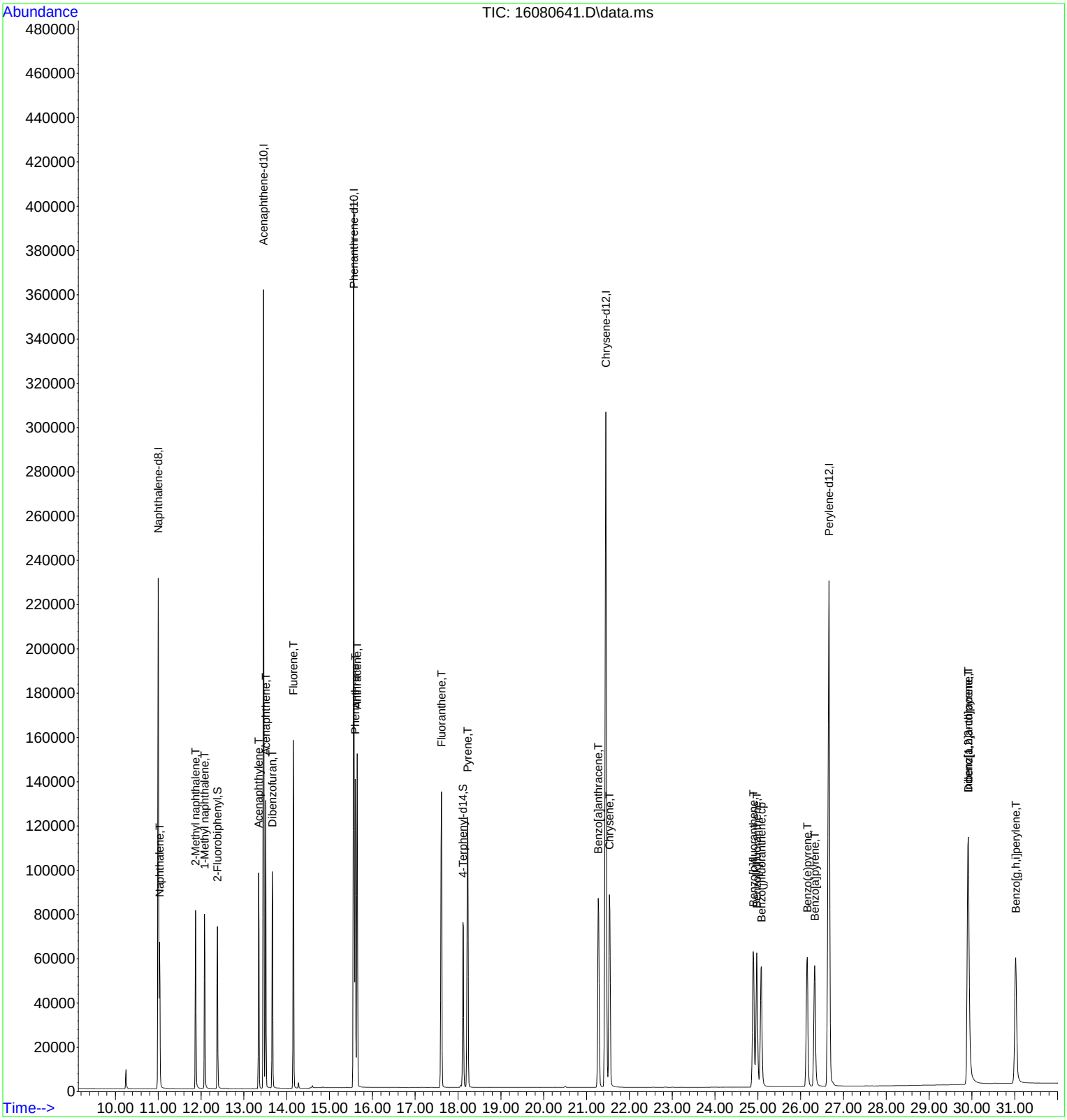
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.997	136	292612	4000.00	ug/kg	111
6) Acenaphthene-d10	13.458	164	188282	4000.00	ug/kg	116
11) Phenanthrene-d10	15.568	188	515220	4000.00	ug/kg	100
17) Chrysene-d12	21.449	240	469528	4000.00	ug/kg	101
20) Perylene-d12	26.665	264	429190	4000.00	ug/kg	102
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.380	172	59487	913.84	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.85%#			
15) 4-Terphenyl-d14	18.123	244	88745	979.75	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 24.49%#			
Target Compounds						Qvalue
2) Naphthalene	11.033	128	67493	966.97	ug/kg	100
3) 2-Methyl naphthalene	11.877	142	47876	1006.26	ug/kg	96
4) 1-Methyl naphthalene	12.082	142	43420	992.69	ug/kg	98
7) Acenaphthylene	13.345	152	87899	1009.08	ug/kg	100
8) Acenaphthene	13.508	153	56252	988.14	ug/kg	99
9) Dibenzofuran	13.664	168	90869	929.99	ug/kg	92
10) Fluorene	14.153	166	79901	945.66	ug/kg	99
12) Phenanthrene	15.597	178	138454	1041.90	ug/kg	99
13) Anthracene	15.645	178	129959	966.34	ug/kg	99
14) Fluoranthene	17.612	202	141223	1009.85	ug/kg	93
16) Pyrene	18.219	202	141509	1012.09	ug/kg	96
18) Benzo[a]anthracene	21.276	228	119438	1010.02	ug/kg	100
19) Chrysene	21.536	228	113448	1013.61	ug/kg	100
21) Benzo[b]fluoranthene	24.891	252	114902	1055.91	ug/kg	99
22) Benzo[k]fluoranthene	24.977	252	98553	1087.21	ug/kg	99
23) Benzo(j)fluoranthene	25.084	252	96329	1095.23	ug/kg	99
24) Benzo(e)pyrene	26.154	252	108306	1000.18	ug/kg	100
25) Benzo[a]pyrene	26.327	252	105683	1037.82	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.923	276	133057	1053.31	ug/kg	93
27) Dibenz[a,h]anthracene	29.904	278	108745	1073.56	ug/kg	97
28) Benzo[g,h,i]perylene	31.022	276	115026	1025.73	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080641.D
Acq On : 7 Aug 2016 3:27 pm
Operator :
Sample : CCV1-160806
Misc : CCV
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Aug 08 12:21:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



GCMS8
Calibration Curve
For

DHL Work Order
1607256

CAL ID: 681

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160802.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

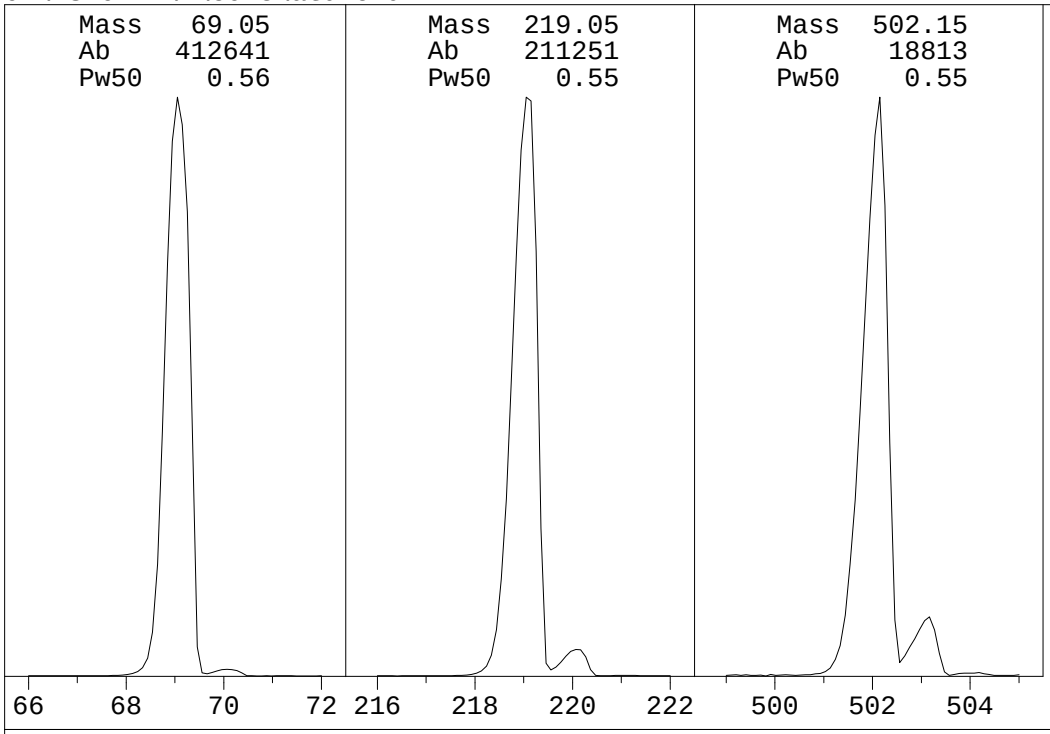
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Karyn Lane Date: 08/3/2016

Second-Level Review: Date: 08/10/2016

Tue Aug 02 16:40:26 2016 Instrument: GCMS #8
C:\MSDCHEM\1\5973\atune.u

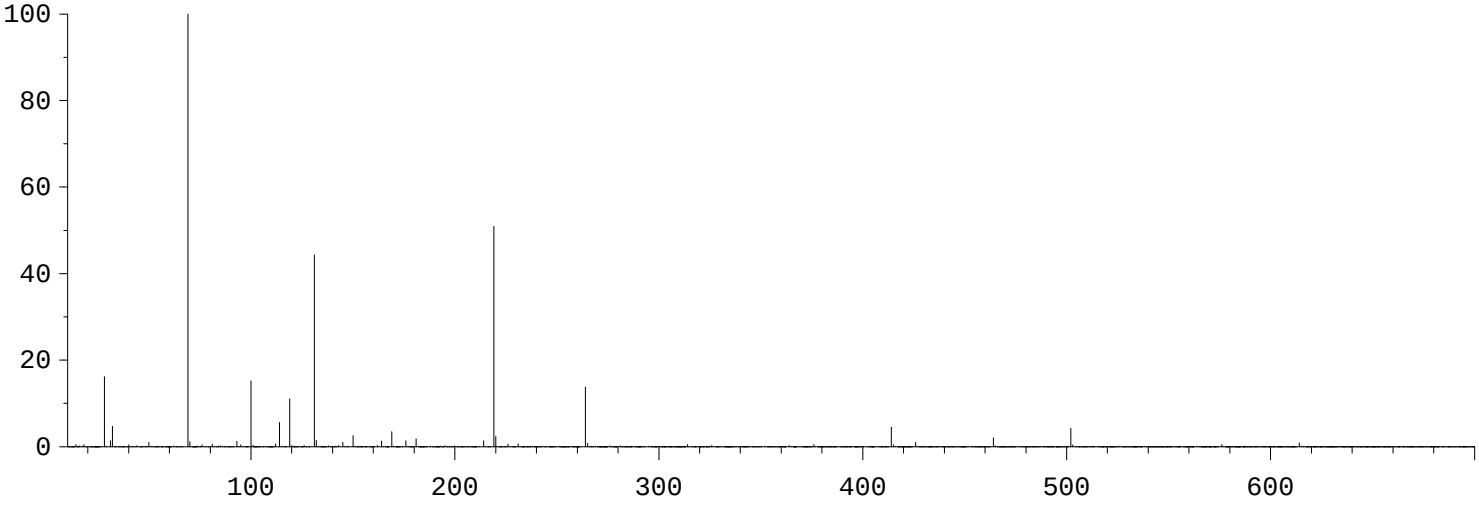


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2075
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	-0.002
		DC Pol	NEG
Repeller	31.46		
IonFcus	100.6	HEDEnab	ON
EntLens	14.5	EMVolts	1259
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	40
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1041 peaks Base: 69.05 Abundance: 374592



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	374592	100.00	70.05	4356	1.16
219.05	190784	50.93	220.05	8742	4.58
502.05	16013	4.27	503.05	1583	9.89

Air/Water Check: H20~0.52% N2~16.18% O2~4.70% CO2~0.16% N2/H2O~3118.48%

Column Flow: Front: 0 Back: 0 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 5042
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 45@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	135.0	135.0	135.0	135.0	135.0	135.0	135.0
Entrance Lens Offset:	22.1	22.1	22.1	22.1	22.1	22.1	22.1

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160802.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Wed Aug 03 10:10:50 2016
Response Via : Initial Calibration

Calibration Files
1 =16080214.D 2 =16080215.D 3 =16080216.D 4 =16080217.D 5 =16080218.D 6 =16080219.D 7 =16080220.D
8 =16080221.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	1.121	0.999	0.975	1.013	0.934	0.903	0.910	0.925	0.973	7.45	A	0.0745	0.0000	0.9726	0.0000
3)	T	2-Methyl napht...	0.631	0.623	0.607	0.644	0.606	0.587	0.592	0.606	0.612	3.17	A	0.0317	0.0000	0.6120	0.0000
4)	T	1-Methyl napht...	0.579	0.555	0.563	0.609	0.559	0.539	0.543	0.548	0.562	4.06	A	0.0406	0.0000	0.5620	0.0000
5)	S	2-Fluorobiphenyl	0.689	0.683	0.660	0.711	0.657	0.634	0.635	0.638	0.663	4.29	A	0.0429	0.0000	0.6633	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.998	1.874	1.874	1.965	1.905	1.853	1.911	1.962	1.918	2.71	A	0.0271	0.0000	1.9178	0.0000
8)	T	Acenaphthene	1.313	1.165	1.218	1.263	1.200	1.157	1.190	1.213	1.215	4.26	A	0.0426	0.0000	1.2150	0.0000
9)	T	Dibenzofuran	1.852	1.719	1.673	1.773	1.700	1.634	1.666	1.756	1.722	4.07	A	0.0407	0.0000	1.7216	0.0000
10)	T	Fluorene	1.559	1.393	1.366	1.489	1.426	1.388	1.430	1.573	1.453	5.44	A	0.0544	0.0000	1.4530	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.133	1.195	1.067	1.146	1.065	0.997	1.020	1.029	1.081	6.42	A	0.0642	0.0000	1.0814	0.0000
13)	T	Anthracene	1.163	1.067	1.095	1.250	1.071	1.064	1.073	1.066	1.106	6.04	A	0.0604	0.0000	1.1061	0.0000
14)	T	Fluoranthene	1.561	1.392	1.467	1.543	1.459	1.406	1.447	1.333	1.451	5.23	A	0.0523	0.0000	1.4510	0.0000
15)	S	4-Terphenyl-d14	1.076	0.972	1.036	1.044	1.018	0.967	0.985	0.871	0.996	6.34	A	0.0634	0.0000	0.9962	0.0000
16)	T	Pyrene	1.659	1.466	1.542	1.607	1.521	1.434	1.482	1.338	1.506	6.68	A	0.0668	0.0000	1.5063	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	T	Benzo[a]anthra...	1.050	0.934	0.989	1.109	1.074	1.050	1.077	1.014	1.037	5.38	A	0.0538	0.0000	1.0371	0.0000
19)	T	Chrysene	1.030	0.925	0.954	1.071	1.012	0.984	0.995	0.946	0.990	4.87	A	0.0487	0.0000	0.9896	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.061	0.970	1.041	1.203	1.103	1.079	1.120	1.058	1.079	6.24	A	0.0624	0.0000	1.0793	0.0000
22)	T	Benzo[k]fluora...	0.825	0.748	0.840	1.010	0.999	0.987	1.019	0.959	0.923	11.20	A	0.1120	0.0000	0.9233	0.0000
23)	cp	Benzo(j)fluora...	0.882	0.807	0.868	0.920	0.949	0.922	0.962	0.904	0.902	5.50	A	0.0550	0.0000	0.9018	0.0000
24)	T	Benzo(e)pyrene	1.116	1.002	1.027	1.088	1.049	1.022	1.054	0.997	1.044	3.94	A	0.0394	0.0000	1.0444	0.0000
25)	T	Benzo[a]pyrene	0.979	0.894	0.948	1.085	1.021	0.993	1.028	0.980	0.991	5.76	A	0.0576	0.0000	0.9911	0.0000
26)	T	Indeno[1,2,3-c...	1.086	1.053	1.128	1.287	1.204	1.191	1.234	1.181	1.171	6.63	A	0.0663	0.0000	1.1705	0.0000
27)	T	Dibenz[a,h]ant...	0.936	0.858	0.905	1.039	0.981	0.979	1.021	0.980	0.962	6.22	A	0.0622	0.0000	0.9625	0.0000
28)	T	Benzo[g,h,i]pe...	1.038	0.962	1.006	1.122	1.042	1.003	1.039	1.014	1.028	4.47	A	0.0447	0.0000	1.0282	0.0000

(#) = Out of Range

Sequence Name: C:\msdchem\1\sequence\160802.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160802\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

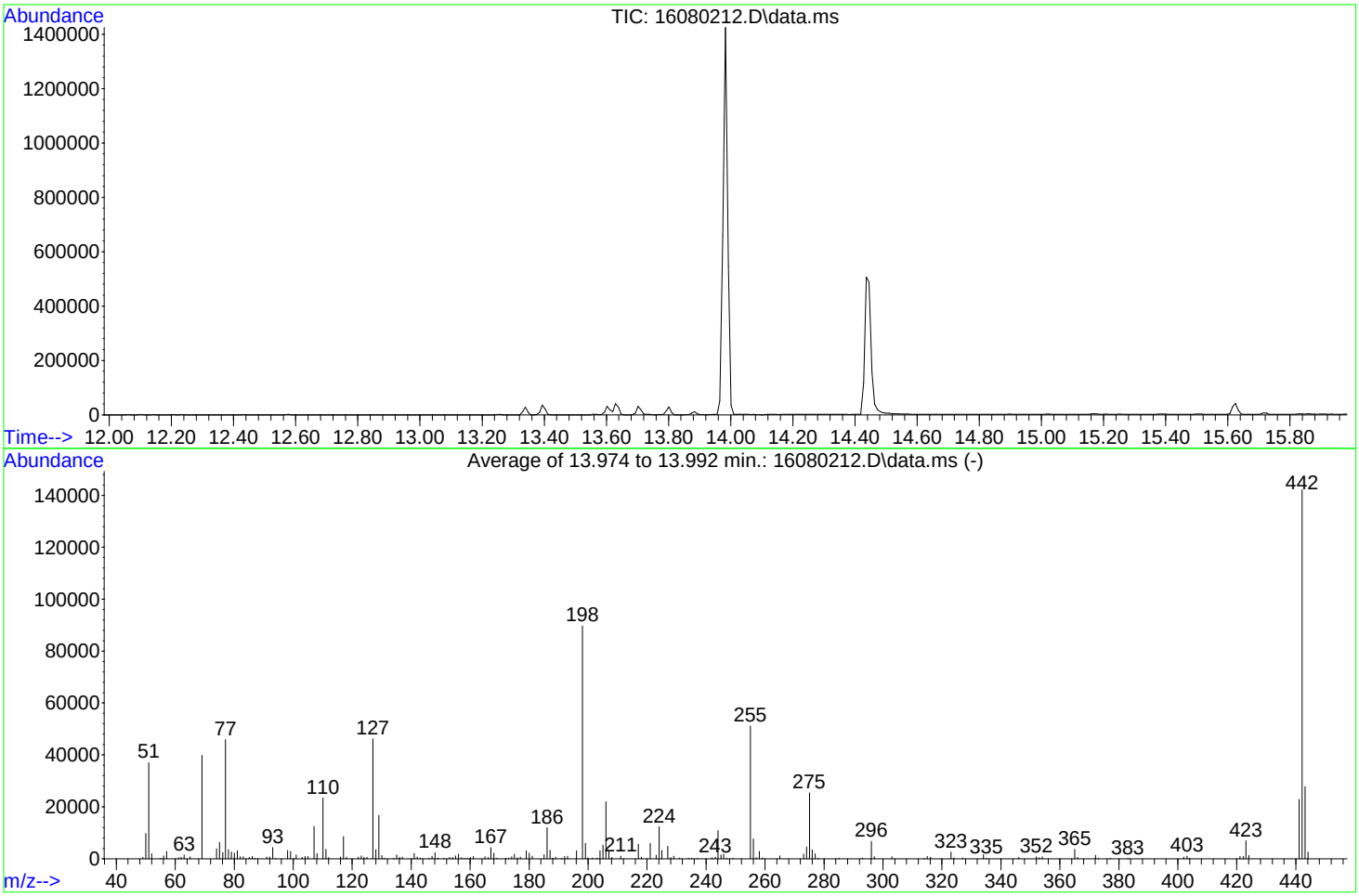
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info	
1)	Sample	1	16080201 DFTPPPCB	DFTPP-160802
2)	Sample	2	16080202 1660-160609	ICV-160802
3)	Sample	3	16080203 1660-160609	ICV-160802
4)	Sample	3	16080204 1660-160609	ICV-160803
5)	Sample	1	16080205 DFTPPPCB	DFTPP-160802
6)	Sample	2	16080206 1660-160609	ICV-160802
7)	Sample	3	16080207 1660-160609	LCS-76577-PCB
8)	Sample	4	16080208 1660-160609	LCSD-76577-PCB
9)	Sample	5	16080209 1660-160609	MB-76577
10)	Sample	6	16080210 1660-160609	1607277-01G

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080212.D
Acq On : 2 Aug 2016 5:25 pm
Operator :
Sample : DFTPP-160802
Misc : TUNE
ALS Vial : 2 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.3	37038	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.4	39782	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	46158	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	89674	PASS
199	198	5	9	6.6	5912	PASS
275	198	10	60	28.4	25423	PASS
365	198	1	200	4.0	3581	PASS
441	442	0.01	24	16.0	22792	PASS
442	198	50	400	158.6	142189	PASS
443	442	15	24	19.5	27730	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:56:14 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

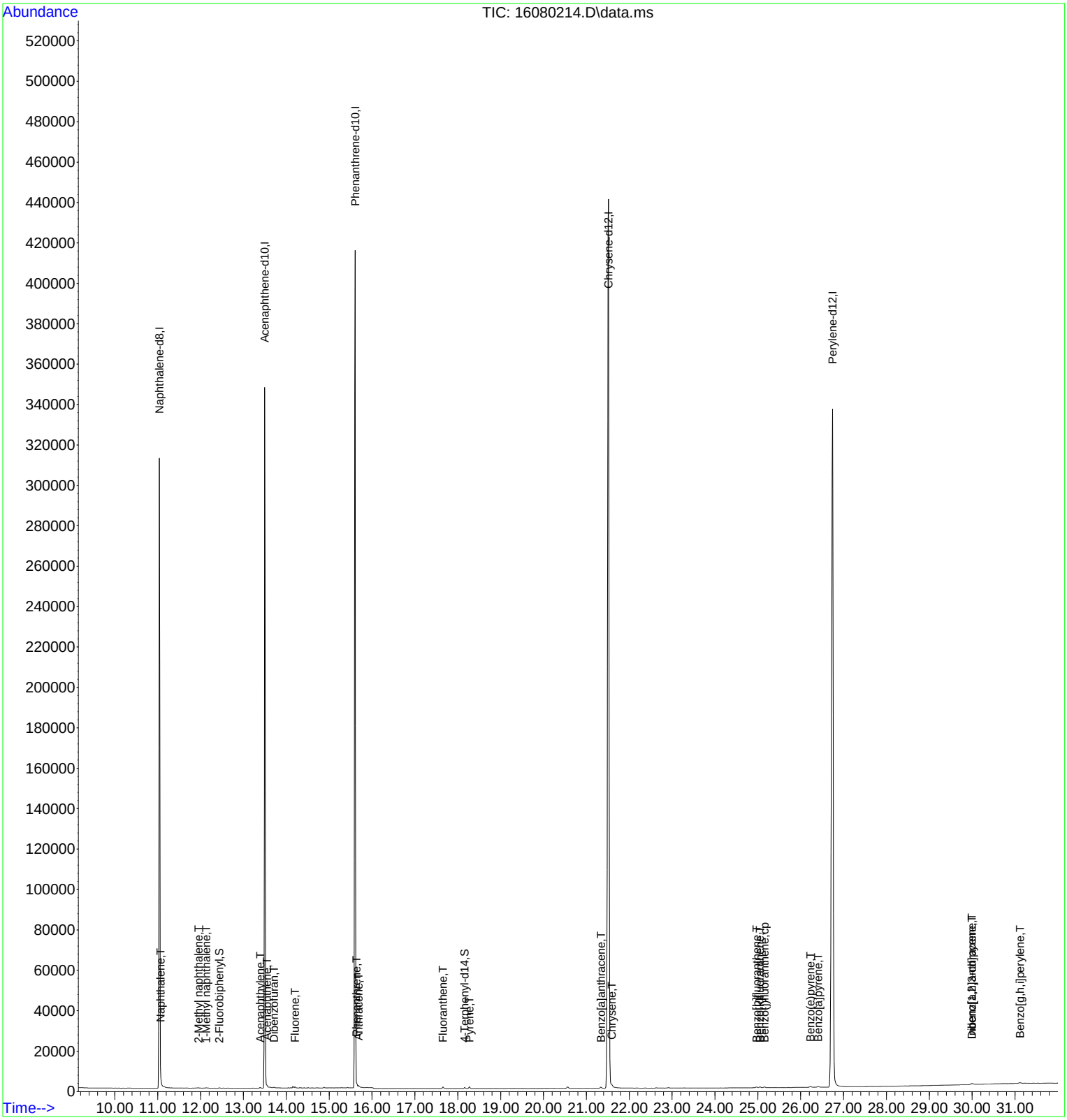
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	385396	4000.00	ug/kg	98
6) Acenaphthene-d10	13.495	164	185765	4000.00	ug/kg	102
11) Phenanthrene-d10	15.605	188	486418	4000.00	ug/kg	97
17) Chrysene-d12	21.516	240	689401	4000.00	ug/kg	102
20) Perylene-d12	26.741	264	619616	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.436	172	332	5.19	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.13%#			
15) 4-Terphenyl-d14	18.158	244	654	5.40	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.14%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	540	5.76	ug/kg	100
3) 2-Methyl naphthalene	11.950	142	304	5.16	ug/kg	95
4) 1-Methyl naphthalene	12.132	142	279	5.15	ug/kg	97
7) Acenaphthylene	13.391	152	464	5.21	ug/kg	99
8) Acenaphthene	13.548	153	305	5.41	ug/kg	99
9) Dibenzofuran	13.713	168	430	5.38	ug/kg	75
10) Fluorene	14.199	166	362	5.36	ug/kg	99
12) Phenanthrene	15.640	178	689	5.24	ug/kg	99
13) Anthracene	15.683	178	707	5.26	ug/kg	99
14) Fluoranthene	17.651	202	949	5.38	ug/kg	95
16) Pyrene	18.271	202	1009	5.51	ug/kg	97
18) Benzo[a]anthracene	21.339	228	905	5.06	ug/kg	99
19) Chrysene	21.596	228	888	5.21	ug/kg	97
21) Benzo[b]fluoranthene	24.970	252	822	4.92	ug/kg	94
22) Benzo[k]fluoranthene	25.050	252	639	4.47	ug/kg	95
23) Benzo(j)fluoranthene	25.155	252	683	4.89	ug/kg	97
24) Benzo(e)pyrene	26.226	252	864	5.34	ug/kg	87
25) Benzo[a]pyrene	26.403	252	758	4.94	ug/kg	94
26) Indeno[1,2,3-cd]pyrene	30.002	276	841	4.64	ug/kg	95
27) Dibenz[a,h]anthracene	29.986	278	725	4.86	ug/kg	92
28) Benzo[g,h,i]perylene	31.113	276	804	5.05	ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

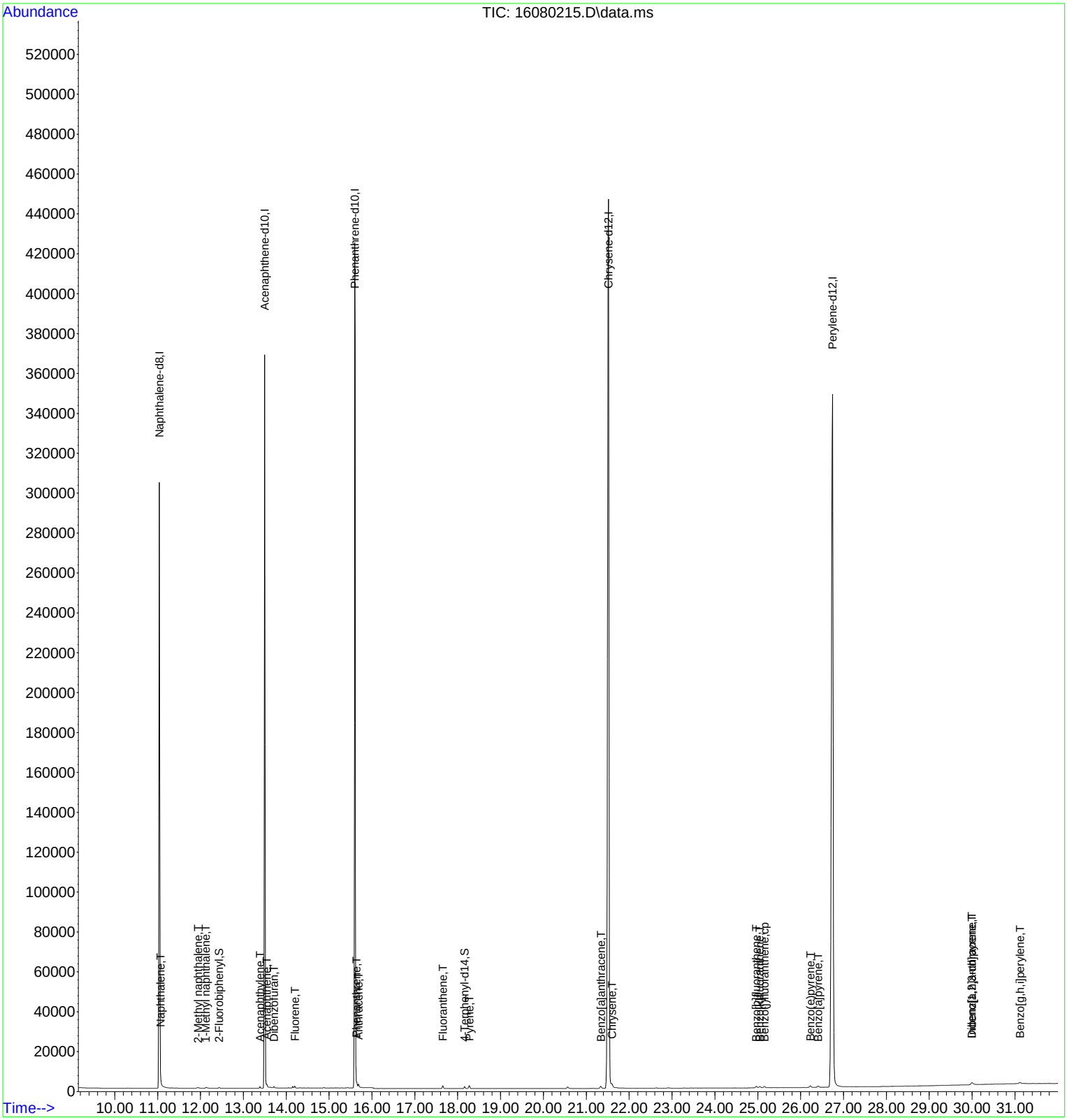
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	379089	4000.00	ug/kg	97
6) Acenaphthene-d10	13.498	164	187838	4000.00	ug/kg	103
11) Phenanthrene-d10	15.599	188	505178	4000.00	ug/kg	101
17) Chrysene-d12	21.517	240	701631	4000.00	ug/kg	104
20) Perylene-d12	26.742	264	635670	4000.00	ug/kg	104
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.430	172	647	10.29	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.26%#			
15) 4-Terphenyl-d14	18.160	244	1228	9.76	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.24%#			
Target Compounds						Qvalue
2) Naphthalene	11.076	128	947	10.27	ug/kg	99
3) 2-Methyl naphthalene	11.944	142	590	10.17	ug/kg	97
4) 1-Methyl naphthalene	12.126	142	526	9.88	ug/kg	99
7) Acenaphthylene	13.385	152	880	9.77	ug/kg	99
8) Acenaphthene	13.550	153	547	9.59	ug/kg	98
9) Dibenzofuran	13.715	168	807	9.98	ug/kg	90
10) Fluorene	14.201	166	654	9.59	ug/kg	100
12) Phenanthrene	15.642	178	1509	11.05	ug/kg	99
13) Anthracene	15.686	178	1348	9.65	ug/kg	99
14) Fluoranthene	17.652	202	1758	9.59	ug/kg	98
16) Pyrene	18.272	202	1852	9.74	ug/kg	97
18) Benzo[a]anthracene	21.340	228	1639	9.01	ug/kg	99
19) Chrysene	21.598	228	1623	9.35	ug/kg	98
21) Benzo[b]fluoranthene	24.963	252	1541	8.98	ug/kg	99
22) Benzo[k]fluoranthene	25.052	252	1189	8.10	ug/kg	92
23) Benzo(j)fluoranthene	25.156	252	1282	8.95	ug/kg	97
24) Benzo(e)pyrene	26.227	252	1593	9.60	ug/kg	95
25) Benzo[a]pyrene	26.404	252	1420	9.02	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.003	276	1673	8.99	ug/kg	96
27) Dibenz[a,h]anthracene	29.987	278	1364	8.92	ug/kg	97
28) Benzo[g,h,i]perylene	31.114	276	1529	9.36	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	375891	4000.00	ug/kg	96
6) Acenaphthene-d10	13.497	164	180595	4000.00	ug/kg	99
11) Phenanthrene-d10	15.607	188	464427	4000.00	ug/kg	93
17) Chrysene-d12	21.516	240	672646	4000.00	ug/kg	100
20) Perylene-d12	26.741	264	597332	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.429	172	3100	49.73	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.24%#			
15) 4-Terphenyl-d14	18.158	244	6016	52.01	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.30%#			

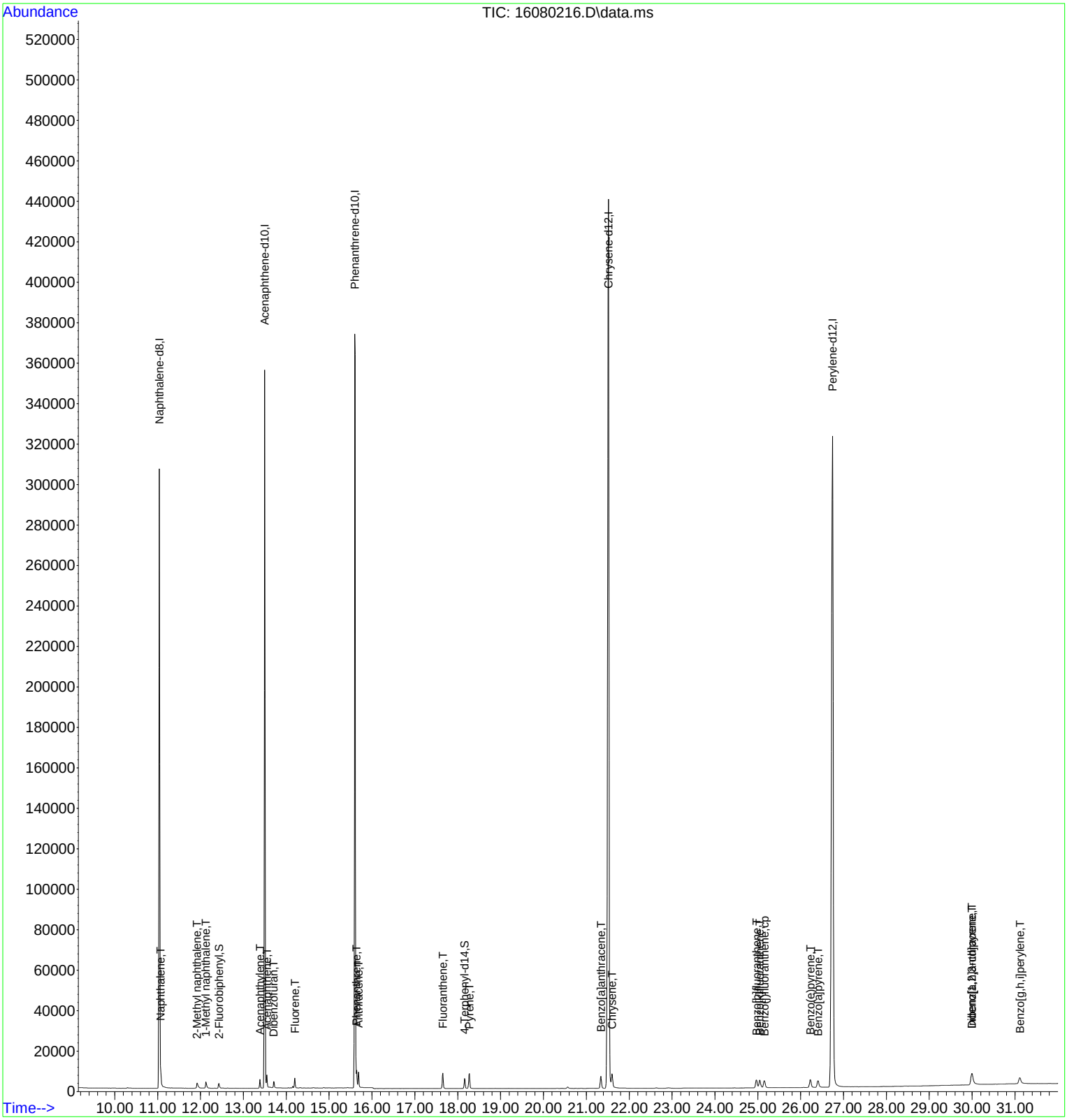
Target Compounds						Qvalue
2) Naphthalene	11.075	128	4581	50.12	ug/kg	100
3) 2-Methyl naphthalene	11.926	142	2854	49.62	ug/kg	96
4) 1-Methyl naphthalene	12.125	142	2646	50.10	ug/kg	99
7) Acenaphthylene	13.384	152	4231	48.86	ug/kg	99
8) Acenaphthene	13.549	153	2750	50.13	ug/kg	98
9) Dibenzofuran	13.714	168	3777	48.59	ug/kg	96
10) Fluorene	14.200	166	3083	47.00	ug/kg	99
12) Phenanthrene	15.642	178	6193	49.32	ug/kg	100
13) Anthracene	15.685	178	6356	49.49	ug/kg	100
14) Fluoranthene	17.651	202	8515	50.54	ug/kg	96
16) Pyrene	18.271	202	8950	51.18	ug/kg	94
18) Benzo[a]anthracene	21.339	228	8316	47.68	ug/kg	99
19) Chrysene	21.596	228	8018	48.18	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	7771	48.22	ug/kg	99
22) Benzo[k]fluoranthene	25.042	252	6272	45.49	ug/kg	100
23) Benzo(j)fluoranthene	25.155	252	6480	48.12	ug/kg	98
24) Benzo(e)pyrene	26.226	252	7666	49.15	ug/kg	99
25) Benzo[a]pyrene	26.403	252	7080	47.84	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	8423	48.19	ug/kg	96
27) Dibenz[a,h]anthracene	29.986	278	6757	47.01	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	7515	48.94	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

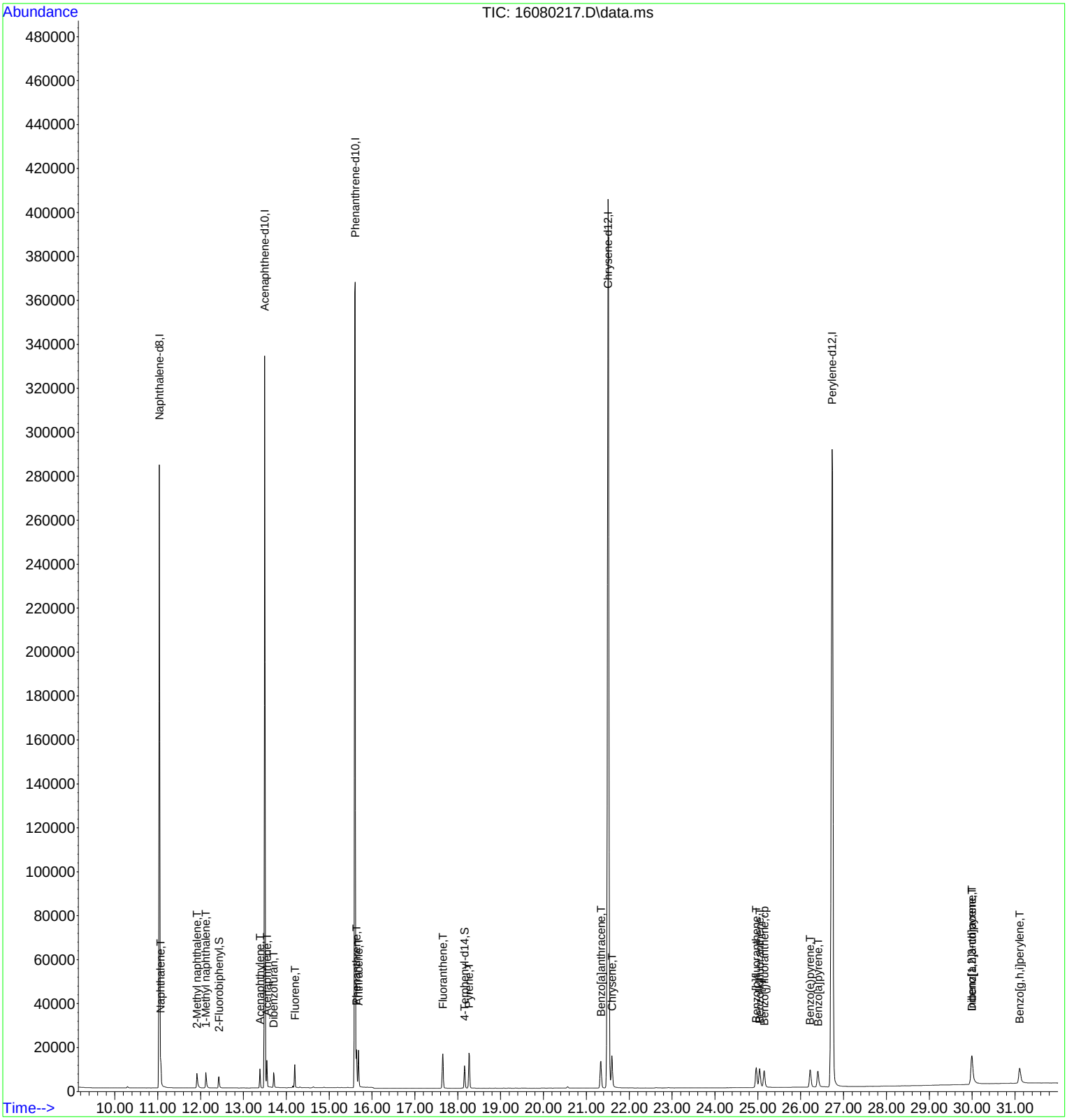
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	343877	4000.00	ug/kg	88
6) Acenaphthene-d10	13.496	164	171051	4000.00	ug/kg	94
11) Phenanthrene-d10	15.606	188	460478	4000.00	ug/kg	92
17) Chrysene-d12	21.508	240	638849	4000.00	ug/kg	95
20) Perylene-d12	26.734	264	558956	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	6112	107.18	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.68%#			
15) 4-Terphenyl-d14	18.159	244	12023	104.84	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.62%#			
Target Compounds						Qvalue
2) Naphthalene	11.074	128	8705	104.11	ug/kg	99
3) 2-Methyl naphthalene	11.916	142	5539	105.27	ug/kg	99
4) 1-Methyl naphthalene	12.124	142	5236	108.38	ug/kg	97
7) Acenaphthylene	13.383	152	8405	102.49	ug/kg	99
8) Acenaphthene	13.548	153	5402	103.97	ug/kg	99
9) Dibenzofuran	13.704	168	7582	102.99	ug/kg	71
10) Fluorene	14.199	166	6369	102.51	ug/kg	99
12) Phenanthrene	15.640	178	13188	105.94	ug/kg	99
13) Anthracene	15.684	178	14388	113.00	ug/kg	99
14) Fluoranthene	17.652	202	17768	106.37	ug/kg	94
16) Pyrene	18.264	202	18501	106.70	ug/kg	100
18) Benzo[a]anthracene	21.339	228	17710	106.92	ug/kg	99
19) Chrysene	21.597	228	17109	108.25	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	16805	111.43	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	14107	109.34	ug/kg	99
23) Benzo(j)fluoranthene	25.148	252	12862	102.07	ug/kg	98
24) Benzo(e)pyrene	26.218	252	15197	104.13	ug/kg	99
25) Benzo[a]pyrene	26.404	252	15166	109.50	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.995	276	17985	109.95	ug/kg	97
27) Dibenz[a,h]anthracene	29.987	278	14518	107.94	ug/kg	99
28) Benzo[g,h,i]perylene	31.106	276	15672	109.07	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

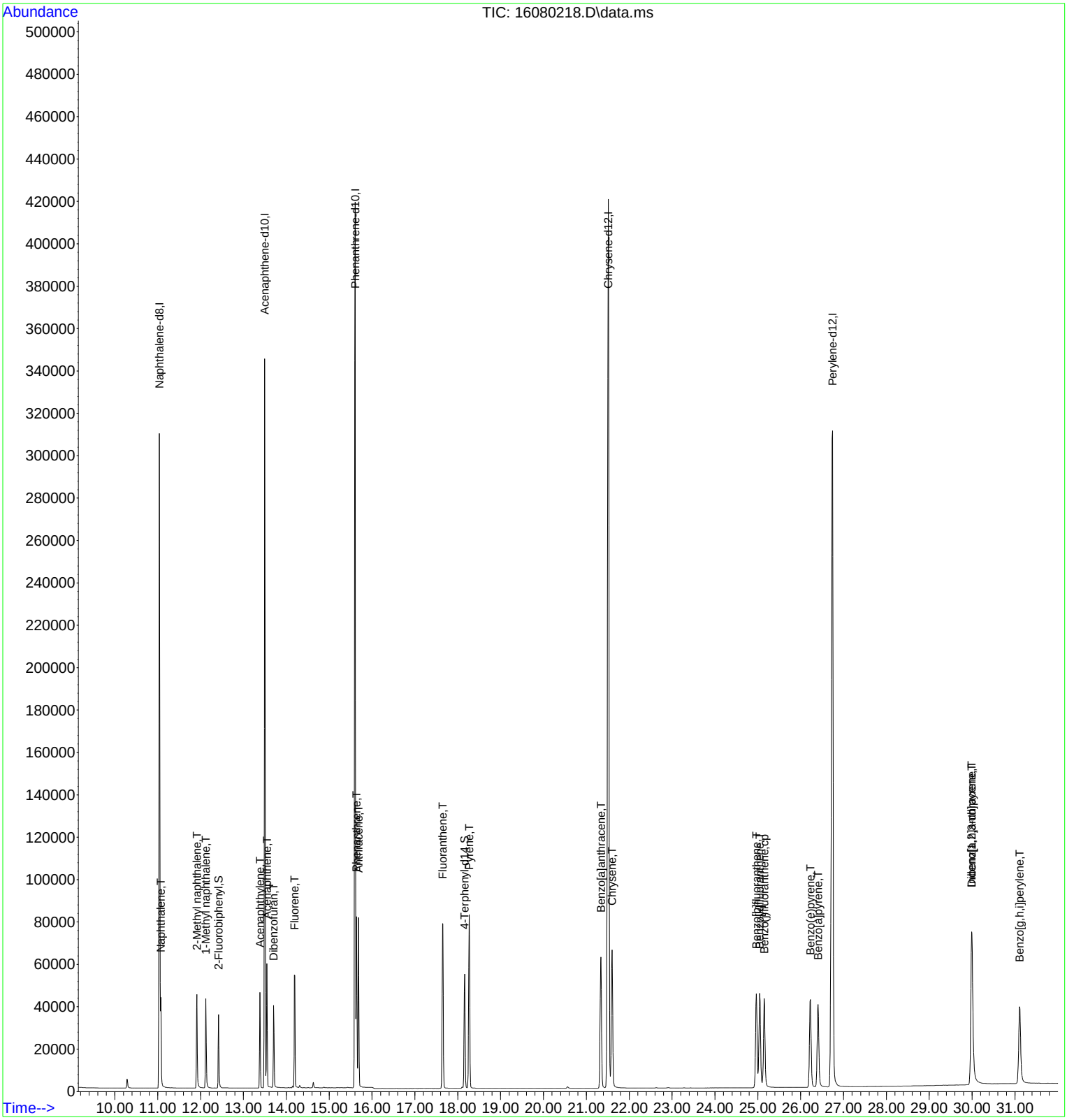
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	368275	4000.00	ug/kg	94
6) Acenaphthene-d10	13.495	164	176937	4000.00	ug/kg	97
11) Phenanthrene-d10	15.605	188	485885	4000.00	ug/kg	97
17) Chrysene-d12	21.509	240	652222	4000.00	ug/kg	97
20) Perylene-d12	26.743	264	588578	4000.00	ug/kg	96
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	30251	495.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.38%#			
15) 4-Terphenyl-d14	18.160	244	61828	510.93	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 12.77%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	42986	480.06	ug/kg	99
3) 2-Methyl naphthalene	11.915	142	27883	494.84	ug/kg	96
4) 1-Methyl naphthalene	12.123	142	25752	497.71	ug/kg	97
7) Acenaphthylene	13.382	152	42130	496.62	ug/kg	99
8) Acenaphthene	13.547	153	26543	493.86	ug/kg	97
9) Dibenzofuran	13.704	168	37605	493.80	ug/kg	78
10) Fluorene	14.198	166	31546	490.83	ug/kg	99
12) Phenanthrene	15.640	178	64655	492.20	ug/kg	100
13) Anthracene	15.683	178	65057	484.21	ug/kg	99
14) Fluoranthene	17.653	202	88604	502.70	ug/kg	94
16) Pyrene	18.265	202	92404	505.03	ug/kg	99
18) Benzo[a]anthracene	21.340	228	87577	517.87	ug/kg	100
19) Chrysene	21.598	228	82501	511.27	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	81152	511.01	ug/kg	100
22) Benzo[k]fluoranthene	25.044	252	73470	540.79	ug/kg	99
23) Benzo(j)fluoranthene	25.149	252	69856	526.44	ug/kg	99
24) Benzo(e)pyrene	26.227	252	77212	502.44	ug/kg	100
25) Benzo[a]pyrene	26.405	252	75123	515.12	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.996	276	88606	514.44	ug/kg	99
27) Dibenz[a,h]anthracene	29.988	278	72169	509.58	ug/kg	99
28) Benzo[g,h,i]perylene	31.107	276	76652	506.64	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

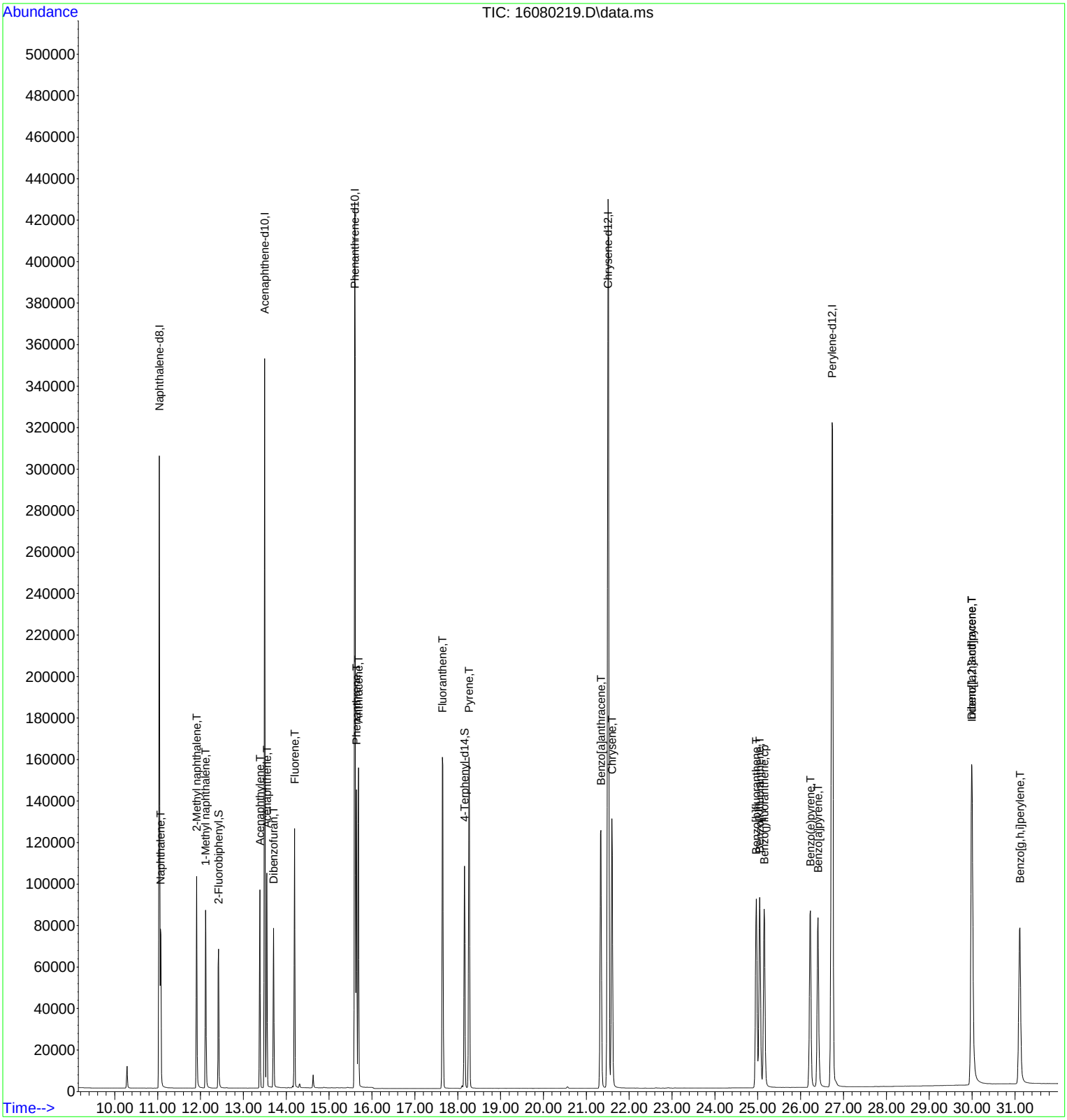
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	386528	4000.00	ug/kg	98
6) Acenaphthene-d10	13.497	164	183850	4000.00	ug/kg	101
11) Phenanthrene-d10	15.598	188	503015	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	674037	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	614870	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	61248	955.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.89%#			
15) 4-Terphenyl-d14	18.159	244	121618	970.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 24.27%#			
Target Compounds						Qvalue
2) Naphthalene	11.075	128	87297	928.87	ug/kg	99
3) 2-Methyl naphthalene	11.908	142	56717	959.02	ug/kg	99
4) 1-Methyl naphthalene	12.117	142	52067	958.79	ug/kg	99
7) Acenaphthylene	13.384	152	85164	966.14	ug/kg	100
8) Acenaphthene	13.549	153	53195	952.53	ug/kg	97
9) Dibenzofuran	13.705	168	75106	949.15	ug/kg	95
10) Fluorene	14.192	166	63783	955.09	ug/kg	99
12) Phenanthrene	15.642	178	125420	922.27	ug/kg	100
13) Anthracene	15.685	178	133772	961.74	ug/kg	100
14) Fluoranthene	17.644	202	176788	968.87	ug/kg	99
16) Pyrene	18.264	202	180373	952.26	ug/kg	99
18) Benzo[a]anthracene	21.340	228	176880	1012.10	ug/kg	100
19) Chrysene	21.597	228	165784	994.14	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	165843	999.64	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	151774	1069.39	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	141728	1022.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	157087	978.50	ug/kg	100
25) Benzo[a]pyrene	26.404	252	152694	1002.25	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	183022	1017.18	ug/kg	93
27) Dibenz[a,h]anthracene	29.987	278	150487	1017.15	ug/kg	100
28) Benzo[g,h,i]perylene	31.114	276	154189	975.54	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	392416	4000.00	ug/kg	100
6) Acenaphthene-d10	13.498	164	182713	4000.00	ug/kg	100
11) Phenanthrene-d10	15.599	188	499349	4000.00	ug/kg	100
17) Chrysene-d12	21.509	240	673020	4000.00	ug/kg	100
20) Perylene-d12	26.742	264	612847	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	124577	1914.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.86%		
15) 4-Terphenyl-d14	18.160	244	245963	1977.75	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	49.44%#		

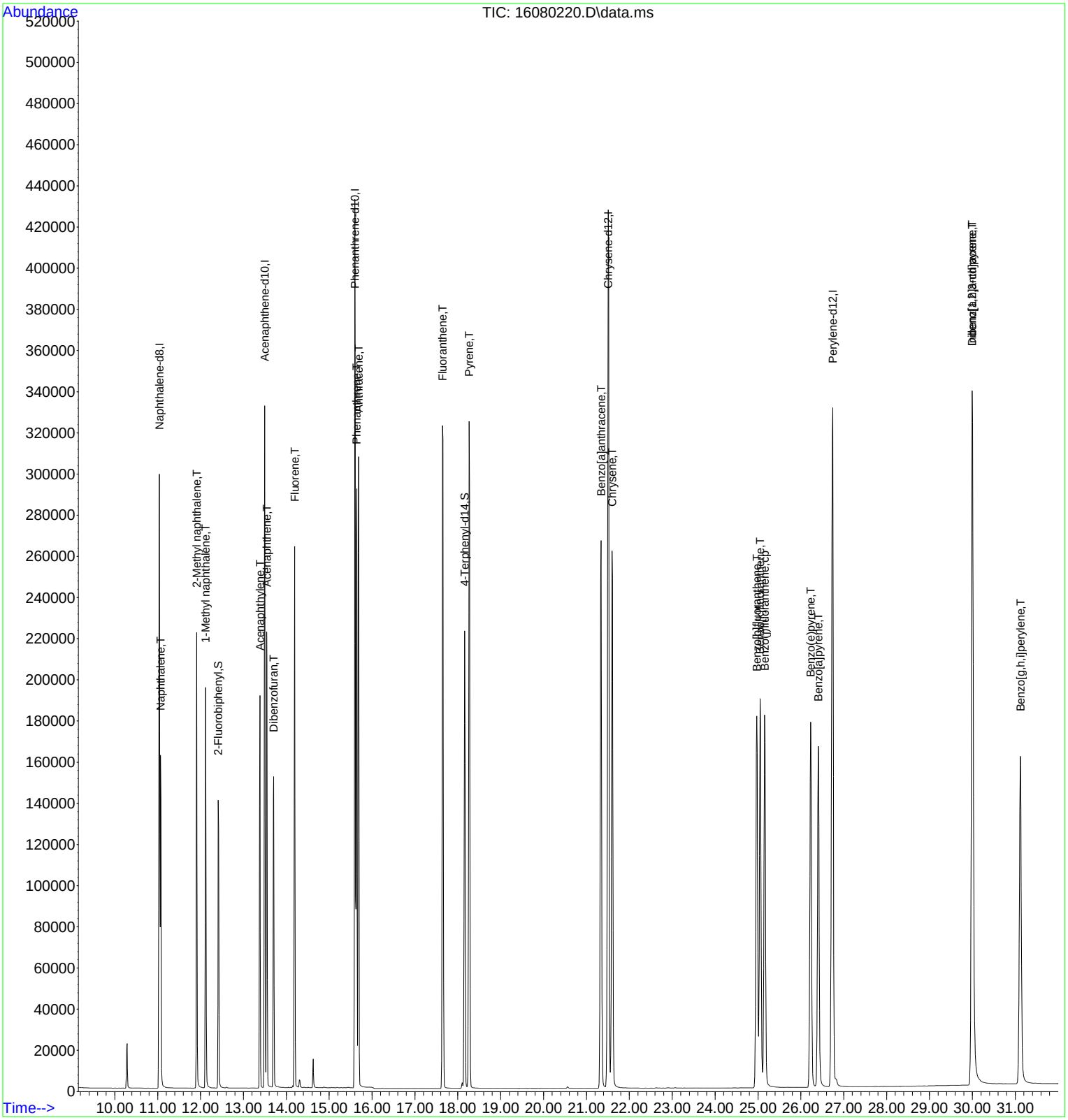
Target Compounds						Qvalue
2) Naphthalene	11.067	128	178638	1872.25	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	116176	1934.93	ug/kg	100
4) 1-Methyl naphthalene	12.117	142	106548	1932.59	ug/kg	100
7) Acenaphthylene	13.385	152	174601	1993.09	ug/kg	100
8) Acenaphthene	13.541	153	108721	1958.92	ug/kg	100
9) Dibenzofuran	13.706	168	152226	1935.72	ug/kg	100
10) Fluorene	14.192	166	130611	1967.95	ug/kg	100
12) Phenanthrene	15.642	178	254637	1886.22	ug/kg	100
13) Anthracene	15.686	178	267809	1939.53	ug/kg	100
14) Fluoranthene	17.644	202	361336	1994.80	ug/kg	100
16) Pyrene	18.264	202	369951	1967.45	ug/kg	100
18) Benzo[a]anthracene	21.340	228	362283	2076.10	ug/kg	100
19) Chrysene	21.598	228	334873	2011.13	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	343274	2075.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	312137	2206.56	ug/kg	100
23) Benzo(j)fluoranthene	25.156	252	294707	2133.00	ug/kg	100
24) Benzo(e)pyrene	26.227	252	323026	2018.78	ug/kg	100
25) Benzo[a]pyrene	26.404	252	315127	2075.24	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	30.003	276	378254	2109.15	ug/kg	100
27) Dibenz[a,h]anthracene	29.995	278	312978	2122.41	ug/kg	100
28) Benzo[g,h,i]perylene	31.122	276	318362	2020.90	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

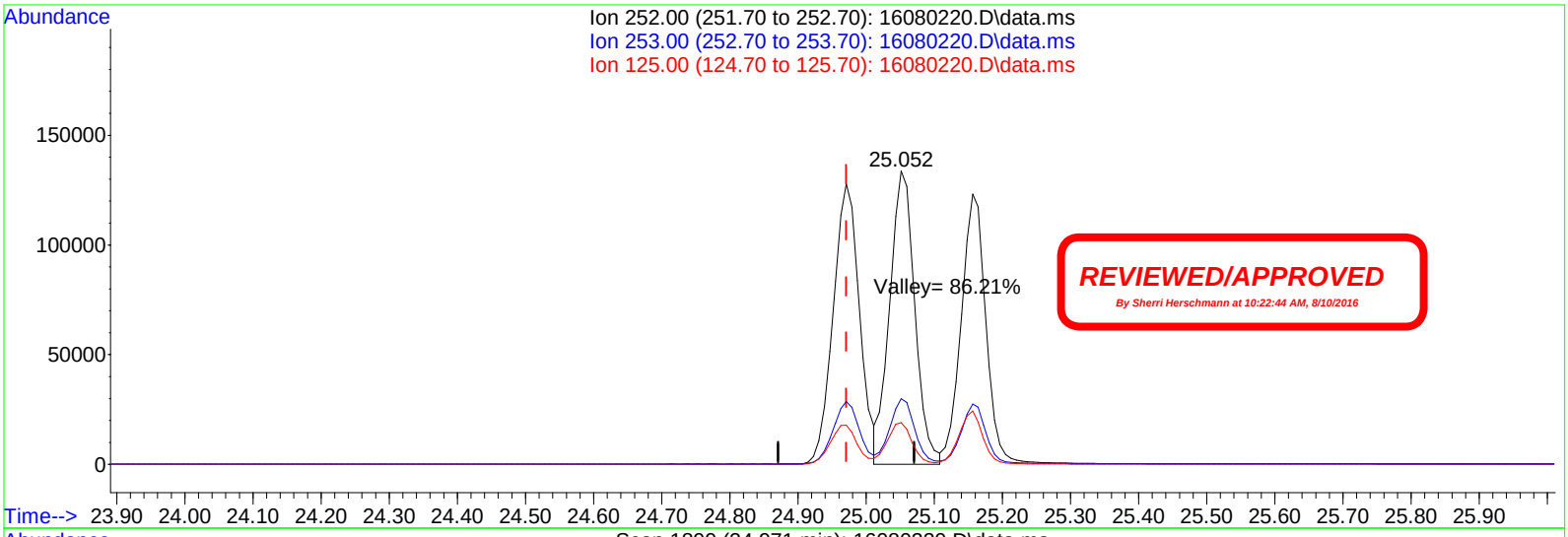
Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

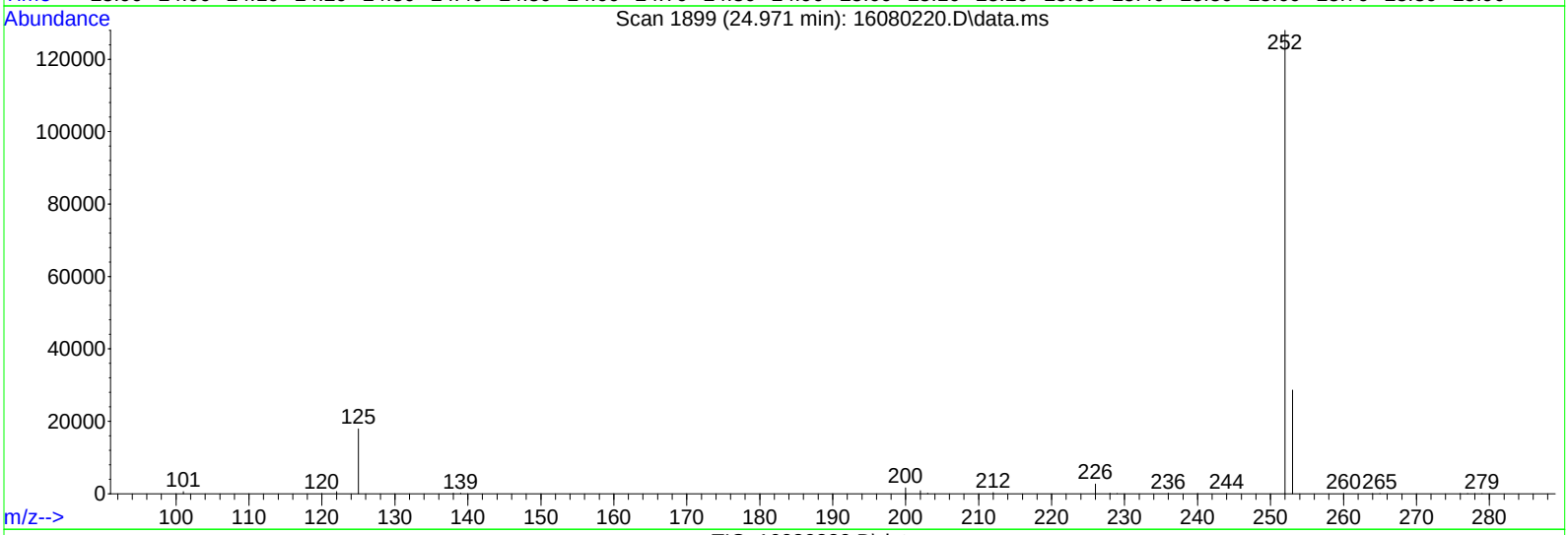


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration





TIC: 16080220.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.971min (+0.000) 2075.96ug/kg

response 343274

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.12
125.00	13.90	13.91
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

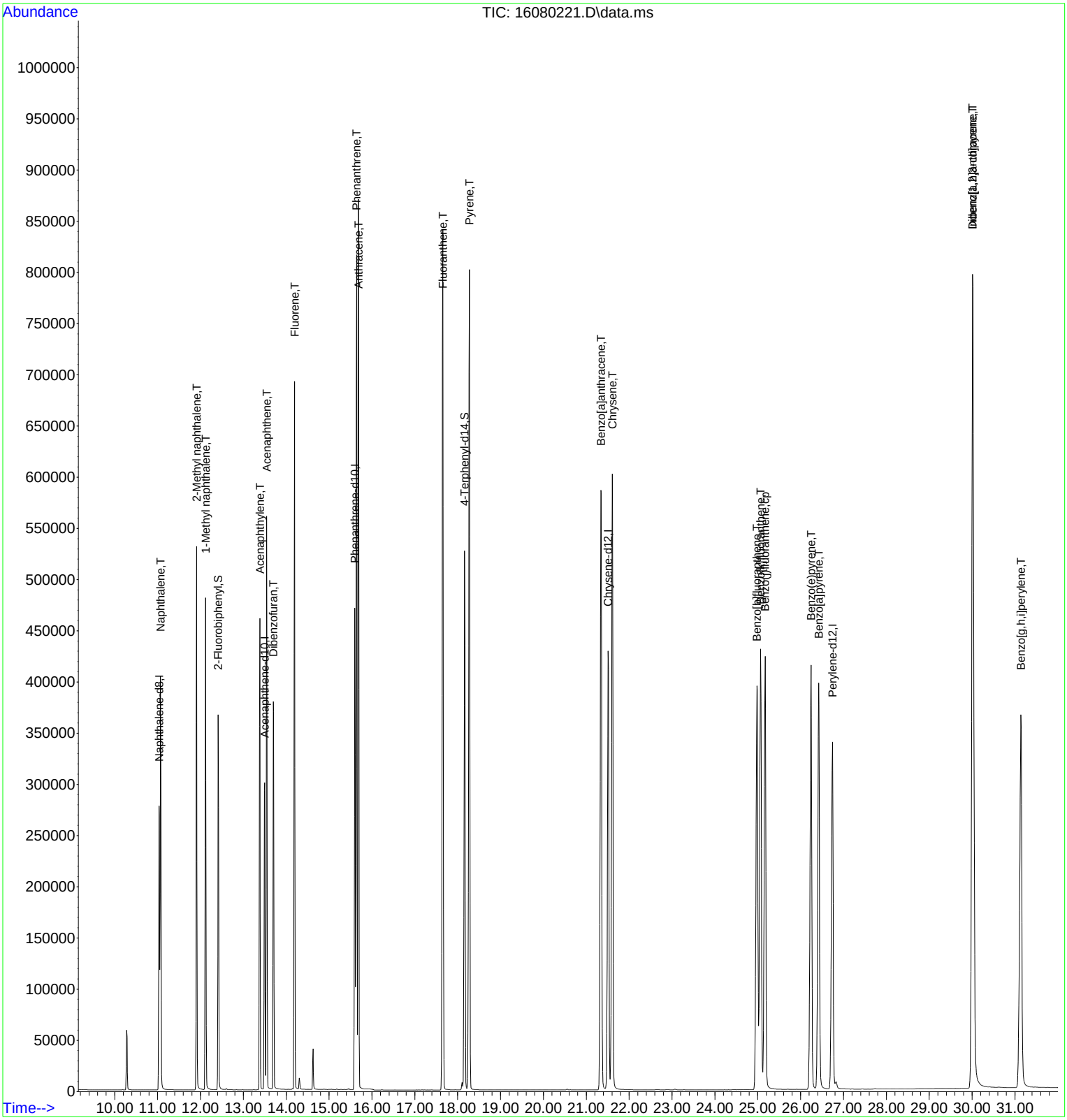
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	373369	4000.00	ug/kg	95
6) Acenaphthene-d10	13.498	164	175178	4000.00	ug/kg	96
11) Phenanthrene-d10	15.600	188	536214	4000.00	ug/kg	107
17) Chrysene-d12	21.509	240	675690	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	617609	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	297892	4811.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 120.28%			
15) 4-Terphenyl-d14	18.160	244	583710	4370.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 109.27%			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	431837	4756.84	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	282882	4951.78	ug/kg	99
4) 1-Methyl naphthalene	12.118	142	255849	4877.39	ug/kg	99
7) Acenaphthylene	13.386	152	429570	5114.51	ug/kg	99
8) Acenaphthene	13.542	153	265597	4991.34	ug/kg	99
9) Dibenzofuran	13.707	168	384477	5099.35	ug/kg	100
10) Fluorene	14.193	166	344510	5414.09	ug/kg	99
12) Phenanthrene	15.643	178	689747	4758.01	ug/kg	98
13) Anthracene	15.686	178	714677	4819.99	ug/kg	98
14) Fluoranthene	17.653	202	893543	4593.78	ug/kg	100
16) Pyrene	18.273	202	896708	4440.95	ug/kg	99
18) Benzo[a]anthracene	21.348	228	856483	4888.77	ug/kg	99
19) Chrysene	21.606	228	798613	4777.24	ug/kg	99
21) Benzo[b]fluoranthene	24.988	252	816512	4899.81	ug/kg	99
22) Benzo[k]fluoranthene	25.068	252	740334	5193.21	ug/kg	99
23) Benzo(j)fluoranthene	25.173	252	698109	5013.74	ug/kg	99
24) Benzo(e)pyrene	26.244	252	769905	4774.49	ug/kg	99
25) Benzo[a]pyrene	26.421	252	756854	4945.77	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.020	276	911879	5045.44	ug/kg	93
27) Dibenz[a,h]anthracene	30.012	278	756782	5092.43	ug/kg	96
28) Benzo[g,h,i]perylene	31.139	276	782544	4929.14	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	409796	4000.00	ug/kg	104
6) Acenaphthene-d10	13.496	164	199013	4000.00	ug/kg	109
11) Phenanthrene-d10	15.597	188	416210	4000.00	ug/kg	83
17) Chrysene-d12	21.508	240	579641	4000.00	ug/kg	86
20) Perylene-d12	26.733	264	555774	4000.00	ug/kg	91

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.445	172	17	0.25	ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#			
15) 4-Terphenyl-d14	18.158	244	83	0.80	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.02%#			

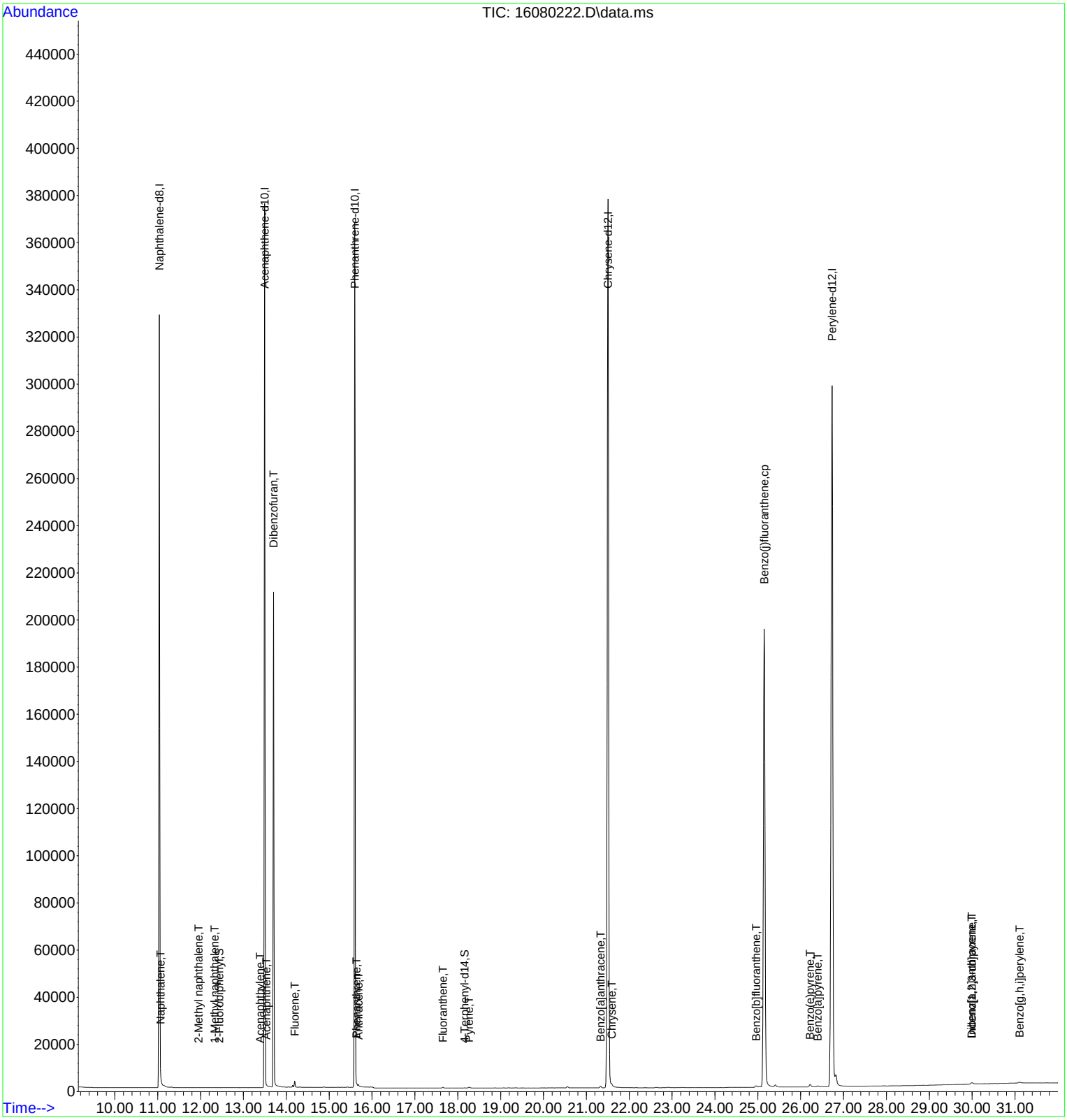
Target Compounds						Qvalue
2) Naphthalene	11.074	128	64	0.64	ug/kg	87
3) 2-Methyl naphthalene	11.950	142	46	0.73	ug/kg	89
4) 1-Methyl naphthalene	12.315	142	3	0.05	ug/kg	91
7) Acenaphthylene	13.383	152	54	0.57	ug/kg	92
8) Acenaphthene	13.539	153	55	0.91	ug/kg	95
9) Dibenzofuran	13.704	168	201819	2356.16	ug/kg	95
10) Fluorene	14.199	166	1707	23.61	ug/kg	98
12) Phenanthrene	15.640	178	344	3.06	ug/kg	95
13) Anthracene	15.684	178	786	6.83	ug/kg	98
14) Fluoranthene	17.651	202	470	3.11	ug/kg	93
16) Pyrene	18.263	202	542	3.46	ug/kg	97
18) Benzo[a]anthracene	21.331	228	1114	7.41	ug/kg	100
19) Chrysene	21.588	228	1022	7.13	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	1420	9.47	ug/kg	97
22) Benzo[k]fluoranthene	0.000	252	0	N.D.		
23) Benzo(j)fluoranthene	25.147	252	340750	2719.50	ug/kg	100
24) Benzo(e)pyrene	26.218	252	2186	15.06	ug/kg	92
25) Benzo[a]pyrene	26.395	252	1015	7.37	ug/kg	91
26) Indeno[1,2,3-cd]pyrene	29.994	276	1140	7.01	ug/kg	97
27) Dibenz[a,h]anthracene	29.978	278	865	6.47	ug/kg	94
28) Benzo[g,h,i]perylene	31.105	276	977	6.84	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	354743	4000.00	ug/kg	90
6) Acenaphthene-d10	13.495	164	172034	4000.00	ug/kg	94
11) Phenanthrene-d10	15.596	188	502241	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	626135	4000.00	ug/kg	93
20) Perylene-d12	26.735	264	562739	4000.00	ug/kg	92
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	159493	2711.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 67.78%			
15) 4-Terphenyl-d14	18.160	244	329186	2631.70	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 65.79%			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	203065	2354.28	ug/kg	99
3) 2-Methyl naphthalene	11.906	142	161750	2980.06	ug/kg	99
4) 1-Methyl naphthalene	12.123	142	142715	2863.50	ug/kg	95
7) Acenaphthylene	13.382	152	202502	2455.08	ug/kg	99
8) Acenaphthene	13.547	153	132224	2530.28	ug/kg	96
9) Dibenzofuran	13.712	168	495	6.69	ug/kg	88
10) Fluorene	14.190	166	163278	2612.86	ug/kg	99
12) Phenanthrene	15.640	178	319541	2353.36	ug/kg	99
13) Anthracene	15.683	178	319725	2302.18	ug/kg	99
14) Fluoranthene	17.645	202	446111	2448.63	ug/kg	99
16) Pyrene	18.264	202	451874	2389.28	ug/kg	99
18) Benzo[a]anthracene	21.340	228	413562	2547.42	ug/kg	100
19) Chrysene	21.598	228	341645	2205.44	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	396136	2608.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	366344	2820.36	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	26.227	252	383637	2611.06	ug/kg	100
25) Benzo[a]pyrene	26.405	252	367902	2638.52	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.004	276	425376	2583.10	ug/kg	99
27) Dibenz[a,h]anthracene	29.995	278	349484	2581.00	ug/kg	100
28) Benzo[g,h,i]perylene	31.123	276	362596	2506.64	ug/kg	100

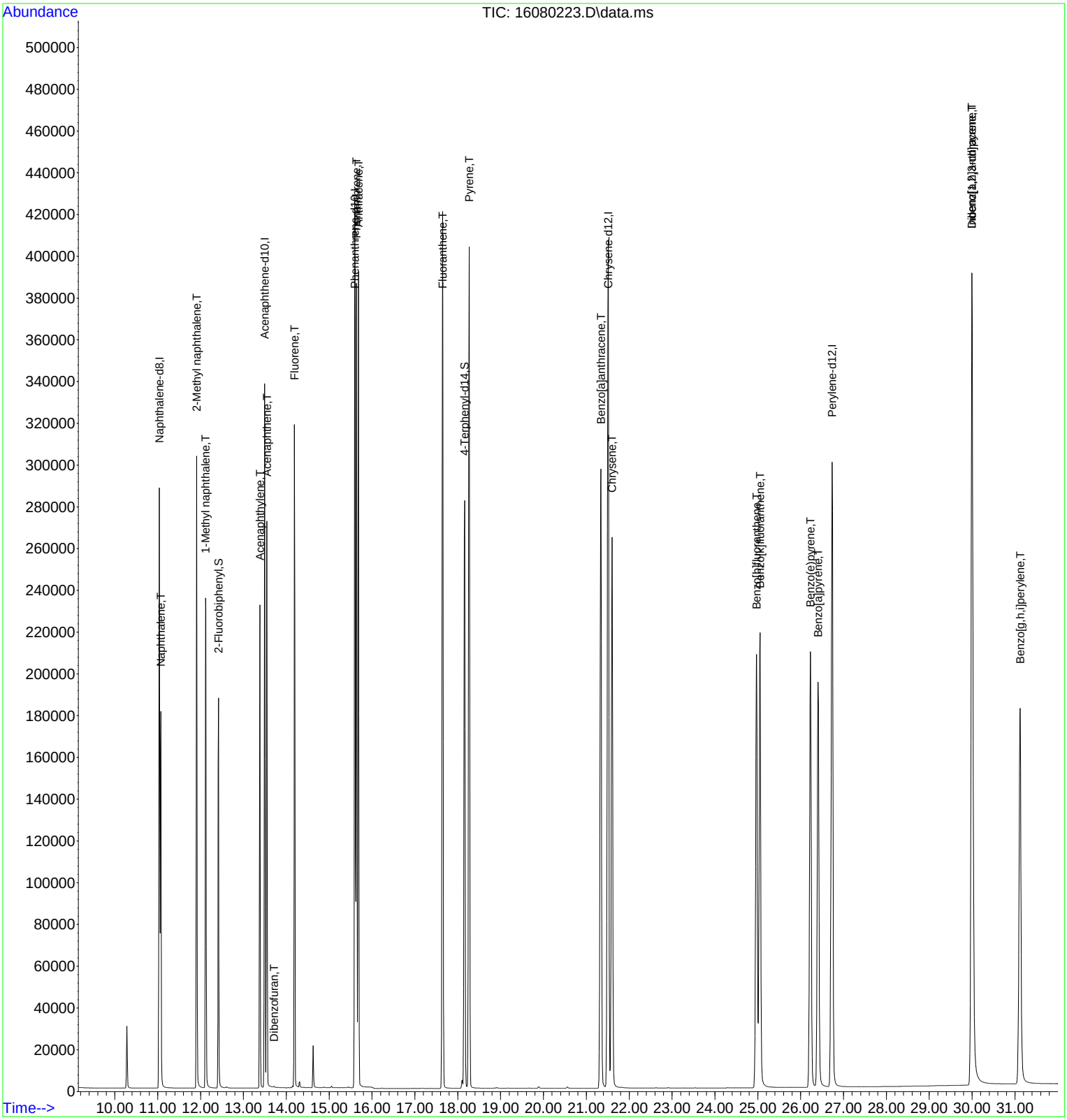
(#) = qualifier out of range (m) = manual integration (+) = signals summed

REVIEWED/APPROVED
By Sherri Herschmann at 10:31:43 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



CAL ID: 682

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #8 **Calibration File Name:** PAH160806.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160805	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160806-1	1
SSCV 2500 ppb	----	PAHSSCV160806-2	1

Standards Used for the Calibration Curve

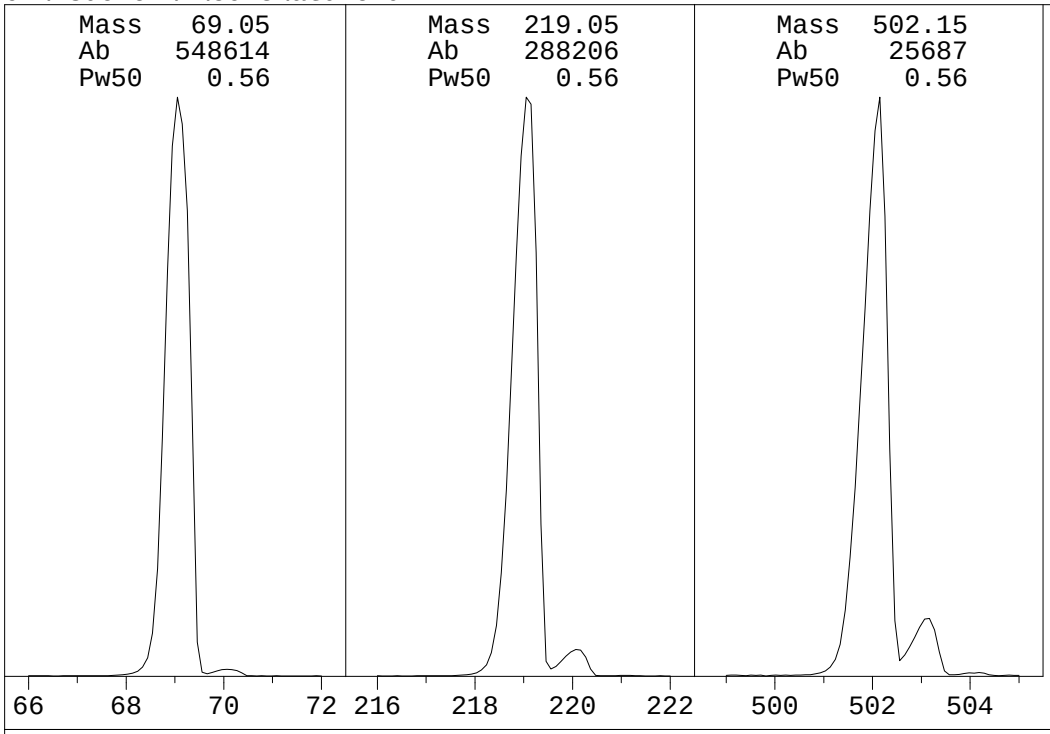
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160805**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160806-1**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160806-2**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Don Winston Date: 08/8/2016

Second-Level Review: Date: 08/10/2016

Sat Aug 06 12:54:50 2016 Instrument: GCMS #8
C:\msdchem\1\5973\atune.u

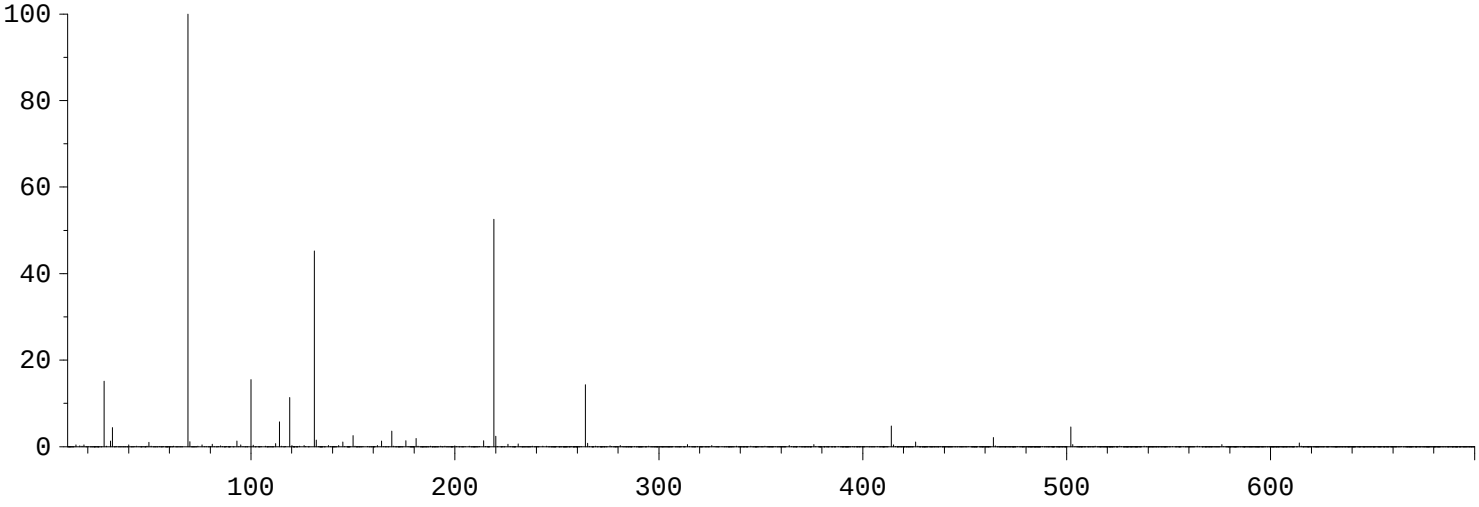


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2078
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	0.004
		DC Pol	NEG
Repeller	32.13		
IonFcus	101.5	HEDEnab	ON
EntLens	14.5	EMVolts	1271
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	44
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1023 peaks Base: 69.05 Abundance: 494208



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	494208	100.00	70.05	5768	1.17
219.05	259712	52.55	220.05	11813	4.55
502.05	22360	4.52	503.05	2309	10.33

Air/Water Check: H20~0.41% N2~15.16% O2~4.39% CO2~0.09% N2/H2O~3688.19%

Column Flow: Front: 0 Back: 0 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 5358
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 45@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	135.0	135.0	135.0	135.0	135.0	135.0	135.0
Entrance Lens Offset:	22.1	22.1	22.1	22.1	22.1	22.1	22.1

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160806.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Sun Aug 07 12:43:55 2016
Response Via : Initial Calibration

Calibration Files
1 =16080602.D 2 =16080603.D 3 =16080604.D 4 =16080605.D 5 =16080606.D 6 =16080607.D 7 =16080608.D
8 =16080609.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	1.106	1.004	0.959	0.923	0.919	0.917	0.895	0.909	0.954	7.38	A	0.0738	0.0000	0.9541	0.0000
3)	T	2-Methyl napht...	0.710	0.662	0.666	0.638	0.648	0.636	0.616	0.626	0.650	4.52	A	0.0452	0.0000	0.6504	0.0000
4)	T	1-Methyl napht...	0.678	0.626	0.603	0.589	0.588	0.581	0.555	0.565	0.598	6.55	A	0.0655	0.0000	0.5979	0.0000
5)	S	2-Fluorobiphenyl	1.119	0.977	0.918	0.872	0.846	0.826	0.780	0.781	0.890	12.82	A	0.1282	0.0000	0.8899	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.974	1.905	1.823	1.781	1.810	1.851	1.802	1.859	1.851	3.40	A	0.0340	0.0000	1.8506	0.0000
8)	T	Acenaphthene	1.373	1.258	1.196	1.157	1.173	1.182	1.146	1.191	1.209	6.13	A	0.0613	0.0000	1.2094	0.0000
9)	T	Dibenzofuran	2.346	2.147	2.079	2.021	1.983	2.027	1.992	2.011	2.076	5.86	A	0.0586	0.0000	2.0758	0.0000
10)	T	Fluorene	1.920	1.861	1.747	1.690	1.727	1.784	1.813	1.818	1.795	4.15	A	0.0415	0.0000	1.7950	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.537	1.270	1.107	1.066	1.040	1.036	1.016	0.980	1.132	16.45	*Q	1.0000	0.0006	1.0426	-0.0508
13)	T	Anthracene	1.130	1.028	1.022	1.049	1.034	1.049	1.030	1.010	1.044	3.55	A	0.0355	0.0000	1.0441	0.0000
14)	T	Fluoranthene	1.171	1.085	1.076	1.066	1.080	1.100	1.074	1.033	1.086	3.64	A	0.0364	0.0000	1.0857	0.0000
15)	S	4-Terphenyl-d14	0.777	0.702	0.706	0.679	0.708	0.706	0.692	0.656	0.703	4.91	A	0.0491	0.0000	0.7032	0.0000
16)	T	Pyrene	1.167	1.081	1.085	1.064	1.092	1.097	1.074	1.024	1.086	3.68	A	0.0368	0.0000	1.0855	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	T	Benzo[a]anthra...	1.085	0.998	0.954	0.980	0.991	1.020	1.006	1.026	1.007	3.86	A	0.0386	0.0000	1.0074	0.0000
19)	T	Chrysene	1.033	0.929	0.923	0.934	0.947	0.968	0.941	0.952	0.954	3.69	A	0.0369	0.0000	0.9535	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.078	0.948	0.939	0.981	1.003	1.063	1.035	1.067	1.014	5.37	A	0.0537	0.0000	1.0142	0.0000
22)	T	Benzo[k]fluora...	0.788	0.739	0.765	0.811	0.895	0.911	0.932	0.916	0.845	9.13	A	0.0913	0.0000	0.8448	0.0000
23)	cp	Benzo(j)fluora...	0.801	0.747	0.752	0.759	0.842	0.900	0.884	0.874	0.820	7.72	A	0.0772	0.0000	0.8197	0.0000
24)	T	Benzo(e)pyrene	1.111	1.037	0.978	0.932	0.991	1.004	0.994	1.028	1.009	5.17	A	0.0517	0.0000	1.0092	0.0000
25)	T	Benzo[a]pyrene	0.988	0.930	0.885	0.909	0.945	0.973	0.964	0.999	0.949	4.17	A	0.0417	0.0000	0.9491	0.0000
26)	T	Indeno[1,2,3-c...	1.234	1.125	1.112	1.141	1.179	1.196	1.194	1.237	1.177	4.01	A	0.0401	0.0000	1.1773	0.0000
27)	T	Dibenz[a,h]ant...	0.984	0.869	0.876	0.901	0.952	0.970	0.979	1.022	0.944	5.89	A	0.0589	0.0000	0.9440	0.0000
28)	T	Benzo[g,h,i]pe...	1.169	1.031	1.025	1.018	1.018	1.028	1.015	1.056	1.045	4.94	A	0.0494	0.0000	1.0451	0.0000

(#) = Out of Range

Sequence Name: C:\msdchem\1\sequence\160806.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160806\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

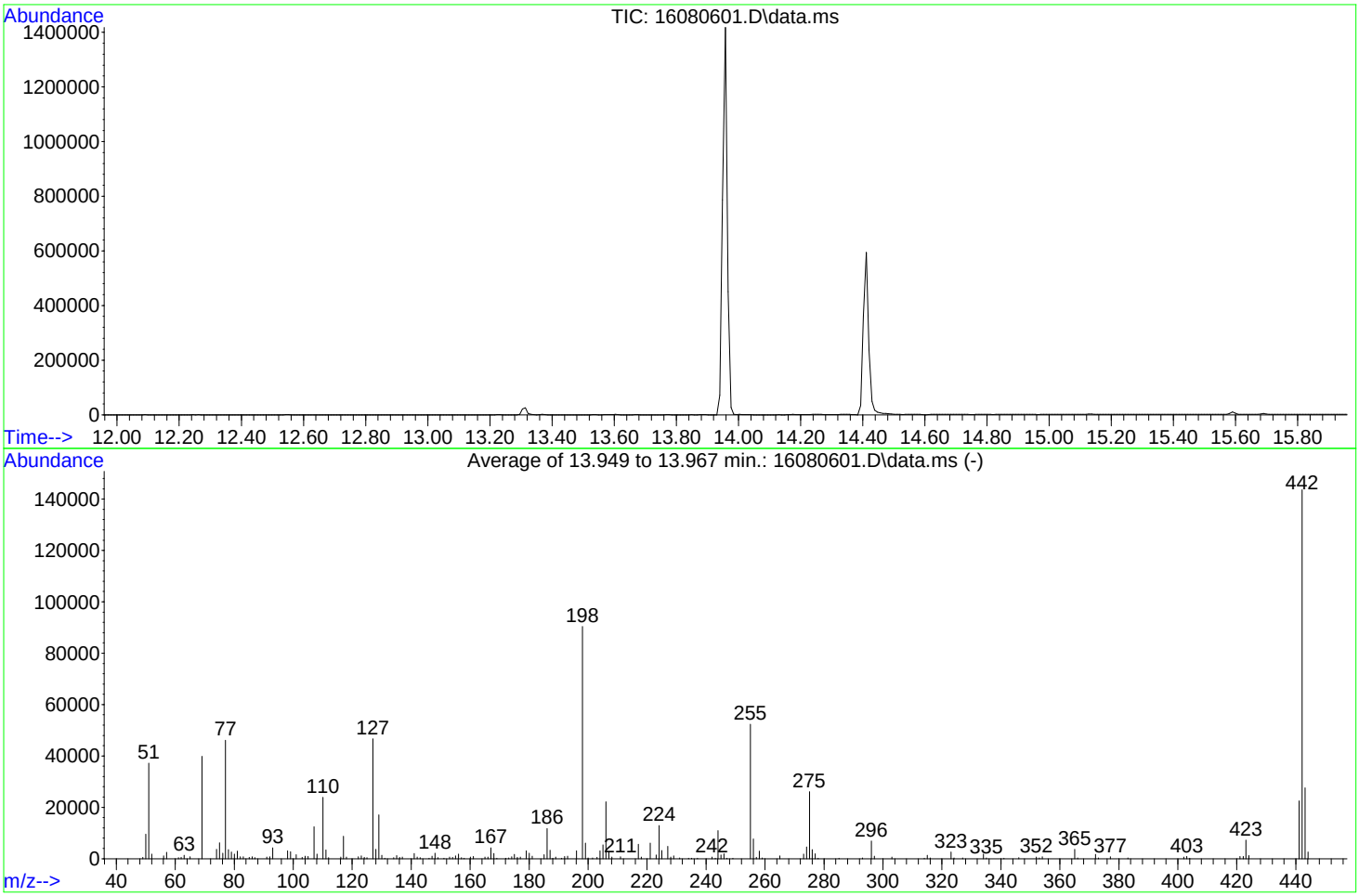
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	12	16080612	DFTPPPAH	DFTPP-160805
2)	Sample	13	16080613	PAH160802	ICV-160806
3)	Sample	14	16080614	PAH160802	LCS-76511
4)	Sample	15	16080615	PAH160802	MB-76511
5)	Sample	16	16080616	PAH160802	1607256-28A
6)	Sample	17	16080617	PAH160802	1607265-07A
7)	Sample	18	16080618	PAH160802	1607265-08A
8)	Sample	19	16080619	PAH160802	1607265-09A
9)	Sample	20	16080620	PAH160802	1607265-10A
10)	Sample	21	16080621	PAH160802	1607265-11A
11)	Sample	22	16080622	PAH160802	1607265-12A
12)	Sample	23	16080623	PAH160802	1607265-14A
13)	Sample	24	16080624	PAH160802	1607265-15A
14)	Sample	25	16080625	PAH160802	1607265-16A
15)	Sample	26	16080626	PAH160802	1607265-17A
16)	Sample	27	16080627	PAH160802	1607265-18A
17)	Sample	28	16080628	PAH160802	1607265-19A
18)	Sample	29	16080629	DFTPPPAH	DFTPP2-160806
19)	Sample	30	16080630	PAH160802	ICV2-160806
20)	Sample	31	16080631	PAH160802	SBLK
21)	Sample	32	16080632	PAH160802	SB-160808
22)	Sample	33	16080633	PAH160802	1607265-20A
23)	Sample	34	16080634	PAH160802	1607265-21A
24)	Sample	35	16080635	PAH160802	1607265-22A
25)	Sample	36	16080636	PAH160802	1607265-23A
26)	Sample	37	16080637	PAH160802	1607265-24A
27)	Sample	38	16080638	PAH160802	1607265-25A
28)	Sample	39	16080639	PAH160802	1607265-18AMS
29)	Sample	40	16080640	PAH160802	1607265-18AMSD
30)	Sample	41	16080641	PAH160802	CCV1-160806

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080601.D
Acq On : 6 Aug 2016 12:58 pm
Operator :
Sample : DFTPP-160806
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.1	37199	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.1	39855	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	46653	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	90418	PASS
199	198	5	9	6.8	6121	PASS
275	198	10	60	28.8	26052	PASS
365	198	1	200	4.0	3598	PASS
441	442	0.01	24	15.7	22565	PASS
442	198	50	400	158.9	143658	PASS
443	442	15	24	19.2	27558	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 12:07:33 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080602.D
Acq On : 6 Aug 2016 1:37 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 08 07:59:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

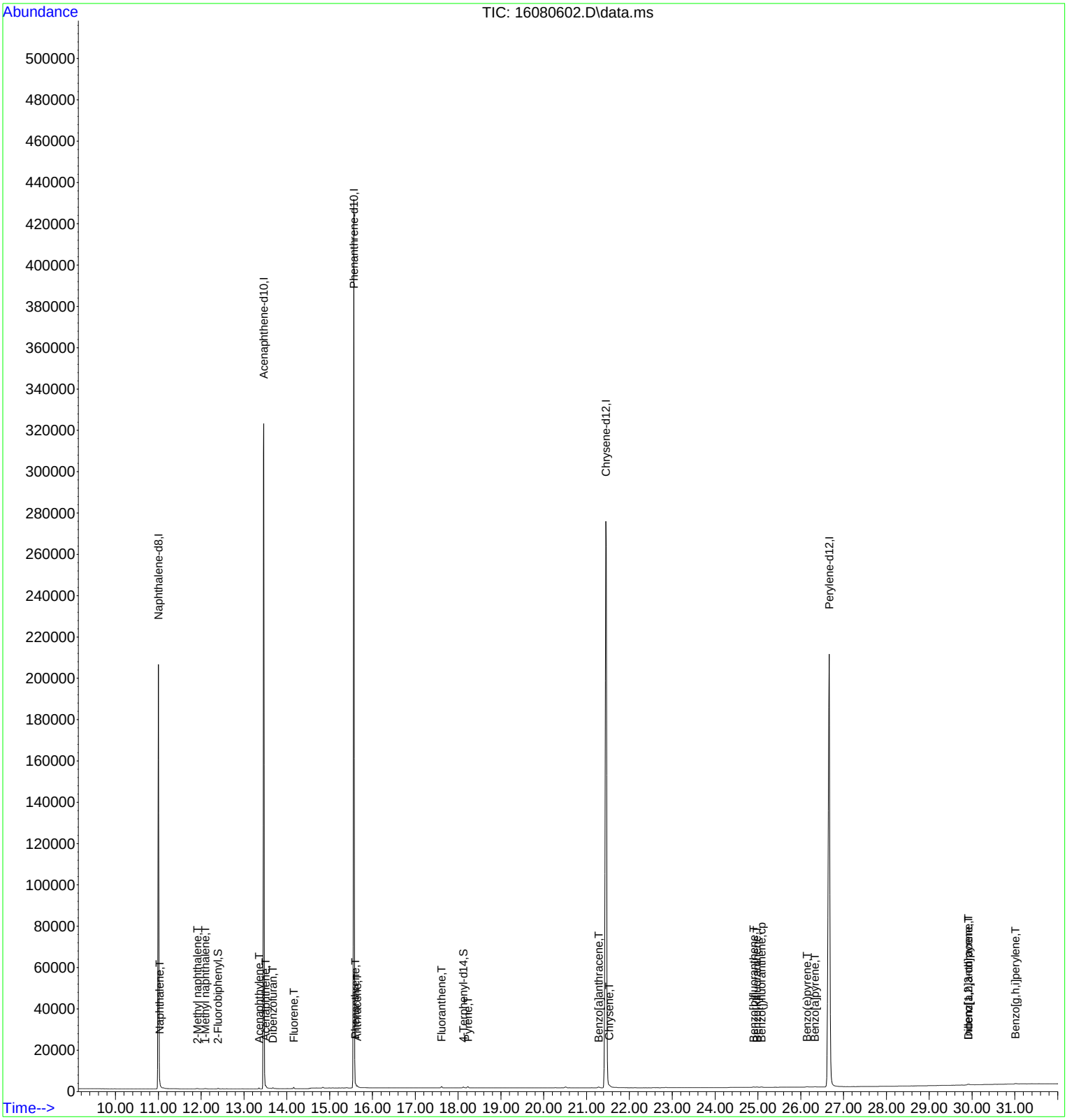
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	252361	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	178320	4000.00	ug/kg	110
11) Phenanthrene-d10	15.567	188	500638	4000.00	ug/kg	97
17) Chrysene-d12	21.448	240	428962	4000.00	ug/kg	93
20) Perylene-d12	26.664	264	384584	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.392	172	353	6.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.16%#			
15) 4-Terphenyl-d14	18.122	244	486	5.52	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.14%#			
Target Compounds						Qvalue
2) Naphthalene	11.037	128	349	5.80	ug/kg	99
3) 2-Methyl naphthalene	11.909	142	224	5.46	ug/kg	98
4) 1-Methyl naphthalene	12.094	142	214	5.67	ug/kg	91
7) Acenaphthylene	13.349	152	440	5.33	ug/kg	99
8) Acenaphthene	13.512	153	306	5.68	ug/kg	98
9) Dibenzofuran	13.675	168	523	5.65	ug/kg	99
10) Fluorene	14.158	166	428	5.35	ug/kg	99
12) Phenanthrene	15.606	178	962	5.01	ug/kg	99
13) Anthracene	15.644	178	707	5.41	ug/kg	98
14) Fluoranthene	17.611	202	733	5.39	ug/kg	98
16) Pyrene	18.228	202	730	5.37	ug/kg	97
18) Benzo[a]anthracene	21.284	228	582	5.39	ug/kg	98
19) Chrysene	21.535	228	554	5.42	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	518	5.31	ug/kg	98
22) Benzo[k]fluoranthene	24.976	252	379	4.67	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	385	4.89	ug/kg	90
24) Benzo(e)pyrene	26.153	252	534	5.50	ug/kg	92
25) Benzo[a]pyrene	26.326	252	475	5.21	ug/kg	93
26) Indeno[1,2,3-cd]pyrene	29.922	276	593	5.24	ug/kg	99
27) Dibenz[a,h]anthracene	29.912	278	473	5.21	ug/kg	92
28) Benzo[g,h,i]perylene	31.021	276	562	5.59	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080602.D
Acq On : 6 Aug 2016 1:37 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 08 07:59:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080603.D
Acq On : 6 Aug 2016 2:17 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 08 08:00:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

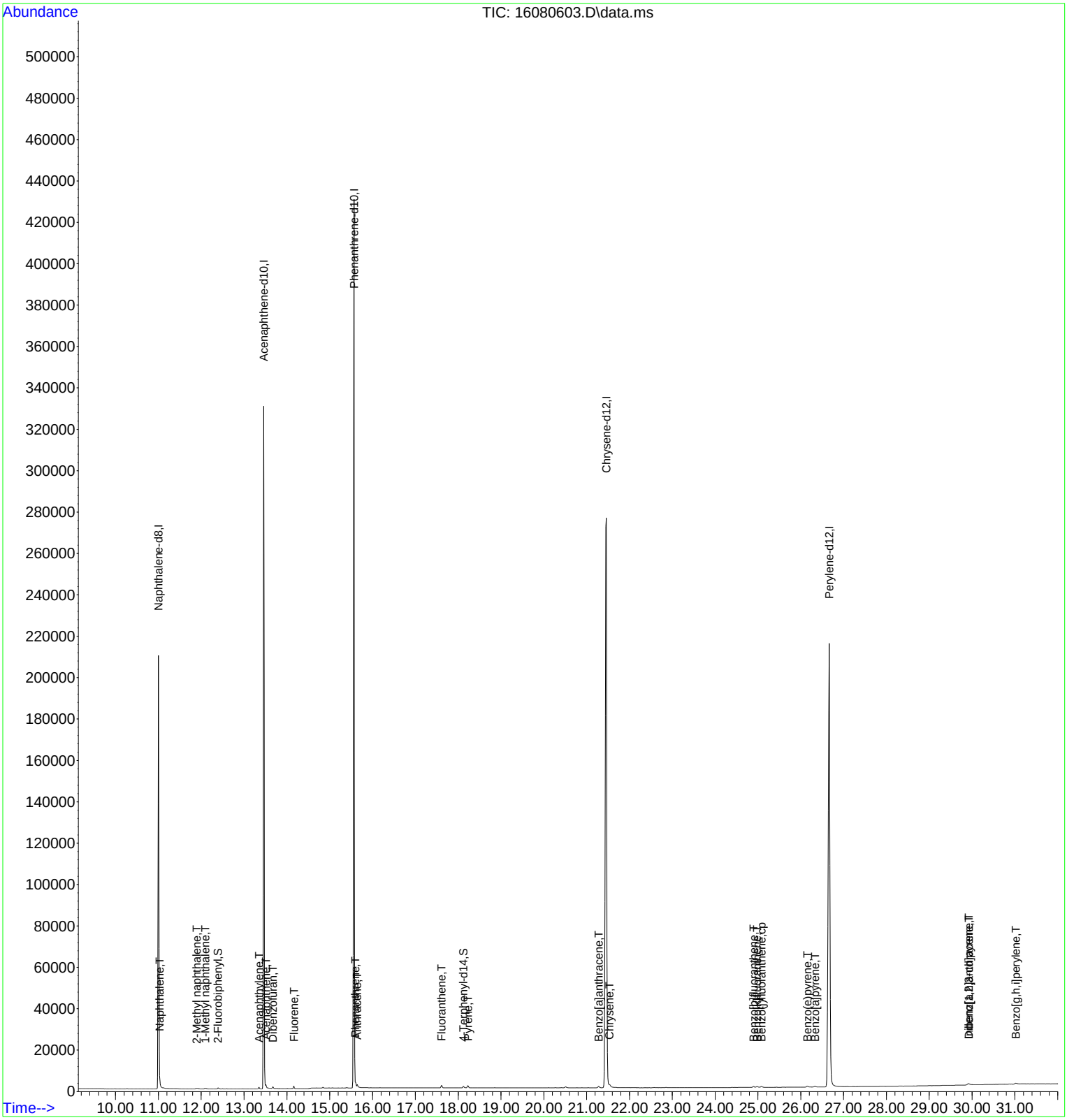
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	260907	4000.00	ug/kg	99
6) Acenaphthene-d10	13.462	164	173258	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	498791	4000.00	ug/kg	97
17) Chrysene-d12	21.457	240	438240	4000.00	ug/kg	95
20) Perylene-d12	26.663	264	396275	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.398	172	637	10.97	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.27%#			
15) 4-Terphenyl-d14	18.122	244	876	9.99	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.25%#			
Target Compounds						Qvalue
2) Naphthalene	11.036	128	655	10.52	ug/kg	99
3) 2-Methyl naphthalene	11.894	142	432	10.18	ug/kg	98
4) 1-Methyl naphthalene	12.093	142	408	10.46	ug/kg	97
7) Acenaphthylene	13.348	152	825	10.29	ug/kg	99
8) Acenaphthene	13.511	153	545	10.40	ug/kg	97
9) Dibenzofuran	13.675	168	930	10.34	ug/kg	100
10) Fluorene	14.164	166	806	10.37	ug/kg	100
12) Phenanthrene	15.605	178	1584	9.82	ug/kg	99
13) Anthracene	15.644	178	1282	9.85	ug/kg	99
14) Fluoranthene	17.611	202	1353	9.99	ug/kg	97
16) Pyrene	18.228	202	1348	9.96	ug/kg	96
18) Benzo[a]anthracene	21.284	228	1093	9.90	ug/kg	98
19) Chrysene	21.544	228	1018	9.74	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	939	9.35	ug/kg	96
22) Benzo[k]fluoranthene	24.976	252	732	8.75	ug/kg	98
23) Benzo(j)fluoranthene	25.082	252	740	9.11	ug/kg	99
24) Benzo(e)pyrene	26.152	252	1027	10.27	ug/kg	85
25) Benzo[a]pyrene	26.335	252	921	9.80	ug/kg	93
26) Indeno[1,2,3-cd]pyrene	29.922	276	1115	9.56	ug/kg	94
27) Dibenz[a,h]anthracene	29.912	278	861	9.21	ug/kg	98
28) Benzo[g,h,i]perylene	31.021	276	1021	9.86	ug/kg	95

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080603.D
Acq On : 6 Aug 2016 2:17 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 08 08:00:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080604.D
Acq On : 6 Aug 2016 2:57 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 08 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	266813	4000.00	ug/kg	101
6) Acenaphthene-d10	13.462	164	173590	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	486221	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	442610	4000.00	ug/kg	96
20) Perylene-d12	26.663	264	397777	4000.00	ug/kg	95

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.391	172	3061	51.57	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.29%#			
15) 4-Terphenyl-d14	18.122	244	4291	50.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.26%#			

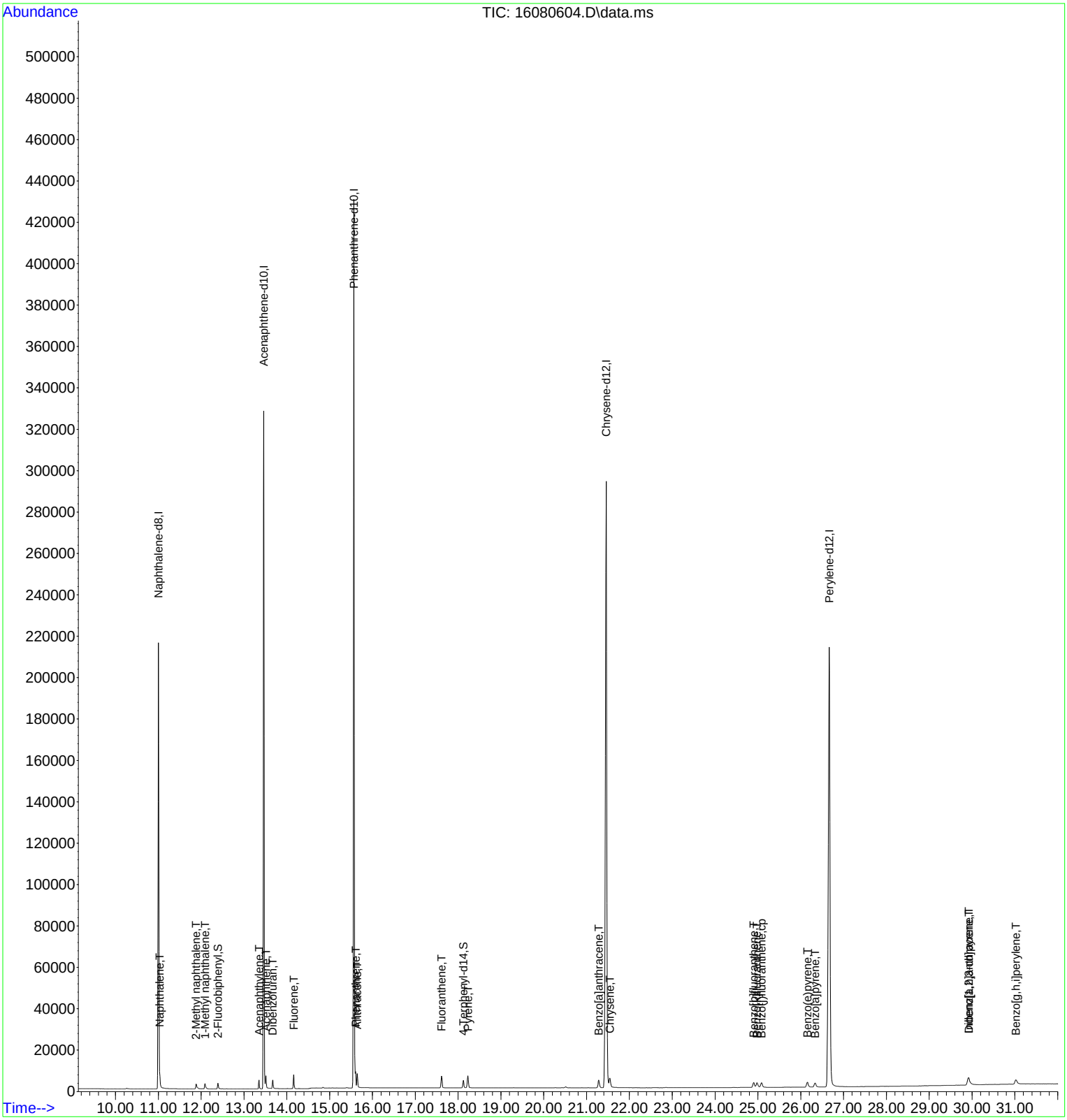
Target Compounds						Qvalue
2) Naphthalene	11.037	128	3197	50.23	ug/kg	100
3) 2-Methyl naphthalene	11.881	142	2222	51.22	ug/kg	99
4) 1-Methyl naphthalene	12.094	142	2011	50.42	ug/kg	98
7) Acenaphthylene	13.349	152	3956	49.26	ug/kg	99
8) Acenaphthene	13.512	153	2595	49.44	ug/kg	99
9) Dibenzofuran	13.675	168	4512	50.09	ug/kg	88
10) Fluorene	14.157	166	3791	48.67	ug/kg	98
12) Phenanthrene	15.605	178	6726	50.74	ug/kg	99
13) Anthracene	15.644	178	6211	48.94	ug/kg	99
14) Fluoranthene	17.611	202	6538	49.54	ug/kg	97
16) Pyrene	18.228	202	6597	50.00	ug/kg	98
18) Benzo[a]anthracene	21.284	228	5278	47.35	ug/kg	99
19) Chrysene	21.544	228	5108	48.41	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	4670	46.30	ug/kg	100
22) Benzo[k]fluoranthene	24.976	252	3804	45.28	ug/kg	99
23) Benzo(j)fluoranthene	25.082	252	3737	45.84	ug/kg	99
24) Benzo(e)pyrene	26.152	252	4861	48.44	ug/kg	98
25) Benzo[a]pyrene	26.335	252	4399	46.61	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.922	276	5529	47.23	ug/kg	100
27) Dibenz[a,h]anthracene	29.912	278	4354	46.38	ug/kg	98
28) Benzo[g,h,i]perylene	31.021	276	5097	49.04	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080604.D
Acq On : 6 Aug 2016 2:57 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 08 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080605.D
Acq On : 6 Aug 2016 3:37 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 08 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

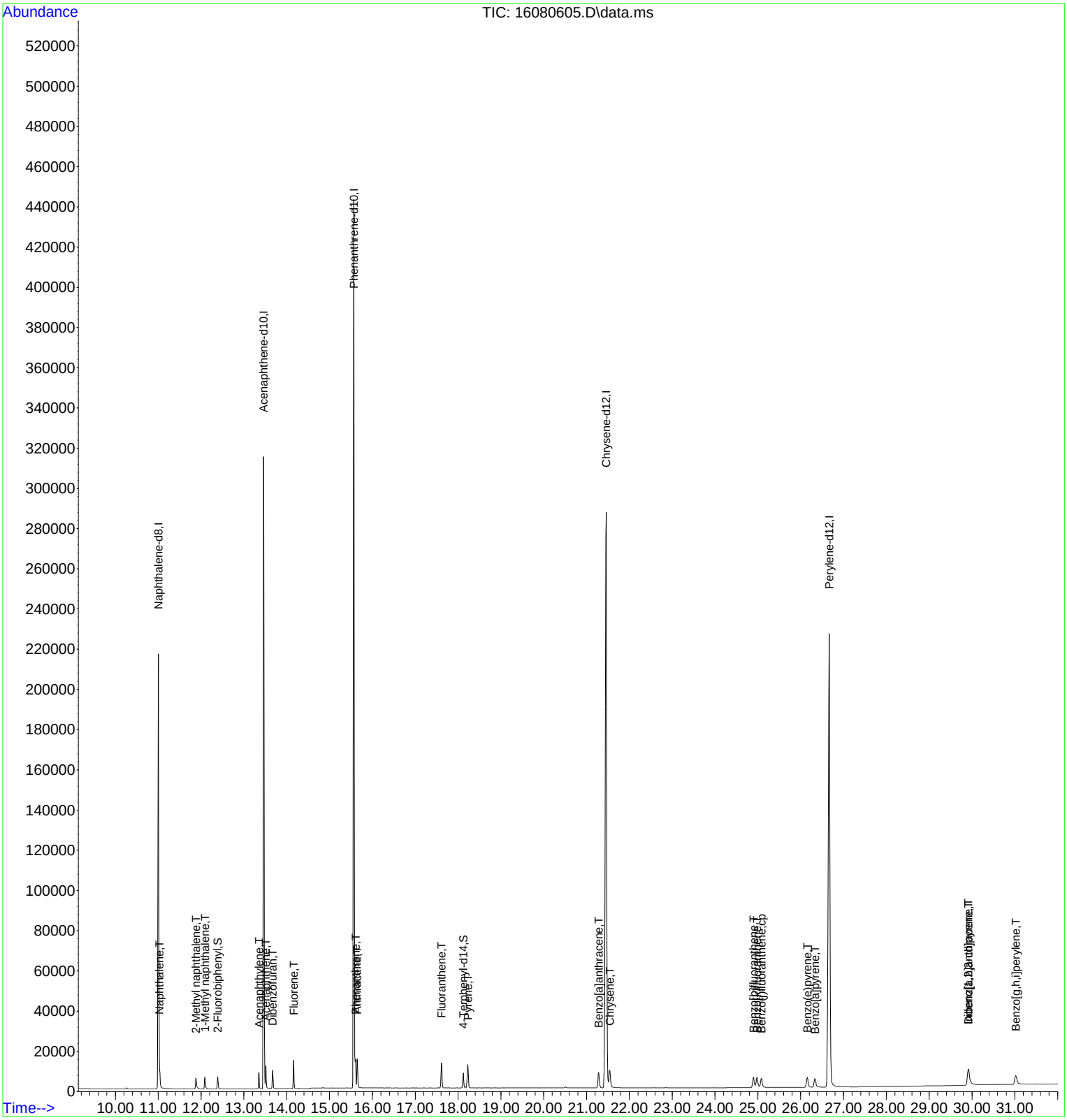
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.004	136	274991	4000.00	ug/kg	104
6) Acenaphthene-d10	13.458	164	178176	4000.00	ug/kg	110
11) Phenanthrene-d10	15.568	188	502679	4000.00	ug/kg	98
17) Chrysene-d12	21.458	240	453820	4000.00	ug/kg	98
20) Perylene-d12	26.664	264	411967	4000.00	ug/kg	98
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.387	172	5998	98.05	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.45%#			
15) 4-Terphenyl-d14	18.122	244	8527	96.49	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.41%#			
Target Compounds						Qvalue
2) Naphthalene	11.032	128	6346	96.74	ug/kg	99
3) 2-Methyl naphthalene	11.883	142	4384	98.05	ug/kg	97
4) 1-Methyl naphthalene	12.089	142	4046	98.43	ug/kg	100
7) Acenaphthylene	13.351	152	7933	96.24	ug/kg	99
8) Acenaphthene	13.507	153	5152	95.63	ug/kg	98
9) Dibenzofuran	13.671	168	9001	97.35	ug/kg	99
10) Fluorene	14.160	166	7530	94.18	ug/kg	99
12) Phenanthrene	15.606	178	13400	100.04	ug/kg	100
13) Anthracene	15.645	178	13186	100.49	ug/kg	99
14) Fluoranthene	17.611	202	13402	98.22	ug/kg	96
16) Pyrene	18.228	202	13367	97.99	ug/kg	97
18) Benzo[a]anthracene	21.285	228	11119	97.28	ug/kg	99
19) Chrysene	21.545	228	10594	97.93	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	10106	96.75	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	8356	96.03	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	7814	92.56	ug/kg	99
24) Benzo(e)pyrene	26.153	252	9595	92.31	ug/kg	97
25) Benzo[a]pyrene	26.336	252	9362	95.78	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.922	276	11756	96.95	ug/kg	97
27) Dibenz[a,h]anthracene	29.913	278	9284	95.49	ug/kg	100
28) Benzo[g,h,i]perylene	31.021	276	10489	97.45	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080605.D
Acq On : 6 Aug 2016 3:37 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 08 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080606.D
Acq On : 6 Aug 2016 4:16 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 08 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	278244	4000.00	ug/kg	105
6) Acenaphthene-d10	13.461	164	175636	4000.00	ug/kg	108
11) Phenanthrene-d10	15.568	188	507329	4000.00	ug/kg	99
17) Chrysene-d12	21.458	240	462988	4000.00	ug/kg	100
20) Perylene-d12	26.664	264	416937	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	29434	475.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 11.89%#			
15) 4-Terphenyl-d14	18.123	244	44894	503.34	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 12.58%#			

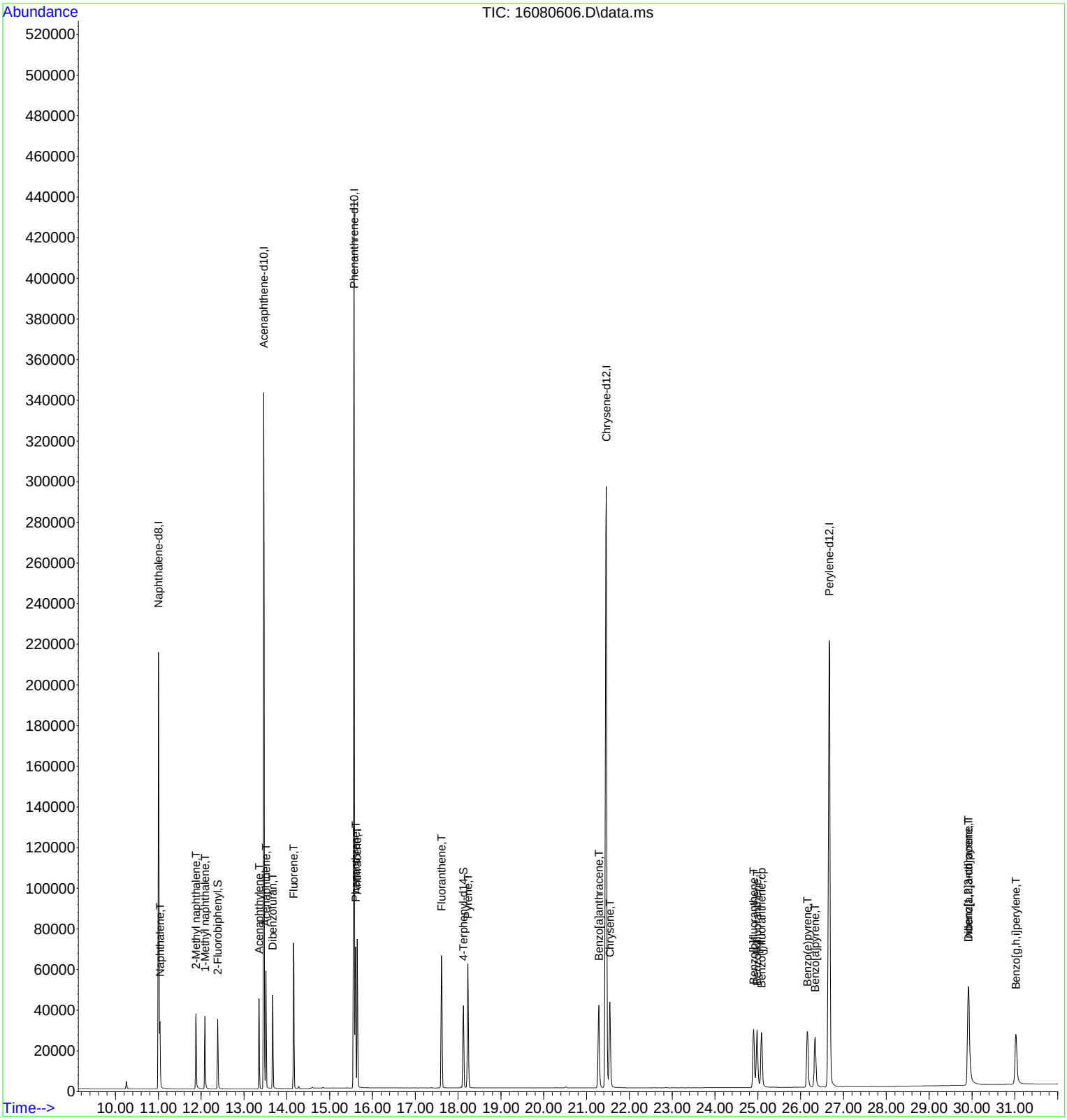
Target Compounds						Qvalue
2) Naphthalene	11.036	128	31957	481.49	ug/kg	100
3) 2-Methyl naphthalene	11.880	142	22525	497.88	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	20452	491.73	ug/kg	97
7) Acenaphthylene	13.348	152	39741	489.08	ug/kg	100
8) Acenaphthene	13.511	153	25750	484.90	ug/kg	98
9) Dibenzofuran	13.667	168	43530	477.58	ug/kg	91
10) Fluorene	14.156	166	37919	481.10	ug/kg	98
12) Phenanthrene	15.606	178	65953	499.45	ug/kg	99
13) Anthracene	15.645	178	65597	495.35	ug/kg	99
14) Fluoranthene	17.612	202	68462	497.17	ug/kg	97
16) Pyrene	18.229	202	69262	503.07	ug/kg	97
18) Benzo[a]anthracene	21.285	228	57325	491.61	ug/kg	99
19) Chrysene	21.545	228	54790	496.44	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	52298	494.72	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	46642	529.66	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	43864	513.38	ug/kg	99
24) Benzo(e)pyrene	26.153	252	51640	490.90	ug/kg	100
25) Benzo[a]pyrene	26.336	252	49258	497.93	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.923	276	61440	500.66	ug/kg	98
27) Dibenz[a,h]anthracene	29.913	278	49607	504.13	ug/kg	99
28) Benzo[g,h,i]perylene	31.031	276	53077	487.22	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080606.D
Acq On : 6 Aug 2016 4:16 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 08 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080607.D
Acq On : 6 Aug 2016 4:56 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 08 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

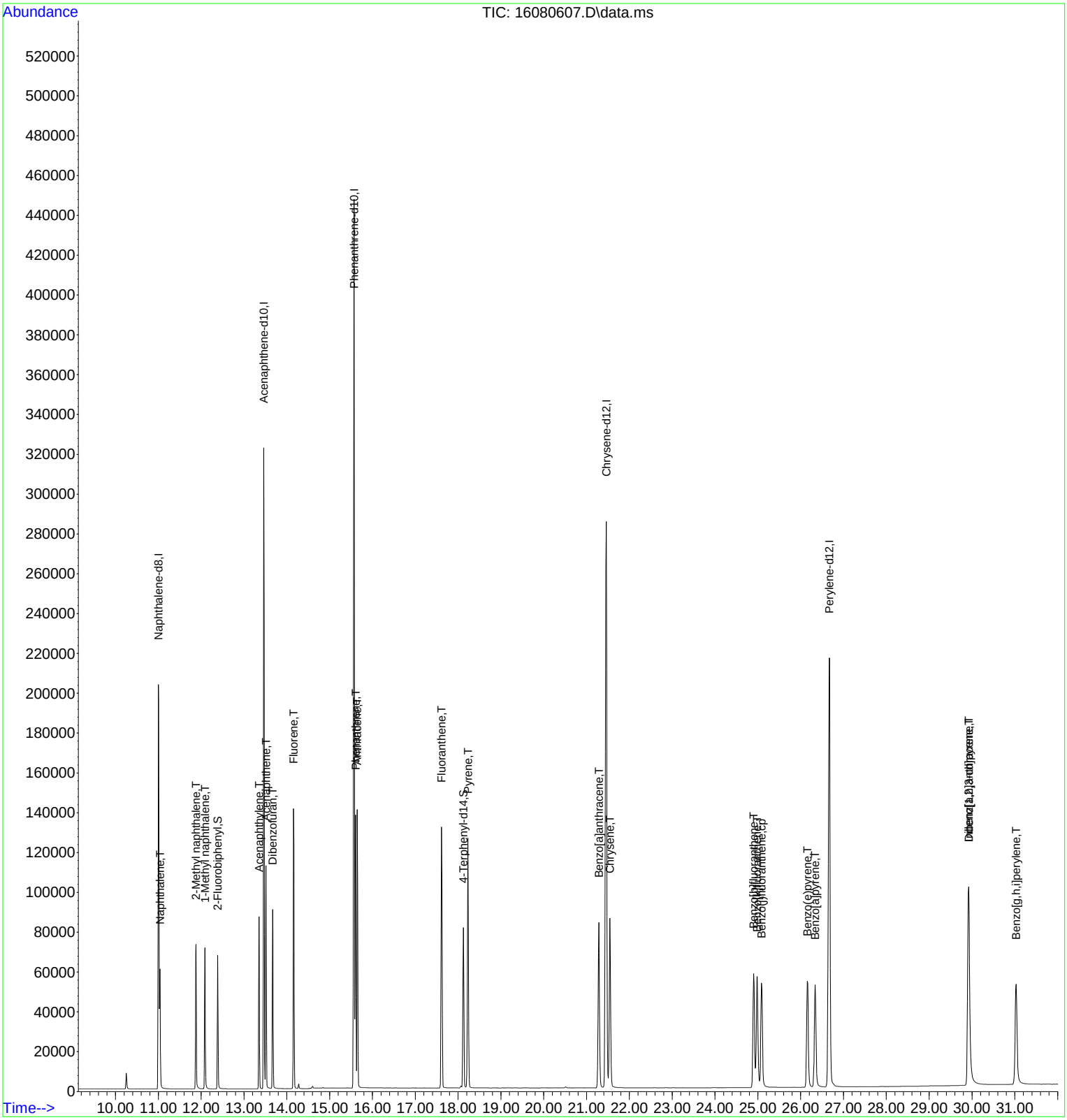
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	267822	4000.00	ug/kg	101
6) Acenaphthene-d10	13.461	164	166716	4000.00	ug/kg	103
11) Phenanthrene-d10	15.568	188	501021	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	446752	4000.00	ug/kg	97
20) Perylene-d12	26.674	264	404758	4000.00	ug/kg	96
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	55310	928.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.21%#			
15) 4-Terphenyl-d14	18.123	244	88400	1003.60	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 25.09%#			
Target Compounds						Qvalue
2) Naphthalene	11.035	128	61427	961.52	ug/kg	99
3) 2-Methyl naphthalene	11.879	142	42615	978.59	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	38878	971.12	ug/kg	97
7) Acenaphthylene	13.348	152	77127	999.95	ug/kg	100
8) Acenaphthene	13.511	153	49267	977.39	ug/kg	98
9) Dibenzofuran	13.674	168	84471	976.35	ug/kg	83
10) Fluorene	14.156	166	74335	993.59	ug/kg	98
12) Phenanthrene	15.606	178	129759	1003.58	ug/kg	100
13) Anthracene	15.645	178	131450	1005.12	ug/kg	100
14) Fluoranthene	17.612	202	137770	1013.07	ug/kg	97
16) Pyrene	18.229	202	137427	1010.75	ug/kg	99
18) Benzo[a]anthracene	21.285	228	113900	1012.29	ug/kg	100
19) Chrysene	21.545	228	108156	1015.59	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	107527	1047.78	ug/kg	99
22) Benzo[k]fluoranthene	24.987	252	92227	1078.84	ug/kg	98
23) Benzo(j)fluoranthene	25.083	252	91088	1098.15	ug/kg	99
24) Benzo(e)pyrene	26.163	252	101610	994.98	ug/kg	100
25) Benzo[a]pyrene	26.336	252	98457	1025.22	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.932	276	121009	1015.75	ug/kg	92
27) Dibenz[a,h]anthracene	29.913	278	98173	1027.69	ug/kg	98
28) Benzo[g,h,i]perylene	31.031	276	104054	983.90	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080607.D
Acq On : 6 Aug 2016 4:56 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 08 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080608.D
Acq On : 6 Aug 2016 5:36 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 08 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	264758	4000.00	ug/kg	100
6) Acenaphthene-d10	13.464	164	162191	4000.00	ug/kg	100
11) Phenanthrene-d10	15.568	188	514937	4000.00	ug/kg	100
17) Chrysene-d12	21.458	240	462813	4000.00	ug/kg	100
20) Perylene-d12	26.674	264	420332	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	103225	1752.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 43.81%			
15) 4-Terphenyl-d14	18.123	244	178181	1968.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.20%#			

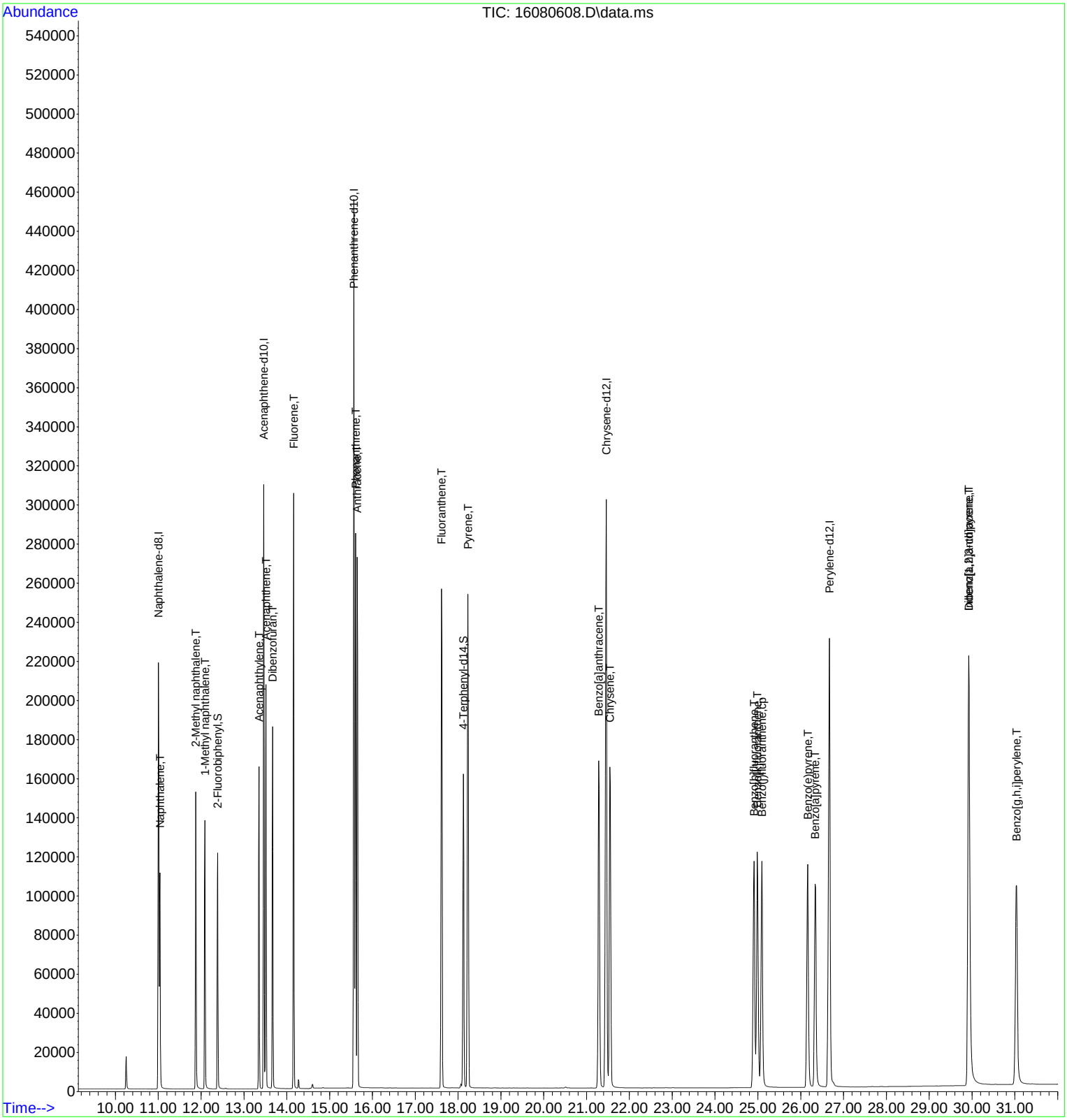
Target Compounds						Qvalue
2) Naphthalene	11.038	128	118524	1876.73	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	81602	1895.55	ug/kg	100
4) 1-Methyl naphthalene	12.088	142	73437	1855.59	ug/kg	100
7) Acenaphthylene	13.350	152	146166	1947.92	ug/kg	100
8) Acenaphthene	13.513	153	92949	1895.42	ug/kg	100
9) Dibenzofuran	13.669	168	161555	1919.41	ug/kg	100
10) Fluorene	14.159	166	147030	2020.08	ug/kg	100
12) Phenanthrene	15.607	178	261552	1994.90	ug/kg	100
13) Anthracene	15.645	178	265308	1973.84	ug/kg	100
14) Fluoranthene	17.612	202	276623	1979.14	ug/kg	100
16) Pyrene	18.229	202	276518	1978.77	ug/kg	100
18) Benzo[a]anthracene	21.285	228	232801	1997.23	ug/kg	100
19) Chrysene	21.545	228	217842	1974.57	ug/kg	100
21) Benzo[b]fluoranthene	24.910	252	217452	2040.42	ug/kg	100
22) Benzo[k]fluoranthene	24.987	252	195921	2206.89	ug/kg	100
23) Benzo(j)fluoranthene	25.093	252	185794	2156.93	ug/kg	100
24) Benzo(e)pyrene	26.163	252	208877	1969.57	ug/kg	100
25) Benzo[a]pyrene	26.346	252	202589	2031.37	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.932	276	250927	2028.25	ug/kg	100
27) Dibenz[a,h]anthracene	29.923	278	205669	2073.21	ug/kg	100
28) Benzo[g,h,i]perylene	31.041	276	213396	1943.04	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080608.D
Acq On : 6 Aug 2016 5:36 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 08 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080609.D
Acq On : 6 Aug 2016 6:15 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 08 08:00:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

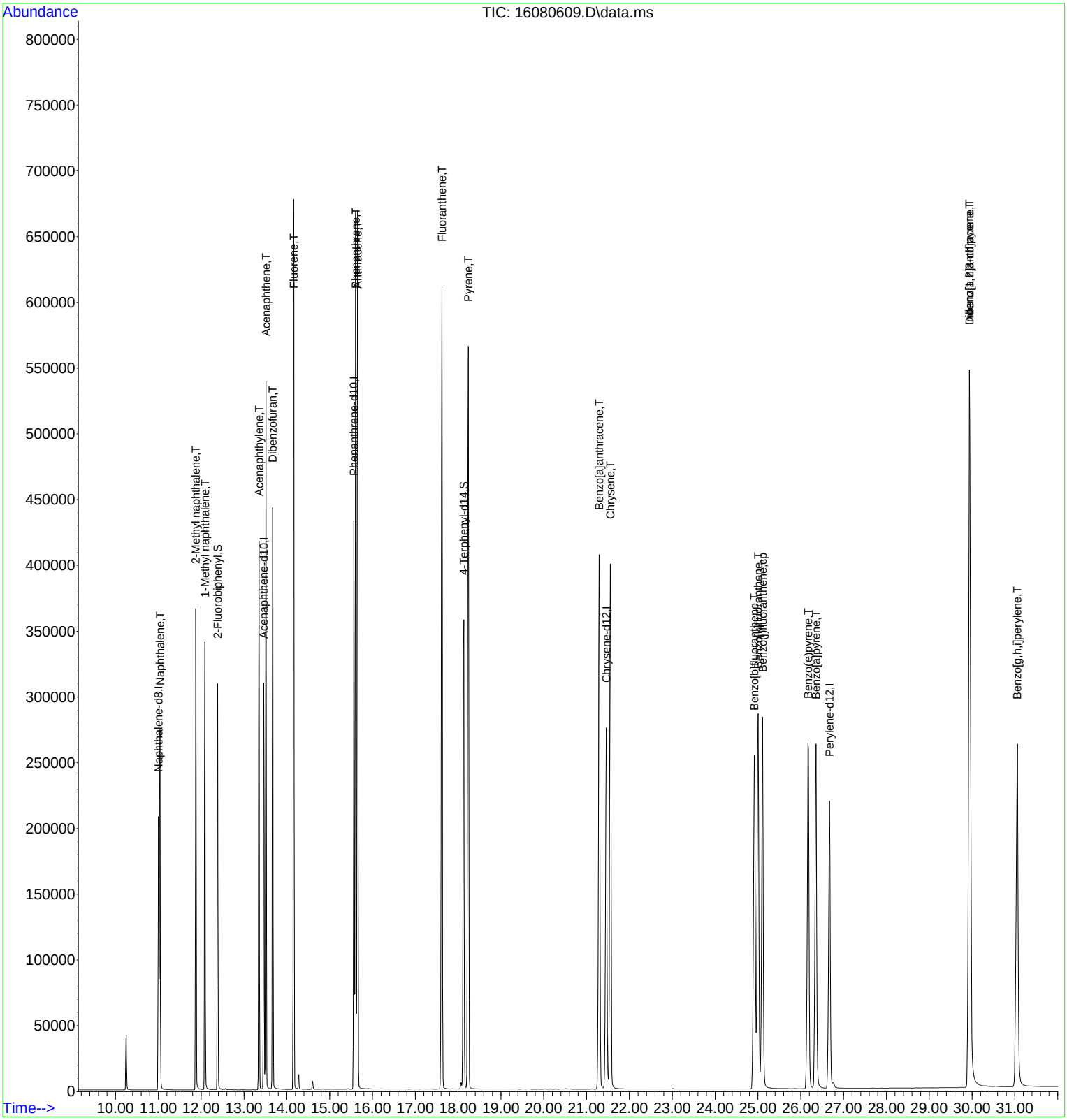
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	252241	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	159272	4000.00	ug/kg	98
11) Phenanthrene-d10	15.567	188	499657	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	432494	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	396956	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	246192	4387.33	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 109.68%			
15) 4-Terphenyl-d14	18.132	244	410002	4667.42	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 116.69%			
Target Compounds						Qvalue
2) Naphthalene	11.037	128	286734	4765.49	ug/kg	99
3) 2-Methyl naphthalene	11.874	142	197473	4814.77	ug/kg	99
4) 1-Methyl naphthalene	12.087	142	177995	4720.73	ug/kg	99
7) Acenaphthylene	13.349	152	370090	5022.48	ug/kg	99
8) Acenaphthene	13.512	153	237031	4922.13	ug/kg	99
9) Dibenzofuran	13.668	168	400435	4844.69	ug/kg	90
10) Fluorene	14.158	166	361931	5063.80	ug/kg	99
12) Phenanthrene	15.606	178	611969	5001.47	ug/kg	98
13) Anthracene	15.654	178	630528	4834.45	ug/kg	99
14) Fluoranthene	17.621	202	645421	4758.97	ug/kg	97
16) Pyrene	18.238	202	639631	4717.20	ug/kg	100
18) Benzo[a]anthracene	21.294	228	554663	5092.10	ug/kg	99
19) Chrysene	21.554	228	514776	4993.15	ug/kg	99
21) Benzo[b]fluoranthene	24.919	252	529342	5259.47	ug/kg	98
22) Benzo[k]fluoranthene	25.006	252	454699	5423.43	ug/kg	99
23) Benzo(j)fluoranthene	25.112	252	433556	5329.67	ug/kg	99
24) Benzo(e)pyrene	26.182	252	510171	5093.87	ug/kg	99
25) Benzo[a]pyrene	26.355	252	495676	5262.85	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.951	276	613990	5255.15	ug/kg	97
27) Dibenz[a,h]anthracene	29.941	278	506923	5410.87	ug/kg	98
28) Benzo[g,h,i]perylene	31.060	276	523877	5050.98	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080609.D
Acq On : 6 Aug 2016 6:15 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 08 08:00:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080610.D
Acq On : 6 Aug 2016 6:55 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 08:00:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

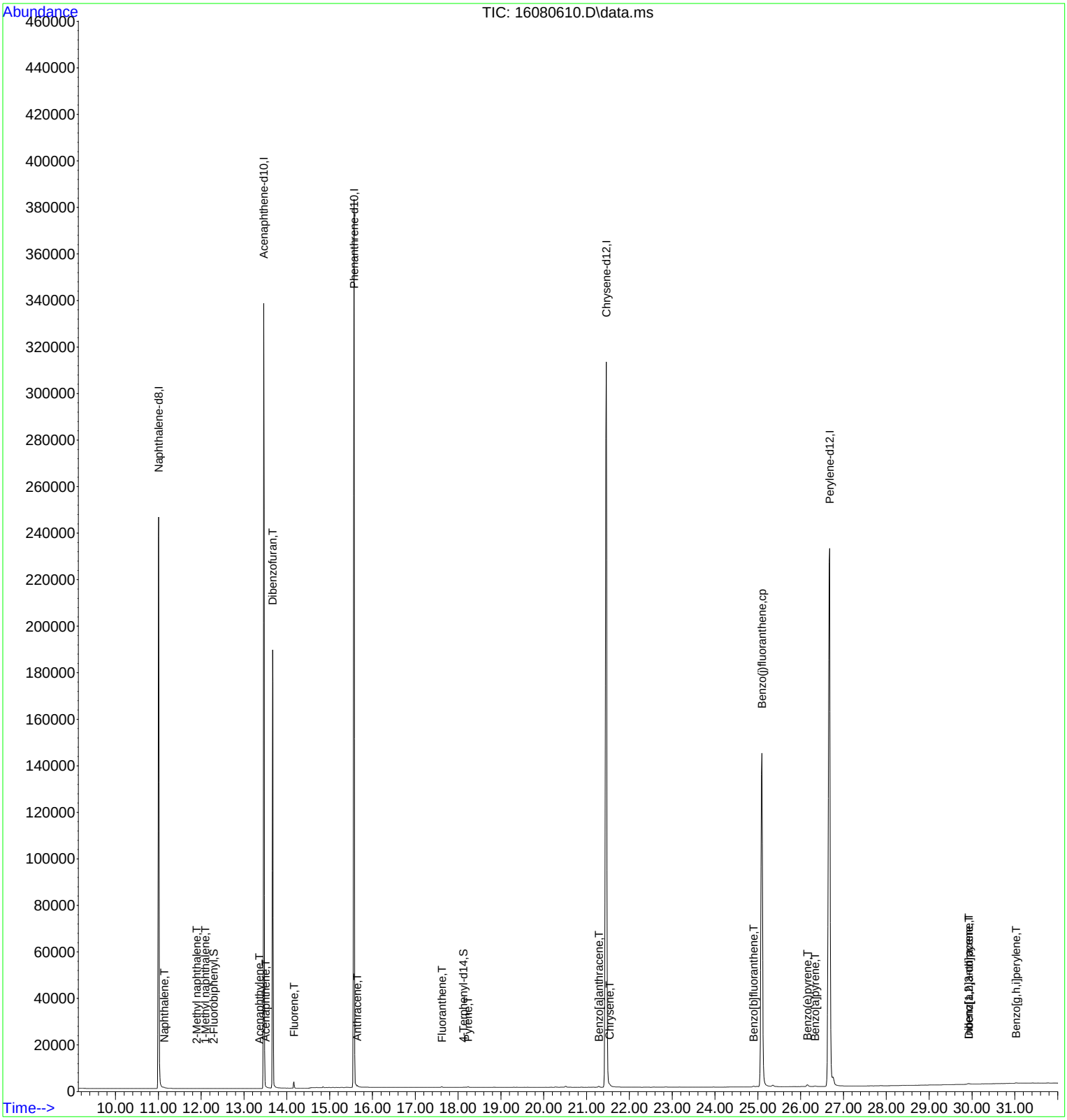
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.008	136	322112	4000.00	ug/kg	122
6) Acenaphthene-d10	13.462	164	171075	4000.00	ug/kg	105
11) Phenanthrene-d10	15.568	188	430799	4000.00	ug/kg	84
17) Chrysene-d12	21.459	240	477806	4000.00	ug/kg	103
20) Perylene-d12	26.674	264	444268	4000.00	ug/kg	106
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.291	172	18	0.25	ug/kg	-0.09
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
15) 4-Terphenyl-d14	18.123	244	60	0.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	11.143	128	2	0.03	ug/kg	70
3) 2-Methyl naphthalene	11.901	142	30	0.57	ug/kg	79
4) 1-Methyl naphthalene	12.093	142	5	0.10	ug/kg#	41
7) Acenaphthylene	13.348	152	27	0.34	ug/kg	90
8) Acenaphthene	13.511	153	26	0.50	ug/kg	95
9) Dibenzofuran	13.674	168	180734	2035.76	ug/kg	84
10) Fluorene	14.164	166	1574	20.50	ug/kg	98
12) Phenanthrene	15.607	178	232	No Quad Fit		
13) Anthracene	15.646	178	488	4.34	ug/kg	99
14) Fluoranthene	17.622	202	330	2.82	ug/kg	92
16) Pyrene	18.229	202	355	3.04	ug/kg	96
18) Benzo[a]anthracene	21.285	228	636	5.29	ug/kg	99
19) Chrysene	21.546	228	566	4.97	ug/kg	99
21) Benzo[b]fluoranthene	24.901	252	721	6.40	ug/kg	96
22) Benzo[k]fluoranthene	0.000	252	0	N.D.		
23) Benzo(j)fluoranthene	25.093	252	254655	2797.08	ug/kg	100
24) Benzo(e)pyrene	26.154	252	1582	14.11	ug/kg	83
25) Benzo[a]pyrene	26.337	252	536	5.08	ug/kg	89
26) Indeno[1,2,3-cd]pyrene	29.923	276	580	4.44	ug/kg	97
27) Dibenz[a,h]anthracene	29.914	278	357	3.40	ug/kg	91
28) Benzo[g,h,i]perylene	31.032	276	440	3.79	ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080610.D
Acq On : 6 Aug 2016 6:55 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 08:00:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080611.D
Acq On : 6 Aug 2016 7:35 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 08 08:00:27 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

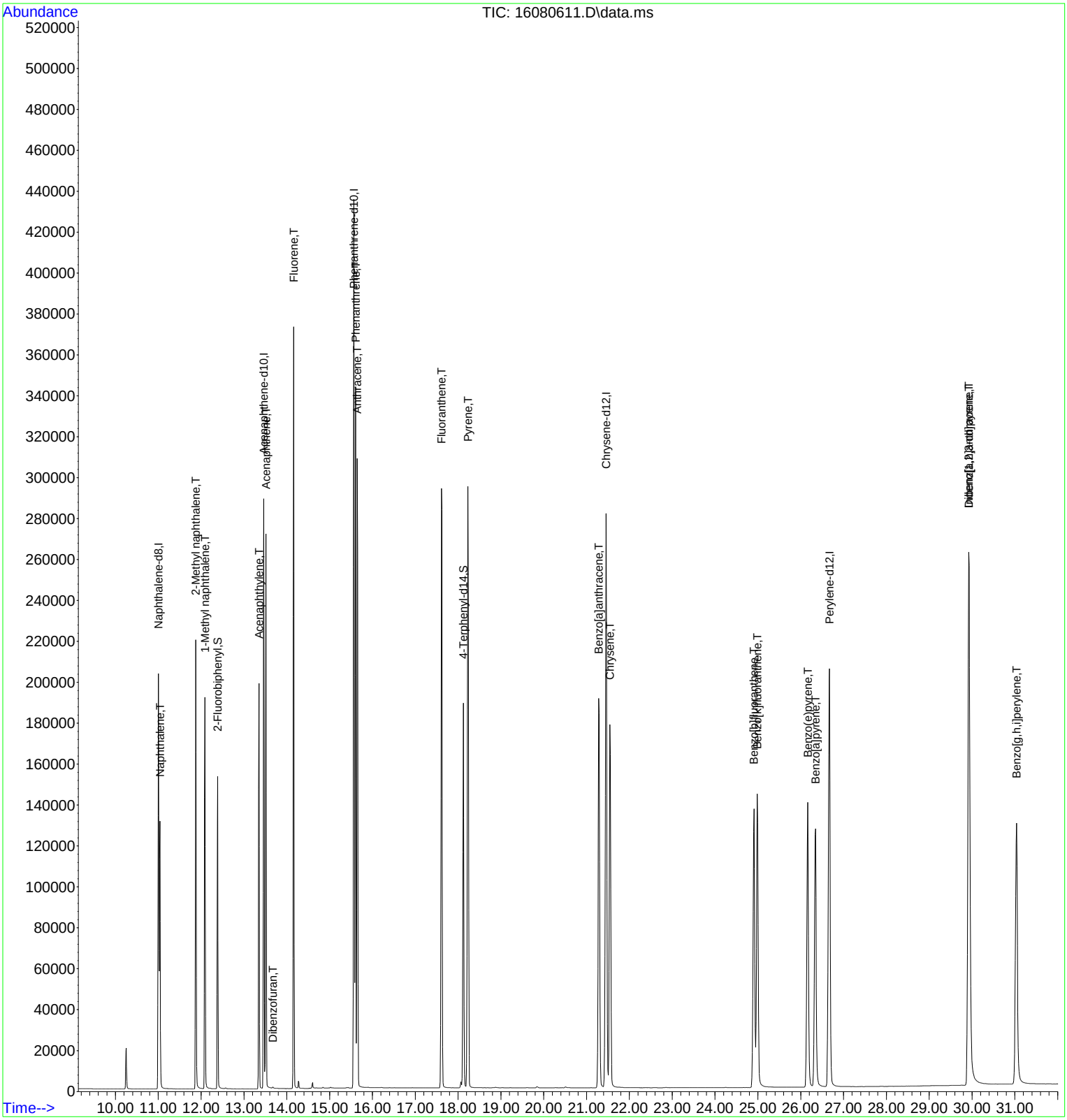
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	245742	4000.00	ug/kg	93
6) Acenaphthene-d10	13.464	164	154116	4000.00	ug/kg	95
11) Phenanthrene-d10	15.567	188	484926	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	430894	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	395276	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	125883	2302.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.57%			
15) 4-Terphenyl-d14	18.122	244	202550	2375.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 59.40%			
Target Compounds						Qvalue
2) Naphthalene	11.038	128	141492	2413.77	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	115953	2901.92	ug/kg	100
4) 1-Methyl naphthalene	12.088	142	101878	2773.44	ug/kg	99
7) Acenaphthylene	13.350	152	177800	2493.65	ug/kg	100
8) Acenaphthene	13.513	153	120206	2579.68	ug/kg	100
9) Dibenzofuran	13.676	168	536	6.70	ug/kg	92
10) Fluorene	14.159	166	183741	2656.74	ug/kg	99
12) Phenanthrene	15.606	178	312738	2551.30	ug/kg	100
13) Anthracene	15.644	178	302294	2388.19	ug/kg	100
14) Fluoranthene	17.611	202	330048	2507.52	ug/kg	99
16) Pyrene	18.228	202	328202	2493.97	ug/kg	98
18) Benzo[a]anthracene	21.284	228	267528	2465.17	ug/kg	100
19) Chrysene	21.544	228	233562	2273.88	ug/kg	100
21) Benzo[b]fluoranthene	24.909	252	256365	2558.03	ug/kg	100
22) Benzo[k]fluoranthene	24.986	252	240456	2880.23	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	26.162	252	253169	2538.54	ug/kg	100
25) Benzo[a]pyrene	26.345	252	244635	2608.46	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.931	276	301276	2589.59	ug/kg	97
27) Dibenz[a,h]anthracene	29.922	278	247697	2655.14	ug/kg	98
28) Benzo[g,h,i]perylene	31.040	276	256010	2478.82	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080611.D
Acq On : 6 Aug 2016 7:35 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 08 08:00:27 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



ICP-MS3
For

DHL Work Order
1607256

ICP-MS3_160805A
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160805A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

ISTDs fail low at the end of the run - not reporting the data. Corrective action - rerun the last bracket of samples.

Analyst: Karyn Lane Date of Completion: 08/08/2016

Second-Level Review: Janice Whitt Date Stamp: 8/9/2016

REVIEWED BY
By Janice Whitt at 3:58:56 PM, 8/9/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160805A** **Run No.:** 87466

Analytical Run Date: 8/5/2016 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 11:46:00 AM		
L2-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 11:52:00 AM		
L-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 11:58:00 AM		
10X-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:04:00 PM		
5X-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:10:00 PM		
2X-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:16:00 PM		
H-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:22:00 PM		
H2-160805	1	ICPMS_TWDOD	CAL	R87466	8/5/2016 12:27:00 PM		
ICSA-160805	1	ICPMS_TWDOD	ICSA	R87466	8/5/2016 12:45:00 PM		
ICSAB-160805	1	ICPMS_TWDOD	ICSB	R87466	8/5/2016 12:51:00 PM		
ICV1-160805	1	ICPMS_TWDOD	ICV	R87466	8/5/2016 1:09:00 PM		
ICB1-160805	1	ICPMS_TWDOD	ICB	R87466	8/5/2016 1:15:00 PM		
ILCVL-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 1:21:00 PM		
MB-76602	5	ICPMS_TSDOD1	MBLK	76602	8/5/2016 1:27:00 PM		
LCS-76602	5	ICPMS_TSDOD1	LCS	76602	8/5/2016 1:33:00 PM		
LCSD-76602	5	ICPMS_TSDOD1	LCSD	76602	8/5/2016 1:39:00 PM		
1607239-01A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 1:50:00 PM		
1607239-01A SD	25	ICPMS_TSDOD1	SD	76602	8/5/2016 1:56:00 PM		
1607219-22A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:02:00 PM		
1607219-23A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:08:00 PM		
1607219-24A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:14:00 PM		
1607219-25A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:20:00 PM		
1607239-02A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:26:00 PM		
1607239-03A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:31:00 PM		
1607239-04A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:37:00 PM		
1607239-05A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:43:00 PM		
1607239-06A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 2:49:00 PM		
1607239-01A PDS	5	ICPMS_TSDOD1	PDS	76602	8/5/2016 2:55:00 PM		
1607239-01A MS	5	ICPMS_TSDOD1	MS	76602	8/5/2016 3:01:00 PM		
1607239-01A MSD	5	ICPMS_TSDOD1	MSD	76602	8/5/2016 3:06:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160805A **Run No.:** 87466

CCV1-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 3:12:00 PM		
LCVL1-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 3:24:00 PM		
CCB1-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 3:31:00 PM		
1607239-07A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:37:00 PM		
1607239-08A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:42:00 PM		
1607239-09A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:48:00 PM		
1607239-10A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 3:54:00 PM		
1607239-11A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:00:00 PM		
1607239-12A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:12:00 PM		
1607239-13A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:18:00 PM		
1607239-14A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:24:00 PM		
1607239-15A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:30:00 PM		
1607239-17A	5	ICPMS_TSDOD1	SAMP	76602	8/5/2016 4:36:00 PM		
CCV2-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 4:48:00 PM		
CCB2-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 4:54:00 PM		
LCVL2-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 5:00:00 PM		
MB-76623	5	ICPMS_TSDOD1	MBLK	76623	8/5/2016 5:06:00 PM		
LCS-76623	5	ICPMS_TSDOD1	LCS	76623	8/5/2016 5:12:00 PM		
LCSD-76623	5	ICPMS_TSDOD1	LCSD	76623	8/5/2016 5:18:00 PM		
1607239-21A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:30:00 PM		
1607239-21A SD	25	ICPMS_TSDOD1	SD	76623	8/5/2016 5:36:00 PM		
1607239-18A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:42:00 PM		
1607239-19A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:48:00 PM		
1607239-20A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 5:54:00 PM		
1607239-22A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:00:00 PM		
1607239-23A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:12:00 PM		
1607239-24A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:18:00 PM		
1607239-25A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:24:00 PM		
1607239-26A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:30:00 PM		
1607239-27A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 6:36:00 PM		
1607239-21A PDS	5	ICPMS_TSDOD1	PDS	76623	8/5/2016 6:42:00 PM		
1607239-21A MS	5	ICPMS_TSDOD1	MS	76623	8/5/2016 6:47:00 PM		
1607239-21A MSD	5	ICPMS_TSDOD1	MSD	76623	8/5/2016 6:53:00 PM		
CCV3-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 7:05:00 PM		
LCVL3-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 7:17:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160805A **Run No.:** 87466

CCB3-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 7:24:00 PM		
1607239-28A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:30:00 PM		
1607239-29A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:36:00 PM		
1607239-30A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:42:00 PM		
1607239-31A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:48:00 PM		
1607256-01A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 7:54:00 PM		
1607256-02A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:06:00 PM		
1607256-03A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:12:00 PM		
1607256-04A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:18:00 PM		
1607256-05A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:24:00 PM		
1607256-06A	5	ICPMS_TSDOD1	SAMP	76623	8/5/2016 8:29:00 PM		
CCV4-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 8:42:00 PM		
LCVL4-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 8:54:00 PM		
CCB4-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 9:00:00 PM		
MB-76649	5	ICPMS_TSDOD1	MBLK	76649	8/5/2016 9:06:00 PM		
LCS-76649	5	ICPMS_TSDOD1	LCS	76649	8/5/2016 9:12:00 PM		
LCSD-76649	5	ICPMS_TSDOD1	LCSD	76649	8/5/2016 9:18:00 PM		
1607256-07A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:30:00 PM		
1607256-07A SD	25	ICPMS_TSDOD1	SD	76649	8/5/2016 9:36:00 PM		
1607256-08A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:42:00 PM		
1607256-09A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:48:00 PM		
1607256-10A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 9:54:00 PM		
1607256-11A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:00:00 PM		
1607256-12A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:12:00 PM		
1607256-14A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:18:00 PM		
1607256-15A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:24:00 PM		
1607256-16A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:30:00 PM		
1607256-17A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 10:36:00 PM		
1607256-07A PDS	5	ICPMS_TSDOD1	PDS	76649	8/5/2016 10:42:00 PM		
1607256-07A MS	5	ICPMS_TSDOD1	MS	76649	8/5/2016 10:48:00 PM		
1607256-07A MSD	5	ICPMS_TSDOD1	MSD	76649	8/5/2016 10:54:00 PM		
CCV5-160805	1	ICPMS_TWDOD	CCV	R87466	8/5/2016 11:06:00 PM		
LCVL5-160805	1	ICPMS_TWDOD	LCVL	R87466	8/5/2016 11:18:00 PM		
CCB5-160805	1	ICPMS_TWDOD	CCB	R87466	8/5/2016 11:24:00 PM		
1607256-18A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:31:00 PM		DNR remainder of run. Low ISTDS. See rerun.

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160805A **Run No.:** 87466

1607256-19A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:37:00 PM		
1607256-20A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:43:00 PM		
1607256-21A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:49:00 PM		
1607256-22A	5	ICPMS_TSDOD1	SAMP	76649	8/5/2016 11:55:00 PM		
1607256-23A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:07:00 AM		
1607256-24A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:13:00 AM		
1607256-25A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:19:00 AM		
1607256-29A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:25:00 AM		
1607256-30A	5	ICPMS_TSDOD1	SAMP	76649	8/6/2016 12:31:00 AM		
CCV6-160805	1	ICPMS_TWDOD	CCV	R87466	8/6/2016 12:43:00 AM		
LCVL6-160805	1	ICPMS_TWDOD	LCVL	R87466	8/6/2016 1:19:00 AM		
CCB6-160805	1	ICPMS_TWDOD	CCB	R87466	8/6/2016 1:25:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160805	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160805	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160805	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160805	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160805	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160805	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160805	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160805	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160805	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160805	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160805	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160805	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76602	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76602	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76602	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607239-01A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607239-01A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607219-22A	SAMPICPMS_TSDOD1	5.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607219-23A	SAMPICPMS_TSDOD1	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607219-24A	SAMPICPMS_TSDOD1	5.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607219-25A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607239-02A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607239-03A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607239-04A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607239-05A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607239-06A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607239-01A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607239-01A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607239-01A MSD	MSD ICPMS_TSOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160805	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160805	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160805	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160805	CCB ICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607239-07A	SAMPICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607239-08A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607239-09A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1607239-10A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1607239-11A	SAMPICPMS_TSDOD1	5.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1607239-12A	SAMPICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1607239-13A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1607239-14A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1607239-15A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2410		1607239-17A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160805	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160805	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160805	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76623	MBLKICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76623	LCS ICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76623	LCSDICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607239-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607239-21A SD	SD ICPMS_TSDOD1	25.00				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607239-18A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607239-19A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607239-20A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607239-22A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607239-23A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607239-24A	SAMPICPMS_TSDOD1	5.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607239-25A	SAMPICPMS_TSDOD1	5.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607239-26A	SAMPICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607239-27A	SAMPICPMS_TSDOD1	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607239-21A PDS	PDS ICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607239-21A MS	MS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607239-21A MSD	MSD ICPMS_TSOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160805	CCV ICPMS_TW	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160805	CCB ICPMS_TW	1.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160805	LCVLICPMS_TW	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160805	CCB ICPMS_TW	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607239-28A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607239-29A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607239-30A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3304		1607239-31A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1607256-01A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1607256-02A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3307		1607256-03A	SAMPICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1607256-04A	SAMPICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1607256-05A	SAMPICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1607256-06A	SAMPICPMS_TSDOD1	5.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160805	CCV ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160805	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160805	LCVLICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160805	CCB ICPMS_TW	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-76649	MBLKICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-76649	LCS ICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-76649	LCSDICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607256-07A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607256-07A SD	SD ICPMS_TSDOD1	25.00				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1607256-08A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1607256-09A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1607256-10A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1607256-11A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1607256-12A	SAMPICPMS_TSDOD1	5.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1607256-14A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1607256-15A	SAMPICPMS_TSDOD1	5.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1607256-16A	SAMPICPMS_TSDOD1	5.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1607256-17A	SAMPICPMS_TSDOD1	5.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607256-07A PDS	PDS ICPMS_TSDOD1	5.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1607256-07A MS	MS_ICPMS_TSDOD1	5.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1607256-07A MSD	MSD ICPMS_TSOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160805	CCV ICPMS_TW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160805	CCB ICPMS_TW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160805	LCVLICPMS_TW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160805	CCB ICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4101		1607256-18A	SAMPICPMS_TSDOD1	5.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4102		1607256-19A	SAMPICPMS_TSDOD1	5.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4103		1607256-20A	SAMPICPMS_TSDOD1	5.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4104		1607256-21A	SAMPICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4105		1607256-22A	SAMPICPMS_TSDOD1	5.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4106		1607256-23A	SAMPICPMS_TSDOD1	5.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4107		1607256-24A	SAMPICPMS_TSDOD1	5.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4108		1607256-25A	SAMPICPMS_TSDOD1	5.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4109		1607256-29A	SAMPICPMS_TSDOD1	5.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4110		1607256-30A	SAMPICPMS_TSDOD1	5.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160805	CCV ICPMS_TW	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160805	CCB ICPMS_TW	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160805	LCVLICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160805	CCB ICPMS_TW	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
153		Keyword		StandBy							
154		Keyword		SMPLEND	End of SMPL						
155		Keyword		End	End of Sequence						
156		Keyword		CCVBEG	Start of CCV						
157		Keyword		CCVEND	End of CCV						
158		Keyword		BLKBEG	Start of BLANK						
159		Keyword		BLKEND	End of BLANK						
160		Keyword		ERRBEG	Start of ERRTERM						
161		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 7:22:34 AM**
Digestion: **Start: 8/4/2016 7:26:00 AM / Stop: 8/4/2016 12:31:00 PM**
Prep End Date: **8/4/2016 1:57:22 PM**

Prep Batch **76623** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-18A	Soil		1.15	50	43.478	1 of 1	
1607239-19A	Soil		1.09	50	45.872	1 of 1	
1607239-20A	Soil		1.05	50	47.619	1 of 1	
1607239-21A	Soil		1.08	50	46.296	of 3	
1607239-21A MS	Soil		1.05	50	47.619	of	
1607239-21A MSD	Soil		1.06	50	47.170	of	
1607239-21A PDS	Soil		1.08	50	46.296	of	
1607239-21A SD	Soil		1.08	50	46.296	of	
1607239-22A	Soil		1.02	50	49.020	1 of 1	
1607239-23A	Soil		1.18	50	42.373	1 of 1	
1607239-24A	Soil		1.17	50	42.735	1 of 1	
1607239-25A	Soil		1.09	50	45.872	1 of 1	
1607239-26A	Soil		1.03	50	48.544	1 of 1	
1607239-27A	Soil		1.01	50	49.505	1 of 1	
1607239-28A	Soil		1.12	50	44.643	1 of 1	
1607239-29A	Soil		1.05	50	47.619	1 of 1	
1607239-30A	Soil		1.07	50	46.729	1 of 1	
1607239-31A	Soil		1.06	50	47.170	1 of 1	
1607256-01A	Soil		1.01	50	49.505	1 of 1	
1607256-02A	Soil		1.02	50	49.020	1 of 1	
1607256-03A	Soil		1.06	50	47.170	1 of 1	
1607256-04A	Soil		1.08	50	46.296	1 of 1	
1607256-05A	Soil		1.02	50	49.020	1 of 1	
1607256-06A	Soil		1.07	50	46.729	1 of 1	
LCS-76623	Soil		1	50	50.000	of	
LCSD-76623	Soil		1	50	50.000	of	
MB-76623	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

REVIEWED BY
By Janice Whitt at 3:29:48 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 7:22:34 AM**
Digestion:
Prep End Date:

Prep Batch **76623** Prep Code: **3050_IDOD** Technician: **Sydney Powers** Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-18A	Soil		1.15	50	50.000	1 of 1	
1607239-19A	Soil		1.09	50	50.000	1 of 1	
1607239-20A	Soil		1.05	50	50.000	1 of 1	
1607239-21A	Soil		1.08	50	50.000	1 of 3	
1607239-21AMS	Soil		1.05	50	50.000	1 of 3	
1607239-21AMSD	Soil		1.06	50	50.000	1 of 3	
1607239-22A	Soil		1.02	50	50.000	1 of 1	
1607239-23A	Soil		1.18	50	50.000	1 of 1	
1607239-24A	Soil		1.17	50	50.000	1 of 1	
1607239-25A	Soil		1.09	50	50.000	1 of 1	
1607239-26A	Soil		1.03	50	50.000	1 of 1	
1607239-27A	Soil		1.01	50	50.000	1 of 1	
1607239-28A	Soil		1.12	50	50.000	1 of 1	
1607239-29A	Soil		1.05	50	50.000	1 of 1	
1607239-30A	Soil		1.07	50	50.000	1 of 1	
1607239-31A	Soil		1.06	50	50.000	1 of 1	
1607256-01A	Soil		1.01	50	50.000	1 of 1	
1607256-02A	Soil		1.02	50	50.000	1 of 1	
1607256-03A	Soil		1.06	50	50.000	1 of 1	
1607256-04A	Soil		1.08	50	50.000	1 of 1	
1607256-05A	Soil		1.02	50	50.000	1 of 1	
1607256-06A	Soil		1.07	50	50.000	1 of 1	
LCS-76623	Soil		1	50	50.000	of	
LCSD-76623	Soil		1	50	50.000	of	
MB-76623	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

7:26 - 7:36
7:42 - 9:42
10:04 - 12:04
12:16 - 12:31

8/14/16

REVIEWED BY
By Janice Whitt at 3:29:45 PM, 8/9/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/04/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0690	5.0792	101.58	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0436	5.0537	101.07		
3		5.0046	5.0146	100.29		
AVERAGE (MEAN)		5.039	5.049	100.98		0.644
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2000	0.2004	100.20	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2015	0.2019	100.95		
3		0.2014	0.2018	100.90		
AVERAGE (MEAN)		0.201	0.201	100.68		0.417
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

8/4/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 3:28:43 PM, 8/9/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-01A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-06A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-13A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:29:58 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-14A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-18A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-19A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-21A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607239-22A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-23A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607239-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607239-27A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:30:05 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-28A SS	Soil		0	0	#Num!	1 of 1	
1607239-29A SS	Soil		0	0	#Num!	1 of 1	
1607239-30A SS	Soil		0	0	#Num!	1 of 1	
1607239-31A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 3:30:08 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-07A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607256-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:30:17 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:30:20 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 3:30:23 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 3:53:26 PM**
Digestion: **Start: 8/4/2016 7:26:00 AM / Stop: 8/4/2016 12:31:00 PM**
Prep End Date: **8/4/2016 2:00:37 PM**

Prep Batch **76649** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-07A	Soil		1.11	50	45.045	of 3	
1607256-07A MS	Soil		1.06	50	47.170	of	
1607256-07A MSD	Soil		1.06	50	47.170	of	
1607256-07A PDS	Soil		1.11	50	45.045	of	
1607256-07A SD	Soil		1.11	50	45.045	of	
1607256-08A	Soil		1.02	50	49.020	1 of 1	
1607256-09A	Soil		1.12	50	44.643	1 of 1	
1607256-10A	Soil		1.03	50	48.544	1 of 1	
1607256-11A	Soil		1.02	50	49.020	1 of 1	
1607256-12A	Soil		1.01	50	49.505	1 of 1	
1607256-14A	Soil		1.14	50	43.860	1 of 1	
1607256-15A	Soil		1.09	50	45.872	1 of 1	
1607256-16A	Soil		1.02	50	49.020	1 of 1	
1607256-17A	Soil		1.03	50	48.544	1 of 1	
1607256-18A	Soil		1.05	50	47.619	1 of 1	
1607256-19A	Soil		1.03	50	48.544	1 of 1	
1607256-20A	Soil		1.04	50	48.077	1 of 1	
1607256-21A	Soil		1.11	50	45.045	1 of 1	
1607256-22A	Soil		1.03	50	48.544	1 of 1	
1607256-23A	Soil		1.14	50	43.860	1 of 1	
1607256-24A	Soil		1.05	50	47.619	1 of 1	
1607256-25A	Soil		1.03	50	48.544	1 of 1	
1607256-29A	Soil		1.07	50	46.729	1 of 1	
1607256-30A	Soil		1.05	50	47.619	1 of 1	
LCS-76649	Soil		1	50	50.000	of	
LCSD-76649	Soil		1	50	50.000	of	
MB-76649	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

REVIEWED BY
By Janice Whitt at 3:31:36 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 3:53:26 PM**
Digestion:
Prep End Date:

Prep Batch **76649** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-07A	Soil		1.11	50	50.000	1 of 3	
1607256-07AMS	Soil		1.06	50	50.000	1 of 3	
1607256-07AMSD	Soil		1.06	50	50.000	1 of 3	
1607256-08A	Soil		1.02	50	50.000	1 of 1	
1607256-09A	Soil		1.12	50	50.000	1 of 1	
1607256-10A	Soil		1.03	50	50.000	1 of 1	
1607256-11A	Soil		1.02	50	50.000	1 of 1	
1607256-12A	Soil		1.01	50	50.000	1 of 1	
1607256-14A	Soil		1.14	50	50.000	1 of 1	
1607256-15A	Soil		1.09	50	50.000	1 of 1	
1607256-16A	Soil		1.07	50	50.000	1 of 1	
1607256-17A	Soil		1.03	50	50.000	1 of 1	
1607256-18A	Soil		1.05	50	50.000	1 of 1	
1607256-19A	Soil		1.03	50	50.000	1 of 1	
1607256-20A	Soil		1.04	50	50.000	1 of 1	
1607256-21A	Soil		1.11	50	50.000	1 of 1	
1607256-22A	Soil		1.03	50	50.000	1 of 1	
1607256-23A	Soil		1.14	50	50.000	1 of 1	
1607256-24A	Soil		1.05	50	50.000	1 of 1	
1607256-25A	Soil		1.03	50	50.000	1 of 1	
1607256-29A	Soil		1.07	50	50.000	1 of 1	
1607256-30A	Soil		1.05	50	50.000	1 of 1	
LCS-76649	Soil		1	50	50.000	of	
LCSD-76649	Soil		1	50	50.000	of	
MB-76649	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

7:26 - 7:36
7:42 - 9:42
10:04 - 12:04
12:16 - 12:31

8/4/16

REVIEWED BY
By Janice Whitt at 3:31:33 PM, 8/9/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/04/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0690	5.0792	101.58	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0436	5.0537	101.07		
3		5.0046	5.0146	100.29		
AVERAGE (MEAN)		5.039	5.049	100.98		0.644
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2000	0.2004	100.20	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2015	0.2019	100.95		
3		0.2014	0.2018	100.90		
AVERAGE (MEAN)		0.201	0.201	100.68		0.417
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

8/4/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 3:31:39 PM, 8/9/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-07A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607256-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:31:51 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:31:53 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

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By Janice Whitt at 3:31:55 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:08:46 PM**
Digestion: **Start: 7/25/2016 1:20:00 PM / Stop: 7/26/2016 2:30:00 PM**
Prep End Date: **7/26/2016 3:20:00 PM**

Prep Batch **76440** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A SS	Soil		0	0	#Num!	1 of 1	
1607256-21A SS	Soil		0	0	#Num!	1 of 1	
1607256-22A SS	Soil		0	0	#Num!	1 of 1	
1607256-23A SS	Soil		0	0	#Num!	1 of 1	
1607256-24A SS	Soil		0	0	#Num!	1 of 1	
1607256-25A SS	Soil		0	0	#Num!	1 of 1	

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By Janice Whitt at 3:32:08 PM, 8/9/2016

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 05 2016 12:30 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 5 2016 11:46 am	c:\icpchem\1\data\16h05l00.b\006calb.d\
L2-160805	Aug 5 2016 11:52 am	c:\icpchem\1\data\16h05l00.b\007cals.d\
L-160805	Aug 5 2016 11:58 am	c:\icpchem\1\data\16h05l00.b\008cals.d\
10X-160805	Aug 5 2016 12:04 pm	c:\icpchem\1\data\16h05l00.b\009cals.d\
5X-160805	Aug 5 2016 12:10 pm	c:\icpchem\1\data\16h05l00.b\010cals.d\
2X-160805	Aug 5 2016 12:16 pm	c:\icpchem\1\data\16h05l00.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.2598	0.02046	1.05	253	495		2001	
Be	0.9997	0.07523	0.001268	1.05	259	495	99%	--------	######
B	1.0000	0.06291	0.05011	1.04	253	510	102%	1,997	100%
Na	0.9999	0.2873	11.17	12.14	5,221	10,190	102%	24,870	99%
Mg	0.9999	0.136	0.3958	20.69	4,982	10,340	103%	24,860	99%
Al	1.0000	0.03828	0.1495	20.67	5,034	9,977	100%	--------	######
K	1.0000	0.08374	5.11	14.65	4,889	9,819	98%	25,100	100%
Ca	0.9994	0.00888	0.2633	58.75	5,212	10,140	101%	24,900	100%
Ti	1.0000	0.02928	0.000982	0.72	242	484	97%	2,005	100%
V	1.0000	1.065	0.1846	1.05	244	486	97%	2,004	100%
Cr	0.9980	1.334	0.08571	8.45	250	494	99%	2,001	100%
Mn	1.0000	0.6262	0.2285	1.36	245	488	98%	2,004	100%
Fe	0.9989	1.933	3.956	49.37	5,038	9,948	99%	--------	######
Co	0.9999	4.168	0.04274	1.06	253	522	104%	1,994	100%
Ni	0.9991	1.18	0.171	5.74	250	493	99%	2,001	100%
Cu	1.0000	3.1	0.8194	1.03	256	508	102%	1,997	100%
Zn	0.9966	0.353	5.176	10.36	259	508	102%	1,996	100%
As	1.0000	0.2212	0.09905	0.98	252	497	99%	2,000	100%
Se	1.0000	0.0148	0.009398	1.22	257	503	101%	1,998	100%
Sr	1.0000	0.3448	0.02465	0.95	247	489	98%	2,003	100%
Mo	0.9992	0.06102	0.001159	1.72	239	507	101%	--------	######
Ag	1.0000	0.1515	0.001539	1.01	254	498	100%	--------	######
Cd	1.0000	0.03191	0.0004205	1.00	247	495	99%	2,001	100%
Sn	1.0000	0.08969	0.02218	0.81	246	514	103%	1,997	100%
Sb	0.9999	0.1075	0.002011	0.95	245	503	101%	--------	######
Ba	1.0000	0.04223	0.001947	0.95	241	483	97%	2,006	100%
Tl	1.0000	0.3287	0.005325	0.95	253	506	101%	1,998	100%
Pb	1.0000	0.442	0.01726	0.98	249	507	101%	1,999	100%

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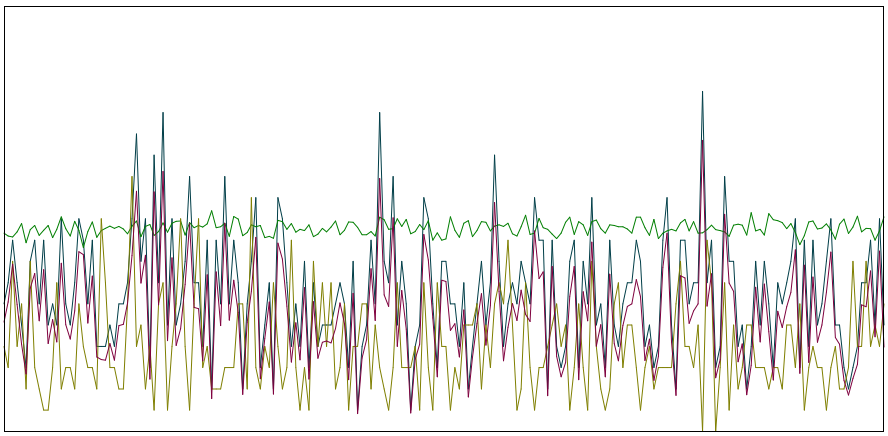
By Janice Whitt at 3:32:15 PM, 8/9/2016

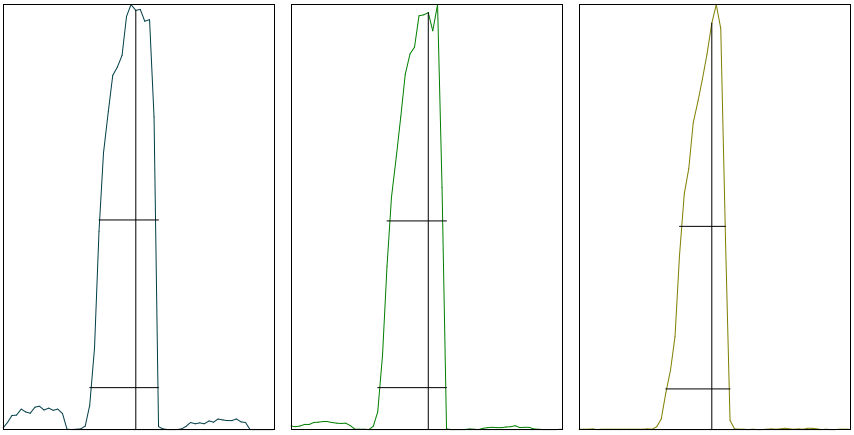
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.461%
Doubly Charged:	70/140	2.404%

m/z	Range	Count	Mean	RSD%	Background
51	20	5.0	6.6	42.22	0.30
59	5,000	2524.0	2390.8	3.25	1.10
75	20	6.0	4.0	56.83	1.00
51/59	1	0.198%	0.276%	41.89	



m/z:	59	89	205
Height:	2,405	1,514	3,750
Axis:	59.00	89.05	205.00
W-50%:	0.65	0.65	0.50
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 05, 2016 10:40:46
Printed : Aug 05, 2016 10:40:48

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-130	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

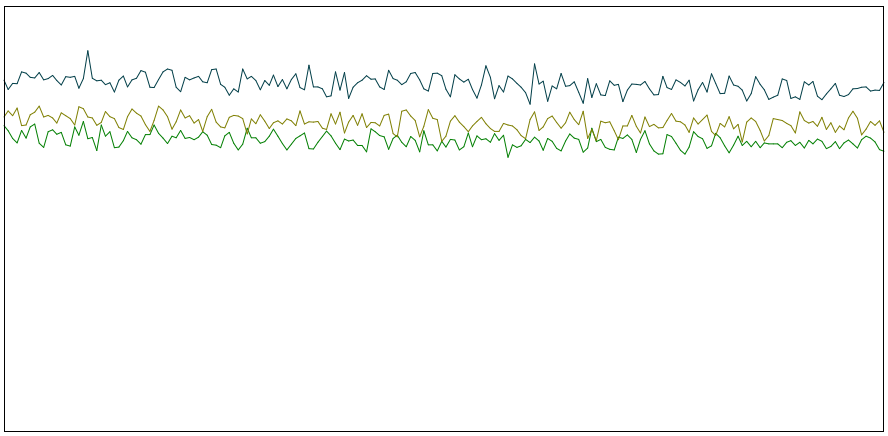
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.5	mL/min	Optional Gas	:	---	%

Generated : Aug 05, 2016 10:40:46
Printed : Aug 05, 2016 10:40:50

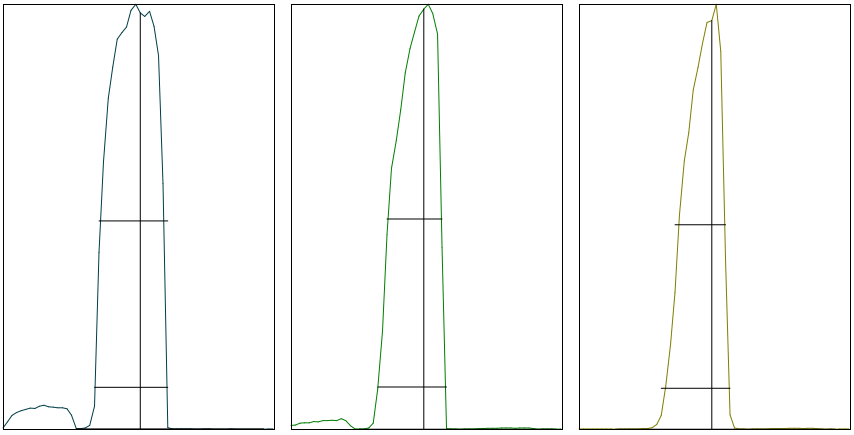
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.094%
Doubly Charged:	70/140	2.351%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8209.0	8170.5	2.49	2.20
89	20,000	13180.0	13677.0	2.35	4.80
205	10,000	7033.0	7271.6	2.46	13.60
156/140	2	0.910%	1.045%	9.94	
70/140	5	2.348%	2.260%	7.66	
63	20,000	11191.0	11329.8	2.54	3.90
23	50,000	31139.0	32824.2	4.07	2.30



m/z:	7	89	205
Height:	7,912	13,614	7,133
Axis:	7.05	89.00	205.00
W-50%:	0.75	0.60	0.55
W-10%:	0.800	0.7500	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 05, 2016 10:25:28
Printed : Aug 05, 2016 10:25:31

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-130	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-0.6	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-30	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

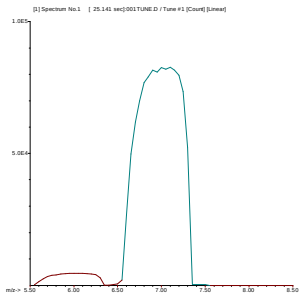
Generated : Aug 05, 2016 10:25:28
Printed : Aug 05, 2016 10:25:33

6020 QC Tune Report

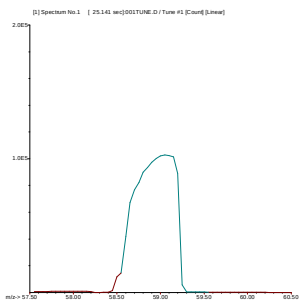
Data File: C:\ICPCHEM\1\DATA\16H05k00.B\001TUNE.D
Date Acquired: Aug 5 2016 10:58 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.51	5.00	
59 Co	2.05	5.00	
115 In	2.47	5.00	
205 Tl	2.34	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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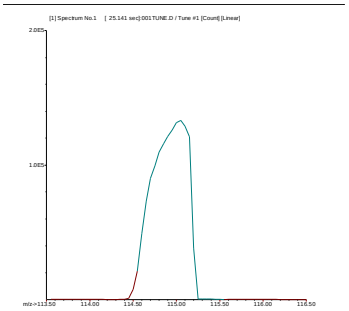
By Janice Whitt at 3:32:27 PM, 8/9/2016



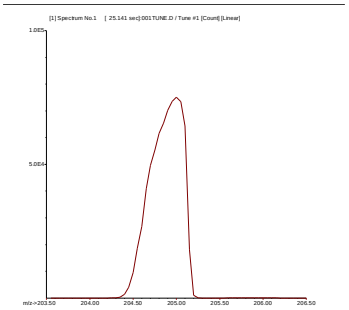
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	204.95	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 3:32:32 PM, 8/9/2016

P/A Factor Tuning Report

Acquired:Aug 5 2016 10:55 am

Mass[amu]	Element	P/A Factor
6	Li	0.064293
23	Na	0.078679
24	Mg	0.082211
27	Al	0.084832
39	K	0.084913
44	Ca	Sensitivity too low
45	Sc	0.086239
47	Ti	Sensitivity too low
51	V	0.088192
52	Cr	0.090261
55	Mn	0.091742
59	Co	0.094555
60	Ni	0.096170
63	Cu	0.097681
66	Zn	0.097388
72	Ge	0.096388
75	As	0.095906
78	Se	Sensitivity too low
88	Sr	0.096960
95	Mo	0.095894
106	(Cd)	0.101052
107	Ag	Sensitivity too low
108	(Cd)	0.101366
111	Cd	0.102412
115	In	0.102277
118	Sn	0.101646
121	Sb	0.101416
137	Ba	Sensitivity too low
205	Tl	0.109191
206	(Pb)	0.109223
207	(Pb)	0.109340
208	Pb	0.109406
209	Bi	0.109172
238		0.108740

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1750 V
       Pulse HV: 1520 V

REVIEWED BY
By Janice Whitt at 3:32:37 PM, 8/9/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 05 2016 11:50 am
Date Acquired: Aug 5 2016 11:46 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	15.28	P	14.39	94.18
7	Li	2	45	626.71	P	46.67	7.45
9	Be	2	45	38.89	P	13.88	35.69
11	B	2	45	1535.72	P	80.05	5.21
23	Na	1	45	10191.22	P	188.70	1.85
24	Mg	1	45	361.13	P	32.03	8.87
27	Al	1	45	136.45	P	15.34	11.24
39	K	1	45	4662.19	P	179.20	3.84
44	Ca	2	45	8066.29	P	182.40	2.26
45	Sc	1	---	182515.09	P	1342.00	0.74
45	Sc	2	---	6126961.00	A	89670.00	1.46
47	Ti	1	45	0.89	P	1.54	173.25
51	V	1	45	168.45	P	17.76	10.54
51	V	2	---		P		
52	Cr	1	45	78.22	P	12.95	16.56
55	Mn	1	45	208.45	P	17.71	8.50
56	Fe	1	72	1933.52	P	65.51	3.39
59	Co	1	72	20.89	P	3.36	16.07
60	Ni	1	72	83.56	P	6.30	7.54
60	Ni	2	---		P		
63	Cu	1	72	400.46	P	20.84	5.20
63	Cu	2	---		P		
66	Zn	1	72	2530.09	P	444.70	17.58
66	Zn	2	---		P		
72	Ge	1	---	97742.99	P	120.70	0.12
72	Ge	2	---		A		
75	As	1	72	48.41	P	1.70	3.51
78	Se	1	72	4.59	P	1.19	25.87
88	Sr	2	###	802.28	P	38.64	4.82
95	Mo	2	###	37.78	P	13.88	36.74
107	Ag	2	###	50.00	P	10.00	20.00
111	Cd	2	###	13.66	P	3.08	22.54
115	In	2	---	6508671.00	A	81320.00	1.25
118	Sn	2	###	722.27	P	71.22	9.86
121	Sb	2	###	65.56	P	13.47	20.55
137	Ba	2	###	63.34	P	13.33	21.05
205	Tl	2	###	115.56	P	16.44	14.23
208	Pb	2	###	374.46	P	37.47	10.01
209	Bi	2	---	4337985.00	A	24910.00	0.57

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 11:52 am
Last Cal. Update: Aug 05 2016 11:50 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-355.67	P	29.50	8.29	ISFail
7	Li	2	45	8863.41	P	316.80	3.57	
9	Be	2	45	2432.56	P	70.68	2.91	
11	B	2	45	3486.18	P	106.30	3.05	
23	Na	1	45	13245.25	P	388.10	2.93	
24	Mg	1	45	2900.46	P	108.10	3.73	
27	Al	1	45	849.82	P	24.96	2.94	
39	K	1	45	5725.98	P	269.80	4.71	
44	Ca	2	45	23727.93	P	997.60	4.20	
45	Sc	1	---	180709.80	P	1592.00	0.88	
45	Sc	2	---	6044453.00	A	68130.00	1.13	
47	Ti	1	45	20.00	P	4.62	23.10	
51	V	1	45	1172.96	P	21.35	1.82	
51	V	2	---		P			
52	Cr	1	45	10255.94	P	26.03	0.25	
55	Mn	1	45	978.28	P	93.70	9.58	
56	Fe	1	72	48019.91	P	575.20	1.20	
59	Co	1	72	2151.78	P	28.52	1.33	
60	Ni	1	72	3353.40	P	77.50	2.31	
60	Ni	2	---		P			
63	Cu	1	72	1931.74	P	48.27	2.50	
63	Cu	2	---		P			
66	Zn	1	72	4270.15	P	531.70	12.45	
66	Zn	2	---		P			
72	Ge	1	---	96651.97	P	629.00	0.65	
72	Ge	2	---		A			
75	As	1	72	152.37	P	3.44	2.26	
78	Se	1	72	13.26	P	0.28	2.11	
88	Sr	2	115	11414.70	P	315.90	2.77	
95	Mo	2	115	3433.96	P	51.77	1.51	
107	Ag	2	115	5016.81	P	83.45	1.66	
111	Cd	2	115	1045.55	P	157.40	15.05	
115	In	2	---	6467078.00	A	69410.00	1.07	
118	Sn	2	115	3077.19	P	154.60	5.02	
121	Sb	2	115	3363.97	P	101.70	3.02	
137	Ba	2	115	1365.69	P	30.25	2.22	
205	Tl	2	209	6799.00	P	26.05	0.38	
208	Pb	2	209	9626.47	P	302.60	3.14	
209	Bi	2	---	4286684.00	A	28120.00	0.66	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-355.67	8.29	15.28	-2327.8	70 - 120	ISFail
45	Sc	1	180709.86	0.88	182515.06	99.0	70 - 120	
45	Sc	2	6044453.50	1.13	6126960.50	98.7	70 - 120	
72	Ge	1	96651.97	0.65	97742.99	98.9	70 - 120	
115	In	2	6467078.00	1.07	6508670.50	99.4	70 - 120	
209	Bi	2	4286683.50	0.66	4337985.50	98.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 11:58 am
Last Cal. Update: Aug 05 2016 11:56 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3589.68	P	82.43	2.30	ISFail
7	Li	2	45	81262.26	P	1555.00	1.91	Fail
9	Be	2	45	23346.78	P	483.60	2.07	Fail
11	B	2	45	21841.82	P	312.20	1.43	Fail
23	Na	1	45	81350.00	P	198.40	0.24	Fail
24	Mg	1	45	26675.66	P	307.00	1.15	Fail
27	Al	1	45	7620.64	P	139.70	1.83	Fail
39	K	1	45	20334.01	P	97.25	0.48	Fail
44	Ca	2	45	293517.91	P	6533.00	2.23	Fail
45	Sc	1	---	180829.91	P	1305.00	0.72	
45	Sc	2	---	6058079.00	A	72160.00	1.19	
47	Ti	1	45	258.23	P	22.95	8.89	Fail
51	V	1	45	10041.09	P	173.80	1.73	Fail
51	V	2	---		P			
52	Cr	1	45	160901.00	P	2262.00	1.41	
55	Mn	1	45	12135.88	P	188.10	1.55	Fail
56	Fe	1	72	655965.88	P	11700.00	1.78	Fail
59	Co	1	72	22110.21	P	447.70	2.02	
60	Ni	1	72	53132.02	P	621.70	1.17	
60	Ni	2	---		P			
63	Cu	1	72	17989.38	P	162.70	0.90	Fail
63	Cu	2	---		P			
66	Zn	1	72	32332.04	P	1126.00	3.48	Fail
66	Zn	2	---		P			
72	Ge	1	---	96644.66	P	915.90	0.95	
72	Ge	2	---		A			
75	As	1	72	1157.09	P	21.29	1.84	Fail
78	Se	1	72	80.56	P	1.74	2.16	Fail
88	Sr	2	115	112499.00	P	1488.00	1.32	Fail
95	Mo	2	115	43024.26	P	934.00	2.17	Fail
107	Ag	2	115	49292.40	P	675.30	1.37	Fail
111	Cd	2	115	10233.76	P	263.20	2.57	Fail
115	In	2	---	6512881.00	A	66930.00	1.03	
118	Sn	2	115	28870.21	P	602.40	2.09	Fail
121	Sb	2	115	34377.27	P	590.40	1.72	Fail
137	Ba	2	115	13290.23	P	225.80	1.70	Fail
205	Tl	2	209	66554.41	P	972.70	1.46	Fail
208	Pb	2	209	92789.13	P	2215.00	2.39	Fail
209	Bi	2	---	4271242.00	A	31270.00	0.73	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3589.68	2.30	15.28	-23493.7	70 - 120	ISFail
45	Sc	1	180829.94	0.72	182515.06	99.1	70 - 120	
45	Sc	2	6058078.50	1.19	6126960.50	98.9	70 - 120	
72	Ge	1	96644.66	0.95	97742.99	98.9	70 - 120	
115	In	2	6512881.50	1.03	6508670.50	100.1	70 - 120	
209	Bi	2	4271241.50	0.73	4337985.50	98.5	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:04 pm
Last Cal. Update: Aug 05 2016 12:02 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-17707.77	P	55.00	0.31	ISFail
7	Li	2	45	398054.41	P	5244.00	1.32	Fail
9	Be	2	45	115649.90	P	1620.00	1.40	Fail
11	B	2	45	96286.02	P	831.60	0.86	Fail
23	Na	1	45	272397.81	P	905.30	0.33	Fail
24	Mg	1	45	124755.50	P	1443.00	1.16	Fail
27	Al	1	45	35454.14	P	301.90	0.85	Fail
39	K	1	45	79723.33	P	627.30	0.79	Fail
44	Ca	2	45	268092.50	P	5121.00	1.91	Fail
45	Sc	1	---	184134.59	P	1636.00	0.89	
45	Sc	2	---	6097443.00	A	46770.00	0.77	
47	Ti	1	45	1268.53	P	40.59	3.20	
51	V	1	45	48011.07	P	416.20	0.87	Fail
51	V	2	---		P			
52	Cr	1	45	61475.93	P	685.10	1.11	Fail
55	Mn	1	45	28374.60	P	270.20	0.95	Fail
56	Fe	1	72	977398.63	A	5907.00	0.60	
59	Co	1	72	102540.30	P	724.90	0.71	
60	Ni	1	72	29024.09	P	247.30	0.85	Fail
60	Ni	2	---		P			
63	Cu	1	72	78220.50	P	81.19	0.10	Fail
63	Cu	2	---		P			
66	Zn	1	72	11545.60	P	655.40	5.68	Fail
66	Zn	2	---		P			
72	Ge	1	---	97423.37	P	285.10	0.29	
72	Ge	2	---		A			
75	As	1	72	5449.99	P	68.94	1.27	Fail
78	Se	1	72	378.78	P	9.35	2.47	Fail
88	Sr	2	115	526316.00	P	8990.00	1.71	Fail
95	Mo	2	115	92491.40	P	1171.00	1.27	Fail
107	Ag	2	115	242067.50	P	3898.00	1.61	Fail
111	Cd	2	115	51447.84	P	1044.00	2.03	Fail
115	In	2	---	6564767.00	A	38840.00	0.59	
118	Sn	2	115	140518.91	P	3303.00	2.35	Fail
121	Sb	2	115	167491.20	P	1810.00	1.08	Fail
137	Ba	2	115	64790.92	P	1350.00	2.08	Fail
205	Tl	2	209	331721.59	P	4872.00	1.47	Fail
208	Pb	2	209	449909.31	P	6099.00	1.36	Fail
209	Bi	2	---	4282186.00	A	33320.00	0.78	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-17707.78	0.31	15.28	-115893.8	70 - 120	ISFail
45	Sc	1	184134.61	0.89	182515.06	100.9	70 - 120	
45	Sc	2	6097443.50	0.77	6126960.50	99.5	70 - 120	
72	Ge	1	97423.38	0.29	97742.99	99.7	70 - 120	
115	In	2	6564767.00	0.59	6508670.50	100.9	70 - 120	
209	Bi	2	4282186.00	0.78	4337985.50	98.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:10 pm
Last Cal. Update: Aug 05 2016 12:08 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-36435.48	P	841.40	2.31	ISFail
7	Li	2	45	812821.13	A	14640.00	1.80	Fail
9	Be	2	45	234749.91	P	3822.00	1.63	Fail
11	B	2	45	192478.00	P	3125.00	1.62	Fail
23	Na	1	45	538948.50	P	4748.00	0.88	Fail
24	Mg	1	45	248686.09	P	3611.00	1.45	Fail
27	Al	1	45	70264.97	P	1664.00	2.37	Fail
39	K	1	45	154862.59	P	2379.00	1.54	Fail
44	Ca	2	45	538839.88	P	8132.00	1.51	Fail
45	Sc	1	---	180634.80	P	1431.00	0.79	
45	Sc	2	---	5970456.00	A	47230.00	0.79	
47	Ti	1	45	2627.88	P	127.30	4.84	
51	V	1	45	95580.50	P	1163.00	1.22	Fail
51	V	2	---		A			
52	Cr	1	45	122152.20	P	1001.00	0.82	
55	Mn	1	45	56813.85	P	608.70	1.07	Fail
56	Fe	1	72	1938002.00	A	40590.00	2.09	
59	Co	1	72	204249.30	P	2879.00	1.41	
60	Ni	1	72	57637.83	P	540.40	0.94	
60	Ni	2	---		P			
63	Cu	1	72	155723.91	P	435.00	0.28	Fail
63	Cu	2	---		P			
66	Zn	1	72	20424.72	P	557.70	2.73	Fail
66	Zn	2	---		P			
72	Ge	1	---	95580.08	P	529.70	0.55	
72	Ge	2	---		A			
75	As	1	72	10892.53	P	102.50	0.94	Fail
78	Se	1	72	739.50	P	12.66	1.71	Fail
88	Sr	2	115	1102789.00	A	19280.00	1.75	Fail
95	Mo	2	115	187257.59	P	3590.00	1.92	Fail
107	Ag	2	115	488220.00	P	10950.00	2.24	Fail
111	Cd	2	115	103312.50	P	1679.00	1.63	Fail
115	In	2	---	6410655.00	A	83780.00	1.31	
118	Sn	2	115	284513.09	P	5767.00	2.03	Fail
121	Sb	2	115	338771.09	P	6957.00	2.05	Fail
137	Ba	2	115	130700.40	P	2474.00	1.89	Fail
205	Tl	2	209	670071.13	P	11060.00	1.65	Fail
208	Pb	2	209	908126.00	P	15070.00	1.66	Fail
209	Bi	2	---	4192952.00	A	48230.00	1.15	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-36435.49	2.31	15.28	-238462.9	70 - 120	ISFail
45	Sc	1	180634.83	0.79	182515.06	99.0	70 - 120	
45	Sc	2	5970456.00	0.79	6126960.50	97.4	70 - 120	
72	Ge	1	95580.09	0.55	97742.99	97.8	70 - 120	
115	In	2	6410655.50	1.31	6508670.50	98.5	70 - 120	
209	Bi	2	4192952.50	1.15	4337985.50	96.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:16 pm
Last Cal. Update: Aug 05 2016 12:14 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-87424.07	P	957.10	1.09	ISFail
7	Li	2	45	1976899.00	A	4496.00	0.23	Fail
9	Be	2	45	585551.00	P	5137.00	0.88	Fail
11	B	2	45	481023.09	P	9247.00	1.92	Fail
23	Na	1	45	1369915.00	A	11130.00	0.81	Fail
24	Mg	1	45	614712.81	P	7659.00	1.25	
27	Al	1	45	174797.41	P	1284.00	0.73	
39	K	1	45	375775.69	P	2923.00	0.78	Fail
44	Ca	2	45	1400160.00	A	34240.00	2.45	Fail
45	Sc	1	---	181294.41	P	1045.00	0.58	
45	Sc	2	---	6015870.00	A	120500.00	2.00	
47	Ti	1	45	6431.98	P	163.50	2.54	
51	V	1	45	235464.00	P	3179.00	1.35	
51	V	2	---		A			
52	Cr	1	45	302147.81	P	3701.00	1.22	
55	Mn	1	45	139392.00	P	1071.00	0.77	Fail
56	Fe	1	72	4633670.00	A	42730.00	0.92	
59	Co	1	72	502053.50	P	3691.00	0.74	
60	Ni	1	72	140575.00	P	181.40	0.13	
60	Ni	2	---		P			
63	Cu	1	72	378207.09	P	2077.00	0.55	
63	Cu	2	---		A			
66	Zn	1	72	45998.90	P	586.00	1.27	Fail
66	Zn	2	---		P			
72	Ge	1	---	95135.32	P	295.10	0.31	
72	Ge	2	---		A			
75	As	1	72	26562.50	P	196.80	0.74	
78	Se	1	72	1811.51	P	13.28	0.73	Fail
88	Sr	2	115	2719336.00	A	48810.00	1.79	Fail
95	Mo	2	115	465269.41	P	8412.00	1.81	Fail
107	Ag	2	115	1226524.00	A	29780.00	2.43	Fail
111	Cd	2	115	251604.70	P	5266.00	2.09	Fail
115	In	2	---	6381501.00	A	88940.00	1.39	
118	Sn	2	115	704199.69	P	11520.00	1.64	Fail
121	Sb	2	115	840329.69	P	13240.00	1.58	Fail
137	Ba	2	115	325236.31	P	3707.00	1.14	Fail
205	Tl	2	209	1739581.00	A	2174.00	0.12	Fail
208	Pb	2	209	2301626.00	A	32210.00	1.40	Fail
209	Bi	2	---	4178835.00	A	49600.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-87424.07	1.09	15.28	-572173.0	70 - 120	ISFail
45	Sc	1	181294.39	0.58	182515.06	99.3	70 - 120	
45	Sc	2	6015870.00	2.00	6126960.50	98.2	70 - 120	
72	Ge	1	95135.32	0.31	97742.99	97.3	70 - 120	
115	In	2	6381500.50	1.39	6508670.50	98.0	70 - 120	
209	Bi	2	4178835.30	1.19	4337985.50	96.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:22 pm
Last Cal. Update: Aug 05 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-167559.59	P	476.90	0.28	ISFail
7	Li	2	45	3858018.00	A	10710.00	0.28	Fail
9	Be	2	45	1117563.00	A	3656.00	0.33	Fail
11	B	2	45	965554.63	A	5682.00	0.59	Fail
23	Na	1	45	2662483.00	A	23780.00	0.89	Fail
24	Mg	1	45	1274598.00	A	13560.00	1.06	
27	Al	1	45	345911.91	P	5372.00	1.55	
39	K	1	45	749109.88	P	3634.00	0.49	Fail
44	Ca	2	45	2712259.00	A	35730.00	1.32	Fail
45	Sc	1	---	181092.20	P	1329.00	0.73	
45	Sc	2	---	6006447.00	A	55910.00	0.93	
47	Ti	1	45	12828.57	P	127.40	0.99	
51	V	1	45	468108.41	P	5537.00	1.18	
51	V	2	---		A			
52	Cr	1	45	596561.88	P	8249.00	1.38	
55	Mn	1	45	276705.09	P	1958.00	0.71	
56	Fe	1	72	9068696.00	A	125300.00	1.38	
59	Co	1	72	1024977.00	A	12720.00	1.24	
60	Ni	1	72	274359.41	P	2282.00	0.83	
60	Ni	2	---		A			
63	Cu	1	72	742553.88	P	7097.00	0.96	
63	Cu	2	---		A			
66	Zn	1	72	87066.82	P	1635.00	1.88	Fail
66	Zn	2	---		P			
72	Ge	1	---	94321.59	P	477.80	0.51	
72	Ge	2	---		A			
75	As	1	72	51876.52	P	396.60	0.76	
78	Se	1	72	3516.69	P	21.46	0.61	
88	Sr	2	115	5387592.00	A	78800.00	1.46	Fail
95	Mo	2	115	986967.50	A	12410.00	1.26	Fail
107	Ag	2	115	2410083.00	A	22550.00	0.94	
111	Cd	2	115	504640.81	P	6646.00	1.32	
115	In	2	---	6385254.00	A	36880.00	0.58	
118	Sn	2	115	1472817.00	A	7451.00	0.51	Fail
121	Sb	2	115	1727513.00	A	20170.00	1.17	Fail
137	Ba	2	115	651603.00	P	1589.00	0.24	Fail
205	Tl	2	209	3419430.00	A	27730.00	0.81	
208	Pb	2	209	4608430.00	A	20750.00	0.45	Fail
209	Bi	2	---	4115315.00	A	29010.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-167559.67	0.28	15.28	#########	70 - 120	ISFail
45	Sc	1	181092.19	0.73	182515.06	99.2	70 - 120	
45	Sc	2	6006447.50	0.93	6126960.50	98.0	70 - 120	
72	Ge	1	94321.59	0.51	97742.99	96.5	70 - 120	
115	In	2	6385253.50	0.58	6508670.50	98.1	70 - 120	
209	Bi	2	4115315.30	0.70	4337985.50	94.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160805
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 5 2016 12:27 pm
Last Cal. Update: Aug 05 2016 12:25 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-654088.31	M	15580.00	2.38	ISFail
7	Li	2	45	15254010.00	A	47710.00	0.31	Fail
9	Be	2	45	4115047.00	A	13340.00	0.32	
11	B	2	45	3688486.00	A	21680.00	0.59	Fail
23	Na	1	45	6444514.00	A	102700.00	1.59	Fail
24	Mg	1	45	3045287.00	A	25020.00	0.82	
27	Al	1	45	638.70	P	45.40	7.11	Fail
39	K	1	45	1896580.00	A	20210.00	1.07	Fail
44	Ca	2	45	6496214.00	A	92400.00	1.42	Fail
45	Sc	1	---	180044.70	P	719.30	0.40	
45	Sc	2	---	5869727.00	A	52620.00	0.90	
47	Ti	1	45	52853.99	P	636.30	1.20	
51	V	1	45	1921068.00	A	9563.00	0.50	
51	V	2	---		A			
52	Cr	1	45	2402812.00	A	25030.00	1.04	
55	Mn	1	45	1129731.00	A	3898.00	0.35	
56	Fe	1	72	9751.28	P	1171.00	12.01	Fail
59	Co	1	72	3868529.00	A	38860.00	1.00	
60	Ni	1	72	1098897.00	A	8899.00	0.81	
60	Ni	2	---		A			
63	Cu	1	72	2882398.00	A	8615.00	0.30	
63	Cu	2	---		A			
66	Zn	1	72	330292.31	P	2880.00	0.87	Fail
66	Zn	2	---		A			
72	Ge	1	---	93101.85	P	324.90	0.35	
72	Ge	2	---		A			
75	As	1	72	206005.20	P	1116.00	0.54	
78	Se	1	72	13774.87	P	75.50	0.55	
88	Sr	2	115	21411570.00	A	166100.00	0.78	Fail
95	Mo	2	115	3792157.00	A	37500.00	0.99	
107	Ag	2	115	1944.80	P	778.30	40.02	Fail
111	Cd	2	115	1979936.00	A	5899.00	0.30	
115	In	2	---	6200617.00	A	30470.00	0.49	
118	Sn	2	115	5553687.00	A	35370.00	0.64	Fail
121	Sb	2	115	2534.88	P	552.00	21.78	Fail
137	Ba	2	115	2625558.00	A	28270.00	1.08	
205	Tl	2	209	13125170.00	A	83480.00	0.64	
208	Pb	2	209	17654450.00	A	69810.00	0.40	
209	Bi	2	---	3996650.00	A	31760.00	0.79	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-654088.38	2.38	15.28	#########	70 -	120	ISFail
45	Sc	1		180044.70	0.40	182515.06	98.6	70 -	120	
45	Sc	2		5869726.50	0.90	6126960.50	95.8	70 -	120	
72	Ge	1		93101.85	0.35	97742.99	95.3	70 -	120	
115	In	2		6200617.50	0.49	6508670.50	95.3	70 -	120	
209	Bi	2		3996650.30	0.79	4337985.50	92.1	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 5 2016 12:45 pm	Sample Name:	**ICSA-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.330	ppb	7.71	8.00	5.00	
9	Be	2	45	0.140	ppb	25.28	0.32	0.80	
11	B	2	45	7.998	ppb	3.85	30.00	30.00	
23	Na	1	45	106100.000	ppb	1.73	#######	#######	
24	Mg	1	45	93140.000	ppb	2.17	#######	#######	
27	Al	1	45	104000.000	ppb	3.08	#######	#######	
39	K	1	45	98250.000	ppb	2.26	#######	#######	
44	Ca	2	45	98220.000	ppb	2.25	#######	#######	
47	Ti	1	45	2086.000	ppb	2.09	10.00	10.00	
51	V	1	45	0.174	ppb	6.75	10.00	10.00	
52	Cr	1	45	0.941	ppb	3.89	8.00	5.00	
55	Mn	1	45	0.610	ppb	2.26	8.00	10.00	
56	Fe	1	72	99670.000	ppb	1.77	#######	#######	
59	Co	1	72	1.459	ppb	2.03	8.00	10.00	
60	Ni	1	72	0.482	ppb	10.38	8.00	10.00	
63	Cu	1	72	2.135	ppb	1.25	8.00	10.00	
66	Zn	1	72	-2.186	ppb	18.58	10.00	5.00	
75	As	1	72	0.572	ppb	1.73	4.00	5.00	
78	Se	1	72	0.719	ppb	6.77	2.00	5.00	
88	Sr	2	115	1.247	ppb	2.31	10.00	10.00	
95	Mo	2	115	1988.000	ppb	1.67	8.00	5.00	
107	Ag	2	115	0.099	ppb	9.90	0.80	2.00	
111	Cd	2	115	0.440	ppb	12.73	1.20	1.00	
118	Sn	2	115	0.450	ppb	7.71	10.00	10.00	
121	Sb	2	115	0.135	ppb	6.85	4.00	2.50	
137	Ba	2	115	0.583	ppb	10.29	8.00	10.00	
205	Tl	2	209	0.257	ppb	12.76	4.00	1.50	
208	Pb	2	209	0.486	ppb	4.01	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-54.59	117.23	15.28	-357.3	70 - 120	ISFail
45	Sc	1	174279.20	1.00	182515.06	95.5	70 - 120	
45	Sc	2	5726262.50	1.69	6126960.50	93.5	70 - 120	
72	Ge	1	90186.56	1.13	97742.99	92.3	70 - 120	
115	In	2	6236712.50	1.46	6508670.50	95.8	70 - 120	
209	Bi	2	3848808.80	1.75	4337985.50	88.7	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 5 2016 12:51 pm	Sample Name:	**ICSAB-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.26	ppb	6.33	---	80 -	120		
9	Be	2	45	0.06	ppb	13.72	---	80 -	120		
11	B	2	45	6.46	ppb	2.40	---	80 -	120		
23	Na	1	45	97200.00	ppb	1.23	100000.00	80 -	120		
24	Mg	1	45	92480.00	ppb	1.48	100000.00	80 -	120		
27	Al	1	45	100800.00	ppb	1.07	100000.00	80 -	120		
39	K	1	45	95950.00	ppb	0.63	100000.00	80 -	120		
44	Ca	2	45	95370.00	ppb	1.84	100000.00	80 -	120		
47	Ti	1	45	1997.00	ppb	0.57	---	80 -	120		
51	V	1	45	39.54	ppb	1.52	40.00	80 -	120		
52	Cr	1	45	20.92	ppb	1.52	20.00	80 -	120		
55	Mn	1	45	19.21	ppb	0.55	20.00	80 -	120		
56	Fe	1	72	96620.00	ppb	1.27	100000.00	80 -	120		
59	Co	1	72	40.26	ppb	0.83	40.00	80 -	120		
60	Ni	1	72	37.09	ppb	0.50	40.00	80 -	120		
63	Cu	1	72	20.27	ppb	0.50	20.00	80 -	120		
66	Zn	1	72	15.23	ppb	7.67	20.00	80 -	120		Fail
75	As	1	72	20.45	ppb	0.06	20.00	80 -	120		
78	Se	1	72	19.61	ppb	1.24	20.00	80 -	120		
88	Sr	2	115	1.11	ppb	3.06	---	80 -	120		
95	Mo	2	115	1951.00	ppb	1.84	---	80 -	120		
107	Ag	2	115	18.26	ppb	2.86	20.00	80 -	120		
111	Cd	2	115	9.51	ppb	3.14	10.00	80 -	120		
118	Sn	2	115	0.45	ppb	4.61	---	80 -	120		
121	Sb	2	115	0.06	ppb	16.57	---	80 -	120		
137	Ba	2	115	0.49	ppb	9.05	---	80 -	120		
205	Tl	2	209	0.15	ppb	17.43	---	80 -	120		
208	Pb	2	209	0.35	ppb	0.41	---	80 -	120		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-63.16	31.60	15.28	-413.4	70 -	120		ISFail
45	Sc	1	168981.05	0.32	182515.06	92.6	70 -	120		
45	Sc	2	5655311.50	1.35	6126960.50	92.3	70 -	120		
72	Ge	1	87241.88	0.50	97742.99	89.3	70 -	120		
115	In	2	6066657.50	1.16	6508670.50	93.2	70 -	120		
209	Bi	2	3784597.00	1.52	4337985.50	87.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 5 2016 01:09 pm	Sample Name:	**ICV1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	107.10	ppb	1.42	100.00	90 -	110	107.1	
9	Be	2	45	106.10	ppb	1.58	100.00	90 -	110	106.1	
11	B	2	45	104.40	ppb	1.78	100.00	90 -	110	104.4	
23	Na	1	45	2610.00	ppb	0.73	2500.00	90 -	110	104.4	
24	Mg	1	45	2579.00	ppb	1.31	2500.00	90 -	110	103.2	
27	Al	1	45	2516.00	ppb	1.18	2500.00	90 -	110	100.6	
39	K	1	45	2501.00	ppb	1.02	2500.00	90 -	110	100.0	
44	Ca	2	45	2454.00	ppb	2.65	2500.00	90 -	110	98.2	
47	Ti	1	45	98.95	ppb	0.14	100.00	90 -	110	99.0	
51	V	1	45	99.03	ppb	1.08	100.00	90 -	110	99.0	
52	Cr	1	45	103.90	ppb	1.29	100.00	90 -	110	103.9	
55	Mn	1	45	97.90	ppb	1.57	100.00	90 -	110	97.9	
56	Fe	1	72	2565.00	ppb	1.06	2500.00	90 -	110	102.6	
59	Co	1	72	101.50	ppb	1.32	100.00	90 -	110	101.5	
60	Ni	1	72	100.80	ppb	0.66	100.00	90 -	110	100.8	
63	Cu	1	72	101.80	ppb	0.55	100.00	90 -	110	101.8	
66	Zn	1	72	97.48	ppb	2.28	100.00	90 -	110	97.5	
75	As	1	72	98.81	ppb	0.63	100.00	90 -	110	98.8	
78	Se	1	72	99.61	ppb	1.67	100.00	90 -	110	99.6	
88	Sr	2	115	101.60	ppb	1.34	100.00	90 -	110	101.6	
95	Mo	2	115	93.38	ppb	2.41	100.00	90 -	110	93.4	
107	Ag	2	115	98.29	ppb	2.57	100.00	90 -	110	98.3	
111	Cd	2	115	97.77	ppb	2.13	100.00	90 -	110	97.8	
118	Sn	2	115	98.21	ppb	1.79	100.00	90 -	110	98.2	
121	Sb	2	115	97.11	ppb	1.48	100.00	90 -	110	97.1	
137	Ba	2	115	95.84	ppb	2.18	100.00	90 -	110	95.8	
205	Tl	2	209	95.43	ppb	1.73	100.00	90 -	110	95.4	
208	Pb	2	209	96.72	ppb	1.50	100.00	90 -	110	96.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-20831.76	1.06	15.28	-136339.7	70 -	120		ISFail
45	Sc	1	176047.23	0.74	182515.06	96.5	70 -	120		
45	Sc	2	5960792.00	1.81	6126960.50	97.3	70 -	120		
72	Ge	1	93303.45	0.46	97742.99	95.5	70 -	120		
115	In	2	6234210.00	1.59	6508670.50	95.8	70 -	120		
209	Bi	2	4074975.80	0.79	4337985.50	93.9	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 5 2016 01:15 pm	Sample Name:	**ICB1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 Li 2 45	0.23 ppb	11.70	2.00	
9 Be 2 45	0.08 ppb	2.33	0.40	
11 B 2 45	2.53 ppb	1.79	10.00	
23 Na 1 45	3.75 ppb	3.97	50.00	
24 Mg 1 45	6.23 ppb	8.12	50.00	
27 Al 1 45	5.43 ppb	14.71	50.00	
39 K 1 45	3.75 ppb	2.62	50.00	
44 Ca 2 45	4.94 ppb	4.64	50.00	
47 Ti 1 45	0.19 ppb	35.26	4.00	
51 V 1 45	0.12 ppb	6.32	4.00	
52 Cr 1 45	0.12 ppb	21.29	2.00	
55 Mn 1 45	0.13 ppb	4.53	2.00	
56 Fe 1 72	6.92 ppb	13.84	50.00	
59 Co 1 72	0.11 ppb	18.23	2.00	
60 Ni 1 72	0.06 ppb	17.75	2.00	
63 Cu 1 72	0.11 ppb	8.03	2.00	
66 Zn 1 72	-7.14 ppb	19.74	4.00	
75 As 1 72	0.11 ppb	3.47	2.00	
78 Se 1 72	0.20 ppb	7.24	0.60	
88 Sr 2 115	0.09 ppb	9.14	4.00	
95 Mo 2 115	0.29 ppb	8.59	2.00	
107 Ag 2 115	0.07 ppb	6.14	0.40	
111 Cd 2 115	0.08 ppb	7.23	0.40	
118 Sn 2 115	0.14 ppb	10.49	20.00	
121 Sb 2 115	0.12 ppb	13.32	2.00	
137 Ba 2 115	0.08 ppb	7.36	2.00	
205 Tl 2 209	0.20 ppb	3.04	2.00	
208 Pb 2 209	0.13 ppb	4.26	0.40	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2 RHig	-27.73	91.82	15.28	-181.5	70 - 120	ISFail
45 Sc 1	176153.36	1.24	182515.06	96.5	70 - 120	
45 Sc 2	5921205.50	1.53	6126960.50	96.6	70 - 120	
72 Ge 1	94047.59	0.79	97742.99	96.2	70 - 120	
115 In 2	6181767.50	1.24	6508670.50	95.0	70 - 120	
209 Bi 2	4107489.50	1.29	4337985.50	94.7	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 5 2016 01:21 pm	Sample Name:	**ILCVL-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.37	ppb	2.65	10.00	70 -	130	113.7	
9	Be	2	45	1.15	ppb	4.31	1.00	70 -	130	114.6	
11	B	2	45	23.15	ppb	1.29	20.00	70 -	130	115.8	
23	Na	1	45	97.59	ppb	0.68	100.00	70 -	130	97.6	
24	Mg	1	45	105.10	ppb	2.56	100.00	70 -	130	105.1	
27	Al	1	45	105.10	ppb	0.79	100.00	70 -	130	105.1	
39	K	1	45	102.30	ppb	0.88	100.00	70 -	130	102.3	
44	Ca	2	45	93.06	ppb	2.26	100.00	70 -	130	93.1	
47	Ti	1	45	5.61	ppb	10.35	5.00	70 -	130	112.2	
51	V	1	45	1.05	ppb	1.72	1.00	70 -	130	104.9	
52	Cr	1	45	5.30	ppb	1.49	5.00	70 -	130	105.9	
55	Mn	1	45	4.74	ppb	2.80	5.00	70 -	130	94.8	
56	Fe	1	72	110.50	ppb	0.79	100.00	70 -	130	110.5	
59	Co	1	72	5.28	ppb	0.20	5.00	70 -	130	105.5	
60	Ni	1	72	5.16	ppb	0.57	5.00	70 -	130	103.1	
63	Cu	1	72	5.27	ppb	1.73	5.00	70 -	130	105.5	
66	Zn	1	72	-5.91	ppb	3.88	5.00	70 -	130	-118.2	Fail
75	As	1	72	5.22	ppb	1.25	5.00	70 -	130	104.4	
78	Se	1	72	5.62	ppb	4.89	5.00	70 -	130	112.3	
88	Sr	2	115	5.05	ppb	2.84	5.00	70 -	130	100.9	
95	Mo	2	115	4.87	ppb	3.83	5.00	70 -	130	97.4	
107	Ag	2	115	2.06	ppb	1.14	2.00	70 -	130	103.1	
111	Cd	2	115	1.05	ppb	4.06	1.00	70 -	130	104.5	
118	Sn	2	115	4.97	ppb	1.38	5.00	70 -	130	99.4	
121	Sb	2	115	2.01	ppb	1.65	2.00	70 -	130	100.5	
137	Ba	2	115	4.90	ppb	5.98	5.00	70 -	130	97.9	
205	Tl	2	209	1.06	ppb	1.51	1.00	70 -	130	105.7	
208	Pb	2	209	1.01	ppb	2.65	1.00	70 -	130	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2306.97	3.81	15.28	-15098.6	70 -	120	ISFail
45	Sc	1	175462.75	0.94	182515.06	96.1	70 -	120	
45	Sc	2	5957784.00	1.59	6126960.50	97.2	70 -	120	
72	Ge	1	93968.90	1.39	97742.99	96.1	70 -	120	
115	In	2	6234465.00	1.87	6508670.50	95.8	70 -	120	
209	Bi	2	4101612.80	0.61	4337985.50	94.6	70 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\023__PB.D\023__PB.D#

