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

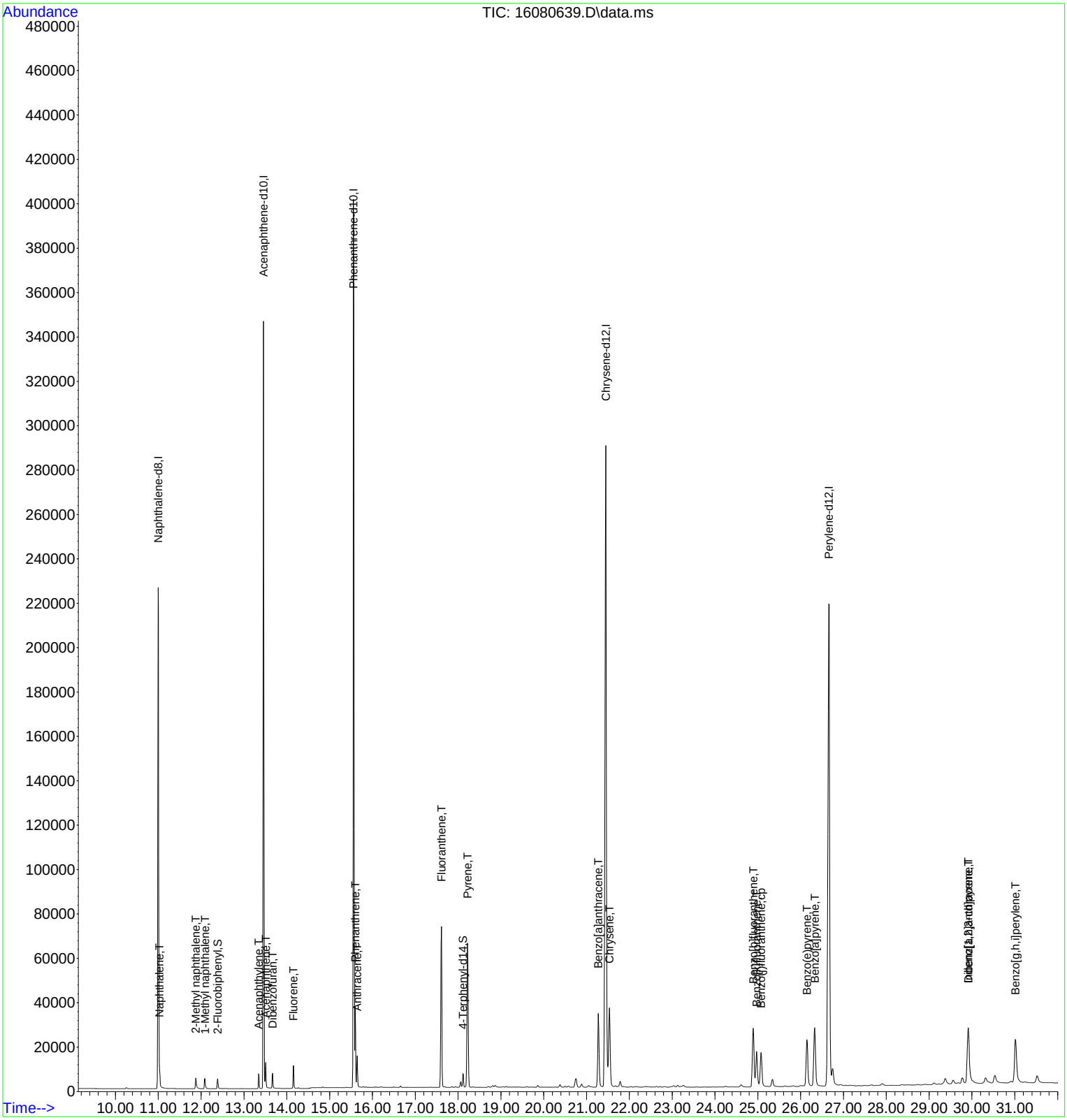
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	4760	72.02	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.80%#			
15) 4-Terphenyl-d14	18.122	244	7122	83.61	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.09%#			

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

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

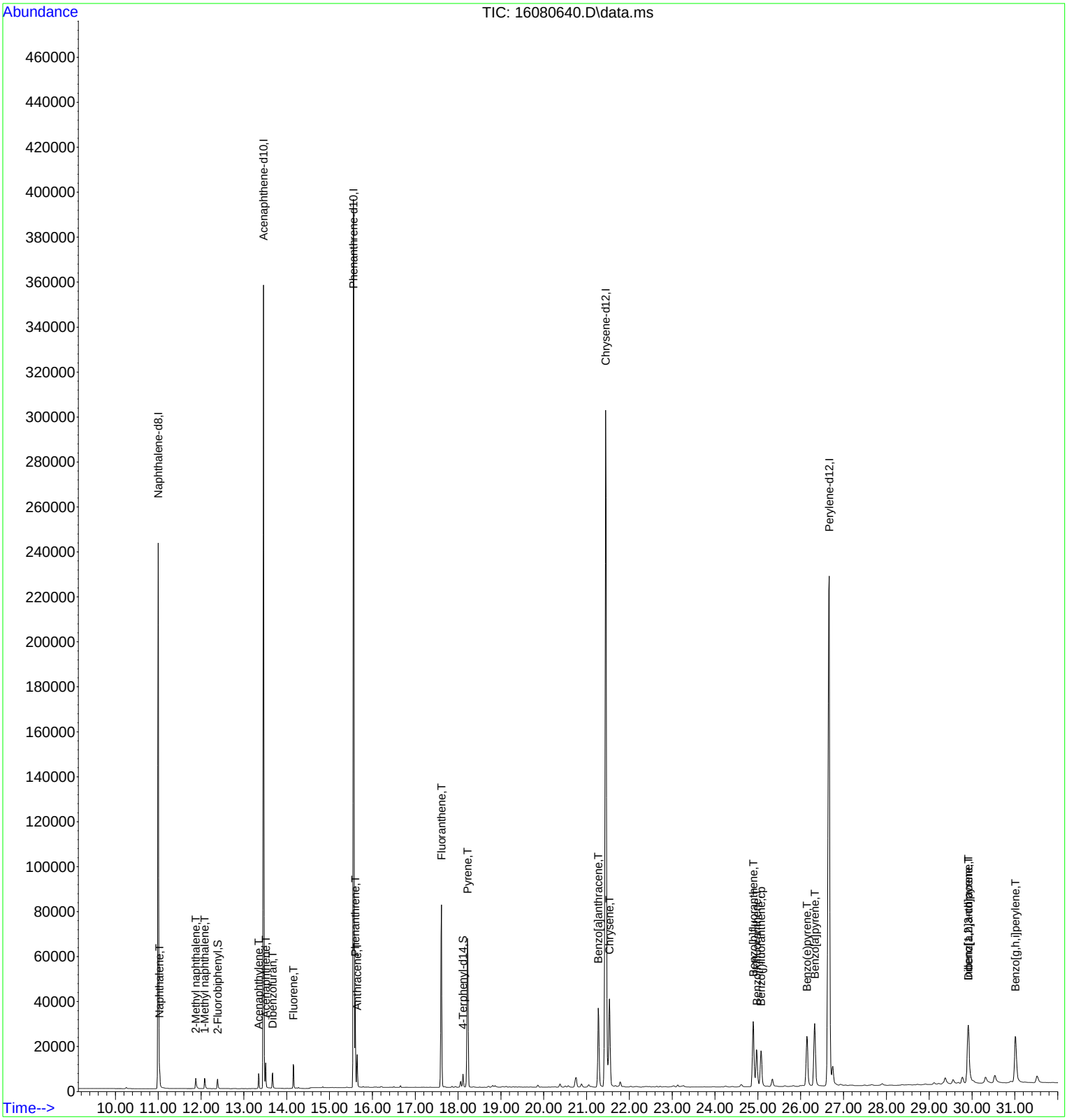
Quant Time: Aug 08 12:21:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

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

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

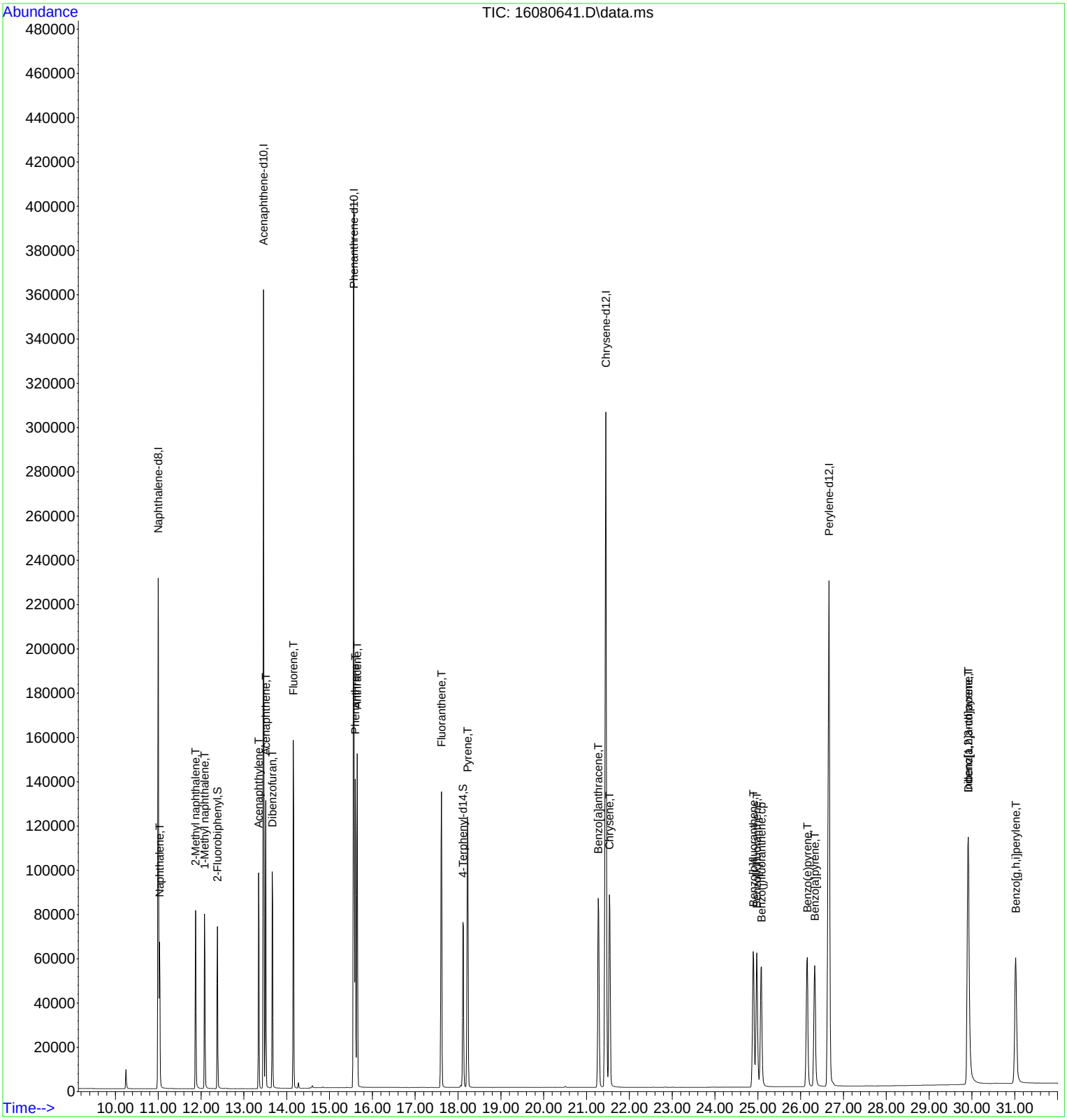
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.997	136	292612	4000.00	ug/kg	111
6) Acenaphthene-d10	13.458	164	188282	4000.00	ug/kg	116
11) Phenanthrene-d10	15.568	188	515220	4000.00	ug/kg	100
17) Chrysene-d12	21.449	240	469528	4000.00	ug/kg	101
20) Perylene-d12	26.665	264	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
1607265

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

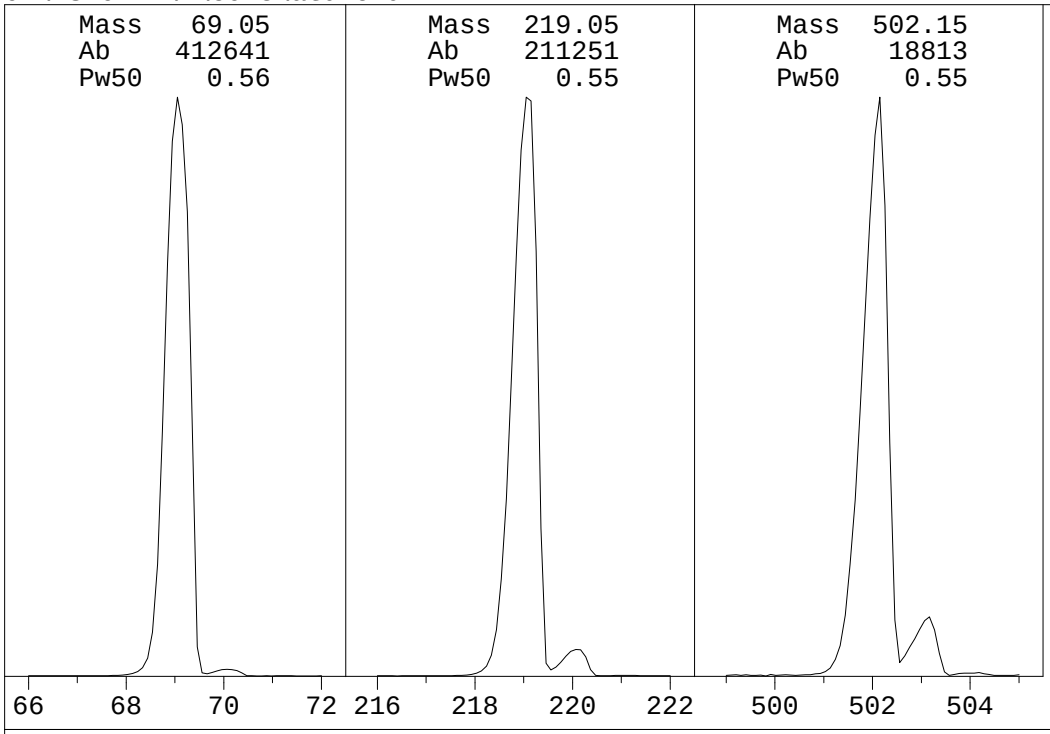
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

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

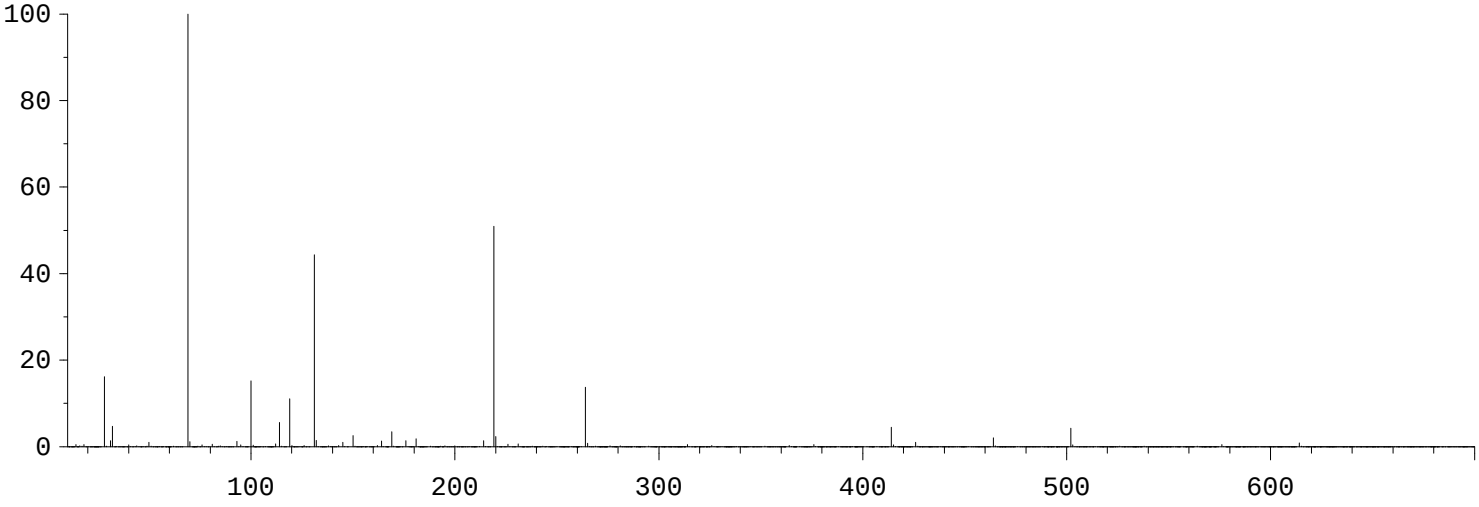


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2075
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	-0.002
		DC Pol	NEG
Repeller	31.46		
IonFcus	100.6	HEDEnab	ON
EntLens	14.5	EMVolts	1259
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

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

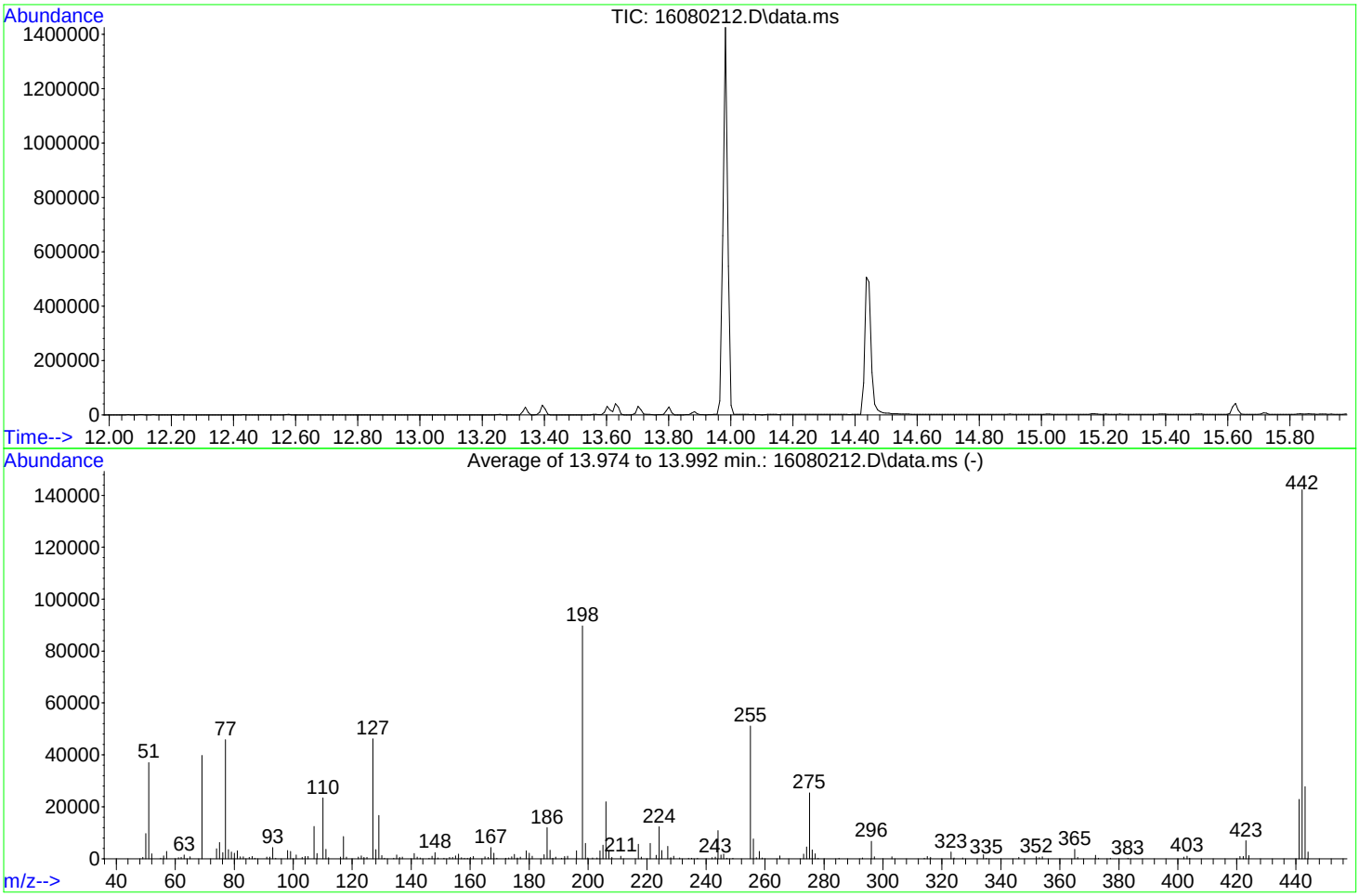
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

	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

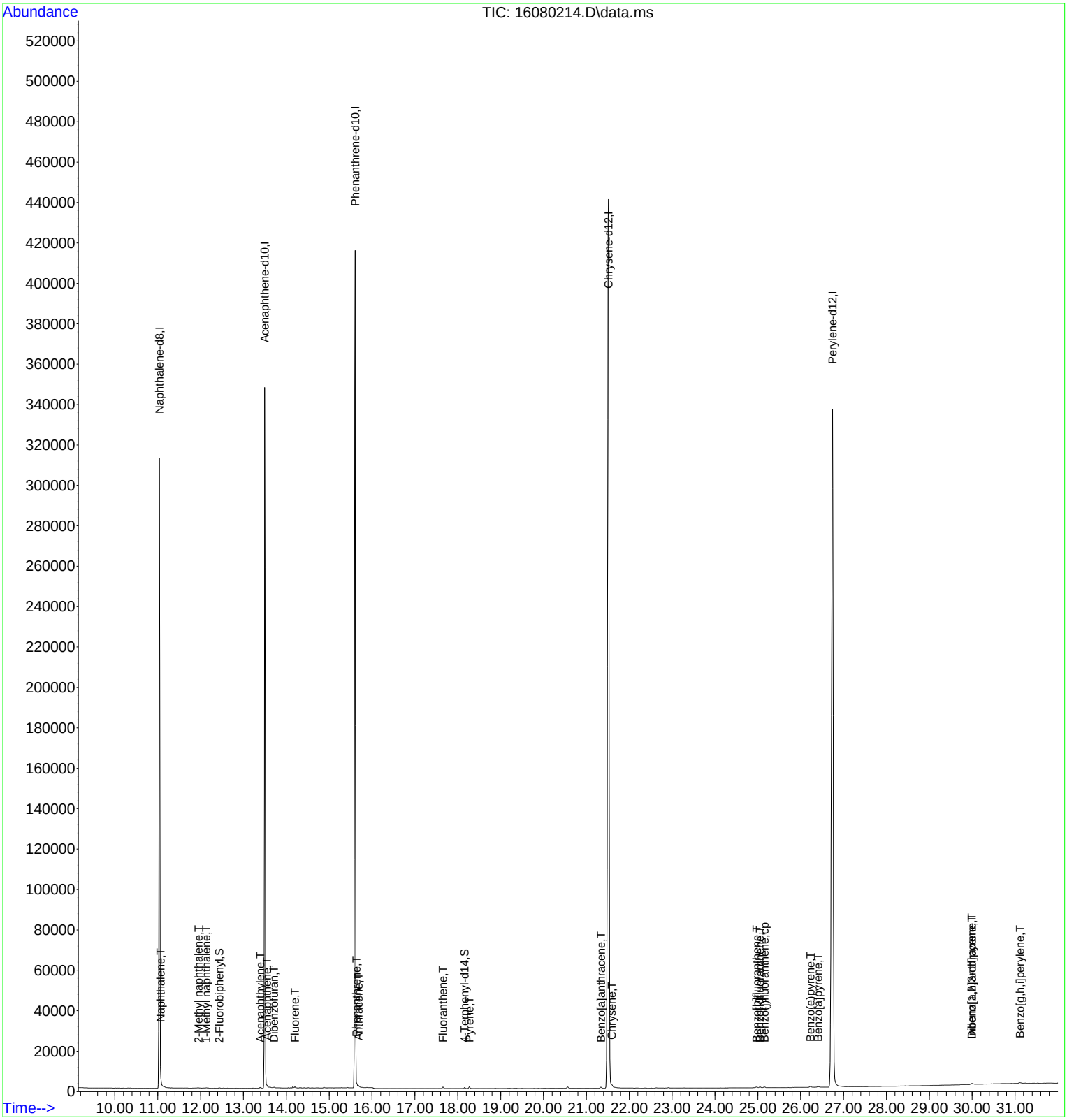
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	385396	4000.00	ug/kg	98
6) Acenaphthene-d10	13.495	164	185765	4000.00	ug/kg	102
11) Phenanthrene-d10	15.605	188	486418	4000.00	ug/kg	97
17) Chrysene-d12	21.516	240	689401	4000.00	ug/kg	102
20) Perylene-d12	26.741	264	619616	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

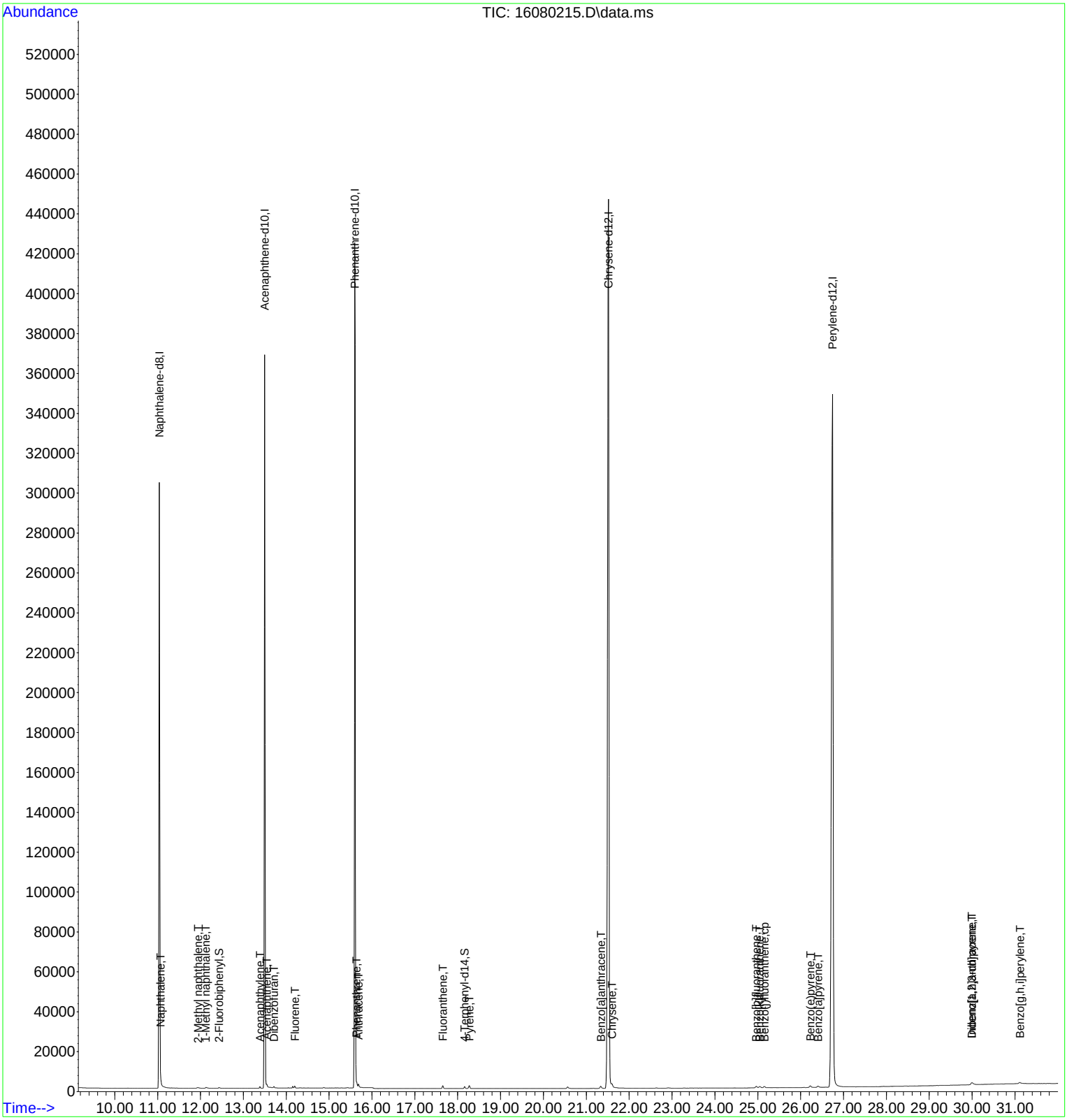
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	379089	4000.00	ug/kg	97
6) Acenaphthene-d10	13.498	164	187838	4000.00	ug/kg	103
11) Phenanthrene-d10	15.599	188	505178	4000.00	ug/kg	101
17) Chrysene-d12	21.517	240	701631	4000.00	ug/kg	104
20) Perylene-d12	26.742	264	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%#			

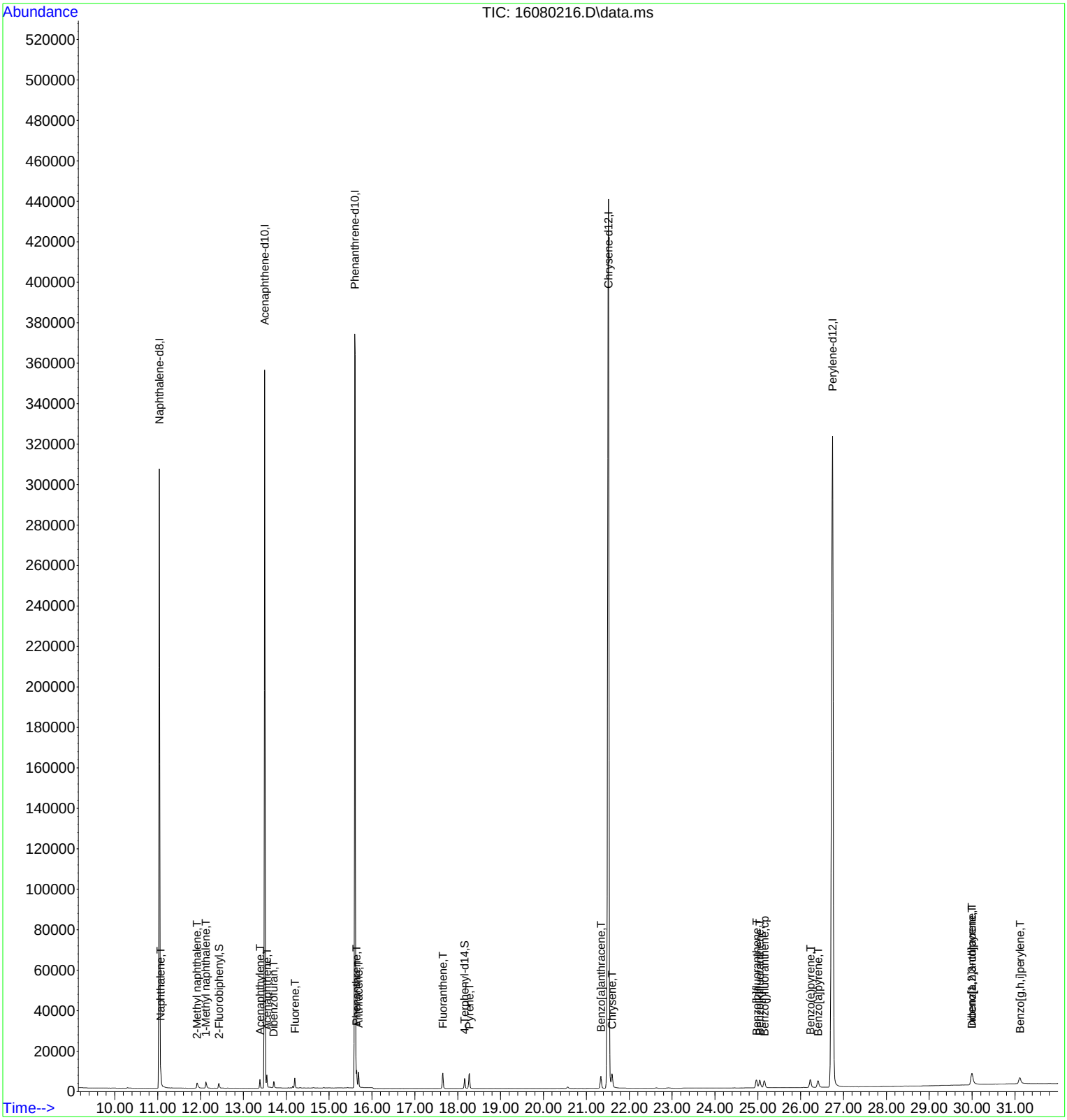
Target Compounds						Qvalue
2) Naphthalene	11.075	128	4581	50.12	ug/kg	100
3) 2-Methyl naphthalene	11.926	142	2854	49.62	ug/kg	96
4) 1-Methyl naphthalene	12.125	142	2646	50.10	ug/kg	99
7) Acenaphthylene	13.384	152	4231	48.86	ug/kg	99
8) Acenaphthene	13.549	153	2750	50.13	ug/kg	98
9) Dibenzofuran	13.714	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

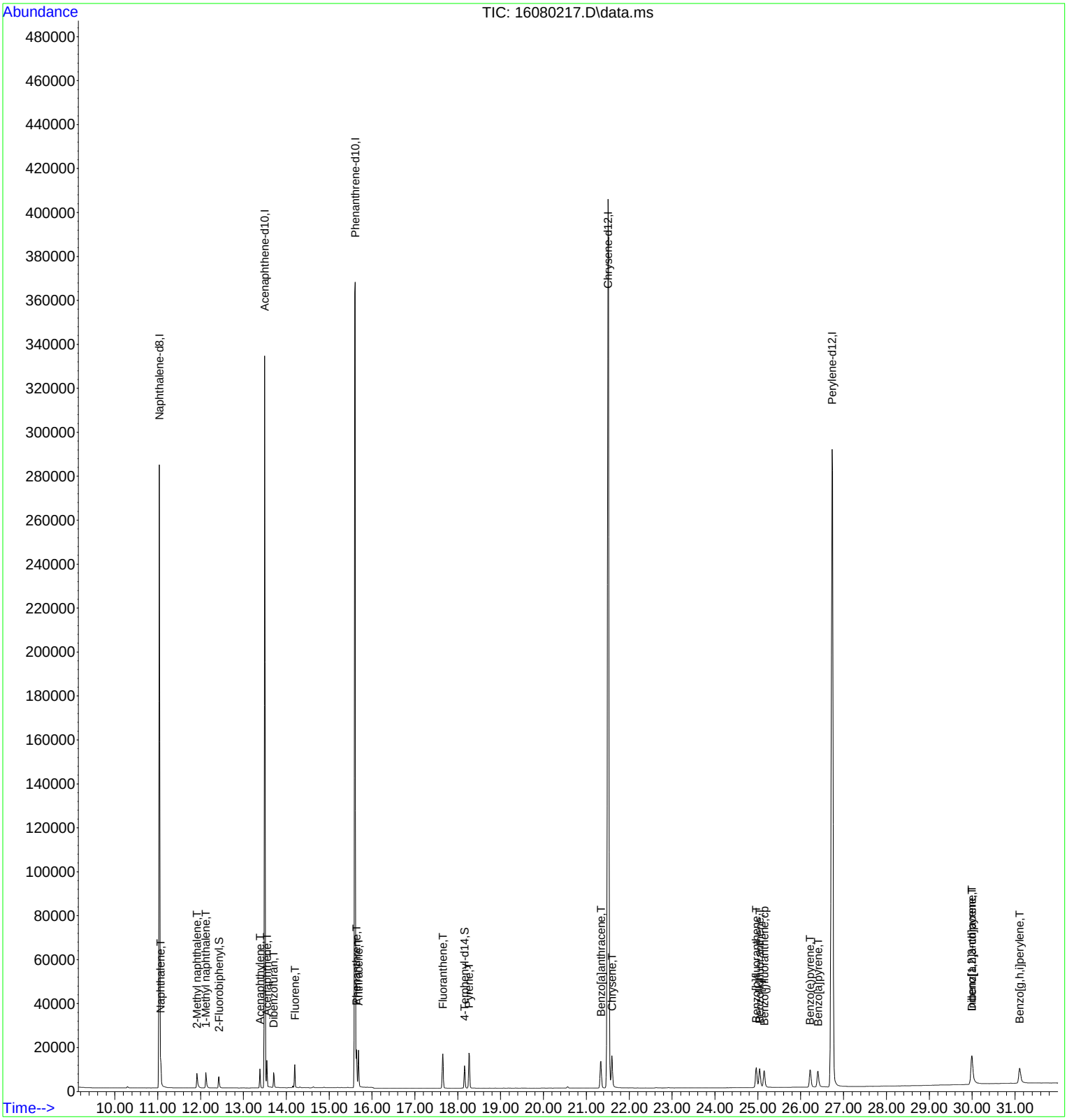
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	343877	4000.00	ug/kg	88
6) Acenaphthene-d10	13.496	164	171051	4000.00	ug/kg	94
11) Phenanthrene-d10	15.606	188	460478	4000.00	ug/kg	92
17) Chrysene-d12	21.508	240	638849	4000.00	ug/kg	95
20) Perylene-d12	26.734	264	558956	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

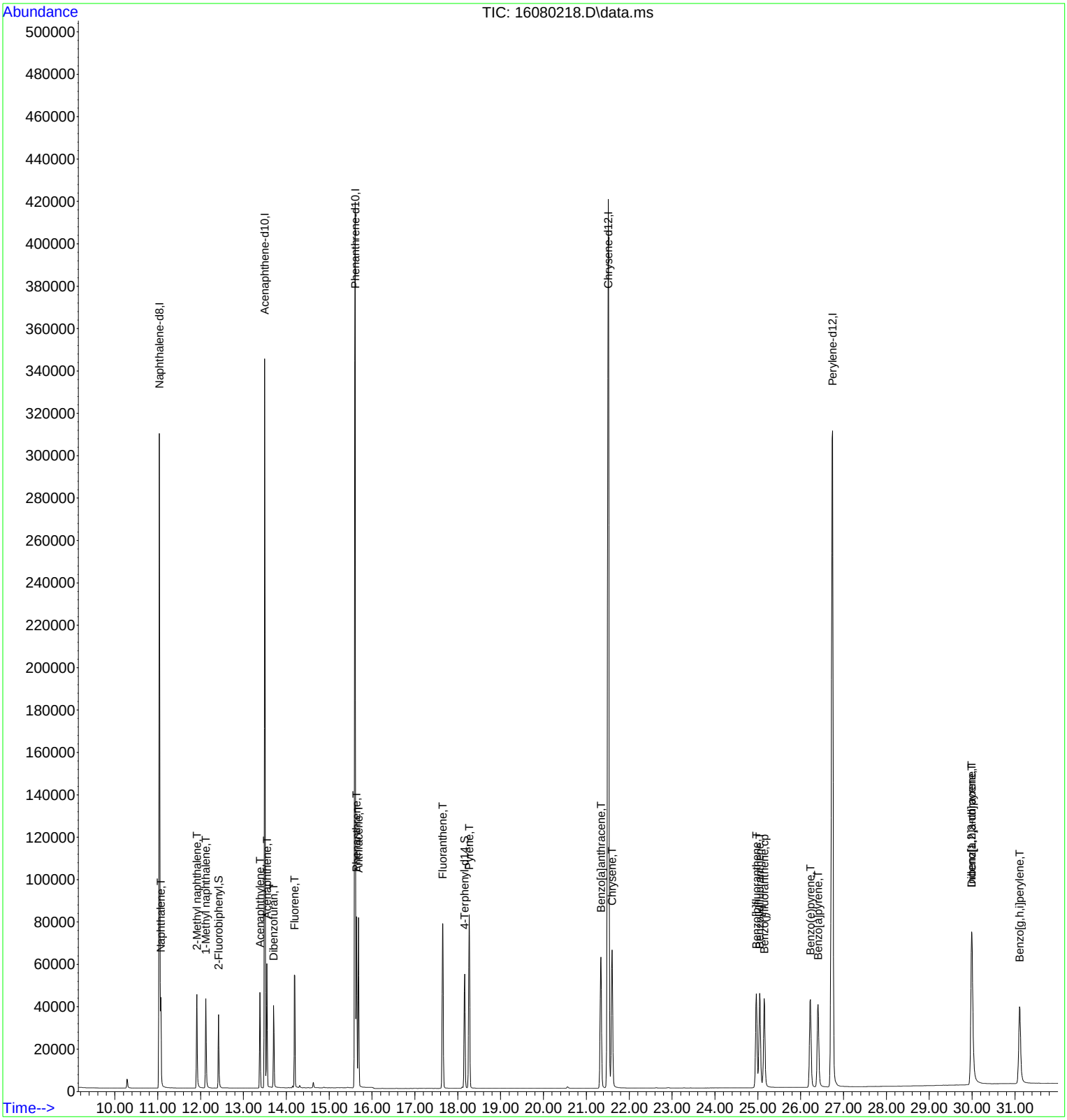
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	368275	4000.00	ug/kg	94
6) Acenaphthene-d10	13.495	164	176937	4000.00	ug/kg	97
11) Phenanthrene-d10	15.605	188	485885	4000.00	ug/kg	97
17) Chrysene-d12	21.509	240	652222	4000.00	ug/kg	97
20) Perylene-d12	26.743	264	588578	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

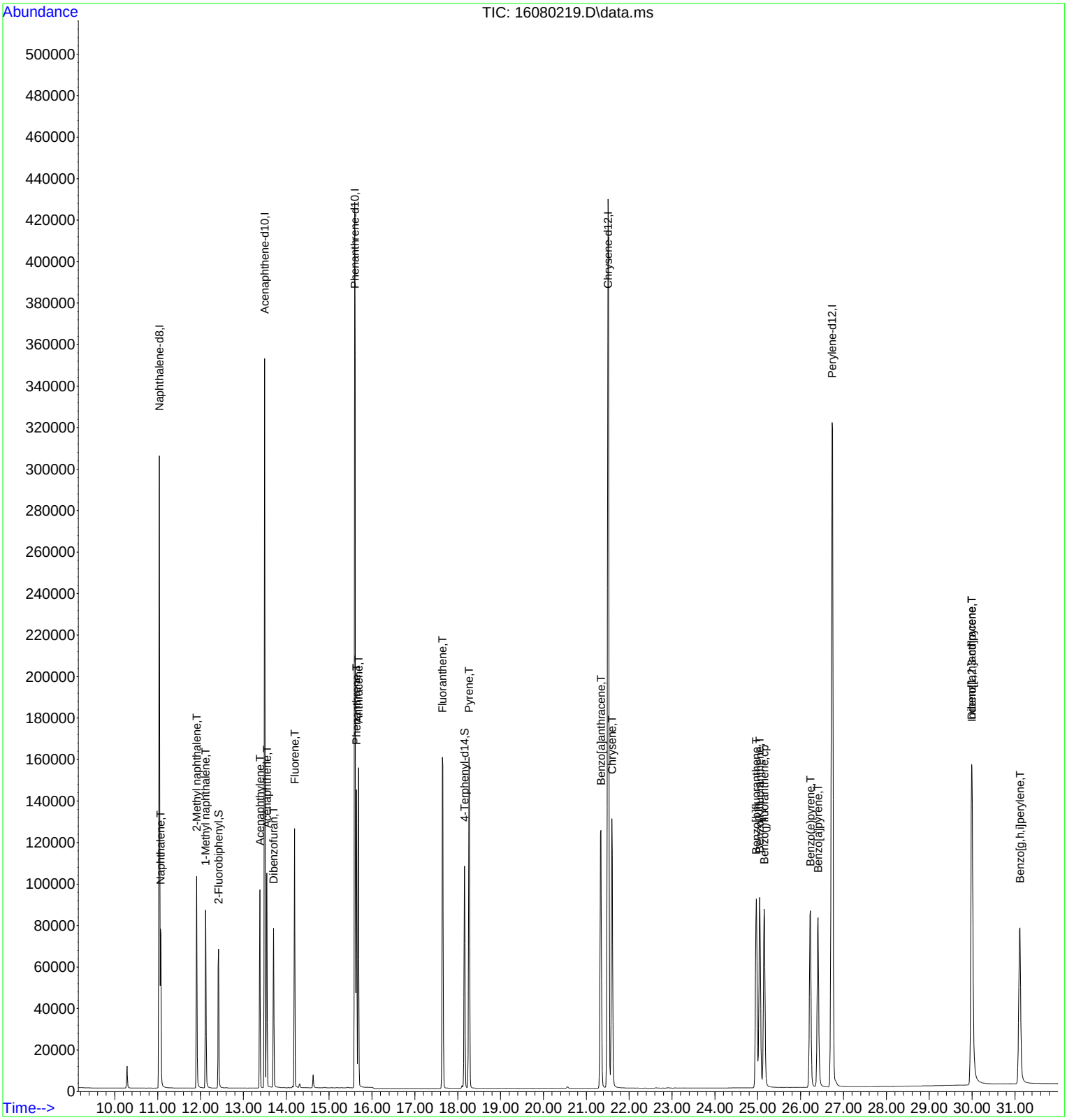
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	386528	4000.00	ug/kg	98
6) Acenaphthene-d10	13.497	164	183850	4000.00	ug/kg	101
11) Phenanthrene-d10	15.598	188	503015	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	674037	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	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%#			

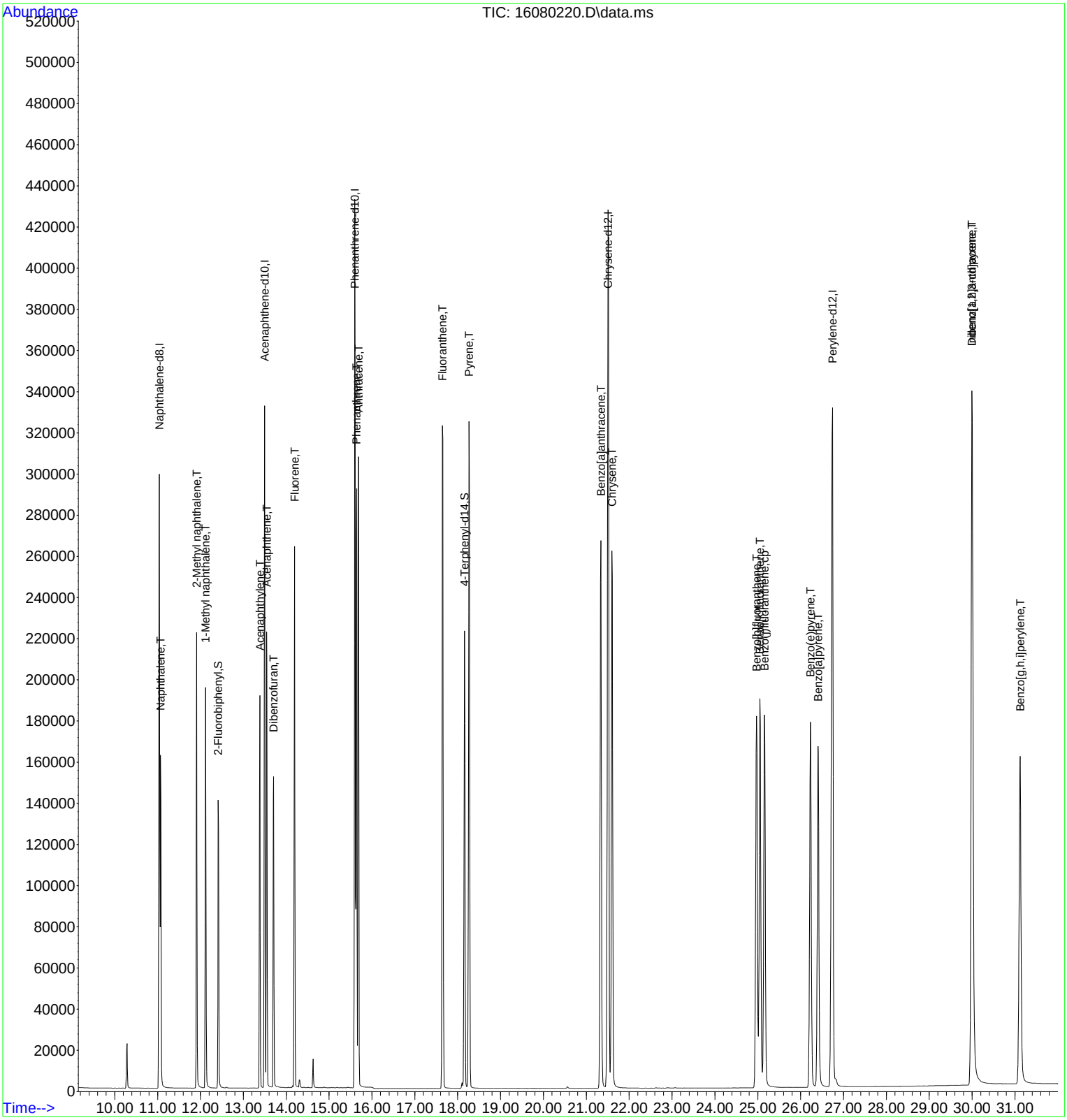
Target Compounds						Qvalue
2) Naphthalene	11.067	128	178638	1872.25	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	116176	1934.93	ug/kg	100
4) 1-Methyl naphthalene	12.117	142	106548	1932.59	ug/kg	100
7) Acenaphthylene	13.385	152	174601	1993.09	ug/kg	100
8) Acenaphthene	13.541	153	108721	1958.92	ug/kg	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

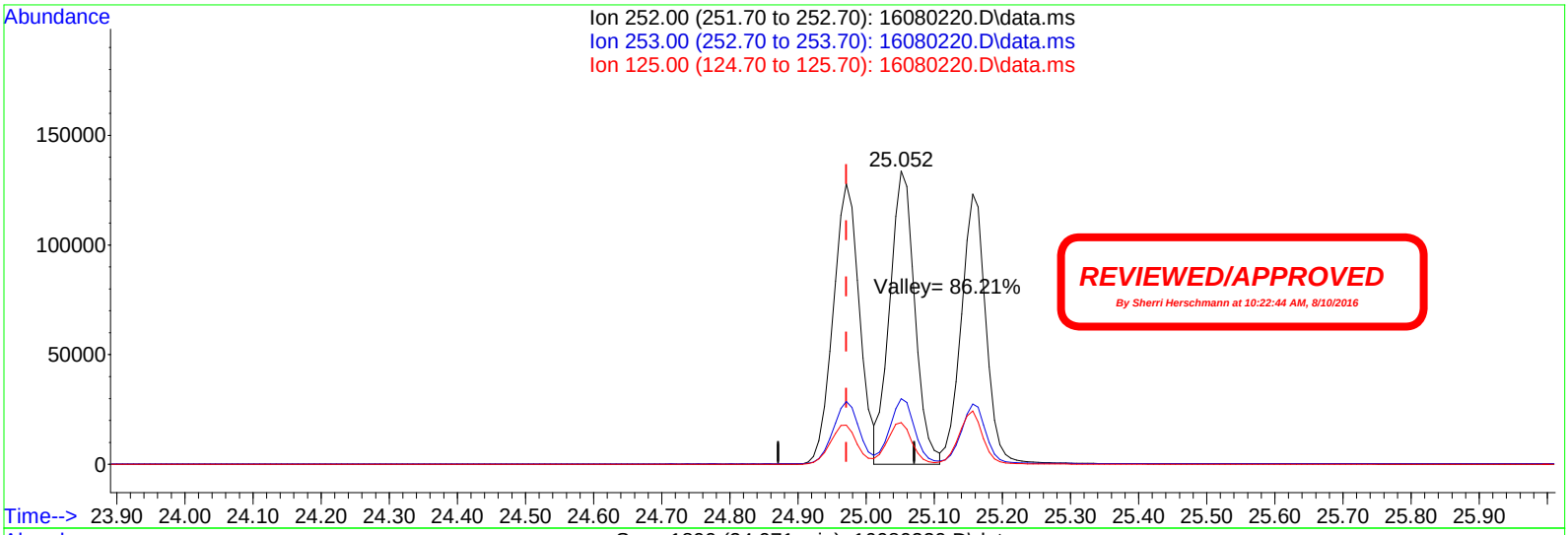
Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

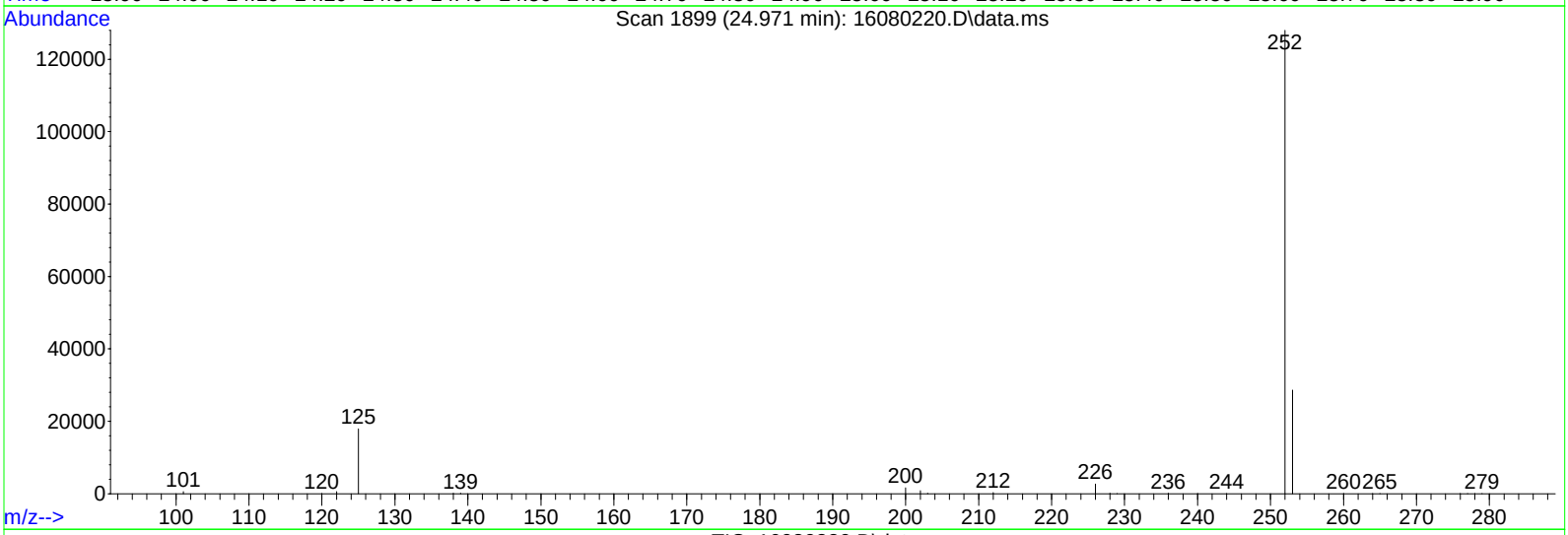


Quantitation Report (Qedit)

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

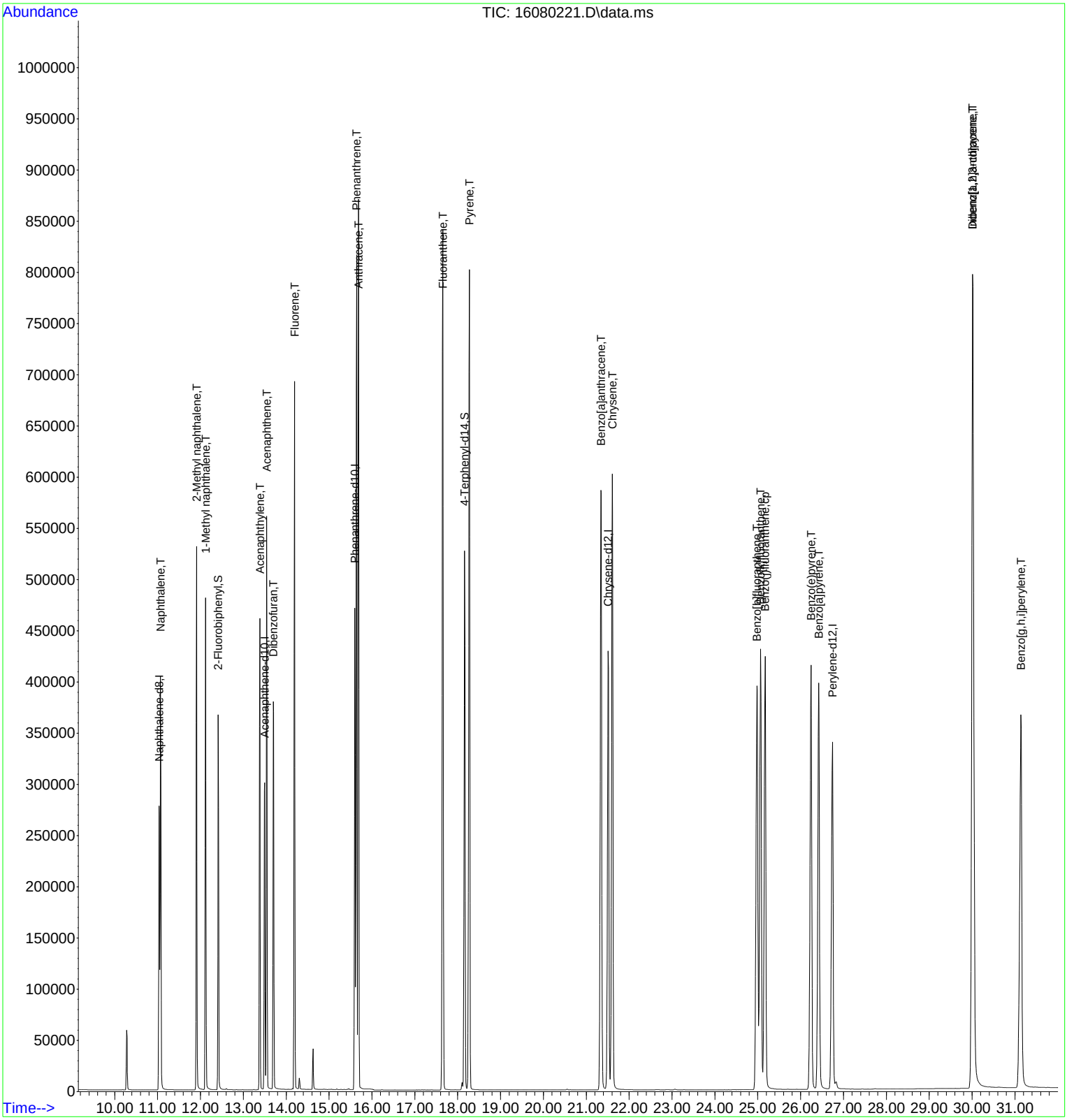
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	373369	4000.00	ug/kg	95
6) Acenaphthene-d10	13.498	164	175178	4000.00	ug/kg	96
11) Phenanthrene-d10	15.600	188	536214	4000.00	ug/kg	107
17) Chrysene-d12	21.509	240	675690	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	617609	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

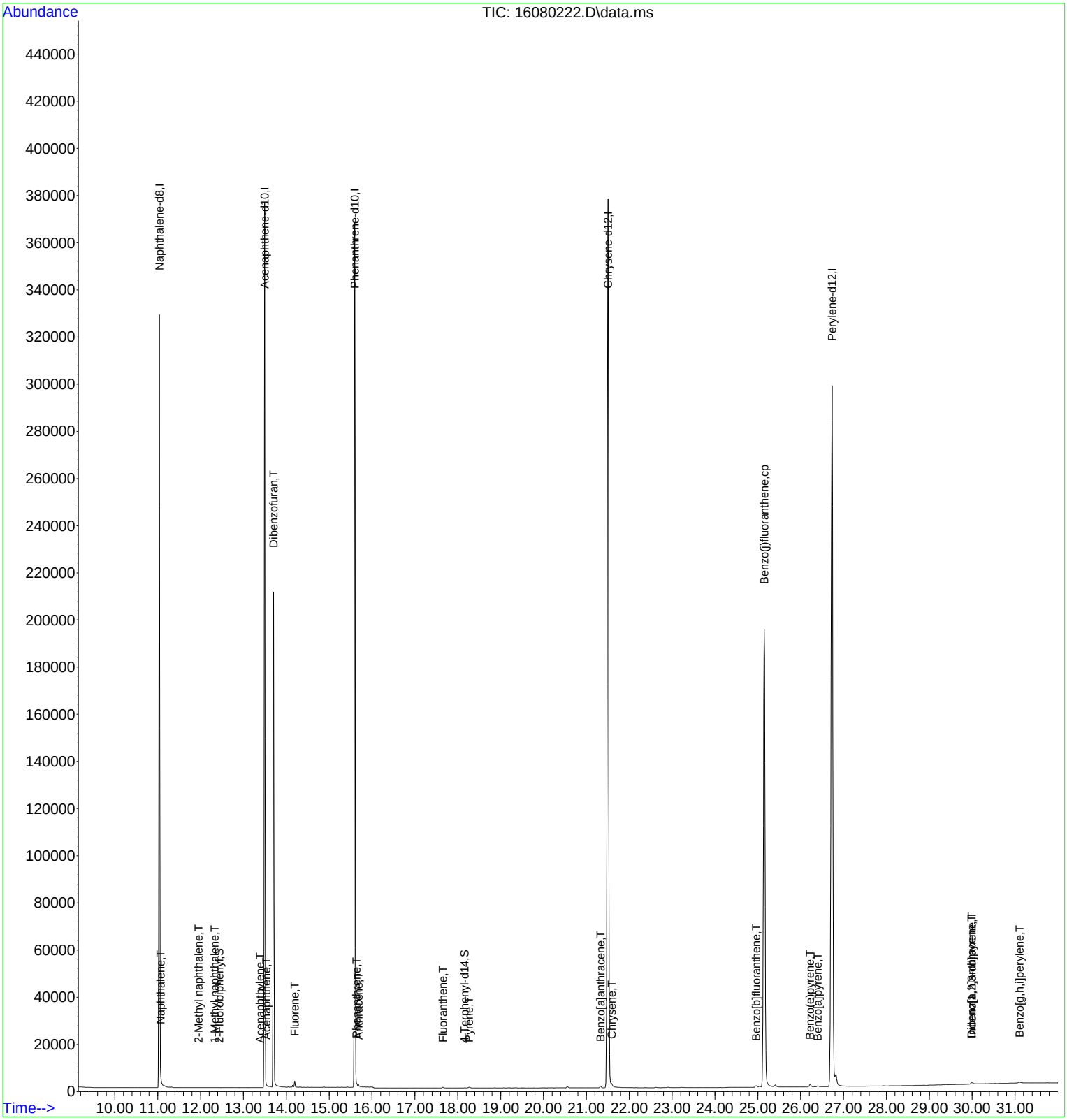
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	409796	4000.00	ug/kg	104
6) Acenaphthene-d10	13.496	164	199013	4000.00	ug/kg	109
11) Phenanthrene-d10	15.597	188	416210	4000.00	ug/kg	83
17) Chrysene-d12	21.508	240	579641	4000.00	ug/kg	86
20) Perylene-d12	26.733	264	555774	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

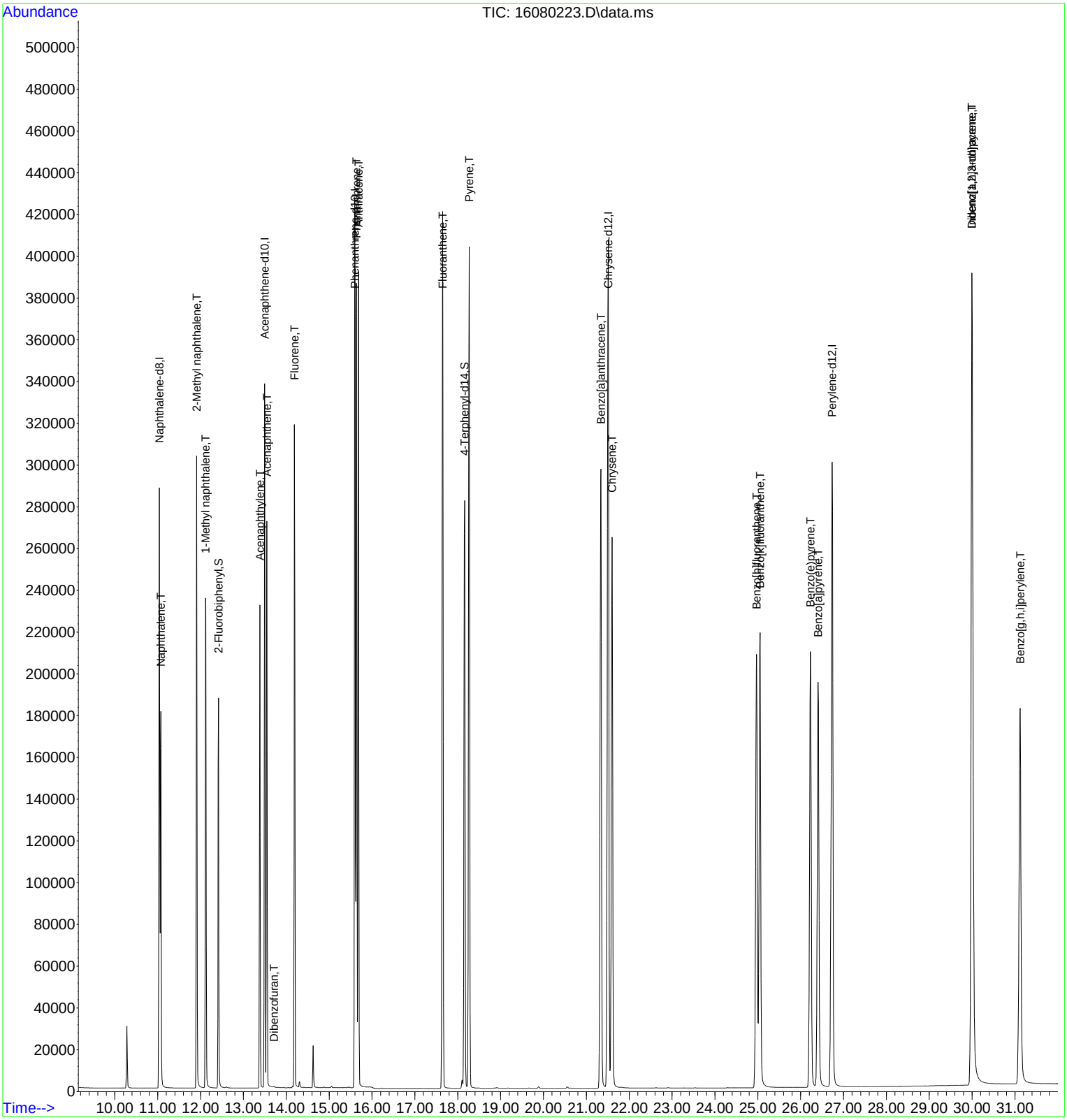
(#) = qualifier out of range (m) = manual integration (+) = signals summed

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

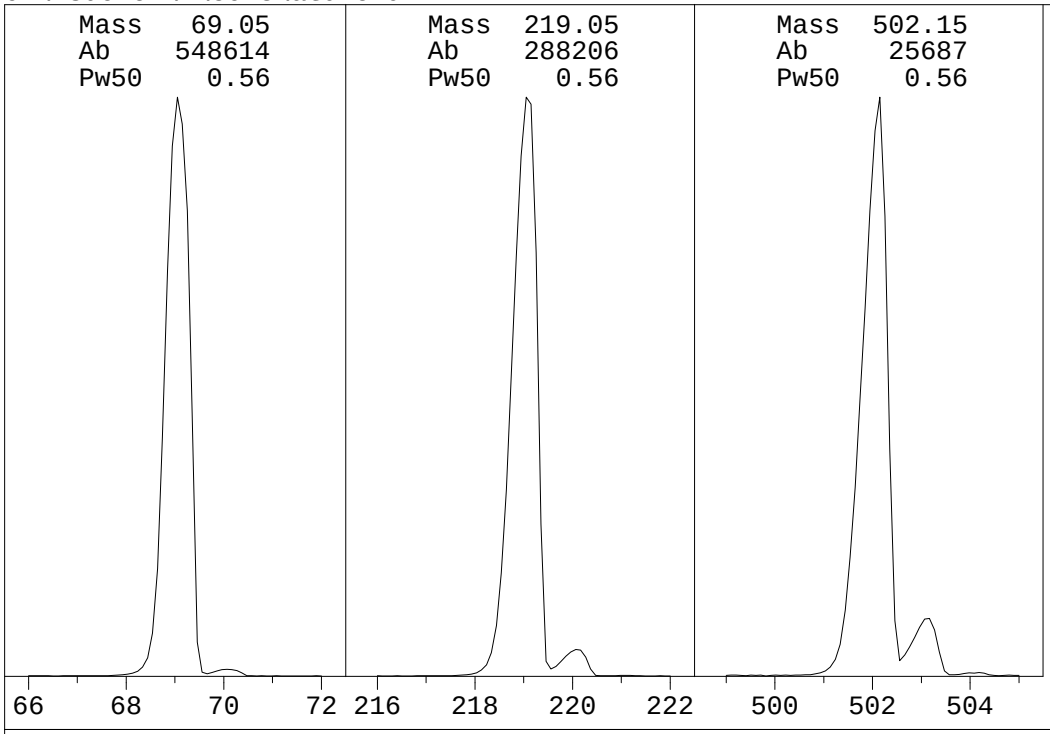
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160805**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160806-1**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160806-2**

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

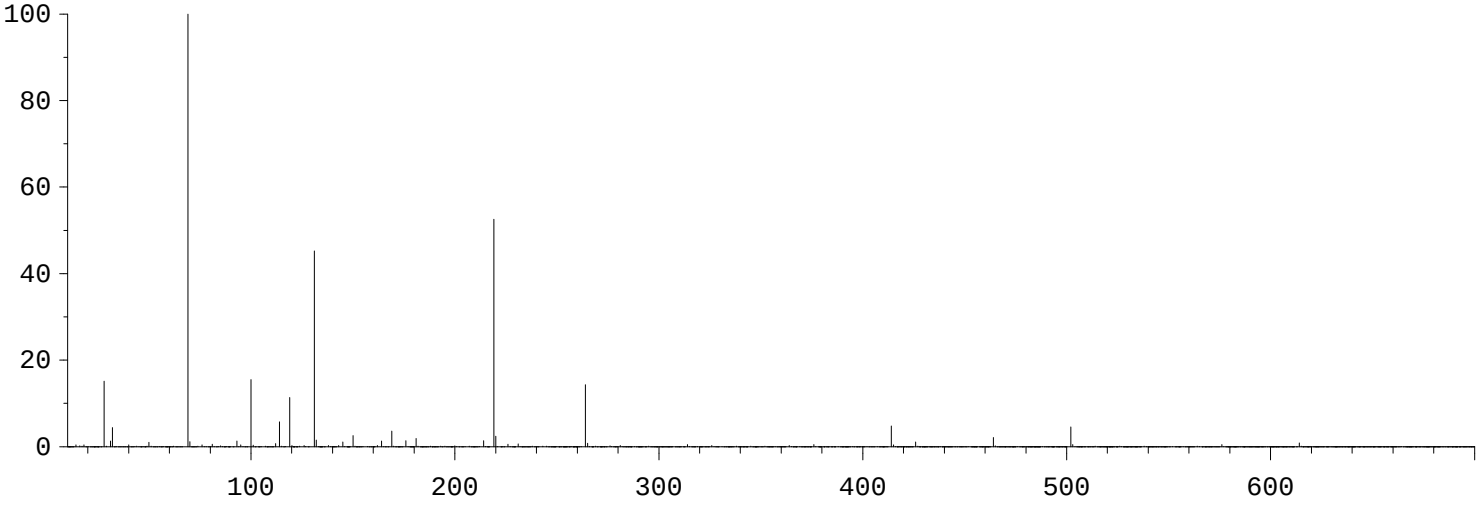


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2078
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	0.004
		DC Pol	NEG
Repeller	32.13		
IonFcus	101.5	HEDEnab	ON
EntLens	14.5	EMVolts	1271
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

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

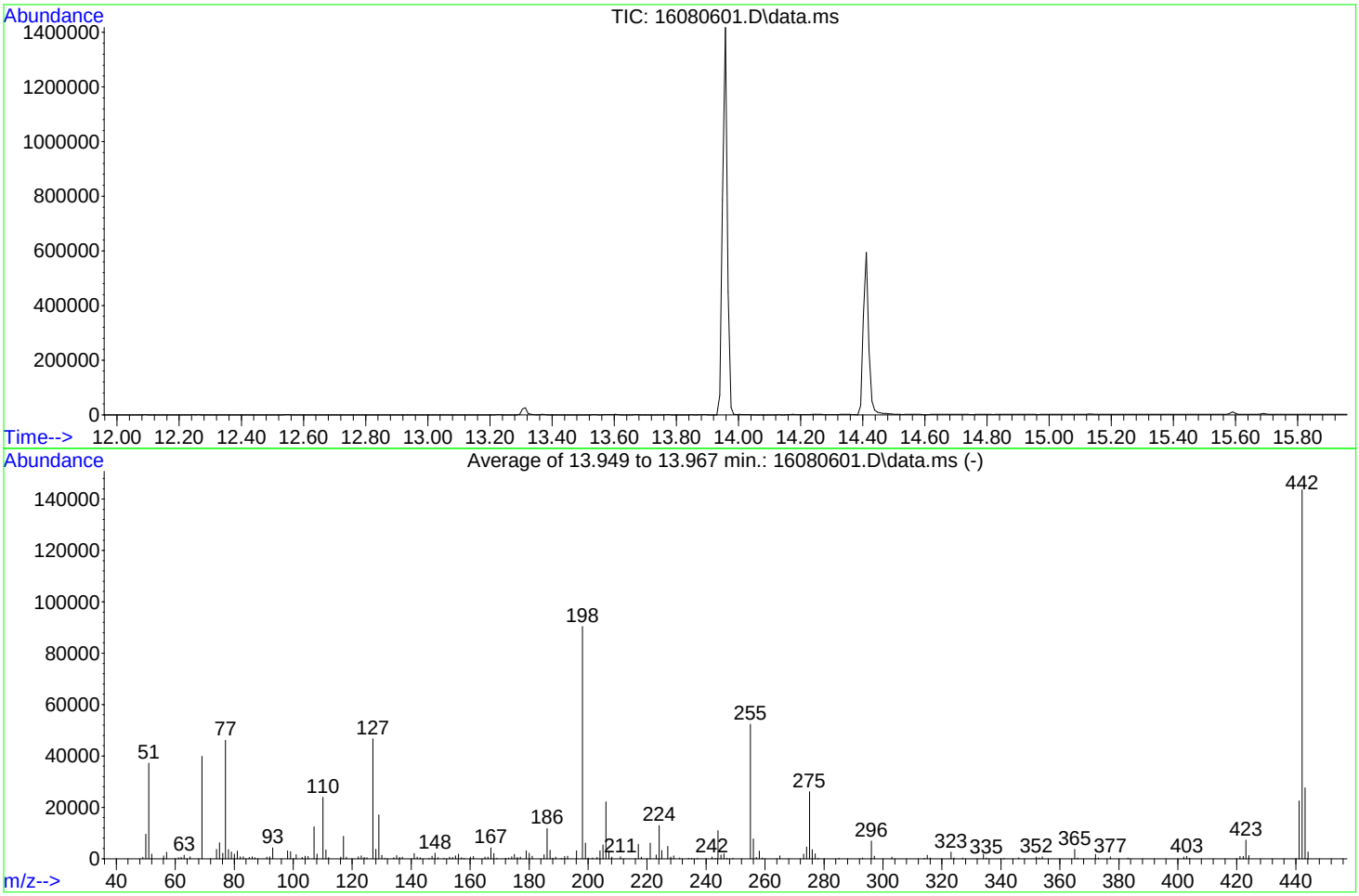
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

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

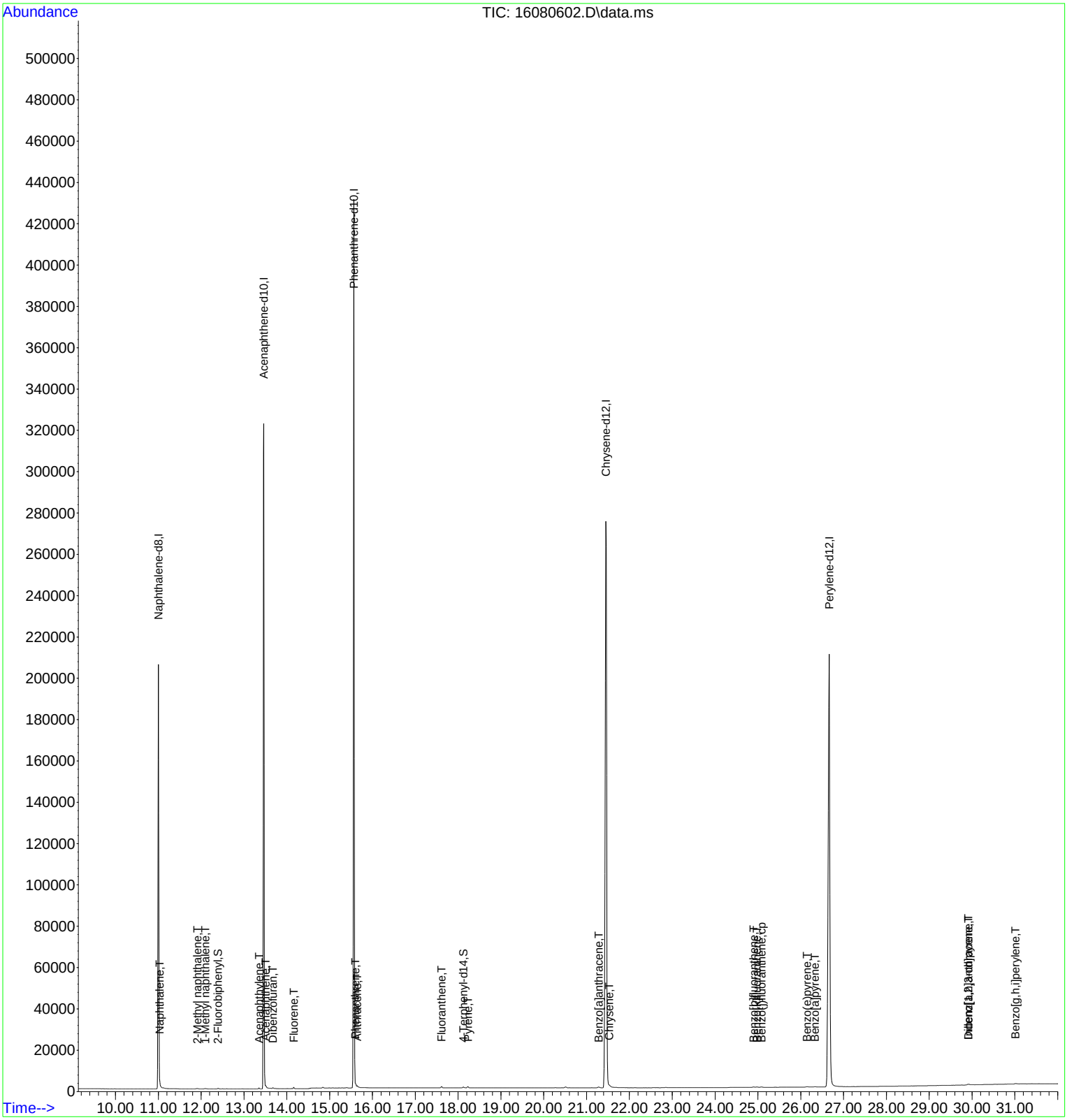
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	252361	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	178320	4000.00	ug/kg	110
11) Phenanthrene-d10	15.567	188	500638	4000.00	ug/kg	97
17) Chrysene-d12	21.448	240	428962	4000.00	ug/kg	93
20) Perylene-d12	26.664	264	384584	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

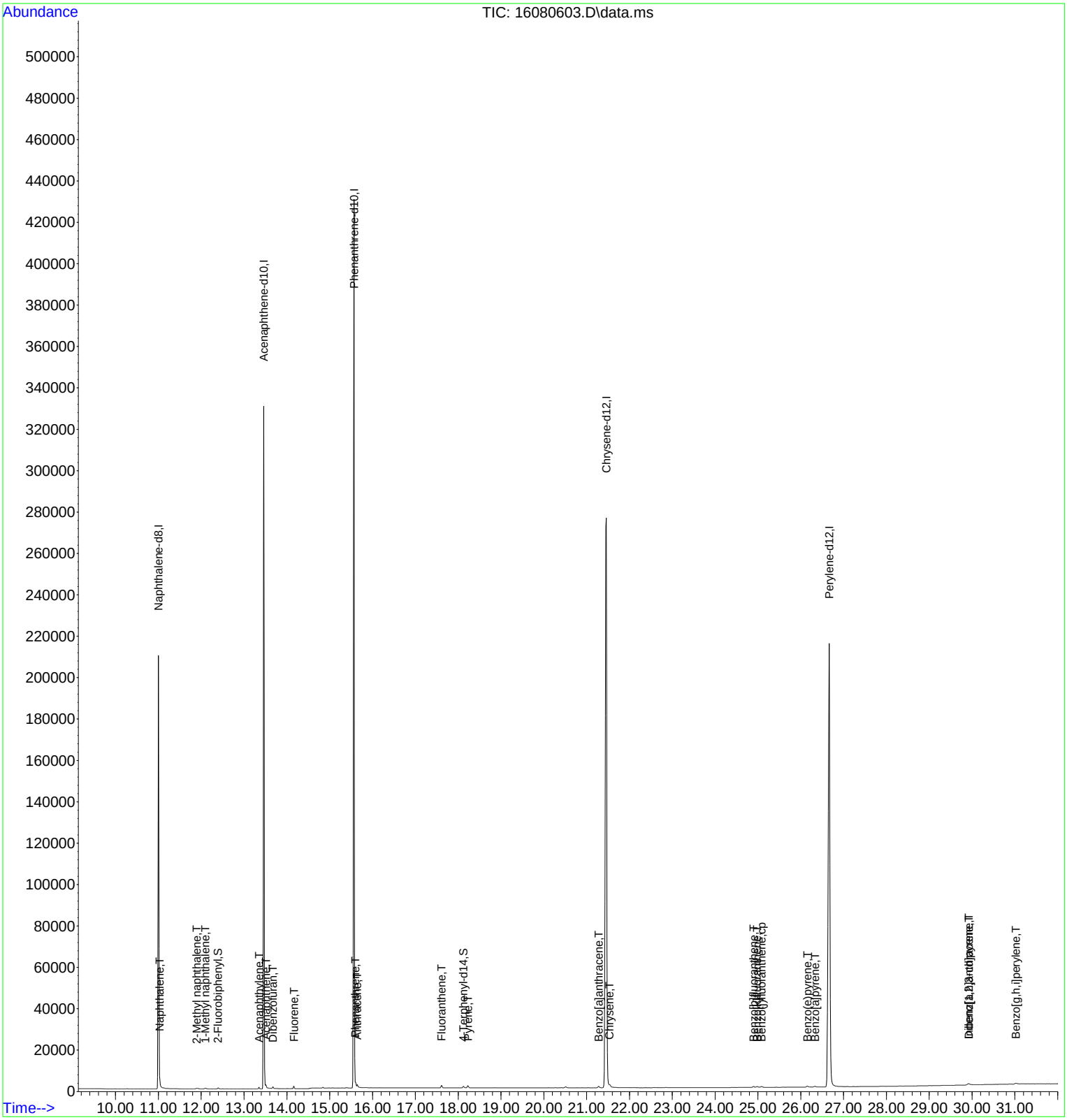
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	260907	4000.00	ug/kg	99
6) Acenaphthene-d10	13.462	164	173258	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	498791	4000.00	ug/kg	97
17) Chrysene-d12	21.457	240	438240	4000.00	ug/kg	95
20) Perylene-d12	26.663	264	396275	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

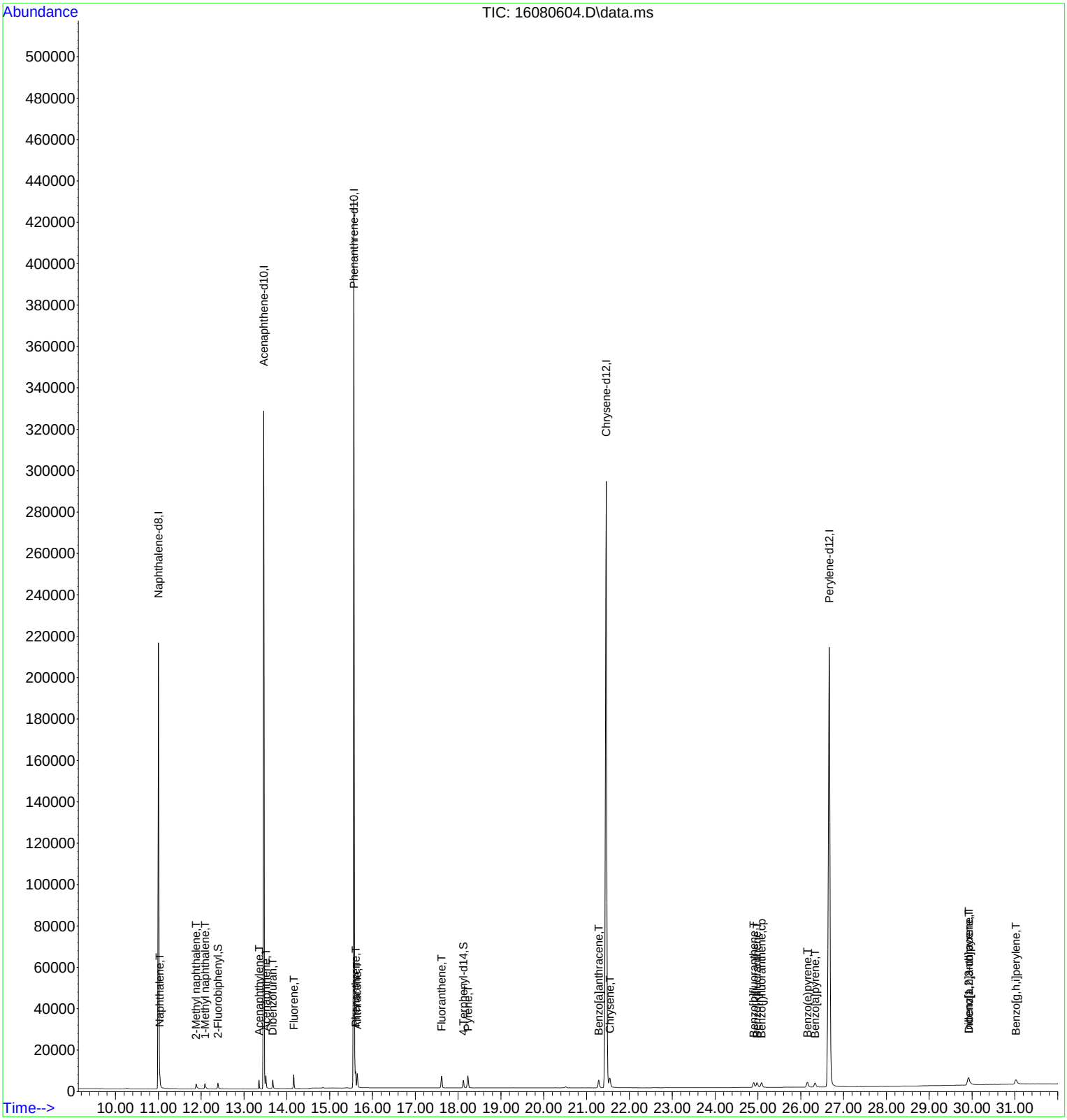
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	266813	4000.00	ug/kg	101
6) Acenaphthene-d10	13.462	164	173590	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	486221	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	442610	4000.00	ug/kg	96
20) Perylene-d12	26.663	264	397777	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

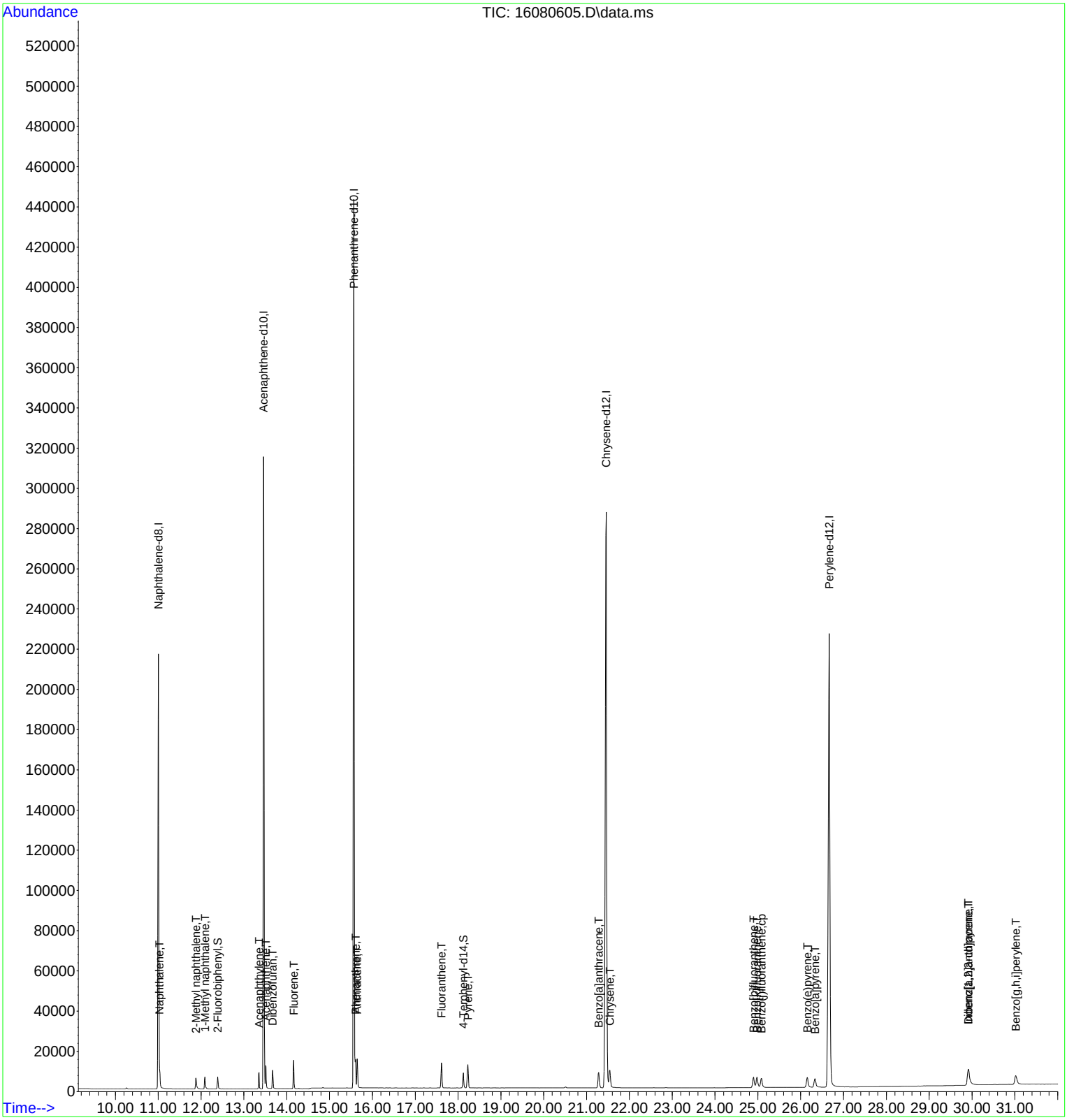
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.004	136	274991	4000.00	ug/kg	104
6) Acenaphthene-d10	13.458	164	178176	4000.00	ug/kg	110
11) Phenanthrene-d10	15.568	188	502679	4000.00	ug/kg	98
17) Chrysene-d12	21.458	240	453820	4000.00	ug/kg	98
20) Perylene-d12	26.664	264	411967	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%#			

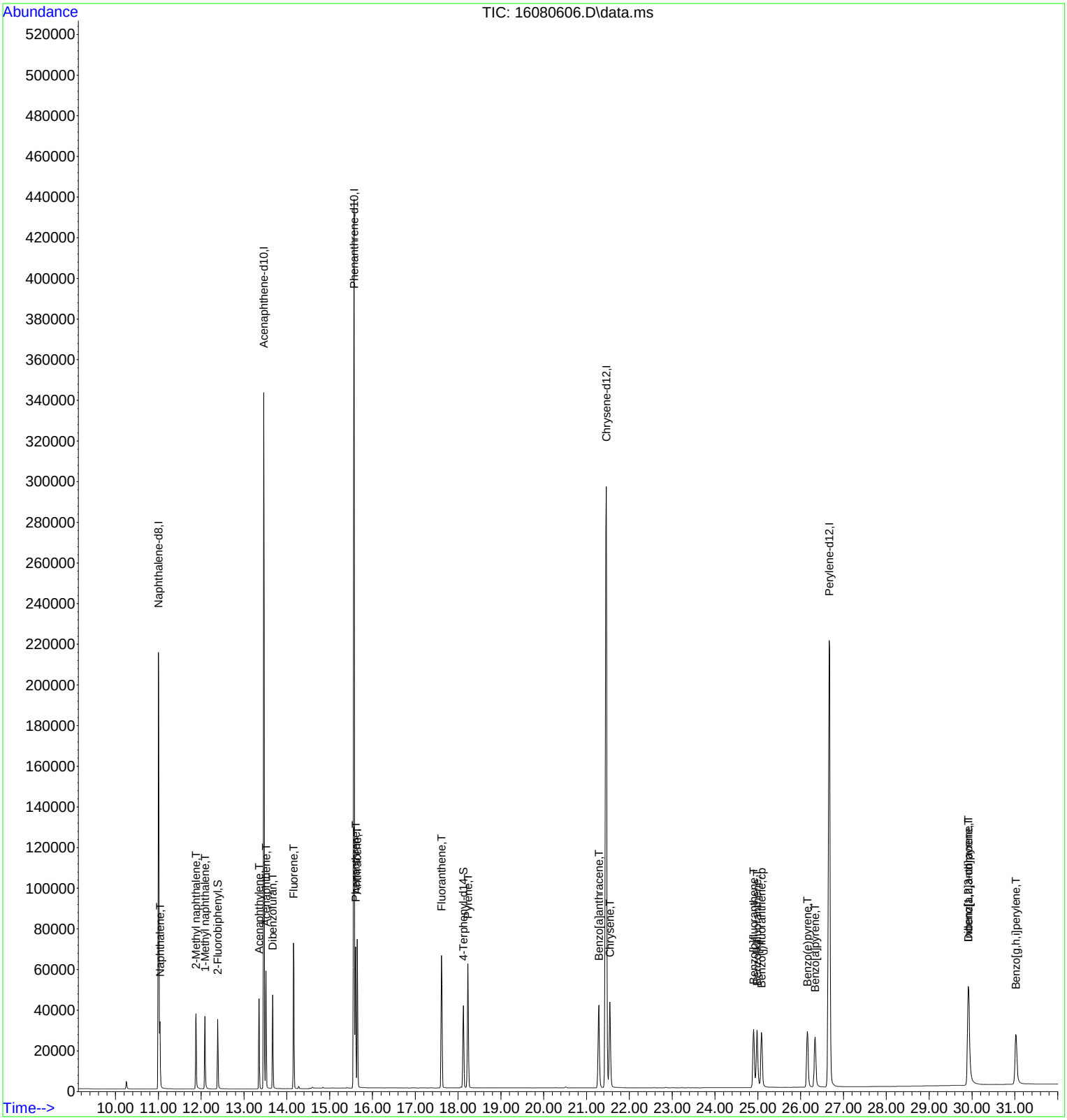
Target Compounds						Qvalue
2) Naphthalene	11.036	128	31957	481.49	ug/kg	100
3) 2-Methyl naphthalene	11.880	142	22525	497.88	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	20452	491.73	ug/kg	97
7) Acenaphthylene	13.348	152	39741	489.08	ug/kg	100
8) Acenaphthene	13.511	153	25750	484.90	ug/kg	98
9) Dibenzofuran	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

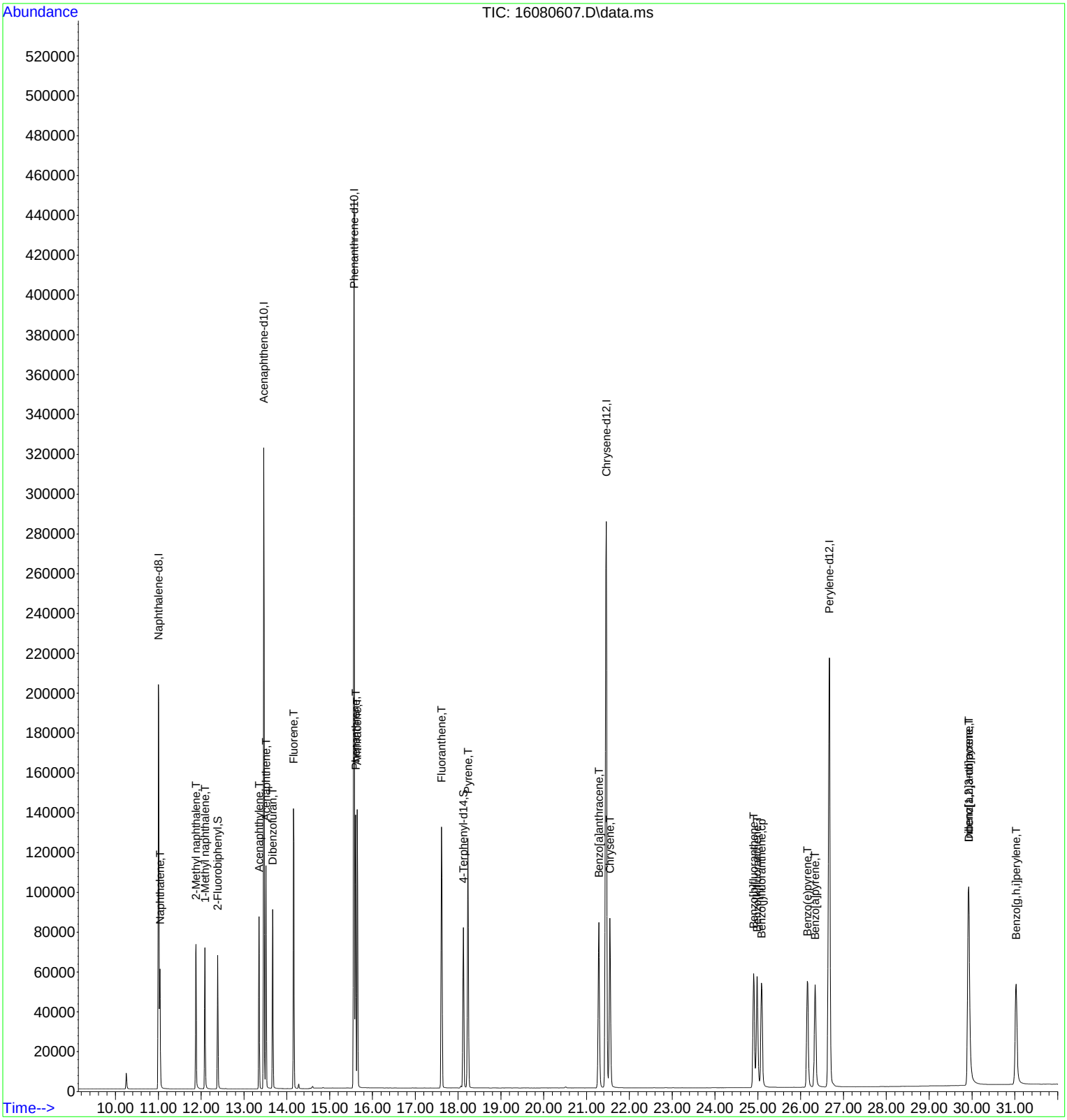
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	267822	4000.00	ug/kg	101
6) Acenaphthene-d10	13.461	164	166716	4000.00	ug/kg	103
11) Phenanthrene-d10	15.568	188	501021	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	446752	4000.00	ug/kg	97
20) Perylene-d12	26.674	264	404758	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%#			

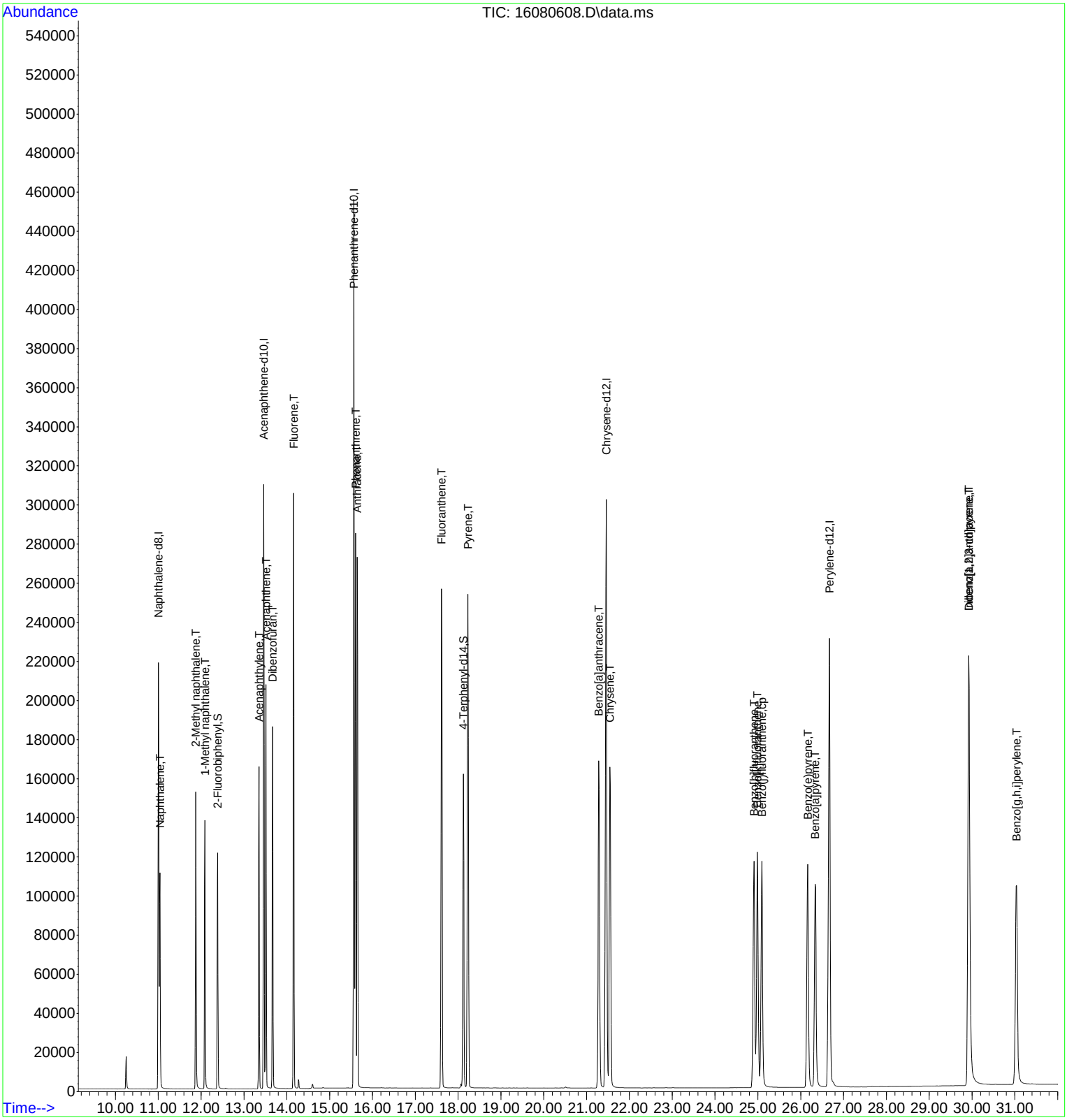
Target Compounds						Qvalue
2) Naphthalene	11.038	128	118524	1876.73	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	81602	1895.55	ug/kg	100
4) 1-Methyl naphthalene	12.088	142	73437	1855.59	ug/kg	100
7) Acenaphthylene	13.350	152	146166	1947.92	ug/kg	100
8) Acenaphthene	13.513	153	92949	1895.42	ug/kg	100
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

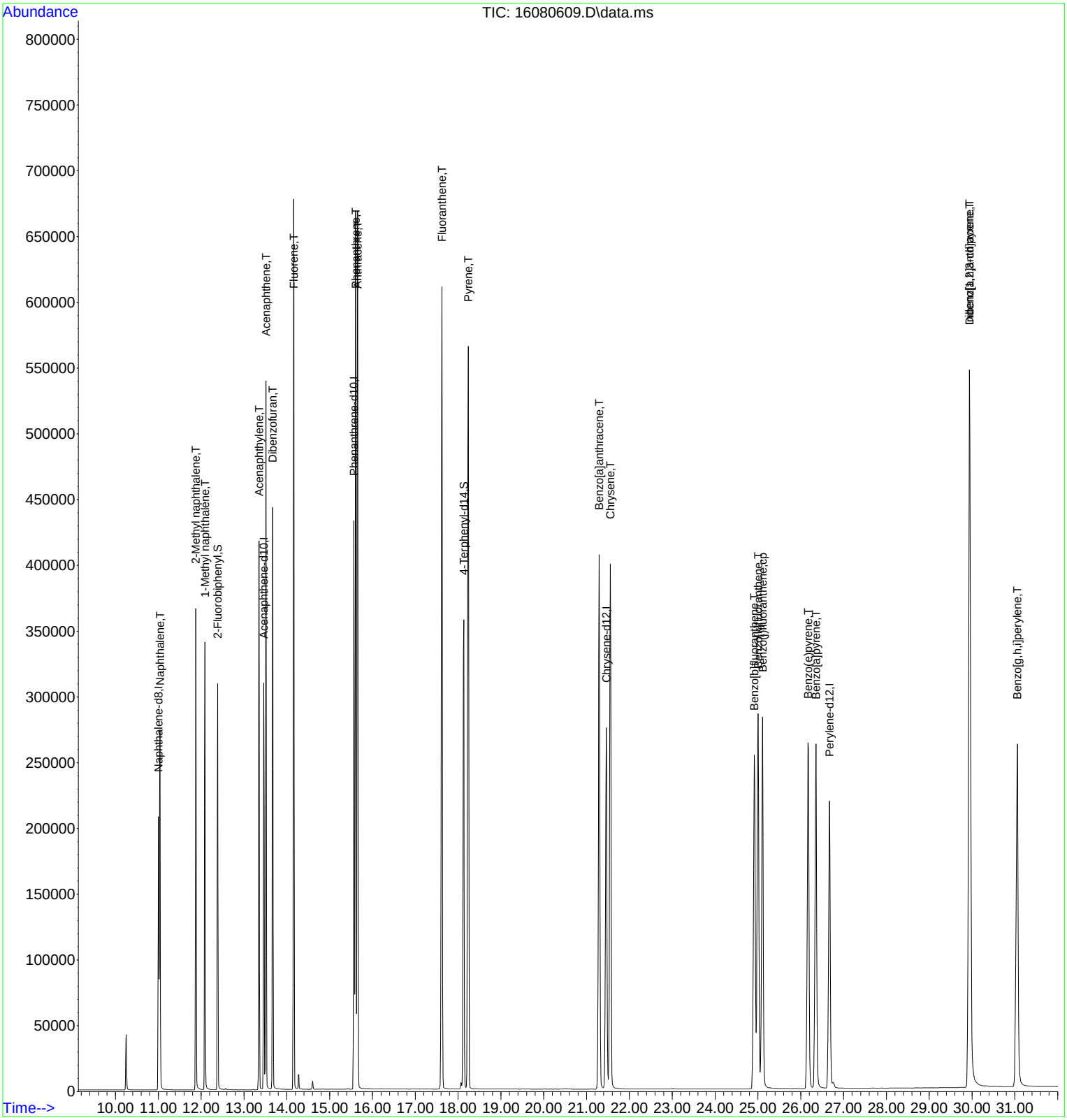
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	252241	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	159272	4000.00	ug/kg	98
11) Phenanthrene-d10	15.567	188	499657	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	432494	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	396956	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

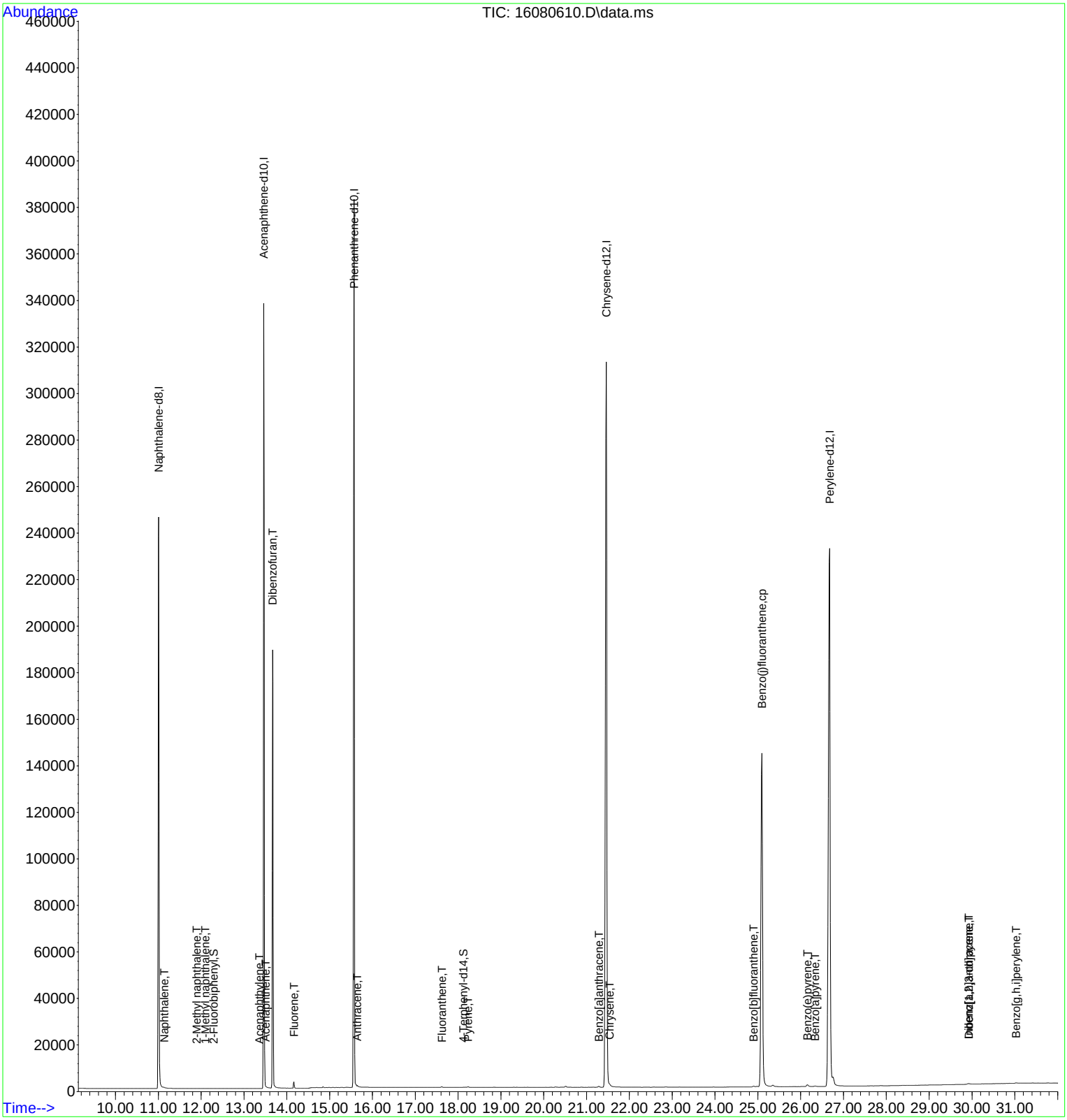
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.008	136	322112	4000.00	ug/kg	122
6) Acenaphthene-d10	13.462	164	171075	4000.00	ug/kg	105
11) Phenanthrene-d10	15.568	188	430799	4000.00	ug/kg	84
17) Chrysene-d12	21.459	240	477806	4000.00	ug/kg	103
20) Perylene-d12	26.674	264	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

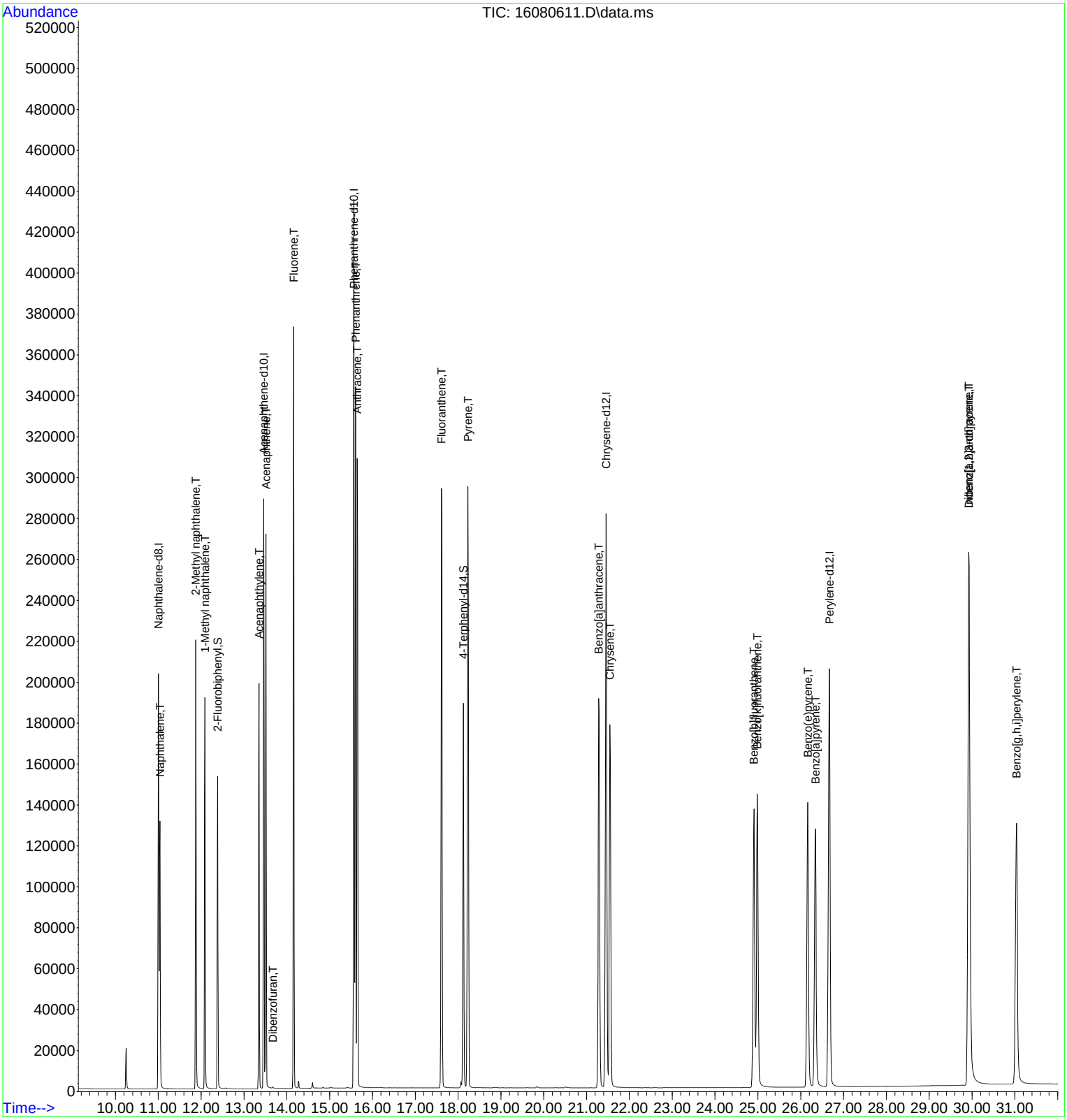
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	245742	4000.00	ug/kg	93
6) Acenaphthene-d10	13.464	164	154116	4000.00	ug/kg	95
11) Phenanthrene-d10	15.567	188	484926	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	430894	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	395276	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
1607265

ICP-MS3_160809A
For

DHL Work Order
1607265

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: **8/4/2016 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]

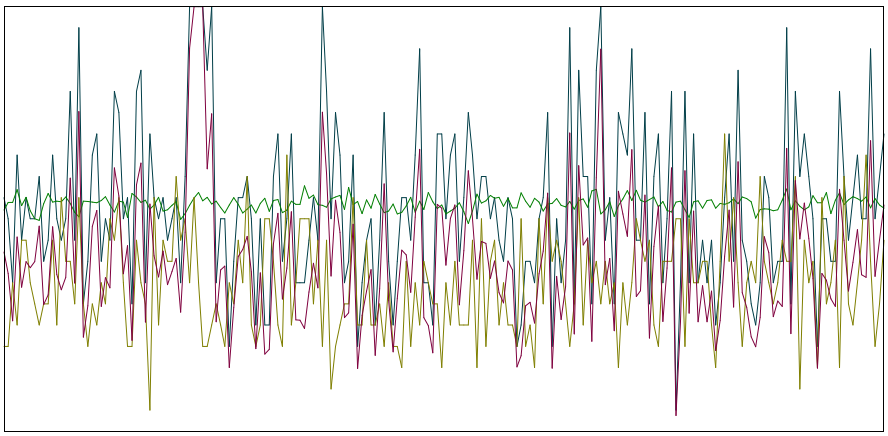
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
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

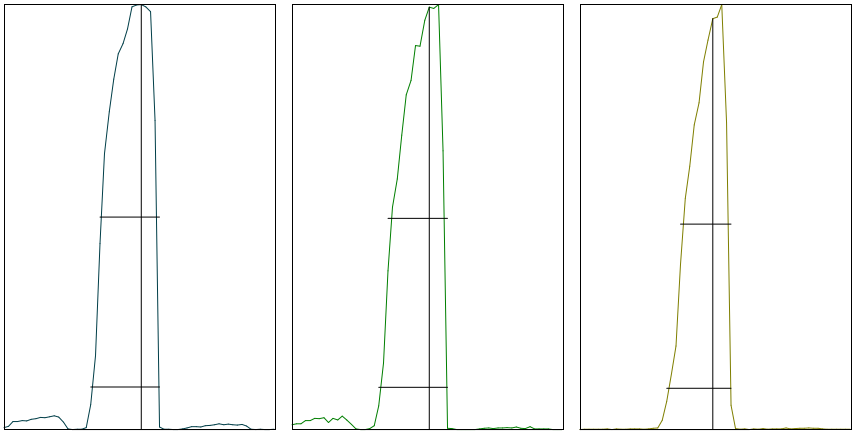
Tune Report

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				

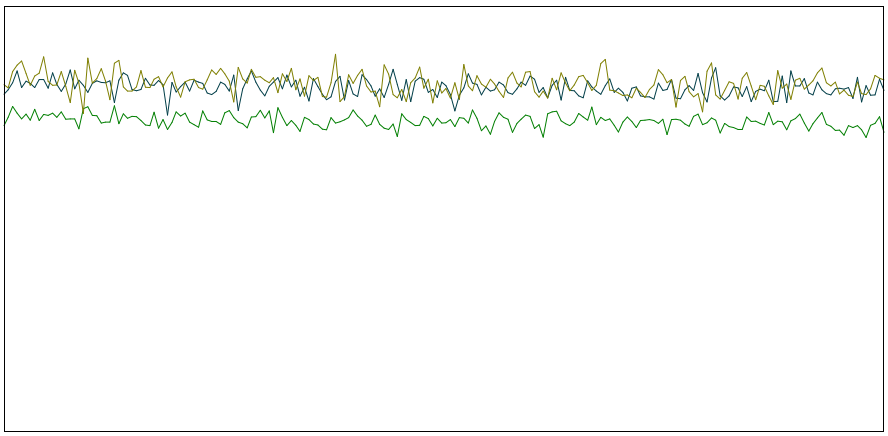
===Reaction Cell===

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

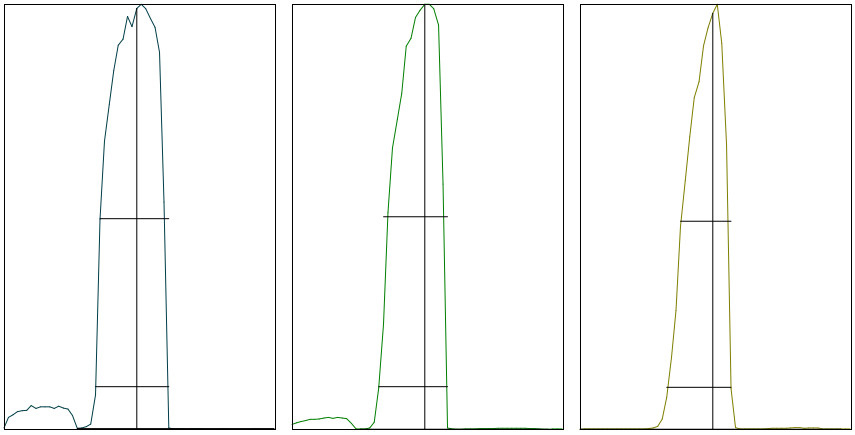
Tune Report

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===

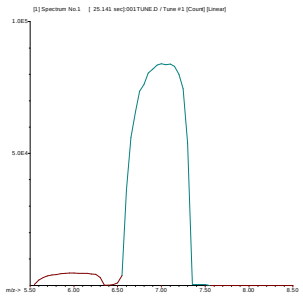
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

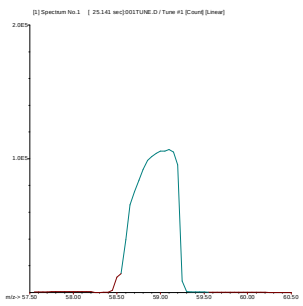
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

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	

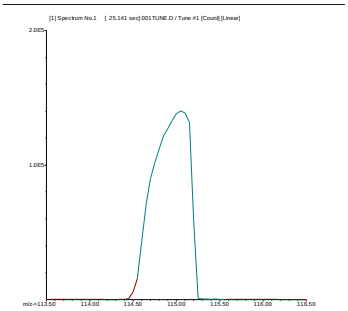


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



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



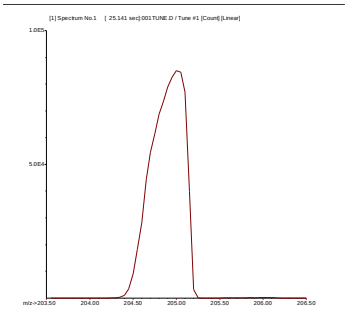
115 In

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:	

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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	

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	

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	

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\049SMPL.D\049SMPL.D#

Date Acquired:	Aug 9 2016 04:35 pm	Sample Name:	**1607265-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	50
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	9.425	ppb	#REF!	2.75	2000.00	>RL
9	Be	2	45	0.329	ppb	#REF!	4.36	2000.00	ND
11	B	2	45	11.790	ppb	#REF!	2.59	2000.00	J
23	Na	1	45	292.500	ppb	#REF!	1.11	25000.00	>RL
24	Mg	1	45	1536.000	ppb	#REF!	0.75	25000.00	>RL
27	Al	1	45	7372.000	ppb	#REF!	0.27	10000.00	>RL
39	K	1	45	1772.000	ppb	#REF!	0.75	25000.00	>RL
44	Ca	2	45	5272.000	ppb	#REF!	2.70	25000.00	>RL
47	Ti	1	45	23.870	ppb	#REF!	5.86	2000.00	>RL
51	V	1	45	11.400	ppb	#REF!	0.63	2000.00	>RL
52	Cr	1	45	7.593	ppb	#REF!	1.47	2000.00	J
55	Mn	1	45	64.090	ppb	#REF!	1.13	2000.00	>RL
56	Fe	1	72	6951.000	ppb	#REF!	1.29	10000.00	>RL
59	Co	1	72	2.808	ppb	#REF!	1.21	2000.00	J
60	Ni	1	72	4.627	ppb	#REF!	2.44	2000.00	J
63	Cu	1	72	3.090	ppb	#REF!	1.19	2000.00	J
66	Zn	1	72	25.760	ppb	#REF!	2.12	2000.00	>RL
75	As	1	72	5.454	ppb	#REF!	1.67	2000.00	>RL
78	Se	1	72	1.701	ppb	#REF!	12.58	2000.00	J
88	Sr	2	115	39.140	ppb	#REF!	1.52	2000.00	>RL
95	Mo	2	115	0.247	ppb	#REF!	12.13	2000.00	ND
107	Ag	2	115	0.039	ppb	#REF!	17.21	500.00	ND
111	Cd	2	115	0.123	ppb	#REF!	11.52	2000.00	ND
118	Sn	2	115	0.636	ppb	#REF!	2.44	2000.00	ND
121	Sb	2	115	2.920	ppb	#REF!	1.95	500.00	J
137	Ba	2	115	36.980	ppb	#REF!	2.18	2000.00	>RL
205	Tl	2	209	0.093	ppb	#REF!	9.35	2000.00	ND
208	Pb	2	209	278.100	ppb	#REF!	1.95	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-1773.31	10.33	RHigh	76.78	-2309.7	70 - 120	ISFail
45	Sc	1	148635.08	0.59		158070.19	94.0	70 - 120	
45	Sc	2	6767498.50	3.05		6406944.50	105.6	70 - 120	
72	Ge	1	85636.44	0.55		88651.82	96.6	70 - 120	
115	In	2	6656355.50	2.17		7384352.50	90.1	70 - 120	
209	Bi	2	4183688.80	1.33		5202967.00	80.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\050SMPL.D\050SMPL.D#

Date Acquired:	Aug 9 2016 04:41 pm	Sample Name:	**1607265-02A**
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	98.370	ppb	#REF!	1.45	2000.00	>RL
9	Be	2	45	3.060	ppb	#REF!	1.54	2000.00	>RL
11	B	2	45	99.150	ppb	#REF!	2.73	2000.00	>RL
23	Na	1	45	10610.000	ppb	#REF!	1.79	25000.00	>RL
24	Mg	1	45	18300.000	ppb	#REF!	2.13	25000.00	>RL
27	Al	1	45	77790.000	ppb	#REF!	2.43	10000.00	OUTCAL
39	K	1	45	15880.000	ppb	#REF!	0.50	25000.00	>RL
44	Ca	2	45	156800.000	ppb	#REF!	3.55	25000.00	OUTCAL
47	Ti	1	45	318.800	ppb	#REF!	0.78	2000.00	>RL
51	V	1	45	134.100	ppb	#REF!	0.16	2000.00	>RL
52	Cr	1	45	71.520	ppb	#REF!	1.21	2000.00	>RL
55	Mn	1	45	614.600	ppb	#REF!	0.79	2000.00	>RL
56	Fe	1	72	73370.000	ppb	#REF!	1.05	10000.00	OUTCAL
59	Co	1	72	29.600	ppb	#REF!	0.82	2000.00	>RL
60	Ni	1	72	49.830	ppb	#REF!	0.74	2000.00	>RL
63	Cu	1	72	24.460	ppb	#REF!	1.17	2000.00	>RL
66	Zn	1	72	200.700	ppb	#REF!	1.17	2000.00	>RL
75	As	1	72	26.370	ppb	#REF!	0.12	2000.00	>RL
78	Se	1	72	17.060	ppb	#REF!	5.88	2000.00	>RL
88	Sr	2	115	496.300	ppb	#REF!	2.47	2000.00	>RL
95	Mo	2	115	1.371	ppb	#REF!	4.51	2000.00	ND
107	Ag	2	115	0.171	ppb	#REF!	1.04	500.00	ND
111	Cd	2	115	1.289	ppb	#REF!	7.30	2000.00	>RL
118	Sn	2	115	6.383	ppb	#REF!	3.34	2000.00	ND
121	Sb	2	115	1.101	ppb	#REF!	3.91	500.00	ND
137	Ba	2	115	567.000	ppb	#REF!	2.24	2000.00	>RL
205	Tl	2	209	0.694	ppb	#REF!	1.04	2000.00	ND
208	Pb	2	209	64.430	ppb	#REF!	1.64	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18175.42	5.34	RHigh	76.78	-23673.3	70 - 120	ISFail
45	Sc	1	151449.72	0.64		158070.19	95.8	70 - 120	
45	Sc	2	6948776.00	2.67		6406944.50	108.5	70 - 120	
72	Ge	1	83657.07	0.40		88651.82	94.4	70 - 120	
115	In	2	6857523.50	2.23		7384352.50	92.9	70 - 120	
209	Bi	2	4079997.50	1.01		5202967.00	78.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\052SMPL.D\052SMPL.D#

Date Acquired:	Aug 9 2016 04:53 pm	Sample Name:	**1607265-03A**
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	101.400	ppb	#REF!	2.46	2000.00	>RL
9	Be	2	45	2.006	ppb	#REF!	2.73	2000.00	>RL
11	B	2	45	121.200	ppb	#REF!	3.54	2000.00	>RL
23	Na	1	45	11050.000	ppb	#REF!	1.35	25000.00	>RL
24	Mg	1	45	15280.000	ppb	#REF!	1.70	25000.00	>RL
27	Al	1	45	55490.000	ppb	#REF!	3.24	10000.00	OUTCAL
39	K	1	45	8616.000	ppb	#REF!	1.27	25000.00	>RL
44	Ca	2	45	358300.000	ppb	#REF!	3.15	25000.00	OUTCAL
47	Ti	1	45	233.100	ppb	#REF!	1.97	2000.00	>RL
51	V	1	45	112.700	ppb	#REF!	1.28	2000.00	>RL
52	Cr	1	45	52.450	ppb	#REF!	1.72	2000.00	>RL
55	Mn	1	45	395.300	ppb	#REF!	0.72	2000.00	>RL
56	Fe	1	72	55920.000	ppb	#REF!	1.14	10000.00	OUTCAL
59	Co	1	72	23.280	ppb	#REF!	1.85	2000.00	>RL
60	Ni	1	72	32.410	ppb	#REF!	0.59	2000.00	>RL
63	Cu	1	72	12.140	ppb	#REF!	1.32	2000.00	>RL
66	Zn	1	72	125.400	ppb	#REF!	0.54	2000.00	>RL
75	As	1	72	19.530	ppb	#REF!	0.97	2000.00	>RL
78	Se	1	72	11.740	ppb	#REF!	0.33	2000.00	>RL
88	Sr	2	115	1835.000	ppb	#REF!	2.30	2000.00	>RL
95	Mo	2	115	1.425	ppb	#REF!	5.41	2000.00	ND
107	Ag	2	115	0.103	ppb	#REF!	8.37	500.00	ND
111	Cd	2	115	0.888	ppb	#REF!	7.79	2000.00	J
118	Sn	2	115	5.933	ppb	#REF!	1.94	2000.00	ND
121	Sb	2	115	0.312	ppb	#REF!	2.69	500.00	ND
137	Ba	2	115	1946.000	ppb	#REF!	1.82	2000.00	>RL
205	Tl	2	209	0.473	ppb	#REF!	0.90	2000.00	ND
208	Pb	2	209	37.180	ppb	#REF!	2.35	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-22220.23	2.72	76.78	-28941.6	70 - 120	ISFail
45	Sc	1	157866.86	0.66	158070.19	99.9	70 - 120	
45	Sc	2	7345671.50	2.39	6406944.50	114.7	70 - 120	
72	Ge	1	86464.97	1.08	88651.82	97.5	70 - 120	
115	In	2	7553076.50	2.97	7384352.50	102.3	70 - 120	
209	Bi	2	4354664.50	1.23	5202967.00	83.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\053SMPL.D\053SMPL.D#

Date Acquired:	Aug 9 2016 04:58 pm	Sample Name:	**1607265-04A**
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	67.480	ppb	#REF!	3.85	2000.00	>RL
9	Be	2	45	1.744	ppb	#REF!	4.82	2000.00	>RL
11	B	2	45	121.900	ppb	#REF!	3.86	2000.00	>RL
23	Na	1	45	9572.000	ppb	#REF!	0.96	25000.00	>RL
24	Mg	1	45	9331.000	ppb	#REF!	1.61	25000.00	>RL
27	Al	1	45	35960.000	ppb	#REF!	1.16	10000.00	OUTCAL
39	K	1	45	5877.000	ppb	#REF!	0.46	25000.00	>RL
44	Ca	2	45	294700.000	ppb	#REF!	4.56	25000.00	OUTCAL
47	Ti	1	45	121.000	ppb	#REF!	0.67	2000.00	>RL
51	V	1	45	69.450	ppb	#REF!	1.57	2000.00	>RL
52	Cr	1	45	38.000	ppb	#REF!	1.19	2000.00	>RL
55	Mn	1	45	174.500	ppb	#REF!	1.29	2000.00	>RL
56	Fe	1	72	61150.000	ppb	#REF!	1.04	10000.00	OUTCAL
59	Co	1	72	14.770	ppb	#REF!	1.44	2000.00	>RL
60	Ni	1	72	19.410	ppb	#REF!	0.45	2000.00	>RL
63	Cu	1	72	6.612	ppb	#REF!	2.03	2000.00	J
66	Zn	1	72	74.980	ppb	#REF!	1.62	2000.00	>RL
75	As	1	72	26.430	ppb	#REF!	1.36	2000.00	>RL
78	Se	1	72	7.928	ppb	#REF!	3.58	2000.00	>RL
88	Sr	2	115	2453.000	ppb	#REF!	3.02	2000.00	OUTCAL
95	Mo	2	115	3.756	ppb	#REF!	3.08	2000.00	J
107	Ag	2	115	0.073	ppb	#REF!	5.77	500.00	ND
111	Cd	2	115	0.559	ppb	#REF!	8.23	2000.00	J
118	Sn	2	115	5.374	ppb	#REF!	3.27	2000.00	ND
121	Sb	2	115	0.324	ppb	#REF!	6.20	500.00	ND
137	Ba	2	115	361.900	ppb	#REF!	3.48	2000.00	>RL
205	Tl	2	209	0.300	ppb	#REF!	3.94	2000.00	ND
208	Pb	2	209	34.120	ppb	#REF!	3.50	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14064.53	4.90	76.78	-18318.9	70 - 120	ISFail
45	Sc	1	155998.03	0.55	158070.19	98.7	70 - 120	
45	Sc	2	7311448.50	4.87	6406944.50	114.1	70 - 120	
72	Ge	1	83891.07	0.72	88651.82	94.6	70 - 120	
115	In	2	7377669.00	3.63	7384352.50	99.9	70 - 120	
209	Bi	2	4260680.50	2.87	5202967.00	81.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\054SMPL.D\054SMPL.D#

Date Acquired:	Aug 9 2016 05:04 pm	Sample Name:	**1607265-05A**
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	73.470	ppb	#REF!	3.15	2000.00	>RL
9	Be	2	45	2.635	ppb	#REF!	3.78	2000.00	>RL
11	B	2	45	69.040	ppb	#REF!	2.40	2000.00	>RL
23	Na	1	45	1903.000	ppb	#REF!	1.05	25000.00	>RL
24	Mg	1	45	12860.000	ppb	#REF!	1.21	25000.00	>RL
27	Al	1	45	64620.000	ppb	#REF!	2.54	10000.00	OUTCAL
39	K	1	45	16180.000	ppb	#REF!	0.83	25000.00	>RL
44	Ca	2	45	26270.000	ppb	#REF!	3.21	25000.00	OUTCAL
47	Ti	1	45	228.400	ppb	#REF!	2.51	2000.00	>RL
51	V	1	45	95.940	ppb	#REF!	0.23	2000.00	>RL
52	Cr	1	45	60.970	ppb	#REF!	1.05	2000.00	>RL
55	Mn	1	45	560.600	ppb	#REF!	1.41	2000.00	>RL
56	Fe	1	72	61420.000	ppb	#REF!	1.58	10000.00	OUTCAL
59	Co	1	72	24.870	ppb	#REF!	0.78	2000.00	>RL
60	Ni	1	72	38.500	ppb	#REF!	1.48	2000.00	>RL
63	Cu	1	72	26.890	ppb	#REF!	0.38	2000.00	>RL
66	Zn	1	72	205.100	ppb	#REF!	0.43	2000.00	>RL
75	As	1	72	31.720	ppb	#REF!	0.15	2000.00	>RL
78	Se	1	72	15.310	ppb	#REF!	3.02	2000.00	>RL
88	Sr	2	115	250.200	ppb	#REF!	2.46	2000.00	>RL
95	Mo	2	115	1.722	ppb	#REF!	3.88	2000.00	ND
107	Ag	2	115	0.219	ppb	#REF!	7.42	500.00	ND
111	Cd	2	115	1.058	ppb	#REF!	5.85	2000.00	J
118	Sn	2	115	6.124	ppb	#REF!	2.04	2000.00	ND
121	Sb	2	115	12.090	ppb	#REF!	1.19	500.00	>RL
137	Ba	2	115	299.000	ppb	#REF!	2.16	2000.00	>RL
205	Tl	2	209	0.576	ppb	#REF!	4.36	2000.00	ND
208	Pb	2	209	1173.000	ppb	#REF!	1.49	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14572.99	0.70	76.78	-18981.2	70 - 120	ISFail
45	Sc	1	156310.30	1.06	158070.19	98.9	70 - 120	
45	Sc	2	7209571.50	2.39	6406944.50	112.5	70 - 120	
72	Ge	1	86268.92	0.69	88651.82	97.3	70 - 120	
115	In	2	6980505.50	2.03	7384352.50	94.5	70 - 120	
209	Bi	2	4333000.00	1.40	5202967.00	83.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\055SMPL.D\055SMPL.D#

Date Acquired:	Aug 9 2016 05:10 pm	Sample Name:	**1607265-06A**
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	97.020	ppb	#REF!	2.54	2000.00	>RL
9	Be	2	45	3.133	ppb	#REF!	2.26	2000.00	>RL
11	B	2	45	92.620	ppb	#REF!	3.19	2000.00	>RL
23	Na	1	45	10150.000	ppb	#REF!	1.88	25000.00	>RL
24	Mg	1	45	18610.000	ppb	#REF!	0.61	25000.00	>RL
27	Al	1	45	80750.000	ppb	#REF!	1.26	10000.00	OUTCAL
39	K	1	45	17210.000	ppb	#REF!	2.53	25000.00	>RL
44	Ca	2	45	132400.000	ppb	#REF!	3.04	25000.00	OUTCAL
47	Ti	1	45	312.700	ppb	#REF!	0.54	2000.00	>RL
51	V	1	45	134.000	ppb	#REF!	1.09	2000.00	>RL
52	Cr	1	45	74.570	ppb	#REF!	0.79	2000.00	>RL
55	Mn	1	45	612.600	ppb	#REF!	1.09	2000.00	>RL
56	Fe	1	72	75580.000	ppb	#REF!	1.59	10000.00	OUTCAL
59	Co	1	72	29.090	ppb	#REF!	0.92	2000.00	>RL
60	Ni	1	72	50.920	ppb	#REF!	1.08	2000.00	>RL
63	Cu	1	72	24.590	ppb	#REF!	1.16	2000.00	>RL
66	Zn	1	72	205.700	ppb	#REF!	1.20	2000.00	>RL
75	As	1	72	23.810	ppb	#REF!	1.49	2000.00	>RL
78	Se	1	72	17.210	ppb	#REF!	4.99	2000.00	>RL
88	Sr	2	115	473.700	ppb	#REF!	2.10	2000.00	>RL
95	Mo	2	115	1.385	ppb	#REF!	6.39	2000.00	ND
107	Ag	2	115	0.184	ppb	#REF!	1.86	500.00	ND
111	Cd	2	115	1.242	ppb	#REF!	6.15	2000.00	>RL
118	Sn	2	115	6.118	ppb	#REF!	1.70	2000.00	ND
121	Sb	2	115	0.532	ppb	#REF!	2.32	500.00	ND
137	Ba	2	115	1395.000	ppb	#REF!	2.28	2000.00	>RL
205	Tl	2	209	0.717	ppb	#REF!	3.66	2000.00	ND
208	Pb	2	209	41.560	ppb	#REF!	2.39	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19908.92	2.63	76.78	-25931.2	70 - 120	ISFail
45	Sc	1	153522.45	0.92	158070.19	97.1	70 - 120	
45	Sc	2	7184782.00	3.03	6406944.50	112.1	70 - 120	
72	Ge	1	85267.15	0.77	88651.82	96.2	70 - 120	
115	In	2	7166048.00	2.32	7384352.50	97.0	70 - 120	
209	Bi	2	4241442.00	2.10	5202967.00	81.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\056SMPL.D\056SMPL.D#

Date Acquired:	Aug 9 2016 05:16 pm	Sample Name:	**1607265-07A**
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	98.450	ppb	#REF!	1.95	2000.00	>RL
9	Be	2	45	1.914	ppb	#REF!	2.49	2000.00	>RL
11	B	2	45	117.500	ppb	#REF!	1.68	2000.00	>RL
23	Na	1	45	11670.000	ppb	#REF!	2.00	25000.00	>RL
24	Mg	1	45	14920.000	ppb	#REF!	1.89	25000.00	>RL
27	Al	1	45	55160.000	ppb	#REF!	2.44	10000.00	OUTCAL
39	K	1	45	9005.000	ppb	#REF!	1.97	25000.00	>RL
44	Ca	2	45	323000.000	ppb	#REF!	3.31	25000.00	OUTCAL
47	Ti	1	45	209.100	ppb	#REF!	3.24	2000.00	>RL
51	V	1	45	102.600	ppb	#REF!	1.25	2000.00	>RL
52	Cr	1	45	54.220	ppb	#REF!	2.19	2000.00	>RL
55	Mn	1	45	410.100	ppb	#REF!	1.97	2000.00	>RL
56	Fe	1	72	52170.000	ppb	#REF!	1.52	10000.00	OUTCAL
59	Co	1	72	19.600	ppb	#REF!	1.62	2000.00	>RL
60	Ni	1	72	29.660	ppb	#REF!	0.36	2000.00	>RL
63	Cu	1	72	11.820	ppb	#REF!	1.27	2000.00	>RL
66	Zn	1	72	118.600	ppb	#REF!	0.79	2000.00	>RL
75	As	1	72	18.580	ppb	#REF!	0.84	2000.00	>RL
78	Se	1	72	12.100	ppb	#REF!	3.37	2000.00	>RL
88	Sr	2	115	978.400	ppb	#REF!	2.38	2000.00	>RL
95	Mo	2	115	1.720	ppb	#REF!	1.53	2000.00	ND
107	Ag	2	115	0.106	ppb	#REF!	2.15	500.00	ND
111	Cd	2	115	0.912	ppb	#REF!	9.54	2000.00	J
118	Sn	2	115	5.895	ppb	#REF!	2.18	2000.00	ND
121	Sb	2	115	0.361	ppb	#REF!	4.43	500.00	ND
137	Ba	2	115	1476.000	ppb	#REF!	2.80	2000.00	>RL
205	Tl	2	209	0.447	ppb	#REF!	5.05	2000.00	ND
208	Pb	2	209	35.930	ppb	#REF!	1.94	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-20116.60	2.88	76.78	-26201.7	70 - 120	ISFail
45	Sc	1	147561.11	0.63	158070.19	93.4	70 - 120	
45	Sc	2	7121882.50	3.04	6406944.50	111.2	70 - 120	
72	Ge	1	81674.85	0.76	88651.82	92.1	70 - 120	
115	In	2	7236078.00	2.63	7384352.50	98.0	70 - 120	
209	Bi	2	4214259.50	2.00	5202967.00	81.0	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	RHigh	-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	

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
1607265

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]

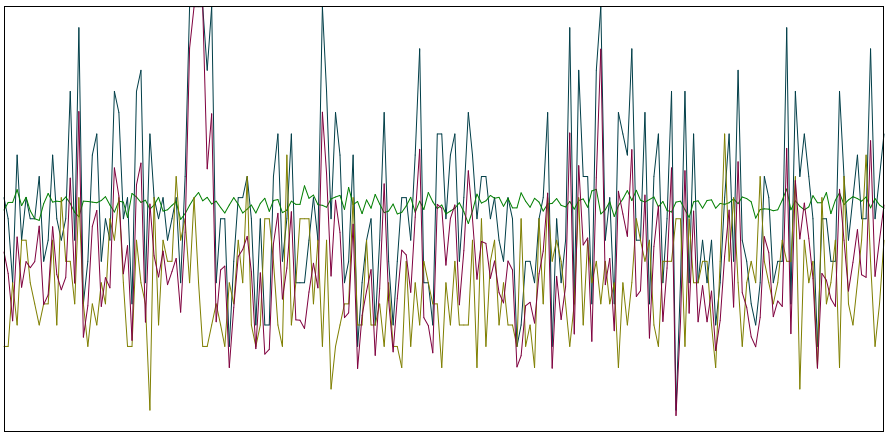
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
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

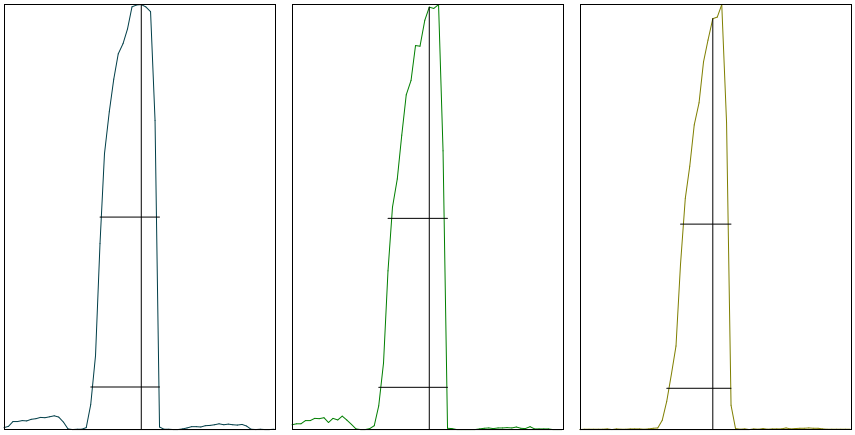
Tune Report

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				

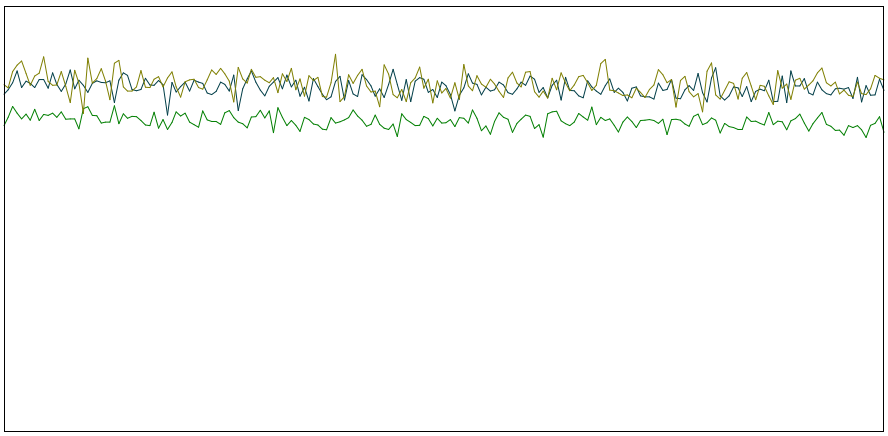
===Reaction Cell===

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

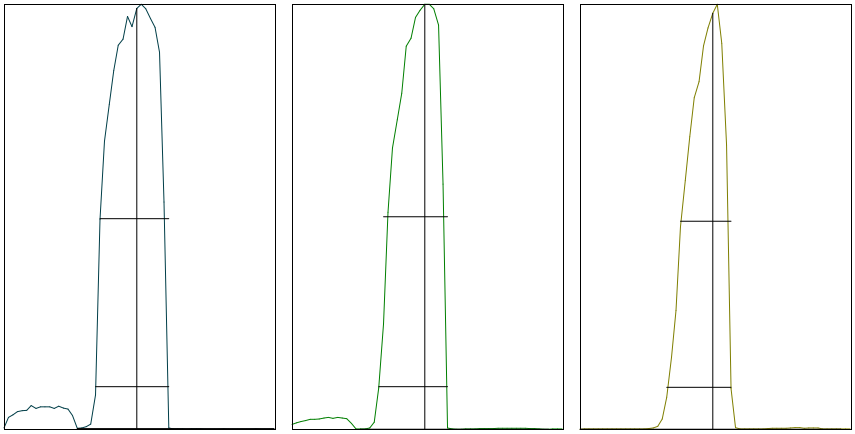
Tune Report

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===

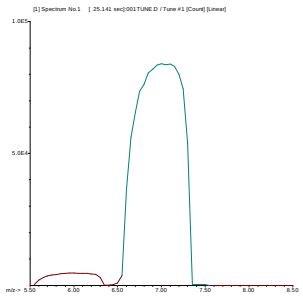
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

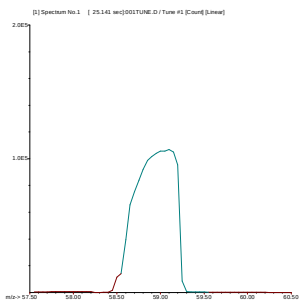
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

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	

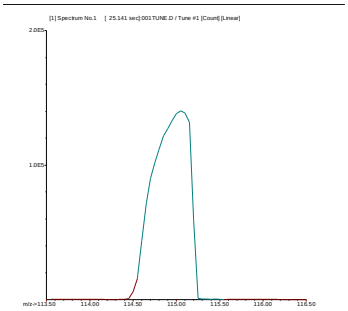


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



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

REVIEWED BY
By Janice Whitt at 2:24:52 PM, 8/10/2016



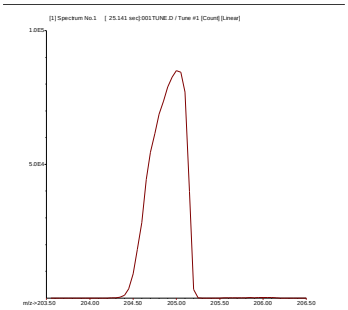
115 In

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:	

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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\128SMPL.D\128SMPL.D#

Date Acquired:	Aug 10 2016 12:21 am	Sample Name:	**1607265-13A**
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	0.076	ppb	#REF!	8.94	2000.00	ND
9	Be	2	45	-0.012	ppb	#REF!	10.83	2000.00	ND
11	B	2	45	15.690	ppb	#REF!	1.35	2000.00	J
23	Na	1	45	89.550	ppb	#REF!	0.78	25000.00	ND
24	Mg	1	45	13.610	ppb	#REF!	5.26	25000.00	ND
27	Al	1	45	21.730	ppb	#REF!	3.79	10000.00	J
39	K	1	45	18.530	ppb	#REF!	3.98	25000.00	ND
44	Ca	2	45	69.260	ppb	#REF!	5.01	25000.00	ND
47	Ti	1	45	0.083	ppb	#REF!	65.47	2000.00	ND
51	V	1	45	0.089	ppb	#REF!	2.74	2000.00	ND
52	Cr	1	45	-0.041	ppb	#REF!	8.54	2000.00	ND
55	Mn	1	45	0.092	ppb	#REF!	10.85	2000.00	ND
56	Fe	1	72	2.559	ppb	#REF!	13.18	10000.00	ND
59	Co	1	72	-0.006	ppb	#REF!	38.19	2000.00	ND
60	Ni	1	72	0.122	ppb	#REF!	6.59	2000.00	ND
63	Cu	1	72	0.426	ppb	#REF!	2.21	2000.00	ND
66	Zn	1	72	1.500	ppb	#REF!	2.26	2000.00	ND
75	As	1	72	-0.026	ppb	#REF!	3.14	2000.00	ND
78	Se	1	72	0.127	ppb	#REF!	13.73	2000.00	ND
88	Sr	2	115	0.785	ppb	#REF!	3.60	2000.00	ND
95	Mo	2	115	-0.004	ppb	#REF!	42.71	2000.00	ND
107	Ag	2	115	0.006	ppb	#REF!	8.27	500.00	ND
111	Cd	2	115	-0.010	ppb	#REF!	68.94	2000.00	ND
118	Sn	2	115	0.038	ppb	#REF!	8.56	2000.00	ND
121	Sb	2	115	0.019	ppb	#REF!	12.13	500.00	ND
137	Ba	2	115	0.118	ppb	#REF!	11.02	2000.00	ND
205	Tl	2	209	0.017	ppb	#REF!	3.76	2000.00	ND
208	Pb	2	209	0.014	ppb	#REF!	11.31	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6.71	415.42	RHigh	76.78	-8.7	70 - 120	ISFail
45	Sc	1	130880.05	1.55		158070.19	82.8	70 - 120	
45	Sc	2	5721626.00	1.56		6406944.50	89.3	70 - 120	
72	Ge	1	71551.29	1.02		88651.82	80.7	70 - 120	
115	In	2	6327703.00	1.13		7384352.50	85.7	70 - 120	
209	Bi	2	4646736.00	1.75		5202967.00	89.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\129SMPL.D\129SMPL.D#

Date Acquired:	Aug 10 2016 12:28 am	Sample Name:	**1607265-26A**
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	0.085	ppb	#REF!	3.20	2000.00	ND
9	Be	2	45	-0.008	ppb	#REF!	4.33	2000.00	ND
11	B	2	45	20.990	ppb	#REF!	1.11	2000.00	J
23	Na	1	45	82.700	ppb	#REF!	0.90	25000.00	ND
24	Mg	1	45	16.540	ppb	#REF!	0.84	25000.00	ND
27	Al	1	45	34.500	ppb	#REF!	4.23	10000.00	>RL
39	K	1	45	4.454	ppb	#REF!	3.48	25000.00	ND
44	Ca	2	45	98.310	ppb	#REF!	1.87	25000.00	ND
47	Ti	1	45	0.170	ppb	#REF!	41.67	2000.00	ND
51	V	1	45	0.077	ppb	#REF!	9.23	2000.00	ND
52	Cr	1	45	-0.026	ppb	#REF!	4.54	2000.00	ND
55	Mn	1	45	0.071	ppb	#REF!	9.97	2000.00	ND
56	Fe	1	72	3.159	ppb	#REF!	4.20	10000.00	ND
59	Co	1	72	-0.002	ppb	#REF!	14.53	2000.00	ND
60	Ni	1	72	-0.008	ppb	#REF!	17.39	2000.00	ND
63	Cu	1	72	0.149	ppb	#REF!	7.53	2000.00	ND
66	Zn	1	72	1.305	ppb	#REF!	7.92	2000.00	ND
75	As	1	72	-0.096	ppb	#REF!	1.89	2000.00	ND
78	Se	1	72	-0.086	ppb	#REF!	7.52	2000.00	ND
88	Sr	2	115	1.089	ppb	#REF!	1.19	2000.00	ND
95	Mo	2	115	-0.017	ppb	#REF!	22.94	2000.00	ND
107	Ag	2	115	-0.003	ppb	#REF!	17.53	500.00	ND
111	Cd	2	115	-0.006	ppb	#REF!	60.97	2000.00	ND
118	Sn	2	115	0.041	ppb	#REF!	3.99	2000.00	ND
121	Sb	2	115	0.011	ppb	#REF!	6.18	500.00	ND
137	Ba	2	115	0.152	ppb	#REF!	4.15	2000.00	ND
205	Tl	2	209	0.002	ppb	#REF!	5.13	2000.00	ND
208	Pb	2	209	0.057	ppb	#REF!	3.06	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-32.85	54.06	RHigh	76.78	-42.8	70 - 120	ISFail
45	Sc	1	132724.39	0.98		158070.19	84.0	70 - 120	
45	Sc	2	5614036.00	0.91		6406944.50	87.6	70 - 120	
72	Ge	1	70966.59	0.32		88651.82	80.1	70 - 120	
115	In	2	6178382.00	0.64		7384352.50	83.7	70 - 120	
209	Bi	2	4593821.50	1.18		5202967.00	88.3	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	

ICP-MS4
For

DHL Work Order
1607265

ICP-MS4_160809D
For

DHL Work Order
1607265

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-MS4_160809D 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			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			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: _____ Date of Completion: 08/11/2016

Second-Level Review: Janice Whitt Date Stamp: 8/12/2016

REVIEWED BY
By Janice Whitt at 3:16:18 PM, 8/12/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160809D** **Run No.:** 87520

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:41:00 AM		
L2-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:43:00 AM		
L-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:45:00 AM		
10X-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:47:00 AM		
5X-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:49:00 AM		
2X-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:51:00 AM		
H-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:53:00 AM		
H2-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:55:00 AM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87520	8/9/2016 11:01:00 AM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87520	8/9/2016 11:03:00 AM		
ICV-160809	1	ICPMS_TWDOD	ICV	R87520	8/9/2016 11:09:00 AM		
LCVL-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 11:14:00 AM		
ICB-160809	1	ICPMS_TWDOD	ICB	R87520	8/9/2016 11:18:00 AM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 3:03:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 3:08:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 3:11:00 PM		
MB-76664	5	ICPMS_TSDOD1	MBLK	76664	8/9/2016 3:13:00 PM		
LCS-76664	5	ICPMS_TSDOD1	LCS	76664	8/9/2016 3:15:00 PM		
LCSD-76664	5	ICPMS_TSDOD1	LCSD	76664	8/9/2016 3:17:00 PM		
1607265-18A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:21:00 PM		
1607265-18A SD	25	ICPMS_TSDOD1	SD	76664	8/9/2016 3:23:00 PM		
1607265-08A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:25:00 PM		
1607265-09A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:27:00 PM		
1607265-10A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:29:00 PM		
1607265-11A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:31:00 PM		
1607265-12A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:33:00 PM		
1607265-14A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:35:00 PM		
1607265-15A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:37:00 PM		
1607265-16A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:39:00 PM		
1607265-17A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:41:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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-MS4_160809D **Run No.:** 87520

1607265-18A PDS	5	ICPMS_TSDOD1	PDS	76664	8/9/2016 3:43:00 PM		
1607265-18A MS	5	ICPMS_TSDOD1	MS	76664	8/9/2016 3:45:00 PM		
1607265-18A MSD	5	ICPMS_TSDOD1	MSD	76664	8/9/2016 3:47:00 PM		S-flag Pb- High; R-flag Pb; Verified by rerun; Data accepted per JD
CCV6-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 3:49:00 PM		
LCVL6-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 3:54:00 PM		
CCB6-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 3:57:00 PM		
1607265-19A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:59:00 PM		
1607265-20A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:01:00 PM		
1607265-21A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:02:00 PM		
1607265-22A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:04:00 PM		
1607265-23A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:06:00 PM		
1607265-24A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:08:00 PM		
1607265-25A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:10:00 PM		
1607294-01A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:12:00 PM		
1607294-02A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:14:00 PM		
1607294-03A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:16:00 PM		
CCV7-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 4:18:00 PM		
LCVL7-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 4:27:00 PM		
CCB7-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 4:29:00 PM		
MB-76671	5	ICPMS_TSDOD1	MBLK	76671	8/9/2016 4:31:00 PM		
LCS-76671	5	ICPMS_TSDOD1	LCS	76671	8/9/2016 4:33:00 PM		
LCSD-76671	5	ICPMS_TSDOD1	LCSD	76671	8/9/2016 4:35:00 PM		
1607294-29A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:39:00 PM		
1607294-29A SD	25	ICPMS_TSDOD1	SD	76671	8/9/2016 4:41:00 PM		
1607294-26A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:43:00 PM		
1607294-27A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:45:00 PM		
1607294-28A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:47:00 PM		
1607294-30A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:49:00 PM		
1607294-31A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:51:00 PM		
1607294-32A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:53:00 PM		
1607294-33A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:55:00 PM		
1607294-34A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:57:00 PM		
1607294-35A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:59:00 PM		
1607294-29A PDS	5	ICPMS_TSDOD1	PDS	76671	8/9/2016 5:01:00 PM		
1607294-29A MS	5	ICPMS_TSDOD1	MS	76671	8/9/2016 5:03:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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-MS4_160809D **Run No.:** 87520

1607294-29A MSD	5	ICPMS_TSDOD1	MSD	76671	8/9/2016 5:05:00 PM		
CCV8-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 5:07:00 PM		
LCVL8-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 5:11:00 PM		
CCB8-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 5:13:00 PM		
1607294-36A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:15:00 PM		
1607294-38A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:17:00 PM		
1607294-39A	50	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:19:00 PM		Ran @ 50X dilution due top color; >RL
1607294-40A	50	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:21:00 PM		Ran @ 50X dilution due top color; >RL
1607294-41A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:23:00 PM		
1607294-42A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:25:00 PM		
1607294-43A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:27:00 PM		
1607294-44A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:29:00 PM		
1607294-45A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:31:00 PM		
1607294-46A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:33:00 PM		
CCV8-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 5:35:00 PM		
LCVL8-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 5:39:00 PM		
CCB8-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 5:41:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160809.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160809	CAL ICPMS_TW	2	2102	
14	CalStd	L-160809	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160809	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160809	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160809	CAL ICPMS_TW	6	2106	
18	CalStd	H-160809	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160809	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICSA	ICSA-160809	ICSAICPMS_TW		2109	
23	ICSB	ICSAB-160809	ICSBICPMS_TW		2110	
24	ICB	BLANK	CCB ICPMS_TW		1101	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICV	ICV-160809	ICV ICPMS_TW		2111	
27	ICB	ICB-160809	ICB ICPMS_TW		1101	
28	LLICV	LCVL-160809	LCVLICPMS_TW		2112	
29	ICB	ICB-160809	ICB ICPMS_TW		1102	
30	ICB	ICB-160809	ICB ICPMS_TW		1103	
31	PB_W	MB-76709	MBLKTCLP_MET		2201	1
32	PB_W	MB-76677-TCLP	MBLKTCLP_MET		2202	1
33	LCS_W	LCS-76709	LCS TCLP_MET		2203	1
34	LCS_W	LCSD-76709	LCSDTCLP_MET		2204	1
35	CCB	RINSE	CCB ICPMS_TW		1101	
36	AllRef	1608053-04B	SAMPTCLP_MET		2205	1
37	SD	1608053-04B SD	SD TCLP_MET		2206	5
38	SAMP_W	1608053-01B	SAMPTCLP_MET		2207	1
39	SAMP_W	1608053-02B	SAMPTCLP_MET		2208	1
40	SAMP_W	1608053-03B	SAMPTCLP_MET		2209	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	SAMP_W	1608066-01A	SAMPTCLP_MET		2210	1
42	SAMP_W	1608066-02A	SAMPTCLP_MET		2211	1
43	SAMP_W	1608061-01A	SAMPTCLP_MET		2212	1
44	PDS	1608053-04B PDS	PDS TCLP_MET		2301	1
45	MS_W	1608053-04B MS	MS TCLP_MET		2302	1
46	MS_W	1608053-04B MSD	MSD TCLP_MET		2303	1
47	CCV	CCV1-160809	CCV ICPMS_TW		1207	

Sample List

48	CCB	CCB1-160809	CCB ICPMS_TW		1102	
49	LLCCV	LCVL1-160809	LCVLICPMS_TW		2112	
50	CCB	CCB1-160809	CCB ICPMS_TW		1103	
51	PB_W	MB-76707	MBLK6020A_W		2304	1
52	LCS_W	LCS-76707	LCS 6020A_W		2305	1
53	LCS_W	LCSD-76707	LCSD6020A_W		2306	1
54	CCB	RINSE	CCB ICPMS_TW		1101	
55	AllRef	1608032-06C	SAMP6020A_W		2307	1
56	SD	1608032-06C SD	SD 6020A_W		2308	5
57	SAMP_W	1608032-01C	SAMP6020A_W		2309	1
58	SAMP_W	1608032-02C	SAMP6020A_W		2310	1
59	SAMP_W	1608032-03C	SAMP6020A_W		2311	1
60	SAMP_W	1608032-04C	SAMP6020A_W		2312	1

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51	Skip
52	Skip
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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	SAMP_W	1608032-05C	SAMP6020A_W		2401	1
62	SAMP_W	1608032-07C	SAMP6020A_W		2402	1
63	SAMP_W	1608032-08C	SAMP6020A_W		2403	1
64	SAMP_W	1608032-09C	SAMP6020A_W		2404	1
65	SAMP_W	1604232-04A	SAMPICPMS_TW		2405	1
66	PDS	1608032-06C PDS	PDS 6020A_W		2406	1
67	MS_W	1608032-06C MS	MS 6020A_W		2407	1
68	MS_W	1608032-06C MSD	MSD 6020A_W		2408	1
69	CCV	CCV2-160809	CCV ICPMS_TW		1207	
70	CCB	CCB2-160809	CCB ICPMS_TW		1102	
71	LLCCV	LCVL2-160809	LCVLICPMS_TW		2112	
72	CCB	CCB2-160809	CCB ICPMS_TW		1103	
73	SAMP_W	1604232-05A	SAMPICPMS_TW		2409	1
74	SAMP_W	1604232-06A	SAMPICPMS_TW		2410	1
75	SAMP_W	1608070-01A	SAMPICPMS_TW		2411	1
76	SAMP_W	1608051-01A	SAMPICPMS_TW		2412	1

Sample List

77	SAMP_W	1608051-02A	SAMPICPMS_TW		2501	1
78	SAMP_W	1608051-03A	SAMPICPMS_TW		2502	1
79	SAMP_W	1608051-04A	SAMPICPMS_TW		2503	1
80	SAMP_W	1608051-05A	SAMPICPMS_TW		2504	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	SAMP_W	1608051-06A	SAMPICPMS_TW		2505	1
82	SAMP_W	1608051-07A	SAMPICPMS_TW		2506	1
83	CCV	CCV3-160809	CCV ICPMS_TW		1207	
84	CCB	CCB3-160809	CCB ICPMS_TW		1102	
85	LLCCV	LCVL3-160809	LCVLICPMS_TW		2512	
86	CCB	CCB3-160809	CCB ICPMS_TW		1103	
87	Sample	1403262-12A	SAMPICPMS_TSDOD		3207	5
88	Sample	1403262-13A	SAMPICPMS_TSDOD		3208	5
89	Sample	1403262-14A	SAMPICPMS_TSDOD		3209	5
90	Sample	1403263-01A	SAMPICPMS_TSDOD		3210	5
91	Sample	1403263-02A	SAMPICPMS_TSDOD		3211	5
92	Sample	1403263-03A	SAMPICPMS_TSDOD		3212	5
93	Sample	1403263-04A	SAMPICPMS_TSDOD		3301	5
94	Sample	1403263-05A	SAMPICPMS_TSDOD		3302	5
95	Sample	1403263-06A	SAMPICPMS_TSDOD		3303	5
96	Sample	1403263-07A	SAMPICPMS_TSDOD		3304	5
97	CCV	CCV4-140402	CCV ICPMS_TW		1207	
98	CCB	CCB4-140402	CCB ICPMS_TW		1102	
99	LLCCV	LCVL4-140402	LCVLICPMS_TW		2512	
100	CCB	CCB4-140402	CCB ICPMS_TW		1103	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	PB	MB-62609	MBLKICPMS_TSDOD		3401	5
102	Sample	PAINT CHIPS AW-13	SAMPICPMS_TSDOD		3402	50
103	LCS_S	LCS-62609	LCS ICPMS_TSDOD		3403	5
104	LCS_S	LCSD-62609	LCSDICPMS_TSDOD		3404	5
105	CCB	RINSE	CCB ICPMS_TW		1101	
106	AllRef	1403264-10A	SAMPICPMS_TSDOD		3405	5
107	SD	1403264-10A SD	SD ICPMS_TSDOD		3406	25
108	Sample	1403263-08A	SAMPICPMS_TSDOD		3407	5
109	Sample	1403263-09A	SAMPICPMS_TSDOD		3408	5
110	Sample	1403264-01A	SAMPICPMS_TSDOD		3409	5
111	Sample	1403264-02A	SAMPICPMS_TSDOD		3410	5
112	Sample	1403264-03A	SAMPICPMS_TSDOD		3411	5
113	Sample	1403264-04A	SAMPICPMS_TSDOD		3412	5
114	Sample	1403264-05A	SAMPICPMS_TSDOD		3501	5
115	Sample	1403264-06A	SAMPICPMS_TSDOD		3502	5
116	Sample	1403264-07A	SAMPICPMS_TSDOD		3503	5
117	PDS	1403264-10A PDS	PDS ICPMS_TSDOD		3504	5
118	MS_S	1403264-10A MS	MS ICPMS_TSDOD		3505	5
119	MS_S	1403264-10A MSD	MSD ICPMS_TSDOD		3506	5
120	CCV	CCV5-140402	CCV ICPMS_TW		1207	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	CCB	CCB5-140402	CCB ICPMS_TW		1102	
122	LLCCV	LCVL5-140402	LCVLICPMS_TW		2511	
123	CCB	CCB5-140402	CCB ICPMS_TW		1103	
124	Sample	1403264-08A	SAMPICPMS_TSDOD		3507	5
125	Sample	1403264-09A	SAMPICPMS_TSDOD		3508	5
126	Sample	1403264-11A	SAMPICPMS_TSDOD		3509	5
127	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
128	Sample	1403264-13A	SAMPICPMS_TSDOD		3511	5
129	Sample	1403264-14A	SAMPICPMS_TSDOD		3512	5
130	Sample	1403264-15A	SAMPICPMS_TSDOD		3310	5
131	Sample	1403264-16A	SAMPICPMS_TSDOD		3311	5
132	Sample	1403264-17A	SAMPICPMS_TSDOD		3312	5
133	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
134	CCV	CCV6-140402	CCV ICPMS_TW		1207	
135	CCB	CCB6-140402	CCB ICPMS_TW		1102	
136	LLCCV	LCVL6-140402	LCVLICPMS_TW		2511	
137	CCB	CCB6-140402	CCB ICPMS_TW		1103	
138	CCB	CCB6-140402	CCB ICPMS_TW		1102	
139	CCB	CCB6-140402	CCB ICPMS_TW		1102	

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Unknown Samples:

Sample List

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160809.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160809	CAL ICPMS_TW	2	2102	
14	CalStd	L-160809	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160809	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160809	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160809	CAL ICPMS_TW	6	2106	
18	CalStd	H-160809	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160809	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICSA	ICSA-160809	ICSAICPMS_TW		2109	
23	ICSB	ICSAB-160809	ICSBICPMS_TW		2110	
24	ICB	BLANK	CCB ICPMS_TW		1101	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICV	ICV-160809	ICV ICPMS_TW		2111	
27	ICB	ICB-160809	ICB ICPMS_TW		1101	
28	LLICV	LCVL-160809	LCVLICPMS_TW		2112	
29	ICB	ICB-160809	ICB ICPMS_TW		1102	
30	ICB	ICB-160809	ICB ICPMS_TW		1103	
31	PB_W	MB-76709	MBLKTCLP_MET		2201	1
32	PB_W	MB-76677-TCLP	MBLKTCLP_MET		2202	1
33	LCS_W	LCS-76709	LCS TCLP_MET		2203	1
34	LCS_W	LCSD-76709	LCSDTCLP_MET		2204	1
35	CCB	RINSE	CCB ICPMS_TW		1101	
36	AllRef	1608053-04B	SAMPTCLP_MET		2205	1
37	SD	1608053-04B SD	SD TCLP_MET		2206	5
38	SAMP_W	1608053-01B	SAMPTCLP_MET		2207	1
39	SAMP_W	1608053-02B	SAMPTCLP_MET		2208	1
40	SAMP_W	1608053-03B	SAMPTCLP_MET		2209	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	SAMP_W	1608066-01A	SAMPTCLP_MET		2210	1
42	SAMP_W	1608066-02A	SAMPTCLP_MET		2211	1
43	SAMP_W	1608061-01A	SAMPTCLP_MET		2212	1
44	PDS	1608053-04B PDS	PDS TCLP_MET		2301	1
45	MS_W	1608053-04B MS	MS TCLP_MET		2302	1
46	MS_W	1608053-04B MSD	MSD TCLP_MET		2303	1
47	CCV	CCV1-160809	CCV ICPMS_TW		1207	

Sample List

48	CCB	CCB1-160809	CCB ICPMS_TW		1102	
49	LLCCV	LCVL1-160809	LCVLICPMS_TW		2112	
50	CCB	CCB1-160809	CCB ICPMS_TW		1103	
51	PB_W	MB-76707	MBLK6020A_W		2304	1
52	LCS_W	LCS-76707	LCS 6020A_W		2305	1
53	LCS_W	LCSD-76707	LCSD6020A_W		2306	1
54	CCB	RINSE	CCB ICPMS_TW		1101	
55	AllRef	1608032-06C	SAMP6020A_W		2307	1
56	SD	1608032-06C SD	SD 6020A_W		2308	5
57	SAMP_W	1608032-01C	SAMP6020A_W		2309	1
58	SAMP_W	1608032-02C	SAMP6020A_W		2310	1
59	SAMP_W	1608032-03C	SAMP6020A_W		2311	1
60	SAMP_W	1608032-04C	SAMP6020A_W		2312	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	SAMP_W	1608032-05C	SAMP6020A_W		2401	1
62	SAMP_W	1608032-07C	SAMP6020A_W		2402	1
63	SAMP_W	1608032-08C	SAMP6020A_W		2403	1
64	SAMP_W	1608032-09C	SAMP6020A_W		2404	1
65	SAMP_W	1604232-04A	SAMPICPMS_TW		2405	1
66	PDS	1608032-06C PDS	PDS 6020A_W		2406	1
67	MS_W	1608032-06C MS	MS 6020A_W		2407	1
68	MS_W	1608032-06C MSD	MSD 6020A_W		2408	1
69	CCV	CCV2-160809	CCV ICPMS_TW		1207	
70	CCB	CCB2-160809	CCB ICPMS_TW		1102	
71	LLCCV	LCVL2-160809	LCVLICPMS_TW		2112	
72	CCB	CCB2-160809	CCB ICPMS_TW		1103	
73	SAMP_W	1604232-05A	SAMPICPMS_TW		2409	1
74	SAMP_W	1604232-06A	SAMPICPMS_TW		2410	1
75	SAMP_W	1608070-01A	SAMPICPMS_TW		2411	1
76	SAMP_W	1608051-01A	SAMPICPMS_TW		2412	1

Sample List

77	SAMP_W	1608051-02A	SAMPICPMS_TW		2501	1
78	SAMP_W	1608051-03A	SAMPICPMS_TW		2502	1
79	SAMP_W	1608051-04A	SAMPICPMS_TW		2503	1
80	SAMP_W	1608051-05A	SAMPICPMS_TW		2504	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	SAMP_W	1608051-06A	SAMPICPMS_TW		2505	1
82	SAMP_W	1608051-07A	SAMPICPMS_TW		2506	1
83	CCV	CCV3-160809	CCV ICPMS_TW		1207	
84	CCB	CCB3-160809	CCB ICPMS_TW		1102	
85	LLCCV	LCVL3-160809	LCVLICPMS_TW		2512	
86	CCB	CCB3-160809	CCB ICPMS_TW		1103	
87	PB_W	MB-76686	MBLK6020A_W		3101	1
88	LCS_W	LCS-76686	LCS 6020A_W		3102	1
89	LCS_W	LCSD-76686	LCSD6020A_W		3103	1
90	CCB	RINSE	CCB ICPMS_TW		1101	
91	AllRef	1608050-03A	SAMP6020A_W		3104	1
92	SD	1608050-03A SD	SD 6020A_W		3105	5
93	SAMP_W	1608050-01A	SAMP6020A_W		3106	1
94	SAMP_W	1608050-02A	SAMP6020A_W		3107	1
95	SAMP_W	1608050-04A	SAMP6020A_W		3108	1
96	SAMP_W	1608050-05A	SAMP6020A_W		3109	1
97	SAMP_W	1608050-06A	SAMP6020A_W		3110	1
98	SAMP_W	1608050-07A	SAMP6020A_W		3111	1
99	SAMP_W	1608050-08A	SAMP6020A_W		3112	1
100	SAMP_W	1608050-09A	SAMP6020A_W		3201	1

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	SAMP_W	1608050-10A	SAMP6020A_W		3202	1
102	PDS	1608050-03A PDS	PDS 6020A_W		3203	1
103	MS_W	1608050-03A MS	MS 6020A_W		3204	1
104	MS_W	1608050-03A MSD	MSD 6020A_W		3205	1
105	CCV	CCV4-160809	CCV ICPMS_TW		1207	
106	CCB	CCB4-160809	CCB ICPMS_TW		1102	
107	LLCCV	LCVL4-160809	LCVLICPMS_TW		2512	
108	CCB	CCB4-160809	CCB ICPMS_TW		1103	
109	SAMP_W	1608050-11A	SAMP6020A_W		3206	1
110	SAMP_W	1608050-12A	SAMP6020A_W		3207	1
111	SAMP_W	1608050-13A	SAMP6020A_W		3208	1
112	SAMP_W	1608050-14A	SAMP6020A_W		3209	1
113	SAMP_W	1608050-15A	SAMP6020A_W		3210	1
114	SAMP_W	1608050-16A	SAMP6020A_W		3211	1
115	SAMP_W	1608050-17A	SAMP6020A_W		3212	1
116	SAMP_W	1608050-18A	SAMP6020A_W		3301	1
117	SAMP_W	1608050-19A	SAMP6020A_W		3302	1
118	SAMP_W	1608050-20A	SAMP6020A_W		3303	1
119	CCV	CCV5-160809	CCV ICPMS_TW		1207	
120	CCB	CCB5-160809	CCB ICPMS_TW		1102	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	LLCCV	LCVL5-160809	LCVLICPMS_TW		2511	
122	CCB	CCB5-160809	CCB ICPMS_TW		1103	
123	PB	MB-76664	MBLKICPMS_TSDOD1		3310	5
124	LCS_S	LCS-76664	LCS ICPMS_TSDOD1		3311	5
125	LCS_S	LCSD-76664	LCSDICPMS_TSDOD1		3312	5
126	CCB	RINSE	CCB ICPMS_TW		1101	
127	AllRef	1607265-18A	SAMPICPMS_TSDOD1		3401	5
128	SD	1607265-18A SD	SD ICPMS_TSDOD1		3402	25
129	Sample	1607265-08A	SAMPICPMS_TSDOD1		3403	5
130	Sample	1607265-09A	SAMPICPMS_TSDOD1		3404	5
131	Sample	1607265-10A	SAMPICPMS_TSDOD1		3405	5
132	Sample	1607265-11A	SAMPICPMS_TSDOD1		3406	5
133	Sample	1607265-12A	SAMPICPMS_TSDOD1		3407	5
134	Sample	1607265-14A	SAMPICPMS_TSDOD1		3408	5
135	Sample	1607265-15A	SAMPICPMS_TSDOD1		3409	5
136	Sample	1607265-16A	SAMPICPMS_TSDOD1		3410	5
137	Sample	1607265-17A	SAMPICPMS_TSDOD1		3411	5
138	PDS	1607265-18A PDS	PDS ICPMS_TSDOD1		3412	5
139	MS_S	1607265-18A MS	MS ICPMS_TSDOD1		3501	5
140	MS_S	1607265-18A MSD	MSD ICPMS_TSDOD1		3502	5

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
141	CCV	CCV6-160809	CCV ICPMS_TW		1207	
142	CCB	CCB6-160809	CCB ICPMS_TW		1102	
143	LLCCV	LCVL6-160809	LCVLICPMS_TW		2511	
144	CCB	CCB6-160809	CCB ICPMS_TW		1103	
145	Sample	1607265-19A	SAMPICPMS_TSDOD1		3503	5
146	Sample	1607265-20A	SAMPICPMS_TSDOD1		3504	5
147	Sample	1607265-21A	SAMPICPMS_TSDOD1		3505	5
148	Sample	1607265-22A	SAMPICPMS_TSDOD1		3506	5
149	Sample	1607265-23A	SAMPICPMS_TSDOD1		3507	5
150	Sample	1607265-24A	SAMPICPMS_TSDOD1		3508	5
151	Sample	1607265-25A	SAMPICPMS_TSDOD1		3509	5
152	Sample	1607294-01A	SAMPICPMS_TSDOD1		3510	5
153	Sample	1607294-02A	SAMPICPMS_TSDOD1		3511	5
154	Sample	1607294-03A	SAMPICPMS_TSDOD1		3512	5
155	CCV	CCV7-160809	CCV ICPMS_TW		1207	
156	CCB	CCB7-160809	CCB ICPMS_TW		1102	
157	LLCCV	LCVL7-160809	LCVLICPMS_TW		2510	
158	CCB	CCB7-160809	CCB ICPMS_TW		1102	
159	PB	MB-76671	MBLKICPMS_TSDOD1		4101	5
160	LCS_S	LCS-76671	LCS ICPMS_TSDOD1		4102	5

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
161	LCS_S	LCSD-76671	LCSDICPMS_TSDOD1		4103	5
162	CCB	RINSE	CCB ICPMS_TW		1101	
163	AllRef	1607294-29A	SAMPICPMS_TSDOD1		4104	5
164	SD	1607294-29A SD	SD ICPMS_TSDOD1		4105	25
165	Sample	1607294-26A	SAMPICPMS_TSDOD1		4106	5
166	Sample	1607294-27A	SAMPICPMS_TSDOD1		4107	5
167	Sample	1607294-28A	SAMPICPMS_TSDOD1		4108	5
168	Sample	1607294-30A	SAMPICPMS_TSDOD1		4109	5

Sample List

169	Sample	1607294-31A	SAMPICPMS_TSDOD1	4110	5
170	Sample	1607294-32A	SAMPICPMS_TSDOD1	4111	5
171	Sample	1607294-33A	SAMPICPMS_TSDOD1	4112	5
172	Sample	1607294-34A	SAMPICPMS_TSDOD1	4201	5
173	Sample	1607294-35A	SAMPICPMS_TSDOD1	4202	5
174	PDS	1607294-29A PDS	PDS ICPMS_TSDOD1	4203	5
175	MS_S	1607294-29A MS	MS ICPMS_TSDOD1	4204	5
176	MS_S	1607294-29A MSD	MSD ICPMS_TSDOD1	4205	5
177	CCV	CCV8-160809	CCV ICPMS_TW	1207	
178	CCB	CCB8-160809	CCB ICPMS_TW	1102	
179	LLCCV	LCVL8-160809	LCVLICPMS_TW	2510	
180	CCB	CCB8-160809	CCB ICPMS_TW	1103	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
181	Sample	1607294-36A	SAMPICPMS_TSDOD1		4206	5
182	Sample	1607294-38A	SAMPICPMS_TSDOD1		4207	5
183	Sample	1607294-39A	SAMPICPMS_TSDOD1		4208	5
184	Sample	1607294-40A	SAMPICPMS_TSDOD1		4209	5
185	Sample	1607294-41A	SAMPICPMS_TSDOD1		4210	5
186	Sample	1607294-42A	SAMPICPMS_TSDOD1		4211	5
187	Sample	1607294-43A	SAMPICPMS_TSDOD1		4212	5
188	Sample	1607294-44A	SAMPICPMS_TSDOD1		4301	5
189	Sample	1607294-45A	SAMPICPMS_TSDOD1		4302	5
190	Sample	1607294-46A	SAMPICPMS_TSDOD1		4303	5
191	CCV	CCV8-160809	CCV ICPMS_TW		1207	
192	CCB	CCB8-160809	CCB ICPMS_TW		1102	
193	LLCCV	LCVL8-160809	LCVLICPMS_TW		2510	
194	CCB	CCB8-160809	CCB ICPMS_TW		1102	
195	PB_W	MB-76743	MBLKICPMS_DW		4401	1
196	PB_W	FB-76743	MBLKICPMS_DW		4402	1
197	LCS_W	LCS-76743	LCS ICPMS_DW		4403	1

Sample List

198	LCS_W	LCSD-76743	LCSDICPMS_DW		4404	1
199	CCB	RINSE	CCB ICPMS_TW		1101	
200	AllRef	1607331-02B	SAMPICPMS_DW		4405	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
201	SD	1607331-02B SD	SD ICPMS_DW		4406	5
202	SAMP_W	1608062-08B	SAMPICPMS_DW		4407	1
203	SAMP_W	1607331-01B	SAMPICPMS_DW		4408	1
204	SAMP_W	1607331-03B	SAMPICPMS_DW		4409	1
205	SAMP_W	1607331-04B	SAMPICPMS_DW		4410	1
206	SAMP_W	1607331-05B	SAMPICPMS_DW		4411	1
207	SAMP_W	1607331-06B	SAMPICPMS_DW		4412	1
208	SAMP_W	1608051-01B	SAMPICPMS_DW		4501	1
209	SAMP_W	1608051-02B	SAMPICPMS_DW		4502	1
210	SAMP_W	1608051-03B	SAMPICPMS_DW		4503	1
211	PDS	1607331-02B PDS	PDS ICPMS_DW		4504	1
212	MS_W	1607331-02B MS	MS ICPMS_DW		4505	1
213	MS_W	1607331-02B MSD	MSD ICPMS_DW		4506	1
214	CCV	CCV9-160809	CCV ICPMS_TW		1207	
215	CCB	CCB9-160809	CCB ICPMS_TW		1102	
216	LLCCV	LCVL9-160809	LCVLICPMS_TW		2510	
217	CCB	CCB9-160809	CCB ICPMS_TW		1103	
218	SAMP_W	1607331-01A	SAMPICPMS_TW		4511	10
219	SAMP_W	1607331-01B	SAMPICPMS_DW		4512	10
220	SAMP_W	1608051-04B	SAMPICPMS_DW		4507	1

#	Skip
201	
202	
203	
204	

Sample List

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220

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
221	SAMP_W	1608051-05B	SAMPICPMS_DW		4508	1
222	SAMP_W	1608051-06B	SAMPICPMS_DW		4509	1
223	SAMP_W	1608051-07B	SAMPICPMS_DW		4510	1
224	CCV	CCV10-160809	CCV ICPMS_TW		1207	
225	CCB	CCB10-160809	CCB ICPMS_TW		1102	
226	LLCCV	LCVL10-160809	LCVLICPMS_TW		2512	
227	CCB	CCB10-160809	CCB ICPMS_TW		1102	
228	CCB	CCB10-160809	CCB ICPMS_TW		1102	
229	CCB	CCB10-160809	CCB ICPMS_TW		1102	
230	CCB	CCB10-160809	CCB ICPMS_TW		1103	
231	CCB	CCB10-160809	CCB ICPMS_TW		1103	
232	CCB	CCB10-160809	CCB ICPMS_TW		1103	

#	Skip
221	
222	
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230	
231	
232	

Unknown Samples:

Blank Samples:

Periodic Block

Sample List

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 11:25:38 AM**
Digestion:
Prep End Date:

Prep Batch **76664** 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
1607265-08A	Soil		1.10	50	50.000	1 of 1	
1607265-09A	Soil		1.03	50	50.000	1 of 1	
1607265-10A	Soil		1.05	50	50.000	1 of 1	
1607265-11A	Soil		1.11	50	50.000	1 of 1	
1607265-12A	Soil		1.06	50	50.000	1 of 1	
1607265-14A	Soil		1.09	50	50.000	1 of 1	
1607265-15A	Soil		1.06	50	50.000	1 of 1	
1607265-16A	Soil		1.13	50	50.000	1 of 1	
1607265-17A	Soil		1.02	50	50.000	1 of 1	
1607265-18A	Soil		1.02	50	50.000	2 of 3	
1607265-18A MS	Soil		1.09	50	50.000	2 of 3	
1607265-18A MSD	Soil		1.12	50	50.000	2 of 3	
1607265-18A PDS	Soil		1.02	50	50.000	2 of 3	
1607265-18A SD	Soil		1.02	50	50.000	2 of 3	
1607265-19A	Soil		1.04	50	50.000	1 of 1	
1607265-20A	Soil		1.13	50	50.000	1 of 1	
1607265-21A	Soil		1.14	50	50.000	1 of 1	
1607265-22A	Soil		1.16	50	50.000	1 of 1	
1607265-23A	Soil		1.16	50	50.000	1 of 1	
1607265-24A	Soil		1.11	50	50.000	1 of 1	
1607265-25A	Soil		1.02	50	50.000	1 of 1	
1607294-01A	Soil		1.08	50	50.000	1 of 1	
1607294-02A	Soil		1.19	50	50.000	1 of 1	
1607294-03A	Soil		1.06	50	50.000	1 of 1	
LCS-76664	Soil		1	50	50.000	of	
LCSD-76664	Soil		1	50	50.000	of	
MB-76664	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

SpkID	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 2:27:02 PM, 8/12/2016

8/5/16

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 2:27:09 PM, 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							

REVIEWED BY
By Janice Whitt at 2:27:11 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-02A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 2:27:15 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-15A SS	Soil		0	0	#Num!	1 of 1	
1607294-16A SS	Soil		0	0	#Num!	1 of 1	
1607294-17A SS	Soil		0	0	#Num!	1 of 1	
1607294-18A SS	Soil		0	0	#Num!	1 of 1	
1607294-19A SS	Soil		0	0	#Num!	1 of 1	
1607294-20A SS	Soil		0	0	#Num!	1 of 1	
1607294-21A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 2:27:17 PM, 8/12/2016