Date Acquired:	Aug 5 2016 01:27 pm	Sample Name:	MB-76602
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.093	ppb	4.07	2.0	8.00	
9	Be	2	45	0.014	ppb	20.76	0.4	1.20	
11	B	2	45	1.881	ppb	1.95	10.0	30.00	
23	Na	1	45	-11.050	ppb	1.73	50.0	#####	
24	Mg	1	45	1.930	ppb	12.09	50.0	#####	
27	Al	1	45	2.873	ppb	6.00	50.0	#####	
39	K	1	45	-1.632	ppb	5.99	50.0	#####	
44	Ca	2	45	3.336	ppb	3.56	50.0	#####	
47	Ti	1	45	0.085	ppb	65.47	4.0	10.00	
51	V	1	45	0.013	ppb	5.97	4.0	10.00	
52	Cr	1	45	0.128	ppb	4.07	2.0	8.00	
55	Mn	1	45	-0.065	ppb	11.25	2.0	8.00	
56	Fe	1	72	3.389	ppb	0.65	50.0	#####	
59	Co	1	72	0.014	ppb	35.05	2.0	8.00	
60	Ni	1	72	0.031	ppb	15.95	2.0	8.00	
63	Cu	1	72	0.171	ppb	5.24	2.0	8.00	
66	Zn	1	72	-12.530	ppb	14.69	4.0	10.00	
75	As	1	72	-0.041	ppb	6.86	2.0	4.00	
78	Se	1	72	0.092	ppb	26.96	0.6	2.00	
88	Sr	2	115	0.020	ppb	1.91	4.0	10.00	
95	Mo	2	115	0.128	ppb	9.05	2.0	8.00	
107	Ag	2	115	0.008	ppb	29.00	0.4	0.80	
111	Cd	2	115	0.012	ppb	117.88	0.4	1.20	
118	Sn	2	115	4.625	ppb	1.51	20.0	40.00	
121	Sb	2	115	0.023	ppb	22.48	2.0	4.00	
137	Ba	2	115	0.004	ppb	24.02	2.0	8.00	
205	Tl	2	209	0.043	ppb	8.70	2.0	4.00	
208	Pb	2	209	0.070	ppb	2.30	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	10.48	73.02	15.28	68.6	70 - 120	ISFail
45	Sc	1		178866.17	0.54	182515.06	98.0	70 - 120	
45	Sc	2		5985713.50	1.37	6126960.50	97.7	70 - 120	
72	Ge	1		93521.28	0.84	97742.99	95.7	70 - 120	
115	In	2		6205739.00	0.87	6508670.50	95.3	70 - 120	
209	Bi	2		4096051.30	1.07	4337985.50	94.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\024_LCS.D\024_LCS.D#

Date Acquired:	Aug 5 2016 01:33 pm	Sample Name:	**LCS-76602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	216.70	ppb	0.47	200.00	80 -	120	108.4	
9	Be	2	45	204.70	ppb	0.96	200.00	80 -	120	102.4	
11	B	2	45	205.60	ppb	1.27	200.00	80 -	120	102.8	
23	Na	1	45	5205.00	ppb	1.69	5000.00	80 -	120	104.1	
24	Mg	1	45	4997.00	ppb	0.80	5000.00	80 -	120	99.9	
27	Al	1	45	1002.00	ppb	0.61	1000.00	80 -	120	100.2	
39	K	1	45	4946.00	ppb	1.17	5000.00	80 -	120	98.9	
44	Ca	2	45	5191.00	ppb	1.05	5000.00	80 -	120	103.8	
47	Ti	1	45	195.70	ppb	3.59	200.00	80 -	120	97.9	
51	V	1	45	195.30	ppb	1.15	200.00	80 -	120	97.7	
52	Cr	1	45	199.40	ppb	0.91	200.00	80 -	120	99.7	
55	Mn	1	45	196.40	ppb	1.64	200.00	80 -	120	98.2	
56	Fe	1	72	1057.00	ppb	2.32	1000.00	80 -	120	105.7	
59	Co	1	72	205.90	ppb	0.71	200.00	80 -	120	103.0	
60	Ni	1	72	201.90	ppb	0.18	200.00	80 -	120	101.0	
63	Cu	1	72	207.10	ppb	1.20	200.00	80 -	120	103.6	
66	Zn	1	72	189.10	ppb	1.20	200.00	80 -	120	94.6	
75	As	1	72	193.70	ppb	0.75	200.00	80 -	120	96.9	
78	Se	1	72	187.40	ppb	0.98	200.00	80 -	120	93.7	
88	Sr	2	115	206.50	ppb	1.69	200.00	80 -	120	103.3	
95	Mo	2	115	194.80	ppb	2.11	200.00	80 -	120	97.4	
107	Ag	2	115	196.00	ppb	2.26	200.00	80 -	120	98.0	
111	Cd	2	115	193.80	ppb	2.16	200.00	80 -	120	96.9	
118	Sn	2	115	204.40	ppb	1.47	200.00	80 -	120	102.2	
121	Sb	2	115	189.20	ppb	1.47	200.00	80 -	120	94.6	
137	Ba	2	115	193.80	ppb	1.04	200.00	80 -	120	96.9	
205	Tl	2	209	206.50	ppb	0.72	200.00	80 -	120	103.3	
208	Pb	2	209	196.60	ppb	0.97	200.00	80 -	120	98.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-74524.27	0.85	15.28	-487746.4	70 -	120	ISFail
45	Sc	1	182017.00	0.75	182515.06	99.7	70 -	120	
45	Sc	2	6008782.50	1.44	6126960.50	98.1	70 -	120	
72	Ge	1	94133.34	0.36	97742.99	96.3	70 -	120	
115	In	2	6180379.00	0.91	6508670.50	95.0	70 -	120	
209	Bi	2	4019652.50	0.87	4337985.50	92.7	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\025_LCS.D\025_LCS.D#

Date Acquired:	Aug 5 2016 01:39 pm	Sample Name:	**LCSD-76602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	212.30	ppb	1.25	200.00	80 -	120	106.2	
9	Be	2	45	203.20	ppb	1.24	200.00	80 -	120	101.6	
11	B	2	45	204.00	ppb	0.48	200.00	80 -	120	102.0	
23	Na	1	45	5273.00	ppb	1.61	5000.00	80 -	120	105.5	
24	Mg	1	45	5011.00	ppb	1.36	5000.00	80 -	120	100.2	
27	Al	1	45	1022.00	ppb	1.43	1000.00	80 -	120	102.2	
39	K	1	45	4994.00	ppb	0.87	5000.00	80 -	120	99.9	
44	Ca	2	45	5123.00	ppb	2.40	5000.00	80 -	120	102.5	
47	Ti	1	45	196.30	ppb	3.57	200.00	80 -	120	98.2	
51	V	1	45	193.60	ppb	0.91	200.00	80 -	120	96.8	
52	Cr	1	45	197.30	ppb	0.70	200.00	80 -	120	98.7	
55	Mn	1	45	197.00	ppb	1.08	200.00	80 -	120	98.5	
56	Fe	1	72	1051.00	ppb	0.85	1000.00	80 -	120	105.1	
59	Co	1	72	202.10	ppb	0.21	200.00	80 -	120	101.1	
60	Ni	1	72	198.60	ppb	0.38	200.00	80 -	120	99.3	
63	Cu	1	72	203.50	ppb	0.71	200.00	80 -	120	101.8	
66	Zn	1	72	184.90	ppb	0.74	200.00	80 -	120	92.5	
75	As	1	72	191.60	ppb	0.71	200.00	80 -	120	95.8	
78	Se	1	72	188.30	ppb	0.61	200.00	80 -	120	94.2	
88	Sr	2	115	201.90	ppb	0.56	200.00	80 -	120	101.0	
95	Mo	2	115	190.00	ppb	1.95	200.00	80 -	120	95.0	
107	Ag	2	115	190.60	ppb	1.84	200.00	80 -	120	95.3	
111	Cd	2	115	190.80	ppb	1.51	200.00	80 -	120	95.4	
118	Sn	2	115	200.50	ppb	1.48	200.00	80 -	120	100.3	
121	Sb	2	115	186.30	ppb	1.48	200.00	80 -	120	93.2	
137	Ba	2	115	190.00	ppb	0.89	200.00	80 -	120	95.0	
205	Tl	2	209	203.40	ppb	0.99	200.00	80 -	120	101.7	
208	Pb	2	209	194.50	ppb	1.08	200.00	80 -	120	97.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-72044.63	1.01	15.28	-471517.6	70 -	120	ISFail
45	Sc	1	181972.63	0.65	182515.06	99.7	70 -	120	
45	Sc	2	5964076.50	1.18	6126960.50	97.3	70 -	120	
72	Ge	1	94412.44	0.44	97742.99	96.6	70 -	120	
115	In	2	6217191.00	1.69	6508670.50	95.5	70 -	120	
209	Bi	2	4004459.50	1.24	4337985.50	92.3	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\028DT1.D\028DT1.D#

Date Acquired:	Aug 5 2016 01:56 pm	Sample Name:	**1607239-01A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	15.13	ppb	0.77	-2496.65	90 - 110	-3.0	
9	Be	2	45	0.69	ppb	4.71	3.19	90 - 110	108.1	GOOD
11	B	2	45	21.68	ppb	2.49	98.71	90 - 110	109.8	GOOD
23	Na	1	45	336.40	ppb	0.22	1817.00	90 - 110	92.6	GOOD
24	Mg	1	45	3376.00	ppb	0.71	17690.00	90 - 110	95.4	GOOD
27	Al	1	45	16470.00	ppb	1.15	86410.00	90 - 110	95.3	GOOD
39	K	1	45	3573.00	ppb	0.95	19300.00	90 - 110	92.6	GOOD
44	Ca	2	45	23410.00	ppb	1.58	119500.00	90 - 110	97.9	GOOD
47	Ti	1	45	47.29	ppb	2.10	256.00	90 - 110	92.4	GOOD
51	V	1	45	23.97	ppb	1.33	124.20	90 - 110	96.5	GOOD
52	Cr	1	45	14.36	ppb	1.27	74.54	90 - 110	96.3	GOOD
55	Mn	1	45	129.20	ppb	1.15	666.90	90 - 110	96.9	GOOD
56	Fe	1	72	15890.00	ppb	1.28	83390.00	90 - 110	95.3	GOOD
59	Co	1	72	5.47	ppb	1.52	28.88	90 - 110	94.7	GOOD
60	Ni	1	72	8.52	ppb	1.38	43.97	90 - 110	96.9	GOOD
63	Cu	1	72	5.22	ppb	2.11	26.38	90 - 110	98.8	GOOD
66	Zn	1	72	30.85	ppb	2.45	200.60	90 - 110	76.9	
75	As	1	72	5.77	ppb	2.12	28.38	90 - 110	101.7	GOOD
78	Se	1	72	2.75	ppb	6.11	13.22	90 - 110	104.0	GOOD
88	Sr	2	115	76.66	ppb	1.96	408.50	90 - 110	93.8	GOOD
95	Mo	2	115	0.53	ppb	2.18	2.57	90 - 110	102.3	GOOD
107	Ag	2	115	0.05	ppb	5.97	0.22	90 - 110	118.2	
111	Cd	2	115	0.26	ppb	8.44	1.17	90 - 110	111.3	
118	Sn	2	115	1.10	ppb	4.25	6.40	90 - 110	85.6	
121	Sb	2	115	0.71	ppb	2.40	3.42	90 - 110	104.3	GOOD
137	Ba	2	115	83.81	ppb	1.06	438.10	90 - 110	95.7	GOOD
205	Tl	2	209	0.18	ppb	3.61	0.76	90 - 110	120.3	
208	Pb	2	209	35.99	ppb	1.63	191.90	90 - 110	93.8	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-2496.65	2.53	15.28	-16340.0	70 - 120	ISFail
45	Sc	1	185907.23	1.19	182515.06	101.9	70 - 120	
45	Sc	2	6148123.50	1.82	6126960.50	100.3	70 - 120	
72	Ge	1	97392.03	0.67	97742.99	99.6	70 - 120	
115	In	2	6434394.50	1.13	6508670.50	98.9	70 - 120	
209	Bi	2	4141211.30	0.87	4337985.50	95.5	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\038_PDS.D\038_PDS.D#

Date Acquired:	Aug 5 2016 02:55 pm	Sample Name:	**1607239-01A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	281.50	ppb	1.84	-49875.43	200	75-125	######	Fail
9	Be	2	45	200.00	ppb	2.04	3.19	200	75-125	98.4	
11	B	2	45	287.00	ppb	2.15	98.71	200	75-125	94.1	
23	Na	1	45	7734.00	ppb	1.53	1817.00	5000	75-125	118.3	
24	Mg	1	45	24260.00	ppb	0.95	17690.00	5000	75-125	131.4	Fail
27	Al	1	45	98890.00	ppb	0.30	86410.00	5000	75-125	249.6	Fail
39	K	1	45	26300.00	ppb	1.12	19300.00	5000	75-125	140.0	Fail
44	Ca	2	45	132300.00	ppb	2.32	119500.00	5000	75-125	256.0	Fail
47	Ti	1	45	497.00	ppb	0.19	256.00	200	75-125	120.5	
51	V	1	45	354.80	ppb	1.00	124.20	200	75-125	115.3	
52	Cr	1	45	302.70	ppb	0.93	74.54	200	75-125	114.1	
55	Mn	1	45	938.60	ppb	0.82	666.90	200	75-125	135.8	Fail
56	Fe	1	72	96550.00	ppb	0.65	83390.00	5000	75-125	263.2	Fail
59	Co	1	72	256.60	ppb	1.32	28.88	200	75-125	113.9	
60	Ni	1	72	262.20	ppb	1.42	43.97	200	75-125	109.1	
63	Cu	1	72	240.80	ppb	1.19	26.38	200	75-125	107.2	
66	Zn	1	72	420.00	ppb	1.07	200.60	200	75-125	109.7	
75	As	1	72	242.20	ppb	0.95	28.38	200	75-125	106.9	
78	Se	1	72	216.30	ppb	1.44	13.22	200	75-125	101.5	
88	Sr	2	115	657.00	ppb	1.71	408.50	200	75-125	124.3	
95	Mo	2	115	208.10	ppb	2.66	2.57	200	75-125	102.8	
107	Ag	2	115	202.30	ppb	2.78	0.22	200	75-125	101.0	
111	Cd	2	115	198.30	ppb	2.59	1.17	200	75-125	98.6	
118	Sn	2	115	220.70	ppb	2.13	6.40	200	75-125	107.1	
121	Sb	2	115	209.00	ppb	1.96	3.42	200	75-125	102.8	
137	Ba	2	115	680.40	ppb	1.98	438.10	200	75-125	121.1	
205	Tl	2	209	226.30	ppb	2.17	0.76	200	75-125	112.8	
208	Pb	2	209	424.60	ppb	1.71	191.90	200	75-125	116.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-49875.43	3.20	15.28	-326424.7	70 - 120	ISFail
45	Sc	1	169917.80	0.05	182515.06	93.1	70 - 120	
45	Sc	2	5802569.50	2.24	6126960.50	94.7	70 - 120	
72	Ge	1	85830.66	0.10	97742.99	87.8	70 - 120	
115	In	2	5916060.50	1.37	6508670.50	90.9	70 - 120	
209	Bi	2	3629892.80	0.47	4337985.50	83.7	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\039_MS.D\039_MS.D#

Date Acquired:	Aug 5 2016 03:01 pm	Sample Name:	**1607239-01A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	273.20	ppb	1.43	########	200	80-120	######	Fail
9	Be	2	45	191.10	ppb	1.46	3.19	200	80-120	94.0	
11	B	2	45	274.80	ppb	1.74	98.71	200	80-120	88.0	
23	Na	1	45	7117.00	ppb	0.38	1817.00	5000	80-120	106.0	
24	Mg	1	45	23120.00	ppb	0.86	17690.00	5000	80-120	108.6	
27	Al	1	45	94880.00	ppb	0.81	86410.00	1000	80-120	847.0	Fail
39	K	1	45	25000.00	ppb	1.12	19300.00	5000	80-120	114.0	
44	Ca	2	45	131400.00	ppb	1.73	########	5000	80-120	238.0	Fail
47	Ti	1	45	472.30	ppb	0.91	256.00	200	80-120	108.2	
51	V	1	45	334.00	ppb	0.38	124.20	200	80-120	104.9	
52	Cr	1	45	279.80	ppb	0.59	74.54	200	80-120	102.6	
55	Mn	1	45	854.80	ppb	0.50	666.90	200	80-120	93.9	
56	Fe	1	72	87870.00	ppb	1.23	83390.00	1000	80-120	448.0	Fail
59	Co	1	72	233.20	ppb	0.60	28.88	200	80-120	102.2	
60	Ni	1	72	241.70	ppb	0.20	43.97	200	80-120	98.9	
63	Cu	1	72	225.10	ppb	0.68	26.38	200	80-120	99.4	
66	Zn	1	72	392.70	ppb	0.26	200.60	200	80-120	96.0	
75	As	1	72	224.00	ppb	0.18	28.38	200	80-120	97.8	
78	Se	1	72	200.70	ppb	0.47	13.22	200	80-120	93.7	
88	Sr	2	115	639.60	ppb	2.35	408.50	200	80-120	115.6	
95	Mo	2	115	188.70	ppb	1.98	2.57	200	80-120	93.1	
107	Ag	2	115	187.40	ppb	1.75	0.22	200	80-120	93.6	
111	Cd	2	115	192.20	ppb	2.00	1.17	200	80-120	95.5	
118	Sn	2	115	208.80	ppb	2.40	6.40	200	80-120	101.2	
121	Sb	2	115	71.03	ppb	1.12	3.42	200	80-120	33.8	Fail
137	Ba	2	115	637.20	ppb	2.00	438.10	200	80-120	99.5	
205	Tl	2	209	216.60	ppb	1.21	0.76	200	80-120	107.9	
208	Pb	2	209	427.50	ppb	1.08	191.90	200	80-120	117.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-72904.95	0.72	15.28	########	70 - 120	ISFail
45	Sc	1	167082.70	0.31	182515.06	91.5	70 - 120	
45	Sc	2	5543651.50	1.49	6126960.50	90.5	70 - 120	
72	Ge	1	84659.40	0.61	97742.99	86.6	70 - 120	
115	In	2	5672386.50	1.62	6508670.50	87.2	70 - 120	
209	Bi	2	3518521.50	0.60	4337985.50	81.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\040_MS.D\040_MS.D#

Date Acquired:	Aug 5 2016 03:06 pm	Sample Name:	**1607239-01A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	262.30	ppb	0.70	########	200	80-120	######	Fail
9	Be	2	45	183.10	ppb	1.57	3.19	200	80-120	90.0	
11	B	2	45	265.40	ppb	0.83	98.71	200	80-120	83.3	
23	Na	1	45	6775.00	ppb	0.24	1817.00	5000	80-120	99.2	
24	Mg	1	45	21690.00	ppb	0.56	17690.00	5000	80-120	80.0	
27	Al	1	45	87150.00	ppb	0.77	86410.00	1000	80-120	74.0	Fail
39	K	1	45	23520.00	ppb	0.57	19300.00	5000	80-120	84.4	
44	Ca	2	45	115000.00	ppb	2.12	########	5000	80-120	-90.0	Fail
47	Ti	1	45	464.80	ppb	0.64	256.00	200	80-120	104.4	
51	V	1	45	326.90	ppb	0.50	124.20	200	80-120	101.4	
52	Cr	1	45	266.80	ppb	0.95	74.54	200	80-120	96.1	
55	Mn	1	45	873.20	ppb	0.45	666.90	200	80-120	103.1	
56	Fe	1	72	86200.00	ppb	0.26	83390.00	1000	80-120	281.0	Fail
59	Co	1	72	224.40	ppb	0.33	28.88	200	80-120	97.8	
60	Ni	1	72	233.30	ppb	0.13	43.97	200	80-120	94.7	
63	Cu	1	72	218.70	ppb	0.26	26.38	200	80-120	96.2	
66	Zn	1	72	377.30	ppb	0.18	200.60	200	80-120	88.3	
75	As	1	72	217.40	ppb	0.54	28.38	200	80-120	94.5	
78	Se	1	72	194.30	ppb	1.13	13.22	200	80-120	90.5	
88	Sr	2	115	596.30	ppb	1.86	408.50	200	80-120	93.9	
95	Mo	2	115	184.10	ppb	1.80	2.57	200	80-120	90.8	
107	Ag	2	115	183.80	ppb	2.00	0.22	200	80-120	91.8	
111	Cd	2	115	187.10	ppb	0.55	1.17	200	80-120	93.0	
118	Sn	2	115	204.20	ppb	1.29	6.40	200	80-120	98.9	
121	Sb	2	115	69.12	ppb	1.46	3.42	200	80-120	32.9	Fail
137	Ba	2	115	626.80	ppb	1.38	438.10	200	80-120	94.3	
205	Tl	2	209	211.80	ppb	1.82	0.76	200	80-120	105.5	
208	Pb	2	209	388.00	ppb	1.39	191.90	200	80-120	98.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-70571.80	3.11	15.28	########	70 - 120	ISFail
45	Sc	1	165132.59	0.30	182515.06	90.5	70 - 120	
45	Sc	2	5408150.00	1.66	6126960.50	88.3	70 - 120	
72	Ge	1	83602.56	0.15	97742.99	85.5	70 - 120	
115	In	2	5509372.00	1.08	6508670.50	84.6	70 - 120	
209	Bi	2	3436368.30	0.83	4337985.50	79.2	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\041CCV1.D\041CCV1.D#

Date Acquired:	Aug 5 2016 03:12 pm	Sample Name:	**CCV1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	203.90	ppb	0.69	200.00	90 -	110	102.0	
9	Be	2	45	199.40	ppb	1.02	200.00	90 -	110	99.7	
11	B	2	45	196.20	ppb	1.62	200.00	90 -	110	98.1	
23	Na	1	45	5300.00	ppb	1.10	5000.00	90 -	110	106.0	
24	Mg	1	45	5048.00	ppb	0.82	5000.00	90 -	110	101.0	
27	Al	1	45	5233.00	ppb	1.07	5000.00	90 -	110	104.7	
39	K	1	45	5149.00	ppb	1.01	5000.00	90 -	110	103.0	
44	Ca	2	45	5390.00	ppb	1.69	5000.00	90 -	110	107.8	
47	Ti	1	45	198.50	ppb	3.52	200.00	90 -	110	99.3	
51	V	1	45	197.90	ppb	0.58	200.00	90 -	110	99.0	
52	Cr	1	45	201.50	ppb	0.56	200.00	90 -	110	100.8	
55	Mn	1	45	203.80	ppb	0.91	200.00	90 -	110	101.9	
56	Fe	1	72	5243.00	ppb	1.03	5000.00	90 -	110	104.9	
59	Co	1	72	207.10	ppb	0.69	200.00	90 -	110	103.6	
60	Ni	1	72	204.30	ppb	0.85	200.00	90 -	110	102.2	
63	Cu	1	72	208.80	ppb	0.85	200.00	90 -	110	104.4	
66	Zn	1	72	197.60	ppb	1.20	200.00	90 -	110	98.8	
75	As	1	72	205.00	ppb	0.65	200.00	90 -	110	102.5	
78	Se	1	72	209.90	ppb	2.54	200.00	90 -	110	105.0	
88	Sr	2	115	209.80	ppb	1.51	200.00	90 -	110	104.9	
95	Mo	2	115	198.60	ppb	1.81	200.00	90 -	110	99.3	
107	Ag	2	115	205.70	ppb	1.43	200.00	90 -	110	102.9	
111	Cd	2	115	201.20	ppb	1.59	200.00	90 -	110	100.6	
118	Sn	2	115	200.00	ppb	1.25	200.00	90 -	110	100.0	
121	Sb	2	115	198.90	ppb	1.33	200.00	90 -	110	99.5	
137	Ba	2	115	199.70	ppb	1.13	200.00	90 -	110	99.9	
205	Tl	2	209	210.00	ppb	0.78	200.00	90 -	110	105.0	
208	Pb	2	209	199.10	ppb	1.15	200.00	90 -	110	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-62773.12	0.33	15.28	-410837.4	70 -	120		ISFail
45	Sc	1	161949.66	0.37	182515.06	88.7	70 -	120		
45	Sc	2	5385562.50	1.41	6126960.50	87.9	70 -	120		
72	Ge	1	84350.12	0.31	97742.99	86.3	70 -	120		
115	In	2	5374916.00	0.94	6508670.50	82.6	70 -	120		
209	Bi	2	3479269.00	1.17	4337985.50	80.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\043LCVL.D\043LCVL.D#

Date Acquired:	Aug 5 2016 03:24 pm	Sample Name:	**LCVL1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.52	ppb	2.04	10.00	70 -	130	105.2	
9	Be	2	45	1.03	ppb	5.32	1.00	70 -	130	103.3	
11	B	2	45	22.36	ppb	0.53	20.00	70 -	130	111.8	
23	Na	1	45	89.51	ppb	0.92	100.00	70 -	130	89.5	
24	Mg	1	45	104.30	ppb	1.74	100.00	70 -	130	104.3	
27	Al	1	45	118.70	ppb	4.84	100.00	70 -	130	118.7	
39	K	1	45	100.50	ppb	1.04	100.00	70 -	130	100.5	
44	Ca	2	45	105.10	ppb	1.46	100.00	70 -	130	105.1	
47	Ti	1	45	5.16	ppb	6.72	5.00	70 -	130	103.1	
51	V	1	45	1.11	ppb	1.46	1.00	70 -	130	110.5	
52	Cr	1	45	5.15	ppb	1.58	5.00	70 -	130	103.0	
55	Mn	1	45	4.90	ppb	3.30	5.00	70 -	130	98.0	
56	Fe	1	72	120.20	ppb	2.43	100.00	70 -	130	120.2	
59	Co	1	72	5.11	ppb	1.46	5.00	70 -	130	102.2	
60	Ni	1	72	5.10	ppb	0.38	5.00	70 -	130	101.9	
63	Cu	1	72	5.06	ppb	1.10	5.00	70 -	130	101.2	
66	Zn	1	72	-8.83	ppb	1.43	5.00	70 -	130	-176.6	Fail
75	As	1	72	5.26	ppb	1.15	5.00	70 -	130	105.2	
78	Se	1	72	5.69	ppb	6.20	5.00	70 -	130	113.7	
88	Sr	2	115	5.18	ppb	2.95	5.00	70 -	130	103.5	
95	Mo	2	115	4.93	ppb	2.60	5.00	70 -	130	98.7	
107	Ag	2	115	2.11	ppb	2.58	2.00	70 -	130	105.5	
111	Cd	2	115	1.12	ppb	9.81	1.00	70 -	130	111.8	
118	Sn	2	115	4.96	ppb	0.89	5.00	70 -	130	99.2	
121	Sb	2	115	2.06	ppb	0.96	2.00	70 -	130	103.1	
137	Ba	2	115	5.10	ppb	1.51	5.00	70 -	130	102.0	
205	Tl	2	209	1.12	ppb	2.59	1.00	70 -	130	112.4	
208	Pb	2	209	1.08	ppb	3.53	1.00	70 -	130	107.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1883.23	4.70	15.28	-12325.4	70 -	120	ISFail
45	Sc	1	163221.86	1.06	182515.06	89.4	70 -	120	
45	Sc	2	5221868.50	1.40	6126960.50	85.2	70 -	120	
72	Ge	1	86139.48	0.87	97742.99	88.1	70 -	120	
115	In	2	5310410.00	0.90	6508670.50	81.6	70 -	120	
209	Bi	2	3526863.80	0.11	4337985.50	81.3	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\044_CCB.D\044_CCB.D#

Date Acquired:	Aug 5 2016 03:31 pm	Sample Name:	**CCB1-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.145	ppb	7.84	2.00	2.00	
9	Be	2	45	0.030	ppb	26.71	0.40	0.30	
11	B	2	45	2.047	ppb	1.75	10.00	10.00	
23	Na	1	45	-8.384	ppb	1.48	50.00	#####	
24	Mg	1	45	0.280	ppb	21.27	50.00	#####	
27	Al	1	45	3.829	ppb	1.12	50.00	10.00	
39	K	1	45	-2.470	ppb	3.99	50.00	#####	
44	Ca	2	45	-0.881	ppb	5.31	50.00	#####	
47	Ti	1	45	0.099	ppb	24.74	4.00	3.00	
51	V	1	45	0.066	ppb	5.58	4.00	3.00	
52	Cr	1	45	0.011	ppb	16.35	2.00	2.00	
55	Mn	1	45	-0.113	ppb	13.79	2.00	3.00	
56	Fe	1	72	4.660	ppb	14.35	50.00	30.00	
59	Co	1	72	0.050	ppb	16.06	2.00	3.00	
60	Ni	1	72	-0.016	ppb	0.00	2.00	3.00	
63	Cu	1	72	0.763	ppb	141.30	2.00	2.00	
66	Zn	1	72	-14.010	ppb	11.86	4.00	2.00	
75	As	1	72	-0.019	ppb	8.89	2.00	2.00	
78	Se	1	72	0.131	ppb	9.25	0.60	2.00	
88	Sr	2	115	0.045	ppb	1.40	4.00	3.00	
95	Mo	2	115	0.057	ppb	14.43	2.00	2.00	
107	Ag	2	115	0.037	ppb	14.52	0.40	1.00	
111	Cd	2	115	0.048	ppb	21.16	0.40	0.30	
118	Sn	2	115	-0.061	ppb	13.14	20.00	3.00	
121	Sb	2	115	0.053	ppb	8.33	2.00	0.80	
137	Ba	2	115	0.032	ppb	25.95	2.00	3.00	
205	Tl	2	209	0.078	ppb	13.68	2.00	0.50	
208	Pb	2	209	0.073	ppb	4.30	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-15.34	106.79	15.28	-100.4	70 - 120	ISFail
45	Sc	1		160342.11	0.69	182515.06	87.9	70 - 120	
45	Sc	2		5110273.50	1.49	6126960.50	83.4	70 - 120	
72	Ge	1		85578.78	0.58	97742.99	87.6	70 - 120	
115	In	2		5184991.00	0.47	6508670.50	79.7	70 - 120	
209	Bi	2		3446338.50	0.32	4337985.50	79.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\057CCV1.D\057CCV1.D#

Date Acquired:	Aug 5 2016 04:48 pm	Sample Name:	**CCV2-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	204.50	ppb	0.21	200.00	90 -	110	102.3	
9	Be	2	45	193.50	ppb	1.27	200.00	90 -	110	96.8	
11	B	2	45	184.10	ppb	2.02	200.00	90 -	110	92.1	
23	Na	1	45	5213.00	ppb	0.14	5000.00	90 -	110	104.3	
24	Mg	1	45	4990.00	ppb	0.70	5000.00	90 -	110	99.8	
27	Al	1	45	5154.00	ppb	1.19	5000.00	90 -	110	103.1	
39	K	1	45	5181.00	ppb	0.51	5000.00	90 -	110	103.6	
44	Ca	2	45	5413.00	ppb	1.44	5000.00	90 -	110	108.3	
47	Ti	1	45	199.20	ppb	0.97	200.00	90 -	110	99.6	
51	V	1	45	197.20	ppb	0.41	200.00	90 -	110	98.6	
52	Cr	1	45	201.00	ppb	0.57	200.00	90 -	110	100.5	
55	Mn	1	45	203.50	ppb	0.82	200.00	90 -	110	101.8	
56	Fe	1	72	5181.00	ppb	0.81	5000.00	90 -	110	103.6	
59	Co	1	72	204.40	ppb	0.39	200.00	90 -	110	102.2	
60	Ni	1	72	201.00	ppb	0.46	200.00	90 -	110	100.5	
63	Cu	1	72	206.70	ppb	0.30	200.00	90 -	110	103.4	
66	Zn	1	72	194.20	ppb	1.44	200.00	90 -	110	97.1	
75	As	1	72	204.80	ppb	0.25	200.00	90 -	110	102.4	
78	Se	1	72	213.90	ppb	1.15	200.00	90 -	110	107.0	
88	Sr	2	115	211.20	ppb	1.48	200.00	90 -	110	105.6	
95	Mo	2	115	199.00	ppb	1.47	200.00	90 -	110	99.5	
107	Ag	2	115	204.70	ppb	1.12	200.00	90 -	110	102.4	
111	Cd	2	115	200.40	ppb	1.17	200.00	90 -	110	100.2	
118	Sn	2	115	198.60	ppb	0.72	200.00	90 -	110	99.3	
121	Sb	2	115	195.90	ppb	1.15	200.00	90 -	110	98.0	
137	Ba	2	115	199.40	ppb	0.68	200.00	90 -	110	99.7	
205	Tl	2	209	197.40	ppb	0.97	200.00	90 -	110	98.7	
208	Pb	2	209	197.80	ppb	0.49	200.00	90 -	110	98.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-52587.95	0.47	15.28	-344177.6	70 -	120		ISFail
45	Sc	1	135803.44	0.37	182515.06	74.4	70 -	120		
45	Sc	2	4400504.00	0.62	6126960.50	71.8	70 -	120		
72	Ge	1	71211.27	0.70	97742.99	72.9	70 -	120		
115	In	2	4310293.50	1.03	6508670.50	66.2	70 -	120		ISFail
209	Bi	2	2819500.30	0.44	4337985.50	65.0	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\058_CCB.D\058_CCB.D#

Date Acquired:	Aug 5 2016 04:54 pm	Sample Name:	**CCB2-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.274	ppb	6.50	2.00	2.00	
9	Be	2	45	0.158	ppb	13.85	0.40	0.30	
11	B	2	45	2.775	ppb	4.36	10.00	10.00	
23	Na	1	45	1.341	ppb	2.43	50.00	#####	
24	Mg	1	45	7.112	ppb	6.68	50.00	#####	
27	Al	1	45	14.080	ppb	12.02	50.00	10.00	FailAq
39	K	1	45	7.231	ppb	3.62	50.00	#####	
44	Ca	2	45	24.060	ppb	4.55	50.00	#####	
47	Ti	1	45	0.332	ppb	10.83	4.00	3.00	
51	V	1	45	0.221	ppb	7.31	4.00	3.00	
52	Cr	1	45	0.196	ppb	11.89	2.00	2.00	
55	Mn	1	45	0.290	ppb	8.37	2.00	3.00	
56	Fe	1	72	19.940	ppb	7.78	50.00	30.00	
59	Co	1	72	0.187	ppb	10.53	2.00	3.00	
60	Ni	1	72	0.162	ppb	8.45	2.00	3.00	
63	Cu	1	72	0.128	ppb	4.18	2.00	2.00	
66	Zn	1	72	-13.680	ppb	6.05	4.00	2.00	
75	As	1	72	0.121	ppb	2.53	2.00	2.00	
78	Se	1	72	0.437	ppb	4.97	0.60	2.00	
88	Sr	2	115	0.307	ppb	6.15	4.00	3.00	
95	Mo	2	115	0.261	ppb	9.52	2.00	2.00	
107	Ag	2	115	0.148	ppb	8.16	0.40	1.00	
111	Cd	2	115	0.164	ppb	21.11	0.40	0.30	
118	Sn	2	115	0.096	ppb	2.61	20.00	3.00	
121	Sb	2	115	0.229	ppb	1.41	2.00	0.80	
137	Ba	2	115	0.183	ppb	13.09	2.00	3.00	
205	Tl	2	209	0.314	ppb	2.03	2.00	0.50	
208	Pb	2	209	0.250	ppb	5.15	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-45.90	51.24	15.28	-300.4	70 - 120	ISFail
45	Sc	1		132871.17	0.60	182515.06	72.8	70 - 120	
45	Sc	2		4152631.00	1.21	6126960.50	67.8	70 - 120	ISFail
72	Ge	1		70954.86	0.48	97742.99	72.6	70 - 120	
115	In	2		4094570.80	0.32	6508670.50	62.9	70 - 120	ISFail
209	Bi	2		2736779.80	0.45	4337985.50	63.1	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\059LCVL.D\059LCVL.D#

Date Acquired:	Aug 5 2016 05:00 pm	Sample Name:	**LCVL2-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.12	ppb	2.17	10.00	70 -	130	101.2	
9	Be	2	45	0.99	ppb	6.49	1.00	70 -	130	98.5	
11	B	2	45	20.14	ppb	1.65	20.00	70 -	130	100.7	
23	Na	1	45	90.03	ppb	2.08	100.00	70 -	130	90.0	
24	Mg	1	45	101.20	ppb	0.35	100.00	70 -	130	101.2	
27	Al	1	45	107.20	ppb	0.95	100.00	70 -	130	107.2	
39	K	1	45	105.10	ppb	1.16	100.00	70 -	130	105.1	
44	Ca	2	45	99.98	ppb	2.49	100.00	70 -	130	100.0	
47	Ti	1	45	4.97	ppb	20.74	5.00	70 -	130	99.5	
51	V	1	45	1.06	ppb	2.89	1.00	70 -	130	105.7	
52	Cr	1	45	5.13	ppb	2.69	5.00	70 -	130	102.5	
55	Mn	1	45	4.80	ppb	1.15	5.00	70 -	130	96.0	
56	Fe	1	72	112.70	ppb	1.17	100.00	70 -	130	112.7	
59	Co	1	72	5.09	ppb	0.56	5.00	70 -	130	101.8	
60	Ni	1	72	5.05	ppb	3.32	5.00	70 -	130	101.0	
63	Cu	1	72	5.11	ppb	1.76	5.00	70 -	130	102.1	
66	Zn	1	72	-8.61	ppb	2.41	5.00	70 -	130	-172.2	Fail
75	As	1	72	5.19	ppb	0.30	5.00	70 -	130	103.9	
78	Se	1	72	5.86	ppb	2.84	5.00	70 -	130	117.1	
88	Sr	2	115	5.21	ppb	2.80	5.00	70 -	130	104.2	
95	Mo	2	115	4.90	ppb	3.68	5.00	70 -	130	98.1	
107	Ag	2	115	2.08	ppb	3.82	2.00	70 -	130	104.2	
111	Cd	2	115	1.03	ppb	6.47	1.00	70 -	130	102.5	
118	Sn	2	115	4.91	ppb	1.54	5.00	70 -	130	98.2	
121	Sb	2	115	2.01	ppb	1.59	2.00	70 -	130	100.5	
137	Ba	2	115	4.99	ppb	2.48	5.00	70 -	130	99.9	
205	Tl	2	209	1.08	ppb	3.17	1.00	70 -	130	108.2	
208	Pb	2	209	1.05	ppb	3.45	1.00	70 -	130	105.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1463.73	4.20	15.28	-9579.8	70 -	120		ISFail
45	Sc	1	130949.37	0.17	182515.06	71.7	70 -	120		
45	Sc	2	4105053.00	1.51	6126960.50	67.0	70 -	120		ISFail
72	Ge	1	70216.88	0.73	97742.99	71.8	70 -	120		
115	In	2	4011011.30	0.84	6508670.50	61.6	70 -	120		ISFail
209	Bi	2	2712062.00	0.32	4337985.50	62.5	70 -	120		ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\060__PB.D\060__PB.D#

Date Acquired:	Aug 5 2016 05:06 pm	Sample Name:	MB-76623
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.090	ppb	9.79	2.0	8.00	
9	Be	2	45	-0.005	ppb	79.57	0.4	1.20	
11	B	2	45	1.574	ppb	8.91	10.0	30.00	
23	Na	1	45	-8.816	ppb	0.90	50.0	#####	
24	Mg	1	45	1.309	ppb	14.04	50.0	#####	
27	Al	1	45	3.201	ppb	6.96	50.0	#####	
39	K	1	45	0.178	ppb	2.58	50.0	#####	
44	Ca	2	45	3.723	ppb	7.66	50.0	#####	
47	Ti	1	45	0.200	ppb	91.64	4.0	10.00	
51	V	1	45	0.038	ppb	1.90	4.0	10.00	
52	Cr	1	45	0.125	ppb	3.73	2.0	8.00	
55	Mn	1	45	-0.187	ppb	7.66	2.0	8.00	
56	Fe	1	72	5.277	ppb	6.71	50.0	#####	
59	Co	1	72	0.018	ppb	26.85	2.0	8.00	
60	Ni	1	72	-0.013	ppb	2.50	2.0	8.00	
63	Cu	1	72	-0.146	ppb	10.18	2.0	8.00	
66	Zn	1	72	-13.840	ppb	25.14	4.0	10.00	
75	As	1	72	-0.075	ppb	2.58	2.0	4.00	
78	Se	1	72	0.294	ppb	8.94	0.6	2.00	
88	Sr	2	115	0.059	ppb	19.63	4.0	10.00	
95	Mo	2	115	0.046	ppb	36.45	2.0	8.00	
107	Ag	2	115	0.018	ppb	30.20	0.4	0.80	
111	Cd	2	115	0.016	ppb	45.28	0.4	1.20	
118	Sn	2	115	4.429	ppb	3.71	20.0	40.00	
121	Sb	2	115	0.020	ppb	2.34	2.0	4.00	
137	Ba	2	115	0.036	ppb	37.24	2.0	8.00	
205	Tl	2	209	0.052	ppb	16.89	2.0	4.00	
208	Pb	2	209	0.068	ppb	13.57	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-17.25	72.02	15.28	-112.9	70 - 120	ISFail
45	Sc	1		130078.78	0.39	182515.06	71.3	70 - 120	
45	Sc	2		4057646.00	1.07	6126960.50	66.2	70 - 120	ISFail
72	Ge	1		68394.40	0.51	97742.99	70.0	70 - 120	ISFail
115	In	2		3917343.80	0.37	6508670.50	60.2	70 - 120	ISFail
209	Bi	2		2660415.00	0.69	4337985.50	61.3	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\061_LCS.D\061_LCS.D#

Date Acquired:	Aug 5 2016 05:12 pm	Sample Name:	**LCS-76623**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	194.70	ppb	1.97	200.00	80 -	120	97.4	
9	Be	2	45	179.00	ppb	1.06	200.00	80 -	120	89.5	
11	B	2	45	172.10	ppb	1.44	200.00	80 -	120	86.1	
23	Na	1	45	5044.00	ppb	0.30	5000.00	80 -	120	100.9	
24	Mg	1	45	4834.00	ppb	0.62	5000.00	80 -	120	96.7	
27	Al	1	45	1016.00	ppb	1.74	1000.00	80 -	120	101.6	
39	K	1	45	5079.00	ppb	0.74	5000.00	80 -	120	101.6	
44	Ca	2	45	5194.00	ppb	1.59	5000.00	80 -	120	103.9	
47	Ti	1	45	189.50	ppb	2.35	200.00	80 -	120	94.8	
51	V	1	45	191.50	ppb	0.44	200.00	80 -	120	95.8	
52	Cr	1	45	194.50	ppb	0.81	200.00	80 -	120	97.3	
55	Mn	1	45	199.70	ppb	0.76	200.00	80 -	120	99.9	
56	Fe	1	72	997.60	ppb	0.58	1000.00	80 -	120	99.8	
59	Co	1	72	196.60	ppb	0.57	200.00	80 -	120	98.3	
60	Ni	1	72	193.00	ppb	0.23	200.00	80 -	120	96.5	
63	Cu	1	72	197.20	ppb	0.25	200.00	80 -	120	98.6	
66	Zn	1	72	181.70	ppb	0.83	200.00	80 -	120	90.9	
75	As	1	72	192.20	ppb	0.72	200.00	80 -	120	96.1	
78	Se	1	72	194.10	ppb	0.89	200.00	80 -	120	97.1	
88	Sr	2	115	203.40	ppb	1.91	200.00	80 -	120	101.7	
95	Mo	2	115	192.90	ppb	1.74	200.00	80 -	120	96.5	
107	Ag	2	115	193.80	ppb	1.56	200.00	80 -	120	96.9	
111	Cd	2	115	188.00	ppb	1.83	200.00	80 -	120	94.0	
118	Sn	2	115	197.70	ppb	1.00	200.00	80 -	120	98.9	
121	Sb	2	115	183.80	ppb	0.82	200.00	80 -	120	91.9	
137	Ba	2	115	194.20	ppb	1.24	200.00	80 -	120	97.1	
205	Tl	2	209	192.30	ppb	1.19	200.00	80 -	120	96.2	
208	Pb	2	209	192.20	ppb	1.16	200.00	80 -	120	96.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-45472.61	2.83	15.28	-297609.1	70 -	120	ISFail
45	Sc	1	127024.15	0.63	182515.06	69.6	70 -	120	ISFail
45	Sc	2	3955222.80	1.13	6126960.50	64.6	70 -	120	ISFail
72	Ge	1	66741.87	0.70	97742.99	68.3	70 -	120	ISFail
115	In	2	3786410.30	0.88	6508670.50	58.2	70 -	120	ISFail
209	Bi	2	2512484.50	0.66	4337985.50	57.9	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\062_LCS.D\062_LCS.D#

Date Acquired:	Aug 5 2016 05:18 pm	Sample Name:	**LCSD-76623**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	192.80	ppb	2.08	200.00	80 -	120	96.4	
9	Be	2	45	177.30	ppb	1.65	200.00	80 -	120	88.7	
11	B	2	45	173.30	ppb	1.19	200.00	80 -	120	86.7	
23	Na	1	45	4993.00	ppb	1.66	5000.00	80 -	120	99.9	
24	Mg	1	45	4787.00	ppb	0.49	5000.00	80 -	120	95.7	
27	Al	1	45	1015.00	ppb	1.34	1000.00	80 -	120	101.5	
39	K	1	45	5040.00	ppb	0.30	5000.00	80 -	120	100.8	
44	Ca	2	45	5176.00	ppb	2.10	5000.00	80 -	120	103.5	
47	Ti	1	45	191.60	ppb	2.48	200.00	80 -	120	95.8	
51	V	1	45	189.90	ppb	1.06	200.00	80 -	120	95.0	
52	Cr	1	45	192.50	ppb	0.30	200.00	80 -	120	96.3	
55	Mn	1	45	198.80	ppb	0.54	200.00	80 -	120	99.4	
56	Fe	1	72	993.30	ppb	0.64	1000.00	80 -	120	99.3	
59	Co	1	72	195.00	ppb	0.36	200.00	80 -	120	97.5	
60	Ni	1	72	191.30	ppb	0.45	200.00	80 -	120	95.7	
63	Cu	1	72	195.70	ppb	0.28	200.00	80 -	120	97.9	
66	Zn	1	72	181.30	ppb	1.38	200.00	80 -	120	90.7	
75	As	1	72	191.20	ppb	0.41	200.00	80 -	120	95.6	
78	Se	1	72	196.20	ppb	1.38	200.00	80 -	120	98.1	
88	Sr	2	115	204.10	ppb	1.89	200.00	80 -	120	102.1	
95	Mo	2	115	193.20	ppb	1.14	200.00	80 -	120	96.6	
107	Ag	2	115	197.30	ppb	1.71	200.00	80 -	120	98.7	
111	Cd	2	115	187.50	ppb	1.31	200.00	80 -	120	93.8	
118	Sn	2	115	198.50	ppb	1.48	200.00	80 -	120	99.3	
121	Sb	2	115	186.70	ppb	0.82	200.00	80 -	120	93.4	
137	Ba	2	115	195.00	ppb	1.45	200.00	80 -	120	97.5	
205	Tl	2	209	191.50	ppb	1.00	200.00	80 -	120	95.8	
208	Pb	2	209	191.70	ppb	1.00	200.00	80 -	120	95.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-44084.74	3.33	15.28	-288525.7	70 -	120	ISFail
45	Sc	1	127009.59	0.52	182515.06	69.6	70 -	120	ISFail
45	Sc	2	3891415.00	1.35	6126960.50	63.5	70 -	120	ISFail
72	Ge	1	66390.02	0.77	97742.99	67.9	70 -	120	ISFail
115	In	2	3699871.50	0.39	6508670.50	56.8	70 -	120	ISFail
209	Bi	2	2481514.80	0.64	4337985.50	57.2	70 -	120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\065DT1.D\065DT1.D#

Date Acquired:	Aug 5 2016 05:36 pm	Sample Name:	**1607239-21A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	23.43	ppb	0.80	-2664.87	90 - 110	-4.4	
9	Be	2	45	0.69	ppb	6.82	3.35	90 - 110	102.5	GOOD
11	B	2	45	27.91	ppb	1.00	130.30	90 - 110	107.1	GOOD
23	Na	1	45	1934.00	ppb	0.86	9974.00	90 - 110	97.0	GOOD
24	Mg	1	45	4931.00	ppb	0.61	24950.00	90 - 110	98.8	GOOD
27	Al	1	45	14010.00	ppb	0.58	71080.00	90 - 110	98.6	GOOD
39	K	1	45	3577.00	ppb	0.43	18280.00	90 - 110	97.8	GOOD
44	Ca	2	45	8810.00	ppb	1.11	41800.00	90 - 110	105.4	GOOD
47	Ti	1	45	32.59	ppb	6.52	167.00	90 - 110	97.6	GOOD
51	V	1	45	22.34	ppb	1.19	110.90	90 - 110	100.7	GOOD
52	Cr	1	45	14.91	ppb	0.96	73.81	90 - 110	101.0	GOOD
55	Mn	1	45	396.40	ppb	0.65	1935.00	90 - 110	102.4	GOOD
56	Fe	1	72	26740.00	ppb	0.48	134600.00	90 - 110	99.3	GOOD
59	Co	1	72	7.37	ppb	1.17	36.91	90 - 110	99.8	GOOD
60	Ni	1	72	10.33	ppb	2.52	51.04	90 - 110	101.2	GOOD
63	Cu	1	72	2.05	ppb	1.29	10.68	90 - 110	96.1	GOOD
66	Zn	1	72	42.44	ppb	1.46	244.90	90 - 110	86.6	
75	As	1	72	5.51	ppb	1.66	26.49	90 - 110	103.9	GOOD
78	Se	1	72	3.48	ppb	8.19	17.01	90 - 110	102.3	GOOD
88	Sr	2	115	26.41	ppb	1.32	135.60	90 - 110	97.4	GOOD
95	Mo	2	115	0.25	ppb	10.20	1.05	90 - 110	118.3	
107	Ag	2	115	0.05	ppb	22.38	0.18	90 - 110	124.3	
111	Cd	2	115	0.29	ppb	26.44	1.47	90 - 110	98.6	GOOD
118	Sn	2	115	1.04	ppb	0.33	6.48	90 - 110	79.9	
121	Sb	2	115	0.06	ppb	10.12	0.22	90 - 110	144.4	
137	Ba	2	115	16.80	ppb	2.18	85.75	90 - 110	98.0	GOOD
205	Tl	2	209	0.26	ppb	2.20	1.22	90 - 110	105.2	GOOD
208	Pb	2	209	6.84	ppb	0.52	35.26	90 - 110	97.0	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-2664.87	5.66	15.28	-17441.0	70 -	120	ISFail
45	Sc	1		123962.26	0.27	182515.06	67.9	70 -	120	ISFail
45	Sc	2		3672007.80	0.42	6126960.50	59.9	70 -	120	ISFail
72	Ge	1		65678.38	0.39	97742.99	67.2	70 -	120	ISFail
115	In	2		3498058.30	0.47	6508670.50	53.7	70 -	120	ISFail
209	Bi	2		2384464.50	0.67	4337985.50	55.0	70 -	120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\076_PDS.D\076_PDS.D#

Date Acquired:	Aug 5 2016 06:42 pm	Sample Name:	**1607239-21A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	282.90	ppb	0.94	-33362.23	200	75-125	######	Fail
9	Be	2	45	160.50	ppb	1.22	3.35	200	75-125	78.6	
11	B	2	45	275.40	ppb	1.32	130.30	200	75-125	72.6	Fail
23	Na	1	45	14720.00	ppb	1.35	9974.00	5000	75-125	94.9	
24	Mg	1	45	29920.00	ppb	1.99	24950.00	5000	75-125	99.4	
27	Al	1	45	76870.00	ppb	1.52	71080.00	5000	75-125	115.8	
39	K	1	45	23200.00	ppb	1.47	18280.00	5000	75-125	98.4	
44	Ca	2	45	47290.00	ppb	1.65	41800.00	5000	75-125	109.8	
47	Ti	1	45	362.60	ppb	2.44	167.00	200	75-125	97.8	
51	V	1	45	302.40	ppb	1.80	110.90	200	75-125	95.8	
52	Cr	1	45	267.40	ppb	1.41	73.81	200	75-125	96.8	
55	Mn	1	45	2174.00	ppb	1.29	1935.00	200	75-125	119.5	
56	Fe	1	72	140600.00	ppb	1.29	134600.00	5000	75-125	120.0	
59	Co	1	72	223.30	ppb	1.59	36.91	200	75-125	93.2	
60	Ni	1	72	231.00	ppb	1.58	51.04	200	75-125	90.0	
63	Cu	1	72	188.30	ppb	1.71	10.68	200	75-125	88.8	
66	Zn	1	72	426.50	ppb	1.47	244.90	200	75-125	90.8	
75	As	1	72	209.00	ppb	1.42	26.49	200	75-125	91.3	
78	Se	1	72	195.20	ppb	2.77	17.01	200	75-125	89.1	
88	Sr	2	115	350.90	ppb	1.85	135.60	200	75-125	107.6	
95	Mo	2	115	190.00	ppb	1.40	1.05	200	75-125	94.5	
107	Ag	2	115	187.70	ppb	1.26	0.18	200	75-125	93.8	
111	Cd	2	115	180.20	ppb	1.45	1.47	200	75-125	89.4	
118	Sn	2	115	199.70	ppb	0.70	6.48	200	75-125	96.6	
121	Sb	2	115	184.30	ppb	1.01	0.22	200	75-125	92.0	
137	Ba	2	115	284.10	ppb	0.95	85.75	200	75-125	99.2	
205	Tl	2	209	189.90	ppb	1.09	1.22	200	75-125	94.3	
208	Pb	2	209	226.50	ppb	0.62	35.26	200	75-125	95.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-33362.23	0.64	15.28	-218349.1	70	-	120	ISFail
45	Sc	1	112181.99	1.83	182515.06	61.5	70	-	120	ISFail
45	Sc	2	3349373.30	1.71	6126960.50	54.7	70	-	120	ISFail
72	Ge	1	58752.98	1.44	97742.99	60.1	70	-	120	ISFail
115	In	2	3089465.80	0.49	6508670.50	47.5	70	-	120	ISFail
209	Bi	2	2076188.50	0.60	4337985.50	47.9	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\077_MS.D\077_MS.D#

Date Acquired:	Aug 5 2016 06:47 pm	Sample Name:	**1607239-21A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	274.80	ppb	0.42	########	200	80-120	######	Fail
9	Be	2	45	156.20	ppb	1.52	3.35	200	80-120	76.4	Fail
11	B	2	45	246.00	ppb	1.56	130.30	200	80-120	57.9	Fail
23	Na	1	45	14750.00	ppb	0.58	9974.00	5000	80-120	95.5	
24	Mg	1	45	30440.00	ppb	0.34	24950.00	5000	80-120	109.8	
27	Al	1	45	74490.00	ppb	0.59	71080.00	1000	80-120	341.0	Fail
39	K	1	45	21970.00	ppb	1.27	18280.00	5000	80-120	73.8	Fail
44	Ca	2	45	59250.00	ppb	2.16	41800.00	5000	80-120	349.0	Fail
47	Ti	1	45	266.90	ppb	2.25	167.00	200	80-120	50.0	Fail
51	V	1	45	288.60	ppb	0.19	110.90	200	80-120	88.9	
52	Cr	1	45	257.30	ppb	0.34	73.81	200	80-120	91.7	
55	Mn	1	45	1820.00	ppb	0.21	1935.00	200	80-120	-57.5	Fail
56	Fe	1	72	127100.00	ppb	0.21	########	1000	80-120	-750.0	Fail
59	Co	1	72	221.20	ppb	0.47	36.91	200	80-120	92.1	
60	Ni	1	72	221.40	ppb	0.37	51.04	200	80-120	85.2	
63	Cu	1	72	187.50	ppb	0.13	10.68	200	80-120	88.4	
66	Zn	1	72	413.60	ppb	0.08	244.90	200	80-120	84.4	
75	As	1	72	205.00	ppb	0.42	26.49	200	80-120	89.3	
78	Se	1	72	194.40	ppb	0.65	17.01	200	80-120	88.7	
88	Sr	2	115	361.60	ppb	1.19	135.60	200	80-120	113.0	
95	Mo	2	115	173.20	ppb	0.82	1.05	200	80-120	86.1	
107	Ag	2	115	185.30	ppb	1.05	0.18	200	80-120	92.6	
111	Cd	2	115	181.40	ppb	1.48	1.47	200	80-120	90.0	
118	Sn	2	115	192.20	ppb	1.01	6.48	200	80-120	92.9	
121	Sb	2	115	51.36	ppb	0.80	0.22	200	80-120	25.6	Fail
137	Ba	2	115	257.70	ppb	1.51	85.75	200	80-120	86.0	
205	Tl	2	209	190.60	ppb	0.85	1.22	200	80-120	94.7	
208	Pb	2	209	225.20	ppb	0.94	35.26	200	80-120	95.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-41034.40	0.80	15.28	########	70	-	120	ISFail
45	Sc	1	104713.27	0.58	182515.06	57.4	70	-	120	ISFail
45	Sc	2	3128943.30	1.35	6126960.50	51.1	70	-	120	ISFail
72	Ge	1	54708.18	0.40	97742.99	56.0	70	-	120	ISFail
115	In	2	2847770.80	0.47	6508670.50	43.8	70	-	120	ISFail
209	Bi	2	1934376.40	0.58	4337985.50	44.6	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\078_MS.D\078_MS.D#

Date Acquired:	Aug 5 2016 06:53 pm	Sample Name:	**1607239-21A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	277.10	ppb	1.31	########	200	80-120	######	Fail
9	Be	2	45	153.50	ppb	1.61	3.35	200	80-120	75.1	Fail
11	B	2	45	246.10	ppb	1.25	130.30	200	80-120	57.9	Fail
23	Na	1	45	15140.00	ppb	0.75	9974.00	5000	80-120	103.3	
24	Mg	1	45	30110.00	ppb	0.28	24950.00	5000	80-120	103.2	
27	Al	1	45	76570.00	ppb	0.57	71080.00	1000	80-120	549.0	Fail
39	K	1	45	22540.00	ppb	1.10	18280.00	5000	80-120	85.2	
44	Ca	2	45	65580.00	ppb	1.87	41800.00	5000	80-120	475.6	Fail
47	Ti	1	45	270.30	ppb	0.06	167.00	200	80-120	51.7	Fail
51	V	1	45	292.40	ppb	0.32	110.90	200	80-120	90.8	
52	Cr	1	45	259.90	ppb	0.46	73.81	200	80-120	93.0	
55	Mn	1	45	1856.00	ppb	0.51	1935.00	200	80-120	-39.5	Fail
56	Fe	1	72	133100.00	ppb	0.79	########	1000	80-120	-150.0	Fail
59	Co	1	72	228.30	ppb	0.55	36.91	200	80-120	95.7	
60	Ni	1	72	227.70	ppb	0.55	51.04	200	80-120	88.3	
63	Cu	1	72	187.50	ppb	0.97	10.68	200	80-120	88.4	
66	Zn	1	72	429.70	ppb	0.56	244.90	200	80-120	92.4	
75	As	1	72	206.40	ppb	0.46	26.49	200	80-120	90.0	
78	Se	1	72	194.80	ppb	2.00	17.01	200	80-120	88.9	
88	Sr	2	115	357.60	ppb	1.80	135.60	200	80-120	111.0	
95	Mo	2	115	172.00	ppb	1.82	1.05	200	80-120	85.5	
107	Ag	2	115	185.50	ppb	1.27	0.18	200	80-120	92.7	
111	Cd	2	115	177.30	ppb	1.33	1.47	200	80-120	87.9	
118	Sn	2	115	188.90	ppb	1.53	6.48	200	80-120	91.2	
121	Sb	2	115	50.91	ppb	1.22	0.22	200	80-120	25.3	Fail
137	Ba	2	115	250.00	ppb	0.51	85.75	200	80-120	82.1	
205	Tl	2	209	191.10	ppb	0.67	1.22	200	80-120	94.9	
208	Pb	2	209	224.40	ppb	0.96	35.26	200	80-120	94.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-40581.45	1.25	15.28	########	70	-	120	ISFail
45	Sc	1	102277.23	0.39	182515.06	56.0	70	-	120	ISFail
45	Sc	2	3048852.30	1.61	6126960.50	49.8	70	-	120	ISFail
72	Ge	1	53478.42	0.81	97742.99	54.7	70	-	120	ISFail
115	In	2	2781264.00	1.48	6508670.50	42.7	70	-	120	ISFail
209	Bi	2	1867216.30	0.31	4337985.50	43.0	70	-	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\080CCV1.D\080CCV1.D#

Date Acquired:	Aug 5 2016 07:05 pm	Sample Name:	**CCV3-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	178.00	ppb	0.92	200.00	90 -	110	89.0	Fail
9	Be	2	45	171.50	ppb	0.63	200.00	90 -	110	85.8	Fail
11	B	2	45	164.60	ppb	1.02	200.00	90 -	110	82.3	Fail
23	Na	1	45	4841.00	ppb	0.59	5000.00	90 -	110	96.8	
24	Mg	1	45	4864.00	ppb	0.62	5000.00	90 -	110	97.3	
27	Al	1	45	5073.00	ppb	1.16	5000.00	90 -	110	101.5	
39	K	1	45	5128.00	ppb	1.05	5000.00	90 -	110	102.6	
44	Ca	2	45	5067.00	ppb	0.93	5000.00	90 -	110	101.3	
47	Ti	1	45	199.30	ppb	2.85	200.00	90 -	110	99.7	
51	V	1	45	194.80	ppb	1.14	200.00	90 -	110	97.4	
52	Cr	1	45	198.10	ppb	1.32	200.00	90 -	110	99.1	
55	Mn	1	45	206.10	ppb	1.14	200.00	90 -	110	103.1	
56	Fe	1	72	5056.00	ppb	1.21	5000.00	90 -	110	101.1	
59	Co	1	72	194.60	ppb	0.60	200.00	90 -	110	97.3	
60	Ni	1	72	191.40	ppb	0.99	200.00	90 -	110	95.7	
63	Cu	1	72	196.80	ppb	0.51	200.00	90 -	110	98.4	
66	Zn	1	72	193.20	ppb	1.34	200.00	90 -	110	96.6	
75	As	1	72	201.60	ppb	0.71	200.00	90 -	110	100.8	
78	Se	1	72	213.20	ppb	1.64	200.00	90 -	110	106.6	
88	Sr	2	115	208.50	ppb	1.05	200.00	90 -	110	104.3	
95	Mo	2	115	197.80	ppb	0.51	200.00	90 -	110	98.9	
107	Ag	2	115	202.90	ppb	0.78	200.00	90 -	110	101.5	
111	Cd	2	115	195.00	ppb	0.80	200.00	90 -	110	97.5	
118	Sn	2	115	194.40	ppb	0.09	200.00	90 -	110	97.2	
121	Sb	2	115	191.80	ppb	0.51	200.00	90 -	110	95.9	
137	Ba	2	115	198.40	ppb	0.89	200.00	90 -	110	99.2	
205	Tl	2	209	194.20	ppb	0.70	200.00	90 -	110	97.1	
208	Pb	2	209	193.70	ppb	0.11	200.00	90 -	110	96.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-31974.19	0.63	15.28	-209264.7	70 -	120		ISFail
45	Sc	1	96559.91	0.96	182515.06	52.9	70 -	120		ISFail
45	Sc	2	2984361.30	0.59	6126960.50	48.7	70 -	120		ISFail
72	Ge	1	52381.95	0.12	97742.99	53.6	70 -	120		ISFail
115	In	2	2714493.00	0.58	6508670.50	41.7	70 -	120		ISFail
209	Bi	2	1860731.40	0.88	4337985.50	42.9	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\082LCVL.D\082LCVL.D#

Date Acquired:	Aug 5 2016 07:17 pm	Sample Name:	**LCVL3-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.87	ppb	0.44	10.00	70 -	130	88.7	
9	Be	2	45	0.87	ppb	4.06	1.00	70 -	130	87.2	
11	B	2	45	17.87	ppb	0.66	20.00	70 -	130	89.4	
23	Na	1	45	83.77	ppb	1.54	100.00	70 -	130	83.8	
24	Mg	1	45	99.55	ppb	1.16	100.00	70 -	130	99.6	
27	Al	1	45	108.60	ppb	1.08	100.00	70 -	130	108.6	
39	K	1	45	104.70	ppb	0.82	100.00	70 -	130	104.7	
44	Ca	2	45	95.44	ppb	2.38	100.00	70 -	130	95.4	
47	Ti	1	45	5.64	ppb	15.47	5.00	70 -	130	112.7	
51	V	1	45	1.06	ppb	7.41	1.00	70 -	130	106.4	
52	Cr	1	45	5.09	ppb	3.97	5.00	70 -	130	101.9	
55	Mn	1	45	4.86	ppb	3.27	5.00	70 -	130	97.2	
56	Fe	1	72	112.80	ppb	2.51	100.00	70 -	130	112.8	
59	Co	1	72	4.98	ppb	1.57	5.00	70 -	130	99.6	
60	Ni	1	72	4.82	ppb	2.55	5.00	70 -	130	96.4	
63	Cu	1	72	4.90	ppb	1.48	5.00	70 -	130	98.1	
66	Zn	1	72	-9.13	ppb	1.75	5.00	70 -	130	-182.5	Fail
75	As	1	72	5.09	ppb	2.94	5.00	70 -	130	101.8	
78	Se	1	72	5.81	ppb	7.56	5.00	70 -	130	116.2	
88	Sr	2	115	5.06	ppb	1.40	5.00	70 -	130	101.2	
95	Mo	2	115	5.03	ppb	1.95	5.00	70 -	130	100.5	
107	Ag	2	115	2.02	ppb	1.64	2.00	70 -	130	101.1	
111	Cd	2	115	1.00	ppb	0.74	1.00	70 -	130	99.6	
118	Sn	2	115	4.86	ppb	1.33	5.00	70 -	130	97.1	
121	Sb	2	115	2.02	ppb	6.93	2.00	70 -	130	101.0	
137	Ba	2	115	5.08	ppb	0.76	5.00	70 -	130	101.5	
205	Tl	2	209	1.10	ppb	1.13	1.00	70 -	130	109.5	
208	Pb	2	209	1.04	ppb	5.11	1.00	70 -	130	104.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl -880.69	9.26	15.28	-5764.0	70 -	120	ISFail
45	Sc	1	94270.70	0.39	182515.06	51.7	70 -	120	ISFail
45	Sc	2	2849036.00	0.71	6126960.50	46.5	70 -	120	ISFail
72	Ge	1	51779.20	0.65	97742.99	53.0	70 -	120	ISFail
115	In	2	2628129.50	0.41	6508670.50	40.4	70 -	120	ISFail
209	Bi	2	1840413.50	0.30	4337985.50	42.4	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\083_CCB.D\083_CCB.D#

Date Acquired:	Aug 5 2016 07:24 pm	Sample Name:	**CCB3-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.147	ppb	5.69	2.00	2.00	
9	Be	2	45	0.014	ppb	43.59	0.40	0.30	
11	B	2	45	1.391	ppb	1.03	10.00	10.00	
23	Na	1	45	-12.210	ppb	2.26	50.00	#####	
24	Mg	1	45	0.448	ppb	8.56	50.00	#####	
27	Al	1	45	1.930	ppb	9.54	50.00	10.00	
39	K	1	45	-0.926	ppb	1.57	50.00	#####	
44	Ca	2	45	-4.102	ppb	5.15	50.00	#####	
47	Ti	1	45	0.031	ppb	86.60	4.00	3.00	
51	V	1	45	0.055	ppb	12.86	4.00	3.00	
52	Cr	1	45	0.018	ppb	19.42	2.00	2.00	
55	Mn	1	45	-0.094	ppb	22.32	2.00	3.00	
56	Fe	1	72	4.447	ppb	8.36	50.00	30.00	
59	Co	1	72	0.044	ppb	2.65	2.00	3.00	
60	Ni	1	72	-0.031	ppb	27.74	2.00	3.00	
63	Cu	1	72	-0.111	ppb	15.28	2.00	2.00	
66	Zn	1	72	-13.820	ppb	4.64	4.00	2.00	
75	As	1	72	-0.063	ppb	7.87	2.00	2.00	
78	Se	1	72	0.317	ppb	18.45	0.60	2.00	
88	Sr	2	115	0.034	ppb	8.32	4.00	3.00	
95	Mo	2	115	0.056	ppb	33.33	2.00	2.00	
107	Ag	2	115	0.038	ppb	10.65	0.40	1.00	
111	Cd	2	115	0.043	ppb	51.04	0.40	0.30	
118	Sn	2	115	-0.075	ppb	21.89	20.00	3.00	
121	Sb	2	115	0.065	ppb	17.38	2.00	0.80	
137	Ba	2	115	0.033	ppb	30.76	2.00	3.00	
205	Tl	2	209	0.086	ppb	13.22	2.00	0.50	
208	Pb	2	209	0.041	ppb	11.32	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-22.51	81.75	15.28	-147.3	70 - 120	ISFail
45	Sc	1		93899.19	0.25	182515.06	51.4	70 - 120	ISFail
45	Sc	2		2837484.80	0.80	6126960.50	46.3	70 - 120	ISFail
72	Ge	1		51527.91	0.16	97742.99	52.7	70 - 120	ISFail
115	In	2		2606092.50	0.81	6508670.50	40.0	70 - 120	ISFail
209	Bi	2		1824827.00	1.07	4337985.50	42.1	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\088SMPL.D\088SMPL.D#

Date Acquired:	Aug 5 2016 07:54 pm	Sample Name:	**1607256-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	49.140	ppb	#REF!	0.41	2000.00	>RL
9	Be	2	45	2.125	ppb	#REF!	3.93	2000.00	>RL
11	B	2	45	58.020	ppb	#REF!	0.21	2000.00	>RL
23	Na	1	45	1662.000	ppb	#REF!	1.77	25000.00	>RL
24	Mg	1	45	14420.000	ppb	#REF!	3.47	25000.00	>RL
27	Al	1	45	69660.000	ppb	#REF!	2.93	10000.00	OUTCAL
39	K	1	45	15090.000	ppb	#REF!	1.97	25000.00	>RL
44	Ca	2	45	128400.000	ppb	#REF!	1.13	25000.00	OUTCAL
47	Ti	1	45	296.800	ppb	#REF!	2.18	2000.00	>RL
51	V	1	45	135.400	ppb	#REF!	2.30	2000.00	>RL
52	Cr	1	45	61.670	ppb	#REF!	3.24	2000.00	>RL
55	Mn	1	45	3648.000	ppb	#REF!	2.21	2000.00	OUTCAL
56	Fe	1	72	63690.000	ppb	#REF!	2.52	10000.00	OUTCAL
59	Co	1	72	41.750	ppb	#REF!	2.52	2000.00	>RL
60	Ni	1	72	46.790	ppb	#REF!	2.24	2000.00	>RL
63	Cu	1	72	27.310	ppb	#REF!	2.53	2000.00	>RL
66	Zn	1	72	215.000	ppb	#REF!	3.35	2000.00	>RL
75	As	1	72	23.380	ppb	#REF!	2.03	2000.00	>RL
78	Se	1	72	13.100	ppb	#REF!	4.68	2000.00	>RL
88	Sr	2	115	440.900	ppb	#REF!	0.85	2000.00	>RL
95	Mo	2	115	3.371	ppb	#REF!	0.37	2000.00	J
107	Ag	2	115	0.191	ppb	#REF!	9.89	500.00	ND
111	Cd	2	115	1.354	ppb	#REF!	5.94	2000.00	>RL
118	Sn	2	115	5.116	ppb	#REF!	1.50	2000.00	ND
121	Sb	2	115	2.827	ppb	#REF!	3.57	500.00	J
137	Ba	2	115	1059.000	ppb	#REF!	0.31	2000.00	>RL
205	Tl	2	209	0.666	ppb	#REF!	5.80	2000.00	ND
208	Pb	2	209	64.920	ppb	#REF!	0.69	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4426.68	5.51	RHigh	15.28	-28971.7	70 - 120	ISFail
45	Sc	1	91078.96	2.16		182515.06	49.9	70 - 120	ISFail
45	Sc	2	2991498.00	0.78		6126960.50	48.8	70 - 120	ISFail
72	Ge	1	48676.15	1.75		97742.99	49.8	70 - 120	ISFail
115	In	2	2690375.50	0.69		6508670.50	41.3	70 - 120	ISFail
209	Bi	2	1802647.00	1.27		4337985.50	41.6	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\090SMPL.D\090SMPL.D#

Date Acquired:	Aug 5 2016 08:06 pm	Sample Name:	**1607256-02A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	66.320	ppb	#REF!	1.09	2000.00	>RL
9	Be	2	45	2.390	ppb	#REF!	5.56	2000.00	>RL
11	B	2	45	67.130	ppb	#REF!	0.08	2000.00	>RL
23	Na	1	45	5198.000	ppb	#REF!	4.24	25000.00	>RL
24	Mg	1	45	15460.000	ppb	#REF!	2.80	25000.00	>RL
27	Al	1	45	65260.000	ppb	#REF!	3.20	10000.00	OUTCAL
39	K	1	45	14340.000	ppb	#REF!	2.30	25000.00	>RL
44	Ca	2	45	243600.000	ppb	#REF!	0.70	25000.00	OUTCAL
47	Ti	1	45	189.500	ppb	#REF!	4.32	2000.00	>RL
51	V	1	45	113.500	ppb	#REF!	3.26	2000.00	>RL
52	Cr	1	45	61.410	ppb	#REF!	2.85	2000.00	>RL
55	Mn	1	45	622.500	ppb	#REF!	2.58	2000.00	>RL
56	Fe	1	72	70460.000	ppb	#REF!	3.10	10000.00	OUTCAL
59	Co	1	72	30.560	ppb	#REF!	2.55	2000.00	>RL
60	Ni	1	72	43.880	ppb	#REF!	3.64	2000.00	>RL
63	Cu	1	72	12.480	ppb	#REF!	3.08	2000.00	>RL
66	Zn	1	72	149.800	ppb	#REF!	1.50	2000.00	>RL
75	As	1	72	21.880	ppb	#REF!	3.12	2000.00	>RL
78	Se	1	72	13.430	ppb	#REF!	4.84	2000.00	>RL
88	Sr	2	115	453.700	ppb	#REF!	1.79	2000.00	>RL
95	Mo	2	115	1.562	ppb	#REF!	2.80	2000.00	ND
107	Ag	2	115	0.122	ppb	#REF!	19.62	500.00	ND
111	Cd	2	115	1.043	ppb	#REF!	5.52	2000.00	J
118	Sn	2	115	5.010	ppb	#REF!	2.57	2000.00	ND
121	Sb	2	115	0.275	ppb	#REF!	8.35	500.00	ND
137	Ba	2	115	434.500	ppb	#REF!	1.73	2000.00	>RL
205	Tl	2	209	0.505	ppb	#REF!	3.55	2000.00	ND
208	Pb	2	209	27.450	ppb	#REF!	1.84	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6784.10	4.53	15.28	-44400.6	70 - 120	ISFail
45	Sc	1	99375.16	2.58	182515.06	54.4	70 - 120	ISFail
45	Sc	2	3522987.00	3.05	6126960.50	57.5	70 - 120	ISFail
72	Ge	1	52344.00	2.23	97742.99	53.6	70 - 120	ISFail
115	In	2	3314759.00	2.25	6508670.50	50.9	70 - 120	ISFail
209	Bi	2	2169423.80	1.27	4337985.50	50.0	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\091SMPL.D\091SMPL.D#

Date Acquired:	Aug 5 2016 08:12 pm	Sample Name:	**1607256-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	99.680	ppb	#REF!	1.31	2000.00	>RL
9	Be	2	45	2.770	ppb	#REF!	0.60	2000.00	>RL
11	B	2	45	81.130	ppb	#REF!	0.54	2000.00	>RL
23	Na	1	45	4861.000	ppb	#REF!	1.02	25000.00	>RL
24	Mg	1	45	14580.000	ppb	#REF!	0.91	25000.00	>RL
27	Al	1	45	59190.000	ppb	#REF!	1.20	10000.00	OUTCAL
39	K	1	45	15010.000	ppb	#REF!	0.89	25000.00	>RL
44	Ca	2	45	177800.000	ppb	#REF!	1.68	25000.00	OUTCAL
47	Ti	1	45	141.300	ppb	#REF!	4.47	2000.00	>RL
51	V	1	45	104.500	ppb	#REF!	0.43	2000.00	>RL
52	Cr	1	45	66.430	ppb	#REF!	1.28	2000.00	>RL
55	Mn	1	45	679.300	ppb	#REF!	1.30	2000.00	>RL
56	Fe	1	72	75420.000	ppb	#REF!	1.27	10000.00	OUTCAL
59	Co	1	72	48.700	ppb	#REF!	0.69	2000.00	>RL
60	Ni	1	72	43.760	ppb	#REF!	0.96	2000.00	>RL
63	Cu	1	72	8.879	ppb	#REF!	0.57	2000.00	>RL
66	Zn	1	72	160.500	ppb	#REF!	0.78	2000.00	>RL
75	As	1	72	19.460	ppb	#REF!	1.15	2000.00	>RL
78	Se	1	72	13.420	ppb	#REF!	5.28	2000.00	>RL
88	Sr	2	115	382.600	ppb	#REF!	0.77	2000.00	>RL
95	Mo	2	115	2.017	ppb	#REF!	1.98	2000.00	J
107	Ag	2	115	0.108	ppb	#REF!	8.28	500.00	ND
111	Cd	2	115	0.911	ppb	#REF!	2.80	2000.00	J
118	Sn	2	115	5.508	ppb	#REF!	1.68	2000.00	ND
121	Sb	2	115	0.183	ppb	#REF!	12.60	500.00	ND
137	Ba	2	115	963.100	ppb	#REF!	1.08	2000.00	>RL
205	Tl	2	209	0.396	ppb	#REF!	7.03	2000.00	ND
208	Pb	2	209	29.870	ppb	#REF!	1.47	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10574.49	2.81	15.28	-69207.9	70 - 120	ISFail
45	Sc	1	112070.62	1.04	182515.06	61.4	70 - 120	ISFail
45	Sc	2	3604808.80	1.15	6126960.50	58.8	70 - 120	ISFail
72	Ge	1	58482.15	0.72	97742.99	59.8	70 - 120	ISFail
115	In	2	3381604.80	0.91	6508670.50	52.0	70 - 120	ISFail
209	Bi	2	2206332.30	0.28	4337985.50	50.9	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\092SMPL.D\092SMPL.D#

Date Acquired:	Aug 5 2016 08:18 pm	Sample Name:	**1607256-04A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	120.600	ppb	#REF!	1.54	2000.00	>RL
9	Be	2	45	3.055	ppb	#REF!	3.91	2000.00	>RL
11	B	2	45	107.900	ppb	#REF!	1.97	2000.00	>RL
23	Na	1	45	3930.000	ppb	#REF!	0.29	25000.00	>RL
24	Mg	1	45	15250.000	ppb	#REF!	0.44	25000.00	>RL
27	Al	1	45	66430.000	ppb	#REF!	0.58	10000.00	OUTCAL
39	K	1	45	18160.000	ppb	#REF!	2.60	25000.00	>RL
44	Ca	2	45	106800.000	ppb	#REF!	2.76	25000.00	OUTCAL
47	Ti	1	45	109.300	ppb	#REF!	4.64	2000.00	>RL
51	V	1	45	102.700	ppb	#REF!	0.52	2000.00	>RL
52	Cr	1	45	78.020	ppb	#REF!	1.01	2000.00	>RL
55	Mn	1	45	229.400	ppb	#REF!	0.79	2000.00	>RL
56	Fe	1	72	101300.000	ppb	#REF!	0.80	10000.00	OUTCAL
59	Co	1	72	27.060	ppb	#REF!	0.59	2000.00	>RL
60	Ni	1	72	38.100	ppb	#REF!	1.76	2000.00	>RL
63	Cu	1	72	7.981	ppb	#REF!	0.58	2000.00	J
66	Zn	1	72	228.200	ppb	#REF!	1.66	2000.00	>RL
75	As	1	72	24.140	ppb	#REF!	1.47	2000.00	>RL
78	Se	1	72	12.720	ppb	#REF!	4.25	2000.00	>RL
88	Sr	2	115	361.200	ppb	#REF!	2.38	2000.00	>RL
95	Mo	2	115	2.785	ppb	#REF!	3.50	2000.00	J
107	Ag	2	115	0.088	ppb	#REF!	7.14	500.00	ND
111	Cd	2	115	0.748	ppb	#REF!	11.86	2000.00	J
118	Sn	2	115	5.925	ppb	#REF!	0.40	2000.00	ND
121	Sb	2	115	0.110	ppb	#REF!	7.05	500.00	ND
137	Ba	2	115	547.800	ppb	#REF!	1.69	2000.00	>RL
205	Tl	2	209	0.451	ppb	#REF!	4.68	2000.00	ND
208	Pb	2	209	34.780	ppb	#REF!	1.09	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12373.89	2.82	15.28	-80984.6	70 - 120	ISFail
45	Sc	1	108133.48	0.20	182515.06	59.2	70 - 120	ISFail
45	Sc	2	3408780.80	1.95	6126960.50	55.6	70 - 120	ISFail
72	Ge	1	56624.43	0.61	97742.99	57.9	70 - 120	ISFail
115	In	2	3127448.00	0.27	6508670.50	48.1	70 - 120	ISFail
209	Bi	2	2063780.60	1.00	4337985.50	47.6	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\093SMPL.D\093SMPL.D#

Date Acquired:	Aug 5 2016 08:24 pm	Sample Name:	**1607256-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	50.270	ppb	#REF!	1.10	2000.00	>RL
9	Be	2	45	2.206	ppb	#REF!	1.17	2000.00	>RL
11	B	2	45	63.420	ppb	#REF!	1.31	2000.00	>RL
23	Na	1	45	1879.000	ppb	#REF!	0.24	25000.00	>RL
24	Mg	1	45	14680.000	ppb	#REF!	0.56	25000.00	>RL
27	Al	1	45	69000.000	ppb	#REF!	1.37	10000.00	OUTCAL
39	K	1	45	15310.000	ppb	#REF!	0.20	25000.00	>RL
44	Ca	2	45	132600.000	ppb	#REF!	2.39	25000.00	OUTCAL
47	Ti	1	45	344.300	ppb	#REF!	1.43	2000.00	>RL
51	V	1	45	122.300	ppb	#REF!	0.51	2000.00	>RL
52	Cr	1	45	60.130	ppb	#REF!	0.60	2000.00	>RL
55	Mn	1	45	966.400	ppb	#REF!	0.35	2000.00	>RL
56	Fe	1	72	67540.000	ppb	#REF!	0.30	10000.00	OUTCAL
59	Co	1	72	26.370	ppb	#REF!	0.38	2000.00	>RL
60	Ni	1	72	40.280	ppb	#REF!	0.54	2000.00	>RL
63	Cu	1	72	28.520	ppb	#REF!	0.89	2000.00	>RL
66	Zn	1	72	238.000	ppb	#REF!	0.68	2000.00	>RL
75	As	1	72	25.370	ppb	#REF!	0.90	2000.00	>RL
78	Se	1	72	11.590	ppb	#REF!	8.14	2000.00	>RL
88	Sr	2	115	443.500	ppb	#REF!	1.98	2000.00	>RL
95	Mo	2	115	2.353	ppb	#REF!	3.86	2000.00	J
107	Ag	2	115	0.213	ppb	#REF!	6.17	500.00	ND
111	Cd	2	115	1.312	ppb	#REF!	7.54	2000.00	>RL
118	Sn	2	115	5.508	ppb	#REF!	3.29	2000.00	ND
121	Sb	2	115	1.898	ppb	#REF!	3.66	500.00	ND
137	Ba	2	115	461.400	ppb	#REF!	1.46	2000.00	>RL
205	Tl	2	209	0.618	ppb	#REF!	1.00	2000.00	ND
208	Pb	2	209	194.400	ppb	#REF!	1.16	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5014.61	0.52	15.28	-32819.6	70 - 120	ISFail
45	Sc	1	102846.19	0.59	182515.06	56.3	70 - 120	ISFail
45	Sc	2	3346172.00	1.12	6126960.50	54.6	70 - 120	ISFail
72	Ge	1	54360.50	0.72	97742.99	55.6	70 - 120	ISFail
115	In	2	3074490.30	0.69	6508670.50	47.2	70 - 120	ISFail
209	Bi	2	2032786.40	0.29	4337985.50	46.9	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\094SMPL.D\094SMPL.D#

Date Acquired:	Aug 5 2016 08:29 pm	Sample Name:	**1607256-06A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	67.570	ppb	#REF!	1.05	2000.00	>RL
9	Be	2	45	2.439	ppb	#REF!	6.49	2000.00	>RL
11	B	2	45	74.580	ppb	#REF!	0.40	2000.00	>RL
23	Na	1	45	5553.000	ppb	#REF!	1.29	25000.00	>RL
24	Mg	1	45	16920.000	ppb	#REF!	1.13	25000.00	>RL
27	Al	1	45	72260.000	ppb	#REF!	1.27	10000.00	OUTCAL
39	K	1	45	15330.000	ppb	#REF!	0.82	25000.00	>RL
44	Ca	2	45	284200.000	ppb	#REF!	2.39	25000.00	OUTCAL
47	Ti	1	45	233.800	ppb	#REF!	1.30	2000.00	>RL
51	V	1	45	123.300	ppb	#REF!	1.09	2000.00	>RL
52	Cr	1	45	66.640	ppb	#REF!	1.82	2000.00	>RL
55	Mn	1	45	751.200	ppb	#REF!	1.16	2000.00	>RL
56	Fe	1	72	73820.000	ppb	#REF!	1.41	10000.00	OUTCAL
59	Co	1	72	31.060	ppb	#REF!	0.79	2000.00	>RL
60	Ni	1	72	48.380	ppb	#REF!	1.50	2000.00	>RL
63	Cu	1	72	14.070	ppb	#REF!	1.31	2000.00	>RL
66	Zn	1	72	152.400	ppb	#REF!	1.01	2000.00	>RL
75	As	1	72	22.300	ppb	#REF!	0.20	2000.00	>RL
78	Se	1	72	14.820	ppb	#REF!	1.45	2000.00	>RL
88	Sr	2	115	533.900	ppb	#REF!	1.48	2000.00	>RL
95	Mo	2	115	1.518	ppb	#REF!	9.40	2000.00	ND
107	Ag	2	115	0.116	ppb	#REF!	2.20	500.00	ND
111	Cd	2	115	1.145	ppb	#REF!	5.91	2000.00	J
118	Sn	2	115	5.323	ppb	#REF!	1.46	2000.00	ND
121	Sb	2	115	0.263	ppb	#REF!	10.91	500.00	ND
137	Ba	2	115	624.100	ppb	#REF!	0.83	2000.00	>RL
205	Tl	2	209	0.550	ppb	#REF!	8.02	2000.00	ND
208	Pb	2	209	27.840	ppb	#REF!	0.77	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6669.29	4.08	15.28	-43649.2	70 - 120	ISFail
45	Sc	1	100632.12	0.82	182515.06	55.1	70 - 120	ISFail
45	Sc	2	3380385.00	0.52	6126960.50	55.2	70 - 120	ISFail
72	Ge	1	53046.16	0.73	97742.99	54.3	70 - 120	ISFail
115	In	2	3173741.00	0.59	6508670.50	48.8	70 - 120	ISFail
209	Bi	2	2043197.60	0.25	4337985.50	47.1	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\096CCV1.D\096CCV1.D#

Date Acquired:	Aug 5 2016 08:42 pm	Sample Name:	**CCV4-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	184.50	ppb	1.59	200.00	90 -	110	92.3	
9	Be	2	45	175.80	ppb	1.17	200.00	90 -	110	87.9	Fail
11	B	2	45	166.80	ppb	0.99	200.00	90 -	110	83.4	Fail
23	Na	1	45	4933.00	ppb	1.04	5000.00	90 -	110	98.7	
24	Mg	1	45	4930.00	ppb	1.51	5000.00	90 -	110	98.6	
27	Al	1	45	5093.00	ppb	1.44	5000.00	90 -	110	101.9	
39	K	1	45	5189.00	ppb	1.13	5000.00	90 -	110	103.8	
44	Ca	2	45	5165.00	ppb	1.90	5000.00	90 -	110	103.3	
47	Ti	1	45	199.00	ppb	2.23	200.00	90 -	110	99.5	
51	V	1	45	198.50	ppb	0.94	200.00	90 -	110	99.3	
52	Cr	1	45	201.70	ppb	1.49	200.00	90 -	110	100.9	
55	Mn	1	45	208.10	ppb	0.96	200.00	90 -	110	104.1	
56	Fe	1	72	5157.00	ppb	1.10	5000.00	90 -	110	103.1	
59	Co	1	72	198.80	ppb	1.44	200.00	90 -	110	99.4	
60	Ni	1	72	194.80	ppb	1.05	200.00	90 -	110	97.4	
63	Cu	1	72	202.30	ppb	1.68	200.00	90 -	110	101.2	
66	Zn	1	72	194.60	ppb	1.52	200.00	90 -	110	97.3	
75	As	1	72	205.10	ppb	1.16	200.00	90 -	110	102.6	
78	Se	1	72	214.70	ppb	1.34	200.00	90 -	110	107.4	
88	Sr	2	115	213.60	ppb	1.25	200.00	90 -	110	106.8	
95	Mo	2	115	201.80	ppb	0.71	200.00	90 -	110	100.9	
107	Ag	2	115	206.30	ppb	0.72	200.00	90 -	110	103.2	
111	Cd	2	115	198.90	ppb	1.29	200.00	90 -	110	99.5	
118	Sn	2	115	196.30	ppb	1.05	200.00	90 -	110	98.2	
121	Sb	2	115	193.20	ppb	0.73	200.00	90 -	110	96.6	
137	Ba	2	115	200.50	ppb	1.52	200.00	90 -	110	100.3	
205	Tl	2	209	196.00	ppb	0.36	200.00	90 -	110	98.0	
208	Pb	2	209	195.70	ppb	0.18	200.00	90 -	110	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-32735.49	1.63	15.28	-214247.2	70 -	120	ISFail
45	Sc	1	92563.81	0.62	182515.06	50.7	70 -	120	ISFail
45	Sc	2	2991547.80	0.75	6126960.50	48.8	70 -	120	ISFail
72	Ge	1	50220.67	1.03	97742.99	51.4	70 -	120	ISFail
115	In	2	2688048.50	0.07	6508670.50	41.3	70 -	120	ISFail
209	Bi	2	1822637.50	0.68	4337985.50	42.0	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\098LCVL.D\098LCVL.D#

Date Acquired:	Aug 5 2016 08:54 pm	Sample Name:	**LCVL4-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.17	ppb	1.32	10.00	70 -	130	91.7	
9	Be	2	45	0.86	ppb	1.39	1.00	70 -	130	85.6	
11	B	2	45	17.66	ppb	1.43	20.00	70 -	130	88.3	
23	Na	1	45	83.84	ppb	2.90	100.00	70 -	130	83.8	
24	Mg	1	45	99.10	ppb	5.39	100.00	70 -	130	99.1	
27	Al	1	45	107.70	ppb	2.21	100.00	70 -	130	107.7	
39	K	1	45	106.60	ppb	1.37	100.00	70 -	130	106.6	
44	Ca	2	45	99.59	ppb	1.41	100.00	70 -	130	99.6	
47	Ti	1	45	5.90	ppb	8.15	5.00	70 -	130	118.0	
51	V	1	45	1.07	ppb	0.72	1.00	70 -	130	107.0	
52	Cr	1	45	5.24	ppb	3.59	5.00	70 -	130	104.8	
55	Mn	1	45	4.94	ppb	2.36	5.00	70 -	130	98.9	
56	Fe	1	72	109.00	ppb	1.77	100.00	70 -	130	109.0	
59	Co	1	72	4.95	ppb	1.29	5.00	70 -	130	99.0	
60	Ni	1	72	4.96	ppb	2.07	5.00	70 -	130	99.2	
63	Cu	1	72	4.92	ppb	3.09	5.00	70 -	130	98.5	
66	Zn	1	72	-8.97	ppb	3.65	5.00	70 -	130	-179.3	Fail
75	As	1	72	5.15	ppb	0.72	5.00	70 -	130	103.0	
78	Se	1	72	5.80	ppb	12.75	5.00	70 -	130	116.1	
88	Sr	2	115	5.22	ppb	0.29	5.00	70 -	130	104.3	
95	Mo	2	115	4.98	ppb	2.22	5.00	70 -	130	99.7	
107	Ag	2	115	2.05	ppb	0.37	2.00	70 -	130	102.3	
111	Cd	2	115	0.97	ppb	17.95	1.00	70 -	130	96.7	
118	Sn	2	115	4.78	ppb	2.99	5.00	70 -	130	95.5	
121	Sb	2	115	1.94	ppb	3.70	2.00	70 -	130	96.8	
137	Ba	2	115	4.83	ppb	1.38	5.00	70 -	130	96.7	
205	Tl	2	209	1.06	ppb	2.61	1.00	70 -	130	105.5	
208	Pb	2	209	1.01	ppb	1.93	1.00	70 -	130	101.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl -888.00	6.73	15.28	-5811.8	70 -	120	ISFail
45	Sc	1	84989.77	1.45	182515.06	46.6	70 -	120	ISFail
45	Sc	2	2764992.00	0.86	6126960.50	45.1	70 -	120	ISFail
72	Ge	1	47371.27	1.00	97742.99	48.5	70 -	120	ISFail
115	In	2	2513358.80	0.73	6508670.50	38.6	70 -	120	ISFail
209	Bi	2	1725185.90	1.54	4337985.50	39.8	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\099_CCB.D\099_CCB.D#

Date Acquired:	Aug 5 2016 09:00 pm	Sample Name:	**CCB4-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.124	ppb	9.85	2.00	2.00	
9	Be	2	45	0.011	ppb	52.03	0.40	0.30	
11	B	2	45	1.199	ppb	6.10	10.00	10.00	
23	Na	1	45	-12.490	ppb	2.42	50.00	#####	
24	Mg	1	45	0.118	ppb	3.81	50.00	#####	
27	Al	1	45	1.106	ppb	6.35	50.00	10.00	
39	K	1	45	-1.638	ppb	4.25	50.00	#####	
44	Ca	2	45	-4.524	ppb	7.90	50.00	#####	
47	Ti	1	45	0.069	ppb	0.00	4.00	3.00	
51	V	1	45	0.016	ppb	1.49	4.00	3.00	
52	Cr	1	45	0.021	ppb	18.65	2.00	2.00	
55	Mn	1	45	-0.115	ppb	33.30	2.00	3.00	
56	Fe	1	72	2.639	ppb	2.27	50.00	30.00	
59	Co	1	72	0.037	ppb	5.56	2.00	3.00	
60	Ni	1	72	0.001	ppb	24.11	2.00	3.00	
63	Cu	1	72	-0.106	ppb	12.15	2.00	2.00	
66	Zn	1	72	-14.020	ppb	23.67	4.00	2.00	
75	As	1	72	-0.061	ppb	9.71	2.00	2.00	
78	Se	1	72	0.221	ppb	7.14	0.60	2.00	
88	Sr	2	115	0.027	ppb	17.88	4.00	3.00	
95	Mo	2	115	0.067	ppb	21.79	2.00	2.00	
107	Ag	2	115	0.030	ppb	7.53	0.40	1.00	
111	Cd	2	115	0.022	ppb	22.88	0.40	0.30	
118	Sn	2	115	-0.095	ppb	11.70	20.00	3.00	
121	Sb	2	115	0.029	ppb	25.51	2.00	0.80	
137	Ba	2	115	0.029	ppb	30.05	2.00	3.00	
205	Tl	2	209	0.083	ppb	6.79	2.00	0.50	
208	Pb	2	209	0.039	ppb	20.35	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-13.65	179.47	15.28	-89.3	70 - 120	ISFail
45	Sc	1		88485.43	0.80	182515.06	48.5	70 - 120	ISFail
45	Sc	2		2787292.30	0.43	6126960.50	45.5	70 - 120	ISFail
72	Ge	1		49089.09	1.47	97742.99	50.2	70 - 120	ISFail
115	In	2		2540619.80	0.85	6508670.50	39.0	70 - 120	ISFail
209	Bi	2		1759292.30	0.71	4337985.50	40.6	70 - 120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\100__PB.D\100__PB.D#

Date Acquired:	Aug 5 2016 09:06 pm	Sample Name:	**MB-76649**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.084	ppb	3.00	2.0	8.00	
9	Be	2	45	-0.009	ppb	49.49	0.4	1.20	
11	B	2	45	0.908	ppb	6.93	10.0	30.00	
23	Na	1	45	-10.130	ppb	0.75	50.0	#####	
24	Mg	1	45	7.119	ppb	3.84	50.0	#####	
27	Al	1	45	4.991	ppb	12.46	50.0	#####	
39	K	1	45	-2.276	ppb	0.79	50.0	#####	
44	Ca	2	45	17.120	ppb	3.15	50.0	#####	
47	Ti	1	45	0.037	ppb	86.60	4.0	10.00	
51	V	1	45	0.041	ppb	14.00	4.0	10.00	
52	Cr	1	45	0.133	ppb	3.75	2.0	8.00	
55	Mn	1	45	-0.119	ppb	10.39	2.0	8.00	
56	Fe	1	72	3.418	ppb	3.44	50.0	#####	
59	Co	1	72	0.009	ppb	22.43	2.0	8.00	
60	Ni	1	72	-0.025	ppb	18.33	2.0	8.00	
63	Cu	1	72	-0.108	ppb	9.83	2.0	8.00	
66	Zn	1	72	-9.136	ppb	5.66	4.0	10.00	
75	As	1	72	-0.110	ppb	8.05	2.0	4.00	
78	Se	1	72	0.067	ppb	12.03	0.6	2.00	
88	Sr	2	115	0.062	ppb	9.23	4.0	10.00	
95	Mo	2	115	0.029	ppb	5.59	2.0	8.00	
107	Ag	2	115	0.008	ppb	47.79	0.4	0.80	
111	Cd	2	115	-0.023	ppb	261.24	0.4	1.20	
118	Sn	2	115	4.271	ppb	2.38	20.0	40.00	
121	Sb	2	115	0.002	ppb	37.50	2.0	4.00	
137	Ba	2	115	0.036	ppb	4.68	2.0	8.00	
205	Tl	2	209	0.029	ppb	14.00	2.0	4.00	
208	Pb	2	209	0.040	ppb	16.11	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-16.94	45.23	15.28	-110.9	70 - 120	ISFail
45	Sc	1		86661.85	0.19	182515.06	47.5	70 - 120	ISFail
45	Sc	2		2642436.80	0.75	6126960.50	43.1	70 - 120	ISFail
72	Ge	1		47058.06	0.20	97742.99	48.1	70 - 120	ISFail
115	In	2		2364656.80	0.56	6508670.50	36.3	70 - 120	ISFail
209	Bi	2		1636654.40	0.62	4337985.50	37.7	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\101_LCS.D\101_LCS.D#

Date Acquired:	Aug 5 2016 09:12 pm	Sample Name:	**LCS-76649**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	170.10	ppb	0.73	200.00	80 -	120	85.1	
9	Be	2	45	160.90	ppb	0.95	200.00	80 -	120	80.5	
11	B	2	45	153.00	ppb	0.98	200.00	80 -	120	76.5	Fail
23	Na	1	45	4689.00	ppb	0.75	5000.00	80 -	120	93.8	
24	Mg	1	45	4702.00	ppb	1.34	5000.00	80 -	120	94.0	
27	Al	1	45	1025.00	ppb	1.28	1000.00	80 -	120	102.5	
39	K	1	45	5017.00	ppb	0.26	5000.00	80 -	120	100.3	
44	Ca	2	45	4909.00	ppb	1.52	5000.00	80 -	120	98.2	
47	Ti	1	45	199.30	ppb	3.81	200.00	80 -	120	99.7	
51	V	1	45	192.60	ppb	1.38	200.00	80 -	120	96.3	
52	Cr	1	45	196.00	ppb	1.21	200.00	80 -	120	98.0	
55	Mn	1	45	203.30	ppb	0.70	200.00	80 -	120	101.7	
56	Fe	1	72	969.80	ppb	1.13	1000.00	80 -	120	97.0	
59	Co	1	72	191.30	ppb	1.44	200.00	80 -	120	95.7	
60	Ni	1	72	187.60	ppb	1.14	200.00	80 -	120	93.8	
63	Cu	1	72	192.50	ppb	0.78	200.00	80 -	120	96.3	
66	Zn	1	72	183.10	ppb	0.80	200.00	80 -	120	91.6	
75	As	1	72	191.20	ppb	1.32	200.00	80 -	120	95.6	
78	Se	1	72	199.60	ppb	1.45	200.00	80 -	120	99.8	
88	Sr	2	115	196.60	ppb	1.00	200.00	80 -	120	98.3	
95	Mo	2	115	194.40	ppb	0.55	200.00	80 -	120	97.2	
107	Ag	2	115	196.00	ppb	0.65	200.00	80 -	120	98.0	
111	Cd	2	115	185.20	ppb	0.94	200.00	80 -	120	92.6	
118	Sn	2	115	194.30	ppb	0.47	200.00	80 -	120	97.2	
121	Sb	2	115	182.80	ppb	0.77	200.00	80 -	120	91.4	
137	Ba	2	115	192.40	ppb	0.92	200.00	80 -	120	96.2	
205	Tl	2	209	192.00	ppb	1.02	200.00	80 -	120	96.0	
208	Pb	2	209	191.00	ppb	0.47	200.00	80 -	120	95.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-26300.06	0.42	15.28	-172128.6	70 -	120	ISFail
45	Sc	1	83368.56	0.39	182515.06	45.7	70 -	120	ISFail
45	Sc	2	2629841.00	0.30	6126960.50	42.9	70 -	120	ISFail
72	Ge	1	45584.79	1.04	97742.99	46.6	70 -	120	ISFail
115	In	2	2327440.00	0.31	6508670.50	35.8	70 -	120	ISFail
209	Bi	2	1577762.40	0.63	4337985.50	36.4	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\102_LCS.D\102_LCS.D#

Date Acquired:	Aug 5 2016 09:18 pm	Sample Name:	**LCSD-76649**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	169.60	ppb	0.63	200.00	80 -	120	84.8	
9	Be	2	45	159.20	ppb	1.02	200.00	80 -	120	79.6	Fail
11	B	2	45	151.30	ppb	0.44	200.00	80 -	120	75.7	Fail
23	Na	1	45	4760.00	ppb	0.48	5000.00	80 -	120	95.2	
24	Mg	1	45	4758.00	ppb	0.70	5000.00	80 -	120	95.2	
27	Al	1	45	994.80	ppb	0.70	1000.00	80 -	120	99.5	
39	K	1	45	5078.00	ppb	1.07	5000.00	80 -	120	101.6	
44	Ca	2	45	4892.00	ppb	1.47	5000.00	80 -	120	97.8	
47	Ti	1	45	199.40	ppb	3.58	200.00	80 -	120	99.7	
51	V	1	45	195.20	ppb	0.12	200.00	80 -	120	97.6	
52	Cr	1	45	199.30	ppb	0.67	200.00	80 -	120	99.7	
55	Mn	1	45	205.00	ppb	0.68	200.00	80 -	120	102.5	
56	Fe	1	72	987.00	ppb	0.65	1000.00	80 -	120	98.7	
59	Co	1	72	195.20	ppb	1.14	200.00	80 -	120	97.6	
60	Ni	1	72	191.60	ppb	1.08	200.00	80 -	120	95.8	
63	Cu	1	72	196.50	ppb	0.66	200.00	80 -	120	98.3	
66	Zn	1	72	185.50	ppb	0.40	200.00	80 -	120	92.8	
75	As	1	72	194.10	ppb	0.49	200.00	80 -	120	97.1	
78	Se	1	72	195.50	ppb	1.04	200.00	80 -	120	97.8	
88	Sr	2	115	195.70	ppb	1.54	200.00	80 -	120	97.9	
95	Mo	2	115	194.20	ppb	1.12	200.00	80 -	120	97.1	
107	Ag	2	115	194.30	ppb	1.18	200.00	80 -	120	97.2	
111	Cd	2	115	185.50	ppb	1.60	200.00	80 -	120	92.8	
118	Sn	2	115	193.20	ppb	0.53	200.00	80 -	120	96.6	
121	Sb	2	115	180.90	ppb	0.20	200.00	80 -	120	90.5	
137	Ba	2	115	192.00	ppb	0.62	200.00	80 -	120	96.0	
205	Tl	2	209	190.70	ppb	0.91	200.00	80 -	120	95.4	
208	Pb	2	209	189.60	ppb	0.15	200.00	80 -	120	94.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-27132.64	0.65	15.28	-177577.7	70 -	120	ISFail
45	Sc	1	83751.98	0.59	182515.06	45.9	70 -	120	ISFail
45	Sc	2	2676861.50	0.58	6126960.50	43.7	70 -	120	ISFail
72	Ge	1	45557.34	0.85	97742.99	46.6	70 -	120	ISFail
115	In	2	2372739.30	0.72	6508670.50	36.5	70 -	120	ISFail
209	Bi	2	1618426.60	1.06	4337985.50	37.3	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\104AREF.D\104AREF.D#

Date Acquired:	Aug 5 2016 09:30 pm	Sample Name:	**1607256-07A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	86.430	ppb	#REF!	0.75	2000.00	>RL
9	Be	2	45	2.703	ppb	#REF!	2.00	2000.00	>RL
11	B	2	45	76.600	ppb	#REF!	0.29	2000.00	>RL
23	Na	1	45	4140.000	ppb	#REF!	3.27	25000.00	>RL
24	Mg	1	45	13840.000	ppb	#REF!	4.30	25000.00	>RL
27	Al	1	45	54980.000	ppb	#REF!	3.75	10000.00	OUTCAL
39	K	1	45	14760.000	ppb	#REF!	2.95	25000.00	>RL
44	Ca	2	45	186900.000	ppb	#REF!	1.31	25000.00	OUTCAL
47	Ti	1	45	153.300	ppb	#REF!	1.82	2000.00	>RL
51	V	1	45	93.410	ppb	#REF!	4.23	2000.00	>RL
52	Cr	1	45	62.280	ppb	#REF!	3.24	2000.00	>RL
55	Mn	1	45	539.700	ppb	#REF!	3.78	2000.00	>RL
56	Fe	1	72	71720.000	ppb	#REF!	3.83	10000.00	OUTCAL
59	Co	1	72	36.340	ppb	#REF!	3.79	2000.00	>RL
60	Ni	1	72	44.710	ppb	#REF!	2.25	2000.00	>RL
63	Cu	1	72	6.885	ppb	#REF!	2.83	2000.00	J
66	Zn	1	72	149.700	ppb	#REF!	2.92	2000.00	>RL
75	As	1	72	18.490	ppb	#REF!	2.82	2000.00	>RL
78	Se	1	72	14.930	ppb	#REF!	4.77	2000.00	>RL
88	Sr	2	115	344.300	ppb	#REF!	0.92	2000.00	>RL
95	Mo	2	115	1.976	ppb	#REF!	2.26	2000.00	ND
107	Ag	2	115	0.152	ppb	#REF!	18.06	500.00	ND
111	Cd	2	115	0.948	ppb	#REF!	16.60	2000.00	J
118	Sn	2	115	5.416	ppb	#REF!	2.42	2000.00	J
121	Sb	2	115	0.230	ppb	#REF!	4.84	500.00	ND
137	Ba	2	115	439.900	ppb	#REF!	0.32	2000.00	>RL
205	Tl	2	209	0.473	ppb	#REF!	10.74	2000.00	ND
208	Pb	2	209	24.450	ppb	#REF!	0.13	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8052.65	6.17	RHigh	15.28	-52703.0	70 - 120	ISFail
45	Sc	1	94452.88	3.01		182515.06	51.8	70 - 120	ISFail
45	Sc	2	3172198.80	0.08		6126960.50	51.8	70 - 120	ISFail
72	Ge	1	49717.32	3.42		97742.99	50.9	70 - 120	ISFail
115	In	2	2865959.00	1.20		6508670.50	44.0	70 - 120	ISFail
209	Bi	2	1878143.10	1.02		4337985.50	43.3	70 - 120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\105DT1.D\105DT1.D#

Date Acquired:	Aug 5 2016 09:36 pm	Sample Name:	**1607256-07A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	16.79	ppb	0.74	-1494.53	90 - 110	-5.6	
9	Be	2	45	0.58	ppb	6.40	2.70	90 - 110	106.5	GOOD
11	B	2	45	16.50	ppb	0.88	76.60	90 - 110	107.7	GOOD
23	Na	1	45	807.10	ppb	0.32	4140.00	90 - 110	97.5	GOOD
24	Mg	1	45	2665.00	ppb	1.30	13840.00	90 - 110	96.3	GOOD
27	Al	1	45	10410.00	ppb	1.68	54980.00	90 - 110	94.7	GOOD
39	K	1	45	2956.00	ppb	0.79	14760.00	90 - 110	100.1	GOOD
44	Ca	2	45	37990.00	ppb	0.20	186900.00	90 - 110	101.6	GOOD
47	Ti	1	45	29.87	ppb	10.67	153.30	90 - 110	97.4	GOOD
51	V	1	45	18.67	ppb	1.26	93.41	90 - 110	99.9	GOOD
52	Cr	1	45	12.60	ppb	2.85	62.28	90 - 110	101.2	GOOD
55	Mn	1	45	109.30	ppb	0.91	539.70	90 - 110	101.3	GOOD
56	Fe	1	72	14330.00	ppb	1.67	71720.00	90 - 110	99.9	GOOD
59	Co	1	72	7.28	ppb	1.23	36.34	90 - 110	100.1	GOOD
60	Ni	1	72	9.10	ppb	1.30	44.71	90 - 110	101.8	GOOD
63	Cu	1	72	1.28	ppb	3.32	6.89	90 - 110	92.7	GOOD
66	Zn	1	72	22.55	ppb	1.22	149.70	90 - 110	75.3	
75	As	1	72	3.80	ppb	2.09	18.49	90 - 110	102.8	GOOD
78	Se	1	72	3.26	ppb	14.37	14.93	90 - 110	109.3	GOOD
88	Sr	2	115	65.43	ppb	0.73	344.30	90 - 110	95.0	GOOD
95	Mo	2	115	0.42	ppb	3.56	1.98	90 - 110	105.8	GOOD
107	Ag	2	115	0.03	ppb	12.00	0.15	90 - 110	102.6	GOOD
111	Cd	2	115	0.21	ppb	15.52	0.95	90 - 110	111.5	
118	Sn	2	115	0.84	ppb	4.42	5.42	90 - 110	77.8	
121	Sb	2	115	0.05	ppb	24.36	0.23	90 - 110	116.4	
137	Ba	2	115	86.69	ppb	1.12	439.90	90 - 110	98.5	GOOD
205	Tl	2	209	0.13	ppb	9.87	0.47	90 - 110	134.2	
208	Pb	2	209	4.80	ppb	1.97	24.45	90 - 110	98.2	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1494.53	10.93	15.28	-9781.4	70 -	120	ISFail
45	Sc	1		92809.38	0.50	182515.06	50.9	70 -	120	ISFail
45	Sc	2		2964303.80	0.77	6126960.50	48.4	70 -	120	ISFail
72	Ge	1		50575.75	1.20	97742.99	51.7	70 -	120	ISFail
115	In	2		2656894.30	0.63	6508670.50	40.8	70 -	120	ISFail
209	Bi	2		1819994.40	0.93	4337985.50	42.0	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\106SMPL.D\106SMPL.D#

Date Acquired:	Aug 5 2016 09:42 pm	Sample Name:	**1607256-08A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	102.500	ppb	#REF!	0.91	2000.00	>RL
9	Be	2	45	2.735	ppb	#REF!	0.45	2000.00	>RL
11	B	2	45	86.130	ppb	#REF!	1.34	2000.00	>RL
23	Na	1	45	3148.000	ppb	#REF!	0.99	25000.00	>RL
24	Mg	1	45	13290.000	ppb	#REF!	0.71	25000.00	>RL
27	Al	1	45	56660.000	ppb	#REF!	3.22	10000.00	OUTCAL
39	K	1	45	16050.000	ppb	#REF!	1.42	25000.00	>RL
44	Ca	2	45	97740.000	ppb	#REF!	2.21	25000.00	OUTCAL
47	Ti	1	45	121.500	ppb	#REF!	2.34	2000.00	>RL
51	V	1	45	86.700	ppb	#REF!	1.30	2000.00	>RL
52	Cr	1	45	68.000	ppb	#REF!	1.20	2000.00	>RL
55	Mn	1	45	185.800	ppb	#REF!	2.15	2000.00	>RL
56	Fe	1	72	81920.000	ppb	#REF!	1.06	10000.00	OUTCAL
59	Co	1	72	22.570	ppb	#REF!	1.11	2000.00	>RL
60	Ni	1	72	35.420	ppb	#REF!	0.52	2000.00	>RL
63	Cu	1	72	5.859	ppb	#REF!	1.29	2000.00	J
66	Zn	1	72	184.700	ppb	#REF!	1.81	2000.00	>RL
75	As	1	72	18.960	ppb	#REF!	1.62	2000.00	>RL
78	Se	1	72	10.310	ppb	#REF!	2.48	2000.00	>RL
88	Sr	2	115	270.400	ppb	#REF!	0.93	2000.00	>RL
95	Mo	2	115	2.129	ppb	#REF!	4.92	2000.00	J
107	Ag	2	115	0.094	ppb	#REF!	3.83	500.00	ND
111	Cd	2	115	0.740	ppb	#REF!	6.55	2000.00	J
118	Sn	2	115	5.457	ppb	#REF!	2.16	2000.00	ND
121	Sb	2	115	0.122	ppb	#REF!	7.43	500.00	ND
137	Ba	2	115	160.000	ppb	#REF!	1.09	2000.00	>RL
205	Tl	2	209	0.420	ppb	#REF!	0.78	2000.00	ND
208	Pb	2	209	25.030	ppb	#REF!	0.92	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10078.41	2.26	15.28	-65961.2	70 - 120	ISFail
45	Sc	1	100187.76	1.68	182515.06	54.9	70 - 120	ISFail
45	Sc	2	3235949.00	1.35	6126960.50	52.8	70 - 120	ISFail
72	Ge	1	52815.77	1.58	97742.99	54.0	70 - 120	ISFail
115	In	2	2914320.00	0.63	6508670.50	44.8	70 - 120	ISFail
209	Bi	2	1923176.40	0.56	4337985.50	44.3	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\107SMPL.D\107SMPL.D#

Date Acquired:	Aug 5 2016 09:48 pm	Sample Name:	**1607256-09A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	53.870	ppb	#REF!	2.05	2000.00	>RL
9	Be	2	45	2.342	ppb	#REF!	5.19	2000.00	>RL
11	B	2	45	60.170	ppb	#REF!	1.20	2000.00	>RL
23	Na	1	45	1905.000	ppb	#REF!	0.55	25000.00	>RL
24	Mg	1	45	15830.000	ppb	#REF!	0.69	25000.00	>RL
27	Al	1	45	75980.000	ppb	#REF!	1.58	10000.00	OUTCAL
39	K	1	45	16740.000	ppb	#REF!	0.72	25000.00	>RL
44	Ca	2	45	140700.000	ppb	#REF!	1.84	25000.00	OUTCAL
47	Ti	1	45	354.600	ppb	#REF!	1.35	2000.00	>RL
51	V	1	45	116.800	ppb	#REF!	0.54	2000.00	>RL
52	Cr	1	45	64.920	ppb	#REF!	1.10	2000.00	>RL
55	Mn	1	45	887.700	ppb	#REF!	0.81	2000.00	>RL
56	Fe	1	72	70020.000	ppb	#REF!	1.19	10000.00	OUTCAL
59	Co	1	72	25.750	ppb	#REF!	0.56	2000.00	>RL
60	Ni	1	72	42.850	ppb	#REF!	1.18	2000.00	>RL
63	Cu	1	72	28.890	ppb	#REF!	1.02	2000.00	>RL
66	Zn	1	72	242.300	ppb	#REF!	0.51	2000.00	>RL
75	As	1	72	22.650	ppb	#REF!	0.47	2000.00	>RL
78	Se	1	72	12.370	ppb	#REF!	0.76	2000.00	>RL
88	Sr	2	115	466.800	ppb	#REF!	1.64	2000.00	>RL
95	Mo	2	115	2.242	ppb	#REF!	3.40	2000.00	J
107	Ag	2	115	0.239	ppb	#REF!	8.33	500.00	ND
111	Cd	2	115	1.216	ppb	#REF!	14.03	2000.00	>RL
118	Sn	2	115	5.709	ppb	#REF!	0.39	2000.00	ND
121	Sb	2	115	3.645	ppb	#REF!	0.76	500.00	J
137	Ba	2	115	444.200	ppb	#REF!	1.14	2000.00	>RL
205	Tl	2	209	0.687	ppb	#REF!	4.31	2000.00	ND
208	Pb	2	209	54.240	ppb	#REF!	1.01	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4972.62	1.33	15.28	-32544.8	70 - 120	ISFail
45	Sc	1	99946.46	0.65	182515.06	54.8	70 - 120	ISFail
45	Sc	2	3076590.30	1.17	6126960.50	50.2	70 - 120	ISFail
72	Ge	1	52520.30	0.77	97742.99	53.7	70 - 120	ISFail
115	In	2	2753659.80	1.02	6508670.50	42.3	70 - 120	ISFail
209	Bi	2	1817902.00	0.37	4337985.50	41.9	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\108SMPL.D\108SMPL.D#

Date Acquired:	Aug 5 2016 09:54 pm	Sample Name:	**1607256-10A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	61.060	ppb	#REF!	0.60	2000.00	>RL
9	Be	2	45	2.216	ppb	#REF!	3.88	2000.00	>RL
11	B	2	45	64.370	ppb	#REF!	1.05	2000.00	>RL
23	Na	1	45	4816.000	ppb	#REF!	1.22	25000.00	>RL
24	Mg	1	45	15510.000	ppb	#REF!	1.98	25000.00	>RL
27	Al	1	45	69410.000	ppb	#REF!	1.37	10000.00	OUTCAL
39	K	1	45	15560.000	ppb	#REF!	1.15	25000.00	>RL
44	Ca	2	45	238500.000	ppb	#REF!	1.01	25000.00	OUTCAL
47	Ti	1	45	211.300	ppb	#REF!	2.90	2000.00	>RL
51	V	1	45	116.100	ppb	#REF!	1.53	2000.00	>RL
52	Cr	1	45	62.580	ppb	#REF!	1.66	2000.00	>RL
55	Mn	1	45	724.900	ppb	#REF!	1.57	2000.00	>RL
56	Fe	1	72	74060.000	ppb	#REF!	1.60	10000.00	OUTCAL
59	Co	1	72	30.430	ppb	#REF!	1.38	2000.00	>RL
60	Ni	1	72	43.190	ppb	#REF!	1.30	2000.00	>RL
63	Cu	1	72	13.460	ppb	#REF!	0.67	2000.00	>RL
66	Zn	1	72	150.400	ppb	#REF!	1.23	2000.00	>RL
75	As	1	72	23.320	ppb	#REF!	2.50	2000.00	>RL
78	Se	1	72	13.560	ppb	#REF!	5.05	2000.00	>RL
88	Sr	2	115	494.100	ppb	#REF!	1.00	2000.00	>RL
95	Mo	2	115	1.809	ppb	#REF!	3.74	2000.00	ND
107	Ag	2	115	0.161	ppb	#REF!	10.92	500.00	ND
111	Cd	2	115	1.062	ppb	#REF!	14.70	2000.00	J
118	Sn	2	115	4.903	ppb	#REF!	1.92	2000.00	ND
121	Sb	2	115	0.565	ppb	#REF!	9.75	500.00	ND
137	Ba	2	115	469.200	ppb	#REF!	1.08	2000.00	>RL
205	Tl	2	209	0.558	ppb	#REF!	5.24	2000.00	ND
208	Pb	2	209	31.920	ppb	#REF!	0.82	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5542.87	5.95	RHigh	15.28	-36277.0	70 - 120	ISFail
45	Sc	1	95104.41	0.96		182515.06	52.1	70 - 120	ISFail
45	Sc	2	3039863.30	0.79		6126960.50	49.6	70 - 120	ISFail
72	Ge	1	49945.63	0.54		97742.99	51.1	70 - 120	ISFail
115	In	2	2752139.50	0.76		6508670.50	42.3	70 - 120	ISFail
209	Bi	2	1795782.50	0.37		4337985.50	41.4	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\109SMPL.D\109SMPL.D#

Date Acquired:	Aug 5 2016 10:00 pm	Sample Name:	**1607256-11A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	84.200	ppb	#REF!	0.98	2000.00	>RL
9	Be	2	45	2.441	ppb	#REF!	5.80	2000.00	>RL
11	B	2	45	69.370	ppb	#REF!	1.42	2000.00	>RL
23	Na	1	45	3822.000	ppb	#REF!	1.47	25000.00	>RL
24	Mg	1	45	12260.000	ppb	#REF!	4.01	25000.00	>RL
27	Al	1	45	50680.000	ppb	#REF!	2.59	10000.00	OUTCAL
39	K	1	45	13950.000	ppb	#REF!	1.71	25000.00	>RL
44	Ca	2	45	141200.000	ppb	#REF!	1.73	25000.00	OUTCAL
47	Ti	1	45	139.900	ppb	#REF!	2.34	2000.00	>RL
51	V	1	45	90.240	ppb	#REF!	2.19	2000.00	>RL
52	Cr	1	45	60.900	ppb	#REF!	1.56	2000.00	>RL
55	Mn	1	45	420.500	ppb	#REF!	1.97	2000.00	>RL
56	Fe	1	72	69520.000	ppb	#REF!	2.74	10000.00	OUTCAL
59	Co	1	72	33.360	ppb	#REF!	2.12	2000.00	>RL
60	Ni	1	72	40.370	ppb	#REF!	2.49	2000.00	>RL
63	Cu	1	72	6.271	ppb	#REF!	2.85	2000.00	J
66	Zn	1	72	145.700	ppb	#REF!	2.83	2000.00	>RL
75	As	1	72	17.460	ppb	#REF!	1.94	2000.00	>RL
78	Se	1	72	12.930	ppb	#REF!	4.50	2000.00	>RL
88	Sr	2	115	314.300	ppb	#REF!	0.91	2000.00	>RL
95	Mo	2	115	1.846	ppb	#REF!	5.06	2000.00	ND
107	Ag	2	115	0.093	ppb	#REF!	6.25	500.00	ND
111	Cd	2	115	0.788	ppb	#REF!	14.06	2000.00	J
118	Sn	2	115	5.313	ppb	#REF!	4.73	2000.00	ND
121	Sb	2	115	0.133	ppb	#REF!	22.96	500.00	ND
137	Ba	2	115	655.900	ppb	#REF!	0.20	2000.00	>RL
205	Tl	2	209	0.335	ppb	#REF!	6.07	2000.00	ND
208	Pb	2	209	22.510	ppb	#REF!	0.57	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7955.36	5.75	RHigh	15.28	-52066.2	70 - 120	ISFail
45	Sc	1	93615.88	1.83		182515.06	51.3	70 - 120	ISFail
45	Sc	2	3070673.80	0.99		6126960.50	50.1	70 - 120	ISFail
72	Ge	1	49704.24	1.72		97742.99	50.9	70 - 120	ISFail
115	In	2	2759472.50	0.79		6508670.50	42.4	70 - 120	ISFail
209	Bi	2	1834835.80	0.62		4337985.50	42.3	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\111SMPL.D\111SMPL.D#

Date Acquired:	Aug 5 2016 10:12 pm	Sample Name:	**1607256-12A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	115.600	ppb	#REF!	1.08	2000.00	>RL
9	Be	2	45	2.882	ppb	#REF!	3.69	2000.00	>RL
11	B	2	45	90.910	ppb	#REF!	1.56	2000.00	>RL
23	Na	1	45	3277.000	ppb	#REF!	1.38	25000.00	>RL
24	Mg	1	45	13960.000	ppb	#REF!	2.94	25000.00	>RL
27	Al	1	45	60580.000	ppb	#REF!	1.17	10000.00	OUTCAL
39	K	1	45	16770.000	ppb	#REF!	1.05	25000.00	>RL
44	Ca	2	45	85310.000	ppb	#REF!	1.78	25000.00	OUTCAL
47	Ti	1	45	125.100	ppb	#REF!	1.31	2000.00	>RL
51	V	1	45	93.000	ppb	#REF!	1.47	2000.00	>RL
52	Cr	1	45	71.070	ppb	#REF!	1.44	2000.00	>RL
55	Mn	1	45	245.300	ppb	#REF!	1.34	2000.00	>RL
56	Fe	1	72	86370.000	ppb	#REF!	1.80	10000.00	OUTCAL
59	Co	1	72	29.500	ppb	#REF!	2.21	2000.00	>RL
60	Ni	1	72	36.180	ppb	#REF!	1.77	2000.00	>RL
63	Cu	1	72	6.539	ppb	#REF!	2.20	2000.00	J
66	Zn	1	72	200.400	ppb	#REF!	0.63	2000.00	>RL
75	As	1	72	20.410	ppb	#REF!	0.52	2000.00	>RL
78	Se	1	72	10.850	ppb	#REF!	3.89	2000.00	>RL
88	Sr	2	115	327.600	ppb	#REF!	1.77	2000.00	>RL
95	Mo	2	115	2.252	ppb	#REF!	2.67	2000.00	J
107	Ag	2	115	0.109	ppb	#REF!	2.29	500.00	ND
111	Cd	2	115	0.774	ppb	#REF!	9.76	2000.00	J
118	Sn	2	115	5.828	ppb	#REF!	3.46	2000.00	ND
121	Sb	2	115	0.115	ppb	#REF!	19.61	500.00	ND
137	Ba	2	115	211.800	ppb	#REF!	1.44	2000.00	>RL
205	Tl	2	209	0.417	ppb	#REF!	1.68	2000.00	ND
208	Pb	2	209	26.750	ppb	#REF!	0.91	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9993.54	3.70	15.28	-65405.7	70 - 120	ISFail
45	Sc	1	88882.75	1.08	182515.06	48.7	70 - 120	ISFail
45	Sc	2	2821912.80	1.09	6126960.50	46.1	70 - 120	ISFail
72	Ge	1	47224.11	1.47	97742.99	48.3	70 - 120	ISFail
115	In	2	2460829.30	0.77	6508670.50	37.8	70 - 120	ISFail
209	Bi	2	1632292.60	0.88	4337985.50	37.6	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\112SMPL.D\112SMPL.D#

Date Acquired:	Aug 5 2016 10:18 pm	Sample Name:	**1607256-14A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	57.900	ppb	#REF!	1.70	2000.00	>RL
9	Be	2	45	2.436	ppb	#REF!	4.29	2000.00	>RL
11	B	2	45	60.550	ppb	#REF!	1.25	2000.00	>RL
23	Na	1	45	1902.000	ppb	#REF!	1.29	25000.00	>RL
24	Mg	1	45	17280.000	ppb	#REF!	0.57	25000.00	>RL
27	Al	1	45	88230.000	ppb	#REF!	0.76	10000.00	OUTCAL
39	K	1	45	18470.000	ppb	#REF!	1.10	25000.00	>RL
44	Ca	2	45	64870.000	ppb	#REF!	2.57	25000.00	OUTCAL
47	Ti	1	45	254.900	ppb	#REF!	2.70	2000.00	>RL
51	V	1	45	125.500	ppb	#REF!	0.80	2000.00	>RL
52	Cr	1	45	73.120	ppb	#REF!	0.43	2000.00	>RL
55	Mn	1	45	859.700	ppb	#REF!	0.68	2000.00	>RL
56	Fe	1	72	83110.000	ppb	#REF!	0.68	10000.00	OUTCAL
59	Co	1	72	28.760	ppb	#REF!	1.07	2000.00	>RL
60	Ni	1	72	46.500	ppb	#REF!	1.84	2000.00	>RL
63	Cu	1	72	37.610	ppb	#REF!	1.27	2000.00	>RL
66	Zn	1	72	347.100	ppb	#REF!	0.83	2000.00	>RL
75	As	1	72	159.200	ppb	#REF!	0.64	2000.00	>RL
78	Se	1	72	13.780	ppb	#REF!	5.47	2000.00	>RL
88	Sr	2	115	402.900	ppb	#REF!	2.34	2000.00	>RL
95	Mo	2	115	3.524	ppb	#REF!	4.40	2000.00	J
107	Ag	2	115	0.388	ppb	#REF!	5.58	500.00	ND
111	Cd	2	115	1.635	ppb	#REF!	1.18	2000.00	>RL
118	Sn	2	115	6.142	ppb	#REF!	3.52	2000.00	ND
121	Sb	2	115	2.059	ppb	#REF!	2.96	500.00	J
137	Ba	2	115	430.600	ppb	#REF!	1.55	2000.00	>RL
205	Tl	2	209	0.692	ppb	#REF!	4.22	2000.00	ND
208	Pb	2	209	143.700	ppb	#REF!	1.40	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4519.09	2.49	15.28	-29576.6	70 - 120	ISFail
45	Sc	1	84079.40	1.08	182515.06	46.1	70 - 120	ISFail
45	Sc	2	2481834.00	1.96	6126960.50	40.5	70 - 120	ISFail
72	Ge	1	44706.23	0.85	97742.99	45.7	70 - 120	ISFail
115	In	2	2136803.00	0.83	6508670.50	32.8	70 - 120	ISFail
209	Bi	2	1439866.60	0.72	4337985.50	33.2	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\113SMPL.D\113SMPL.D#

Date Acquired:	Aug 5 2016 10:24 pm	Sample Name:	**1607256-15A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	64.070	ppb	#REF!	1.48	2000.00	>RL
9	Be	2	45	2.382	ppb	#REF!	0.85	2000.00	>RL
11	B	2	45	63.510	ppb	#REF!	0.70	2000.00	>RL
23	Na	1	45	2279.000	ppb	#REF!	1.94	25000.00	>RL
24	Mg	1	45	17830.000	ppb	#REF!	2.10	25000.00	>RL
27	Al	1	45	80410.000	ppb	#REF!	3.32	10000.00	OUTCAL
39	K	1	45	16190.000	ppb	#REF!	2.00	25000.00	>RL
44	Ca	2	45	254300.000	ppb	#REF!	1.89	25000.00	OUTCAL
47	Ti	1	45	260.500	ppb	#REF!	2.62	2000.00	>RL
51	V	1	45	125.700	ppb	#REF!	2.38	2000.00	>RL
52	Cr	1	45	68.640	ppb	#REF!	2.51	2000.00	>RL
55	Mn	1	45	821.400	ppb	#REF!	2.31	2000.00	>RL
56	Fe	1	72	73420.000	ppb	#REF!	2.28	10000.00	OUTCAL
59	Co	1	72	28.410	ppb	#REF!	2.45	2000.00	>RL
60	Ni	1	72	43.530	ppb	#REF!	2.00	2000.00	>RL
63	Cu	1	72	17.360	ppb	#REF!	1.35	2000.00	>RL
66	Zn	1	72	161.900	ppb	#REF!	1.33	2000.00	>RL
75	As	1	72	22.230	ppb	#REF!	2.04	2000.00	>RL
78	Se	1	72	12.690	ppb	#REF!	1.18	2000.00	>RL
88	Sr	2	115	548.900	ppb	#REF!	0.70	2000.00	>RL
95	Mo	2	115	1.666	ppb	#REF!	3.25	2000.00	ND
107	Ag	2	115	0.193	ppb	#REF!	3.57	500.00	ND
111	Cd	2	115	1.293	ppb	#REF!	5.84	2000.00	>RL
118	Sn	2	115	5.167	ppb	#REF!	3.26	2000.00	ND
121	Sb	2	115	0.322	ppb	#REF!	3.81	500.00	ND
137	Ba	2	115	597.000	ppb	#REF!	1.30	2000.00	>RL
205	Tl	2	209	0.633	ppb	#REF!	6.67	2000.00	ND
208	Pb	2	209	32.710	ppb	#REF!	0.85	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5768.62	5.21	RHigh	15.28	-37754.4	70 - 120	ISFail
45	Sc	1	89029.93	1.96		182515.06	48.8	70 - 120	ISFail
45	Sc	2	2839419.00	1.43		6126960.50	46.3	70 - 120	ISFail
72	Ge	1	47113.43	1.02		97742.99	48.2	70 - 120	ISFail
115	In	2	2530538.00	0.93		6508670.50	38.9	70 - 120	ISFail
209	Bi	2	1655176.40	0.13		4337985.50	38.2	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\114SMPL.D\114SMPL.D#

Date Acquired:	Aug 5 2016 10:30 pm	Sample Name:	**1607256-16A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	70.870	ppb	#REF!	1.36	2000.00	>RL
9	Be	2	45	2.400	ppb	#REF!	2.30	2000.00	>RL
11	B	2	45	76.250	ppb	#REF!	0.51	2000.00	>RL
23	Na	1	45	2738.000	ppb	#REF!	1.02	25000.00	>RL
24	Mg	1	45	16090.000	ppb	#REF!	0.71	25000.00	>RL
27	Al	1	45	61890.000	ppb	#REF!	1.01	10000.00	OUTCAL
39	K	1	45	16070.000	ppb	#REF!	0.77	25000.00	>RL
44	Ca	2	45	210600.000	ppb	#REF!	1.97	25000.00	OUTCAL
47	Ti	1	45	184.600	ppb	#REF!	0.65	2000.00	>RL
51	V	1	45	108.000	ppb	#REF!	1.71	2000.00	>RL
52	Cr	1	45	66.850	ppb	#REF!	1.28	2000.00	>RL
55	Mn	1	45	632.200	ppb	#REF!	1.28	2000.00	>RL
56	Fe	1	72	78110.000	ppb	#REF!	1.56	10000.00	OUTCAL
59	Co	1	72	29.400	ppb	#REF!	1.90	2000.00	>RL
60	Ni	1	72	39.630	ppb	#REF!	1.90	2000.00	>RL
63	Cu	1	72	8.776	ppb	#REF!	1.21	2000.00	>RL
66	Zn	1	72	137.200	ppb	#REF!	0.76	2000.00	>RL
75	As	1	72	19.110	ppb	#REF!	0.21	2000.00	>RL
78	Se	1	72	13.470	ppb	#REF!	3.09	2000.00	>RL
88	Sr	2	115	434.300	ppb	#REF!	0.88	2000.00	>RL
95	Mo	2	115	1.450	ppb	#REF!	5.23	2000.00	ND
107	Ag	2	115	0.112	ppb	#REF!	3.83	500.00	ND
111	Cd	2	115	1.335	ppb	#REF!	8.89	2000.00	>RL
118	Sn	2	115	5.515	ppb	#REF!	7.05	2000.00	ND
121	Sb	2	115	0.138	ppb	#REF!	15.00	500.00	ND
137	Ba	2	115	654.500	ppb	#REF!	0.41	2000.00	>RL
205	Tl	2	209	0.464	ppb	#REF!	8.43	2000.00	ND
208	Pb	2	209	24.360	ppb	#REF!	1.04	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5958.80	2.22	15.28	-38999.1	70 - 120	ISFail
45	Sc	1	85899.27	0.78	182515.06	47.1	70 - 120	ISFail
45	Sc	2	2685484.50	1.25	6126960.50	43.8	70 - 120	ISFail
72	Ge	1	45538.59	0.60	97742.99	46.6	70 - 120	ISFail
115	In	2	2367794.30	0.05	6508670.50	36.4	70 - 120	ISFail
209	Bi	2	1549273.30	0.42	4337985.50	35.7	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\115SMPL.D\115SMPL.D#

Date Acquired:	Aug 5 2016 10:36 pm	Sample Name:	**1607256-17A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	83.520	ppb	#REF!	0.90	2000.00	>RL
9	Be	2	45	2.360	ppb	#REF!	1.82	2000.00	>RL
11	B	2	45	93.090	ppb	#REF!	1.49	2000.00	>RL
23	Na	1	45	4803.000	ppb	#REF!	1.56	25000.00	>RL
24	Mg	1	45	15480.000	ppb	#REF!	1.35	25000.00	>RL
27	Al	1	45	69630.000	ppb	#REF!	0.87	10000.00	OUTCAL
39	K	1	45	15360.000	ppb	#REF!	0.89	25000.00	>RL
44	Ca	2	45	190600.000	ppb	#REF!	1.88	25000.00	OUTCAL
47	Ti	1	45	121.200	ppb	#REF!	2.23	2000.00	>RL
51	V	1	45	116.500	ppb	#REF!	1.88	2000.00	>RL
52	Cr	1	45	74.780	ppb	#REF!	1.45	2000.00	>RL
55	Mn	1	45	374.000	ppb	#REF!	1.92	2000.00	>RL
56	Fe	1	72	90750.000	ppb	#REF!	1.80	10000.00	OUTCAL
59	Co	1	72	19.260	ppb	#REF!	1.76	2000.00	>RL
60	Ni	1	72	30.790	ppb	#REF!	2.74	2000.00	>RL
63	Cu	1	72	9.816	ppb	#REF!	2.41	2000.00	>RL
66	Zn	1	72	149.000	ppb	#REF!	1.31	2000.00	>RL
75	As	1	72	25.670	ppb	#REF!	2.36	2000.00	>RL
78	Se	1	72	12.440	ppb	#REF!	1.44	2000.00	>RL
88	Sr	2	115	526.000	ppb	#REF!	0.87	2000.00	>RL
95	Mo	2	115	3.216	ppb	#REF!	3.40	2000.00	J
107	Ag	2	115	0.130	ppb	#REF!	15.17	500.00	ND
111	Cd	2	115	1.056	ppb	#REF!	12.71	2000.00	J
118	Sn	2	115	5.760	ppb	#REF!	2.42	2000.00	ND
121	Sb	2	115	0.143	ppb	#REF!	5.59	500.00	ND
137	Ba	2	115	554.000	ppb	#REF!	0.50	2000.00	>RL
205	Tl	2	209	0.418	ppb	#REF!	4.52	2000.00	ND
208	Pb	2	209	28.940	ppb	#REF!	0.26	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6820.96	1.63	15.28	-44641.8	70 - 120	ISFail
45	Sc	1	83197.99	1.26	182515.06	45.6	70 - 120	ISFail
45	Sc	2	2692095.50	1.24	6126960.50	43.9	70 - 120	ISFail
72	Ge	1	44443.25	1.32	97742.99	45.5	70 - 120	ISFail
115	In	2	2383315.50	0.20	6508670.50	36.6	70 - 120	ISFail
209	Bi	2	1564847.10	0.67	4337985.50	36.1	70 - 120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\116_PDS.D\116_PDS.D#

Date Acquired:	Aug 5 2016 10:42 pm	Sample Name:	**1607256-07A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	234.00	ppb	0.56	-22201.41	200	75-125	######	Fail
9	Be	2	45	146.60	ppb	0.13	2.70	200	75-125	71.9	Fail
11	B	2	45	203.70	ppb	0.90	76.60	200	75-125	63.6	Fail
23	Na	1	45	8875.00	ppb	2.02	4140.00	5000	75-125	94.7	
24	Mg	1	45	18100.00	ppb	0.87	13840.00	5000	75-125	85.2	
27	Al	1	45	58370.00	ppb	2.40	54980.00	5000	75-125	67.8	Fail
39	K	1	45	19290.00	ppb	1.03	14760.00	5000	75-125	90.6	
44	Ca	2	45	189600.00	ppb	1.78	186900.00	5000	75-125	54.0	Fail
47	Ti	1	45	341.00	ppb	2.58	153.30	200	75-125	93.9	
51	V	1	45	282.30	ppb	1.84	93.41	200	75-125	94.4	
52	Cr	1	45	252.20	ppb	1.54	62.28	200	75-125	95.0	
55	Mn	1	45	729.40	ppb	1.59	539.70	200	75-125	94.8	
56	Fe	1	72	75930.00	ppb	1.45	71720.00	5000	75-125	84.2	
59	Co	1	72	216.20	ppb	0.80	36.34	200	75-125	89.9	
60	Ni	1	72	216.30	ppb	1.35	44.71	200	75-125	85.8	
63	Cu	1	72	178.60	ppb	0.83	6.89	200	75-125	85.9	
66	Zn	1	72	319.40	ppb	2.08	149.70	200	75-125	84.9	
75	As	1	72	201.10	ppb	0.81	18.49	200	75-125	91.3	
78	Se	1	72	190.40	ppb	1.86	14.93	200	75-125	87.7	
88	Sr	2	115	548.20	ppb	0.95	344.30	200	75-125	102.0	
95	Mo	2	115	189.20	ppb	0.34	1.98	200	75-125	93.6	
107	Ag	2	115	180.80	ppb	1.20	0.15	200	75-125	90.3	
111	Cd	2	115	173.90	ppb	0.62	0.95	200	75-125	86.5	
118	Sn	2	115	190.20	ppb	0.68	5.42	200	75-125	92.4	
121	Sb	2	115	176.00	ppb	0.27	0.23	200	75-125	87.9	
137	Ba	2	115	625.10	ppb	0.30	439.90	200	75-125	92.6	
205	Tl	2	209	187.30	ppb	0.85	0.47	200	75-125	93.4	
208	Pb	2	209	209.70	ppb	0.22	24.45	200	75-125	92.6	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	-22201.41	5.77	15.28	-145303.8	70	-	120	ISFail
45	Sc	1		83310.10	1.50	182515.06	45.6	70	-	120	ISFail
45	Sc	2		2696177.00	1.40	6126960.50	44.0	70	-	120	ISFail
72	Ge	1		44510.19	0.76	97742.99	45.5	70	-	120	ISFail
115	In	2		2348260.80	0.40	6508670.50	36.1	70	-	120	ISFail
209	Bi	2		1531520.80	0.15	4337985.50	35.3	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\117_MS.D\117_MS.D#

Date Acquired:	Aug 5 2016 10:48 pm	Sample Name:	**1607256-07A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	247.50	ppb	1.04	########	200	80-120	######	Fail
9	Be	2	45	151.40	ppb	1.66	2.70	200	80-120	74.3	Fail
11	B	2	45	212.00	ppb	2.66	76.60	200	80-120	67.7	Fail
23	Na	1	45	8943.00	ppb	0.30	4140.00	5000	80-120	96.1	
24	Mg	1	45	18670.00	ppb	0.57	13840.00	5000	80-120	96.6	
27	Al	1	45	60850.00	ppb	1.40	54980.00	1000	80-120	587.0	Fail
39	K	1	45	20350.00	ppb	0.39	14760.00	5000	80-120	111.8	
44	Ca	2	45	164700.00	ppb	2.36	########	5000	80-120	-444.0	Fail
47	Ti	1	45	315.10	ppb	1.59	153.30	200	80-120	80.9	
51	V	1	45	295.60	ppb	0.43	93.41	200	80-120	101.1	
52	Cr	1	45	256.90	ppb	1.24	62.28	200	80-120	97.3	
55	Mn	1	45	813.30	ppb	1.11	539.70	200	80-120	136.8	Fail
56	Fe	1	72	75610.00	ppb	1.09	71720.00	1000	80-120	389.0	Fail
59	Co	1	72	230.20	ppb	0.84	36.34	200	80-120	96.9	
60	Ni	1	72	229.30	ppb	0.90	44.71	200	80-120	92.3	
63	Cu	1	72	190.30	ppb	0.88	6.89	200	80-120	91.7	
66	Zn	1	72	332.50	ppb	2.01	149.70	200	80-120	91.4	
75	As	1	72	207.50	ppb	0.79	18.49	200	80-120	94.5	
78	Se	1	72	203.00	ppb	1.42	14.93	200	80-120	94.0	
88	Sr	2	115	541.50	ppb	1.70	344.30	200	80-120	98.6	
95	Mo	2	115	188.60	ppb	2.23	1.98	200	80-120	93.3	
107	Ag	2	115	186.70	ppb	1.44	0.15	200	80-120	93.3	
111	Cd	2	115	180.50	ppb	1.60	0.95	200	80-120	89.8	
118	Sn	2	115	195.40	ppb	2.23	5.42	200	80-120	95.0	
121	Sb	2	115	58.91	ppb	1.40	0.23	200	80-120	29.3	Fail
137	Ba	2	115	750.70	ppb	1.61	439.90	200	80-120	155.4	Fail
205	Tl	2	209	197.60	ppb	1.29	0.47	200	80-120	98.6	
208	Pb	2	209	219.90	ppb	0.77	24.45	200	80-120	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-31687.79	0.89	15.28	########	70	-	120	ISFail
45	Sc	1	83056.76	0.13	182515.06	45.5	70	-	120	ISFail
45	Sc	2	2575829.50	1.40	6126960.50	42.0	70	-	120	ISFail
72	Ge	1	44040.97	0.37	97742.99	45.1	70	-	120	ISFail
115	In	2	2213409.00	0.51	6508670.50	34.0	70	-	120	ISFail
209	Bi	2	1443563.60	0.81	4337985.50	33.3	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\118_MS.D\118_MS.D#

Date Acquired:	Aug 5 2016 10:54 pm	Sample Name:	**1607256-07A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	250.10	ppb	1.39	########	200	80-120	######	Fail
9	Be	2	45	153.30	ppb	1.81	2.70	200	80-120	75.3	Fail
11	B	2	45	213.20	ppb	2.00	76.60	200	80-120	68.3	Fail
23	Na	1	45	8849.00	ppb	1.42	4140.00	5000	80-120	94.2	
24	Mg	1	45	18220.00	ppb	1.13	13840.00	5000	80-120	87.6	
27	Al	1	45	57440.00	ppb	1.76	54980.00	1000	80-120	246.0	Fail
39	K	1	45	19780.00	ppb	0.73	14760.00	5000	80-120	100.4	
44	Ca	2	45	141900.00	ppb	1.33	########	5000	80-120	-900.0	Fail
47	Ti	1	45	313.60	ppb	2.31	153.30	200	80-120	80.2	
51	V	1	45	287.10	ppb	0.99	93.41	200	80-120	96.8	
52	Cr	1	45	255.60	ppb	1.11	62.28	200	80-120	96.7	
55	Mn	1	45	619.90	ppb	1.03	539.70	200	80-120	40.1	Fail
56	Fe	1	72	73440.00	ppb	1.39	71720.00	1000	80-120	172.0	Fail
59	Co	1	72	221.90	ppb	0.83	36.34	200	80-120	92.8	
60	Ni	1	72	223.60	ppb	1.25	44.71	200	80-120	89.4	
63	Cu	1	72	189.00	ppb	0.86	6.89	200	80-120	91.1	
66	Zn	1	72	329.90	ppb	1.29	149.70	200	80-120	90.1	
75	As	1	72	205.00	ppb	1.07	18.49	200	80-120	93.3	
78	Se	1	72	197.60	ppb	1.37	14.93	200	80-120	91.3	
88	Sr	2	115	557.80	ppb	0.37	344.30	200	80-120	106.8	
95	Mo	2	115	187.80	ppb	1.02	1.98	200	80-120	92.9	
107	Ag	2	115	184.10	ppb	1.11	0.15	200	80-120	92.0	
111	Cd	2	115	180.30	ppb	0.96	0.95	200	80-120	89.7	
118	Sn	2	115	194.60	ppb	1.11	5.42	200	80-120	94.6	
121	Sb	2	115	57.93	ppb	1.02	0.23	200	80-120	28.8	Fail
137	Ba	2	115	1605.00	ppb	0.59	439.90	200	80-120	582.6	Fail
205	Tl	2	209	196.00	ppb	0.76	0.47	200	80-120	97.8	
208	Pb	2	209	216.20	ppb	0.25	24.45	200	80-120	95.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-34362.36	0.68	15.28	########	70	-	120	ISFail
45	Sc	1	84385.21	0.58	182515.06	46.2	70	-	120	ISFail
45	Sc	2	2744121.30	1.47	6126960.50	44.8	70	-	120	ISFail
72	Ge	1	44600.30	0.57	97742.99	45.6	70	-	120	ISFail
115	In	2	2366144.50	1.34	6508670.50	36.4	70	-	120	ISFail
209	Bi	2	1535965.80	0.26	4337985.50	35.4	70	-	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\120CCV1.D\120CCV1.D#

Date Acquired:	Aug 5 2016 11:06 pm	Sample Name:	**CCV5-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	173.30	ppb	0.61	200.00	90 -	110	86.7	Fail
9	Be	2	45	166.90	ppb	0.38	200.00	90 -	110	83.5	Fail
11	B	2	45	155.80	ppb	1.38	200.00	90 -	110	77.9	Fail
23	Na	1	45	4787.00	ppb	0.49	5000.00	90 -	110	95.7	
24	Mg	1	45	4780.00	ppb	1.40	5000.00	90 -	110	95.6	
27	Al	1	45	4983.00	ppb	1.25	5000.00	90 -	110	99.7	
39	K	1	45	5223.00	ppb	0.69	5000.00	90 -	110	104.5	
44	Ca	2	45	5107.00	ppb	1.73	5000.00	90 -	110	102.1	
47	Ti	1	45	196.70	ppb	2.09	200.00	90 -	110	98.4	
51	V	1	45	196.00	ppb	0.87	200.00	90 -	110	98.0	
52	Cr	1	45	197.50	ppb	1.11	200.00	90 -	110	98.8	
55	Mn	1	45	207.00	ppb	1.26	200.00	90 -	110	103.5	
56	Fe	1	72	5073.00	ppb	0.51	5000.00	90 -	110	101.5	
59	Co	1	72	193.10	ppb	0.65	200.00	90 -	110	96.6	
60	Ni	1	72	190.40	ppb	0.47	200.00	90 -	110	95.2	
63	Cu	1	72	195.60	ppb	0.81	200.00	90 -	110	97.8	
66	Zn	1	72	191.20	ppb	1.38	200.00	90 -	110	95.6	
75	As	1	72	203.50	ppb	0.79	200.00	90 -	110	101.8	
78	Se	1	72	215.00	ppb	0.82	200.00	90 -	110	107.5	
88	Sr	2	115	204.60	ppb	1.34	200.00	90 -	110	102.3	
95	Mo	2	115	200.70	ppb	1.17	200.00	90 -	110	100.4	
107	Ag	2	115	202.50	ppb	1.00	200.00	90 -	110	101.3	
111	Cd	2	115	194.10	ppb	0.87	200.00	90 -	110	97.1	
118	Sn	2	115	193.40	ppb	0.18	200.00	90 -	110	96.7	
121	Sb	2	115	190.40	ppb	0.38	200.00	90 -	110	95.2	
137	Ba	2	115	197.10	ppb	0.91	200.00	90 -	110	98.6	
205	Tl	2	209	195.60	ppb	0.42	200.00	90 -	110	97.8	
208	Pb	2	209	195.20	ppb	0.39	200.00	90 -	110	97.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-24609.43	0.35	15.28	-161063.8	70 -	120	ISFail
45	Sc	1	77280.65	0.25	182515.06	42.3	70 -	120	ISFail
45	Sc	2	2412794.80	1.74	6126960.50	39.4	70 -	120	ISFail
72	Ge	1	42262.75	0.57	97742.99	43.2	70 -	120	ISFail
115	In	2	2103436.50	1.21	6508670.50	32.3	70 -	120	ISFail
209	Bi	2	1407540.30	0.18	4337985.50	32.4	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\122LCVL.D\122LCVL.D#

Date Acquired:	Aug 5 2016 11:18 pm	Sample Name:	**LCVL5-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.50	ppb	0.84	10.00	70 -	130	85.0	
9	Be	2	45	0.76	ppb	3.98	1.00	70 -	130	76.0	
11	B	2	45	16.61	ppb	2.18	20.00	70 -	130	83.1	
23	Na	1	45	78.33	ppb	0.94	100.00	70 -	130	78.3	
24	Mg	1	45	95.82	ppb	2.74	100.00	70 -	130	95.8	
27	Al	1	45	100.40	ppb	1.77	100.00	70 -	130	100.4	
39	K	1	45	104.80	ppb	2.88	100.00	70 -	130	104.8	
44	Ca	2	45	93.46	ppb	0.09	100.00	70 -	130	93.5	
47	Ti	1	45	5.41	ppb	2.77	5.00	70 -	130	108.2	
51	V	1	45	1.02	ppb	8.68	1.00	70 -	130	101.7	
52	Cr	1	45	5.13	ppb	1.12	5.00	70 -	130	102.7	
55	Mn	1	45	5.11	ppb	0.74	5.00	70 -	130	102.1	
56	Fe	1	72	106.30	ppb	1.14	100.00	70 -	130	106.3	
59	Co	1	72	4.84	ppb	2.79	5.00	70 -	130	96.8	
60	Ni	1	72	4.75	ppb	3.09	5.00	70 -	130	95.0	
63	Cu	1	72	4.73	ppb	3.55	5.00	70 -	130	94.5	
66	Zn	1	72	-8.93	ppb	0.78	5.00	70 -	130	-178.5	Fail
75	As	1	72	5.20	ppb	4.35	5.00	70 -	130	104.0	
78	Se	1	72	5.74	ppb	7.07	5.00	70 -	130	114.8	
88	Sr	2	115	5.10	ppb	0.60	5.00	70 -	130	101.9	
95	Mo	2	115	4.89	ppb	2.14	5.00	70 -	130	97.9	
107	Ag	2	115	2.00	ppb	0.79	2.00	70 -	130	100.2	
111	Cd	2	115	0.98	ppb	6.06	1.00	70 -	130	98.2	
118	Sn	2	115	4.60	ppb	2.89	5.00	70 -	130	91.9	
121	Sb	2	115	1.90	ppb	7.65	2.00	70 -	130	95.1	
137	Ba	2	115	4.90	ppb	3.89	5.00	70 -	130	98.1	
205	Tl	2	209	1.14	ppb	6.37	1.00	70 -	130	113.9	
208	Pb	2	209	1.00	ppb	4.21	1.00	70 -	130	100.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl -703.29	9.58	15.28	-4602.9	70 -	120	ISFail
45	Sc	1	69681.74	0.85	182515.06	38.2	70 -	120	ISFail
45	Sc	2	2229149.50	0.61	6126960.50	36.4	70 -	120	ISFail
72	Ge	1	39006.03	0.79	97742.99	39.9	70 -	120	ISFail
115	In	2	1944748.50	0.90	6508670.50	29.9	70 -	120	ISFail
209	Bi	2	1347427.80	1.17	4337985.50	31.1	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\123_CCB.D\123_CCB.D#

Date Acquired:	Aug 5 2016 11:24 pm	Sample Name:	**CCB5-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.129	ppb	2.58	2.00	2.00	
9	Be	2	45	0.023	ppb	26.46	0.40	0.30	
11	B	2	45	1.410	ppb	4.39	10.00	10.00	
23	Na	1	45	-11.800	ppb	4.46	50.00	#####	
24	Mg	1	45	-0.496	ppb	11.44	50.00	#####	
27	Al	1	45	0.270	ppb	10.14	50.00	10.00	
39	K	1	45	1.477	ppb	5.60	50.00	#####	
44	Ca	2	45	-6.566	ppb	0.25	50.00	#####	
47	Ti	1	45	0.051	ppb	86.60	4.00	3.00	
51	V	1	45	0.055	ppb	4.68	4.00	3.00	
52	Cr	1	45	0.009	ppb	15.35	2.00	2.00	
55	Mn	1	45	-0.169	ppb	8.02	2.00	3.00	
56	Fe	1	72	2.195	ppb	2.63	50.00	30.00	
59	Co	1	72	0.044	ppb	19.10	2.00	3.00	
60	Ni	1	72	0.000	ppb	29.75	2.00	3.00	
63	Cu	1	72	-0.117	ppb	9.70	2.00	2.00	
66	Zn	1	72	-13.930	ppb	38.91	4.00	2.00	
75	As	1	72	-0.030	ppb	9.96	2.00	2.00	
78	Se	1	72	0.416	ppb	6.19	0.60	2.00	
88	Sr	2	115	0.012	ppb	12.78	4.00	3.00	
95	Mo	2	115	0.051	ppb	12.39	2.00	2.00	
107	Ag	2	115	0.029	ppb	18.55	0.40	1.00	
111	Cd	2	115	0.030	ppb	43.11	0.40	0.30	
118	Sn	2	115	-0.071	ppb	9.48	20.00	3.00	
121	Sb	2	115	0.065	ppb	31.48	2.00	0.80	
137	Ba	2	115	0.025	ppb	17.63	2.00	3.00	
205	Tl	2	209	0.142	ppb	10.31	2.00	0.50	
208	Pb	2	209	0.041	ppb	2.82	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-7.91	53.35	15.28	-51.8	70 - 120	ISFail
45	Sc	1		71690.66	1.05	182515.06	39.3	70 - 120	ISFail
45	Sc	2		2218592.30	0.81	6126960.50	36.2	70 - 120	ISFail
72	Ge	1		40033.76	0.91	97742.99	41.0	70 - 120	ISFail
115	In	2		1935095.00	0.51	6508670.50	29.7	70 - 120	ISFail
209	Bi	2		1332826.10	1.34	4337985.50	30.7	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\124SMPL.D\124SMPL.D#

Date Acquired:	Aug 5 2016 11:31 pm	Sample Name:	**1607256-18A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

DNR - low ISTDs for rest of run.

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	55.150	ppb	#REF!	2.81	2000.00	>RL
9	Be	2	45	2.312	ppb	#REF!	2.11	2000.00	>RL
11	B	2	45	60.470	ppb	#REF!	1.82	2000.00	>RL
23	Na	1	45	1739.000	ppb	#REF!	1.07	25000.00	>RL
24	Mg	1	45	15570.000	ppb	#REF!	2.45	25000.00	>RL
27	Al	1	45	83710.000	ppb	#REF!	0.58	10000.00	OUTCAL
39	K	1	45	17270.000	ppb	#REF!	0.33	25000.00	>RL
44	Ca	2	45	65350.000	ppb	#REF!	2.79	25000.00	OUTCAL
47	Ti	1	45	259.800	ppb	#REF!	2.51	2000.00	>RL
51	V	1	45	114.300	ppb	#REF!	0.71	2000.00	>RL
52	Cr	1	45	68.000	ppb	#REF!	0.48	2000.00	>RL
55	Mn	1	45	814.900	ppb	#REF!	0.66	2000.00	>RL
56	Fe	1	72	75240.000	ppb	#REF!	0.48	10000.00	OUTCAL
59	Co	1	72	26.960	ppb	#REF!	0.42	2000.00	>RL
60	Ni	1	72	42.980	ppb	#REF!	0.80	2000.00	>RL
63	Cu	1	72	31.540	ppb	#REF!	2.00	2000.00	>RL
66	Zn	1	72	270.700	ppb	#REF!	1.03	2000.00	>RL
75	As	1	72	25.530	ppb	#REF!	1.15	2000.00	>RL
78	Se	1	72	12.460	ppb	#REF!	2.78	2000.00	>RL
88	Sr	2	115	411.400	ppb	#REF!	0.89	2000.00	>RL
95	Mo	2	115	2.774	ppb	#REF!	2.81	2000.00	J
107	Ag	2	115	0.273	ppb	#REF!	1.28	500.00	ND
111	Cd	2	115	1.611	ppb	#REF!	5.51	2000.00	>RL
118	Sn	2	115	5.595	ppb	#REF!	1.32	2000.00	ND
121	Sb	2	115	1.413	ppb	#REF!	3.11	500.00	ND
137	Ba	2	115	392.600	ppb	#REF!	1.14	2000.00	>RL
205	Tl	2	209	0.682	ppb	#REF!	2.69	2000.00	ND
208	Pb	2	209	99.820	ppb	#REF!	1.29	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3918.08	6.31	RHigh	15.28	-25643.0	70 - 120	ISFail
45	Sc	1	73764.65	0.50		182515.06	40.4	70 - 120	ISFail
45	Sc	2	2182140.80	0.88		6126960.50	35.6	70 - 120	ISFail
72	Ge	1	39309.44	0.85		97742.99	40.2	70 - 120	ISFail
115	In	2	1856882.50	0.80		6508670.50	28.5	70 - 120	ISFail
209	Bi	2	1251856.00	0.72		4337985.50	28.9	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\125SMPL.D\125SMPL.D#

Date Acquired:	Aug 5 2016 11:37 pm	Sample Name:	**1607256-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	62.210	ppb	#REF!	0.88	2000.00	>RL
9	Be	2	45	2.357	ppb	#REF!	6.43	2000.00	>RL
11	B	2	45	58.730	ppb	#REF!	1.98	2000.00	>RL
23	Na	1	45	2452.000	ppb	#REF!	2.51	25000.00	>RL
24	Mg	1	45	17660.000	ppb	#REF!	2.29	25000.00	>RL
27	Al	1	45	81090.000	ppb	#REF!	3.91	10000.00	OUTCAL
39	K	1	45	16120.000	ppb	#REF!	1.77	25000.00	>RL
44	Ca	2	45	210000.000	ppb	#REF!	1.34	25000.00	OUTCAL
47	Ti	1	45	264.400	ppb	#REF!	3.38	2000.00	>RL
51	V	1	45	125.900	ppb	#REF!	2.26	2000.00	>RL
52	Cr	1	45	68.120	ppb	#REF!	2.30	2000.00	>RL
55	Mn	1	45	875.100	ppb	#REF!	2.15	2000.00	>RL
56	Fe	1	72	74970.000	ppb	#REF!	2.42	10000.00	OUTCAL
59	Co	1	72	28.710	ppb	#REF!	2.09	2000.00	>RL
60	Ni	1	72	44.420	ppb	#REF!	2.63	2000.00	>RL
63	Cu	1	72	16.750	ppb	#REF!	1.79	2000.00	>RL
66	Zn	1	72	164.200	ppb	#REF!	0.98	2000.00	>RL
75	As	1	72	21.570	ppb	#REF!	1.89	2000.00	>RL
78	Se	1	72	11.710	ppb	#REF!	2.35	2000.00	>RL
88	Sr	2	115	518.200	ppb	#REF!	1.33	2000.00	>RL
95	Mo	2	115	1.485	ppb	#REF!	3.84	2000.00	ND
107	Ag	2	115	0.155	ppb	#REF!	10.32	500.00	ND
111	Cd	2	115	1.099	ppb	#REF!	20.56	2000.00	J
118	Sn	2	115	5.160	ppb	#REF!	3.38	2000.00	ND
121	Sb	2	115	0.244	ppb	#REF!	9.71	500.00	ND
137	Ba	2	115	480.100	ppb	#REF!	0.16	2000.00	>RL
205	Tl	2	209	0.663	ppb	#REF!	4.00	2000.00	ND
208	Pb	2	209	29.550	ppb	#REF!	1.01	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4983.52	4.46	15.28	-32616.1	70 - 120	ISFail
45	Sc	1	79601.88	1.94	182515.06	43.6	70 - 120	ISFail
45	Sc	2	2622175.30	0.80	6126960.50	42.8	70 - 120	ISFail
72	Ge	1	42312.47	2.04	97742.99	43.3	70 - 120	ISFail
115	In	2	2256620.00	0.77	6508670.50	34.7	70 - 120	ISFail
209	Bi	2	1469625.10	0.75	4337985.50	33.9	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\126SMPL.D\126SMPL.D#

Date Acquired:	Aug 5 2016 11:43 pm	Sample Name:	**1607256-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	67.690	ppb	#REF!	0.85	2000.00	>RL
9	Be	2	45	2.258	ppb	#REF!	6.16	2000.00	>RL
11	B	2	45	68.520	ppb	#REF!	1.48	2000.00	>RL
23	Na	1	45	3065.000	ppb	#REF!	1.53	25000.00	>RL
24	Mg	1	45	15070.000	ppb	#REF!	1.22	25000.00	>RL
27	Al	1	45	61760.000	ppb	#REF!	2.23	10000.00	OUTCAL
39	K	1	45	14690.000	ppb	#REF!	1.19	25000.00	>RL
44	Ca	2	45	201100.000	ppb	#REF!	1.64	25000.00	OUTCAL
47	Ti	1	45	184.000	ppb	#REF!	0.88	2000.00	>RL
51	V	1	45	107.400	ppb	#REF!	0.86	2000.00	>RL
52	Cr	1	45	64.520	ppb	#REF!	1.18	2000.00	>RL
55	Mn	1	45	576.200	ppb	#REF!	0.75	2000.00	>RL
56	Fe	1	72	71440.000	ppb	#REF!	1.28	10000.00	OUTCAL
59	Co	1	72	32.180	ppb	#REF!	1.28	2000.00	>RL
60	Ni	1	72	39.640	ppb	#REF!	1.89	2000.00	>RL
63	Cu	1	72	10.210	ppb	#REF!	0.83	2000.00	>RL
66	Zn	1	72	147.000	ppb	#REF!	0.52	2000.00	>RL
75	As	1	72	19.270	ppb	#REF!	1.43	2000.00	>RL
78	Se	1	72	12.810	ppb	#REF!	5.31	2000.00	>RL
88	Sr	2	115	398.700	ppb	#REF!	1.08	2000.00	>RL
95	Mo	2	115	1.533	ppb	#REF!	6.12	2000.00	ND
107	Ag	2	115	0.128	ppb	#REF!	2.91	500.00	ND
111	Cd	2	115	1.160	ppb	#REF!	12.99	2000.00	J
118	Sn	2	115	5.292	ppb	#REF!	4.85	2000.00	ND
121	Sb	2	115	0.168	ppb	#REF!	8.07	500.00	ND
137	Ba	2	115	359.900	ppb	#REF!	1.37	2000.00	>RL
205	Tl	2	209	0.485	ppb	#REF!	3.56	2000.00	ND
208	Pb	2	209	25.850	ppb	#REF!	0.87	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5616.56	2.57	15.28	-36759.3	70 - 120	ISFail
45	Sc	1	82573.51	1.65	182515.06	45.2	70 - 120	ISFail
45	Sc	2	2650397.80	3.64	6126960.50	43.3	70 - 120	ISFail
72	Ge	1	43779.63	1.30	97742.99	44.8	70 - 120	ISFail
115	In	2	2285201.50	2.20	6508670.50	35.1	70 - 120	ISFail
209	Bi	2	1481417.10	1.26	4337985.50	34.1	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\127SMPL.D\127SMPL.D#

Date Acquired:	Aug 5 2016 11:49 pm	Sample Name:	**1607256-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	66.130	ppb	#REF!	0.79	2000.00	>RL
9	Be	2	45	2.337	ppb	#REF!	3.40	2000.00	>RL
11	B	2	45	80.900	ppb	#REF!	1.09	2000.00	>RL
23	Na	1	45	3320.000	ppb	#REF!	1.65	25000.00	>RL
24	Mg	1	45	12340.000	ppb	#REF!	1.60	25000.00	>RL
27	Al	1	45	50310.000	ppb	#REF!	1.72	10000.00	OUTCAL
39	K	1	45	14250.000	ppb	#REF!	1.13	25000.00	>RL
44	Ca	2	45	296300.000	ppb	#REF!	1.35	25000.00	OUTCAL
47	Ti	1	45	127.400	ppb	#REF!	0.26	2000.00	>RL
51	V	1	45	90.100	ppb	#REF!	1.45	2000.00	>RL
52	Cr	1	45	61.480	ppb	#REF!	2.20	2000.00	>RL
55	Mn	1	45	2416.000	ppb	#REF!	1.47	2000.00	OUTCAL
56	Fe	1	72	83360.000	ppb	#REF!	1.96	10000.00	OUTCAL
59	Co	1	72	31.030	ppb	#REF!	1.46	2000.00	>RL
60	Ni	1	72	63.890	ppb	#REF!	1.35	2000.00	>RL
63	Cu	1	72	6.703	ppb	#REF!	0.55	2000.00	J
66	Zn	1	72	182.300	ppb	#REF!	1.46	2000.00	>RL
75	As	1	72	21.540	ppb	#REF!	1.68	2000.00	>RL
78	Se	1	72	26.610	ppb	#REF!	4.20	2000.00	>RL
88	Sr	2	115	612.100	ppb	#REF!	0.76	2000.00	>RL
95	Mo	2	115	2.883	ppb	#REF!	1.92	2000.00	J
107	Ag	2	115	0.093	ppb	#REF!	21.32	500.00	ND
111	Cd	2	115	1.829	ppb	#REF!	3.32	2000.00	>RL
118	Sn	2	115	5.576	ppb	#REF!	3.68	2000.00	ND
121	Sb	2	115	0.118	ppb	#REF!	11.69	500.00	ND
137	Ba	2	115	473.200	ppb	#REF!	0.70	2000.00	>RL
205	Tl	2	209	0.559	ppb	#REF!	3.11	2000.00	ND
208	Pb	2	209	29.400	ppb	#REF!	0.41	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5073.85	1.53	15.28	-33207.3	70 - 120	ISFail
45	Sc	1	80149.17	0.73	182515.06	43.9	70 - 120	ISFail
45	Sc	2	2548065.50	0.59	6126960.50	41.6	70 - 120	ISFail
72	Ge	1	42745.72	1.39	97742.99	43.7	70 - 120	ISFail
115	In	2	2206599.30	0.80	6508670.50	33.9	70 - 120	ISFail
209	Bi	2	1416565.90	1.63	4337985.50	32.7	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\128SMPL.D\128SMPL.D#

Date Acquired:	Aug 5 2016 11:55 pm	Sample Name:	**1607256-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.450	ppb	#REF!	2.45	2000.00	>RL
9	Be	2	45	2.420	ppb	#REF!	1.58	2000.00	>RL
11	B	2	45	61.300	ppb	#REF!	1.84	2000.00	>RL
23	Na	1	45	1916.000	ppb	#REF!	0.50	25000.00	>RL
24	Mg	1	45	16320.000	ppb	#REF!	0.92	25000.00	>RL
27	Al	1	45	84430.000	ppb	#REF!	0.87	10000.00	OUTCAL
39	K	1	45	17780.000	ppb	#REF!	0.42	25000.00	>RL
44	Ca	2	45	77140.000	ppb	#REF!	2.83	25000.00	OUTCAL
47	Ti	1	45	257.500	ppb	#REF!	3.06	2000.00	>RL
51	V	1	45	115.900	ppb	#REF!	0.48	2000.00	>RL
52	Cr	1	45	69.830	ppb	#REF!	0.08	2000.00	>RL
55	Mn	1	45	819.000	ppb	#REF!	0.39	2000.00	>RL
56	Fe	1	72	72520.000	ppb	#REF!	0.54	10000.00	OUTCAL
59	Co	1	72	28.890	ppb	#REF!	0.27	2000.00	>RL
60	Ni	1	72	44.770	ppb	#REF!	0.93	2000.00	>RL
63	Cu	1	72	28.980	ppb	#REF!	0.74	2000.00	>RL
66	Zn	1	72	247.300	ppb	#REF!	0.37	2000.00	>RL
75	As	1	72	23.580	ppb	#REF!	1.89	2000.00	>RL
78	Se	1	72	13.200	ppb	#REF!	3.90	2000.00	>RL
88	Sr	2	115	420.900	ppb	#REF!	2.62	2000.00	>RL
95	Mo	2	115	2.781	ppb	#REF!	2.11	2000.00	J
107	Ag	2	115	0.246	ppb	#REF!	6.96	500.00	ND
111	Cd	2	115	1.235	ppb	#REF!	10.87	2000.00	>RL
118	Sn	2	115	5.529	ppb	#REF!	3.67	2000.00	ND
121	Sb	2	115	1.331	ppb	#REF!	2.59	500.00	ND
137	Ba	2	115	383.400	ppb	#REF!	2.05	2000.00	>RL
205	Tl	2	209	0.643	ppb	#REF!	5.62	2000.00	ND
208	Pb	2	209	64.410	ppb	#REF!	1.09	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4095.77	3.96	15.28	-26806.0	70 - 120	ISFail
45	Sc	1	75029.60	0.81	182515.06	41.1	70 - 120	ISFail
45	Sc	2	2322076.30	2.08	6126960.50	37.9	70 - 120	ISFail
72	Ge	1	40517.77	0.40	97742.99	41.5	70 - 120	ISFail
115	In	2	1975720.10	1.30	6508670.50	30.4	70 - 120	ISFail
209	Bi	2	1295661.80	0.69	4337985.50	29.9	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\130SMPL.D\130SMPL.D#

Date Acquired:	Aug 6 2016 12:07 am	Sample Name:	**1607256-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	70.090	ppb	#REF!	1.23	2000.00	>RL
9	Be	2	45	2.534	ppb	#REF!	1.34	2000.00	>RL
11	B	2	45	66.430	ppb	#REF!	0.73	2000.00	>RL
23	Na	1	45	3138.000	ppb	#REF!	3.07	25000.00	>RL
24	Mg	1	45	19690.000	ppb	#REF!	2.85	25000.00	>RL
27	Al	1	45	90600.000	ppb	#REF!	4.03	10000.00	OUTCAL
39	K	1	45	18000.000	ppb	#REF!	3.23	25000.00	>RL
44	Ca	2	45	264000.000	ppb	#REF!	1.63	25000.00	OUTCAL
47	Ti	1	45	273.600	ppb	#REF!	5.67	2000.00	>RL
51	V	1	45	142.500	ppb	#REF!	2.51	2000.00	>RL
52	Cr	1	45	75.780	ppb	#REF!	2.85	2000.00	>RL
55	Mn	1	45	839.800	ppb	#REF!	2.93	2000.00	>RL
56	Fe	1	72	82210.000	ppb	#REF!	3.44	10000.00	OUTCAL
59	Co	1	72	31.320	ppb	#REF!	2.81	2000.00	>RL
60	Ni	1	72	48.020	ppb	#REF!	3.16	2000.00	>RL
63	Cu	1	72	18.560	ppb	#REF!	2.24	2000.00	>RL
66	Zn	1	72	181.200	ppb	#REF!	2.28	2000.00	>RL
75	As	1	72	25.260	ppb	#REF!	4.09	2000.00	>RL
78	Se	1	72	13.900	ppb	#REF!	1.71	2000.00	>RL
88	Sr	2	115	600.900	ppb	#REF!	1.65	2000.00	>RL
95	Mo	2	115	1.670	ppb	#REF!	5.67	2000.00	ND
107	Ag	2	115	0.182	ppb	#REF!	13.92	500.00	ND
111	Cd	2	115	1.515	ppb	#REF!	9.25	2000.00	>RL
118	Sn	2	115	5.504	ppb	#REF!	4.43	2000.00	ND
121	Sb	2	115	0.524	ppb	#REF!	4.32	500.00	ND
137	Ba	2	115	557.200	ppb	#REF!	1.19	2000.00	>RL
205	Tl	2	209	0.736	ppb	#REF!	4.28	2000.00	ND
208	Pb	2	209	58.200	ppb	#REF!	0.90	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4906.64	3.15	15.28	-32113.0	70 - 120	ISFail
45	Sc	1	72802.54	1.90	182515.06	39.9	70 - 120	ISFail
45	Sc	2	2318872.00	1.62	6126960.50	37.8	70 - 120	ISFail
72	Ge	1	38751.02	1.85	97742.99	39.6	70 - 120	ISFail
115	In	2	1983405.80	0.74	6508670.50	30.5	70 - 120	ISFail
209	Bi	2	1277054.10	0.42	4337985.50	29.4	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\131SMPL.D\131SMPL.D#

Date Acquired:	Aug 6 2016 12:13 am	Sample Name:	**1607256-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	70.800	ppb	#REF!	1.07	2000.00	>RL
9	Be	2	45	2.303	ppb	#REF!	5.94	2000.00	>RL
11	B	2	45	69.110	ppb	#REF!	1.00	2000.00	>RL
23	Na	1	45	2794.000	ppb	#REF!	1.67	25000.00	>RL
24	Mg	1	45	14400.000	ppb	#REF!	1.17	25000.00	>RL
27	Al	1	45	55840.000	ppb	#REF!	1.48	10000.00	OUTCAL
39	K	1	45	14960.000	ppb	#REF!	0.94	25000.00	>RL
44	Ca	2	45	213100.000	ppb	#REF!	1.51	25000.00	OUTCAL
47	Ti	1	45	162.700	ppb	#REF!	2.92	2000.00	>RL
51	V	1	45	101.400	ppb	#REF!	1.91	2000.00	>RL
52	Cr	1	45	64.600	ppb	#REF!	2.61	2000.00	>RL
55	Mn	1	45	654.300	ppb	#REF!	1.70	2000.00	>RL
56	Fe	1	72	70840.000	ppb	#REF!	2.40	10000.00	OUTCAL
59	Co	1	72	38.250	ppb	#REF!	2.13	2000.00	>RL
60	Ni	1	72	43.800	ppb	#REF!	1.26	2000.00	>RL
63	Cu	1	72	8.523	ppb	#REF!	3.84	2000.00	>RL
66	Zn	1	72	149.600	ppb	#REF!	1.32	2000.00	>RL
75	As	1	72	19.220	ppb	#REF!	1.46	2000.00	>RL
78	Se	1	72	16.960	ppb	#REF!	1.63	2000.00	>RL
88	Sr	2	115	452.700	ppb	#REF!	1.53	2000.00	>RL
95	Mo	2	115	1.819	ppb	#REF!	5.47	2000.00	ND
107	Ag	2	115	0.103	ppb	#REF!	6.32	500.00	ND
111	Cd	2	115	1.088	ppb	#REF!	7.86	2000.00	J
118	Sn	2	115	5.333	ppb	#REF!	1.88	2000.00	ND
121	Sb	2	115	0.125	ppb	#REF!	28.85	500.00	ND
137	Ba	2	115	727.000	ppb	#REF!	0.41	2000.00	>RL
205	Tl	2	209	0.449	ppb	#REF!	7.19	2000.00	ND
208	Pb	2	209	25.360	ppb	#REF!	1.03	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4911.51	3.44	15.28	-32144.8	70 - 120	ISFail
45	Sc	1	69864.82	0.89	182515.06	38.3	70 - 120	ISFail
45	Sc	2	2220602.50	1.24	6126960.50	36.2	70 - 120	ISFail
72	Ge	1	37709.33	0.30	97742.99	38.6	70 - 120	ISFail
115	In	2	1874208.30	0.41	6508670.50	28.8	70 - 120	ISFail
209	Bi	2	1213738.80	1.04	4337985.50	28.0	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\132SMPL.D\132SMPL.D#

Date Acquired:	Aug 6 2016 12:19 am	Sample Name:	**1607256-25A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	59.080	ppb	#REF!	0.73	2000.00	>RL
9	Be	2	45	2.059	ppb	#REF!	3.52	2000.00	>RL
11	B	2	45	74.220	ppb	#REF!	1.71	2000.00	>RL
23	Na	1	45	2992.000	ppb	#REF!	2.11	25000.00	>RL
24	Mg	1	45	12230.000	ppb	#REF!	2.33	25000.00	>RL
27	Al	1	45	48560.000	ppb	#REF!	2.62	10000.00	OUTCAL
39	K	1	45	13970.000	ppb	#REF!	2.06	25000.00	>RL
44	Ca	2	45	212700.000	ppb	#REF!	1.27	25000.00	OUTCAL
47	Ti	1	45	152.800	ppb	#REF!	2.08	2000.00	>RL
51	V	1	45	91.520	ppb	#REF!	2.62	2000.00	>RL
52	Cr	1	45	61.340	ppb	#REF!	2.40	2000.00	>RL
55	Mn	1	45	450.300	ppb	#REF!	2.98	2000.00	>RL
56	Fe	1	72	72670.000	ppb	#REF!	2.67	10000.00	OUTCAL
59	Co	1	72	20.580	ppb	#REF!	2.64	2000.00	>RL
60	Ni	1	72	32.840	ppb	#REF!	3.06	2000.00	>RL
63	Cu	1	72	6.819	ppb	#REF!	0.92	2000.00	J
66	Zn	1	72	116.600	ppb	#REF!	1.61	2000.00	>RL
75	As	1	72	19.220	ppb	#REF!	2.20	2000.00	>RL
78	Se	1	72	14.250	ppb	#REF!	6.17	2000.00	>RL
88	Sr	2	115	453.300	ppb	#REF!	1.13	2000.00	>RL
95	Mo	2	115	2.594	ppb	#REF!	9.45	2000.00	J
107	Ag	2	115	0.141	ppb	#REF!	13.48	500.00	ND
111	Cd	2	115	1.040	ppb	#REF!	9.03	2000.00	J
118	Sn	2	115	5.448	ppb	#REF!	3.01	2000.00	ND
121	Sb	2	115	0.118	ppb	#REF!	8.39	500.00	ND
137	Ba	2	115	520.000	ppb	#REF!	0.60	2000.00	>RL
205	Tl	2	209	0.438	ppb	#REF!	4.18	2000.00	ND
208	Pb	2	209	24.780	ppb	#REF!	1.39	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3942.33	1.75	15.28	-25801.8	70 - 120	ISFail
45	Sc	1	70075.84	1.87	182515.06	38.4	70 - 120	ISFail
45	Sc	2	2305333.30	1.06	6126960.50	37.6	70 - 120	ISFail
72	Ge	1	37692.42	1.81	97742.99	38.6	70 - 120	ISFail
115	In	2	1958064.40	0.08	6508670.50	30.1	70 - 120	ISFail
209	Bi	2	1274080.10	0.35	4337985.50	29.4	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\133SMPL.D\133SMPL.D#

Date Acquired:	Aug 6 2016 12:25 am	Sample Name:	**1607256-29A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	68.460	ppb	#REF!	1.24	2000.00	>RL
9	Be	2	45	2.214	ppb	#REF!	3.50	2000.00	>RL
11	B	2	45	82.370	ppb	#REF!	1.08	2000.00	>RL
23	Na	1	45	568.200	ppb	#REF!	0.96	25000.00	>RL
24	Mg	1	45	11090.000	ppb	#REF!	1.85	25000.00	>RL
27	Al	1	45	52220.000	ppb	#REF!	2.48	10000.00	OUTCAL
39	K	1	45	14710.000	ppb	#REF!	1.90	25000.00	>RL
44	Ca	2	45	178800.000	ppb	#REF!	1.11	25000.00	OUTCAL
47	Ti	1	45	124.600	ppb	#REF!	3.49	2000.00	>RL
51	V	1	45	87.500	ppb	#REF!	2.61	2000.00	>RL
52	Cr	1	45	64.570	ppb	#REF!	2.57	2000.00	>RL
55	Mn	1	45	458.100	ppb	#REF!	2.24	2000.00	>RL
56	Fe	1	72	88220.000	ppb	#REF!	2.41	10000.00	OUTCAL
59	Co	1	72	27.480	ppb	#REF!	1.34	2000.00	>RL
60	Ni	1	72	36.910	ppb	#REF!	0.80	2000.00	>RL
63	Cu	1	72	6.658	ppb	#REF!	1.50	2000.00	J
66	Zn	1	72	155.100	ppb	#REF!	0.21	2000.00	>RL
75	As	1	72	20.700	ppb	#REF!	1.85	2000.00	>RL
78	Se	1	72	12.240	ppb	#REF!	4.83	2000.00	>RL
88	Sr	2	115	600.100	ppb	#REF!	1.37	2000.00	>RL
95	Mo	2	115	3.045	ppb	#REF!	1.63	2000.00	J
107	Ag	2	115	0.089	ppb	#REF!	14.58	500.00	ND
111	Cd	2	115	0.807	ppb	#REF!	25.45	2000.00	J
118	Sn	2	115	5.518	ppb	#REF!	1.70	2000.00	ND
121	Sb	2	115	0.111	ppb	#REF!	19.24	500.00	ND
137	Ba	2	115	191.600	ppb	#REF!	1.37	2000.00	>RL
205	Tl	2	209	0.345	ppb	#REF!	8.30	2000.00	ND
208	Pb	2	209	26.050	ppb	#REF!	0.77	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4997.56	0.11	15.28	-32708.1	70 - 120	ISFail
45	Sc	1	73410.77	1.46	182515.06	40.2	70 - 120	ISFail
45	Sc	2	2356857.30	0.31	6126960.50	38.5	70 - 120	ISFail
72	Ge	1	39530.61	1.66	97742.99	40.4	70 - 120	ISFail
115	In	2	2016267.30	0.58	6508670.50	31.0	70 - 120	ISFail
209	Bi	2	1305560.10	0.58	4337985.50	30.1	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\134SMPL.D\134SMPL.D#

Date Acquired:	Aug 6 2016 12:31 am	Sample Name:	**1607256-30A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	67.710	ppb	#REF!	1.12	2000.00	>RL
9	Be	2	45	2.208	ppb	#REF!	6.08	2000.00	>RL
11	B	2	45	93.900	ppb	#REF!	2.30	2000.00	>RL
23	Na	1	45	990.100	ppb	#REF!	0.05	25000.00	>RL
24	Mg	1	45	11170.000	ppb	#REF!	0.34	25000.00	>RL
27	Al	1	45	57300.000	ppb	#REF!	0.38	10000.00	OUTCAL
39	K	1	45	14740.000	ppb	#REF!	0.31	25000.00	>RL
44	Ca	2	45	168400.000	ppb	#REF!	2.03	25000.00	OUTCAL
47	Ti	1	45	104.700	ppb	#REF!	2.91	2000.00	>RL
51	V	1	45	92.290	ppb	#REF!	0.71	2000.00	>RL
52	Cr	1	45	70.870	ppb	#REF!	0.46	2000.00	>RL
55	Mn	1	45	188.500	ppb	#REF!	1.01	2000.00	>RL
56	Fe	1	72	86780.000	ppb	#REF!	0.73	10000.00	OUTCAL
59	Co	1	72	12.930	ppb	#REF!	0.81	2000.00	>RL
60	Ni	1	72	24.170	ppb	#REF!	1.37	2000.00	>RL
63	Cu	1	72	12.280	ppb	#REF!	0.31	2000.00	>RL
66	Zn	1	72	148.000	ppb	#REF!	1.17	2000.00	>RL
75	As	1	72	24.080	ppb	#REF!	0.64	2000.00	>RL
78	Se	1	72	10.190	ppb	#REF!	8.44	2000.00	>RL
88	Sr	2	115	734.100	ppb	#REF!	1.46	2000.00	>RL
95	Mo	2	115	4.453	ppb	#REF!	3.79	2000.00	J
107	Ag	2	115	0.120	ppb	#REF!	14.61	500.00	ND
111	Cd	2	115	0.780	ppb	#REF!	19.78	2000.00	J
118	Sn	2	115	6.099	ppb	#REF!	2.37	2000.00	ND
121	Sb	2	115	0.216	ppb	#REF!	13.68	500.00	ND
137	Ba	2	115	289.300	ppb	#REF!	0.52	2000.00	>RL
205	Tl	2	209	0.411	ppb	#REF!	8.39	2000.00	ND
208	Pb	2	209	32.710	ppb	#REF!	0.46	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4506.29	3.27	15.28	-29492.8	70 - 120	ISFail
45	Sc	1	69529.60	0.22	182515.06	38.1	70 - 120	ISFail
45	Sc	2	2229223.30	1.16	6126960.50	36.4	70 - 120	ISFail
72	Ge	1	37510.56	0.53	97742.99	38.4	70 - 120	ISFail
115	In	2	1899660.80	1.12	6508670.50	29.2	70 - 120	ISFail
209	Bi	2	1225199.10	0.89	4337985.50	28.2	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\136CCV1.D\136CCV1.D#

Date Acquired:	Aug 6 2016 12:43 am	Sample Name:	**CCV6-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	165.50	ppb	0.86	200.00	90 -	110	82.8	Fail
9	Be	2	45	161.20	ppb	0.72	200.00	90 -	110	80.6	Fail
11	B	2	45	146.60	ppb	1.05	200.00	90 -	110	73.3	Fail
23	Na	1	45	4733.00	ppb	0.64	5000.00	90 -	110	94.7	
24	Mg	1	45	4731.00	ppb	0.34	5000.00	90 -	110	94.6	
27	Al	1	45	4983.00	ppb	1.45	5000.00	90 -	110	99.7	
39	K	1	45	5264.00	ppb	0.47	5000.00	90 -	110	105.3	
44	Ca	2	45	5124.00	ppb	1.15	5000.00	90 -	110	102.5	
47	Ti	1	45	197.20	ppb	6.87	200.00	90 -	110	98.6	
51	V	1	45	199.40	ppb	0.94	200.00	90 -	110	99.7	
52	Cr	1	45	200.70	ppb	1.12	200.00	90 -	110	100.4	
55	Mn	1	45	209.20	ppb	0.80	200.00	90 -	110	104.6	
56	Fe	1	72	5112.00	ppb	0.62	5000.00	90 -	110	102.2	
59	Co	1	72	193.50	ppb	0.59	200.00	90 -	110	96.8	
60	Ni	1	72	189.40	ppb	0.75	200.00	90 -	110	94.7	
63	Cu	1	72	196.40	ppb	0.20	200.00	90 -	110	98.2	
66	Zn	1	72	191.80	ppb	1.00	200.00	90 -	110	95.9	
75	As	1	72	205.20	ppb	1.00	200.00	90 -	110	102.6	
78	Se	1	72	216.80	ppb	1.34	200.00	90 -	110	108.4	
88	Sr	2	115	205.30	ppb	0.90	200.00	90 -	110	102.7	
95	Mo	2	115	199.70	ppb	0.86	200.00	90 -	110	99.9	
107	Ag	2	115	202.30	ppb	1.44	200.00	90 -	110	101.2	
111	Cd	2	115	192.80	ppb	0.78	200.00	90 -	110	96.4	
118	Sn	2	115	192.40	ppb	0.75	200.00	90 -	110	96.2	
121	Sb	2	115	189.90	ppb	0.56	200.00	90 -	110	95.0	
137	Ba	2	115	197.60	ppb	0.61	200.00	90 -	110	98.8	
205	Tl	2	209	196.70	ppb	0.28	200.00	90 -	110	98.4	
208	Pb	2	209	195.80	ppb	0.30	200.00	90 -	110	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-18611.64	0.68	15.28	-121809.4	70 -	120		ISFail
45	Sc	1	60857.29	0.29	182515.06	33.3	70 -	120		ISFail
45	Sc	2	1913185.50	1.01	6126960.50	31.2	70 -	120		ISFail
72	Ge	1	34028.88	0.67	97742.99	34.8	70 -	120		ISFail
115	In	2	1646933.90	0.50	6508670.50	25.3	70 -	120		ISFail
209	Bi	2	1100965.30	0.73	4337985.50	25.4	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\142LCVL.D\142LCVL.D#

Date Acquired:	Aug 6 2016 01:19 am	Sample Name:	**LCVL6-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.40	ppb	1.45	10.00	70 -	130	84.0	
9	Be	2	45	0.77	ppb	19.60	1.00	70 -	130	77.2	
11	B	2	45	15.26	ppb	0.42	20.00	70 -	130	76.3	
23	Na	1	45	87.32	ppb	3.23	100.00	70 -	130	87.3	
24	Mg	1	45	100.80	ppb	2.86	100.00	70 -	130	100.8	
27	Al	1	45	105.00	ppb	1.16	100.00	70 -	130	105.0	
39	K	1	45	116.60	ppb	4.52	100.00	70 -	130	116.6	
44	Ca	2	45	95.82	ppb	4.35	100.00	70 -	130	95.8	
47	Ti	1	45	5.73	ppb	32.09	5.00	70 -	130	114.5	
51	V	1	45	1.06	ppb	8.25	1.00	70 -	130	105.7	
52	Cr	1	45	5.14	ppb	3.37	5.00	70 -	130	102.9	
55	Mn	1	45	5.08	ppb	1.60	5.00	70 -	130	101.5	
56	Fe	1	72	108.90	ppb	1.98	100.00	70 -	130	108.9	
59	Co	1	72	4.69	ppb	0.89	5.00	70 -	130	93.9	
60	Ni	1	72	4.70	ppb	2.46	5.00	70 -	130	93.9	
63	Cu	1	72	4.76	ppb	2.98	5.00	70 -	130	95.3	
66	Zn	1	72	-8.66	ppb	10.26	5.00	70 -	130	-173.1	Fail
75	As	1	72	5.00	ppb	1.58	5.00	70 -	130	100.0	
78	Se	1	72	6.16	ppb	8.18	5.00	70 -	130	123.3	
88	Sr	2	115	5.16	ppb	1.37	5.00	70 -	130	103.1	
95	Mo	2	115	5.23	ppb	3.82	5.00	70 -	130	104.7	
107	Ag	2	115	1.98	ppb	0.73	2.00	70 -	130	99.2	
111	Cd	2	115	1.08	ppb	9.18	1.00	70 -	130	107.8	
118	Sn	2	115	4.51	ppb	1.51	5.00	70 -	130	90.3	
121	Sb	2	115	1.84	ppb	3.73	2.00	70 -	130	92.1	
137	Ba	2	115	4.53	ppb	4.72	5.00	70 -	130	90.5	
205	Tl	2	209	1.04	ppb	6.23	1.00	70 -	130	104.2	
208	Pb	2	209	1.04	ppb	3.05	1.00	70 -	130	104.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-507.37	16.88	15.28	-3320.6	70 -	120	ISFail
45	Sc	1	54313.11	0.36	182515.06	29.8	70 -	120	ISFail
45	Sc	2	1720754.60	0.92	6126960.50	28.1	70 -	120	ISFail
72	Ge	1	31293.64	0.75	97742.99	32.0	70 -	120	ISFail
115	In	2	1521615.90	1.36	6508670.50	23.4	70 -	120	ISFail
209	Bi	2	1001806.00	2.69	4337985.50	23.1	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\143_CCB.D\143_CCB.D#

Date Acquired:	Aug 6 2016 01:25 am	Sample Name:	**CCB6-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.104	ppb	8.85	2.00	2.00	
9	Be	2	45	0.003	ppb	15.75	0.40	0.30	
11	B	2	45	0.436	ppb	9.83	10.00	10.00	
23	Na	1	45	-7.964	ppb	4.13	50.00	#####	
24	Mg	1	45	1.868	ppb	18.24	50.00	#####	
27	Al	1	45	1.168	ppb	12.23	50.00	10.00	
39	K	1	45	5.184	ppb	1.63	50.00	#####	
44	Ca	2	45	-5.871	ppb	3.19	50.00	#####	
47	Ti	1	45	0.021	ppb	173.20	4.00	3.00	
51	V	1	45	0.097	ppb	0.97	4.00	3.00	
52	Cr	1	45	0.015	ppb	12.03	2.00	2.00	
55	Mn	1	45	-0.126	ppb	3.22	2.00	3.00	
56	Fe	1	72	3.260	ppb	8.22	50.00	30.00	
59	Co	1	72	0.023	ppb	14.14	2.00	3.00	
60	Ni	1	72	0.014	ppb	16.39	2.00	3.00	
63	Cu	1	72	-0.097	ppb	4.34	2.00	2.00	
66	Zn	1	72	-14.150	ppb	12.60	4.00	2.00	
75	As	1	72	-0.082	ppb	18.38	2.00	2.00	
78	Se	1	72	0.165	ppb	34.12	0.60	2.00	
88	Sr	2	115	0.006	ppb	6.11	4.00	3.00	
95	Mo	2	115	0.186	ppb	19.91	2.00	2.00	
107	Ag	2	115	0.023	ppb	18.18	0.40	1.00	
111	Cd	2	115	0.013	ppb	57.51	0.40	0.30	
118	Sn	2	115	-0.117	ppb	32.86	20.00	3.00	
121	Sb	2	115	0.015	ppb	69.60	2.00	0.80	
137	Ba	2	115	0.043	ppb	27.71	2.00	3.00	
205	Tl	2	209	0.042	ppb	17.08	2.00	0.50	
208	Pb	2	209	0.035	ppb	12.02	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-2.44	580.49	15.28	-15.9	70 - 120	ISFail
45	Sc	1		55367.06	0.40	182515.06	30.3	70 - 120	ISFail
45	Sc	2		1669667.50	0.81	6126960.50	27.3	70 - 120	ISFail
72	Ge	1		31319.03	0.52	97742.99	32.0	70 - 120	ISFail
115	In	2		1477070.90	0.57	6508670.50	22.7	70 - 120	ISFail
209	Bi	2		968656.63	1.31	4337985.50	22.3	70 - 120	ISFail

ICP-MS3_160809A
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160809a SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	x			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?			X		

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cassie Van Dyke Date of Completion: 08/10/2016

Second-Level Review: Janice Whitt Date Stamp: 8/11/2016

REVIEWED BY
By Janice Whitt at 1:18:04 PM, 8/11/2016

DHL Analytical, Inc.