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)						

QM 8/4/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:27:23 PM, 8/12/2016
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 2:27:30 PM, 8/12/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 11:25:38 AM**
Digestion: **Start: 8/4/2016 12:31:00 PM / Stop: 8/4/2016 5:40:00 PM**
Prep End Date: **8/4/2016 5:55:00 PM**

Prep Batch **76664** 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
1607265-08A	Soil		1.1	50	45.455	1 of 1	
1607265-09A	Soil		1.03	50	48.544	1 of 1	
1607265-10A	Soil		1.05	50	47.619	1 of 1	
1607265-11A	Soil		1.11	50	45.045	1 of 1	
1607265-12A	Soil		1.06	50	47.170	1 of 1	
1607265-14A	Soil		1.09	50	45.872	1 of 1	
1607265-15A	Soil		1.06	50	47.170	1 of 1	
1607265-16A	Soil		1.13	50	44.248	1 of 1	
1607265-17A	Soil		1.02	50	49.020	1 of 1	
1607265-18A	Soil		1.02	50	49.020	2 of 3	
1607265-18A MS	Soil		1.09	50	45.872	2 of	
1607265-18A MSD	Soil		1.12	50	44.643	2 of	
1607265-18A PDS	Soil		1.02	50	49.020	2 of	
1607265-18A SD	Soil		1.02	50	49.020	2 of	
1607265-19A	Soil		1.04	50	48.077	1 of 1	
1607265-20A	Soil		1.13	50	44.248	1 of 1	
1607265-21A	Soil		1.14	50	43.860	1 of 1	
1607265-22A	Soil		1.16	50	43.103	1 of 1	
1607265-23A	Soil		1.16	50	43.103	1 of 1	
1607265-24A	Soil		1.11	50	45.045	1 of 1	
1607265-25A	Soil		1.02	50	49.020	1 of 1	
1607294-01A	Soil		1.08	50	46.296	1 of 1	
1607294-02A	Soil		1.19	50	42.017	1 of 1	
1607294-03A	Soil		1.06	50	47.170	1 of 1	
LCS-76664	Soil		1	50	50.000	of	
LCSD-76664	Soil		1	50	50.000	of	
MB-76664	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

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By Janice Whitt at 2:40:32 PM, 8/12/2016

Calibration Summary Report

Date Acquired 8/9/2016 10:41
Data Batch 160809.b

Level	Calibration File Name
1	012CALB.d
2	013CALS.d
3	014CALS.d
4	015CALS.d
5	016CALS.d
6	017CALS.d
7	018CALS.d
8	019CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0013 * x + 2.3711E-004
Be	1.0000	y = 3.2553E-005 * x + 6.6038E-007
B	1.0000	y = 1.5650E-005 * x + 3.9620E-005
Na	1.0000	y = 7.8050E-004 * x + 0.0433
Mg	1.0000	y = 3.9467E-004 * x + 7.1743E-004
Al	1.0000	y = 1.4915E-004 * x + 0.0010
K	1.0000	y = 3.8496E-004 * x + 0.0507
Ca	0.9997	y = 2.2814E-005 * x + 4.1959E-004
Ti	0.9999	y = 1.5061E-004 * x + 2.2057E-005
V	1.0000	y = 0.0045 * x + 0.0027
Cr	1.0000	y = 0.0055 * x + 0.0012
Mn	1.0000	y = 0.0032 * x + 1.4761E-004
Fe	1.0000	y = 0.0048 * x + 0.0063
Co	1.0000	y = 0.0130 * x + 1.4841E-004
Ni	1.0000	y = 0.0035 * x + 5.9412E-004
Cu	1.0000	y = 0.0096 * x + 0.0070
Zn	1.0000	y = 0.0016 * x + 6.0394E-004
Se	1.0000	y = 8.1884E-005 * x + 5.9469E-005
Sr	0.9999	y = 6.4658E-004 * x + 6.0463E-005
Mo	0.9999	y = 5.6678E-004 * x + 1.0103E-005
Ag	0.9999	y = 0.0016 * x + 5.3008E-006
Cd	1.0000	y = 2.5668E-004 * x + 1.3267E-006
Sn	0.9999	y = 5.4917E-004 * x + 1.3209E-004
Sb	1.0000	y = 7.7943E-004 * x + 4.7973E-005
Tl	1.0000	y = 0.0016 * x + 1.6058E-005
Ba	1.0000	y = 2.6449E-004 * x + 4.6456E-006
Pb	1.0000	y = 0.0022 * x + 1.2274E-004
Li	1.0000	y = 1.8669E-005 * x + 4.2895E-006

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Calibration Summary Report

Level 7 Cal

Ele	Conc	Calc	%Rec
As	500	498.45	100
Be	500	505.78	101
B	500	486.01	97
Na	10000	10049.69	100
Mg	10000	10181.61	102
Al	10000	9994.42	100
K	10000	9900.92	99
Ca	10000	9454.09	95
Ti	500	481.85	96
V	500	498.19	100
Cr	500	512.27	102
Mn	500	505.41	101
Fe	10000	9974.46	100
Co	500	501.66	100
Ni	500	511.56	102
Cu	500	515.53	103
Zn	500	506.64	101
Se	500	496.41	99
Sr	500	474.31	95
Mo	500	480.66	96
Ag	500	496.79	99
Cd	500	489.19	98
Sn	500	472.68	95
Sb	500	498.99	100
Tl	500	501.85	100
Ba	500	491.58	98
Pb	500	492.45	98

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2000.42	100
Be	2000	1997.84	100
B	2000	2005.03	100
Na	25000	24958.35	100
Mg	25000	24894.77	100
K	25000	25041.62	100
Ca	25000	25271.64	99
Ti	2000	2005.89	100
V	2000	2000.28	100
Cr	2000	1995.77	100
Mn	2000	1998.13	100
Co	2000	1999.12	100
Ni	2000	1996.02	100
Cu	2000	1994.66	100
Zn	2000	1997.85	100
Se	2000	2000.78	100
Sr	2000	2007.96	100
Mo	2000	2005.89	100
Cd	2000	2003.00	100
Sn	2000	2008.38	100
Tl	2000	1998.56	100
Ba	2000	2002.32	100
Pb	2000	2002.16	100
Li	2000	2000.09	100

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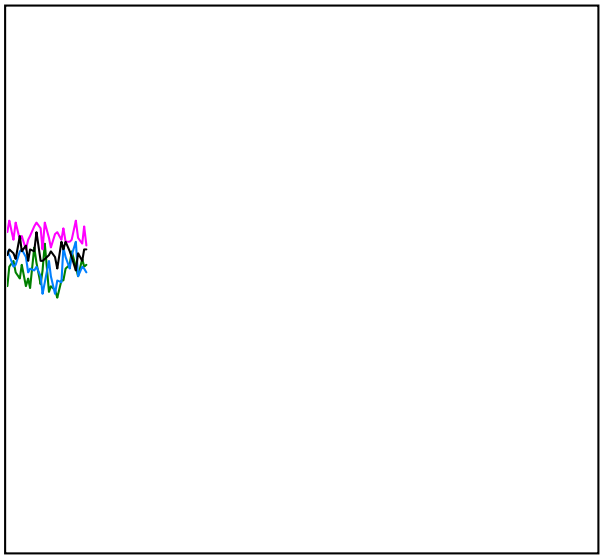
By Janice Whitt at 1:02:55 PM, 8/9/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51	200	102	111.6	10.57
59	2000	1050	1024.8	4.82
89	2000	1023	1045.5	4.60
140	5000	2803	2905.1	2.81
205	5000	2779	2742.4	2.86
156/140	1	0.107 %	0.256 %	46.31
75	20	4	4.9	56.23
78	20	3	5.0	51.69
56	2000	1187	1212.8	4.17
31	100	53	51.4	20.41
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.53
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	8.6
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	1.6		

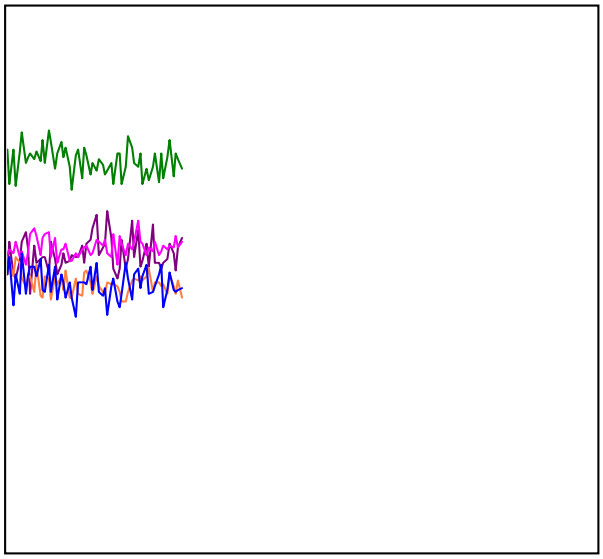
Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.5	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.52E+2	Pa	Carrier Gas(BP)	1.80E+2	kPa
Analyzer Press	2.18E-4	Pa	Reflected Power	6	W
Forward Power	1549	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
7	1000	576	546.3	5.50
59	2000	1410	1435.3	3.61
89	5000	2331	2464.1	3.87
140	5000	2837	2793.1	2.98
205	5000	1880	1906.3	3.20
156/140	2	1.058 %	0.912 %	22.17
95	20	5	4.6	56.28
78	2000	1086	1012.0	3.82
63	1000	484	492.2	5.44
75	5000	2420	2404.1	2.93
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.53
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	8.6
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	7.0		

Cell Parameters

Use Gas	false	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.50E+2	Pa	Carrier Gas(BP)	1.79E+2	kPa
Analyzer Press	1.25E-4	Pa	Reflected Power	6	W
Forward Power	1550	W			

US EPA Tune Check Sample Report

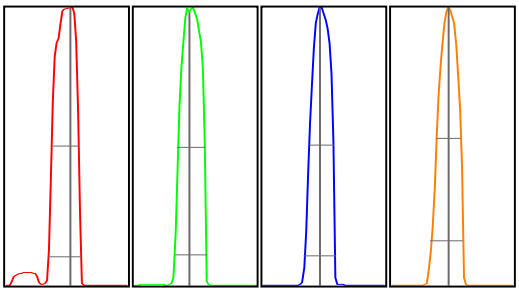
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	820387	0.57	5.00	
59	2076305	0.59	5.00	
115	3149979	0.94	5.00	
205	2840526	0.66	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	820840	827901	817950	815407	819840
59	2076233	2091314	2081446	2057502	2075032
115	3126808	3160878	3118622	3150181	3193406
205	2869353	2846304	2835576	2820303	2831093

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	131004	7.10	6.9 - 7.1		0.792	0.850	
59	338072	58.90	58.9 - 59.1		0.764	0.850	
115	573941	114.95	114.9 - 115.1		0.726	0.850	
205	510080	204.95	204.9 - 205.1		0.760	0.850	

X% = 10 **Int Time [sec] =** 0.1 **Acq Time [sec] =** 135.05 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Nebulizer Pump	0.10	rps
RF Matching	1.90	V	S/C Temp	2	℃
Smpl Depth	8.0	mm	Gas Switch	Dilution Gas	
Carrier Gas	0.53	L/min	Makeup/Dilution Gas	0.52	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-100	V	Deflect	7.0	V
Omega Lens	8.6	V	Plate Bias	-60	V

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Cell Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	false		OctP Bias	-18.0	V
He Flow	0.0	mL/min	OctP RF	200	V
H2 Flow	0.0	mL/min	Energy Discrimination	3.0	V
3rd Gas Flow	0	%			

P/A Factor Tuning Report

Current Sample

Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 08/09/2016 10:41:35

Detector Parameters and P/A Factors

Discriminator: 5.1 mV
AnalogHV: 1716 V
PulseHV: 1377 V

Acquired: 08/09/2016 10:08:37

Mass[u]	Element	P/A Factor
6	Li	0.103820
9	Be	0.115883
23	Na	0.124152
24	Mg	0.127430
27	Al	0.130455
39	K	0.131998
45	Sc	0.133301
48		0.134713
51	V	0.134993
52	Cr	0.137286
55	Mn	0.138038
59	Co	0.140475
60	Ni	0.139582
63	Cu	0.140798
66	Zn	0.142369
72		0.141234
74	Ge	0.142200
75	As	0.141974
88	Sr	0.142053
89		0.142165
95		0.141080
97	Mo	0.142218
98	Mo	0.142414
99	[Mo]	0.142858
101		0.143936
105		0.144761
111	Cd	0.144731
114	Cd	0.144821
115	In	0.144826
118	Sn	0.145614
121		0.144762
123	Sb	0.144930
135	Ba	0.145648
138		0.145906
175		0.146699
193		0.147401
205	Tl	0.147164
206	[Pb]	0.147946
207	[Pb]	0.148617
208	Pb	0.148302
209	Bi	0.148228
232		0.148249
238	U	0.148202
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

REVIEWED BY
By Janice Whitt at 1:03:06 PM, 8/9/2016

Calibration Blank Report

Date Acquired	8/9/2016 10:41	Sample Name	BLANK STD 1
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	4	70.50
9	Be	45	1	86.60
11	B	45	40	30.04
23	Na	45	43629	1.36
24	Mg	45	723	3.32
27	Al	45	1049	6.36
39	K	45	51133	0.91
44	Ca	45	423	17.41
47	Ti	45	22	31.22
51	V	45	2727	2.20
52	Cr	45	1217	5.50
55	Mn	45	149	16.81
56	Fe	45	6305	1.09
59	Co	72	101	9.52
60	Ni	72	404	8.09
63	Cu	72	4733	3.73
66	Zn	72	411	4.89
75	As	72	161	10.42
78	Se	72	41	14.59
88	Sr	115	406	9.09
95	Mo	115	68	15.02
107	Ag	115	36	14.32
111	Cd	115	9	86.60
118	Sn	115	887	0.65
121	Sb	115	322	6.24
137	Ba	115	31	40.56
205	Tl	209	253	1.32
208	Pb	209	1936	2.22

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1008225	0.69
72	Ge	680921	0.97
115	In	6714019	1.44
209	Bi	15779460	2.19

Calibration Standard Report

Date Acquired	8/9/2016 10:43	Sample Name	L2-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	18	24.22
9	Be	45	33	12.12
11	B	45	46	29.58
23	Na	45	61485	1.59
24	Mg	45	9481	3.32
27	Al	45	4092	1.76
39	K	45	59251	1.54
44	Ca	45	804	5.30
47	Ti	45	170	15.69
51	V	45	7663	1.42
52	Cr	45	7013	3.03
55	Mn	45	3694	4.92
56	Fe	45	106215	0.44
59	Co	72	9238	2.91
60	Ni	72	3004	2.00
63	Cu	72	11848	2.14
66	Zn	72	1478	4.38
75	As	72	1002	5.92
78	Se	72	106	16.28
88	Sr	115	4667	2.25
95	Mo	115	3617	0.94
107	Ag	115	11304	2.53
111	Cd	115	1686	4.34
118	Sn	115	4337	2.73
121	Sb	115	5701	5.30
137	Ba	115	1873	5.13
205	Tl	209	26009	0.81
208	Pb	209	36838	1.14

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1010492	0.13	1008225	100.22	70	120	
72	Ge	679939	0.18	680921	99.86	70	120	
115	In	6637335	1.72	6714019	98.86	70	120	
209	Bi	15674633	0.76	15779460	99.34	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:45	Sample Name	L-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	181	12.33
9	Be	45	356	8.01
11	B	45	179	16.91
23	Na	45	209868	0.25
24	Mg	45	84316	0.94
27	Al	45	31881	0.26
39	K	45	132003	0.68
44	Ca	45	4888	2.12
47	Ti	45	1462	3.01
51	V	45	49807	0.10
52	Cr	45	59429	0.86
55	Mn	45	33462	0.22
56	Fe	45	1011376	0.45
59	Co	72	93307	2.09
60	Ni	72	26365	0.63
63	Cu	72	74894	1.13
66	Zn	72	11829	1.48
75	As	72	8723	0.25
78	Se	72	589	3.42
88	Sr	115	41738	1.85
95	Mo	115	36822	1.67
107	Ag	115	114426	1.35
111	Cd	115	17091	2.54
118	Sn	115	36413	1.39
121	Sb	115	52603	1.16
137	Ba	115	17440	1.06
205	Tl	209	256069	0.66
208	Pb	209	345529	0.19

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1027602	0.15	1008225	101.92	70	120	
72	Ge	679641	0.87	680921	99.81	70	120	
115	In	6702371	0.33	6714019	99.83	70	120	
209	Bi	15930288	1.46	15779460	100.96	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:47	Sample Name	10X-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	942	4.69
9	Be	45	1658	3.43
11	B	45	858	5.28
23	Na	45	863297	0.45
24	Mg	45	417526	0.22
27	Al	45	154394	0.85
39	K	45	445157	0.26
44	Ca	45	22760	1.92
47	Ti	45	7533	3.07
51	V	45	237037	0.56
52	Cr	45	292323	0.60
55	Mn	45	164679	0.76
56	Fe	45	4969406	0.92
59	Co	72	450999	0.65
60	Ni	72	126792	0.75
63	Cu	72	351530	0.27
66	Zn	72	57092	1.16
75	As	72	43588	0.64
78	Se	72	2794	2.36
88	Sr	115	208213	0.83
95	Mo	115	184542	0.90
107	Ag	115	565576	0.64
111	Cd	115	85310	1.12
118	Sn	115	176345	0.76
121	Sb	115	263432	0.49
137	Ba	115	87826	0.61
205	Tl	209	1262976	0.40
208	Pb	209	1714355	0.98

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1023120	1.22	1008225	101.48	70	120	
72	Ge	680780	0.14	680921	99.98	70	120	
115	In	6738804	1.40	6714019	100.37	70	120	
209	Bi	15870769	0.79	15779460	100.58	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:49	Sample Name	5X-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1847	2.03
9	Be	45	3348	0.81
11	B	45	1658	2.75
23	Na	45	1676972	0.71
24	Mg	45	834226	0.43
27	Al	45	308086	0.46
39	K	45	844559	0.96
44	Ca	45	45169	0.27
47	Ti	45	15055	1.88
51	V	45	471890	1.40
52	Cr	45	584368	0.53
55	Mn	45	330819	0.47
56	Fe	45	10084502	0.99
59	Co	72	904871	0.63
60	Ni	72	252075	0.36
63	Cu	72	697640	0.30
66	Zn	72	114774	0.45
75	As	72	86702	0.52
78	Se	72	5668	1.52
88	Sr	115	417898	0.27
95	Mo	115	367281	0.93
107	Ag	115	1129378	0.44
111	Cd	115	172657	0.58
118	Sn	115	351810	0.40
121	Sb	115	526275	0.29
137	Ba	115	175794	1.77
205	Tl	209	2563479	0.38
208	Pb	209	3428750	0.54

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1029269	1.36	1008225	102.09	70	120	
72	Ge	678661	0.52	680921	99.67	70	120	
115	In	6759315	3.88	6714019	100.67	70	120	
209	Bi	16108379	1.30	15779460	102.08	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:51	Sample Name	2X-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	4719	1.49
9	Be	45	8480	1.79
11	B	45	3824	1.72
23	Na	45	4091130	0.15
24	Mg	45	2065213	0.21
27	Al	45	762255	0.86
39	K	45	2008476	0.37
44	Ca	45	111530	1.91
47	Ti	45	36951	1.87
51	V	45	1159188	0.69
52	Cr	45	1439165	0.56
55	Mn	45	816287	0.50
56	Fe	45	24362618	1.60
59	Co	72	2223301	0.64
60	Ni	72	616644	0.33
63	Cu	72	1698410	0.12
66	Zn	72	277498	1.21
75	As	72	212780	0.60
78	Se	72	13964	0.76
88	Sr	115	1026606	0.43
95	Mo	115	913435	0.53
107	Ag	115	2778690	0.36
111	Cd	115	421073	0.37
118	Sn	115	873791	0.75
121	Sb	115	1299959	0.22
137	Ba	115	435834	0.37
205	Tl	209	6460258	2.28
208	Pb	209	8513571	0.84

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1018655	0.93	1008225	101.03	70	120	
72	Ge	678566	0.45	680921	99.65	70	120	
115	In	6616875	1.49	6714019	98.55	70	120	
209	Bi	15804808	0.19	15779460	100.16	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:53	Sample Name	H-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	9540	1.29
9	Be	45	16767	0.53
11	B	45	7785	3.68
23	Na	45	8031386	2.69
24	Mg	45	4092498	0.93
27	Al	45	1518993	0.39
39	K	45	3932916	0.55
44	Ca	45	220063	0.62
47	Ti	45	73925	1.47
51	V	45	2297809	0.54
52	Cr	45	2859996	0.51
55	Mn	45	1627926	0.77
56	Fe	45	48345990	0.16
59	Co	72	4409451	1.28
60	Ni	72	1227882	0.46
63	Cu	72	3373188	0.46
66	Zn	72	556381	0.69
75	As	72	424887	0.32
78	Se	72	27570	0.79
88	Sr	115	2052383	0.50
95	Mo	115	1822972	0.07
107	Ag	115	5465324	1.11
111	Cd	115	840336	0.83
118	Sn	115	1738025	0.64
121	Sb	115	2602639	0.67
137	Ba	115	869956	0.52
205	Tl	209	12690921	1.61
208	Pb	209	17006927	0.99

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1018317	0.53	1008225	101.00	70	120	
72	Ge	677260	0.09	680921	99.46	70	120	
115	In	6694384	2.56	6714019	99.71	70	120	
209	Bi	15939527	1.55	15779460	101.01	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:55	Sample Name	H2-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	37660	1.09
9	Be	45	65585	0.28
11	B	45	31683	0.40
23	Na	45	19688218	0.64
24	Mg	45	9908900	0.49
27	Al	45	12817	3.46
39	K	45	9772674	0.59
44	Ca	45	581835	0.17
47	Ti	45	304688	0.51
51	V	45	9128636	2.42
52	Cr	45	11031042	1.12
55	Mn	45	6373127	1.44
56	Fe	45	36272	5.18
59	Co	72	17438869	0.65
60	Ni	72	4753877	0.70
63	Cu	72	12940749	1.94
66	Zn	72	2176396	1.21
75	As	72	1691815	0.54
78	Se	72	110163	0.54
88	Sr	115	8413825	1.09
95	Mo	115	7367472	1.03
107	Ag	115	2218	3.62
111	Cd	115	3331691	0.64
118	Sn	115	7148189	0.91
121	Sb	115	3163	4.82
137	Ba	115	3431916	0.75
205	Tl	209	49550818	0.57
208	Pb	209	67798691	0.59

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1008447	0.22	1008225	100.02	70	120	
72	Ge	672184	0.87	680921	98.72	70	120	
115	In	6480222	0.33	6714019	96.52	70	120	
209	Bi	15628900	1.01	15779460	99.05	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	8/9/2016 11:01	Sample Name	ICSA-160809
Data Batch	160809.b	Comment	ICSAICPMS_TW
Data File Name	022ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.071	3	66.7	1.2	0.8	
11	B	19.374	348	13.9	30	30	
51	V	-0.112	2229	4.6	10	10	
52	Cr	0.918	6326	3.5	8	5	
55	Mn	0.492	1728	6.0	8	10	
59	Co	1.342	11642	1.9	8	10	
60	Ni	0.541	1665	6.9	8	10	
63	Cu	2.579	21098	1.6	8	10	
66	Zn	2.181	2742	4.0	10	5	
75	As	0.533	602	1.4	4	5	
78	Se	0.575	71	9.6	2	5	
88	Sr	1.208	5427	0.9	10	10	
107	Ag	0.120	1302	8.6	0.8	2	
111	Cd	0.668	1113	13.8	1.2	1	
118	Sn	0.754	3523	6.2	10	10	
121	Sb	0.213	1380	0.9	4	2.5	
137	Ba	0.534	940	10.7	8	10	
205	Tl	0.125	3215	4.2	4	1.5	
208	Pb	0.511	18427	1.3	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1014292	0.58	1008225	100.60	70	120	
72	Ge	662699	1.45	680921	97.32	70	120	
115	In	6447383	0.10	6714019	96.03	70	120	
209	Bi	14975372	0.88	15779460	94.90	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	8/9/2016 11:03	Sample Name	ICSAB-160809
Data Batch	160809.b	Comment	ICSBICPMS_TW
Data File Name	023ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	40.152	189256	0.21	40	100.4	80	120	
52	Cr	45	21.295	121046	1.61	20	106.5	80	120	
55	Mn	45	20.068	65307	1.24	20	100.3	80	120	
59	Co	72	40.309	355199	1.25	40	100.8	80	120	
60	Ni	72	38.143	92138	1.24	40	95.4	80	120	
63	Cu	72	21.233	143773	0.73	20	106.2	80	120	
66	Zn	72	20.725	23205	0.44	20	103.6	80	120	
75	As	72	20.281	17482	1.16	20	101.4	80	120	
78	Se	72	20.036	1154	6.20	20	100.2	80	120	
107	Ag	115	19.358	208415	0.63	20	96.8	80	120	
111	Cd	115	10.121	17022	1.43	10	101.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1026600	0.34	1008225	101.82	70	120	
72	Ge	678810	0.41	680921	99.69	70	120	
115	In	6548924	0.54	6714019	97.54	70	120	
209	Bi	14692869	1.09	15779460	93.11	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	8/9/2016 11:09	Sample Name	ICV-160809
Data Batch	160809.b	Comment	ICV ICPMS_TW
Data File Name	026_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	93.870	1816	1.91	100	93.9	90	110	
9	Be	45	102.514	3450	3.41	100	102.5	90	110	
11	B	45	90.801	1510	4.63	100	90.8	90	110	
23	Na	45	2646.217	2179833	0.75	2500	105.8	90	110	
24	Mg	45	2644.617	1079737	0.31	2500	105.8	90	110	
27	Al	45	2525.033	390402	0.91	2500	101.0	90	110	
39	K	45	2558.187	1070483	0.60	2500	102.3	90	110	
44	Ca	45	2362.855	56159	0.83	2500	94.5	90	110	
47	Ti	45	98.935	15428	2.05	100	98.9	90	110	
51	V	45	104.273	490461	0.65	100	104.3	90	110	
52	Cr	45	108.424	615490	1.15	100	108.4	90	110	
55	Mn	45	103.373	338138	0.33	100	103.4	90	110	
56	Fe	45	2628.605	12939607	1.13	2500	105.1	90	110	
59	Co	72	104.675	937583	0.78	100	104.7	90	110	
60	Ni	72	104.833	256721	0.83	100	104.8	90	110	
63	Cu	72	105.478	707053	1.01	100	105.5	90	110	
66	Zn	72	102.815	115386	0.94	100	102.8	90	110	
75	As	72	101.185	88014	0.84	100	101.2	90	110	
78	Se	72	102.302	5822	1.14	100	102.3	90	110	
88	Sr	115	98.318	435436	1.15	100	98.3	90	110	
95	Mo	115	96.721	375207	1.15	100	96.7	90	110	
107	Ag	115	102.189	1149512	1.63	100	102.2	90	110	
111	Cd	115	99.450	174693	0.76	100	99.4	90	110	
118	Sn	115	97.260	366416	0.77	100	97.3	90	110	
121	Sb	115	101.809	543343	1.57	100	101.8	90	110	
137	Ba	115	100.138	181280	0.79	100	100.1	90	110	
205	Tl	209	101.214	2589626	0.59	100	101.2	90	110	
208	Pb	209	100.005	3496041	0.86	100	100.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1033827	0.72	1008225	102.54	70	120	
72	Ge	690121	0.66	680921	101.35	70	120	
115	In	6843440	0.48	6714019	101.93	70	120	
209	Bi	16125425	0.14	15779460	102.19	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 11:14	Sample Name	LCVL-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	028LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.093	219	3.82	10	110.9	70	130	
9	Be	45	0.700	24	6.28	1	70.0	70	130	
11	B	45	22.517	407	12.73	20	112.6	70	130	
23	Na	45	117.964	140421	0.97	100	118.0	70	130	
24	Mg	45	106.822	44485	0.91	100	106.8	70	130	
27	Al	45	105.448	17397	1.41	100	105.4	70	130	
39	K	45	97.585	91598	1.78	100	97.6	70	130	
44	Ca	45	101.347	2834	1.71	100	101.3	70	130	
47	Ti	45	4.817	776	13.32	5	96.3	70	130	
51	V	45	1.197	8427	0.63	1	119.7	70	130	
52	Cr	45	5.344	31638	0.34	5	106.9	70	130	
55	Mn	45	5.091	16859	2.61	5	101.8	70	130	
56	Fe	45	112.660	562781	0.74	100	112.7	70	130	
59	Co	72	5.253	47408	1.22	5	105.1	70	130	
60	Ni	72	5.352	13570	1.18	5	107.0	70	130	
63	Cu	72	5.190	39570	0.77	5	103.8	70	130	
66	Zn	72	5.346	6429	0.94	5	106.9	70	130	
75	As	72	5.199	4704	1.17	5	104.0	70	130	
78	Se	72	4.948	323	7.38	5	99.0	70	130	
88	Sr	115	4.958	22293	1.23	5	99.2	70	130	
95	Mo	115	5.197	20169	0.99	5	103.9	70	130	
107	Ag	115	2.087	23448	0.49	2	104.3	70	130	
111	Cd	115	0.995	1751	5.22	1	99.5	70	130	
118	Sn	115	5.083	19953	2.09	5	101.7	70	130	
121	Sb	115	2.003	10982	1.87	2	100.1	70	130	
137	Ba	115	5.034	9118	1.21	5	100.7	70	130	
205	Tl	209	1.043	27007	0.90	1	104.3	70	130	
208	Pb	209	1.068	39408	1.46	1	106.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1037525	0.15	1008225	102.91	70	120	
72	Ge	693966	1.02	680921	101.92	70	120	
115	In	6826040	1.60	6714019	101.67	70	120	
209	Bi	16169004	1.50	15779460	102.47	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	8/9/2016 11:18	Sample Name	ICB-160809
Data Batch	160809.b	Comment	ICB ICPMS_TW
Data File Name	030_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.353	11	57.4	2	5	
9	Be	45	-0.010	0	173.2	0.4	0.3	
11	B	45	1.961	73	24.0	10	10	
23	Na	45	9.350	52723	0.5	50	100	
24	Mg	45	0.559	978	6.6	50	100	
27	Al	45	0.527	1167	8.5	50	10	
39	K	45	-8.887	49311	0.9	50	100	
44	Ca	45	2.318	493	8.8	50	100	
47	Ti	45	-0.005	22	48.2	4	3	
51	V	45	0.184	3686	4.1	4	3	
52	Cr	45	0.003	1276	7.3	2	2	
55	Mn	45	0.001	158	36.0	2	3	
56	Fe	45	1.938	16134	2.2	50	50	
59	Co	72	0.000	107	32.9	2	3	
60	Ni	72	0.008	436	22.6	2	3	
63	Cu	72	-0.149	3857	4.0	2	2	
66	Zn	72	-0.125	281	10.2	4	2	
75	As	72	0.067	225	3.8	2	2	
78	Se	72	0.194	53	20.4	1	2	
88	Sr	115	0.000	419	6.6	4	3	
95	Mo	115	0.187	801	7.3	2	2	
107	Ag	115	0.010	144	29.3	0.4	1	
111	Cd	115	0.013	31	34.4	0.4	0.3	
118	Sn	115	0.092	1261	1.1	4	3	
121	Sb	115	0.000	329	11.2	2	0.8	
137	Ba	115	-0.003	27	64.9	2	3	
205	Tl	209	0.004	363	8.0	2	0.5	
208	Pb	209	0.045	3508	4.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1042570	0.23	1008225	103.41	70	120	
72	Ge	698835	0.63	680921	102.63	70	120	
115	In	6912017	3.92	6714019	102.95	70	120	
209	Bi	15943450	0.42	15779460	101.04	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 15:03	Sample Name	CCV5-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	119_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	188.205	3524	1.00	200	94.1	90	110	
9	Be	45	190.821	6223	0.91	200	95.4	90	110	
11	B	45	247.567	3919	3.53	200	123.8	90	110	Fail
23	Na	45	5232.683	4133951	0.48	5000	104.7	90	110	
24	Mg	45	5123.609	2026048	0.60	5000	102.5	90	110	
27	Al	45	4995.158	747236	1.21	5000	99.9	90	110	
39	K	45	5164.764	2042106	0.81	5000	103.3	90	110	
44	Ca	45	4833.006	110856	0.10	5000	96.7	90	110	
47	Ti	45	196.831	29713	1.42	200	98.4	90	110	
51	V	45	213.721	971118	1.08	200	106.9	90	110	
52	Cr	45	211.497	1162102	0.32	200	105.7	90	110	
55	Mn	45	209.428	663581	0.31	200	104.7	90	110	
56	Fe	45	5272.158	25137941	1.49	5000	105.4	90	110	
59	Co	72	205.075	1852858	0.56	200	102.5	90	110	
60	Ni	72	204.138	503869	1.48	200	102.1	90	110	
63	Cu	72	205.931	1387811	1.40	200	103.0	90	110	
66	Zn	72	201.808	228053	0.21	200	100.9	90	110	
75	As	72	209.243	183429	0.29	200	104.6	90	110	
78	Se	72	203.615	11647	1.20	200	101.8	90	110	
88	Sr	115	197.236	869380	0.62	200	98.6	90	110	
95	Mo	115	197.920	764435	0.53	200	99.0	90	110	
107	Ag	115	205.826	2305361	0.35	200	102.9	90	110	
111	Cd	115	200.376	350450	1.23	200	100.2	90	110	
118	Sn	115	200.039	749430	0.63	200	100.0	90	110	
121	Sb	115	212.011	1126304	0.37	200	106.0	90	110	
137	Ba	115	206.557	372291	1.57	200	103.3	90	110	
205	Tl	209	204.108	5186795	0.70	200	102.1	90	110	
208	Pb	209	200.881	6973157	0.79	200	100.4	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1001638	0.83	1008225	99.35	70	120	
72	Ge	696160	0.68	680921	102.24	70	120	
115	In	6813960	0.48	6714019	101.49	70	120	
209	Bi	16017950	1.21	15779460	101.51	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 15:08	Sample Name	LCVL5-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	121LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.028	192	2.56	10	100.3	70	130	
9	Be	45	1.153	38	10.54	1	115.3	70	130	
11	B	45	65.960	1077	4.06	20	329.8	70	130	Fail
23	Na	45	199.063	199509	1.47	100	199.1	70	130	Fail
24	Mg	45	107.235	43228	1.45	100	107.2	70	130	
27	Al	45	104.380	16682	0.38	100	104.4	70	130	
39	K	45	106.680	92196	1.03	100	106.7	70	130	
44	Ca	45	106.143	2854	4.48	100	106.1	70	130	
47	Ti	45	4.465	698	7.88	5	89.3	70	130	
51	V	45	1.527	9655	0.99	1	152.7	70	130	Fail
52	Cr	45	5.472	31334	0.64	5	109.4	70	130	
55	Mn	45	5.263	16868	1.89	5	105.3	70	130	
56	Fe	45	111.432	538951	0.05	100	111.4	70	130	
59	Co	72	5.224	47811	2.02	5	104.5	70	130	
60	Ni	72	5.248	13498	3.50	5	105.0	70	130	
63	Cu	72	4.796	37444	1.32	5	95.9	70	130	
66	Zn	72	5.278	6442	1.82	5	105.6	70	130	
75	As	72	5.379	4929	2.11	5	107.6	70	130	
78	Se	72	5.632	366	4.59	5	112.6	70	130	
88	Sr	115	5.236	23803	0.99	5	104.7	70	130	
95	Mo	115	4.931	19373	1.12	5	98.6	70	130	
107	Ag	115	2.073	23566	1.39	2	103.6	70	130	
111	Cd	115	1.003	1787	4.83	1	100.3	70	130	
118	Sn	115	5.003	19891	2.38	5	100.1	70	130	
121	Sb	115	2.072	11487	2.61	2	103.6	70	130	
137	Ba	115	5.135	9413	1.11	5	102.7	70	130	
205	Tl	209	1.043	26992	1.04	1	104.3	70	130	
208	Pb	209	1.022	37741	1.47	1	102.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1004431	0.56	1008225	99.62	70	120	
72	Ge	703631	0.53	680921	103.34	70	120	
115	In	6909364	1.84	6714019	102.91	70	120	
209	Bi	16158629	2.37	15779460	102.40	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 15:11	Sample Name	CCB5-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	122_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.234	9	54.5	2	5	
9	Be	45	-0.020	0	#DIV/0!	0.4	0.3	
11	B	45	33.903	570	13.8	10	10	FailAq FailSoil
23	Na	45	73.465	100520	1.9	50	100	FailSoil
24	Mg	45	1.080	1142	7.2	50	100	
27	Al	45	-1.098	876	3.2	50	10	
39	K	45	-1.732	50002	0.7	50	100	
44	Ca	45	4.287	517	12.6	50	100	
47	Ti	45	-0.080	10	57.7	4	3	
51	V	45	0.330	4193	5.7	4	3	
52	Cr	45	-0.048	942	9.5	2	2	
55	Mn	45	-0.001	143	20.3	2	3	
56	Fe	45	0.137	6896	1.7	50	50	
59	Co	72	-0.004	64	16.6	2	3	
60	Ni	72	-0.039	316	14.3	2	3	
63	Cu	72	-0.434	1908	5.7	2	2	
66	Zn	72	-0.069	340	13.2	4	2	
75	As	72	0.058	214	11.2	2	2	
78	Se	72	0.406	64	4.9	1	2	
88	Sr	115	0.107	912	8.7	4	3	
95	Mo	115	0.032	200	20.8	2	2	
107	Ag	115	0.011	159	5.3	0.4	1	
111	Cd	115	0.000	9	21.6	0.4	0.3	
118	Sn	115	-0.098	550	10.4	4	3	
121	Sb	115	-0.005	312	12.0	2	0.8	
137	Ba	115	0.002	37	87.7	2	3	
205	Tl	209	0.004	351	7.9	2	0.5	
208	Pb	209	-0.009	1656	5.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	999033	0.79	1008225	99.09	70	120	
72	Ge	691102	0.92	680921	101.50	70	120	
115	In	7033122	0.66	6714019	104.75	70	120	
209	Bi	16148499	0.60	15779460	102.34	70	120	

Method Blank Report

Date Acquired	8/9/16 3:13 PM	Sample Name	MB-76664
Data Batch	160809.b	Comment	MBLKICPMS_TSDOD1
Data File Name	123_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.178	8	54.30		
9	Be	45	-0.020	0	#DIV/0!		
11	B	45	29.870	511	6.69		J
23	Na	45	69.665	98415	1.67		FAIL
24	Mg	45	12.791	5811	1.06		
27	Al	45	6.908	2087	7.22		
39	K	45	1.840	51832	1.22		
44	Ca	45	45.204	1462	4.17		
47	Ti	45	0.000	22	37.76		
51	V	45	0.295	4073	2.09		
52	Cr	45	0.159	2096	3.20		
55	Mn	45	0.127	554	9.20		
56	Fe	45	4.982	30196	2.87		
59	Co	72	0.000	100	27.28		
60	Ni	72	0.107	674	2.72		
63	Cu	72	-0.332	2602	7.94		
66	Zn	72	2.951	3736	8.36		
75	As	72	0.056	213	7.02		
78	Se	72	0.246	55	14.78		
88	Sr	115	0.231	1451	8.04		
95	Mo	115	0.037	213	10.25		
107	Ag	115	0.013	180	19.51		
111	Cd	115	-0.003	3	100.05		
118	Sn	115	4.348	17411	1.61		J
121	Sb	115	-0.028	180	19.34		
137	Ba	115	0.049	122	12.89		
205	Tl	209	0.005	407	3.28		
208	Pb	209	0.022	2828	5.35		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1007862	0.33	1008225	99.96	70	120	
72	Ge	693804	0.32	680921	101.89	70	120	
115	In	6909701	0.84	6714019	102.91	70	120	
209	Bi	16685363	2.23	15779460	105.74	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 15:15	Sample Name	LCS-76664
Data Batch	160809.b	Comment	LCS ICPMS_TSDOD1
Data File Name	124_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	191.315	3573	3.44	200	95.7	80	120	
9	Be	45	192.369	6257	1.48	200	96.2	80	120	
11	B	45	205.892	3259	3.96	200	102.9	80	120	
23	Na	45	5251.793	4138202	0.37	1000	525.2	80	120	Fail
24	Mg	45	5234.270	2064480	0.62	1000	523.4	80	120	Fail
27	Al	45	1021.933	153312	1.18	1000	102.2	80	120	
39	K	45	5253.195	2070954	0.98	1000	525.3	80	120	Fail
44	Ca	45	4945.853	113148	1.41	1000	494.6	80	120	Fail
47	Ti	45	195.787	29485	2.64	200	97.9	80	120	
51	V	45	216.385	980635	0.28	200	108.2	80	120	
52	Cr	45	214.687	1176541	0.55	200	107.3	80	120	
55	Mn	45	211.860	669525	0.42	200	105.9	80	120	
56	Fe	45	1052.087	5008033	0.90	1000	105.2	80	120	
59	Co	72	208.198	1859287	0.35	200	104.1	80	120	
60	Ni	72	208.492	508677	0.75	200	104.2	80	120	
63	Cu	72	207.425	1381725	0.54	200	103.7	80	120	
66	Zn	72	209.343	233801	0.87	200	104.7	80	120	
75	As	72	210.073	182022	0.43	200	105.0	80	120	
78	Se	72	202.019	11424	3.13	200	101.0	80	120	
88	Sr	115	195.713	873127	1.14	200	97.9	80	120	
95	Mo	115	196.448	767948	0.58	200	98.2	80	120	
107	Ag	115	204.528	2318633	0.83	200	102.3	80	120	
111	Cd	115	200.366	354702	0.20	200	100.2	80	120	
118	Sn	115	206.479	782941	0.18	200	103.2	80	120	
121	Sb	115	210.098	1129653	1.53	200	105.0	80	120	
137	Ba	115	203.039	370389	0.66	200	101.5	80	120	
205	Tl	209	199.692	5187137	0.70	200	99.8	80	120	
208	Pb	209	198.351	7038196	0.73	200	99.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	999044	0.92	1008225	99.09	70	120	
72	Ge	688080	0.55	680921	101.05	70	120	
115	In	6896808	0.52	6714019	102.72	70	120	
209	Bi	16374330	1.17	15779460	103.77	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 15:17	Sample Name	LCSD-76664
Data Batch	160809.b	Comment	LCSDICPMS_TSDOD1
Data File Name	125_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	188.881	3505	1.49	200	94.4	80	120	
9	Be	45	193.496	6254	3.02	200	96.7	80	120	
11	B	45	205.802	3237	3.30	200	102.9	80	120	
23	Na	45	5132.548	4020551	0.50	1000	513.3	80	120	Fail
24	Mg	45	5143.450	2016220	0.35	1000	514.3	80	120	Fail
27	Al	45	1009.534	150544	0.98	1000	101.0	80	120	
39	K	45	5145.012	2016894	0.46	1000	514.5	80	120	Fail
44	Ca	45	4806.626	109299	0.77	1000	480.7	80	120	Fail
47	Ti	45	198.348	29684	0.37	200	99.2	80	120	
51	V	45	215.752	971832	0.70	200	107.9	80	120	
52	Cr	45	213.359	1162153	0.37	200	106.7	80	120	
55	Mn	45	211.086	663003	0.62	200	105.5	80	120	
56	Fe	45	1067.839	5052527	2.57	1000	106.8	80	120	
59	Co	72	205.143	1843858	1.25	200	102.6	80	120	
60	Ni	72	203.955	500824	0.63	200	102.0	80	120	
63	Cu	72	203.068	1361542	0.96	200	101.5	80	120	
66	Zn	72	205.927	231478	0.72	200	103.0	80	120	
75	As	72	206.538	180114	0.37	200	103.3	80	120	
78	Se	72	199.281	11341	0.29	200	99.6	80	120	
88	Sr	115	193.318	860717	0.42	200	96.7	80	120	
95	Mo	115	196.192	765402	0.55	200	98.1	80	120	
107	Ag	115	203.047	2297113	0.16	200	101.5	80	120	
111	Cd	115	196.455	347067	0.88	200	98.2	80	120	
118	Sn	115	206.702	782173	1.03	200	103.4	80	120	
121	Sb	115	208.089	1116602	1.13	200	104.0	80	120	
137	Ba	115	200.470	364947	0.44	200	100.2	80	120	
205	Tl	209	200.809	5128520	0.57	200	100.4	80	120	
208	Pb	209	198.565	6927334	0.39	200	99.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	992931	0.69	1008225	98.48	70	120	
72	Ge	692513	0.41	680921	101.70	70	120	
115	In	6882752	0.82	6714019	102.51	70	120	
209	Bi	16099377	1.65	15779460	102.03	70	120	

Sample Report

Date Acquired	8/9/16 3:21 PM	Sample Name	1607265-18A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	127_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	60.310	1133	1.74	2000	>RL
9	Be	45	2.443	80	28.86	2000	>RL
11	B	45	112.716	1807	6.27	2000	>RL
23	Na	45	3984.079	3159293	1.20	25000	>RL
24	Mg	45	14095.277	5575433	0.36	25000	>RL
27	Al	45	67074.295	10026694	1.13	10000	OUTCAL
39	K	45	15274.635	5942840	1.68	25000	>RL
44	Ca	45	73990.376	1692019	0.44	25000	OUTCAL
47	Ti	45	257.270	38854	0.93	2000	>RL
51	V	45	108.514	494670	0.44	2000	>RL
52	Cr	45	63.956	352452	0.46	2000	>RL
55	Mn	45	519.142	1645559	0.56	2000	>RL
56	Fe	45	71163.114	339390058	0.55	10000	OUTCAL
59	Co	72	23.394	206154	0.45	2000	>RL
60	Ni	72	37.751	91174	1.52	2000	>RL
63	Cu	72	19.469	132196	0.28	2000	>RL
66	Zn	72	196.075	216031	0.68	2000	>RL
75	As	72	23.374	20119	0.56	2000	>RL
78	Se	72	5.030	320	6.47	2000	>RL
88	Sr	115	369.465	1600402	0.91	2000	>RL
95	Mo	115	1.782	6832	2.20	2000	
107	Ag	115	0.139	1561	2.67	500	
111	Cd	115	0.457	796	11.44	2000	>RL
118	Sn	115	6.140	23465	1.00	2000	>RL
121	Sb	115	4.644	24569	3.23	500	>RL
137	Ba	115	473.808	839292	0.71	2000	>RL
205	Tl	209	0.579	14585	2.72	2000	
208	Pb	209	246.496	8331466	0.34	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1002148	0.82	1008225	99.40	70	120	
72	Ge	678688	0.36	680921	99.67	70	120	
115	In	6697915	1.37	6714019	99.76	70	120	
209	Bi	15598069	1.51	15779460	98.85	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/9/2016 15:23	Sample Name	1607265-18A SD
Data Batch	160809.b	Comment	SD ICPMS_TSDOD1
Data File Name	128_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	12.284	236	7.85	60.3	101.8	110	90	Good
9	Be	45	0.517	18	31.17	2.4	105.8	110	90	Good
11	B	45	36.117	610	13.69	112.7	160.2	110	90	
23	Na	45	840.258	705369	0.11	3984.1	105.5	110	90	Good
24	Mg	45	2854.769	1137510	0.22	14095.3	101.3	110	90	Good
27	Al	45	13371.447	2013299	0.30	67074.3	99.7	110	90	Good
39	K	45	3082.047	1248295	0.37	15274.6	100.9	110	90	Good
44	Ca	45	15278.816	352123	0.33	73990.4	103.2	110	90	Good
47	Ti	45	51.189	7801	2.00	257.3	99.5	110	90	Good
51	V	45	21.995	103124	1.09	108.5	101.3	110	90	Good
52	Cr	45	13.261	74543	0.33	64.0	103.7	110	90	Good
55	Mn	45	106.860	341147	0.57	519.1	102.9	110	90	Good
56	Fe	45	14742.210	70793279	2.39	71163.1	103.6	110	90	Good
59	Co	72	4.694	42704	2.01	23.4	100.3	110	90	Good
60	Ni	72	7.707	19507	0.79	37.8	102.1	110	90	Good
63	Cu	72	3.681	29692	0.25	19.5	94.5	110	90	Good
66	Zn	72	40.731	46565	0.71	196.1	103.9	110	90	Good
75	As	72	4.692	4293	2.91	23.4	100.4	110	90	Good
78	Se	72	1.408	122	5.22	5.0	140.0	110	90	
88	Sr	115	74.850	332245	0.34	369.5	101.3	110	90	Good
95	Mo	115	0.381	1549	1.83	1.8	106.8	110	90	Good
107	Ag	115	0.042	506	9.33	0.1	150.4	110	90	
111	Cd	115	0.112	207	6.45	0.5	122.7	110	90	
118	Sn	115	1.141	5201	2.06	6.1	92.9	110	90	Good
121	Sb	115	0.930	5300	3.05	4.6	100.2	110	90	Good
137	Ba	115	95.612	173425	0.51	473.8	100.9	110	90	Good
205	Tl	209	0.134	3726	1.90	0.6	115.8	110	90	
208	Pb	209	48.465	1710223	0.39	246.5	98.3	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1008986	0.46	1008225	100.08	70	120	
72	Ge	699213	0.74	680921	102.69	70	120	
115	In	6857379	1.58	6714019	102.14	70	120	
209	Bi	16269533	1.41	15779460	103.11	70	120	

Sample Report

Date Acquired	8/9/16 3:25 PM	Sample Name	1607265-08A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	129SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	78.722	1441	2.06	2000	>RL
9	Be	45	1.876	60	14.29	2000	>RL
11	B	45	147.239	2291	7.89	2000	>RL
23	Na	45	11422.767	8757092	1.27	25000	>RL
24	Mg	45	13675.030	5276375	1.29	25000	>RL
27	Al	45	53863.472	7854169	1.45	10000	OUTCAL
39	K	45	8952.119	3418208	0.64	25000	>RL
44	Ca	45	402671.682	8980048	1.36	25000	OUTCAL
47	Ti	45	225.799	33265	0.84	2000	>RL
51	V	45	99.320	441854	0.83	2000	>RL
52	Cr	45	53.233	286339	0.80	2000	>RL
55	Mn	45	371.700	1149260	0.76	2000	>RL
56	Fe	45	66994.827	311672948	2.03	10000	OUTCAL
59	Co	72	23.702	205077	0.59	2000	>RL
60	Ni	72	29.734	70593	0.12	2000	>RL
63	Cu	72	7.740	54390	0.73	2000	>RL
66	Zn	72	119.523	129449	0.33	2000	>RL
75	As	72	21.510	18191	0.64	2000	>RL
78	Se	72	4.854	305	6.12	2000	>RL
88	Sr	115	1960.203	8291032	2.14	2000	>RL
95	Mo	115	2.994	11166	1.57	2000	>RL
107	Ag	115	0.045	517	17.75	500	
111	Cd	115	0.253	433	6.30	2000	
118	Sn	115	8.043	29753	1.46	2000	>RL
121	Sb	115	0.190	1283	1.37	500	
137	Ba	115	285.375	493722	0.60	2000	>RL
205	Tl	209	0.430	10621	2.62	2000	
208	Pb	209	38.282	1263638	0.08	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	977484	0.52	1008225	96.95	70	120	
72	Ge	666380	0.82	680921	97.86	70	120	
115	In	6540879	0.87	6714019	97.42	70	120	
209	Bi	15213387	1.06	15779460	96.41	70	120	

Sample Report

Date Acquired	8/9/16 3:27 PM	Sample Name	1607265-09A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	130SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	51.552	991	4.86	2000	>RL
9	Be	45	2.119	71	16.43	2000	>RL
11	B	45	76.886	1273	5.60	2000	>RL
23	Na	45	1220.244	1020224	0.38	25000	>RL
24	Mg	45	12666.204	5122701	1.04	25000	>RL
27	Al	45	67802.422	10363460	1.29	10000	OUTCAL
39	K	45	16498.613	6559973	3.29	25000	>RL
44	Ca	45	24272.550	567822	0.77	25000	>RL
47	Ti	45	267.760	41344	1.86	2000	>RL
51	V	45	103.097	480692	0.77	2000	>RL
52	Cr	45	64.498	363424	0.77	2000	>RL
55	Mn	45	601.389	1949041	0.89	2000	>RL
56	Fe	45	66741.450	325470992	2.07	10000	OUTCAL
59	Co	72	23.689	215601	0.59	2000	>RL
60	Ni	72	39.120	97561	0.87	2000	>RL
63	Cu	72	25.974	180489	1.06	2000	>RL
66	Zn	72	220.878	251259	0.23	2000	>RL
75	As	72	24.978	22195	1.44	2000	>RL
78	Se	72	5.528	359	7.41	2000	>RL
88	Sr	115	237.361	1062853	0.72	2000	>RL
95	Mo	115	1.668	6614	0.77	2000	
107	Ag	115	0.162	1875	2.54	500	
111	Cd	115	0.438	787	13.59	2000	>RL
118	Sn	115	5.824	23054	0.94	2000	>RL
121	Sb	115	6.933	37737	1.46	500	>RL
137	Ba	115	304.839	558107	1.24	2000	>RL
205	Tl	209	0.601	15304	0.95	2000	
208	Pb	209	341.193	11668362	0.13	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1024655	0.46	1008225	101.63	70	120	
72	Ge	700985	1.47	680921	102.95	70	120	
115	In	6922863	1.18	6714019	103.11	70	120	
209	Bi	15783532	1.44	15779460	100.03	70	120	

Sample Report

Date Acquired	8/9/16 3:29 PM	Sample Name	1607265-10A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	131SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	67.372	1293	2.98	2000	>RL
9	Be	45	2.778	93	18.22	2000	>RL
11	B	45	101.530	1669	6.10	2000	>RL
23	Na	45	8035.218	6471680	0.81	25000	>RL
24	Mg	45	17206.213	6960118	0.82	25000	>RL
27	Al	45	78923.102	12064891	1.42	10000	OUTCAL
39	K	45	16074.774	6393819	1.21	25000	>RL
44	Ca	45	111317.453	2603107	1.04	25000	OUTCAL
47	Ti	45	326.617	50439	2.09	2000	>RL
51	V	45	127.549	594147	0.67	2000	>RL
52	Cr	45	69.901	393835	1.70	2000	>RL
55	Mn	45	666.996	2162079	0.32	2000	>RL
56	Fe	45	72191.581	352118075	0.71	10000	OUTCAL
59	Co	72	26.979	243192	1.55	2000	>RL
60	Ni	72	47.539	117358	1.61	2000	>RL
63	Cu	72	23.869	164725	1.60	2000	>RL
66	Zn	72	212.221	239163	0.81	2000	>RL
75	As	72	21.215	18695	0.53	2000	>RL
78	Se	72	5.463	352	6.43	2000	>RL
88	Sr	115	409.559	1813538	0.59	2000	>RL
95	Mo	115	1.300	5114	2.61	2000	
107	Ag	115	0.101	1169	2.59	500	
111	Cd	115	0.511	907	7.34	2000	>RL
118	Sn	115	5.903	23099	0.48	2000	>RL
121	Sb	115	0.359	2244	6.05	500	
137	Ba	115	604.634	1094956	0.91	2000	>RL
205	Tl	209	0.678	17066	2.67	2000	
208	Pb	209	32.965	1119062	0.58	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1024838	0.15	1008225	101.65	70	120	
72	Ge	694344	1.39	680921	101.97	70	120	
115	In	6846892	0.47	6714019	101.98	70	120	
209	Bi	15642389	1.20	15779460	99.13	70	120	

Sample Report

Date Acquired	8/9/16 3:31 PM	Sample Name	1607265-11A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	132SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	75.560	1445	0.81	2000	>RL
9	Be	45	1.927	65	21.45	2000	>RL
11	B	45	140.348	2284	6.26	2000	>RL
23	Na	45	11968.522	9583080	1.06	25000	>RL
24	Mg	45	16610.644	6694718	0.44	25000	>RL
27	Al	45	62173.954	9470303	2.30	10000	OUTCAL
39	K	45	10497.050	4178023	0.59	25000	>RL
44	Ca	45	330787.651	7706786	2.19	25000	OUTCAL
47	Ti	45	285.063	43864	0.57	2000	>RL
51	V	45	128.423	596017	0.47	2000	>RL
52	Cr	45	63.739	357901	0.71	2000	>RL
55	Mn	45	701.078	2264224	0.65	2000	>RL
56	Fe	45	65123.921	316494485	1.75	10000	OUTCAL
59	Co	72	24.881	223839	0.37	2000	>RL
60	Ni	72	35.823	88350	0.60	2000	>RL
63	Cu	72	14.882	104300	0.76	2000	>RL
66	Zn	72	146.786	165214	0.71	2000	>RL
75	As	72	22.308	19612	1.81	2000	>RL
78	Se	72	4.913	320	2.38	2000	>RL
88	Sr	115	747.329	3292401	0.47	2000	>RL
95	Mo	115	2.764	10742	0.55	2000	>RL
107	Ag	115	0.053	626	6.06	500	
111	Cd	115	0.466	824	6.88	2000	>RL
118	Sn	115	5.962	23207	1.75	2000	>RL
121	Sb	115	0.691	3994	1.94	500	
137	Ba	115	2127.356	3833339	0.43	2000	OUTCAL
205	Tl	209	0.525	13067	1.99	2000	
208	Pb	209	51.218	1710334	0.43	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1021120	0.74	1008225	101.28	70	120	
72	Ge	692882	0.21	680921	101.76	70	120	
115	In	6812723	0.10	6714019	101.47	70	120	
209	Bi	15395094	0.20	15779460	97.56	70	120	

Sample Report

Date Acquired	8/9/16 3:33 PM	Sample Name	1607265-12A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	133SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	60.059	1081	6.76	2000	>RL
9	Be	45	1.163	37	15.05	2000	>RL
11	B	45	132.488	2031	3.57	2000	>RL
23	Na	45	10102.363	7619360	1.48	25000	>RL
24	Mg	45	9846.562	3735643	1.11	25000	>RL
27	Al	45	43208.303	6194344	0.96	10000	OUTCAL
39	K	45	6402.966	2417913	1.88	25000	>RL
44	Ca	45	365633.359	8017149	1.09	25000	OUTCAL
47	Ti	45	171.751	24880	2.14	2000	>RL
51	V	45	75.915	332689	1.49	2000	>RL
52	Cr	45	43.845	232090	0.69	2000	>RL
55	Mn	45	108.705	330578	1.85	2000	>RL
56	Fe	45	37111.216	169745251	1.45	10000	OUTCAL
59	Co	72	8.507	73155	2.60	2000	>RL
60	Ni	72	15.459	36627	1.61	2000	>RL
63	Cu	72	6.288	44736	2.33	2000	>RL
66	Zn	72	69.487	74887	1.17	2000	>RL
75	As	72	12.280	10380	2.19	2000	>RL
78	Se	72	3.091	207	4.27	2000	>RL
88	Sr	115	1653.393	7006090	1.33	2000	>RL
95	Mo	115	1.312	4943	2.60	2000	
107	Ag	115	0.052	591	21.18	500	
111	Cd	115	0.065	118	12.76	2000	
118	Sn	115	5.603	21028	0.94	2000	>RL
121	Sb	115	0.093	792	5.19	500	
137	Ba	115	296.517	514077	0.82	2000	>RL
205	Tl	209	0.290	7180	2.09	2000	
208	Pb	209	19.425	635624	1.70	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	961125	1.35	1008225	95.33	70	120	
72	Ge	661611	1.53	680921	97.16	70	120	
115	In	6555633	2.05	6714019	97.64	70	120	
209	Bi	15057846	0.94	15779460	95.43	70	120	

Sample Report

Date Acquired	8/9/16 3:35 PM	Sample Name	1607265-14A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	134SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	59.150	1105	2.52	2000	>RL
9	Be	45	2.484	81	12.62	2000	>RL
11	B	45	112.970	1802	6.47	2000	>RL
23	Na	45	6552.729	5142187	0.41	25000	>RL
24	Mg	45	14736.884	5799296	0.26	25000	>RL
27	Al	45	66764.416	9927479	2.25	10000	OUTCAL
39	K	45	15387.786	5955345	2.32	25000	>RL
44	Ca	45	79731.475	1813893	0.28	25000	OUTCAL
47	Ti	45	258.922	38903	0.65	2000	>RL
51	V	45	120.557	546504	1.32	2000	>RL
52	Cr	45	66.267	363275	0.51	2000	>RL
55	Mn	45	556.004	1753311	0.06	2000	>RL
56	Fe	45	79207.076	375806412	2.32	10000	OUTCAL
59	Co	72	24.262	213663	0.94	2000	>RL
60	Ni	72	40.661	98105	1.45	2000	>RL
63	Cu	72	20.151	136571	1.44	2000	>RL
66	Zn	72	204.730	225392	0.75	2000	>RL
75	As	72	29.009	24914	1.01	2000	>RL
78	Se	72	5.425	342	13.73	2000	>RL
88	Sr	115	411.260	1763241	0.43	2000	>RL
95	Mo	115	1.977	7495	2.25	2000	
107	Ag	115	0.128	1433	4.63	500	
111	Cd	115	0.447	769	11.97	2000	>RL
118	Sn	115	6.246	23614	1.15	2000	>RL
121	Sb	115	5.745	30003	0.66	500	>RL
137	Ba	115	571.730	1002505	0.12	2000	>RL
205	Tl	209	0.550	13595	1.38	2000	
208	Pb	209	301.911	10003514	0.45	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	997058	1.17	1008225	98.89	70	120	
72	Ge	678221	0.78	680921	99.60	70	120	
115	In	6629927	1.15	6714019	98.75	70	120	
209	Bi	15293627	2.11	15779460	96.92	70	120	

Sample Report

Date Acquired	8/9/16 3:37 PM	Sample Name	1607265-15A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	135SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.428	903	4.82	2000	>RL
9	Be	45	1.639	53	14.25	2000	>RL
11	B	45	128.004	1990	7.40	2000	>RL
23	Na	45	10781.240	8239968	0.74	25000	>RL
24	Mg	45	11915.377	4582356	0.32	25000	>RL
27	Al	45	50741.399	7374768	1.10	10000	OUTCAL
39	K	45	8411.963	3204478	0.63	25000	>RL
44	Ca	45	344550.329	7658963	1.46	25000	OUTCAL
47	Ti	45	174.905	25686	0.90	2000	>RL
51	V	45	113.075	501023	1.28	2000	>RL
52	Cr	45	49.459	265256	1.64	2000	>RL
55	Mn	45	253.321	780719	0.10	2000	>RL
56	Fe	45	66177.689	306812814	2.19	10000	OUTCAL
59	Co	72	12.399	108290	1.38	2000	>RL
60	Ni	72	22.632	54306	0.39	2000	>RL
63	Cu	72	10.035	69762	0.28	2000	>RL
66	Zn	72	112.864	123363	1.13	2000	>RL
75	As	72	22.072	18830	0.59	2000	>RL
78	Se	72	4.105	266	2.22	2000	>RL
88	Sr	115	1347.800	5741627	0.21	2000	>RL
95	Mo	115	2.507	9424	2.62	2000	>RL
107	Ag	115	0.041	482	15.92	500	
111	Cd	115	0.206	357	16.22	2000	
118	Sn	115	5.692	21462	2.10	2000	>RL
121	Sb	115	0.523	3000	4.16	500	
137	Ba	115	665.210	1159261	1.18	2000	>RL
205	Tl	209	0.342	8306	1.96	2000	
208	Pb	209	45.621	1470267	0.56	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	974341	1.09	1008225	96.64	70	120	
72	Ge	672354	0.92	680921	98.74	70	120	
115	In	6588983	1.58	6714019	98.14	70	120	
209	Bi	14857056	0.89	15779460	94.15	70	120	

Sample Report

Date Acquired	8/9/16 3:39 PM	Sample Name	1607265-16A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	136SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	40.345	737	3.31	2000	>RL
9	Be	45	1.505	48	10.62	2000	>RL
11	B	45	116.881	1819	2.91	2000	>RL
23	Na	45	8105.355	6200020	2.79	25000	>RL
24	Mg	45	10378.227	3987685	0.83	25000	>RL
27	Al	45	44578.276	6473187	2.01	10000	OUTCAL
39	K	45	9060.211	3444441	0.71	25000	>RL
44	Ca	45	315188.818	6999805	0.78	25000	OUTCAL
47	Ti	45	157.694	23140	2.19	2000	>RL
51	V	45	74.441	330451	1.18	2000	>RL
52	Cr	45	45.680	244854	0.28	2000	>RL
55	Mn	45	193.157	594801	0.67	2000	>RL
56	Fe	45	55178.782	255628897	0.39	10000	OUTCAL
59	Co	72	10.719	92706	0.93	2000	>RL
60	Ni	72	17.623	41958	1.19	2000	>RL
63	Cu	72	7.978	55867	1.82	2000	>RL
66	Zn	72	112.265	121488	0.54	2000	>RL
75	As	72	18.589	15726	2.08	2000	>RL
78	Se	72	4.178	267	3.76	2000	>RL
88	Sr	115	2060.208	8629574	0.50	2000	OUTCAL
95	Mo	115	2.612	9654	2.23	2000	>RL
107	Ag	115	0.047	531	2.90	500	
111	Cd	115	0.178	303	12.96	2000	
118	Sn	115	5.669	21026	1.03	2000	>RL
121	Sb	115	0.917	4945	7.75	500	
137	Ba	115	225.636	386633	0.88	2000	>RL
205	Tl	209	0.292	7156	1.01	2000	
208	Pb	209	64.848	2099744	0.39	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	973399	0.21	1008225	96.55	70	120	
72	Ge	665661	0.28	680921	97.76	70	120	
115	In	6480874	2.81	6714019	96.53	70	120	
209	Bi	14931634	0.47	15779460	94.63	70	120	

Sample Report

Date Acquired	8/9/16 3:41 PM	Sample Name	1607265-17A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	137SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	77.104	1449	0.81	2000	>RL
9	Be	45	3.469	114	7.18	2000	>RL
11	B	45	118.039	1893	5.08	2000	>RL
23	Na	45	11808.661	9291870	1.23	25000	>RL
24	Mg	45	11937.247	4727927	1.92	25000	>RL
27	Al	45	56264.937	8421653	1.72	10000	OUTCAL
39	K	45	8850.219	3469472	0.53	25000	>RL
44	Ca	45	213250.694	4882172	0.84	25000	OUTCAL
47	Ti	45	89.668	13574	1.56	2000	>RL
51	V	45	80.858	369761	1.09	2000	>RL
52	Cr	45	48.325	266951	0.48	2000	>RL
55	Mn	45	684.812	2173441	0.52	2000	>RL
56	Fe	45	77246.471	368898145	0.49	10000	OUTCAL
59	Co	72	85.166	751666	0.29	2000	>RL
60	Ni	72	79.386	191649	0.09	2000	>RL
63	Cu	72	8.246	58824	0.40	2000	>RL
66	Zn	72	401.000	442230	0.85	2000	>RL
75	As	72	17.789	15379	1.17	2000	>RL
78	Se	72	7.425	454	10.98	2000	>RL
88	Sr	115	1810.302	7850781	0.76	2000	>RL
95	Mo	115	2.381	9117	3.44	2000	>RL
107	Ag	115	0.031	380	8.77	500	
111	Cd	115	0.109	197	4.48	2000	
118	Sn	115	6.179	23644	0.10	2000	>RL
121	Sb	115	0.236	1552	4.51	500	
137	Ba	115	189.173	335571	0.40	2000	>RL
205	Tl	209	0.554	13642	0.37	2000	
208	Pb	209	42.693	1410984	0.51	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1003425	0.39	1008225	99.52	70	120	
72	Ge	679994	0.85	680921	99.86	70	120	
115	In	6708102	1.92	6714019	99.91	70	120	
209	Bi	15233902	0.90	15779460	96.54	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/9/2016 15:43	Sample Name	1607265-18A PDS
Data Batch	160809.b	Comment	PDS ICPMS_TSDOD1
Data File Name	138_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	214.580	3986	1.98	60.3	200	77.1	75	125	
9	Be	45	180.709	5848	1.89	2.4	200	89.1	75	125	
11	B	45	247.486	3888	2.01	112.7	200	67.4	75	125	Fail
23	Na	45	8917.244	6961396	2.70	3984.1	5000	98.7	75	125	
24	Mg	45	19028.911	7465017	2.04	14095.3	5000	98.7	75	125	
27	Al	45	71689.350	10626971	2.01	67074.3	5000	92.3	75	125	
39	K	45	20901.987	8047937	1.63	15274.6	5000	112.5	75	125	
44	Ca	45	78758.418	1786200	1.07	73990.4	5000	95.4	75	125	
47	Ti	45	450.565	67478	2.40	257.3	200	96.6	75	125	
51	V	45	317.111	1428596	1.18	108.5	200	104.3	75	125	
52	Cr	45	270.902	1476810	1.05	64.0	200	103.5	75	125	
55	Mn	45	719.943	2263329	0.91	519.1	200	100.4	75	125	
56	Fe	45	77159.471	365042074	2.92	71163.1	5000	119.9	75	125	
59	Co	72	216.243	1920480	1.40	23.4	200	96.4	75	125	
60	Ni	72	228.209	553640	1.06	37.8	200	95.2	75	125	
63	Cu	72	206.100	1365327	0.52	19.5	200	93.3	75	125	
66	Zn	72	383.782	425891	0.82	196.1	200	93.9	75	125	
75	As	72	226.082	194791	0.41	23.4	200	101.4	75	125	
78	Se	72	194.247	10924	0.61	5.0	200	94.6	75	125	
88	Sr	115	560.779	2419039	0.78	369.5	200	95.7	75	125	
95	Mo	115	188.348	712111	0.28	1.8	200	93.3	75	125	
107	Ag	115	195.446	2142776	0.46	0.1	200	97.7	75	125	
111	Cd	115	184.977	316710	0.47	0.5	200	92.3	75	125	
118	Sn	115	199.158	730413	0.40	6.1	200	96.5	75	125	
121	Sb	115	206.693	1074886	0.63	4.6	200	101.0	75	125	
137	Ba	115	663.316	1170269	0.93	473.8	200	94.8	75	125	
205	Tl	209	196.860	4688956	0.72	0.6	200	98.1	75	125	
208	Pb	209	459.120	14935872	0.74	246.5	200	106.3	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	993933	0.89	1008225	98.58	70	120	
72	Ge	684272	0.79	680921	100.49	70	120	
115	In	6671286	1.72	6714019	99.36	70	120	
209	Bi	15012458	0.40	15779460	95.14	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 15:45	Sample Name	1607265-18A MS
Data Batch	160809.b	Comment	MS ICPMS_TSDOD1
Data File Name	139_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	222.160	4190	0.55	60.3	200	80.9	80	120	
9	Be	45	184.478	6061	1.97	2.4	200	91.0	80	120	
11	B	45	275.626	4393	2.43	112.7	200	81.5	80	120	
23	Na	45	9196.787	7287086	2.56	3984.1	1000	521.3	80	120	Fail
24	Mg	45	20436.138	8139823	1.08	14095.3	1000	634.1	80	120	Fail
27	Al	45	75056.691	11298363	1.94	67074.3	1000	798.2	80	120	Fail
39	K	45	22694.323	8868331	3.90	15274.6	1000	742.0	80	120	Fail
44	Ca	45	83369.436	1919850	0.70	73990.4	1000	937.9	80	120	Fail
47	Ti	45	540.501	82176	0.69	257.3	200	141.6	80	120	Fail
51	V	45	328.117	1500745	0.51	108.5	200	109.8	80	120	
52	Cr	45	282.360	1562824	0.84	64.0	200	109.2	80	120	
55	Mn	45	733.807	2342234	0.60	519.1	200	107.3	80	120	
56	Fe	45	75552.102	362868750	2.20	71163.1	1000	438.9	80	120	Fail
59	Co	72	226.964	2010529	1.23	23.4	200	101.8	80	120	
60	Ni	72	242.292	586291	0.99	37.8	200	102.3	80	120	
63	Cu	72	222.776	1471630	0.38	19.5	200	101.7	80	120	
66	Zn	72	435.236	481716	0.29	196.1	200	119.6	80	120	
75	As	72	235.015	201967	0.75	23.4	200	105.8	80	120	
78	Se	72	207.263	11623	0.85	5.0	200	101.1	80	120	
88	Sr	115	578.078	2476997	0.46	369.5	200	104.3	80	120	
95	Mo	115	190.579	715750	0.45	1.8	200	94.4	80	120	
107	Ag	115	201.088	2190078	0.65	0.1	200	100.5	80	120	
111	Cd	115	199.149	338706	0.40	0.5	200	99.3	80	120	
118	Sn	115	211.009	768704	0.91	6.1	200	102.4	80	120	
121	Sb	115	78.618	406351	1.08	4.6	200	37.0	80	120	Fail
137	Ba	115	617.832	1082793	0.73	473.8	200	72.0	80	120	Fail
205	Tl	209	203.539	4968151	0.76	0.6	200	101.5	80	120	
208	Pb	209	447.021	14903006	1.21	246.5	200	100.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1009164	0.36	1008225	100.09	70	120	
72	Ge	682506	0.46	680921	100.23	70	120	
115	In	6625982	0.62	6714019	98.69	70	120	
209	Bi	15385055	1.15	15779460	97.50	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 15:47	Sample Name	1607265-18A MSD
Data Batch	160809.b	Comment	MSD ICPMS_TSDOD1
Data File Name	140_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	238.292	4488	1.87	60.3	200	89.0	80	120	
9	Be	45	193.823	6358	1.29	2.4	200	95.7	80	120	
11	B	45	295.707	4703	1.49	112.7	200	91.5	80	120	
23	Na	45	9664.662	7645680	2.32	3984.1	1000	568.1	80	120	Fail
24	Mg	45	21050.773	8373380	1.53	14095.3	1000	695.5	80	120	Fail
27	Al	45	79907.602	12010995	0.14	67074.3	1000	1283.3	80	120	Fail
39	K	45	23148.201	9030636	1.05	15274.6	1000	787.4	80	120	Fail
44	Ca	45	90671.874	2084927	0.34	73990.4	1000	1668.1	80	120	Fail
47	Ti	45	565.757	85890	0.35	257.3	200	154.2	80	120	Fail
51	V	45	348.737	1592589	0.39	108.5	200	120.1	80	120	Fail
52	Cr	45	320.166	1769380	0.64	64.0	200	128.1	80	120	Fail
55	Mn	45	766.276	2442416	0.73	519.1	200	123.6	80	120	Fail
56	Fe	45	79217.714	379924456	0.34	71163.1	1000	805.5	80	120	Fail
59	Co	72	236.687	2111918	0.36	23.4	200	106.6	80	120	
60	Ni	72	265.534	647195	1.03	37.8	200	113.9	80	120	
63	Cu	72	232.219	1545131	1.19	19.5	200	106.4	80	120	
66	Zn	72	689.791	768822	0.89	196.1	200	246.9	80	120	Fail
75	As	72	248.110	214758	0.33	23.4	200	112.4	80	120	
78	Se	72	216.076	12204	1.21	5.0	200	105.5	80	120	
88	Sr	115	638.818	2729239	1.14	369.5	200	134.7	80	120	Fail
95	Mo	115	204.450	765581	0.37	1.8	200	101.3	80	120	
107	Ag	115	202.445	2198422	0.30	0.1	200	101.2	80	120	
111	Cd	115	210.809	357500	1.42	0.5	200	105.2	80	120	
118	Sn	115	223.472	811662	1.15	6.1	200	108.7	80	120	
121	Sb	115	77.220	397956	1.13	4.6	200	36.3	80	120	Fail
137	Ba	115	656.777	1147623	0.25	473.8	200	91.5	80	120	
205	Tl	209	216.048	5233949	0.17	0.6	200	107.7	80	120	
208	Pb	209	573.808	18986677	1.24	246.5	200	163.7	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1007739	0.88	1008225	99.95	70	120	
72	Ge	687551	1.29	680921	100.97	70	120	
115	In	6606488	0.61	6714019	98.40	70	120	
209	Bi	15269902	0.95	15779460	96.77	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 15:49	Sample Name	CCV6-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	141_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	170.203	3143	2.24	200	85.1	90	110	Fail
9	Be	45	186.934	6011	1.20	200	93.5	90	110	
11	B	45	186.137	2916	7.89	200	93.1	90	110	
23	Na	45	5046.918	3933908	0.85	5000	100.9	90	110	
24	Mg	45	5014.510	1955718	1.20	5000	100.3	90	110	
27	Al	45	4783.822	705831	0.48	5000	95.7	90	110	
39	K	45	5150.671	2008614	1.18	5000	103.0	90	110	
44	Ca	45	4700.037	106334	1.30	5000	94.0	90	110	
47	Ti	45	195.698	29141	2.56	200	97.8	90	110	
51	V	45	215.398	965255	0.48	200	107.7	90	110	
52	Cr	45	214.371	1161700	0.71	200	107.2	90	110	
55	Mn	45	207.966	649903	1.33	200	104.0	90	110	
56	Fe	45	5334.301	25087007	2.51	5000	106.7	90	110	
59	Co	72	204.235	1833744	1.24	200	102.1	90	110	
60	Ni	72	205.417	503874	1.22	200	102.7	90	110	
63	Cu	72	206.627	1383832	0.17	200	103.3	90	110	
66	Zn	72	204.014	229092	0.16	200	102.0	90	110	
75	As	72	209.900	182850	0.36	200	104.9	90	110	
78	Se	72	197.972	11256	1.61	200	99.0	90	110	
88	Sr	115	192.819	837735	0.60	200	96.4	90	110	
95	Mo	115	197.022	750092	1.24	200	98.5	90	110	
107	Ag	115	205.889	2272869	0.96	200	102.9	90	110	
111	Cd	115	200.855	346240	0.27	200	100.4	90	110	
118	Sn	115	197.043	727540	0.75	200	98.5	90	110	
121	Sb	115	208.987	1094232	0.69	200	104.5	90	110	
137	Ba	115	202.112	359048	0.87	200	101.1	90	110	
205	Tl	209	205.249	5051692	0.26	200	102.6	90	110	
208	Pb	209	202.233	6799198	0.15	200	101.1	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	987870	1.13	1008225	97.98	70	120	
72	Ge	691776	0.42	680921	101.59	70	120	
115	In	6716951	1.66	6714019	100.04	70	120	
209	Bi	15513174	0.65	15779460	98.31	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 15:54	Sample Name	LCVL6-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	143LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.419	172	2.63	10	94.2	70	130	
9	Be	45	1.000	32	28.65	1	100.0	70	130	
11	B	45	32.944	529	8.20	20	164.7	70	130	Fail
23	Na	45	128.270	136653	0.72	100	128.3	70	130	
24	Mg	45	106.371	40692	0.43	100	106.4	70	130	
27	Al	45	100.927	15340	3.35	100	100.9	70	130	
39	K	45	109.379	88463	1.26	100	109.4	70	130	
44	Ca	45	110.939	2812	3.10	100	110.9	70	130	
47	Ti	45	5.250	774	4.60	5	105.0	70	130	
51	V	45	0.928	6577	0.72	1	92.8	70	130	
52	Cr	45	5.627	30540	1.16	5	112.5	70	130	
55	Mn	45	5.310	16147	3.57	5	106.2	70	130	
56	Fe	45	115.324	529028	0.99	100	115.3	70	130	
59	Co	72	5.243	45668	1.34	5	104.9	70	130	
60	Ni	72	5.289	12946	0.53	5	105.8	70	130	
63	Cu	72	4.729	35212	1.26	5	94.6	70	130	
66	Zn	72	5.320	6177	1.88	5	106.4	70	130	
75	As	72	5.387	4698	1.91	5	107.7	70	130	
78	Se	72	5.383	335	3.22	5	107.7	70	130	
88	Sr	115	5.081	22035	1.01	5	101.6	70	130	
95	Mo	115	5.000	18730	1.25	5	100.0	70	130	
107	Ag	115	2.096	22725	1.46	2	104.8	70	130	
111	Cd	115	0.967	1645	0.82	1	96.7	70	130	
118	Sn	115	4.950	18776	1.36	5	99.0	70	130	
121	Sb	115	2.140	11299	0.82	2	107.0	70	130	
137	Ba	115	5.149	9003	1.45	5	103.0	70	130	
205	Tl	209	1.055	26076	0.77	1	105.5	70	130	
208	Pb	209	1.096	38539	1.16	1	109.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	953030	0.67	1008225	94.53	70	120	
72	Ge	669666	0.54	680921	98.35	70	120	
115	In	6588801	2.20	6714019	98.13	70	120	
209	Bi	15437073	1.02	15779460	97.83	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 15:57	Sample Name	CCB6-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	144_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.041	3	17.3	2	5	
9	Be	45	0.001	1	173.2	0.4	0.3	
11	B	45	12.619	224	7.0	10	10	FailAq FailSoil
23	Na	45	20.740	56296	0.7	50	100	
24	Mg	45	-0.141	627	7.2	50	100	
27	Al	45	1.012	1128	3.4	50	10	
39	K	45	1.862	48699	0.5	50	100	
44	Ca	45	8.973	591	8.0	50	100	
47	Ti	45	-0.092	8	65.5	4	3	
51	V	45	-0.134	1988	3.7	4	3	
52	Cr	45	-0.006	1109	2.9	2	2	
55	Mn	45	0.018	192	9.9	2	3	
56	Fe	45	2.809	18579	5.1	50	50	
59	Co	72	0.001	110	24.8	2	3	
60	Ni	72	-0.040	301	8.9	2	3	
63	Cu	72	-0.516	1317	11.0	2	2	
66	Zn	72	-0.053	346	22.8	4	2	
75	As	72	0.008	165	2.7	2	2	
78	Se	72	0.386	61	16.1	1	2	
88	Sr	115	0.053	624	7.5	4	3	
95	Mo	115	0.056	277	5.5	2	2	
107	Ag	115	0.020	252	15.8	0.4	1	
111	Cd	115	0.002	12	31.5	0.4	0.3	
118	Sn	115	-0.073	607	16.2	4	3	
121	Sb	115	0.015	391	13.9	2	0.8	
137	Ba	115	0.025	73	4.5	2	3	
205	Tl	209	0.025	862	6.7	2	0.5	
208	Pb	209	0.055	3709	1.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	946808	0.43	1008225	93.91	70	120	
72	Ge	667532	0.37	680921	98.03	70	120	
115	In	6580355	2.05	6714019	98.01	70	120	
209	Bi	15388494	0.74	15779460	97.52	70	120	

Sample Report

Date Acquired	8/9/16 3:59 PM	Sample Name	1607265-19A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	145SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	55.435	997	4.54	2000	>RL
9	Be	45	1.720	54	18.44	2000	>RL
11	B	45	120.035	1840	7.64	2000	>RL
23	Na	45	9203.311	6932872	1.59	25000	>RL
24	Mg	45	12714.525	4814817	1.80	25000	>RL
27	Al	45	52182.830	7467866	0.75	10000	OUTCAL
39	K	45	9035.818	3385706	1.16	25000	>RL
44	Ca	45	334452.187	7320450	0.92	25000	OUTCAL
47	Ti	45	192.346	27813	3.52	2000	>RL
51	V	45	94.452	412538	0.61	2000	>RL
52	Cr	45	49.945	263751	0.64	2000	>RL
55	Mn	45	276.500	839104	0.78	2000	>RL
56	Fe	45	57573.898	262879296	1.92	10000	OUTCAL
59	Co	72	13.221	112254	0.62	2000	>RL
60	Ni	72	22.772	53126	0.58	2000	>RL
63	Cu	72	12.503	83395	0.47	2000	>RL
66	Zn	72	115.800	123046	1.21	2000	>RL
75	As	72	18.285	15193	1.18	2000	>RL
78	Se	72	3.748	240	7.34	2000	>RL
88	Sr	115	1203.822	4955702	0.74	2000	>RL
95	Mo	115	2.260	8217	5.83	2000	>RL
107	Ag	115	0.100	1084	20.95	500	
111	Cd	115	0.273	454	11.77	2000	
118	Sn	115	5.965	21699	3.21	2000	>RL
121	Sb	115	0.523	2899	5.30	500	
137	Ba	115	629.732	1060331	0.03	2000	>RL
205	Tl	209	0.390	9403	0.65	2000	
208	Pb	209	41.897	1347929	0.05	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	959363	0.12	1008225	95.15	70	120	
72	Ge	653696	0.67	680921	96.00	70	120	
115	In	6366525	1.18	6714019	94.82	70	120	
209	Bi	14833418	2.21	15779460	94.00	70	120	

Sample Report

Date Acquired	8/9/16 4:01 PM	Sample Name	1607265-20A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	146SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	47.144	842	3.52	2000	>RL
9	Be	45	1.572	49	4.22	2000	>RL
11	B	45	120.232	1829	1.42	2000	>RL
23	Na	45	8330.860	6231743	1.94	25000	>RL
24	Mg	45	10920.080	4103753	0.99	25000	>RL
27	Al	45	48049.676	6824148	2.20	10000	OUTCAL
39	K	45	10001.965	3713958	0.33	25000	>RL
44	Ca	45	280030.709	6082692	1.51	25000	OUTCAL
47	Ti	45	132.450	19014	2.57	2000	>RL
51	V	45	83.368	361645	0.33	2000	>RL
52	Cr	45	51.376	269206	1.23	2000	>RL
55	Mn	45	199.391	600523	1.18	2000	>RL
56	Fe	45	69300.723	314008361	1.47	10000	OUTCAL
59	Co	72	10.515	90394	1.22	2000	>RL
60	Ni	72	19.338	45726	1.96	2000	>RL
63	Cu	72	11.318	76848	0.46	2000	>RL
66	Zn	72	126.426	135940	1.09	2000	>RL
75	As	72	21.786	18294	1.74	2000	>RL
78	Se	72	4.202	267	4.99	2000	>RL
88	Sr	115	2371.915	9775439	1.19	2000	OUTCAL
95	Mo	115	3.783	13730	1.13	2000	>RL
107	Ag	115	0.069	754	1.55	500	
111	Cd	115	0.188	316	10.99	2000	
118	Sn	115	5.752	20973	1.51	2000	>RL
121	Sb	115	1.070	5620	3.85	500	
137	Ba	115	271.138	457089	0.53	2000	>RL
205	Tl	209	0.339	8254	2.26	2000	
208	Pb	209	70.829	2289324	0.85	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	952032	0.31	1008225	94.43	70	120	
72	Ge	661658	0.25	680921	97.17	70	120	
115	In	6373796	1.27	6714019	94.93	70	120	
209	Bi	14906347	0.86	15779460	94.47	70	120	

Sample Report

Date Acquired	8/9/16 4:02 PM	Sample Name	1607265-21A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	147SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	75.465	1418	2.50	2000	>RL
9	Be	45	2.929	96	3.93	2000	>RL
11	B	45	117.417	1883	3.53	2000	>RL
23	Na	45	9809.506	7725542	1.69	25000	>RL
24	Mg	45	12168.499	4819298	1.00	25000	>RL
27	Al	45	57753.309	8642609	2.23	10000	OUTCAL
39	K	45	8841.988	3466086	0.26	25000	>RL
44	Ca	45	251024.680	5746366	0.97	25000	OUTCAL
47	Ti	45	113.509	17178	1.98	2000	>RL
51	V	45	81.534	372807	0.43	2000	>RL
52	Cr	45	49.378	272725	0.24	2000	>RL
55	Mn	45	305.029	968100	0.29	2000	>RL
56	Fe	45	63748.077	304423846	0.79	10000	OUTCAL
59	Co	72	33.430	298276	0.43	2000	>RL
60	Ni	72	42.117	102957	1.10	2000	>RL
63	Cu	72	8.615	61903	0.91	2000	>RL
66	Zn	72	252.224	281287	0.74	2000	>RL
75	As	72	16.087	14072	0.64	2000	>RL
78	Se	72	5.443	347	6.37	2000	>RL
88	Sr	115	2121.522	9238049	1.19	2000	OUTCAL
95	Mo	115	1.966	7572	2.32	2000	
107	Ag	115	0.132	1496	2.11	500	
111	Cd	115	0.094	171	23.08	2000	
118	Sn	115	6.205	23840	1.90	2000	>RL
121	Sb	115	0.392	2379	2.59	500	
137	Ba	115	131.407	234114	0.49	2000	>RL
205	Tl	209	0.412	10180	1.71	2000	
208	Pb	209	47.291	1559252	0.68	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1003440	1.15	1008225	99.53	70	120	
72	Ge	687291	0.92	680921	100.94	70	120	
115	In	6736217	1.60	6714019	100.33	70	120	
209	Bi	15202764	2.02	15779460	96.35	70	120	

Sample Report

Date Acquired	8/9/16 4:04 PM	Sample Name	1607265-22A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	148SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	57.833	1120	5.09	2000	>RL
9	Be	45	2.647	90	17.43	2000	>RL
11	B	45	86.086	1432	2.99	2000	>RL
23	Na	45	2992.426	2456990	0.72	25000	>RL
24	Mg	45	14525.034	5921696	0.97	25000	>RL
27	Al	45	67537.167	10405467	0.98	10000	OUTCAL
39	K	45	16820.159	6740230	1.16	25000	>RL
44	Ca	45	75826.408	1787159	0.22	25000	OUTCAL
47	Ti	45	253.978	39532	1.14	2000	>RL
51	V	45	107.857	506768	0.94	2000	>RL
52	Cr	45	66.109	375437	1.14	2000	>RL
55	Mn	45	542.434	1772059	0.97	2000	>RL
56	Fe	45	74632.005	366859577	1.42	10000	OUTCAL
59	Co	72	24.682	223987	0.56	2000	>RL
60	Ni	72	39.640	98574	0.15	2000	>RL
63	Cu	72	18.643	130567	1.46	2000	>RL
66	Zn	72	201.522	228634	0.70	2000	>RL
75	As	72	25.823	22872	0.56	2000	>RL
78	Se	72	5.288	344	4.27	2000	>RL
88	Sr	115	380.529	1649693	0.50	2000	>RL
95	Mo	115	1.694	6506	3.62	2000	
107	Ag	115	0.137	1542	3.72	500	
111	Cd	115	0.475	827	10.91	2000	>RL
118	Sn	115	5.946	22773	1.29	2000	>RL
121	Sb	115	5.975	31541	2.08	500	>RL
137	Ba	115	425.797	754962	0.84	2000	>RL
205	Tl	209	0.568	14148	1.46	2000	
208	Pb	209	357.858	11967992	0.73	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1032861	0.33	1008225	102.44	70	120	
72	Ge	698943	0.72	680921	102.65	70	120	
115	In	6703612	0.82	6714019	99.85	70	120	
209	Bi	15433990	1.26	15779460	97.81	70	120	

Sample Report

Date Acquired	8/9/16 4:06 PM	Sample Name	1607265-23A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	149SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	58.894	1085	0.80	2000	>RL
9	Be	45	1.907	62	23.46	2000	>RL
11	B	45	126.924	1991	2.75	2000	>RL
23	Na	45	8421.240	6502888	2.90	25000	>RL
24	Mg	45	14793.118	5740087	1.02	25000	>RL
27	Al	45	58547.411	8585157	0.28	10000	OUTCAL
39	K	45	9383.761	3601048	1.09	25000	>RL
44	Ca	45	359166.476	8055544	1.13	25000	OUTCAL
47	Ti	45	222.052	32895	1.41	2000	>RL
51	V	45	114.289	510979	2.26	2000	>RL
52	Cr	45	54.237	293395	1.52	2000	>RL
55	Mn	45	312.932	973057	1.64	2000	>RL
56	Fe	45	67560.463	316086716	0.75	10000	OUTCAL
59	Co	72	15.054	131233	0.70	2000	>RL
60	Ni	72	27.542	65898	2.18	2000	>RL
63	Cu	72	13.737	93613	1.08	2000	>RL
66	Zn	72	126.075	137523	1.68	2000	>RL
75	As	72	25.643	21813	1.44	2000	>RL
78	Se	72	4.687	297	10.43	2000	>RL
88	Sr	115	1551.241	6592229	1.76	2000	>RL
95	Mo	115	2.970	11127	1.13	2000	>RL
107	Ag	115	0.047	542	8.72	500	
111	Cd	115	0.353	604	11.44	2000	
118	Sn	115	5.839	21942	1.81	2000	>RL
121	Sb	115	0.624	3510	1.91	500	
137	Ba	115	1361.588	2366758	0.43	2000	>RL
205	Tl	209	0.418	10050	1.98	2000	
208	Pb	209	40.958	1315624	0.85	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	983043	0.75	1008225	97.50	70	120	
72	Ge	671199	0.76	680921	98.57	70	120	
115	In	6571920	0.52	6714019	97.88	70	120	
209	Bi	14805136	1.08	15779460	93.83	70	120	

Sample Report

Date Acquired	8/9/16 4:08 PM	Sample Name	1607265-24A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	150SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	41.853	754	5.39	2000	>RL
9	Be	45	1.355	43	16.28	2000	>RL
11	B	45	109.522	1683	2.33	2000	>RL
23	Na	45	7323.045	5528075	2.18	25000	>RL
24	Mg	45	10663.937	4040895	0.87	25000	>RL
27	Al	45	47949.249	6866296	1.11	10000	OUTCAL
39	K	45	8407.956	3155756	0.42	25000	>RL
44	Ca	45	292644.403	6409126	0.38	25000	OUTCAL
47	Ti	45	128.425	18589	0.53	2000	>RL
51	V	45	80.076	350347	0.41	2000	>RL
52	Cr	45	48.968	258755	0.72	2000	>RL
55	Mn	45	148.917	452263	0.56	2000	>RL
56	Fe	45	54622.837	249555590	0.74	10000	OUTCAL
59	Co	72	9.091	77699	0.86	2000	>RL
60	Ni	72	17.356	40839	0.91	2000	>RL
63	Cu	72	9.088	62250	1.41	2000	>RL
66	Zn	72	109.553	117162	0.90	2000	>RL
75	As	72	18.405	15388	0.76	2000	>RL
78	Se	72	4.073	259	11.90	2000	>RL
88	Sr	115	1252.071	5257602	1.02	2000	>RL
95	Mo	115	2.800	10369	3.51	2000	>RL
107	Ag	115	0.050	566	10.71	500	
111	Cd	115	0.159	273	4.22	2000	
118	Sn	115	5.616	20884	1.04	2000	>RL
121	Sb	115	0.770	4211	2.10	500	
137	Ba	115	229.247	393748	0.22	2000	>RL
205	Tl	209	0.294	7060	2.34	2000	
208	Pb	209	45.039	1430900	1.02	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	959957	0.69	1008225	95.21	70	120	
72	Ge	657798	0.81	680921	96.60	70	120	
115	In	6494459	1.52	6714019	96.73	70	120	
209	Bi	14647412	1.25	15779460	92.83	70	120	

Sample Report

Date Acquired	8/9/16 4:10 PM	Sample Name	1607265-25A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	151SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	53.599	982	5.20	2000	>RL
9	Be	45	2.046	66	17.85	2000	>RL
11	B	45	121.436	1895	0.90	2000	>RL
23	Na	45	10136.685	7768465	1.51	25000	>RL
24	Mg	45	12064.586	4650963	1.04	25000	>RL
27	Al	45	55340.772	8062504	1.30	10000	OUTCAL
39	K	45	8277.677	3161598	0.64	25000	>RL
44	Ca	45	272270.704	6067231	1.74	25000	OUTCAL
47	Ti	45	115.298	16985	3.79	2000	>RL
51	V	45	81.787	364033	2.13	2000	>RL
52	Cr	45	48.908	262944	0.94	2000	>RL
55	Mn	45	178.257	550721	0.42	2000	>RL
56	Fe	45	55600.439	258431296	0.46	10000	OUTCAL
59	Co	72	17.218	151251	0.10	2000	>RL
60	Ni	72	21.751	52529	0.12	2000	>RL
63	Cu	72	7.078	50898	0.91	2000	>RL
66	Zn	72	123.422	135725	2.12	2000	>RL
75	As	72	15.353	13227	0.55	2000	>RL
78	Se	72	4.166	271	3.04	2000	>RL
88	Sr	115	2096.335	8834316	1.06	2000	OUTCAL
95	Mo	115	1.578	5896	1.10	2000	
107	Ag	115	0.043	493	12.51	500	
111	Cd	115	0.141	244	20.96	2000	
118	Sn	115	6.143	22846	1.92	2000	>RL
121	Sb	115	0.248	1571	3.56	500	
137	Ba	115	137.607	237233	0.32	2000	>RL
205	Tl	209	0.358	8663	0.68	2000	
208	Pb	209	34.579	1113496	0.90	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	976654	1.03	1008225	96.87	70	120	
72	Ge	676684	2.41	680921	99.38	70	120	
115	In	6517346	0.16	6714019	97.07	70	120	
209	Bi	14837737	0.43	15779460	94.03	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 16:18	Sample Name	CCV7-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	155_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	169.111	3032	1.37	200	84.6	90	110	Fail
9	Be	45	188.138	5876	3.52	200	94.1	90	110	
11	B	45	176.461	2686	1.15	200	88.2	90	110	Fail
23	Na	45	5117.643	3872078	1.09	5000	102.4	90	110	
24	Mg	45	5042.524	1909266	1.46	5000	100.9	90	110	
27	Al	45	4756.510	681344	0.91	5000	95.1	90	110	
39	K	45	5196.024	1966880	1.10	5000	103.9	90	110	
44	Ca	45	4739.282	104098	1.59	5000	94.8	90	110	
47	Ti	45	195.557	28264	0.90	200	97.8	90	110	
51	V	45	216.070	940023	1.17	200	108.0	90	110	
52	Cr	45	213.815	1124951	1.73	200	106.9	90	110	
55	Mn	45	206.900	627699	1.21	200	103.5	90	110	
56	Fe	45	5276.974	24093027	1.97	5000	105.5	90	110	
59	Co	72	204.060	1787365	1.45	200	102.0	90	110	
60	Ni	72	203.534	487046	1.20	200	101.8	90	110	
63	Cu	72	205.599	1343273	0.86	200	102.8	90	110	
66	Zn	72	202.232	221553	1.42	200	101.1	90	110	
75	As	72	209.956	178427	0.95	200	105.0	90	110	
78	Se	72	198.514	11010	1.15	200	99.3	90	110	
88	Sr	115	195.143	818618	0.59	200	97.6	90	110	
95	Mo	115	198.701	730411	0.91	200	99.4	90	110	
107	Ag	115	208.340	2220813	0.89	200	104.2	90	110	
111	Cd	115	200.545	333856	1.58	200	100.3	90	110	
118	Sn	115	197.666	704912	1.53	200	98.8	90	110	
121	Sb	115	209.481	1059167	1.15	200	104.7	90	110	
137	Ba	115	203.635	349323	1.14	200	101.8	90	110	
205	Tl	209	205.015	4824103	0.62	200	102.5	90	110	
208	Pb	209	203.530	6541879	0.27	200	101.8	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	959087	1.72	1008225	95.13	70	120	
72	Ge	674885	1.38	680921	99.11	70	120	
115	In	6486717	2.39	6714019	96.61	70	120	
209	Bi	14831393	1.00	15779460	93.99	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 16:27	Sample Name	LCVL7-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	157LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	8.956	169	12.80	10	89.6	70	130	
9	Be	45	1.135	37	12.39	1	113.5	70	130	
11	B	45	24.418	414	10.68	20	122.1	70	130	
23	Na	45	130.652	142778	1.67	100	130.7	70	130	Fail
24	Mg	45	102.633	40521	0.28	100	102.6	70	130	
27	Al	45	99.725	15644	1.42	100	99.7	70	130	
39	K	45	115.914	93716	0.32	100	115.9	70	130	
44	Ca	45	103.655	2737	2.71	100	103.7	70	130	
47	Ti	45	4.830	737	9.35	5	96.6	70	130	
51	V	45	0.930	6794	2.53	1	93.0	70	130	
52	Cr	45	5.439	30483	1.53	5	108.8	70	130	
55	Mn	45	5.173	16226	1.51	5	103.5	70	130	
56	Fe	45	111.842	529339	0.44	100	111.8	70	130	
59	Co	72	5.166	45980	0.46	5	103.3	70	130	
60	Ni	72	5.304	13266	2.63	5	106.1	70	130	
63	Cu	72	4.750	36111	1.50	5	95.0	70	130	
66	Zn	72	5.200	6179	2.12	5	104.0	70	130	
75	As	72	5.406	4816	2.49	5	108.1	70	130	
78	Se	72	5.398	343	6.27	5	108.0	70	130	
88	Sr	115	5.034	22433	1.27	5	100.7	70	130	
95	Mo	115	4.816	18538	1.53	5	96.3	70	130	
107	Ag	115	2.074	23106	0.59	2	103.7	70	130	
111	Cd	115	1.006	1757	5.93	1	100.6	70	130	
118	Sn	115	4.782	18665	1.16	5	95.6	70	130	
121	Sb	115	2.043	11100	1.69	2	102.2	70	130	
137	Ba	115	5.099	9157	2.44	5	102.0	70	130	
205	Tl	209	1.026	25574	0.50	1	102.6	70	130	
208	Pb	209	1.043	37054	1.77	1	104.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	982991	0.80	1008225	97.50	70	120	
72	Ge	684269	0.26	680921	100.49	70	120	
115	In	6766452	0.06	6714019	100.78	70	120	
209	Bi	15556031	1.00	15779460	98.58	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 16:29	Sample Name	CCB7-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	158_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.026	4	83.3	2	5	
9	Be	45	-0.010	0	173.2	0.4	0.3	
11	B	45	6.469	136	10.2	10	10	
23	Na	45	22.488	58548	1.0	50	100	
24	Mg	45	-0.464	514	5.9	50	100	
27	Al	45	0.244	1037	6.3	50	10	
39	K	45	8.249	51877	1.0	50	100	
44	Ca	45	4.688	507	11.0	50	100	
47	Ti	45	-0.116	4	114.6	4	3	
51	V	45	-0.145	1971	4.1	4	3	
52	Cr	45	-0.034	982	5.5	2	2	
55	Mn	45	0.029	230	12.6	2	3	
56	Fe	45	2.013	15244	3.3	50	50	
59	Co	72	-0.003	76	16.7	2	3	
60	Ni	72	-0.012	376	5.1	2	3	
63	Cu	72	-0.521	1313	5.3	2	2	
66	Zn	72	0.104	527	4.9	4	2	
75	As	72	-0.029	137	15.8	2	2	
78	Se	72	0.461	66	9.4	1	2	
88	Sr	115	0.046	601	9.5	4	3	
95	Mo	115	0.025	160	11.0	2	2	
107	Ag	115	0.014	193	6.2	0.4	1	
111	Cd	115	-0.004	2	86.6	0.4	0.3	
118	Sn	115	-0.102	504	6.0	4	3	
121	Sb	115	-0.017	232	16.8	2	0.8	
137	Ba	115	0.036	93	7.1	2	3	
205	Tl	209	0.007	417	5.6	2	0.5	
208	Pb	209	0.010	2237	3.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	962611	0.55	1008225	95.48	70	120	
72	Ge	682298	0.70	680921	100.20	70	120	
115	In	6645349	1.42	6714019	98.98	70	120	
209	Bi	15483034	1.37	15779460	98.12	70	120	

Method Blank Report

Date Acquired	8/9/16 4:31 PM	Sample Name	MB-76671
Data Batch	160809.b	Comment	MBLKICPMS_TSDOD1
Data File Name	159_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.013	4	58.08		
9	Be	45	-0.010	0	173.21		
11	B	45	6.244	131	25.47		
23	Na	45	22.242	57942	1.16		
24	Mg	45	4.513	2388	5.12		
27	Al	45	5.559	1787	5.88		
39	K	45	8.891	51741	1.74		
44	Ca	45	28.080	1014	8.04		
47	Ti	45	0.085	33	20.00		
51	V	45	-0.125	2043	1.98		
52	Cr	45	0.127	1818	5.19		
55	Mn	45	0.217	799	12.27		
56	Fe	45	5.536	31154	0.82		
59	Co	72	-0.002	82	15.35		
60	Ni	72	0.098	637	9.70		
63	Cu	72	-0.445	1805	2.67		
66	Zn	72	3.145	3863	5.40		
75	As	72	-0.024	141	10.68		
78	Se	72	0.234	53	6.97		
88	Sr	115	0.120	922	3.98		
95	Mo	115	0.029	178	20.74		
107	Ag	115	0.015	197	8.48		
111	Cd	115	0.002	12	15.73		
118	Sn	115	4.299	16669	3.02		J
121	Sb	115	-0.029	170	26.96		
137	Ba	115	0.116	237	14.70		
205	Tl	209	0.005	382	11.51		
208	Pb	209	0.038	3289	2.95		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	955691	0.88	1008225	94.79	70	120	
72	Ge	677599	0.63	680921	99.51	70	120	
115	In	6685583	1.05	6714019	99.58	70	120	
209	Bi	15984688	0.94	15779460	101.30	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 16:33	Sample Name	LCS-76671
Data Batch	160809.b	Comment	LCS ICPMS_TSDOD1
Data File Name	160_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	180.378	3252	2.23	200	90.2	80	120	
9	Be	45	191.634	6017	2.05	200	95.8	80	120	
11	B	45	175.948	2694	2.50	200	88.0	80	120	
23	Na	45	5014.917	3816372	0.35	1000	501.5	80	120	Fail
24	Mg	45	4966.052	1890762	0.25	1000	496.6	80	120	Fail
27	Al	45	964.221	139696	1.42	1000	96.4	80	120	
39	K	45	5047.803	1922847	0.32	1000	504.8	80	120	Fail
44	Ca	45	4644.683	102590	0.96	1000	464.5	80	120	Fail
47	Ti	45	199.205	28956	1.68	200	99.6	80	120	
51	V	45	214.492	938406	0.91	200	107.2	80	120	
52	Cr	45	214.773	1136260	1.01	200	107.4	80	120	
55	Mn	45	206.564	630139	1.09	200	103.3	80	120	
56	Fe	45	1028.571	4726559	1.18	1000	102.9	80	120	
59	Co	72	202.200	1776818	0.59	200	101.1	80	120	
60	Ni	72	201.966	484863	0.41	200	101.0	80	120	
63	Cu	72	203.549	1334248	0.32	200	101.8	80	120	
66	Zn	72	208.220	228829	0.30	200	104.1	80	120	
75	As	72	207.141	176607	0.72	200	103.6	80	120	
78	Se	72	195.122	10857	1.78	200	97.6	80	120	
88	Sr	115	194.129	818361	0.76	200	97.1	80	120	
95	Mo	115	198.569	733475	0.80	200	99.3	80	120	
107	Ag	115	201.640	2159932	0.37	200	100.8	80	120	
111	Cd	115	198.558	332125	0.56	200	99.3	80	120	
118	Sn	115	204.866	734005	0.34	200	102.4	80	120	
121	Sb	115	204.950	1041303	0.66	200	102.5	80	120	
137	Ba	115	200.679	345914	0.27	200	100.3	80	120	
205	Tl	209	197.956	4884837	0.47	200	99.0	80	120	
208	Pb	209	197.236	6648679	0.35	200	98.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	964363	0.47	1008225	95.65	70	120	
72	Ge	677050	0.63	680921	99.43	70	120	
115	In	6516542	0.29	6714019	97.06	70	120	
209	Bi	15559648	2.30	15779460	98.61	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 16:35	Sample Name	LCSD-76671
Data Batch	160809.b	Comment	LCSDICPMS_TSDOD1
Data File Name	161_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	181.341	3281	1.61	200	90.7	80	120	
9	Be	45	189.035	5957	2.08	200	94.5	80	120	
11	B	45	177.920	2734	2.08	200	89.0	80	120	
23	Na	45	4975.598	3800408	0.55	1000	497.6	80	120	Fail
24	Mg	45	4917.272	1878937	0.50	1000	491.7	80	120	Fail
27	Al	45	951.731	138406	1.32	1000	95.2	80	120	
39	K	45	4988.027	1907634	0.78	1000	498.8	80	120	Fail
44	Ca	45	4619.210	102410	1.31	1000	461.9	80	120	Fail
47	Ti	45	194.209	28339	2.75	200	97.1	80	120	
51	V	45	211.986	930906	1.23	200	106.0	80	120	
52	Cr	45	210.507	1117807	1.14	200	105.3	80	120	
55	Mn	45	202.878	621212	1.21	200	101.4	80	120	
56	Fe	45	1013.010	4672451	1.28	1000	101.3	80	120	
59	Co	72	200.836	1761825	0.25	200	100.4	80	120	
60	Ni	72	200.357	480187	0.15	200	100.2	80	120	
63	Cu	72	199.399	1304953	1.13	200	99.7	80	120	
66	Zn	72	203.602	223387	0.76	200	101.8	80	120	
75	As	72	204.041	173677	1.23	200	102.0	80	120	
78	Se	72	195.424	10856	0.86	200	97.7	80	120	
88	Sr	115	192.848	818279	0.95	200	96.4	80	120	
95	Mo	115	196.357	730080	0.66	200	98.2	80	120	
107	Ag	115	199.458	2150679	1.06	200	99.7	80	120	
111	Cd	115	195.601	329322	1.28	200	97.8	80	120	
118	Sn	115	202.092	728877	0.66	200	101.0	80	120	
121	Sb	115	201.030	1028106	0.49	200	100.5	80	120	
137	Ba	115	198.052	343618	1.09	200	99.0	80	120	
205	Tl	209	196.639	4838460	0.76	200	98.3	80	120	
208	Pb	209	195.721	6578758	0.47	200	97.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	967967	1.50	1008225	96.01	70	120	
72	Ge	675924	0.81	680921	99.27	70	120	
115	In	6560097	1.05	6714019	97.71	70	120	
209	Bi	15510011	1.24	15779460	98.29	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/9/2016 16:41	Sample Name	1607294-29A SD
Data Batch	160809.b	Comment	SD ICPMS_TSDOD1
Data File Name	164_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	9.342	175	11.89	47.8	97.7	110	90	Good
9	Be	45	0.533	18	8.65	2.9	91.5	110	90	Good
11	B	45	16.794	297	4.90	68.9	121.9	110	90	
23	Na	45	334.422	298515	0.71	1589.7	105.2	110	90	Good
24	Mg	45	2830.820	1096713	0.49	14109.6	100.3	110	90	Good
27	Al	45	13671.060	2001295	0.66	68668.9	99.5	110	90	Good
39	K	45	3625.613	1418967	0.29	17706.0	102.4	110	90	Good
44	Ca	45	12715.418	284990	1.08	62306.5	102.0	110	90	Good
47	Ti	45	45.360	6724	1.24	224.5	101.0	110	90	Good
51	V	45	21.659	98776	0.39	107.3	101.0	110	90	Good
52	Cr	45	12.629	69082	1.04	62.0	101.8	110	90	Good
55	Mn	45	130.292	404397	1.15	639.5	101.9	110	90	Good
56	Fe	45	13952.189	65147586	1.52	67064.8	104.0	110	90	Good
59	Co	72	4.523	39876	2.45	22.4	101.1	110	90	Good
60	Ni	72	7.957	19504	4.60	38.2	104.3	110	90	Good
63	Cu	72	4.544	34414	0.67	23.8	95.3	110	90	Good
66	Zn	72	42.270	46815	0.53	203.6	103.8	110	90	Good
75	As	72	5.040	4457	2.29	25.4	99.3	110	90	Good
78	Se	72	1.246	109	20.19	5.2	119.7	110	90	
88	Sr	115	63.990	276354	0.95	324.2	98.7	110	90	Good
95	Mo	115	0.364	1442	5.20	1.7	106.6	110	90	Good
107	Ag	115	0.051	599	9.00	0.2	132.4	110	90	
111	Cd	115	0.097	174	15.33	0.5	99.0	110	90	Good
118	Sn	115	0.925	4268	3.57	5.5	84.7	110	90	
121	Sb	115	0.439	2604	3.78	2.3	97.4	110	90	Good
137	Ba	115	82.345	145288	0.83	414.3	99.4	110	90	Good
205	Tl	209	0.143	3785	2.38	0.6	114.6	110	90	
208	Pb	209	16.978	575996	0.74	83.8	101.3	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	981015	0.51	1008225	97.30	70	120	
72	Ge	677552	0.58	680921	99.51	70	120	
115	In	6669562	0.33	6714019	99.34	70	120	
209	Bi	15606665	0.64	15779460	98.90	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/9/2016 17:01	Sample Name	1607294-29A PDS
Data Batch	160809.b	Comment	PDS ICPMS_TSDOD1
Data File Name	174_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	197.323	3664	1.38	47.8	200	74.7	75	125	Fail
9	Be	45	181.341	5865	1.59	2.9	200	89.2	75	125	
11	B	45	220.172	3463	1.81	68.9	200	75.6	75	125	
23	Na	45	6359.771	4974334	0.29	1589.7	5000	95.4	75	125	
24	Mg	45	18746.787	7351584	2.53	14109.6	5000	92.7	75	125	
27	Al	45	73907.666	10952326	1.17	68668.9	5000	104.8	75	125	
39	K	45	23447.341	9017762	0.31	17706.0	5000	114.8	75	125	
44	Ca	45	67077.375	1520756	0.98	62306.5	5000	95.4	75	125	
47	Ti	45	416.176	62292	1.17	224.5	200	95.8	75	125	
51	V	45	315.162	1419154	0.74	107.3	200	104.0	75	125	
52	Cr	45	266.470	1451993	0.18	62.0	200	102.2	75	125	
55	Mn	45	830.222	2608752	0.23	639.5	200	95.4	75	125	
56	Fe	45	71921.703	340047080	2.13	67064.8	5000	97.1	75	125	
59	Co	72	216.979	1903970	0.40	22.4	200	97.3	75	125	
60	Ni	72	229.288	549626	0.38	38.2	200	95.6	75	125	
63	Cu	72	213.342	1396272	0.54	23.8	200	94.8	75	125	
66	Zn	72	397.170	435495	0.50	203.6	200	96.8	75	125	
75	As	72	227.508	193683	0.63	25.4	200	101.1	75	125	
78	Se	72	194.330	10799	0.85	5.2	200	94.6	75	125	
88	Sr	115	521.202	2210988	0.26	324.2	200	98.5	75	125	
95	Mo	115	188.954	702495	0.65	1.7	200	93.6	75	125	
107	Ag	115	194.415	2096310	0.52	0.2	200	97.1	75	125	
111	Cd	115	186.676	314354	1.23	0.5	200	93.1	75	125	
118	Sn	115	200.213	722189	0.99	5.5	200	97.4	75	125	
121	Sb	115	205.957	1053373	0.44	2.3	200	101.9	75	125	
137	Ba	115	614.503	1066239	0.69	414.3	200	100.1	75	125	
205	Tl	209	195.007	4598411	1.04	0.6	200	97.2	75	125	
208	Pb	209	278.250	8961809	0.58	83.8	200	97.2	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	993478	0.45	1008225	98.54	70	120	
72	Ge	676090	0.17	680921	99.29	70	120	
115	In	6561368	2.06	6714019	97.73	70	120	
209	Bi	14866315	1.94	15779460	94.21	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 17:03	Sample Name	1607294-29A MS
Data Batch	160809.b	Comment	MS ICPMS_TSDOD1
Data File Name	175_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	217.533	4017	2.87	47.8	200	84.9	80	120	
9	Be	45	187.233	6024	0.17	2.9	200	92.2	80	120	
11	B	45	227.726	3562	2.78	68.9	200	79.4	80	120	Fail
23	Na	45	6611.996	5142761	0.93	1589.7	1000	502.2	80	120	Fail
24	Mg	45	20108.364	7844002	1.27	14109.6	1000	599.9	80	120	Fail
27	Al	45	79875.544	11775915	1.94	68668.9	1000	1120.7	80	120	Fail
39	K	45	24871.714	9512322	0.23	17706.0	1000	716.6	80	120	Fail
44	Ca	45	70822.201	1597216	0.39	62306.5	1000	851.6	80	120	Fail
47	Ti	45	502.783	74866	1.82	224.5	200	139.2	80	120	Fail
51	V	45	332.487	1489234	0.78	107.3	200	112.6	80	120	
52	Cr	45	276.810	1500401	0.13	62.0	200	107.4	80	120	
55	Mn	45	908.892	2840857	1.11	639.5	200	134.7	80	120	Fail
56	Fe	45	71421.623	335911756	1.10	67064.8	1000	435.7	80	120	Fail
59	Co	72	222.473	1954435	1.26	22.4	200	100.0	80	120	
60	Ni	72	238.223	571677	0.70	38.2	200	100.0	80	120	
63	Cu	72	223.585	1464710	0.04	23.8	200	99.9	80	120	
66	Zn	72	418.618	459493	0.52	203.6	200	107.5	80	120	
75	As	72	231.215	197055	0.09	25.4	200	102.9	80	120	
78	Se	72	199.086	11075	0.83	5.2	200	96.9	80	120	
88	Sr	115	542.049	2290443	0.90	324.2	200	108.9	80	120	
95	Mo	115	181.627	672802	0.52	1.7	200	90.0	80	120	
107	Ag	115	194.411	2088338	0.06	0.2	200	97.1	80	120	
111	Cd	115	194.125	325608	0.44	0.5	200	96.8	80	120	
118	Sn	115	202.520	727557	0.97	5.5	200	98.5	80	120	
121	Sb	115	53.084	270666	0.82	2.3	200	25.4	80	120	Fail
137	Ba	115	637.062	1101050	1.06	414.3	200	111.4	80	120	
205	Tl	209	201.694	4762410	0.61	0.6	200	100.5	80	120	
208	Pb	209	295.791	9539683	0.66	83.8	200	106.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	988311	0.83	1008225	98.02	70	120	
72	Ge	676875	0.84	680921	99.41	70	120	
115	In	6536471	1.97	6714019	97.36	70	120	
209	Bi	14882601	0.92	15779460	94.32	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 17:05	Sample Name	1607294-29A MSD
Data Batch	160809.b	Comment	MSD ICPMS_TSDOD1
Data File Name	176_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	217.486	3998	3.85	47.8	200	84.8	80	120	
9	Be	45	182.178	5834	0.41	2.9	200	89.6	80	120	
11	B	45	234.100	3643	1.70	68.9	200	82.6	80	120	
23	Na	45	6398.685	4955048	0.79	1589.7	1000	480.9	80	120	Fail
24	Mg	45	20341.795	7897600	1.33	14109.6	1000	623.2	80	120	Fail
27	Al	45	79314.795	11637520	1.48	68668.9	1000	1064.6	80	120	Fail
39	K	45	25671.963	9770527	2.24	17706.0	1000	796.6	80	120	Fail
44	Ca	45	70774.312	1588663	1.16	62306.5	1000	846.8	80	120	Fail
47	Ti	45	460.182	68200	1.58	224.5	200	117.9	80	120	
51	V	45	320.524	1428995	0.27	107.3	200	106.6	80	120	
52	Cr	45	267.829	1444969	0.72	62.0	200	102.9	80	120	
55	Mn	45	898.887	2796604	0.90	639.5	200	129.7	80	120	Fail
56	Fe	45	71469.598	334586129	0.98	67064.8	1000	440.5	80	120	Fail
59	Co	72	214.408	1890798	1.34	22.4	200	96.0	80	120	
60	Ni	72	230.640	555621	1.39	38.2	200	96.2	80	120	
63	Cu	72	215.838	1419600	0.92	23.8	200	96.0	80	120	
66	Zn	72	415.569	457930	0.38	203.6	200	106.0	80	120	
75	As	72	223.493	191219	0.75	25.4	200	99.1	80	120	
78	Se	72	189.134	10563	2.10	5.2	200	92.0	80	120	
88	Sr	115	530.211	2245691	1.20	324.2	200	103.0	80	120	
95	Mo	115	174.421	647540	0.65	1.7	200	86.4	80	120	
107	Ag	115	186.845	2011468	0.26	0.2	200	93.3	80	120	
111	Cd	115	186.718	313925	0.96	0.5	200	93.1	80	120	
118	Sn	115	196.838	708861	0.48	5.5	200	95.7	80	120	
121	Sb	115	51.653	263956	0.92	2.3	200	24.7	80	120	Fail
137	Ba	115	667.782	1156854	0.72	414.3	200	126.7	80	120	Fail
205	Tl	209	196.882	4606217	0.81	0.6	200	98.1	80	120	
208	Pb	209	286.256	9148338	0.70	83.8	200	101.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	983638	0.38	1008225	97.56	70	120	
72	Ge	679472	0.18	680921	99.79	70	120	
115	In	6551376	2.30	6714019	97.58	70	120	
209	Bi	14752624	2.58	15779460	93.49	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 17:07	Sample Name	CCV8-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	177_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	166.314	3019	3.79	200	83.2	90	110	Fail
9	Be	45	184.385	5827	1.62	200	92.2	90	110	
11	B	45	171.975	2651	6.93	200	86.0	90	110	Fail
23	Na	45	5030.528	3853456	0.15	5000	100.6	90	110	
24	Mg	45	5005.517	1918414	0.28	5000	100.1	90	110	
27	Al	45	4754.479	689386	0.23	5000	95.1	90	110	
39	K	45	5131.508	1966827	0.70	5000	102.6	90	110	
44	Ca	45	4732.839	105223	0.53	5000	94.7	90	110	
47	Ti	45	194.940	28526	2.48	200	97.5	90	110	
51	V	45	213.605	940691	0.16	200	106.8	90	110	
52	Cr	45	212.711	1132768	0.12	200	106.4	90	110	
55	Mn	45	207.903	638408	0.82	200	104.0	90	110	
56	Fe	45	5319.814	24583283	0.61	5000	106.4	90	110	
59	Co	72	202.772	1791745	0.37	200	101.4	90	110	
60	Ni	72	202.082	487870	1.32	200	101.0	90	110	
63	Cu	72	201.441	1327897	1.23	200	100.7	90	110	
66	Zn	72	201.450	222647	0.88	200	100.7	90	110	
75	As	72	209.083	179249	0.55	200	104.5	90	110	
78	Se	72	195.759	10953	0.81	200	97.9	90	110	
88	Sr	115	195.310	824797	0.88	200	97.7	90	110	
95	Mo	115	199.205	737221	1.56	200	99.6	90	110	
107	Ag	115	206.209	2212719	0.32	200	103.1	90	110	
111	Cd	115	199.507	334318	0.85	200	99.8	90	110	
118	Sn	115	197.718	709740	1.03	200	98.9	90	110	
121	Sb	115	208.773	1062564	0.40	200	104.4	90	110	
137	Ba	115	203.753	351825	0.42	200	101.9	90	110	
205	Tl	209	202.274	4835326	0.62	200	101.1	90	110	
208	Pb	209	201.304	6573628	0.52	200	100.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	970792	0.99	1008225	96.29	70	120	
72	Ge	680860	1.15	680921	99.99	70	120	
115	In	6529252	1.86	6714019	97.25	70	120	
209	Bi	15069042	1.59	15779460	95.50	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 17:11	Sample Name	LCVL8-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	179LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	8.164	151	8.27	10	81.6	70	130	
9	Be	45	1.031	33	10.93	1	103.1	70	130	
11	B	45	25.809	428	23.33	20	129.0	70	130	
23	Na	45	127.377	137495	0.43	100	127.4	70	130	
24	Mg	45	105.102	40663	1.66	100	105.1	70	130	
27	Al	45	105.827	16213	1.75	100	105.8	70	130	
39	K	45	116.637	92139	0.75	100	116.6	70	130	
44	Ca	45	111.822	2862	4.26	100	111.8	70	130	
47	Ti	45	4.669	699	8.56	5	93.4	70	130	
51	V	45	0.986	6907	6.45	1	98.6	70	130	
52	Cr	45	5.471	30051	0.83	5	109.4	70	130	
55	Mn	45	5.327	16377	1.44	5	106.5	70	130	
56	Fe	45	118.705	550372	0.90	100	118.7	70	130	
59	Co	72	5.307	46948	0.41	5	106.1	70	130	
60	Ni	72	5.222	12992	3.46	5	104.4	70	130	
63	Cu	72	4.666	35350	1.28	5	93.3	70	130	
66	Zn	72	5.423	6388	0.79	5	108.5	70	130	
75	As	72	5.384	4768	0.76	5	107.7	70	130	
78	Se	72	5.861	367	5.71	5	117.2	70	130	
88	Sr	115	5.117	22268	0.85	5	102.3	70	130	
95	Mo	115	5.032	18917	1.90	5	100.6	70	130	
107	Ag	115	2.119	23055	1.89	2	105.9	70	130	
111	Cd	115	0.924	1577	3.49	1	92.4	70	130	
118	Sn	115	4.958	18871	1.23	5	99.2	70	130	
121	Sb	115	2.121	11242	2.26	2	106.0	70	130	
137	Ba	115	5.246	9202	1.33	5	104.9	70	130	
205	Tl	209	1.090	26598	0.73	1	109.0	70	130	
208	Pb	209	1.093	37954	0.67	1	109.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	963596	0.64	1008225	95.57	70	120	
72	Ge	680210	1.06	680921	99.90	70	120	
115	In	6609801	0.46	6714019	98.45	70	120	
209	Bi	15240927	0.72	15779460	96.59	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 17:13	Sample Name	CCB8-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	180_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.166	7	14.3	2	5	
9	Be	45	-0.020	0	#DIV/0!	0.4	0.3	
11	B	45	8.628	166	25.0	10	10	
23	Na	45	16.683	53299	0.5	50	100	
24	Mg	45	0.264	778	8.4	50	100	
27	Al	45	4.543	1627	12.7	50	10	
39	K	45	2.888	49075	0.8	50	100	
44	Ca	45	10.135	616	10.8	50	100	
47	Ti	45	-0.084	9	57.3	4	3	
51	V	45	-0.121	2041	4.3	4	3	
52	Cr	45	-0.032	976	10.9	2	2	
55	Mn	45	0.109	466	6.2	2	3	
56	Fe	45	4.956	28248	5.6	50	50	
59	Co	72	0.009	176	25.2	2	3	
60	Ni	72	-0.024	338	5.0	2	3	
63	Cu	72	-0.552	1084	10.5	2	2	
66	Zn	72	-0.054	343	10.1	4	2	
75	As	72	0.018	173	6.3	2	2	
78	Se	72	0.349	58	13.6	1	2	
88	Sr	115	0.067	674	2.2	4	3	
95	Mo	115	0.069	319	22.0	2	2	
107	Ag	115	0.028	338	8.3	0.4	1	
111	Cd	115	0.006	19	36.7	0.4	0.3	
118	Sn	115	-0.073	599	1.7	4	3	
121	Sb	115	0.009	358	20.5	2	0.8	
137	Ba	115	0.061	136	6.2	2	3	
205	Tl	209	0.043	1256	3.5	2	0.5	
208	Pb	209	0.050	3451	5.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	946870	0.74	1008225	93.91	70	120	
72	Ge	664466	0.14	680921	97.58	70	120	
115	In	6513584	0.49	6714019	97.01	70	120	
209	Bi	14957021	0.88	15779460	94.79	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 17:35	Sample Name	CCV8-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	191_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	168.441	3000	2.45	200	84.2	90	110	Fail
9	Be	45	184.693	5730	0.47	200	92.3	90	110	
11	B	45	175.761	2659	7.59	200	87.9	90	110	Fail
23	Na	45	5082.732	3821821	1.74	5000	101.7	90	110	
24	Mg	45	5004.261	1882666	0.63	5000	100.1	90	110	
27	Al	45	4751.480	676278	0.29	5000	95.0	90	110	
39	K	45	5199.769	1955733	0.57	5000	104.0	90	110	
44	Ca	45	4766.090	104017	1.24	5000	95.3	90	110	
47	Ti	45	198.651	28530	1.25	200	99.3	90	110	
51	V	45	216.787	937192	1.40	200	108.4	90	110	
52	Cr	45	215.190	1124932	1.03	200	107.6	90	110	
55	Mn	45	208.674	629076	1.39	200	104.3	90	110	
56	Fe	45	5317.579	24120338	0.38	5000	106.4	90	110	
59	Co	72	203.785	1766850	0.19	200	101.9	90	110	
60	Ni	72	202.326	479254	0.55	200	101.2	90	110	
63	Cu	72	203.838	1318307	0.28	200	101.9	90	110	
66	Zn	72	202.336	219411	0.42	200	101.2	90	110	
75	As	72	211.271	177726	0.61	200	105.6	90	110	
78	Se	72	198.634	10905	1.34	200	99.3	90	110	
88	Sr	115	196.584	818103	0.81	200	98.3	90	110	
95	Mo	115	198.369	723293	0.54	200	99.2	90	110	
107	Ag	115	205.768	2175850	0.67	200	102.9	90	110	
111	Cd	115	199.033	328667	0.60	200	99.5	90	110	
118	Sn	115	197.893	699941	0.60	200	98.9	90	110	
121	Sb	115	209.789	1052166	0.58	200	104.9	90	110	
137	Ba	115	203.996	347119	1.57	200	102.0	90	110	
205	Tl	209	202.112	4724689	0.60	200	101.1	90	110	
208	Pb	209	199.976	6386026	1.09	200	100.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	952950	1.24	1008225	94.52	70	120	
72	Ge	668060	1.07	680921	98.11	70	120	
115	In	6434027	1.63	6714019	95.83	70	120	
209	Bi	14734956	1.42	15779460	93.38	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 17:39	Sample Name	LCVL8-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	193LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.336	166	9.08	10	93.4	70	130	
9	Be	45	0.808	25	18.33	1	80.8	70	130	
11	B	45	26.007	414	3.04	20	130.0	70	130	Fail
23	Na	45	130.493	134671	0.32	100	130.5	70	130	Fail
24	Mg	45	106.943	39833	0.44	100	106.9	70	130	
27	Al	45	105.527	15571	2.24	100	105.5	70	130	
39	K	45	123.384	91146	0.77	100	123.4	70	130	
44	Ca	45	115.561	2836	1.77	100	115.6	70	130	
47	Ti	45	5.187	746	7.38	5	103.7	70	130	
51	V	45	0.949	6492	2.74	1	94.9	70	130	
52	Cr	45	5.579	29489	1.34	5	111.6	70	130	
55	Mn	45	5.416	16034	0.17	5	108.3	70	130	
56	Fe	45	118.422	528811	1.60	100	118.4	70	130	
59	Co	72	5.242	44676	0.51	5	104.8	70	130	
60	Ni	72	5.375	12869	2.20	5	107.5	70	130	
63	Cu	72	4.789	34830	1.29	5	95.8	70	130	
66	Zn	72	5.333	6058	1.93	5	106.7	70	130	
75	As	72	5.502	4692	2.16	5	110.0	70	130	
78	Se	72	5.694	344	4.63	5	113.9	70	130	
88	Sr	115	5.120	21571	1.71	5	102.4	70	130	
95	Mo	115	4.951	18023	0.73	5	99.0	70	130	
107	Ag	115	2.115	22283	1.12	2	105.8	70	130	
111	Cd	115	0.994	1641	3.81	1	99.4	70	130	
118	Sn	115	5.038	18551	0.38	5	100.8	70	130	
121	Sb	115	2.094	10754	2.15	2	104.7	70	130	
137	Ba	115	5.244	8906	1.57	5	104.9	70	130	
205	Tl	209	1.062	25088	0.28	1	106.2	70	130	
208	Pb	209	1.054	35519	2.73	1	105.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	927998	0.57	1008225	92.04	70	120	
72	Ge	655283	0.46	680921	96.23	70	120	
115	In	6400843	1.68	6714019	95.34	70	120	
209	Bi	14766073	3.26	15779460	93.58	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 17:41	Sample Name	CCB8-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	194_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.250	8	27.7	2	5	
9	Be	45	0.023	1	173.2	0.4	0.3	
11	B	45	6.320	129	7.9	10	10	
23	Na	45	18.547	53714	0.7	50	100	
24	Mg	45	0.146	721	6.3	50	100	
27	Al	45	2.062	1253	7.7	50	10	
39	K	45	9.459	50565	1.3	50	100	
44	Ca	45	13.034	667	6.8	50	100	
47	Ti	45	-0.083	9	57.3	4	3	
51	V	45	-0.143	1913	7.4	4	3	
52	Cr	45	-0.033	952	5.3	2	2	
55	Mn	45	0.070	343	11.4	2	3	
56	Fe	45	3.993	23495	1.8	50	50	
59	Co	72	0.002	118	11.8	2	3	
60	Ni	72	-0.003	380	12.9	2	3	
63	Cu	72	-0.542	1123	5.7	2	2	
66	Zn	72	0.071	468	13.5	4	2	
75	As	72	-0.001	154	5.9	2	2	
78	Se	72	0.510	66	16.4	1	2	
88	Sr	115	0.054	602	3.6	4	3	
95	Mo	115	0.039	204	16.1	2	2	
107	Ag	115	0.018	221	24.8	0.4	1	
111	Cd	115	0.005	17	34.6	0.4	0.3	
118	Sn	115	-0.072	588	4.7	4	3	
121	Sb	115	0.002	314	11.7	2	0.8	
137	Ba	115	0.099	196	18.8	2	3	
205	Tl	209	0.019	676	9.2	2	0.5	
208	Pb	209	0.027	2663	5.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	930188	0.63	1008225	92.26	70	120	
72	Ge	651452	1.06	680921	95.67	70	120	
115	In	6333558	0.94	6714019	94.33	70	120	
209	Bi	14665209	0.60	15779460	92.94	70	120	

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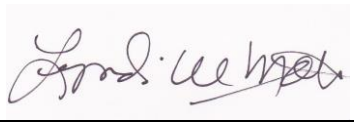

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	02 20160 2	d		M
	1 0 0 2	d		M
	1 0 2			
	1 0 6			
	1 0 6 8			
	1 0 0 2			
	1 0 2			
	1 0 6			
	1 0 6 8			
	1 0 0 2			
	1 0 2			
	1 0 6			
	1 0 6 8			
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	08 2			
	08 6			
	08 6 8			
	08 0 2			
	08 2			
	08 6			
	08 6 8			
	08 0 2			
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r		d	r	
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	0 6			
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	1 0 2			
	1 2			
	1 6			
	1 6 8			
	1 0 2			
	1 2			
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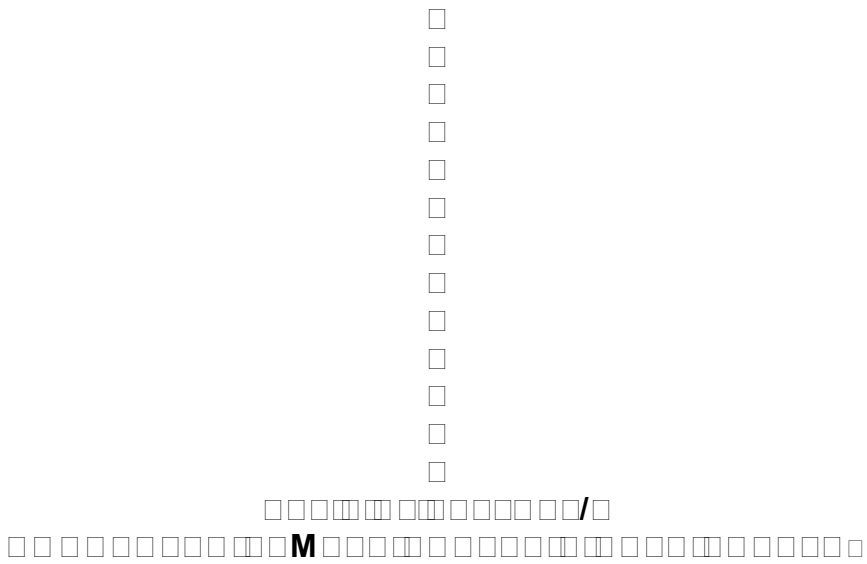
	1 0 2			
	1 2			
	1 6			
	1 6 8			
	02 20160 2			



[illegible]

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[illegible] 2016 26001 26 00 26122 26122 [illegible] 18

DHL ANALYTICAL
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Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72219

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: 7-23-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607244
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beam

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 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-DU125(0-2)-A	01	7-23-16	1219	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(2-4)-A	02	7-23-16	1222	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(4-6)-A	03	7-23-16	1225	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(6-8)-A	04	7-23-16	1227	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(0-2)-B	05	7-23-16	1230	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(2-4)-B	06	7-23-16	1233	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(4-6)-B	07	7-23-16	1234	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(6-8)-B	08	7-23-16	1236	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(0-2)-C	09	7-23-16	1239	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(2-4)-C	10	7-23-16	1240	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(4-6)-C	11	7-23-16	1243	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(6-8)-C	12	7-23-16	1244	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
FB01(20160723)	13	7-23-16	1250	W	Poly/Glass	2		X		X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	

RELINQUISHED BY: (Signature) Jordan Beam DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/26/16 920 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: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☐ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.1, 0.8, 0.7
☐ HAND DELIVERED 0.4, 0.5, 0.7, 0.1

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
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E-Mail: login@dhlanalytical.com

№ 72220

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: 7-23-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607294
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon 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 ☐ 8082 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	ANALYSES	FIELD NOTES
SGR-DU115(0-2)-A	14	7-23-16	1540	S	Bag	1				X		X X X	
SGR-DU115(2-4)-A	15	7-23-16	1541	S	Bag	1				X		X X X	
SGR-DU115(4-6)-A	16	7-23-16	1542	S	Bag	1				X		X X X	
SGR-DU115(6-8)-A	17	7-23-16	1543	S	Bag	1				X		X X X	
SGR-DU115(0-2)-B	18	7-23-16	1545	S	Bag	1				X		X X X	
SGR-DU115(2-4)-B	19	7-23-16	1546	S	Bag	1				X		X X X	
SGR-DU115(4-6)-B	20	7-23-16	1547	S	Bag	1				X		X X X	
~~SGR-DU115(6-8)-B~~		~~7-23-16~~		~~S~~	~~Bag~~	~~1~~				~~X~~		~~X X X~~	~~DE~~
SGR-DU115(0-2)-C	21	7-23-16	1548	S	Bag	1				X		X X X	
SGR-DU115(2-4)-C	22	7-23-16	1549	S	Bag	1				X		X X X	
SGR-DU115(4-6)-C	23	7-23-16	1550	S	Bag	1				X		X X X	
~~SGR-DU115(6-8)-C~~		~~7-23-16~~		~~S~~	~~Bag~~	~~1~~				~~X~~		~~X X X~~	~~DE~~
~~EB02(20160723)~~		~~7-23-16~~		~~Poly/Glass~~	~~DE~~								
EB02(20160723)	24	7-23-16	1555	W	Poly/Glass	2		X		X		X X X	

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 7/26/16 920 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: 1.4 THERM #: 29
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☐ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.0, 0.0, 0.5, 0.1, 0.8, 0.7, 0.4,
☐ HAND DELIVERED 0.5, 0.7, 0.1

DHL ANALYTICAL
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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72221

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: 7-24-16 PAGE 1 OF 2
PO #: 04285081.0000.0004 DHL WORK ORDER #: 1607294
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.0004 COLLECTOR: Jordon 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 ☐ 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 NOTES
25	SGR-DU150(0-2)-A	22	7-24-16	0938	S	Bag	1				X					X					X								
26	SGR-DU150(2-4)-A	23	7-24-16	0940	S	Bag	1				X					X					X								
27	SGR-DU150(4-6)-A	24	7-24-16	0942	S	Bag	1				X					X					X								
28	SGR-DU150(6-8)-A	25	7-24-16	0943	S	Bag	1				X					X					X								
29	SGR-DU150(0-2)-B	26	7-24-16	0947	S	Bag	1				X					X					X								
30	SGR-DU150(2-4)-B	27	7-24-16	0950	S	Bag	1				X					X					X								
31	SGR-DU150(4-6)-B	28	7-24-16	0952	S	Bag	1				X					X					X								
32	SGR-DU150(6-8)-B	29	7-24-16	0953	S	Bag	1				X					X					X								
33	SGR-DU150(0-2)-C	30	7-24-16	0958	S	Bag	1				X					X					X								
34	SGR-DU150(2-4)-C	31	7-24-16	0959	S	Bag	1				X					X					X								
35	SGR-DU150(4-6)-C	32	7-24-16	1000	S	Bag	1				X					X					X								
36	SGR-DU150(6-8)-C	33	7-24-16	1001	S	Bag	1				X					X					X								
37	EB01(20160724)	34	7-24-16	1005	W	Poly/Glass	2		X		X					X					X								

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/26/16 420 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: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8/1.0, 0.5, 0.1, 0.8, 0.7, 0.4
☐ HAND DELIVERED 0.5, 0.7, 0.1

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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72222

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: 7-24-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607294
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 ☐ 1METHOD 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, METALS 200.8 ☐ DISS. METALS ☐ | METALS 6020 ☐ METALS 200.8 ☐ ALKALINITY ☐ COD ☐ | RCRA ☐ TX11 ☐ Lead | PH ☐ HEX CHROM ☐ ANIONS ☐ | 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
38	SGR-DU087(0-2)-A	35	7-24-16	1223	S	Bag	1				X		
39	SGR-DU087(2-4)-A	36	7-24-16	1225	S	Bag	1				X		
40	SGR-DU087(4-6)-A	37	7-24-16	1229	S	Bag	1				X		
41	SGR-DU087(6-8)-A	38	7-24-16	1233	S	Bag	1				X		
42	SGR-DU087(0-2)-B	39	7-24-16	1238	S	Bag	1				X		
43	SGR-DU087(2-4)-B	40	7-24-16	1241	S	Bag	1				X		
44	SGR-DU087(4-6)-B	41	7-24-16	1244	S	Bag	1				X		
45	SGR-DU087(6-8)-B	42	7-24-16	1246	S	Bag	1				X		
46	SGR-DU087(0-2)-C	43	7-24-16	1249	S	Bag	1				X		
47	SGR-DU087(2-4)-C	44	7-24-16	1251	S	Bag	1				X		
48	SGR-DU082(4-6)-C	45	7-24-16	1254	S	Bag	1				X		
49	SGR-DU087(6-8)-C	46	7-24-16	1256	S	Bag	1				X		
50	EB02(20160724)	47	7-24-16	1300	W	Poly/Glass	2		X		X		

RELINQUISHED BY: (Signature) DATE/TIME 7/25/16/1600 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) DATE/TIME 7/26/14 920 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: 1.4 THERM #: 790
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.1, 0.8, 0.7, 0.4
☐ HAND DELIVERED 0.5, 0.7, 0.1

DHL ANALYTICAL
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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72233

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: 7-25-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607254
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Baem

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
51	SGR-DU095(0-2)-A	48	7-25-16	1020	S	Bag	1				X					X					X								
52	SGR-DU095(2-4)-A	49	7-25-16	1022	S	Bag	1				X					X					X								
53	SGR-DU095(4-6)-A	50	7-25-16	1025	S	Bag	1				X					X					X								
54	SGR-DU095(6-8)-A	51	7-25-16	1028	S	Bag	1				X					X					X								
55	SGR-DU095(0-2)-B	52	7-25-16	1031	S	Bag	1				X					X					X								
56	SGR-DU095(2-4)-B	53	7-25-16	1033	S	Bag	1				X					X					X								
57	SGR-DU095(4-6)-B	54	7-25-16	1037	S	Bag	1				X					X					X								
58	SGR-DU095(6-8)-B	55	7-25-16	1039	S	Bag	1				X					X					X								
59	SGR-DU095(0-2)-C	56	7-25-16	1043	S	Bag	1				X					X					X								
60	SGR-DU095(2-4)-C	57	7-25-16	1045	S	Bag	1				X					X					X								
61	SGR-DU095(4-6)-C	58	7-25-16	1047	S	Bag	1				X					X					X								
62	SGR-DU095(6-8)-C	59	7-25-16	1049	S	Bag	1				X					X					X								
63	EB01(20160725)	60	7-25-16	1055	W	Bty/Glass	2		X		X					X					X								

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Jordan Baem	7-25-16 1600	FedEx
FedEx	7/26/16 920	Ball

☐ 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: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.8, 0.1, 0.7, 0.4
☐ HAND DELIVERED 0.5, 0.7, 0.1

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

№ 72223

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: 7-25-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607294
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: ~~04280~~ 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 ☐ 8082 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8081 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	ANALYSES	FIELD NOTES
64	SGR-DU143(0-2)-A	61	7-25-16	1349	S	Bag	1				X		X X	
65	SGR-DU143(2-4)-A	62	7-25-16	1346	S	Bag	1				X		X X	
66	SGR-DU143(4-6)-A	63	7-25-16	1349	S	Bag	1				X		X X	
67	SGR-DU143(6-8)-A	64	7-25-16	1352	S	Bag	1				X		X X	
68	SGR-DU143(0-2)-B	65	7-25-16	1354	S	Bag	1				X		X X	
69	SGR-DU143(2-4)-B	66	7-25-16	1356	S	Bag	1				X		X X	
70	SGR-DU143(4-6)-B	67	7-25-16	1358	S	Bag	1				X		X X	
71	SGR-DU143(6-8)-B	68	7-25-16	1400	S	Bag	1				X		X X	
72	SGR-DU143(0-2)-C	69	7-25-16	1403	S	Bag	1				X		X X	
73	SGR-DU143(2-4)-C	70	7-25-16	1405	S	Bag	1				X		X X	
74	SGR-DU143(4-6)-C	71	7-25-16	1407	S	Bag	1				X		X X	
75	SGR-DU143(6-8)-C	72	7-25-16	1409	S	Bag	1				X		X X	
76	EB02(20160725)	73	7-25-16	1415	W	Poly/Glass	2		X		X			

RELINQUISHED BY: (Signature) Jordan B DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature) Fed ex
RELINQUISHED BY: (Signature) Fed ex DATE/TIME 7/26/16 920 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return 8

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.1, 0.8, 0.7,
☐ HAND DELIVERED 0.4, 0.5, 0.7, 0.1

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/26/2016**

Work Order Number **1607294** Received by **JB**

Checklist completed by: Signature 7/26/2016 Date Reviewed by Initials 7/26/2016 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 ☐	1.4 °C, 0.8, 1.0, 0.5, 0.1, 0.8, 0.7 6.4, 0.5, 0.7, 0.1
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.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-01
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:19 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.1	0.0926	0.278	0.139		mg/Kg-dry	5	08/09/16 04:12 PM
IS: Bismuth	94.2	0	30-120	0		%REC	5	08/09/16 04:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[a]anthracene	0.162	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[a]pyrene	0.208	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[b]fluoranthene	0.203	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[e]pyrene	0.168	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[g,h,i]perylene	0.207	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[j]fluoranthene	0.103	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[k]fluoranthene	0.102	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Chrysene	0.198	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Fluoranthene	0.283	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Indeno[1,2,3-cd]pyrene	0.150	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Phenanthrene	0.127	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Pyrene	0.248	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
IS: Acenaphthene-d10	129	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Phenanthrene-d10	93.0	0	50-200	0		%REC	10	08/10/16 09:04 AM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	08/10/16 09:04 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-DU125(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-01
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:19 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.8	0	58-133	0		%REC	10	08/10/16 09:04 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-02
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:22 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.69	0.0840	0.252	0.126		mg/Kg-dry	5	08/09/16 04:14 PM
IS: Bismuth	94.4	0	30-120	0		%REC	5	08/09/16 04:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Acenaphthylene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Anthracene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[a]anthracene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[a]pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[b]fluoranthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[e]pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[g,h,i]perylene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[j]fluoranthene	0.0688	0.0459	0.0917	0.0688	NU	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[k]fluoranthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Chrysene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Dibenz[a,h]anthracene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Fluoranthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Fluorene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Indeno[1,2,3-cd]pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Phenanthrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
IS: Acenaphthene-d10	129	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Phenanthrene-d10	89.8	0	50-200	0		%REC	10	08/10/16 09:44 AM
Surr: 2-Fluorobiphenyl	71.6	0	46-115	0		%REC	10	08/10/16 09:44 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-DU125(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-02
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:22 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.3	0	58-133	0		%REC	10	08/10/16 09:44 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-DU125(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-03
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.91	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 04:16 PM
IS: Bismuth	95.0	0	30-120	0		%REC	5	08/09/16 04:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Phenanthrene-d10	99.3	0	50-200	0		%REC	10	08/10/16 10:25 AM
Surr: 2-Fluorobiphenyl	70.3	0	46-115	0		%REC	10	08/10/16 10:25 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-DU125(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-03
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.7	0	58-133	0		%REC	10	08/10/16 10:25 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-04
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:27 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.66	JH	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 07:49 PM
IS: Bismuth	83.0		0	30-120	0		%REC	5	08/09/16 07:49 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Acenaphthylene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[a]anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[a]pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[b]fluoranthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[e]pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[g,h,i]perylene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[j]fluoranthene	0.0730		0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[k]fluoranthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Chrysene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Dibenz[a,h]anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Fluoranthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Fluorene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Indeno[1,2,3-cd]pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Phenanthrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
IS: Acenaphthene-d10	131		0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Chrysene-d12	111		0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Naphthalene-d8	103		0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Perylene-d12	114		0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Phenanthrene-d10	92.8		0	50-200	0		%REC	10	08/10/16 11:05 AM
Surr: 2-Fluorobiphenyl	75.7		0	46-115	0		%REC	10	08/10/16 11:05 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-DU125(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-04
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:27 PM
Lab Order:	1607294	**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	08/10/16 11:05 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-05
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:30 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	20.4	JH	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 07:55 PM
IS: Bismuth	79.4		0	30-120	0		%REC	5	08/09/16 07:55 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Acenaphthylene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Anthracene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[a]anthracene	0.0912		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[a]pyrene	0.132		0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[b]fluoranthene	0.127		0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[e]pyrene	0.116		0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[g,h,i]perylene	0.142		0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[j]fluoranthene	0.0637		0.0497	0.0994	0.0746	JN	mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[k]fluoranthene	0.0636		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Chrysene	0.117		0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Dibenz[a,h]anthracene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Fluoranthene	0.155		0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Fluorene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Indeno[1,2,3-cd]pyrene	0.0987		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Phenanthrene	0.0617		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Pyrene	0.142		0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
IS: Acenaphthene-d10	130		0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Chrysene-d12	111		0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Naphthalene-d8	105		0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Perylene-d12	114		0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Phenanthrene-d10	94.8		0	50-200	0		%REC	10	08/10/16 11:45 AM
Surr: 2-Fluorobiphenyl	75.2		0	46-115	0		%REC	10	08/10/16 11:45 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-DU125(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-05
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:30 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.4	0	58-133	0		%REC	10	08/10/16 11:45 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-06
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.49	JH	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 08:01 PM
IS: Bismuth	79.6		0	30-120	0		%REC	5	08/09/16 08:01 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Acenaphthylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[a]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[a]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[b]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[e]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[g,h,i]perylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[j]fluoranthene	0.0737		0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[k]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Chrysene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Dibenz[a,h]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Fluorene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Indeno[1,2,3-cd]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Phenanthrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
IS: Acenaphthene-d10	134		0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Chrysene-d12	115		0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Naphthalene-d8	106		0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Perylene-d12	117		0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Phenanthrene-d10	97.6		0	50-200	0		%REC	10	08/10/16 12:25 PM
Surr: 2-Fluorobiphenyl	70.5		0	46-115	0		%REC	10	08/10/16 12:25 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-DU125(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-06
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.2	0	58-133	0		%REC	10	08/10/16 12:25 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-07
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:34 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	6.53	JH	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 08:07 PM
IS: Bismuth	81.7		0	30-120	0		%REC	5	08/09/16 08:07 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Acenaphthylene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[a]anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[a]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[b]fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[e]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[g,h,i]perylene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[j]fluoranthene	0.0727		0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[k]fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Chrysene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Dibenz[a,h]anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Fluorene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Indeno[1,2,3-cd]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Phenanthrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
IS: Acenaphthene-d10	136		0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Chrysene-d12	114		0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Naphthalene-d8	105		0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Perylene-d12	115		0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Phenanthrene-d10	95.7		0	50-200	0		%REC	10	08/10/16 01:06 PM
Surr: 2-Fluorobiphenyl	75.5		0	46-115	0		%REC	10	08/10/16 01:06 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-DU125(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-07
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:34 PM
Lab Order:	1607294	**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	08/10/16 01:06 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-DU125(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-08
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:36 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.04	JH	0.0901	0.270	0.135		mg/Kg-dry	5	08/09/16 08:13 PM
IS: Bismuth	79.2		0	30-120	0		%REC	5	08/09/16 08:13 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Acenaphthylene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Anthracene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[a]anthracene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[a]pyrene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[b]fluoranthene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[e]pyrene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[g,h,i]perylene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[j]fluoranthene	0.0743		0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[k]fluoranthene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Chrysene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Dibenz[a,h]anthracene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Fluoranthene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Fluorene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Indeno[1,2,3-cd]pyrene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Phenanthrene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Pyrene	0.0743		0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
IS: Acenaphthene-d10	135		0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Chrysene-d12	114		0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Perylene-d12	117		0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Phenanthrene-d10	95.5		0	50-200	0		%REC	10	08/10/16 01:45 PM
Surr: 2-Fluorobiphenyl	69.1		0	46-115	0		%REC	10	08/10/16 01:45 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-DU125(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-08
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:36 PM
Lab Order:	1607294	**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	08/10/16 01:45 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-09
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:39 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	17.7	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 03:09 PM
IS: Bismuth	87.3		0	30-120	0		%REC	5	08/10/16 03:09 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0722		0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Acenaphthylene	0.0722		0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Anthracene	0.0722		0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[a]anthracene	0.111		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[a]pyrene	0.144		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[b]fluoranthene	0.134		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[e]pyrene	0.110		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[g,h,i]perylene	0.123		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[j]fluoranthene	0.0702		0.0481	0.0962	0.0722	JN	mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[k]fluoranthene	0.0719		0.0481	0.0962	0.0722	J	mg/Kg-dry	10	08/10/16 02:26 PM
Chrysene	0.140		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Dibenz[a,h]anthracene	0.0722		0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Fluoranthene	0.209		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Fluorene	0.0722		0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Indeno[1,2,3-cd]pyrene	0.0992		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Phenanthrene	0.0967		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Pyrene	0.189		0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
IS: Acenaphthene-d10	135		0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Chrysene-d12	115		0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Naphthalene-d8	106		0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Perylene-d12	117		0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Phenanthrene-d10	97.9		0	50-200	0		%REC	10	08/10/16 02:26 PM
Surr: 2-Fluorobiphenyl	70.9		0	46-115	0		%REC	10	08/10/16 02:26 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-DU125(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-09
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:39 PM
Lab Order:	1607294	**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	08/10/16 02:26 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-10
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:40 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.31	JH	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 08:19 PM
IS: Bismuth	80.2		0	30-120	0		%REC	5	08/09/16 08:19 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Acenaphthylene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Anthracene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[a]anthracene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[a]pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[b]fluoranthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[e]pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[g,h,i]perylene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[j]fluoranthene	0.0746		0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[k]fluoranthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Chrysene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Dibenz[a,h]anthracene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Fluoranthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Fluorene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Indeno[1,2,3-cd]pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Phenanthrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
IS: Acenaphthene-d10	137		0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Chrysene-d12	116		0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Perylene-d12	117		0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Phenanthrene-d10	96.6		0	50-200	0		%REC	10	08/10/16 03:07 PM
Surr: 2-Fluorobiphenyl	71.7		0	46-115	0		%REC	10	08/10/16 03:07 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-DU125(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-10
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:40 PM
Lab Order:	1607294	**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	08/10/16 03:07 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-11
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:43 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	6.00	JH	0.0926	0.278	0.139		mg/Kg-dry	5	08/09/16 08:24 PM
IS: Bismuth	83.1		0	30-120	0		%REC	5	08/09/16 08:24 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Acenaphthylene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Anthracene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[a]anthracene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[a]pyrene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[b]fluoranthene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[e]pyrene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[g,h,i]perylene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[j]fluoranthene	0.0735		0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[k]fluoranthene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Chrysene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Dibenz[a,h]anthracene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Fluoranthene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Fluorene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Indeno[1,2,3-cd]pyrene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Phenanthrene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Pyrene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
IS: Acenaphthene-d10	130		0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Chrysene-d12	110		0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Naphthalene-d8	102		0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Perylene-d12	111		0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Phenanthrene-d10	92.7		0	50-200	0		%REC	10	08/10/16 03:48 PM
Surr: 2-Fluorobiphenyl	78.4		0	46-115	0		%REC	10	08/10/16 03:48 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-DU125(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-11
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:43 PM
Lab Order:	1607294	**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	08/10/16 03:48 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-DU125(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-12
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	6.78	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 08:30 PM
IS: Bismuth	80.5		0	30-120	0		%REC	5	08/09/16 08:30 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Acenaphthylene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Anthracene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[a]anthracene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[a]pyrene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[b]fluoranthene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[e]pyrene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[g,h,i]perylene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[j]fluoranthene	0.0706		0.0470	0.0941	0.0706	NU	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[k]fluoranthene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Chrysene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Dibenz[a,h]anthracene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Fluoranthene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Fluorene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Indeno[1,2,3-cd]pyrene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Phenanthrene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Pyrene	0.0706		0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
IS: Acenaphthene-d10	133		0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Chrysene-d12	113		0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Naphthalene-d8	104		0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Perylene-d12	114		0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Phenanthrene-d10	95.1		0	50-200	0		%REC	10	08/10/16 04:29 PM
Surr: 2-Fluorobiphenyl	75.2		0	46-115	0		%REC	10	08/10/16 04:29 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-DU125(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-12
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.9	0	58-133	0		%REC	10	08/10/16 04:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-13
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:50 PM
Lab Order:	1607294	**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 01:04 AM
IS: Bismuth	85.8	0	30-120	0		%REC	1	08/10/16 01:04 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000785	0.0000490	0.0000981	0.0000785	U JL	mg/L	1	08/03/16 01:47 PM
Acenaphthylene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Anthracene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[a]anthracene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[a]pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[b]fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[e]pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[g,h,i]perylene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[j]fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	NU	mg/L	1	08/03/16 01:47 PM
Benzo[k]fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Chrysene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Dibenz[a,h]anthracene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Fluorene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Indeno[1,2,3-cd]pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Phenanthrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Chrysene-d12	122	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Naphthalene-d8	126	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Perylene-d12	126	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Phenanthrene-d10	138	0	50-200	0		%REC	1	08/03/16 01:47 PM
Surr: 2-Fluorobiphenyl	62.8	0	53-106	0		%REC	1	08/03/16 01:47 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(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-13
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:50 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	56.5	0	58-132	0	S	%REC	1	08/03/16 01:47 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-DU115(0-2)-A
Project: Laredo SGR **Lab ID:** 1607294-14
Project No: 04285081.0000.00044 **Collection Date:** 07/23/16 03:40 PM
Lab Order: 1607294 **Matrix:** SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	10.3	JH	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 08:36 PM
IS: Bismuth	79.9		0	30-120	0		%REC	5	08/09/16 08:36 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Acenaphthylene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Anthracene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[a]anthracene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[a]pyrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[b]fluoranthene	0.0524		0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[e]pyrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[g,h,i]perylene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[j]fluoranthene	0.0740		0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[k]fluoranthene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Chrysene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Dibenz[a,h]anthracene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Fluoranthene	0.0687		0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/10/16 07:50 PM
Fluorene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Indeno[1,2,3-cd]pyrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Phenanthrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Pyrene	0.0620		0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/10/16 07:50 PM
IS: Acenaphthene-d10	134		0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Chrysene-d12	114		0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Naphthalene-d8	109		0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Perylene-d12	116		0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Phenanthrene-d10	97.2		0	50-200	0		%REC	10	08/10/16 07:50 PM
Surr: 2-Fluorobiphenyl	70.7		0	46-115	0		%REC	10	08/10/16 07:50 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-DU115(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-14
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:40 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.7	0	58-133	0		%REC	10	08/10/16 07:50 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-DU115(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-15
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.58	JH	0.0990	0.297	0.149		mg/Kg-dry	5	08/09/16 09:29 PM
IS: Bismuth	82.7		0	30-120	0		%REC	5	08/09/16 09:29 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Acenaphthylene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[a]anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[a]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[b]fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[e]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[g,h,i]perylene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[j]fluoranthene	0.0727		0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[k]fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Chrysene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Dibenz[a,h]anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Fluorene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Indeno[1,2,3-cd]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Phenanthrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
IS: Acenaphthene-d10	133		0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Chrysene-d12	112		0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Perylene-d12	113		0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Phenanthrene-d10	94.8		0	50-200	0		%REC	10	08/10/16 08:29 PM
Surr: 2-Fluorobiphenyl	76.1		0	46-115	0		%REC	10	08/10/16 08:29 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-DU115(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-15
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.4	0	58-133	0		%REC	10	08/10/16 08:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-16
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:42 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	9.39	JH	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 09:35 PM
IS: Bismuth	82.2		0	30-120	0		%REC	5	08/09/16 09:35 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0725		0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Acenaphthylene	0.0725		0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Anthracene	0.0725		0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[a]anthracene	0.0495		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[a]pyrene	0.0541		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[b]fluoranthene	0.0584		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[e]pyrene	0.0504		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[g,h,i]perylene	0.0547		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[j]fluoranthene	0.0725		0.0483	0.0966	0.0725	NU	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[k]fluoranthene	0.0725		0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Chrysene	0.0571		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Dibenz[a,h]anthracene	0.0725		0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Fluoranthene	0.0553		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Fluorene	0.0725		0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Indeno[1,2,3-cd]pyrene	0.0725		0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Phenanthrene	0.0526		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Pyrene	0.0888		0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
IS: Acenaphthene-d10	125		0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Chrysene-d12	111		0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Naphthalene-d8	99.5		0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Perylene-d12	111		0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Phenanthrene-d10	86.3		0	50-200	0		%REC	10	08/10/16 09:09 PM
Surr: 2-Fluorobiphenyl	73.3		0	46-115	0		%REC	10	08/10/16 09:09 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-DU115(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-16
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:42 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.9	0	58-133	0		%REC	10	08/10/16 09:09 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-DU115(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-17
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:43 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.96	JH	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 09:41 PM
IS: Bismuth	82.8		0	30-120	0		%REC	5	08/09/16 09:41 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Acenaphthylene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Anthracene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[a]anthracene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[a]pyrene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[b]fluoranthene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[e]pyrene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[g,h,i]perylene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[j]fluoranthene	0.0716		0.0477	0.0954	0.0716	NU	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[k]fluoranthene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Chrysene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Dibenz[a,h]anthracene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Fluoranthene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Fluorene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Indeno[1,2,3-cd]pyrene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Phenanthrene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Pyrene	0.0716		0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
IS: Acenaphthene-d10	135		0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Chrysene-d12	115		0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Perylene-d12	117		0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Phenanthrene-d10	98.8		0	50-200	0		%REC	10	08/10/16 09:49 PM
Surr: 2-Fluorobiphenyl	67.8		0	46-115	0		%REC	10	08/10/16 09:49 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-DU115(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-17
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:43 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.7	0	58-133	0		%REC	10	08/10/16 09:49 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-DU115(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-18
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:45 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	153	JH	0.980	2.94	1.47		mg/Kg-dry	50	08/09/16 09:46 PM
IS: Bismuth	82.7		0	30-120	0		%REC	50	08/09/16 09:46 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745		0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Acenaphthylene	0.0745		0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Anthracene	0.0745		0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[a]anthracene	0.0801		0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[a]pyrene	0.107		0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[b]fluoranthene	0.108		0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[e]pyrene	0.0907		0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[g,h,i]perylene	0.0983		0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[j]fluoranthene	0.0540		0.0497	0.0993	0.0745	JN	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[k]fluoranthene	0.0565		0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Chrysene	0.104		0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Dibenz[a,h]anthracene	0.0745		0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Fluoranthene	0.148		0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Fluorene	0.0745		0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Indeno[1,2,3-cd]pyrene	0.0783		0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Phenanthrene	0.0687		0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Pyrene	0.132		0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
IS: Acenaphthene-d10	136		0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Chrysene-d12	115		0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Naphthalene-d8	109		0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Perylene-d12	116		0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Phenanthrene-d10	97.8		0	50-200	0		%REC	10	08/10/16 10:29 PM
Surr: 2-Fluorobiphenyl	70.8		0	46-115	0		%REC	10	08/10/16 10:29 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-DU115(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-18
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:45 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.2	0	58-133	0		%REC	10	08/10/16 10:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-19
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.37	JH	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 09:52 PM
IS: Bismuth	79.1		0	30-120	0		%REC	5	08/09/16 09:52 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Acenaphthylene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Anthracene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[a]anthracene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[a]pyrene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[b]fluoranthene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[e]pyrene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[g,h,i]perylene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[j]fluoranthene	0.0731		0.0487	0.0975	0.0731	NU	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[k]fluoranthene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Chrysene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Dibenz[a,h]anthracene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Fluoranthene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Fluorene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Indeno[1,2,3-cd]pyrene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Phenanthrene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Pyrene	0.0731		0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
IS: Acenaphthene-d10	134		0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Chrysene-d12	112		0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Naphthalene-d8	109		0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Perylene-d12	113		0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Phenanthrene-d10	95.7		0	50-200	0		%REC	10	08/10/16 11:09 PM
Surr: 2-Fluorobiphenyl	71.9		0	46-115	0		%REC	10	08/10/16 11:09 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-DU115(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-19
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.6	0	58-133	0		%REC	10	08/10/16 11:09 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-20
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:47 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.45	JH	0.0935	0.280	0.140		mg/Kg-dry	5	08/09/16 10:04 PM
IS: Bismuth	79.9		0	30-120	0		%REC	5	08/09/16 10:04 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Acenaphthylene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Anthracene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[a]anthracene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[a]pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[b]fluoranthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[e]pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[g,h,i]perylene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[j]fluoranthene	0.0747		0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[k]fluoranthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Chrysene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Dibenz[a,h]anthracene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Fluoranthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Fluorene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Indeno[1,2,3-cd]pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Phenanthrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
IS: Acenaphthene-d10	131		0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Chrysene-d12	111		0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Perylene-d12	113		0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Phenanthrene-d10	94.1		0	50-200	0		%REC	10	08/10/16 11:49 PM
Surr: 2-Fluorobiphenyl	70.3		0	46-115	0		%REC	10	08/10/16 11:49 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-DU115(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-20
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:47 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.1	0	58-133	0		%REC	10	08/10/16 11:49 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-21
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:48 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	26.8	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 10:10 PM
IS: Bismuth	83.9		0	30-120	0		%REC	5	08/09/16 10:10 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Acenaphthylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[a]anthracene	0.224		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[a]pyrene	0.276		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[b]fluoranthene	0.234		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[e]pyrene	0.196		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[g,h,i]perylene	0.220		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[j]fluoranthene	0.143		0.0490	0.0980	0.0735	N	mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[k]fluoranthene	0.136		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Chrysene	0.322		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Dibenz[a,h]anthracene	0.0511		0.0490	0.0980	0.0735	J	mg/Kg-dry	10	08/11/16 12:29 AM
Fluoranthene	0.392		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Fluorene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Indeno[1,2,3-cd]pyrene	0.181		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Phenanthrene	0.200		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Pyrene	0.404		0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
IS: Acenaphthene-d10	135		0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Chrysene-d12	114		0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Naphthalene-d8	110		0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Perylene-d12	115		0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Phenanthrene-d10	96.8		0	50-200	0		%REC	10	08/11/16 12:29 AM
Surr: 2-Fluorobiphenyl	69.1		0	46-115	0		%REC	10	08/11/16 12:29 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-DU115(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-21
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:48 PM
Lab Order:	1607294	**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	08/11/16 12:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-22
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.40	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 10:16 PM
IS: Bismuth	79.0		0	30-120	0		%REC	5	08/09/16 10:16 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Acenaphthylene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[a]anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[a]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[b]fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[e]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[g,h,i]perylene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[j]fluoranthene	0.0748		0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[k]fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Chrysene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Dibenz[a,h]anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Fluorene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Indeno[1,2,3-cd]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Phenanthrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
IS: Acenaphthene-d10	138		0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Chrysene-d12	109		0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Perylene-d12	111		0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Phenanthrene-d10	100		0	50-200	0		%REC	10	08/07/16 04:08 PM
Surr: 2-Fluorobiphenyl	77.8		0	46-115	0		%REC	10	08/07/16 04:08 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-DU115(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-22
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:49 PM
Lab Order:	1607294	**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 04:08 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-DU115(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-23
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:50 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	6.49	JH	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 10:22 PM
IS: Bismuth	79.1		0	30-120	0		%REC	5	08/09/16 10:22 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Acenaphthylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[a]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[a]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[b]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[e]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[g,h,i]perylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[j]fluoranthene	0.0737		0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[k]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Chrysene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Dibenz[a,h]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Fluorene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Indeno[1,2,3-cd]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Phenanthrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
IS: Acenaphthene-d10	137		0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Chrysene-d12	111		0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Naphthalene-d8	106		0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Perylene-d12	114		0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Phenanthrene-d10	97.1		0	50-200	0		%REC	10	08/07/16 04:47 PM
Surr: 2-Fluorobiphenyl	82.8		0	46-115	0		%REC	10	08/07/16 04:47 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-DU115(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-23
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:50 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	90.8	0	58-133	0		%REC	10	08/07/16 04:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-24
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:55 PM
Lab Order:	1607294	**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 01:10 AM
IS: Bismuth	87.4	0	30-120	0		%REC	1	08/10/16 01:10 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Acenaphthylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[a]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[a]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[b]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[e]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[g,h,i]perylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[j]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	NU	mg/L	1	08/03/16 03:07 PM
Benzo[k]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Chrysene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Dibenz[a,h]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Fluorene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Indeno[1,2,3-cd]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Phenanthrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
IS: Acenaphthene-d10	99.0	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Chrysene-d12	93.0	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Naphthalene-d8	93.9	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Perylene-d12	93.0	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	1	08/03/16 03:07 PM
Surr: 2-Fluorobiphenyl	69.8	0	53-106	0		%REC	1	08/03/16 03:07 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(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-24
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:55 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	60.6	0	58-132	0		%REC	1	08/03/16 03:07 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-25
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:38 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	20.2	JH	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 10:28 PM
IS: Bismuth	82.8		0	30-120	0		%REC	5	08/09/16 10:28 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Acenaphthylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[a]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[a]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[b]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[e]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[g,h,i]perylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[j]fluoranthene	0.0737		0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[k]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Chrysene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Dibenz[a,h]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Fluorene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Indeno[1,2,3-cd]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Phenanthrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
IS: Acenaphthene-d10	136		0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Chrysene-d12	111		0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Perylene-d12	112		0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Phenanthrene-d10	100		0	50-200	0		%REC	10	08/07/16 05:28 PM
Surr: 2-Fluorobiphenyl	77.1		0	46-115	0		%REC	10	08/07/16 05:28 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-DU150(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-25
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:38 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.4	0	58-133	0		%REC	10	08/07/16 05:28 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-26
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:40 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.08	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 04:43 PM
IS: Bismuth	93.6	0	30-120	0		%REC	5	08/09/16 04:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Acenaphthylene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Anthracene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[a]anthracene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[a]pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[b]fluoranthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[e]pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[g,h,i]perylene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[j]fluoranthene	0.0708	0.0472	0.0943	0.0708	NU	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[k]fluoranthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Chrysene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Dibenz[a,h]anthracene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Fluoranthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Fluorene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Indeno[1,2,3-cd]pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Phenanthrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/07/16 06:07 PM
Surr: 2-Fluorobiphenyl	75.0	0	46-115	0		%REC	10	08/07/16 06:07 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-DU150(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-26
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:40 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	08/07/16 06:07 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-DU150(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-27
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:42 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.93	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 04:45 PM
IS: Bismuth	94.4	0	30-120	0		%REC	5	08/09/16 04:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Acenaphthylene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[a]anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[a]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[b]fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[e]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[g,h,i]perylene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[j]fluoranthene	0.0727	0.0485	0.0970	0.0727	NU	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[k]fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Chrysene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Dibenz[a,h]anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Fluorene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Phenanthrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	08/07/16 06:49 PM
Surr: 2-Fluorobiphenyl	69.6	0	46-115	0		%REC	10	08/07/16 06:49 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-DU150(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-27
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:42 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.1	0	58-133	0		%REC	10	08/07/16 06:49 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-DU150(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-28
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:43 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.57	0.0885	0.265	0.133		mg/Kg-dry	5	08/09/16 04:47 PM
IS: Bismuth	96.0	0	30-120	0		%REC	5	08/09/16 04:47 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 07:29 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[a]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[b]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	08/07/16 07:29 PM
Surr: 2-Fluorobiphenyl	74.0	0	46-115	0		%REC	10	08/07/16 07:29 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-DU150(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-28
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:43 AM
Lab Order:	1607294	**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	08/07/16 07:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-29
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.8	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 04:39 PM
IS: Bismuth	97.0	0	30-120	0		%REC	5	08/09/16 04:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[a]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[a]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[b]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[g,h,i]perylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[k]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Chrysene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Phenanthrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Phenanthrene-d10	98.2	0	50-200	0		%REC	10	08/07/16 08:09 PM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	08/07/16 08:09 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-DU150(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-29
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.3	0	58-133	0		%REC	10	08/07/16 08:09 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-30
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:50 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.95	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 04:49 PM
IS: Bismuth	93.5	0	30-120	0		%REC	5	08/09/16 04:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Acenaphthylene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[a]anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[a]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[b]fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[e]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[g,h,i]perylene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[j]fluoranthene	0.0714	0.0476	0.0951	0.0714	NU	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[k]fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Chrysene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Dibenz[a,h]anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Fluorene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Indeno[1,2,3-cd]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Phenanthrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Phenanthrene-d10	97.8	0	50-200	0		%REC	10	08/07/16 08:49 PM
Surr: 2-Fluorobiphenyl	79.5	0	46-115	0		%REC	10	08/07/16 08:49 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-DU150(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-30
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:50 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.8	0	58-133	0		%REC	10	08/07/16 08:49 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-DU150(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-31
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:52 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.45	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 04:51 PM
IS: Bismuth	93.1	0	30-120	0		%REC	5	08/09/16 04:51 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 09:29 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	08/07/16 09:29 PM
Surr: 2-Fluorobiphenyl	75.3	0	46-115	0		%REC	10	08/07/16 09:29 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-DU150(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-31
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:52 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.6	0	58-133	0		%REC	10	08/07/16 09:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-32
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:55 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.64	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 04:53 PM
IS: Bismuth	93.9	0	30-120	0		%REC	5	08/09/16 04:53 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[a]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[a]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[b]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[e]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[g,h,i]perylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[j]fluoranthene	0.0738	0.0492	0.0984	0.0738	NU	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[k]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Chrysene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Dibenz[a,h]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Indeno[1,2,3-cd]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Phenanthrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Phenanthrene-d10	97.7	0	50-200	0		%REC	10	08/07/16 10:08 PM
Surr: 2-Fluorobiphenyl	73.6	0	46-115	0		%REC	10	08/07/16 10:08 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-DU150(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-32
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:55 AM
Lab Order:	1607294	**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 10:08 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-33
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:58 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	33.4	0.0926	0.278	0.139		mg/Kg-dry	5	08/09/16 04:55 PM
IS: Bismuth	94.3	0	30-120	0		%REC	5	08/09/16 04:55 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.131	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Acenaphthylene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[a]anthracene	0.0908	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[a]pyrene	0.117	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[b]fluoranthene	0.113	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[e]pyrene	0.0928	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[g,h,i]perylene	0.112	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[j]fluoranthene	0.0586	0.0500	0.100	0.0750	JN	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[k]fluoranthene	0.0595	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Chrysene	0.113	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Dibenz[a,h]anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Fluoranthene	0.143	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Fluorene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Indeno[1,2,3-cd]pyrene	0.0897	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Phenanthrene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Pyrene	0.133	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/07/16 10:48 PM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	08/07/16 10:48 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-DU150(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-33
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:58 AM
Lab Order:	1607294	**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	08/07/16 10:48 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-DU150(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-34
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:59 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.10	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 04:57 PM
IS: Bismuth	95.5	0	30-120	0		%REC	5	08/09/16 04:57 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/07/16 11:28 PM
Surr: 2-Fluorobiphenyl	75.6	0	46-115	0		%REC	10	08/07/16 11:28 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-DU150(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-34
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:59 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	08/07/16 11:28 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-35
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:00 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.90	0.0917	0.275	0.138		mg/Kg-dry	5	08/09/16 04:59 PM
IS: Bismuth	93.2	0	30-120	0		%REC	5	08/09/16 04:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[a]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[b]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[e]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[g,h,i]perylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Chrysene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Perylene-d12	112	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/08/16 02:47 AM
Surr: 2-Fluorobiphenyl	74.6	0	46-115	0		%REC	10	08/08/16 02:47 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-DU150(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-35
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:00 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.3	0	58-133	0		%REC	10	08/08/16 02:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-36
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:01 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	5.78	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 05:15 PM
IS: Bismuth	92.7	0	30-120	0		%REC	5	08/09/16 05:15 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[a]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[a]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[b]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[e]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[g,h,i]perylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[j]fluoranthene	0.0734	0.0489	0.0978	0.0734	NU	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[k]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Chrysene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Indeno[1,2,3-cd]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Phenanthrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
IS: Acenaphthene-d10	131	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	08/08/16 03:27 AM
Surr: 2-Fluorobiphenyl	78.7	0	46-115	0		%REC	10	08/08/16 03:27 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-DU150(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-36
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:01 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.0	0	58-133	0		%REC	10	08/08/16 03:27 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-37
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:05 AM
Lab Order:	1607294	**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 01:16 AM
IS: Bismuth	87.6	0	30-120	0		%REC	1	08/10/16 01:16 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Acenaphthylene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Anthracene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[a]anthracene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[a]pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[b]fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[e]pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[g,h,i]perylene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[j]fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	NU	mg/L	1	08/03/16 03:47 PM
Benzo[k]fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Chrysene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Dibenz[a,h]anthracene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Fluorene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Indeno[1,2,3-cd]pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Phenanthrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Chrysene-d12	92.9	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Naphthalene-d8	93.1	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Perylene-d12	94.0	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	1	08/03/16 03:47 PM
Surr: 2-Fluorobiphenyl	68.2	0	53-106	0		%REC	1	08/03/16 03:47 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(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-37
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:05 AM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	64.8	0	58-132	0		%REC	1	08/03/16 03:47 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-DU087(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-38
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:23 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.1	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 05:17 PM
IS: Bismuth	92.1	0	30-120	0		%REC	5	08/09/16 05:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[a]anthracene	0.157	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[a]pyrene	0.210	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[b]fluoranthene	0.190	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[e]pyrene	0.157	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[g,h,i]perylene	0.190	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[j]fluoranthene	0.0985	0.0498	0.0996	0.0747	JN	mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[k]fluoranthene	0.0931	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	08/08/16 04:07 AM
Chrysene	0.206	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Fluoranthene	0.251	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Indeno[1,2,3-cd]pyrene	0.148	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Phenanthrene	0.110	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Pyrene	0.242	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Chrysene-d12	104	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Phenanthrene-d10	97.1	0	50-200	0		%REC	10	08/08/16 04:07 AM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	08/08/16 04:07 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-DU087(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-38
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:23 PM
Lab Order:	1607294	**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	08/08/16 04:07 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-DU087(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-39
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.5	0.926	2.78	1.39		mg/Kg-dry	50	08/09/16 05:19 PM
IS: Bismuth	97.6	0	30-120	0		%REC	50	08/09/16 05:19 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Acenaphthylene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Anthracene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[a]anthracene	0.275	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[a]pyrene	0.422	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[b]fluoranthene	0.415	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[e]pyrene	0.322	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[g,h,i]perylene	0.343	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[j]fluoranthene	0.201	0.0484	0.0967	0.0725	N	mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[k]fluoranthene	0.210	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Chrysene	0.343	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Dibenz[a,h]anthracene	0.0655	0.0484	0.0967	0.0725	J	mg/Kg-dry	10	08/08/16 04:47 AM
Fluoranthene	0.337	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Fluorene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Indeno[1,2,3-cd]pyrene	0.250	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Phenanthrene	0.0769	0.0484	0.0967	0.0725	J	mg/Kg-dry	10	08/08/16 04:47 AM
Pyrene	0.326	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Phenanthrene-d10	98.0	0	50-200	0		%REC	10	08/08/16 04:47 AM
Surr: 2-Fluorobiphenyl	74.7	0	46-115	0		%REC	10	08/08/16 04:47 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-DU087(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-39
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.7	0	58-133	0		%REC	10	08/08/16 04:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-40
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:29 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	27.8	0.952	2.86	1.43		mg/Kg-dry	50	08/09/16 05:21 PM
IS: Bismuth	96.8	0	30-120	0		%REC	50	08/09/16 05:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.135	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[a]anthracene	0.0767	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[a]pyrene	0.125	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[b]fluoranthene	0.130	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[e]pyrene	0.104	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[g,h,i]perylene	0.161	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[j]fluoranthene	0.0611	0.0496	0.0992	0.0744	JN	mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[k]fluoranthene	0.0583	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Chrysene	0.0943	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Fluoranthene	0.102	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Indeno[1,2,3-cd]pyrene	0.0860	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Pyrene	0.0985	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
IS: Acenaphthene-d10	132	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Phenanthrene-d10	97.5	0	50-200	0		%REC	10	08/08/16 05:28 AM
Surr: 2-Fluorobiphenyl	73.2	0	46-115	0		%REC	10	08/08/16 05:28 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-DU087(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-40
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:29 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.9	0	58-133	0		%REC	10	08/08/16 05:28 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-41
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.03	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 05:23 PM
IS: Bismuth	91.6	0	30-120	0		%REC	5	08/09/16 05:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/08/16 06:09 AM
Surr: 2-Fluorobiphenyl	74.2	0	46-115	0		%REC	10	08/08/16 06:09 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-DU087(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-41
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.3	0	58-133	0		%REC	10	08/08/16 06:09 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-42
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:38 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.9	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 05:25 PM
IS: Bismuth	93.0	0	30-120	0		%REC	5	08/09/16 05:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[a]anthracene	0.158	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[a]pyrene	0.222	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[b]fluoranthene	0.210	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[e]pyrene	0.173	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[g,h,i]perylene	0.163	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[j]fluoranthene	0.111	0.0490	0.0980	0.0735	N	mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[k]fluoranthene	0.110	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Chrysene	0.196	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Fluoranthene	0.246	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Indeno[1,2,3-cd]pyrene	0.138	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Phenanthrene	0.0888	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	08/08/16 06:49 AM
Pyrene	0.232	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
IS: Acenaphthene-d10	128	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Phenanthrene-d10	96.0	0	50-200	0		%REC	10	08/08/16 06:49 AM
Surr: 2-Fluorobiphenyl	76.6	0	46-115	0		%REC	10	08/08/16 06:49 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-DU087(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-42
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:38 PM
Lab Order:	1607294	**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	08/08/16 06:49 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-43
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.7	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 05:27 PM
IS: Bismuth	91.1	0	30-120	0		%REC	5	08/09/16 05:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.346	0.230	0.461	0.346	U	mg/Kg-dry	50	08/08/16 07:29 AM
Acenaphthylene	0.346	0.230	0.461	0.346	U	mg/Kg-dry	50	08/08/16 07:29 AM
Anthracene	0.237	0.230	0.461	0.346	J	mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[a]anthracene	1.63	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[a]pyrene	1.90	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[b]fluoranthene	1.87	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[e]pyrene	1.39	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[g,h,i]perylene	1.28	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[j]fluoranthene	0.958	0.230	0.461	0.346	N	mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[k]fluoranthene	1.00	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Chrysene	1.90	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Dibenz[a,h]anthracene	0.291	0.230	0.461	0.346	J	mg/Kg-dry	50	08/08/16 07:29 AM
Fluoranthene	2.81	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Fluorene	0.346	0.230	0.461	0.346	U	mg/Kg-dry	50	08/08/16 07:29 AM
Indeno[1,2,3-cd]pyrene	1.05	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Phenanthrene	1.17	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Pyrene	2.39	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Naphthalene-d8	103	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Perylene-d12	116	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Phenanthrene-d10	99.4	0	50-200	0		%REC	50	08/08/16 07:29 AM
Surr: 2-Fluorobiphenyl	88.4	0	46-115	0		%REC	50	08/08/16 07:29 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-DU087(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-43
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	101	0	58-133	0		%REC	50	08/08/16 07:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-44
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	30.8	0.0847	0.254	0.127		mg/Kg-dry	5	08/09/16 05:29 PM
IS: Bismuth	91.2	0	30-120	0		%REC	5	08/09/16 05:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Acenaphthylene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Anthracene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[a]anthracene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[a]pyrene	0.0613	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[b]fluoranthene	0.0613	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[e]pyrene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[g,h,i]perylene	0.0626	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[j]fluoranthene	0.0707	0.0471	0.0943	0.0707	NU	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[k]fluoranthene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Chrysene	0.0579	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Dibenz[a,h]anthracene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Fluoranthene	0.0754	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Fluorene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Indeno[1,2,3-cd]pyrene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Phenanthrene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Pyrene	0.0668	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Chrysene-d12	94.6	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Perylene-d12	99.4	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Phenanthrene-d10	97.2	0	50-200	0		%REC	10	08/09/16 12:34 AM
Surr: 2-Fluorobiphenyl	80.9	0	46-115	0		%REC	10	08/09/16 12:34 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-DU087(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-44
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.4	0	58-133	0		%REC	10	08/09/16 12:34 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-45
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.92	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 05:31 PM
IS: Bismuth	90.7	0	30-120	0		%REC	5	08/09/16 05:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[a]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[a]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[b]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[e]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[g,h,i]perylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[j]fluoranthene	0.0741	0.0494	0.0988	0.0741	NU	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[k]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Chrysene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Indeno[1,2,3-cd]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Phenanthrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Chrysene-d12	96.2	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Phenanthrene-d10	96.6	0	50-200	0		%REC	10	08/08/16 10:41 AM
Surr: 2-Fluorobiphenyl	78.1	0	46-115	0		%REC	10	08/08/16 10:41 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-DU087(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-45
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	08/08/16 10:41 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-46
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.6	0.0909	0.273	0.136		mg/Kg-dry	5	08/09/16 05:33 PM
IS: Bismuth	91.0	0	30-120	0		%REC	5	08/09/16 05:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[a]anthracene	0.177	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[a]pyrene	0.210	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[b]fluoranthene	0.189	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[e]pyrene	0.159	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[g,h,i]perylene	0.171	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[j]fluoranthene	0.0938	0.0497	0.0994	0.0746	JN	mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[k]fluoranthene	0.0964	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 11:15 PM
Chrysene	0.216	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Fluoranthene	0.303	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Indeno[1,2,3-cd]pyrene	0.129	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Phenanthrene	0.109	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Pyrene	0.273	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Chrysene-d12	93.3	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Perylene-d12	96.0	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Phenanthrene-d10	90.6	0	50-200	0		%REC	10	08/08/16 11:15 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	08/08/16 11:15 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-DU087(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-46
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/08/16 11:15 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-47
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:51 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	13.0	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 05:21 PM
IS: Bismuth	98.1	0	30-120	0		%REC	5	08/10/16 05:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 01:14 AM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 01:14 AM
Anthracene	0.0681	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[a]anthracene	0.350	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[a]pyrene	0.414	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[b]fluoranthene	0.389	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[e]pyrene	0.315	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[g,h,i]perylene	0.384	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[j]fluoranthene	0.189	0.0486	0.0973	0.0730	N	mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[k]fluoranthene	0.182	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Chrysene	0.420	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Dibenz[a,h]anthracene	0.0651	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	08/09/16 01:14 AM
Fluoranthene	0.688	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 01:14 AM
Indeno[1,2,3-cd]pyrene	0.255	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Phenanthrene	0.372	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Pyrene	0.585	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Chrysene-d12	99.8	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Perylene-d12	110	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Phenanthrene-d10	94.7	0	50-200	0		%REC	10	08/09/16 01:14 AM
Surr: 2-Fluorobiphenyl	77.8	0	46-115	0		%REC	10	08/09/16 01:14 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-DU087(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-47
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:51 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.4	0	58-133	0		%REC	10	08/09/16 01:14 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-48
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	27.9	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 05:23 PM
IS: Bismuth	96.2	0	30-120	0		%REC	5	08/10/16 05:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[a]anthracene	0.540	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[a]pyrene	1.08	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[b]fluoranthene	0.952	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[e]pyrene	0.763	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[g,h,i]perylene	0.880	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[j]fluoranthene	0.465	0.0495	0.0990	0.0743	N	mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[k]fluoranthene	0.452	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Chrysene	0.728	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Dibenz[a,h]anthracene	0.181	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Fluoranthene	0.520	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Indeno[1,2,3-cd]pyrene	0.711	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Phenanthrene	0.156	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Pyrene	0.546	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Phenanthrene-d10	91.5	0	50-200	0		%REC	10	08/09/16 01:54 AM
Surr: 2-Fluorobiphenyl	81.5	0	46-115	0		%REC	10	08/09/16 01:54 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-DU087(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-48
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.5	0	58-133	0		%REC	10	08/09/16 01:54 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-49
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.72	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 05:25 PM
IS: Bismuth	97.4	0	30-120	0		%REC	5	08/10/16 05:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[a]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[a]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[b]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[e]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[g,h,i]perylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Chrysene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Indeno[1,2,3-cd]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	08/08/16 11:20 AM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	08/08/16 11:20 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-DU087(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-49
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.4	0	58-133	0		%REC	10	08/08/16 11:20 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-50
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 01:00 PM
Lab Order:	1607294	**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 01:22 AM
IS: Bismuth	88.5	0	30-120	0		%REC	1	08/10/16 01:22 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Acenaphthylene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Anthracene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[a]anthracene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[a]pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[b]fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[e]pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[g,h,i]perylene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[j]fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	NU	mg/L	1	08/03/16 04:27 PM
Benzo[k]fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Chrysene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Dibenz[a,h]anthracene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Fluorene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Indeno[1,2,3-cd]pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Phenanthrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Chrysene-d12	107	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Perylene-d12	109	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Phenanthrene-d10	118	0	50-200	0		%REC	1	08/03/16 04:27 PM
Surr: 2-Fluorobiphenyl	68.7	0	53-106	0		%REC	1	08/03/16 04:27 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(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-50
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 01:00 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	64.8	0	58-132	0		%REC	1	08/03/16 04:27 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-51
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:20 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.2	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:27 PM
IS: Bismuth	97.3	0	30-120	0		%REC	5	08/10/16 05:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[a]anthracene	0.0858	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[a]pyrene	0.119	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[b]fluoranthene	0.115	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[g,h,i]perylene	0.102	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[j]fluoranthene	0.0569	0.0499	0.0998	0.0749	JN	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[k]fluoranthene	0.0558	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/08/16 12:00 PM
Chrysene	0.100	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Fluoranthene	0.104	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Indeno[1,2,3-cd]pyrene	0.0826	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/08/16 12:00 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Pyrene	0.105	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Chrysene-d12	99.1	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Phenanthrene-d10	97.4	0	50-200	0		%REC	10	08/08/16 12:00 PM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	08/08/16 12:00 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-DU095(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-51
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:20 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	08/08/16 12:00 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-DU095(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-52
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:22 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.71	0.0862	0.259	0.129		mg/Kg-dry	5	08/10/16 05:17 PM
IS: Bismuth	96.1	0	30-120	0		%REC	5	08/10/16 05:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Acenaphthylene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Anthracene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[a]anthracene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[a]pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[b]fluoranthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[e]pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[g,h,i]perylene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[j]fluoranthene	0.0719	0.0479	0.0959	0.0719	NU	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[k]fluoranthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Chrysene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Dibenz[a,h]anthracene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Fluoranthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Fluorene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Indeno[1,2,3-cd]pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Phenanthrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Chrysene-d12	99.0	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Phenanthrene-d10	98.6	0	50-200	0		%REC	10	08/08/16 12:39 PM
Surr: 2-Fluorobiphenyl	71.6	0	46-115	0		%REC	10	08/08/16 12:39 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-DU095(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-52
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:22 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.0	0	58-133	0		%REC	10	08/08/16 12:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-53
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:25 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	3.86	0.0870	0.261	0.130		mg/Kg-dry	5	08/10/16 05:29 PM
IS: Bismuth	95.3	0	30-120	0		%REC	5	08/10/16 05:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Phenanthrene-d10	97.4	0	50-200	0		%REC	10	08/08/16 01:19 PM
Surr: 2-Fluorobiphenyl	72.7	0	46-115	0		%REC	10	08/08/16 01:19 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-DU095(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-53
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:25 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.3	0	58-133	0		%REC	10	08/08/16 01:19 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-DU095(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-54
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:28 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	4.06	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:31 PM
IS: Bismuth	98.5	0	30-120	0		%REC	5	08/10/16 05:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Chrysene-d12	94.6	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Perylene-d12	97.3	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Phenanthrene-d10	94.0	0	50-200	0		%REC	10	08/08/16 01:59 PM
Surr: 2-Fluorobiphenyl	79.6	0	46-115	0		%REC	10	08/08/16 01:59 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-DU095(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-54
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:28 AM
Lab Order:	1607294	**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	08/08/16 01:59 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-55
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:31 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	39.2	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 05:33 PM
IS: Bismuth	98.1	0	30-120	0		%REC	5	08/10/16 05:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Fluoranthene	0.0537	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/08/16 11:54 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Pyrene	0.0497	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/08/16 11:54 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Chrysene-d12	97.0	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Perylene-d12	98.6	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Phenanthrene-d10	94.3	0	50-200	0		%REC	10	08/08/16 11:54 PM
Surr: 2-Fluorobiphenyl	75.9	0	46-115	0		%REC	10	08/08/16 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-DU095(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-55
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:31 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	08/08/16 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-56
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:33 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	212	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 05:35 PM
IS: Bismuth	98.3	0	30-120	0		%REC	5	08/10/16 05:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[a]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[b]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Chrysene-d12	99.7	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Phenanthrene-d10	97.9	0	50-200	0		%REC	10	08/08/16 02:39 PM
Surr: 2-Fluorobiphenyl	76.8	0	46-115	0		%REC	10	08/08/16 02:39 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-DU095(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-56
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:33 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	08/08/16 02:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-57
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:37 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	5.62	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 05:37 PM
IS: Bismuth	95.6	0	30-120	0		%REC	5	08/10/16 05:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Acenaphthylene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Anthracene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[a]anthracene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[a]pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[b]fluoranthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[e]pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[g,h,i]perylene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[j]fluoranthene	0.0690	0.0460	0.0920	0.0690	NU	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[k]fluoranthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Chrysene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Dibenz[a,h]anthracene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Fluoranthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Fluorene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Indeno[1,2,3-cd]pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Phenanthrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Chrysene-d12	95.3	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Perylene-d12	96.4	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Phenanthrene-d10	94.2	0	50-200	0		%REC	10	08/08/16 03:19 PM
Surr: 2-Fluorobiphenyl	79.8	0	46-115	0		%REC	10	08/08/16 03:19 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-DU095(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-57
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:37 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.7	0	58-133	0		%REC	10	08/08/16 03:19 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-58
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:39 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	3.90	0.0870	0.261	0.130		mg/Kg-dry	5	08/10/16 05:59 PM
IS: Bismuth	97.2	0	30-120	0		%REC	5	08/10/16 05:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Acenaphthylene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[a]anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[a]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[b]fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[e]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[g,h,i]perylene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[j]fluoranthene	0.0706	0.0470	0.0941	0.0706	NU	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[k]fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Chrysene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Dibenz[a,h]anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Fluorene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Indeno[1,2,3-cd]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Phenanthrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Chrysene-d12	95.3	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Perylene-d12	97.7	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Phenanthrene-d10	91.8	0	50-200	0		%REC	10	08/08/16 03:59 PM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	08/08/16 03:59 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-DU095(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-58
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:39 AM
Lab Order:	1607294	**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	08/08/16 03:59 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-59
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:43 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	97.8	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 06:01 PM
IS: Bismuth	97.1	0	30-120	0		%REC	5	08/10/16 06:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Acenaphthylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[a]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[a]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[b]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[e]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[g,h,i]perylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[j]fluoranthene	0.0732	0.0488	0.0976	0.0732	NU	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[k]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Chrysene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Fluorene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Phenanthrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
IS: Acenaphthene-d10	112	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Chrysene-d12	99.3	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	08/08/16 04:39 PM
Surr: 2-Fluorobiphenyl	76.3	0	46-115	0		%REC	10	08/08/16 04:39 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-DU095(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-59
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:43 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.3	0	58-133	0		%REC	10	08/08/16 04:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-60
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:45 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.1	0.0877	0.263	0.132		mg/Kg-dry	5	08/10/16 06:03 PM
IS: Bismuth	95.2	0	30-120	0		%REC	5	08/10/16 06:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Phenanthrene-d10	95.1	0	50-200	0		%REC	10	08/08/16 05:19 PM
Surr: 2-Fluorobiphenyl	78.7	0	46-115	0		%REC	10	08/08/16 05:19 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-60
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:45 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.9	0	58-133	0		%REC	10	08/08/16 05:19 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-DU095(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-61
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	4.43	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 06:04 PM
IS: Bismuth	93.5	0	30-120	0		%REC	5	08/10/16 06:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Chrysene-d12	98.0	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Phenanthrene-d10	97.5	0	50-200	0		%REC	10	08/08/16 05:59 PM
Surr: 2-Fluorobiphenyl	76.0	0	46-115	0		%REC	10	08/08/16 05:59 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-DU095(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-61
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	08/08/16 05:59 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-62
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:49 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	3.99	0.0847	0.254	0.127		mg/Kg-dry	5	08/10/16 06:06 PM
IS: Bismuth	95.3	0	30-120	0		%REC	5	08/10/16 06:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Acenaphthylene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[a]anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[a]pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[b]fluoranthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[e]pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[g,h,i]perylene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[j]fluoranthene	0.0739	0.0493	0.0985	0.0739	NU	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[k]fluoranthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Chrysene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Dibenz[a,h]anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Fluoranthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Fluorene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Indeno[1,2,3-cd]pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Phenanthrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Chrysene-d12	96.1	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Perylene-d12	99.7	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Phenanthrene-d10	94.2	0	50-200	0		%REC	10	08/08/16 06:39 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	08/08/16 06:39 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-DU095(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-62
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:49 AM
Lab Order:	1607294	**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	08/08/16 06:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-63
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:55 AM
Lab Order:	1607294	**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 01:52 AM
IS: Bismuth	89.3	0	30-120	0		%REC	1	08/10/16 01:52 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Acenaphthylene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Anthracene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[a]anthracene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[a]pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[b]fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[e]pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[g,h,i]perylene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[j]fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	NU	mg/L	1	08/03/16 05:07 PM
Benzo[k]fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Chrysene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Dibenz[a,h]anthracene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Fluorene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Indeno[1,2,3-cd]pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Phenanthrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Chrysene-d12	125	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Naphthalene-d8	127	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Perylene-d12	128	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Phenanthrene-d10	141	0	50-200	0		%REC	1	08/03/16 05:07 PM
Surr: 2-Fluorobiphenyl	68.6	0	53-106	0		%REC	1	08/03/16 05:07 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(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-63
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:55 AM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	63.3	0	58-132	0		%REC	1	08/03/16 05:07 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-64
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	66.5	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 06:08 PM
IS: Bismuth	92.0	0	30-120	0		%REC	5	08/10/16 06:08 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[a]anthracene	0.131	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[a]pyrene	0.266	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[b]fluoranthene	0.230	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[e]pyrene	0.197	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[g,h,i]perylene	0.232	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[j]fluoranthene	0.103	0.0499	0.0997	0.0748	N	mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[k]fluoranthene	0.103	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Chrysene	0.184	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Fluoranthene	0.124	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Indeno[1,2,3-cd]pyrene	0.170	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Pyrene	0.133	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Chrysene-d12	95.5	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Perylene-d12	99.2	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Phenanthrene-d10	92.6	0	50-200	0		%REC	10	08/08/16 09:56 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	08/08/16 09:56 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-DU143(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-64
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:44 PM
Lab Order:	1607294	**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	08/08/16 09:56 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-DU143(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-65
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.80	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 06:10 PM
IS: Bismuth	87.6	0	30-120	0		%REC	5	08/10/16 06:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Acenaphthylene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[a]anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[a]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[b]fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[e]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[g,h,i]perylene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[j]fluoranthene	0.0700	0.0466	0.0933	0.0700	NU	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[k]fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Chrysene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Dibenz[a,h]anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Fluorene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Indeno[1,2,3-cd]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Phenanthrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Chrysene-d12	93.6	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Perylene-d12	96.5	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	08/08/16 10:36 PM
Surr: 2-Fluorobiphenyl	73.2	0	46-115	0		%REC	10	08/08/16 10:36 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-DU143(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-65
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.4	0	58-133	0		%REC	10	08/08/16 10:36 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-66
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.59	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 06:12 PM
IS: Bismuth	88.1	0	30-120	0		%REC	5	08/10/16 06:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Perylene-d12	120	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Phenanthrene-d10	98.5	0	50-200	0		%REC	10	08/08/16 12:50 PM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	08/08/16 12:50 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-66
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.9	0	58-133	0		%REC	10	08/08/16 12:50 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-67
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:52 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.44	0.0862	0.259	0.129		mg/Kg-dry	5	08/10/16 06:14 PM
IS: Bismuth	89.4	0	30-120	0		%REC	5	08/10/16 06:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Perylene-d12	122	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/08/16 01:30 PM
Surr: 2-Fluorobiphenyl	73.0	0	46-115	0		%REC	10	08/08/16 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-DU143(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-67
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:52 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	08/08/16 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-DU143(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-68
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	60.6	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 06:16 PM
IS: Bismuth	89.5	0	30-120	0		%REC	5	08/10/16 06:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[a]anthracene	0.295	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[a]pyrene	0.508	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[b]fluoranthene	0.495	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[e]pyrene	0.390	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[g,h,i]perylene	0.380	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[j]fluoranthene	0.238	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[k]fluoranthene	0.246	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Chrysene	0.406	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Dibenz[a,h]anthracene	0.0972	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/08/16 02:12 PM
Fluoranthene	0.320	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Indeno[1,2,3-cd]pyrene	0.359	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Phenanthrene	0.0834	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/08/16 02:12 PM
Pyrene	0.327	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	08/08/16 02:12 PM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	08/08/16 02:12 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-DU143(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-68
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	89.4	0	58-133	0		%REC	10	08/08/16 02:12 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-69
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	11.5	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 04:56 PM
IS: Bismuth	85.2	0	30-120	0		%REC	5	08/10/16 04:56 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Phenanthrene-d10	99.6	0	50-200	0		%REC	10	08/08/16 02:52 PM
Surr: 2-Fluorobiphenyl	76.1	0	46-115	0		%REC	10	08/08/16 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-DU143(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-69
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.4	0	58-133	0		%REC	10	08/08/16 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-70
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:58 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.03	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 05:02 PM
IS: Bismuth	89.6	0	30-120	0		%REC	5	08/10/16 05:02 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[a]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[a]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[b]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[e]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[g,h,i]perylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[j]fluoranthene	0.0738	0.0492	0.0984	0.0738	NU	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[k]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Chrysene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Dibenz[a,h]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Indeno[1,2,3-cd]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Phenanthrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/08/16 03:34 PM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	08/08/16 03:34 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-DU143(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-70
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:58 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.1	0	58-133	0		%REC	10	08/08/16 03:34 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-71
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:00 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.87	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:08 PM
IS: Bismuth	86.1	0	30-120	0		%REC	5	08/10/16 05:08 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[a]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[a]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[b]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[e]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[g,h,i]perylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[j]fluoranthene	0.0741	0.0494	0.0988	0.0741	NU	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[k]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Chrysene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Indeno[1,2,3-cd]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Phenanthrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Phenanthrene-d10	97.9	0	50-200	0		%REC	10	08/08/16 04:16 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/08/16 04:16 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-DU143(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-71
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:00 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.3	0	58-133	0		%REC	10	08/08/16 04:16 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-72
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:03 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	115	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 05:13 PM
IS: Bismuth	79.2	0	30-120	0		%REC	5	08/10/16 05:13 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[a]anthracene	0.178	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[a]pyrene	0.223	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[b]fluoranthene	0.197	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[e]pyrene	0.170	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[g,h,i]perylene	0.172	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[j]fluoranthene	0.111	0.0489	0.0978	0.0734	N	mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[k]fluoranthene	0.117	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Chrysene	0.227	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Fluoranthene	0.273	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Indeno[1,2,3-cd]pyrene	0.151	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Phenanthrene	0.0918	0.0489	0.0978	0.0734	J	mg/Kg-dry	10	08/08/16 04:56 PM
Pyrene	0.263	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Perylene-d12	120	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/08/16 04:56 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	08/08/16 04:56 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-DU143(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-72
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:03 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.6	0	58-133	0		%REC	10	08/08/16 04:56 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-73
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:05 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	55.2	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 05:19 PM
IS: Bismuth	75.3	0	30-120	0		%REC	5	08/10/16 05:19 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[a]anthracene	0.0987	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[a]pyrene	0.113	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[b]fluoranthene	0.111	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[e]pyrene	0.0892	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[g,h,i]perylene	0.0830	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[j]fluoranthene	0.0591	0.0484	0.0969	0.0727	JN	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[k]fluoranthene	0.0598	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Chrysene	0.121	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Fluoranthene	0.159	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Pyrene	0.151	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Phenanthrene-d10	99.2	0	50-200	0		%REC	10	08/08/16 05:38 PM
Surr: 2-Fluorobiphenyl	74.0	0	46-115	0		%REC	10	08/08/16 05:38 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-DU143(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-73
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:05 PM
Lab Order:	1607294	**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	08/08/16 05:38 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-DU143(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-74
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:07 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.35	0.0870	0.261	0.130		mg/Kg-dry	5	08/10/16 05:31 PM
IS: Bismuth	77.2	0	30-120	0		%REC	5	08/10/16 05:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Acenaphthylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[a]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[a]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[b]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[e]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[g,h,i]perylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[j]fluoranthene	0.0723	0.0482	0.0963	0.0723	NU	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[k]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Chrysene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Dibenz[a,h]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Fluorene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Indeno[1,2,3-cd]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Phenanthrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Phenanthrene-d10	98.2	0	50-200	0		%REC	10	08/08/16 06:17 PM
Surr: 2-Fluorobiphenyl	73.8	0	46-115	0		%REC	10	08/08/16 06:17 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	**Client Sample ID:**	SGR-DU143(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-74
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:07 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.6	0	58-133	0		%REC	10	08/08/16 06:17 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-75
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:09 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	12.1	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 05:37 PM
IS: Bismuth	78.6	0	30-120	0		%REC	5	08/10/16 05:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Acenaphthylene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Anthracene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[a]anthracene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[a]pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[b]fluoranthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[e]pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[g,h,i]perylene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[j]fluoranthene	0.0686	0.0457	0.0914	0.0686	NU	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[k]fluoranthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Chrysene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Dibenz[a,h]anthracene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Fluoranthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Fluorene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Indeno[1,2,3-cd]pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Phenanthrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Perylene-d12	120	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Phenanthrene-d10	99.9	0	50-200	0		%REC	10	08/08/16 06:58 PM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	08/08/16 06:58 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-DU143(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-75
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:09 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.8	0	58-133	0		%REC	10	08/08/16 06:58 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-76
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:15 PM
Lab Order:	1607294	**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 02:04 AM
IS: Bismuth	87.9	0	30-120	0		%REC	1	08/10/16 02:04 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Acenaphthylene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Anthracene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[a]anthracene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[a]pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[b]fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[e]pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[g,h,i]perylene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[j]fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	NU	mg/L	1	08/03/16 05:47 PM
Benzo[k]fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Chrysene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Dibenz[a,h]anthracene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Fluorene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Indeno[1,2,3-cd]pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Phenanthrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Naphthalene-d8	102	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Perylene-d12	103	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Phenanthrene-d10	117	0	50-200	0		%REC	1	08/03/16 05:47 PM
Surr: 2-Fluorobiphenyl	72.1	0	53-106	0		%REC	1	08/03/16 05:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-76
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:15 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	58.5	0	58-132	0		%REC	1	08/03/16 05:47 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		

August 16, 2016

Alex Walter
Arcadis
8725 Rosehill #350
Lenexa, Kansas 66215
TEL: (913) 492-0900
FAX (913) 492-0902

Order No.: 1607294

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 76 sample(s) on 7/26/2016 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-MS4 Raw Data 1034

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
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E-Mail: login@dhlanalytical.com

№ 72219

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: 7-23-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607244
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beam

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 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-DU125(0-2)-A	01	7-23-16	1219	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(2-4)-A	02	7-23-16	1222	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(4-6)-A	03	7-23-16	1225	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(6-8)-A	04	7-23-16	1227	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(0-2)-B	05	7-23-16	1230	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(2-4)-B	06	7-23-16	1233	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(4-6)-B	07	7-23-16	1234	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(6-8)-B	08	7-23-16	1236	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(0-2)-C	09	7-23-16	1239	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(2-4)-C	10	7-23-16	1240	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(4-6)-C	11	7-23-16	1243	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
SGR-DU125(6-8)-C	12	7-23-16	1244	S	Bag	1				X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	
FB01(20160723)	13	7-23-16	1250	W	Poly/Glass	2		X		X		BTEX, TPH 1005, VOC 8260, Lead, METALS 6020	

RELINQUISHED BY: (Signature) Jordan Beam DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/26/16 920 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: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☐ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.1, 0.8, 0.7
☐ HAND DELIVERED 0.4, 0.5, 0.7, 0.1

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

№ 72220

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: 7-23-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607294
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon 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 ☐ 8082 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	ANALYSES	FIELD NOTES
SGR-DU115(0-2)-A	14	7-23-16	1540	S	Bag	1				X		X X X	
SGR-DU115(2-4)-A	15	7-23-16	1541	S	Bag	1				X		X X X	
SGR-DU115(4-6)-A	16	7-23-16	1542	S	Bag	1				X		X X X	
SGR-DU115(6-8)-A	17	7-23-16	1543	S	Bag	1				X		X X X	
SGR-DU115(0-2)-B	18	7-23-16	1545	S	Bag	1				X		X X X	
SGR-DU115(2-4)-B	19	7-23-16	1546	S	Bag	1				X		X X X	
SGR-DU115(4-6)-B	20	7-23-16	1547	S	Bag	1				X		X X X	
~~SGR-DU115(6-8)-B~~		~~7-23-16~~		~~S~~	~~Bag~~	~~1~~				~~X~~		~~X X X~~	~~DE~~
SGR-DU115(0-2)-C	21	7-23-16	1548	S	Bag	1				X		X X X	
SGR-DU115(2-4)-C	22	7-23-16	1549	S	Bag	1				X		X X X	
SGR-DU115(4-6)-C	23	7-23-16	1550	S	Bag	1				X		X X X	
~~SGR-DU115(6-8)-C~~		~~7-23-16~~		~~S~~	~~Bag~~	~~1~~				~~X~~		~~X X X~~	~~DE~~
~~EB02(20160723)~~		~~7-23-16~~		~~Poly/Glass~~	~~DE~~								
EB02(20160723)	24	7-23-16	1555	W	Poly/Glass	2		X		X		X X X	

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 7/26/16 920 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: 1.4 THERM #: 29
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☐ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.0, 0.0, 0.5, 0.1, 0.8, 0.7, 0.4,
☐ HAND DELIVERED 0.5, 0.7, 0.1

DHL ANALYTICAL
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E-Mail: login@dhlanalytical.com

№ 72221

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: 7-24-16 PAGE 1 OF 2
PO #: 04285081.0000.0004 DHL WORK ORDER #: 1607294
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.0004 COLLECTOR: Jordon 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 ☐ 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 NOTES
25	SGR-DU150(0-2)-A	22	7-24-16	0938	S	Bag	1				X					X					X								
26	SGR-DU150(2-4)-A	23	7-24-16	0940	S	Bag	1				X					X					X								
27	SGR-DU150(4-6)-A	24	7-24-16	0942	S	Bag	1				X					X					X								
28	SGR-DU150(6-8)-A	25	7-24-16	0943	S	Bag	1				X					X					X								
29	SGR-DU150(0-2)-B	26	7-24-16	0947	S	Bag	1				X					X					X								
30	SGR-DU150(2-4)-B	27	7-24-16	0950	S	Bag	1				X					X					X								
31	SGR-DU150(4-6)-B	28	7-24-16	0952	S	Bag	1				X					X					X								
32	SGR-DU150(6-8)-B	29	7-24-16	0953	S	Bag	1				X					X					X								
33	SGR-DU150(0-2)-C	30	7-24-16	0958	S	Bag	1				X					X					X								
34	SGR-DU150(2-4)-C	31	7-24-16	0959	S	Bag	1				X					X					X								
35	SGR-DU150(4-6)-C	32	7-24-16	1000	S	Bag	1				X					X					X								
36	SGR-DU150(6-8)-C	33	7-24-16	1001	S	Bag	1				X					X					X								
37	EB01(20160724)	34	7-24-16	1005	W	Poly/Glass	2		X		X					X					X								

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/26/16 420 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: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8/1.0, 0.5, 0.1, 0.8, 0.7, 0.4
☐ HAND DELIVERED 0.5, 0.7, 0.1

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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72222

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: 7-24-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607294
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 ☐ 1METHOD 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, METALS 200.8 ☐ DISS. METALS ☐ | METALS 6020 ☐ METALS 200.8 ☐ ALKALINITY ☐ COD ☐ | RCRA ☐ TX11 ☐ Lead | PH ☐ HEX CHROM ☐ ANIONS ☐ | 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
38	SGR-DU087(0-2)-A	35	7-24-16	1223	S	Bag	1				X		
39	SGR-DU087(2-4)-A	36	7-24-16	1225	S	Bag	1				X		
40	SGR-DU087(4-6)-A	37	7-24-16	1229	S	Bag	1				X		
41	SGR-DU087(6-8)-A	38	7-24-16	1233	S	Bag	1				X		
42	SGR-DU087(0-2)-B	39	7-24-16	1238	S	Bag	1				X		
43	SGR-DU087(2-4)-B	40	7-24-16	1241	S	Bag	1				X		
44	SGR-DU087(4-6)-B	41	7-24-16	1244	S	Bag	1				X		
45	SGR-DU087(6-8)-B	42	7-24-16	1246	S	Bag	1				X		
46	SGR-DU087(0-2)-C	43	7-24-16	1249	S	Bag	1				X		
47	SGR-DU087(2-4)-C	44	7-24-16	1251	S	Bag	1				X		
48	SGR-DU082(4-6)-C	45	7-24-16	1254	S	Bag	1				X		
49	SGR-DU087(6-8)-C	46	7-24-16	1256	S	Bag	1				X		
50	EB02(20160724)	47	7-24-16	1300	W	Poly/Glass	2		X		X		

RELINQUISHED BY: (Signature) DATE/TIME 7/25/16/1600 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) DATE/TIME 7/26/14 920 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: 1.4 THERM #: 790
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.1, 0.8, 0.7, 0.4
☐ HAND DELIVERED 0.5, 0.7, 0.1

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E-Mail: login@dhlanalytical.com

№ 72233

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: 7-25-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607254
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Baem

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
51	SGR-DU095(0-2)-A	48	7-25-16	1020	S	Bag	1				X					X					X								
52	SGR-DU095(2-4)-A	49	7-25-16	1022	S	Bag	1				X					X					X								
53	SGR-DU095(4-6)-A	50	7-25-16	1025	S	Bag	1				X					X					X								
54	SGR-DU095(6-8)-A	51	7-25-16	1028	S	Bag	1				X					X					X								
55	SGR-DU095(0-2)-B	52	7-25-16	1031	S	Bag	1				X					X					X								
56	SGR-DU095(2-4)-B	53	7-25-16	1033	S	Bag	1				X					X					X								
57	SGR-DU095(4-6)-B	54	7-25-16	1037	S	Bag	1				X					X					X								
58	SGR-DU095(6-8)-B	55	7-25-16	1039	S	Bag	1				X					X					X								
59	SGR-DU095(0-2)-C	56	7-25-16	1043	S	Bag	1				X					X					X								
60	SGR-DU095(2-4)-C	57	7-25-16	1045	S	Bag	1				X					X					X								
61	SGR-DU095(4-6)-C	58	7-25-16	1047	S	Bag	1				X					X					X								
62	SGR-DU095(6-8)-C	59	7-25-16	1049	S	Bag	1				X					X					X								
63	EB01(20160725)	60	7-25-16	1055	W	Bty/Glass	2		X		X					X					X								

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Jordan Baem	7-25-16 1600	FedEx
FedEx	7/26/16 920	Ball

☐ 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: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.8, 0.1, 0.7, 0.4
☐ HAND DELIVERED 0.5, 0.7, 0.1

DHL ANALYTICAL
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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72223

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: 7-25-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607294
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: ~~04280~~ 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 ☐ 8082 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8081 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	ANALYSES	FIELD NOTES
64	SGR-DU143(0-2)-A	61	7-25-16	1349	S	Bag	1				X		X X	
65	SGR-DU143(2-4)-A	62	7-25-16	1346	S	Bag	1				X		X X	
66	SGR-DU143(4-6)-A	63	7-25-16	1349	S	Bag	1				X		X X	
67	SGR-DU143(6-8)-A	64	7-25-16	1352	S	Bag	1				X		X X	
68	SGR-DU143(0-2)-B	65	7-25-16	1354	S	Bag	1				X		X X	
69	SGR-DU143(2-4)-B	66	7-25-16	1356	S	Bag	1				X		X X	
70	SGR-DU143(4-6)-B	67	7-25-16	1358	S	Bag	1				X		X X	
71	SGR-DU143(6-8)-B	68	7-25-16	1400	S	Bag	1				X		X X	
72	SGR-DU143(0-2)-C	69	7-25-16	1403	S	Bag	1				X		X X	
73	SGR-DU143(2-4)-C	70	7-25-16	1405	S	Bag	1				X		X X	
74	SGR-DU143(4-6)-C	71	7-25-16	1407	S	Bag	1				X		X X	
75	SGR-DU143(6-8)-C	72	7-25-16	1409	S	Bag	1				X		X X	
76	EB02(20160725)	73	7-25-16	1415	W	Poly/Glass	2		X		X			

RELINQUISHED BY: (Signature) Jordan B DATE/TIME 7-25-16/1600 RECEIVED BY: (Signature) Fed ex
RELINQUISHED BY: (Signature) Fed ex DATE/TIME 7/26/16 920 RECEIVED BY: (Signature)
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☐ DHL DISPOSAL @ $5.00 each ☐ Return 8

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.8, 1.0, 0.5, 0.1, 0.8, 0.7,
☐ HAND DELIVERED 0.4, 0.5, 0.7, 0.1

ORIGIN ID:LRDA (913) 492-0900
JORDON BEEM
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 25JUL16
ACTWGT: 85.80 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR.

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8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

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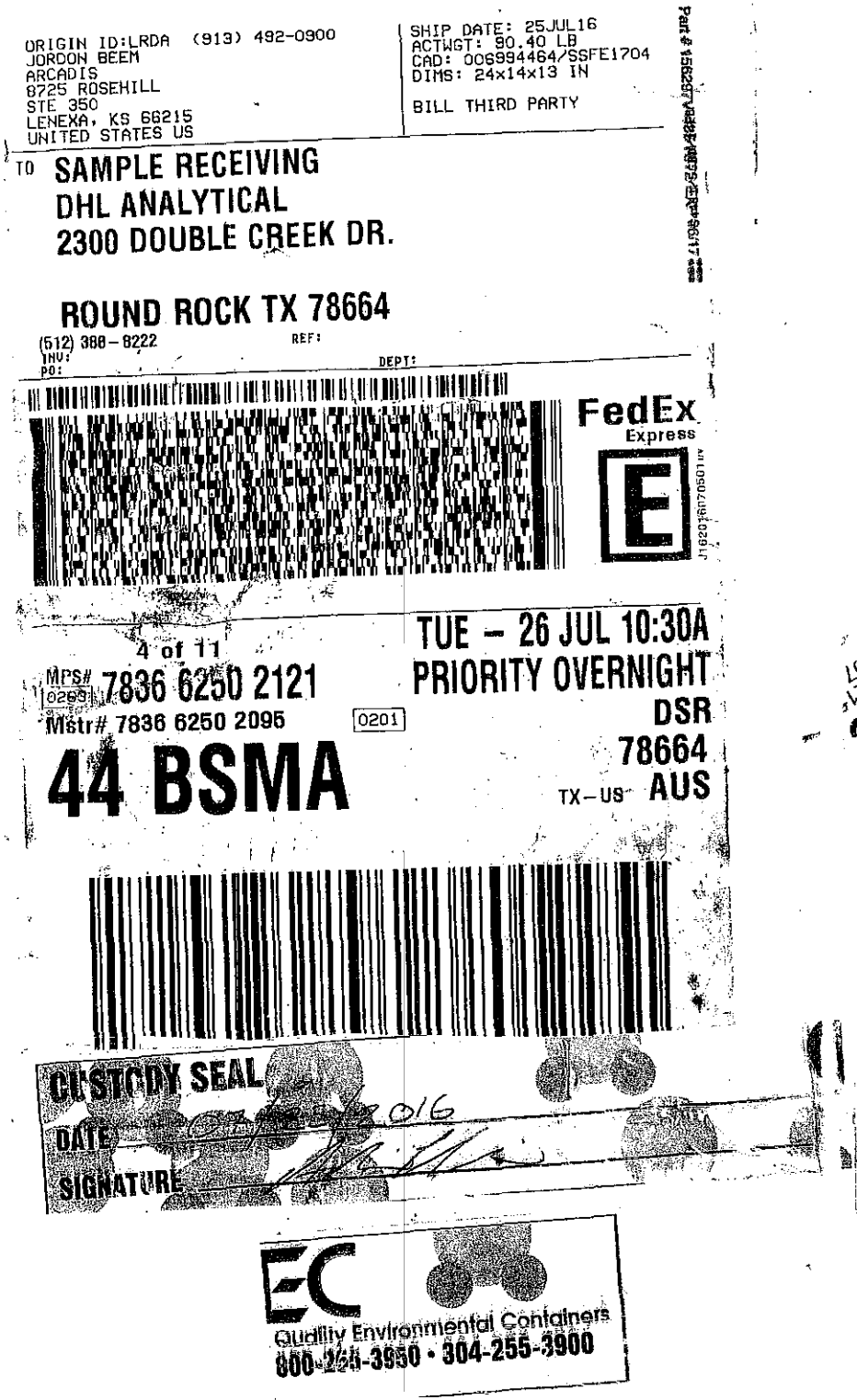

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JORDON BEEM
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8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 25JUL16
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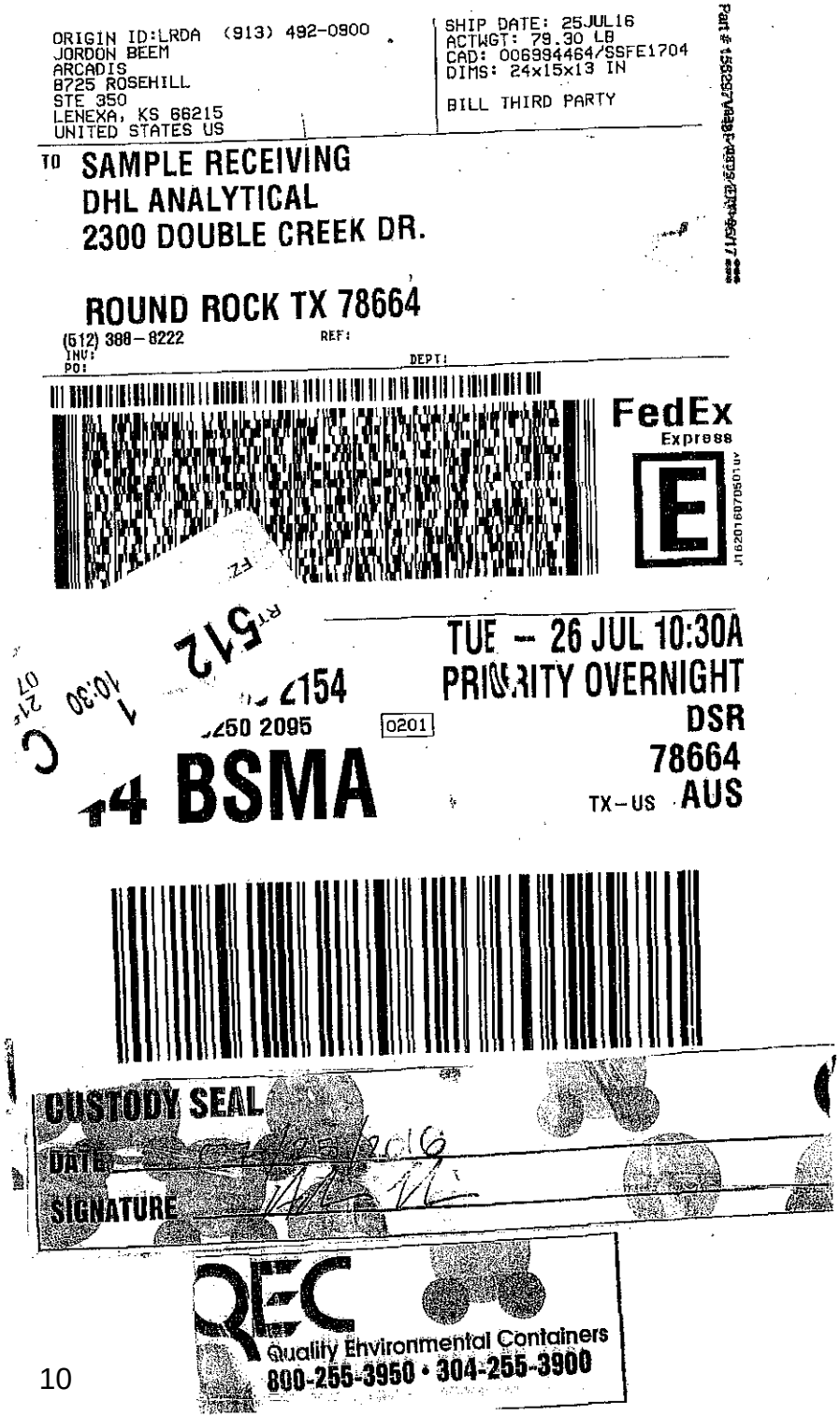

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JORDON BEEM
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8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 25JUL16
ACTWGT: 79.30 LB
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DIMS: 24x15x13 IN

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JORDON BEEM
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 25JUL16
ACTWGT: 72.60 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x13 IN

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JORDON BEEM
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 25JUL16
ACTWGT: 84.90 LB
CAD: 006994464/SSFE1704
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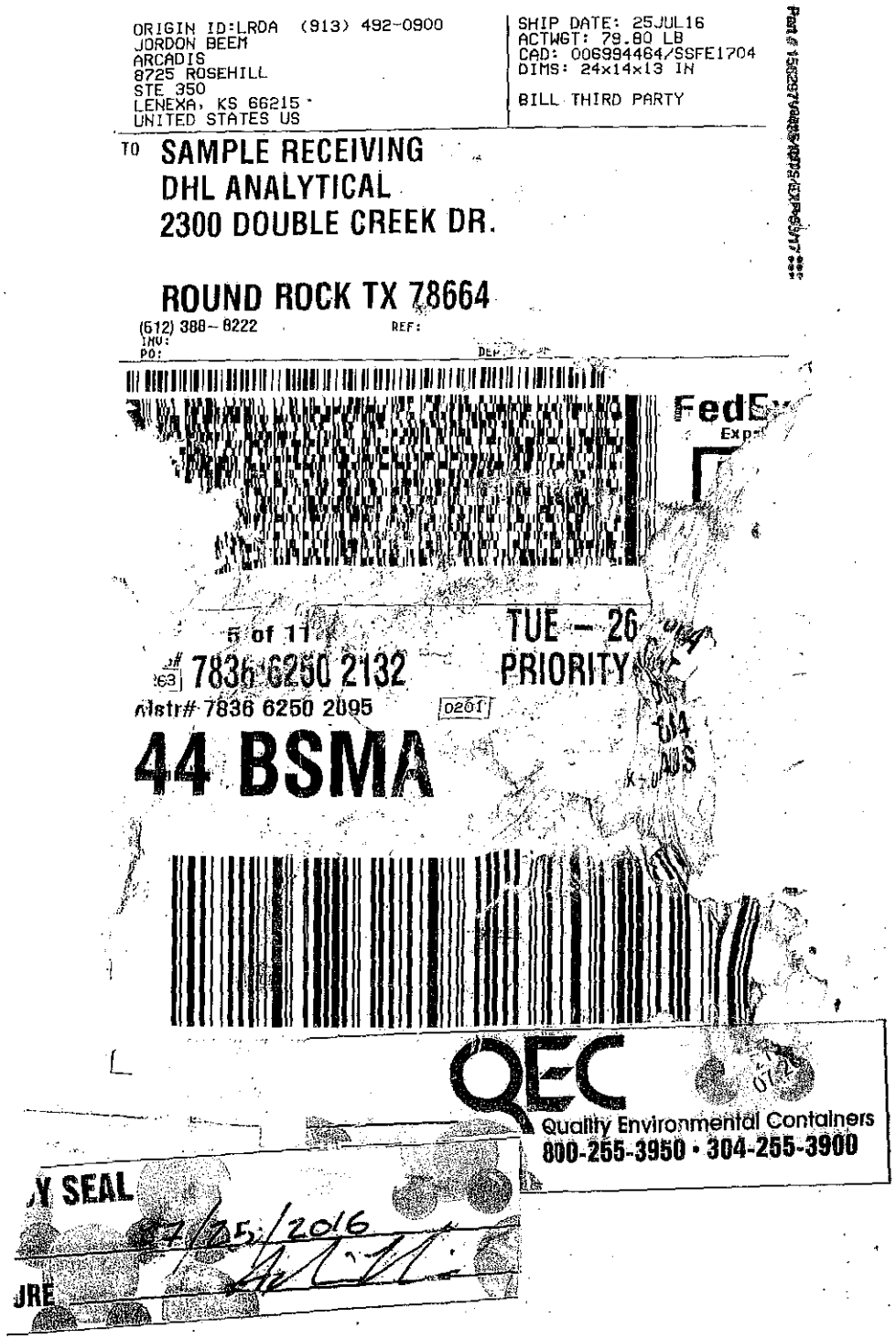
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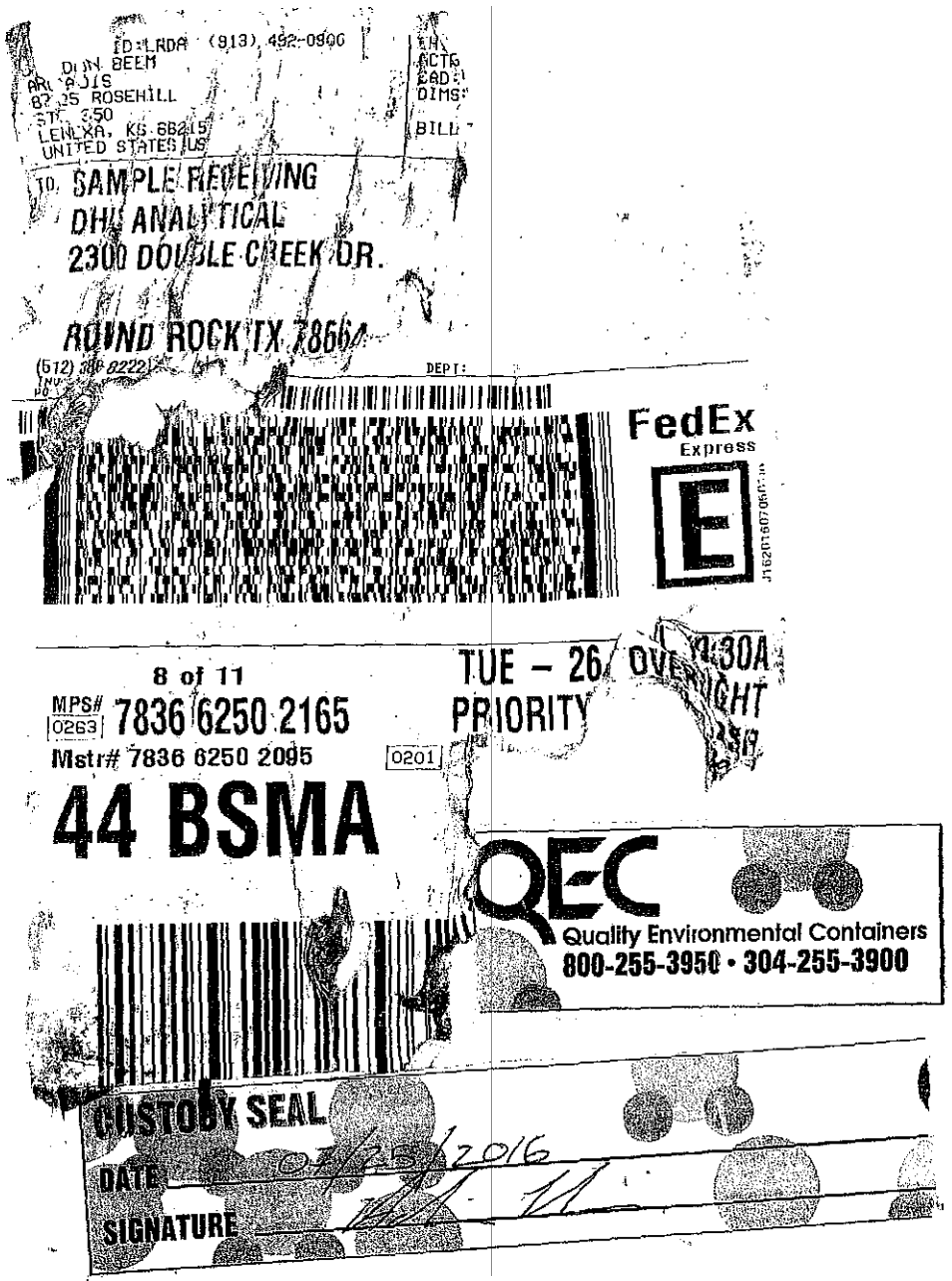
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STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 25JUL16
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JORDON BEEM
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 25JUL16
ACTWGT: 90.60 LB
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8725 ROSEHILL
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LENEXA, KS 66215
UNITED STATES US

SHIP DATE: [illegible]
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JORDON BEEM
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8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US
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ACTWGT: 88.1
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800-255-3950 • 304-255-3900
CUSTODY SEAL
DATE 07/25/2016
SIGNATURE

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/26/2016**

Work Order Number **1607294** Received by **JB**

Checklist completed by: Signature 7/26/2016 Date Reviewed by Initials 7/26/2016 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 ☐	1.4 °C, 0.8, 1.0, 0.5, 0.1, 0.8, 0.7 6.4, 0.5, 0.7, 0.1
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:** 8/16/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607294
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:** 8/16/2016

Reviewer Name: Angie O'Donnell | **Laboratory Work Order:** 1607294

#[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**				
		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).
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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

08/16/16

Date

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607294

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 7/26/2016. A total of 76 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 76564, the recovery of surrogate 4-Terphenyl-d14 for equipment blank Sample EB01(20160723) was slightly below the method control limits. This is flagged accordingly in the Analytical Data Report. The remaining surrogate for this sample was within method control limits. Client was informed and no further corrective action was taken.

Exception Report R7-02

For PAH Analysis, for Batch 76564, an MS/MSD is not required for Equipment Blank matrices. An LCS was performed as Batch QC.

Exception Report R7-03 and R7-04

For Lead Analysis, for soil Batches 76670 and 76664, the recovery and RPD of Lead for the Matrix Spike Duplicate(s) (1607294-09 and 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(s)/MS(s). 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 sixteen, 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. Sixteen 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).

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 7/26/2016. 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: *16-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607294

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607294-01	SGR-DU125(0-2)-A		07/23/16 12:19 PM	7/26/2016
1607294-02	SGR-DU125(2-4)-A		07/23/16 12:22 PM	7/26/2016
1607294-03	SGR-DU125(4-6)-A		07/23/16 12:25 PM	7/26/2016
1607294-04	SGR-DU125(6-8)-A		07/23/16 12:27 PM	7/26/2016
1607294-05	SGR-DU125(0-2)-B		07/23/16 12:30 PM	7/26/2016
1607294-06	SGR-DU125(2-4)-B		07/23/16 12:33 PM	7/26/2016
1607294-07	SGR-DU125(4-6)-B		07/23/16 12:34 PM	7/26/2016
1607294-08	SGR-DU125(6-8)-B		07/23/16 12:36 PM	7/26/2016
1607294-09	SGR-DU125(0-2)-C		07/23/16 12:39 PM	7/26/2016
1607294-10	SGR-DU125(2-4)-C		07/23/16 12:40 PM	7/26/2016
1607294-11	SGR-DU125(4-6)-C		07/23/16 12:43 PM	7/26/2016
1607294-12	SGR-DU125(6-8)-C		07/23/16 12:44 PM	7/26/2016
1607294-13	EB01(20160723)		07/23/16 12:50 PM	7/26/2016
1607294-14	SGR-DU115(0-2)-A		07/23/16 03:40 PM	7/26/2016
1607294-15	SGR-DU115(2-4)-A		07/23/16 03:41 PM	7/26/2016
1607294-16	SGR-DU115(4-6)-A		07/23/16 03:42 PM	7/26/2016
1607294-17	SGR-DU115(6-8)-A		07/23/16 03:43 PM	7/26/2016
1607294-18	SGR-DU115(0-2)-B		07/23/16 03:45 PM	7/26/2016
1607294-19	SGR-DU115(2-4)-B		07/23/16 03:46 PM	7/26/2016
1607294-20	SGR-DU115(4-6)-B		07/23/16 03:47 PM	7/26/2016
1607294-21	SGR-DU115(0-2)-C		07/23/16 03:48 PM	7/26/2016
1607294-22	SGR-DU115(2-4)-C		07/23/16 03:49 PM	7/26/2016
1607294-23	SGR-DU115(4-6)-C		07/23/16 03:50 PM	7/26/2016
1607294-24	EB02(20160723)		07/23/16 03:55 PM	7/26/2016
1607294-25	SGR-DU150(0-2)-A		07/24/16 09:38 AM	7/26/2016
1607294-26	SGR-DU150(2-4)-A		07/24/16 09:40 AM	7/26/2016
1607294-27	SGR-DU150(4-6)-A		07/24/16 09:42 AM	7/26/2016
1607294-28	SGR-DU150(6-8)-A		07/24/16 09:43 AM	7/26/2016
1607294-29	SGR-DU150(0-2)-B		07/24/16 09:47 AM	7/26/2016
1607294-30	SGR-DU150(2-4)-B		07/24/16 09:50 AM	7/26/2016
1607294-31	SGR-DU150(4-6)-B		07/24/16 09:52 AM	7/26/2016
1607294-32	SGR-DU150(6-8)-B		07/24/16 09:55 AM	7/26/2016
1607294-33	SGR-DU150(0-2)-C		07/24/16 09:58 AM	7/26/2016
1607294-34	SGR-DU150(2-4)-C		07/24/16 09:59 AM	7/26/2016
1607294-35	SGR-DU150(4-6)-C		07/24/16 10:00 AM	7/26/2016
1607294-36	SGR-DU150(6-8)-C		07/24/16 10:01 AM	7/26/2016
1607294-37	EB01(20160724)		07/24/16 10:05 AM	7/26/2016
1607294-38	SGR-DU087(0-2)-A		07/24/16 12:23 PM	7/26/2016
1607294-39	SGR-DU087(2-4)-A		07/24/16 12:25 PM	7/26/2016
1607294-40	SGR-DU087(4-6)-A		07/24/16 12:29 PM	7/26/2016
1607294-41	SGR-DU087(6-8)-A		07/24/16 12:33 PM	7/26/2016
1607294-42	SGR-DU087(0-2)-B		07/24/16 12:38 PM	7/26/2016

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607294

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607294-43	SGR-DU087(2-4)-B		07/24/16 12:41 PM	7/26/2016
1607294-44	SGR-DU087(4-6)-B		07/24/16 12:44 PM	7/26/2016
1607294-45	SGR-DU087(6-8)-B		07/24/16 12:46 PM	7/26/2016
1607294-46	SGR-DU087(0-2)-C		07/24/16 12:49 PM	7/26/2016
1607294-47	SGR-DU087(2-4)-C		07/24/16 12:51 PM	7/26/2016
1607294-48	SGR-DU087(4-6)-C		07/24/16 12:54 PM	7/26/2016
1607294-49	SGR-DU087(6-8)-C		07/24/16 12:56 PM	7/26/2016
1607294-50	EB02(20160724)		07/24/16 01:00 PM	7/26/2016
1607294-51	SGR-DU095(0-2)-A		07/25/16 10:20 AM	7/26/2016
1607294-52	SGR-DU095(2-4)-A		07/25/16 10:22 AM	7/26/2016
1607294-53	SGR-DU095(4-6)-A		07/25/16 10:25 AM	7/26/2016
1607294-54	SGR-DU095(6-8)-A		07/25/16 10:28 AM	7/26/2016
1607294-55	SGR-DU095(0-2)-B		07/25/16 10:31 AM	7/26/2016
1607294-56	SGR-DU095(2-4)-B		07/25/16 10:33 AM	7/26/2016
1607294-57	SGR-DU095(4-6)-B		07/25/16 10:37 AM	7/26/2016
1607294-58	SGR-DU095(6-8)-B		07/25/16 10:39 AM	7/26/2016
1607294-59	SGR-DU095(0-2)-C		07/25/16 10:43 AM	7/26/2016
1607294-60	SGR-DU095(2-4)-C		07/25/16 10:45 AM	7/26/2016
1607294-61	SGR-DU095(4-6)-C		07/25/16 10:47 AM	7/26/2016
1607294-62	SGR-DU095(6-8)-C		07/25/16 10:49 AM	7/26/2016
1607294-63	EB01(20160725)		07/25/16 10:55 AM	7/26/2016
1607294-64	SGR-DU143(0-2)-A		07/25/16 01:44 PM	7/26/2016
1607294-65	SGR-DU143(2-4)-A		07/25/16 01:46 PM	7/26/2016
1607294-66	SGR-DU143(4-6)-A		07/25/16 01:49 PM	7/26/2016
1607294-67	SGR-DU143(6-8)-A		07/25/16 01:52 PM	7/26/2016
1607294-68	SGR-DU143(0-2)-B		07/25/16 01:54 PM	7/26/2016
1607294-69	SGR-DU143(2-4)-B		07/25/16 01:56 PM	7/26/2016
1607294-70	SGR-DU143(4-6)-B		07/25/16 01:58 PM	7/26/2016
1607294-71	SGR-DU143(6-8)-B		07/25/16 02:00 PM	7/26/2016
1607294-72	SGR-DU143(0-2)-C		07/25/16 02:03 PM	7/26/2016
1607294-73	SGR-DU143(2-4)-C		07/25/16 02:05 PM	7/26/2016
1607294-74	SGR-DU143(4-6)-C		07/25/16 02:07 PM	7/26/2016
1607294-75	SGR-DU143(6-8)-C		07/25/16 02:09 PM	7/26/2016
1607294-76	EB02(20160725)		07/25/16 02:15 PM	7/26/2016

Lab Order: 1607294
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607294-01A	SGR-DU125(0-2)-A	07/23/16 12:19 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(0-2)-A	07/23/16 12:19 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607294-02A	SGR-DU125(2-4)-A	07/23/16 12:22 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(2-4)-A	07/23/16 12:22 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607294-03A	SGR-DU125(4-6)-A	07/23/16 12:25 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(4-6)-A	07/23/16 12:25 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 11:25 AM	76664
1607294-04A	SGR-DU125(6-8)-A	07/23/16 12:27 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(6-8)-A	07/23/16 12:27 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-05A	SGR-DU125(0-2)-B	07/23/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(0-2)-B	07/23/16 12:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-06A	SGR-DU125(2-4)-B	07/23/16 12:33 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(2-4)-B	07/23/16 12:33 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-07A	SGR-DU125(4-6)-B	07/23/16 12:34 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(4-6)-B	07/23/16 12:34 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-08A	SGR-DU125(6-8)-B	07/23/16 12:36 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(6-8)-B	07/23/16 12:36 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-09A	SGR-DU125(0-2)-C	07/23/16 12:39 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(0-2)-C	07/23/16 12:39 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
	SGR-DU125(0-2)-C	07/23/16 12:39 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-10A	SGR-DU125(2-4)-C	07/23/16 12:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(2-4)-C	07/23/16 12:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-11A	SGR-DU125(4-6)-C	07/23/16 12:43 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(4-6)-C	07/23/16 12:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-12A	SGR-DU125(6-8)-C	07/23/16 12:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU125(6-8)-C	07/23/16 12:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-13A	EB01(20160723)	07/23/16 12:50 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607294-13B	EB01(20160723)	07/23/16 12:50 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
	EB01(20160723)	07/23/16 12:50 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564

Lab Order: 1607294
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607294-14A	SGR-DU115(0-2)-A	07/23/16 03:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(0-2)-A	07/23/16 03:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-15A	SGR-DU115(2-4)-A	07/23/16 03:41 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(2-4)-A	07/23/16 03:41 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-16A	SGR-DU115(4-6)-A	07/23/16 03:42 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(4-6)-A	07/23/16 03:42 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-17A	SGR-DU115(6-8)-A	07/23/16 03:43 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(6-8)-A	07/23/16 03:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-18A	SGR-DU115(0-2)-B	07/23/16 03:45 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(0-2)-B	07/23/16 03:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-19A	SGR-DU115(2-4)-B	07/23/16 03:46 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(2-4)-B	07/23/16 03:46 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-20A	SGR-DU115(4-6)-B	07/23/16 03:47 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(4-6)-B	07/23/16 03:47 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-21A	SGR-DU115(0-2)-C	07/23/16 03:48 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/28/16 02:21 PM	76545
	SGR-DU115(0-2)-C	07/23/16 03:48 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-22A	SGR-DU115(2-4)-C	07/23/16 03:49 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU115(2-4)-C	07/23/16 03:49 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-23A	SGR-DU115(4-6)-C	07/23/16 03:50 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU115(4-6)-C	07/23/16 03:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-24A	EB02(20160723)	07/23/16 03:55 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607294-24B	EB02(20160723)	07/23/16 03:55 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
1607294-25A	SGR-DU150(0-2)-A	07/24/16 09:38 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(0-2)-A	07/24/16 09:38 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:46 PM	76670
1607294-26A	SGR-DU150(2-4)-A	07/24/16 09:40 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(2-4)-A	07/24/16 09:40 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-27A	SGR-DU150(4-6)-A	07/24/16 09:42 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(4-6)-A	07/24/16 09:42 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671

Lab Order: 1607294
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607294-28A	SGR-DU150(6-8)-A	07/24/16 09:43 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(6-8)-A	07/24/16 09:43 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-29A	SGR-DU150(0-2)-B	07/24/16 09:47 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(0-2)-B	07/24/16 09:47 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-30A	SGR-DU150(2-4)-B	07/24/16 09:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(2-4)-B	07/24/16 09:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-31A	SGR-DU150(4-6)-B	07/24/16 09:52 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(4-6)-B	07/24/16 09:52 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-32A	SGR-DU150(6-8)-B	07/24/16 09:55 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(6-8)-B	07/24/16 09:55 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-33A	SGR-DU150(0-2)-C	07/24/16 09:58 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(0-2)-C	07/24/16 09:58 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-34A	SGR-DU150(2-4)-C	07/24/16 09:59 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(2-4)-C	07/24/16 09:59 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-35A	SGR-DU150(4-6)-C	07/24/16 10:00 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(4-6)-C	07/24/16 10:00 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-36A	SGR-DU150(6-8)-C	07/24/16 10:01 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU150(6-8)-C	07/24/16 10:01 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-37A	EB01(20160724)	07/24/16 10:05 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607294-37B	EB01(20160724)	07/24/16 10:05 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
1607294-38A	SGR-DU087(0-2)-A	07/24/16 12:23 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU087(0-2)-A	07/24/16 12:23 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-39A	SGR-DU087(2-4)-A	07/24/16 12:25 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU087(2-4)-A	07/24/16 12:25 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-40A	SGR-DU087(4-6)-A	07/24/16 12:29 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU087(4-6)-A	07/24/16 12:29 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-41A	SGR-DU087(6-8)-A	07/24/16 12:33 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU087(6-8)-A	07/24/16 12:33 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671

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Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607294-42A	SGR-DU087(0-2)-B	07/24/16 12:38 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU087(0-2)-B	07/24/16 12:38 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-43A	SGR-DU087(2-4)-B	07/24/16 12:41 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76552
	SGR-DU087(2-4)-B	07/24/16 12:41 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-44A	SGR-DU087(4-6)-B	07/24/16 12:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU087(4-6)-B	07/24/16 12:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-45A	SGR-DU087(6-8)-B	07/24/16 12:46 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU087(6-8)-B	07/24/16 12:46 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-46A	SGR-DU087(0-2)-C	07/24/16 12:49 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU087(0-2)-C	07/24/16 12:49 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/04/16 03:48 PM	76671
1607294-47A	SGR-DU087(2-4)-C	07/24/16 12:51 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU087(2-4)-C	07/24/16 12:51 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-48A	SGR-DU087(4-6)-C	07/24/16 12:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU087(4-6)-C	07/24/16 12:54 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-49A	SGR-DU087(6-8)-C	07/24/16 12:56 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU087(6-8)-C	07/24/16 12:56 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-50A	EB02(20160724)	07/24/16 01:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607294-50B	EB02(20160724)	07/24/16 01:00 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
1607294-51A	SGR-DU095(0-2)-A	07/25/16 10:20 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(0-2)-A	07/25/16 10:20 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-52A	SGR-DU095(2-4)-A	07/25/16 10:22 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(2-4)-A	07/25/16 10:22 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-53A	SGR-DU095(4-6)-A	07/25/16 10:25 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(4-6)-A	07/25/16 10:25 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-54A	SGR-DU095(6-8)-A	07/25/16 10:28 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(6-8)-A	07/25/16 10:28 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-55A	SGR-DU095(0-2)-B	07/25/16 10:31 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(0-2)-B	07/25/16 10:31 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691

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Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607294-56A	SGR-DU095(2-4)-B	07/25/16 10:33 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(2-4)-B	07/25/16 10:33 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-57A	SGR-DU095(4-6)-B	07/25/16 10:37 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(4-6)-B	07/25/16 10:37 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-58A	SGR-DU095(6-8)-B	07/25/16 10:39 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(6-8)-B	07/25/16 10:39 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-59A	SGR-DU095(0-2)-C	07/25/16 10:43 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(0-2)-C	07/25/16 10:43 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-60A	SGR-DU095(2-4)-C	07/25/16 10:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(2-4)-C	07/25/16 10:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-61A	SGR-DU095(4-6)-C	07/25/16 10:47 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(4-6)-C	07/25/16 10:47 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-62A	SGR-DU095(6-8)-C	07/25/16 10:49 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU095(6-8)-C	07/25/16 10:49 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-63A	EB01(20160725)	07/25/16 10:55 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607294-63B	EB01(20160725)	07/25/16 10:55 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
1607294-64A	SGR-DU143(0-2)-A	07/25/16 01:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU143(0-2)-A	07/25/16 01:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-65A	SGR-DU143(2-4)-A	07/25/16 01:46 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/29/16 08:37 AM	76553
	SGR-DU143(2-4)-A	07/25/16 01:46 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-66A	SGR-DU143(4-6)-A	07/25/16 01:49 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(4-6)-A	07/25/16 01:49 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-67A	SGR-DU143(6-8)-A	07/25/16 01:52 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(6-8)-A	07/25/16 01:52 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-68A	SGR-DU143(0-2)-B	07/25/16 01:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(0-2)-B	07/25/16 01:54 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76691
1607294-69A	SGR-DU143(2-4)-B	07/25/16 01:56 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(2-4)-B	07/25/16 01:56 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690

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PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607294-70A	SGR-DU143(4-6)-B	07/25/16 01:58 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(4-6)-B	07/25/16 01:58 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607294-71A	SGR-DU143(6-8)-B	07/25/16 02:00 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(6-8)-B	07/25/16 02:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607294-72A	SGR-DU143(0-2)-C	07/25/16 02:03 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(0-2)-C	07/25/16 02:03 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607294-73A	SGR-DU143(2-4)-C	07/25/16 02:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(2-4)-C	07/25/16 02:05 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607294-74A	SGR-DU143(4-6)-C	07/25/16 02:07 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(4-6)-C	07/25/16 02:07 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607294-75A	SGR-DU143(6-8)-C	07/25/16 02:09 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU143(6-8)-C	07/25/16 02:09 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607294-76A	EB02(20160725)	07/25/16 02:15 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607294-76B	EB02(20160725)	07/25/16 02:15 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564

Lab Order: 1607294
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
1607294-01A	SGR-DU125(0-2)-A	7/23/2016 12:19:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-02A	SGR-DU125(2-4)-A	7/23/2016 12:22:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-03A	SGR-DU125(4-6)-A	7/23/2016 12:25:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-04A	SGR-DU125(6-8)-A	7/23/2016 12:27:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-05A	SGR-DU125(0-2)-B	7/23/2016 12:30:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-06A	SGR-DU125(2-4)-B	7/23/2016 12:33:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-07A	SGR-DU125(4-6)-B	7/23/2016 12:34:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-08A	SGR-DU125(6-8)-B	7/23/2016 12:36:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-09A	SGR-DU125(0-2)-C	7/23/2016 12:39:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-10A	SGR-DU125(2-4)-C	7/23/2016 12:40:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-11A	SGR-DU125(4-6)-C	7/23/2016 12:43:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-12A	SGR-DU125(6-8)-C	7/23/2016 12:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-14A	SGR-DU115(0-2)-A	7/23/2016 3:40:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-15A	SGR-DU115(2-4)-A	7/23/2016 3:41:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-16A	SGR-DU115(4-6)-A	7/23/2016 3:42:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-17A	SGR-DU115(6-8)-A	7/23/2016 3:43:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-18A	SGR-DU115(0-2)-B	7/23/2016 3:45:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-19A	SGR-DU115(2-4)-B	7/23/2016 3:46:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-20A	SGR-DU115(4-6)-B	7/23/2016 3:47:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-21A	SGR-DU115(0-2)-C	7/23/2016 3:48:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76484
1607294-22A	SGR-DU115(2-4)-C	7/23/2016 3:49:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-23A	SGR-DU115(4-6)-C	7/23/2016 3:50:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-25A	SGR-DU150(0-2)-A	7/24/2016 9:38:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-26A	SGR-DU150(2-4)-A	7/24/2016 9:40:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-27A	SGR-DU150(4-6)-A	7/24/2016 9:42:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-28A	SGR-DU150(6-8)-A	7/24/2016 9:43:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-29A	SGR-DU150(0-2)-B	7/24/2016 9:47:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-30A	SGR-DU150(2-4)-B	7/24/2016 9:50:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515

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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
1607294-31A	SGR-DU150(4-6)-B	7/24/2016 9:52:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-32A	SGR-DU150(6-8)-B	7/24/2016 9:55:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-33A	SGR-DU150(0-2)-C	7/24/2016 9:58:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-34A	SGR-DU150(2-4)-C	7/24/2016 9:59:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-35A	SGR-DU150(4-6)-C	7/24/2016 10:00:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-36A	SGR-DU150(6-8)-C	7/24/2016 10:01:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-38A	SGR-DU087(0-2)-A	7/24/2016 12:23:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-39A	SGR-DU087(2-4)-A	7/24/2016 12:25:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-40A	SGR-DU087(4-6)-A	7/24/2016 12:29:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-41A	SGR-DU087(6-8)-A	7/24/2016 12:33:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-42A	SGR-DU087(0-2)-B	7/24/2016 12:38:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-43A	SGR-DU087(2-4)-B	7/24/2016 12:41:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76515
1607294-44A	SGR-DU087(4-6)-B	7/24/2016 12:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-45A	SGR-DU087(6-8)-B	7/24/2016 12:46:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-46A	SGR-DU087(0-2)-C	7/24/2016 12:49:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-47A	SGR-DU087(2-4)-C	7/24/2016 12:51:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-48A	SGR-DU087(4-6)-C	7/24/2016 12:54:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-49A	SGR-DU087(6-8)-C	7/24/2016 12:56:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-51A	SGR-DU095(0-2)-A	7/25/2016 10:20:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-52A	SGR-DU095(2-4)-A	7/25/2016 10:22:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-53A	SGR-DU095(4-6)-A	7/25/2016 10:25:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-54A	SGR-DU095(6-8)-A	7/25/2016 10:28:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-55A	SGR-DU095(0-2)-B	7/25/2016 10:31:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-56A	SGR-DU095(2-4)-B	7/25/2016 10:33:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-57A	SGR-DU095(4-6)-B	7/25/2016 10:37:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-58A	SGR-DU095(6-8)-B	7/25/2016 10:39:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-59A	SGR-DU095(0-2)-C	7/25/2016 10:43:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-60A	SGR-DU095(2-4)-C	7/25/2016 10:45:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516

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ISM PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607294-61A	SGR-DU095(4-6)-C	7/25/2016 10:47:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-62A	SGR-DU095(6-8)-C	7/25/2016 10:49:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-64A	SGR-DU143(0-2)-A	7/25/2016 1:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-65A	SGR-DU143(2-4)-A	7/25/2016 1:46:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76516
1607294-66A	SGR-DU143(4-6)-A	7/25/2016 1:49:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-67A	SGR-DU143(6-8)-A	7/25/2016 1:52:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-68A	SGR-DU143(0-2)-B	7/25/2016 1:54:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-69A	SGR-DU143(2-4)-B	7/25/2016 1:56:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-70A	SGR-DU143(4-6)-B	7/25/2016 1:58:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-71A	SGR-DU143(6-8)-B	7/25/2016 2:00:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-72A	SGR-DU143(0-2)-C	7/25/2016 2:03:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-73A	SGR-DU143(2-4)-C	7/25/2016 2:05:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-74A	SGR-DU143(4-6)-C	7/25/2016 2:07:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518
1607294-75A	SGR-DU143(6-8)-C	7/25/2016 2:09:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/26/2016 5:30:00 PM	76518

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ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607294-01A	SGR-DU125(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 09:04 AM	GCMS6_160810A
	SGR-DU125(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:12 PM	ICP-MS4_160809D
1607294-02A	SGR-DU125(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 09:44 AM	GCMS6_160810A
	SGR-DU125(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:14 PM	ICP-MS4_160809D
1607294-03A	SGR-DU125(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 10:25 AM	GCMS6_160810A
	SGR-DU125(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76664	5	08/09/16 04:16 PM	ICP-MS4_160809D
1607294-04A	SGR-DU125(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 11:05 AM	GCMS6_160810A
	SGR-DU125(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 07:49 PM	ICP-MS3_160809A
1607294-05A	SGR-DU125(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 11:45 AM	GCMS6_160810A
	SGR-DU125(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 07:55 PM	ICP-MS3_160809A
1607294-06A	SGR-DU125(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 12:25 PM	GCMS6_160810A
	SGR-DU125(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 08:01 PM	ICP-MS3_160809A
1607294-07A	SGR-DU125(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 01:06 PM	GCMS6_160810A
	SGR-DU125(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 08:07 PM	ICP-MS3_160809A
1607294-08A	SGR-DU125(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 01:45 PM	GCMS6_160810A
	SGR-DU125(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 08:13 PM	ICP-MS3_160809A
1607294-09A	SGR-DU125(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 02:26 PM	GCMS6_160810A
	SGR-DU125(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/10/16 03:09 PM	ICP-MS3_160810B
	SGR-DU125(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 07:38 PM	ICP-MS3_160809A
1607294-10A	SGR-DU125(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 03:07 PM	GCMS6_160810A
	SGR-DU125(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 08:19 PM	ICP-MS3_160809A
1607294-11A	SGR-DU125(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 03:48 PM	GCMS6_160810A
	SGR-DU125(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 08:24 PM	ICP-MS3_160809A
1607294-12A	SGR-DU125(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 04:29 PM	GCMS6_160810A
	SGR-DU125(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 08:30 PM	ICP-MS3_160809A
1607294-13A	EB01(20160723)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 01:04 AM	ICP-MS3_160809B
1607294-13B	EB01(20160723)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/04/16 01:06 AM	GCMS8_160803B
	EB01(20160723)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 01:47 PM	GCMS8_160803B

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ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607294-14A	SGR-DU115(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 07:50 PM	GCMS6_160810A
	SGR-DU115(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 08:36 PM	ICP-MS3_160809A
1607294-15A	SGR-DU115(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 08:29 PM	GCMS6_160810A
	SGR-DU115(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 09:29 PM	ICP-MS3_160809A
1607294-16A	SGR-DU115(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 09:09 PM	GCMS6_160810A
	SGR-DU115(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 09:35 PM	ICP-MS3_160809A
1607294-17A	SGR-DU115(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 09:49 PM	GCMS6_160810A
	SGR-DU115(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 09:41 PM	ICP-MS3_160809A
1607294-18A	SGR-DU115(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 10:29 PM	GCMS6_160810A
	SGR-DU115(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	50	08/09/16 09:46 PM	ICP-MS3_160809A
1607294-19A	SGR-DU115(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 11:09 PM	GCMS6_160810A
	SGR-DU115(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 09:52 PM	ICP-MS3_160809A
1607294-20A	SGR-DU115(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/10/16 11:49 PM	GCMS6_160810A
	SGR-DU115(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 10:04 PM	ICP-MS3_160809A
1607294-21A	SGR-DU115(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76545	10	08/11/16 12:29 AM	GCMS6_160810A
	SGR-DU115(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 10:10 PM	ICP-MS3_160809A
1607294-22A	SGR-DU115(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 04:08 PM	GCMS6_160807A
	SGR-DU115(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 10:16 PM	ICP-MS3_160809A
1607294-23A	SGR-DU115(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 04:47 PM	GCMS6_160807A
	SGR-DU115(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 10:22 PM	ICP-MS3_160809A
1607294-24A	EB02(20160723)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 01:10 AM	ICP-MS3_160809B
1607294-24B	EB02(20160723)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 03:07 PM	GCMS8_160803B
1607294-25A	SGR-DU150(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 05:28 PM	GCMS6_160807A
	SGR-DU150(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76670	5	08/09/16 10:28 PM	ICP-MS3_160809A
1607294-26A	SGR-DU150(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 06:07 PM	GCMS6_160807A
	SGR-DU150(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:43 PM	ICP-MS4_160809D
1607294-27A	SGR-DU150(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 06:49 PM	GCMS6_160807A
	SGR-DU150(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:45 PM	ICP-MS4_160809D

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ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607294-28A	SGR-DU150(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 07:29 PM	GCMS6_160807A
	SGR-DU150(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:47 PM	ICP-MS4_160809D
1607294-29A	SGR-DU150(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 08:09 PM	GCMS6_160807A
	SGR-DU150(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:39 PM	ICP-MS4_160809D
1607294-30A	SGR-DU150(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 08:49 PM	GCMS6_160807A
	SGR-DU150(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:49 PM	ICP-MS4_160809D
1607294-31A	SGR-DU150(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 09:29 PM	GCMS6_160807A
	SGR-DU150(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:51 PM	ICP-MS4_160809D
1607294-32A	SGR-DU150(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 10:08 PM	GCMS6_160807A
	SGR-DU150(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:53 PM	ICP-MS4_160809D
1607294-33A	SGR-DU150(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 10:48 PM	GCMS6_160807A
	SGR-DU150(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:55 PM	ICP-MS4_160809D
1607294-34A	SGR-DU150(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/07/16 11:28 PM	GCMS6_160807A
	SGR-DU150(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:57 PM	ICP-MS4_160809D
1607294-35A	SGR-DU150(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/08/16 02:47 AM	GCMS6_160807A
	SGR-DU150(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 04:59 PM	ICP-MS4_160809D
1607294-36A	SGR-DU150(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/08/16 03:27 AM	GCMS6_160807A
	SGR-DU150(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:15 PM	ICP-MS4_160809D
1607294-37A	EB01(20160724)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 01:16 AM	ICP-MS3_160809B
1607294-37B	EB01(20160724)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 03:47 PM	GCMS8_160803B
1607294-38A	SGR-DU087(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/08/16 04:07 AM	GCMS6_160807A
	SGR-DU087(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:17 PM	ICP-MS4_160809D
1607294-39A	SGR-DU087(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/08/16 04:47 AM	GCMS6_160807A
	SGR-DU087(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	50	08/09/16 05:19 PM	ICP-MS4_160809D
1607294-40A	SGR-DU087(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/08/16 05:28 AM	GCMS6_160807A
	SGR-DU087(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	50	08/09/16 05:21 PM	ICP-MS4_160809D
1607294-41A	SGR-DU087(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/08/16 06:09 AM	GCMS6_160807A
	SGR-DU087(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:23 PM	ICP-MS4_160809D

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ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607294-42A	SGR-DU087(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76552	10	08/08/16 06:49 AM	GCMS6_160807A
	SGR-DU087(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:25 PM	ICP-MS4_160809D
1607294-43A	SGR-DU087(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76552	50	08/08/16 07:29 AM	GCMS6_160807A
	SGR-DU087(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:27 PM	ICP-MS4_160809D
1607294-44A	SGR-DU087(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/09/16 12:34 AM	GCMS8_160808A
	SGR-DU087(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:29 PM	ICP-MS4_160809D
1607294-45A	SGR-DU087(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 10:41 AM	GCMS8_160808A
	SGR-DU087(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:31 PM	ICP-MS4_160809D
1607294-46A	SGR-DU087(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 11:15 PM	GCMS8_160808A
	SGR-DU087(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76671	5	08/09/16 05:33 PM	ICP-MS4_160809D
1607294-47A	SGR-DU087(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/09/16 01:14 AM	GCMS8_160808A
	SGR-DU087(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:21 PM	ICP-MS4_160810C
1607294-48A	SGR-DU087(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/09/16 01:54 AM	GCMS8_160808A
	SGR-DU087(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:23 PM	ICP-MS4_160810C
1607294-49A	SGR-DU087(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 11:20 AM	GCMS8_160808A
	SGR-DU087(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:25 PM	ICP-MS4_160810C
1607294-50A	EB02(20160724)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 01:22 AM	ICP-MS3_160809B
1607294-50B	EB02(20160724)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 04:27 PM	GCMS8_160803B
1607294-51A	SGR-DU095(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 12:00 PM	GCMS8_160808A
	SGR-DU095(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:27 PM	ICP-MS4_160810C
1607294-52A	SGR-DU095(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 12:39 PM	GCMS8_160808A
	SGR-DU095(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:17 PM	ICP-MS4_160810C
1607294-53A	SGR-DU095(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 01:19 PM	GCMS8_160808A
	SGR-DU095(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:29 PM	ICP-MS4_160810C
1607294-54A	SGR-DU095(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 01:59 PM	GCMS8_160808A
	SGR-DU095(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:31 PM	ICP-MS4_160810C
1607294-55A	SGR-DU095(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 11:54 PM	GCMS8_160808A
	SGR-DU095(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:33 PM	ICP-MS4_160810C

Lab Order: 1607294
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
1607294-56A	SGR-DU095(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 02:39 PM	GCMS8_160808A
	SGR-DU095(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:35 PM	ICP-MS4_160810C
1607294-57A	SGR-DU095(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 03:19 PM	GCMS8_160808A
	SGR-DU095(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:37 PM	ICP-MS4_160810C
1607294-58A	SGR-DU095(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 03:59 PM	GCMS8_160808A
	SGR-DU095(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 05:59 PM	ICP-MS4_160810C
1607294-59A	SGR-DU095(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 04:39 PM	GCMS8_160808A
	SGR-DU095(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:01 PM	ICP-MS4_160810C
1607294-60A	SGR-DU095(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 05:19 PM	GCMS8_160808A
	SGR-DU095(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:03 PM	ICP-MS4_160810C
1607294-61A	SGR-DU095(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 05:59 PM	GCMS8_160808A
	SGR-DU095(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:04 PM	ICP-MS4_160810C
1607294-62A	SGR-DU095(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 06:39 PM	GCMS8_160808A
	SGR-DU095(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:06 PM	ICP-MS4_160810C
1607294-63A	EB01(20160725)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 01:52 AM	ICP-MS3_160809B
1607294-63B	EB01(20160725)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 05:07 PM	GCMS8_160803B
1607294-64A	SGR-DU143(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 09:56 PM	GCMS8_160808A
	SGR-DU143(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:08 PM	ICP-MS4_160810C
1607294-65A	SGR-DU143(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76553	10	08/08/16 10:36 PM	GCMS8_160808A
	SGR-DU143(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:10 PM	ICP-MS4_160810C
1607294-66A	SGR-DU143(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 12:50 PM	GCMS6_160808A
	SGR-DU143(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:12 PM	ICP-MS4_160810C
1607294-67A	SGR-DU143(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 01:30 PM	GCMS6_160808A
	SGR-DU143(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:14 PM	ICP-MS4_160810C
1607294-68A	SGR-DU143(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 02:12 PM	GCMS6_160808A
	SGR-DU143(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76691	5	08/10/16 06:16 PM	ICP-MS4_160810C
1607294-69A	SGR-DU143(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 02:52 PM	GCMS6_160808A
	SGR-DU143(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 04:56 PM	ICP-MS3_160810B

Lab Order: 1607294
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
1607294-70A	SGR-DU143(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 03:34 PM	GCMS6_160808A
	SGR-DU143(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:02 PM	ICP-MS3_160810B
1607294-71A	SGR-DU143(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 04:16 PM	GCMS6_160808A
	SGR-DU143(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:08 PM	ICP-MS3_160810B
1607294-72A	SGR-DU143(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 04:56 PM	GCMS6_160808A
	SGR-DU143(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:13 PM	ICP-MS3_160810B
1607294-73A	SGR-DU143(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 05:38 PM	GCMS6_160808A
	SGR-DU143(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:19 PM	ICP-MS3_160810B
1607294-74A	SGR-DU143(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 06:17 PM	GCMS6_160808A
	SGR-DU143(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:31 PM	ICP-MS3_160810B
1607294-75A	SGR-DU143(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 06:58 PM	GCMS6_160808A
	SGR-DU143(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:37 PM	ICP-MS3_160810B
1607294-76A	EB02(20160725)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 02:04 AM	ICP-MS3_160809B
1607294-76B	EB02(20160725)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 05:47 PM	GCMS8_160803B

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-01
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:19 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.1	0.0926	0.278	0.139		mg/Kg-dry	5	08/09/16 04:12 PM
IS: Bismuth	94.2	0	30-120	0		%REC	5	08/09/16 04:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[a]anthracene	0.162	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[a]pyrene	0.208	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[b]fluoranthene	0.203	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[e]pyrene	0.168	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[g,h,i]perylene	0.207	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[j]fluoranthene	0.103	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	08/10/16 09:04 AM
Benzo[k]fluoranthene	0.102	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Chrysene	0.198	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Fluoranthene	0.283	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 09:04 AM
Indeno[1,2,3-cd]pyrene	0.150	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Phenanthrene	0.127	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
Pyrene	0.248	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/10/16 09:04 AM
IS: Acenaphthene-d10	129	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/10/16 09:04 AM
IS: Phenanthrene-d10	93.0	0	50-200	0		%REC	10	08/10/16 09:04 AM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	08/10/16 09:04 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-DU125(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-01
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:19 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.8	0	58-133	0		%REC	10	08/10/16 09:04 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-02
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:22 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.69	0.0840	0.252	0.126		mg/Kg-dry	5	08/09/16 04:14 PM
IS: Bismuth	94.4	0	30-120	0		%REC	5	08/09/16 04:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Acenaphthylene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Anthracene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[a]anthracene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[a]pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[b]fluoranthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[e]pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[g,h,i]perylene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[j]fluoranthene	0.0688	0.0459	0.0917	0.0688	NU	mg/Kg-dry	10	08/10/16 09:44 AM
Benzo[k]fluoranthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Chrysene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Dibenz[a,h]anthracene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Fluoranthene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Fluorene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Indeno[1,2,3-cd]pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Phenanthrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
Pyrene	0.0688	0.0459	0.0917	0.0688	U	mg/Kg-dry	10	08/10/16 09:44 AM
IS: Acenaphthene-d10	129	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/10/16 09:44 AM
IS: Phenanthrene-d10	89.8	0	50-200	0		%REC	10	08/10/16 09:44 AM
Surr: 2-Fluorobiphenyl	71.6	0	46-115	0		%REC	10	08/10/16 09:44 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-DU125(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-02
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:22 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.3	0	58-133	0		%REC	10	08/10/16 09:44 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-DU125(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-03
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.91	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 04:16 PM
IS: Bismuth	95.0	0	30-120	0		%REC	5	08/09/16 04:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	08/10/16 10:25 AM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
Pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 10:25 AM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/10/16 10:25 AM
IS: Phenanthrene-d10	99.3	0	50-200	0		%REC	10	08/10/16 10:25 AM
Surr: 2-Fluorobiphenyl	70.3	0	46-115	0		%REC	10	08/10/16 10:25 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-DU125(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-03
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.7	0	58-133	0		%REC	10	08/10/16 10:25 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-DU125(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-04
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:27 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.66	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 07:49 PM
IS: Bismuth	83.0	0	30-120	0		%REC	5	08/09/16 07:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[a]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[a]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[b]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[e]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[g,h,i]perylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	08/10/16 11:05 AM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Chrysene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Indeno[1,2,3-cd]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
Pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/10/16 11:05 AM
IS: Acenaphthene-d10	131	0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/10/16 11:05 AM
IS: Phenanthrene-d10	92.8	0	50-200	0		%REC	10	08/10/16 11:05 AM
Surr: 2-Fluorobiphenyl	75.7	0	46-115	0		%REC	10	08/10/16 11:05 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-DU125(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-04
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:27 PM
Lab Order:	1607294	**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	08/10/16 11:05 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-05
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:30 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	20.4	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 07:55 PM
IS: Bismuth	79.4	0	30-120	0		%REC	5	08/09/16 07:55 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[a]anthracene	0.0912	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[a]pyrene	0.132	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[b]fluoranthene	0.127	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[e]pyrene	0.116	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[g,h,i]perylene	0.142	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[j]fluoranthene	0.0637	0.0497	0.0994	0.0746	JN	mg/Kg-dry	10	08/10/16 11:45 AM
Benzo[k]fluoranthene	0.0636	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Chrysene	0.117	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Fluoranthene	0.155	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/10/16 11:45 AM
Indeno[1,2,3-cd]pyrene	0.0987	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Phenanthrene	0.0617	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/10/16 11:45 AM
Pyrene	0.142	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/10/16 11:45 AM
IS: Acenaphthene-d10	130	0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/10/16 11:45 AM
IS: Phenanthrene-d10	94.8	0	50-200	0		%REC	10	08/10/16 11:45 AM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/10/16 11:45 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-DU125(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-05
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:30 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.4	0	58-133	0		%REC	10	08/10/16 11:45 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-DU125(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-06
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.49	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 08:01 PM
IS: Bismuth	79.6	0	30-120	0		%REC	5	08/09/16 08:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/10/16 12:25 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/10/16 12:25 PM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/10/16 12:25 PM
IS: Phenanthrene-d10	97.6	0	50-200	0		%REC	10	08/10/16 12:25 PM
Surr: 2-Fluorobiphenyl	70.5	0	46-115	0		%REC	10	08/10/16 12:25 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-DU125(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-06
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.2	0	58-133	0		%REC	10	08/10/16 12:25 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-DU125(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-07
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:34 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.53	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 08:07 PM
IS: Bismuth	81.7	0	30-120	0		%REC	5	08/09/16 08:07 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/10/16 01:06 PM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 01:06 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/10/16 01:06 PM
IS: Phenanthrene-d10	95.7	0	50-200	0		%REC	10	08/10/16 01:06 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	08/10/16 01:06 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-DU125(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-07
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:34 PM
Lab Order:	1607294	**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	08/10/16 01:06 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-DU125(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-08
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:36 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.04	0.0901	0.270	0.135		mg/Kg-dry	5	08/09/16 08:13 PM
IS: Bismuth	79.2	0	30-120	0		%REC	5	08/09/16 08:13 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/10/16 01:45 PM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:45 PM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/10/16 01:45 PM
IS: Phenanthrene-d10	95.5	0	50-200	0		%REC	10	08/10/16 01:45 PM
Surr: 2-Fluorobiphenyl	69.1	0	46-115	0		%REC	10	08/10/16 01:45 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-DU125(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-08
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:36 PM
Lab Order:	1607294	**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	08/10/16 01:45 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-09
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:39 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	17.7	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 03:09 PM
IS: Bismuth	87.3	0	30-120	0		%REC	5	08/10/16 03:09 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Acenaphthylene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Anthracene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[a]anthracene	0.111	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[a]pyrene	0.144	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[b]fluoranthene	0.134	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[e]pyrene	0.110	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[g,h,i]perylene	0.123	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[j]fluoranthene	0.0702	0.0481	0.0962	0.0722	JN	mg/Kg-dry	10	08/10/16 02:26 PM
Benzo[k]fluoranthene	0.0719	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	08/10/16 02:26 PM
Chrysene	0.140	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Dibenz[a,h]anthracene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Fluoranthene	0.209	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Fluorene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	08/10/16 02:26 PM
Indeno[1,2,3-cd]pyrene	0.0992	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Phenanthrene	0.0967	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
Pyrene	0.189	0.0481	0.0962	0.0722		mg/Kg-dry	10	08/10/16 02:26 PM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/10/16 02:26 PM
IS: Phenanthrene-d10	97.9	0	50-200	0		%REC	10	08/10/16 02:26 PM
Surr: 2-Fluorobiphenyl	70.9	0	46-115	0		%REC	10	08/10/16 02:26 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-DU125(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-09
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:39 PM
Lab Order:	1607294	**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	08/10/16 02:26 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-10
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:40 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.31	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 08:19 PM
IS: Bismuth	80.2	0	30-120	0		%REC	5	08/09/16 08:19 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[a]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[a]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[b]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[g,h,i]perylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/10/16 03:07 PM
Benzo[k]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Chrysene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Phenanthrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
Pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/10/16 03:07 PM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/10/16 03:07 PM
IS: Phenanthrene-d10	96.6	0	50-200	0		%REC	10	08/10/16 03:07 PM
Surr: 2-Fluorobiphenyl	71.7	0	46-115	0		%REC	10	08/10/16 03:07 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-DU125(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-10
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:40 PM
Lab Order:	1607294	**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	08/10/16 03:07 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-DU125(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-11
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:43 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.00	0.0926	0.278	0.139		mg/Kg-dry	5	08/09/16 08:24 PM
IS: Bismuth	83.1	0	30-120	0		%REC	5	08/09/16 08:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	08/10/16 03:48 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 03:48 PM
IS: Acenaphthene-d10	130	0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/10/16 03:48 PM
IS: Phenanthrene-d10	92.7	0	50-200	0		%REC	10	08/10/16 03:48 PM
Surr: 2-Fluorobiphenyl	78.4	0	46-115	0		%REC	10	08/10/16 03:48 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-DU125(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-11
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:43 PM
Lab Order:	1607294	**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	08/10/16 03:48 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU125(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-12
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.78	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 08:30 PM
IS: Bismuth	80.5	0	30-120	0		%REC	5	08/09/16 08:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Acenaphthylene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[a]anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[a]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[b]fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[e]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[g,h,i]perylene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[j]fluoranthene	0.0706	0.0470	0.0941	0.0706	NU	mg/Kg-dry	10	08/10/16 04:29 PM
Benzo[k]fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Chrysene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Dibenz[a,h]anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Fluorene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Indeno[1,2,3-cd]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Phenanthrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
Pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/10/16 04:29 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/10/16 04:29 PM
IS: Phenanthrene-d10	95.1	0	50-200	0		%REC	10	08/10/16 04:29 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/10/16 04:29 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-DU125(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-12
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.9	0	58-133	0		%REC	10	08/10/16 04:29 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:**	EB01(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-13
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:50 PM
Lab Order:	1607294	**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 01:04 AM
IS: Bismuth	85.8	0	30-120	0		%REC	1	08/10/16 01:04 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Acenaphthylene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Anthracene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[a]anthracene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[a]pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[b]fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[e]pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[g,h,i]perylene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Benzo[j]fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	NU	mg/L	1	08/03/16 01:47 PM
Benzo[k]fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Chrysene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Dibenz[a,h]anthracene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Fluoranthene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Fluorene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Indeno[1,2,3-cd]pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Phenanthrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
Pyrene	0.0000785	0.0000490	0.0000981	0.0000785	U	mg/L	1	08/03/16 01:47 PM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Chrysene-d12	122	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Naphthalene-d8	126	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Perylene-d12	126	0	50-200	0		%REC	1	08/03/16 01:47 PM
IS: Phenanthrene-d10	138	0	50-200	0		%REC	1	08/03/16 01:47 PM
Surr: 2-Fluorobiphenyl	62.8	0	53-106	0		%REC	1	08/03/16 01:47 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(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-13
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 12:50 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	56.5	0	58-132	0	S	%REC	1	08/03/16 01:47 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-DU115(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-14
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:40 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	10.3	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 08:36 PM
IS: Bismuth	79.9	0	30-120	0		%REC	5	08/09/16 08:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[b]fluoranthene	0.0524	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	08/10/16 07:50 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Fluoranthene	0.0687	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/10/16 07:50 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/10/16 07:50 PM
Pyrene	0.0620	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/10/16 07:50 PM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/10/16 07:50 PM
IS: Phenanthrene-d10	97.2	0	50-200	0		%REC	10	08/10/16 07:50 PM
Surr: 2-Fluorobiphenyl	70.7	0	46-115	0		%REC	10	08/10/16 07:50 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-DU115(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-14
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:40 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.7	0	58-133	0		%REC	10	08/10/16 07:50 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-DU115(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-15
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.58	0.0990	0.297	0.149		mg/Kg-dry	5	08/09/16 09:29 PM
IS: Bismuth	82.7	0	30-120	0		%REC	5	08/09/16 09:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/10/16 08:29 PM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/10/16 08:29 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/10/16 08:29 PM
IS: Phenanthrene-d10	94.8	0	50-200	0		%REC	10	08/10/16 08:29 PM
Surr: 2-Fluorobiphenyl	76.1	0	46-115	0		%REC	10	08/10/16 08:29 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-DU115(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-15
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.4	0	58-133	0		%REC	10	08/10/16 08:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-16
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:42 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.39	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 09:35 PM
IS: Bismuth	82.2	0	30-120	0		%REC	5	08/09/16 09:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0725	0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Acenaphthylene	0.0725	0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Anthracene	0.0725	0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[a]anthracene	0.0495	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[a]pyrene	0.0541	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[b]fluoranthene	0.0584	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[e]pyrene	0.0504	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[g,h,i]perylene	0.0547	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[j]fluoranthene	0.0725	0.0483	0.0966	0.0725	NU	mg/Kg-dry	10	08/10/16 09:09 PM
Benzo[k]fluoranthene	0.0725	0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Chrysene	0.0571	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Dibenz[a,h]anthracene	0.0725	0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Fluoranthene	0.0553	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Fluorene	0.0725	0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Indeno[1,2,3-cd]pyrene	0.0725	0.0483	0.0966	0.0725	U	mg/Kg-dry	10	08/10/16 09:09 PM
Phenanthrene	0.0526	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
Pyrene	0.0888	0.0483	0.0966	0.0725	J	mg/Kg-dry	10	08/10/16 09:09 PM
IS: Acenaphthene-d10	125	0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Naphthalene-d8	99.5	0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/10/16 09:09 PM
IS: Phenanthrene-d10	86.3	0	50-200	0		%REC	10	08/10/16 09:09 PM
Surr: 2-Fluorobiphenyl	73.3	0	46-115	0		%REC	10	08/10/16 09:09 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-DU115(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-16
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:42 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.9	0	58-133	0		%REC	10	08/10/16 09:09 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-DU115(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-17
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:43 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.96	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 09:41 PM
IS: Bismuth	82.8	0	30-120	0		%REC	5	08/09/16 09:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Acenaphthylene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Anthracene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[a]anthracene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[a]pyrene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[b]fluoranthene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[e]pyrene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[g,h,i]perylene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[j]fluoranthene	0.0716	0.0477	0.0954	0.0716	NU	mg/Kg-dry	10	08/10/16 09:49 PM
Benzo[k]fluoranthene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Chrysene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Dibenz[a,h]anthracene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Fluoranthene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Fluorene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Indeno[1,2,3-cd]pyrene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Phenanthrene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
Pyrene	0.0716	0.0477	0.0954	0.0716	U	mg/Kg-dry	10	08/10/16 09:49 PM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/10/16 09:49 PM
IS: Phenanthrene-d10	98.8	0	50-200	0		%REC	10	08/10/16 09:49 PM
Surr: 2-Fluorobiphenyl	67.8	0	46-115	0		%REC	10	08/10/16 09:49 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-DU115(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-17
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:43 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.7	0	58-133	0		%REC	10	08/10/16 09:49 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-DU115(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-18
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:45 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	153	0.980	2.94	1.47		mg/Kg-dry	50	08/09/16 09:46 PM
IS: Bismuth	82.7	0	30-120	0		%REC	50	08/09/16 09:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[a]anthracene	0.0801	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[a]pyrene	0.107	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[b]fluoranthene	0.108	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[e]pyrene	0.0907	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[g,h,i]perylene	0.0983	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[j]fluoranthene	0.0540	0.0497	0.0993	0.0745	JN	mg/Kg-dry	10	08/10/16 10:29 PM
Benzo[k]fluoranthene	0.0565	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Chrysene	0.104	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Fluoranthene	0.148	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	08/10/16 10:29 PM
Indeno[1,2,3-cd]pyrene	0.0783	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Phenanthrene	0.0687	0.0497	0.0993	0.0745	J	mg/Kg-dry	10	08/10/16 10:29 PM
Pyrene	0.132	0.0497	0.0993	0.0745		mg/Kg-dry	10	08/10/16 10:29 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/10/16 10:29 PM
IS: Phenanthrene-d10	97.8	0	50-200	0		%REC	10	08/10/16 10:29 PM
Surr: 2-Fluorobiphenyl	70.8	0	46-115	0		%REC	10	08/10/16 10:29 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-DU115(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-18
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:45 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.2	0	58-133	0		%REC	10	08/10/16 10:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-19
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.37	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 09:52 PM
IS: Bismuth	79.1	0	30-120	0		%REC	5	08/09/16 09:52 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Acenaphthylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[a]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[a]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[b]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[e]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[g,h,i]perylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[j]fluoranthene	0.0731	0.0487	0.0975	0.0731	NU	mg/Kg-dry	10	08/10/16 11:09 PM
Benzo[k]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Chrysene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Dibenz[a,h]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Fluorene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Indeno[1,2,3-cd]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Phenanthrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
Pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	08/10/16 11:09 PM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/10/16 11:09 PM
IS: Phenanthrene-d10	95.7	0	50-200	0		%REC	10	08/10/16 11:09 PM
Surr: 2-Fluorobiphenyl	71.9	0	46-115	0		%REC	10	08/10/16 11:09 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-DU115(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-19
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.6	0	58-133	0		%REC	10	08/10/16 11:09 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-20
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:47 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.45	0.0935	0.280	0.140		mg/Kg-dry	5	08/09/16 10:04 PM
IS: Bismuth	79.9	0	30-120	0		%REC	5	08/09/16 10:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/10/16 11:49 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 11:49 PM
IS: Acenaphthene-d10	131	0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/10/16 11:49 PM
IS: Phenanthrene-d10	94.1	0	50-200	0		%REC	10	08/10/16 11:49 PM
Surr: 2-Fluorobiphenyl	70.3	0	46-115	0		%REC	10	08/10/16 11:49 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-DU115(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-20
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:47 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.1	0	58-133	0		%REC	10	08/10/16 11:49 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU115(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-21
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:48 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	26.8	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 10:10 PM
IS: Bismuth	83.9	0	30-120	0		%REC	5	08/09/16 10:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[a]anthracene	0.224	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[a]pyrene	0.276	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[b]fluoranthene	0.234	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[e]pyrene	0.196	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[g,h,i]perylene	0.220	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[j]fluoranthene	0.143	0.0490	0.0980	0.0735	N	mg/Kg-dry	10	08/11/16 12:29 AM
Benzo[k]fluoranthene	0.136	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Chrysene	0.322	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Dibenz[a,h]anthracene	0.0511	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	08/11/16 12:29 AM
Fluoranthene	0.392	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/11/16 12:29 AM
Indeno[1,2,3-cd]pyrene	0.181	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Phenanthrene	0.200	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
Pyrene	0.404	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/11/16 12:29 AM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/11/16 12:29 AM
IS: Phenanthrene-d10	96.8	0	50-200	0		%REC	10	08/11/16 12:29 AM
Surr: 2-Fluorobiphenyl	69.1	0	46-115	0		%REC	10	08/11/16 12:29 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-DU115(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-21
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:48 PM
Lab Order:	1607294	**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	08/11/16 12:29 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-DU115(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-22
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.40	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 10:16 PM
IS: Bismuth	79.0	0	30-120	0		%REC	5	08/09/16 10:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/07/16 04:08 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/07/16 04:08 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/07/16 04:08 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/07/16 04:08 PM
Surr: 2-Fluorobiphenyl	77.8	0	46-115	0		%REC	10	08/07/16 04:08 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-DU115(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-22
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:49 PM
Lab Order:	1607294	**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 04:08 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-DU115(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-23
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:50 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.49	0.0952	0.286	0.143		mg/Kg-dry	5	08/09/16 10:22 PM
IS: Bismuth	79.1	0	30-120	0		%REC	5	08/09/16 10:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/07/16 04:47 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 04:47 PM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/07/16 04:47 PM
IS: Phenanthrene-d10	97.1	0	50-200	0		%REC	10	08/07/16 04:47 PM
Surr: 2-Fluorobiphenyl	82.8	0	46-115	0		%REC	10	08/07/16 04:47 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-DU115(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-23
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:50 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	90.8	0	58-133	0		%REC	10	08/07/16 04:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-24
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:55 PM
Lab Order:	1607294	**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 01:10 AM
IS: Bismuth	87.4	0	30-120	0		%REC	1	08/10/16 01:10 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Acenaphthylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[a]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[a]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[b]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[e]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[g,h,i]perylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Benzo[j]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	NU	mg/L	1	08/03/16 03:07 PM
Benzo[k]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Chrysene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Dibenz[a,h]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Fluorene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Indeno[1,2,3-cd]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Phenanthrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
Pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/03/16 03:07 PM
IS: Acenaphthene-d10	99.0	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Chrysene-d12	93.0	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Naphthalene-d8	93.9	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Perylene-d12	93.0	0	50-200	0		%REC	1	08/03/16 03:07 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	1	08/03/16 03:07 PM
Surr: 2-Fluorobiphenyl	69.8	0	53-106	0		%REC	1	08/03/16 03:07 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(20160723)
Project:	Laredo SGR	**Lab ID:**	1607294-24
Project No:	04285081.0000.00044	**Collection Date:**	07/23/16 03:55 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	60.6	0	58-132	0		%REC	1	08/03/16 03:07 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-25
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:38 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	20.2	0.0893	0.268	0.134		mg/Kg-dry	5	08/09/16 10:28 PM
IS: Bismuth	82.8	0	30-120	0		%REC	5	08/09/16 10:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/07/16 05:28 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/07/16 05:28 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Perylene-d12	112	0	50-200	0		%REC	10	08/07/16 05:28 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/07/16 05:28 PM
Surr: 2-Fluorobiphenyl	77.1	0	46-115	0		%REC	10	08/07/16 05:28 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-DU150(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-25
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:38 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.4	0	58-133	0		%REC	10	08/07/16 05:28 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-26
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:40 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.08	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 04:43 PM
IS: Bismuth	93.6	0	30-120	0		%REC	5	08/09/16 04:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Acenaphthylene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Anthracene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[a]anthracene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[a]pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[b]fluoranthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[e]pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[g,h,i]perylene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[j]fluoranthene	0.0708	0.0472	0.0943	0.0708	NU	mg/Kg-dry	10	08/07/16 06:07 PM
Benzo[k]fluoranthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Chrysene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Dibenz[a,h]anthracene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Fluoranthene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Fluorene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Indeno[1,2,3-cd]pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Phenanthrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
Pyrene	0.0708	0.0472	0.0943	0.0708	U	mg/Kg-dry	10	08/07/16 06:07 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/07/16 06:07 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/07/16 06:07 PM
Surr: 2-Fluorobiphenyl	75.0	0	46-115	0		%REC	10	08/07/16 06:07 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-DU150(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-26
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:40 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	08/07/16 06:07 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-DU150(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-27
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:42 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.93	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 04:45 PM
IS: Bismuth	94.4	0	30-120	0		%REC	5	08/09/16 04:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Acenaphthylene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[a]anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[a]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[b]fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[e]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[g,h,i]perylene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[j]fluoranthene	0.0727	0.0485	0.0970	0.0727	NU	mg/Kg-dry	10	08/07/16 06:49 PM
Benzo[k]fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Chrysene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Dibenz[a,h]anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Fluorene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Phenanthrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
Pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	08/07/16 06:49 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/07/16 06:49 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	08/07/16 06:49 PM
Surr: 2-Fluorobiphenyl	69.6	0	46-115	0		%REC	10	08/07/16 06:49 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-DU150(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-27
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:42 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.1	0	58-133	0		%REC	10	08/07/16 06:49 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-DU150(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-28
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:43 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.57	0.0885	0.265	0.133		mg/Kg-dry	5	08/09/16 04:47 PM
IS: Bismuth	96.0	0	30-120	0		%REC	5	08/09/16 04:47 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 07:29 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[a]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[b]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/07/16 07:29 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
Pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/07/16 07:29 PM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/07/16 07:29 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	08/07/16 07:29 PM
Surr: 2-Fluorobiphenyl	74.0	0	46-115	0		%REC	10	08/07/16 07:29 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-DU150(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-28
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:43 AM
Lab Order:	1607294	**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	08/07/16 07:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-29
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.8	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 04:39 PM
IS: Bismuth	97.0	0	30-120	0		%REC	5	08/09/16 04:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[a]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[a]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[b]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[g,h,i]perylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/07/16 08:09 PM
Benzo[k]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Chrysene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Phenanthrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
Pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/07/16 08:09 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/07/16 08:09 PM
IS: Phenanthrene-d10	98.2	0	50-200	0		%REC	10	08/07/16 08:09 PM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	08/07/16 08:09 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-DU150(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-29
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.3	0	58-133	0		%REC	10	08/07/16 08:09 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-30
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:50 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.95	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 04:49 PM
IS: Bismuth	93.5	0	30-120	0		%REC	5	08/09/16 04:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Acenaphthylene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[a]anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[a]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[b]fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[e]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[g,h,i]perylene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[j]fluoranthene	0.0714	0.0476	0.0951	0.0714	NU	mg/Kg-dry	10	08/07/16 08:49 PM
Benzo[k]fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Chrysene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Dibenz[a,h]anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Fluorene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Indeno[1,2,3-cd]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Phenanthrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
Pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/07/16 08:49 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/07/16 08:49 PM
IS: Phenanthrene-d10	97.8	0	50-200	0		%REC	10	08/07/16 08:49 PM
Surr: 2-Fluorobiphenyl	79.5	0	46-115	0		%REC	10	08/07/16 08:49 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-DU150(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-30
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:50 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.8	0	58-133	0		%REC	10	08/07/16 08:49 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-DU150(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-31
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:52 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.45	0.0980	0.294	0.147		mg/Kg-dry	5	08/09/16 04:51 PM
IS: Bismuth	93.1	0	30-120	0		%REC	5	08/09/16 04:51 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 09:29 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/07/16 09:29 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/07/16 09:29 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/07/16 09:29 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	08/07/16 09:29 PM
Surr: 2-Fluorobiphenyl	75.3	0	46-115	0		%REC	10	08/07/16 09:29 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-DU150(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-31
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:52 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.6	0	58-133	0		%REC	10	08/07/16 09:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-32
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:55 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.64	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 04:53 PM
IS: Bismuth	93.9	0	30-120	0		%REC	5	08/09/16 04:53 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[a]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[a]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[b]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[e]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[g,h,i]perylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[j]fluoranthene	0.0738	0.0492	0.0984	0.0738	NU	mg/Kg-dry	10	08/07/16 10:08 PM
Benzo[k]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Chrysene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Dibenz[a,h]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Indeno[1,2,3-cd]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Phenanthrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
Pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/07/16 10:08 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/07/16 10:08 PM
IS: Phenanthrene-d10	97.7	0	50-200	0		%REC	10	08/07/16 10:08 PM
Surr: 2-Fluorobiphenyl	73.6	0	46-115	0		%REC	10	08/07/16 10:08 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-DU150(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-32
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:55 AM
Lab Order:	1607294	**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 10:08 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-33
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:58 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	33.4	0.0926	0.278	0.139		mg/Kg-dry	5	08/09/16 04:55 PM
IS: Bismuth	94.3	0	30-120	0		%REC	5	08/09/16 04:55 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.131	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Acenaphthylene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[a]anthracene	0.0908	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[a]pyrene	0.117	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[b]fluoranthene	0.113	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[e]pyrene	0.0928	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[g,h,i]perylene	0.112	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[j]fluoranthene	0.0586	0.0500	0.100	0.0750	JN	mg/Kg-dry	10	08/07/16 10:48 PM
Benzo[k]fluoranthene	0.0595	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Chrysene	0.113	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Dibenz[a,h]anthracene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Fluoranthene	0.143	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
Fluorene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Indeno[1,2,3-cd]pyrene	0.0897	0.0500	0.100	0.0750	J	mg/Kg-dry	10	08/07/16 10:48 PM
Phenanthrene	0.0750	0.0500	0.100	0.0750	U	mg/Kg-dry	10	08/07/16 10:48 PM
Pyrene	0.133	0.0500	0.100	0.0750		mg/Kg-dry	10	08/07/16 10:48 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/07/16 10:48 PM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/07/16 10:48 PM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	08/07/16 10:48 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-DU150(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-33
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:58 AM
Lab Order:	1607294	**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	08/07/16 10:48 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-DU150(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-34
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:59 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.10	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 04:57 PM
IS: Bismuth	95.5	0	30-120	0		%REC	5	08/09/16 04:57 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	08/07/16 11:28 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/07/16 11:28 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/07/16 11:28 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/07/16 11:28 PM
Surr: 2-Fluorobiphenyl	75.6	0	46-115	0		%REC	10	08/07/16 11:28 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-DU150(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-34
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 09:59 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	08/07/16 11:28 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-35
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:00 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.90	0.0917	0.275	0.138		mg/Kg-dry	5	08/09/16 04:59 PM
IS: Bismuth	93.2	0	30-120	0		%REC	5	08/09/16 04:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[a]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[b]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[e]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[g,h,i]perylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	08/08/16 02:47 AM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Chrysene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
Pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/08/16 02:47 AM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Perylene-d12	112	0	50-200	0		%REC	10	08/08/16 02:47 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/08/16 02:47 AM
Surr: 2-Fluorobiphenyl	74.6	0	46-115	0		%REC	10	08/08/16 02:47 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-DU150(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-35
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:00 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.3	0	58-133	0		%REC	10	08/08/16 02:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU150(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-36
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:01 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	5.78	0.0877	0.263	0.132		mg/Kg-dry	5	08/09/16 05:15 PM
IS: Bismuth	92.7	0	30-120	0		%REC	5	08/09/16 05:15 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[a]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[a]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[b]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[e]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[g,h,i]perylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[j]fluoranthene	0.0734	0.0489	0.0978	0.0734	NU	mg/Kg-dry	10	08/08/16 03:27 AM
Benzo[k]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Chrysene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Indeno[1,2,3-cd]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Phenanthrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
Pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 03:27 AM
IS: Acenaphthene-d10	131	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/08/16 03:27 AM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	08/08/16 03:27 AM
Surr: 2-Fluorobiphenyl	78.7	0	46-115	0		%REC	10	08/08/16 03:27 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-DU150(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-36
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:01 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.0	0	58-133	0		%REC	10	08/08/16 03:27 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-37
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:05 AM
Lab Order:	1607294	**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 01:16 AM
IS: Bismuth	87.6	0	30-120	0		%REC	1	08/10/16 01:16 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Acenaphthylene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Anthracene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[a]anthracene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[a]pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[b]fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[e]pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[g,h,i]perylene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Benzo[j]fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	NU	mg/L	1	08/03/16 03:47 PM
Benzo[k]fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Chrysene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Dibenz[a,h]anthracene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Fluoranthene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Fluorene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Indeno[1,2,3-cd]pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Phenanthrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
Pyrene	0.0000795	0.0000497	0.0000994	0.0000795	U	mg/L	1	08/03/16 03:47 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Chrysene-d12	92.9	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Naphthalene-d8	93.1	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Perylene-d12	94.0	0	50-200	0		%REC	1	08/03/16 03:47 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	1	08/03/16 03:47 PM
Surr: 2-Fluorobiphenyl	68.2	0	53-106	0		%REC	1	08/03/16 03:47 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(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-37
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 10:05 AM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	64.8	0	58-132	0		%REC	1	08/03/16 03:47 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-DU087(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-38
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:23 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.1	0.0971	0.291	0.146		mg/Kg-dry	5	08/09/16 05:17 PM
IS: Bismuth	92.1	0	30-120	0		%REC	5	08/09/16 05:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[a]anthracene	0.157	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[a]pyrene	0.210	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[b]fluoranthene	0.190	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[e]pyrene	0.157	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[g,h,i]perylene	0.190	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[j]fluoranthene	0.0985	0.0498	0.0996	0.0747	JN	mg/Kg-dry	10	08/08/16 04:07 AM
Benzo[k]fluoranthene	0.0931	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	08/08/16 04:07 AM
Chrysene	0.206	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Fluoranthene	0.251	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/08/16 04:07 AM
Indeno[1,2,3-cd]pyrene	0.148	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Phenanthrene	0.110	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
Pyrene	0.242	0.0498	0.0996	0.0747		mg/Kg-dry	10	08/08/16 04:07 AM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Chrysene-d12	104	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/08/16 04:07 AM
IS: Phenanthrene-d10	97.1	0	50-200	0		%REC	10	08/08/16 04:07 AM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	08/08/16 04:07 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-DU087(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-38
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:23 PM
Lab Order:	1607294	**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	08/08/16 04:07 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-DU087(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-39
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.5	0.926	2.78	1.39		mg/Kg-dry	50	08/09/16 05:19 PM
IS: Bismuth	97.6	0	30-120	0		%REC	50	08/09/16 05:19 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Acenaphthylene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Anthracene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[a]anthracene	0.275	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[a]pyrene	0.422	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[b]fluoranthene	0.415	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[e]pyrene	0.322	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[g,h,i]perylene	0.343	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[j]fluoranthene	0.201	0.0484	0.0967	0.0725	N	mg/Kg-dry	10	08/08/16 04:47 AM
Benzo[k]fluoranthene	0.210	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Chrysene	0.343	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Dibenz[a,h]anthracene	0.0655	0.0484	0.0967	0.0725	J	mg/Kg-dry	10	08/08/16 04:47 AM
Fluoranthene	0.337	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Fluorene	0.0725	0.0484	0.0967	0.0725	U	mg/Kg-dry	10	08/08/16 04:47 AM
Indeno[1,2,3-cd]pyrene	0.250	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
Phenanthrene	0.0769	0.0484	0.0967	0.0725	J	mg/Kg-dry	10	08/08/16 04:47 AM
Pyrene	0.326	0.0484	0.0967	0.0725		mg/Kg-dry	10	08/08/16 04:47 AM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/08/16 04:47 AM
IS: Phenanthrene-d10	98.0	0	50-200	0		%REC	10	08/08/16 04:47 AM
Surr: 2-Fluorobiphenyl	74.7	0	46-115	0		%REC	10	08/08/16 04:47 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-DU087(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-39
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:25 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.7	0	58-133	0		%REC	10	08/08/16 04:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-40
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:29 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	27.8	0.952	2.86	1.43		mg/Kg-dry	50	08/09/16 05:21 PM
IS: Bismuth	96.8	0	30-120	0		%REC	50	08/09/16 05:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.135	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[a]anthracene	0.0767	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[a]pyrene	0.125	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[b]fluoranthene	0.130	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[e]pyrene	0.104	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[g,h,i]perylene	0.161	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[j]fluoranthene	0.0611	0.0496	0.0992	0.0744	JN	mg/Kg-dry	10	08/08/16 05:28 AM
Benzo[k]fluoranthene	0.0583	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Chrysene	0.0943	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Fluoranthene	0.102	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/08/16 05:28 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Indeno[1,2,3-cd]pyrene	0.0860	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 05:28 AM
Pyrene	0.0985	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/08/16 05:28 AM
IS: Acenaphthene-d10	132	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/08/16 05:28 AM
IS: Phenanthrene-d10	97.5	0	50-200	0		%REC	10	08/08/16 05:28 AM
Surr: 2-Fluorobiphenyl	73.2	0	46-115	0		%REC	10	08/08/16 05:28 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-DU087(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-40
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:29 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.9	0	58-133	0		%REC	10	08/08/16 05:28 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-41
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.03	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 05:23 PM
IS: Bismuth	91.6	0	30-120	0		%REC	5	08/09/16 05:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/08/16 06:09 AM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 06:09 AM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/08/16 06:09 AM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/08/16 06:09 AM
Surr: 2-Fluorobiphenyl	74.2	0	46-115	0		%REC	10	08/08/16 06:09 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-DU087(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-41
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:33 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.3	0	58-133	0		%REC	10	08/08/16 06:09 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-42
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:38 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	20.9	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 05:25 PM
IS: Bismuth	93.0	0	30-120	0		%REC	5	08/09/16 05:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[a]anthracene	0.158	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[a]pyrene	0.222	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[b]fluoranthene	0.210	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[e]pyrene	0.173	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[g,h,i]perylene	0.163	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[j]fluoranthene	0.111	0.0490	0.0980	0.0735	N	mg/Kg-dry	10	08/08/16 06:49 AM
Benzo[k]fluoranthene	0.110	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Chrysene	0.196	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Fluoranthene	0.246	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 06:49 AM
Indeno[1,2,3-cd]pyrene	0.138	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
Phenanthrene	0.0888	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	08/08/16 06:49 AM
Pyrene	0.232	0.0490	0.0980	0.0735		mg/Kg-dry	10	08/08/16 06:49 AM
IS: Acenaphthene-d10	128	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/08/16 06:49 AM
IS: Phenanthrene-d10	96.0	0	50-200	0		%REC	10	08/08/16 06:49 AM
Surr: 2-Fluorobiphenyl	76.6	0	46-115	0		%REC	10	08/08/16 06:49 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-DU087(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-42
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:38 PM
Lab Order:	1607294	**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	08/08/16 06:49 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-43
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	16.7	0.0943	0.283	0.142		mg/Kg-dry	5	08/09/16 05:27 PM
IS: Bismuth	91.1	0	30-120	0		%REC	5	08/09/16 05:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.346	0.230	0.461	0.346	U	mg/Kg-dry	50	08/08/16 07:29 AM
Acenaphthylene	0.346	0.230	0.461	0.346	U	mg/Kg-dry	50	08/08/16 07:29 AM
Anthracene	0.237	0.230	0.461	0.346	J	mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[a]anthracene	1.63	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[a]pyrene	1.90	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[b]fluoranthene	1.87	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[e]pyrene	1.39	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[g,h,i]perylene	1.28	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[j]fluoranthene	0.958	0.230	0.461	0.346	N	mg/Kg-dry	50	08/08/16 07:29 AM
Benzo[k]fluoranthene	1.00	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Chrysene	1.90	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Dibenz[a,h]anthracene	0.291	0.230	0.461	0.346	J	mg/Kg-dry	50	08/08/16 07:29 AM
Fluoranthene	2.81	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Fluorene	0.346	0.230	0.461	0.346	U	mg/Kg-dry	50	08/08/16 07:29 AM
Indeno[1,2,3-cd]pyrene	1.05	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Phenanthrene	1.17	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
Pyrene	2.39	0.230	0.461	0.346		mg/Kg-dry	50	08/08/16 07:29 AM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Naphthalene-d8	103	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Perylene-d12	116	0	50-200	0		%REC	50	08/08/16 07:29 AM
IS: Phenanthrene-d10	99.4	0	50-200	0		%REC	50	08/08/16 07:29 AM
Surr: 2-Fluorobiphenyl	88.4	0	46-115	0		%REC	50	08/08/16 07:29 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-DU087(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-43
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:41 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	101	0	58-133	0		%REC	50	08/08/16 07:29 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-44
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	30.8	0.0847	0.254	0.127		mg/Kg-dry	5	08/09/16 05:29 PM
IS: Bismuth	91.2	0	30-120	0		%REC	5	08/09/16 05:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Acenaphthylene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Anthracene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[a]anthracene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[a]pyrene	0.0613	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[b]fluoranthene	0.0613	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[e]pyrene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[g,h,i]perylene	0.0626	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[j]fluoranthene	0.0707	0.0471	0.0943	0.0707	NU	mg/Kg-dry	10	08/09/16 12:34 AM
Benzo[k]fluoranthene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Chrysene	0.0579	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Dibenz[a,h]anthracene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Fluoranthene	0.0754	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
Fluorene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Indeno[1,2,3-cd]pyrene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Phenanthrene	0.0707	0.0471	0.0943	0.0707	U	mg/Kg-dry	10	08/09/16 12:34 AM
Pyrene	0.0668	0.0471	0.0943	0.0707	J	mg/Kg-dry	10	08/09/16 12:34 AM
IS: Acenaphthene-d10	121	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Chrysene-d12	94.6	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Perylene-d12	99.4	0	50-200	0		%REC	10	08/09/16 12:34 AM
IS: Phenanthrene-d10	97.2	0	50-200	0		%REC	10	08/09/16 12:34 AM
Surr: 2-Fluorobiphenyl	80.9	0	46-115	0		%REC	10	08/09/16 12:34 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-DU087(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-44
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.4	0	58-133	0		%REC	10	08/09/16 12:34 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-45
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.92	0.0962	0.288	0.144		mg/Kg-dry	5	08/09/16 05:31 PM
IS: Bismuth	90.7	0	30-120	0		%REC	5	08/09/16 05:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[a]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[a]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[b]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[e]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[g,h,i]perylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[j]fluoranthene	0.0741	0.0494	0.0988	0.0741	NU	mg/Kg-dry	10	08/08/16 10:41 AM
Benzo[k]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Chrysene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Indeno[1,2,3-cd]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Phenanthrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
Pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 10:41 AM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Chrysene-d12	96.2	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	08/08/16 10:41 AM
IS: Phenanthrene-d10	96.6	0	50-200	0		%REC	10	08/08/16 10:41 AM
Surr: 2-Fluorobiphenyl	78.1	0	46-115	0		%REC	10	08/08/16 10:41 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-DU087(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-45
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	08/08/16 10:41 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-46
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.6	0.0909	0.273	0.136		mg/Kg-dry	5	08/09/16 05:33 PM
IS: Bismuth	91.0	0	30-120	0		%REC	5	08/09/16 05:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[a]anthracene	0.177	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[a]pyrene	0.210	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[b]fluoranthene	0.189	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[e]pyrene	0.159	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[g,h,i]perylene	0.171	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[j]fluoranthene	0.0938	0.0497	0.0994	0.0746	JN	mg/Kg-dry	10	08/08/16 11:15 PM
Benzo[k]fluoranthene	0.0964	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 11:15 PM
Chrysene	0.216	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Fluoranthene	0.303	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 11:15 PM
Indeno[1,2,3-cd]pyrene	0.129	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Phenanthrene	0.109	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
Pyrene	0.273	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/08/16 11:15 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Chrysene-d12	93.3	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Perylene-d12	96.0	0	50-200	0		%REC	10	08/08/16 11:15 PM
IS: Phenanthrene-d10	90.6	0	50-200	0		%REC	10	08/08/16 11:15 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	08/08/16 11:15 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-DU087(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-46
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/08/16 11:15 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-47
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:51 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	13.0	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 05:21 PM
IS: Bismuth	98.1	0	30-120	0		%REC	5	08/10/16 05:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 01:14 AM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 01:14 AM
Anthracene	0.0681	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[a]anthracene	0.350	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[a]pyrene	0.414	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[b]fluoranthene	0.389	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[e]pyrene	0.315	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[g,h,i]perylene	0.384	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[j]fluoranthene	0.189	0.0486	0.0973	0.0730	N	mg/Kg-dry	10	08/09/16 01:14 AM
Benzo[k]fluoranthene	0.182	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Chrysene	0.420	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Dibenz[a,h]anthracene	0.0651	0.0486	0.0973	0.0730	J	mg/Kg-dry	10	08/09/16 01:14 AM
Fluoranthene	0.688	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 01:14 AM
Indeno[1,2,3-cd]pyrene	0.255	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Phenanthrene	0.372	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
Pyrene	0.585	0.0486	0.0973	0.0730		mg/Kg-dry	10	08/09/16 01:14 AM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Chrysene-d12	99.8	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Perylene-d12	110	0	50-200	0		%REC	10	08/09/16 01:14 AM
IS: Phenanthrene-d10	94.7	0	50-200	0		%REC	10	08/09/16 01:14 AM
Surr: 2-Fluorobiphenyl	77.8	0	46-115	0		%REC	10	08/09/16 01:14 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-DU087(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-47
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:51 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.4	0	58-133	0		%REC	10	08/09/16 01:14 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-48
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	27.9	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 05:23 PM
IS: Bismuth	96.2	0	30-120	0		%REC	5	08/10/16 05:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[a]anthracene	0.540	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[a]pyrene	1.08	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[b]fluoranthene	0.952	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[e]pyrene	0.763	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[g,h,i]perylene	0.880	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[j]fluoranthene	0.465	0.0495	0.0990	0.0743	N	mg/Kg-dry	10	08/09/16 01:54 AM
Benzo[k]fluoranthene	0.452	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Chrysene	0.728	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Dibenz[a,h]anthracene	0.181	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Fluoranthene	0.520	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 01:54 AM
Indeno[1,2,3-cd]pyrene	0.711	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Phenanthrene	0.156	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
Pyrene	0.546	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/09/16 01:54 AM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/09/16 01:54 AM
IS: Phenanthrene-d10	91.5	0	50-200	0		%REC	10	08/09/16 01:54 AM
Surr: 2-Fluorobiphenyl	81.5	0	46-115	0		%REC	10	08/09/16 01:54 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-DU087(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-48
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.5	0	58-133	0		%REC	10	08/09/16 01:54 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU087(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-49
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.72	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 05:25 PM
IS: Bismuth	97.4	0	30-120	0		%REC	5	08/10/16 05:25 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[a]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[a]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[b]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[e]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[g,h,i]perylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	08/08/16 11:20 AM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Chrysene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Indeno[1,2,3-cd]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
Pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/08/16 11:20 AM
IS: Acenaphthene-d10	111	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	08/08/16 11:20 AM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	08/08/16 11:20 AM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	08/08/16 11:20 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-DU087(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-49
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 12:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.4	0	58-133	0		%REC	10	08/08/16 11:20 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-50
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 01:00 PM
Lab Order:	1607294	**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 01:22 AM
IS: Bismuth	88.5	0	30-120	0		%REC	1	08/10/16 01:22 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Acenaphthylene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Anthracene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[a]anthracene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[a]pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[b]fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[e]pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[g,h,i]perylene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Benzo[j]fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	NU	mg/L	1	08/03/16 04:27 PM
Benzo[k]fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Chrysene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Dibenz[a,h]anthracene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Fluoranthene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Fluorene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Indeno[1,2,3-cd]pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Phenanthrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
Pyrene	0.0000796	0.0000497	0.0000994	0.0000796	U	mg/L	1	08/03/16 04:27 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Chrysene-d12	107	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Perylene-d12	109	0	50-200	0		%REC	1	08/03/16 04:27 PM
IS: Phenanthrene-d10	118	0	50-200	0		%REC	1	08/03/16 04:27 PM
Surr: 2-Fluorobiphenyl	68.7	0	53-106	0		%REC	1	08/03/16 04:27 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(20160724)
Project:	Laredo SGR	**Lab ID:**	1607294-50
Project No:	04285081.0000.00044	**Collection Date:**	07/24/16 01:00 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	64.8	0	58-132	0		%REC	1	08/03/16 04:27 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-51
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:20 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	19.2	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:27 PM
IS: Bismuth	97.3	0	30-120	0		%REC	5	08/10/16 05:27 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[a]anthracene	0.0858	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[a]pyrene	0.119	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[b]fluoranthene	0.115	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[g,h,i]perylene	0.102	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[j]fluoranthene	0.0569	0.0499	0.0998	0.0749	JN	mg/Kg-dry	10	08/08/16 12:00 PM
Benzo[k]fluoranthene	0.0558	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/08/16 12:00 PM
Chrysene	0.100	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Fluoranthene	0.104	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Indeno[1,2,3-cd]pyrene	0.0826	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/08/16 12:00 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 12:00 PM
Pyrene	0.105	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/08/16 12:00 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Chrysene-d12	99.1	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/08/16 12:00 PM
IS: Phenanthrene-d10	97.4	0	50-200	0		%REC	10	08/08/16 12:00 PM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	08/08/16 12:00 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-DU095(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-51
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:20 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	08/08/16 12:00 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-DU095(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-52
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:22 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.71	0.0862	0.259	0.129		mg/Kg-dry	5	08/10/16 05:17 PM
IS: Bismuth	96.1	0	30-120	0		%REC	5	08/10/16 05:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Acenaphthylene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Anthracene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[a]anthracene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[a]pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[b]fluoranthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[e]pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[g,h,i]perylene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[j]fluoranthene	0.0719	0.0479	0.0959	0.0719	NU	mg/Kg-dry	10	08/08/16 12:39 PM
Benzo[k]fluoranthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Chrysene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Dibenz[a,h]anthracene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Fluoranthene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Fluorene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Indeno[1,2,3-cd]pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Phenanthrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
Pyrene	0.0719	0.0479	0.0959	0.0719	U	mg/Kg-dry	10	08/08/16 12:39 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Chrysene-d12	99.0	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	08/08/16 12:39 PM
IS: Phenanthrene-d10	98.6	0	50-200	0		%REC	10	08/08/16 12:39 PM
Surr: 2-Fluorobiphenyl	71.6	0	46-115	0		%REC	10	08/08/16 12:39 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-DU095(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-52
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:22 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.0	0	58-133	0		%REC	10	08/08/16 12:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-53
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:25 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	3.86	0.0870	0.261	0.130		mg/Kg-dry	5	08/10/16 05:29 PM
IS: Bismuth	95.3	0	30-120	0		%REC	5	08/10/16 05:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	08/08/16 01:19 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/08/16 01:19 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/08/16 01:19 PM
IS: Phenanthrene-d10	97.4	0	50-200	0		%REC	10	08/08/16 01:19 PM
Surr: 2-Fluorobiphenyl	72.7	0	46-115	0		%REC	10	08/08/16 01:19 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-DU095(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-53
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:25 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.3	0	58-133	0		%REC	10	08/08/16 01:19 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-DU095(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-54
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:28 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	4.06	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:31 PM
IS: Bismuth	98.5	0	30-120	0		%REC	5	08/10/16 05:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/08/16 01:59 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 01:59 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Chrysene-d12	94.6	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Perylene-d12	97.3	0	50-200	0		%REC	10	08/08/16 01:59 PM
IS: Phenanthrene-d10	94.0	0	50-200	0		%REC	10	08/08/16 01:59 PM
Surr: 2-Fluorobiphenyl	79.6	0	46-115	0		%REC	10	08/08/16 01:59 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-DU095(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-54
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:28 AM
Lab Order:	1607294	**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	08/08/16 01:59 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-55
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:31 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	39.2	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 05:33 PM
IS: Bismuth	98.1	0	30-120	0		%REC	5	08/10/16 05:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	08/08/16 11:54 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Fluoranthene	0.0537	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/08/16 11:54 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/08/16 11:54 PM
Pyrene	0.0497	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	08/08/16 11:54 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Chrysene-d12	97.0	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Perylene-d12	98.6	0	50-200	0		%REC	10	08/08/16 11:54 PM
IS: Phenanthrene-d10	94.3	0	50-200	0		%REC	10	08/08/16 11:54 PM
Surr: 2-Fluorobiphenyl	75.9	0	46-115	0		%REC	10	08/08/16 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-DU095(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-55
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:31 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	08/08/16 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-56
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:33 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	212	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 05:35 PM
IS: Bismuth	98.3	0	30-120	0		%REC	5	08/10/16 05:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[a]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[b]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/08/16 02:39 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
Pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 02:39 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Chrysene-d12	99.7	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/08/16 02:39 PM
IS: Phenanthrene-d10	97.9	0	50-200	0		%REC	10	08/08/16 02:39 PM
Surr: 2-Fluorobiphenyl	76.8	0	46-115	0		%REC	10	08/08/16 02:39 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-DU095(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-56
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:33 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	08/08/16 02:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-57
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:37 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	5.62	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 05:37 PM
IS: Bismuth	95.6	0	30-120	0		%REC	5	08/10/16 05:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Acenaphthylene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Anthracene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[a]anthracene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[a]pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[b]fluoranthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[e]pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[g,h,i]perylene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[j]fluoranthene	0.0690	0.0460	0.0920	0.0690	NU	mg/Kg-dry	10	08/08/16 03:19 PM
Benzo[k]fluoranthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Chrysene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Dibenz[a,h]anthracene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Fluoranthene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Fluorene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Indeno[1,2,3-cd]pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Phenanthrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
Pyrene	0.0690	0.0460	0.0920	0.0690	U	mg/Kg-dry	10	08/08/16 03:19 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Chrysene-d12	95.3	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Perylene-d12	96.4	0	50-200	0		%REC	10	08/08/16 03:19 PM
IS: Phenanthrene-d10	94.2	0	50-200	0		%REC	10	08/08/16 03:19 PM
Surr: 2-Fluorobiphenyl	79.8	0	46-115	0		%REC	10	08/08/16 03:19 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-DU095(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-57
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:37 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.7	0	58-133	0		%REC	10	08/08/16 03:19 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-58
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:39 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	3.90	0.0870	0.261	0.130		mg/Kg-dry	5	08/10/16 05:59 PM
IS: Bismuth	97.2	0	30-120	0		%REC	5	08/10/16 05:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Acenaphthylene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[a]anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[a]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[b]fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[e]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[g,h,i]perylene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[j]fluoranthene	0.0706	0.0470	0.0941	0.0706	NU	mg/Kg-dry	10	08/08/16 03:59 PM
Benzo[k]fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Chrysene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Dibenz[a,h]anthracene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Fluoranthene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Fluorene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Indeno[1,2,3-cd]pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Phenanthrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
Pyrene	0.0706	0.0470	0.0941	0.0706	U	mg/Kg-dry	10	08/08/16 03:59 PM
IS: Acenaphthene-d10	110	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Chrysene-d12	95.3	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Perylene-d12	97.7	0	50-200	0		%REC	10	08/08/16 03:59 PM
IS: Phenanthrene-d10	91.8	0	50-200	0		%REC	10	08/08/16 03:59 PM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	08/08/16 03:59 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-DU095(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-58
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:39 AM
Lab Order:	1607294	**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	08/08/16 03:59 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-59
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:43 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	97.8	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 06:01 PM
IS: Bismuth	97.1	0	30-120	0		%REC	5	08/10/16 06:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Acenaphthylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[a]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[a]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[b]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[e]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[g,h,i]perylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[j]fluoranthene	0.0732	0.0488	0.0976	0.0732	NU	mg/Kg-dry	10	08/08/16 04:39 PM
Benzo[k]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Chrysene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Fluorene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Phenanthrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
Pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/08/16 04:39 PM
IS: Acenaphthene-d10	112	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Chrysene-d12	99.3	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/08/16 04:39 PM
IS: Phenanthrene-d10	93.3	0	50-200	0		%REC	10	08/08/16 04:39 PM
Surr: 2-Fluorobiphenyl	76.3	0	46-115	0		%REC	10	08/08/16 04:39 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-DU095(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-59
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:43 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.3	0	58-133	0		%REC	10	08/08/16 04:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-60
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:45 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	15.1	0.0877	0.263	0.132		mg/Kg-dry	5	08/10/16 06:03 PM
IS: Bismuth	95.2	0	30-120	0		%REC	5	08/10/16 06:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/08/16 05:19 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/08/16 05:19 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	08/08/16 05:19 PM
IS: Phenanthrene-d10	95.1	0	50-200	0		%REC	10	08/08/16 05:19 PM
Surr: 2-Fluorobiphenyl	78.7	0	46-115	0		%REC	10	08/08/16 05:19 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-60
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:45 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.9	0	58-133	0		%REC	10	08/08/16 05:19 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-DU095(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-61
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	4.43	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 06:04 PM
IS: Bismuth	93.5	0	30-120	0		%REC	5	08/10/16 06:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/08/16 05:59 PM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/08/16 05:59 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Chrysene-d12	98.0	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/08/16 05:59 PM
IS: Phenanthrene-d10	97.5	0	50-200	0		%REC	10	08/08/16 05:59 PM
Surr: 2-Fluorobiphenyl	76.0	0	46-115	0		%REC	10	08/08/16 05:59 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-DU095(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-61
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:47 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.6	0	58-133	0		%REC	10	08/08/16 05:59 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU095(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-62
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:49 AM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	3.99	0.0847	0.254	0.127		mg/Kg-dry	5	08/10/16 06:06 PM
IS: Bismuth	95.3	0	30-120	0		%REC	5	08/10/16 06:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Acenaphthylene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[a]anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[a]pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[b]fluoranthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[e]pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[g,h,i]perylene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[j]fluoranthene	0.0739	0.0493	0.0985	0.0739	NU	mg/Kg-dry	10	08/08/16 06:39 PM
Benzo[k]fluoranthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Chrysene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Dibenz[a,h]anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Fluoranthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Fluorene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Indeno[1,2,3-cd]pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Phenanthrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
Pyrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/08/16 06:39 PM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Chrysene-d12	96.1	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Perylene-d12	99.7	0	50-200	0		%REC	10	08/08/16 06:39 PM
IS: Phenanthrene-d10	94.2	0	50-200	0		%REC	10	08/08/16 06:39 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	08/08/16 06:39 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-DU095(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-62
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:49 AM
Lab Order:	1607294	**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	08/08/16 06:39 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-63
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:55 AM
Lab Order:	1607294	**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 01:52 AM
IS: Bismuth	89.3	0	30-120	0		%REC	1	08/10/16 01:52 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Acenaphthylene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Anthracene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[a]anthracene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[a]pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[b]fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[e]pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[g,h,i]perylene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Benzo[j]fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	NU	mg/L	1	08/03/16 05:07 PM
Benzo[k]fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Chrysene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Dibenz[a,h]anthracene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Fluoranthene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Fluorene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Indeno[1,2,3-cd]pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Phenanthrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
Pyrene	0.0000788	0.0000492	0.0000985	0.0000788	U	mg/L	1	08/03/16 05:07 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Chrysene-d12	125	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Naphthalene-d8	127	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Perylene-d12	128	0	50-200	0		%REC	1	08/03/16 05:07 PM
IS: Phenanthrene-d10	141	0	50-200	0		%REC	1	08/03/16 05:07 PM
Surr: 2-Fluorobiphenyl	68.6	0	53-106	0		%REC	1	08/03/16 05:07 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(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-63
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 10:55 AM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	63.3	0	58-132	0		%REC	1	08/03/16 05:07 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-64
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:44 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	66.5	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 06:08 PM
IS: Bismuth	92.0	0	30-120	0		%REC	5	08/10/16 06:08 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[a]anthracene	0.131	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[a]pyrene	0.266	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[b]fluoranthene	0.230	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[e]pyrene	0.197	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[g,h,i]perylene	0.232	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[j]fluoranthene	0.103	0.0499	0.0997	0.0748	N	mg/Kg-dry	10	08/08/16 09:56 PM
Benzo[k]fluoranthene	0.103	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Chrysene	0.184	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Fluoranthene	0.124	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Indeno[1,2,3-cd]pyrene	0.170	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/08/16 09:56 PM
Pyrene	0.133	0.0499	0.0997	0.0748		mg/Kg-dry	10	08/08/16 09:56 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Chrysene-d12	95.5	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Perylene-d12	99.2	0	50-200	0		%REC	10	08/08/16 09:56 PM
IS: Phenanthrene-d10	92.6	0	50-200	0		%REC	10	08/08/16 09:56 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	08/08/16 09:56 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-DU143(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607294-64
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:44 PM
Lab Order:	1607294	**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	08/08/16 09:56 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-DU143(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-65
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.80	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 06:10 PM
IS: Bismuth	87.6	0	30-120	0		%REC	5	08/10/16 06:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Acenaphthylene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[a]anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[a]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[b]fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[e]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[g,h,i]perylene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[j]fluoranthene	0.0700	0.0466	0.0933	0.0700	NU	mg/Kg-dry	10	08/08/16 10:36 PM
Benzo[k]fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Chrysene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Dibenz[a,h]anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Fluorene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Indeno[1,2,3-cd]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Phenanthrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
Pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	08/08/16 10:36 PM
IS: Acenaphthene-d10	116	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Chrysene-d12	93.6	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Perylene-d12	96.5	0	50-200	0		%REC	10	08/08/16 10:36 PM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	08/08/16 10:36 PM
Surr: 2-Fluorobiphenyl	73.2	0	46-115	0		%REC	10	08/08/16 10:36 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-DU143(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607294-65
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:46 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.4	0	58-133	0		%REC	10	08/08/16 10:36 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-66
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	7.59	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 06:12 PM
IS: Bismuth	88.1	0	30-120	0		%REC	5	08/10/16 06:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/08/16 12:50 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/08/16 12:50 PM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Perylene-d12	120	0	50-200	0		%REC	10	08/08/16 12:50 PM
IS: Phenanthrene-d10	98.5	0	50-200	0		%REC	10	08/08/16 12:50 PM
Surr: 2-Fluorobiphenyl	75.4	0	46-115	0		%REC	10	08/08/16 12:50 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607294-66
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:49 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.9	0	58-133	0		%REC	10	08/08/16 12:50 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-67
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:52 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.44	0.0862	0.259	0.129		mg/Kg-dry	5	08/10/16 06:14 PM
IS: Bismuth	89.4	0	30-120	0		%REC	5	08/10/16 06:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/08/16 01:30 PM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 01:30 PM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Perylene-d12	122	0	50-200	0		%REC	10	08/08/16 01:30 PM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/08/16 01:30 PM
Surr: 2-Fluorobiphenyl	73.0	0	46-115	0		%REC	10	08/08/16 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-DU143(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607294-67
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:52 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	08/08/16 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-DU143(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-68
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	60.6	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 06:16 PM
IS: Bismuth	89.5	0	30-120	0		%REC	5	08/10/16 06:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[a]anthracene	0.295	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[a]pyrene	0.508	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[b]fluoranthene	0.495	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[e]pyrene	0.390	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[g,h,i]perylene	0.380	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[j]fluoranthene	0.238	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	08/08/16 02:12 PM
Benzo[k]fluoranthene	0.246	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Chrysene	0.406	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Dibenz[a,h]anthracene	0.0972	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/08/16 02:12 PM
Fluoranthene	0.320	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/08/16 02:12 PM
Indeno[1,2,3-cd]pyrene	0.359	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
Phenanthrene	0.0834	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/08/16 02:12 PM
Pyrene	0.327	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/08/16 02:12 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/08/16 02:12 PM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	08/08/16 02:12 PM
Surr: 2-Fluorobiphenyl	78.6	0	46-115	0		%REC	10	08/08/16 02:12 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-DU143(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607294-68
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:54 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	89.4	0	58-133	0		%REC	10	08/08/16 02:12 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-69
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	11.5	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 04:56 PM
IS: Bismuth	85.2	0	30-120	0		%REC	5	08/10/16 04:56 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	08/08/16 02:52 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/08/16 02:52 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/08/16 02:52 PM
IS: Phenanthrene-d10	99.6	0	50-200	0		%REC	10	08/08/16 02:52 PM
Surr: 2-Fluorobiphenyl	76.1	0	46-115	0		%REC	10	08/08/16 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-DU143(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607294-69
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:56 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.4	0	58-133	0		%REC	10	08/08/16 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-70
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:58 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.03	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 05:02 PM
IS: Bismuth	89.6	0	30-120	0		%REC	5	08/10/16 05:02 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[a]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[a]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[b]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[e]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[g,h,i]perylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[j]fluoranthene	0.0738	0.0492	0.0984	0.0738	NU	mg/Kg-dry	10	08/08/16 03:34 PM
Benzo[k]fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Chrysene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Dibenz[a,h]anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Fluoranthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Indeno[1,2,3-cd]pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Phenanthrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
Pyrene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/08/16 03:34 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	08/08/16 03:34 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/08/16 03:34 PM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	08/08/16 03:34 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-DU143(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607294-70
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 01:58 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.1	0	58-133	0		%REC	10	08/08/16 03:34 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-71
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:00 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.87	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:08 PM
IS: Bismuth	86.1	0	30-120	0		%REC	5	08/10/16 05:08 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[a]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[a]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[b]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[e]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[g,h,i]perylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[j]fluoranthene	0.0741	0.0494	0.0988	0.0741	NU	mg/Kg-dry	10	08/08/16 04:16 PM
Benzo[k]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Chrysene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Indeno[1,2,3-cd]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Phenanthrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
Pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	08/08/16 04:16 PM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/08/16 04:16 PM
IS: Phenanthrene-d10	97.9	0	50-200	0		%REC	10	08/08/16 04:16 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/08/16 04:16 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-DU143(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607294-71
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:00 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.3	0	58-133	0		%REC	10	08/08/16 04:16 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		

DHL Analytical, Inc.

Date: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-72
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:03 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	115	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 05:13 PM
IS: Bismuth	79.2	0	30-120	0		%REC	5	08/10/16 05:13 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[a]anthracene	0.178	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[a]pyrene	0.223	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[b]fluoranthene	0.197	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[e]pyrene	0.170	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[g,h,i]perylene	0.172	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[j]fluoranthene	0.111	0.0489	0.0978	0.0734	N	mg/Kg-dry	10	08/08/16 04:56 PM
Benzo[k]fluoranthene	0.117	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Chrysene	0.227	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Fluoranthene	0.273	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/08/16 04:56 PM
Indeno[1,2,3-cd]pyrene	0.151	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
Phenanthrene	0.0918	0.0489	0.0978	0.0734	J	mg/Kg-dry	10	08/08/16 04:56 PM
Pyrene	0.263	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/08/16 04:56 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Perylene-d12	120	0	50-200	0		%REC	10	08/08/16 04:56 PM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/08/16 04:56 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	08/08/16 04:56 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-DU143(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607294-72
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:03 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.6	0	58-133	0		%REC	10	08/08/16 04:56 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-73
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:05 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	55.2	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 05:19 PM
IS: Bismuth	75.3	0	30-120	0		%REC	5	08/10/16 05:19 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[a]anthracene	0.0987	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[a]pyrene	0.113	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[b]fluoranthene	0.111	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[e]pyrene	0.0892	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[g,h,i]perylene	0.0830	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[j]fluoranthene	0.0591	0.0484	0.0969	0.0727	JN	mg/Kg-dry	10	08/08/16 05:38 PM
Benzo[k]fluoranthene	0.0598	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Chrysene	0.121	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Fluoranthene	0.159	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/08/16 05:38 PM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/08/16 05:38 PM
Pyrene	0.151	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/08/16 05:38 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/08/16 05:38 PM
IS: Phenanthrene-d10	99.2	0	50-200	0		%REC	10	08/08/16 05:38 PM
Surr: 2-Fluorobiphenyl	74.0	0	46-115	0		%REC	10	08/08/16 05:38 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-DU143(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607294-73
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:05 PM
Lab Order:	1607294	**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	08/08/16 05:38 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-DU143(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-74
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:07 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.35	0.0870	0.261	0.130		mg/Kg-dry	5	08/10/16 05:31 PM
IS: Bismuth	77.2	0	30-120	0		%REC	5	08/10/16 05:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Acenaphthylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[a]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[a]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[b]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[e]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[g,h,i]perylene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[j]fluoranthene	0.0723	0.0482	0.0963	0.0723	NU	mg/Kg-dry	10	08/08/16 06:17 PM
Benzo[k]fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Chrysene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Dibenz[a,h]anthracene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Fluoranthene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Fluorene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Indeno[1,2,3-cd]pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Phenanthrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
Pyrene	0.0723	0.0482	0.0963	0.0723	U	mg/Kg-dry	10	08/08/16 06:17 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/08/16 06:17 PM
IS: Phenanthrene-d10	98.2	0	50-200	0		%REC	10	08/08/16 06:17 PM
Surr: 2-Fluorobiphenyl	73.8	0	46-115	0		%REC	10	08/08/16 06:17 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	**Client Sample ID:**	SGR-DU143(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607294-74
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:07 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.6	0	58-133	0		%REC	10	08/08/16 06:17 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU143(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-75
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:09 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	12.1	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 05:37 PM
IS: Bismuth	78.6	0	30-120	0		%REC	5	08/10/16 05:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Acenaphthylene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Anthracene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[a]anthracene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[a]pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[b]fluoranthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[e]pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[g,h,i]perylene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[j]fluoranthene	0.0686	0.0457	0.0914	0.0686	NU	mg/Kg-dry	10	08/08/16 06:58 PM
Benzo[k]fluoranthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Chrysene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Dibenz[a,h]anthracene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Fluoranthene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Fluorene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Indeno[1,2,3-cd]pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Phenanthrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
Pyrene	0.0686	0.0457	0.0914	0.0686	U	mg/Kg-dry	10	08/08/16 06:58 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Perylene-d12	120	0	50-200	0		%REC	10	08/08/16 06:58 PM
IS: Phenanthrene-d10	99.9	0	50-200	0		%REC	10	08/08/16 06:58 PM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	08/08/16 06:58 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-DU143(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607294-75
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:09 PM
Lab Order:	1607294	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.8	0	58-133	0		%REC	10	08/08/16 06:58 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-76
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:15 PM
Lab Order:	1607294	**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 02:04 AM
IS: Bismuth	87.9	0	30-120	0		%REC	1	08/10/16 02:04 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Acenaphthylene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Anthracene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[a]anthracene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[a]pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[b]fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[e]pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[g,h,i]perylene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Benzo[j]fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	NU	mg/L	1	08/03/16 05:47 PM
Benzo[k]fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Chrysene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Dibenz[a,h]anthracene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Fluoranthene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Fluorene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Indeno[1,2,3-cd]pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Phenanthrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
Pyrene	0.0000797	0.0000498	0.0000996	0.0000797	U	mg/L	1	08/03/16 05:47 PM
IS: Acenaphthene-d10	114	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Naphthalene-d8	102	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Perylene-d12	103	0	50-200	0		%REC	1	08/03/16 05:47 PM
IS: Phenanthrene-d10	117	0	50-200	0		%REC	1	08/03/16 05:47 PM
Surr: 2-Fluorobiphenyl	72.1	0	53-106	0		%REC	1	08/03/16 05:47 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: *16-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160725)
Project:	Laredo SGR	**Lab ID:**	1607294-76
Project No:	04285081.0000.00044	**Collection Date:**	07/25/16 02:15 PM
Lab Order:	1607294	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	58.5	0	58-132	0		%REC	1	08/03/16 05:47 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: 1607294
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: 1607294
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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

The QC data in batch 76670 applies to the following samples: 1607294-04A, 1607294-05A, 1607294-06A, 1607294-07A, 1607294-08A, 1607294-09A, 1607294-10A, 1607294-11A, 1607294-12A, 1607294-14A, 1607294-15A, 1607294-16A, 1607294-17A, 1607294-18A, 1607294-19A, 1607294-20A, 1607294-21A, 1607294-22A, 1607294-23A, 1607294-25A

Sample ID **MB-76670** Batch ID: **76670** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 7:14:00 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		87.8	30	120			

Sample ID **LCS-76670** Batch ID: **76670** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 7:20:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.8	0.300	50.00	0	102	84	118			
IS: Bismuth	50.0		200.0		84.3	30	120			

Sample ID **LCSD-76670** Batch ID: **76670** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160809A** Analysis Date: **8/9/2016 7:26:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.8	0.300	50.00	0	104	84	118	1.75	20	
IS: Bismuth	50.0		200.0		84.0	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: 1607294
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 **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			

Sample ID **CCV4-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 8:59:00 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		86.1	30	120			

Sample ID **LCVL4-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 9:11:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00113	0.00100	0.00100	0	113	80	120			
IS: Bismuth	0.200		0.200		88.5	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809A

Sample ID **CCV4-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	Analysis Date: **8/9/2016 9:23:00 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		85.6	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809A**	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: **R87526**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809A**	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			

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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

The QC data in batch 76687 applies to the following samples: 1607294-13A, 1607294-24A, 1607294-37A, 1607294-50A, 1607294-63A, 1607294-76A

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

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			

CLIENT: Arcadis
Work Order: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **CCV7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:34:00 AM**	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		82.3	30	120			

Sample ID **LCVL7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:46:00 AM**	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		86.2	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

The QC data in batch 76670 applies to the following samples: 1607294-04A, 1607294-05A, 1607294-06A, 1607294-07A, 1607294-08A, 1607294-09A, 1607294-10A, 1607294-11A, 1607294-12A, 1607294-14A, 1607294-15A, 1607294-16A, 1607294-17A, 1607294-18A, 1607294-19A, 1607294-20A, 1607294-21A, 1607294-22A, 1607294-23A, 1607294-25A

Sample ID **1607294-09A SD** Batch ID: **76670** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 3:15:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	17.2	1.44	0	17.74				3.07	10	
IS: Bismuth	240		192.3		95.0	30	120	0	0	

Sample ID **1607294-09A PDS** Batch ID: **76670** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 3:21:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	66.0	0.288	48.08	17.74	100	80	120			
IS: Bismuth	48.1		961.5		87.1	30	120			

Sample ID **1607294-09A MS** Batch ID: **76670** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 3:27:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	73.0	0.294	49.02	17.74	113	84	118			
IS: Bismuth	49.0		196.1		86.8	30	120			

Sample ID **1607294-09A MSD** Batch ID: **76670** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 3:32:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	108	0.288	48.08	17.74	188	84	118	38.7	20	SR
IS: Bismuth	48.1		192.3		86.9	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

The QC data in batch 76690 applies to the following samples: 1607294-69A, 1607294-70A, 1607294-71A, 1607294-72A, 1607294-73A, 1607294-74A, 1607294-75A

Sample ID **MB-76690** Batch ID: **76690** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 4:02:00 PM** Prep Date: **8/5/2016**

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		96.0	30	120			

Sample ID **LCS-76690** Batch ID: **76690** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 4:08:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.6	0.300	50.00	0	103	84	118			
IS: Bismuth	50.0		200.0		93.0	30	120			

Sample ID **LCSD-76690** Batch ID: **76690** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 4:14:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.8	0.300	50.00	0	104	84	118	0.193	20	
IS: Bismuth	50.0		200.0		92.3	30	120	0	0	

Sample ID **1607314-03A SD** Batch ID: **76690** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 4:31:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	18.7	1.28	0	18.89				1.03	10	
IS: Bismuth	214		170.9		93.6	30	120	0	0	

Sample ID **1607314-03A PDS** Batch ID: **76690** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 5:55:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	63.1	0.256	42.74	18.89	103	80	120			
IS: Bismuth	42.7		854.7		84.2	30	120			

Sample ID **1607314-03A MS** Batch ID: **76690** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 6:00:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.4	0.291	48.54	18.89	110	84	118			
IS: Bismuth	48.5		194.2		83.1	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **1607314-03A MSD**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:06:00 PM**	Prep Date: **8/5/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.5	0.278	46.30	18.89	116	84	118	0.233	20	
IS: Bismuth	46.3		185.2		82.0	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:47:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0975	0.00100	0.100	0	97.5	90	110			
IS: Bismuth	0.200		0.200		93.1	30	120			

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0977	0.00100	0.100	0	97.7	90	110			
IS: Bismuth	0.200		0.200		91.1	30	120			

Sample ID **ILCVL-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 1:05:00 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		91.5	30	120			

Sample ID **CCV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 3:38:00 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		93.0	30	120			

Sample ID **LCVL1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 3:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00113	0.00100	0.00100	0	113	80	120			
IS: Bismuth	0.200		0.200		94.4	30	120			

Sample ID **CCV2-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:12:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		83.3	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **LCVL2-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00116	0.00100	0.00100	0	116	80	120			
IS: Bismuth	0.200		0.200		84.8	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: 1607294
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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_160809D**

The QC data in batch 76664 applies to the following samples: 1607294-01A, 1607294-02A, 1607294-03A

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: 1607294
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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160809D

The QC data in batch 76671 applies to the following samples: 1607294-26A, 1607294-27A, 1607294-28A, 1607294-29A, 1607294-30A, 1607294-31A, 1607294-32A, 1607294-33A, 1607294-34A, 1607294-35A, 1607294-36A, 1607294-38A, 1607294-39A, 1607294-40A, 1607294-41A, 1607294-42A, 1607294-43A, 1607294-44A, 1607294-45A, 1607294-46A

Sample ID **MB-76671** Batch ID: **76671** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 4:31:00 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		101	30	120			

Sample ID **LCS-76671** Batch ID: **76671** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 4:33:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.3	0.300	50.00	0	98.6	84	118			
IS: Bismuth	50.0		200.0		98.6	30	120			

Sample ID **LCSD-76671** Batch ID: **76671** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 4:35:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	48.9	0.300	50.00	0	97.9	84	118	0.771	20	
IS: Bismuth	50.0		200.0		98.3	30	120	0	0	

Sample ID **1607294-29A SD** Batch ID: **76671** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 4:41:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	20.0	1.42	0	19.76				1.32	10	
IS: Bismuth	236		188.7		98.9	30	120	0	0	

Sample ID **1607294-29A PDS** Batch ID: **76671** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 5:01:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	65.6	0.283	47.17	19.76	97.2	80	120			
IS: Bismuth	47.2		943.4		94.2	30	120			

Sample ID **1607294-29A MS** Batch ID: **76671** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160809D** Analysis Date: **8/9/2016 5:03:00 PM** Prep Date: **8/4/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	70.4	0.286	47.62	19.76	106	84	118			
IS: Bismuth	47.6		190.5		94.3	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160809D

Sample ID **1607294-29A MSD**	Batch ID: **76671**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 5:05:00 PM**	Prep Date: **8/4/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	66.3	0.278	46.30	19.76	100	84	118	6.09	20	
IS: Bismuth	46.3		185.2		93.5	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: 1607294
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

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			

Sample ID **CCV8-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 5:07:00 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		95.5	30	120			

Sample ID **LCVL8-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 5:11:00 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		96.6	30	120			

Sample ID **CCV8-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 5:35:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	90	110			
IS: Bismuth	0.200		0.200		93.4	30	120			

Sample ID **LCVL8-160809**	Batch ID: **R87520**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160809D**	Analysis Date: **8/9/2016 5:39:00 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		93.6	30	120			

CLIENT: Arcadis
Work Order: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160810C

The QC data in batch 76691 applies to the following samples: 1607294-47A, 1607294-48A, 1607294-49A, 1607294-51A, 1607294-52A, 1607294-53A, 1607294-54A, 1607294-55A, 1607294-56A, 1607294-57A, 1607294-58A, 1607294-59A, 1607294-60A, 1607294-61A, 1607294-62A, 1607294-64A, 1607294-65A, 1607294-66A, 1607294-67A, 1607294-68A

Sample ID **MB-76691** Batch ID: **76691** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160810C** Analysis Date: **8/10/2016 5:09:00 PM** Prep Date: **8/5/2016**

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-76691** Batch ID: **76691** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160810C** Analysis Date: **8/10/2016 5:11:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.7	0.300	50.00	0	103	84	118			
IS: Bismuth	50.0		200.0		101	30	120			

Sample ID **LCSD-76691** Batch ID: **76691** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160810C** Analysis Date: **8/10/2016 5:13:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.0	0.300	50.00	0	104	84	118	0.536	20	
IS: Bismuth	50.0		200.0		102	30	120	0	0	

Sample ID **1607294-52A SD** Batch ID: **76691** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160810C** Analysis Date: **8/10/2016 5:19:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	9.57	1.29	0	9.710				1.48	10	
IS: Bismuth	216		172.4		102	30	120	0	0	

Sample ID **1607294-52A PDS** Batch ID: **76691** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160810C** Analysis Date: **8/10/2016 5:39:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	53.1	0.259	43.10	9.710	101	80	120			
IS: Bismuth	43.1		862.1		95.2	30	120			

Sample ID **1607294-52A MS** Batch ID: **76691** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160810C** Analysis Date: **8/10/2016 5:40:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	59.4	0.283	47.17	9.710	105	84	118			
IS: Bismuth	47.2		188.7		95.8	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160810C

Sample ID **1607294-52A MSD**	Batch ID: **76691**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 5:42:00 PM**	Prep Date: **8/5/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	56.8	0.273	45.45	9.710	104	84	118	4.47	20	
IS: Bismuth	45.5		181.8		95.3	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160810C

Sample ID **ICV-160810**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 1:12:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0980	0.00100	0.100	0	98.0	90	110			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **LCVL-160810**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 1:18:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000998	0.00100	0.00100	0	99.8	80	120			
IS: Bismuth	0.200		0.200		99.9	30	120			

Sample ID **CCV5-160810**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 4:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.7	90	110			
IS: Bismuth	0.200		0.200		99.1	30	120			

Sample ID **LCVL5-160810**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 5:04:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000948	0.00100	0.00100	0	94.8	80	120			
IS: Bismuth	0.200		0.200		100	30	120			

Sample ID **CCV6-160810**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 5:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.207	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		97.2	30	120			

Sample ID **LCVL6-160810**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 5:54:00 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		99.2	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160810C

Sample ID **CCV7-140402**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 6:18:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.205	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		88.6	30	120			

Sample ID **LCVL7-140402**	Batch ID: **R87547**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160810C**	Analysis Date: **8/10/2016 6:22:00 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		92.4	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: 1607294
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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160807A

The QC data in batch 76552 applies to the following samples: 1607294-22A, 1607294-23A, 1607294-25A, 1607294-26A, 1607294-27A, 1607294-28A, 1607294-29A, 1607294-30A, 1607294-31A, 1607294-32A, 1607294-33A, 1607294-34A, 1607294-35A, 1607294-36A, 1607294-38A, 1607294-39A, 1607294-40A, 1607294-41A, 1607294-42A, 1607294-43A

Sample ID **LCS-76552** Batch ID: **76552** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160807A** Analysis Date: **8/7/2016 2:08:00 PM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.784	0.0100	1.000	0	78.4	44	111			
Acenaphthylene	0.766	0.0100	1.000	0	76.6	39	116			
Anthracene	0.735	0.0100	1.000	0	73.5	50	114			
Benzo[a]anthracene	0.804	0.0100	1.000	0	80.4	54	122			
Benzo[a]pyrene	0.761	0.0100	1.000	0	76.1	50	125			
Benzo[b]fluoranthene	0.832	0.0100	1.000	0	83.2	53	128			
Benzo[e]pyrene	0.829	0.0100	1.000	0	82.9	43	140			
Benzo[g,h,i]perylene	0.886	0.0100	1.000	0	88.6	49	127			
Benzo[j]fluoranthene	0.832	0.0100	1.000	0	83.2	45	125			N
Benzo[k]fluoranthene	0.832	0.0100	1.000	0	83.2	56	123			
Chrysene	0.772	0.0100	1.000	0	77.2	57	118			
Dibenz[a,h]anthracene	0.884	0.0100	1.000	0	88.4	50	129			
Fluoranthene	0.813	0.0100	1.000	0	81.3	55	119			
Fluorene	0.736	0.0100	1.000	0	73.6	47	114			
Indeno[1,2,3-cd]pyrene	0.892	0.0100	1.000	0	89.2	49	130			
Phenanthrene	0.782	0.0100	1.000	0	78.2	49	113			
Pyrene	0.819	0.0100	1.000	0	81.9	55	117			
IS: Acenaphthene-d10	4.00		4.000		140	50	200			
IS: Chrysene-d12	4.00		4.000		112	50	200			
IS: Naphthalene-d8	4.00		4.000		123	50	200			
IS: Perylene-d12	4.00		4.000		107	50	200			
IS: Phenanthrene-d10	4.00		4.000		96.2	50	200			
Surr: 2-Fluorobiphenyl	0.818		1.000		81.8	46	115			
Surr: 4-Terphenyl-d14	0.930		1.000		93.0	58	133			

Sample ID **MB-76552** Batch ID: **76552** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160807A** Analysis Date: **8/7/2016 3:27:00 PM** Prep Date: **7/29/2016**

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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160807A

Sample ID **MB-76552**	Batch ID: **76552**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160807A**	Analysis Date: **8/7/2016 3:27:00 PM**	Prep Date: **7/29/2016**

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		137	50	200			
IS: Chrysene-d12	4.00		4.000		112	50	200			
IS: Naphthalene-d8	4.00		4.000		120	50	200			
IS: Perylene-d12	4.00		4.000		107	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.8	50	200			
Surr: 2-Fluorobiphenyl	0.788		1.000		78.8	46	115			
Surr: 4-Terphenyl-d14	0.905		1.000		90.5	58	133			

Sample ID **SB-160807**	Batch ID: **76552**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160807A**	Analysis Date: **8/8/2016 2:07:00 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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160807A

Sample ID **1607294-29AMS**	Batch ID: **76552**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160807A**	Analysis Date: **8/8/2016 8:08:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.768	0.0990	0.9901	0	77.6	44	111			
Acenaphthylene	0.773	0.0990	0.9901	0	78.1	39	116			
Anthracene	0.750	0.0990	0.9901	0	75.8	50	114			
Benzo[a]anthracene	0.800	0.0990	0.9901	0	80.8	54	122			
Benzo[a]pyrene	0.815	0.0990	0.9901	0	82.3	50	125			
Benzo[b]fluoranthene	0.840	0.0990	0.9901	0	84.8	53	128			
Benzo[e]pyrene	0.851	0.0990	0.9901	0	86.0	43	140			
Benzo[g,h,i]perylene	0.762	0.0990	0.9901	0	77.0	49	127			
Benzo[j]fluoranthene	0.856	0.0990	0.9901	0	86.5	45	125			N
Benzo[k]fluoranthene	0.868	0.0990	0.9901	0	87.6	56	123			
Chrysene	0.778	0.0990	0.9901	0	78.6	57	118			
Dibenz[a,h]anthracene	0.748	0.0990	0.9901	0	75.5	50	129			
Fluoranthene	0.785	0.0990	0.9901	0	79.3	55	119			
Fluorene	0.795	0.0990	0.9901	0	80.3	47	114			
Indeno[1,2,3-cd]pyrene	0.773	0.0990	0.9901	0	78.1	49	130			
Phenanthrene	0.776	0.0990	0.9901	0	78.4	49	113			
Pyrene	0.796	0.0990	0.9901	0	80.4	55	117			
IS: Acenaphthene-d10	39.6		3.960		137	50	200			
IS: Chrysene-d12	39.6		3.960		117	50	200			
IS: Naphthalene-d8	39.6		3.960		107	50	200			
IS: Perylene-d12	39.6		3.960		120	50	200			
IS: Phenanthrene-d10	39.6		3.960		100	50	200			
Surr: 2-Fluorobiphenyl	0.775		0.9901		78.3	46	115			
Surr: 4-Terphenyl-d14	0.857		0.9901		86.5	58	133			

Sample ID **1607294-29AMSD**	Batch ID: **76552**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160807A**	Analysis Date: **8/8/2016 8:49:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.750	0.0997	0.9970	0	75.3	44	111	2.38	20	
Acenaphthylene	0.752	0.0997	0.9970	0	75.4	39	116	2.71	20	
Anthracene	0.743	0.0997	0.9970	0	74.6	50	114	0.967	20	
Benzo[a]anthracene	0.792	0.0997	0.9970	0	79.5	54	122	0.902	20	
Benzo[a]pyrene	0.802	0.0997	0.9970	0	80.4	50	125	1.68	20	
Benzo[b]fluoranthene	0.815	0.0997	0.9970	0	81.7	53	128	3.00	20	
Benzo[e]pyrene	0.839	0.0997	0.9970	0	84.1	43	140	1.47	20	
Benzo[g,h,i]perylene	0.745	0.0997	0.9970	0	74.8	49	127	2.22	20	
Benzo[j]fluoranthene	0.837	0.0997	0.9970	0	84.0	45	125	2.25	20	N
Benzo[k]fluoranthene	0.847	0.0997	0.9970	0	84.9	56	123	2.43	20	
Chrysene	0.769	0.0997	0.9970	0	77.1	57	118	1.18	20	
Dibenz[a,h]anthracene	0.733	0.0997	0.9970	0	73.5	50	129	2.04	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160807A

Sample ID **1607294-29AMSD**	Batch ID: **76552**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160807A**	Analysis Date: **8/8/2016 8:49:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.790	0.0997	0.9970	0	79.2	55	119	0.632	20	
Fluorene	0.779	0.0997	0.9970	0	78.1	47	114	2.07	20	
Indeno[1,2,3-cd]pyrene	0.764	0.0997	0.9970	0	76.6	49	130	1.21	20	
Phenanthrene	0.772	0.0997	0.9970	0	77.4	49	113	0.614	20	
Pyrene	0.797	0.0997	0.9970	0	79.9	55	117	0.009	20	
IS: Acenaphthene-d10	39.9		3.988		135	50	200	0	0	
IS: Chrysene-d12	39.9		3.988		116	50	200	0	0	
IS: Naphthalene-d8	39.9		3.988		106	50	200	0	0	
IS: Perylene-d12	39.9		3.988		119	50	200	0	0	
IS: Phenanthrene-d10	39.9		3.988		99.9	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.770		0.9970		77.2	46	115	0	0	
Surr: 4-Terphenyl-d14	0.859		0.9970		86.2	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160807A

Sample ID **ICV-160807**	Batch ID: **R87476**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160807A**	Analysis Date: **8/7/2016 1:28:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.95	0.0100	2.000	0	97.6	80	120			
Acenaphthylene	1.93	0.0100	2.000	0	96.4	80	120			
Anthracene	1.85	0.0100	2.000	0	92.3	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.3	80	120			
Benzo[a]pyrene	1.93	0.0100	2.000	0	96.5	80	120			
Benzo[b]fluoranthene	1.94	0.0100	2.000	0	97.0	80	120			
Benzo[e]pyrene	1.94	0.0100	2.000	0	96.9	80	120			
Benzo[g,h,i]perylene	2.20	0.0100	2.000	0	110	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	97.8	80	120			N
Benzo[k]fluoranthene	1.96	0.0100	2.000	0	98.0	80	120			
Chrysene	1.92	0.0100	2.000	0	96.2	80	120			
Dibenz[a,h]anthracene	2.20	0.0100	2.000	0	110	80	120			
Fluoranthene	1.82	0.0100	2.000	0	90.8	80	120			
Fluorene	1.92	0.0100	2.000	0	95.9	80	120			
Indeno[1,2,3-cd]pyrene	2.18	0.0100	2.000	0	109	80	120			
Phenanthrene	1.87	0.0100	2.000	0	93.6	80	120			
Pyrene	1.81	0.0100	2.000	0	90.6	80	120			
IS: Acenaphthene-d10	4.00		4.000		147	50	200			
IS: Chrysene-d12	4.00		4.000		119	50	200			
IS: Naphthalene-d8	4.00		4.000		113	50	200			
IS: Perylene-d12	4.00		4.000		127	50	200			
IS: Phenanthrene-d10	4.00		4.000		108	50	200			
Surr: 2-Fluorobiphenyl	1.77		2.000		88.7	65	120			
Surr: 4-Terphenyl-d14	1.87		2.000		93.4	65	120			

Sample ID **ICV2-160807**	Batch ID: **R87476**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160807A**	Analysis Date: **8/8/2016 12:47:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.92	0.0100	2.000	0	96.1	80	120			
Acenaphthylene	1.91	0.0100	2.000	0	95.5	80	120			
Anthracene	1.84	0.0100	2.000	0	92.0	80	120			
Benzo[a]anthracene	1.96	0.0100	2.000	0	97.8	80	120			
Benzo[a]pyrene	1.93	0.0100	2.000	0	96.7	80	120			
Benzo[b]fluoranthene	1.94	0.0100	2.000	0	96.8	80	120			
Benzo[e]pyrene	1.94	0.0100	2.000	0	97.2	80	120			
Benzo[g,h,i]perylene	2.20	0.0100	2.000	0	110	80	120			
Benzo[j]fluoranthene	1.98	0.0100	2.000	0	98.9	80	120			N
Benzo[k]fluoranthene	2.03	0.0100	2.000	0	102	80	120			
Chrysene	1.92	0.0100	2.000	0	96.0	80	120			
Dibenz[a,h]anthracene	2.18	0.0100	2.000	0	109	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160807A

Sample ID **ICV2-160807**	Batch ID: **R87476**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160807A**	Analysis Date: **8/8/2016 12:47:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.80	0.0100	2.000	0	89.9	80	120			
Fluorene	1.92	0.0100	2.000	0	96.2	80	120			
Indeno[1,2,3-cd]pyrene	2.15	0.0100	2.000	0	108	80	120			
Phenanthrene	1.86	0.0100	2.000	0	92.9	80	120			
Pyrene	1.79	0.0100	2.000	0	89.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		148	50	200			
IS: Chrysene-d12	4.00		4.000		122	50	200			
IS: Naphthalene-d8	4.00		4.000		114	50	200			
IS: Perylene-d12	4.00		4.000		130	50	200			
IS: Phenanthrene-d10	4.00		4.000		110	50	200			
Surr: 2-Fluorobiphenyl	1.76		2.000		88.0	65	120			
Surr: 4-Terphenyl-d14	1.84		2.000		92.0	65	120			

Sample ID **CCV1-160807**	Batch ID: **R87476**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160807A**	Analysis Date: **8/8/2016 9:29:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.968	0.0100	1.000	0	96.8	50	150			
Acenaphthylene	0.982	0.0100	1.000	0	98.2	50	150			
Anthracene	0.940	0.0100	1.000	0	94.0	50	150			
Benzo[a]anthracene	0.987	0.0100	1.000	0	98.7	50	150			
Benzo[a]pyrene	0.991	0.0100	1.000	0	99.1	50	150			
Benzo[b]fluoranthene	0.998	0.0100	1.000	0	99.8	50	150			
Benzo[e]pyrene	0.986	0.0100	1.000	0	98.6	50	150			
Benzo[g,h,i]perylene	0.926	0.0100	1.000	0	92.6	50	150			
Benzo[j]fluoranthene	0.999	0.0100	1.000	0	99.9	50	150			N
Benzo[k]fluoranthene	1.05	0.0100	1.000	0	105	50	150			
Chrysene	0.960	0.0100	1.000	0	96.0	50	150			
Dibenz[a,h]anthracene	0.956	0.0100	1.000	0	95.6	50	150			
Fluoranthene	0.925	0.0100	1.000	0	92.5	50	150			
Fluorene	0.982	0.0100	1.000	0	98.2	50	150			
Indeno[1,2,3-cd]pyrene	0.943	0.0100	1.000	0	94.3	50	150			
Phenanthrene	0.947	0.0100	1.000	0	94.7	50	150			
Pyrene	0.924	0.0100	1.000	0	92.4	50	150			
IS: Acenaphthene-d10	4.00		4.000		144	50	200			
IS: Chrysene-d12	4.00		4.000		123	50	200			
IS: Naphthalene-d8	4.00		4.000		110	50	200			
IS: Perylene-d12	4.00		4.000		129	50	200			
IS: Phenanthrene-d10	4.00		4.000		107	50	200			
Surr: 2-Fluorobiphenyl	0.898		1.000		89.8	50	150			
Surr: 4-Terphenyl-d14	0.952		1.000		95.2	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

The QC data in batch 76583 applies to the following samples: 1607294-66A, 1607294-67A, 1607294-68A, 1607294-69A, 1607294-70A, 1607294-71A, 1607294-72A, 1607294-73A, 1607294-74A, 1607294-75A

Sample ID **LCS-76583** Batch ID: **76583** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160808A** Analysis Date: **8/8/2016 11:30:00 AM** Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.804	0.0100	1.000	0	80.4	44	111			
Acenaphthylene	0.795	0.0100	1.000	0	79.5	39	116			
Anthracene	0.768	0.0100	1.000	0	76.8	50	114			
Benzo[a]anthracene	0.831	0.0100	1.000	0	83.1	54	122			
Benzo[a]pyrene	0.804	0.0100	1.000	0	80.4	50	125			
Benzo[b]fluoranthene	0.843	0.0100	1.000	0	84.3	53	128			
Benzo[e]pyrene	0.850	0.0100	1.000	0	85.0	43	140			
Benzo[g,h,i]perylene	0.810	0.0100	1.000	0	81.0	49	127			
Benzo[j]fluoranthene	0.860	0.0100	1.000	0	86.0	45	125			N
Benzo[k]fluoranthene	0.845	0.0100	1.000	0	84.5	56	123			
Chrysene	0.796	0.0100	1.000	0	79.6	57	118			
Dibenz[a,h]anthracene	0.847	0.0100	1.000	0	84.7	50	129			
Fluoranthene	0.818	0.0100	1.000	0	81.8	55	119			
Fluorene	0.813	0.0100	1.000	0	81.3	47	114			
Indeno[1,2,3-cd]pyrene	0.853	0.0100	1.000	0	85.3	49	130			
Phenanthrene	0.803	0.0100	1.000	0	80.3	49	113			
Pyrene	0.814	0.0100	1.000	0	81.4	55	117			
IS: Acenaphthene-d10	4.00		4.000		125	50	200			
IS: Chrysene-d12	4.00		4.000		110	50	200			
IS: Naphthalene-d8	4.00		4.000		110	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.4	50	200			
Surr: 2-Fluorobiphenyl	0.759		1.000		75.9	46	115			
Surr: 4-Terphenyl-d14	0.893		1.000		89.3	58	133			

Sample ID **MB-76583** Batch ID: **76583** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160808A** Analysis Date: **8/8/2016 12:10:00 PM** Prep Date: **8/1/2016**

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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **MB-76583**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 12:10:00 PM**	Prep Date: **8/1/2016**

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		132	50	200			
IS: Chrysene-d12	4.00		4.000		115	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		114	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	0.732		1.000		73.2	46	115			
Surr: 4-Terphenyl-d14	0.840		1.000		84.0	58	133			

Sample ID **SB-160808**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 11:41:00 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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **SB-160808**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 11:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.000110		0							
Surr: 4-Terphenyl-d14	0.0000100		0							

Sample ID **1607314-03AMS**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:05:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.722	0.0976	0.9756	0	74.0	44	111			
Acenaphthylene	0.688	0.0976	0.9756	0	70.5	39	116			
Anthracene	0.682	0.0976	0.9756	0	69.9	50	114			
Benzo[a]anthracene	0.766	0.0976	0.9756	0	78.5	54	122			
Benzo[a]pyrene	0.810	0.0976	0.9756	0.05298	77.6	50	125			
Benzo[b]fluoranthene	0.806	0.0976	0.9756	0.05070	77.4	53	128			
Benzo[e]pyrene	0.835	0.0976	0.9756	0	85.6	43	140			
Benzo[g,h,i]perylene	0.884	0.0976	0.9756	0	90.6	49	127			
Benzo[j]fluoranthene	0.798	0.0976	0.9756	0	81.8	45	125			N
Benzo[k]fluoranthene	0.799	0.0976	0.9756	0	81.9	56	123			
Chrysene	0.796	0.0976	0.9756	0	81.6	57	118			
Dibenz[a,h]anthracene	0.800	0.0976	0.9756	0	82.0	50	129			
Fluoranthene	0.808	0.0976	0.9756	0.06173	76.5	55	119			
Fluorene	0.720	0.0976	0.9756	0	73.8	47	114			
Indeno[1,2,3-cd]pyrene	0.856	0.0976	0.9756	0	87.8	49	130			
Phenanthrene	0.763	0.0976	0.9756	0	78.2	49	113			
Pyrene	0.821	0.0976	0.9756	0.05845	78.1	55	117			
IS: Acenaphthene-d10	39.0		3.902		134	50	200			
IS: Chrysene-d12	39.0		3.902		114	50	200			
IS: Naphthalene-d8	39.0		3.902		106	50	200			
IS: Perylene-d12	39.0		3.902		115	50	200			
IS: Phenanthrene-d10	39.0		3.902		97.8	50	200			
Surr: 2-Fluorobiphenyl	0.682		0.9756		69.9	46	115			
Surr: 4-Terphenyl-d14	0.747		0.9756		76.5	58	133			

Sample ID **1607314-03AMSD**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:45:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.736	0.0999	0.9990	0	73.7	44	111	1.95	20	
Acenaphthylene	0.699	0.0999	0.9990	0	70.0	39	116	1.63	20	
Anthracene	0.690	0.0999	0.9990	0	69.1	50	114	1.22	20	
Benzo[a]anthracene	0.778	0.0999	0.9990	0	77.9	54	122	1.63	20	
Benzo[a]pyrene	0.800	0.0999	0.9990	0.05298	74.7	50	125	1.30	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **1607314-03AMSD**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:45:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.829	0.0999	0.9990	0.05070	77.9	53	128	2.79	20	
Benzo[e]pyrene	0.833	0.0999	0.9990	0	83.4	43	140	0.223	20	
Benzo[g,h,i]perylene	0.892	0.0999	0.9990	0	89.3	49	127	0.835	20	
Benzo[j]fluoranthene	0.801	0.0999	0.9990	0	80.1	45	125	0.368	20	N
Benzo[k]fluoranthene	0.804	0.0999	0.9990	0	80.4	56	123	0.607	20	
Chrysene	0.793	0.0999	0.9990	0	79.4	57	118	0.352	20	
Dibenz[a,h]anthracene	0.808	0.0999	0.9990	0	80.9	50	129	1.06	20	
Fluoranthene	0.804	0.0999	0.9990	0.06173	74.3	55	119	0.498	20	
Fluorene	0.734	0.0999	0.9990	0	73.5	47	114	1.95	20	
Indeno[1,2,3-cd]pyrene	0.867	0.0999	0.9990	0	86.8	49	130	1.19	20	
Phenanthrene	0.754	0.0999	0.9990	0	75.5	49	113	1.20	20	
Pyrene	0.804	0.0999	0.9990	0.05845	74.6	55	117	2.05	20	
IS: Acenaphthene-d10	40.0		3.996		135	50	200	0	0	
IS: Chrysene-d12	40.0		3.996		114	50	200	0	0	
IS: Naphthalene-d8	40.0		3.996		106	50	200	0	0	
IS: Perylene-d12	40.0		3.996		116	50	200	0	0	
IS: Phenanthrene-d10	40.0		3.996		97.2	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.721		0.9990		72.1	46	115	0	0	
Surr: 4-Terphenyl-d14	0.775		0.9990		77.6	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **ICV-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:50:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.89	0.0100	2.000	0	94.5	80	120			
Acenaphthylene	1.89	0.0100	2.000	0	94.7	80	120			
Anthracene	1.81	0.0100	2.000	0	90.6	80	120			
Benzo[a]anthracene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[b]fluoranthene	1.92	0.0100	2.000	0	96.0	80	120			
Benzo[e]pyrene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[g,h,i]perylene	1.83	0.0100	2.000	0	91.6	80	120			
Benzo[j]fluoranthene	1.93	0.0100	2.000	0	96.3	80	120			N
Benzo[k]fluoranthene	1.96	0.0100	2.000	0	97.9	80	120			
Chrysene	1.86	0.0100	2.000	0	92.9	80	120			
Dibenz[a,h]anthracene	1.93	0.0100	2.000	0	96.5	80	120			
Fluoranthene	1.78	0.0100	2.000	0	88.9	80	120			
Fluorene	1.90	0.0100	2.000	0	95.2	80	120			
Indeno[1,2,3-cd]pyrene	1.91	0.0100	2.000	0	95.3	80	120			
Phenanthrene	1.82	0.0100	2.000	0	91.2	80	120			
Pyrene	1.79	0.0100	2.000	0	89.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		145	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		109	50	200			
IS: Perylene-d12	4.00		4.000		132	50	200			
IS: Phenanthrene-d10	4.00		4.000		107	50	200			
Surr: 2-Fluorobiphenyl	1.77		2.000		88.4	65	120			
Surr: 4-Terphenyl-d14	1.92		2.000		95.9	65	120			

Sample ID **ICV2-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.89	0.0100	2.000	0	94.7	80	120			
Acenaphthylene	1.86	0.0100	2.000	0	93.2	80	120			
Anthracene	1.79	0.0100	2.000	0	89.4	80	120			
Benzo[a]anthracene	1.89	0.0100	2.000	0	94.6	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	95.0	80	120			
Benzo[b]fluoranthene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[e]pyrene	1.92	0.0100	2.000	0	95.9	80	120			
Benzo[g,h,i]perylene	2.03	0.0100	2.000	0	102	80	120			
Benzo[j]fluoranthene	1.95	0.0100	2.000	0	97.6	80	120			N
Benzo[k]fluoranthene	1.95	0.0100	2.000	0	97.3	80	120			
Chrysene	1.86	0.0100	2.000	0	92.8	80	120			
Dibenz[a,h]anthracene	2.06	0.0100	2.000	0	103	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **ICV2-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.75	0.0100	2.000	0	87.7	80	120			
Fluorene	1.89	0.0100	2.000	0	94.6	80	120			
Indeno[1,2,3-cd]pyrene	2.03	0.0100	2.000	0	101	80	120			
Phenanthrene	1.81	0.0100	2.000	0	90.5	80	120			
Pyrene	1.77	0.0100	2.000	0	88.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		145	50	200			
IS: Chrysene-d12	4.00		4.000		126	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		130	50	200			
IS: Phenanthrene-d10	4.00		4.000		108	50	200			
Surr: 2-Fluorobiphenyl	1.77		2.000		88.7	65	120			
Surr: 4-Terphenyl-d14	1.90		2.000		95.1	65	120			

Sample ID **CCV1-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 6:25:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.966	0.0100	1.000	0	96.6	50	150			
Acenaphthylene	0.962	0.0100	1.000	0	96.2	50	150			
Anthracene	0.920	0.0100	1.000	0	92.0	50	150			
Benzo[a]anthracene	0.976	0.0100	1.000	0	97.6	50	150			
Benzo[a]pyrene	0.982	0.0100	1.000	0	98.2	50	150			
Benzo[b]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Benzo[e]pyrene	0.985	0.0100	1.000	0	98.5	50	150			
Benzo[g,h,i]perylene	1.05	0.0100	1.000	0	105	50	150			
Benzo[j]fluoranthene	0.997	0.0100	1.000	0	99.7	50	150			N
Benzo[k]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Chrysene	0.960	0.0100	1.000	0	96.0	50	150			
Dibenz[a,h]anthracene	1.06	0.0100	1.000	0	106	50	150			
Fluoranthene	0.912	0.0100	1.000	0	91.2	50	150			
Fluorene	0.961	0.0100	1.000	0	96.1	50	150			
Indeno[1,2,3-cd]pyrene	1.05	0.0100	1.000	0	105	50	150			
Phenanthrene	0.943	0.0100	1.000	0	94.3	50	150			
Pyrene	0.913	0.0100	1.000	0	91.3	50	150			
IS: Acenaphthene-d10	4.00		4.000		143	50	200			
IS: Chrysene-d12	4.00		4.000		121	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		124	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	0.902		1.000		90.2	50	150			
Surr: 4-Terphenyl-d14	0.938		1.000		93.8	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160810A

The QC data in batch 76545 applies to the following samples: 1607294-01A, 1607294-02A, 1607294-03A, 1607294-04A, 1607294-05A, 1607294-06A, 1607294-07A, 1607294-08A, 1607294-09A, 1607294-10A, 1607294-11A, 1607294-12A, 1607294-14A, 1607294-15A, 1607294-16A, 1607294-17A, 1607294-18A, 1607294-19A, 1607294-20A, 1607294-21A

Sample ID **LCS-76545** Batch ID: **76545** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160810A** Analysis Date: **8/10/2016 7:44:00 AM** Prep Date: **7/28/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.762	0.0100	1.000	0	76.2	44	111			
Acenaphthylene	0.739	0.0100	1.000	0	73.9	39	116			
Anthracene	0.726	0.0100	1.000	0	72.6	50	114			
Benzo[a]anthracene	0.798	0.0100	1.000	0	79.8	54	122			
Benzo[a]pyrene	0.751	0.0100	1.000	0	75.1	50	125			
Benzo[b]fluoranthene	0.805	0.0100	1.000	0	80.5	53	128			
Benzo[e]pyrene	0.821	0.0100	1.000	0	82.1	43	140			
Benzo[g,h,i]perylene	0.889	0.0100	1.000	0	88.9	49	127			
Benzo[j]fluoranthene	0.829	0.0100	1.000	0	82.9	45	125			N
Benzo[k]fluoranthene	0.819	0.0100	1.000	0	81.9	56	123			
Chrysene	0.779	0.0100	1.000	0	77.9	57	118			
Dibenz[a,h]anthracene	0.875	0.0100	1.000	0	87.5	50	129			
Fluoranthene	0.767	0.0100	1.000	0	76.7	55	119			
Fluorene	0.775	0.0100	1.000	0	77.5	47	114			
Indeno[1,2,3-cd]pyrene	0.887	0.0100	1.000	0	88.7	49	130			
Phenanthrene	0.774	0.0100	1.000	0	77.4	49	113			
Pyrene	0.760	0.0100	1.000	0	76.0	55	117			
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		108	50	200			
IS: Perylene-d12	4.00		4.000		106	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.1	50	200			
Surr: 2-Fluorobiphenyl	0.782		1.000		78.2	46	115			
Surr: 4-Terphenyl-d14	0.886		1.000		88.6	58	133			

Sample ID **MB-76545** Batch ID: **76545** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160810A** Analysis Date: **8/10/2016 8:24:00 AM** Prep Date: **7/28/2016**

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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160810A

Sample ID **MB-76545**	Batch ID: **76545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160810A**	Analysis Date: **8/10/2016 8:24:00 AM**	Prep Date: **7/28/2016**