Run ID: ICP-MS3_160809A **Run No.:** 87526

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:19:00 PM		
L2-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:25:00 PM		
L-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:31:00 PM		
10X-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:37:00 PM		
5X-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:43:00 PM		
2X-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:49:00 PM		
H-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:55:00 PM		
H2-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 1:01:00 PM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87526	8/9/2016 1:18:00 PM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87526	8/9/2016 1:24:00 PM		
ICV1-160809	1	ICPMS_TWDOD	ICV	R87526	8/9/2016 1:42:00 PM		
ICB1-160809	1	ICPMS_TWDOD	ICB	R87526	8/9/2016 1:48:00 PM		
ILCVL-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 1:54:00 PM		
MB-76663	5	ICPMS_TSDOD1	MBLK	76663	8/9/2016 2:00:00 PM		
LCS-76663	5	ICPMS_TSDOD1	LCS	76663	8/9/2016 2:06:00 PM		
LCSD-76663	5	ICPMS_TSDOD1	LCSD	76663	8/9/2016 2:12:00 PM		
1607256-28A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:23:00 PM		
1607256-28A SD	25	ICPMS_TSDOD1	SD	76663	8/9/2016 2:29:00 PM		
1607256-31A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:35:00 PM		
1607256-32A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:41:00 PM		
1607256-33A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:47:00 PM		
1607256-34A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:53:00 PM		
1607256-35A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:58:00 PM		
1607256-36A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:04:00 PM		
1607256-37A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:10:00 PM		
1607256-38A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:16:00 PM		
1607256-39A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:22:00 PM		
1607256-28A PDS	5	ICPMS_TSDOD1	PDS	76663	8/9/2016 3:28:00 PM		
1607256-28A MS	5	ICPMS_TSDOD1	MS	76663	8/9/2016 3:33:00 PM		
1607256-28A MSD	5	ICPMS_TSDOD1	MSD	76663	8/9/2016 3:39:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160809A **Run No.:** 87526

CCV1-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 3:45:00 PM		
CCV1-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 3:57:00 PM		Used new CCC. Both passed for lead.
LCVL1-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 4:03:00 PM		
CCB1-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 4:09:00 PM		
1607256-40A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:17:00 PM		
1607256-41A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:23:00 PM		
1607256-42A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:29:00 PM		
1607265-01A	50	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:35:00 PM		
1607265-02A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:41:00 PM		
1607265-03A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:53:00 PM		
1607265-04A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:58:00 PM		
1607265-05A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 5:04:00 PM		
1607265-06A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 5:10:00 PM		
1607265-07A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 5:16:00 PM		
CCV2-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 5:22:00 PM		
LCVL2-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 5:34:00 PM		
CCB2-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 5:40:00 PM		
1607256-18A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 5:46:00 PM		
1607256-19A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 5:51:00 PM		
1607256-20A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 5:57:00 PM		
1607256-21A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:03:00 PM		
1607256-22A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:09:00 PM		
1607256-23A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:21:00 PM		
1607256-24A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:27:00 PM		
1607256-25A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:32:00 PM		
1607256-29A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:38:00 PM		
1607256-30A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:44:00 PM		
CCV3-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 6:50:00 PM		
LCVL3-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 7:02:00 PM		
CCB3-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 7:08:00 PM		
MB-76670	5	ICPMS_TSDOD1	MBLK	76670	8/9/2016 7:14:00 PM		
LCS-76670	5	ICPMS_TSDOD1	LCS	76670	8/9/2016 7:20:00 PM		
LCSD-76670	5	ICPMS_TSDOD1	LCSD	76670	8/9/2016 7:26:00 PM		
1607294-09A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 7:38:00 PM		
1607294-09A SD	25	ICPMS_TSDOD1	SD	76670	8/9/2016 7:43:00 PM		DNR. Pending rerun.

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160809A **Run No.:** 87526

1607294-04A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 7:49:00 PM		
1607294-05A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 7:55:00 PM		
1607294-06A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:01:00 PM		
1607294-07A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:07:00 PM		
1607294-08A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:13:00 PM		
1607294-10A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:19:00 PM		
1607294-11A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:24:00 PM		
1607294-12A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:30:00 PM		
1607294-14A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:36:00 PM		
1607294-09A PDS	5	ICPMS_TSDOD1	PDS	76670	8/9/2016 8:42:00 PM		
1607294-09A MS	5	ICPMS_TSDOD1	MS	76670	8/9/2016 8:48:00 PM		
1607294-09A MSD	5	ICPMS_TSDOD1	MSD	76670	8/9/2016 8:53:00 PM		DNR. Pending Rerun.
CCV4-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 8:59:00 PM		
LCVL4-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 9:11:00 PM		
CCB4-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 9:17:00 PM		
CCV4-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 9:23:00 PM		Accidental CCV, both passed for Lead.
1607294-15A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:29:00 PM		
1607294-16A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:35:00 PM		
1607294-17A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:41:00 PM		
1607294-18A	50	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:46:00 PM		
1607294-19A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:52:00 PM		
1607294-20A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:04:00 PM		
1607294-21A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:10:00 PM		
1607294-22A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:16:00 PM		
1607294-23A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:22:00 PM		
1607294-25A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:28:00 PM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 10:34:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 10:45:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 10:51:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: **ICP-MS3_160809A** **Run No.:** 87526

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:19:00 PM		
L2-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:25:00 PM		
L-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:31:00 PM		
10X-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:37:00 PM		
5X-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:43:00 PM		
2X-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:49:00 PM		
H-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 12:55:00 PM		
H2-160809	1	ICPMS_TWDOD	CAL	R87526	8/9/2016 1:01:00 PM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87526	8/9/2016 1:18:00 PM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87526	8/9/2016 1:24:00 PM		
ICV1-160809	1	ICPMS_TWDOD	ICV	R87526	8/9/2016 1:42:00 PM		
ICB1-160809	1	ICPMS_TWDOD	ICB	R87526	8/9/2016 1:48:00 PM		
ILCVL-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 1:54:00 PM		
MB-76663	5	ICPMS_TSDOD1	MBLK	76663	8/9/2016 2:00:00 PM		
LCS-76663	5	ICPMS_TSDOD1	LCS	76663	8/9/2016 2:06:00 PM		
LCSD-76663	5	ICPMS_TSDOD1	LCSD	76663	8/9/2016 2:12:00 PM		
1607256-28A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:23:00 PM		
1607256-28A SD	25	ICPMS_TSDOD1	SD	76663	8/9/2016 2:29:00 PM		
1607256-31A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:35:00 PM		
1607256-32A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:41:00 PM		
1607256-33A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:47:00 PM		
1607256-34A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:53:00 PM		
1607256-35A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 2:58:00 PM		
1607256-36A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:04:00 PM		
1607256-37A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:10:00 PM		
1607256-38A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:16:00 PM		
1607256-39A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 3:22:00 PM		
1607256-28A PDS	5	ICPMS_TSDOD1	PDS	76663	8/9/2016 3:28:00 PM		
1607256-28A MS	5	ICPMS_TSDOD1	MS	76663	8/9/2016 3:33:00 PM		
1607256-28A MSD	5	ICPMS_TSDOD1	MSD	76663	8/9/2016 3:39:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160809A **Run No.:** 87526

CCV1-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 3:45:00 PM		
CCV1-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 3:57:00 PM		Used new CCC. Both passed for lead.
LCVL1-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 4:03:00 PM		
CCB1-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 4:09:00 PM		
1607256-40A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:17:00 PM		
1607256-41A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:23:00 PM		
1607256-42A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:29:00 PM		
1607265-01A	50	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:35:00 PM		
1607265-02A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:41:00 PM		
1607265-03A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:53:00 PM		
1607265-04A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 4:58:00 PM		
1607265-05A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 5:04:00 PM		
1607265-06A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 5:10:00 PM		
1607265-07A	5	ICPMS_TSDOD1	SAMP	76663	8/9/2016 5:16:00 PM		
CCV2-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 5:22:00 PM		
LCVL2-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 5:34:00 PM		
CCB2-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 5:40:00 PM		
1607256-18A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 5:46:00 PM		
1607256-19A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 5:51:00 PM		
1607256-20A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 5:57:00 PM		
1607256-21A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:03:00 PM		
1607256-22A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:09:00 PM		
1607256-23A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:21:00 PM		
1607256-24A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:27:00 PM		
1607256-25A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:32:00 PM		
1607256-29A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:38:00 PM		
1607256-30A	5	ICPMS_TSDOD1	SAMP	76649	8/9/2016 6:44:00 PM		
CCV3-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 6:50:00 PM		
LCVL3-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 7:02:00 PM		
CCB3-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 7:08:00 PM		
MB-76670	5	ICPMS_TSDOD1	MBLK	76670	8/9/2016 7:14:00 PM		
LCS-76670	5	ICPMS_TSDOD1	LCS	76670	8/9/2016 7:20:00 PM		
LCSD-76670	5	ICPMS_TSDOD1	LCSD	76670	8/9/2016 7:26:00 PM		
1607294-09A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 7:38:00 PM		DNR - parent and all QC was rerun on 8/10.
1607294-09A SD	25	ICPMS_TSDOD1	SD	76670	8/9/2016 7:43:00 PM		DNR. Pending rerun.

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160809A **Run No.:** 87526

1607294-04A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 7:49:00 PM		
1607294-05A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 7:55:00 PM		
1607294-06A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:01:00 PM		
1607294-07A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:07:00 PM		
1607294-08A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:13:00 PM		
1607294-10A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:19:00 PM		
1607294-11A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:24:00 PM		
1607294-12A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:30:00 PM		
1607294-14A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 8:36:00 PM		
1607294-09A PDS	5	ICPMS_TSDOD1	PDS	76670	8/9/2016 8:42:00 PM		DNR - rerun in ICP-MS3_160809A.
1607294-09A MS	5	ICPMS_TSDOD1	MS	76670	8/9/2016 8:48:00 PM		DNR - rerun in ICP-MS3_160809A.
1607294-09A MSD	5	ICPMS_TSDOD1	MSD	76670	8/9/2016 8:53:00 PM		DNR - rerun in ICP-MS3_160809A.
CCV4-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 8:59:00 PM		
LCVL4-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 9:11:00 PM		
CCB4-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 9:17:00 PM		
CCV4-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 9:23:00 PM		Accidental CCV, both passed for Lead.
1607294-15A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:29:00 PM		
1607294-16A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:35:00 PM		
1607294-17A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:41:00 PM		
1607294-18A	50	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:46:00 PM		
1607294-19A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 9:52:00 PM		
1607294-20A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:04:00 PM		
1607294-21A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:10:00 PM		
1607294-22A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:16:00 PM		
1607294-23A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:22:00 PM		
1607294-25A	5	ICPMS_TSDOD1	SAMP	76670	8/9/2016 10:28:00 PM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87526	8/9/2016 10:34:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87526	8/9/2016 10:45:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87526	8/9/2016 10:51:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160809	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160809	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160809	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160809	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160809	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160809	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160809	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160809	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160809	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160809	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160809	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160809	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76663	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76663	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76663	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607256-28A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607256-28A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607256-31A	SAMPICPMS_TSDOD1	5.000	Level 1			
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607256-32A	SAMPICPMS_TSDOD1	5.000	Level 1			
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607256-33A	SAMPICPMS_TSDOD1	5.000	Level 1			
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607256-34A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607256-35A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607256-36A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607256-37A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607256-38A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607256-39A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607256-28A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607256-28A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607256-28A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160809	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160809	LCVLICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160809	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2306		1607256-40A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2307		1607256-41A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2308		1607256-42A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2309		1607265-01A	SAMPICPMS_TSDOD1	50.00				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2310		1607265-02A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2311		1607265-03A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2312		1607265-04A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607265-05A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607265-06A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607265-07A	SAMPICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160809	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160809	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160809	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160809	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2501		1606256-18A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607256-19A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607256-20A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607256-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607256-22A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607256-23A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607256-24A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607256-25A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607256-29A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2510		1607256-30A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160809	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160809	LCVLICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76670	MBLKICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76670	LCS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76670	LCSDICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607294-09A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607294-09A SD	SD ICPMS_TSDOD1	25.00				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-04A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-05A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-06A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-07A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-08A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-10A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-11A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607294-12A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607294-14A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160809	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160809	LCVLICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160809	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607294-15A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607294-16A	SAMPICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607294-17A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607294-18A	SAMPICPMS_TSDOD1	50.00				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607294-19A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607294-20A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607294-21A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607294-22A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607294-23A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607294-25A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160809	CCV ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160809	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3401		MB-76663	MBLKICPMS_TWDOD1	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3402		LCS-76663	LCS ICPMS_TWDOD1	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3403		LCSD-766487	LCSDICPMS_TWDOD1	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607337-26A	SAMPICPMS_TWDOD1	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607337-26A SD	SD ICPMS_TWDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1607219-13A	SAMPICPMS_TWDOD1	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1607219-26A	SAMPICPMS_TWDOD1	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3408		1607239-16A	SAMPICPMS_TWDOD1	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3409		1607239-32A	SAMPICPMS_TWDOD1	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3410		1607256-13A	SAMPICPMS_TWDOD1	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3411		1607256-26A	SAMPICPMS_TWDOD1	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3412		1607256-27A	SAMPICPMS_TWDOD1	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3501		1607265-13A	SAMPICPMS_TWDOD1	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3502		1607265-26A	SAMPICPMS_TWDOD1	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607337-26A PDS	PDS ICPMS_TWDOD1	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160809	CCV ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160809	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160809	LCVLICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160809	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3504		1607294-13A	SAMPICPMS_TWDOD1	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3505		1607294-24A	SAMPICPMS_TWDOD1	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3506		1607294-37A	SAMPICPMS_TWDOD1	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3507		1607294-50A	SAMPICPMS_TWDOD1	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3508		1607294-63A	SAMPICPMS_TWDOD1	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3509		1607294-76A	SAMPICPMS_TWDOD1	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3510		1607314-07A	SAMPICPMS_TWDOD1	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3511		1607317-13A	SAMPICPMS_TWDOD1	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3512		1607317-26A	SAMPICPMS_TWDOD1	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3312		1607337-13A	SAMPICPMS_TWDOD1	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160809	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160809	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
163		Keyword		StandBy							
164		Keyword		SMPLEND	End of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
165		Keyword		End	End of Sequence						
166		Keyword		CCVBEG	Start of CCV						
167		Keyword		CCVEND	End of CCV						
168		Keyword		BLKBEG	Start of BLANK						
169		Keyword		BLKEND	End of BLANK						
170		Keyword		ERRBEG	Start of ERRTERM						
171		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 3:53:26 PM**
Digestion: **Start: 8/4/2016 7:26:00 AM / Stop: 8/4/2016 12:31:00 PM**
Prep End Date: **8/4/2016 2:00:37 PM**

Prep Batch **76649** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1607256-07A	Soil		1.11	50	45.045		of	3	
1607256-07A MS	Soil		1.06	50	47.170		of		
1607256-07A MSD	Soil		1.06	50	47.170		of		
1607256-07A PDS	Soil		1.11	50	45.045		of		
1607256-07A SD	Soil		1.11	50	45.045		of		
1607256-08A	Soil		1.02	50	49.020	1	of	1	
1607256-09A	Soil		1.12	50	44.643	1	of	1	
1607256-10A	Soil		1.03	50	48.544	1	of	1	
1607256-11A	Soil		1.02	50	49.020	1	of	1	
1607256-12A	Soil		1.01	50	49.505	1	of	1	
1607256-14A	Soil		1.14	50	43.860	1	of	1	
1607256-15A	Soil		1.09	50	45.872	1	of	1	
1607256-16A	Soil		1.02	50	49.020	1	of	1	
1607256-17A	Soil		1.03	50	48.544	1	of	1	
1607256-18A	Soil		1.05	50	47.619	1	of	1	
1607256-19A	Soil		1.03	50	48.544	1	of	1	
1607256-20A	Soil		1.04	50	48.077	1	of	1	
1607256-21A	Soil		1.11	50	45.045	1	of	1	
1607256-22A	Soil		1.03	50	48.544	1	of	1	
1607256-23A	Soil		1.14	50	43.860	1	of	1	
1607256-24A	Soil		1.05	50	47.619	1	of	1	
1607256-25A	Soil		1.03	50	48.544	1	of	1	
1607256-29A	Soil		1.07	50	46.729	1	of	1	
1607256-30A	Soil		1.05	50	47.619	1	of	1	
LCS-76649	Soil		1	50	50.000		of		
LCSD-76649	Soil		1	50	50.000		of		
MB-76649	Soil		1	50	50.000		of		

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

REVIEWED BY
By Janice Whitt at 3:31:36 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 3:53:26 PM**
Digestion:
Prep End Date:

Prep Batch **76649** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-07A	Soil		1.11	50	50.000	1 of 3	
1607256-07AMS	Soil		1.06	50	50.000	1 of 3	
1607256-07AMSD	Soil		1.06	50	50.000	1 of 3	
1607256-08A	Soil		1.02	50	50.000	1 of 1	
1607256-09A	Soil		1.12	50	50.000	1 of 1	
1607256-10A	Soil		1.03	50	50.000	1 of 1	
1607256-11A	Soil		1.02	50	50.000	1 of 1	
1607256-12A	Soil		1.01	50	50.000	1 of 1	
1607256-14A	Soil		1.14	50	50.000	1 of 1	
1607256-15A	Soil		1.09	50	50.000	1 of 1	
1607256-16A	Soil		1.07	50	50.000	1 of 1	
1607256-17A	Soil		1.03	50	50.000	1 of 1	
1607256-18A	Soil		1.05	50	50.000	1 of 1	
1607256-19A	Soil		1.03	50	50.000	1 of 1	
1607256-20A	Soil		1.04	50	50.000	1 of 1	
1607256-21A	Soil		1.11	50	50.000	1 of 1	
1607256-22A	Soil		1.03	50	50.000	1 of 1	
1607256-23A	Soil		1.14	50	50.000	1 of 1	
1607256-24A	Soil		1.05	50	50.000	1 of 1	
1607256-25A	Soil		1.03	50	50.000	1 of 1	
1607256-29A	Soil		1.07	50	50.000	1 of 1	
1607256-30A	Soil		1.05	50	50.000	1 of 1	
LCS-76649	Soil		1	50	50.000	of	
LCSD-76649	Soil		1	50	50.000	of	
MB-76649	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

7:26 - 7:36
7:42 - 9:42
10:04 - 12:04
12:16 - 12:31

8/4/16

REVIEWED BY
By Janice Whitt at 3:31:33 PM, 8/9/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/04/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0690	5.0792	101.58	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0436	5.0537	101.07		
3		5.0046	5.0146	100.29		
AVERAGE (MEAN)		5.039	5.049	100.98		0.644
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2000	0.2004	100.20	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2015	0.2019	100.95		
3		0.2014	0.2018	100.90		
AVERAGE (MEAN)		0.201	0.201	100.68		0.417
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

DM 8/4/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 3:31:39 PM, 8/9/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Factor Units: **mL/**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-07A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607256-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:31:51 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:31:53 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

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By Janice Whitt at 3:31:55 PM, 8/9/2016

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PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:08:46 PM**
Digestion: **Start: 7/25/2016 1:20:00 PM / Stop: 7/26/2016 2:30:00 PM**
Prep End Date: **7/26/2016 3:20:00 PM**

Prep Batch **76440** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A SS	Soil		0	0	#Num!	1 of 1	
1607256-21A SS	Soil		0	0	#Num!	1 of 1	
1607256-22A SS	Soil		0	0	#Num!	1 of 1	
1607256-23A SS	Soil		0	0	#Num!	1 of 1	
1607256-24A SS	Soil		0	0	#Num!	1 of 1	
1607256-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 3:32:08 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 11:25:29 AM**
Digestion:
Prep End Date:

Prep Batch **76663** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-28A	Soil		1.05	50	50.000	3 of 3	
1607256-28A MS	Soil		1.05	50	50.000	3 of 3	
1607256-28A MSD	Soil		1.00	50	50.000	3 of 3	
1607256-28A PDS	Soil		1.05	50	50.000	3 of 3	
1607256-28A SD	Soil		1.05	50	50.000	3 of 3	
1607256-31A	Soil		1.05	50	50.000	1 of 1	
1607256-32A	Soil		1.10	50	50.000	1 of 1	
1607256-33A	Soil		1.14	50	50.000	1 of 1	
1607256-34A	Soil		1.14	50	50.000	1 of 1	
1607256-35A	Soil		1.05	50	50.000	1 of 1	
1607256-36A	Soil		1.06	50	50.000	1 of 1	
1607256-37A	Soil		1.07	50	50.000	1 of 1	
1607256-38A	Soil		1.02	50	50.000	1 of 1	
1607256-39A	Soil		1.05	50	50.000	1 of 1	
1607256-40A	Soil		1.01	50	50.000	1 of 1	
1607256-41A	Soil		1.20	50	50.000	1 of 1	
1607256-42A	Soil		1.05	50	50.000	1 of 1	
1607265-01A	Soil		1.17	50	50.000	1 of 1	
1607265-02A	Soil		1.06	50	50.000	1 of 1	
1607265-03A	Soil		1.04	50	50.000	1 of 1	
1607265-04A	Soil		1.00	50	50.000	1 of 1	
1607265-05A	Soil		1.05	50	50.000	1 of 1	
1607265-06A	Soil		1.07	50	50.000	1 of 1	
1607265-07A	Soil		1.01	50	50.000	1 of 1	
LCS-76663	Soil		1	50	50.000	of	
LCSD-76663	Soil		1	50	50.000	of	
MB-76663	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Dt
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160620-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	09/18/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160712-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/10/2016

12:31-12:41
12:44-14:44
15:11-17:11
17:25-17:40

REVIEWED BY
By Janice Whitt at 12:36:56 PM, 8/11/2016

8/5/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Factor Units: **mL/**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-07A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607256-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:37:12 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:37:15 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 12:37:17 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-07A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-08A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-11A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-12A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:38:06 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-18A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607265-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-23A	Soil		0	0	#Num!	1 of 1	
Sieve Ony Hard Clay							
1607265-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-25A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:38:09 PM, 8/11/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/04/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**5.00**	5.0690	5.0792	**101.58**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		5.0436	5.0537	**101.07**		
3		5.0046	5.0146	**100.29**		
AVERAGE (MEAN)		**5.039**	**5.049**	**100.98**		**0.644**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.20**	0.2000	0.2004	**100.20**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2015	0.2019	**100.95**		
3		0.2014	0.2018	**100.90**		
AVERAGE (MEAN)		**0.201**	**0.201**	**100.68**		**0.417**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2						
3						
AVERAGE (MEAN)						

SM 8/4/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 12:38:15 PM, 8/11/2016

Review and Approved / Date

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**	
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998** **(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	3.9957	3.9877	99.69	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0006	3.9926	99.81		
3		4.0002	3.9922	99.80		
AVERAGE (MEAN)		**3.999**	**3.991**	**99.77**		**0.068**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	1.00	0.9962	0.9942	99.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.9969	0.9949	99.49		
3		0.9970	0.9950	99.50		
AVERAGE (MEAN)		**0.997**	**0.995**	**99.47**		**0.044**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.500	0.5031	0.5021	100.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5007	0.4997	99.94		
3		0.5000	0.4990	99.80		
AVERAGE (MEAN)		**0.501**	**0.500**	**100.05**		**0.324**
						PASS

8/9/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 12:38:18 PM, 8/11/2016
Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 09 2016 01:04 pm
Cal Type: Y=aX+[blank]

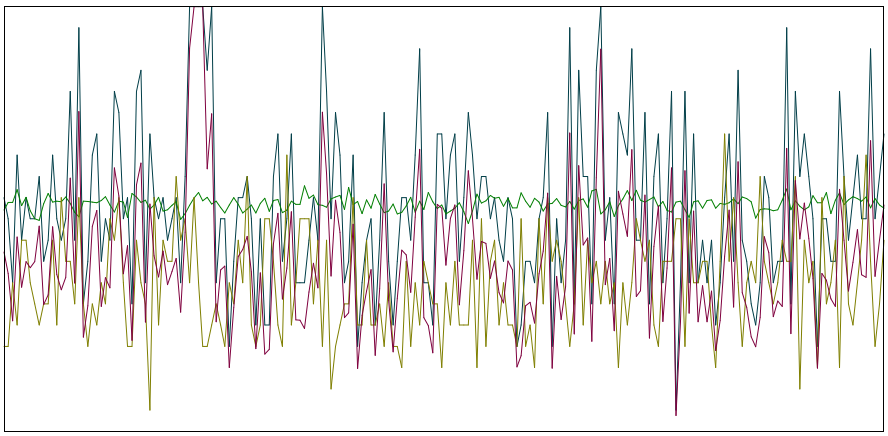
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
5X-160809	Aug 9 2016 12:43 pm	c:\icpchem\1\data\16h09l01.b\010cals.d\
2X-160809	Aug 9 2016 12:49 pm	c:\icpchem\1\data\16h09l01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.268	0.01985	0.99	249	499		2000	
Be	1.0000	0.08936	0.002333	0.99	249	500	100%	--------	######
B	1.0000	0.07365	0.1211	0.95	253	515	103%	1,996	100%
Na	0.9998	0.3335	28.74	19.01	5,319	10,360	104%	24,790	99%
Mg	0.9997	0.1475	0.5455	20.73	5,030	10,510	105%	24,790	99%
Al	1.0000	0.03438	0.4037	18.43	5,019	9,994	100%	--------	######
K	0.9999	0.07325	5.923	20.58	4,926	9,747	97%	25,120	100%
Ca	1.0000	0.008733	0.4669	16.00	5,206	10,090	101%	24,920	100%
Ti	1.0000	0.03017	0.002252	1.06	246	490	98%	2,003	100%
V	1.0000	1.245	0.2631	0.98	248	493	99%	2,002	100%
Cr	1.0000	1.669	0.2947	1.03	253	502	100%	1,999	100%
Mn	1.0000	0.6497	0.07648	1.05	248	488	98%	2,003	100%
Fe	1.0000	2.273	16.06	21.37	4,997	9,989	100%	--------	######
Co	0.9999	5.267	0.1233	1.02	258	530	106%	1,991	100%
Ni	1.0000	1.567	0.1314	1.05	254	500	100%	1,999	100%
Cu	0.9999	4.208	0.5701	1.10	261	525	105%	1,992	100%
Zn	0.9999	0.4055	0.1696	1.03	265	519	104%	1,993	100%
As	1.0000	0.2296	0.1832	1.12	254	505	101%	1,998	100%
Se	1.0000	0.01281	0.009769	1.02	257	508	102%	1,997	100%
Sr	1.0000	0.338	0.06304	0.95	249	488	98%	2,003	100%
Mo	0.9997	0.06146	0.00307	0.97	241	506	101%	--------	######
Ag	0.9999	0.1534	0.002437	1.02	255	498	100%	--------	######
Cd	1.0000	0.0328	0.001133	0.95	248	492	98%	2,002	100%
Sn	1.0000	0.08901	0.008757	0.98	247	507	101%	1,999	100%
Sb	0.9999	0.1054	0.002497	1.00	245	503	101%	--------	######
Ba	1.0000	0.04162	0.002829	0.95	242	486	97%	2,005	100%
Tl	1.0000	0.3276	0.008287	0.94	254	504	101%	1,999	100%
Pb	1.0000	0.4441	0.02947	0.95	251	509	102%	1,998	100%

REVIEWED BY
By Janice Whitt at 2:24:38 PM, 8/10/2016

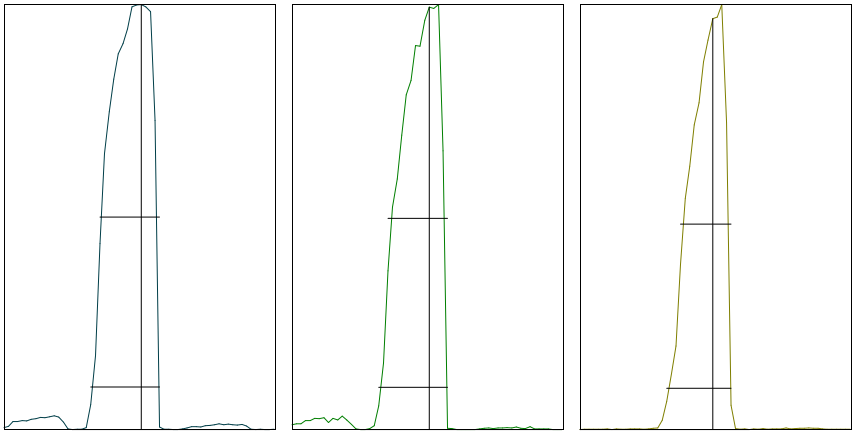
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.306%
Doubly Charged:	70/140	2.638%

m/z	Range	Count	Mean	RSD%	Background
51	20	14.0	10.9	46.06	1.60
59	5,000	2628.0	2678.1	2.98	1.10
75	20	9.0	7.0	35.60	1.00
51/59	1	0.533%	0.409%	45.59	



m/z:	59	89	205
Height:	2,706	1,269	4,406
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:36

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

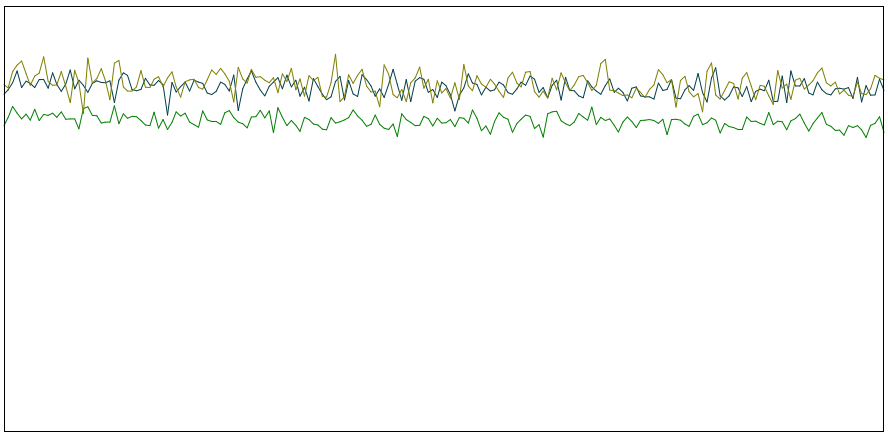
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:38

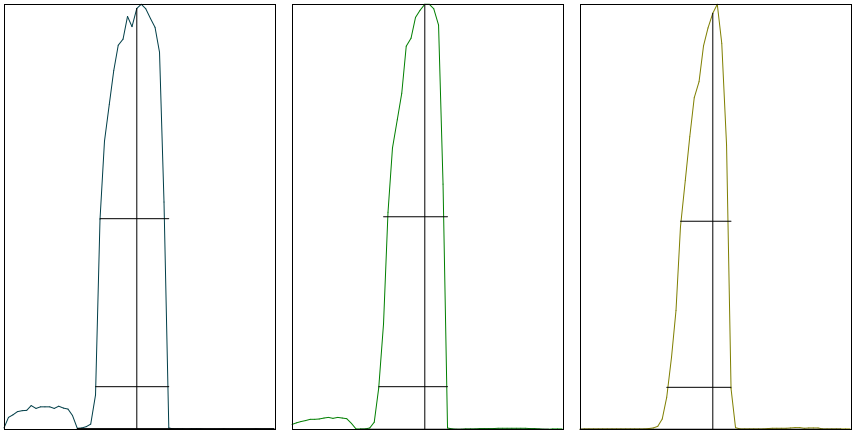
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.036%
Doubly Charged:	70/140	3.195%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8026.0	8085.8	2.44	4.20
89	20,000	14074.0	14604.4	2.06	7.20
205	10,000	8272.0	8182.5	3.16	16.80
156/140	2	0.948%	1.060%	9.87	
70/140	5	3.253%	3.102%	11.05	
63	20,000	10979.0	11198.9	2.42	5.30
23	100,000	69620.0	61786.5	11.40	4.40



m/z:	7	89	205
Height:	8,017	14,600	8,176
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.70	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:03

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1.4	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

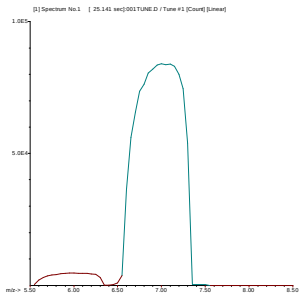
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

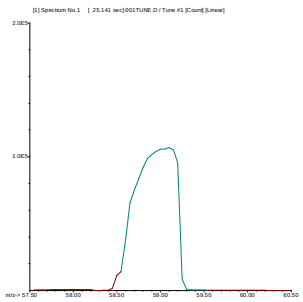
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.25	5.00	
59 Co	2.48	5.00	
115 In	2.60	5.00	
205 Tl	2.47	5.00	

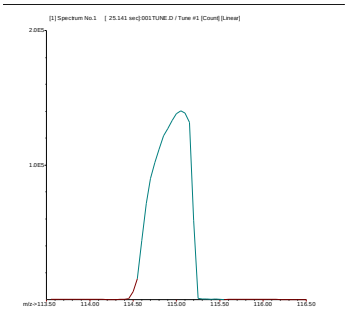


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

REVIEWED BY
By Janice Whitt at 2:24:52 PM, 8/10/2016



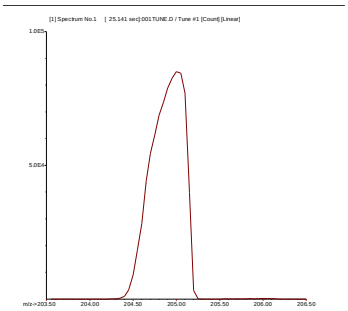
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 2:24:54 PM, 8/10/2016

P/A Factor Tuning Report

Acquired:Aug 9 2016 11:20 am

Mass[amu]	Element	P/A Factor
6	Li	0.063716
23	Na	0.078069
24	Mg	0.081357
27	Al	0.083901
39	K	0.084057
44	Ca	Sensitivity too low
45	Sc	0.085164
47	Ti	Sensitivity too low
51	V	0.087056
52	Cr	0.089224
55	Mn	0.090623
59	Co	0.093388
60	Ni	0.094882
63	Cu	0.096643
66	Zn	0.096211
72	Ge	0.095488
75	As	0.094779
78	Se	Sensitivity too low
88	Sr	0.095797
95	Mo	0.094955
106	(Cd)	0.099887
107	Ag	Sensitivity too low
108	(Cd)	0.100044
111	Cd	0.100780
115	In	0.100761
118	Sn	0.100418
121	Sb	0.100203
137	Ba	Sensitivity too low
205	Tl	0.107503
206	(Pb)	0.107327
207	(Pb)	0.107559
208	Pb	0.107816
209	Bi	0.107471
238		0.107352

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1750 V
       Pulse HV: 1520 V

REVIEWED BY
By Janice Whitt at 2:25:00 PM, 8/10/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 09 2016 12:23 pm
Date Acquired: Aug 9 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	76.78	P	19.44	25.32
7	Li	2	45	635.60	P	13.88	2.18
9	Be	2	45	74.45	P	30.06	40.38
11	B	2	45	3880.74	P	124.70	3.21
23	Na	1	45	22714.67	P	247.20	1.09
24	Mg	1	45	431.14	P	27.15	6.30
27	Al	1	45	319.12	P	13.35	4.18
39	K	1	45	4681.08	P	182.30	3.89
44	Ca	2	45	14942.25	P	783.20	5.24
45	Sc	1	---	158070.20	P	400.30	0.25
45	Sc	2	---	6406945.00	A	148100.00	2.31
47	Ti	1	45	1.78	P	1.54	86.62
51	V	1	45	208.01	P	24.44	11.75
51	V	2	---		P		
52	Cr	1	45	232.89	P	13.88	5.96
55	Mn	1	45	60.45	P	5.05	8.35
56	Fe	1	72	7118.21	P	361.20	5.07
59	Co	1	72	54.67	P	2.31	4.22
60	Ni	1	72	58.22	P	5.55	9.53
60	Ni	2	---		P		
63	Cu	1	72	252.45	P	45.26	17.93
63	Cu	2	---		P		
66	Zn	1	72	75.11	P	8.15	10.85
66	Zn	2	---		P		
72	Ge	1	---	88651.82	P	776.40	0.88
72	Ge	2	---		A		
75	As	1	72	81.19	P	4.56	5.62
78	Se	1	72	4.33	P	0.73	16.81
88	Sr	2	###	2327.00	P	180.20	7.74
95	Mo	2	###	113.34	P	15.28	13.48
107	Ag	2	###	90.00	P	6.67	7.41
111	Cd	2	###	41.74	P	22.60	54.14
115	In	2	---	7384352.00	A	47310.00	0.64
118	Sn	2	###	323.35	P	16.67	5.16
121	Sb	2	###	92.23	P	7.70	8.35
137	Ba	2	###	104.45	P	22.20	21.25
205	Tl	2	###	215.57	P	21.17	9.82
208	Pb	2	###	766.71	P	129.90	16.94
209	Bi	2	---	5202967.00	A	16760.00	0.32

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:25 pm
Last Cal. Update: Aug 09 2016 12:23 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-276.34	P	37.83	13.69	ISFail
7	Li	2	45	9129.18	P	280.10	3.07	
9	Be	2	45	2910.46	P	77.69	2.67	
11	B	2	45	6155.09	P	170.80	2.77	
23	Na	1	45	28183.59	P	322.20	1.14	
24	Mg	1	45	2894.90	P	138.50	4.78	
27	Al	1	45	833.38	P	29.25	3.51	
39	K	1	45	5969.45	P	193.70	3.24	
44	Ca	2	45	19511.07	P	2212.00	11.34	
45	Sc	1	---	160684.70	P	2314.00	1.44	
45	Sc	2	---	6429131.00	A	68010.00	1.06	
47	Ti	1	45	27.56	P	1.54	5.59	
51	V	1	45	1194.74	P	39.62	3.32	
51	V	2	---		P			
52	Cr	1	45	1623.24	P	14.26	0.88	
55	Mn	1	45	608.03	P	25.44	4.18	
56	Fe	1	72	28900.35	P	2962.00	10.25	
59	Co	1	72	2465.62	P	87.97	3.57	
60	Ni	1	72	796.93	P	55.31	6.94	
60	Ni	2	---		P			
63	Cu	1	72	2316.25	P	46.28	2.00	
63	Cu	2	---		P			
66	Zn	1	72	261.79	P	17.71	6.77	
66	Zn	2	---		P			
72	Ge	1	---	89405.56	P	917.80	1.03	
72	Ge	2	---		A			
75	As	1	72	197.11	P	4.29	2.18	
78	Se	1	72	10.22	P	0.51	4.98	
88	Sr	2	115	14278.91	P	588.80	4.12	
95	Mo	2	115	2323.65	P	64.30	2.77	
107	Ag	2	115	5893.90	P	231.20	3.92	
111	Cd	2	115	1197.38	P	58.34	4.87	
115	In	2	---	7443953.00	A	81490.00	1.09	
118	Sn	2	115	3580.69	P	47.04	1.31	
121	Sb	2	115	4014.18	P	113.60	2.83	
137	Ba	2	115	1577.95	P	66.78	4.23	
205	Tl	2	209	8330.07	P	211.40	2.54	
208	Pb	2	209	11870.80	P	191.10	1.61	
209	Bi	2	---	5250363.00	A	48340.00	0.92	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-276.34	13.69	76.78	-359.9	70 - 120	ISFail
45	Sc	1	160684.72	1.44	158070.19	101.7	70 - 120	
45	Sc	2	6429130.50	1.06	6406944.50	100.3	70 - 120	
72	Ge	1	89405.56	1.03	88651.82	100.9	70 - 120	
115	In	2	7443953.00	1.09	7384352.50	100.8	70 - 120	
209	Bi	2	5250363.50	0.92	5202967.00	100.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:31 pm
Last Cal. Update: Aug 09 2016 12:29 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3881.67	P	60.33	1.55	ISFail
7	Li	2	45	86910.47	P	940.50	1.08	Fail
9	Be	2	45	29447.30	P	565.20	1.92	Fail
11	B	2	45	27210.25	P	574.80	2.11	Fail
23	Na	1	45	78668.42	P	825.80	1.05	Fail
24	Mg	1	45	25039.14	P	435.10	1.74	Fail
27	Al	1	45	5952.62	P	89.59	1.51	Fail
39	K	1	45	16334.60	P	268.70	1.65	Fail
44	Ca	2	45	70195.96	P	3159.00	4.50	Fail
45	Sc	1	---	161571.00	P	1929.00	1.19	
45	Sc	2	---	6453811.00	A	142600.00	2.21	
47	Ti	1	45	260.01	P	35.50	13.65	Fail
51	V	1	45	10266.17	P	219.20	2.14	Fail
51	V	2	---		P			
52	Cr	1	45	14166.06	P	190.20	1.34	Fail
55	Mn	1	45	5238.97	P	39.95	0.76	Fail
56	Fe	1	72	213754.41	P	1903.00	0.89	Fail
59	Co	1	72	24702.73	P	305.40	1.24	
60	Ni	1	72	7330.29	P	214.90	2.93	Fail
60	Ni	2	---		P			
63	Cu	1	72	20624.14	P	340.20	1.65	Fail
63	Cu	2	---		P			
66	Zn	1	72	2102.88	P	42.78	2.03	Fail
66	Zn	2	---		P			
72	Ge	1	---	90222.60	P	954.20	1.06	
72	Ge	2	---		A			
75	As	1	72	1138.61	P	9.52	0.84	Fail
78	Se	1	72	66.48	P	5.04	7.58	Fail
88	Sr	2	115	124450.40	P	2670.00	2.15	Fail
95	Mo	2	115	22071.00	P	419.80	1.90	Fail
107	Ag	2	115	57970.12	P	1503.00	2.59	Fail
111	Cd	2	115	12490.16	P	478.50	3.83	Fail
115	In	2	---	7406828.00	A	96950.00	1.31	
118	Sn	2	115	32855.11	P	416.50	1.27	Fail
121	Sb	2	115	38465.25	P	1177.00	3.06	Fail
137	Ba	2	115	15112.49	P	550.50	3.64	Fail
205	Tl	2	209	83036.09	P	850.40	1.02	Fail
208	Pb	2	209	115560.00	P	1813.00	1.57	Fail
209	Bi	2	---	5219492.00	A	55050.00	1.05	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3881.67	1.55	76.78	-5055.8	70 - 120	ISFail
45	Sc	1	161570.98	1.19	158070.19	102.2	70 - 120	
45	Sc	2	6453811.50	2.21	6406944.50	100.7	70 - 120	
72	Ge	1	90222.60	1.06	88651.82	101.8	70 - 120	
115	In	2	7406828.00	1.31	7384352.50	100.3	70 - 120	
209	Bi	2	5219491.50	1.05	5202967.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:37 pm
Last Cal. Update: Aug 09 2016 12:35 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-19629.23	P	383.20	1.95	ISFail
7	Li	2	45	432408.59	P	8261.00	1.91	Fail
9	Be	2	45	144443.50	P	2969.00	2.06	Fail
11	B	2	45	120068.30	P	1757.00	1.46	Fail
23	Na	1	45	295790.41	P	1604.00	0.54	Fail
24	Mg	1	45	119897.70	P	957.30	0.80	Fail
27	Al	1	45	27945.11	P	356.30	1.28	Fail
39	K	1	45	63314.89	P	311.10	0.49	Fail
44	Ca	2	45	290460.09	P	9086.00	3.13	Fail
45	Sc	1	---	163871.50	P	1400.00	0.85	
45	Sc	2	---	6441649.00	A	124900.00	1.94	
47	Ti	1	45	1160.08	P	42.92	3.70	Fail
51	V	1	45	50469.89	P	868.10	1.72	Fail
51	V	2	---		P			
52	Cr	1	45	68834.85	P	602.80	0.88	Fail
55	Mn	1	45	26142.08	P	417.90	1.60	Fail
56	Fe	1	72	1069612.00	A	24000.00	2.24	Fail
59	Co	1	72	121947.00	P	1160.00	0.95	
60	Ni	1	72	35924.11	P	658.70	1.83	
60	Ni	2	---		P			
63	Cu	1	72	100456.60	P	498.00	0.50	Fail
63	Cu	2	---		P			
66	Zn	1	72	9852.08	P	58.18	0.59	Fail
66	Zn	2	---		P			
72	Ge	1	---	90028.47	P	394.00	0.44	
72	Ge	2	---		A			
75	As	1	72	5389.93	P	49.54	0.92	Fail
78	Se	1	72	308.04	P	9.84	3.20	Fail
88	Sr	2	115	602337.50	P	12840.00	2.13	Fail
95	Mo	2	115	108354.30	P	2536.00	2.34	Fail
107	Ag	2	115	282736.09	P	5107.00	1.81	Fail
111	Cd	2	115	61328.21	P	1125.00	1.83	Fail
115	In	2	---	7387452.00	A	82820.00	1.12	
118	Sn	2	115	159923.91	P	2799.00	1.75	Fail
121	Sb	2	115	189023.00	P	4633.00	2.45	Fail
137	Ba	2	115	73661.36	P	1339.00	1.82	Fail
205	Tl	2	209	410096.00	P	4859.00	1.18	Fail
208	Pb	2	209	560275.31	P	9752.00	1.74	Fail
209	Bi	2	---	5195223.00	A	67090.00	1.29	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19629.24	1.95	76.78	-25566.9	70 - 120	ISFail
45	Sc	1	163871.55	0.85	158070.19	103.7	70 - 120	
45	Sc	2	6441649.50	1.94	6406944.50	100.5	70 - 120	
72	Ge	1	90028.47	0.44	88651.82	101.6	70 - 120	
115	In	2	7387452.50	1.12	7384352.50	100.0	70 - 120	
209	Bi	2	5195223.50	1.29	5202967.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:43 pm
Last Cal. Update: Aug 09 2016 12:41 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-39450.97	P	848.30	2.15	ISFail
7	Li	2	45	859389.31	A	4295.00	0.50	Fail
9	Be	2	45	288149.81	P	5638.00	1.96	Fail
11	B	2	45	237918.00	P	3433.00	1.44	Fail
23	Na	1	45	568962.38	P	7291.00	1.28	Fail
24	Mg	1	45	239276.80	P	2504.00	1.05	Fail
27	Al	1	45	55187.29	P	557.70	1.01	Fail
39	K	1	45	120214.40	P	144.40	0.12	Fail
44	Ca	2	45	556133.69	P	12600.00	2.27	Fail
45	Sc	1	---	160100.41	P	785.10	0.49	
45	Sc	2	---	6261295.00	A	110100.00	1.76	
47	Ti	1	45	2330.48	P	68.35	2.93	
51	V	1	45	98896.30	P	1086.00	1.10	Fail
51	V	2	---		A			
52	Cr	1	45	134880.20	P	1476.00	1.09	Fail
55	Mn	1	45	51629.94	P	259.30	0.50	
56	Fe	1	72	2048862.00	A	26700.00	1.30	Fail
59	Co	1	72	240143.91	P	3156.00	1.31	
60	Ni	1	72	70495.25	P	308.50	0.44	
60	Ni	2	---		P			
63	Cu	1	72	195537.50	P	2292.00	1.17	
63	Cu	2	---		P			
66	Zn	1	72	19348.32	P	160.80	0.83	Fail
66	Zn	2	---		P			
72	Ge	1	---	88032.42	P	653.70	0.74	
72	Ge	2	---		A			
75	As	1	72	10479.46	P	46.78	0.45	Fail
78	Se	1	72	601.65	P	3.54	0.59	Fail
88	Sr	2	115	1235870.00	A	19360.00	1.57	Fail
95	Mo	2	115	210659.70	P	2732.00	1.30	Fail
107	Ag	2	115	551580.50	P	10460.00	1.90	Fail
111	Cd	2	115	117569.70	P	2118.00	1.80	Fail
115	In	2	---	7231429.00	A	105800.00	1.46	
118	Sn	2	115	314553.91	P	5363.00	1.71	Fail
121	Sb	2	115	369819.19	P	6133.00	1.66	Fail
137	Ba	2	115	143935.50	P	2716.00	1.89	Fail
205	Tl	2	209	810074.38	P	14910.00	1.84	Fail
208	Pb	2	209	1102986.00	P	19000.00	1.72	Fail
209	Bi	2	---	5066186.00	A	31410.00	0.62	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39450.97	2.15	76.78	-51384.5	70 - 120	ISFail
45	Sc	1	160100.36	0.49	158070.19	101.3	70 - 120	
45	Sc	2	6261294.50	1.76	6406944.50	97.7	70 - 120	
72	Ge	1	88032.41	0.74	88651.82	99.3	70 - 120	
115	In	2	7231429.00	1.46	7384352.50	97.9	70 - 120	
209	Bi	2	5066186.00	0.62	5202967.00	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:49 pm
Last Cal. Update: Aug 09 2016 12:47 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-92547.78	P	610.90	0.66	ISFail
7	Li	2	45	2055320.00	A	6991.00	0.34	Fail
9	Be	2	45	683394.69	A	4914.00	0.72	Fail
11	B	2	45	576713.50	P	2557.00	0.44	Fail
23	Na	1	45	1404880.00	A	14730.00	1.05	Fail
24	Mg	1	45	578383.88	P	6434.00	1.11	
27	Al	1	45	134799.70	P	2720.00	2.02	Fail
39	K	1	45	285831.19	P	781.30	0.27	Fail
44	Ca	2	45	1412857.00	A	25870.00	1.83	Fail
45	Sc	1	---	155861.80	P	491.20	0.32	
45	Sc	2	---	6152547.00	A	97850.00	1.59	
47	Ti	1	45	5794.77	P	204.00	3.52	
51	V	1	45	240871.30	P	1410.00	0.59	
51	V	2	---		A			
52	Cr	1	45	329345.00	P	2941.00	0.89	
55	Mn	1	45	125528.70	P	257.30	0.20	
56	Fe	1	72	4881959.00	A	31120.00	0.64	
59	Co	1	72	583012.50	P	6102.00	1.05	
60	Ni	1	72	171085.50	P	356.40	0.21	
60	Ni	2	---		P			
63	Cu	1	72	471235.19	P	1321.00	0.28	
63	Cu	2	---		A			
66	Zn	1	72	46169.71	P	361.90	0.78	
66	Zn	2	---		P			
72	Ge	1	---	85858.36	P	473.70	0.55	
72	Ge	2	---		A			
75	As	1	72	25145.85	P	42.53	0.17	Fail
78	Se	1	72	1414.53	P	7.55	0.53	Fail
88	Sr	2	115	2920739.00	A	29390.00	1.01	Fail
95	Mo	2	115	513910.31	P	6728.00	1.31	Fail
107	Ag	2	115	1360042.00	A	20930.00	1.54	Fail
111	Cd	2	115	282658.91	P	4566.00	1.62	Fail
115	In	2	---	6950477.00	A	79190.00	1.14	
118	Sn	2	115	763250.19	P	7455.00	0.98	Fail
121	Sb	2	115	897868.50	P	9308.00	1.04	Fail
137	Ba	2	115	350302.50	P	4136.00	1.18	Fail
205	Tl	2	209	2058289.00	A	35310.00	1.72	Fail
208	Pb	2	209	2754049.00	A	37450.00	1.36	Fail
209	Bi	2	---	4942278.00	A	58580.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-92547.78	0.66	76.78	-120542.6	70 - 120	ISFail
45	Sc	1	155861.84	0.32	158070.19	98.6	70 - 120	
45	Sc	2	6152547.50	1.59	6406944.50	96.0	70 - 120	
72	Ge	1	85858.37	0.55	88651.82	96.8	70 - 120	
115	In	2	6950477.50	1.14	7384352.50	94.1	70 - 120	
209	Bi	2	4942278.00	1.19	5202967.00	95.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:55 pm
Last Cal. Update: Aug 09 2016 12:52 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-180102.91	P	1887.00	1.05	ISFail
7	Li	2	45	4028771.00	A	21070.00	0.52	Fail
9	Be	2	45	1346636.00	A	10300.00	0.76	Fail
11	B	2	45	1147521.00	A	18600.00	1.62	Fail
23	Na	1	45	2697100.00	A	7631.00	0.28	Fail
24	Mg	1	45	1199446.00	A	15020.00	1.25	
27	Al	1	45	266288.00	P	2957.00	1.11	
39	K	1	45	557212.69	P	4537.00	0.81	Fail
44	Ca	2	45	2670122.00	A	39330.00	1.47	Fail
45	Sc	1	---	154804.91	P	798.80	0.52	
45	Sc	2	---	6027486.00	A	99200.00	1.65	
47	Ti	1	45	11449.88	P	127.40	1.11	
51	V	1	45	474757.91	P	2110.00	0.44	
51	V	2	---		A			
52	Cr	1	45	648571.81	P	1651.00	0.25	
55	Mn	1	45	245434.30	P	883.90	0.36	
56	Fe	1	72	9536205.00	A	79560.00	0.83	
59	Co	1	72	1171404.00	A	11090.00	0.95	
60	Ni	1	72	329269.00	P	3471.00	1.05	
60	Ni	2	---		A			
63	Cu	1	72	927079.50	M	19060.00	2.06	
63	Cu	2	---		A			
66	Zn	1	72	88347.85	P	460.10	0.52	
66	Zn	2	---		P			
72	Ge	1	---	83956.57	P	181.70	0.22	
72	Ge	2	---		A			
75	As	1	72	48699.76	P	116.50	0.24	
78	Se	1	72	2737.60	P	10.85	0.40	
88	Sr	2	115	5612955.00	A	56370.00	1.00	Fail
95	Mo	2	115	1058171.00	A	4867.00	0.46	Fail
107	Ag	2	115	2596907.00	A	2732.00	0.11	Fail
111	Cd	2	115	549297.31	P	1150.00	0.21	Fail
115	In	2	---	6804297.00	A	14860.00	0.22	
118	Sn	2	115	1534882.00	A	13500.00	0.88	Fail
121	Sb	2	115	1803670.00	A	10380.00	0.58	Fail
137	Ba	2	115	687678.69	P	2013.00	0.29	Fail
205	Tl	2	209	4003026.00	A	37020.00	0.92	Fail
208	Pb	2	209	5483501.00	A	9428.00	0.17	Fail
209	Bi	2	---	4848076.00	A	33810.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-180102.91	1.05	76.78	-234582.3	70 - 120	ISFail
45	Sc	1	154804.94	0.52	158070.19	97.9	70 - 120	
45	Sc	2	6027486.00	1.65	6406944.50	94.1	70 - 120	
72	Ge	1	83956.57	0.22	88651.82	94.7	70 - 120	
115	In	2	6804297.50	0.22	7384352.50	92.1	70 - 120	
209	Bi	2	4848076.00	0.70	5202967.00	93.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 01:01 pm
Last Cal. Update: Aug 09 2016 12:58 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-695108.38	A	5548.00	0.80	ISFail
7	Li	2	45	16324680.00	A	45420.00	0.28	Fail
9	Be	2	45	5098597.00	A	45540.00	0.89	
11	B	2	45	4479131.00	A	27290.00	0.61	Fail
23	Na	1	45	6521873.00	A	60180.00	0.92	Fail
24	Mg	1	45	2874443.00	A	42430.00	1.48	
27	Al	1	45	2506.51	P	21.68	0.86	Fail
39	K	1	45	1451327.00	A	7604.00	0.52	Fail
44	Ca	2	45	6641747.00	A	83680.00	1.26	Fail
45	Sc	1	---	157244.80	P	431.30	0.27	
45	Sc	2	---	6089865.00	A	74730.00	1.23	
47	Ti	1	45	47519.80	P	854.10	1.80	
51	V	1	45	1959345.00	A	19960.00	1.02	
51	V	2	---		A			
52	Cr	1	45	2623501.00	A	40880.00	1.56	
55	Mn	1	45	1023403.00	A	19900.00	1.94	
56	Fe	1	72	16818.04	P	566.10	3.37	Fail
59	Co	1	72	4471216.00	A	68540.00	1.53	
60	Ni	1	72	1335689.00	A	16620.00	1.24	
60	Ni	2	---		A			
63	Cu	1	72	3573923.00	A	51580.00	1.44	
63	Cu	2	---		A			
66	Zn	1	72	344616.81	P	3985.00	1.16	
66	Zn	2	---		A			
72	Ge	1	---	85259.96	P	597.60	0.70	
72	Ge	2	---		A			
75	As	1	72	195626.80	P	2133.00	1.09	
78	Se	1	72	10908.70	P	95.50	0.88	
88	Sr	2	115	23456990.00	A	236000.00	1.01	Fail
95	Mo	2	115	4277989.00	A	26110.00	0.61	
107	Ag	2	115	1475.72	P	191.00	12.94	Fail
111	Cd	2	115	2274770.00	A	16520.00	0.73	
115	In	2	---	6927955.00	A	9047.00	0.13	
118	Sn	2	115	6163197.00	A	4526.00	0.07	Fail
121	Sb	2	115	2224.75	P	132.90	5.97	Fail
137	Ba	2	115	2890665.00	A	29900.00	1.03	Fail
205	Tl	2	209	15777200.00	A	100800.00	0.64	
208	Pb	2	209	21376310.00	A	153600.00	0.72	
209	Bi	2	---	4818865.00	A	41690.00	0.87	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-695108.44	0.80	76.78	-905371.9	70 - 120	ISFail
45	Sc	1	157244.86	0.27	158070.19	99.5	70 - 120	
45	Sc	2	6089865.50	1.23	6406944.50	95.1	70 - 120	
72	Ge	1	85259.96	0.70	88651.82	96.2	70 - 120	
115	In	2	6927955.50	0.13	7384352.50	93.8	70 - 120	
209	Bi	2	4818864.50	0.87	5202967.00	92.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 9 2016 01:18 pm	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.478	ppb	9.59	8.00	5.00	
9	Be	2	45	0.117	ppb	38.20	0.32	0.80	
11	B	2	45	8.638	ppb	3.46	30.00	30.00	
23	Na	1	45	101700.000	ppb	1.19	#######	#######	
24	Mg	1	45	89070.000	ppb	1.04	#######	#######	
27	Al	1	45	96290.000	ppb	0.44	#######	#######	
39	K	1	45	92830.000	ppb	0.95	#######	#######	
44	Ca	2	45	90970.000	ppb	2.83	#######	#######	
47	Ti	1	45	1967.000	ppb	0.21	10.00	10.00	
51	V	1	45	0.109	ppb	13.43	10.00	10.00	
52	Cr	1	45	0.894	ppb	4.88	8.00	5.00	
55	Mn	1	45	0.844	ppb	9.88	8.00	10.00	
56	Fe	1	72	92080.000	ppb	1.45	#######	#######	
59	Co	1	72	1.329	ppb	5.32	8.00	10.00	
60	Ni	1	72	0.485	ppb	11.46	8.00	10.00	
63	Cu	1	72	2.282	ppb	0.83	8.00	10.00	
66	Zn	1	72	2.100	ppb	1.97	10.00	5.00	
75	As	1	72	0.765	ppb	2.73	4.00	5.00	
78	Se	1	72	0.590	ppb	13.84	2.00	5.00	
88	Sr	2	115	1.237	ppb	5.49	10.00	10.00	
95	Mo	2	115	1909.000	ppb	2.87	8.00	5.00	
107	Ag	2	115	0.099	ppb	14.31	0.80	2.00	
111	Cd	2	115	0.197	ppb	22.45	1.20	1.00	
118	Sn	2	115	0.592	ppb	9.39	10.00	10.00	
121	Sb	2	115	0.145	ppb	7.64	4.00	2.50	
137	Ba	2	115	0.539	ppb	12.33	8.00	10.00	
205	Tl	2	209	0.265	ppb	18.78	4.00	1.50	
208	Pb	2	209	0.424	ppb	8.56	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	11.48	362.20	76.78	15.0	70 - 120	ISFail
45	Sc	1	148376.02	0.59	158070.19	93.9	70 - 120	
45	Sc	2	6156980.50	1.85	6406944.50	96.1	70 - 120	
72	Ge	1	80882.91	0.84	88651.82	91.2	70 - 120	
115	In	2	6870784.00	2.23	7384352.50	93.0	70 - 120	
209	Bi	2	4330707.50	1.99	5202967.00	83.2	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 9 2016 01:24 pm	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.40	ppb	2.58	---	80 -		120	
9	Be	2	45	0.03	ppb	8.03	---	80 -		120	
11	B	2	45	6.35	ppb	1.20	---	80 -		120	
23	Na	1	45	96960.00	ppb	0.63	100000.00	80 -		120	
24	Mg	1	45	90120.00	ppb	1.11	100000.00	80 -		120	
27	Al	1	45	93870.00	ppb	0.65	100000.00	80 -		120	
39	K	1	45	91490.00	ppb	0.58	100000.00	80 -		120	
44	Ca	2	45	91530.00	ppb	3.21	100000.00	80 -		120	
47	Ti	1	45	1935.00	ppb	1.62	---	80 -		120	
51	V	1	45	39.09	ppb	0.68	40.00	80 -		120	
52	Cr	1	45	20.74	ppb	1.41	20.00	80 -		120	
55	Mn	1	45	18.98	ppb	0.93	20.00	80 -		120	
56	Fe	1	72	92210.00	ppb	0.80	100000.00	80 -		120	
59	Co	1	72	39.88	ppb	0.42	40.00	80 -		120	
60	Ni	1	72	36.63	ppb	1.39	40.00	80 -		120	
63	Cu	1	72	20.22	ppb	0.75	20.00	80 -		120	
66	Zn	1	72	19.71	ppb	2.04	20.00	80 -		120	
75	As	1	72	19.81	ppb	0.30	20.00	80 -		120	
78	Se	1	72	18.75	ppb	2.32	20.00	80 -		120	
88	Sr	2	115	1.33	ppb	1.67	---	80 -		120	
95	Mo	2	115	1935.00	ppb	2.13	---	80 -		120	
107	Ag	2	115	17.74	ppb	2.73	20.00	80 -		120	
111	Cd	2	115	9.02	ppb	3.94	10.00	80 -		120	
118	Sn	2	115	0.55	ppb	2.97	---	80 -		120	
121	Sb	2	115	0.07	ppb	4.90	---	80 -		120	
137	Ba	2	115	0.45	ppb	15.68	---	80 -		120	
205	Tl	2	209	0.13	ppb	1.84	---	80 -		120	
208	Pb	2	209	0.35	ppb	3.71	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	39.32	24.84	76.78	51.2	70 -		120	ISFail
45	Sc	1	143697.27	0.32	158070.19	90.9	70 -		120	
45	Sc	2	6567728.50	2.23	6406944.50	102.5	70 -		120	
72	Ge	1	79282.91	0.67	88651.82	89.4	70 -		120	
115	In	2	7038518.00	2.36	7384352.50	95.3	70 -		120	
209	Bi	2	4336473.50	1.65	5202967.00	83.3	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 9 2016 01:42 pm	Sample Name:	**ICV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	129.30	ppb	1.81	100.00	90 -	110	129.3	Fail
9	Be	2	45	114.40	ppb	1.63	100.00	90 -	110	114.4	Fail
11	B	2	45	109.80	ppb	0.44	100.00	90 -	110	109.8	
23	Na	1	45	2933.00	ppb	0.80	2500.00	90 -	110	117.3	Fail
24	Mg	1	45	2666.00	ppb	0.48	2500.00	90 -	110	106.6	
27	Al	1	45	2371.00	ppb	2.40	2500.00	90 -	110	94.8	
39	K	1	45	2496.00	ppb	1.03	2500.00	90 -	110	99.8	
44	Ca	2	45	2519.00	ppb	5.00	2500.00	90 -	110	100.8	
47	Ti	1	45	98.48	ppb	3.15	100.00	90 -	110	98.5	
51	V	1	45	104.90	ppb	0.63	100.00	90 -	110	104.9	
52	Cr	1	45	110.20	ppb	0.50	100.00	90 -	110	110.2	Fail
55	Mn	1	45	97.83	ppb	0.85	100.00	90 -	110	97.8	
56	Fe	1	72	2550.00	ppb	0.86	2500.00	90 -	110	102.0	
59	Co	1	72	106.90	ppb	0.39	100.00	90 -	110	106.9	
60	Ni	1	72	105.20	ppb	0.60	100.00	90 -	110	105.2	
63	Cu	1	72	107.50	ppb	0.85	100.00	90 -	110	107.5	
66	Zn	1	72	103.10	ppb	0.74	100.00	90 -	110	103.1	
75	As	1	72	100.40	ppb	0.56	100.00	90 -	110	100.4	
78	Se	1	72	95.57	ppb	1.19	100.00	90 -	110	95.6	
88	Sr	2	115	112.40	ppb	1.71	100.00	90 -	110	112.4	Fail
95	Mo	2	115	98.76	ppb	1.83	100.00	90 -	110	98.8	
107	Ag	2	115	101.40	ppb	2.11	100.00	90 -	110	101.4	
111	Cd	2	115	98.66	ppb	2.13	100.00	90 -	110	98.7	
118	Sn	2	115	98.42	ppb	1.97	100.00	90 -	110	98.4	
121	Sb	2	115	98.00	ppb	1.85	100.00	90 -	110	98.0	
137	Ba	2	115	95.40	ppb	1.88	100.00	90 -	110	95.4	
205	Tl	2	209	96.22	ppb	1.09	100.00	90 -	110	96.2	
208	Pb	2	209	96.59	ppb	1.93	100.00	90 -	110	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-32746.34	1.14	76.78	-42651.8	70 -	120		ISFail
45	Sc	1	151304.55	0.27	158070.19	95.7	70 -	120		
45	Sc	2	7310796.00	1.80	6406944.50	114.1	70 -	120		
72	Ge	1	86412.31	0.52	88651.82	97.5	70 -	120		
115	In	2	7162118.00	1.91	7384352.50	97.0	70 -	120		
209	Bi	2	4628968.50	1.21	5202967.00	89.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 9 2016 01:48 pm	Sample Name:	**ICB1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 Li 2 45	0.29 ppb	7.50	2.00	
9 Be 2 45	0.09 ppb	14.93	0.40	
11 B 2 45	4.74 ppb	3.28	10.00	
23 Na 1 45	11.32 ppb	2.07	50.00	
24 Mg 1 45	4.67 ppb	15.18	50.00	
27 Al 1 45	11.35 ppb	4.40	50.00	Failaq
39 K 1 45	9.77 ppb	1.38	50.00	
44 Ca 2 45	12.78 ppb	4.86	50.00	
47 Ti 1 45	0.21 ppb	52.92	4.00	
51 V 1 45	0.08 ppb	4.76	4.00	
52 Cr 1 45	0.13 ppb	4.27	2.00	
55 Mn 1 45	0.12 ppb	13.64	2.00	
56 Fe 1 72	3.53 ppb	8.32	50.00	
59 Co 1 72	0.09 ppb	13.04	2.00	
60 Ni 1 72	0.07 ppb	10.98	2.00	
63 Cu 1 72	0.14 ppb	8.26	2.00	
66 Zn 1 72	0.24 ppb	9.19	4.00	
75 As 1 72	0.21 ppb	2.42	2.00	
78 Se 1 72	-0.03 ppb	8.18	0.60	
88 Sr 2 115	0.26 ppb	4.89	4.00	
95 Mo 2 115	0.26 ppb	9.18	2.00	
107 Ag 2 115	0.06 ppb	7.48	0.40	
111 Cd 2 115	0.09 ppb	30.52	0.40	
118 Sn 2 115	0.20 ppb	2.23	20.00	
121 Sb 2 115	0.11 ppb	4.20	2.00	
137 Ba 2 115	0.11 ppb	12.13	2.00	
205 Tl 2 209	0.22 ppb	7.79	2.00	
208 Pb 2 209	0.12 ppb	7.88	0.40	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2 RHig	-12.64	######	76.78	-16.5	70 - 120	ISFail
45 Sc 1	154465.72	1.48	158070.19	97.7	70 - 120	
45 Sc 2	7434230.00	2.56	6406944.50	116.0	70 - 120	
72 Ge 1	88798.62	1.36	88651.82	100.2	70 - 120	
115 In 2	7172536.50	2.37	7384352.50	97.1	70 - 120	
209 Bi 2	4672709.00	1.72	5202967.00	89.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 9 2016 01:54 pm	Sample Name:	**ILCVL-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.80	ppb	2.27	10.00	70 -	130	138.0	Fail
9	Be	2	45	1.21	ppb	3.36	1.00	70 -	130	120.5	
11	B	2	45	24.35	ppb	1.79	20.00	70 -	130	121.8	
23	Na	1	45	129.60	ppb	1.83	100.00	70 -	130	129.6	
24	Mg	1	45	109.10	ppb	3.35	100.00	70 -	130	109.1	
27	Al	1	45	99.67	ppb	0.51	100.00	70 -	130	99.7	
39	K	1	45	110.80	ppb	4.64	100.00	70 -	130	110.8	
44	Ca	2	45	95.31	ppb	4.48	100.00	70 -	130	95.3	
47	Ti	1	45	5.34	ppb	2.11	5.00	70 -	130	106.8	
51	V	1	45	1.15	ppb	2.61	1.00	70 -	130	115.0	
52	Cr	1	45	5.66	ppb	1.07	5.00	70 -	130	113.2	
55	Mn	1	45	5.05	ppb	0.65	5.00	70 -	130	101.0	
56	Fe	1	72	108.90	ppb	1.07	100.00	70 -	130	108.9	
59	Co	1	72	5.53	ppb	1.64	5.00	70 -	130	110.6	
60	Ni	1	72	5.46	ppb	4.65	5.00	70 -	130	109.2	
63	Cu	1	72	5.63	ppb	1.11	5.00	70 -	130	112.5	
66	Zn	1	72	5.82	ppb	5.06	5.00	70 -	130	116.4	
75	As	1	72	5.41	ppb	1.94	5.00	70 -	130	108.1	
78	Se	1	72	5.64	ppb	4.93	5.00	70 -	130	112.8	
88	Sr	2	115	5.61	ppb	2.78	5.00	70 -	130	112.1	
95	Mo	2	115	5.26	ppb	2.68	5.00	70 -	130	105.2	
107	Ag	2	115	2.11	ppb	3.20	2.00	70 -	130	105.6	
111	Cd	2	115	1.06	ppb	8.62	1.00	70 -	130	106.1	
118	Sn	2	115	5.13	ppb	1.54	5.00	70 -	130	102.6	
121	Sb	2	115	2.05	ppb	1.64	2.00	70 -	130	102.4	
137	Ba	2	115	4.82	ppb	1.91	5.00	70 -	130	96.4	
205	Tl	2	209	1.09	ppb	2.13	1.00	70 -	130	108.5	
208	Pb	2	209	1.06	ppb	0.80	1.00	70 -	130	106.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3529.36	3.10	76.78	-4597.0	70 -	120	ISFail
45	Sc	1	155051.92	1.11	158070.19	98.1	70 -	120	
45	Sc	2	7390682.50	2.92	6406944.50	115.4	70 -	120	
72	Ge	1	88977.75	1.41	88651.82	100.4	70 -	120	
115	In	2	7193810.00	1.54	7384352.50	97.4	70 -	120	
209	Bi	2	4621289.00	1.35	5202967.00	88.8	70 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\023__PB.D\023__PB.D#

Date Acquired:	Aug 9 2016 02:00 pm	Sample Name:	MB-76663
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.153	ppb	6.58	2.0	8.00	
9	Be	2	45	0.002	ppb	18.90	0.4	1.20	
11	B	2	45	2.790	ppb	1.21	10.0	30.00	
23	Na	1	45	18.960	ppb	1.31	50.0	#####	
24	Mg	1	45	29.510	ppb	0.63	50.0	#####	
27	Al	1	45	12.520	ppb	8.73	50.0	#####	
39	K	1	45	15.570	ppb	2.01	50.0	#####	
44	Ca	2	45	135.600	ppb	3.77	50.0	#####	J
47	Ti	1	45	0.295	ppb	34.64	4.0	10.00	
51	V	1	45	0.003	ppb	11.37	4.0	10.00	
52	Cr	1	45	0.260	ppb	5.16	2.0	8.00	
55	Mn	1	45	0.393	ppb	9.53	2.0	8.00	
56	Fe	1	72	11.820	ppb	5.30	50.0	#####	
59	Co	1	72	0.010	ppb	23.14	2.0	8.00	
60	Ni	1	72	0.194	ppb	12.80	2.0	8.00	
63	Cu	1	72	0.149	ppb	9.12	2.0	8.00	
66	Zn	1	72	6.331	ppb	5.65	4.0	10.00	J
75	As	1	72	0.088	ppb	5.41	2.0	4.00	
78	Se	1	72	0.075	ppb	16.37	0.6	2.00	
88	Sr	2	115	0.367	ppb	1.76	4.0	10.00	
95	Mo	2	115	0.107	ppb	11.19	2.0	8.00	
107	Ag	2	115	0.012	ppb	6.38	0.4	0.80	
111	Cd	2	115	-0.006	ppb	20.41	0.4	1.20	
118	Sn	2	115	4.611	ppb	3.52	20.0	40.00	
121	Sb	2	115	0.027	ppb	4.36	2.0	4.00	
137	Ba	2	115	0.067	ppb	14.29	2.0	8.00	
205	Tl	2	209	0.048	ppb	10.18	2.0	4.00	
208	Pb	2	209	0.046	ppb	4.45	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	71.15	30.50	76.78	92.7	70 - 120	
45	Sc	1		159426.88	0.88	158070.19	100.9	70 - 120	
45	Sc	2		7444824.50	2.37	6406944.50	116.2	70 - 120	
72	Ge	1		89853.31	1.05	88651.82	101.4	70 - 120	
115	In	2		7232210.00	1.45	7384352.50	97.9	70 - 120	
209	Bi	2		4649667.50	0.70	5202967.00	89.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\024_LCS.D\024_LCS.D#

Date Acquired:	Aug 9 2016 02:06 pm	Sample Name:	**LCS-76663**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	258.40	ppb	2.13	200.00	80 -	120	129.2	Fail
9	Be	2	45	218.40	ppb	0.91	200.00	80 -	120	109.2	
11	B	2	45	216.50	ppb	1.99	200.00	80 -	120	108.3	
23	Na	1	45	5756.00	ppb	1.18	5000.00	80 -	120	115.1	
24	Mg	1	45	5217.00	ppb	0.72	5000.00	80 -	120	104.3	
27	Al	1	45	979.40	ppb	1.63	1000.00	80 -	120	97.9	
39	K	1	45	4947.00	ppb	1.75	5000.00	80 -	120	98.9	
44	Ca	2	45	5306.00	ppb	2.14	5000.00	80 -	120	106.1	
47	Ti	1	45	196.20	ppb	2.81	200.00	80 -	120	98.1	
51	V	1	45	206.20	ppb	1.35	200.00	80 -	120	103.1	
52	Cr	1	45	215.20	ppb	0.50	200.00	80 -	120	107.6	
55	Mn	1	45	195.00	ppb	1.63	200.00	80 -	120	97.5	
56	Fe	1	72	1084.00	ppb	1.93	1000.00	80 -	120	108.4	
59	Co	1	72	213.00	ppb	0.81	200.00	80 -	120	106.5	
60	Ni	1	72	213.10	ppb	0.85	200.00	80 -	120	106.6	
63	Cu	1	72	218.00	ppb	1.34	200.00	80 -	120	109.0	
66	Zn	1	72	230.90	ppb	1.15	200.00	80 -	120	115.5	
75	As	1	72	198.20	ppb	1.16	200.00	80 -	120	99.1	
78	Se	1	72	178.50	ppb	2.54	200.00	80 -	120	89.3	
88	Sr	2	115	223.50	ppb	1.24	200.00	80 -	120	111.8	
95	Mo	2	115	206.70	ppb	1.14	200.00	80 -	120	103.4	
107	Ag	2	115	213.50	ppb	2.02	200.00	80 -	120	106.8	
111	Cd	2	115	196.70	ppb	1.52	200.00	80 -	120	98.4	
118	Sn	2	115	203.50	ppb	1.73	200.00	80 -	120	101.8	
121	Sb	2	115	195.30	ppb	1.63	200.00	80 -	120	97.7	
137	Ba	2	115	191.60	ppb	1.86	200.00	80 -	120	95.8	
205	Tl	2	209	206.30	ppb	1.31	200.00	80 -	120	103.2	
208	Pb	2	209	202.60	ppb	1.48	200.00	80 -	120	101.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-110280.20	2.33	76.78	-143638.9	70 -	120	ISFail
45	Sc	1	157580.33	2.14	158070.19	99.7	70 -	120	
45	Sc	2	7348496.50	1.86	6406944.50	114.7	70 -	120	
72	Ge	1	88193.03	1.23	88651.82	99.5	70 -	120	
115	In	2	7064640.00	1.49	7384352.50	95.7	70 -	120	
209	Bi	2	4540091.00	0.96	5202967.00	87.3	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\025_LCS.D\025_LCS.D#

Date Acquired:	Aug 9 2016 02:12 pm	Sample Name:	**LCSD-76663**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	265.00	ppb	0.76	200.00	80 -	120	132.5	Fail
9	Be	2	45	224.10	ppb	1.38	200.00	80 -	120	112.1	
11	B	2	45	221.30	ppb	2.56	200.00	80 -	120	110.7	
23	Na	1	45	5740.00	ppb	1.24	5000.00	80 -	120	114.8	
24	Mg	1	45	5230.00	ppb	0.70	5000.00	80 -	120	104.6	
27	Al	1	45	984.90	ppb	2.18	1000.00	80 -	120	98.5	
39	K	1	45	5008.00	ppb	0.74	5000.00	80 -	120	100.2	
44	Ca	2	45	5319.00	ppb	1.28	5000.00	80 -	120	106.4	
47	Ti	1	45	202.90	ppb	1.59	200.00	80 -	120	101.5	
51	V	1	45	210.30	ppb	0.87	200.00	80 -	120	105.2	
52	Cr	1	45	217.60	ppb	1.90	200.00	80 -	120	108.8	
55	Mn	1	45	198.50	ppb	1.03	200.00	80 -	120	99.3	
56	Fe	1	72	1081.00	ppb	1.30	1000.00	80 -	120	108.1	
59	Co	1	72	217.80	ppb	0.75	200.00	80 -	120	108.9	
60	Ni	1	72	215.20	ppb	1.00	200.00	80 -	120	107.6	
63	Cu	1	72	219.60	ppb	1.35	200.00	80 -	120	109.8	
66	Zn	1	72	232.40	ppb	1.39	200.00	80 -	120	116.2	
75	As	1	72	200.10	ppb	1.05	200.00	80 -	120	100.1	
78	Se	1	72	182.70	ppb	1.84	200.00	80 -	120	91.4	
88	Sr	2	115	228.30	ppb	1.31	200.00	80 -	120	114.2	
95	Mo	2	115	211.10	ppb	1.00	200.00	80 -	120	105.6	
107	Ag	2	115	215.10	ppb	1.39	200.00	80 -	120	107.6	
111	Cd	2	115	201.40	ppb	1.54	200.00	80 -	120	100.7	
118	Sn	2	115	208.30	ppb	1.36	200.00	80 -	120	104.2	
121	Sb	2	115	197.90	ppb	1.98	200.00	80 -	120	99.0	
137	Ba	2	115	195.70	ppb	1.55	200.00	80 -	120	97.9	
205	Tl	2	209	213.10	ppb	1.29	200.00	80 -	120	106.6	
208	Pb	2	209	206.40	ppb	1.39	200.00	80 -	120	103.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-110188.48	1.69	76.78	-143519.4	70 -	120	ISFail
45	Sc	1	157384.30	1.03	158070.19	99.6	70 -	120	
45	Sc	2	7183290.00	2.09	6406944.50	112.1	70 -	120	
72	Ge	1	87695.46	0.72	88651.82	98.9	70 -	120	
115	In	2	6902181.50	1.88	7384352.50	93.5	70 -	120	
209	Bi	2	4447973.50	0.39	5202967.00	85.5	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\027AREF.D\027AREF.D#

Date Acquired:	Aug 9 2016 02:23 pm	Sample Name:	**1607256-28A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	97.690	ppb	#REF!	1.54	2000.00	>RL
9	Be	2	45	3.249	ppb	#REF!	3.60	2000.00	>RL
11	B	2	45	107.500	ppb	#REF!	2.51	2000.00	>RL
23	Na	1	45	330.600	ppb	#REF!	0.85	25000.00	>RL
24	Mg	1	45	14510.000	ppb	#REF!	0.74	25000.00	>RL
27	Al	1	45	58680.000	ppb	#REF!	1.90	10000.00	OUTCAL
39	K	1	45	15440.000	ppb	#REF!	1.94	25000.00	>RL
44	Ca	2	45	172000.000	ppb	#REF!	2.69	25000.00	OUTCAL
47	Ti	1	45	143.900	ppb	#REF!	0.38	2000.00	>RL
51	V	1	45	106.500	ppb	#REF!	1.77	2000.00	>RL
52	Cr	1	45	72.560	ppb	#REF!	1.54	2000.00	>RL
55	Mn	1	45	489.900	ppb	#REF!	0.94	2000.00	>RL
56	Fe	1	72	81770.000	ppb	#REF!	0.43	10000.00	OUTCAL
59	Co	1	72	28.150	ppb	#REF!	1.39	2000.00	>RL
60	Ni	1	72	36.370	ppb	#REF!	1.83	2000.00	>RL
63	Cu	1	72	10.960	ppb	#REF!	1.06	2000.00	>RL
66	Zn	1	72	175.700	ppb	#REF!	1.07	2000.00	>RL
75	As	1	72	23.240	ppb	#REF!	0.39	2000.00	>RL
78	Se	1	72	19.010	ppb	#REF!	5.83	2000.00	>RL
88	Sr	2	115	522.400	ppb	#REF!	1.74	2000.00	>RL
95	Mo	2	115	3.096	ppb	#REF!	2.43	2000.00	J
107	Ag	2	115	0.129	ppb	#REF!	7.03	500.00	ND
111	Cd	2	115	0.938	ppb	#REF!	6.55	2000.00	J
118	Sn	2	115	6.003	ppb	#REF!	2.00	2000.00	J
121	Sb	2	115	0.471	ppb	#REF!	3.49	500.00	ND
137	Ba	2	115	648.000	ppb	#REF!	4.10	2000.00	>RL
205	Tl	2	209	0.540	ppb	#REF!	5.14	2000.00	ND
208	Pb	2	209	38.550	ppb	#REF!	1.85	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19982.92	5.27	RHigh	76.78	-26027.6	70 - 120	ISFail
45	Sc	1	151416.36	0.81		158070.19	95.8	70 - 120	
45	Sc	2	7023550.00	2.37		6406944.50	109.6	70 - 120	
72	Ge	1	83396.33	0.37		88651.82	94.1	70 - 120	
115	In	2	6979206.00	1.95		7384352.50	94.5	70 - 120	
209	Bi	2	4279955.50	0.77		5202967.00	82.3	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\028DT1.D\028DT1.D#

Date Acquired:	Aug 9 2016 02:29 pm	Sample Name:	**1607256-28A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	19.64	ppb	1.86	-4131.59	90 -	110	-2.4	
9	Be	2	45	0.71	ppb	3.36	3.25	90 -	110	109.2	GOOD
11	B	2	45	25.05	ppb	2.05	107.50	90 -	110	116.5	
23	Na	1	45	71.83	ppb	1.09	330.60	90 -	110	108.6	GOOD
24	Mg	1	45	2865.00	ppb	1.43	14510.00	90 -	110	98.7	GOOD
27	Al	1	45	11580.00	ppb	1.61	58680.00	90 -	110	98.7	GOOD
39	K	1	45	2984.00	ppb	0.85	15440.00	90 -	110	96.6	GOOD
44	Ca	2	45	34680.00	ppb	2.66	172000.00	90 -	110	100.8	GOOD
47	Ti	1	45	28.45	ppb	7.21	143.90	90 -	110	98.9	GOOD
51	V	1	45	21.41	ppb	1.45	106.50	90 -	110	100.5	GOOD
52	Cr	1	45	14.83	ppb	0.59	72.56	90 -	110	102.2	GOOD
55	Mn	1	45	99.95	ppb	1.30	489.90	90 -	110	102.0	GOOD
56	Fe	1	72	16380.00	ppb	1.50	81770.00	90 -	110	100.2	GOOD
59	Co	1	72	5.70	ppb	2.24	28.15	90 -	110	101.2	GOOD
60	Ni	1	72	7.66	ppb	1.54	36.37	90 -	110	105.3	GOOD
63	Cu	1	72	2.32	ppb	0.51	10.96	90 -	110	105.7	GOOD
66	Zn	1	72	39.96	ppb	1.29	175.70	90 -	110	113.7	
75	As	1	72	4.89	ppb	1.35	23.24	90 -	110	105.3	GOOD
78	Se	1	72	3.42	ppb	6.80	19.01	90 -	110	89.9	
88	Sr	2	115	107.10	ppb	2.60	522.40	90 -	110	102.5	GOOD
95	Mo	2	115	0.60	ppb	3.37	3.10	90 -	110	97.2	GOOD
107	Ag	2	115	0.03	ppb	11.60	0.13	90 -	110	112.1	
111	Cd	2	115	0.17	ppb	6.38	0.94	90 -	110	92.4	GOOD
118	Sn	2	115	1.19	ppb	3.49	6.00	90 -	110	98.8	GOOD
121	Sb	2	115	0.11	ppb	7.19	0.47	90 -	110	117.3	
137	Ba	2	115	124.50	ppb	2.05	648.00	90 -	110	96.1	GOOD
205	Tl	2	209	0.14	ppb	0.77	0.54	90 -	110	134.0	
208	Pb	2	209	7.52	ppb	2.01	38.55	90 -	110	97.5	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-4131.59	5.21	76.78	-5381.4	70 -	120	ISFail
45	Sc	1		156071.28	0.77	158070.19	98.7	70 -	120	
45	Sc	2		7091077.50	1.84	6406944.50	110.7	70 -	120	
72	Ge	1		88549.31	0.66	88651.82	99.9	70 -	120	
115	In	2		7007920.00	1.90	7384352.50	94.9	70 -	120	
209	Bi	2		4482964.50	1.43	5202967.00	86.2	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\029SMPL.D\029SMPL.D#

Date Acquired:	Aug 9 2016 02:35 pm	Sample Name:	**1607256-31A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	60.590	ppb	#REF!	1.65	2000.00	>RL
9	Be	2	45	2.566	ppb	#REF!	1.68	2000.00	>RL
11	B	2	45	146.300	ppb	#REF!	2.63	2000.00	>RL
23	Na	1	45	1835.000	ppb	#REF!	1.32	25000.00	>RL
24	Mg	1	45	9923.000	ppb	#REF!	1.94	25000.00	>RL
27	Al	1	45	51960.000	ppb	#REF!	0.18	10000.00	OUTCAL
39	K	1	45	11430.000	ppb	#REF!	0.72	25000.00	>RL
44	Ca	2	45	255100.000	ppb	#REF!	2.83	25000.00	OUTCAL
47	Ti	1	45	101.000	ppb	#REF!	2.33	2000.00	>RL
51	V	1	45	117.000	ppb	#REF!	0.35	2000.00	>RL
52	Cr	1	45	74.090	ppb	#REF!	0.18	2000.00	>RL
55	Mn	1	45	48.050	ppb	#REF!	0.34	2000.00	>RL
56	Fe	1	72	113400.000	ppb	#REF!	0.62	10000.00	OUTCAL
59	Co	1	72	5.491	ppb	#REF!	1.11	2000.00	J
60	Ni	1	72	11.930	ppb	#REF!	1.90	2000.00	>RL
63	Cu	1	72	10.380	ppb	#REF!	0.71	2000.00	>RL
66	Zn	1	72	68.380	ppb	#REF!	0.49	2000.00	>RL
75	As	1	72	49.260	ppb	#REF!	0.45	2000.00	>RL
78	Se	1	72	14.150	ppb	#REF!	3.93	2000.00	>RL
88	Sr	2	115	1023.000	ppb	#REF!	3.17	2000.00	>RL
95	Mo	2	115	6.099	ppb	#REF!	1.78	2000.00	J
107	Ag	2	115	0.076	ppb	#REF!	9.41	500.00	ND
111	Cd	2	115	0.532	ppb	#REF!	17.61	2000.00	J
118	Sn	2	115	6.279	ppb	#REF!	3.94	2000.00	ND
121	Sb	2	115	0.224	ppb	#REF!	4.59	500.00	ND
137	Ba	2	115	65.340	ppb	#REF!	3.04	2000.00	>RL
205	Tl	2	209	0.350	ppb	#REF!	3.28	2000.00	ND
208	Pb	2	209	59.710	ppb	#REF!	1.76	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11283.72	7.66	RHigh	76.78	-14696.9	70 - 120	ISFail
45	Sc	1	150920.61	0.27		158070.19	95.5	70 - 120	
45	Sc	2	7159859.50	3.02		6406944.50	111.8	70 - 120	
72	Ge	1	82952.90	0.86		88651.82	93.6	70 - 120	
115	In	2	7234485.00	3.53		7384352.50	98.0	70 - 120	
209	Bi	2	4281158.50	1.81		5202967.00	82.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\030SMPL.D\030SMPL.D#

Date Acquired:	Aug 9 2016 02:41 pm	Sample Name:	**1607256-32A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	48.760	ppb	#REF!	2.41	2000.00	>RL
9	Be	2	45	3.028	ppb	#REF!	2.73	2000.00	>RL
11	B	2	45	161.500	ppb	#REF!	2.82	2000.00	>RL
23	Na	1	45	2253.000	ppb	#REF!	0.63	25000.00	>RL
24	Mg	1	45	10680.000	ppb	#REF!	0.60	25000.00	>RL
27	Al	1	45	48290.000	ppb	#REF!	0.22	10000.00	OUTCAL
39	K	1	45	13670.000	ppb	#REF!	1.26	25000.00	>RL
44	Ca	2	45	148500.000	ppb	#REF!	2.63	25000.00	OUTCAL
47	Ti	1	45	103.200	ppb	#REF!	6.36	2000.00	>RL
51	V	1	45	97.740	ppb	#REF!	0.97	2000.00	>RL
52	Cr	1	45	69.740	ppb	#REF!	0.77	2000.00	>RL
55	Mn	1	45	49.150	ppb	#REF!	2.74	2000.00	>RL
56	Fe	1	72	70980.000	ppb	#REF!	0.83	10000.00	OUTCAL
59	Co	1	72	6.117	ppb	#REF!	1.60	2000.00	J
60	Ni	1	72	10.920	ppb	#REF!	0.92	2000.00	>RL
63	Cu	1	72	8.600	ppb	#REF!	1.40	2000.00	>RL
66	Zn	1	72	69.960	ppb	#REF!	1.70	2000.00	>RL
75	As	1	72	34.620	ppb	#REF!	0.58	2000.00	>RL
78	Se	1	72	20.520	ppb	#REF!	3.09	2000.00	>RL
88	Sr	2	115	1916.000	ppb	#REF!	3.54	2000.00	>RL
95	Mo	2	115	3.431	ppb	#REF!	3.05	2000.00	J
107	Ag	2	115	0.077	ppb	#REF!	8.53	500.00	ND
111	Cd	2	115	0.583	ppb	#REF!	12.50	2000.00	J
118	Sn	2	115	6.568	ppb	#REF!	3.24	2000.00	ND
121	Sb	2	115	0.192	ppb	#REF!	7.47	500.00	ND
137	Ba	2	115	207.600	ppb	#REF!	3.08	2000.00	>RL
205	Tl	2	209	0.263	ppb	#REF!	2.94	2000.00	ND
208	Pb	2	209	32.200	ppb	#REF!	1.67	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9223.36	6.78	RHigh	76.78	-12013.3	70 - 120	ISFail
45	Sc	1	144588.55	0.49		158070.19	91.5	70 - 120	
45	Sc	2	6997936.00	3.16		6406944.50	109.2	70 - 120	
72	Ge	1	81474.95	0.58		88651.82	91.9	70 - 120	
115	In	2	6770093.00	1.83		7384352.50	91.7	70 - 120	
209	Bi	2	4132021.50	1.39		5202967.00	79.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\031SMPL.D\031SMPL.D#

Date Acquired:	Aug 9 2016 02:47 pm	Sample Name:	**1607256-33A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	101.100	ppb	#REF!	2.65	2000.00	>RL
9	Be	2	45	3.427	ppb	#REF!	2.74	2000.00	>RL
11	B	2	45	108.600	ppb	#REF!	3.52	2000.00	>RL
23	Na	1	45	327.800	ppb	#REF!	0.93	25000.00	>RL
24	Mg	1	45	15500.000	ppb	#REF!	0.58	25000.00	>RL
27	Al	1	45	59080.000	ppb	#REF!	0.40	10000.00	OUTCAL
39	K	1	45	16280.000	ppb	#REF!	1.87	25000.00	>RL
44	Ca	2	45	190200.000	ppb	#REF!	2.96	25000.00	OUTCAL
47	Ti	1	45	147.100	ppb	#REF!	1.63	2000.00	>RL
51	V	1	45	116.800	ppb	#REF!	1.02	2000.00	>RL
52	Cr	1	45	81.040	ppb	#REF!	1.15	2000.00	>RL
55	Mn	1	45	1150.000	ppb	#REF!	1.42	2000.00	>RL
56	Fe	1	72	87140.000	ppb	#REF!	1.41	10000.00	OUTCAL
59	Co	1	72	32.520	ppb	#REF!	1.29	2000.00	>RL
60	Ni	1	72	42.500	ppb	#REF!	1.57	2000.00	>RL
63	Cu	1	72	10.830	ppb	#REF!	0.29	2000.00	>RL
66	Zn	1	72	164.200	ppb	#REF!	1.30	2000.00	>RL
75	As	1	72	23.200	ppb	#REF!	1.79	2000.00	>RL
78	Se	1	72	20.000	ppb	#REF!	3.86	2000.00	>RL
88	Sr	2	115	510.800	ppb	#REF!	2.60	2000.00	>RL
95	Mo	2	115	2.709	ppb	#REF!	3.92	2000.00	J
107	Ag	2	115	0.113	ppb	#REF!	4.80	500.00	ND
111	Cd	2	115	0.900	ppb	#REF!	9.13	2000.00	J
118	Sn	2	115	6.039	ppb	#REF!	1.59	2000.00	ND
121	Sb	2	115	0.457	ppb	#REF!	5.39	500.00	ND
137	Ba	2	115	658.100	ppb	#REF!	5.63	2000.00	>RL
205	Tl	2	209	0.544	ppb	#REF!	5.08	2000.00	ND
208	Pb	2	209	42.980	ppb	#REF!	2.06	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18720.60	6.55	RHigh	76.78	-24383.4	70 - 120	ISFail
45	Sc	1	143494.23	0.61		158070.19	90.8	70 - 120	
45	Sc	2	7000482.00	3.02		6406944.50	109.3	70 - 120	
72	Ge	1	80173.46	0.28		88651.82	90.4	70 - 120	
115	In	2	6765153.50	2.74		7384352.50	91.6	70 - 120	
209	Bi	2	4086336.30	2.00		5202967.00	78.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\032SMPL.D\032SMPL.D#

Date Acquired:	Aug 9 2016 02:53 pm	Sample Name:	**1607256-34A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	99.350	ppb	#REF!	3.01	2000.00	>RL
9	Be	2	45	3.494	ppb	#REF!	1.55	2000.00	>RL
11	B	2	45	113.200	ppb	#REF!	3.30	2000.00	>RL
23	Na	1	45	454.000	ppb	#REF!	0.96	25000.00	>RL
24	Mg	1	45	14260.000	ppb	#REF!	1.01	25000.00	>RL
27	Al	1	45	54170.000	ppb	#REF!	1.60	10000.00	OUTCAL
39	K	1	45	16350.000	ppb	#REF!	0.78	25000.00	>RL
44	Ca	2	45	180300.000	ppb	#REF!	3.28	25000.00	OUTCAL
47	Ti	1	45	170.200	ppb	#REF!	3.82	2000.00	>RL
51	V	1	45	106.700	ppb	#REF!	0.42	2000.00	>RL
52	Cr	1	45	74.600	ppb	#REF!	1.24	2000.00	>RL
55	Mn	1	45	956.200	ppb	#REF!	0.88	2000.00	>RL
56	Fe	1	72	80530.000	ppb	#REF!	0.66	10000.00	OUTCAL
59	Co	1	72	48.100	ppb	#REF!	0.41	2000.00	>RL
60	Ni	1	72	53.180	ppb	#REF!	1.33	2000.00	>RL
63	Cu	1	72	7.702	ppb	#REF!	0.55	2000.00	J
66	Zn	1	72	157.000	ppb	#REF!	0.66	2000.00	>RL
75	As	1	72	21.310	ppb	#REF!	0.56	2000.00	>RL
78	Se	1	72	18.870	ppb	#REF!	2.76	2000.00	>RL
88	Sr	2	115	2466.000	ppb	#REF!	2.29	2000.00	OUTCAL
95	Mo	2	115	1.917	ppb	#REF!	2.70	2000.00	ND
107	Ag	2	115	0.113	ppb	#REF!	7.63	500.00	ND
111	Cd	2	115	0.867	ppb	#REF!	6.08	2000.00	J
118	Sn	2	115	5.996	ppb	#REF!	4.33	2000.00	ND
121	Sb	2	115	0.158	ppb	#REF!	13.73	500.00	ND
137	Ba	2	115	350.900	ppb	#REF!	2.30	2000.00	>RL
205	Tl	2	209	0.598	ppb	#REF!	3.87	2000.00	ND
208	Pb	2	209	25.940	ppb	#REF!	1.52	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19095.60	3.92	76.78	-24871.8	70 - 120	ISFail
45	Sc	1	142938.55	1.17	158070.19	90.4	70 - 120	
45	Sc	2	6903645.50	3.62	6406944.50	107.8	70 - 120	
72	Ge	1	80765.91	0.42	88651.82	91.1	70 - 120	
115	In	2	6689937.50	2.59	7384352.50	90.6	70 - 120	
209	Bi	2	4052209.50	1.39	5202967.00	77.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\033SMPL.D\033SMPL.D#

Date Acquired:	Aug 9 2016 02:58 pm	Sample Name:	**1607256-35A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	94.240	ppb	#REF!	3.02	2000.00	>RL
9	Be	2	45	3.500	ppb	#REF!	3.21	2000.00	>RL
11	B	2	45	120.400	ppb	#REF!	2.26	2000.00	>RL
23	Na	1	45	491.600	ppb	#REF!	1.82	25000.00	>RL
24	Mg	1	45	12640.000	ppb	#REF!	1.60	25000.00	>RL
27	Al	1	45	47940.000	ppb	#REF!	1.55	10000.00	OUTCAL
39	K	1	45	16110.000	ppb	#REF!	1.61	25000.00	>RL
44	Ca	2	45	116700.000	ppb	#REF!	2.61	25000.00	OUTCAL
47	Ti	1	45	137.400	ppb	#REF!	3.55	2000.00	>RL
51	V	1	45	94.000	ppb	#REF!	1.71	2000.00	>RL
52	Cr	1	45	74.790	ppb	#REF!	2.00	2000.00	>RL
55	Mn	1	45	360.700	ppb	#REF!	1.37	2000.00	>RL
56	Fe	1	72	79250.000	ppb	#REF!	0.39	10000.00	OUTCAL
59	Co	1	72	24.040	ppb	#REF!	0.43	2000.00	>RL
60	Ni	1	72	33.960	ppb	#REF!	1.63	2000.00	>RL
63	Cu	1	72	7.601	ppb	#REF!	1.67	2000.00	J
66	Zn	1	72	153.200	ppb	#REF!	1.18	2000.00	>RL
75	As	1	72	21.490	ppb	#REF!	1.16	2000.00	>RL
78	Se	1	72	18.310	ppb	#REF!	6.72	2000.00	>RL
88	Sr	2	115	1096.000	ppb	#REF!	2.22	2000.00	>RL
95	Mo	2	115	2.655	ppb	#REF!	1.35	2000.00	J
107	Ag	2	115	0.114	ppb	#REF!	9.94	500.00	ND
111	Cd	2	115	0.863	ppb	#REF!	5.64	2000.00	J
118	Sn	2	115	5.864	ppb	#REF!	3.02	2000.00	ND
121	Sb	2	115	0.195	ppb	#REF!	6.05	500.00	ND
137	Ba	2	115	305.100	ppb	#REF!	2.33	2000.00	>RL
205	Tl	2	209	0.332	ppb	#REF!	2.81	2000.00	ND
208	Pb	2	209	24.430	ppb	#REF!	1.12	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-17855.32	9.60	RHigh	76.78	-23256.4	70 - 120	ISFail
45	Sc	1	141645.34	1.01		158070.19	89.6	70 - 120	
45	Sc	2	6983507.50	2.97		6406944.50	109.0	70 - 120	
72	Ge	1	80598.96	0.63		88651.82	90.9	70 - 120	
115	In	2	6714600.50	2.53		7384352.50	90.9	70 - 120	
209	Bi	2	4072845.30	1.02		5202967.00	78.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\034SMPL.D\034SMPL.D#

Date Acquired:	Aug 9 2016 03:04 pm	Sample Name:	**1607256-36A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	64.560	ppb	#REF!	6.66	2000.00	>RL
9	Be	2	45	2.184	ppb	#REF!	7.84	2000.00	>RL
11	B	2	45	117.900	ppb	#REF!	7.19	2000.00	>RL
23	Na	1	45	512.700	ppb	#REF!	0.50	25000.00	>RL
24	Mg	1	45	9410.000	ppb	#REF!	1.65	25000.00	>RL
27	Al	1	45	45810.000	ppb	#REF!	1.41	10000.00	OUTCAL
39	K	1	45	9367.000	ppb	#REF!	1.20	25000.00	>RL
44	Ca	2	45	320000.000	ppb	#REF!	6.22	25000.00	OUTCAL
47	Ti	1	45	119.200	ppb	#REF!	0.22	2000.00	>RL
51	V	1	45	83.680	ppb	#REF!	1.59	2000.00	>RL
52	Cr	1	45	57.800	ppb	#REF!	1.44	2000.00	>RL
55	Mn	1	45	86.630	ppb	#REF!	2.02	2000.00	>RL
56	Fe	1	72	79020.000	ppb	#REF!	0.48	10000.00	OUTCAL
59	Co	1	72	9.295	ppb	#REF!	1.37	2000.00	>RL
60	Ni	1	72	17.510	ppb	#REF!	1.85	2000.00	>RL
63	Cu	1	72	8.187	ppb	#REF!	2.01	2000.00	>RL
66	Zn	1	72	109.400	ppb	#REF!	1.68	2000.00	>RL
75	As	1	72	25.700	ppb	#REF!	0.57	2000.00	>RL
78	Se	1	72	11.880	ppb	#REF!	3.06	2000.00	>RL
88	Sr	2	115	1085.000	ppb	#REF!	6.08	2000.00	>RL
95	Mo	2	115	3.694	ppb	#REF!	7.62	2000.00	J
107	Ag	2	115	0.069	ppb	#REF!	10.01	500.00	ND
111	Cd	2	115	0.563	ppb	#REF!	25.13	2000.00	J
118	Sn	2	115	6.257	ppb	#REF!	5.99	2000.00	ND
121	Sb	2	115	0.177	ppb	#REF!	8.79	500.00	ND
137	Ba	2	115	52.820	ppb	#REF!	4.19	2000.00	>RL
205	Tl	2	209	0.330	ppb	#REF!	9.62	2000.00	ND
208	Pb	2	209	24.700	ppb	#REF!	5.08	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11523.03	11.45	RHigh	76.78	-15008.6	70 - 120	ISFail
45	Sc	1	138366.08	1.53		158070.19	87.5	70 - 120	
45	Sc	2	6880371.50	7.29	RHigh	6406944.50	107.4	70 - 120	
72	Ge	1	76502.20	1.45		88651.82	86.3	70 - 120	
115	In	2	6728003.00	6.11	RHigh	7384352.50	91.1	70 - 120	
209	Bi	2	3981817.80	4.94		5202967.00	76.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\035SMPL.D\035SMPL.D#

Date Acquired:	Aug 9 2016 03:10 pm	Sample Name:	**1607256-37A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	80.410	ppb	#REF!	2.88	2000.00	>RL
9	Be	2	45	3.270	ppb	#REF!	3.38	2000.00	>RL
11	B	2	45	156.100	ppb	#REF!	3.40	2000.00	>RL
23	Na	1	45	1561.000	ppb	#REF!	0.48	25000.00	>RL
24	Mg	1	45	12480.000	ppb	#REF!	0.47	25000.00	>RL
27	Al	1	45	57170.000	ppb	#REF!	0.95	10000.00	OUTCAL
39	K	1	45	12070.000	ppb	#REF!	1.64	25000.00	>RL
44	Ca	2	45	200200.000	ppb	#REF!	3.71	25000.00	OUTCAL
47	Ti	1	45	99.800	ppb	#REF!	2.93	2000.00	>RL
51	V	1	45	113.500	ppb	#REF!	0.68	2000.00	>RL
52	Cr	1	45	79.130	ppb	#REF!	1.17	2000.00	>RL
55	Mn	1	45	82.230	ppb	#REF!	1.30	2000.00	>RL
56	Fe	1	72	125800.000	ppb	#REF!	1.84	10000.00	OUTCAL
59	Co	1	72	8.963	ppb	#REF!	0.36	2000.00	>RL
60	Ni	1	72	18.690	ppb	#REF!	0.84	2000.00	>RL
63	Cu	1	72	10.280	ppb	#REF!	1.10	2000.00	>RL
66	Zn	1	72	108.700	ppb	#REF!	0.47	2000.00	>RL
75	As	1	72	35.480	ppb	#REF!	0.97	2000.00	>RL
78	Se	1	72	16.630	ppb	#REF!	4.23	2000.00	>RL
88	Sr	2	115	846.700	ppb	#REF!	2.47	2000.00	>RL
95	Mo	2	115	4.563	ppb	#REF!	2.46	2000.00	J
107	Ag	2	115	0.084	ppb	#REF!	6.03	500.00	ND
111	Cd	2	115	0.607	ppb	#REF!	3.24	2000.00	J
118	Sn	2	115	6.592	ppb	#REF!	1.72	2000.00	ND
121	Sb	2	115	0.215	ppb	#REF!	2.13	500.00	ND
137	Ba	2	115	68.250	ppb	#REF!	3.07	2000.00	>RL
205	Tl	2	209	0.379	ppb	#REF!	4.15	2000.00	ND
208	Pb	2	209	31.640	ppb	#REF!	1.79	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15785.21	1.63	76.78	-20560.1	70 - 120	ISFail
45	Sc	1	144894.86	1.08	158070.19	91.7	70 - 120	
45	Sc	2	7158428.50	3.65	6406944.50	111.7	70 - 120	
72	Ge	1	80718.66	0.78	88651.82	91.1	70 - 120	
115	In	2	6931461.50	2.91	7384352.50	93.9	70 - 120	
209	Bi	2	4206522.50	1.55	5202967.00	80.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\036SMPL.D\036SMPL.D#

Date Acquired:	Aug 9 2016 03:16 pm	Sample Name:	**1607256-38A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	86.110	ppb	#REF!	2.69	2000.00	>RL
9	Be	2	45	2.992	ppb	#REF!	3.03	2000.00	>RL
11	B	2	45	91.860	ppb	#REF!	2.87	2000.00	>RL
23	Na	1	45	247.500	ppb	#REF!	0.84	25000.00	>RL
24	Mg	1	45	13280.000	ppb	#REF!	1.96	25000.00	>RL
27	Al	1	45	50660.000	ppb	#REF!	2.30	10000.00	OUTCAL
39	K	1	45	13820.000	ppb	#REF!	1.62	25000.00	>RL
44	Ca	2	45	110500.000	ppb	#REF!	2.62	25000.00	OUTCAL
47	Ti	1	45	135.000	ppb	#REF!	3.04	2000.00	>RL
51	V	1	45	101.700	ppb	#REF!	1.31	2000.00	>RL
52	Cr	1	45	72.140	ppb	#REF!	1.08	2000.00	>RL
55	Mn	1	45	515.100	ppb	#REF!	1.23	2000.00	>RL
56	Fe	1	72	70920.000	ppb	#REF!	1.97	10000.00	OUTCAL
59	Co	1	72	26.710	ppb	#REF!	1.69	2000.00	>RL
60	Ni	1	72	35.890	ppb	#REF!	0.57	2000.00	>RL
63	Cu	1	72	10.340	ppb	#REF!	1.98	2000.00	>RL
66	Zn	1	72	152.400	ppb	#REF!	0.77	2000.00	>RL
75	As	1	72	20.440	ppb	#REF!	1.50	2000.00	>RL
78	Se	1	72	16.440	ppb	#REF!	4.04	2000.00	>RL
88	Sr	2	115	322.600	ppb	#REF!	2.31	2000.00	>RL
95	Mo	2	115	2.665	ppb	#REF!	1.32	2000.00	J
107	Ag	2	115	0.112	ppb	#REF!	10.88	500.00	ND
111	Cd	2	115	0.779	ppb	#REF!	12.83	2000.00	J
118	Sn	2	115	5.812	ppb	#REF!	3.19	2000.00	ND
121	Sb	2	115	0.621	ppb	#REF!	3.20	500.00	ND
137	Ba	2	115	423.500	ppb	#REF!	1.94	2000.00	>RL
205	Tl	2	209	0.347	ppb	#REF!	7.80	2000.00	ND
208	Pb	2	209	46.790	ppb	#REF!	1.45	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14887.39	5.02	RHigh	76.78	-19390.7	70 - 120	ISFail
45	Sc	1	139741.52	1.30		158070.19	88.4	70 - 120	
45	Sc	2	6834179.50	2.50		6406944.50	106.7	70 - 120	
72	Ge	1	79257.34	1.37		88651.82	89.4	70 - 120	
115	In	2	6433300.50	2.56		7384352.50	87.1	70 - 120	
209	Bi	2	3964959.00	1.85		5202967.00	76.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\037SMPL.D\037SMPL.D#

Date Acquired:	Aug 9 2016 03:22 pm	Sample Name:	**1607256-39A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	69.810	ppb	#REF!	3.04	2000.00	>RL
9	Be	2	45	2.942	ppb	#REF!	3.54	2000.00	>RL
11	B	2	45	108.900	ppb	#REF!	2.53	2000.00	>RL
23	Na	1	45	304.100	ppb	#REF!	0.76	25000.00	>RL
24	Mg	1	45	10810.000	ppb	#REF!	1.10	25000.00	>RL
27	Al	1	45	40150.000	ppb	#REF!	2.69	10000.00	OUTCAL
39	K	1	45	13770.000	ppb	#REF!	0.89	25000.00	>RL
44	Ca	2	45	101000.000	ppb	#REF!	2.72	25000.00	OUTCAL
47	Ti	1	45	152.400	ppb	#REF!	0.95	2000.00	>RL
51	V	1	45	80.730	ppb	#REF!	1.36	2000.00	>RL
52	Cr	1	45	64.230	ppb	#REF!	0.61	2000.00	>RL
55	Mn	1	45	275.800	ppb	#REF!	0.84	2000.00	>RL
56	Fe	1	72	64570.000	ppb	#REF!	0.76	10000.00	OUTCAL
59	Co	1	72	20.350	ppb	#REF!	1.80	2000.00	>RL
60	Ni	1	72	27.760	ppb	#REF!	0.76	2000.00	>RL
63	Cu	1	72	4.869	ppb	#REF!	2.01	2000.00	J
66	Zn	1	72	106.900	ppb	#REF!	1.69	2000.00	>RL
75	As	1	72	17.290	ppb	#REF!	0.31	2000.00	>RL
78	Se	1	72	16.540	ppb	#REF!	2.42	2000.00	>RL
88	Sr	2	115	341.500	ppb	#REF!	2.86	2000.00	>RL
95	Mo	2	115	1.726	ppb	#REF!	2.83	2000.00	ND
107	Ag	2	115	0.099	ppb	#REF!	14.08	500.00	ND
111	Cd	2	115	0.678	ppb	#REF!	11.07	2000.00	J
118	Sn	2	115	5.757	ppb	#REF!	3.71	2000.00	ND
121	Sb	2	115	0.111	ppb	#REF!	9.66	500.00	ND
137	Ba	2	115	132.400	ppb	#REF!	1.76	2000.00	>RL
205	Tl	2	209	0.258	ppb	#REF!	0.97	2000.00	ND
208	Pb	2	209	20.890	ppb	#REF!	1.88	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12702.43	5.29	RHigh	76.78	-16544.8	70 - 120	ISFail
45	Sc	1	147214.61	0.35		158070.19	93.1	70 - 120	
45	Sc	2	7013463.50	2.62		6406944.50	109.5	70 - 120	
72	Ge	1	83021.55	0.29		88651.82	93.6	70 - 120	
115	In	2	6590445.50	1.63		7384352.50	89.2	70 - 120	
209	Bi	2	4087296.50	1.09		5202967.00	78.6	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\038_PDS.D\038_PDS.D#

Date Acquired:	Aug 9 2016 03:28 pm	Sample Name:	**1607256-28A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	350.60	ppb	1.62	-70048.61	200	75-125	######	Fail
9	Be	2	45	210.00	ppb	1.95	3.25	200	75-125	103.4	
11	B	2	45	312.80	ppb	2.77	107.50	200	75-125	102.7	
23	Na	1	45	5962.00	ppb	0.72	330.60	5000	75-125	112.6	
24	Mg	1	45	19660.00	ppb	0.83	14510.00	5000	75-125	103.0	
27	Al	1	45	62510.00	ppb	1.58	58680.00	5000	75-125	76.6	
39	K	1	45	20410.00	ppb	0.77	15440.00	5000	75-125	99.4	
44	Ca	2	45	177400.00	ppb	2.04	172000.00	5000	75-125	108.0	
47	Ti	1	45	333.40	ppb	1.87	143.90	200	75-125	94.8	
51	V	1	45	314.00	ppb	1.24	106.50	200	75-125	103.8	
52	Cr	1	45	283.10	ppb	0.93	72.56	200	75-125	105.3	
55	Mn	1	45	670.70	ppb	0.91	489.90	200	75-125	90.4	
56	Fe	1	72	86420.00	ppb	1.50	81770.00	5000	75-125	93.0	
59	Co	1	72	231.30	ppb	0.96	28.15	200	75-125	101.6	
60	Ni	1	72	229.30	ppb	1.00	36.37	200	75-125	96.5	
63	Cu	1	72	202.70	ppb	0.31	10.96	200	75-125	95.9	
66	Zn	1	72	349.70	ppb	0.66	175.70	200	75-125	87.0	
75	As	1	72	213.10	ppb	0.42	23.24	200	75-125	94.9	
78	Se	1	72	183.70	ppb	1.06	19.01	200	75-125	82.3	
88	Sr	2	115	752.80	ppb	1.77	522.40	200	75-125	115.2	
95	Mo	2	115	199.10	ppb	2.02	3.10	200	75-125	98.0	
107	Ag	2	115	194.30	ppb	1.17	0.13	200	75-125	97.1	
111	Cd	2	115	181.90	ppb	1.82	0.94	200	75-125	90.5	
118	Sn	2	115	200.80	ppb	1.93	6.00	200	75-125	97.4	
121	Sb	2	115	189.10	ppb	1.59	0.47	200	75-125	94.3	
137	Ba	2	115	868.20	ppb	0.98	648.00	200	75-125	110.1	
205	Tl	2	209	206.50	ppb	0.70	0.54	200	75-125	103.0	
208	Pb	2	209	236.80	ppb	0.71	38.55	200	75-125	99.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-70048.61	3.77	76.78	-91237.6	70 - 120	ISFail
45	Sc	1	146396.08	0.88	158070.19	92.6	70 - 120	
45	Sc	2	7001650.50	2.09	6406944.50	109.3	70 - 120	
72	Ge	1	81576.56	0.13	88651.82	92.0	70 - 120	
115	In	2	6744278.50	1.66	7384352.50	91.3	70 - 120	
209	Bi	2	4098222.80	0.77	5202967.00	78.8	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\039_MS.D\039_MS.D#

Date Acquired:	Aug 9 2016 03:33 pm	Sample Name:	**1607256-28A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	358.20	ppb	1.87	########	200	80-120	######	Fail
9	Be	2	45	210.40	ppb	2.49	3.25	200	80-120	103.6	
11	B	2	45	314.00	ppb	2.21	107.50	200	80-120	103.3	
23	Na	1	45	6164.00	ppb	0.09	330.60	5000	80-120	116.7	
24	Mg	1	45	20190.00	ppb	0.84	14510.00	5000	80-120	113.6	
27	Al	1	45	64960.00	ppb	0.50	58680.00	1000	80-120	628.0	Fail
39	K	1	45	21360.00	ppb	1.51	15440.00	5000	80-120	118.4	
44	Ca	2	45	174300.00	ppb	2.69	########	5000	80-120	46.0	Fail
47	Ti	1	45	315.90	ppb	1.75	143.90	200	80-120	86.0	
51	V	1	45	323.60	ppb	0.68	106.50	200	80-120	108.6	
52	Cr	1	45	289.90	ppb	0.87	72.56	200	80-120	108.7	
55	Mn	1	45	671.60	ppb	0.99	489.90	200	80-120	90.9	
56	Fe	1	72	82470.00	ppb	0.21	81770.00	1000	80-120	70.0	Fail
59	Co	1	72	237.10	ppb	0.26	28.15	200	80-120	104.5	
60	Ni	1	72	237.60	ppb	0.62	36.37	200	80-120	100.6	
63	Cu	1	72	211.80	ppb	0.72	10.96	200	80-120	100.4	
66	Zn	1	72	376.00	ppb	0.98	175.70	200	80-120	100.2	
75	As	1	72	218.40	ppb	0.45	23.24	200	80-120	97.6	
78	Se	1	72	191.30	ppb	0.68	19.01	200	80-120	86.1	
88	Sr	2	115	732.20	ppb	1.18	522.40	200	80-120	104.9	
95	Mo	2	115	197.30	ppb	1.49	3.10	200	80-120	97.1	
107	Ag	2	115	197.00	ppb	2.83	0.13	200	80-120	98.4	
111	Cd	2	115	188.80	ppb	1.58	0.94	200	80-120	93.9	
118	Sn	2	115	201.20	ppb	2.25	6.00	200	80-120	97.6	
121	Sb	2	115	63.43	ppb	1.62	0.47	200	80-120	31.5	Fail
137	Ba	2	115	968.80	ppb	1.37	648.00	200	80-120	160.4	Fail
205	Tl	2	209	216.10	ppb	0.61	0.54	200	80-120	107.8	
208	Pb	2	209	245.30	ppb	1.36	38.55	200	80-120	103.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-119519.84	2.32	76.78	########	70	-	120	ISFail
45	Sc	1	147804.56	0.20	158070.19	93.5	70	-	120	
45	Sc	2	7068504.00	2.91	6406944.50	110.3	70	-	120	
72	Ge	1	81748.72	0.19	88651.82	92.2	70	-	120	
115	In	2	6753091.00	1.70	7384352.50	91.5	70	-	120	
209	Bi	2	4062349.00	1.06	5202967.00	78.1	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\040_MS.D\040_MS.D#

Date Acquired:	Aug 9 2016 03:39 pm	Sample Name:	**1607256-28A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	353.00	ppb	1.79	########	200	80-120	######	Fail
9	Be	2	45	212.90	ppb	2.13	3.25	200	80-120	104.8	
11	B	2	45	312.40	ppb	2.54	107.50	200	80-120	102.5	
23	Na	1	45	5922.00	ppb	1.91	330.60	5000	80-120	111.8	
24	Mg	1	45	19370.00	ppb	1.34	14510.00	5000	80-120	97.2	
27	Al	1	45	61460.00	ppb	2.35	58680.00	1000	80-120	278.0	Fail
39	K	1	45	20440.00	ppb	1.47	15440.00	5000	80-120	100.0	
44	Ca	2	45	164400.00	ppb	2.06	########	5000	80-120	-152.0	Fail
47	Ti	1	45	306.00	ppb	0.84	143.90	200	80-120	81.1	
51	V	1	45	318.00	ppb	1.06	106.50	200	80-120	105.8	
52	Cr	1	45	283.60	ppb	1.42	72.56	200	80-120	105.5	
55	Mn	1	45	663.00	ppb	0.62	489.90	200	80-120	86.6	
56	Fe	1	72	78130.00	ppb	0.57	81770.00	1000	80-120	-364.0	Fail
59	Co	1	72	234.80	ppb	0.59	28.15	200	80-120	103.3	
60	Ni	1	72	235.20	ppb	1.22	36.37	200	80-120	99.4	
63	Cu	1	72	209.40	ppb	1.18	10.96	200	80-120	99.2	
66	Zn	1	72	364.70	ppb	0.70	175.70	200	80-120	94.5	
75	As	1	72	214.30	ppb	0.83	23.24	200	80-120	95.5	
78	Se	1	72	185.30	ppb	0.80	19.01	200	80-120	83.1	
88	Sr	2	115	707.20	ppb	1.52	522.40	200	80-120	92.4	
95	Mo	2	115	197.70	ppb	2.10	3.10	200	80-120	97.3	
107	Ag	2	115	195.60	ppb	2.52	0.13	200	80-120	97.7	
111	Cd	2	115	189.00	ppb	1.61	0.94	200	80-120	94.0	
118	Sn	2	115	201.10	ppb	1.15	6.00	200	80-120	97.5	
121	Sb	2	115	62.86	ppb	1.31	0.47	200	80-120	31.2	Fail
137	Ba	2	115	951.80	ppb	2.15	648.00	200	80-120	151.9	Fail
205	Tl	2	209	216.30	ppb	1.33	0.54	200	80-120	107.9	
208	Pb	2	209	244.60	ppb	1.12	38.55	200	80-120	103.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-120524.07	1.26	76.78	########	70	-	120	ISFail
45	Sc	1	151646.72	0.61	158070.19	95.9	70	-	120	
45	Sc	2	7161814.00	2.25	6406944.50	111.8	70	-	120	
72	Ge	1	83905.48	0.35	88651.82	94.6	70	-	120	
115	In	2	6895428.00	0.94	7384352.50	93.4	70	-	120	
209	Bi	2	4147974.50	1.18	5202967.00	79.7	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\041CCV1.D\041CCV1.D#

Date Acquired:	Aug 9 2016 03:45 pm	Sample Name:	**CCV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	277.70	ppb	2.21	200.00	90 -	110	138.9	Fail
9	Be	2	45	234.60	ppb	1.17	200.00	90 -	110	117.3	Fail
11	B	2	45	234.20	ppb	2.70	200.00	90 -	110	117.1	Fail
23	Na	1	45	5958.00	ppb	0.37	5000.00	90 -	110	119.2	Fail
24	Mg	1	45	5398.00	ppb	0.97	5000.00	90 -	110	108.0	
27	Al	1	45	4966.00	ppb	2.29	5000.00	90 -	110	99.3	
39	K	1	45	5282.00	ppb	1.90	5000.00	90 -	110	105.6	
44	Ca	2	45	5620.00	ppb	2.86	5000.00	90 -	110	112.4	Fail
47	Ti	1	45	202.50	ppb	0.98	200.00	90 -	110	101.3	
51	V	1	45	217.00	ppb	1.33	200.00	90 -	110	108.5	
52	Cr	1	45	222.50	ppb	1.16	200.00	90 -	110	111.3	Fail
55	Mn	1	45	204.10	ppb	0.92	200.00	90 -	110	102.1	
56	Fe	1	72	5275.00	ppb	0.58	5000.00	90 -	110	105.5	
59	Co	1	72	224.90	ppb	1.01	200.00	90 -	110	112.5	Fail
60	Ni	1	72	221.70	ppb	1.47	200.00	90 -	110	110.9	Fail
63	Cu	1	72	228.10	ppb	1.02	200.00	90 -	110	114.1	Fail
66	Zn	1	72	217.40	ppb	1.11	200.00	90 -	110	108.7	
75	As	1	72	216.80	ppb	1.22	200.00	90 -	110	108.4	
78	Se	1	72	202.70	ppb	1.19	200.00	90 -	110	101.4	
88	Sr	2	115	237.60	ppb	0.81	200.00	90 -	110	118.8	Fail
95	Mo	2	115	218.00	ppb	1.70	200.00	90 -	110	109.0	
107	Ag	2	115	223.30	ppb	1.58	200.00	90 -	110	111.7	Fail
111	Cd	2	115	209.90	ppb	1.58	200.00	90 -	110	105.0	
118	Sn	2	115	208.20	ppb	1.89	200.00	90 -	110	104.1	
121	Sb	2	115	205.10	ppb	1.73	200.00	90 -	110	102.6	
137	Ba	2	115	201.70	ppb	2.82	200.00	90 -	110	100.9	
205	Tl	2	209	218.90	ppb	1.62	200.00	90 -	110	109.5	
208	Pb	2	209	214.30	ppb	1.55	200.00	90 -	110	107.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-117607.15	2.31	76.78	-153182.2	70 -	120		ISFail
45	Sc	1	160813.31	0.83	158070.19	101.7	70 -	120		
45	Sc	2	7524898.00	1.92	6406944.50	117.4	70 -	120		
72	Ge	1	89828.81	0.59	88651.82	101.3	70 -	120		
115	In	2	7058533.00	1.71	7384352.50	95.6	70 -	120		
209	Bi	2	4471224.00	1.37	5202967.00	85.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\043CCV1.D\043CCV1.D#

Date Acquired:	Aug 9 2016 03:57 pm	Sample Name:	**CCV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	258.30	ppb	1.55	200.00	90 -	110	129.2	Fail
9	Be	2	45	222.10	ppb	1.03	200.00	90 -	110	111.1	Fail
11	B	2	45	216.60	ppb	1.46	200.00	90 -	110	108.3	
23	Na	1	45	5697.00	ppb	0.73	5000.00	90 -	110	113.9	Fail
24	Mg	1	45	5153.00	ppb	1.64	5000.00	90 -	110	103.1	
27	Al	1	45	4676.00	ppb	1.37	5000.00	90 -	110	93.5	
39	K	1	45	5072.00	ppb	0.96	5000.00	90 -	110	101.4	
44	Ca	2	45	5273.00	ppb	2.26	5000.00	90 -	110	105.5	
47	Ti	1	45	195.30	ppb	2.31	200.00	90 -	110	97.7	
51	V	1	45	203.90	ppb	0.44	200.00	90 -	110	102.0	
52	Cr	1	45	208.60	ppb	0.40	200.00	90 -	110	104.3	
55	Mn	1	45	193.00	ppb	1.03	200.00	90 -	110	96.5	
56	Fe	1	72	4910.00	ppb	0.86	5000.00	90 -	110	98.2	
59	Co	1	72	211.10	ppb	0.61	200.00	90 -	110	105.6	
60	Ni	1	72	207.80	ppb	0.33	200.00	90 -	110	103.9	
63	Cu	1	72	213.60	ppb	0.14	200.00	90 -	110	106.8	
66	Zn	1	72	205.30	ppb	0.65	200.00	90 -	110	102.7	
75	As	1	72	206.30	ppb	0.67	200.00	90 -	110	103.2	
78	Se	1	72	198.80	ppb	0.74	200.00	90 -	110	99.4	
88	Sr	2	115	226.00	ppb	1.16	200.00	90 -	110	113.0	Fail
95	Mo	2	115	207.40	ppb	1.43	200.00	90 -	110	103.7	
107	Ag	2	115	211.70	ppb	1.45	200.00	90 -	110	105.9	
111	Cd	2	115	200.60	ppb	1.53	200.00	90 -	110	100.3	
118	Sn	2	115	197.60	ppb	1.27	200.00	90 -	110	98.8	
121	Sb	2	115	194.50	ppb	1.52	200.00	90 -	110	97.3	
137	Ba	2	115	192.00	ppb	1.80	200.00	90 -	110	96.0	
205	Tl	2	209	207.90	ppb	1.47	200.00	90 -	110	104.0	
208	Pb	2	209	201.10	ppb	1.25	200.00	90 -	110	100.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-110684.42	1.20	76.78	-144165.4	70 -	120		ISFail
45	Sc	1	162955.69	1.19	158070.19	103.1	70 -	120		
45	Sc	2	7441991.50	1.98	6406944.50	116.2	70 -	120		
72	Ge	1	90749.44	0.38	88651.82	102.4	70 -	120		
115	In	2	6988562.50	0.71	7384352.50	94.6	70 -	120		
209	Bi	2	4447978.00	1.19	5202967.00	85.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\044LCVL.D\044LCVL.D#

Date Acquired:	Aug 9 2016 04:03 pm	Sample Name:	**LCVL1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.30	ppb	1.58	10.00	70 -	130	133.0	Fail
9	Be	2	45	1.34	ppb	5.17	1.00	70 -	130	133.7	Fail
11	B	2	45	25.58	ppb	2.81	20.00	70 -	130	127.9	
23	Na	1	45	114.30	ppb	1.00	100.00	70 -	130	114.3	
24	Mg	1	45	108.30	ppb	1.72	100.00	70 -	130	108.3	
27	Al	1	45	103.30	ppb	2.70	100.00	70 -	130	103.3	
39	K	1	45	110.70	ppb	2.74	100.00	70 -	130	110.7	
44	Ca	2	45	108.80	ppb	4.94	100.00	70 -	130	108.8	
47	Ti	1	45	4.76	ppb	8.10	5.00	70 -	130	95.3	
51	V	1	45	1.19	ppb	4.03	1.00	70 -	130	118.6	
52	Cr	1	45	5.46	ppb	1.76	5.00	70 -	130	109.2	
55	Mn	1	45	5.09	ppb	2.66	5.00	70 -	130	101.7	
56	Fe	1	72	114.70	ppb	2.98	100.00	70 -	130	114.7	
59	Co	1	72	5.53	ppb	1.72	5.00	70 -	130	110.6	
60	Ni	1	72	5.49	ppb	4.54	5.00	70 -	130	109.8	
63	Cu	1	72	5.68	ppb	0.70	5.00	70 -	130	113.5	
66	Zn	1	72	5.70	ppb	4.76	5.00	70 -	130	114.1	
75	As	1	72	5.50	ppb	1.43	5.00	70 -	130	110.0	
78	Se	1	72	5.23	ppb	4.73	5.00	70 -	130	104.6	
88	Sr	2	115	5.77	ppb	2.84	5.00	70 -	130	115.4	
95	Mo	2	115	5.38	ppb	3.48	5.00	70 -	130	107.7	
107	Ag	2	115	2.29	ppb	3.57	2.00	70 -	130	114.4	
111	Cd	2	115	1.27	ppb	11.45	1.00	70 -	130	126.8	
118	Sn	2	115	5.28	ppb	3.64	5.00	70 -	130	105.6	
121	Sb	2	115	2.20	ppb	4.43	2.00	70 -	130	110.0	
137	Ba	2	115	5.00	ppb	3.03	5.00	70 -	130	100.0	
205	Tl	2	209	1.36	ppb	5.21	1.00	70 -	130	136.3	Fail
208	Pb	2	209	1.20	ppb	3.29	1.00	70 -	130	119.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-3183.55	4.16	76.78	-4146.5	70 -	120		ISFail
45	Sc	1	169272.05	1.47	158070.19	107.1	70 -	120		
45	Sc	2	7494744.50	2.08	6406944.50	117.0	70 -	120		
72	Ge	1	94749.43	0.99	88651.82	106.9	70 -	120		
115	In	2	7244276.50	2.89	7384352.50	98.1	70 -	120		
209	Bi	2	4573900.50	1.19	5202967.00	87.9	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\045_CCB.D\045_CCB.D#

Date Acquired:	Aug 9 2016 04:09 pm	Sample Name:	**CCB1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.241	ppb	4.05	2.00	2.00	
9	Be	2	45	0.055	ppb	20.81	0.40	0.30	
11	B	2	45	4.141	ppb	1.79	10.00	10.00	
23	Na	1	45	8.465	ppb	1.43	50.00	#####	
24	Mg	1	45	2.497	ppb	14.03	50.00	#####	
27	Al	1	45	11.270	ppb	5.80	50.00	10.00	FailAq
39	K	1	45	7.662	ppb	3.77	50.00	#####	
44	Ca	2	45	20.650	ppb	5.69	50.00	#####	
47	Ti	1	45	0.102	ppb	34.65	4.00	3.00	
51	V	1	45	-0.005	ppb	5.03	4.00	3.00	
52	Cr	1	45	0.066	ppb	8.77	2.00	2.00	
55	Mn	1	45	0.104	ppb	5.23	2.00	3.00	
56	Fe	1	72	4.621	ppb	7.60	50.00	30.00	
59	Co	1	72	0.039	ppb	20.19	2.00	3.00	
60	Ni	1	72	0.145	ppb	0.46	2.00	3.00	
63	Cu	1	72	0.134	ppb	4.85	2.00	2.00	
66	Zn	1	72	0.972	ppb	1.53	4.00	2.00	
75	As	1	72	0.036	ppb	3.69	2.00	2.00	
78	Se	1	72	0.109	ppb	12.38	0.60	2.00	
88	Sr	2	115	0.212	ppb	5.13	4.00	3.00	
95	Mo	2	115	0.092	ppb	16.12	2.00	2.00	
107	Ag	2	115	0.050	ppb	19.46	0.40	1.00	
111	Cd	2	115	0.050	ppb	45.64	0.40	0.30	
118	Sn	2	115	0.162	ppb	19.07	20.00	3.00	
121	Sb	2	115	0.083	ppb	13.02	2.00	0.80	
137	Ba	2	115	0.089	ppb	14.50	2.00	3.00	
205	Tl	2	209	0.126	ppb	5.08	2.00	0.50	
208	Pb	2	209	0.085	ppb	14.72	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-38.22	55.31	76.78	-49.8	70 - 120	ISFail
45	Sc	1		167180.63	1.74	158070.19	105.8	70 - 120	
45	Sc	2		7333257.50	3.19	6406944.50	114.5	70 - 120	
72	Ge	1		94288.40	0.80	88651.82	106.4	70 - 120	
115	In	2		7151486.50	2.38	7384352.50	96.8	70 - 120	
209	Bi	2		4596287.50	0.84	5202967.00	88.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\046SMPL.D\046SMPL.D#

Date Acquired:	Aug 9 2016 04:17 pm	Sample Name:	**1607256-40A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	73.780	ppb	#REF!	3.34	2000.00	>RL
9	Be	2	45	2.977	ppb	#REF!	0.65	2000.00	>RL
11	B	2	45	103.700	ppb	#REF!	2.97	2000.00	>RL
23	Na	1	45	530.300	ppb	#REF!	0.76	25000.00	>RL
24	Mg	1	45	9845.000	ppb	#REF!	1.34	25000.00	>RL
27	Al	1	45	38940.000	ppb	#REF!	2.01	10000.00	OUTCAL
39	K	1	45	14210.000	ppb	#REF!	0.17	25000.00	>RL
44	Ca	2	45	58800.000	ppb	#REF!	2.56	25000.00	OUTCAL
47	Ti	1	45	158.200	ppb	#REF!	2.26	2000.00	>RL
51	V	1	45	69.870	ppb	#REF!	1.89	2000.00	>RL
52	Cr	1	45	61.460	ppb	#REF!	1.60	2000.00	>RL
55	Mn	1	45	357.200	ppb	#REF!	1.38	2000.00	>RL
56	Fe	1	72	63010.000	ppb	#REF!	2.05	10000.00	OUTCAL
59	Co	1	72	25.390	ppb	#REF!	2.03	2000.00	>RL
60	Ni	1	72	43.910	ppb	#REF!	1.39	2000.00	>RL
63	Cu	1	72	5.479	ppb	#REF!	0.67	2000.00	J
66	Zn	1	72	166.200	ppb	#REF!	1.28	2000.00	>RL
75	As	1	72	16.150	ppb	#REF!	1.58	2000.00	>RL
78	Se	1	72	17.970	ppb	#REF!	2.18	2000.00	>RL
88	Sr	2	115	386.000	ppb	#REF!	0.76	2000.00	>RL
95	Mo	2	115	2.892	ppb	#REF!	2.44	2000.00	J
107	Ag	2	115	0.108	ppb	#REF!	7.54	500.00	ND
111	Cd	2	115	0.800	ppb	#REF!	9.97	2000.00	J
118	Sn	2	115	5.615	ppb	#REF!	2.08	2000.00	ND
121	Sb	2	115	0.153	ppb	#REF!	3.16	500.00	ND
137	Ba	2	115	235.500	ppb	#REF!	1.98	2000.00	>RL
205	Tl	2	209	0.417	ppb	#REF!	0.69	2000.00	ND
208	Pb	2	209	20.950	ppb	#REF!	1.18	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15385.96	5.69	RHigh	76.78	-20040.1	70 - 120	ISFail
45	Sc	1	167564.02	1.72		158070.19	106.0	70 - 120	
45	Sc	2	7480188.50	1.76		6406944.50	116.8	70 - 120	
72	Ge	1	92527.66	1.01		88651.82	104.4	70 - 120	
115	In	2	7276992.50	1.49		7384352.50	98.5	70 - 120	
209	Bi	2	4460320.00	1.53		5202967.00	85.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\047SMPL.D\047SMPL.D#

Date Acquired:	Aug 9 2016 04:23 pm	Sample Name:	**1607256-41A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	126.800	ppb	#REF!	2.24	2000.00	>RL
9	Be	2	45	3.647	ppb	#REF!	1.92	2000.00	>RL
11	B	2	45	145.600	ppb	#REF!	2.99	2000.00	>RL
23	Na	1	45	444.700	ppb	#REF!	1.73	25000.00	>RL
24	Mg	1	45	13950.000	ppb	#REF!	1.48	25000.00	>RL
27	Al	1	45	73150.000	ppb	#REF!	1.10	10000.00	OUTCAL
39	K	1	45	15800.000	ppb	#REF!	1.62	25000.00	>RL
44	Ca	2	45	263800.000	ppb	#REF!	3.64	25000.00	OUTCAL
47	Ti	1	45	165.200	ppb	#REF!	4.05	2000.00	>RL
51	V	1	45	124.600	ppb	#REF!	1.58	2000.00	>RL
52	Cr	1	45	86.520	ppb	#REF!	1.43	2000.00	>RL
55	Mn	1	45	278.600	ppb	#REF!	1.17	2000.00	>RL
56	Fe	1	72	88250.000	ppb	#REF!	1.26	10000.00	OUTCAL
59	Co	1	72	26.980	ppb	#REF!	1.20	2000.00	>RL
60	Ni	1	72	32.670	ppb	#REF!	0.45	2000.00	>RL
63	Cu	1	72	9.651	ppb	#REF!	0.39	2000.00	>RL
66	Zn	1	72	162.200	ppb	#REF!	1.14	2000.00	>RL
75	As	1	72	29.130	ppb	#REF!	1.66	2000.00	>RL
78	Se	1	72	18.530	ppb	#REF!	3.69	2000.00	>RL
88	Sr	2	115	879.700	ppb	#REF!	2.04	2000.00	>RL
95	Mo	2	115	4.511	ppb	#REF!	3.99	2000.00	J
107	Ag	2	115	0.114	ppb	#REF!	3.47	500.00	ND
111	Cd	2	115	0.854	ppb	#REF!	10.04	2000.00	J
118	Sn	2	115	7.225	ppb	#REF!	3.16	2000.00	ND
121	Sb	2	115	0.177	ppb	#REF!	5.37	500.00	ND
137	Ba	2	115	170.300	ppb	#REF!	2.90	2000.00	>RL
205	Tl	2	209	0.513	ppb	#REF!	5.46	2000.00	ND
208	Pb	2	209	30.270	ppb	#REF!	1.78	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-24132.58	1.86	76.78	-31432.4	70 - 120	ISFail
45	Sc	1	153293.36	1.28	158070.19	97.0	70 - 120	
45	Sc	2	6869850.50	3.59	6406944.50	107.2	70 - 120	
72	Ge	1	83140.81	1.38	88651.82	93.8	70 - 120	
115	In	2	6764882.00	2.30	7384352.50	91.6	70 - 120	
209	Bi	2	4004187.80	2.40	5202967.00	77.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\048SMPL.D\048SMPL.D#

Date Acquired:	Aug 9 2016 04:29 pm	Sample Name:	**1607256-42A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	46.320	ppb	#REF!	3.09	2000.00	>RL
9	Be	2	45	1.689	ppb	#REF!	3.42	2000.00	>RL
11	B	2	45	103.500	ppb	#REF!	3.26	2000.00	>RL
23	Na	1	45	667.700	ppb	#REF!	1.43	25000.00	>RL
24	Mg	1	45	7335.000	ppb	#REF!	1.96	25000.00	>RL
27	Al	1	45	40530.000	ppb	#REF!	2.36	10000.00	OUTCAL
39	K	1	45	8377.000	ppb	#REF!	1.54	25000.00	>RL
44	Ca	2	45	316800.000	ppb	#REF!	3.31	25000.00	OUTCAL
47	Ti	1	45	105.200	ppb	#REF!	4.00	2000.00	>RL
51	V	1	45	81.310	ppb	#REF!	2.42	2000.00	>RL
52	Cr	1	45	51.580	ppb	#REF!	1.84	2000.00	>RL
55	Mn	1	45	42.580	ppb	#REF!	0.65	2000.00	>RL
56	Fe	1	72	52830.000	ppb	#REF!	1.12	10000.00	OUTCAL
59	Co	1	72	4.641	ppb	#REF!	2.90	2000.00	J
60	Ni	1	72	10.910	ppb	#REF!	3.11	2000.00	>RL
63	Cu	1	72	7.635	ppb	#REF!	2.23	2000.00	J
66	Zn	1	72	61.100	ppb	#REF!	0.74	2000.00	>RL
75	As	1	72	27.660	ppb	#REF!	2.16	2000.00	>RL
78	Se	1	72	12.030	ppb	#REF!	3.99	2000.00	>RL
88	Sr	2	115	1550.000	ppb	#REF!	2.46	2000.00	>RL
95	Mo	2	115	3.774	ppb	#REF!	4.75	2000.00	J
107	Ag	2	115	0.075	ppb	#REF!	7.10	500.00	ND
111	Cd	2	115	0.504	ppb	#REF!	30.46	2000.00	J
118	Sn	2	115	6.025	ppb	#REF!	2.59	2000.00	ND
121	Sb	2	115	0.188	ppb	#REF!	7.65	500.00	ND
137	Ba	2	115	42.750	ppb	#REF!	2.63	2000.00	>RL
205	Tl	2	209	0.260	ppb	#REF!	6.65	2000.00	ND
208	Pb	2	209	69.990	ppb	#REF!	2.04	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8693.24	3.47	76.78	-11322.9	70 - 120	ISFail
45	Sc	1	147865.94	2.37	158070.19	93.5	70 - 120	
45	Sc	2	7089142.50	3.17	6406944.50	110.6	70 - 120	
72	Ge	1	80752.58	1.77	88651.82	91.1	70 - 120	
115	In	2	7013532.50	2.01	7384352.50	95.0	70 - 120	
209	Bi	2	4103572.50	2.35	5202967.00	78.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\057CCV1.D\057CCV1.D#

Date Acquired:	Aug 9 2016 05:22 pm	Sample Name:	**CCV2-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	243.90	ppb	2.76	200.00	90 -	110	122.0	Fail
9	Be	2	45	211.10	ppb	2.01	200.00	90 -	110	105.6	
11	B	2	45	204.80	ppb	1.03	200.00	90 -	110	102.4	
23	Na	1	45	5692.00	ppb	0.66	5000.00	90 -	110	113.8	Fail
24	Mg	1	45	5156.00	ppb	1.18	5000.00	90 -	110	103.1	
27	Al	1	45	4782.00	ppb	1.80	5000.00	90 -	110	95.6	
39	K	1	45	5089.00	ppb	0.42	5000.00	90 -	110	101.8	
44	Ca	2	45	5487.00	ppb	3.39	5000.00	90 -	110	109.7	
47	Ti	1	45	197.90	ppb	1.91	200.00	90 -	110	99.0	
51	V	1	45	206.80	ppb	0.37	200.00	90 -	110	103.4	
52	Cr	1	45	211.00	ppb	1.16	200.00	90 -	110	105.5	
55	Mn	1	45	195.30	ppb	0.16	200.00	90 -	110	97.7	
56	Fe	1	72	4961.00	ppb	0.08	5000.00	90 -	110	99.2	
59	Co	1	72	213.40	ppb	0.98	200.00	90 -	110	106.7	
60	Ni	1	72	211.00	ppb	0.56	200.00	90 -	110	105.5	
63	Cu	1	72	214.80	ppb	0.44	200.00	90 -	110	107.4	
66	Zn	1	72	207.10	ppb	0.63	200.00	90 -	110	103.6	
75	As	1	72	207.30	ppb	0.42	200.00	90 -	110	103.7	
78	Se	1	72	199.70	ppb	1.08	200.00	90 -	110	99.9	
88	Sr	2	115	226.50	ppb	3.21	200.00	90 -	110	113.3	Fail
95	Mo	2	115	204.10	ppb	2.37	200.00	90 -	110	102.1	
107	Ag	2	115	209.40	ppb	1.52	200.00	90 -	110	104.7	
111	Cd	2	115	199.30	ppb	2.48	200.00	90 -	110	99.7	
118	Sn	2	115	195.90	ppb	2.13	200.00	90 -	110	98.0	
121	Sb	2	115	192.50	ppb	1.69	200.00	90 -	110	96.3	
137	Ba	2	115	191.20	ppb	2.17	200.00	90 -	110	95.6	
205	Tl	2	209	207.30	ppb	1.02	200.00	90 -	110	103.7	
208	Pb	2	209	203.20	ppb	1.25	200.00	90 -	110	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-101589.49	3.26	76.78	-132319.3	70 -	120		ISFail
45	Sc	1	152159.42	0.12	158070.19	96.3	70 -	120		
45	Sc	2	7179504.00	2.13	6406944.50	112.1	70 -	120		
72	Ge	1	85580.93	0.49	88651.82	96.5	70 -	120		
115	In	2	7001779.00	2.50	7384352.50	94.8	70 -	120		
209	Bi	2	4385788.50	0.81	5202967.00	84.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\059LCVL.D\059LCVL.D#

Date Acquired:	Aug 9 2016 05:34 pm	Sample Name:	**LCVL2-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	12.51	ppb	1.83	10.00	70 -	130	125.1	
9	Be	2	45	1.15	ppb	5.06	1.00	70 -	130	115.4	
11	B	2	45	22.94	ppb	2.03	20.00	70 -	130	114.7	
23	Na	1	45	110.30	ppb	0.56	100.00	70 -	130	110.3	
24	Mg	1	45	107.50	ppb	1.84	100.00	70 -	130	107.5	
27	Al	1	45	110.80	ppb	1.03	100.00	70 -	130	110.8	
39	K	1	45	109.70	ppb	2.79	100.00	70 -	130	109.7	
44	Ca	2	45	122.40	ppb	2.38	100.00	70 -	130	122.4	
47	Ti	1	45	5.33	ppb	9.11	5.00	70 -	130	106.7	
51	V	1	45	1.14	ppb	4.00	1.00	70 -	130	113.9	
52	Cr	1	45	5.49	ppb	1.35	5.00	70 -	130	109.7	
55	Mn	1	45	5.06	ppb	2.23	5.00	70 -	130	101.2	
56	Fe	1	72	115.10	ppb	1.33	100.00	70 -	130	115.1	
59	Co	1	72	5.35	ppb	1.68	5.00	70 -	130	107.0	
60	Ni	1	72	5.32	ppb	2.47	5.00	70 -	130	106.3	
63	Cu	1	72	5.50	ppb	1.55	5.00	70 -	130	109.9	
66	Zn	1	72	5.51	ppb	3.25	5.00	70 -	130	110.2	
75	As	1	72	5.45	ppb	1.11	5.00	70 -	130	109.0	
78	Se	1	72	5.51	ppb	4.09	5.00	70 -	130	110.3	
88	Sr	2	115	5.74	ppb	1.54	5.00	70 -	130	114.9	
95	Mo	2	115	5.11	ppb	0.68	5.00	70 -	130	102.2	
107	Ag	2	115	2.16	ppb	3.11	2.00	70 -	130	107.8	
111	Cd	2	115	1.09	ppb	5.42	1.00	70 -	130	108.5	
118	Sn	2	115	5.09	ppb	1.98	5.00	70 -	130	101.9	
121	Sb	2	115	2.03	ppb	5.48	2.00	70 -	130	101.7	
137	Ba	2	115	5.18	ppb	2.23	5.00	70 -	130	103.6	
205	Tl	2	209	1.08	ppb	4.21	1.00	70 -	130	108.2	
208	Pb	2	209	1.09	ppb	2.16	1.00	70 -	130	108.6	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-3068.81	6.13	76.78	-3997.1	70 -	120	ISFail
45	Sc	1		154709.33	0.10	158070.19	97.9	70 -	120	
45	Sc	2		7117154.50	1.85	6406944.50	111.1	70 -	120	
72	Ge	1		87992.97	0.75	88651.82	99.3	70 -	120	
115	In	2		7108635.50	2.06	7384352.50	96.3	70 -	120	
209	Bi	2		4573985.50	0.74	5202967.00	87.9	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\060_CCB.D\060_CCB.D#

Date Acquired:	Aug 9 2016 05:40 pm	Sample Name:	**CCB2-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.158	ppb	5.06	2.00	2.00	
9	Be	2	45	0.012	ppb	13.99	0.40	0.30	
11	B	2	45	2.596	ppb	3.17	10.00	10.00	
23	Na	1	45	2.628	ppb	1.39	50.00	#####	
24	Mg	1	45	2.631	ppb	11.06	50.00	#####	
27	Al	1	45	14.320	ppb	5.60	50.00	10.00	FailAq
39	K	1	45	9.251	ppb	5.53	50.00	#####	
44	Ca	2	45	32.060	ppb	2.68	50.00	#####	
47	Ti	1	45	0.135	ppb	56.78	4.00	3.00	
51	V	1	45	-0.007	ppb	16.76	4.00	3.00	
52	Cr	1	45	0.020	ppb	8.75	2.00	2.00	
55	Mn	1	45	0.113	ppb	25.55	2.00	3.00	
56	Fe	1	72	7.022	ppb	20.75	50.00	30.00	
59	Co	1	72	0.019	ppb	22.05	2.00	3.00	
60	Ni	1	72	0.137	ppb	15.65	2.00	3.00	
63	Cu	1	72	0.119	ppb	13.24	2.00	2.00	
66	Zn	1	72	1.075	ppb	4.28	4.00	2.00	
75	As	1	72	0.028	ppb	1.22	2.00	2.00	
78	Se	1	72	0.031	ppb	28.17	0.60	2.00	
88	Sr	2	115	0.207	ppb	1.05	4.00	3.00	
95	Mo	2	115	0.042	ppb	19.11	2.00	2.00	
107	Ag	2	115	0.018	ppb	4.72	0.40	1.00	
111	Cd	2	115	0.001	ppb	44.61	0.40	0.30	
118	Sn	2	115	0.091	ppb	10.39	20.00	3.00	
121	Sb	2	115	0.027	ppb	6.08	2.00	0.80	
137	Ba	2	115	0.100	ppb	16.96	2.00	3.00	
205	Tl	2	209	0.054	ppb	15.49	2.00	0.50	
208	Pb	2	209	0.060	ppb	8.45	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-36.23	60.81	76.78	-47.2	70 - 120	ISFail
45	Sc	1		154107.33	0.69	158070.19	97.5	70 - 120	
45	Sc	2		7152934.50	3.70	6406944.50	111.6	70 - 120	
72	Ge	1		87481.99	0.93	88651.82	98.7	70 - 120	
115	In	2		7133216.50	1.53	7384352.50	96.6	70 - 120	
209	Bi	2		4586229.50	1.93	5202967.00	88.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\061SMPL.D\061SMPL.D#

1607256-18A

Date Acquired:	Aug 9 2016 05:46 pm	Sample Name:	~~1606256-18A~~
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	78.370	ppb	#REF!	1.13	2000.00	>RL
9	Be	2	45	3.118	ppb	#REF!	2.18	2000.00	>RL
11	B	2	45	83.200	ppb	#REF!	2.07	2000.00	>RL
23	Na	1	45	2002.000	ppb	#REF!	1.45	25000.00	>RL
24	Mg	1	45	17150.000	ppb	#REF!	1.82	25000.00	>RL
27	Al	1	45	80370.000	ppb	#REF!	2.08	10000.00	OUTCAL
39	K	1	45	17700.000	ppb	#REF!	0.45	25000.00	>RL
44	Ca	2	45	65450.000	ppb	#REF!	3.19	25000.00	OUTCAL
47	Ti	1	45	279.000	ppb	#REF!	1.02	2000.00	>RL
51	V	1	45	122.900	ppb	#REF!	1.03	2000.00	>RL
52	Cr	1	45	73.050	ppb	#REF!	1.56	2000.00	>RL
55	Mn	1	45	785.300	ppb	#REF!	1.39	2000.00	>RL
56	Fe	1	72	76660.000	ppb	#REF!	1.84	10000.00	OUTCAL
59	Co	1	72	29.800	ppb	#REF!	1.02	2000.00	>RL
60	Ni	1	72	48.020	ppb	#REF!	1.11	2000.00	>RL
63	Cu	1	72	34.850	ppb	#REF!	1.44	2000.00	>RL
66	Zn	1	72	288.500	ppb	#REF!	0.44	2000.00	>RL
75	As	1	72	27.450	ppb	#REF!	0.71	2000.00	>RL
78	Se	1	72	18.640	ppb	#REF!	1.58	2000.00	>RL
88	Sr	2	115	435.200	ppb	#REF!	1.81	2000.00	>RL
95	Mo	2	115	2.836	ppb	#REF!	2.60	2000.00	J
107	Ag	2	115	0.279	ppb	#REF!	5.81	500.00	ND
111	Cd	2	115	1.439	ppb	#REF!	7.27	2000.00	>RL
118	Sn	2	115	6.136	ppb	#REF!	2.15	2000.00	ND
121	Sb	2	115	1.491	ppb	#REF!	3.81	500.00	ND
137	Ba	2	115	397.100	ppb	#REF!	1.75	2000.00	>RL
205	Tl	2	209	0.704	ppb	#REF!	6.01	2000.00	ND
208	Pb	2	209	105.700	ppb	#REF!	1.77	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16017.26	6.71	RHigh	76.78	-20862.3	70 - 120	ISFail
45	Sc	1	149836.70	0.53		158070.19	94.8	70 - 120	
45	Sc	2	6933060.50	2.64		6406944.50	108.2	70 - 120	
72	Ge	1	82319.84	1.08		88651.82	92.9	70 - 120	
115	In	2	6979174.00	0.84		7384352.50	94.5	70 - 120	
209	Bi	2	4328059.00	2.21		5202967.00	83.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\062SMPL.D\062SMPL.D#

Date Acquired:	Aug 9 2016 05:51 pm	Sample Name:	**1607256-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	87.920	ppb	#REF!	1.66	2000.00	>RL
9	Be	2	45	3.181	ppb	#REF!	1.67	2000.00	>RL
11	B	2	45	79.280	ppb	#REF!	1.81	2000.00	>RL
23	Na	1	45	2877.000	ppb	#REF!	2.95	25000.00	>RL
24	Mg	1	45	19130.000	ppb	#REF!	1.07	25000.00	>RL
27	Al	1	45	78960.000	ppb	#REF!	1.33	10000.00	OUTCAL
39	K	1	45	16630.000	ppb	#REF!	1.46	25000.00	>RL
44	Ca	2	45	212300.000	ppb	#REF!	2.82	25000.00	OUTCAL
47	Ti	1	45	272.600	ppb	#REF!	1.26	2000.00	>RL
51	V	1	45	135.000	ppb	#REF!	1.11	2000.00	>RL
52	Cr	1	45	72.570	ppb	#REF!	0.80	2000.00	>RL
55	Mn	1	45	855.300	ppb	#REF!	1.04	2000.00	>RL
56	Fe	1	72	76120.000	ppb	#REF!	1.81	10000.00	OUTCAL
59	Co	1	72	31.700	ppb	#REF!	0.40	2000.00	>RL
60	Ni	1	72	48.710	ppb	#REF!	0.79	2000.00	>RL
63	Cu	1	72	18.580	ppb	#REF!	1.29	2000.00	>RL
66	Zn	1	72	181.300	ppb	#REF!	0.47	2000.00	>RL
75	As	1	72	23.420	ppb	#REF!	0.92	2000.00	>RL
78	Se	1	72	19.010	ppb	#REF!	4.68	2000.00	>RL
88	Sr	2	115	532.400	ppb	#REF!	1.55	2000.00	>RL
95	Mo	2	115	1.420	ppb	#REF!	3.47	2000.00	ND
107	Ag	2	115	0.154	ppb	#REF!	5.58	500.00	ND
111	Cd	2	115	1.250	ppb	#REF!	9.98	2000.00	>RL
118	Sn	2	115	5.627	ppb	#REF!	2.96	2000.00	ND
121	Sb	2	115	0.257	ppb	#REF!	5.34	500.00	ND
137	Ba	2	115	482.000	ppb	#REF!	2.00	2000.00	>RL
205	Tl	2	209	0.676	ppb	#REF!	3.24	2000.00	ND
208	Pb	2	209	31.290	ppb	#REF!	1.09	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-17171.74	4.61	76.78	-22366.0	70 - 120	ISFail
45	Sc	1	144075.86	0.19	158070.19	91.1	70 - 120	
45	Sc	2	6736035.50	3.30	6406944.50	105.1	70 - 120	
72	Ge	1	79360.86	0.22	88651.82	89.5	70 - 120	
115	In	2	7032958.00	2.29	7384352.50	95.2	70 - 120	
209	Bi	2	4212379.50	2.17	5202967.00	81.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\063SMPL.D\063SMPL.D#

Date Acquired:	Aug 9 2016 05:57 pm	Sample Name:	**1607256-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	97.200	ppb	#REF!	2.39	2000.00	>RL
9	Be	2	45	3.008	ppb	#REF!	3.37	2000.00	>RL
11	B	2	45	94.630	ppb	#REF!	2.39	2000.00	>RL
23	Na	1	45	3665.000	ppb	#REF!	1.56	25000.00	>RL
24	Mg	1	45	16560.000	ppb	#REF!	0.42	25000.00	>RL
27	Al	1	45	61560.000	ppb	#REF!	1.72	10000.00	OUTCAL
39	K	1	45	14840.000	ppb	#REF!	2.07	25000.00	>RL
44	Ca	2	45	206800.000	ppb	#REF!	1.89	25000.00	OUTCAL
47	Ti	1	45	197.300	ppb	#REF!	1.16	2000.00	>RL
51	V	1	45	114.700	ppb	#REF!	0.98	2000.00	>RL
52	Cr	1	45	70.030	ppb	#REF!	1.34	2000.00	>RL
55	Mn	1	45	564.600	ppb	#REF!	0.97	2000.00	>RL
56	Fe	1	72	73010.000	ppb	#REF!	1.43	10000.00	OUTCAL
59	Co	1	72	35.490	ppb	#REF!	0.83	2000.00	>RL
60	Ni	1	72	43.970	ppb	#REF!	0.78	2000.00	>RL
63	Cu	1	72	11.480	ppb	#REF!	0.26	2000.00	>RL
66	Zn	1	72	162.700	ppb	#REF!	1.16	2000.00	>RL
75	As	1	72	21.170	ppb	#REF!	0.66	2000.00	>RL
78	Se	1	72	21.020	ppb	#REF!	4.25	2000.00	>RL
88	Sr	2	115	418.300	ppb	#REF!	1.84	2000.00	>RL
95	Mo	2	115	1.478	ppb	#REF!	2.59	2000.00	ND
107	Ag	2	115	0.119	ppb	#REF!	3.57	500.00	ND
111	Cd	2	115	1.085	ppb	#REF!	8.26	2000.00	J
118	Sn	2	115	5.743	ppb	#REF!	2.37	2000.00	ND
121	Sb	2	115	0.164	ppb	#REF!	7.02	500.00	ND
137	Ba	2	115	367.200	ppb	#REF!	2.40	2000.00	>RL
205	Tl	2	209	0.507	ppb	#REF!	1.58	2000.00	ND
208	Pb	2	209	27.240	ppb	#REF!	1.40	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19384.13	4.46	76.78	-25247.6	70 - 120	ISFail
45	Sc	1	143608.97	0.42	158070.19	90.9	70 - 120	
45	Sc	2	6689504.00	2.03	6406944.50	104.4	70 - 120	
72	Ge	1	78713.46	0.26	88651.82	88.8	70 - 120	
115	In	2	7000001.50	2.07	7384352.50	94.8	70 - 120	
209	Bi	2	4248908.50	1.10	5202967.00	81.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\064SMPL.D\064SMPL.D#

Date Acquired:	Aug 9 2016 06:03 pm	Sample Name:	**1607256-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	91.450	ppb	#REF!	2.34	2000.00	>RL
9	Be	2	45	3.036	ppb	#REF!	4.96	2000.00	>RL
11	B	2	45	106.400	ppb	#REF!	3.14	2000.00	>RL
23	Na	1	45	3925.000	ppb	#REF!	0.95	25000.00	>RL
24	Mg	1	45	14030.000	ppb	#REF!	0.78	25000.00	>RL
27	Al	1	45	50960.000	ppb	#REF!	1.00	10000.00	OUTCAL
39	K	1	45	13810.000	ppb	#REF!	0.85	25000.00	>RL
44	Ca	2	45	295900.000	ppb	#REF!	2.31	25000.00	OUTCAL
47	Ti	1	45	134.400	ppb	#REF!	1.52	2000.00	>RL
51	V	1	45	95.110	ppb	#REF!	1.66	2000.00	>RL
52	Cr	1	45	64.940	ppb	#REF!	0.96	2000.00	>RL
55	Mn	1	45	2428.000	ppb	#REF!	0.24	2000.00	OUTCAL
56	Fe	1	72	83260.000	ppb	#REF!	0.25	10000.00	OUTCAL
59	Co	1	72	33.470	ppb	#REF!	1.09	2000.00	>RL
60	Ni	1	72	68.920	ppb	#REF!	1.39	2000.00	>RL
63	Cu	1	72	7.456	ppb	#REF!	1.82	2000.00	J
66	Zn	1	72	199.600	ppb	#REF!	1.17	2000.00	>RL
75	As	1	72	23.730	ppb	#REF!	1.46	2000.00	>RL
78	Se	1	72	42.250	ppb	#REF!	1.03	2000.00	>RL
88	Sr	2	115	628.900	ppb	#REF!	1.94	2000.00	>RL
95	Mo	2	115	2.838	ppb	#REF!	4.56	2000.00	J
107	Ag	2	115	0.087	ppb	#REF!	8.11	500.00	ND
111	Cd	2	115	1.689	ppb	#REF!	10.09	2000.00	>RL
118	Sn	2	115	5.826	ppb	#REF!	2.25	2000.00	ND
121	Sb	2	115	0.112	ppb	#REF!	13.58	500.00	ND
137	Ba	2	115	470.800	ppb	#REF!	2.32	2000.00	>RL
205	Tl	2	209	0.563	ppb	#REF!	0.80	2000.00	ND
208	Pb	2	209	30.620	ppb	#REF!	1.55	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18452.06	4.08	76.78	-24033.6	70 - 120	ISFail
45	Sc	1	140766.41	0.43	158070.19	89.1	70 - 120	
45	Sc	2	6668277.50	2.80	6406944.50	104.1	70 - 120	
72	Ge	1	78121.82	0.23	88651.82	88.1	70 - 120	
115	In	2	7062003.00	2.17	7384352.50	95.6	70 - 120	
209	Bi	2	4216027.50	1.13	5202967.00	81.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\065SMPL.D\065SMPL.D#

Date Acquired:	Aug 9 2016 06:09 pm	Sample Name:	**1607256-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	77.970	ppb	#REF!	1.58	2000.00	>RL
9	Be	2	45	3.048	ppb	#REF!	0.36	2000.00	>RL
11	B	2	45	81.600	ppb	#REF!	2.63	2000.00	>RL
23	Na	1	45	2158.000	ppb	#REF!	0.90	25000.00	>RL
24	Mg	1	45	17520.000	ppb	#REF!	1.07	25000.00	>RL
27	Al	1	45	81680.000	ppb	#REF!	1.85	10000.00	OUTCAL
39	K	1	45	18400.000	ppb	#REF!	0.72	25000.00	>RL
44	Ca	2	45	77560.000	ppb	#REF!	2.81	25000.00	OUTCAL
47	Ti	1	45	271.300	ppb	#REF!	0.84	2000.00	>RL
51	V	1	45	123.200	ppb	#REF!	2.03	2000.00	>RL
52	Cr	1	45	74.010	ppb	#REF!	1.05	2000.00	>RL
55	Mn	1	45	785.600	ppb	#REF!	1.98	2000.00	>RL
56	Fe	1	72	72520.000	ppb	#REF!	1.68	10000.00	OUTCAL
59	Co	1	72	31.230	ppb	#REF!	0.92	2000.00	>RL
60	Ni	1	72	48.140	ppb	#REF!	1.27	2000.00	>RL
63	Cu	1	72	31.640	ppb	#REF!	1.49	2000.00	>RL
66	Zn	1	72	264.800	ppb	#REF!	1.95	2000.00	>RL
75	As	1	72	25.550	ppb	#REF!	1.66	2000.00	>RL
78	Se	1	72	19.460	ppb	#REF!	6.00	2000.00	>RL
88	Sr	2	115	431.900	ppb	#REF!	2.05	2000.00	>RL
95	Mo	2	115	2.868	ppb	#REF!	2.19	2000.00	J
107	Ag	2	115	0.230	ppb	#REF!	3.69	500.00	ND
111	Cd	2	115	1.301	ppb	#REF!	9.71	2000.00	>RL
118	Sn	2	115	5.832	ppb	#REF!	1.72	2000.00	ND
121	Sb	2	115	1.283	ppb	#REF!	4.24	500.00	ND
137	Ba	2	115	386.900	ppb	#REF!	2.21	2000.00	>RL
205	Tl	2	209	0.692	ppb	#REF!	2.54	2000.00	ND
208	Pb	2	209	67.430	ppb	#REF!	1.78	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15987.48	4.29	76.78	-20823.5	70 - 120	ISFail
45	Sc	1	143703.25	0.93	158070.19	90.9	70 - 120	
45	Sc	2	6758272.00	2.45	6406944.50	105.5	70 - 120	
72	Ge	1	80111.30	0.85	88651.82	90.4	70 - 120	
115	In	2	6999885.50	1.86	7384352.50	94.8	70 - 120	
209	Bi	2	4324346.50	1.73	5202967.00	83.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\067SMPL.D\067SMPL.D#

Date Acquired:	Aug 9 2016 06:21 pm	Sample Name:	**1607256-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	95.090	ppb	#REF!	1.42	2000.00	>RL
9	Be	2	45	3.277	ppb	#REF!	1.67	2000.00	>RL
11	B	2	45	86.080	ppb	#REF!	1.33	2000.00	>RL
23	Na	1	45	3704.000	ppb	#REF!	1.02	25000.00	>RL
24	Mg	1	45	20820.000	ppb	#REF!	1.46	25000.00	>RL
27	Al	1	45	85550.000	ppb	#REF!	1.90	10000.00	OUTCAL
39	K	1	45	18080.000	ppb	#REF!	3.00	25000.00	>RL
44	Ca	2	45	263300.000	ppb	#REF!	2.71	25000.00	OUTCAL
47	Ti	1	45	285.200	ppb	#REF!	2.09	2000.00	>RL
51	V	1	45	151.800	ppb	#REF!	1.06	2000.00	>RL
52	Cr	1	45	80.660	ppb	#REF!	1.12	2000.00	>RL
55	Mn	1	45	802.300	ppb	#REF!	1.32	2000.00	>RL
56	Fe	1	72	82650.000	ppb	#REF!	1.58	10000.00	OUTCAL
59	Co	1	72	33.800	ppb	#REF!	0.99	2000.00	>RL
60	Ni	1	72	52.580	ppb	#REF!	0.19	2000.00	>RL
63	Cu	1	72	20.780	ppb	#REF!	0.62	2000.00	>RL
66	Zn	1	72	195.700	ppb	#REF!	1.36	2000.00	>RL
75	As	1	72	26.860	ppb	#REF!	0.78	2000.00	>RL
78	Se	1	72	20.810	ppb	#REF!	1.16	2000.00	>RL
88	Sr	2	115	606.100	ppb	#REF!	2.35	2000.00	>RL
95	Mo	2	115	1.542	ppb	#REF!	2.06	2000.00	ND
107	Ag	2	115	0.163	ppb	#REF!	3.81	500.00	ND
111	Cd	2	115	1.338	ppb	#REF!	5.73	2000.00	>RL
118	Sn	2	115	5.814	ppb	#REF!	0.66	2000.00	ND
121	Sb	2	115	0.508	ppb	#REF!	6.61	500.00	ND
137	Ba	2	115	552.700	ppb	#REF!	2.40	2000.00	>RL
205	Tl	2	209	0.700	ppb	#REF!	1.65	2000.00	ND
208	Pb	2	209	60.610	ppb	#REF!	1.18	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18383.74	6.96	RHigh	76.78	-23944.6	70 - 120	ISFail
45	Sc	1	139300.83	0.56		158070.19	88.1	70 - 120	
45	Sc	2	6591658.00	2.00		6406944.50	102.9	70 - 120	
72	Ge	1	76367.15	0.65		88651.82	86.1	70 - 120	
115	In	2	7032820.00	1.43		7384352.50	95.2	70 - 120	
209	Bi	2	4181906.30	1.62		5202967.00	80.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\068SMPL.D\068SMPL.D#

Date Acquired:	Aug 9 2016 06:27 pm	Sample Name:	**1607256-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	99.800	ppb	#REF!	1.51	2000.00	>RL
9	Be	2	45	3.143	ppb	#REF!	3.08	2000.00	>RL
11	B	2	45	93.960	ppb	#REF!	1.68	2000.00	>RL
23	Na	1	45	3404.000	ppb	#REF!	1.30	25000.00	>RL
24	Mg	1	45	16710.000	ppb	#REF!	1.67	25000.00	>RL
27	Al	1	45	58890.000	ppb	#REF!	1.23	10000.00	OUTCAL
39	K	1	45	14910.000	ppb	#REF!	1.21	25000.00	>RL
44	Ca	2	45	215000.000	ppb	#REF!	1.98	25000.00	OUTCAL
47	Ti	1	45	172.600	ppb	#REF!	2.62	2000.00	>RL
51	V	1	45	109.800	ppb	#REF!	0.86	2000.00	>RL
52	Cr	1	45	69.650	ppb	#REF!	0.59	2000.00	>RL
55	Mn	1	45	631.300	ppb	#REF!	1.20	2000.00	>RL
56	Fe	1	72	71710.000	ppb	#REF!	0.59	10000.00	OUTCAL
59	Co	1	72	42.370	ppb	#REF!	0.46	2000.00	>RL
60	Ni	1	72	48.280	ppb	#REF!	0.84	2000.00	>RL
63	Cu	1	72	9.611	ppb	#REF!	1.13	2000.00	>RL
66	Zn	1	72	165.500	ppb	#REF!	0.51	2000.00	>RL
75	As	1	72	20.880	ppb	#REF!	0.99	2000.00	>RL
78	Se	1	72	26.330	ppb	#REF!	1.36	2000.00	>RL
88	Sr	2	115	463.500	ppb	#REF!	2.04	2000.00	>RL
95	Mo	2	115	1.788	ppb	#REF!	0.60	2000.00	ND
107	Ag	2	115	0.107	ppb	#REF!	2.24	500.00	ND
111	Cd	2	115	1.105	ppb	#REF!	2.63	2000.00	J
118	Sn	2	115	5.872	ppb	#REF!	1.33	2000.00	ND
121	Sb	2	115	0.135	ppb	#REF!	8.27	500.00	ND
137	Ba	2	115	775.900	ppb	#REF!	2.24	2000.00	>RL
205	Tl	2	209	0.454	ppb	#REF!	2.67	2000.00	ND
208	Pb	2	209	26.940	ppb	#REF!	1.43	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19642.03	2.62	76.78	-25583.5	70 - 120	ISFail
45	Sc	1	136416.55	0.11	158070.19	86.3	70 - 120	
45	Sc	2	6530152.50	2.53	6406944.50	101.9	70 - 120	
72	Ge	1	75882.19	0.21	88651.82	85.6	70 - 120	
115	In	2	6911690.50	1.02	7384352.50	93.6	70 - 120	
209	Bi	2	4213287.00	2.45	5202967.00	81.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\069SMPL.D\069SMPL.D#

Date Acquired:	Aug 9 2016 06:32 pm	Sample Name:	**1607256-25A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	83.060	ppb	#REF!	2.28	2000.00	>RL
9	Be	2	45	2.708	ppb	#REF!	0.77	2000.00	>RL
11	B	2	45	101.600	ppb	#REF!	2.02	2000.00	>RL
23	Na	1	45	3670.000	ppb	#REF!	0.36	25000.00	>RL
24	Mg	1	45	14270.000	ppb	#REF!	1.23	25000.00	>RL
27	Al	1	45	51030.000	ppb	#REF!	1.49	10000.00	OUTCAL
39	K	1	45	13960.000	ppb	#REF!	0.48	25000.00	>RL
44	Ca	2	45	215300.000	ppb	#REF!	2.71	25000.00	OUTCAL
47	Ti	1	45	155.600	ppb	#REF!	3.59	2000.00	>RL
51	V	1	45	98.280	ppb	#REF!	0.49	2000.00	>RL
52	Cr	1	45	65.860	ppb	#REF!	0.70	2000.00	>RL
55	Mn	1	45	440.500	ppb	#REF!	1.07	2000.00	>RL
56	Fe	1	72	73990.000	ppb	#REF!	1.07	10000.00	OUTCAL
59	Co	1	72	22.660	ppb	#REF!	1.29	2000.00	>RL
60	Ni	1	72	36.180	ppb	#REF!	1.68	2000.00	>RL
63	Cu	1	72	7.516	ppb	#REF!	1.91	2000.00	J
66	Zn	1	72	135.200	ppb	#REF!	1.04	2000.00	>RL
75	As	1	72	21.030	ppb	#REF!	0.32	2000.00	>RL
78	Se	1	72	21.870	ppb	#REF!	3.87	2000.00	>RL
88	Sr	2	115	467.600	ppb	#REF!	1.79	2000.00	>RL
95	Mo	2	115	2.598	ppb	#REF!	1.72	2000.00	J
107	Ag	2	115	0.096	ppb	#REF!	9.41	500.00	ND
111	Cd	2	115	0.944	ppb	#REF!	5.37	2000.00	J
118	Sn	2	115	5.786	ppb	#REF!	3.89	2000.00	ND
121	Sb	2	115	0.119	ppb	#REF!	16.17	500.00	ND
137	Ba	2	115	530.300	ppb	#REF!	2.11	2000.00	>RL
205	Tl	2	209	0.439	ppb	#REF!	4.69	2000.00	ND
208	Pb	2	209	26.470	ppb	#REF!	1.17	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16577.13	6.42	RHigh	76.78	-21591.6	70 - 120	ISFail
45	Sc	1	135731.52	1.13		158070.19	85.9	70 - 120	
45	Sc	2	6536710.00	1.95		6406944.50	102.0	70 - 120	
72	Ge	1	75272.28	0.58		88651.82	84.9	70 - 120	
115	In	2	6902223.00	2.53		7384352.50	93.5	70 - 120	
209	Bi	2	4207881.00	1.20		5202967.00	80.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\070SMPL.D\070SMPL.D#

Date Acquired:	Aug 9 2016 06:38 pm	Sample Name:	**1607256-29A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	97.700	ppb	#REF!	1.38	2000.00	>RL
9	Be	2	45	3.019	ppb	#REF!	5.42	2000.00	>RL
11	B	2	45	112.500	ppb	#REF!	2.75	2000.00	>RL
23	Na	1	45	682.300	ppb	#REF!	1.82	25000.00	>RL
24	Mg	1	45	12980.000	ppb	#REF!	2.20	25000.00	>RL
27	Al	1	45	54400.000	ppb	#REF!	1.77	10000.00	OUTCAL
39	K	1	45	14520.000	ppb	#REF!	0.48	25000.00	>RL
44	Ca	2	45	182100.000	ppb	#REF!	2.57	25000.00	OUTCAL
47	Ti	1	45	132.000	ppb	#REF!	2.22	2000.00	>RL
51	V	1	45	95.330	ppb	#REF!	0.19	2000.00	>RL
52	Cr	1	45	70.270	ppb	#REF!	0.46	2000.00	>RL
55	Mn	1	45	448.400	ppb	#REF!	1.27	2000.00	>RL
56	Fe	1	72	91000.000	ppb	#REF!	0.86	10000.00	OUTCAL
59	Co	1	72	30.840	ppb	#REF!	0.66	2000.00	>RL
60	Ni	1	72	41.980	ppb	#REF!	0.78	2000.00	>RL
63	Cu	1	72	7.712	ppb	#REF!	0.57	2000.00	J
66	Zn	1	72	173.200	ppb	#REF!	1.67	2000.00	>RL
75	As	1	72	22.180	ppb	#REF!	0.86	2000.00	>RL
78	Se	1	72	18.870	ppb	#REF!	5.78	2000.00	>RL
88	Sr	2	115	623.600	ppb	#REF!	2.03	2000.00	>RL
95	Mo	2	115	3.065	ppb	#REF!	5.58	2000.00	J
107	Ag	2	115	0.090	ppb	#REF!	6.38	500.00	ND
111	Cd	2	115	0.785	ppb	#REF!	12.70	2000.00	J
118	Sn	2	115	5.896	ppb	#REF!	1.29	2000.00	ND
121	Sb	2	115	0.117	ppb	#REF!	14.78	500.00	ND
137	Ba	2	115	196.800	ppb	#REF!	2.09	2000.00	>RL
205	Tl	2	209	0.375	ppb	#REF!	1.46	2000.00	ND
208	Pb	2	209	27.560	ppb	#REF!	1.59	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19026.54	5.52	RHigh	76.78	-24781.9	70 - 120	ISFail
45	Sc	1	133620.89	0.21		158070.19	84.5	70 - 120	
45	Sc	2	6650534.50	2.20		6406944.50	103.8	70 - 120	
72	Ge	1	74694.81	0.74		88651.82	84.3	70 - 120	
115	In	2	6861321.50	0.98		7384352.50	92.9	70 - 120	
209	Bi	2	4227360.00	1.47		5202967.00	81.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\071SMPL.D\071SMPL.D#

Date Acquired:	Aug 9 2016 06:44 pm	Sample Name:	**1607256-30A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	98.900	ppb	#REF!	0.85	2000.00	>RL
9	Be	2	45	2.894	ppb	#REF!	2.53	2000.00	>RL
11	B	2	45	127.800	ppb	#REF!	2.63	2000.00	>RL
23	Na	1	45	1177.000	ppb	#REF!	0.20	25000.00	>RL
24	Mg	1	45	13040.000	ppb	#REF!	0.28	25000.00	>RL
27	Al	1	45	58450.000	ppb	#REF!	0.43	10000.00	OUTCAL
39	K	1	45	14450.000	ppb	#REF!	1.00	25000.00	>RL
44	Ca	2	45	171300.000	ppb	#REF!	3.15	25000.00	OUTCAL
47	Ti	1	45	107.000	ppb	#REF!	1.98	2000.00	>RL
51	V	1	45	100.400	ppb	#REF!	0.51	2000.00	>RL
52	Cr	1	45	77.460	ppb	#REF!	0.93	2000.00	>RL
55	Mn	1	45	182.000	ppb	#REF!	1.03	2000.00	>RL
56	Fe	1	72	88270.000	ppb	#REF!	0.63	10000.00	OUTCAL
59	Co	1	72	14.390	ppb	#REF!	0.95	2000.00	>RL
60	Ni	1	72	27.960	ppb	#REF!	1.89	2000.00	>RL
63	Cu	1	72	10.990	ppb	#REF!	0.22	2000.00	>RL
66	Zn	1	72	166.000	ppb	#REF!	0.47	2000.00	>RL
75	As	1	72	25.970	ppb	#REF!	0.63	2000.00	>RL
78	Se	1	72	15.710	ppb	#REF!	6.14	2000.00	>RL
88	Sr	2	115	793.400	ppb	#REF!	2.02	2000.00	>RL
95	Mo	2	115	4.487	ppb	#REF!	1.79	2000.00	J
107	Ag	2	115	0.109	ppb	#REF!	1.33	500.00	ND
111	Cd	2	115	0.772	ppb	#REF!	3.87	2000.00	J
118	Sn	2	115	6.153	ppb	#REF!	2.22	2000.00	ND
121	Sb	2	115	0.246	ppb	#REF!	3.94	500.00	ND
137	Ba	2	115	305.400	ppb	#REF!	2.70	2000.00	>RL
205	Tl	2	209	0.421	ppb	#REF!	2.10	2000.00	ND
208	Pb	2	209	33.880	ppb	#REF!	1.95	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19324.51	7.53	RHigh	76.78	-25170.0	70 - 120	ISFail
45	Sc	1	132525.14	0.19		158070.19	83.8	70 - 120	
45	Sc	2	6774675.50	2.89		6406944.50	105.7	70 - 120	
72	Ge	1	73867.34	0.23		88651.82	83.3	70 - 120	
115	In	2	6944695.50	2.04		7384352.50	94.0	70 - 120	
209	Bi	2	4197543.00	1.88		5202967.00	80.7	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\072CCV1.D\072CCV1.D#

Date Acquired:	Aug 9 2016 06:50 pm	Sample Name:	**CCV3-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	236.00	ppb	1.72	200.00	90 -	110	118.0	Fail
9	Be	2	45	205.70	ppb	1.92	200.00	90 -	110	102.9	
11	B	2	45	197.80	ppb	2.00	200.00	90 -	110	98.9	
23	Na	1	45	5774.00	ppb	0.85	5000.00	90 -	110	115.5	Fail
24	Mg	1	45	5269.00	ppb	1.48	5000.00	90 -	110	105.4	
27	Al	1	45	4793.00	ppb	2.34	5000.00	90 -	110	95.9	
39	K	1	45	5146.00	ppb	1.79	5000.00	90 -	110	102.9	
44	Ca	2	45	5517.00	ppb	2.55	5000.00	90 -	110	110.3	Fail
47	Ti	1	45	199.60	ppb	4.10	200.00	90 -	110	99.8	
51	V	1	45	212.10	ppb	1.16	200.00	90 -	110	106.1	
52	Cr	1	45	215.70	ppb	0.38	200.00	90 -	110	107.9	
55	Mn	1	45	198.30	ppb	1.30	200.00	90 -	110	99.2	
56	Fe	1	72	5064.00	ppb	2.01	5000.00	90 -	110	101.3	
59	Co	1	72	216.20	ppb	0.60	200.00	90 -	110	108.1	
60	Ni	1	72	212.60	ppb	0.64	200.00	90 -	110	106.3	
63	Cu	1	72	220.30	ppb	0.69	200.00	90 -	110	110.2	Fail
66	Zn	1	72	208.80	ppb	0.62	200.00	90 -	110	104.4	
75	As	1	72	211.80	ppb	1.18	200.00	90 -	110	105.9	
78	Se	1	72	197.10	ppb	2.88	200.00	90 -	110	98.6	
88	Sr	2	115	228.50	ppb	2.15	200.00	90 -	110	114.3	Fail
95	Mo	2	115	205.90	ppb	1.88	200.00	90 -	110	103.0	
107	Ag	2	115	211.30	ppb	1.36	200.00	90 -	110	105.7	
111	Cd	2	115	202.30	ppb	1.74	200.00	90 -	110	101.2	
118	Sn	2	115	199.90	ppb	1.72	200.00	90 -	110	100.0	
121	Sb	2	115	195.50	ppb	1.78	200.00	90 -	110	97.8	
137	Ba	2	115	196.10	ppb	1.25	200.00	90 -	110	98.1	
205	Tl	2	209	210.90	ppb	0.74	200.00	90 -	110	105.5	
208	Pb	2	209	205.00	ppb	1.77	200.00	90 -	110	102.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-95731.90	2.22	76.78	-124689.9	70 -	120		ISFail
45	Sc	1	133487.56	1.00	158070.19	84.4	70 -	120		
45	Sc	2	6874568.00	2.92	6406944.50	107.3	70 -	120		
72	Ge	1	75765.29	0.36	88651.82	85.5	70 -	120		
115	In	2	6775729.50	1.40	7384352.50	91.8	70 -	120		
209	Bi	2	4310538.50	1.38	5202967.00	82.8	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\074LCVL.D\074LCVL.D#

Date Acquired:	Aug 9 2016 07:02 pm	Sample Name:	**LCVL3-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.77	ppb	2.73	10.00	70 -	130	117.7	
9	Be	2	45	1.13	ppb	3.71	1.00	70 -	130	112.7	
11	B	2	45	21.85	ppb	3.38	20.00	70 -	130	109.3	
23	Na	1	45	107.00	ppb	3.62	100.00	70 -	130	107.0	
24	Mg	1	45	107.80	ppb	2.98	100.00	70 -	130	107.8	
27	Al	1	45	108.70	ppb	2.71	100.00	70 -	130	108.7	
39	K	1	45	109.00	ppb	3.78	100.00	70 -	130	109.0	
44	Ca	2	45	138.90	ppb	9.99	100.00	70 -	130	138.9	Fail
47	Ti	1	45	4.83	ppb	17.05	5.00	70 -	130	96.5	
51	V	1	45	1.09	ppb	4.32	1.00	70 -	130	108.5	
52	Cr	1	45	5.42	ppb	1.38	5.00	70 -	130	108.5	
55	Mn	1	45	5.06	ppb	2.41	5.00	70 -	130	101.2	
56	Fe	1	72	123.00	ppb	2.23	100.00	70 -	130	123.0	
59	Co	1	72	5.42	ppb	0.57	5.00	70 -	130	108.5	
60	Ni	1	72	5.48	ppb	3.25	5.00	70 -	130	109.6	
63	Cu	1	72	5.56	ppb	1.43	5.00	70 -	130	111.1	
66	Zn	1	72	5.38	ppb	1.30	5.00	70 -	130	107.5	
75	As	1	72	5.36	ppb	2.29	5.00	70 -	130	107.1	
78	Se	1	72	5.73	ppb	1.75	5.00	70 -	130	114.5	
88	Sr	2	115	5.71	ppb	3.50	5.00	70 -	130	114.1	
95	Mo	2	115	5.07	ppb	3.15	5.00	70 -	130	101.4	
107	Ag	2	115	2.14	ppb	5.06	2.00	70 -	130	106.8	
111	Cd	2	115	1.04	ppb	4.36	1.00	70 -	130	104.2	
118	Sn	2	115	5.02	ppb	3.44	5.00	70 -	130	100.3	
121	Sb	2	115	2.04	ppb	4.12	2.00	70 -	130	102.2	
137	Ba	2	115	4.98	ppb	1.94	5.00	70 -	130	99.6	
205	Tl	2	209	1.10	ppb	0.90	1.00	70 -	130	110.3	
208	Pb	2	209	1.10	ppb	5.46	1.00	70 -	130	110.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-2839.58	7.76	76.78	-3698.5	70 -	120	ISFail
45	Sc	1	136658.59	1.40	158070.19	86.5	70 -	120	
45	Sc	2	6762831.50	3.43	6406944.50	105.6	70 -	120	
72	Ge	1	78426.45	1.28	88651.82	88.5	70 -	120	
115	In	2	6813723.00	1.40	7384352.50	92.3	70 -	120	
209	Bi	2	4441914.00	1.90	5202967.00	85.4	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\075_CCB.D\075_CCB.D#

Date Acquired:	Aug 9 2016 07:08 pm	Sample Name:	**CCB3-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.172	ppb	3.58	2.00	2.00	
9	Be	2	45	0.031	ppb	6.22	0.40	0.30	
11	B	2	45	2.595	ppb	2.96	10.00	10.00	
23	Na	1	45	4.077	ppb	2.03	50.00	#####	
24	Mg	1	45	3.871	ppb	9.83	50.00	#####	
27	Al	1	45	18.630	ppb	6.48	50.00	10.00	FailAq
39	K	1	45	8.265	ppb	4.33	50.00	#####	
44	Ca	2	45	38.080	ppb	10.74	50.00	#####	
47	Ti	1	45	0.184	ppb	75.00	4.00	3.00	
51	V	1	45	0.009	ppb	4.62	4.00	3.00	
52	Cr	1	45	0.030	ppb	6.90	2.00	2.00	
55	Mn	1	45	0.155	ppb	16.38	2.00	3.00	
56	Fe	1	72	13.340	ppb	12.67	50.00	30.00	
59	Co	1	72	0.030	ppb	10.35	2.00	3.00	
60	Ni	1	72	0.124	ppb	10.26	2.00	3.00	
63	Cu	1	72	0.134	ppb	12.81	2.00	2.00	
66	Zn	1	72	0.940	ppb	6.46	4.00	2.00	
75	As	1	72	0.100	ppb	2.45	2.00	2.00	
78	Se	1	72	0.037	ppb	6.93	0.60	2.00	
88	Sr	2	115	0.246	ppb	11.10	4.00	3.00	
95	Mo	2	115	0.041	ppb	24.74	2.00	2.00	
107	Ag	2	115	0.027	ppb	12.95	0.40	1.00	
111	Cd	2	115	0.040	ppb	14.86	0.40	0.30	
118	Sn	2	115	0.115	ppb	11.40	20.00	3.00	
121	Sb	2	115	0.053	ppb	14.14	2.00	0.80	
137	Ba	2	115	0.156	ppb	20.88	2.00	3.00	
205	Tl	2	209	0.075	ppb	9.98	2.00	0.50	
208	Pb	2	209	0.067	ppb	12.51	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-29.56	80.68	76.78	-38.5	70 - 120	ISFail
45	Sc	1		137721.27	1.69	158070.19	87.1	70 - 120	
45	Sc	2		6727228.50	2.90	6406944.50	105.0	70 - 120	
72	Ge	1		78790.64	1.40	88651.82	88.9	70 - 120	
115	In	2		6702998.00	1.41	7384352.50	90.8	70 - 120	
209	Bi	2		4421361.50	1.52	5202967.00	85.0	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\076__PB.D\076__PB.D#

Date Acquired:	Aug 9 2016 07:14 pm	Sample Name:	**MB-76670**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.135	ppb	4.79	2.0	8.00	
9	Be	2	45	0.000	ppb	10.63	0.4	1.20	
11	B	2	45	1.630	ppb	2.37	10.0	30.00	
23	Na	1	45	-9.599	ppb	0.81	50.0	#####	
24	Mg	1	45	5.911	ppb	1.52	50.0	#####	
27	Al	1	45	7.847	ppb	1.62	50.0	#####	
39	K	1	45	0.314	ppb	2.42	50.0	#####	
44	Ca	2	45	29.540	ppb	4.34	50.0	#####	
47	Ti	1	45	0.256	ppb	47.19	4.0	10.00	
51	V	1	45	0.030	ppb	2.71	4.0	10.00	
52	Cr	1	45	0.117	ppb	8.70	2.0	8.00	
55	Mn	1	45	0.222	ppb	10.57	2.0	8.00	
56	Fe	1	72	9.858	ppb	2.56	50.0	#####	
59	Co	1	72	0.010	ppb	5.80	2.0	8.00	
60	Ni	1	72	0.133	ppb	21.37	2.0	8.00	
63	Cu	1	72	0.111	ppb	7.35	2.0	8.00	
66	Zn	1	72	0.706	ppb	10.79	4.0	10.00	
75	As	1	72	-0.011	ppb	2.35	2.0	4.00	
78	Se	1	72	0.046	ppb	15.23	0.6	2.00	
88	Sr	2	115	0.126	ppb	4.16	4.0	10.00	
95	Mo	2	115	0.014	ppb	21.79	2.0	8.00	
107	Ag	2	115	0.013	ppb	17.39	0.4	0.80	
111	Cd	2	115	0.007	ppb	11.79	0.4	1.20	
118	Sn	2	115	4.402	ppb	2.73	20.0	40.00	
121	Sb	2	115	0.023	ppb	25.01	2.0	4.00	
137	Ba	2	115	0.065	ppb	8.39	2.0	8.00	
205	Tl	2	209	0.032	ppb	8.80	2.0	4.00	
208	Pb	2	209	0.115	ppb	2.72	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-22.73	20.44	76.78	-29.6	70 - 120	ISFail
45	Sc	1		143200.91	1.95	158070.19	90.6	70 - 120	
45	Sc	2		6848870.50	2.36	6406944.50	106.9	70 - 120	
72	Ge	1		79982.34	1.04	88651.82	90.2	70 - 120	
115	In	2		6767579.00	1.97	7384352.50	91.6	70 - 120	
209	Bi	2		4570284.50	1.41	5202967.00	87.8	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\077_LCS.D\077_LCS.D#

Date Acquired:	Aug 9 2016 07:20 pm	Sample Name:	**LCS-76670**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	221.40	ppb	2.03	200.00	80 -	120	110.7	
9	Be	2	45	199.30	ppb	1.42	200.00	80 -	120	99.7	
11	B	2	45	202.10	ppb	1.27	200.00	80 -	120	101.1	
23	Na	1	45	5615.00	ppb	0.92	5000.00	80 -	120	112.3	
24	Mg	1	45	5152.00	ppb	0.83	5000.00	80 -	120	103.0	
27	Al	1	45	972.70	ppb	1.32	1000.00	80 -	120	97.3	
39	K	1	45	5007.00	ppb	1.14	5000.00	80 -	120	100.1	
44	Ca	2	45	5295.00	ppb	1.47	5000.00	80 -	120	105.9	
47	Ti	1	45	199.50	ppb	0.70	200.00	80 -	120	99.8	
51	V	1	45	204.50	ppb	0.47	200.00	80 -	120	102.3	
52	Cr	1	45	209.80	ppb	1.06	200.00	80 -	120	104.9	
55	Mn	1	45	195.80	ppb	1.11	200.00	80 -	120	97.9	
56	Fe	1	72	1034.00	ppb	1.97	1000.00	80 -	120	103.4	
59	Co	1	72	212.30	ppb	0.68	200.00	80 -	120	106.2	
60	Ni	1	72	208.00	ppb	1.08	200.00	80 -	120	104.0	
63	Cu	1	72	213.90	ppb	0.57	200.00	80 -	120	107.0	
66	Zn	1	72	203.10	ppb	1.47	200.00	80 -	120	101.6	
75	As	1	72	198.60	ppb	0.64	200.00	80 -	120	99.3	
78	Se	1	72	183.20	ppb	0.97	200.00	80 -	120	91.6	
88	Sr	2	115	222.90	ppb	1.19	200.00	80 -	120	111.5	
95	Mo	2	115	202.60	ppb	1.53	200.00	80 -	120	101.3	
107	Ag	2	115	204.00	ppb	1.80	200.00	80 -	120	102.0	
111	Cd	2	115	195.00	ppb	1.71	200.00	80 -	120	97.5	
118	Sn	2	115	204.70	ppb	1.86	200.00	80 -	120	102.4	
121	Sb	2	115	187.50	ppb	1.50	200.00	80 -	120	93.8	
137	Ba	2	115	193.90	ppb	1.29	200.00	80 -	120	97.0	
205	Tl	2	209	207.90	ppb	1.34	200.00	80 -	120	104.0	
208	Pb	2	209	203.40	ppb	1.38	200.00	80 -	120	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-87169.82	1.66	76.78	-113537.8	70 -	120	ISFail
45	Sc	1	140007.80	0.83	158070.19	88.6	70 -	120	
45	Sc	2	6666520.50	2.08	6406944.50	104.1	70 -	120	
72	Ge	1	77206.71	0.60	88651.82	87.1	70 -	120	
115	In	2	6454236.50	1.31	7384352.50	87.4	70 -	120	
209	Bi	2	4385847.50	1.19	5202967.00	84.3	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\078_LCS.D\078_LCS.D#

Date Acquired:	Aug 9 2016 07:26 pm	Sample Name:	**LCSD-76670**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	220.50	ppb	1.46	200.00	80 -	120	110.3	
9	Be	2	45	200.70	ppb	1.28	200.00	80 -	120	100.4	
11	B	2	45	201.50	ppb	1.49	200.00	80 -	120	100.8	
23	Na	1	45	5741.00	ppb	1.51	5000.00	80 -	120	114.8	
24	Mg	1	45	5202.00	ppb	0.94	5000.00	80 -	120	104.0	
27	Al	1	45	984.50	ppb	1.02	1000.00	80 -	120	98.5	
39	K	1	45	5069.00	ppb	1.00	5000.00	80 -	120	101.4	
44	Ca	2	45	5307.00	ppb	2.66	5000.00	80 -	120	106.1	
47	Ti	1	45	202.30	ppb	0.48	200.00	80 -	120	101.2	
51	V	1	45	207.90	ppb	1.25	200.00	80 -	120	104.0	
52	Cr	1	45	211.70	ppb	1.68	200.00	80 -	120	105.9	
55	Mn	1	45	198.40	ppb	0.85	200.00	80 -	120	99.2	
56	Fe	1	72	1045.00	ppb	1.30	1000.00	80 -	120	104.5	
59	Co	1	72	213.70	ppb	1.45	200.00	80 -	120	106.9	
60	Ni	1	72	211.10	ppb	0.33	200.00	80 -	120	105.6	
63	Cu	1	72	216.40	ppb	0.68	200.00	80 -	120	108.2	
66	Zn	1	72	208.90	ppb	0.89	200.00	80 -	120	104.5	
75	As	1	72	202.80	ppb	0.60	200.00	80 -	120	101.4	
78	Se	1	72	187.40	ppb	0.41	200.00	80 -	120	93.7	
88	Sr	2	115	222.70	ppb	2.11	200.00	80 -	120	111.4	
95	Mo	2	115	202.70	ppb	1.75	200.00	80 -	120	101.4	
107	Ag	2	115	205.50	ppb	2.59	200.00	80 -	120	102.8	
111	Cd	2	115	197.20	ppb	1.47	200.00	80 -	120	98.6	
118	Sn	2	115	205.50	ppb	1.50	200.00	80 -	120	102.8	
121	Sb	2	115	189.10	ppb	1.45	200.00	80 -	120	94.6	
137	Ba	2	115	194.80	ppb	1.65	200.00	80 -	120	97.4	
205	Tl	2	209	213.30	ppb	1.27	200.00	80 -	120	106.7	
208	Pb	2	209	207.00	ppb	1.57	200.00	80 -	120	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86220.17	1.99	76.78	-112300.9	70 -	120	ISFail
45	Sc	1	136916.80	0.69	158070.19	86.6	70 -	120	
45	Sc	2	6612020.50	2.37	6406944.50	103.2	70 -	120	
72	Ge	1	76088.87	0.26	88651.82	85.8	70 -	120	
115	In	2	6527157.00	1.44	7384352.50	88.4	70 -	120	
209	Bi	2	4370969.50	0.92	5202967.00	84.0	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H09L01.B\081DT1.D\081DT1.D#

Date Acquired:	Aug 9 2016 07:43 pm	Sample Name:	**1607294-09A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.15	ppb	20.58	-34.61	90 - 110	-2.1	
9	Be	2	45	0.03	ppb	44.84	2.70	90 - 110	5.5	
11	B	2	45	2.18	ppb	3.79	98.03	90 - 110	11.1	
23	Na	1	45	-7.80	ppb	2.65	5817.00	90 - 110	-0.7	
24	Mg	1	45	16.23	ppb	12.31	16450.00	90 - 110	0.5	
27	Al	1	45	57.74	ppb	18.62	67350.00	90 - 110	0.4	
39	K	1	45	13.92	ppb	6.37	15480.00	90 - 110	0.4	
44	Ca	2	45	101.70	ppb	38.82	156900.00	90 - 110	0.3	
47	Ti	1	45	0.44	ppb	18.33	296.50	90 - 110	0.8	
51	V	1	45	0.05	ppb	7.92	110.10	90 - 110	0.2	
52	Cr	1	45	0.07	ppb	5.22	62.16	90 - 110	0.6	
55	Mn	1	45	0.65	ppb	17.36	747.40	90 - 110	0.4	
56	Fe	1	72	58.29	ppb	17.00	68480.00	90 - 110	0.4	
59	Co	1	72	0.05	ppb	17.66	30.13	90 - 110	0.8	
60	Ni	1	72	0.13	ppb	16.39	47.02	90 - 110	1.4	
63	Cu	1	72	0.07	ppb	16.22	25.42	90 - 110	1.5	
66	Zn	1	72	0.37	ppb	13.40	211.50	90 - 110	0.9	
75	As	1	72	0.00	ppb	1.35	23.98	90 - 110	0.1	
78	Se	1	72	0.17	ppb	13.95	18.03	90 - 110	4.6	
88	Sr	2	115	0.38	ppb	31.17	488.30	90 - 110	0.4	
95	Mo	2	115	0.04	ppb	23.44	1.55	90 - 110	11.4	
107	Ag	2	115	0.03	ppb	23.57	0.26	90 - 110	51.7	
111	Cd	2	115	0.02	ppb	6.47	1.16	90 - 110	8.8	
118	Sn	2	115	0.01	ppb	11.42	10.09	90 - 110	0.7	
121	Sb	2	115	0.03	ppb	8.19	0.93	90 - 110	18.6	
137	Ba	2	115	0.38	ppb	45.56	564.30	90 - 110	0.3	
205	Tl	2	209	0.06	ppb	15.30	0.72	90 - 110	42.4	
208	Pb	2	209	0.10	ppb	23.92	74.02	90 - 110	0.6	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-34.61	92.60	76.78	-45.1	70 -	120	ISFail
45	Sc	1		141678.73	1.24	158070.19	89.6	70 -	120	
45	Sc	2		6460652.50	2.19	6406944.50	100.8	70 -	120	
72	Ge	1		80440.79	0.68	88651.82	90.7	70 -	120	
115	In	2		6779423.50	1.17	7384352.50	91.8	70 -	120	
209	Bi	2		4605706.50	0.84	5202967.00	88.5	70 -	120	

DNR

PDS QC Report

C:\ICPCHEM\1\DATA\16H09L01.B\091_PDS.D\091_PDS.D#

Date Acquired:	Aug 9 2016 08:42 pm	Sample Name:	**1607294-09A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	281.60	ppb	0.87	-60144.75	200	75-125	######	Fail
9	Be	2	45	183.30	ppb	1.41	2.70	200	75-125	90.3	
11	B	2	45	269.20	ppb	2.41	98.03	200	75-125	85.6	
23	Na	1	45	11160.00	ppb	1.58	5817.00	5000	75-125	106.9	
24	Mg	1	45	21700.00	ppb	1.19	16450.00	5000	75-125	105.0	
27	Al	1	45	72100.00	ppb	2.60	67350.00	5000	75-125	95.0	
39	K	1	45	21180.00	ppb	1.67	15480.00	5000	75-125	114.0	
44	Ca	2	45	162100.00	ppb	3.04	156900.00	5000	75-125	104.0	
47	Ti	1	45	487.00	ppb	1.07	296.50	200	75-125	95.3	
51	V	1	45	315.00	ppb	0.71	110.10	200	75-125	102.5	
52	Cr	1	45	266.90	ppb	0.96	62.16	200	75-125	102.4	
55	Mn	1	45	928.50	ppb	0.47	747.40	200	75-125	90.5	
56	Fe	1	72	73720.00	ppb	0.30	68480.00	5000	75-125	104.8	
59	Co	1	72	231.90	ppb	0.31	30.13	200	75-125	100.9	
60	Ni	1	72	238.20	ppb	1.21	47.02	200	75-125	95.6	
63	Cu	1	72	213.80	ppb	0.07	25.42	200	75-125	94.2	
66	Zn	1	72	387.90	ppb	0.58	211.50	200	75-125	88.2	
75	As	1	72	216.00	ppb	0.49	23.98	200	75-125	96.0	
78	Se	1	72	187.10	ppb	0.71	18.03	200	75-125	84.5	
88	Sr	2	115	704.80	ppb	1.90	488.30	200	75-125	108.3	
95	Mo	2	115	190.80	ppb	2.15	1.55	200	75-125	94.6	
107	Ag	2	115	186.00	ppb	1.87	0.26	200	75-125	92.9	
111	Cd	2	115	179.30	ppb	1.69	1.16	200	75-125	89.1	
118	Sn	2	115	200.60	ppb	2.34	10.09	200	75-125	95.3	
121	Sb	2	115	182.70	ppb	2.21	0.93	200	75-125	90.9	
137	Ba	2	115	782.40	ppb	1.82	564.30	200	75-125	109.1	
205	Tl	2	209	206.50	ppb	1.41	0.72	200	75-125	102.9	
208	Pb	2	209	274.40	ppb	1.69	74.02	200	75-125	100.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-60144.75	4.75	76.78	-78337.9	70 - 120	ISFail
45	Sc	1	130303.23	1.60	158070.19	82.4	70 - 120	
45	Sc	2	6666600.50	2.22	6406944.50	104.1	70 - 120	
72	Ge	1	72058.29	1.01	88651.82	81.3	70 - 120	
115	In	2	6767475.50	1.54	7384352.50	91.6	70 - 120	
209	Bi	2	4189236.50	1.17	5202967.00	80.5	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H09L01.B\092_MS.D\092_MS.D#

Date Acquired:	Aug 9 2016 08:48 pm	Sample Name:	**1607294-09A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	293.50	ppb	0.91	########	200	80-120	######	Fail
9	Be	2	45	188.10	ppb	2.00	2.70	200	80-120	92.7	
11	B	2	45	285.70	ppb	3.79	98.03	200	80-120	93.8	
23	Na	1	45	11000.00	ppb	1.25	5817.00	5000	80-120	103.7	
24	Mg	1	45	22130.00	ppb	0.16	16450.00	5000	80-120	113.6	
27	Al	1	45	72880.00	ppb	0.68	67350.00	1000	80-120	553.0	Fail
39	K	1	45	21810.00	ppb	1.22	15480.00	5000	80-120	126.6	Fail
44	Ca	2	45	168400.00	ppb	2.15	########	5000	80-120	230.0	Fail
47	Ti	1	45	638.30	ppb	1.12	296.50	200	80-120	170.9	Fail
51	V	1	45	324.50	ppb	0.88	110.10	200	80-120	107.2	
52	Cr	1	45	269.20	ppb	0.89	62.16	200	80-120	103.5	
55	Mn	1	45	1059.00	ppb	0.65	747.40	200	80-120	155.8	Fail
56	Fe	1	72	70260.00	ppb	0.35	68480.00	1000	80-120	178.0	Fail
59	Co	1	72	241.10	ppb	0.45	30.13	200	80-120	105.5	
60	Ni	1	72	249.40	ppb	0.21	47.02	200	80-120	101.2	
63	Cu	1	72	226.60	ppb	0.47	25.42	200	80-120	100.6	
66	Zn	1	72	405.90	ppb	0.67	211.50	200	80-120	97.2	
75	As	1	72	220.80	ppb	0.44	23.98	200	80-120	98.4	
78	Se	1	72	195.40	ppb	1.20	18.03	200	80-120	88.7	
88	Sr	2	115	749.30	ppb	1.69	488.30	200	80-120	130.5	Fail
95	Mo	2	115	185.10	ppb	2.27	1.55	200	80-120	91.8	
107	Ag	2	115	186.50	ppb	2.80	0.26	200	80-120	93.1	
111	Cd	2	115	187.10	ppb	2.36	1.16	200	80-120	93.0	
118	Sn	2	115	202.20	ppb	1.68	10.09	200	80-120	96.1	
121	Sb	2	115	46.15	ppb	1.75	0.93	200	80-120	22.6	Fail
137	Ba	2	115	829.10	ppb	2.06	564.30	200	80-120	132.4	Fail
205	Tl	2	209	216.90	ppb	1.73	0.72	200	80-120	108.1	
208	Pb	2	209	300.50	ppb	1.40	74.02	200	80-120	113.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-96166.32	1.65	76.78	########	70	-	120	ISFail
45	Sc	1	133398.33	0.59	158070.19	84.4	70	-	120	
45	Sc	2	6648759.50	2.33	6406944.50	103.8	70	-	120	
72	Ge	1	72365.63	0.63	88651.82	81.6	70	-	120	
115	In	2	6645600.50	1.02	7384352.50	90.0	70	-	120	
209	Bi	2	4186525.00	1.21	5202967.00	80.5	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H09L01.B\093_MS.D\093_MS.D#

Date Acquired:	Aug 9 2016 08:53 pm	Sample Name:	**1607294-09A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	284.20	ppb	1.83	########	200	80-120	######	Fail
9	Be	2	45	182.10	ppb	2.21	2.70	200	80-120	89.7	
11	B	2	45	279.50	ppb	1.54	98.03	200	80-120	90.7	
23	Na	1	45	10760.00	ppb	0.99	5817.00	5000	80-120	98.9	
24	Mg	1	45	21740.00	ppb	1.28	16450.00	5000	80-120	105.8	
27	Al	1	45	71820.00	ppb	1.37	67350.00	1000	80-120	447.0	Fail
39	K	1	45	21540.00	ppb	1.25	15480.00	5000	80-120	121.2	Fail
44	Ca	2	45	168300.00	ppb	2.73	########	5000	80-120	228.0	Fail
47	Ti	1	45	609.20	ppb	0.53	296.50	200	80-120	156.4	Fail
51	V	1	45	314.30	ppb	1.15	110.10	200	80-120	102.1	
52	Cr	1	45	264.00	ppb	0.75	62.16	200	80-120	100.9	
55	Mn	1	45	942.50	ppb	1.53	747.40	200	80-120	97.5	
56	Fe	1	72	66070.00	ppb	1.72	68480.00	1000	80-120	-241.0	Fail
59	Co	1	72	231.50	ppb	0.95	30.13	200	80-120	100.7	
60	Ni	1	72	241.00	ppb	0.25	47.02	200	80-120	97.0	
63	Cu	1	72	221.50	ppb	0.71	25.42	200	80-120	98.0	
66	Zn	1	72	390.20	ppb	1.20	211.50	200	80-120	89.4	
75	As	1	72	213.80	ppb	0.51	23.98	200	80-120	94.9	
78	Se	1	72	188.30	ppb	0.64	18.03	200	80-120	85.1	
88	Sr	2	115	722.90	ppb	1.97	488.30	200	80-120	117.3	
95	Mo	2	115	179.20	ppb	1.72	1.55	200	80-120	88.8	
107	Ag	2	115	177.80	ppb	1.87	0.26	200	80-120	88.8	
111	Cd	2	115	180.20	ppb	1.33	1.16	200	80-120	89.5	
118	Sn	2	115	196.00	ppb	1.88	10.09	200	80-120	93.0	
121	Sb	2	115	45.57	ppb	1.61	0.93	200	80-120	22.3	Fail
137	Ba	2	115	852.50	ppb	1.88	564.30	200	80-120	144.1	Fail
205	Tl	2	209	209.50	ppb	1.11	0.72	200	80-120	104.4	
208	Pb	2	209	454.40	ppb	1.24	74.02	200	80-120	190.2	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-94329.23	1.45	76.78	########	70 - 120	ISFail
45	Sc	1	130675.60	0.34	158070.19	82.7	70 - 120	
45	Sc	2	6581726.50	2.94	6406944.50	102.7	70 - 120	
72	Ge	1	70949.48	0.66	88651.82	80.0	70 - 120	
115	In	2	6730487.50	1.72	7384352.50	91.1	70 - 120	
209	Bi	2	4207172.00	1.08	5202967.00	80.9	70 - 120	

DNR

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\094CCV1.D\094CCV1.D#

Date Acquired:	Aug 9 2016 08:59 pm	Sample Name:	**CCV4-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	209.50	ppb	1.55	200.00	90 -	110	104.8	
9	Be	2	45	193.10	ppb	2.57	200.00	90 -	110	96.6	
11	B	2	45	187.00	ppb	3.30	200.00	90 -	110	93.5	
23	Na	1	45	5600.00	ppb	0.55	5000.00	90 -	110	112.0	Fail
24	Mg	1	45	5063.00	ppb	1.03	5000.00	90 -	110	101.3	
27	Al	1	45	4733.00	ppb	1.81	5000.00	90 -	110	94.7	
39	K	1	45	5068.00	ppb	1.13	5000.00	90 -	110	101.4	
44	Ca	2	45	5365.00	ppb	3.51	5000.00	90 -	110	107.3	
47	Ti	1	45	196.10	ppb	1.05	200.00	90 -	110	98.1	
51	V	1	45	204.80	ppb	1.11	200.00	90 -	110	102.4	
52	Cr	1	45	206.60	ppb	0.92	200.00	90 -	110	103.3	
55	Mn	1	45	195.10	ppb	0.66	200.00	90 -	110	97.6	
56	Fe	1	72	4947.00	ppb	1.35	5000.00	90 -	110	98.9	
59	Co	1	72	209.00	ppb	0.43	200.00	90 -	110	104.5	
60	Ni	1	72	204.20	ppb	0.47	200.00	90 -	110	102.1	
63	Cu	1	72	211.40	ppb	1.14	200.00	90 -	110	105.7	
66	Zn	1	72	203.30	ppb	0.62	200.00	90 -	110	101.7	
75	As	1	72	206.20	ppb	0.86	200.00	90 -	110	103.1	
78	Se	1	72	194.40	ppb	1.41	200.00	90 -	110	97.2	
88	Sr	2	115	216.80	ppb	0.95	200.00	90 -	110	108.4	
95	Mo	2	115	197.60	ppb	1.81	200.00	90 -	110	98.8	
107	Ag	2	115	203.50	ppb	1.84	200.00	90 -	110	101.8	
111	Cd	2	115	195.70	ppb	1.46	200.00	90 -	110	97.9	
118	Sn	2	115	193.70	ppb	1.41	200.00	90 -	110	96.9	
121	Sb	2	115	189.60	ppb	1.65	200.00	90 -	110	94.8	
137	Ba	2	115	190.90	ppb	1.88	200.00	90 -	110	95.5	
205	Tl	2	209	206.80	ppb	1.20	200.00	90 -	110	103.4	
208	Pb	2	209	200.60	ppb	1.52	200.00	90 -	110	100.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-84012.20	0.67	76.78	-109425.1	70 -	120		ISFail
45	Sc	1	134205.97	0.54	158070.19	84.9	70 -	120		
45	Sc	2	6794064.50	3.56	6406944.50	106.0	70 -	120		
72	Ge	1	75598.17	0.94	88651.82	85.3	70 -	120		
115	In	2	6790568.50	1.63	7384352.50	92.0	70 -	120		
209	Bi	2	4481101.00	1.74	5202967.00	86.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\096LCVL.D\096LCVL.D#