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		124	50	200			
IS: Chrysene-d12	4.00		4.000		103	50	200			
IS: Naphthalene-d8	4.00		4.000		104	50	200			
IS: Perylene-d12	4.00		4.000		104	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.4	50	200			
Surr: 2-Fluorobiphenyl	0.783		1.000		78.3	46	115			
Surr: 4-Terphenyl-d14	0.890		1.000		89.0	58	133			

Sample ID **SB-160810**	Batch ID: **76545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160810A**	Analysis Date: **8/10/2016 7:10:00 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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160810A

Sample ID **SB-160810**	Batch ID: **76545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160810A**	Analysis Date: **8/10/2016 7:10:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.0000900		0							
Surr: 4-Terphenyl-d14	0.0000100		0							

Sample ID **1607294-09AMS**	Batch ID: **76545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160810A**	Analysis Date: **8/11/2016 1:09:00 AM**	Prep Date: **7/28/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.694	0.0982	0.9823	0	70.6	44	111			
Acenaphthylene	0.652	0.0982	0.9823	0	66.4	39	116			
Anthracene	0.684	0.0982	0.9823	0	69.6	50	114			
Benzo[a]anthracene	0.780	0.0982	0.9823	0.1111	68.1	54	122			
Benzo[a]pyrene	0.819	0.0982	0.9823	0.1442	68.7	50	125			
Benzo[b]fluoranthene	0.828	0.0982	0.9823	0.1343	70.6	53	128			
Benzo[e]pyrene	0.841	0.0982	0.9823	0.1105	74.4	43	140			
Benzo[g,h,i]perylene	0.894	0.0982	0.9823	0.1227	78.5	49	127			
Benzo[j]fluoranthene	0.800	0.0982	0.9823	0.07016	74.3	45	125			N
Benzo[k]fluoranthene	0.811	0.0982	0.9823	0.07190	75.3	56	123			
Chrysene	0.809	0.0982	0.9823	0.1398	68.1	57	118			
Dibenz[a,h]anthracene	0.788	0.0982	0.9823	0	80.2	50	129			
Fluoranthene	0.887	0.0982	0.9823	0.2090	69.0	55	119			
Fluorene	0.685	0.0982	0.9823	0	69.7	47	114			
Indeno[1,2,3-cd]pyrene	0.865	0.0982	0.9823	0.09923	78.0	49	130			
Phenanthrene	0.794	0.0982	0.9823	0.09673	71.0	49	113			
Pyrene	0.873	0.0982	0.9823	0.1891	69.6	55	117			
IS: Acenaphthene-d10	39.3		3.929		135	50	200			
IS: Chrysene-d12	39.3		3.929		115	50	200			
IS: Naphthalene-d8	39.3		3.929		111	50	200			
IS: Perylene-d12	39.3		3.929		115	50	200			
IS: Phenanthrene-d10	39.3		3.929		96.8	50	200			
Surr: 2-Fluorobiphenyl	0.734		0.9823		74.7	46	115			
Surr: 4-Terphenyl-d14	0.825		0.9823		83.9	58	133			

Sample ID **1607294-09AMSD**	Batch ID: **76545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160810A**	Analysis Date: **8/11/2016 1:49:00 AM**	Prep Date: **7/28/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.714	0.0930	0.9302	0	76.7	44	111	2.81	20	
Acenaphthylene	0.653	0.0930	0.9302	0	70.2	39	116	0.161	20	
Anthracene	0.681	0.0930	0.9302	0	73.2	50	114	0.378	20	
Benzo[a]anthracene	0.794	0.0930	0.9302	0.1111	73.4	54	122	1.69	20	
Benzo[a]pyrene	0.829	0.0930	0.9302	0.1442	73.6	50	125	1.26	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160810A

Sample ID **1607294-09AMSD**	Batch ID: **76545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160810A**	Analysis Date: **8/11/2016 1:49:00 AM**	Prep Date: **7/28/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.848	0.0930	0.9302	0.1343	76.7	53	128	2.41	20	
Benzo[e]pyrene	0.850	0.0930	0.9302	0.1105	79.5	43	140	1.03	20	
Benzo[g,h,i]perylene	0.892	0.0930	0.9302	0.1227	82.7	49	127	0.212	20	
Benzo[j]fluoranthene	0.808	0.0930	0.9302	0.07016	79.3	45	125	0.937	20	N
Benzo[k]fluoranthene	0.794	0.0930	0.9302	0.07190	77.7	56	123	2.13	20	
Chrysene	0.806	0.0930	0.9302	0.1398	71.6	57	118	0.369	20	
Dibenz[a,h]anthracene	0.777	0.0930	0.9302	0	83.5	50	129	1.43	20	
Fluoranthene	0.875	0.0930	0.9302	0.2090	71.6	55	119	1.35	20	
Fluorene	0.695	0.0930	0.9302	0	74.7	47	114	1.46	20	
Indeno[1,2,3-cd]pyrene	0.864	0.0930	0.9302	0.09923	82.2	49	130	0.132	20	
Phenanthrene	0.782	0.0930	0.9302	0.09673	73.7	49	113	1.47	20	
Pyrene	0.857	0.0930	0.9302	0.1891	71.8	55	117	1.79	20	
IS: Acenaphthene-d10	37.2		3.721		132	50	200	0	0	
IS: Chrysene-d12	37.2		3.721		110	50	200	0	0	
IS: Naphthalene-d8	37.2		3.721		108	50	200	0	0	
IS: Perylene-d12	37.2		3.721		112	50	200	0	0	
IS: Phenanthrene-d10	37.2		3.721		96.4	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.713		0.9302		76.7	46	115	0	0	
Surr: 4-Terphenyl-d14	0.748		0.9302		80.5	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160810A

Sample ID **ICV-160810**	Batch ID: **R87544**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160810A**	Analysis Date: **8/10/2016 7:05:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.87	0.0100	2.000	0	93.6	80	120			
Acenaphthylene	1.86	0.0100	2.000	0	93.0	80	120			
Anthracene	1.78	0.0100	2.000	0	89.2	80	120			
Benzo[a]anthracene	1.89	0.0100	2.000	0	94.7	80	120			
Benzo[a]pyrene	1.91	0.0100	2.000	0	95.4	80	120			
Benzo[b]fluoranthene	1.93	0.0100	2.000	0	96.4	80	120			
Benzo[e]pyrene	1.92	0.0100	2.000	0	95.8	80	120			
Benzo[g,h,i]perylene	2.05	0.0100	2.000	0	103	80	120			
Benzo[j]fluoranthene	1.94	0.0100	2.000	0	96.8	80	120			N
Benzo[k]fluoranthene	1.95	0.0100	2.000	0	97.5	80	120			
Chrysene	1.87	0.0100	2.000	0	93.4	80	120			
Dibenz[a,h]anthracene	2.07	0.0100	2.000	0	104	80	120			
Fluoranthene	1.77	0.0100	2.000	0	88.5	80	120			
Fluorene	1.86	0.0100	2.000	0	93.2	80	120			
Indeno[1,2,3-cd]pyrene	2.04	0.0100	2.000	0	102	80	120			
Phenanthrene	1.81	0.0100	2.000	0	90.7	80	120			
Pyrene	1.77	0.0100	2.000	0	88.7	80	120			
IS: Acenaphthene-d10	4.00		4.000		148	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		118	50	200			
IS: Perylene-d12	4.00		4.000		131	50	200			
IS: Phenanthrene-d10	4.00		4.000		108	50	200			
Surr: 2-Fluorobiphenyl	1.80		2.000		90.0	65	120			
Surr: 4-Terphenyl-d14	1.89		2.000		94.5	65	120			

Sample ID **ICV2-160810**	Batch ID: **R87544**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160810A**	Analysis Date: **8/10/2016 5:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.88	0.0100	2.000	0	94.2	80	120			
Acenaphthylene	1.87	0.0100	2.000	0	93.3	80	120			
Anthracene	1.77	0.0100	2.000	0	88.5	80	120			
Benzo[a]anthracene	1.89	0.0100	2.000	0	94.7	80	120			
Benzo[a]pyrene	1.89	0.0100	2.000	0	94.6	80	120			
Benzo[b]fluoranthene	1.90	0.0100	2.000	0	95.1	80	120			
Benzo[e]pyrene	1.91	0.0100	2.000	0	95.6	80	120			
Benzo[g,h,i]perylene	2.00	0.0100	2.000	0	100	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	97.8	80	120			N
Benzo[k]fluoranthene	1.92	0.0100	2.000	0	95.9	80	120			
Chrysene	1.85	0.0100	2.000	0	92.7	80	120			
Dibenz[a,h]anthracene	2.03	0.0100	2.000	0	101	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160810A

Sample ID **ICV2-160810**	Batch ID: **R87544**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160810A**	Analysis Date: **8/10/2016 5:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.76	0.0100	2.000	0	88.1	80	120			
Fluorene	1.86	0.0100	2.000	0	93.1	80	120			
Indeno[1,2,3-cd]pyrene	1.99	0.0100	2.000	0	99.6	80	120			
Phenanthrene	1.82	0.0100	2.000	0	91.1	80	120			
Pyrene	1.78	0.0100	2.000	0	88.8	80	120			
IS: Acenaphthene-d10	4.00		4.000		153	50	200			
IS: Chrysene-d12	4.00		4.000		129	50	200			
IS: Naphthalene-d8	4.00		4.000		119	50	200			
IS: Perylene-d12	4.00		4.000		135	50	200			
IS: Phenanthrene-d10	4.00		4.000		111	50	200			
Surr: 2-Fluorobiphenyl	1.80		2.000		89.9	65	120			
Surr: 4-Terphenyl-d14	1.89		2.000		94.4	65	120			

Sample ID **CCV1-160810**	Batch ID: **R87544**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160810A**	Analysis Date: **8/11/2016 2:29:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.956	0.0100	1.000	0	95.6	50	150			
Acenaphthylene	0.953	0.0100	1.000	0	95.3	50	150			
Anthracene	0.913	0.0100	1.000	0	91.3	50	150			
Benzo[a]anthracene	0.974	0.0100	1.000	0	97.4	50	150			
Benzo[a]pyrene	0.994	0.0100	1.000	0	99.4	50	150			
Benzo[b]fluoranthene	0.995	0.0100	1.000	0	99.5	50	150			
Benzo[e]pyrene	0.998	0.0100	1.000	0	99.8	50	150			
Benzo[g,h,i]perylene	1.08	0.0100	1.000	0	108	50	150			
Benzo[j]fluoranthene	1.01	0.0100	1.000	0	101	50	150			N
Benzo[k]fluoranthene	1.04	0.0100	1.000	0	104	50	150			
Chrysene	0.962	0.0100	1.000	0	96.2	50	150			
Dibenz[a,h]anthracene	1.08	0.0100	1.000	0	108	50	150			
Fluoranthene	0.925	0.0100	1.000	0	92.5	50	150			
Fluorene	0.942	0.0100	1.000	0	94.2	50	150			
Indeno[1,2,3-cd]pyrene	1.07	0.0100	1.000	0	107	50	150			
Phenanthrene	0.941	0.0100	1.000	0	94.1	50	150			
Pyrene	0.924	0.0100	1.000	0	92.4	50	150			
IS: Acenaphthene-d10	4.00		4.000		145	50	200			
IS: Chrysene-d12	4.00		4.000		120	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		123	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	0.905		1.000		90.5	50	150			
Surr: 4-Terphenyl-d14	0.937		1.000		93.7	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518A

Sample ID **DCS-75209**	Batch ID: **75209**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS8_160518A**	Analysis Date: **5/18/2016 10:22:00 AM**	Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000307	0.0000500	0.0000400	0	76.8	20	170	0	0	
Acenaphthylene	0.0000308	0.0000500	0.0000400	0	77.0	20	170	0	0	
Anthracene	0.0000322	0.0000500	0.0000400	0	80.5	20	170	0	0	
Benzo[a]anthracene	0.0000306	0.0000500	0.0000400	0	76.4	20	170	0	0	
Benzo[a]pyrene	0.0000288	0.0000500	0.0000400	0	72.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000304	0.0000500	0.0000400	0	76.0	20	170	0	0	
Benzo[e]pyrene	0.0000308	0.0000500	0.0000400	0	76.9	20	170	0	0	
Benzo[g,h,i]perylene	0.0000282	0.0000500	0.0000400	0	70.4	20	170	0	0	
Benzo[j]fluoranthene	0.0000254	0.0000500	0.0000400	0	63.6	20	170	0	0	N
Benzo[k]fluoranthene	0.0000283	0.0000500	0.0000400	0	70.8	20	170	0	0	
Chrysene	0.0000293	0.0000500	0.0000400	0	73.4	20	170	0	0	
Dibenz[a,h]anthracene	0.0000221	0.0000500	0.0000400	0	55.2	20	170	0	0	
Fluoranthene	0.0000331	0.0000500	0.0000400	0	82.7	20	170	0	0	
Fluorene	0.0000302	0.0000500	0.0000400	0	75.4	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000275	0.0000500	0.0000400	0	68.8	20	170	0	0	
Phenanthrene	0.0000339	0.0000500	0.0000400	0	84.6	20	170	0	0	
Pyrene	0.0000328	0.0000500	0.0000400	0	81.9	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

The QC data in batch 76564 applies to the following samples: 1607294-13B, 1607294-24B, 1607294-37B, 1607294-50B, 1607294-63B, 1607294-76B

Sample ID **LCS-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 9:49:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00233	0.0000500	0.00400	0	58.2	48	114			
Acenaphthylene	0.00240	0.0000500	0.00400	0	59.9	35	121			
Anthracene	0.00241	0.0000500	0.00400	0	60.2	53	119			
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.9	59	120			
Benzo[a]pyrene	0.00278	0.0000500	0.00400	0	69.4	53	120			
Benzo[b]fluoranthene	0.00274	0.0000500	0.00400	0	68.4	53	126			
Benzo[e]pyrene	0.00273	0.0000500	0.00400	0	68.3	40	140			
Benzo[g,h,i]perylene	0.00273	0.0000500	0.00400	0	68.3	44	128			
Benzo[j]fluoranthene	0.00287	0.0000500	0.00400	0	71.7	45	124			N
Benzo[k]fluoranthene	0.00295	0.0000500	0.00400	0	73.8	54	125			
Chrysene	0.00264	0.0000500	0.00400	0	66.0	57	120			
Dibenz[a,h]anthracene	0.00280	0.0000500	0.00400	0	70.0	44	131			
Fluoranthene	0.00241	0.0000500	0.00400	0	60.4	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.1	50	118			
Indeno[1,2,3-cd]pyrene	0.00284	0.0000500	0.00400	0	70.9	48	130			
Phenanthrene	0.00245	0.0000500	0.00400	0	61.3	53	115			
Pyrene	0.00237	0.0000500	0.00400	0	59.3	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		98.9	50	200			
IS: Chrysene-d12	0.00800		0.00800		92.2	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.0	50	200			
IS: Perylene-d12	0.00800		0.00800		92.4	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.26		8.000		65.7	53	106			
Surr: 4-Terphenyl-d14	5.06		8.000		63.2	58	132			

Sample ID **MB-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 11:08:00 AM** Prep Date: **7/29/2016**

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

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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **MB-76564**	Batch ID: **76564**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 11:08:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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		103	50	200			
IS: Chrysene-d12	0.00800		0.00800		91.9	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.6	50	200			
IS: Perylene-d12	0.00800		0.00800		92.8	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.72		8.000		71.6	53	106			
Surr: 4-Terphenyl-d14	5.05		8.000		63.1	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 9:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0000500	2.00	0	98.9	80	120			
Acenaphthylene	2.01	0.0000500	2.00	0	100	80	120			
Anthracene	1.91	0.0000500	2.00	0	95.5	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	103	80	120			
Benzo[a]pyrene	2.08	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.03	0.0000500	2.00	0	102	80	120			
Benzo[j]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			N
Benzo[k]fluoranthene	2.16	0.0000500	2.00	0	108	80	120			
Chrysene	2.03	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.14	0.0000500	2.00	0	107	80	120			
Fluoranthene	1.94	0.0000500	2.00	0	97.0	80	120			
Fluorene	2.02	0.0000500	2.00	0	101	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0000500	2.00	0	106	80	120			
Phenanthrene	1.90	0.0000500	2.00	0	95.0	80	120			
Pyrene	1.90	0.0000500	2.00	0	94.8	80	120			
IS: Acenaphthene-d10	4.00		4.00		100	50	200			
IS: Chrysene-d12	4.00		4.00		97.2	50	200			
IS: Naphthalene-d8	4.00		4.00		99.5	50	200			
IS: Perylene-d12	4.00		4.00		97.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		102	50	200			
Surr: 2-Fluorobiphenyl	1930		2000		96.7	65	120			
Surr: 4-Terphenyl-d14	1910		2000		95.5	65	120			

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0000500	2.00	0	98.1	80	120			
Acenaphthylene	1.99	0.0000500	2.00	0	99.7	80	120			
Anthracene	1.87	0.0000500	2.00	0	93.3	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[a]pyrene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.12	0.0000500	2.00	0	106	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[j]fluoranthene	2.15	0.0000500	2.00	0	107	80	120			N
Benzo[k]fluoranthene	2.22	0.0000500	2.00	0	111	80	120			
Chrysene	2.01	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.19	0.0000500	2.00	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	85.9	80	120			
Fluorene	2.20	0.0000500	2.00	0	110	80	120			
Indeno[1,2,3-cd]pyrene	2.17	0.0000500	2.00	0	109	80	120			
Phenanthrene	1.99	0.0000500	2.00	0	99.7	80	120			
Pyrene	1.67	0.0000500	2.00	0	83.5	80	120			
IS: Acenaphthene-d10	4.00		4.00		115	50	200			
IS: Chrysene-d12	4.00		4.00		97.7	50	200			
IS: Naphthalene-d8	4.00		4.00		98.7	50	200			
IS: Perylene-d12	4.00		4.00		97.0	50	200			
IS: Phenanthrene-d10	4.00		4.00		122	50	200			
Surr: 2-Fluorobiphenyl	2030		2000		102	65	120			
Surr: 4-Terphenyl-d14	1660		2000		82.8	65	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: 1607294
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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160808A

The QC data in batch 76553 applies to the following samples: 1607294-44A, 1607294-45A, 1607294-46A, 1607294-47A, 1607294-48A, 1607294-49A, 1607294-51A, 1607294-52A, 1607294-53A, 1607294-54A, 1607294-55A, 1607294-56A, 1607294-57A, 1607294-58A, 1607294-59A, 1607294-60A, 1607294-61A, 1607294-62A, 1607294-64A, 1607294-65A

Sample ID **LCS-76553** Batch ID: **76553** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160808A** Analysis Date: **8/8/2016 9:21:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.758	0.0100	1.000	0	75.8	44	111			
Acenaphthylene	0.798	0.0100	1.000	0	79.8	39	116			
Anthracene	0.737	0.0100	1.000	0	73.7	50	114			
Benzo[a]anthracene	0.785	0.0100	1.000	0	78.5	54	122			
Benzo[a]pyrene	0.784	0.0100	1.000	0	78.4	50	125			
Benzo[b]fluoranthene	0.821	0.0100	1.000	0	82.1	53	128			
Benzo[e]pyrene	0.806	0.0100	1.000	0	80.6	43	140			
Benzo[g,h,i]perylene	0.834	0.0100	1.000	0	83.4	49	127			
Benzo[j]fluoranthene	0.822	0.0100	1.000	0	82.2	45	125			N
Benzo[k]fluoranthene	0.841	0.0100	1.000	0	84.1	56	123			
Chrysene	0.787	0.0100	1.000	0	78.7	57	118			
Dibenz[a,h]anthracene	0.850	0.0100	1.000	0	85.0	50	129			
Fluoranthene	0.867	0.0100	1.000	0	86.7	55	119			
Fluorene	0.622	0.0100	1.000	0	62.2	47	114			
Indeno[1,2,3-cd]pyrene	0.855	0.0100	1.000	0	85.5	49	130			
Phenanthrene	0.803	0.0100	1.000	0	80.3	49	113			
Pyrene	0.890	0.0100	1.000	0	89.0	55	117			
IS: Acenaphthene-d10	4.00		4.000		91.5	50	200			
IS: Chrysene-d12	4.00		4.000		83.8	50	200			
IS: Naphthalene-d8	4.00		4.000		126	50	200			
IS: Perylene-d12	4.00		4.000		90.1	50	200			
IS: Phenanthrene-d10	4.00		4.000		69.1	50	200			
Surr: 2-Fluorobiphenyl	0.585		1.000		58.5	46	115			
Surr: 4-Terphenyl-d14	0.978		1.000		97.8	58	133			

Sample ID **MB-76553** Batch ID: **76553** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160808A** Analysis Date: **8/8/2016 10:01:00 AM** Prep Date: **7/29/2016**

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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160808A

Sample ID **MB-76553**	Batch ID: **76553**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160808A**	Analysis Date: **8/8/2016 10:01:00 AM**	Prep Date: **7/29/2016**

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		98.1	50	200			
IS: Chrysene-d12	4.00		4.000		89.7	50	200			
IS: Naphthalene-d8	4.00		4.000		133	50	200			
IS: Perylene-d12	4.00		4.000		96.1	50	200			
IS: Phenanthrene-d10	4.00		4.000		70.3	50	200			
Surr: 2-Fluorobiphenyl	0.562		1.000		56.2	46	115			
Surr: 4-Terphenyl-d14	0.984		1.000		98.4	58	133			

Sample ID **SB-160808**	Batch ID: **76553**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160808A**	Analysis Date: **8/8/2016 9:17:00 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	0.00750	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160808A

Sample ID **1607294-52AMS**	Batch ID: **76553**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160808A**	Analysis Date: **8/9/2016 2:34:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.761	0.0988	0.9881	0	77.0	44	111			
Acenaphthylene	0.777	0.0988	0.9881	0	78.7	39	116			
Anthracene	0.707	0.0988	0.9881	0	71.6	50	114			
Benzo[a]anthracene	0.765	0.0988	0.9881	0	77.4	54	122			
Benzo[a]pyrene	0.772	0.0988	0.9881	0	78.1	50	125			
Benzo[b]fluoranthene	0.770	0.0988	0.9881	0	77.9	53	128			
Benzo[e]pyrene	0.781	0.0988	0.9881	0	79.1	43	140			
Benzo[g,h,i]perylene	0.801	0.0988	0.9881	0	81.1	49	127			
Benzo[j]fluoranthene	0.808	0.0988	0.9881	0	81.7	45	125			N
Benzo[k]fluoranthene	0.811	0.0988	0.9881	0	82.1	56	123			
Chrysene	0.751	0.0988	0.9881	0	76.0	57	118			
Dibenz[a,h]anthracene	0.811	0.0988	0.9881	0	82.1	50	129			
Fluoranthene	0.770	0.0988	0.9881	0	77.9	55	119			
Fluorene	0.645	0.0988	0.9881	0	65.3	47	114			
Indeno[1,2,3-cd]pyrene	0.823	0.0988	0.9881	0	83.3	49	130			
Phenanthrene	0.801	0.0988	0.9881	0	81.0	49	113			
Pyrene	0.770	0.0988	0.9881	0	77.9	55	117			
IS: Acenaphthene-d10	39.5		3.953		136	50	200			
IS: Chrysene-d12	39.5		3.953		99.4	50	200			
IS: Naphthalene-d8	39.5		3.953		120	50	200			
IS: Perylene-d12	39.5		3.953		110	50	200			
IS: Phenanthrene-d10	39.5		3.953		92.6	50	200			
Surr: 2-Fluorobiphenyl	0.796		0.9881		80.5	46	115			
Surr: 4-Terphenyl-d14	0.812		0.9881		82.2	58	133			

Sample ID **1607294-52AMSD**	Batch ID: **76553**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160808A**	Analysis Date: **8/9/2016 3:14:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.788	0.0998	0.9980	0	79.0	44	111	3.56	20	
Acenaphthylene	0.824	0.0998	0.9980	0	82.6	39	116	5.83	20	
Anthracene	0.774	0.0998	0.9980	0	77.5	50	114	8.93	20	
Benzo[a]anthracene	0.795	0.0998	0.9980	0	79.7	54	122	3.96	20	
Benzo[a]pyrene	0.802	0.0998	0.9980	0	80.4	50	125	3.90	20	
Benzo[b]fluoranthene	0.800	0.0998	0.9980	0	80.2	53	128	3.85	20	
Benzo[e]pyrene	0.810	0.0998	0.9980	0	81.2	43	140	3.64	20	
Benzo[g,h,i]perylene	0.825	0.0998	0.9980	0	82.7	49	127	3.02	20	
Benzo[j]fluoranthene	0.832	0.0998	0.9980	0	83.4	45	125	3.02	20	N
Benzo[k]fluoranthene	0.835	0.0998	0.9980	0	83.7	56	123	2.94	20	
Chrysene	0.792	0.0998	0.9980	0	79.3	57	118	5.29	20	
Dibenz[a,h]anthracene	0.837	0.0998	0.9980	0	83.8	50	129	3.05	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160808A

Sample ID **1607294-52AMSD**	Batch ID: **76553**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160808A**	Analysis Date: **8/9/2016 3:14:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.786	0.0998	0.9980	0	78.7	55	119	2.08	20	
Fluorene	0.685	0.0998	0.9980	0	68.7	47	114	6.05	20	
Indeno[1,2,3-cd]pyrene	0.846	0.0998	0.9980	0	84.8	49	130	2.72	20	
Phenanthrene	0.799	0.0998	0.9980	0	80.1	49	113	0.211	20	
Pyrene	0.791	0.0998	0.9980	0	79.2	55	117	2.69	20	
IS: Acenaphthene-d10	39.9		3.992		140	50	200	0	0	
IS: Chrysene-d12	39.9		3.992		98.4	50	200	0	0	
IS: Naphthalene-d8	39.9		3.992		119	50	200	0	0	
IS: Perylene-d12	39.9		3.992		108	50	200	0	0	
IS: Phenanthrene-d10	39.9		3.992		96.3	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.844		0.9980		84.6	46	115	0	0	
Surr: 4-Terphenyl-d14	0.799		0.9980		80.0	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160808A

Sample ID **ICV-160808**	Batch ID: **R87491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160808A**	Analysis Date: **8/8/2016 8:42:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	98.2	80	120			
Acenaphthylene	2.02	0.0100	2.000	0	101	80	120			
Anthracene	1.95	0.0100	2.000	0	97.4	80	120			
Benzo[a]anthracene	2.00	0.0100	2.000	0	100	80	120			
Benzo[a]pyrene	2.05	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Benzo[e]pyrene	1.97	0.0100	2.000	0	98.5	80	120			
Benzo[g,h,i]perylene	2.01	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	2.12	0.0100	2.000	0	106	80	120			N
Benzo[k]fluoranthene	2.22	0.0100	2.000	0	111	80	120			
Chrysene	1.99	0.0100	2.000	0	99.6	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			
Fluoranthene	1.97	0.0100	2.000	0	98.7	80	120			
Fluorene	1.96	0.0100	2.000	0	98.1	80	120			
Indeno[1,2,3-cd]pyrene	2.09	0.0100	2.000	0	104	80	120			
Phenanthrene	2.05	0.0100	2.000	0	102	80	120			
Pyrene	1.97	0.0100	2.000	0	98.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		108	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		104	50	200			
IS: Phenanthrene-d10	4.00		4.000		99.6	50	200			
Surr: 2-Fluorobiphenyl	1.78		2.000		89.0	65	120			
Surr: 4-Terphenyl-d14	1.99		2.000		99.4	65	120			

Sample ID **ICV2-160808**	Batch ID: **R87491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160808A**	Analysis Date: **8/8/2016 7:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.97	0.0100	2.000	0	98.5	80	120			
Acenaphthylene	2.01	0.0100	2.000	0	101	80	120			
Anthracene	1.95	0.0100	2.000	0	97.5	80	120			
Benzo[a]anthracene	1.99	0.0100	2.000	0	99.5	80	120			
Benzo[a]pyrene	2.03	0.0100	2.000	0	102	80	120			
Benzo[b]fluoranthene	2.08	0.0100	2.000	0	104	80	120			
Benzo[e]pyrene	1.98	0.0100	2.000	0	99.1	80	120			
Benzo[g,h,i]perylene	1.97	0.0100	2.000	0	98.5	80	120			
Benzo[j]fluoranthene	2.12	0.0100	2.000	0	106	80	120			N
Benzo[k]fluoranthene	2.16	0.0100	2.000	0	108	80	120			
Chrysene	1.99	0.0100	2.000	0	99.4	80	120			
Dibenz[a,h]anthracene	2.11	0.0100	2.000	0	105	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: 1607294
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160808A

Sample ID **ICV2-160808**	Batch ID: **R87491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160808A**	Analysis Date: **8/8/2016 7:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.97	0.0100	2.000	0	98.7	80	120			
Fluorene	1.93	0.0100	2.000	0	96.3	80	120			
Indeno[1,2,3-cd]pyrene	2.05	0.0100	2.000	0	103	80	120			
Phenanthrene	1.98	0.0100	2.000	0	99.1	80	120			
Pyrene	1.98	0.0100	2.000	0	98.8	80	120			
IS: Acenaphthene-d10	4.00		4.000		113	50	200			
IS: Chrysene-d12	4.00		4.000		102	50	200			
IS: Naphthalene-d8	4.00		4.000		107	50	200			
IS: Perylene-d12	4.00		4.000		104	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	1.83		2.000		91.5	65	120			
Surr: 4-Terphenyl-d14	1.98		2.000		99.2	65	120			

Sample ID **CCV1-160808**	Batch ID: **R87491**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160808A**	Analysis Date: **8/9/2016 3:54:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.01	0.0100	1.000	0	101	50	150			
Acenaphthylene	1.04	0.0100	1.000	0	104	50	150			
Anthracene	0.953	0.0100	1.000	0	95.3	50	150			
Benzo[a]anthracene	1.02	0.0100	1.000	0	102	50	150			
Benzo[a]pyrene	1.05	0.0100	1.000	0	105	50	150			
Benzo[b]fluoranthene	1.03	0.0100	1.000	0	103	50	150			
Benzo[e]pyrene	1.00	0.0100	1.000	0	100	50	150			
Benzo[g,h,i]perylene	1.04	0.0100	1.000	0	104	50	150			
Benzo[j]fluoranthene	1.08	0.0100	1.000	0	108	50	150			N
Benzo[k]fluoranthene	1.13	0.0100	1.000	0	113	50	150			
Chrysene	1.03	0.0100	1.000	0	103	50	150			
Dibenz[a,h]anthracene	1.11	0.0100	1.000	0	111	50	150			
Fluoranthene	0.931	0.0100	1.000	0	93.1	50	150			
Fluorene	0.857	0.0100	1.000	0	85.7	50	150			
Indeno[1,2,3-cd]pyrene	1.08	0.0100	1.000	0	108	50	150			
Phenanthrene	1.05	0.0100	1.000	0	105	50	150			
Pyrene	0.929	0.0100	1.000	0	92.9	50	150			
IS: Acenaphthene-d10	4.00		4.000		155	50	200			
IS: Chrysene-d12	4.00		4.000		100	50	200			
IS: Naphthalene-d8	4.00		4.000		123	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	1.05		1.000		105	50	150			
Surr: 4-Terphenyl-d14	0.905		1.000		90.5	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: 1607294
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
1607294

GCMS6_160807A
For

DHL Work Order
1607294

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_160807A
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: 8/8/2016

Second-Level Review: Janice Whitt Date: 8/15/2016

REVIEWED BY
By Janice Whitt at 3:46:16 PM, 8/15/2016

DHL Analytical, Inc.

Run ID: GCMS6_160807A **Run No.:** 87476

Analytical Run Date: 8/7/2016 **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
DFTPP2-160807	1	PAH_LL_SDOD1	TUNE	R87476	8/7/2016 12:49:00 PM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160807	1	PAH_LL_SDOD1	ICV	R87476	8/7/2016 1:28:00 PM		
LCS-76552	1	PAH_LL_SDOD1	LCS	76552	8/7/2016 2:08:00 PM		
MB-76552	1	PAH_LL_SDOD1	MBLK	76552	8/7/2016 3:27:00 PM		
1607294-22A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 4:08:00 PM		
1607294-23A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 4:47:00 PM		
1607294-25A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 5:28:00 PM		
1607294-26A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 6:07:00 PM		
1607294-27A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 6:49:00 PM		
1607294-28A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 7:29:00 PM		
1607294-29A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 8:09:00 PM		
1607294-30A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 8:49:00 PM		
1607294-31A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 9:29:00 PM		
1607294-32A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 10:08:00 PM		
1607294-33A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 10:48:00 PM		
1607294-34A	10	PAH_LL_SDOD1	SAMP	76552	8/7/2016 11:28:00 PM		
DFTPP2-160807	1	PAH_LL_SDOD1	TUNE	R87476	8/8/2016 12:08:00 AM		
ICV2-160807	1	PAH_LL_SDOD1	ICV	R87476	8/8/2016 12:47:00 AM		
SB-160807	1	PAH_LL_SDOD1	SBLK	76552	8/8/2016 2:07:00 AM		
1607294-35A	10	PAH_LL_SDOD1	SAMP	76552	8/8/2016 2:47:00 AM		
1607294-36A	10	PAH_LL_SDOD1	SAMP	76552	8/8/2016 3:27:00 AM		
1607294-38A	10	PAH_LL_SDOD1	SAMP	76552	8/8/2016 4:07:00 AM		
1607294-39A	10	PAH_LL_SDOD1	SAMP	76552	8/8/2016 4:47:00 AM		
1607294-40A	10	PAH_LL_SDOD1	SAMP	76552	8/8/2016 5:28:00 AM		
1607294-41A	10	PAH_LL_SDOD1	SAMP	76552	8/8/2016 6:09:00 AM		
1607294-42A	10	PAH_LL_SDOD1	SAMP	76552	8/8/2016 6:49:00 AM		
1607294-43A	50	PAH_LL_SDOD1	SAMP	76552	8/8/2016 7:29:00 AM		
1607294-29AMS	10	PAH_LL_SDOD1	MS	76552	8/8/2016 8:08:00 AM		

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

DHL Analytical, Inc.

Run ID: GCMS6_160807A **Run No.:** 87476

1607294-29AMSD	10	PAH_LL_SDOD1	MSD	76552	8/8/2016 8:49:00 AM		
CCV1-160807	1	PAH_LL_SDOD1	CCV	R87476	8/8/2016 9:29:00 AM		

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:\HPCHEM\1\SEQUENCE\160807.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160807\
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	16080701	DFTPPPAH	DFTPP2-160807
2	Sample	2	16080702	PP160801	ICV-160807
3	Sample	3	16080703	PP160801	LCS-76552
4	Sample	4	16080704	PP160801	SBLK
5	Sample	5	16080705	PP160801	MB-76552
6	Sample	6	16080706	PP160801	1607294-22A
7	Sample	7	16080707	PP160801	1607294-23A
8	Sample	8	16080708	PP160801	1607294-25A
9	Sample	9	16080709	PP160801	1607294-26A
10	Sample	10	16080710	PP160801	1607294-27A
11	Sample	11	16080711	PP160801	1607294-28A
12	Sample	12	16080712	PP160801	1607294-29A
13	Sample	13	16080713	PP160801	1607294-30A
14	Sample	14	16080714	PP160801	1607294-31A
15	Sample	15	16080715	PP160801	1607294-32A
16	Sample	16	16080716	PP160801	1607294-33A
17	Sample	17	16080717	PP160801	1607294-34A
18	Sample	18	16080718	DFTPPPAH	DFTPP2-160807
19	Sample	19	16080719	PP160801	ICV2-160807
20	Sample	20	16080720	PP160801	SBLK
21	Sample	21	16080721	PP160801	SB-160807
22	Sample	22	16080722	PP160801	1607294-35A
23	Sample	23	16080723	PP160801	1607294-36A
24	Sample	24	16080724	PP160801	1607294-38A
25	Sample	25	16080725	PP160801	1607294-39A
26	Sample	26	16080726	PP160801	1607294-40A
27	Sample	27	16080727	PP160801	1607294-41A
28	Sample	28	16080728	PP160801	1607294-42A
29	Sample	29	16080729	PP160801	1607294-43A
30	Sample	30	16080730	PP160801	1607294-29AMS
31	Sample	31	16080731	PP160801	1607294-29AMSD
32	Sample	32	16080732	PP160801	CCV1-160807

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 8:37:11 AM**
Digestion:
Prep End Date: **7/29/2016 12:01:00 PM**

Prep Batch **76552** 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
1607294-22A	Soil		10.03	10	0.997	1 of 1	
1607294-23A	Soil		10.17	10	0.983	1 of 1	
1607294-25A	Soil		10.17	10	0.983	1 of 1	
1607294-26A	Soil		10.6	10	0.943	1 of 1	
1607294-27A	Soil		10.31	10	0.970	1 of 1	
1607294-28A	Soil		10.06	10	0.994	1 of 1	
1607294-29A	Soil		10.05	10	0.995	1 of 3	
1607294-29AMS	Soil		10.1	10	0.990	1 of	
1607294-29AMSD	Soil		10.03	10	0.997	1 of	
1607294-30A	Soil		10.51	10	0.951	1 of 1	
1607294-31A	Soil		10.11	10	0.989	1 of 1	
1607294-32A	Soil		10.16	10	0.984	1 of 1	
1607294-33A	Soil		10	10	1.000	1 of 1	
1607294-34A	Soil		10.21	10	0.979	1 of 1	
1607294-35A	Soil		10.1	10	0.990	1 of 1	
1607294-36A	Soil		10.22	10	0.978	1 of 1	
1607294-38A	Soil		10.04	10	0.996	1 of 1	
1607294-39A	Soil		10.34	10	0.967	1 of 1	
1607294-40A	Soil		10.08	10	0.992	1 of 1	
1607294-41A	Soil		10.11	10	0.989	1 of 1	
1607294-42A	Soil		10.2	10	0.980	1 of 1	
1607294-43A	Soil		10.85	10	0.922	1 of 1	
LCS-76552	Soil		10	10	1.000	of	
MB-76552	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 3:16:16 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 8:37:11 AM**
Digestion:
Prep End Date: 7/29/16 12:01 PM

Prep Batch **76552** 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
1607294-22A	Soil		10.03	10	1.000	1 of 1	
1607294-23A	Soil		10.17	10	1.000	1 of 1	
1607294-25A	Soil		10.17	10	1.000	1 of 1	
1607294-26A	Soil		10.60	10	1.000	1 of 1	
1607294-27A	Soil		10.31	10	1.000	1 of 1	
1607294-28A	Soil		10.66	10	1.000	1 of 1	
1607294-29A	Soil		10.05	10	1.000	1 of 3	
1607294-29AMS	Soil		10.10	10	1.000	1 of ↓	
1607294-29AMSD	Soil		10.03	10	1.000	1 of	
1607294-30A	Soil		10.51	10	1.000	1 of 1	
1607294-31A	Soil		10.11	10	1.000	1 of 1	
1607294-32A	Soil		10.16	10	1.000	1 of 1	
1607294-33A	Soil		10.00	10	1.000	1 of 1	
1607294-34A	Soil		10.21	10	1.000	1 of 1	
1607294-35A	Soil		10.10	10	1.000	1 of 1	
1607294-36A	Soil		10.22	10	1.000	1 of 1	
1607294-38A	Soil		10.04	10	1.000	1 of 1	
1607294-39A	Soil		10.34	10	1.000	1 of 1	
1607294-40A	Soil		10.08	10	1.000	1 of 1	
1607294-41A	Soil		10.11	10	1.000	1 of 1	
1607294-42A	Soil		10.20	10	1.000	1 of 1	
1607294-43A	Soil		10.85	10	1.000	1 of 1	
LCS-76552	Soil		10	10	1.000	of	
MB-76552	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 3:16:12 PM, 8/15/2016

AR 7/29/16

7/29/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-27A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-28A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-29A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-31A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 3:16:20 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

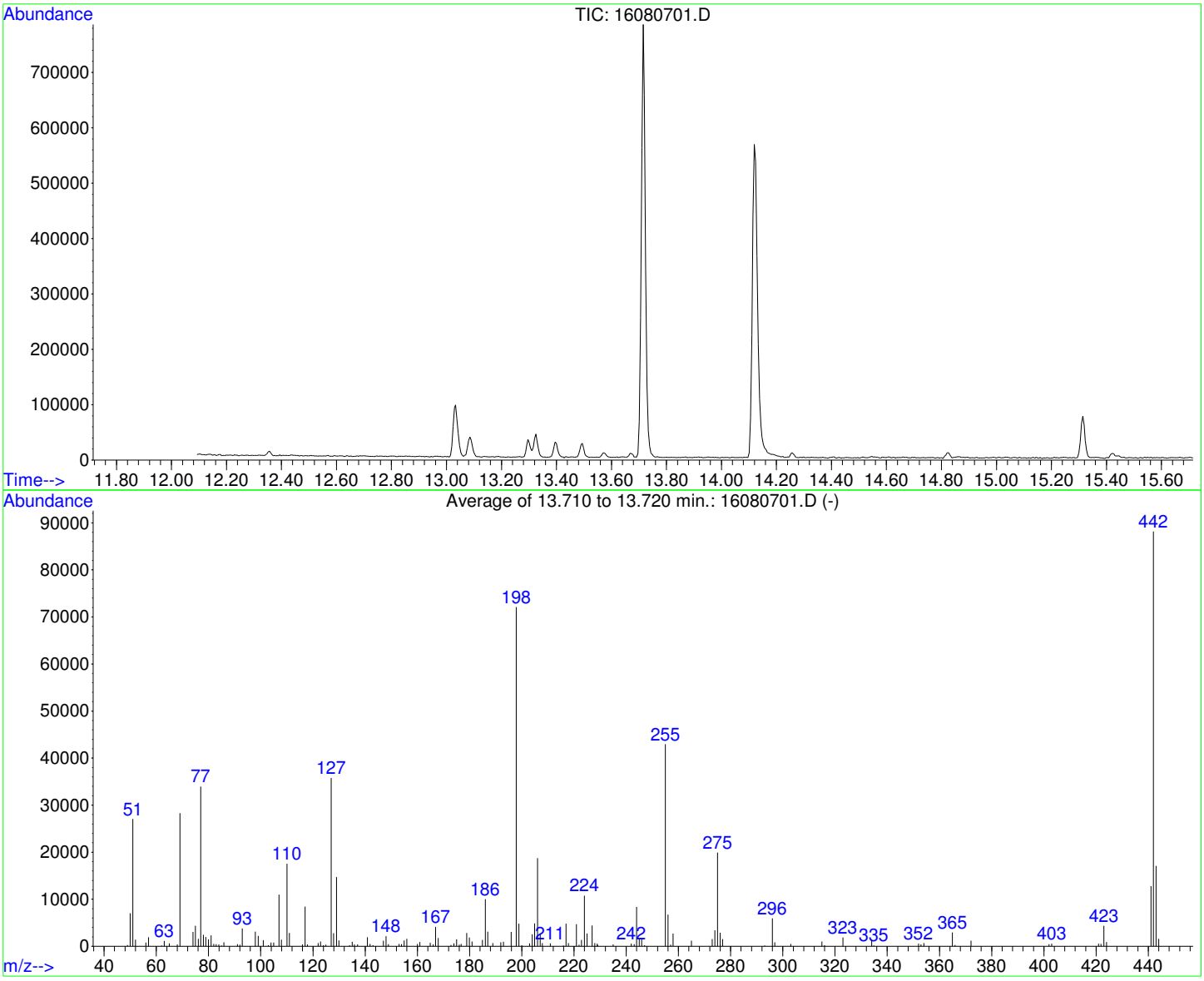
Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-38A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-39A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-40A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-41A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-42A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-43A	Soil		0	0	#Num!	1 of 1	
SS							



Data File : C:\HPCHEM\1\DATA\160807\16080701.D Vial: 1
Acq On : 7 Aug 2016 12:49 pm Operator: DEW
Sample : DFTPP-160807 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

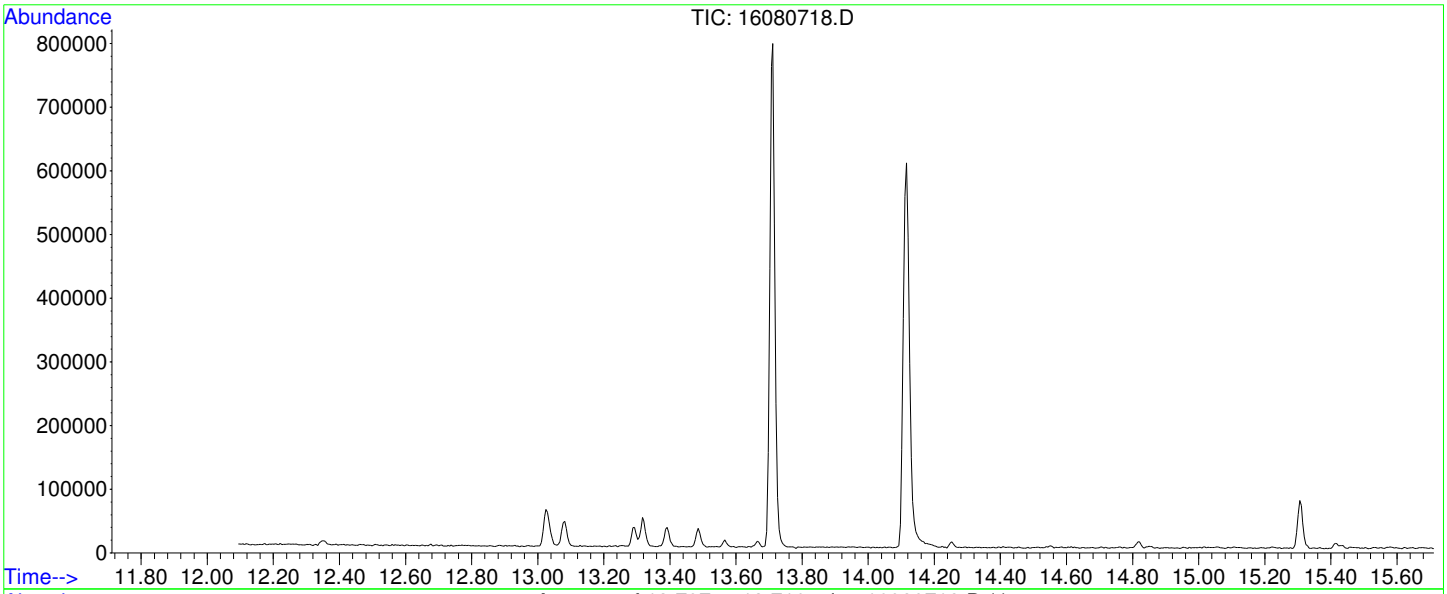


AutoFind: Scans 345, 346, 347; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	37.5	27030	PASS
68	69	0.00	2	1.5	416	PASS
69	198	0.00	100	39.2	28288	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.6	35744	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	72093	PASS
199	198	5	9	6.7	4817	PASS
275	198	10	60	27.7	19948	PASS
365	198	1	200	4.1	2942	PASS
441	442	0.01	24	14.5	12818	PASS
442	198	50	400	122.3	88176	PASS
443	442	15	24	19.4	17096	PASS

REVIEWED BY
By Janice Whitt at 3:16:25 PM, 8/15/2016

Data File : C:\HPCHEM\1\DATA\160807\16080718.D Vial: 18
Acq On : 8 Aug 2016 12:08 am Operator: DEW
Sample : DFTPP2-160807 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	34.4	25247	PASS
68	69	0.00	2	0.8	222	PASS
69	198	0.00	100	37.3	27379	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.2	36133	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	73480	PASS
199	198	5	9	6.7	4951	PASS
275	198	10	60	28.7	21107	PASS
365	198	1	200	4.5	3286	PASS
441	442	0.01	24	14.8	14860	PASS
442	198	50	400	136.9	100627	PASS
443	442	15	24	19.0	19147	PASS

REVIEWED BY
By Janice Whitt at 3:16:27 PM, 8/15/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080702.D Vial: 2
Acq On : 7 Aug 2016 1:28 pm Operator: DEW
Sample : ICV-160807 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 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

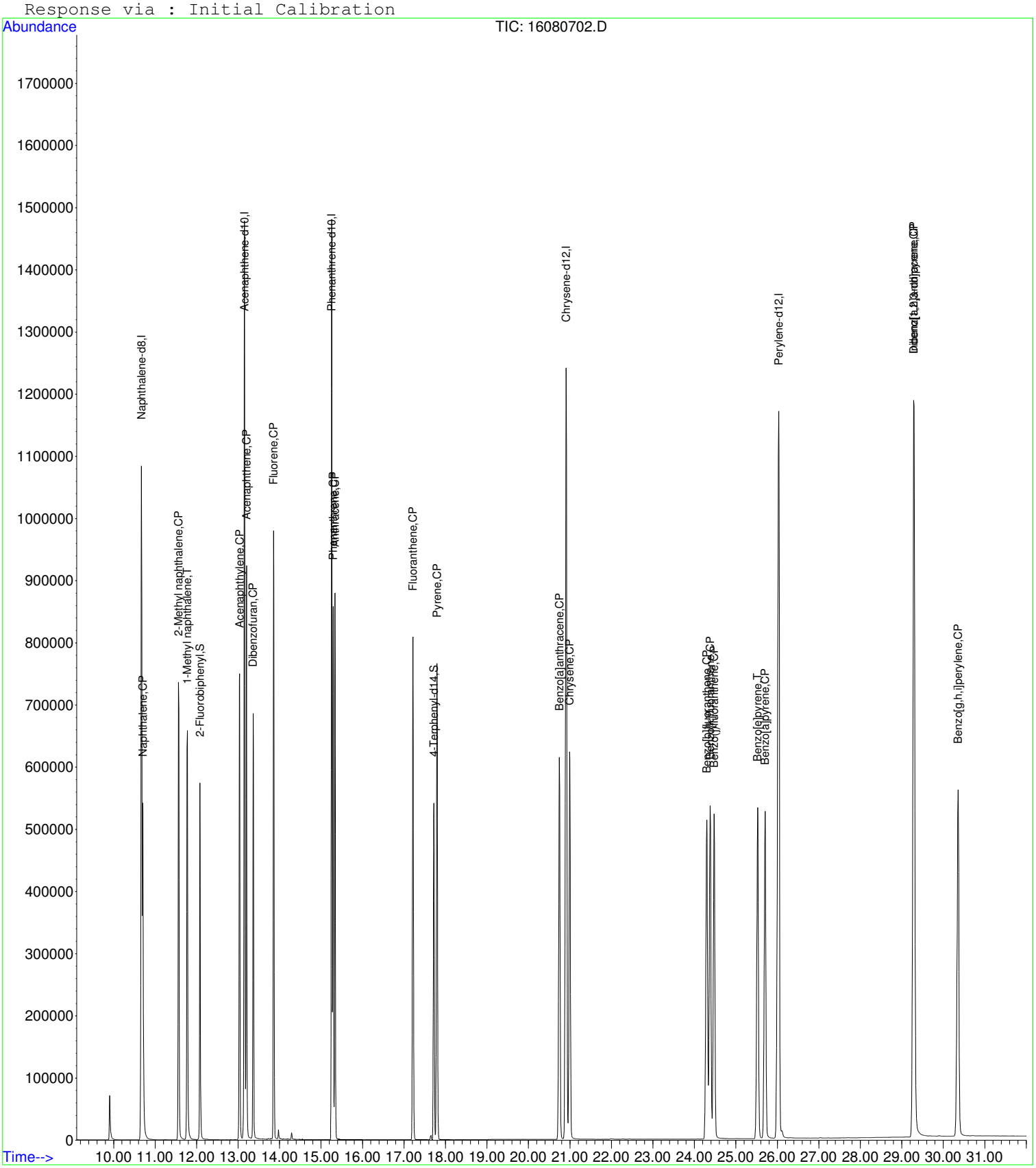
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1591621	4000.00	ug/kg	113
5) Acenaphthene-d10	13.15	164	878571	4000.00	ug/kg	147
11) Phenanthrene-d10	15.26	188	1719164	4000.00	ug/kg	108
17) Chrysene-d12	20.91	240	2186797	4000.00	ug/kg	119
20) Perylene-d12	26.03	264	2440229	4000.00	ug/kg	127
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	543909	1774.83	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	44.37%		
16) 4-Terphenyl-d14	17.72	244	757783	1867.83	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	46.70%		
Target Compounds						Qvalue
2) Naphthalene	10.71	128	675730	1865.98	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	481757	2052.11	ug/kg	95
4) 1-Methyl naphthalene	11.78	142	436267	2097.99	ug/kg	99
6) Dibenzofuran	13.36	168	648460	1823.84	ug/kg	100
8) Acenaphthylene	13.04	152	750166	1928.13	ug/kg	100
9) Acenaphthene	13.20	154	439900	1952.25	ug/kg	98
10) Fluorene	13.85	166	543474	1918.74	ug/kg	99
12) Phenanthrene	15.29	178	763399	1872.98	ug/kg	100
13) Anthracene	15.34	178	791594	1845.74	ug/kg	100
14) Fluoranthene	17.22	202	877222	1816.11	ug/kg	99
15) Pyrene	17.80	202	887333	1811.72	ug/kg	100
18) Benzo[a]anthracene	20.74	228	969228	1966.41	ug/kg	99
19) Chrysene	20.99	228	912325	1924.01	ug/kg	100
21) Benzo[b]fluoranthene	24.30	252	1093391	1940.91	ug/kg	100
22) Benzo[k]fluoranthene	24.38	252	1013044	1960.19	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	971470	1956.01	ug/kg	100
24) Benzo[e]pyrene	25.52	252	1059443	1937.94	ug/kg	100
25) Benzo[a]pyrene	25.70	252	1050306	1929.62	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	1156878	2196.35	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.29	276	1360692	2176.92	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	1150726	2198.06	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080702.D Vial: 2
Acq On : 7 Aug 2016 1:28 pm Operator: DEW
Sample : ICV-160807 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 2016 Quant Results File: PP160801.RES

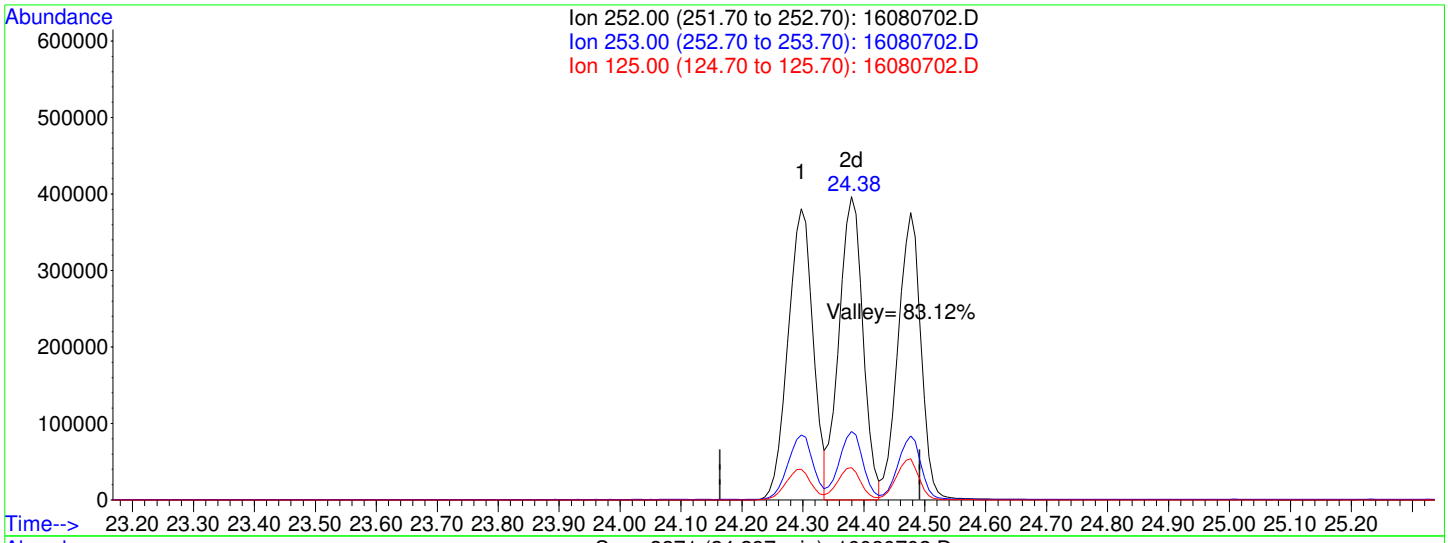
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

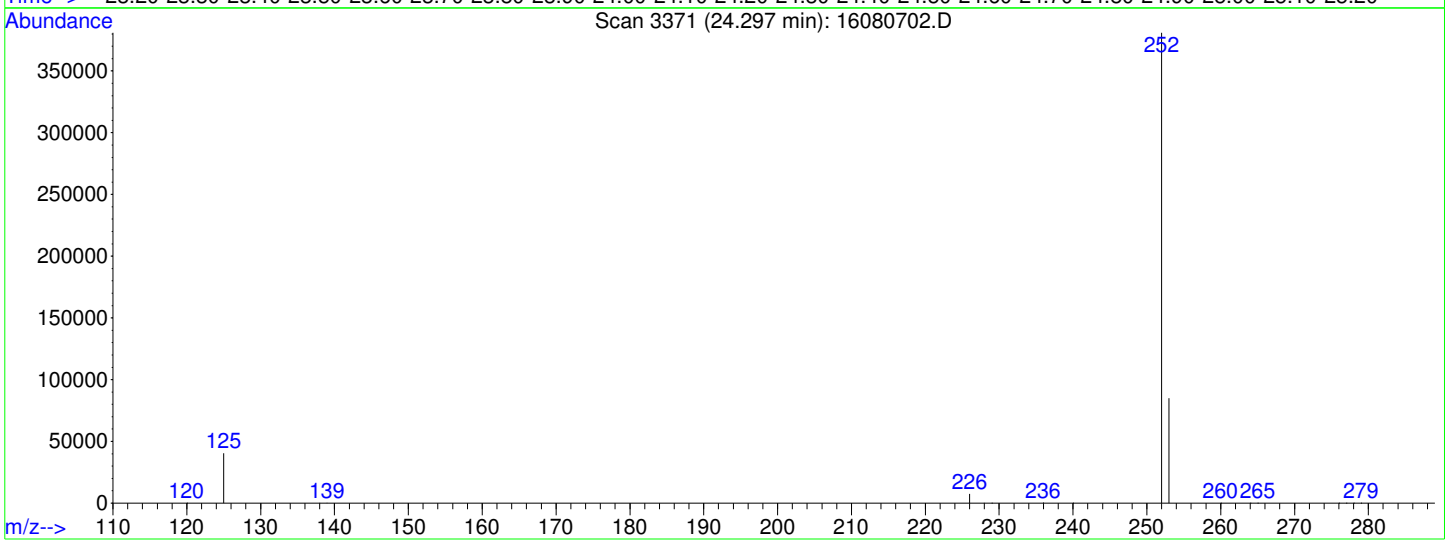


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160807\16080702.D Vial: 2
Acq On : 7 Aug 2016 1:28 pm Operator: DEW
Sample : ICV-160807 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 7 14:00 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: 16080702.D

(21) Benzo[b]fluoranthene (CP)

24.30min 1940.91ug/kg

response 1093391

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.12
125.00	10.60	10.57
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080703.D Vial: 3
Acq On : 7 Aug 2016 2:08 pm Operator: DEW
Sample : LCS-76552 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 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

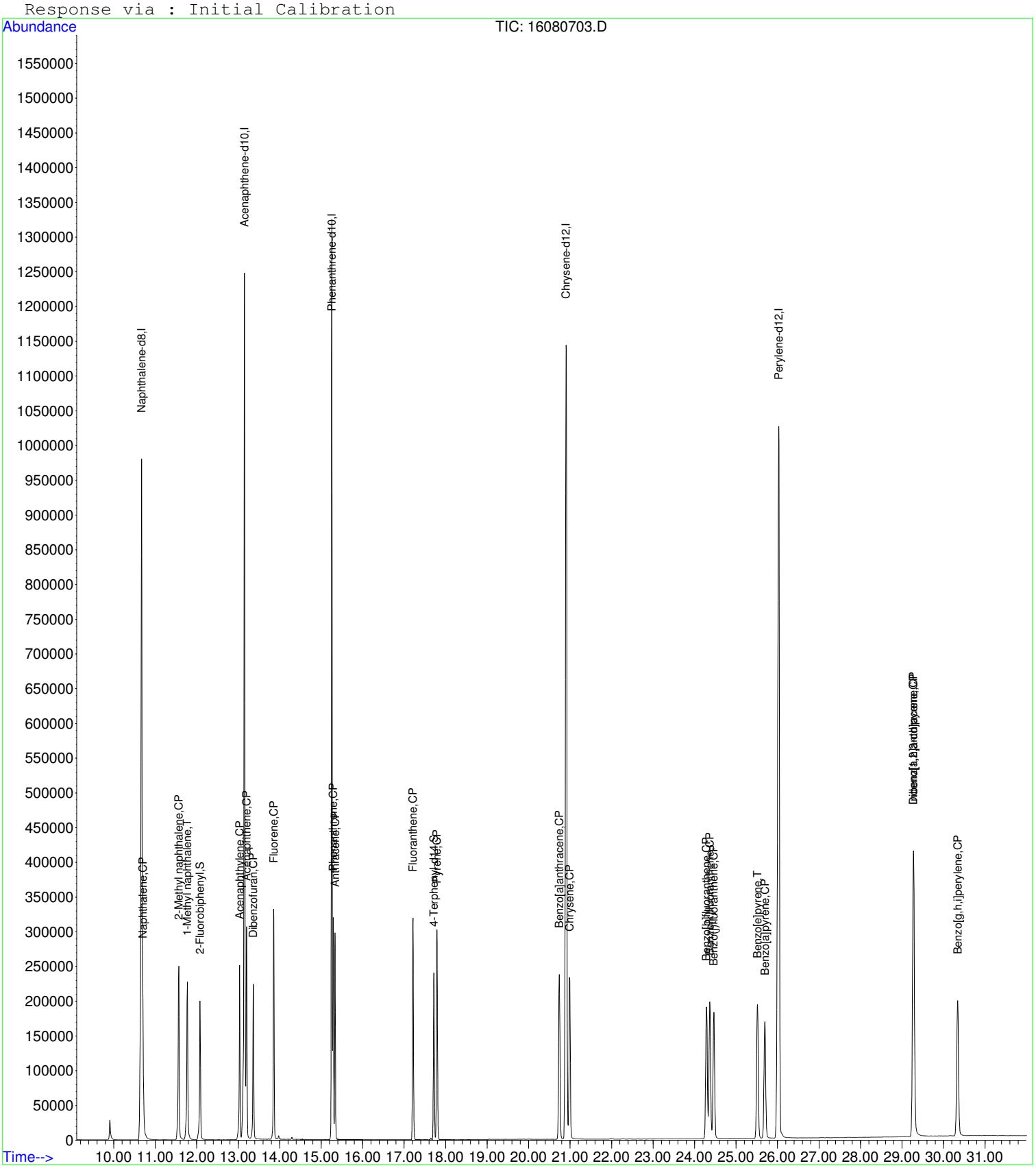
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1729459	4000.00	ug/kg	123
5) Acenaphthene-d10	13.15	164	841476	4000.00	ug/kg	140
11) Phenanthrene-d10	15.26	188	1529947	4000.00	ug/kg	96
17) Chrysene-d12	20.91	240	2053092	4000.00	ug/kg	112
20) Perylene-d12	26.03	264	2071901	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	239965	817.55	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.44%#			
16) 4-Terphenyl-d14	17.71	244	335934	930.44	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.26%#			
Target Compounds						Qvalue
2) Naphthalene	10.71	128	274923	698.67	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	198108	776.61	ug/kg	99
4) 1-Methyl naphthalene	11.77	142	177824	786.99	ug/kg	99
6) Dibenzofuran	13.37	168	245955	722.26	ug/kg	99
8) Acenaphthylene	13.04	152	285522	766.22	ug/kg	100
9) Acenaphthene	13.20	154	169305	784.49	ug/kg	99
10) Fluorene	13.85	166	199536	735.52	ug/kg	100
12) Phenanthrene	15.29	178	283518	781.63	ug/kg	100
13) Anthracene	15.33	178	280480	734.87	ug/kg	99
14) Fluoranthene	17.21	202	349500	813.06	ug/kg	99
15) Pyrene	17.79	202	357104	819.29	ug/kg	99
18) Benzo[a]anthracene	20.74	228	372061	804.01	ug/kg	100
19) Chrysene	20.98	228	343565	771.73	ug/kg	100
21) Benzo[b]fluoranthene	24.29	252	398058	832.22	ug/kg	99
22) Benzo[k]fluoranthene	24.37	252	365194	832.25	ug/kg	100
23) Benzo(j)fluoranthene	24.46	252	350703	831.65	ug/kg	99
24) Benzo[e]pyrene	25.52	252	384966	829.37	ug/kg	98
25) Benzo[a]pyrene	25.70	252	351809	761.25	ug/kg	100
26) Dibenz[a,h]anthracene	29.27	278	395515	884.38	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.28	276	473343	891.91	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	393994	886.38	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080703.D Vial: 3
Acq On : 7 Aug 2016 2:08 pm Operator: DEW
Sample : LCS-76552 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 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\160807\16080705.D Vial: 5
Acq On : 7 Aug 2016 3:27 pm Operator: DEW
Sample : MB-76552 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 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

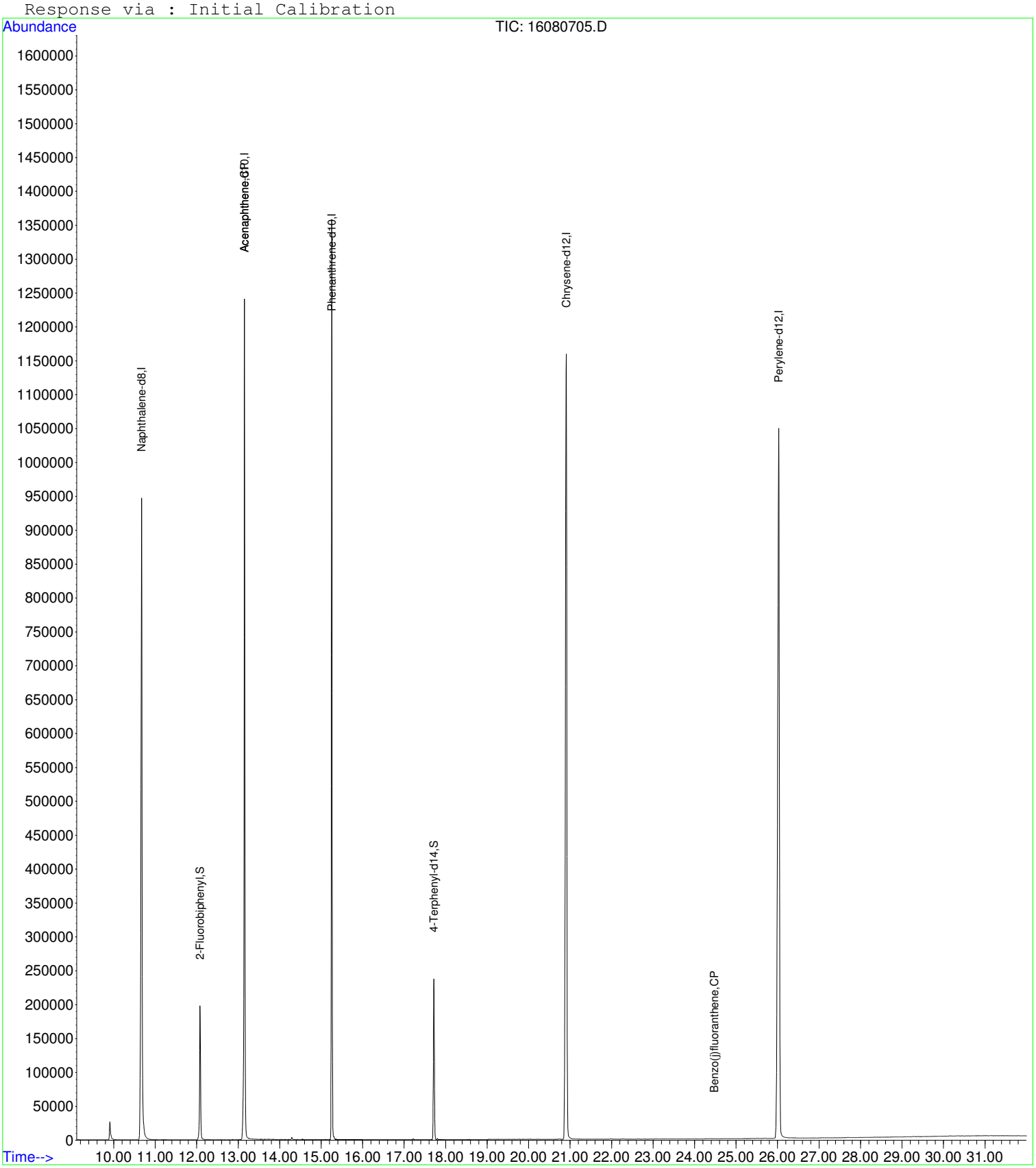
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1679334	4000.00	ug/kg	120
5) Acenaphthene-d10	13.15	164	822897	4000.00	ug/kg	137
11) Phenanthrene-d10	15.26	188	1571241	4000.00	ug/kg	99
17) Chrysene-d12	20.91	240	2054691	4000.00	ug/kg	112
20) Perylene-d12	26.03	264	2064737	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	226124	787.79	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.69%#			
16) 4-Terphenyl-d14	17.72	244	335730	905.43	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.64%#			
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2708	~~12.83~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.47	252	512	1.22	ug/kg#	66

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080705.D Vial: 5
Acq On : 7 Aug 2016 3:27 pm Operator: DEW
Sample : MB-76552 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 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\160807\16080706.D Vial: 6
Acq On : 7 Aug 2016 4:08 pm Operator: DEW
Sample : 1607294-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

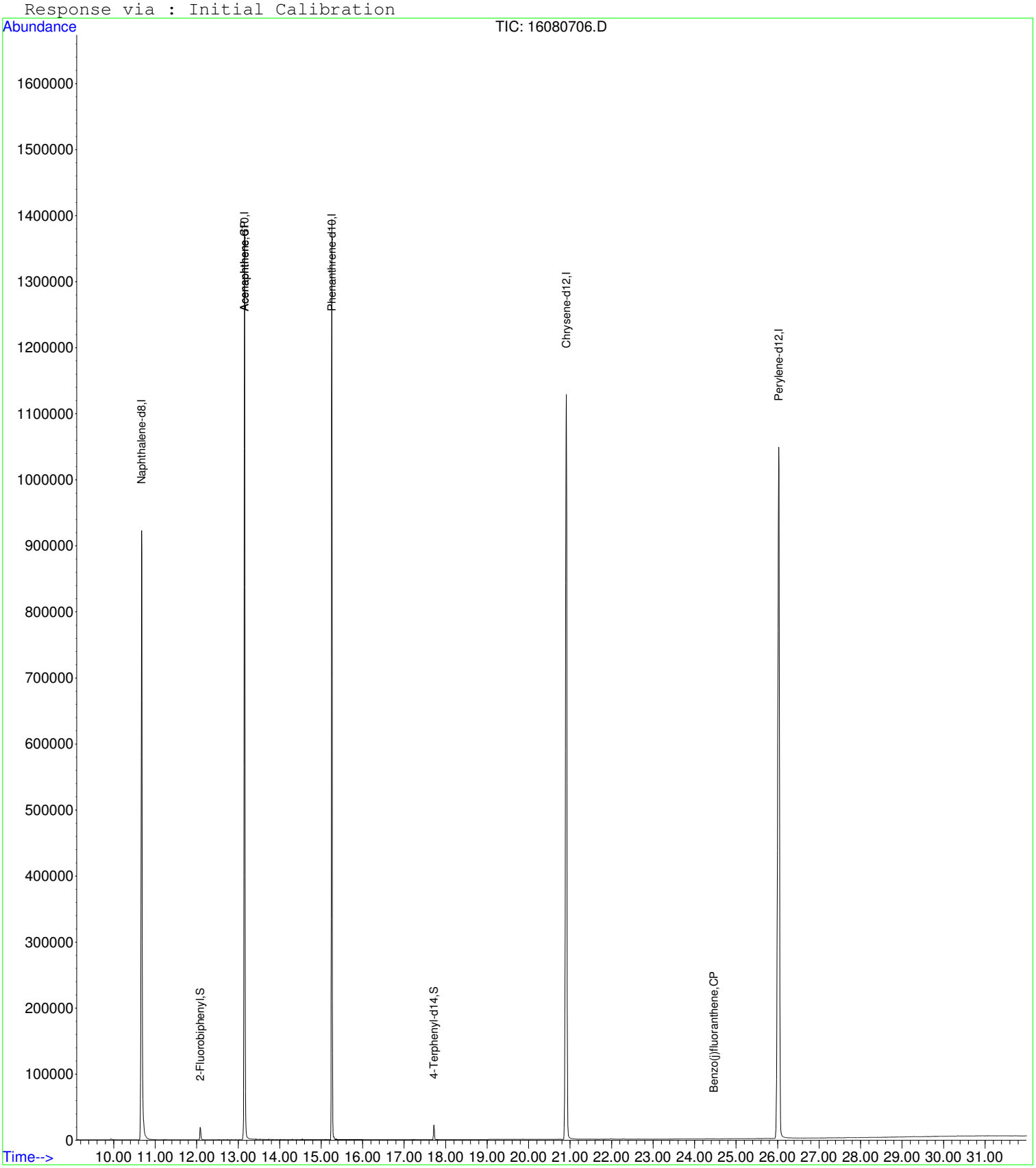
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1519784	4000.00	ug/kg	108
5) Acenaphthene-d10	13.15	164	829788	4000.00	ug/kg	138
11) Phenanthrene-d10	15.26	188	1591323	4000.00	ug/kg	100
17) Chrysene-d12	20.91	240	2000973	4000.00	ug/kg	109
20) Perylene-d12	26.03	264	2139807	4000.00	ug/kg	111
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	22505	77.75	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
16) 4-Terphenyl-d14	17.72	244	32547	86.67	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.17%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2820	~~13.25~~	~~ug/kg#~~	~~1~~
23) Benzo(j)fluoranthene	24.47	252	425	0.98	ug/kg	80

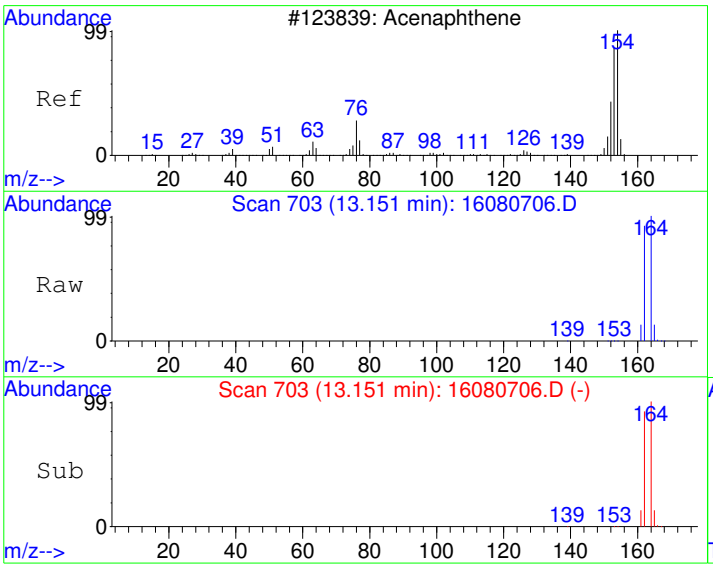
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080706.D Vial: 6
Acq On : 7 Aug 2016 4:08 pm Operator: DEW
Sample : 1607294-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

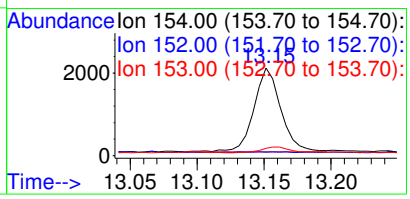


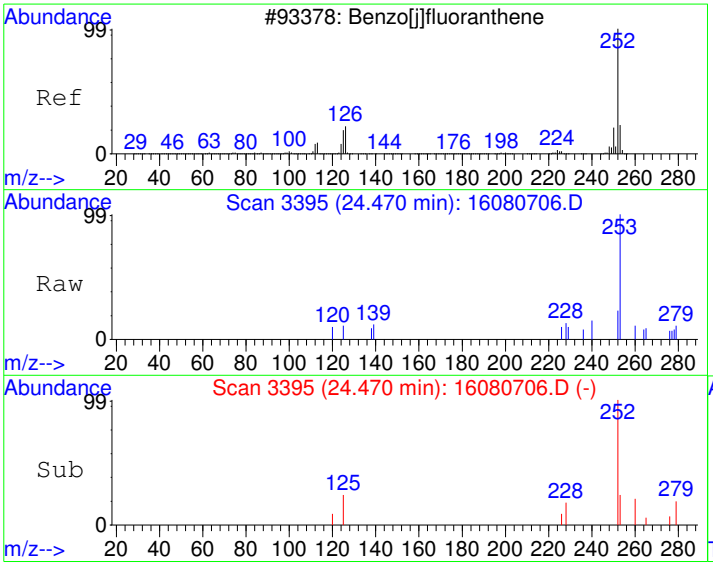


#9
Acenaphthene
Concen: 13.25 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080706.D
Acq: 7 Aug 2016 4:08 pm

Tgt Ion:154 Resp: 2820

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	5.1	76.2	136.2#

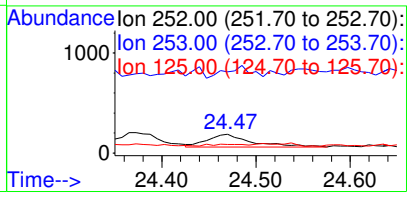




#23
Benzo(j)fluoranthene
Concen: 0.98 ug/kg
RT: 24.47 min Scan# 3395
Delta R.T. -0.04 min
Lab File: 16080706.D
Acq: 7 Aug 2016 4:08 pm

Tgt Ion:252 Resp: 425

Ion	Ratio	Lower	Upper
252	100		
253	32.3	2.2	42.2
125	7.1	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080707.D Vial: 7
Acq On : 7 Aug 2016 4:47 pm Operator: DEW
Sample : 1607294-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

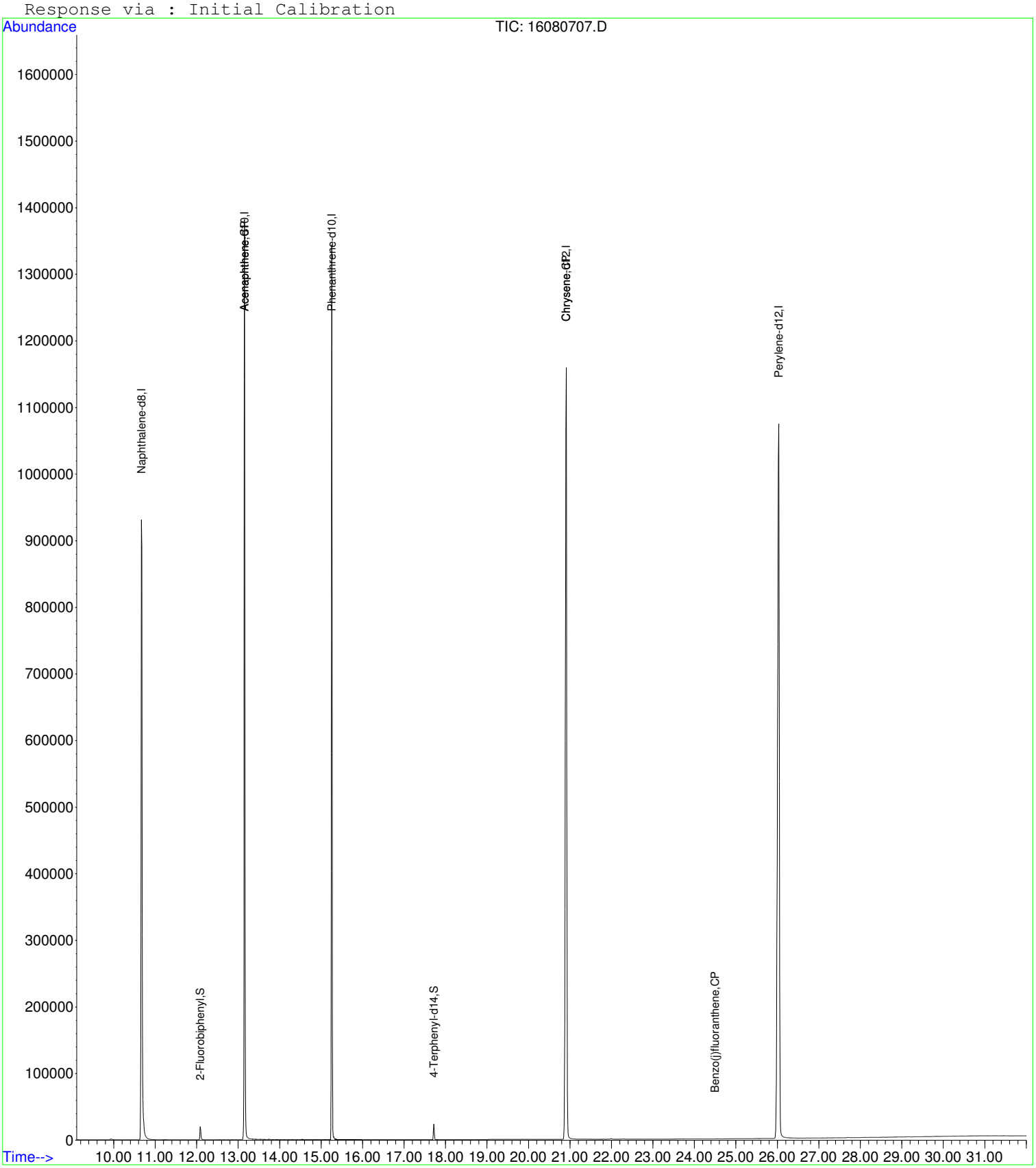
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1491900	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	821658	4000.00	ug/kg	137
11) Phenanthrene-d10	15.26	188	1544154	4000.00	ug/kg	97
17) Chrysene-d12	20.91	240	2040383	4000.00	ug/kg	111
20) Perylene-d12	26.03	264	2190734	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	23738	82.82	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
16) 4-Terphenyl-d14	17.72	244	33092	90.81	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.27%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2782	13.20	ug/kg#	10
19) Chrysene	20.91	228	4362	9.86	ug/kg	71
23) Benzo(j)fluoranthene	24.49	252	31	0.07	ug/kg#	28

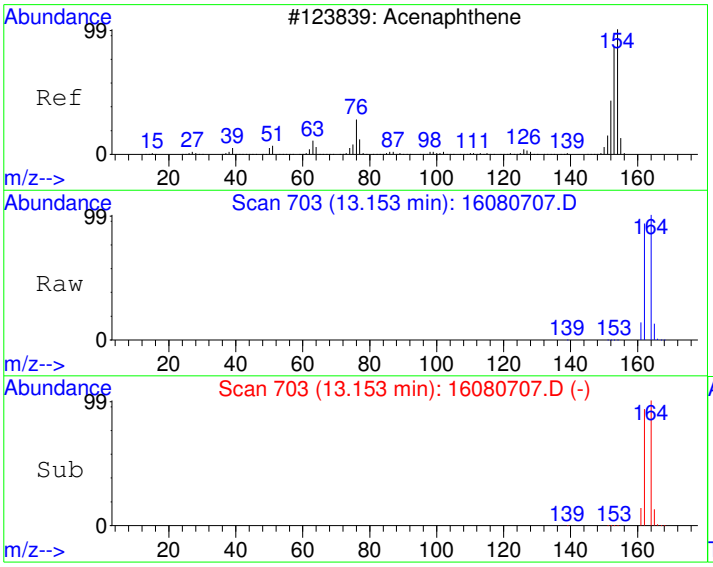
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080707.D Vial: 7
Acq On : 7 Aug 2016 4:47 pm Operator: DEW
Sample : 1607294-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

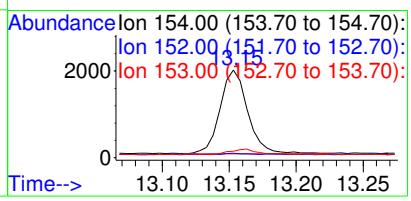


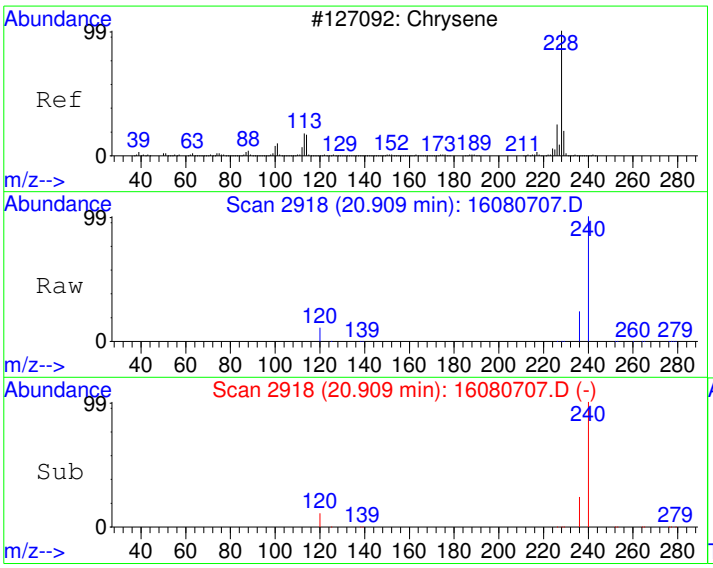


#9
Acenaphthene
Concen: 13.20 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080707.D
Acq: 7 Aug 2016 4:47 pm

Tgt Ion:154 Resp: 2782

Ion	Ratio	Lower	Upper
154	100		
152	1.6	19.1	79.1#
153	3.6	76.2	136.2#

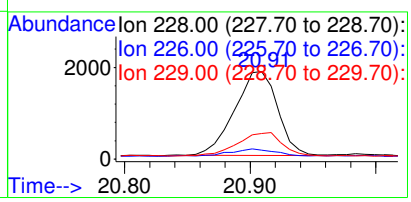


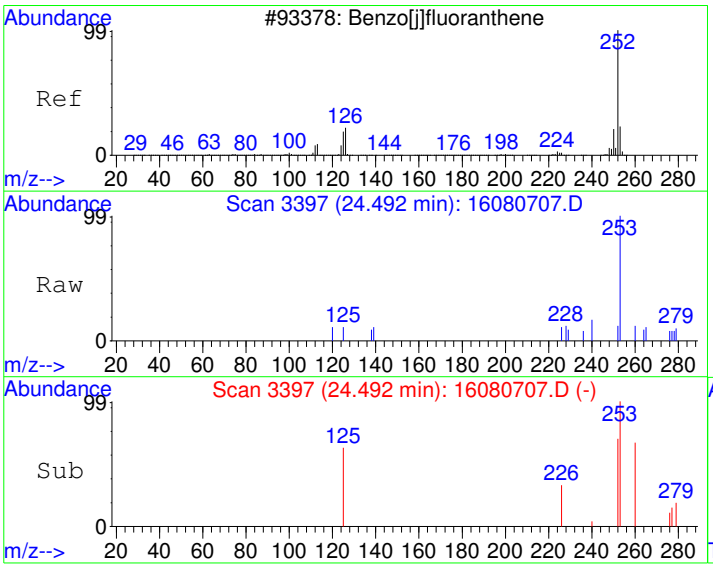


#19
Chrysene
Concen: 9.86 ug/kg
RT: 20.91 min Scan# 2918
Delta R.T. -0.11 min
Lab File: 16080707.D
Acq: 7 Aug 2016 4:47 pm

Tgt Ion:228 Resp: 4362

Ion	Ratio	Lower	Upper
228	100		
226	6.9	0.0	58.1
229	26.6	0.0	50.0

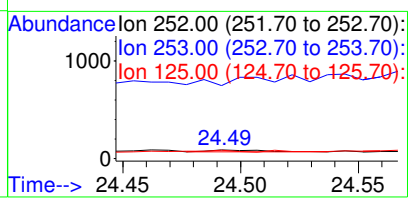




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080707.D
Acq: 7 Aug 2016 4:47 pm

Tgt Ion:252 Resp: 31

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	60.0	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080708.D Vial: 8
Acq On : 7 Aug 2016 5:28 pm Operator: DEW
Sample : 1607294-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

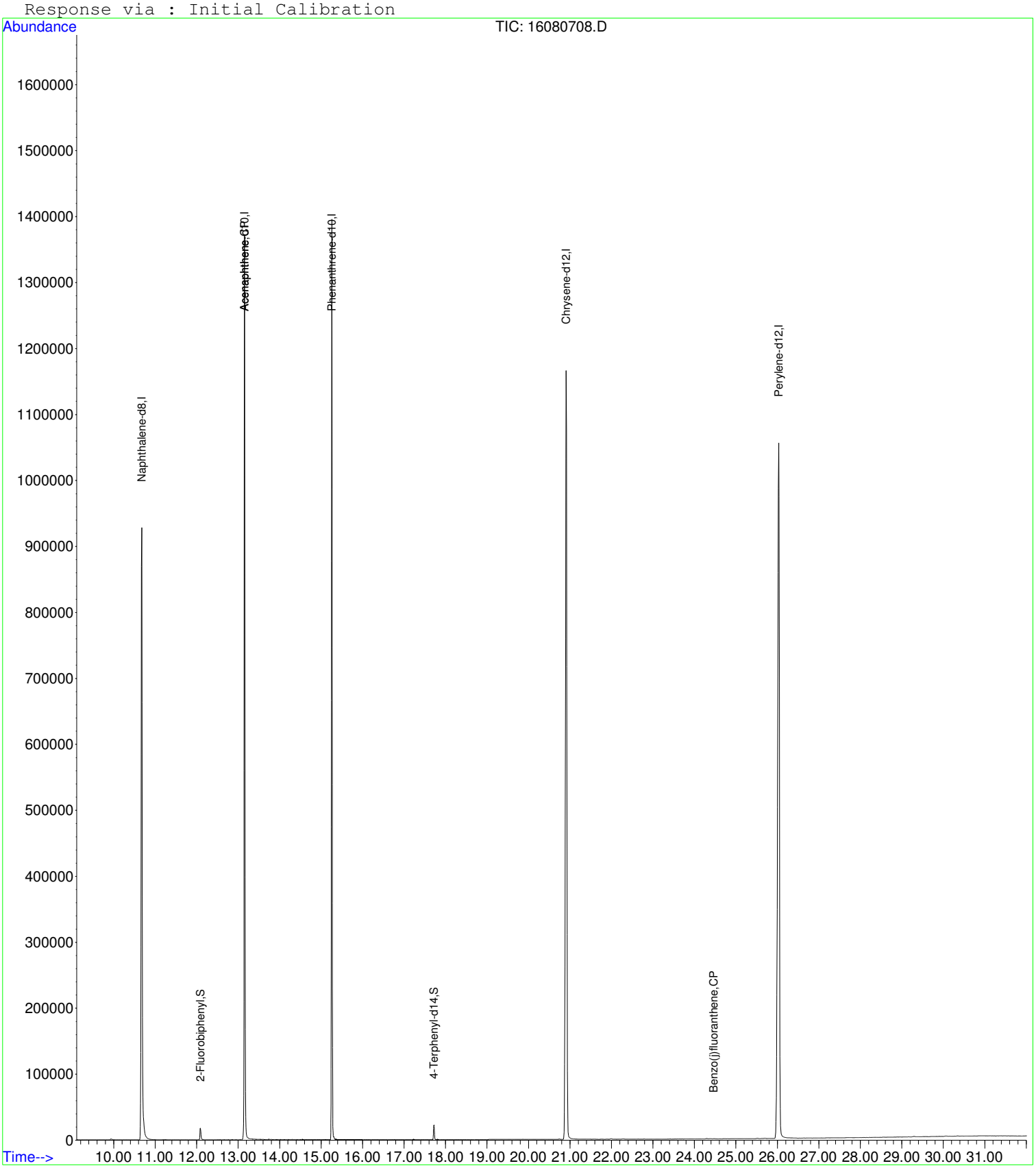
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1505537	4000.00	ug/kg	107
5) Acenaphthene-d10	13.15	164	816516	4000.00	ug/kg	136
11) Phenanthrene-d10	15.26	188	1593884	4000.00	ug/kg	100
17) Chrysene-d12	20.91	240	2041359	4000.00	ug/kg	111
20) Perylene-d12	26.03	264	2164361	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21971	77.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#		
16) 4-Terphenyl-d14	17.72	244	31354	83.36	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2751	~~13.14~~	~~ug/kg#~~	~~10~~
23) Benzo(j)fluoranthene	24.47	252	651	1.48	ug/kg#	53

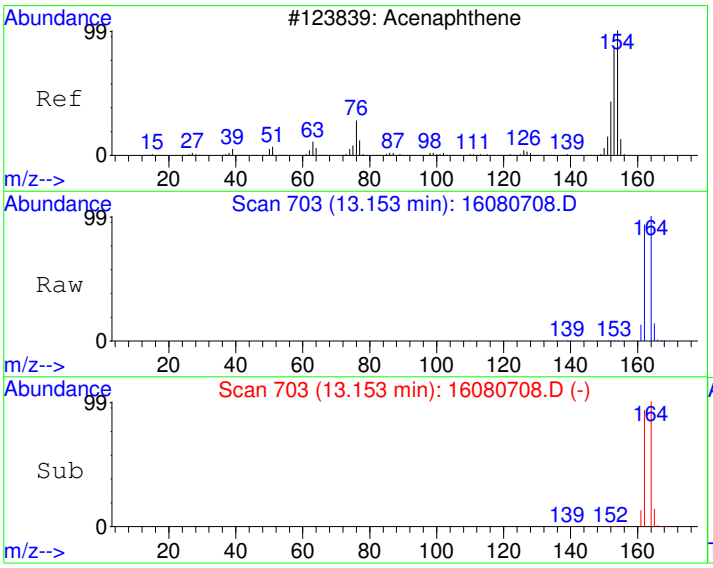
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080708.D Vial: 8
Acq On : 7 Aug 2016 5:28 pm Operator: DEW
Sample : 1607294-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

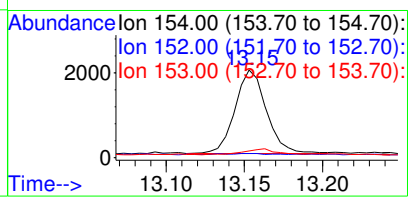


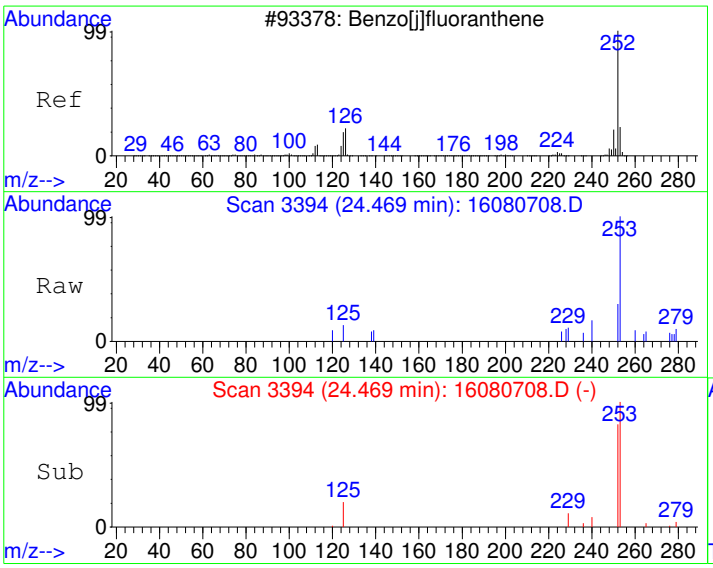


#9
Acenaphthene
Concen: 13.14 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080708.D
Acq: 7 Aug 2016 5:28 pm

Tgt Ion:154 Resp: 2751

Ion	Ratio	Lower	Upper
154	100		
152	1.1	19.1	79.1#
153	4.2	76.2	136.2#

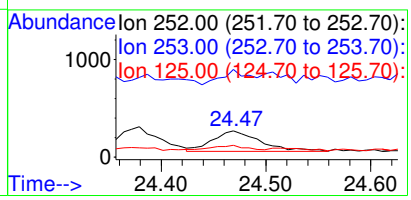




#23
Benzo(j)fluoranthene
Concen: 1.48 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080708.D
Acq: 7 Aug 2016 5:28 pm

Tgt Ion:252 Resp: 651

Ion	Ratio	Lower	Upper
252	100		
253	49.8	2.2	42.2#
125	26.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080709.D Vial: 9
Acq On : 7 Aug 2016 6:07 pm Operator: DEW
Sample : 1607294-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

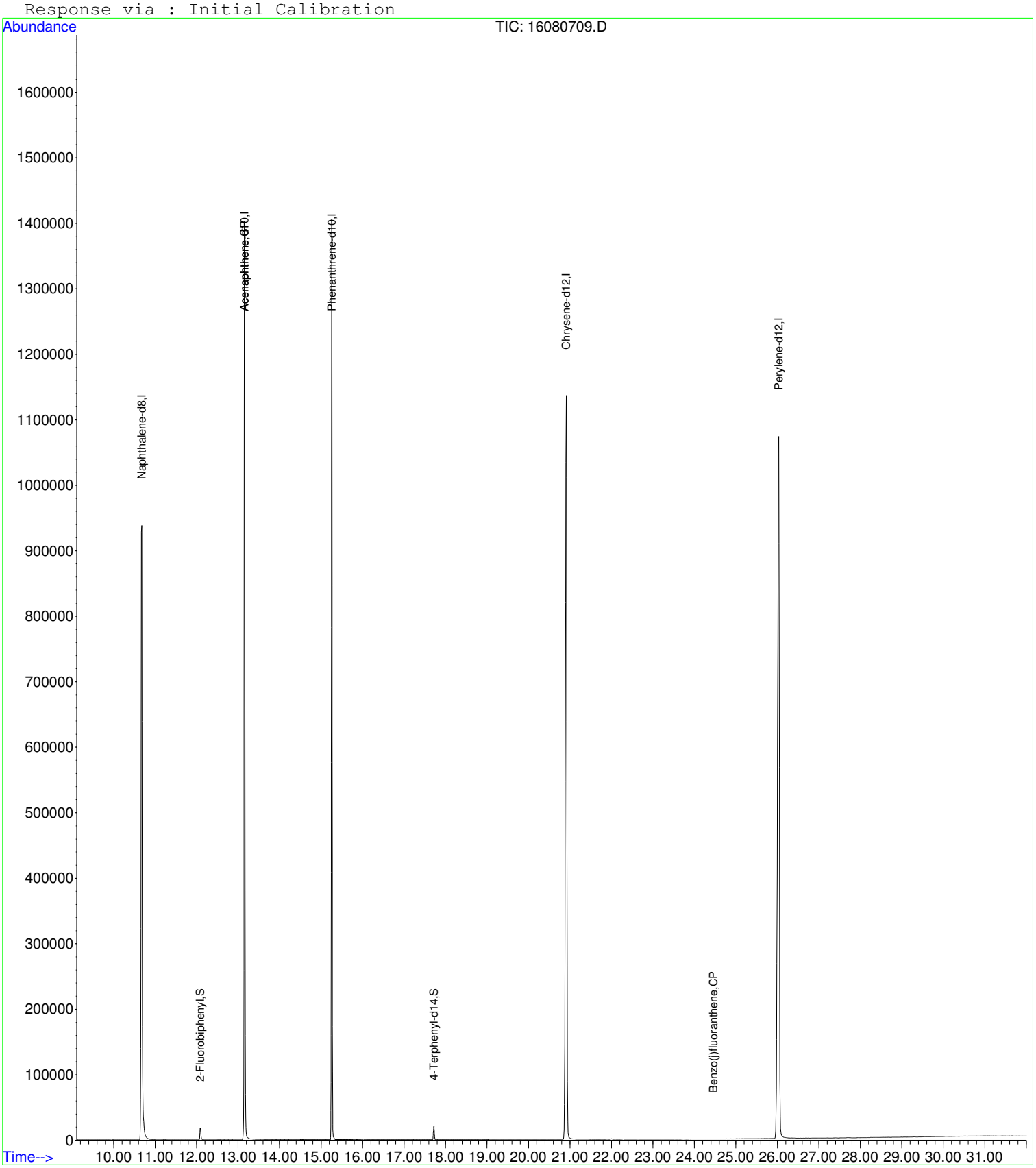
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1541627	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	841057	4000.00	ug/kg	140
11) Phenanthrene-d10	15.26	188	1609798	4000.00	ug/kg	101
17) Chrysene-d12	20.91	240	2033923	4000.00	ug/kg	111
20) Perylene-d12	26.03	264	2183337	4000.00	ug/kg	113
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	22012	75.03	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.72	244	31011	81.63	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.04%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2954	~~13.69~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.47	252	117	0.26	ug/kg#	58

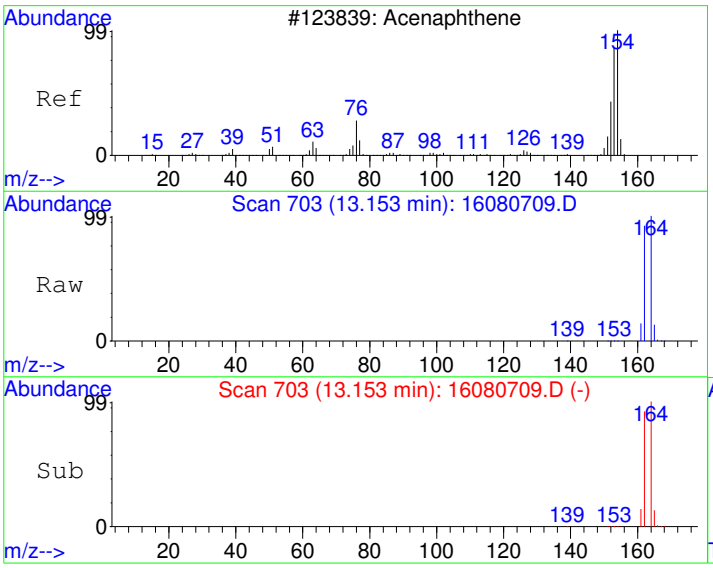
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080709.D Vial: 9
Acq On : 7 Aug 2016 6:07 pm Operator: DEW
Sample : 1607294-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

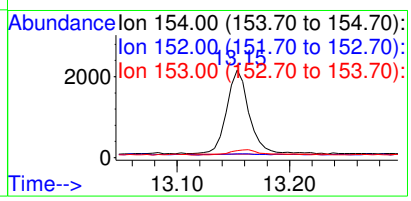


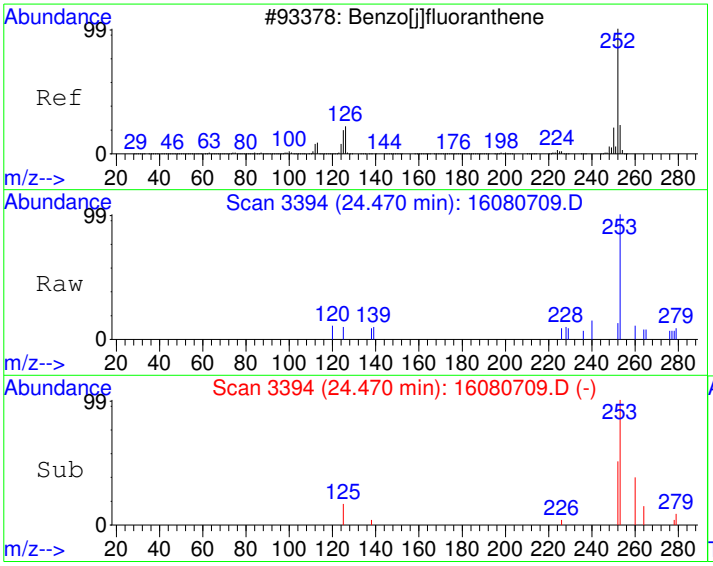


#9
Acenaphthene
Concen: 13.69 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080709.D
Acq: 7 Aug 2016 6:07 pm

Tgt Ion:154 Resp: 2954

Ion	Ratio	Lower	Upper
154	100		
152	1.3	19.1	79.1#
153	4.6	76.2	136.2#

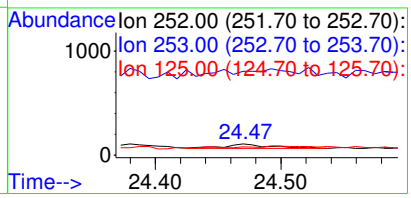




#23
Benzo(j)fluoranthene
Concen: 0.26 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080709.D
Acq: 7 Aug 2016 6:07 pm

Tgt Ion:252 Resp: 117

Ion	Ratio	Lower	Upper
252	100		
253	45.5	2.2	42.2#
125	27.3	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080710.D Vial: 10
Acq On : 7 Aug 2016 6:49 pm Operator: DEW
Sample : 1607294-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

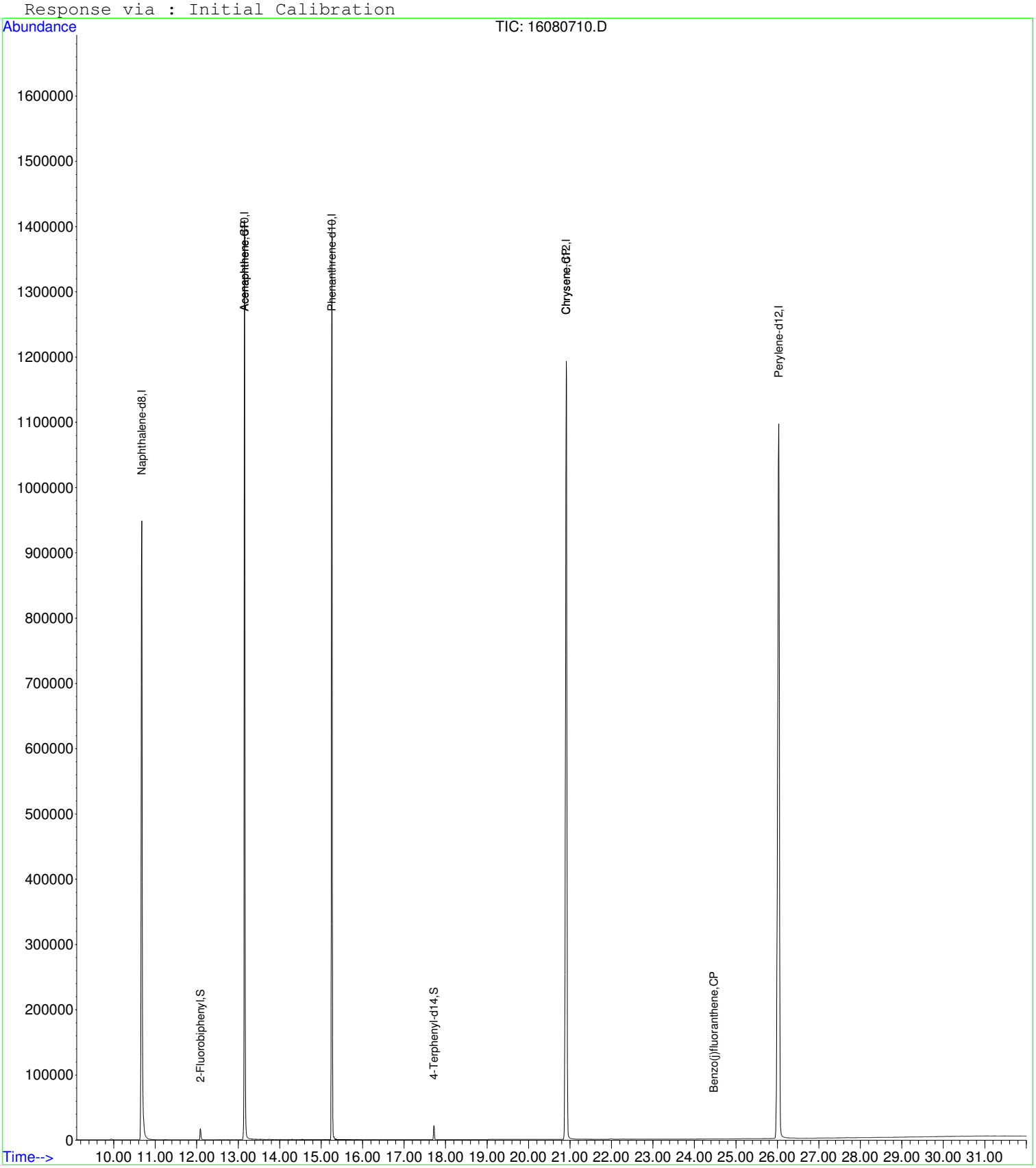
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1535376	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	845859	4000.00	ug/kg	141
11) Phenanthrene-d10	15.26	188	1662791	4000.00	ug/kg	105
17) Chrysene-d12	20.91	240	2093944	4000.00	ug/kg	114
20) Perylene-d12	26.03	264	2222947	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20522	69.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.74%#		
16) 4-Terphenyl-d14	17.72	244	31026	79.07	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2804	~~12.93 ug/kg#~~		~~10~~
19) Chrysene	20.91	228	4549	~~10.02 ug/kg~~		~~69~~
23) Benzo(j)fluoranthene	24.47	252	88	0.19	ug/kg	90

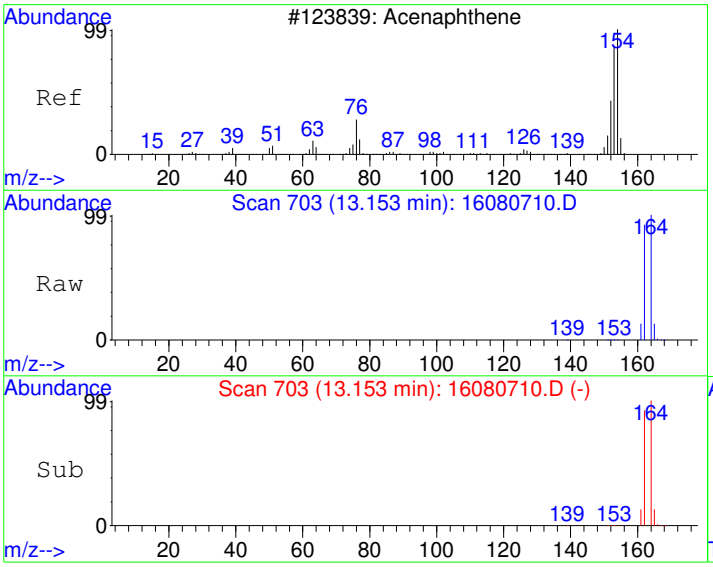
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080710.D Vial: 10
Acq On : 7 Aug 2016 6:49 pm Operator: DEW
Sample : 1607294-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

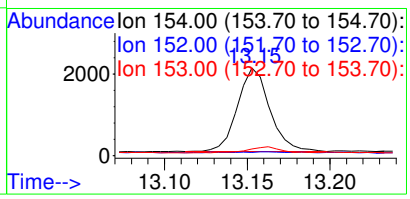


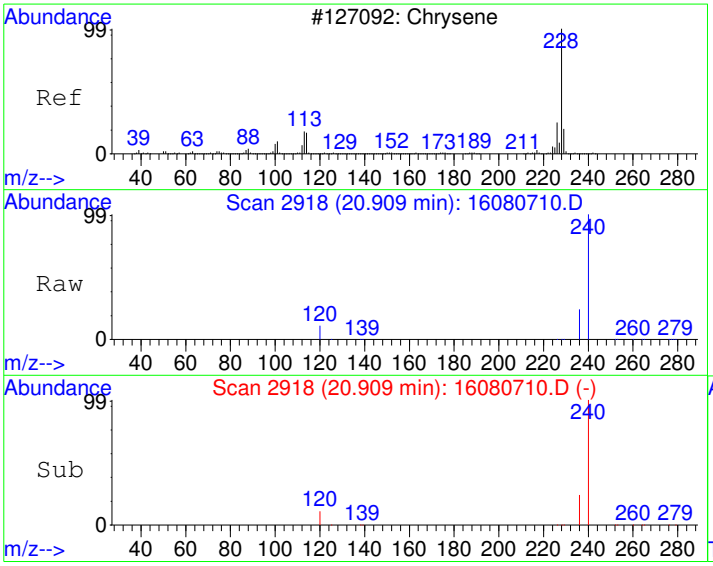


#9
Acenaphthene
Concen: 12.93 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080710.D
Acq: 7 Aug 2016 6:49 pm

Tgt Ion:154 Resp: 2804

Ion	Ratio	Lower	Upper
154	100		
152	0.5	19.1	79.1#
153	4.8	76.2	136.2#

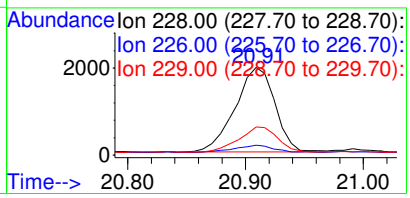


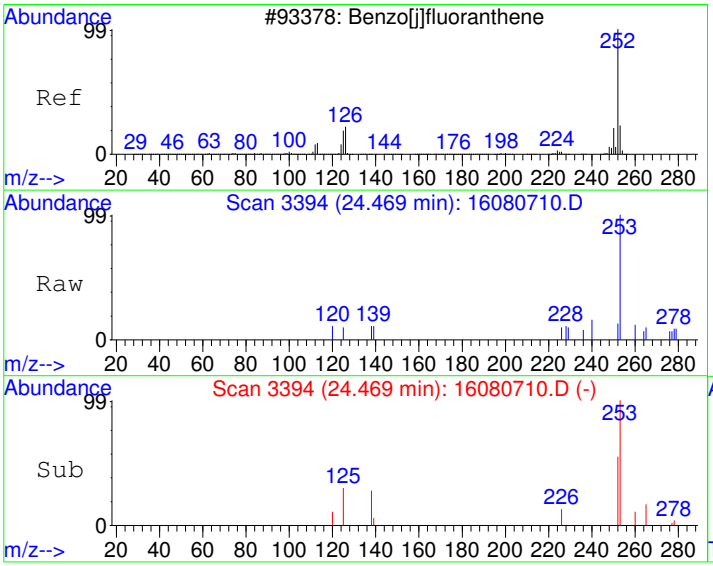


#19
Chrysene
Concen: 10.02 ug/kg
RT: 20.91 min Scan# 2918
Delta R.T. -0.11 min
Lab File: 16080710.D
Acq: 7 Aug 2016 6:49 pm

Tgt Ion:228 Resp: 4549

Ion	Ratio	Lower	Upper
228	100		
226	8.5	0.0	58.1
229	29.8	0.0	50.0

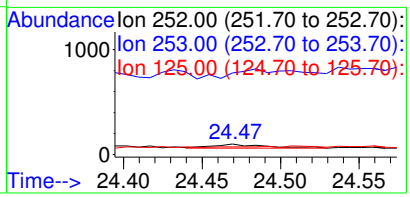




#23
Benzo(j)fluoranthene
Concen: 0.19 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080710.D
Acq: 7 Aug 2016 6:49 pm

Tgt Ion:252 Resp: 88

Ion	Ratio	Lower	Upper
252	100		
253	15.4	2.2	42.2
125	12.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080711.D Vial: 11
Acq On : 7 Aug 2016 7:29 pm Operator: DEW
Sample : 1607294-28A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

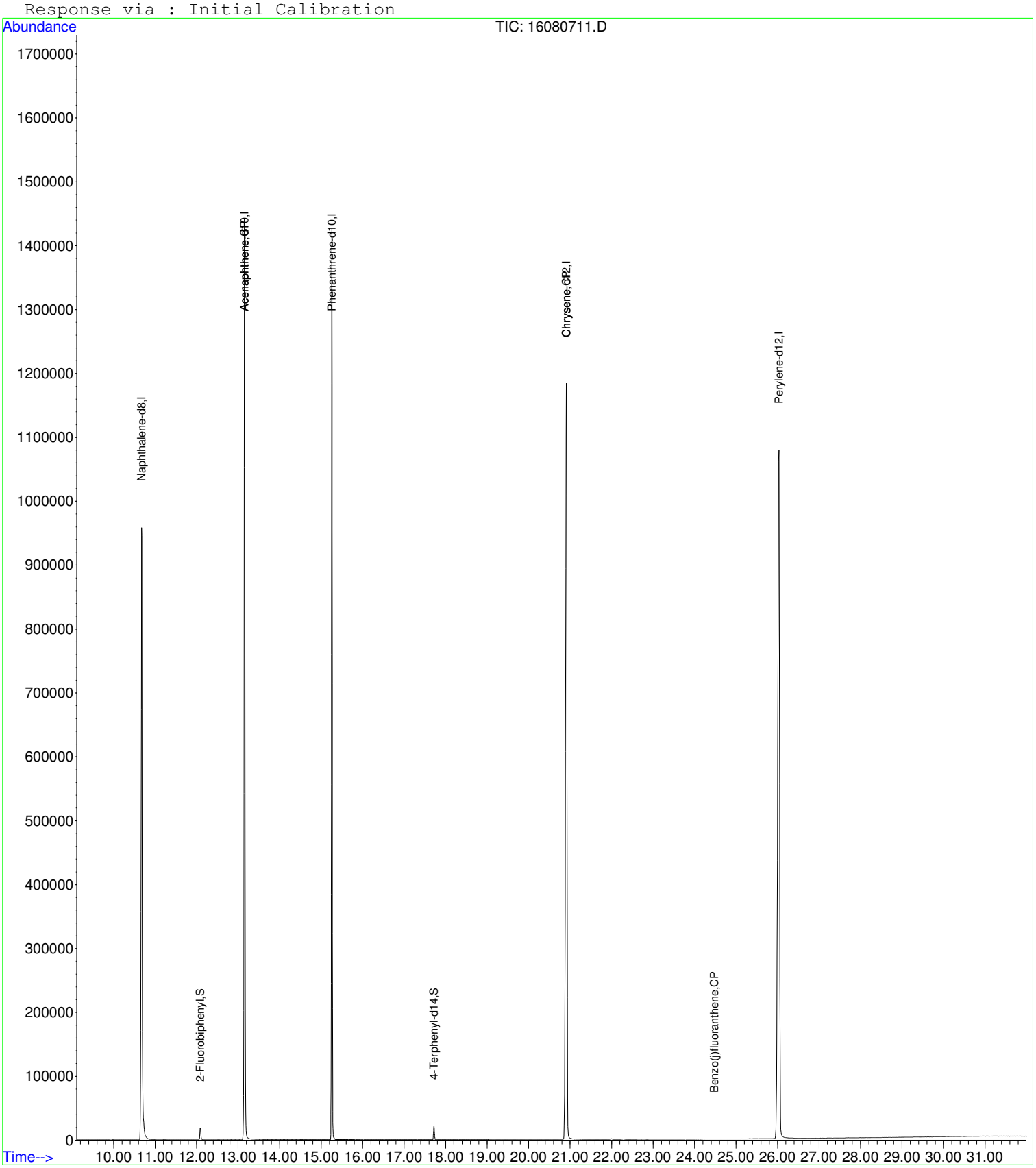
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1595381	4000.00	ug/kg	114
5) Acenaphthene-d10	13.15	164	867019	4000.00	ug/kg	145
11) Phenanthrene-d10	15.26	188	1663479	4000.00	ug/kg	105
17) Chrysene-d12	20.91	240	2107411	4000.00	ug/kg	115
20) Perylene-d12	26.03	264	2240085	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	22369	73.96	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#		
16) 4-Terphenyl-d14	17.72	244	31598	80.49	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	3013	13.55	ug/kg#	11
19) Chrysene	20.91	228	4614	10.10	ug/kg	71
23) Benzo(j)fluoranthene	24.47	252	66	0.14	ug/kg#	1

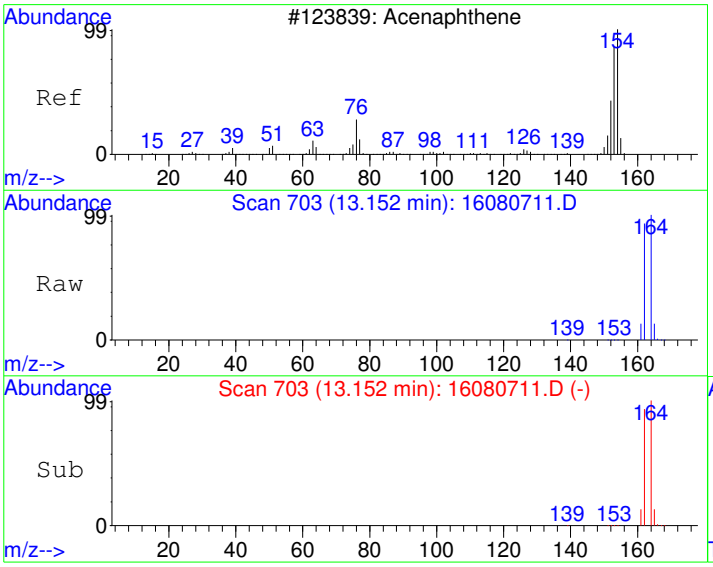
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080711.D Vial: 11
Acq On : 7 Aug 2016 7:29 pm Operator: DEW
Sample : 1607294-28A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

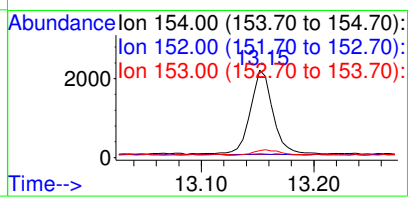


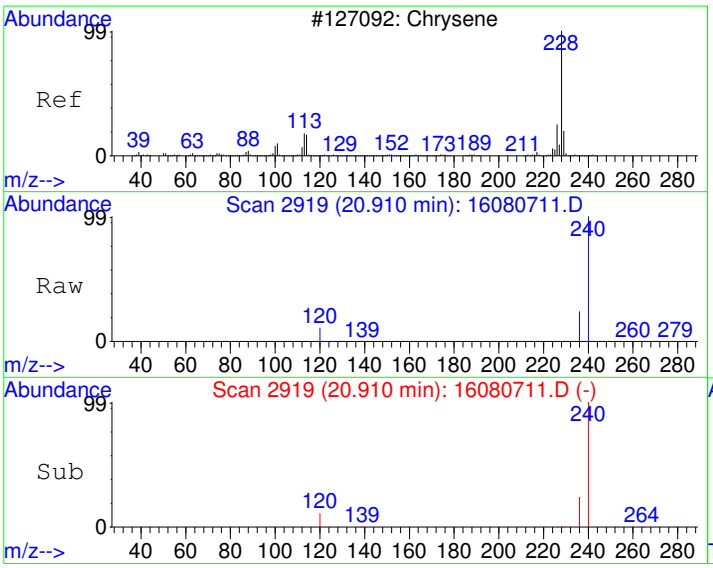


#9
Acenaphthene
Concen: 13.55 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080711.D
Acq: 7 Aug 2016 7:29 pm

Tgt Ion:154 Resp: 3013

Ion	Ratio	Lower	Upper
154	100		
152	1.1	19.1	79.1#
153	4.9	76.2	136.2#

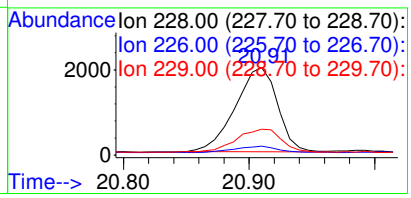


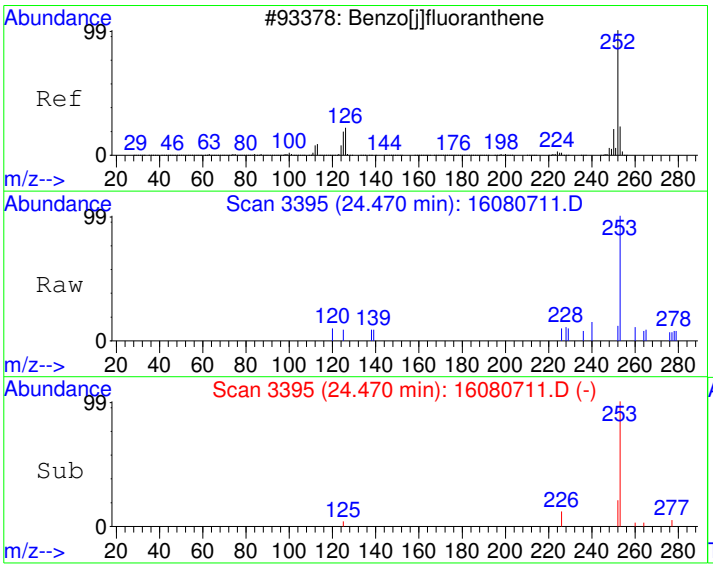


#19
Chrysene
Concen: 10.10 ug/kg
RT: 20.91 min Scan# 2919
Delta R.T. -0.11 min
Lab File: 16080711.D
Acq: 7 Aug 2016 7:29 pm

Tgt Ion:228 Resp: 4614

Ion	Ratio	Lower	Upper
228	100		
226	7.6	0.0	58.1
229	27.0	0.0	50.0

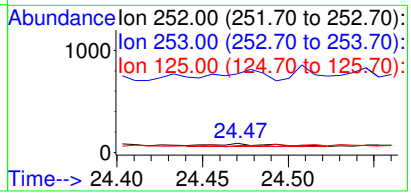




#23
Benzo(j)fluoranthene
Concen: 0.14 ug/kg
RT: 24.47 min Scan# 3395
Delta R.T. -0.04 min
Lab File: 16080711.D
Acq: 7 Aug 2016 7:29 pm

Tgt Ion:252 Resp: 66

Ion	Ratio	Lower	Upper
252	100		
253	100.0	2.2	42.2#
125	9.4	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080712.D Vial: 12
Acq On : 7 Aug 2016 8:09 pm Operator: DEW
Sample : 1607294-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

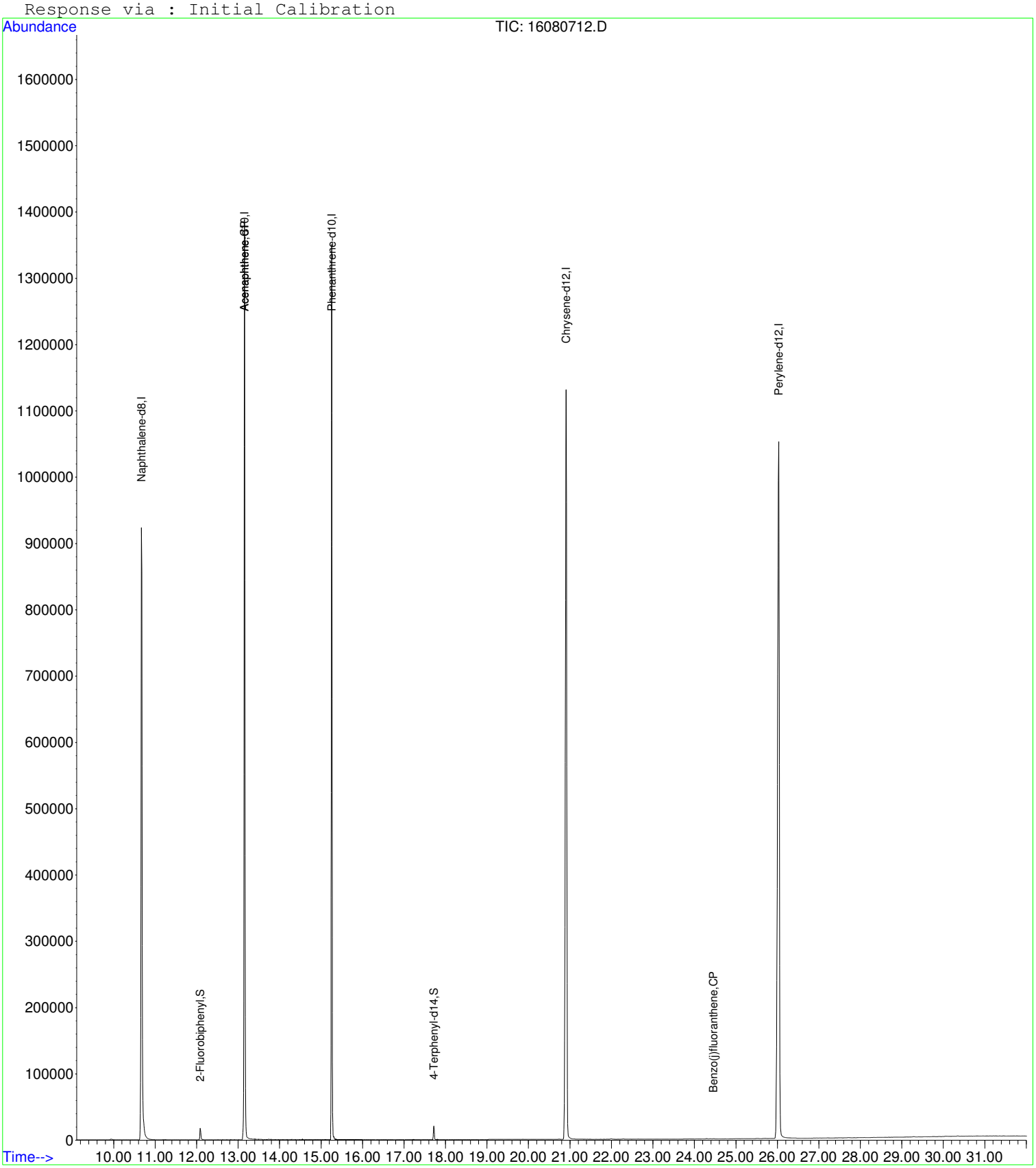
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1526112	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	834864	4000.00	ug/kg	139
11) Phenanthrene-d10	15.26	188	1561357	4000.00	ug/kg	98
17) Chrysene-d12	20.91	240	1990625	4000.00	ug/kg	109
20) Perylene-d12	26.03	264	2102481	4000.00	ug/kg	109
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21412	73.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
16) 4-Terphenyl-d14	17.72	244	30308	82.26	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2818	~~13.16 ug/kg#~~		~~11~~
23) Benzo(j)fluoranthene	24.47	252	448	1.05	ug/kg	91

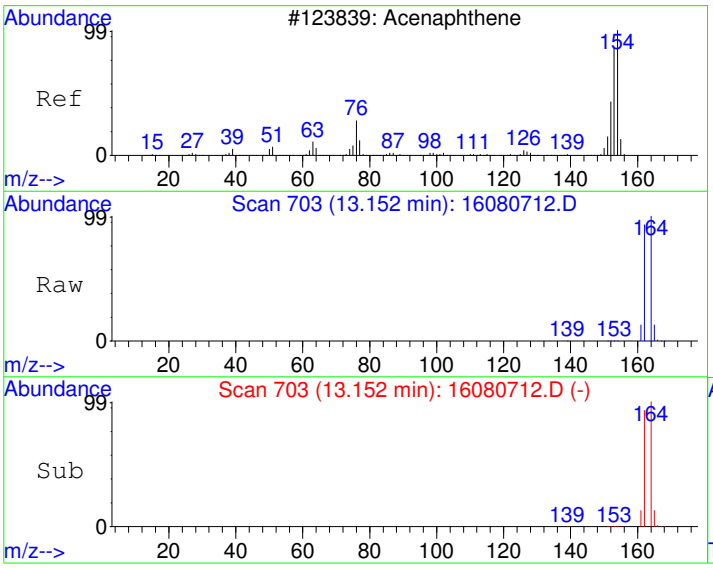
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080712.D Vial: 12
Acq On : 7 Aug 2016 8:09 pm Operator: DEW
Sample : 1607294-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 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

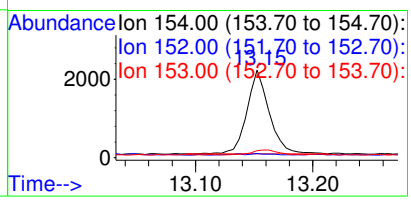


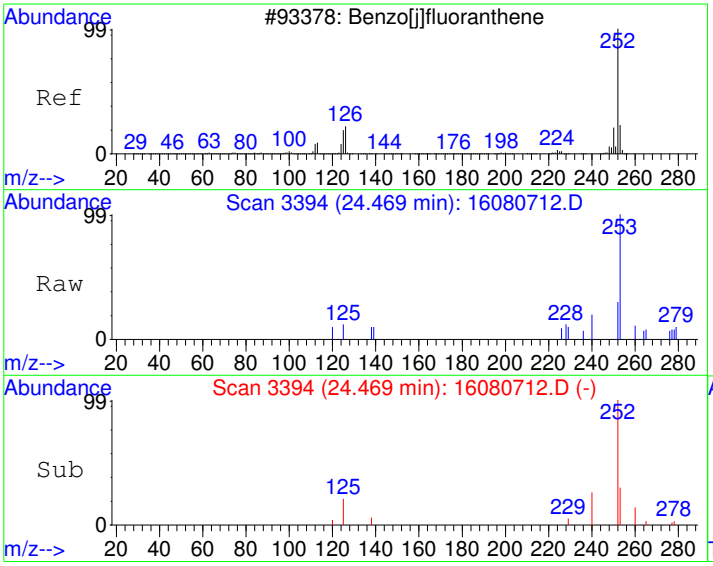


#9
Acenaphthene
Concen: 13.16 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080712.D
Acq: 7 Aug 2016 8:09 pm

Tgt Ion:154 Resp: 2818

Ion	Ratio	Lower	Upper
154	100		
152	1.8	19.1	79.1#
153	4.6	76.2	136.2#

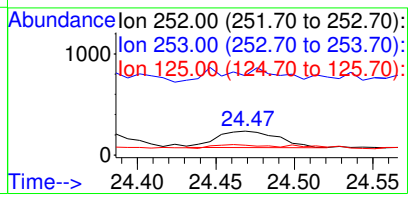




#23
Benzo(j)fluoranthene
Concen: 1.05 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080712.D
Acq: 7 Aug 2016 8:09 pm

Tgt Ion:252 Resp: 448

Ion	Ratio	Lower	Upper
252	100		
253	28.2	2.2	42.2
125	15.3	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080713.D Vial: 13
Acq On : 7 Aug 2016 8:49 pm Operator: DEW
Sample : 1607294-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

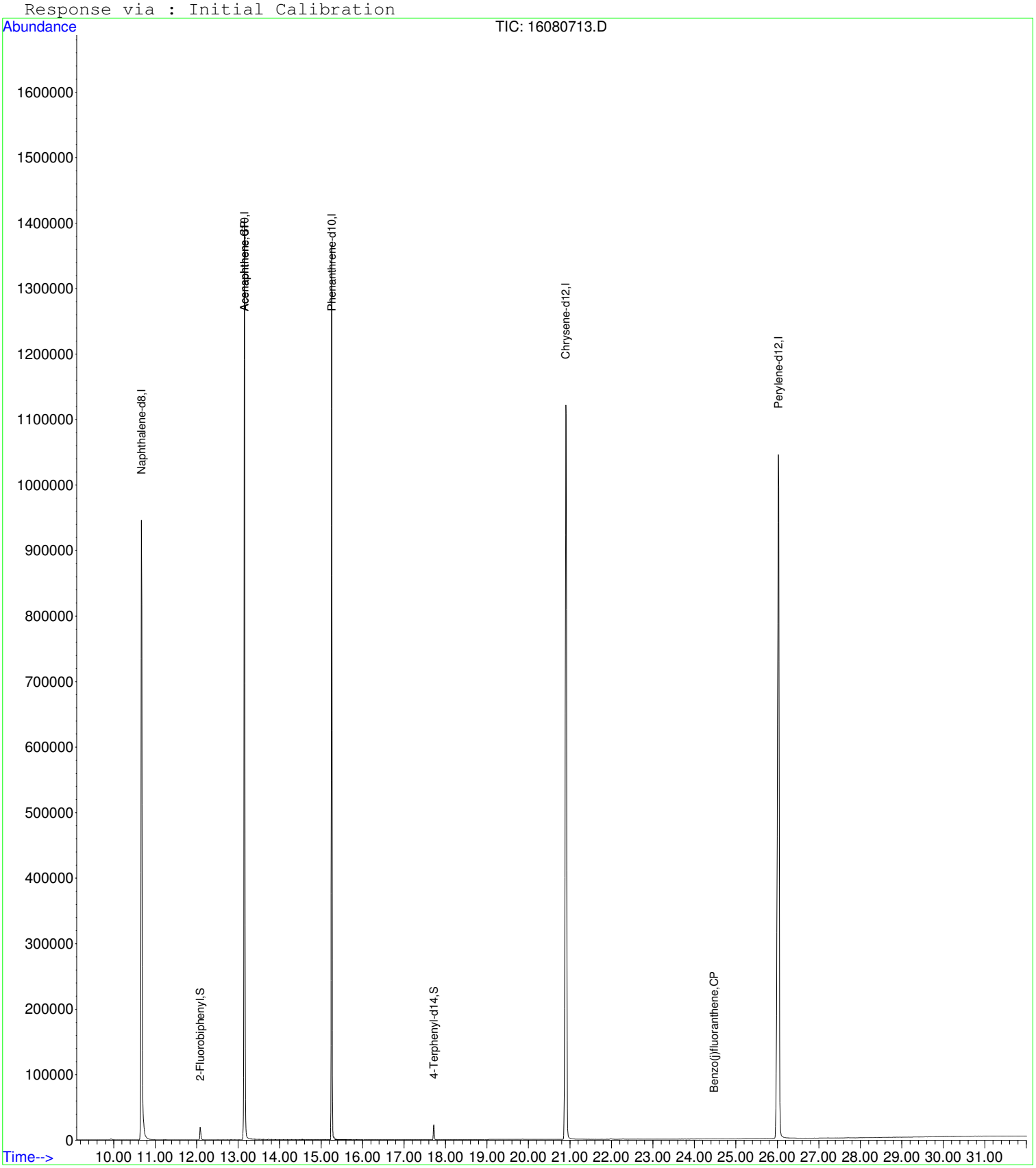
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1500073	4000.00	ug/kg	107
5) Acenaphthene-d10	13.15	164	829446	4000.00	ug/kg	138
11) Phenanthrene-d10	15.26	188	1555913	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	1984454	4000.00	ug/kg	108
20) Perylene-d12	26.02	264	2102280	4000.00	ug/kg	109
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	22991	79.47	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
16) 4-Terphenyl-d14	17.72	244	32253	87.84	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.20%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2771	~~13.03~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.47	252	30	0.07	ug/kg#	1

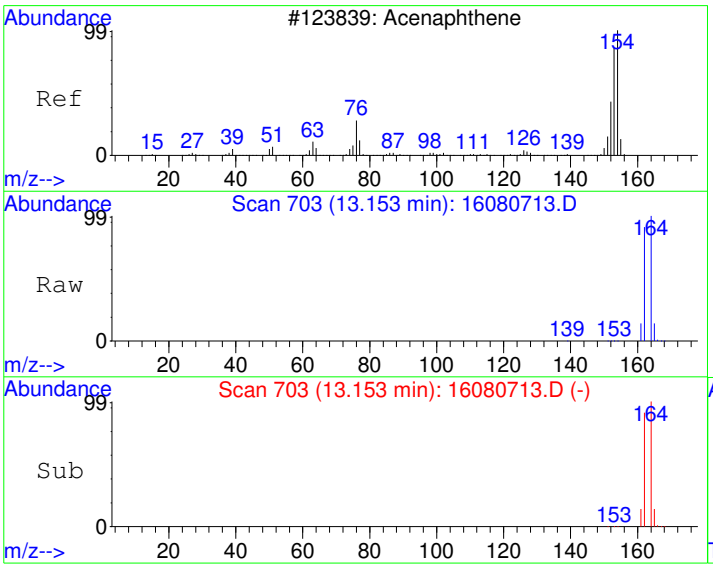
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080713.D Vial: 13
Acq On : 7 Aug 2016 8:49 pm Operator: DEW
Sample : 1607294-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

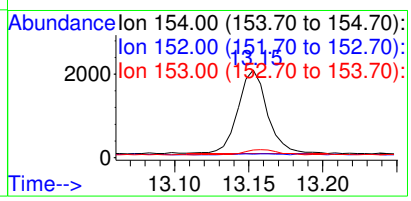


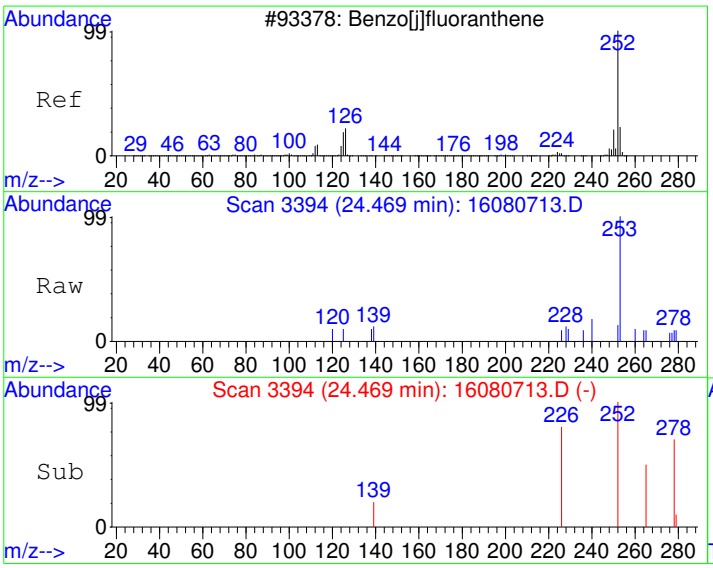


#9
Acenaphthene
Concen: 13.03 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080713.D
Acq: 7 Aug 2016 8:49 pm

Tgt Ion:154 Resp: 2771

Ion	Ratio	Lower	Upper
154	100		
152	0.8	19.1	79.1#
153	5.8	76.2	136.2#

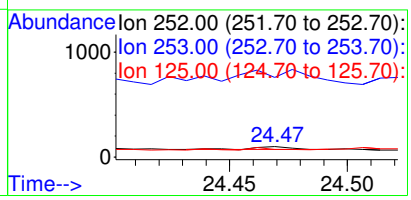




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080713.D
Acq: 7 Aug 2016 8:49 pm

Tgt Ion:252 Resp: 30

Ion	Ratio	Lower	Upper
252	100		
253	119.2	2.2	42.2#
125	30.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080714.D Vial: 14
Acq On : 7 Aug 2016 9:29 pm Operator: DEW
Sample : 1607294-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

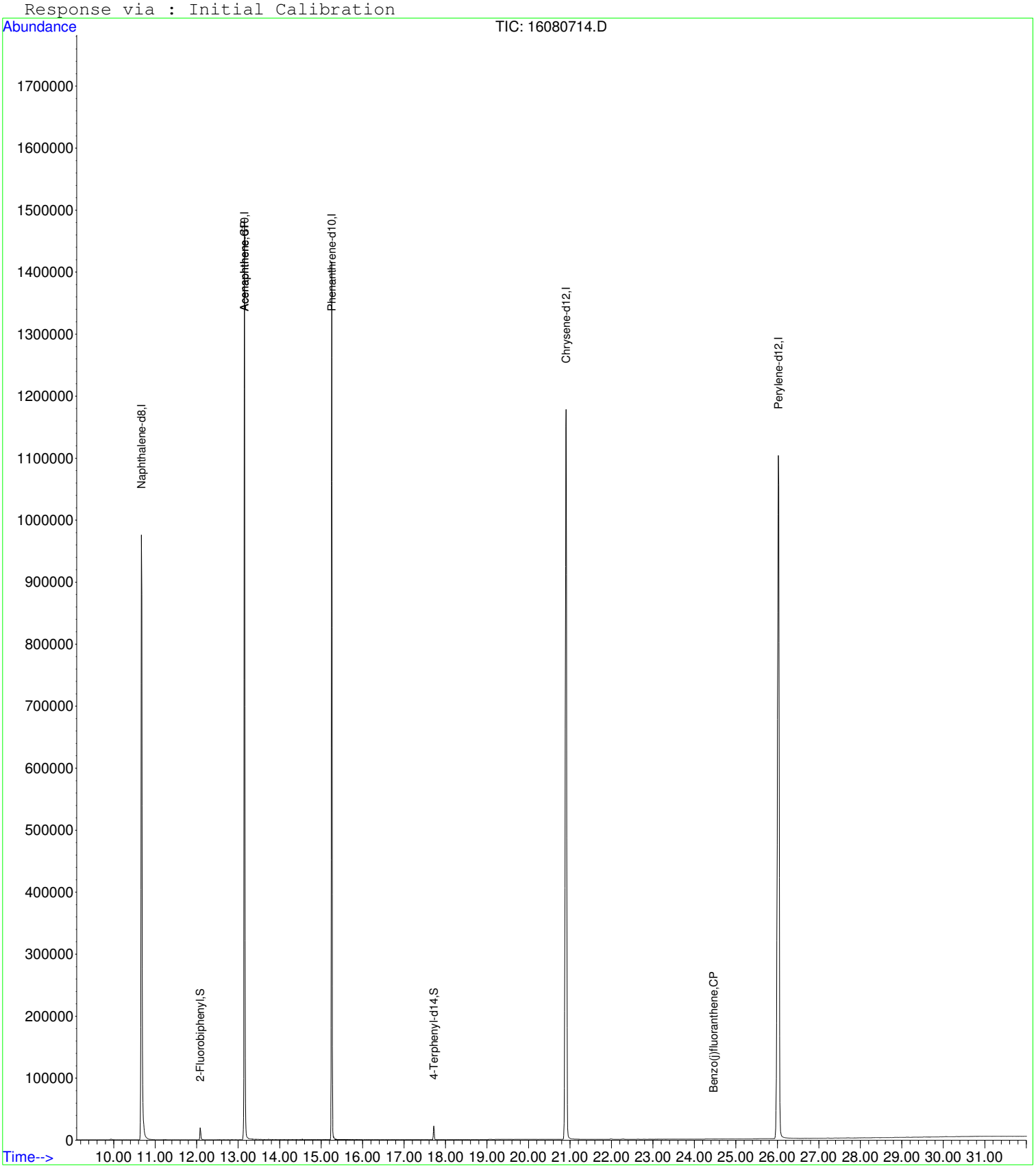
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1538948	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	852934	4000.00	ug/kg	142
11) Phenanthrene-d10	15.26	188	1631113	4000.00	ug/kg	103
17) Chrysene-d12	20.91	240	2098001	4000.00	ug/kg	114
20) Perylene-d12	26.02	264	2231102	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	22396	75.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.72	244	31798	82.61	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2917	~~13.33~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.46	252	65	0.14	ug/kg#	50

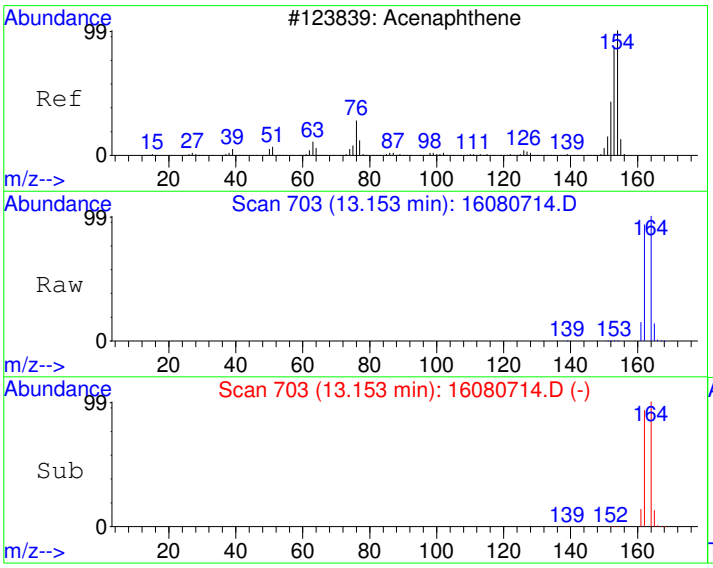
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080714.D Vial: 14
Acq On : 7 Aug 2016 9:29 pm Operator: DEW
Sample : 1607294-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

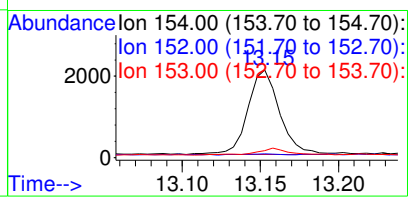


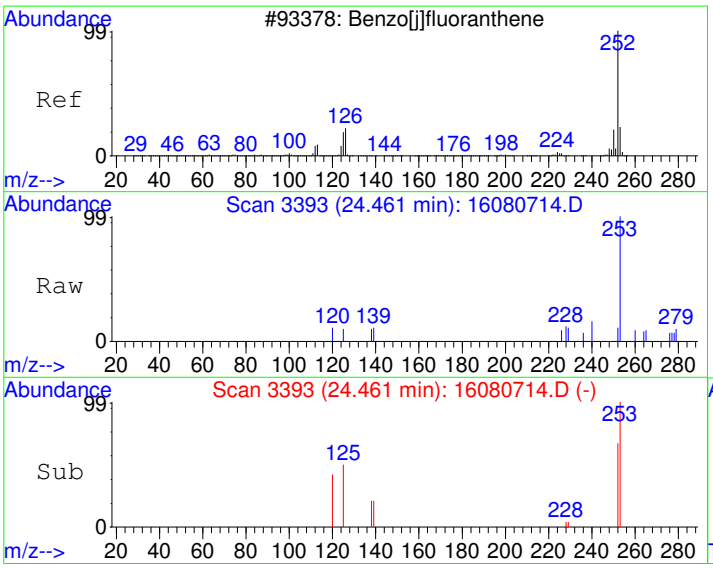


#9
Acenaphthene
Concen: 13.33 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080714.D
Acq: 7 Aug 2016 9:29 pm

Tgt Ion:154 Resp: 2917

Ion	Ratio	Lower	Upper
154	100		
152	1.0	19.1	79.1#
153	4.8	76.2	136.2#

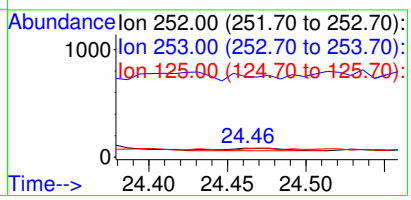




#23
Benzo(j)fluoranthene
Concen: 0.14 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080714.D
Acq: 7 Aug 2016 9:29 pm

Tgt Ion:252 Resp: 65

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080715.D Vial: 15
Acq On : 7 Aug 2016 10:08 pm Operator: DEW
Sample : 1607294-32A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

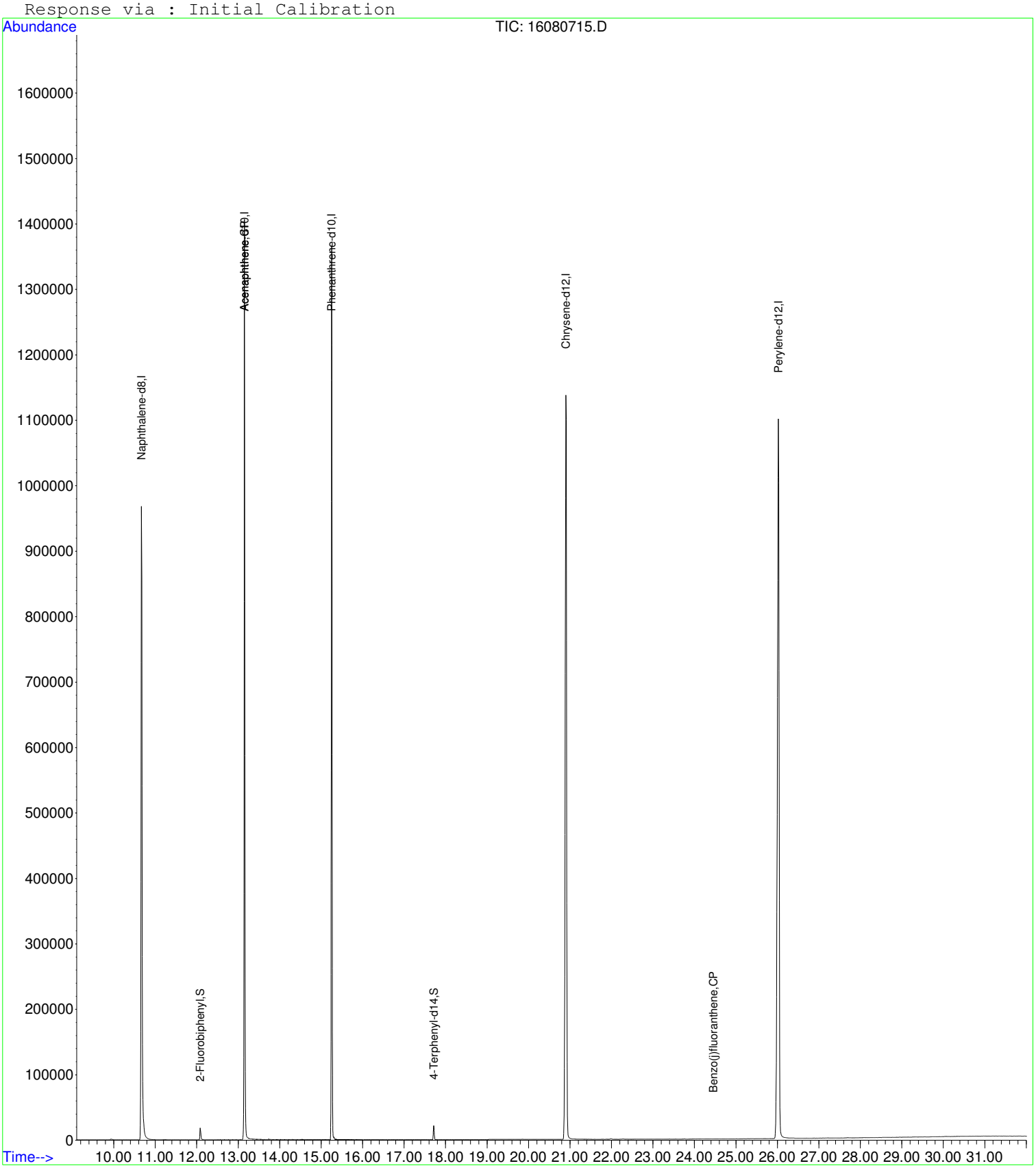
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1516405	4000.00	ug/kg	108
5) Acenaphthene-d10	13.15	164	829761	4000.00	ug/kg	138
11) Phenanthrene-d10	15.25	188	1553598	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2031621	4000.00	ug/kg	111
20) Perylene-d12	26.02	264	2196358	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21297	73.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
16) 4-Terphenyl-d14	17.72	244	30508	83.21	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2856	13.42	ug/kg#	11
23) Benzo(j)fluoranthene	24.46	252	93	0.21	ug/kg#	46

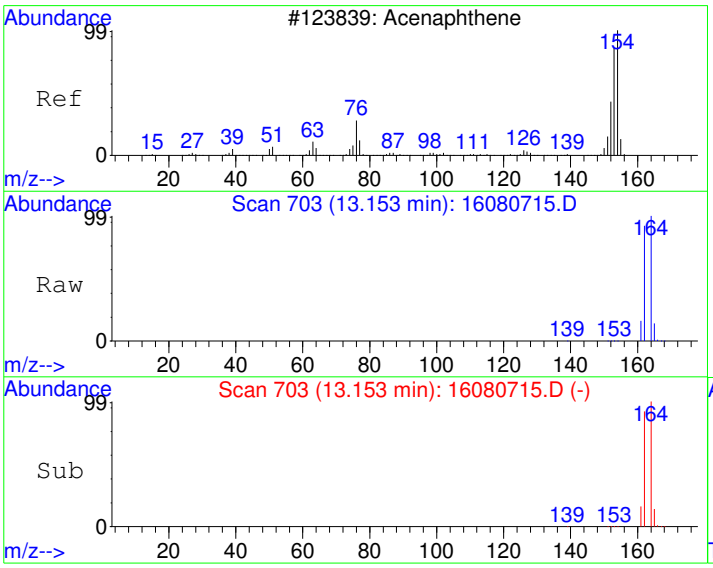
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080715.D Vial: 15
Acq On : 7 Aug 2016 10:08 pm Operator: DEW
Sample : 1607294-32A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

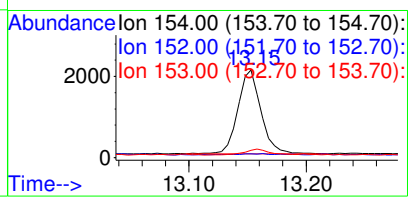


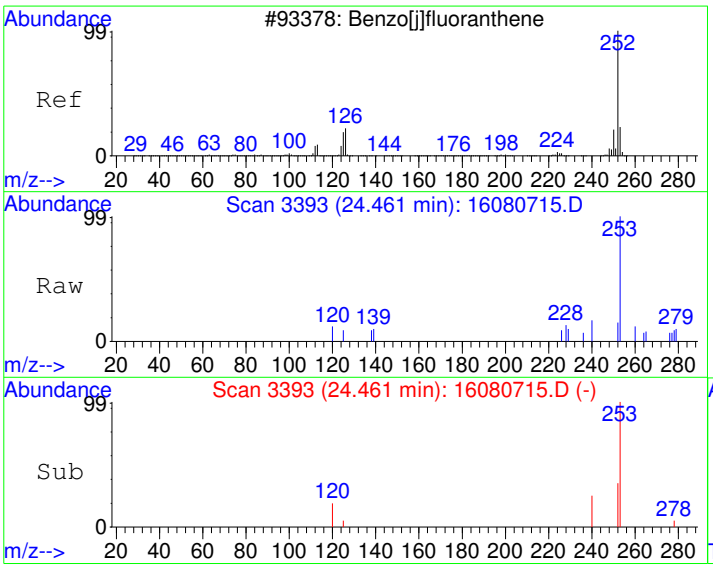


#9
Acenaphthene
Concen: 13.42 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080715.D
Acq: 7 Aug 2016 10:08 pm

Tgt Ion:154 Resp: 2856

Ion	Ratio	Lower	Upper
154	100		
152	1.1	19.1	79.1#
153	4.9	76.2	136.2#

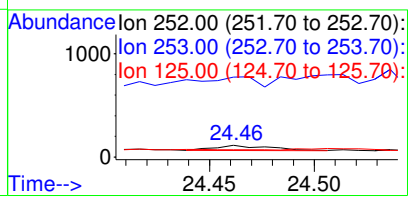




#23
Benzo(j)fluoranthene
Concen: 0.21 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080715.D
Acq: 7 Aug 2016 10:08 pm

Tgt Ion:252 Resp: 93

Ion	Ratio	Lower	Upper
252	100		
253	54.0	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080716.D Vial: 16
Acq On : 7 Aug 2016 10:48 pm Operator: DEW
Sample : 1607294-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

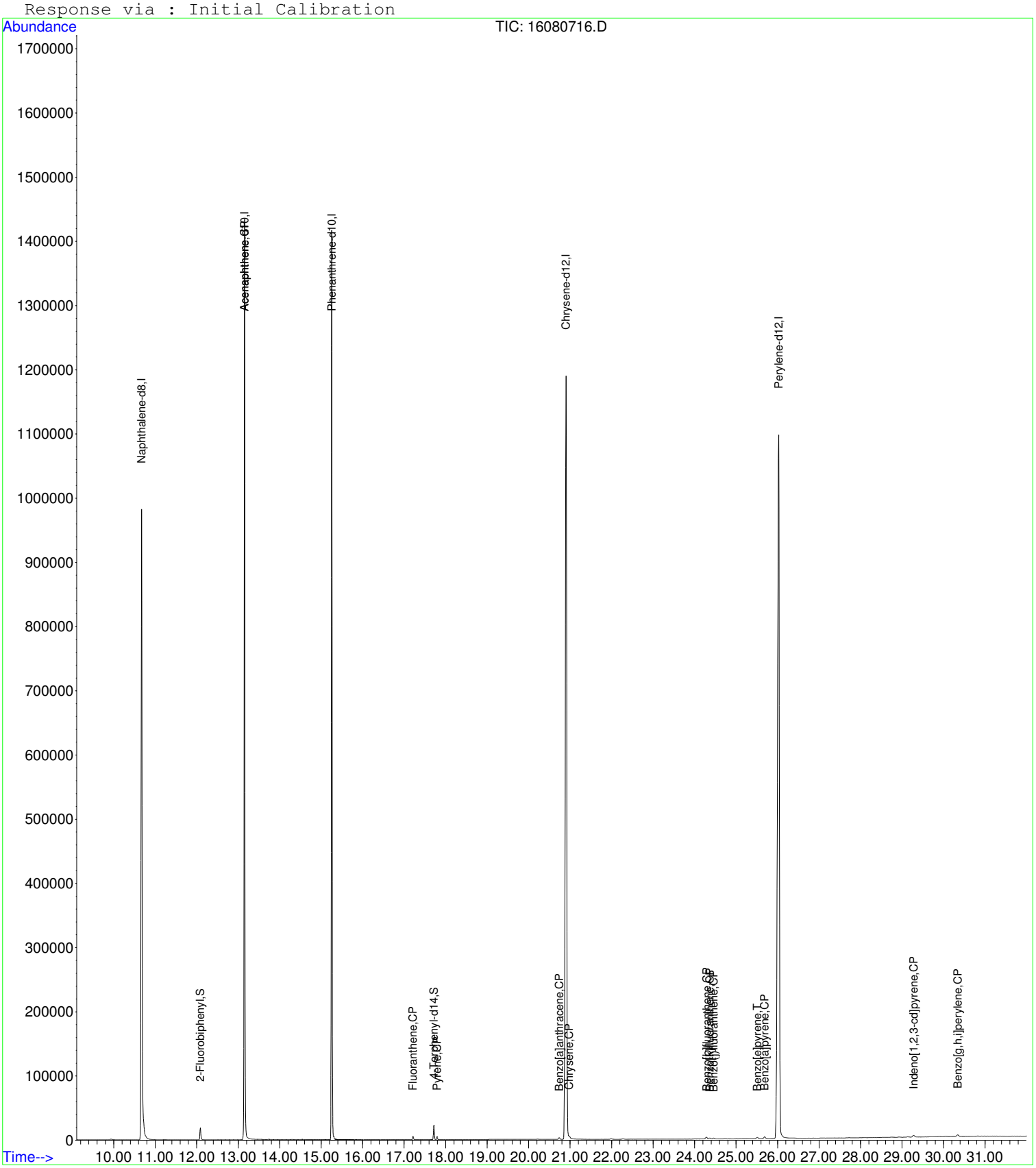
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1543225	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	846347	4000.00	ug/kg	141
11) Phenanthrene-d10	15.25	188	1629399	4000.00	ug/kg	102
17) Chrysene-d12	20.90	240	2116810	4000.00	ug/kg	115
20) Perylene-d12	26.03	264	2262177	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21306	72.17	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.71	244	31720	82.49	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2834	13.06	ug/kg#	12
14) Fluoranthene	17.22	202	6549	14.31	ug/kg	96
15) Pyrene	17.79	202	6167	13.29	ug/kg	97
18) Benzo[a]anthracene	20.74	228	4333	9.08	ug/kg	98
19) Chrysene	20.98	228	5190	11.31	ug/kg	97
21) Benzo[b]fluoranthene	24.29	252	5907	11.31	ug/kg	98
22) Benzo[k]fluoranthene	24.37	252	2849	5.95	ug/kg	95
23) Benzo(j)fluoranthene	24.45	252	2698	5.86	ug/kg	92
24) Benzo[e]pyrene	25.51	252	4704	9.28	ug/kg	96
25) Benzo[a]pyrene	25.69	252	5923	11.74	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.29	276	5199	8.97	ug/kg	90
28) Benzo[g,h,i]perylene	30.34	276	5432	11.19	ug/kg	95

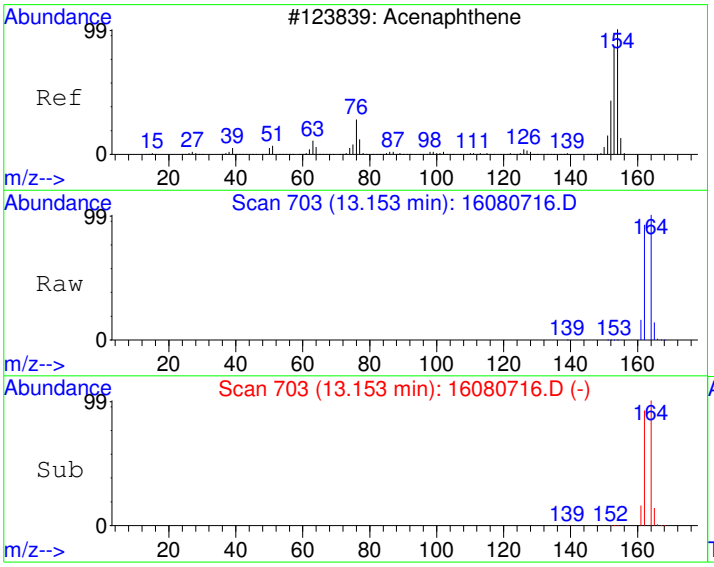
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080716.D Vial: 16
Acq On : 7 Aug 2016 10:48 pm Operator: DEW
Sample : 1607294-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

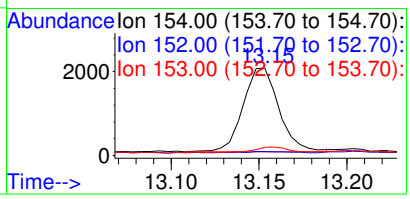


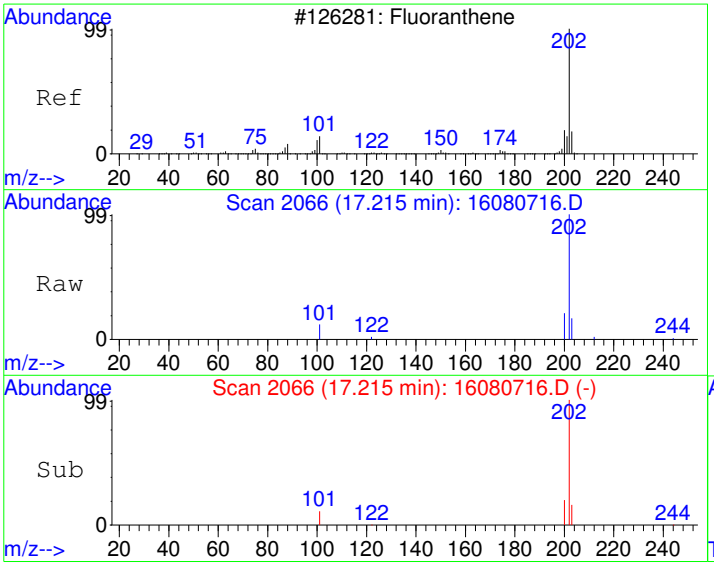


#9
Acenaphthene
Concen: 13.06 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:154 Resp: 2834

Ion	Ratio	Lower	Upper
154	100		
152	1.7	19.1	79.1#
153	6.0	76.2	136.2#

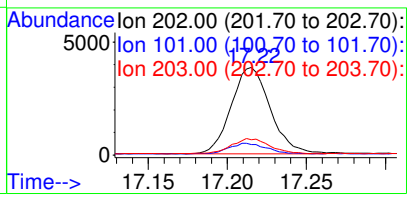


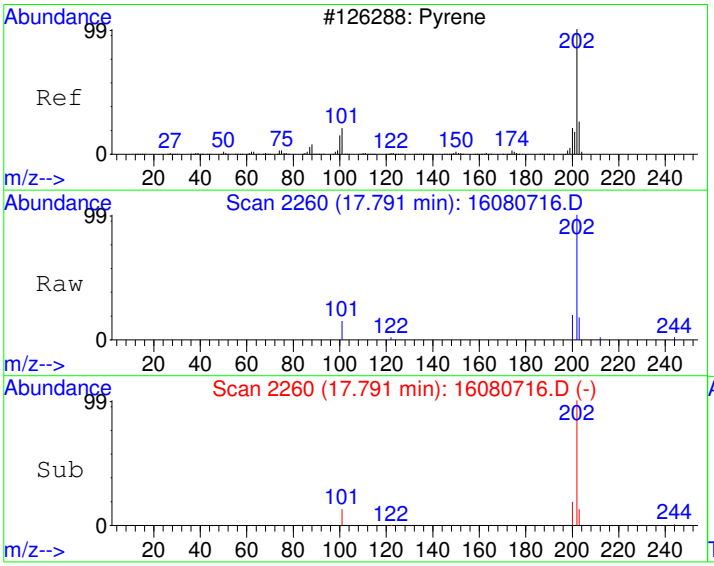


#14
Fluoranthene
Concen: 14.31 ug/kg
RT: 17.22 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:202 Resp: 6549

Ion	Ratio	Lower	Upper
202	100		
101	10.6	0.0	42.1
203	16.0	0.0	47.9

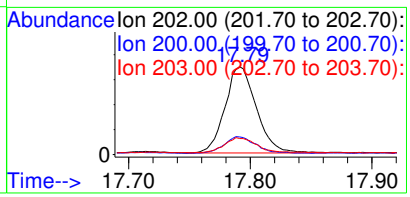


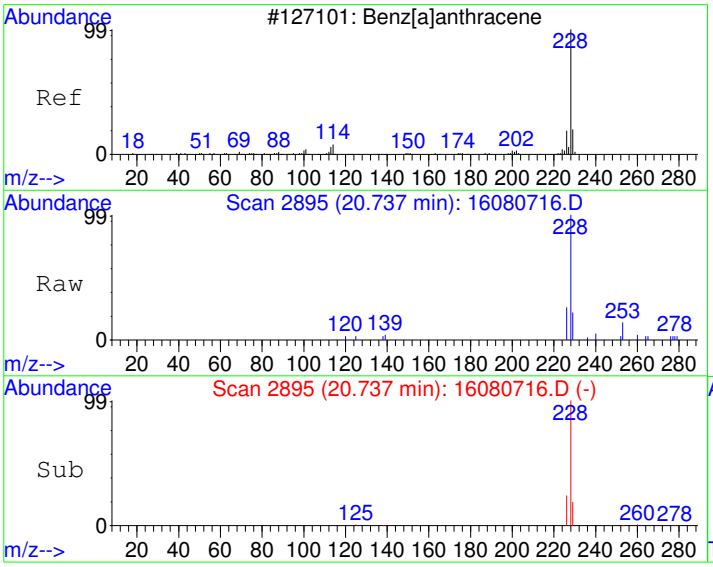


#15
Pyrene
Concen: 13.29 ug/kg
RT: 17.79 min Scan# 2260
Delta R.T. -0.02 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:202 Resp: 6167

Ion	Ratio	Lower	Upper
202	100		
200	18.9	0.0	49.7
203	16.3	0.0	47.8

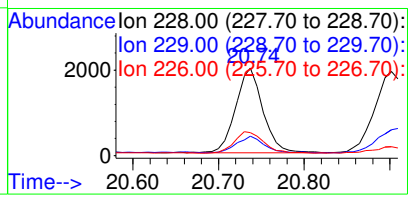


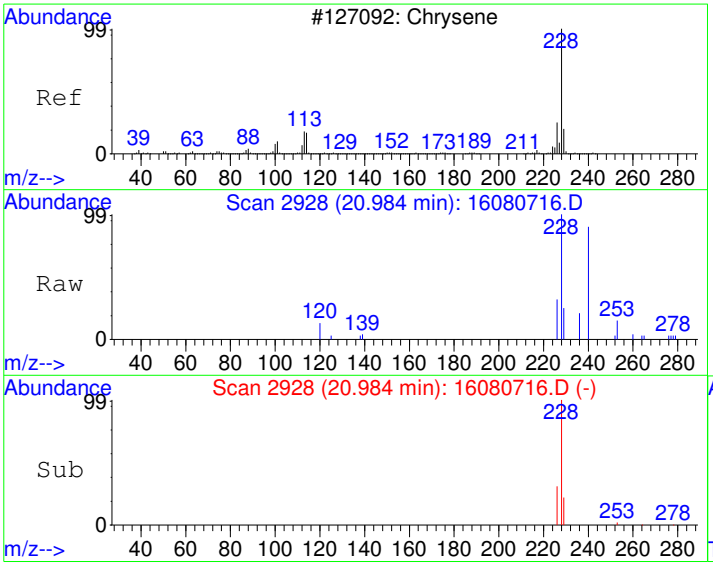


#18
Benzo[a]anthracene
Concen: 9.08 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:228 Resp: 4333

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	49.8
226	24.2	0.0	55.8

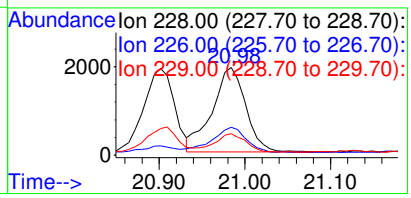


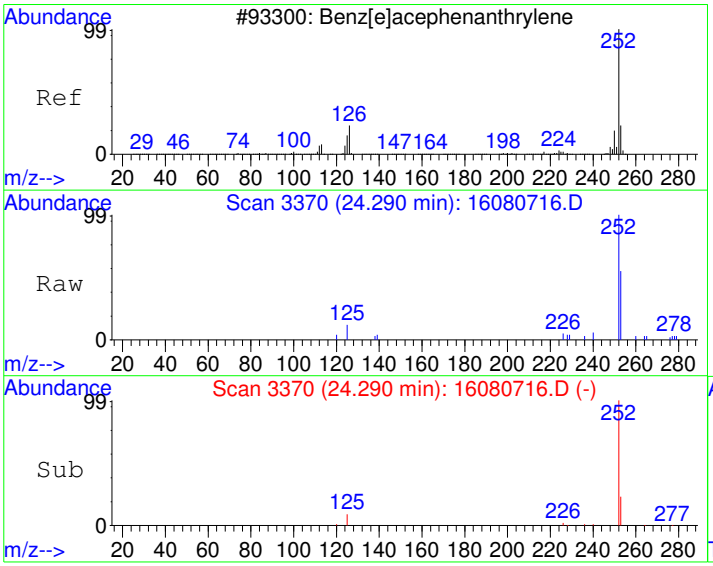


#19
Chrysene
Concen: 11.31 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.04 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:228 Resp: 5190

Ion	Ratio	Lower	Upper
228	100		
226	29.9	0.0	58.1
229	21.4	0.0	50.0

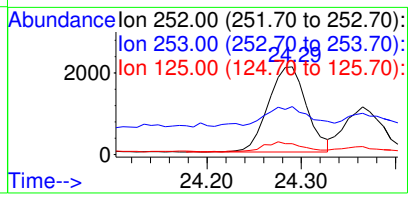


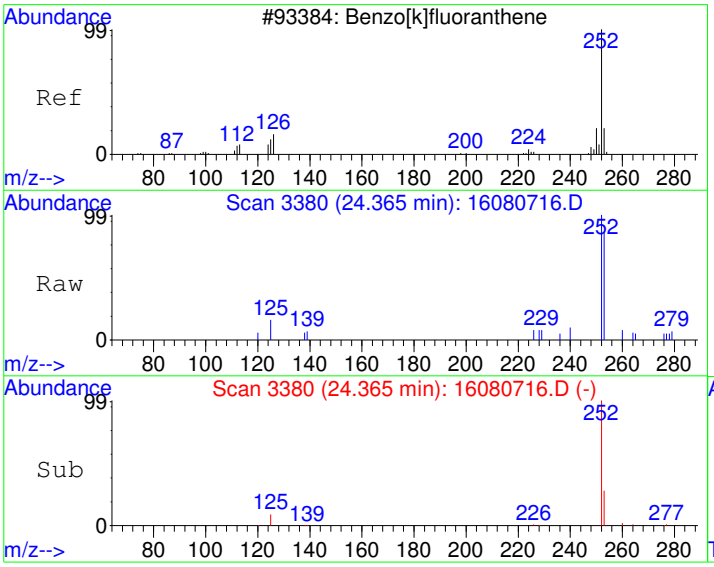


#21
Benzo[b]fluoranthene
Concen: 11.31 ug/kg
RT: 24.29 min Scan# 3370
Delta R.T. -0.04 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:252 Resp: 5907

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	52.0
125	8.6	0.0	40.6

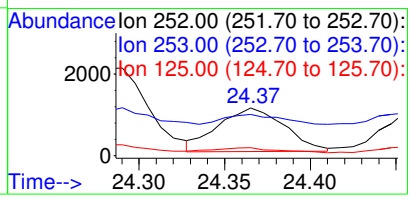


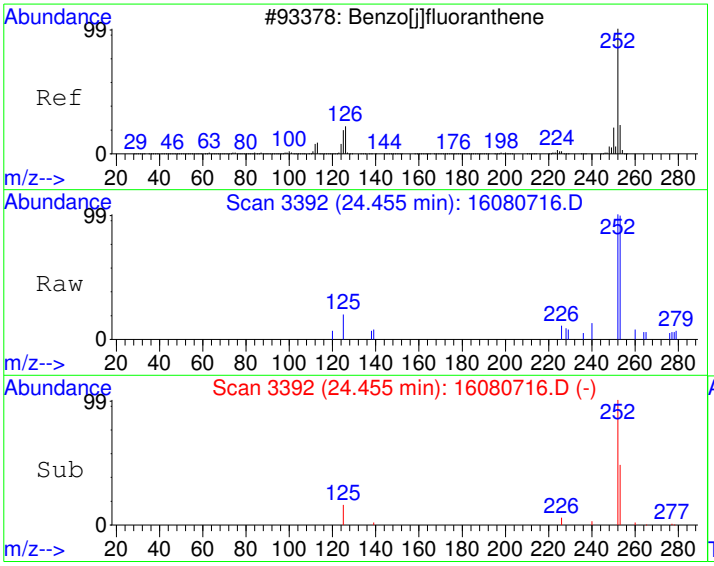


#22
Benzo[k]fluoranthene
Concen: 5.95 ug/kg
RT: 24.37 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:252 Resp: 2849

Ion	Ratio	Lower	Upper
252	100		
253	24.9	2.2	42.2
125	12.1	0.0	30.3

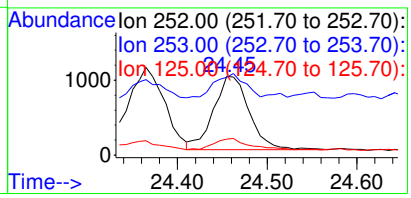


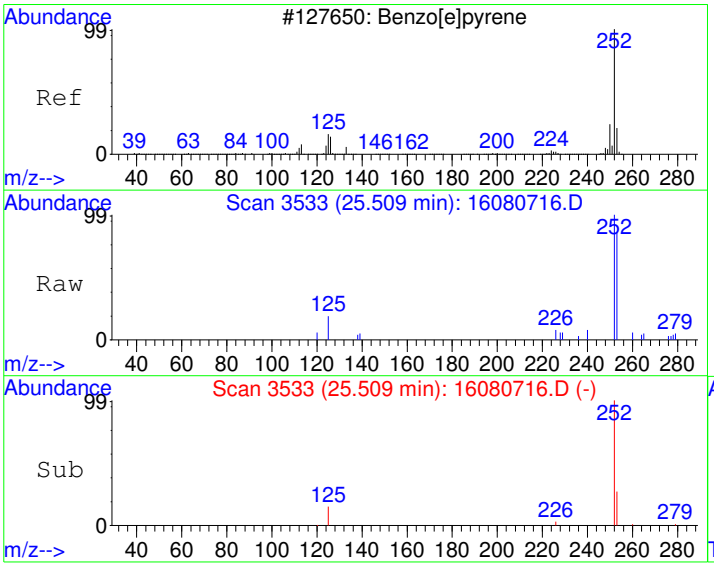


#23
Benzo(j)fluoranthene
Concen: 5.86 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:252 Resp: 2698

Ion	Ratio	Lower	Upper
252	100		
253	28.4	2.2	42.2
125	14.6	0.0	34.4

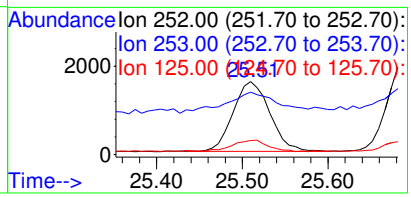


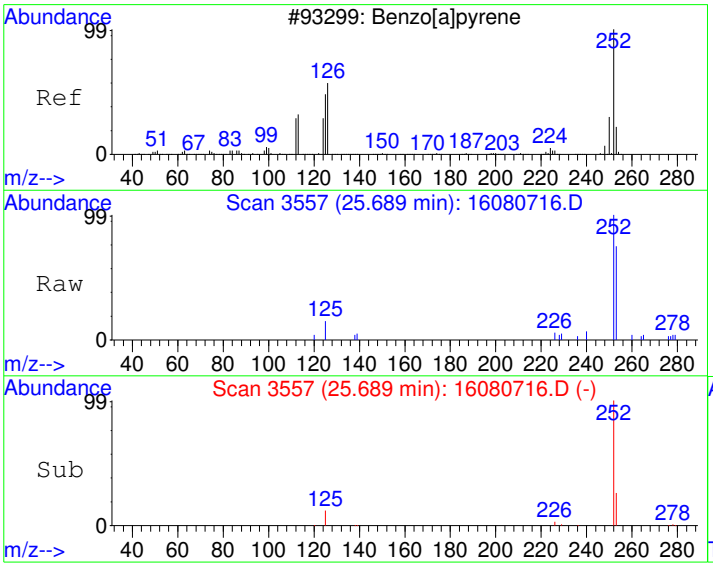


#24
Benzo[e]pyrene
Concen: 9.28 ug/kg
RT: 25.51 min Scan# 3533
Delta R.T. -0.05 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:252 Resp: 4704

Ion	Ratio	Lower	Upper
252	100		
253	25.3	2.2	42.2
125	15.2	0.0	35.7

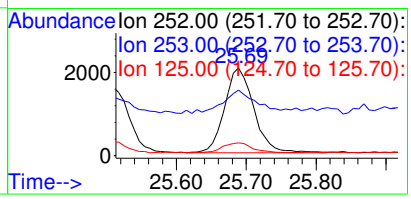


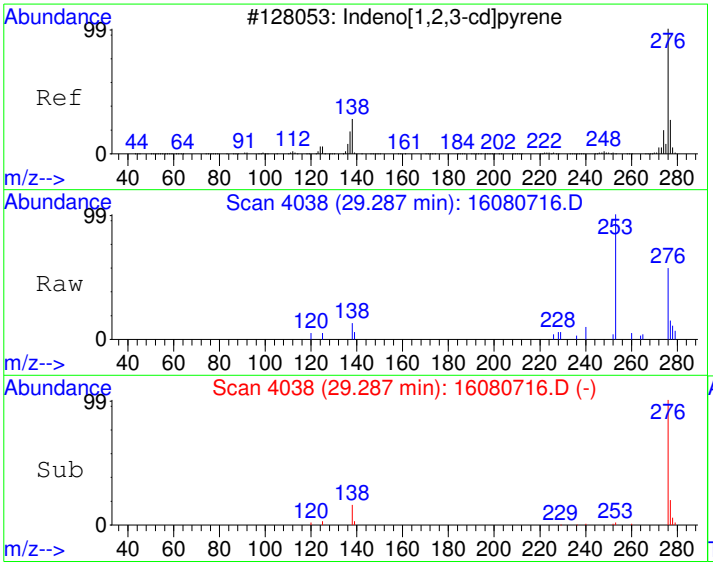


#25
Benzo[a]pyrene
Concen: 11.74 ug/kg
RT: 25.69 min Scan# 3557
Delta R.T. -0.05 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:252 Resp: 5923

Ion	Ratio	Lower	Upper
252	100		
253	24.0	2.0	42.0
125	11.4	0.0	31.6

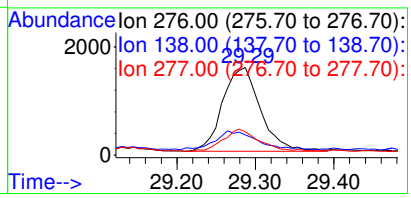


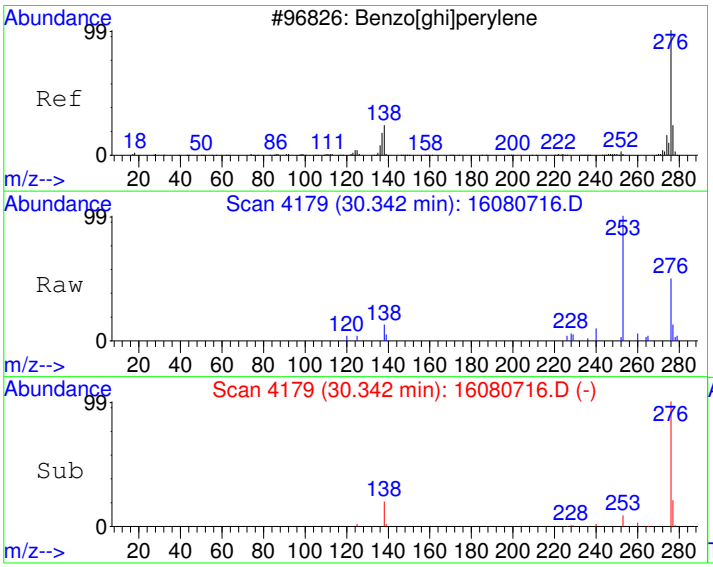


#27
Indeno[1,2,3-cd]pyrene
Concen: 8.97 ug/kg
RT: 29.29 min Scan# 4038
Delta R.T. -0.04 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:276 Resp: 5199

Ion	Ratio	Lower	Upper
276	100		
138	17.0	4.8	44.8
277	23.0	5.6	45.6

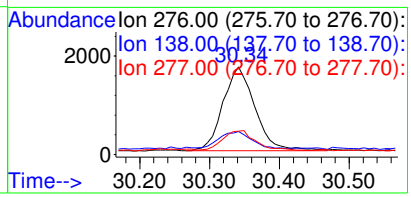




#28
Benzo[g,h,i]perylene
Concen: 11.19 ug/kg
RT: 30.34 min Scan# 4179
Delta R.T. -0.05 min
Lab File: 16080716.D
Acq: 7 Aug 2016 10:48 pm

Tgt Ion:276 Resp: 5432

Ion	Ratio	Lower	Upper
276	100		
138	21.2	0.0	38.1
277	22.2	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080717.D Vial: 17
Acq On : 7 Aug 2016 11:28 pm Operator: DEW
Sample : 1607294-34A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

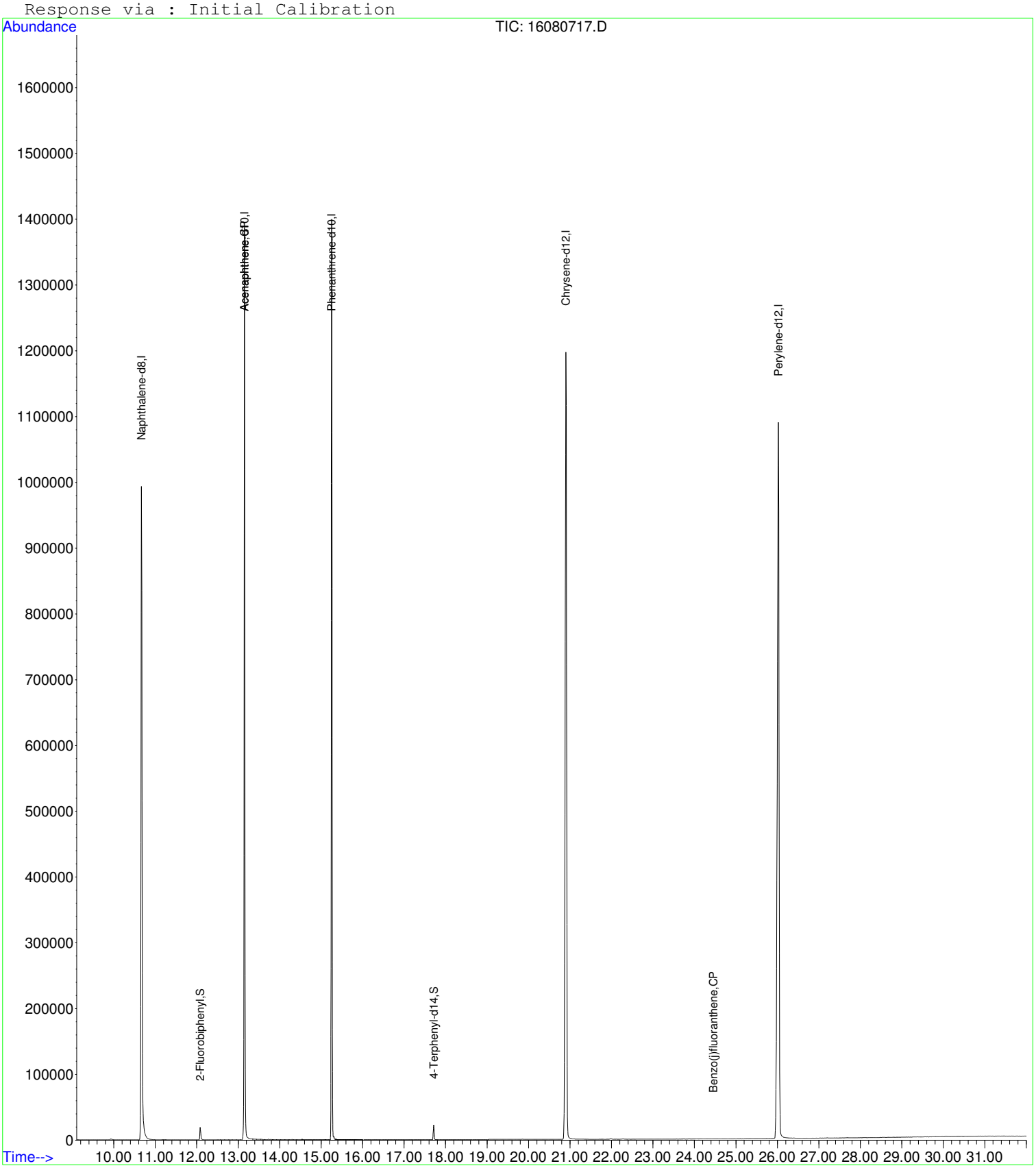
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1560664	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	845335	4000.00	ug/kg	141
11) Phenanthrene-d10	15.25	188	1603624	4000.00	ug/kg	101
17) Chrysene-d12	20.90	240	2082270	4000.00	ug/kg	114
20) Perylene-d12	26.03	264	2203250	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	22276	75.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#		
16) 4-Terphenyl-d14	17.71	244	32079	84.77	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2864	~~13.21~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.47	252	128	0.29	ug/kg	84