Date Acquired:	Aug 9 2016 09:11 pm	Sample Name:	**LCVL4-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.88	ppb	2.52	10.00	70 -	130	108.8	
9	Be	2	45	1.07	ppb	5.72	1.00	70 -	130	106.9	
11	B	2	45	21.48	ppb	5.33	20.00	70 -	130	107.4	
23	Na	1	45	93.03	ppb	0.29	100.00	70 -	130	93.0	
24	Mg	1	45	109.10	ppb	2.01	100.00	70 -	130	109.1	
27	Al	1	45	106.40	ppb	0.83	100.00	70 -	130	106.4	
39	K	1	45	105.50	ppb	2.13	100.00	70 -	130	105.5	
44	Ca	2	45	124.80	ppb	7.76	100.00	70 -	130	124.8	
47	Ti	1	45	5.14	ppb	16.83	5.00	70 -	130	102.8	
51	V	1	45	1.16	ppb	4.56	1.00	70 -	130	116.3	
52	Cr	1	45	5.33	ppb	1.21	5.00	70 -	130	106.7	
55	Mn	1	45	5.14	ppb	3.57	5.00	70 -	130	102.9	
56	Fe	1	72	115.80	ppb	1.62	100.00	70 -	130	115.8	
59	Co	1	72	5.34	ppb	0.80	5.00	70 -	130	106.9	
60	Ni	1	72	5.47	ppb	1.55	5.00	70 -	130	109.4	
63	Cu	1	72	5.45	ppb	1.06	5.00	70 -	130	109.0	
66	Zn	1	72	5.63	ppb	5.87	5.00	70 -	130	112.7	
75	As	1	72	5.29	ppb	1.99	5.00	70 -	130	105.7	
78	Se	1	72	5.54	ppb	0.74	5.00	70 -	130	110.9	
88	Sr	2	115	5.53	ppb	2.74	5.00	70 -	130	110.5	
95	Mo	2	115	4.89	ppb	3.25	5.00	70 -	130	97.9	
107	Ag	2	115	2.10	ppb	1.10	2.00	70 -	130	105.2	
111	Cd	2	115	1.02	ppb	3.86	1.00	70 -	130	101.7	
118	Sn	2	115	5.06	ppb	1.53	5.00	70 -	130	101.1	
121	Sb	2	115	2.06	ppb	4.57	2.00	70 -	130	103.1	
137	Ba	2	115	5.03	ppb	3.79	5.00	70 -	130	100.6	
205	Tl	2	209	1.15	ppb	4.85	1.00	70 -	130	115.4	
208	Pb	2	209	1.13	ppb	4.13	1.00	70 -	130	113.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2643.87	3.77	76.78	-3443.6	70 -	120	ISFail
45	Sc	1	136760.95	0.14	158070.19	86.5	70 -	120	
45	Sc	2	6665684.50	2.24	6406944.50	104.0	70 -	120	
72	Ge	1	77673.18	0.98	88651.82	87.6	70 -	120	
115	In	2	6750975.50	1.55	7384352.50	91.4	70 -	120	
209	Bi	2	4606933.00	1.90	5202967.00	88.5	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\097_CCB.D\097_CCB.D#

Date Acquired:	Aug 9 2016 09:17 pm	Sample Name:	**CCB4-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.190	ppb	2.41	2.00	2.00	
9	Be	2	45	0.017	ppb	11.47	0.40	0.30	
11	B	2	45	3.253	ppb	0.60	10.00	10.00	
23	Na	1	45	-10.410	ppb	0.42	50.00	#####	
24	Mg	1	45	3.111	ppb	6.42	50.00	#####	
27	Al	1	45	14.840	ppb	8.12	50.00	10.00	FailAq
39	K	1	45	1.543	ppb	1.11	50.00	#####	
44	Ca	2	45	18.570	ppb	2.72	50.00	#####	
47	Ti	1	45	0.147	ppb	17.32	4.00	3.00	
51	V	1	45	0.030	ppb	13.04	4.00	3.00	
52	Cr	1	45	0.022	ppb	10.96	2.00	2.00	
55	Mn	1	45	0.155	ppb	4.58	2.00	3.00	
56	Fe	1	72	6.839	ppb	9.06	50.00	30.00	
59	Co	1	72	0.036	ppb	18.85	2.00	3.00	
60	Ni	1	72	0.117	ppb	14.01	2.00	3.00	
63	Cu	1	72	0.095	ppb	10.13	2.00	2.00	
66	Zn	1	72	0.933	ppb	8.11	4.00	2.00	
75	As	1	72	0.014	ppb	4.46	2.00	2.00	
78	Se	1	72	0.008	ppb	13.53	0.60	2.00	
88	Sr	2	115	0.180	ppb	6.12	4.00	3.00	
95	Mo	2	115	0.053	ppb	17.21	2.00	2.00	
107	Ag	2	115	0.024	ppb	19.65	0.40	1.00	
111	Cd	2	115	0.010	ppb	25.66	0.40	0.30	
118	Sn	2	115	0.098	ppb	1.33	20.00	3.00	
121	Sb	2	115	0.051	ppb	19.79	2.00	0.80	
137	Ba	2	115	0.113	ppb	3.09	2.00	3.00	
205	Tl	2	209	0.115	ppb	5.42	2.00	0.50	
208	Pb	2	209	0.050	ppb	4.79	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-18.62	168.94	76.78	-24.2	70 - 120	ISFail
45	Sc	1		133091.48	1.83	158070.19	84.2	70 - 120	
45	Sc	2		6502979.50	2.58	6406944.50	101.5	70 - 120	
72	Ge	1		74982.13	0.95	88651.82	84.6	70 - 120	
115	In	2		6606404.50	1.23	7384352.50	89.5	70 - 120	
209	Bi	2		4579118.50	1.16	5202967.00	88.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\098CCV1.D\098CCV1.D#

Date Acquired:	Aug 9 2016 09:23 pm	Sample Name:	**CCV4-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	203.00	ppb	1.62	200.00	90 -	110	101.5	
9	Be	2	45	191.40	ppb	2.34	200.00	90 -	110	95.7	
11	B	2	45	183.70	ppb	2.31	200.00	90 -	110	91.9	
23	Na	1	45	5593.00	ppb	2.17	5000.00	90 -	110	111.9	Fail
24	Mg	1	45	5089.00	ppb	1.80	5000.00	90 -	110	101.8	
27	Al	1	45	4818.00	ppb	2.41	5000.00	90 -	110	96.4	
39	K	1	45	5151.00	ppb	1.83	5000.00	90 -	110	103.0	
44	Ca	2	45	5302.00	ppb	2.46	5000.00	90 -	110	106.0	
47	Ti	1	45	194.50	ppb	3.42	200.00	90 -	110	97.3	
51	V	1	45	200.80	ppb	1.31	200.00	90 -	110	100.4	
52	Cr	1	45	202.60	ppb	1.46	200.00	90 -	110	101.3	
55	Mn	1	45	193.80	ppb	1.24	200.00	90 -	110	96.9	
56	Fe	1	72	4918.00	ppb	1.07	5000.00	90 -	110	98.4	
59	Co	1	72	206.30	ppb	1.17	200.00	90 -	110	103.2	
60	Ni	1	72	201.20	ppb	1.74	200.00	90 -	110	100.6	
63	Cu	1	72	208.50	ppb	0.56	200.00	90 -	110	104.3	
66	Zn	1	72	203.80	ppb	1.17	200.00	90 -	110	101.9	
75	As	1	72	205.90	ppb	1.27	200.00	90 -	110	103.0	
78	Se	1	72	199.30	ppb	1.87	200.00	90 -	110	99.7	
88	Sr	2	115	214.30	ppb	1.28	200.00	90 -	110	107.2	
95	Mo	2	115	195.80	ppb	2.16	200.00	90 -	110	97.9	
107	Ag	2	115	205.50	ppb	1.43	200.00	90 -	110	102.8	
111	Cd	2	115	195.20	ppb	1.70	200.00	90 -	110	97.6	
118	Sn	2	115	194.80	ppb	1.61	200.00	90 -	110	97.4	
121	Sb	2	115	189.90	ppb	1.71	200.00	90 -	110	95.0	
137	Ba	2	115	190.80	ppb	1.76	200.00	90 -	110	95.4	
205	Tl	2	209	207.90	ppb	1.22	200.00	90 -	110	104.0	
208	Pb	2	209	201.10	ppb	1.95	200.00	90 -	110	100.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-79270.49	2.26	76.78	-103249.0	70 -	120		ISFail
45	Sc	1	134083.23	1.99	158070.19	84.8	70 -	120		
45	Sc	2	6465616.50	1.84	6406944.50	100.9	70 -	120		
72	Ge	1	74154.96	0.67	88651.82	83.6	70 -	120		
115	In	2	6458623.00	1.79	7384352.50	87.5	70 -	120		
209	Bi	2	4453791.50	1.44	5202967.00	85.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\110CCV1.D\110CCV1.D#

Date Acquired:	Aug 9 2016 10:34 pm	Sample Name:	**CCV5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	199.60	ppb	1.70	200.00	90 -	110	99.8	
9	Be	2	45	187.90	ppb	1.75	200.00	90 -	110	94.0	
11	B	2	45	183.10	ppb	2.34	200.00	90 -	110	91.6	
23	Na	1	45	5664.00	ppb	1.50	5000.00	90 -	110	113.3	Fail
24	Mg	1	45	5213.00	ppb	0.36	5000.00	90 -	110	104.3	
27	Al	1	45	4926.00	ppb	0.82	5000.00	90 -	110	98.5	
39	K	1	45	5156.00	ppb	0.14	5000.00	90 -	110	103.1	
44	Ca	2	45	5435.00	ppb	2.25	5000.00	90 -	110	108.7	
47	Ti	1	45	196.60	ppb	1.35	200.00	90 -	110	98.3	
51	V	1	45	205.10	ppb	0.86	200.00	90 -	110	102.6	
52	Cr	1	45	207.80	ppb	1.07	200.00	90 -	110	103.9	
55	Mn	1	45	197.10	ppb	0.56	200.00	90 -	110	98.6	
56	Fe	1	72	5067.00	ppb	0.66	5000.00	90 -	110	101.3	
59	Co	1	72	213.10	ppb	0.57	200.00	90 -	110	106.6	
60	Ni	1	72	210.30	ppb	0.93	200.00	90 -	110	105.2	
63	Cu	1	72	215.20	ppb	0.34	200.00	90 -	110	107.6	
66	Zn	1	72	206.50	ppb	0.33	200.00	90 -	110	103.3	
75	As	1	72	209.00	ppb	0.28	200.00	90 -	110	104.5	
78	Se	1	72	199.60	ppb	0.92	200.00	90 -	110	99.8	
88	Sr	2	115	217.20	ppb	1.12	200.00	90 -	110	108.6	
95	Mo	2	115	195.80	ppb	1.76	200.00	90 -	110	97.9	
107	Ag	2	115	201.30	ppb	3.08	200.00	90 -	110	100.7	
111	Cd	2	115	197.50	ppb	0.70	200.00	90 -	110	98.8	
118	Sn	2	115	196.10	ppb	1.09	200.00	90 -	110	98.1	
121	Sb	2	115	190.60	ppb	1.19	200.00	90 -	110	95.3	
137	Ba	2	115	191.80	ppb	1.26	200.00	90 -	110	95.9	
205	Tl	2	209	208.60	ppb	1.56	200.00	90 -	110	104.3	
208	Pb	2	209	203.40	ppb	1.51	200.00	90 -	110	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-75664.59	3.31	76.78	-98552.4	70 -	120		ISFail
45	Sc	1	124785.66	0.45	158070.19	78.9	70 -	120		
45	Sc	2	6302517.50	2.28	6406944.50	98.4	70 -	120		
72	Ge	1	68975.04	0.29	88651.82	77.8	70 -	120		
115	In	2	6306791.00	1.45	7384352.50	85.4	70 -	120		
209	Bi	2	4367557.00	1.66	5202967.00	83.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\112LCVL.D\112LCVL.D#

Date Acquired:	Aug 9 2016 10:45 pm	Sample Name:	**LCVL5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.98	ppb	1.41	10.00	70 -	130	99.8	
9	Be	2	45	0.98	ppb	5.81	1.00	70 -	130	97.8	
11	B	2	45	19.45	ppb	2.92	20.00	70 -	130	97.3	
23	Na	1	45	84.87	ppb	0.87	100.00	70 -	130	84.9	
24	Mg	1	45	105.80	ppb	2.40	100.00	70 -	130	105.8	
27	Al	1	45	107.10	ppb	2.86	100.00	70 -	130	107.1	
39	K	1	45	104.40	ppb	1.08	100.00	70 -	130	104.4	
44	Ca	2	45	104.20	ppb	5.11	100.00	70 -	130	104.2	
47	Ti	1	45	5.37	ppb	10.81	5.00	70 -	130	107.4	
51	V	1	45	1.18	ppb	3.25	1.00	70 -	130	118.0	
52	Cr	1	45	5.30	ppb	1.79	5.00	70 -	130	106.0	
55	Mn	1	45	5.07	ppb	3.86	5.00	70 -	130	101.5	
56	Fe	1	72	112.20	ppb	1.84	100.00	70 -	130	112.2	
59	Co	1	72	5.31	ppb	1.44	5.00	70 -	130	106.3	
60	Ni	1	72	5.38	ppb	1.03	5.00	70 -	130	107.6	
63	Cu	1	72	5.42	ppb	1.93	5.00	70 -	130	108.4	
66	Zn	1	72	5.16	ppb	2.52	5.00	70 -	130	103.2	
75	As	1	72	5.39	ppb	0.72	5.00	70 -	130	107.7	
78	Se	1	72	5.61	ppb	6.00	5.00	70 -	130	112.3	
88	Sr	2	115	5.30	ppb	3.19	5.00	70 -	130	106.0	
95	Mo	2	115	4.85	ppb	3.25	5.00	70 -	130	97.1	
107	Ag	2	115	2.06	ppb	3.77	2.00	70 -	130	102.9	
111	Cd	2	115	0.99	ppb	10.34	1.00	70 -	130	98.7	
118	Sn	2	115	5.09	ppb	3.09	5.00	70 -	130	101.9	
121	Sb	2	115	1.94	ppb	3.14	2.00	70 -	130	96.8	
137	Ba	2	115	4.99	ppb	1.12	5.00	70 -	130	99.8	
205	Tl	2	209	1.11	ppb	2.10	1.00	70 -	130	111.2	
208	Pb	2	209	1.07	ppb	1.69	1.00	70 -	130	106.9	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2404.03	9.12	76.78	-3131.2	70 -	120	ISFail
45	Sc	1		128353.91	1.92	158070.19	81.2	70 -	120	
45	Sc	2		6258815.50	2.46	6406944.50	97.7	70 -	120	
72	Ge	1		71743.65	1.57	88651.82	80.9	70 -	120	
115	In	2		6551750.50	1.40	7384352.50	88.7	70 -	120	
209	Bi	2		4522111.00	0.97	5202967.00	86.9	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\113_CCB.D\113_CCB.D#

Date Acquired:	Aug 9 2016 10:51 pm	Sample Name:	**CCB5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.149	ppb	3.32	2.00	2.00	
9	Be	2	45	0.022	ppb	25.44	0.40	0.30	
11	B	2	45	1.737	ppb	3.08	10.00	10.00	
23	Na	1	45	-17.590	ppb	1.87	50.00	#####	
24	Mg	1	45	2.279	ppb	10.45	50.00	#####	
27	Al	1	45	13.230	ppb	7.09	50.00	10.00	FailAq
39	K	1	45	4.012	ppb	5.52	50.00	#####	
44	Ca	2	45	18.890	ppb	4.87	50.00	#####	
47	Ti	1	45	0.106	ppb	21.65	4.00	3.00	
51	V	1	45	0.021	ppb	11.72	4.00	3.00	
52	Cr	1	45	-0.001	ppb	13.25	2.00	2.00	
55	Mn	1	45	0.126	ppb	16.10	2.00	3.00	
56	Fe	1	72	4.464	ppb	16.01	50.00	30.00	
59	Co	1	72	0.028	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.123	ppb	8.50	2.00	3.00	
63	Cu	1	72	0.069	ppb	13.63	2.00	2.00	
66	Zn	1	72	1.030	ppb	10.51	4.00	2.00	
75	As	1	72	0.068	ppb	3.47	2.00	2.00	
78	Se	1	72	0.168	ppb	15.60	0.60	2.00	
88	Sr	2	115	0.179	ppb	2.97	4.00	3.00	
95	Mo	2	115	0.045	ppb	7.02	2.00	2.00	
107	Ag	2	115	0.031	ppb	8.69	0.40	1.00	
111	Cd	2	115	0.020	ppb	14.59	0.40	0.30	
118	Sn	2	115	0.081	ppb	10.28	20.00	3.00	
121	Sb	2	115	0.036	ppb	14.80	2.00	0.80	
137	Ba	2	115	0.140	ppb	6.72	2.00	3.00	
205	Tl	2	209	0.062	ppb	3.96	2.00	0.50	
208	Pb	2	209	0.037	ppb	7.76	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-49.93	23.51	76.78	-65.0	70 - 120	ISFail
45	Sc	1		130748.68	1.01	158070.19	82.7	70 - 120	
45	Sc	2		6263012.50	1.31	6406944.50	97.8	70 - 120	
72	Ge	1		72650.02	0.98	88651.82	81.9	70 - 120	
115	In	2		6516653.50	0.83	7384352.50	88.2	70 - 120	
209	Bi	2		4580867.00	0.91	5202967.00	88.0	70 - 120	

ICP-MS3_160809B
For

DHL Work Order
1607256

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160809B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		x		
Post Digestion Spike (PDS)	Every Batch	75-125/80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	x			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	x			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		x			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cara Van Dyke Date of Completion: 08/10/2016

Second-Level Review: Janice Whitt Date Stamp: 8/10/2016

REVIEWED BY
By Janice Whitt at 2:34:49 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160809B** **Run No.:** 87530

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:19:00 PM		
L2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:25:00 PM		
L-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:31:00 PM		
10X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:37:00 PM		
5X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:43:00 PM		
2X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:49:00 PM		
H-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:55:00 PM		
H2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 1:01:00 PM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/9/2016 1:18:00 PM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/9/2016 1:24:00 PM		
ICV1-160809	1	ICPMS_TWDOD	ICV	R87530	8/9/2016 1:42:00 PM		
ICB1-160809	1	ICPMS_TWDOD	ICB	R87530	8/9/2016 1:48:00 PM		
ILCVL-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 1:54:00 PM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87530	8/9/2016 10:34:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 10:45:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87530	8/9/2016 10:51:00 PM		
MB-76687	1	ICPMS_TWDOD	MBLK	76687	8/9/2016 10:57:00 PM		
LCS-76687	1	ICPMS_TWDOD	LCS	76687	8/9/2016 11:03:00 PM		
LCSD-76687	1	ICPMS_TWDOD	LCSD	76687	8/9/2016 11:09:00 PM		
1607337-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:21:00 PM		
1607337-26A SD	5	ICPMS_TWDOD	SD	76687	8/9/2016 11:27:00 PM		DNR. Sample was misprepared at bench and sample was not detected. As per DOD QSM 5.0, criteria doesn't apply for samples with concentration <50x the LOQ, therefore no effect to data. PDS passes.
1607219-13A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:33:00 PM		
1607219-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:39:00 PM		
1607239-16A	1	ICPMS_TWDOD	SAMP	766a87	8/9/2016 11:45:00 PM		
1607239-32A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:51:00 PM		
1607256-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:03:00 AM		
1607256-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:09:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160809B **Run No.:** 87530

1607256-27A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:15:00 AM		
1607265-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:21:00 AM		
1607265-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:28:00 AM		
1607337-26A PDS	1	ICPMS_TWDOD	PDS	76687	8/10/2016 12:34:00 AM		
CCV6-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 12:40:00 AM		
LCVL6-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 12:52:00 AM		
CCB6-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 12:58:00 AM		
1607294-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:04:00 AM		
1607294-24A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:10:00 AM		
1607294-37A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:16:00 AM		
1607294-50A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:22:00 AM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/10/2016 1:28:00 AM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/10/2016 1:34:00 AM		
1607294-63A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:52:00 AM		
1607294-76A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:04:00 AM		
1607314-07A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:10:00 AM		
1607317-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:16:00 AM		
1607317-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:22:00 AM		
1607337-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:28:00 AM		
CCV7-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 2:34:00 AM		
LCVL7-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 2:46:00 AM		
CCB7-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 2:52:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160809	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160809	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160809	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160809	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160809	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160809	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160809	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160809	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160809	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160809	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160809	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160809	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76663	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76663	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76663	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607256-28A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607256-28A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607256-31A	SAMPICPMS_TSDOD1	5.000	Level 1			
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607256-32A	SAMPICPMS_TSDOD1	5.000	Level 1			
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607256-33A	SAMPICPMS_TSDOD1	5.000	Level 1			
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607256-34A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607256-35A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607256-36A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607256-37A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607256-38A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607256-39A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607256-28A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607256-28A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607256-28A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160809	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160809	LCVLICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160809	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2306		1607256-40A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2307		1607256-41A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2308		1607256-42A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2309		1607265-01A	SAMPICPMS_TSDOD1	50.00				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2310		1607265-02A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2311		1607265-03A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2312		1607265-04A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607265-05A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607265-06A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607265-07A	SAMPICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160809	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160809	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160809	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160809	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2501		1606256-18A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607256-19A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607256-20A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607256-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607256-22A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607256-23A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607256-24A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607256-25A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607256-29A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2510		1607256-30A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160809	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160809	LCVLICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76670	MBLKICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76670	LCS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76670	LCSDICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607294-09A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607294-09A SD	SD ICPMS_TSDOD1	25.00				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-04A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-05A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-06A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-07A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-08A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-10A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-11A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607294-12A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607294-14A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160809	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160809	LCVLICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160809	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607294-15A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607294-16A	SAMPICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607294-17A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607294-18A	SAMPICPMS_TSDOD1	50.00				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607294-19A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607294-20A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607294-21A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607294-22A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607294-23A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607294-25A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160809	CCV ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160809	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3401		MB-76663	MBLKICPMS_TWDOD1	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3402		LCS-76663	LCS ICPMS_TWDOD1	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3403		LCSD-766487	LCSDICPMS_TWDOD1	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607337-26A	SAMPICPMS_TWDOD1	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607337-26A SD	SD ICPMS_TWDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1607219-13A	SAMPICPMS_TWDOD1	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1607219-26A	SAMPICPMS_TWDOD1	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3408		1607239-16A	SAMPICPMS_TWDOD1	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3409		1607239-32A	SAMPICPMS_TWDOD1	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3410		1607256-13A	SAMPICPMS_TWDOD1	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3411		1607256-26A	SAMPICPMS_TWDOD1	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3412		1607256-27A	SAMPICPMS_TWDOD1	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3501		1607265-13A	SAMPICPMS_TWDOD1	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3502		1607265-26A	SAMPICPMS_TWDOD1	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607337-26A PDS	PDS ICPMS_TWDOD1	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160809	CCV ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160809	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160809	LCVLICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160809	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3504		1607294-13A	SAMPICPMS_TWDOD1	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3505		1607294-24A	SAMPICPMS_TWDOD1	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3506		1607294-37A	SAMPICPMS_TWDOD1	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3507		1607294-50A	SAMPICPMS_TWDOD1	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3508		1607294-63A	SAMPICPMS_TWDOD1	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3509		1607294-76A	SAMPICPMS_TWDOD1	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3510		1607314-07A	SAMPICPMS_TWDOD1	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3511		1607317-13A	SAMPICPMS_TWDOD1	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3512		1607317-26A	SAMPICPMS_TWDOD1	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3312		1607337-13A	SAMPICPMS_TWDOD1	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160809	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160809	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
163		Keyword		StandBy							
164		Keyword		SMPLEND	End of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
165		Keyword		End	End of Sequence						
166		Keyword		CCVBEG	Start of CCV						
167		Keyword		CCVEND	End of CCV						
168		Keyword		BLKBEG	Start of BLANK						
169		Keyword		BLKEND	End of BLANK						
170		Keyword		ERRBEG	Start of ERRTERM						
171		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion:
Prep End Date:

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

- Hot Block #6
- Thermometer #71
- Pipette #P-09-Spikes
- Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
wait til more project EQ BLANKS arrive to start this batch.							
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	Samp Type	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

~~10:53~~ CHO 8-5-16

12:32 - 18:16

REVIEWED BY
By Janice Whitt at 2:24:16 PM, 8/10/2016

8/5/18

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/05/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0031	5.0131	100.26	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9858	4.9958	99.92		
3		4.9726	4.9826	99.65		
AVERAGE (MEAN)		4.987	4.997	99.94		0.307
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2014	0.2018	100.90	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2021	0.2025	101.25		
3		0.2021	0.2025	101.25		
AVERAGE (MEAN)		0.202	0.202	101.14		0.200
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

8/5/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:24 PM, 8/10/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion: **Start: 8/5/2016 12:32:00 PM / Stop: 8/5/2016 6:16:00 PM**
Prep End Date: **8/5/2016 6:34:00 PM**

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #6
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch.						
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
1607337-26A PDS	Aqueous		50	50	1.000	of	
1607337-26A SD	Aqueous		50	50	1.000	of	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

REVIEWED BY
By Janice Whitt at 2:24:21 PM, 8/10/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**4.00**	3.9957	3.9877	**99.69**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.0006	3.9926	**99.81**		
3		4.0002	3.9922	**99.80**		
AVERAGE (MEAN)		**3.999**	**3.991**	**99.77**		**0.068**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**1.00**	0.9962	0.9942	**99.42**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.9969	0.9949	**99.49**		
3		0.9970	0.9950	**99.50**		
AVERAGE (MEAN)		**0.997**	**0.995**	**99.47**		**0.044**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.500**	0.5031	0.5021	**100.42**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.5007	0.4997	**99.94**		
3		0.5000	0.4990	**99.80**		
AVERAGE (MEAN)		**0.501**	**0.500**	**100.05**		**0.324**
						PASS

8/9/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:29 PM, 8/10/2016

Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 09 2016 01:04 pm
Cal Type: Y=aX+[blank]

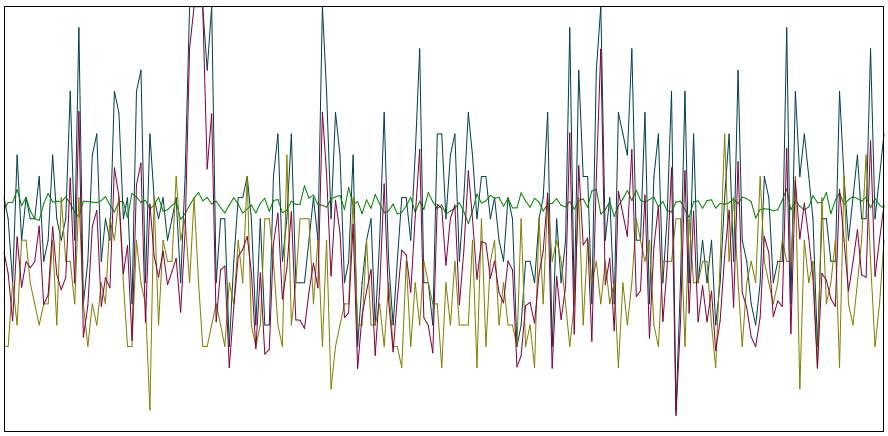
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
5X-160809	Aug 9 2016 12:43 pm	c:\icpchem\1\data\16h09l01.b\010cals.d\
2X-160809	Aug 9 2016 12:49 pm	c:\icpchem\1\data\16h09l01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.268	0.01985	0.99	249	499		2000	
Be	1.0000	0.08936	0.002333	0.99	249	500	100%	--------	######
B	1.0000	0.07365	0.1211	0.95	253	515	103%	1,996	100%
Na	0.9998	0.3335	28.74	19.01	5,319	10,360	104%	24,790	99%
Mg	0.9997	0.1475	0.5455	20.73	5,030	10,510	105%	24,790	99%
Al	1.0000	0.03438	0.4037	18.43	5,019	9,994	100%	--------	######
K	0.9999	0.07325	5.923	20.58	4,926	9,747	97%	25,120	100%
Ca	1.0000	0.008733	0.4669	16.00	5,206	10,090	101%	24,920	100%
Ti	1.0000	0.03017	0.002252	1.06	246	490	98%	2,003	100%
V	1.0000	1.245	0.2631	0.98	248	493	99%	2,002	100%
Cr	1.0000	1.669	0.2947	1.03	253	502	100%	1,999	100%
Mn	1.0000	0.6497	0.07648	1.05	248	488	98%	2,003	100%
Fe	1.0000	2.273	16.06	21.37	4,997	9,989	100%	--------	######
Co	0.9999	5.267	0.1233	1.02	258	530	106%	1,991	100%
Ni	1.0000	1.567	0.1314	1.05	254	500	100%	1,999	100%
Cu	0.9999	4.208	0.5701	1.10	261	525	105%	1,992	100%
Zn	0.9999	0.4055	0.1696	1.03	265	519	104%	1,993	100%
As	1.0000	0.2296	0.1832	1.12	254	505	101%	1,998	100%
Se	1.0000	0.01281	0.009769	1.02	257	508	102%	1,997	100%
Sr	1.0000	0.338	0.06304	0.95	249	488	98%	2,003	100%
Mo	0.9997	0.06146	0.00307	0.97	241	506	101%	--------	######
Ag	0.9999	0.1534	0.002437	1.02	255	498	100%	--------	######
Cd	1.0000	0.0328	0.001133	0.95	248	492	98%	2,002	100%
Sn	1.0000	0.08901	0.008757	0.98	247	507	101%	1,999	100%
Sb	0.9999	0.1054	0.002497	1.00	245	503	101%	--------	######
Ba	1.0000	0.04162	0.002829	0.95	242	486	97%	2,005	100%
Tl	1.0000	0.3276	0.008287	0.94	254	504	101%	1,999	100%
Pb	1.0000	0.4441	0.02947	0.95	251	509	102%	1,998	100%

REVIEWED BY
By Janice Whitt at 2:24:38 PM, 8/10/2016

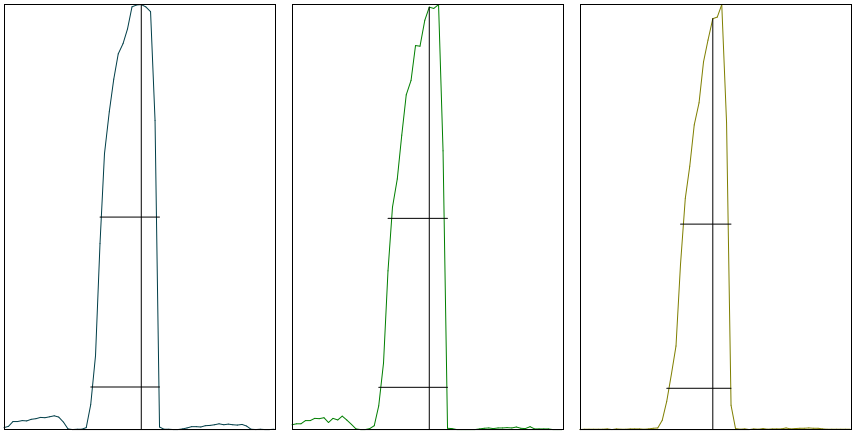
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.306%
Doubly Charged:	70/140	2.638%

m/z	Range	Count	Mean	RSD%	Background
51	20	14.0	10.9	46.06	1.60
59	5,000	2628.0	2678.1	2.98	1.10
75	20	9.0	7.0	35.60	1.00
51/59	1	0.533%	0.409%	45.59	



m/z:	59	89	205
Height:	2,706	1,269	4,406
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:36

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

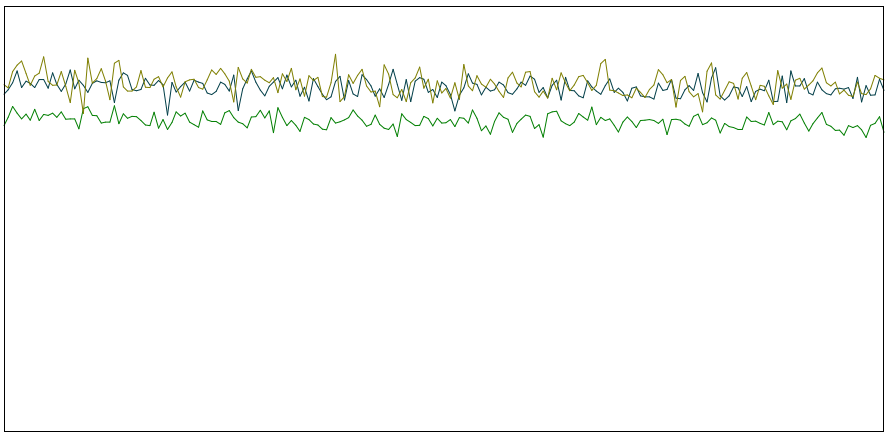
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:38

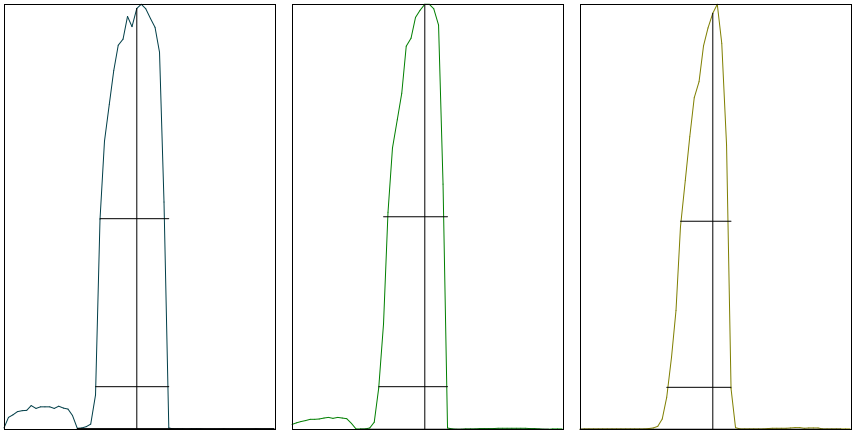
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.036%
Doubly Charged:	70/140	3.195%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8026.0	8085.8	2.44	4.20
89	20,000	14074.0	14604.4	2.06	7.20
205	10,000	8272.0	8182.5	3.16	16.80
156/140	2	0.948%	1.060%	9.87	
70/140	5	3.253%	3.102%	11.05	
63	20,000	10979.0	11198.9	2.42	5.30
23	100,000	69620.0	61786.5	11.40	4.40



m/z:	7	89	205
Height:	8,017	14,600	8,176
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.70	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:03

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1.4	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

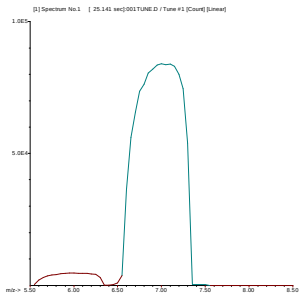
Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:05

6020 QC Tune Report

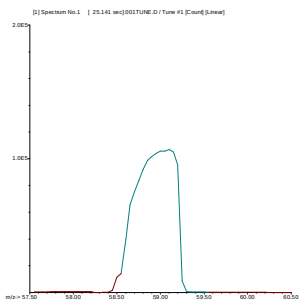
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.25	5.00	
59 Co	2.48	5.00	
115 In	2.60	5.00	
205 Tl	2.47	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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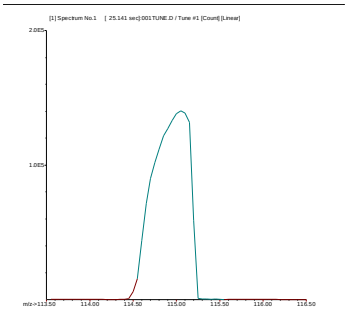
By Janice Whitt at 2:24:52 PM, 8/10/2016



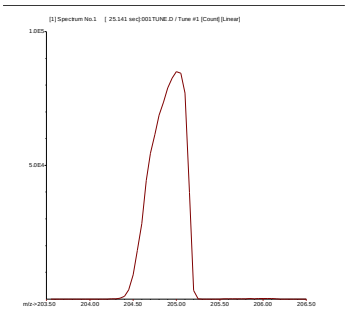
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 2:24:54 PM, 8/10/2016

P/A Factor Tuning Report

Acquired:Aug 9 2016 11:20 am

Mass[amu]	Element	P/A Factor
6	Li	0.063716
23	Na	0.078069
24	Mg	0.081357
27	Al	0.083901
39	K	0.084057
44	Ca	Sensitivity too low
45	Sc	0.085164
47	Ti	Sensitivity too low
51	V	0.087056
52	Cr	0.089224
55	Mn	0.090623
59	Co	0.093388
60	Ni	0.094882
63	Cu	0.096643
66	Zn	0.096211
72	Ge	0.095488
75	As	0.094779
78	Se	Sensitivity too low
88	Sr	0.095797
95	Mo	0.094955
106	(Cd)	0.099887
107	Ag	Sensitivity too low
108	(Cd)	0.100044
111	Cd	0.100780
115	In	0.100761
118	Sn	0.100418
121	Sb	0.100203
137	Ba	Sensitivity too low
205	Tl	0.107503
206	(Pb)	0.107327
207	(Pb)	0.107559
208	Pb	0.107816
209	Bi	0.107471
238		0.107352

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1750 V
Pulse HV: 1520 V

REVIEWED BY
By Janice Whitt at 2:25:00 PM, 8/10/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 09 2016 12:23 pm
Date Acquired: Aug 9 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	76.78	P	19.44	25.32
7	Li	2	45	635.60	P	13.88	2.18
9	Be	2	45	74.45	P	30.06	40.38
11	B	2	45	3880.74	P	124.70	3.21
23	Na	1	45	22714.67	P	247.20	1.09
24	Mg	1	45	431.14	P	27.15	6.30
27	Al	1	45	319.12	P	13.35	4.18
39	K	1	45	4681.08	P	182.30	3.89
44	Ca	2	45	14942.25	P	783.20	5.24
45	Sc	1	---	158070.20	P	400.30	0.25
45	Sc	2	---	6406945.00	A	148100.00	2.31
47	Ti	1	45	1.78	P	1.54	86.62
51	V	1	45	208.01	P	24.44	11.75
51	V	2	---		P		
52	Cr	1	45	232.89	P	13.88	5.96
55	Mn	1	45	60.45	P	5.05	8.35
56	Fe	1	72	7118.21	P	361.20	5.07
59	Co	1	72	54.67	P	2.31	4.22
60	Ni	1	72	58.22	P	5.55	9.53
60	Ni	2	---		P		
63	Cu	1	72	252.45	P	45.26	17.93
63	Cu	2	---		P		
66	Zn	1	72	75.11	P	8.15	10.85
66	Zn	2	---		P		
72	Ge	1	---	88651.82	P	776.40	0.88
72	Ge	2	---		A		
75	As	1	72	81.19	P	4.56	5.62
78	Se	1	72	4.33	P	0.73	16.81
88	Sr	2	###	2327.00	P	180.20	7.74
95	Mo	2	###	113.34	P	15.28	13.48
107	Ag	2	###	90.00	P	6.67	7.41
111	Cd	2	###	41.74	P	22.60	54.14
115	In	2	---	7384352.00	A	47310.00	0.64
118	Sn	2	###	323.35	P	16.67	5.16
121	Sb	2	###	92.23	P	7.70	8.35
137	Ba	2	###	104.45	P	22.20	21.25
205	Tl	2	###	215.57	P	21.17	9.82
208	Pb	2	###	766.71	P	129.90	16.94
209	Bi	2	---	5202967.00	A	16760.00	0.32

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:25 pm
Last Cal. Update: Aug 09 2016 12:23 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-276.34	P	37.83	13.69	ISFail
7	Li	2	45	9129.18	P	280.10	3.07	
9	Be	2	45	2910.46	P	77.69	2.67	
11	B	2	45	6155.09	P	170.80	2.77	
23	Na	1	45	28183.59	P	322.20	1.14	
24	Mg	1	45	2894.90	P	138.50	4.78	
27	Al	1	45	833.38	P	29.25	3.51	
39	K	1	45	5969.45	P	193.70	3.24	
44	Ca	2	45	19511.07	P	2212.00	11.34	
45	Sc	1	---	160684.70	P	2314.00	1.44	
45	Sc	2	---	6429131.00	A	68010.00	1.06	
47	Ti	1	45	27.56	P	1.54	5.59	
51	V	1	45	1194.74	P	39.62	3.32	
51	V	2	---		P			
52	Cr	1	45	1623.24	P	14.26	0.88	
55	Mn	1	45	608.03	P	25.44	4.18	
56	Fe	1	72	28900.35	P	2962.00	10.25	
59	Co	1	72	2465.62	P	87.97	3.57	
60	Ni	1	72	796.93	P	55.31	6.94	
60	Ni	2	---		P			
63	Cu	1	72	2316.25	P	46.28	2.00	
63	Cu	2	---		P			
66	Zn	1	72	261.79	P	17.71	6.77	
66	Zn	2	---		P			
72	Ge	1	---	89405.56	P	917.80	1.03	
72	Ge	2	---		A			
75	As	1	72	197.11	P	4.29	2.18	
78	Se	1	72	10.22	P	0.51	4.98	
88	Sr	2	115	14278.91	P	588.80	4.12	
95	Mo	2	115	2323.65	P	64.30	2.77	
107	Ag	2	115	5893.90	P	231.20	3.92	
111	Cd	2	115	1197.38	P	58.34	4.87	
115	In	2	---	7443953.00	A	81490.00	1.09	
118	Sn	2	115	3580.69	P	47.04	1.31	
121	Sb	2	115	4014.18	P	113.60	2.83	
137	Ba	2	115	1577.95	P	66.78	4.23	
205	Tl	2	209	8330.07	P	211.40	2.54	
208	Pb	2	209	11870.80	P	191.10	1.61	
209	Bi	2	---	5250363.00	A	48340.00	0.92	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-276.34	13.69	76.78	-359.9	70 - 120	ISFail
45	Sc	1	160684.72	1.44	158070.19	101.7	70 - 120	
45	Sc	2	6429130.50	1.06	6406944.50	100.3	70 - 120	
72	Ge	1	89405.56	1.03	88651.82	100.9	70 - 120	
115	In	2	7443953.00	1.09	7384352.50	100.8	70 - 120	
209	Bi	2	5250363.50	0.92	5202967.00	100.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:31 pm
Last Cal. Update: Aug 09 2016 12:29 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3881.67	P	60.33	1.55	ISFail
7	Li	2	45	86910.47	P	940.50	1.08	Fail
9	Be	2	45	29447.30	P	565.20	1.92	Fail
11	B	2	45	27210.25	P	574.80	2.11	Fail
23	Na	1	45	78668.42	P	825.80	1.05	Fail
24	Mg	1	45	25039.14	P	435.10	1.74	Fail
27	Al	1	45	5952.62	P	89.59	1.51	Fail
39	K	1	45	16334.60	P	268.70	1.65	Fail
44	Ca	2	45	70195.96	P	3159.00	4.50	Fail
45	Sc	1	---	161571.00	P	1929.00	1.19	
45	Sc	2	---	6453811.00	A	142600.00	2.21	
47	Ti	1	45	260.01	P	35.50	13.65	Fail
51	V	1	45	10266.17	P	219.20	2.14	Fail
51	V	2	---		P			
52	Cr	1	45	14166.06	P	190.20	1.34	Fail
55	Mn	1	45	5238.97	P	39.95	0.76	Fail
56	Fe	1	72	213754.41	P	1903.00	0.89	Fail
59	Co	1	72	24702.73	P	305.40	1.24	
60	Ni	1	72	7330.29	P	214.90	2.93	Fail
60	Ni	2	---		P			
63	Cu	1	72	20624.14	P	340.20	1.65	Fail
63	Cu	2	---		P			
66	Zn	1	72	2102.88	P	42.78	2.03	Fail
66	Zn	2	---		P			
72	Ge	1	---	90222.60	P	954.20	1.06	
72	Ge	2	---		A			
75	As	1	72	1138.61	P	9.52	0.84	Fail
78	Se	1	72	66.48	P	5.04	7.58	Fail
88	Sr	2	115	124450.40	P	2670.00	2.15	Fail
95	Mo	2	115	22071.00	P	419.80	1.90	Fail
107	Ag	2	115	57970.12	P	1503.00	2.59	Fail
111	Cd	2	115	12490.16	P	478.50	3.83	Fail
115	In	2	---	7406828.00	A	96950.00	1.31	
118	Sn	2	115	32855.11	P	416.50	1.27	Fail
121	Sb	2	115	38465.25	P	1177.00	3.06	Fail
137	Ba	2	115	15112.49	P	550.50	3.64	Fail
205	Tl	2	209	83036.09	P	850.40	1.02	Fail
208	Pb	2	209	115560.00	P	1813.00	1.57	Fail
209	Bi	2	---	5219492.00	A	55050.00	1.05	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3881.67	1.55	76.78	-5055.8	70 - 120	ISFail
45	Sc	1	161570.98	1.19	158070.19	102.2	70 - 120	
45	Sc	2	6453811.50	2.21	6406944.50	100.7	70 - 120	
72	Ge	1	90222.60	1.06	88651.82	101.8	70 - 120	
115	In	2	7406828.00	1.31	7384352.50	100.3	70 - 120	
209	Bi	2	5219491.50	1.05	5202967.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:37 pm
Last Cal. Update: Aug 09 2016 12:35 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-19629.23	P	383.20	1.95	ISFail
7	Li	2	45	432408.59	P	8261.00	1.91	Fail
9	Be	2	45	144443.50	P	2969.00	2.06	Fail
11	B	2	45	120068.30	P	1757.00	1.46	Fail
23	Na	1	45	295790.41	P	1604.00	0.54	Fail
24	Mg	1	45	119897.70	P	957.30	0.80	Fail
27	Al	1	45	27945.11	P	356.30	1.28	Fail
39	K	1	45	63314.89	P	311.10	0.49	Fail
44	Ca	2	45	290460.09	P	9086.00	3.13	Fail
45	Sc	1	---	163871.50	P	1400.00	0.85	
45	Sc	2	---	6441649.00	A	124900.00	1.94	
47	Ti	1	45	1160.08	P	42.92	3.70	Fail
51	V	1	45	50469.89	P	868.10	1.72	Fail
51	V	2	---		P			
52	Cr	1	45	68834.85	P	602.80	0.88	Fail
55	Mn	1	45	26142.08	P	417.90	1.60	Fail
56	Fe	1	72	1069612.00	A	24000.00	2.24	Fail
59	Co	1	72	121947.00	P	1160.00	0.95	
60	Ni	1	72	35924.11	P	658.70	1.83	
60	Ni	2	---		P			
63	Cu	1	72	100456.60	P	498.00	0.50	Fail
63	Cu	2	---		P			
66	Zn	1	72	9852.08	P	58.18	0.59	Fail
66	Zn	2	---		P			
72	Ge	1	---	90028.47	P	394.00	0.44	
72	Ge	2	---		A			
75	As	1	72	5389.93	P	49.54	0.92	Fail
78	Se	1	72	308.04	P	9.84	3.20	Fail
88	Sr	2	115	602337.50	P	12840.00	2.13	Fail
95	Mo	2	115	108354.30	P	2536.00	2.34	Fail
107	Ag	2	115	282736.09	P	5107.00	1.81	Fail
111	Cd	2	115	61328.21	P	1125.00	1.83	Fail
115	In	2	---	7387452.00	A	82820.00	1.12	
118	Sn	2	115	159923.91	P	2799.00	1.75	Fail
121	Sb	2	115	189023.00	P	4633.00	2.45	Fail
137	Ba	2	115	73661.36	P	1339.00	1.82	Fail
205	Tl	2	209	410096.00	P	4859.00	1.18	Fail
208	Pb	2	209	560275.31	P	9752.00	1.74	Fail
209	Bi	2	---	5195223.00	A	67090.00	1.29	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19629.24	1.95	76.78	-25566.9	70 - 120	ISFail
45	Sc	1	163871.55	0.85	158070.19	103.7	70 - 120	
45	Sc	2	6441649.50	1.94	6406944.50	100.5	70 - 120	
72	Ge	1	90028.47	0.44	88651.82	101.6	70 - 120	
115	In	2	7387452.50	1.12	7384352.50	100.0	70 - 120	
209	Bi	2	5195223.50	1.29	5202967.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:43 pm
Last Cal. Update: Aug 09 2016 12:41 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-39450.97	P	848.30	2.15	ISFail
7	Li	2	45	859389.31	A	4295.00	0.50	Fail
9	Be	2	45	288149.81	P	5638.00	1.96	Fail
11	B	2	45	237918.00	P	3433.00	1.44	Fail
23	Na	1	45	568962.38	P	7291.00	1.28	Fail
24	Mg	1	45	239276.80	P	2504.00	1.05	Fail
27	Al	1	45	55187.29	P	557.70	1.01	Fail
39	K	1	45	120214.40	P	144.40	0.12	Fail
44	Ca	2	45	556133.69	P	12600.00	2.27	Fail
45	Sc	1	---	160100.41	P	785.10	0.49	
45	Sc	2	---	6261295.00	A	110100.00	1.76	
47	Ti	1	45	2330.48	P	68.35	2.93	
51	V	1	45	98896.30	P	1086.00	1.10	Fail
51	V	2	---		A			
52	Cr	1	45	134880.20	P	1476.00	1.09	Fail
55	Mn	1	45	51629.94	P	259.30	0.50	
56	Fe	1	72	2048862.00	A	26700.00	1.30	Fail
59	Co	1	72	240143.91	P	3156.00	1.31	
60	Ni	1	72	70495.25	P	308.50	0.44	
60	Ni	2	---		P			
63	Cu	1	72	195537.50	P	2292.00	1.17	
63	Cu	2	---		P			
66	Zn	1	72	19348.32	P	160.80	0.83	Fail
66	Zn	2	---		P			
72	Ge	1	---	88032.42	P	653.70	0.74	
72	Ge	2	---		A			
75	As	1	72	10479.46	P	46.78	0.45	Fail
78	Se	1	72	601.65	P	3.54	0.59	Fail
88	Sr	2	115	1235870.00	A	19360.00	1.57	Fail
95	Mo	2	115	210659.70	P	2732.00	1.30	Fail
107	Ag	2	115	551580.50	P	10460.00	1.90	Fail
111	Cd	2	115	117569.70	P	2118.00	1.80	Fail
115	In	2	---	7231429.00	A	105800.00	1.46	
118	Sn	2	115	314553.91	P	5363.00	1.71	Fail
121	Sb	2	115	369819.19	P	6133.00	1.66	Fail
137	Ba	2	115	143935.50	P	2716.00	1.89	Fail
205	Tl	2	209	810074.38	P	14910.00	1.84	Fail
208	Pb	2	209	1102986.00	P	19000.00	1.72	Fail
209	Bi	2	---	5066186.00	A	31410.00	0.62	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39450.97	2.15	76.78	-51384.5	70 - 120	ISFail
45	Sc	1	160100.36	0.49	158070.19	101.3	70 - 120	
45	Sc	2	6261294.50	1.76	6406944.50	97.7	70 - 120	
72	Ge	1	88032.41	0.74	88651.82	99.3	70 - 120	
115	In	2	7231429.00	1.46	7384352.50	97.9	70 - 120	
209	Bi	2	5066186.00	0.62	5202967.00	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:49 pm
Last Cal. Update: Aug 09 2016 12:47 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-92547.78	P	610.90	0.66	ISFail
7	Li	2	45	2055320.00	A	6991.00	0.34	Fail
9	Be	2	45	683394.69	A	4914.00	0.72	Fail
11	B	2	45	576713.50	P	2557.00	0.44	Fail
23	Na	1	45	1404880.00	A	14730.00	1.05	Fail
24	Mg	1	45	578383.88	P	6434.00	1.11	
27	Al	1	45	134799.70	P	2720.00	2.02	Fail
39	K	1	45	285831.19	P	781.30	0.27	Fail
44	Ca	2	45	1412857.00	A	25870.00	1.83	Fail
45	Sc	1	---	155861.80	P	491.20	0.32	
45	Sc	2	---	6152547.00	A	97850.00	1.59	
47	Ti	1	45	5794.77	P	204.00	3.52	
51	V	1	45	240871.30	P	1410.00	0.59	
51	V	2	---		A			
52	Cr	1	45	329345.00	P	2941.00	0.89	
55	Mn	1	45	125528.70	P	257.30	0.20	
56	Fe	1	72	4881959.00	A	31120.00	0.64	
59	Co	1	72	583012.50	P	6102.00	1.05	
60	Ni	1	72	171085.50	P	356.40	0.21	
60	Ni	2	---		P			
63	Cu	1	72	471235.19	P	1321.00	0.28	
63	Cu	2	---		A			
66	Zn	1	72	46169.71	P	361.90	0.78	
66	Zn	2	---		P			
72	Ge	1	---	85858.36	P	473.70	0.55	
72	Ge	2	---		A			
75	As	1	72	25145.85	P	42.53	0.17	Fail
78	Se	1	72	1414.53	P	7.55	0.53	Fail
88	Sr	2	115	2920739.00	A	29390.00	1.01	Fail
95	Mo	2	115	513910.31	P	6728.00	1.31	Fail
107	Ag	2	115	1360042.00	A	20930.00	1.54	Fail
111	Cd	2	115	282658.91	P	4566.00	1.62	Fail
115	In	2	---	6950477.00	A	79190.00	1.14	
118	Sn	2	115	763250.19	P	7455.00	0.98	Fail
121	Sb	2	115	897868.50	P	9308.00	1.04	Fail
137	Ba	2	115	350302.50	P	4136.00	1.18	Fail
205	Tl	2	209	2058289.00	A	35310.00	1.72	Fail
208	Pb	2	209	2754049.00	A	37450.00	1.36	Fail
209	Bi	2	---	4942278.00	A	58580.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-92547.78	0.66	76.78	-120542.6	70 - 120	ISFail
45	Sc	1	155861.84	0.32	158070.19	98.6	70 - 120	
45	Sc	2	6152547.50	1.59	6406944.50	96.0	70 - 120	
72	Ge	1	85858.37	0.55	88651.82	96.8	70 - 120	
115	In	2	6950477.50	1.14	7384352.50	94.1	70 - 120	
209	Bi	2	4942278.00	1.19	5202967.00	95.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:55 pm
Last Cal. Update: Aug 09 2016 12:52 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-180102.91	P	1887.00	1.05	ISFail
7	Li	2	45	4028771.00	A	21070.00	0.52	Fail
9	Be	2	45	1346636.00	A	10300.00	0.76	Fail
11	B	2	45	1147521.00	A	18600.00	1.62	Fail
23	Na	1	45	2697100.00	A	7631.00	0.28	Fail
24	Mg	1	45	1199446.00	A	15020.00	1.25	
27	Al	1	45	266288.00	P	2957.00	1.11	
39	K	1	45	557212.69	P	4537.00	0.81	Fail
44	Ca	2	45	2670122.00	A	39330.00	1.47	Fail
45	Sc	1	---	154804.91	P	798.80	0.52	
45	Sc	2	---	6027486.00	A	99200.00	1.65	
47	Ti	1	45	11449.88	P	127.40	1.11	
51	V	1	45	474757.91	P	2110.00	0.44	
51	V	2	---		A			
52	Cr	1	45	648571.81	P	1651.00	0.25	
55	Mn	1	45	245434.30	P	883.90	0.36	
56	Fe	1	72	9536205.00	A	79560.00	0.83	
59	Co	1	72	1171404.00	A	11090.00	0.95	
60	Ni	1	72	329269.00	P	3471.00	1.05	
60	Ni	2	---		A			
63	Cu	1	72	927079.50	M	19060.00	2.06	
63	Cu	2	---		A			
66	Zn	1	72	88347.85	P	460.10	0.52	
66	Zn	2	---		P			
72	Ge	1	---	83956.57	P	181.70	0.22	
72	Ge	2	---		A			
75	As	1	72	48699.76	P	116.50	0.24	
78	Se	1	72	2737.60	P	10.85	0.40	
88	Sr	2	115	5612955.00	A	56370.00	1.00	Fail
95	Mo	2	115	1058171.00	A	4867.00	0.46	Fail
107	Ag	2	115	2596907.00	A	2732.00	0.11	Fail
111	Cd	2	115	549297.31	P	1150.00	0.21	Fail
115	In	2	---	6804297.00	A	14860.00	0.22	
118	Sn	2	115	1534882.00	A	13500.00	0.88	Fail
121	Sb	2	115	1803670.00	A	10380.00	0.58	Fail
137	Ba	2	115	687678.69	P	2013.00	0.29	Fail
205	Tl	2	209	4003026.00	A	37020.00	0.92	Fail
208	Pb	2	209	5483501.00	A	9428.00	0.17	Fail
209	Bi	2	---	4848076.00	A	33810.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-180102.91	1.05	76.78	-234582.3	70 - 120	ISFail
45	Sc	1	154804.94	0.52	158070.19	97.9	70 - 120	
45	Sc	2	6027486.00	1.65	6406944.50	94.1	70 - 120	
72	Ge	1	83956.57	0.22	88651.82	94.7	70 - 120	
115	In	2	6804297.50	0.22	7384352.50	92.1	70 - 120	
209	Bi	2	4848076.00	0.70	5202967.00	93.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 01:01 pm
Last Cal. Update: Aug 09 2016 12:58 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-695108.38	A	5548.00	0.80	ISFail
7	Li	2	45	16324680.00	A	45420.00	0.28	Fail
9	Be	2	45	5098597.00	A	45540.00	0.89	
11	B	2	45	4479131.00	A	27290.00	0.61	Fail
23	Na	1	45	6521873.00	A	60180.00	0.92	Fail
24	Mg	1	45	2874443.00	A	42430.00	1.48	
27	Al	1	45	2506.51	P	21.68	0.86	Fail
39	K	1	45	1451327.00	A	7604.00	0.52	Fail
44	Ca	2	45	6641747.00	A	83680.00	1.26	Fail
45	Sc	1	---	157244.80	P	431.30	0.27	
45	Sc	2	---	6089865.00	A	74730.00	1.23	
47	Ti	1	45	47519.80	P	854.10	1.80	
51	V	1	45	1959345.00	A	19960.00	1.02	
51	V	2	---		A			
52	Cr	1	45	2623501.00	A	40880.00	1.56	
55	Mn	1	45	1023403.00	A	19900.00	1.94	
56	Fe	1	72	16818.04	P	566.10	3.37	Fail
59	Co	1	72	4471216.00	A	68540.00	1.53	
60	Ni	1	72	1335689.00	A	16620.00	1.24	
60	Ni	2	---		A			
63	Cu	1	72	3573923.00	A	51580.00	1.44	
63	Cu	2	---		A			
66	Zn	1	72	344616.81	P	3985.00	1.16	
66	Zn	2	---		A			
72	Ge	1	---	85259.96	P	597.60	0.70	
72	Ge	2	---		A			
75	As	1	72	195626.80	P	2133.00	1.09	
78	Se	1	72	10908.70	P	95.50	0.88	
88	Sr	2	115	23456990.00	A	236000.00	1.01	Fail
95	Mo	2	115	4277989.00	A	26110.00	0.61	
107	Ag	2	115	1475.72	P	191.00	12.94	Fail
111	Cd	2	115	2274770.00	A	16520.00	0.73	
115	In	2	---	6927955.00	A	9047.00	0.13	
118	Sn	2	115	6163197.00	A	4526.00	0.07	Fail
121	Sb	2	115	2224.75	P	132.90	5.97	Fail
137	Ba	2	115	2890665.00	A	29900.00	1.03	Fail
205	Tl	2	209	15777200.00	A	100800.00	0.64	
208	Pb	2	209	21376310.00	A	153600.00	0.72	
209	Bi	2	---	4818865.00	A	41690.00	0.87	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-695108.44	0.80	76.78	-905371.9	70 - 120	ISFail
45	Sc	1	157244.86	0.27	158070.19	99.5	70 - 120	
45	Sc	2	6089865.50	1.23	6406944.50	95.1	70 - 120	
72	Ge	1	85259.96	0.70	88651.82	96.2	70 - 120	
115	In	2	6927955.50	0.13	7384352.50	93.8	70 - 120	
209	Bi	2	4818864.50	0.87	5202967.00	92.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 9 2016 01:18 pm	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.478	ppb	9.59	8.00	5.00	
9	Be	2	45	0.117	ppb	38.20	0.32	0.80	
11	B	2	45	8.638	ppb	3.46	30.00	30.00	
23	Na	1	45	101700.000	ppb	1.19	#######	#######	
24	Mg	1	45	89070.000	ppb	1.04	#######	#######	
27	Al	1	45	96290.000	ppb	0.44	#######	#######	
39	K	1	45	92830.000	ppb	0.95	#######	#######	
44	Ca	2	45	90970.000	ppb	2.83	#######	#######	
47	Ti	1	45	1967.000	ppb	0.21	10.00	10.00	
51	V	1	45	0.109	ppb	13.43	10.00	10.00	
52	Cr	1	45	0.894	ppb	4.88	8.00	5.00	
55	Mn	1	45	0.844	ppb	9.88	8.00	10.00	
56	Fe	1	72	92080.000	ppb	1.45	#######	#######	
59	Co	1	72	1.329	ppb	5.32	8.00	10.00	
60	Ni	1	72	0.485	ppb	11.46	8.00	10.00	
63	Cu	1	72	2.282	ppb	0.83	8.00	10.00	
66	Zn	1	72	2.100	ppb	1.97	10.00	5.00	
75	As	1	72	0.765	ppb	2.73	4.00	5.00	
78	Se	1	72	0.590	ppb	13.84	2.00	5.00	
88	Sr	2	115	1.237	ppb	5.49	10.00	10.00	
95	Mo	2	115	1909.000	ppb	2.87	8.00	5.00	
107	Ag	2	115	0.099	ppb	14.31	0.80	2.00	
111	Cd	2	115	0.197	ppb	22.45	1.20	1.00	
118	Sn	2	115	0.592	ppb	9.39	10.00	10.00	
121	Sb	2	115	0.145	ppb	7.64	4.00	2.50	
137	Ba	2	115	0.539	ppb	12.33	8.00	10.00	
205	Tl	2	209	0.265	ppb	18.78	4.00	1.50	
208	Pb	2	209	0.424	ppb	8.56	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	11.48	362.20	76.78	15.0	70 - 120	ISFail
45	Sc	1	148376.02	0.59	158070.19	93.9	70 - 120	
45	Sc	2	6156980.50	1.85	6406944.50	96.1	70 - 120	
72	Ge	1	80882.91	0.84	88651.82	91.2	70 - 120	
115	In	2	6870784.00	2.23	7384352.50	93.0	70 - 120	
209	Bi	2	4330707.50	1.99	5202967.00	83.2	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 9 2016 01:24 pm	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.40	ppb	2.58	---	80 -		120	
9	Be	2	45	0.03	ppb	8.03	---	80 -		120	
11	B	2	45	6.35	ppb	1.20	---	80 -		120	
23	Na	1	45	96960.00	ppb	0.63	100000.00	80 -		120	
24	Mg	1	45	90120.00	ppb	1.11	100000.00	80 -		120	
27	Al	1	45	93870.00	ppb	0.65	100000.00	80 -		120	
39	K	1	45	91490.00	ppb	0.58	100000.00	80 -		120	
44	Ca	2	45	91530.00	ppb	3.21	100000.00	80 -		120	
47	Ti	1	45	1935.00	ppb	1.62	---	80 -		120	
51	V	1	45	39.09	ppb	0.68	40.00	80 -		120	
52	Cr	1	45	20.74	ppb	1.41	20.00	80 -		120	
55	Mn	1	45	18.98	ppb	0.93	20.00	80 -		120	
56	Fe	1	72	92210.00	ppb	0.80	100000.00	80 -		120	
59	Co	1	72	39.88	ppb	0.42	40.00	80 -		120	
60	Ni	1	72	36.63	ppb	1.39	40.00	80 -		120	
63	Cu	1	72	20.22	ppb	0.75	20.00	80 -		120	
66	Zn	1	72	19.71	ppb	2.04	20.00	80 -		120	
75	As	1	72	19.81	ppb	0.30	20.00	80 -		120	
78	Se	1	72	18.75	ppb	2.32	20.00	80 -		120	
88	Sr	2	115	1.33	ppb	1.67	---	80 -		120	
95	Mo	2	115	1935.00	ppb	2.13	---	80 -		120	
107	Ag	2	115	17.74	ppb	2.73	20.00	80 -		120	
111	Cd	2	115	9.02	ppb	3.94	10.00	80 -		120	
118	Sn	2	115	0.55	ppb	2.97	---	80 -		120	
121	Sb	2	115	0.07	ppb	4.90	---	80 -		120	
137	Ba	2	115	0.45	ppb	15.68	---	80 -		120	
205	Tl	2	209	0.13	ppb	1.84	---	80 -		120	
208	Pb	2	209	0.35	ppb	3.71	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	39.32	24.84	76.78	51.2	70 -		120	ISFail
45	Sc	1	143697.27	0.32	158070.19	90.9	70 -		120	
45	Sc	2	6567728.50	2.23	6406944.50	102.5	70 -		120	
72	Ge	1	79282.91	0.67	88651.82	89.4	70 -		120	
115	In	2	7038518.00	2.36	7384352.50	95.3	70 -		120	
209	Bi	2	4336473.50	1.65	5202967.00	83.3	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 9 2016 01:42 pm	Sample Name:	**ICV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	129.30	ppb	1.81	100.00	90 -	110	129.3	Fail
9	Be	2	45	114.40	ppb	1.63	100.00	90 -	110	114.4	Fail
11	B	2	45	109.80	ppb	0.44	100.00	90 -	110	109.8	
23	Na	1	45	2933.00	ppb	0.80	2500.00	90 -	110	117.3	Fail
24	Mg	1	45	2666.00	ppb	0.48	2500.00	90 -	110	106.6	
27	Al	1	45	2371.00	ppb	2.40	2500.00	90 -	110	94.8	
39	K	1	45	2496.00	ppb	1.03	2500.00	90 -	110	99.8	
44	Ca	2	45	2519.00	ppb	5.00	2500.00	90 -	110	100.8	
47	Ti	1	45	98.48	ppb	3.15	100.00	90 -	110	98.5	
51	V	1	45	104.90	ppb	0.63	100.00	90 -	110	104.9	
52	Cr	1	45	110.20	ppb	0.50	100.00	90 -	110	110.2	Fail
55	Mn	1	45	97.83	ppb	0.85	100.00	90 -	110	97.8	
56	Fe	1	72	2550.00	ppb	0.86	2500.00	90 -	110	102.0	
59	Co	1	72	106.90	ppb	0.39	100.00	90 -	110	106.9	
60	Ni	1	72	105.20	ppb	0.60	100.00	90 -	110	105.2	
63	Cu	1	72	107.50	ppb	0.85	100.00	90 -	110	107.5	
66	Zn	1	72	103.10	ppb	0.74	100.00	90 -	110	103.1	
75	As	1	72	100.40	ppb	0.56	100.00	90 -	110	100.4	
78	Se	1	72	95.57	ppb	1.19	100.00	90 -	110	95.6	
88	Sr	2	115	112.40	ppb	1.71	100.00	90 -	110	112.4	Fail
95	Mo	2	115	98.76	ppb	1.83	100.00	90 -	110	98.8	
107	Ag	2	115	101.40	ppb	2.11	100.00	90 -	110	101.4	
111	Cd	2	115	98.66	ppb	2.13	100.00	90 -	110	98.7	
118	Sn	2	115	98.42	ppb	1.97	100.00	90 -	110	98.4	
121	Sb	2	115	98.00	ppb	1.85	100.00	90 -	110	98.0	
137	Ba	2	115	95.40	ppb	1.88	100.00	90 -	110	95.4	
205	Tl	2	209	96.22	ppb	1.09	100.00	90 -	110	96.2	
208	Pb	2	209	96.59	ppb	1.93	100.00	90 -	110	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-32746.34	1.14	76.78	-42651.8	70 -	120		ISFail
45	Sc	1	151304.55	0.27	158070.19	95.7	70 -	120		
45	Sc	2	7310796.00	1.80	6406944.50	114.1	70 -	120		
72	Ge	1	86412.31	0.52	88651.82	97.5	70 -	120		
115	In	2	7162118.00	1.91	7384352.50	97.0	70 -	120		
209	Bi	2	4628968.50	1.21	5202967.00	89.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 9 2016 01:48 pm	Sample Name:	**ICB1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 Li 2 45	0.29 ppb	7.50	2.00	
9 Be 2 45	0.09 ppb	14.93	0.40	
11 B 2 45	4.74 ppb	3.28	10.00	
23 Na 1 45	11.32 ppb	2.07	50.00	
24 Mg 1 45	4.67 ppb	15.18	50.00	
27 Al 1 45	11.35 ppb	4.40	50.00	Failaq
39 K 1 45	9.77 ppb	1.38	50.00	
44 Ca 2 45	12.78 ppb	4.86	50.00	
47 Ti 1 45	0.21 ppb	52.92	4.00	
51 V 1 45	0.08 ppb	4.76	4.00	
52 Cr 1 45	0.13 ppb	4.27	2.00	
55 Mn 1 45	0.12 ppb	13.64	2.00	
56 Fe 1 72	3.53 ppb	8.32	50.00	
59 Co 1 72	0.09 ppb	13.04	2.00	
60 Ni 1 72	0.07 ppb	10.98	2.00	
63 Cu 1 72	0.14 ppb	8.26	2.00	
66 Zn 1 72	0.24 ppb	9.19	4.00	
75 As 1 72	0.21 ppb	2.42	2.00	
78 Se 1 72	-0.03 ppb	8.18	0.60	
88 Sr 2 115	0.26 ppb	4.89	4.00	
95 Mo 2 115	0.26 ppb	9.18	2.00	
107 Ag 2 115	0.06 ppb	7.48	0.40	
111 Cd 2 115	0.09 ppb	30.52	0.40	
118 Sn 2 115	0.20 ppb	2.23	20.00	
121 Sb 2 115	0.11 ppb	4.20	2.00	
137 Ba 2 115	0.11 ppb	12.13	2.00	
205 Tl 2 209	0.22 ppb	7.79	2.00	
208 Pb 2 209	0.12 ppb	7.88	0.40	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2 RHig	-12.64	######	76.78	-16.5	70 - 120	ISFail
45 Sc 1	154465.72	1.48	158070.19	97.7	70 - 120	
45 Sc 2	7434230.00	2.56	6406944.50	116.0	70 - 120	
72 Ge 1	88798.62	1.36	88651.82	100.2	70 - 120	
115 In 2	7172536.50	2.37	7384352.50	97.1	70 - 120	
209 Bi 2	4672709.00	1.72	5202967.00	89.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 9 2016 01:54 pm	Sample Name:	**ILCVL-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.80	ppb	2.27	10.00	70 -	130	138.0	Fail
9	Be	2	45	1.21	ppb	3.36	1.00	70 -	130	120.5	
11	B	2	45	24.35	ppb	1.79	20.00	70 -	130	121.8	
23	Na	1	45	129.60	ppb	1.83	100.00	70 -	130	129.6	
24	Mg	1	45	109.10	ppb	3.35	100.00	70 -	130	109.1	
27	Al	1	45	99.67	ppb	0.51	100.00	70 -	130	99.7	
39	K	1	45	110.80	ppb	4.64	100.00	70 -	130	110.8	
44	Ca	2	45	95.31	ppb	4.48	100.00	70 -	130	95.3	
47	Ti	1	45	5.34	ppb	2.11	5.00	70 -	130	106.8	
51	V	1	45	1.15	ppb	2.61	1.00	70 -	130	115.0	
52	Cr	1	45	5.66	ppb	1.07	5.00	70 -	130	113.2	
55	Mn	1	45	5.05	ppb	0.65	5.00	70 -	130	101.0	
56	Fe	1	72	108.90	ppb	1.07	100.00	70 -	130	108.9	
59	Co	1	72	5.53	ppb	1.64	5.00	70 -	130	110.6	
60	Ni	1	72	5.46	ppb	4.65	5.00	70 -	130	109.2	
63	Cu	1	72	5.63	ppb	1.11	5.00	70 -	130	112.5	
66	Zn	1	72	5.82	ppb	5.06	5.00	70 -	130	116.4	
75	As	1	72	5.41	ppb	1.94	5.00	70 -	130	108.1	
78	Se	1	72	5.64	ppb	4.93	5.00	70 -	130	112.8	
88	Sr	2	115	5.61	ppb	2.78	5.00	70 -	130	112.1	
95	Mo	2	115	5.26	ppb	2.68	5.00	70 -	130	105.2	
107	Ag	2	115	2.11	ppb	3.20	2.00	70 -	130	105.6	
111	Cd	2	115	1.06	ppb	8.62	1.00	70 -	130	106.1	
118	Sn	2	115	5.13	ppb	1.54	5.00	70 -	130	102.6	
121	Sb	2	115	2.05	ppb	1.64	2.00	70 -	130	102.4	
137	Ba	2	115	4.82	ppb	1.91	5.00	70 -	130	96.4	
205	Tl	2	209	1.09	ppb	2.13	1.00	70 -	130	108.5	
208	Pb	2	209	1.06	ppb	0.80	1.00	70 -	130	106.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3529.36	3.10	76.78	-4597.0	70 -	120	ISFail
45	Sc	1	155051.92	1.11	158070.19	98.1	70 -	120	
45	Sc	2	7390682.50	2.92	6406944.50	115.4	70 -	120	
72	Ge	1	88977.75	1.41	88651.82	100.4	70 -	120	
115	In	2	7193810.00	1.54	7384352.50	97.4	70 -	120	
209	Bi	2	4621289.00	1.35	5202967.00	88.8	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\110CCV1.D\110CCV1.D#

Date Acquired:	Aug 9 2016 10:34 pm	Sample Name:	**CCV5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	199.60	ppb	1.70	200.00	90 -	110	99.8	
9	Be	2	45	187.90	ppb	1.75	200.00	90 -	110	94.0	
11	B	2	45	183.10	ppb	2.34	200.00	90 -	110	91.6	
23	Na	1	45	5664.00	ppb	1.50	5000.00	90 -	110	113.3	Fail
24	Mg	1	45	5213.00	ppb	0.36	5000.00	90 -	110	104.3	
27	Al	1	45	4926.00	ppb	0.82	5000.00	90 -	110	98.5	
39	K	1	45	5156.00	ppb	0.14	5000.00	90 -	110	103.1	
44	Ca	2	45	5435.00	ppb	2.25	5000.00	90 -	110	108.7	
47	Ti	1	45	196.60	ppb	1.35	200.00	90 -	110	98.3	
51	V	1	45	205.10	ppb	0.86	200.00	90 -	110	102.6	
52	Cr	1	45	207.80	ppb	1.07	200.00	90 -	110	103.9	
55	Mn	1	45	197.10	ppb	0.56	200.00	90 -	110	98.6	
56	Fe	1	72	5067.00	ppb	0.66	5000.00	90 -	110	101.3	
59	Co	1	72	213.10	ppb	0.57	200.00	90 -	110	106.6	
60	Ni	1	72	210.30	ppb	0.93	200.00	90 -	110	105.2	
63	Cu	1	72	215.20	ppb	0.34	200.00	90 -	110	107.6	
66	Zn	1	72	206.50	ppb	0.33	200.00	90 -	110	103.3	
75	As	1	72	209.00	ppb	0.28	200.00	90 -	110	104.5	
78	Se	1	72	199.60	ppb	0.92	200.00	90 -	110	99.8	
88	Sr	2	115	217.20	ppb	1.12	200.00	90 -	110	108.6	
95	Mo	2	115	195.80	ppb	1.76	200.00	90 -	110	97.9	
107	Ag	2	115	201.30	ppb	3.08	200.00	90 -	110	100.7	
111	Cd	2	115	197.50	ppb	0.70	200.00	90 -	110	98.8	
118	Sn	2	115	196.10	ppb	1.09	200.00	90 -	110	98.1	
121	Sb	2	115	190.60	ppb	1.19	200.00	90 -	110	95.3	
137	Ba	2	115	191.80	ppb	1.26	200.00	90 -	110	95.9	
205	Tl	2	209	208.60	ppb	1.56	200.00	90 -	110	104.3	
208	Pb	2	209	203.40	ppb	1.51	200.00	90 -	110	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-75664.59	3.31	76.78	-98552.4	70 -	120		ISFail
45	Sc	1	124785.66	0.45	158070.19	78.9	70 -	120		
45	Sc	2	6302517.50	2.28	6406944.50	98.4	70 -	120		
72	Ge	1	68975.04	0.29	88651.82	77.8	70 -	120		
115	In	2	6306791.00	1.45	7384352.50	85.4	70 -	120		
209	Bi	2	4367557.00	1.66	5202967.00	83.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\112LCVL.D\112LCVL.D#

Date Acquired:	Aug 9 2016 10:45 pm	Sample Name:	**LCVL5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.98	ppb	1.41	10.00	70 -	130	99.8	
9	Be	2	45	0.98	ppb	5.81	1.00	70 -	130	97.8	
11	B	2	45	19.45	ppb	2.92	20.00	70 -	130	97.3	
23	Na	1	45	84.87	ppb	0.87	100.00	70 -	130	84.9	
24	Mg	1	45	105.80	ppb	2.40	100.00	70 -	130	105.8	
27	Al	1	45	107.10	ppb	2.86	100.00	70 -	130	107.1	
39	K	1	45	104.40	ppb	1.08	100.00	70 -	130	104.4	
44	Ca	2	45	104.20	ppb	5.11	100.00	70 -	130	104.2	
47	Ti	1	45	5.37	ppb	10.81	5.00	70 -	130	107.4	
51	V	1	45	1.18	ppb	3.25	1.00	70 -	130	118.0	
52	Cr	1	45	5.30	ppb	1.79	5.00	70 -	130	106.0	
55	Mn	1	45	5.07	ppb	3.86	5.00	70 -	130	101.5	
56	Fe	1	72	112.20	ppb	1.84	100.00	70 -	130	112.2	
59	Co	1	72	5.31	ppb	1.44	5.00	70 -	130	106.3	
60	Ni	1	72	5.38	ppb	1.03	5.00	70 -	130	107.6	
63	Cu	1	72	5.42	ppb	1.93	5.00	70 -	130	108.4	
66	Zn	1	72	5.16	ppb	2.52	5.00	70 -	130	103.2	
75	As	1	72	5.39	ppb	0.72	5.00	70 -	130	107.7	
78	Se	1	72	5.61	ppb	6.00	5.00	70 -	130	112.3	
88	Sr	2	115	5.30	ppb	3.19	5.00	70 -	130	106.0	
95	Mo	2	115	4.85	ppb	3.25	5.00	70 -	130	97.1	
107	Ag	2	115	2.06	ppb	3.77	2.00	70 -	130	102.9	
111	Cd	2	115	0.99	ppb	10.34	1.00	70 -	130	98.7	
118	Sn	2	115	5.09	ppb	3.09	5.00	70 -	130	101.9	
121	Sb	2	115	1.94	ppb	3.14	2.00	70 -	130	96.8	
137	Ba	2	115	4.99	ppb	1.12	5.00	70 -	130	99.8	
205	Tl	2	209	1.11	ppb	2.10	1.00	70 -	130	111.2	
208	Pb	2	209	1.07	ppb	1.69	1.00	70 -	130	106.9	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2404.03	9.12	76.78	-3131.2	70 -	120	ISFail
45	Sc	1		128353.91	1.92	158070.19	81.2	70 -	120	
45	Sc	2		6258815.50	2.46	6406944.50	97.7	70 -	120	
72	Ge	1		71743.65	1.57	88651.82	80.9	70 -	120	
115	In	2		6551750.50	1.40	7384352.50	88.7	70 -	120	
209	Bi	2		4522111.00	0.97	5202967.00	86.9	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\113_CCB.D\113_CCB.D#

Date Acquired:	Aug 9 2016 10:51 pm	Sample Name:	**CCB5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.149	ppb	3.32	2.00	2.00	
9	Be	2	45	0.022	ppb	25.44	0.40	0.30	
11	B	2	45	1.737	ppb	3.08	10.00	10.00	
23	Na	1	45	-17.590	ppb	1.87	50.00	#####	
24	Mg	1	45	2.279	ppb	10.45	50.00	#####	
27	Al	1	45	13.230	ppb	7.09	50.00	10.00	FailAq
39	K	1	45	4.012	ppb	5.52	50.00	#####	
44	Ca	2	45	18.890	ppb	4.87	50.00	#####	
47	Ti	1	45	0.106	ppb	21.65	4.00	3.00	
51	V	1	45	0.021	ppb	11.72	4.00	3.00	
52	Cr	1	45	-0.001	ppb	13.25	2.00	2.00	
55	Mn	1	45	0.126	ppb	16.10	2.00	3.00	
56	Fe	1	72	4.464	ppb	16.01	50.00	30.00	
59	Co	1	72	0.028	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.123	ppb	8.50	2.00	3.00	
63	Cu	1	72	0.069	ppb	13.63	2.00	2.00	
66	Zn	1	72	1.030	ppb	10.51	4.00	2.00	
75	As	1	72	0.068	ppb	3.47	2.00	2.00	
78	Se	1	72	0.168	ppb	15.60	0.60	2.00	
88	Sr	2	115	0.179	ppb	2.97	4.00	3.00	
95	Mo	2	115	0.045	ppb	7.02	2.00	2.00	
107	Ag	2	115	0.031	ppb	8.69	0.40	1.00	
111	Cd	2	115	0.020	ppb	14.59	0.40	0.30	
118	Sn	2	115	0.081	ppb	10.28	20.00	3.00	
121	Sb	2	115	0.036	ppb	14.80	2.00	0.80	
137	Ba	2	115	0.140	ppb	6.72	2.00	3.00	
205	Tl	2	209	0.062	ppb	3.96	2.00	0.50	
208	Pb	2	209	0.037	ppb	7.76	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-49.93	23.51	76.78	-65.0	70 - 120	ISFail
45	Sc	1		130748.68	1.01	158070.19	82.7	70 - 120	
45	Sc	2		6263012.50	1.31	6406944.50	97.8	70 - 120	
72	Ge	1		72650.02	0.98	88651.82	81.9	70 - 120	
115	In	2		6516653.50	0.83	7384352.50	88.2	70 - 120	
209	Bi	2		4580867.00	0.91	5202967.00	88.0	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\114__PB.D\114__PB.D#

76687

Date Acquired:	Aug 9 2016 10:57 pm	Sample Name:	MB-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TWDOD
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element	Conc.	RSD(%)	MDL	RL	Flag
7 Li 2 45	0.116 ppb	3.19	2.0	5.00	
9 Be 2 45	-0.003 ppb	25.51	0.3	1.00	
11 B 2 45	1.221 ppb	2.79	10.0	30.00	
23 Na 1 45	-31.450 ppb	1.22	100.0	#####	
24 Mg 1 45	2.236 ppb	4.79	100.0	#####	
27 Al 1 45	2.962 ppb	5.20	10.0	30.00	
39 K 1 45	-6.666 ppb	1.69	100.0	#####	
44 Ca 2 45	19.140 ppb	5.33	100.0	#####	
47 Ti 1 45	0.063 ppb	49.99	3.0	10.00	
51 V 1 45	0.025 ppb	14.30	3.0	10.00	
52 Cr 1 45	-0.054 ppb	11.71	2.0	5.00	
55 Mn 1 45	0.051 ppb	11.45	3.0	10.00	
56 Fe 1 72	3.046 ppb	8.16	30.0	#####	
59 Co 1 72	-0.003 ppb	25.24	3.0	10.00	
60 Ni 1 72	-0.025 ppb	33.75	3.0	10.00	
63 Cu 1 72	0.015 ppb	3.83	2.0	10.00	
66 Zn 1 72	0.075 ppb	14.94	2.0	5.00	
75 As 1 72	-0.021 ppb	5.48	2.0	5.00	
78 Se 1 72	0.006 ppb	11.09	2.0	5.00	
88 Sr 2 115	0.061 ppb	4.52	3.0	10.00	
95 Mo 2 115	0.002 ppb	6.25	2.0	5.00	
107 Ag 2 115	0.009 ppb	18.42	1.0	2.00	
111 Cd 2 115	-0.005 ppb	35.37	0.3	1.00	
118 Sn 2 115	0.036 ppb	17.01	3.0	10.00	
121 Sb 2 115	0.014 ppb	16.13	0.8	2.50	
137 Ba 2 115	0.036 ppb	29.09	3.0	10.00	
205 Tl 2 209	0.034 ppb	5.09	0.5	1.50	
208 Pb 2 209	0.019 ppb	2.08	0.3	1.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2 RHig	-32.23	21.44	76.78	-42.0	70 - 120	ISFail
45 Sc 1	128496.87	0.88	158070.19	81.3	70 - 120	
45 Sc 2	6286610.50	2.57	6406944.50	98.1	70 - 120	
72 Ge 1	71501.47	1.37	88651.82	80.7	70 - 120	
115 In 2	6715174.00	1.12	7384352.50	90.9	70 - 120	
209 Bi 2	4679310.50	1.15	5202967.00	89.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\115_LCS.D\115_LCS.D#

76687

Date Acquired:	Aug 9 2016 11:03 pm	Sample Name:	LCS-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.50	ppb	1.15	200.00	80 -	120	95.8	
9	Be	2	45	182.90	ppb	1.81	200.00	80 -	120	91.5	
11	B	2	45	175.40	ppb	2.15	200.00	80 -	120	87.7	
23	Na	1	45	5311.00	ppb	0.77	5000.00	80 -	120	106.2	
24	Mg	1	45	4913.00	ppb	1.22	5000.00	80 -	120	98.3	
27	Al	1	45	4890.00	ppb	1.43	5000.00	80 -	120	97.8	
39	K	1	45	4927.00	ppb	0.25	5000.00	80 -	120	98.5	
44	Ca	2	45	5070.00	ppb	1.73	5000.00	80 -	120	101.4	
47	Ti	1	45	205.00	ppb	1.82	200.00	80 -	120	102.5	
51	V	1	45	201.20	ppb	0.64	200.00	80 -	120	100.6	
52	Cr	1	45	203.50	ppb	1.03	200.00	80 -	120	101.8	
55	Mn	1	45	194.70	ppb	1.43	200.00	80 -	120	97.4	
56	Fe	1	72	4929.00	ppb	1.41	5000.00	80 -	120	98.6	
59	Co	1	72	206.50	ppb	0.63	200.00	80 -	120	103.3	
60	Ni	1	72	202.80	ppb	1.09	200.00	80 -	120	101.4	
63	Cu	1	72	210.10	ppb	0.11	200.00	80 -	120	105.1	
66	Zn	1	72	205.90	ppb	0.75	200.00	80 -	120	103.0	
75	As	1	72	206.60	ppb	0.27	200.00	80 -	120	103.3	
78	Se	1	72	201.40	ppb	2.05	200.00	80 -	120	100.7	
88	Sr	2	115	214.70	ppb	2.21	200.00	80 -	120	107.4	
95	Mo	2	115	191.20	ppb	1.94	200.00	80 -	120	95.6	
107	Ag	2	115	191.50	ppb	1.83	200.00	80 -	120	95.8	
111	Cd	2	115	196.00	ppb	1.40	200.00	80 -	120	98.0	
118	Sn	2	115	190.50	ppb	1.62	200.00	80 -	120	95.3	
121	Sb	2	115	189.00	ppb	1.43	200.00	80 -	120	94.5	
137	Ba	2	115	191.40	ppb	1.34	200.00	80 -	120	95.7	
205	Tl	2	209	206.20	ppb	1.22	200.00	80 -	120	103.1	
208	Pb	2	209	200.40	ppb	0.49	200.00	80 -	120	100.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69491.88	0.76	76.78	-90512.5	70 -	120	ISFail
45	Sc	1	124534.90	0.24	158070.19	78.8	70 -	120	
45	Sc	2	5894832.50	2.54	6406944.50	92.0	70 -	120	
72	Ge	1	68815.20	0.39	88651.82	77.6	70 -	120	
115	In	2	6077147.00	1.53	7384352.50	82.3	70 -	120	
209	Bi	2	4346663.50	0.36	5202967.00	83.5	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\116_LCS.D\116_LCS.D#

766878

Date Acquired:	Aug 9 2016 11:09 pm	Sample Name:	LCSD-~~766487~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.20	ppb	2.31	200.00	80 -	120	95.6	
9	Be	2	45	182.50	ppb	1.60	200.00	80 -	120	91.3	
11	B	2	45	181.90	ppb	1.50	200.00	80 -	120	91.0	
23	Na	1	45	5591.00	ppb	1.73	5000.00	80 -	120	111.8	
24	Mg	1	45	5220.00	ppb	1.87	5000.00	80 -	120	104.4	
27	Al	1	45	4960.00	ppb	1.21	5000.00	80 -	120	99.2	
39	K	1	45	5231.00	ppb	1.18	5000.00	80 -	120	104.6	
44	Ca	2	45	5361.00	ppb	1.46	5000.00	80 -	120	107.2	
47	Ti	1	45	201.90	ppb	1.78	200.00	80 -	120	101.0	
51	V	1	45	197.70	ppb	1.43	200.00	80 -	120	98.9	
52	Cr	1	45	200.30	ppb	1.10	200.00	80 -	120	100.2	
55	Mn	1	45	192.80	ppb	1.51	200.00	80 -	120	96.4	
56	Fe	1	72	4923.00	ppb	1.39	5000.00	80 -	120	98.5	
59	Co	1	72	206.40	ppb	0.81	200.00	80 -	120	103.2	
60	Ni	1	72	201.30	ppb	1.07	200.00	80 -	120	100.7	
63	Cu	1	72	207.80	ppb	1.42	200.00	80 -	120	103.9	
66	Zn	1	72	209.40	ppb	0.58	200.00	80 -	120	104.7	
75	As	1	72	206.40	ppb	0.76	200.00	80 -	120	103.2	
78	Se	1	72	204.40	ppb	1.81	200.00	80 -	120	102.2	
88	Sr	2	115	215.10	ppb	1.65	200.00	80 -	120	107.6	
95	Mo	2	115	191.70	ppb	1.74	200.00	80 -	120	95.9	
107	Ag	2	115	187.70	ppb	1.74	200.00	80 -	120	93.9	
111	Cd	2	115	196.00	ppb	1.99	200.00	80 -	120	98.0	
118	Sn	2	115	190.40	ppb	1.09	200.00	80 -	120	95.2	
121	Sb	2	115	183.70	ppb	1.22	200.00	80 -	120	91.9	
137	Ba	2	115	191.30	ppb	1.70	200.00	80 -	120	95.7	
205	Tl	2	209	207.10	ppb	1.32	200.00	80 -	120	103.6	
208	Pb	2	209	201.40	ppb	1.61	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69421.23	3.58	76.78	-90420.5	70 -	120	ISFail
45	Sc	1	126307.20	0.83	158070.19	79.9	70 -	120	
45	Sc	2	5852857.50	1.30	6406944.50	91.4	70 -	120	
72	Ge	1	68626.96	0.51	88651.82	77.4	70 -	120	
115	In	2	5902131.00	1.44	7384352.50	79.9	70 -	120	
209	Bi	2	4282167.00	0.80	5202967.00	82.3	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\119DT1.D\119DT1.D#

Date Acquired:	Aug 9 2016 11:27 pm	Sample Name:	**1607337-26A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TWDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.02	ppb	3.26	-19.32	90 - 110	-0.6	
9	Be	2	45	-0.01	ppb	34.80	0.04	90 - 110	-188.5	
11	B	2	45	0.43	ppb	1.01	16.54	90 - 110	13.1	
23	Na	1	45	-51.29	ppb	1.59	131.00	90 - 110	-195.8	
24	Mg	1	45	-2.32	ppb	32.10	22.09	90 - 110	-52.4	
27	Al	1	45	-3.78	ppb	20.30	9.23	90 - 110	-204.5	
39	K	1	45	-42.82	ppb	2.32	8.69	90 - 110	######	
44	Ca	2	45	-29.56	ppb	2.42	69.33	90 - 110	-213.2	
47	Ti	1	45	0.03	ppb	24.74	0.09	90 - 110	141.6	
51	V	1	45	-0.16	ppb	3.90	0.05	90 - 110	######	
52	Cr	1	45	-0.11	ppb	21.60	0.03	90 - 110	######	
55	Mn	1	45	-0.07	ppb	61.76	0.09	90 - 110	-392.7	
56	Fe	1	72	-4.42	ppb	34.47	3.84	90 - 110	-574.7	
59	Co	1	72	-0.01	ppb	47.09	0.04	90 - 110	-98.8	
60	Ni	1	72	-0.06	ppb	16.54	0.05	90 - 110	-548.8	
63	Cu	1	72	-0.09	ppb	28.00	0.48	90 - 110	-90.8	
66	Zn	1	72	-0.25	ppb	32.97	0.70	90 - 110	-179.8	
75	As	1	72	-0.28	ppb	5.35	0.04	90 - 110	######	
78	Se	1	72	-0.28	ppb	30.99	0.11	90 - 110	######	
88	Sr	2	115	-0.06	ppb	7.29	1.23	90 - 110	-25.0	
95	Mo	2	115	0.00	ppb	16.95	0.10	90 - 110	-7.6	
107	Ag	2	115	0.00	ppb	12.48	0.04	90 - 110	21.3	
111	Cd	2	115	-0.01	ppb	16.29	0.04	90 - 110	-148.7	
118	Sn	2	115	0.00	ppb	8.48	0.14	90 - 110	6.9	
121	Sb	2	115	0.00	ppb	39.28	0.12	90 - 110	-6.2	
137	Ba	2	115	-0.03	ppb	31.39	0.15	90 - 110	-96.8	
205	Tl	2	209	-0.01	ppb	21.76	0.20	90 - 110	-13.8	
208	Pb	2	209	-0.02	ppb	10.64	0.06	90 - 110	-190.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-19.32	121.61	76.78	-25.2	70 -	120	ISFail
45	Sc	1		205868.92	1.08	158070.19	130.2	70 -	120	ISFail
45	Sc	2		9292643.00	0.62	6406944.50	145.0	70 -	120	ISFail
72	Ge	1		113752.76	1.31	88651.82	128.3	70 -	120	ISFail
115	In	2		10011364.00	0.59	7384352.50	135.6	70 -	120	ISFail
209	Bi	2		7018410.50	0.44	5202967.00	134.9	70 -	120	ISFail

DNR

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\125SMPL.D\125SMPL.D#

Date Acquired:	Aug 10 2016 12:03 am	Sample Name:	**1607256-13A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.090	ppb	#REF!	1.62	2000.00	ND
9	Be	2	45	-0.004	ppb	#REF!	22.72	2000.00	ND
11	B	2	45	16.540	ppb	#REF!	1.40	2000.00	J
23	Na	1	45	41.910	ppb	#REF!	1.66	25000.00	ND
24	Mg	1	45	2.465	ppb	#REF!	1.85	25000.00	ND
27	Al	1	45	11.880	ppb	#REF!	7.31	10000.00	J
39	K	1	45	18.760	ppb	#REF!	3.39	25000.00	ND
44	Ca	2	45	15.560	ppb	#REF!	1.87	25000.00	ND
47	Ti	1	45	0.134	ppb	#REF!	33.32	2000.00	ND
51	V	1	45	0.069	ppb	#REF!	18.69	2000.00	ND
52	Cr	1	45	-0.030	ppb	#REF!	11.09	2000.00	ND
55	Mn	1	45	0.061	ppb	#REF!	6.35	2000.00	ND
56	Fe	1	72	4.595	ppb	#REF!	6.42	10000.00	ND
59	Co	1	72	-0.002	ppb	#REF!	9.12	2000.00	ND
60	Ni	1	72	0.009	ppb	#REF!	9.16	2000.00	ND
63	Cu	1	72	0.423	ppb	#REF!	1.22	2000.00	ND
66	Zn	1	72	1.043	ppb	#REF!	0.64	2000.00	ND
75	As	1	72	-0.072	ppb	#REF!	6.52	2000.00	ND
78	Se	1	72	-0.020	ppb	#REF!	24.04	2000.00	ND
88	Sr	2	115	0.078	ppb	#REF!	7.70	2000.00	ND
95	Mo	2	115	0.038	ppb	#REF!	15.07	2000.00	ND
107	Ag	2	115	0.010	ppb	#REF!	12.66	500.00	ND
111	Cd	2	115	-0.003	ppb	#REF!	60.90	2000.00	ND
118	Sn	2	115	0.036	ppb	#REF!	1.85	2000.00	ND
121	Sb	2	115	0.012	ppb	#REF!	11.43	500.00	ND
137	Ba	2	115	0.079	ppb	#REF!	17.37	2000.00	ND
205	Tl	2	209	0.029	ppb	#REF!	7.04	2000.00	ND
208	Pb	2	209	0.201	ppb	#REF!	0.68	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14.73	130.10	RHigh	76.78	-19.2	70 - 120	ISFail
45	Sc	1	127148.34	1.32		158070.19	80.4	70 - 120	
45	Sc	2	5679052.00	1.71		6406944.50	88.6	70 - 120	
72	Ge	1	70230.46	1.43		88651.82	79.2	70 - 120	
115	In	2	6270220.50	1.23		7384352.50	84.9	70 - 120	
209	Bi	2	4577491.00	1.49		5202967.00	88.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\126SMPL.D\126SMPL.D#

Date Acquired:	Aug 10 2016 12:09 am	Sample Name:	**1607256-26A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.050	ppb	#REF!	7.17	2000.00	ND
9	Be	2	45	-0.008	ppb	#REF!	51.39	2000.00	ND
11	B	2	45	15.250	ppb	#REF!	0.98	2000.00	J
23	Na	1	45	60.220	ppb	#REF!	1.07	25000.00	ND
24	Mg	1	45	12.380	ppb	#REF!	6.69	25000.00	ND
27	Al	1	45	15.280	ppb	#REF!	4.02	10000.00	J
39	K	1	45	34.880	ppb	#REF!	1.67	25000.00	ND
44	Ca	2	45	54.930	ppb	#REF!	0.30	25000.00	ND
47	Ti	1	45	0.038	ppb	#REF!	69.30	2000.00	ND
51	V	1	45	0.061	ppb	#REF!	14.16	2000.00	ND
52	Cr	1	45	-0.024	ppb	#REF!	14.47	2000.00	ND
55	Mn	1	45	0.095	ppb	#REF!	7.58	2000.00	ND
56	Fe	1	72	3.787	ppb	#REF!	10.02	10000.00	ND
59	Co	1	72	-0.001	ppb	#REF!	27.14	2000.00	ND
60	Ni	1	72	0.023	ppb	#REF!	9.91	2000.00	ND
63	Cu	1	72	0.455	ppb	#REF!	1.98	2000.00	ND
66	Zn	1	72	16.390	ppb	#REF!	2.13	2000.00	>RL
75	As	1	72	-0.051	ppb	#REF!	1.77	2000.00	ND
78	Se	1	72	-0.135	ppb	#REF!	13.86	2000.00	ND
88	Sr	2	115	0.160	ppb	#REF!	2.54	2000.00	ND
95	Mo	2	115	-0.017	ppb	#REF!	35.68	2000.00	ND
107	Ag	2	115	0.006	ppb	#REF!	9.68	500.00	ND
111	Cd	2	115	-0.012	ppb	#REF!	39.83	2000.00	ND
118	Sn	2	115	0.026	ppb	#REF!	18.90	2000.00	ND
121	Sb	2	115	0.010	ppb	#REF!	9.84	500.00	ND
137	Ba	2	115	0.318	ppb	#REF!	8.11	2000.00	ND
205	Tl	2	209	0.015	ppb	#REF!	12.01	2000.00	ND
208	Pb	2	209	0.150	ppb	#REF!	1.00	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7.10	141.25	RHigh	76.78	-9.2	70 - 120	ISFail
45	Sc	1	130234.84	1.36		158070.19	82.4	70 - 120	
45	Sc	2	5593622.00	1.83		6406944.50	87.3	70 - 120	
72	Ge	1	69998.19	0.15		88651.82	79.0	70 - 120	
115	In	2	6163762.50	0.31		7384352.50	83.5	70 - 120	
209	Bi	2	4557771.00	0.61		5202967.00	87.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\127SMPL.D\127SMPL.D#

Date Acquired:	Aug 10 2016 12:15 am	Sample Name:	**1607256-27A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.076	ppb	#REF!	3.09	2000.00	ND
9	Be	2	45	-0.005	ppb	#REF!	24.17	2000.00	ND
11	B	2	45	15.590	ppb	#REF!	1.39	2000.00	J
23	Na	1	45	94.080	ppb	#REF!	0.27	25000.00	ND
24	Mg	1	45	9.122	ppb	#REF!	4.00	25000.00	ND
27	Al	1	45	16.390	ppb	#REF!	6.20	10000.00	J
39	K	1	45	35.180	ppb	#REF!	7.26	25000.00	ND
44	Ca	2	45	49.660	ppb	#REF!	2.89	25000.00	ND
47	Ti	1	45	0.131	ppb	#REF!	88.20	2000.00	ND
51	V	1	45	0.043	ppb	#REF!	14.25	2000.00	ND
52	Cr	1	45	-0.015	ppb	#REF!	9.23	2000.00	ND
55	Mn	1	45	0.149	ppb	#REF!	9.58	2000.00	ND
56	Fe	1	72	3.072	ppb	#REF!	4.73	10000.00	ND
59	Co	1	72	-0.004	ppb	#REF!	32.08	2000.00	ND
60	Ni	1	72	0.024	ppb	#REF!	7.20	2000.00	ND
63	Cu	1	72	0.468	ppb	#REF!	3.45	2000.00	ND
66	Zn	1	72	5.172	ppb	#REF!	1.42	2000.00	>RL
75	As	1	72	-0.053	ppb	#REF!	3.53	2000.00	ND
78	Se	1	72	0.068	ppb	#REF!	11.25	2000.00	ND
88	Sr	2	115	0.326	ppb	#REF!	4.31	2000.00	ND
95	Mo	2	115	-0.009	ppb	#REF!	19.10	2000.00	ND
107	Ag	2	115	0.003	ppb	#REF!	24.29	500.00	ND
111	Cd	2	115	-0.004	ppb	#REF!	16.64	2000.00	ND
118	Sn	2	115	0.049	ppb	#REF!	4.84	2000.00	ND
121	Sb	2	115	0.012	ppb	#REF!	16.90	500.00	ND
137	Ba	2	115	0.104	ppb	#REF!	7.29	2000.00	ND
205	Tl	2	209	0.014	ppb	#REF!	22.68	2000.00	ND
208	Pb	2	209	0.022	ppb	#REF!	7.80	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18.77	26.61	RHigh	76.78	-24.4	70 - 120	ISFail
45	Sc	1	128588.99	0.42		158070.19	81.3	70 - 120	
45	Sc	2	5666853.50	1.16		6406944.50	88.4	70 - 120	
72	Ge	1	70303.51	0.58		88651.82	79.3	70 - 120	
115	In	2	6306586.00	0.65		7384352.50	85.4	70 - 120	
209	Bi	2	4629525.00	1.04		5202967.00	89.0	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\130_PDS.D\130_PDS.D#

Date Acquired:	Aug 10 2016 12:34 am	Sample Name:	**1607337-26A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	158.80	ppb	1.14	-36628.96	200	75-125	######	Fail
9	Be	2	45	163.50	ppb	1.31	0.04	200	75-125	81.7	
11	B	2	45	172.10	ppb	1.02	16.54	200	75-125	77.8	
23	Na	1	45	5485.00	ppb	0.79	131.00	5000	75-125	107.1	
24	Mg	1	45	5002.00	ppb	0.39	22.09	5000	75-125	99.6	
27	Al	1	45	4968.00	ppb	1.14	9.23	5000	75-125	99.2	
39	K	1	45	5000.00	ppb	0.39	8.69	5000	75-125	99.8	
44	Ca	2	45	5075.00	ppb	2.92	69.33	5000	75-125	100.1	
47	Ti	1	45	194.80	ppb	1.20	0.09	200	75-125	97.4	
51	V	1	45	195.00	ppb	0.28	0.05	200	75-125	97.5	
52	Cr	1	45	198.80	ppb	0.36	0.03	200	75-125	99.4	
55	Mn	1	45	190.20	ppb	0.66	0.09	200	75-125	95.1	
56	Fe	1	72	4874.00	ppb	0.71	3.84	5000	75-125	97.4	
59	Co	1	72	200.20	ppb	0.29	0.04	200	75-125	100.1	
60	Ni	1	72	194.10	ppb	0.24	0.05	200	75-125	97.0	
63	Cu	1	72	196.80	ppb	0.03	0.48	200	75-125	98.2	
66	Zn	1	72	197.30	ppb	0.51	0.70	200	75-125	98.3	
75	As	1	72	196.00	ppb	0.53	0.04	200	75-125	98.0	
78	Se	1	72	192.40	ppb	1.58	0.11	200	75-125	96.1	
88	Sr	2	115	200.30	ppb	1.60	1.23	200	75-125	99.5	
95	Mo	2	115	177.70	ppb	1.78	0.10	200	75-125	88.8	
107	Ag	2	115	191.70	ppb	1.20	0.04	200	75-125	95.8	
111	Cd	2	115	184.10	ppb	1.39	0.04	200	75-125	92.0	
118	Sn	2	115	191.90	ppb	1.65	0.14	200	75-125	95.9	
121	Sb	2	115	181.40	ppb	1.54	0.12	200	75-125	90.6	
137	Ba	2	115	187.90	ppb	1.31	0.15	200	75-125	93.9	
205	Tl	2	209	199.10	ppb	1.51	0.20	200	75-125	99.4	
208	Pb	2	209	193.30	ppb	1.60	0.06	200	75-125	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-36628.96	4.68	76.78	-47708.9	70 - 120	ISFail
45	Sc	1	125599.98	0.73	158070.19	79.5	70 - 120	
45	Sc	2	5386959.00	1.27	6406944.50	84.1	70 - 120	
72	Ge	1	68421.66	0.57	88651.82	77.2	70 - 120	
115	In	2	5853272.50	1.15	7384352.50	79.3	70 - 120	
209	Bi	2	4369750.00	0.72	5202967.00	84.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\131CCV1.D\131CCV1.D#

Date Acquired:	Aug 10 2016 12:40 am	Sample Name:	**CCV6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	167.40	ppb	1.47	200.00	90 -	110	83.7	Fail
9	Be	2	45	171.80	ppb	1.06	200.00	90 -	110	85.9	Fail
11	B	2	45	166.70	ppb	1.71	200.00	90 -	110	83.4	Fail
23	Na	1	45	5465.00	ppb	1.87	5000.00	90 -	110	109.3	
24	Mg	1	45	5136.00	ppb	1.43	5000.00	90 -	110	102.7	
27	Al	1	45	5019.00	ppb	1.02	5000.00	90 -	110	100.4	
39	K	1	45	5195.00	ppb	1.89	5000.00	90 -	110	103.9	
44	Ca	2	45	5317.00	ppb	1.95	5000.00	90 -	110	106.3	
47	Ti	1	45	198.10	ppb	2.78	200.00	90 -	110	99.1	
51	V	1	45	193.60	ppb	0.91	200.00	90 -	110	96.8	
52	Cr	1	45	196.00	ppb	1.20	200.00	90 -	110	98.0	
55	Mn	1	45	193.30	ppb	1.32	200.00	90 -	110	96.7	
56	Fe	1	72	4978.00	ppb	1.21	5000.00	90 -	110	99.6	
59	Co	1	72	203.60	ppb	0.54	200.00	90 -	110	101.8	
60	Ni	1	72	198.10	ppb	1.04	200.00	90 -	110	99.1	
63	Cu	1	72	204.00	ppb	0.67	200.00	90 -	110	102.0	
66	Zn	1	72	204.20	ppb	1.22	200.00	90 -	110	102.1	
75	As	1	72	205.10	ppb	0.48	200.00	90 -	110	102.6	
78	Se	1	72	204.60	ppb	1.97	200.00	90 -	110	102.3	
88	Sr	2	115	204.10	ppb	1.67	200.00	90 -	110	102.1	
95	Mo	2	115	187.90	ppb	1.81	200.00	90 -	110	94.0	
107	Ag	2	115	192.90	ppb	1.47	200.00	90 -	110	96.5	
111	Cd	2	115	192.80	ppb	1.10	200.00	90 -	110	96.4	
118	Sn	2	115	195.80	ppb	1.49	200.00	90 -	110	97.9	
121	Sb	2	115	193.30	ppb	1.05	200.00	90 -	110	96.7	
137	Ba	2	115	191.20	ppb	1.01	200.00	90 -	110	95.6	
205	Tl	2	209	205.90	ppb	0.44	200.00	90 -	110	103.0	
208	Pb	2	209	199.00	ppb	1.90	200.00	90 -	110	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56261.30	1.15	76.78	-73279.8	70 -	120		ISFail
45	Sc	1	124555.60	0.67	158070.19	78.8	70 -	120		
45	Sc	2	5296972.00	1.77	6406944.50	82.7	70 -	120		
72	Ge	1	66748.51	0.64	88651.82	75.3	70 -	120		
115	In	2	5704471.00	0.52	7384352.50	77.3	70 -	120		
209	Bi	2	4283476.00	0.74	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\133LCVL.D\133LCVL.D#

Date Acquired:	Aug 10 2016 12:52 am	Sample Name:	**LCVL6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.36	ppb	0.41	10.00	70 -	130	83.6	
9	Be	2	45	0.93	ppb	6.23	1.00	70 -	130	92.7	
11	B	2	45	17.97	ppb	1.06	20.00	70 -	130	89.9	
23	Na	1	45	75.06	ppb	1.50	100.00	70 -	130	75.1	
24	Mg	1	45	106.10	ppb	2.21	100.00	70 -	130	106.1	
27	Al	1	45	107.20	ppb	1.50	100.00	70 -	130	107.2	
39	K	1	45	102.50	ppb	3.12	100.00	70 -	130	102.5	
44	Ca	2	45	96.05	ppb	1.13	100.00	70 -	130	96.1	
47	Ti	1	45	5.58	ppb	14.76	5.00	70 -	130	111.6	
51	V	1	45	1.01	ppb	3.86	1.00	70 -	130	100.9	
52	Cr	1	45	4.96	ppb	1.30	5.00	70 -	130	99.3	
55	Mn	1	45	5.15	ppb	2.02	5.00	70 -	130	103.0	
56	Fe	1	72	109.10	ppb	1.44	100.00	70 -	130	109.1	
59	Co	1	72	5.20	ppb	1.89	5.00	70 -	130	104.0	
60	Ni	1	72	5.19	ppb	3.60	5.00	70 -	130	103.9	
63	Cu	1	72	5.26	ppb	2.20	5.00	70 -	130	105.3	
66	Zn	1	72	5.39	ppb	4.12	5.00	70 -	130	107.7	
75	As	1	72	5.14	ppb	2.63	5.00	70 -	130	102.7	
78	Se	1	72	5.64	ppb	7.87	5.00	70 -	130	112.8	
88	Sr	2	115	5.01	ppb	0.98	5.00	70 -	130	100.2	
95	Mo	2	115	4.61	ppb	2.50	5.00	70 -	130	92.2	
107	Ag	2	115	2.02	ppb	1.23	2.00	70 -	130	100.8	
111	Cd	2	115	1.00	ppb	5.18	1.00	70 -	130	99.9	
118	Sn	2	115	5.02	ppb	0.81	5.00	70 -	130	100.5	
121	Sb	2	115	2.06	ppb	0.44	2.00	70 -	130	102.8	
137	Ba	2	115	4.84	ppb	1.77	5.00	70 -	130	96.8	
205	Tl	2	209	1.08	ppb	1.83	1.00	70 -	130	108.1	
208	Pb	2	209	1.04	ppb	3.49	1.00	70 -	130	103.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1894.92	0.81	76.78	-2468.1	70 -	120	ISFail
45	Sc	1	127512.96	1.28	158070.19	80.7	70 -	120	
45	Sc	2	5345241.50	1.84	6406944.50	83.4	70 -	120	
72	Ge	1	69017.09	0.78	88651.82	77.9	70 -	120	
115	In	2	5931265.50	0.47	7384352.50	80.3	70 -	120	
209	Bi	2	4508333.00	0.53	5202967.00	86.6	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\134_CCB.D\134_CCB.D#

Date Acquired:	Aug 10 2016 12:58 am	Sample Name:	**CCB6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.101	ppb	14.77	2.00	2.00	
9	Be	2	45	0.018	ppb	16.07	0.40	0.30	
11	B	2	45	1.904	ppb	2.17	10.00	10.00	
23	Na	1	45	-25.190	ppb	1.25	50.00	#####	
24	Mg	1	45	1.985	ppb	7.37	50.00	#####	
27	Al	1	45	12.990	ppb	11.78	50.00	10.00	FailAq
39	K	1	45	2.226	ppb	2.38	50.00	#####	
44	Ca	2	45	14.170	ppb	3.90	50.00	#####	
47	Ti	1	45	0.228	ppb	48.05	4.00	3.00	
51	V	1	45	0.067	ppb	5.49	4.00	3.00	
52	Cr	1	45	-0.014	ppb	11.68	2.00	2.00	
55	Mn	1	45	0.099	ppb	33.22	2.00	3.00	
56	Fe	1	72	2.892	ppb	10.97	50.00	30.00	
59	Co	1	72	0.042	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.107	ppb	18.76	2.00	3.00	
63	Cu	1	72	0.079	ppb	7.94	2.00	2.00	
66	Zn	1	72	0.873	ppb	10.21	4.00	2.00	
75	As	1	72	-0.028	ppb	6.15	2.00	2.00	
78	Se	1	72	0.106	ppb	9.27	0.60	2.00	
88	Sr	2	115	0.136	ppb	7.78	4.00	3.00	
95	Mo	2	115	0.048	ppb	13.97	2.00	2.00	
107	Ag	2	115	0.035	ppb	31.56	0.40	1.00	
111	Cd	2	115	0.016	ppb	17.44	0.40	0.30	
118	Sn	2	115	0.106	ppb	9.34	20.00	3.00	
121	Sb	2	115	0.114	ppb	2.32	2.00	0.80	
137	Ba	2	115	0.159	ppb	6.77	2.00	3.00	
205	Tl	2	209	0.122	ppb	9.29	2.00	0.50	
208	Pb	2	209	0.043	ppb	10.14	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-30.83	20.91	76.78	-40.2	70 - 120	ISFail
45	Sc	1		127231.00	1.85	158070.19	80.5	70 - 120	
45	Sc	2		5344402.50	0.65	6406944.50	83.4	70 - 120	
72	Ge	1		69252.09	1.04	88651.82	78.1	70 - 120	
115	In	2		6033401.00	0.52	7384352.50	81.7	70 - 120	
209	Bi	2		4493201.00	0.82	5202967.00	86.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\139ICSA.D\139ICSA.D#

Date Acquired:	Aug 10 2016 01:28 am	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.070	ppb	2.00	8.00	5.00	
9	Be	2	45	0.001	ppb	34.45	0.32	0.80	
11	B	2	45	2.312	ppb	1.17	30.00	30.00	
23	Na	1	45	105200.000	ppb	1.04	#######	#######	
24	Mg	1	45	90950.000	ppb	0.26	#######	#######	
27	Al	1	45	100500.000	ppb	0.69	#######	#######	
39	K	1	45	98300.000	ppb	0.71	#######	#######	
44	Ca	2	45	93690.000	ppb	1.88	#######	#######	
47	Ti	1	45	1967.000	ppb	2.25	10.00	10.00	
51	V	1	45	0.007	ppb	5.61	10.00	10.00	
52	Cr	1	45	0.736	ppb	2.29	8.00	5.00	
55	Mn	1	45	0.784	ppb	2.89	8.00	10.00	
56	Fe	1	72	92090.000	ppb	1.07	#######	#######	
59	Co	1	72	1.251	ppb	2.39	8.00	10.00	
60	Ni	1	72	0.367	ppb	8.44	8.00	10.00	
63	Cu	1	72	2.143	ppb	4.19	8.00	10.00	
66	Zn	1	72	1.740	ppb	10.89	10.00	5.00	
75	As	1	72	0.424	ppb	2.29	4.00	5.00	
78	Se	1	72	0.405	ppb	4.88	2.00	5.00	
88	Sr	2	115	1.102	ppb	1.24	10.00	10.00	
95	Mo	2	115	1840.000	ppb	1.36	8.00	5.00	
107	Ag	2	115	0.095	ppb	9.31	0.80	2.00	
111	Cd	2	115	0.358	ppb	4.48	1.20	1.00	
118	Sn	2	115	0.112	ppb	11.93	10.00	10.00	
121	Sb	2	115	0.124	ppb	4.55	4.00	2.50	
137	Ba	2	115	0.485	ppb	6.26	8.00	10.00	
205	Tl	2	209	0.030	ppb	4.63	4.00	1.50	
208	Pb	2	209	0.143	ppb	5.94	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4.44	104.01	76.78	-5.8	70 - 120	ISFail
45	Sc	1	119130.96	0.54	158070.19	75.4	70 - 120	
45	Sc	2	5411480.50	1.58	6406944.50	84.5	70 - 120	
72	Ge	1	63381.42	0.44	88651.82	71.5	70 - 120	
115	In	2	6052545.50	0.79	7384352.50	82.0	70 - 120	
209	Bi	2	3898169.50	0.91	5202967.00	74.9	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\140ICSB.D\140ICSB.D#

Date Acquired:	Aug 10 2016 01:34 am	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.08	ppb	8.76	---	80 -		120	
9	Be	2	45	0.00	ppb	5.88	---	80 -		120	
11	B	2	45	2.18	ppb	2.39	---	80 -		120	
23	Na	1	45	99220.00	ppb	0.75	100000.00	80 -		120	
24	Mg	1	45	91000.00	ppb	2.16	100000.00	80 -		120	
27	Al	1	45	96240.00	ppb	1.82	100000.00	80 -		120	
39	K	1	45	96230.00	ppb	1.17	100000.00	80 -		120	
44	Ca	2	45	94120.00	ppb	2.58	100000.00	80 -		120	
47	Ti	1	45	1933.00	ppb	2.15	---	80 -		120	
51	V	1	45	39.34	ppb	1.11	40.00	80 -		120	
52	Cr	1	45	20.35	ppb	2.07	20.00	80 -		120	
55	Mn	1	45	18.52	ppb	1.26	20.00	80 -		120	
56	Fe	1	72	90510.00	ppb	1.66	100000.00	80 -		120	
59	Co	1	72	39.63	ppb	1.40	40.00	80 -		120	
60	Ni	1	72	36.01	ppb	2.48	40.00	80 -		120	
63	Cu	1	72	19.40	ppb	2.06	20.00	80 -		120	
66	Zn	1	72	17.91	ppb	1.30	20.00	80 -		120	
75	As	1	72	19.95	ppb	1.53	20.00	80 -		120	
78	Se	1	72	18.94	ppb	4.72	20.00	80 -		120	
88	Sr	2	115	1.26	ppb	1.03	---	80 -		120	
95	Mo	2	115	1869.00	ppb	1.21	---	80 -		120	
107	Ag	2	115	17.30	ppb	2.01	20.00	80 -		120	
111	Cd	2	115	8.66	ppb	2.03	10.00	80 -		120	
118	Sn	2	115	0.32	ppb	6.45	---	80 -		120	
121	Sb	2	115	0.06	ppb	8.76	---	80 -		120	
137	Ba	2	115	0.46	ppb	4.50	---	80 -		120	
205	Tl	2	209	0.03	ppb	1.19	---	80 -		120	
208	Pb	2	209	0.14	ppb	4.34	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-13.32	82.49	76.78	-17.4	70 -		120	ISFail
45	Sc	1	114294.10	0.74	158070.19	72.3	70 -		120	
45	Sc	2	5913222.00	2.49	6406944.50	92.3	70 -		120	
72	Ge	1	62531.31	0.48	88651.82	70.5	70 -		120	
115	In	2	6403232.00	2.00	7384352.50	86.7	70 -		120	
209	Bi	2	3877124.00	1.53	5202967.00	74.5	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 10 2016 02:34 am	Sample Name:	CCV7-160809
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	211.40	ppb	1.98	200.00	90 -	110	105.7	
9	Be	2	45	193.30	ppb	2.54	200.00	90 -	110	96.7	
11	B	2	45	181.50	ppb	2.97	200.00	90 -	110	90.8	
23	Na	1	45	5794.00	ppb	0.74	5000.00	90 -	110	115.9	Fail
24	Mg	1	45	5243.00	ppb	0.99	5000.00	90 -	110	104.9	
27	Al	1	45	4782.00	ppb	0.93	5000.00	90 -	110	95.6	
39	K	1	45	5111.00	ppb	0.66	5000.00	90 -	110	102.2	
44	Ca	2	45	5330.00	ppb	2.78	5000.00	90 -	110	106.6	
47	Ti	1	45	195.70	ppb	1.93	200.00	90 -	110	97.9	
51	V	1	45	204.60	ppb	1.30	200.00	90 -	110	102.3	
52	Cr	1	45	207.40	ppb	0.93	200.00	90 -	110	103.7	
55	Mn	1	45	194.10	ppb	0.54	200.00	90 -	110	97.1	
56	Fe	1	72	4961.00	ppb	0.58	5000.00	90 -	110	99.2	
59	Co	1	72	211.40	ppb	0.42	200.00	90 -	110	105.7	
60	Ni	1	72	207.80	ppb	0.64	200.00	90 -	110	103.9	
63	Cu	1	72	212.40	ppb	0.87	200.00	90 -	110	106.2	
66	Zn	1	72	203.80	ppb	0.83	200.00	90 -	110	101.9	
75	As	1	72	206.40	ppb	0.19	200.00	90 -	110	103.2	
78	Se	1	72	193.90	ppb	1.18	200.00	90 -	110	97.0	
88	Sr	2	115	220.10	ppb	2.20	200.00	90 -	110	110.1	Fail
95	Mo	2	115	198.40	ppb	2.02	200.00	90 -	110	99.2	
107	Ag	2	115	204.10	ppb	2.60	200.00	90 -	110	102.1	
111	Cd	2	115	197.30	ppb	1.79	200.00	90 -	110	98.7	
118	Sn	2	115	193.70	ppb	2.33	200.00	90 -	110	96.9	
121	Sb	2	115	189.10	ppb	1.94	200.00	90 -	110	94.6	
137	Ba	2	115	189.90	ppb	2.75	200.00	90 -	110	95.0	
205	Tl	2	209	207.50	ppb	1.24	200.00	90 -	110	103.8	
208	Pb	2	209	201.00	ppb	1.74	200.00	90 -	110	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-82304.90	2.29	76.78	-107201.3	70 -	120		ISFail
45	Sc	1	125201.70	0.89	158070.19	79.2	70 -	120		
45	Sc	2	6585617.50	2.74	6406944.50	102.8	70 -	120		
72	Ge	1	69514.50	0.34	88651.82	78.4	70 -	120		
115	In	2	6265898.00	2.25	7384352.50	84.9	70 -	120		
209	Bi	2	4283931.00	1.41	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 10 2016 02:46 am	Sample Name:	**LCVL7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.55	ppb	1.67	10.00	70 -	130	105.5	
9	Be	2	45	1.02	ppb	5.20	1.00	70 -	130	102.4	
11	B	2	45	19.50	ppb	2.95	20.00	70 -	130	97.5	
23	Na	1	45	85.41	ppb	0.67	100.00	70 -	130	85.4	
24	Mg	1	45	105.90	ppb	2.49	100.00	70 -	130	105.9	
27	Al	1	45	102.10	ppb	5.06	100.00	70 -	130	102.1	
39	K	1	45	106.40	ppb	0.78	100.00	70 -	130	106.4	
44	Ca	2	45	97.15	ppb	2.11	100.00	70 -	130	97.2	
47	Ti	1	45	4.57	ppb	8.81	5.00	70 -	130	91.5	
51	V	1	45	1.08	ppb	5.50	1.00	70 -	130	108.1	
52	Cr	1	45	5.17	ppb	1.70	5.00	70 -	130	103.3	
55	Mn	1	45	4.99	ppb	1.78	5.00	70 -	130	99.7	
56	Fe	1	72	108.10	ppb	1.80	100.00	70 -	130	108.1	
59	Co	1	72	5.38	ppb	1.05	5.00	70 -	130	107.6	
60	Ni	1	72	5.19	ppb	3.22	5.00	70 -	130	103.9	
63	Cu	1	72	5.42	ppb	0.84	5.00	70 -	130	108.5	
66	Zn	1	72	5.42	ppb	1.94	5.00	70 -	130	108.3	
75	As	1	72	5.28	ppb	2.23	5.00	70 -	130	105.5	
78	Se	1	72	5.09	ppb	9.45	5.00	70 -	130	101.8	
88	Sr	2	115	5.36	ppb	2.63	5.00	70 -	130	107.3	
95	Mo	2	115	4.99	ppb	2.38	5.00	70 -	130	99.8	
107	Ag	2	115	2.12	ppb	0.86	2.00	70 -	130	105.9	
111	Cd	2	115	1.07	ppb	10.42	1.00	70 -	130	106.5	
118	Sn	2	115	4.91	ppb	2.17	5.00	70 -	130	98.2	
121	Sb	2	115	1.99	ppb	3.25	2.00	70 -	130	99.4	
137	Ba	2	115	4.87	ppb	2.38	5.00	70 -	130	97.4	
205	Tl	2	209	1.07	ppb	2.25	1.00	70 -	130	106.7	
208	Pb	2	209	1.05	ppb	2.01	1.00	70 -	130	105.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2645.24	4.55	76.78	-3445.4	70 -	120	ISFail
45	Sc	1	131958.09	1.68	158070.19	83.5	70 -	120	
45	Sc	2	6630638.50	2.20	6406944.50	103.5	70 -	120	
72	Ge	1	72498.49	1.39	88651.82	81.8	70 -	120	
115	In	2	6417149.50	1.31	7384352.50	86.9	70 -	120	
209	Bi	2	4487306.00	0.69	5202967.00	86.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 10 2016 02:52 am	Sample Name:	**CCB7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.099	ppb	4.55	2.00	2.00	
9	Be	2	45	0.028	ppb	6.74	0.40	0.30	
11	B	2	45	1.824	ppb	2.26	10.00	10.00	
23	Na	1	45	-17.230	ppb	0.69	50.00	#####	
24	Mg	1	45	2.846	ppb	8.80	50.00	#####	
27	Al	1	45	13.190	ppb	2.07	50.00	10.00	FailAq
39	K	1	45	4.196	ppb	0.71	50.00	#####	
44	Ca	2	45	15.510	ppb	3.58	50.00	#####	
47	Ti	1	45	0.361	ppb	63.82	4.00	3.00	
51	V	1	45	0.044	ppb	4.14	4.00	3.00	
52	Cr	1	45	-0.002	ppb	8.89	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.00	2.00	3.00	
56	Fe	1	72	4.111	ppb	5.89	50.00	30.00	
59	Co	1	72	0.045	ppb	16.88	2.00	3.00	
60	Ni	1	72	0.140	ppb	11.71	2.00	3.00	
63	Cu	1	72	0.128	ppb	3.06	2.00	2.00	
66	Zn	1	72	0.872	ppb	7.66	4.00	2.00	
75	As	1	72	0.128	ppb	1.55	2.00	2.00	
78	Se	1	72	-0.016	ppb	8.21	0.60	2.00	
88	Sr	2	115	0.190	ppb	4.02	4.00	3.00	
95	Mo	2	115	0.077	ppb	2.00	2.00	2.00	
107	Ag	2	115	0.037	ppb	12.69	0.40	1.00	
111	Cd	2	115	0.035	ppb	4.31	0.40	0.30	
118	Sn	2	115	0.078	ppb	10.84	20.00	3.00	
121	Sb	2	115	0.058	ppb	13.12	2.00	0.80	
137	Ba	2	115	0.170	ppb	3.65	2.00	3.00	
205	Tl	2	209	0.083	ppb	5.52	2.00	0.50	
208	Pb	2	209	0.034	ppb	6.00	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-43.63	4.42	76.78	-56.8	70 - 120	ISFail
45	Sc	1	128466.02	0.42	158070.19	81.3	70 - 120	
45	Sc	2	6564520.50	2.58	6406944.50	102.5	70 - 120	
72	Ge	1	71235.80	1.58	88651.82	80.4	70 - 120	
115	In	2	6498961.00	0.94	7384352.50	88.0	70 - 120	
209	Bi	2	4515668.00	1.20	5202967.00	86.8	70 - 120	

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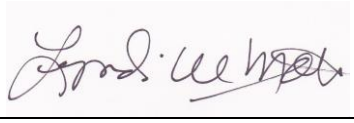

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DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

CHAIN-OF-CUSTODY

№ 72218

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-22-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607265
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ - Lead | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU134(0-2)-A	01	7-22-16	1002	S	Bag	1				X		X X	
SGR-DU134(2-4)-A	02	7-22-16	1003	S	Bag	1				X		X X	
SGR-DU134(4-6)-A	03	7-22-16	1007	S	Bag	1				X		X X	
SGR-DU134(6-8)-A	04	7-22-16	1008	S	Bag	1				X		X X	
SGR-DU134(0-2)-B	05	7-22-16	1012	S	Bag	1				X		X X	
SGR-DU134(2-4)-B	06	7-22-16	1013	S	Bag	1				X		X X	
SGR-DU134(4-6)-B	07	7-22-16	1017	S	Bag	1				X		X X	
SGR-DU134(6-8)-B	08	7-22-16	1019	S	Bag	1				X		X X	
SGR-DU134(0-2)-C	09	7-22-16	1022	S	Bag	1				X		X X	
SGR-DU134(2-4)-C	10	7-22-16	1024	S	Bag	1				X		X X	
SGR-DU134(4-6)-C	11	7-22-16	1027	S	Bag	1				X		X X	
SGR-DU134(6-8)-C	12	7-22-16	1028	S	Bag	1				X		X X	
EB01(20160722)	13	7-22-16	1035	W	Poly/Glass	2		X		X		X X	

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RELINQUISHED BY: (Signature) — DATE/TIME: 7/23/16 945 — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0.2, 1.2 0.1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72234

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.COM
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-22-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1602265
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ Lead | RCRA ☐ TX11 ☐ ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	FIELD NOTES
SGR-DU140(02)-A	14	7-22-16	1334	S	Bag	1				X		
SGR-DU140(2-4)-A	15	7-22-16	1337	S	Bag	1				X		
SGR-DU140(4-6)-A	16	7-22-16	1340	S	Bag	1				X		
SGR-DU140(6-8)-A	17	7-22-16	1348	S	Bag	1				X		
SGR-DU140(0-2)-B	18	7-22-16	1345	S	Bag	1				X		
SGR-DU140(2-4)-B	19	7-22-16	1346	S	Bag	1				X		
SGR-DU140(4-6)-B	20	7-22-16	1348	S	Bag	1				X		
SGR-DU140(6-8)-B	21	7-22-16	1350	S	Bag	1				X		
SGR-DU140(0-2)-C	22	7-22-16	1352	S	Bag	1				X		
SGR-DU140(2-4)-C	23	7-22-16	1354	S	Bag	1				X		
SGR-DU140(4-6)-C	24	7-22-16	1355	S	Bag	1				X		
SGR-DU140(6-8)-C	25	7-22-16	1356	S	Bag	1				X		
FB02(20160722)	26	7-22-16	1400	W	Poly/Glass	2		X		X		

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7/22/16 1500 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/23/16 945 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 02.1, 0.8, 1.4 THERM #: 28
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/23/2016**

Work Order Number **1607265** Received by **JB**

Checklist completed by: _____ 7/23/2016 Reviewed by _____ 7/23/2016
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	0.2 °C, 1.2, 0.8, 1.4
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by _____
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

D□L A□al□□□cal I□c□

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Da : *15-Aug-16*

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August 15, 2016

Alex Walter
Arcadis
8725 Rosehill #350
Lenexa, Kansas 66215
TEL: (913) 492-0900
FAX (913) 492-0902

Order No.: 1607265

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 26 sample(s) on 7/23/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 5 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-16-16 & DoD-ELAP #L15-426

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GCMS8 Raw Data 159

ICP-MS3 Raw Data 409

ICP-MS4 Raw Data 550

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

CHAIN-OF-CUSTODY

№ 72218

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-22-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607265
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 2008 ☐ DISS. METALS ☐ Lead | RCRA ☐ TX11 ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU134(0-2)-A	01	7-22-16	1002	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(2-4)-A	02	7-22-16	1003	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(4-6)-A	03	7-22-16	1007	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(6-8)-A	04	7-22-16	1008	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(0-2)-B	05	7-22-16	1012	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(2-4)-B	06	7-22-16	1013	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(4-6)-B	07	7-22-16	1017	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(6-8)-B	08	7-22-16	1019	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(0-2)-C	09	7-22-16	1022	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(2-4)-C	10	7-22-16	1024	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(4-6)-C	11	7-22-16	1027	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
SGR-DU134(6-8)-C	12	7-22-16	1028	S	Bag	1				X		BTEX, VOC 8260, 8270 PEST, METALS 6020	
EB01(20160722)	13	7-22-16	1035	W	Poly/Glass	2		X		X		BTEX, VOC 8260, 8270 PEST, METALS 6020	

RELINQUISHED BY: (Signature) DATE/TIME 7-22-16 / 1500 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 7/23/16 945 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0.2, 1.2 0.8, 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL
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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72234

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.COM
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-22-16 PAGE 2 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607265
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ 8021 ☐ TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO (8015) ☐ DRO (8015) ☐ VOC 624 ☐ VOC 8260/5035 ☐ VOC 8260 ☐ VOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ SVOC 8270 ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8270 O-P PEST ☐ 8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ Lead RCRA ☐ TX11 ☐ PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ CHLORIDE ☐ ANIONS ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ RCI ☐ FLASHPOINT ☐ DGAS ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU140(02)-A	14	7-22-16	1334	S	Bag	1				X		X X	
SGR-DU140(2-4)-A	15	7-22-16	1337	S	Bag	1				X		X X	
SGR-DU140(4-6)-A	16	7-22-16	1340	S	Bag	1				X		X X	
SGR-DU140(6-8)-A	17	7-22-16	1343	S	Bag	1				X		X X	
SGR-DU140(0-2)-B	18	7-22-16	1345	S	Bag	1				X		X X	
SGR-DU140(2-4)-B	19	7-22-16	1346	S	Bag	1				X		X X	
SGR-DU140(4-6)-B	20	7-22-16	1348	S	Bag	1				X		X X	
SGR-DU140(6-8)-B	21	7-22-16	1350	S	Bag	1				X		X X	
SGR-DU140(0-2)-C	22	7-22-16	1352	S	Bag	1				X		X X	
SGR-DU140(2-4)-C	23	7-22-16	1354	S	Bag	1				X		X X	
SGR-DU140(4-6)-C	24	7-22-16	1355	S	Bag	1				X		X X	
SGR-DU140(6-8)-C	25	7-22-16	1356	S	Bag	1				X		X X	
EB02(20160722)	26	7-22-16	1400	W	Poly/Glass	2		X		X		X X	

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7/22/16 1500 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/23/16 945 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0.2, 1.2, 0.3, 1.4 THERM #: 28
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☑ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED



ORIGIN ID:LRDA (913)
JORDAN BEEM
ARCADIS
8725 ROSEHILL
STE 550
LENEXA, KS 66215
UNITED STATES US

E: 22JUL16
: 79.00 LB
006994464/SSFE1704
: 23x13x14 IN

BILL THIRD PARTY

SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

1 of 4

TRK# 0201 7836 4517 1389

SATURDAY 12:00P
PRIORITY OVERNIGHT

MASTER

XO BSMA

78664
TX-US AUS

QEC
Quality Environmental Co...iners
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 7-22-16
SIGNATURE Jordan Beem



ORIGIN ID:LRDA (913) 492-0900
JORDAN BEEM
ARCADIS
8725 ROSEHILL
STE 550
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 22JUL16
ACTWGT: 96.50 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664

(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Expre

2 of 4

MPS# 0263 7836 4517 1390

SATURDAY 12:P
PRIORITY OVERNHT

Mstr# 7836 4517 1389 0201

XO BSMA

7/664
TX-US AUS

QEC
Quality Environmental Contai
800-255-3950 • 304-255-39

CUSTODY SEAL
DATE 7-22-16
SIGNATURE Jordan Beem

ORIGIN ID:LRDA (913) 492-0900
JORDAN BEEM
ARCADIS
8725 ROSEHILL
STE 550
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 22JUL16
ACTWGT: 86.90 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222
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FedEx Express

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0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

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78664
TX-US AUS

QEC
Quality Environmental Containe
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 7-22-16
SIGNATURE Jordan Beem

ORIGIN ID:LRDA (913) 492-0900
JORDAN BEEM
ARCADIS
8725 ROSEHILL
STE 550
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 22JUL16
ACTWGT: 88.30 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222
INV:
PO:
REF:
DEPT:

FedEx Express

3 of 4
MPS# 0263 7836 4517 1404
Mstr# 7836 4517 1389
0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BSMA

78664
TX-US AUS

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 7-22-16
SIGNATURE Jordan Beem

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/23/2016**

Work Order Number **1607265** Received by **JB**

Checklist completed by: _____ 7/23/2016 Reviewed by _____ 7/23/2016
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	0.2 °C, 1.2, 0.8, 1.4
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by _____
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo SGR	**Date:** 8/15/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607265
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			**X**		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	**X**				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	**X**				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	**X**				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?		**X**			**R4-02**
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MQL?	**X**				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				**R7-02**
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		**X**			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?		**X**			**R7-04**
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			**X**		
		2) Were analytical duplicates analyzed at the appropriate frequency?			**X**		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			**X**		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo SGR | **Date:** 8/15/2016

Reviewer Name: Angie O'Donnell | **Laboratory Work Order:** 1607265

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	**X**				
		2) Were percent RSDs or correlation coefficient criteria met?	**X**				
		3) Was the number of standards recommended in the method used for all analytes?	**X**				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	**X**				
		5) Are ICAL data available for all instruments used?	**X**				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	**X**				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	**X**				
		2) Were percent differences for each analyte within the method-required QC limits?		**X**			**S2-02**
		3) Was the ICAL curve verified for each analyte?	**X**				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	**X**				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	**X**				
		2) Were ion abundance data within the method-required QC limits?	**X**				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	**X**				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	**X**				
		2) Were data associated with manual integrations flagged on the raw data?	**X**				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			**X**		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			**X**		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	**X**				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	**X**				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	**X**				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	**X**				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	**X**				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	**X**				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	**X**				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	**X**				
		2) Is documentation of the analyst's competency up-to-date and on file?	**X**				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	**X**				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

08/15/16

Date

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607265

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with DoD QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 7/23/2016. A total of 26 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R4-02

For PAH Analysis, for water Batch 76453, the recovery of surrogate 4-Terphenyl-d14 for equipment blank Samples EB01(20160722) and EB02(20160722) and the Laboratory Control Spike Duplicate (LCSD-76453) was below the method control limits. These are flagged accordingly in the Analytical Data Report and the QC Summary Report. The remaining surrogate for these samples was within method control limits. Client was informed and no further corrective action was taken.

Exception Report R7-02

For PAH Analysis, for Batch 76453, an MS/SMD is not required for Equipment Blank matrices. An LCS/LCSD was performed as Batch QC.

Exception Report R7-03 and R7-04

For Lead Analysis, for soil Batch 76664, the recovery and RPD of Lead for the Matrix Spike and Matrix Spike Duplicate (1607265-18 MSD) were above the method control limits. These are flagged accordingly in the QC Summary Report. This analyte was within method control limits in the associated LCS/MS. No further corrective action was taken.

For PAH Analysis, for soil Batch 76511, the recoveries of three compounds for the Matrix Spike Duplicate (1607265-18 MSD) were above the method control limits. These are flagged accordingly in

the QC Summary Report. These compounds were within method control limits in the associated LCS/MS. No further corrective action was taken.

Exception Report R10-01

For PAH Analysis, the soil samples were diluted due to observed color of extract; dilution meets project specifications.

For Metals Analysis, for Batch 76687, the Serial Dilution was mis-prepared which yielded unusable data and will not be reported. The associated samples were Equipment Blanks and were nondetect for the target analyte, Lead. The associated Post Digestion Spike was within method control limits and will be reported as Batch QC. Client was informed and no further corrective action was taken.

For all of the samples, with the exception of five, in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. Five subsurface samples had insufficient sample volume to perform the sub-sampling procedure as stated in the SOP and the entire sieved sample mass was used for the analysis. All of the soil samples in this workorder consist of the following sample types: subsurface soil samples processed to pass a #10 sieve (2mm).

Exception Report S2-02

For PAH Analysis, performed on 8/4/2016 on Instrument GCMS_8, the recovery of Pyrene for the Initial Calibration Verification (ICV2-160804) was slightly below the method control limits. This was discussed with the client. The client approved of the corrective action taken by DHL Analytical to note in the case narrative and proceed with analysis.. No further corrective action was taken.

A summary of project communication follows:

The Subcontract Agreement No. D16-003 for Arcadis Project No. 04285081.0000.00043 was sent to DHL Analytical from client and signed on 1/6/2016, the contract for work signed and approved by both parties on 1/12/2016. A Modification No. 01-D16-003 was signed by both parties on 4/21/2016.

The bottle kit was requested from Alex Walter of Arcadis sent via email to John DuPont on 7/5/2016. The following DHL Bottle Orders:
#7161 sent on 7/14/2016 via Lonestar Overnight Ground to arrive by 7/15/2016.
#7162 sent on 7/18/2016 via Lonestar Overnight Ground to arrive by 7/19/2016.
#7163 sent on 7/20/2016 via Lonestar Overnight Ground to arrive by 7/21/2016.
#7164 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.
#7196 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.

This sample delivery group arrives at DHL Analytical on and the Sample Summary was sent on

7/23/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
email communications 8/5/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding misdirected cooler by FedEx, surrogate(s) below control limits for some samples and QC samples and compounds outside of the control limits for ICV(s). The client accepted the corrective action for the quality variances on 8/8/2016.
email communications 8/10/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding request mis-prepared Serial Dilution for Batch 76687 and surrogate(s) below control limits for some samples and QC samples. The client accepted the corrective action for the quality variances on 8/10/2016.
email communications 8/12/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding PAH and Lead analysis outside of the method control limits for the MS/MSD(s). The client accepted the corrective action for the quality variances on 8/12/2016.

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607265

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607265-01	SGR-DU134(0-2)-A		07/22/16 10:02 AM	7/23/2016
1607265-02	SGR-DU134(2-4)-A		07/22/16 10:03 AM	7/23/2016
1607265-03	SGR-DU134(4-6)-A		07/22/16 10:07 AM	7/23/2016
1607265-04	SGR-DU134(6-8)-A		07/22/16 10:08 AM	7/23/2016
1607265-05	SGR-DU134(0-2)-B		07/22/16 10:12 AM	7/23/2016
1607265-06	SGR-DU134(2-4)-B		07/22/16 10:13 AM	7/23/2016
1607265-07	SGR-DU134(4-6)-B		07/22/16 10:17 AM	7/23/2016
1607265-08	SGR-DU134(6-8)-B		07/22/16 10:19 AM	7/23/2016
1607265-09	SGR-DU134(0-2)-C		07/22/16 10:22 AM	7/23/2016
1607265-10	SGR-DU134(2-4)-C		07/22/16 10:24 AM	7/23/2016
1607265-11	SGR-DU134(4-6)-C		07/22/16 10:27 AM	7/23/2016
1607265-12	SGR-DU134(6-8)-C		07/22/16 10:28 AM	7/23/2016
1607265-13	EB01(20160722)		07/22/16 10:35 AM	7/23/2016
1607265-14	SGR-DU140(0-2)-A		07/22/16 01:34 PM	7/23/2016
1607265-15	SGR-DU140(2-4)-A		07/22/16 01:37 PM	7/23/2016
1607265-16	SGR-DU140(4-6)-A		07/22/16 01:40 PM	7/23/2016
1607265-17	SGR-DU140(6-8)-A		07/22/16 01:41 PM	7/23/2016
1607265-18	SGR-DU140(0-2)-B		07/22/16 01:45 PM	7/23/2016
1607265-19	SGR-DU140(2-4)-B		07/22/16 01:46 PM	7/23/2016
1607265-20	SGR-DU140(4-6)-B		07/22/16 01:48 PM	7/23/2016
1607265-21	SGR-DU140(6-8)-B		07/22/16 01:50 PM	7/23/2016
1607265-22	SGR-DU140(0-2)-C		07/22/16 01:52 PM	7/23/2016
1607265-23	SGR-DU140(2-4)-C		07/22/16 01:54 PM	7/23/2016
1607265-24	SGR-DU140(4-6)-C		07/22/16 01:55 PM	7/23/2016
1607265-25	SGR-DU140(6-8)-C		07/22/16 01:56 PM	7/23/2016
1607265-26	EB02(20160722)		07/22/16 02:00 PM	7/23/2016

Lab Order: 1607265
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607265-01A	SGR-DU134(0-2)-A	07/22/16 10:02 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU134(0-2)-A	07/22/16 10:02 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607265-02A	SGR-DU134(2-4)-A	07/22/16 10:03 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU134(2-4)-A	07/22/16 10:03 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607265-03A	SGR-DU134(4-6)-A	07/22/16 10:07 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU134(4-6)-A	07/22/16 10:07 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607265-04A	SGR-DU134(6-8)-A	07/22/16 10:08 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU134(6-8)-A	07/22/16 10:08 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607265-05A	SGR-DU134(0-2)-B	07/22/16 10:12 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU134(0-2)-B	07/22/16 10:12 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607265-06A	SGR-DU134(2-4)-B	07/22/16 10:13 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 08:54 AM	76491
	SGR-DU134(2-4)-B	07/22/16 10:13 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607265-07A	SGR-DU134(4-6)-B	07/22/16 10:17 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU134(4-6)-B	07/22/16 10:17 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76663
1607265-08A	SGR-DU134(6-8)-B	07/22/16 10:19 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU134(6-8)-B	07/22/16 10:19 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-09A	SGR-DU134(0-2)-C	07/22/16 10:22 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU134(0-2)-C	07/22/16 10:22 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-10A	SGR-DU134(2-4)-C	07/22/16 10:24 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU134(2-4)-C	07/22/16 10:24 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-11A	SGR-DU134(4-6)-C	07/22/16 10:27 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU134(4-6)-C	07/22/16 10:27 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-12A	SGR-DU134(6-8)-C	07/22/16 10:28 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU134(6-8)-C	07/22/16 10:28 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-13A	EB01(20160722)	07/22/16 10:35 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607265-13B	EB01(20160722)	07/22/16 10:35 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453
1607265-14A	SGR-DU140(0-2)-A	07/22/16 01:34 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(0-2)-A	07/22/16 01:34 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664

Lab Order: 1607265
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607265-15A	SGR-DU140(2-4)-A	07/22/16 01:37 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(2-4)-A	07/22/16 01:37 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-16A	SGR-DU140(4-6)-A	07/22/16 01:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(4-6)-A	07/22/16 01:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-17A	SGR-DU140(6-8)-A	07/22/16 01:41 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(6-8)-A	07/22/16 01:41 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-18A	SGR-DU140(0-2)-B	07/22/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(0-2)-B	07/22/16 01:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-19A	SGR-DU140(2-4)-B	07/22/16 01:46 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(2-4)-B	07/22/16 01:46 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-20A	SGR-DU140(4-6)-B	07/22/16 01:48 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(4-6)-B	07/22/16 01:48 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-21A	SGR-DU140(6-8)-B	07/22/16 01:50 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(6-8)-B	07/22/16 01:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-22A	SGR-DU140(0-2)-C	07/22/16 01:52 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(0-2)-C	07/22/16 01:52 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-23A	SGR-DU140(2-4)-C	07/22/16 01:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(2-4)-C	07/22/16 01:54 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-24A	SGR-DU140(4-6)-C	07/22/16 01:55 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(4-6)-C	07/22/16 01:55 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-25A	SGR-DU140(6-8)-C	07/22/16 01:56 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/27/16 02:13 PM	76511
	SGR-DU140(6-8)-C	07/22/16 01:56 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607265-26A	EB02(20160722)	07/22/16 02:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607265-26B	EB02(20160722)	07/22/16 02:00 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453

Lab Order: 1607265
Client: Arcadis
Project: Laredo SGR

ISM PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607265-01A	SGR-DU134(0-2)-A	7/22/2016 10:02:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-02A	SGR-DU134(2-4)-A	7/22/2016 10:03:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-03A	SGR-DU134(4-6)-A	7/22/2016 10:07:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-04A	SGR-DU134(6-8)-A	7/22/2016 10:08:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-05A	SGR-DU134(0-2)-B	7/22/2016 10:12:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-06A	SGR-DU134(2-4)-B	7/22/2016 10:13:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-07A	SGR-DU134(4-6)-B	7/22/2016 10:17:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-08A	SGR-DU134(6-8)-B	7/22/2016 10:19:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-09A	SGR-DU134(0-2)-C	7/22/2016 10:22:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-10A	SGR-DU134(2-4)-C	7/22/2016 10:24:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-11A	SGR-DU134(4-6)-C	7/22/2016 10:27:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-12A	SGR-DU134(6-8)-C	7/22/2016 10:28:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-14A	SGR-DU140(0-2)-A	7/22/2016 1:34:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-15A	SGR-DU140(2-4)-A	7/22/2016 1:37:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-16A	SGR-DU140(4-6)-A	7/22/2016 1:40:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-17A	SGR-DU140(6-8)-A	7/22/2016 1:41:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-18A	SGR-DU140(0-2)-B	7/22/2016 1:45:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-19A	SGR-DU140(2-4)-B	7/22/2016 1:46:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-20A	SGR-DU140(4-6)-B	7/22/2016 1:48:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-21A	SGR-DU140(6-8)-B	7/22/2016 1:50:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-22A	SGR-DU140(0-2)-C	7/22/2016 1:52:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-23A	SGR-DU140(2-4)-C	7/22/2016 1:54:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-24A	SGR-DU140(4-6)-C	7/22/2016 1:55:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413
1607265-25A	SGR-DU140(6-8)-C	7/22/2016 1:56:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/23/2016 1:10:02 PM	76413

Lab Order: 1607265
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607265-01A	SGR-DU134(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 06:35 PM	GCMS8_160804A
	SGR-DU134(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	50	08/09/16 04:35 PM	ICP-MS3_160809A
1607265-02A	SGR-DU134(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 09:54 PM	GCMS8_160804A
	SGR-DU134(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 04:41 PM	ICP-MS3_160809A
1607265-03A	SGR-DU134(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 10:34 PM	GCMS8_160804A
	SGR-DU134(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 04:53 PM	ICP-MS3_160809A
1607265-04A	SGR-DU134(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 11:14 PM	GCMS8_160804A
	SGR-DU134(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 04:58 PM	ICP-MS3_160809A
1607265-05A	SGR-DU134(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/04/16 11:54 PM	GCMS8_160804A
	SGR-DU134(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 05:04 PM	ICP-MS3_160809A
1607265-06A	SGR-DU134(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76491	10	08/05/16 12:33 AM	GCMS8_160804A
	SGR-DU134(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 05:10 PM	ICP-MS3_160809A
1607265-07A	SGR-DU134(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/06/16 11:35 PM	GCMS8_160806B
	SGR-DU134(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76663	5	08/09/16 05:16 PM	ICP-MS3_160809A
1607265-08A	SGR-DU134(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 12:15 AM	GCMS8_160806B
	SGR-DU134(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:25 PM	ICP-MS4_160809D
1607265-09A	SGR-DU134(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 12:54 AM	GCMS8_160806B
	SGR-DU134(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:27 PM	ICP-MS4_160809D
1607265-10A	SGR-DU134(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 01:34 AM	GCMS8_160806B
	SGR-DU134(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:29 PM	ICP-MS4_160809D
1607265-11A	SGR-DU134(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 02:14 AM	GCMS8_160806B
	SGR-DU134(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:31 PM	ICP-MS4_160809D
1607265-12A	SGR-DU134(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 02:54 AM	GCMS8_160806B
	SGR-DU134(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:33 PM	ICP-MS4_160809D
1607265-13A	EB01(20160722)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 12:21 AM	ICP-MS3_160809B
1607265-13B	EB01(20160722)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 03:40 PM	GCMS6_160728A
1607265-14A	SGR-DU140(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 03:34 AM	GCMS8_160806B
	SGR-DU140(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:35 PM	ICP-MS4_160809D

Lab Order: 1607265
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607265-15A	SGR-DU140(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 04:13 AM	GCMS8_160806B
	SGR-DU140(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:37 PM	ICP-MS4_160809D
1607265-16A	SGR-DU140(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 04:53 AM	GCMS8_160806B
	SGR-DU140(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:39 PM	ICP-MS4_160809D
1607265-17A	SGR-DU140(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 05:32 AM	GCMS8_160806B
	SGR-DU140(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:41 PM	ICP-MS4_160809D
1607265-18A	SGR-DU140(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 06:12 AM	GCMS8_160806B
	SGR-DU140(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:21 PM	ICP-MS4_160809D
1607265-19A	SGR-DU140(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 06:51 AM	GCMS8_160806B
	SGR-DU140(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 03:59 PM	ICP-MS4_160809D
1607265-20A	SGR-DU140(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 10:09 AM	GCMS8_160806B
	SGR-DU140(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:01 PM	ICP-MS4_160809D
1607265-21A	SGR-DU140(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 10:49 AM	GCMS8_160806B
	SGR-DU140(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:02 PM	ICP-MS4_160809D
1607265-22A	SGR-DU140(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 11:29 AM	GCMS8_160806B
	SGR-DU140(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:04 PM	ICP-MS4_160809D
1607265-23A	SGR-DU140(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 12:09 PM	GCMS8_160806B
	SGR-DU140(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:06 PM	ICP-MS4_160809D
1607265-24A	SGR-DU140(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 12:49 PM	GCMS8_160806B
	SGR-DU140(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:08 PM	ICP-MS4_160809D
1607265-25A	SGR-DU140(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76511	10	08/07/16 01:29 PM	GCMS8_160806B
	SGR-DU140(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:10 PM	ICP-MS4_160809D
1607265-26A	EB02(20160722)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 12:28 AM	ICP-MS3_160809B
1607265-26B	EB02(20160722)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 04:17 PM	GCMS6_160728A

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607265-01
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:02 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	594	0.855	2.56	1.28		mg/Kg-dry	50	08/09/16 04:35 PM
IS: Bismuth	80.4	0	30-120	0		%REC	50	08/09/16 04:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 06:35 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 06:35 PM
Anthracene	0.116	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Benzo[a]anthracene	0.895	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Benzo[a]pyrene	1.05	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Benzo[b]fluoranthene	1.02	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Benzo[e]pyrene	0.793	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Benzo[g,h,i]perylene	0.852	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Benzo[j]fluoranthene	0.515	0.0496	0.0992	0.0744	N	mg/Kg-dry	10	08/04/16 06:35 PM
Benzo[k]fluoranthene	0.503	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Chrysene	1.08	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Dibenz[a,h]anthracene	0.179	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Fluoranthene	1.24	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 06:35 PM
Indeno[1,2,3-cd]pyrene	0.699	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Phenanthrene	0.667	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
Pyrene	1.02	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/04/16 06:35 PM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/04/16 06:35 PM
IS: Chrysene-d12	93.0	0	50-200	0		%REC	10	08/04/16 06:35 PM
IS: Naphthalene-d8	99.6	0	50-200	0		%REC	10	08/04/16 06:35 PM
IS: Perylene-d12	92.2	0	50-200	0		%REC	10	08/04/16 06:35 PM
IS: Phenanthrene-d10	129	0	50-200	0		%REC	10	08/04/16 06:35 PM
Surr: 2-Fluorobiphenyl	86.0	0	46-115	0		%REC	10	08/04/16 06:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607265-01
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:02 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	64.3	0	58-133	0		%REC	10	08/04/16 06:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607265-02
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:03 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	15.2	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 04:41 PM
IS: Bismuth	78.4	0	30-120	0		%REC	5	08/09/16 04:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/04/16 09:54 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/04/16 09:54 PM
IS: Acenaphthene-d10	131	0	50-200	0		%REC	10	08/04/16 09:54 PM
IS: Chrysene-d12	88.0	0	50-200	0		%REC	10	08/04/16 09:54 PM
IS: Naphthalene-d8	98.8	0	50-200	0		%REC	10	08/04/16 09:54 PM
IS: Perylene-d12	90.4	0	50-200	0		%REC	10	08/04/16 09:54 PM
IS: Phenanthrene-d10	123	0	50-200	0		%REC	10	08/04/16 09:54 PM
Surr: 2-Fluorobiphenyl	96.9	0	46-115	0		%REC	10	08/04/16 09:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607265-02
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:03 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.9	0	58-133	0		%REC	10	08/04/16 09:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607265-03
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:07 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.94	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 04:53 PM
IS: Bismuth	83.7	0	30-120	0		%REC	5	08/09/16 04:53 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	08/04/16 10:34 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/04/16 10:34 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/04/16 10:34 PM
IS: Chrysene-d12	94.8	0	50-200	0		%REC	10	08/04/16 10:34 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/04/16 10:34 PM
IS: Perylene-d12	97.1	0	50-200	0		%REC	10	08/04/16 10:34 PM
IS: Phenanthrene-d10	128	0	50-200	0		%REC	10	08/04/16 10:34 PM
Surr: 2-Fluorobiphenyl	87.6	0	46-115	0		%REC	10	08/04/16 10:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607265-03
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:07 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	64.1	0	58-133	0		%REC	10	08/04/16 10:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607265-04
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:08 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.53	0.100	0.300	0.150		mg/Kg-dry	5	08/09/16 04:58 PM
IS: Bismuth	81.9	0	30-120	0		%REC	5	08/09/16 04:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/04/16 11:14 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/04/16 11:14 PM
IS: Acenaphthene-d10	129	0	50-200	0		%REC	10	08/04/16 11:14 PM
IS: Chrysene-d12	84.7	0	50-200	0		%REC	10	08/04/16 11:14 PM
IS: Naphthalene-d8	94.5	0	50-200	0		%REC	10	08/04/16 11:14 PM
IS: Perylene-d12	84.8	0	50-200	0		%REC	10	08/04/16 11:14 PM
IS: Phenanthrene-d10	124	0	50-200	0		%REC	10	08/04/16 11:14 PM
Surr: 2-Fluorobiphenyl	100	0	46-115	0		%REC	10	08/04/16 11:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607265-04
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:08 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.4	0	58-133	0		%REC	10	08/04/16 11:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607265-05
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:12 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	279	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 05:04 PM
IS: Bismuth	83.3	0	30-120	0		%REC	5	08/09/16 05:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.109	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/04/16 11:54 PM
Anthracene	0.425	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Benzo[a]anthracene	2.79	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Benzo[a]pyrene	3.40	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Benzo[b]fluoranthene	3.18	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Benzo[e]pyrene	2.42	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Benzo[g,h,i]perylene	2.63	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Benzo[j]fluoranthene	1.59	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	08/04/16 11:54 PM
Benzo[k]fluoranthene	1.60	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Chrysene	3.33	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Dibenz[a,h]anthracene	0.552	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Fluoranthene	4.03	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Fluorene	0.0636	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/04/16 11:54 PM
Indeno[1,2,3-cd]pyrene	2.17	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Phenanthrene	2.28	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
Pyrene	3.30	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/04/16 11:54 PM
IS: Acenaphthene-d10	129	0	50-200	0		%REC	10	08/04/16 11:54 PM
IS: Chrysene-d12	89.0	0	50-200	0		%REC	10	08/04/16 11:54 PM
IS: Naphthalene-d8	96.8	0	50-200	0		%REC	10	08/04/16 11:54 PM
IS: Perylene-d12	90.4	0	50-200	0		%REC	10	08/04/16 11:54 PM
IS: Phenanthrene-d10	124	0	50-200	0		%REC	10	08/04/16 11:54 PM
Surr: 2-Fluorobiphenyl	97.2	0	46-115	0		%REC	10	08/04/16 11:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607265-05
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:12 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	66.5	0	58-133	0		%REC	10	08/04/16 11:54 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607265-06
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:13 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.71	0.0935	0.280	0.140		mg/Kg-dry	5	08/09/16 05:10 PM
IS: Bismuth	81.5	0	30-120	0		%REC	5	08/09/16 05:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0571	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	08/05/16 12:33 AM
Acenaphthylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/05/16 12:33 AM
Anthracene	0.0763	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	08/05/16 12:33 AM
Benzo[a]anthracene	1.02	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Benzo[a]pyrene	1.62	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Benzo[b]fluoranthene	1.43	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Benzo[e]pyrene	1.13	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Benzo[g,h,i]perylene	1.35	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Benzo[j]fluoranthene	0.676	0.0491	0.0981	0.0736	N	mg/Kg-dry	10	08/05/16 12:33 AM
Benzo[k]fluoranthene	0.657	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Chrysene	1.33	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Dibenz[a,h]anthracene	0.211	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Fluoranthene	1.28	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Fluorene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/05/16 12:33 AM
Indeno[1,2,3-cd]pyrene	1.07	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Phenanthrene	0.440	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
Pyrene	1.16	0.0491	0.0981	0.0736		mg/Kg-dry	10	08/05/16 12:33 AM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/05/16 12:33 AM
IS: Chrysene-d12	90.5	0	50-200	0		%REC	10	08/05/16 12:33 AM
IS: Naphthalene-d8	99.0	0	50-200	0		%REC	10	08/05/16 12:33 AM
IS: Perylene-d12	92.7	0	50-200	0		%REC	10	08/05/16 12:33 AM
IS: Phenanthrene-d10	123	0	50-200	0		%REC	10	08/05/16 12:33 AM
Surr: 2-Fluorobiphenyl	101	0	46-115	0		%REC	10	08/05/16 12:33 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607265-06
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:13 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	67.4	0	58-133	0		%REC	10	08/05/16 12:33 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607265-07
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:17 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.89	0.0990	0.297	0.149		mg/Kg-dry	5	08/09/16 05:16 PM
IS: Bismuth	81.0	0	30-120	0		%REC	5	08/09/16 05:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Acenaphthylene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Anthracene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Benzo[a]anthracene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Benzo[a]pyrene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Benzo[b]fluoranthene	0.0463	0.0462	0.0924	0.0693	J	mg/Kg-dry	10	08/06/16 11:35 PM
Benzo[e]pyrene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Benzo[g,h,i]perylene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Benzo[j]fluoranthene	0.0693	0.0462	0.0924	0.0693	NU	mg/Kg-dry	10	08/06/16 11:35 PM
Benzo[k]fluoranthene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Chrysene	0.0482	0.0462	0.0924	0.0693	J	mg/Kg-dry	10	08/06/16 11:35 PM
Dibenz[a,h]anthracene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Fluoranthene	0.0633	0.0462	0.0924	0.0693	J	mg/Kg-dry	10	08/06/16 11:35 PM
Fluorene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Indeno[1,2,3-cd]pyrene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Phenanthrene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/06/16 11:35 PM
Pyrene	0.0556	0.0462	0.0924	0.0693	J	mg/Kg-dry	10	08/06/16 11:35 PM
IS: Acenaphthene-d10	109	0	50-200	0		%REC	10	08/06/16 11:35 PM
IS: Chrysene-d12	99.1	0	50-200	0		%REC	10	08/06/16 11:35 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/06/16 11:35 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/06/16 11:35 PM
IS: Phenanthrene-d10	93.8	0	50-200	0		%REC	10	08/06/16 11:35 PM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	08/06/16 11:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607265-07
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:17 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.2	0	58-133	0		%REC	10	08/06/16 11:35 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607265-08
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:19 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.70	0.0909	0.273	0.136		mg/Kg-dry	5	08/09/16 03:25 PM
IS: Bismuth	96.4	0	30-120	0		%REC	5	08/09/16 03:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Acenaphthylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Benzo[a]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Benzo[a]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Benzo[b]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Benzo[e]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Benzo[g,h,i]perylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Benzo[j]fluoranthene	0.0731	0.0487	0.0975	0.0731	NU	mg/Kg-dry	10	08/07/16 12:15 AM
Benzo[k]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Chrysene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Dibenz[a,h]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Fluorene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Indeno[1,2,3-cd]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Phenanthrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
Pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/07/16 12:15 AM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	08/07/16 12:15 AM
IS: Chrysene-d12	98.1	0	50-200	0		%REC	10	08/07/16 12:15 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 12:15 AM
IS: Perylene-d12	96.5	0	50-200	0		%REC	10	08/07/16 12:15 AM
IS: Phenanthrene-d10	91.8	0	50-200	0		%REC	10	08/07/16 12:15 AM
Surr: 2-Fluorobiphenyl	71.1	0	46-115	0		%REC	10	08/07/16 12:15 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607265-08
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:19 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.5	0	58-133	0		%REC	10	08/07/16 12:15 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607265-09
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:22 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	82.8	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 03:27 PM
IS: Bismuth	100	0	30-120	0		%REC	5	08/09/16 03:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/07/16 12:54 AM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/07/16 12:54 AM
Anthracene	0.145	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Benzo[a]anthracene	0.819	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Benzo[a]pyrene	0.936	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Benzo[b]fluoranthene	0.917	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Benzo[e]pyrene	0.699	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Benzo[g,h,i]perylene	0.711	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Benzo[j]fluoranthene	0.457	0.0500	0.0999	0.0749	N	mg/Kg-dry	10	08/07/16 12:54 AM
Benzo[k]fluoranthene	0.449	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Chrysene	0.972	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Dibenz[a,h]anthracene	0.144	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Fluoranthene	1.62	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/07/16 12:54 AM
Indeno[1,2,3-cd]pyrene	0.587	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Phenanthrene	0.788	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
Pyrene	1.36	0.0500	0.0999	0.0749		mg/Kg-dry	10	08/07/16 12:54 AM
IS: Acenaphthene-d10	109	0	50-200	0		%REC	10	08/07/16 12:54 AM
IS: Chrysene-d12	96.6	0	50-200	0		%REC	10	08/07/16 12:54 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/07/16 12:54 AM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	08/07/16 12:54 AM
IS: Phenanthrene-d10	97.1	0	50-200	0		%REC	10	08/07/16 12:54 AM
Surr: 2-Fluorobiphenyl	71.5	0	46-115	0		%REC	10	08/07/16 12:54 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607265-09
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:22 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.3	0	58-133	0		%REC	10	08/07/16 12:54 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607265-10
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:24 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.85	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 03:29 PM
IS: Bismuth	99.1	0	30-120	0		%REC	5	08/09/16 03:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/07/16 01:34 AM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/07/16 01:34 AM
IS: Acenaphthene-d10	108	0	50-200	0		%REC	10	08/07/16 01:34 AM
IS: Chrysene-d12	97.1	0	50-200	0		%REC	10	08/07/16 01:34 AM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/07/16 01:34 AM
IS: Perylene-d12	99.3	0	50-200	0		%REC	10	08/07/16 01:34 AM
IS: Phenanthrene-d10	94.3	0	50-200	0		%REC	10	08/07/16 01:34 AM
Surr: 2-Fluorobiphenyl	70.7	0	46-115	0		%REC	10	08/07/16 01:34 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607265-10
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:24 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.1	0	58-133	0		%REC	10	08/07/16 01:34 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607265-11
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:27 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.5	0.0901	0.270	0.135		mg/Kg-dry	5	08/09/16 03:31 PM
IS: Bismuth	97.6	0	30-120	0		%REC	5	08/09/16 03:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Acenaphthylene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Anthracene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Benzo[a]anthracene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Benzo[a]pyrene	0.0532	0.0464	0.0928	0.0696	J	mg/Kg-dry	10	08/07/16 02:14 AM
Benzo[b]fluoranthene	0.0541	0.0464	0.0928	0.0696	J	mg/Kg-dry	10	08/07/16 02:14 AM
Benzo[e]pyrene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Benzo[g,h,i]perylene	0.0496	0.0464	0.0928	0.0696	J	mg/Kg-dry	10	08/07/16 02:14 AM
Benzo[j]fluoranthene	0.0696	0.0464	0.0928	0.0696	NU	mg/Kg-dry	10	08/07/16 02:14 AM
Benzo[k]fluoranthene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Chrysene	0.0516	0.0464	0.0928	0.0696	J	mg/Kg-dry	10	08/07/16 02:14 AM
Dibenz[a,h]anthracene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Fluoranthene	0.0564	0.0464	0.0928	0.0696	J	mg/Kg-dry	10	08/07/16 02:14 AM
Fluorene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Indeno[1,2,3-cd]pyrene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Phenanthrene	0.0696	0.0464	0.0928	0.0696	U	mg/Kg-dry	10	08/07/16 02:14 AM
Pyrene	0.0517	0.0464	0.0928	0.0696	J	mg/Kg-dry	10	08/07/16 02:14 AM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	08/07/16 02:14 AM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/07/16 02:14 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/07/16 02:14 AM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/07/16 02:14 AM
IS: Phenanthrene-d10	96.2	0	50-200	0		%REC	10	08/07/16 02:14 AM
Surr: 2-Fluorobiphenyl	68.4	0	46-115	0		%REC	10	08/07/16 02:14 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607265-11
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:27 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.1	0	58-133	0		%REC	10	08/07/16 02:14 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607265-12
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:28 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	4.58	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 03:33 PM
IS: Bismuth	95.4	0	30-120	0		%REC	5	08/09/16 03:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Acenaphthylene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Anthracene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Benzo[a]anthracene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Benzo[a]pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Benzo[b]fluoranthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Benzo[e]pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Benzo[g,h,i]perylene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Benzo[j]fluoranthene	0.0720	0.0480	0.0960	0.0720	NU	mg/Kg-dry	10	08/07/16 02:54 AM
Benzo[k]fluoranthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Chrysene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Dibenz[a,h]anthracene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Fluoranthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Fluorene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Indeno[1,2,3-cd]pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Phenanthrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
Pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/07/16 02:54 AM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	08/07/16 02:54 AM
IS: Chrysene-d12	100	0	50-200	0		%REC	10	08/07/16 02:54 AM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/07/16 02:54 AM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/07/16 02:54 AM
IS: Phenanthrene-d10	97.0	0	50-200	0		%REC	10	08/07/16 02:54 AM
Surr: 2-Fluorobiphenyl	72.9	0	46-115	0		%REC	10	08/07/16 02:54 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU134(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607265-12
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:28 AM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.5	0	58-133	0		%REC	10	08/07/16 02:54 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160722)
Project:	Laredo SGR	**Lab ID:**	1607265-13
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:35 AM
Lab Order:	1607265	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 12:21 AM
IS: Bismuth	89.3	0	30-120	0		%REC	1	08/10/16 12:21 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Acenaphthylene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Anthracene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Benzo[a]anthracene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Benzo[a]pyrene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Benzo[b]fluoranthene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Benzo[e]pyrene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Benzo[g,h,i]perylene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Benzo[j]fluoranthene	0.0000779	0.0000487	0.0000974	0.0000779	NU	mg/L	1	07/28/16 03:40 PM
Benzo[k]fluoranthene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Chrysene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Dibenz[a,h]anthracene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Fluoranthene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Fluorene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Indeno[1,2,3-cd]pyrene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Phenanthrene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
Pyrene	0.0000779	0.0000487	0.0000974	0.0000779	U	mg/L	1	07/28/16 03:40 PM
IS: Acenaphthene-d10	88.8	0	50-200	0		%REC	1	07/28/16 03:40 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	1	07/28/16 03:40 PM
IS: Naphthalene-d8	96.0	0	50-200	0		%REC	1	07/28/16 03:40 PM
IS: Perylene-d12	89.9	0	50-200	0		%REC	1	07/28/16 03:40 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	1	07/28/16 03:40 PM
Surr: 2-Fluorobiphenyl	60.2	0	53-106	0		%REC	1	07/28/16 03:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160722)
Project:	Laredo SGR	**Lab ID:**	1607265-13
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 10:35 AM
Lab Order:	1607265	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	53.2	0	58-132	0	S	%REC	1	07/28/16 03:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607265-14
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:34 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	69.2	0.0917	0.275	0.138		mg/Kg-dry	5	08/09/16 03:35 PM
IS: Bismuth	96.9	0	30-120	0		%REC	5	08/09/16 03:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.177	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 03:34 AM
Anthracene	1.24	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Benzo[a]anthracene	6.03	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Benzo[a]pyrene	6.28	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Benzo[b]fluoranthene	6.07	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Benzo[e]pyrene	4.34	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Benzo[g,h,i]perylene	4.18	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Benzo[j]fluoranthene	3.22	0.0498	0.0996	0.0747	N	mg/Kg-dry	10	08/07/16 03:34 AM
Benzo[k]fluoranthene	3.14	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Chrysene	6.78	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Dibenz[a,h]anthracene	1.01	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Fluoranthene	11.7	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Fluorene	0.144	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Indeno[1,2,3-cd]pyrene	3.64	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Phenanthrene	6.49	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
Pyrene	9.40	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/07/16 03:34 AM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	10	08/07/16 03:34 AM
IS: Chrysene-d12	94.9	0	50-200	0		%REC	10	08/07/16 03:34 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/07/16 03:34 AM
IS: Perylene-d12	97.2	0	50-200	0		%REC	10	08/07/16 03:34 AM
IS: Phenanthrene-d10	95.5	0	50-200	0		%REC	10	08/07/16 03:34 AM
Surr: 2-Fluorobiphenyl	76.0	0	46-115	0		%REC	10	08/07/16 03:34 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607265-14
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:34 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.7	0	58-133	0		%REC	10	08/07/16 03:34 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607265-15
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:37 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.8	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 03:37 PM
IS: Bismuth	94.2	0	30-120	0		%REC	5	08/09/16 03:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/07/16 04:13 AM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 04:13 AM
Anthracene	0.286	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Benzo[a]anthracene	1.16	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Benzo[a]pyrene	1.21	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Benzo[b]fluoranthene	1.19	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Benzo[e]pyrene	0.874	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Benzo[g,h,i]perylene	0.823	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Benzo[j]fluoranthene	0.580	0.0497	0.0994	0.0746	N	mg/Kg-dry	10	08/07/16 04:13 AM
Benzo[k]fluoranthene	0.576	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Chrysene	1.36	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Dibenz[a,h]anthracene	0.164	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Fluoranthene	2.61	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Fluorene	0.0745	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/07/16 04:13 AM
Indeno[1,2,3-cd]pyrene	0.685	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Phenanthrene	1.67	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
Pyrene	2.03	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 04:13 AM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	08/07/16 04:13 AM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/07/16 04:13 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/07/16 04:13 AM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/07/16 04:13 AM
IS: Phenanthrene-d10	95.7	0	50-200	0		%REC	10	08/07/16 04:13 AM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	08/07/16 04:13 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607265-15
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:37 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	88.1	0	58-133	0		%REC	10	08/07/16 04:13 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607265-16
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:40 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	14.3	0.0885	0.265	0.133		mg/Kg-dry	5	08/09/16 03:39 PM
IS: Bismuth	94.6	0	30-120	0		%REC	5	08/09/16 03:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0711	0.0474	0.0948	0.0711	U	mg/Kg-dry	10	08/07/16 04:53 AM
Acenaphthylene	0.0711	0.0474	0.0948	0.0711	U	mg/Kg-dry	10	08/07/16 04:53 AM
Anthracene	0.0711	0.0474	0.0948	0.0711	U	mg/Kg-dry	10	08/07/16 04:53 AM
Benzo[a]anthracene	0.125	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Benzo[a]pyrene	0.160	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Benzo[b]fluoranthene	0.154	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Benzo[e]pyrene	0.119	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Benzo[g,h,i]perylene	0.132	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Benzo[j]fluoranthene	0.0693	0.0474	0.0948	0.0711	JN	mg/Kg-dry	10	08/07/16 04:53 AM
Benzo[k]fluoranthene	0.0741	0.0474	0.0948	0.0711	J	mg/Kg-dry	10	08/07/16 04:53 AM
Chrysene	0.151	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Dibenz[a,h]anthracene	0.0711	0.0474	0.0948	0.0711	U	mg/Kg-dry	10	08/07/16 04:53 AM
Fluoranthene	0.225	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Fluorene	0.0711	0.0474	0.0948	0.0711	U	mg/Kg-dry	10	08/07/16 04:53 AM
Indeno[1,2,3-cd]pyrene	0.106	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Phenanthrene	0.0980	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
Pyrene	0.191	0.0474	0.0948	0.0711		mg/Kg-dry	10	08/07/16 04:53 AM
IS: Acenaphthene-d10	112	0	50-200	0		%REC	10	08/07/16 04:53 AM
IS: Chrysene-d12	98.0	0	50-200	0		%REC	10	08/07/16 04:53 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 04:53 AM
IS: Perylene-d12	99.0	0	50-200	0		%REC	10	08/07/16 04:53 AM
IS: Phenanthrene-d10	93.6	0	50-200	0		%REC	10	08/07/16 04:53 AM
Surr: 2-Fluorobiphenyl	75.8	0	46-115	0		%REC	10	08/07/16 04:53 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607265-16
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:40 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.1	0	58-133	0		%REC	10	08/07/16 04:53 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607265-17
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:41 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.5	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 03:41 PM
IS: Bismuth	96.5	0	30-120	0		%REC	5	08/09/16 03:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/07/16 05:32 AM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/07/16 05:32 AM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	08/07/16 05:32 AM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/07/16 05:32 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/07/16 05:32 AM
IS: Perylene-d12	99.8	0	50-200	0		%REC	10	08/07/16 05:32 AM
IS: Phenanthrene-d10	98.0	0	50-200	0		%REC	10	08/07/16 05:32 AM
Surr: 2-Fluorobiphenyl	72.0	0	46-115	0		%REC	10	08/07/16 05:32 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607265-17
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:41 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.2	0	58-133	0		%REC	10	08/07/16 05:32 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607265-18
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:45 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	60.4	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 03:21 PM
IS: Bismuth	98.9	0	30-120	0		%REC	5	08/09/16 03:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.142	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 06:12 AM
Anthracene	0.280	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Benzo[a]anthracene	2.98	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Benzo[a]pyrene	4.12	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Benzo[b]fluoranthene	3.82	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Benzo[e]pyrene	2.86	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Benzo[g,h,i]perylene	3.02	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Benzo[j]fluoranthene	1.89	0.0487	0.0974	0.0730	N	mg/Kg-dry	10	08/07/16 06:12 AM
Benzo[k]fluoranthene	1.93	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Chrysene	3.72	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Dibenz[a,h]anthracene	0.630	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Fluoranthene	4.89	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 06:12 AM
Indeno[1,2,3-cd]pyrene	2.51	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Phenanthrene	1.65	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
Pyrene	4.40	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 06:12 AM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/07/16 06:12 AM
IS: Chrysene-d12	98.2	0	50-200	0		%REC	10	08/07/16 06:12 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/07/16 06:12 AM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/07/16 06:12 AM
IS: Phenanthrene-d10	93.2	0	50-200	0		%REC	10	08/07/16 06:12 AM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	08/07/16 06:12 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607265-18
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:45 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.2	0	58-133	0		%REC	10	08/07/16 06:12 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607265-19
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:46 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.1	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 03:59 PM
IS: Bismuth	94.0	0	30-120	0		%REC	5	08/09/16 03:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 06:51 AM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 06:51 AM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 06:51 AM
Benzo[a]anthracene	0.216	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Benzo[a]pyrene	0.306	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Benzo[b]fluoranthene	0.283	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Benzo[e]pyrene	0.222	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Benzo[g,h,i]perylene	0.250	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Benzo[j]fluoranthene	0.134	0.0497	0.0994	0.0746	N	mg/Kg-dry	10	08/07/16 06:51 AM
Benzo[k]fluoranthene	0.139	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Chrysene	0.271	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 06:51 AM
Fluoranthene	0.318	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 06:51 AM
Indeno[1,2,3-cd]pyrene	0.200	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
Phenanthrene	0.0965	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/07/16 06:51 AM
Pyrene	0.294	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/07/16 06:51 AM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	10	08/07/16 06:51 AM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/07/16 06:51 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	08/07/16 06:51 AM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/07/16 06:51 AM
IS: Phenanthrene-d10	97.8	0	50-200	0		%REC	10	08/07/16 06:51 AM
Surr: 2-Fluorobiphenyl	68.1	0	46-115	0		%REC	10	08/07/16 06:51 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607265-19
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:46 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.9	0	58-133	0		%REC	10	08/07/16 06:51 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607265-20
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:48 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.7	0.0885	0.265	0.133		mg/Kg-dry	5	08/09/16 04:01 PM
IS: Bismuth	94.5	0	30-120	0		%REC	5	08/09/16 04:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0958	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Acenaphthylene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	08/07/16 10:09 AM
Anthracene	0.0674	0.0475	0.0950	0.0712	J	mg/Kg-dry	10	08/07/16 10:09 AM
Benzo[a]anthracene	1.55	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Benzo[a]pyrene	2.47	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Benzo[b]fluoranthene	2.16	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Benzo[e]pyrene	1.67	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Benzo[g,h,i]perylene	1.83	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Benzo[j]fluoranthene	1.05	0.0475	0.0950	0.0712	N	mg/Kg-dry	10	08/07/16 10:09 AM
Benzo[k]fluoranthene	1.09	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Chrysene	2.02	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Dibenz[a,h]anthracene	0.380	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Fluoranthene	2.22	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Fluorene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	08/07/16 10:09 AM
Indeno[1,2,3-cd]pyrene	1.50	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Phenanthrene	0.384	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
Pyrene	2.17	0.0475	0.0950	0.0712		mg/Kg-dry	10	08/07/16 10:09 AM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	08/07/16 10:09 AM
IS: Chrysene-d12	99.6	0	50-200	0		%REC	10	08/07/16 10:09 AM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/07/16 10:09 AM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/07/16 10:09 AM
IS: Phenanthrene-d10	96.2	0	50-200	0		%REC	10	08/07/16 10:09 AM
Surr: 2-Fluorobiphenyl	72.6	0	46-115	0		%REC	10	08/07/16 10:09 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607265-20
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:48 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	88.7	0	58-133	0		%REC	10	08/07/16 10:09 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607265-21
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:50 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.4	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 04:02 PM
IS: Bismuth	96.3	0	30-120	0		%REC	5	08/09/16 04:02 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 10:49 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 10:49 AM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 10:49 AM
Benzo[a]anthracene	0.0744	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/07/16 10:49 AM
Benzo[a]pyrene	0.101	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 10:49 AM
Benzo[b]fluoranthene	0.0885	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/07/16 10:49 AM
Benzo[e]pyrene	0.0775	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/07/16 10:49 AM
Benzo[g,h,i]perylene	0.0876	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/07/16 10:49 AM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	08/07/16 10:49 AM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 10:49 AM
Chrysene	0.0901	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/07/16 10:49 AM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 10:49 AM
Fluoranthene	0.115	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 10:49 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 10:49 AM
Indeno[1,2,3-cd]pyrene	0.0652	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/07/16 10:49 AM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/07/16 10:49 AM
Pyrene	0.107	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/07/16 10:49 AM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	08/07/16 10:49 AM
IS: Chrysene-d12	104	0	50-200	0		%REC	10	08/07/16 10:49 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/07/16 10:49 AM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/07/16 10:49 AM
IS: Phenanthrene-d10	99.3	0	50-200	0		%REC	10	08/07/16 10:49 AM
Surr: 2-Fluorobiphenyl	71.6	0	46-115	0		%REC	10	08/07/16 10:49 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607265-21
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:50 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.4	0	58-133	0		%REC	10	08/07/16 10:49 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607265-22
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:52 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	77.1	0.0862	0.259	0.129		mg/Kg-dry	5	08/09/16 04:04 PM
IS: Bismuth	97.8	0	30-120	0		%REC	5	08/09/16 04:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.119	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:29 AM
Anthracene	0.308	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Benzo[a]anthracene	3.21	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Benzo[a]pyrene	4.48	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Benzo[b]fluoranthene	4.29	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Benzo[e]pyrene	3.21	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Benzo[g,h,i]perylene	3.39	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Benzo[j]fluoranthene	2.06	0.0490	0.0979	0.0735	N	mg/Kg-dry	10	08/07/16 11:29 AM
Benzo[k]fluoranthene	2.09	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Chrysene	4.11	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Dibenz[a,h]anthracene	0.701	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Fluoranthene	5.30	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:29 AM
Indeno[1,2,3-cd]pyrene	2.83	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Phenanthrene	1.86	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
Pyrene	4.72	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/07/16 11:29 AM
IS: Acenaphthene-d10	109	0	50-200	0		%REC	10	08/07/16 11:29 AM
IS: Chrysene-d12	96.3	0	50-200	0		%REC	10	08/07/16 11:29 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/07/16 11:29 AM
IS: Perylene-d12	98.1	0	50-200	0		%REC	10	08/07/16 11:29 AM
IS: Phenanthrene-d10	95.2	0	50-200	0		%REC	10	08/07/16 11:29 AM
Surr: 2-Fluorobiphenyl	73.7	0	46-115	0		%REC	10	08/07/16 11:29 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607265-22
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:52 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	88.0	0	58-133	0		%REC	10	08/07/16 11:29 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607265-23
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:54 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.83	0.0862	0.259	0.129		mg/Kg-dry	5	08/09/16 04:06 PM
IS: Bismuth	93.8	0	30-120	0		%REC	5	08/09/16 04:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/07/16 12:09 PM
Acenaphthylene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/07/16 12:09 PM
Anthracene	0.0494	0.0462	0.0924	0.0693	J	mg/Kg-dry	10	08/07/16 12:09 PM
Benzo[a]anthracene	0.195	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Benzo[a]pyrene	0.195	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Benzo[b]fluoranthene	0.177	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Benzo[e]pyrene	0.137	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Benzo[g,h,i]perylene	0.136	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Benzo[j]fluoranthene	0.0939	0.0462	0.0924	0.0693	N	mg/Kg-dry	10	08/07/16 12:09 PM
Benzo[k]fluoranthene	0.0976	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Chrysene	0.227	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Dibenz[a,h]anthracene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/07/16 12:09 PM
Fluoranthene	0.411	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Fluorene	0.0693	0.0462	0.0924	0.0693	U	mg/Kg-dry	10	08/07/16 12:09 PM
Indeno[1,2,3-cd]pyrene	0.116	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Phenanthrene	0.237	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
Pyrene	0.328	0.0462	0.0924	0.0693		mg/Kg-dry	10	08/07/16 12:09 PM
IS: Acenaphthene-d10	109	0	50-200	0		%REC	10	08/07/16 12:09 PM
IS: Chrysene-d12	94.5	0	50-200	0		%REC	10	08/07/16 12:09 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	08/07/16 12:09 PM
IS: Perylene-d12	96.7	0	50-200	0		%REC	10	08/07/16 12:09 PM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	08/07/16 12:09 PM
Surr: 2-Fluorobiphenyl	77.8	0	46-115	0		%REC	10	08/07/16 12:09 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607265-23
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:54 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.2	0	58-133	0		%REC	10	08/07/16 12:09 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607265-24
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:55 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	10.1	0.0901	0.270	0.135		mg/Kg-dry	5	08/09/16 04:08 PM
IS: Bismuth	92.8	0	30-120	0		%REC	5	08/09/16 04:08 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 12:49 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 12:49 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 12:49 PM
Benzo[a]anthracene	0.426	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Benzo[a]pyrene	0.662	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Benzo[b]fluoranthene	0.609	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Benzo[e]pyrene	0.465	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Benzo[g,h,i]perylene	0.530	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Benzo[j]fluoranthene	0.292	0.0495	0.0989	0.0742	N	mg/Kg-dry	10	08/07/16 12:49 PM
Benzo[k]fluoranthene	0.287	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Chrysene	0.554	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Dibenz[a,h]anthracene	0.0908	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	08/07/16 12:49 PM
Fluoranthene	0.651	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 12:49 PM
Indeno[1,2,3-cd]pyrene	0.428	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Phenanthrene	0.230	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
Pyrene	0.587	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/07/16 12:49 PM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	10	08/07/16 12:49 PM
IS: Chrysene-d12	99.0	0	50-200	0		%REC	10	08/07/16 12:49 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/07/16 12:49 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/07/16 12:49 PM
IS: Phenanthrene-d10	97.8	0	50-200	0		%REC	10	08/07/16 12:49 PM
Surr: 2-Fluorobiphenyl	71.0	0	46-115	0		%REC	10	08/07/16 12:49 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607265-24
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:55 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.1	0	58-133	0		%REC	10	08/07/16 12:49 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607265-25
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:56 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.48	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 04:10 PM
IS: Bismuth	94.0	0	30-120	0		%REC	5	08/09/16 04:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/07/16 01:29 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/07/16 01:29 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/07/16 01:29 PM
IS: Chrysene-d12	96.9	0	50-200	0		%REC	10	08/07/16 01:29 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/07/16 01:29 PM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	08/07/16 01:29 PM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	10	08/07/16 01:29 PM
Surr: 2-Fluorobiphenyl	74.9	0	46-115	0		%REC	10	08/07/16 01:29 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU140(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607265-25
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 01:56 PM
Lab Order:	1607265	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.7	0	58-133	0		%REC	10	08/07/16 01:29 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160722)
Project:	Laredo SGR	**Lab ID:**	1607265-26
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 02:00 PM
Lab Order:	1607265	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 12:28 AM
IS: Bismuth	88.3	0	30-120	0		%REC	1	08/10/16 12:28 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Acenaphthylene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Anthracene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Benzo[a]anthracene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Benzo[a]pyrene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Benzo[b]fluoranthene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Benzo[e]pyrene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Benzo[g,h,i]perylene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Benzo[j]fluoranthene	0.0000783	0.0000489	0.0000979	0.0000783	NU	mg/L	1	07/28/16 04:17 PM
Benzo[k]fluoranthene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Chrysene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Dibenz[a,h]anthracene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Fluoranthene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Fluorene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Indeno[1,2,3-cd]pyrene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Phenanthrene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
Pyrene	0.0000783	0.0000489	0.0000979	0.0000783	U	mg/L	1	07/28/16 04:17 PM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	1	07/28/16 04:17 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	1	07/28/16 04:17 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	1	07/28/16 04:17 PM
IS: Perylene-d12	95.9	0	50-200	0		%REC	1	07/28/16 04:17 PM
IS: Phenanthrene-d10	112	0	50-200	0		%REC	1	07/28/16 04:17 PM
Surr: 2-Fluorobiphenyl	54.2	0	53-106	0		%REC	1	07/28/16 04:17 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *15-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160722)
Project:	Laredo SGR	**Lab ID:**	1607265-26
Project No:	04285081.0000.00044	**Collection Date:**	07/22/16 02:00 PM
Lab Order:	1607265	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	46.9	0	58-132	0	S	%REC	1	07/28/16 04:17 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76274** Batch ID: **76274** TestNo: **SW6020A** Units: **mg/Kg**
SampType: **DCS** Run ID: **ICP-MS3_160729A** Analysis Date: **7/29/2016 1:13:00 PM** Prep Date: **7/18/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.249	0.300	0.2500	0	99.7	80	120	0	0	
IS: Bismuth	50.0		200.0		97.1	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76458**	Batch ID: **76458**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:50:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000493	0.00100	0.000500	0	98.7	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

The QC data in batch 76663 applies to the following samples: 1607265-01A, 1607265-02A, 1607265-03A, 1607265-04A, 1607265-05A, 1607265-06A, 1607265-07A

Sample ID **MB-76663**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 2:00:00 PM**	Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		89.4	30	120			

Sample ID **LCS-76663**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 2:06:00 PM**	Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.6	0.300	50.00	0	101	84	118			
IS: Bismuth	50.0		200.0		87.3	30	120			

Sample ID **LCSD-76663**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCSD**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 2:12:00 PM**	Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.6	0.300	50.00	0	103	84	118	1.86	20	
IS: Bismuth	50.0		200.0		85.5	30	120	0	0	

Sample ID **1607256-28A SD**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **SD**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 2:29:00 PM**	Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	8.95	1.43	0	9.179				2.55	10	
IS: Bismuth	238		190.5		86.2	30	120	0	0	

Sample ID **1607256-28A PDS**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **PDS**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:28:00 PM**	Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	56.4	0.286	47.62	9.179	99.1	80	120			
IS: Bismuth	47.6		952.4		78.8	30	120			

Sample ID **1607256-28A MS**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:33:00 PM**	Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	58.4	0.286	47.62	9.179	103	84	118			
IS: Bismuth	47.6		190.5		78.1	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

Sample ID **1607256-28A MSD**	Batch ID: **76663**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:39:00 PM**	Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	61.2	0.300	50.00	9.179	104	84	118	4.59	20	
IS: Bismuth	50.0		200.0		79.7	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

Sample ID **ICV1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.214	0.00100	0.200	0	107	90	110			
IS: Bismuth	0.200		0.200		85.9	30	120			

Sample ID **CCV1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 3:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		85.5	30	120			

Sample ID **LCVL1-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 4:03:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00120	0.00100	0.00100	0	120	80	120			
IS: Bismuth	0.200		0.200		87.9	30	120			

Sample ID **CCV2-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 5:22:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		84.3	30	120			

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

Sample ID **LCVL2-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 5:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00109	0.00100	0.00100	0	109	80	120			
IS: Bismuth	0.200		0.200		87.9	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160809B**

The QC data in batch 76687 applies to the following samples: 1607265-13A, 1607265-26A

Sample ID **MB-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MBLK**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:57:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		89.9	30	120			

Sample ID **LCS-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCS**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 11:03:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	88	115			
IS: Bismuth	0.200		0.200		83.5	30	120			

Sample ID **LCSD-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCSD**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 11:09:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115	0.498	20	
IS: Bismuth	0.200		0.200		82.3	30	120	0	0	

Sample ID **1607337-26A PDS**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:34:00 AM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.193	0.00100	0.200	0	96.6	80	120			
IS: Bismuth	0.200		0.200		84.0	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **ICV1-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		83.9	30	120			

Sample ID **LCVL5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		86.9	30	120			

Sample ID **CCV6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		86.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160725C

Sample ID **DCS1-76312**	Batch ID: **76312**	TestNo: **SW6020A**	Units: **mg/Kg**
SampType: **DCS**	Run ID: **ICP-MS4_160725C**	Analysis Date: **7/25/2016 4:17:00 PM**	Prep Date: **7/20/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.236	0.300	0.2500	0	94.4	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160809D

The QC data in batch 76664 applies to the following samples: 1607265-08A, 1607265-09A, 1607265-10A, 1607265-11A, 1607265-12A, 1607265-14A, 1607265-15A, 1607265-16A, 1607265-17A, 1607265-18A, 1607265-19A, 1607265-20A, 1607265-21A, 1607265-22A, 1607265-23A, 1607265-24A, 1607265-25A

Sample ID **MB-76664** Batch ID: **76664** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 3:13:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		106	30	120			

Sample ID **LCS-76664** Batch ID: **76664** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 3:15:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.6	0.300	50.00	0	99.2	84	118			
IS: Bismuth	50.0		200.0		104	30	120			

Sample ID **LCSD-76664** Batch ID: **76664** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 3:17:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.6	0.300	50.00	0	99.3	84	118	0.108	20	
IS: Bismuth	50.0		200.0		102	30	120	0	0	

Sample ID **1607265-18A SD** Batch ID: **76664** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 3:23:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	59.4	1.47	0	60.42				1.71	10	
IS: Bismuth	245		196.1		103	30	120	0	0	

Sample ID **1607265-18A PDS** Batch ID: **76664** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 3:43:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	113	0.294	49.02	60.42	106	80	120			
IS: Bismuth	49.0		980.4		95.1	30	120			

Sample ID **1607265-18A MS** Batch ID: **76664** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 3:45:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	103	0.275	45.87	60.42	91.8	84	118			
IS: Bismuth	45.9		183.5		97.5	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160809D

Sample ID **1607265-18A MSD**	Batch ID: **76664**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 3:47:00 PM**	Prep Date: **8/4/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	128	0.268	44.64	60.42	152	84	118	22.2	20	SR
IS: Bismuth	44.6		178.6		96.8	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160809D

Sample ID **ICV-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 11:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.100	0.00100	0.100	0	100	90	110			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **LCVL-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 11:14:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 3:03:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	100	90	110			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **LCVL5-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 3:08:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00102	0.00100	0.00100	0	102	80	120			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **CCV6-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 3:49:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		98.3	30	120			

Sample ID **LCVL6-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 3:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00110	0.00100	0.00100	0	110	80	120			
IS: Bismuth	0.200		0.200		97.8	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160809D

Sample ID **CCV7-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 4:18:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.204	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		94.0	30	120			

Sample ID **LCVL7-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 4:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		98.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160509B

Sample ID **DCS-74985**	Batch ID: **74985**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS6_160509B**	Analysis Date: **5/9/2016 7:07:00 PM**	Prep Date: **5/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Acenaphthylene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Anthracene	0.0000402	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[a]anthracene	0.0000413	0.0000500	0.0000400	0	103	20	170	0	0	
Benzo[a]pyrene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[e]pyrene	0.0000386	0.0000500	0.0000400	0	96.6	20	170	0	0	
Benzo[g,h,i]perylene	0.0000354	0.0000500	0.0000400	0	88.5	20	170	0	0	
Benzo[j]fluoranthene	0.0000389	0.0000500	0.0000400	0	97.2	20	170	0	0	N
Benzo[k]fluoranthene	0.0000393	0.0000500	0.0000400	0	98.3	20	170	0	0	
Chrysene	0.0000398	0.0000500	0.0000400	0	99.5	20	170	0	0	
Dibenz[a,h]anthracene	0.0000333	0.0000500	0.0000400	0	83.2	20	170	0	0	
Fluoranthene	0.0000453	0.0000500	0.0000400	0	113	20	170	0	0	
Fluorene	0.0000429	0.0000500	0.0000400	0	107	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000336	0.0000500	0.0000400	0	84.1	20	170	0	0	
Phenanthrene	0.0000397	0.0000500	0.0000400	0	99.2	20	170	0	0	
Pyrene	0.0000403	0.0000500	0.0000400	0	101	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

The QC data in batch 76453 applies to the following samples: 1607265-13B, 1607265-26B

Sample ID **LCS-76453** Batch ID: **76453** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS6_160728A** Analysis Date: **7/28/2016 9:24:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00232	0.0000500	0.00400	0	57.9	48	114			
Acenaphthylene	0.00238	0.0000500	0.00400	0	59.4	35	121			
Anthracene	0.00242	0.0000500	0.00400	0	60.5	53	119			
Benzo[a]anthracene	0.00281	0.0000500	0.00400	0	70.1	59	120			
Benzo[a]pyrene	0.00274	0.0000500	0.00400	0	68.5	53	120			
Benzo[b]fluoranthene	0.00281	0.0000500	0.00400	0	70.2	53	126			
Benzo[e]pyrene	0.00286	0.0000500	0.00400	0	71.5	40	140			
Benzo[g,h,i]perylene	0.00292	0.0000500	0.00400	0	73.1	44	128			
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124			N
Benzo[k]fluoranthene	0.00264	0.0000500	0.00400	0	66.1	54	125			
Chrysene	0.00274	0.0000500	0.00400	0	68.4	57	120			
Dibenz[a,h]anthracene	0.00268	0.0000500	0.00400	0	67.0	44	131			
Fluoranthene	0.00259	0.0000500	0.00400	0	64.7	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.2	50	118			
Indeno[1,2,3-cd]pyrene	0.00261	0.0000500	0.00400	0	65.2	48	130			
Phenanthrene	0.00298	0.0000500	0.00400	0	74.4	53	115			
Pyrene	0.00251	0.0000500	0.00400	0	62.8	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		95.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		108	50	200			
IS: Naphthalene-d8	0.00800		0.00800		101	50	200			
IS: Perylene-d12	0.00800		0.00800		106	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	4.56		8.000		57.0	53	106			
Surr: 4-Terphenyl-d14	4.75		8.000		59.3	58	132			

Sample ID **LCSD-76453** Batch ID: **76453** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCSD** Run ID: **GCMS6_160728A** Analysis Date: **7/28/2016 10:01:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00239	0.0000500	0.00400	0	59.6	48	114	2.91	20	
Acenaphthylene	0.00244	0.0000500	0.00400	0	61.0	35	121	2.59	20	
Anthracene	0.00227	0.0000500	0.00400	0	56.6	53	119	6.66	20	
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.8	59	120	1.91	20	
Benzo[a]pyrene	0.00270	0.0000500	0.00400	0	67.4	53	120	1.56	20	
Benzo[b]fluoranthene	0.00275	0.0000500	0.00400	0	68.7	53	126	2.09	20	
Benzo[e]pyrene	0.00283	0.0000500	0.00400	0	70.8	40	140	1.01	20	
Benzo[g,h,i]perylene	0.00267	0.0000500	0.00400	0	66.8	44	128	8.96	20	
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124	0.002	2	N
Benzo[k]fluoranthene	0.00268	0.0000500	0.00400	0	66.9	54	125	1.22	20	
Chrysene	0.00268	0.0000500	0.00400	0	67.0	57	120	2.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **LCSD-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **LCSD**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:01:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00252	0.0000500	0.00400	0	63.1	44	131	5.98	20	
Fluoranthene	0.00249	0.0000500	0.00400	0	62.3	58	120	3.76	20	
Fluorene	0.00252	0.0000500	0.00400	0	63.1	50	118	1.67	20	
Indeno[1,2,3-cd]pyrene	0.00246	0.0000500	0.00400	0	61.5	48	130	5.77	20	
Phenanthrene	0.00291	0.0000500	0.00400	0	72.7	53	115	2.35	20	
Pyrene	0.00241	0.0000500	0.00400	0	60.2	53	121	4.29	20	
IS: Acenaphthene-d10	0.00800		0.00800		91.4	50	200	0	0	
IS: Chrysene-d12	0.00800		0.00800		104	50	200	0	0	
IS: Naphthalene-d8	0.00800		0.00800		97.4	50	200	0	0	
IS: Perylene-d12	0.00800		0.00800		99.9	50	200	0	0	
IS: Phenanthrene-d10	0.00800		0.00800		101	50	200	0	0	
Surr: 2-Fluorobiphenyl	4.37		8.000		54.7	53	106	0	0	
Surr: 4-Terphenyl-d14	4.49		8.000		56.1	58	132	0	0	S

Sample ID **MB-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:39:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		88.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		102	50	200			
IS: Naphthalene-d8	0.00800		0.00800		93.3	50	200			
IS: Perylene-d12	0.00800		0.00800		97.0	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		94.1	50	200			
Surr: 2-Fluorobiphenyl	4.65		8.000		58.1	53	106			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **MB-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**		Units:	**mg/L**
SampType: **MBLK**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:39:00 AM**		Prep Date:	**7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	5.02		8.000		62.7	58	132			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **ICV-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 8:46:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0000500	2.00	0	96.8	80	120			
Acenaphthylene	1.96	0.0000500	2.00	0	97.8	80	120			
Anthracene	1.80	0.0000500	2.00	0	89.9	80	120			
Benzo[a]anthracene	1.96	0.0000500	2.00	0	98.0	80	120			
Benzo[a]pyrene	1.95	0.0000500	2.00	0	97.3	80	120			
Benzo[b]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Benzo[e]pyrene	1.94	0.0000500	2.00	0	97.0	80	120			
Benzo[g,h,i]perylene	2.18	0.0000500	2.00	0	109	80	120			
Benzo[j]fluoranthene	1.98	0.0000500	2.00	0	99.2	80	120			N
Benzo[k]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Chrysene	1.91	0.0000500	2.00	0	95.5	80	120			
Dibenz[a,h]anthracene	1.93	0.0000500	2.00	0	96.6	80	120			
Fluoranthene	1.82	0.0000500	2.00	0	91.2	80	120			
Fluorene	1.96	0.0000500	2.00	0	97.9	80	120			
Indeno[1,2,3-cd]pyrene	1.90	0.0000500	2.00	0	95.2	80	120			
Phenanthrene	2.21	0.0000500	2.00	0	111	80	120			
Pyrene	1.79	0.0000500	2.00	0	89.4	80	120			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		117	50	200			
IS: Naphthalene-d8	4.00		4.00		111	50	200			
IS: Perylene-d12	4.00		4.00		115	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	2010		2000		101	65	120			
Surr: 4-Terphenyl-d14	2000		2000		99.9	65	120			

Sample ID **ICV2-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 5:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.82	0.0000500	2.00	0	91.1	50	150			
Acenaphthylene	1.86	0.0000500	2.00	0	92.9	50	150			
Anthracene	1.73	0.0000500	2.00	0	86.4	50	150			
Benzo[a]anthracene	1.84	0.0000500	2.00	0	92.1	50	150			
Benzo[a]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[b]fluoranthene	1.85	0.0000500	2.00	0	92.7	50	150			
Benzo[e]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[g,h,i]perylene	1.49	0.0000500	2.00	0	74.5	50	150			
Benzo[j]fluoranthene	1.88	0.0000500	2.00	0	94.1	50	150			N
Benzo[k]fluoranthene	1.85	0.0000500	2.00	0	92.5	50	150			
Chrysene	1.80	0.0000500	2.00	0	89.8	50	150			
Dibenz[a,h]anthracene	1.42	0.0000500	2.00	0	71.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160728A

Sample ID **ICV2-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 5:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	86.2	50	150			
Fluorene	1.86	0.0000500	2.00	0	93.0	50	150			
Indeno[1,2,3-cd]pyrene	1.39	0.0000500	2.00	0	69.3	50	150			
Phenanthrene	2.09	0.0000500	2.00	0	104	50	150			
Pyrene	1.69	0.0000500	2.00	0	84.4	50	150			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		116	50	200			
IS: Naphthalene-d8	4.00		4.00		109	50	200			
IS: Perylene-d12	4.00		4.00		114	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	1900		2000		95.2	50	150			
Surr: 4-Terphenyl-d14	1880		2000		93.9	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803C

Sample ID **DCS-76288**	Batch ID: **76288**	TestNo: **SW8270D-LL**		Units: **mg/Kg-dry**	
SampType: **DCS**	Run ID: **GCMS8_160803C**	Analysis Date: **8/3/2016 11:47:00 AM**		Prep Date: **7/18/2016**	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00792	0.0100	0.01000	0	79.2	20	200	0	0	
Acenaphthylene	0.00785	0.0100	0.01000	0	78.5	20	200	0	0	
Anthracene	0.00753	0.0100	0.01000	0	75.3	20	200	0	0	
Benzo[a]anthracene	0.00871	0.0100	0.01000	0	87.1	20	200	0	0	
Benzo[a]pyrene	0.00830	0.0100	0.01000	0	83.0	20	200	0	0	
Benzo[b]fluoranthene	0.00872	0.0100	0.01000	0	87.2	20	200	0	0	
Benzo[e]pyrene	0.00949	0.0100	0.01000	0	94.9	20	200	0	0	
Benzo[g,h,i]perylene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Benzo[j]fluoranthene	0.00913	0.0100	0.01000	0	91.3	20	200	0	0	N
Benzo[k]fluoranthene	0.00833	0.0100	0.01000	0	83.3	20	200	0	0	
Chrysene	0.00876	0.0100	0.01000	0	87.6	20	200	0	0	
Dibenz[a,h]anthracene	0.00901	0.0100	0.01000	0	90.1	20	200	0	0	
Fluoranthene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	
Fluorene	0.00767	0.0100	0.01000	0	76.7	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00954	0.0100	0.01000	0	95.4	20	200	0	0	
Phenanthrene	0.0101	0.0100	0.01000	0	101	20	200	0	0	
Pyrene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

The QC data in batch 76491 applies to the following samples: 1607265-01A, 1607265-02A, 1607265-03A, 1607265-04A, 1607265-05A, 1607265-06A

Sample ID **LCS-76491** Batch ID: **76491** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160804A** Analysis Date: **8/4/2016 9:10:00 AM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.678	0.0100	1.000	0	67.8	44	111			
Acenaphthylene	0.683	0.0100	1.000	0	68.3	39	116			
Anthracene	0.684	0.0100	1.000	0	68.4	50	114			
Benzo[a]anthracene	0.778	0.0100	1.000	0	77.8	54	122			
Benzo[a]pyrene	0.769	0.0100	1.000	0	76.9	50	125			
Benzo[b]fluoranthene	0.778	0.0100	1.000	0	77.8	53	128			
Benzo[e]pyrene	0.782	0.0100	1.000	0	78.2	43	140			
Benzo[g,h,i]perylene	0.845	0.0100	1.000	0	84.5	49	127			
Benzo[j]fluoranthene	0.815	0.0100	1.000	0	81.5	45	125			N
Benzo[k]fluoranthene	0.812	0.0100	1.000	0	81.2	56	123			
Chrysene	0.753	0.0100	1.000	0	75.3	57	118			
Dibenz[a,h]anthracene	0.864	0.0100	1.000	0	86.4	50	129			
Fluoranthene	0.645	0.0100	1.000	0	64.5	55	119			
Fluorene	0.667	0.0100	1.000	0	66.7	47	114			
Indeno[1,2,3-cd]pyrene	0.876	0.0100	1.000	0	87.6	49	130			
Phenanthrene	0.710	0.0100	1.000	0	71.0	49	113			
Pyrene	0.637	0.0100	1.000	0	63.7	55	117			
IS: Acenaphthene-d10	4.00		4.000		113	50	200			
IS: Chrysene-d12	4.00		4.000		77.4	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		85.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		87.8	50	200			
Surr: 2-Fluorobiphenyl	0.782		1.000		78.2	46	115			
Surr: 4-Terphenyl-d14	0.694		1.000		69.4	58	133			

Sample ID **MB-76491** Batch ID: **76491** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160804A** Analysis Date: **8/4/2016 9:50:00 AM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **MB-76491**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 9:50:00 AM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		118	50	200			
IS: Chrysene-d12	4.00		4.000		75.2	50	200			
IS: Naphthalene-d8	4.00		4.000		117	50	200			
IS: Perylene-d12	4.00		4.000		84.9	50	200			
IS: Phenanthrene-d10	4.00		4.000		88.2	50	200			
Surr: 2-Fluorobiphenyl	0.780		1.000		78.0	46	115			
Surr: 4-Terphenyl-d14	0.682		1.000		68.2	58	133			

Sample ID **SB-160804**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 9:15:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000820		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **SB-160804**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 9:15:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.00161		0							

Sample ID **1607256-21AMS**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160804A**	Analysis Date: **8/5/2016 1:13:00 AM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.715	0.0994	0.9940	0	71.9	44	111			
Acenaphthylene	0.694	0.0994	0.9940	0	69.8	39	116			
Anthracene	0.641	0.0994	0.9940	0	64.4	50	114			
Benzo[a]anthracene	0.692	0.0994	0.9940	0	69.6	54	122			
Benzo[a]pyrene	0.649	0.0994	0.9940	0	65.3	50	125			
Benzo[b]fluoranthene	0.673	0.0994	0.9940	0	67.7	53	128			
Benzo[e]pyrene	0.717	0.0994	0.9940	0	72.1	43	140			
Benzo[g,h,i]perylene	0.776	0.0994	0.9940	0	78.1	49	127			
Benzo[j]fluoranthene	0.698	0.0994	0.9940	0	70.3	45	125			N
Benzo[k]fluoranthene	0.672	0.0994	0.9940	0	67.6	56	123			
Chrysene	0.693	0.0994	0.9940	0	69.7	57	118			
Dibenz[a,h]anthracene	0.732	0.0994	0.9940	0	73.7	50	129			
Fluoranthene	0.565	0.0994	0.9940	0	56.8	55	119			
Fluorene	0.805	0.0994	0.9940	0	81.0	47	114			
Indeno[1,2,3-cd]pyrene	0.765	0.0994	0.9940	0	76.9	49	130			
Phenanthrene	0.734	0.0994	0.9940	0	73.9	49	113			
Pyrene	0.554	0.0994	0.9940	0	55.7	55	117			
IS: Acenaphthene-d10	39.8		3.976		133	50	200			
IS: Chrysene-d12	39.8		3.976		89.6	50	200			
IS: Naphthalene-d8	39.8		3.976		100	50	200			
IS: Perylene-d12	39.8		3.976		92.7	50	200			
IS: Phenanthrene-d10	39.8		3.976		123	50	200			
Surr: 2-Fluorobiphenyl	0.908		0.9940		91.4	46	115			
Surr: 4-Terphenyl-d14	0.611		0.9940		61.5	58	133			

Sample ID **1607256-21AMSD**	Batch ID: **76491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160804A**	Analysis Date: **8/5/2016 1:53:00 AM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.713	0.0980	0.9804	0	72.7	44	111	0.304	20	
Acenaphthylene	0.696	0.0980	0.9804	0	71.0	39	116	0.309	20	
Anthracene	0.644	0.0980	0.9804	0	65.7	50	114	0.554	20	
Benzo[a]anthracene	0.693	0.0980	0.9804	0	70.7	54	122	0.200	20	
Benzo[a]pyrene	0.655	0.0980	0.9804	0	66.8	50	125	0.829	20	
Benzo[b]fluoranthene	0.705	0.0980	0.9804	0	71.9	53	128	4.55	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **1607256-21AMSD** Batch ID: **76491** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS8_160804A** Analysis Date: **8/5/2016 1:53:00 AM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[e]pyrene	0.720	0.0980	0.9804	0	73.4	43	140	0.377	20	
Benzo[g,h,i]perylene	0.769	0.0980	0.9804	0	78.5	49	127	0.909	20	
Benzo[j]fluoranthene	0.708	0.0980	0.9804	0	72.2	45	125	1.41	20	N
Benzo[k]fluoranthene	0.673	0.0980	0.9804	0	68.7	56	123	0.144	20	
Chrysene	0.701	0.0980	0.9804	0	71.5	57	118	1.24	20	
Dibenz[a,h]anthracene	0.741	0.0980	0.9804	0	75.6	50	129	1.27	20	
Fluoranthene	0.569	0.0980	0.9804	0	58.0	55	119	0.708	20	
Fluorene	0.805	0.0980	0.9804	0	82.1	47	114	0.003	20	
Indeno[1,2,3-cd]pyrene	0.766	0.0980	0.9804	0	78.1	49	130	0.179	20	
Phenanthrene	0.741	0.0980	0.9804	0	75.6	49	113	0.986	20	
Pyrene	0.557	0.0980	0.9804	0	56.8	55	117	0.591	20	
IS: Acenaphthene-d10	39.2		3.922		137	50	200	0	0	
IS: Chrysene-d12	39.2		3.922		93.0	50	200	0	0	
IS: Naphthalene-d8	39.2		3.922		103	50	200	0	0	
IS: Perylene-d12	39.2		3.922		95.4	50	200	0	0	
IS: Phenanthrene-d10	39.2		3.922		126	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.893		0.9804		91.1	46	115	0	0	
Surr: 4-Terphenyl-d14	0.608		0.9804		62.0	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **ICV-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 8:31:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.99	0.0100	2.000	0	99.6	80	120			
Acenaphthylene	1.99	0.0100	2.000	0	99.5	80	120			
Anthracene	1.91	0.0100	2.000	0	95.5	80	120			
Benzo[a]anthracene	2.09	0.0100	2.000	0	105	80	120			
Benzo[a]pyrene	2.08	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.10	0.0100	2.000	0	105	80	120			
Benzo[e]pyrene	2.01	0.0100	2.000	0	100	80	120			
Benzo[g,h,i]perylene	2.15	0.0100	2.000	0	108	80	120			
Benzo[j]fluoranthene	2.16	0.0100	2.000	0	108	80	120			N
Benzo[k]fluoranthene	2.22	0.0100	2.000	0	111	80	120			
Chrysene	2.03	0.0100	2.000	0	101	80	120			
Dibenz[a,h]anthracene	2.25	0.0100	2.000	0	112	80	120			
Fluoranthene	1.71	0.0100	2.000	0	85.4	80	120			
Fluorene	2.24	0.0100	2.000	0	112	80	120			
Indeno[1,2,3-cd]pyrene	2.22	0.0100	2.000	0	111	80	120			
Phenanthrene	1.90	0.0100	2.000	0	95.2	80	120			
Pyrene	1.65	0.0100	2.000	0	82.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		118	50	200			
IS: Chrysene-d12	4.00		4.000		98.2	50	200			
IS: Naphthalene-d8	4.00		4.000		103	50	200			
IS: Perylene-d12	4.00		4.000		99.1	50	200			
IS: Phenanthrene-d10	4.00		4.000		125	50	200			
Surr: 2-Fluorobiphenyl	2.00		2.000		100	65	120			
Surr: 4-Terphenyl-d14	1.63		2.000		81.3	65	120			

Sample ID **ICV2-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 7:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	97.8	80	120			
Acenaphthylene	1.98	0.0100	2.000	0	99.0	80	120			
Anthracene	1.86	0.0100	2.000	0	92.8	80	120			
Benzo[a]anthracene	2.06	0.0100	2.000	0	103	80	120			
Benzo[a]pyrene	2.09	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.07	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.14	0.0100	2.000	0	107	80	120			
Benzo[j]fluoranthene	2.13	0.0100	2.000	0	106	80	120			N
Benzo[k]fluoranthene	2.18	0.0100	2.000	0	109	80	120			
Chrysene	2.02	0.0100	2.000	0	101	80	120			
Dibenz[a,h]anthracene	2.21	0.0100	2.000	0	110	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160804A

Sample ID **ICV2-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/4/2016 7:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.62	0.0100	2.000	0	80.9	80	120			
Fluorene	2.31	0.0100	2.000	0	116	80	120			
Indeno[1,2,3-cd]pyrene	2.19	0.0100	2.000	0	109	80	120			
Phenanthrene	1.93	0.0100	2.000	0	96.7	80	120			
Pyrene	1.54	0.0100	2.000	0	77.2	80	120			S
IS: Acenaphthene-d10	4.00		4.000		120	50	200			
IS: Chrysene-d12	4.00		4.000		93.1	50	200			
IS: Naphthalene-d8	4.00		4.000		98.2	50	200			
IS: Perylene-d12	4.00		4.000		91.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		131	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	65	120			
Surr: 4-Terphenyl-d14	1.53		2.000		76.5	65	120			

Sample ID **CCV1-160804**	Batch ID: **R87450**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160804A**	Analysis Date: **8/5/2016 2:33:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.963	0.0100	1.000	0	96.3	50	150			
Acenaphthylene	0.969	0.0100	1.000	0	96.9	50	150			
Anthracene	0.920	0.0100	1.000	0	92.0	50	150			
Benzo[a]anthracene	0.994	0.0100	1.000	0	99.4	50	150			
Benzo[a]pyrene	0.999	0.0100	1.000	0	99.9	50	150			
Benzo[b]fluoranthene	0.996	0.0100	1.000	0	99.6	50	150			
Benzo[e]pyrene	0.976	0.0100	1.000	0	97.6	50	150			
Benzo[g,h,i]perylene	1.04	0.0100	1.000	0	104	50	150			
Benzo[j]fluoranthene	1.01	0.0100	1.000	0	101	50	150			N
Benzo[k]fluoranthene	1.03	0.0100	1.000	0	103	50	150			
Chrysene	0.980	0.0100	1.000	0	98.0	50	150			
Dibenz[a,h]anthracene	1.07	0.0100	1.000	0	107	50	150			
Fluoranthene	0.783	0.0100	1.000	0	78.3	50	150			
Fluorene	1.08	0.0100	1.000	0	108	50	150			
Indeno[1,2,3-cd]pyrene	1.07	0.0100	1.000	0	107	50	150			
Phenanthrene	0.955	0.0100	1.000	0	95.5	50	150			
Pyrene	0.758	0.0100	1.000	0	75.8	50	150			
IS: Acenaphthene-d10	4.00		4.000		142	50	200			
IS: Chrysene-d12	4.00		4.000		100	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		102	50	200			
IS: Phenanthrene-d10	4.00		4.000		135	50	200			
Surr: 2-Fluorobiphenyl	1.05		1.000		105	50	150			
Surr: 4-Terphenyl-d14	0.746		1.000		74.6	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

The QC data in batch 76511 applies to the following samples: 1607265-07A, 1607265-08A, 1607265-09A, 1607265-10A, 1607265-11A, 1607265-12A, 1607265-14A, 1607265-15A, 1607265-16A, 1607265-17A, 1607265-18A, 1607265-19A, 1607265-20A, 1607265-21A, 1607265-22A, 1607265-23A, 1607265-24A, 1607265-25A

Sample ID **LCS-76511** Batch ID: **76511** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160806B** Analysis Date: **8/6/2016 9:35:00 PM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.800	0.0100	1.000	0	80.0	44	111			
Acenaphthylene	0.844	0.0100	1.000	0	84.4	39	116			
Anthracene	0.799	0.0100	1.000	0	79.9	50	114			
Benzo[a]anthracene	0.846	0.0100	1.000	0	84.6	54	122			
Benzo[a]pyrene	0.830	0.0100	1.000	0	83.0	50	125			
Benzo[b]fluoranthene	0.856	0.0100	1.000	0	85.6	53	128			
Benzo[e]pyrene	0.864	0.0100	1.000	0	86.4	43	140			
Benzo[g,h,i]perylene	0.884	0.0100	1.000	0	88.4	49	127			
Benzo[j]fluoranthene	0.907	0.0100	1.000	0	90.7	45	125			N
Benzo[k]fluoranthene	0.928	0.0100	1.000	0	92.8	56	123			
Chrysene	0.847	0.0100	1.000	0	84.7	57	118			
Dibenz[a,h]anthracene	0.900	0.0100	1.000	0	90.0	50	129			
Fluoranthene	0.944	0.0100	1.000	0	94.4	55	119			
Fluorene	0.647	0.0100	1.000	0	64.7	47	114			
Indeno[1,2,3-cd]pyrene	0.904	0.0100	1.000	0	90.4	49	130			
Phenanthrene	0.851	0.0100	1.000	0	85.1	49	113			
Pyrene	0.971	0.0100	1.000	0	97.1	55	117			
IS: Acenaphthene-d10	4.00		4.000		91.1	50	200			
IS: Chrysene-d12	4.00		4.000		79.2	50	200			
IS: Naphthalene-d8	4.00		4.000		125	50	200			
IS: Perylene-d12	4.00		4.000		81.7	50	200			
IS: Phenanthrene-d10	4.00		4.000		66.6	50	200			
Surr: 2-Fluorobiphenyl	0.599		1.000		59.9	46	115			
Surr: 4-Terphenyl-d14	1.02		1.000		102	58	133			

Sample ID **MB-76511** Batch ID: **76511** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160806B** Analysis Date: **8/6/2016 10:15:00 PM** Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **MB-76511**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160806B**	Analysis Date: **8/6/2016 10:15:00 PM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		89.6	50	200			
IS: Chrysene-d12	4.00		4.000		82.8	50	200			
IS: Naphthalene-d8	4.00		4.000		128	50	200			
IS: Perylene-d12	4.00		4.000		87.2	50	200			
IS: Phenanthrene-d10	4.00		4.000		63.5	50	200			
Surr: 2-Fluorobiphenyl	0.555		1.000		55.5	46	115			
Surr: 4-Terphenyl-d14	1.06		1.000		106	58	133			

Sample ID **SB-160808**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 9:29:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **1607265-18AMS**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 2:08:00 PM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.890	0.0978	0.9775	0.1425	76.5	44	111			
Acenaphthylene	0.736	0.0978	0.9775	0	75.2	39	116			
Anthracene	0.983	0.0978	0.9775	0.2801	71.9	50	114			
Benzo[a]anthracene	3.96	0.0978	0.9775	2.983	99.8	54	122			
Benzo[a]pyrene	5.19	0.0978	0.9775	4.115	110	50	125			
Benzo[b]fluoranthene	4.77	0.0978	0.9775	3.825	96.4	53	128			
Benzo[e]pyrene	3.78	0.0978	0.9775	2.865	93.7	43	140			
Benzo[g,h,i]perylene	3.89	0.0978	0.9775	3.024	88.9	49	127			
Benzo[j]fluoranthene	2.96	0.0978	0.9775	1.891	109	45	125			N
Benzo[k]fluoranthene	2.88	0.0978	0.9775	1.932	97.0	56	123			
Chrysene	4.68	0.0978	0.9775	3.725	98.1	57	118			
Dibenz[a,h]anthracene	1.32	0.0978	0.9775	0.6303	70.4	50	129			
Fluoranthene	5.88	0.0978	0.9775	4.891	102	55	119			
Fluorene	0.723	0.0978	0.9775	0	74.0	47	114			
Indeno[1,2,3-cd]pyrene	3.45	0.0978	0.9775	2.513	95.6	49	130			
Phenanthrene	2.52	0.0978	0.9775	1.651	89.0	49	113			
Pyrene	5.43	0.0978	0.9775	4.404	105	55	117			
IS: Acenaphthene-d10	39.1		3.910		110	50	200			
IS: Chrysene-d12	39.1		3.910		95.9	50	200			
IS: Naphthalene-d8	39.1		3.910		112	50	200			
IS: Perylene-d12	39.1		3.910		98.0	50	200			
IS: Phenanthrene-d10	39.1		3.910		94.1	50	200			
Surr: 2-Fluorobiphenyl	0.704		0.9775		72.0	46	115			
Surr: 4-Terphenyl-d14	0.817		0.9775		83.6	58	133			

Sample ID **1607265-18AMSD**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 2:48:00 PM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.849	0.0986	0.9862	0.1425	71.6	44	111	4.76	20	
Acenaphthylene	0.701	0.0986	0.9862	0	71.1	39	116	4.77	20	
Anthracene	0.976	0.0986	0.9862	0.2801	70.6	50	114	0.710	20	
Benzo[a]anthracene	4.13	0.0986	0.9862	2.983	116	54	122	4.18	20	
Benzo[a]pyrene	5.21	0.0986	0.9862	4.115	111	50	125	0.493	20	
Benzo[b]fluoranthene	4.95	0.0986	0.9862	3.825	114	53	128	3.80	20	
Benzo[e]pyrene	3.85	0.0986	0.9862	2.865	100	43	140	1.87	20	
Benzo[g,h,i]perylene	3.83	0.0986	0.9862	3.024	82.2	49	127	1.52	20	
Benzo[j]fluoranthene	2.99	0.0986	0.9862	1.891	111	45	125	0.864	20	N
Benzo[k]fluoranthene	2.95	0.0986	0.9862	1.932	104	56	123	2.51	20	
Chrysene	4.90	0.0986	0.9862	3.725	119	57	118	4.46	20	S
Dibenz[a,h]anthracene	1.40	0.0986	0.9862	0.6303	77.8	50	129	5.80	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **1607265-18AMSD**	Batch ID: **76511**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 2:48:00 PM**	Prep Date: **7/27/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	6.26	0.0986	0.9862	4.891	139	55	119	6.16	20	S
Fluorene	0.697	0.0986	0.9862	0	70.7	47	114	3.68	20	
Indeno[1,2,3-cd]pyrene	3.44	0.0986	0.9862	2.513	94.3	49	130	0.131	20	
Phenanthrene	2.70	0.0986	0.9862	1.651	106	49	113	6.85	20	
Pyrene	5.62	0.0986	0.9862	4.404	123	55	117	3.45	20	S
IS: Acenaphthene-d10	39.4		3.945		114	50	200	0	0	
IS: Chrysene-d12	39.4		3.945		99.3	50	200	0	0	
IS: Naphthalene-d8	39.4		3.945		116	50	200	0	0	
IS: Perylene-d12	39.4		3.945		102	50	200	0	0	
IS: Phenanthrene-d10	39.4		3.945		96.1	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.663		0.9862		67.2	46	115	0	0	
Surr: 4-Terphenyl-d14	0.776		0.9862		78.7	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **ICV-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/6/2016 8:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.00	0.0100	2.000	0	100	80	120			
Acenaphthylene	2.04	0.0100	2.000	0	102	80	120			
Anthracene	2.01	0.0100	2.000	0	100	80	120			
Benzo[a]anthracene	2.05	0.0100	2.000	0	102	80	120			
Benzo[a]pyrene	2.08	0.0100	2.000	0	104	80	120			
Benzo[b]fluoranthene	2.13	0.0100	2.000	0	106	80	120			
Benzo[e]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.00	0.0100	2.000	0	100	80	120			
Benzo[j]fluoranthene	2.16	0.0100	2.000	0	108	80	120			N
Benzo[k]fluoranthene	2.22	0.0100	2.000	0	111	80	120			
Chrysene	2.04	0.0100	2.000	0	102	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			
Fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Fluorene	2.04	0.0100	2.000	0	102	80	120			
Indeno[1,2,3-cd]pyrene	2.09	0.0100	2.000	0	105	80	120			
Phenanthrene	2.06	0.0100	2.000	0	103	80	120			
Pyrene	2.03	0.0100	2.000	0	102	80	120			
IS: Acenaphthene-d10	4.00		4.000		97.8	50	200			
IS: Chrysene-d12	4.00		4.000		93.7	50	200			
IS: Naphthalene-d8	4.00		4.000		96.9	50	200			
IS: Perylene-d12	4.00		4.000		94.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.4	50	200			
Surr: 2-Fluorobiphenyl	1.84		2.000		92.1	65	120			
Surr: 4-Terphenyl-d14	2.01		2.000		101	65	120			

Sample ID **ICV2-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 8:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	97.2	80	120			
Acenaphthylene	1.99	0.0100	2.000	0	99.7	80	120			
Anthracene	1.94	0.0100	2.000	0	97.1	80	120			
Benzo[a]anthracene	2.02	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.07	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	1.99	0.0100	2.000	0	99.3	80	120			
Benzo[g,h,i]perylene	1.98	0.0100	2.000	0	99.0	80	120			
Benzo[j]fluoranthene	2.19	0.0100	2.000	0	110	80	120			N
Benzo[k]fluoranthene	2.24	0.0100	2.000	0	112	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.11	0.0100	2.000	0	106	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160806B

Sample ID **ICV2-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 8:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.03	0.0100	2.000	0	102	80	120			
Fluorene	1.93	0.0100	2.000	0	96.7	80	120			
Indeno[1,2,3-cd]pyrene	2.06	0.0100	2.000	0	103	80	120			
Phenanthrene	2.06	0.0100	2.000	0	103	80	120			
Pyrene	2.03	0.0100	2.000	0	102	80	120			
IS: Acenaphthene-d10	4.00		4.000		102	50	200			
IS: Chrysene-d12	4.00		4.000		102	50	200			
IS: Naphthalene-d8	4.00		4.000		104	50	200			
IS: Perylene-d12	4.00		4.000		103	50	200			
IS: Phenanthrene-d10	4.00		4.000		99.2	50	200			
Surr: 2-Fluorobiphenyl	1.73		2.000		86.4	65	120			
Surr: 4-Terphenyl-d14	2.05		2.000		102	65	120			

Sample ID **CCV1-160806**	Batch ID: **R87473**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160806B**	Analysis Date: **8/7/2016 3:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.988	0.0100	1.000	0	98.8	50	150			
Acenaphthylene	1.01	0.0100	1.000	0	101	50	150			
Anthracene	0.966	0.0100	1.000	0	96.6	50	150			
Benzo[a]anthracene	1.01	0.0100	1.000	0	101	50	150			
Benzo[a]pyrene	1.04	0.0100	1.000	0	104	50	150			
Benzo[b]fluoranthene	1.06	0.0100	1.000	0	106	50	150			
Benzo[e]pyrene	1.00	0.0100	1.000	0	100	50	150			
Benzo[g,h,i]perylene	1.03	0.0100	1.000	0	103	50	150			
Benzo[j]fluoranthene	1.10	0.0100	1.000	0	110	50	150			N
Benzo[k]fluoranthene	1.09	0.0100	1.000	0	109	50	150			
Chrysene	1.01	0.0100	1.000	0	101	50	150			
Dibenz[a,h]anthracene	1.07	0.0100	1.000	0	107	50	150			
Fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Fluorene	0.946	0.0100	1.000	0	94.6	50	150			
Indeno[1,2,3-cd]pyrene	1.05	0.0100	1.000	0	105	50	150			
Phenanthrene	1.04	0.0100	1.000	0	104	50	150			
Pyrene	1.01	0.0100	1.000	0	101	50	150			
IS: Acenaphthene-d10	4.00		4.000		116	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		102	50	200			
IS: Phenanthrene-d10	4.00		4.000		100	50	200			
Surr: 2-Fluorobiphenyl	0.914		1.000		91.4	50	150			
Surr: 4-Terphenyl-d14	0.980		1.000		98.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607265
Project: Laredo SGR

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Lead	0.100	0.300

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Lead	0.000300	0.00100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Acenaphthene	0.00500	0.0100
Acenaphthylene	0.00500	0.0100
Anthracene	0.00500	0.0100
Benzo[a]anthracene	0.00500	0.0100
Benzo[a]pyrene	0.00500	0.0100
Benzo[b]fluoranthene	0.00500	0.0100
Benzo[e]pyrene	0.00500	0.0100
Benzo[g,h,i]perylene	0.00500	0.0100
Benzo[j]fluoranthene	0.00500	0.0100
Benzo[k]fluoranthene	0.00500	0.0100
Chrysene	0.00500	0.0100
Dibenz[a,h]anthracene	0.00500	0.0100
Fluoranthene	0.00500	0.0100
Fluorene	0.00500	0.0100
Indeno[1,2,3-cd]pyrene	0.00500	0.0100
Phenanthrene	0.00500	0.0100
Pyrene	0.00500	0.0100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/L**	**mg/L**
Acenaphthene	0.0000250	0.0000500
Acenaphthylene	0.0000250	0.0000500
Anthracene	0.0000250	0.0000500
Benzo[a]anthracene	0.0000250	0.0000500
Benzo[a]pyrene	0.0000250	0.0000500
Benzo[b]fluoranthene	0.0000250	0.0000500
Benzo[e]pyrene	0.0000250	0.0000500
Benzo[g,h,i]perylene	0.0000250	0.0000500
Benzo[j]fluoranthene	0.0000250	0.0000500
Benzo[k]fluoranthene	0.0000250	0.0000500
Chrysene	0.0000250	0.0000500
Dibenz[a,h]anthracene	0.0000250	0.0000500
Fluoranthene	0.0000250	0.0000500
Fluorene	0.0000250	0.0000500
Indeno[1,2,3-cd]pyrene	0.0000250	0.0000500
Phenanthrene	0.0000250	0.0000500
Pyrene	0.0000250	0.0000500

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

GCMS6
For

DHL Work Order
1607265

GCMS6_160728A
For

DHL Work Order
1607265

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Project Number(s): SEE RUN LOG.	**Run ID: GCMS6_160728A**
Batch Number(s): SEE RUN LOG.	**SOP:** ORGANICS-PAH-01
Matrix: SEE RUN LOG.	