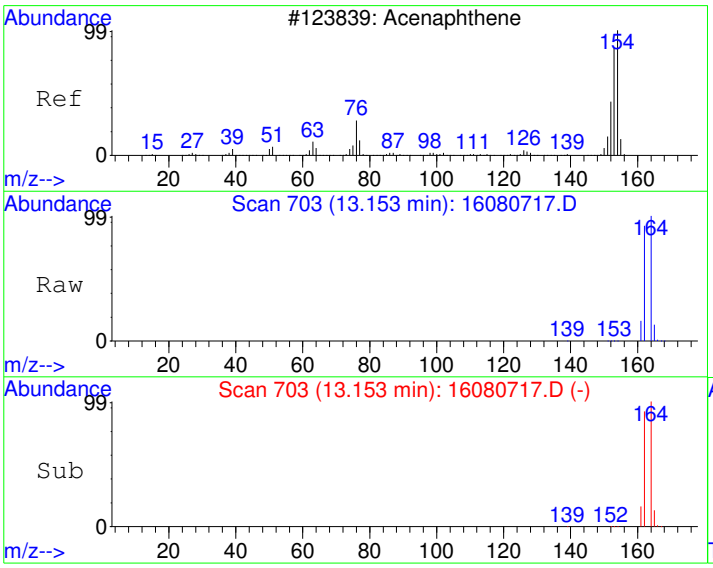
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080717.D Vial: 17
Acq On : 7 Aug 2016 11:28 pm Operator: DEW
Sample : 1607294-34A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

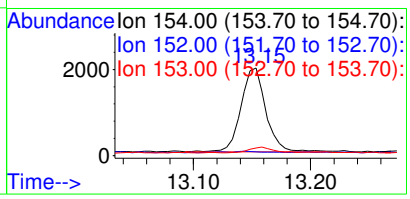


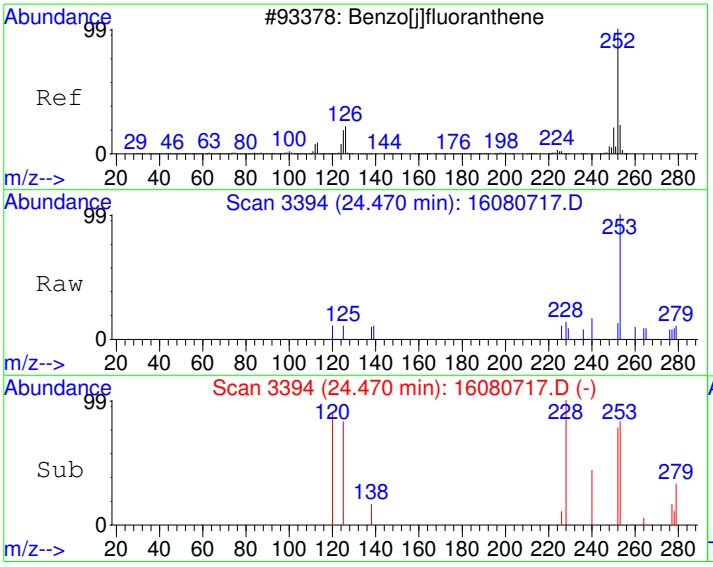


#9
Acenaphthene
Concen: 13.21 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080717.D
Acq: 7 Aug 2016 11:28 pm

Tgt Ion:154 Resp: 2864

Ion	Ratio	Lower	Upper
154	100		
152	1.1	19.1	79.1#
153	5.5	76.2	136.2#

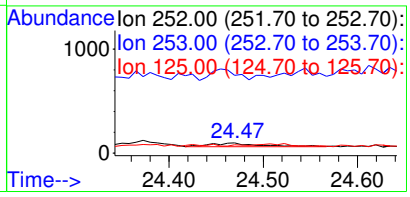




#23
Benzo(j)fluoranthene
Concen: 0.29 ug/kg
RT: 24.47 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080717.D
Acq: 7 Aug 2016 11:28 pm

Tgt Ion:252 Resp: 128

Ion	Ratio	Lower	Upper
252	100		
253	25.0	2.2	42.2
125	27.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080719.D Vial: 19
Acq On : 8 Aug 2016 12:47 am Operator: DEW
Sample : ICV2-160807 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 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

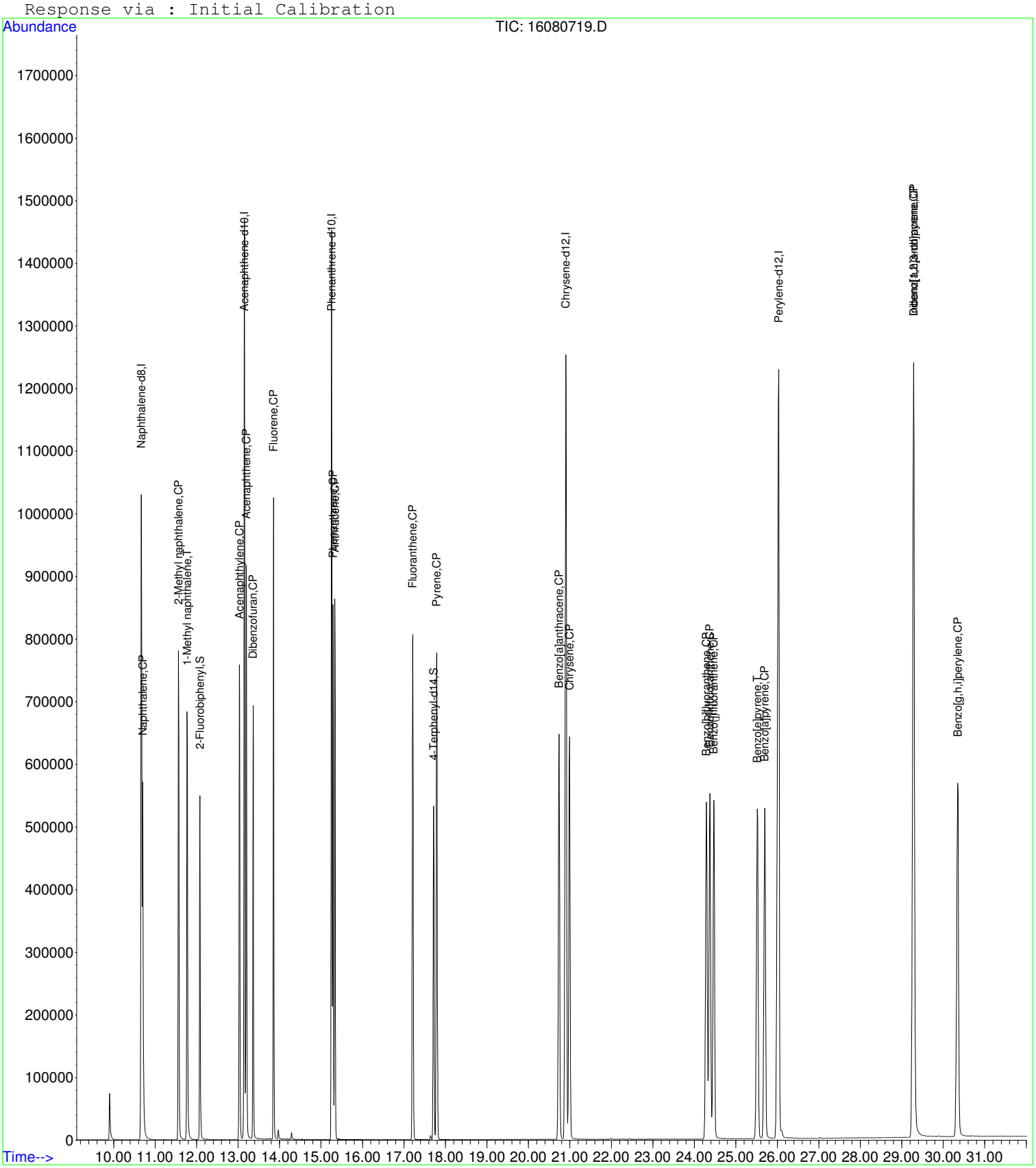
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1593937	4000.00	ug/kg	114
5) Acenaphthene-d10	13.15	164	884986	4000.00	ug/kg	148
11) Phenanthrene-d10	15.26	188	1747515	4000.00	ug/kg	110
17) Chrysene-d12	20.90	240	2239599	4000.00	ug/kg	122
20) Perylene-d12	26.03	264	2509042	4000.00	ug/kg	130
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	543044	1759.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	43.98%		
16) 4-Terphenyl-d14	17.71	244	758993	1840.46	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	46.01%		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	674963	1861.15	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	484714	2061.70	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	438698	2106.61	ug/kg	96
6) Dibenzofuran	13.36	168	653823	1825.59	ug/kg	100
8) Acenaphthylene	13.03	152	748816	1910.71	ug/kg	99
9) Acenaphthene	13.20	154	436428	1922.80	ug/kg	97
10) Fluorene	13.85	166	548764	1923.37	ug/kg	99
12) Phenanthrene	15.29	178	769546	1857.43	ug/kg	100
13) Anthracene	15.33	178	801964	1839.58	ug/kg	100
14) Fluoranthene	17.21	202	882569	1797.53	ug/kg	99
15) Pyrene	17.79	202	890799	1789.29	ug/kg	100
18) Benzo[a]anthracene	20.74	228	987339	1955.93	ug/kg	99
19) Chrysene	20.99	228	932629	1920.46	ug/kg	100
21) Benzo[b]fluoranthene	24.29	252	1121547	1936.29	ug/kg	100
22) Benzo[k]fluoranthene	24.37	252	1081082	2034.47	ug/kg	100
23) Benzo(j)fluoranthene	24.47	252	1009780	1977.38	ug/kg	99
24) Benzo[e]pyrene	25.52	252	1092358	1943.35	ug/kg	100
25) Benzo[a]pyrene	25.70	252	1082357	1933.97	ug/kg	100
26) Dibenz[a,h]anthracene	29.29	278	1181892	2182.30	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	1384957	2154.97	ug/kg	99
28) Benzo[g,h,i]perylene	30.35	276	1186542	2204.32	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080719.D Vial: 19
Acq On : 8 Aug 2016 12:47 am Operator: DEW
Sample : ICV2-160807 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:17 2016 Quant Results File: PP160801.RES

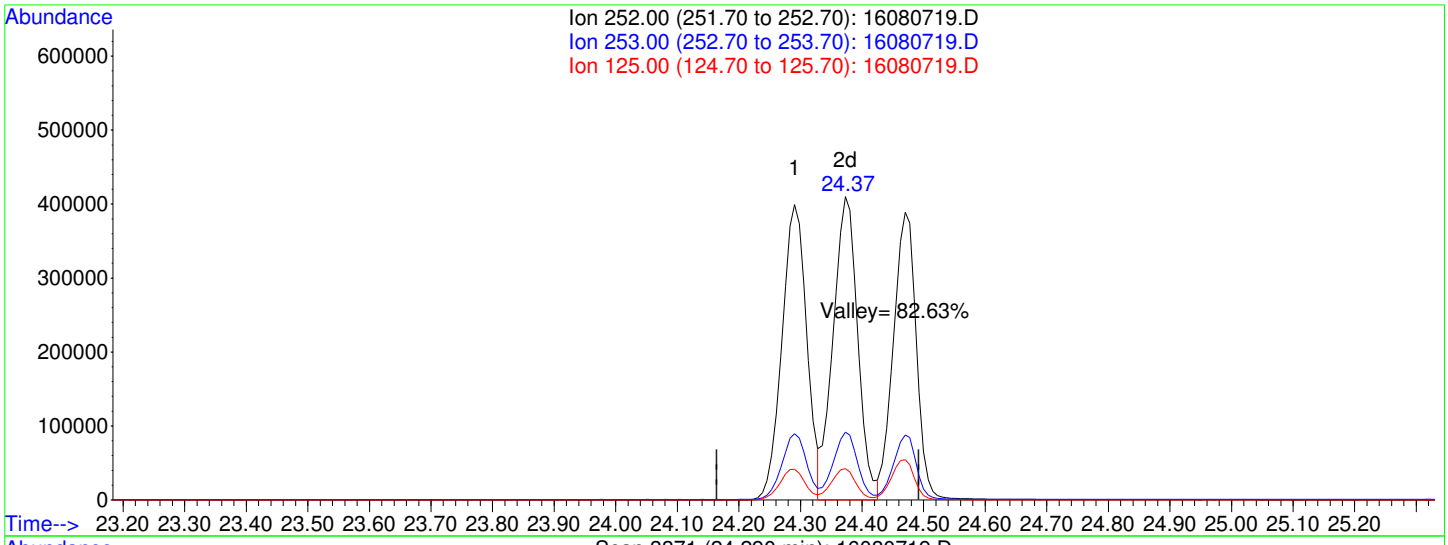
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

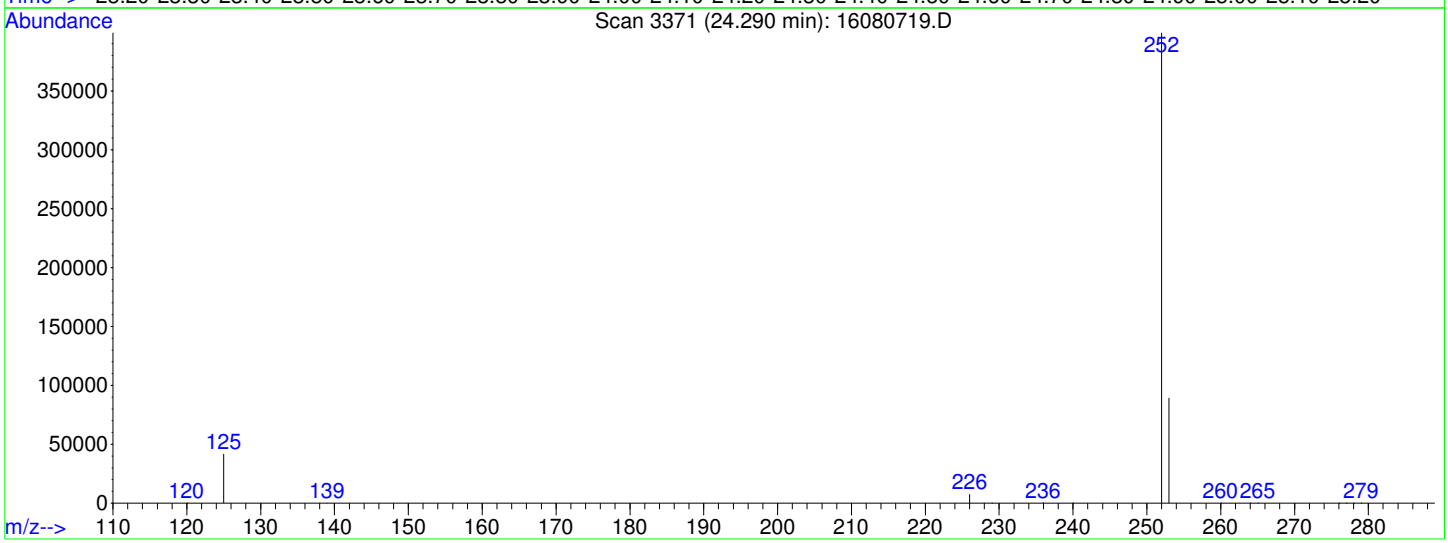


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160807\16080719.D Vial: 19
Acq On : 8 Aug 2016 12:47 am Operator: DEW
Sample : ICV2-160807 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 1:20 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: 16080719.D

(21) Benzo[b]fluoranthene (CP)

24.29min 1936.29ug/kg

response 1121547

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.25
125.00	10.60	10.45
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080721.D Vial: 21
Acq On : 8 Aug 2016 2:07 am Operator: DEW
Sample : SB-160807 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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

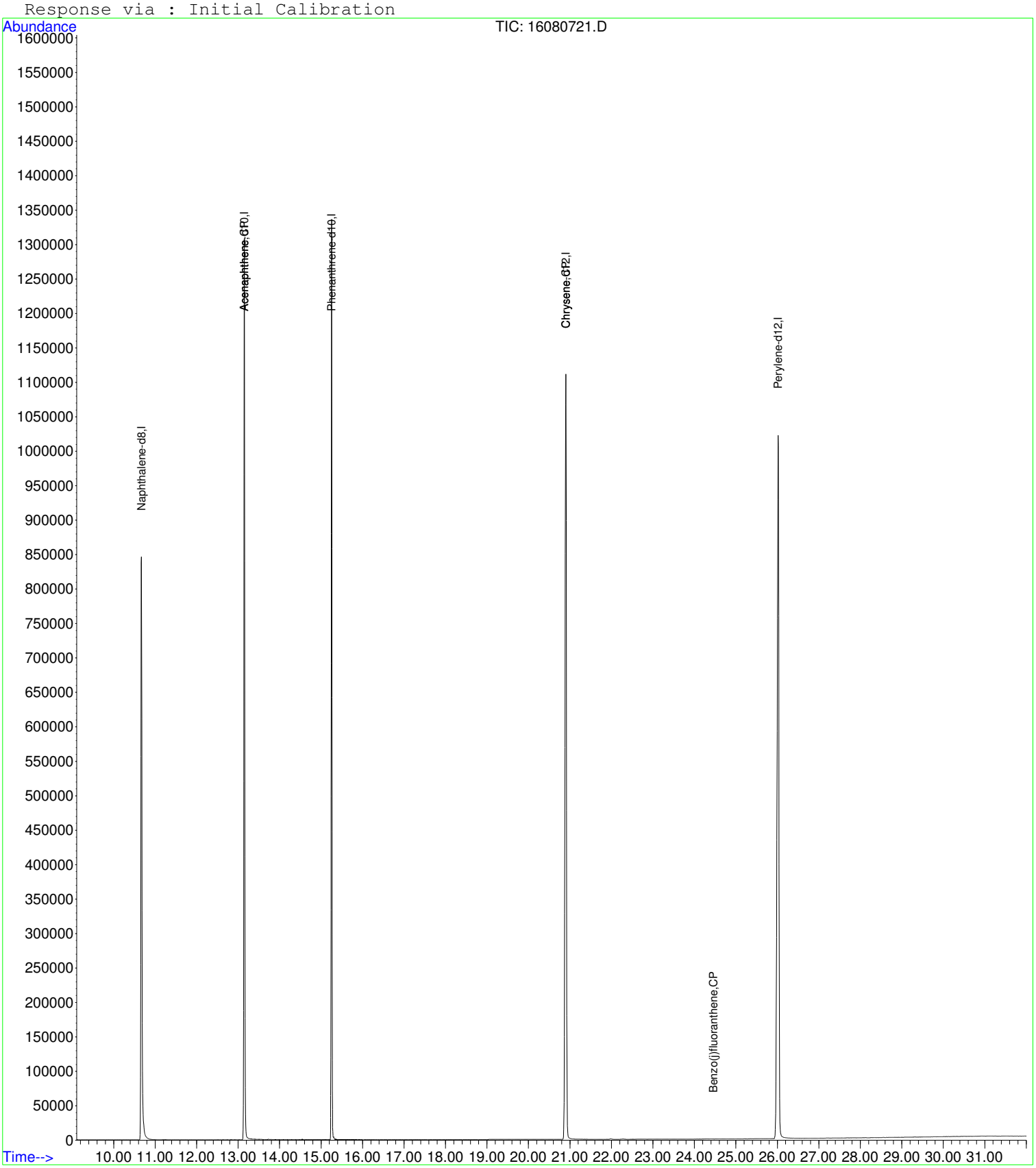
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1385858	4000.00	ug/kg	99
5) Acenaphthene-d10	13.15	164	788435	4000.00	ug/kg	132
11) Phenanthrene-d10	15.25	188	1513240	4000.00	ug/kg	95
17) Chrysene-d12	20.90	240	1929895	4000.00	ug/kg	105
20) Perylene-d12	26.02	264	2061580	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	14	0.05	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.58	244	3	0.01	ug/kg	-0.15
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2668	13.19	ug/kg#	11
19) Chrysene	20.89	228	4318	10.32	ug/kg	74
23) Benzo(j)fluoranthene	24.46	252	23	0.05	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080721.D Vial: 21
Acq On : 8 Aug 2016 2:07 am Operator: DEW
Sample : SB-160807 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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\160807\16080722.D Vial: 22
Acq On : 8 Aug 2016 2:47 am Operator: DEW
Sample : 1607294-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

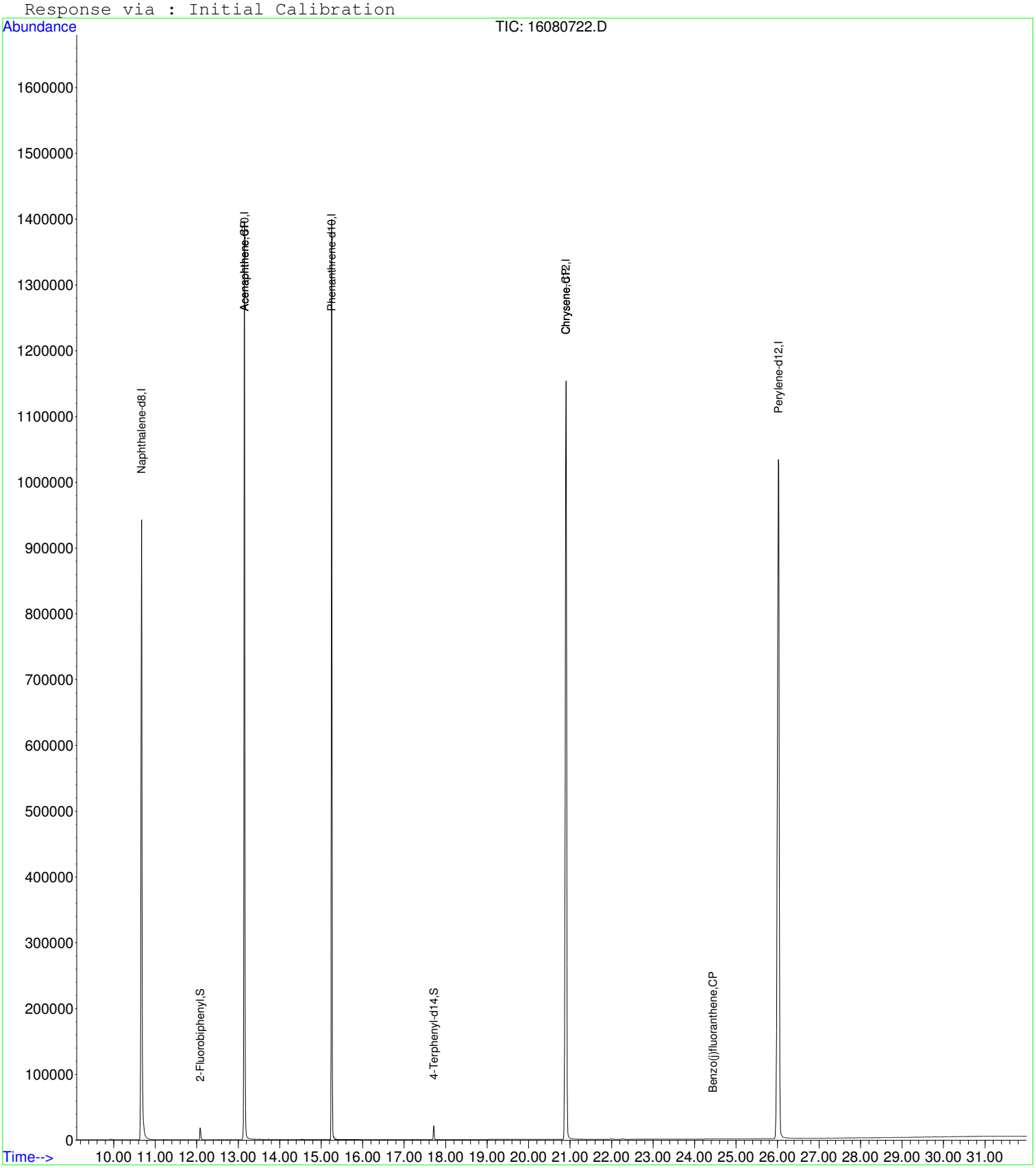
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1542032	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	841853	4000.00	ug/kg	140
11) Phenanthrene-d10	15.25	188	1599022	4000.00	ug/kg	101
17) Chrysene-d12	20.90	240	2034455	4000.00	ug/kg	111
20) Perylene-d12	26.02	264	2156178	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21897	74.57	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
16) 4-Terphenyl-d14	17.71	244	30670	81.28	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2948	~~13.65~~	~~ug/kg#~~	~~10~~
19) Chrysene	20.90	228	4500	~~10.20~~	~~ug/kg~~	~~72~~
23) Benzo(j)fluoranthene	24.44	252	35	0.08	ug/kg#	22

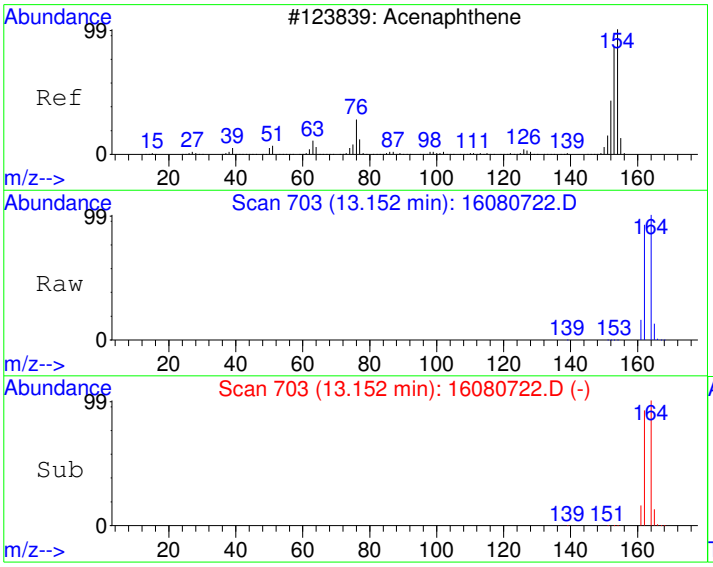
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080722.D Vial: 22
Acq On : 8 Aug 2016 2:47 am Operator: DEW
Sample : 1607294-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

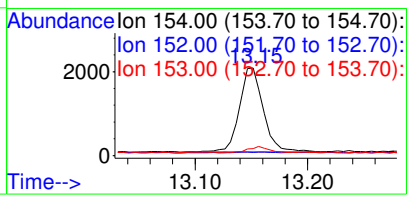


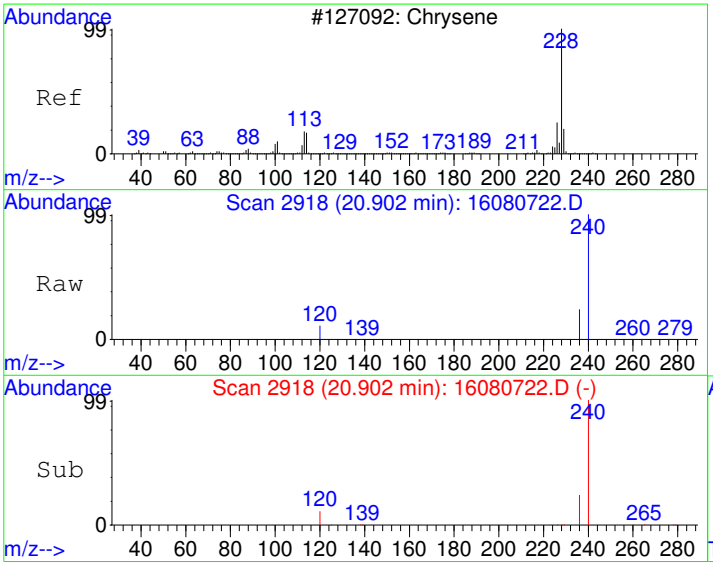


#9
Acenaphthene
Concen: 13.65 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080722.D
Acq: 8 Aug 2016 2:47 am

Tgt Ion:154 Resp: 2948

Ion	Ratio	Lower	Upper
154	100		
152	0.4	19.1	79.1#
153	4.7	76.2	136.2#

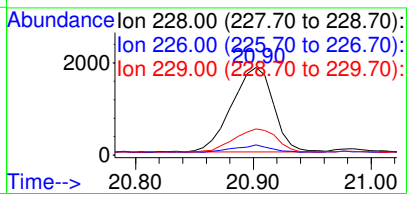


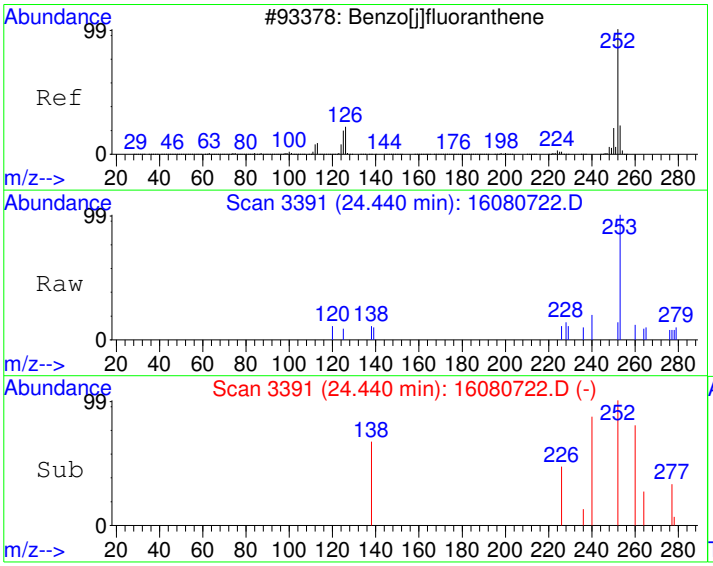


#19
Chrysene
Concen: 10.20 ug/kg
RT: 20.90 min Scan# 2918
Delta R.T. -0.12 min
Lab File: 16080722.D
Acq: 8 Aug 2016 2:47 am

Tgt Ion:228 Resp: 4500

Ion	Ratio	Lower	Upper
228	100		
226	8.7	0.0	58.1
229	27.5	0.0	50.0

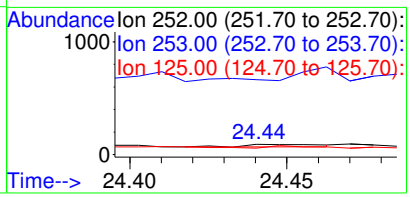




#23
Benzo(j)fluoranthene
Concen: 0.08 ug/kg
RT: 24.44 min Scan# 3391
Delta R.T. -0.07 min
Lab File: 16080722.D
Acq: 8 Aug 2016 2:47 am

Tgt Ion:252 Resp: 35

Ion	Ratio	Lower	Upper
252	100		
253	72.7	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080723.D Vial: 23
Acq On : 8 Aug 2016 3:27 am Operator: DEW
Sample : 1607294-36A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

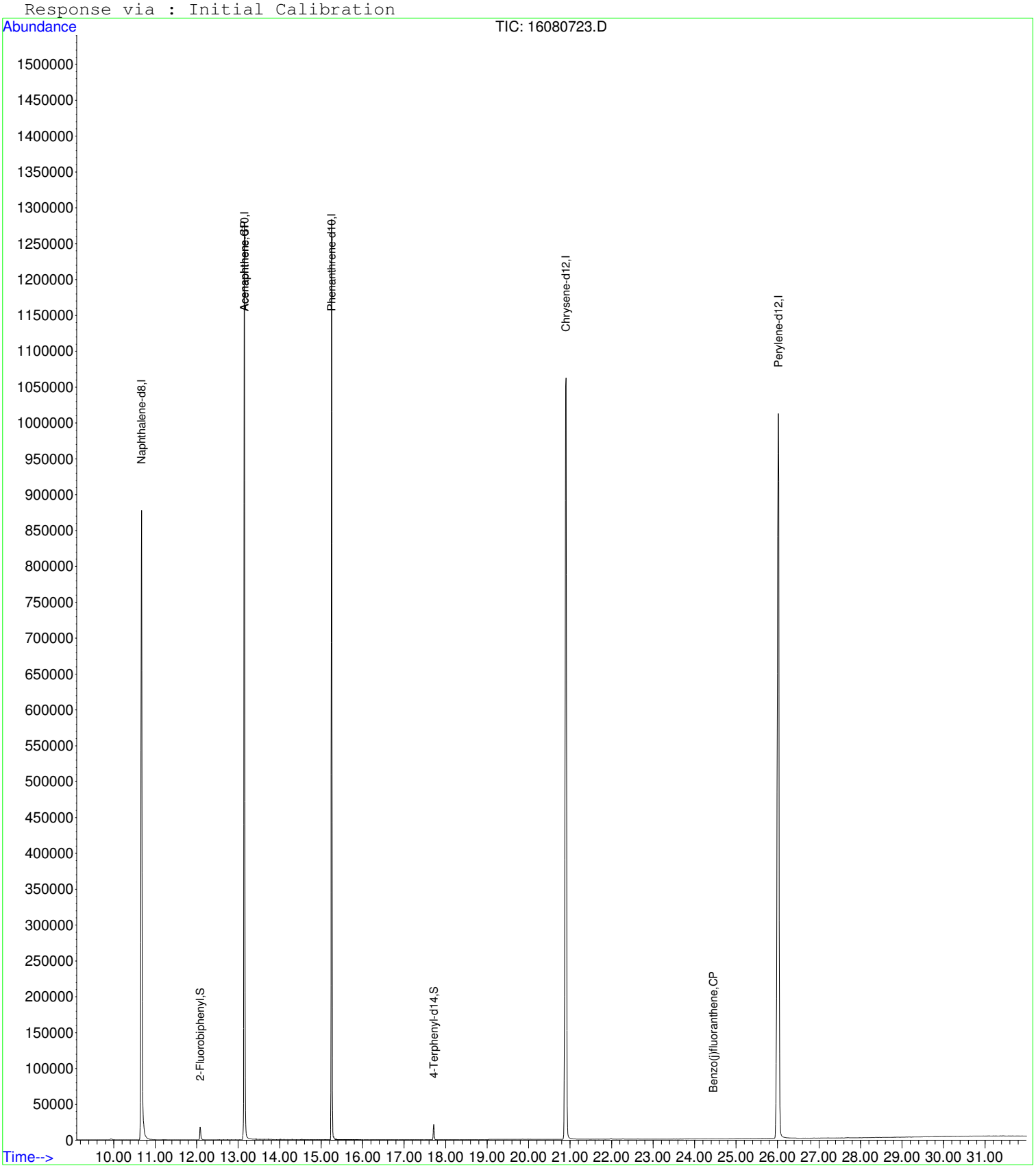
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1445807	4000.00	ug/kg	103
5) Acenaphthene-d10	13.15	164	786079	4000.00	ug/kg	131
11) Phenanthrene-d10	15.25	188	1484052	4000.00	ug/kg	93
17) Chrysene-d12	20.90	240	1917185	4000.00	ug/kg	105
20) Perylene-d12	26.02	264	2037768	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21587	78.73	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.97%#		
16) 4-Terphenyl-d14	17.71	244	30115	85.99	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2655	~~13.17~~	~~ug/kg#~~	~~10~~
23) Benzo(j)fluoranthene	24.46	252	65	0.16	ug/kg#	50

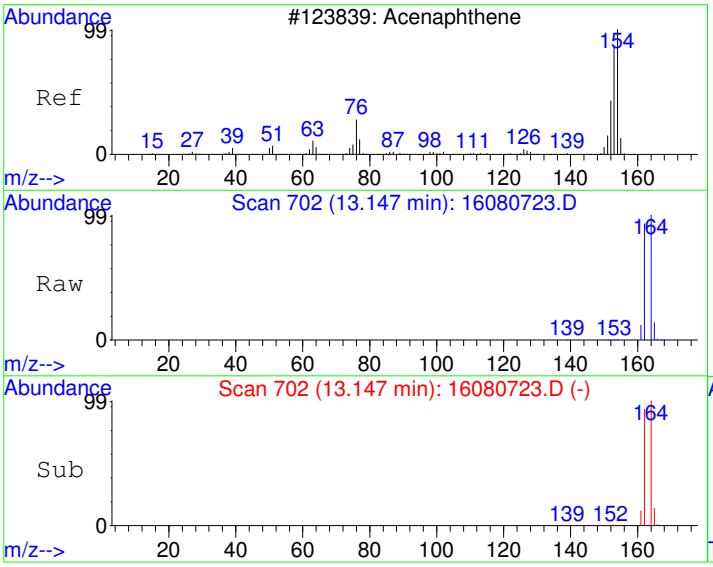
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080723.D Vial: 23
Acq On : 8 Aug 2016 3:27 am Operator: DEW
Sample : 1607294-36A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:20 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

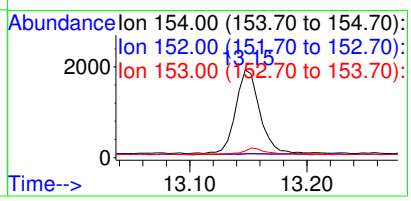


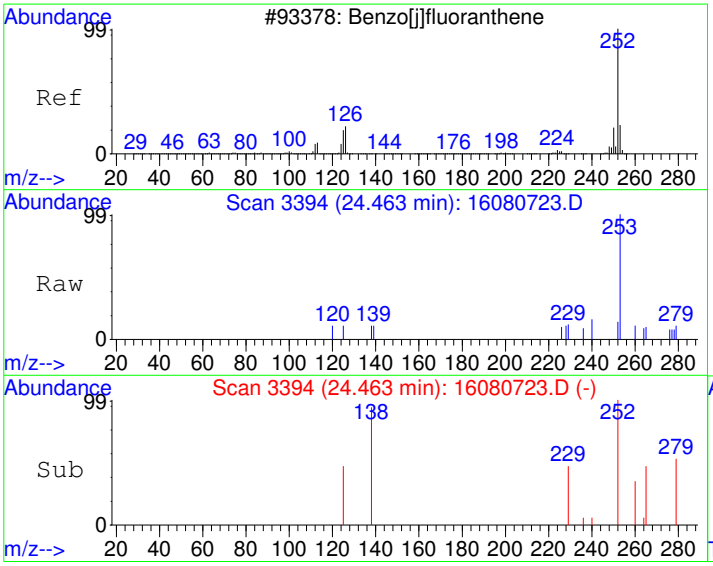


#9
Acenaphthene
Concen: 13.17 ug/kg
RT: 13.15 min Scan# 702
Delta R.T. -0.06 min
Lab File: 16080723.D
Acq: 8 Aug 2016 3:27 am

Tgt Ion:154 Resp: 2655

Ion	Ratio	Lower	Upper
154	100		
152	0.1	19.1	79.1#
153	4.3	76.2	136.2#

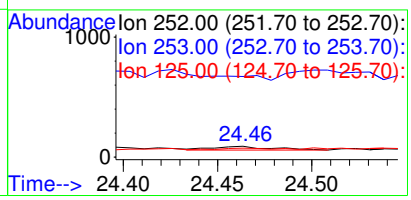




#23
Benzo(j)fluoranthene
Concen: 0.16 ug/kg
RT: 24.46 min Scan# 3394
Delta R.T. -0.04 min
Lab File: 16080723.D
Acq: 8 Aug 2016 3:27 am

Tgt Ion:252 Resp: 65

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080724.D Vial: 24
Acq On : 8 Aug 2016 4:07 am Operator: DEW
Sample : 1607294-38A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

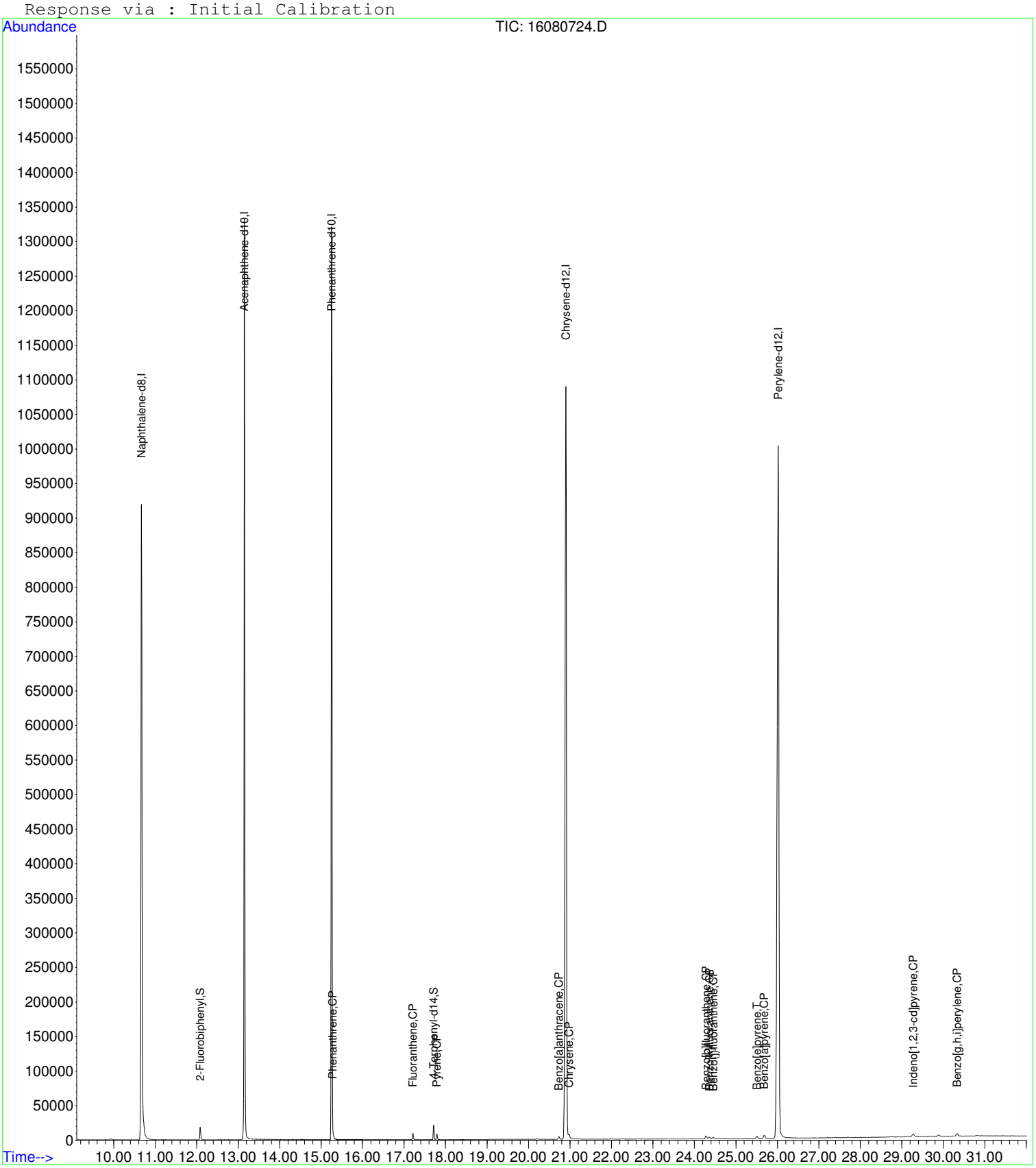
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1473883	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	806614	4000.00	ug/kg	135
11) Phenanthrene-d10	15.25	188	1544854	4000.00	ug/kg	97
17) Chrysene-d12	20.90	240	1907610	4000.00	ug/kg	104
20) Perylene-d12	26.02	264	2051833	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21210	75.38	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.88%#			
16) 4-Terphenyl-d14	17.71	244	29434	80.74	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.02%#			
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	4062	11.09	ug/kg	98
14) Fluoranthene	17.21	202	10937	25.20	ug/kg	99
15) Pyrene	17.79	202	10689	24.29	ug/kg	98
18) Benzo[a]anthracene	20.74	228	6774	15.75	ug/kg	95
19) Chrysene	20.98	228	8553	20.68	ug/kg	97
21) Benzo[b]fluoranthene	24.28	252	9024	19.05	ug/kg	97
22) Benzo[k]fluoranthene	24.36	252	4064	9.35	ug/kg	90
23) Benzo(j)fluoranthene	24.45	252	4129	9.89	ug/kg	85
24) Benzo[e]pyrene	25.51	252	7238	15.75	ug/kg	97
25) Benzo[a]pyrene	25.68	252	9653	21.09	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.28	276	7829	14.90	ug/kg	96
28) Benzo[g,h,i]perylene	30.33	276	8408	19.10	ug/kg	96

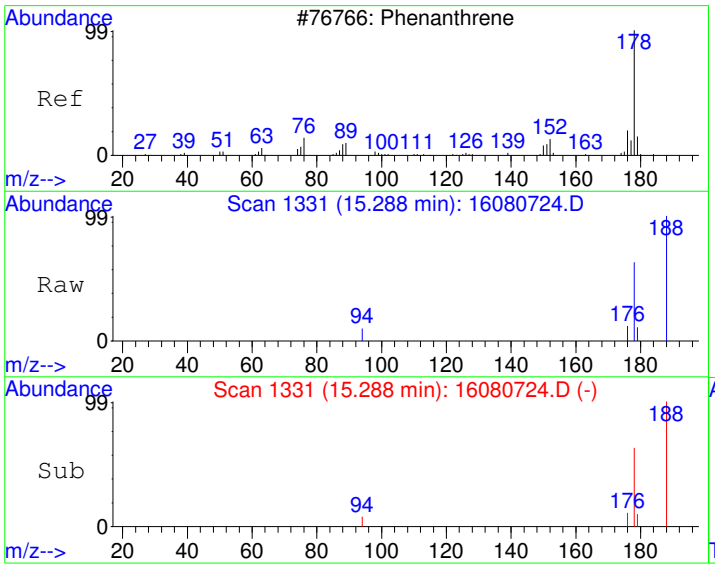
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080724.D Vial: 24
Acq On : 8 Aug 2016 4:07 am Operator: DEW
Sample : 1607294-38A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

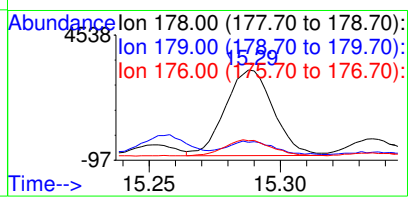


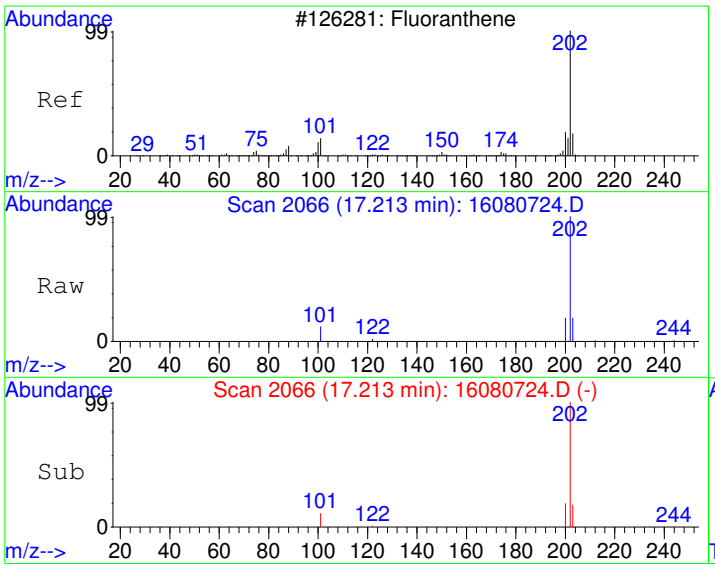


#12
Phenanthrene
Concen: 11.09 ug/kg
RT: 15.29 min Scan# 1331
Delta R.T. -0.02 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:178 Resp: 4062

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.7
176	18.0	0.0	48.7

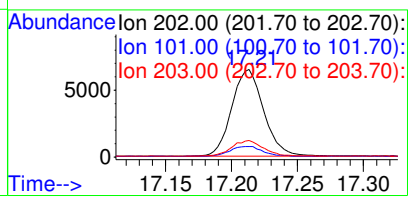


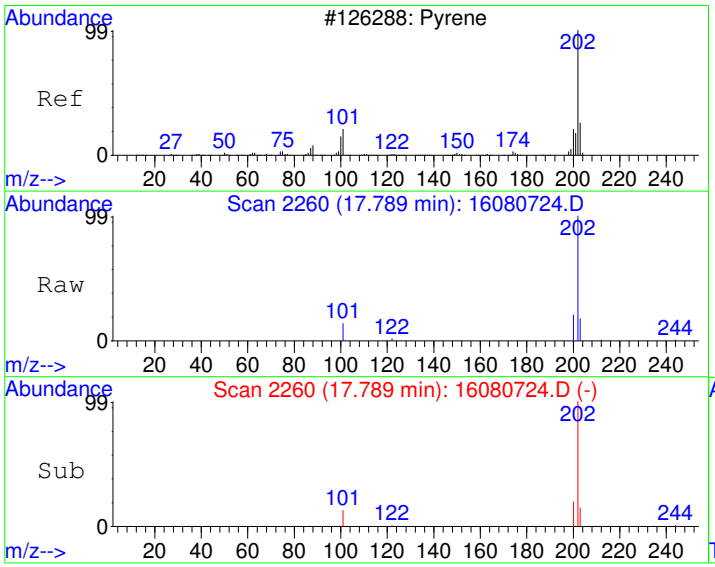


#14
Fluoranthene
Concen: 25.20 ug/kg
RT: 17.21 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:202 Resp: 10937

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	42.1
203	18.0	0.0	47.9

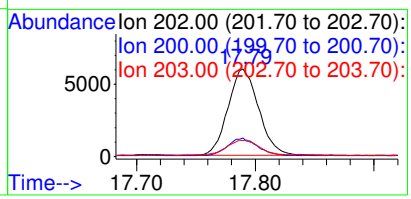


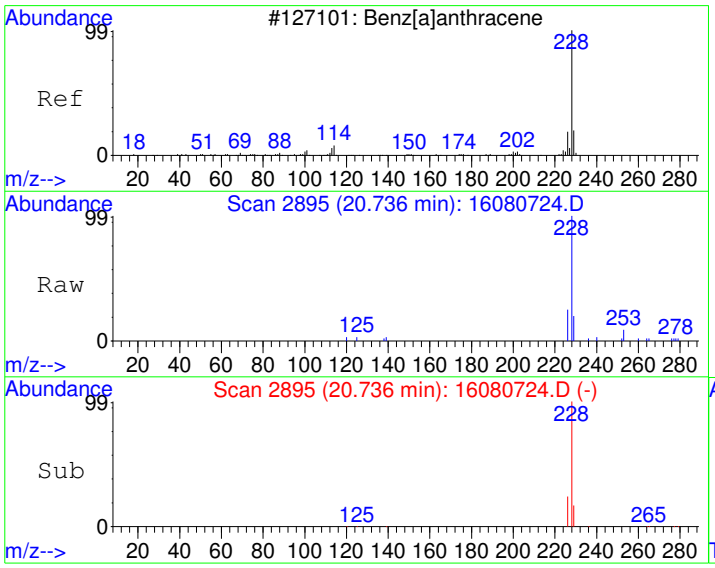


#15
Pyrene
Concen: 24.29 ug/kg
RT: 17.79 min Scan# 2260
Delta R.T. -0.02 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:202 Resp: 10689

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	49.7
203	16.9	0.0	47.8

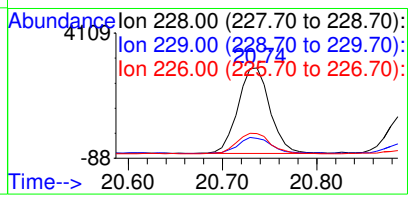


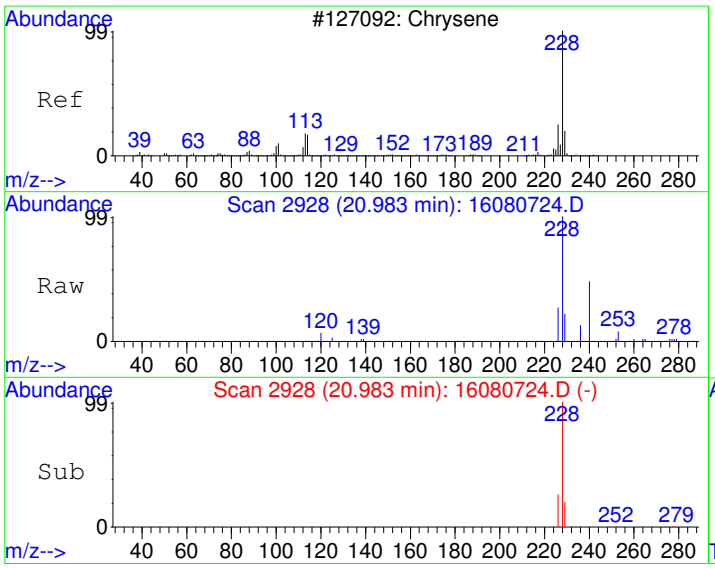


#18
Benzo[a]anthracene
Concen: 15.75 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:228 Resp: 6774

Ion	Ratio	Lower	Upper
228	100		
229	17.8	0.0	49.8
226	23.4	0.0	55.8

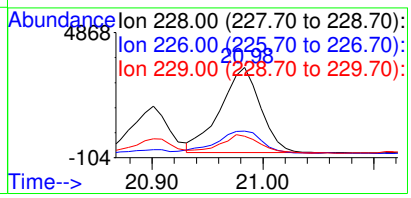


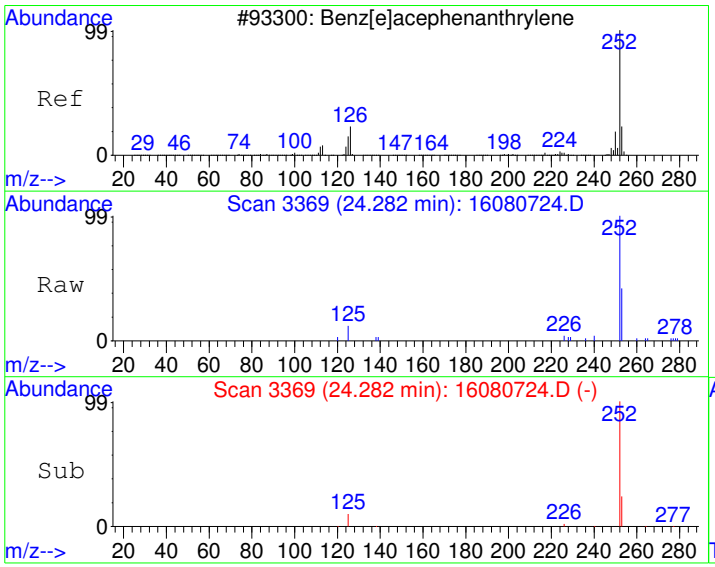


#19
Chrysene
Concen: 20.68 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.04 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:228 Resp: 8553

Ion	Ratio	Lower	Upper
228	100		
226	25.4	0.0	58.1
229	19.5	0.0	50.0

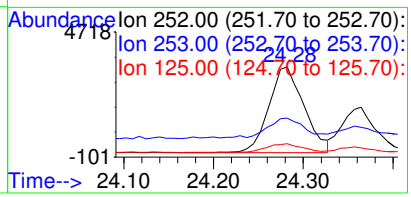


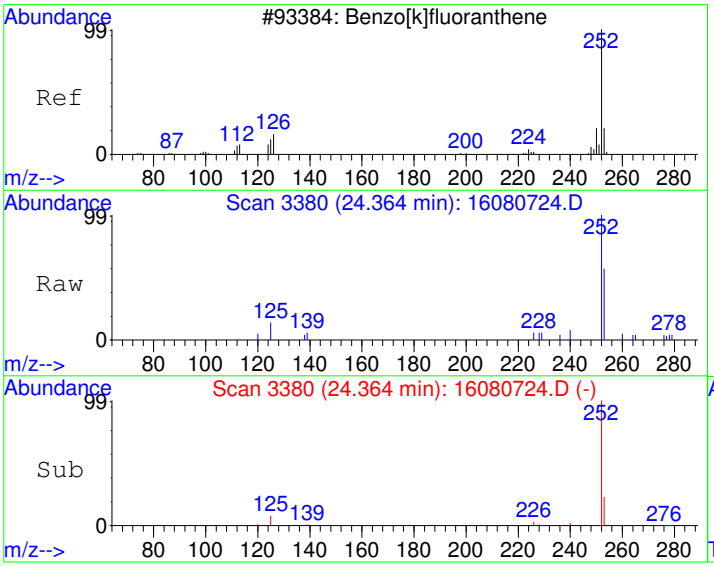


#21
Benzo[b]fluoranthene
Concen: 19.05 ug/kg
RT: 24.28 min Scan# 3369
Delta R.T. -0.05 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:252 Resp: 9024

Ion	Ratio	Lower	Upper
252	100		
253	23.6	0.0	52.0
125	10.1	0.0	40.6

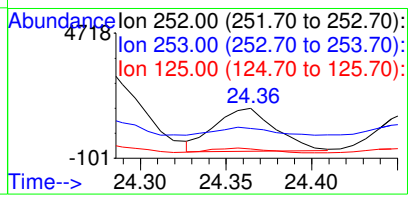


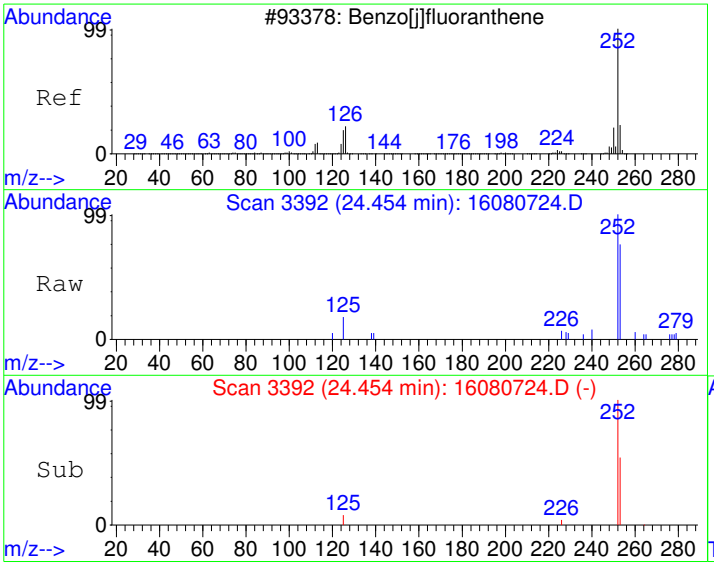


#22
Benzo[k]fluoranthene
Concen: 9.35 ug/kg
RT: 24.36 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:252 Resp: 4064

Ion	Ratio	Lower	Upper
252	100		
253	15.9	2.2	42.2
125	9.3	0.0	30.3

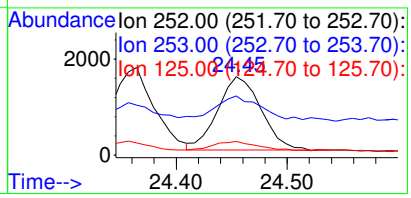


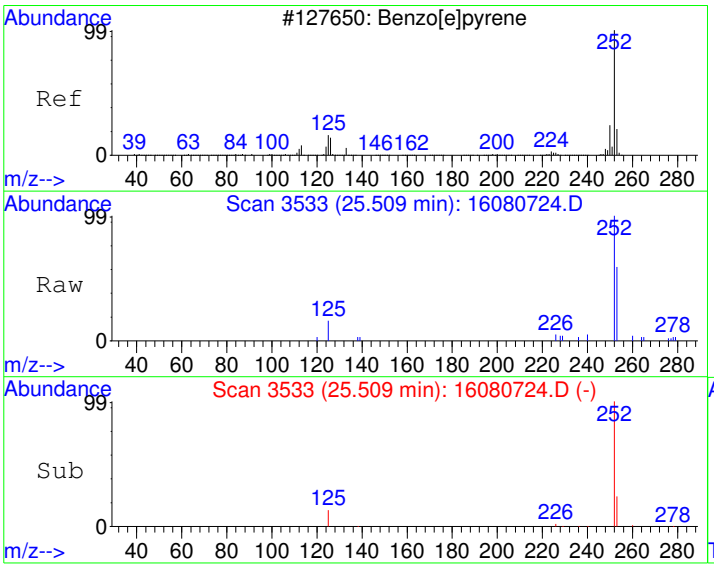


#23
Benzo(j)fluoranthene
Concen: 9.89 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:252 Resp: 4129

Ion	Ratio	Lower	Upper
252	100		
253	32.4	2.2	42.2
125	12.4	0.0	34.4

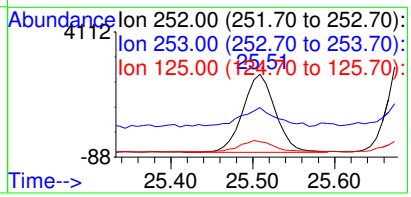


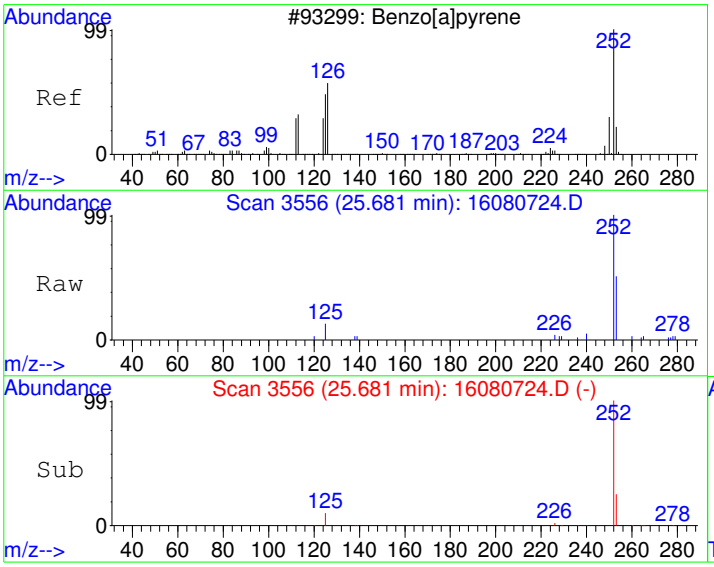


#24
Benzo[e]pyrene
Concen: 15.75 ug/kg
RT: 25.51 min Scan# 3533
Delta R.T. -0.05 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:252 Resp: 7238

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	12.8	0.0	35.7

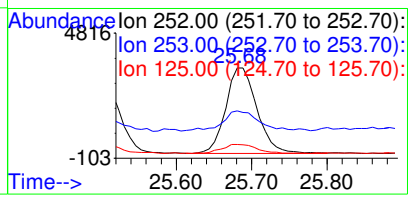


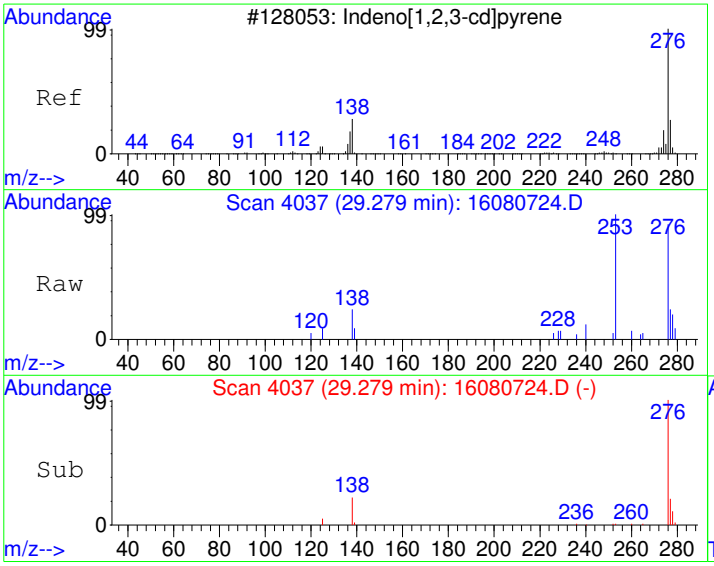


#25
Benzo[a]pyrene
Concen: 21.09 ug/kg
RT: 25.68 min Scan# 3556
Delta R.T. -0.05 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:252 Resp: 9653

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.0	42.0
125	10.2	0.0	31.6

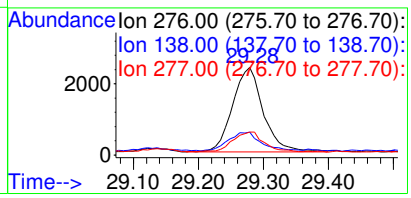


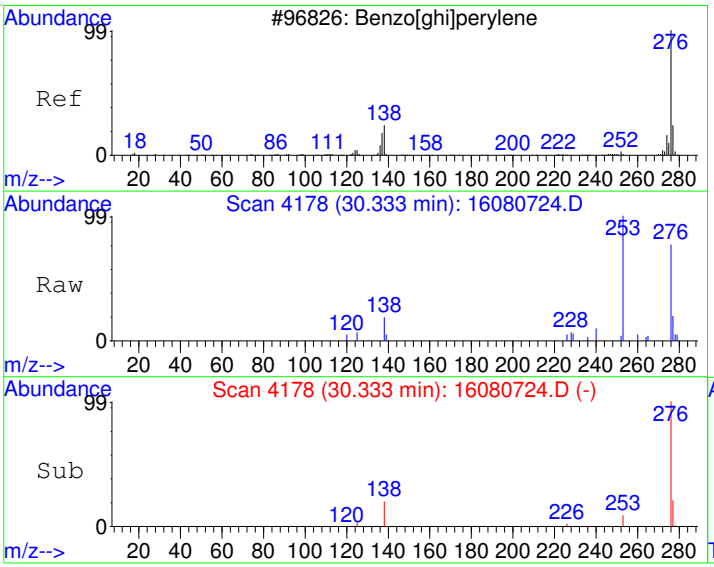


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.90 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:276 Resp: 7829

Ion	Ratio	Lower	Upper
276	100		
138	22.2	4.8	44.8
277	23.8	5.6	45.6

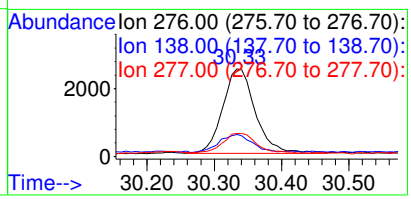




#28
Benzo[g,h,i]perylene
Concen: 19.10 ug/kg
RT: 30.33 min Scan# 4178
Delta R.T. -0.06 min
Lab File: 16080724.D
Acq: 8 Aug 2016 4:07 am

Tgt Ion:276 Resp: 8408

Ion	Ratio	Lower	Upper
276	100		
138	20.7	0.0	38.1
277	23.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080725.D Vial: 25
Acq On : 8 Aug 2016 4:47 am Operator: DEW
Sample : 1607294-39A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

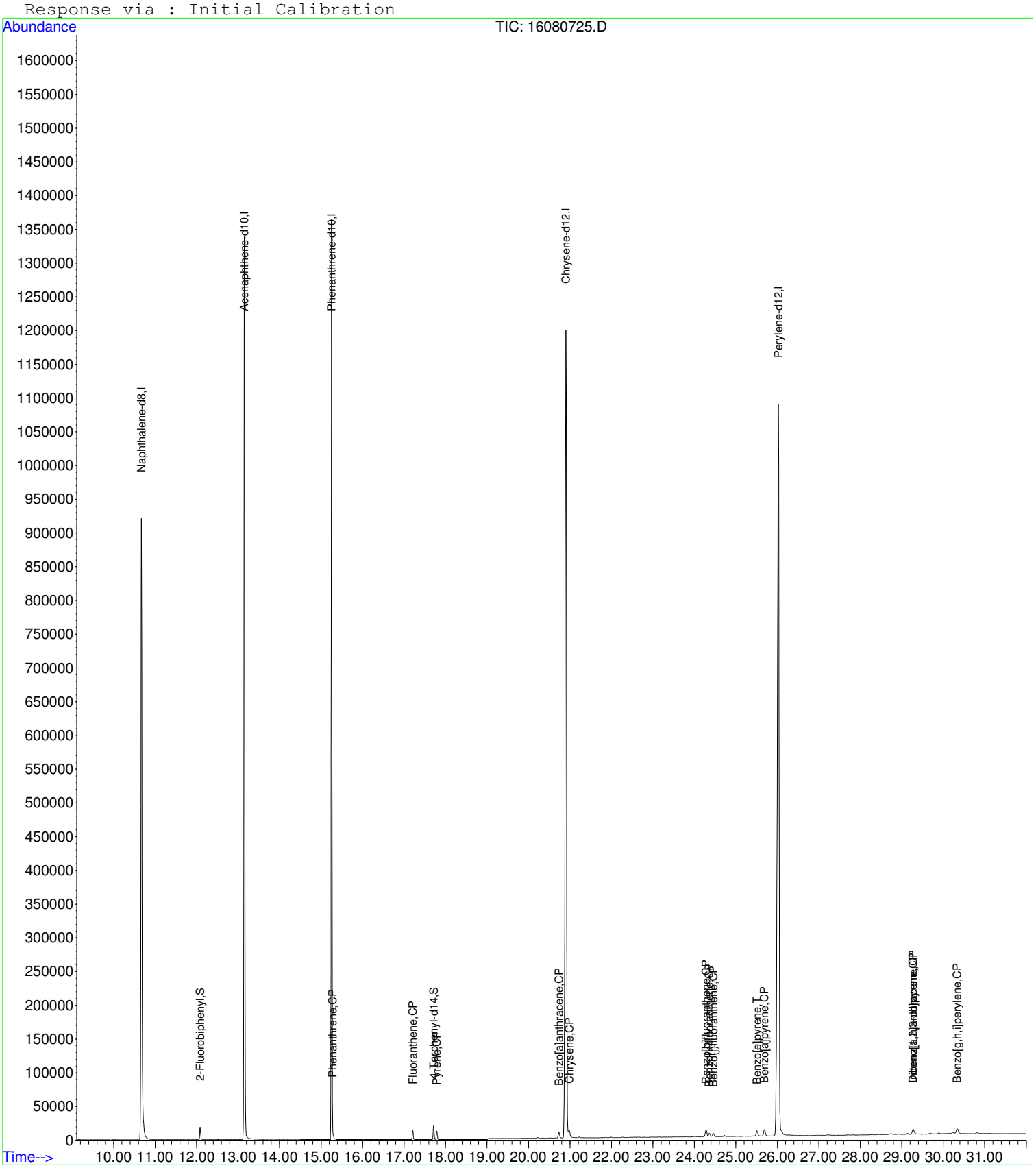
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1455887	4000.00	ug/kg	104
5) Acenaphthene-d10	13.15	164	805879	4000.00	ug/kg	134
11) Phenanthrene-d10	15.25	188	1559577	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2136867	4000.00	ug/kg	117
20) Perylene-d12	26.03	264	2142360	4000.00	ug/kg	111
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21003	74.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.87%#			
16) 4-Terphenyl-d14	17.71	244	30428	82.68	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.07%#			
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	2938	7.95	ug/kg	98
14) Fluoranthene	17.21	202	15284	34.88	ug/kg	97
15) Pyrene	17.79	202	14977	33.71	ug/kg	97
18) Benzo[a]anthracene	20.74	228	13717	28.48	ug/kg	99
19) Chrysene	20.98	228	16434	35.47	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	21209	42.88	ug/kg	98
22) Benzo[k]fluoranthene	24.36	252	9873	21.76	ug/kg	95
23) Benzo(j)fluoranthene	24.46	252	9065	20.79	ug/kg	90
24) Benzo[e]pyrene	25.51	252	15961	33.26	ug/kg	99
25) Benzo[a]pyrene	25.69	252	20834	43.60	ug/kg	99
26) Dibenz[a,h]anthracene	29.27	278	3131	6.77	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.28	276	14215	25.90	ug/kg	91
28) Benzo[g,h,i]perylene	30.33	276	16311	35.49	ug/kg	97

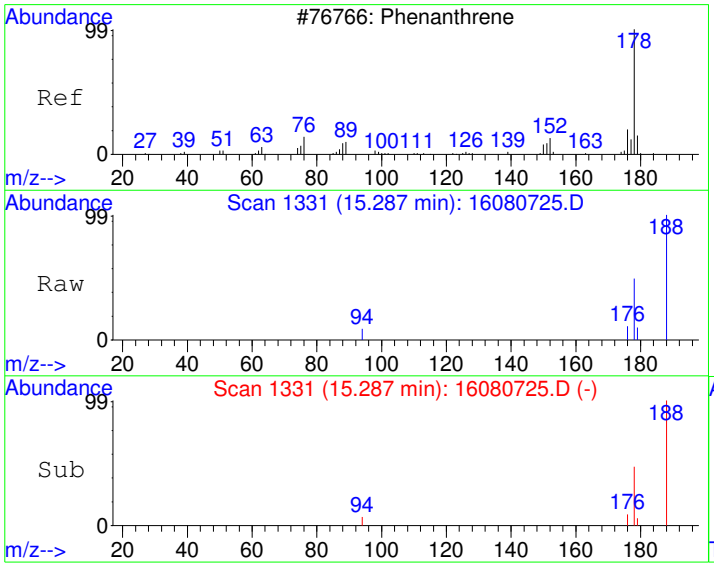
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080725.D Vial: 25
Acq On : 8 Aug 2016 4:47 am Operator: DEW
Sample : 1607294-39A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

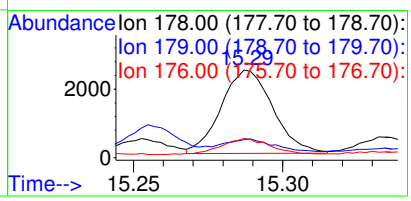


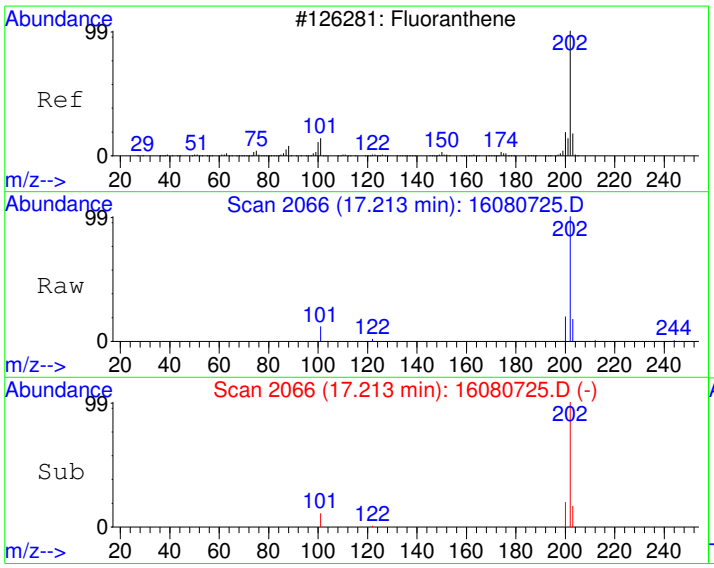


#12
Phenanthrene
Concen: 7.95 ug/kg
RT: 15.29 min Scan# 1331
Delta R.T. -0.02 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:178 Resp: 2938

Ion	Ratio	Lower	Upper
178	100		
179	14.4	0.0	45.7
176	18.8	0.0	48.7

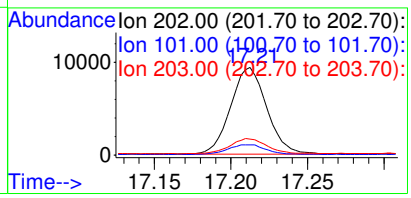


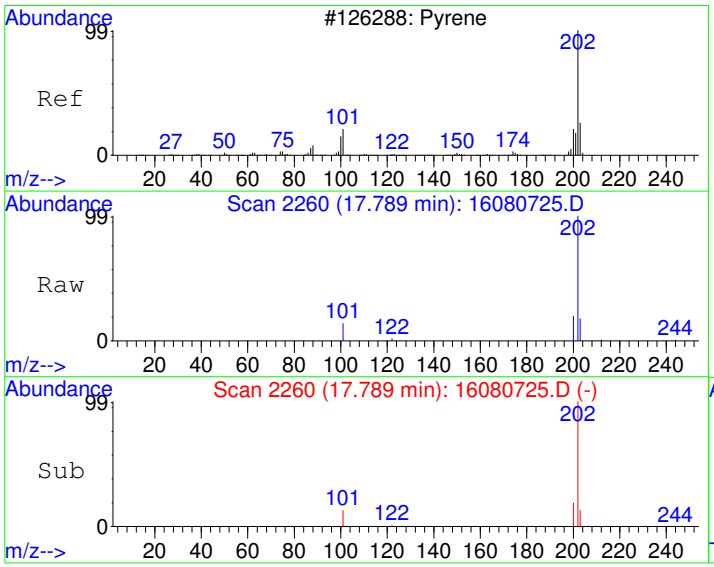


#14
Fluoranthene
Concen: 34.88 ug/kg
RT: 17.21 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:202 Resp: 15284

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

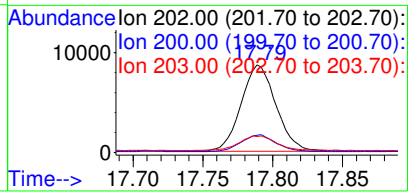


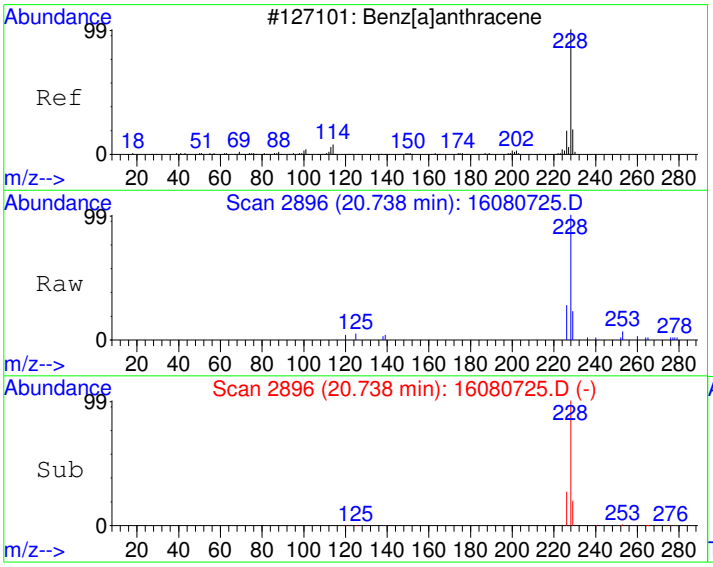


#15
Pyrene
Concen: 33.71 ug/kg
RT: 17.79 min Scan# 2260
Delta R.T. -0.02 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:202 Resp: 14977

Ion	Ratio	Lower	Upper
202	100		
200	18.8	0.0	49.7
203	16.1	0.0	47.8

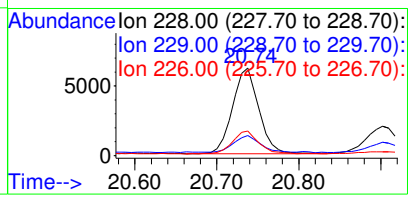


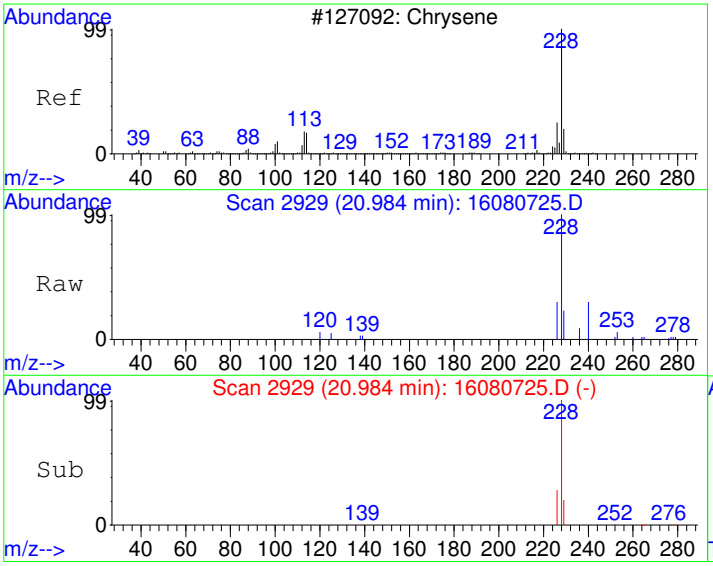


#18
Benzo[a]anthracene
Concen: 28.48 ug/kg
RT: 20.74 min Scan# 2896
Delta R.T. -0.03 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:228 Resp: 13717

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

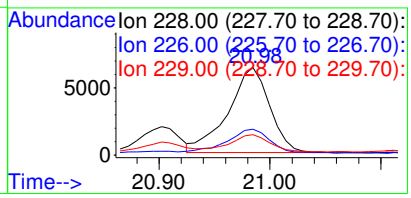


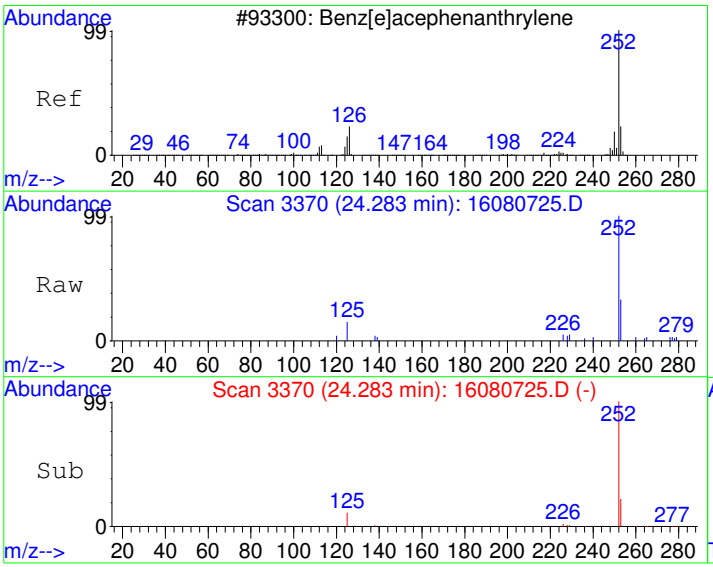


#19
Chrysene
Concen: 35.47 ug/kg
RT: 20.98 min Scan# 2929
Delta R.T. -0.04 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:228 Resp: 16434

Ion	Ratio	Lower	Upper
228	100		
226	27.7	0.0	58.1
229	20.4	0.0	50.0

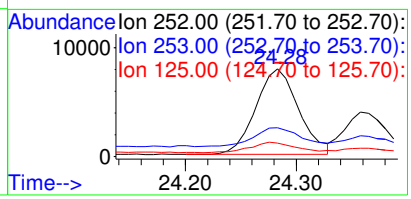


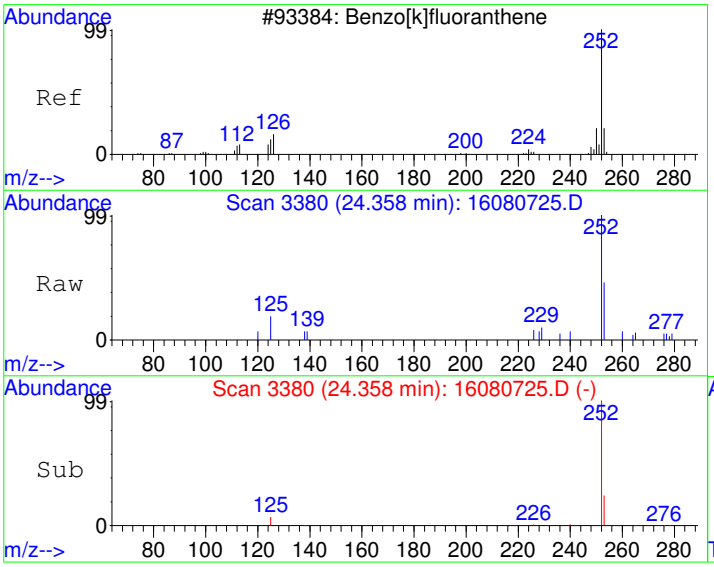


#21
Benzo[b]fluoranthene
Concen: 42.88 ug/kg
RT: 24.28 min Scan# 3370
Delta R.T. -0.04 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:252 Resp: 21209

Ion	Ratio	Lower	Upper
252	100		
253	21.0	0.0	52.0
125	10.9	0.0	40.6

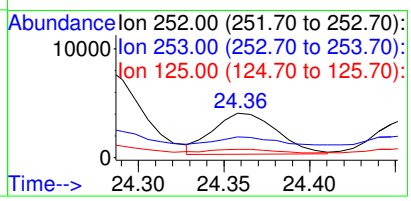


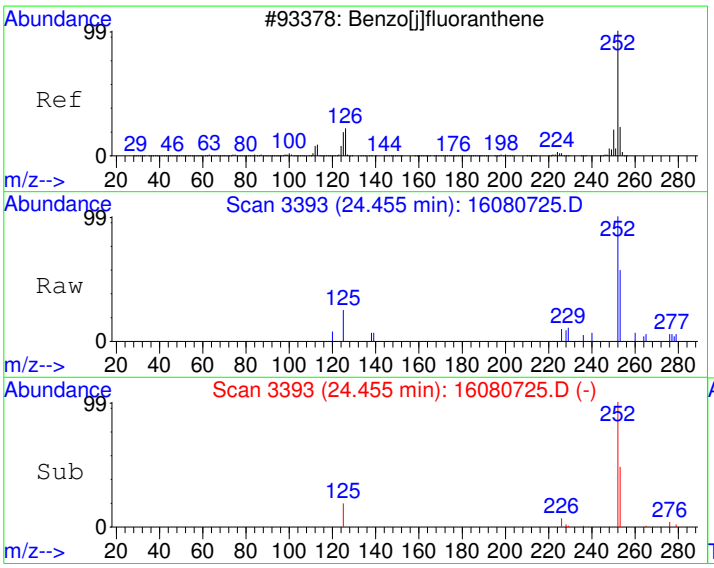


#22
Benzo[k]fluoranthene
Concen: 21.76 ug/kg
RT: 24.36 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:252 Resp: 9873

Ion	Ratio	Lower	Upper
252	100		
253	19.9	2.2	42.2
125	8.4	0.0	30.3

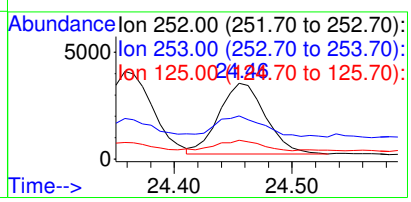


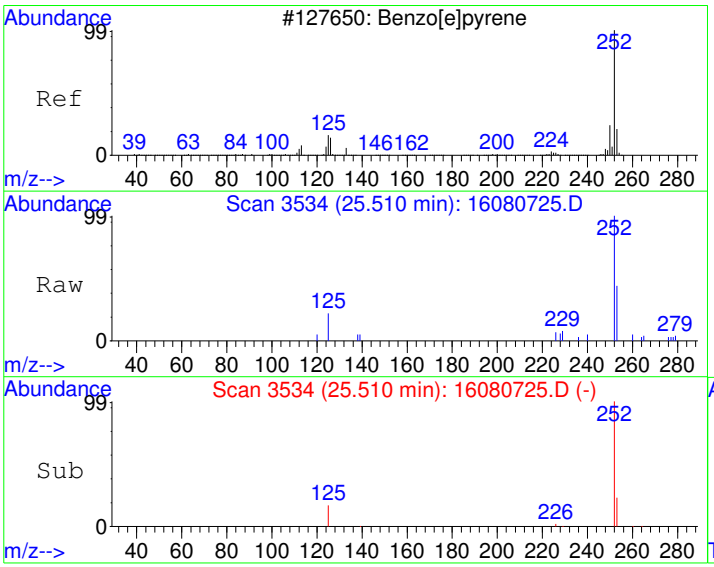


#23
Benzo(j)fluoranthene
Concen: 20.79 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:252 Resp: 9065

Ion	Ratio	Lower	Upper
252	100		
253	30.2	2.2	42.2
125	14.1	0.0	34.4

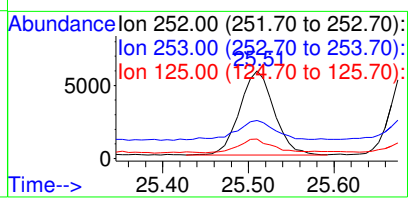


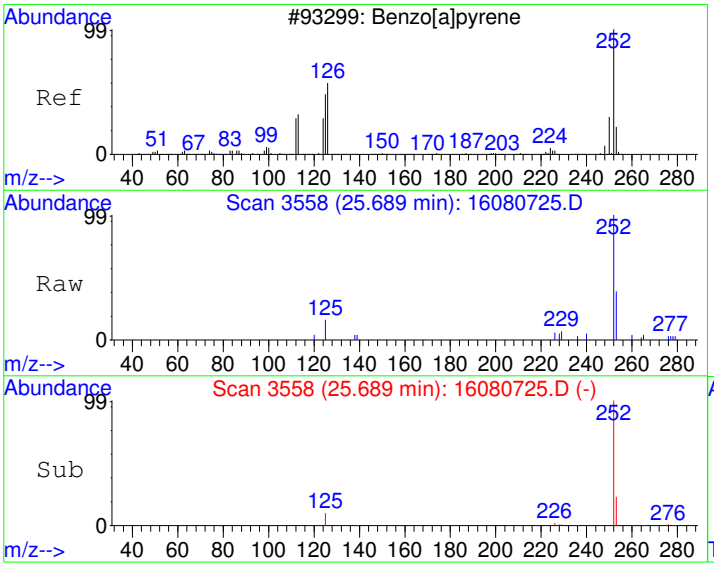


#24
Benzo[e]pyrene
Concen: 33.26 ug/kg
RT: 25.51 min Scan# 3534
Delta R.T. -0.04 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:252 Resp: 15961

Ion	Ratio	Lower	Upper
252	100		
253	23.0	2.2	42.2
125	15.2	0.0	35.7

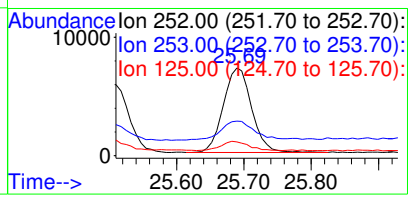


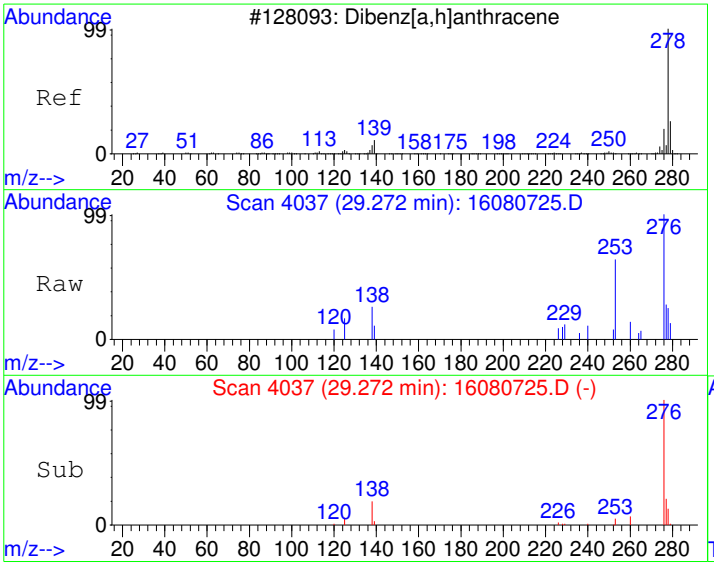


#25
Benzo[a]pyrene
Concen: 43.60 ug/kg
RT: 25.69 min Scan# 3558
Delta R.T. -0.04 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:252 Resp: 20834

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.0	42.0
125	10.5	0.0	31.6

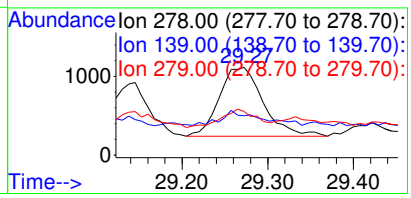


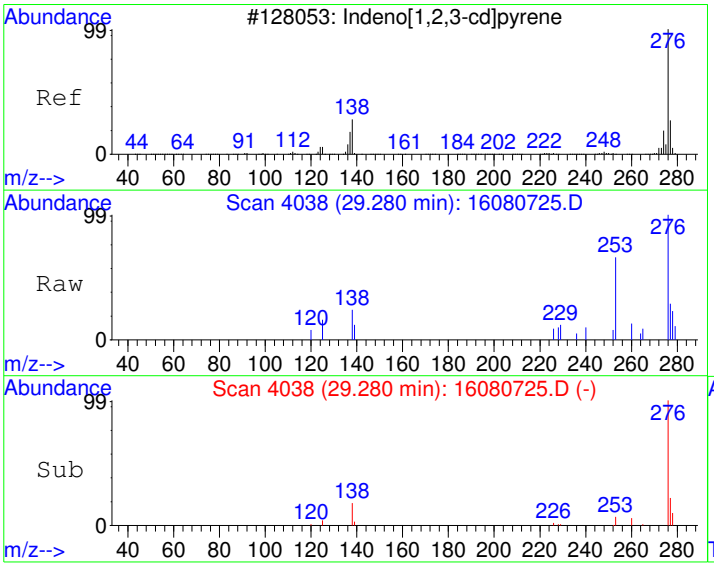


#26
Dibenz[a,h]anthracene
Concen: 6.77 ug/kg
RT: 29.27 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:278 Resp: 3131

Ion	Ratio	Lower	Upper
278	100		
139	12.9	0.0	33.8
279	23.2	3.9	43.9

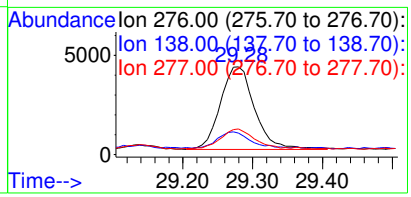


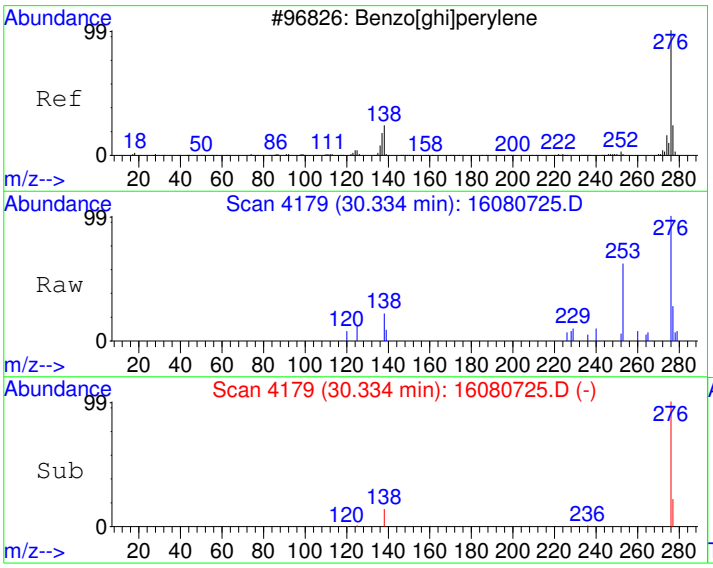


#27
Indeno[1,2,3-cd]pyrene
Concen: 25.90 ug/kg
RT: 29.28 min Scan# 4038
Delta R.T. -0.04 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:276 Resp: 14215

Ion	Ratio	Lower	Upper
276	100		
138	18.2	4.8	44.8
277	23.5	5.6	45.6

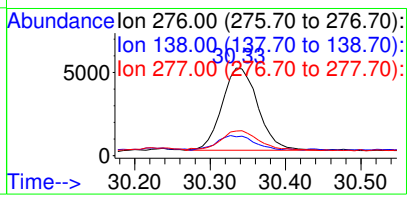




#28
Benzo[g,h,i]perylene
Concen: 35.49 ug/kg
RT: 30.33 min Scan# 4179
Delta R.T. -0.06 min
Lab File: 16080725.D
Acq: 8 Aug 2016 4:47 am

Tgt Ion:276 Resp: 16311

Ion	Ratio	Lower	Upper
276	100		
138	16.0	0.0	38.1
277	23.3	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080726.D Vial: 26
Acq On : 8 Aug 2016 5:28 am Operator: DEW
Sample : 1607294-40A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

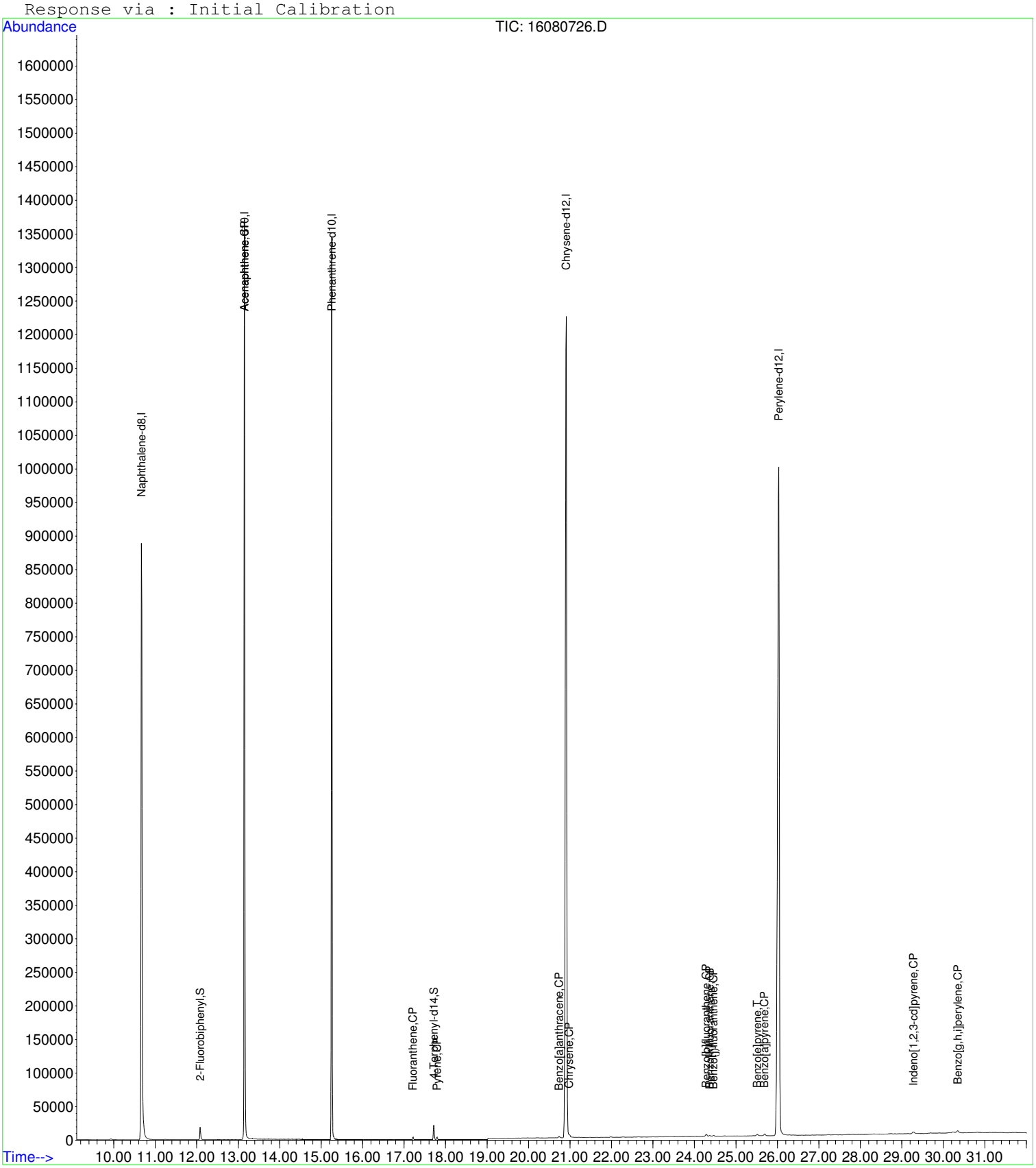
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1420857	4000.00	ug/kg	101
5) Acenaphthene-d10	13.15	164	794183	4000.00	ug/kg	132
11) Phenanthrene-d10	15.26	188	1550237	4000.00	ug/kg	97
17) Chrysene-d12	20.91	240	2134498	4000.00	ug/kg	116
20) Perylene-d12	26.03	264	2030792	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20278	73.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.83%#		
16) 4-Terphenyl-d14	17.72	244	30310	82.85	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2764	13.57	ug/kg#	12
14) Fluoranthene	17.21	202	4495	10.32	ug/kg	98
15) Pyrene	17.79	202	4387	9.93	ug/kg	94
18) Benzo[a]anthracene	20.74	228	3721	7.73	ug/kg	94
19) Chrysene	20.98	228	4403	9.51	ug/kg	97
21) Benzo[b]fluoranthene	24.28	252	6160	13.14	ug/kg	90
22) Benzo[k]fluoranthene	24.37	252	2528	5.88	ug/kg	91
23) Benzo(j)fluoranthene	24.46	252	2546	6.16	ug/kg	76
24) Benzo[e]pyrene	25.52	252	4767	10.48	ug/kg	93
25) Benzo[a]pyrene	25.70	252	5688	12.56	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.28	276	4509	8.67	ug/kg	91
28) Benzo[g,h,i]perylene	30.34	276	7056	16.20	ug/kg	98

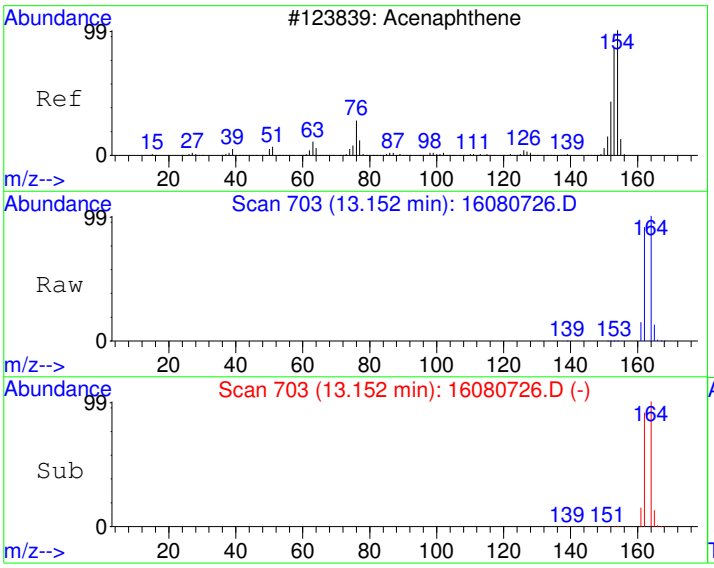
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080726.D Vial: 26
Acq On : 8 Aug 2016 5:28 am Operator: DEW
Sample : 1607294-40A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

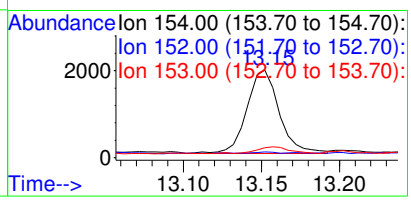


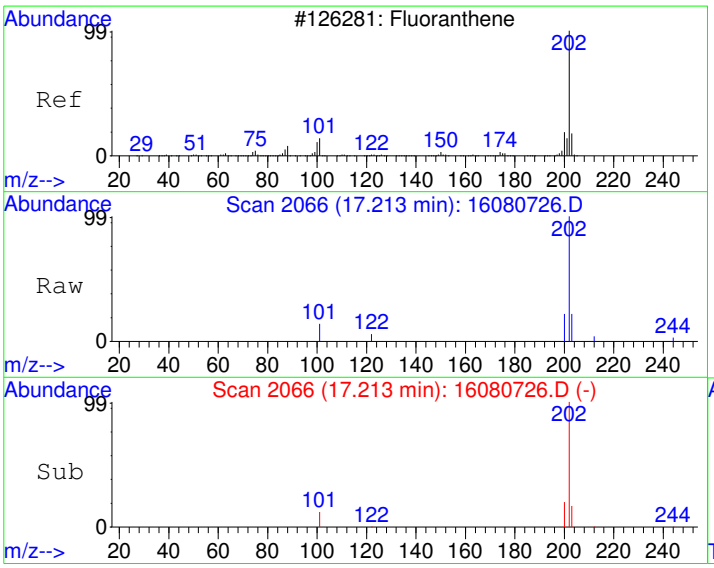


#9
Acenaphthene
Concen: 13.57 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:154 Resp: 2764

Ion	Ratio	Lower	Upper
154	100		
152	1.6	19.1	79.1#
153	6.3	76.2	136.2#

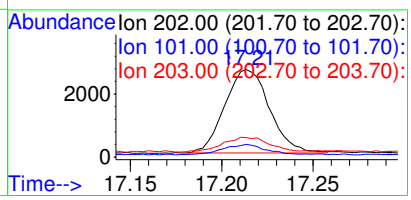


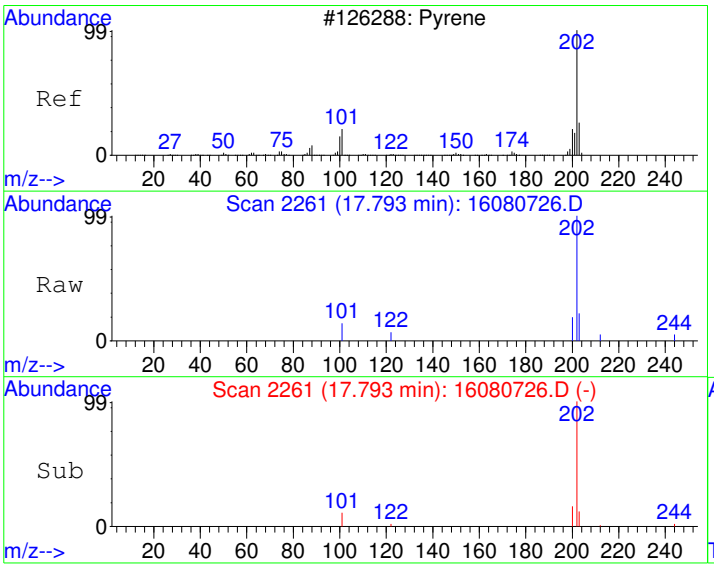


#14
Fluoranthene
Concen: 10.32 ug/kg
RT: 17.21 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:202 Resp: 4495

Ion	Ratio	Lower	Upper
202	100		
101	12.3	0.0	42.1
203	16.6	0.0	47.9

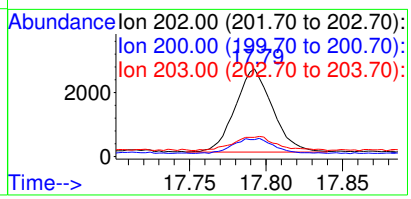


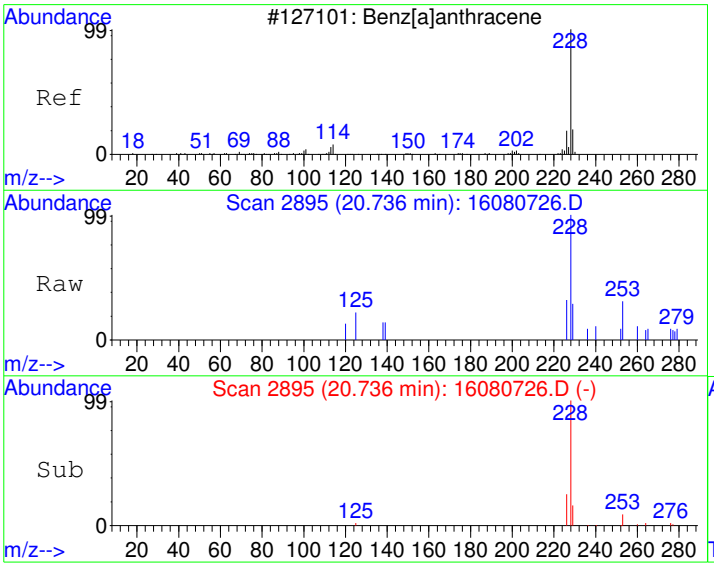


#15
Pyrene
Concen: 9.93 ug/kg
RT: 17.79 min Scan# 2261
Delta R.T. -0.02 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:202 Resp: 4387

Ion	Ratio	Lower	Upper
202	100		
200	16.4	0.0	49.7
203	15.7	0.0	47.8

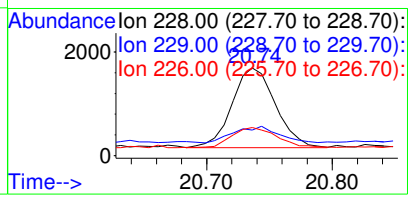


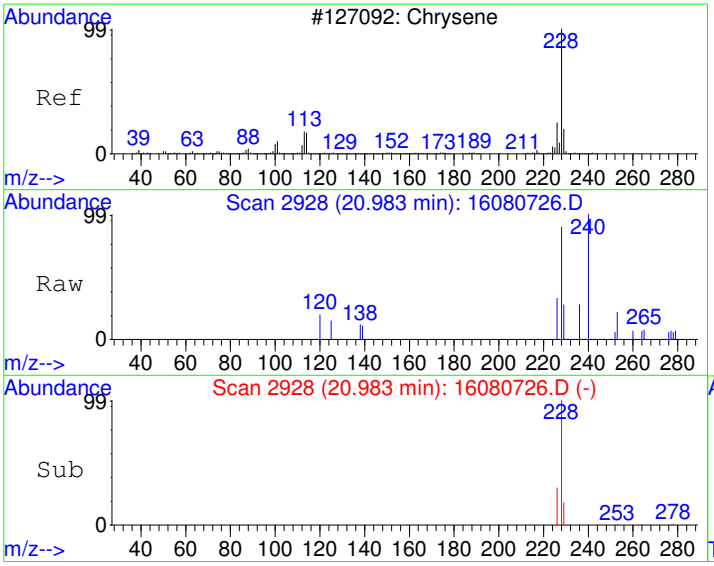


#18
Benzo[a]anthracene
Concen: 7.73 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:228 Resp: 3721

Ion	Ratio	Lower	Upper
228	100		
229	14.9	0.0	49.8
226	24.9	0.0	55.8

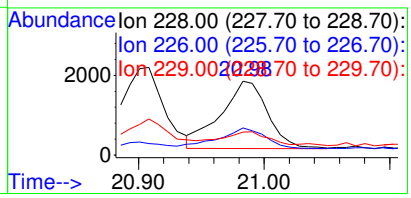


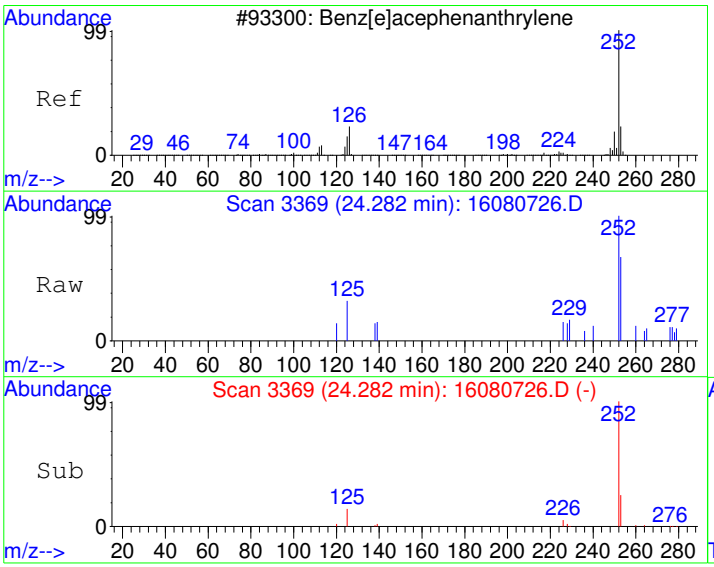


#19
Chrysene
Concen: 9.51 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.04 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:228 Resp: 4403

Ion	Ratio	Lower	Upper
228	100		
226	30.5	0.0	58.1
229	20.3	0.0	50.0

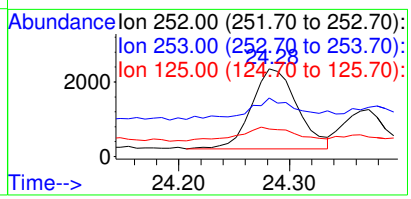


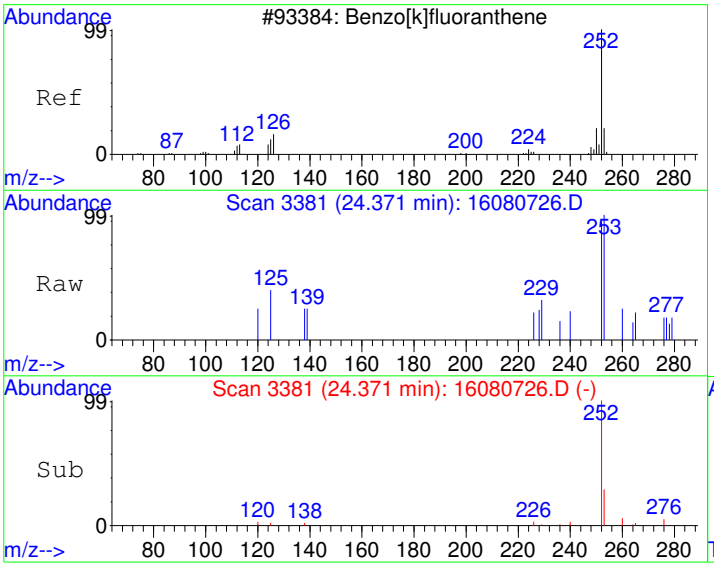


#21
Benzo[b]fluoranthene
Concen: 13.14 ug/kg
RT: 24.28 min Scan# 3369
Delta R.T. -0.05 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:252 Resp: 6160

Ion	Ratio	Lower	Upper
252	100		
253	26.6	0.0	52.0
125	15.1	0.0	40.6

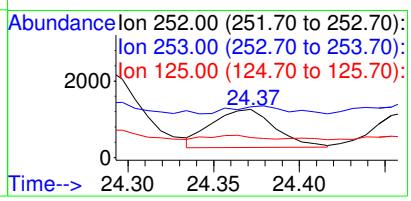


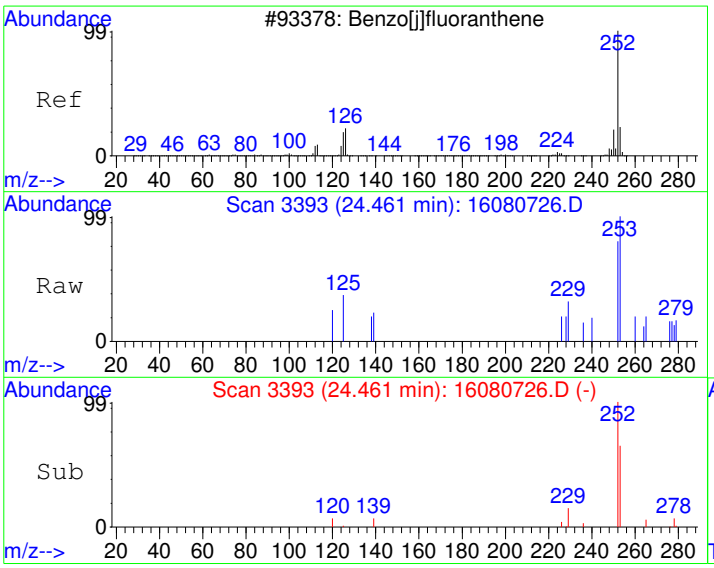


#22
Benzo[k]fluoranthene
Concen: 5.88 ug/kg
RT: 24.37 min Scan# 3381
Delta R.T. -0.04 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:252 Resp: 2528

Ion	Ratio	Lower	Upper
252	100		
253	18.8	2.2	42.2
125	5.7	0.0	30.3

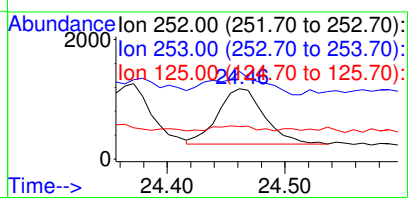


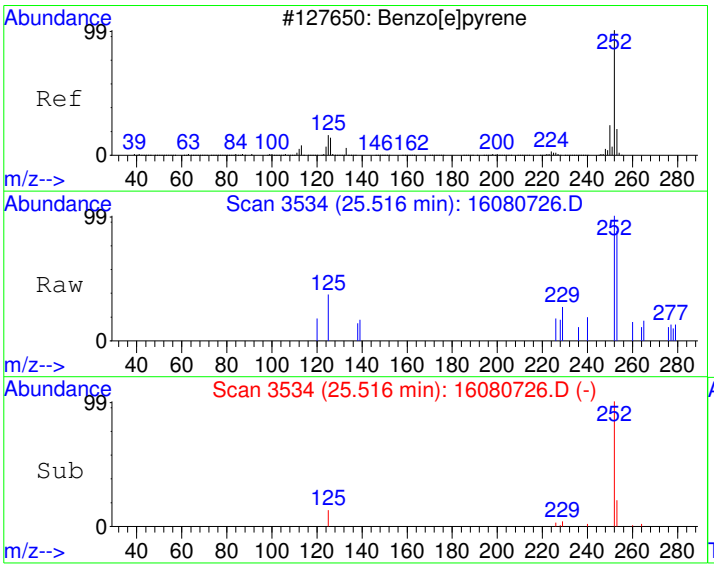


#23
Benzo(j)fluoranthene
Concen: 6.16 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:252 Resp: 2546

Ion	Ratio	Lower	Upper
252	100		
253	36.3	2.2	42.2
125	8.0	0.0	34.4

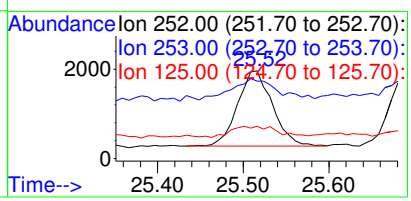


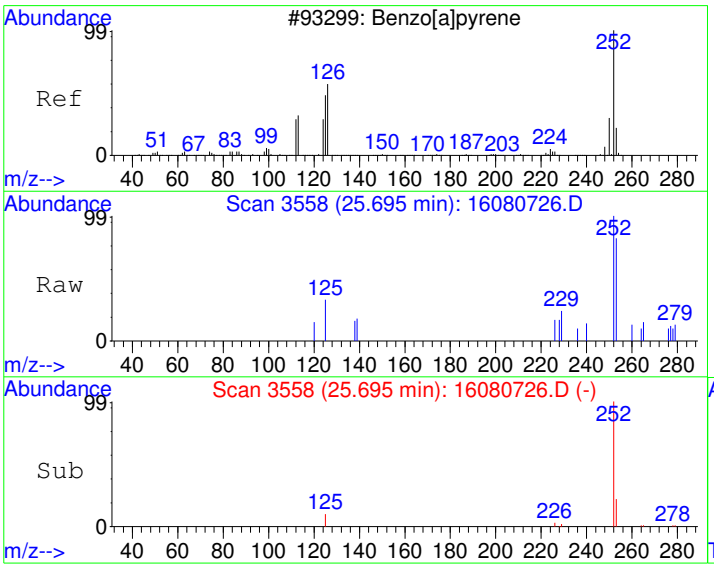


#24
Benzo[e]pyrene
Concen: 10.48 ug/kg
RT: 25.52 min Scan# 3534
Delta R.T. -0.04 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:252 Resp: 4767

Ion	Ratio	Lower	Upper
252	100		
253	19.2	2.2	42.2
125	11.9	0.0	35.7

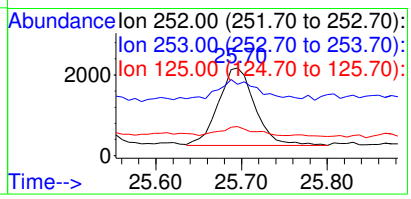


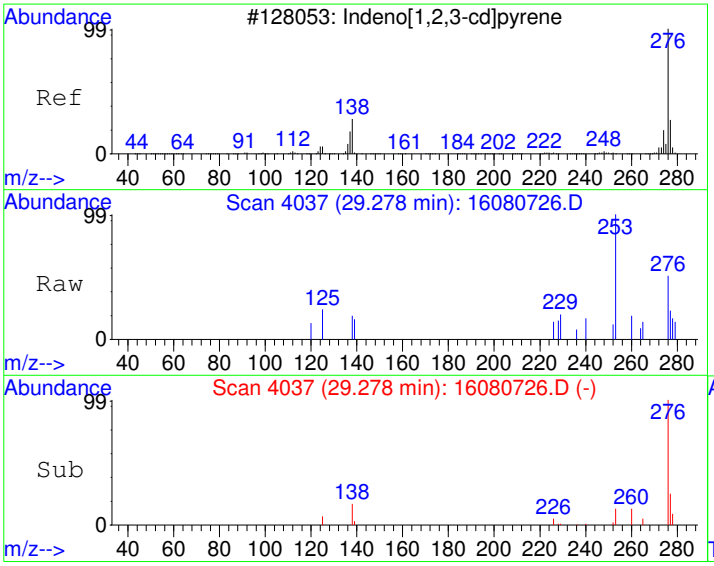


#25
Benzo[a]pyrene
Concen: 12.56 ug/kg
RT: 25.70 min Scan# 3558
Delta R.T. -0.04 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:252 Resp: 5688

Ion	Ratio	Lower	Upper
252	100		
253	18.9	2.0	42.0
125	12.5	0.0	31.6

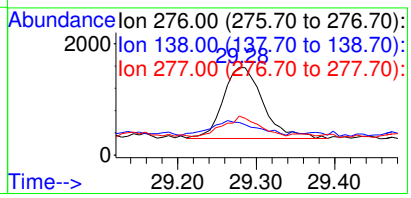


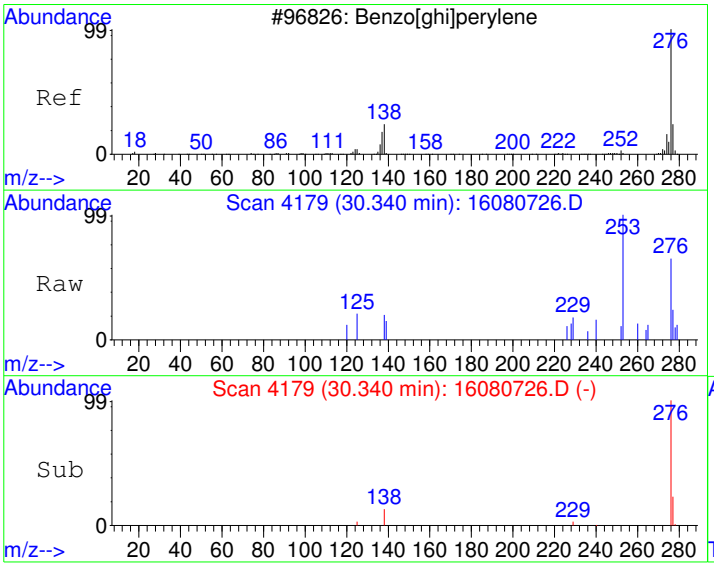


#27
Indeno[1,2,3-cd]pyrene
Concen: 8.67 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:276 Resp: 4509

Ion	Ratio	Lower	Upper
276	100		
138	18.4	4.8	44.8
277	27.8	5.6	45.6

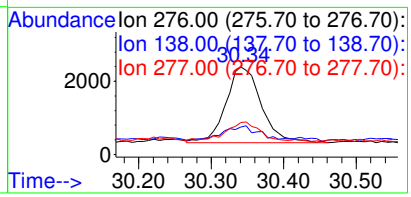




#28
Benzo[g,h,i]perylene
Concen: 16.20 ug/kg
RT: 30.34 min Scan# 4179
Delta R.T. -0.05 min
Lab File: 16080726.D
Acq: 8 Aug 2016 5:28 am

Tgt Ion:276 Resp: 7056

Ion	Ratio	Lower	Upper
276	100		
138	17.3	0.0	38.1
277	23.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080727.D Vial: 27
Acq On : 8 Aug 2016 6:09 am Operator: DEW
Sample : 1607294-41A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

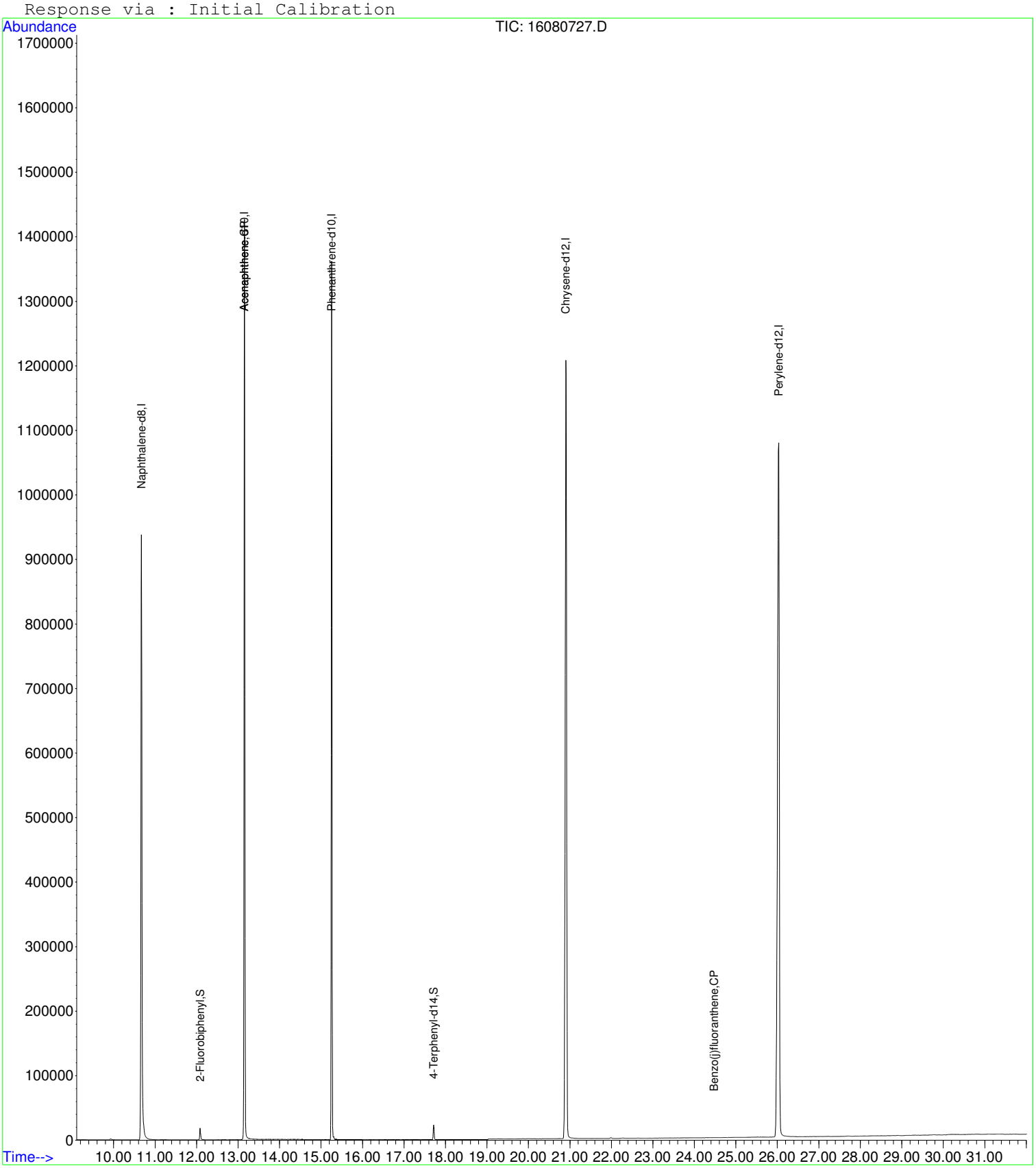
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1474232	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	818769	4000.00	ug/kg	137
11) Phenanthrene-d10	15.26	188	1586406	4000.00	ug/kg	100
17) Chrysene-d12	20.90	240	2164077	4000.00	ug/kg	118
20) Perylene-d12	26.03	264	2237489	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21186	74.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#		
16) 4-Terphenyl-d14	17.71	244	32325	86.34	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2784	13.26	ug/kg#	1
23) Benzo(j)fluoranthene	24.48	252	190	0.42	ug/kg#	1

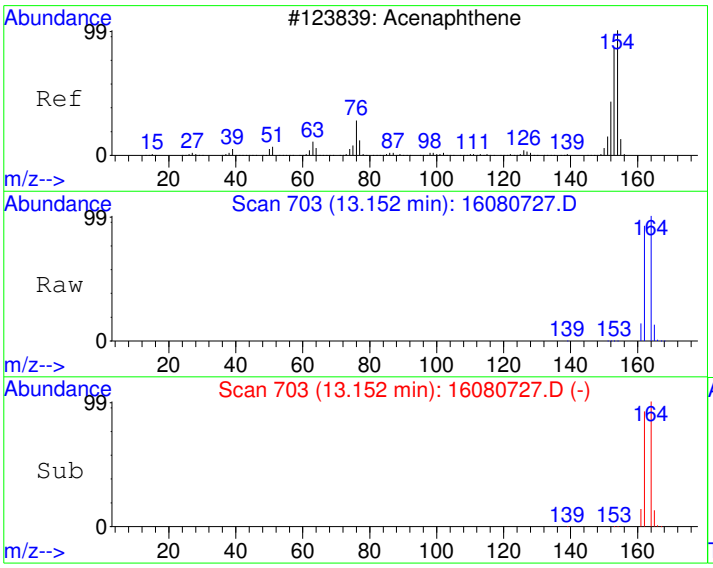
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080727.D Vial: 27
Acq On : 8 Aug 2016 6:09 am Operator: DEW
Sample : 1607294-41A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:21 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

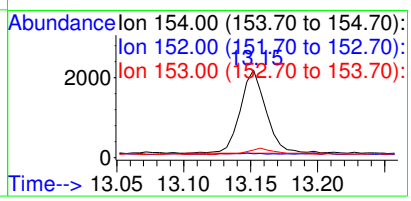


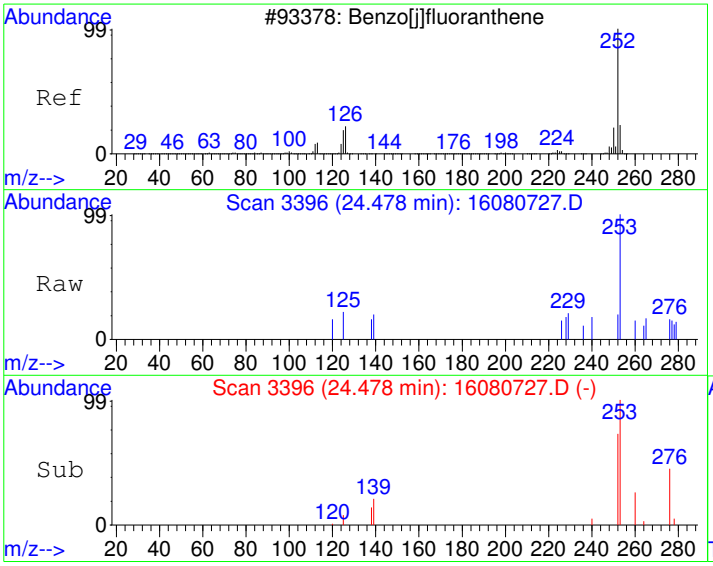


#9
Acenaphthene
Concen: 13.26 ug/kg
RT: 13.15 min Scan# 703
Delta R.T. -0.06 min
Lab File: 16080727.D
Acq: 8 Aug 2016 6:09 am

Tgt Ion:154 Resp: 2784

Ion	Ratio	Lower	Upper
154	100		
152	0.4	19.1	79.1#
153	5.3	76.2	136.2#

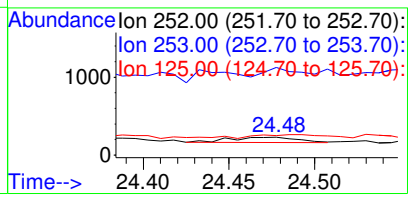




#23
Benzo(j)fluoranthene
Concen: 0.42 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.03 min
Lab File: 16080727.D
Acq: 8 Aug 2016 6:09 am

Tgt Ion:252 Resp: 190

Ion	Ratio	Lower	Upper
252	100		
253	298.5	2.2	42.2#
125	39.4	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080728.D Vial: 28
Acq On : 8 Aug 2016 6:49 am Operator: DEW
Sample : 1607294-42A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:22 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

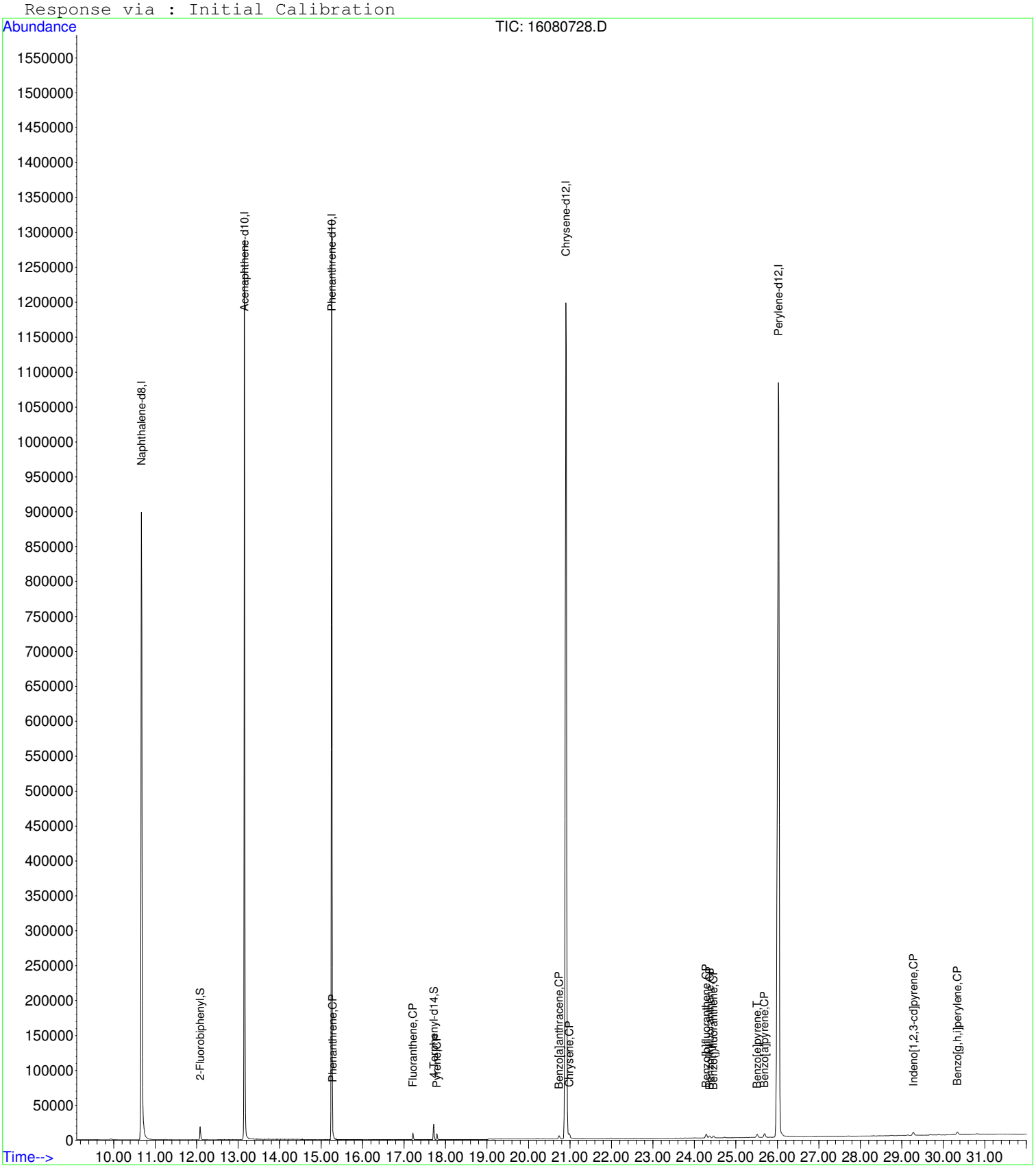
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1412815	4000.00	ug/kg	101
5) Acenaphthene-d10	13.15	164	769977	4000.00	ug/kg	128
11) Phenanthrene-d10	15.26	188	1527382	4000.00	ug/kg	96
17) Chrysene-d12	20.90	240	2073611	4000.00	ug/kg	113
20) Perylene-d12	26.03	264	2224212	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20576	76.61	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
16) 4-Terphenyl-d14	17.72	244	31393	87.10	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#		
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	3281	9.06	ug/kg	99
14) Fluoranthene	17.22	202	10787	25.14	ug/kg	97
15) Pyrene	17.79	202	10319	23.71	ug/kg	98
18) Benzo[a]anthracene	20.74	228	7549	16.15	ug/kg	96
19) Chrysene	20.98	228	9004	20.03	ug/kg	98
21) Benzo[b]fluoranthene	24.28	252	11005	21.43	ug/kg	95
22) Benzo[k]fluoranthene	24.37	252	5277	11.20	ug/kg	96
23) Benzo(j)fluoranthene	24.46	252	5139	11.35	ug/kg	91
24) Benzo[e]pyrene	25.51	252	8784	17.63	ug/kg	96
25) Benzo[a]pyrene	25.70	252	11243	22.66	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.28	276	8008	14.06	ug/kg	88
28) Benzo[g,h,i]perylene	30.34	276	7931	16.62	ug/kg	97

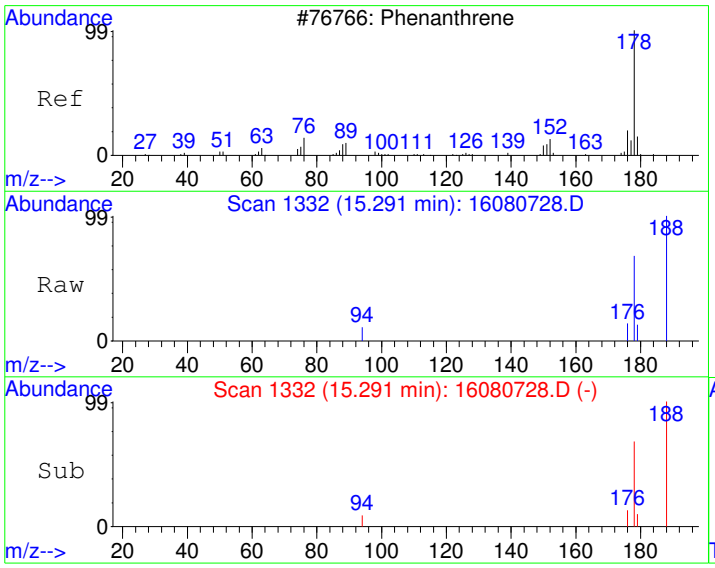
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080728.D Vial: 28
Acq On : 8 Aug 2016 6:49 am Operator: DEW
Sample : 1607294-42A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:22 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

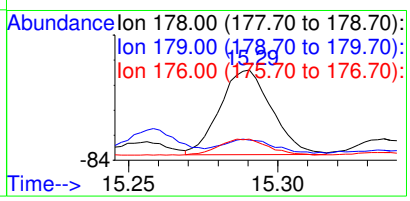


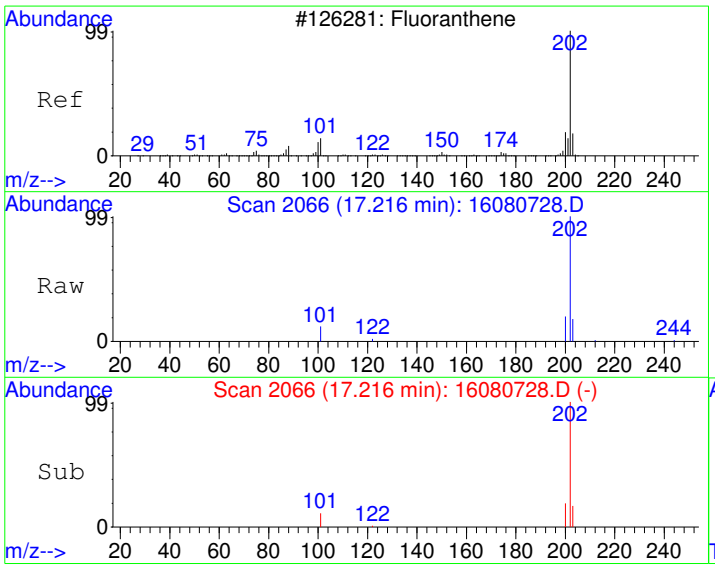


#12
Phenanthrene
Concen: 9.06 ug/kg
RT: 15.29 min Scan# 1332
Delta R.T. -0.01 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:178 Resp: 3281

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.7
176	19.0	0.0	48.7

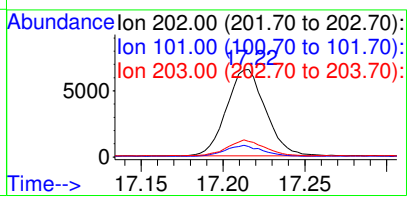


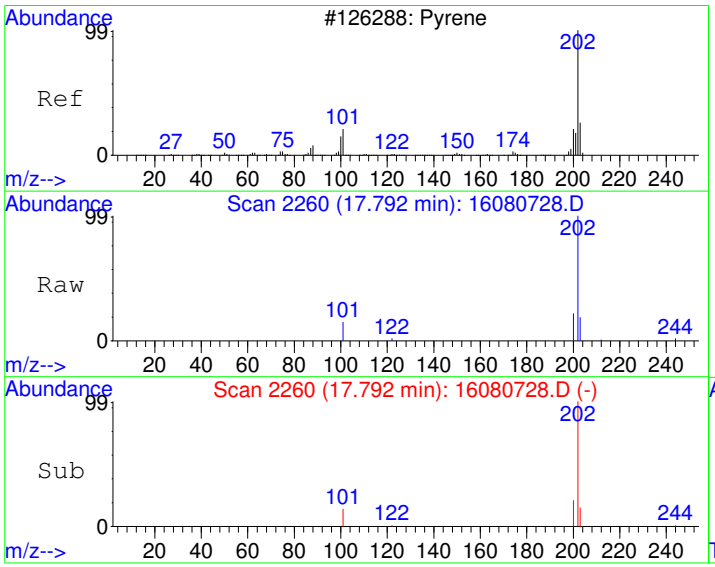


#14
Fluoranthene
Concen: 25.14 ug/kg
RT: 17.22 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:202 Resp: 10787

Ion	Ratio	Lower	Upper
202	100		
101	11.3	0.0	42.1
203	16.3	0.0	47.9

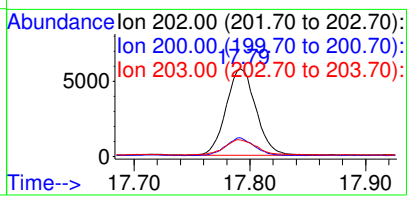


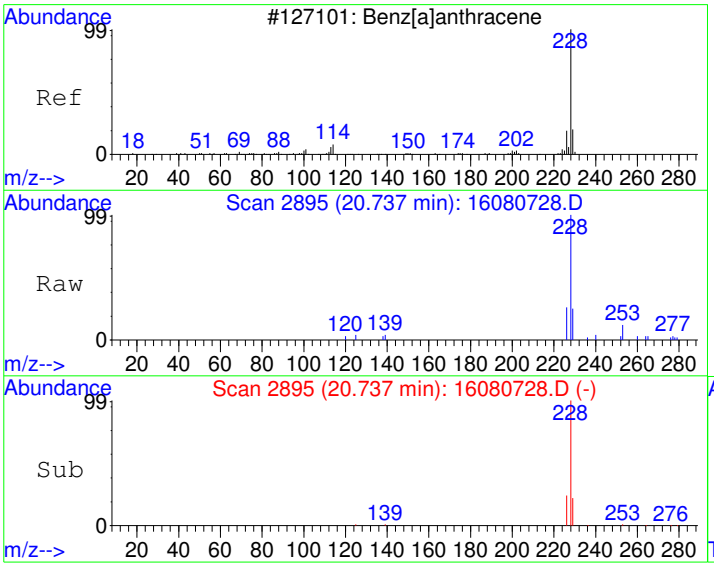


#15
Pyrene
Concen: 23.71 ug/kg
RT: 17.79 min Scan# 2260
Delta R.T. -0.02 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:202 Resp: 10319

Ion	Ratio	Lower	Upper
202	100		
200	20.7	0.0	49.7
203	17.3	0.0	47.8

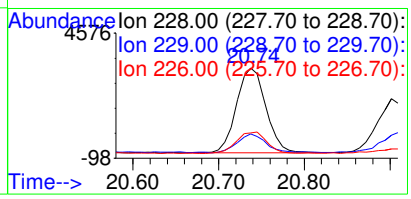


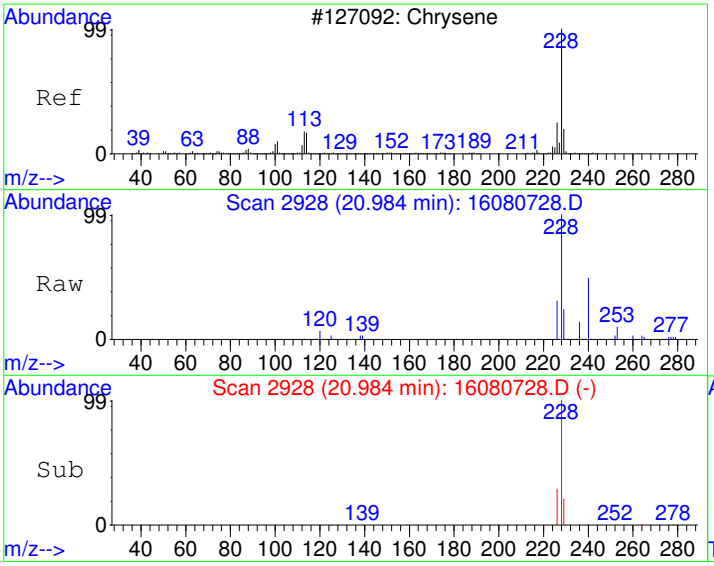


#18
Benzo[a]anthracene
Concen: 16.15 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:228 Resp: 7549

Ion	Ratio	Lower	Upper
228	100		
229	21.9	0.0	49.8
226	24.0	0.0	55.8

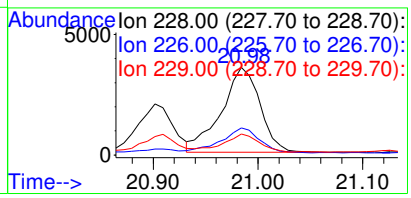


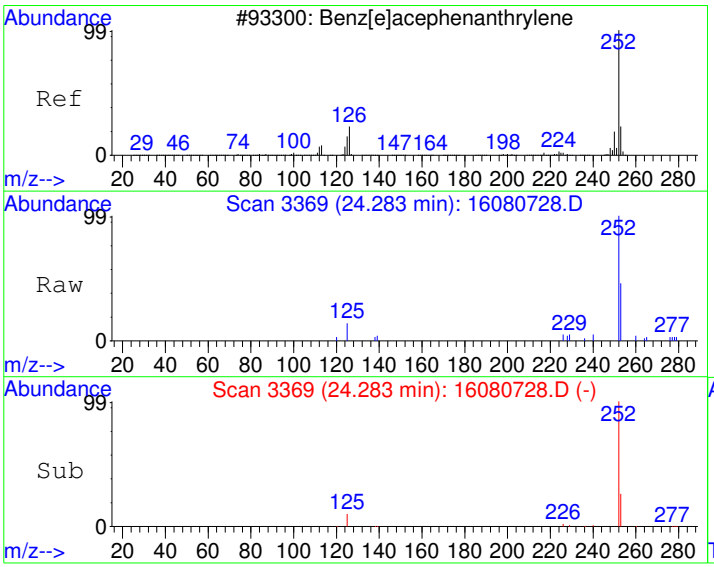


#19
Chrysene
Concen: 20.03 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.04 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:228 Resp: 9004

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	21.4	0.0	50.0

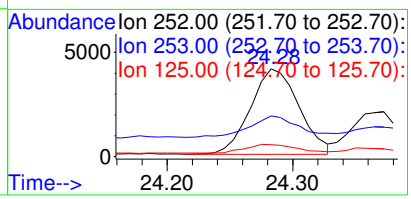


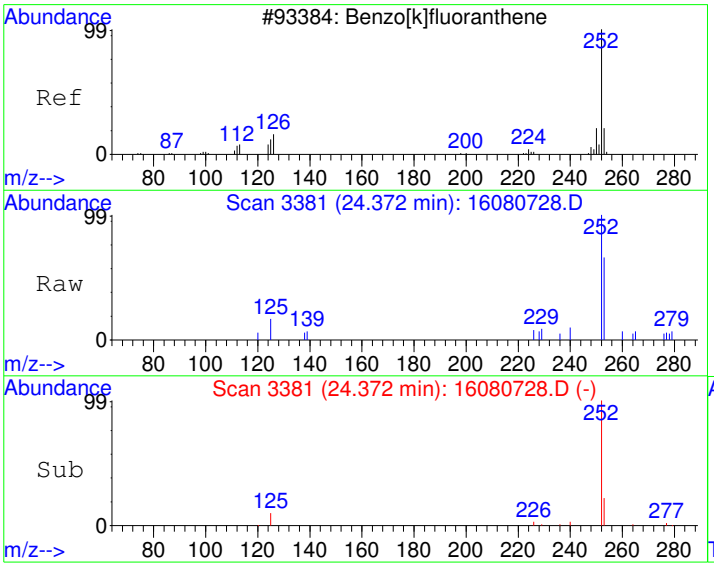


#21
Benzo[b]fluoranthene
Concen: 21.43 ug/kg
RT: 24.28 min Scan# 3369
Delta R.T. -0.05 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:252 Resp: 11005

Ion	Ratio	Lower	Upper
252	100		
253	25.1	0.0	52.0
125	9.8	0.0	40.6

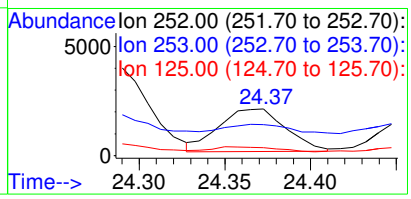


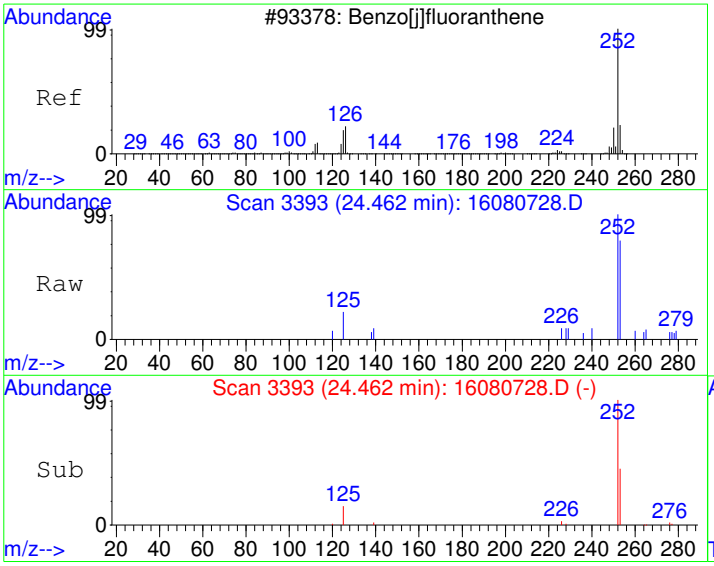


#22
Benzo[k]fluoranthene
Concen: 11.20 ug/kg
RT: 24.37 min Scan# 3381
Delta R.T. -0.04 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:252 Resp: 5277

Ion	Ratio	Lower	Upper
252	100		
253	20.1	2.2	42.2
125	8.6	0.0	30.3

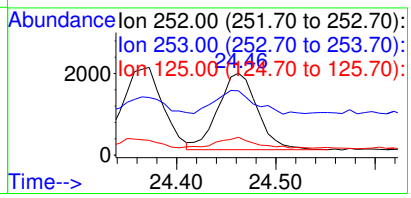


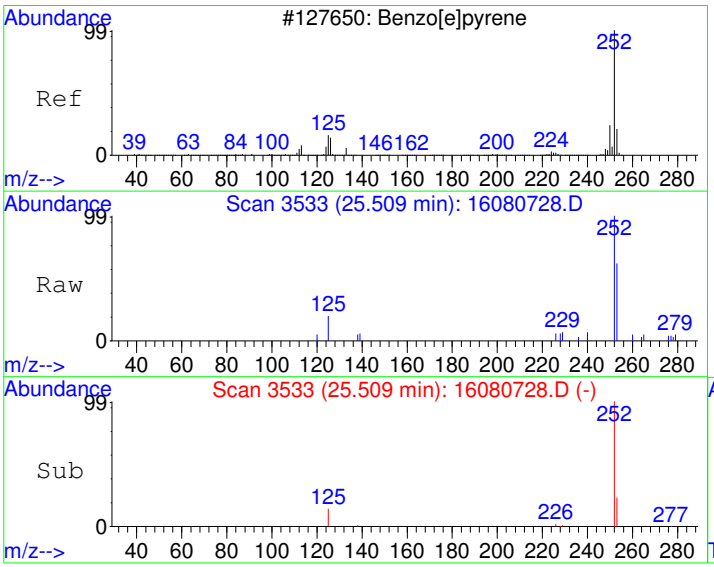


#23
Benzo(j)fluoranthene
Concen: 11.35 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:252 Resp: 5139

Ion	Ratio	Lower	Upper
252	100		
253	28.4	2.2	42.2
125	13.3	0.0	34.4

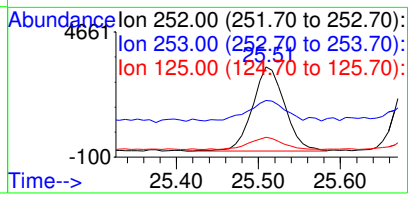


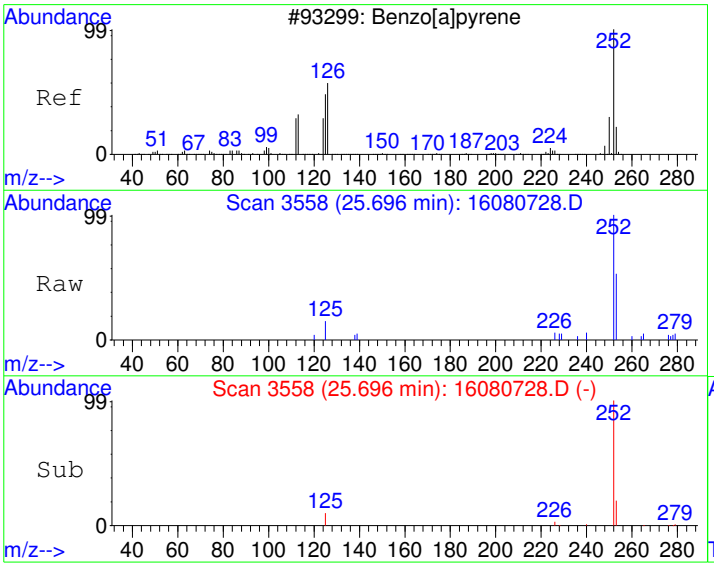


#24
Benzo[e]pyrene
Concen: 17.63 ug/kg
RT: 25.51 min Scan# 3533
Delta R.T. -0.05 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:252 Resp: 8784

Ion	Ratio	Lower	Upper
252	100		
253	24.7	2.2	42.2
125	14.5	0.0	35.7

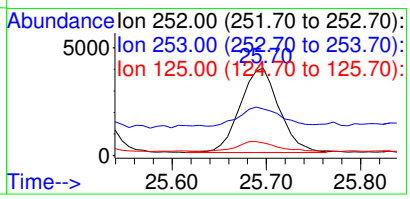


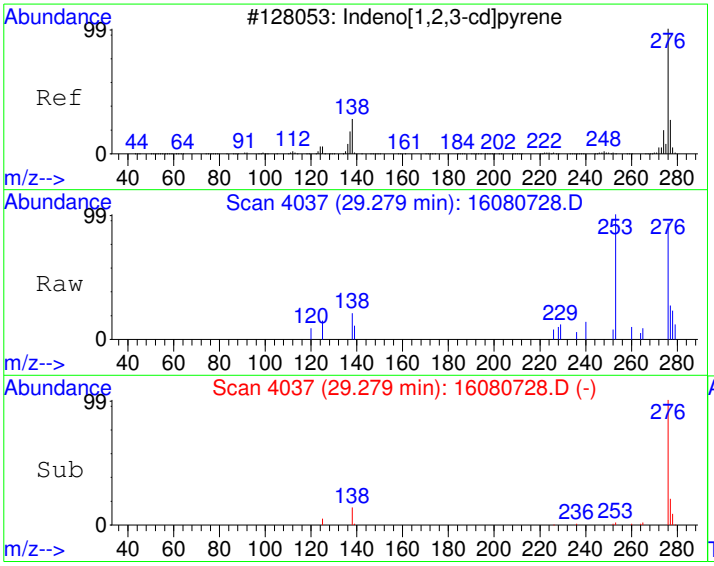


#25
Benzo[a]pyrene
Concen: 22.66 ug/kg
RT: 25.70 min Scan# 3558
Delta R.T. -0.04 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:252 Resp: 11243

Ion	Ratio	Lower	Upper
252	100		
253	19.7	2.0	42.0
125	9.6	0.0	31.6

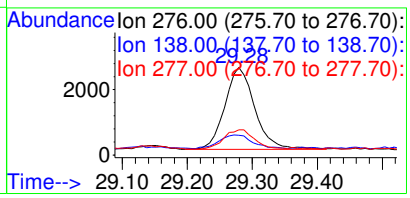


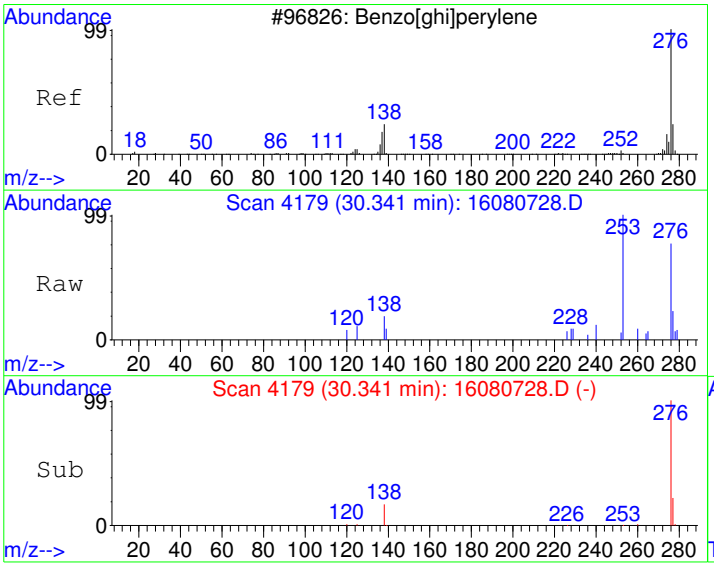


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.06 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:276 Resp: 8008

Ion	Ratio	Lower	Upper
276	100		
138	15.4	4.8	44.8
277	23.2	5.6	45.6

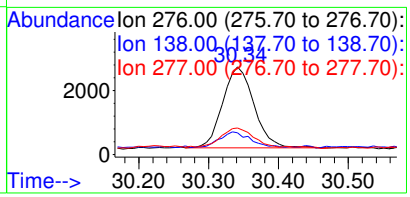




#28
Benzo[g,h,i]perylene
Concen: 16.62 ug/kg
RT: 30.34 min Scan# 4179
Delta R.T. -0.05 min
Lab File: 16080728.D
Acq: 8 Aug 2016 6:49 am

Tgt Ion:276 Resp: 7931

Ion	Ratio	Lower	Upper
276	100		
138	16.3	0.0	38.1
277	25.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080729.D Vial: 29
Acq On : 8 Aug 2016 7:29 am Operator: DEW
Sample : 1607294-43A Inst : GC/MS #6
Misc : SAMP Multiplr: 50.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:22 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

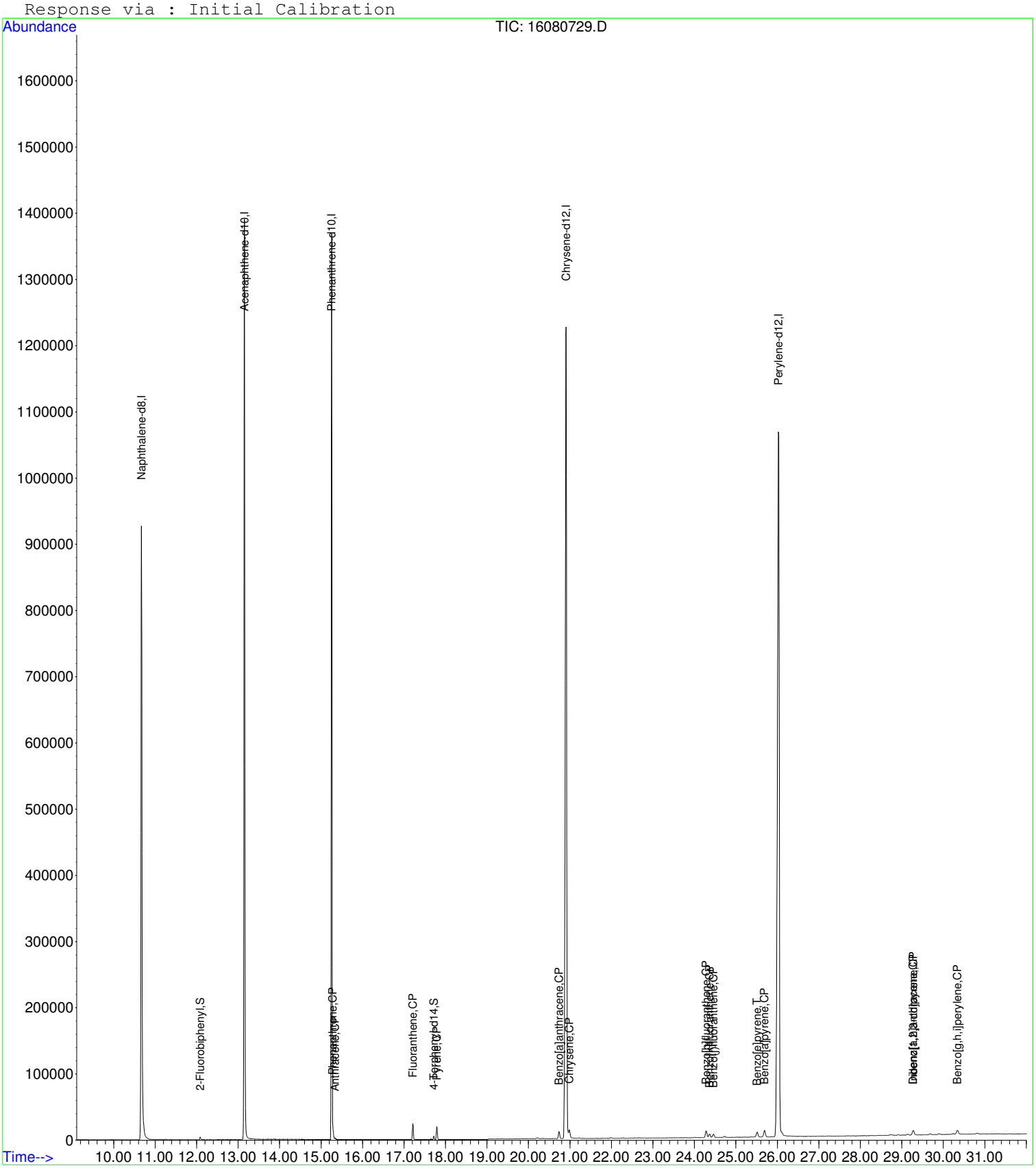
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1443778	4000.00	ug/kg	103
5) Acenaphthene-d10	13.15	164	817630	4000.00	ug/kg	136
11) Phenanthrene-d10	15.25	188	1581036	4000.00	ug/kg	99
17) Chrysene-d12	20.91	240	2178809	4000.00	ug/kg	119
20) Perylene-d12	26.02	264	2245580	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	5040	17.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.44%#		
16) 4-Terphenyl-d14	17.72	244	7559	20.26	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.51%#		
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	9520	25.40	ug/kg	99
13) Anthracene	15.34	178	2028	5.14	ug/kg	94
14) Fluoranthene	17.21	202	27115	61.04	ug/kg	98
15) Pyrene	17.79	202	23374	51.89	ug/kg	99
18) Benzo[a]anthracene	20.74	228	17361	35.35	ug/kg	98
19) Chrysene	20.99	228	19528	41.33	ug/kg	98
21) Benzo[b]fluoranthene	24.28	252	21010	40.53	ug/kg	98
22) Benzo[k]fluoranthene	24.36	252	10349	21.76	ug/kg	93
23) Benzo(j)fluoranthene	24.46	252	9498	20.78	ug/kg	92
24) Benzo[e]pyrene	25.51	252	15189	30.19	ug/kg	98
25) Benzo[a]pyrene	25.70	252	20698	41.32	ug/kg	97
26) Dibenz[a,h]anthracene	29.26	278	3061	6.32	ug/kg	91
27) Indeno[1,2,3-cd]pyrene	29.28	276	13069	22.72	ug/kg	88
28) Benzo[g,h,i]perylene	30.34	276	13430	27.88	ug/kg	96

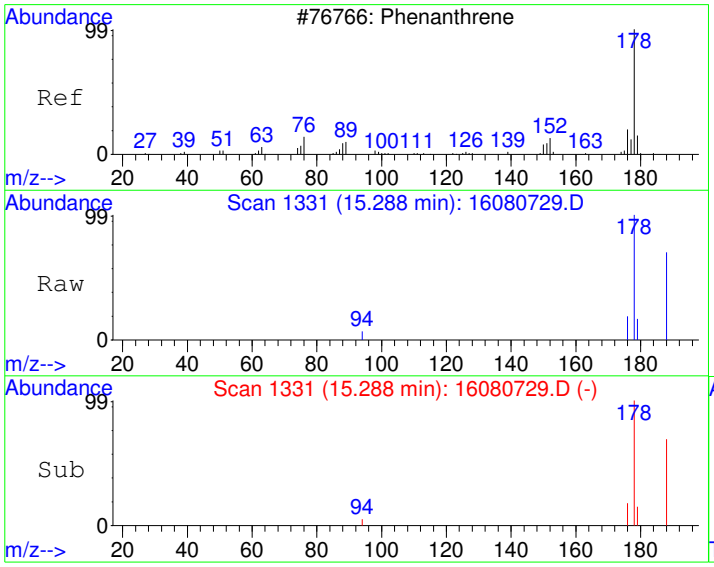
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080729.D Vial: 29
Acq On : 8 Aug 2016 7:29 am Operator: DEW
Sample : 1607294-43A Inst : GC/MS #6
Misc : SAMP Multiplr: 50.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:22 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

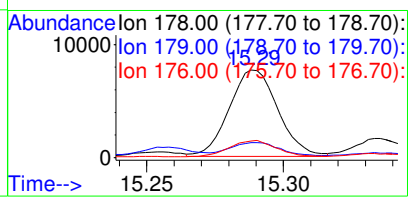


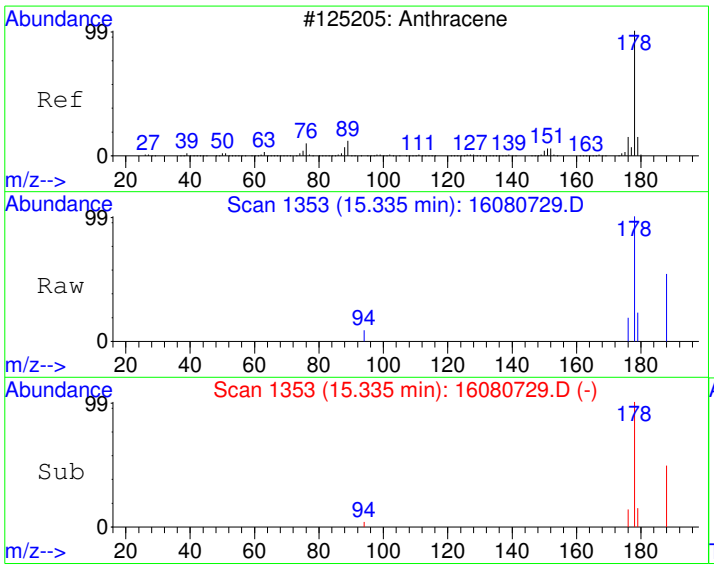


#12
Phenanthrene
Concen: 25.40 ug/kg
RT: 15.29 min Scan# 1331
Delta R.T. -0.02 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:178 Resp: 9520

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	45.7
176	18.6	0.0	48.7

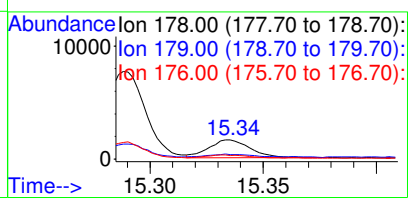


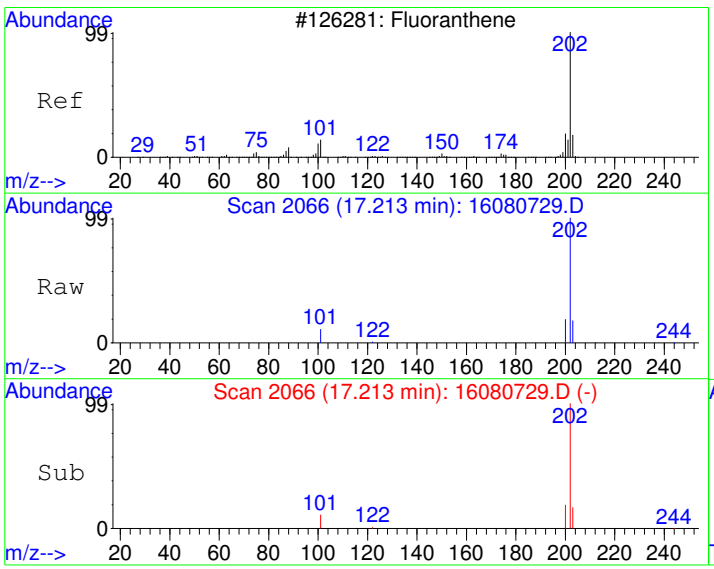


#13
Anthracene
Concen: 5.14 ug/kg
RT: 15.34 min Scan# 1353
Delta R.T. -0.01 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:178 Resp: 2028

Ion	Ratio	Lower	Upper
178	100		
179	13.5	0.0	45.7
176	15.0	0.0	47.9

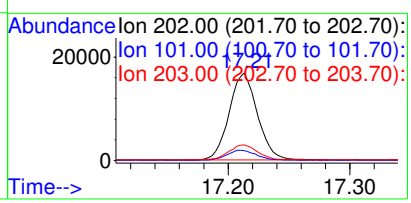


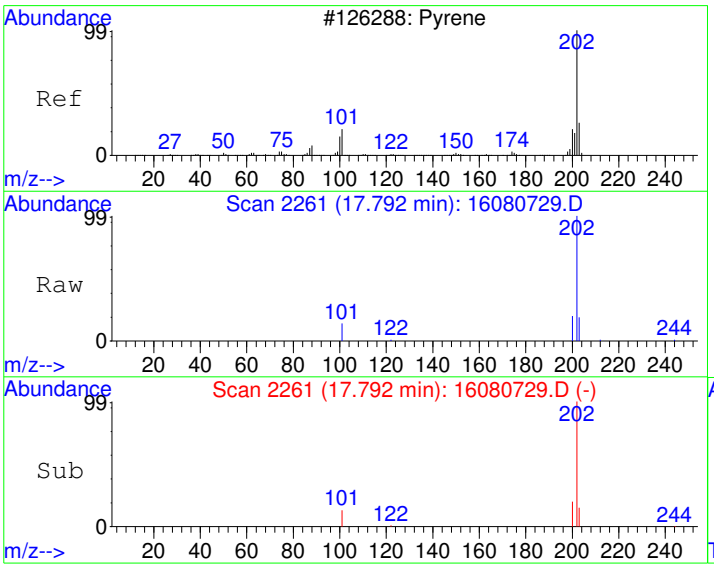


#14
Fluoranthene
Concen: 61.04 ug/kg
RT: 17.21 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:202 Resp: 27115

Ion	Ratio	Lower	Upper
202	100		
101	10.8	0.0	42.1
203	17.4	0.0	47.9

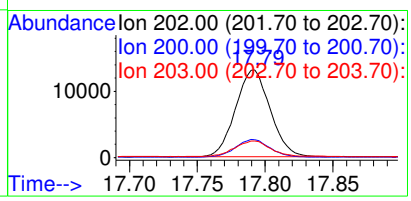


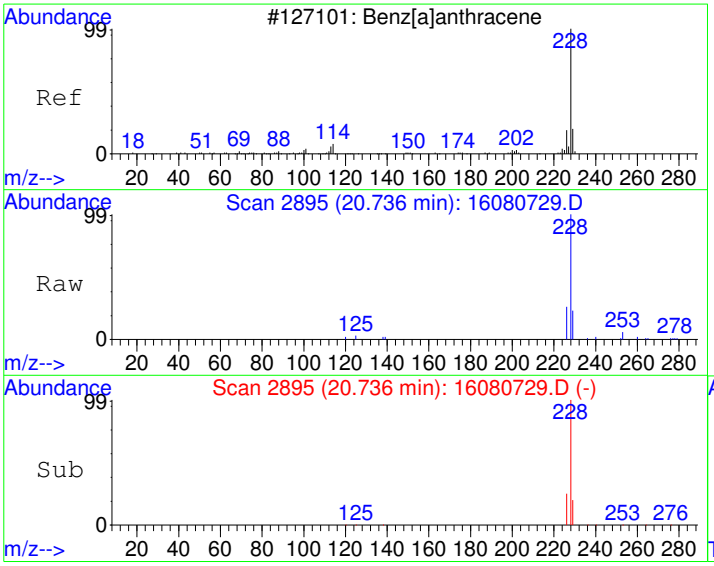


#15
Pyrene
Concen: 51.89 ug/kg
RT: 17.79 min Scan# 2261
Delta R.T. -0.02 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:202 Resp: 23374

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	49.7
203	18.0	0.0	47.8

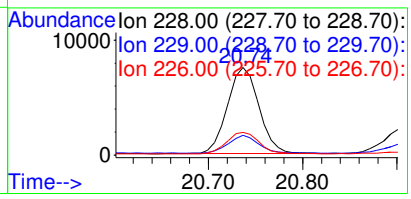


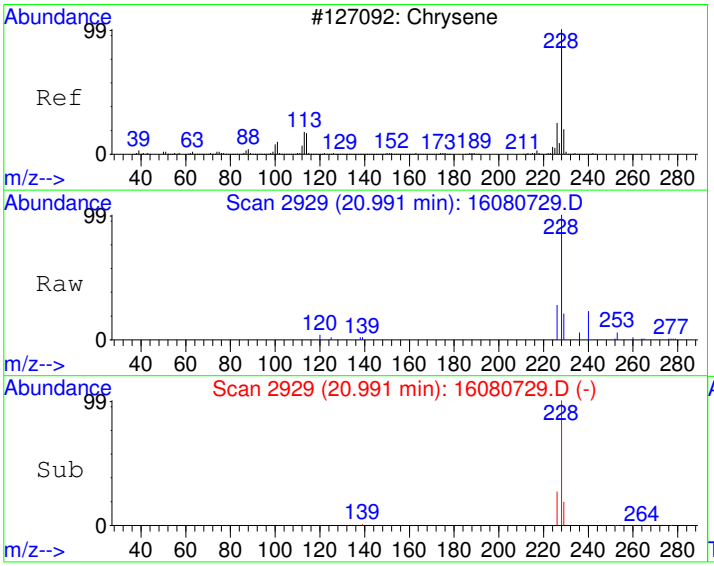


#18
Benzo[a]anthracene
Concen: 35.35 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:228 Resp: 17361

Ion	Ratio	Lower	Upper
228	100		
229	20.8	0.0	49.8
226	24.9	0.0	55.8

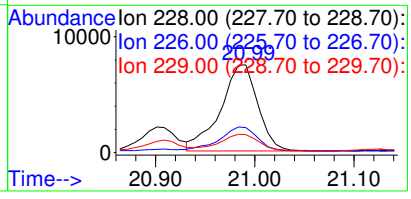


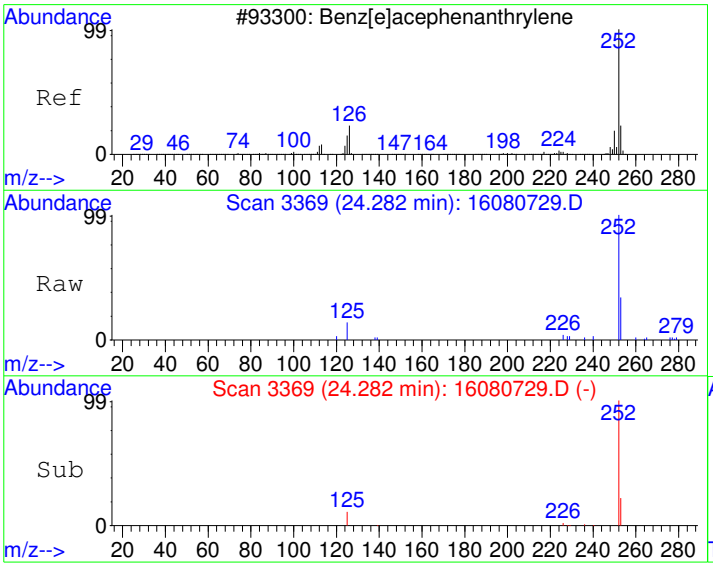


#19
Chrysene
Concen: 41.33 ug/kg
RT: 20.99 min Scan# 2929
Delta R.T. -0.03 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:228 Resp: 19528

Ion	Ratio	Lower	Upper
228	100		
226	27.0	0.0	58.1
229	18.9	0.0	50.0

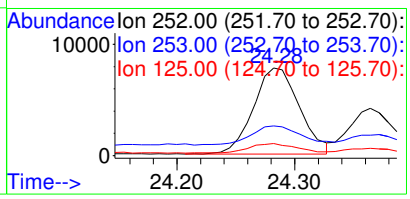


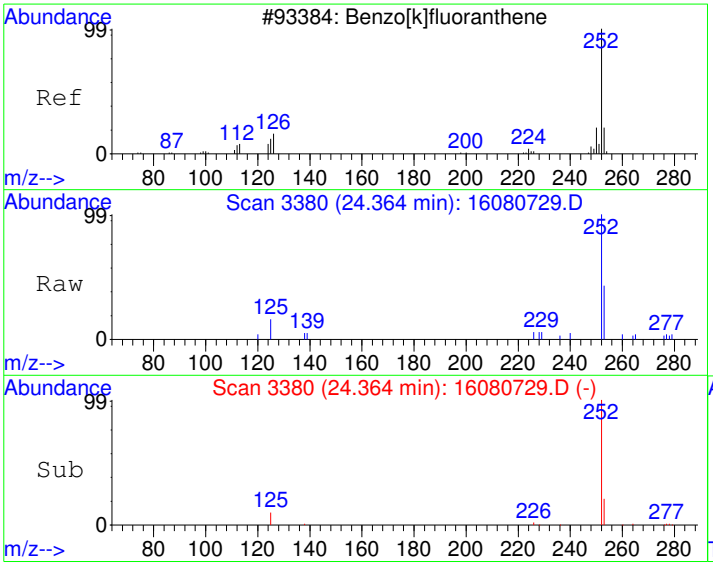


#21
Benzo[b]fluoranthene
Concen: 40.53 ug/kg
RT: 24.28 min Scan# 3369
Delta R.T. -0.05 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:252 Resp: 21010

Ion	Ratio	Lower	Upper
252	100		
253	21.1	0.0	52.0
125	11.2	0.0	40.6

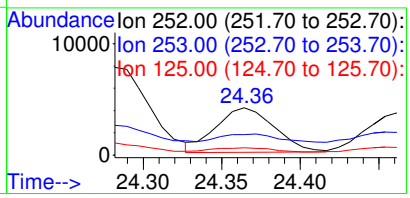


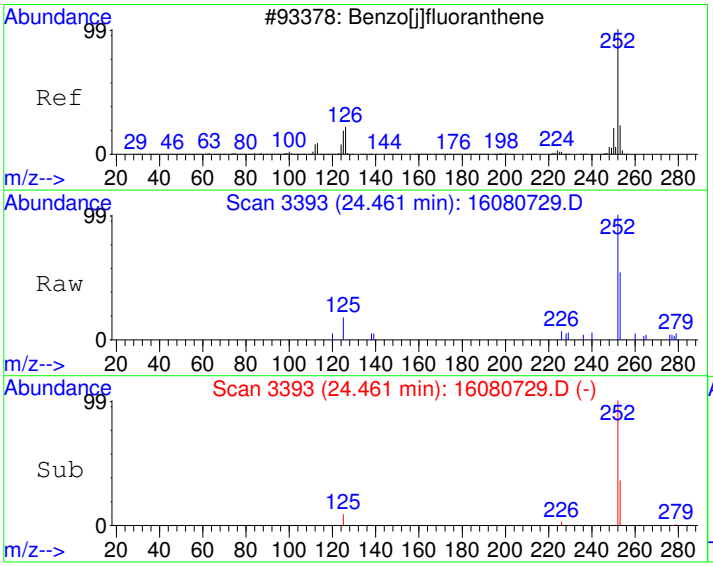


#22
Benzo[k]fluoranthene
Concen: 21.76 ug/kg
RT: 24.36 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:252 Resp: 10349

Ion	Ratio	Lower	Upper
252	100		
253	17.9	2.2	42.2
125	9.3	0.0	30.3

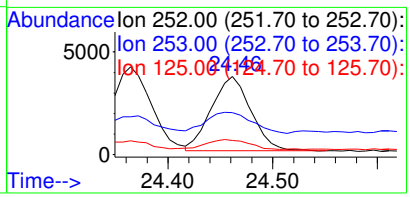


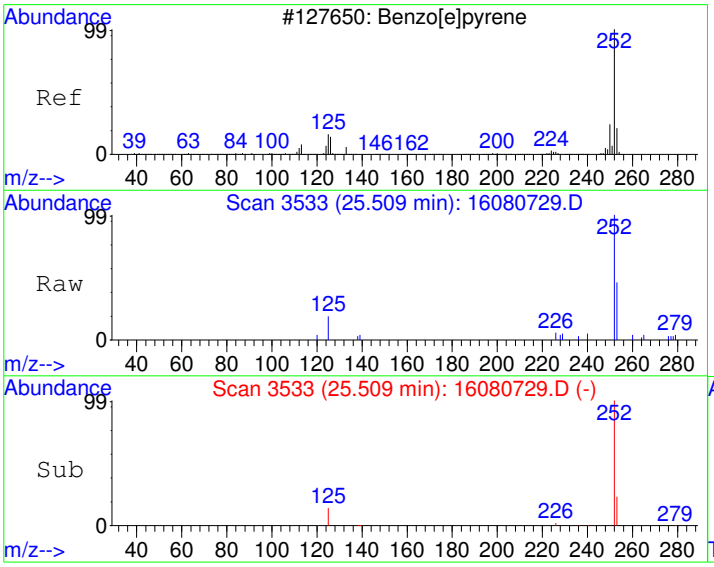


#23
Benzo(j)fluoranthene
Concen: 20.78 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:252 Resp: 9498

Ion	Ratio	Lower	Upper
252	100		
253	26.3	2.2	42.2
125	11.5	0.0	34.4

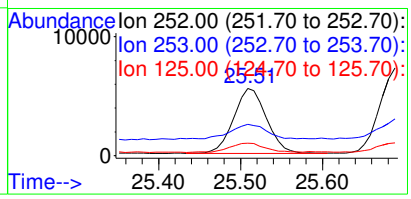


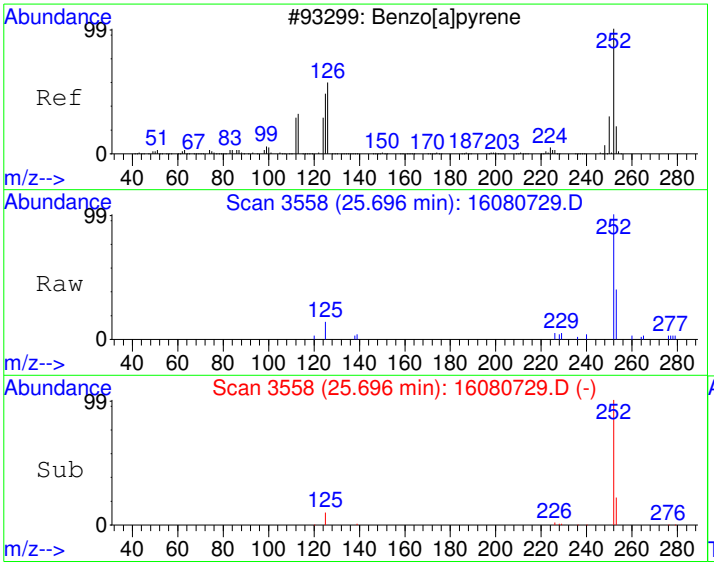


#24
Benzo[e]pyrene
Concen: 30.19 ug/kg
RT: 25.51 min Scan# 3533
Delta R.T. -0.05 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:252 Resp: 15189

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	14.3	0.0	35.7

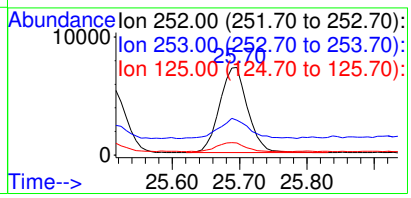


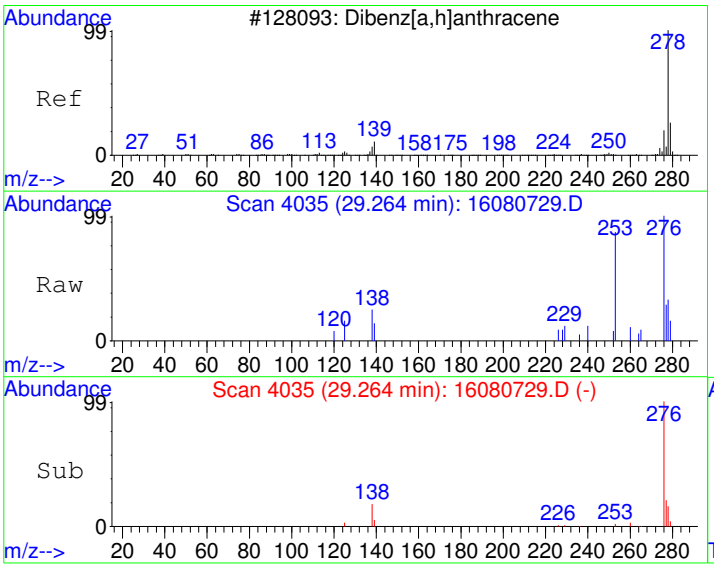


#25
Benzo[a]pyrene
Concen: 41.32 ug/kg
RT: 25.70 min Scan# 3558
Delta R.T. -0.04 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:252 Resp: 20698

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.0	42.0
125	10.4	0.0	31.6

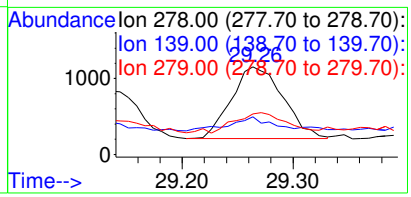


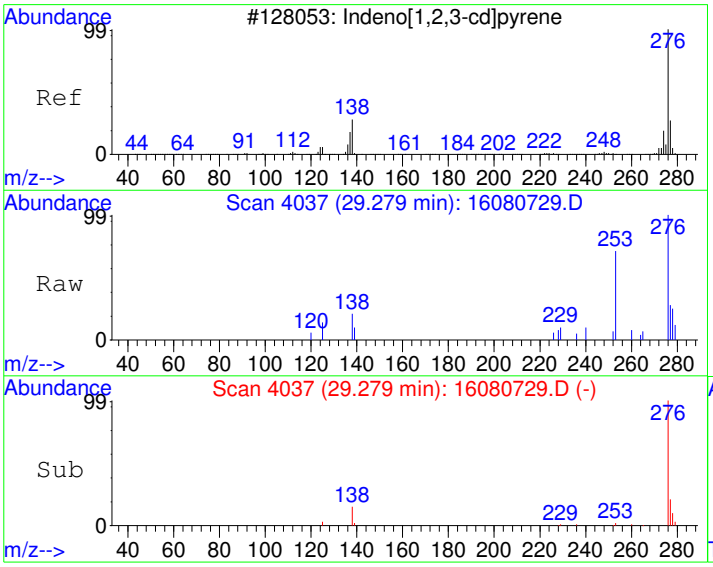


#26
Dibenz[a,h]anthracene
Concen: 6.32 ug/kg
RT: 29.26 min Scan# 4035
Delta R.T. -0.06 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:278 Resp: 3061

Ion	Ratio	Lower	Upper
278	100		
139	19.9	0.0	33.8
279	26.6	3.9	43.9

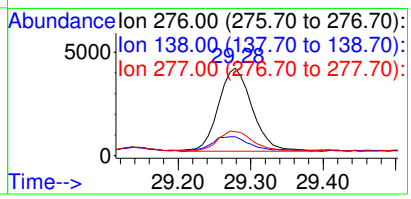


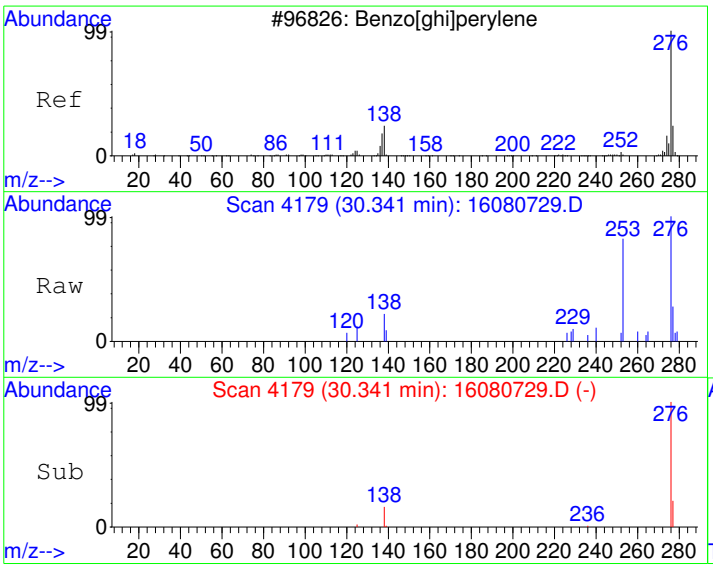


#27
Indeno[1,2,3-cd]pyrene
Concen: 22.72 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:276 Resp: 13069

Ion	Ratio	Lower	Upper
276	100		
138	15.4	4.8	44.8
277	22.7	5.6	45.6

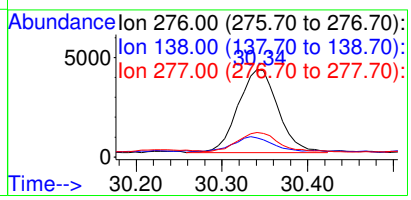




#28
Benzo[g,h,i]perylene
Concen: 27.88 ug/kg
RT: 30.34 min Scan# 4179
Delta R.T. -0.05 min
Lab File: 16080729.D
Acq: 8 Aug 2016 7:29 am

Tgt Ion:276 Resp: 13430

Ion	Ratio	Lower	Upper
276	100		
138	16.4	0.0	38.1
277	22.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160807\16080730.D Vial: 30
Acq On : 8 Aug 2016 8:08 am Operator: DEW
Sample : 1607294-29AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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

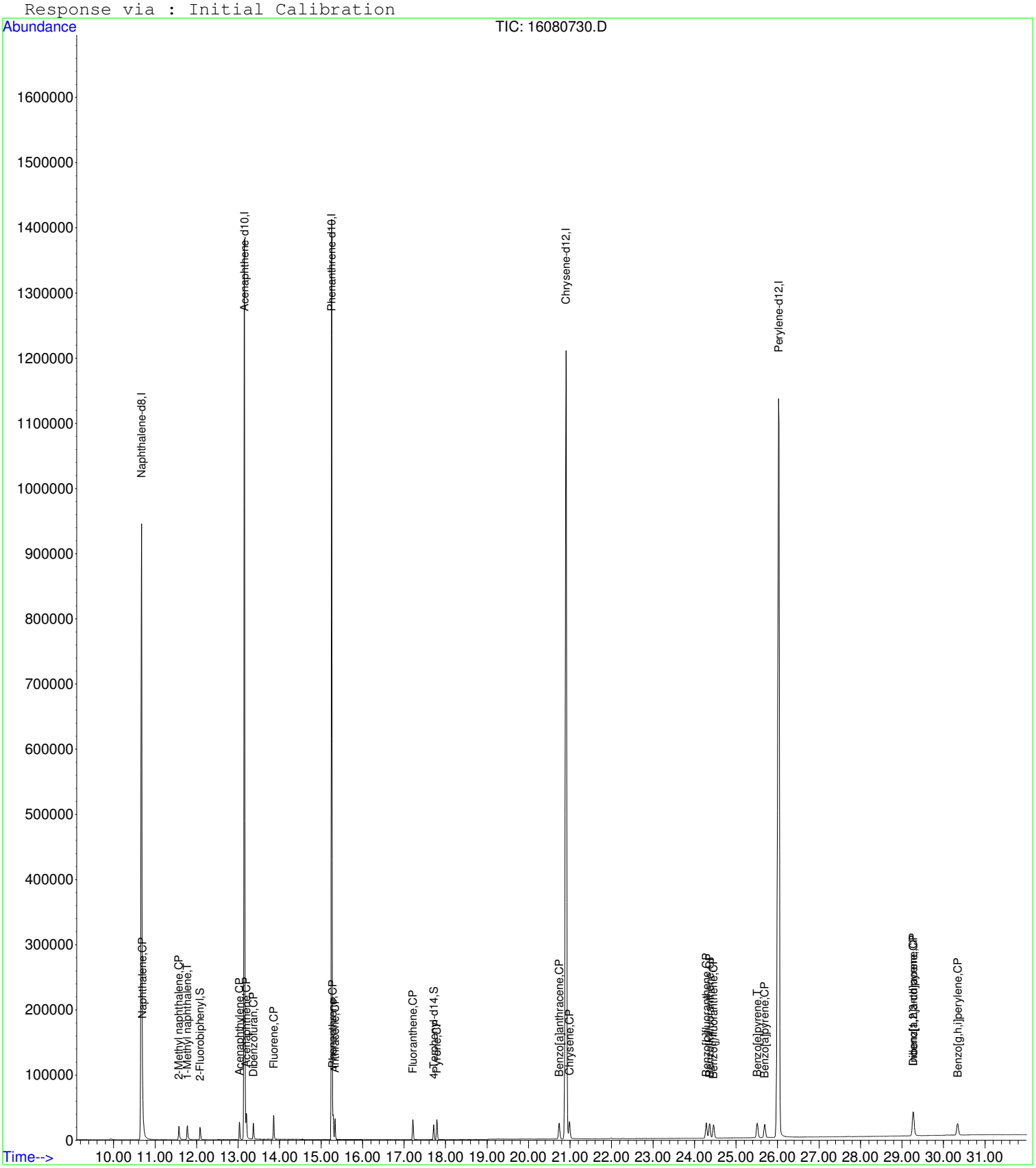
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1498728	4000.00	ug/kg	107
5) Acenaphthene-d10	13.15	164	819460	4000.00	ug/kg	137
11) Phenanthrene-d10	15.25	188	1598069	4000.00	ug/kg	100
17) Chrysene-d12	20.90	240	2150359	4000.00	ug/kg	117
20) Perylene-d12	26.03	264	2311672	4000.00	ug/kg	120
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	22370	78.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.71	244	32628	86.52	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	24759	72.61	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	17925	81.09	ug/kg	95
4) 1-Methyl naphthalene	11.78	142	16279	83.14	ug/kg	98
6) Dibenzofuran	13.37	168	25146	75.83	ug/kg	98
8) Acenaphthylene	13.03	152	28328	78.06	ug/kg	100
9) Acenaphthene	13.20	154	16312	77.61	ug/kg	99
10) Fluorene	13.86	166	21217	80.31	ug/kg	98
12) Phenanthrene	15.29	178	29707	78.41	ug/kg	98
13) Anthracene	15.33	178	30219	75.80	ug/kg	99
14) Fluoranthene	17.21	202	35602	79.29	ug/kg	98
15) Pyrene	17.79	202	36621	80.44	ug/kg	99
18) Benzo[a]anthracene	20.74	228	39142	80.76	ug/kg	100
19) Chrysene	20.98	228	36628	78.55	ug/kg	100
21) Benzo[b]fluoranthene	24.28	252	45259	84.81	ug/kg	99
22) Benzo[k]fluoranthene	24.37	252	42898	87.62	ug/kg	98
23) Benzo(j)fluoranthene	24.46	252	40680	86.46	ug/kg	97
24) Benzo[e]pyrene	25.51	252	44514	85.95	ug/kg	99
25) Benzo[a]pyrene	25.69	252	42456	82.34	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	37691	75.54	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.28	276	46231	78.08	ug/kg	92
28) Benzo[g,h,i]perylene	30.34	276	38176	76.98	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080730.D Vial: 30
Acq On : 8 Aug 2016 8:08 am Operator: DEW
Sample : 1607294-29AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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\160807\16080731.D Vial: 31
Acq On : 8 Aug 2016 8:49 am Operator: DEW
Sample : 1607294-29AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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

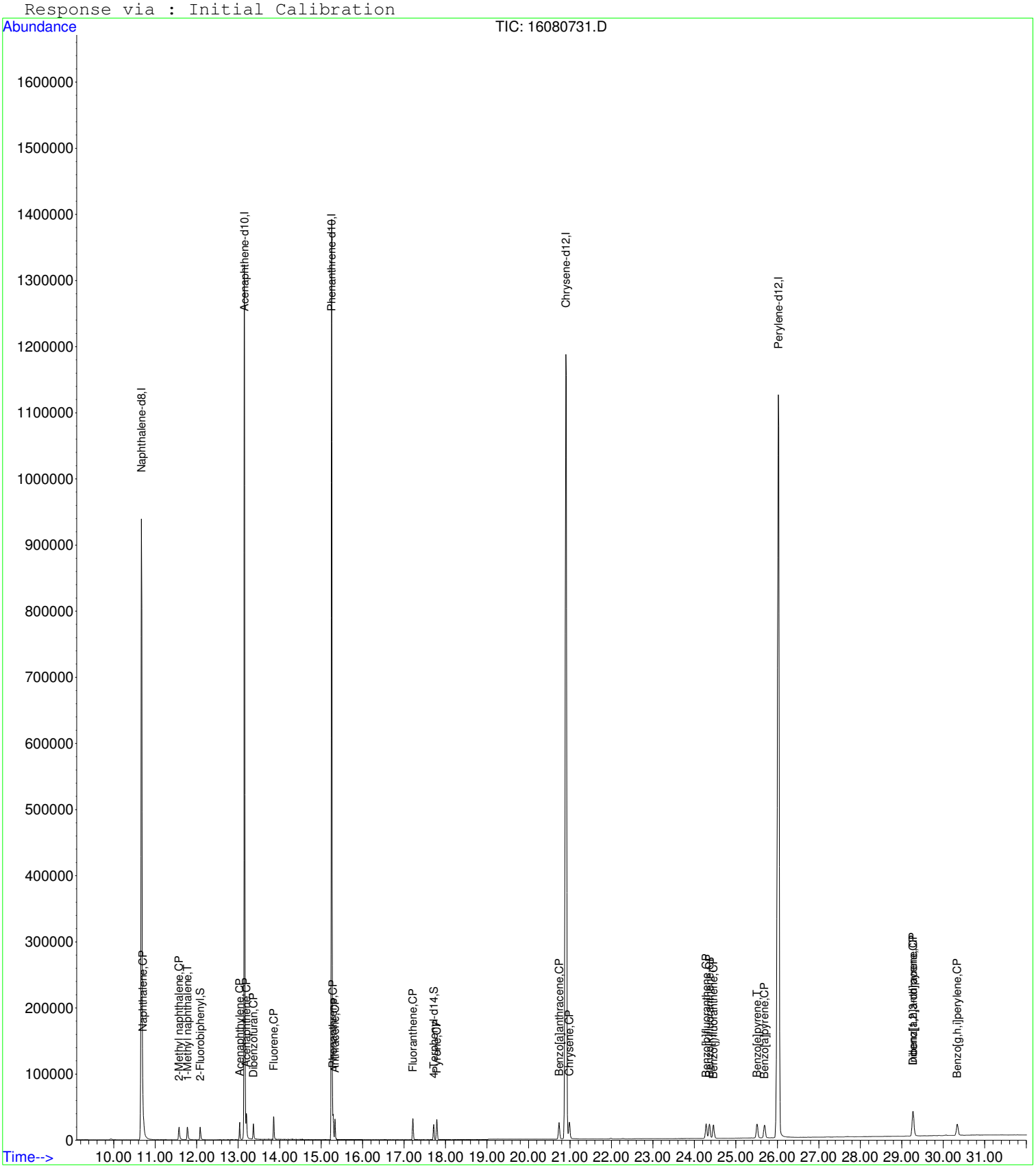
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1494023	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	809481	4000.00	ug/kg	135
11) Phenanthrene-d10	15.25	188	1589007	4000.00	ug/kg	100
17) Chrysene-d12	20.90	240	2126699	4000.00	ug/kg	116
20) Perylene-d12	26.03	264	2291521	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21804	77.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#		
16) 4-Terphenyl-d14	17.71	244	32322	86.19	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	23774	69.94	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	17224	78.16	ug/kg	98
4) 1-Methyl naphthalene	11.78	142	15632	80.08	ug/kg	98
6) Dibenzofuran	13.37	168	24193	73.85	ug/kg	99
8) Acenaphthylene	13.04	152	27048	75.45	ug/kg	99
9) Acenaphthene	13.20	154	15625	75.26	ug/kg	98
10) Fluorene	13.85	166	20386	78.12	ug/kg	99
12) Phenanthrene	15.29	178	29154	77.39	ug/kg	98
13) Anthracene	15.33	178	29554	74.55	ug/kg	100
14) Fluoranthene	17.21	202	35375	79.24	ug/kg	99
15) Pyrene	17.79	202	36167	79.89	ug/kg	99
18) Benzo[a]anthracene	20.74	228	38098	79.48	ug/kg	99
19) Chrysene	20.98	228	35551	77.09	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	43236	81.73	ug/kg	98
22) Benzo[k]fluoranthene	24.37	252	41215	84.92	ug/kg	99
23) Benzo(j)fluoranthene	24.46	252	39152	83.95	ug/kg	99
24) Benzo[e]pyrene	25.51	252	43180	84.11	ug/kg	99
25) Benzo[a]pyrene	25.69	252	41103	80.41	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	36357	73.50	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	44969	76.61	ug/kg	96
28) Benzo[g,h,i]perylene	30.33	276	36760	74.77	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080731.D Vial: 31
Acq On : 8 Aug 2016 8:49 am Operator: DEW
Sample : 1607294-29AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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\160807\16080732.D Vial: 32
Acq On : 8 Aug 2016 9:29 am Operator: DEW
Sample : CCV1-160807 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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

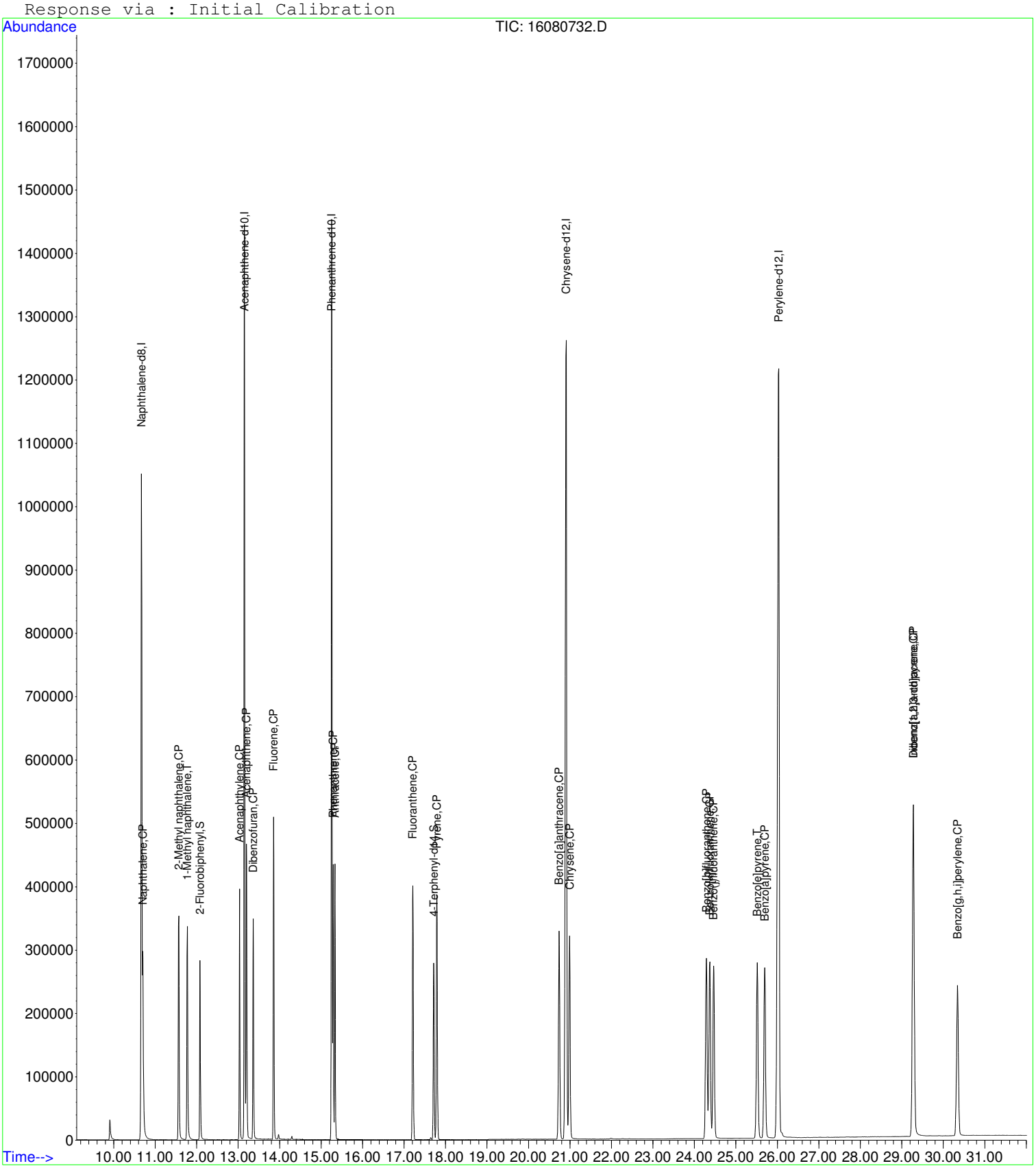
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1541413	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	863368	4000.00	ug/kg	144
11) Phenanthrene-d10	15.26	188	1699017	4000.00	ug/kg	107
17) Chrysene-d12	20.91	240	2258168	4000.00	ug/kg	123
20) Perylene-d12	26.03	264	2485008	4000.00	ug/kg	129
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	270522	898.28	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.46%#			
16) 4-Terphenyl-d14	17.72	244	381727	952.06	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.80%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	331167	944.28	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	238342	1048.32	ug/kg	100
4) 1-Methyl naphthalene	11.77	142	215969	1072.42	ug/kg	100
6) Dibenzofuran	13.36	168	326537	934.58	ug/kg	99
8) Acenaphthylene	13.03	152	375528	982.20	ug/kg	100
9) Acenaphthene	13.20	154	214410	968.29	ug/kg	99
10) Fluorene	13.85	166	273469	982.48	ug/kg	100
12) Phenanthrene	15.29	178	381475	947.04	ug/kg	99
13) Anthracene	15.33	178	398226	939.54	ug/kg	100
14) Fluoranthene	17.21	202	441721	925.34	ug/kg	99
15) Pyrene	17.79	202	447130	923.76	ug/kg	100
18) Benzo[a]anthracene	20.74	228	502148	986.58	ug/kg	99
19) Chrysene	20.99	228	470194	960.26	ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	572586	998.10	ug/kg	100
22) Benzo[k]fluoranthene	24.37	252	550623	1046.23	ug/kg	99
23) Benzo(j)fluoranthene	24.46	252	505408	999.28	ug/kg	99
24) Benzo[e]pyrene	25.52	252	548718	985.63	ug/kg	99
25) Benzo[a]pyrene	25.70	252	549164	990.74	ug/kg	99
26) Dibenz[a,h]anthracene	29.27	278	512528	955.51	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.28	276	600005	942.63	ug/kg	98
28) Benzo[g,h,i]perylene	30.34	276	493498	925.67	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160807\16080732.D Vial: 32
Acq On : 8 Aug 2016 9:29 am Operator: DEW
Sample : CCV1-160807 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:18 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_160808A
For

DHL Work Order
1607294

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_160808A
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: 8/9/2016

Second-Level Review: Janice Whitt Date: 8/15/2016

REVIEWED BY
By Janice Whitt at 4:46:18 PM, 8/15/2016

DHL Analytical, Inc.