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS	X			
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)	X			
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #		X		
Matrix Spike (MS)	Every Batch/20 samples	See LIMS			X	
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS			X	
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)			X	

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction	X			x
	14 days (Soil) - extraction			X	
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?		X			
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

QA APPROVED
By John DuPont at 3:55:50 PM, 8/10/2016

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___ LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
X Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		
		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data:

SEE RUN LOG - ONE SURROGATE OUT OF CONTROL LIMITS ON MANY RUNS. TWO SURROGATES FAIL FOR SAMPLE 1607256-13B. NO CORRECTIVE ACTION POSSIBLE DUE TO LACK OF HOLDING TIME AND ACCIDENTAL DISPOSAL OF 1 ML SAMPLE EXTRACT. CLIENT NOTIFIED AND APPROVED.

Analyst: Karyn Lane Date: 8/10/2016 15:05

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 3:52:17 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: GCMS6_160728A **Run No.:** 87529

Analytical Run Date: 7/28/2016 **InstrumentID:** GCMS6

Analyst: Karyn Lane **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 676 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160725.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 8:09:00 AM		
ICV-160728	1	PAH_LL_WDOD1	ICV	R87529	7/28/2016 8:46:00 AM		
LCS-76453	1	PAH_LL_WDOD1	LCS	76453	7/28/2016 9:24:00 AM		
LCSD-76453	1	PAH_LL_WDOD1	LCSD	76453	7/28/2016 10:01:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
MB-76453	1	PAH_LL_WDOD1	MBLK	76453	7/28/2016 10:39:00 AM		
1607219-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:16:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607219-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:54:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-16B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 12:31:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-32B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:08:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:46:00 PM		Both surrogates outside control limits (low). Sample past hold time and cannot be reanalyzed (extract accidentally disposed of) - see variance.
1607256-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 2:24:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-27B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:02:00 PM		
1607265-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:40:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607265-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 4:17:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
DFTPP2-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 4:55:00 PM		
ICV2-160728	1	PAH_LL_WDOD1	CCV	R87529	7/28/2016 5:31:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160728.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160728\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16072801	DFTPPPAH	DFTPP-160728
2	Sample	2	16072802	PP160725	ICV-160728
3	Sample	3	16072803	PP160725	LCS-76453
4	Sample	4	16072804	PP160725	LCSD-76453
5	Sample	5	16072805	PP160725	MB-76453
6	Sample	6	16072806	PP160725	1607219-13B
7	Sample	7	16072807	PP160725	1607219-26B
8	Sample	8	16072808	PP160725	1607239-16B
9	Sample	9	16072809	PP160725	1607239-32B
10	Sample	10	16072810	PP160725	1607256-13B
11	Sample	11	16072811	PP160725	1607256-26B
12	Sample	12	16072812	PP160725	1607256-27B
13	Sample	13	16072813	PP160725	1607265-13B
14	Sample	14	16072814	PP160725	1607265-26B
15	Sample	15	16072815	DFTPPPAH	DFTPP-160728
16	Sample	16	16072816	PP160725	ICV2-160728

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: 7/26/16 2:10PM

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup	
1607219-13B	Equip Blank	6	250	1	0.004	1 of 1		780.8 - 522.6 = 258.2
	wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction							
1607219-26B	Equip Blank	6	250	1	0.004	1 of 1		800.1 - 548.2 = 251.9
1607239-16B	Equip Blank	6	250	1	0.004	1 of 1		764.3 - 507.9 = 256.4
1607239-32B	Equip Blank	6	250	1	0.004	1 of 1		771.6 - 519.4 = 252.2
1607256-13B	Equip Blank	6	250	1	0.004	1 of 1		781.9 - 526.7 = 255.2
1607256-26B	Equip Blank	6	250	1	0.004	1 of 1		760.3 - 507.0 = 253.3
1607256-27B	Equip Blank	6	250	1	0.004	1 of 1		792.4 - 539.7 = 252.7
1607265-13B	Equip Blank	6	250	1	0.004	1 of 1		776.4 - 519.8 = 256.6
1607265-26B	Equip Blank	6	250	1	0.004	1 of 1		777.7 - 522.3 = 255.4
LCS-76453	Aqueous	6	500	1	0.002	of		777.1 - 277.1 = 500.0
LCSD-76453	Aqueous	6	500	1	0.002	of		776.9 - 276.9 = 500.0
	Insufficient volume for MS/MSD							
MB-76453	Aqueous	6	500	1	0.002	of		780.1 - 280.1 = 500.0

~~H607294-T5S~~ AR 7/27/16

~~Added @ 8:30AM 7/26/16~~ DB 7/26/16 7/27/16

Number	Reagent Name	Amt	Units	Exp. D
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS~~/MS/MSD~~ LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

DB 7/26/16

REVIEWED BY
By Janice Whitt at 3:41:08 PM, 8/10/2016

DB 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: **7/26/2016 2:10:00 PM**

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List

Turbo-Vap #1,2,3
Balance # 25, 29

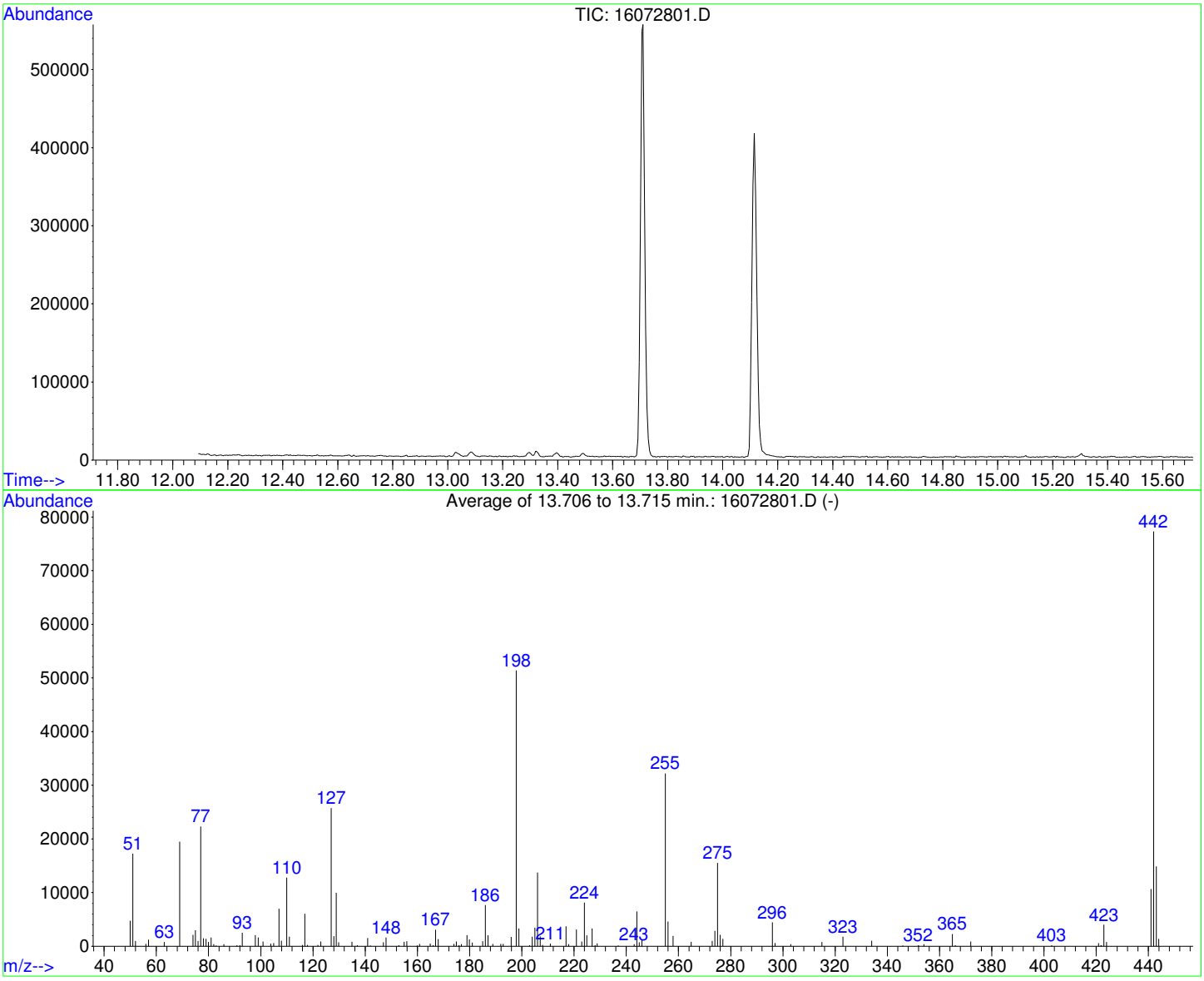
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13B	Equip Blank	6	258.2	1	0.004	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction						
1607219-26B	Equip Blank	6	251.9	1	0.004	1 of 1	
1607239-16B	Equip Blank	6	256.4	1	0.004	1 of 1	
1607239-32B	Equip Blank	6	252.2	1	0.004	1 of 1	
1607256-13B	Equip Blank	6	255.2	1	0.004	1 of 1	
1607256-26B	Equip Blank	6	253.3	1	0.004	1 of 1	
1607256-27B	Equip Blank	6	252.7	1	0.004	1 of 1	
1607265-13B	Equip Blank	6	256.6	1	0.004	1 of 1	
1607265-26B	Equip Blank	6	255.4	1	0.004	1 of 1	
LCS-76453	Aqueous	6	500	1	0.002	of	
LCSD-76453	Aqueous	6	500	1	0.002	of	
	Insufficient volume for MS/MSD						
MB-76453	Aqueous	6	500	1	0.002	of	

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

REVIEWED BY
By Janice Whitt at 3:41:09 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160728\16072801.D Vial: 1
Acq On : 28 Jul 2016 8:09 am Operator: DEW
Sample : DFTPP-160728 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

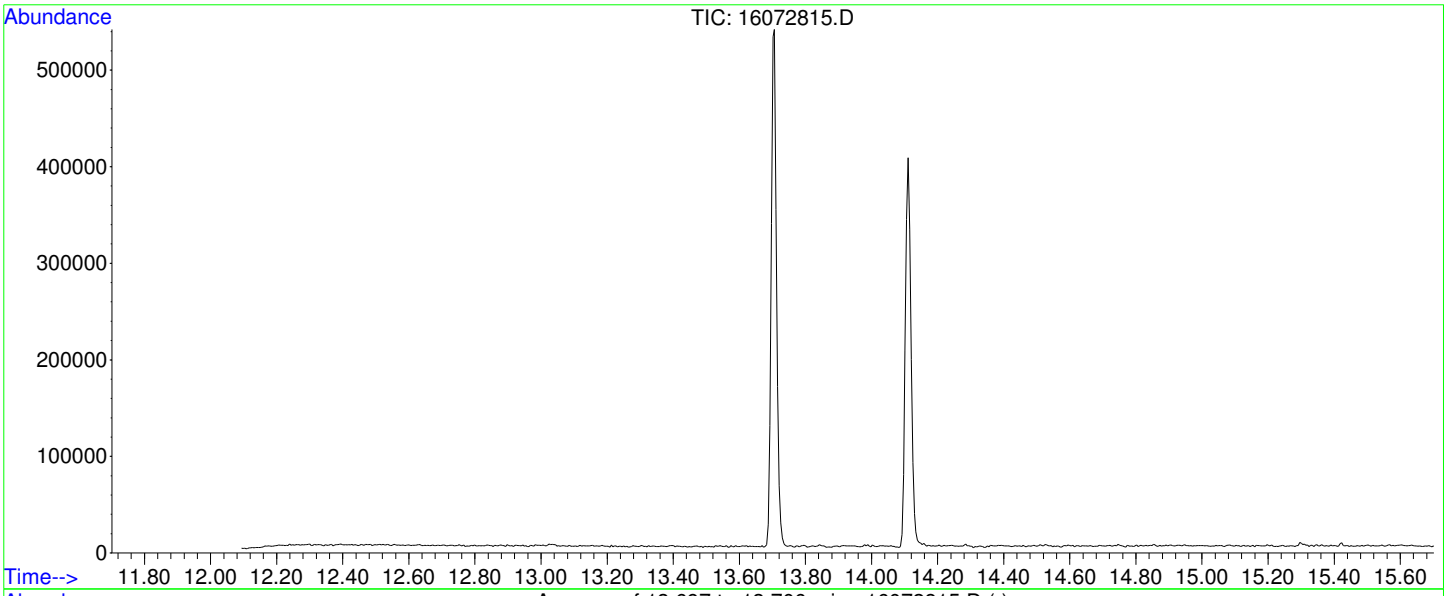


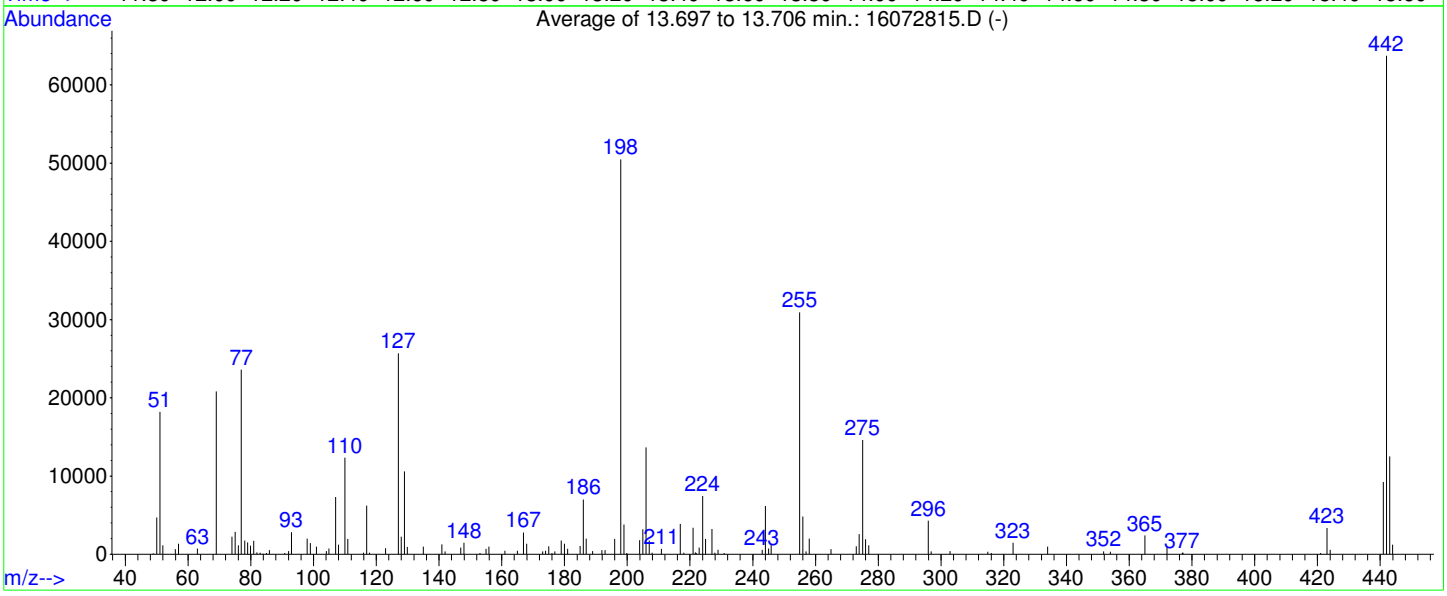
AutoFind: Scans 344, 345, 346; Background Corrected with Scan 337

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.5	17249	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.9	19492	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	25761	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	51429	PASS
199	198	5	9	6.5	3348	PASS
275	198	10	60	30.2	15554	PASS
365	198	1	200	4.5	2293	PASS
441	442	0.01	24	13.8	10659	PASS
442	198	50	400	150.3	77312	PASS
443	442	15	24	19.3	14910	PASS

REVIEWED BY
By Janice Whitt at 3:41:15 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160728\16072815.D Vial: 15
Acq On : 28 Jul 2016 4:55 pm Operator: DEW
Sample : ~~DFTPP-160728~~ DFTPP2-160728 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration





AutoFind: Scans 342, 343, 344; Background Corrected with Scan 336

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.1	18208	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	41.3	20835	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.9	25701	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	50491	PASS
199	198	5	9	7.5	3798	PASS
275	198	10	60	29.0	14622	PASS
365	198	1	200	4.8	2403	PASS
441	442	0.01	24	14.5	9239	PASS
442	198	50	400	126.2	63736	PASS
443	442	15	24	19.6	12502	PASS

REVIEWED BY
By Janice Whitt at 3:41:17 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

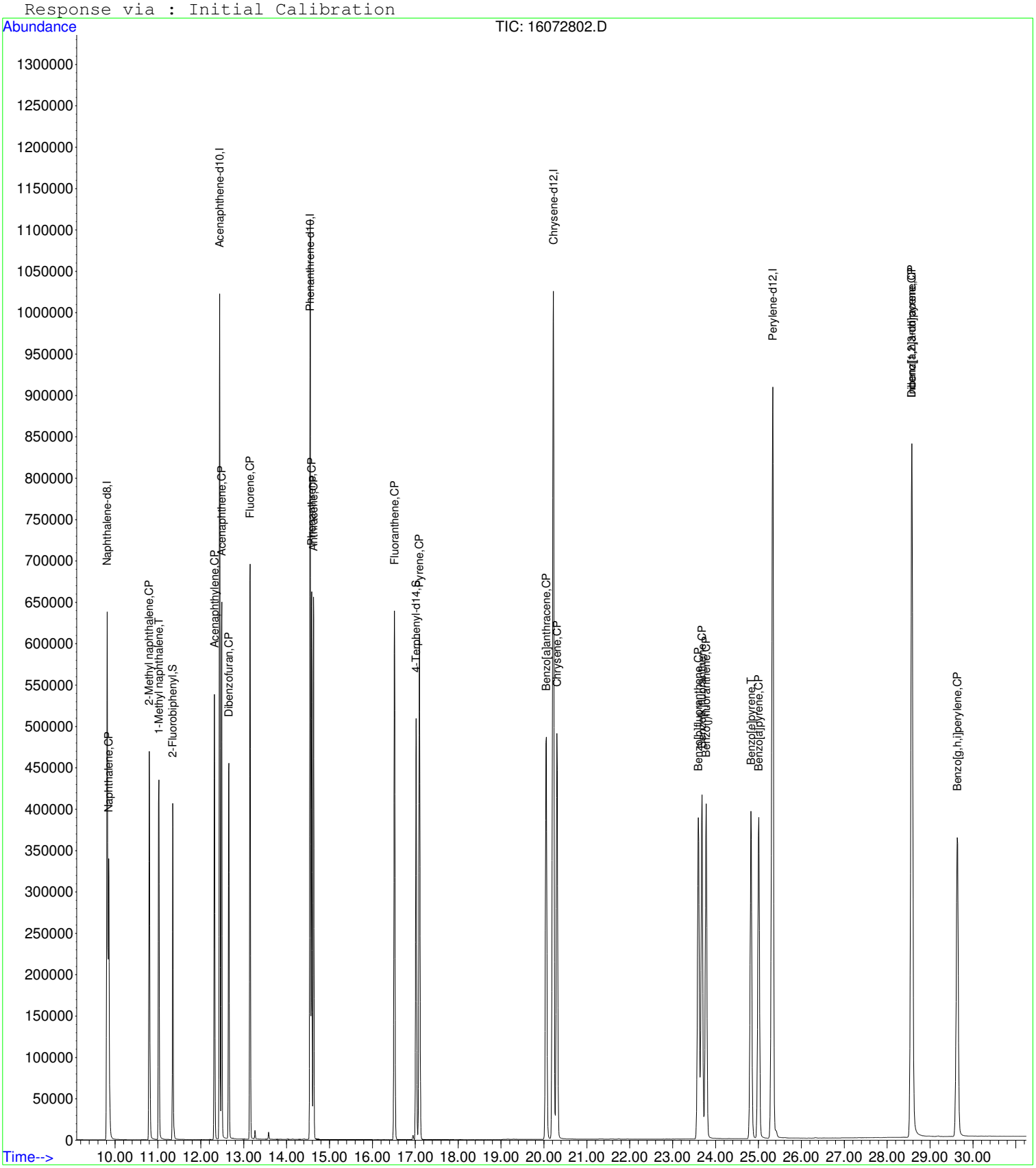
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	993161	4000.00	ug/kg	111
5) Acenaphthene-d10	12.44	164	595036	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1704067	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1889673	4000.00	ug/kg	117
20) Perylene-d12	25.34	264	1906547	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.34	172	388316	2014.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.36%			
16) 4-Terphenyl-d14	17.02	244	722939	1998.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.95%			
Target Compounds						Qvalue
2) Naphthalene	9.85	128	423506	1875.21	ug/kg	99
3) 2-Methyl naphthalene	10.80	142	308279	1888.62	ug/kg	100
4) 1-Methyl naphthalene	11.02	142	281900	1877.56	ug/kg	100
6) Dibenzofuran	12.65	168	443140	1875.68	ug/kg	100
8) Acenaphthylene	12.32	152	506453	1956.04	ug/kg	100
9) Acenaphthene	12.49	154	297830	1936.67	ug/kg	97
10) Fluorene	13.15	166	376267	1958.09	ug/kg	98
12) Phenanthrene	14.59	178	714088	2214.48	ug/kg	100
13) Anthracene	14.63	178	593513	1797.99	ug/kg	99
14) Fluoranthene	16.52	202	723353	1824.45	ug/kg	100
15) Pyrene	17.10	202	730341	1788.71	ug/kg	100
18) Benzo[a]anthracene	20.06	228	794030	1959.79	ug/kg	99
19) Chrysene	20.30	228	728842	1910.03	ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	849690	1950.39	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	778475	1949.17	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	750461	1984.71	ug/kg	99
24) Benzo[e]pyrene	24.83	252	802759	1939.72	ug/kg	99
25) Benzo[a]pyrene	25.01	252	799379	1946.40	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	822523	1932.45	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.58	276	973504	1904.41	ug/kg	97
28) Benzo[g,h,i]perylene	29.64	276	807352	2176.33	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

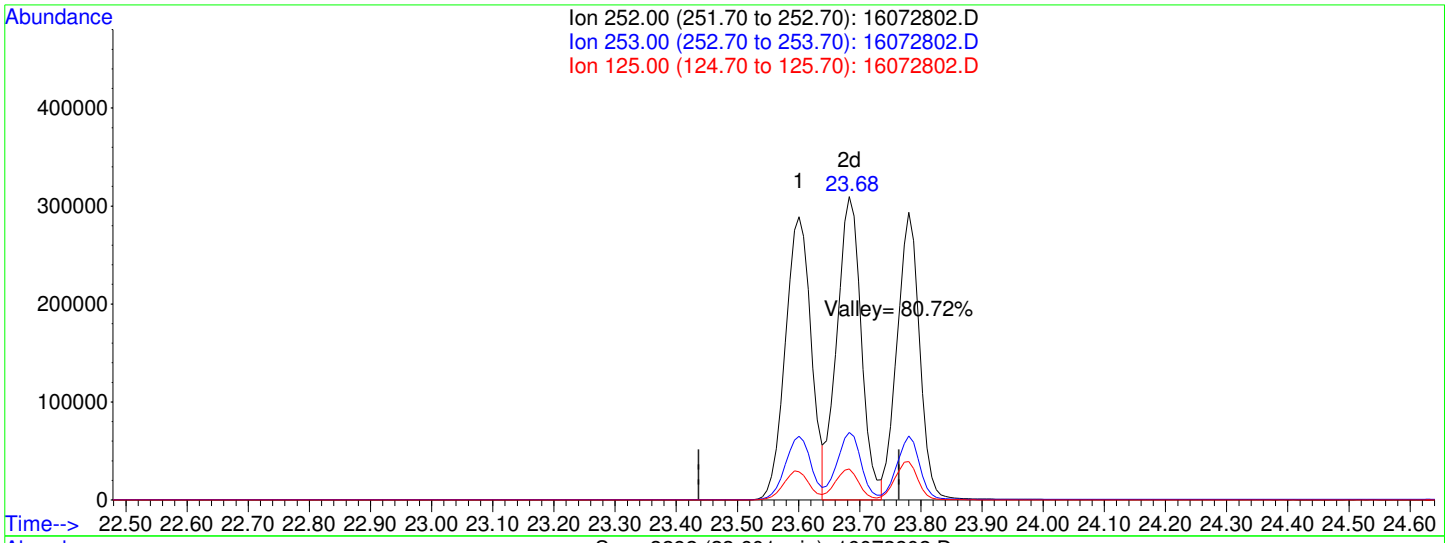
Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

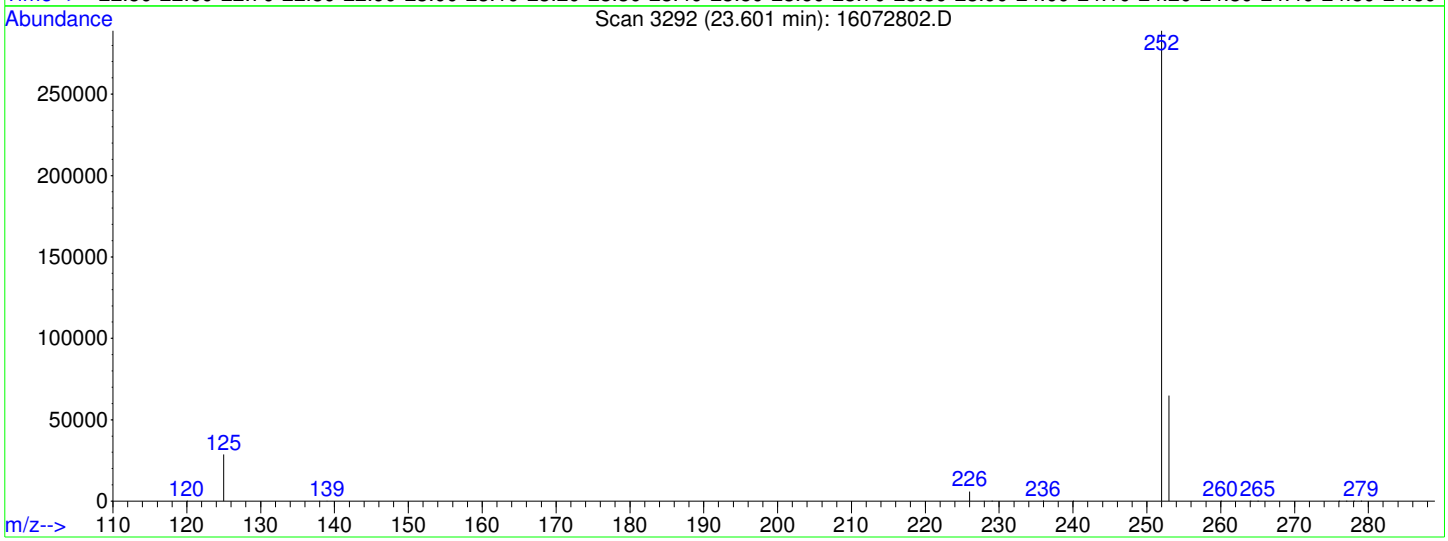


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Multiple Level Calibration





TIC: 16072802.D

(21) Benzo[b]fluoranthene (CP)

23.60min 1950.39ug/kg

response 849690

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.31
125.00	9.30	9.88
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072803.D Vial: 3
Acq On : 28 Jul 2016 9:24 am Operator: DEW
Sample : LCS-76453 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

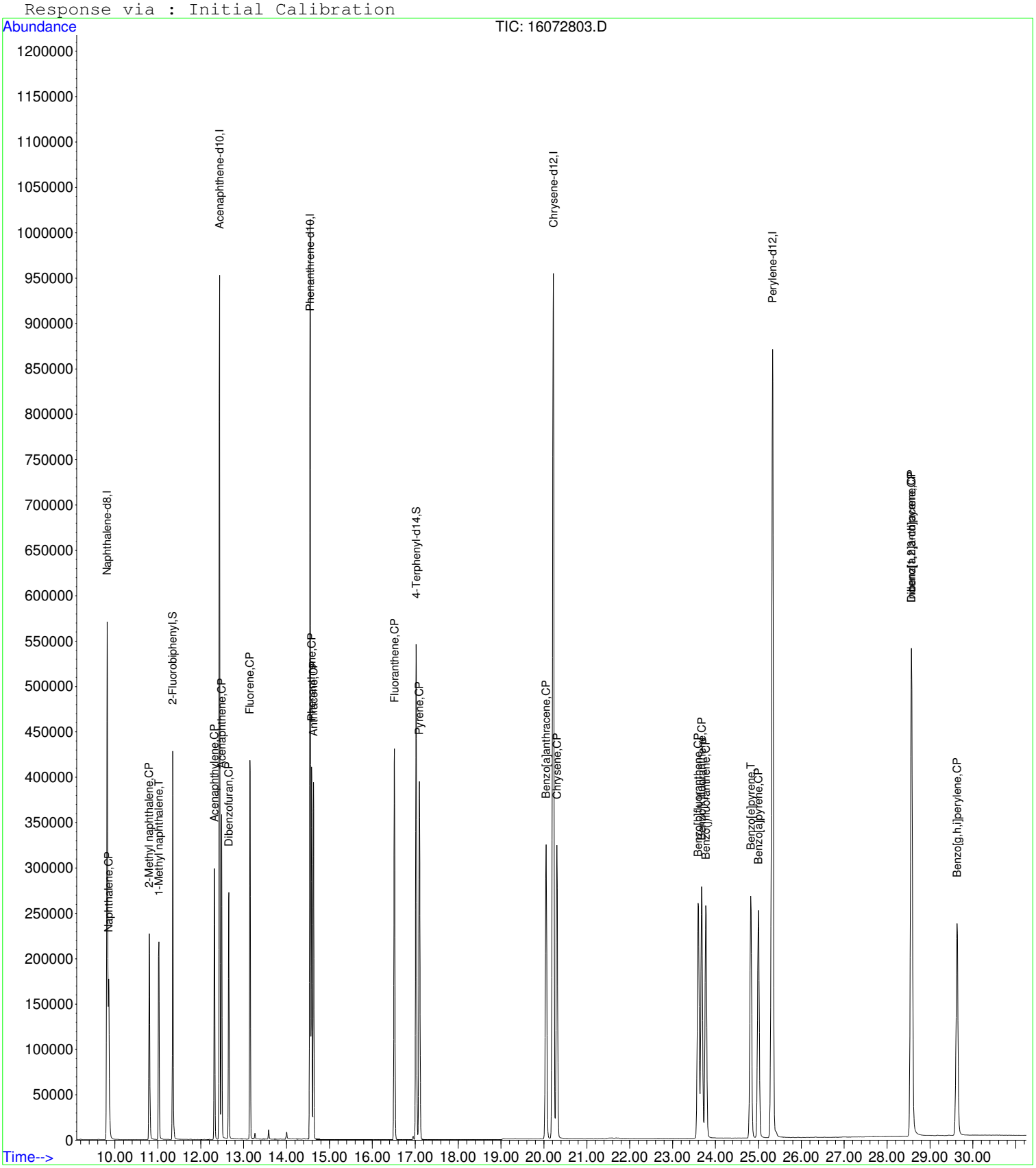
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	901224	4000.00	ug/kg	101
5) Acenaphthene-d10	12.44	164	544856	4000.00	ug/kg	96
11) Phenanthrene-d10	14.55	188	1553455	4000.00	ug/kg	103
17) Chrysene-d12	20.22	240	1740242	4000.00	ug/kg	108
20) Perylene-d12	25.33	264	1767452	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	402444	2279.92	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	57.00%		
16) 4-Terphenyl-d14	17.02	244	778310	2372.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	59.32%		
Target Compounds						Qvalue
2) Naphthalene	9.85	128	208183	1015.84	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	149322	1008.12	ug/kg	99
4) 1-Methyl naphthalene	11.02	142	139286	1022.34	ug/kg	100
6) Dibenzofuran	12.65	168	260519	1204.26	ug/kg	99
8) Acenaphthylene	12.32	152	281773	1188.50	ug/kg	100
9) Acenaphthene	12.49	154	163129	1158.46	ug/kg	97
10) Fluorene	13.14	166	225833	1283.47	ug/kg	98
12) Phenanthrene	14.58	178	437488	1488.24	ug/kg	100
13) Anthracene	14.63	178	364335	1210.73	ug/kg	99
14) Fluoranthene	16.51	202	467864	1294.47	ug/kg	100
15) Pyrene	17.10	202	467518	1256.03	ug/kg	100
18) Benzo[a]anthracene	20.05	228	523420	1402.81	ug/kg	100
19) Chrysene	20.30	228	480633	1367.72	ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	566646	1403.05	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	489447	1321.93	ug/kg	100
23) Benzo(j)fluoranthene	23.77	252	496835	1417.36	ug/kg	100
24) Benzo[e]pyrene	24.82	252	548539	1429.76	ug/kg	99
25) Benzo[a]pyrene	25.00	252	521378	1369.40	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	528608	1339.66	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.57	276	617831	1303.74	ug/kg	98
28) Benzo[g,h,i]perylene	29.63	276	502776	1461.96	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072803.D Vial: 3
Acq On : 28 Jul 2016 9:24 am Operator: DEW
Sample : LCS-76453 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072804.D Vial: 4
Acq On : 28 Jul 2016 10:01 am Operator: DEW
Sample : LCSD-76453 Inst : GC/MS #6
Misc : LCSD Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

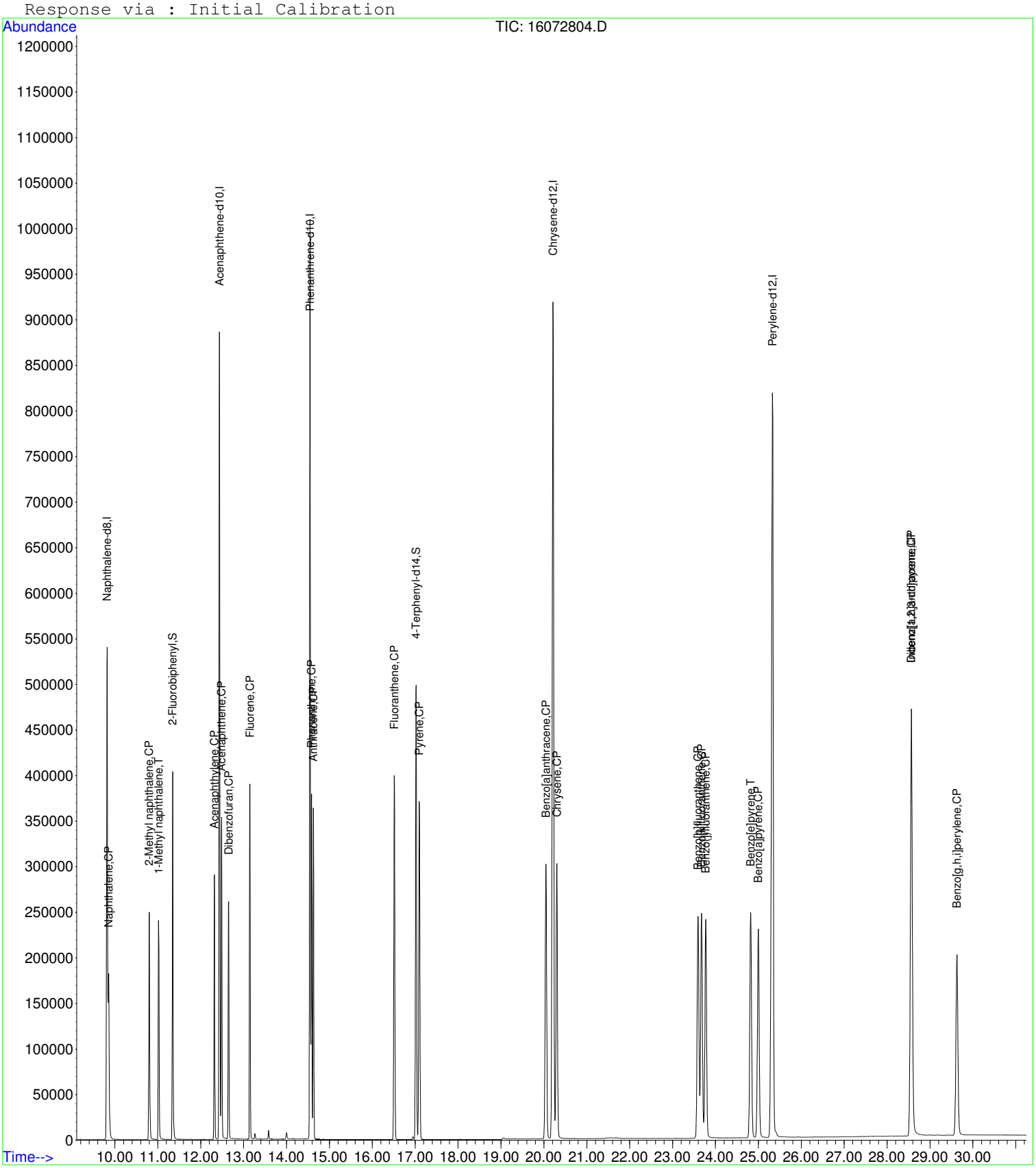
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	870249	4000.00	ug/kg	97
5) Acenaphthene-d10	12.44	164	520278	4000.00	ug/kg	91
11) Phenanthrene-d10	14.55	188	1521930	4000.00	ug/kg	101
17) Chrysene-d12	20.21	240	1670962	4000.00	ug/kg	104
20) Perylene-d12	25.33	264	1659219	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	368693	2187.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 54.69%			
16) 4-Terphenyl-d14	17.02	244	722203	2243.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 56.08%			
Target Compounds						Qvalue
2) Naphthalene	9.85	128	217995	1101.58	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	160448	1121.79	ug/kg	96
4) 1-Methyl naphthalene	11.02	142	147487	1121.06	ug/kg	96
6) Dibenzofuran	12.65	168	251400	1217.00	ug/kg	99
8) Acenaphthylene	12.32	152	276116	1219.66	ug/kg	100
9) Acenaphthene	12.49	154	160377	1192.72	ug/kg	96
10) Fluorene	13.15	166	212077	1262.23	ug/kg	100
12) Phenanthrene	14.58	178	418635	1453.61	ug/kg	100
13) Anthracene	14.63	178	333925	1132.66	ug/kg	99
14) Fluoranthene	16.51	202	441449	1246.68	ug/kg	100
15) Pyrene	17.09	202	438777	1203.24	ug/kg	99
18) Benzo[a]anthracene	20.05	228	493082	1376.30	ug/kg	100
19) Chrysene	20.30	228	452335	1340.56	ug/kg	99
21) Benzo[b]fluoranthene	23.59	252	520939	1374.02	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	465129	1338.20	ug/kg	99
23) Benzo(j)fluoranthene	23.77	252	466418	1417.39	ug/kg	99
24) Benzo[e]pyrene	24.82	252	509772	1415.38	ug/kg	99
25) Benzo[a]pyrene	25.00	252	481849	1348.14	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	467447	1261.93	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.57	276	547461	1230.61	ug/kg	96
28) Benzo[g,h,i]perylene	29.63	276	431526	1336.63	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072804.D Vial: 4
Acq On : 28 Jul 2016 10:01 am Operator: DEW
Sample : LCSD-76453 Inst : GC/MS #6
Misc : LCSD Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072805.D Vial: 5
Acq On : 28 Jul 2016 10:39 am Operator: DEW
Sample : MB-76453 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

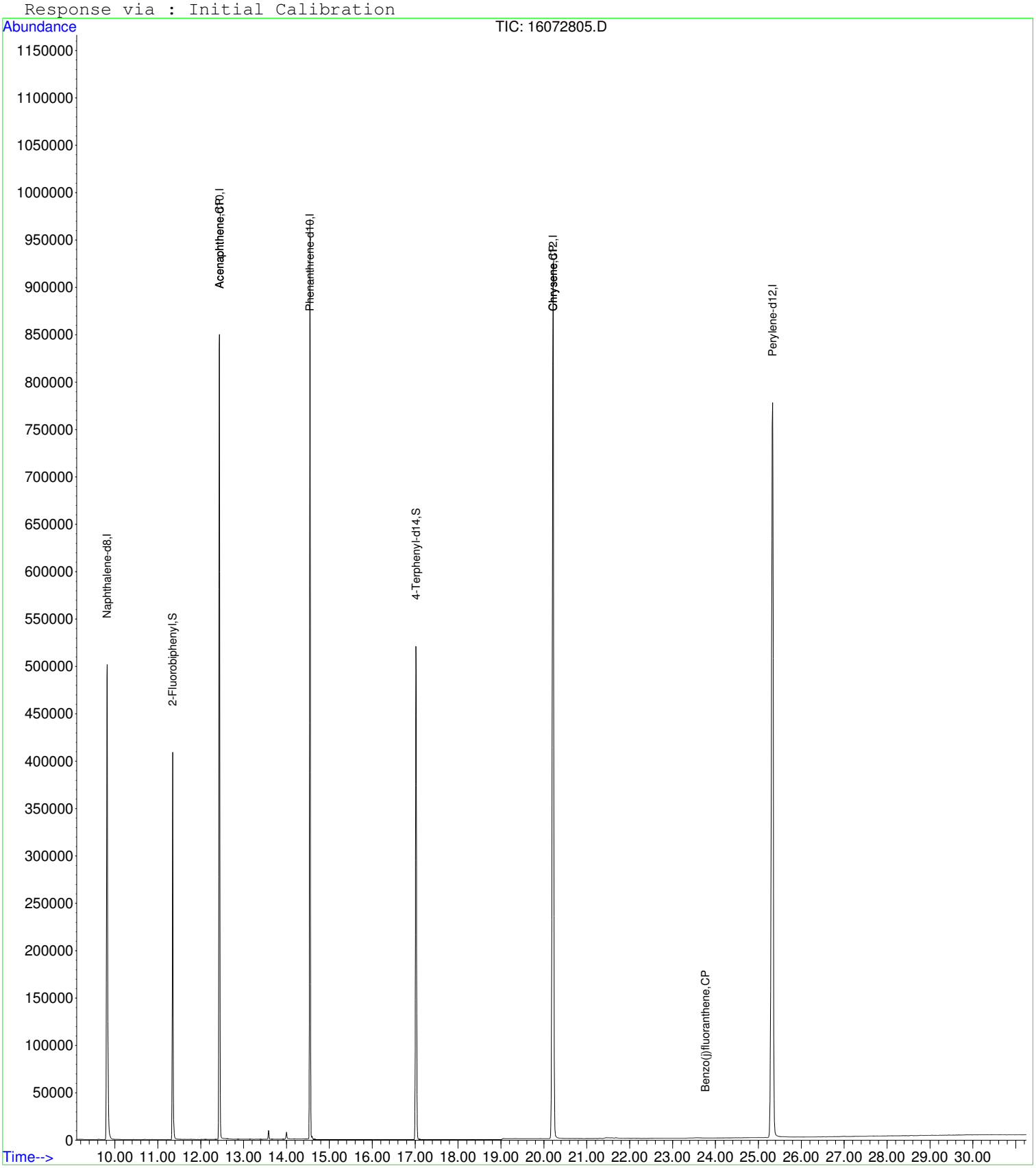
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	833741	4000.00	ug/kg	93
5) Acenaphthene-d10	12.44	164	505050	4000.00	ug/kg	89
11) Phenanthrene-d10	14.55	188	1412855	4000.00	ug/kg	94
17) Chrysene-d12	20.21	240	1642082	4000.00	ug/kg	102
20) Perylene-d12	25.33	264	1610987	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	380396	2324.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 58.12%			
16) 4-Terphenyl-d14	17.02	244	746608	2507.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 62.69%			
Target Compounds						Qvalue
9) Acenaphthene	12.43	154	1740	13.33	ug/kg#	9
19) Chrysene	20.21	228	3450	10.40	ug/kg	69
23) Benzo(j)fluoranthene	23.77	252	103	0.32	ug/kg#	37

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072805.D Vial: 5
Acq On : 28 Jul 2016 10:39 am Operator: DEW
Sample : MB-76453 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072813.D Vial: 13
Acq On : 28 Jul 2016 3:40 pm Operator: DEW
Sample : 1607265-13B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

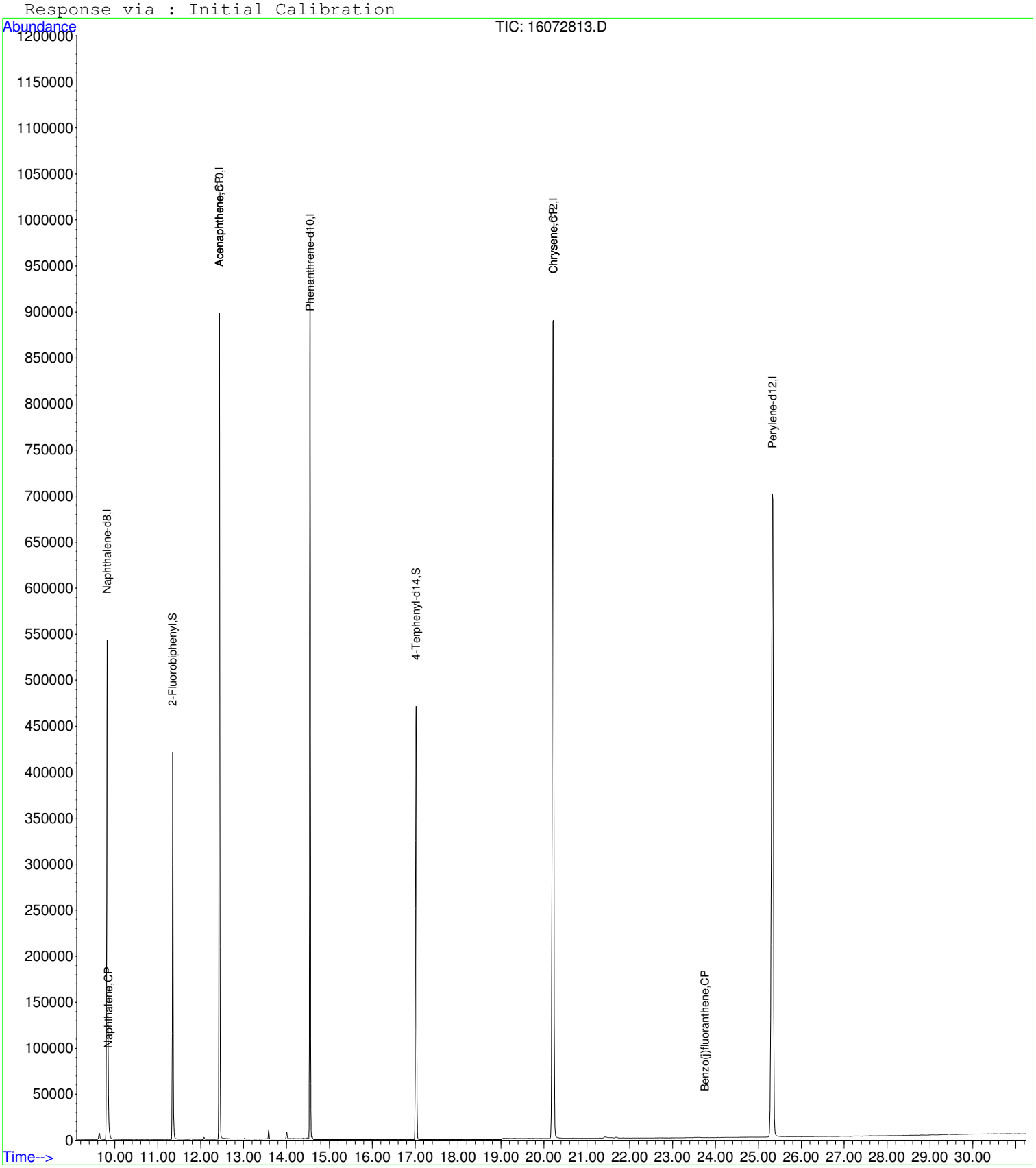
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	857697	4000.00	ug/kg	96
5) Acenaphthene-d10	12.44	164	505765	4000.00	ug/kg	89
11) Phenanthrene-d10	14.55	188	1485955	4000.00	ug/kg	99
17) Chrysene-d12	20.22	240	1638571	4000.00	ug/kg	102
20) Perylene-d12	25.33	264	1491673	4000.00	ug/kg	90
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	394715	2408.90	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 60.22%			
16) 4-Terphenyl-d14	17.02	244	670626	2129.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 53.25%			
Target Compounds						Qvalue
2) Naphthalene	9.85	128	1104	5.66	ug/kg	93
9) Acenaphthene	12.44	154	1716	13.13	ug/kg#	10
19) Chrysene	20.21	228	3395	10.26	ug/kg	69
23) Benzo(j)fluoranthene	23.76	252	30	0.10	ug/kg#	1

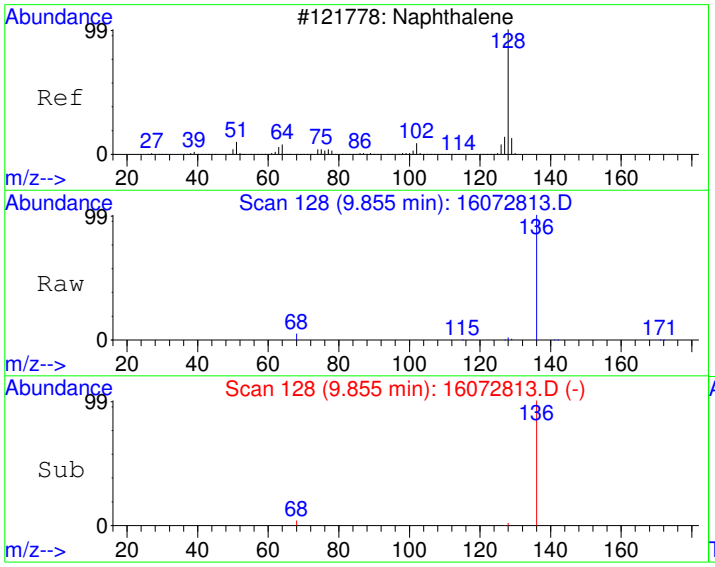
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072813.D Vial: 13
Acq On : 28 Jul 2016 3:40 pm Operator: DEW
Sample : 1607265-13B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

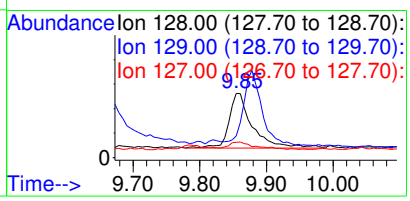


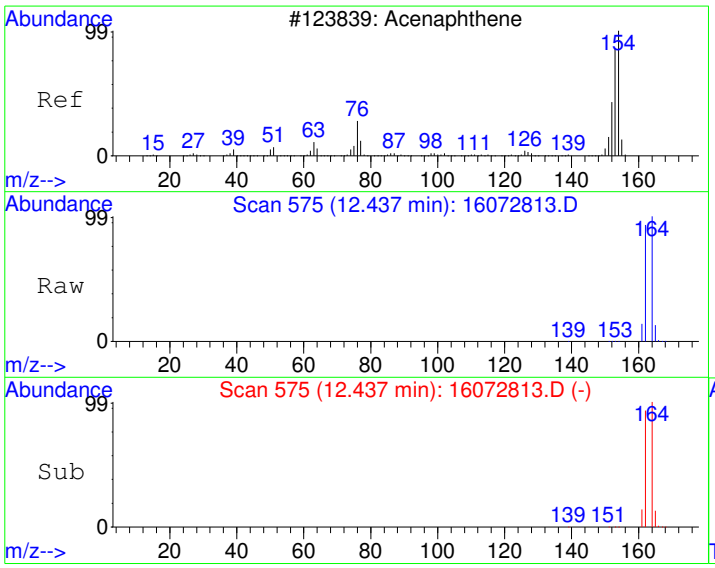


#2
Naphthalene
Concen: 5.66 ug/kg
RT: 9.85 min Scan# 128
Delta R.T. 0.00 min
Lab File: 16072813.D
Acq: 28 Jul 2016 3:40 pm

Tgt Ion:128 Resp: 1104

Ion	Ratio	Lower	Upper
128	100		
129	16.5	0.0	41.2
127	11.8	0.0	42.5

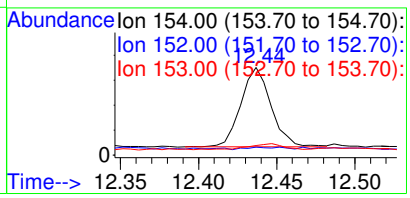


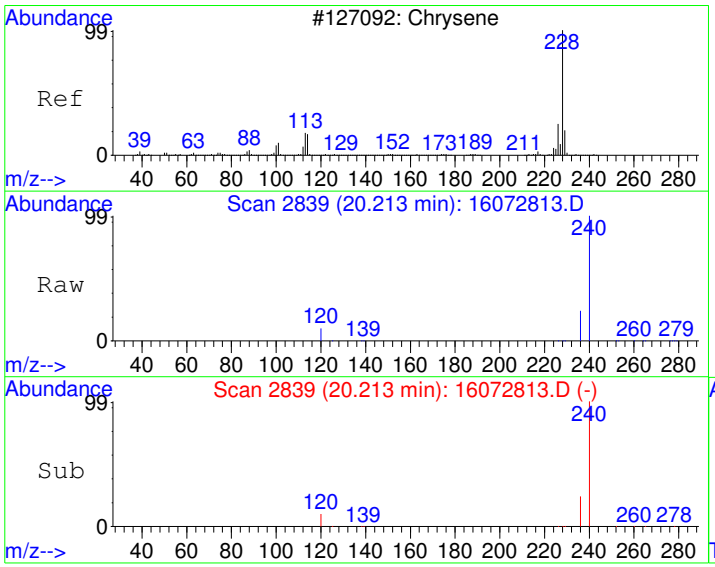


#9
Acenaphthene
Concen: 13.13 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.05 min
Lab File: 16072813.D
Acq: 28 Jul 2016 3:40 pm

Tgt Ion:154 Resp: 1716

Ion	Ratio	Lower	Upper
154	100		
152	2.3	20.4	80.4#
153	4.5	78.2	138.2#

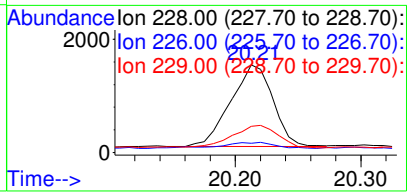


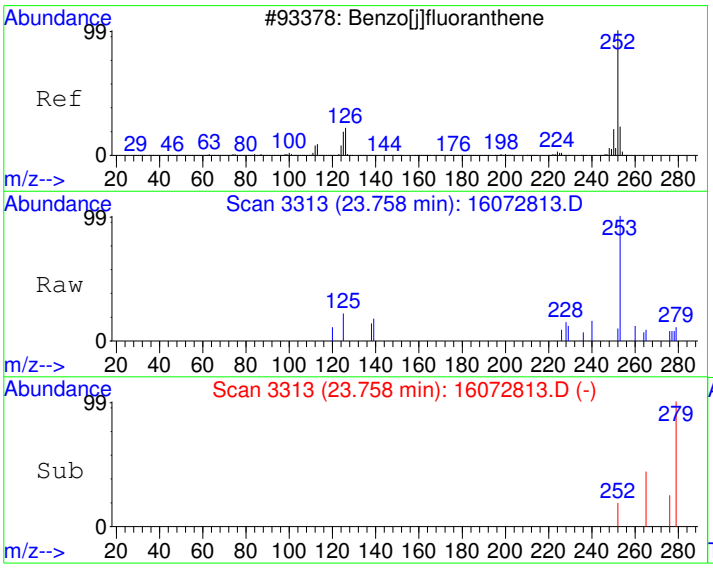


#19
Chrysene
Concen: 10.26 ug/kg
RT: 20.21 min Scan# 2839
Delta R.T. -0.09 min
Lab File: 16072813.D
Acq: 28 Jul 2016 3:40 pm

Tgt Ion:228 Resp: 3395

Ion	Ratio	Lower	Upper
228	100		
226	5.1	0.0	58.1
229	26.2	0.0	49.9

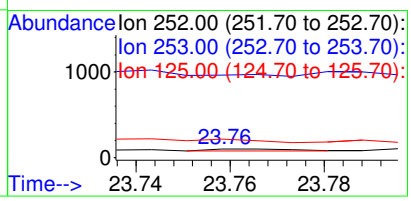




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 23.76 min Scan# 3313
Delta R.T. -0.02 min
Lab File: 16072813.D
Acq: 28 Jul 2016 3:40 pm

Tgt Ion:252 Resp: 30

Ion	Ratio	Lower	Upper
252	100		
253	18.2	2.1	42.1
125	140.9	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072814.D Vial: 14
Acq On : 28 Jul 2016 4:17 pm Operator: DEW
Sample : 1607265-26B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

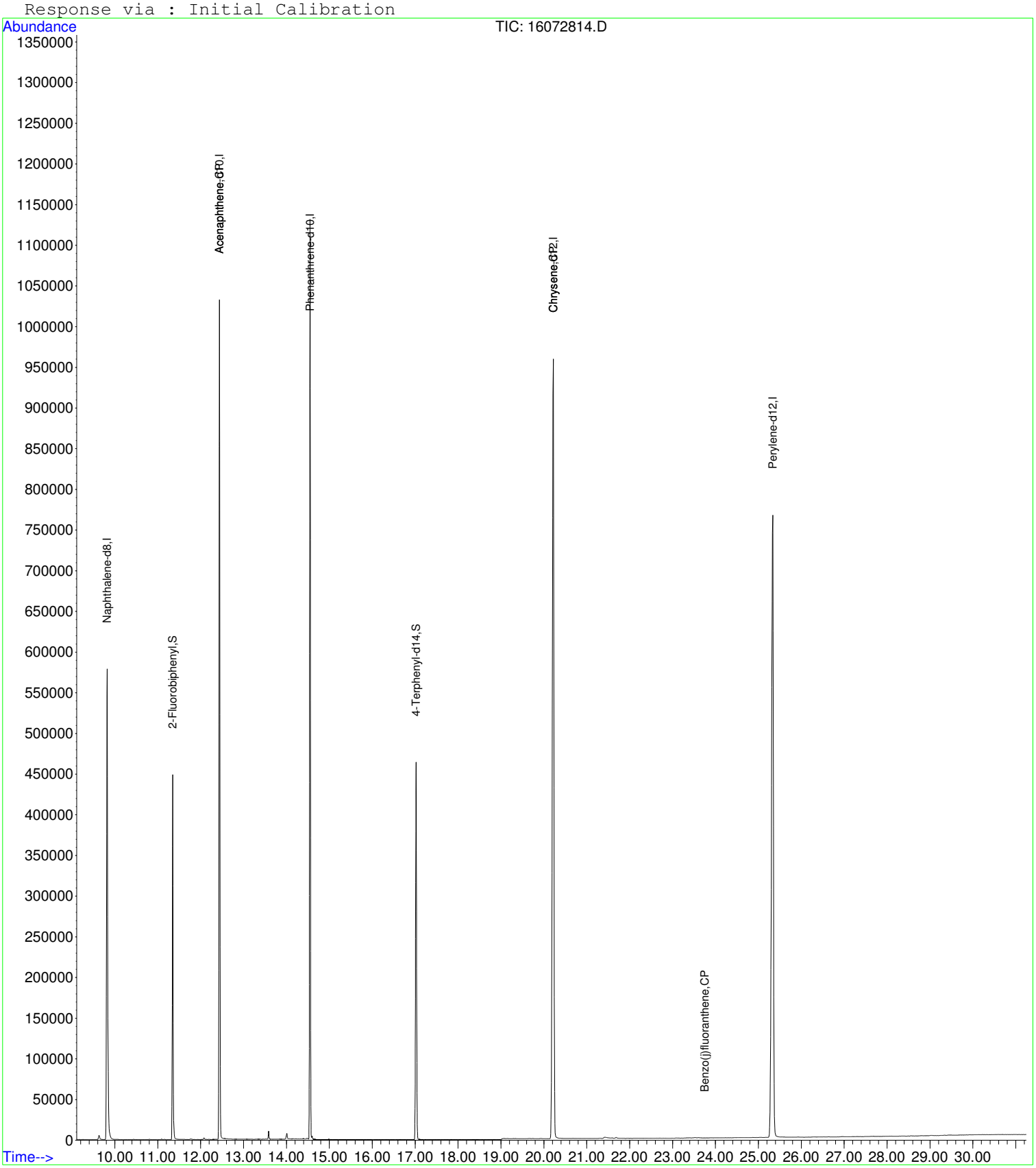
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	957224	4000.00	ug/kg	107
5) Acenaphthene-d10	12.44	164	589472	4000.00	ug/kg	104
11) Phenanthrene-d10	14.55	188	1687162	4000.00	ug/kg	112
17) Chrysene-d12	20.22	240	1757245	4000.00	ug/kg	109
20) Perylene-d12	25.34	264	1591654	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	413677	2166.21	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 54.16%			
16) 4-Terphenyl-d14	17.02	244	672846	1874.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.86%			
Target Compounds						Qvalue
9) Acenaphthene	12.44	154	2014	13.22	ug/kg#	10
19) Chrysene	20.22	228	3729	10.51	ug/kg	71
23) Benzo(j)fluoranthene	23.76	252	20	0.06	ug/kg	70

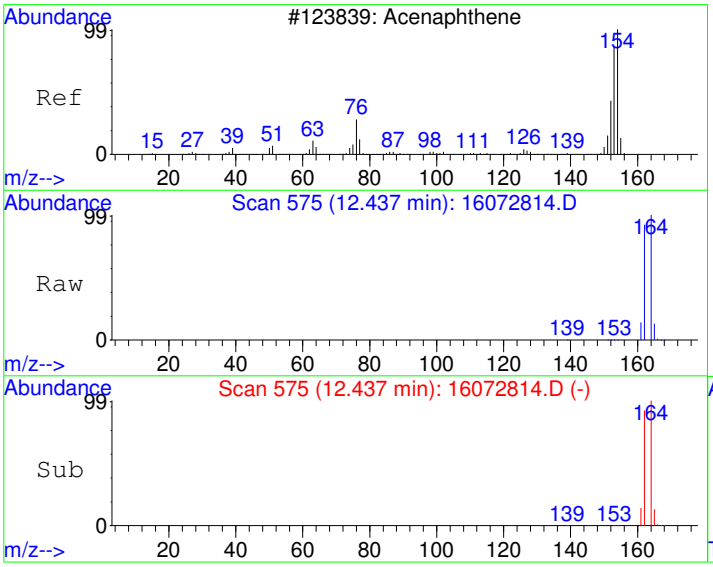
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072814.D Vial: 14
Acq On : 28 Jul 2016 4:17 pm Operator: DEW
Sample : 1607265-26B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:22 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

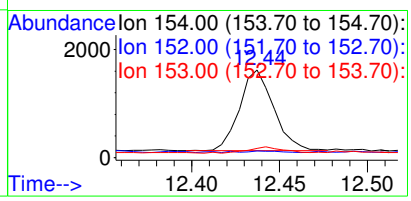


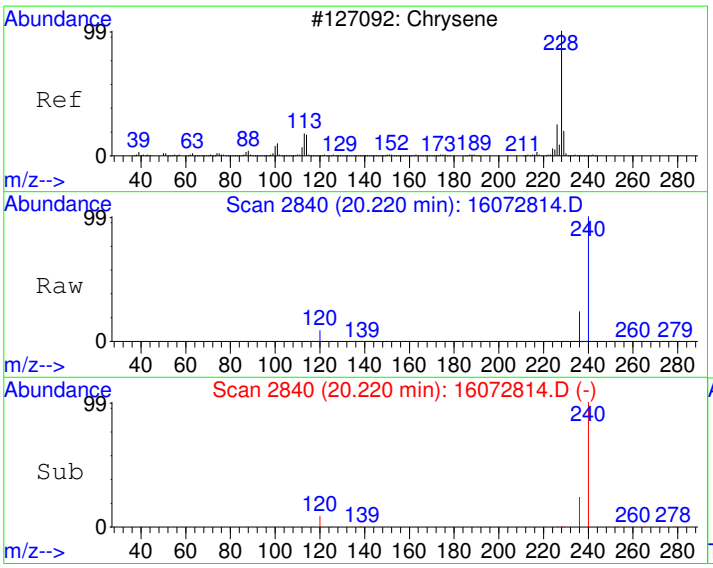


#9
Acenaphthene
Concen: 13.22 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.05 min
Lab File: 16072814.D
Acq: 28 Jul 2016 4:17 pm

Tgt Ion:154 Resp: 2014

Ion	Ratio	Lower	Upper
154	100		
152	1.4	20.4	80.4#
153	5.4	78.2	138.2#

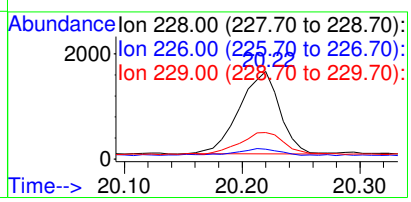


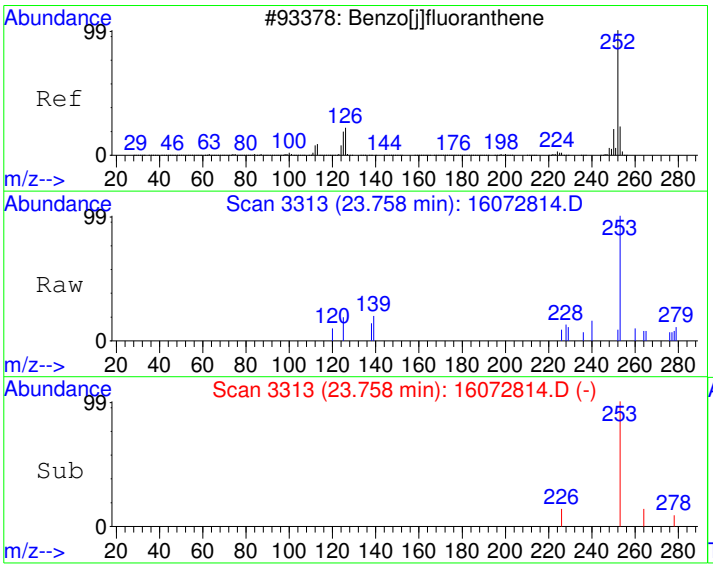


#19
Chrysene
Concen: 10.51 ug/kg
RT: 20.22 min Scan# 2840
Delta R.T. -0.08 min
Lab File: 16072814.D
Acq: 28 Jul 2016 4:17 pm

Tgt Ion:228 Resp: 3729

Ion	Ratio	Lower	Upper
228	100		
226	6.6	0.0	58.1
229	26.0	0.0	49.9

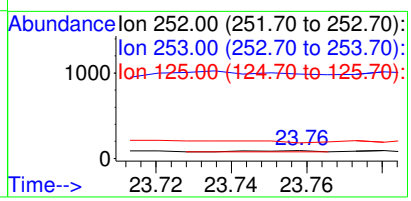




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 23.76 min Scan# 3313
Delta R.T. -0.02 min
Lab File: 16072814.D
Acq: 28 Jul 2016 4:17 pm

Tgt Ion:252 Resp: 20

Ion	Ratio	Lower	Upper
252	100		
253	35.3	2.1	42.1
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072816.D Vial: 16
Acq On : 28 Jul 2016 5:31 pm Operator: DEW
Sample : ICV2-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

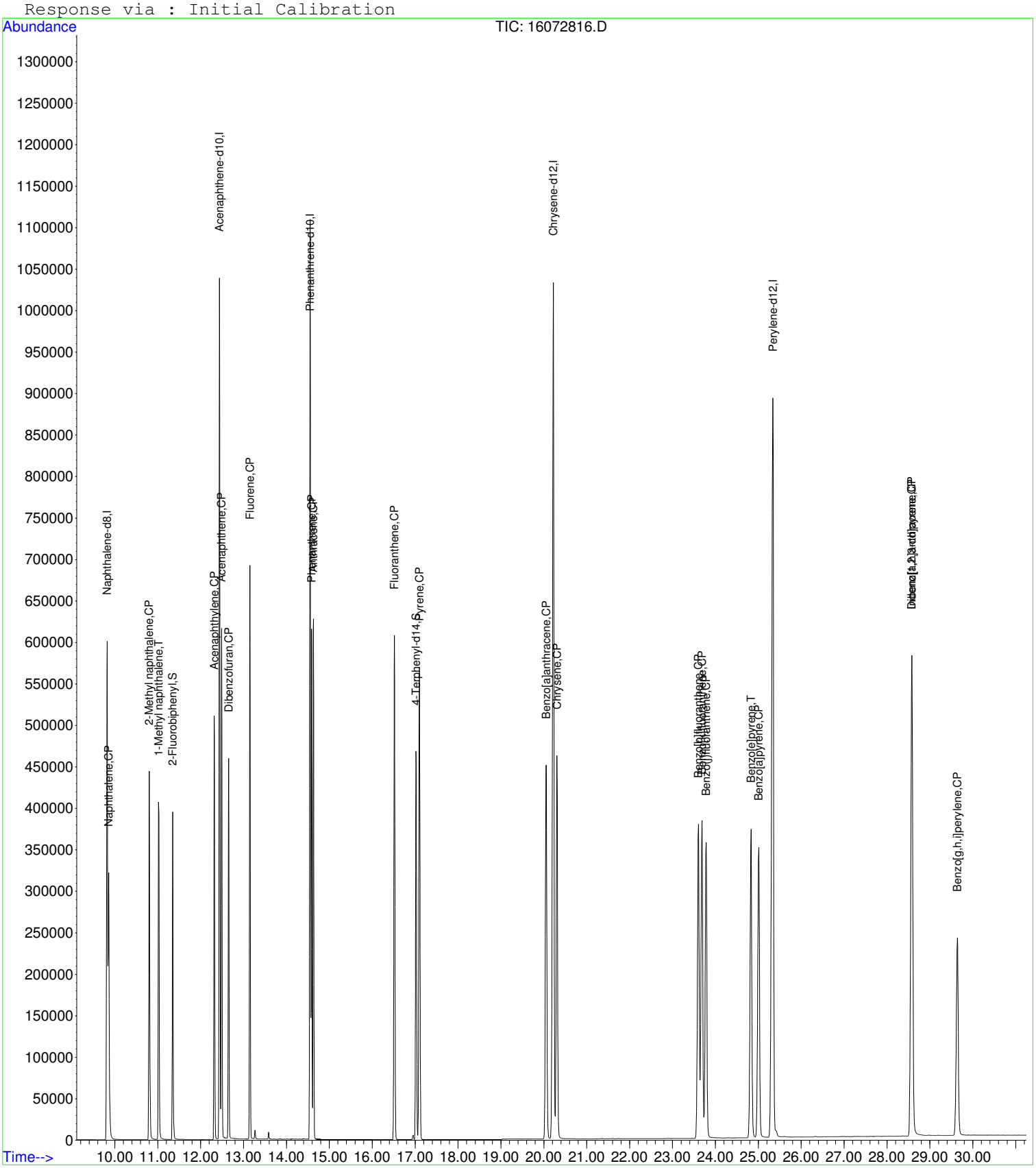
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	971538	4000.00	ug/kg	109
5) Acenaphthene-d10	12.44	164	596586	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1699263	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1873252	4000.00	ug/kg	116
20) Perylene-d12	25.34	264	1888346	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	367882	1903.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.59%			
16) 4-Terphenyl-d14	17.02	244	678598	1877.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.93%			
Target Compounds						Qvalue
2) Naphthalene	9.86	128	392628	1777.18	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	291499	1825.56	ug/kg	97
4) 1-Methyl naphthalene	11.02	142	266041	1811.37	ug/kg	98
6) Dibenzofuran	12.65	168	420847	1776.70	ug/kg	99
8) Acenaphthylene	12.32	152	482469	1858.57	ug/kg	99
9) Acenaphthene	12.49	154	280864	1821.60	ug/kg	97
10) Fluorene	13.15	166	358158	1859.01	ug/kg	100
12) Phenanthrene	14.59	178	671597	2088.60	ug/kg	100
13) Anthracene	14.63	178	568837	1728.11	ug/kg	100
14) Fluoranthene	16.52	202	681788	1724.48	ug/kg	100
15) Pyrene	17.10	202	686885	1687.04	ug/kg	100
18) Benzo[a]anthracene	20.06	228	740083	1842.65	ug/kg	99
19) Chrysene	20.30	228	679574	1796.53	ug/kg	100
21) Benzo[b]fluoranthene	23.60	252	799836	1853.65	ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	731652	1849.59	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	704600	1881.39	ug/kg	99
24) Benzo[e]pyrene	24.83	252	754358	1840.34	ug/kg	100
25) Benzo[a]pyrene	25.01	252	748553	1840.21	ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	598827	1420.46	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.58	276	701633	1385.79	ug/kg	94
28) Benzo[g,h,i]perylene	29.64	276	547403	1489.82	ug/kg	94

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072816.D Vial: 16
Acq On : 28 Jul 2016 5:31 pm Operator: DEW
Sample : ICV2-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1607265

CAL ID: 676

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PP160725.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160725	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160725-1	1

Standards Used for the Calibration Curve

Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160725**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160725-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Karyn Lane Date: 07/25/2016

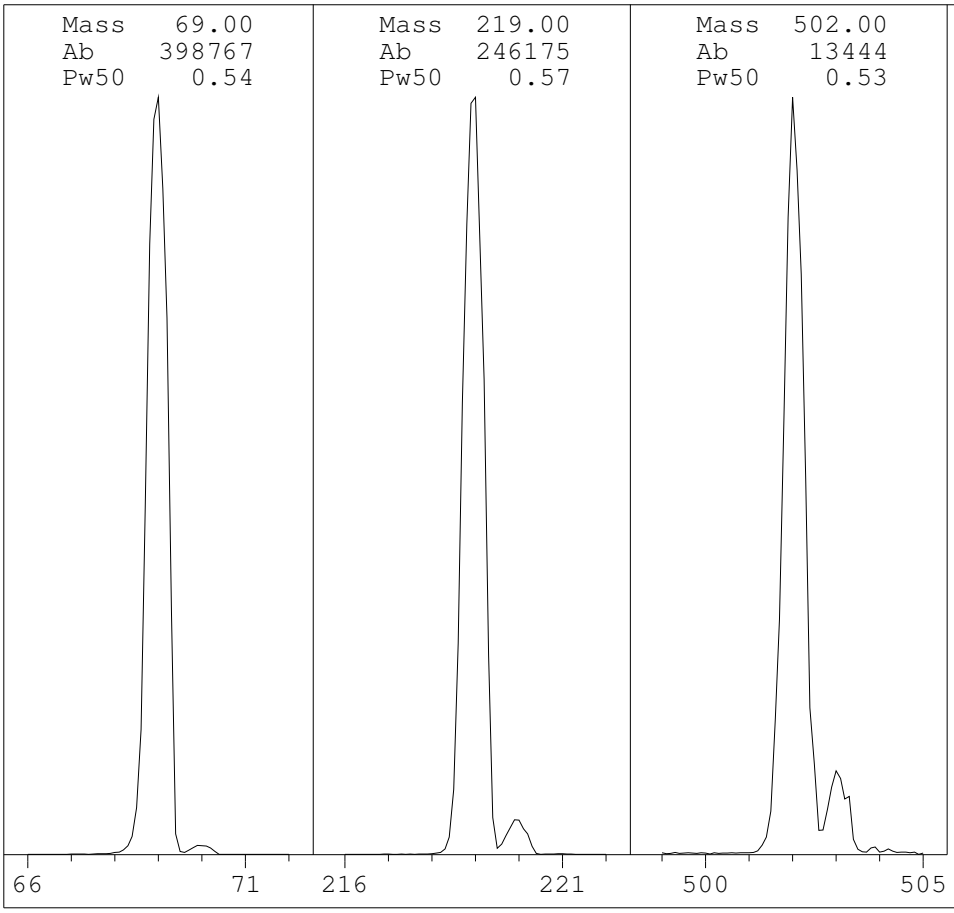
Second-Level Review: Don Winston Date: 07/29/2016

Spiked and ran by Don Winston. Reviewed by Karyn Lane.

HP5973

Instrument: GC/MS #6

Mon Jul 25 13:16:58 2016 C:\HPCHEM\1\5973\ATUNE.U



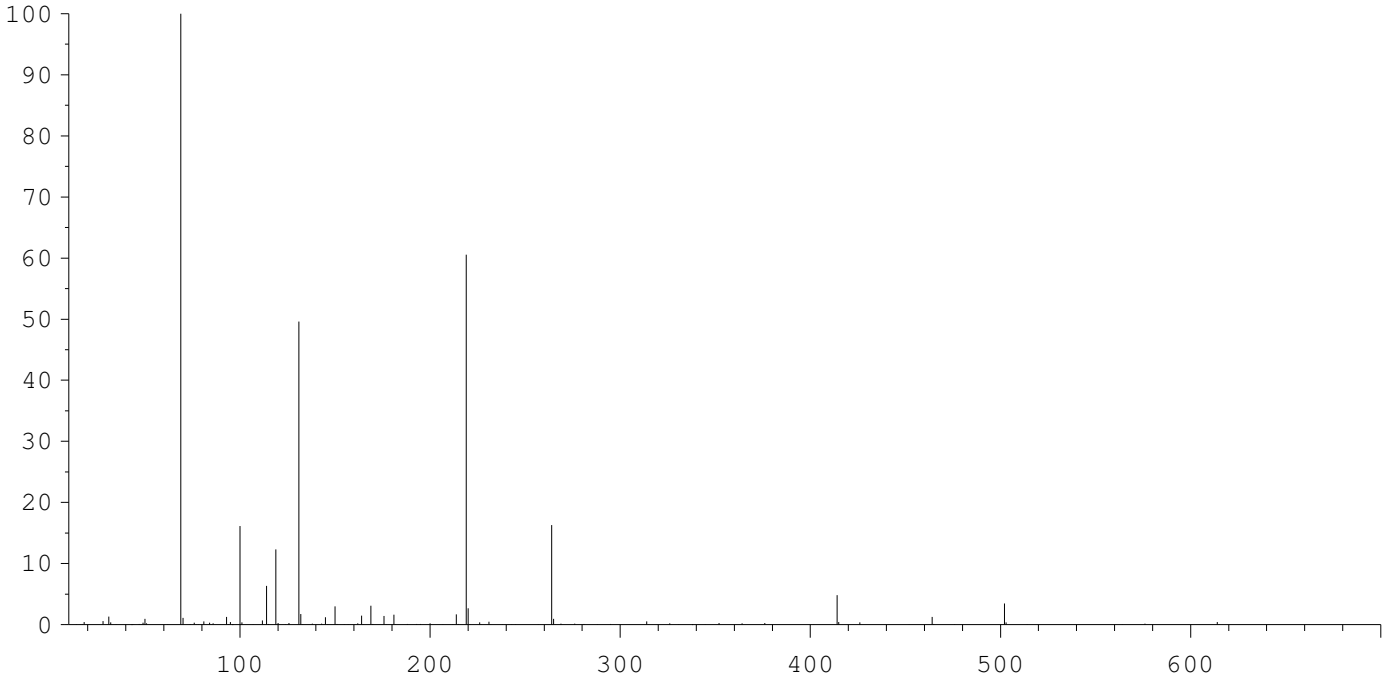
Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2195
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	80.7	HED	ON
EntLens	14.0	EMVolts	1565
EntOffs	16.06		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10

Zones:

MS Source	230	Foreline	82
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

113 peaks Base: 69.00 Abundance: 355392



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	355392	100.00	70.00	3847	1.08
219.00	215296	60.58	220.00	9408	4.37
502.00	12326	3.47	503.00	1362	11.05

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	49.6	60.6	4.8	3.5

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160725.M
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response Via : Initial Calibration

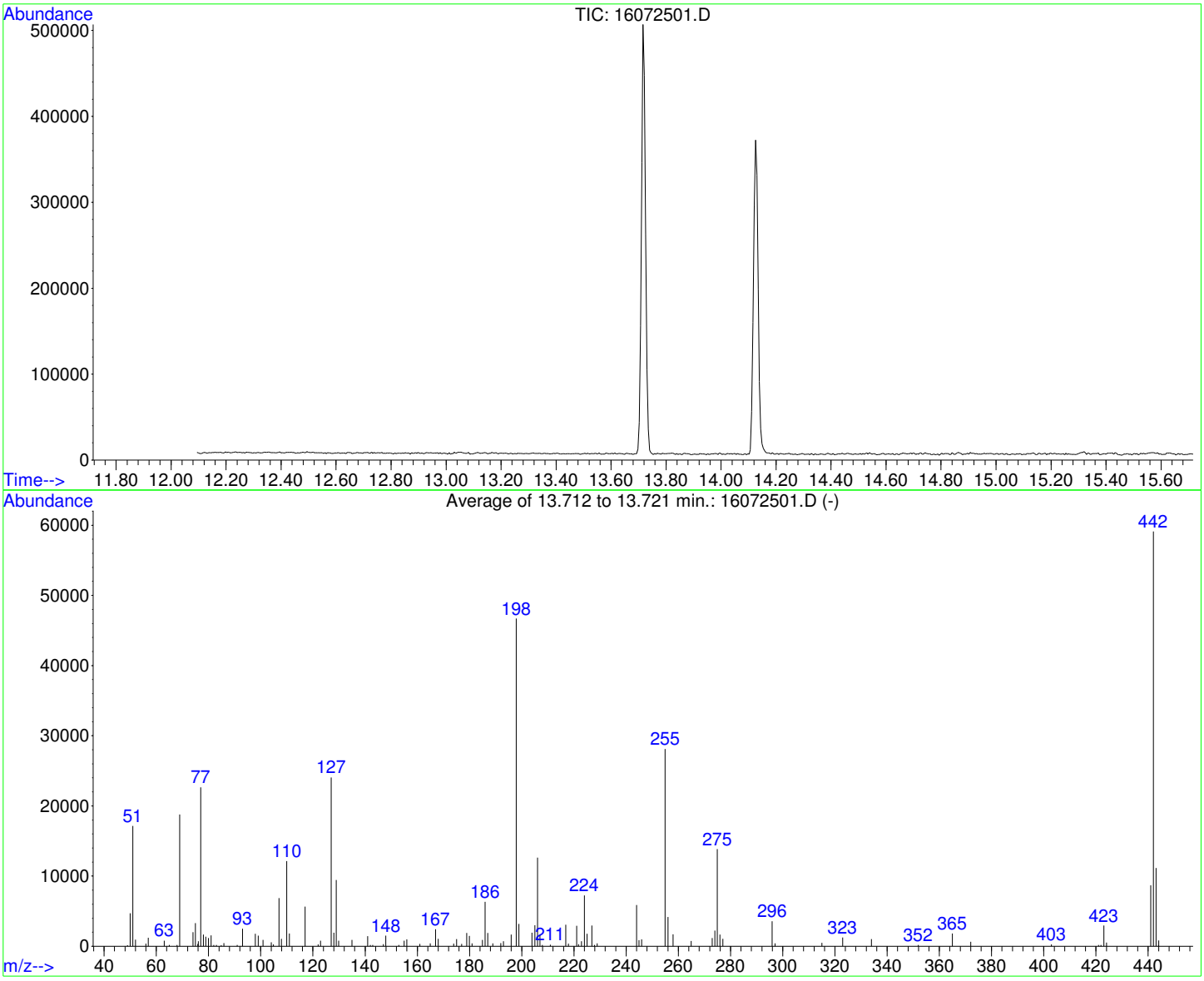
REVIEWED/APPROVED
By Sherri Herschmann at 10:01:48 AM, 7/29/2016

Calibration Files
1 =16072502.D 2 =16072503.D 3 =16072504.D 4 =16072505.D 5 =16072506.D 6 =16072507.D 7 =16072508.D
8 =16072509.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	CP	Naphthalene	1.190	0.956	0.872	0.883	0.854	0.825	0.857	0.840	0.910	13.19	A	0.1319	0.0000	0.9096	0.0000
3)	CP	2-Methyl napht...	0.690	0.707	0.650	0.677	0.635	0.620	0.647	0.633	0.657	4.67	A	0.0467	0.0000	0.6574	0.0000
4)	T	1-Methyl napht...	0.682	0.616	0.595	0.622	0.584	0.567	0.592	0.580	0.605	5.98	A	0.0598	0.0000	0.6047	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	2.017	1.701	1.513	1.580	1.513	1.444	1.489	1.449	1.588	12.08#	A	0.1208	0.0000	1.5882	0.0000
7)	S	2-Fluorobiphenyl	2.420	1.811	1.425	1.392	1.317	1.275	1.301	1.298	1.530	26.11	*Q	0.9999	0.0014	1.2904	0.0053
8)	CP	Acenaphthylene	2.010	1.771	1.654	1.718	1.689	1.659	1.714	1.708	1.741	6.61	A	0.0661	0.0000	1.7405	0.0000
9)	CP	Acenaphthene	1.169	1.084	1.013	1.035	1.006	0.967	0.999	0.998	1.034	6.21	A	0.0621	0.0000	1.0338	0.0000
10)	CP	Fluorene	1.478	1.317	1.267	1.306	1.266	1.203	1.256	1.242	1.292	6.43	A	0.0643	0.0000	1.2918	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	0.924	0.831	0.758	0.738	0.715	0.688	0.703	0.700	0.757	10.75	A	0.1075	0.0000	0.7569	0.0000
13)	CP	Anthracene	0.911	0.831	0.776	0.766	0.752	0.713	0.724	0.726	0.775	8.61	A	0.0861	0.0000	0.7748	0.0000
14)	CP	Fluoranthene	1.135	0.980	0.966	0.895	0.918	0.870	0.849	0.832	0.931	10.50	A	0.1050	0.0000	0.9307	0.0000
15)	CP	Pyrene	1.243	1.023	0.995	0.917	0.923	0.874	0.848	0.845	0.958	13.76	A	0.1376	0.0000	0.9584	0.0000
16)	S	4-Terphenyl-d14		2.590	1.312	1.045	0.937	0.870	0.827	0.820	1.200	53.03	*Q	0.9995	0.0046	0.8576	-0.0351
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	0.968	0.906	0.811	0.825	0.839	0.822	0.845	0.847	0.858	6.19	A	0.0619	0.0000	0.8576	0.0000
19)	CP	Chrysene	0.935	0.872	0.779	0.789	0.779	0.762	0.774	0.772	0.808	7.66	A	0.0766	0.0000	0.8077	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	1.089	0.949	0.862	0.882	0.873	0.853	0.902	0.902	0.914	8.41	A	0.0841	0.0000	0.9140	0.0000
22)	CP	Benzo[k]fluora...	1.018	0.909	0.812	0.836	0.788	0.811	0.779	0.752	0.838	10.30	A	0.1030	0.0000	0.8379	0.0000
23)	CP	Benzo(j)fluora...	0.875	0.837	0.755	0.787	0.775	0.761	0.778	0.779	0.793	5.21	A	0.0521	0.0000	0.7933	0.0000
24)	T	Benzo[e]pyrene	1.003	0.927	0.833	0.854	0.836	0.814	0.843	0.835	0.868	7.37	A	0.0737	0.0000	0.8683	0.0000
25)	CP	Benzo[a]pyrene	1.056	0.887	0.812	0.830	0.818	0.814	0.835	0.841	0.862	9.54	A	0.0954	0.0000	0.8617	0.0000
26)	CP	Dibenz[a,h]ant...	1.037	0.946	0.874	0.873	0.857	0.842	0.859	0.857	0.893	7.40	A	0.0740	0.0000	0.8930	0.0000
27)	CP	Indeno[1,2,3-c...	1.277	1.161	1.037	1.045	1.025	1.000	1.017	1.018	1.072	9.01	A	0.0901	0.0000	1.0725	0.0000
28)	CP	Benzo[g,h,i]pe...	0.895	0.811	0.722	0.736	0.709	0.691	0.830	0.832	0.778	9.41	A	0.0941	0.0000	0.7783	0.0000

(#) = Out of Range

Data File : C:\HPCHEM\1\DATA\160725\16072501.D Vial: 1
Acq On : 25 Jul 2016 1:19 pm Operator: DEW
Sample : DFTPP-160725 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 345, 346, 347; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.7	17151	PASS
68	69	0.00	2	1.1	209	PASS
69	198	0.00	100	40.2	18768	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	24075	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	46696	PASS
199	198	5	9	6.8	3193	PASS
275	198	10	60	29.6	13841	PASS
365	198	1	200	3.9	1815	PASS
441	442	0.01	24	14.7	8680	PASS
442	198	50	400	126.6	59117	PASS
443	442	15	24	18.8	11143	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 10:04:29 AM, 7/29/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072502.D Vial: 2
Acq On : 25 Jul 2016 1:58 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

This is the lowest point, but 10 ppb is the lowest RL for any PAH test code. See next for reprocessed low point.

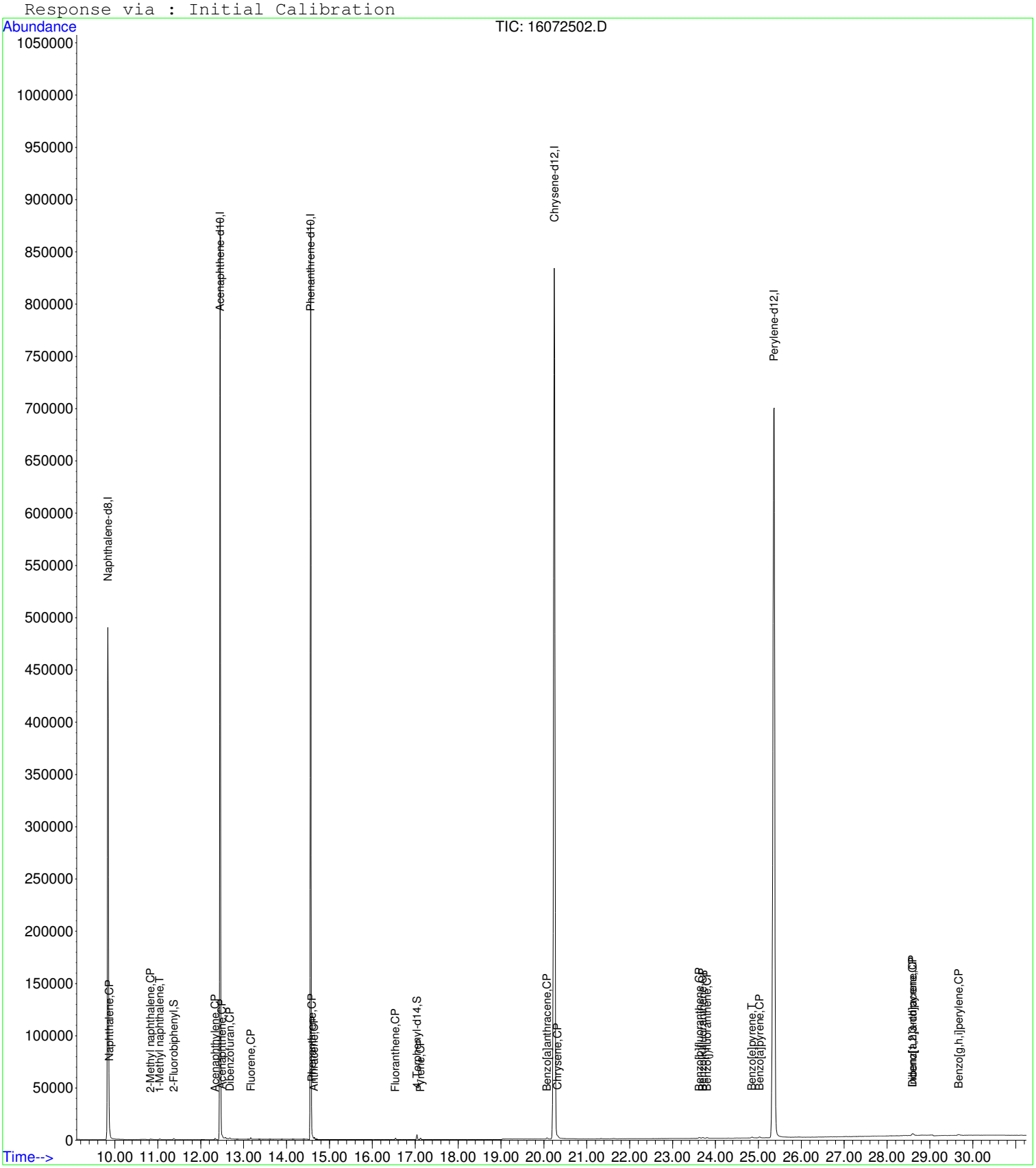
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	771810	4000.00	ug/kg	86
5) Acenaphthene-d10	12.45	164	494285	4000.00	ug/kg	87
11) Phenanthrene-d10	14.56	188	1234283	4000.00	ug/kg	82
17) Chrysene-d12	20.24	240	1461357	4000.00	ug/kg	91
20) Perylene-d12	25.37	264	1454753	4000.00	ug/kg	88
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	1495	4.95	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.12%#		
16) 4-Terphenyl-d14	17.04	244	7127	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	1148	6.54	ug/kg	97
3) 2-Methyl naphthalene	10.83	142	666	5.25	ug/kg	95
4) 1-Methyl naphthalene	11.04	142	658	5.64	ug/kg	95
6) Dibenzofuran	12.68	168	1246	6.35	ug/kg	93
8) Acenaphthylene	12.34	152	1242	5.77	ug/kg	97
9) Acenaphthene	12.50	154	722	5.65	ug/kg	99
10) Fluorene	13.17	166	913	5.72	ug/kg	98
12) Phenanthrene	14.60	178	1425	6.10	ug/kg	97
13) Anthracene	14.64	178	1406	5.88	ug/kg	95
14) Fluoranthene	16.54	202	1751	6.10	ug/kg	98
15) Pyrene	17.12	202	1918	6.49	ug/kg	99
18) Benzo[a]anthracene	20.07	228	1768	5.64	ug/kg	93
19) Chrysene	20.33	228	1708	5.79	ug/kg	98
21) Benzo[b]fluoranthene	23.62	252	1981	5.96	ug/kg	97
22) Benzo[k]fluoranthene	23.71	252	1851	6.07	ug/kg	97
23) Benzo(j)fluoranthene	23.80	252	1591	5.51	ug/kg	92
24) Benzo[e]pyrene	24.85	252	1824	5.78	ug/kg	81
25) Benzo[a]pyrene	25.03	252	1921	6.13	ug/kg	84
26) Dibenz[a,h]anthracene	28.60	278	1885	5.80	ug/kg	90
27) Indeno[1,2,3-cd]pyrene	28.61	276	2322	5.95	ug/kg	96
28) Benzo[g,h,i]perylene	29.67	276	1627	5.75	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072502.D Vial: 2
Acq On : 25 Jul 2016 1:58 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072503.D Vial: 3
Acq On : 25 Jul 2016 2:35 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

Reprocessed low point.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	886665	4000.00	ug/kg	99
5) Acenaphthene-d10	12.45	164	586227	4000.00	ug/kg	103
11) Phenanthrene-d10	14.56	188	1416475	4000.00	ug/kg	94
17) Chrysene-d12	20.24	240	1600505	4000.00	ug/kg	99
20) Perylene-d12	25.37	264	1621058	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	2654	9.61	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.24%#		
16) 4-Terphenyl-d14	17.04	244	9173	8.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.22%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	2120	10.51	ug/kg	99
3) 2-Methyl naphthalene	10.83	142	1568	10.76	ug/kg	98
4) 1-Methyl naphthalene	11.05	142	1365	10.18	ug/kg	98
6) Dibenzofuran	12.68	168	2493	10.71	ug/kg	99
8) Acenaphthylene	12.33	152	2596	10.18	ug/kg	99
9) Acenaphthene	12.50	154	1589	10.49	ug/kg	95
10) Fluorene	13.16	166	1930	10.19	ug/kg	89
12) Phenanthrene	14.60	178	2942	10.98	ug/kg	94
13) Anthracene	14.64	178	2942	10.72	ug/kg	99
14) Fluoranthene	16.53	202	3470	10.53	ug/kg	99
15) Pyrene	17.12	202	3623	10.67	ug/kg	97
18) Benzo[a]anthracene	20.08	228	3625	10.56	ug/kg	96
19) Chrysene	20.33	228	3488	10.79	ug/kg	96
21) Benzo[b]fluoranthene	23.62	252	3844	10.38	ug/kg	89
22) Benzo[k]fluoranthene	23.71	252	3682	10.84	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	3393	10.55	ug/kg	95
24) Benzo[e]pyrene	24.85	252	3757	10.68	ug/kg	98
25) Benzo[a]pyrene	25.03	252	3593	10.29	ug/kg	92
26) Dibenz[a,h]anthracene	28.60	278	3834	10.59	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.60	276	4706	10.83	ug/kg	96
28) Benzo[g,h,i]perylene	29.67	276	3288	10.42	ug/kg	91

Phenanthrene and Anthracene have the same area response, but the spectra was verified that 2 distinct peaks are observed (RT 14.60 and 14.64) and identified.

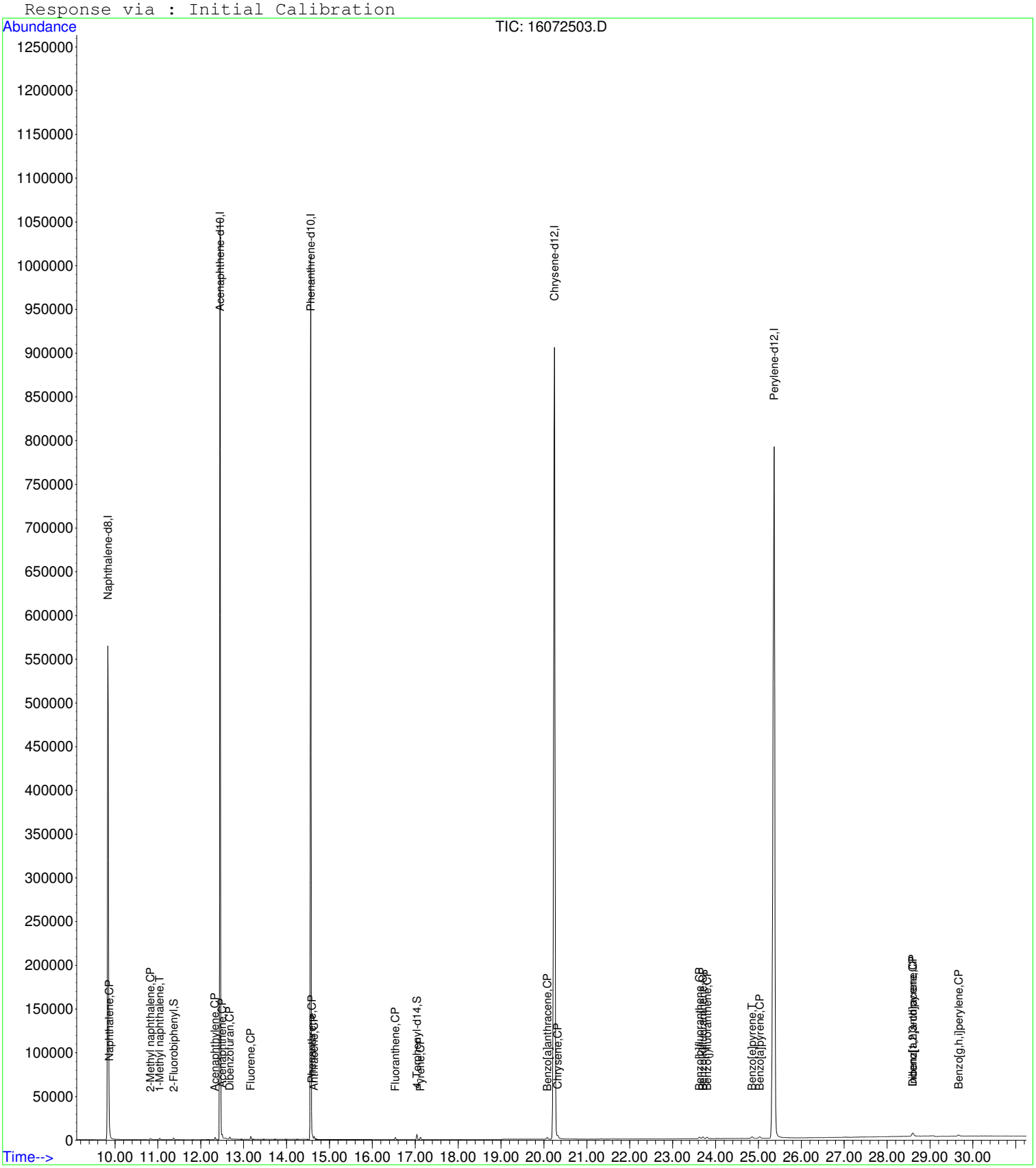
REVIEWED/APPROVED
By Sherri Herschmann at 10:16:08 AM, 7/29/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072503.D Vial: 3
Acq On : 25 Jul 2016 2:35 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072504.D Vial: 4
Acq On : 25 Jul 2016 3:13 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

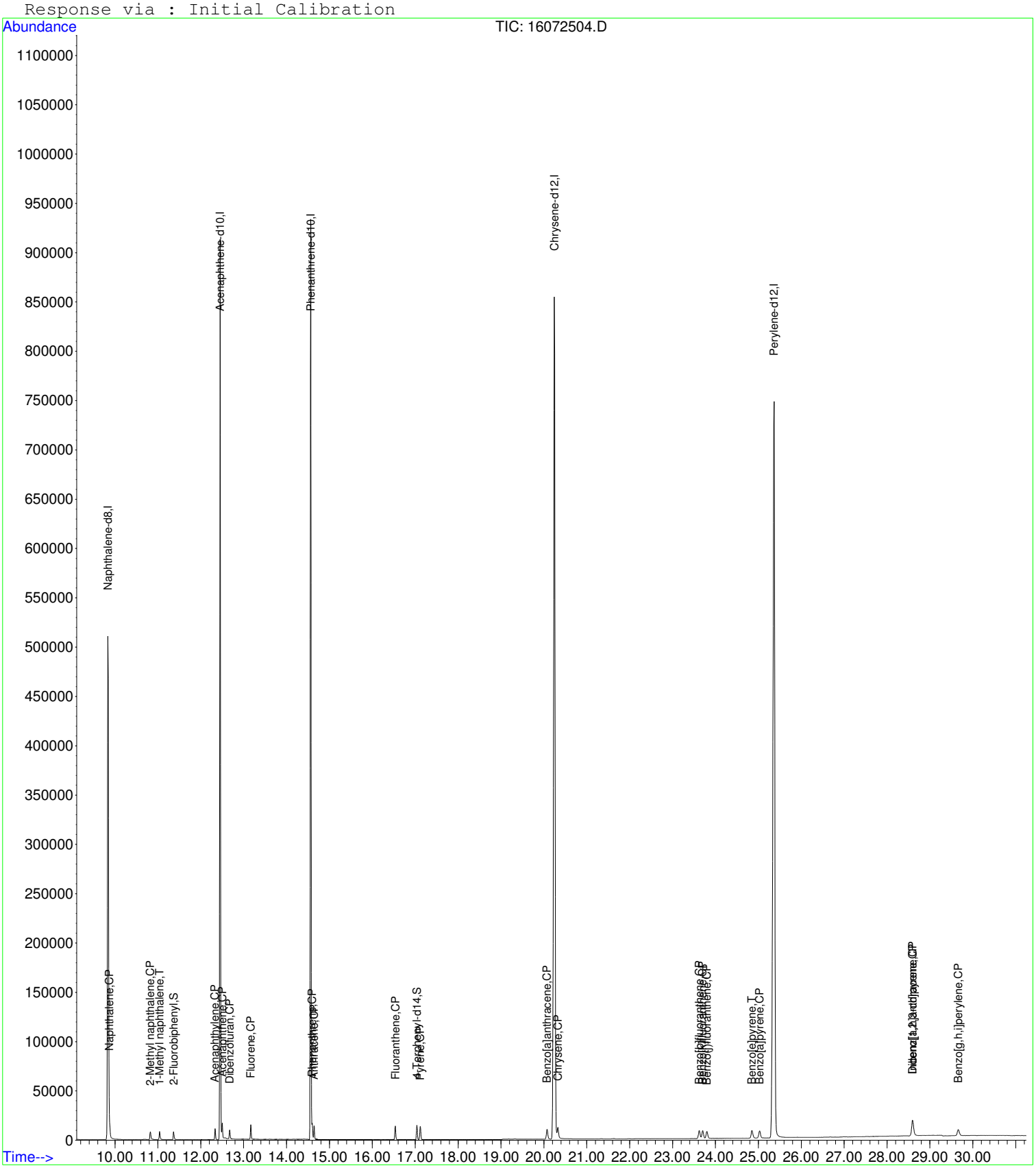
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	813295	4000.00	ug/kg	91
5) Acenaphthene-d10	12.45	164	521014	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1285991	4000.00	ug/kg	86
17) Chrysene-d12	20.24	240	1522749	4000.00	ug/kg	94
20) Perylene-d12	25.37	264	1548606	4000.00	ug/kg	93
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.37	172	9280	50.79	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#		
16) 4-Terphenyl-d14	17.04	244	21093	54.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.37%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	8869	47.96	ug/kg	99
3) 2-Methyl naphthalene	10.82	142	6605	49.41	ug/kg	98
4) 1-Methyl naphthalene	11.04	142	6047	49.18	ug/kg	95
6) Dibenzofuran	12.67	168	9854	47.63	ug/kg	99
8) Acenaphthylene	12.33	152	10775	47.53	ug/kg	99
9) Acenaphthene	12.50	154	6596	48.98	ug/kg	97
10) Fluorene	13.16	166	8249	49.03	ug/kg	98
12) Phenanthrene	14.60	178	12182	50.06	ug/kg	97
13) Anthracene	14.64	178	12477	50.09	ug/kg	100
14) Fluoranthene	16.54	202	15526	51.89	ug/kg	98
15) Pyrene	17.12	202	15993	51.90	ug/kg	100
18) Benzo[a]anthracene	20.07	228	15434	47.27	ug/kg	99
19) Chrysene	20.33	228	14821	48.20	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	16689	47.16	ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	15714	48.44	ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	14610	47.57	ug/kg	99
24) Benzo[e]pyrene	24.85	252	16134	48.00	ug/kg	99
25) Benzo[a]pyrene	25.03	252	15723	47.13	ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	16914	48.92	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	20076	48.35	ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	13977	46.39	ug/kg	93

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072504.D Vial: 4
Acq On : 25 Jul 2016 3:13 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072505.D Vial: 5
Acq On : 25 Jul 2016 3:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

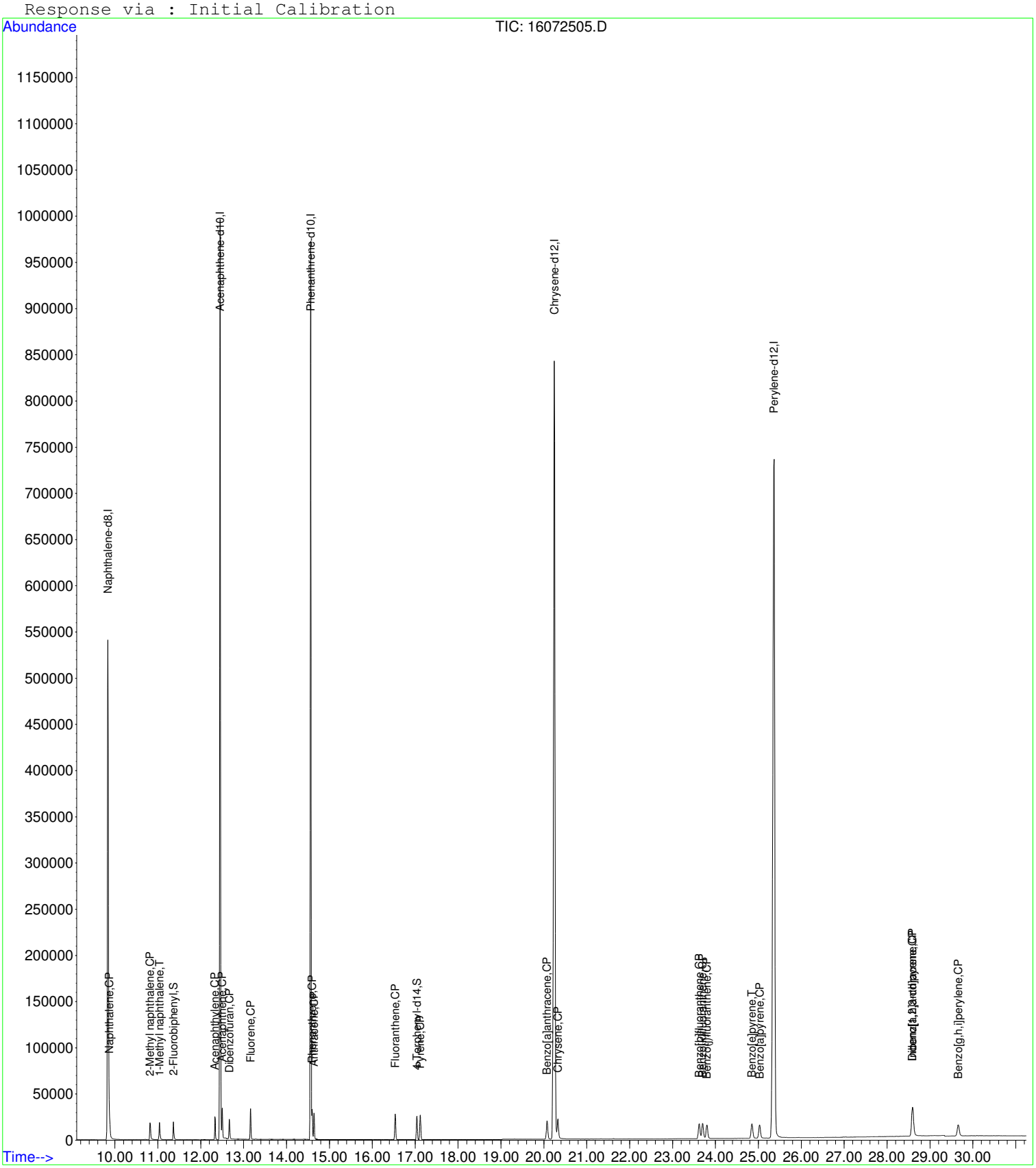
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	837791	4000.00	ug/kg	94
5) Acenaphthene-d10	12.45	164	557652	4000.00	ug/kg	98
11) Phenanthrene-d10	14.56	188	1391417	4000.00	ug/kg	93
17) Chrysene-d12	20.24	240	1514650	4000.00	ug/kg	94
20) Perylene-d12	25.37	264	1532166	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	19410	103.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.59%#		
16) 4-Terphenyl-d14	17.04	244	36336	100.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.51%#		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	18486	97.03	ug/kg	99
3) 2-Methyl naphthalene	10.82	142	14170	102.91	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	13038	102.94	ug/kg	99
6) Dibenzofuran	12.67	168	22026	99.48	ug/kg	100
8) Acenaphthylene	12.33	152	23958	98.73	ug/kg	100
9) Acenaphthene	12.50	154	14426	100.10	ug/kg	99
10) Fluorene	13.16	166	18210	101.12	ug/kg	97
12) Phenanthrene	14.60	178	25671	97.50	ug/kg	99
13) Anthracene	14.64	178	26632	98.81	ug/kg	98
14) Fluoranthene	16.53	202	31136	96.18	ug/kg	99
15) Pyrene	17.12	202	31891	95.66	ug/kg	99
18) Benzo[a]anthracene	20.07	228	31231	96.17	ug/kg	99
19) Chrysene	20.33	228	29877	97.68	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	33778	96.48	ug/kg	100
22) Benzo[k]fluoranthene	23.70	252	32004	99.71	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	30131	99.16	ug/kg	97
24) Benzo[e]pyrene	24.85	252	32705	98.34	ug/kg	100
25) Benzo[a]pyrene	25.03	252	31797	96.34	ug/kg	97
26) Dibenz[a,h]anthracene	28.59	278	33456	97.81	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.60	276	40036	97.46	ug/kg	95
28) Benzo[g,h,i]perylene	29.66	276	28208	94.62	ug/kg	95

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072505.D Vial: 5
Acq On : 25 Jul 2016 3:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072506.D Vial: 6
Acq On : 25 Jul 2016 4:29 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

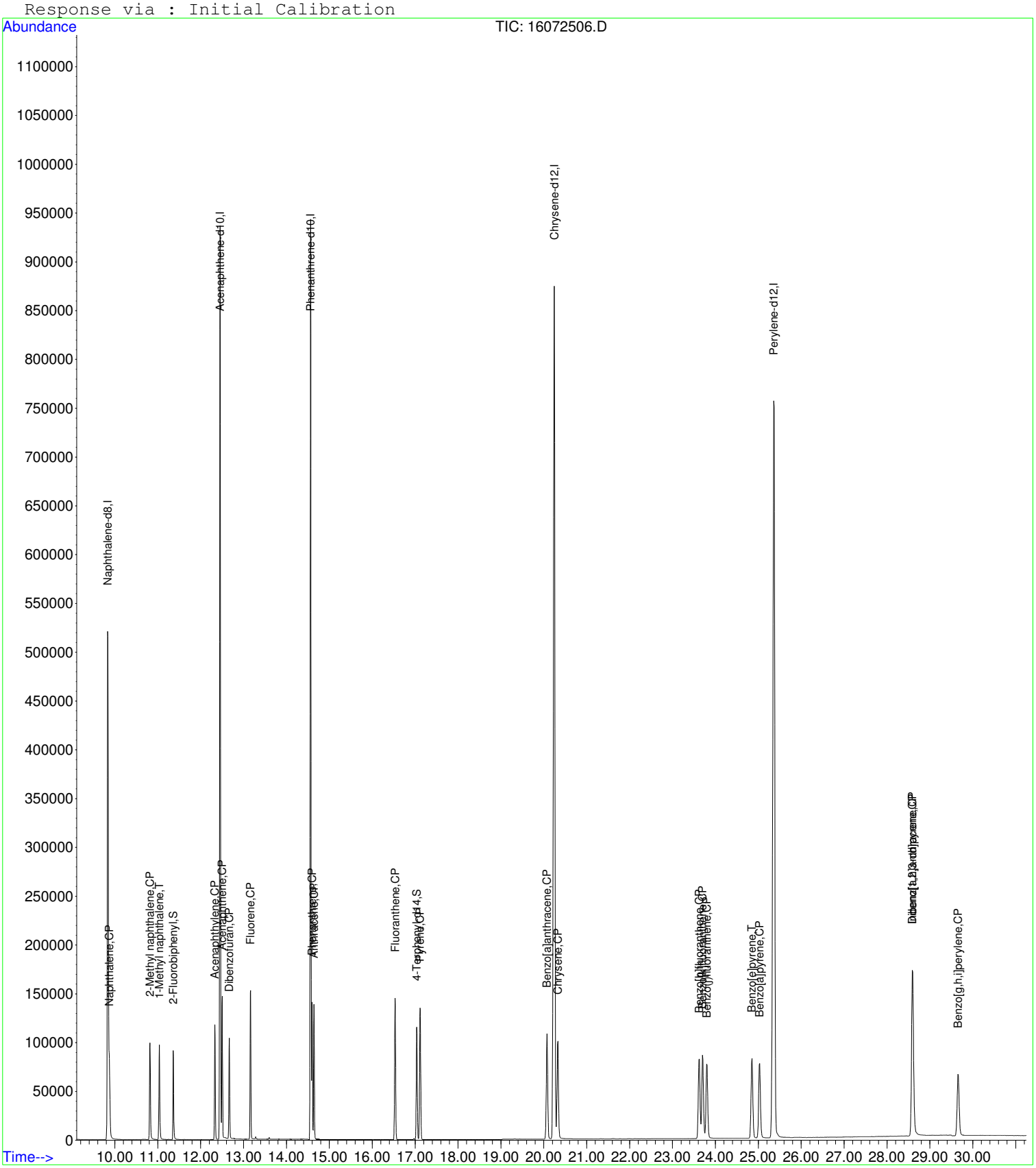
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	846228	4000.00	ug/kg	95
5) Acenaphthene-d10	12.45	164	526478	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1360044	4000.00	ug/kg	91
17) Chrysene-d12	20.24	240	1546839	4000.00	ug/kg	96
20) Perylene-d12	25.36	264	1587092	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	86694	505.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.64%#			
16) 4-Terphenyl-d14	17.04	244	159353	527.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 13.19%#			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	90292	469.22	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	67178	483.01	ug/kg	96
4) 1-Methyl naphthalene	11.04	142	61741	482.62	ug/kg	99
6) Dibenzofuran	12.67	168	99559	476.28	ug/kg	100
8) Acenaphthylene	12.33	152	111171	485.28	ug/kg	99
9) Acenaphthene	12.50	154	66191	486.46	ug/kg	98
10) Fluorene	13.16	166	83296	489.92	ug/kg	100
12) Phenanthrene	14.60	178	121487	472.04	ug/kg	99
13) Anthracene	14.64	178	127861	485.32	ug/kg	100
14) Fluoranthene	16.53	202	156088	493.27	ug/kg	99
15) Pyrene	17.11	202	156852	481.33	ug/kg	100
18) Benzo[a]anthracene	20.07	228	162167	488.96	ug/kg	98
19) Chrysene	20.33	228	150562	482.02	ug/kg	99
21) Benzo[b]fluoranthene	23.63	252	173263	477.76	ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	156303	470.13	ug/kg	100
23) Benzo(j)fluoranthene	23.81	252	153717	488.36	ug/kg	98
24) Benzo[e]pyrene	24.85	252	165850	481.41	ug/kg	100
25) Benzo[a]pyrene	25.03	252	162319	474.78	ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	170041	479.91	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	203279	477.71	ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	140559	455.16	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072506.D Vial: 6
Acq On : 25 Jul 2016 4:29 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072507.D Vial: 7
Acq On : 25 Jul 2016 5:07 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

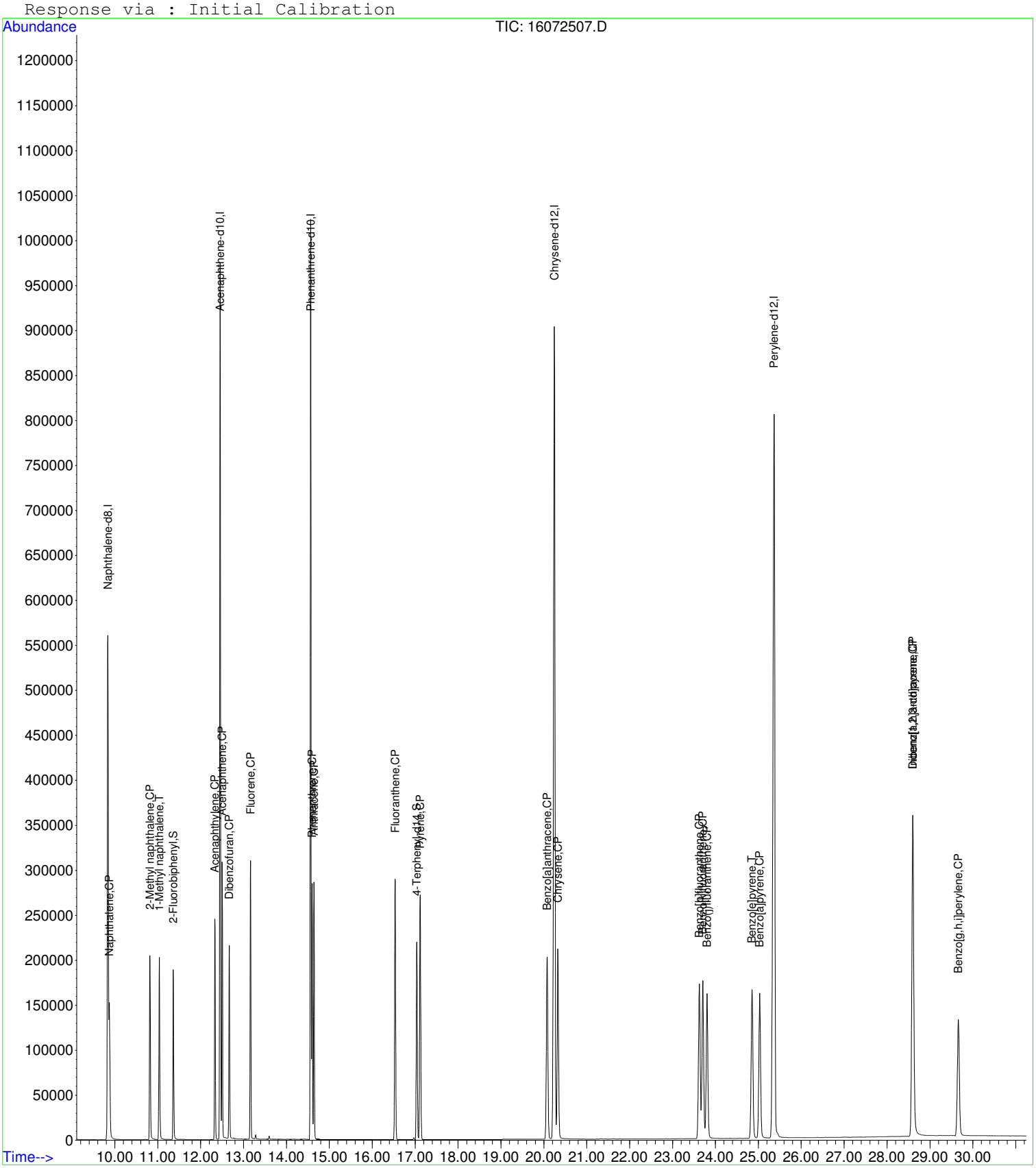
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	892069	4000.00	ug/kg	100
5) Acenaphthene-d10	12.45	164	554192	4000.00	ug/kg	97
11) Phenanthrene-d10	14.57	188	1448014	4000.00	ug/kg	96
17) Chrysene-d12	20.24	240	1606432	4000.00	ug/kg	100
20) Perylene-d12	25.37	264	1651631	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	176645	982.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.57%#			
16) 4-Terphenyl-d14	17.04	244	314932	1003.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.08%#			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	183994	907.02	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	138321	943.43	ug/kg	95
4) 1-Methyl naphthalene	11.04	142	126440	937.57	ug/kg	98
6) Dibenzofuran	12.67	168	200090	909.34	ug/kg	100
8) Acenaphthylene	12.33	152	229782	952.88	ug/kg	100
9) Acenaphthene	12.50	154	133955	935.25	ug/kg	99
10) Fluorene	13.16	166	166733	931.62	ug/kg	100
12) Phenanthrene	14.60	178	249124	909.18	ug/kg	99
13) Anthracene	14.64	178	258111	920.19	ug/kg	99
14) Fluoranthene	16.53	202	314797	934.39	ug/kg	99
15) Pyrene	17.12	202	316235	911.46	ug/kg	100
18) Benzo[a]anthracene	20.08	228	329954	957.97	ug/kg	99
19) Chrysene	20.33	228	306140	943.74	ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	352025	932.76	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	334806	967.68	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	314090	958.87	ug/kg	99
24) Benzo[e]pyrene	24.85	252	336290	938.00	ug/kg	99
25) Benzo[a]pyrene	25.03	252	336097	944.67	ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	347573	942.63	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	412755	932.07	ug/kg	98
28) Benzo[g,h,i]perylene	29.66	276	285458	888.26	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072507.D Vial: 7
Acq On : 25 Jul 2016 5:07 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

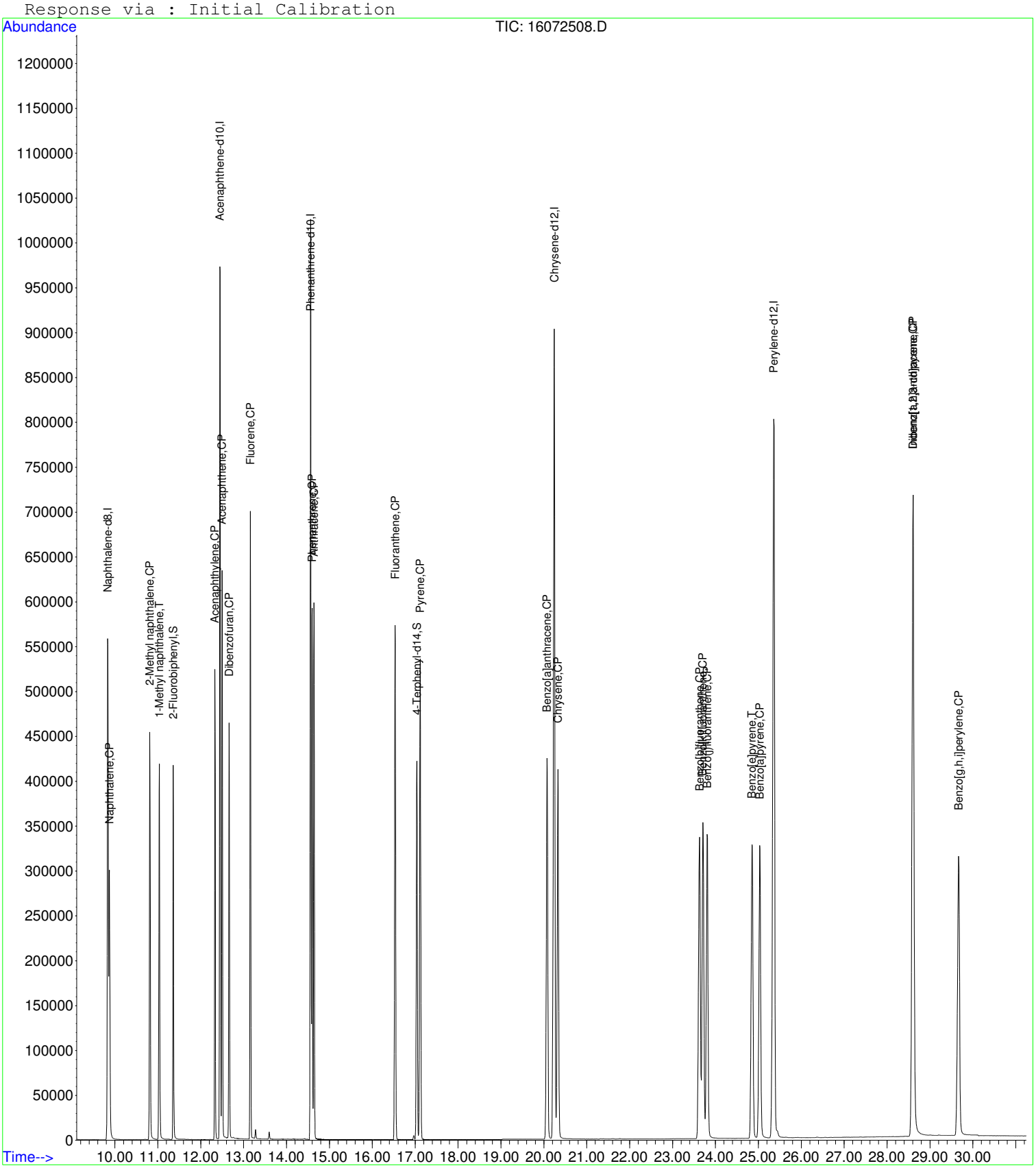
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	893544	4000.00	ug/kg	100
5) Acenaphthene-d10	12.45	164	569368	4000.00	ug/kg	100
11) Phenanthrene-d10	14.56	188	1501720	4000.00	ug/kg	100
17) Chrysene-d12	20.24	240	1612205	4000.00	ug/kg	100
20) Perylene-d12	25.36	264	1660133	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	370433	2008.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.21%			
16) 4-Terphenyl-d14	17.04	244	621041	1946.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.65%			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	382786	1883.87	ug/kg	100
3) 2-Methyl naphthalene	10.81	142	289201	1969.26	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	264551	1958.45	ug/kg	100
6) Dibenzofuran	12.66	168	423892	1875.10	ug/kg	100
8) Acenaphthylene	12.33	152	488021	1969.83	ug/kg	100
9) Acenaphthene	12.50	154	284372	1932.52	ug/kg	100
10) Fluorene	13.16	166	357547	1944.55	ug/kg	100
12) Phenanthrene	14.60	178	527567	1856.50	ug/kg	100
13) Anthracene	14.64	178	543808	1869.39	ug/kg	100
14) Fluoranthene	16.53	202	637819	1825.48	ug/kg	100
15) Pyrene	17.12	202	636934	1770.14	ug/kg	100
18) Benzo[a]anthracene	20.07	228	680755	1969.38	ug/kg	100
19) Chrysene	20.33	228	623920	1916.47	ug/kg	100
21) Benzo[b]fluoranthene	23.63	252	749017	1974.51	ug/kg	100
22) Benzo[k]fluoranthene	23.71	252	647006	1860.45	ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	646202	1962.65	ug/kg	100
24) Benzo[e]pyrene	24.86	252	699821	1941.99	ug/kg	100
25) Benzo[a]pyrene	25.03	252	692886	1937.52	ug/kg	100
26) Dibenz[a,h]anthracene	28.61	278	712622	1922.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.61	276	843959	1896.04	ug/kg	100
28) Benzo[g,h,i]perylene	29.67	276	689230	2133.68	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

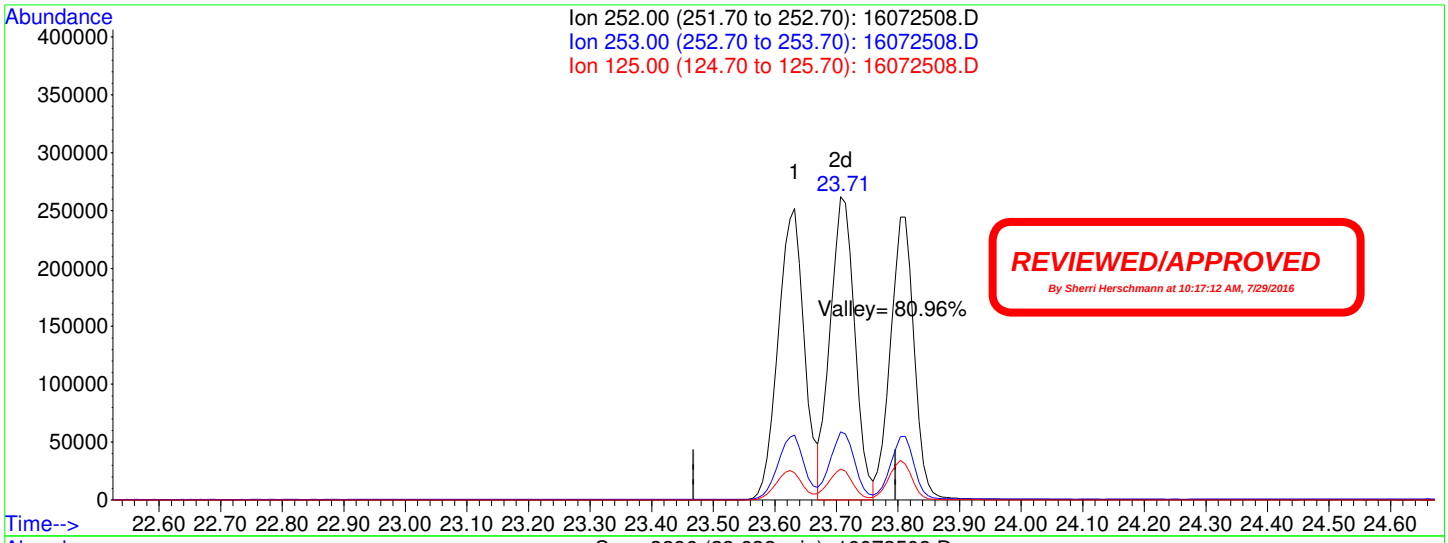
Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration

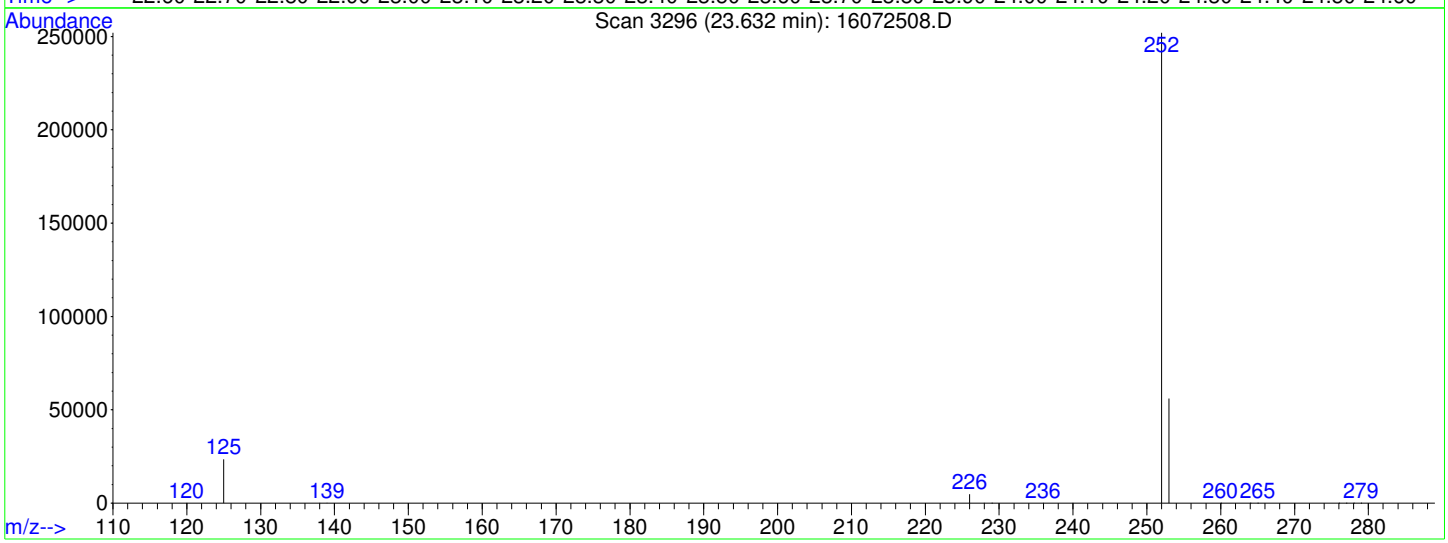


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160725\16072508.D Vial: 8
Acq On : 25 Jul 2016 5:44 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Multiple Level Calibration





TIC: 16072508.D

(21) Benzo[b]fluoranthene (CP)

23.63min 1974.51ug/kg

response 749017

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.06
125.00	9.30	9.31
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072509.D Vial: 9
Acq On : 25 Jul 2016 6:22 pm Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

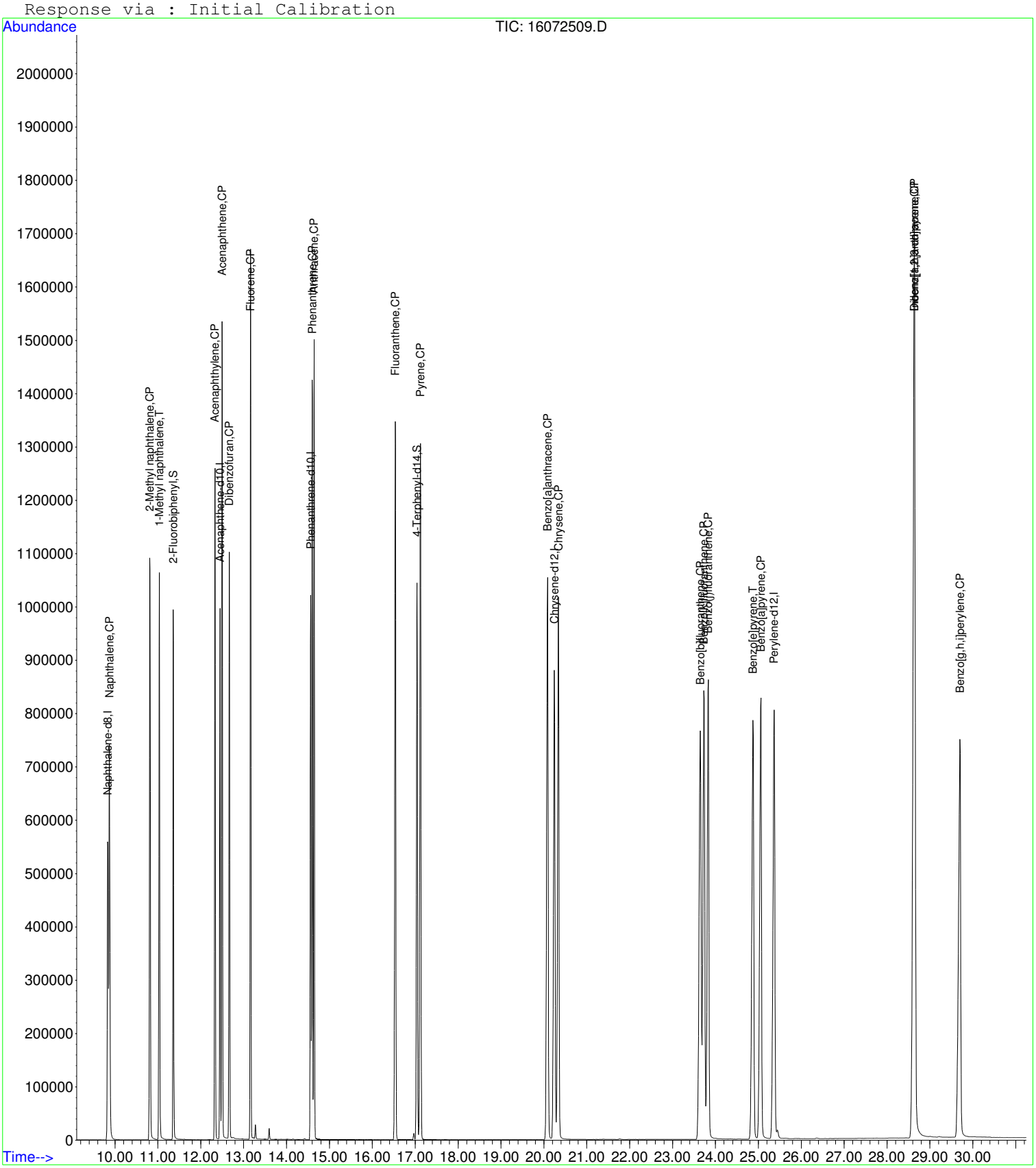
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	900189	4000.00	ug/kg	101
5) Acenaphthene-d10	12.45	164	554329	4000.00	ug/kg	97
11) Phenanthrene-d10	14.56	188	1477514	4000.00	ug/kg	98
17) Chrysene-d12	20.24	240	1621785	4000.00	ug/kg	101
20) Perylene-d12	25.37	264	1683225	4000.00	ug/kg	101
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	899373	4999.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 124.99%			
16) 4-Terphenyl-d14	17.04	244	1515060	5019.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 125.48%			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	945249	4617.68	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	712021	4812.58	ug/kg	94
4) 1-Methyl naphthalene	11.03	142	652309	4793.34	ug/kg	99
6) Dibenzofuran	12.66	168	1003833	4560.96	ug/kg	99
8) Acenaphthylene	12.33	152	1183229	4905.50	ug/kg	100
9) Acenaphthene	12.50	154	691782	4828.73	ug/kg	99
10) Fluorene	13.16	166	860301	4805.77	ug/kg	99
12) Phenanthrene	14.60	178	1292431	4622.56	ug/kg	99
13) Anthracene	14.64	178	1339990	4681.82	ug/kg	99
14) Fluoranthene	16.54	202	1537244	4471.78	ug/kg	99
15) Pyrene	17.12	202	1560586	4408.17	ug/kg	99
18) Benzo[a]anthracene	20.09	228	1716692	4936.94	ug/kg	99
19) Chrysene	20.34	228	1566005	4781.82	ug/kg	100
21) Benzo[b]fluoranthene	23.65	252	1897650	4933.82	ug/kg	99
22) Benzo[k]fluoranthene	23.73	252	1581216	4484.36	ug/kg	99
23) Benzo(j)fluoranthene	23.83	252	1638939	4909.50	ug/kg	99
24) Benzo[e]pyrene	24.87	252	1757456	4809.99	ug/kg	98
25) Benzo[a]pyrene	25.06	252	1769480	4880.11	ug/kg	99
26) Dibenz[a,h]anthracene	28.64	278	1802648	4797.08	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.64	276	2142679	4747.72	ug/kg	98
28) Benzo[g,h,i]perylene	29.70	276	1750074	5343.47	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072509.D Vial: 9
Acq On : 25 Jul 2016 6:22 pm Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072510.D Vial: 10
Acq On : 25 Jul 2016 6:59 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	979604	4000.00	ug/kg	110
5) Acenaphthene-d10	12.45	164	521111	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1257978	4000.00	ug/kg	84
17) Chrysene-d12	20.24	240	1491548	4000.00	ug/kg	93
20) Perylene-d12	25.36	264	1509342	4000.00	ug/kg	91
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	908651	5371.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 134.28%			
16) 4-Terphenyl-d14	17.04	244	1494054	5871.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 146.78%#			
Target Compounds						Qvalue
2) Naphthalene	9.87	128	610	2.74	ug/kg	61
3) 2-Methyl naphthalene	10.82	142	196	1.22	ug/kg	78
4) 1-Methyl naphthalene	11.03	142	107	0.72	ug/kg	75
6) Dibenzofuran	12.66	168	452411	2186.58	ug/kg	100
8) Acenaphthylene	12.33	152	390	1.72	ug/kg	98
9) Acenaphthene	12.50	154	287	2.13	ug/kg#	72
10) Fluorene	13.16	166	4126	24.52	ug/kg	97
12) Phenanthrene	14.59	178	776	3.26	ug/kg	93
13) Anthracene	14.64	178	730	3.00	ug/kg	92
14) Fluoranthene	16.53	202	863	2.95	ug/kg	98
15) Pyrene	17.11	202	955	3.17	ug/kg	91
18) Benzo[a]anthracene	20.07	228	1073	3.36	ug/kg	93
19) Chrysene	20.32	228	950	3.15	ug/kg	94
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) Benzo[k]fluoranthene	23.80	252	749242	2369.66	ug/kg	97
23) Benzo(j)fluoranthene	23.80	252	759467	2537.10	ug/kg	99
24) Benzo[e]pyrene	24.84	252	100312	306.17	ug/kg	99
25) Benzo[a]pyrene	25.03	252	1314	4.04	ug/kg	79
26) Dibenz[a,h]anthracene	28.59	278	1199	3.56	ug/kg	86
27) Indeno[1,2,3-cd]pyrene	28.60	276	1458	3.60	ug/kg	99
28) Benzo[g,h,i]perylene	29.66	276	1157	3.94	ug/kg	95

87.46%

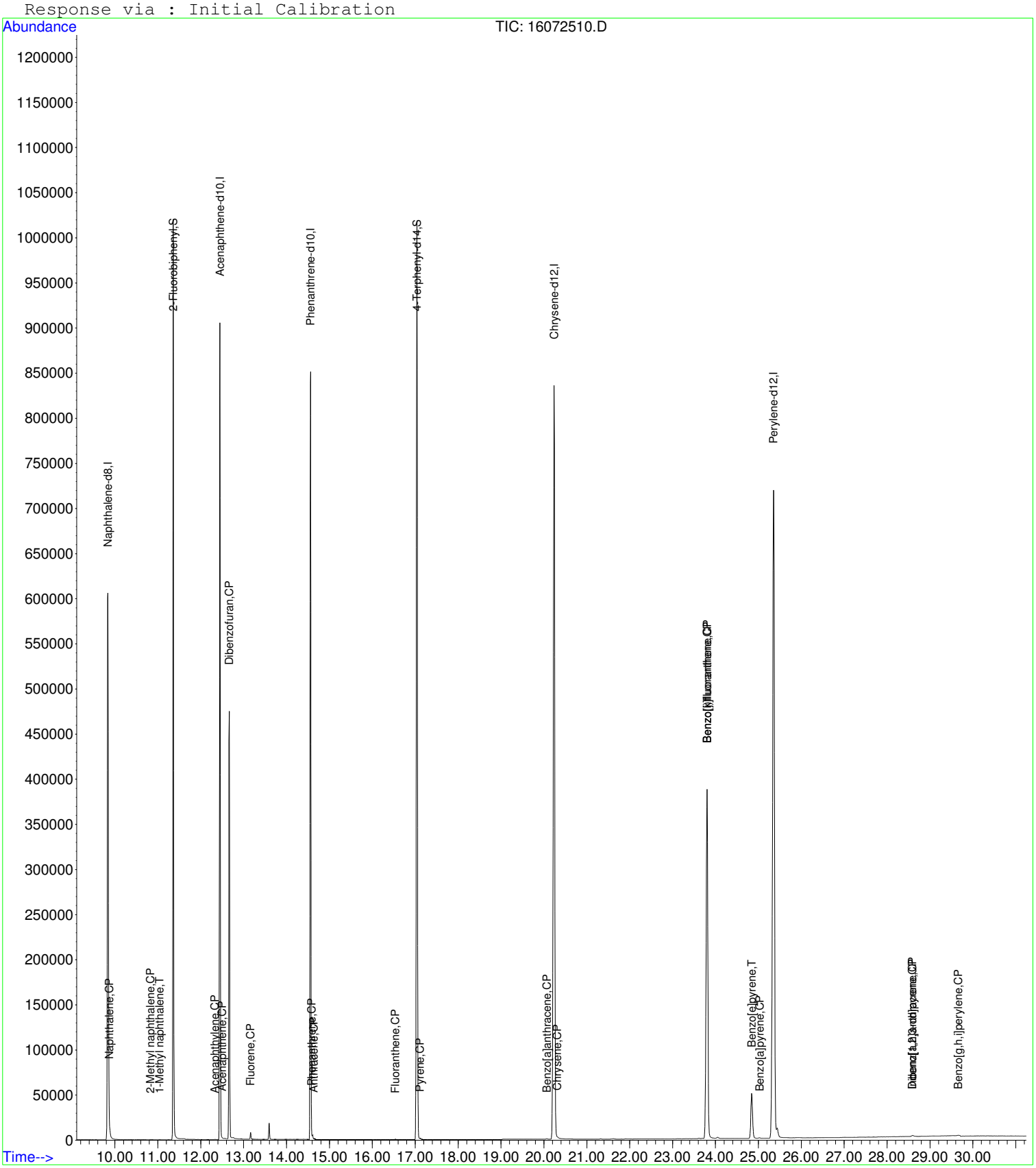
101.48%

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072510.D Vial: 10
Acq On : 25 Jul 2016 6:59 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160725\16072511.D Vial: 11
Acq On : 25 Jul 2016 7:36 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160606

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	905392	4000.00	ug/kg	101
5) Acenaphthene-d10	12.45	164	590244	4000.00	ug/kg	104
11) Phenanthrene-d10	14.56	188	1554090	4000.00	ug/kg	103
17) Chrysene-d12	20.24	240	1627985	4000.00	ug/kg	101
20) Perylene-d12	25.36	264	1634563	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	458904	2399.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	60.00%		
16) 4-Terphenyl-d14	17.03	244	776605	2366.57	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	59.16%		
Target Compounds						Qvalue
2) Naphthalene	9.87	128	452244	2196.58	ug/kg	99
3) 2-Methyl naphthalene	10.81	142	413442	2778.42	ug/kg	97
4) 1-Methyl naphthalene	11.03	142	372594	2722.19	ug/kg	96
6) Dibenzofuran	12.67	168	1589	6.78	ug/kg	97
8) Acenaphthylene	12.33	152	586057	2281.87	ug/kg	99
9) Acenaphthene	12.50	154	361494	2369.74	ug/kg	97
10) Fluorene	13.16	166	452940	2376.23	ug/kg	100
12) Phenanthrene	14.60	178	639751	2175.41	ug/kg	100
13) Anthracene	14.64	178	634391	2107.29	ug/kg	100
14) Fluoranthene	16.53	202	770651	2131.33	ug/kg	100
15) Pyrene	17.12	202	780634	2096.39	ug/kg	100
18) Benzo[a]anthracene	20.07	228	813076	2329.38	ug/kg	100
19) Chrysene	20.32	228	675322	2054.25	ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	873661	2339.11	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	873137	2549.96	ug/kg	100
23) Benzo(j)fluoranthene	23.71	252	877969	2708.28	ug/kg	96
24) Benzo[e]pyrene	24.86	252	872011	2457.66	ug/kg	100
25) Benzo[a]pyrene	25.04	252	836568	2375.89	ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	847494	2322.43	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.61	276	998578	2278.51	ug/kg	98
28) Benzo[g,h,i]perylene	29.67	276	832538	2617.65	ug/kg	99

All analytes %R within ±20%

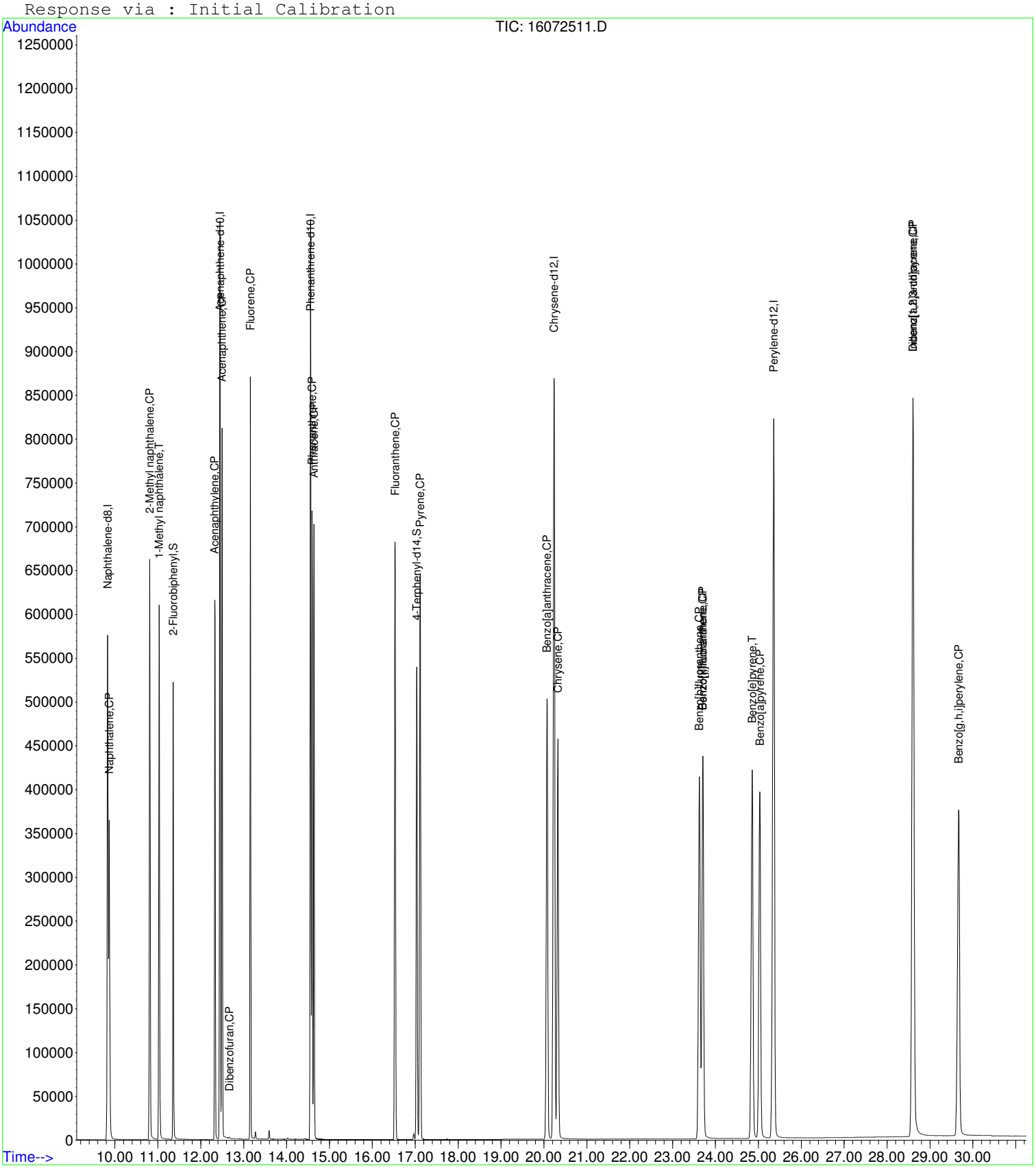
REVIEWED/APPROVED
By Sherri Herschmann at 10:27:24 AM, 7/29/2016

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160725\16072511.D Vial: 11
Acq On : 25 Jul 2016 7:36 pm Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:36 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration



GCMS8
For

DHL Work Order
1607265

GCMS8_160804A
For

DHL Work Order
1607265

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160804A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)		X	

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

QA APPROVED
By John DuPont at 3:37:12 PM, 8/11/2016

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
X ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/5/2016

Second-Level Review: Janice Whitt Date: 8/11/2016

REVIEWED BY
By Janice Whitt at 3:32:52 PM, 8/11/2016

DHL Analytical, Inc.

Run ID: GCMS8_160804A **Run No.:** 87450

Analytical Run Date: 8/4/2016 **InstrumentID:** GCMS8

Analyst: Don Winston **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 681 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160802.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160804	1	PAH_LL_SDOD1	TUNE	R87450	8/4/2016 7:52:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160804	1	PAH_LL_SDOD1	ICV	R87450	8/4/2016 8:31:00 AM		
LCS-76491	1	PAH_LL_SDOD1	LCS	76491	8/4/2016 9:10:00 AM		
MB-76491	1	PAH_LL_SDOD1	MBLK	76491	8/4/2016 9:50:00 AM		
1607256-20A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 10:30:00 AM		
1607256-21A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:10:00 AM		
1607256-22A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:50:00 AM		
1607256-23A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 12:30:00 PM		
1607256-24A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 1:11:00 PM		
1607256-25A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 1:51:00 PM		
1607256-37A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 2:32:00 PM		
1607256-38A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 3:13:00 PM		
1607256-39A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 3:53:00 PM		
1607256-40A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 4:34:00 PM		
1607256-41A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 5:14:00 PM		
1607256-42A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 5:55:00 PM		
1607265-01A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 6:35:00 PM		
DFTPP2-160804	1	PAH_LL_SDOD1	TUNE	R87450	8/4/2016 7:16:00 PM		
ICV2-160804	1	PAH_LL_SDOD1	ICV	R87450	8/4/2016 7:55:00 PM		Low recpvery for Pyrene (77.18%)
SB-160804	1	PAH_LL_SDOD1	SBLK	76491	8/4/2016 9:15:00 PM		
1607265-02A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 9:54:00 PM		
1607265-03A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 10:34:00 PM		
1607265-04A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:14:00 PM		
1607265-05A	10	PAH_LL_SDOD1	SAMP	76491	8/4/2016 11:54:00 PM		
1607265-06A	10	PAH_LL_SDOD1	SAMP	76491	8/5/2016 12:33:00 AM		
1607256-21AMS	10	PAH_LL_SDOD1	MS	76491	8/5/2016 1:13:00 AM		
1607256-21AMSD	10	PAH_LL_SDOD1	MSD	76491	8/5/2016 1:53:00 AM		
CCV1-160804	1	PAH_LL_SDOD1	CCV	R87450	8/5/2016 2:33:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\msdchem\1\sequence\160804.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160804\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

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

Line		Sample Name/Misc Info		
1)	Sample	1	16080401 DFTPPPAH	DFTPP-160804
2)	Sample	2	16080402 PAH160802	ICV-160804
3)	Sample	3	16080403 PAH160802	LCS-76491
4)	Sample	4	16080404 PAH160802	MB-76491
5)	Sample	5	16080405 PAH160802	1607256-20A
6)	Sample	6	16080406 PAH160802	1607256-21A
7)	Sample	7	16080407 PAH160802	1607256-22A
8)	Sample	8	16080408 PAH160802	1607256-23A
9)	Sample	9	16080409 PAH160802	1607256-24A
10)	Sample	10	16080410 PAH160802	1607256-25A
11)	Sample	11	16080411 PAH160802	1607256-37A
12)	Sample	12	16080412 PAH160802	1607256-38A
13)	Sample	13	16080413 PAH160802	1607256-39A
14)	Sample	14	16080414 PAH160802	1607256-40A
15)	Sample	15	16080415 PAH160802	1607256-41A
16)	Sample	16	16080416 PAH160802	1607256-42A
17)	Sample	17	16080417 PAH160802	1607265-01A
18)	Sample	18	16080418 DFTPPPAH	DFTPP2-160804
19)	Sample	19	16080419 PAH160802	ICV2-160804
20)	Sample	20	16080420 PAH160802	SBLK
21)	Sample	21	16080421 PAH160802	SB-160804
22)	Sample	22	16080422 PAH160802	1607265-02A
23)	Sample	23	16080423 PAH160802	1607265-03A
24)	Sample	24	16080424 PAH160802	1607265-04A
25)	Sample	25	16080425 PAH160802	1607265-05A
26)	Sample	26	16080426 PAH160802	1607265-06A
27)	Sample	27	16080427 PAH160802	1607256-21AMS
28)	Sample	28	16080428 PAH160802	1607256-21AMSD
29)	Sample	29	16080429 PAH160802	CCV1-160804

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: **7/27/2016 1:00:00 PM**

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10.18	10	0.982	1 of 1	
1607256-21A	Soil		10.18	10	0.982	1 of 1	
1607256-22A	Soil		10.11	10	0.989	1 of 1	
1607256-23A	Soil		10.24	10	0.977	1 of 1	
1607256-24A	Soil		10.07	10	0.993	1 of 1	
1607256-25A	Soil		10.13	10	0.987	1 of 1	
1607256-37A	Soil		10.34	10	0.967	1 of 1	
1607256-38A	Soil		10.08	10	0.992	1 of 1	
1607256-39A	Soil		10.06	10	0.994	1 of 1	
1607256-40A	Soil		10.07	10	0.993	1 of 1	
1607256-41A	Soil		10.12	10	0.988	1 of 1	
1607256-42A	Soil		10.16	10	0.984	1 of 1	
1607265-01A	Soil		10.08	10	0.992	1 of 1	
1607265-02A	Soil		10.04	10	0.996	1 of 1	
1607265-03A	Soil		10.01	10	0.999	1 of 1	
1607265-04A	Soil		10.03	10	0.997	1 of 1	
1607265-05A	Soil		10.05	10	0.995	1 of 1	
1607265-06A	Soil		10.19	10	0.981	1 of 1	
1607269-20B	Soil		10.41	10	0.961	1 of 1	
1607269-20BMS	Soil		10.07	10	0.993	1 of	
Associated w/76490							
1607269-20BMSD	Soil		10.82	10	0.924	1 of	
Associated w/76490							
LCS-76491	Soil		10	10	1.000	of	
Associated w/76490							
MB-76491	Soil		10	10	1.000	of	
Associated w/76490							

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: 7/27/2016 1:00 PM

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10 .18	10	1.000	1 of 1	
1607256-21A	Soil		10 .18	10	1.000	1 of 1	
1607256-22A	Soil		10 .11	10	1.000	1 of 1	
1607256-23A	Soil		10 .24	10	1.000	1 of 1	
1607256-24A	Soil		10 .07	10	1.000	1 of 1	
1607256-25A	Soil	TM 7/27	.13 10 ~~.35~~	10	1.000	1 of 1	
1607256-37A	Soil		10 .34	10	1.000	1 of 1	
1607256-38A	Soil		10 .08	10	1.000	1 of 1	
1607256-39A	Soil		10 .06	10	1.000	1 of 1	
1607256-40A	Soil		10 .07	10	1.000	1 of 1	
1607256-41A	Soil		10 .12	10	1.000	1 of 1	
1607256-42A	Soil		10 .16	10	1.000	1 of 1	
1607265-01A	Soil		10 .00	10	1.000	1 of 1	
1607265-02A	Soil		10 .04	10	1.000	1 of 1	
1607265-03A	Soil		10 .01	10	1.000	1 of 1	
1607265-04A	Soil		10 .03	10	1.000	1 of 1	
1607265-05A	Soil		10 .05	10	1.000	1 of 1	
1607265-06A	Soil		10 19	10	1.000	1 of 1	
1607269-20B	Soil		10 .41	10	1.000	1 of 1	
1607269-20BMS	Soil		10 .07	10	1.000	1 of	
Associated w/76490							
1607269-20BMSD	Soil		10 .32	10	1.000	1 of	
Associated w/76490							
LCS-76491	Soil		10	10	1.000	1 of	
Associated w/76490							
MB-76491	Soil		10	10	1.000	of	
Associated w/76490							

Number	Reagent Name	Amt	Units	Exp. D
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609 ~~7/27~~ 7/27/16	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714 ~~10~~ 20 7/27/16	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

TM 7/27/16 7/27/16 7/27/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-01A SS	Soil		0	0	#Num!	1 of 1	
1607256-02A SS	Soil		0	0	#Num!	1 of 1	
1607256-03A SS	Soil		0	0	#Num!	1 of 1	
1607256-04A SS	Soil		0	0	#Num!	1 of 1	
1607256-05A SS	Soil		0	0	#Num!	1 of 1	
1607256-06A SS	Soil		0	0	#Num!	1 of 1	
1607256-07A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607256-08A SS	Soil		0	0	#Num!	1 of 1	
1607256-09A SS	Soil		0	0	#Num!	1 of 1	
1607256-10A SS	Soil		0	0	#Num!	1 of 1	
1607256-11A SS	Soil		0	0	#Num!	1 of 1	
1607256-12A SS	Soil		0	0	#Num!	1 of 1	
1607256-14A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:27:57 PM, 8/11/2016

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-28A	Soil		0	0	#Num!	of 3	
SS							
1607256-29A	Soil		0	0	#Num!	1 of 1	
SS MS/MSD							
1607256-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-31A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-32A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607256-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607256-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:28:00 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/22/2016 1:56:25 PM**
Digestion: **Start: 7/22/2016 3:00:00 PM / Stop: 7/25/2016 8:50:00 AM**
Prep End Date: **7/25/2016 3:50:00 PM**

Prep Batch **76406** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-36A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-37A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-38A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-39A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-40A	Soil		0	0	#Num!	1 of 1	
	SS						
1607256-41A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607256-42A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 1:28:02 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-07A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-08A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-11A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-12A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:28:09 PM, 8/11/2016

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-18A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607265-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-23A	Soil		0	0	#Num!	1 of 1	
Sieve Ony Hard Clay							
1607265-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-25A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:28:15 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:08:46 PM**
Digestion: **Start: 7/25/2016 1:20:00 PM / Stop: 7/26/2016 2:30:00 PM**
Prep End Date: **7/26/2016 3:20:00 PM**

Prep Batch **76440** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A SS	Soil		0	0	#Num!	1 of 1	
1607256-21A SS	Soil		0	0	#Num!	1 of 1	
1607256-22A SS	Soil		0	0	#Num!	1 of 1	
1607256-23A SS	Soil		0	0	#Num!	1 of 1	
1607256-24A SS	Soil		0	0	#Num!	1 of 1	
1607256-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:28:19 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: 7/27/2016 1:00 PM

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia** Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10 .18	10	1.000	1 of 1	
1607256-21A	Soil		10 .18	10	1.000	1 of 1	
1607256-22A	Soil		10 .11	10	1.000	1 of 1	
1607256-23A	Soil		10 .24	10	1.000	1 of 1	
1607256-24A	Soil		10 .07	10	1.000	1 of 1	
1607256-25A	Soil		7/27 .13 10 ~~.34~~	10	1.000	1 of 1	
1607256-37A	Soil		10 .34	10	1.000	1 of 1	
1607256-38A	Soil		10 .08	10	1.000	1 of 1	
1607256-39A	Soil		10 .00	10	1.000	1 of 1	
1607256-40A	Soil		10 .07	10	1.000	1 of 1	
1607256-41A	Soil		10 .12	10	1.000	1 of 1	
1607256-42A	Soil		10 .16	10	1.000	1 of 1	
1607265-01A	Soil		10 .00	10	1.000	1 of 1	
1607265-02A	Soil		10 .04	10	1.000	1 of 1	
1607265-03A	Soil		10 .01	10	1.000	1 of 1	
1607265-04A	Soil		10 .03	10	1.000	1 of 1	
1607265-05A	Soil		10 .05	10	1.000	1 of 1	
1607265-06A	Soil		10 .19	10	1.000	1 of 1	
~~1607269-20B~~	Soil		10 .41	10	1.000	1 of 1	
~~1607269-20BMS~~	Soil		10 .07	10	1.000	1 of	
Associated w/76490							
~~1607269-20BMSD~~	Soil		10 .32	10	1.000	1 of	
Associated w/76490							
LCS-76491	Soil		10	10	1.000	1 of	
Associated w/76490							
MB-76491	Soil		10	10	1.000	of	
Associated w/76490							

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160~~609~~ 7/27	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160~~713~~ 20	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

7/27/16

7/27/16

256 -21MS
-21MSD

10.06
10.20

7/27/16

7/27/16

7/27/16

REVIEWED BY
By Janice Whitt at 3:12:44 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 8:54:08 AM**
Digestion:
Prep End Date: **7/27/2016 1:00:00 PM**

Prep Batch **76491** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-20A	Soil		10.18	10	0.982	1 of 1	
1607256-21A	Soil		10.18	10	0.982	1 of 1	
1607256-21AMS	Soil		10.06	10	0.994	1 of	
1607256-21AMSD	Soil		10.2	10	0.980	1 of	
1607256-22A	Soil		10.11	10	0.989	1 of 1	
1607256-23A	Soil		10.24	10	0.977	1 of 1	
1607256-24A	Soil		10.07	10	0.993	1 of 1	
1607256-25A	Soil		10.13	10	0.987	1 of 1	
1607256-37A	Soil		10.34	10	0.967	1 of 1	
1607256-38A	Soil		10.08	10	0.992	1 of 1	
1607256-39A	Soil		10.06	10	0.994	1 of 1	
1607256-40A	Soil		10.07	10	0.993	1 of 1	
1607256-41A	Soil		10.12	10	0.988	1 of 1	
1607256-42A	Soil		10.16	10	0.984	1 of 1	
1607265-01A	Soil		10.08	10	0.992	1 of 1	
1607265-02A	Soil		10.04	10	0.996	1 of 1	
1607265-03A	Soil		10.01	10	0.999	1 of 1	
1607265-04A	Soil		10.03	10	0.997	1 of 1	
1607265-05A	Soil		10.05	10	0.995	1 of 1	
1607265-06A	Soil		10.19	10	0.981	1 of 1	
LCS-76491	Soil		10	10	1.000	of	
	Associated w/76490						
MB-76491	Soil		10	10	1.000	of	
	Associated w/76490						

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

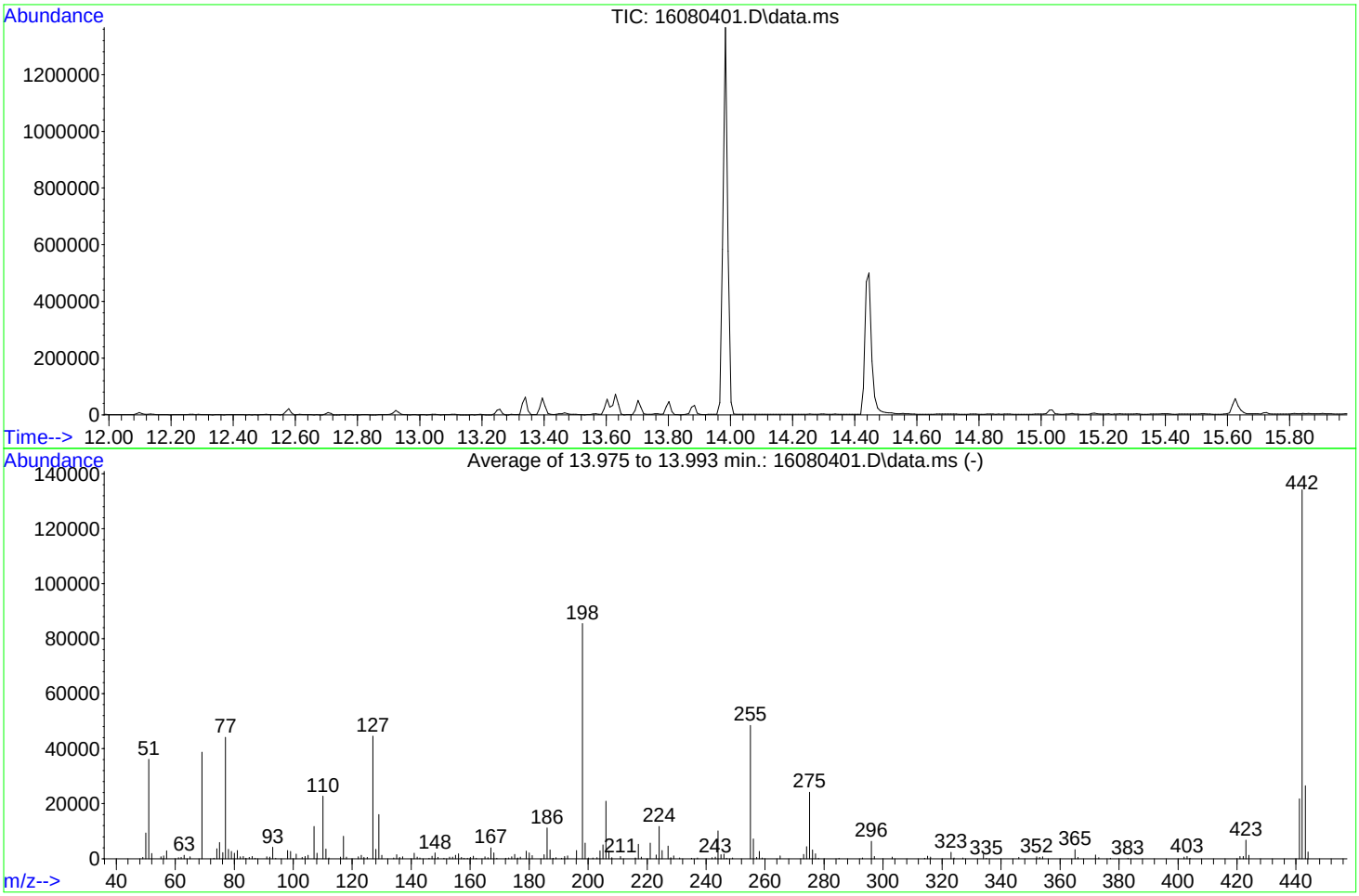
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

REVIEWED BY
By Janice Whitt at 3:12:57 PM, 8/11/2016

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080401.D
Acq On : 4 Aug 2016 7:52 am
Operator :
Sample : DFTPP-160804
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

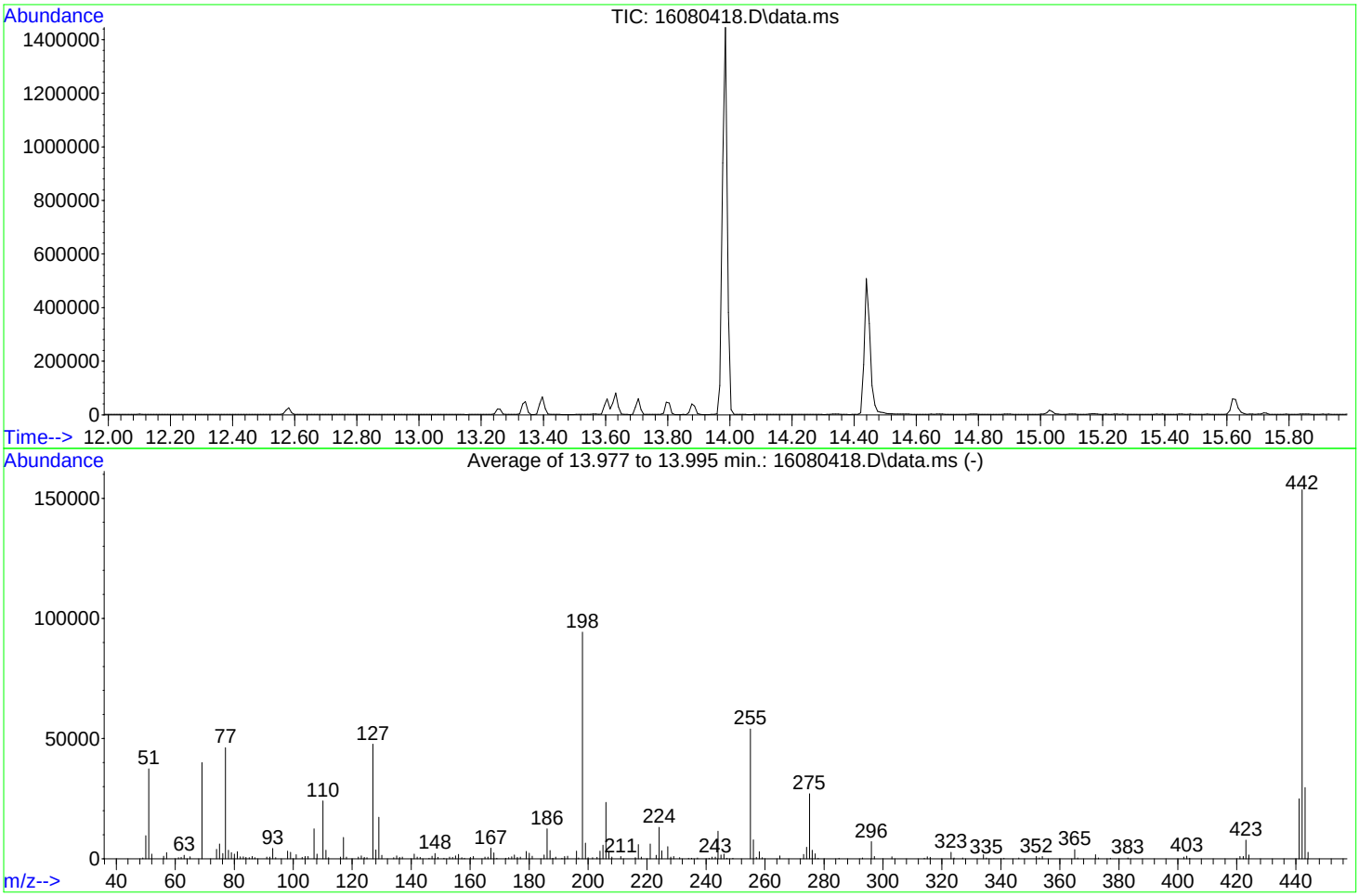
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.3	36135	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.3	38725	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	52.1	44544	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	85517	PASS
199	198	5	9	6.7	5722	PASS
275	198	10	60	28.3	24170	PASS
365	198	1	200	3.9	3325	PASS
441	442	0.01	24	16.2	21788	PASS
442	198	50	400	156.9	134218	PASS
443	442	15	24	19.8	26566	PASS

REVIEWED BY
By Janice Whitt at 1:28:23 PM, 8/11/2016

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080418.D
Acq On : 4 Aug 2016 7:16 pm
Operator :
Sample : DFTPP2-160804
Misc : TUNE
ALS Vial : 18 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.7	37430	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.4	39997	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.6	47694	PASS
197	198	0.00	2	0.4	340	PASS
198	198	100	100	100.0	94312	PASS
199	198	5	9	6.8	6449	PASS
275	198	10	60	28.6	26981	PASS
365	198	1	200	4.0	3787	PASS
441	442	0.01	24	16.2	24868	PASS
442	198	50	400	162.8	153584	PASS
443	442	15	24	19.3	29673	PASS

REVIEWED BY
By Janice Whitt at 1:28:28 PM, 8/11/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080402.D
Acq On : 4 Aug 2016 8:31 am
Operator :
Sample : ICV-160804
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 05 14:34:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

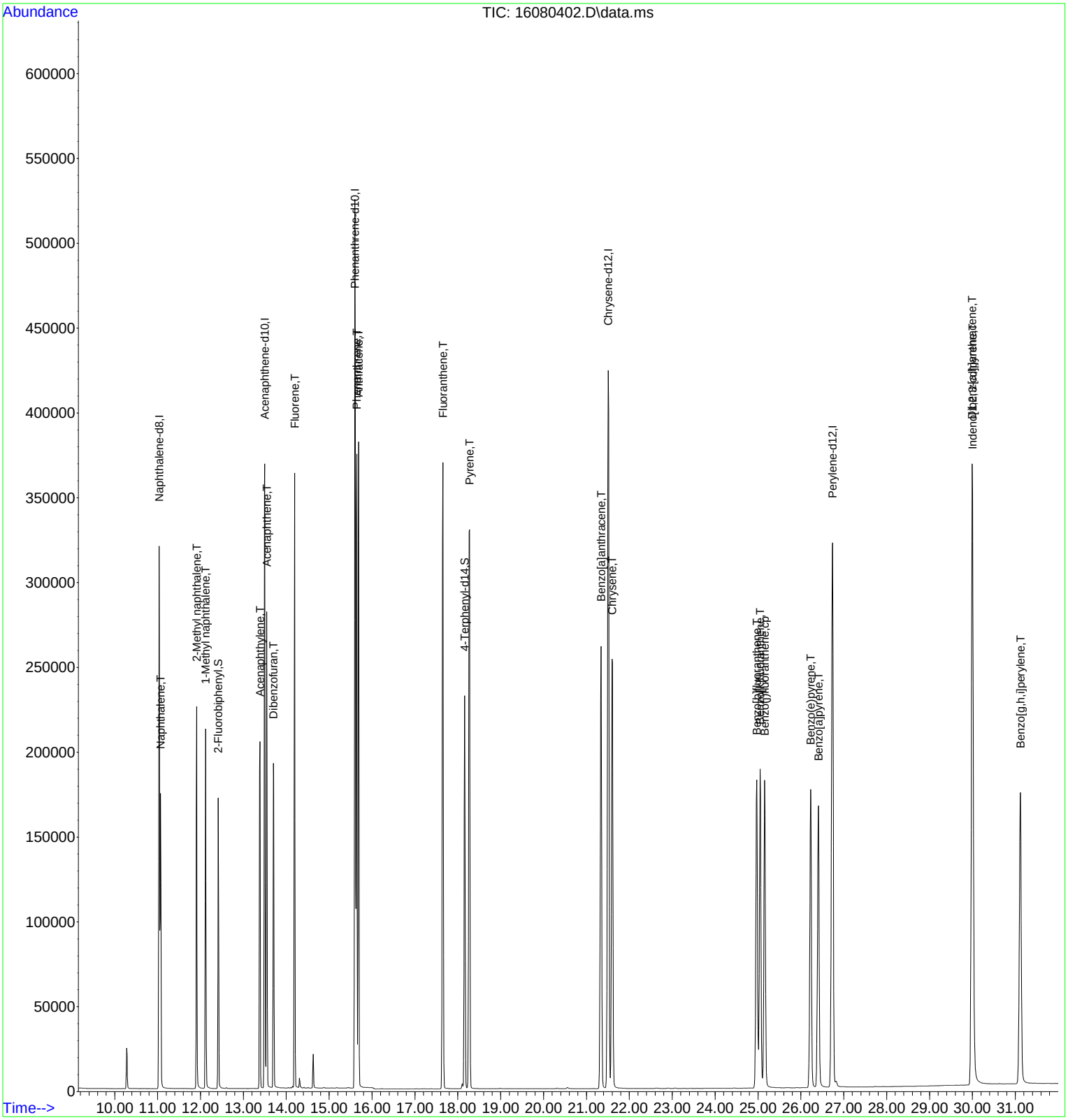
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	403751	4000.00	ug/kg	103
6) Acenaphthene-d10	13.499	164	214740	4000.00	ug/kg	118
11) Phenanthrene-d10	15.600	188	623853	4000.00	ug/kg	125
17) Chrysene-d12	21.508	240	660918	4000.00	ug/kg	98
20) Perylene-d12	26.741	264	607473	4000.00	ug/kg	99
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	134171	2003.86	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.10%			
15) 4-Terphenyl-d14	18.158	244	252613	1625.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 40.65%#			
Target Compounds						Qvalue
2) Naphthalene	11.068	128	184630	1880.73	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	122364	1980.77	ug/kg	98
4) 1-Methyl naphthalene	12.118	142	112208	1978.12	ug/kg	99
7) Acenaphthylene	13.386	152	204963	1990.73	ug/kg	100
8) Acenaphthene	13.542	153	129895	1991.37	ug/kg	99
9) Dibenzofuran	13.707	168	193729	2096.07	ug/kg	99
10) Fluorene	14.193	166	174892	2242.13	ug/kg	99
12) Phenanthrene	15.643	178	321014	1903.34	ug/kg	100
13) Anthracene	15.687	178	329398	1909.47	ug/kg	100
14) Fluoranthene	17.651	202	386717	1708.85	ug/kg	96
16) Pyrene	18.271	202	387570	1649.80	ug/kg	96
18) Benzo[a]anthracene	21.339	228	358944	2094.63	ug/kg	100
19) Chrysene	21.604	228	331850	2029.47	ug/kg	99
21) Benzo[b]fluoranthene	24.970	252	343624	2096.46	ug/kg	100
22) Benzo[k]fluoranthene	25.050	252	311234	2219.64	ug/kg	100
23) Benzo(j)fluoranthene	25.155	252	295630	2158.61	ug/kg	100
24) Benzo(e)pyrene	26.226	252	318558	2008.47	ug/kg	100
25) Benzo[a]pyrene	26.411	252	313797	2084.77	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.010	276	395338	2223.91	ug/kg	92
27) Dibenz[a,h]anthracene	29.994	278	328716	2248.86	ug/kg	100
28) Benzo[g,h,i]perylene	31.121	276	335834	2150.67	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080402.D
Acq On : 4 Aug 2016 8:31 am
Operator :
Sample : ICV-160804
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

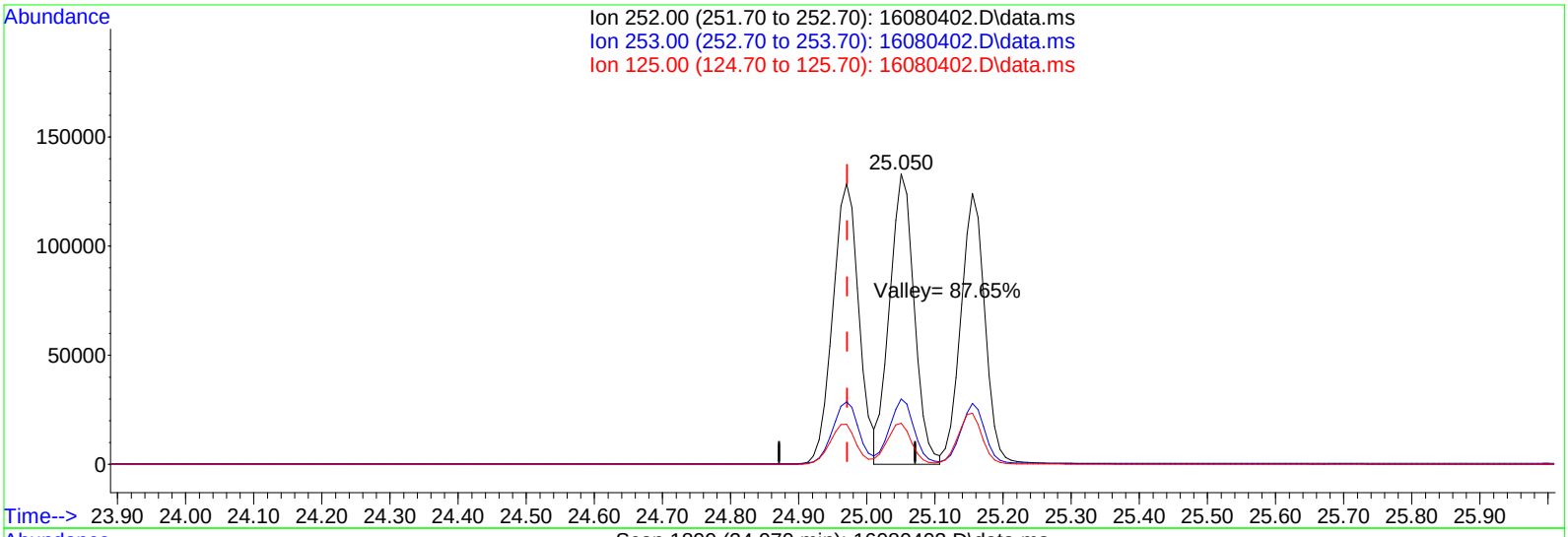
Quant Time: Aug 05 14:34:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

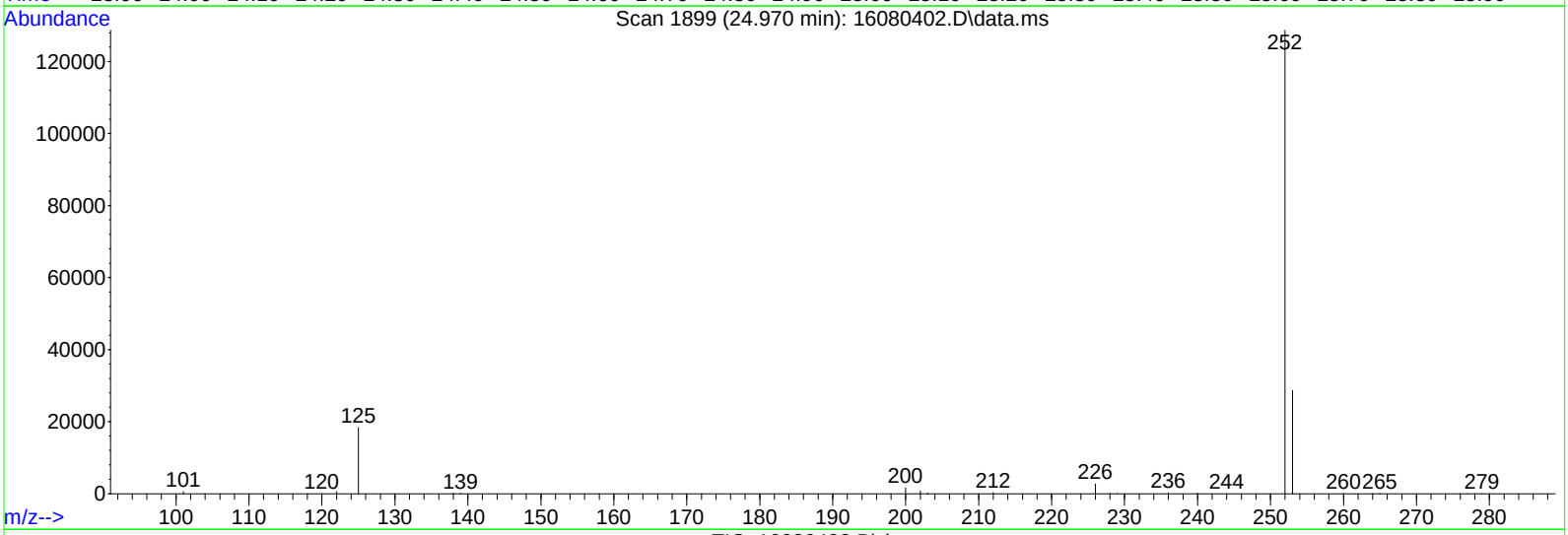


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080402.D
Acq On : 4 Aug 2016 8:31 am
Operator :
Sample : ICV-160804
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 04 09:03:18 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration





TIC: 16080402.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.970min (-0.001) 2096.46ug/kg

response 343624

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	21.96
125.00	13.90	14.22
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080403.D
Acq On : 4 Aug 2016 9:10 am
Operator :
Sample : LCS-76491
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 05 14:34:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

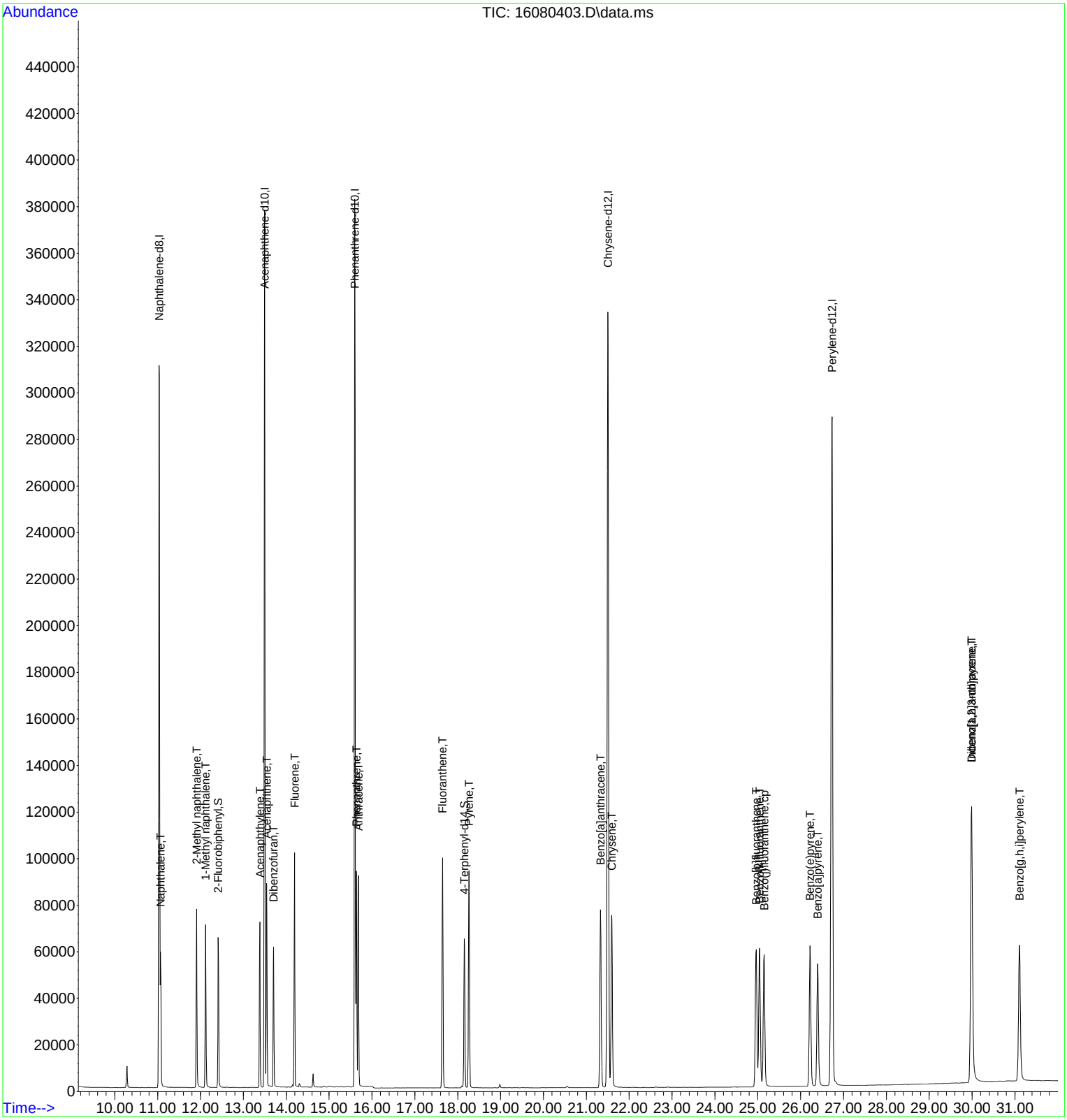
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	434555	4000.00	ug/kg	111
6) Acenaphthene-d10	13.497	164	205716	4000.00	ug/kg	113
11) Phenanthrene-d10	15.598	188	438440	4000.00	ug/kg	88
17) Chrysene-d12	21.501	240	520940	4000.00	ug/kg	77
20) Perylene-d12	26.735	264	523600	4000.00	ug/kg	85
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.412	172	56359	782.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.55%#			
15) 4-Terphenyl-d14	18.160	244	75779	693.98	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 17.35%#			
Target Compounds						Qvalue
2) Naphthalene	11.066	128	63081	597.02	ug/kg	100
3) 2-Methyl naphthalene	11.908	142	43462	653.67	ug/kg	99
4) 1-Methyl naphthalene	12.117	142	40188	658.25	ug/kg	100
7) Acenaphthylene	13.384	152	67392	683.27	ug/kg	100
8) Acenaphthene	13.540	153	42381	678.23	ug/kg	100
9) Dibenzofuran	13.705	168	59657	673.78	ug/kg	97
10) Fluorene	14.192	166	49849	667.10	ug/kg	100
12) Phenanthrene	15.641	178	84103	709.54	ug/kg	99
13) Anthracene	15.685	178	82975	684.40	ug/kg	99
14) Fluoranthene	17.644	202	102550	644.79	ug/kg	97
16) Pyrene	18.264	202	105212	637.26	ug/kg	96
18) Benzo[a]anthracene	21.332	228	105131	778.34	ug/kg	100
19) Chrysene	21.590	228	97064	753.11	ug/kg	100
21) Benzo[b]fluoranthene	24.963	252	109868	777.68	ug/kg	99
22) Benzo[k]fluoranthene	25.044	252	98093	811.63	ug/kg	98
23) Benzo(j)fluoranthene	25.148	252	96171	814.70	ug/kg	99
24) Benzo(e)pyrene	26.219	252	106951	782.33	ug/kg	100
25) Benzo[a]pyrene	26.396	252	99707	768.53	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.995	276	134149	875.52	ug/kg	92
27) Dibenz[a,h]anthracene	29.979	278	108801	863.58	ug/kg	99
28) Benzo[g,h,i]perylene	31.107	276	113727	844.97	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080403.D
Acq On : 4 Aug 2016 9:10 am
Operator :
Sample : LCS-76491
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 05 14:34:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080404.D
Acq On : 4 Aug 2016 9:50 am
Operator :
Sample : MB-76491
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 05 14:34:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	460995	4000.00	ug/kg	117
6) Acenaphthene-d10	13.498	164	215159	4000.00	ug/kg	118
11) Phenanthrene-d10	15.599	188	440296	4000.00	ug/kg	88
17) Chrysene-d12	21.501	240	506181	4000.00	ug/kg	75
20) Perylene-d12	26.727	264	520426	4000.00	ug/kg	85

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	59619	779.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.50%#			
15) 4-Terphenyl-d14	18.160	244	74749	681.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 17.04%#			

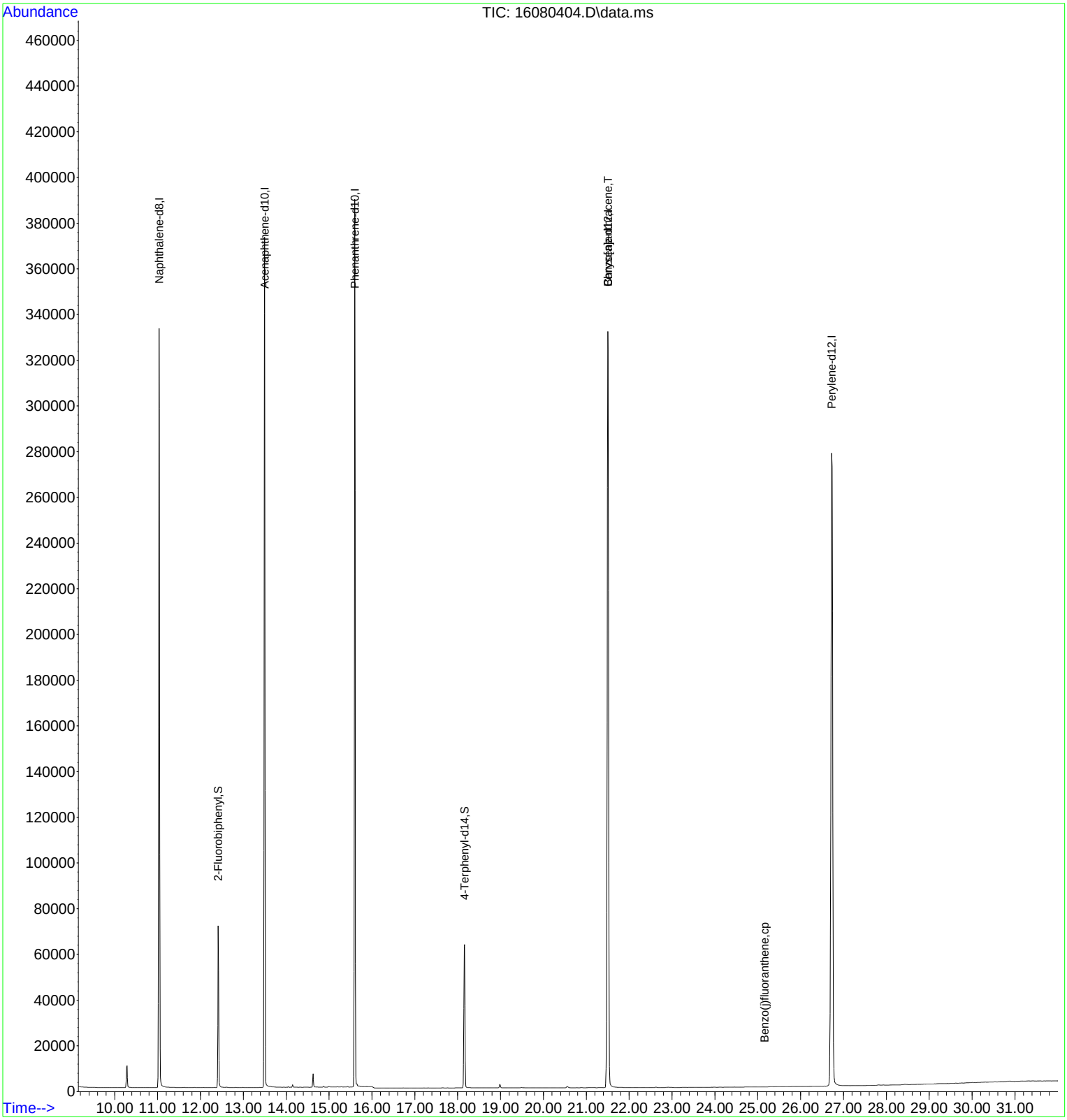
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.501	228	1398	10.65	ug/kg	72
23) Benzo(j)fluoranthene	25.149	252	12	0.10	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080404.D
Acq On : 4 Aug 2016 9:50 am
Operator :
Sample : MB-76491
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 05 14:34:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080417.D
Acq On : 4 Aug 2016 6:35 pm
Operator :
Sample : 1607265-01A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: Aug 05 14:36:06 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.042	136	390835	4000.00	ug/kg	100
6) Acenaphthene-d10	13.499	164	230353	4000.00	ug/kg	126
11) Phenanthrene-d10	15.600	188	645612	4000.00	ug/kg	129
17) Chrysene-d12	21.509	240	625840	4000.00	ug/kg	93
20) Perylene-d12	26.742	264	565252	4000.00	ug/kg	92

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	5576	86.03	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.15%#			
15) 4-Terphenyl-d14	18.159	244	10341	64.31	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.61%#			

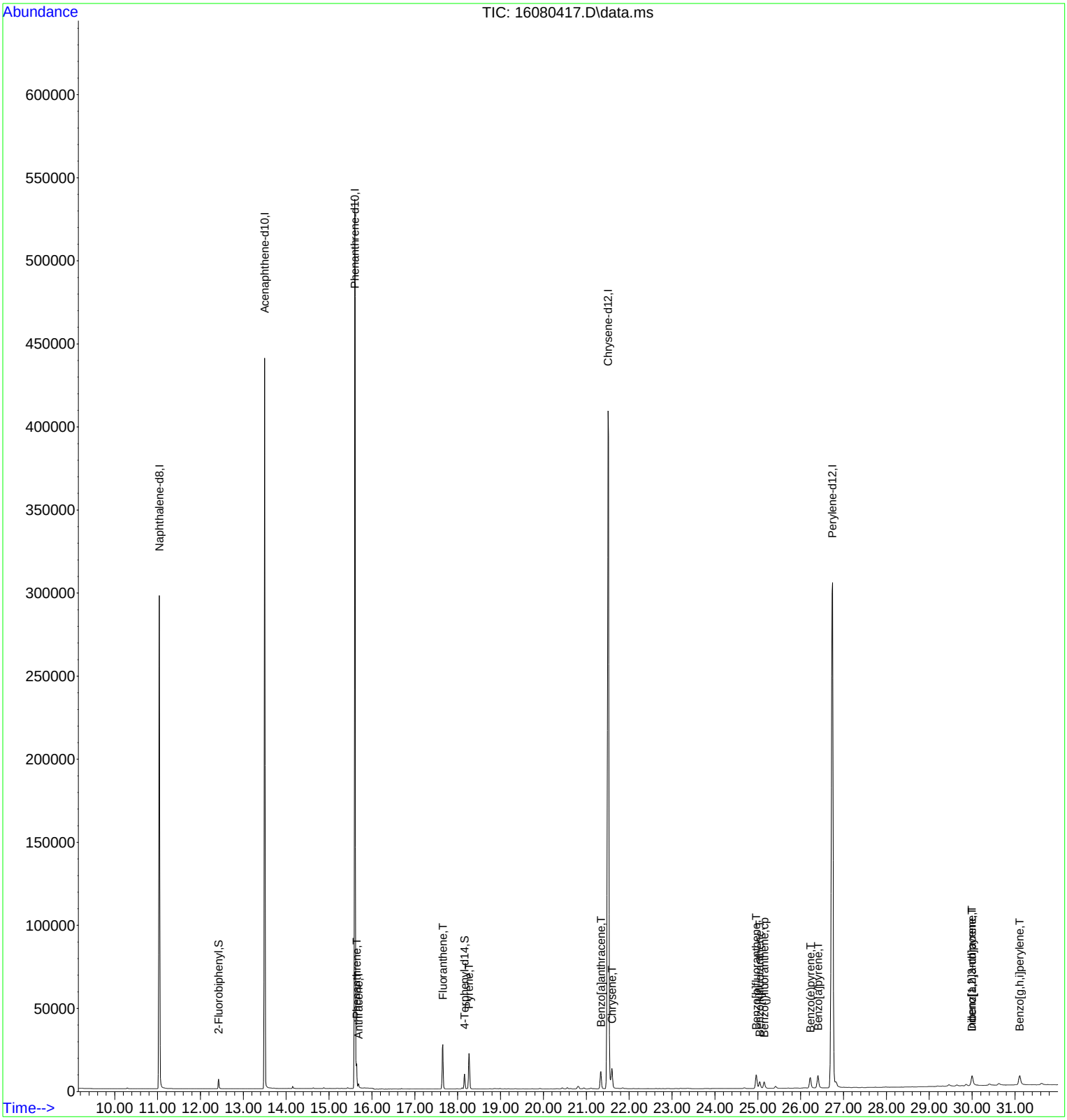
Target Compounds						Qvalue
12) Phenanthrene	15.644	178	11729	67.20	ug/kg	99
13) Anthracene	15.687	178	2093	11.72	ug/kg	99
14) Fluoranthene	17.652	202	29258	124.93	ug/kg	94
16) Pyrene	18.264	202	25060	103.08	ug/kg	100
18) Benzo[a]anthracene	21.340	228	14634	90.18	ug/kg	99
19) Chrysene	21.597	228	16896	109.12	ug/kg	100
21) Benzo[b]fluoranthene	24.963	252	15695	102.91	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	6621	50.75	ug/kg	98
23) Benzo(j)fluoranthene	25.148	252	6617	51.92	ug/kg	91
24) Benzo(e)pyrene	26.227	252	11804	79.98	ug/kg	98
25) Benzo[a]pyrene	26.404	252	14790	105.60	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.003	276	11656	70.47	ug/kg	87
27) Dibenz[a,h]anthracene	29.987	278	2460	18.09	ug/kg	97
28) Benzo[g,h,i]perylene	31.114	276	12478	85.88	ug/kg	98

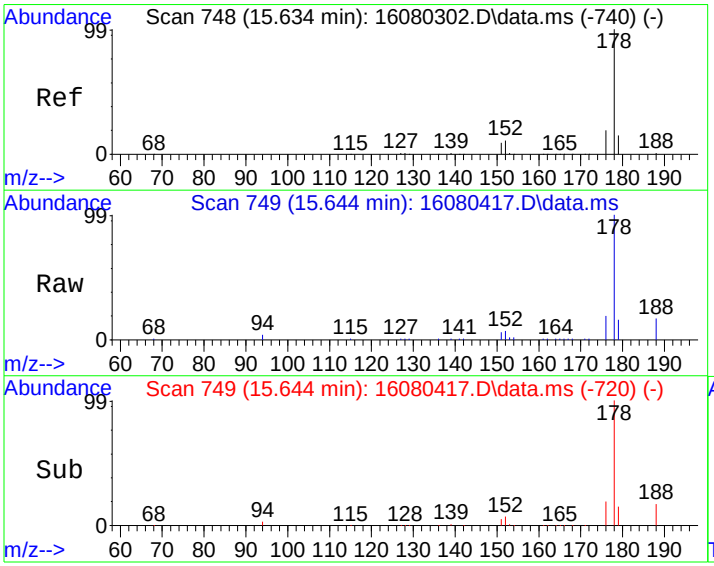
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080417.D
Acq On : 4 Aug 2016 6:35 pm
Operator :
Sample : 1607265-01A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: Aug 05 14:36:06 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

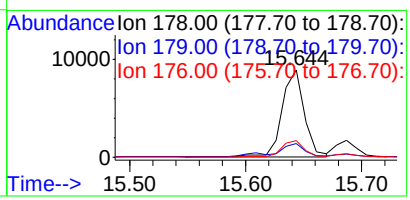


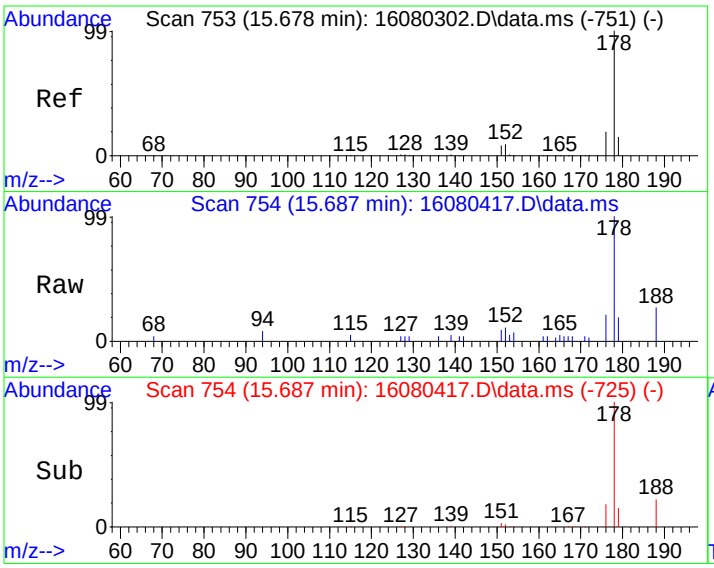


#12
Phenanthrene
Concen: 67.20 ug/kg
RT: 15.644 min Scan# 749
Delta R.T. 0.002 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:178 Resp: 11729

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.5
176	18.5	0.0	38.8

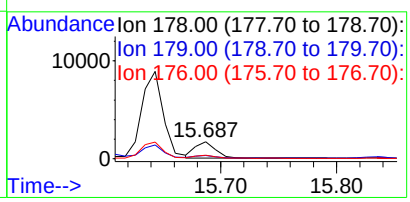


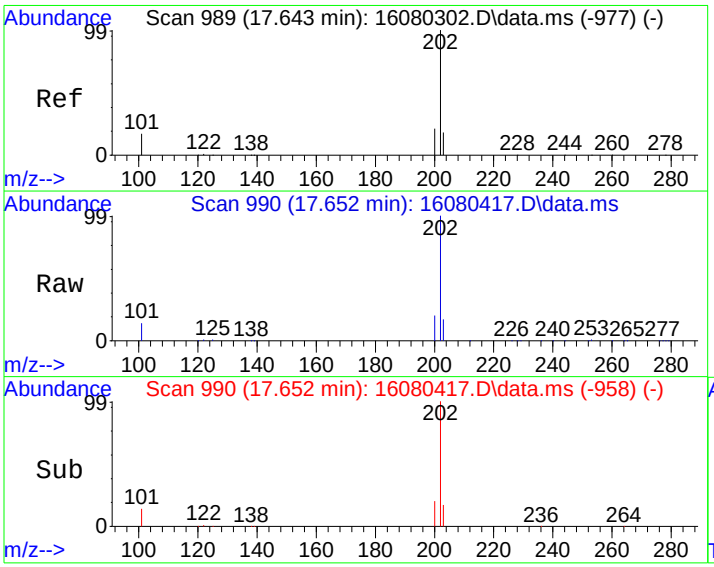


#13
Anthracene
Concen: 11.72 ug/kg
RT: 15.687 min Scan# 754
Delta R.T. 0.002 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:178 Resp: 2093

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	35.6
176	18.1	0.0	38.2

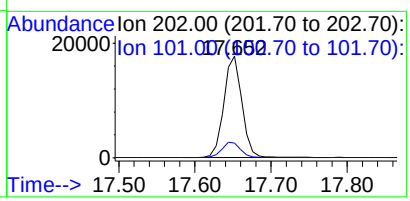


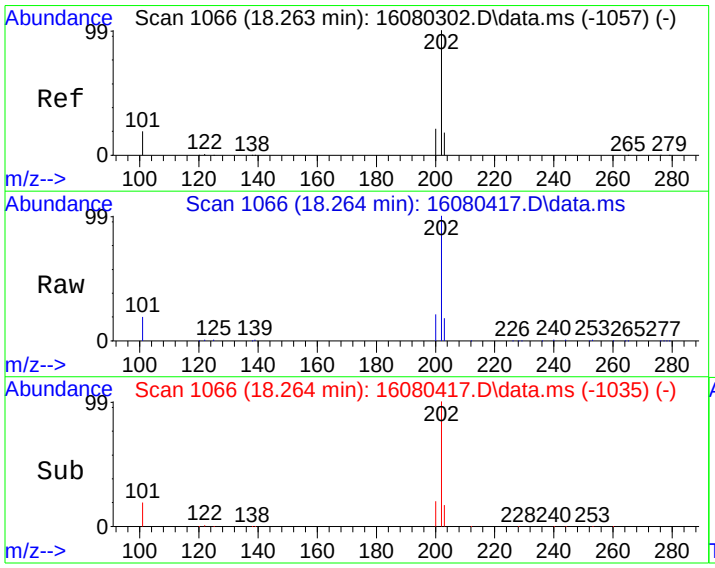


#14
Fluoranthene
Concen: 124.93 ug/kg
RT: 17.652 min Scan# 990
Delta R.T. 0.008 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:202 Resp: 29258

Ion	Ratio	Lower	Upper
202	100		
101	14.2	0.0	36.7

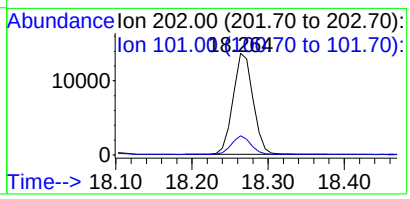


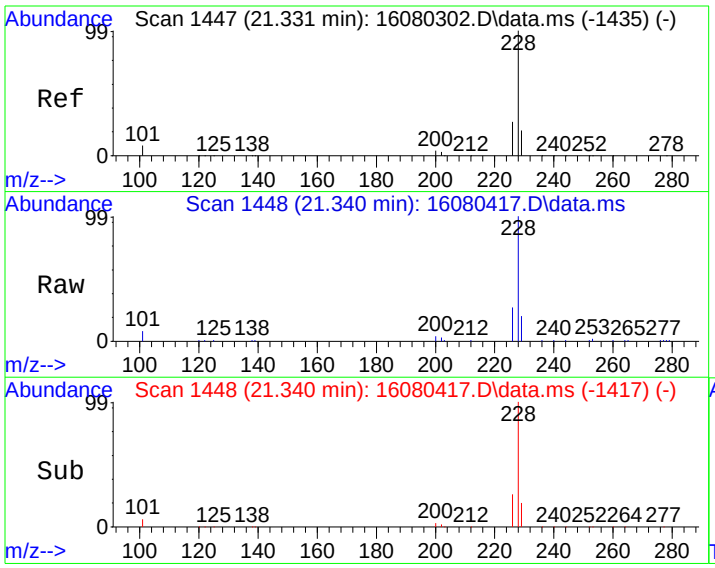


#16
Pyrene
Concen: 103.08 ug/kg
RT: 18.264 min Scan# 1066
Delta R.T. -0.000 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:202 Resp: 25060

Ion	Ratio	Lower	Upper
202	100		
101	18.5	0.0	38.7

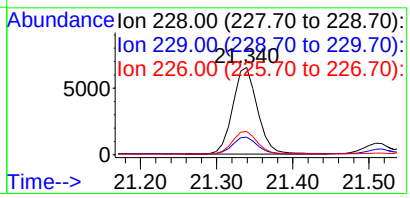


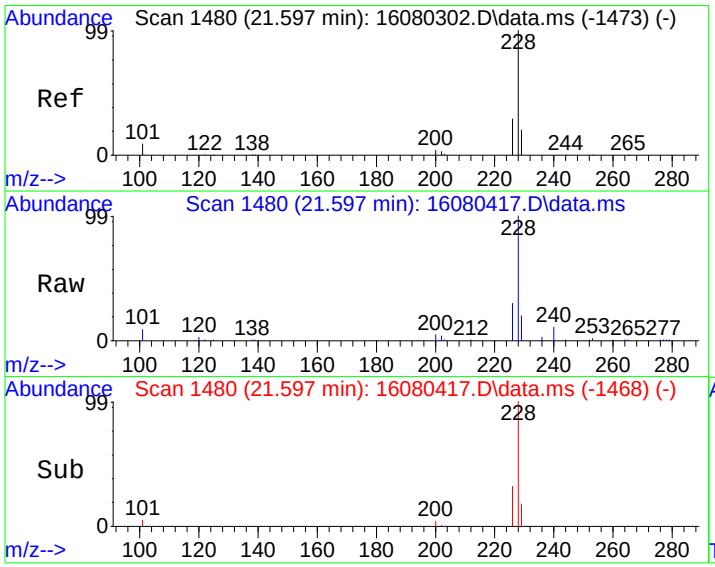


#18
Benzo[a]anthracene
Concen: 90.18 ug/kg
RT: 21.340 min Scan# 1448
Delta R.T. 0.001 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:228 Resp: 14634

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	39.9
226	26.3	6.5	46.5

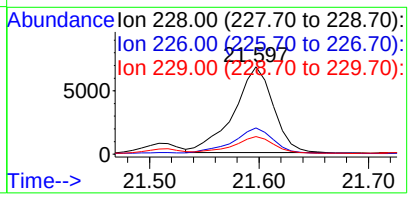


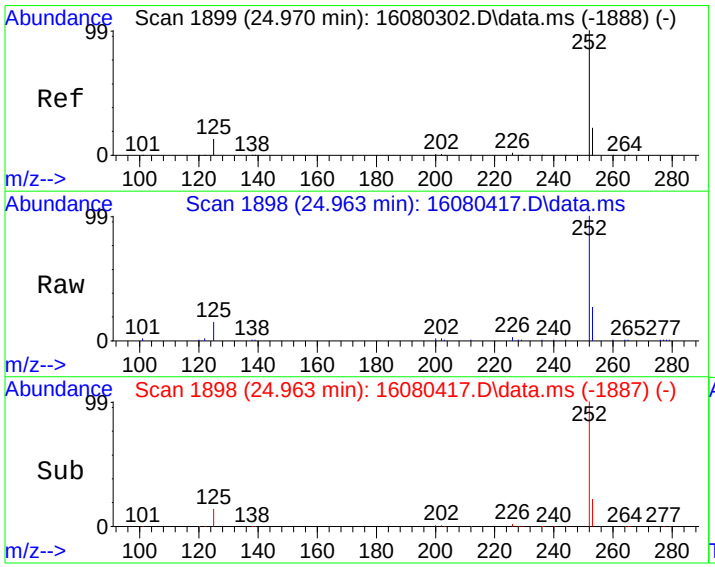


#19
Chrysene
Concen: 109.12 ug/kg
RT: 21.597 min Scan# 1480
Delta R.T. 0.000 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:228 Resp: 16896

Ion	Ratio	Lower	Upper
228	100		
226	29.4	9.5	49.5
229	19.6	0.0	40.0

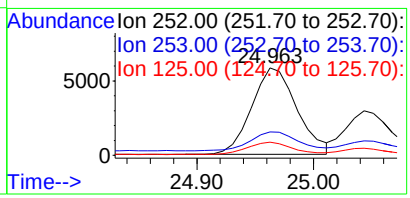


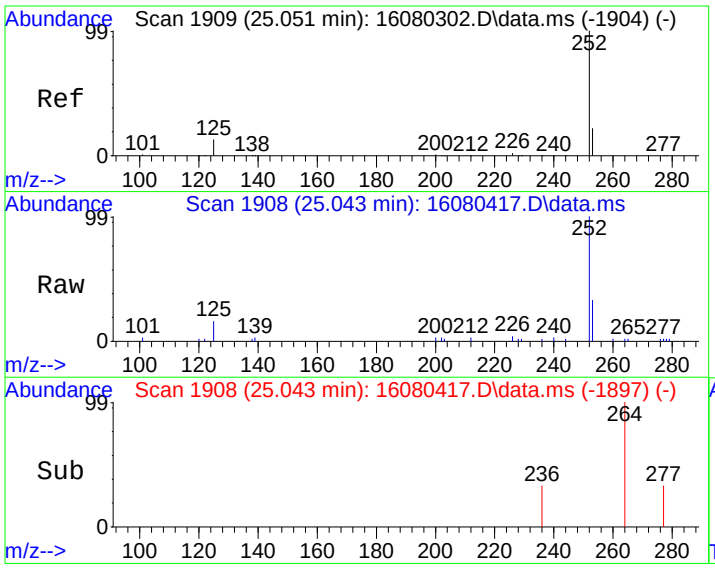


#21
Benzo[b]fluoranthene
Concen: 102.91 ug/kg
RT: 24.963 min Scan# 1898
Delta R.T. -0.008 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:252 Resp: 15695

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.1	42.1
125	14.1	0.0	33.9

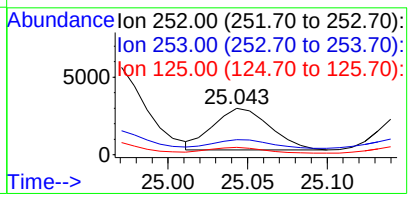


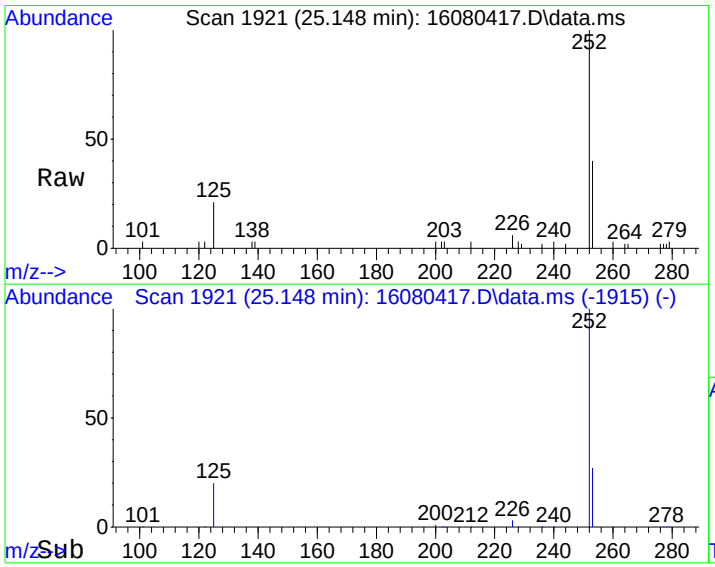


#22
Benzo[k]fluoranthene
Concen: 50.75 ug/kg
RT: 25.043 min Scan# 1908
Delta R.T. -0.008 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:252 Resp: 6621

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.2	42.2
125	13.9	0.0	34.0

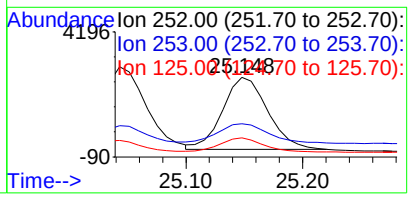


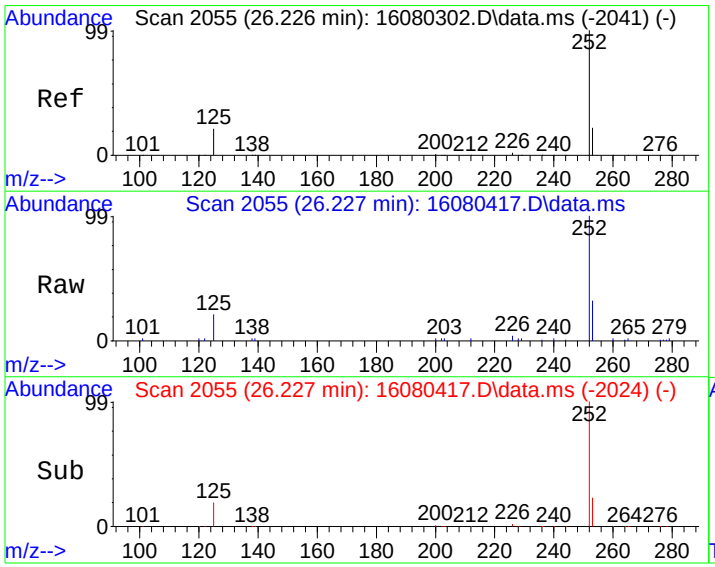


#23
Benzo(j)fluoranthene
Concen: 51.92 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.008 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:252 Resp: 6617

Ion	Ratio	Lower	Upper
252	100		
253	29.4	2.0	42.0
125	19.0	0.0	39.3

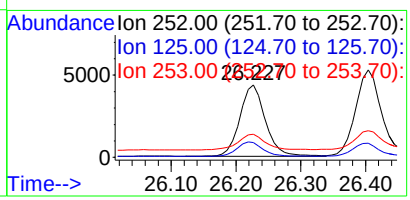


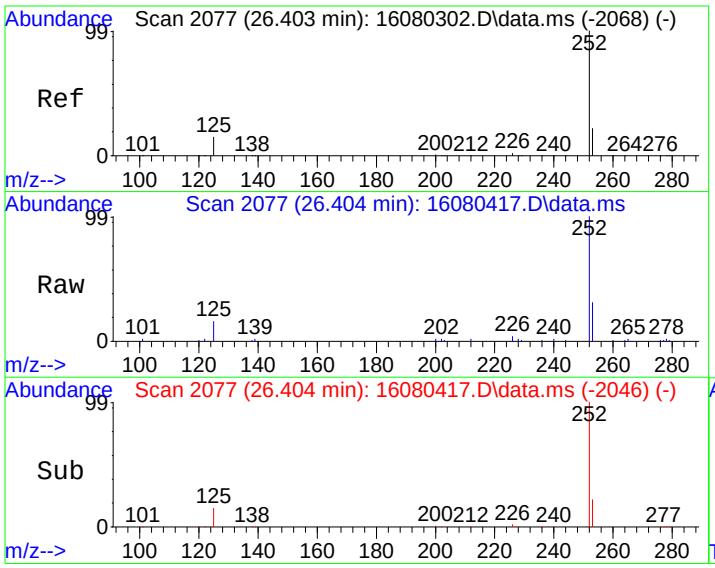


#24
Benzo(e)pyrene
Concen: 79.98 ug/kg
RT: 26.227 min Scan# 2055
Delta R.T. -0.000 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:252 Resp: 11804

Ion	Ratio	Lower	Upper
252	100		
125	20.4	0.5	40.5
253	24.1	2.1	42.1

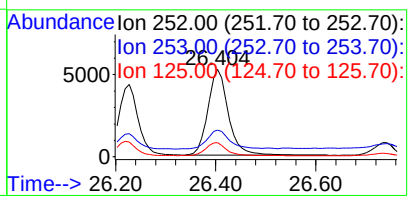


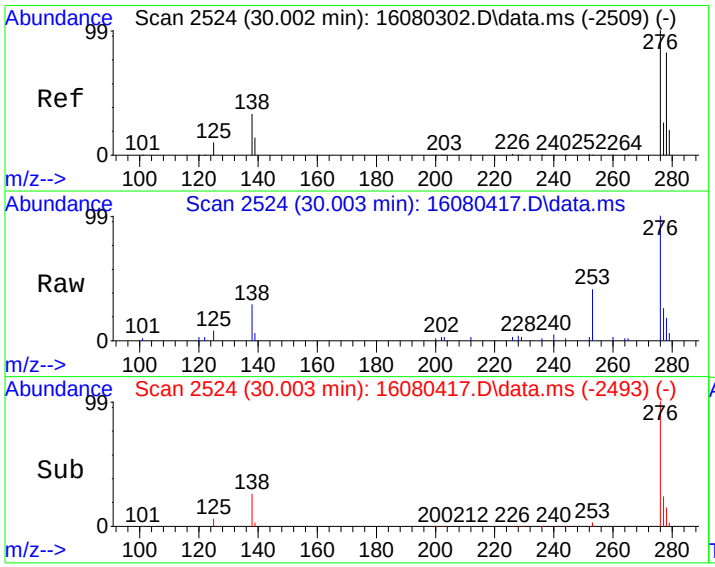


#25
Benzo[a]pyrene
Concen: 105.60 ug/kg
RT: 26.404 min Scan# 2077
Delta R.T. -0.000 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:252 Resp: 14790

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.1	42.1
125	15.0	0.0	36.2

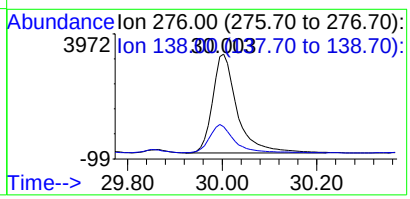


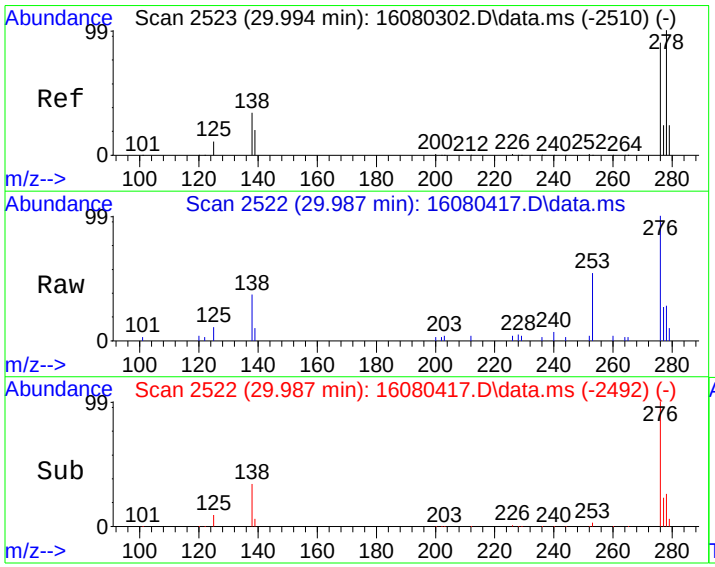


#26
Indeno[1,2,3-cd]pyrene
Concen: 70.47 ug/kg
RT: 30.003 min Scan# 2524
Delta R.T. -0.000 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:276 Resp: 11656

Ion	Ratio	Lower	Upper
276	100		
138	26.3	14.0	54.0

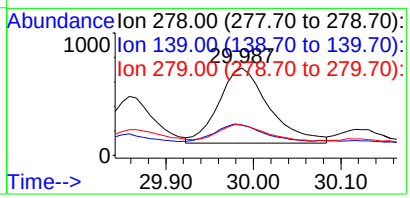


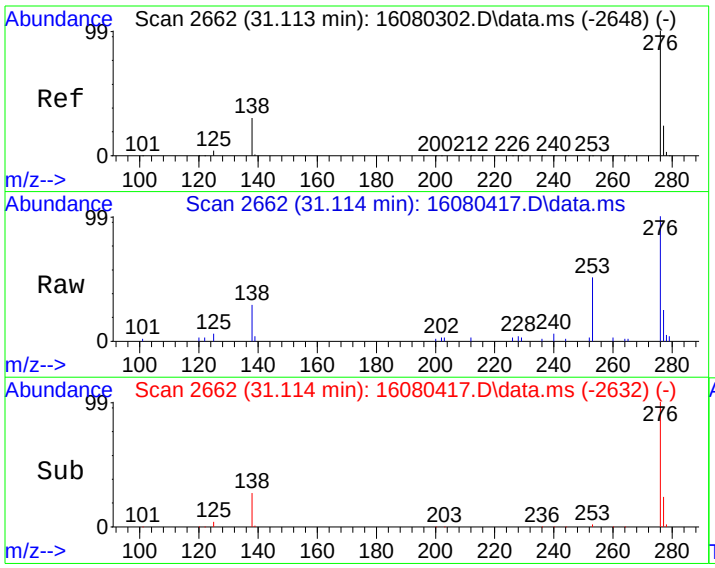


#27
Dibenz[a,h]anthracene
Concen: 18.09 ug/kg
RT: 29.987 min Scan# 2522
Delta R.T. -0.008 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:278 Resp: 2460

Ion	Ratio	Lower	Upper
278	100		
139	22.8	1.3	41.3
279	22.5	4.1	44.1

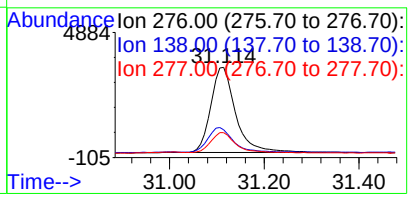




#28
Benzo[g,h,i]perylene
Concen: 85.88 ug/kg
RT: 31.114 min Scan# 2662
Delta R.T. -0.008 min
Lab File: 16080417.D
Acq: 4 Aug 2016 6:35 pm

Tgt Ion:276 Resp: 12478

Ion	Ratio	Lower	Upper
276	100		
138	26.4	7.8	47.8
277	23.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080419.D
Acq On : 4 Aug 2016 7:55 pm
Operator :
Sample : ICV2-160804
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 05 14:34:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

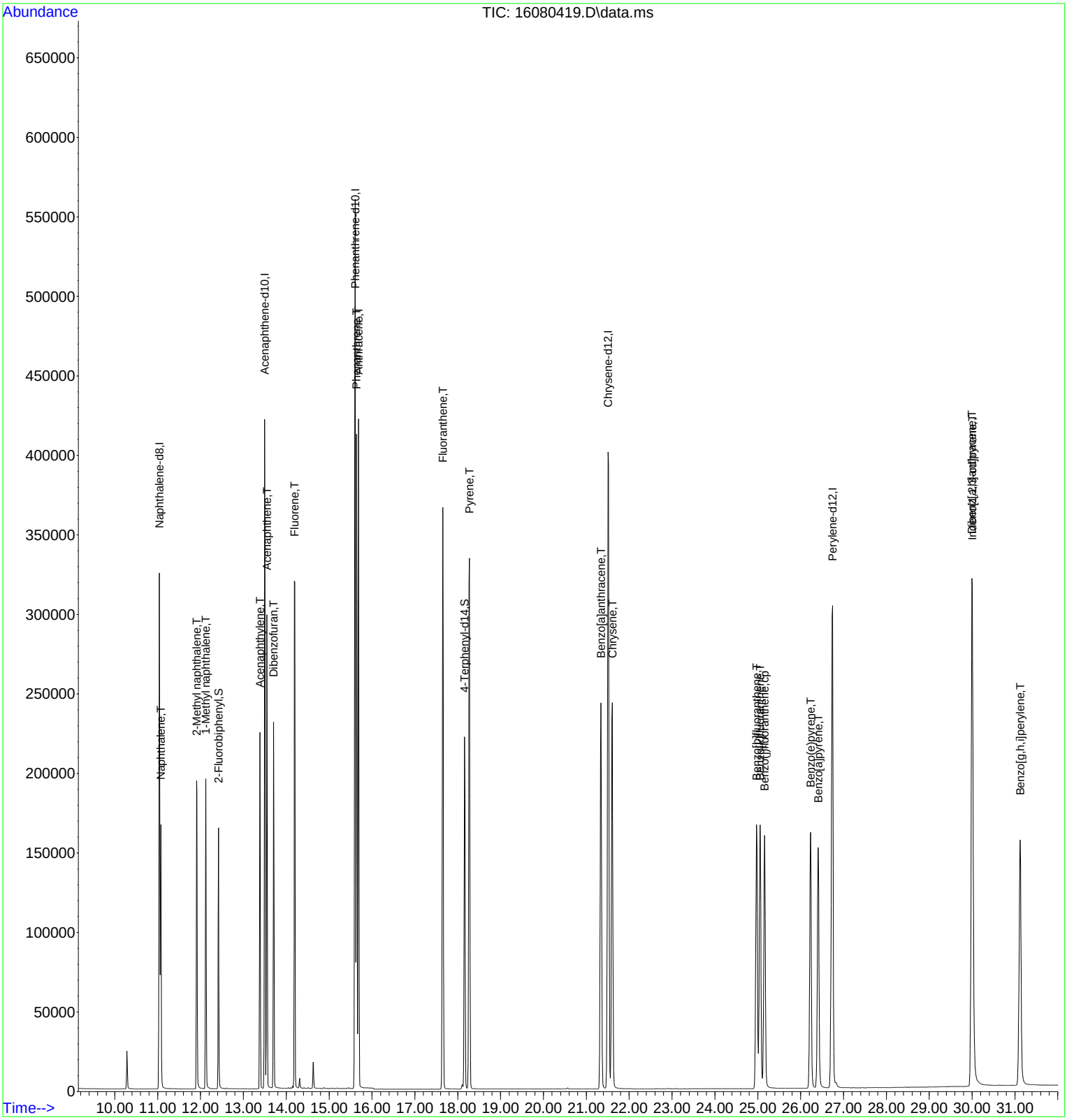
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	385471	4000.00	ug/kg	98
6) Acenaphthene-d10	13.496	164	220062	4000.00	ug/kg	120
11) Phenanthrene-d10	15.605	188	653475	4000.00	ug/kg	131
17) Chrysene-d12	21.518	240	626541	4000.00	ug/kg	93
20) Perylene-d12	26.743	264	557910	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	130531	2041.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.05%		
15) 4-Terphenyl-d14	18.160	244	248886	1529.25	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	38.23%#		
Target Compounds						Qvalue
2) Naphthalene	11.073	128	175522	1872.74	ug/kg	99
3) 2-Methyl naphthalene	11.916	142	118422	2007.87	ug/kg	96
4) 1-Methyl naphthalene	12.124	142	108271	1999.23	ug/kg	96
7) Acenaphthylene	13.383	152	208902	1979.92	ug/kg	99
8) Acenaphthene	13.548	153	130684	1955.02	ug/kg	98
9) Dibenzofuran	13.704	168	203079	2144.09	ug/kg	81
10) Fluorene	14.199	166	184803	2311.89	ug/kg	98
12) Phenanthrene	15.640	178	341566	1933.39	ug/kg	99
13) Anthracene	15.684	178	335406	1856.16	ug/kg	99
14) Fluoranthene	17.653	202	383716	1618.73	ug/kg	97
16) Pyrene	18.273	202	379856	1543.66	ug/kg	98
18) Benzo[a]anthracene	21.340	228	335113	2062.86	ug/kg	100
19) Chrysene	21.606	228	312797	2017.91	ug/kg	99
21) Benzo[b]fluoranthene	24.972	252	311211	2067.38	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	281211	2183.68	ug/kg	100
23) Benzo(j)fluoranthene	25.157	252	267602	2127.54	ug/kg	100
24) Benzo(e)pyrene	26.236	252	294011	2018.38	ug/kg	100
25) Benzo[a]pyrene	26.413	252	288328	2085.73	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.012	276	357071	2187.09	ug/kg	95
27) Dibenz[a,h]anthracene	29.996	278	296643	2209.73	ug/kg	99
28) Benzo[g,h,i]perylene	31.123	276	307104	2141.40	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080419.D
Acq On : 4 Aug 2016 7:55 pm
Operator :
Sample : ICV2-160804
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

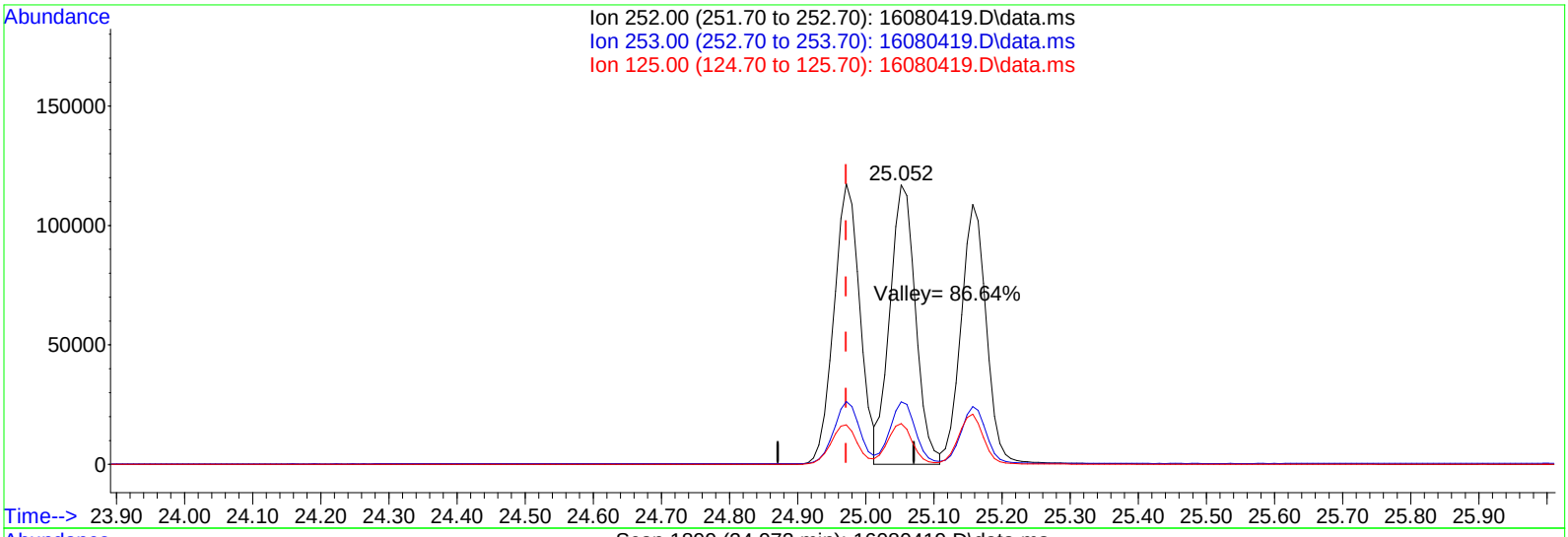
Quant Time: Aug 05 14:34:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

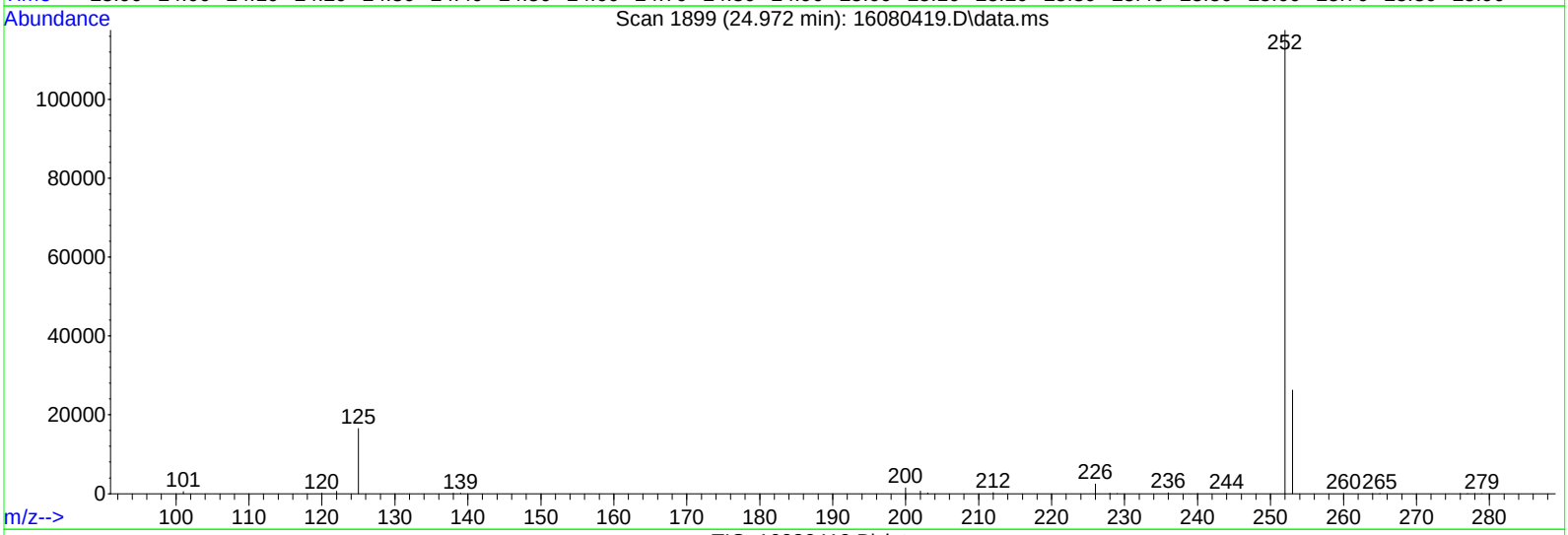


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080419.D
Acq On : 4 Aug 2016 7:55 pm
Operator :
Sample : ICV2-160804
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 20:27:44 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration





TIC: 16080419.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.972min (+0.001) 2067.38ug/kg

response 311211

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.10
125.00	13.90	13.98
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080421.D
Acq On : 4 Aug 2016 9:15 pm
Operator :
Sample : SB-160804
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 05 14:34:40 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	398015	4000.00	ug/kg	101
6) Acenaphthene-d10	13.497	164	270770	4000.00	ug/kg	148
11) Phenanthrene-d10	15.607	188	664280	4000.00	ug/kg	133
17) Chrysene-d12	21.509	240	619647	4000.00	ug/kg	92
20) Perylene-d12	26.734	264	578952	4000.00	ug/kg	94

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.429	172	54	0.82	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			
15) 4-Terphenyl-d14	18.160	244	266	1.61	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.04%#			

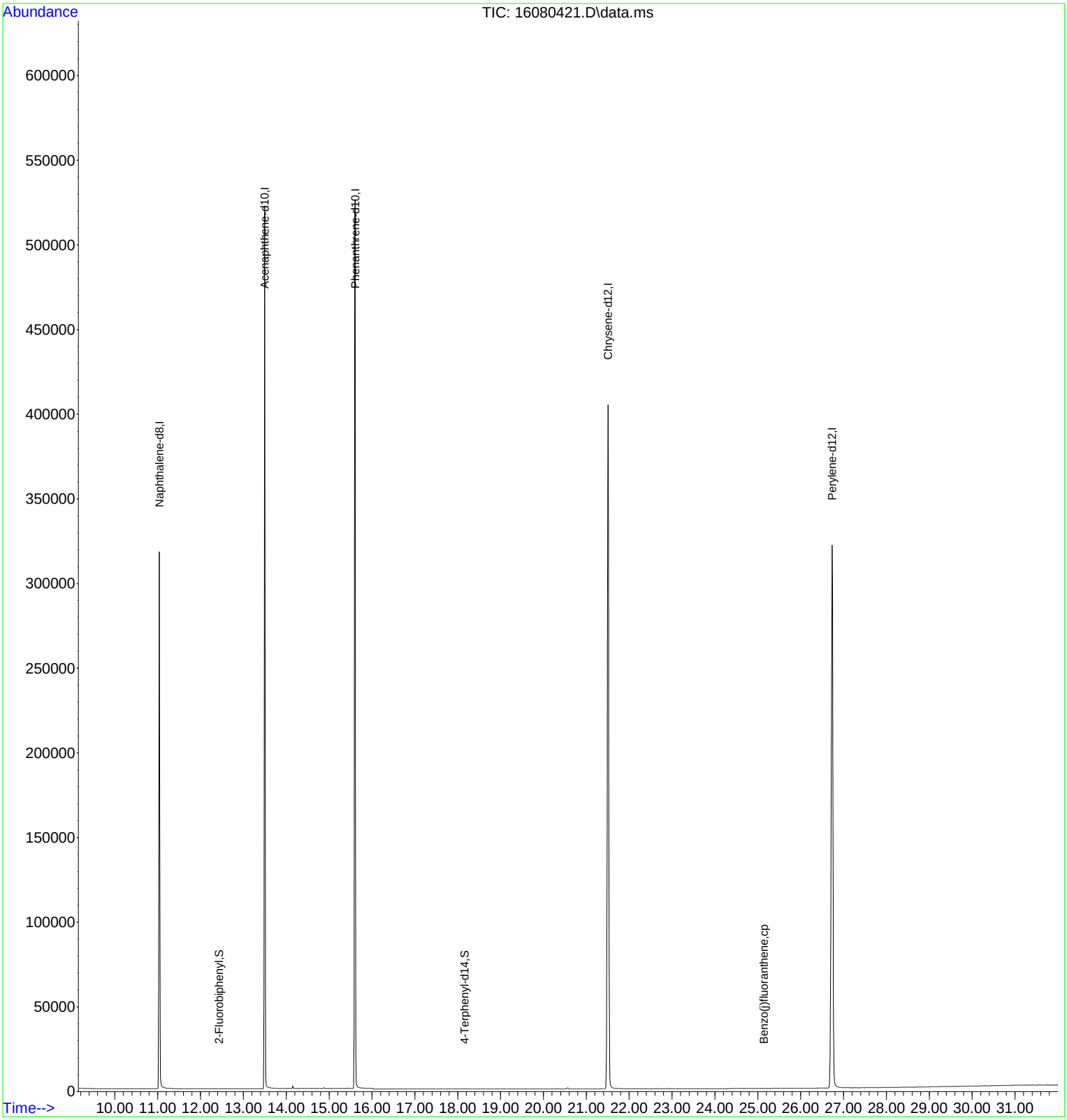
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.148	252	5	0.04	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080421.D
Acq On : 4 Aug 2016 9:15 pm
Operator :
Sample : SB-160804
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 05 14:34:40 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080422.D
Acq On : 4 Aug 2016 9:54 pm
Operator :
Sample : 1607265-02A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 05 14:36:13 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	387640	4000.00	ug/kg	99
6) Acenaphthene-d10	13.496	164	240080	4000.00	ug/kg	131
11) Phenanthrene-d10	15.605	188	613739	4000.00	ug/kg	123
17) Chrysene-d12	21.509	240	592239	4000.00	ug/kg	88
20) Perylene-d12	26.735	264	554056	4000.00	ug/kg	90

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	6228	96.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.42%#			
15) 4-Terphenyl-d14	18.160	244	10075	65.91	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.65%#			

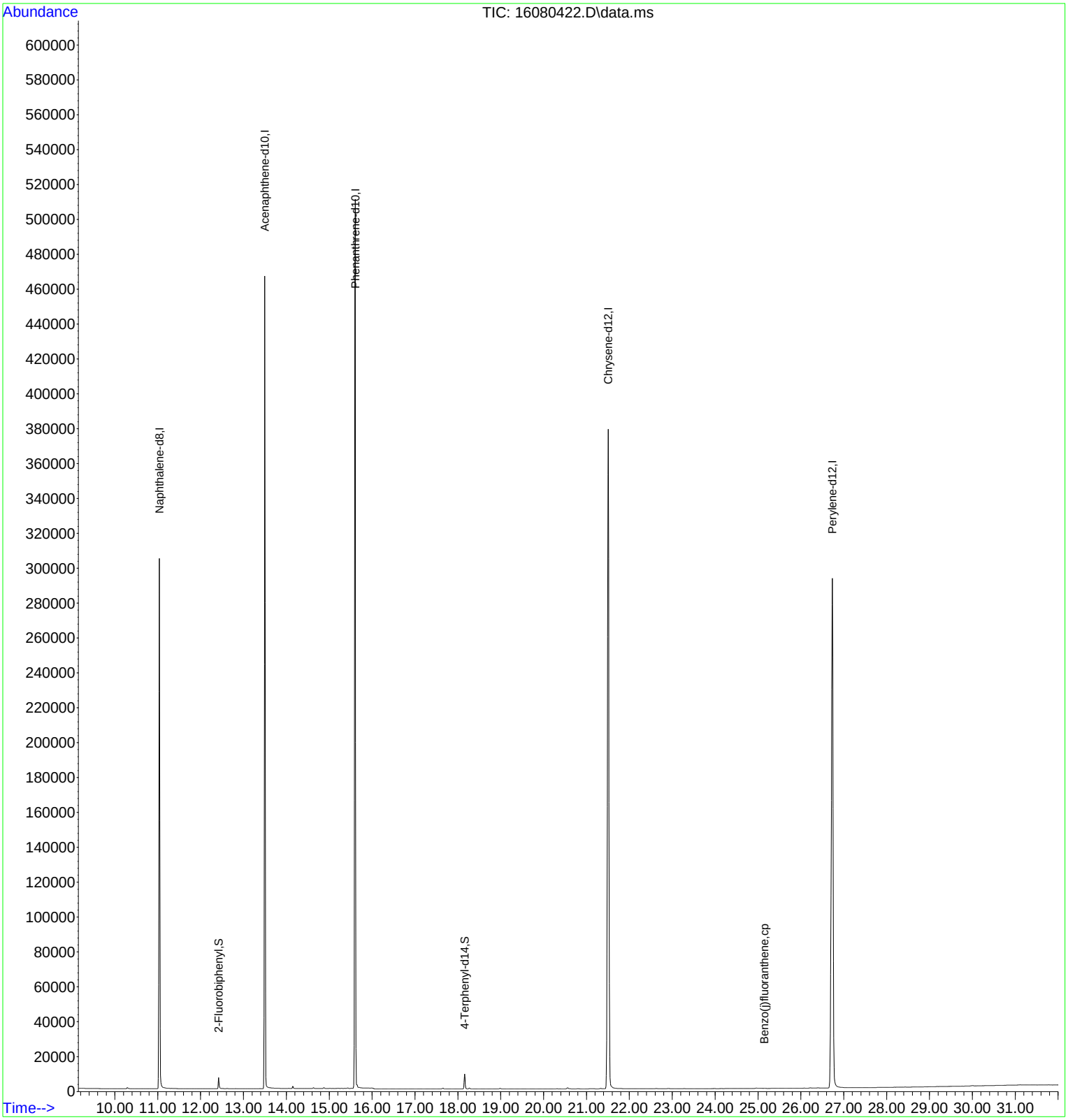
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.141	252	132	1.06	ug/kg#	74

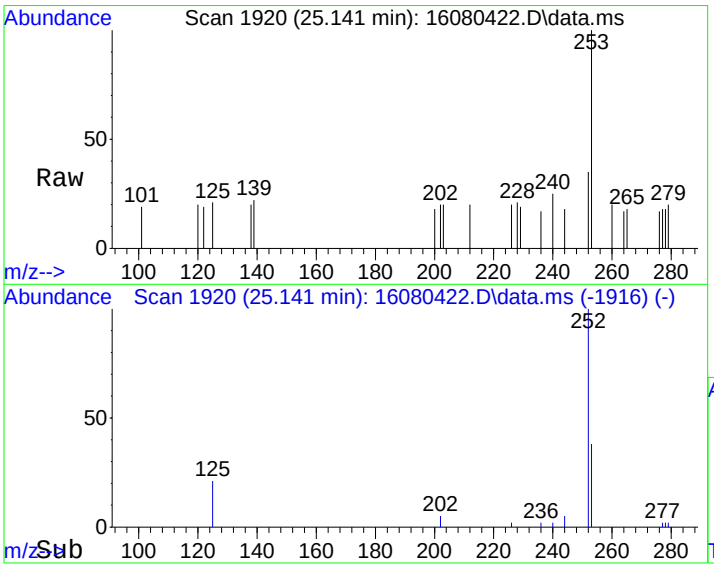
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080422.D
Acq On : 4 Aug 2016 9:54 pm
Operator :
Sample : 1607265-02A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 05 14:36:13 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

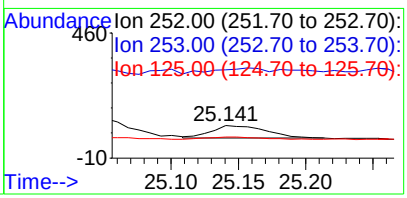




#23
Benzo(j)fluoranthene
Concen: 1.06 ug/kg
RT: 25.141 min Scan# 1920
Delta R.T. -0.016 min
Lab File: 16080422.D
Acq: 4 Aug 2016 9:54 pm

Tgt Ion:252 Resp: 132

Ion	Ratio	Lower	Upper
252	100		
253	44.7	2.0	42.0#
125	18.9	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080423.D
Acq On : 4 Aug 2016 10:34 pm
Operator :
Sample : 1607265-03A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 05 14:36:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	419334	4000.00	ug/kg	107
6) Acenaphthene-d10	13.495	164	242983	4000.00	ug/kg	133
11) Phenanthrene-d10	15.604	188	639365	4000.00	ug/kg	128
17) Chrysene-d12	21.509	240	638330	4000.00	ug/kg	95
20) Perylene-d12	26.735	264	595364	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.418	172	6089	87.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.19%#			
15) 4-Terphenyl-d14	18.160	244	10212	64.13	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.60%#			

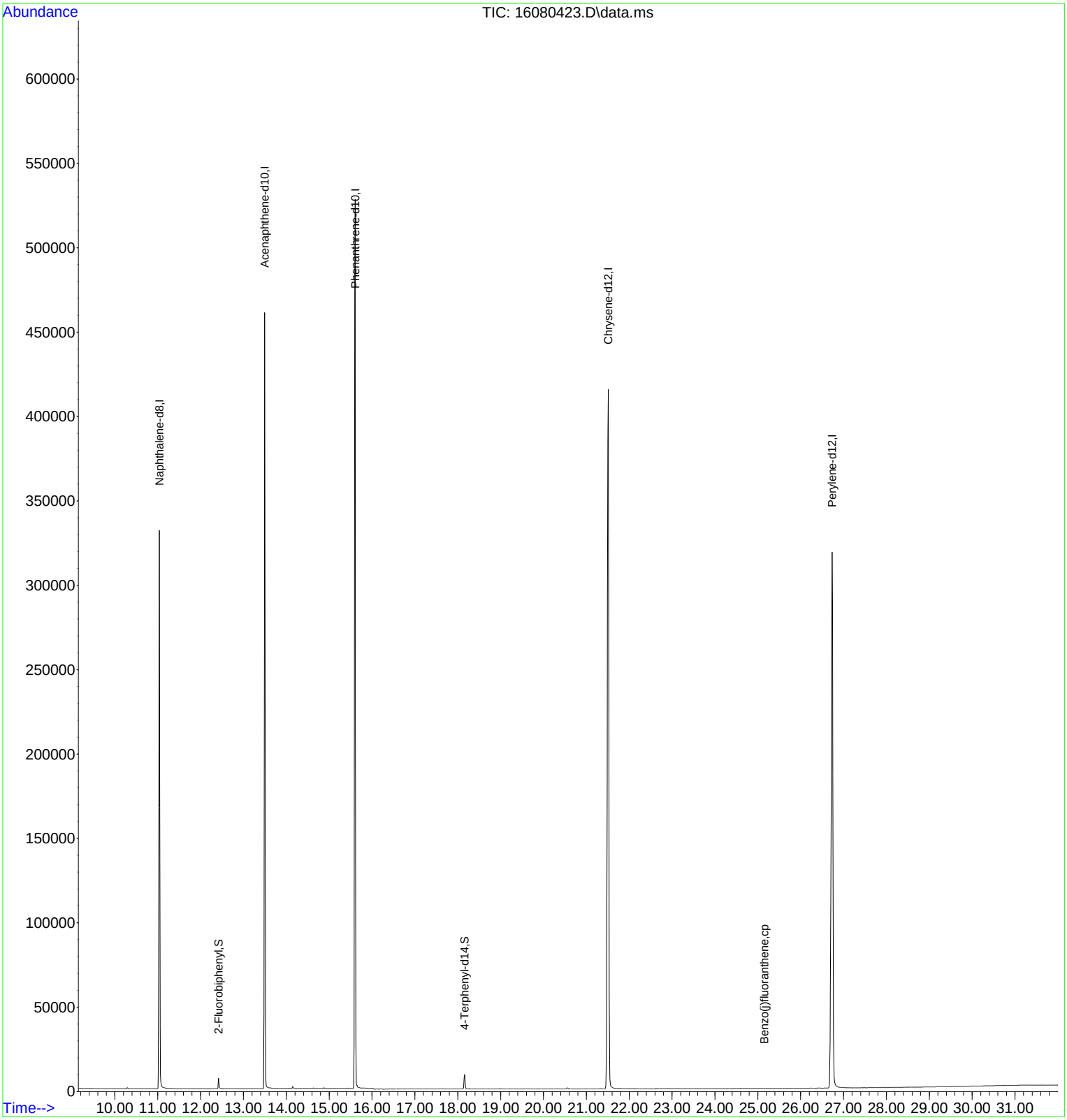
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.148	252	79	0.59	ug/kg#	54

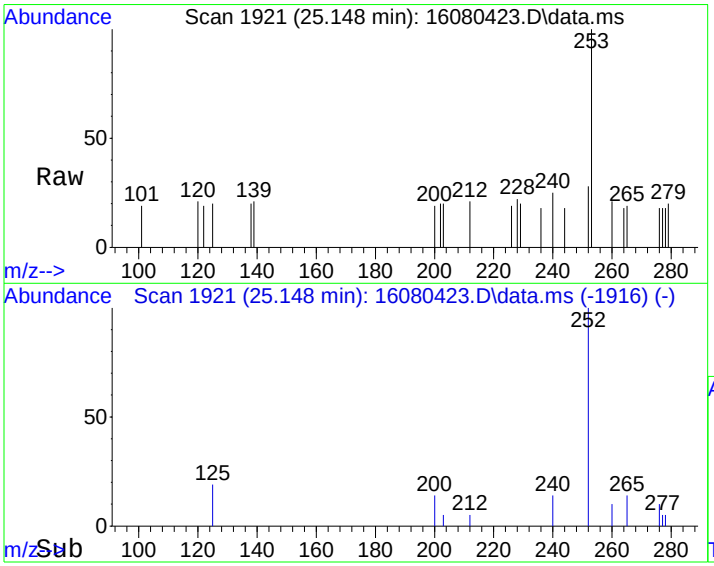
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080423.D
Acq On : 4 Aug 2016 10:34 pm
Operator :
Sample : 1607265-03A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 05 14:36:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

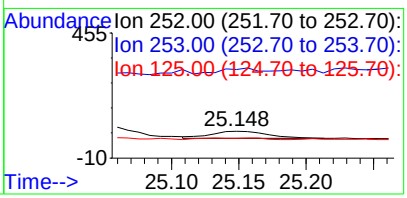




#23
Benzo(j)fluoranthene
Concen: 0.59 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.008 min
Lab File: 16080423.D
Acq: 4 Aug 2016 10:34 pm

Tgt Ion:252 Resp: 79

Ion	Ratio	Lower	Upper
252	100		
253	54.4	2.0	42.0#
125	10.1	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080424.D
Acq On : 4 Aug 2016 11:14 pm
Operator :
Sample : 1607265-04A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 05 14:36:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	370881	4000.00	ug/kg	95
6) Acenaphthene-d10	13.496	164	235210	4000.00	ug/kg	129
11) Phenanthrene-d10	15.606	188	620227	4000.00	ug/kg	124
17) Chrysene-d12	21.508	240	570345	4000.00	ug/kg	85
20) Perylene-d12	26.725	264	519781	4000.00	ug/kg	85

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	6158	100.12	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.50%#			
15) 4-Terphenyl-d14	18.159	244	10101	65.39	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.63%#			

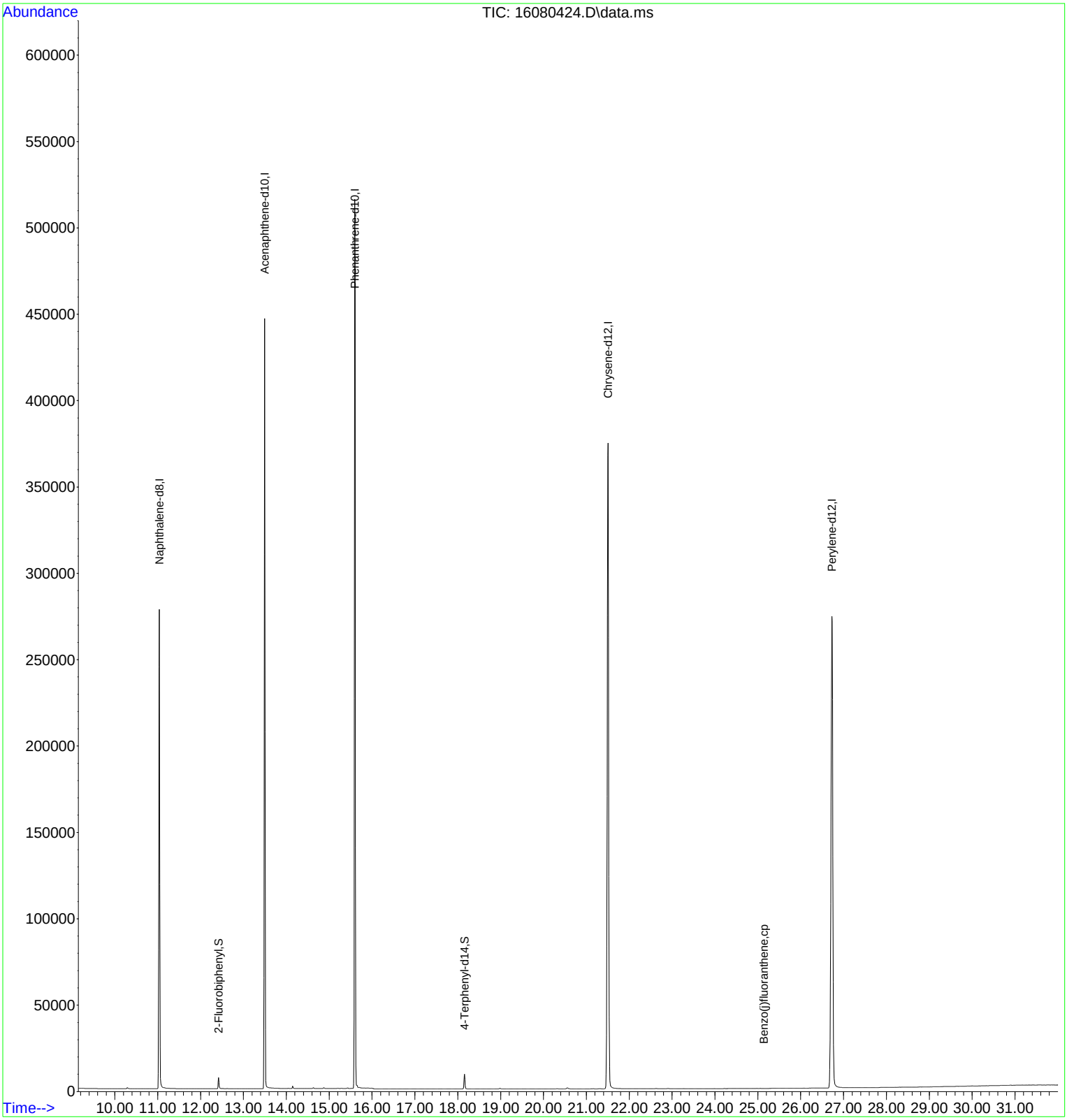
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.131	252	9	0.08	ug/kg#	1

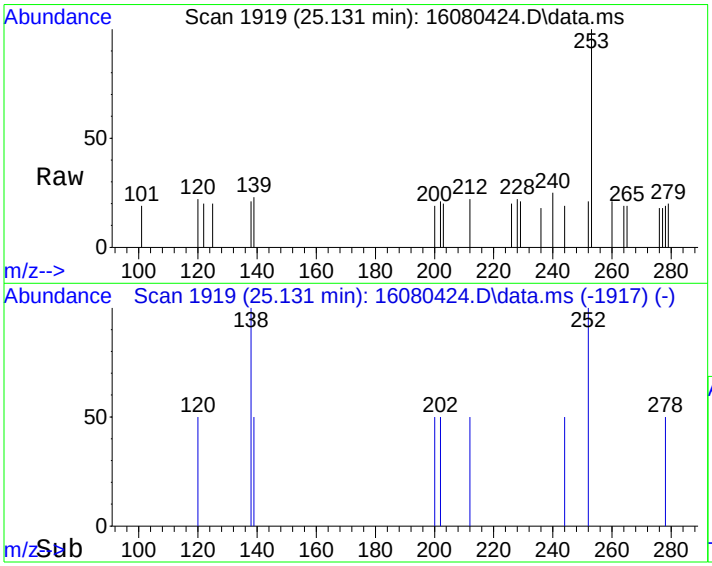
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080424.D
Acq On : 4 Aug 2016 11:14 pm
Operator :
Sample : 1607265-04A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 05 14:36:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

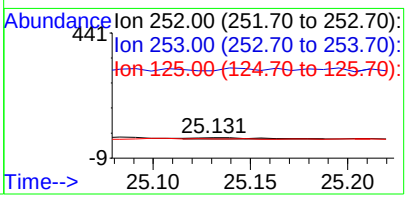




#23
Benzo(j)fluoranthene
Concen: 0.08 ug/kg
RT: 25.131 min Scan# 1919
Delta R.T. -0.025 min
Lab File: 16080424.D
Acq: 4 Aug 2016 11:14 pm

Tgt Ion:252 Resp: 9

Ion	Ratio	Lower	Upper
252	100		
253	144.4	2.0	42.0#
125	0.0	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080425.D
Acq On : 4 Aug 2016 11:54 pm
Operator :
Sample : 1607265-05A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 05 14:36:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.032	136	379997	4000.00	ug/kg	97
6) Acenaphthene-d10	13.490	164	234910	4000.00	ug/kg	129
11) Phenanthrene-d10	15.599	188	619768	4000.00	ug/kg	124
17) Chrysene-d12	21.509	240	598887	4000.00	ug/kg	89
20) Perylene-d12	26.734	264	553797	4000.00	ug/kg	90

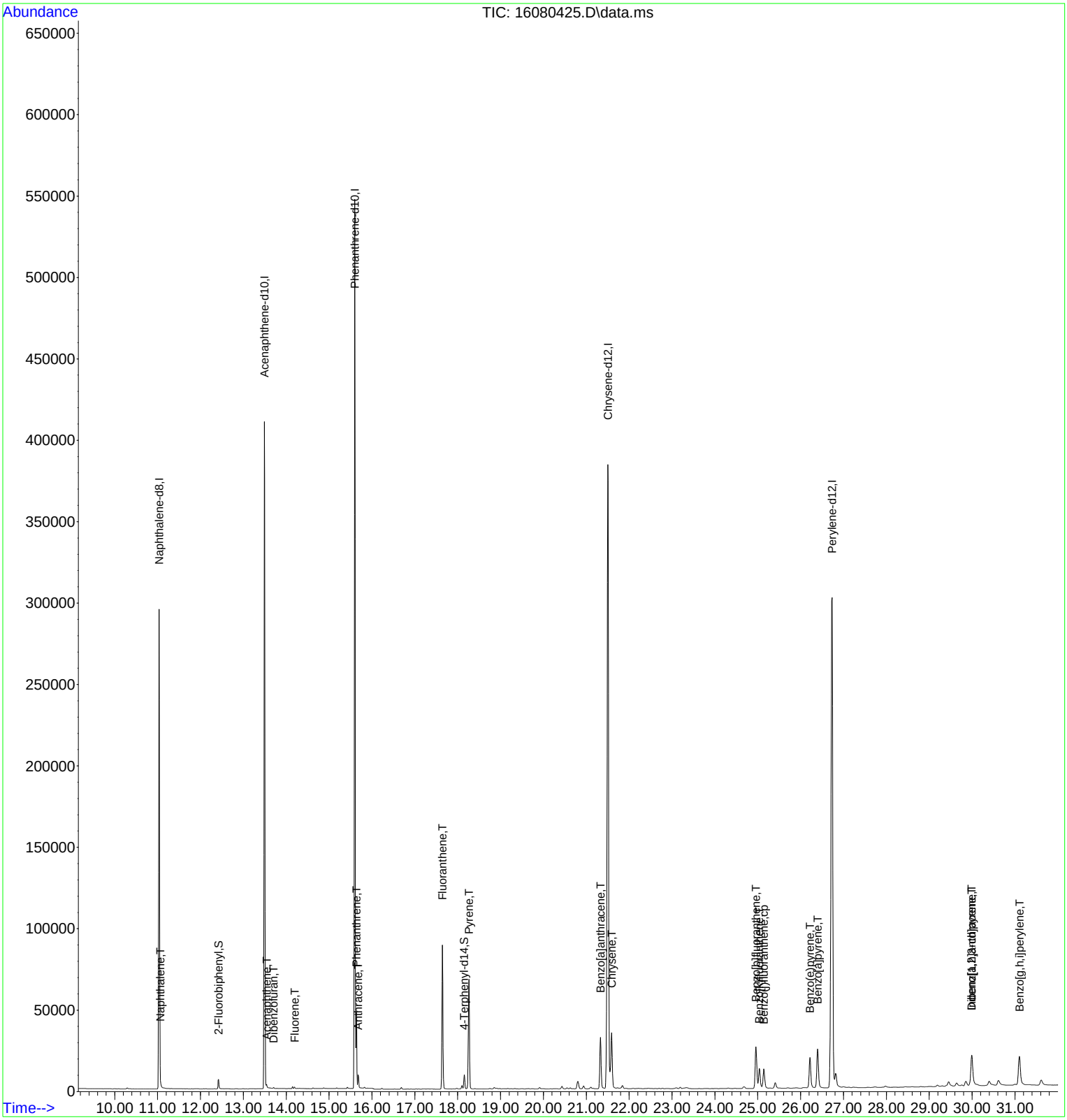
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	6125	97.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.43%#			
15) 4-Terphenyl-d14	18.152	244	10260	66.47	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.66%#			

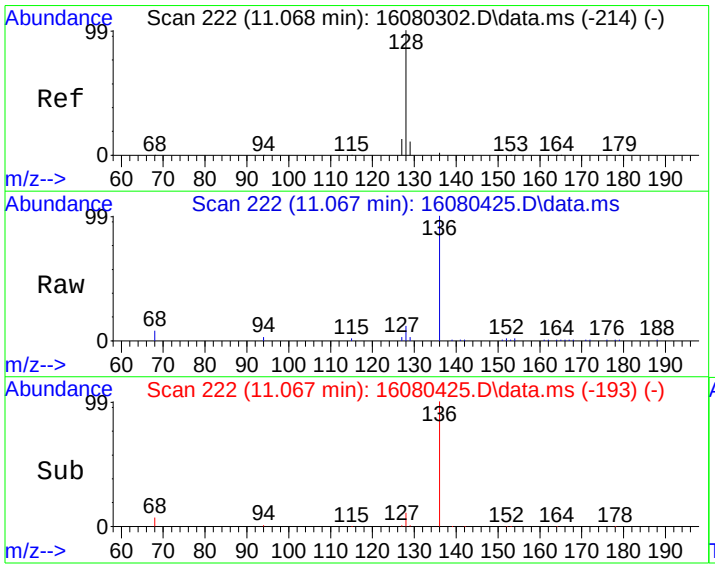
Target Compounds						Qvalue
2) Naphthalene	11.067	128	651	7.05	ug/kg	100
8) Acenaphthene	13.542	153	783	10.97	ug/kg	98
9) Dibenzofuran	13.707	168	699	6.91	ug/kg	77
10) Fluorene	14.193	166	545	6.39	ug/kg	97
12) Phenanthrene	15.634	178	38375	229.03	ug/kg	99
13) Anthracene	15.677	178	7312	42.67	ug/kg	99
14) Fluoranthene	17.644	202	91037	404.93	ug/kg	97
16) Pyrene	18.264	202	77320	331.30	ug/kg	96
18) Benzo[a]anthracene	21.332	228	43611	280.85	ug/kg	99
19) Chrysene	21.590	228	49638	335.01	ug/kg	99
21) Benzo[b]fluoranthene	24.955	252	47829	320.09	ug/kg	99
22) Benzo[k]fluoranthene	25.036	252	20526	160.57	ug/kg	98
23) Benzo(j)fluoranthene	25.140	252	19991	160.12	ug/kg	90
24) Benzo(e)pyrene	26.219	252	35184	243.33	ug/kg	98
25) Benzo[a]pyrene	26.396	252	46912	341.88	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.995	276	35410	218.50	ug/kg	86
27) Dibenz[a,h]anthracene	29.979	278	7386	55.43	ug/kg	96
28) Benzo[g,h,i]perylene	31.106	276	37684	264.72	ug/kg	99

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

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080425.D
Acq On : 4 Aug 2016 11:54 pm
Operator :
Sample : 1607265-05A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 05 14:36:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

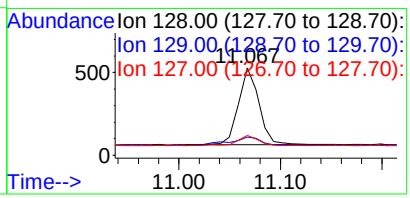


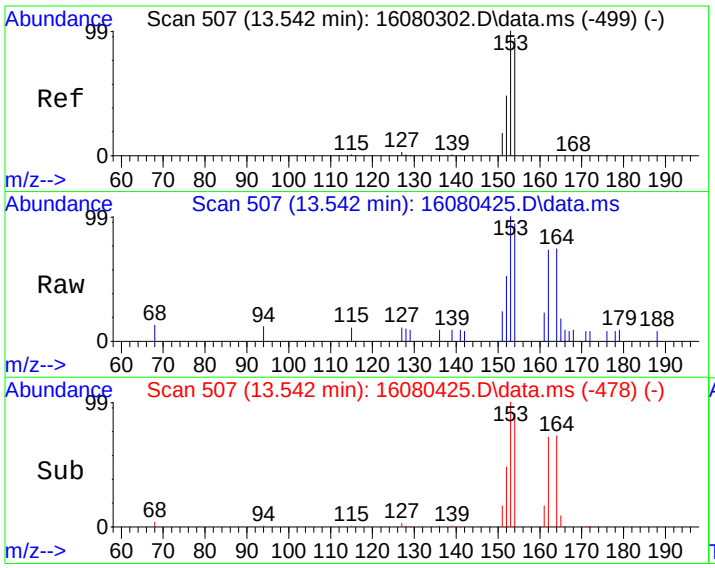


#2
Naphthalene
Concen: 7.05 ug/kg
RT: 11.067 min Scan# 222
Delta R.T. 0.000 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:128 Resp: 651

Ion	Ratio	Lower	Upper
128	100		
129	10.8	0.0	31.0
127	13.1	0.0	33.0

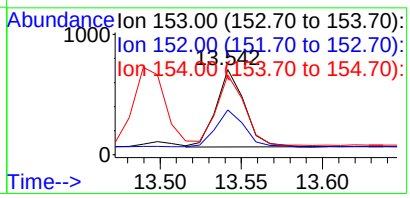


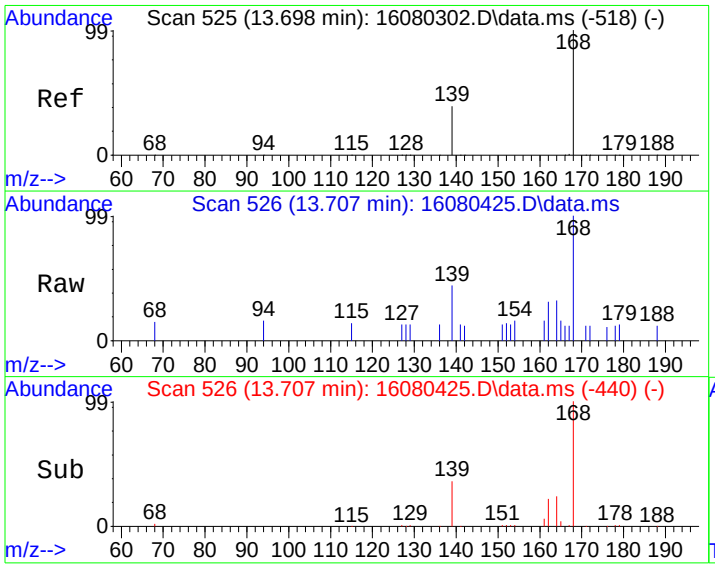


#8
Acenaphthene
Concen: 10.97 ug/kg
RT: 13.542 min Scan# 507
Delta R.T. 0.000 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:153 Resp: 783

Ion	Ratio	Lower	Upper
153	100		
152	47.5	29.0	69.0
154	90.8	72.7	112.7

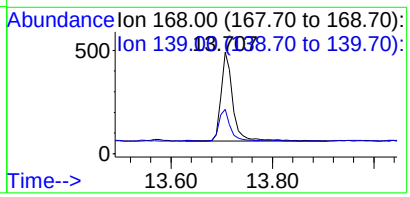


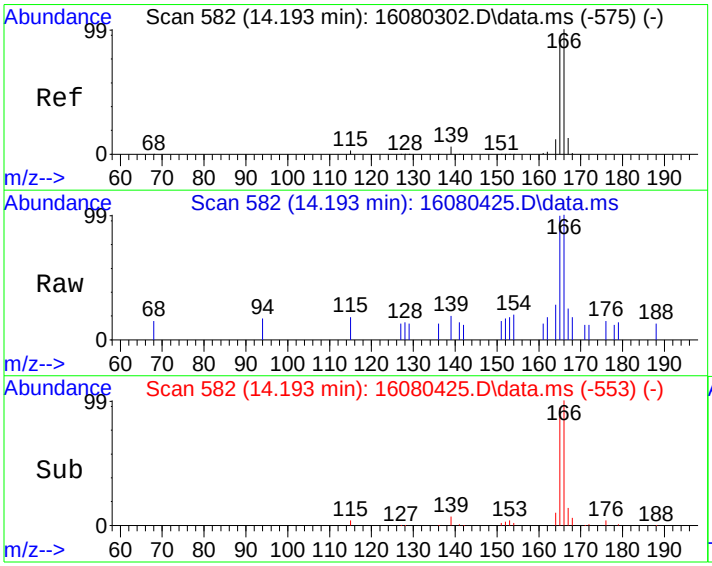


#9
Dibenzofuran
Concen: 6.91 ug/kg
RT: 13.707 min Scan# 526
Delta R.T. 0.000 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:168 Resp: 699

Ion	Ratio	Lower	Upper
168	100		
139	35.5	4.3	44.3

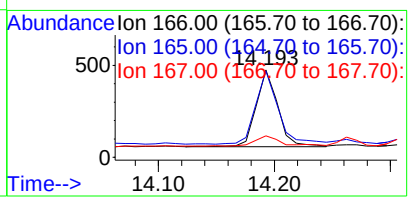


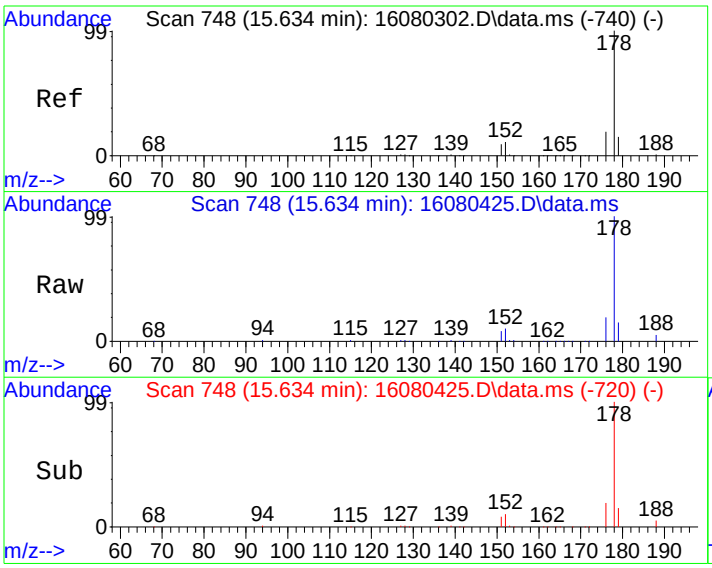


#10
Fluorene
Concen: 6.39 ug/kg
RT: 14.193 min Scan# 582
Delta R.T. 0.000 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:166 Resp: 545

Ion	Ratio	Lower	Upper
166	100		
165	95.0	71.9	111.9
167	13.6	0.0	33.4

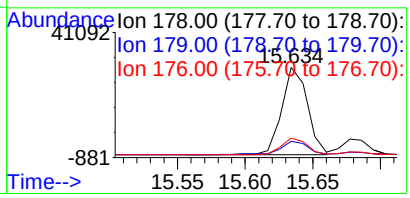


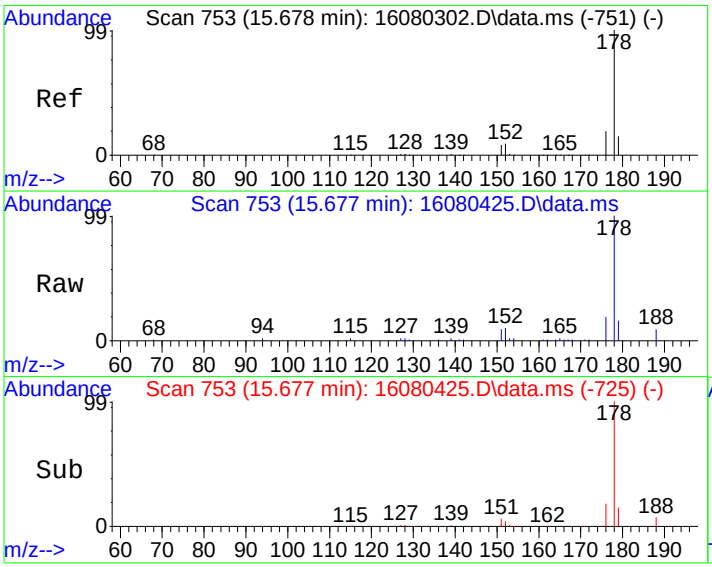


#12
Phenanthrene
Concen: 229.03 ug/kg
RT: 15.634 min Scan# 748
Delta R.T. -0.008 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:178 Resp: 38375

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.5
176	19.0	0.0	38.8

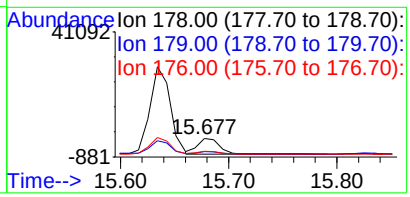


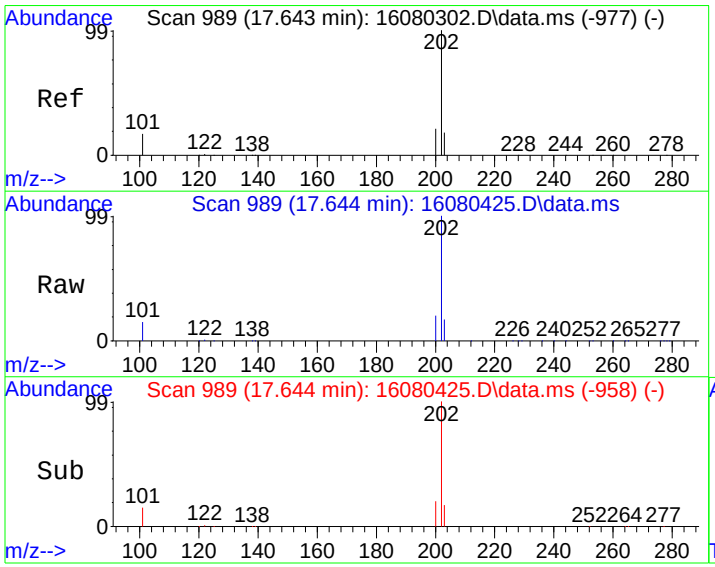


#13
Anthracene
Concen: 42.67 ug/kg
RT: 15.677 min Scan# 753
Delta R.T. -0.008 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:178 Resp: 7312

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.6
176	18.3	0.0	38.2

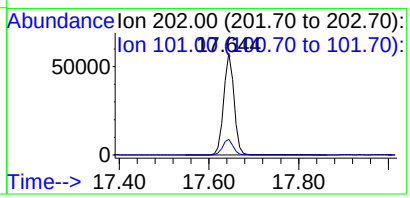


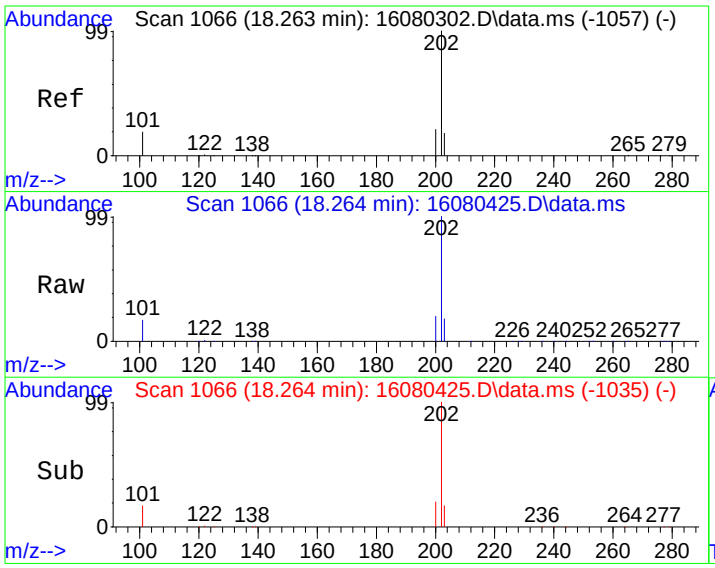


#14
Fluoranthene
Concen: 404.93 ug/kg
RT: 17.644 min Scan# 989
Delta R.T. 0.000 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:202 Resp: 91037

Ion	Ratio	Lower	Upper
202	100		
101	15.3	0.0	36.7

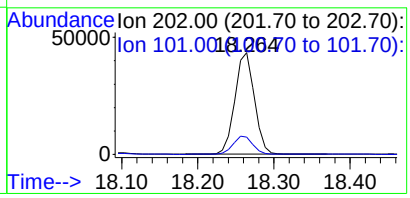


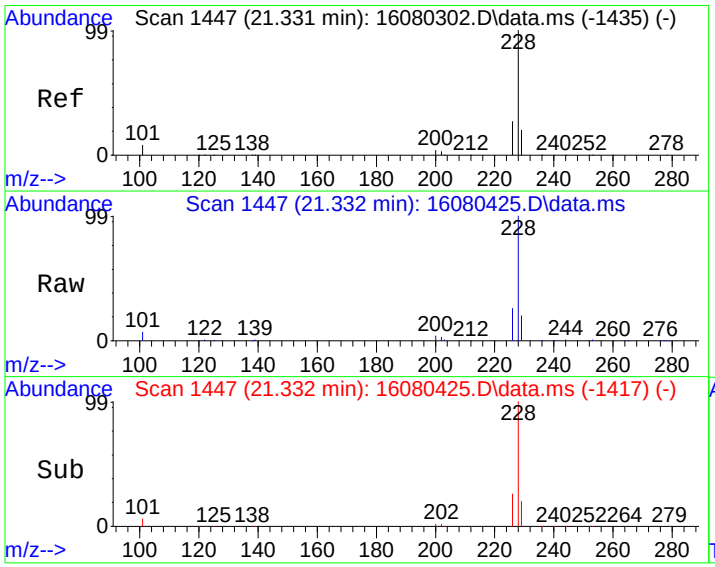


#16
Pyrene
Concen: 331.30 ug/kg
RT: 18.264 min Scan# 1066
Delta R.T. 0.000 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:202 Resp: 77320

Ion	Ratio	Lower	Upper
202	100		
101	16.8	0.0	38.7

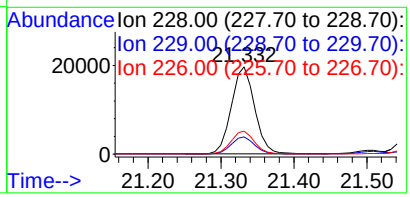


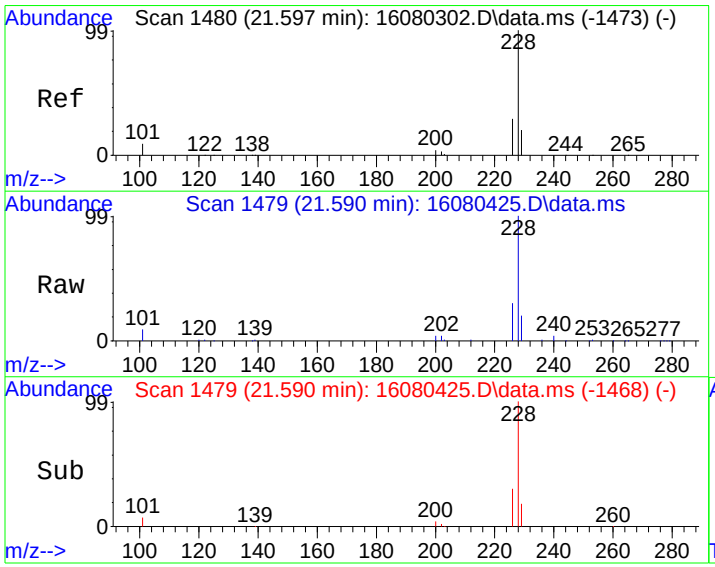


#18
Benzo[a]anthracene
Concen: 280.85 ug/kg
RT: 21.332 min Scan# 1447
Delta R.T. -0.007 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:228 Resp: 43611

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	39.9
226	26.2	6.5	46.5

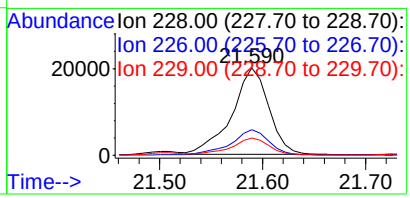


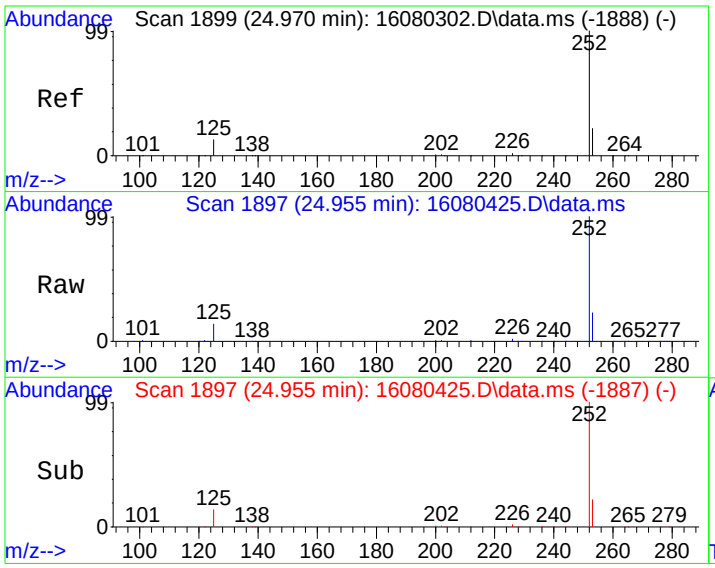


#19
Chrysene
Concen: 335.01 ug/kg
RT: 21.590 min Scan# 1479
Delta R.T. -0.007 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:228 Resp: 49638

Ion	Ratio	Lower	Upper
228	100		
226	29.3	9.5	49.5
229	19.7	0.0	40.0

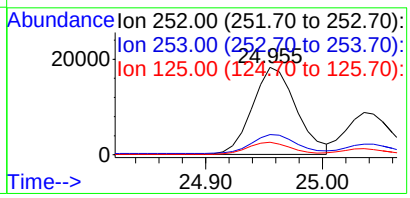


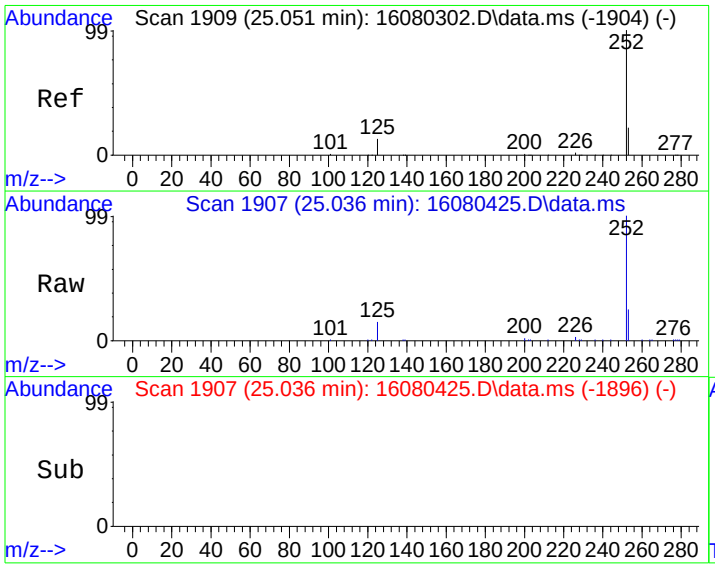


#21
Benzo[b]fluoranthene
Concen: 320.09 ug/kg
RT: 24.955 min Scan# 1897
Delta R.T. -0.016 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:252 Resp: 47829

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.1	42.1
125	13.9	0.0	33.9

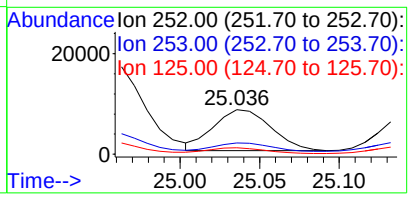


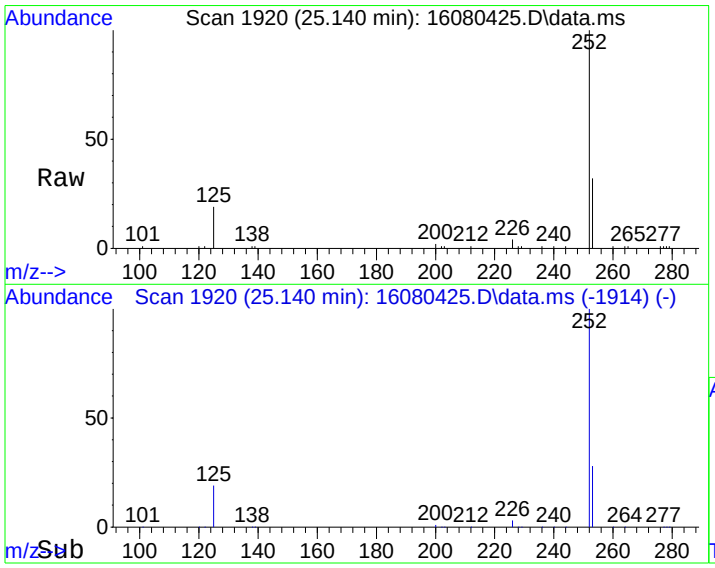


#22
Benzo[k]fluoranthene
Concen: 160.57 ug/kg
RT: 25.036 min Scan# 1907
Delta R.T. -0.015 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:252 Resp: 20526

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.2	42.2
125	13.8	0.0	34.0

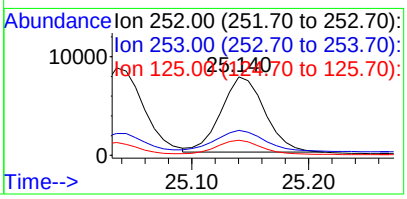


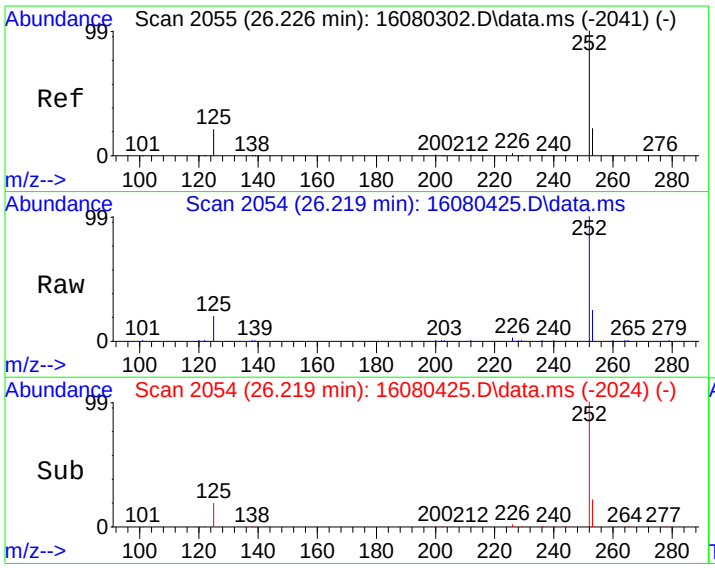


#23
Benzo(j)fluoranthene
Concen: 160.12 ug/kg
RT: 25.140 min Scan# 1920
Delta R.T. -0.016 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:252 Resp: 19991

Ion	Ratio	Lower	Upper
252	100		
253	30.4	2.0	42.0
125	18.8	0.0	39.3

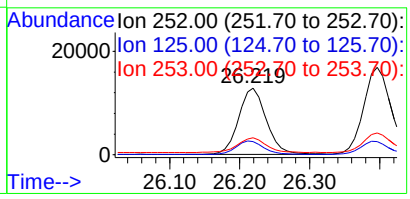


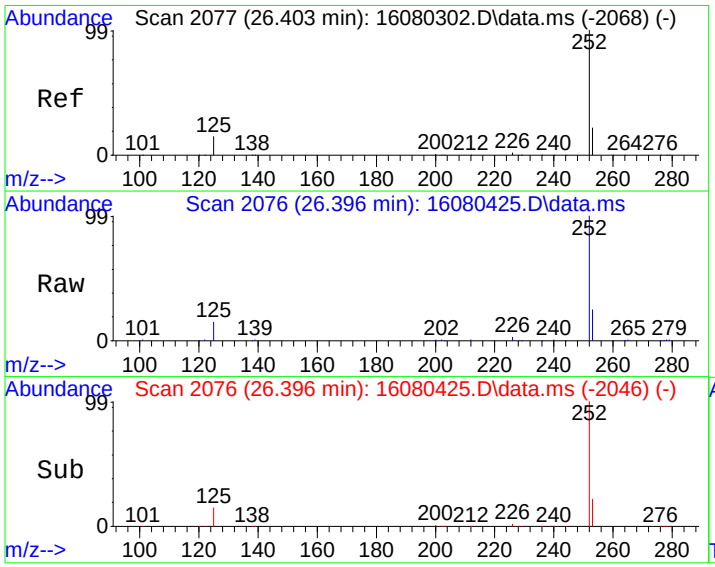


#24
Benzo(e)pyrene
Concen: 243.33 ug/kg
RT: 26.219 min Scan# 2054
Delta R.T. -0.008 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:252 Resp: 35184

Ion	Ratio	Lower	Upper
252	100		
125	20.4	0.5	40.5
253	23.4	2.1	42.1

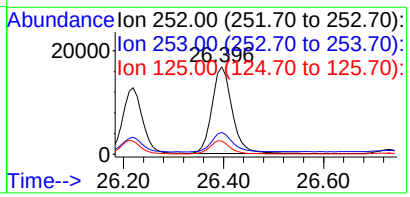


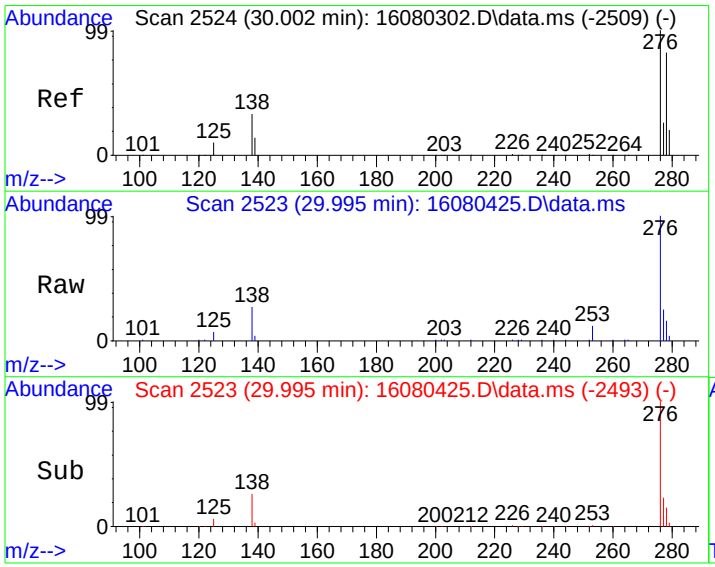


#25
Benzo[a]pyrene
Concen: 341.88 ug/kg
RT: 26.396 min Scan# 2076
Delta R.T. -0.008 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:252 Resp: 46912

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.1	42.1
125	14.7	0.0	36.2

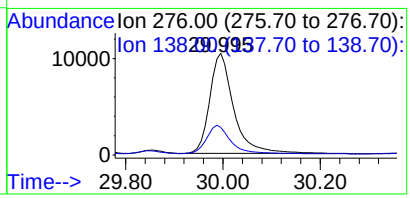


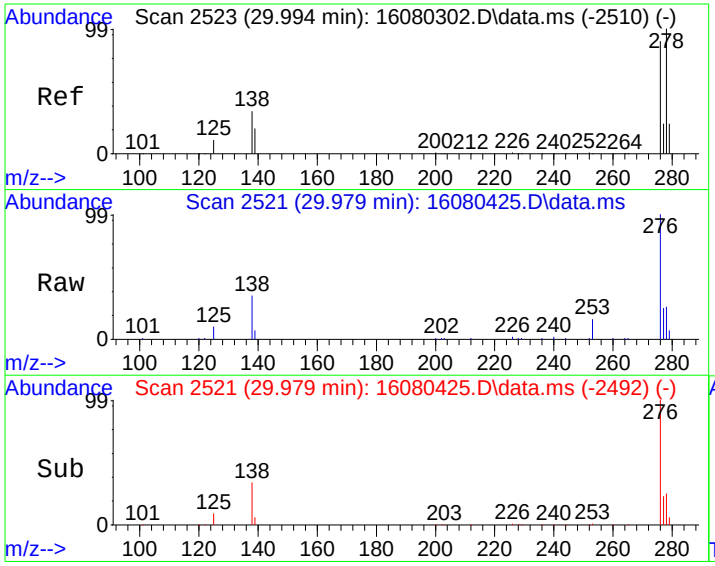


#26
Indeno[1,2,3-cd]pyrene
Concen: 218.50 ug/kg
RT: 29.995 min Scan# 2523
Delta R.T. -0.008 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:276 Resp: 35410

Ion	Ratio	Lower	Upper
276	100		
138	26.2	14.0	54.0

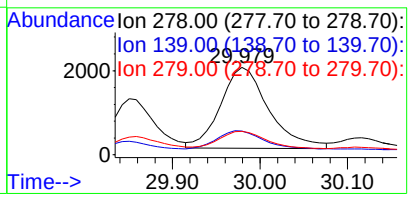


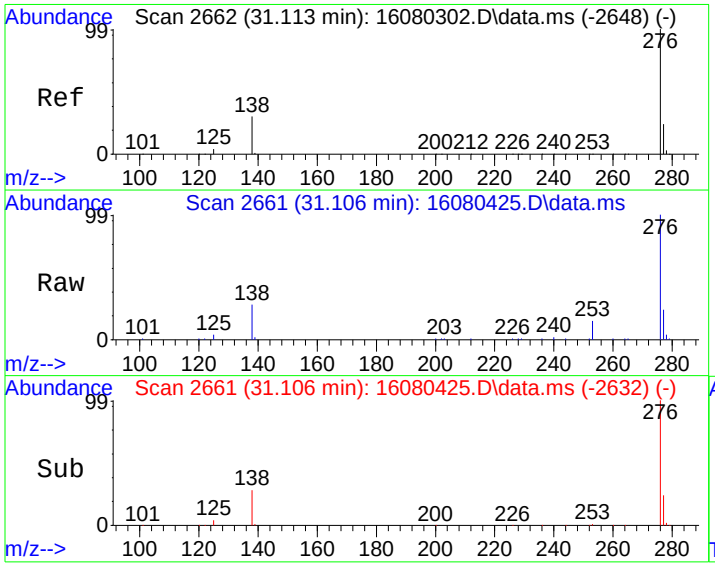


#27
Dibenz[a,h]anthracene
Concen: 55.43 ug/kg
RT: 29.979 min Scan# 2521
Delta R.T. -0.016 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:278 Resp: 7386

Ion	Ratio	Lower	Upper
278	100		
139	23.6	1.3	41.3
279	22.9	4.1	44.1

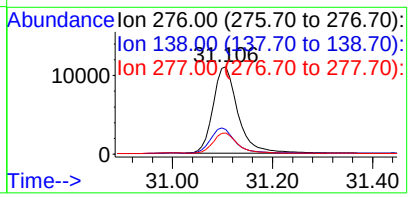




#28
Benzo[g,h,i]perylene
Concen: 264.72 ug/kg
RT: 31.106 min Scan# 2661
Delta R.T. -0.016 min
Lab File: 16080425.D
Acq: 4 Aug 2016 11:54 pm

Tgt Ion:276 Resp: 37684

Ion	Ratio	Lower	Upper
276	100		
138	27.5	7.8	47.8
277	23.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080426.D
Acq On : 5 Aug 2016 12:33 am
Operator :
Sample : 1607265-06A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 05 14:36:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	388296	4000.00	ug/kg	99
6) Acenaphthene-d10	13.495	164	249000	4000.00	ug/kg	136
11) Phenanthrene-d10	15.596	188	612815	4000.00	ug/kg	123
17) Chrysene-d12	21.501	240	609209	4000.00	ug/kg	91
20) Perylene-d12	26.727	264	568029	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	6484	100.69	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.52%#			
15) 4-Terphenyl-d14	18.152	244	10284	67.38	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.68%#			

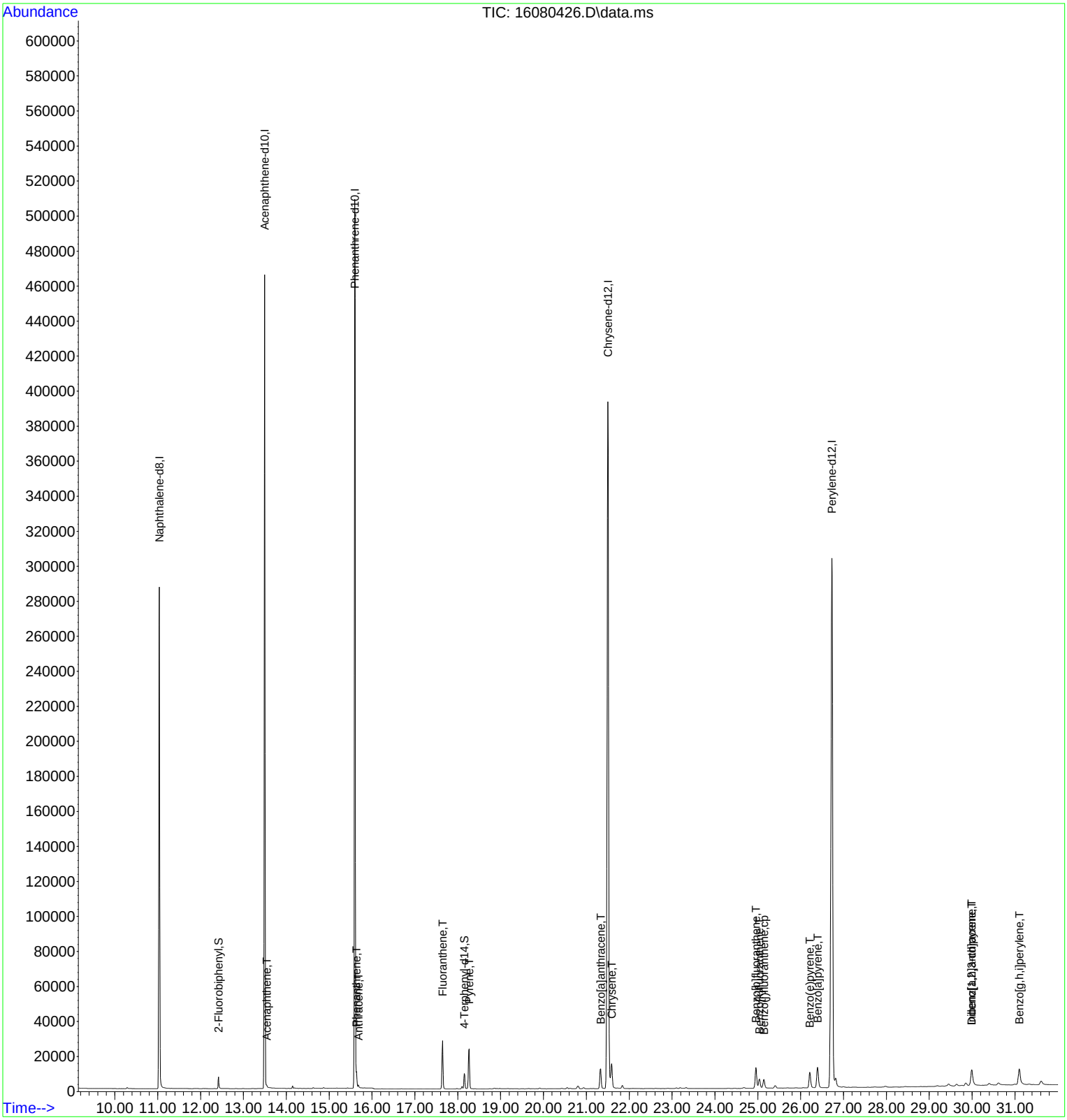
Target Compounds						Qvalue
8) Acenaphthene	13.539	153	440	5.82	ug/kg	99
12) Phenanthrene	15.640	178	7435	44.88	ug/kg	99
13) Anthracene	15.683	178	1316	7.77	ug/kg	99
14) Fluoranthene	17.645	202	28901	130.01	ug/kg	96
16) Pyrene	18.265	202	27341	118.48	ug/kg	95
18) Benzo[a]anthracene	21.332	228	16402	103.84	ug/kg	99
19) Chrysene	21.590	228	20422	135.49	ug/kg	99
21) Benzo[b]fluoranthene	24.955	252	22388	146.07	ug/kg	100
22) Benzo[k]fluoranthene	25.036	252	8773	66.91	ug/kg	96
23) Benzo(j)fluoranthene	25.140	252	8816	68.84	ug/kg	91
24) Benzo(e)pyrene	26.211	252	17079	115.16	ug/kg	98
25) Benzo[a]pyrene	26.397	252	23298	165.53	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.996	276	18091	108.83	ug/kg	86
27) Dibenz[a,h]anthracene	29.979	278	2936	21.48	ug/kg	97
28) Benzo[g,h,i]perylene	31.099	276	20108	137.71	ug/kg	98

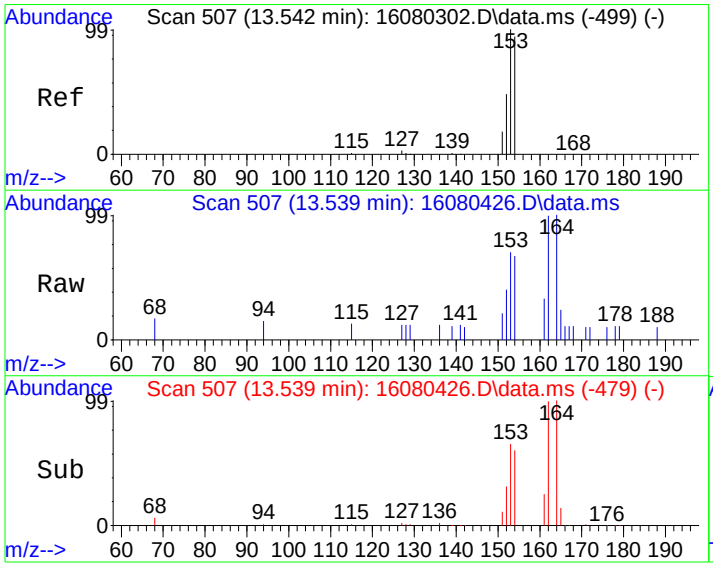
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080426.D
Acq On : 5 Aug 2016 12:33 am
Operator :
Sample : 1607265-06A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 05 14:36:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

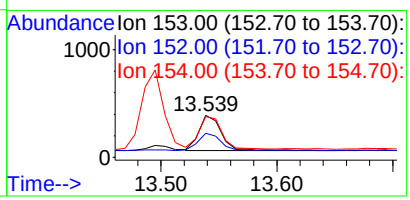


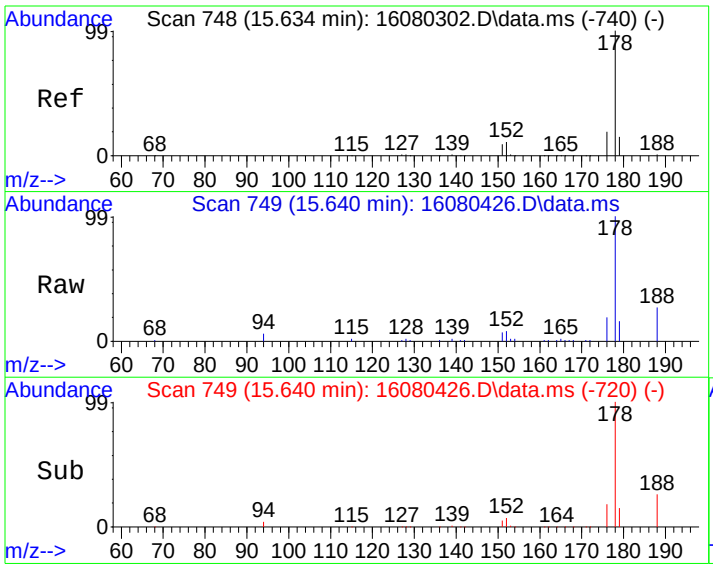


#8
Acenaphthene
Concen: 5.82 ug/kg
RT: 13.539 min Scan# 507
Delta R.T. -0.003 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:153 Resp: 440

Ion	Ratio	Lower	Upper
153	100		
152	48.6	29.0	69.0
154	91.4	72.7	112.7

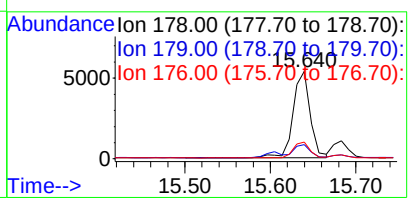


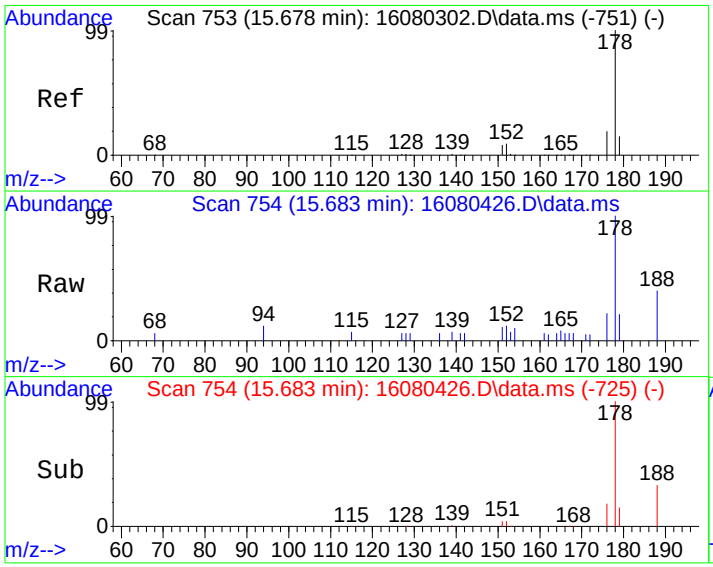


#12
Phenanthrene
Concen: 44.88 ug/kg
RT: 15.640 min Scan# 749
Delta R.T. -0.002 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:178 Resp: 7435

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	35.5
176	18.4	0.0	38.8

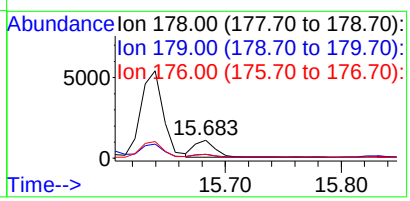


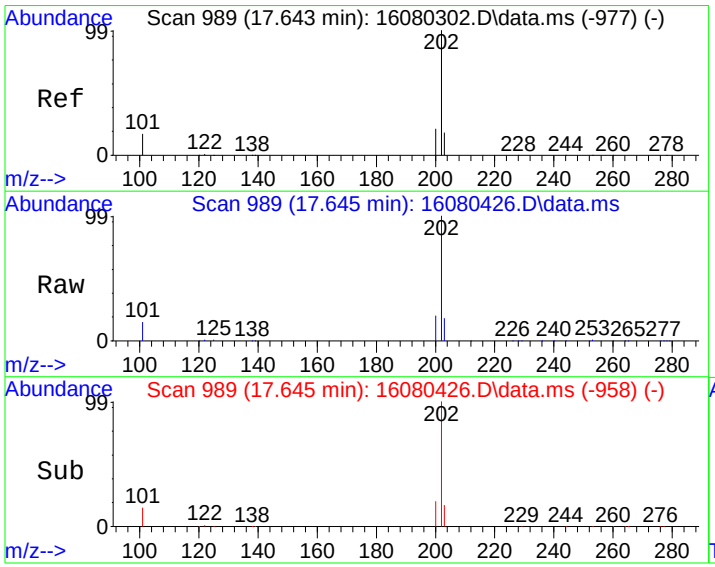


#13
Anthracene
Concen: 7.77 ug/kg
RT: 15.683 min Scan# 754
Delta R.T. -0.002 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:178 Resp: 1316

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	35.6
176	17.8	0.0	38.2

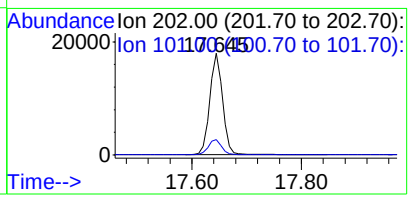


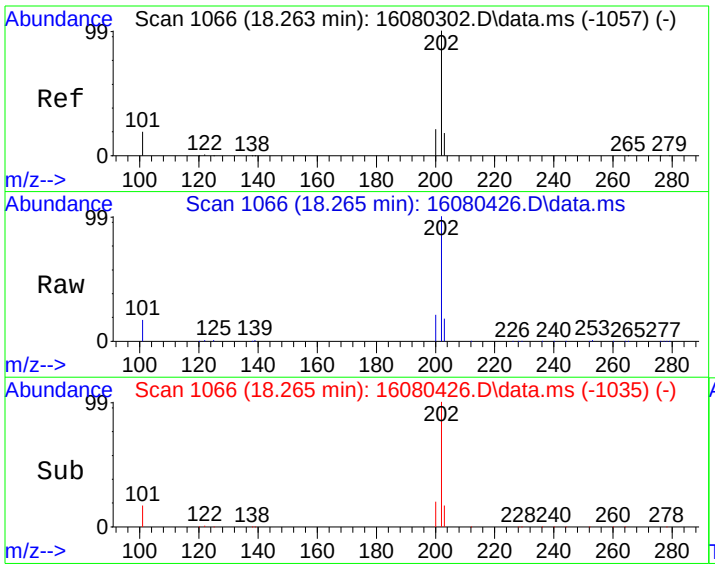


#14
Fluoranthene
Concen: 130.01 ug/kg
RT: 17.645 min Scan# 989
Delta R.T. 0.001 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:202 Resp: 28901

Ion	Ratio	Lower	Upper
202	100		
101	14.9	0.0	36.7

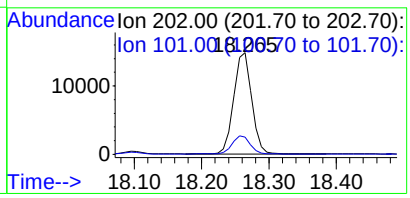


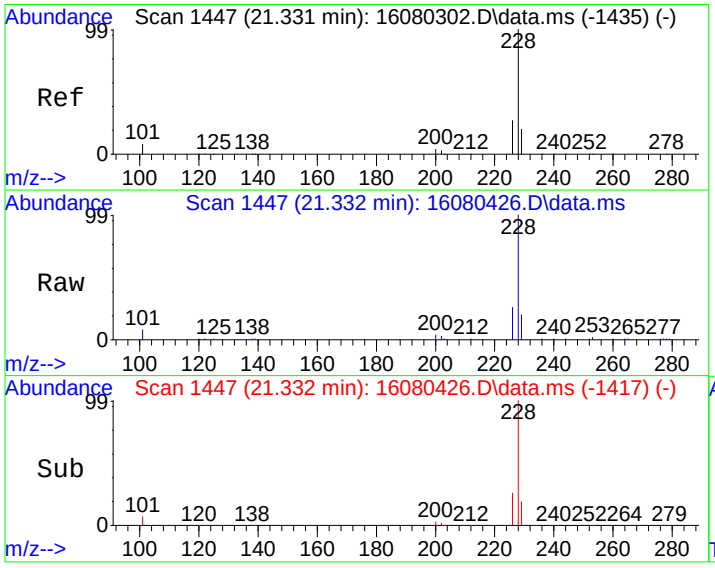


#16
Pyrene
Concen: 118.48 ug/kg
RT: 18.265 min Scan# 1066
Delta R.T. 0.001 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:202 Resp: 27341

Ion	Ratio	Lower	Upper
202	100		
101	16.6	0.0	38.7

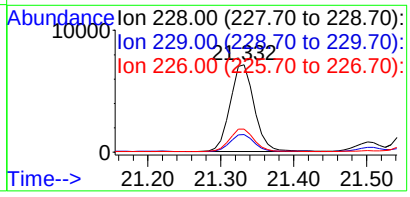


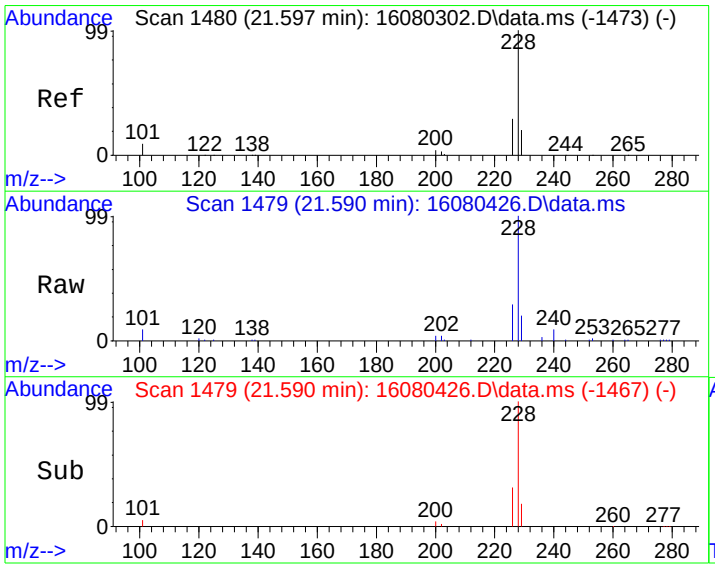


#18
Benzo[a]anthracene
Concen: 103.84 ug/kg
RT: 21.332 min Scan# 1447
Delta R.T. -0.007 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:228 Resp: 16402

Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.0	39.9
226	25.8	6.5	46.5

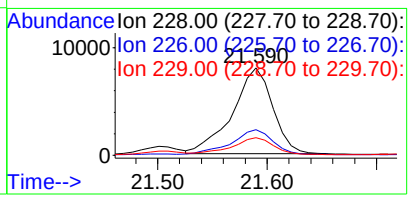


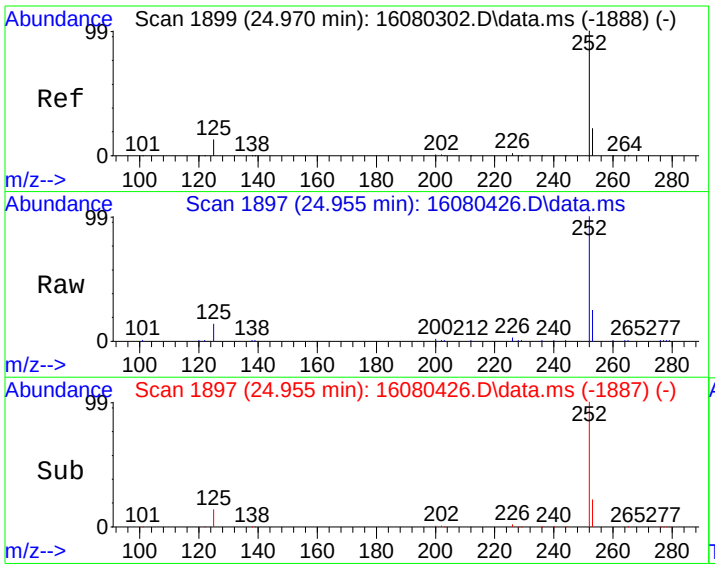


#19
Chrysene
Concen: 135.49 ug/kg
RT: 21.590 min Scan# 1479
Delta R.T. -0.007 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:228 Resp: 20422

Ion	Ratio	Lower	Upper
228	100		
226	28.9	9.5	49.5
229	19.6	0.0	40.0

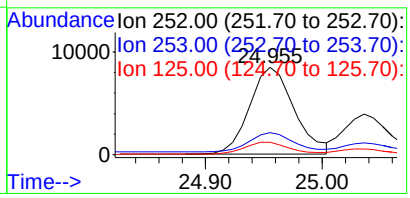


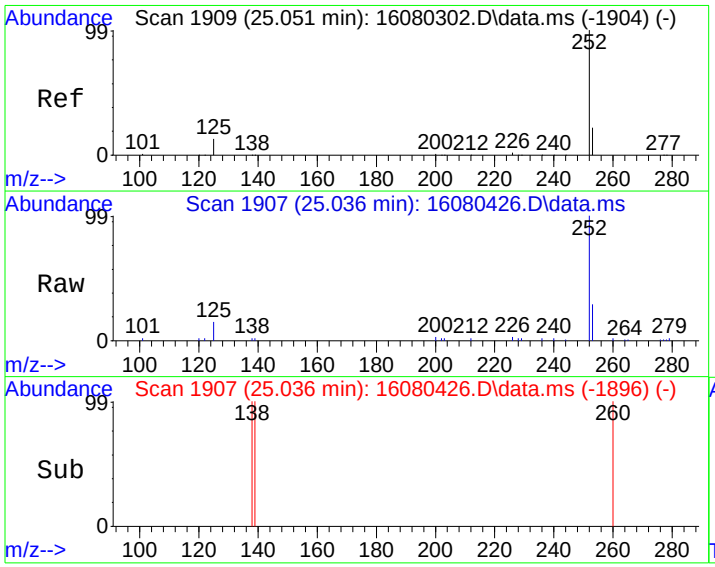


#21
Benzo[b]fluoranthene
Concen: 146.07 ug/kg
RT: 24.955 min Scan# 1897
Delta R.T. -0.016 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:252 Resp: 22388

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.1	42.1
125	13.7	0.0	33.9

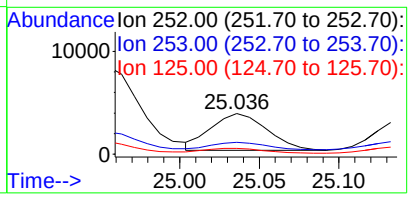


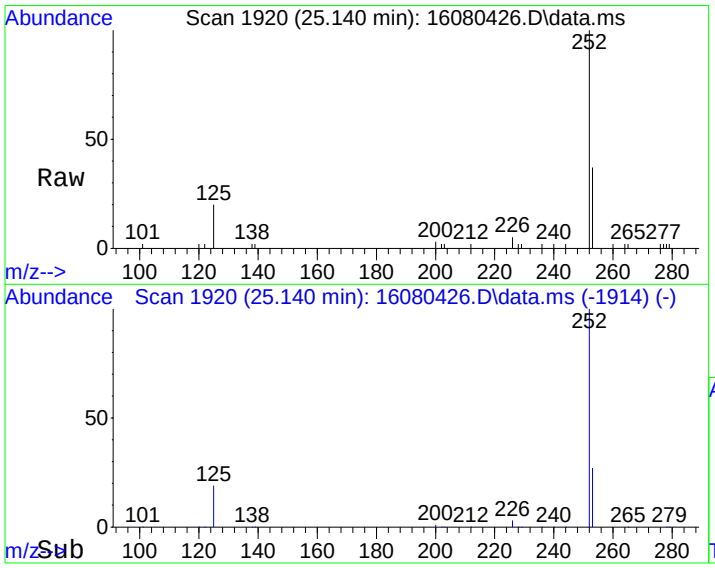


#22
Benzo[k]fluoranthene
Concen: 66.91 ug/kg
RT: 25.036 min Scan# 1907
Delta R.T. -0.015 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:252 Resp: 8773

Ion	Ratio	Lower	Upper
252	100		
253	19.9	2.2	42.2
125	13.1	0.0	34.0

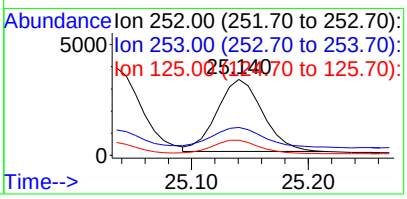


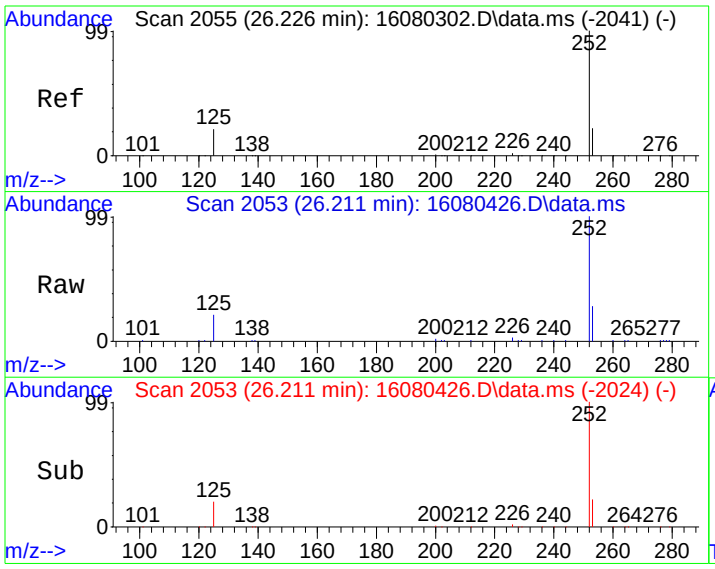


#23
Benzo(j)fluoranthene
Concen: 68.84 ug/kg
RT: 25.140 min Scan# 1920
Delta R.T. -0.016 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:252 Resp: 8816

Ion	Ratio	Lower	Upper
252	100		
253	29.9	2.0	42.0
125	18.9	0.0	39.3

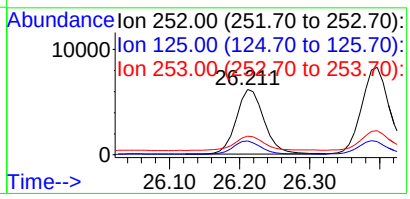


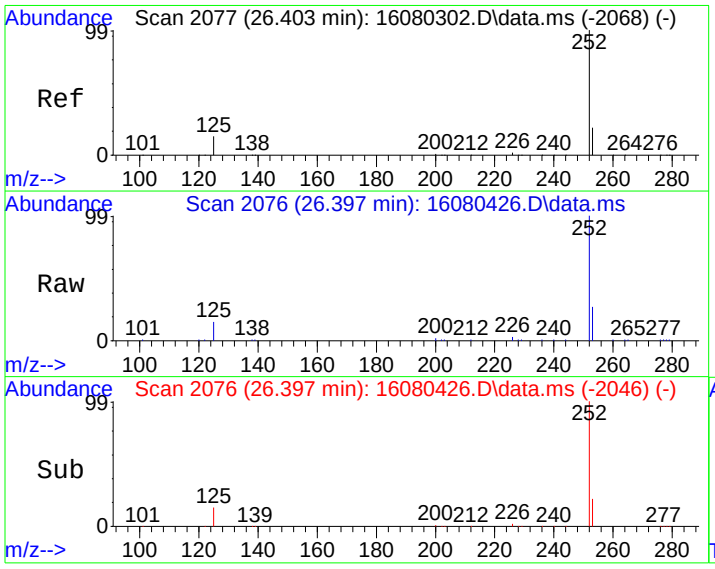


#24
Benzo(e)pyrene
Concen: 115.16 ug/kg
RT: 26.211 min Scan# 2053
Delta R.T. -0.016 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:252 Resp: 17079

Ion	Ratio	Lower	Upper
252	100		
125	20.5	0.5	40.5
253	24.1	2.1	42.1

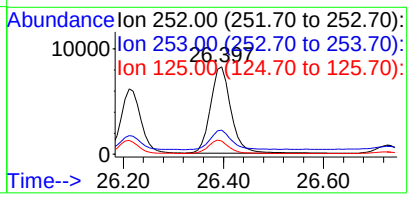


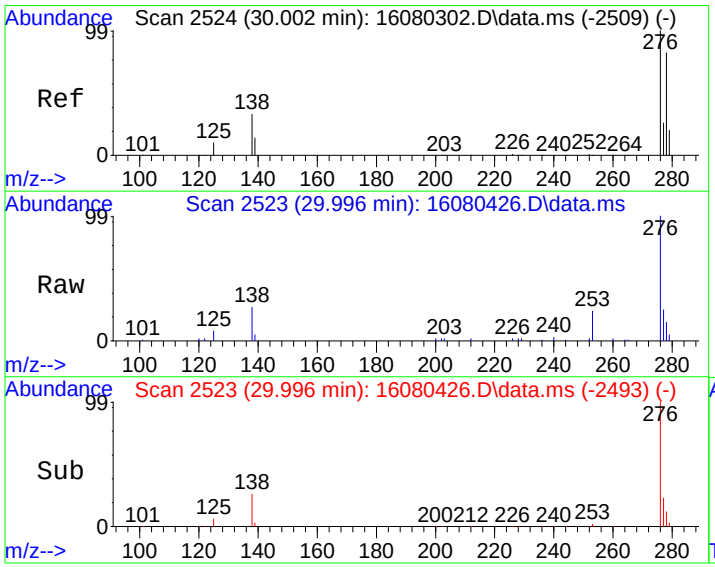


#25
Benzo[a]pyrene
Concen: 165.53 ug/kg
RT: 26.397 min Scan# 2076
Delta R.T. -0.008 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:252 Resp: 23298

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.1	42.1
125	14.4	0.0	36.2

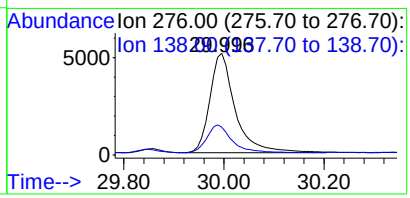


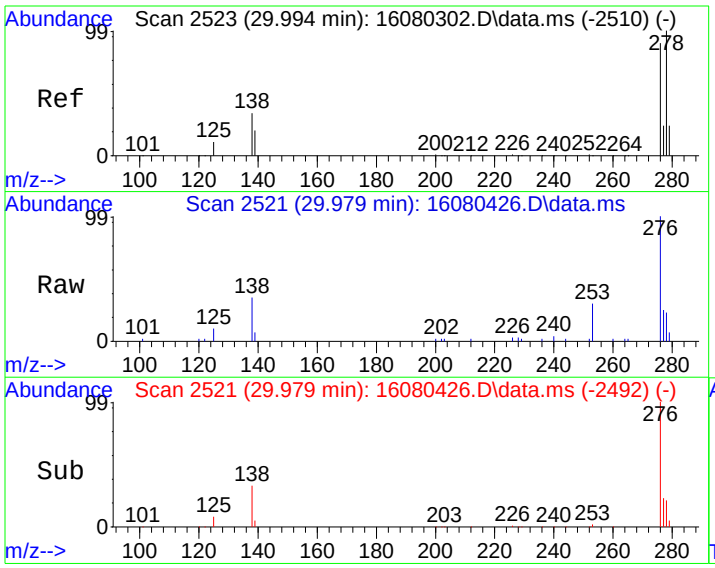


#26
Indeno[1,2,3-cd]pyrene
Concen: 108.83 ug/kg
RT: 29.996 min Scan# 2523
Delta R.T. -0.008 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:276 Resp: 18091

Ion	Ratio	Lower	Upper
276	100		
138	25.7	14.0	54.0

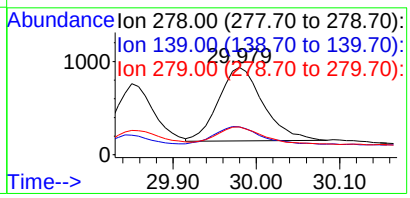


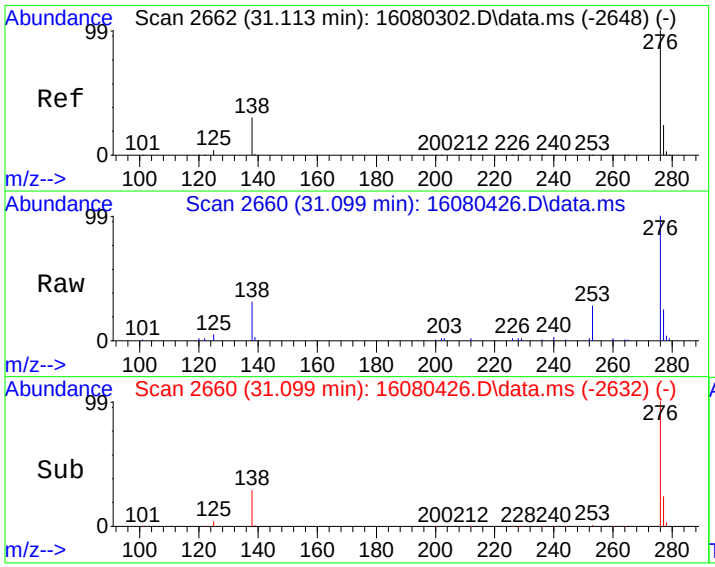


#27
Dibenz[a,h]anthracene
Concen: 21.48 ug/kg
RT: 29.979 min Scan# 2521
Delta R.T. -0.016 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:278 Resp: 2936

Ion	Ratio	Lower	Upper
278	100		
139	23.7	1.3	41.3
279	23.5	4.1	44.1

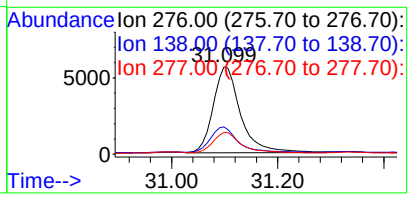




#28
Benzo[g,h,i]perylene
Concen: 137.71 ug/kg
RT: 31.099 min Scan# 2660
Delta R.T. -0.023 min
Lab File: 16080426.D
Acq: 5 Aug 2016 12:33 am

Tgt Ion:276 Resp: 20108

Ion	Ratio	Lower	Upper
276	100		
138	29.3	7.8	47.8
277	23.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080427.D
Acq On : 5 Aug 2016 1:13 am
Operator :
Sample : 1607256-21AMS
Misc : MS
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 05 14:34:42 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.030	136	394067	4000.00	ug/kg	100
6) Acenaphthene-d10	13.496	164	243709	4000.00	ug/kg	133
11) Phenanthrene-d10	15.597	188	611839	4000.00	ug/kg	123
17) Chrysene-d12	21.500	240	603256	4000.00	ug/kg	90
20) Perylene-d12	26.734	264	568325	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	5971	91.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.28%#			
15) 4-Terphenyl-d14	18.159	244	9367	61.47	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.54%#			

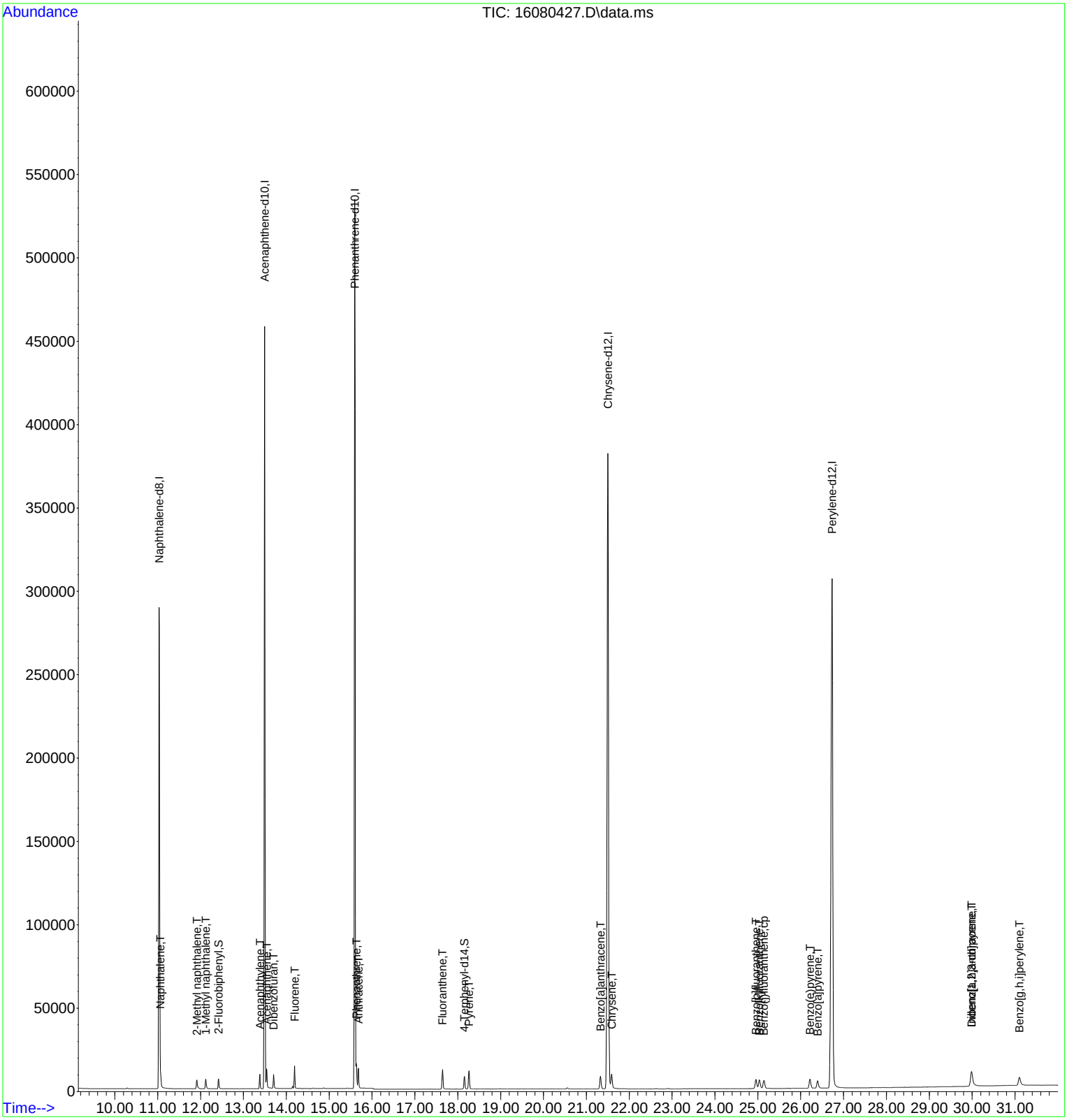
Target Compounds						Qvalue
2) Naphthalene	11.065	128	6530	68.15	ug/kg	100
3) 2-Methyl naphthalene	11.916	142	4518	74.93	ug/kg	98
4) 1-Methyl naphthalene	12.124	142	4216	76.15	ug/kg	97
7) Acenaphthylene	13.383	152	8152	69.77	ug/kg	100
8) Acenaphthene	13.539	153	5325	71.93	ug/kg	99
9) Dibenzofuran	13.704	168	8507	81.10	ug/kg	87
10) Fluorene	14.190	166	7168	80.97	ug/kg	99
12) Phenanthrene	15.640	178	12218	73.86	ug/kg	99
13) Anthracene	15.684	178	10902	64.44	ug/kg	99
14) Fluoranthene	17.644	202	12609	56.81	ug/kg	96
16) Pyrene	18.264	202	12833	55.70	ug/kg	96
18) Benzo[a]anthracene	21.331	228	10890	69.62	ug/kg	99
19) Chrysene	21.589	228	10399	69.68	ug/kg	99
21) Benzo[b]fluoranthene	24.954	252	10387	67.74	ug/kg	99
22) Benzo[k]fluoranthene	25.035	252	8874	67.65	ug/kg	99
23) Benzo(j)fluoranthene	25.148	252	9002	70.26	ug/kg	98
24) Benzo(e)pyrene	26.218	252	10705	72.14	ug/kg	98
25) Benzo[a]pyrene	26.396	252	9197	65.31	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.995	276	12793	76.92	ug/kg	92
27) Dibenz[a,h]anthracene	29.978	278	10071	73.65	ug/kg	99
28) Benzo[g,h,i]perylene	31.106	276	11410	78.10	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080427.D
Acq On : 5 Aug 2016 1:13 am
Operator :
Sample : 1607256-21AMS
Misc : MS
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 05 14:34:42 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080428.D
Acq On : 5 Aug 2016 1:53 am
Operator :
Sample : 1607256-21AMSD
Misc : MSD
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 05 14:34:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

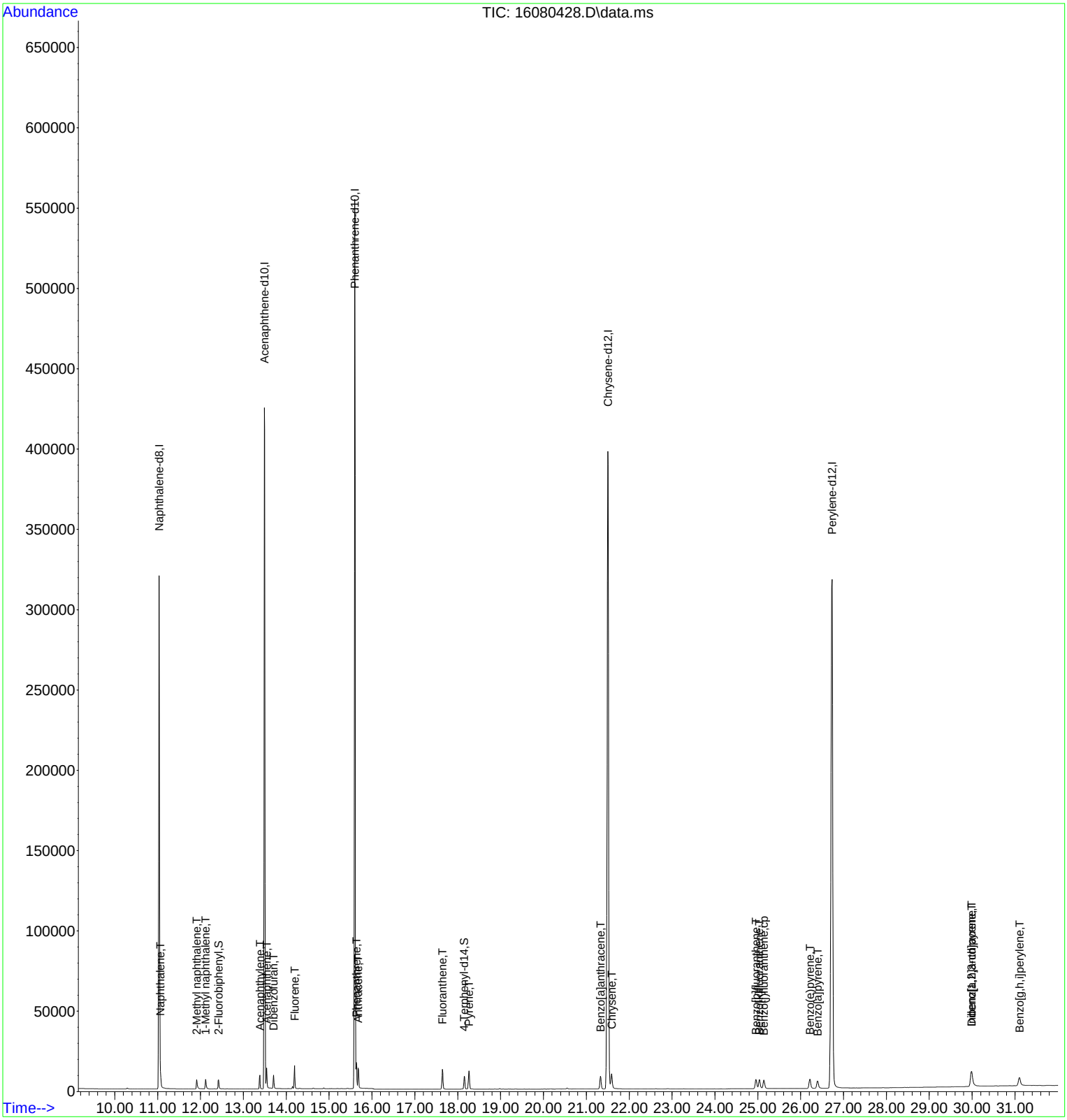
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.031	136	404876	4000.00	ug/kg	103
6) Acenaphthene-d10	13.488	164	249803	4000.00	ug/kg	137
11) Phenanthrene-d10	15.598	188	630538	4000.00	ug/kg	126
17) Chrysene-d12	21.499	240	625657	4000.00	ug/kg	93
20) Perylene-d12	26.733	264	584925	4000.00	ug/kg	95
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	6117	91.10	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.28%#			
15) 4-Terphenyl-d14	18.158	244	9731	61.97	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.55%#			
Target Compounds						Qvalue
2) Naphthalene	11.066	128	6820	69.28	ug/kg	100
3) 2-Methyl naphthalene	11.908	142	4619	74.56	ug/kg	98
4) 1-Methyl naphthalene	12.117	142	4295	75.51	ug/kg	99
7) Acenaphthylene	13.384	152	8499	70.96	ug/kg	100
8) Acenaphthene	13.540	153	5517	72.71	ug/kg	100
9) Dibenzofuran	13.705	168	8757	81.45	ug/kg	92
10) Fluorene	14.192	166	7450	82.10	ug/kg	99
12) Phenanthrene	15.633	178	12892	75.63	ug/kg	99
13) Anthracene	15.676	178	11455	65.70	ug/kg	99
14) Fluoranthene	17.643	202	13268	58.01	ug/kg	97
16) Pyrene	18.263	202	13489	56.81	ug/kg	97
18) Benzo[a]anthracene	21.330	228	11474	70.73	ug/kg	99
19) Chrysene	21.588	228	11073	71.53	ug/kg	99
21) Benzo[b]fluoranthene	24.954	252	11344	71.88	ug/kg	99
22) Benzo[k]fluoranthene	25.042	252	9274	68.69	ug/kg	97
23) Benzo(j)fluoranthene	25.139	252	9528	72.25	ug/kg	98
24) Benzo(e)pyrene	26.218	252	11212	73.42	ug/kg	98
25) Benzo[a]pyrene	26.395	252	9677	66.77	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.994	276	13374	78.13	ug/kg	92
27) Dibenz[a,h]anthracene	29.978	278	10644	75.63	ug/kg	99
28) Benzo[g,h,i]perylene	31.105	276	11799	78.47	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080428.D
Acq On : 5 Aug 2016 1:53 am
Operator :
Sample : 1607256-21AMSD
Misc : MSD
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 05 14:34:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080429.D
Acq On : 5 Aug 2016 2:33 am
Operator :
Sample : CCV1-160804
Misc : CCV
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 05 14:34:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	435991	4000.00	ug/kg	111
6) Acenaphthene-d10	13.490	164	259013	4000.00	ug/kg	142
11) Phenanthrene-d10	15.600	188	672128	4000.00	ug/kg	135
17) Chrysene-d12	21.508	240	674053	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	623546	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	76151	1053.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.33%#			
15) 4-Terphenyl-d14	18.159	244	124839	745.77	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 18.64%#			

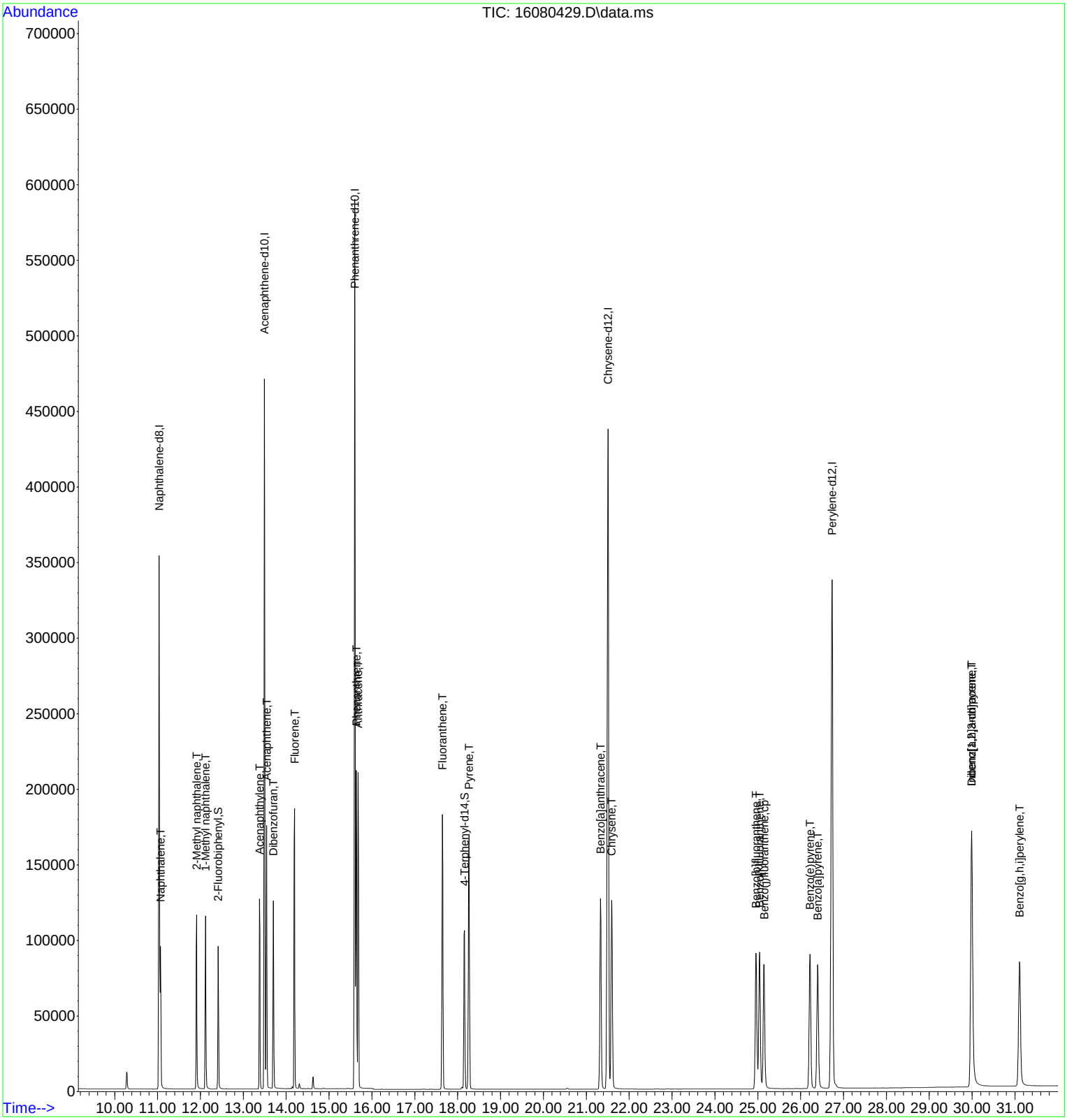
Target Compounds						Qvalue
2) Naphthalene	11.068	128	98236	926.68	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	67378	1010.03	ug/kg	98
4) 1-Methyl naphthalene	12.118	142	62017	1012.45	ug/kg	98
7) Acenaphthylene	13.377	152	120309	968.78	ug/kg	99
8) Acenaphthene	13.542	153	75777	963.14	ug/kg	99
9) Dibenzofuran	13.698	168	116205	1042.38	ug/kg	73
10) Fluorene	14.193	166	101904	1083.11	ug/kg	99
12) Phenanthrene	15.634	178	173565	955.18	ug/kg	100
13) Anthracene	15.678	178	170947	919.78	ug/kg	100
14) Fluoranthene	17.643	202	190901	782.98	ug/kg	97
16) Pyrene	18.263	202	191729	757.53	ug/kg	98
18) Benzo[a]anthracene	21.331	228	173713	993.95	ug/kg	100
19) Chrysene	21.589	228	163453	980.14	ug/kg	100
21) Benzo[b]fluoranthene	24.962	252	167645	996.44	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	148481	1031.63	ug/kg	99
23) Benzo(j)fluoranthene	25.147	252	141720	1008.13	ug/kg	100
24) Benzo(e)pyrene	26.218	252	158885	975.93	ug/kg	100
25) Benzo[a]pyrene	26.395	252	154355	999.05	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.994	276	194999	1068.66	ug/kg	97
27) Dibenz[a,h]anthracene	29.986	278	160466	1069.51	ug/kg	98
28) Benzo[g,h,i]perylene	31.106	276	167045	1042.18	ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160804\
Data File : 16080429.D
Acq On : 5 Aug 2016 2:33 am
Operator :
Sample : CCV1-160804
Misc : CCV
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Aug 05 14:34:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



GCMS8_160806B
For

DHL Work Order
1607265

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160806B
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS		X		
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard	X			
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality				
1. Are all non-conformances included and noted?				X	x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/8/2016

Second-Level Review: Janice Whitt Date: 8/12/2016

REVIEWED BY
By Janice Whitt at 9:07:28 AM, 8/12/2016

DHL Analytical, Inc.

Run ID: GCMS8_160806B **Run No.:** 87473

Analytical Run Date: 8/6/2016 **InstrumentID:** GCMS8

Analyst: Don Winston **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 682 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160805	1	PAH_LL_SDOD1	TUNE	R87473	8/6/2016 8:16:00 PM		
ICV-160806	1	PAH_LL_SDOD1	ICV	R87473	8/6/2016 8:55:00 PM		
LCS-76511	1	PAH_LL_SDOD1	LCS	76511	8/6/2016 9:35:00 PM		
MB-76511	1	PAH_LL_SDOD1	MBLK	76511	8/6/2016 10:15:00 PM		
1607256-28A	10	PAH_LL_SDOD1	SAMP	76511	8/6/2016 10:55:00 PM		
1607265-07A	10	PAH_LL_SDOD1	SAMP	76511	8/6/2016 11:35:00 PM		
1607265-08A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:15:00 AM		
1607265-09A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:54:00 AM		
1607265-10A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 1:34:00 AM		
1607265-11A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 2:14:00 AM		
1607265-12A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 2:54:00 AM		
1607265-14A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 3:34:00 AM		
1607265-15A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 4:13:00 AM		
1607265-16A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 4:53:00 AM		
1607265-17A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 5:32:00 AM		
1607265-18A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 6:12:00 AM		
1607265-19A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 6:51:00 AM		
DFTPP2-160806	1	PAH_LL_SDOD1	TUNE	R87473	8/7/2016 7:30:00 AM		
ICV2-160806	1	PAH_LL_SDOD1	ICV	R87473	8/7/2016 8:09:00 AM		
SB-160808	1	PAH_LL_SDOD1	SBLK	76511	8/7/2016 9:29:00 AM		
1607265-20A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 10:09:00 AM		
1607265-21A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 10:49:00 AM		
1607265-22A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 11:29:00 AM		
1607265-23A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:09:00 PM		
1607265-24A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 12:49:00 PM		
1607265-25A	10	PAH_LL_SDOD1	SAMP	76511	8/7/2016 1:29:00 PM		
1607265-18AMS	10	PAH_LL_SDOD1	MS	76511	8/7/2016 2:08:00 PM		
1607265-18AMSD	10	PAH_LL_SDOD1	MSD	76511	8/7/2016 2:48:00 PM		High recovery for Chrysene, Fluoranthene, and Pyrene. %RPD with MS is acceptable.
CCV1-160806	1	PAH_LL_SDOD1	CCV	R87473	8/7/2016 3:27:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\msdchem\1\sequence\160806.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160806\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

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

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

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

Line			Sample Name/Misc Info		
1)	Sample	12	16080612	DFTPPPAH	DFTPP-160805
2)	Sample	13	16080613	PAH160802	ICV-160806
3)	Sample	14	16080614	PAH160802	LCS-76511
4)	Sample	15	16080615	PAH160802	MB-76511
5)	Sample	16	16080616	PAH160802	1607256-28A
6)	Sample	17	16080617	PAH160802	1607265-07A
7)	Sample	18	16080618	PAH160802	1607265-08A
8)	Sample	19	16080619	PAH160802	1607265-09A
9)	Sample	20	16080620	PAH160802	1607265-10A
10)	Sample	21	16080621	PAH160802	1607265-11A
11)	Sample	22	16080622	PAH160802	1607265-12A
12)	Sample	23	16080623	PAH160802	1607265-14A
13)	Sample	24	16080624	PAH160802	1607265-15A
14)	Sample	25	16080625	PAH160802	1607265-16A
15)	Sample	26	16080626	PAH160802	1607265-17A
16)	Sample	27	16080627	PAH160802	1607265-18A
17)	Sample	28	16080628	PAH160802	1607265-19A
18)	Sample	29	16080629	DFTPPPAH	DFTPP2-160806
19)	Sample	30	16080630	PAH160802	ICV2-160806
20)	Sample	31	16080631	PAH160802	SBLK
21)	Sample	32	16080632	PAH160802	SB-160808
22)	Sample	33	16080633	PAH160802	1607265-20A
23)	Sample	34	16080634	PAH160802	1607265-21A
24)	Sample	35	16080635	PAH160802	1607265-22A
25)	Sample	36	16080636	PAH160802	1607265-23A
26)	Sample	37	16080637	PAH160802	1607265-24A
27)	Sample	38	16080638	PAH160802	1607265-25A
28)	Sample	39	16080639	PAH160802	1607265-18AMS
29)	Sample	40	16080640	PAH160802	1607265-18AMSD
30)	Sample	41	16080641	PAH160802	CCV1-160806

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 2:13:18 PM**
Digestion:
Prep End Date: **7/27/2016 5:00:00 PM**

Prep Batch **76511** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-28A	Soil		10.02	10	0.998	1 of 3	
1607265-07A	Soil		10.82	10	0.924	1 of 1	
1607265-08A	Soil		10.26	10	0.975	1 of 1	
1607265-09A	Soil		10.01	10	0.999	1 of 1	
1607265-10A	Soil		10.02	10	0.998	1 of 1	
1607265-11A	Soil		10.78	10	0.928	1 of 1	
1607265-12A	Soil		10.42	10	0.960	1 of 1	
1607265-14A	Soil		10.04	10	0.996	1 of 1	
1607265-15A	Soil		10.06	10	0.994	1 of 1	
1607265-16A	Soil		10.55	10	0.948	1 of 1	
1607265-17A	Soil		10.32	10	0.969	1 of 1	
1607265-18A	Soil		10.27	10	0.974	1 of 3	
1607265-18AMS	Soil		10.23	10	0.978	1 of	
1607265-18AMSD	Soil		10.14	10	0.986	1 of	
1607265-19A	Soil		10.06	10	0.994	1 of 1	
1607265-20A	Soil		10.53	10	0.950	1 of 1	
1607265-21A	Soil		10.27	10	0.974	1 of 1	
1607265-22A	Soil		10.21	10	0.979	1 of 1	
1607265-23A	Soil		10.82	10	0.924	1 of 1	
1607265-24A	Soil		10.11	10	0.989	1 of 1	
1607265-25A	Soil		10.04	10	0.996	1 of 1	
LCS-76511	Soil		10	10	1.000	of	
MB-76511	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

REVIEWED BY
By Janice Whitt at 8:36:00 AM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/27/2016 2:13:18 PM**
Digestion:
Prep End Date: 7/27/16 5:00PM

Prep Batch **76511** Prep Code: **3550_PAHDOD** Technician: ~~ADMIN~~ AR

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607256-28A	Soil		10.02	10	1.000	1 of 3	
~~1607256-28AMS~~	Soil		10.13	10	1.000	1 of	
~~1607256-28AMSD~~	Soil		10.16	10	1.000	1 of	
1607265-07A	Soil		10.82	10	1.000	1 of 1	
1607265-08A	Soil		10.26	10	1.000	1 of 1	
1607265-09A	Soil		10.01	10	1.000	1 of 1	
1607265-10A	Soil		10.02	10	1.000	1 of 1	
1607265-11A	Soil		10.73	10	1.000	1 of 1	
1607265-12A	Soil		10.92	10	1.000	1 of 1	
1607265-14A	Soil		10.64	10	1.000	1 of 1	
1607265-15A	Soil		10.06	10	1.000	1 of 1	
1607265-16A	Soil		10.55	10	1.000	1 of 1	
1607265-17A	Soil		10.32	10	1.000	1 of 1	
1607265-18A	Soil		10.27	10	1.000	1 of 3	
1607265-18AMS	Soil		10.23	10	1.000	1 of	
1607265-18AMSD	Soil		10.14	10	1.000	1 of	
1607265-19A	Soil		10.06	10	1.000	1 of 1	
1607265-20A	Soil		10.53	10	1.000	1 of 1	
1607265-21A	Soil		10.27	10	1.000	1 of 1	
1607265-22A	Soil		10.21	10	1.000	1 of 1	
1607265-23A	Soil		10.82	10	1.000	1 of 1	
1607265-24A	Soil		10.11	10	1.000	1 of 1	
1607265-25A	Soil		10.04	10	1.000	1 of 1	
LCS-76511	Soil		10	10	1.000	of	
MB-76511	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

REVIEWED BY
By Janice Whitt at 8:35:57 AM, 8/12/2016

7/27/16

AR 7/27/16

fg 7/27/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-07A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-08A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-11A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-12A	Soil		0	0	#Num!	1 of 1	
Sieve Only Hard Clay							
1607265-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 8:36:05 AM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/23/2016 1:10:02 PM**
Digestion: **Start: 7/23/2016 1:00:00 PM / Stop: 7/25/2016 3:50:00 PM**
Prep End Date: **7/25/2016 2:30:00 PM**

Prep Batch **76413** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

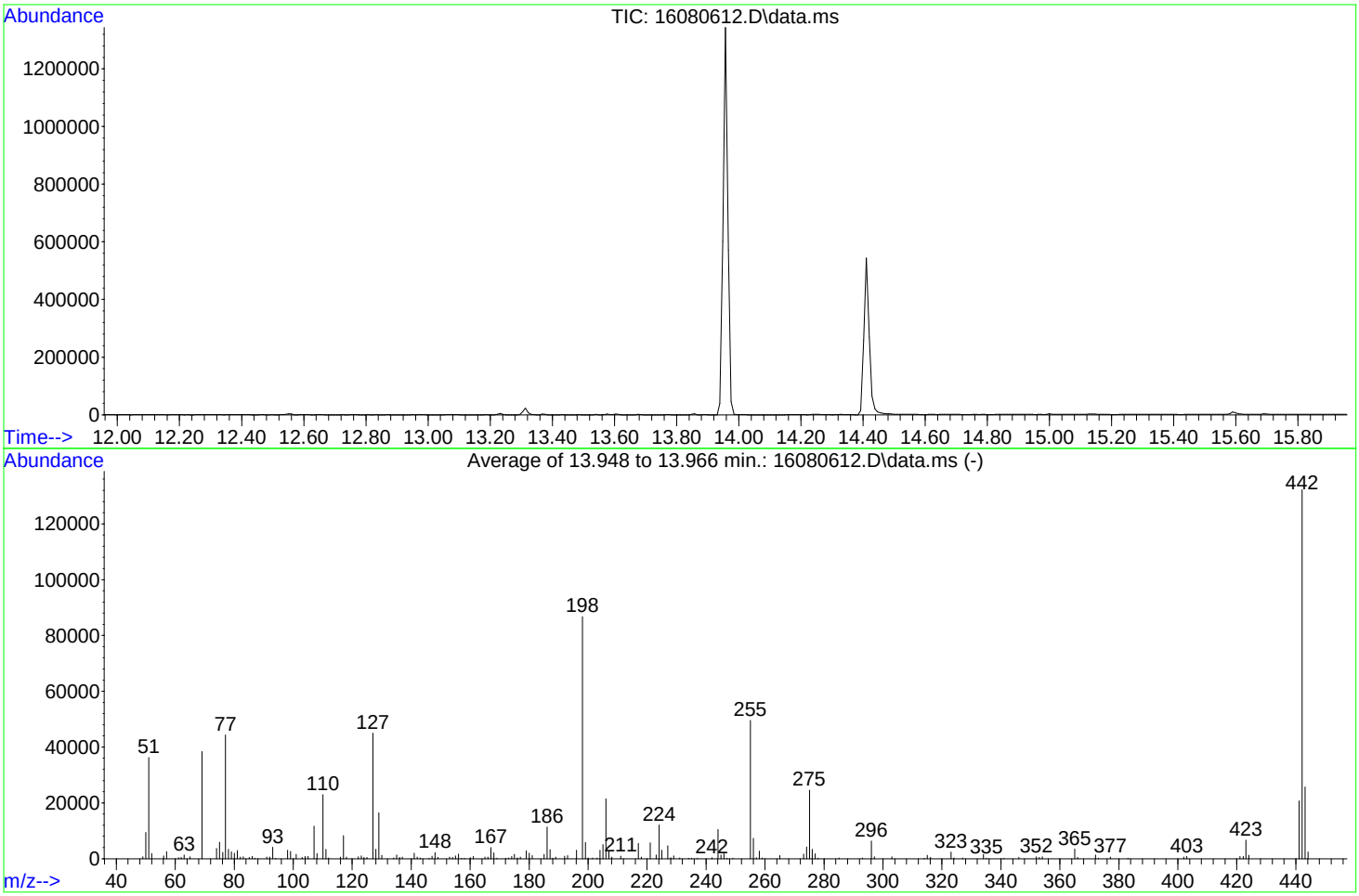
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607265-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-18A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607265-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-23A	Soil		0	0	#Num!	1 of 1	
Sieve Ony Hard Clay							
1607265-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607265-25A	Soil		0	0	#Num!	1 of 1	
SS							



Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080612.D
Acq On : 6 Aug 2016 8:16 pm
Operator :
Sample : DFTPP-160806
Misc : TUNE
ALS Vial : 12 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

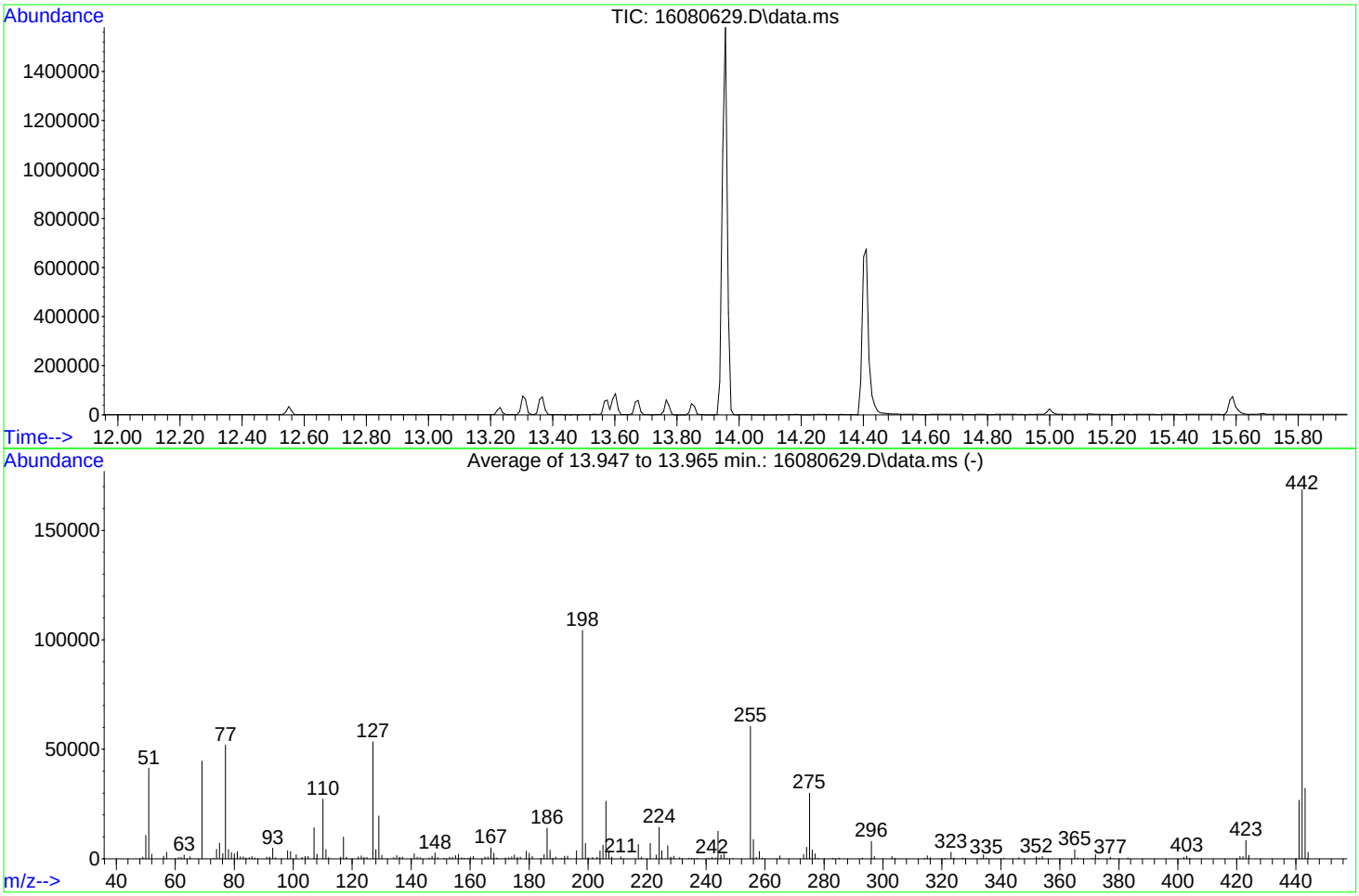
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.8	36304	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.3	38433	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.8	44960	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	86760	PASS
199	198	5	9	6.7	5778	PASS
275	198	10	60	28.3	24531	PASS
365	198	1	200	4.0	3440	PASS
441	442	0.01	24	15.7	20713	PASS
442	198	50	400	152.4	132264	PASS
443	442	15	24	19.5	25747	PASS

REVIEWED BY
By Janice Whitt at 8:36:09 AM, 8/12/2016

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080629.D
Acq On : 7 Aug 2016 7:30 am
Operator :
Sample : DFTPP2-160806
Misc : TUNE
ALS Vial : 29 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.7	41402	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.7	44579	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.2	53393	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	104306	PASS
199	198	5	9	6.8	7064	PASS
275	198	10	60	28.7	29895	PASS
365	198	1	200	4.0	4199	PASS
441	442	0.01	24	15.8	26626	PASS
442	198	50	400	161.6	168610	PASS
443	442	15	24	19.1	32124	PASS

REVIEWED BY
By Janice Whitt at 8:36:12 AM, 8/12/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080613.D
Acq On : 6 Aug 2016 8:55 pm
Operator :
Sample : ICV-160806
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 08 12:20:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

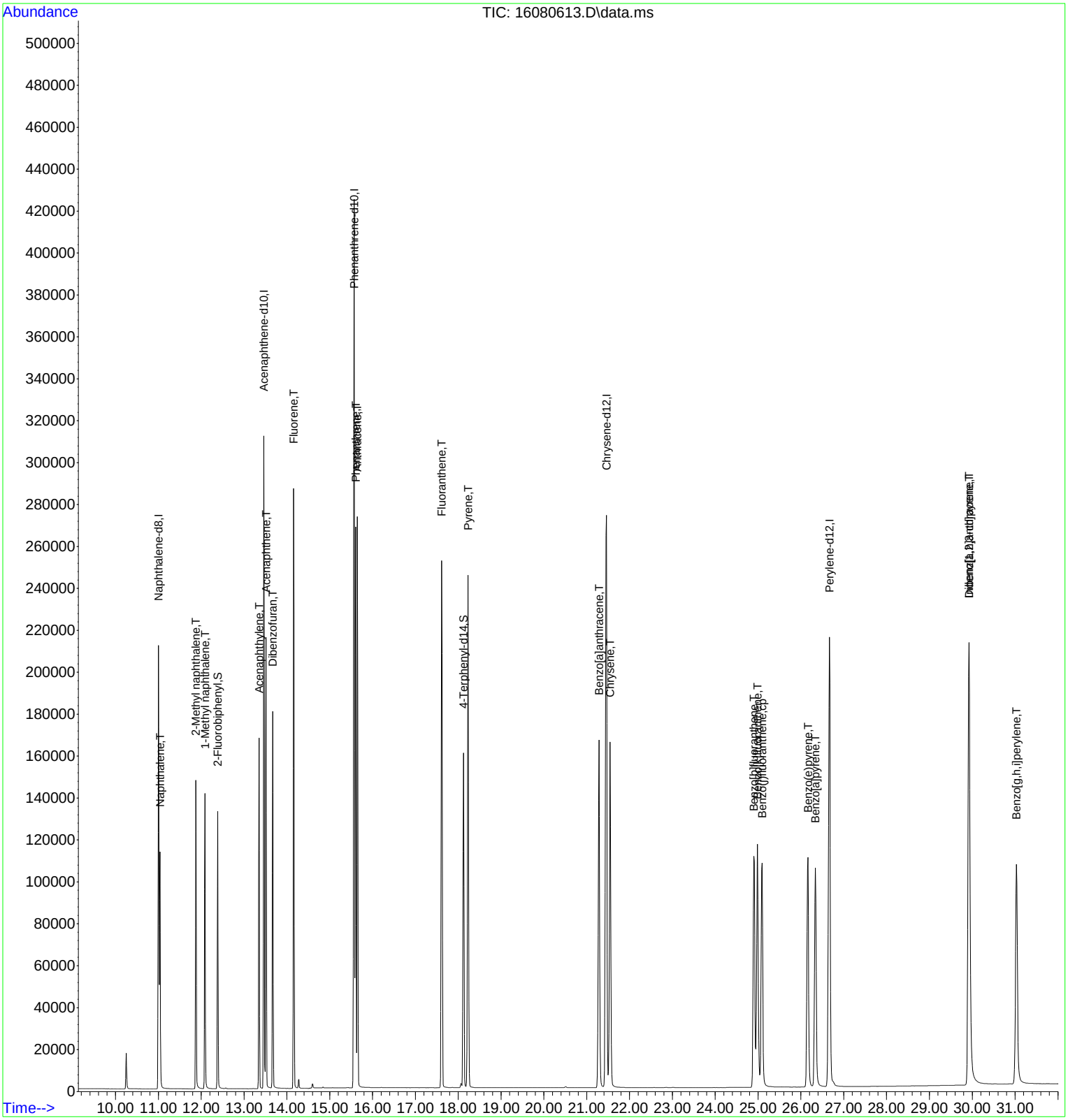
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	256641	4000.00	ug/kg	97
6) Acenaphthene-d10	13.461	164	158552	4000.00	ug/kg	98
11) Phenanthrene-d10	15.568	188	486144	4000.00	ug/kg	94
17) Chrysene-d12	21.458	240	433795	4000.00	ug/kg	94
20) Perylene-d12	26.664	264	395244	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	105182	1842.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.06%			
15) 4-Terphenyl-d14	18.123	244	171951	2011.88	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 50.30%			
Target Compounds						Qvalue
2) Naphthalene	11.036	128	119306	1948.86	ug/kg	100
3) 2-Methyl naphthalene	11.873	142	82179	1969.33	ug/kg	99
4) 1-Methyl naphthalene	12.085	142	74907	1952.60	ug/kg	100
7) Acenaphthylene	13.348	152	149413	2036.89	ug/kg	100
8) Acenaphthene	13.511	153	95892	2000.31	ug/kg	99
9) Dibenzofuran	13.667	168	161745	1965.77	ug/kg	95
10) Fluorene	14.156	166	145342	2042.72	ug/kg	99
12) Phenanthrene	15.607	178	254408	2057.01	ug/kg	100
13) Anthracene	15.645	178	254696	2007.11	ug/kg	100
14) Fluoranthene	17.612	202	267625	2028.17	ug/kg	99
16) Pyrene	18.229	202	267887	2030.55	ug/kg	98
18) Benzo[a]anthracene	21.285	228	223965	2049.95	ug/kg	100
19) Chrysene	21.545	228	210634	2036.95	ug/kg	100
21) Benzo[b]fluoranthene	24.910	252	213370	2129.20	ug/kg	99
22) Benzo[k]fluoranthene	24.987	252	185453	2221.58	ug/kg	99
23) Benzo(j)fluoranthene	25.093	252	175350	2164.90	ug/kg	100
24) Benzo(e)pyrene	26.163	252	202290	2028.54	ug/kg	100
25) Benzo[a]pyrene	26.336	252	195205	2081.57	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.932	276	243273	2091.20	ug/kg	97
27) Dibenz[a,h]anthracene	29.923	278	199166	2135.09	ug/kg	99
28) Benzo[g,h,i]perylene	31.031	276	206935	2003.81	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080613.D
Acq On : 6 Aug 2016 8:55 pm
Operator :
Sample : ICV-160806
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

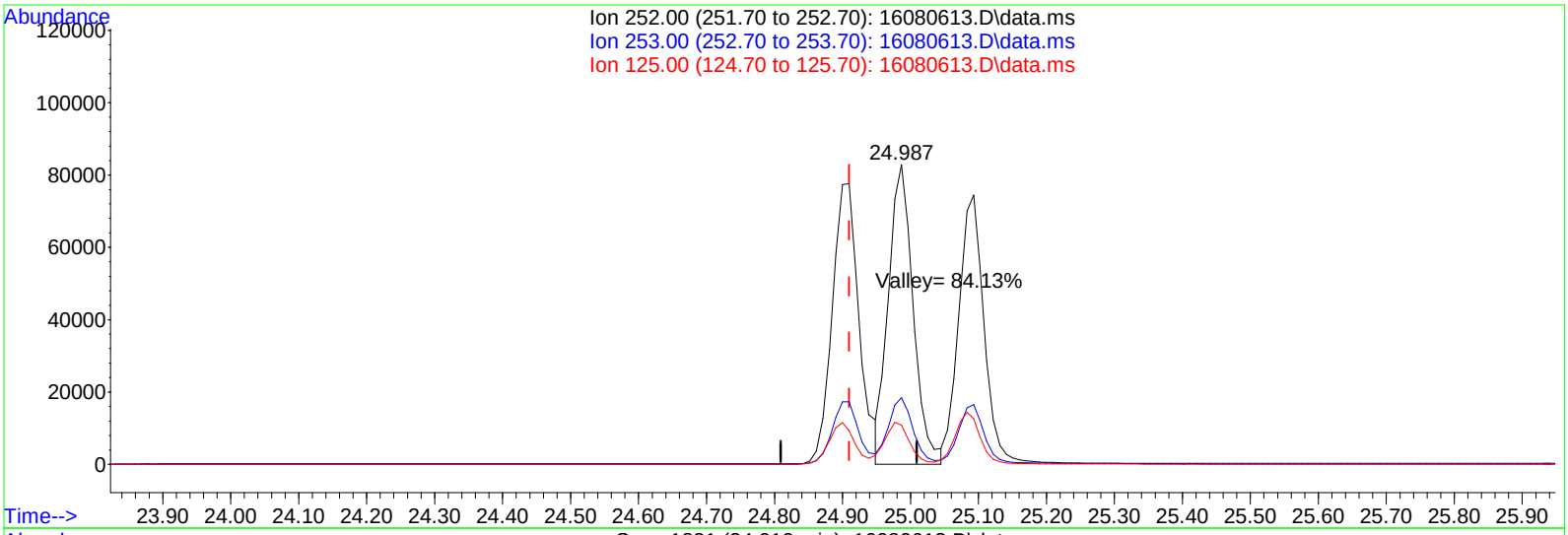
Quant Time: Aug 08 12:20:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

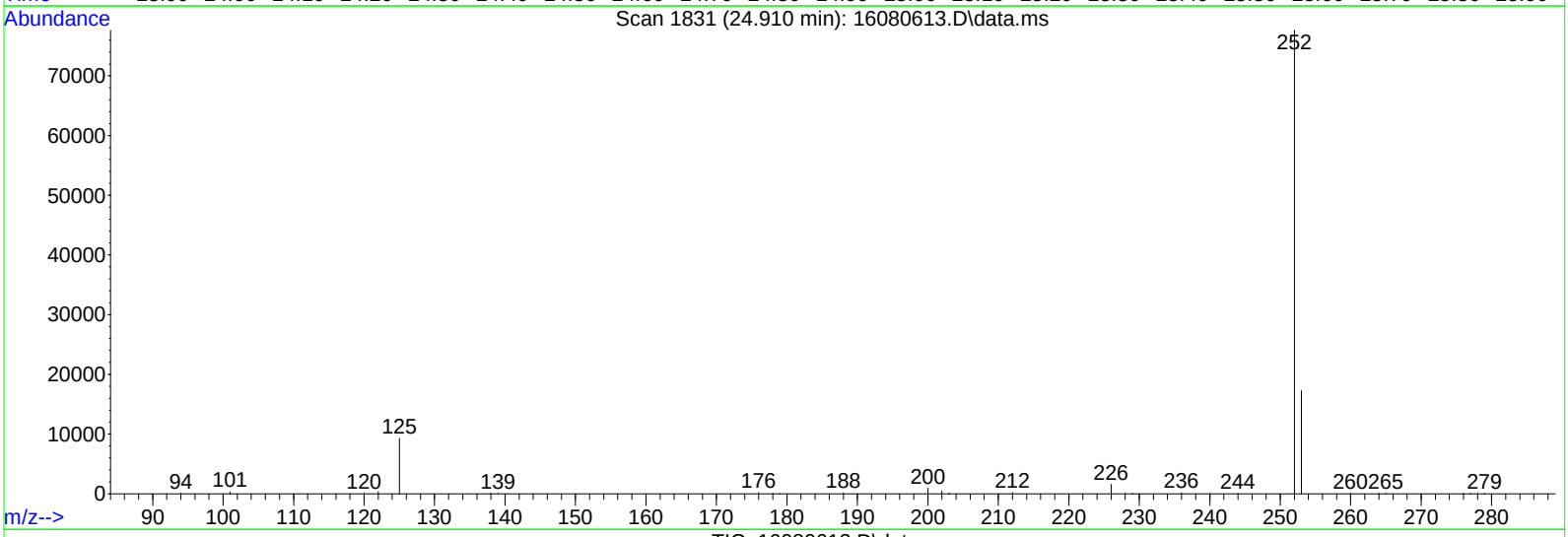


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080613.D
Acq On : 6 Aug 2016 8:55 pm
Operator :
Sample : ICV-160806
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 07 12:46:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080613.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.910min (+0.000) 2129.20ug/kg

response 213370

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	21.97
125.00	13.20	11.89
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080614.D
Acq On : 6 Aug 2016 9:35 pm
Operator :
Sample : LCS-76511
Misc : LCS
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 08 12:21:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.004	136	331622	4000.00	ug/kg	125
6) Acenaphthene-d10	13.458	164	147719	4000.00	ug/kg	91
11) Phenanthrene-d10	15.567	188	342723	4000.00	ug/kg	67
17) Chrysene-d12	21.448	240	366650	4000.00	ug/kg	79
20) Perylene-d12	26.664	264	343228	4000.00	ug/kg	82

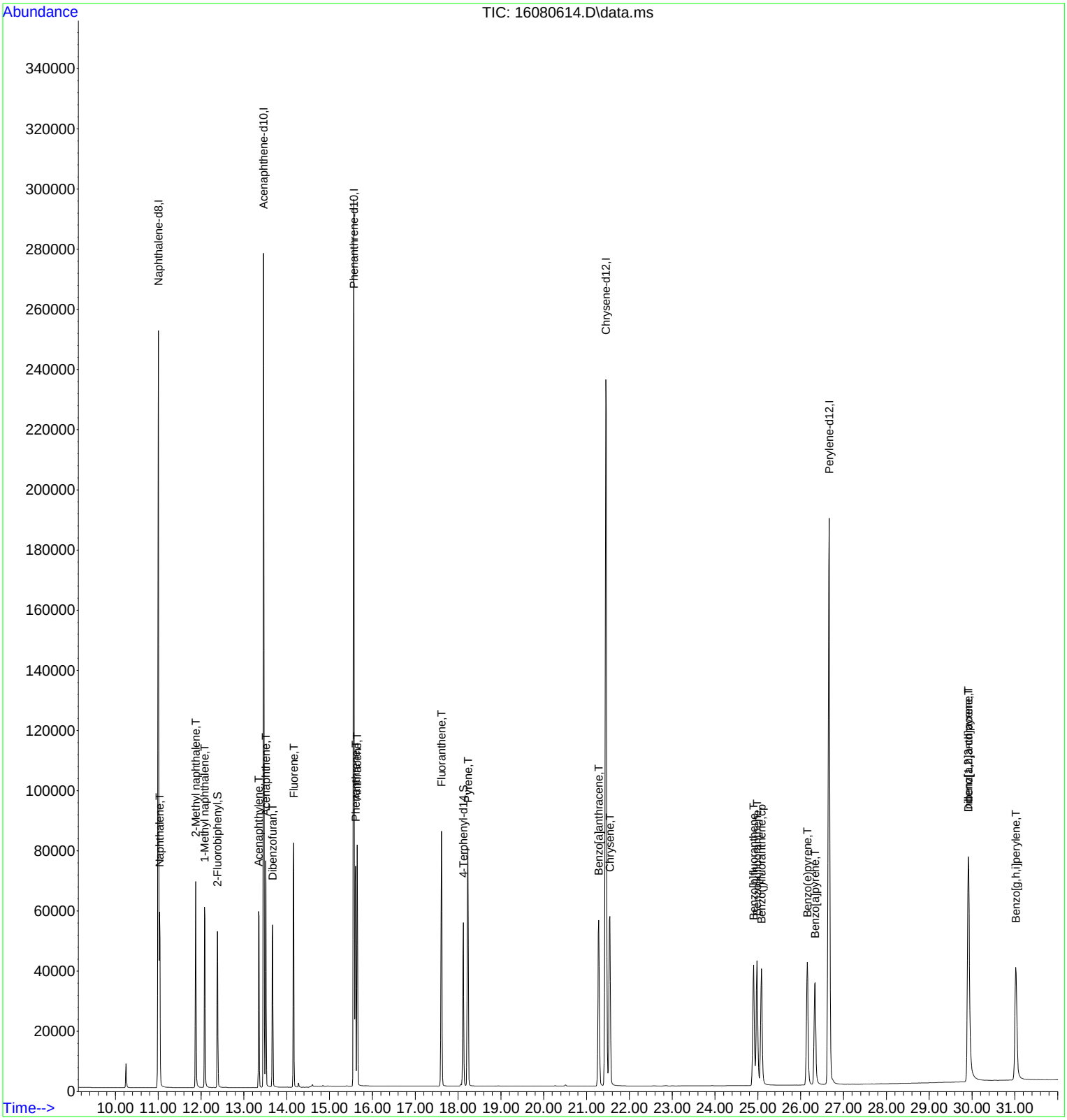
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	44164	598.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.97%#			
15) 4-Terphenyl-d14	18.122	244	61547	1021.47	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 25.54%#			

Target Compounds						Qvalue
2) Naphthalene	11.032	128	61035	771.58	ug/kg	100
3) 2-Methyl naphthalene	11.876	142	39450	731.62	ug/kg	98
4) 1-Methyl naphthalene	12.082	142	35929	724.80	ug/kg	96
7) Acenaphthylene	13.344	152	57651	843.57	ug/kg	99
8) Acenaphthene	13.507	153	35743	800.28	ug/kg	97
9) Dibenzofuran	13.670	168	51603	673.15	ug/kg	89
10) Fluorene	14.160	166	42895	647.08	ug/kg	99
12) Phenanthrene	15.606	178	75442	851.02	ug/kg	99
13) Anthracene	15.645	178	71469	798.89	ug/kg	99
14) Fluoranthene	17.611	202	87804	943.87	ug/kg	95
16) Pyrene	18.228	202	90329	971.20	ug/kg	97
18) Benzo[a]anthracene	21.284	228	78084	845.59	ug/kg	99
19) Chrysene	21.545	228	74003	846.71	ug/kg	99
21) Benzo[b]fluoranthene	24.899	252	74489	855.97	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	67282	928.13	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	63800	907.06	ug/kg	100
24) Benzo(e)pyrene	26.153	252	74802	863.78	ug/kg	100
25) Benzo[a]pyrene	26.336	252	67560	829.61	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.922	276	91315	903.91	ug/kg	97
27) Dibenz[a,h]anthracene	29.913	278	72931	900.32	ug/kg	100
28) Benzo[g,h,i]perylene	31.021	276	79306	884.32	ug/kg	97

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

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080614.D
Acq On : 6 Aug 2016 9:35 pm
Operator :
Sample : LCS-76511
Misc : LCS
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 08 12:21:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080615.D
Acq On : 6 Aug 2016 10:15 pm
Operator :
Sample : MB-76511
Misc : MBLK
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 08 12:21:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	338778	4000.00	ug/kg	128
6) Acenaphthene-d10	13.457	164	145404	4000.00	ug/kg	90
11) Phenanthrene-d10	15.567	188	327072	4000.00	ug/kg	64
17) Chrysene-d12	21.448	240	383068	4000.00	ug/kg	83
20) Perylene-d12	26.664	264	366438	4000.00	ug/kg	87

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	41858	555.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 13.89%#			
15) 4-Terphenyl-d14	18.122	244	60799	1057.34	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 26.43%#			

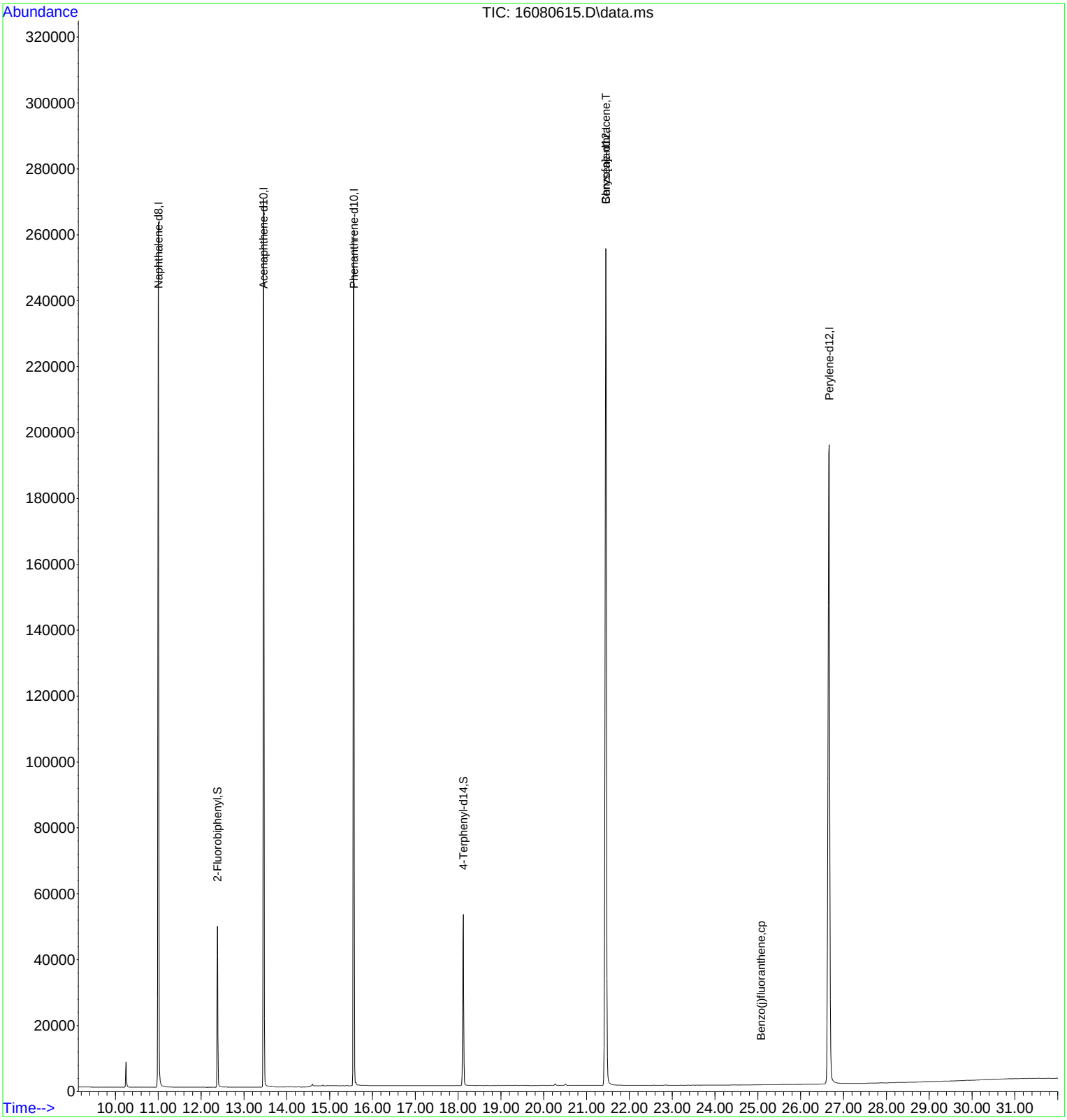
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1027	10.64	ug/kg	72
23) Benzo(j)fluoranthene	25.083	252	9	0.12	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080615.D
Acq On : 6 Aug 2016 10:15 pm
Operator :
Sample : MB-76511
Misc : MBLK
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 08 12:21:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080617.D
Acq On : 6 Aug 2016 11:35 pm
Operator :
Sample : 1607265-07A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: Aug 08 12:22:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	299470	4000.00	ug/kg	113
6) Acenaphthene-d10	13.456	164	177467	4000.00	ug/kg	109
11) Phenanthrene-d10	15.567	188	482912	4000.00	ug/kg	94
17) Chrysene-d12	21.448	240	458614	4000.00	ug/kg	99
20) Perylene-d12	26.664	264	424875	4000.00	ug/kg	101

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	4896	73.49	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.84%#			
15) 4-Terphenyl-d14	18.122	244	7314	86.15	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.15%#			

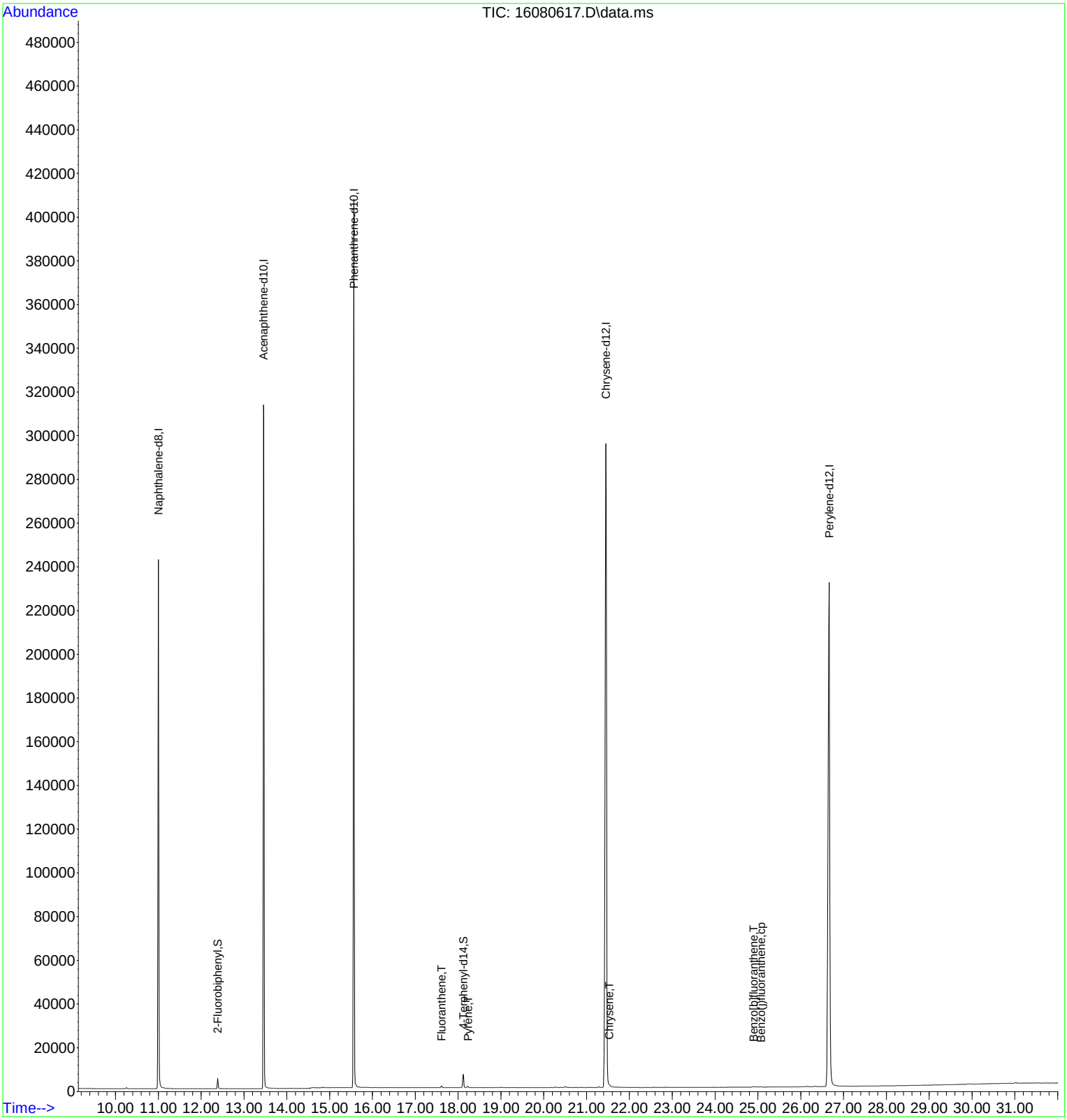
Target Compounds						Qvalue
14) Fluoranthene	17.611	202	898	6.85	ug/kg	98
16) Pyrene	18.228	202	789	6.02	ug/kg	99
19) Chrysene	21.535	228	570	5.21	ug/kg	98
21) Benzo[b]fluoranthene	24.899	252	540	5.01	ug/kg	96
23) Benzo(j)fluoranthene	25.083	252	184	2.11	ug/kg#	66

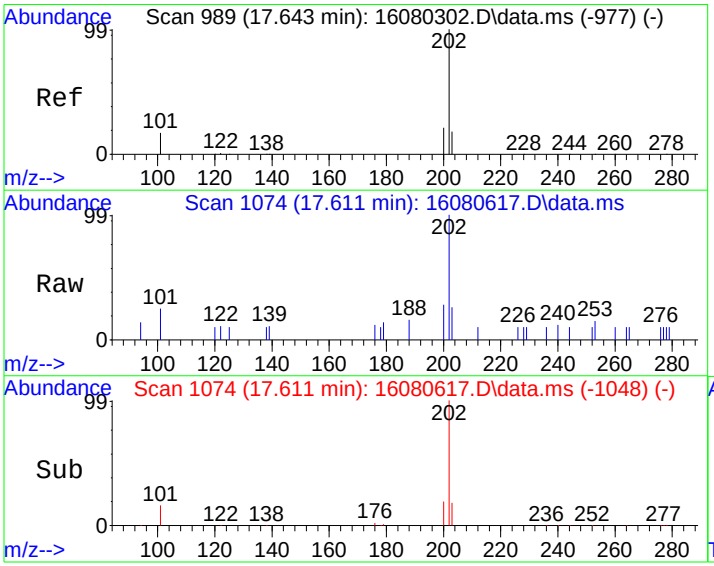
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080617.D
Acq On : 6 Aug 2016 11:35 pm
Operator :
Sample : 1607265-07A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: Aug 08 12:22:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

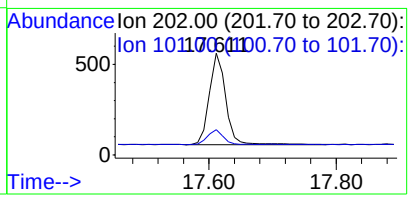


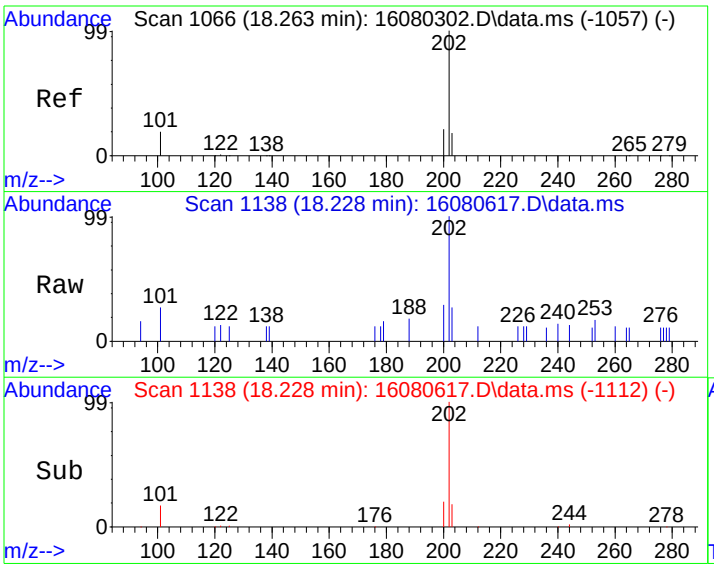


#14
Fluoranthene
Concen: 6.85 ug/kg
RT: 17.611 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080617.D
Acq: 6 Aug 2016 11:35 pm

Tgt Ion:202 Resp: 898

Ion	Ratio	Lower	Upper
202	100		
101	16.2	0.0	37.2

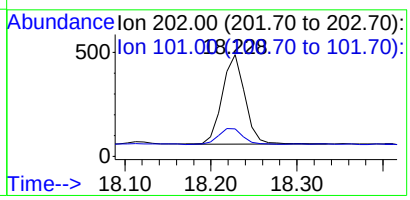


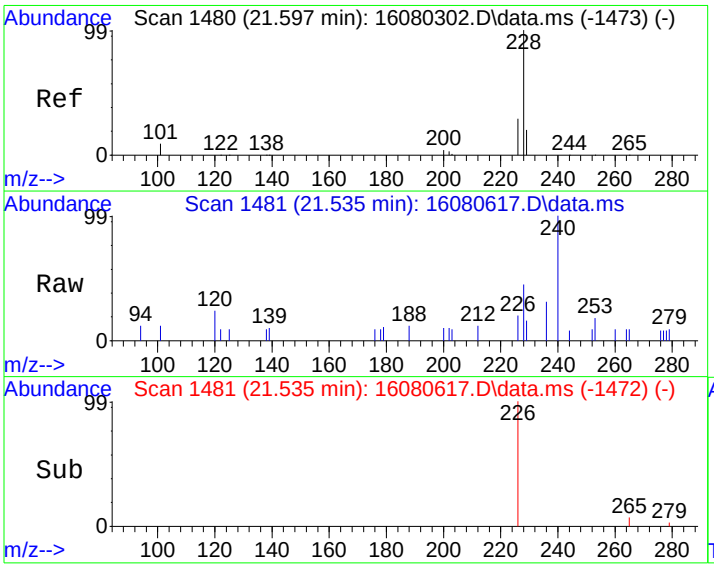


#16
Pyrene
Concen: 6.02 ug/kg
RT: 18.228 min Scan# 1138
Delta R.T. -0.001 min
Lab File: 16080617.D
Acq: 6 Aug 2016 11:35 pm