Run ID: GCMS6_160808A **Run No.:** 87483

Analytical Run Date: 8/8/2016 **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-160808	1	PAH_LL_SDOD1	TUNE	R87483	8/8/2016 10:10:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160808	1	PAH_LL_SDOD1	ICV	R87483	8/8/2016 10:50:00 AM		
LCS-76583	1	PAH_LL_SDOD1	LCS	76583	8/8/2016 11:30:00 AM		
MB-76583	1	PAH_LL_SDOD1	MBLK	76583	8/8/2016 12:10:00 PM		
1607294-66A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 12:50:00 PM		
1607294-67A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 1:30:00 PM		
1607294-68A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 2:12:00 PM		
1607294-69A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 2:52:00 PM		
1607294-70A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 3:34:00 PM		
1607294-71A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 4:16:00 PM		
1607294-72A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 4:56:00 PM		
1607294-73A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 5:38:00 PM		
1607294-74A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 6:17:00 PM		
1607294-75A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 6:58:00 PM		
1607314-01A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 7:38:00 PM		
1607314-02A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 8:18:00 PM		
1607314-03A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 8:58:00 PM		
DFTPP2-160808	1	PAH_LL_SDOD1	TUNE	R87483	8/8/2016 9:39:00 PM		
ICV2-160808	1	PAH_LL_SDOD1	ICV	R87483	8/8/2016 10:19:00 PM		
SB-160808	1	PAH_LL_SDOD1	SBLK	76583	8/8/2016 11:41:00 PM		
1607314-04A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 12:21:00 AM		
1607314-05A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 1:02:00 AM		
1607314-06A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 1:43:00 AM		
1607317-01A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 2:23:00 AM		
1607317-02A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 3:03:00 AM		
1607317-03A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 3:43:00 AM		
1607317-04A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 4:24:00 AM		
1607314-03AMS	10	PAH_LL_SDOD1	MS	76583	8/9/2016 5:05:00 AM		

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

DHL Analytical, Inc.

Run ID: GCMS6_160808A **Run No.:** 87483

1607314-03AMSD	10	PAH_LL_SDOD1	MSD	76583	8/9/2016 5:45:00 AM		
CCV1-160808	1	PAH_LL_SDOD1	CCV	R87483	8/9/2016 6:25:00 AM		

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:\HPCHEM\1\SEQUENCE\160808.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160808\
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	16080801	DFTPPPAH	DFTPP-160808
2	Sample	2	16080802	PP160801	ICV-160808
3	Sample	3	16080803	PP160801	LCS-76583
4	Sample	4	16080804	PP160801	MB-76583
5	Sample	5	16080805	PP160801	1607294-66A
6	Sample	6	16080806	PP160801	1607294-67A
7	Sample	7	16080807	PP160801	1607294-68A
8	Sample	8	16080808	PP160801	1607294-69A
9	Sample	9	16080809	PP160801	1607294-70A
10	Sample	10	16080810	PP160801	1607294-71A
11	Sample	11	16080811	PP160801	1607294-72A
12	Sample	12	16080812	PP160801	1607294-73A
13	Sample	13	16080813	PP160801	1607294-74A
14	Sample	14	16080814	PP160801	1607294-75A
15	Sample	15	16080815	PP160801	1607314-01A
16	Sample	16	16080816	PP160801	1607314-02A
17	Sample	17	16080817	PP160801	1607314-03A
18	Sample	18	16080818	DFTPPPAH	DFTPP2-160808
19	Sample	19	16080819	PP160801	ICV2-160808
20	Sample	20	16080820	PP160801	SBLK
21	Sample	21	16080821	PP160801	SB-160808
22	Sample	22	16080822	PP160801	1607314-04A
23	Sample	23	16080823	PP160801	1607314-05A
24	Sample	24	16080824	PP160801	1607314-06A
25	Sample	25	16080825	PP160801	1607317-01A
26	Sample	26	16080826	PP160801	1607317-02A
27	Sample	27	16080827	PP160801	1607317-03A
28	Sample	28	16080828	PP160801	1607317-04A
29	Sample	29	16080829	PP160801	1607314-03AMS
30	Sample	30	16080830	PP160801	1607314-03AMSD
31	Sample	31	16080831	PP160801	CCV1-160808

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2016 9:55:54 AM**
Digestion:
Prep End Date: **8/1/2016 5:00:00 PM**

Prep Batch **76583** 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
1607294-66A	Soil		10.2	10	0.980	1 of 1	
1607294-67A	Soil		10.32	10	0.969	1 of 1	
1607294-68A	Soil		10.05	10	0.995	1 of 1	
1607294-69A	Soil		10.01	10	0.999	1 of 1	
1607294-70A	Soil		10.16	10	0.984	1 of 1	
1607294-71A	Soil		10.12	10	0.988	1 of 1	
1607294-72A	Soil		10.22	10	0.978	1 of 1	
1607294-73A	Soil		10.32	10	0.969	1 of 1	
1607294-74A	Soil		10.38	10	0.963	1 of 1	
1607294-75A	Soil		10.94	10	0.914	1 of 1	
1607314-01A	Soil		10.08	10	0.992	1 of 1	
1607314-02A	Soil		10.29	10	0.972	1 of 1	
1607314-03A	Soil		10.06	10	0.994	1 of 3	
1607314-03AMS	Soil		10.25	10	0.976	1 of	
1607314-03AMSD	Soil		10.01	10	0.999	1 of	
1607314-04A	Soil		10.08	10	0.992	1 of 1	
1607314-05A	Soil		10.09	10	0.991	1 of 1	
1607314-06A	Soil		10.18	10	0.982	1 of 1	
1607317-01A	Soil		10.15	10	0.985	1 of 1	
1607317-02A	Soil		10.17	10	0.983	1 of 1	
1607317-03A	Soil		~~10.51~~ 10.28	10	0.951	1 of 1	jw 8/15/2016
1607317-04A	Soil		~~10.28~~ 10.51	10	0.973	1 of 1	jw 8/15/2016
LCS-76583	Soil		10	10	1.000	of	
MB-76583	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
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 4:05:20 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2016 9:55:54 AM**
Digestion:
Prep End Date: 8/1/2016 5:00PM

Prep Batch **76583** 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
1607294-66A	Soil		10.20	10	1.000	1 of 1	
1607294-67A	Soil		10.32	10	1.000	1 of 1	
1607294-68A	Soil		10.05	10	1.000	1 of 1	
1607294-69A	Soil		10.01	10	1.000	1 of 1	
1607294-70A	Soil		10.16	10	1.000	1 of 1	
1607294-71A	Soil		10.17	10	1.000	1 of 1	
1607294-72A	Soil		10.22	10	1.000	1 of 1	
1607294-73A	Soil		10.37	10	1.000	1 of 1	
1607294-74A	Soil		10.38	10	1.000	1 of 1	
1607294-75A	Soil		10.94	10	1.000	1 of 1	
1607314-01A	Soil		10.08	10	1.000	1 of 1	
1607314-02A	Soil		10.29	10	1.000	1 of 1	
1607314-03A	Soil		10.06	10	1.000	1 of 3	
1607314-03AMS	Soil		10.25	10	1.000	1 of ↓	
1607314-03AMSD	Soil		10.01	10	1.000	1 of ↓	
1607314-04A	Soil		10.08	10	1.000	1 of 1	
1607314-05A	Soil		10.09	10	1.000	1 of 1	
1607314-06A	Soil		10.18	10	1.000	1 of 1	
1607317-01A	Soil		10.15	10	1.000	1 of 1	
1607317-02A	Soil		10.17	10	1.000	1 of 1	
1607317-03A	Soil		10.29	10	1.000	1 of 1	
1607317-04A	Soil		10.51	10	1.000	1 of 1	
LCS-76583	Soil		10	10	1.000	of	
MB-76583	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
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 4:05:18 PM, 8/15/2016

AR 8/1/16

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DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 1:40:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76518** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-67A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-68A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-69A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-70A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-71A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-72A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-73A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-74A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-75A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 4:05:57 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 12:00:00 PM**
Digestion: **Start: 7/28/2016 12:10:00 PM / Stop: 7/29/2016 1:30:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76539** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607314-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-03A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607314-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-06A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 4:06:00 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 4:06:04 PM, 8/15/2016

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A SS	Soil		0	0	#Num!	1 of 1	
1607317-16A SS	Soil		0	0	#Num!	1 of 1	
1607317-17A SS	Soil		0	0	#Num!	1 of 1	
1607317-18A SS	Soil		0	0	#Num!	1 of 1	
1607317-19A SS	Soil		0	0	#Num!	1 of 1	
1607317-20A SS	Soil		0	0	#Num!	1 of 1	
1607317-21A SS	Soil		0	0	#Num!	1 of 1	
1607317-22A SS	Soil		0	0	#Num!	1 of 1	
1607317-23A SS	Soil		0	0	#Num!	1 of 1	
1607317-24A SS	Soil		0	0	#Num!	1 of 1	
1607317-25A SS	Soil		0	0	#Num!	1 of 1	
1607317-27A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607317-28A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 4:06:10 PM, 8/15/2016

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

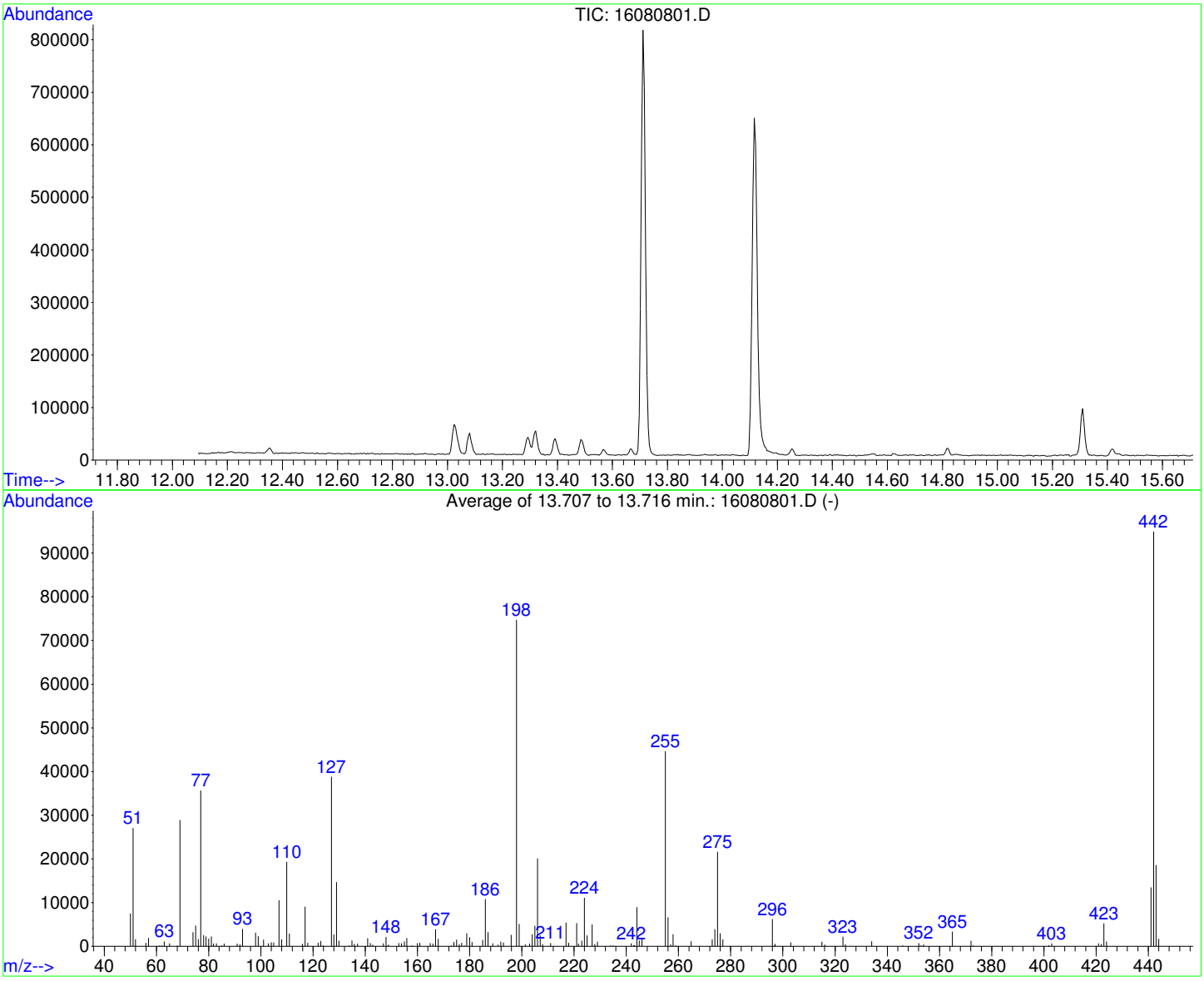
Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 4:06:13 PM, 8/15/2016

Data File : C:\HPCHEM\1\DATA\160808\16080801.D Vial: 1
Acq On : 8 Aug 2016 10:10 am Operator: DEW
Sample : DFTPP-160808 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

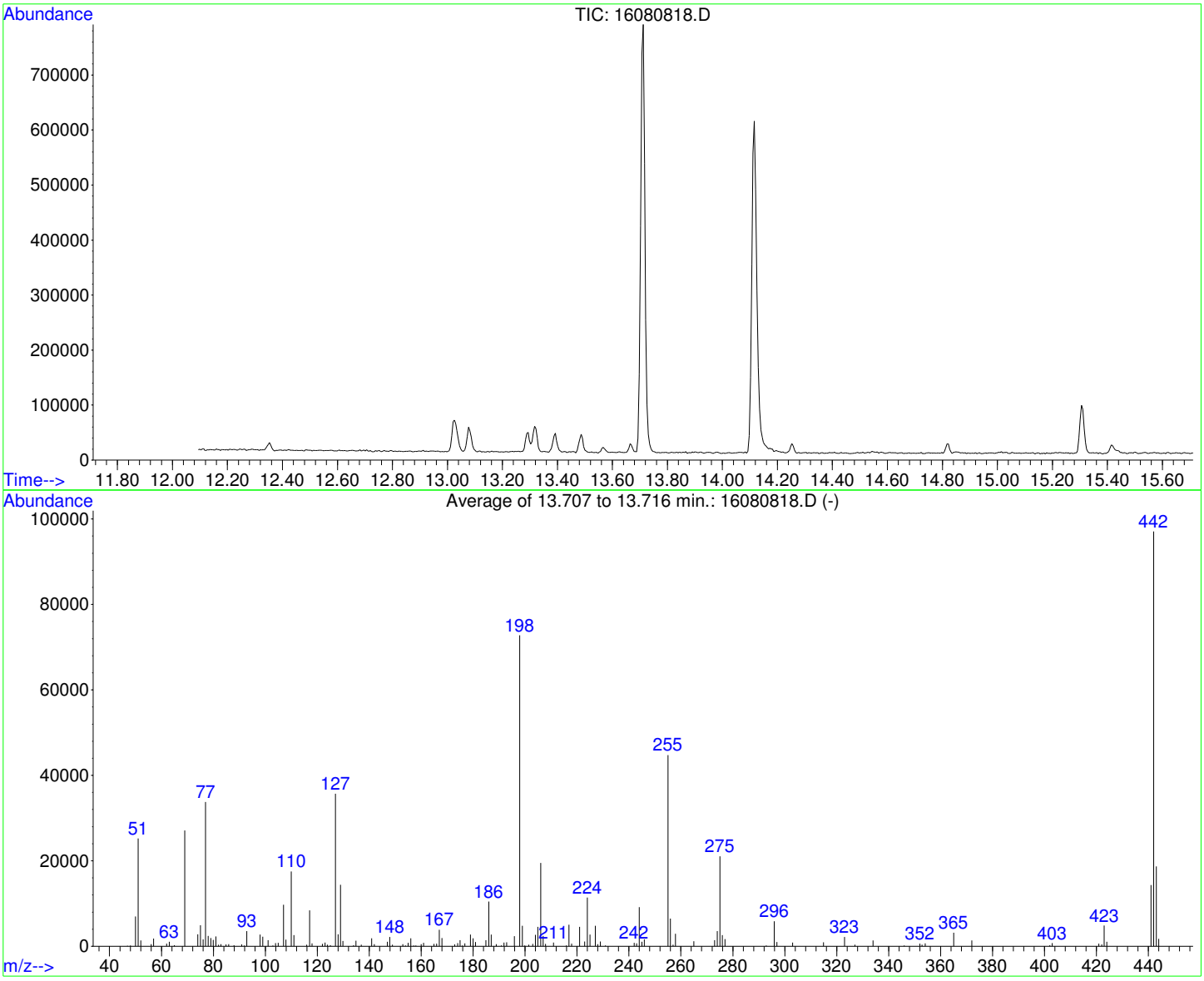


AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.2	27046	PASS
68	69	0.00	2	0.6	171	PASS
69	198	0.00	100	38.6	28883	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.9	38821	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	74736	PASS
199	198	5	9	6.8	5110	PASS
275	198	10	60	29.0	21659	PASS
365	198	1	200	4.5	3327	PASS
441	442	0.01	24	14.2	13444	PASS
442	198	50	400	127.1	94960	PASS
443	442	15	24	19.6	18609	PASS

REVIEWED BY
By Janice Whitt at 4:06:16 PM, 8/15/2016

Data File : C:\HPCHEM\1\DATA\160808\16080818.D Vial: 18
Acq On : 8 Aug 2016 9:39 pm Operator: DEW
Sample : DFTPP2-160808 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 338

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.7	25235	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.3	27128	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.0	35683	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	72776	PASS
199	198	5	9	6.6	4772	PASS
275	198	10	60	28.9	21045	PASS
365	198	1	200	4.3	3154	PASS
441	442	0.01	24	14.7	14314	PASS
442	198	50	400	133.4	97088	PASS
443	442	15	24	19.2	18669	PASS

REVIEWED BY
By Janice Whitt at 4:06:21 PM, 8/15/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 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

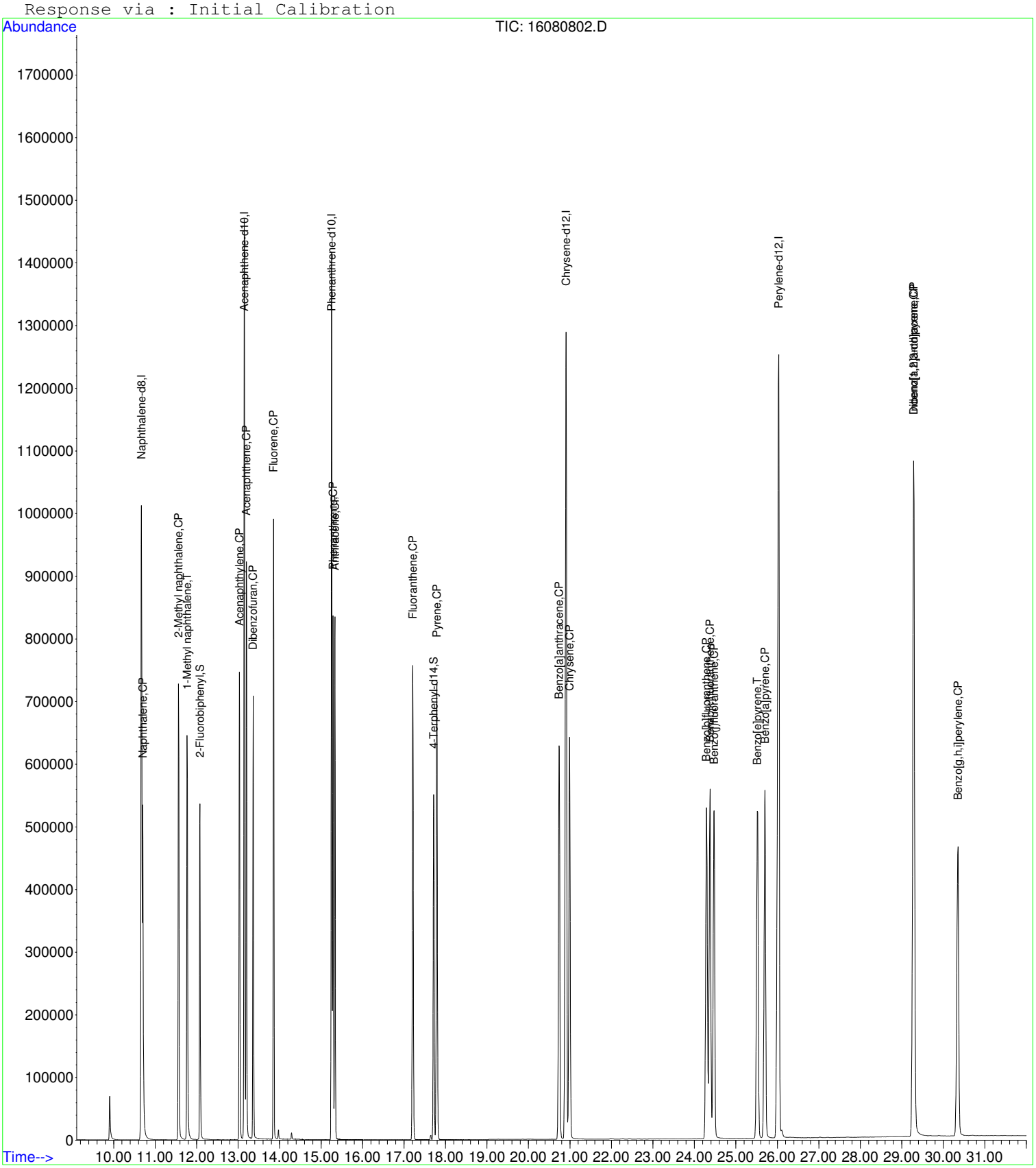
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1528416	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	867911	4000.00	ug/kg	145
11) Phenanthrene-d10	15.25	188	1700838	4000.00	ug/kg	107
17) Chrysene-d12	20.91	240	2292711	4000.00	ug/kg	125
20) Perylene-d12	26.03	264	2545465	4000.00	ug/kg	132
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	535199	1767.86	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.20%			
16) 4-Terphenyl-d14	17.71	244	770136	1918.73	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.97%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	636964	1831.66	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	459964	2040.30	ug/kg	96
4) 1-Methyl naphthalene	11.77	142	413947	2072.97	ug/kg	97
6) Dibenzofuran	13.36	168	642919	1830.47	ug/kg	100
8) Acenaphthylene	13.03	152	727996	1894.13	ug/kg	100
9) Acenaphthene	13.20	154	420683	1889.90	ug/kg	100
10) Fluorene	13.85	166	532773	1904.06	ug/kg	99
12) Phenanthrene	15.29	178	735487	1823.94	ug/kg	100
13) Anthracene	15.33	178	768485	1811.16	ug/kg	100
14) Fluoranthene	17.21	202	849706	1778.10	ug/kg	100
15) Pyrene	17.79	202	866163	1787.55	ug/kg	100
18) Benzo[a]anthracene	20.74	228	983644	1903.47	ug/kg	100
19) Chrysene	20.99	228	923250	1857.11	ug/kg	100
21) Benzo[b]fluoranthene	24.29	252	1128387	1920.22	ug/kg	100
22) Benzo[k]fluoranthene	24.38	252	1055568	1958.03	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	998328	1926.99	ug/kg	99
24) Benzo[e]pyrene	25.52	252	1086157	1904.67	ug/kg	99
25) Benzo[a]pyrene	25.70	252	1081291	1904.42	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	1060435	1930.02	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.29	276	1242374	1905.45	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	999942	1831.08	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

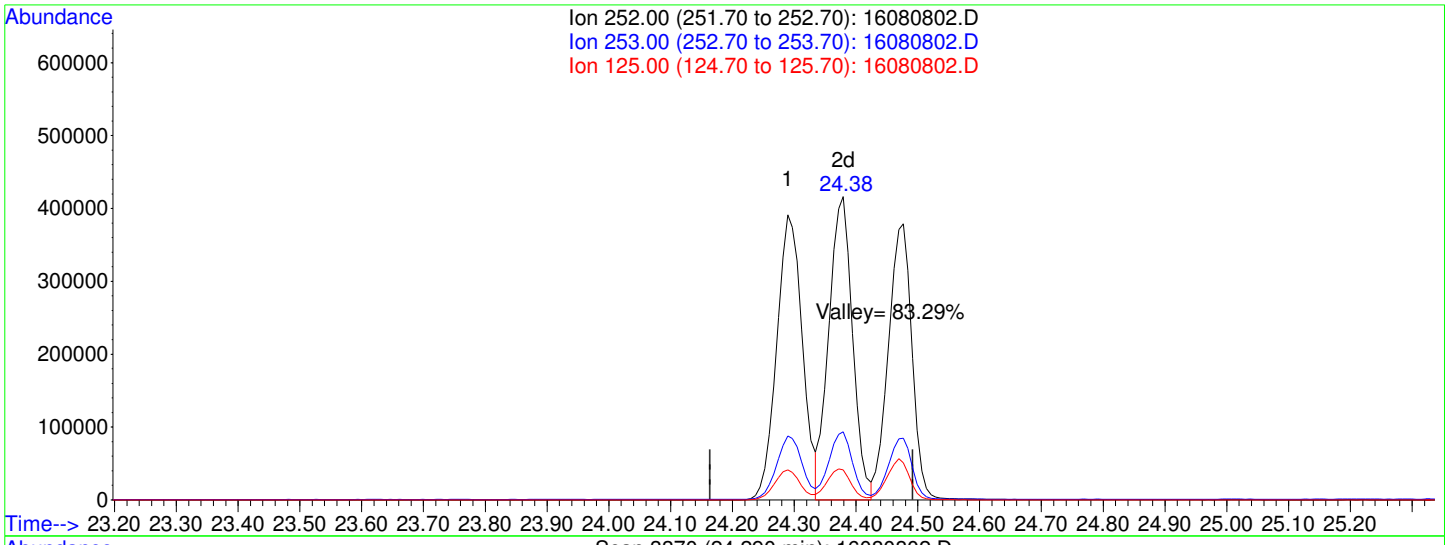
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

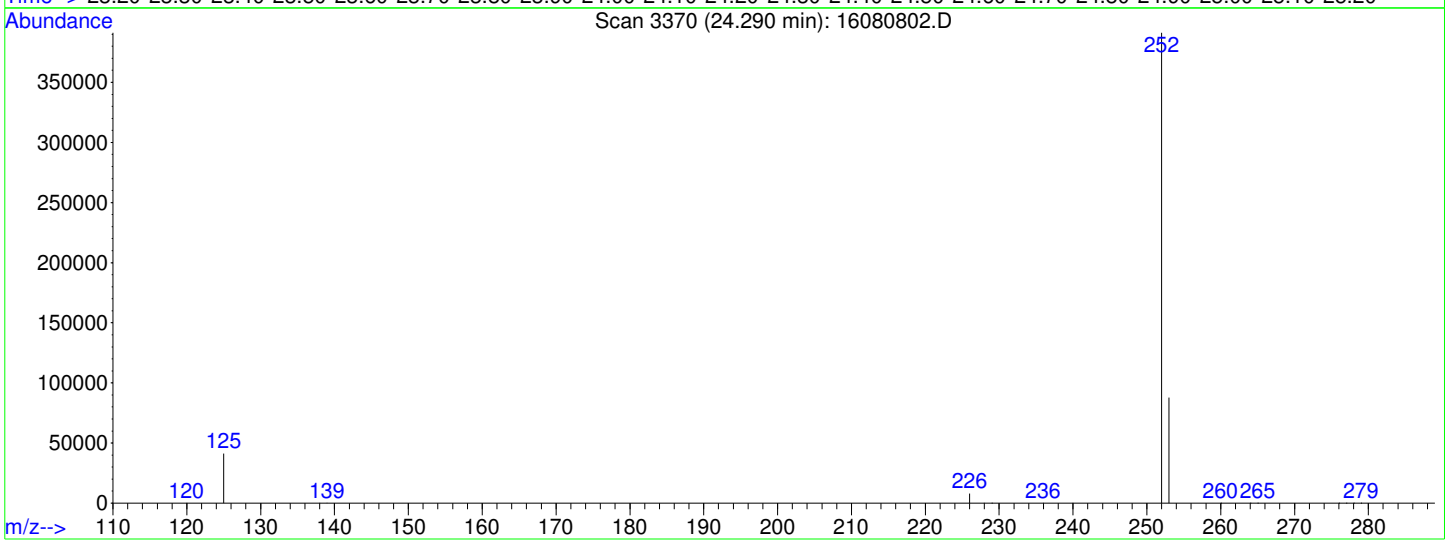


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 11:22 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: 16080802.D

(21) Benzo[b]fluoranthene (CP)

24.29min 1920.22ug/kg

response 1128387

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.23
125.00	10.60	10.56
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080803.D Vial: 3
Acq On : 8 Aug 2016 11:30 am Operator: DEW
Sample : LCS-76583 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 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

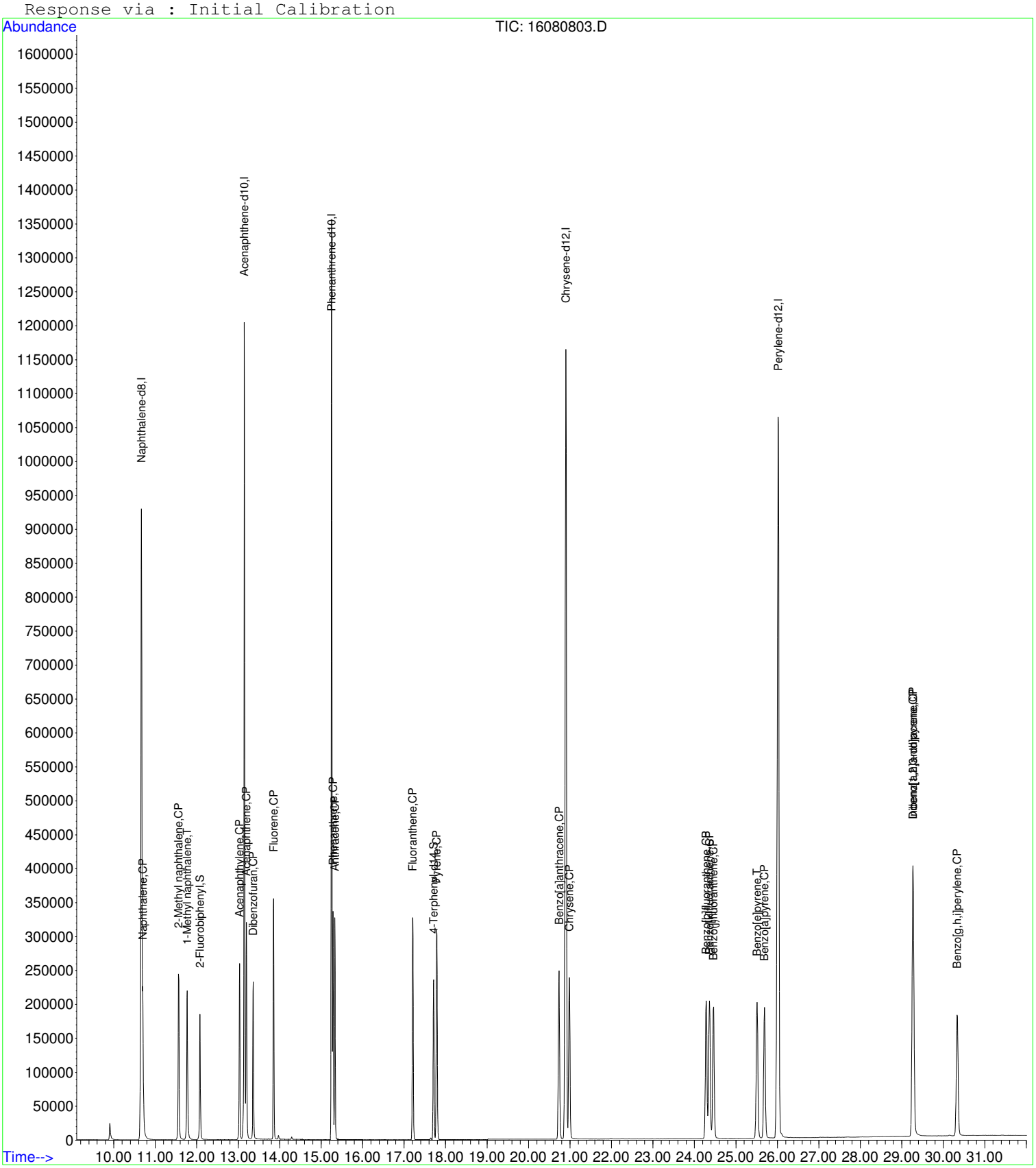
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1541703	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	748399	4000.00	ug/kg	125
11) Phenanthrene-d10	15.25	188	1565255	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2012941	4000.00	ug/kg	110
20) Perylene-d12	26.02	264	2116064	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	198190	759.20	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.98%#			
16) 4-Terphenyl-d14	17.71	244	330004	893.39	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.33%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	259375	739.43	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	178872	786.60	ug/kg	100
4) 1-Methyl naphthalene	11.77	142	161514	801.86	ug/kg	98
6) Dibenzofuran	13.36	168	231734	765.13	ug/kg	99
8) Acenaphthylene	13.03	152	263467	794.96	ug/kg	100
9) Acenaphthene	13.20	154	154390	804.35	ug/kg	99
10) Fluorene	13.85	166	196218	813.24	ug/kg	99
12) Phenanthrene	15.29	178	298133	803.39	ug/kg	100
13) Anthracene	15.33	178	299990	768.26	ug/kg	100
14) Fluoranthene	17.21	202	359645	817.78	ug/kg	99
15) Pyrene	17.79	202	363158	814.39	ug/kg	99
18) Benzo[a]anthracene	20.74	228	376818	830.53	ug/kg	99
19) Chrysene	20.98	228	347292	795.67	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	411640	842.65	ug/kg	100
22) Benzo[k]fluoranthene	24.36	252	378685	844.99	ug/kg	99
23) Benzo(j)fluoranthene	24.46	252	370595	860.48	ug/kg	99
24) Benzo[e]pyrene	25.51	252	403190	850.50	ug/kg	99
25) Benzo[a]pyrene	25.69	252	379569	804.17	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	386684	846.59	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	462497	853.28	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	367824	810.23	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080803.D Vial: 3
Acq On : 8 Aug 2016 11:30 am Operator: DEW
Sample : LCS-76583 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 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\160808\16080804.D Vial: 4
Acq On : 8 Aug 2016 12:10 pm Operator: DEW
Sample : MB-76583 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 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

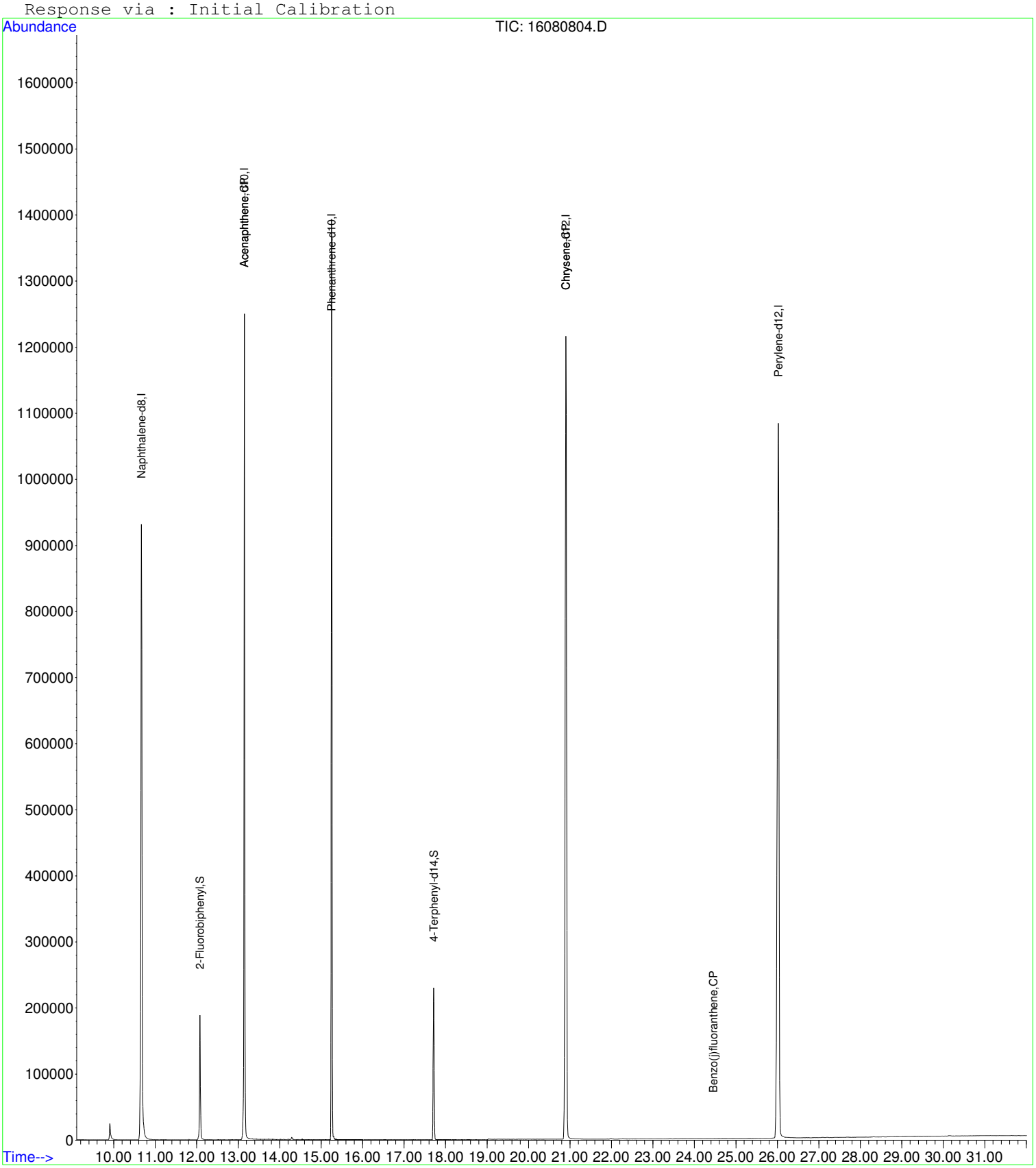
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1629876	4000.00	ug/kg	116
5) Acenaphthene-d10	13.15	164	791521	4000.00	ug/kg	132
11) Phenanthrene-d10	15.25	188	1625719	4000.00	ug/kg	102
17) Chrysene-d12	20.90	240	2108304	4000.00	ug/kg	115
20) Perylene-d12	26.03	264	2196820	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	202147	732.17	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.30%#			
16) 4-Terphenyl-d14	17.71	244	322099	839.56	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.99%#			
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2662	~~13.11 ug/kg#~~		~~12~~
19) Chrysene	20.90	228	4504	~~9.85 ug/kg~~		~~72~~
23) Benzo(j)fluoranthene	24.47	252	62	0.14	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080804.D Vial: 4
Acq On : 8 Aug 2016 12:10 pm Operator: DEW
Sample : MB-76583 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 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\160808\16080805.D Vial: 5
Acq On : 8 Aug 2016 12:50 pm Operator: DEW
Sample : 1607294-66A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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

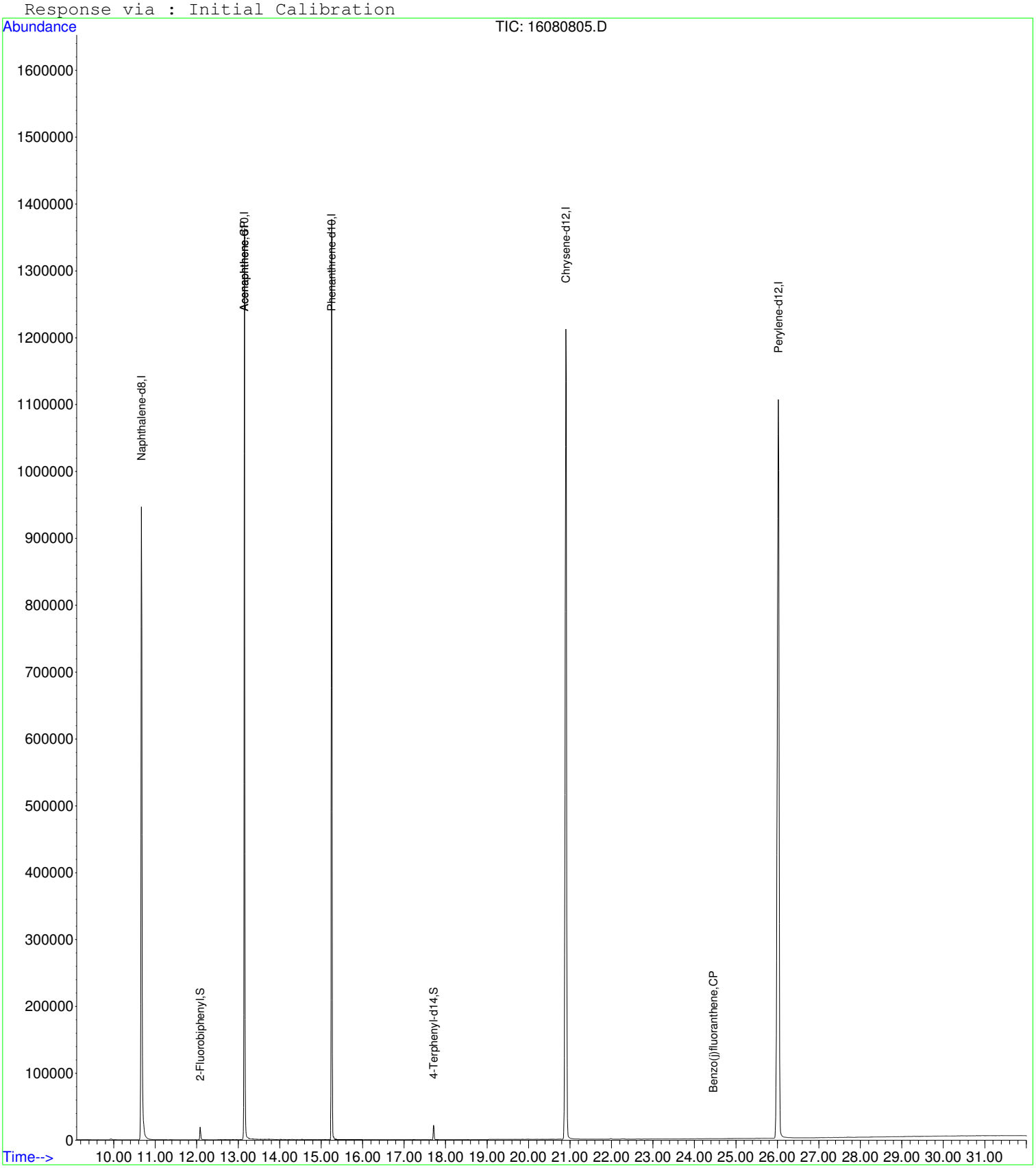
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1480566	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	811400	4000.00	ug/kg	135
11) Phenanthrene-d10	15.25	188	1566320	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2124702	4000.00	ug/kg	116
20) Perylene-d12	26.02	264	2305215	4000.00	ug/kg	120
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21342	75.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#		
16) 4-Terphenyl-d14	17.71	244	31018	83.92	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2895	~~13.91~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.45	252	173	0.37	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080805.D Vial: 5
Acq On : 8 Aug 2016 12:50 pm Operator: DEW
Sample : 1607294-66A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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\160808\16080806.D Vial: 6
Acq On : 8 Aug 2016 1:30 pm Operator: DEW
Sample : 1607294-67A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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

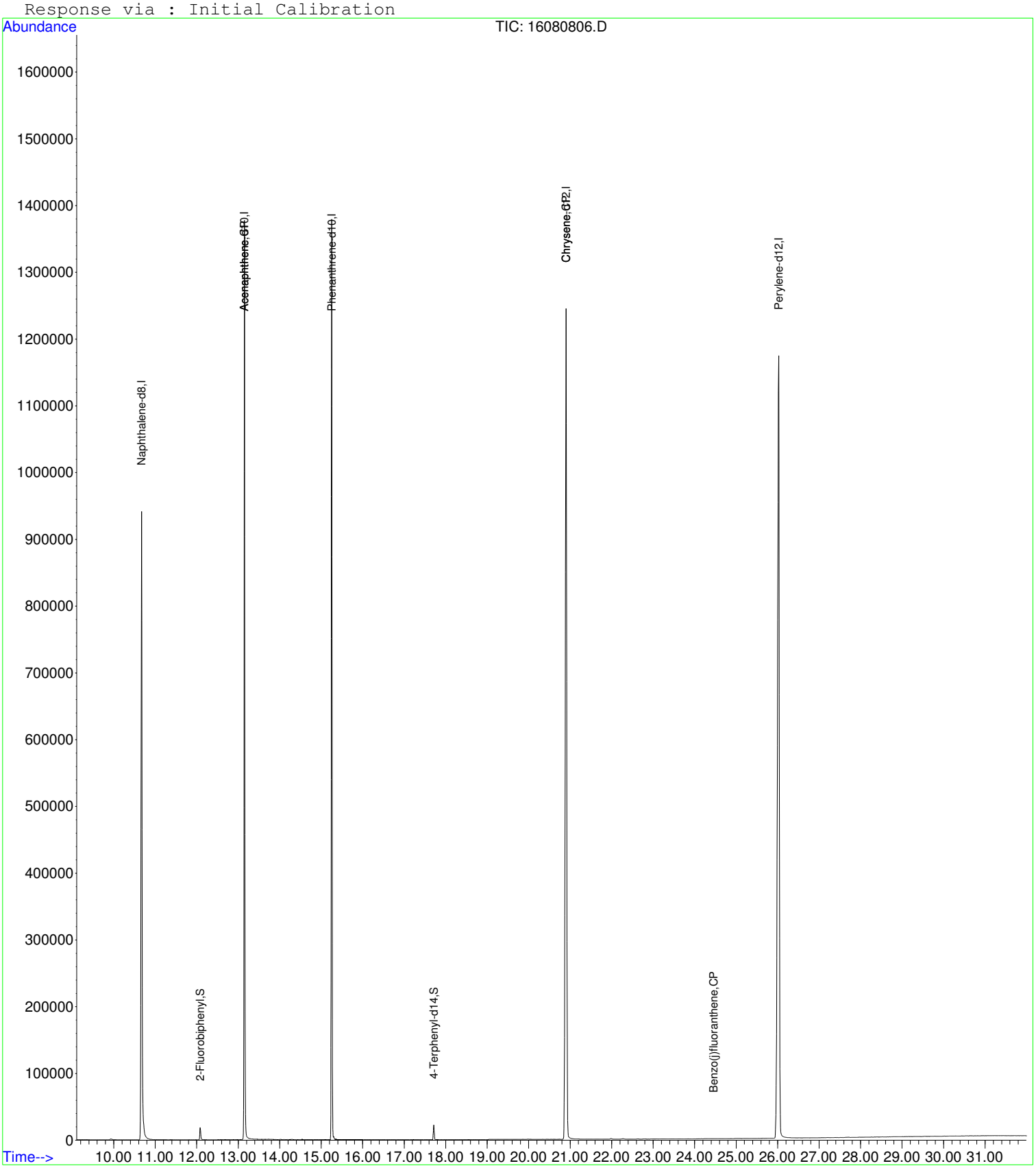
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1482255	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	822753	4000.00	ug/kg	137
11) Phenanthrene-d10	15.25	188	1586208	4000.00	ug/kg	100
17) Chrysene-d12	20.90	240	2175931	4000.00	ug/kg	119
20) Perylene-d12	26.03	264	2357267	4000.00	ug/kg	122
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20942	72.97	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.82%#		
16) 4-Terphenyl-d14	17.71	244	31757	84.84	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2835	13.44	ug/kg#	10
19) Chrysene	20.90	228	4796	10.16	ug/kg	67
23) Benzo(j)fluoranthene	24.45	252	76	0.16	ug/kg#	67

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080806.D Vial: 6
Acq On : 8 Aug 2016 1:30 pm Operator: DEW
Sample : 1607294-67A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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\160808\16080807.D Vial: 7
Acq On : 8 Aug 2016 2:12 pm Operator: DEW
Sample : 1607294-68A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 14:57 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

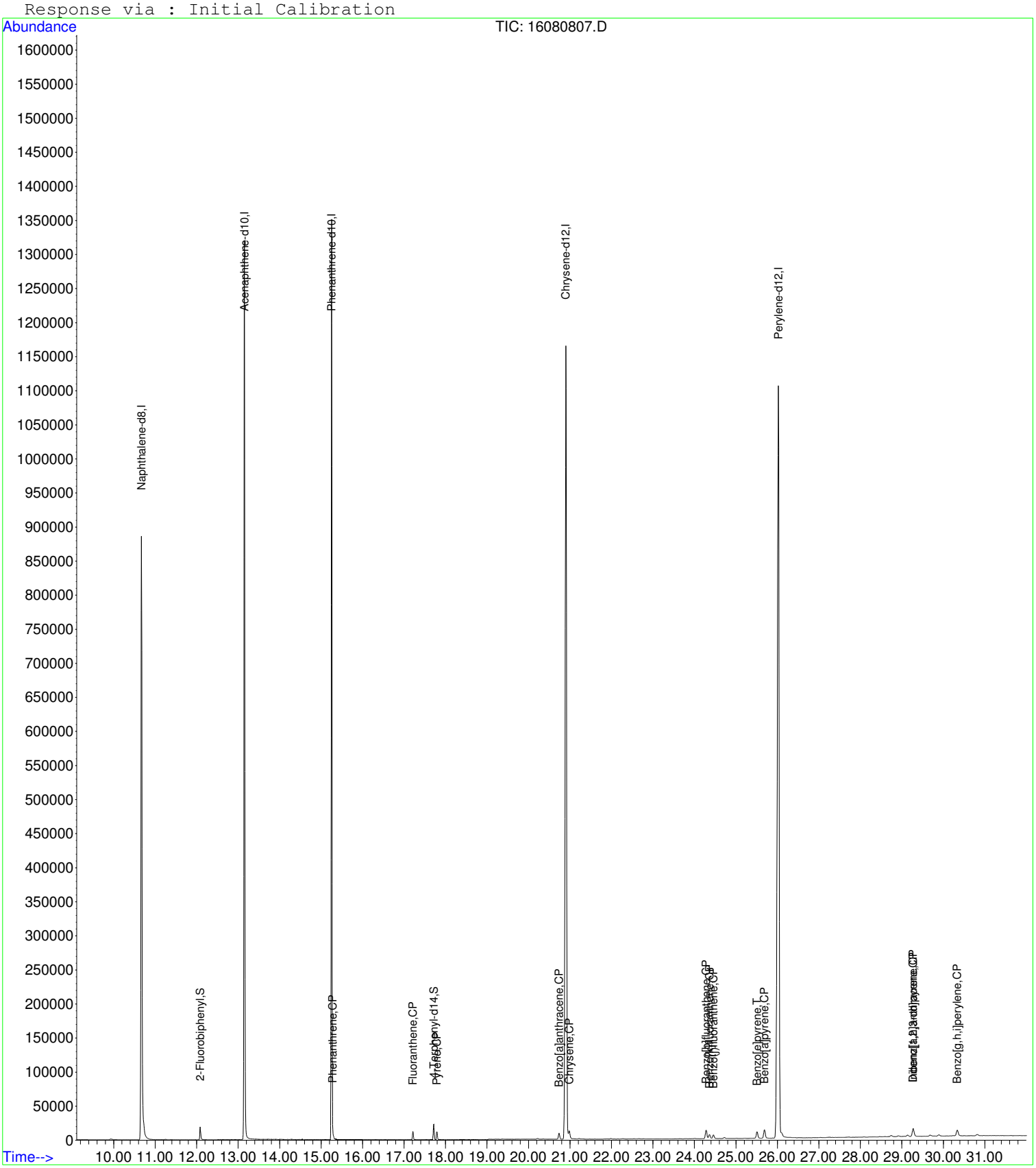
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1434421	4000.00	ug/kg	102
5) Acenaphthene-d10	13.15	164	797485	4000.00	ug/kg	133
11) Phenanthrene-d10	15.25	188	1534267	4000.00	ug/kg	96
17) Chrysene-d12	20.90	240	2064457	4000.00	ug/kg	113
20) Perylene-d12	26.02	264	2202638	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21871	78.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.97%#		
16) 4-Terphenyl-d14	17.72	244	32369	89.40	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.24%#		
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	3050	8.38	ug/kg	95
14) Fluoranthene	17.21	202	13867	32.17	ug/kg	98
15) Pyrene	17.79	202	14378	32.89	ug/kg	99
18) Benzo[a]anthracene	20.74	228	13772	29.60	ug/kg	98
19) Chrysene	20.98	228	18271	40.82	ug/kg	100
21) Benzo[b]fluoranthene	24.28	252	25298	49.75	ug/kg	97
22) Benzo[k]fluoranthene	24.36	252	11553	24.77	ug/kg	98
23) Benzo(j)fluoranthene	24.46	252	10703	23.87	ug/kg	90
24) Benzo[e]pyrene	25.51	252	19350	39.21	ug/kg	96
25) Benzo[a]pyrene	25.69	252	25076	51.04	ug/kg	98
26) Dibenz[a,h]anthracene	29.27	278	4643	9.77	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.28	276	20354	36.08	ug/kg	92
28) Benzo[g,h,i]perylene	30.34	276	18067	38.23	ug/kg	98

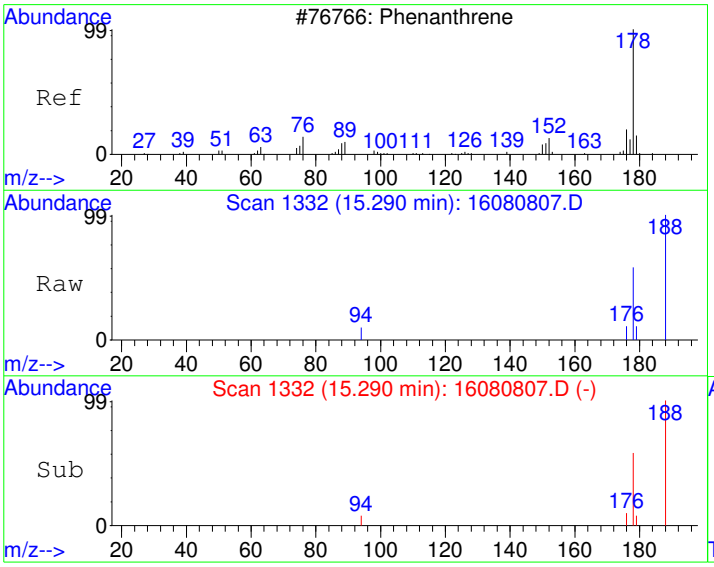
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080807.D Vial: 7
Acq On : 8 Aug 2016 2:12 pm Operator: DEW
Sample : 1607294-68A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 14:57 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

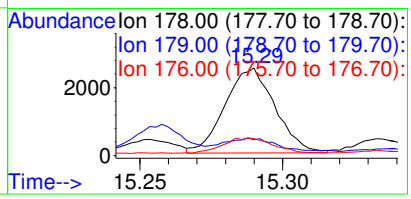


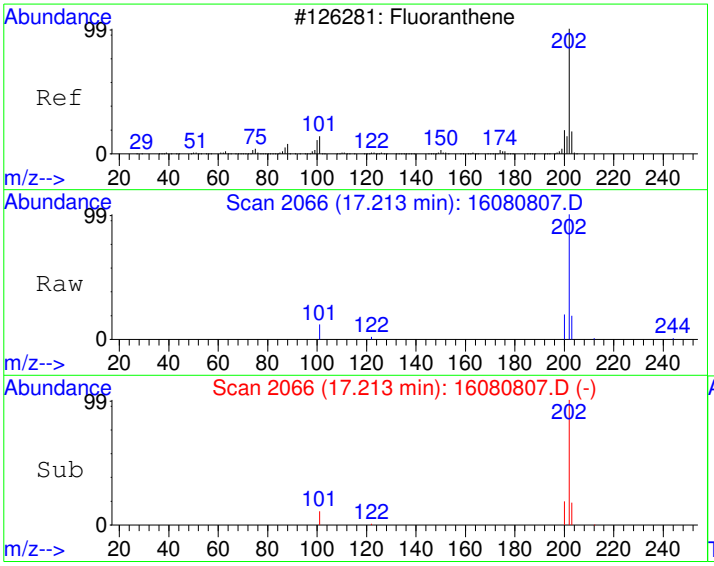


#12
Phenanthrene
Concen: 8.38 ug/kg
RT: 15.29 min Scan# 1332
Delta R.T. -0.01 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:178 Resp: 3050

Ion	Ratio	Lower	Upper
178	100		
179	12.9	0.0	45.7
176	17.2	0.0	48.7

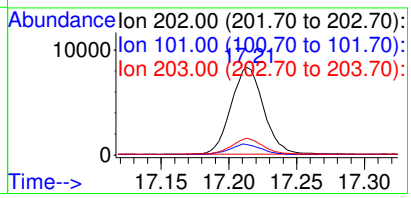


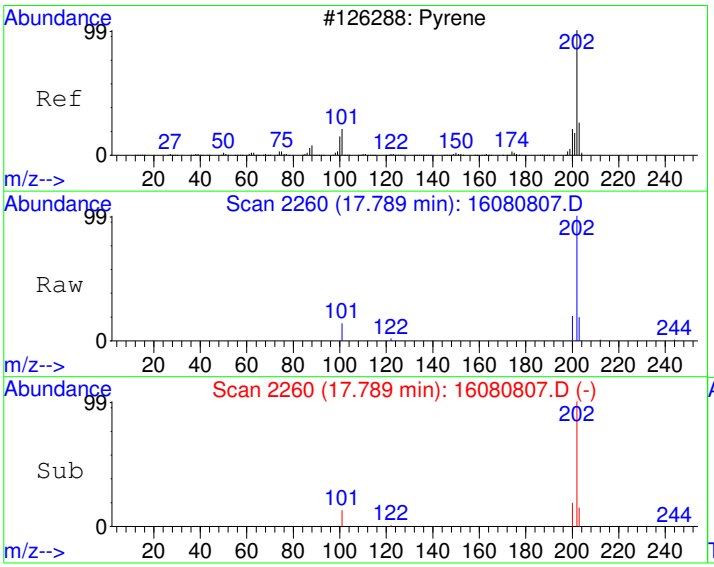


#14
Fluoranthene
Concen: 32.17 ug/kg
RT: 17.21 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:202 Resp: 13867

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	42.1
203	18.4	0.0	47.9

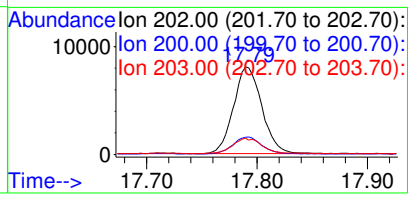


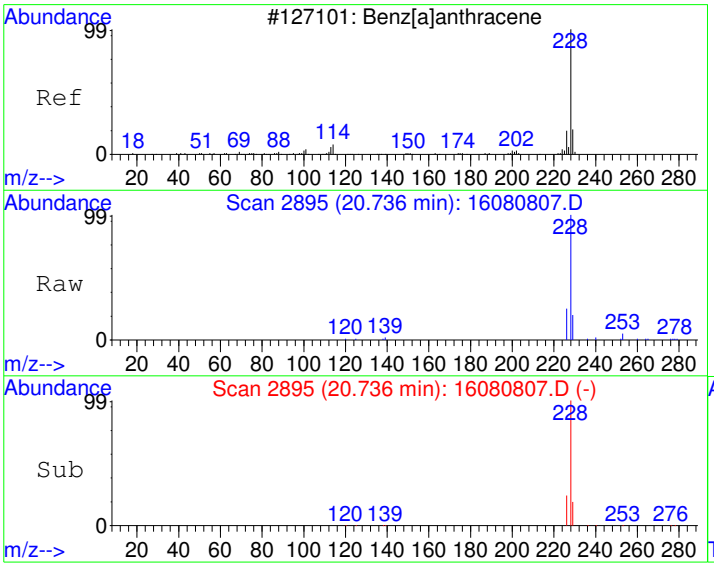


#15
Pyrene
Concen: 32.89 ug/kg
RT: 17.79 min Scan# 2260
Delta R.T. -0.02 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:202 Resp: 14378

Ion	Ratio	Lower	Upper
202	100		
200	19.1	0.0	49.7
203	17.8	0.0	47.8

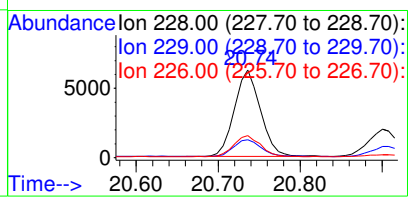


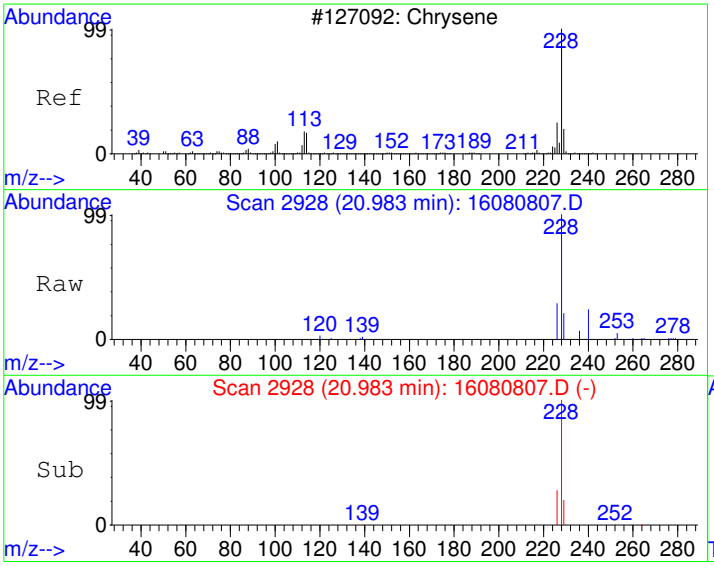


#18
Benzo[a]anthracene
Concen: 29.60 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:228 Resp: 13772

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	49.8
226	24.6	0.0	55.8

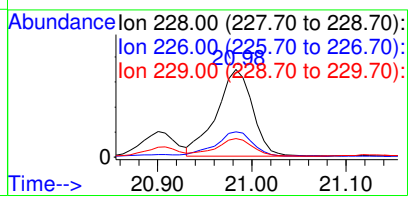


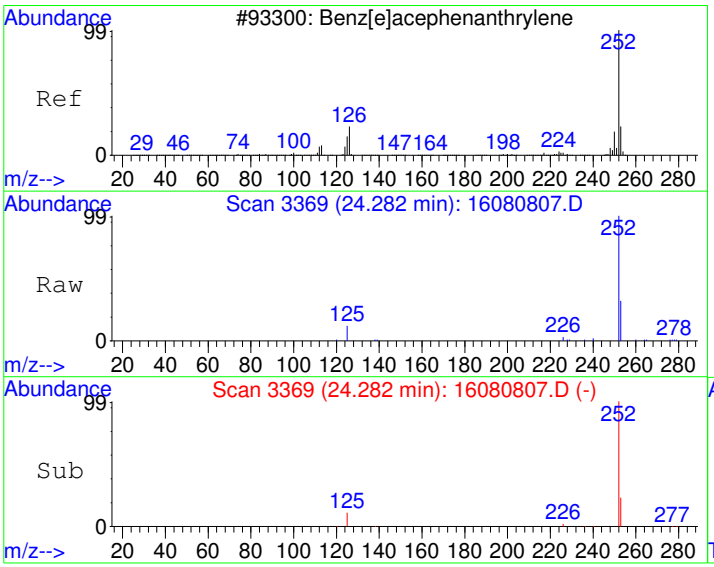


#19
Chrysene
Concen: 40.82 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.04 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:228 Resp: 18271

Ion	Ratio	Lower	Upper
228	100		
226	28.1	0.0	58.1
229	20.0	0.0	50.0

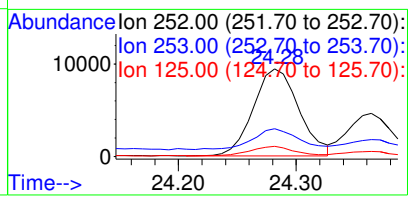


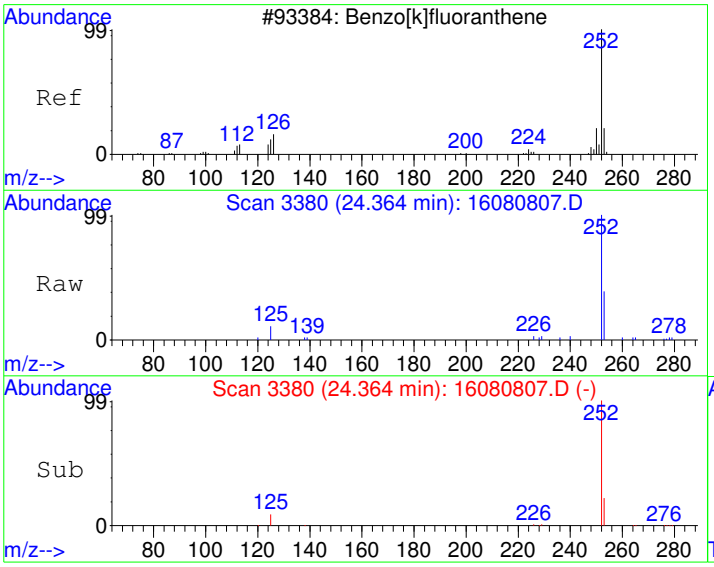


#21
Benzo[b]fluoranthene
Concen: 49.75 ug/kg
RT: 24.28 min Scan# 3369
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:252 Resp: 25298

Ion	Ratio	Lower	Upper
252	100		
253	23.6	0.0	52.0
125	10.8	0.0	40.6

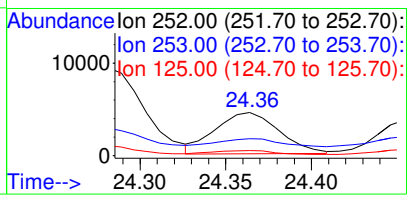


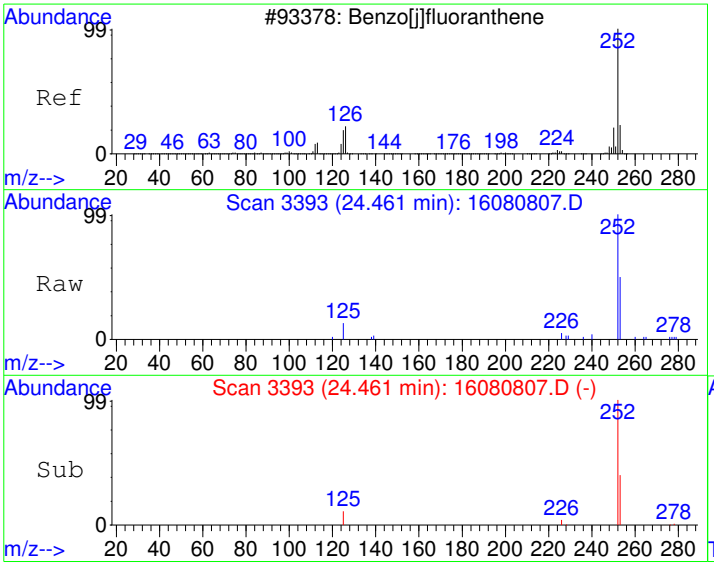


#22
Benzo[k]fluoranthene
Concen: 24.77 ug/kg
RT: 24.36 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:252 Resp: 11553

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.2	42.2
125	9.8	0.0	30.3

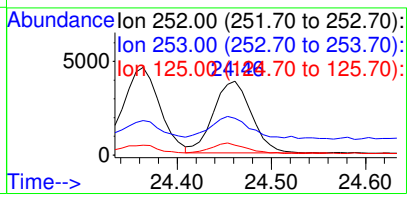


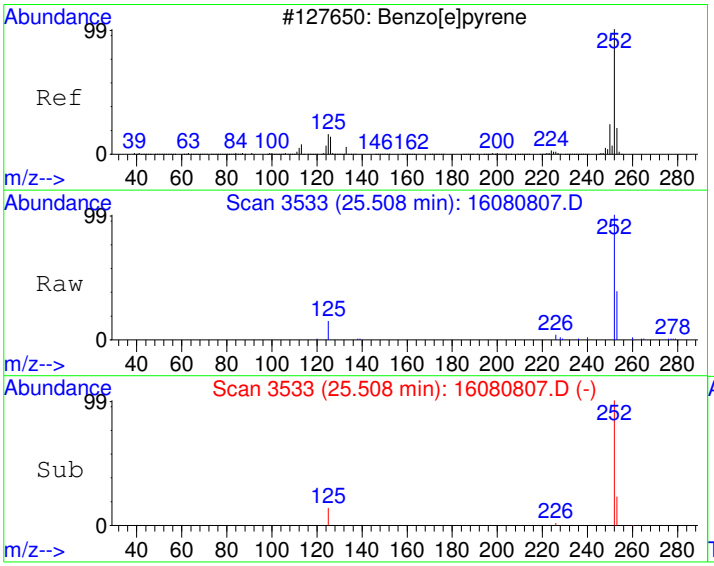


#23
Benzo(j)fluoranthene
Concen: 23.87 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:252 Resp: 10703

Ion	Ratio	Lower	Upper
252	100		
253	28.1	2.2	42.2
125	11.4	0.0	34.4

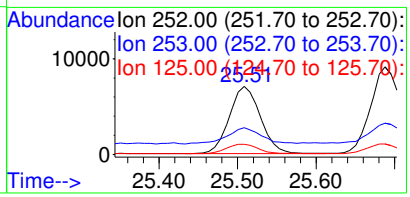


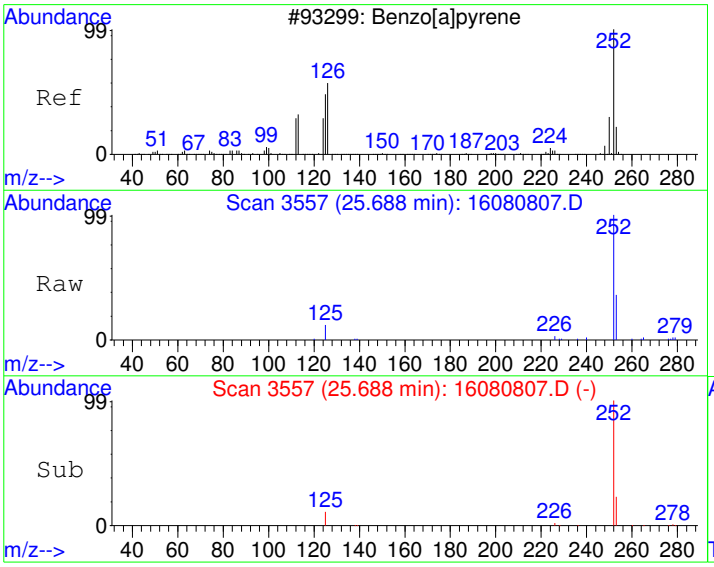


#24
Benzo[e]pyrene
Concen: 39.21 ug/kg
RT: 25.51 min Scan# 3533
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:252 Resp: 19350

Ion	Ratio	Lower	Upper
252	100		
253	24.3	2.2	42.2
125	13.9	0.0	35.7

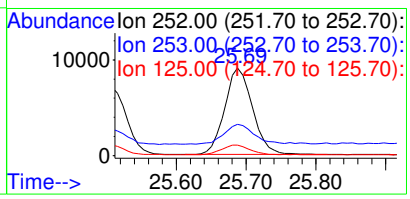


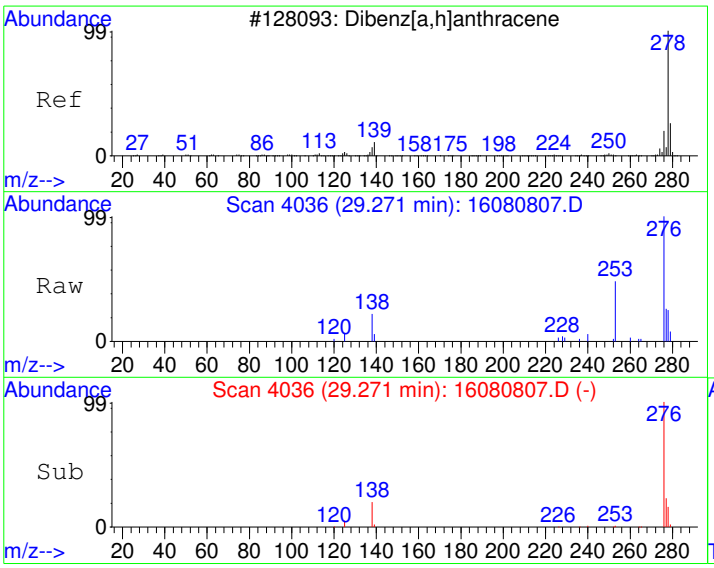


#25
Benzo[a]pyrene
Concen: 51.04 ug/kg
RT: 25.69 min Scan# 3557
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:252 Resp: 25076

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.0	42.0
125	11.1	0.0	31.6

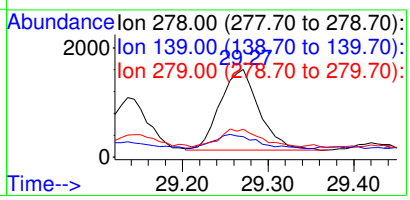


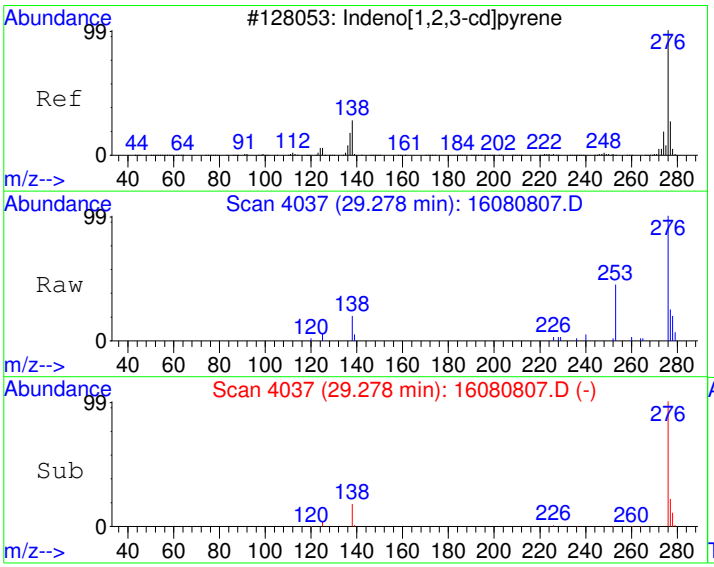


#26
Dibenz[a,h]anthracene
Concen: 9.77 ug/kg
RT: 29.27 min Scan# 4036
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:278 Resp: 4643

Ion	Ratio	Lower	Upper
278	100		
139	14.3	0.0	33.8
279	22.5	3.9	43.9

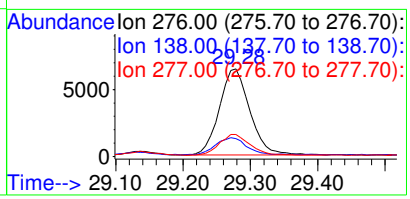


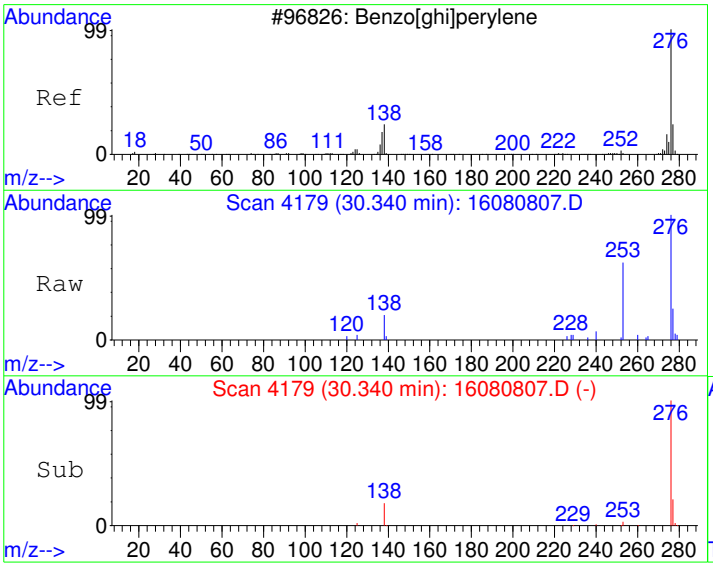


#27
Indeno[1,2,3-cd]pyrene
Concen: 36.08 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:276 Resp: 20354

Ion	Ratio	Lower	Upper
276	100		
138	18.8	4.8	44.8
277	24.0	5.6	45.6

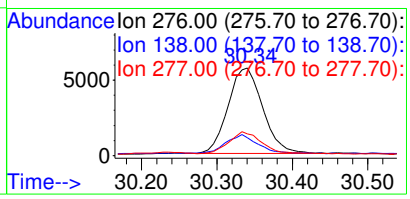




#28
Benzo[g,h,i]perylene
Concen: 38.23 ug/kg
RT: 30.34 min Scan# 4179
Delta R.T. -0.05 min
Lab File: 16080807.D
Acq: 8 Aug 2016 2:12 pm

Tgt Ion:276 Resp: 18067

Ion	Ratio	Lower	Upper
276	100		
138	18.6	0.0	38.1
277	23.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080808.D Vial: 8
Acq On : 8 Aug 2016 2:52 pm Operator: DEW
Sample : 1607294-69A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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

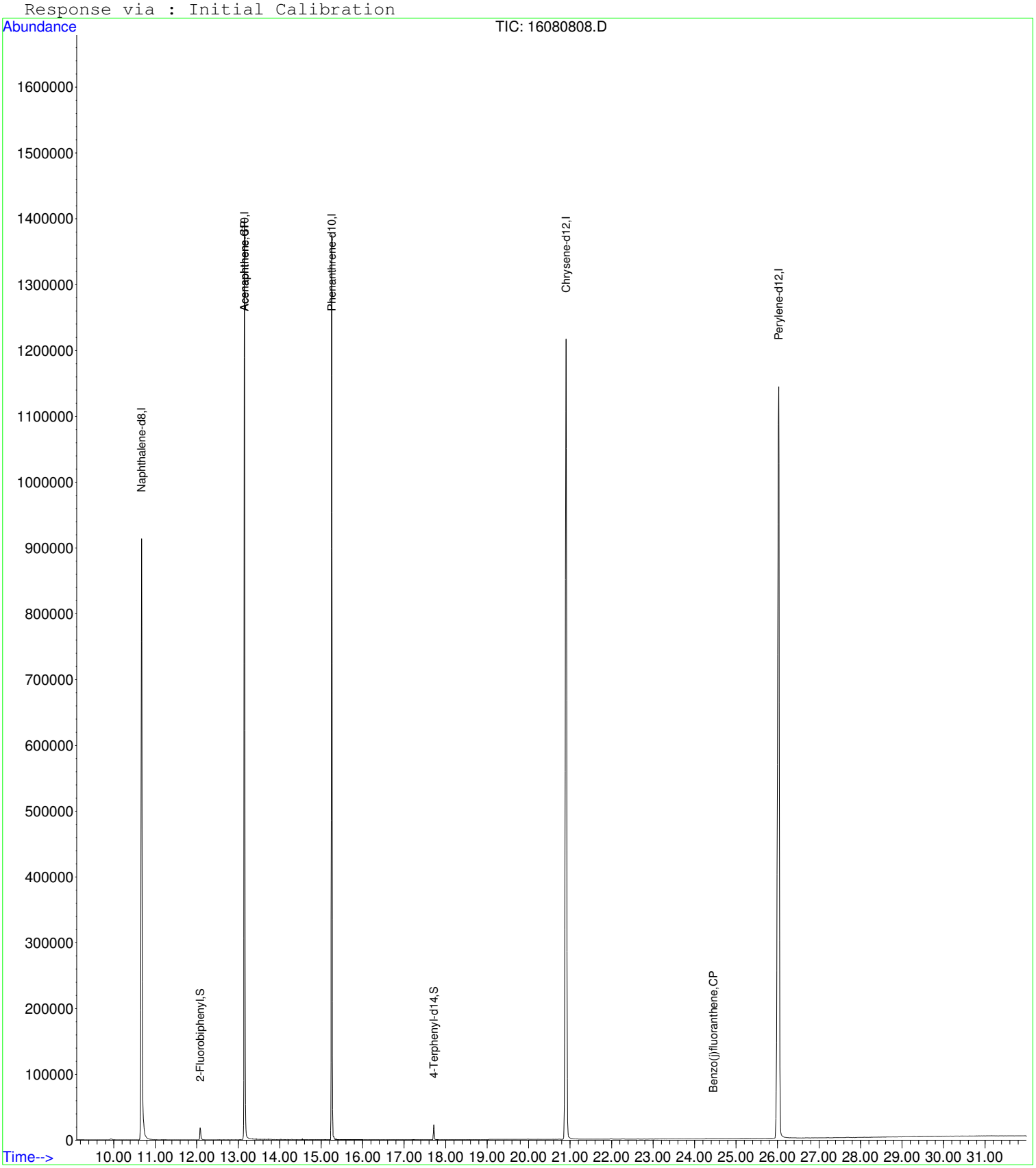
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1467542	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	798127	4000.00	ug/kg	133
11) Phenanthrene-d10	15.26	188	1584640	4000.00	ug/kg	100
17) Chrysene-d12	20.90	240	2135296	4000.00	ug/kg	116
20) Perylene-d12	26.03	264	2298381	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21198	76.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#		
16) 4-Terphenyl-d14	17.71	244	31576	84.44	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2643	~~12.91~~	~~ug/kg#~~	~~12~~
23) Benzo(j)fluoranthene	24.46	252	391	0.84	ug/kg#	69

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080808.D Vial: 8
Acq On : 8 Aug 2016 2:52 pm Operator: DEW
Sample : 1607294-69A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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\160808\16080809.D Vial: 9
Acq On : 8 Aug 2016 3:34 pm Operator: DEW
Sample : 1607294-70A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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

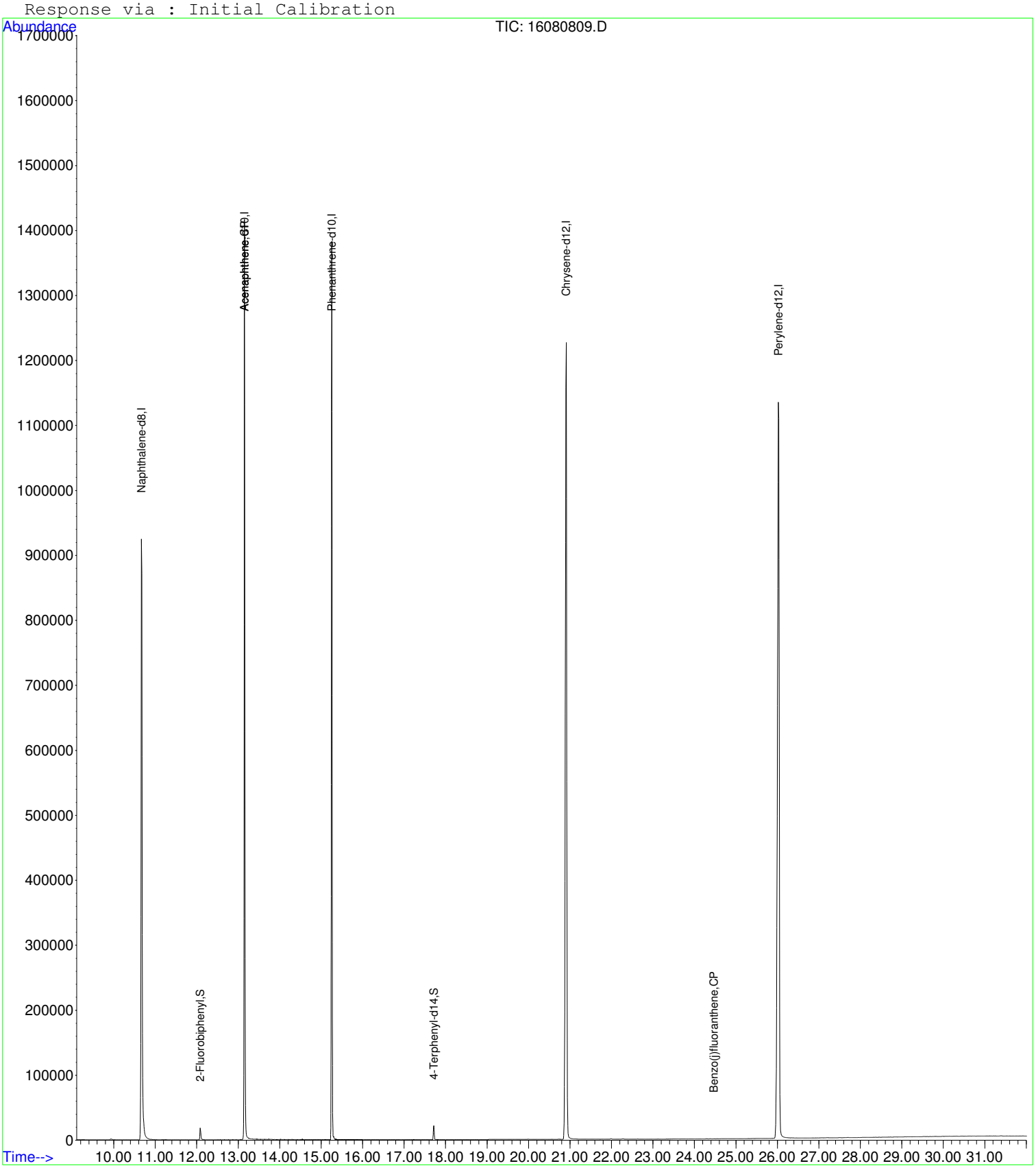
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1502211	4000.00	ug/kg	107
5) Acenaphthene-d10	13.15	164	831954	4000.00	ug/kg	139
11) Phenanthrene-d10	15.26	188	1602383	4000.00	ug/kg	101
17) Chrysene-d12	20.91	240	2165023	4000.00	ug/kg	118
20) Perylene-d12	26.02	264	2338286	4000.00	ug/kg	121
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20939	72.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.72	244	31062	82.14	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2974	~~13.94 ug/kg#~~		~~12~~
23) Benzo(j)fluoranthene	24.47	252	152	0.32	ug/kg	85

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080809.D Vial: 9
Acq On : 8 Aug 2016 3:34 pm Operator: DEW
Sample : 1607294-70A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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\160808\16080810.D Vial: 10
Acq On : 8 Aug 2016 4:16 pm Operator: DEW
Sample : 1607294-71A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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

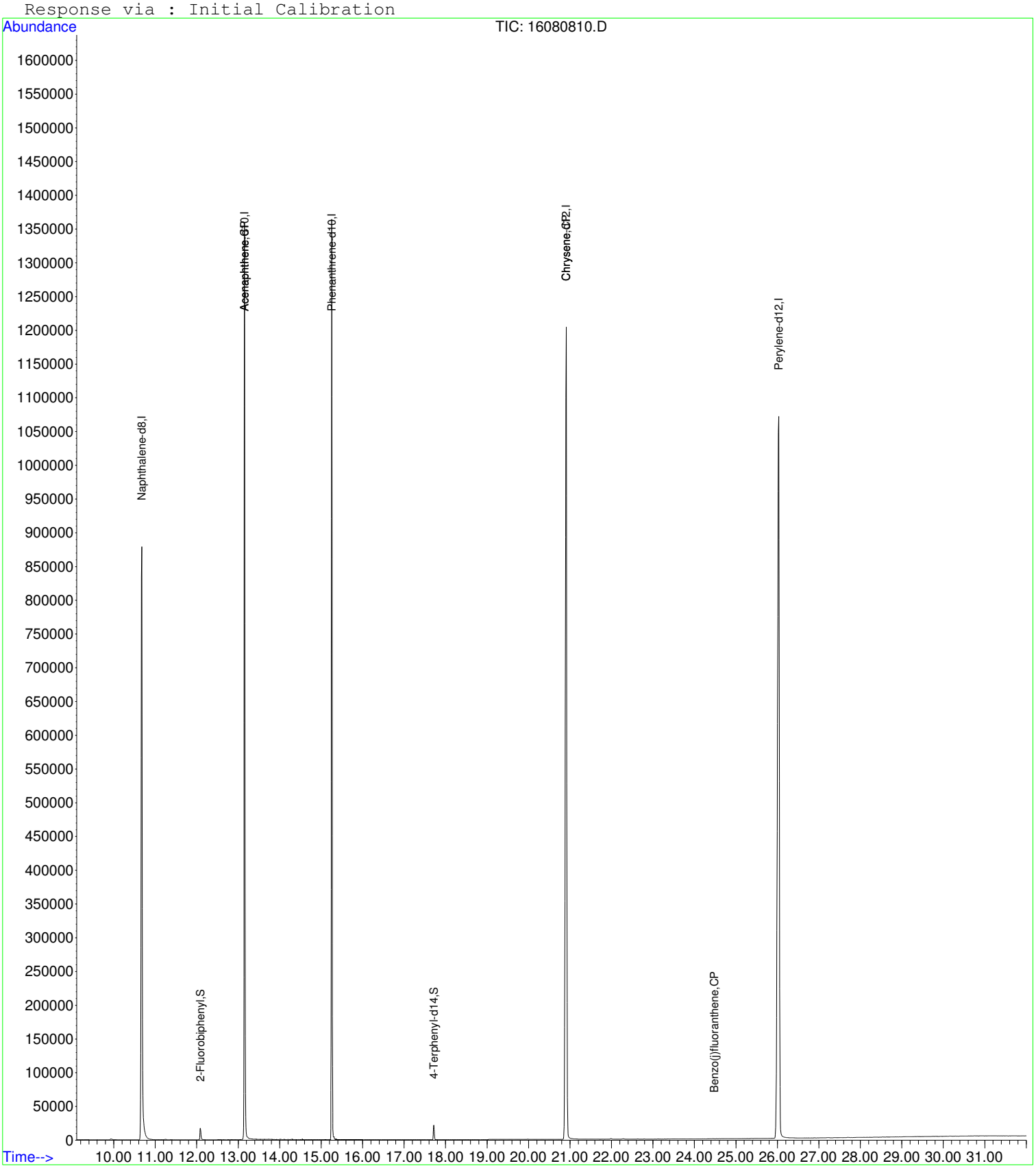
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1452727	4000.00	ug/kg	104
5) Acenaphthene-d10	13.15	164	809177	4000.00	ug/kg	135
11) Phenanthrene-d10	15.26	188	1556615	4000.00	ug/kg	98
17) Chrysene-d12	20.91	240	2062691	4000.00	ug/kg	112
20) Perylene-d12	26.03	264	2235372	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21219	75.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.72	244	30982	84.34	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2770	13.35	ug/kg#	11
19) Chrysene	20.91	228	4425	9.89	ug/kg	69
23) Benzo(j)fluoranthene	24.48	252	68	0.15	ug/kg	78

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080810.D Vial: 10
Acq On : 8 Aug 2016 4:16 pm Operator: DEW
Sample : 1607294-71A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:02 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\160808\16080811.D Vial: 11
Acq On : 8 Aug 2016 4:56 pm Operator: DEW
Sample : 1607294-72A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 14:59 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

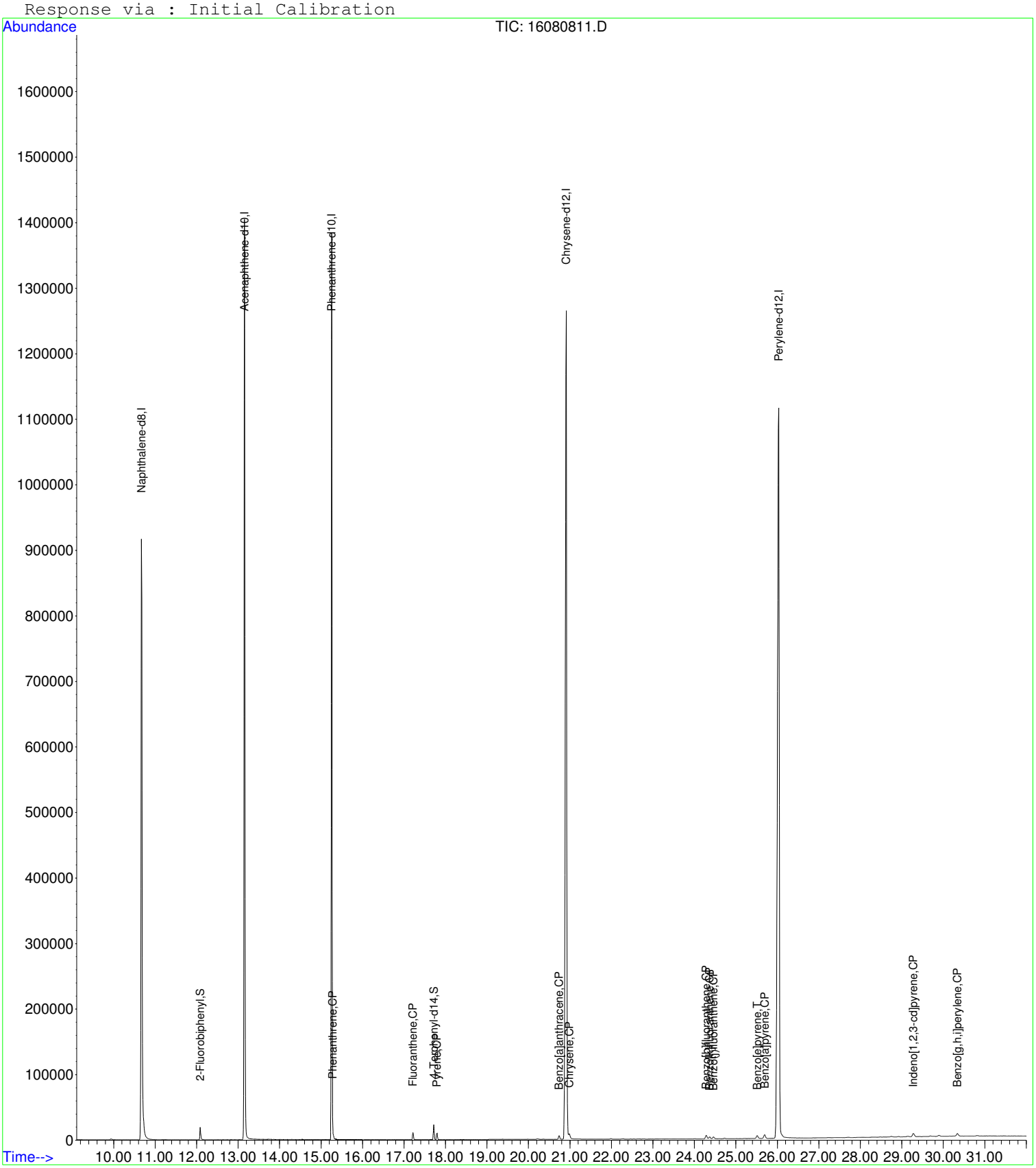
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1488321	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	828116	4000.00	ug/kg	138
11) Phenanthrene-d10	15.26	188	1615273	4000.00	ug/kg	102
17) Chrysene-d12	20.91	240	2141911	4000.00	ug/kg	117
20) Perylene-d12	26.03	264	2310998	4000.00	ug/kg	120
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21812	75.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#		
16) 4-Terphenyl-d14	17.72	244	31864	83.59	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#		
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	3593	9.38	ug/kg	98
14) Fluoranthene	17.22	202	12681	27.94	ug/kg	99
15) Pyrene	17.80	202	12358	26.85	ug/kg	99
18) Benzo[a]anthracene	20.74	228	8800	18.23	ug/kg	100
19) Chrysene	20.98	228	10784	23.22	ug/kg	97
21) Benzo[b]fluoranthene	24.28	252	10739	20.13	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	5857	11.97	ug/kg	95
23) Benzo(j)fluoranthene	24.45	252	5336	11.34	ug/kg	89
24) Benzo[e]pyrene	25.52	252	9010	17.40	ug/kg	97
25) Benzo[a]pyrene	25.70	252	11765	22.82	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.28	276	9149	15.46	ug/kg	93
28) Benzo[g,h,i]perylene	30.34	276	8730	17.61	ug/kg	99

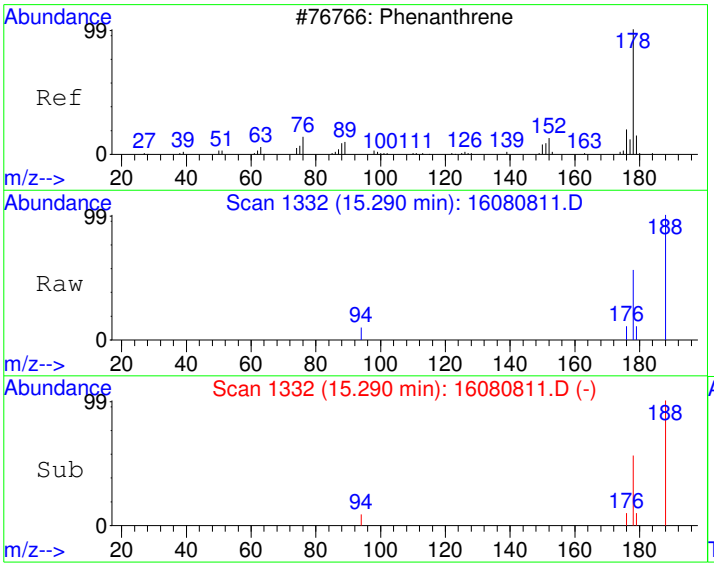
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080811.D Vial: 11
Acq On : 8 Aug 2016 4:56 pm Operator: DEW
Sample : 1607294-72A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 14:59 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

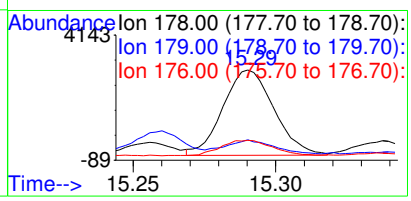


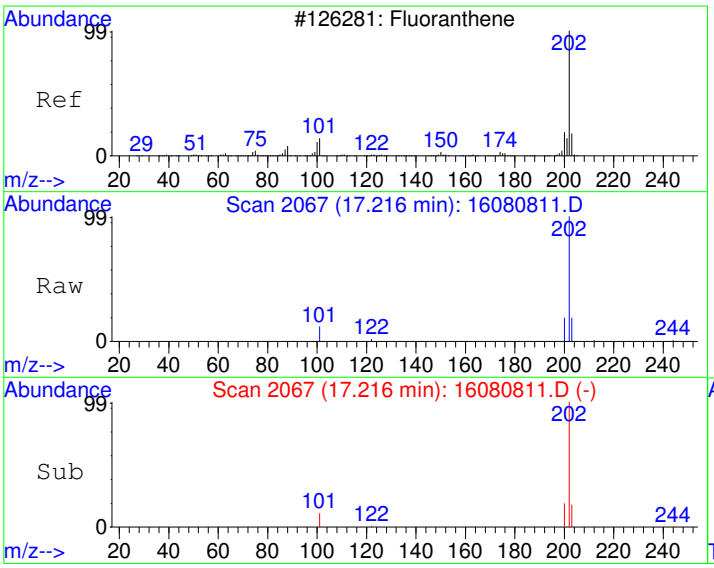


#12
Phenanthrene
Concen: 9.38 ug/kg
RT: 15.29 min Scan# 1332
Delta R.T. -0.01 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:178 Resp: 3593

Ion	Ratio	Lower	Upper
178	100		
179	16.2	0.0	45.7
176	17.6	0.0	48.7

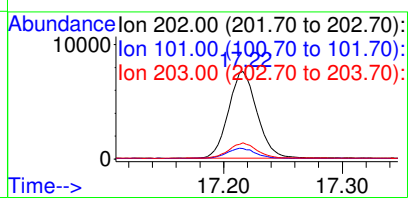


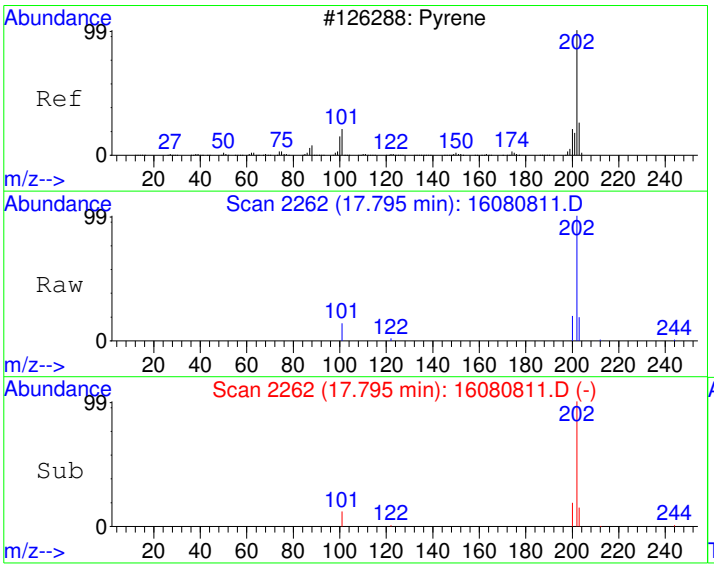


#14
Fluoranthene
Concen: 27.94 ug/kg
RT: 17.22 min Scan# 2067
Delta R.T. -0.01 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:202 Resp: 12681

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	42.1
203	18.0	0.0	47.9

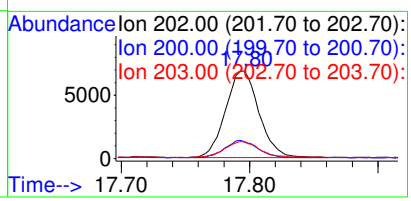


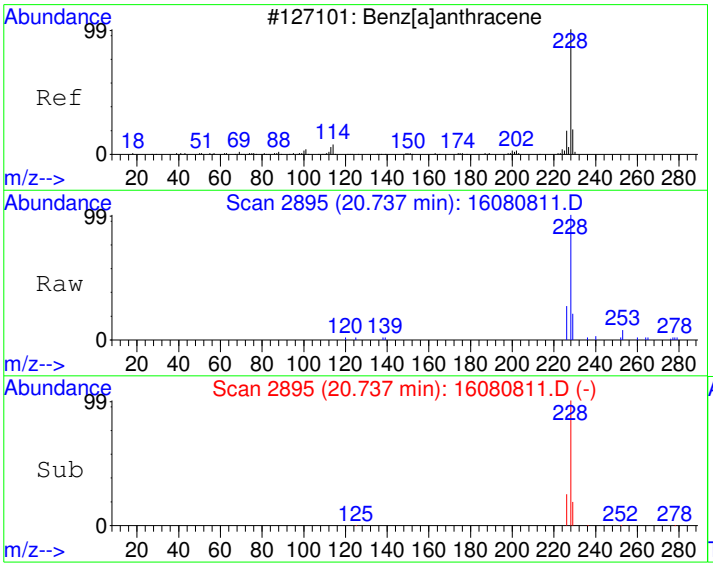


#15
Pyrene
Concen: 26.85 ug/kg
RT: 17.80 min Scan# 2262
Delta R.T. -0.02 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:202 Resp: 12358

Ion	Ratio	Lower	Upper
202	100		
200	19.1	0.0	49.7
203	17.8	0.0	47.8

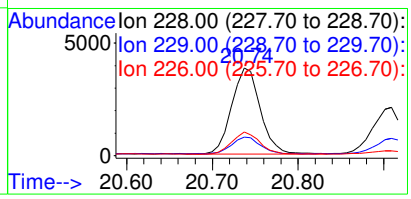


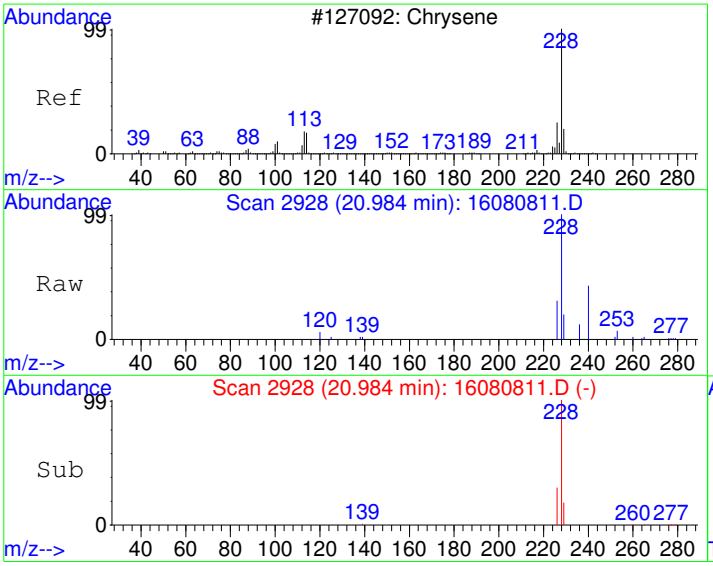


#18
Benzo[a]anthracene
Concen: 18.23 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:228 Resp: 8800

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	49.8
226	25.6	0.0	55.8

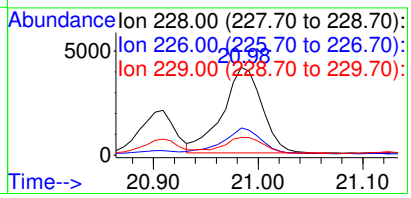


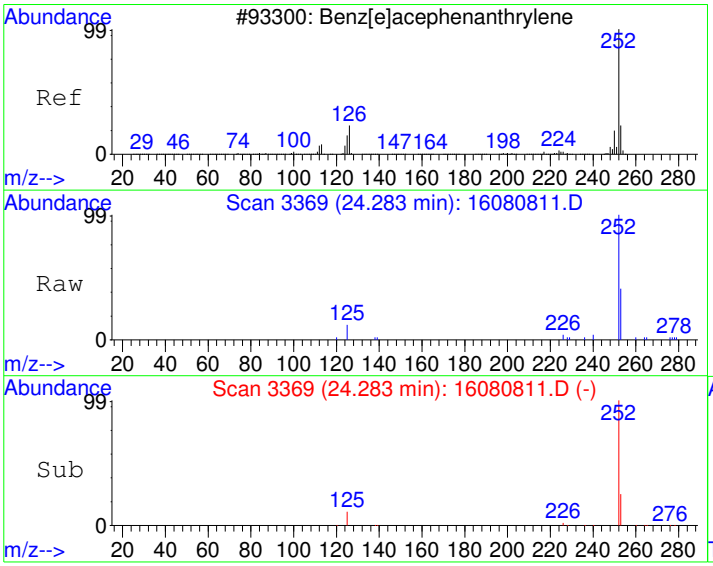


#19
Chrysene
Concen: 23.22 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.04 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:228 Resp: 10784

Ion	Ratio	Lower	Upper
228	100		
226	29.9	0.0	58.1
229	18.5	0.0	50.0

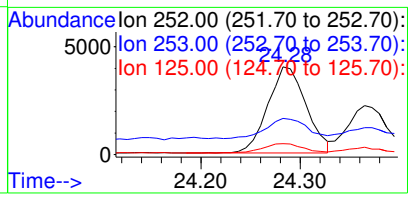


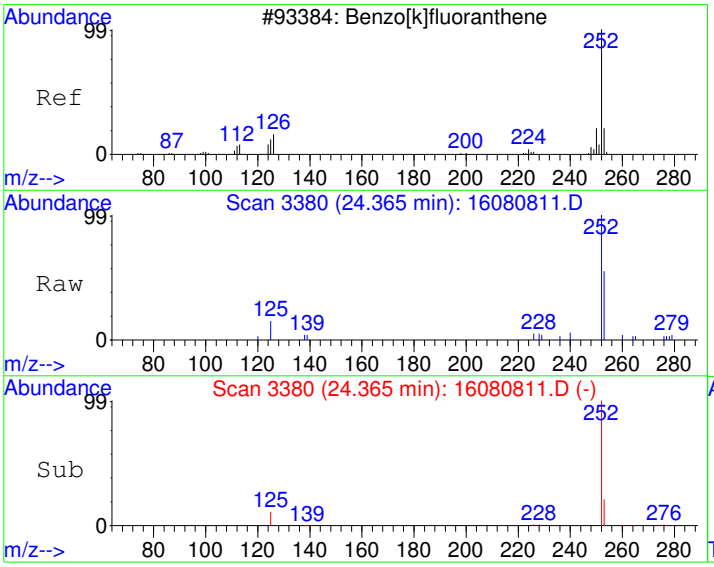


#21
Benzo[b]fluoranthene
Concen: 20.13 ug/kg
RT: 24.28 min Scan# 3369
Delta R.T. -0.05 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:252 Resp: 10739

Ion	Ratio	Lower	Upper
252	100		
253	22.5	0.0	52.0
125	10.8	0.0	40.6

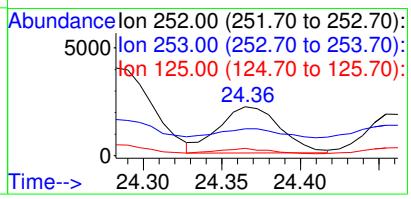


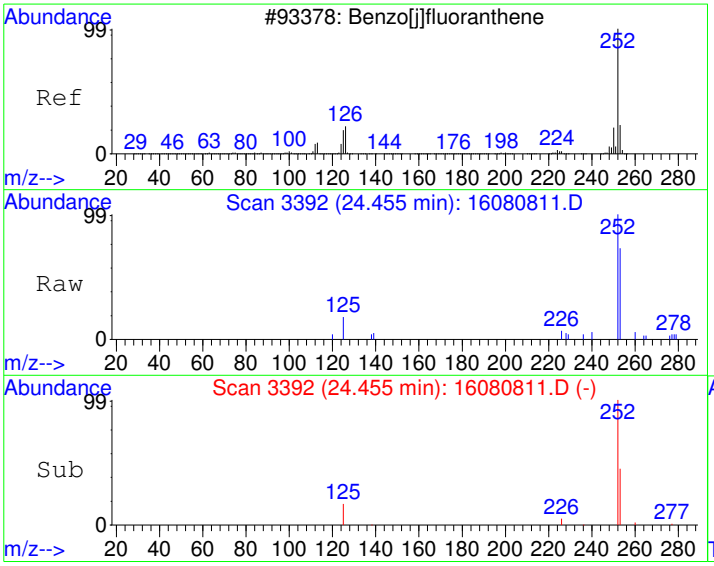


#22
Benzo[k]fluoranthene
Concen: 11.97 ug/kg
RT: 24.36 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:252 Resp: 5857

Ion	Ratio	Lower	Upper
252	100		
253	19.0	2.2	42.2
125	11.3	0.0	30.3

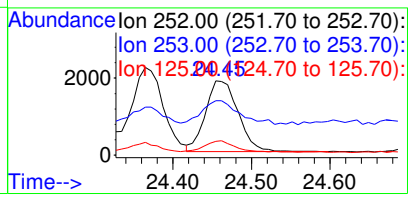


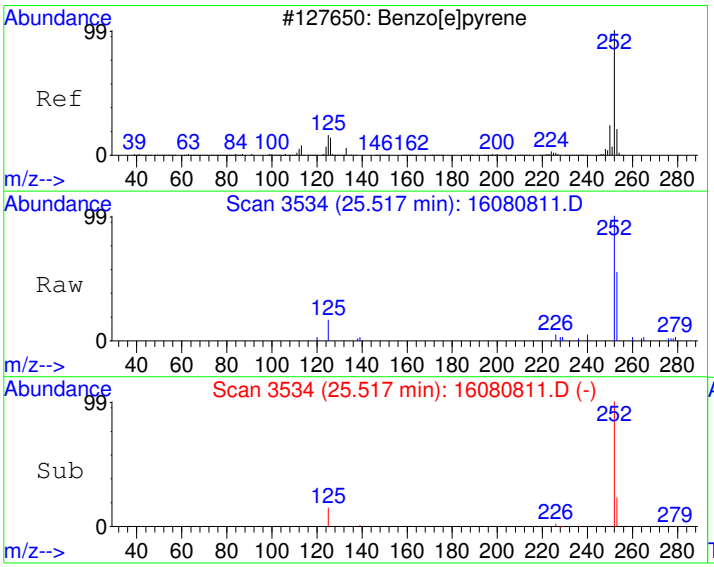


#23
Benzo(j)fluoranthene
Concen: 11.34 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:252 Resp: 5336

Ion	Ratio	Lower	Upper
252	100		
253	29.8	2.2	42.2
125	15.5	0.0	34.4

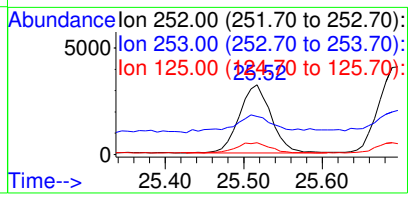


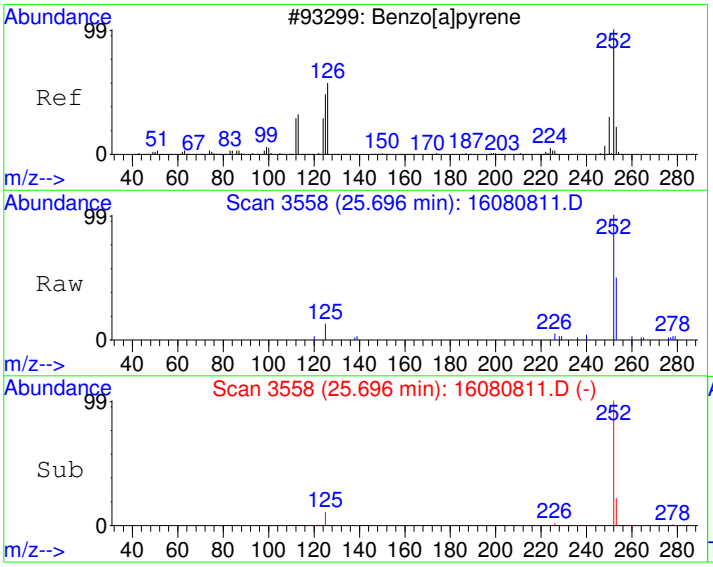


#24
Benzo[e]pyrene
Concen: 17.40 ug/kg
RT: 25.52 min Scan# 3534
Delta R.T. -0.04 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:252 Resp: 9010

Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.2	42.2
125	14.6	0.0	35.7

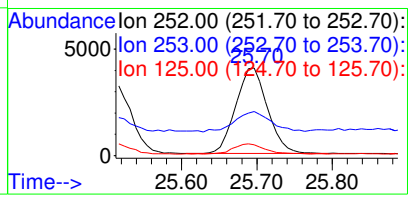


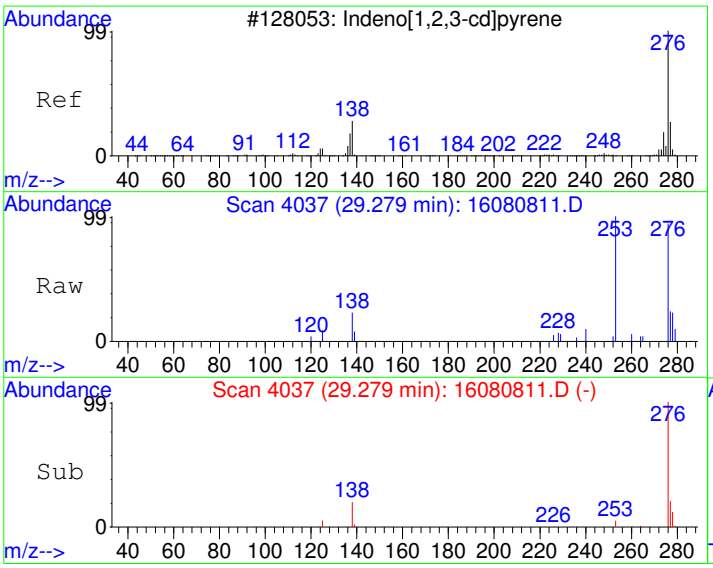


#25
Benzo[a]pyrene
Concen: 22.82 ug/kg
RT: 25.70 min Scan# 3558
Delta R.T. -0.04 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:252 Resp: 11765

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.0	42.0
125	10.9	0.0	31.6

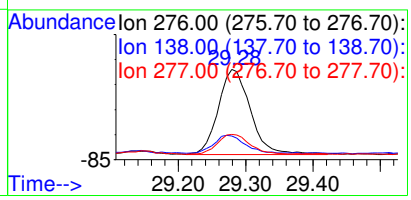


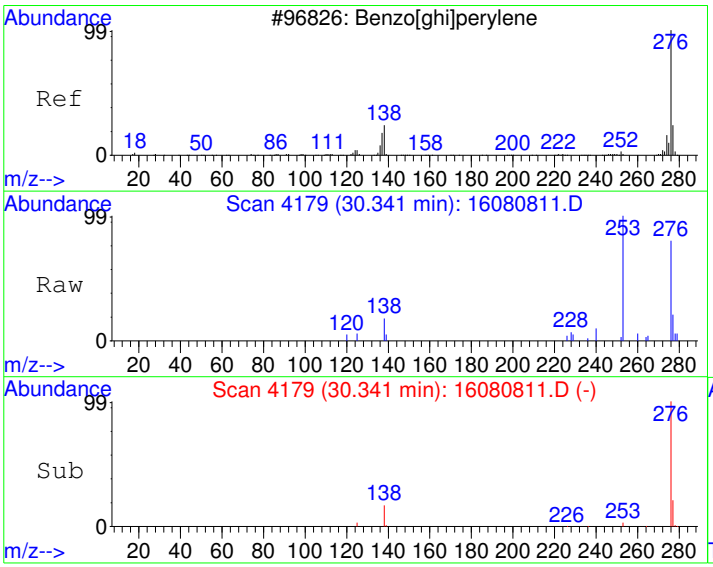


#27
Indeno[1,2,3-cd]pyrene
Concen: 15.46 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:276 Resp: 9149

Ion	Ratio	Lower	Upper
276	100		
138	20.4	4.8	44.8
277	23.1	5.6	45.6

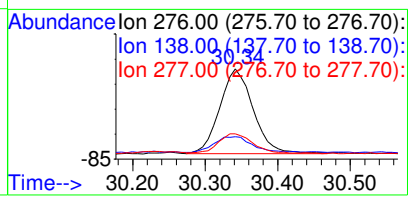




#28
Benzo[g,h,i]perylene
Concen: 17.61 ug/kg
RT: 30.34 min Scan# 4179
Delta R.T. -0.05 min
Lab File: 16080811.D
Acq: 8 Aug 2016 4:56 pm

Tgt Ion:276 Resp: 8730

Ion	Ratio	Lower	Upper
276	100		
138	18.4	0.0	38.1
277	23.3	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080812.D Vial: 12
Acq On : 8 Aug 2016 5:38 pm Operator: DEW
Sample : 1607294-73A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 15:00 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

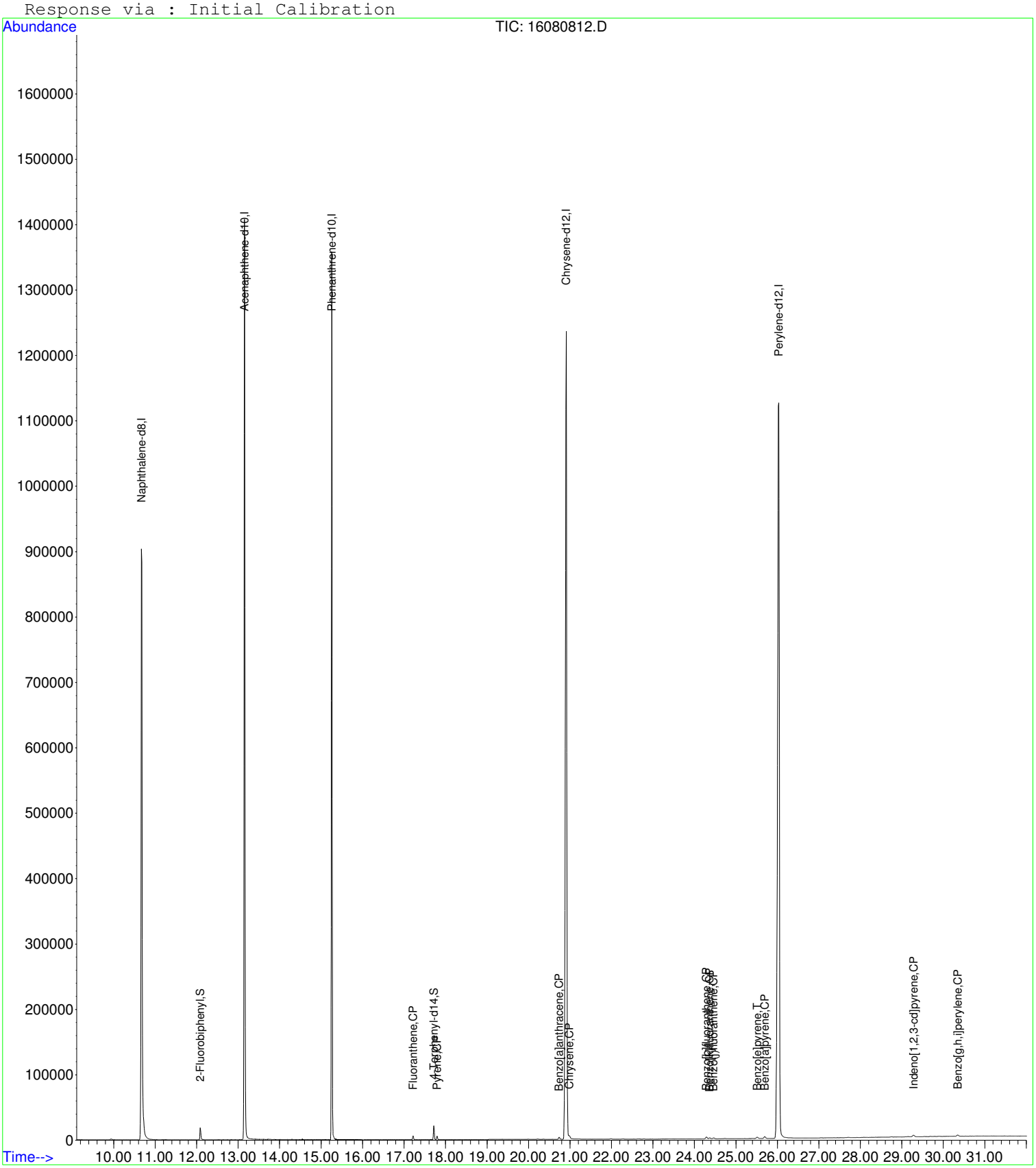
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1479099	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	825981	4000.00	ug/kg	138
11) Phenanthrene-d10	15.26	188	1578094	4000.00	ug/kg	99
17) Chrysene-d12	20.91	240	2118210	4000.00	ug/kg	115
20) Perylene-d12	26.03	264	2290426	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21313	73.97	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.85%#			
16) 4-Terphenyl-d14	17.72	244	30605	82.18	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.05%#			
Target Compounds						Qvalue
14) Fluoranthene	17.22	202	7261	16.38	ug/kg	98
15) Pyrene	17.80	202	6996	15.56	ug/kg	98
18) Benzo[a]anthracene	20.74	228	4867	10.19	ug/kg	97
19) Chrysene	20.98	228	5751	12.52	ug/kg	96
21) Benzo[b]fluoranthene	24.29	252	6049	11.44	ug/kg	97
22) Benzo[k]fluoranthene	24.36	252	2992	6.17	ug/kg	96
23) Benzo(j)fluoranthene	24.46	252	2845	6.10	ug/kg	79
24) Benzo[e]pyrene	25.52	252	4724	9.21	ug/kg	99
25) Benzo[a]pyrene	25.70	252	5937	11.62	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.29	276	4496	7.66	ug/kg	94
28) Benzo[g,h,i]perylene	30.35	276	4211	8.57	ug/kg	93

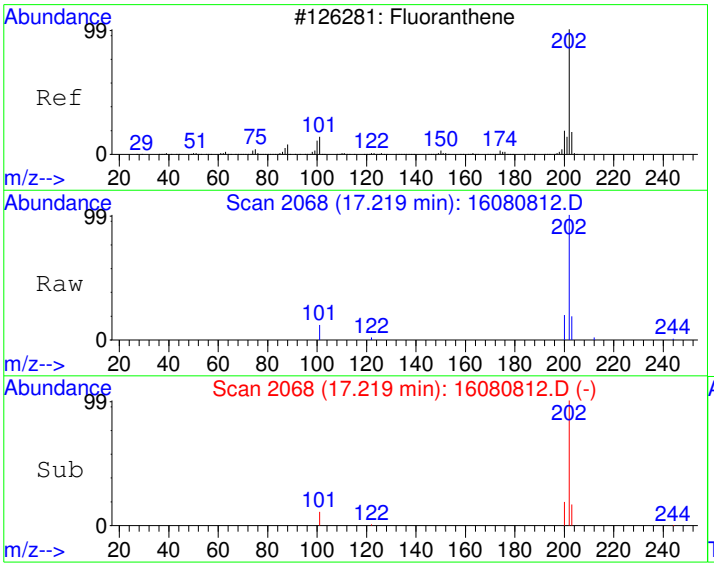
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080812.D Vial: 12
Acq On : 8 Aug 2016 5:38 pm Operator: DEW
Sample : 1607294-73A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 15:00 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

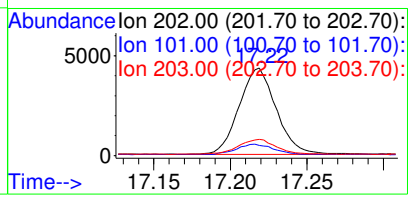


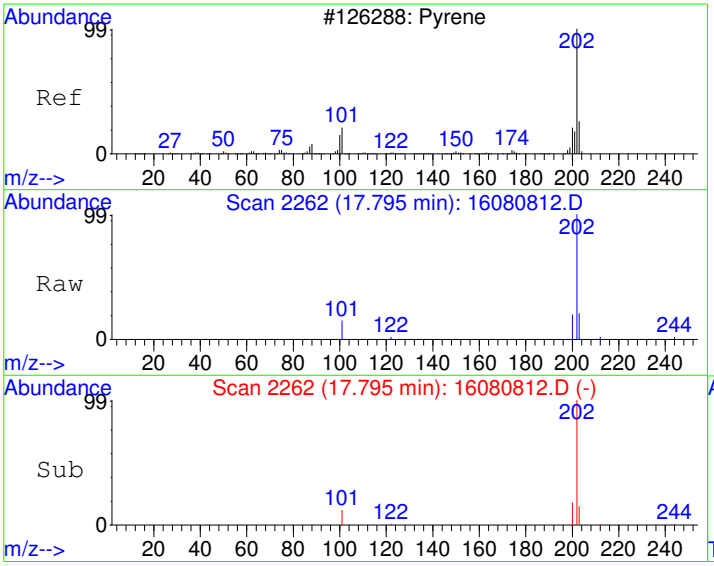


#14
Fluoranthene
Concen: 16.38 ug/kg
RT: 17.22 min Scan# 2068
Delta R.T. -0.01 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:202 Resp: 7261

Ion	Ratio	Lower	Upper
202	100		
101	10.5	0.0	42.1
203	17.3	0.0	47.9

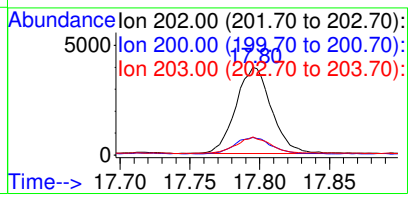


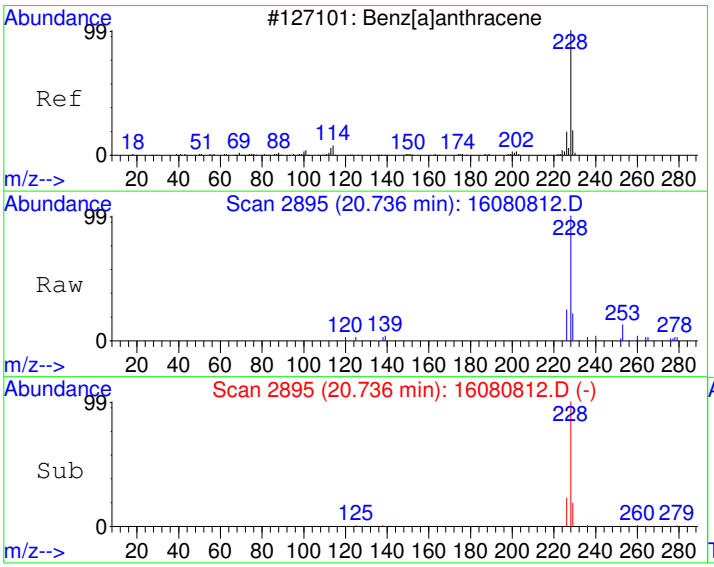


#15
Pyrene
Concen: 15.56 ug/kg
RT: 17.80 min Scan# 2262
Delta R.T. -0.02 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:202 Resp: 6996

Ion	Ratio	Lower	Upper
202	100		
200	18.9	0.0	49.7
203	18.9	0.0	47.8

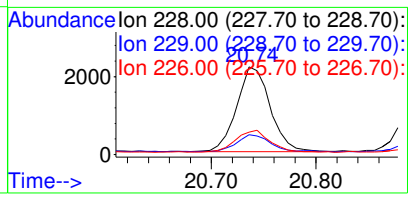


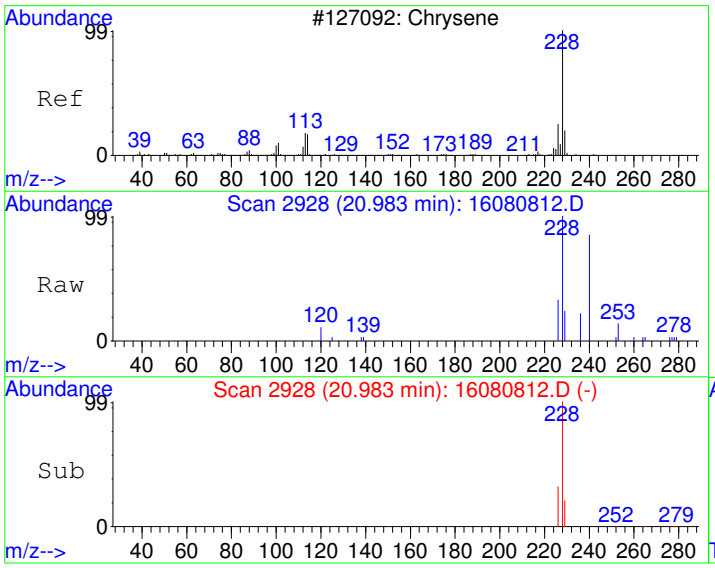


#18
Benzo[a]anthracene
Concen: 10.19 ug/kg
RT: 20.74 min Scan# 2895
Delta R.T. -0.03 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:228 Resp: 4867

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	49.8
226	23.5	0.0	55.8

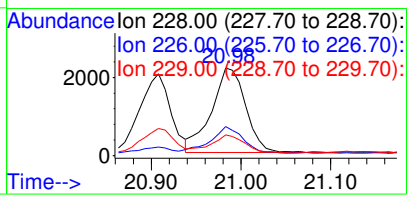


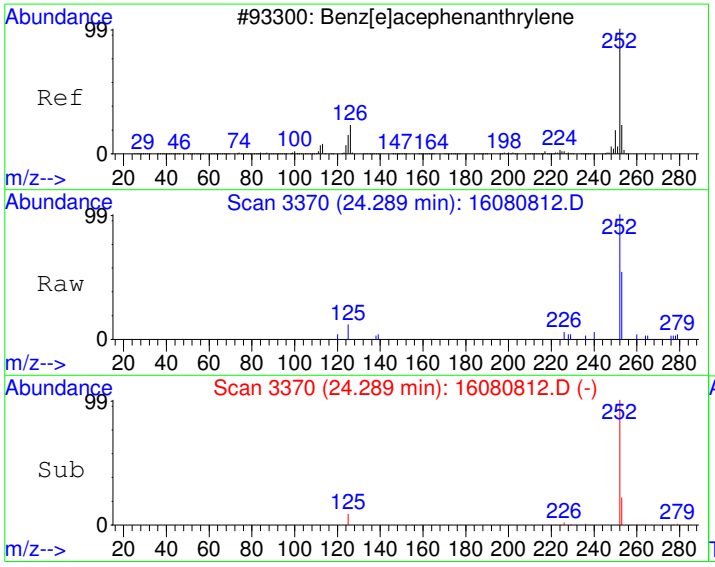


#19
Chrysene
Concen: 12.52 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.04 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:228 Resp: 5751

Ion	Ratio	Lower	Upper
228	100		
226	30.9	0.0	58.1
229	20.8	0.0	50.0

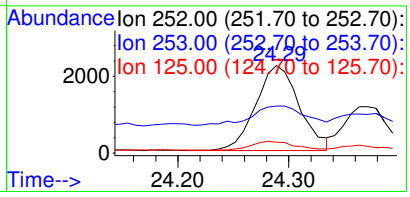


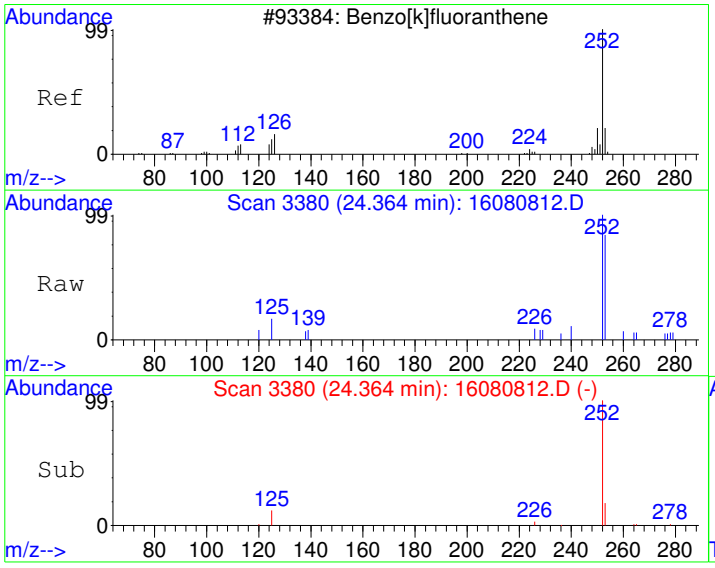


#21
Benzo[b]fluoranthene
Concen: 11.44 ug/kg
RT: 24.29 min Scan# 3370
Delta R.T. -0.04 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:252 Resp: 6049

Ion	Ratio	Lower	Upper
252	100		
253	20.8	0.0	52.0
125	9.0	0.0	40.6

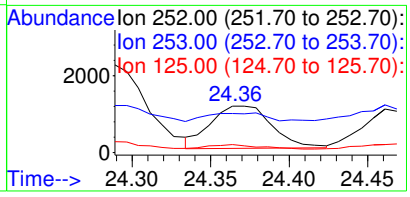


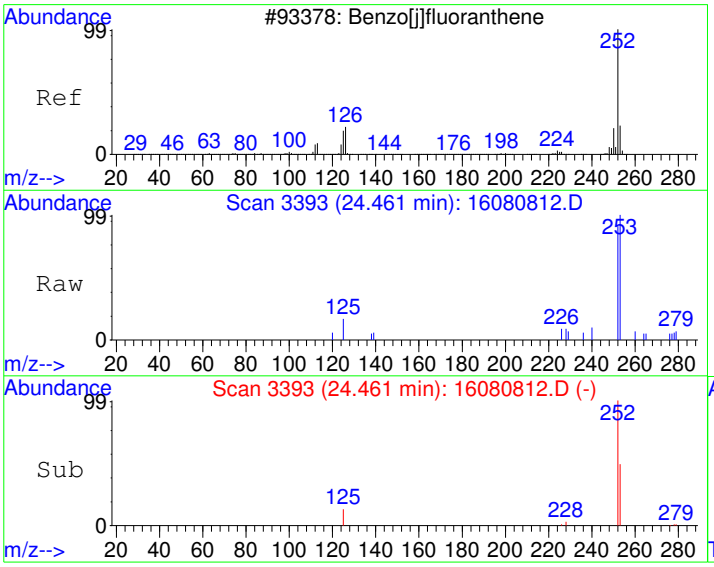


#22
Benzo[k]fluoranthene
Concen: 6.17 ug/kg
RT: 24.36 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:252 Resp: 2992

Ion	Ratio	Lower	Upper
252	100		
253	19.8	2.2	42.2
125	10.6	0.0	30.3

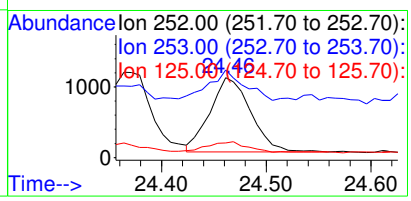


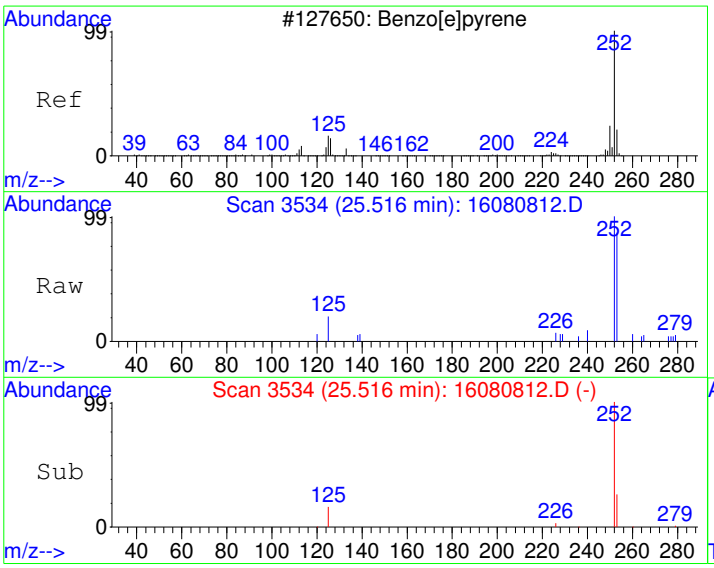


#23
Benzo(j)fluoranthene
Concen: 6.10 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:252 Resp: 2845

Ion	Ratio	Lower	Upper
252	100		
253	36.8	2.2	42.2
125	12.3	0.0	34.4

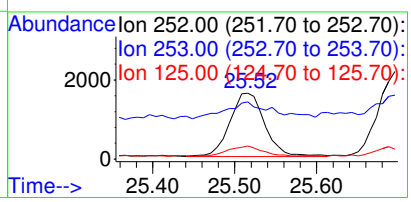


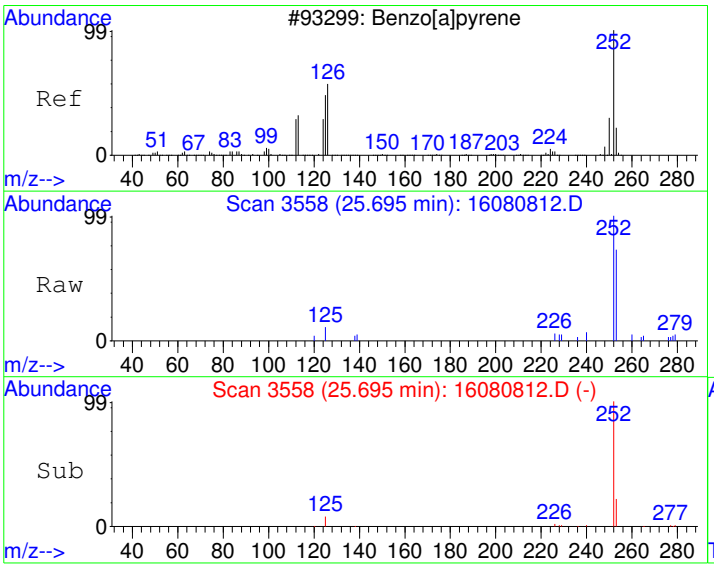


#24
Benzo[e]pyrene
Concen: 9.21 ug/kg
RT: 25.52 min Scan# 3534
Delta R.T. -0.04 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:252 Resp: 4724

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.2	42.2
125	16.2	0.0	35.7

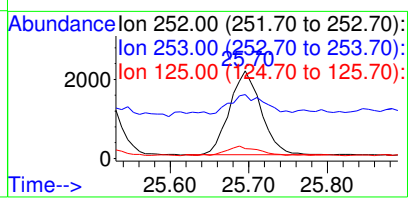


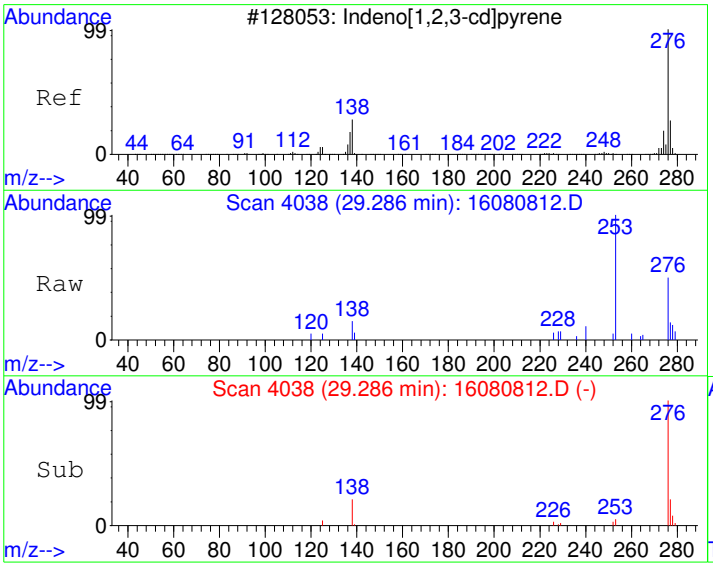


#25
Benzo[a]pyrene
Concen: 11.62 ug/kg
RT: 25.70 min Scan# 3558
Delta R.T. -0.04 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:252 Resp: 5937

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.0	42.0
125	7.5	0.0	31.6

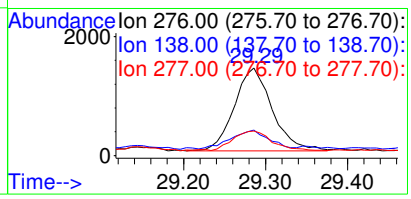


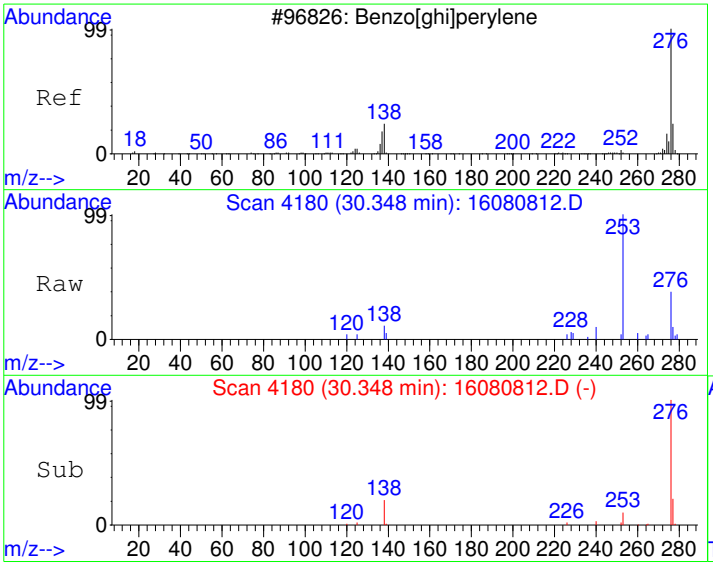


#27
Indeno[1,2,3-cd]pyrene
Concen: 7.66 ug/kg
RT: 29.29 min Scan# 4038
Delta R.T. -0.04 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:276 Resp: 4496

Ion	Ratio	Lower	Upper
276	100		
138	21.1	4.8	44.8
277	23.5	5.6	45.6

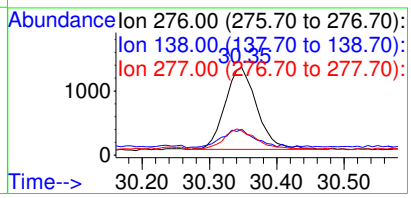




#28
Benzo[g,h,i]perylene
Concen: 8.57 ug/kg
RT: 30.35 min Scan# 4180
Delta R.T. -0.05 min
Lab File: 16080812.D
Acq: 8 Aug 2016 5:38 pm

Tgt Ion:276 Resp: 4211

Ion	Ratio	Lower	Upper
276	100		
138	22.9	0.0	38.1
277	22.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080813.D Vial: 13
Acq On : 8 Aug 2016 6:17 pm Operator: DEW
Sample : 1607294-74A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 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

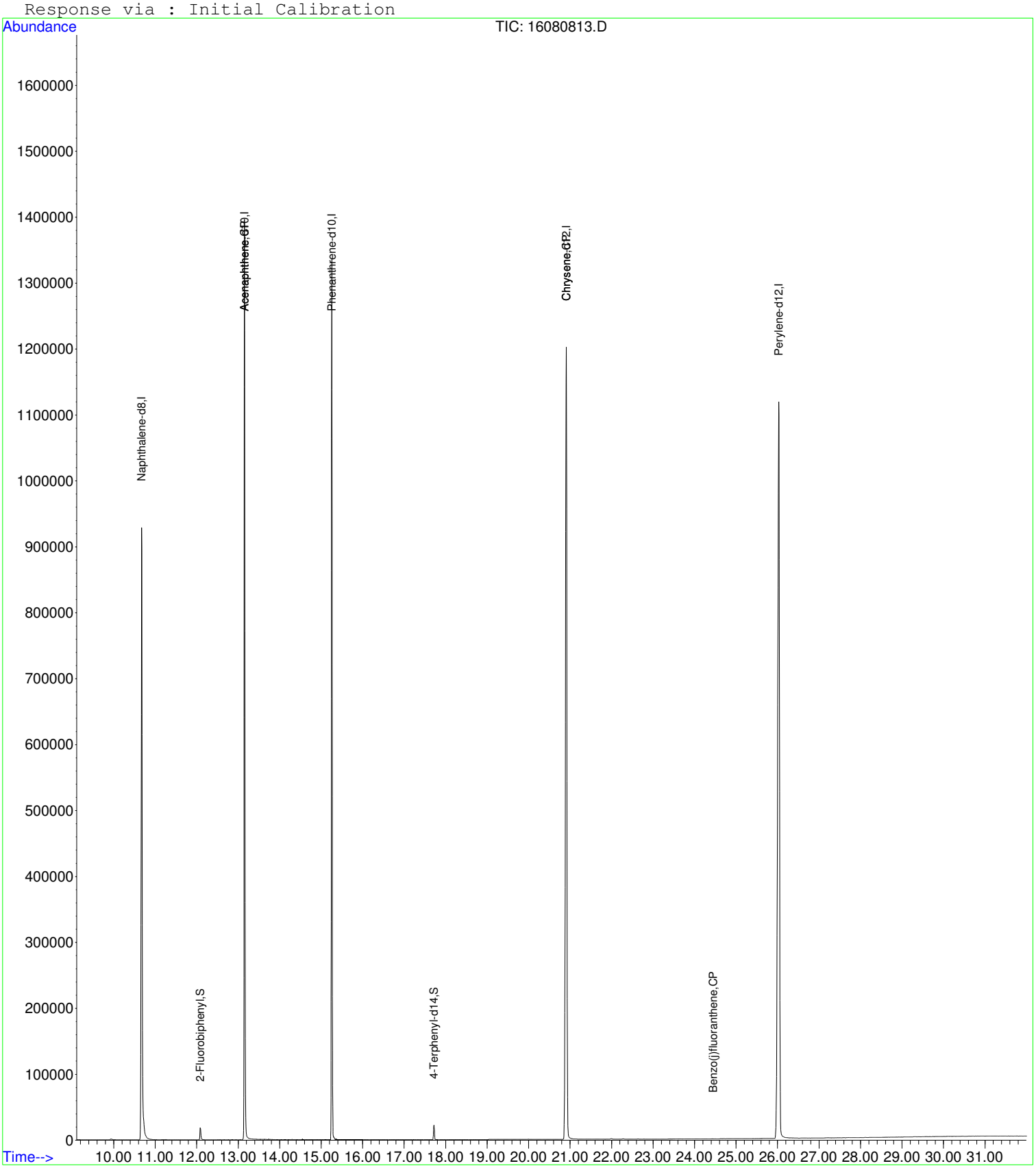
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1503973	4000.00	ug/kg	107
5) Acenaphthene-d10	13.15	164	825643	4000.00	ug/kg	138
11) Phenanthrene-d10	15.26	188	1561919	4000.00	ug/kg	98
17) Chrysene-d12	20.91	240	2127285	4000.00	ug/kg	116
20) Perylene-d12	26.03	264	2299864	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21253	73.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
16) 4-Terphenyl-d14	17.72	244	31562	85.63	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2779	13.12	ug/kg#	10
19) Chrysene	20.91	228	4567	9.90	ug/kg	69
23) Benzo(j)fluoranthene	24.45	252	33	0.07	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080813.D Vial: 13
Acq On : 8 Aug 2016 6:17 pm Operator: DEW
Sample : 1607294-74A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 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\160808\16080814.D Vial: 14
Acq On : 8 Aug 2016 6:58 pm Operator: DEW
Sample : 1607294-75A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 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

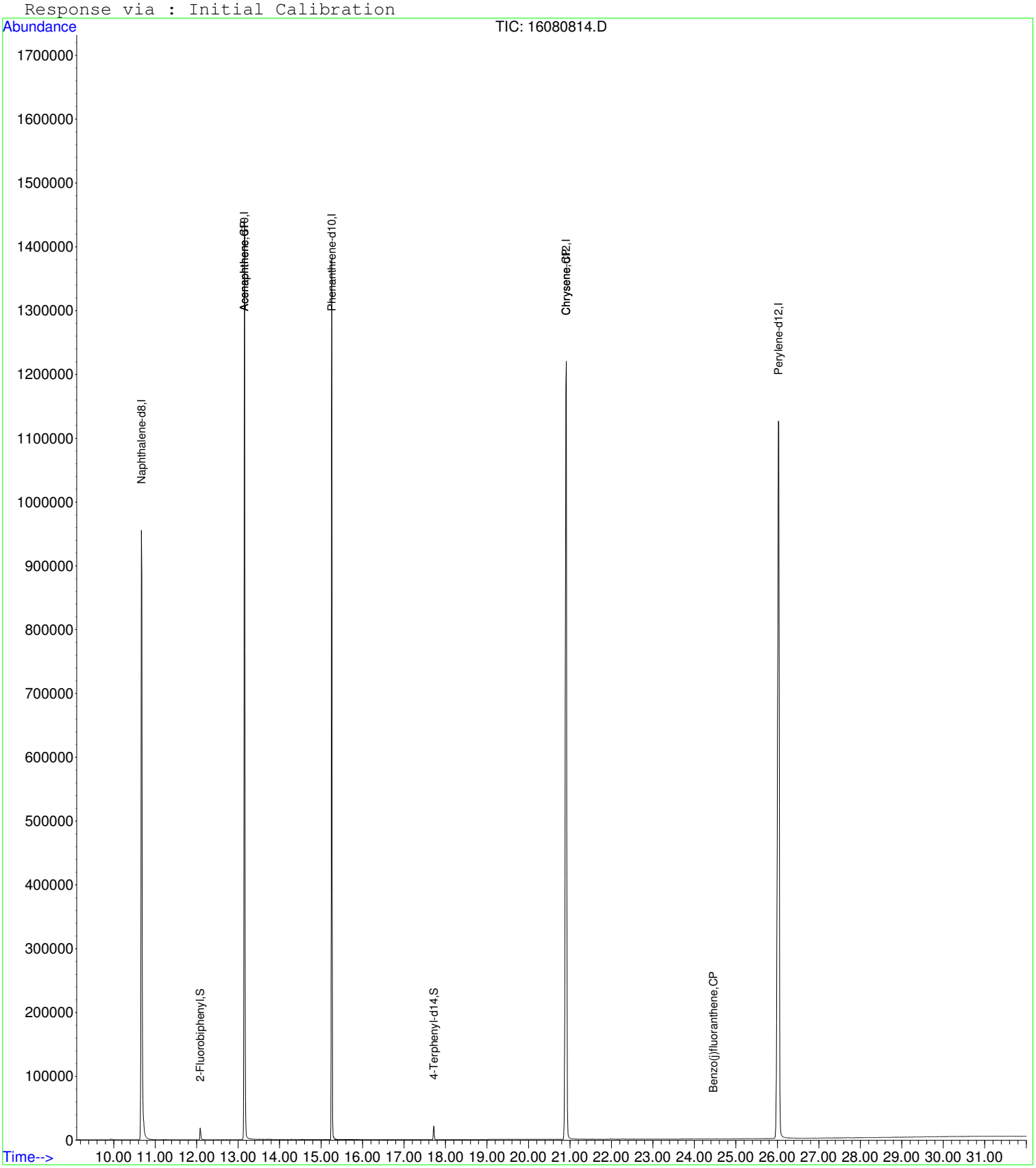
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1534102	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	829290	4000.00	ug/kg	138
11) Phenanthrene-d10	15.26	188	1588291	4000.00	ug/kg	100
17) Chrysene-d12	20.91	240	2149219	4000.00	ug/kg	117
20) Perylene-d12	26.03	264	2311668	4000.00	ug/kg	120
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21253	73.47	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
16) 4-Terphenyl-d14	17.72	244	31021	82.76	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2757	12.96	ug/kg#	11
19) Chrysene	20.90	228	4438	9.52	ug/kg	71
23) Benzo(j)fluoranthene	24.46	252	101	0.21	ug/kg#	17

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080814.D Vial: 14
Acq On : 8 Aug 2016 6:58 pm Operator: DEW
Sample : 1607294-75A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 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\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 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

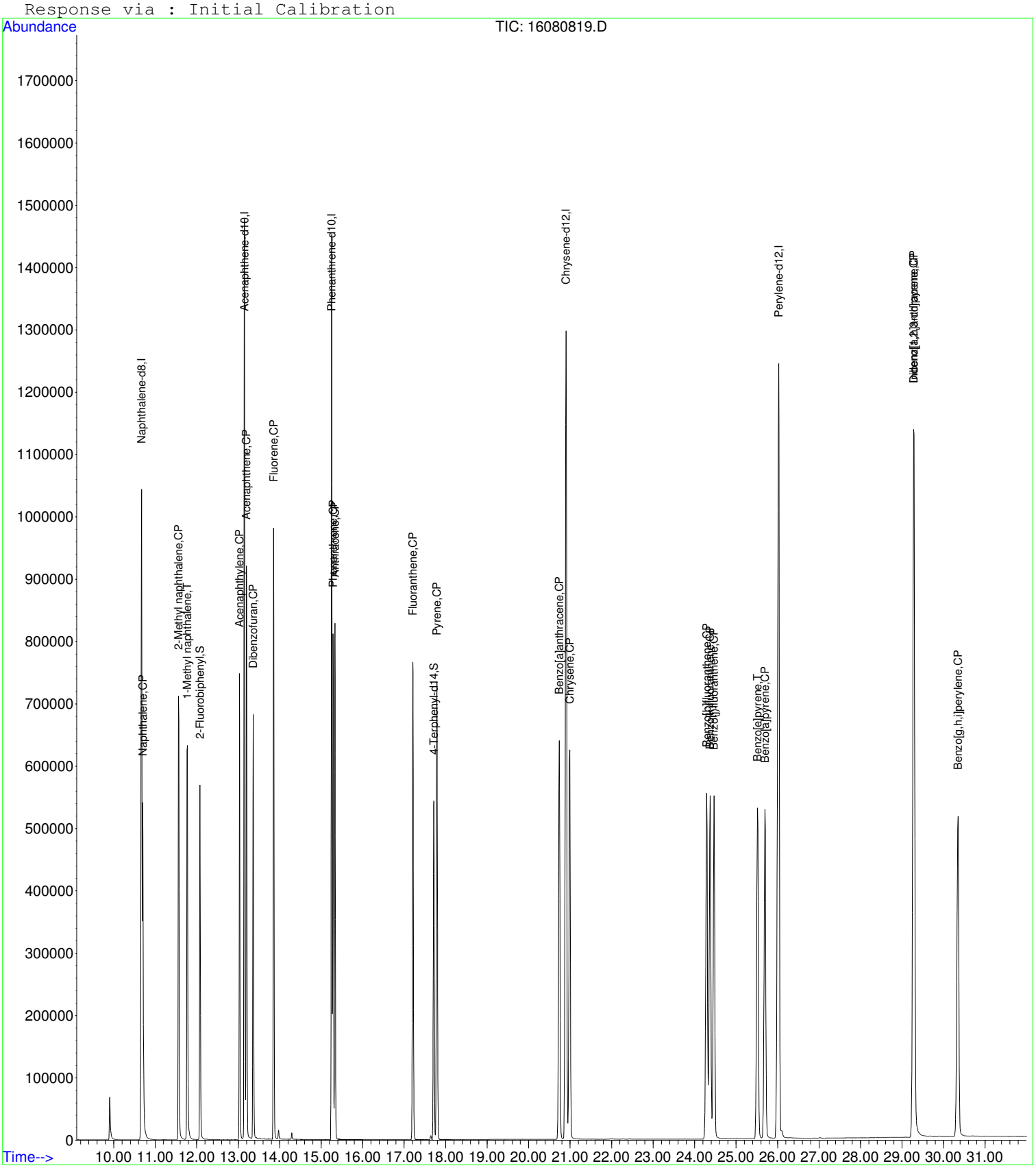
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1552010	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	869342	4000.00	ug/kg	145
11) Phenanthrene-d10	15.25	188	1712926	4000.00	ug/kg	108
17) Chrysene-d12	20.90	240	2312625	4000.00	ug/kg	126
20) Perylene-d12	26.03	264	2515450	4000.00	ug/kg	130
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	538136	1774.63	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.37%			
16) 4-Terphenyl-d14	17.71	244	768891	1902.11	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.55%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	640455	1813.70	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	460978	2013.71	ug/kg	95
4) 1-Methyl naphthalene	11.77	142	417621	2059.58	ug/kg	98
6) Dibenzofuran	13.36	168	638842	1815.86	ug/kg	100
8) Acenaphthylene	13.03	152	717927	1864.85	ug/kg	100
9) Acenaphthene	13.20	154	422305	1894.06	ug/kg	100
10) Fluorene	13.85	166	530316	1892.16	ug/kg	99
12) Phenanthrene	15.29	178	734777	1809.32	ug/kg	100
13) Anthracene	15.33	178	764378	1788.77	ug/kg	100
14) Fluoranthene	17.21	202	843851	1753.38	ug/kg	100
15) Pyrene	17.79	202	863708	1769.90	ug/kg	100
18) Benzo[a]anthracene	20.74	228	986523	1892.60	ug/kg	99
19) Chrysene	20.99	228	931165	1856.90	ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	1105119	1903.07	ug/kg	99
22) Benzo[k]fluoranthene	24.37	252	1036671	1945.93	ug/kg	99
23) Benzo(j)fluoranthene	24.47	252	999377	1952.03	ug/kg	100
24) Benzo[e]pyrene	25.52	252	1081369	1918.90	ug/kg	99
25) Benzo[a]pyrene	25.70	252	1066411	1900.62	ug/kg	99
26) Dibenz[a,h]anthracene	29.28	278	1119337	2061.53	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	1305778	2026.59	ug/kg	99
28) Benzo[g,h,i]perylene	30.35	276	1098140	2034.89	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

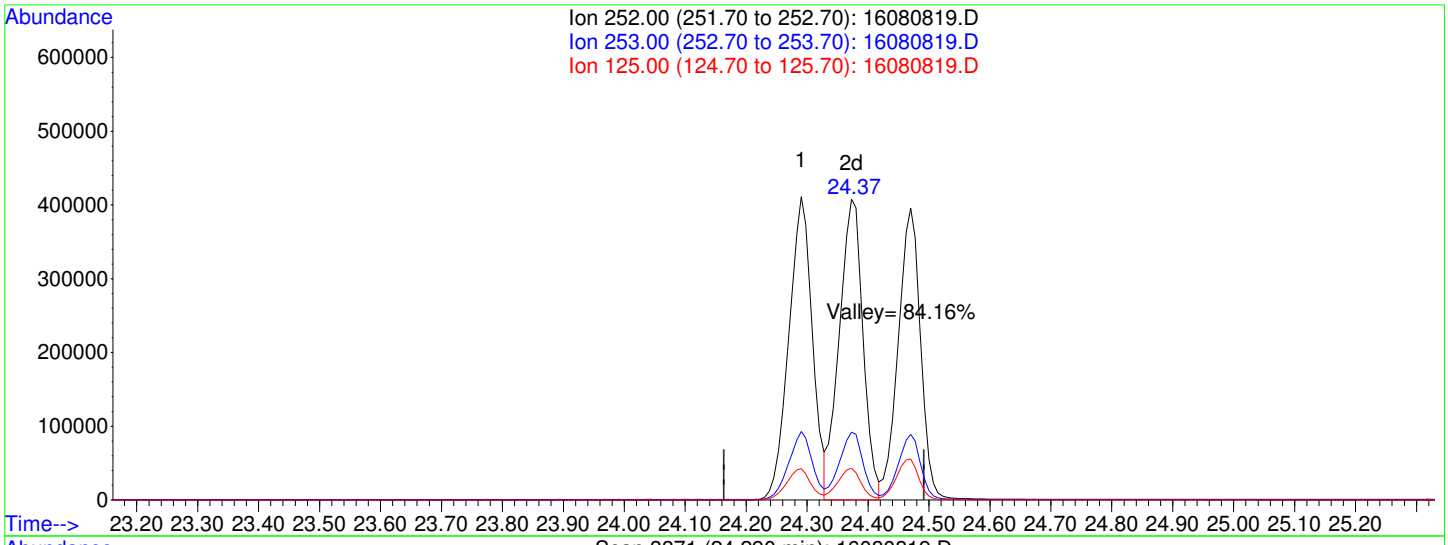
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

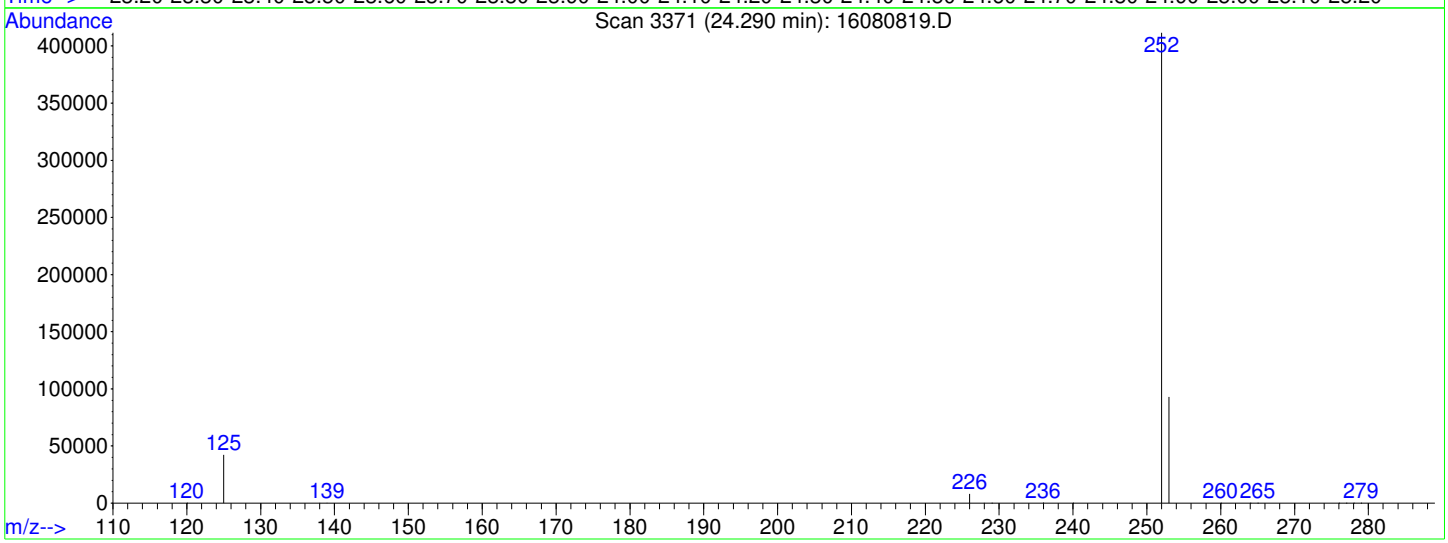


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 22:51 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: 16080819.D

(21) Benzo[b]fluoranthene (CP)

24.29min 1903.07ug/kg

response 1105119

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.40
125.00	10.60	10.28
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080821.D Vial: 21
Acq On : 8 Aug 2016 11:41 pm Operator: DEW
Sample : SB-160808 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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

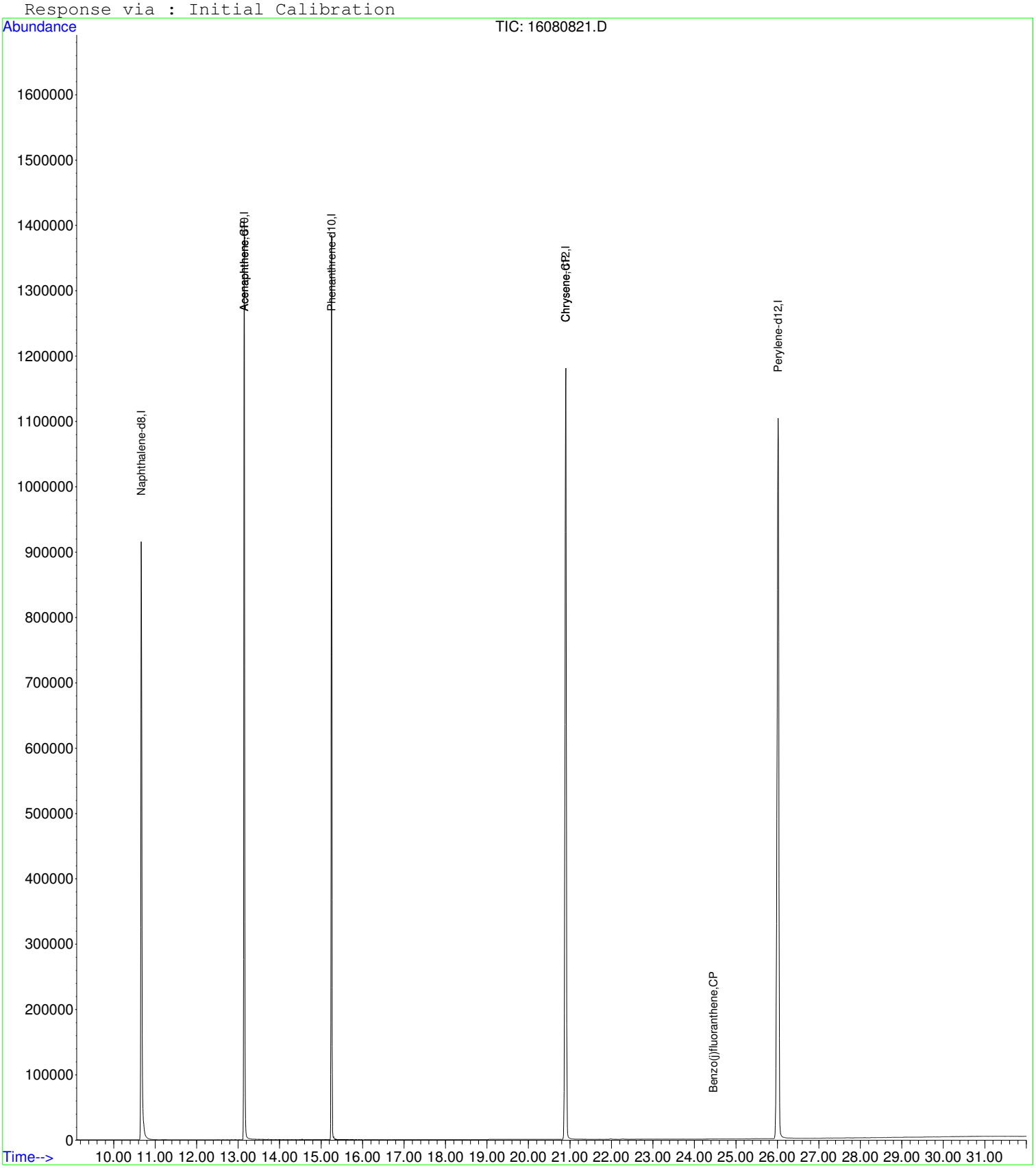
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1474476	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	831517	4000.00	ug/kg	139
11) Phenanthrene-d10	15.25	188	1573704	4000.00	ug/kg	99
17) Chrysene-d12	20.90	240	2079132	4000.00	ug/kg	113
20) Perylene-d12	26.02	264	2219968	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	31	0.11	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.67	244	5	0.01	ug/kg	-0.06
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2853	13.38	ug/kg#	11
19) Chrysene	20.90	228	4433	9.83	ug/kg	69
23) Benzo(j)fluoranthene	24.45	252	15	0.03	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080821.D Vial: 21
Acq On : 8 Aug 2016 11:41 pm Operator: DEW
Sample : SB-160808 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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\160808\16080829.D Vial: 29
Acq On : 9 Aug 2016 5:05 am Operator: DEW
Sample : 1607314-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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

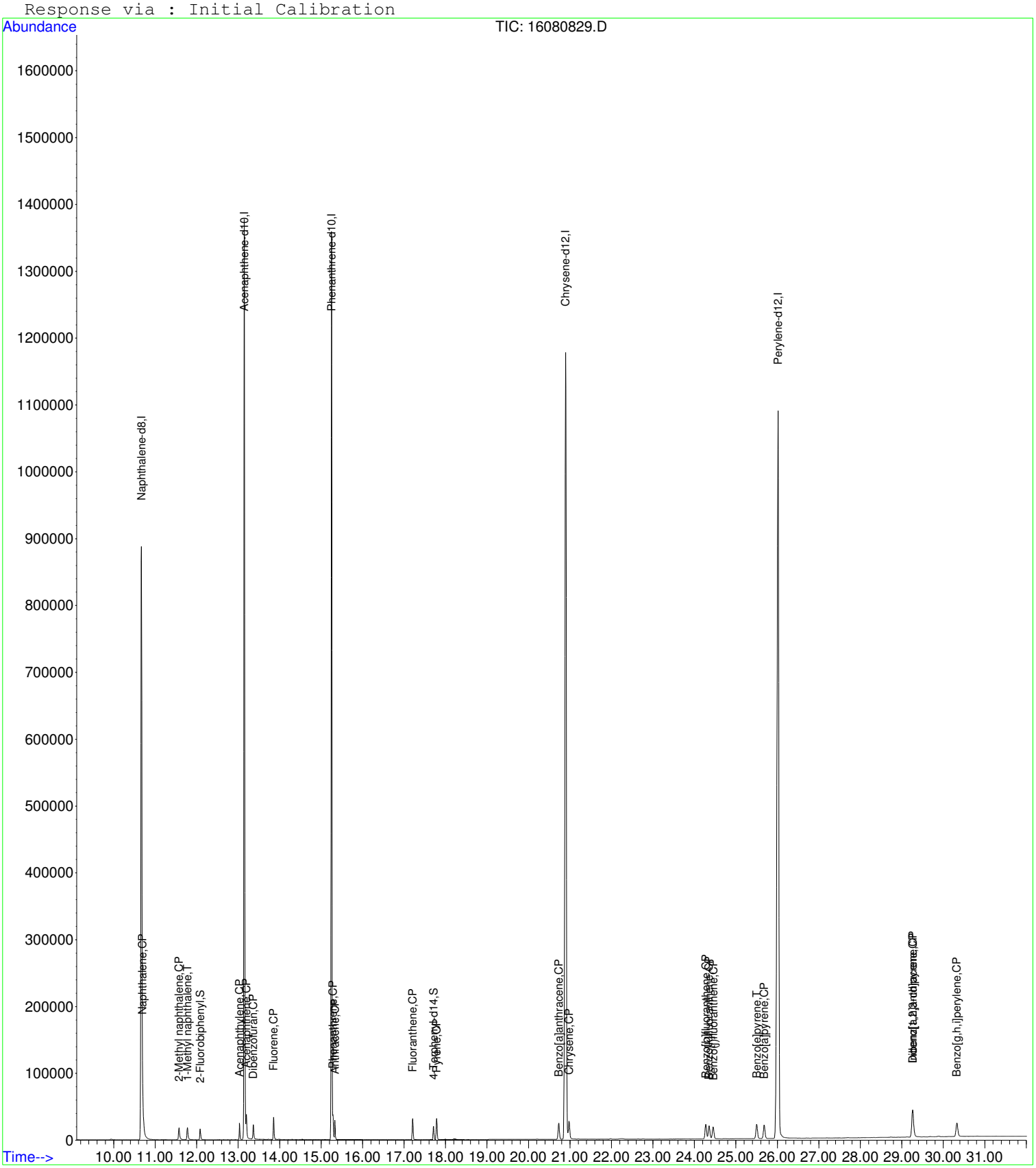
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1486020	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	805758	4000.00	ug/kg	134
11) Phenanthrene-d10	15.25	188	1555153	4000.00	ug/kg	98
17) Chrysene-d12	20.89	240	2099049	4000.00	ug/kg	114
20) Perylene-d12	26.02	264	2225562	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19643	69.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.75%#		
16) 4-Terphenyl-d14	17.71	244	28091	76.54	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	23681	70.04	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	16746	76.40	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	15202	78.30	ug/kg	97
6) Dibenzofuran	13.37	168	23256	71.32	ug/kg	99
8) Acenaphthylene	13.03	152	25157	70.50	ug/kg	100
9) Acenaphthene	13.20	154	15285	73.96	ug/kg	99
10) Fluorene	13.85	166	19160	73.76	ug/kg	100
12) Phenanthrene	15.29	178	28836	78.21	ug/kg	98
13) Anthracene	15.33	178	27119	69.90	ug/kg	100
14) Fluoranthene	17.21	202	36176	82.79	ug/kg	99
15) Pyrene	17.79	202	37263	84.11	ug/kg	98
18) Benzo[a]anthracene	20.73	228	37132	78.48	ug/kg	99
19) Chrysene	20.98	228	37135	81.59	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	42438	82.60	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	38595	81.88	ug/kg	98
23) Benzo(j)fluoranthene	24.45	252	37036	81.76	ug/kg	98
24) Benzo[e]pyrene	25.50	252	42673	85.59	ug/kg	98
25) Benzo[a]pyrene	25.68	252	41221	83.04	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	39387	81.99	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.26	276	50045	87.79	ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	43281	90.65	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080829.D Vial: 29
Acq On : 9 Aug 2016 5:05 am Operator: DEW
Sample : 1607314-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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\160808\16080830.D Vial: 30
Acq On : 9 Aug 2016 5:45 am Operator: DEW
Sample : 1607314-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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

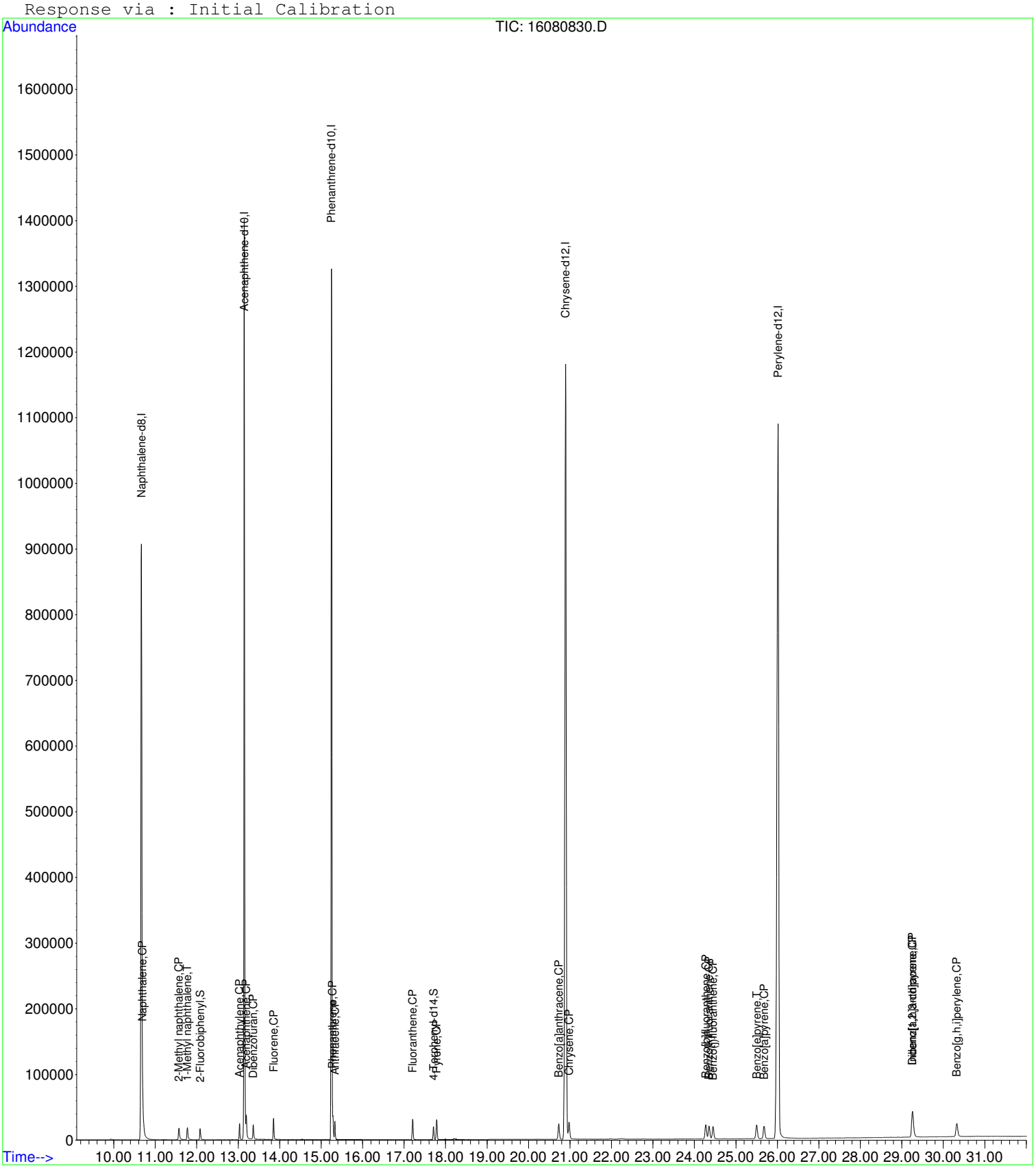
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1480781	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	811775	4000.00	ug/kg	135
11) Phenanthrene-d10	15.25	188	1546510	4000.00	ug/kg	97
17) Chrysene-d12	20.89	240	2091666	4000.00	ug/kg	114
20) Perylene-d12	26.02	264	2239320	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20423	72.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.71	244	28329	77.62	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	23439	69.57	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	16870	77.24	ug/kg	100
4) 1-Methyl naphthalene	11.77	142	15179	78.46	ug/kg	97
6) Dibenzofuran	13.36	168	23388	71.19	ug/kg	98
8) Acenaphthylene	13.03	152	25155	69.98	ug/kg	99
9) Acenaphthene	13.20	154	15333	73.65	ug/kg	98
10) Fluorene	13.85	166	19222	73.45	ug/kg	100
12) Phenanthrene	15.28	178	27673	75.47	ug/kg	98
13) Anthracene	15.33	178	26661	69.10	ug/kg	99
14) Fluoranthene	17.21	202	34956	80.45	ug/kg	99
15) Pyrene	17.79	202	35453	80.47	ug/kg	99
18) Benzo[a]anthracene	20.73	228	36726	77.90	ug/kg	99
19) Chrysene	20.98	228	36013	79.40	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	42881	82.95	ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	38153	80.45	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	36524	80.14	ug/kg	98
24) Benzo[e]pyrene	25.50	252	41839	83.40	ug/kg	99
25) Benzo[a]pyrene	25.68	252	39986	80.05	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	39112	80.92	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.26	276	49767	86.76	ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	42887	89.27	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080830.D Vial: 30
Acq On : 9 Aug 2016 5:45 am Operator: DEW
Sample : 1607314-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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\160808\16080831.D Vial: 31
Acq On : 9 Aug 2016 6:25 am Operator: DEW
Sample : CCV1-160808 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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

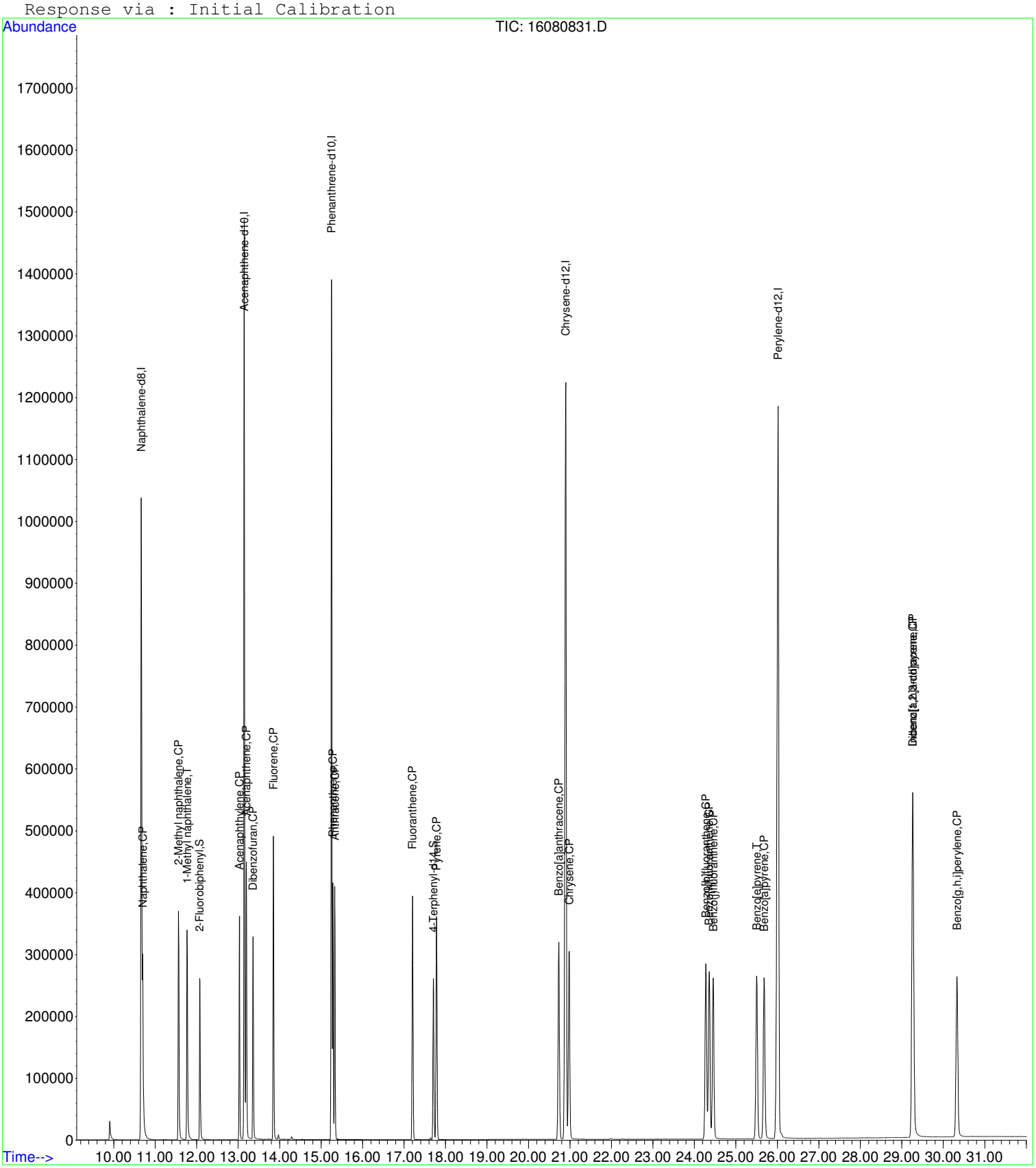
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1560538	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	858725	4000.00	ug/kg	143
11) Phenanthrene-d10	15.25	188	1638165	4000.00	ug/kg	103
17) Chrysene-d12	20.90	240	2214392	4000.00	ug/kg	121
20) Perylene-d12	26.02	264	2393523	4000.00	ug/kg	124
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	270209	902.10	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.55%#			
16) 4-Terphenyl-d14	17.71	244	362494	937.67	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.44%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	330333	930.36	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	239480	1040.41	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	216904	1063.86	ug/kg	97
6) Dibenzofuran	13.36	168	317649	914.06	ug/kg	100
8) Acenaphthylene	13.03	152	365898	962.19	ug/kg	99
9) Acenaphthene	13.20	154	212660	965.58	ug/kg	98
10) Fluorene	13.85	166	266062	961.04	ug/kg	100
12) Phenanthrene	15.28	178	366075	942.57	ug/kg	100
13) Anthracene	15.33	178	375943	919.92	ug/kg	100
14) Fluoranthene	17.20	202	419584	911.61	ug/kg	99
15) Pyrene	17.78	202	426112	913.04	ug/kg	100
18) Benzo[a]anthracene	20.73	228	487213	976.16	ug/kg	99
19) Chrysene	20.98	228	460891	959.87	ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	560183	1013.80	ug/kg	100
22) Benzo[k]fluoranthene	24.36	252	511358	1008.76	ug/kg	100
23) Benzo(j)fluoranthene	24.45	252	485467	996.54	ug/kg	99
24) Benzo[e]pyrene	25.50	252	528135	984.92	ug/kg	100
25) Benzo[a]pyrene	25.68	252	524464	982.35	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	548412	1061.49	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	642748	1048.37	ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	538589	1048.86	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080831.D Vial: 31
Acq On : 9 Aug 2016 6:25 am Operator: DEW
Sample : CCV1-160808 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 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_160810A
For

DHL Work Order
1607294

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_160810A
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: 8/11/2016

Second-Level Review: Janice Whitt Date: 8/16/2016

REVIEWED BY
By Janice Whitt at 2:27:06 PM, 8/16/2016

DHL Analytical, Inc.