Tgt Ion:202 Resp: 789

Ion	Ratio	Lower	Upper
202	100		
101	17.4	0.0	38.0

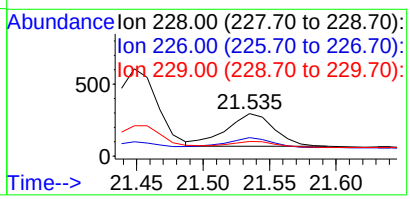


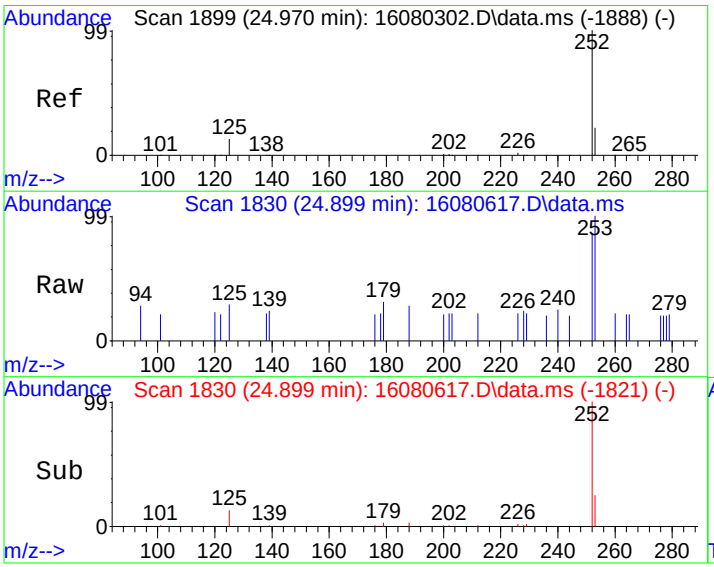


#19
Chrysene
Concen: 5.21 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080617.D
Acq: 6 Aug 2016 11:35 pm

Tgt Ion:228 Resp: 570

Ion	Ratio	Lower	Upper
228	100		
226	30.5	9.3	49.3
229	18.6	0.0	39.8

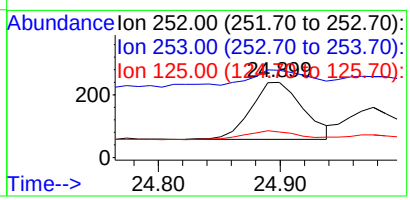


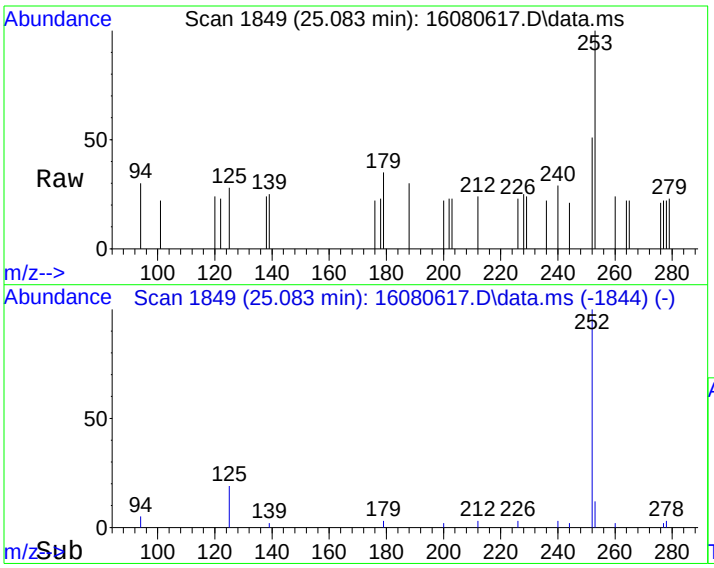


#21
Benzo[b]fluoranthene
Concen: 5.01 ug/kg
RT: 24.899 min Scan# 1830
Delta R.T. -0.010 min
Lab File: 16080617.D
Acq: 6 Aug 2016 11:35 pm

Tgt Ion:252 Resp: 540

Ion	Ratio	Lower	Upper
252	100		
253	24.7	1.9	41.9
125	13.2	0.0	33.2

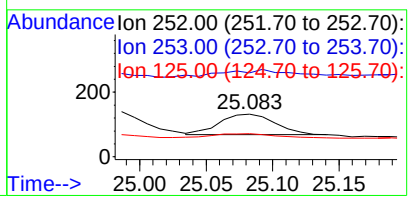




#23
Benzo(j)fluoranthene
Concen: 2.11 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16080617.D
Acq: 6 Aug 2016 11:35 pm

Tgt Ion:252 Resp: 184

Ion	Ratio	Lower	Upper
252	100		
253	48.9	1.9	41.9#
125	22.8	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080618.D
Acq On : 7 Aug 2016 12:15 am
Operator :
Sample : 1607265-08A
Misc : SAMP
ALS Vial : 18 Sample Multiplier: 10

Quant Time: Aug 08 12:22:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	290163	4000.00	ug/kg	110
6) Acenaphthene-d10	13.462	164	171373	4000.00	ug/kg	106
11) Phenanthrene-d10	15.568	188	472543	4000.00	ug/kg	92
17) Chrysene-d12	21.449	240	453870	4000.00	ug/kg	98
20) Perylene-d12	26.665	264	405817	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4587	71.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.78%#			
15) 4-Terphenyl-d14	18.123	244	7188	86.52	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.16%#			

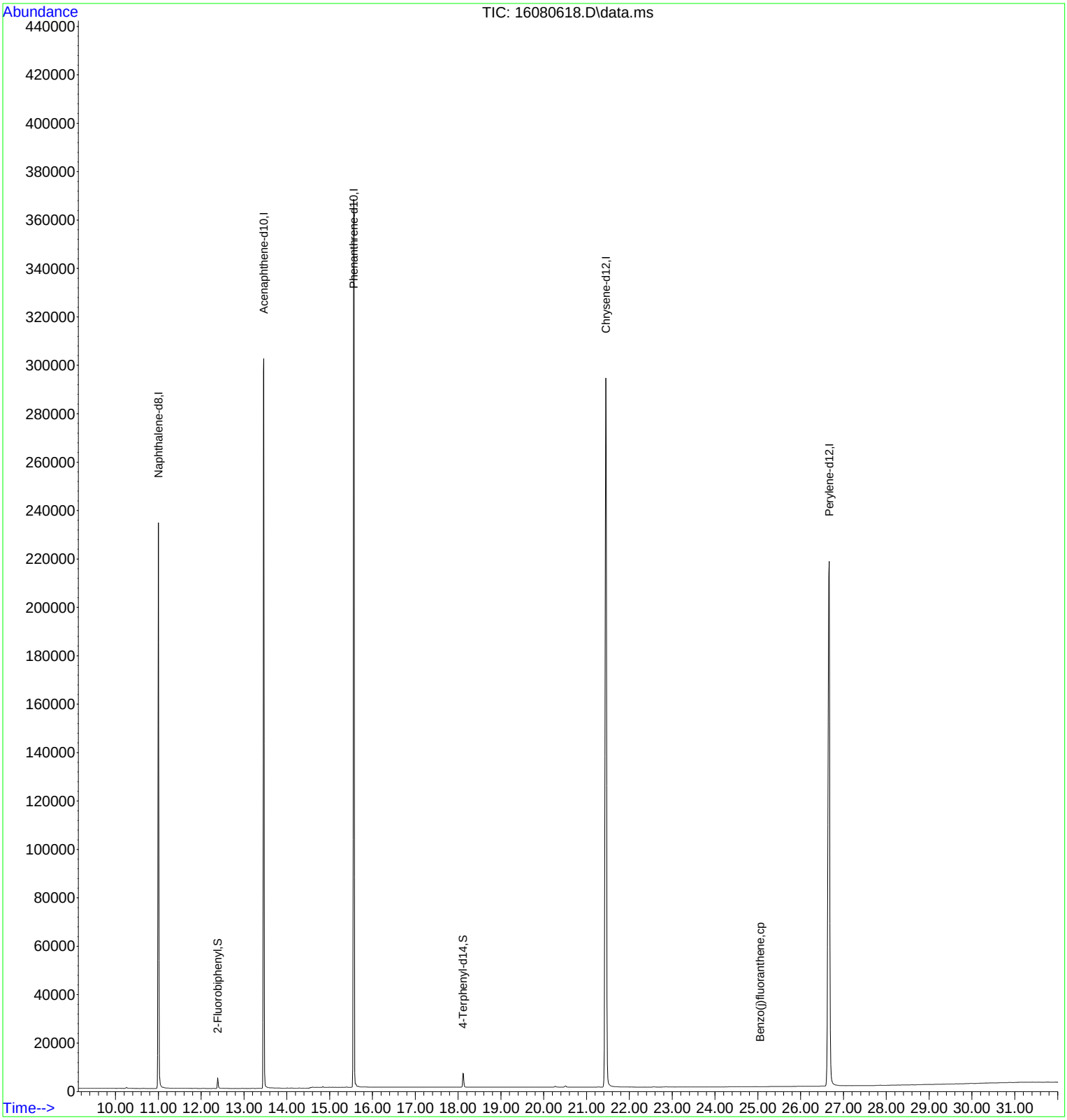
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.064	252	11	0.13	ug/kg#	1

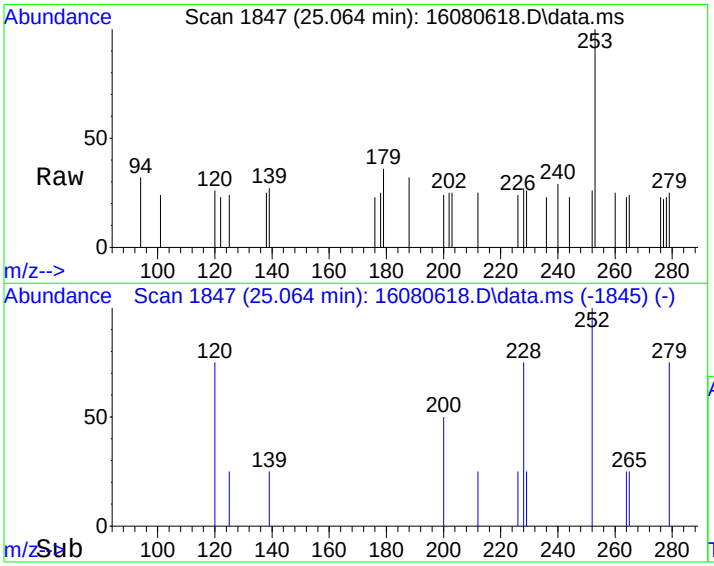
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080618.D
Acq On : 7 Aug 2016 12:15 am
Operator :
Sample : 1607265-08A
Misc : SAMP
ALS Vial : 18 Sample Multiplier: 10

Quant Time: Aug 08 12:22:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

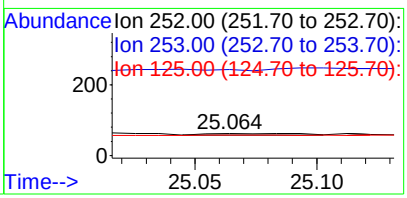




#23
Benzo(j)fluoranthene
Concen: 0.13 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.029 min
Lab File: 16080618.D
Acq: 7 Aug 2016 12:15 am

Tgt Ion:252 Resp: 11

Ion	Ratio	Lower	Upper
252	100		
253	209.1	1.9	41.9#
125	18.2	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080619.D
Acq On : 7 Aug 2016 12:54 am
Operator :
Sample : 1607265-09A
Misc : SAMP
ALS Vial : 19 Sample Multiplier: 10

Quant Time: Aug 08 12:22:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	287760	4000.00	ug/kg	109
6) Acenaphthene-d10	13.455	164	177476	4000.00	ug/kg	109
11) Phenanthrene-d10	15.559	188	499774	4000.00	ug/kg	97
17) Chrysene-d12	21.449	240	447180	4000.00	ug/kg	97
20) Perylene-d12	26.665	264	415829	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4576	71.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.79%#			
15) 4-Terphenyl-d14	18.114	244	6882	78.33	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.96%#			

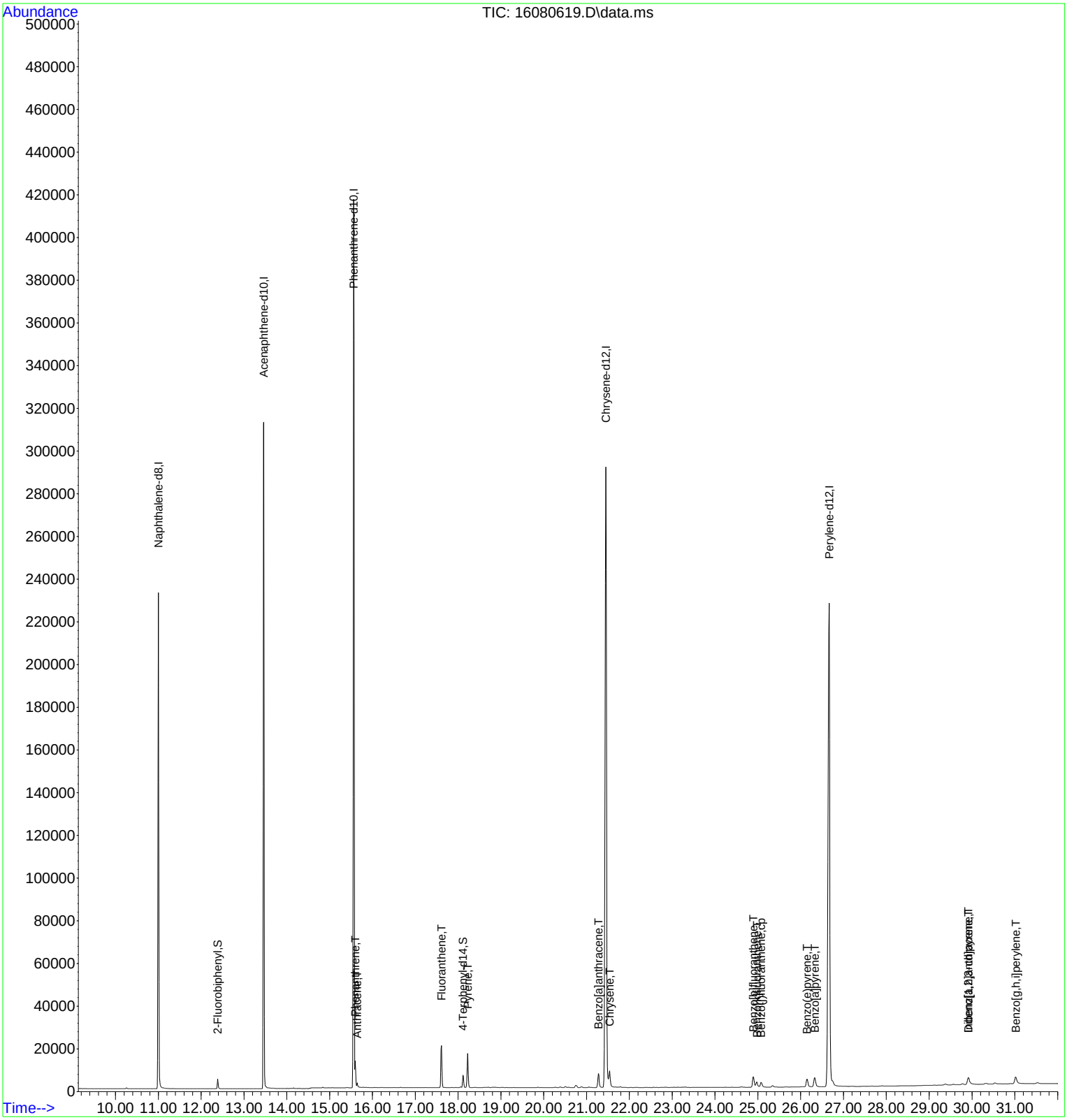
Target Compounds						Qvalue
12) Phenanthrene	15.597	178	10570	78.86	ug/kg	99
13) Anthracene	15.646	178	1892	14.50	ug/kg	98
14) Fluoranthene	17.612	202	22043	162.49	ug/kg	91
16) Pyrene	18.220	202	18462	136.12	ug/kg	99
18) Benzo[a]anthracene	21.276	228	9228	81.94	ug/kg	100
19) Chrysene	21.536	228	10369	97.27	ug/kg	99
21) Benzo[b]fluoranthene	24.891	252	9679	91.80	ug/kg	99
22) Benzo[k]fluoranthene	24.978	252	3945	44.92	ug/kg	97
23) Benzo(j)fluoranthene	25.074	252	3894	45.70	ug/kg	93
24) Benzo(e)pyrene	26.144	252	7342	69.98	ug/kg	97
25) Benzo[a]pyrene	26.327	252	9248	93.73	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.923	276	7189	58.74	ug/kg	88
27) Dibenz[a,h]anthracene	29.904	278	1415	14.42	ug/kg	95
28) Benzo[g,h,i]perylene	31.022	276	7735	71.19	ug/kg	99

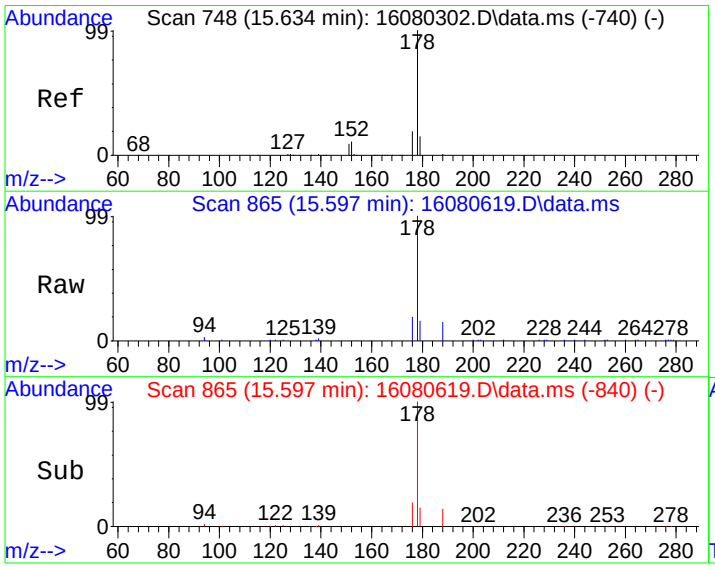
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080619.D
Acq On : 7 Aug 2016 12:54 am
Operator :
Sample : 1607265-09A
Misc : SAMP
ALS Vial : 19 Sample Multiplier: 10

Quant Time: Aug 08 12:22:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

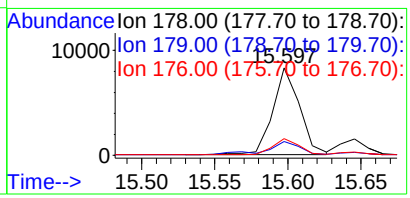


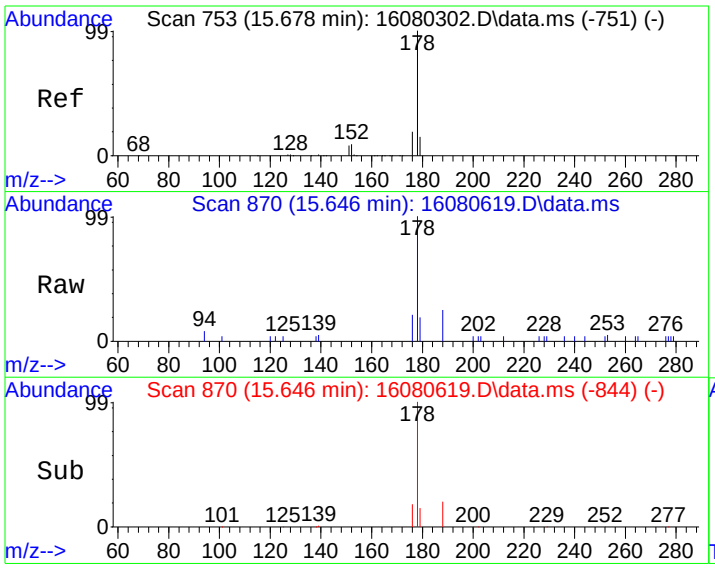


#12
Phenanthrene
Concen: 78.86 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:178 Resp: 10570

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	35.7
176	18.6	0.0	38.8

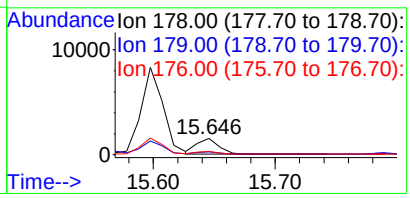


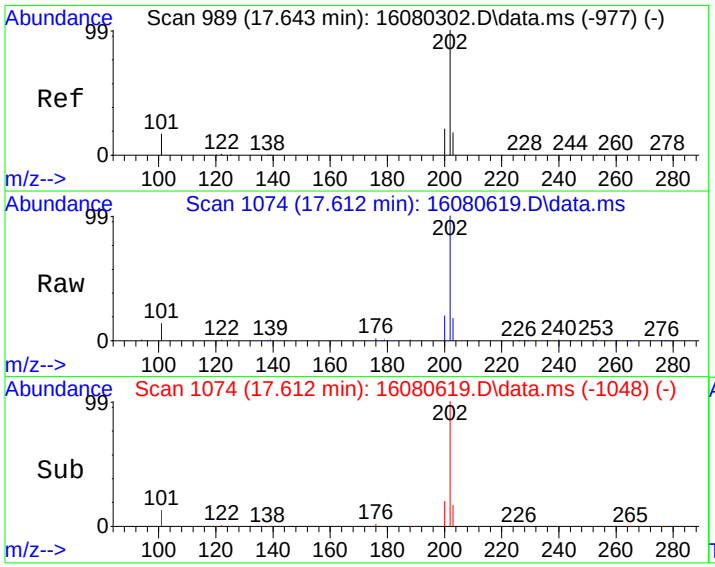


#13
Anthracene
Concen: 14.50 ug/kg
RT: 15.646 min Scan# 870
Delta R.T. 0.001 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:178 Resp: 1892

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	35.5
176	17.9	0.0	38.7

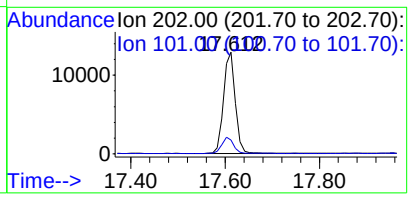


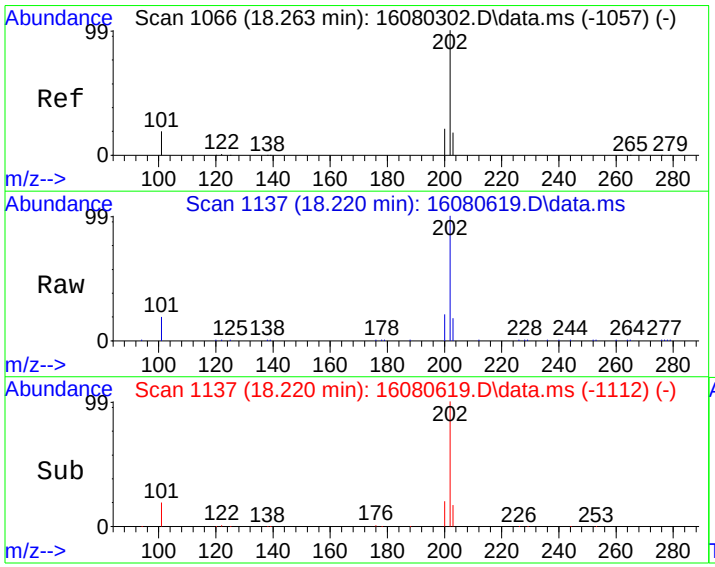


#14
Fluoranthene
Concen: 162.49 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.001 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:202 Resp: 22043

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	37.2

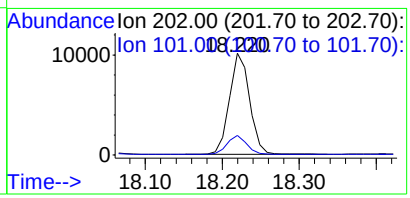


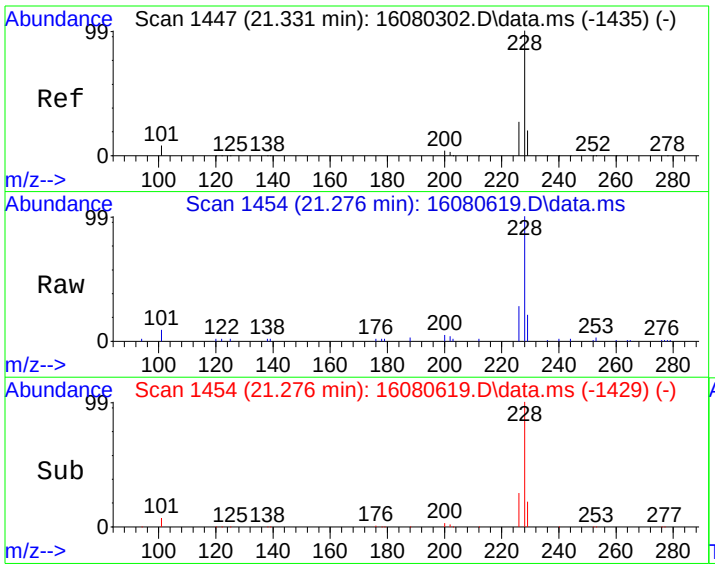


#16
Pyrene
Concen: 136.12 ug/kg
RT: 18.220 min Scan# 1137
Delta R.T. -0.009 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:202 Resp: 18462

Ion	Ratio	Lower	Upper
202	100		
101	18.6	0.0	38.0

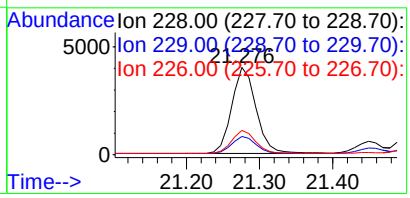


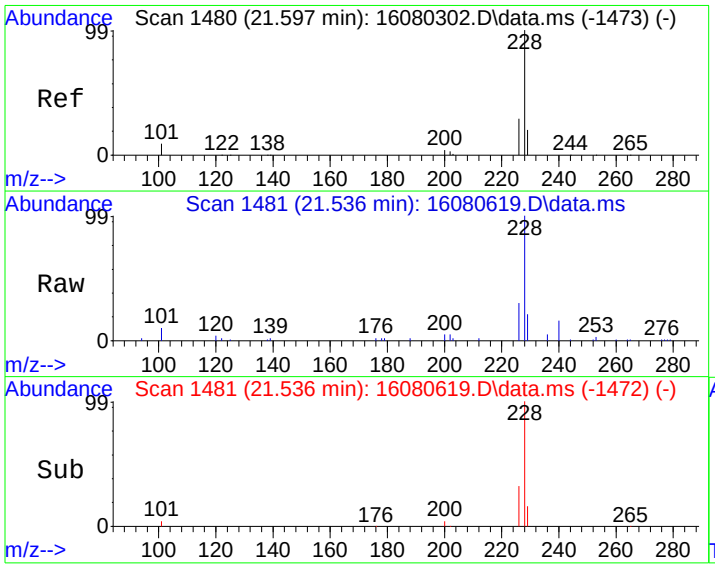


#18
Benzo[a]anthracene
Concen: 81.94 ug/kg
RT: 21.276 min Scan# 1454
Delta R.T. -0.009 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:228 Resp: 9228

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	39.9
226	26.9	6.7	46.7

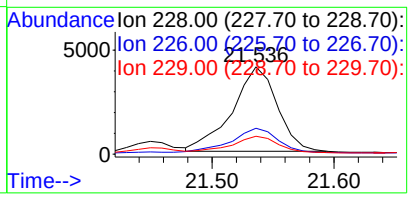


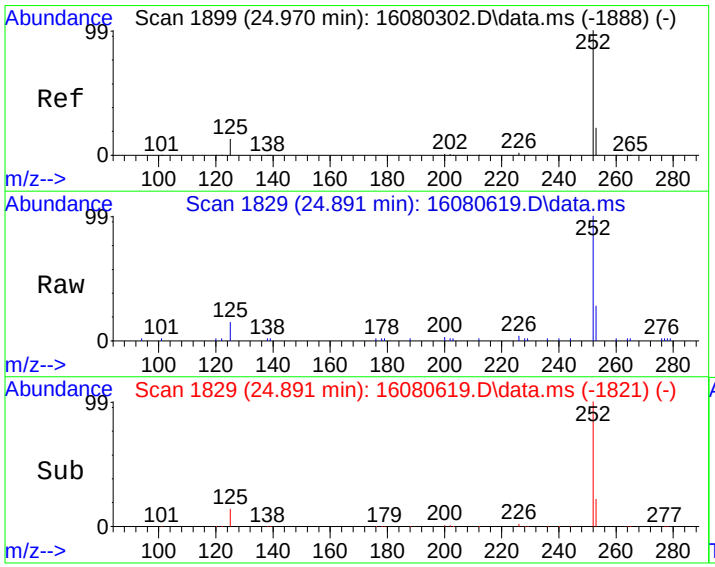


#19
Chrysene
Concen: 97.27 ug/kg
RT: 21.536 min Scan# 1481
Delta R.T. -0.009 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:228 Resp: 10369

Ion	Ratio	Lower	Upper
228	100		
226	29.0	9.3	49.3
229	19.4	0.0	39.8

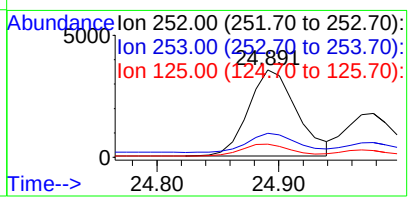


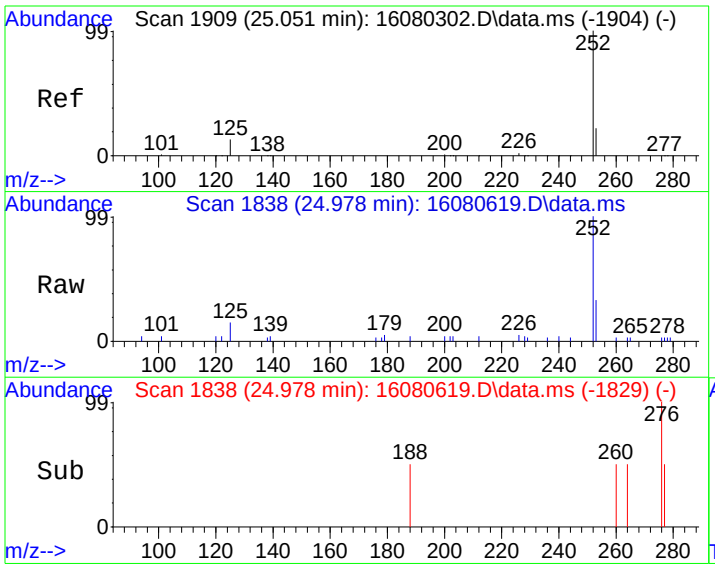


#21
Benzo[b]fluoranthene
Concen: 91.80 ug/kg
RT: 24.891 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:252 Resp: 9679

Ion	Ratio	Lower	Upper
252	100		
253	22.2	1.9	41.9
125	13.8	0.0	33.2

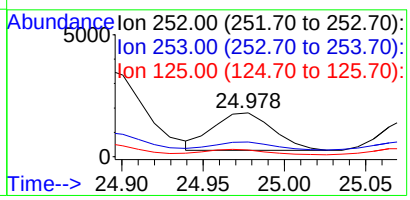


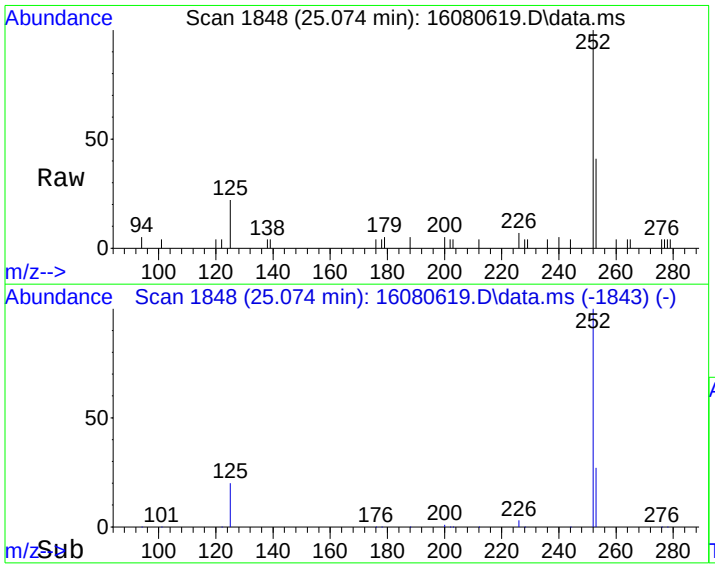


#22
Benzo[k]fluoranthene
Concen: 44.92 ug/kg
RT: 24.978 min Scan# 1838
Delta R.T. -0.009 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:252 Resp: 3945

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.1	42.1
125	12.4	0.0	33.9

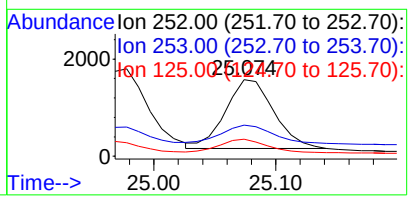


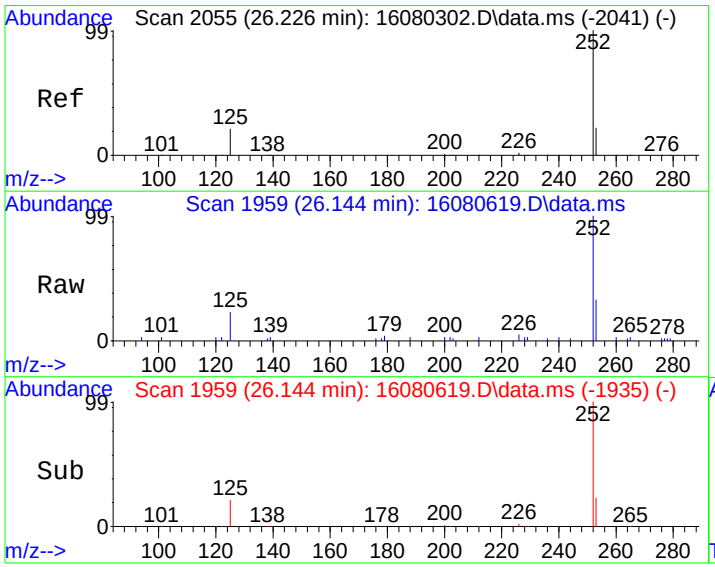


#23
Benzo(j)fluoranthene
Concen: 45.70 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:252 Resp: 3894

Ion	Ratio	Lower	Upper
252	100		
253	27.8	1.9	41.9
125	18.9	0.0	39.4

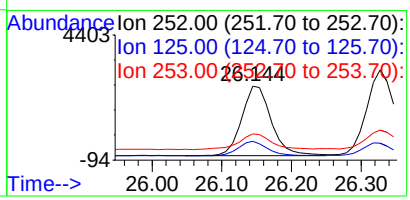


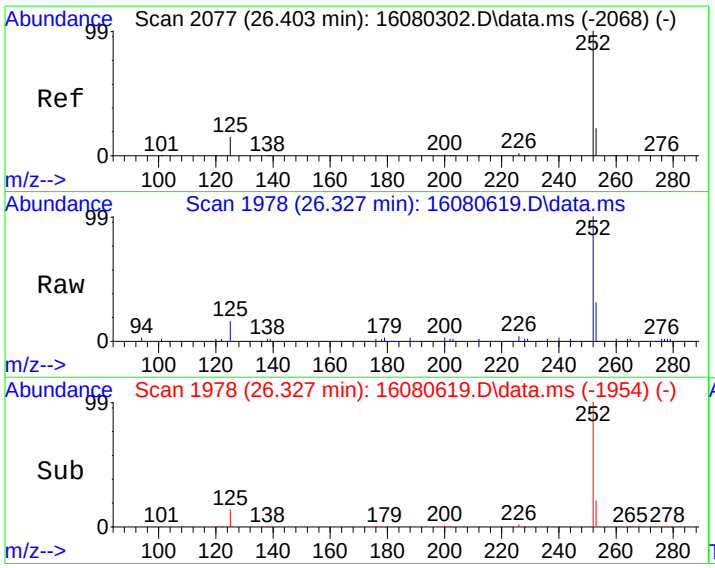


#24
Benzo(e)pyrene
Concen: 69.98 ug/kg
RT: 26.144 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:252 Resp: 7342

Ion	Ratio	Lower	Upper
252	100		
125	20.4	0.5	40.5
253	24.8	2.1	42.1

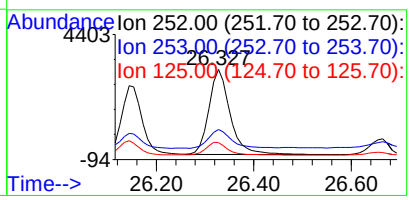


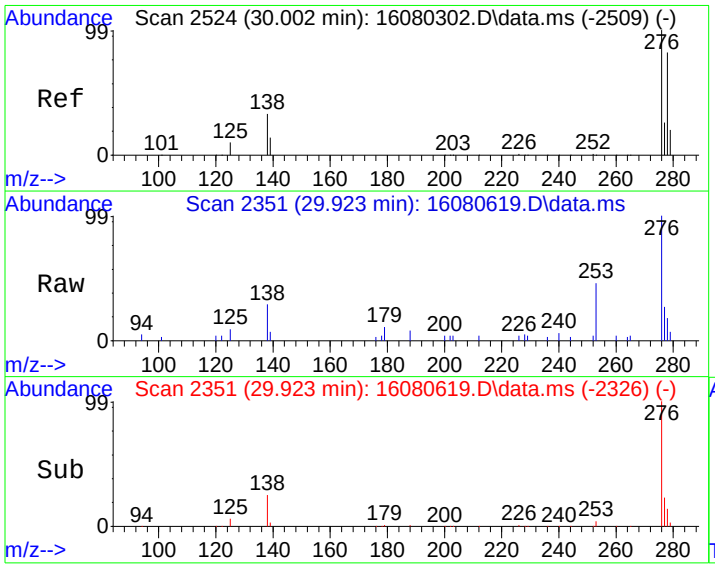


#25
Benzo[a]pyrene
Concen: 93.73 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:252 Resp: 9248

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	14.8	0.0	33.5

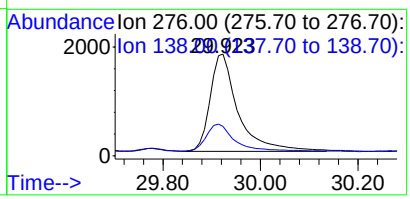


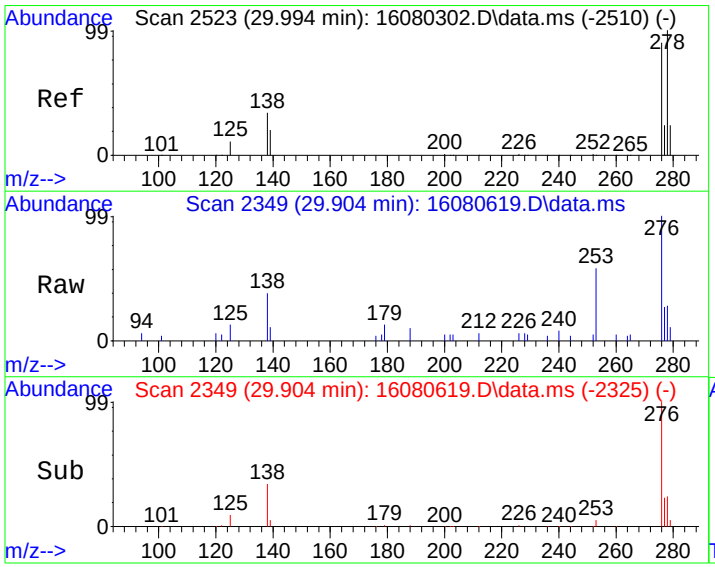


#26
Indeno[1,2,3-cd]pyrene
Concen: 58.74 ug/kg
RT: 29.923 min Scan# 2351
Delta R.T. -0.009 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:276 Resp: 7189

Ion	Ratio	Lower	Upper
276	100		
138	25.2	12.2	52.2

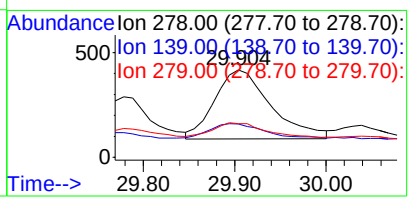


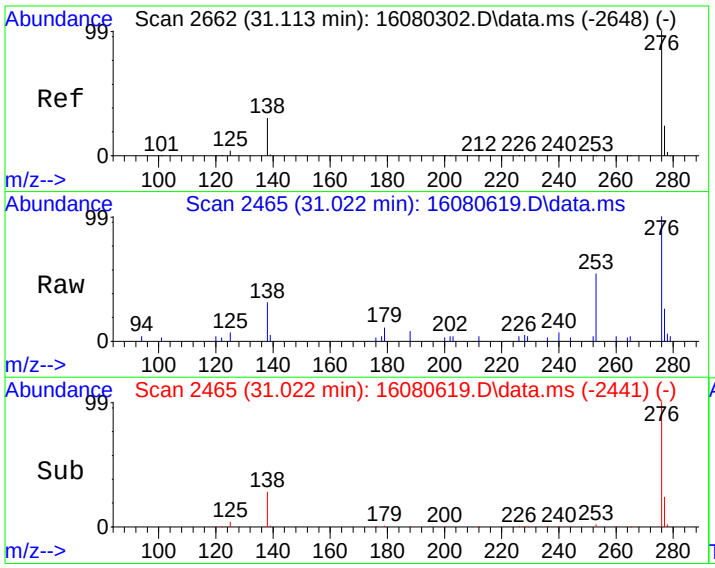


#27
Dibenz[a,h]anthracene
Concen: 14.42 ug/kg
RT: 29.904 min Scan# 2349
Delta R.T. -0.019 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:278 Resp: 1415

Ion	Ratio	Lower	Upper
278	100		
139	22.8	0.2	40.2
279	21.8	3.9	43.9

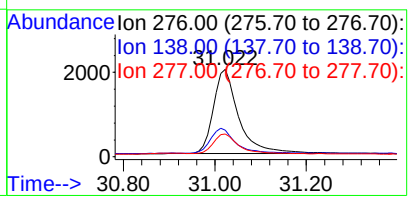




#28
Benzo[g,h,i]perylene
Concen: 71.19 ug/kg
RT: 31.022 min Scan# 2465
Delta R.T. -0.019 min
Lab File: 16080619.D
Acq: 7 Aug 2016 12:54 am

Tgt Ion:276 Resp: 7735

Ion	Ratio	Lower	Upper
276	100		
138	27.5	6.9	46.9
277	23.7	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080620.D
Acq On : 7 Aug 2016 1:34 am
Operator :
Sample : 1607265-10A
Misc : SAMP
ALS Vial : 20 Sample Multiplier: 10

Quant Time: Aug 08 12:22:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	292903	4000.00	ug/kg	111
6) Acenaphthene-d10	13.461	164	175939	4000.00	ug/kg	108
11) Phenanthrene-d10	15.559	188	485767	4000.00	ug/kg	94
17) Chrysene-d12	21.449	240	449604	4000.00	ug/kg	97
20) Perylene-d12	26.665	264	417501	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	4604	70.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.77%#			
15) 4-Terphenyl-d14	18.114	244	6926	81.10	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.03%#			

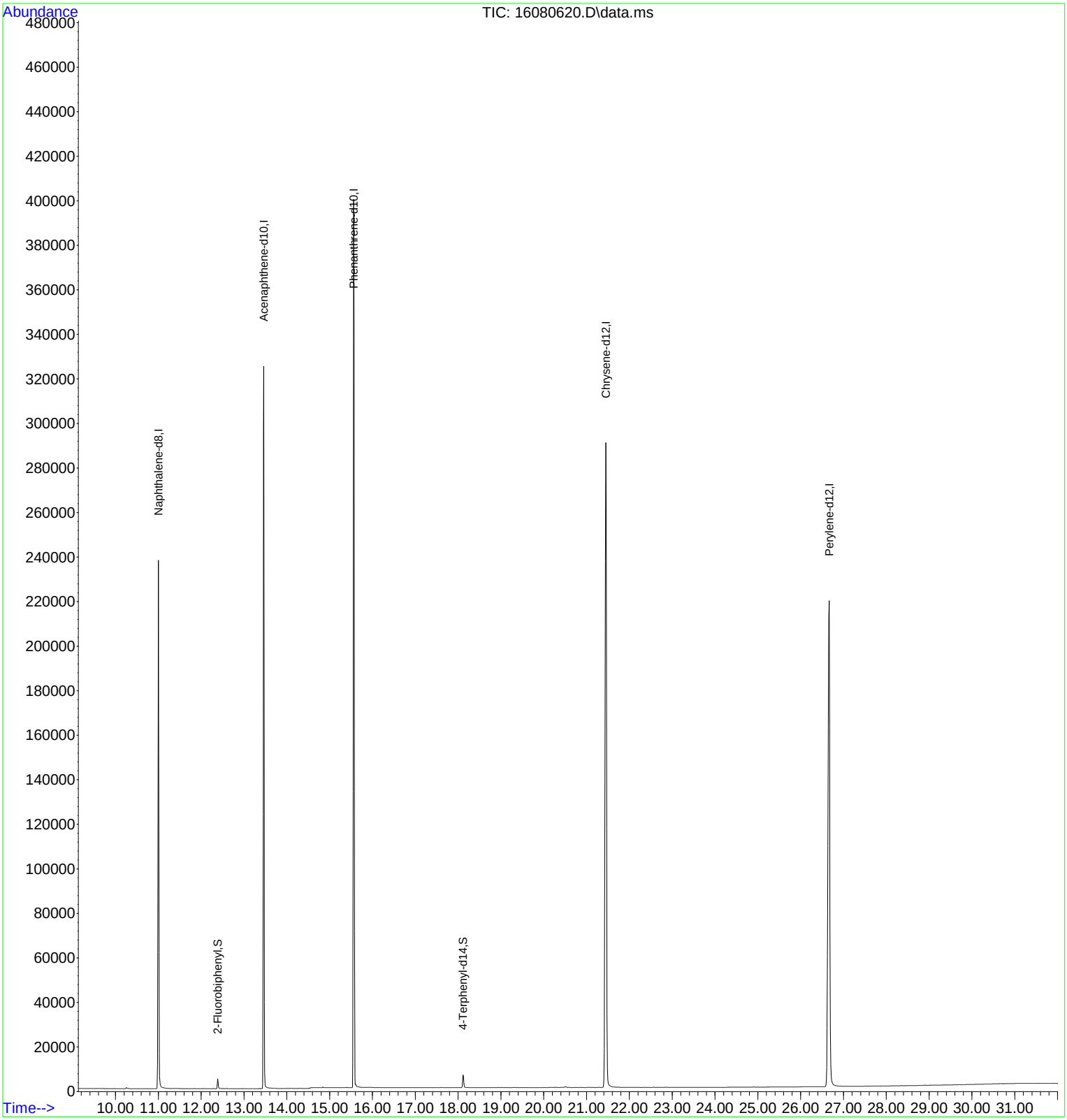
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080620.D
Acq On : 7 Aug 2016 1:34 am
Operator :
Sample : 1607265-10A
Misc : SAMP
ALS Vial : 20 Sample Multiplier: 10

Quant Time: Aug 08 12:22:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080621.D
Acq On : 7 Aug 2016 2:14 am
Operator :
Sample : 1607265-11A
Misc : SAMP
ALS Vial : 21 Sample Multiplier: 10

Quant Time: Aug 08 12:22:36 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.997	136	296504	4000.00	ug/kg	112
6) Acenaphthene-d10	13.458	164	178803	4000.00	ug/kg	110
11) Phenanthrene-d10	15.568	188	495384	4000.00	ug/kg	96
17) Chrysene-d12	21.449	240	466430	4000.00	ug/kg	101
20) Perylene-d12	26.664	264	431026	4000.00	ug/kg	103

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.387	172	4514	68.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.71%#			
15) 4-Terphenyl-d14	18.123	244	7236	83.08	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.08%#			

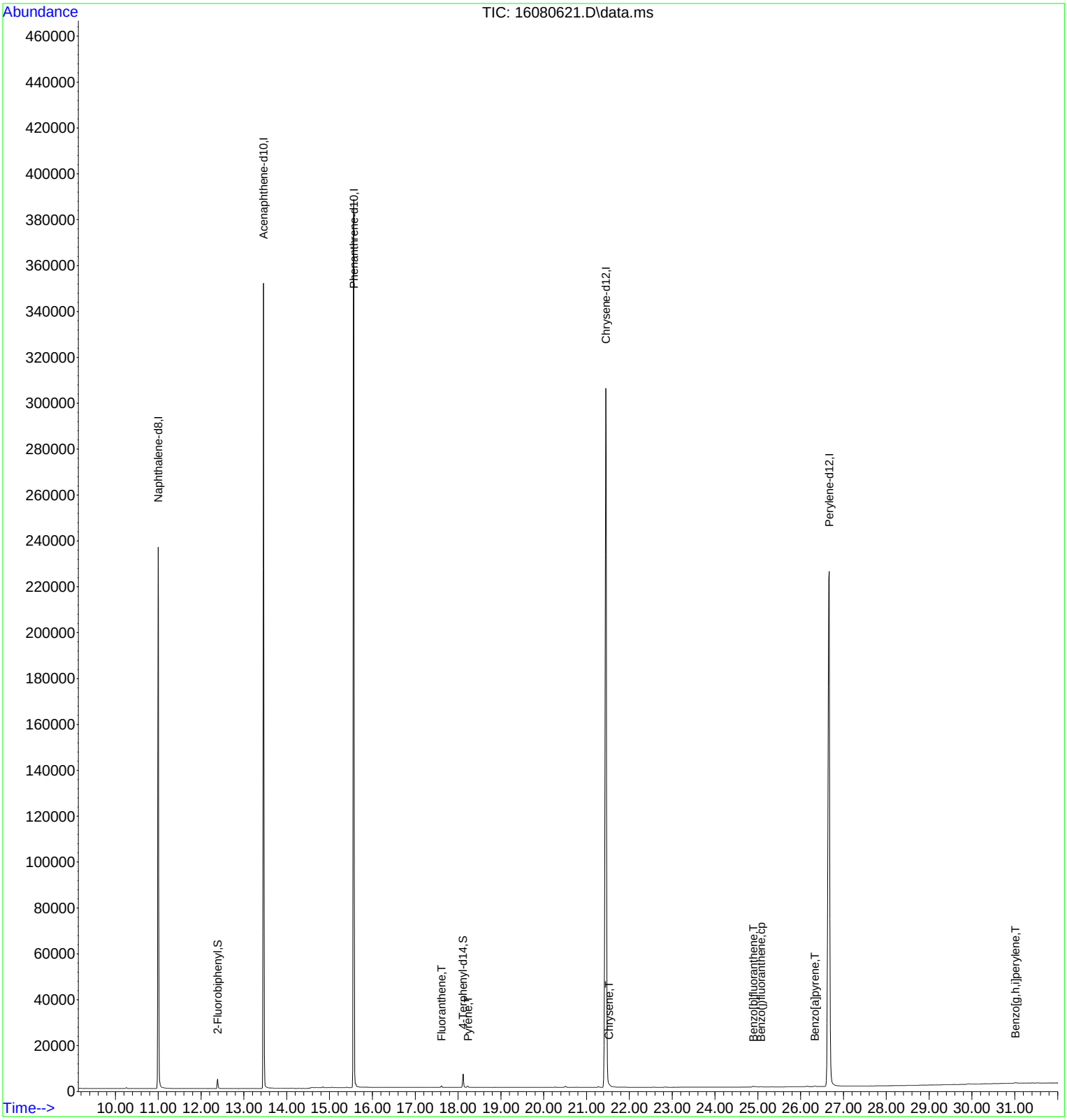
Target Compounds						Qvalue
14) Fluoranthene	17.612	202	817	6.08	ug/kg	94
16) Pyrene	18.229	202	749	5.57	ug/kg	93
19) Chrysene	21.535	228	618	5.56	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	637	5.83	ug/kg	96
23) Benzo(j)fluoranthene	25.083	252	227	2.57	ug/kg	87
25) Benzo[a]pyrene	26.327	252	586	5.73	ug/kg	94
28) Benzo[g,h,i]perylene	31.012	276	602	5.35	ug/kg	96

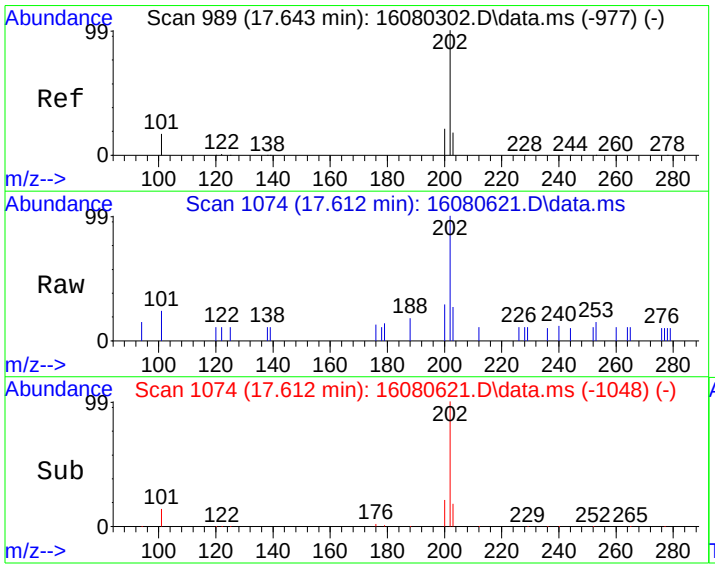
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080621.D
Acq On : 7 Aug 2016 2:14 am
Operator :
Sample : 1607265-11A
Misc : SAMP
ALS Vial : 21 Sample Multiplier: 10

Quant Time: Aug 08 12:22:36 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

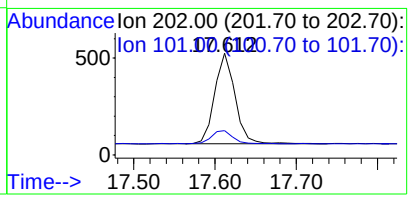


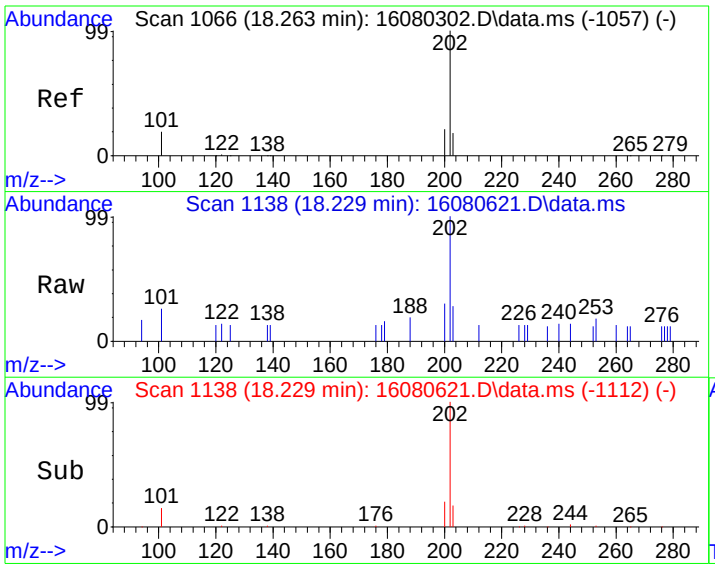


#14
Fluoranthene
Concen: 6.08 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.000 min
Lab File: 16080621.D
Acq: 7 Aug 2016 2:14 am

Tgt Ion:202 Resp: 817

Ion	Ratio	Lower	Upper
202	100		
101	14.7	0.0	37.2

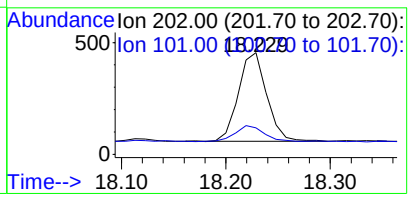


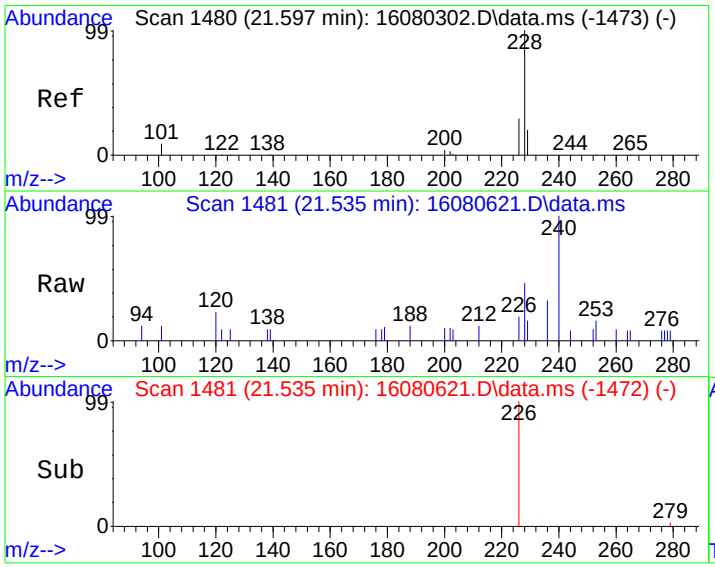


#16
Pyrene
Concen: 5.57 ug/kg
RT: 18.229 min Scan# 1138
Delta R.T. 0.000 min
Lab File: 16080621.D
Acq: 7 Aug 2016 2:14 am

Tgt Ion:202 Resp: 749

Ion	Ratio	Lower	Upper
202	100		
101	15.1	0.0	38.0

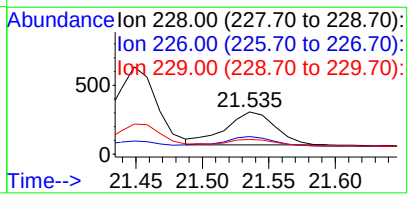


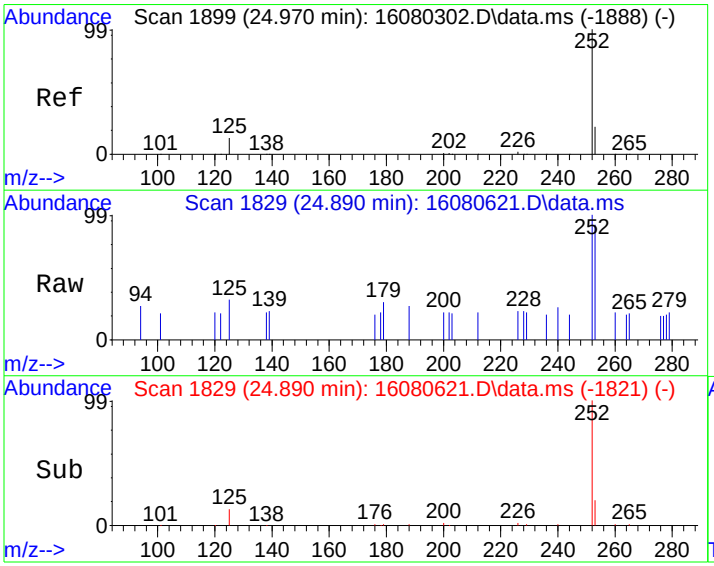


#19
Chrysene
Concen: 5.56 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080621.D
Acq: 7 Aug 2016 2:14 am

Tgt Ion:228 Resp: 618

Ion	Ratio	Lower	Upper
228	100		
226	29.5	9.3	49.3
229	19.0	0.0	39.8

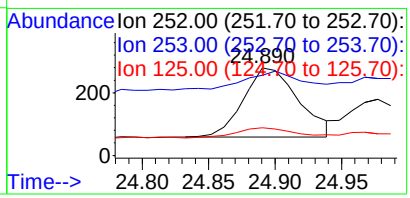


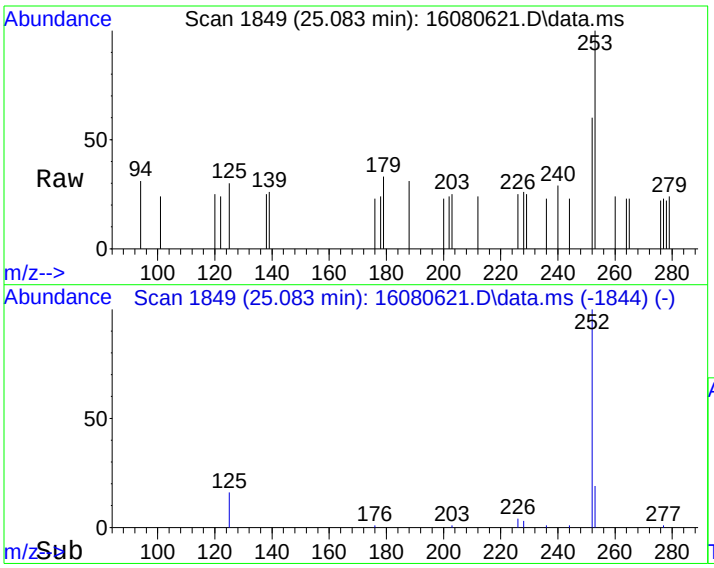


#21
Benzo[b]fluoranthene
Concen: 5.83 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080621.D
Acq: 7 Aug 2016 2:14 am

Tgt Ion:252 Resp: 637

Ion	Ratio	Lower	Upper
252	100		
253	19.5	1.9	41.9
125	14.5	0.0	33.2

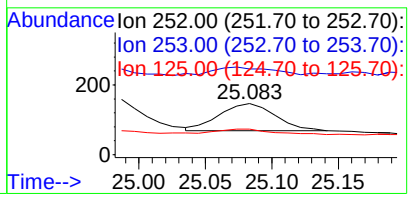


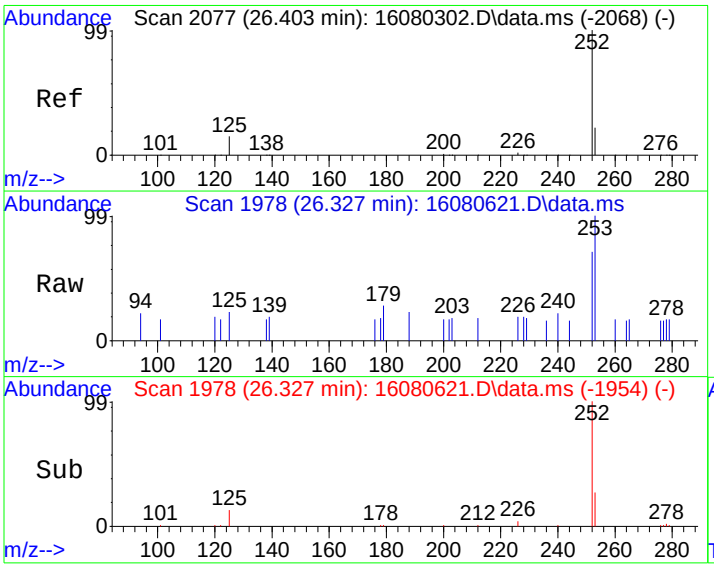


#23
Benzo(j)fluoranthene
Concen: 2.57 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16080621.D
Acq: 7 Aug 2016 2:14 am

Tgt Ion:252 Resp: 227

Ion	Ratio	Lower	Upper
252	100		
253	33.5	1.9	41.9
125	18.9	0.0	39.4

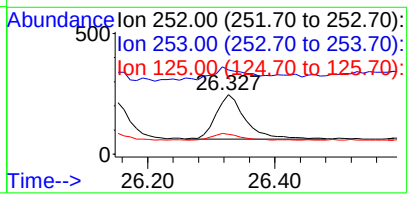


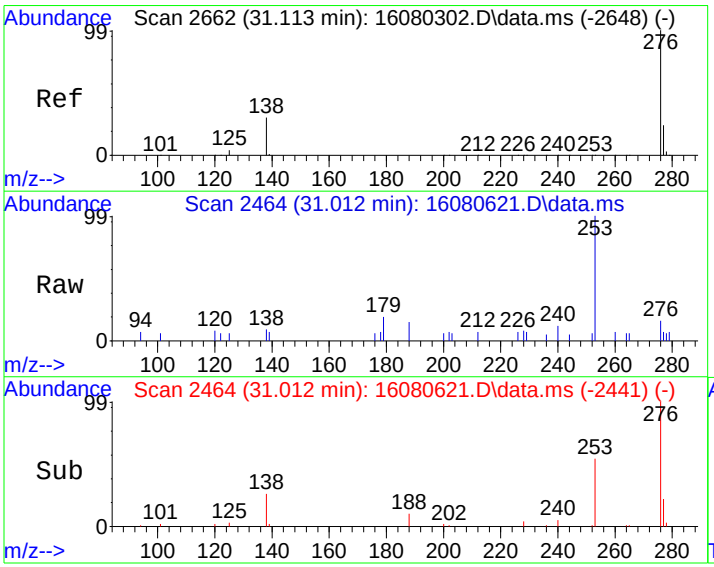


#25
Benzo[a]pyrene
Concen: 5.73 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080621.D
Acq: 7 Aug 2016 2:14 am

Tgt Ion:252 Resp: 586

Ion	Ratio	Lower	Upper
252	100		
253	17.9	1.9	41.9
125	13.0	0.0	33.5

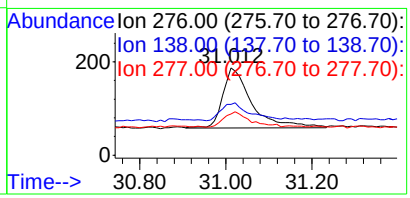




#28
Benzo[g,h,i]perylene
Concen: 5.35 ug/kg
RT: 31.012 min Scan# 2464
Delta R.T. -0.029 min
Lab File: 16080621.D
Acq: 7 Aug 2016 2:14 am

Tgt Ion:276 Resp: 602

Ion	Ratio	Lower	Upper
276	100		
138	25.8	6.9	46.9
277	21.1	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080622.D
Acq On : 7 Aug 2016 2:54 am
Operator :
Sample : 1607265-12A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 08 12:22:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	295149	4000.00	ug/kg	111
6) Acenaphthene-d10	13.455	164	179320	4000.00	ug/kg	111
11) Phenanthrene-d10	15.566	188	499462	4000.00	ug/kg	97
17) Chrysene-d12	21.447	240	464949	4000.00	ug/kg	100
20) Perylene-d12	26.663	264	428892	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4783	72.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.82%#			
15) 4-Terphenyl-d14	18.121	244	7509	85.52	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.14%#			

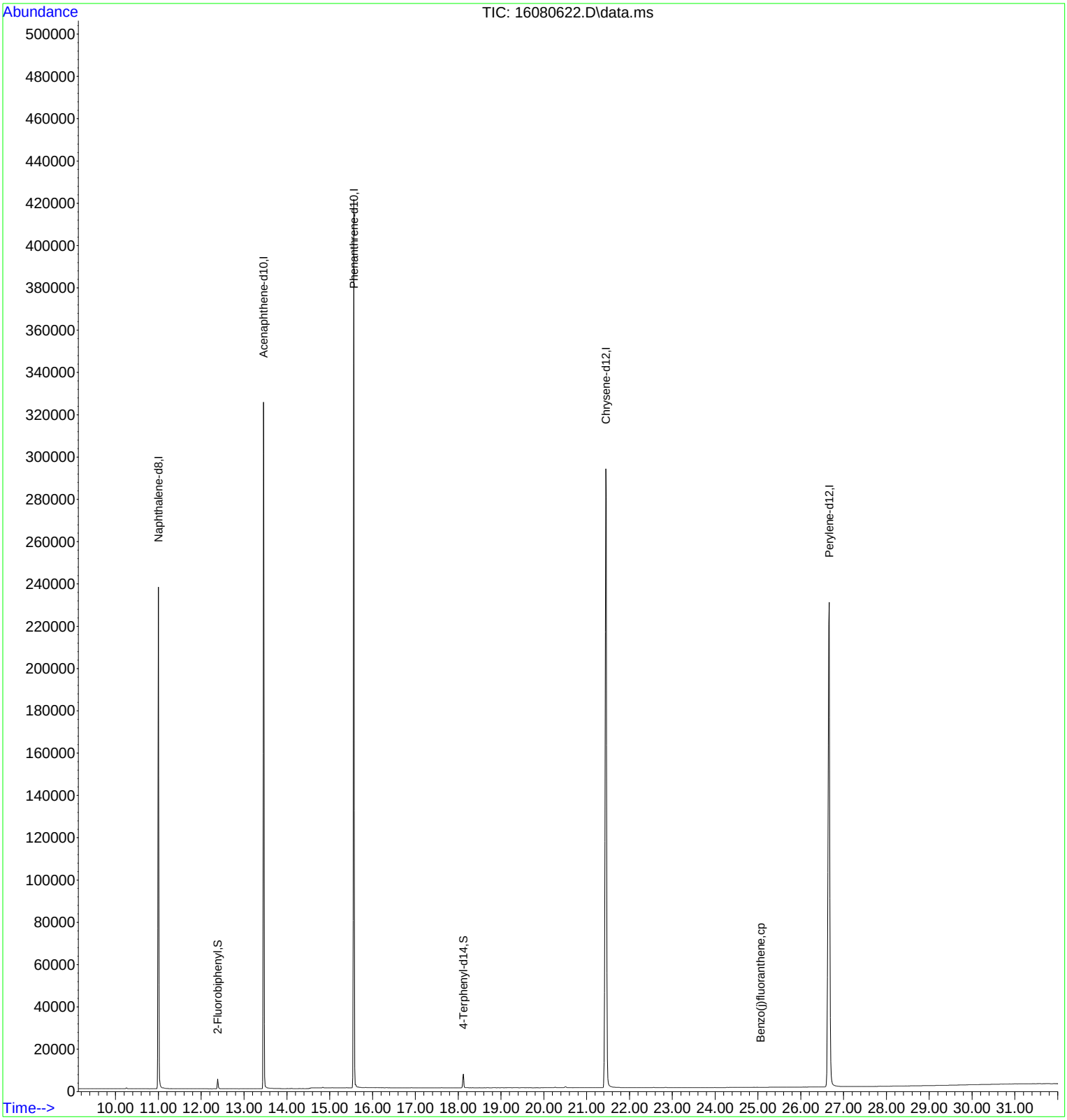
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.053	252	5	0.06	ug/kg#	1

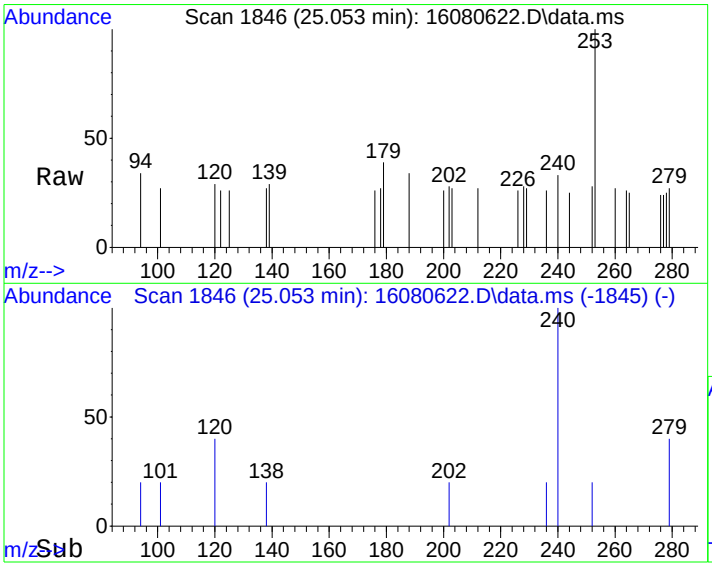
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080622.D
Acq On : 7 Aug 2016 2:54 am
Operator :
Sample : 1607265-12A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 08 12:22:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

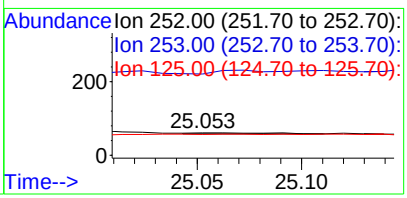




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 25.053 min Scan# 1846
Delta R.T. -0.040 min
Lab File: 16080622.D
Acq: 7 Aug 2016 2:54 am

Tgt Ion:252 Resp: 5

Ion	Ratio	Lower	Upper
252	100		
253	320.0	1.9	41.9#
125	0.0	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080623.D
Acq On : 7 Aug 2016 3:34 am
Operator :
Sample : 1607265-14A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 08 12:22:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	268217	4000.00	ug/kg	101
6) Acenaphthene-d10	13.455	164	174004	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	491588	4000.00	ug/kg	95
17) Chrysene-d12	21.447	240	439308	4000.00	ug/kg	95
20) Perylene-d12	26.663	264	408588	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4535	76.00	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.90%#			
15) 4-Terphenyl-d14	18.121	244	7493	86.70	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.17%#			

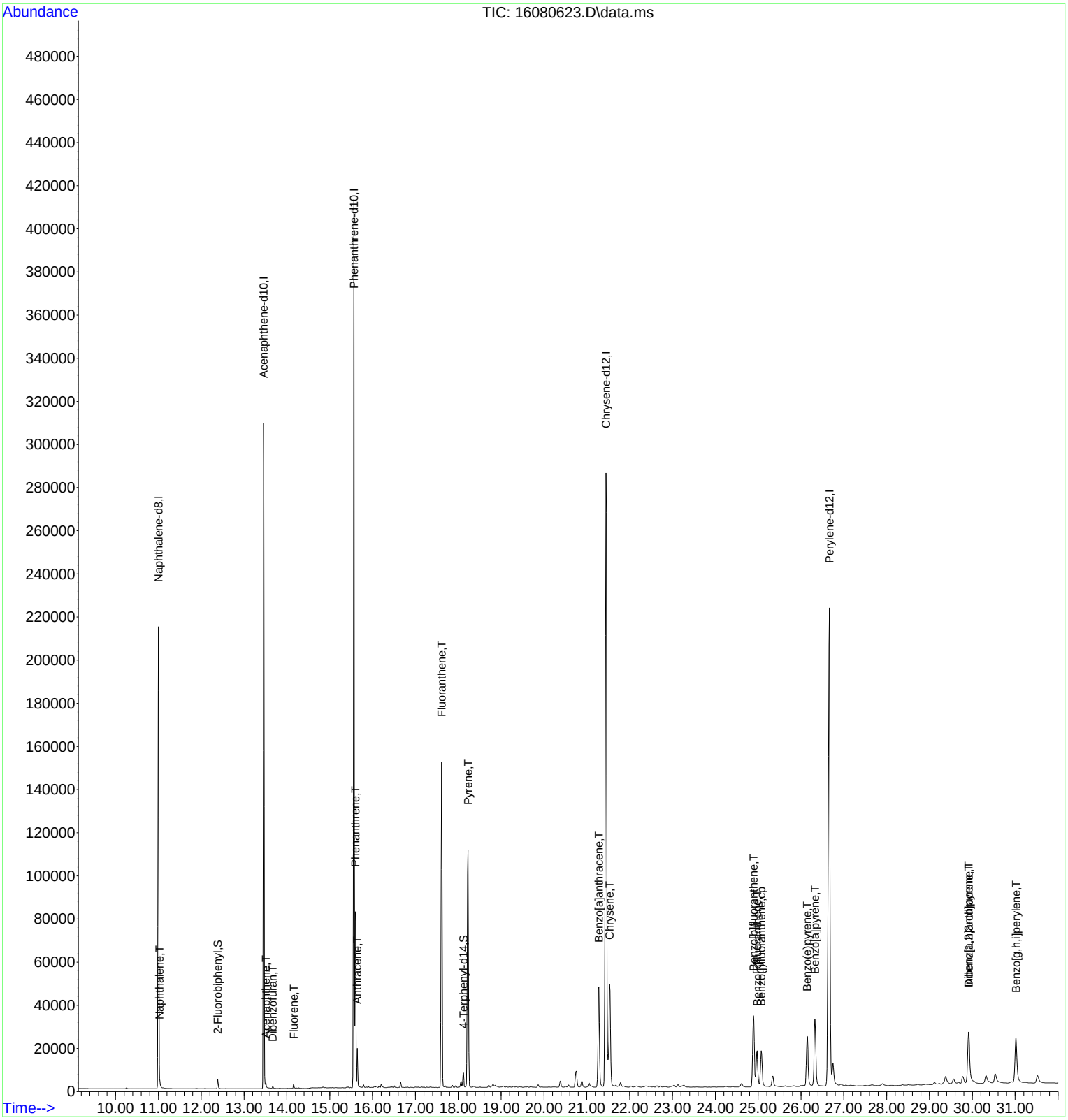
Target Compounds						Qvalue
2) Naphthalene	11.030	128	670	10.47	ug/kg	98
8) Acenaphthene	13.505	153	935	17.77	ug/kg	98
9) Dibenzofuran	13.675	168	1030	11.41	ug/kg	89
10) Fluorene	14.157	166	1132	14.50	ug/kg	99
12) Phenanthrene	15.595	178	83173	651.96	ug/kg	99
13) Anthracene	15.644	178	15990	124.61	ug/kg	99
14) Fluoranthene	17.610	202	157139	1177.67	ug/kg	96
16) Pyrene	18.227	202	125953	944.13	ug/kg	96
18) Benzo[a]anthracene	21.283	228	66972	605.30	ug/kg	99
19) Chrysene	21.534	228	71289	680.75	ug/kg	100
21) Benzo[b]fluoranthene	24.889	252	63127	609.36	ug/kg	99
22) Benzo[k]fluoranthene	24.976	252	27240	315.66	ug/kg	97
23) Benzo(j)fluoranthene	25.072	252	27096	323.61	ug/kg	91
24) Benzo(e)pyrene	26.152	252	44901	435.56	ug/kg	98
25) Benzo[a]pyrene	26.325	252	61100	630.26	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.921	276	43911	365.14	ug/kg	86
27) Dibenz[a,h]anthracene	29.902	278	9818	101.81	ug/kg	96
28) Benzo[g,h,i]perylene	31.020	276	44815	419.78	ug/kg	99

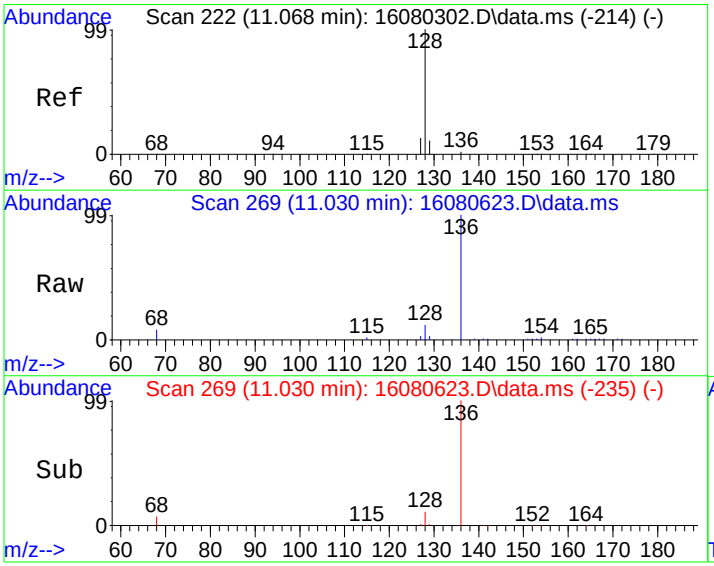
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080623.D
Acq On : 7 Aug 2016 3:34 am
Operator :
Sample : 1607265-14A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 08 12:22:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

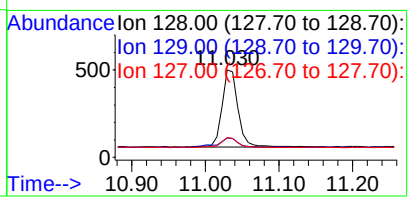


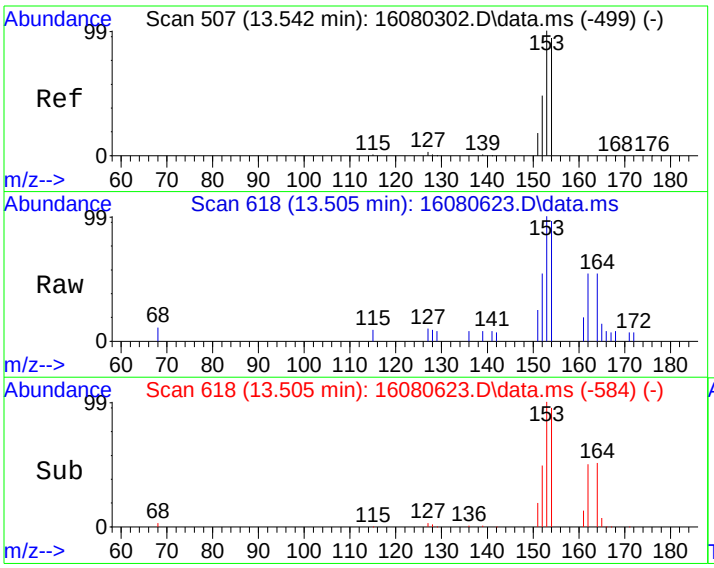


#2
Naphthalene
Concen: 10.47 ug/kg
RT: 11.030 min Scan# 269
Delta R.T. -0.009 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:128 Resp: 670

Ion	Ratio	Lower	Upper
128	100		
129	12.0	0.0	31.0
127	12.9	0.0	32.5

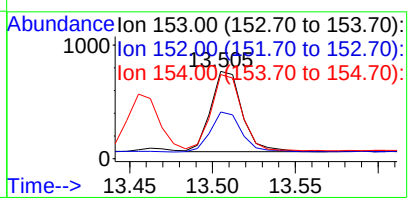


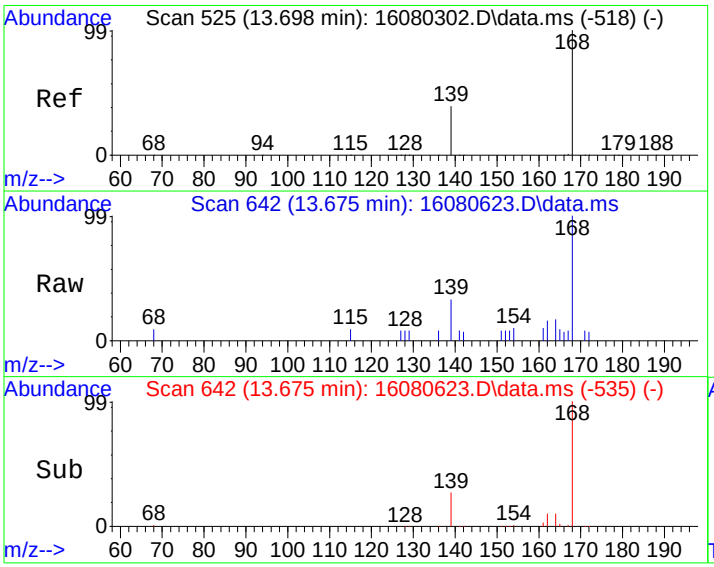


#8
Acenaphthene
Concen: 17.77 ug/kg
RT: 13.505 min Scan# 618
Delta R.T. -0.009 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:153 Resp: 935

Ion	Ratio	Lower	Upper
153	100		
152	49.4	27.7	67.7
154	94.6	75.7	115.7

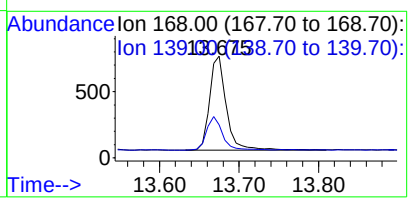


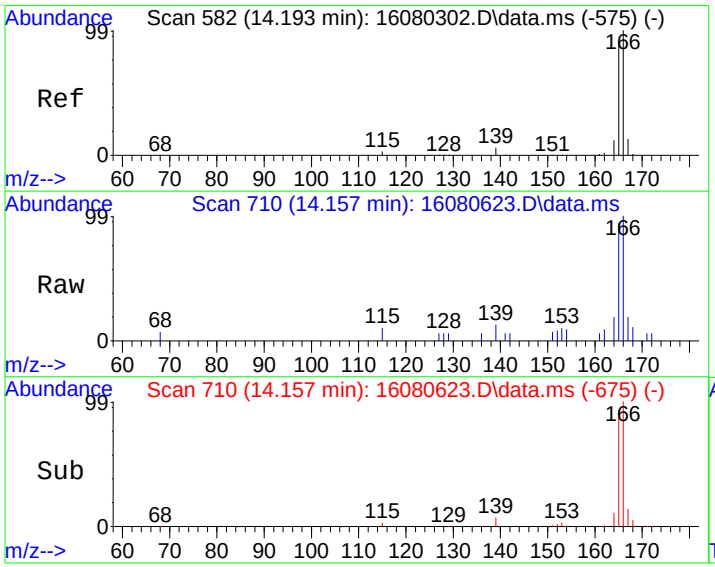


#9
Dibenzofuran
Concen: 11.41 ug/kg
RT: 13.675 min Scan# 642
Delta R.T. 0.006 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:168 Resp: 1030

Ion	Ratio	Lower	Upper
168	100		
139	27.1	13.2	53.2

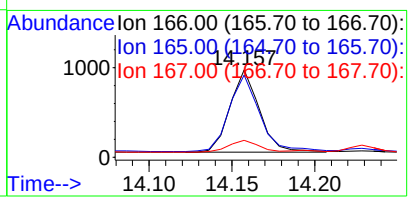


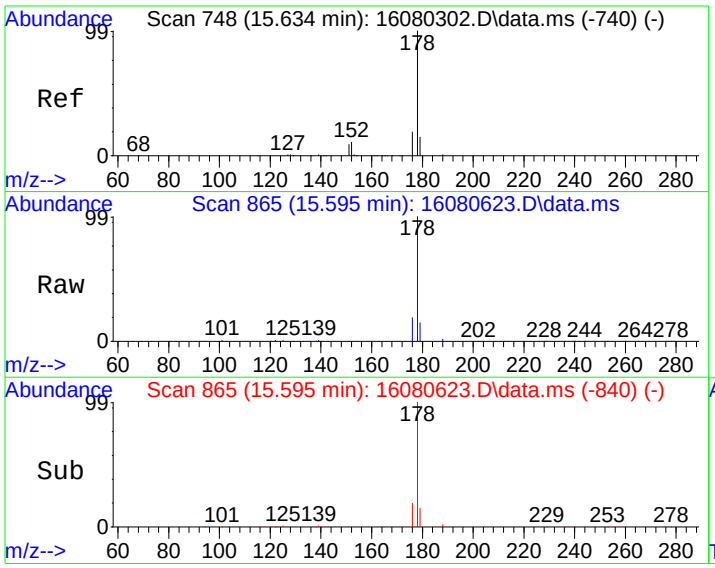


#10
Fluorene
Concen: 14.50 ug/kg
RT: 14.157 min Scan# 710
Delta R.T. -0.001 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:166 Resp: 1132

Ion	Ratio	Lower	Upper
166	100		
165	92.9	71.8	111.8
167	14.3	0.0	33.5

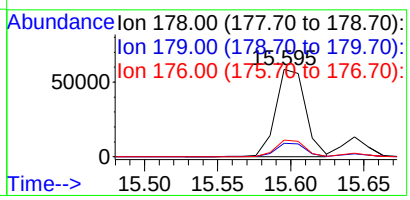


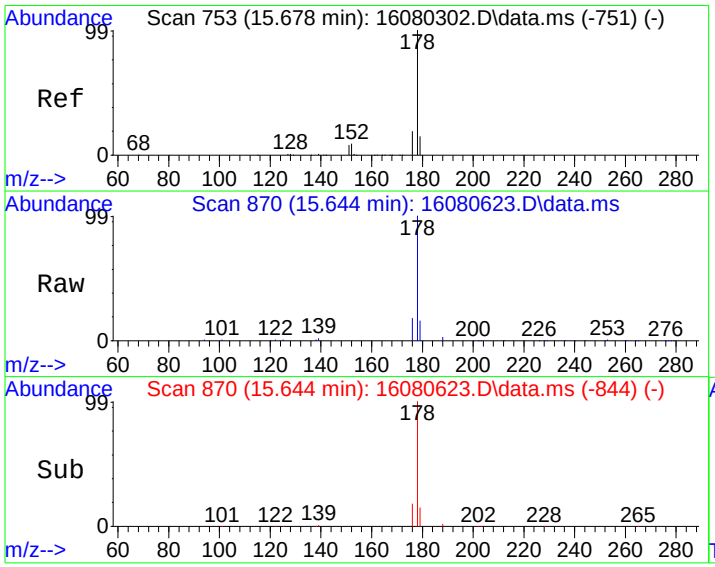


#12
Phenanthrene
Concen: 651.96 ug/kg
RT: 15.595 min Scan# 865
Delta R.T. -0.011 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:178 Resp: 83173

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.7
176	19.2	0.0	38.8

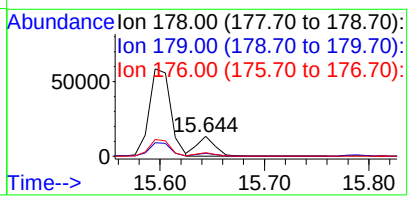


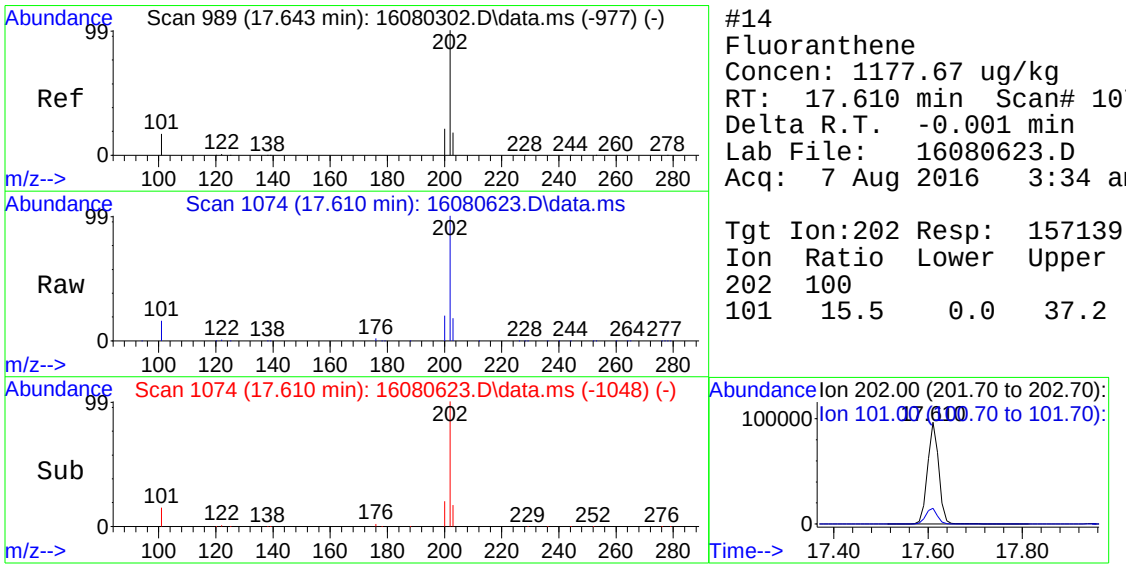


#13
Anthracene
Concen: 124.61 ug/kg
RT: 15.644 min Scan# 870
Delta R.T. -0.001 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:178 Resp: 15990

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.5
176	18.0	0.0	38.7

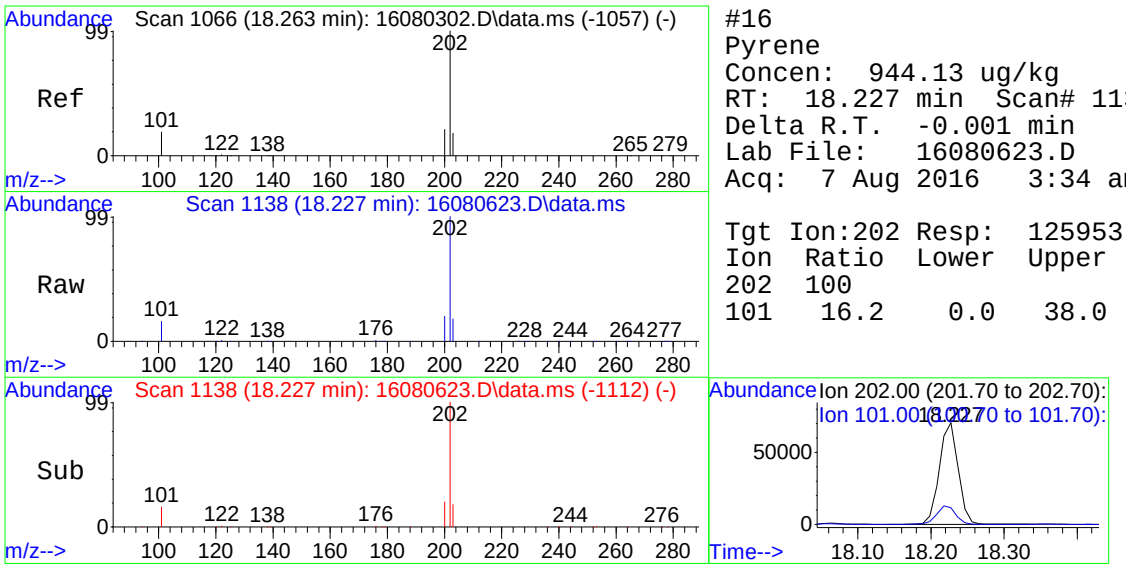




#14
Fluoranthene
Concen: 1177.67 ug/kg
RT: 17.610 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:202 Resp: 157139

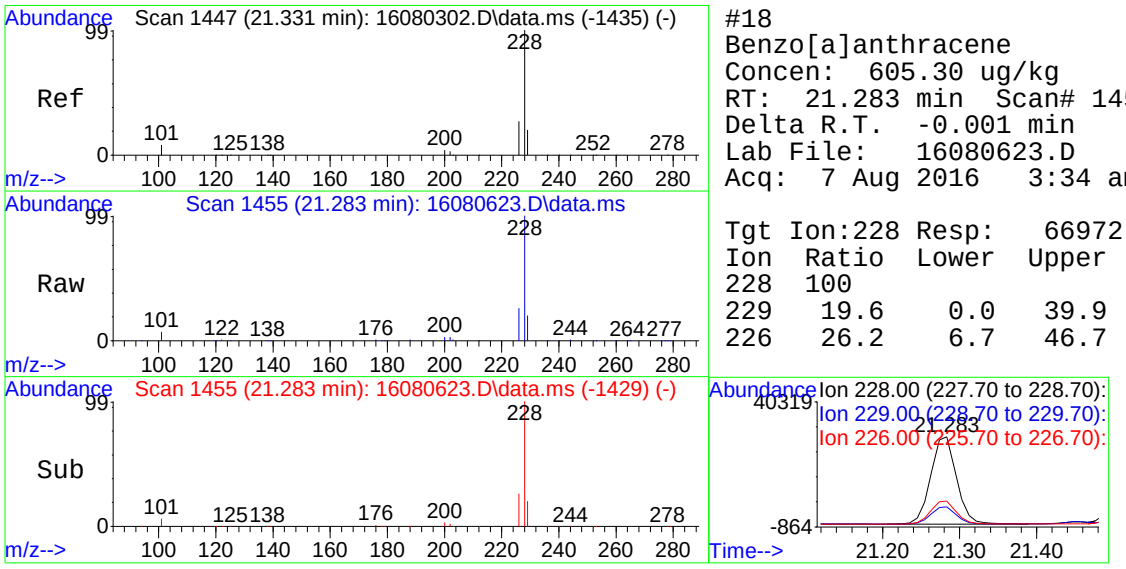
Ion	Ratio	Lower	Upper
202	100		
101	15.5	0.0	37.2



#16
Pyrene
Concen: 944.13 ug/kg
RT: 18.227 min Scan# 1138
Delta R.T. -0.001 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:202 Resp: 125953

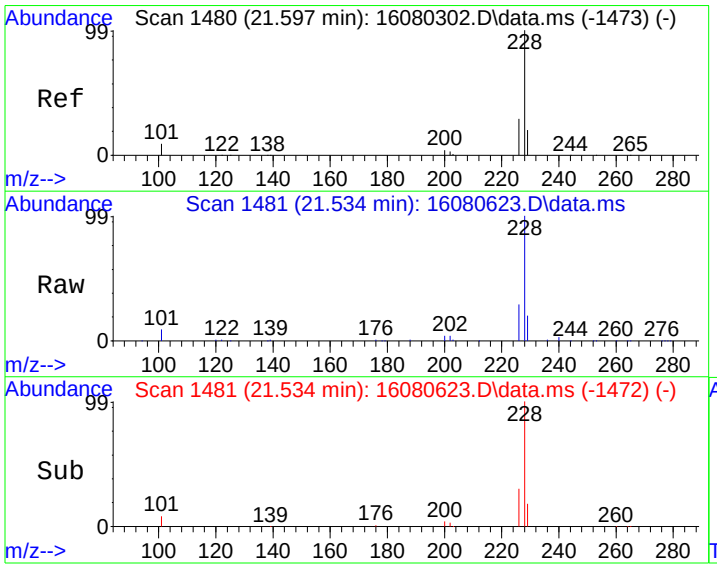
Ion	Ratio	Lower	Upper
202	100		
101	16.2	0.0	38.0



#18
Benzo[a]anthracene
Concen: 605.30 ug/kg
RT: 21.283 min Scan# 1455
Delta R.T. -0.001 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:228 Resp: 66972

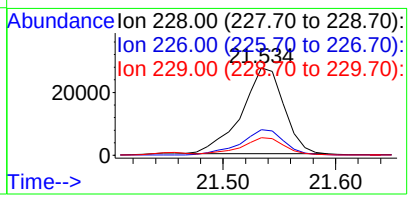
Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	39.9
226	26.2	6.7	46.7

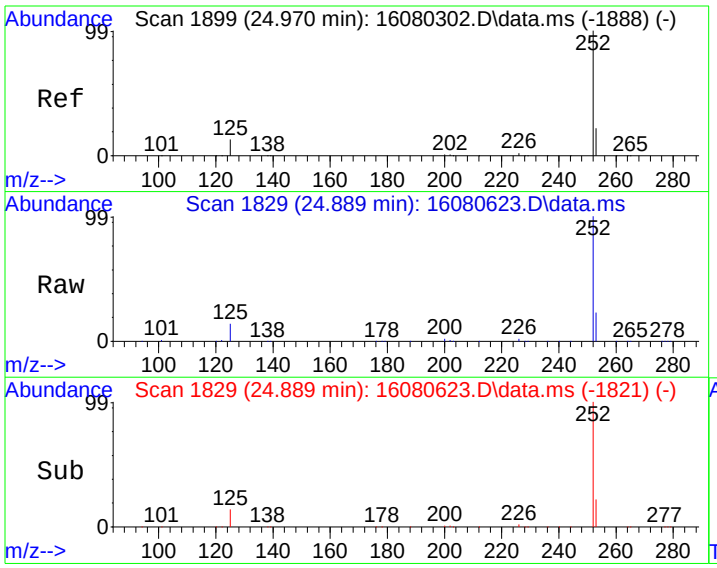


#19
Chrysene
Concen: 680.75 ug/kg
RT: 21.534 min Scan# 1481
Delta R.T. -0.011 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:228 Resp: 71289

Ion	Ratio	Lower	Upper
228	100		
226	29.4	9.3	49.3
229	19.9	0.0	39.8

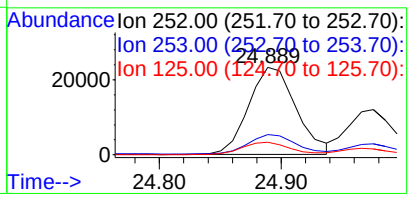


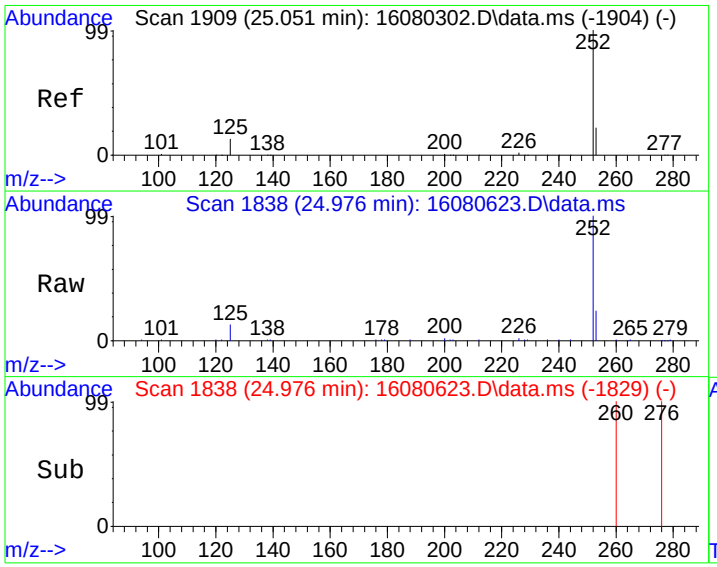


#21
Benzo[b]fluoranthene
Concen: 609.36 ug/kg
RT: 24.889 min Scan# 1829
Delta R.T. -0.021 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:252 Resp: 63127

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	14.2	0.0	33.2

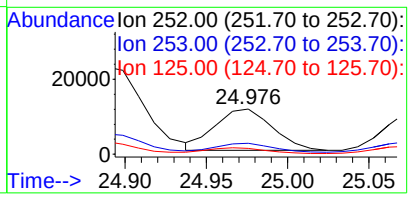


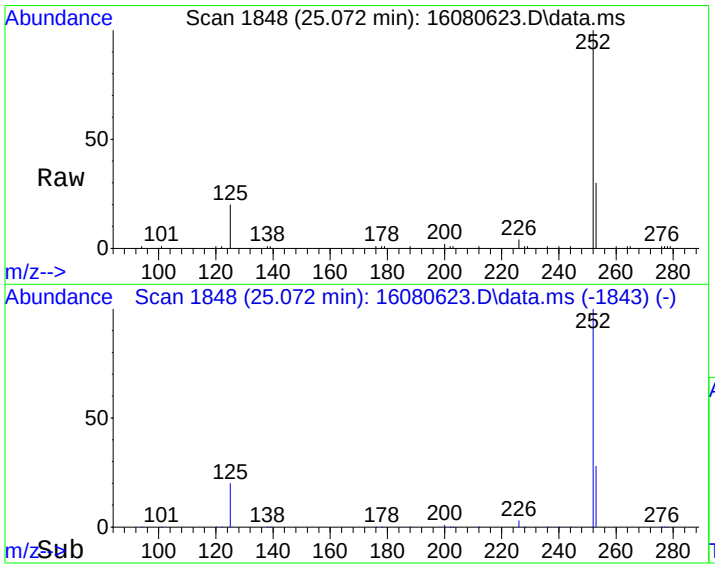


#22
Benzo[k]fluoranthene
Concen: 315.66 ug/kg
RT: 24.976 min Scan# 1838
Delta R.T. -0.011 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:252 Resp: 27240

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.1	42.1
125	12.2	0.0	33.9

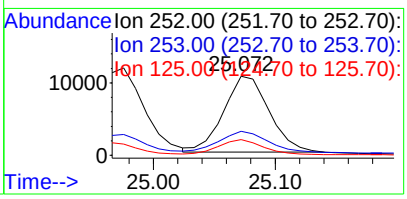


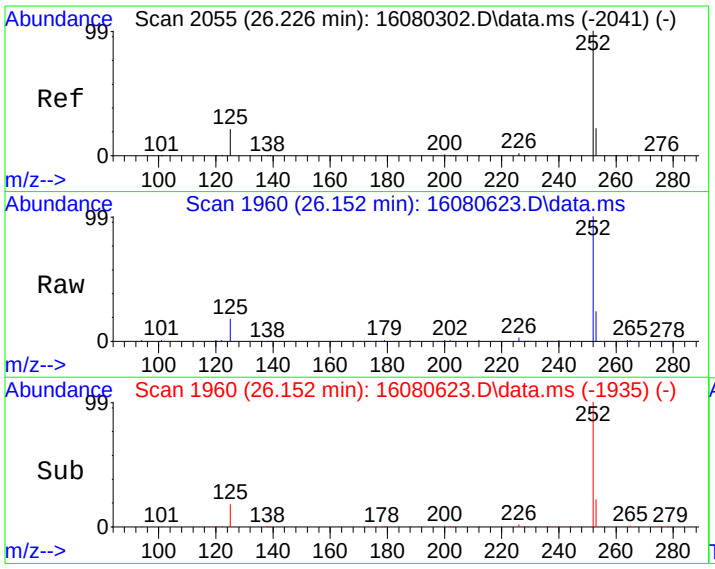


#23
Benzo(j)fluoranthene
Concen: 323.61 ug/kg
RT: 25.072 min Scan# 1848
Delta R.T. -0.021 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:252 Resp: 27096

Ion	Ratio	Lower	Upper
252	100		
253	29.3	1.9	41.9
125	18.9	0.0	39.4

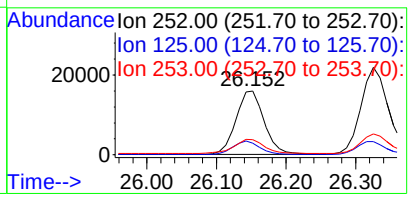


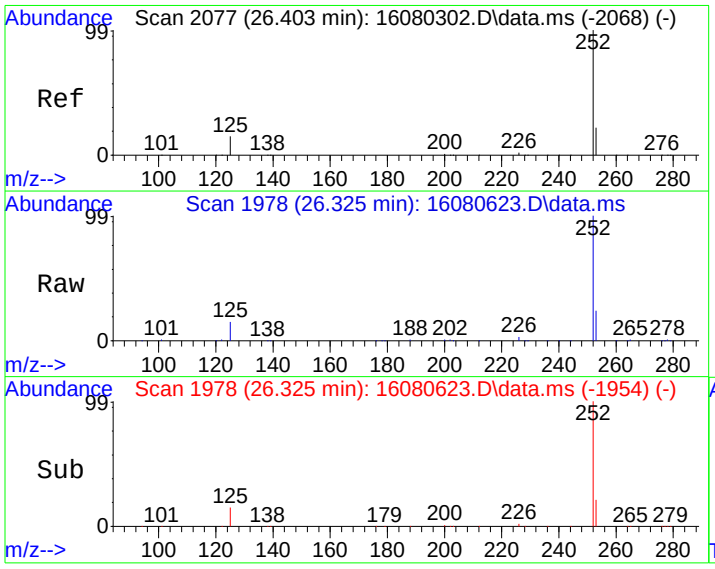


#24
Benzo(e)pyrene
Concen: 435.56 ug/kg
RT: 26.152 min Scan# 1960
Delta R.T. -0.011 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:252 Resp: 44901

Ion	Ratio	Lower	Upper
252	100		
125	20.3	0.5	40.5
253	23.5	2.1	42.1

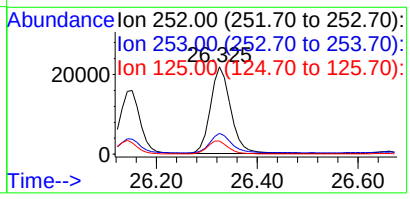


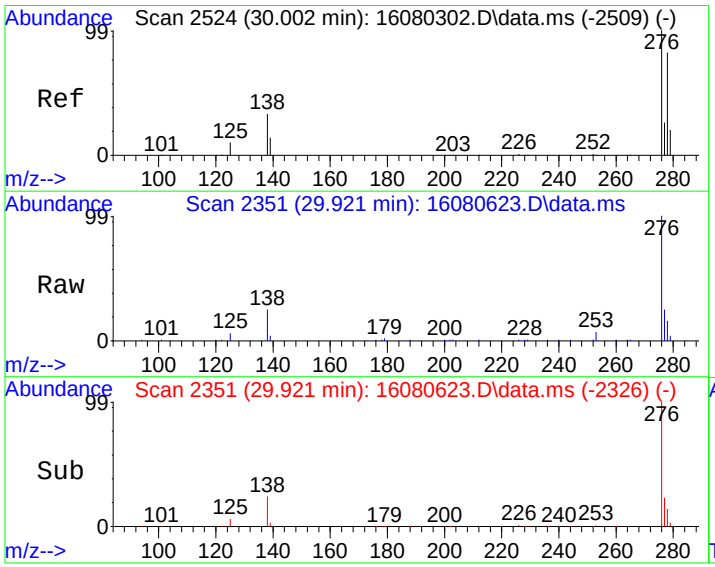


#25
Benzo[a]pyrene
Concen: 630.26 ug/kg
RT: 26.325 min Scan# 1978
Delta R.T. -0.021 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:252 Resp: 61100

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	14.9	0.0	33.5

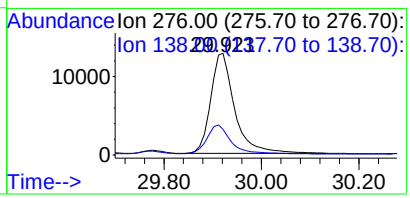


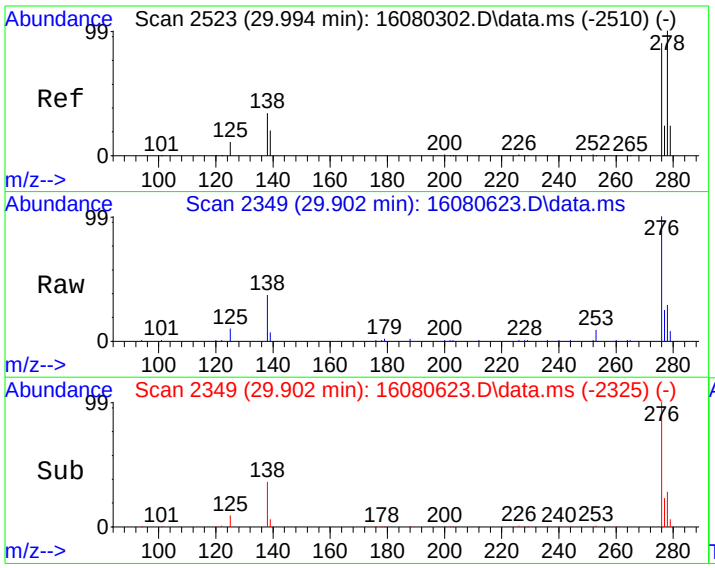


#26
Indeno[1,2,3-cd]pyrene
Concen: 365.14 ug/kg
RT: 29.921 min Scan# 2351
Delta R.T. -0.011 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:276 Resp: 43911

Ion	Ratio	Lower	Upper
276	100		
138	24.6	12.2	52.2

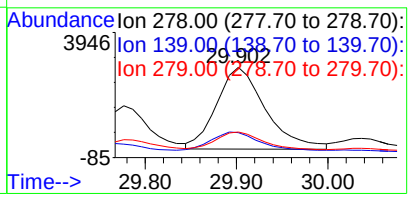


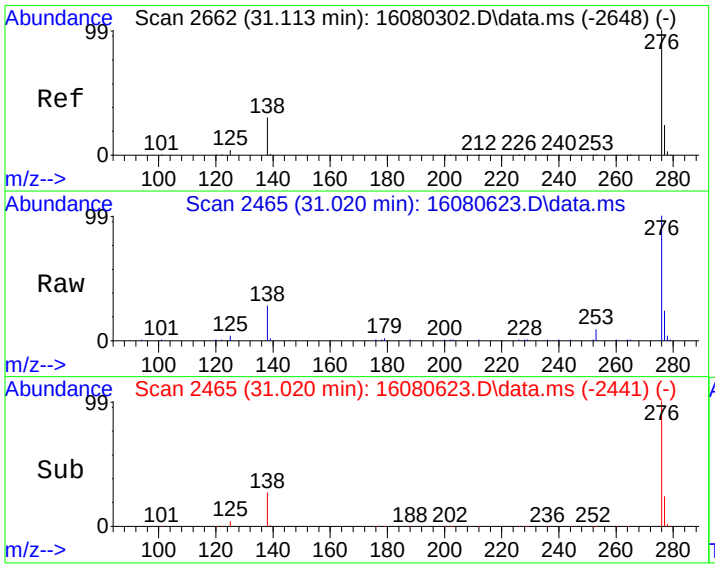


#27
Dibenz[a,h]anthracene
Concen: 101.81 ug/kg
RT: 29.902 min Scan# 2349
Delta R.T. -0.021 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:278 Resp: 9818

Ion	Ratio	Lower	Upper
278	100		
139	23.2	0.2	40.2
279	23.2	3.9	43.9

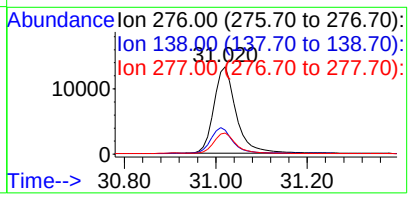




#28
Benzo[g,h,i]perylene
Concen: 419.78 ug/kg
RT: 31.020 min Scan# 2465
Delta R.T. -0.021 min
Lab File: 16080623.D
Acq: 7 Aug 2016 3:34 am

Tgt Ion:276 Resp: 44815

Ion	Ratio	Lower	Upper
276	100		
138	26.8	6.9	46.9
277	23.5	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080624.D
Acq On : 7 Aug 2016 4:13 am
Operator :
Sample : 1607265-15A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 08 12:22:58 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	299938	4000.00	ug/kg	113
6) Acenaphthene-d10	13.457	164	179752	4000.00	ug/kg	111
11) Phenanthrene-d10	15.559	188	492974	4000.00	ug/kg	96
17) Chrysene-d12	21.449	240	468328	4000.00	ug/kg	101
20) Perylene-d12	26.665	264	431268	4000.00	ug/kg	103

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	4903	73.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.84%#			
15) 4-Terphenyl-d14	18.114	244	7636	88.11	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.20%#			

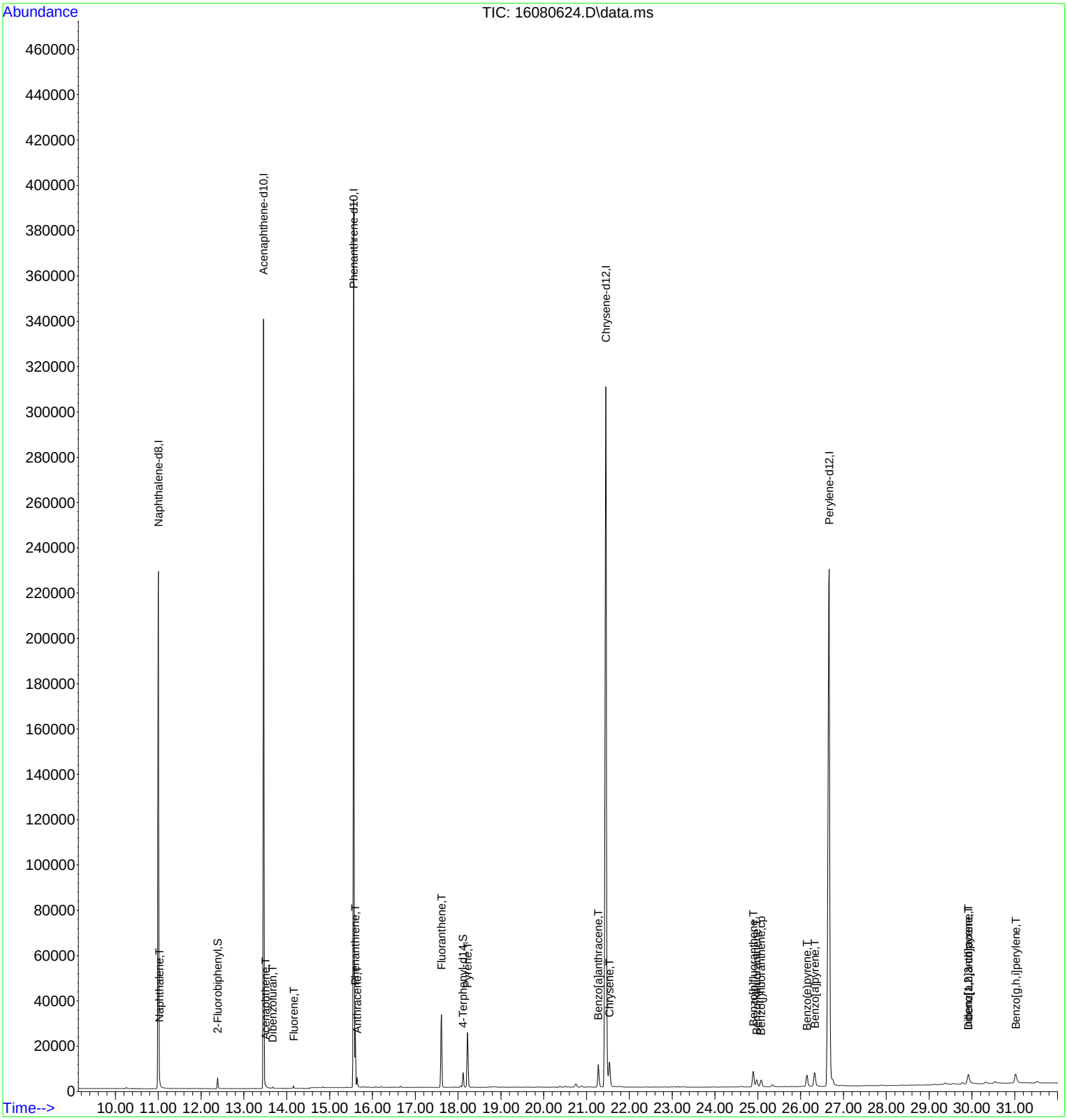
Target Compounds						Qvalue
2) Naphthalene	11.032	128	594	8.30	ug/kg	99
8) Acenaphthene	13.507	153	403	7.42	ug/kg	98
9) Dibenzofuran	13.677	168	575	6.16	ug/kg	85
10) Fluorene	14.159	166	604	7.49	ug/kg	98
12) Phenanthrene	15.598	178	21827	167.86	ug/kg	99
13) Anthracene	15.646	178	3699	28.75	ug/kg	98
14) Fluoranthene	17.612	202	35093	262.26	ug/kg	91
16) Pyrene	18.220	202	27350	204.44	ug/kg	98
18) Benzo[a]anthracene	21.276	228	13762	116.68	ug/kg	99
19) Chrysene	21.536	228	15320	137.23	ug/kg	99
21) Benzo[b]fluoranthene	24.891	252	13137	120.14	ug/kg	99
22) Benzo[k]fluoranthene	24.968	252	5280	57.97	ug/kg	98
23) Benzo(j)fluoranthene	25.074	252	5160	58.38	ug/kg	91
24) Benzo(e)pyrene	26.144	252	9567	87.92	ug/kg	95
25) Benzo[a]pyrene	26.327	252	12441	121.58	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.914	276	8742	68.87	ug/kg	93
27) Dibenz[a,h]anthracene	29.904	278	1679	16.50	ug/kg	99
28) Benzo[g,h,i]perylene	31.022	276	9326	82.76	ug/kg	99

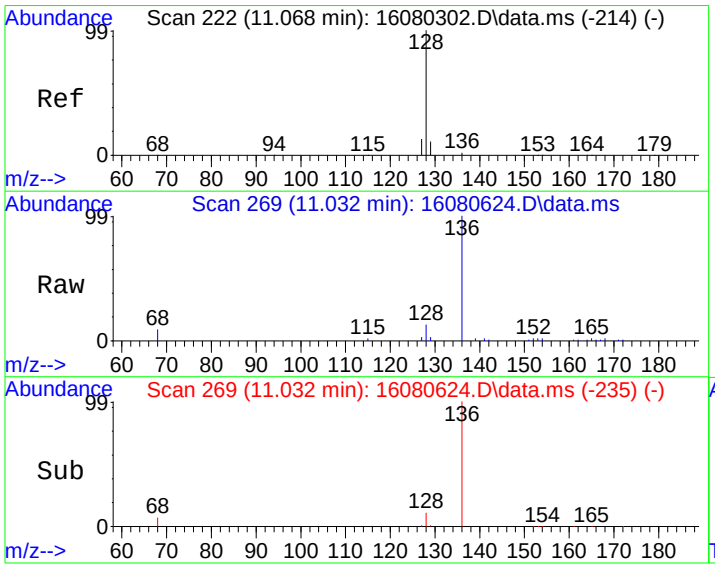
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080624.D
Acq On : 7 Aug 2016 4:13 am
Operator :
Sample : 1607265-15A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 08 12:22:58 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

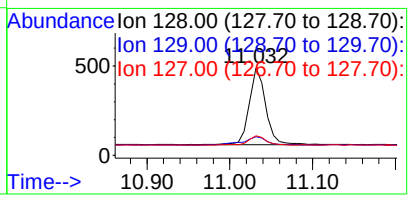


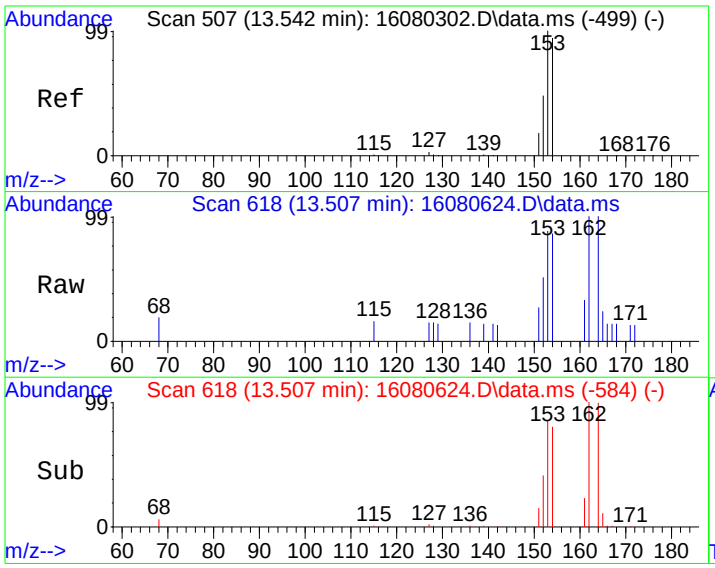


#2
Naphthalene
Concen: 8.30 ug/kg
RT: 11.032 min Scan# 269
Delta R.T. -0.007 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:128 Resp: 594

Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	31.0
127	12.1	0.0	32.5

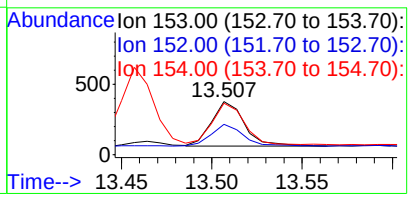


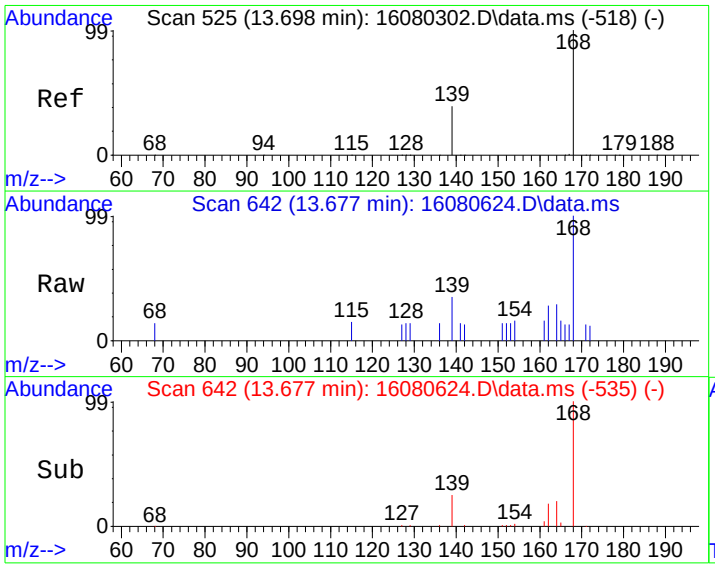


#8
Acenaphthene
Concen: 7.42 ug/kg
RT: 13.507 min Scan# 618
Delta R.T. -0.007 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:153 Resp: 403

Ion	Ratio	Lower	Upper
153	100		
152	49.0	27.7	67.7
154	93.3	75.7	115.7

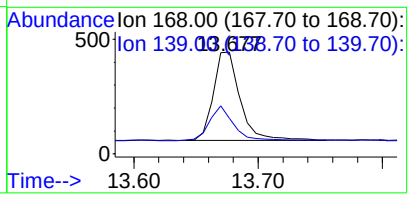


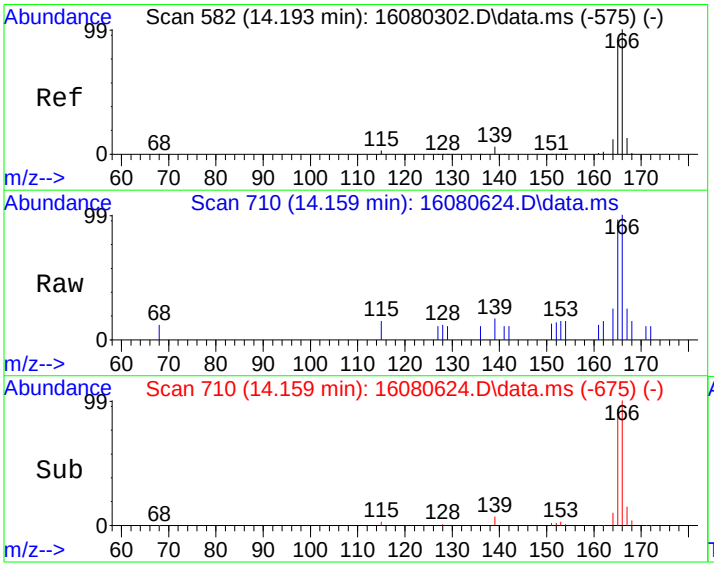


#9
Dibenzofuran
Concen: 6.16 ug/kg
RT: 13.677 min Scan# 642
Delta R.T. 0.007 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:168 Resp: 575

Ion	Ratio	Lower	Upper
168	100		
139	24.4	13.2	53.2

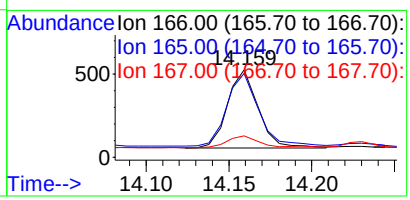


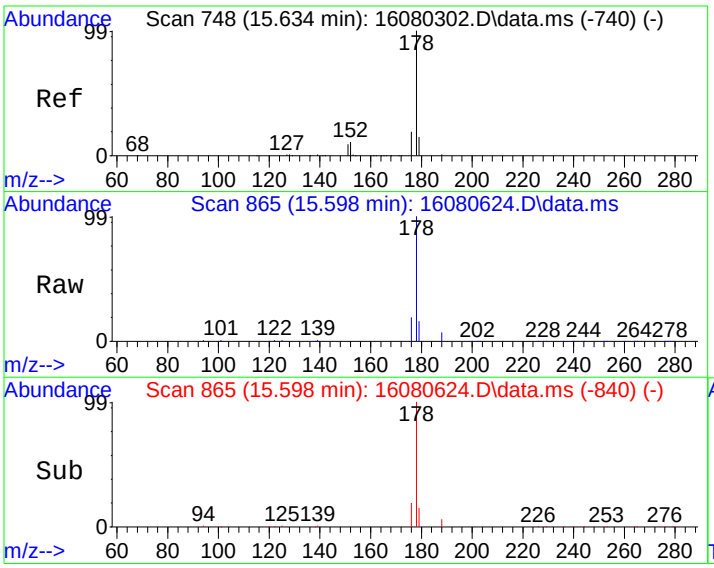


#10
Fluorene
Concen: 7.49 ug/kg
RT: 14.159 min Scan# 710
Delta R.T. 0.000 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:166 Resp: 604

Ion	Ratio	Lower	Upper
166	100		
165	93.2	71.8	111.8
167	15.1	0.0	33.5

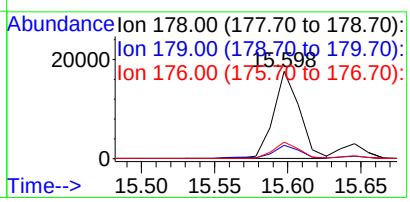


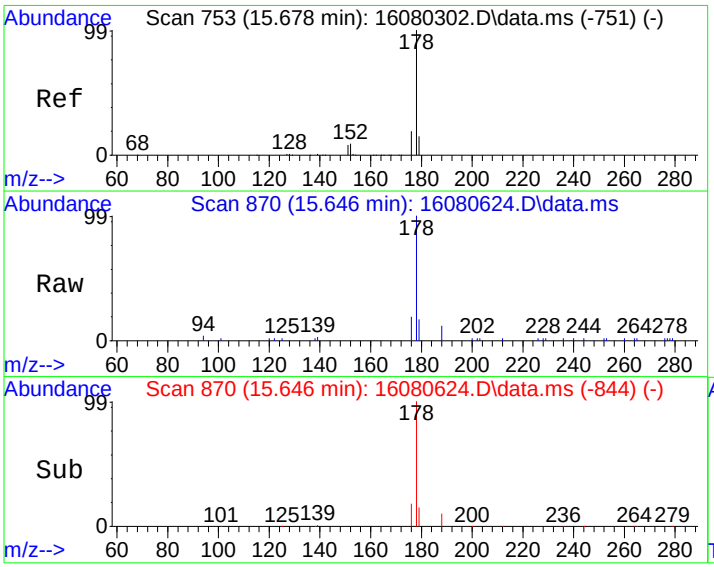


#12
Phenanthrene
Concen: 167.86 ug/kg
RT: 15.598 min Scan# 865
Delta R.T. -0.008 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:178 Resp: 21827

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.7
176	19.0	0.0	38.8

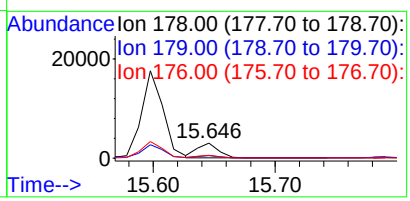


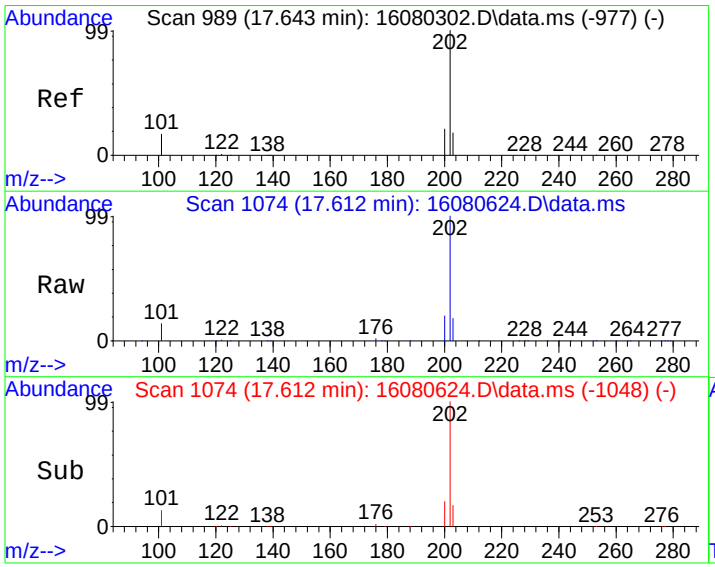


#13
Anthracene
Concen: 28.75 ug/kg
RT: 15.646 min Scan# 870
Delta R.T. 0.001 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:178 Resp: 3699

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	35.5
176	17.7	0.0	38.7

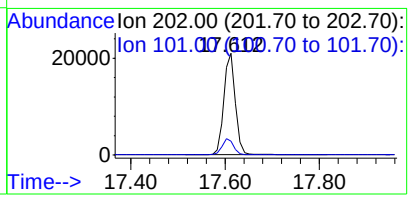


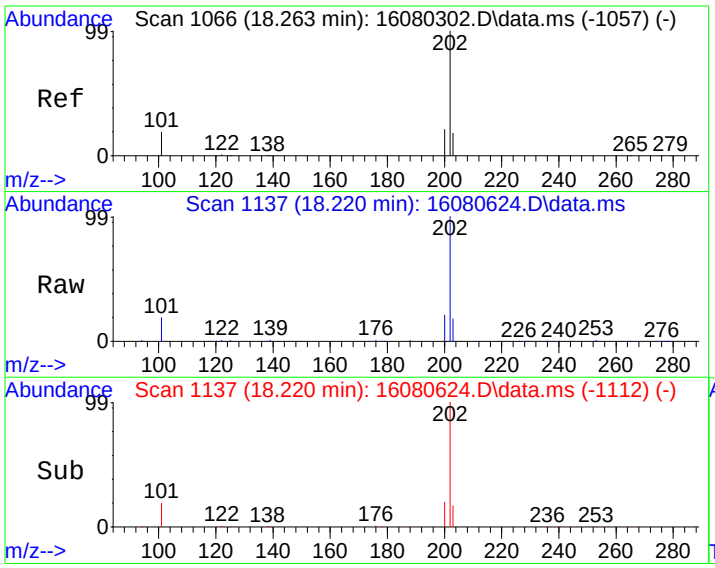


#14
Fluoranthene
Concen: 262.26 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.001 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:202 Resp: 35093

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	37.2

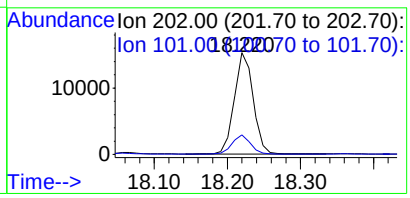


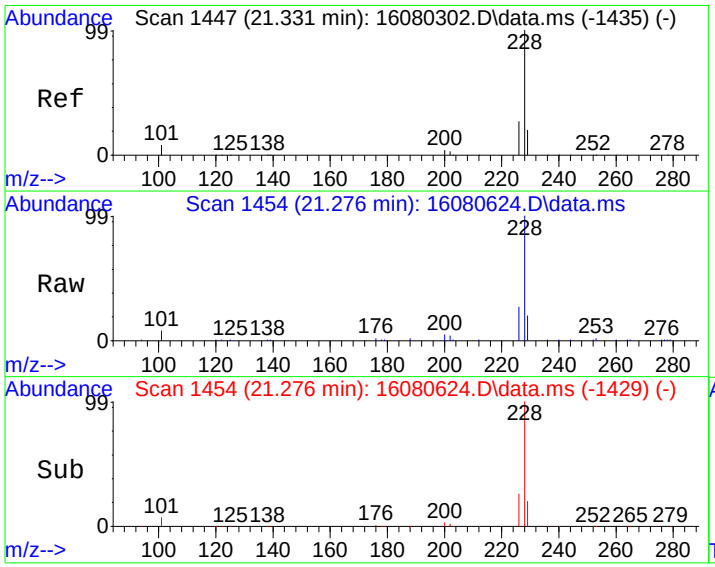


#16
Pyrene
Concen: 204.44 ug/kg
RT: 18.220 min Scan# 1137
Delta R.T. -0.009 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:202 Resp: 27350

Ion	Ratio	Lower	Upper
202	100		
101	18.8	0.0	38.0

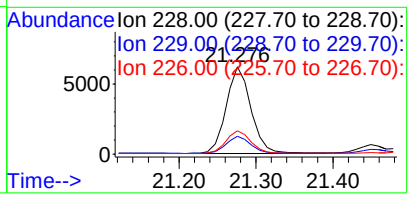


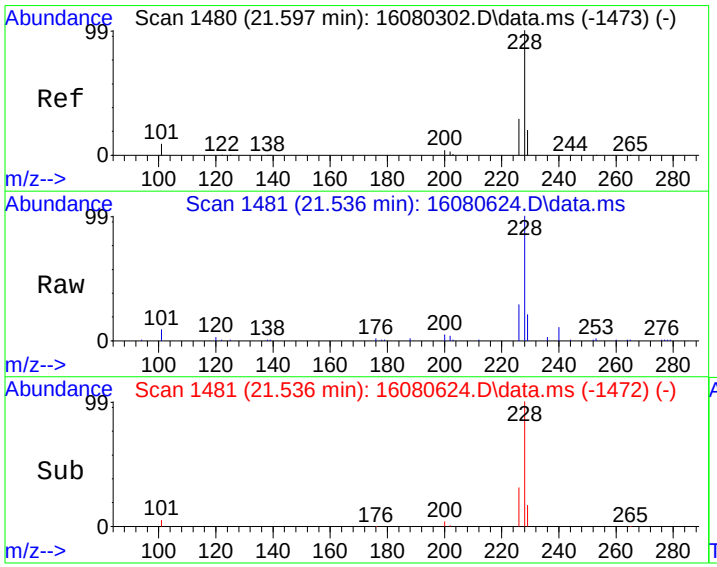


#18
Benzo[a]anthracene
Concen: 116.68 ug/kg
RT: 21.276 min Scan# 1454
Delta R.T. -0.009 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:228 Resp: 13762

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	39.9
226	26.2	6.7	46.7

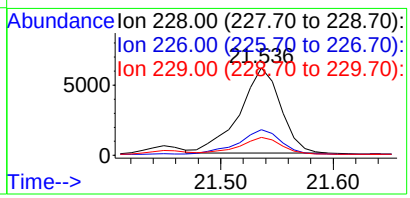


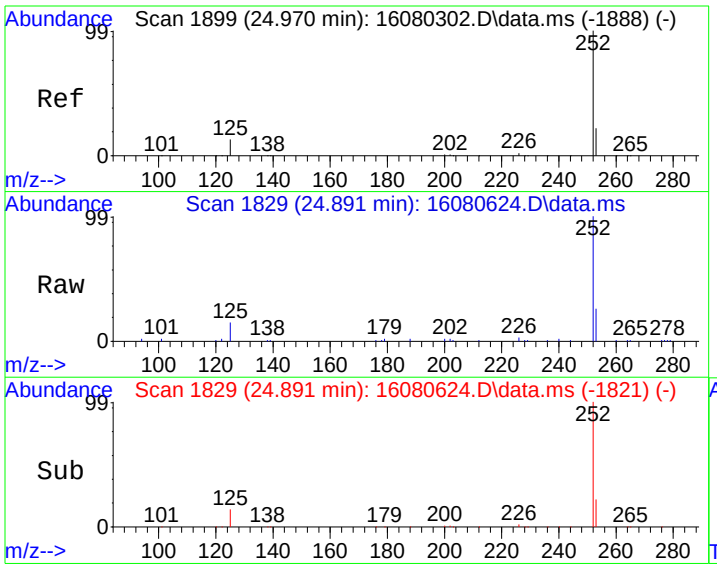


#19
Chrysene
Concen: 137.23 ug/kg
RT: 21.536 min Scan# 1481
Delta R.T. -0.009 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:228 Resp: 15320

Ion	Ratio	Lower	Upper
228	100		
226	28.8	9.3	49.3
229	19.6	0.0	39.8

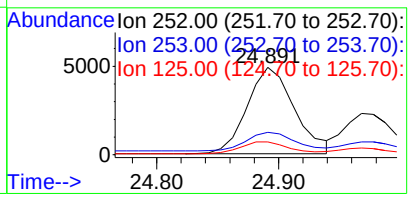


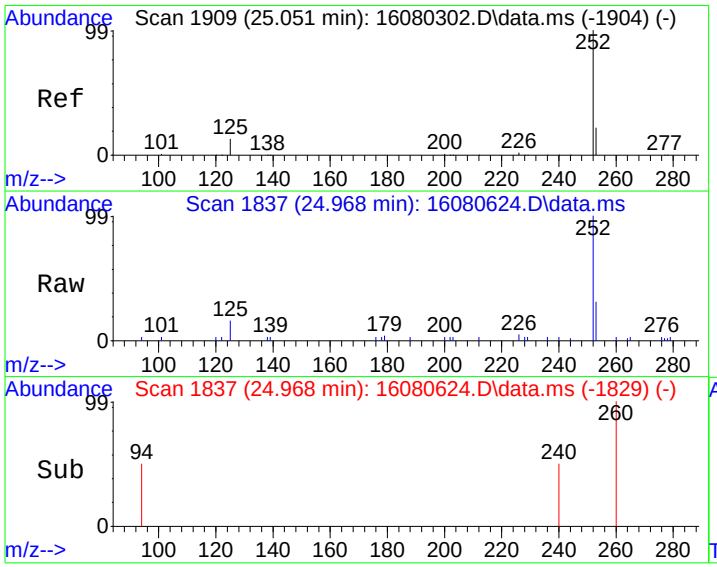


#21
Benzo[b]fluoranthene
Concen: 120.14 ug/kg
RT: 24.891 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:252 Resp: 13137

Ion	Ratio	Lower	Upper
252	100		
253	21.5	1.9	41.9
125	13.5	0.0	33.2

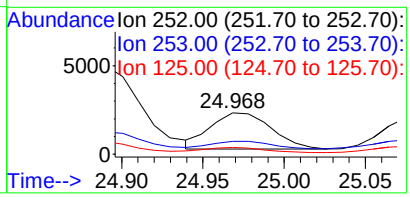


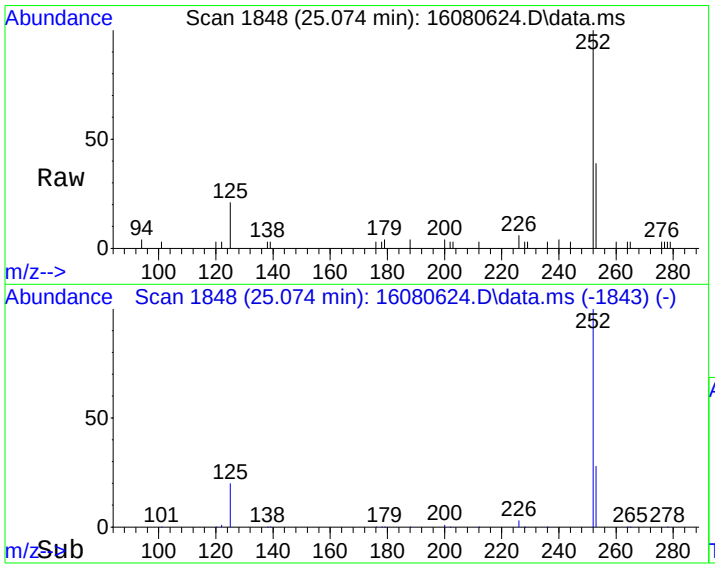


#22
Benzo[k]fluoranthene
Concen: 57.97 ug/kg
RT: 24.968 min Scan# 1837
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:252 Resp: 5280

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.1	42.1
125	14.2	0.0	33.9

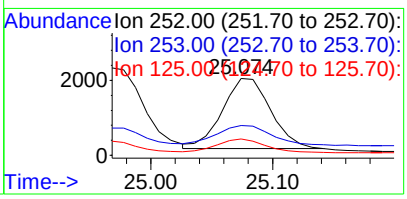


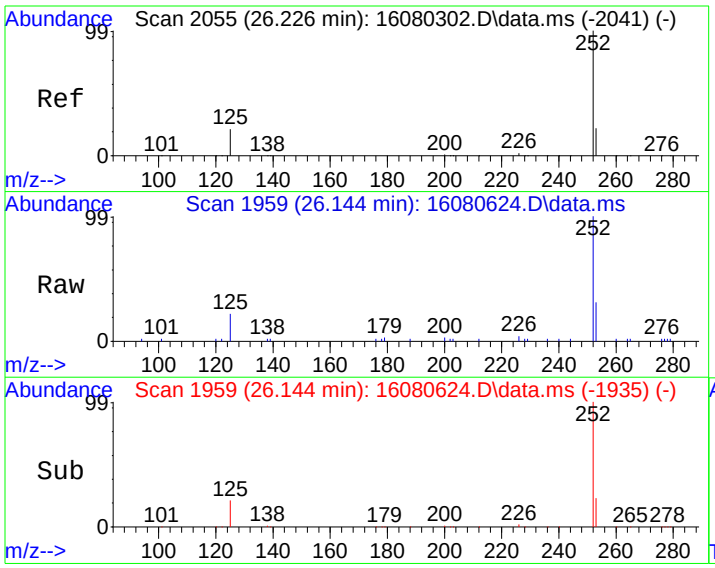


#23
Benzo(j)fluoranthene
Concen: 58.38 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:252 Resp: 5160

Ion	Ratio	Lower	Upper
252	100		
253	30.0	1.9	41.9
125	19.0	0.0	39.4

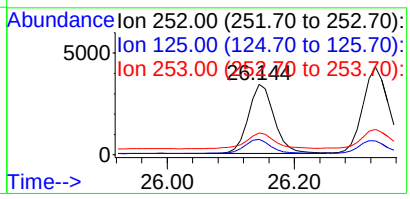


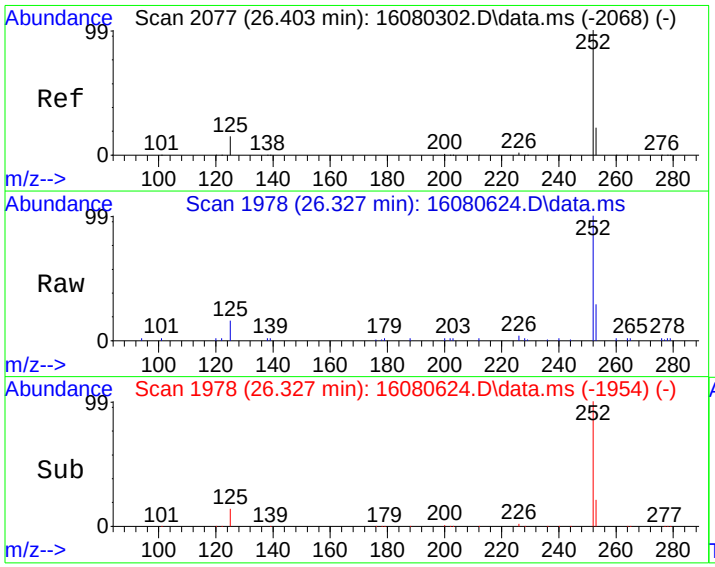


#24
Benzo(e)pyrene
Concen: 87.92 ug/kg
RT: 26.144 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:252 Resp: 9567

Ion	Ratio	Lower	Upper
252	100		
125	21.2	0.5	40.5
253	25.9	2.1	42.1

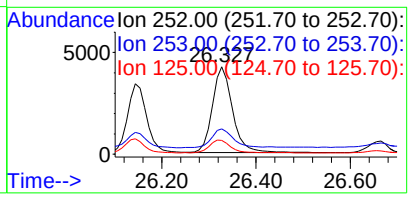


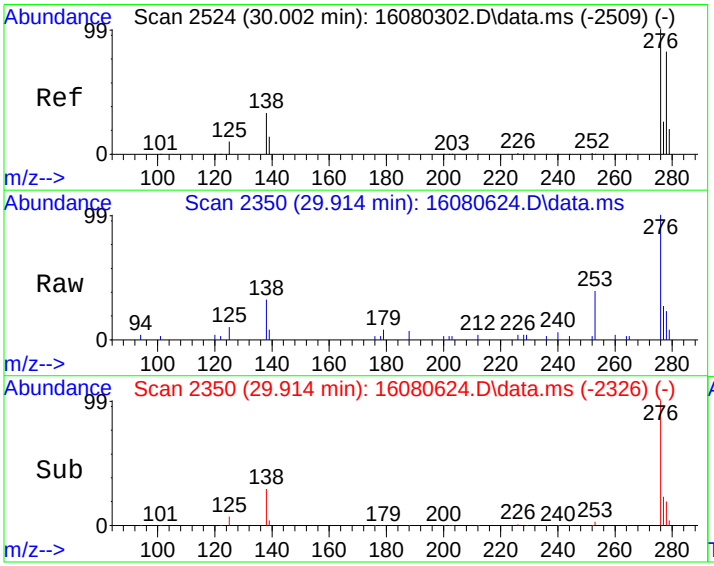


#25
Benzo[a]pyrene
Concen: 121.58 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:252 Resp: 12441

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	14.6	0.0	33.5

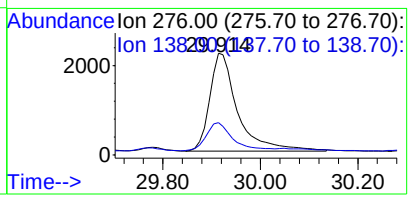


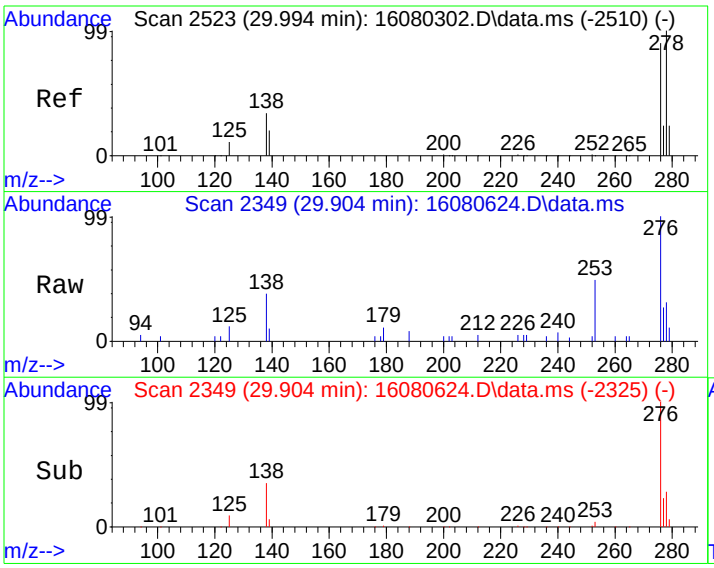


#26
Indeno[1,2,3-cd]pyrene
Concen: 68.87 ug/kg
RT: 29.914 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:276 Resp: 8742

Ion	Ratio	Lower	Upper
276	100		
138	28.6	12.2	52.2

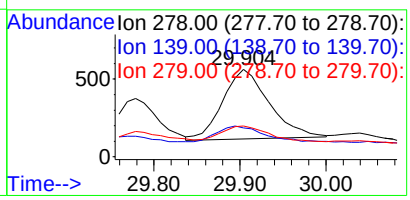


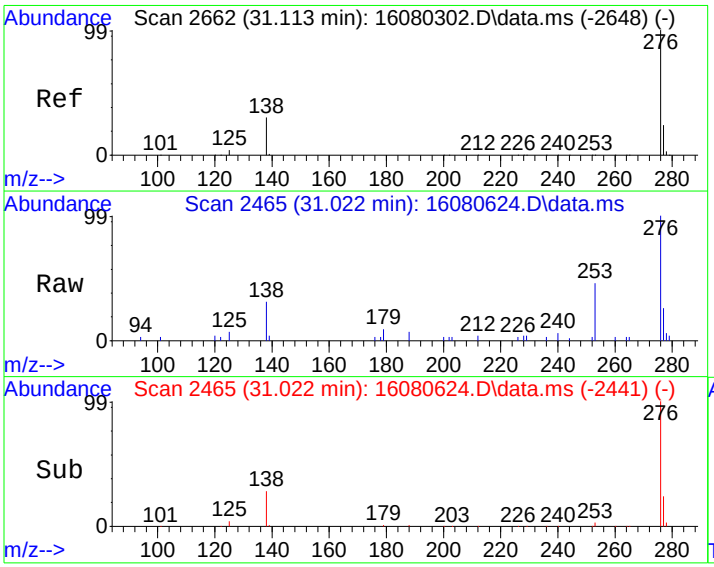


#27
Dibenz[a,h]anthracene
Concen: 16.50 ug/kg
RT: 29.904 min Scan# 2349
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:278 Resp: 1679

Ion	Ratio	Lower	Upper
278	100		
139	20.5	0.2	40.2
279	23.2	3.9	43.9

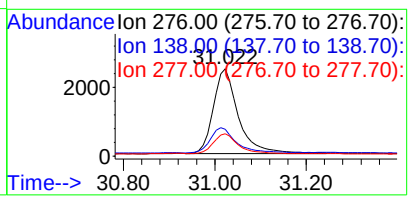




#28
Benzo[g,h,i]perylene
Concen: 82.76 ug/kg
RT: 31.022 min Scan# 2465
Delta R.T. -0.019 min
Lab File: 16080624.D
Acq: 7 Aug 2016 4:13 am

Tgt Ion:276 Resp: 9326

Ion	Ratio	Lower	Upper
276	100		
138	27.7	6.9	46.9
277	23.2	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080625.D
Acq On : 7 Aug 2016 4:53 am
Operator :
Sample : 1607265-16A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 08 12:23:09 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	290342	4000.00	ug/kg	110
6) Acenaphthene-d10	13.457	164	181552	4000.00	ug/kg	112
11) Phenanthrene-d10	15.568	188	482195	4000.00	ug/kg	94
17) Chrysene-d12	21.449	240	453720	4000.00	ug/kg	98
20) Perylene-d12	26.655	264	416338	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	4893	75.75	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.89%#			
15) 4-Terphenyl-d14	18.123	244	7297	86.08	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.15%#			

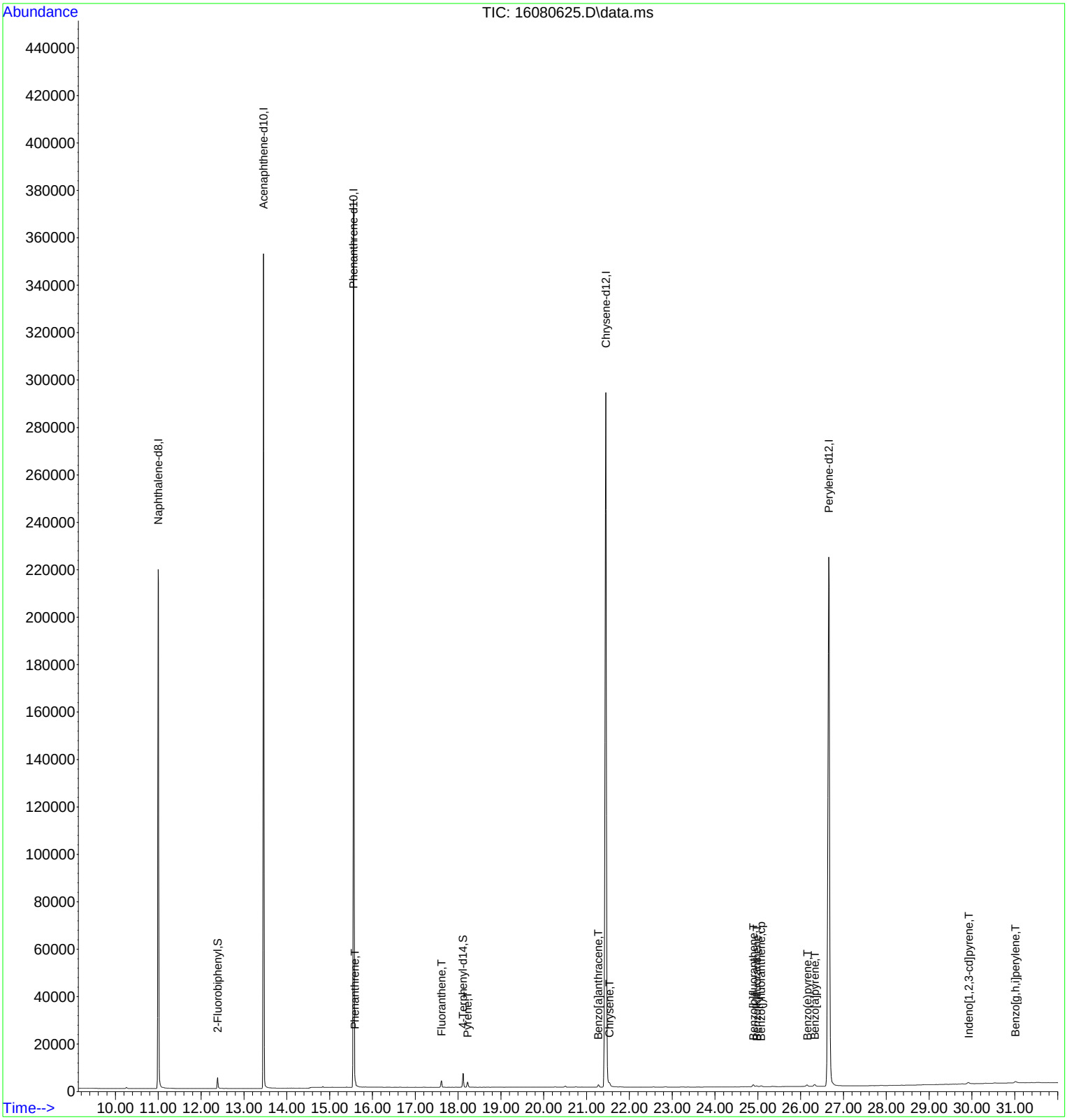
Target Compounds						Qvalue
12) Phenanthrene	15.597	178	1596	10.34	ug/kg	99
14) Fluoranthene	17.612	202	3114	23.79	ug/kg	94
16) Pyrene	18.219	202	2635	20.14	ug/kg	96
18) Benzo[a]anthracene	21.275	228	1509	13.21	ug/kg	98
19) Chrysene	21.535	228	1721	15.91	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	1710	16.20	ug/kg	97
22) Benzo[k]fluoranthene	24.977	252	688	7.82	ug/kg	98
23) Benzo(j)fluoranthene	25.074	252	624	7.31	ug/kg	90
24) Benzo(e)pyrene	26.153	252	1314	12.51	ug/kg	84
25) Benzo[a]pyrene	26.327	252	1665	16.86	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.913	276	1371	11.19	ug/kg	92
28) Benzo[g,h,i]perylene	31.012	276	1514	13.92	ug/kg	97

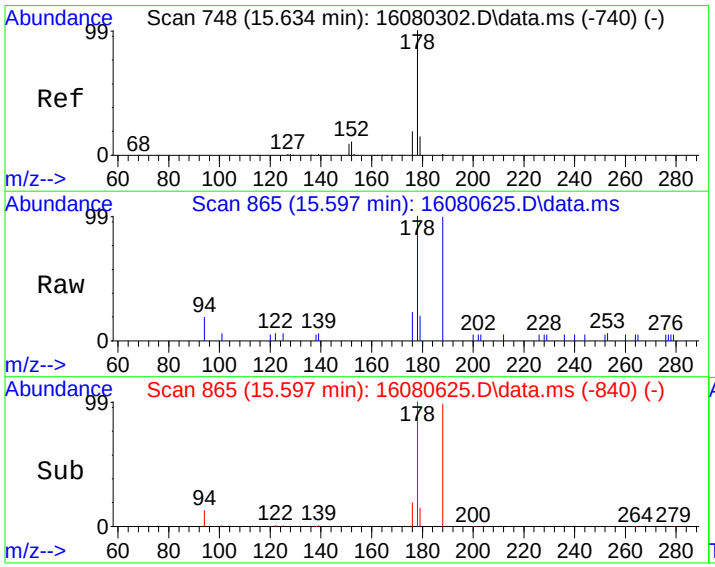
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080625.D
Acq On : 7 Aug 2016 4:53 am
Operator :
Sample : 1607265-16A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 08 12:23:09 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

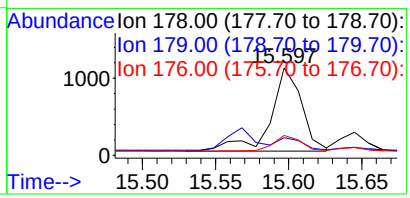


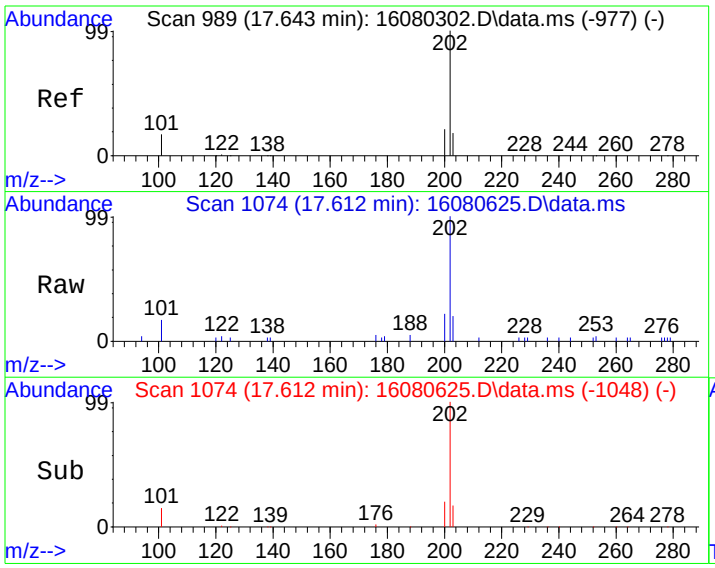


#12
Phenanthrene
Concen: 10.34 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:178 Resp: 1596

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	35.7
176	18.8	0.0	38.8

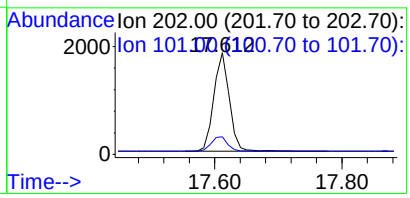


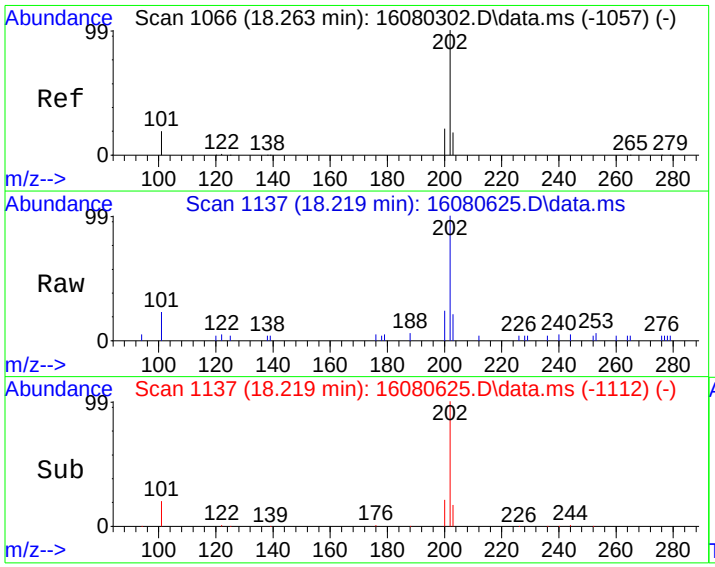


#14
Fluoranthene
Concen: 23.79 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.000 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:202 Resp: 3114

Ion	Ratio	Lower	Upper
202	100		
101	14.5	0.0	37.2

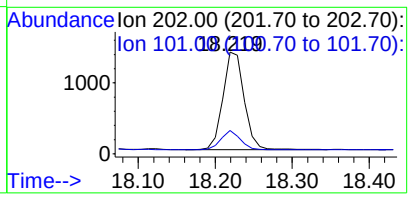


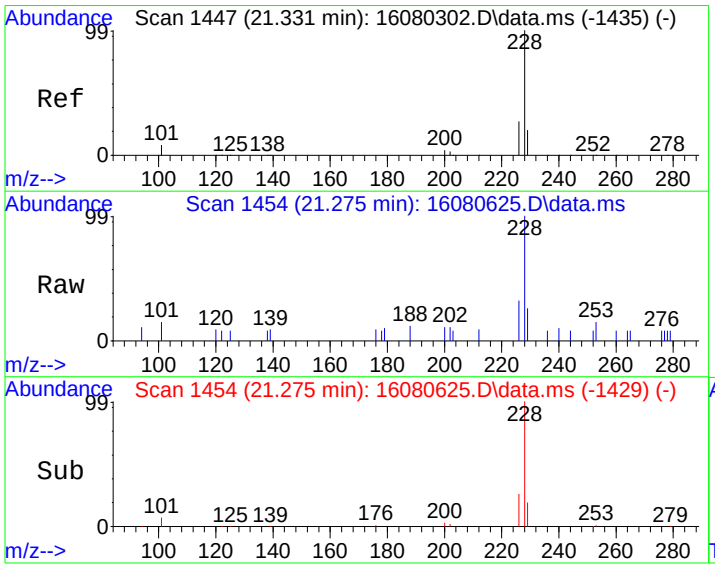


#16
Pyrene
Concen: 20.14 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:202 Resp: 2635

Ion	Ratio	Lower	Upper
202	100		
101	19.6	0.0	38.0

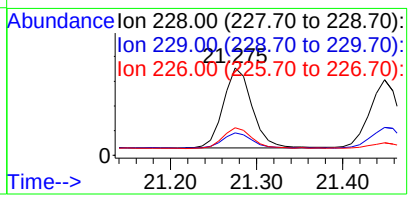


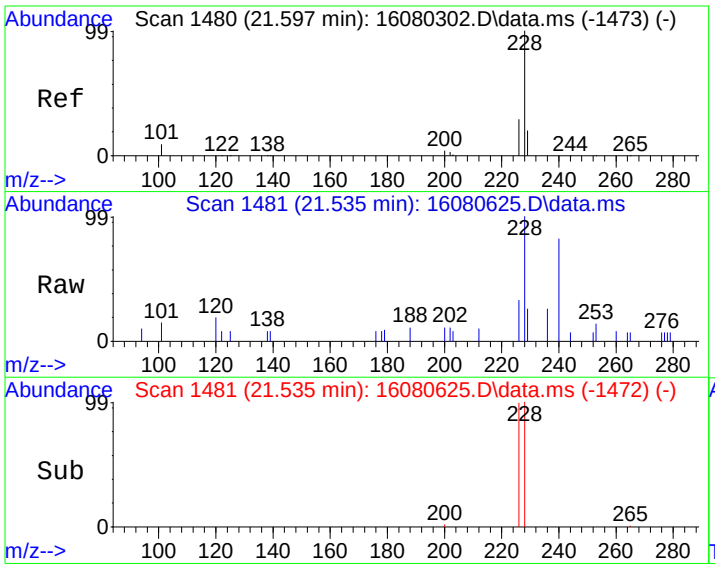


#18
Benzo[a]anthracene
Concen: 13.21 ug/kg
RT: 21.275 min Scan# 1454
Delta R.T. -0.010 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:228 Resp: 1509

Ion	Ratio	Lower	Upper
228	100		
229	18.8	0.0	39.9
226	25.9	6.7	46.7

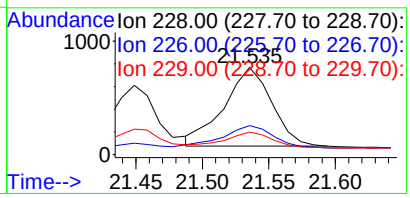


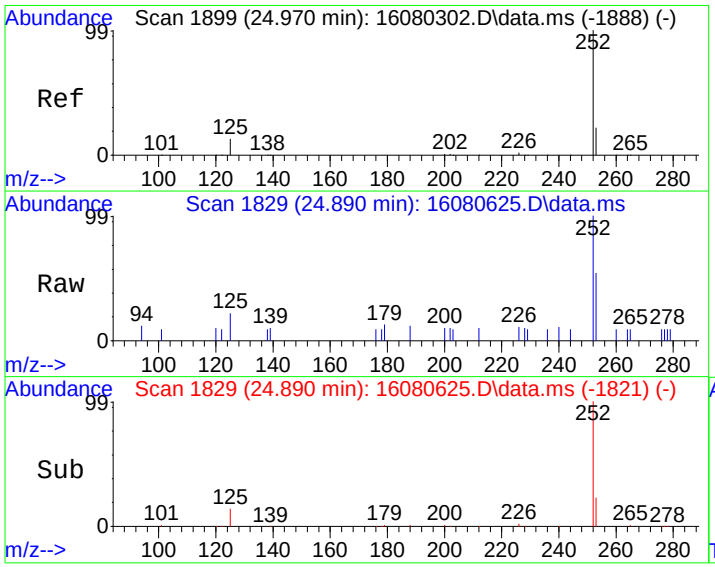


#19
Chrysene
Concen: 15.91 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:228 Resp: 1721

Ion	Ratio	Lower	Upper
228	100		
226	28.3	9.3	49.3
229	19.9	0.0	39.8

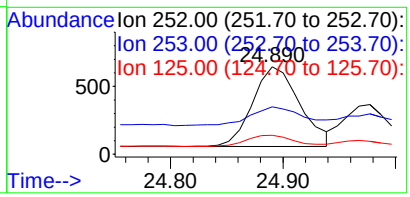


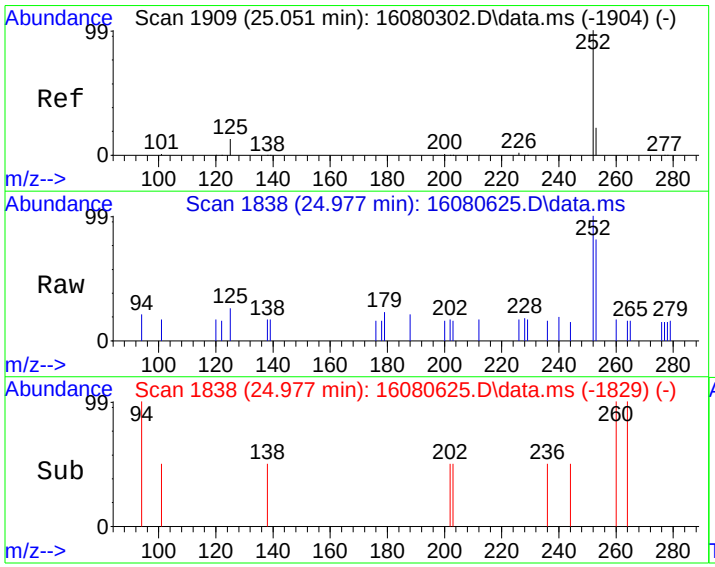


#21
Benzo[b]fluoranthene
Concen: 16.20 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:252 Resp: 1710

Ion	Ratio	Lower	Upper
252	100		
253	23.3	1.9	41.9
125	14.1	0.0	33.2

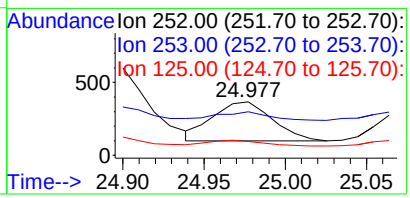


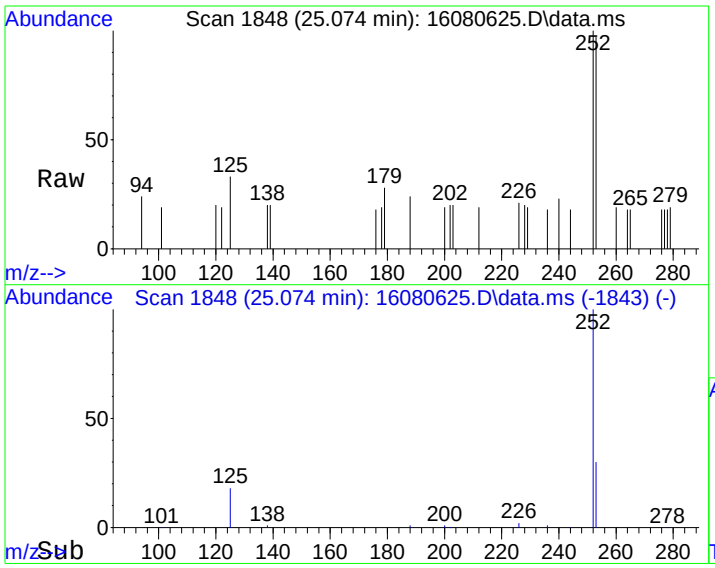


#22
Benzo[k]fluoranthene
Concen: 7.82 ug/kg
RT: 24.977 min Scan# 1838
Delta R.T. -0.010 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:252 Resp: 688

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.1	42.1
125	11.6	0.0	33.9

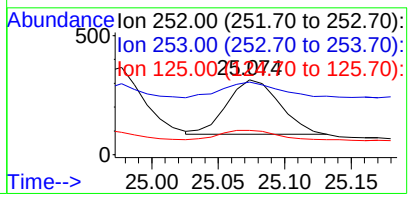


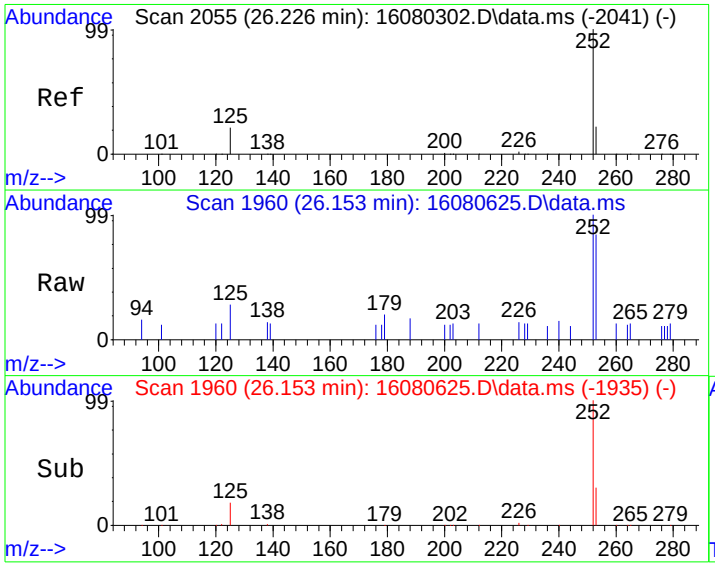


#23
Benzo(j)fluoranthene
Concen: 7.31 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:252 Resp: 624

Ion	Ratio	Lower	Upper
252	100		
253	30.0	1.9	41.9
125	18.1	0.0	39.4

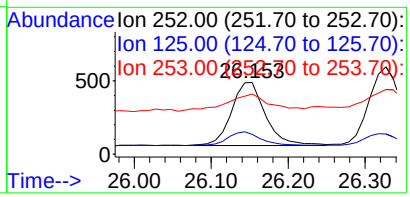


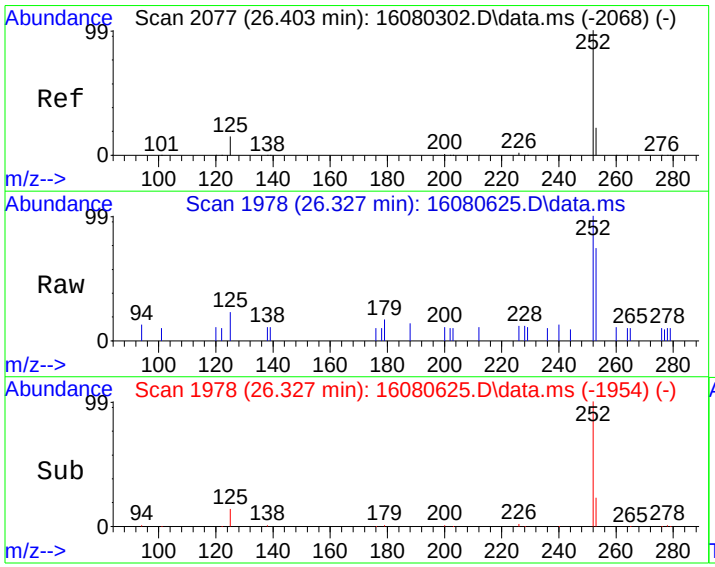


#24
Benzo(e)pyrene
Concen: 12.51 ug/kg
RT: 26.153 min Scan# 1960
Delta R.T. -0.010 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:252 Resp: 1314

Ion	Ratio	Lower	Upper
252	100		
125	22.0	0.5	40.5
253	35.8	2.1	42.1

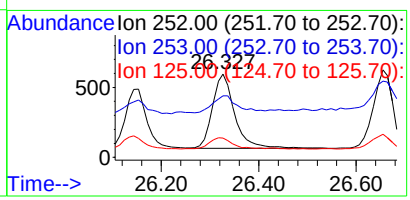


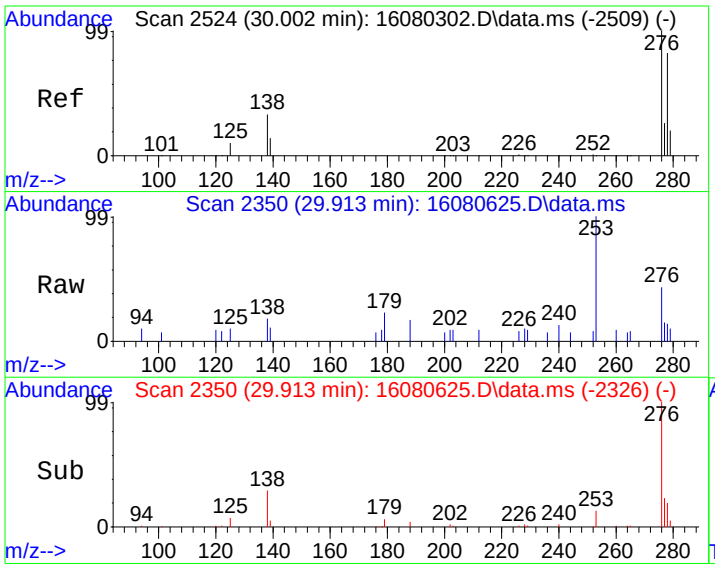


#25
Benzo[a]pyrene
Concen: 16.86 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:252 Resp: 1665

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	14.3	0.0	33.5

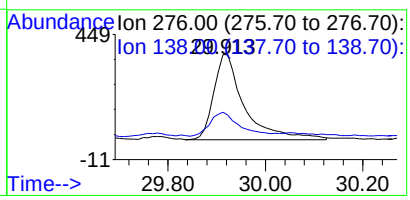


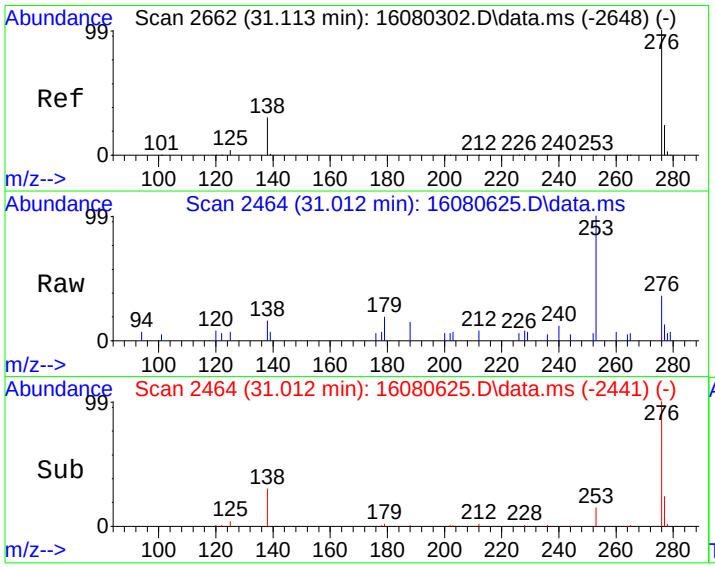


#26
Indeno[1,2,3-cd]pyrene
Concen: 11.19 ug/kg
RT: 29.913 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:276 Resp: 1371

Ion	Ratio	Lower	Upper
276	100		
138	27.5	12.2	52.2

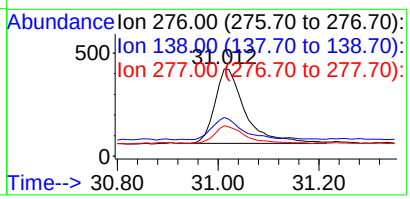




#28
Benzo[g,h,i]perylene
Concen: 13.92 ug/kg
RT: 31.012 min Scan# 2464
Delta R.T. -0.029 min
Lab File: 16080625.D
Acq: 7 Aug 2016 4:53 am

Tgt Ion:276 Resp: 1514

Ion	Ratio	Lower	Upper
276	100		
138	29.6	6.9	46.9
277	23.5	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080626.D
Acq On : 7 Aug 2016 5:32 am
Operator :
Sample : 1607265-17A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 08 12:23:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	300221	4000.00	ug/kg	113
6) Acenaphthene-d10	13.461	164	185368	4000.00	ug/kg	114
11) Phenanthrene-d10	15.568	188	504548	4000.00	ug/kg	98
17) Chrysene-d12	21.449	240	450061	4000.00	ug/kg	97
20) Perylene-d12	26.664	264	419406	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	4811	72.03	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.80%#			
15) 4-Terphenyl-d14	18.123	244	7025	79.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.98%#			

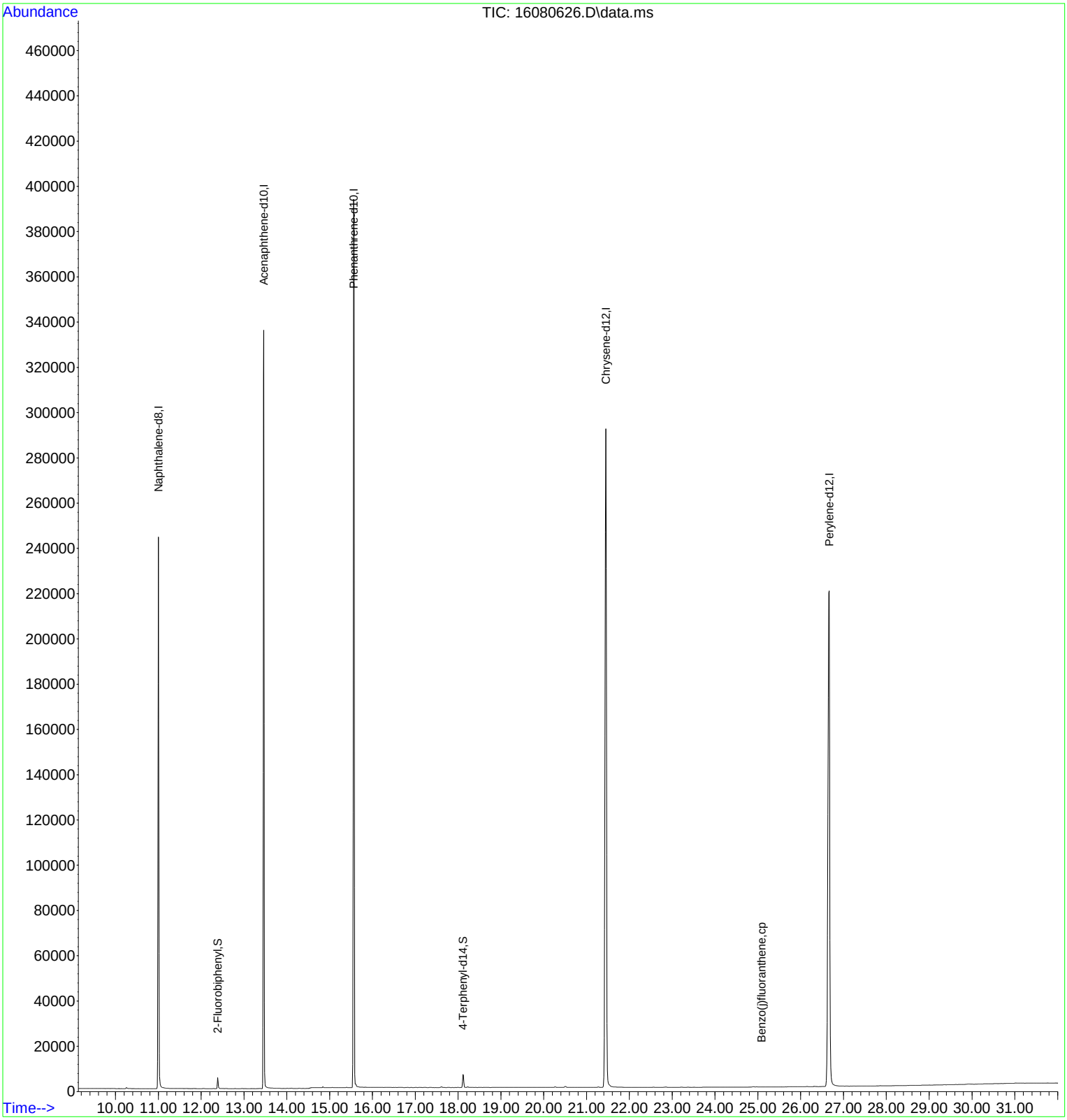
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.083	252	110	1.28	ug/kg#	66

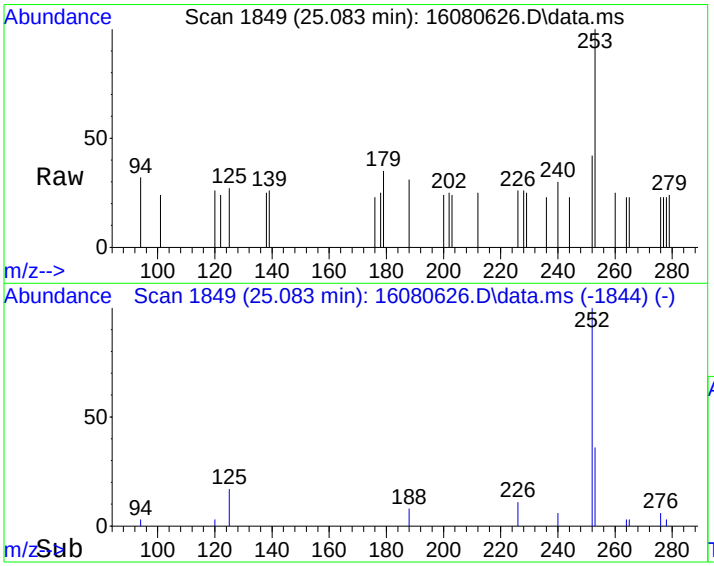
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080626.D
Acq On : 7 Aug 2016 5:32 am
Operator :
Sample : 1607265-17A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 08 12:23:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

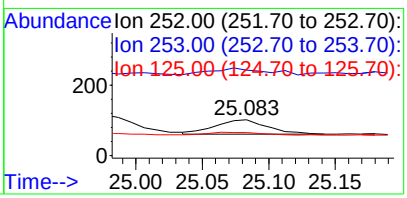




#23
Benzo(j)fluoranthene
Concen: 1.28 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16080626.D
Acq: 7 Aug 2016 5:32 am

Tgt Ion:252 Resp: 110

Ion	Ratio	Lower	Upper
252	100		
253	50.9	1.9	41.9#
125	20.9	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080627.D
Acq On : 7 Aug 2016 6:12 am
Operator :
Sample : 1607265-18A
Misc : SAMP
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 08 12:23:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

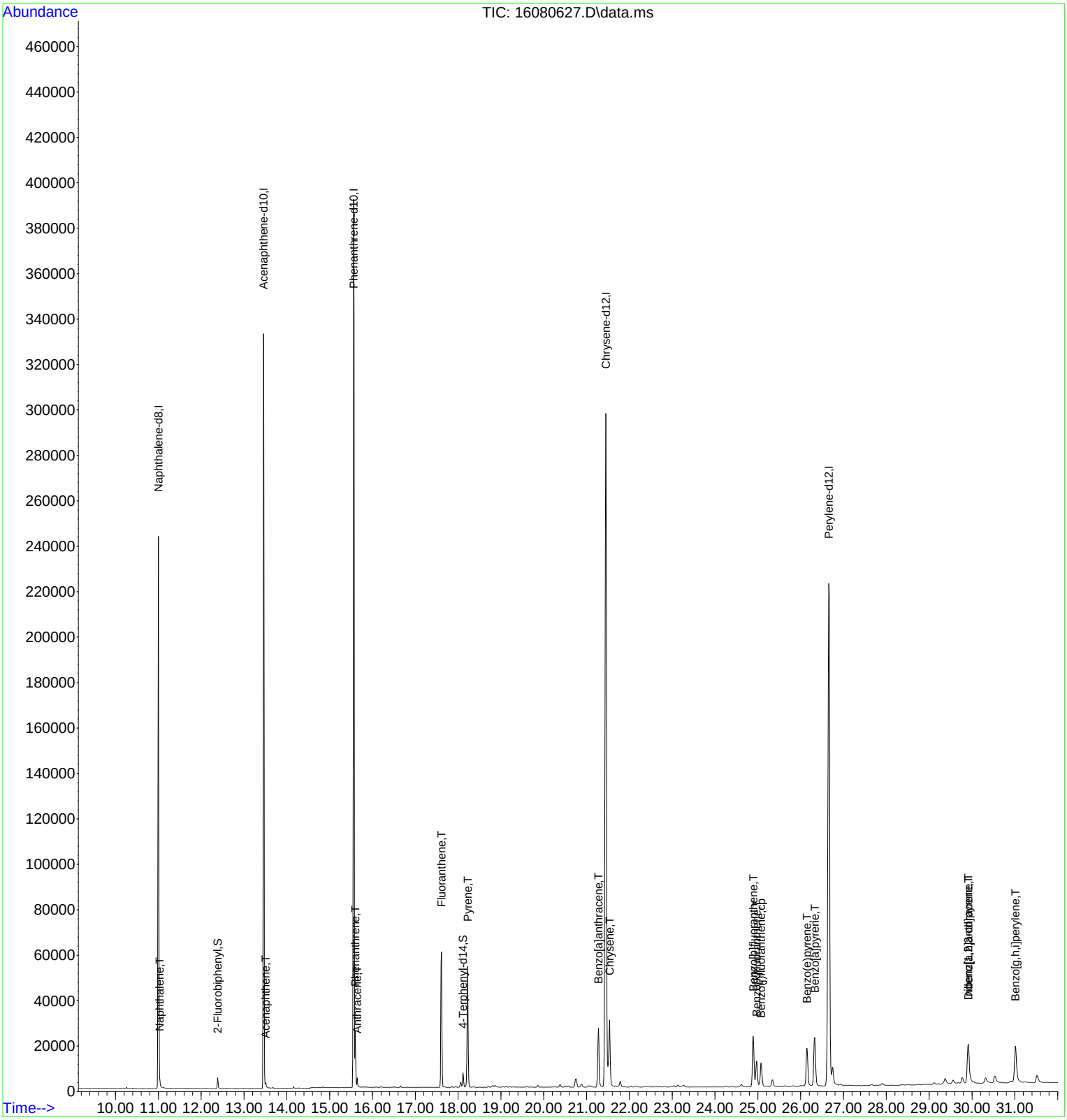
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	299974	4000.00	ug/kg	113
6) Acenaphthene-d10	13.455	164	186459	4000.00	ug/kg	115
11) Phenanthrene-d10	15.559	188	479858	4000.00	ug/kg	93
17) Chrysene-d12	21.449	240	454400	4000.00	ug/kg	98
20) Perylene-d12	26.655	264	429315	4000.00	ug/kg	102
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4930	73.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.85%#			
15) 4-Terphenyl-d14	18.114	244	7020	83.21	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.08%#			
Target Compounds						Qvalue
2) Naphthalene	11.036	128	652	9.11	ug/kg	99
8) Acenaphthene	13.504	153	825	14.63	ug/kg	97
12) Phenanthrene	15.597	178	21461	169.58	ug/kg	99
13) Anthracene	15.646	178	3604	28.77	ug/kg	99
14) Fluoranthene	17.612	202	65430	502.35	ug/kg	91
16) Pyrene	18.220	202	58902	452.32	ug/kg	100
18) Benzo[a]anthracene	21.276	228	35063	306.38	ug/kg	99
19) Chrysene	21.536	228	41436	382.54	ug/kg	100
21) Benzo[b]fluoranthene	24.891	252	42755	392.79	ug/kg	99
22) Benzo[k]fluoranthene	24.968	252	17995	198.46	ug/kg	98
23) Benzo(j)fluoranthene	25.074	252	17088	194.23	ug/kg	91
24) Benzo(e)pyrene	26.144	252	31871	294.23	ug/kg	97
25) Benzo[a]pyrene	26.327	252	43053	422.66	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.914	276	32607	258.05	ug/kg	90
27) Dibenz[a,h]anthracene	29.904	278	6559	64.73	ug/kg	96
28) Benzo[g,h,i]perylene	31.013	276	34834	310.54	ug/kg	97

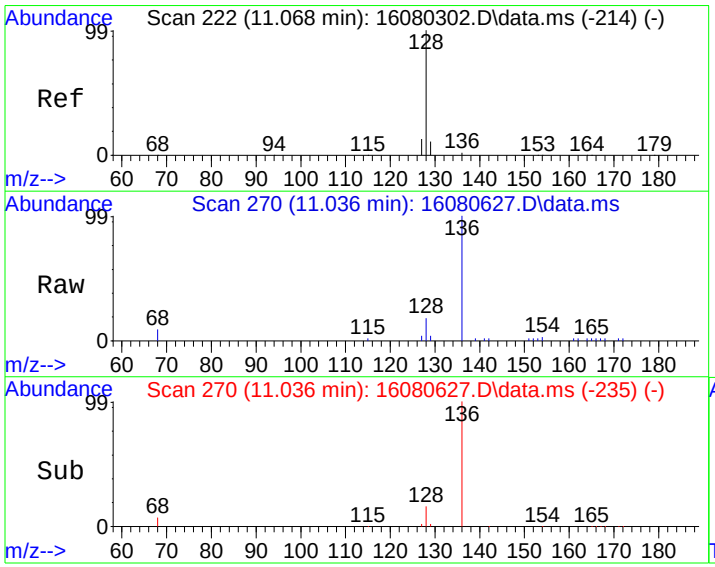
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080627.D
Acq On : 7 Aug 2016 6:12 am
Operator :
Sample : 1607265-18A
Misc : SAMP
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 08 12:23:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

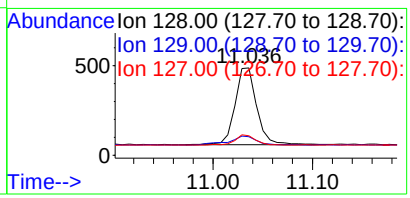


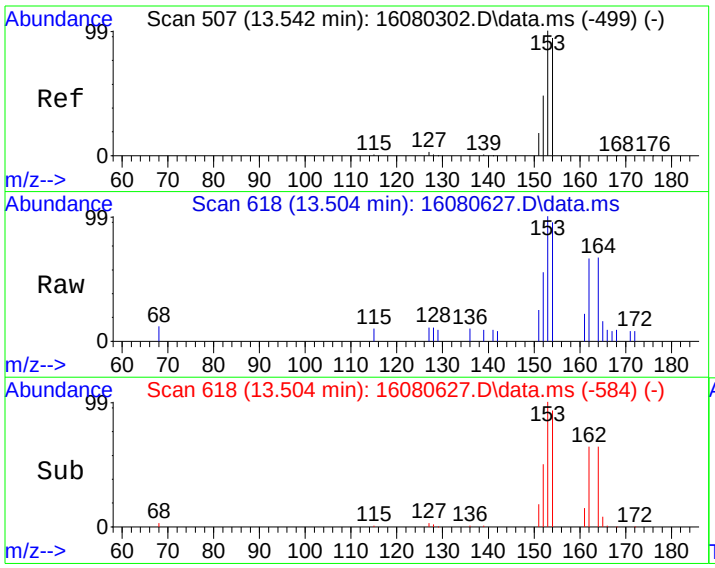


#2
Naphthalene
Concen: 9.11 ug/kg
RT: 11.036 min Scan# 270
Delta R.T. -0.002 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:128 Resp: 652

Ion	Ratio	Lower	Upper
128	100		
129	10.7	0.0	31.0
127	12.1	0.0	32.5

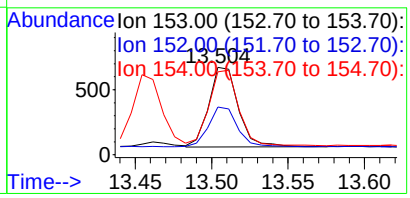


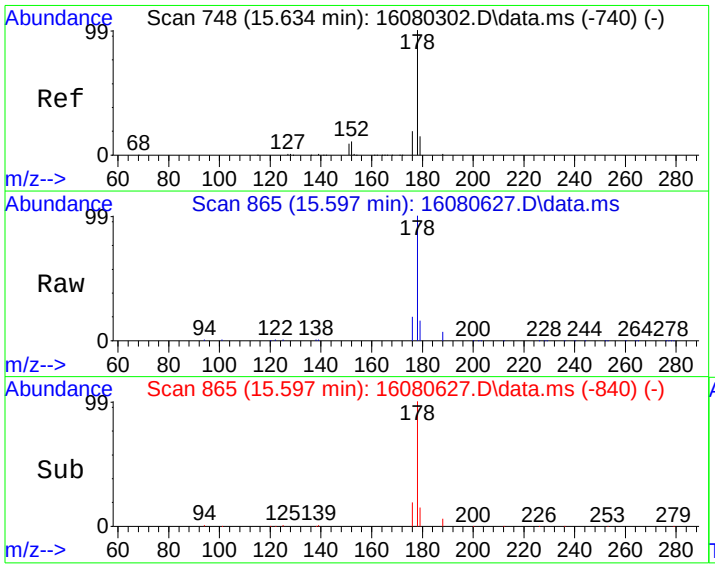


#8
Acenaphthene
Concen: 14.63 ug/kg
RT: 13.504 min Scan# 618
Delta R.T. -0.009 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:153 Resp: 825

Ion	Ratio	Lower	Upper
153	100		
152	49.8	27.7	67.7
154	93.0	75.7	115.7

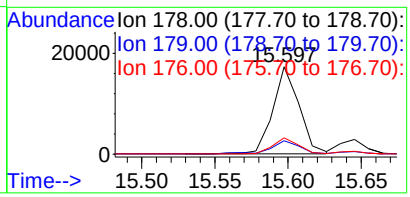


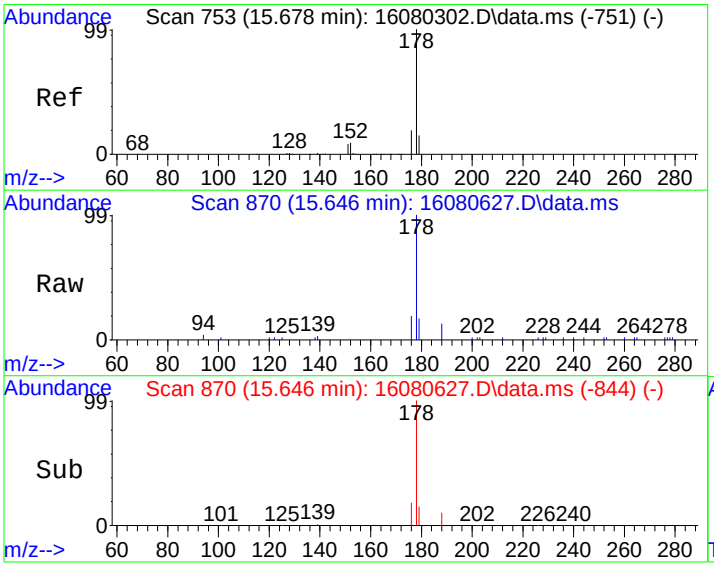


#12
Phenanthrene
Concen: 169.58 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:178 Resp: 21461

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.7
176	18.7	0.0	38.8

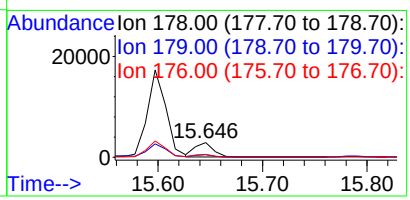


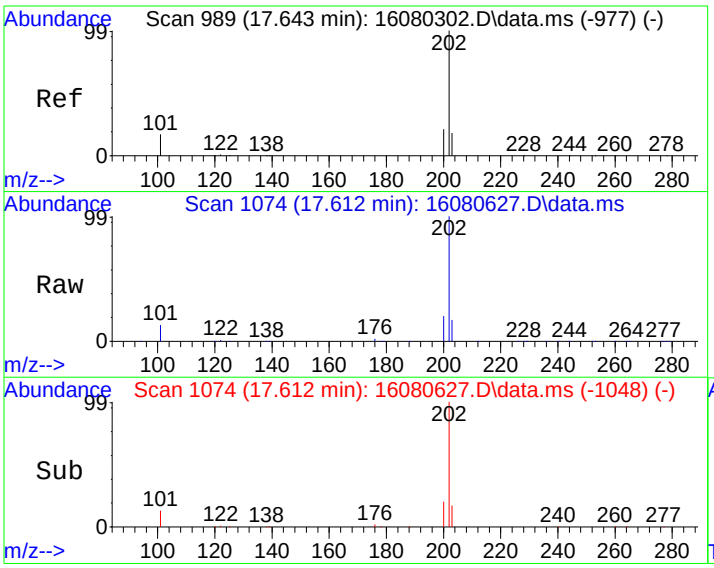


#13
Anthracene
Concen: 28.77 ug/kg
RT: 15.646 min Scan# 870
Delta R.T. 0.000 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:178 Resp: 3604

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.5
176	17.9	0.0	38.7

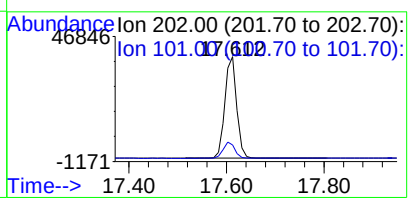


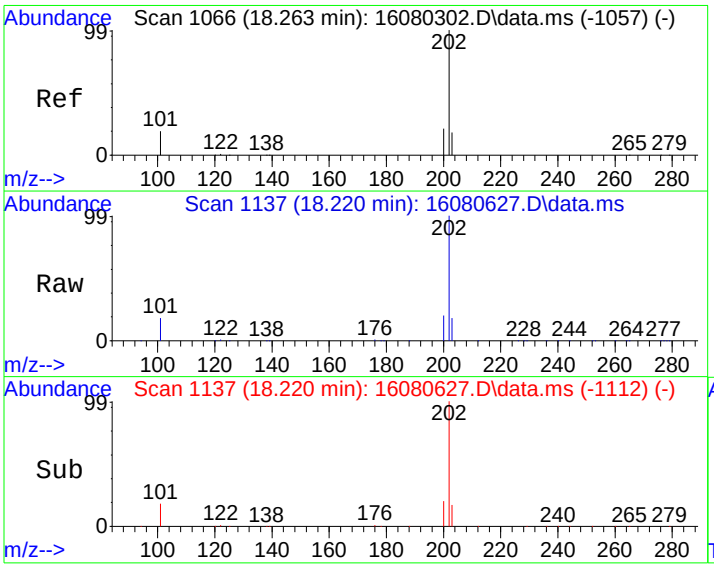


#14
Fluoranthene
Concen: 502.35 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.000 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:202 Resp: 65430

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	37.2

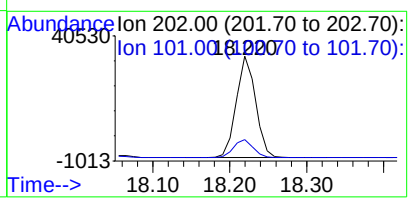


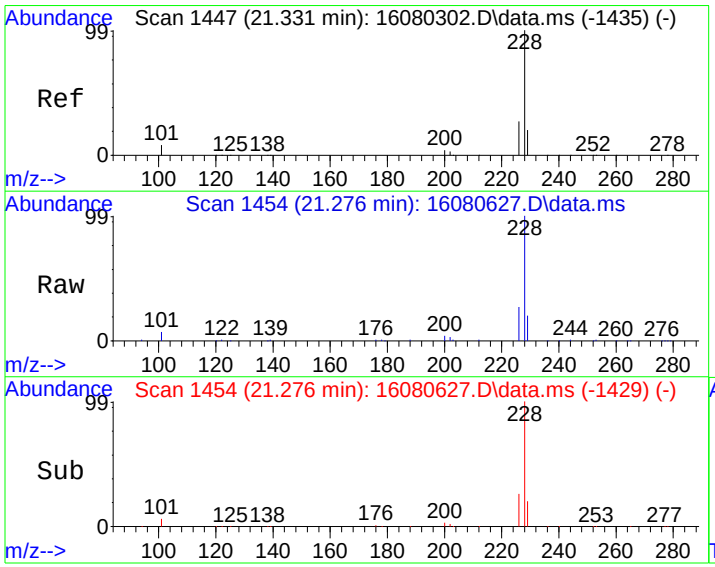


#16
Pyrene
Concen: 452.32 ug/kg
RT: 18.220 min Scan# 1137
Delta R.T. -0.009 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:202 Resp: 58902

Ion	Ratio	Lower	Upper
202	100		
101	17.9	0.0	38.0

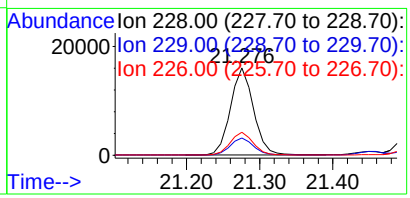


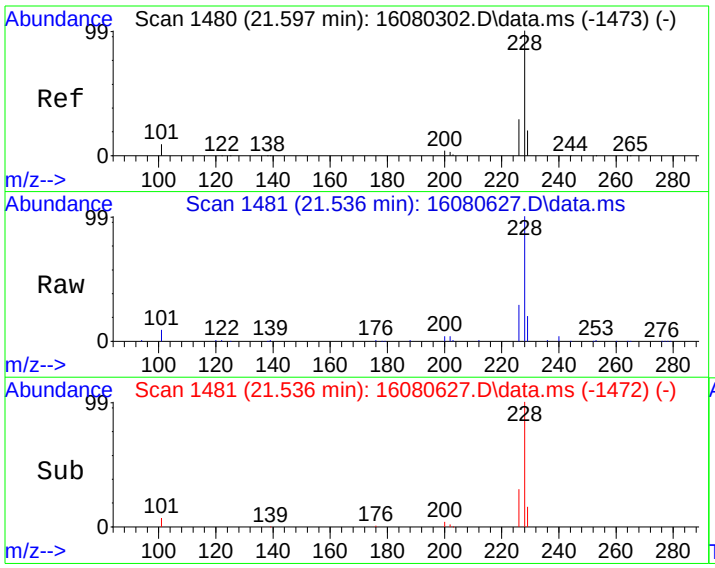


#18
Benzo[a]anthracene
Concen: 306.38 ug/kg
RT: 21.276 min Scan# 1454
Delta R.T. -0.009 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:228 Resp: 35063

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	39.9
226	26.3	6.7	46.7

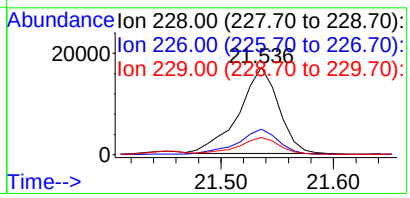


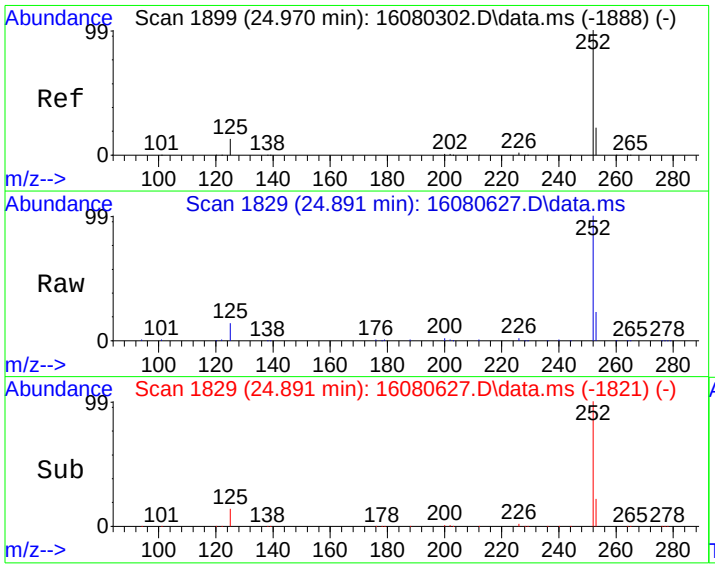


#19
Chrysene
Concen: 382.54 ug/kg
RT: 21.536 min Scan# 1481
Delta R.T. -0.009 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:228 Resp: 41436

Ion	Ratio	Lower	Upper
228	100		
226	29.2	9.3	49.3
229	19.6	0.0	39.8

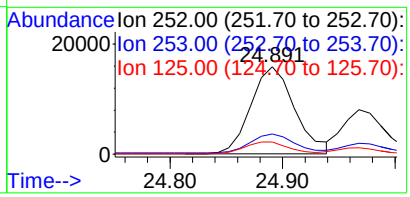


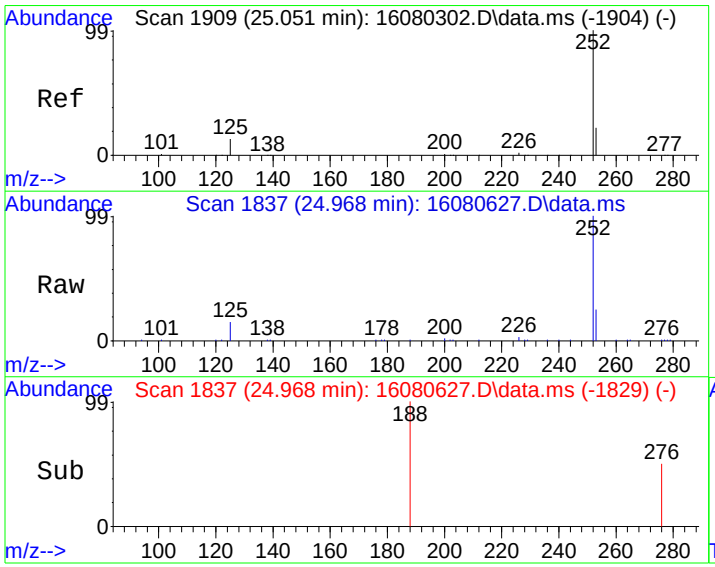


#21
Benzo[b]fluoranthene
Concen: 392.79 ug/kg
RT: 24.891 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:252 Resp: 42755

Ion	Ratio	Lower	Upper
252	100		
253	21.7	1.9	41.9
125	13.6	0.0	33.2

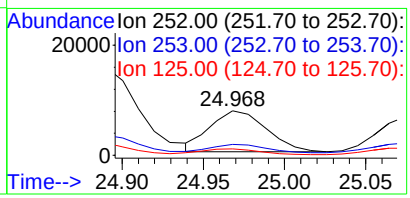


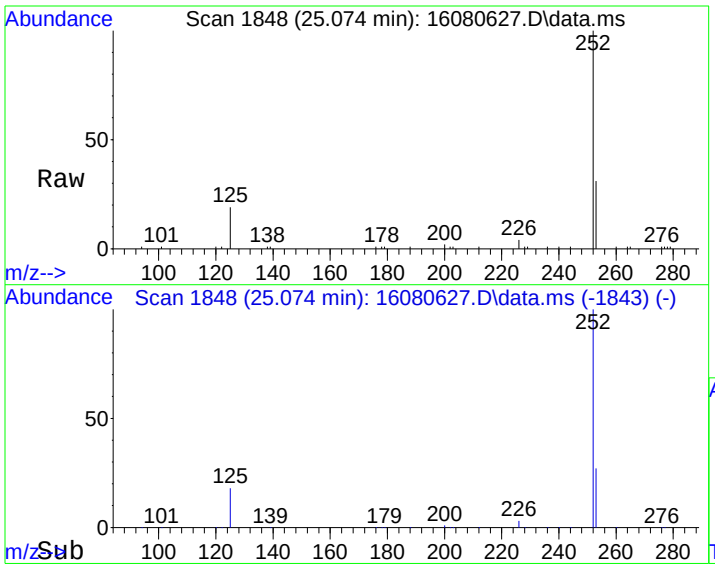


#22
Benzo[k]fluoranthene
Concen: 198.46 ug/kg
RT: 24.968 min Scan# 1837
Delta R.T. -0.019 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:252 Resp: 17995

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.1	42.1
125	13.6	0.0	33.9

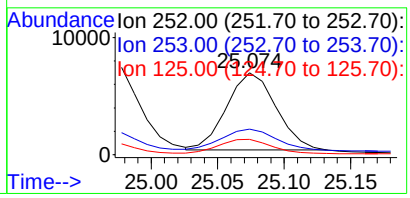


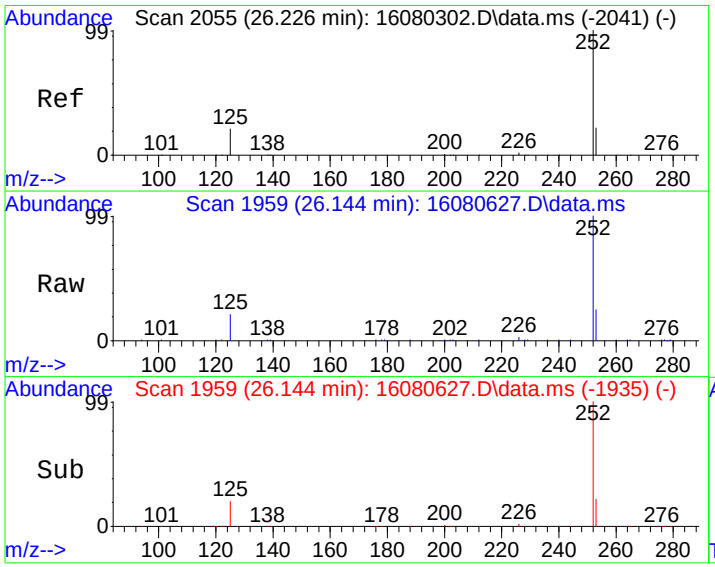


#23
Benzo(j)fluoranthene
Concen: 194.23 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:252 Resp: 17088