Run ID: GCMS6_160810A **Run No.:** 87544

Analytical Run Date: 8/10/2016 **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-160810	1	PAH_LL_SDOD1	TUNE	R87544	8/10/2016 6:26:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160810	1	PAH_LL_SDOD1	ICV	R87544	8/10/2016 7:05:00 AM		
LCS-76545	1	PAH_LL_SDOD1	LCS	76545	8/10/2016 7:44:00 AM		
MB-76545	1	PAH_LL_SDOD1	MBLK	76545	8/10/2016 8:24:00 AM		
1607294-01A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 9:04:00 AM		
1607294-02A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 9:44:00 AM		
1607294-03A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 10:25:00 AM		
1607294-04A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 11:05:00 AM		
1607294-05A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 11:45:00 AM		
1607294-06A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 12:25:00 PM		
1607294-07A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 1:06:00 PM		
1607294-08A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 1:45:00 PM		
1607294-09A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 2:26:00 PM		
1607294-10A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 3:07:00 PM		
1607294-11A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 3:48:00 PM		
1607294-12A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 4:29:00 PM		
DFTPP2-160810	1	PAH_LL_SDOD1	TUNE	R87544	8/10/2016 5:10:00 PM		
ICV2-160810	1	PAH_LL_SDOD1	ICV	R87544	8/10/2016 5:50:00 PM		
SB-160810	1	PAH_LL_SDOD1	SBLK	76545	8/10/2016 7:10:00 PM		
1607294-14A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 7:50:00 PM		
1607294-15A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 8:29:00 PM		
1607294-16A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 9:09:00 PM		
1607294-17A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 9:49:00 PM		
1607294-18A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 10:29:00 PM		
1607294-19A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 11:09:00 PM		
1607294-20A	10	PAH_LL_SDOD1	SAMP	76545	8/10/2016 11:49:00 PM		
1607294-21A	10	PAH_LL_SDOD1	SAMP	76545	8/11/2016 12:29:00 AM		
1607294-09AMS	10	PAH_LL_SDOD1	MS	76545	8/11/2016 1:09:00 AM		

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

DHL Analytical, Inc.

Run ID: GCMS6_160810A **Run No.:** 87544

1607294-09AMSD	10	PAH_LL_SDOD1	MSD	76545	8/11/2016 1:49:00 AM		
CCV1-160810	1	PAH_LL_SDOD1	CCV	R87544	8/11/2016 2:29:00 AM		

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:\HPCHEM\1\SEQUENCE\160810.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160810\
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	16081001	DFTPPPAH	DFTPP-160810
2	Sample	2	16081002	PP160801	ICV-160810
3	Sample	3	16081003	PP160801	LCS-76545
4	Sample	4	16081004	PP160801	MB-76545
5	Sample	5	16081005	PP160801	1607294-01A
6	Sample	6	16081006	PP160801	1607294-02A
7	Sample	7	16081007	PP160801	1607294-03A
8	Sample	8	16081008	PP160801	1607294-04A
9	Sample	9	16081009	PP160801	1607294-05A
10	Sample	10	16081010	PP160801	1607294-06A
11	Sample	11	16081011	PP160801	1607294-07A
12	Sample	12	16081012	PP160801	1607294-08A
13	Sample	13	16081013	PP160801	1607294-09A
14	Sample	14	16081014	PP160801	1607294-10A
15	Sample	15	16081015	PP160801	1607294-11A
16	Sample	16	16081016	PP160801	1607294-12A
17	Sample	17	16081017	DFTPPPAH	DFTPP2-160810
18	Sample	18	16081018	PP160801	ICV2-160810
19	Sample	19	16081019	PP160801	SBLK
20	Sample	20	16081020	PP160801	SB-160810
21	Sample	21	16081021	PP160801	1607294-14A
22	Sample	22	16081022	PP160801	1607294-15A
23	Sample	23	16081023	PP160801	1607294-16A
24	Sample	24	16081024	PP160801	1607294-17A
25	Sample	25	16081025	PP160801	1607294-18A
26	Sample	26	16081026	PP160801	1607294-19A
27	Sample	27	16081027	PP160801	1607294-20A
28	Sample	28	16081028	PP160801	1607294-21A
29	Sample	29	16081029	PP160801	1607294-09AMS
30	Sample	30	16081030	PP160801	1607294-09AMSD
31	Sample	31	16081031	PP160801	CCV1-160810

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 2:21:50 PM**
Digestion:
Prep End Date: **7/28/2016 4:40:00 PM**

Prep Batch **76545** 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
1607294-01A	Soil		10.05	10	0.995	1 of 1	
1607294-02A	Soil		10.9	10	0.917	1 of 1	
1607294-03A	Soil		10.14	10	0.986	1 of 1	
1607294-04A	Soil		10.27	10	0.974	1 of 1	
1607294-05A	Soil		10.06	10	0.994	1 of 1	
1607294-06A	Soil		10.17	10	0.983	1 of 1	
1607294-07A	Soil		10.32	10	0.969	1 of 1	
1607294-08A	Soil		10.09	10	0.991	1 of 1	
1607294-09A	Soil		10.39	10	0.962	1 of 3	
1607294-09AMS	Soil		10.18	10	0.982	1 of	
1607294-09AMSD	Soil		10.75	10	0.930	1 of	
1607294-10A	Soil		10.05	10	0.995	1 of 1	
1607294-11A	Soil		10.21	10	0.979	1 of 1	
1607294-12A	Soil		10.63	10	0.941	1 of 1	
1607294-14A	Soil		10.13	10	0.987	1 of 1	
1607294-15A	Soil		10.32	10	0.969	1 of 1	
1607294-16A	Soil		10.35	10	0.966	1 of 1	
1607294-17A	Soil		10.48	10	0.954	1 of 1	
1607294-18A	Soil		10.07	10	0.993	1 of 1	
1607294-19A	Soil		10.26	10	0.975	1 of 1	
1607294-20A	Soil		10.04	10	0.996	1 of 1	
1607294-21A	Soil		10.2	10	0.980	1 of 1	
LCS-76545	Soil		10	10	1.000	of	
MB-76545	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 1:12:45 PM, 8/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 2:21:50 PM**
Digestion:
Prep End Date: 7/28/2016 4:40 PM

Prep Batch **76545** 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
1607294-01A	Soil		10.05	10	1.000	1 of 1	
1607294-02A	Soil		10.90	10	1.000	1 of 1	
1607294-03A	Soil		10.14	10	1.000	1 of 1	
1607294-04A	Soil		10.27	10	1.000	1 of 1	
1607294-05A	Soil		10.06	10	1.000	1 of 1	
1607294-06A	Soil		10.17	10	1.000	1 of 1	
1607294-07A	Soil		10.32	10	1.000	1 of 1	
1607294-08A	Soil		10.04	10	1.000	1 of 1	
1607294-09A	Soil		10.39	10	1.000	1 of 3	
1607294-09AMS	Soil		10.18	10	1.000	1 of 3	
1607294-09AMSD	Soil		10.35	10	1.000	1 of 3	
1607294-10A	Soil		10.05	10	1.000	1 of 1	
1607294-11A	Soil		10.21	10	1.000	1 of 1	
1607294-12A	Soil		10.63	10	1.000	1 of 1	
1607294-14A	Soil		10.13	10	1.000	1 of 1	
1607294-15A	Soil		10.32	10	1.000	1 of 1	
1607294-16A	Soil		10.35	10	1.000	1 of 1	
1607294-17A	Soil		10.48	10	1.000	1 of 1	
1607294-18A	Soil		10.07	10	1.000	1 of 1	
1607294-19A	Soil		10.26	10	1.000	1 of 1	
1607294-20A	Soil		10.04	10	1.000	1 of 1	
1607294-21A	Soil		10.26	10	1.000	1 of 1	
LCS-76545	Soil		10	10	1.000	of	
MB-76545	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 1:12:41 PM, 8/16/2016

7/28/16 7/28/16 7/28/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-02A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 1:12:49 PM, 8/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-15A SS	Soil		0	0	#Num!	1 of 1	
1607294-16A SS	Soil		0	0	#Num!	1 of 1	
1607294-17A SS	Soil		0	0	#Num!	1 of 1	
1607294-18A SS	Soil		0	0	#Num!	1 of 1	
1607294-19A SS	Soil		0	0	#Num!	1 of 1	
1607294-20A SS	Soil		0	0	#Num!	1 of 1	
1607294-21A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:12:52 PM, 8/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 2:21:50 PM**
Digestion:
Prep End Date: **7/28/2016 4:40:00 PM**

Prep Batch **76545** 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

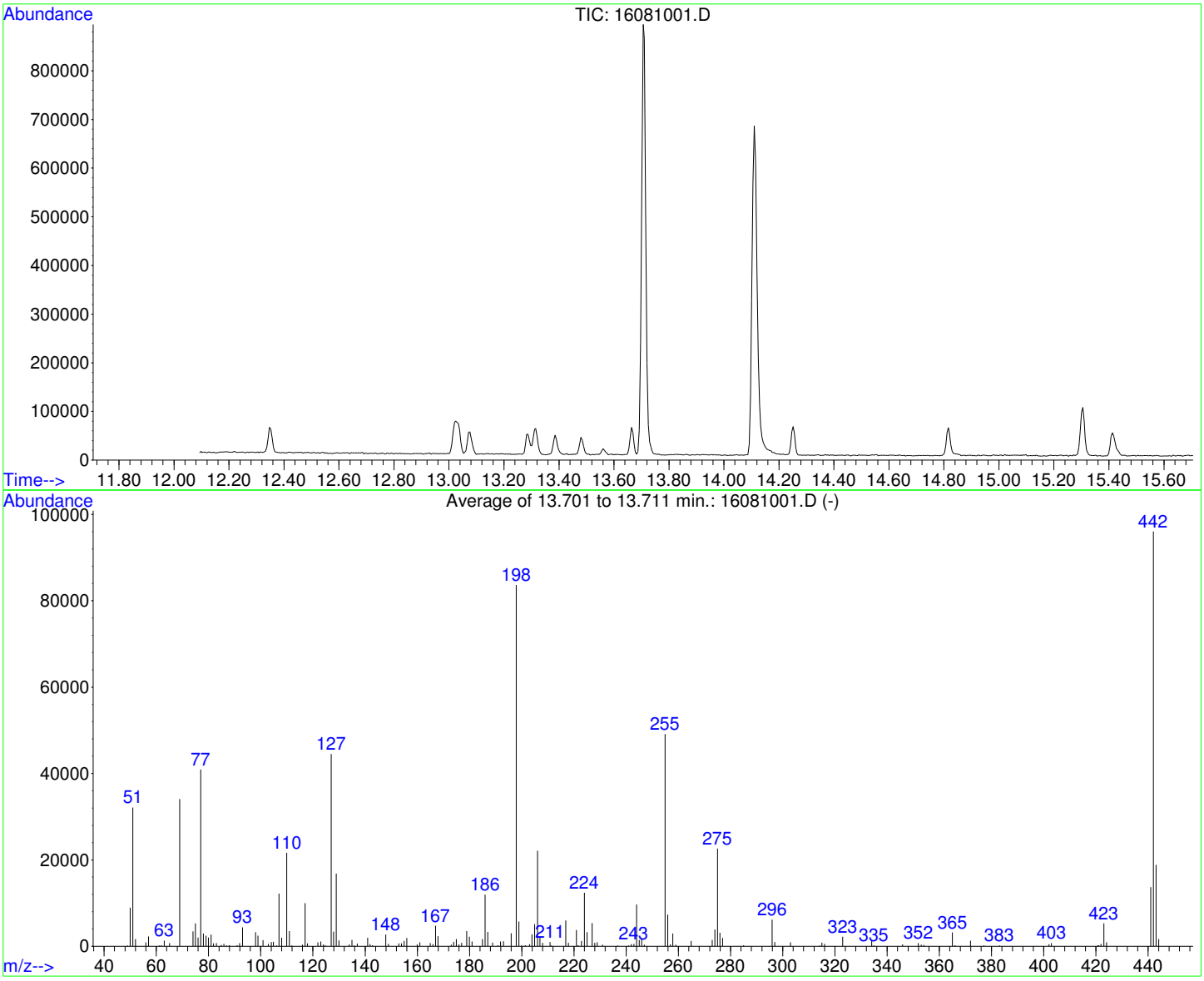
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-01A	Soil		10.05	10	0.995	1 of 1	
1607294-02A	Soil		10.9	10	0.917	1 of 1	
1607294-03A	Soil		10.14	10	0.986	1 of 1	
1607294-04A	Soil		10.27	10	0.974	1 of 1	
1607294-05A	Soil		10.06	10	0.994	1 of 1	
1607294-06A	Soil		10.17	10	0.983	1 of 1	
1607294-07A	Soil		10.32	10	0.969	1 of 1	
1607294-08A	Soil		10.09	10	0.991	1 of 1	
1607294-09A	Soil		10.39	10	0.962	1 of 3	
1607294-09AMS	Soil		10.18	10	0.982	1 of	
1607294-09AMSD	Soil		10.75	10	0.930	1 of	
1607294-10A	Soil		10.05	10	0.995	1 of 1	
1607294-11A	Soil		10.21	10	0.979	1 of 1	
1607294-12A	Soil		10.63	10	0.941	1 of 1	
1607294-14A	Soil		10.13	10	0.987	1 of 1	
1607294-15A	Soil		10.32	10	0.969	1 of 1	
1607294-16A	Soil		10.35	10	0.966	1 of 1	
1607294-17A	Soil		10.48	10	0.954	1 of 1	
1607294-18A	Soil		10.07	10	0.993	1 of 1	
1607294-19A	Soil		10.26	10	0.975	1 of 1	
1607294-20A	Soil		10.04	10	0.996	1 of 1	
1607294-21A	Soil		10.2	10	0.980	1 of 1	
LCS-76545	Soil		10	10	1.000	of	
MB-76545	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 1:12:58 PM, 8/16/2016

Data File : C:\HPCHEM\1\DATA\160810\16081001.D Vial: 1
Acq On : 10 Aug 2016 6:26 am Operator: DEW
Sample : DFTPP-160810 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

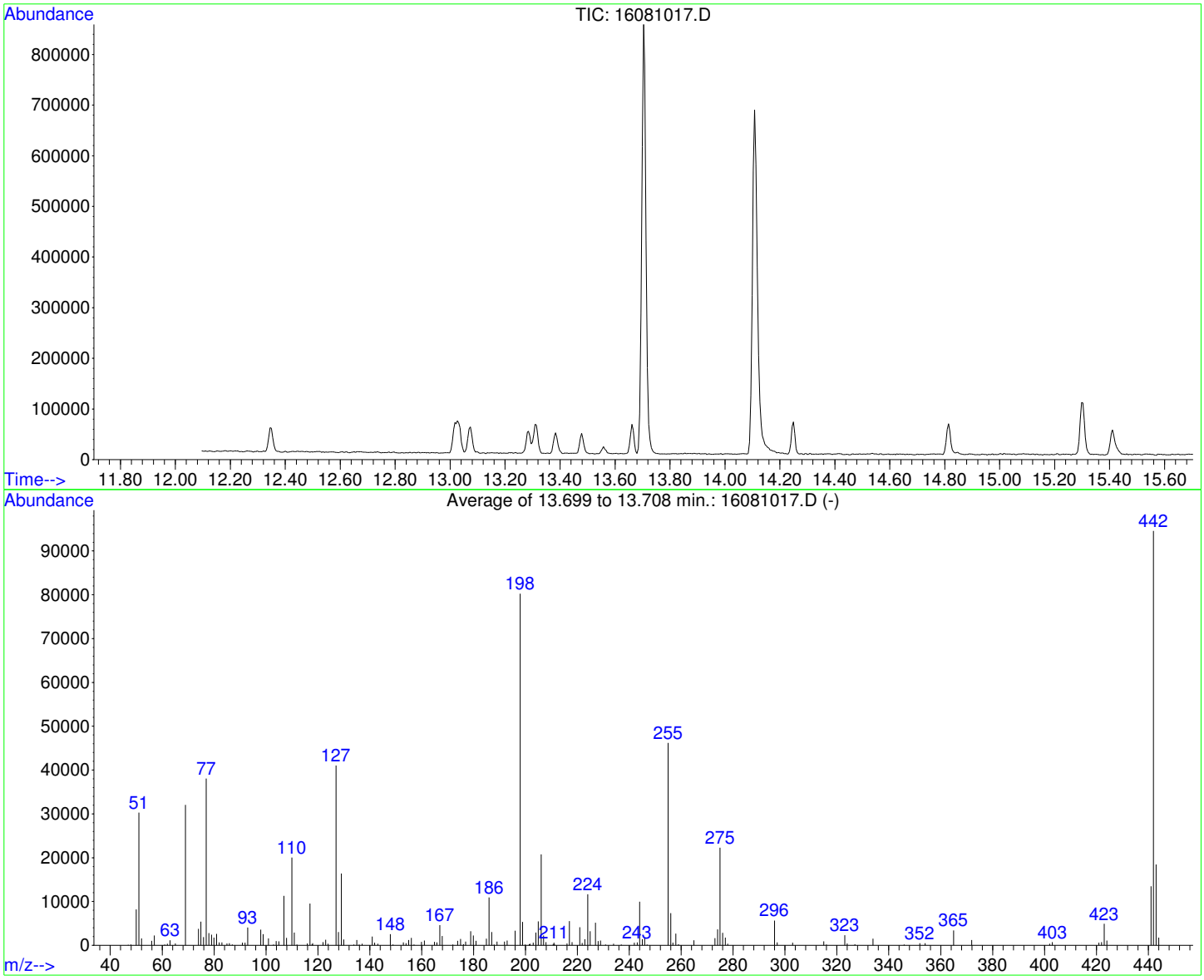


AutoFind: Scans 343, 344, 345; Background Corrected with Scan 337

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.4	32141	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.7	34085	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.2	44515	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	83656	PASS
199	198	5	9	6.8	5716	PASS
275	198	10	60	27.0	22625	PASS
365	198	1	200	3.8	3188	PASS
441	442	0.01	24	14.2	13668	PASS
442	198	50	400	114.8	96051	PASS
443	442	15	24	19.7	18875	PASS

REVIEWED BY
By Janice Whitt at 1:13:06 PM, 8/16/2016

Data File : C:\HPCHEM\1\DATA\160810\16081017.D Vial: 17
Acq On : 10 Aug 2016 5:10 pm Operator: DEW
Sample : DFTPP2-160810 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	37.7	30294	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	39.9	32045	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.1	41045	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	80280	PASS
199	198	5	9	6.7	5342	PASS
275	198	10	60	27.8	22299	PASS
365	198	1	200	4.2	3401	PASS
441	442	0.01	24	14.2	13464	PASS
442	198	50	400	117.8	94589	PASS
443	442	15	24	19.5	18454	PASS

REVIEWED BY
By Janice Whitt at 1:13:08 PM, 8/16/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081002.D Vial: 2
Acq On : 10 Aug 2016 7:05 am Operator: DEW
Sample : ICV-160810 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:06 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

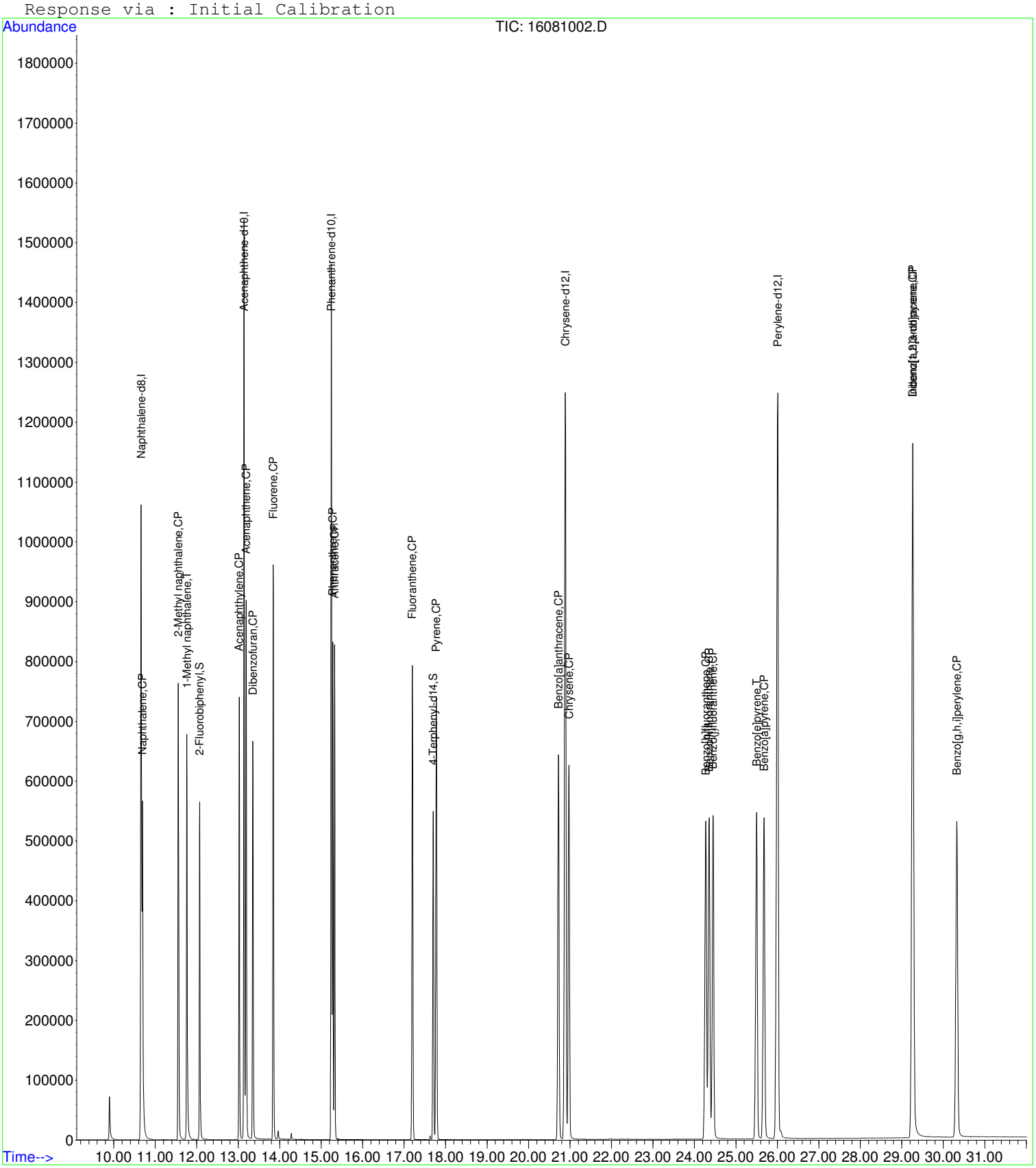
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1649443	4000.00	ug/kg	118
5) Acenaphthene-d10	13.14	164	889510	4000.00	ug/kg	148
11) Phenanthrene-d10	15.25	188	1714167	4000.00	ug/kg	108
17) Chrysene-d12	20.89	240	2289148	4000.00	ug/kg	125
20) Perylene-d12	26.01	264	2527215	4000.00	ug/kg	131
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	558638	1800.47	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.01%			
16) 4-Terphenyl-d14	17.70	244	764827	1890.68	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.27%			
Target Compounds						Qvalue
2) Naphthalene	10.69	128	681321	1815.46	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	483418	1987.00	ug/kg	97
4) 1-Methyl naphthalene	11.76	142	437739	2031.27	ug/kg	96
6) Dibenzofuran	13.36	168	642591	1785.11	ug/kg	100
8) Acenaphthylene	13.03	152	732891	1860.56	ug/kg	99
9) Acenaphthene	13.19	154	427283	1872.94	ug/kg	98
10) Fluorene	13.84	166	534270	1863.04	ug/kg	100
12) Phenanthrene	15.28	178	736832	1813.07	ug/kg	99
13) Anthracene	15.32	178	763291	1784.93	ug/kg	99
14) Fluoranthene	17.20	202	852858	1770.81	ug/kg	99
15) Pyrene	17.78	202	866165	1773.65	ug/kg	100
18) Benzo[a]anthracene	20.72	228	977722	1894.95	ug/kg	99
19) Chrysene	20.98	228	926981	1867.51	ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	1125137	1928.52	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	1043622	1949.85	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	996117	1936.60	ug/kg	99
24) Benzo[e]pyrene	25.50	252	1085195	1916.72	ug/kg	99
25) Benzo[a]pyrene	25.68	252	1075495	1907.89	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	1129632	2070.81	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.27	276	1321265	2041.08	ug/kg	100
28) Benzo[g,h,i]perylene	30.33	276	1113689	2054.10	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081002.D Vial: 2
Acq On : 10 Aug 2016 7:05 am Operator: DEW
Sample : ICV-160810 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:06 2016 Quant Results File: PP160801.RES

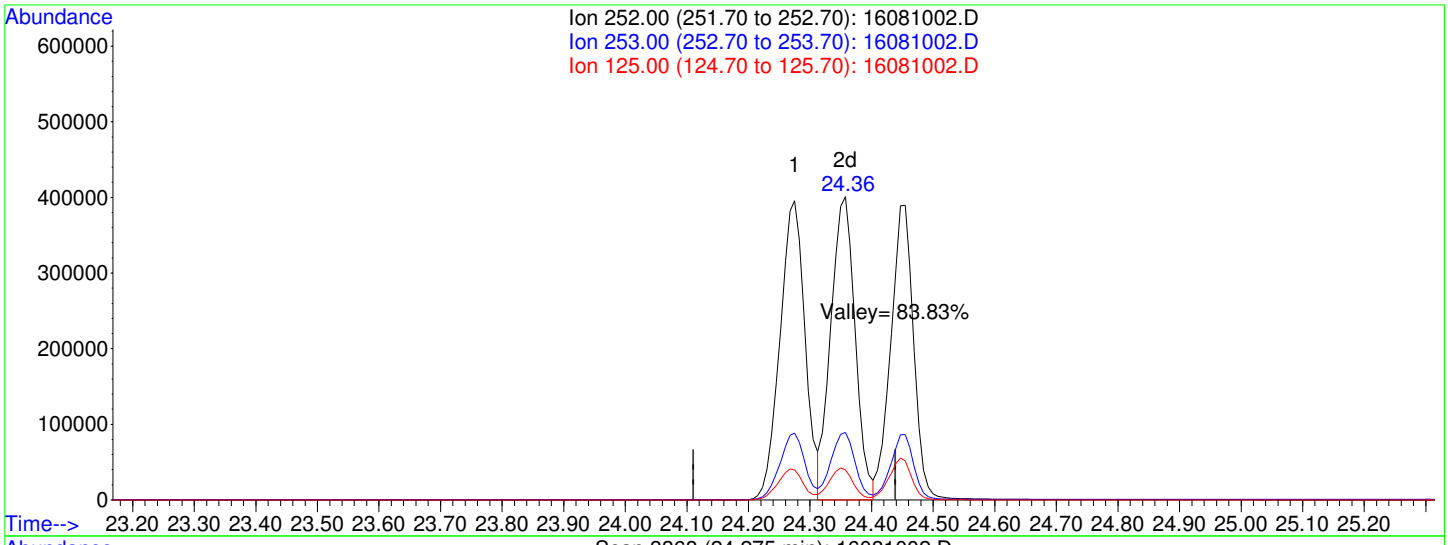
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

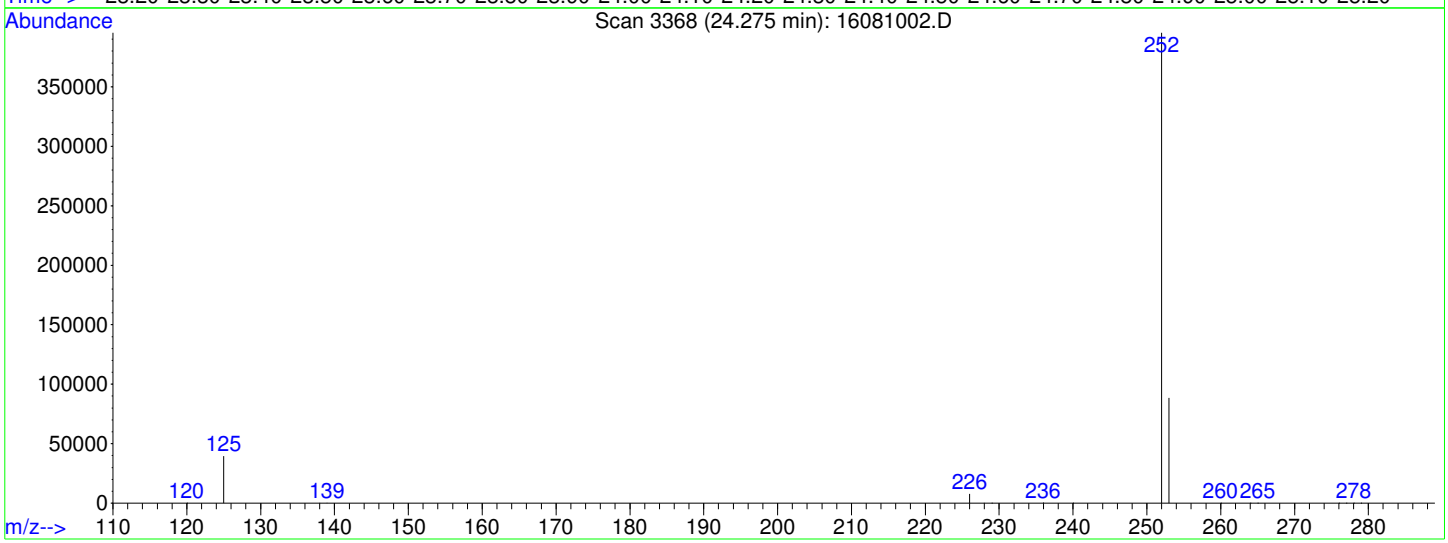


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160810\16081002.D Vial: 2
Acq On : 10 Aug 2016 7:05 am Operator: DEW
Sample : ICV-160810 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:05 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Multiple Level Calibration





TIC: 16081002.D

(21) Benzo[b]fluoranthene (CP)

24.27min 1928.52ug/kg

response 1125137

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.27
125.00	10.60	10.00
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081003.D Vial: 3
Acq On : 10 Aug 2016 7:44 am Operator: DEW
Sample : LCS-76545 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:06 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

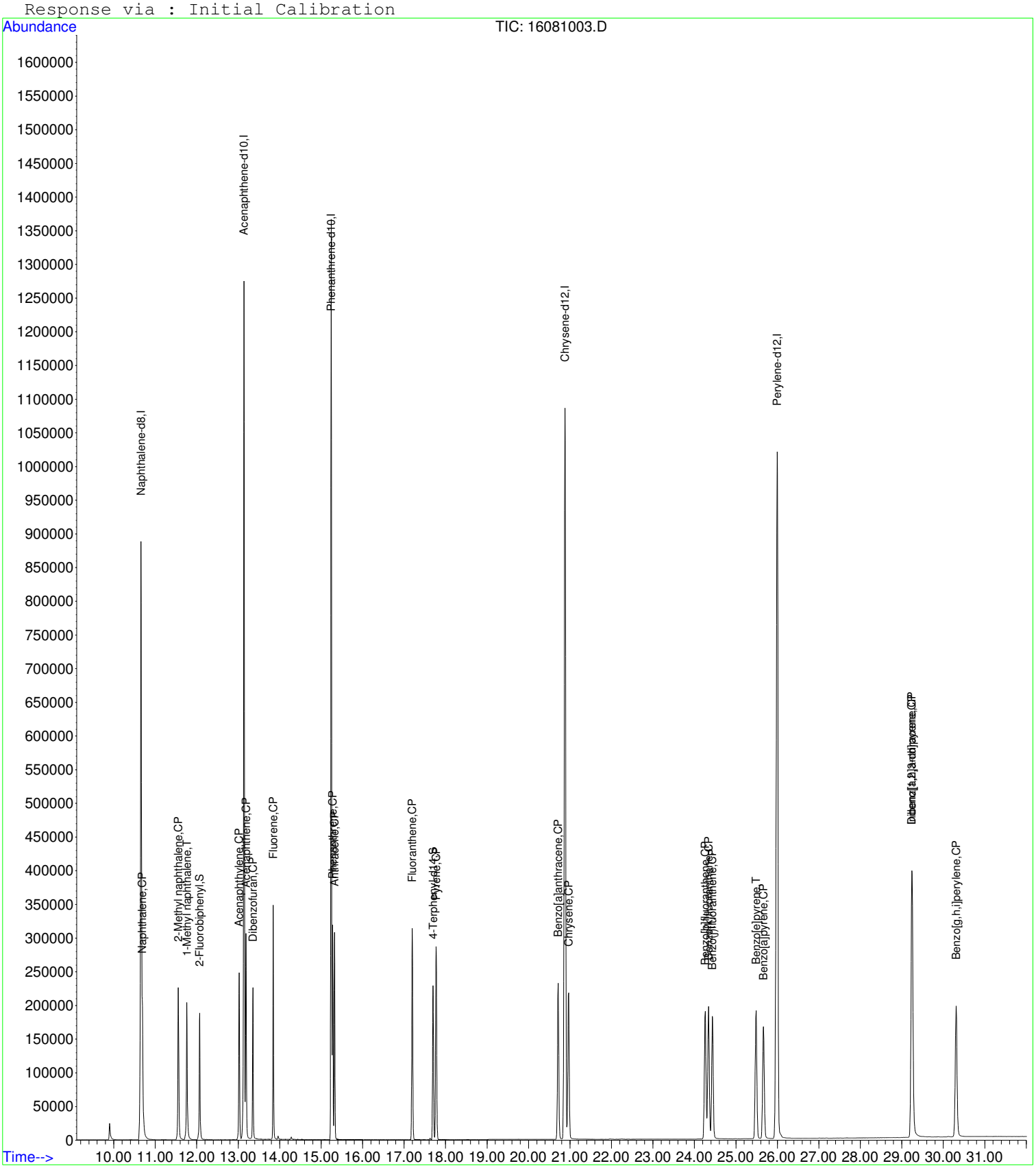
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1516205	4000.00	ug/kg	108
5) Acenaphthene-d10	13.14	164	763777	4000.00	ug/kg	127
11) Phenanthrene-d10	15.24	188	1559640	4000.00	ug/kg	98
17) Chrysene-d12	20.88	240	1928074	4000.00	ug/kg	105
20) Perylene-d12	26.00	264	2048532	4000.00	ug/kg	106
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	208265	781.73	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.54%#			
16) 4-Terphenyl-d14	17.70	244	325935	885.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.14%#			
Target Compounds						Qvalue
2) Naphthalene	10.69	128	227263	658.78	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	165412	739.64	ug/kg	97
4) 1-Methyl naphthalene	11.76	142	148810	751.22	ug/kg	97
6) Dibenzofuran	13.35	168	224602	726.65	ug/kg	99
8) Acenaphthylene	13.02	152	249801	738.55	ug/kg	100
9) Acenaphthene	13.19	154	149271	762.02	ug/kg	100
10) Fluorene	13.85	166	190770	774.74	ug/kg	98
12) Phenanthrene	15.28	178	286347	774.40	ug/kg	99
13) Anthracene	15.32	178	282663	726.49	ug/kg	100
14) Fluoranthene	17.20	202	336081	766.95	ug/kg	99
15) Pyrene	17.77	202	337479	759.53	ug/kg	99
18) Benzo[a]anthracene	20.71	228	346704	797.80	ug/kg	99
19) Chrysene	20.97	228	325591	778.78	ug/kg	99
21) Benzo[b]fluoranthene	24.26	252	380859	805.34	ug/kg	99
22) Benzo[k]fluoranthene	24.34	252	355313	818.97	ug/kg	99
23) Benzo(j)fluoranthene	24.43	252	345676	829.08	ug/kg	100
24) Benzo[e]pyrene	25.49	252	376836	821.11	ug/kg	98
25) Benzo[a]pyrene	25.67	252	343376	751.47	ug/kg	99
26) Dibenz[a,h]anthracene	29.24	278	386800	874.76	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.25	276	465349	886.85	ug/kg	99
28) Benzo[g,h,i]perylene	30.31	276	390668	888.92	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081003.D Vial: 3
Acq On : 10 Aug 2016 7:44 am Operator: DEW
Sample : LCS-76545 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:06 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081004.D Vial: 4
Acq On : 10 Aug 2016 8:24 am Operator: DEW
Sample : MB-76545 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:06 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

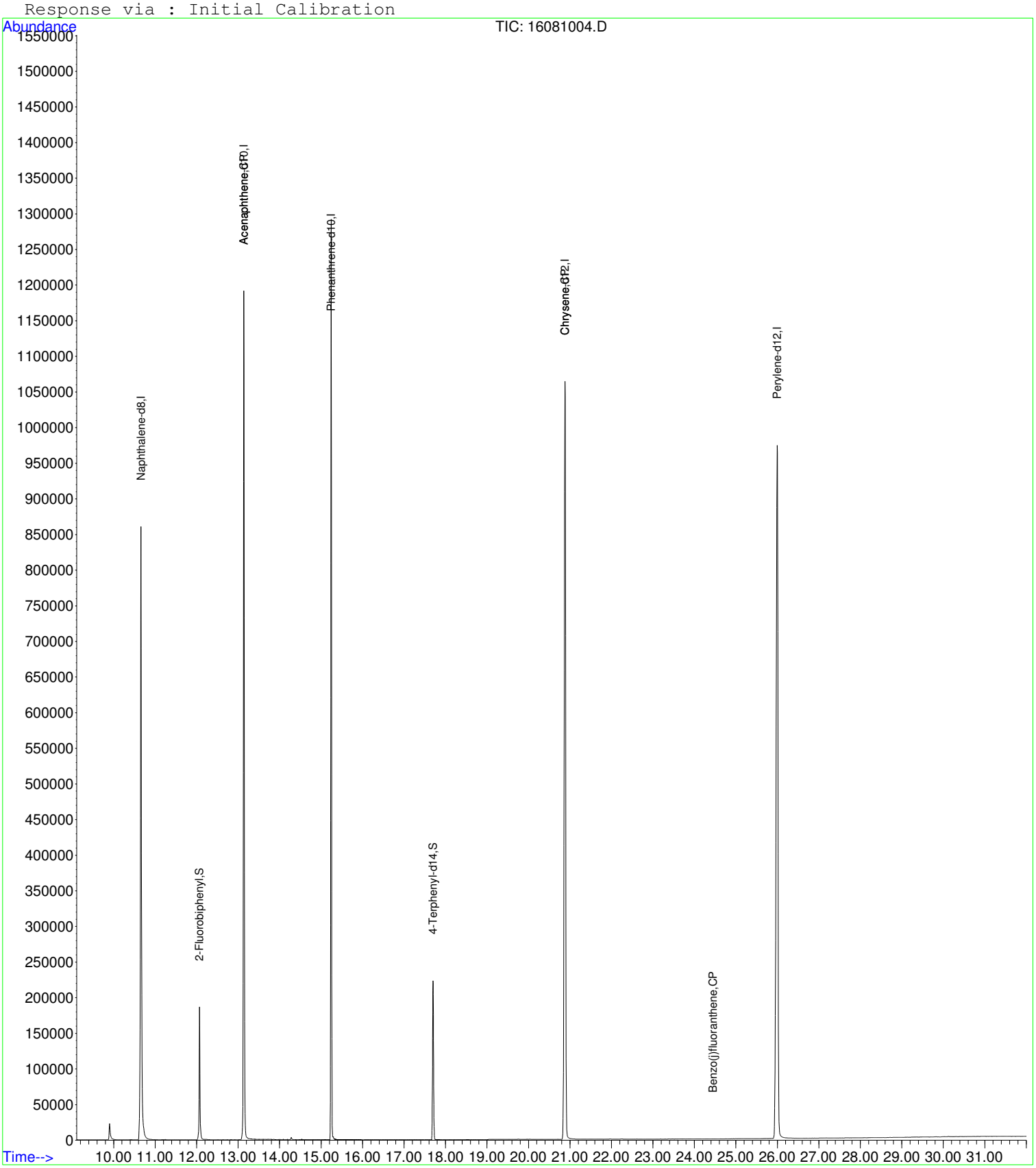
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1465167	4000.00	ug/kg	104
5) Acenaphthene-d10	13.14	164	746211	4000.00	ug/kg	124
11) Phenanthrene-d10	15.24	188	1501777	4000.00	ug/kg	94
17) Chrysene-d12	20.88	240	1880963	4000.00	ug/kg	103
20) Perylene-d12	25.99	264	2000737	4000.00	ug/kg	104
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	203770	782.86	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.57%#			
16) 4-Terphenyl-d14	17.70	244	315319	889.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.24%#			
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2564	13.40	ug/kg#	10
19) Chrysene	20.88	228	4060	9.95	ug/kg	70
23) Benzo(j)fluoranthene	24.45	252	136	0.33	ug/kg	74

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081004.D Vial: 4
Acq On : 10 Aug 2016 8:24 am Operator: DEW
Sample : MB-76545 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:06 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration



444

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081005.D Vial: 5
Acq On : 10 Aug 2016 9:04 am Operator: DEW
Sample : 1607294-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:15 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

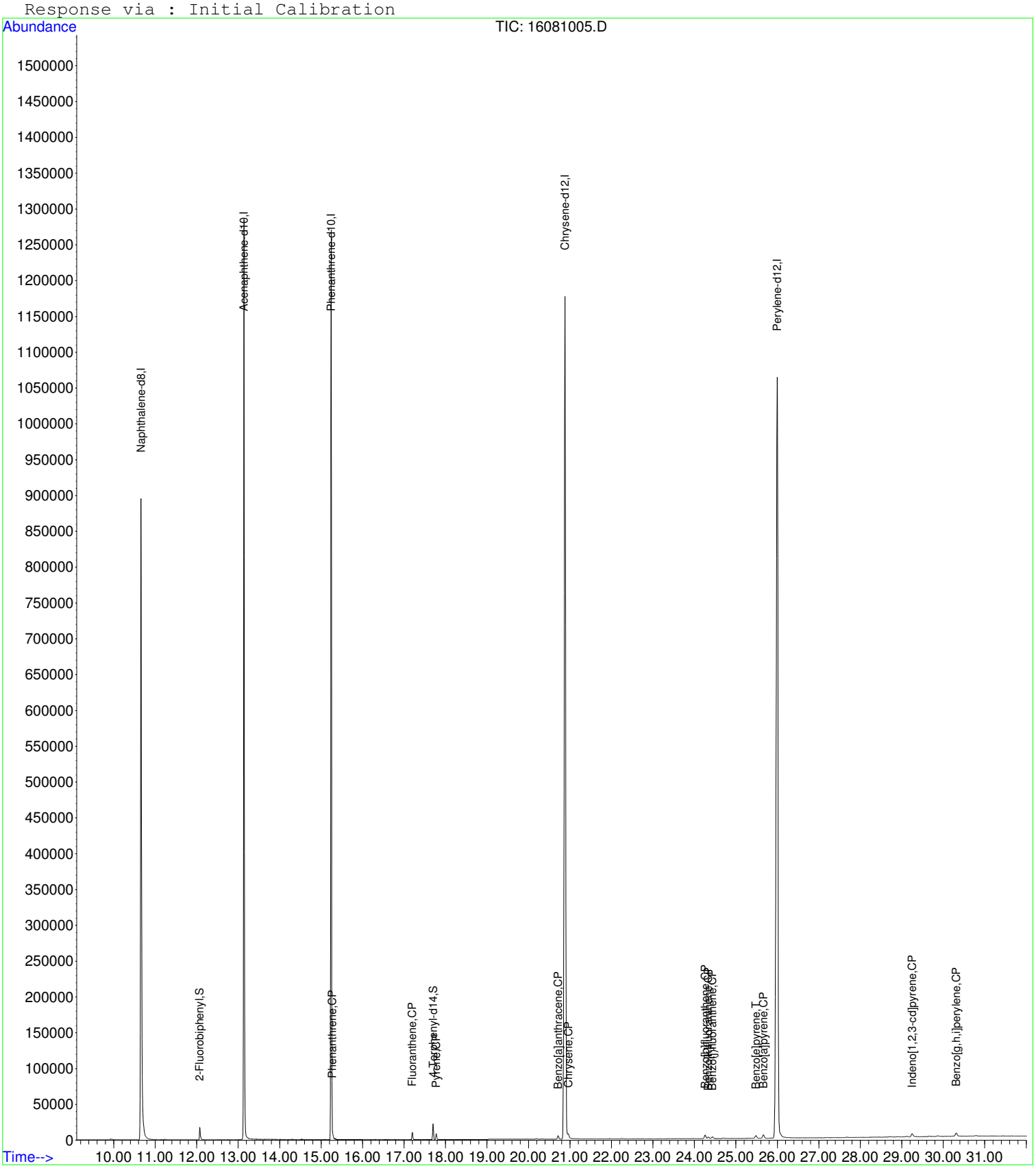
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1426706	4000.00	ug/kg	102
5) Acenaphthene-d10	13.14	164	772178	4000.00	ug/kg	129
11) Phenanthrene-d10	15.24	188	1478541	4000.00	ug/kg	93
17) Chrysene-d12	20.88	240	2050744	4000.00	ug/kg	112
20) Perylene-d12	26.00	264	2197302	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	21159	78.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.70	244	30304	86.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.17%#		
Target Compounds						Qvalue
12) Phenanthrene	15.28	178	4468	12.75	ug/kg	99
14) Fluoranthene	17.20	202	11820	28.45	ug/kg	98
15) Pyrene	17.78	202	10513	24.96	ug/kg	97
18) Benzo[a]anthracene	20.71	228	7541	16.31	ug/kg	99
19) Chrysene	20.96	228	8827	19.85	ug/kg	98
21) Benzo[b]fluoranthene	24.26	252	10347	20.40	ug/kg	96
22) Benzo[k]fluoranthene	24.34	252	4759	10.23	ug/kg	95
23) Benzo(j)fluoranthene	24.43	252	4621	10.33	ug/kg	79
24) Benzo[e]pyrene	25.49	252	8310	16.88	ug/kg	96
25) Benzo[a]pyrene	25.67	252	10233	20.88	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.25	276	8460	15.03	ug/kg	94
28) Benzo[g,h,i]perylene	30.31	276	9811	20.81	ug/kg	97

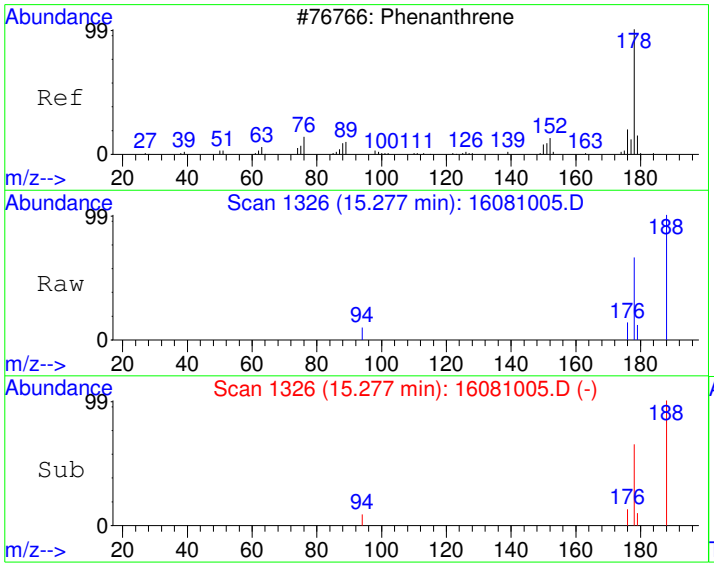
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081005.D Vial: 5
Acq On : 10 Aug 2016 9:04 am Operator: DEW
Sample : 1607294-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:15 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

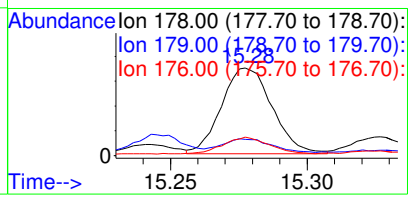


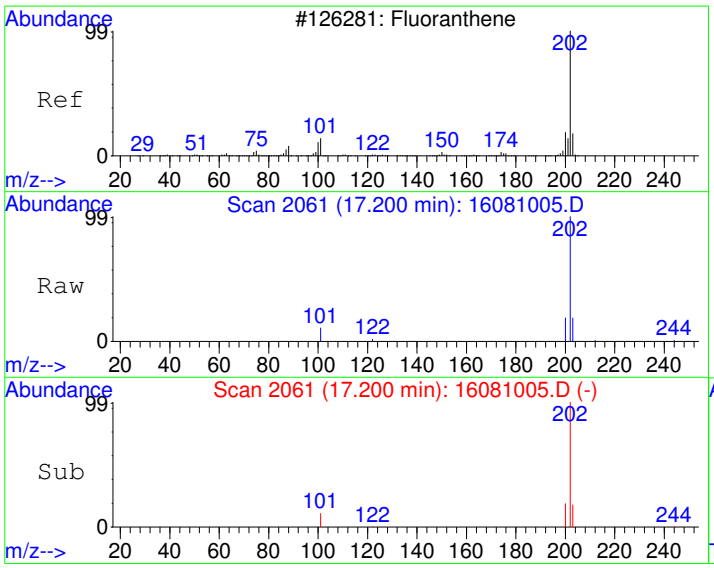


#12
Phenanthrene
Concen: 12.75 ug/kg
RT: 15.28 min Scan# 1326
Delta R.T. -0.00 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:178 Resp: 4468

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.7
176	19.7	0.0	48.7

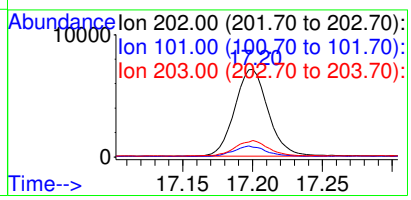


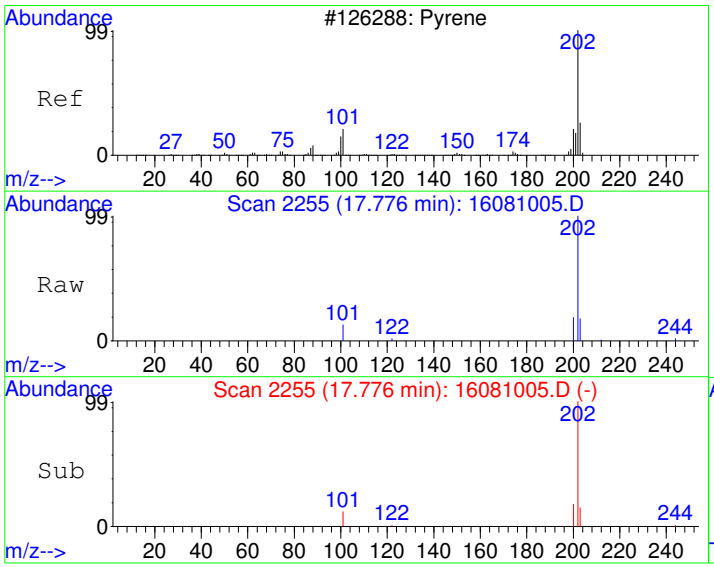


#14
Fluoranthene
Concen: 28.45 ug/kg
RT: 17.20 min Scan# 2061
Delta R.T. 0.00 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:202 Resp: 11820

Ion	Ratio	Lower	Upper
202	100		
101	10.5	0.0	42.1
203	17.7	0.0	47.9

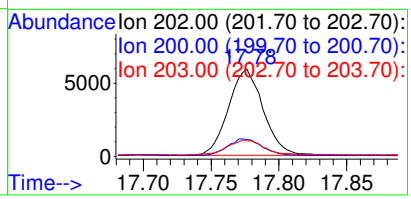


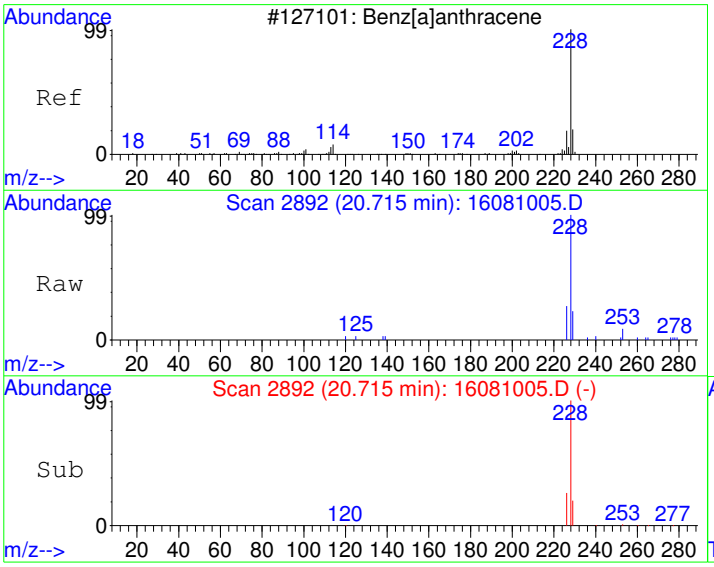


#15
Pyrene
Concen: 24.96 ug/kg
RT: 17.78 min Scan# 2255
Delta R.T. 0.00 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:202 Resp: 10513

Ion	Ratio	Lower	Upper
202	100		
200	18.5	0.0	49.7
203	16.2	0.0	47.8

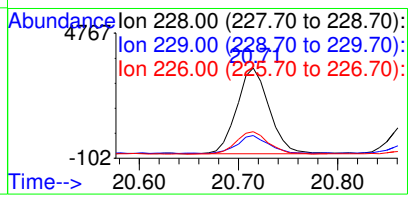


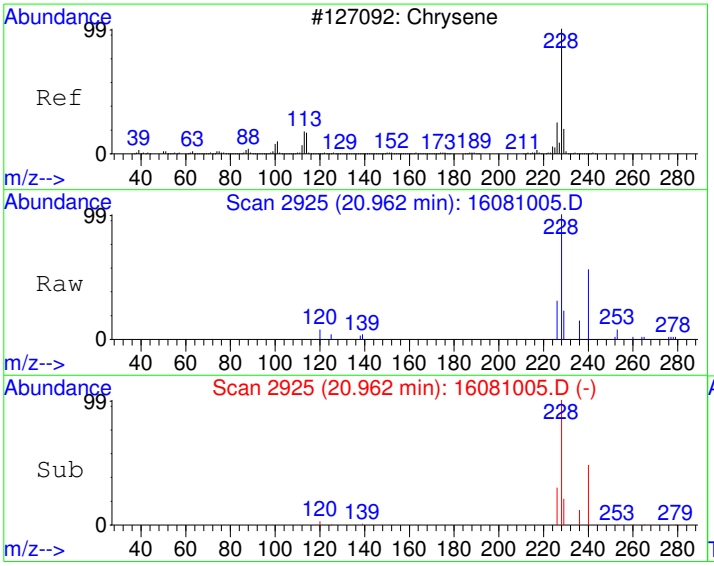


#18
Benzo[a]anthracene
Concen: 16.31 ug/kg
RT: 20.71 min Scan# 2892
Delta R.T. -0.01 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:228 Resp: 7541

Ion	Ratio	Lower	Upper
228	100		
229	20.7	0.0	49.8
226	26.2	0.0	55.8

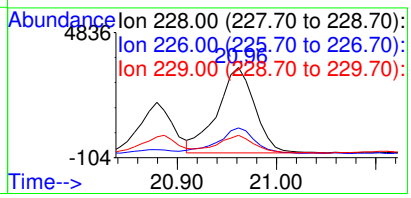


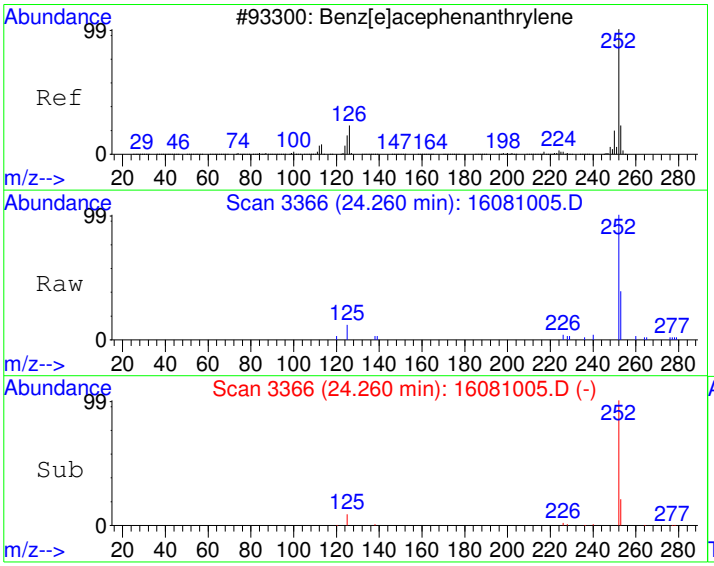


#19
Chrysene
Concen: 19.85 ug/kg
RT: 20.96 min Scan# 2925
Delta R.T. -0.01 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:228 Resp: 8827

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	58.1
229	20.9	0.0	50.0

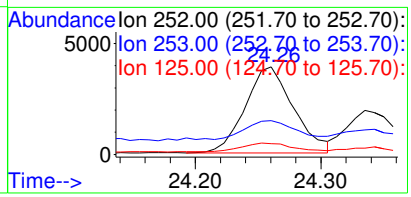


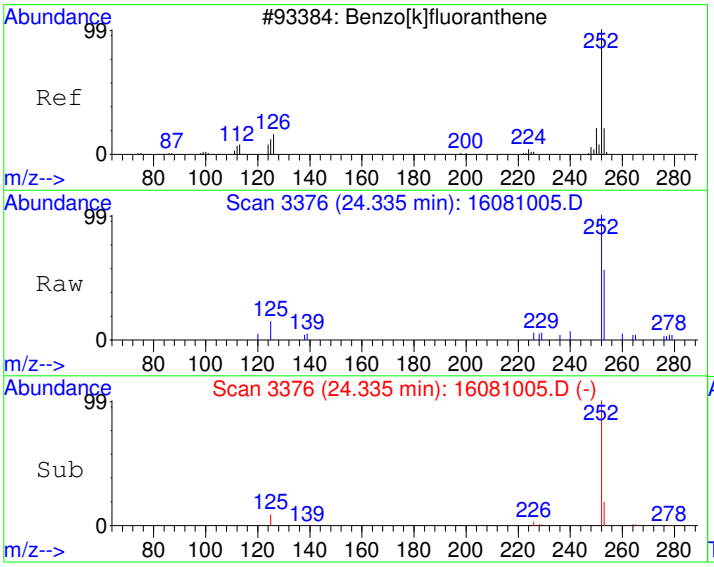


#21
Benzo[b]fluoranthene
Concen: 20.40 ug/kg
RT: 24.26 min Scan# 3366
Delta R.T. -0.01 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:252 Resp: 10347

Ion	Ratio	Lower	Upper
252	100		
253	20.0	0.0	52.0
125	9.4	0.0	40.6

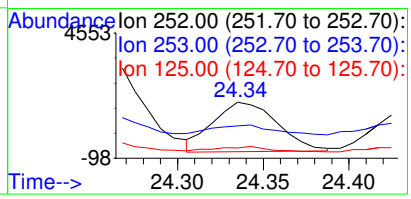


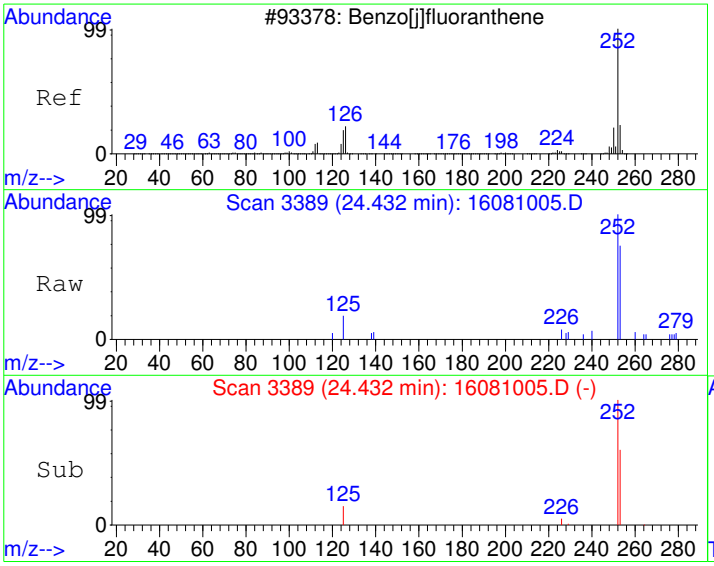


#22
Benzo[k]fluoranthene
Concen: 10.23 ug/kg
RT: 24.34 min Scan# 3376
Delta R.T. -0.02 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:252 Resp: 4759

Ion	Ratio	Lower	Upper
252	100		
253	19.5	2.2	42.2
125	8.6	0.0	30.3

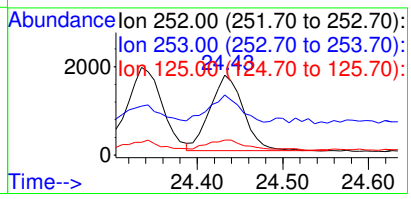


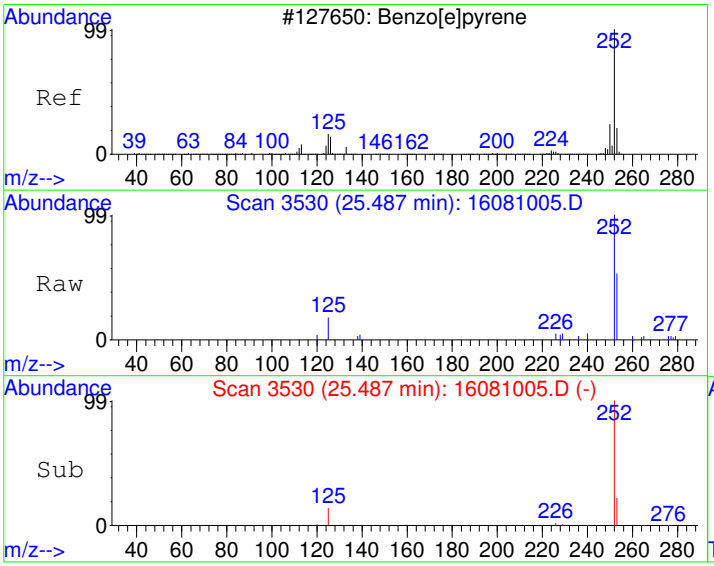


#23
Benzo(j)fluoranthene
Concen: 10.33 ug/kg
RT: 24.43 min Scan# 3389
Delta R.T. -0.02 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:252 Resp: 4621

Ion	Ratio	Lower	Upper
252	100		
253	37.0	2.2	42.2
125	12.4	0.0	34.4

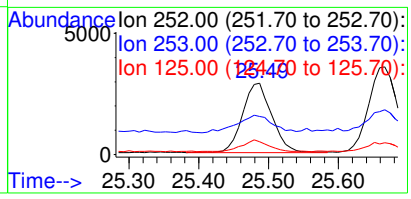


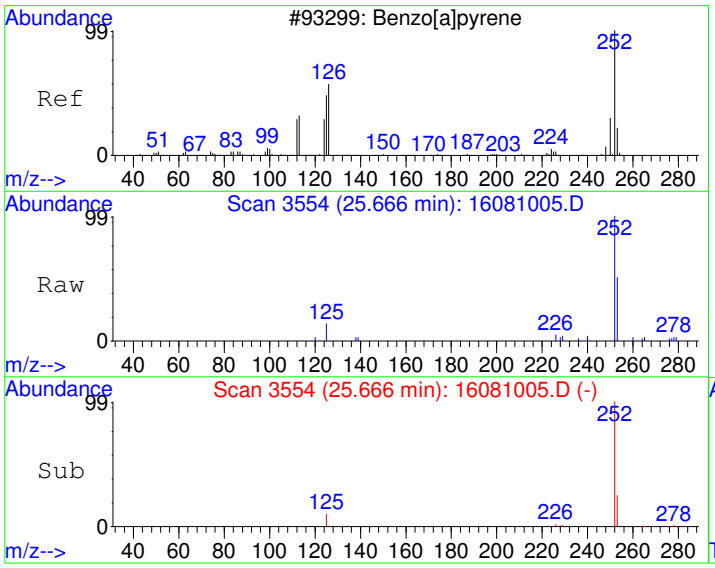


#24
Benzo[e]pyrene
Concen: 16.88 ug/kg
RT: 25.49 min Scan# 3530
Delta R.T. -0.01 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:252 Resp: 8310

Ion	Ratio	Lower	Upper
252	100		
253	20.2	2.2	42.2
125	13.9	0.0	35.7

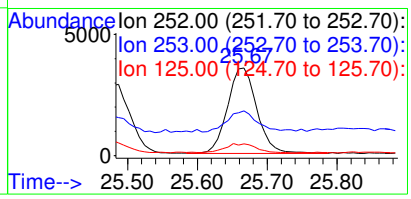


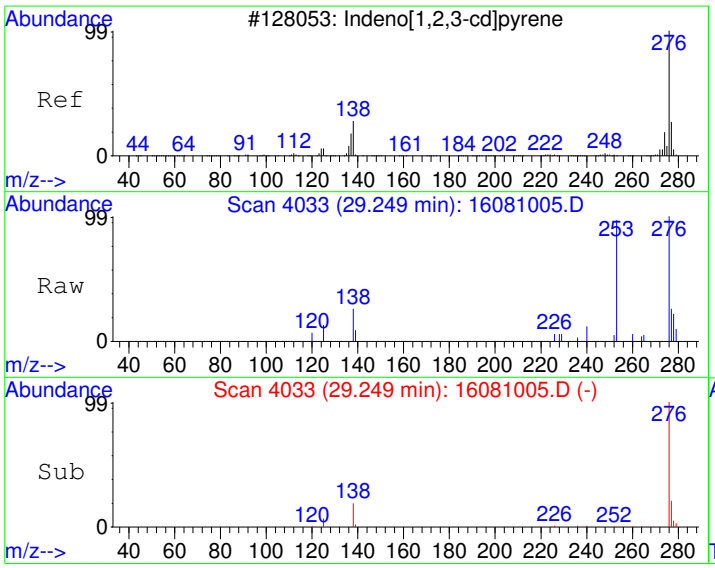


#25
Benzo[a]pyrene
Concen: 20.88 ug/kg
RT: 25.67 min Scan# 3554
Delta R.T. -0.01 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:252 Resp: 10233

Ion	Ratio	Lower	Upper
252	100		
253	23.9	2.0	42.0
125	10.4	0.0	31.6

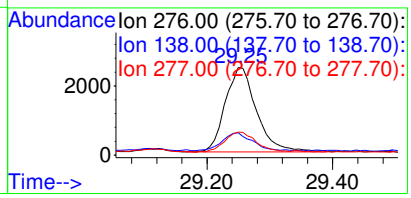


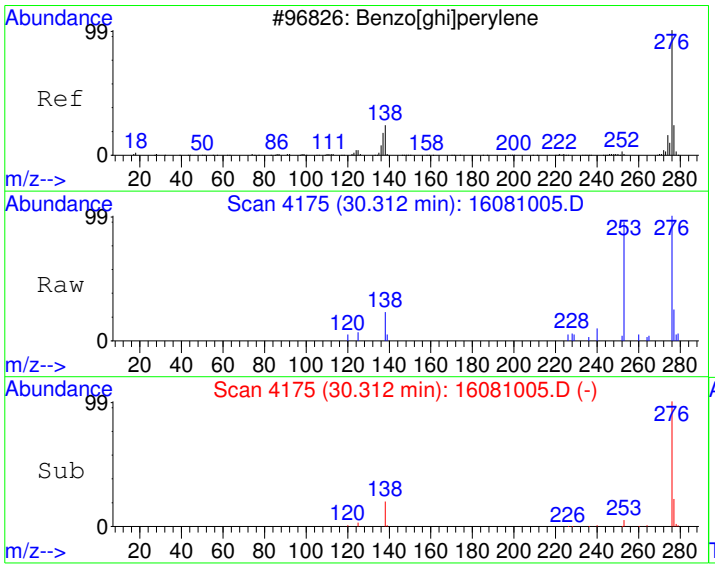


#27
Indeno[1,2,3-cd]pyrene
Concen: 15.03 ug/kg
RT: 29.25 min Scan# 4033
Delta R.T. -0.02 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:276 Resp: 8460

Ion	Ratio	Lower	Upper
276	100		
138	21.0	4.8	44.8
277	23.1	5.6	45.6

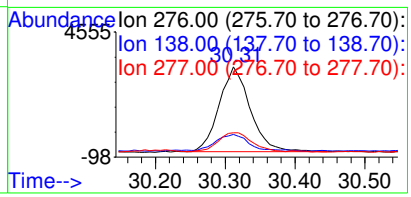




#28
Benzo[g,h,i]perylene
Concen: 20.81 ug/kg
RT: 30.31 min Scan# 4175
Delta R.T. -0.01 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:04 am

Tgt Ion:276 Resp: 9811

Ion	Ratio	Lower	Upper
276	100		
138	19.2	0.0	38.1
277	22.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081006.D Vial: 6
Acq On : 10 Aug 2016 9:44 am Operator: DEW
Sample : 1607294-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

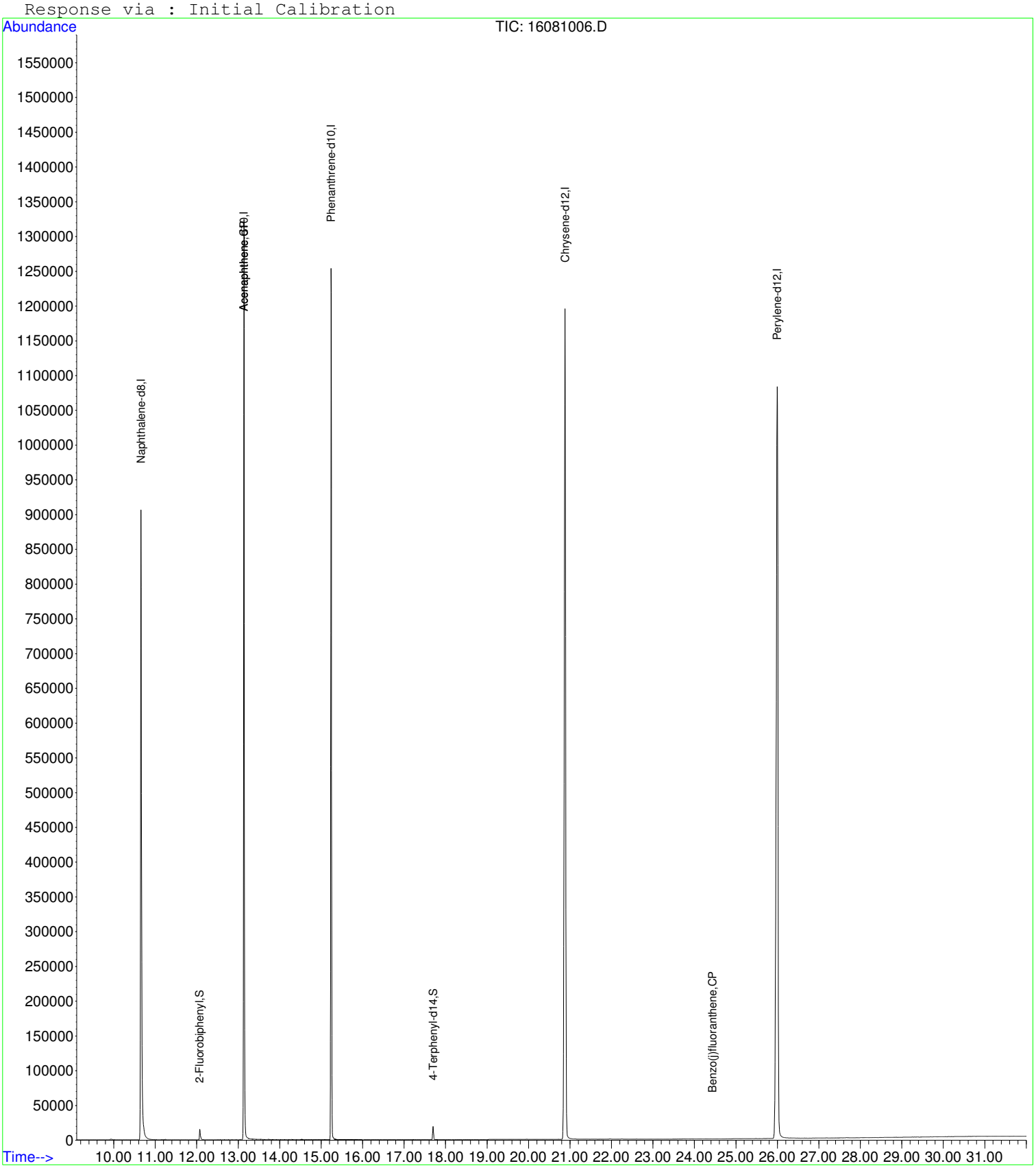
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1424095	4000.00	ug/kg	101
5) Acenaphthene-d10	13.14	164	775078	4000.00	ug/kg	129
11) Phenanthrene-d10	15.24	188	1428301	4000.00	ug/kg	90
17) Chrysene-d12	20.88	240	2107363	4000.00	ug/kg	115
20) Perylene-d12	26.00	264	2234427	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	19355	71.59	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.70	244	27415	81.33	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2712	~~13.64~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.43	252	129	0.28	ug/kg#	79

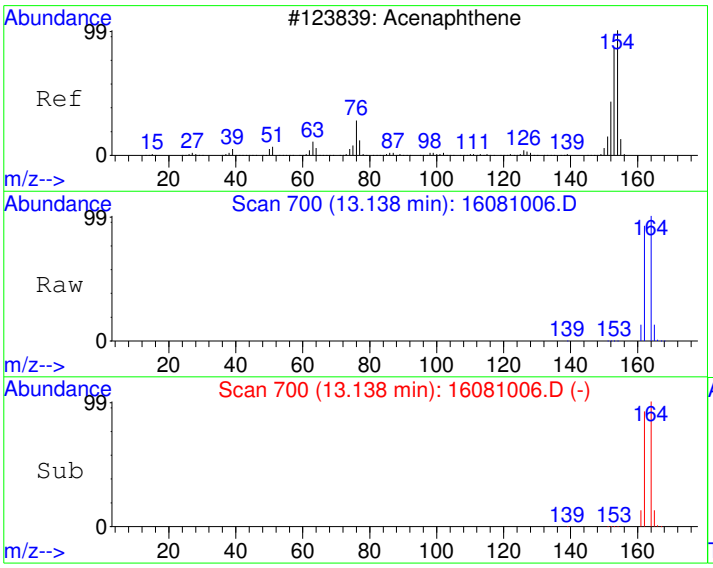
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081006.D Vial: 6
Acq On : 10 Aug 2016 9:44 am Operator: DEW
Sample : 1607294-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

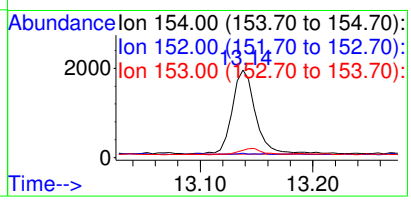


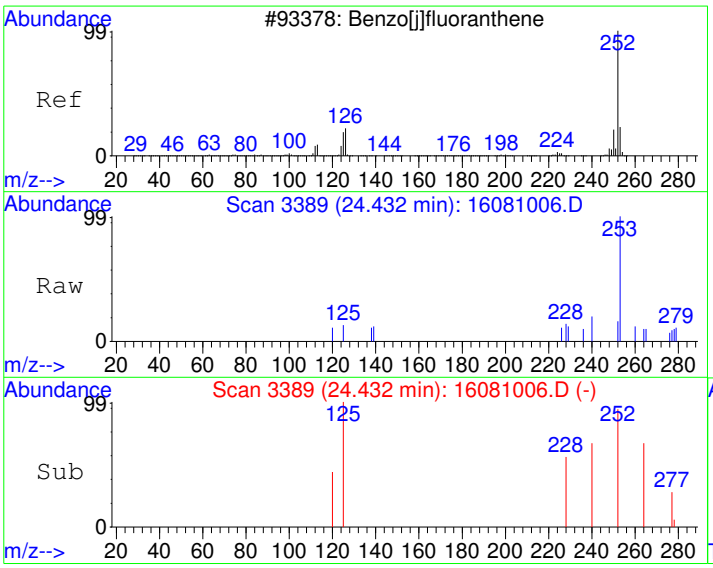


#9
Acenaphthene
Concen: 13.64 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:44 am

Tgt Ion:154 Resp: 2712

Ion	Ratio	Lower	Upper
154	100		
152	1.5	19.1	79.1#
153	4.6	76.2	136.2#

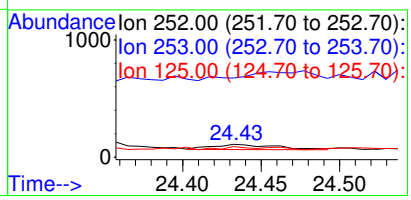




#23
Benzo(j)fluoranthene
Concen: 0.28 ug/kg
RT: 24.43 min Scan# 3389
Delta R.T. -0.02 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:44 am

Tgt Ion:252 Resp: 129

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.2	42.2
125	35.7	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081007.D Vial: 7
Acq On : 10 Aug 2016 10:25 am Operator: DEW
Sample : 1607294-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

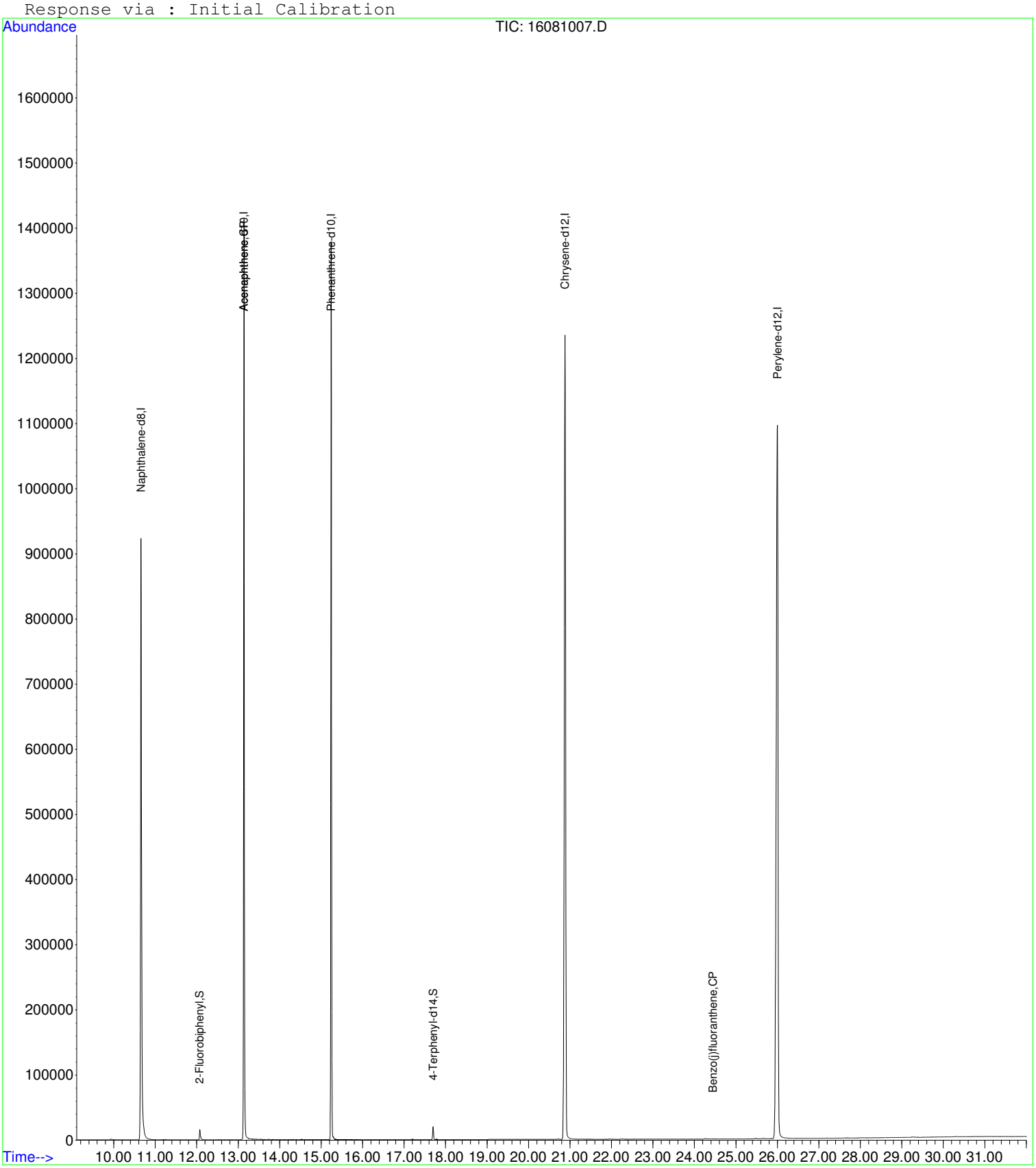
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1518780	4000.00	ug/kg	108
5) Acenaphthene-d10	13.14	164	832627	4000.00	ug/kg	139
11) Phenanthrene-d10	15.24	188	1579800	4000.00	ug/kg	99
17) Chrysene-d12	20.88	240	2126573	4000.00	ug/kg	116
20) Perylene-d12	26.00	264	2285724	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20415	70.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
16) 4-Terphenyl-d14	17.70	244	28599	76.71	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2842	13.31	ug/kg#	11
23) Benzo(j)fluoranthene	24.44	252	641	1.38	ug/kg#	68

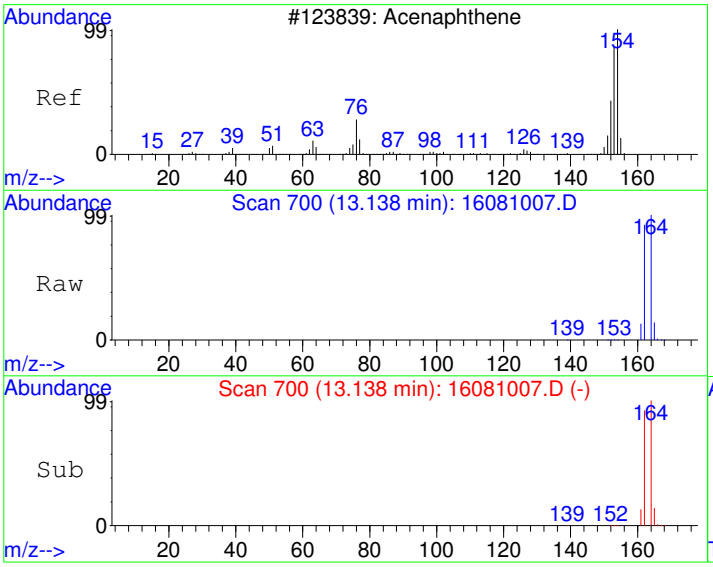
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081007.D Vial: 7
Acq On : 10 Aug 2016 10:25 am Operator: DEW
Sample : 1607294-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

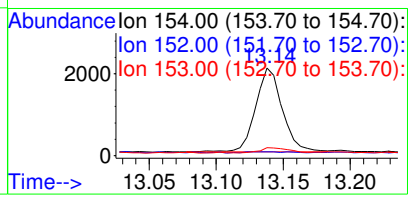


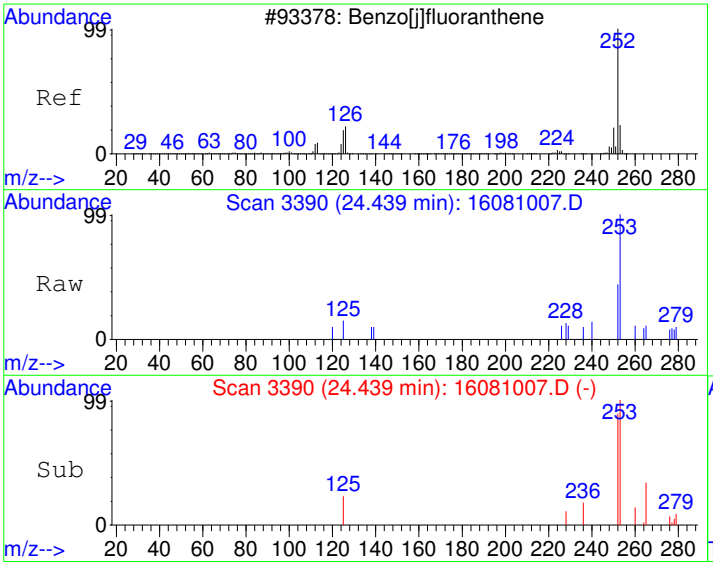


#9
Acenaphthene
Concen: 13.31 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081007.D
Acq: 10 Aug 2016 10:25 am

Tgt Ion:154 Resp: 2842

Ion	Ratio	Lower	Upper
154	100		
152	1.4	19.1	79.1#
153	5.6	76.2	136.2#

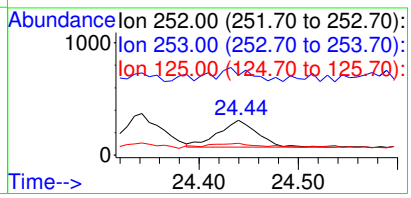




#23
Benzo(j)fluoranthene
Concen: 1.38 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081007.D
Acq: 10 Aug 2016 10:25 am

Tgt Ion:252 Resp: 641

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	10.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081008.D Vial: 8
Acq On : 10 Aug 2016 11:05 am Operator: DEW
Sample : 1607294-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

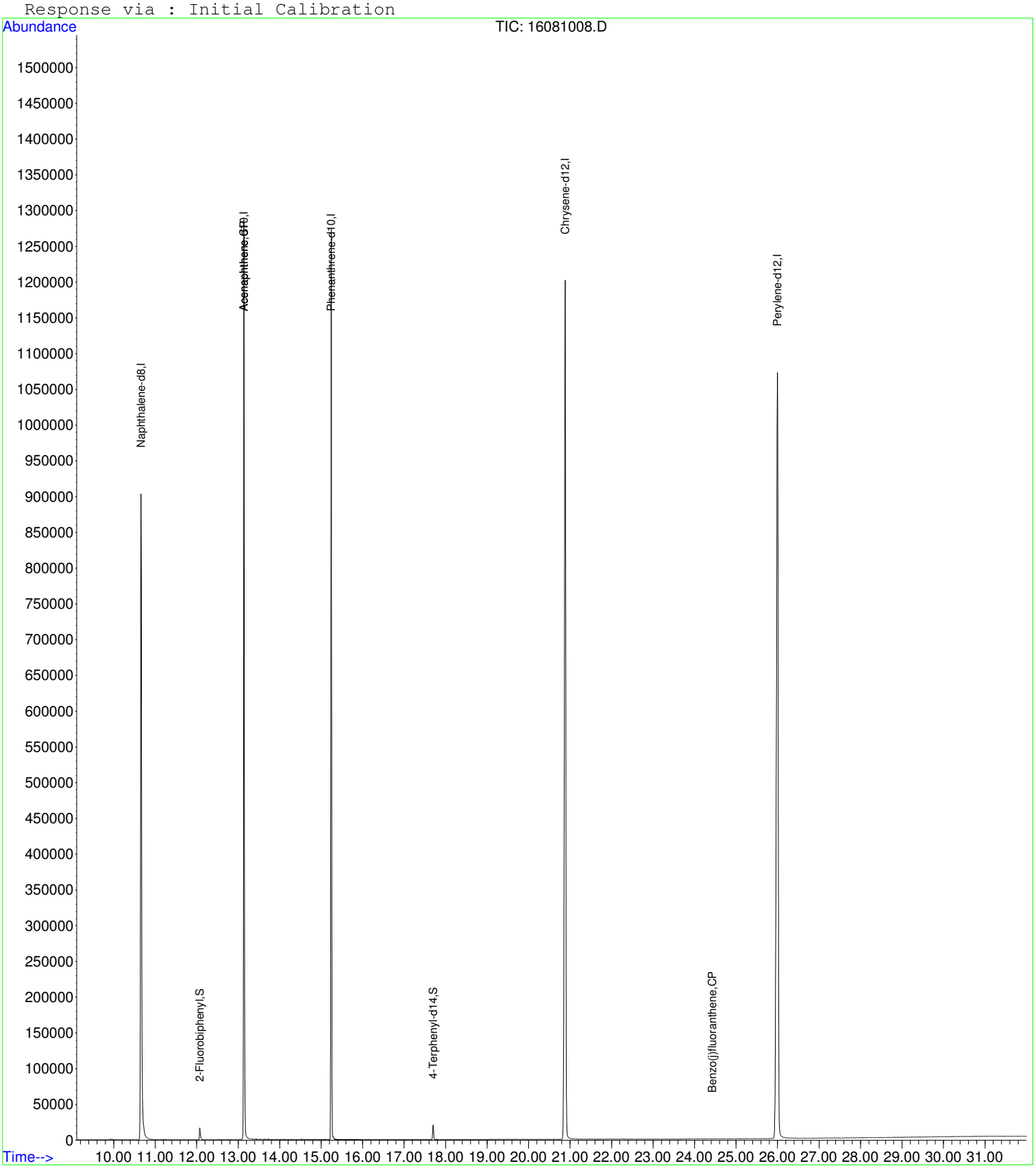
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1451125	4000.00	ug/kg	103
5) Acenaphthene-d10	13.14	164	784355	4000.00	ug/kg	131
11) Phenanthrene-d10	15.24	188	1476083	4000.00	ug/kg	93
17) Chrysene-d12	20.88	240	2045064	4000.00	ug/kg	111
20) Perylene-d12	26.00	264	2205613	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	20699	75.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#		
16) 4-Terphenyl-d14	17.70	244	29286	84.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2601	~~12.93~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.43	252	134	0.30	ug/kg#	1

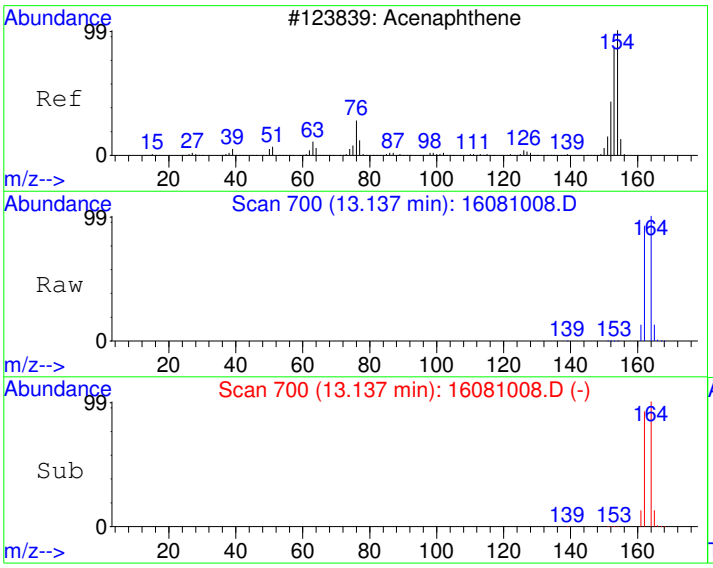
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081008.D Vial: 8
Acq On : 10 Aug 2016 11:05 am Operator: DEW
Sample : 1607294-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

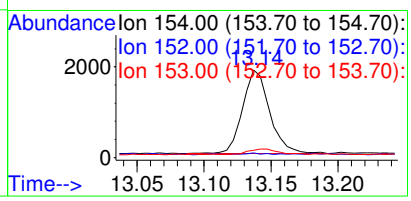


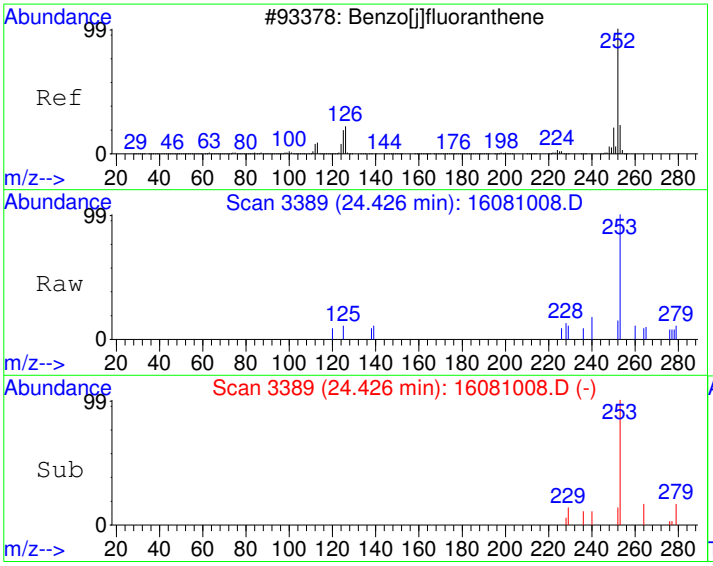


#9
Acenaphthene
Concen: 12.93 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.06 min
Lab File: 16081008.D
Acq: 10 Aug 2016 11:05 am

Tgt Ion:154 Resp: 2601

Ion	Ratio	Lower	Upper
154	100		
152	1.5	19.1	79.1#
153	4.8	76.2	136.2#

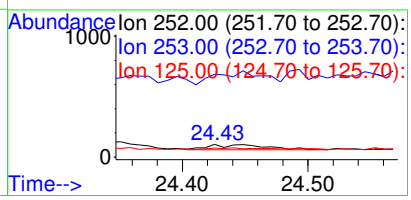




#23
Benzo(j)fluoranthene
Concen: 0.30 ug/kg
RT: 24.43 min Scan# 3389
Delta R.T. -0.03 min
Lab File: 16081008.D
Acq: 10 Aug 2016 11:05 am

Tgt Ion:252 Resp: 134

Ion	Ratio	Lower	Upper
252	100		
253	93.2	2.2	42.2#
125	25.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081009.D Vial: 9
Acq On : 10 Aug 2016 11:45 am Operator: DEW
Sample : 1607294-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

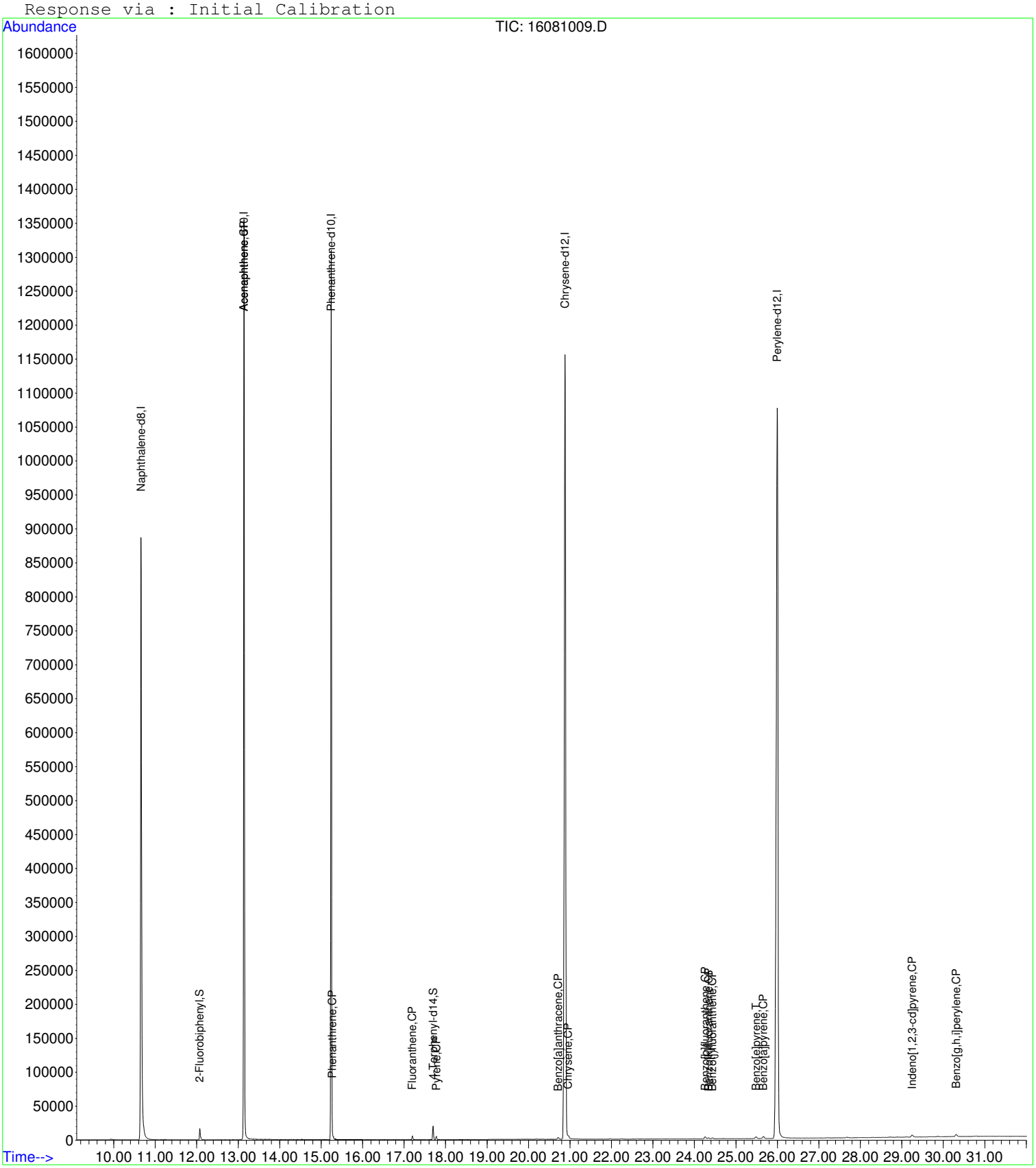
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1471474	4000.00	ug/kg	105
5) Acenaphthene-d10	13.14	164	777817	4000.00	ug/kg	130
11) Phenanthrene-d10	15.24	188	1508439	4000.00	ug/kg	95
17) Chrysene-d12	20.88	240	2044245	4000.00	ug/kg	111
20) Perylene-d12	25.99	264	2200455	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20412	75.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.70	244	29336	82.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2617	13.12	ug/kg#	11
12) Phenanthrene	15.28	178	2220	6.21	ug/kg	98
14) Fluoranthene	17.20	202	6595	15.56	ug/kg	99
15) Pyrene	17.77	202	6123	14.25	ug/kg	98
18) Benzo[a]anthracene	20.71	228	4225	9.17	ug/kg	98
19) Chrysene	20.96	228	5212	11.76	ug/kg	99
21) Benzo[b]fluoranthene	24.26	252	6479	12.75	ug/kg	100
22) Benzo[k]fluoranthene	24.34	252	2982	6.40	ug/kg	90
23) Benzo(j)fluoranthene	24.44	252	2869	6.41	ug/kg	84
24) Benzo[e]pyrene	25.49	252	5732	11.63	ug/kg	97
25) Benzo[a]pyrene	25.67	252	6521	13.29	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.25	276	5598	9.93	ug/kg	97
28) Benzo[g,h,i]perylene	30.31	276	6741	14.28	ug/kg	97

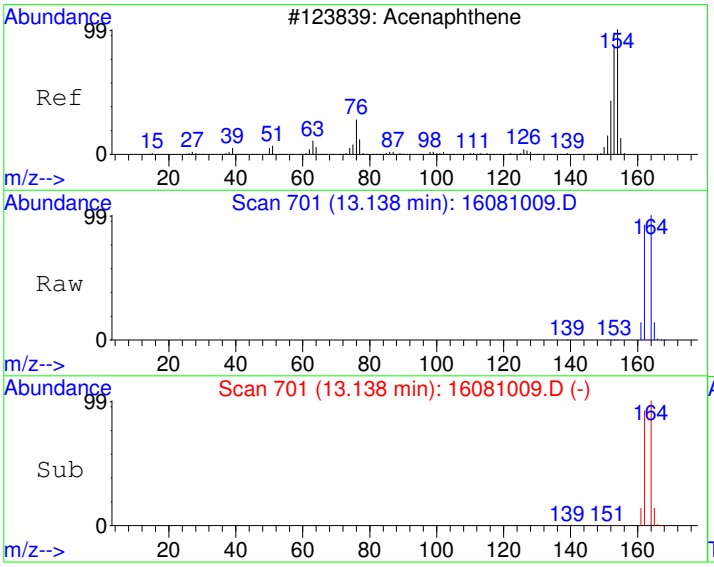
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081009.D Vial: 9
Acq On : 10 Aug 2016 11:45 am Operator: DEW
Sample : 1607294-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

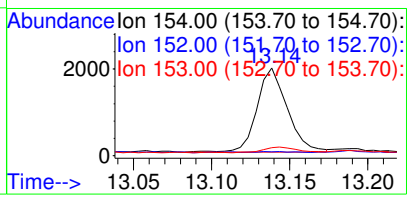


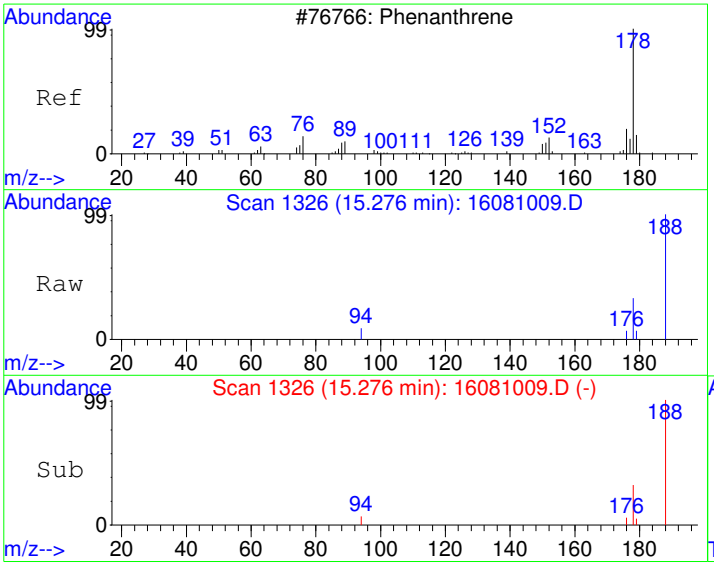


#9
Acenaphthene
Concen: 13.12 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.05 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:154 Resp: 2617

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	5.5	76.2	136.2#

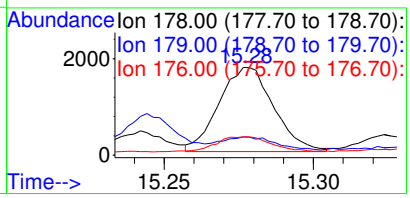


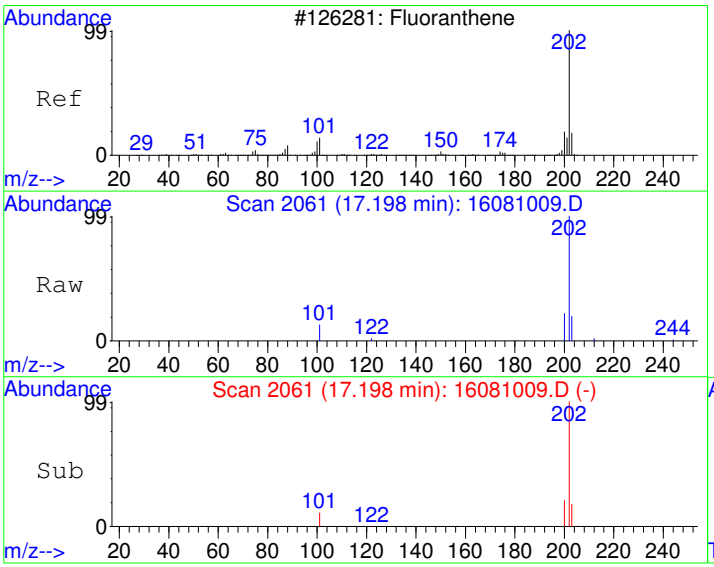


#12
Phenanthrene
Concen: 6.21 ug/kg
RT: 15.28 min Scan# 1326
Delta R.T. -0.00 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:178 Resp: 2220

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.7
176	17.5	0.0	48.7

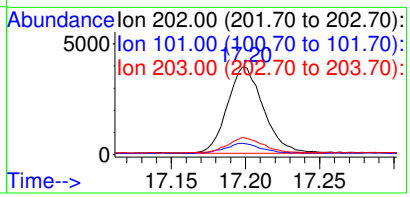


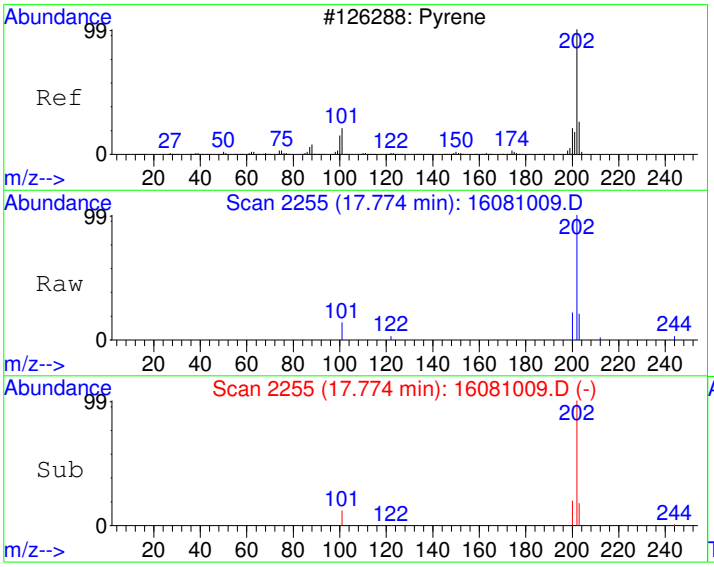


#14
Fluoranthene
Concen: 15.56 ug/kg
RT: 17.20 min Scan# 2061
Delta R.T. -0.00 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:202 Resp: 6595

Ion	Ratio	Lower	Upper
202	100		
101	11.3	0.0	42.1
203	18.0	0.0	47.9

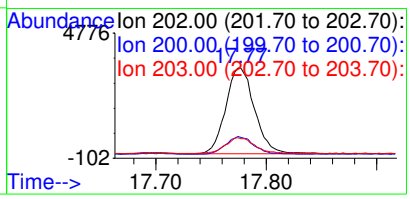


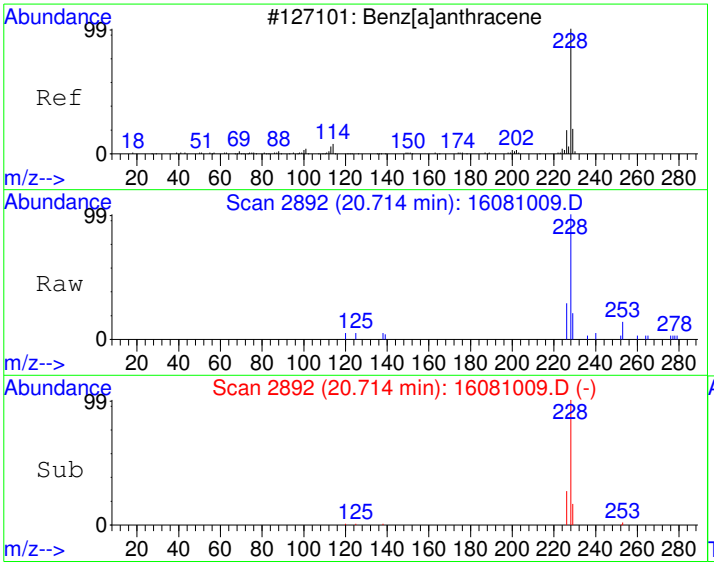


#15
Pyrene
Concen: 14.25 ug/kg
RT: 17.77 min Scan# 2255
Delta R.T. -0.00 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:202 Resp: 6123

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	49.7
203	18.7	0.0	47.8

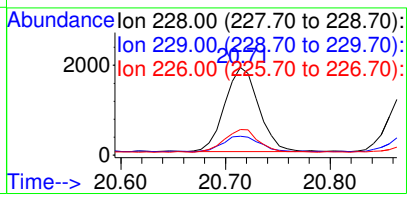


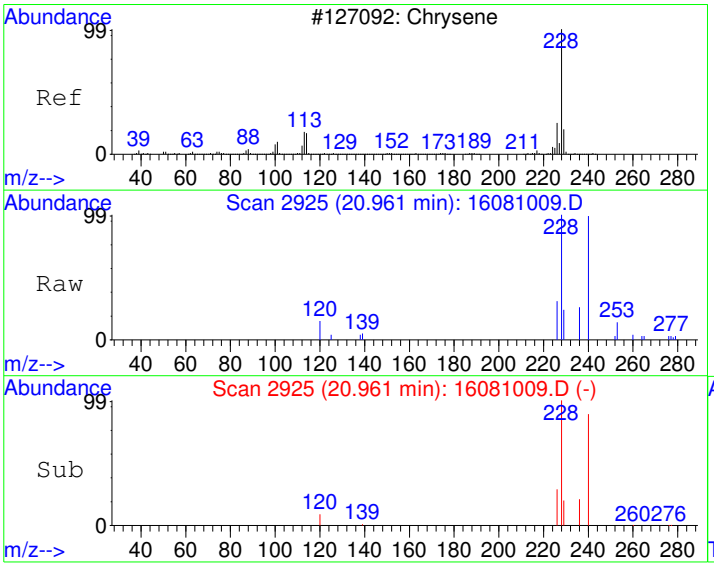


#18
Benzo[a]anthracene
Concen: 9.17 ug/kg
RT: 20.71 min Scan# 2892
Delta R.T. -0.01 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:228 Resp: 4225

Ion	Ratio	Lower	Upper
228	100		
229	18.2	0.0	49.8
226	26.5	0.0	55.8

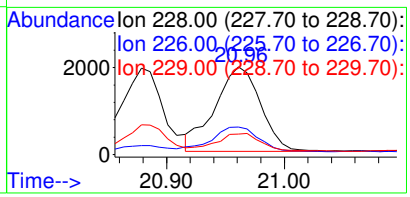


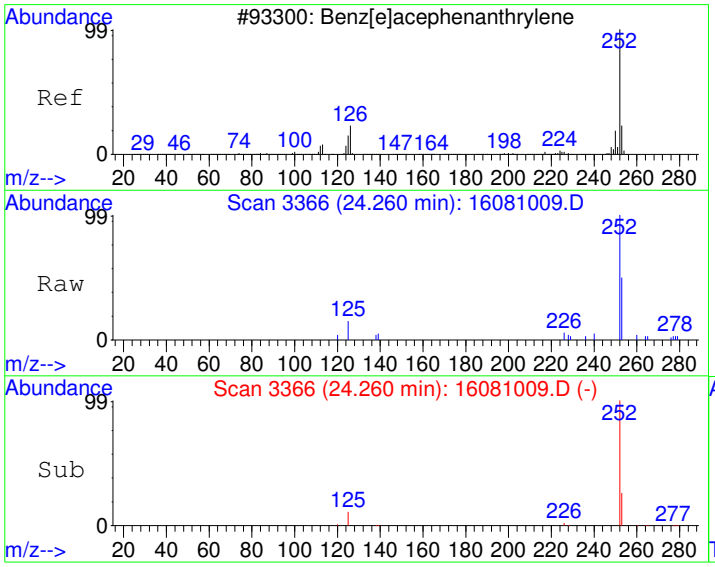


#19
Chrysene
Concen: 11.76 ug/kg
RT: 20.96 min Scan# 2925
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:228 Resp: 5212

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.1
229	20.0	0.0	50.0

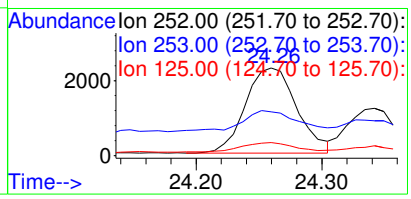


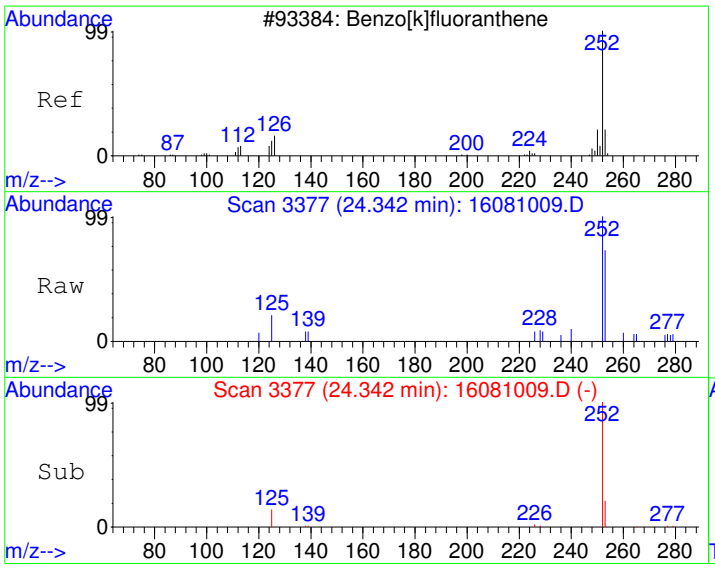


#21
Benzo[b]fluoranthene
Concen: 12.75 ug/kg
RT: 24.26 min Scan# 3366
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:252 Resp: 6479

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	10.8	0.0	40.6

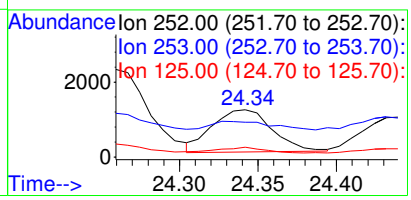


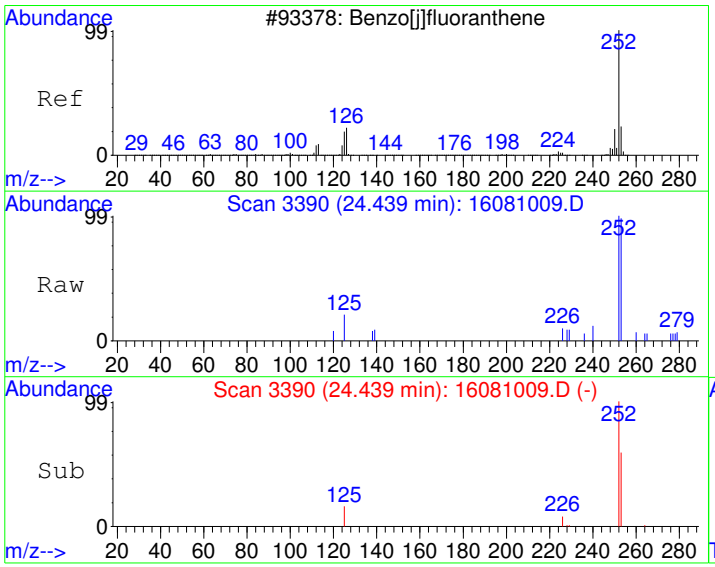


#22
Benzo[k]fluoranthene
Concen: 6.40 ug/kg
RT: 24.34 min Scan# 3377
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:252 Resp: 2982

Ion	Ratio	Lower	Upper
252	100		
253	17.6	2.2	42.2
125	14.4	0.0	30.3

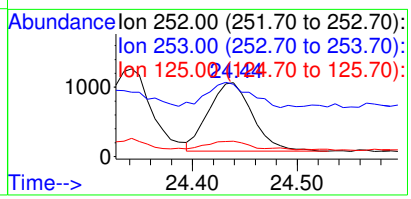


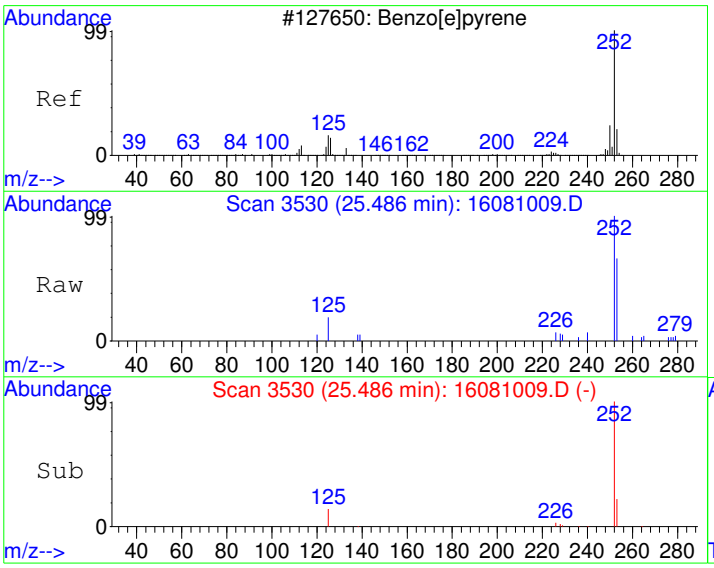


#23
Benzo(j)fluoranthene
Concen: 6.41 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:252 Resp: 2869

Ion	Ratio	Lower	Upper
252	100		
253	33.1	2.2	42.2
125	11.9	0.0	34.4

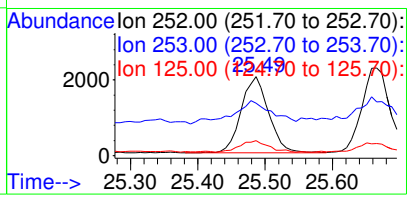


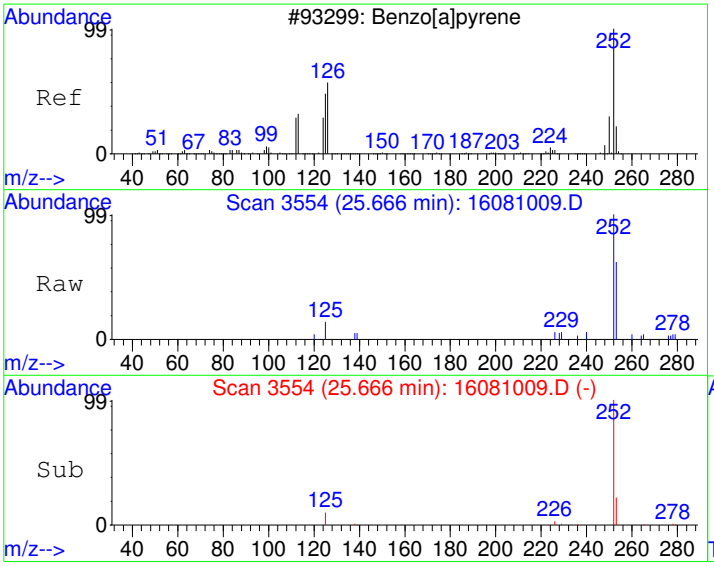


#24
Benzo[e]pyrene
Concen: 11.63 ug/kg
RT: 25.49 min Scan# 3530
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:252 Resp: 5732

Ion	Ratio	Lower	Upper
252	100		
253	24.1	2.2	42.2
125	14.7	0.0	35.7

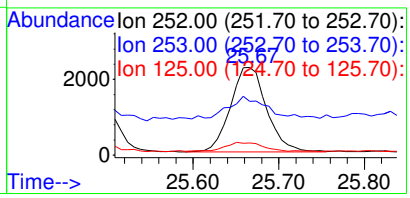


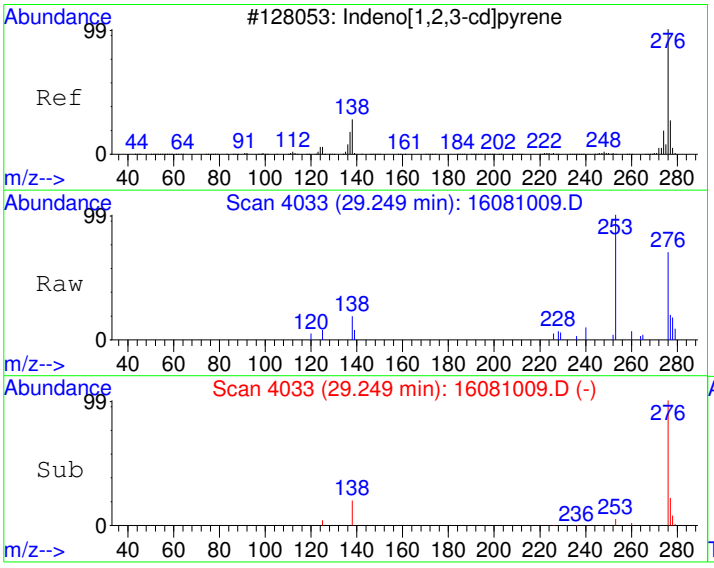


#25
Benzo[a]pyrene
Concen: 13.29 ug/kg
RT: 25.67 min Scan# 3554
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:252 Resp: 6521

Ion	Ratio	Lower	Upper
252	100		
253	19.9	2.0	42.0
125	9.7	0.0	31.6

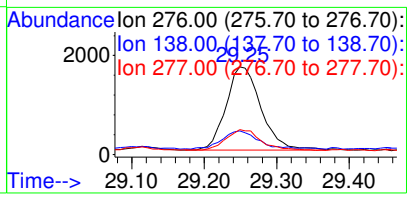


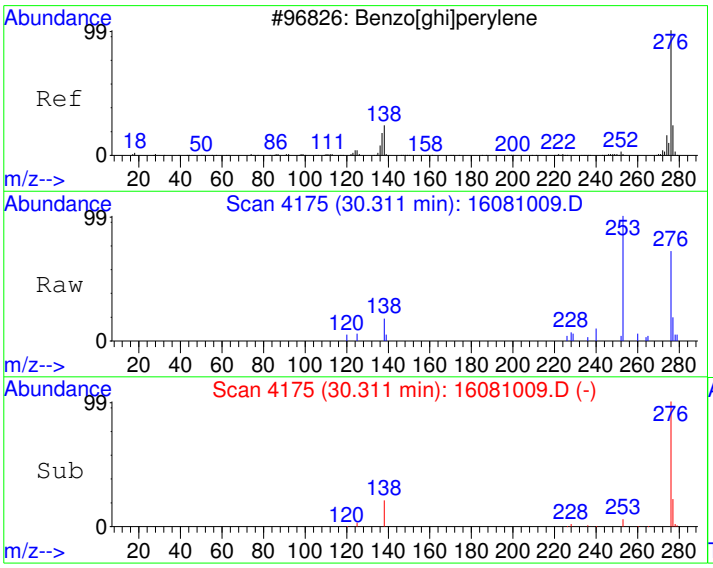


#27
Indeno[1,2,3-cd]pyrene
Concen: 9.93 ug/kg
RT: 29.25 min Scan# 4033
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:276 Resp: 5598

Ion	Ratio	Lower	Upper
276	100		
138	21.9	4.8	44.8
277	25.2	5.6	45.6

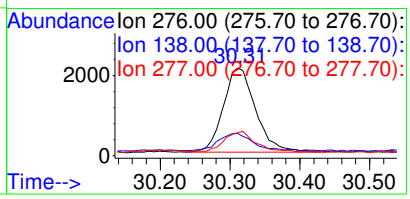




#28
Benzo[g,h,i]perylene
Concen: 14.28 ug/kg
RT: 30.31 min Scan# 4175
Delta R.T. -0.02 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:45 am

Tgt Ion:276 Resp: 6741

Ion	Ratio	Lower	Upper
276	100		
138	20.5	0.0	38.1
277	23.3	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081010.D Vial: 10
Acq On : 10 Aug 2016 12:25 pm Operator: DEW
Sample : 1607294-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

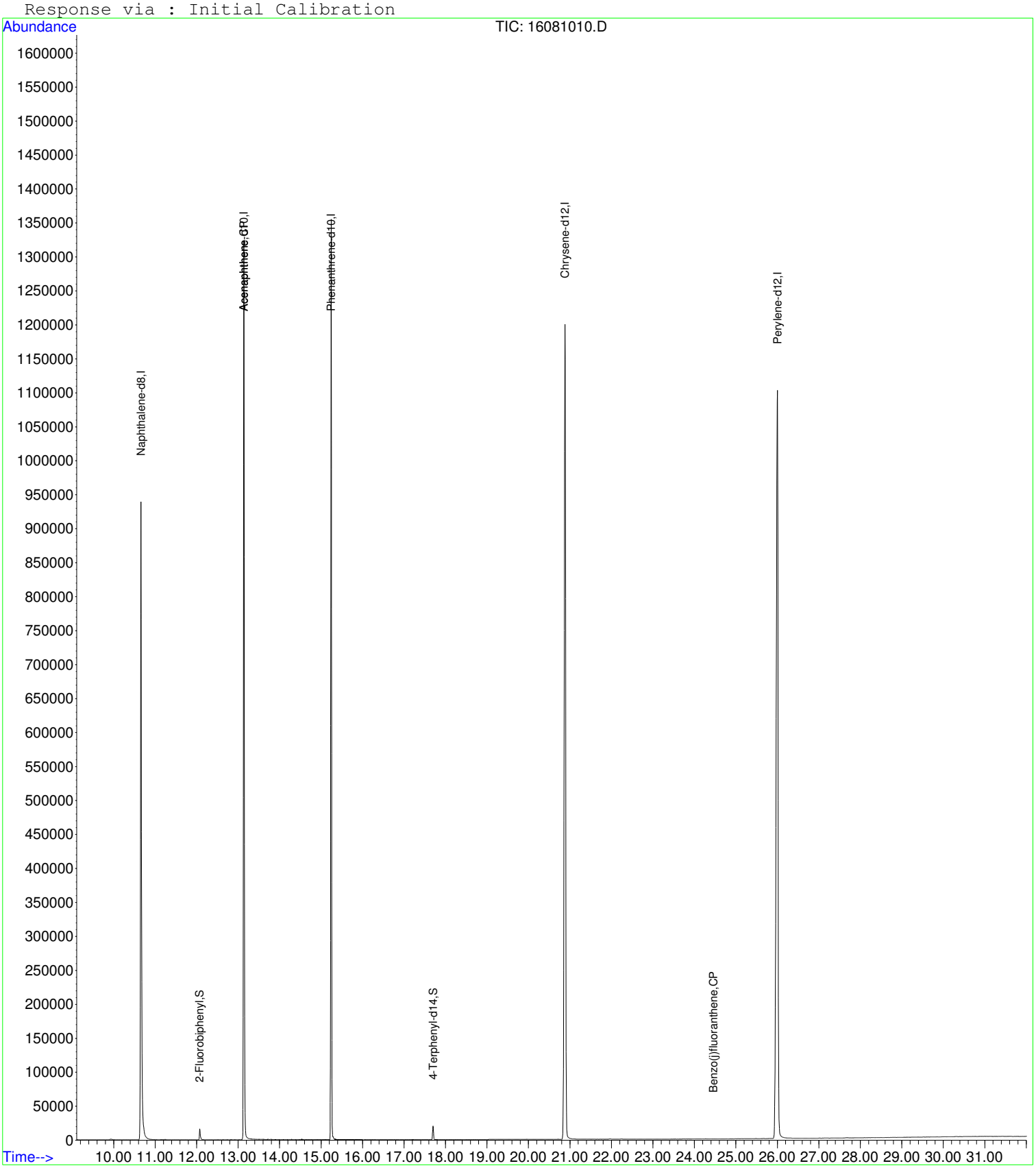
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1481192	4000.00	ug/kg	106
5) Acenaphthene-d10	13.14	164	801584	4000.00	ug/kg	134
11) Phenanthrene-d10	15.24	188	1553253	4000.00	ug/kg	98
17) Chrysene-d12	20.88	240	2112165	4000.00	ug/kg	115
20) Perylene-d12	26.00	264	2264341	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	19714	70.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
16) 4-Terphenyl-d14	17.70	244	28664	78.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2671	~~12.99~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.45	252	192	0.42	ug/kg#	2

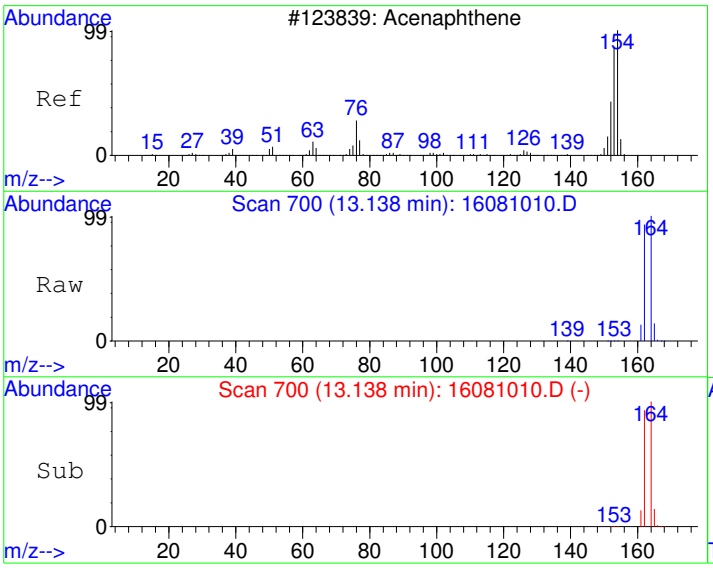
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081010.D Vial: 10
Acq On : 10 Aug 2016 12:25 pm Operator: DEW
Sample : 1607294-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

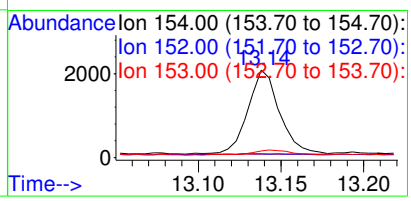


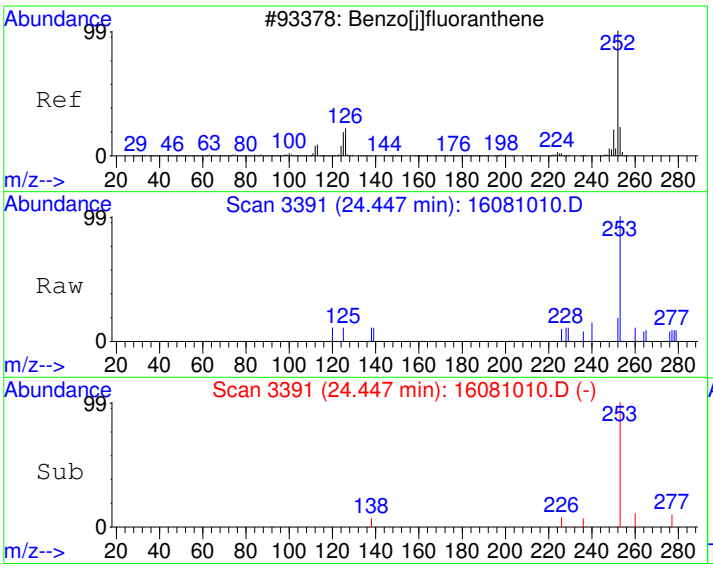


#9
Acenaphthene
Concen: 12.99 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081010.D
Acq: 10 Aug 2016 12:25 pm

Tgt Ion:154 Resp: 2671

Ion	Ratio	Lower	Upper
154	100		
152	0.9	19.1	79.1#
153	4.7	76.2	136.2#

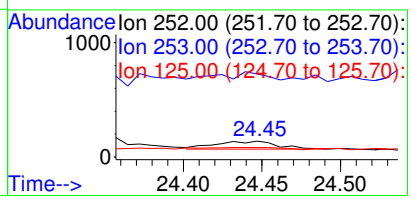




#23
Benzo(j)fluoranthene
Concen: 0.42 ug/kg
RT: 24.45 min Scan# 3391
Delta R.T. -0.01 min
Lab File: 16081010.D
Acq: 10 Aug 2016 12:25 pm

Tgt Ion:252 Resp: 192

Ion	Ratio	Lower	Upper
252	100		
253	98.6	2.2	42.2#
125	12.9	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081011.D Vial: 11
Acq On : 10 Aug 2016 1:06 pm Operator: DEW
Sample : 1607294-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

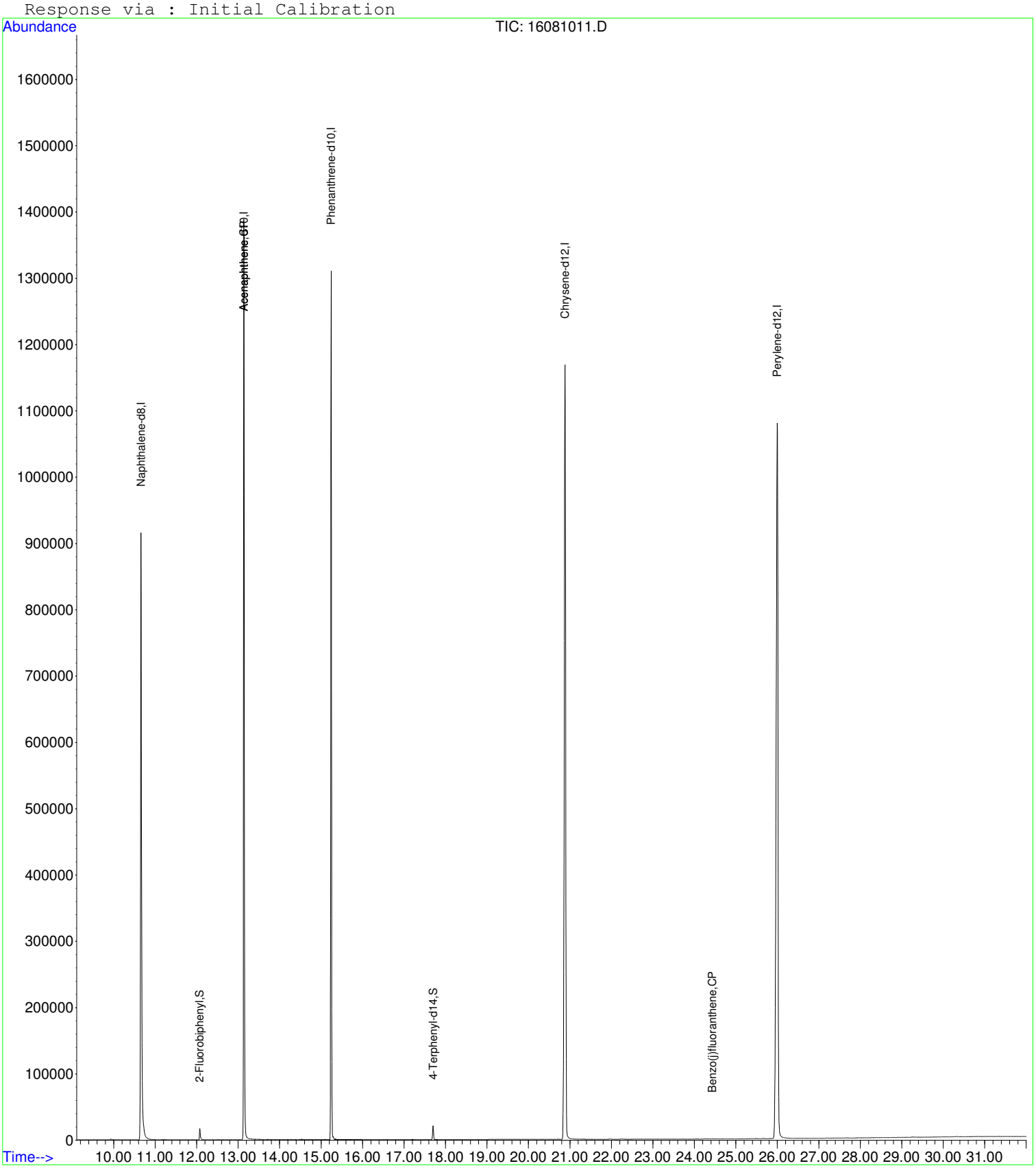
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1473206	4000.00	ug/kg	105
5) Acenaphthene-d10	13.14	164	812335	4000.00	ug/kg	136
11) Phenanthrene-d10	15.24	188	1521489	4000.00	ug/kg	96
17) Chrysene-d12	20.88	240	2082541	4000.00	ug/kg	114
20) Perylene-d12	26.00	264	2225492	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21389	75.49	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#		
16) 4-Terphenyl-d14	17.70	244	29522	82.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2678	12.85	ug/kg#	10
23) Benzo(j)fluoranthene	24.44	252	533	1.18	ug/kg#	47

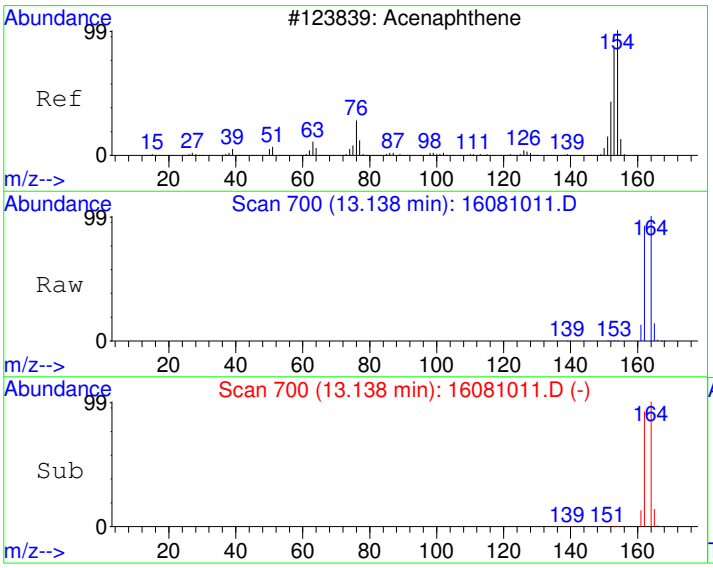
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081011.D Vial: 11
Acq On : 10 Aug 2016 1:06 pm Operator: DEW
Sample : 1607294-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

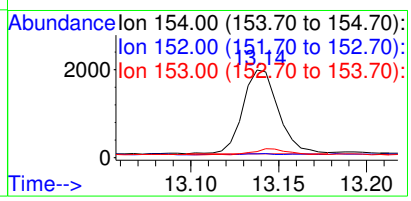


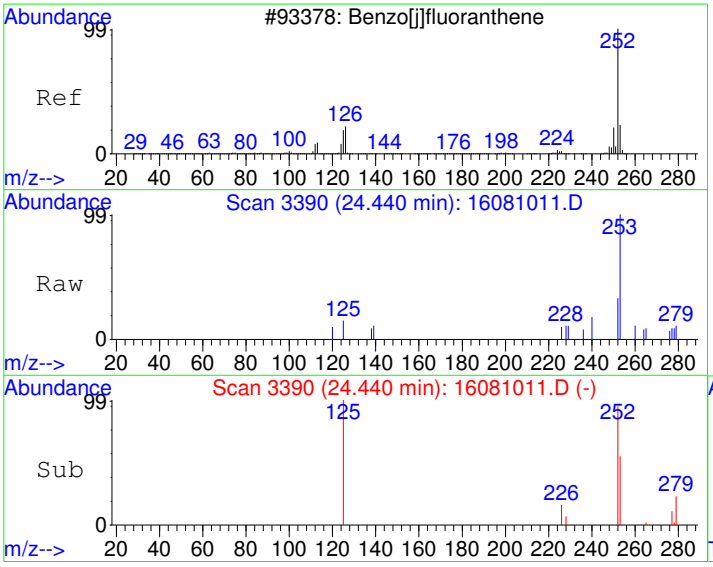


#9
Acenaphthene
Concen: 12.85 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081011.D
Acq: 10 Aug 2016 1:06 pm

Tgt Ion:154 Resp: 2678

Ion	Ratio	Lower	Upper
154	100		
152	1.2	19.1	79.1#
153	3.5	76.2	136.2#

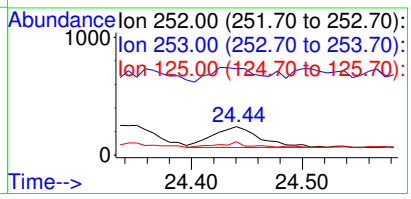




#23
Benzo(j)fluoranthene
Concen: 1.18 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.01 min
Lab File: 16081011.D
Acq: 10 Aug 2016 1:06 pm

Tgt Ion:252 Resp: 533

Ion	Ratio	Lower	Upper
252	100		
253	54.2	2.2	42.2#
125	27.7	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081012.D Vial: 12
Acq On : 10 Aug 2016 1:45 pm Operator: DEW
Sample : 1607294-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

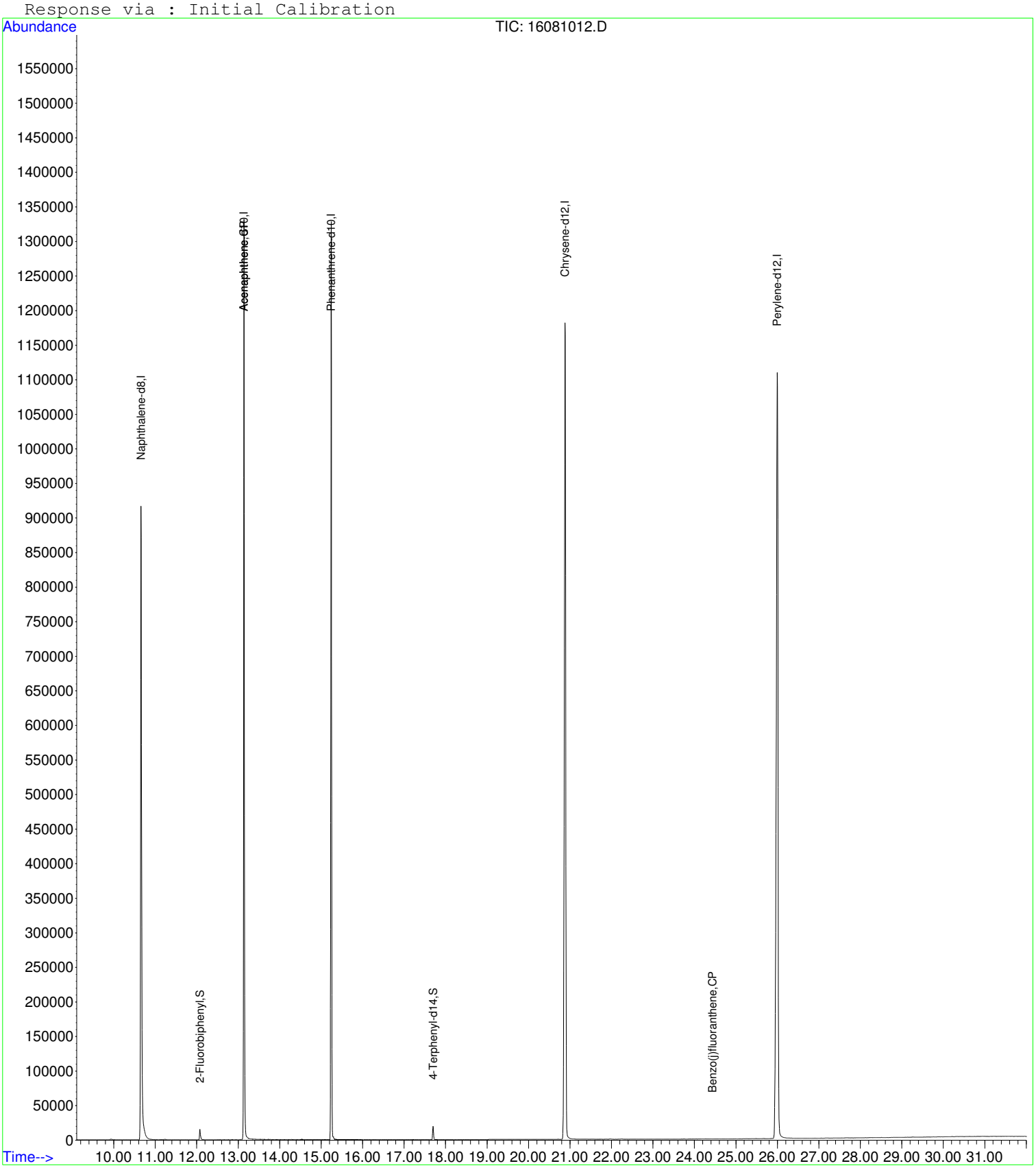
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1494562	4000.00	ug/kg	107
5) Acenaphthene-d10	13.14	164	811693	4000.00	ug/kg	135
11) Phenanthrene-d10	15.24	188	1518365	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2094159	4000.00	ug/kg	114
20) Perylene-d12	25.99	264	2250603	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19550	69.05	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#		
16) 4-Terphenyl-d14	17.70	244	28382	79.21	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2764	13.28	ug/kg#	10
23) Benzo(j)fluoranthene	24.44	252	210	0.46	ug/kg#	58

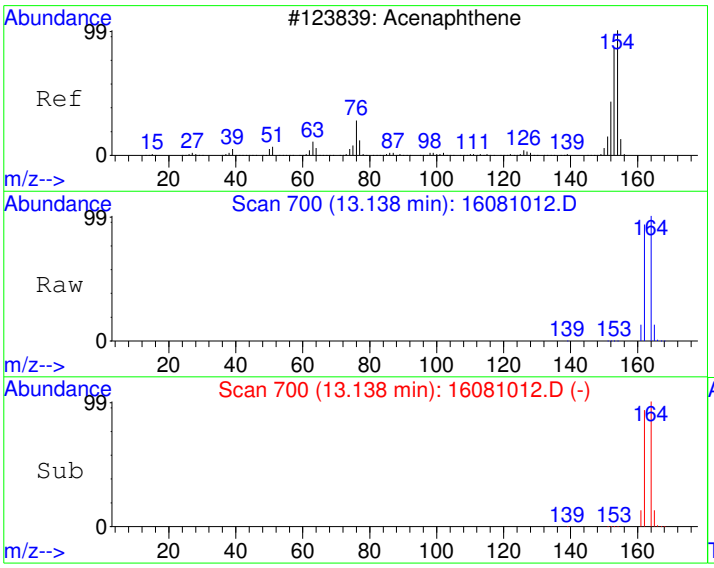
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081012.D Vial: 12
Acq On : 10 Aug 2016 1:45 pm Operator: DEW
Sample : 1607294-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

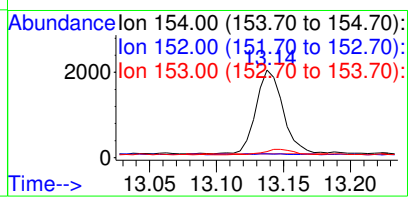


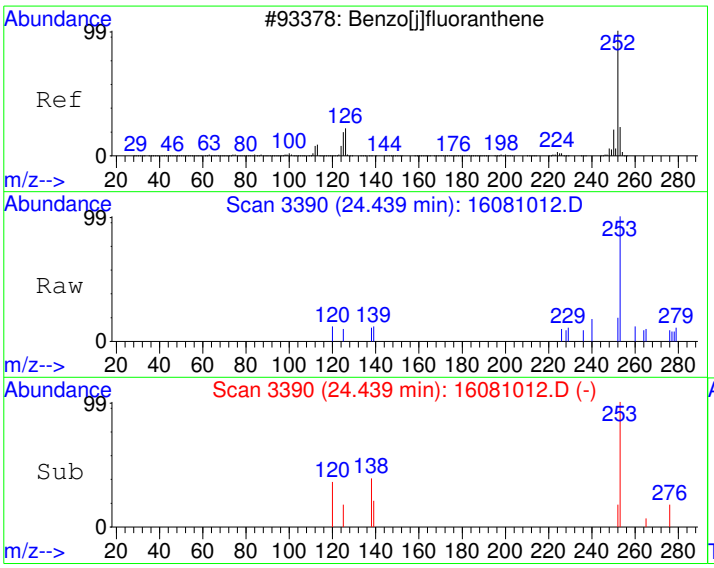


#9
Acenaphthene
Concen: 13.28 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081012.D
Acq: 10 Aug 2016 1:45 pm

Tgt Ion:154 Resp: 2764

Ion	Ratio	Lower	Upper
154	100		
152	0.9	19.1	79.1#
153	3.4	76.2	136.2#

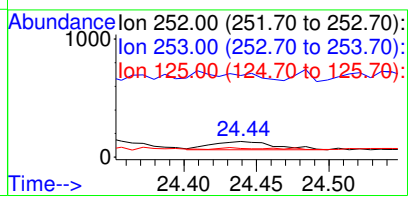




#23
Benzo(j)fluoranthene
Concen: 0.46 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081012.D
Acq: 10 Aug 2016 1:45 pm

Tgt Ion:252 Resp: 210

Ion	Ratio	Lower	Upper
252	100		
253	52.1	2.2	42.2#
125	9.9	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081013.D Vial: 13
Acq On : 10 Aug 2016 2:26 pm Operator: DEW
Sample : 1607294-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

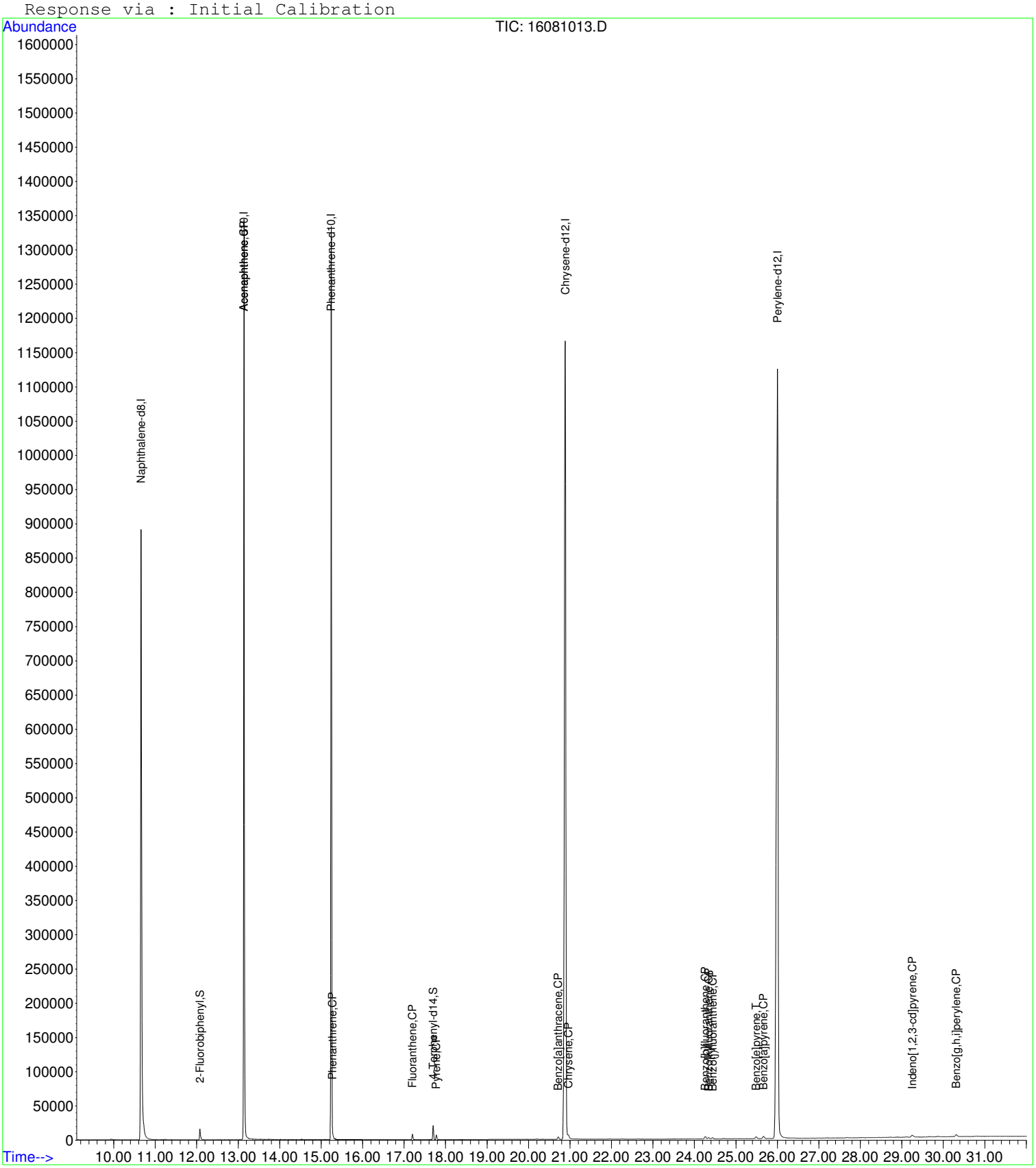
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1489678	4000.00	ug/kg	106
5) Acenaphthene-d10	13.14	164	808968	4000.00	ug/kg	135
11) Phenanthrene-d10	15.24	188	1557012	4000.00	ug/kg	98
17) Chrysene-d12	20.89	240	2113078	4000.00	ug/kg	115
20) Perylene-d12	26.00	264	2255702	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20016	70.93	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
16) 4-Terphenyl-d14	17.70	244	28783	78.33	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2738	13.20	ug/kg#	10
12) Phenanthrene	15.28	178	3710	10.05	ug/kg	97
14) Fluoranthene	17.20	202	9503	21.72	ug/kg	96
15) Pyrene	17.78	202	8718	19.65	ug/kg	98
18) Benzo[a]anthracene	20.71	228	5495	11.54	ug/kg	99
19) Chrysene	20.96	228	6659	14.53	ug/kg	98
21) Benzo[b]fluoranthene	24.26	252	7264	13.95	ug/kg	98
22) Benzo[k]fluoranthene	24.34	252	3570	7.47	ug/kg	96
23) Benzo(j)fluoranthene	24.44	252	3349	7.29	ug/kg	89
24) Benzo[e]pyrene	25.49	252	5803	11.48	ug/kg	100
25) Benzo[a]pyrene	25.67	252	7537	14.98	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.26	276	5955	10.31	ug/kg	92
28) Benzo[g,h,i]perylene	30.32	276	6169	12.75	ug/kg	97

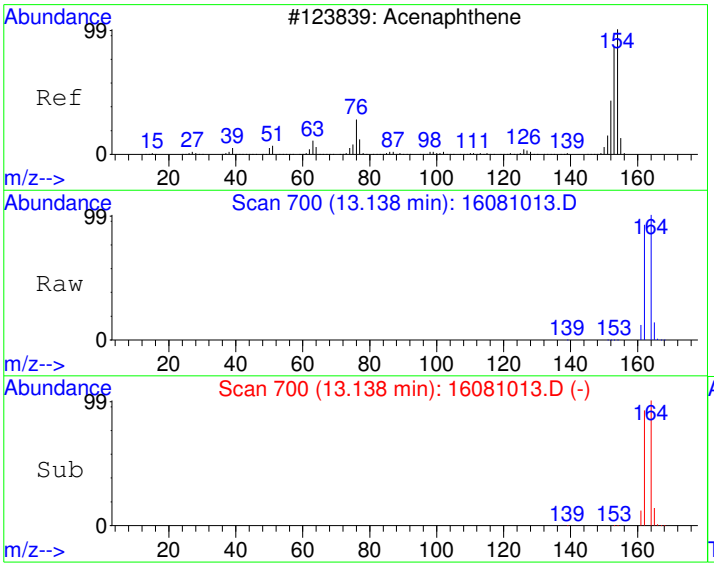
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081013.D Vial: 13
Acq On : 10 Aug 2016 2:26 pm Operator: DEW
Sample : 1607294-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

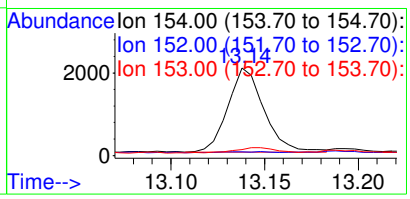


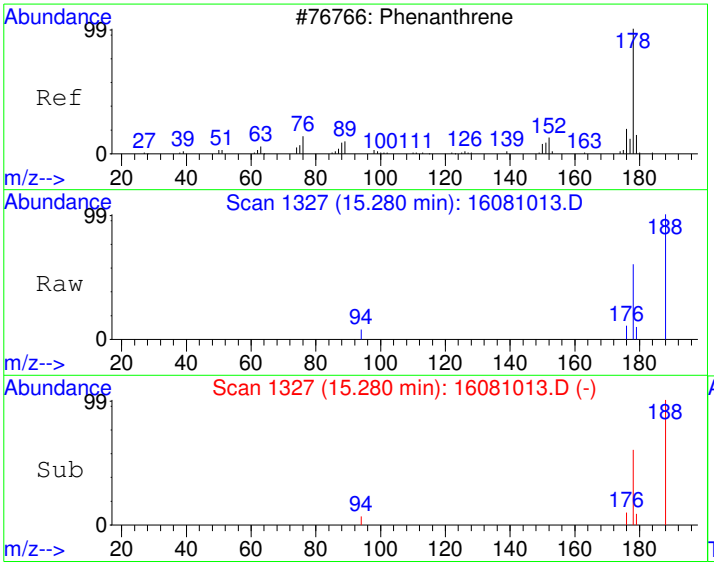


#9
Acenaphthene
Concen: 13.20 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:154 Resp: 2738

Ion	Ratio	Lower	Upper
154	100		
152	1.2	19.1	79.1#
153	3.5	76.2	136.2#

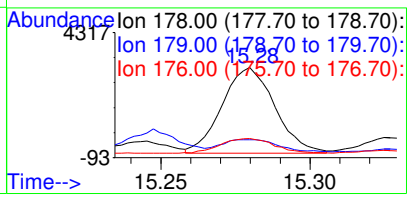


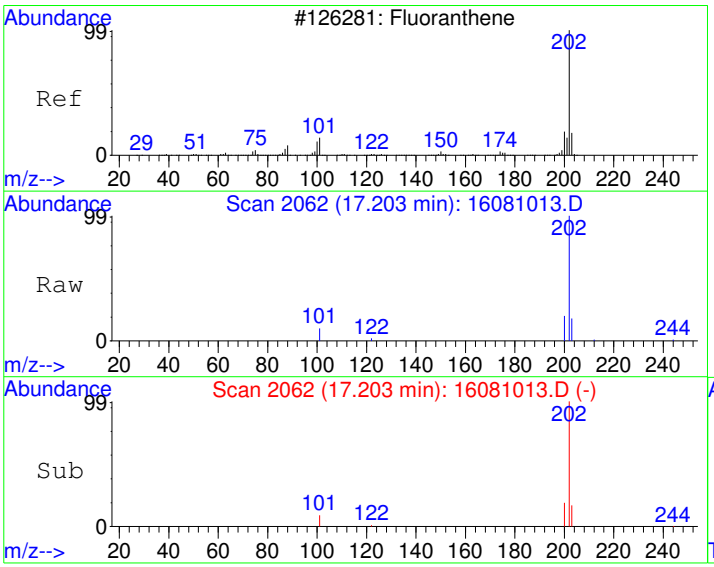


#12
Phenanthrene
Concen: 10.05 ug/kg
RT: 15.28 min Scan# 1327
Delta R.T. -0.00 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:178 Resp: 3710

Ion	Ratio	Lower	Upper
178	100		
179	14.2	0.0	45.7
176	17.3	0.0	48.7

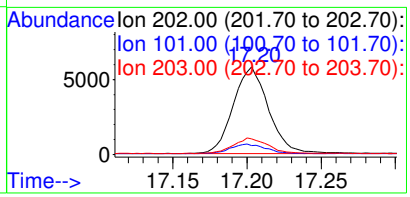


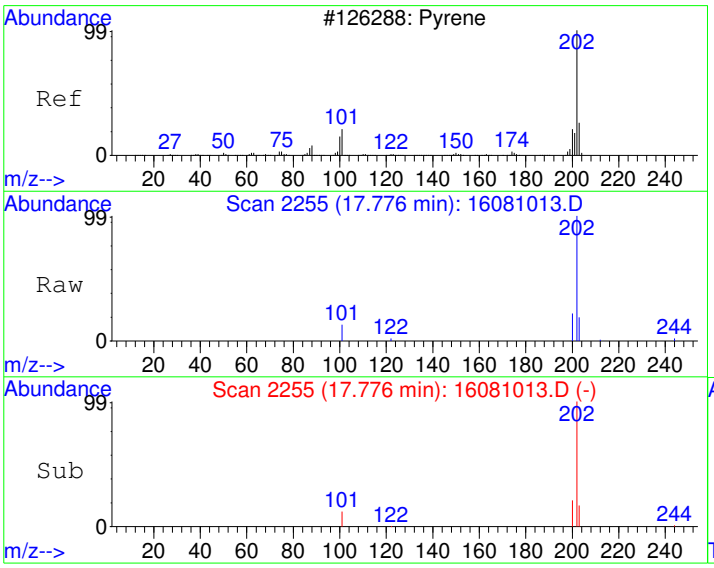


#14
Fluoranthene
Concen: 21.72 ug/kg
RT: 17.20 min Scan# 2062
Delta R.T. 0.00 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:202 Resp: 9503

Ion	Ratio	Lower	Upper
202	100		
101	9.4	0.0	42.1
203	17.0	0.0	47.9

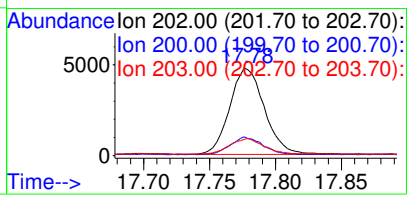


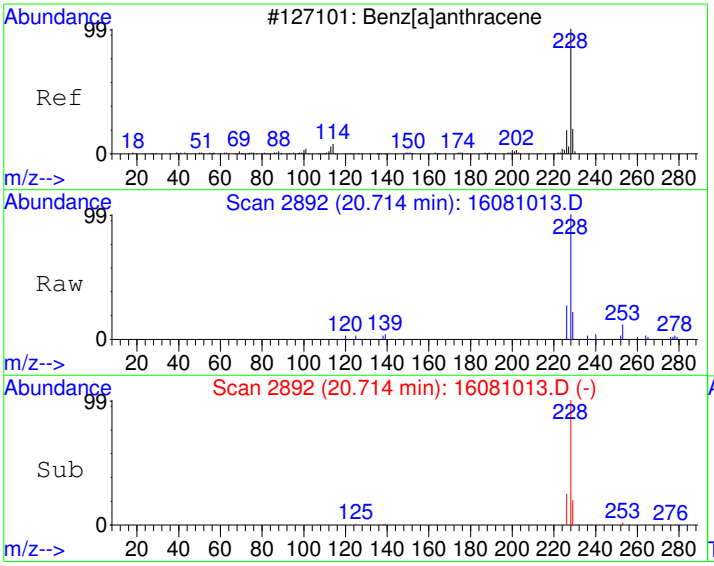


#15
Pyrene
Concen: 19.65 ug/kg
RT: 17.78 min Scan# 2255
Delta R.T. 0.00 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:202 Resp: 8718

Ion	Ratio	Lower	Upper
202	100		
200	20.8	0.0	49.7
203	17.1	0.0	47.8

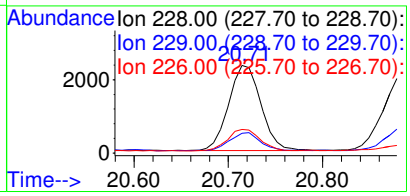


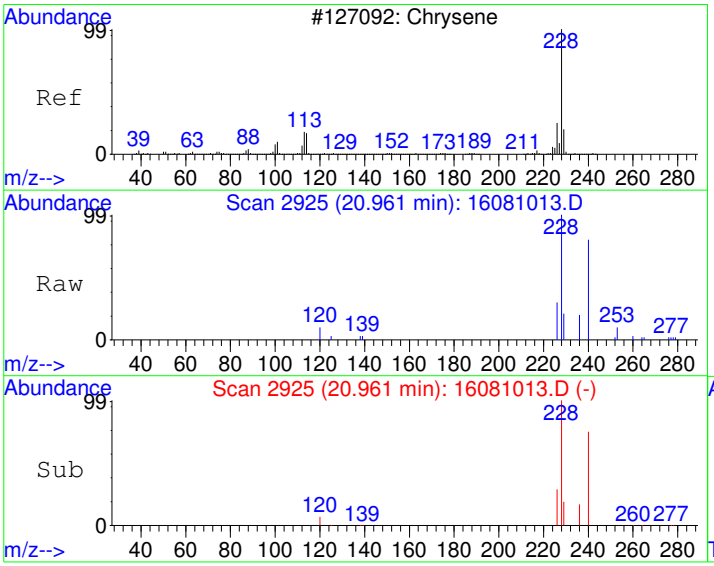


#18
Benzo[a]anthracene
Concen: 11.54 ug/kg
RT: 20.71 min Scan# 2892
Delta R.T. -0.01 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:228 Resp: 5495

Ion	Ratio	Lower	Upper
228	100		
229	20.3	0.0	49.8
226	25.3	0.0	55.8

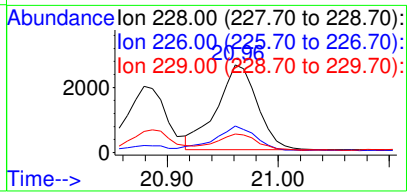


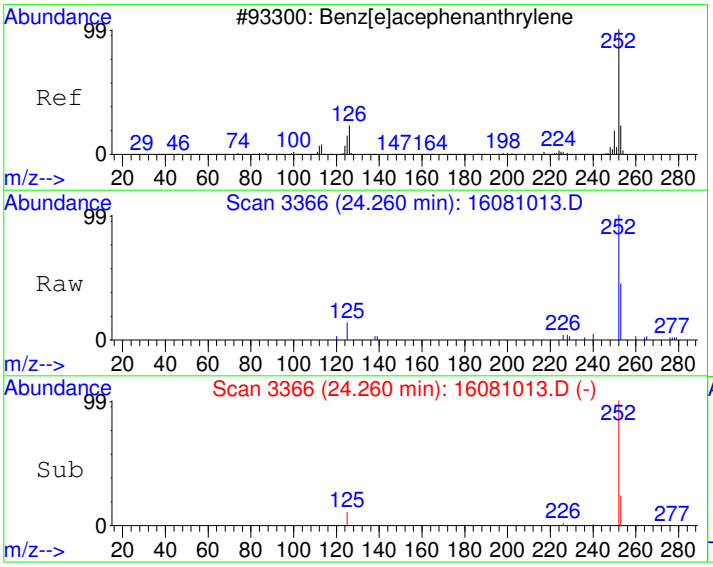


#19
Chrysene
Concen: 14.53 ug/kg
RT: 20.96 min Scan# 2925
Delta R.T. -0.02 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:228 Resp: 6659

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	19.1	0.0	50.0

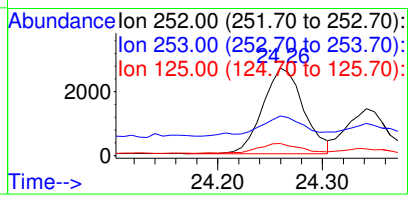


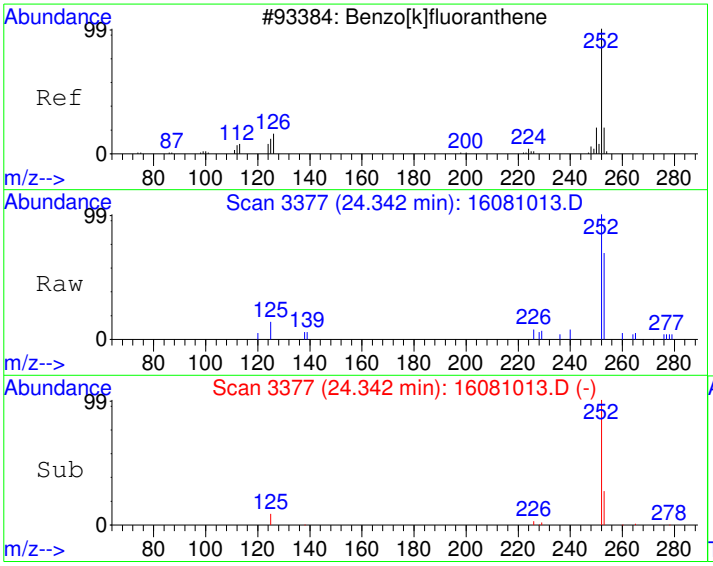


#21
Benzo[b]fluoranthene
Concen: 13.95 ug/kg
RT: 24.26 min Scan# 3366
Delta R.T. -0.02 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:252 Resp: 7264

Ion	Ratio	Lower	Upper
252	100		
253	22.9	0.0	52.0
125	11.1	0.0	40.6

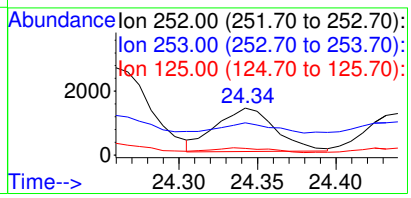


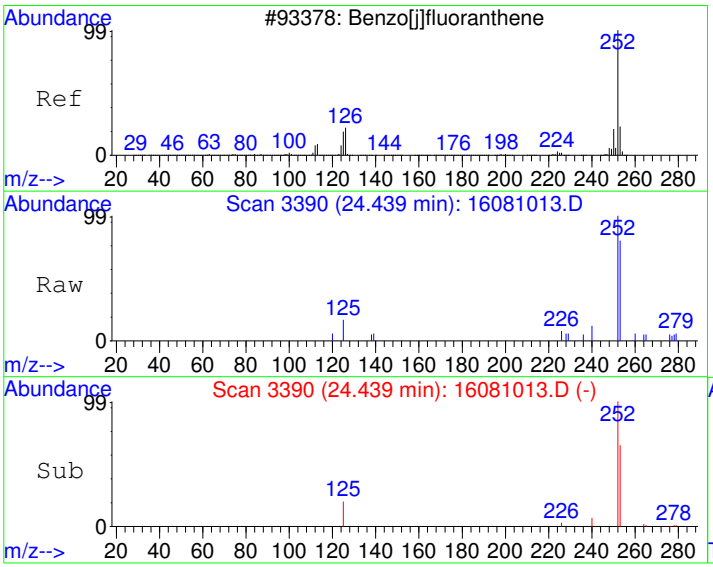


#22
Benzo[k]fluoranthene
Concen: 7.47 ug/kg
RT: 24.34 min Scan# 3377
Delta R.T. -0.02 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:252 Resp: 3570