Ion	Ratio	Lower	Upper
252	100		
253	29.7	1.9	41.9
125	19.0	0.0	39.4

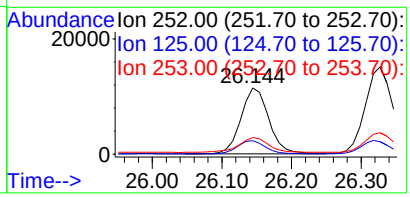


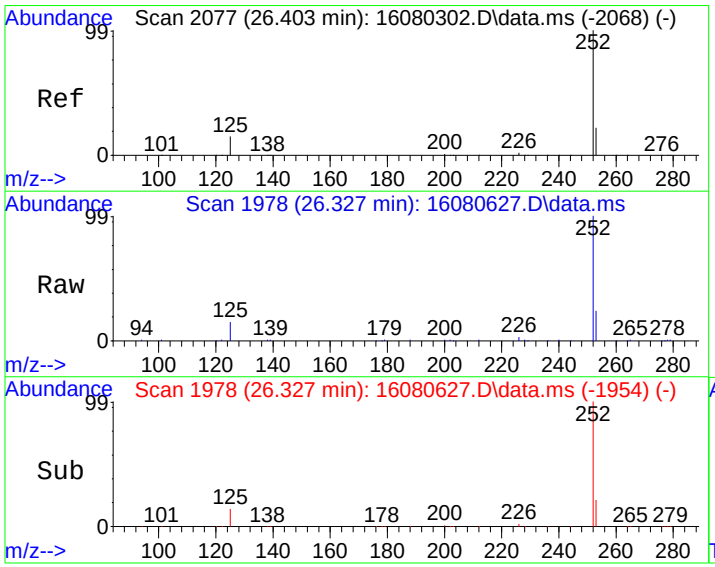


#24
Benzo(e)pyrene
Concen: 294.23 ug/kg
RT: 26.144 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:252 Resp: 31871

Ion	Ratio	Lower	Upper
252	100		
125	20.2	0.5	40.5
253	24.6	2.1	42.1

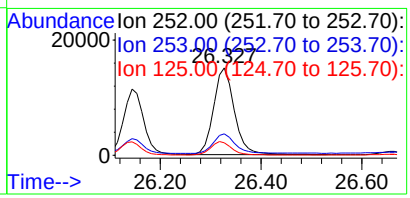


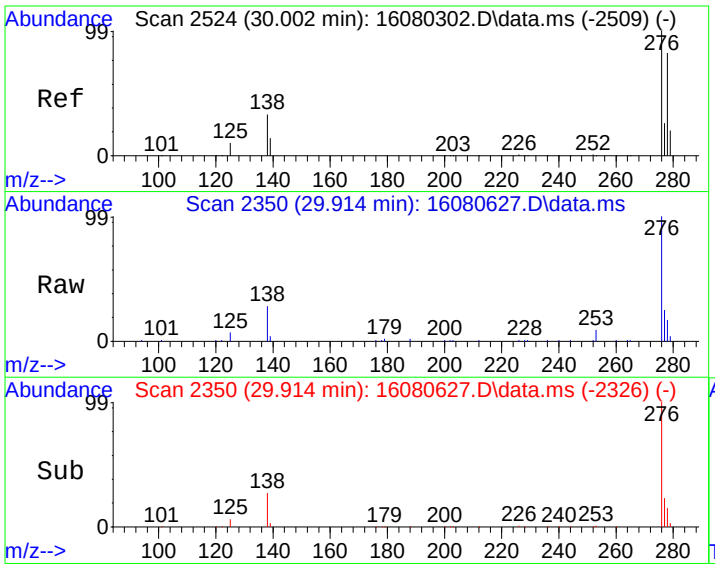


#25
Benzo[a]pyrene
Concen: 422.66 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:252 Resp: 43053

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	14.2	0.0	33.5

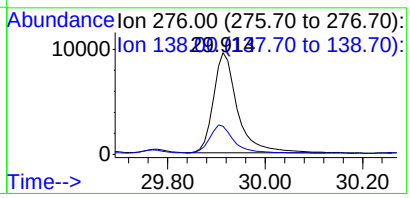


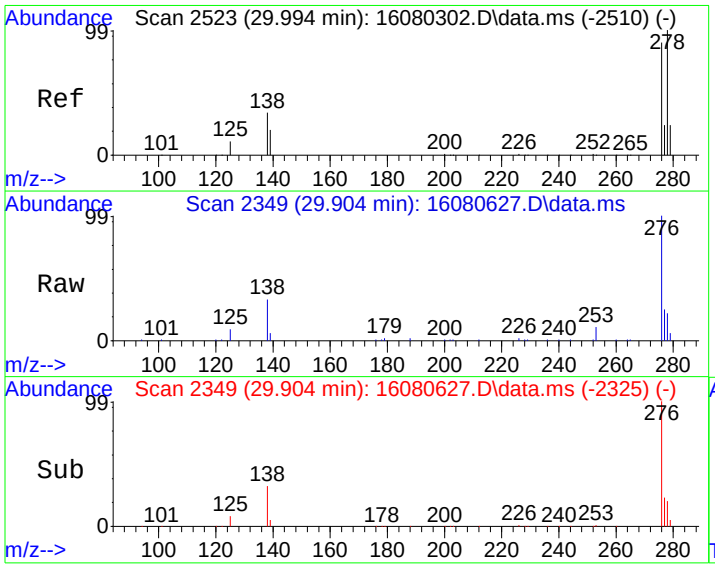


#26
Indeno[1,2,3-cd]pyrene
Concen: 258.05 ug/kg
RT: 29.914 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:276 Resp: 32607

Ion	Ratio	Lower	Upper
276	100		
138	26.7	12.2	52.2

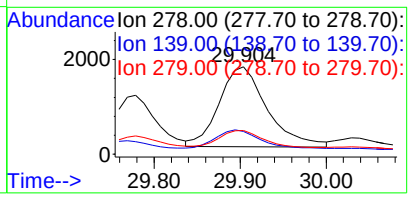


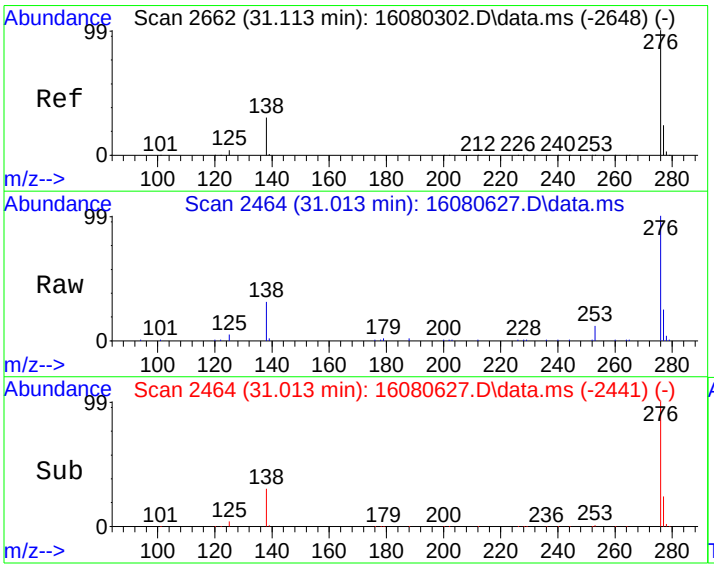


#27
Dibenz[a,h]anthracene
Concen: 64.73 ug/kg
RT: 29.904 min Scan# 2349
Delta R.T. -0.019 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:278 Resp: 6559

Ion	Ratio	Lower	Upper
278	100		
139	22.7	0.2	40.2
279	22.9	3.9	43.9

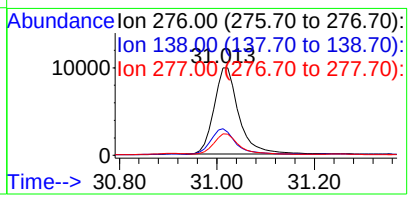




#28
Benzo[g,h,i]perylene
Concen: 310.54 ug/kg
RT: 31.013 min Scan# 2464
Delta R.T. -0.028 min
Lab File: 16080627.D
Acq: 7 Aug 2016 6:12 am

Tgt Ion:276 Resp: 34834

Ion	Ratio	Lower	Upper
276	100		
138	29.7	6.9	46.9
277	23.7	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080628.D
Acq On : 7 Aug 2016 6:51 am
Operator :
Sample : 1607265-19A
Misc : SAMP
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 08 12:23:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	310257	4000.00	ug/kg	117
6) Acenaphthene-d10	13.457	164	183450	4000.00	ug/kg	113
11) Phenanthrene-d10	15.558	188	503504	4000.00	ug/kg	98
17) Chrysene-d12	21.449	240	467354	4000.00	ug/kg	101
20) Perylene-d12	26.655	264	438447	4000.00	ug/kg	104

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	4703	68.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.70%#			
15) 4-Terphenyl-d14	18.113	244	7160	80.89	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.02%#			

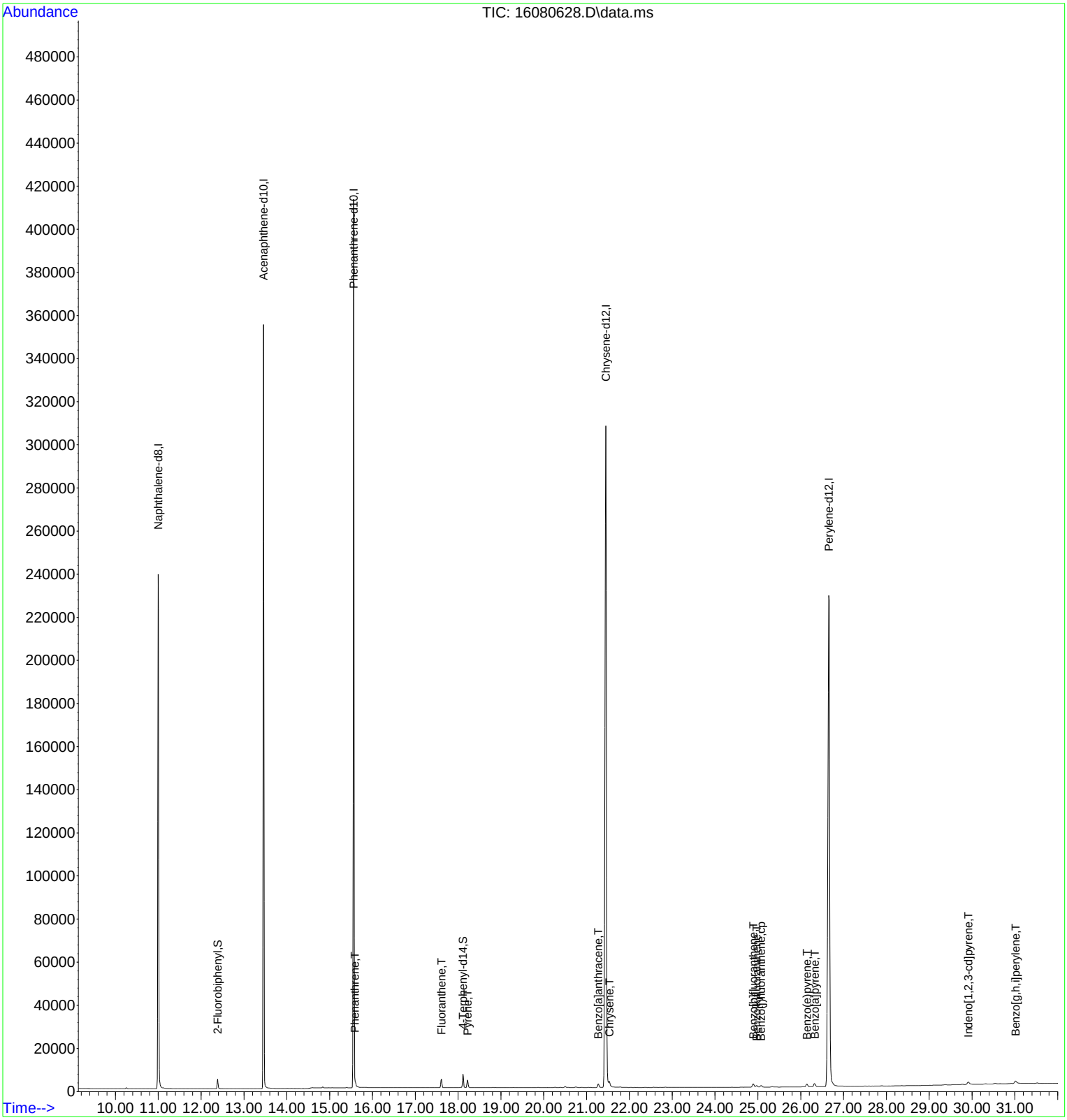
Target Compounds						Qvalue
12) Phenanthrene	15.597	178	1584	9.71	ug/kg	98
14) Fluoranthene	17.612	202	4373	32.00	ug/kg	91
16) Pyrene	18.219	202	4039	29.56	ug/kg	99
18) Benzo[a]anthracene	21.275	228	2557	21.72	ug/kg	99
19) Chrysene	21.535	228	3042	27.31	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	3162	28.44	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	1294	13.97	ug/kg	95
23) Benzo(j)fluoranthene	25.073	252	1216	13.53	ug/kg	93
24) Benzo(e)pyrene	26.144	252	2470	22.33	ug/kg	88
25) Benzo[a]pyrene	26.327	252	3204	30.80	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.913	276	2591	20.08	ug/kg	94
28) Benzo[g,h,i]perylene	31.022	276	2877	25.11	ug/kg	98

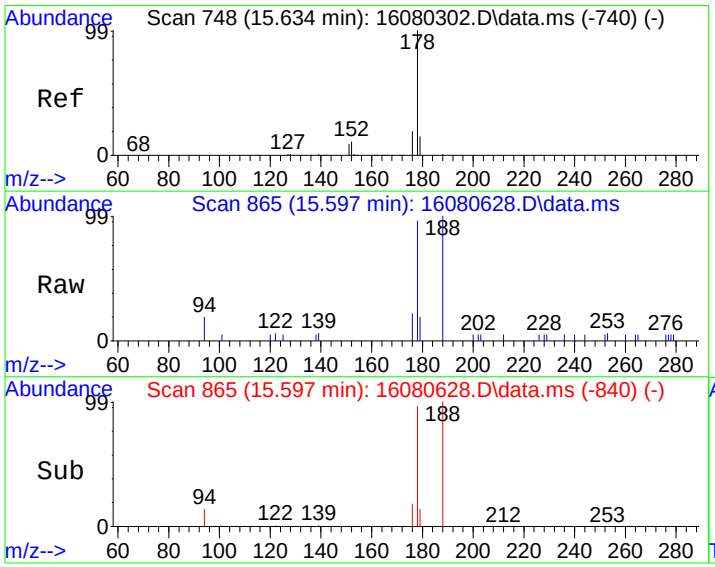
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080628.D
Acq On : 7 Aug 2016 6:51 am
Operator :
Sample : 1607265-19A
Misc : SAMP
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 08 12:23:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

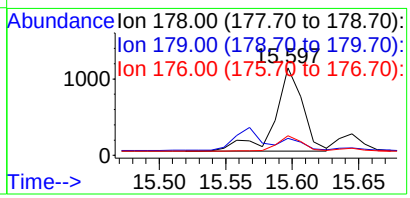


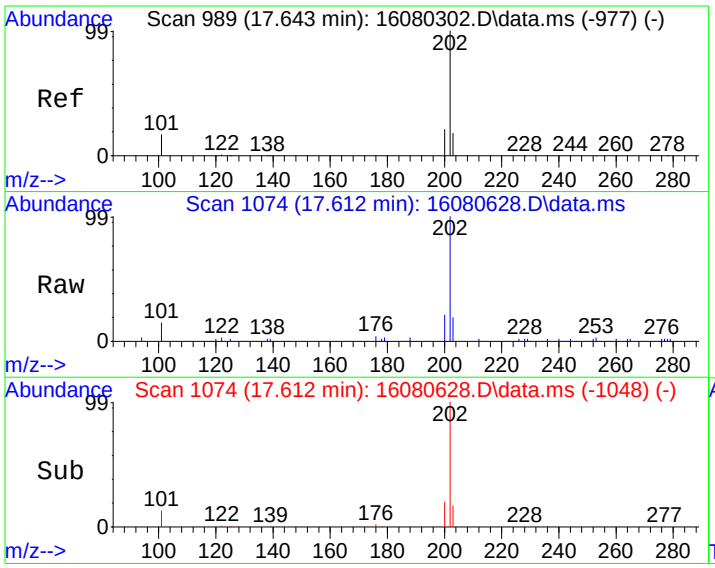


#12
Phenanthrene
Concen: 9.71 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:178 Resp: 1584

Ion	Ratio	Lower	Upper
178	100		
179	14.4	0.0	35.7
176	18.5	0.0	38.8

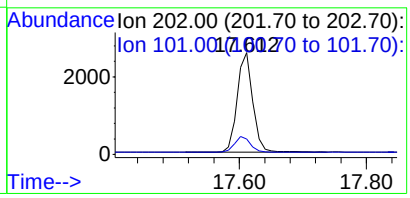


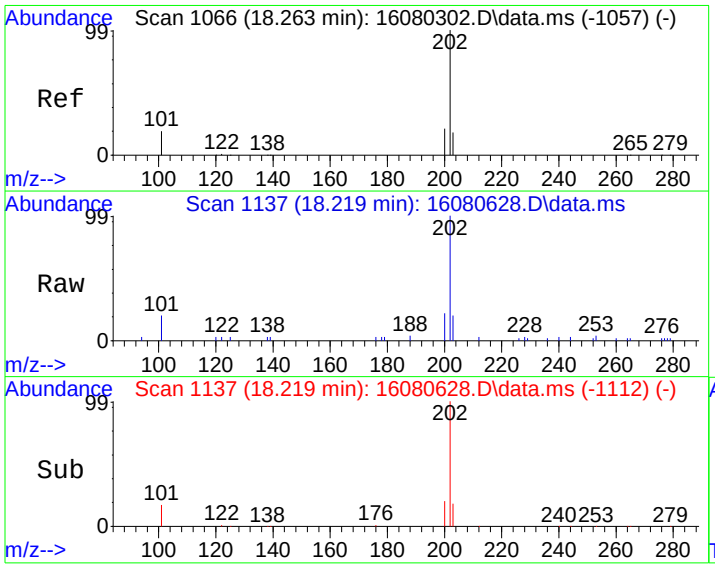


#14
Fluoranthene
Concen: 32.00 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. -0.000 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:202 Resp: 4373

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	37.2

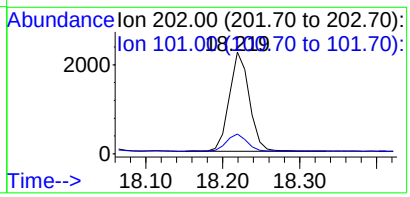


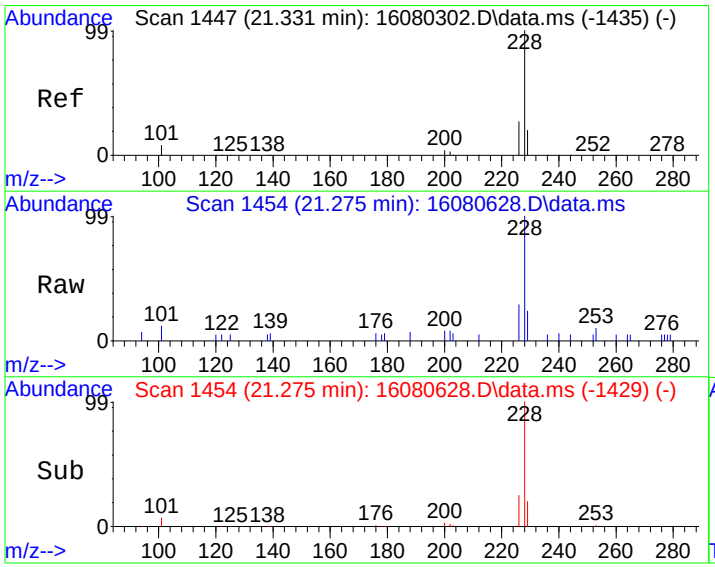


#16
Pyrene
Concen: 29.56 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:202 Resp: 4039

Ion	Ratio	Lower	Upper
202	100		
101	17.5	0.0	38.0

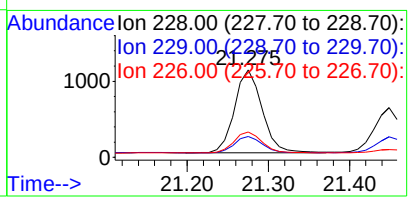


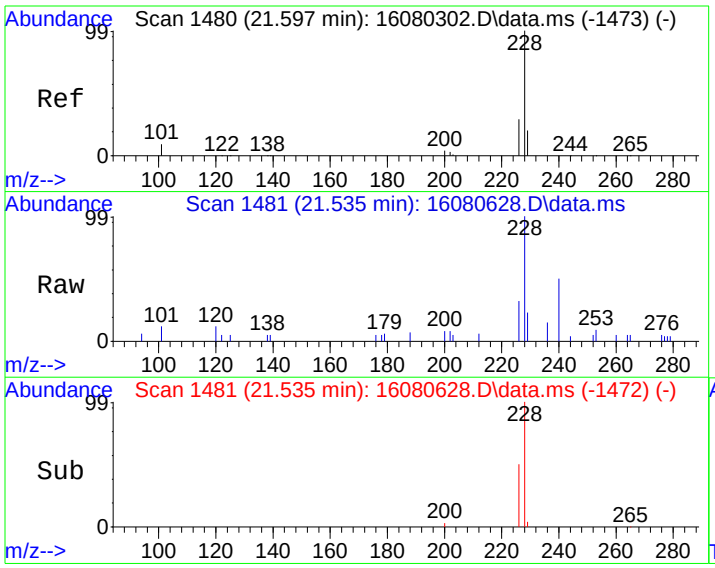


#18
Benzo[a]anthracene
Concen: 21.72 ug/kg
RT: 21.275 min Scan# 1454
Delta R.T. -0.010 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:228 Resp: 2557

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	39.9
226	25.4	6.7	46.7

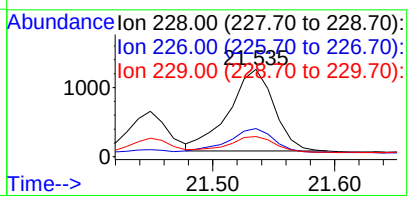


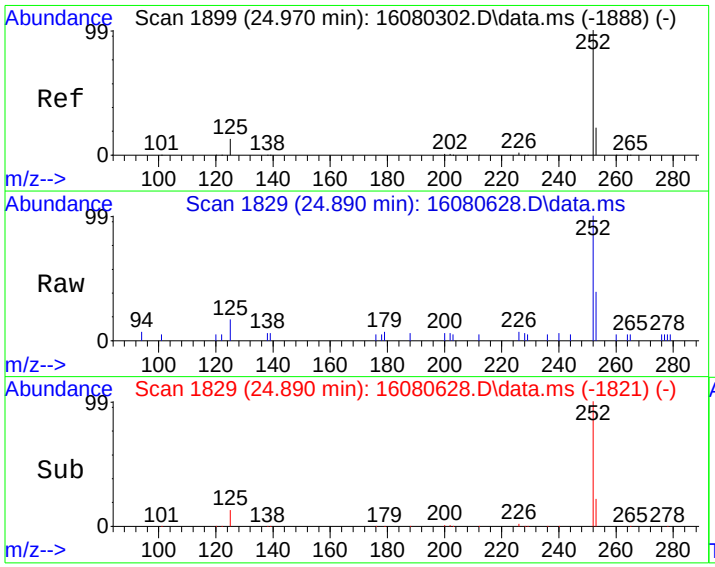


#19
Chrysene
Concen: 27.31 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:228 Resp: 3042

Ion	Ratio	Lower	Upper
228	100		
226	29.1	9.3	49.3
229	19.4	0.0	39.8

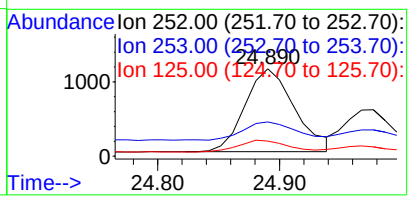


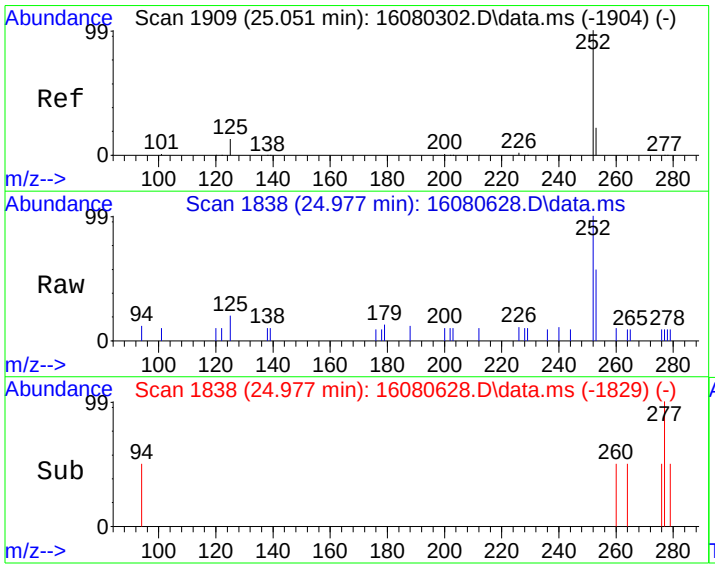


#21
Benzo[b]fluoranthene
Concen: 28.44 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:252 Resp: 3162

Ion	Ratio	Lower	Upper
252	100		
253	21.8	1.9	41.9
125	13.1	0.0	33.2

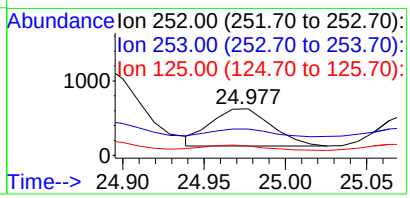


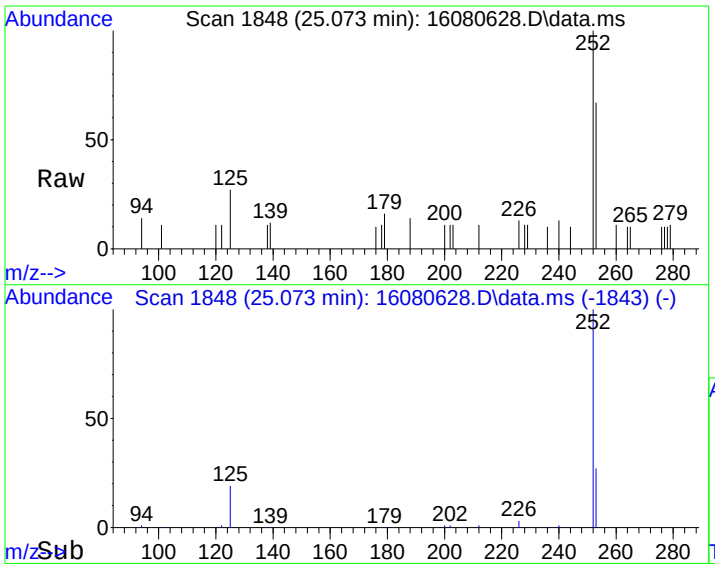


#22
Benzo[k]fluoranthene
Concen: 13.97 ug/kg
RT: 24.977 min Scan# 1838
Delta R.T. -0.010 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:252 Resp: 1294

Ion	Ratio	Lower	Upper
252	100		
253	19.9	2.1	42.1
125	11.6	0.0	33.9

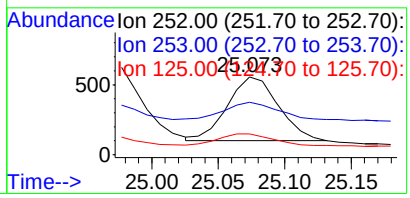


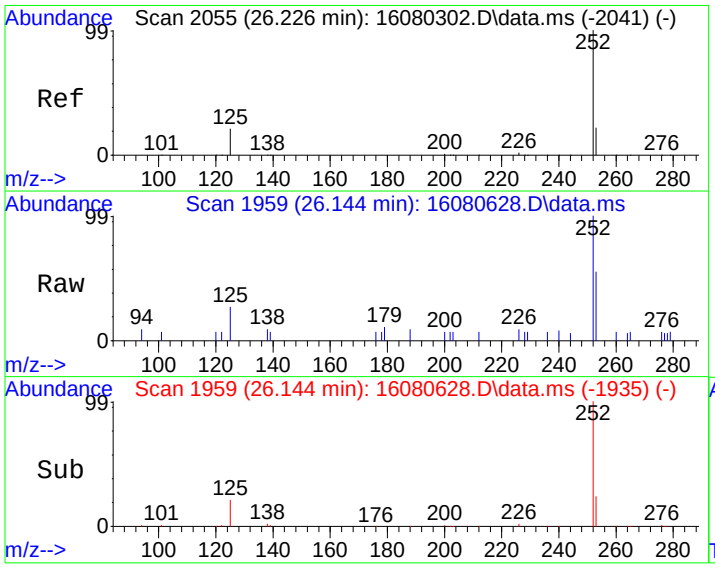


#23
Benzo(j)fluoranthene
Concen: 13.53 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:252 Resp: 1216

Ion	Ratio	Lower	Upper
252	100		
253	27.7	1.9	41.9
125	19.0	0.0	39.4

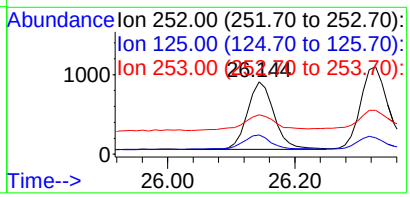


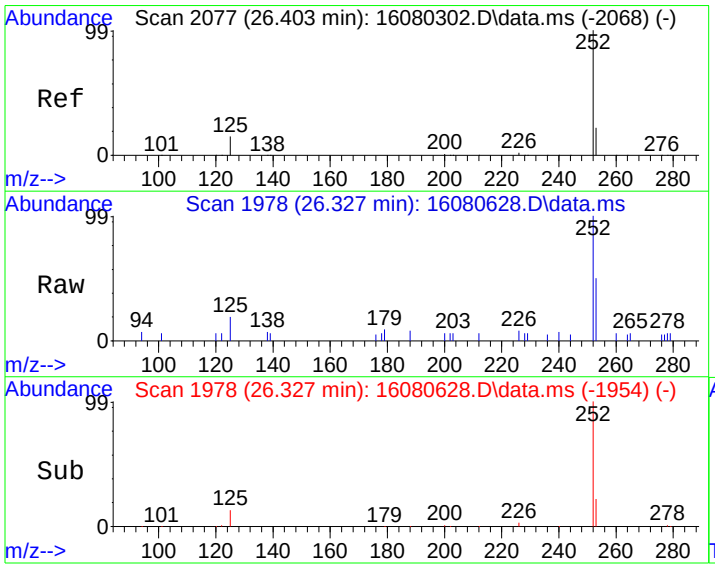


#24
Benzo(e)pyrene
Concen: 22.33 ug/kg
RT: 26.144 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:252 Resp: 2470

Ion	Ratio	Lower	Upper
252	100		
125	25.3	0.5	40.5
253	28.9	2.1	42.1

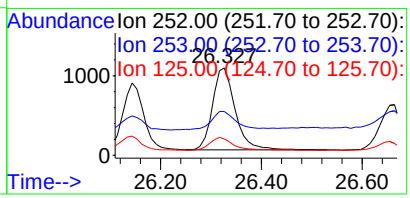


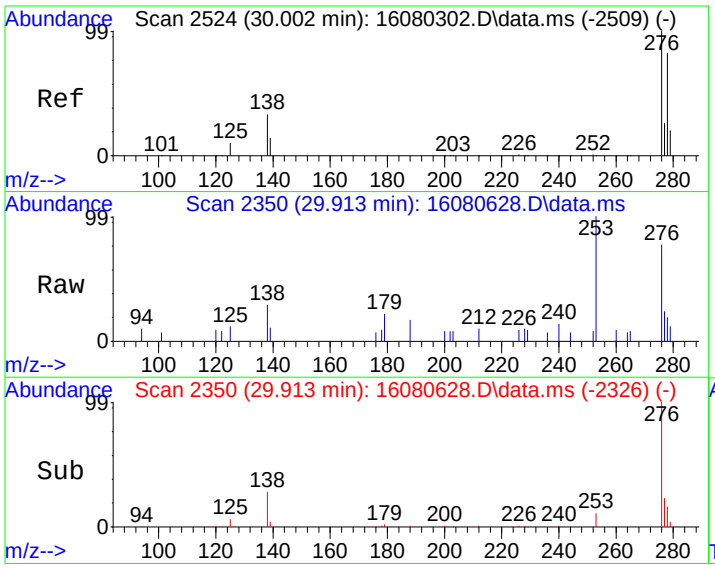


#25
Benzo[a]pyrene
Concen: 30.80 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:252 Resp: 3204

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	13.7	0.0	33.5

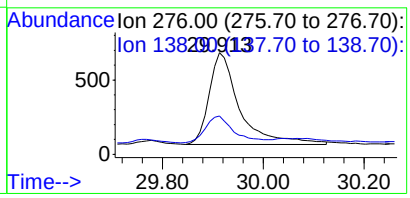


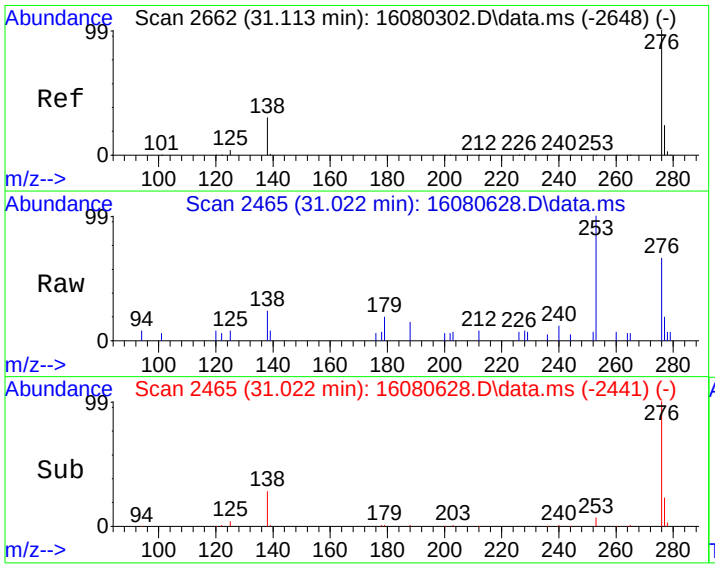


#26
Indeno[1,2,3-cd]pyrene
Concen: 20.08 ug/kg
RT: 29.913 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:276 Resp: 2591

Ion	Ratio	Lower	Upper
276	100		
138	28.7	12.2	52.2

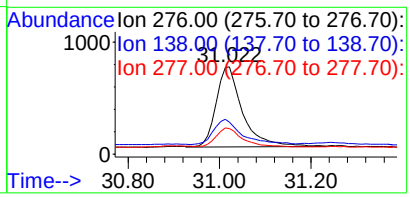




#28
Benzo[g,h,i]perylene
Concen: 25.11 ug/kg
RT: 31.022 min Scan# 2465
Delta R.T. -0.019 min
Lab File: 16080628.D
Acq: 7 Aug 2016 6:51 am

Tgt Ion:276 Resp: 2877

Ion	Ratio	Lower	Upper
276	100		
138	27.6	6.9	46.9
277	22.8	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080630.D
Acq On : 7 Aug 2016 8:09 am
Operator :
Sample : ICV2-160806
Misc : ICV
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Aug 08 12:21:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

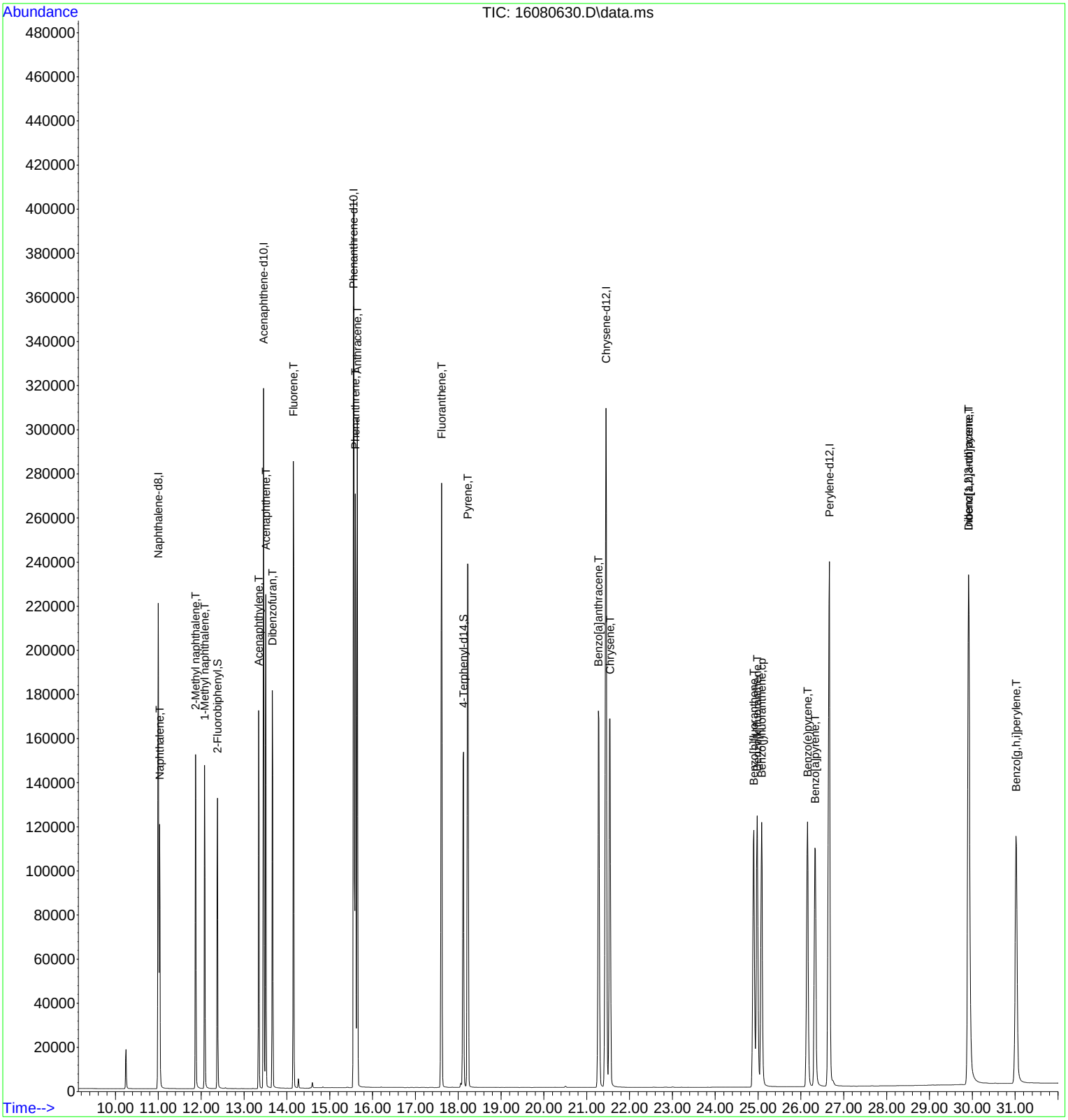
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	276273	4000.00	ug/kg	104
6) Acenaphthene-d10	13.457	164	166029	4000.00	ug/kg	102
11) Phenanthrene-d10	15.558	188	510642	4000.00	ug/kg	99
17) Chrysene-d12	21.448	240	473125	4000.00	ug/kg	102
20) Perylene-d12	26.664	264	432658	4000.00	ug/kg	103
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	106181	1727.63	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 43.19%			
15) 4-Terphenyl-d14	18.122	244	183778	2047.10	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 51.18%			
Target Compounds						Qvalue
2) Naphthalene	11.032	128	125495	1904.29	ug/kg	100
3) 2-Methyl naphthalene	11.869	142	84761	1886.87	ug/kg	99
4) 1-Methyl naphthalene	12.082	142	77731	1882.23	ug/kg	99
7) Acenaphthylene	13.344	152	153189	1994.32	ug/kg	100
8) Acenaphthene	13.507	153	97607	1944.39	ug/kg	99
9) Dibenzofuran	13.663	168	161890	1878.93	ug/kg	95
10) Fluorene	14.152	166	144138	1934.57	ug/kg	99
12) Phenanthrene	15.596	178	267944	2062.67	ug/kg	99
13) Anthracene	15.644	178	258726	1941.06	ug/kg	99
14) Fluoranthene	17.611	202	281907	2033.91	ug/kg	94
16) Pyrene	18.228	202	281710	2032.88	ug/kg	95
18) Benzo[a]anthracene	21.275	228	240971	2022.26	ug/kg	100
19) Chrysene	21.544	228	226128	2005.00	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	226529	2065.03	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	204646	2239.50	ug/kg	100
23) Benzo(j)fluoranthene	25.083	252	194512	2193.81	ug/kg	100
24) Benzo(e)pyrene	26.153	252	216829	1986.31	ug/kg	100
25) Benzo[a]pyrene	26.336	252	211394	2059.27	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.922	276	262448	2060.94	ug/kg	99
27) Dibenz[a,h]anthracene	29.912	278	215508	2110.50	ug/kg	100
28) Benzo[g,h,i]perylene	31.021	276	223745	1979.23	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080630.D
Acq On : 7 Aug 2016 8:09 am
Operator :
Sample : ICV2-160806
Misc : ICV
ALS Vial : 30 Sample Multiplier: 1

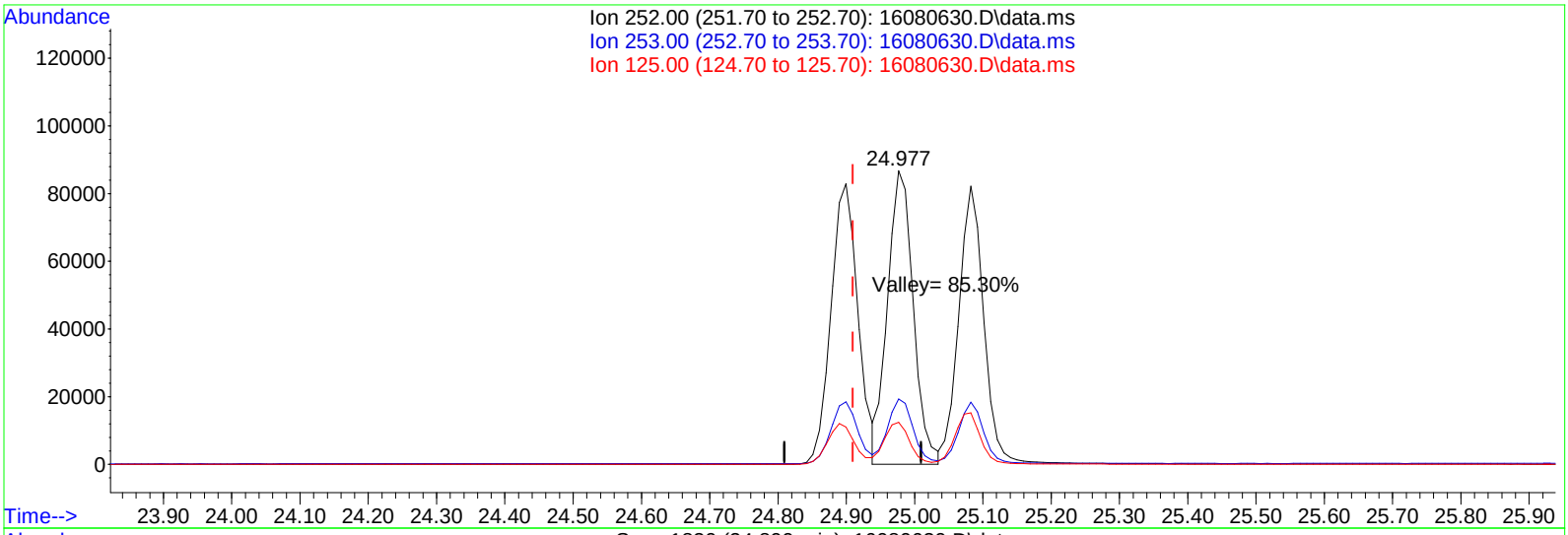
Quant Time: Aug 08 12:21:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

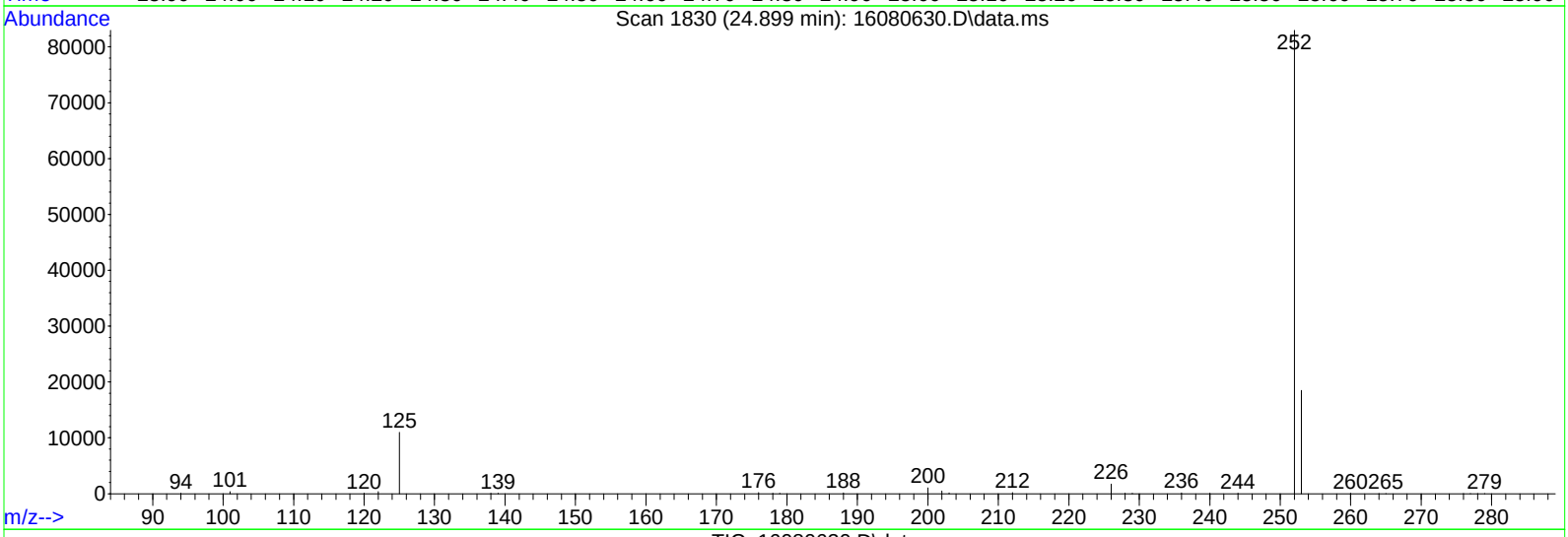


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080630.D
Acq On : 7 Aug 2016 8:09 am
Operator :
Sample : ICV2-160806
Misc : ICV
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Aug 07 12:45:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080630.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.899min (-0.010) 2065.03ug/kg

response 226529

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	22.03
125.00	13.20	13.18
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080632.D
Acq On : 7 Aug 2016 9:29 am
Operator :
Sample : SB-160808
Misc : SBLK
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Aug 08 12:21:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	261392	4000.00	ug/kg	99
6) Acenaphthene-d10	13.454	164	178833	4000.00	ug/kg	110
11) Phenanthrene-d10	15.558	188	488278	4000.00	ug/kg	95
17) Chrysene-d12	21.449	240	433638	4000.00	ug/kg	94
20) Perylene-d12	26.655	264	392890	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.390	172	14	0.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#			
15) 4-Terphenyl-d14	18.123	244	108	1.26	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.03%#			

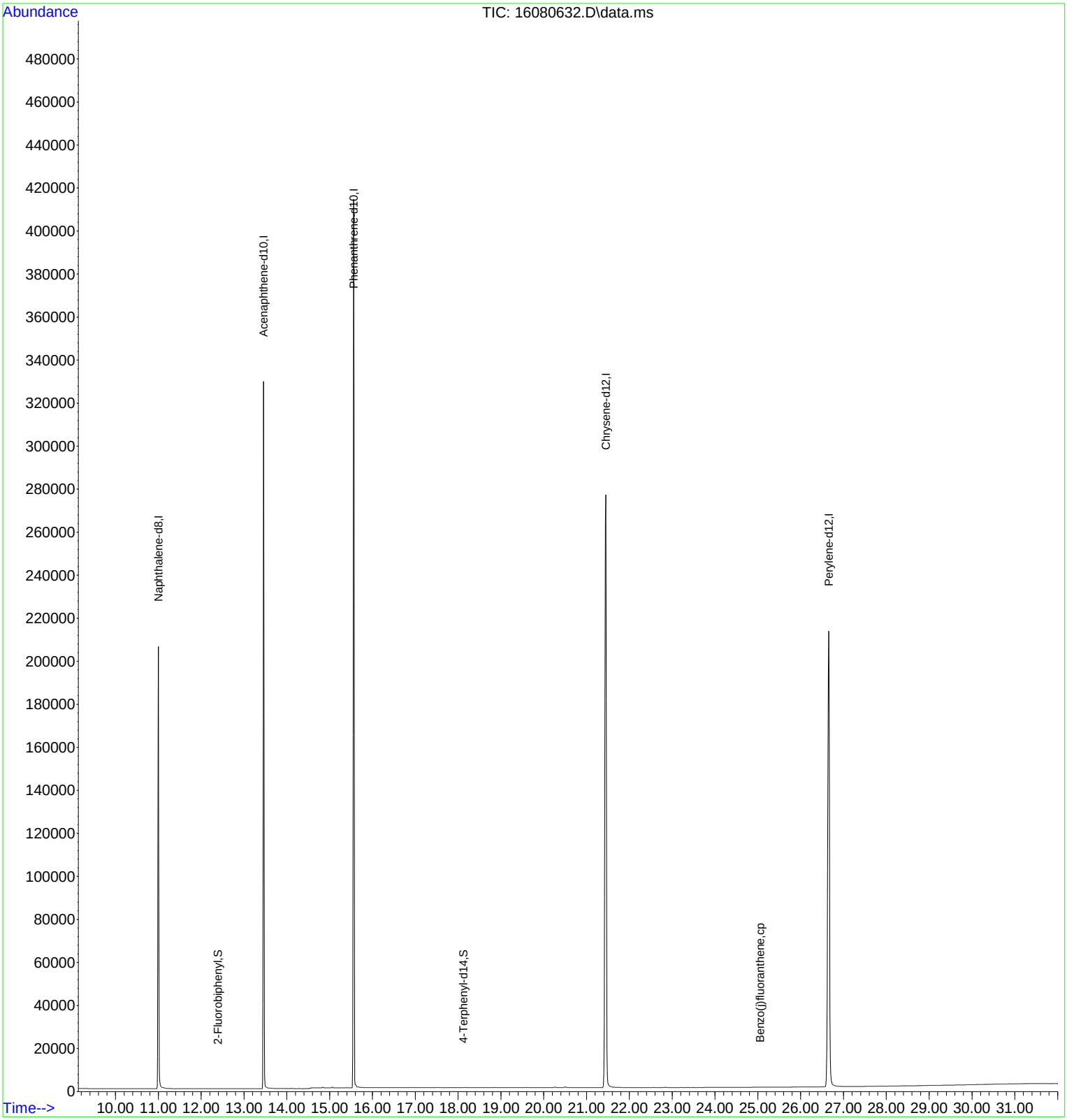
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.064	252	7	0.09	ug/kg#	24

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080632.D
Acq On : 7 Aug 2016 9:29 am
Operator :
Sample : SB-160808
Misc : SBLK
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Aug 08 12:21:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080633.D
Acq On : 7 Aug 2016 10:09 am
Operator :
Sample : 1607265-20A
Misc : SAMP
ALS Vial : 33 Sample Multiplier: 10

Quant Time: Aug 08 12:23:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	293385	4000.00	ug/kg	111
6) Acenaphthene-d10	13.456	164	178599	4000.00	ug/kg	110
11) Phenanthrene-d10	15.558	188	495545	4000.00	ug/kg	96
17) Chrysene-d12	21.449	240	461042	4000.00	ug/kg	100
20) Perylene-d12	26.654	264	427666	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	4741	72.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.82%#			
15) 4-Terphenyl-d14	18.113	244	7724	88.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.22%#			

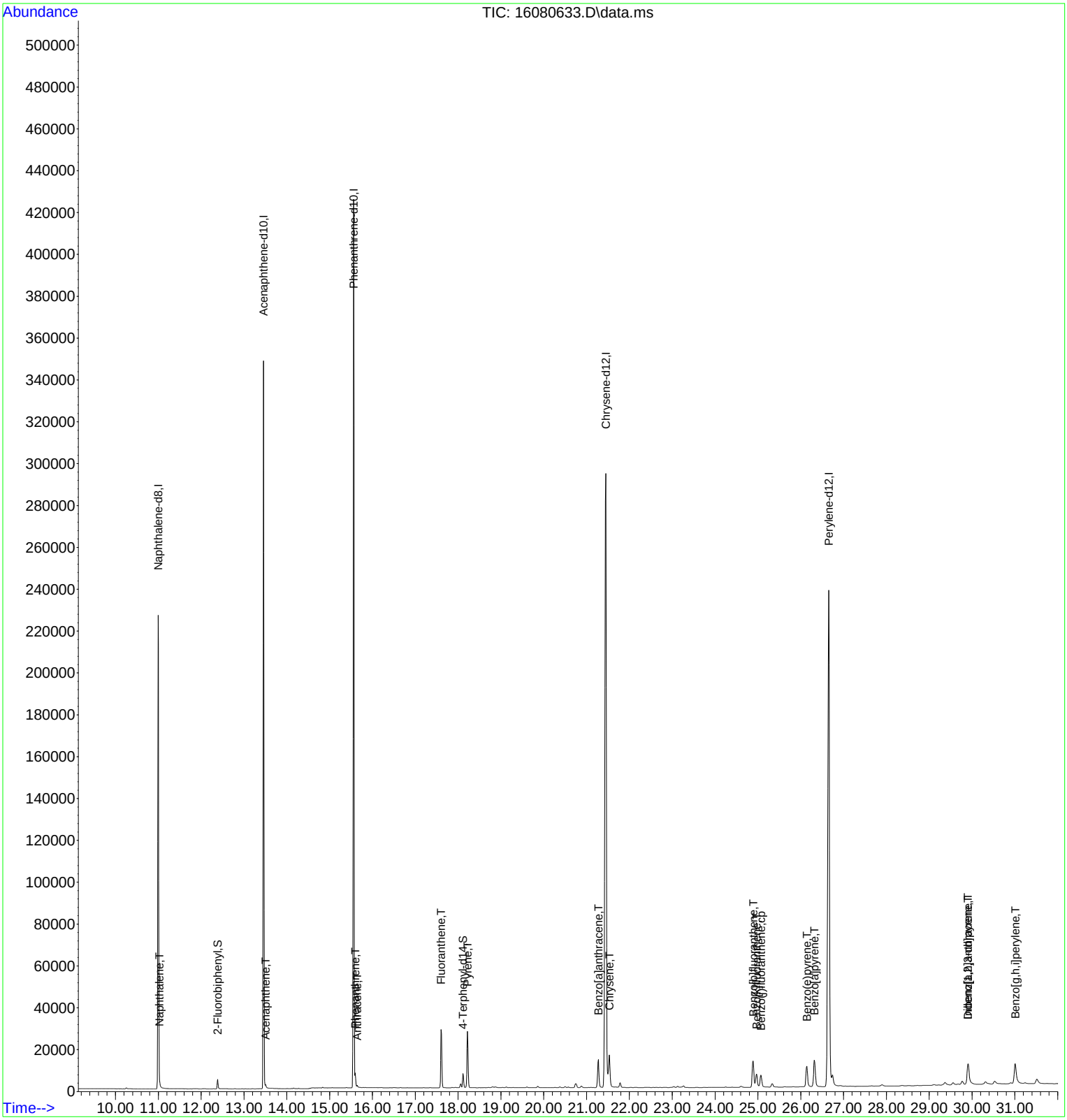
Target Compounds						Qvalue
2) Naphthalene	11.030	128	357	5.10	ug/kg	100
8) Acenaphthene	13.505	153	545	10.09	ug/kg	97
12) Phenanthrene	15.597	178	5525	40.44	ug/kg	99
13) Anthracene	15.645	178	918	7.10	ug/kg	98
14) Fluoranthene	17.602	202	31402	233.46	ug/kg	99
16) Pyrene	18.219	202	30765	228.77	ug/kg	100
18) Benzo[a]anthracene	21.275	228	19001	163.64	ug/kg	99
19) Chrysene	21.535	228	23369	212.64	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	24665	227.47	ug/kg	99
22) Benzo[k]fluoranthene	24.967	252	10356	114.65	ug/kg	96
23) Benzo(j)fluoranthene	25.073	252	9715	110.85	ug/kg	91
24) Benzo(e)pyrene	26.144	252	18938	175.51	ug/kg	98
25) Benzo[a]pyrene	26.317	252	26370	259.88	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.913	276	19835	157.58	ug/kg	88
27) Dibenz[a,h]anthracene	29.894	278	4038	40.01	ug/kg	95
28) Benzo[g,h,i]perylene	31.012	276	21546	192.82	ug/kg	99

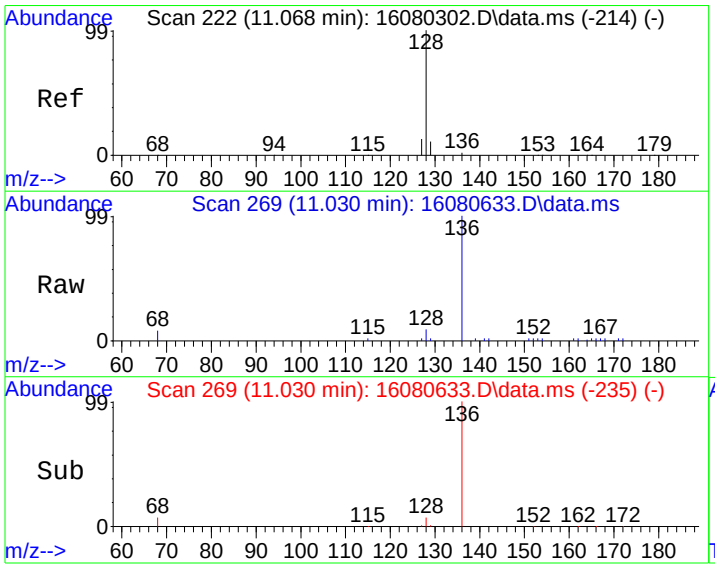
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080633.D
Acq On : 7 Aug 2016 10:09 am
Operator :
Sample : 1607265-20A
Misc : SAMP
ALS Vial : 33 Sample Multiplier: 10

Quant Time: Aug 08 12:23:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

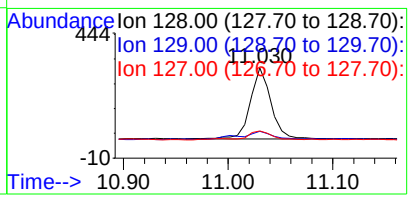


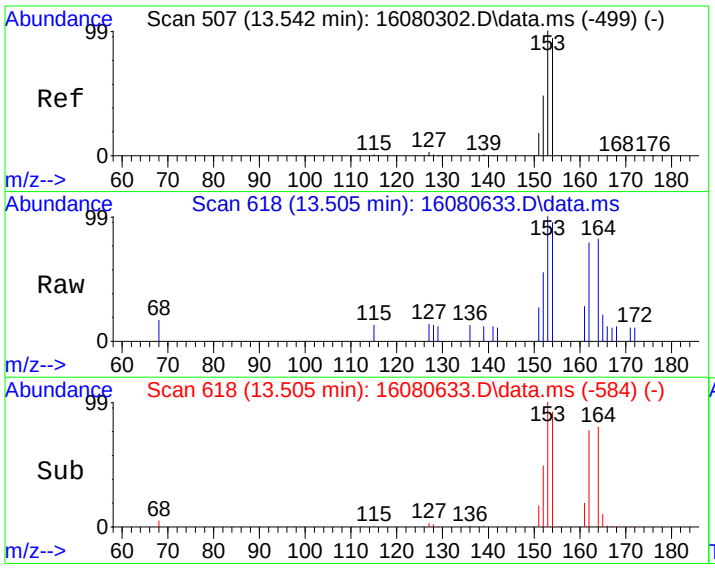


#2
Naphthalene
Concen: 5.10 ug/kg
RT: 11.030 min Scan# 269
Delta R.T. -0.008 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:128 Resp: 357

Ion	Ratio	Lower	Upper
128	100		
129	10.8	0.0	31.0
127	12.4	0.0	32.5

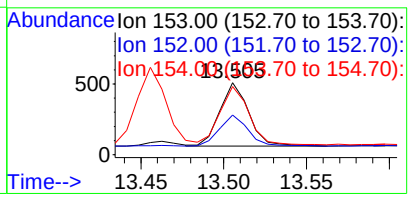


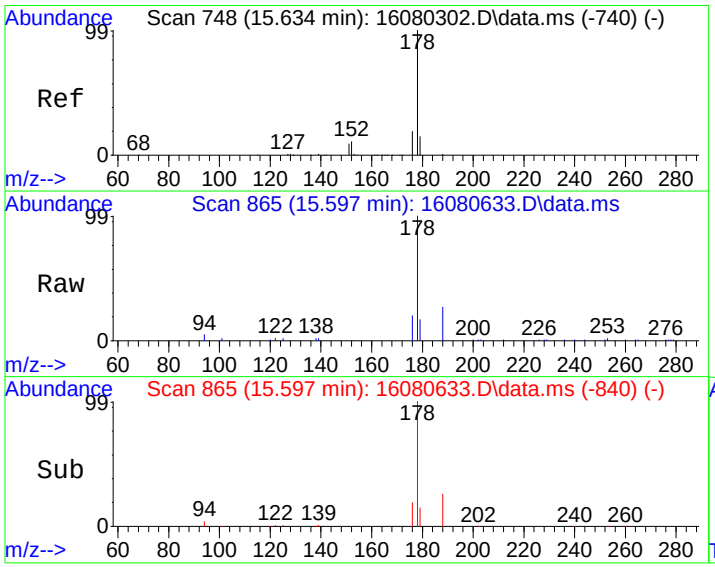


#8
Acenaphthene
Concen: 10.09 ug/kg
RT: 13.505 min Scan# 618
Delta R.T. -0.008 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:153 Resp: 545

Ion	Ratio	Lower	Upper
153	100		
152	48.9	27.7	67.7
154	92.0	75.7	115.7

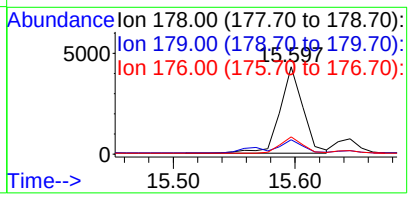


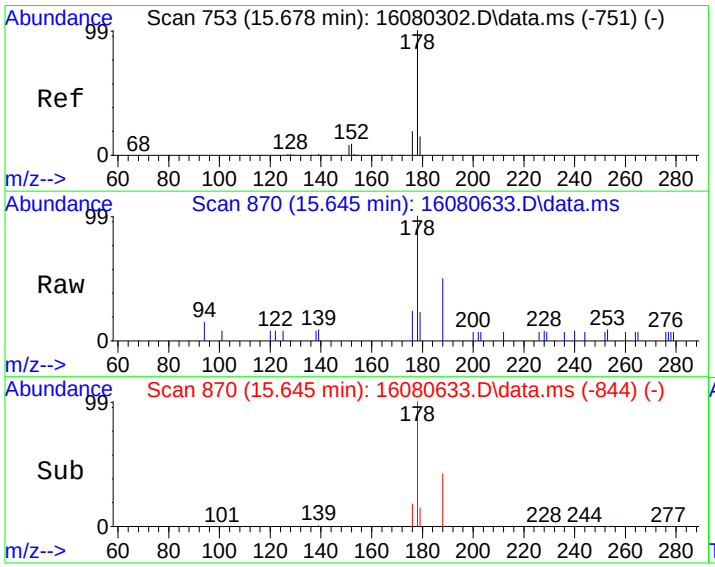


#12
Phenanthrene
Concen: 40.44 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:178 Resp: 5525

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.7
176	18.9	0.0	38.8

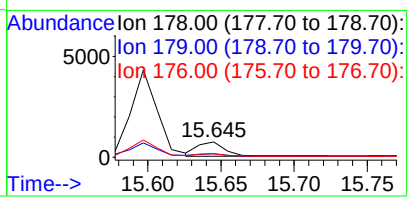


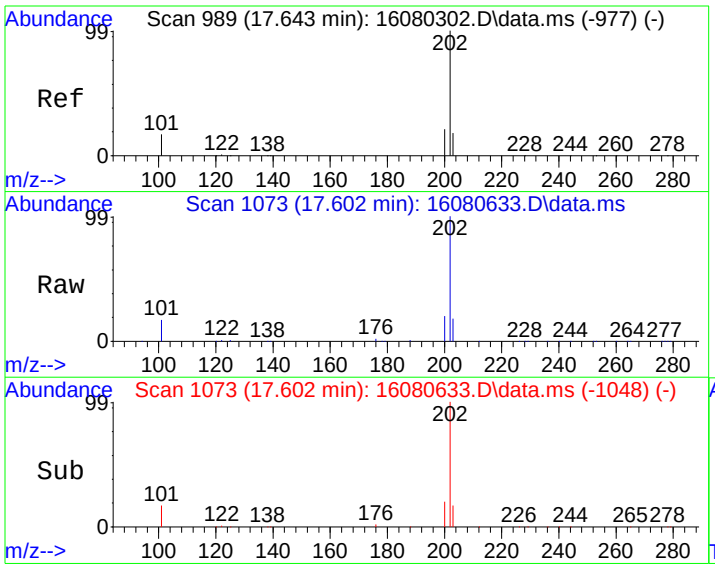


#13
Anthracene
Concen: 7.10 ug/kg
RT: 15.645 min Scan# 870
Delta R.T. -0.000 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:178 Resp: 918

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	35.5
176	17.9	0.0	38.7

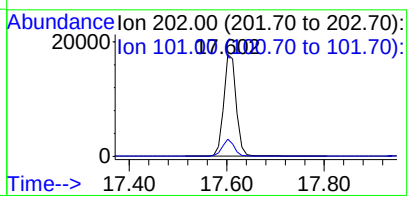


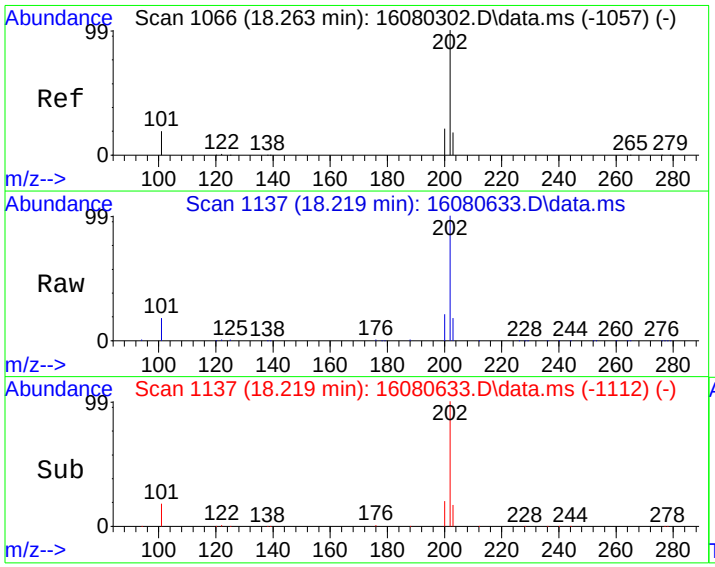


#14
Fluoranthene
Concen: 233.46 ug/kg
RT: 17.602 min Scan# 1073
Delta R.T. -0.010 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:202 Resp: 31402

Ion	Ratio	Lower	Upper
202	100		
101	16.9	0.0	37.2

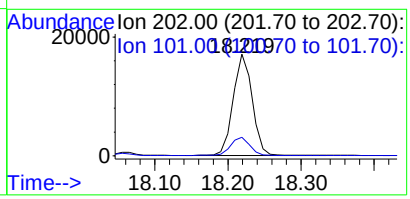


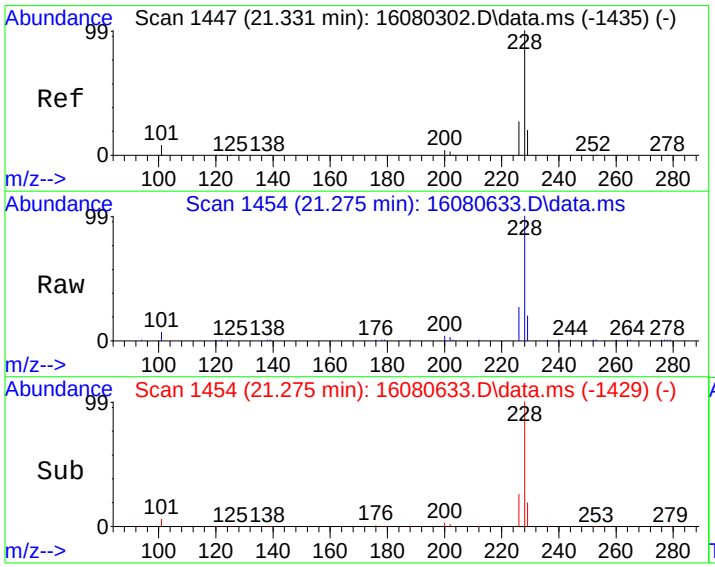


#16
Pyrene
Concen: 228.77 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:202 Resp: 30765

Ion	Ratio	Lower	Upper
202	100		
101	18.0	0.0	38.0

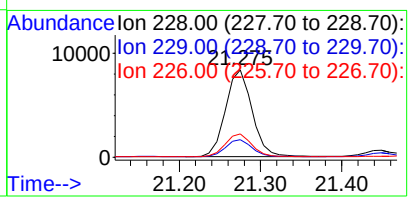


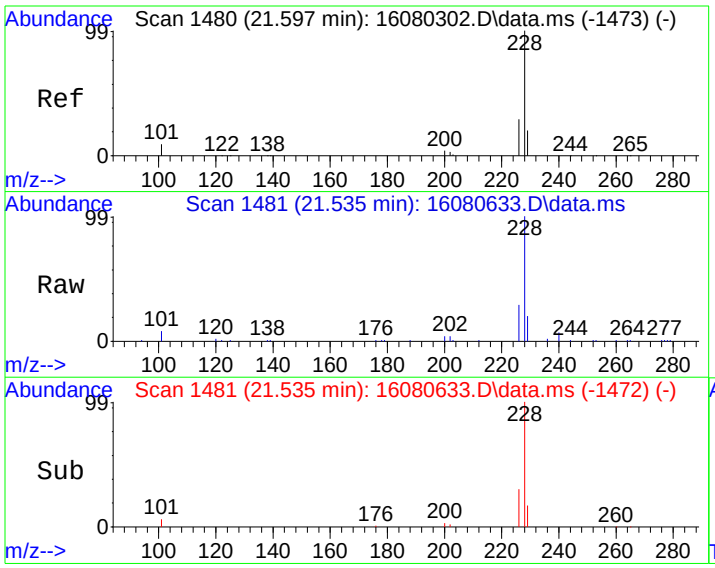


#18
Benzo[a]anthracene
Concen: 163.64 ug/kg
RT: 21.275 min Scan# 1454
Delta R.T. -0.010 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:228 Resp: 19001

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	39.9
226	26.1	6.7	46.7

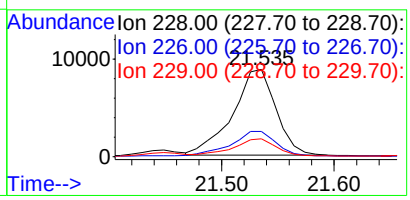


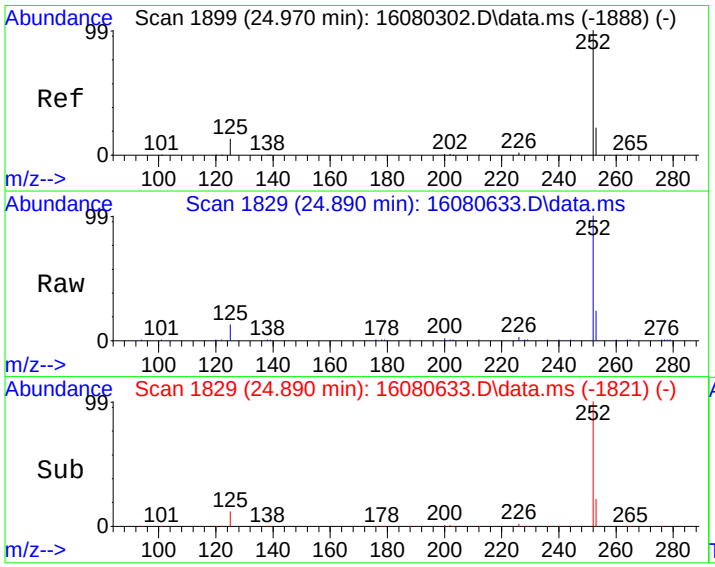


#19
Chrysene
Concen: 212.64 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:228 Resp: 23369

Ion	Ratio	Lower	Upper
228	100		
226	28.7	9.3	49.3
229	19.8	0.0	39.8

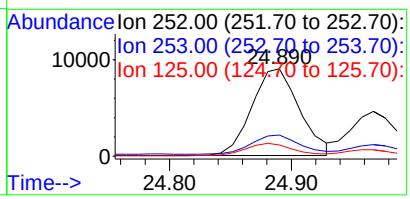


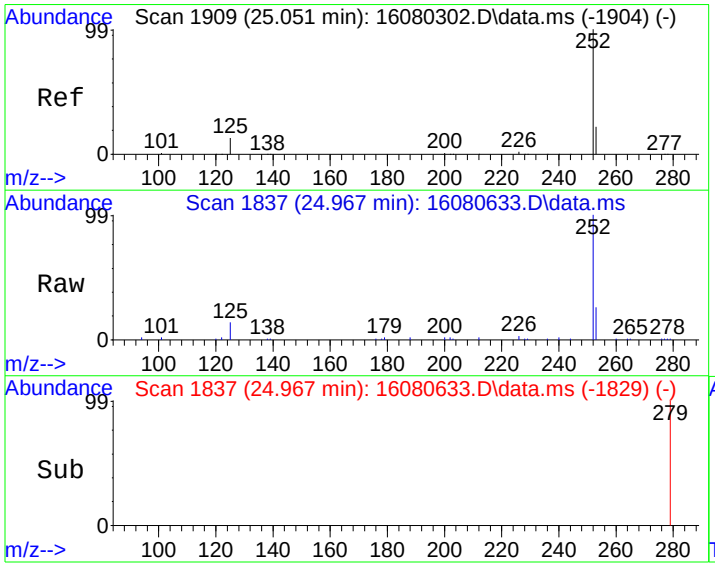


#21
Benzo[b]fluoranthene
Concen: 227.47 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:252 Resp: 24665

Ion	Ratio	Lower	Upper
252	100		
253	21.8	1.9	41.9
125	12.4	0.0	33.2

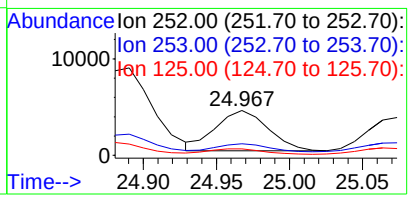


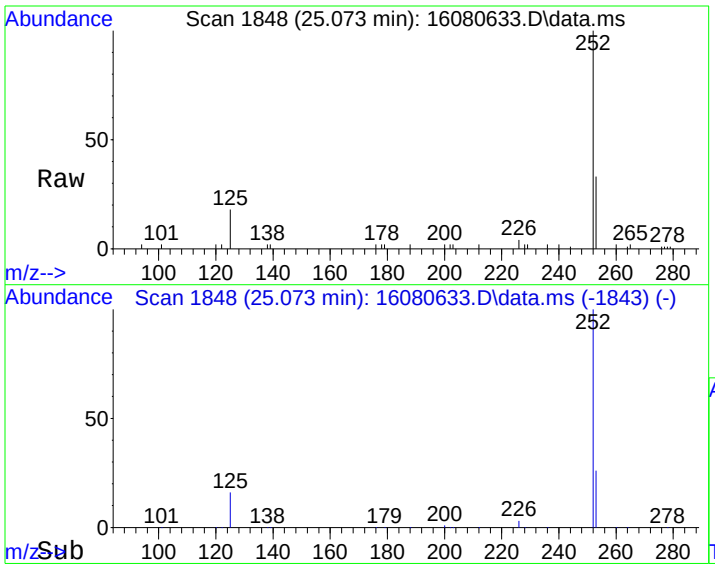


#22
Benzo[k]fluoranthene
Concen: 114.65 ug/kg
RT: 24.967 min Scan# 1837
Delta R.T. -0.019 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:252 Resp: 10356

Ion	Ratio	Lower	Upper
252	100		
253	19.6	2.1	42.1
125	12.6	0.0	33.9

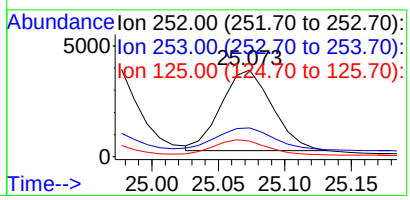


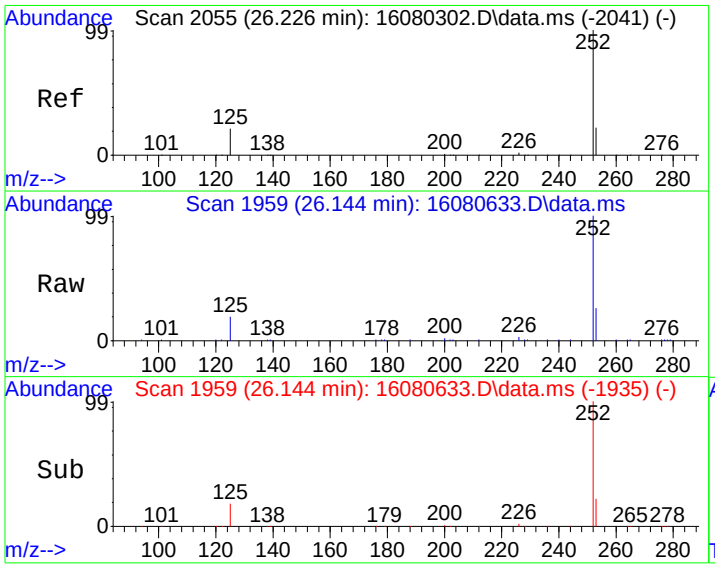


#23
Benzo(j)fluoranthene
Concen: 110.85 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:252 Resp: 9715

Ion	Ratio	Lower	Upper
252	100		
253	29.6	1.9	41.9
125	19.3	0.0	39.4

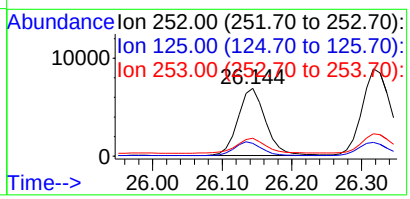


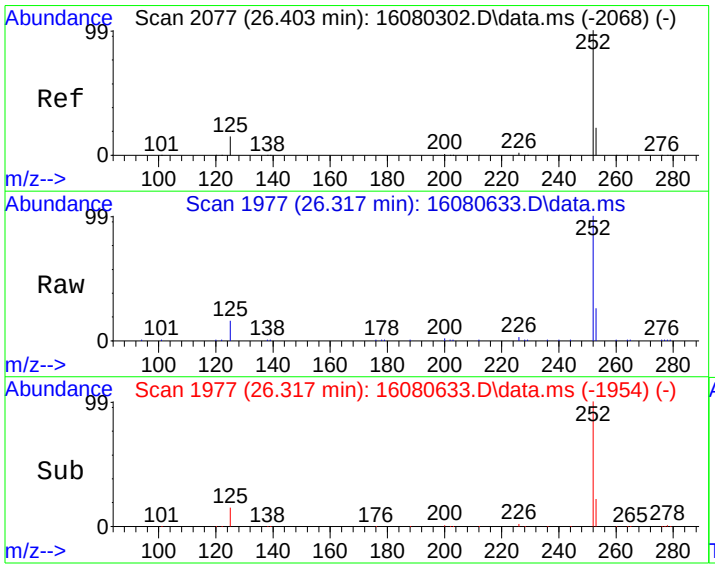


#24
Benzo(e)pyrene
Concen: 175.51 ug/kg
RT: 26.144 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:252 Resp: 18938

Ion	Ratio	Lower	Upper
252	100		
125	20.4	0.5	40.5
253	24.2	2.1	42.1

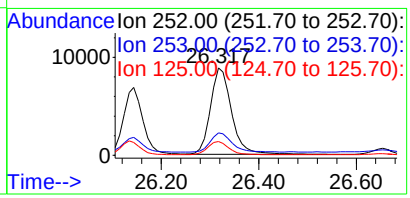


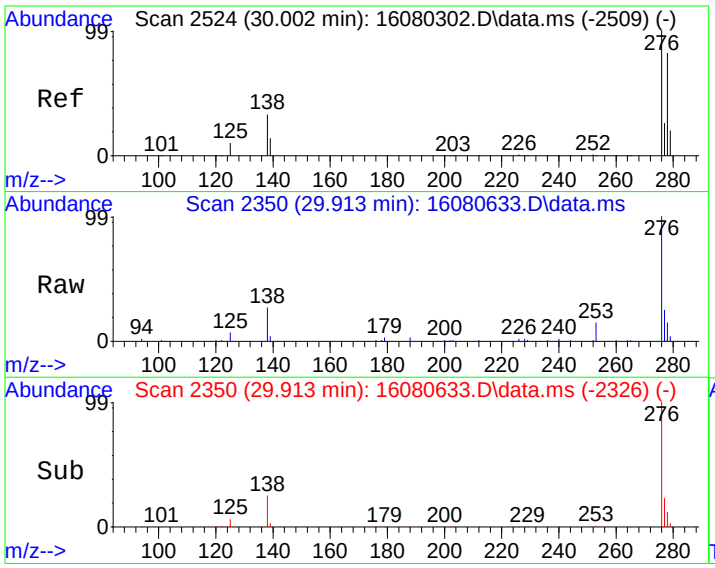


#25
Benzo[a]pyrene
Concen: 259.88 ug/kg
RT: 26.317 min Scan# 1977
Delta R.T. -0.029 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:252 Resp: 26370

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	15.4	0.0	33.5

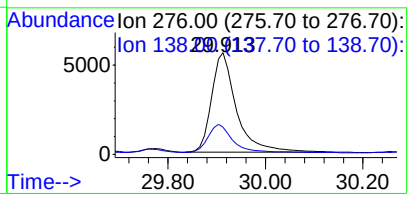


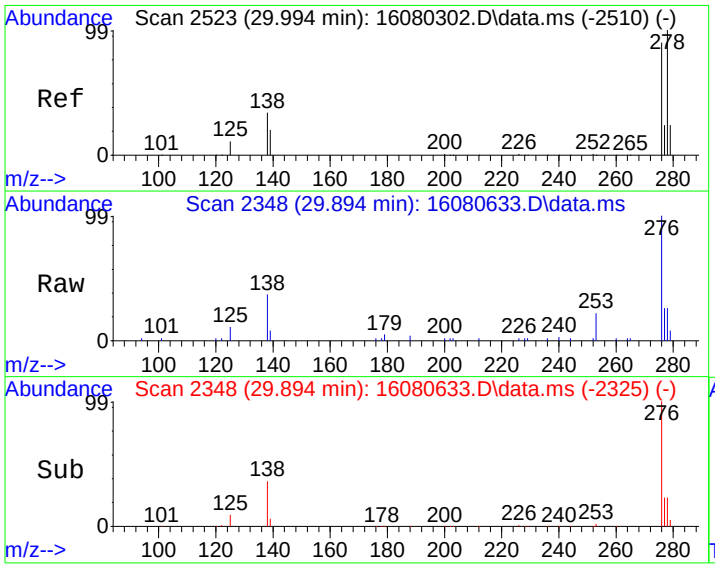


#26
Indeno[1,2,3-cd]pyrene
Concen: 157.58 ug/kg
RT: 29.913 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:276 Resp: 19835

Ion	Ratio	Lower	Upper
276	100		
138	25.5	12.2	52.2

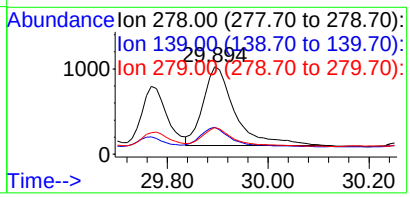


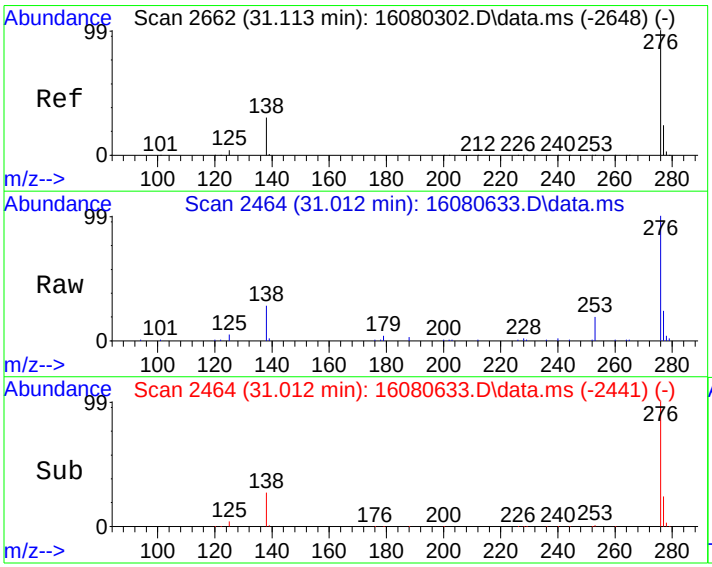


#27
Dibenz[a,h]anthracene
Concen: 40.01 ug/kg
RT: 29.894 min Scan# 2348
Delta R.T. -0.029 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:278 Resp: 4038

Ion	Ratio	Lower	Upper
278	100		
139	24.9	0.2	40.2
279	23.9	3.9	43.9

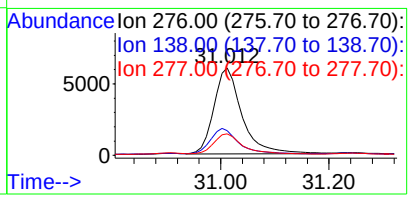




#28
Benzo[g,h,i]perylene
Concen: 192.82 ug/kg
RT: 31.012 min Scan# 2464
Delta R.T. -0.029 min
Lab File: 16080633.D
Acq: 7 Aug 2016 10:09 am

Tgt Ion:276 Resp: 21546

Ion	Ratio	Lower	Upper
276	100		
138	26.8	6.9	46.9
277	23.3	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080634.D
Acq On : 7 Aug 2016 10:49 am
Operator :
Sample : 1607265-21A
Misc : SAMP
ALS Vial : 34 Sample Multiplier: 10

Quant Time: Aug 08 12:23:51 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	297601	4000.00	ug/kg	112
6) Acenaphthene-d10	13.456	164	185539	4000.00	ug/kg	114
11) Phenanthrene-d10	15.567	188	511323	4000.00	ug/kg	99
17) Chrysene-d12	21.447	240	480137	4000.00	ug/kg	104
20) Perylene-d12	26.653	264	437918	4000.00	ug/kg	104

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	4739	71.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.79%#			
15) 4-Terphenyl-d14	18.112	244	7678	85.41	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.14%#			

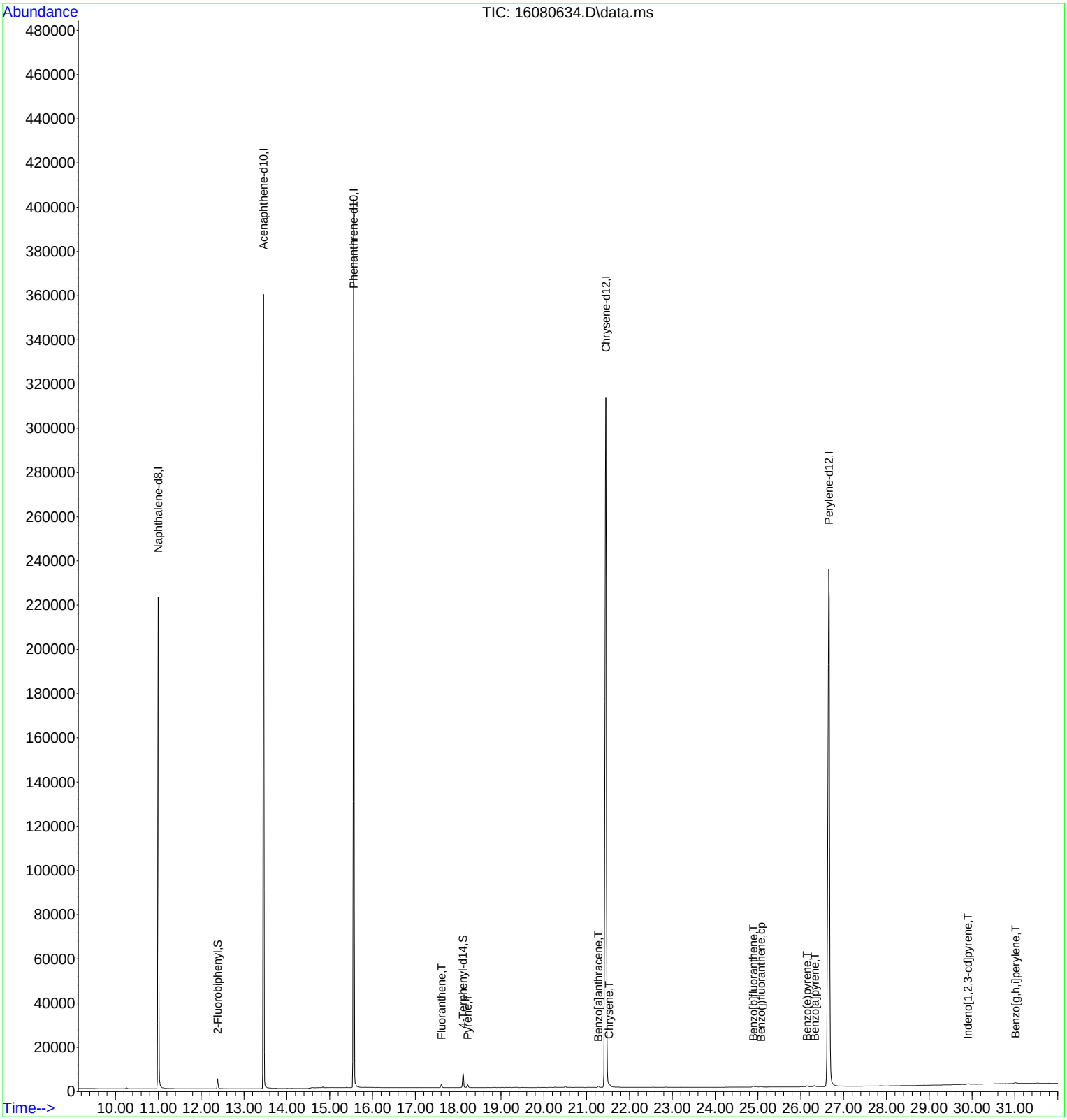
Target Compounds						Qvalue
14) Fluoranthene	17.611	202	1639	11.81	ug/kg	93
16) Pyrene	18.218	202	1528	11.01	ug/kg	98
18) Benzo[a]anthracene	21.274	228	924	7.64	ug/kg	98
19) Chrysene	21.534	228	1059	9.25	ug/kg	99
21) Benzo[b]fluoranthene	24.889	252	1009	9.09	ug/kg	99
23) Benzo(j)fluoranthene	25.072	252	367	4.09	ug/kg	87
24) Benzo(e)pyrene	26.142	252	879	7.96	ug/kg	85
25) Benzo[a]pyrene	26.326	252	1075	10.35	ug/kg	95
26) Indeno[1,2,3-cd]pyrene	29.912	276	863	6.70	ug/kg	87
28) Benzo[g,h,i]perylene	31.011	276	1030	9.00	ug/kg	94

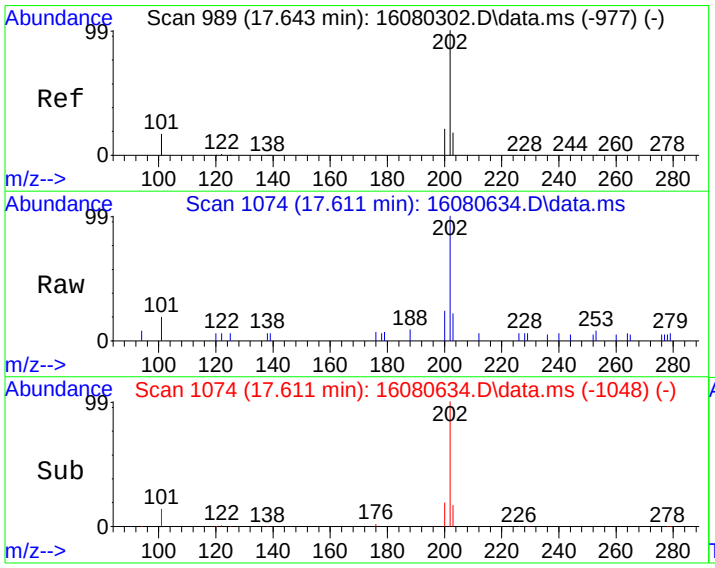
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080634.D
Acq On : 7 Aug 2016 10:49 am
Operator :
Sample : 1607265-21A
Misc : SAMP
ALS Vial : 34 Sample Multiplier: 10

Quant Time: Aug 08 12:23:51 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

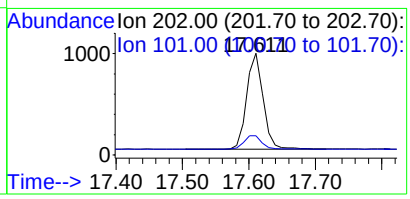


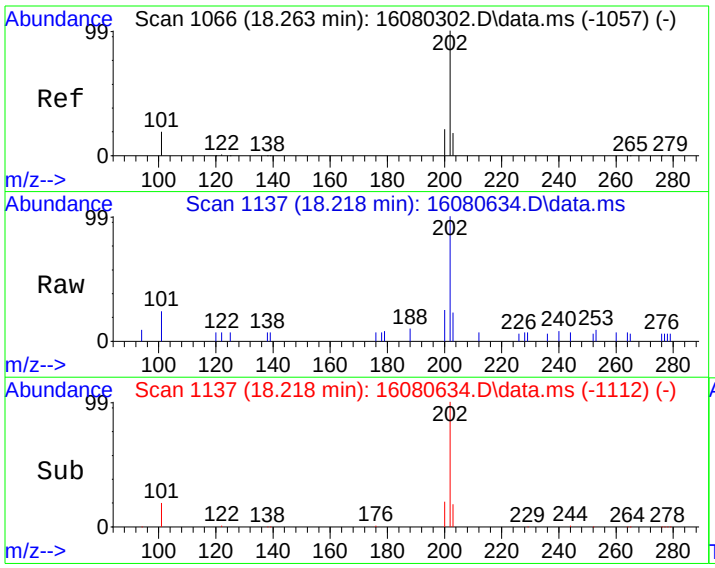


#14
Fluoranthene
Concen: 11.81 ug/kg
RT: 17.611 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:202 Resp: 1639

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	37.2

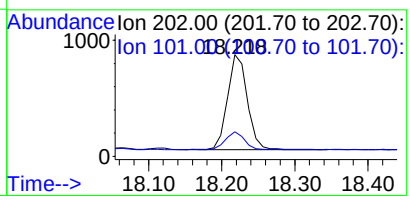


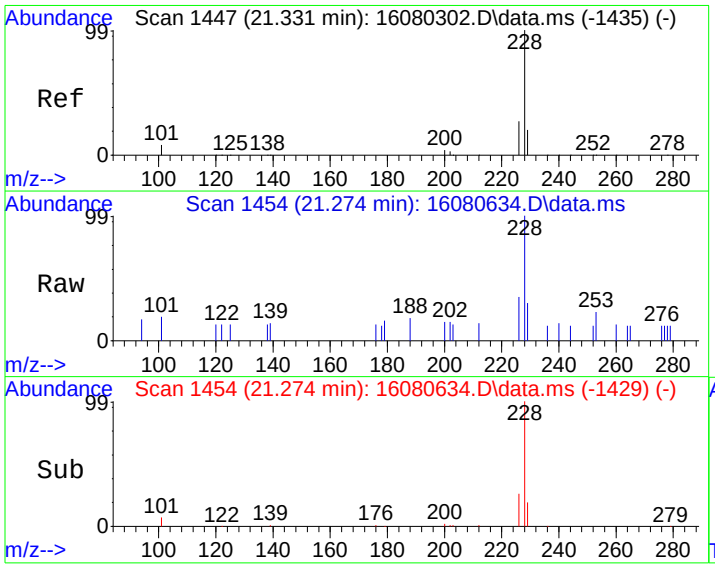


#16
Pyrene
Concen: 11.01 ug/kg
RT: 18.218 min Scan# 1137
Delta R.T. -0.011 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:202 Resp: 1528

Ion	Ratio	Lower	Upper
202	100		
101	19.0	0.0	38.0

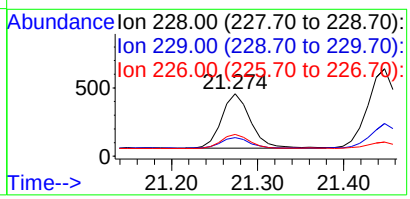


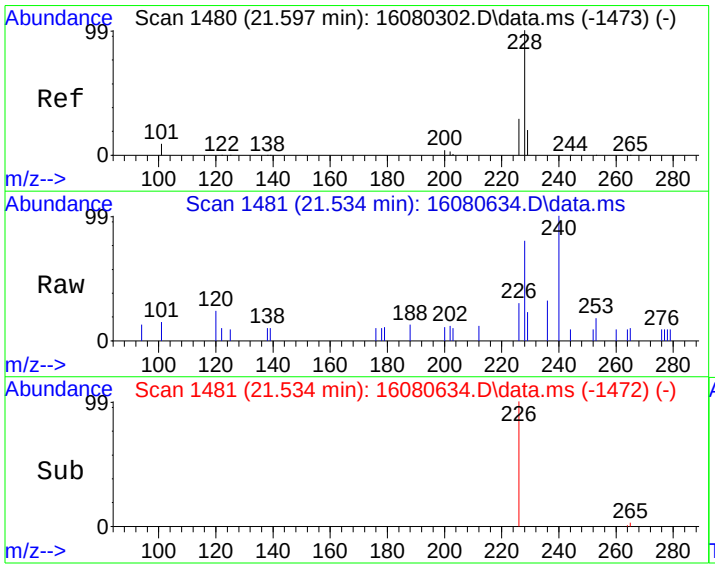


#18
Benzo[a]anthracene
Concen: 7.64 ug/kg
RT: 21.274 min Scan# 1454
Delta R.T. -0.011 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:228 Resp: 924

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	39.9
226	25.7	6.7	46.7

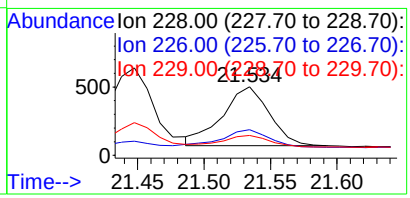


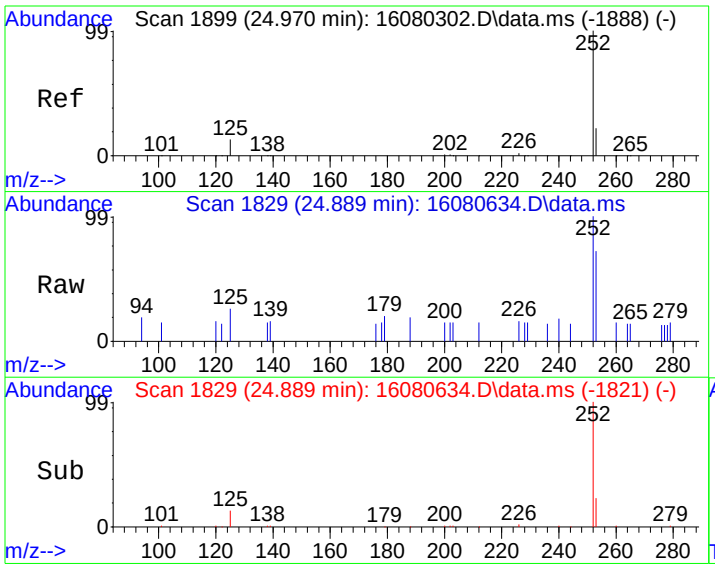


#19
Chrysene
Concen: 9.25 ug/kg
RT: 21.534 min Scan# 1481
Delta R.T. -0.011 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:228 Resp: 1059

Ion	Ratio	Lower	Upper
228	100		
226	29.9	9.3	49.3
229	20.0	0.0	39.8

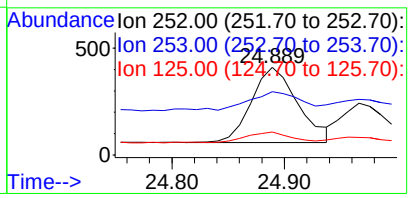


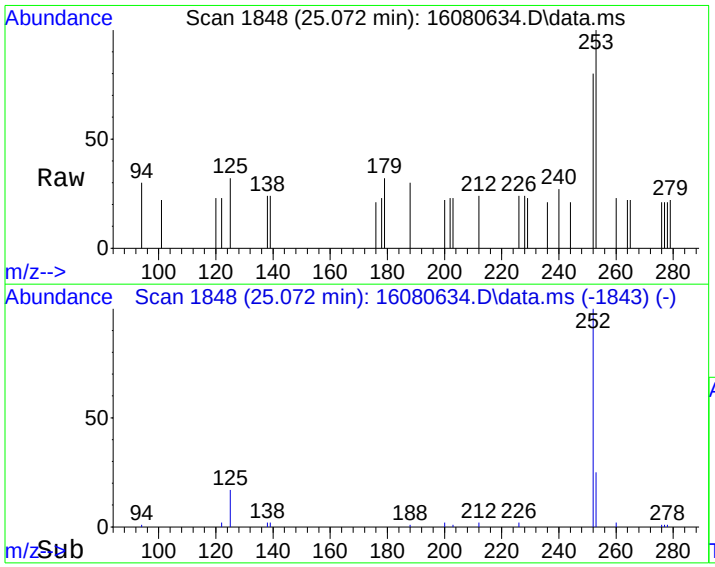


#21
Benzo[b]fluoranthene
Concen: 9.09 ug/kg
RT: 24.889 min Scan# 1829
Delta R.T. -0.020 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:252 Resp: 1009

Ion	Ratio	Lower	Upper
252	100		
253	22.9	1.9	41.9
125	13.3	0.0	33.2

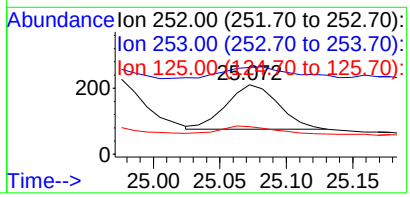


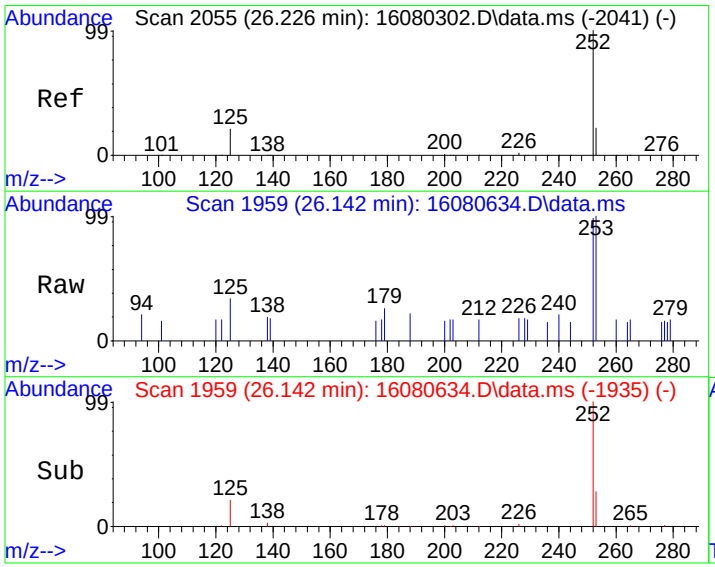


#23
Benzo(j)fluoranthene
Concen: 4.09 ug/kg
RT: 25.072 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:252 Resp: 367

Ion	Ratio	Lower	Upper
252	100		
253	32.4	1.9	41.9
125	18.3	0.0	39.4

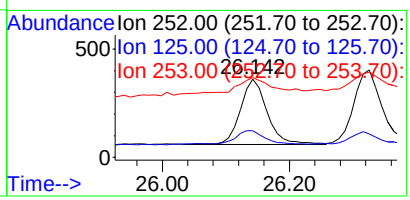


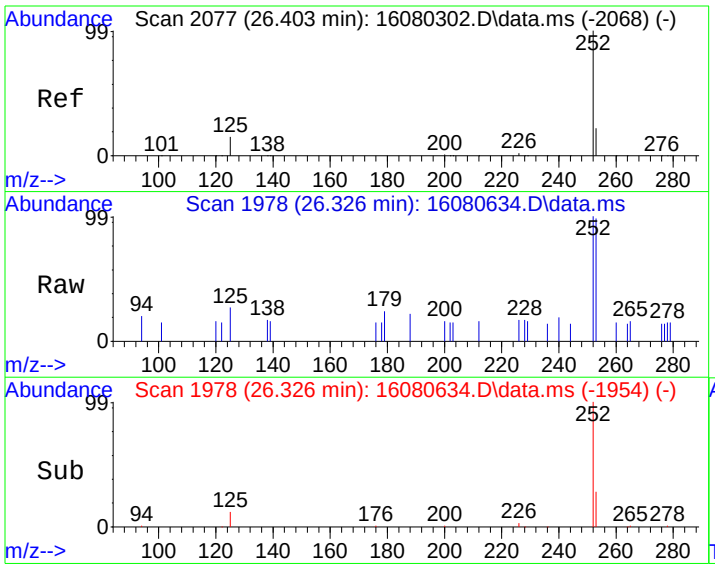


#24
Benzo(e)pyrene
Concen: 7.96 ug/kg
RT: 26.142 min Scan# 1959
Delta R.T. -0.020 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:252 Resp: 879

Ion	Ratio	Lower	Upper
252	100		
125	22.1	0.5	40.5
253	34.5	2.1	42.1

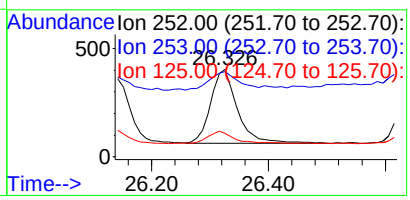


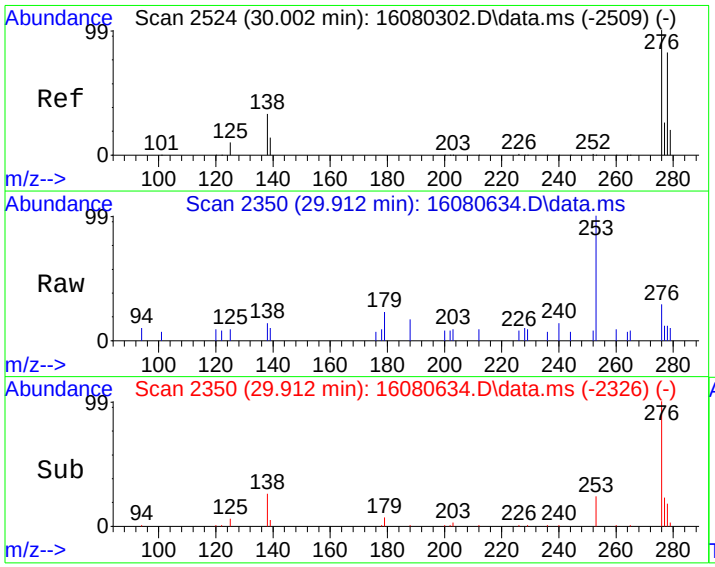


#25
Benzo[a]pyrene
Concen: 10.35 ug/kg
RT: 26.326 min Scan# 1978
Delta R.T. -0.020 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:252 Resp: 1075

Ion	Ratio	Lower	Upper
252	100		
253	25.2	1.9	41.9
125	13.2	0.0	33.5

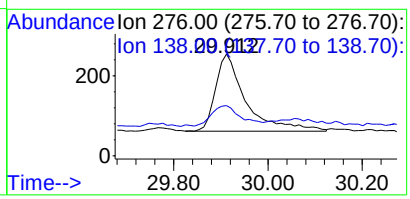


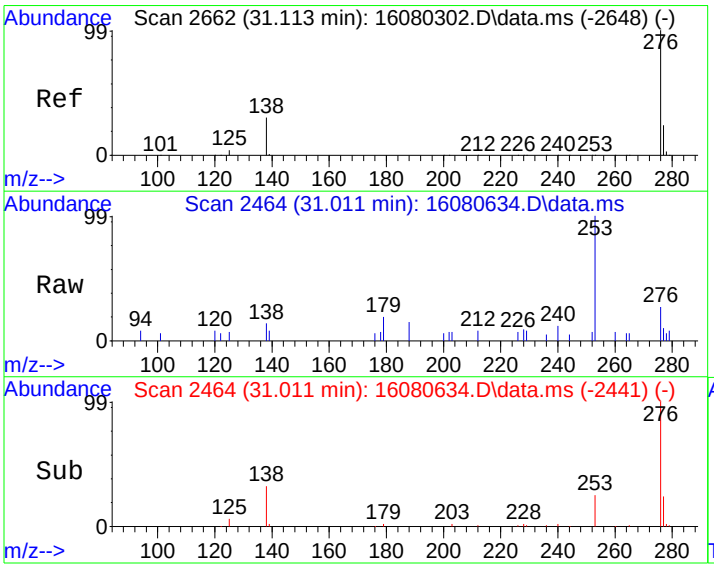


#26
Indeno[1,2,3-cd]pyrene
Concen: 6.70 ug/kg
RT: 29.912 min Scan# 2350
Delta R.T. -0.020 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:276 Resp: 863

Ion	Ratio	Lower	Upper
276	100		
138	24.9	12.2	52.2

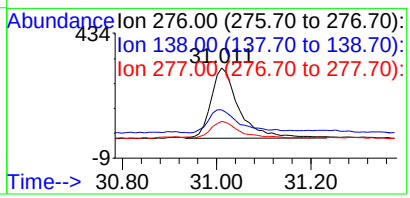




#28
Benzo[g,h,i]perylene
Concen: 9.00 ug/kg
RT: 31.011 min Scan# 2464
Delta R.T. -0.030 min
Lab File: 16080634.D
Acq: 7 Aug 2016 10:49 am

Tgt Ion:276 Resp: 1030

Ion	Ratio	Lower	Upper
276	100		
138	32.5	6.9	46.9
277	23.7	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080635.D
Acq On : 7 Aug 2016 11:29 am
Operator :
Sample : 1607265-22A
Misc : SAMP
ALS Vial : 35 Sample Multiplier: 10

Quant Time: Aug 08 12:23:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	289445	4000.00	ug/kg	109
6) Acenaphthene-d10	13.455	164	176302	4000.00	ug/kg	109
11) Phenanthrene-d10	15.557	188	490392	4000.00	ug/kg	95
17) Chrysene-d12	21.447	240	445666	4000.00	ug/kg	96
20) Perylene-d12	26.653	264	412463	4000.00	ug/kg	98

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4746	73.71	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.84%#			
15) 4-Terphenyl-d14	18.112	244	7587	88.00	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.20%#			

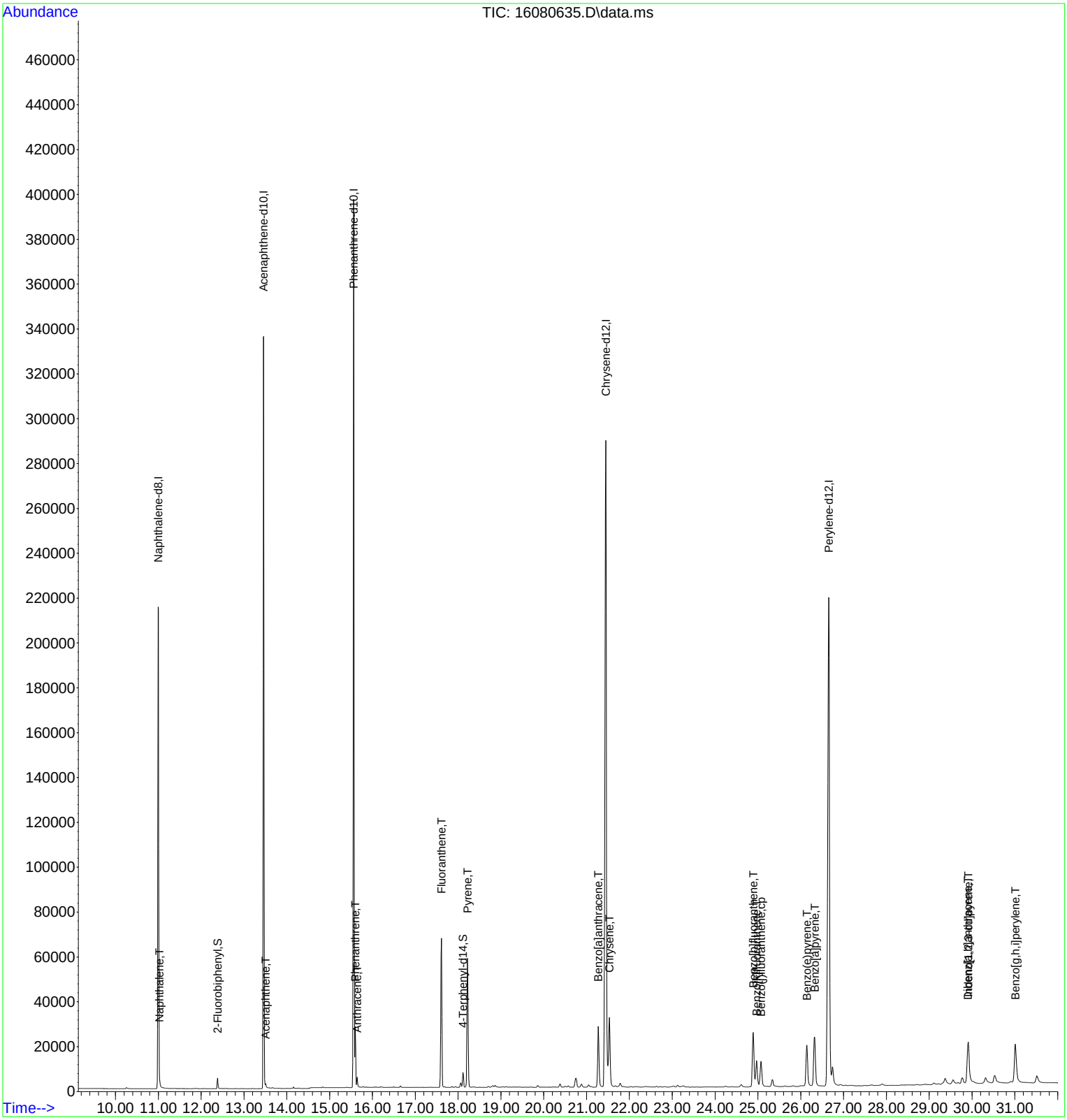
Target Compounds						Qvalue
2) Naphthalene	11.030	128	531	7.69	ug/kg	98
8) Acenaphthene	13.505	153	647	12.14	ug/kg	98
12) Phenanthrene	15.596	178	24457	189.42	ug/kg	99
13) Anthracene	15.644	178	4028	31.47	ug/kg	99
14) Fluoranthene	17.610	202	71975	540.73	ug/kg	91
16) Pyrene	18.218	202	64070	481.44	ug/kg	99
18) Benzo[a]anthracene	21.274	228	36820	328.04	ug/kg	99
19) Chrysene	21.534	228	44605	419.87	ug/kg	100
21) Benzo[b]fluoranthene	24.889	252	45783	437.79	ug/kg	100
22) Benzo[k]fluoranthene	24.966	252	18631	213.87	ug/kg	98
23) Benzo(j)fluoranthene	25.072	252	17819	210.81	ug/kg	92
24) Benzo(e)pyrene	26.142	252	34156	328.21	ug/kg	98
25) Benzo[a]pyrene	26.326	252	44789	457.67	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.912	276	35124	289.32	ug/kg	89
27) Dibenz[a,h]anthracene	29.892	278	6971	71.61	ug/kg	95
28) Benzo[g,h,i]perylene	31.011	276	37338	346.46	ug/kg	98

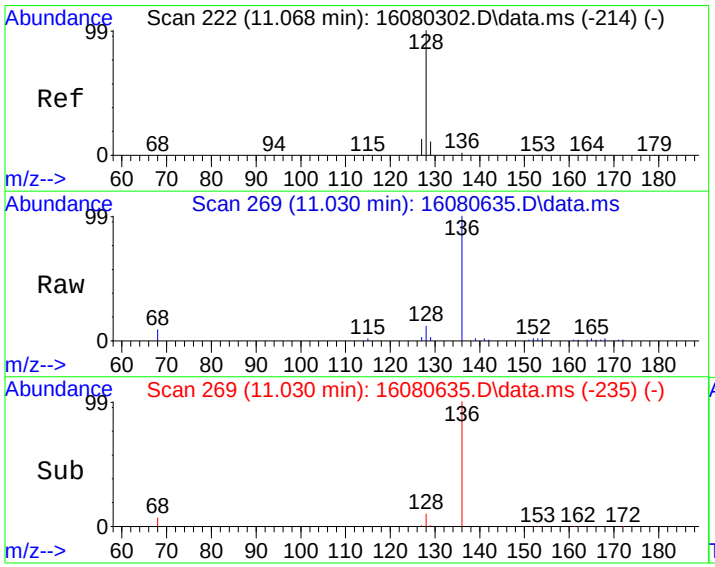
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080635.D
Acq On : 7 Aug 2016 11:29 am
Operator :
Sample : 1607265-22A
Misc : SAMP
ALS Vial : 35 Sample Multiplier: 10

Quant Time: Aug 08 12:23:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

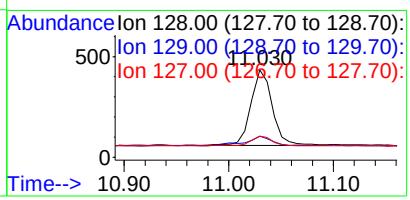


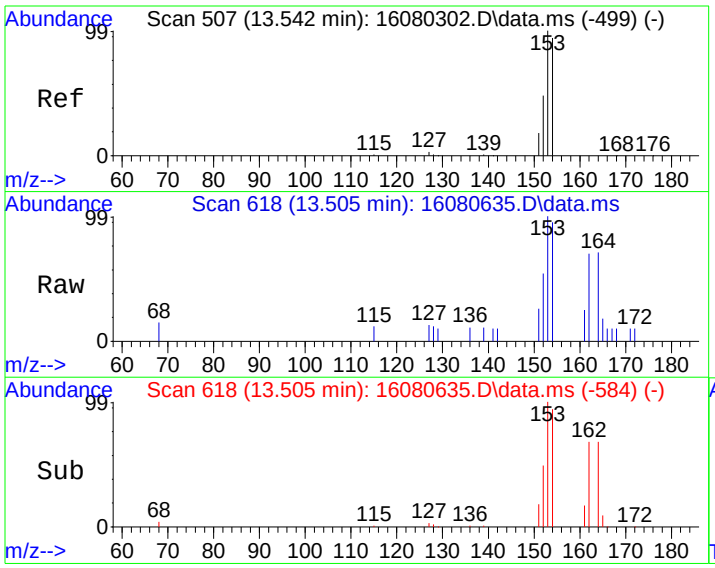


#2
Naphthalene
Concen: 7.69 ug/kg
RT: 11.030 min Scan# 269
Delta R.T. -0.009 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:128 Resp: 531

Ion	Ratio	Lower	Upper
128	100		
129	12.3	0.0	31.0
127	13.1	0.0	32.5

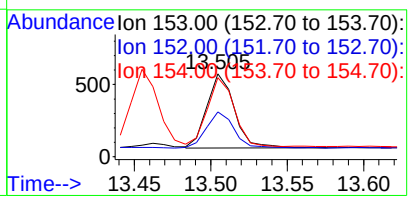


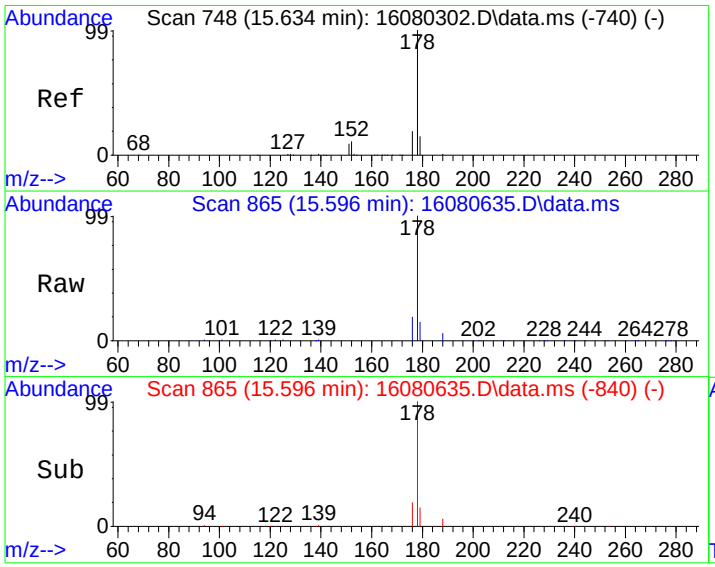


#8
Acenaphthene
Concen: 12.14 ug/kg
RT: 13.505 min Scan# 618
Delta R.T. -0.009 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:153 Resp: 647

Ion	Ratio	Lower	Upper
153	100		
152	48.8	27.7	67.7
154	93.0	75.7	115.7

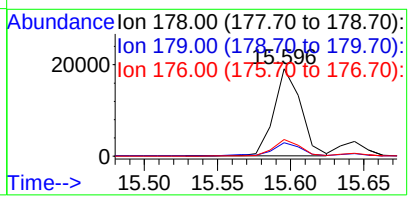


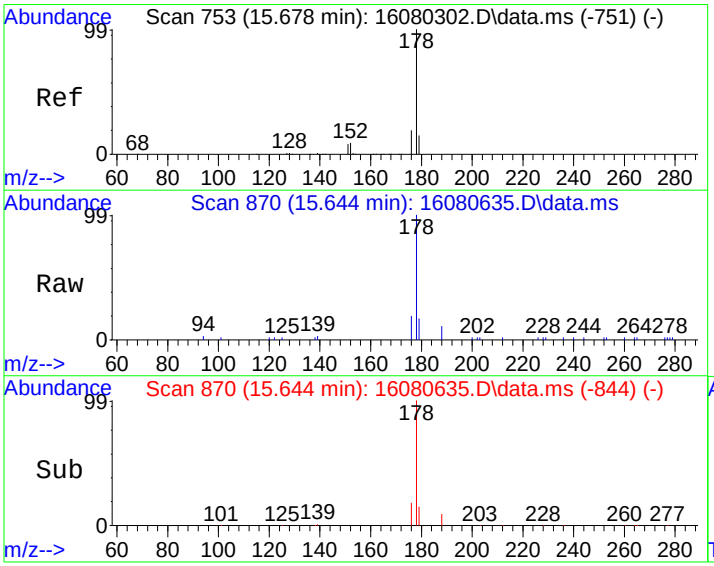


#12
Phenanthrene
Concen: 189.42 ug/kg
RT: 15.596 min Scan# 865
Delta R.T. -0.010 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:178 Resp: 24457

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.7
176	18.9	0.0	38.8

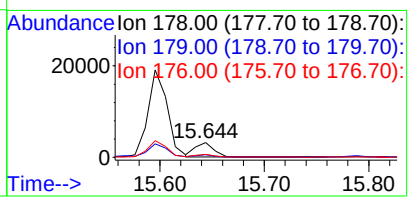


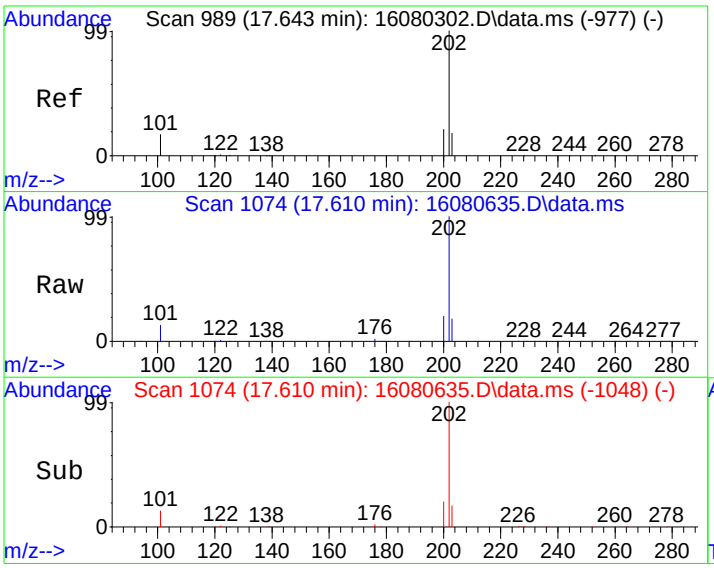


#13
Anthracene
Concen: 31.47 ug/kg
RT: 15.644 min Scan# 870
Delta R.T. -0.001 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:178 Resp: 4028

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	35.5
176	17.8	0.0	38.7

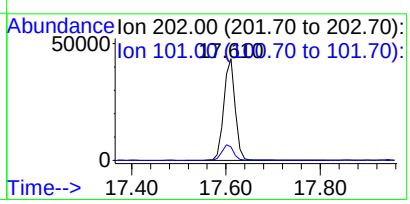


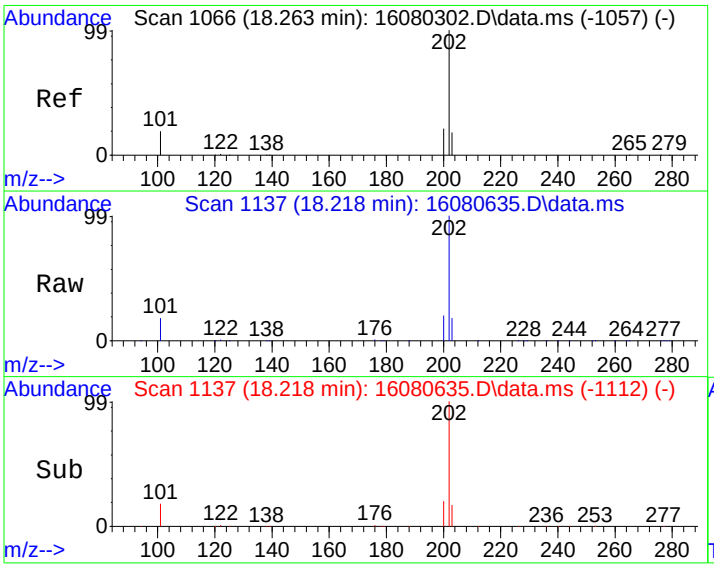


#14
Fluoranthene
Concen: 540.73 ug/kg
RT: 17.610 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:202 Resp: 71975

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	37.2

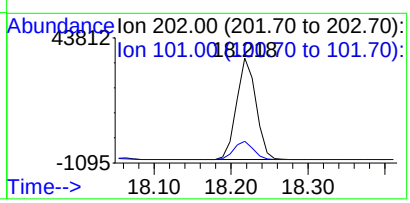


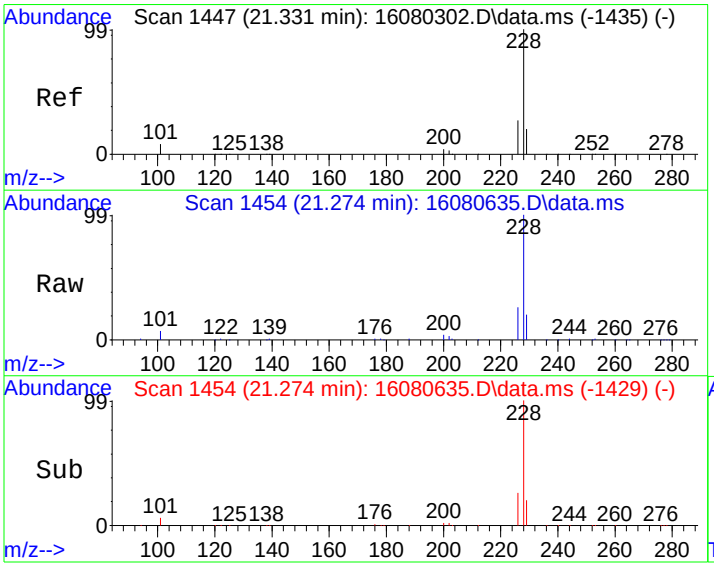


#16
Pyrene
Concen: 481.44 ug/kg
RT: 18.218 min Scan# 1137
Delta R.T. -0.011 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:202 Resp: 64070

Ion	Ratio	Lower	Upper
202	100		
101	18.2	0.0	38.0

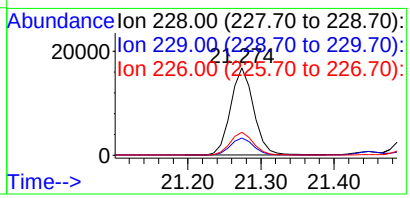


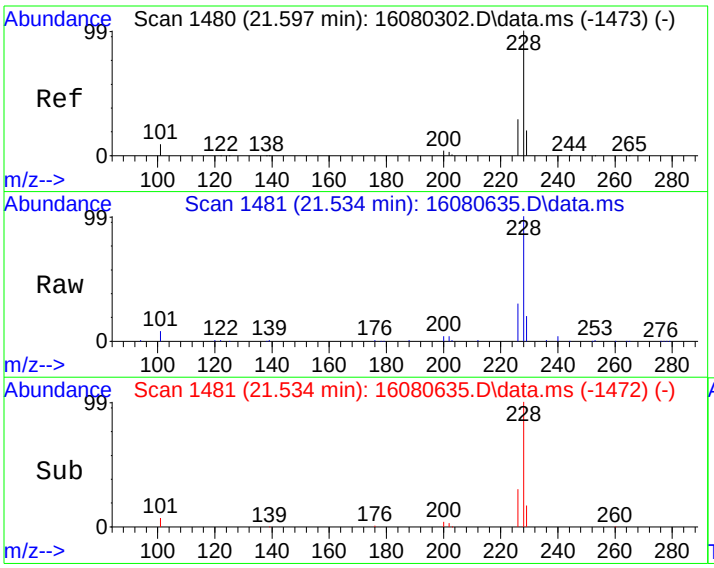


#18
Benzo[a]anthracene
Concen: 328.04 ug/kg
RT: 21.274 min Scan# 1454
Delta R.T. -0.011 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:228 Resp: 36820

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	39.9
226	26.1	6.7	46.7

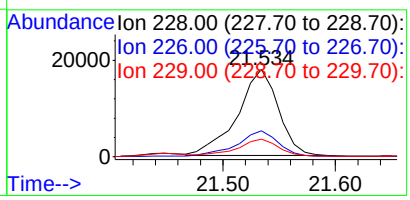


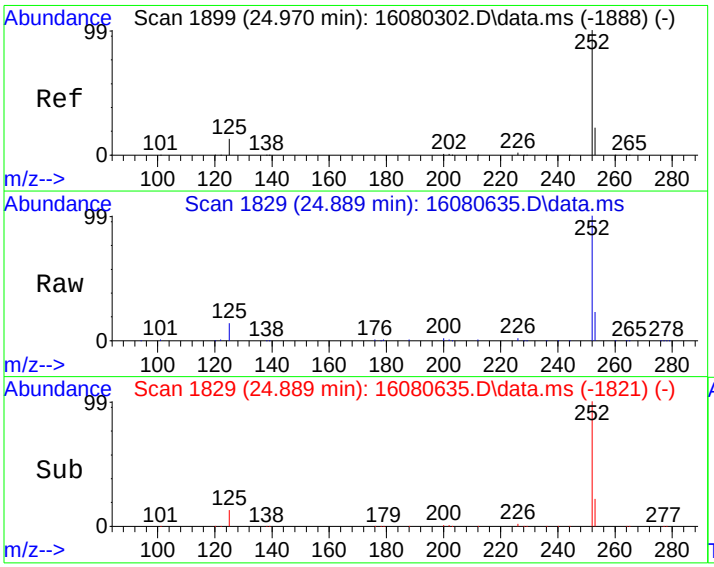


#19
Chrysene
Concen: 419.87 ug/kg
RT: 21.534 min Scan# 1481
Delta R.T. -0.011 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:228 Resp: 44605

Ion	Ratio	Lower	Upper
228	100		
226	29.5	9.3	49.3
229	19.8	0.0	39.8

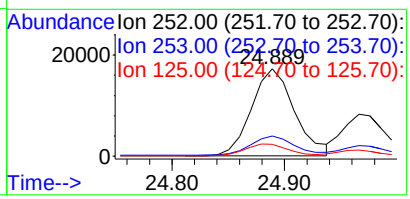


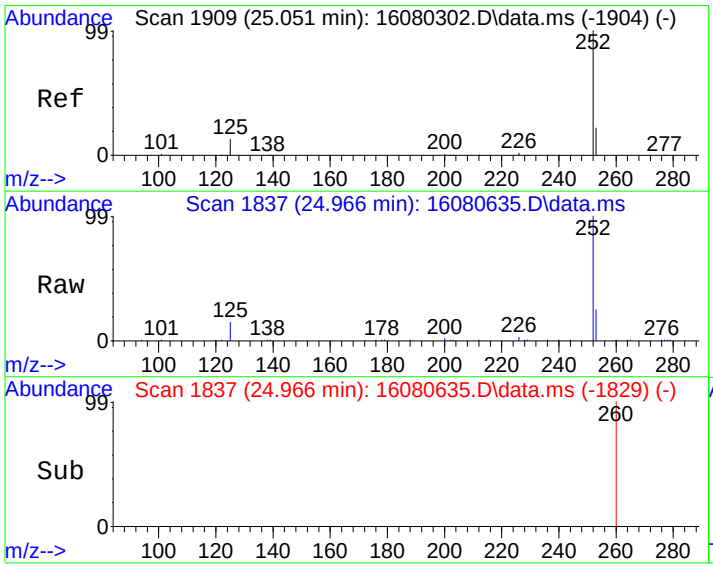


#21
Benzo[b]fluoranthene
Concen: 437.79 ug/kg
RT: 24.889 min Scan# 1829
Delta R.T. -0.021 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:252 Resp: 45783

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	13.4	0.0	33.2

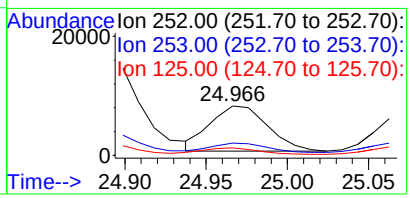


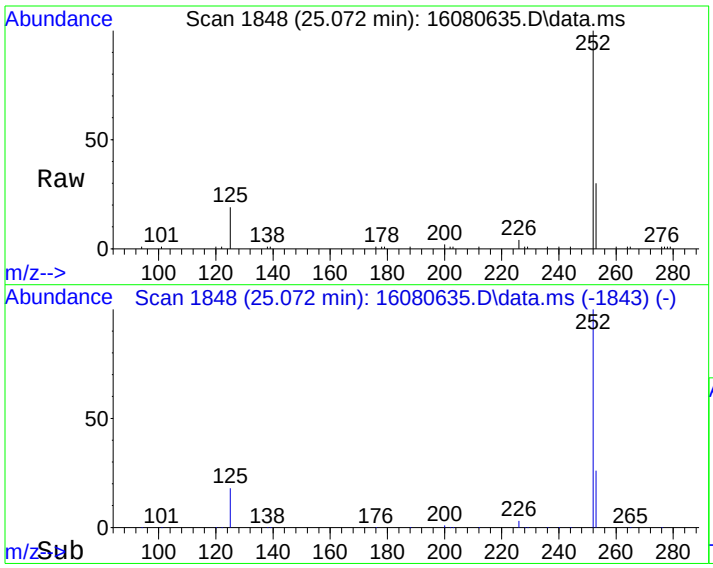


#22
Benzo[k]fluoranthene
Concen: 213.87 ug/kg
RT: 24.966 min Scan# 1837
Delta R.T. -0.021 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:252 Resp: 18631

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.1	42.1
125	14.1	0.0	33.9

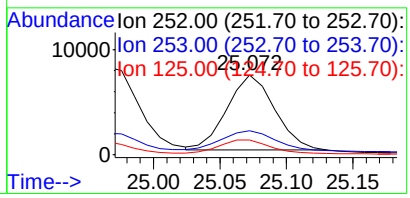


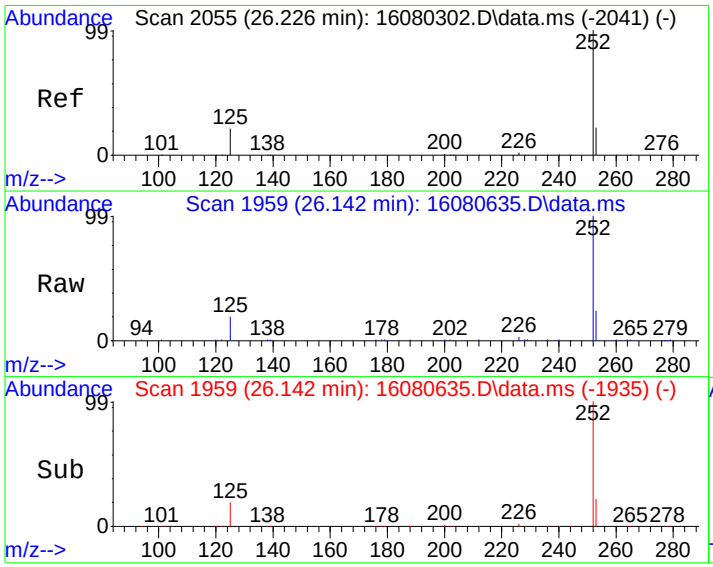


#23
Benzo(j)fluoranthene
Concen: 210.81 ug/kg
RT: 25.072 min Scan# 1848
Delta R.T. -0.021 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:252 Resp: 17819

Ion	Ratio	Lower	Upper
252	100		
253	29.2	1.9	41.9
125	19.1	0.0	39.4

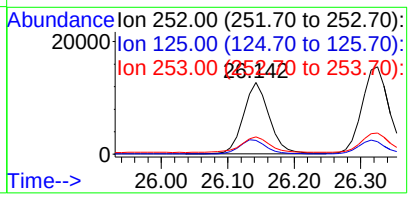


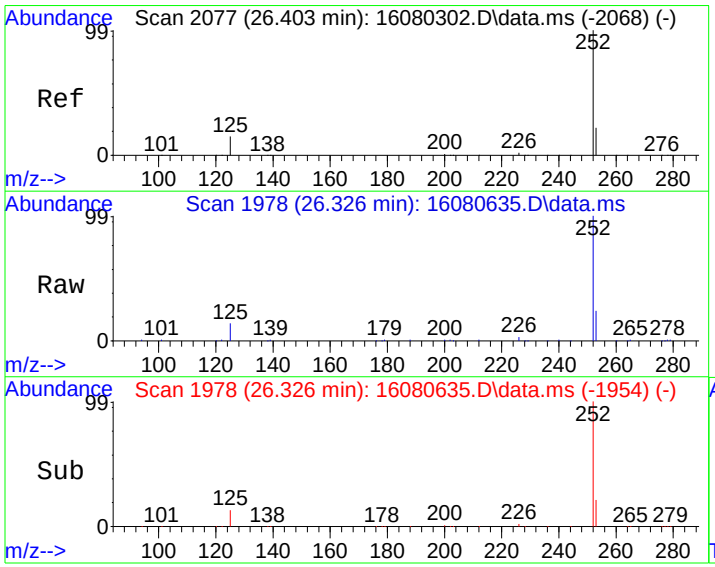


#24
Benzo(e)pyrene
Concen: 328.21 ug/kg
RT: 26.142 min Scan# 1959
Delta R.T. -0.021 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:252 Resp: 34156

Ion	Ratio	Lower	Upper
252	100		
125	20.4	0.5	40.5
253	24.2	2.1	42.1

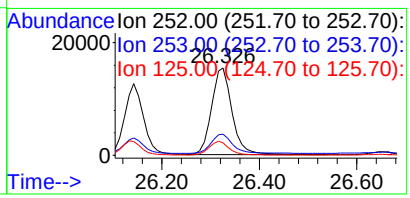


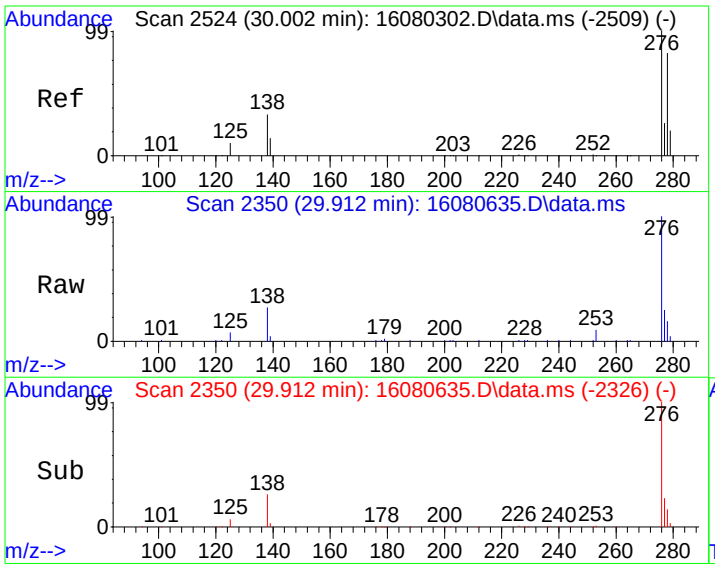


#25
Benzo[a]pyrene
Concen: 457.67 ug/kg
RT: 26.326 min Scan# 1978
Delta R.T. -0.021 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:252 Resp: 44789

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	13.9	0.0	33.5

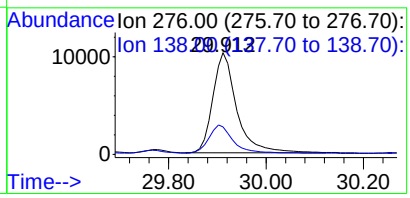


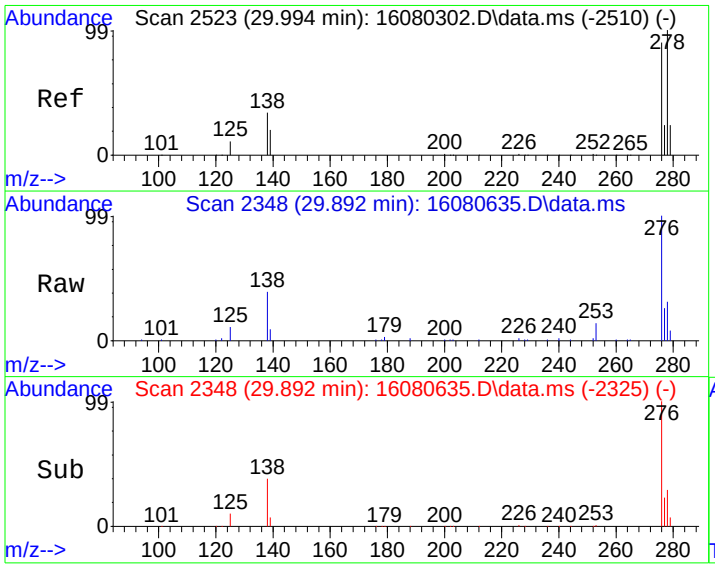


#26
Indeno[1,2,3-cd]pyrene
Concen: 289.32 ug/kg
RT: 29.912 min Scan# 2350
Delta R.T. -0.021 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:276 Resp: 35124

Ion	Ratio	Lower	Upper
276	100		
138	26.2	12.2	52.2

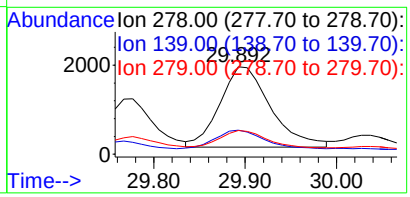


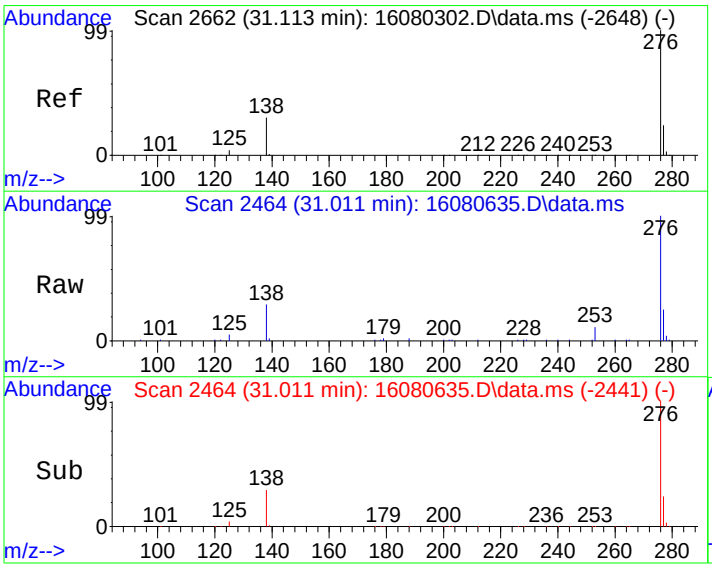


#27
Dibenz[a,h]anthracene
Concen: 71.61 ug/kg
RT: 29.892 min Scan# 2348
Delta R.T. -0.030 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:278 Resp: 6971

Ion	Ratio	Lower	Upper
278	100		
139	24.6	0.2	40.2
279	23.2	3.9	43.9

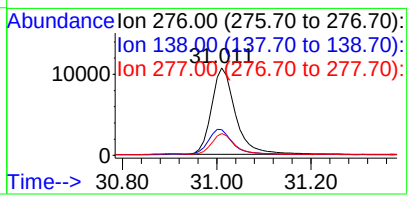




#28
Benzo[g,h,i]perylene
Concen: 346.46 ug/kg
RT: 31.011 min Scan# 2464
Delta R.T. -0.030 min
Lab File: 16080635.D
Acq: 7 Aug 2016 11:29 am

Tgt Ion:276 Resp: 37338

Ion	Ratio	Lower	Upper
276	100		
138	28.6	6.9	46.9
277	24.0	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080636.D
Acq On : 7 Aug 2016 12:09 pm
Operator :
Sample : 1607265-23A
Misc : SAMP
ALS Vial : 36 Sample Multiplier: 10

Quant Time: Aug 08 12:24:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

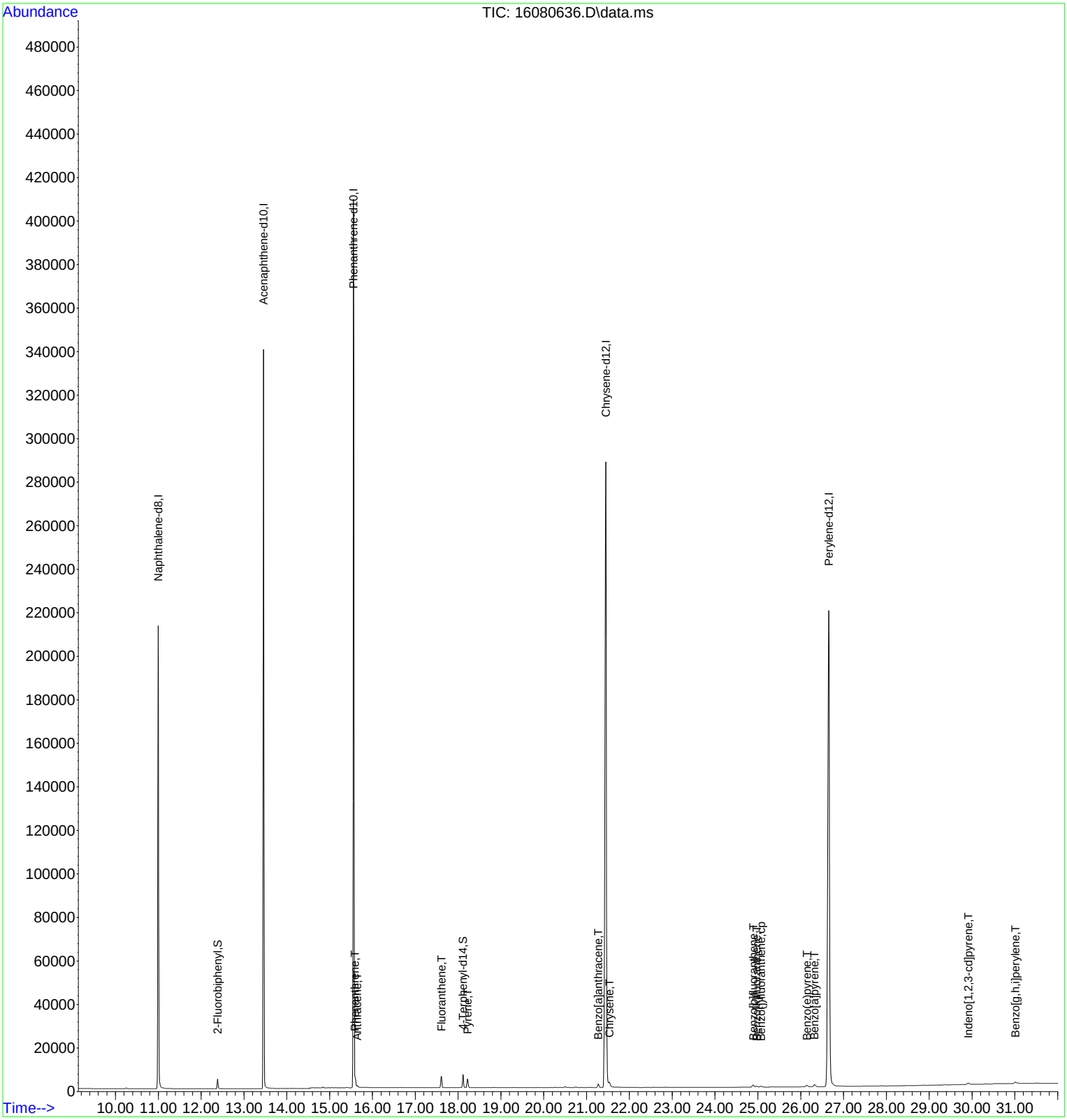
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	272121	4000.00	ug/kg	103
6) Acenaphthene-d10	13.456	164	177108	4000.00	ug/kg	109
11) Phenanthrene-d10	15.558	188	487163	4000.00	ug/kg	95
17) Chrysene-d12	21.448	240	437338	4000.00	ug/kg	94
20) Perylene-d12	26.654	264	406397	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	4713	77.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.95%#			
15) 4-Terphenyl-d14	18.112	244	7037	82.16	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.05%#			
Target Compounds						Qvalue
12) Phenanthrene	15.596	178	3560	25.68	ug/kg	99
13) Anthracene	15.644	178	679	5.34	ug/kg	99
14) Fluoranthene	17.611	202	5887	44.52	ug/kg	92
16) Pyrene	18.218	202	4696	35.52	ug/kg	97
18) Benzo[a]anthracene	21.274	228	2329	21.14	ug/kg	99
19) Chrysene	21.535	228	2558	24.54	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	1976	19.18	ug/kg	98
22) Benzo[k]fluoranthene	24.967	252	906	10.56	ug/kg	96
23) Benzo(j)fluoranthene	25.073	252	846	10.16	ug/kg	88
24) Benzo(e)pyrene	26.143	252	1516	14.79	ug/kg	78
25) Benzo[a]pyrene	26.326	252	2039	21.15	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.912	276	1507	12.60	ug/kg	90
28) Benzo[g,h,i]perylene	31.011	276	1564	14.73	ug/kg	93

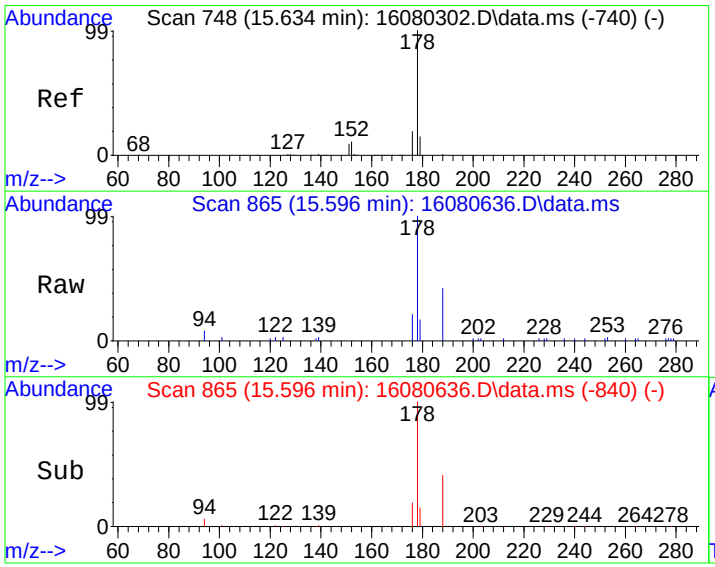
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080636.D
Acq On : 7 Aug 2016 12:09 pm
Operator :
Sample : 1607265-23A
Misc : SAMP
ALS Vial : 36 Sample Multiplier: 10

Quant Time: Aug 08 12:24:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

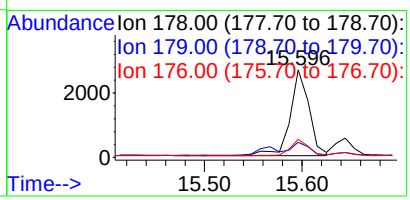


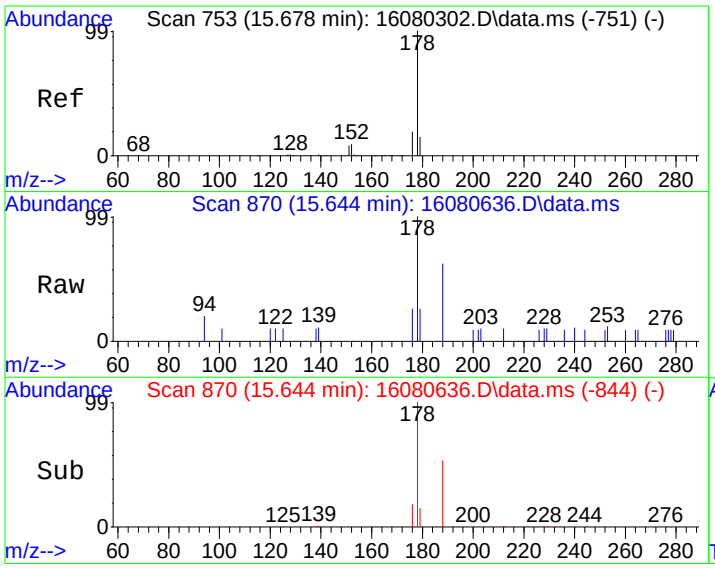


#12
Phenanthrene
Concen: 25.68 ug/kg
RT: 15.596 min Scan# 865
Delta R.T. -0.010 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:178 Resp: 3560

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	35.7
176	18.9	0.0	38.8

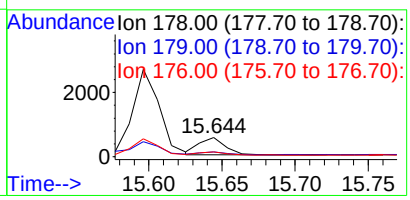


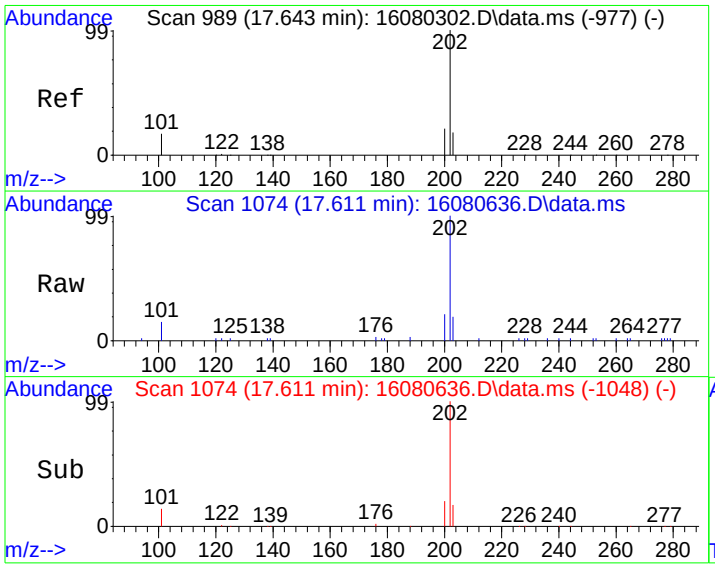


#13
Anthracene
Concen: 5.34 ug/kg
RT: 15.644 min Scan# 870
Delta R.T. -0.001 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:178 Resp: 679

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	35.5
176	18.0	0.0	38.7

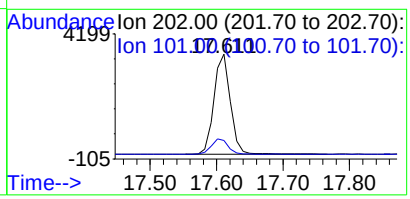


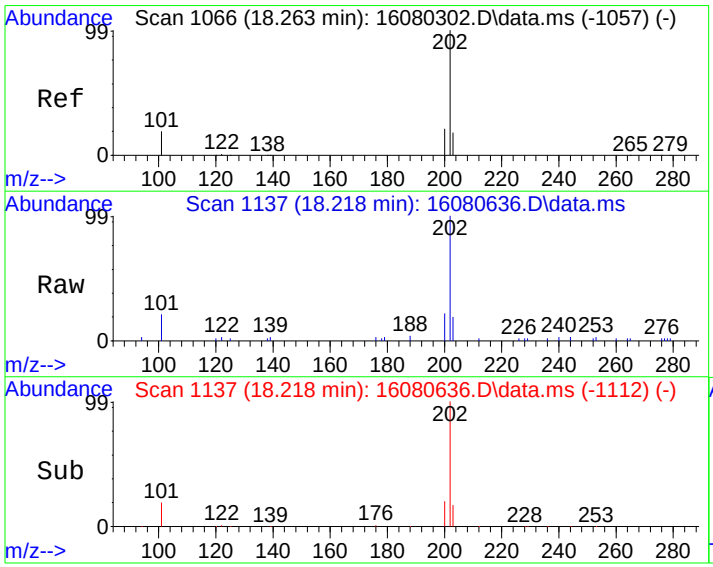


#14
Fluoranthene
Concen: 44.52 ug/kg
RT: 17.611 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:202 Resp: 5887

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	37.2

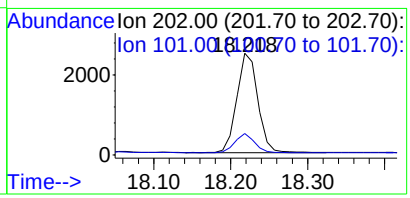


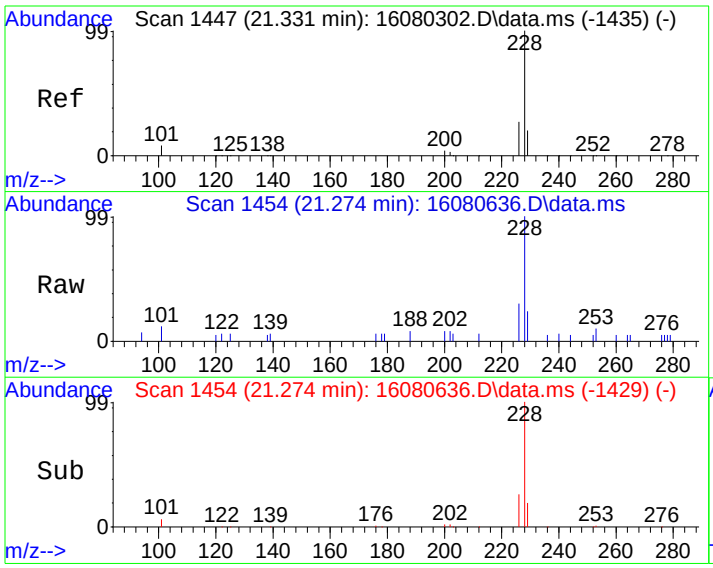


#16
Pyrene
Concen: 35.52 ug/kg
RT: 18.218 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:202 Resp: 4696

Ion	Ratio	Lower	Upper
202	100		
101	19.1	0.0	38.0

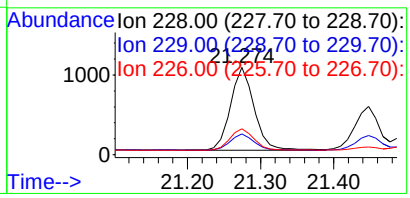


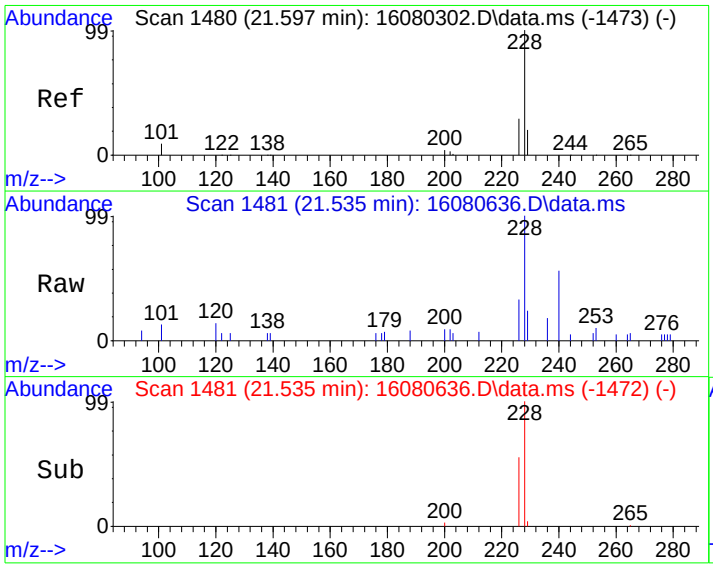


#18
Benzo[a]anthracene
Concen: 21.14 ug/kg
RT: 21.274 min Scan# 1454
Delta R.T. -0.010 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:228 Resp: 2329

Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.0	39.9
226	26.0	6.7	46.7

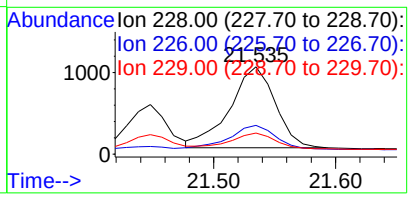


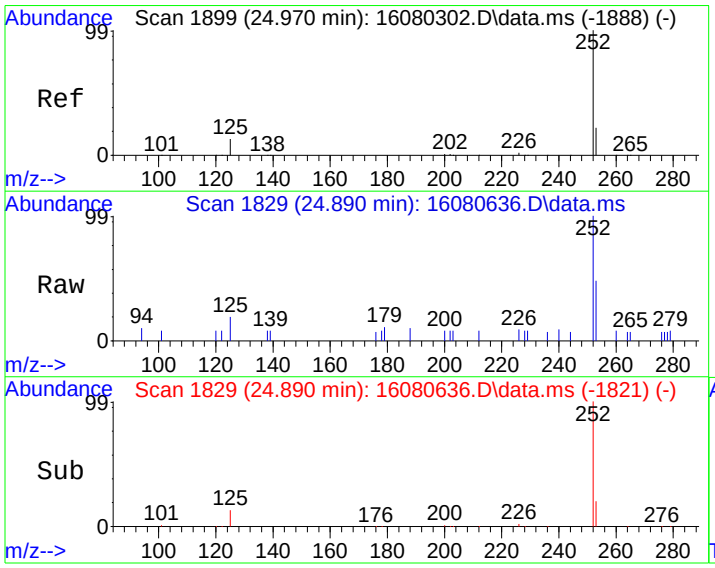


#19
Chrysene
Concen: 24.54 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:228 Resp: 2558

Ion	Ratio	Lower	Upper
228	100		
226	29.1	9.3	49.3
229	19.5	0.0	39.8

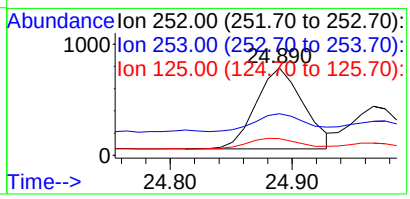


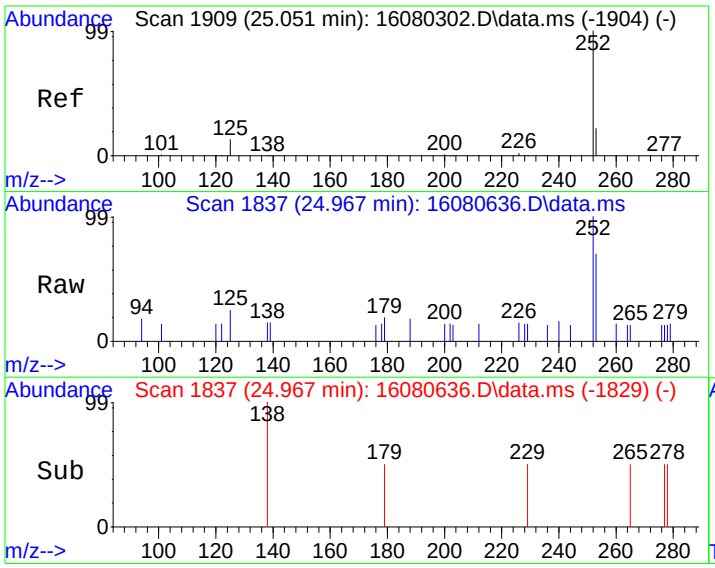


#21
Benzo[b]fluoranthene
Concen: 19.18 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.020 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:252 Resp: 1976

Ion	Ratio	Lower	Upper
252	100		
253	20.4	1.9	41.9
125	12.6	0.0	33.2

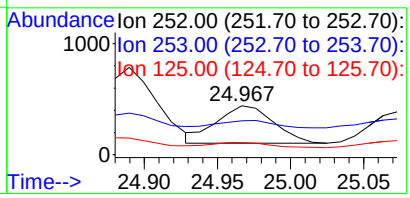


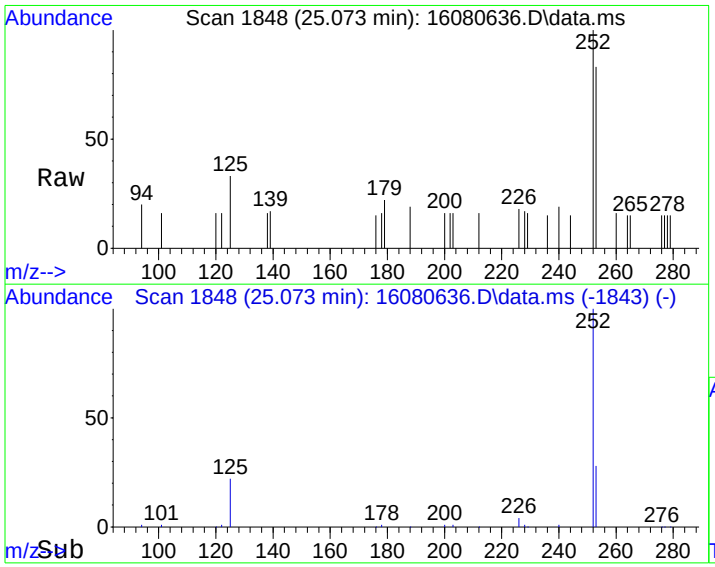


#22
Benzo[k]fluoranthene
Concen: 10.56 ug/kg
RT: 24.967 min Scan# 1837
Delta R.T. -0.020 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:252 Resp: 906

Ion	Ratio	Lower	Upper
252	100		
253	19.1	2.1	42.1
125	13.4	0.0	33.9

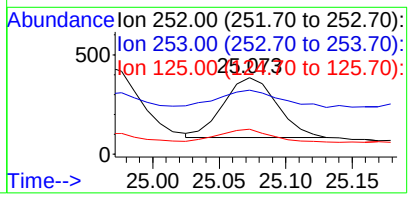


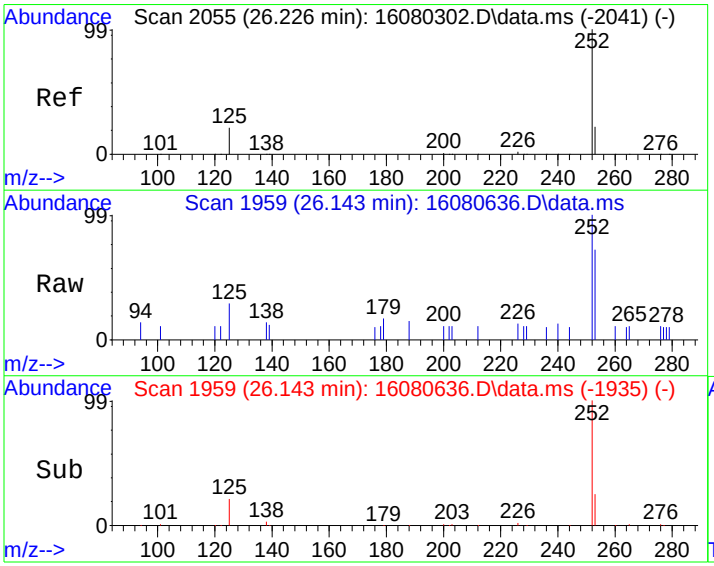


#23
Benzo(j)fluoranthene
Concen: 10.16 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:252 Resp: 846

Ion	Ratio	Lower	Upper
252	100		
253	31.9	1.9	41.9
125	19.7	0.0	39.4

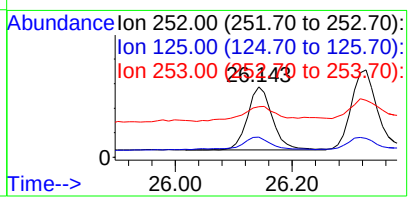


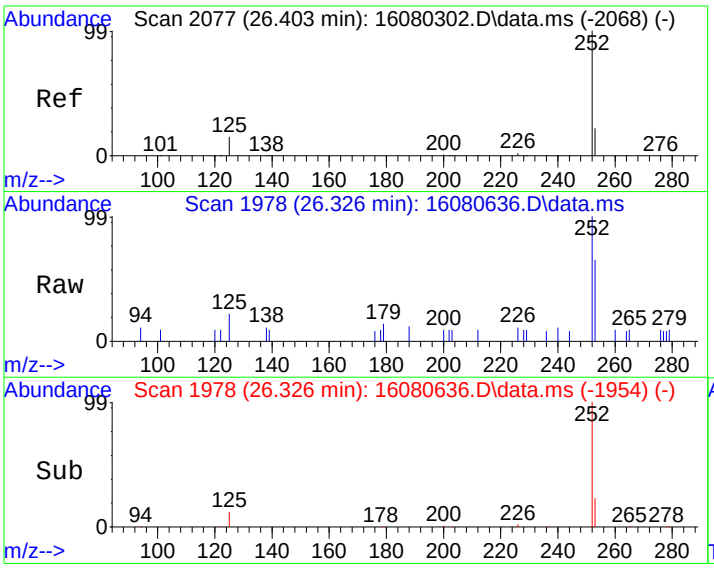


#24
Benzo(e)pyrene
Concen: 14.79 ug/kg
RT: 26.143 min Scan# 1959
Delta R.T. -0.020 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:252 Resp: 1516

Ion	Ratio	Lower	Upper
252	100		
125	29.2	0.5	40.5
253	33.8	2.1	42.1

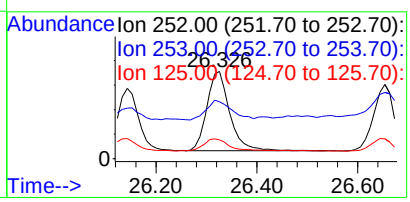


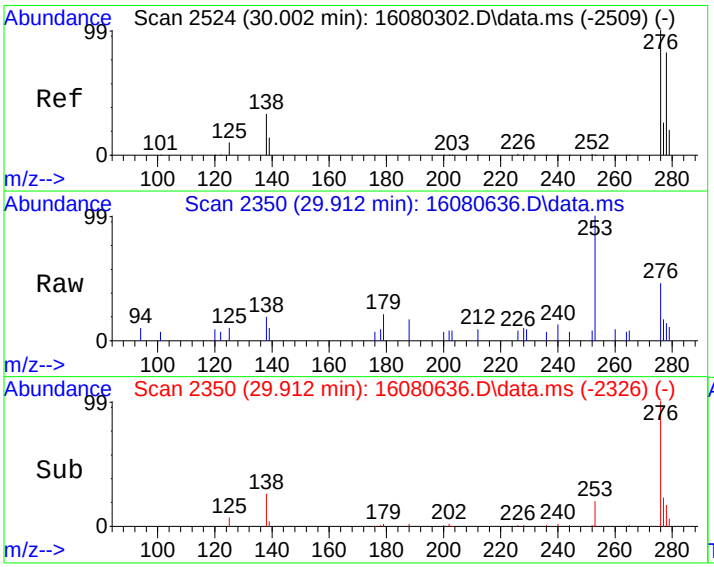


#25
Benzo[a]pyrene
Concen: 21.15 ug/kg
RT: 26.326 min Scan# 1978
Delta R.T. -0.020 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:252 Resp: 2039

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	13.8	0.0	33.5

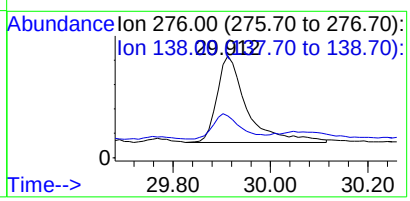


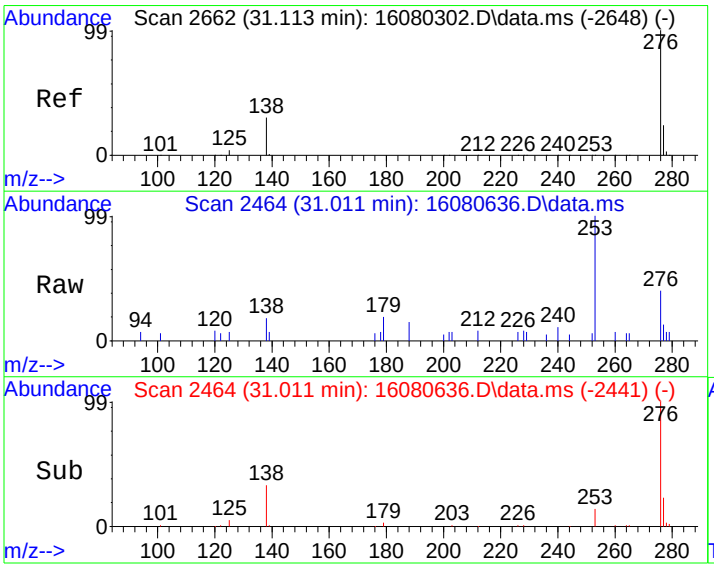


#26
Indeno[1,2,3-cd]pyrene
Concen: 12.60 ug/kg
RT: 29.912 min Scan# 2350
Delta R.T. -0.020 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:276 Resp: 1507

Ion	Ratio	Lower	Upper
276	100		
138	26.6	12.2	52.2

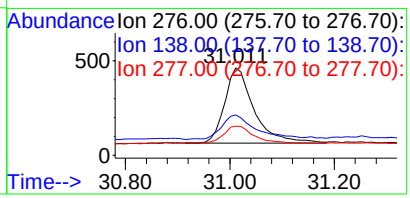




#28
Benzo[g,h,i]perylene
Concen: 14.73 ug/kg
RT: 31.011 min Scan# 2464
Delta R.T. -0.030 min
Lab File: 16080636.D
Acq: 7 Aug 2016 12:09 pm

Tgt Ion:276 Resp: 1564

Ion	Ratio	Lower	Upper
276	100		
138	32.3	6.9	46.9
277	22.8	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080637.D
Acq On : 7 Aug 2016 12:49 pm
Operator :
Sample : 1607265-24A
Misc : SAMP
ALS Vial : 37 Sample Multiplier: 10

Quant Time: Aug 08 12:24:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	298854	4000.00	ug/kg	113
6) Acenaphthene-d10	13.456	164	183199	4000.00	ug/kg	113
11) Phenanthrene-d10	15.558	188	503553	4000.00	ug/kg	98
17) Chrysene-d12	21.449	240	458396	4000.00	ug/kg	99
20) Perylene-d12	26.654	264	422525	4000.00	ug/kg	101

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	4720	70.99	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.77%#			
15) 4-Terphenyl-d14	18.113	244	7092	80.11	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.00%#			

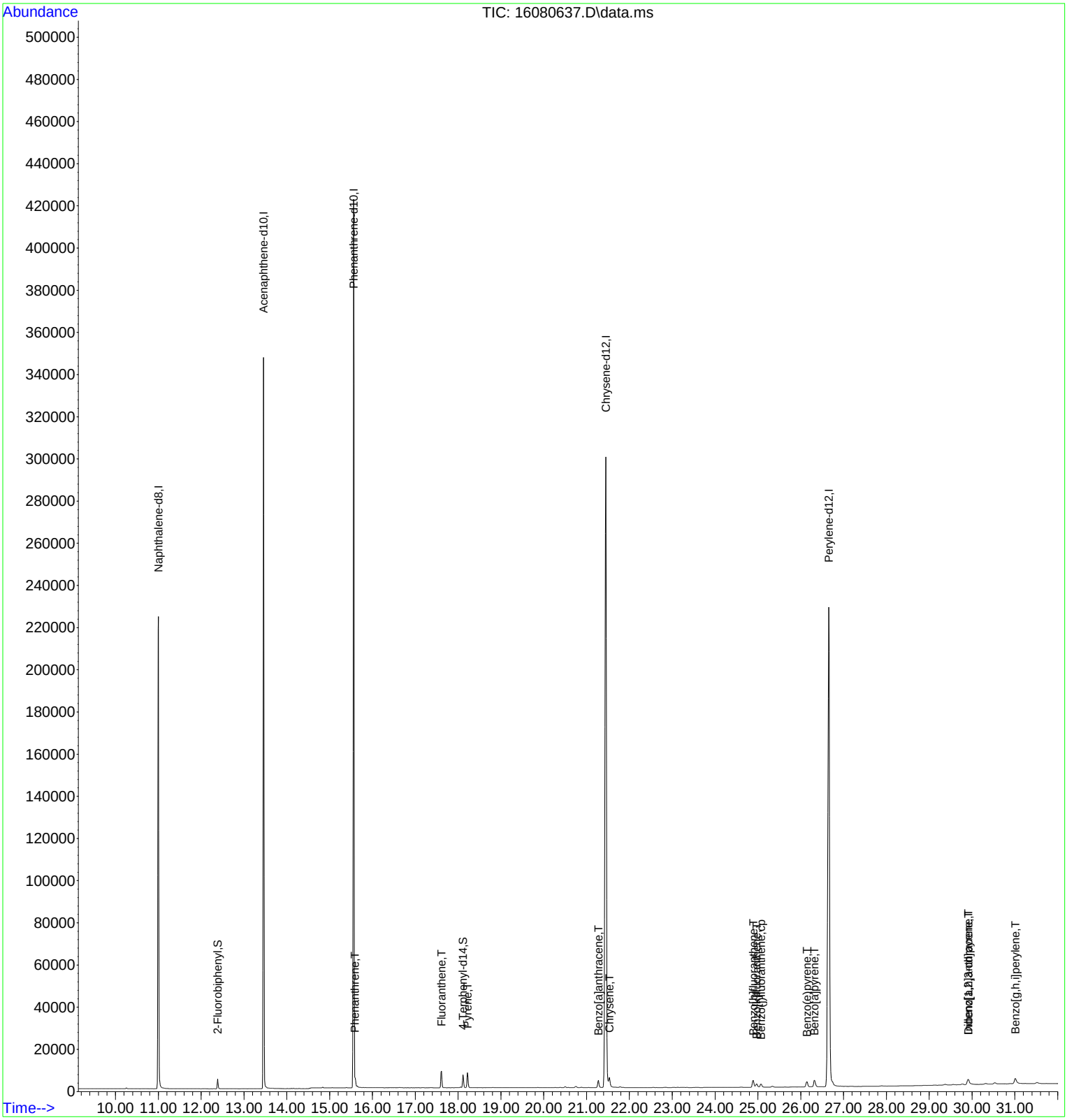
Target Compounds						Qvalue
12) Phenanthrene	15.597	178	3365	23.28	ug/kg	99
14) Fluoranthene	17.612	202	8992	65.79	ug/kg	90
16) Pyrene	18.219	202	8106	59.32	ug/kg	99
18) Benzo[a]anthracene	21.275	228	4974	43.08	ug/kg	99
19) Chrysene	21.535	228	6122	56.03	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	6599	61.60	ug/kg	100
22) Benzo[k]fluoranthene	24.967	252	2586	28.98	ug/kg	96
23) Benzo(j)fluoranthene	25.073	252	2559	29.55	ug/kg	92
24) Benzo(e)pyrene	26.143	252	5016	47.05	ug/kg	94
25) Benzo[a]pyrene	26.327	252	6711	66.94	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.913	276	5385	43.30	ug/kg	91
27) Dibenz[a,h]anthracene	29.903	278	915	9.18	ug/kg	93
28) Benzo[g,h,i]perylene	31.012	276	5915	53.58	ug/kg	98

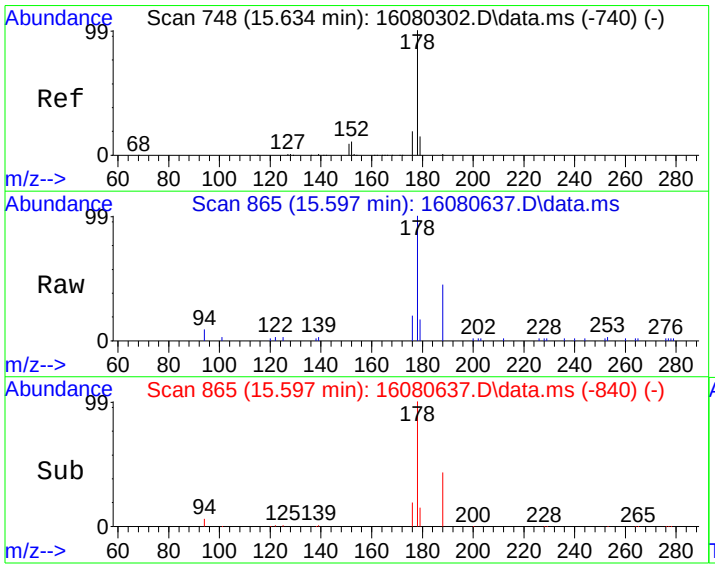
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080637.D
Acq On : 7 Aug 2016 12:49 pm
Operator :
Sample : 1607265-24A
Misc : SAMP
ALS Vial : 37 Sample Multiplier: 10

Quant Time: Aug 08 12:24:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

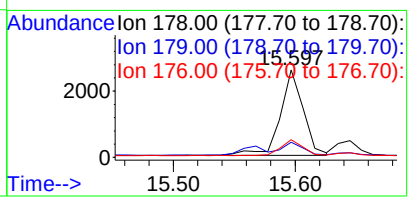


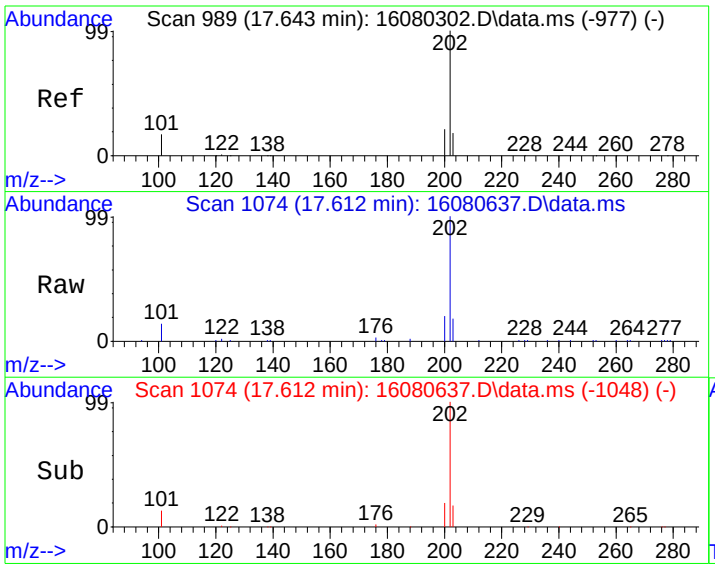


#12
Phenanthrene
Concen: 23.28 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:178 Resp: 3365

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	35.7
176	18.6	0.0	38.8

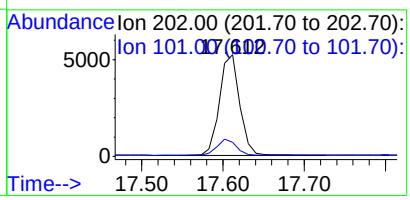


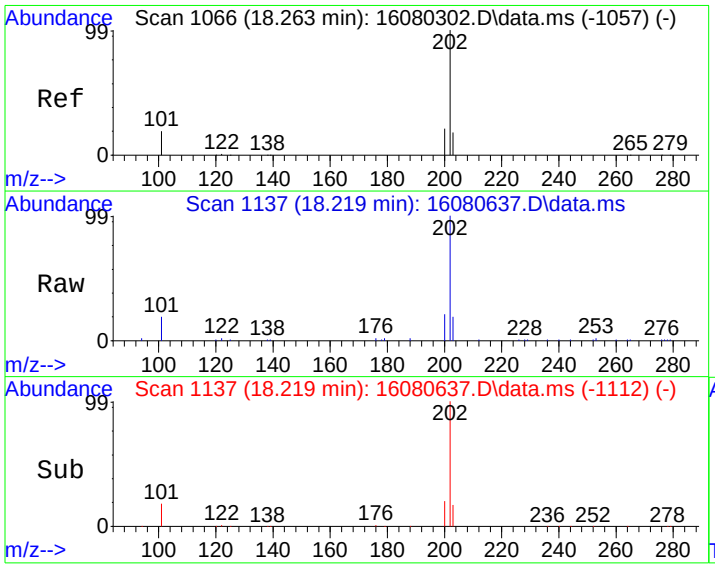


#14
Fluoranthene
Concen: 65.79 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. -0.000 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:202 Resp: 8992

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	37.2

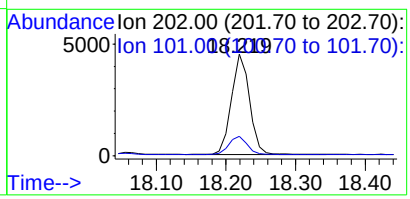


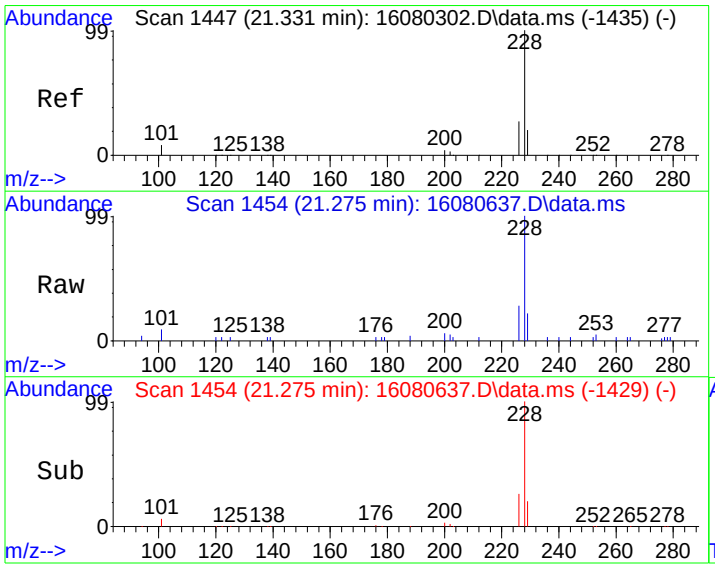


#16
Pyrene
Concen: 59.32 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:202 Resp: 8106

Ion	Ratio	Lower	Upper
202	100		
101	18.2	0.0	38.0

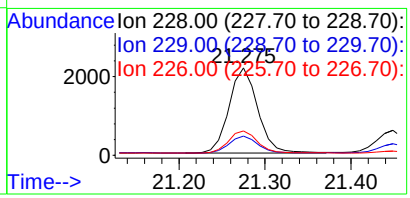


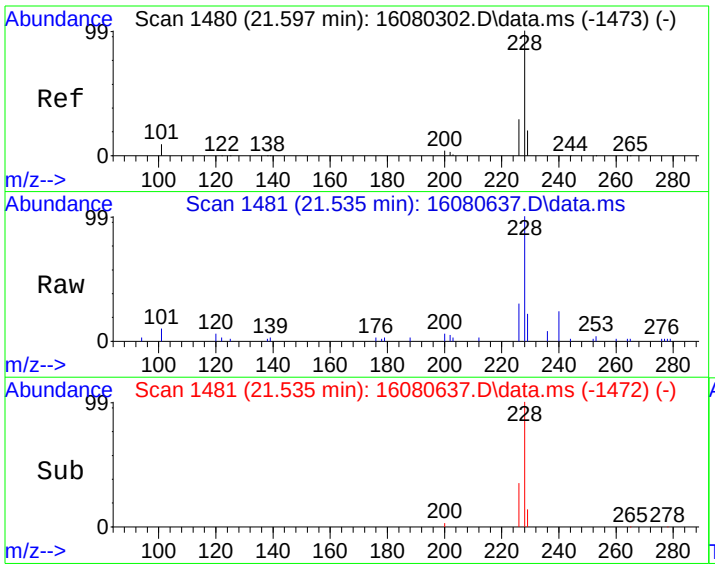


#18
Benzo[a]anthracene
Concen: 43.08 ug/kg
RT: 21.275 min Scan# 1454
Delta R.T. -0.010 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:228 Resp: 4974

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	39.9
226	25.9	6.7	46.7

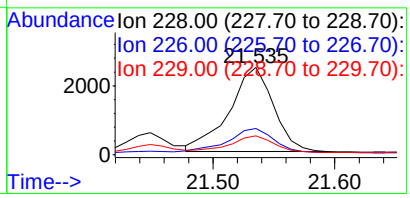


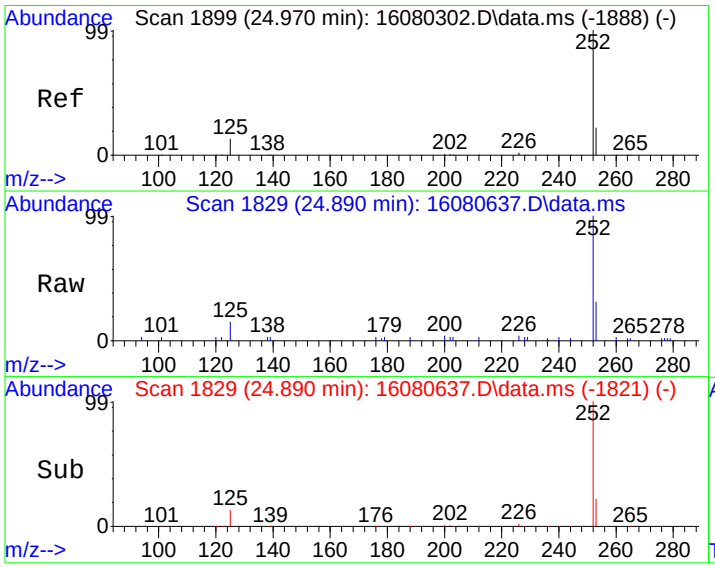


#19
Chrysene
Concen: 56.03 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:228 Resp: 6122

Ion	Ratio	Lower	Upper
228	100		
226	28.5	9.3	49.3
229	19.7	0.0	39.8

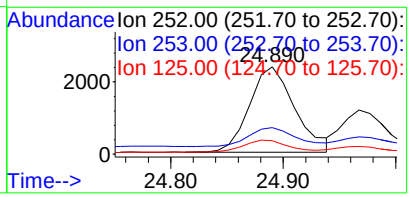


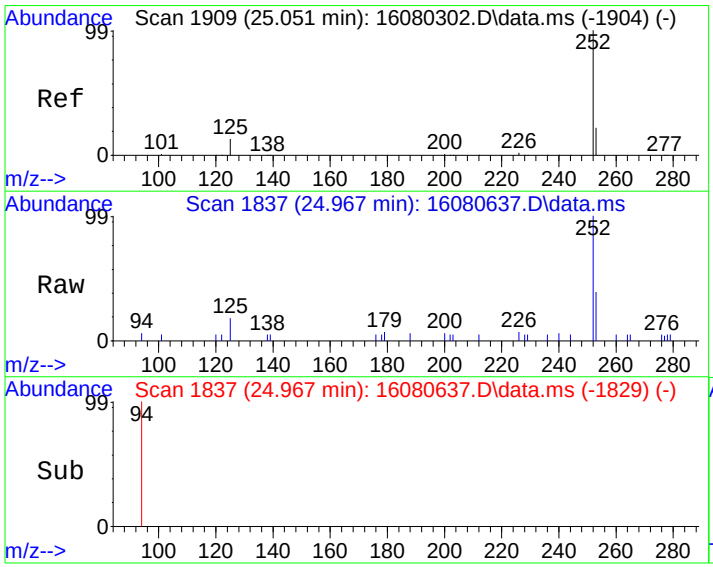


#21
Benzo[b]fluoranthene
Concen: 61.60 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 6599

Ion	Ratio	Lower	Upper
252	100		
253	22.0	1.9	41.9
125	13.2	0.0	33.2

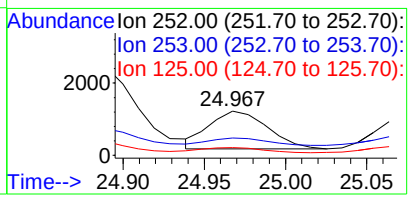


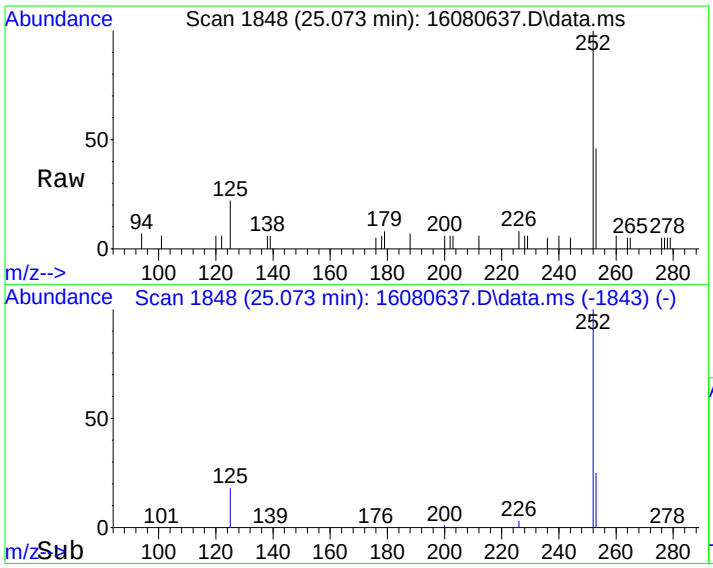


#22
Benzo[k]fluoranthene
Concen: 28.98 ug/kg
RT: 24.967 min Scan# 1837
Delta R.T. -0.019 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 2586

Ion	Ratio	Lower	Upper
252	100		
253	19.4	2.1	42.1
125	13.4	0.0	33.9

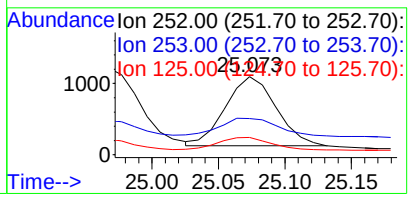


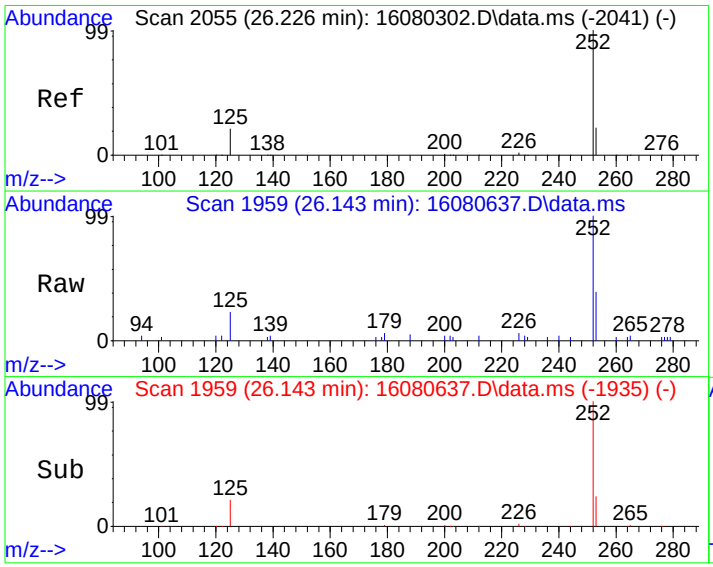


#23
Benzo(j)fluoranthene
Concen: 29.55 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 2559

Ion	Ratio	Lower	Upper
252	100		
253	28.9	1.9	41.9
125	19.0	0.0	39.4

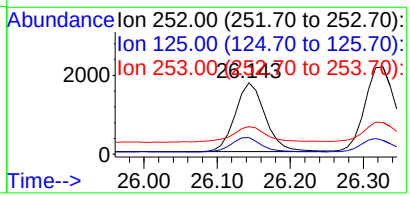


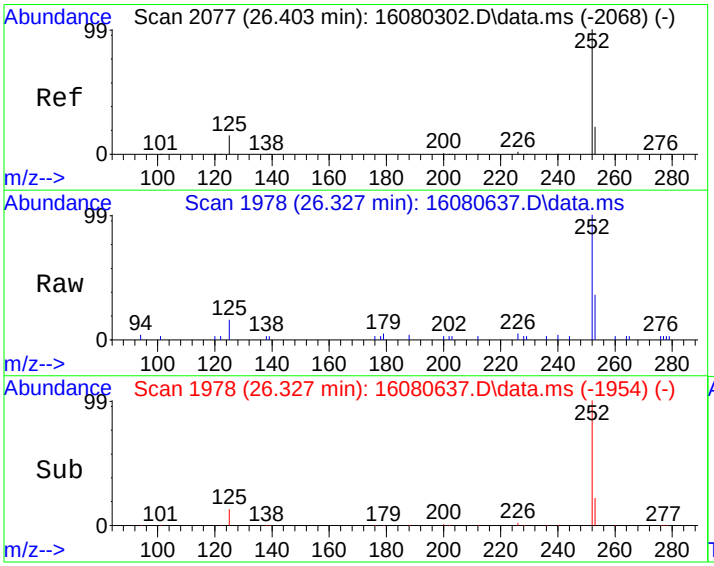


#24
Benzo(e)pyrene
Concen: 47.05 ug/kg
RT: 26.143 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 5016

Ion	Ratio	Lower	Upper
252	100		
125	21.1	0.5	40.5
253	26.6	2.1	42.1

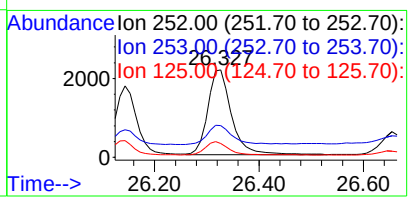


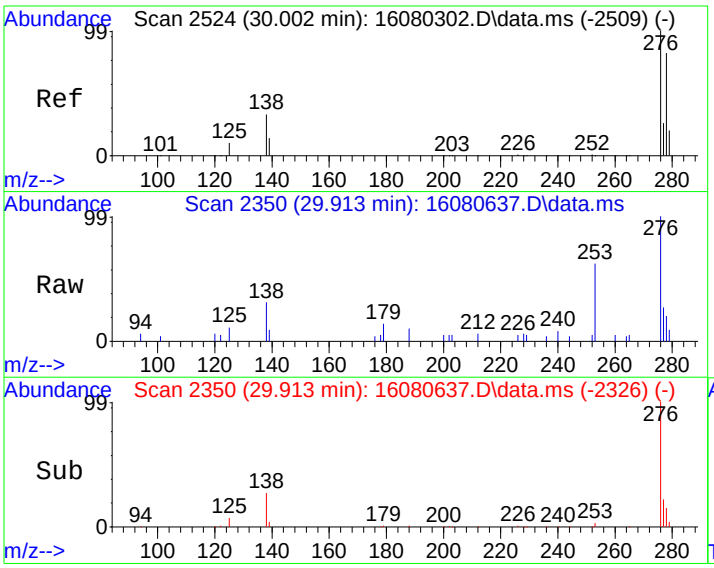


#25
Benzo[a]pyrene
Concen: 66.94 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:252 Resp: 6711

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	13.2	0.0	33.5

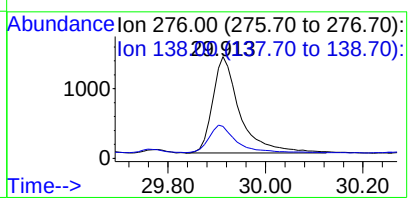


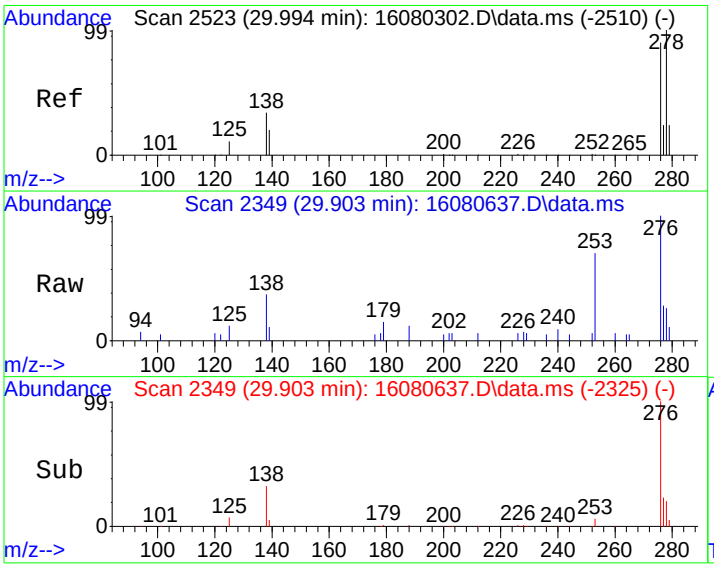


#26
Indeno[1,2,3-cd]pyrene
Concen: 43.30 ug/kg
RT: 29.913 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:276 Resp: 5385

Ion	Ratio	Lower	Upper
276	100		
138	27.1	12.2	52.2

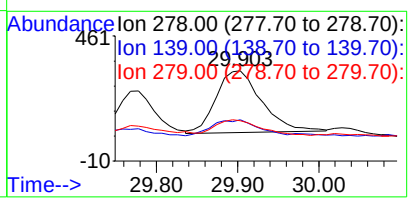


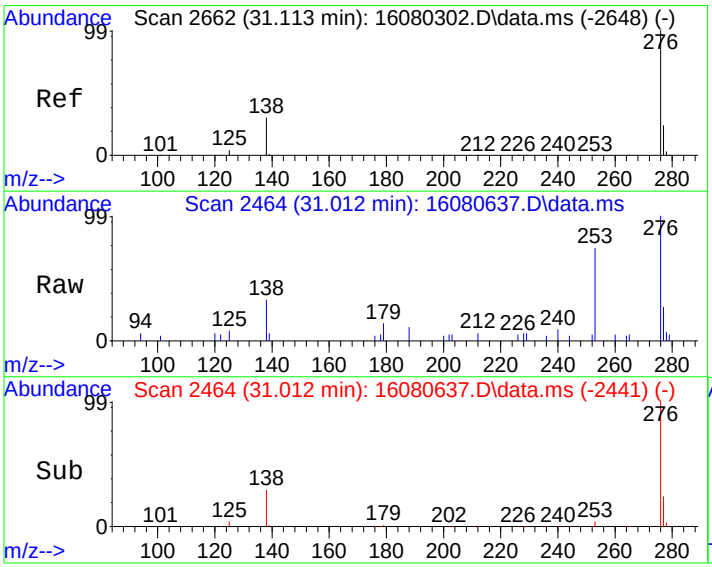


#27
Dibenz[a,h]anthracene
Concen: 9.18 ug/kg
RT: 29.903 min Scan# 2349
Delta R.T. -0.019 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:278 Resp: 915

Ion	Ratio	Lower	Upper
278	100		
139	26.4	0.2	40.2
279	23.3	3.9	43.9

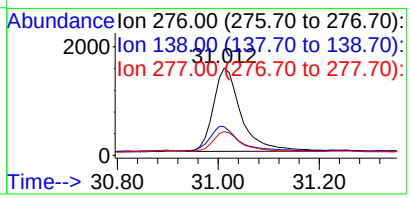




#28
Benzo[g,h,i]perylene
Concen: 53.58 ug/kg
RT: 31.012 min Scan# 2464
Delta R.T. -0.029 min
Lab File: 16080637.D
Acq: 7 Aug 2016 12:49 pm

Tgt Ion:276 Resp: 5915

Ion	Ratio	Lower	Upper
276	100		
138	28.4	6.9	46.9
277	23.6	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080638.D
Acq On : 7 Aug 2016 1:29 pm
Operator :
Sample : 1607265-25A
Misc : SAMP
ALS Vial : 38 Sample Multiplier: 10

Quant Time: Aug 08 12:24:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	289446	4000.00	ug/kg	109
6) Acenaphthene-d10	13.455	164	187076	4000.00	ug/kg	115
11) Phenanthrene-d10	15.567	188	512359	4000.00	ug/kg	99
17) Chrysene-d12	21.448	240	448357	4000.00	ug/kg	97
20) Perylene-d12	26.654	264	415845	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4825	74.93	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.87%#			
15) 4-Terphenyl-d14	18.112	244	7090	78.71	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.97%#			

Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.073	252	56	0.66	ug/kg#	1

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

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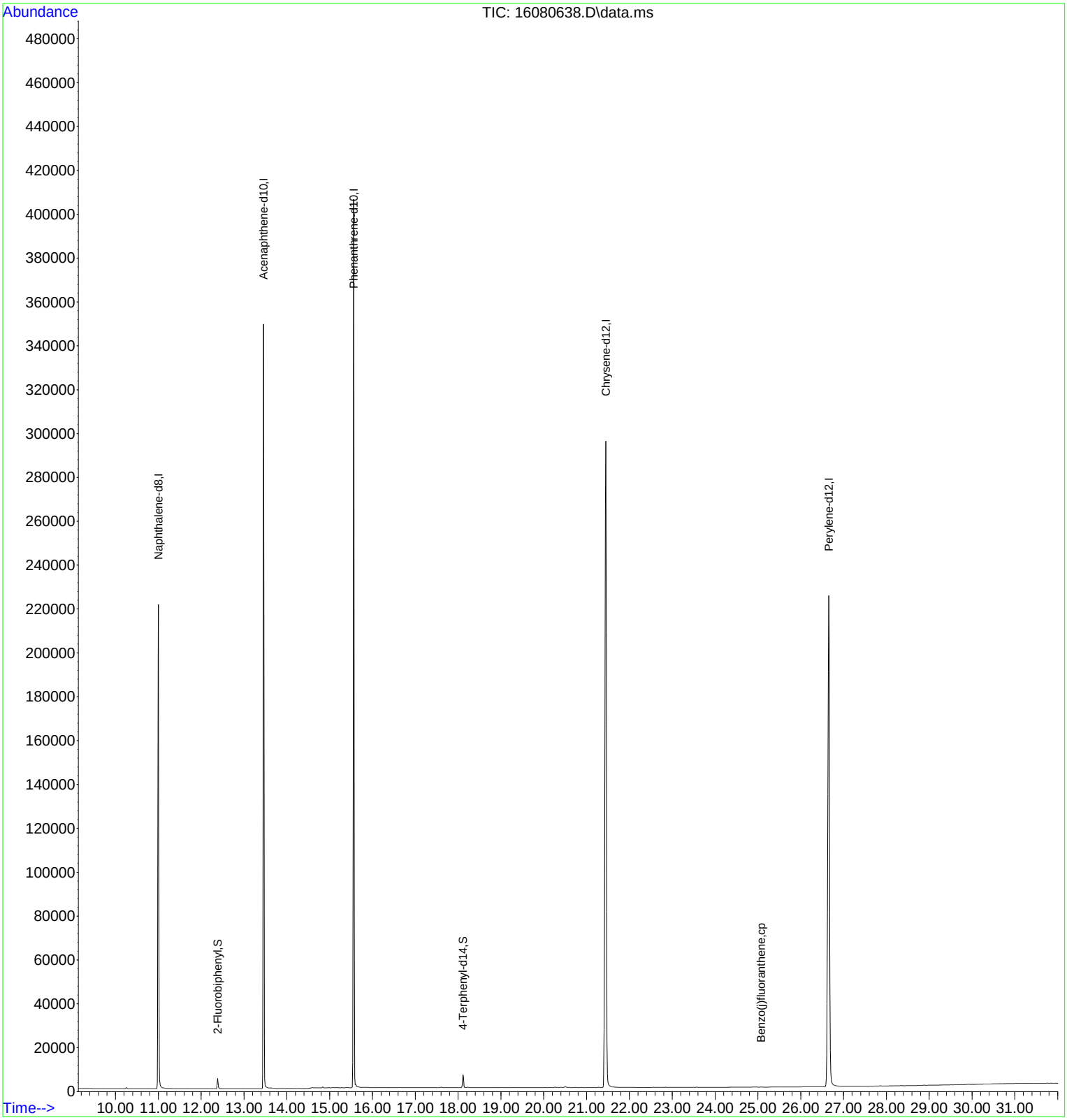

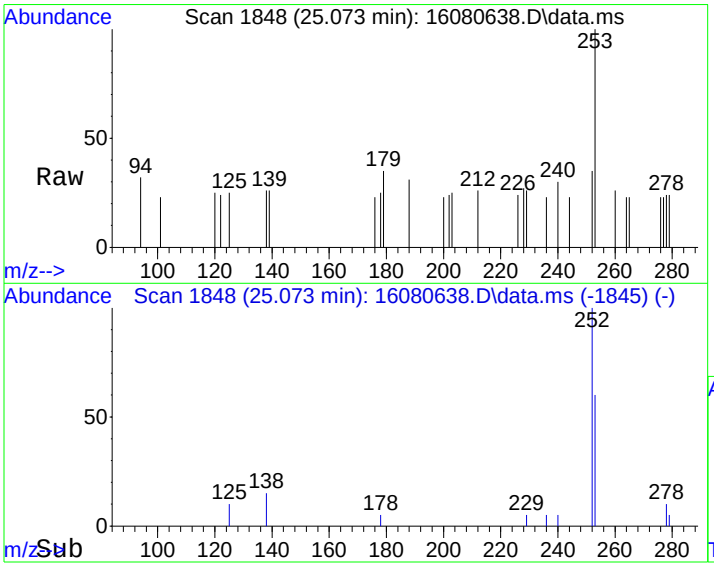

#23
Benzo(j)fluoranthene
Concen: 0.66 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080638.D
Acq: 7 Aug 2016 1:29 pm

Tgt Ion:252 Resp: 56

Ion	Ratio	Lower	Upper
252	100		
253	148.2	1.9	41.9#
125	32.1	0.0	39.4