Ion	Ratio	Lower	Upper
252	100		
253	24.3	2.2	42.2
125	9.6	0.0	30.3

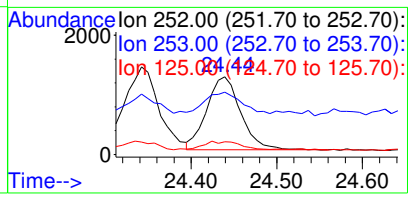


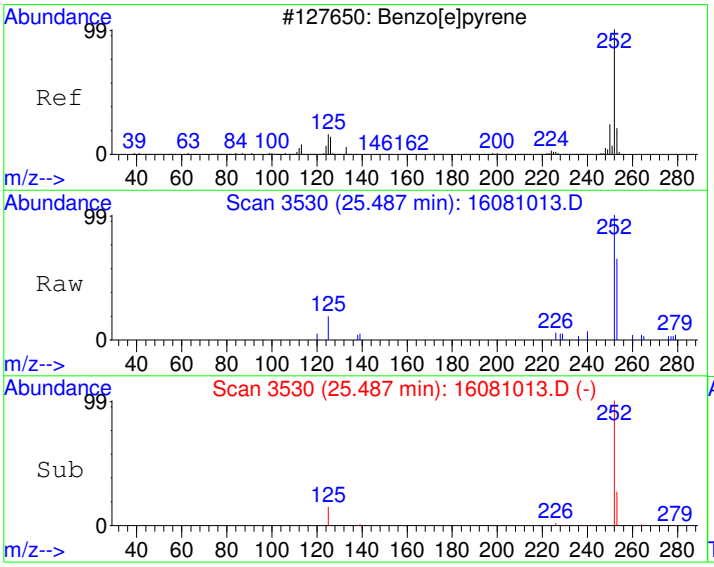


#23
Benzo(j)fluoranthene
Concen: 7.29 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:252 Resp: 3349

Ion	Ratio	Lower	Upper
252	100		
253	28.5	2.2	42.2
125	11.6	0.0	34.4

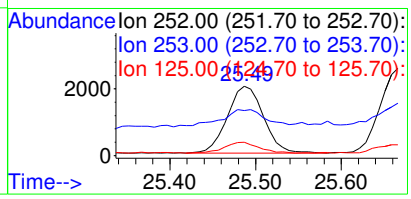


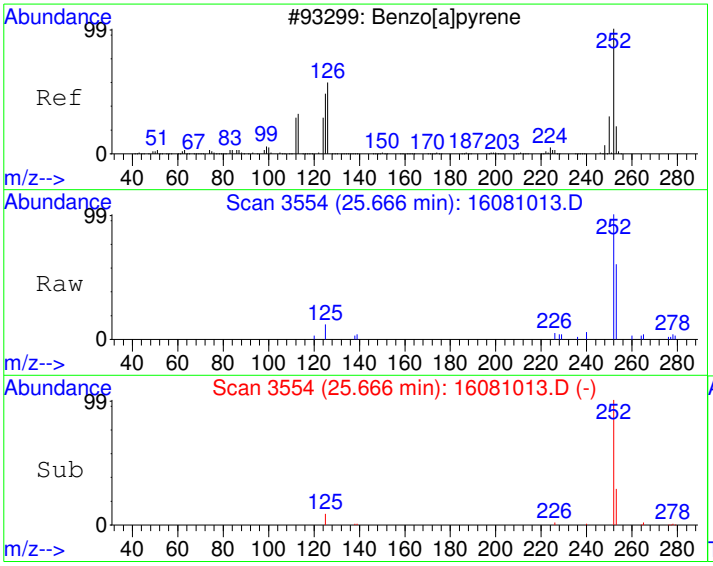


#24
Benzo[e]pyrene
Concen: 11.48 ug/kg
RT: 25.49 min Scan# 3530
Delta R.T. -0.02 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:252 Resp: 5803

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	16.0	0.0	35.7

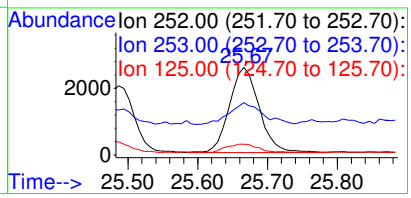


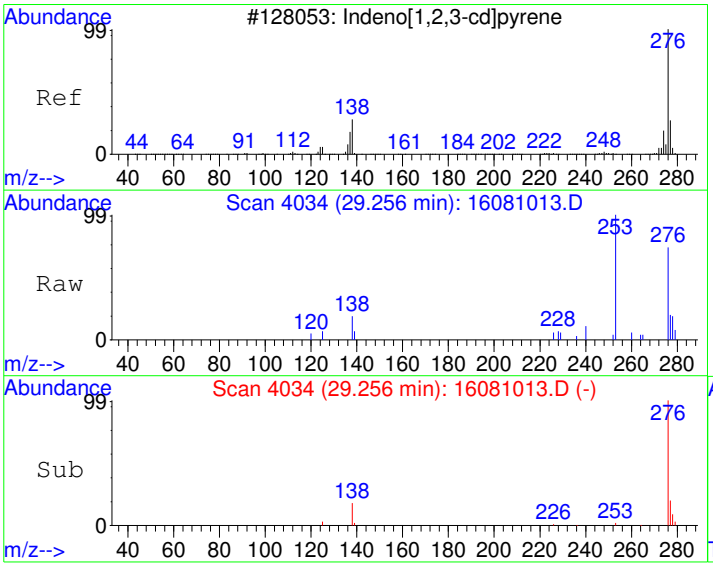


#25
Benzo[a]pyrene
Concen: 14.98 ug/kg
RT: 25.67 min Scan# 3554
Delta R.T. -0.02 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:252 Resp: 7537

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.0	42.0
125	9.4	0.0	31.6

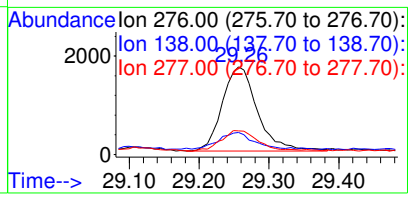


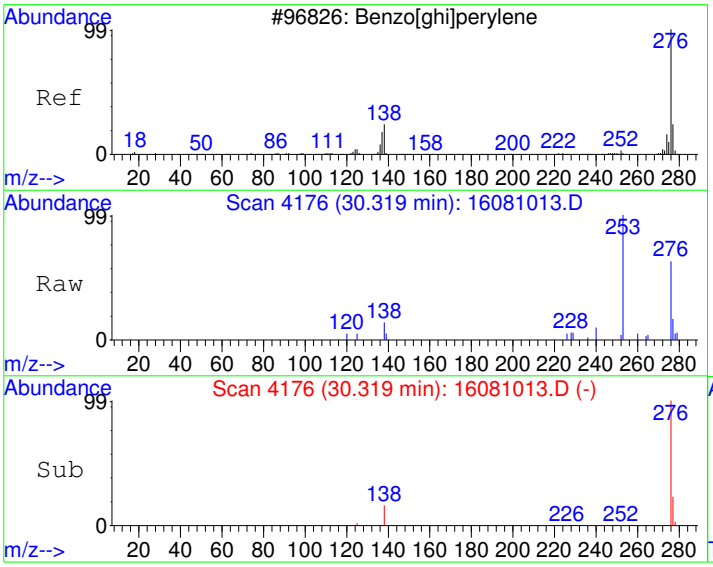


#27
Indeno[1,2,3-cd]pyrene
Concen: 10.31 ug/kg
RT: 29.26 min Scan# 4034
Delta R.T. -0.02 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:276 Resp: 5955

Ion	Ratio	Lower	Upper
276	100		
138	19.1	4.8	44.8
277	23.6	5.6	45.6

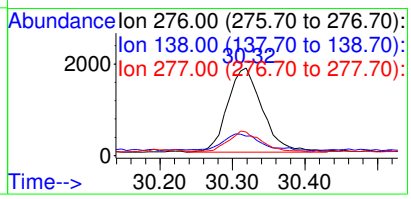




#28
Benzo[g,h,i]perylene
Concen: 12.75 ug/kg
RT: 30.32 min Scan# 4176
Delta R.T. -0.01 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:26 pm

Tgt Ion:276 Resp: 6169

Ion	Ratio	Lower	Upper
276	100		
138	16.3	0.0	38.1
277	22.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081014.D Vial: 14
Acq On : 10 Aug 2016 3:07 pm Operator: DEW
Sample : 1607294-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

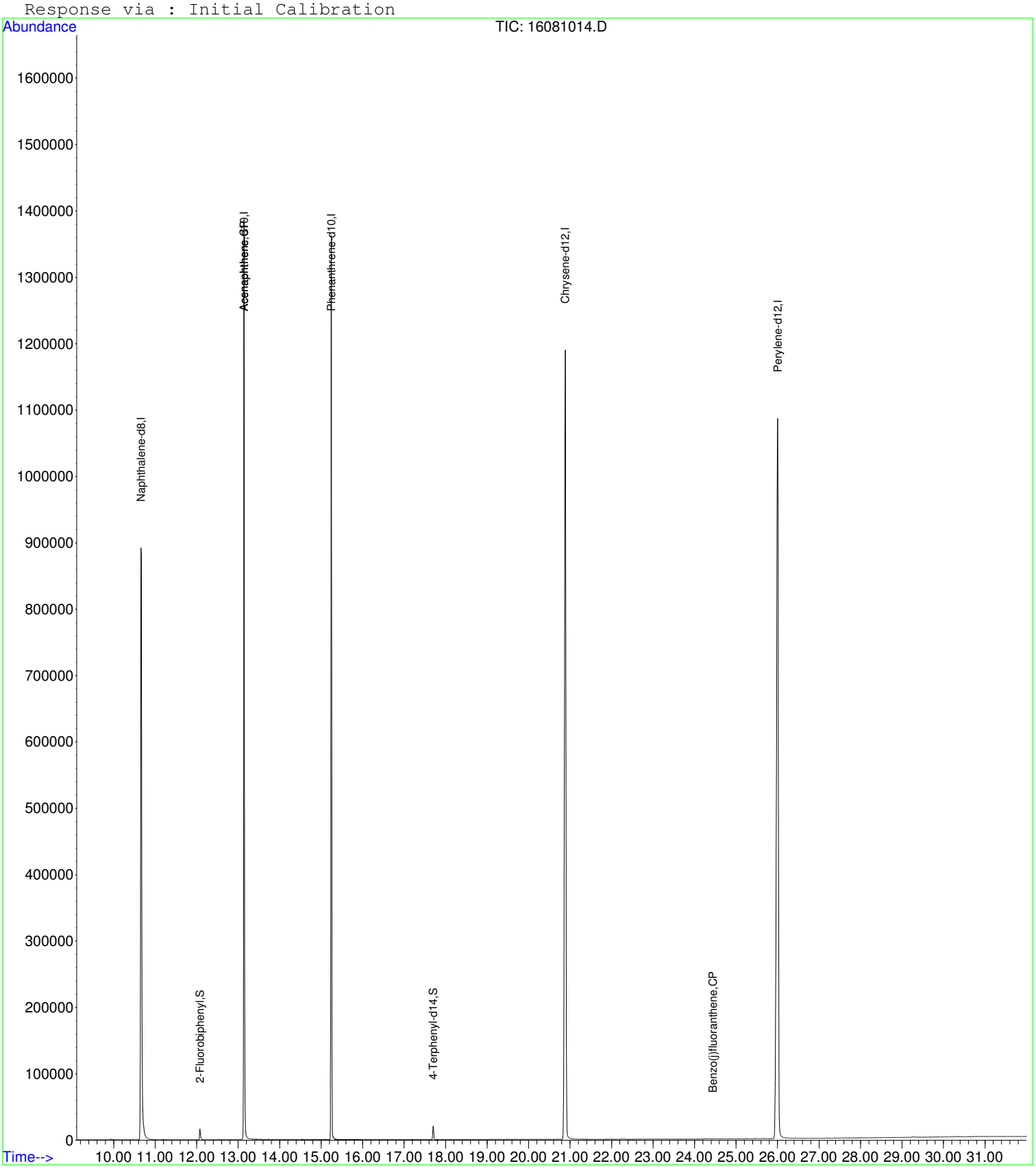
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1505515	4000.00	ug/kg	107
5) Acenaphthene-d10	13.14	164	818615	4000.00	ug/kg	137
11) Phenanthrene-d10	15.24	188	1536161	4000.00	ug/kg	97
17) Chrysene-d12	20.89	240	2123784	4000.00	ug/kg	116
20) Perylene-d12	26.00	264	2264348	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20486	71.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.70	244	29720	81.98	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2663	12.68	ug/kg#	12
23) Benzo(j)fluoranthene	24.44	252	537	1.17	ug/kg#	47

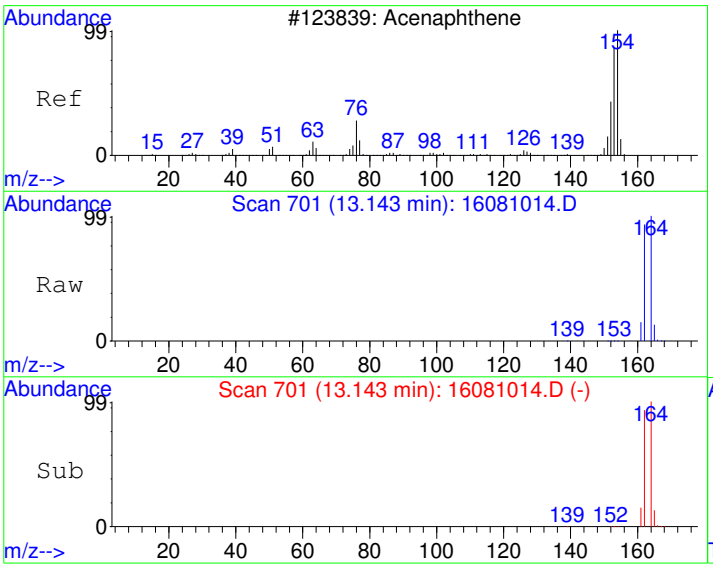
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081014.D Vial: 14
Acq On : 10 Aug 2016 3:07 pm Operator: DEW
Sample : 1607294-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

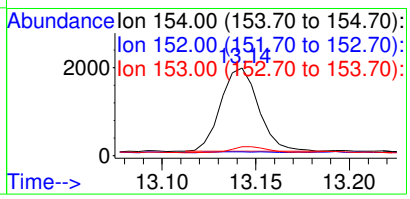


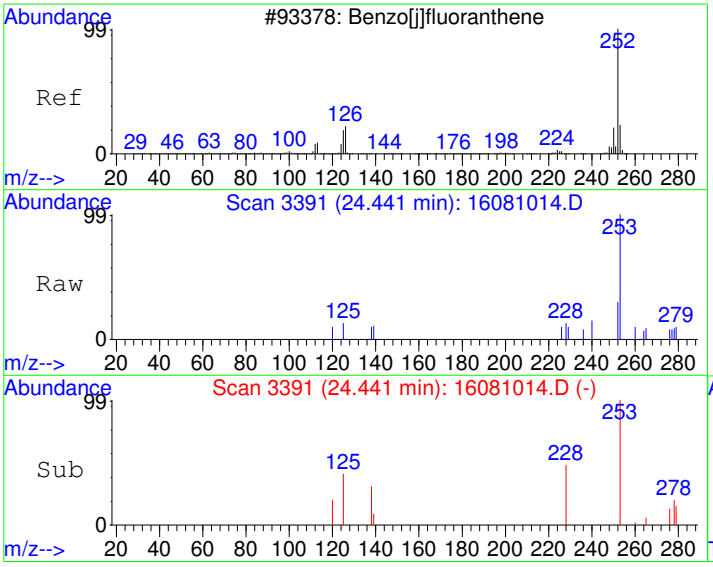


#9
Acenaphthene
Concen: 12.68 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.05 min
Lab File: 16081014.D
Acq: 10 Aug 2016 3:07 pm

Tgt Ion:154 Resp: 2663

Ion	Ratio	Lower	Upper
154	100		
152	0.8	19.1	79.1#
153	7.1	76.2	136.2#

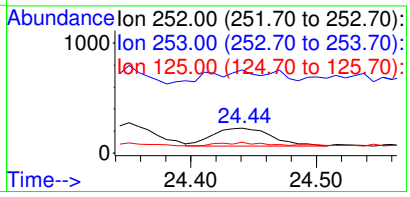




#23
Benzo(j)fluoranthene
Concen: 1.17 ug/kg
RT: 24.44 min Scan# 3391
Delta R.T. -0.01 min
Lab File: 16081014.D
Acq: 10 Aug 2016 3:07 pm

Tgt Ion:252 Resp: 537

Ion	Ratio	Lower	Upper
252	100		
253	60.4	2.2	42.2#
125	19.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081015.D Vial: 15
Acq On : 10 Aug 2016 3:48 pm Operator: DEW
Sample : 1607294-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

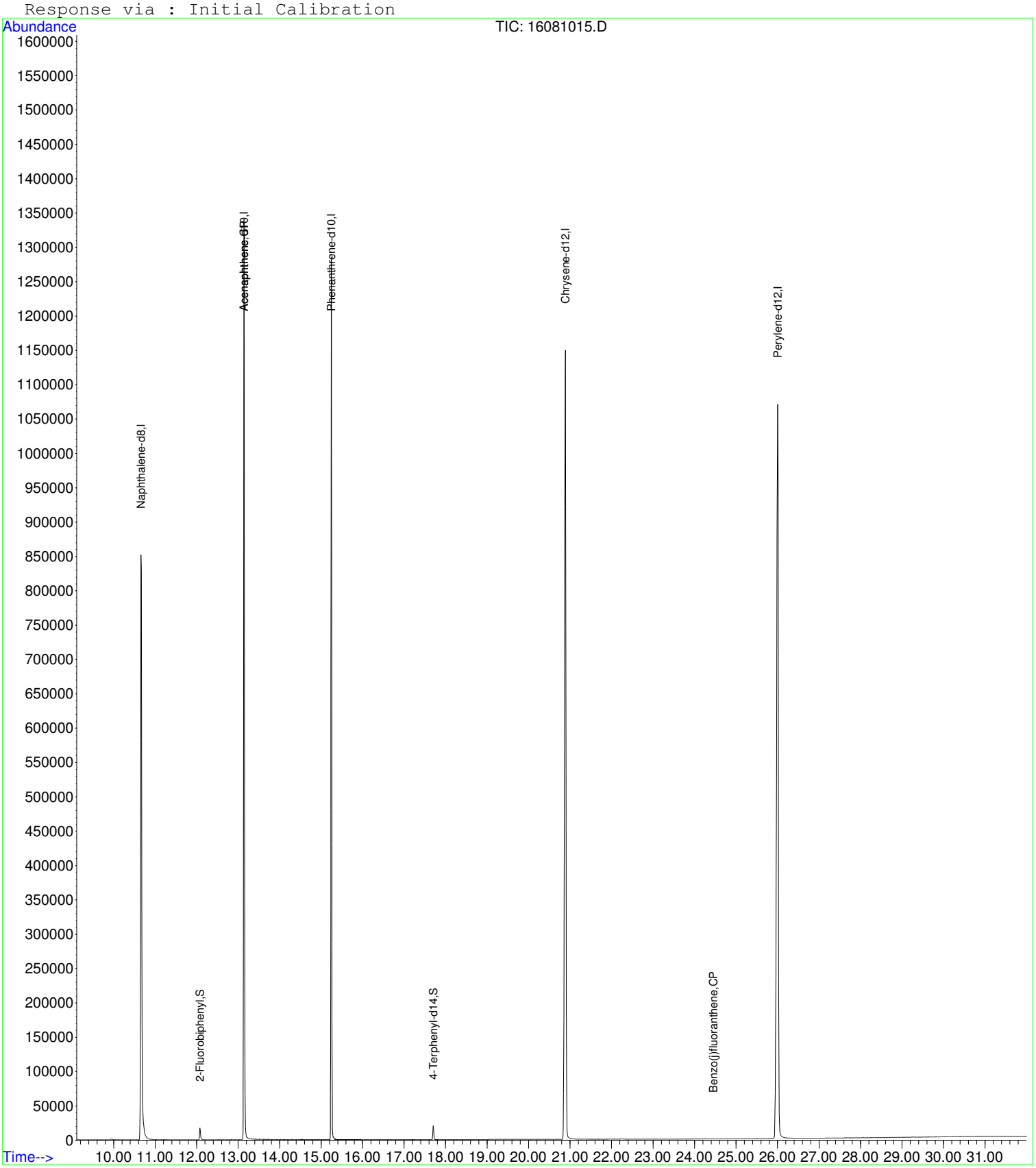
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1430382	4000.00	ug/kg	102
5) Acenaphthene-d10	13.14	164	780618	4000.00	ug/kg	130
11) Phenanthrene-d10	15.24	188	1474112	4000.00	ug/kg	93
17) Chrysene-d12	20.89	240	2021906	4000.00	ug/kg	110
20) Perylene-d12	26.00	264	2150245	4000.00	ug/kg	111
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21336	78.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.70	244	29737	85.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2552	~~12.75~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.45	252	231	0.53	ug/kg#	67

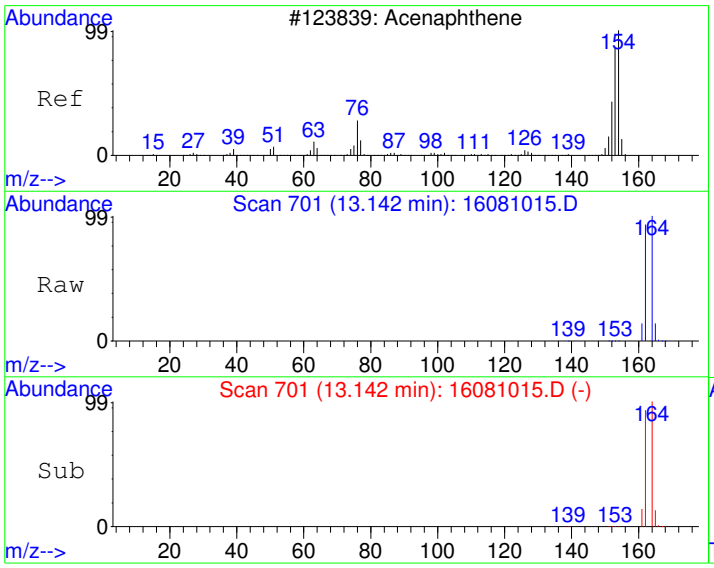
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081015.D Vial: 15
Acq On : 10 Aug 2016 3:48 pm Operator: DEW
Sample : 1607294-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

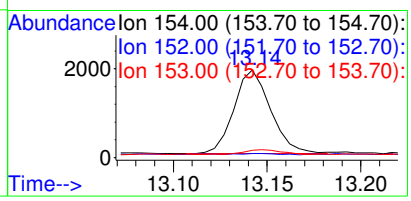


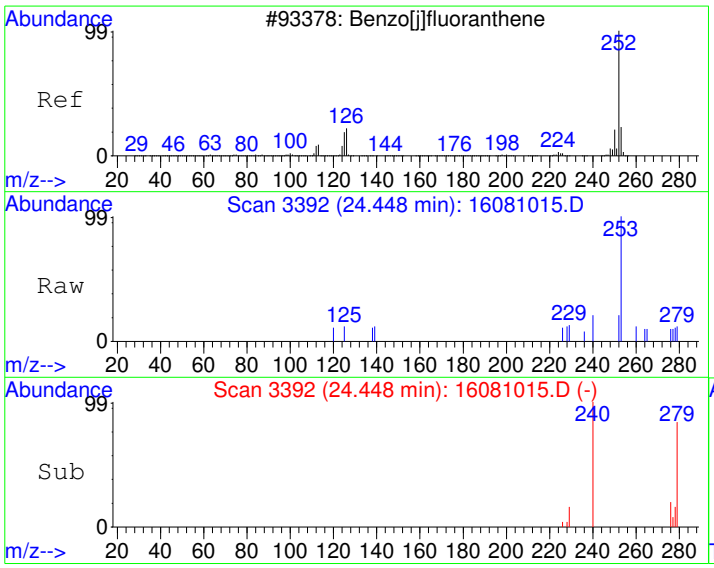


#9
Acenaphthene
Concen: 12.75 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.05 min
Lab File: 16081015.D
Acq: 10 Aug 2016 3:48 pm

Tgt Ion:154 Resp: 2552

Ion	Ratio	Lower	Upper
154	100		
152	1.4	19.1	79.1#
153	4.8	76.2	136.2#

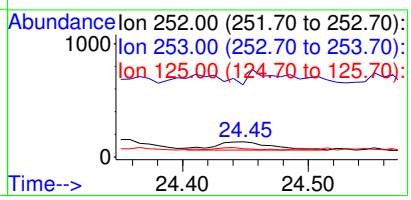




#23
Benzo(j)fluoranthene
Concen: 0.53 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.01 min
Lab File: 16081015.D
Acq: 10 Aug 2016 3:48 pm

Tgt Ion:252 Resp: 231

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	9.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081016.D Vial: 16
Acq On : 10 Aug 2016 4:29 pm Operator: DEW
Sample : 1607294-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

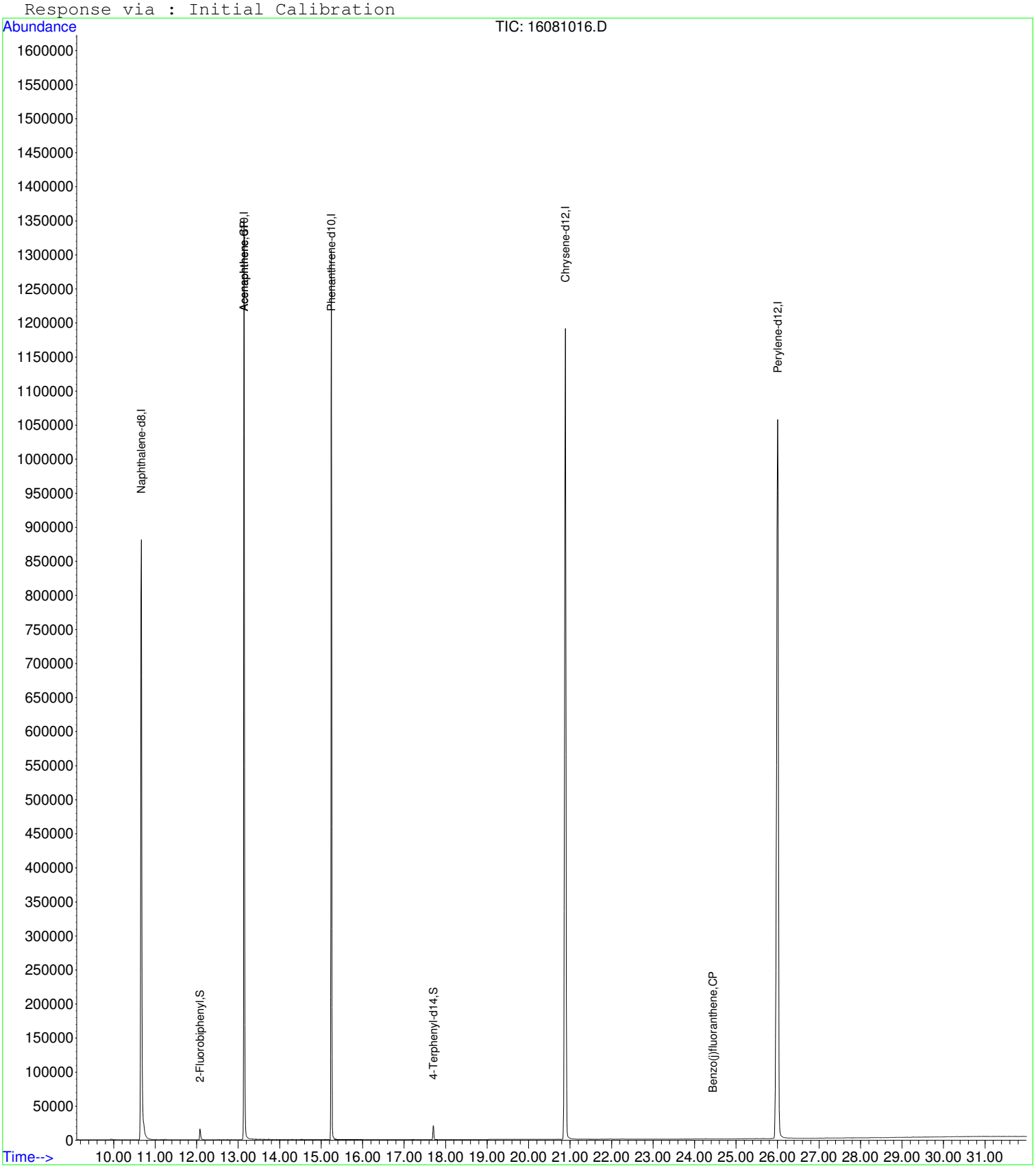
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1457880	4000.00	ug/kg	104
5) Acenaphthene-d10	13.14	164	796656	4000.00	ug/kg	133
11) Phenanthrene-d10	15.25	188	1513371	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2070272	4000.00	ug/kg	113
20) Perylene-d12	26.00	264	2205156	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20908	75.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.70	244	29243	81.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2784	13.63	ug/kg#	11
23) Benzo(j)fluoranthene	24.45	252	354	0.79	ug/kg	72

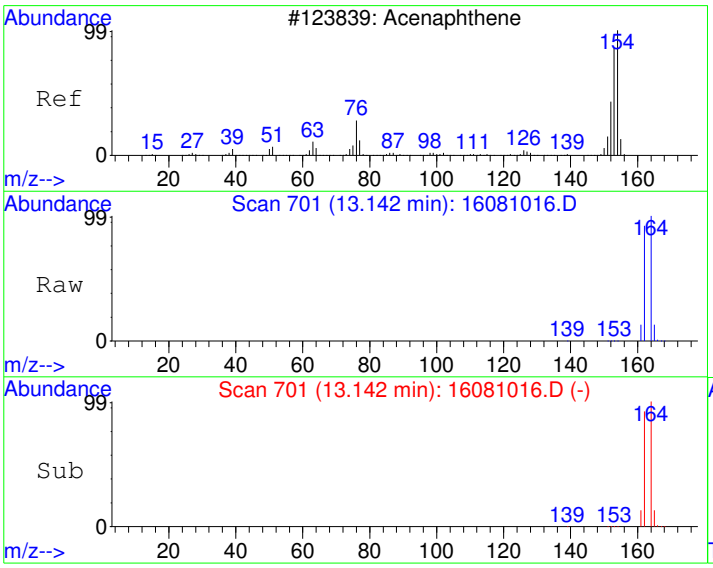
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081016.D Vial: 16
Acq On : 10 Aug 2016 4:29 pm Operator: DEW
Sample : 1607294-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 17:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

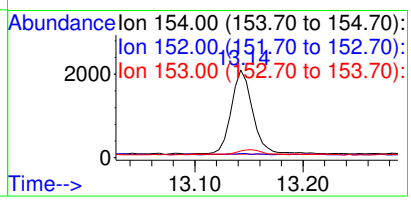


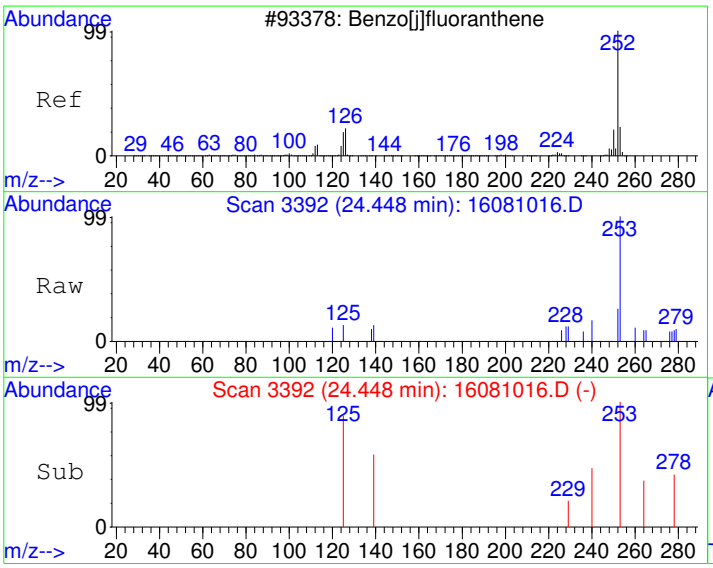


#9
Acenaphthene
Concen: 13.63 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.05 min
Lab File: 16081016.D
Acq: 10 Aug 2016 4:29 pm

Tgt Ion:154 Resp: 2784

Ion	Ratio	Lower	Upper
154	100		
152	1.4	19.1	79.1#
153	4.7	76.2	136.2#

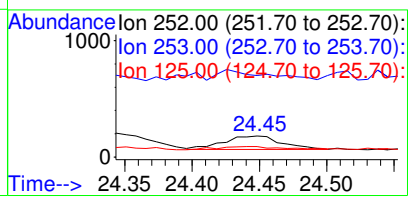




#23
Benzo(j)fluoranthene
Concen: 0.79 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.01 min
Lab File: 16081016.D
Acq: 10 Aug 2016 4:29 pm

Tgt Ion:252 Resp: 354

Ion	Ratio	Lower	Upper
252	100		
253	6.8	2.2	42.2
125	23.1	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081018.D Vial: 18
Acq On : 10 Aug 2016 5:50 pm Operator: DEW
Sample : ICV2-160810 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

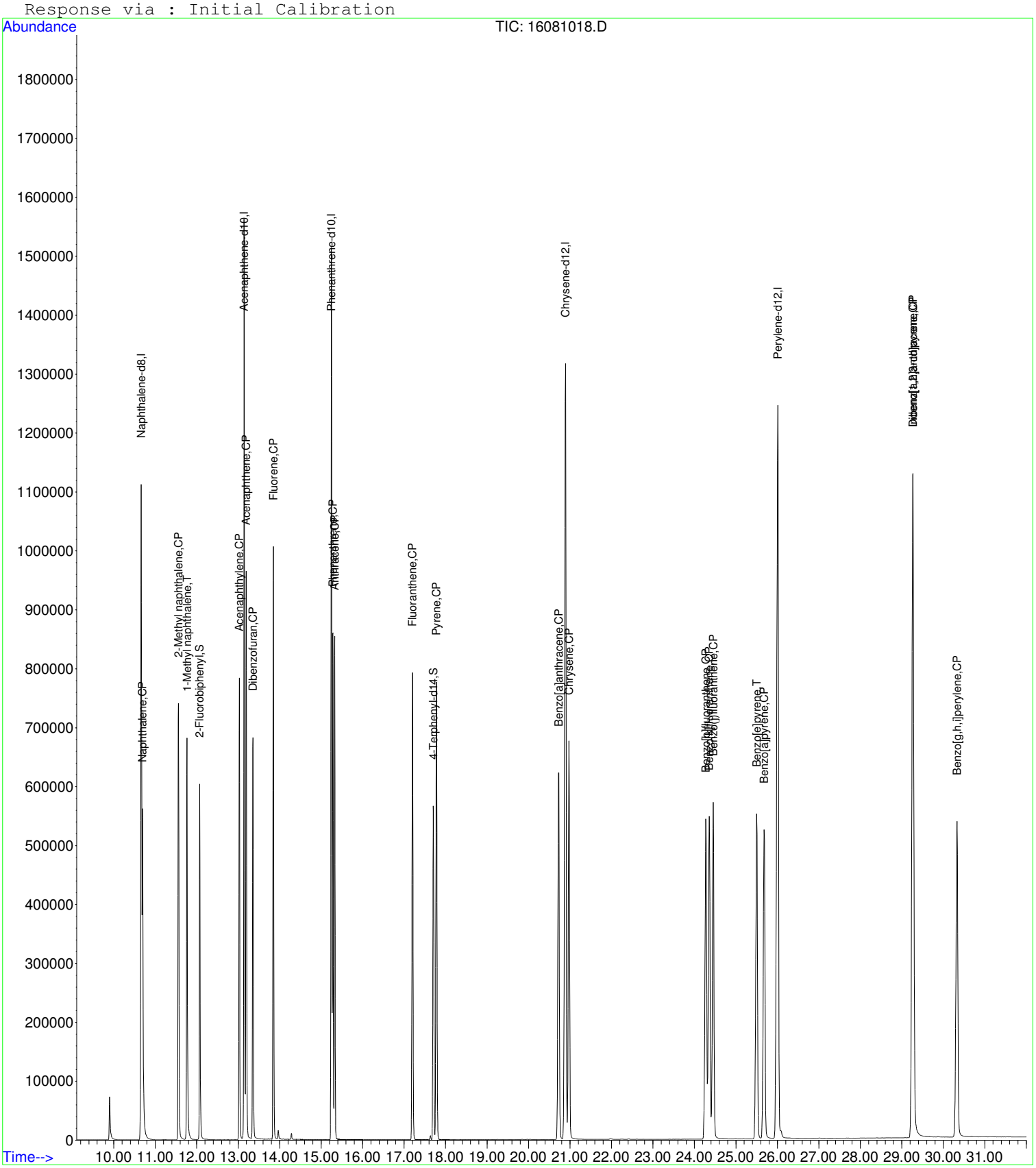
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1672141	4000.00	ug/kg	119
5) Acenaphthene-d10	13.14	164	915764	4000.00	ug/kg	153
11) Phenanthrene-d10	15.25	188	1770900	4000.00	ug/kg	111
17) Chrysene-d12	20.89	240	2373807	4000.00	ug/kg	129
20) Perylene-d12	26.01	264	2597083	4000.00	ug/kg	135
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	574419	1798.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.96%			
16) 4-Terphenyl-d14	17.70	244	788793	1887.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.19%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	687249	1806.40	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	495866	2010.49	ug/kg	99
4) 1-Methyl naphthalene	11.77	142	447314	2047.53	ug/kg	99
6) Dibenzofuran	13.36	168	665760	1796.45	ug/kg	100
8) Acenaphthylene	13.03	152	757008	1866.69	ug/kg	100
9) Acenaphthene	13.19	154	442687	1884.83	ug/kg	99
10) Fluorene	13.85	166	549597	1861.55	ug/kg	98
12) Phenanthrene	15.28	178	764766	1821.52	ug/kg	99
13) Anthracene	15.33	178	782346	1770.88	ug/kg	100
14) Fluoranthene	17.20	202	876469	1761.54	ug/kg	100
15) Pyrene	17.78	202	895698	1775.37	ug/kg	100
18) Benzo[a]anthracene	20.73	228	1013342	1893.94	ug/kg	99
19) Chrysene	20.98	228	953960	1853.32	ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	1140424	1902.13	ug/kg	100
22) Benzo[k]fluoranthene	24.36	252	1054609	1917.37	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	1033957	1956.09	ug/kg	99
24) Benzo[e]pyrene	25.50	252	1112794	1912.59	ug/kg	99
25) Benzo[a]pyrene	25.68	252	1096184	1892.28	ug/kg	100
26) Dibenz[a,h]anthracene	29.26	278	1136112	2026.66	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.27	276	1325022	1991.82	ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	1115623	2002.31	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081018.D Vial: 18
Acq On : 10 Aug 2016 5:50 pm Operator: DEW
Sample : ICV2-160810 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081020.D Vial: 20
Acq On : 10 Aug 2016 7:10 pm Operator: DEW
Sample : SB-160810 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

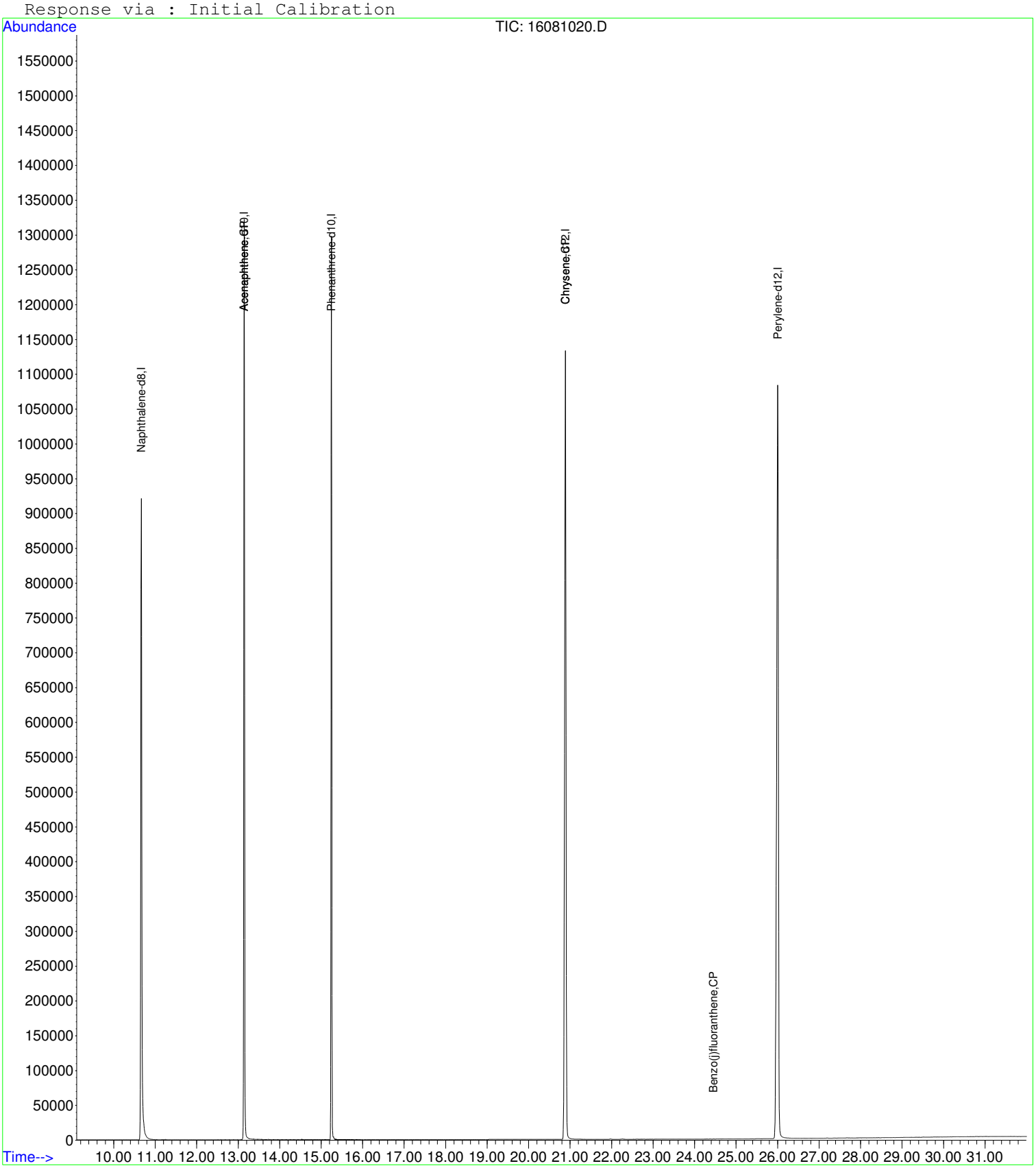
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1476447	4000.00	ug/kg	105
5) Acenaphthene-d10	13.14	164	783603	4000.00	ug/kg	131
11) Phenanthrene-d10	15.25	188	1491171	4000.00	ug/kg	94
17) Chrysene-d12	20.89	240	1981188	4000.00	ug/kg	108
20) Perylene-d12	26.00	264	2136398	4000.00	ug/kg	111
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	24	0.09	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.63	244	3	0.01	ug/kg	-0.07
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2664	13.26	ug/kg#	11
19) Chrysene	20.89	228	4248	9.89	ug/kg	69
23) Benzo(j)fluoranthene	24.46	252	10	0.02	ug/kg#	1

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081020.D Vial: 20
Acq On : 10 Aug 2016 7:10 pm Operator: DEW
Sample : SB-160810 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081021.D Vial: 21
Acq On : 10 Aug 2016 7:50 pm Operator: DEW
Sample : 1607294-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

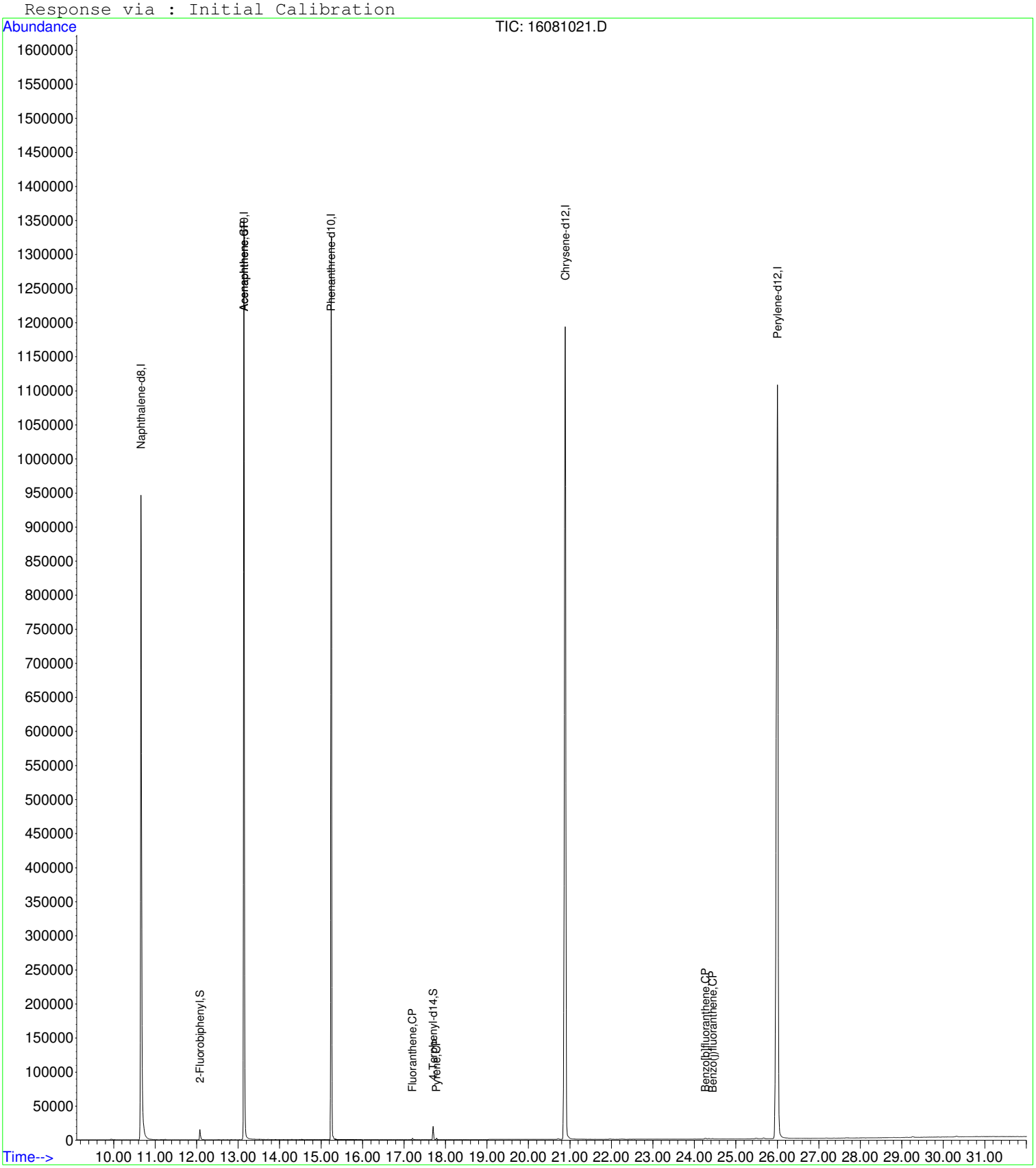
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1530193	4000.00	ug/kg	109
5) Acenaphthene-d10	13.14	164	804119	4000.00	ug/kg	134
11) Phenanthrene-d10	15.24	188	1545961	4000.00	ug/kg	97
17) Chrysene-d12	20.89	240	2086348	4000.00	ug/kg	114
20) Perylene-d12	26.00	264	2240909	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19827	70.69	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
16) 4-Terphenyl-d14	17.70	244	27983	76.70	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2641	12.81	ug/kg#	11
14) Fluoranthene	17.20	202	3025	6.96	ug/kg	99
15) Pyrene	17.78	202	2764	6.28	ug/kg	98
21) Benzo[b]fluoranthene	24.27	252	2748	5.31	ug/kg	99
23) Benzo(j)fluoranthene	24.44	252	1288	2.82	ug/kg	93

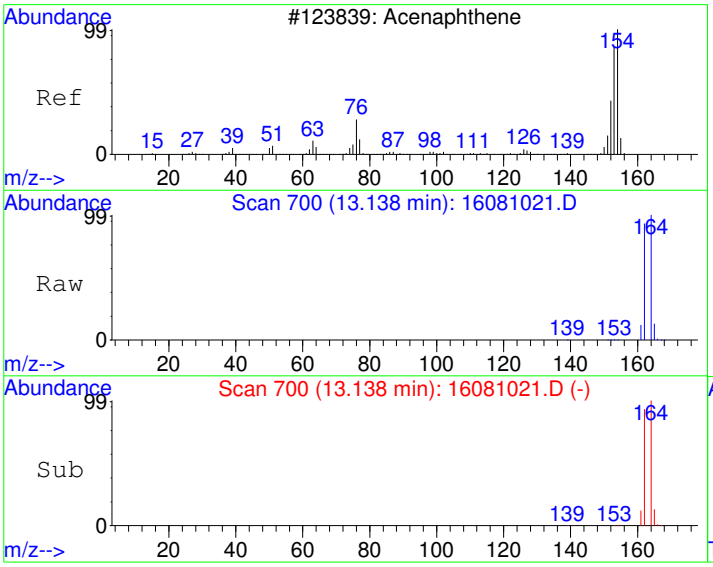
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081021.D Vial: 21
Acq On : 10 Aug 2016 7:50 pm Operator: DEW
Sample : 1607294-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

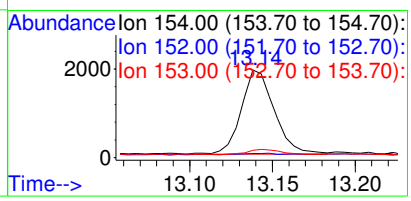


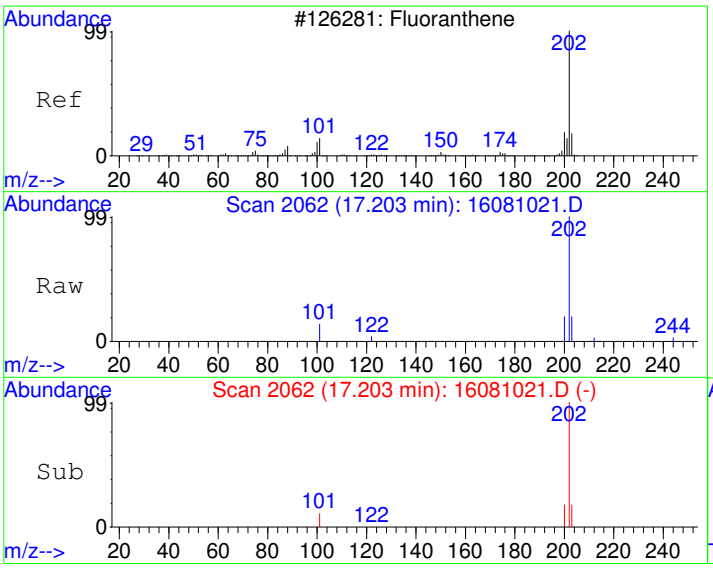


#9
Acenaphthene
Concen: 12.81 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081021.D
Acq: 10 Aug 2016 7:50 pm

Tgt Ion:154 Resp: 2641

Ion	Ratio	Lower	Upper
154	100		
152	1.5	19.1	79.1#
153	4.5	76.2	136.2#

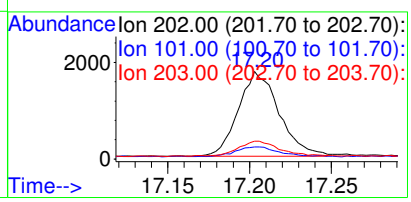


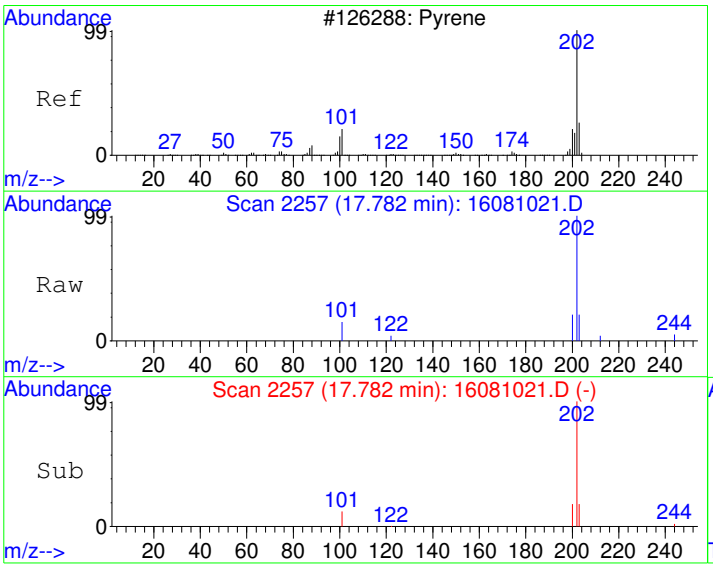


#14
Fluoranthene
Concen: 6.96 ug/kg
RT: 17.20 min Scan# 2062
Delta R.T. 0.00 min
Lab File: 16081021.D
Acq: 10 Aug 2016 7:50 pm

Tgt Ion:202 Resp: 3025

Ion	Ratio	Lower	Upper
202	100		
101	11.3	0.0	42.1
203	17.8	0.0	47.9

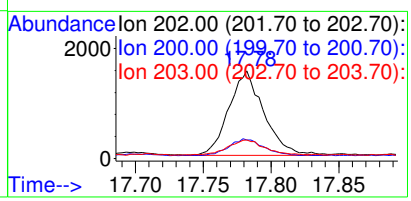


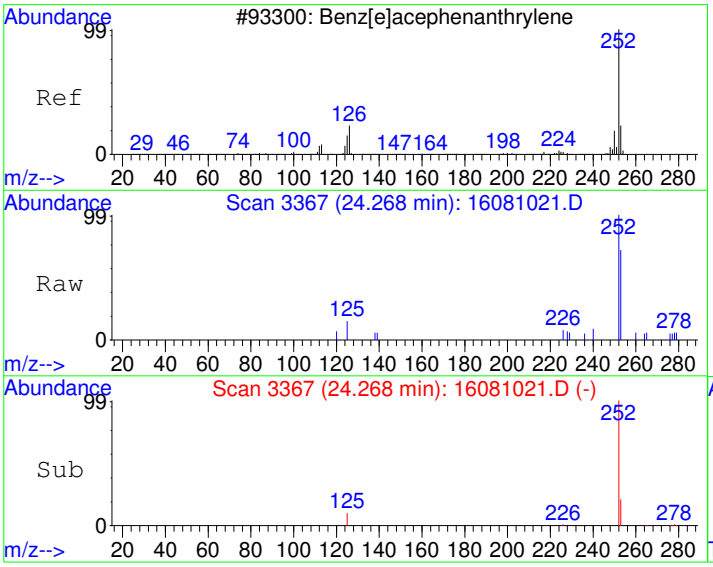


#15
Pyrene
Concen: 6.28 ug/kg
RT: 17.78 min Scan# 2257
Delta R.T. 0.01 min
Lab File: 16081021.D
Acq: 10 Aug 2016 7:50 pm

Tgt Ion:202 Resp: 2764

Ion	Ratio	Lower	Upper
202	100		
200	17.9	0.0	49.7
203	18.0	0.0	47.8

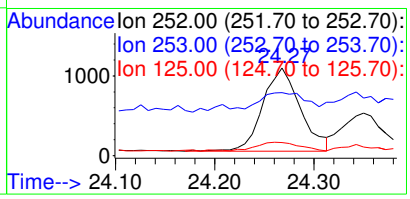


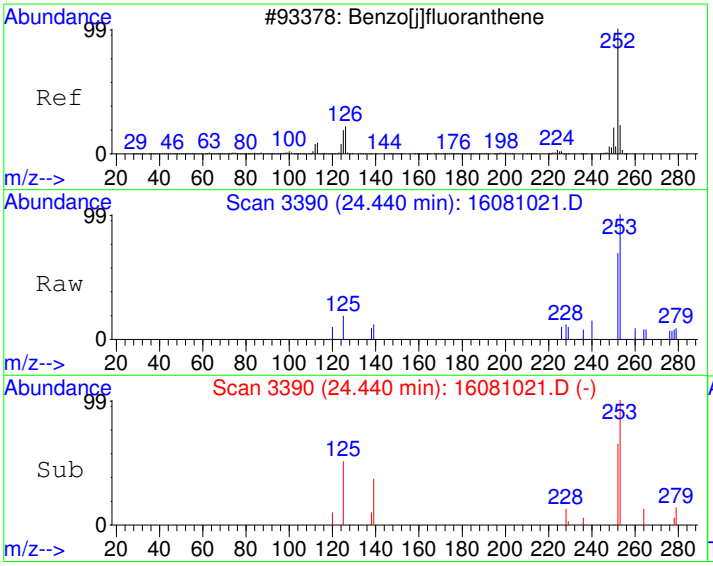


#21
Benzo[b]fluoranthene
Concen: 5.31 ug/kg
RT: 24.27 min Scan# 3367
Delta R.T. -0.01 min
Lab File: 16081021.D
Acq: 10 Aug 2016 7:50 pm

Tgt Ion:252 Resp: 2748

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.0
125	9.9	0.0	40.6

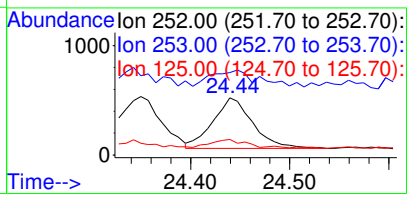




#23
Benzo(j)fluoranthene
Concen: 2.82 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.01 min
Lab File: 16081021.D
Acq: 10 Aug 2016 7:50 pm

Tgt Ion:252 Resp: 1288

Ion	Ratio	Lower	Upper
252	100		
253	19.0	2.2	42.2
125	17.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081022.D Vial: 22
Acq On : 10 Aug 2016 8:29 pm Operator: DEW
Sample : 1607294-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

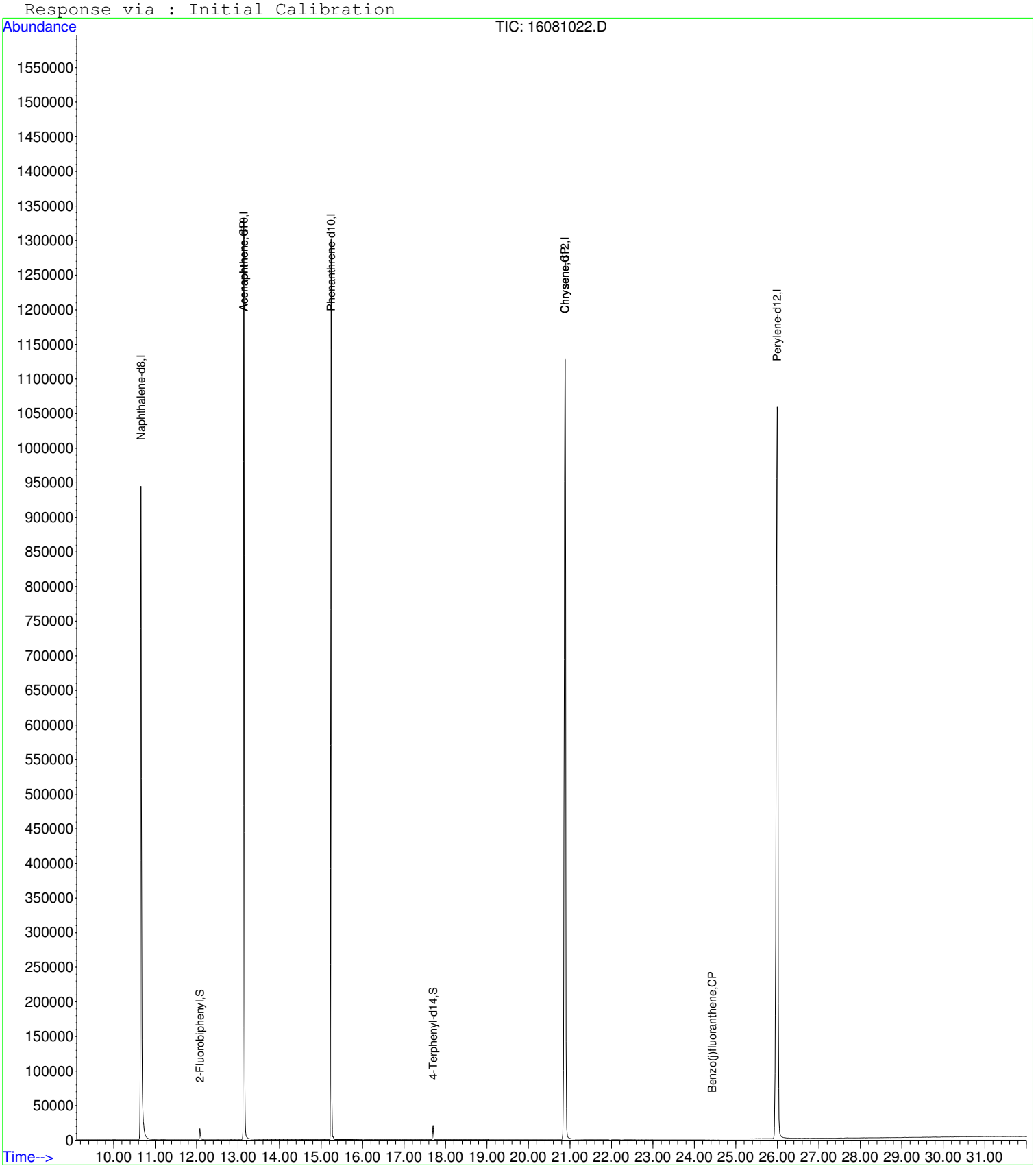
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1519538	4000.00	ug/kg	108
5) Acenaphthene-d10	13.14	164	795568	4000.00	ug/kg	133
11) Phenanthrene-d10	15.24	188	1507386	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2046621	4000.00	ug/kg	112
20) Perylene-d12	26.00	264	2176771	4000.00	ug/kg	113
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21130	76.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#		
16) 4-Terphenyl-d14	17.70	244	29313	82.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2722	13.34	ug/kg#	10
19) Chrysene	20.88	228	4329	9.75	ug/kg	73
23) Benzo(j)fluoranthene	24.44	252	18	0.04	ug/kg	78

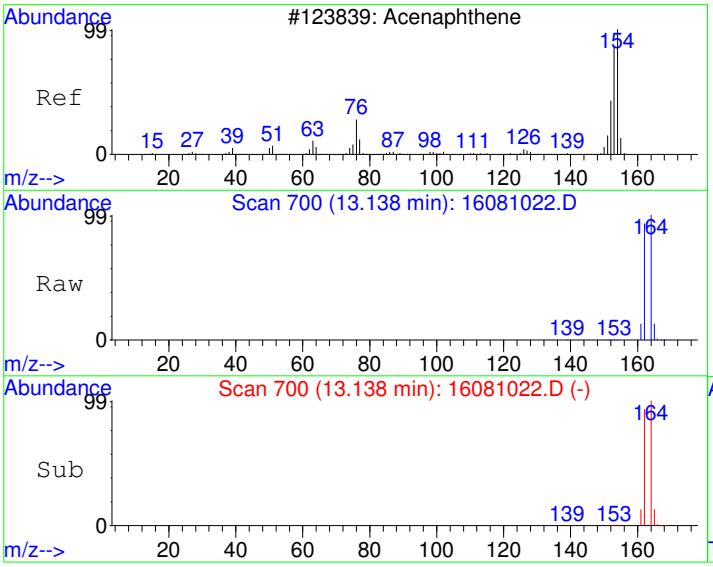
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081022.D Vial: 22
Acq On : 10 Aug 2016 8:29 pm Operator: DEW
Sample : 1607294-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

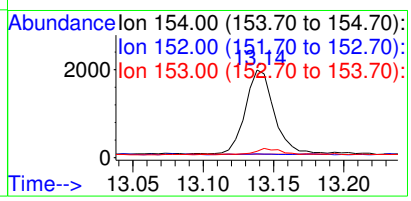


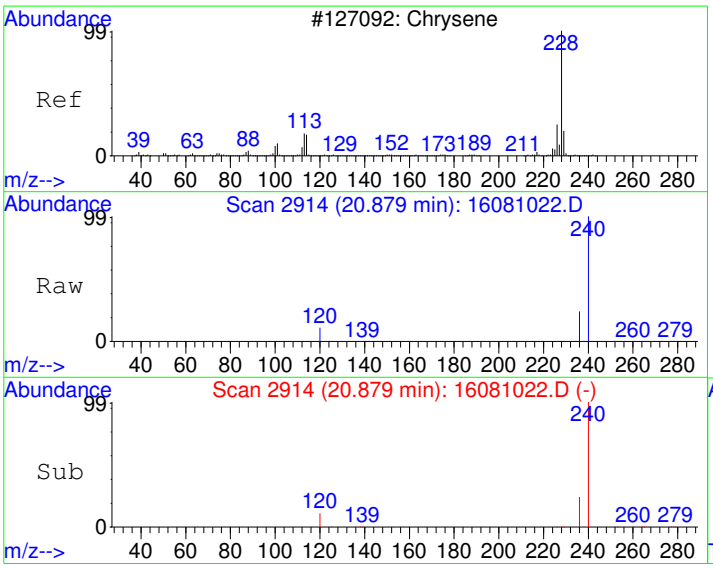


#9
Acenaphthene
Concen: 13.34 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081022.D
Acq: 10 Aug 2016 8:29 pm

Tgt Ion:154 Resp: 2722

Ion	Ratio	Lower	Upper
154	100		
152	0.5	19.1	79.1#
153	3.9	76.2	136.2#

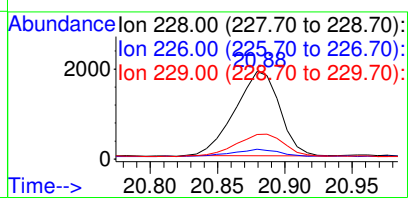


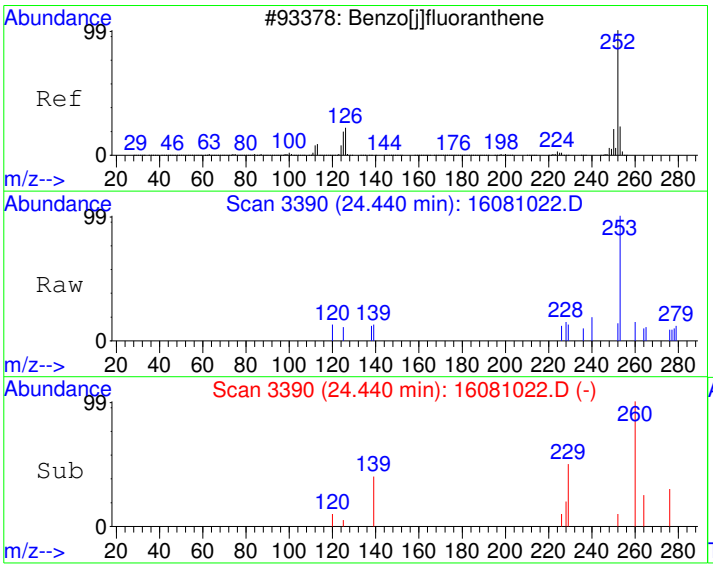


#19
Chrysene
Concen: 9.75 ug/kg
RT: 20.88 min Scan# 2914
Delta R.T. -0.10 min
Lab File: 16081022.D
Acq: 10 Aug 2016 8:29 pm

Tgt Ion:228 Resp: 4329

Ion	Ratio	Lower	Upper
228	100		
226	8.3	0.0	58.1
229	25.9	0.0	50.0

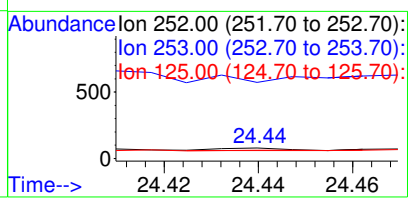




#23
Benzo(j)fluoranthene
Concen: 0.04 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.01 min
Lab File: 16081022.D
Acq: 10 Aug 2016 8:29 pm

Tgt Ion:252 Resp: 18

Ion	Ratio	Lower	Upper
252	100		
253	5.0	2.2	42.2
125	15.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081023.D Vial: 23
Acq On : 10 Aug 2016 9:09 pm Operator: DEW
Sample : 1607294-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

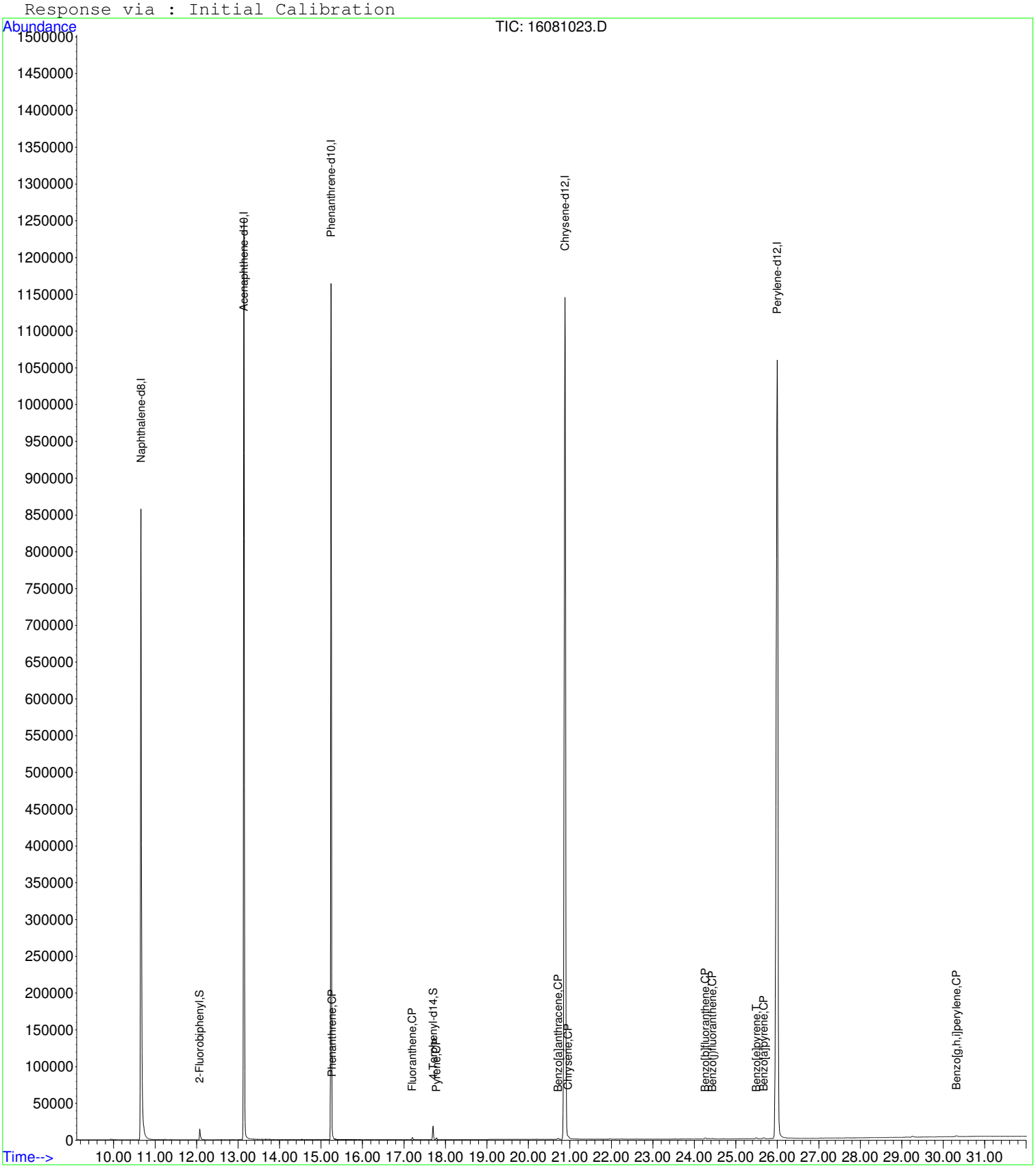
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1396008	4000.00	ug/kg	99
5) Acenaphthene-d10	13.14	164	751205	4000.00	ug/kg	125
11) Phenanthrene-d10	15.24	188	1373137	4000.00	ug/kg	86
17) Chrysene-d12	20.88	240	2027427	4000.00	ug/kg	111
20) Perylene-d12	26.00	264	2140379	4000.00	ug/kg	111
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19217	73.34	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.83%#		
16) 4-Terphenyl-d14	17.70	244	26526	81.86	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
12) Phenanthrene	15.28	178	1771	5.44	ug/kg	97
14) Fluoranthene	17.20	202	2207	5.72	ug/kg	97
15) Pyrene	17.78	202	3596	9.19	ug/kg	98
18) Benzo[a]anthracene	20.72	228	2340	5.12	ug/kg	100
19) Chrysene	20.96	228	2596	5.91	ug/kg	96
21) Benzo[b]fluoranthene	24.26	252	2982	6.04	ug/kg	93
23) Benzo(j)fluoranthene	24.43	252	1371	3.15	ug/kg	78
24) Benzo[e]pyrene	25.49	252	2504	5.22	ug/kg	99
25) Benzo[a]pyrene	25.67	252	2673	5.60	ug/kg	94
28) Benzo[g,h,i]perylene	30.32	276	2600	5.66	ug/kg	96

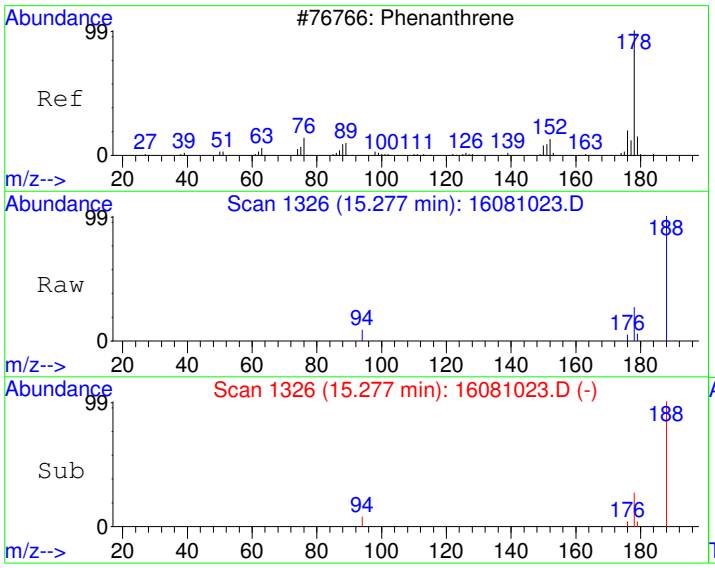
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081023.D Vial: 23
Acq On : 10 Aug 2016 9:09 pm Operator: DEW
Sample : 1607294-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

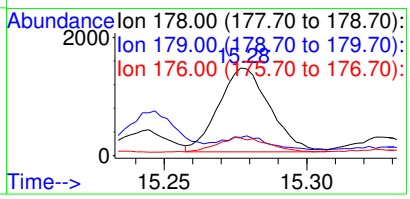


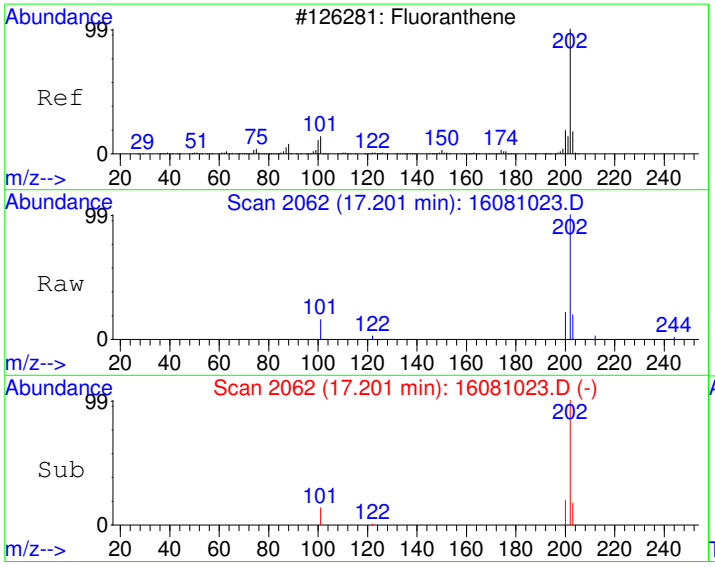


#12
Phenanthrene
Concen: 5.44 ug/kg
RT: 15.28 min Scan# 1326
Delta R.T. -0.00 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:178 Resp: 1771

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.7
176	16.8	0.0	48.7

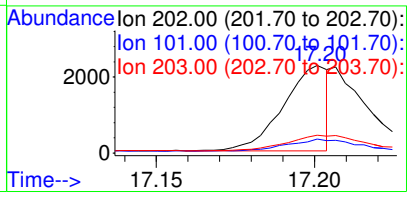


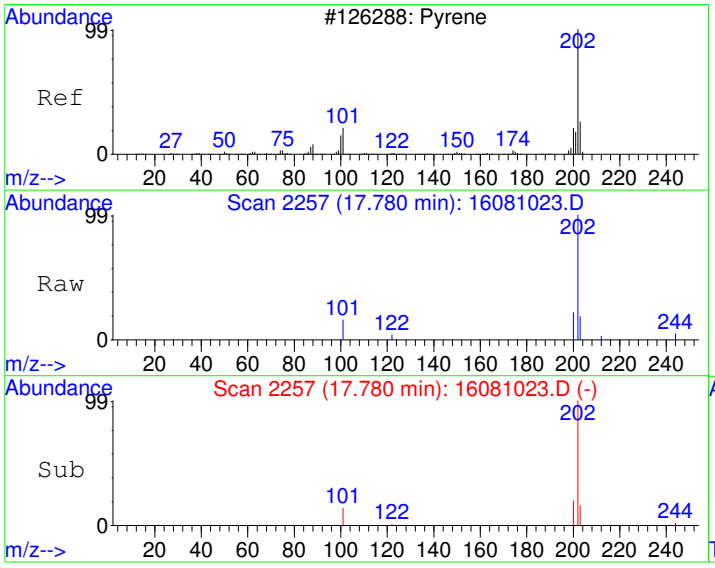


#14
Fluoranthene
Concen: 5.72 ug/kg
RT: 17.20 min Scan# 2062
Delta R.T. 0.00 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:202 Resp: 2207

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	42.1
203	18.4	0.0	47.9

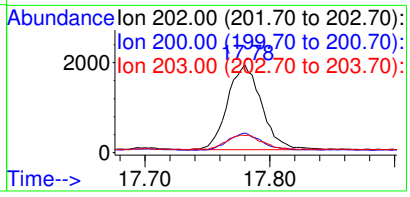


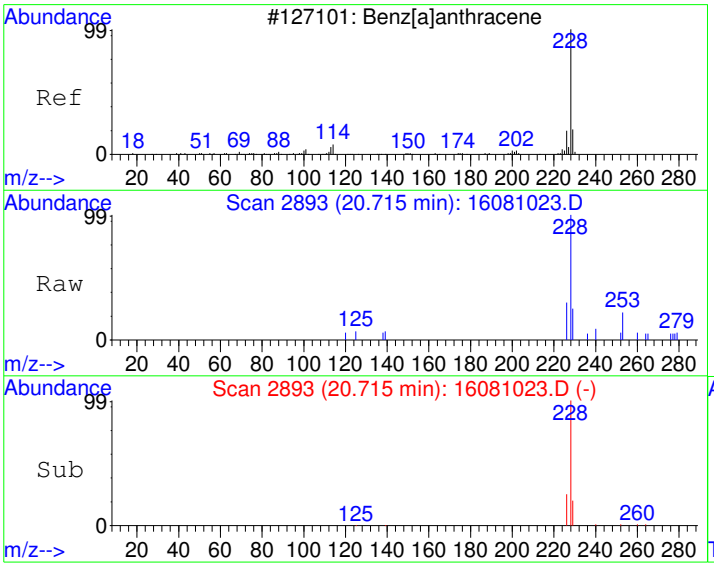


#15
Pyrene
Concen: 9.19 ug/kg
RT: 17.78 min Scan# 2257
Delta R.T. 0.00 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:202 Resp: 3596

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	49.7
203	16.7	0.0	47.8

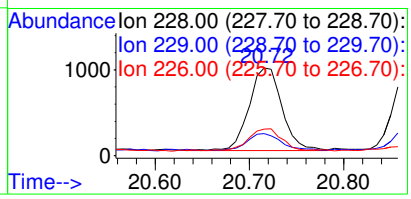


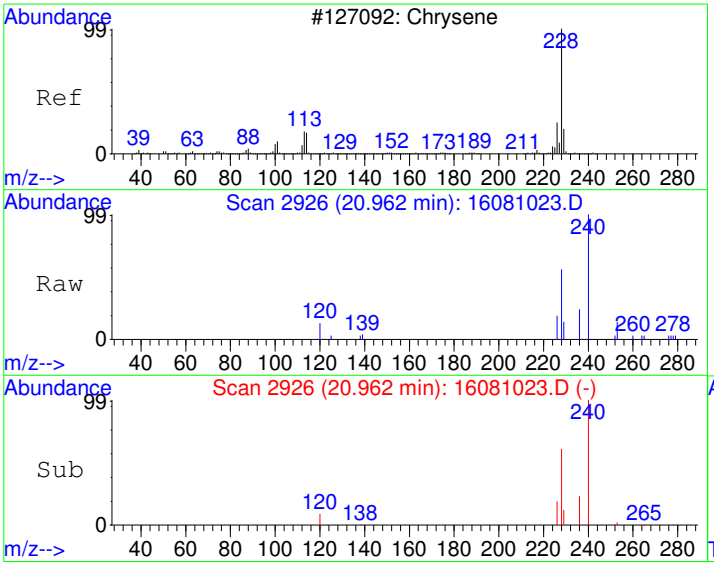


#18
Benzo[a]anthracene
Concen: 5.12 ug/kg
RT: 20.72 min Scan# 2893
Delta R.T. -0.01 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:228 Resp: 2340

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	49.8
226	25.9	0.0	55.8

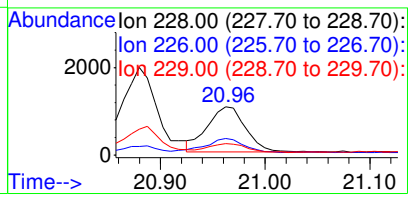


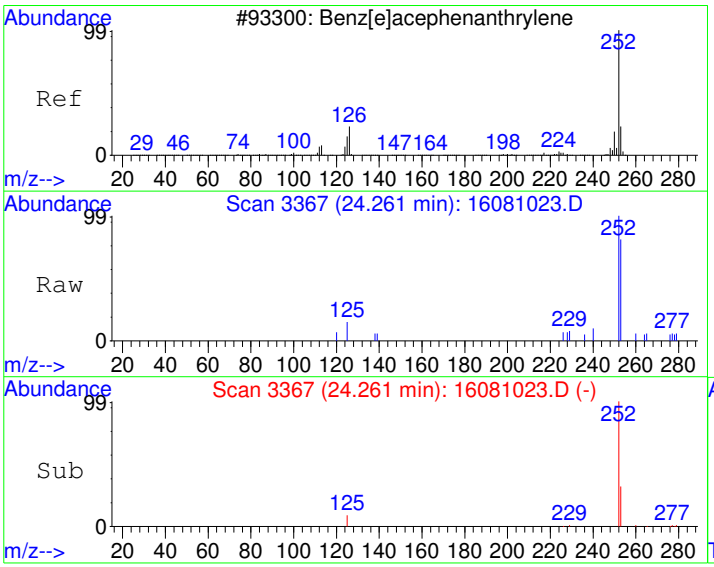


#19
Chrysene
Concen: 5.91 ug/kg
RT: 20.96 min Scan# 2926
Delta R.T. -0.01 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:228 Resp: 2596

Ion	Ratio	Lower	Upper
228	100		
226	30.7	0.0	58.1
229	19.3	0.0	50.0

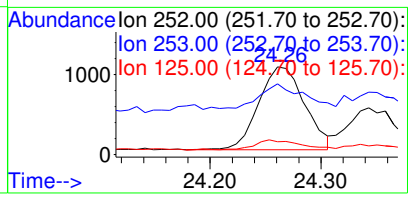


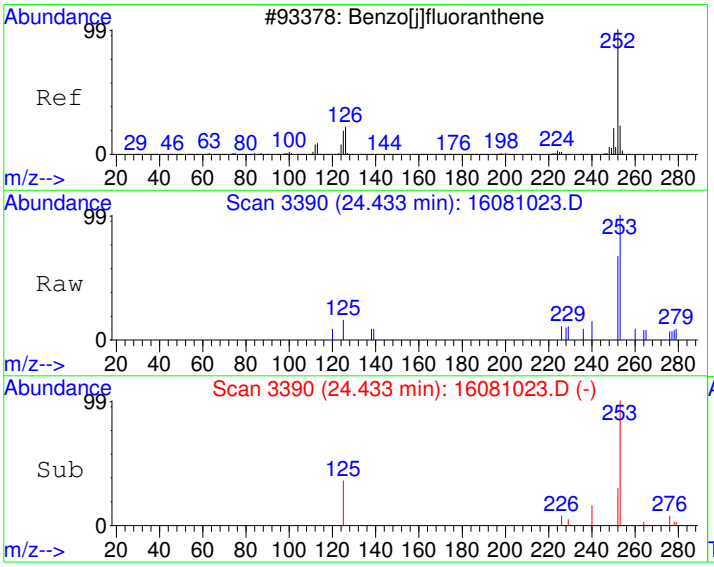


#21
Benzo[b]fluoranthene
Concen: 6.04 ug/kg
RT: 24.26 min Scan# 3367
Delta R.T. -0.01 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:252 Resp: 2982

Ion	Ratio	Lower	Upper
252	100		
253	26.5	0.0	52.0
125	10.0	0.0	40.6

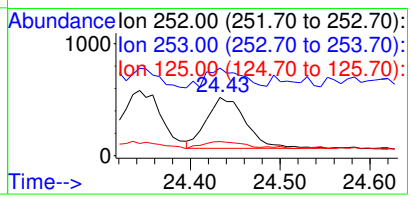


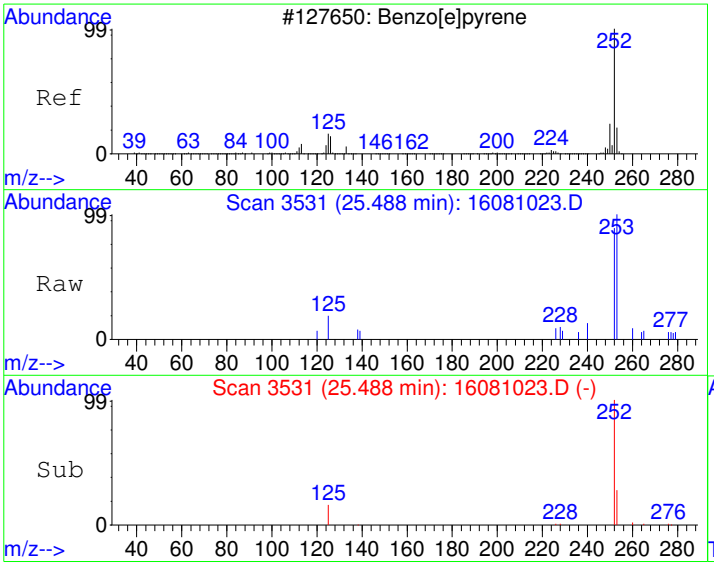


#23
Benzo(j)fluoranthene
Concen: 3.15 ug/kg
RT: 24.43 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:252 Resp: 1371

Ion	Ratio	Lower	Upper
252	100		
253	38.8	2.2	42.2
125	13.7	0.0	34.4

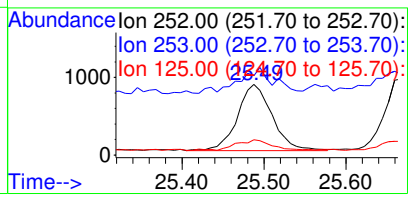


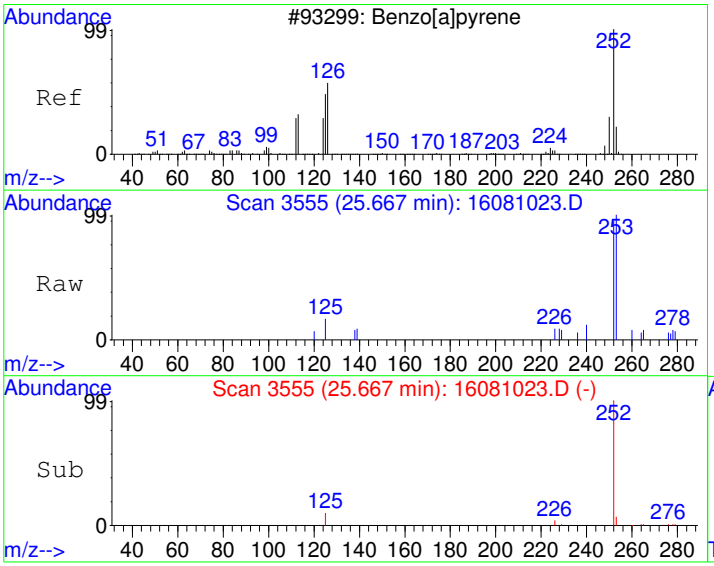


#24
Benzo[e]pyrene
Concen: 5.22 ug/kg
RT: 25.49 min Scan# 3531
Delta R.T. -0.01 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:252 Resp: 2504

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.2	42.2
125	15.7	0.0	35.7

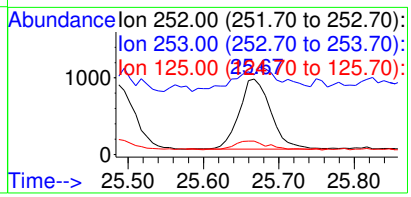


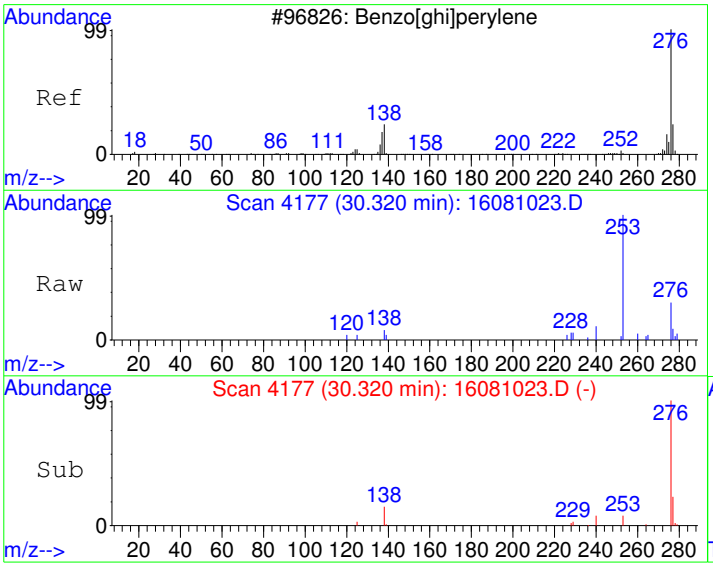


#25
Benzo[a]pyrene
Concen: 5.60 ug/kg
RT: 25.67 min Scan# 3555
Delta R.T. -0.01 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:252 Resp: 2673

Ion	Ratio	Lower	Upper
252	100		
253	17.5	2.0	42.0
125	11.7	0.0	31.6

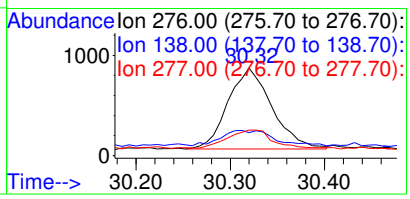




#28
Benzo[g,h,i]perylene
Concen: 5.66 ug/kg
RT: 30.32 min Scan# 4177
Delta R.T. -0.01 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:09 pm

Tgt Ion:276 Resp: 2600

Ion	Ratio	Lower	Upper
276	100		
138	16.4	0.0	38.1
277	22.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081024.D Vial: 24
Acq On : 10 Aug 2016 9:49 pm Operator: DEW
Sample : 1607294-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

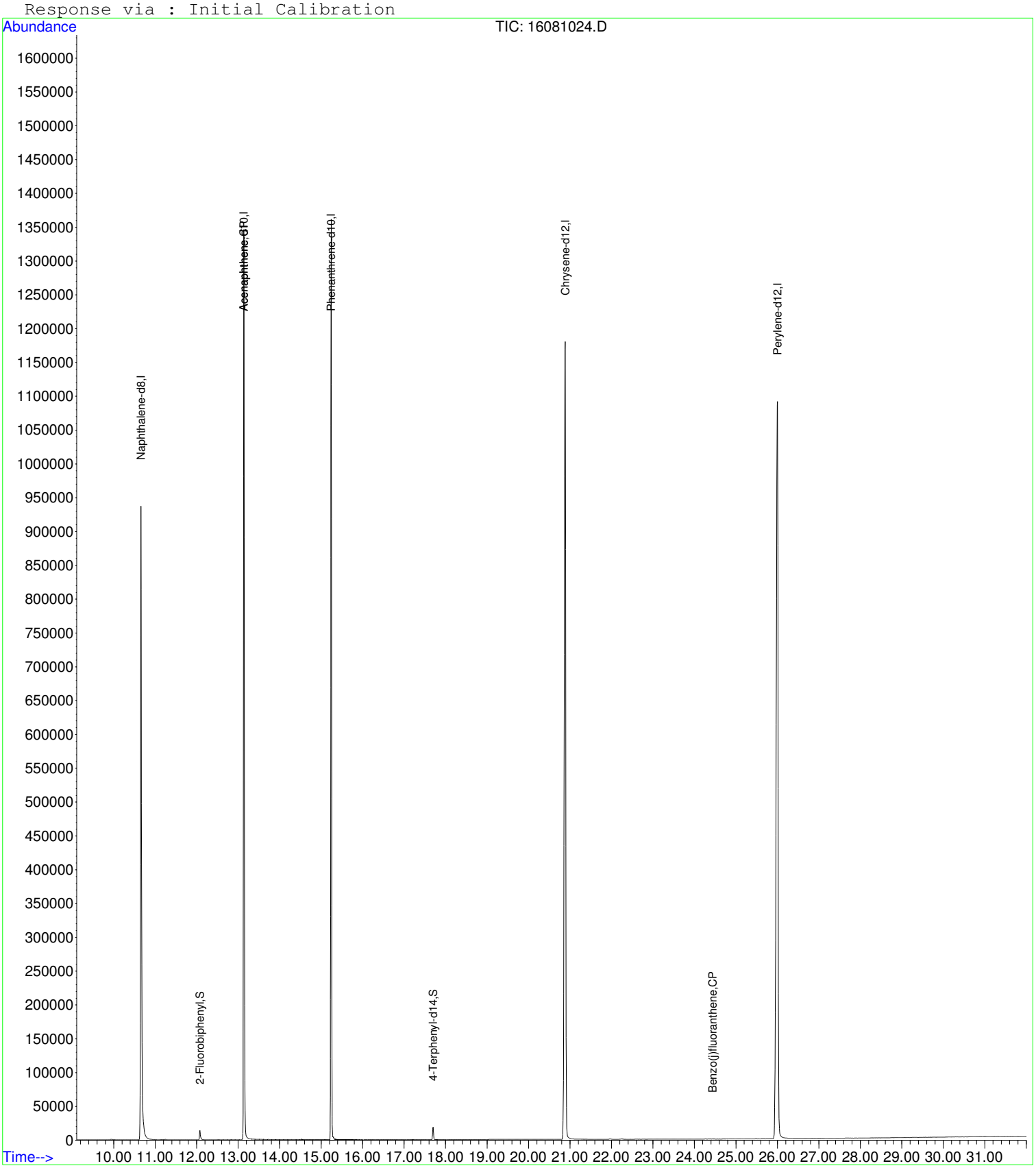
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1507929	4000.00	ug/kg	107
5) Acenaphthene-d10	13.14	164	810319	4000.00	ug/kg	135
11) Phenanthrene-d10	15.24	188	1571383	4000.00	ug/kg	99
17) Chrysene-d12	20.89	240	2114963	4000.00	ug/kg	115
20) Perylene-d12	26.00	264	2258035	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19174	67.84	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.70%#		
16) 4-Terphenyl-d14	17.70	244	27328	73.69	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2743	13.20	ug/kg#	11
23) Benzo(j)fluoranthene	24.44	252	217	0.47	ug/kg#	71

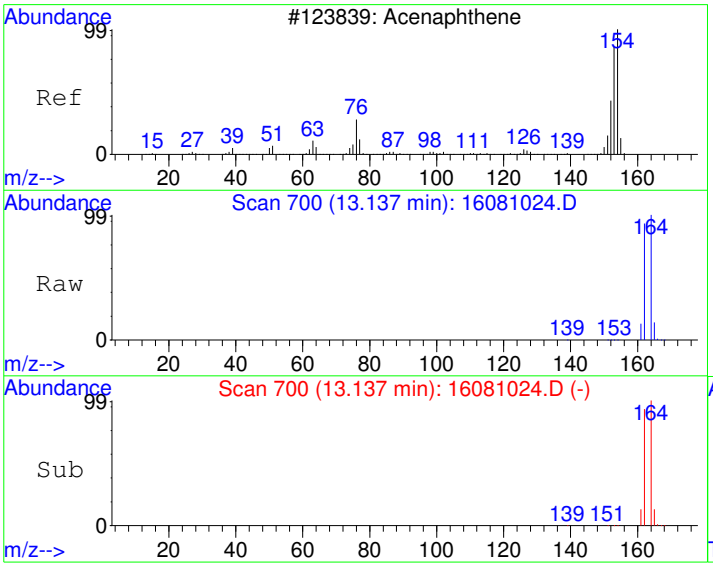
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081024.D Vial: 24
Acq On : 10 Aug 2016 9:49 pm Operator: DEW
Sample : 1607294-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

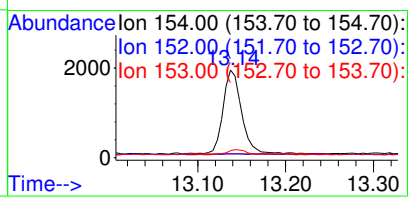


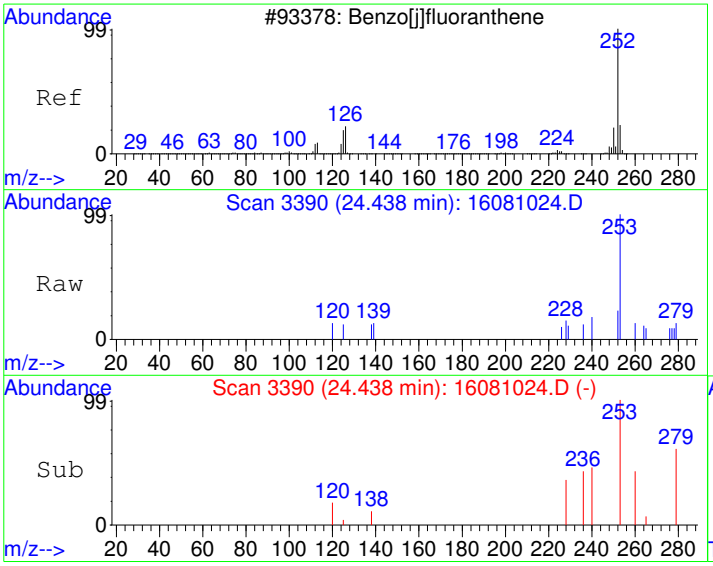


#9
Acenaphthene
Concen: 13.20 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.06 min
Lab File: 16081024.D
Acq: 10 Aug 2016 9:49 pm

Tgt Ion:154 Resp: 2743

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	5.1	76.2	136.2#

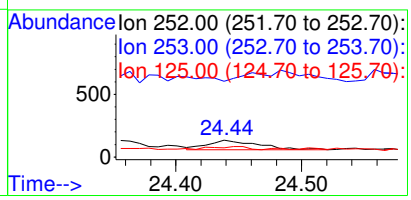




#23
Benzo(j)fluoranthene
Concen: 0.47 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081024.D
Acq: 10 Aug 2016 9:49 pm

Tgt Ion:252 Resp: 217

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	15.4	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081025.D Vial: 25
Acq On : 10 Aug 2016 10:29 pm Operator: DEW
Sample : 1607294-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

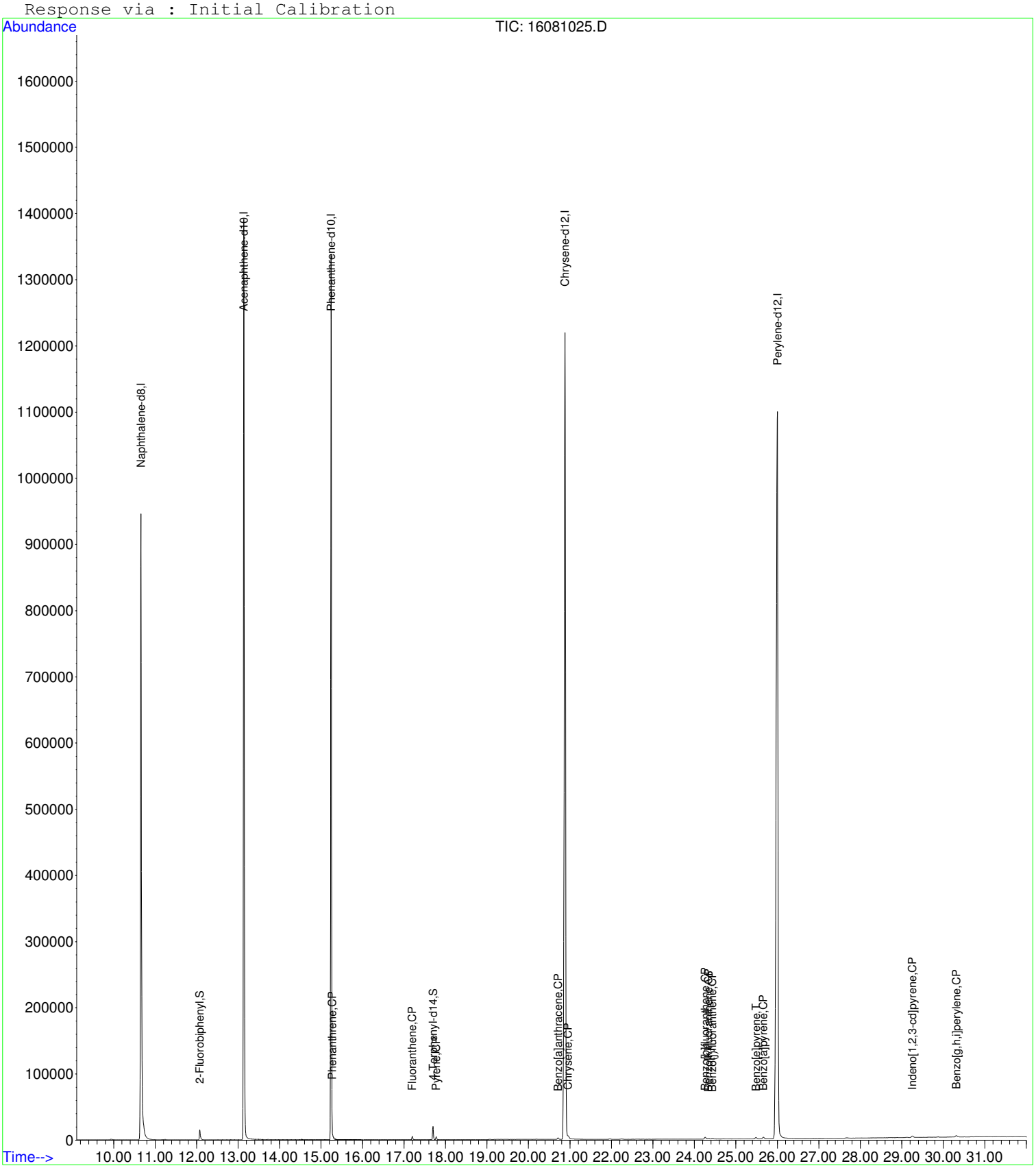
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1527322	4000.00	ug/kg	109
5) Acenaphthene-d10	13.14	164	817766	4000.00	ug/kg	136
11) Phenanthrene-d10	15.24	188	1555662	4000.00	ug/kg	98
17) Chrysene-d12	20.88	240	2112076	4000.00	ug/kg	115
20) Perylene-d12	26.00	264	2238857	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20183	70.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
16) 4-Terphenyl-d14	17.70	244	28342	77.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#		
Target Compounds						Qvalue
12) Phenanthrene	15.28	178	2553	6.92	ug/kg	97
14) Fluoranthene	17.20	202	6505	14.88	ug/kg	98
15) Pyrene	17.78	202	5899	13.31	ug/kg	99
18) Benzo[a]anthracene	20.71	228	3840	8.07	ug/kg	97
19) Chrysene	20.96	228	4806	10.49	ug/kg	98
21) Benzo[b]fluoranthene	24.26	252	5631	10.89	ug/kg	99
22) Benzo[k]fluoranthene	24.34	252	2697	5.69	ug/kg	93
23) Benzo(j)fluoranthene	24.44	252	2478	5.44	ug/kg	89
24) Benzo[e]pyrene	25.49	252	4581	9.13	ug/kg	98
25) Benzo[a]pyrene	25.67	252	5387	10.79	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.26	276	4518	7.88	ug/kg	93
28) Benzo[g,h,i]perylene	30.32	276	4757	9.90	ug/kg	99

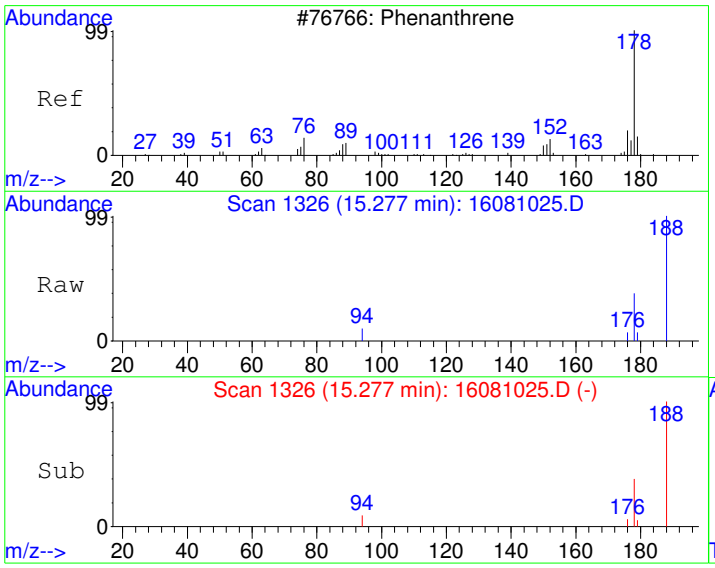
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081025.D Vial: 25
Acq On : 10 Aug 2016 10:29 pm Operator: DEW
Sample : 1607294-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:32 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

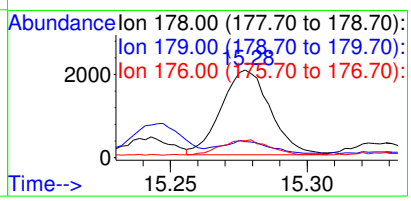


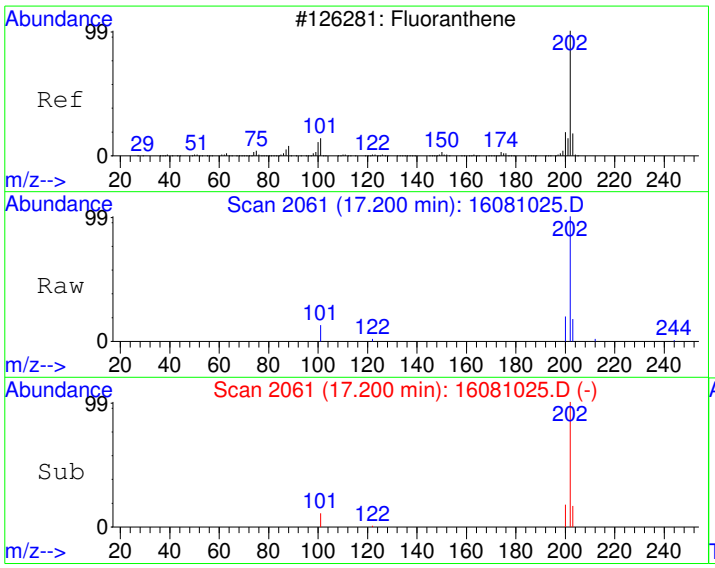


#12
Phenanthrene
Concen: 6.92 ug/kg
RT: 15.28 min Scan# 1326
Delta R.T. -0.00 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:178 Resp: 2553

Ion	Ratio	Lower	Upper
178	100		
179	14.5	0.0	45.7
176	17.1	0.0	48.7

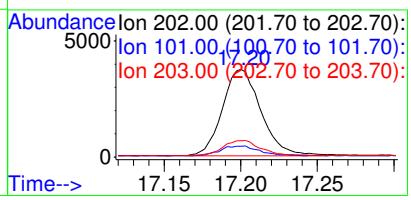


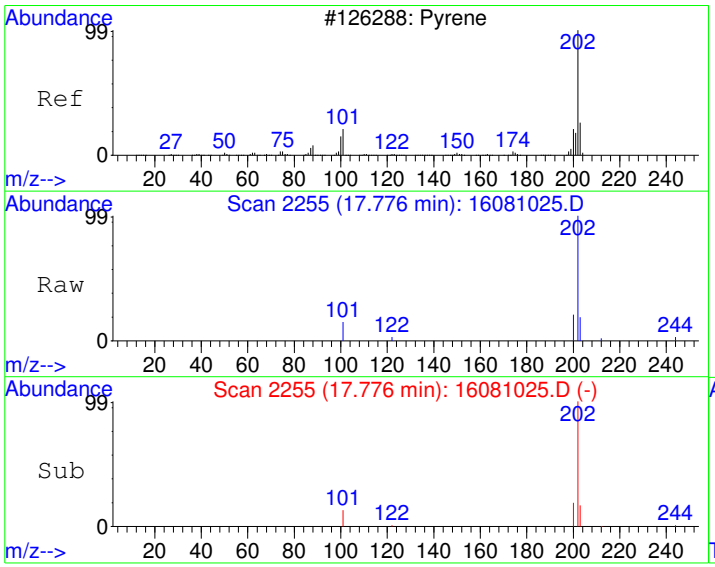


#14
Fluoranthene
Concen: 14.88 ug/kg
RT: 17.20 min Scan# 2061
Delta R.T. 0.00 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:202 Resp: 6505

Ion	Ratio	Lower	Upper
202	100		
101	11.3	0.0	42.1
203	16.9	0.0	47.9

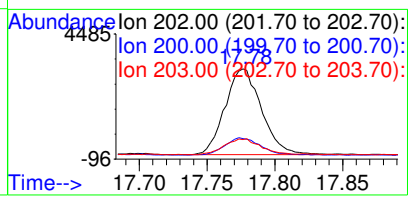


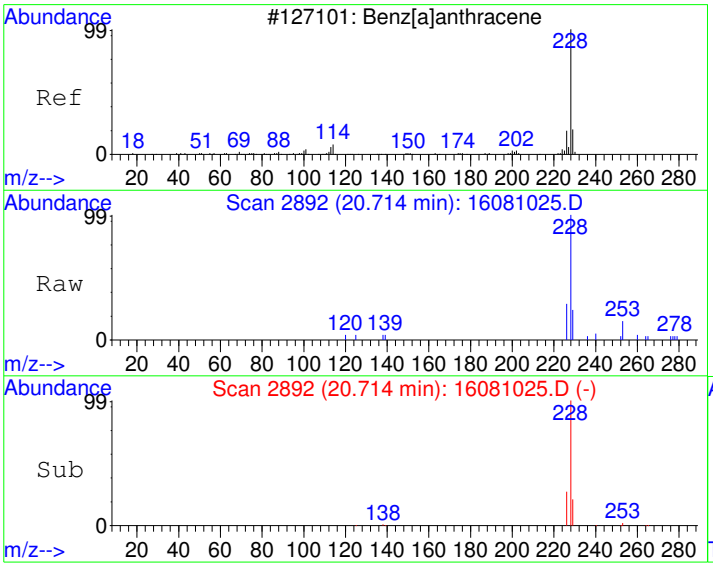


#15
Pyrene
Concen: 13.31 ug/kg
RT: 17.78 min Scan# 2255
Delta R.T. 0.00 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:202 Resp: 5899

Ion	Ratio	Lower	Upper
202	100		
200	19.1	0.0	49.7
203	17.4	0.0	47.8

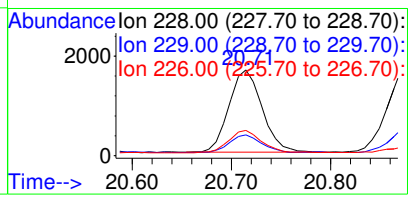


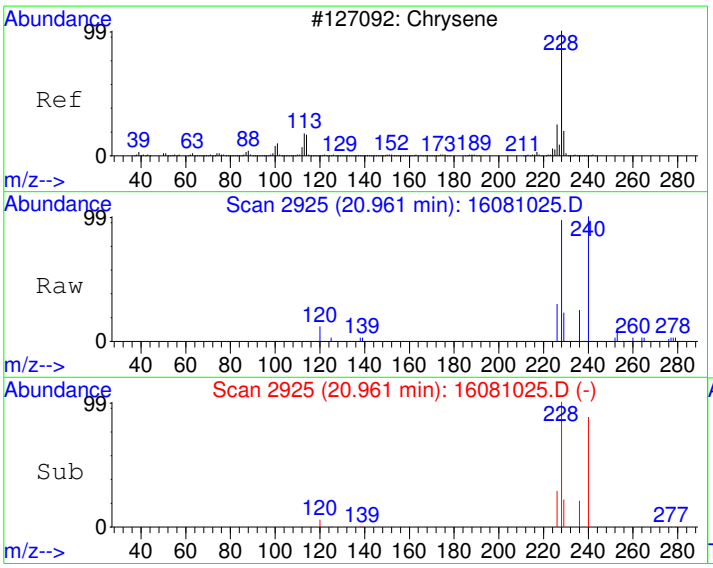


#18
Benzo[a]anthracene
Concen: 8.07 ug/kg
RT: 20.71 min Scan# 2892
Delta R.T. -0.01 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:228 Resp: 3840

Ion	Ratio	Lower	Upper
228	100		
229	21.1	0.0	49.8
226	27.1	0.0	55.8

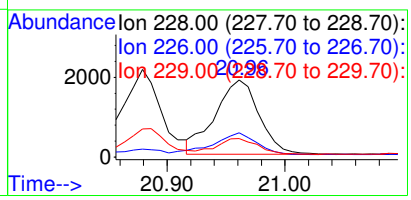


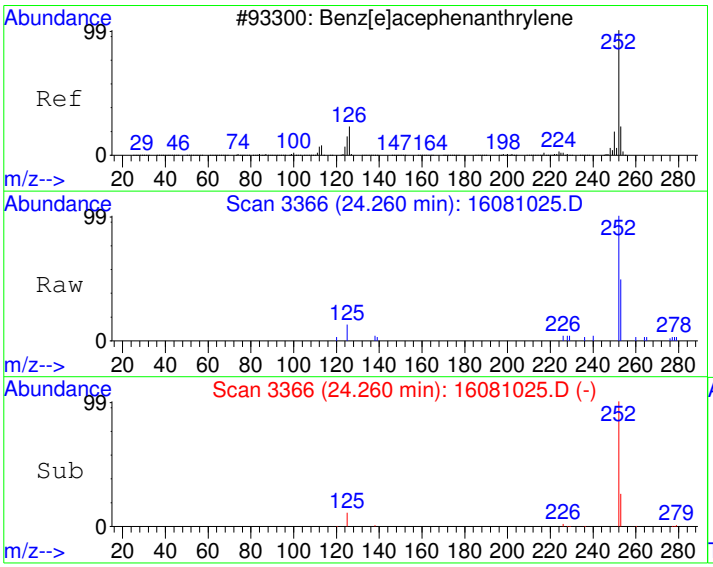


#19
Chrysene
Concen: 10.49 ug/kg
RT: 20.96 min Scan# 2925
Delta R.T. -0.02 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:228 Resp: 4806

Ion	Ratio	Lower	Upper
228	100		
226	29.1	0.0	58.1
229	20.7	0.0	50.0

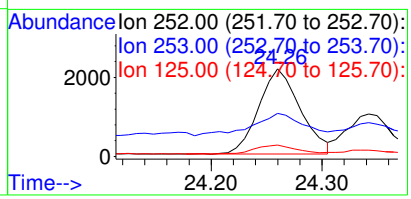


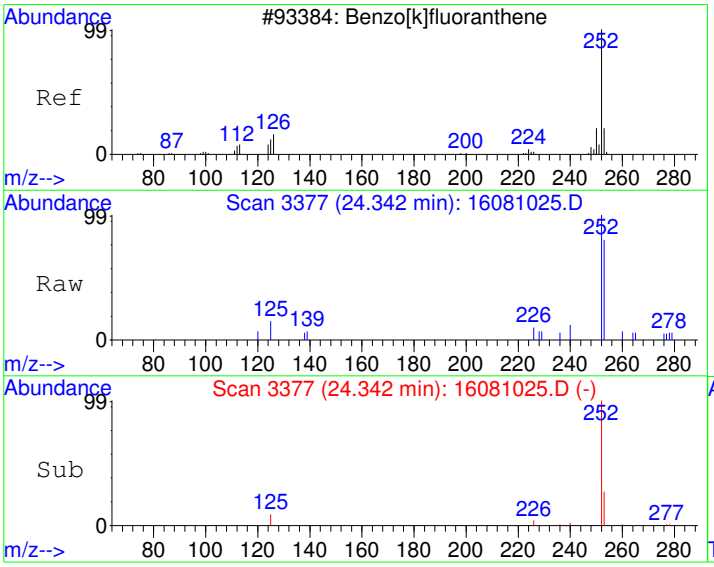


#21
Benzo[b]fluoranthene
Concen: 10.89 ug/kg
RT: 24.26 min Scan# 3366
Delta R.T. -0.02 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:252 Resp: 5631

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	52.0
125	10.5	0.0	40.6

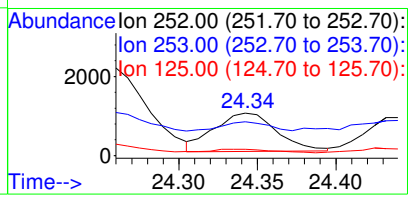


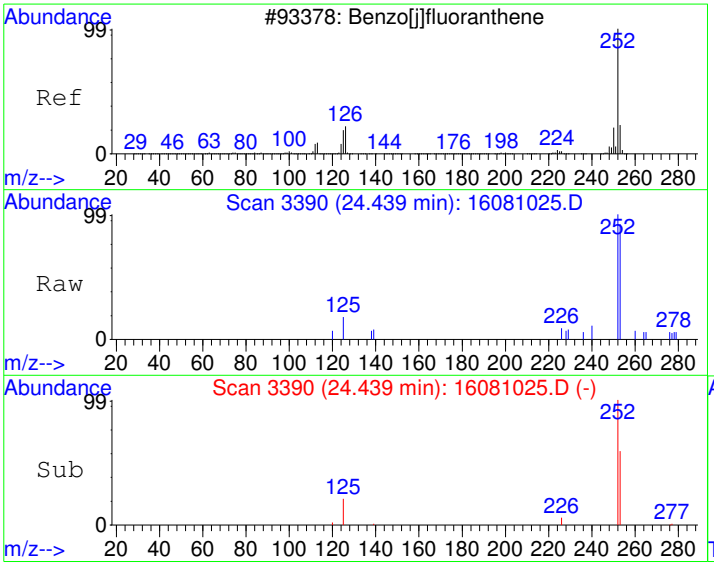


#22
Benzo[k]fluoranthene
Concen: 5.69 ug/kg
RT: 24.34 min Scan# 3377
Delta R.T. -0.02 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:252 Resp: 2697

Ion	Ratio	Lower	Upper
252	100		
253	26.0	2.2	42.2
125	8.0	0.0	30.3

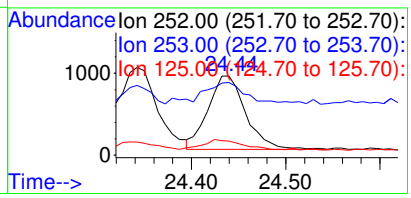


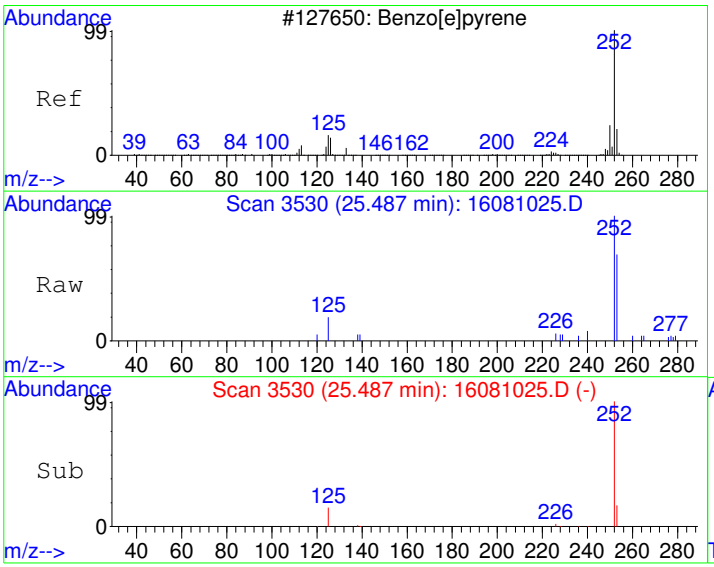


#23
Benzo(j)fluoranthene
Concen: 5.44 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:252 Resp: 2478

Ion	Ratio	Lower	Upper
252	100		
253	29.1	2.2	42.2
125	12.2	0.0	34.4

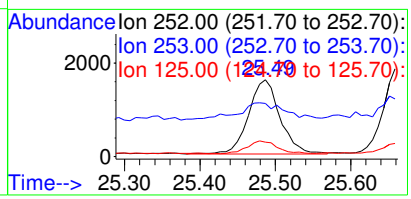


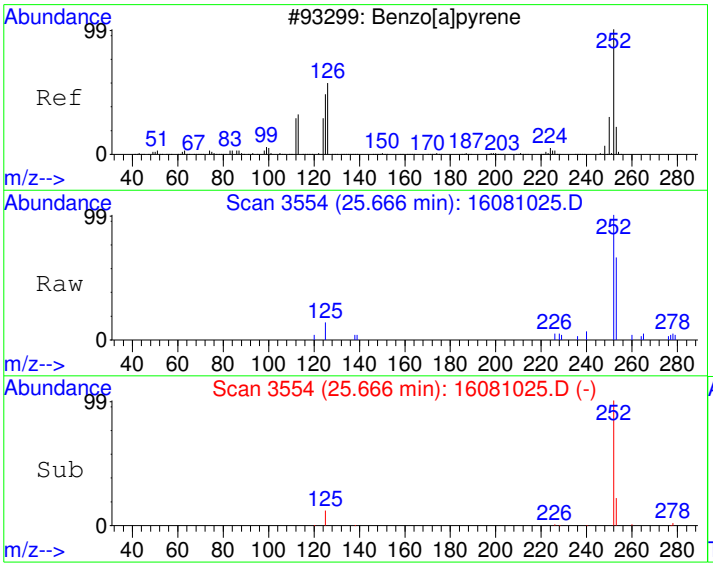


#24
Benzo[e]pyrene
Concen: 9.13 ug/kg
RT: 25.49 min Scan# 3530
Delta R.T. -0.02 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:252 Resp: 4581

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.2	42.2
125	15.2	0.0	35.7

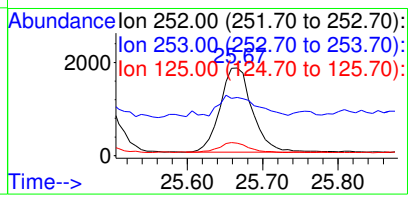


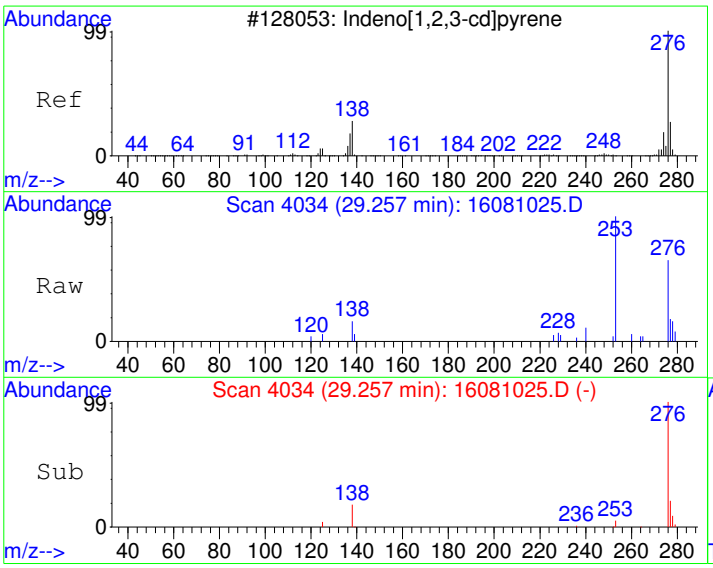


#25
Benzo[a]pyrene
Concen: 10.79 ug/kg
RT: 25.67 min Scan# 3554
Delta R.T. -0.02 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:252 Resp: 5387

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.0	42.0
125	10.9	0.0	31.6

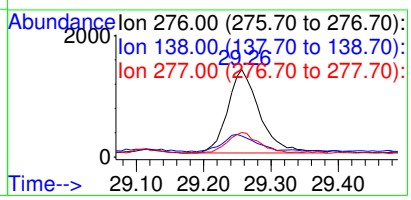


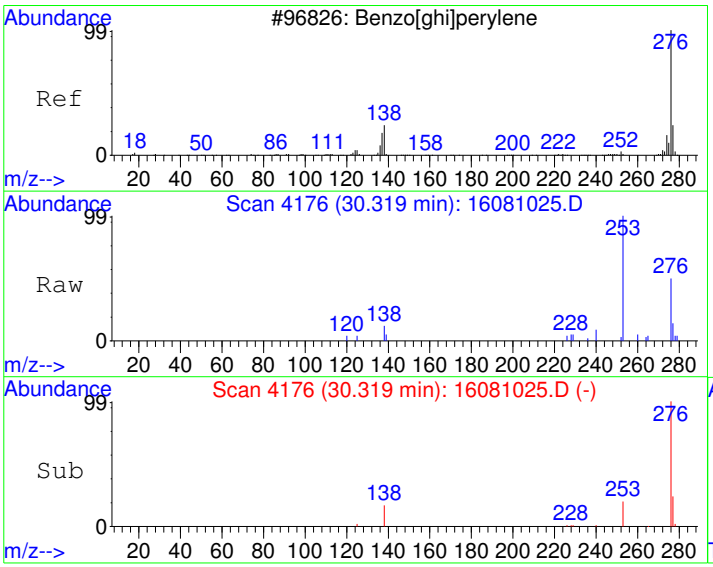


#27
Indeno[1,2,3-cd]pyrene
Concen: 7.88 ug/kg
RT: 29.26 min Scan# 4034
Delta R.T. -0.02 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:276 Resp: 4518

Ion	Ratio	Lower	Upper
276	100		
138	18.8	4.8	44.8
277	24.9	5.6	45.6

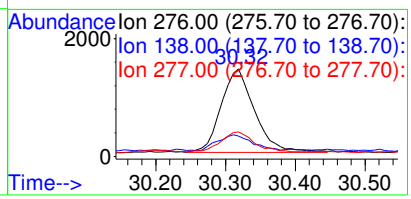




#28
Benzo[g,h,i]perylene
Concen: 9.90 ug/kg
RT: 30.32 min Scan# 4176
Delta R.T. -0.01 min
Lab File: 16081025.D
Acq: 10 Aug 2016 10:29 pm

Tgt Ion:276 Resp: 4757

Ion	Ratio	Lower	Upper
276	100		
138	17.2	0.0	38.1
277	23.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081026.D Vial: 26
Acq On : 10 Aug 2016 11:09 pm Operator: DEW
Sample : 1607294-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

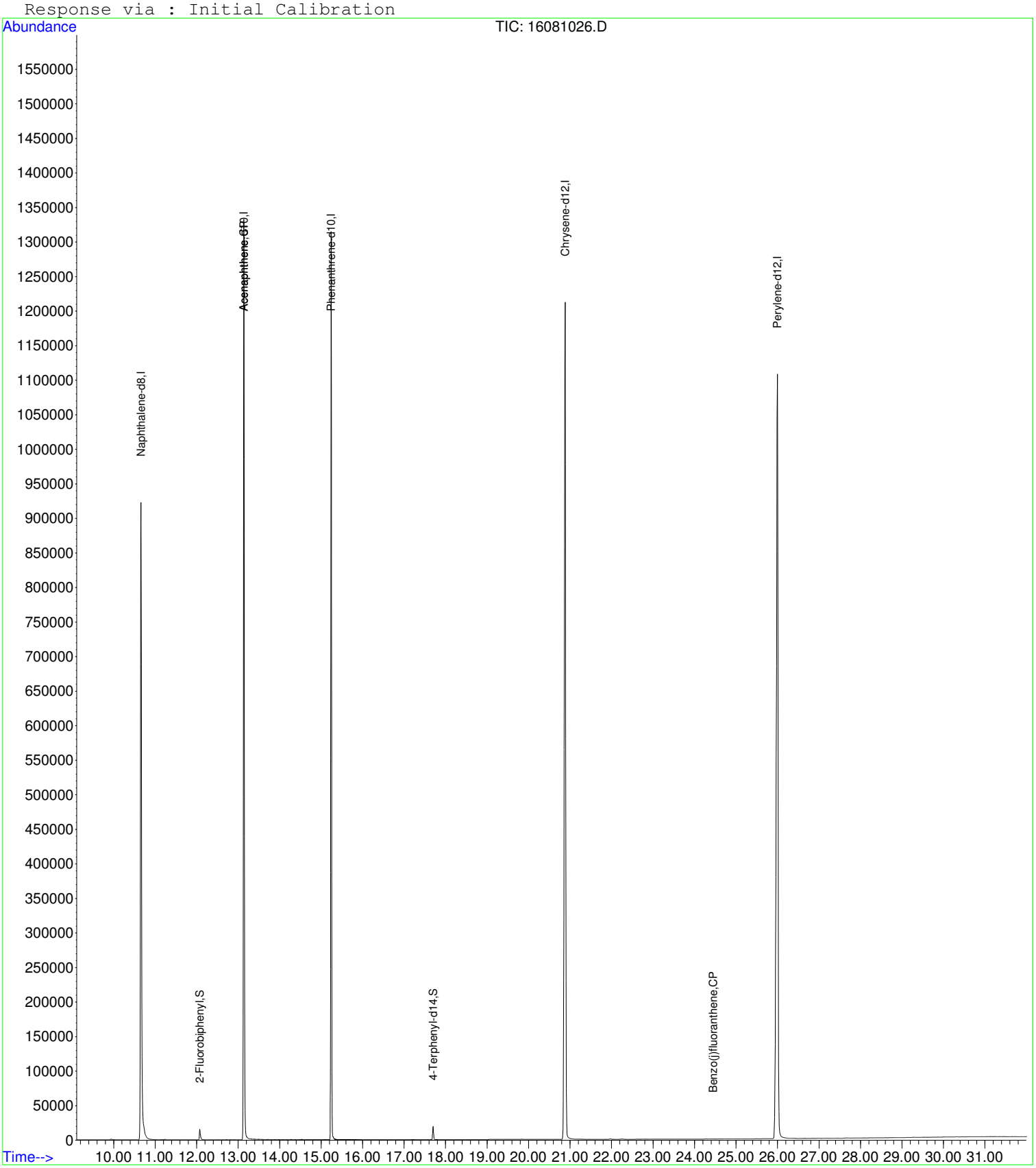
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1529195	4000.00	ug/kg	109
5) Acenaphthene-d10	13.14	164	805279	4000.00	ug/kg	134
11) Phenanthrene-d10	15.24	188	1522339	4000.00	ug/kg	96
17) Chrysene-d12	20.88	240	2059599	4000.00	ug/kg	112
20) Perylene-d12	26.00	264	2184681	4000.00	ug/kg	113
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20207	71.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.70	244	27873	77.59	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2691	13.03	ug/kg#	10
23) Benzo(j)fluoranthene	24.44	252	153	0.34	ug/kg#	37

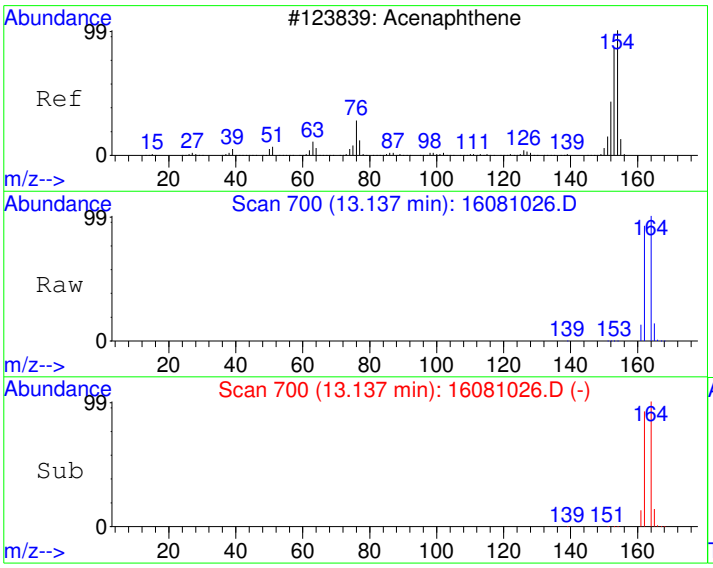
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081026.D Vial: 26
Acq On : 10 Aug 2016 11:09 pm Operator: DEW
Sample : 1607294-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

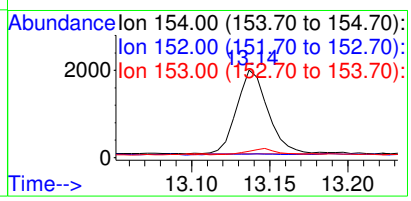


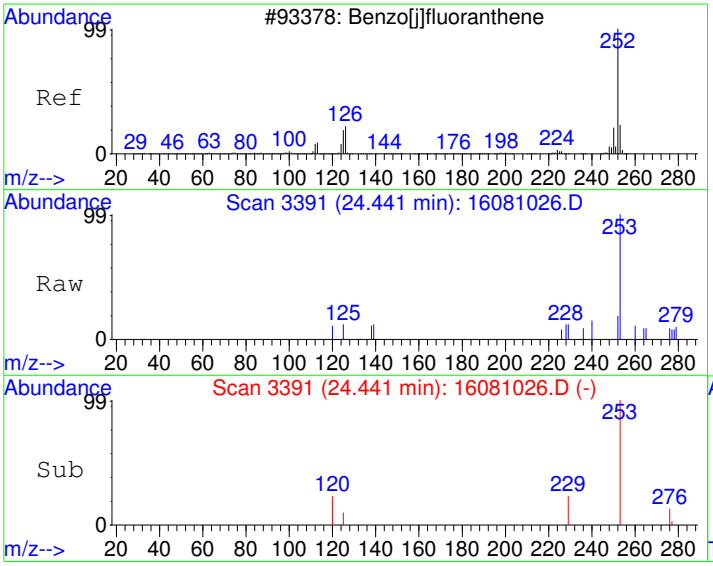


#9
Acenaphthene
Concen: 13.03 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.06 min
Lab File: 16081026.D
Acq: 10 Aug 2016 11:09 pm

Tgt Ion:154 Resp: 2691

Ion	Ratio	Lower	Upper
154	100		
152	0.8	19.1	79.1#
153	3.3	76.2	136.2#

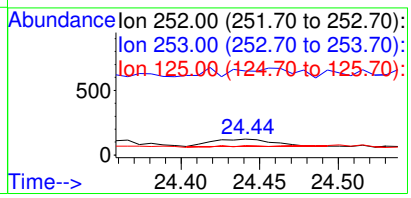




#23
Benzo(j)fluoranthene
Concen: 0.34 ug/kg
RT: 24.44 min Scan# 3391
Delta R.T. -0.01 min
Lab File: 16081026.D
Acq: 10 Aug 2016 11:09 pm

Tgt Ion:252 Resp: 153

Ion	Ratio	Lower	Upper
252	100		
253	63.2	2.2	42.2#
125	26.3	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081027.D Vial: 27
Acq On : 10 Aug 2016 11:49 pm Operator: DEW
Sample : 1607294-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

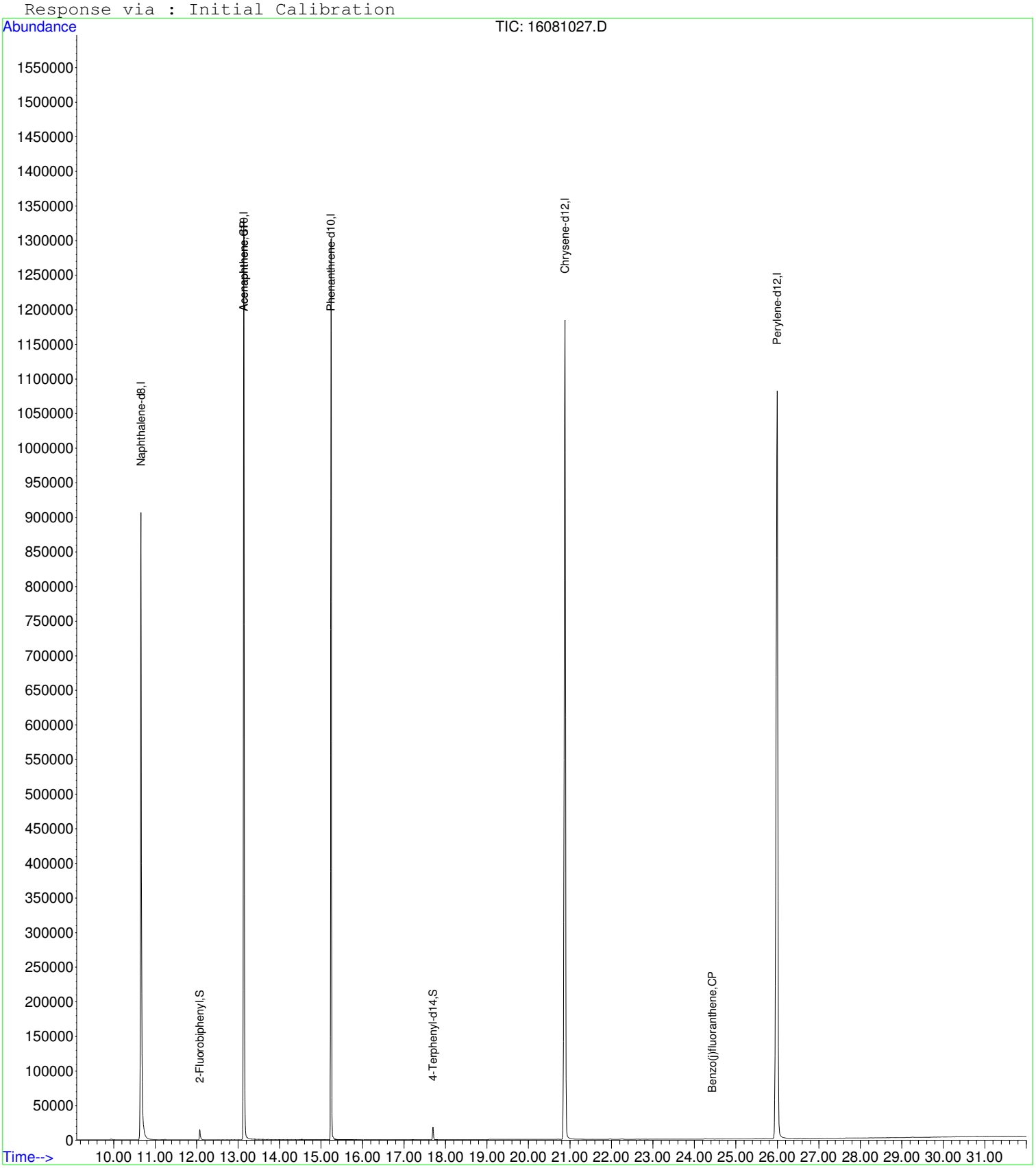
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1496949	4000.00	ug/kg	107
5) Acenaphthene-d10	13.14	164	787653	4000.00	ug/kg	131
11) Phenanthrene-d10	15.24	188	1497097	4000.00	ug/kg	94
17) Chrysene-d12	20.88	240	2029298	4000.00	ug/kg	111
20) Perylene-d12	26.00	264	2174624	4000.00	ug/kg	113
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19303	70.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
16) 4-Terphenyl-d14	17.70	244	26888	76.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2570	12.72	ug/kg#	10
23) Benzo(j)fluoranthene	24.44	252	460	1.04	ug/kg	92

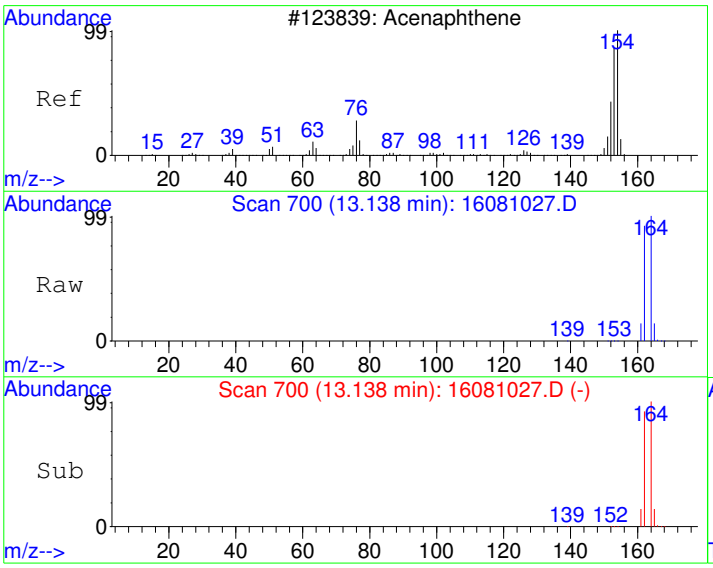
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081027.D Vial: 27
Acq On : 10 Aug 2016 11:49 pm Operator: DEW
Sample : 1607294-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

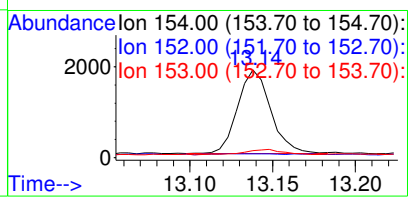


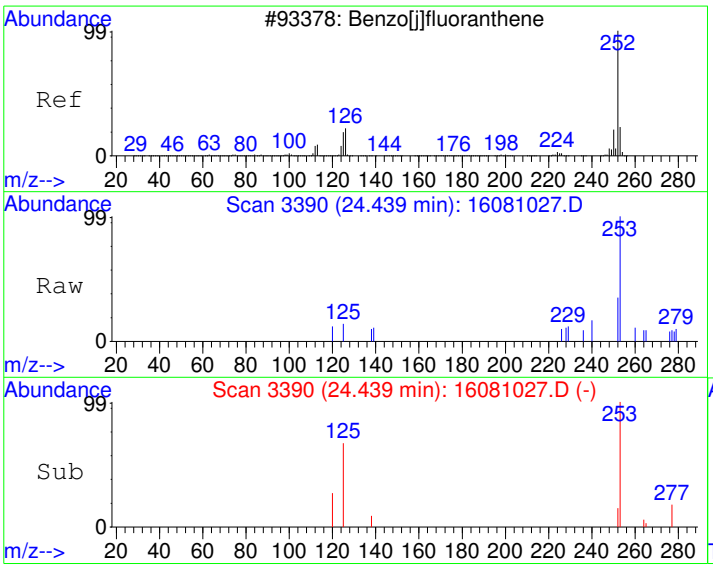


#9
Acenaphthene
Concen: 12.72 ug/kg
RT: 13.14 min Scan# 700
Delta R.T. -0.05 min
Lab File: 16081027.D
Acq: 10 Aug 2016 11:49 pm

Tgt Ion:154 Resp: 2570

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	4.3	76.2	136.2#

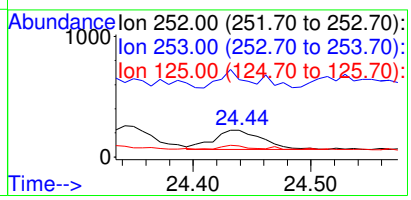




#23
Benzo(j)fluoranthene
Concen: 1.04 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.02 min
Lab File: 16081027.D
Acq: 10 Aug 2016 11:49 pm

Tgt Ion:252 Resp: 460

Ion	Ratio	Lower	Upper
252	100		
253	16.9	2.2	42.2
125	15.6	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081028.D Vial: 28
Acq On : 11 Aug 2016 12:29 am Operator: DEW
Sample : 1607294-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

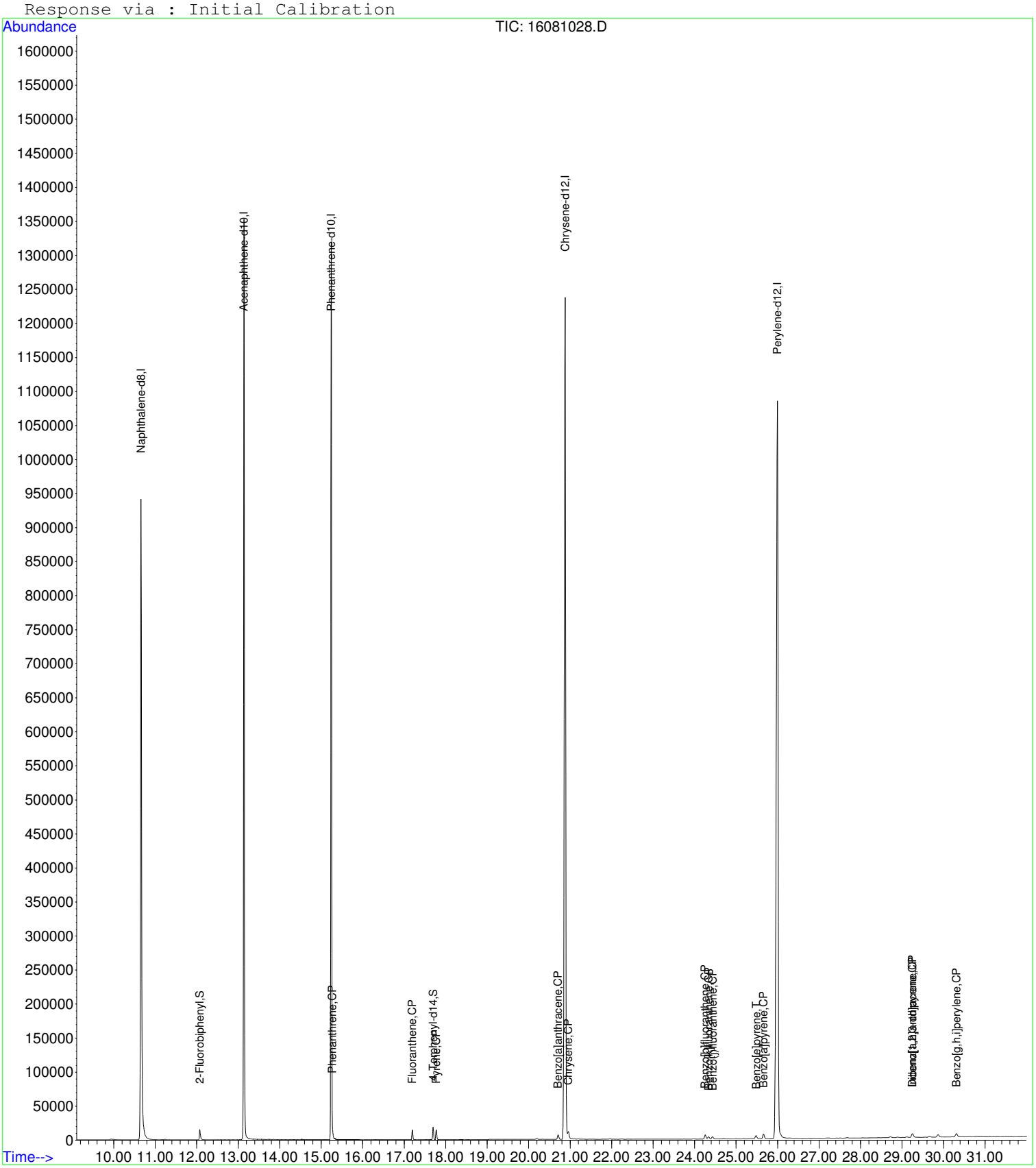
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1538169	4000.00	ug/kg	110
5) Acenaphthene-d10	13.14	164	806336	4000.00	ug/kg	135
11) Phenanthrene-d10	15.24	188	1540538	4000.00	ug/kg	97
17) Chrysene-d12	20.88	240	2090093	4000.00	ug/kg	114
20) Perylene-d12	26.00	264	2209430	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	19421	69.05	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#		
16) 4-Terphenyl-d14	17.70	244	26888	73.96	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#		
Target Compounds						Qvalue
12) Phenanthrene	15.28	178	7460	20.43	ug/kg	99
14) Fluoranthene	17.20	202	17307	39.99	ug/kg	98
15) Pyrene	17.77	202	18064	41.16	ug/kg	98
18) Benzo[a]anthracene	20.71	228	10757	22.83	ug/kg	99
19) Chrysene	20.95	228	14868	32.81	ug/kg	99
21) Benzo[b]fluoranthene	24.26	252	12154	23.83	ug/kg	96
22) Benzo[k]fluoranthene	24.34	252	6502	13.90	ug/kg	99
23) Benzo(j)fluoranthene	24.43	252	6578	14.63	ug/kg	89
24) Benzo[e]pyrene	25.48	252	9913	20.03	ug/kg	99
25) Benzo[a]pyrene	25.66	252	13874	28.15	ug/kg	97
26) Dibenz[a,h]anthracene	29.24	278	2485	5.21	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.25	276	10457	18.48	ug/kg	94
28) Benzo[g,h,i]perylene	30.31	276	10623	22.41	ug/kg	97

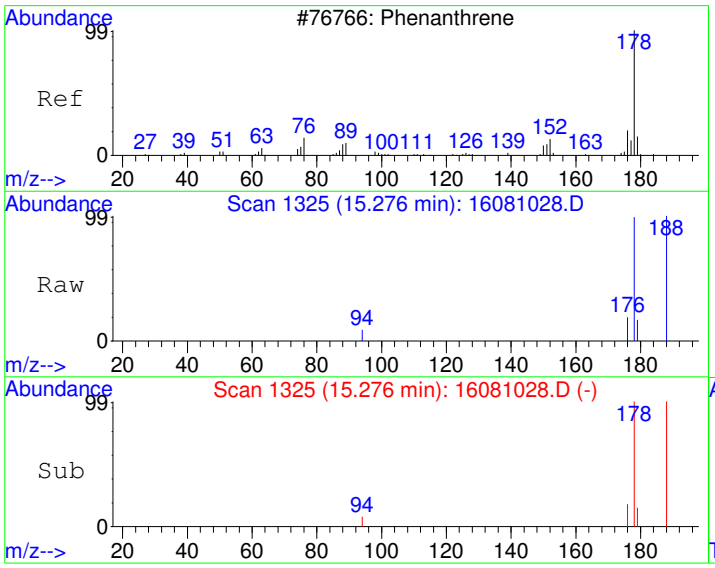
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081028.D Vial: 28
Acq On : 11 Aug 2016 12:29 am Operator: DEW
Sample : 1607294-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:33 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration

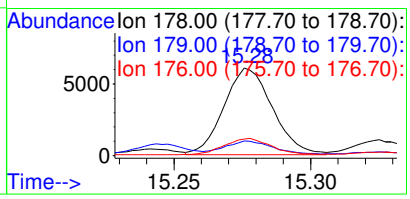


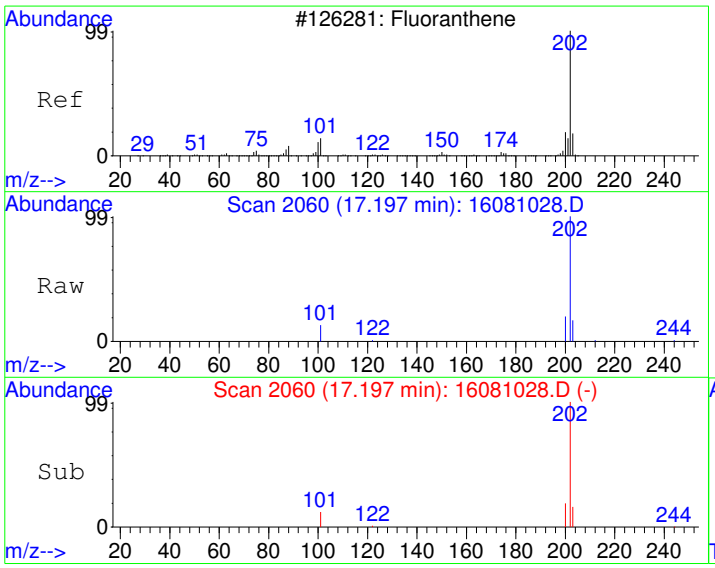


#12
Phenanthrene
Concen: 20.43 ug/kg
RT: 15.28 min Scan# 1325
Delta R.T. -0.01 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:178 Resp: 7460

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.7
176	18.2	0.0	48.7

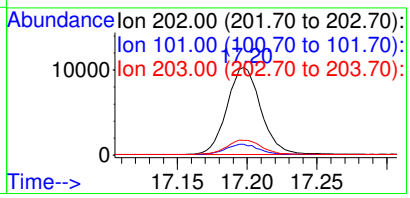


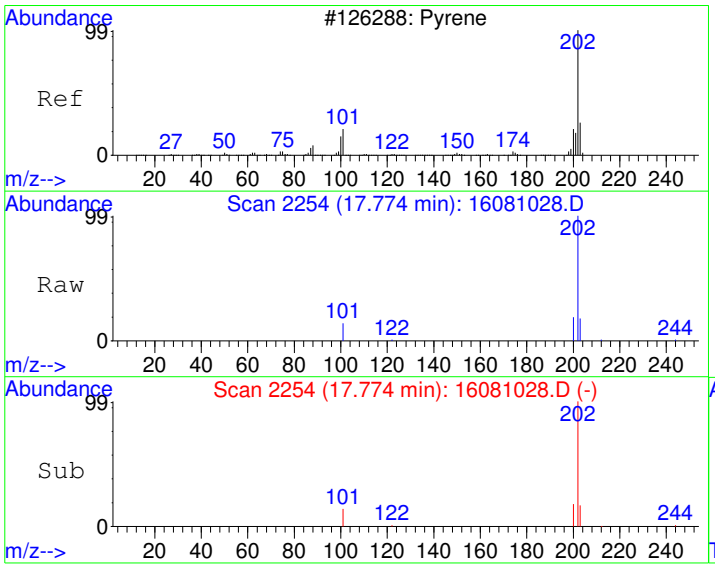


#14
Fluoranthene
Concen: 39.99 ug/kg
RT: 17.20 min Scan# 2060
Delta R.T. -0.00 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:202 Resp: 17307

Ion	Ratio	Lower	Upper
202	100		
101	12.0	0.0	42.1
203	16.3	0.0	47.9

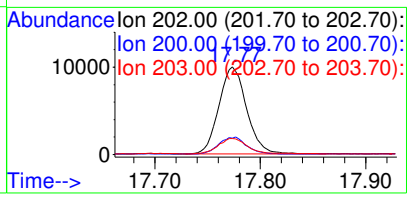


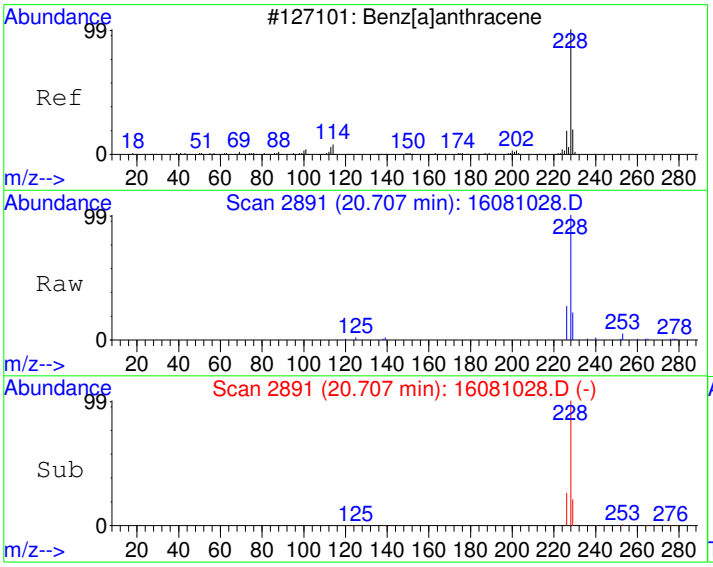


#15
Pyrene
Concen: 41.16 ug/kg
RT: 17.77 min Scan# 2254
Delta R.T. -0.00 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:202 Resp: 18064

Ion	Ratio	Lower	Upper
202	100		
200	18.2	0.0	49.7
203	17.7	0.0	47.8

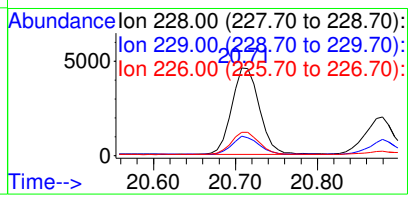


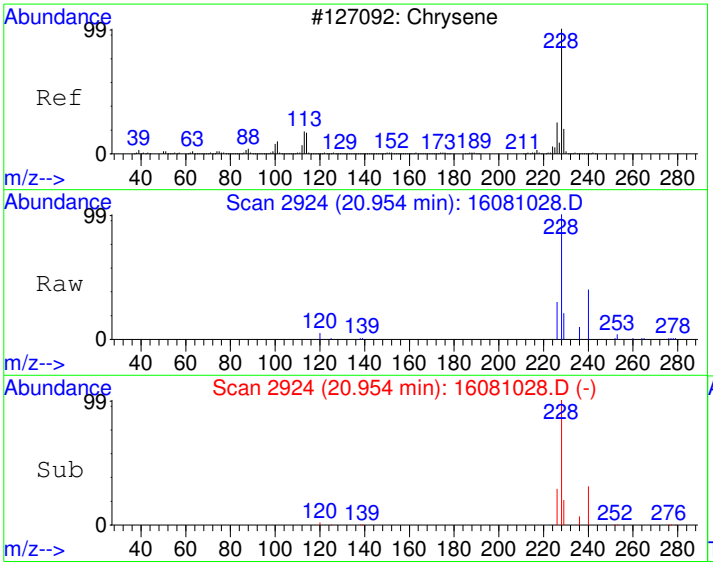


#18
Benzo[a]anthracene
Concen: 22.83 ug/kg
RT: 20.71 min Scan# 2891
Delta R.T. -0.01 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:228 Resp: 10757

Ion	Ratio	Lower	Upper
228	100		
229	20.9	0.0	49.8
226	25.6	0.0	55.8

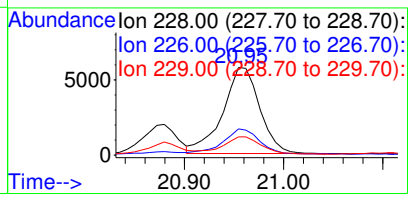


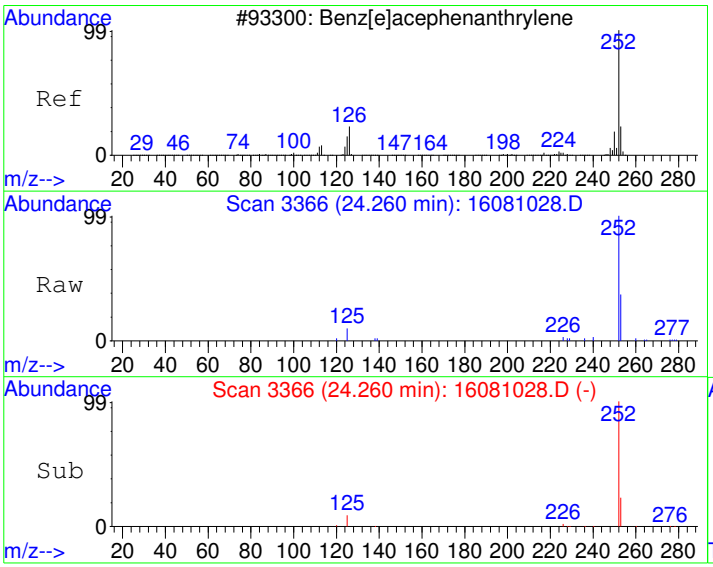


#19
Chrysene
Concen: 32.81 ug/kg
RT: 20.95 min Scan# 2924
Delta R.T. -0.02 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:228 Resp: 14868

Ion	Ratio	Lower	Upper
228	100		
226	29.1	0.0	58.1
229	20.0	0.0	50.0

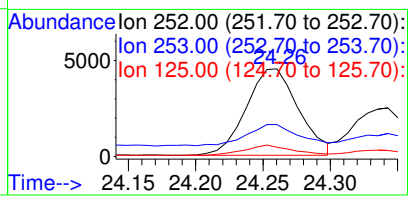


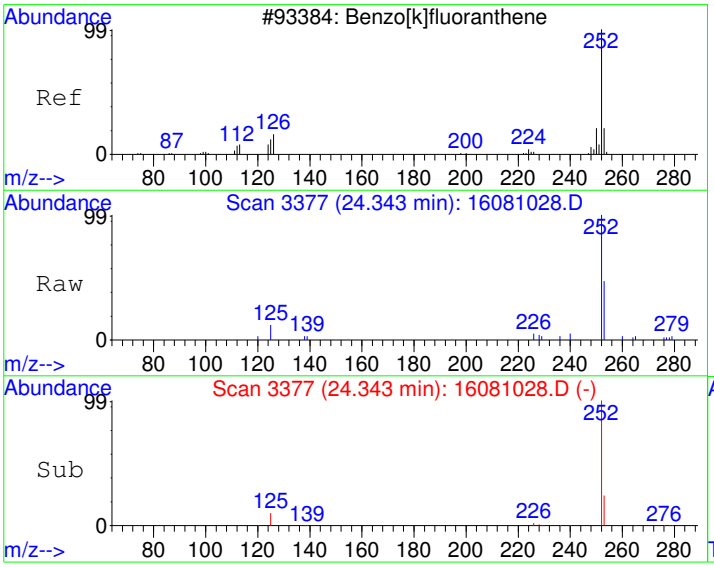


#21
Benzo[b]fluoranthene
Concen: 23.83 ug/kg
RT: 24.26 min Scan# 3366
Delta R.T. -0.01 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:252 Resp: 12154

Ion	Ratio	Lower	Upper
252	100		
253	23.7	0.0	52.0
125	9.2	0.0	40.6

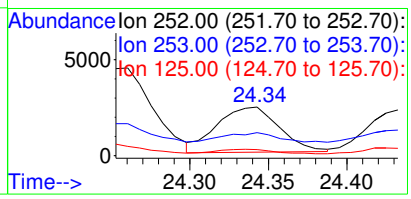


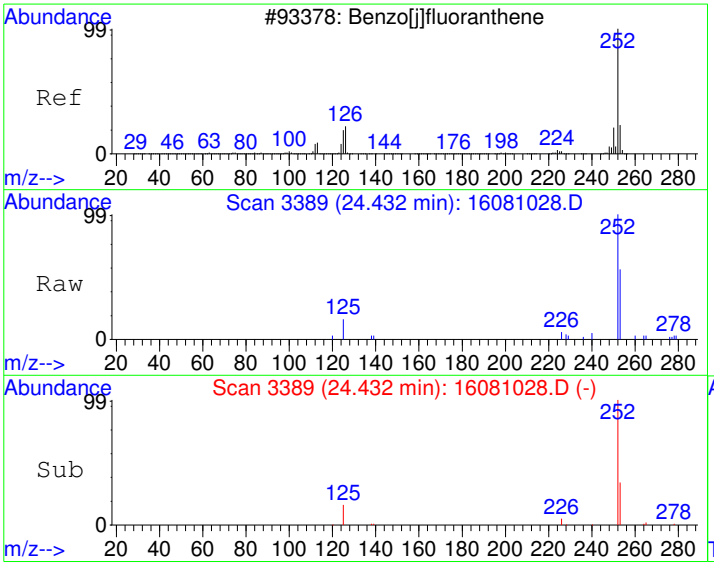


#22
Benzo[k]fluoranthene
Concen: 13.90 ug/kg
RT: 24.34 min Scan# 3377
Delta R.T. -0.01 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:252 Resp: 6502

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	9.4	0.0	30.3

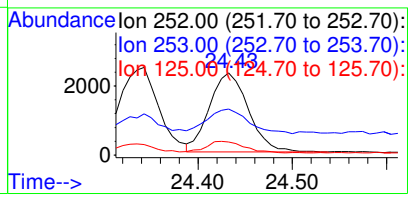


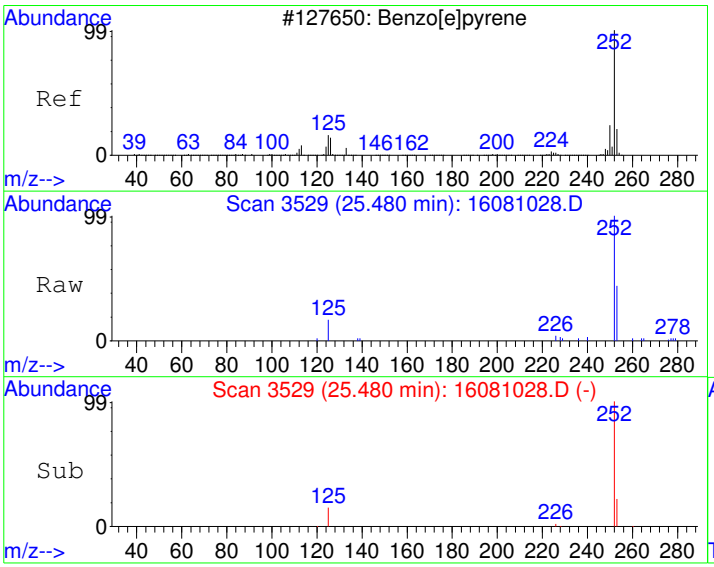


#23
Benzo(j)fluoranthene
Concen: 14.63 ug/kg
RT: 24.43 min Scan# 3389
Delta R.T. -0.02 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:252 Resp: 6578

Ion	Ratio	Lower	Upper
252	100		
253	30.3	2.2	42.2
125	14.0	0.0	34.4

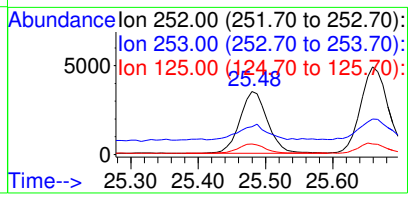


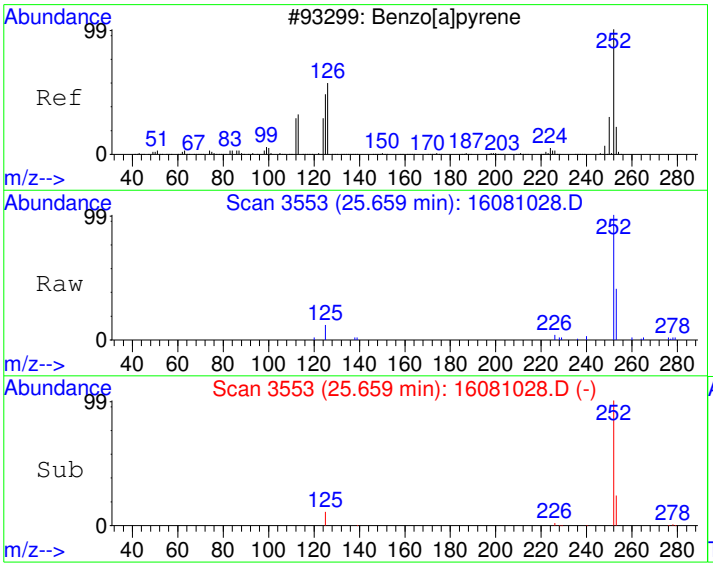


#24
Benzo[e]pyrene
Concen: 20.03 ug/kg
RT: 25.48 min Scan# 3529
Delta R.T. -0.02 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:252 Resp: 9913

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.2	42.2
125	15.3	0.0	35.7

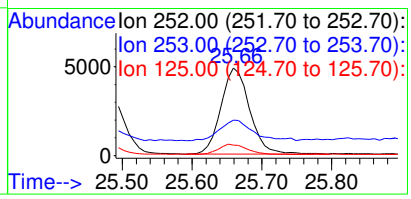


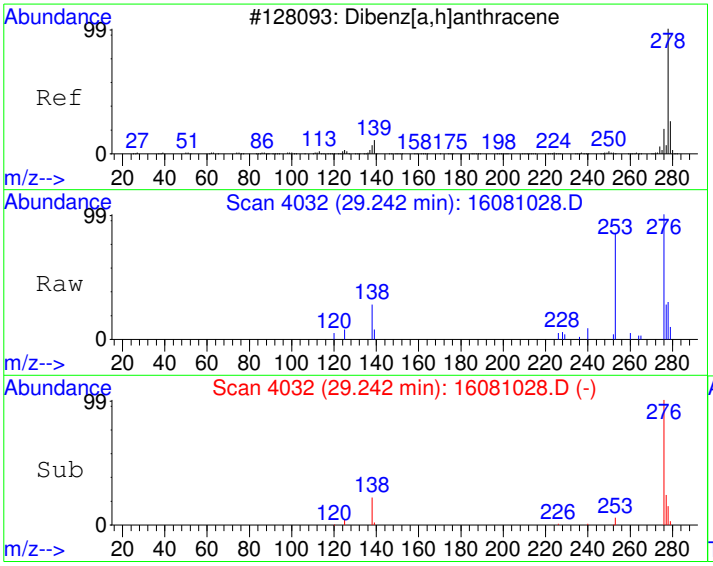


#25
Benzo[a]pyrene
Concen: 28.15 ug/kg
RT: 25.66 min Scan# 3553
Delta R.T. -0.02 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:252 Resp: 13874

Ion	Ratio	Lower	Upper
252	100		
253	23.9	2.0	42.0
125	10.6	0.0	31.6

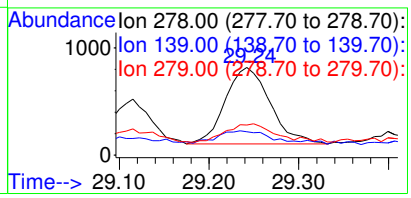


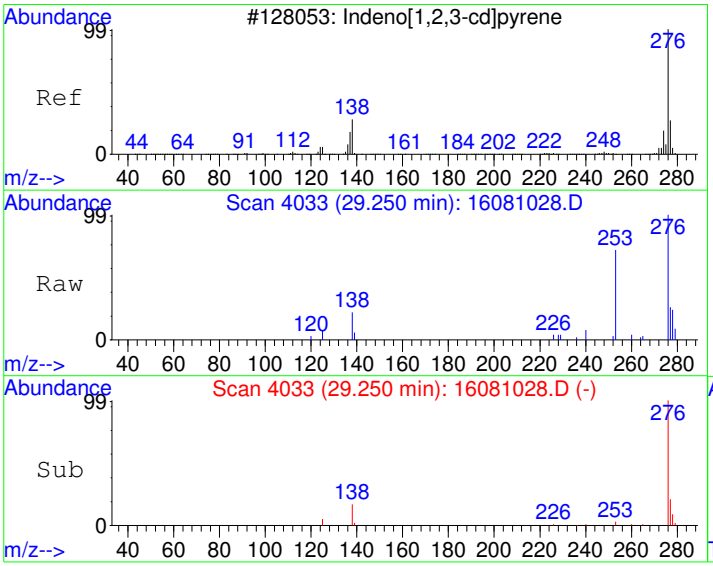


#26
Dibenz[a,h]anthracene
Concen: 5.21 ug/kg
RT: 29.24 min Scan# 4032
Delta R.T. -0.02 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:278 Resp: 2485

Ion	Ratio	Lower	Upper
278	100		
139	16.2	0.0	33.8
279	22.1	3.9	43.9

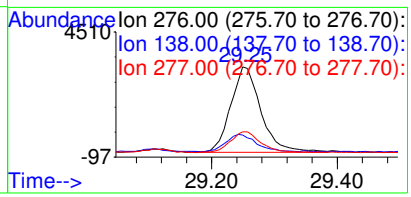


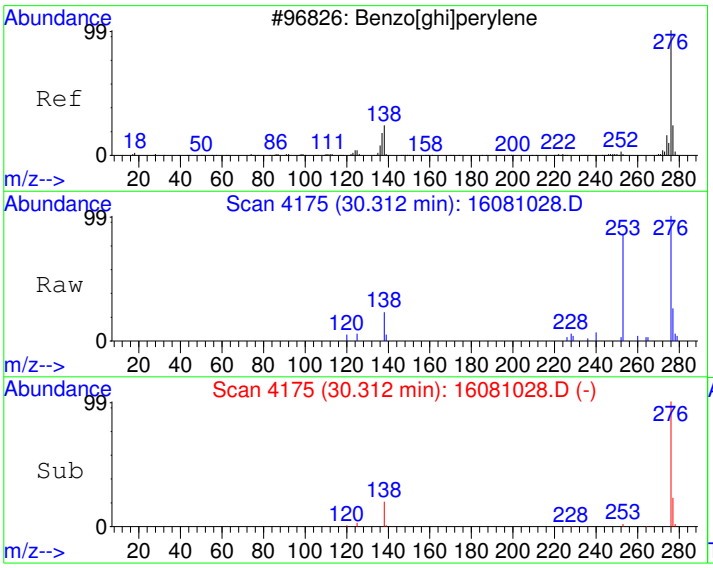


#27
Indeno[1,2,3-cd]pyrene
Concen: 18.48 ug/kg
RT: 29.25 min Scan# 4033
Delta R.T. -0.02 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:276 Resp: 10457

Ion	Ratio	Lower	Upper
276	100		
138	19.7	4.8	44.8
277	24.2	5.6	45.6

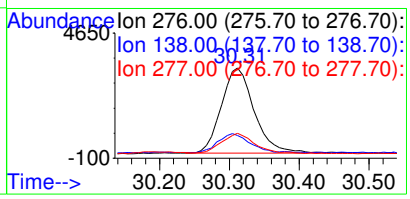




#28
Benzo[g,h,i]perylene
Concen: 22.41 ug/kg
RT: 30.31 min Scan# 4175
Delta R.T. -0.01 min
Lab File: 16081028.D
Acq: 11 Aug 2016 12:29 am

Tgt Ion:276 Resp: 10623

Ion	Ratio	Lower	Upper
276	100		
138	20.3	0.0	38.1
277	23.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081029.D Vial: 29
Acq On : 11 Aug 2016 1:09 am Operator: DEW
Sample : 1607294-09AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:29 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

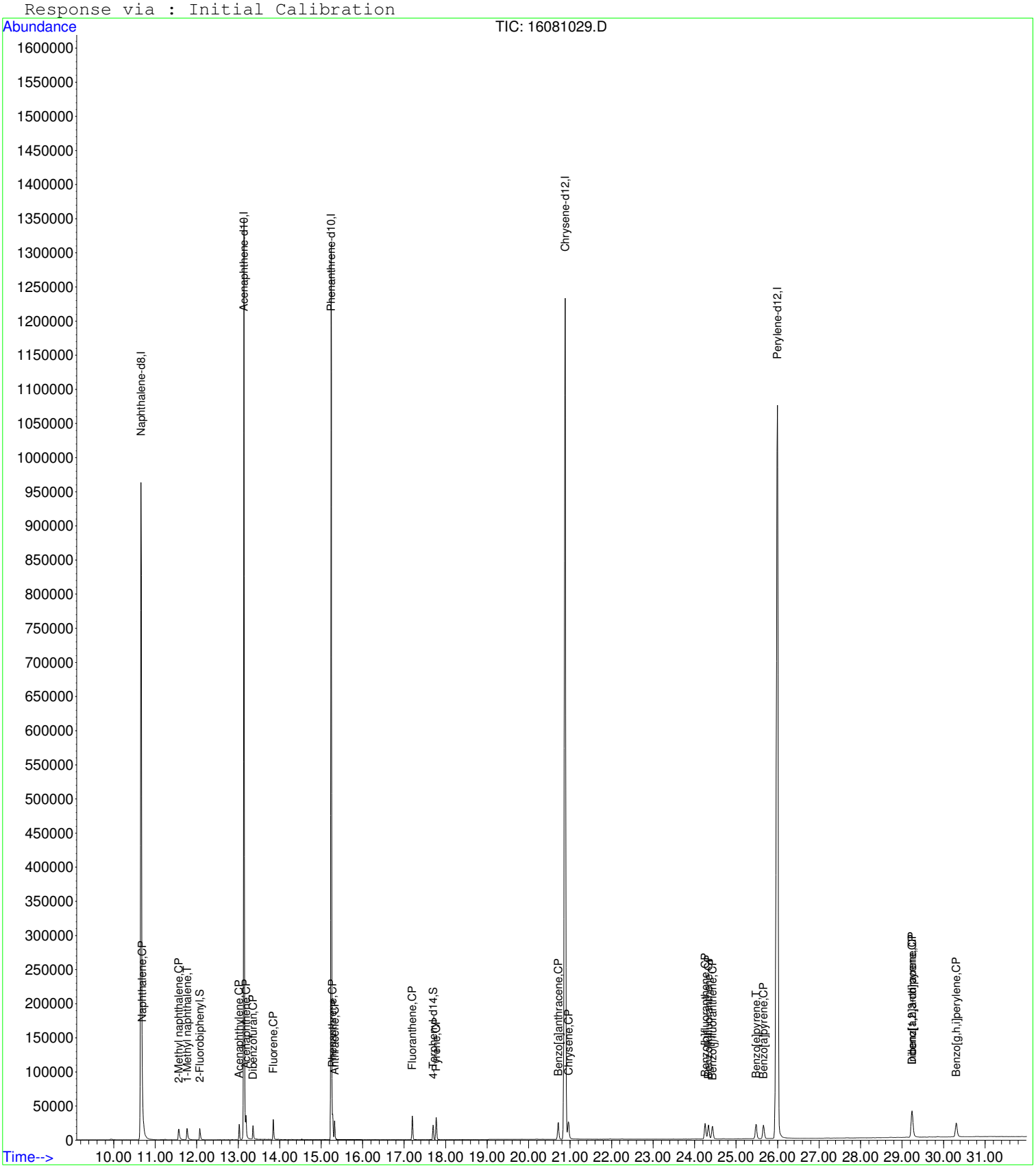
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1551677	4000.00	ug/kg	111
5) Acenaphthene-d10	13.14	164	810384	4000.00	ug/kg	135
11) Phenanthrene-d10	15.24	188	1539968	4000.00	ug/kg	97
17) Chrysene-d12	20.88	240	2108787	4000.00	ug/kg	115
20) Perylene-d12	26.00	264	2227069	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	21121	74.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.87%#		
16) 4-Terphenyl-d14	17.70	244	30505	83.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#		
Target Compounds						Qvalue
2) Naphthalene	10.69	128	22630	64.10	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	16311	71.27	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	14607	72.05	ug/kg	98
6) Dibenzofuran	13.36	168	22394	68.28	ug/kg	98
8) Acenaphthylene	13.02	152	23820	66.38	ug/kg	100
9) Acenaphthene	13.19	154	14681	70.64	ug/kg	99
10) Fluorene	13.85	166	18220	69.74	ug/kg	100
12) Phenanthrene	15.28	178	29508	80.82	ug/kg	97
13) Anthracene	15.32	178	26739	69.60	ug/kg	99
14) Fluoranthene	17.20	202	39048	90.25	ug/kg	99
15) Pyrene	17.77	202	38973	88.83	ug/kg	99
18) Benzo[a]anthracene	20.72	228	37763	79.45	ug/kg	99
19) Chrysene	20.96	228	37645	82.33	ug/kg	99
21) Benzo[b]fluoranthene	24.25	252	43320	84.26	ug/kg	98
22) Benzo[k]fluoranthene	24.34	252	38954	82.59	ug/kg	98
23) Benzo(j)fluoranthene	24.43	252	36919	81.45	ug/kg	98
24) Benzo[e]pyrene	25.48	252	42738	85.66	ug/kg	98
25) Benzo[a]pyrene	25.66	252	41403	83.35	ug/kg	99
26) Dibenz[a,h]anthracene	29.23	278	38555	80.20	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.24	276	50249	88.09	ug/kg	98
28) Benzo[g,h,i]perylene	30.30	276	43460	90.96	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081029.D Vial: 29
Acq On : 11 Aug 2016 1:09 am Operator: DEW
Sample : 1607294-09AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:29 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081030.D Vial: 30
Acq On : 11 Aug 2016 1:49 am Operator: DEW
Sample : 1607294-09AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:29 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

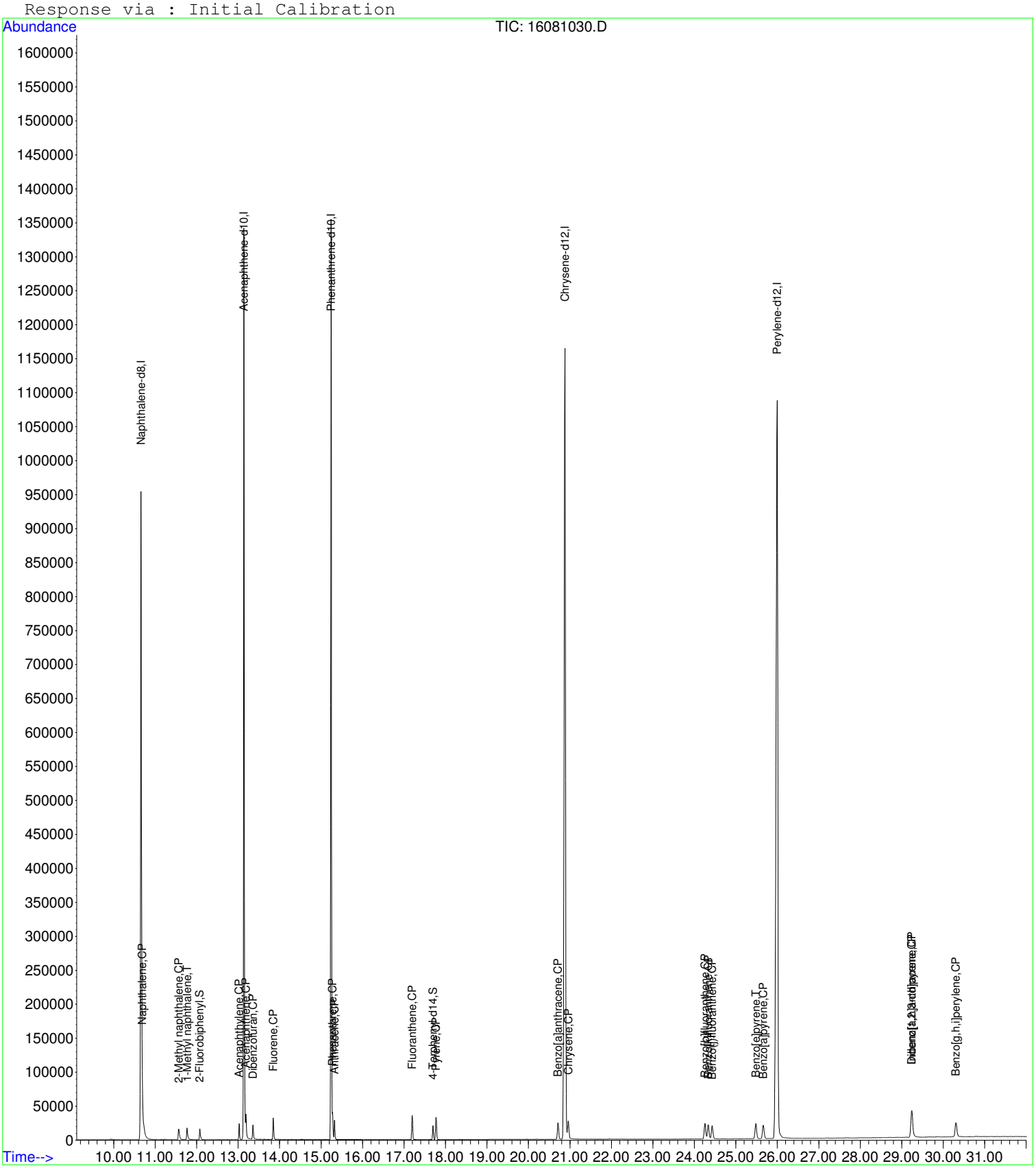
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1509708	4000.00	ug/kg	108
5) Acenaphthene-d10	13.14	164	793149	4000.00	ug/kg	132
11) Phenanthrene-d10	15.24	188	1533391	4000.00	ug/kg	96
17) Chrysene-d12	20.88	240	2013860	4000.00	ug/kg	110
20) Perylene-d12	26.00	264	2162188	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	21212	76.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
16) 4-Terphenyl-d14	17.70	244	29115	80.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
Target Compounds						Qvalue
2) Naphthalene	10.69	128	23402	68.13	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	16762	75.27	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	14977	75.93	ug/kg	99
6) Dibenzofuran	13.36	168	23412	72.94	ug/kg	98
8) Acenaphthylene	13.02	152	24659	70.21	ug/kg	99
9) Acenaphthene	13.19	154	15607	76.72	ug/kg	99
10) Fluorene	13.84	166	19110	74.73	ug/kg	100
12) Phenanthrene	15.28	178	30573	84.10	ug/kg	98
13) Anthracene	15.32	178	28010	73.22	ug/kg	98
14) Fluoranthene	17.20	202	40512	94.03	ug/kg	99
15) Pyrene	17.77	202	40252	92.14	ug/kg	99
18) Benzo[a]anthracene	20.71	228	38731	85.33	ug/kg	100
19) Chrysene	20.96	228	37825	86.62	ug/kg	99
21) Benzo[b]fluoranthene	24.25	252	45499	91.15	ug/kg	99
22) Benzo[k]fluoranthene	24.34	252	39096	85.38	ug/kg	99
23) Benzo(j)fluoranthene	24.43	252	38206	86.82	ug/kg	99
24) Benzo[e]pyrene	25.48	252	44269	91.39	ug/kg	97
25) Benzo[a]pyrene	25.66	252	42984	89.13	ug/kg	98
26) Dibenz[a,h]anthracene	29.23	278	38966	83.49	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.25	276	51451	92.90	ug/kg	96
28) Benzo[g,h,i]perylene	30.30	276	44463	95.85	ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081030.D Vial: 30
Acq On : 11 Aug 2016 1:49 am Operator: DEW
Sample : 1607294-09AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:29 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160810\16081031.D Vial: 31
Acq On : 11 Aug 2016 2:29 am Operator: DEW
Sample : CCV1-160810 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

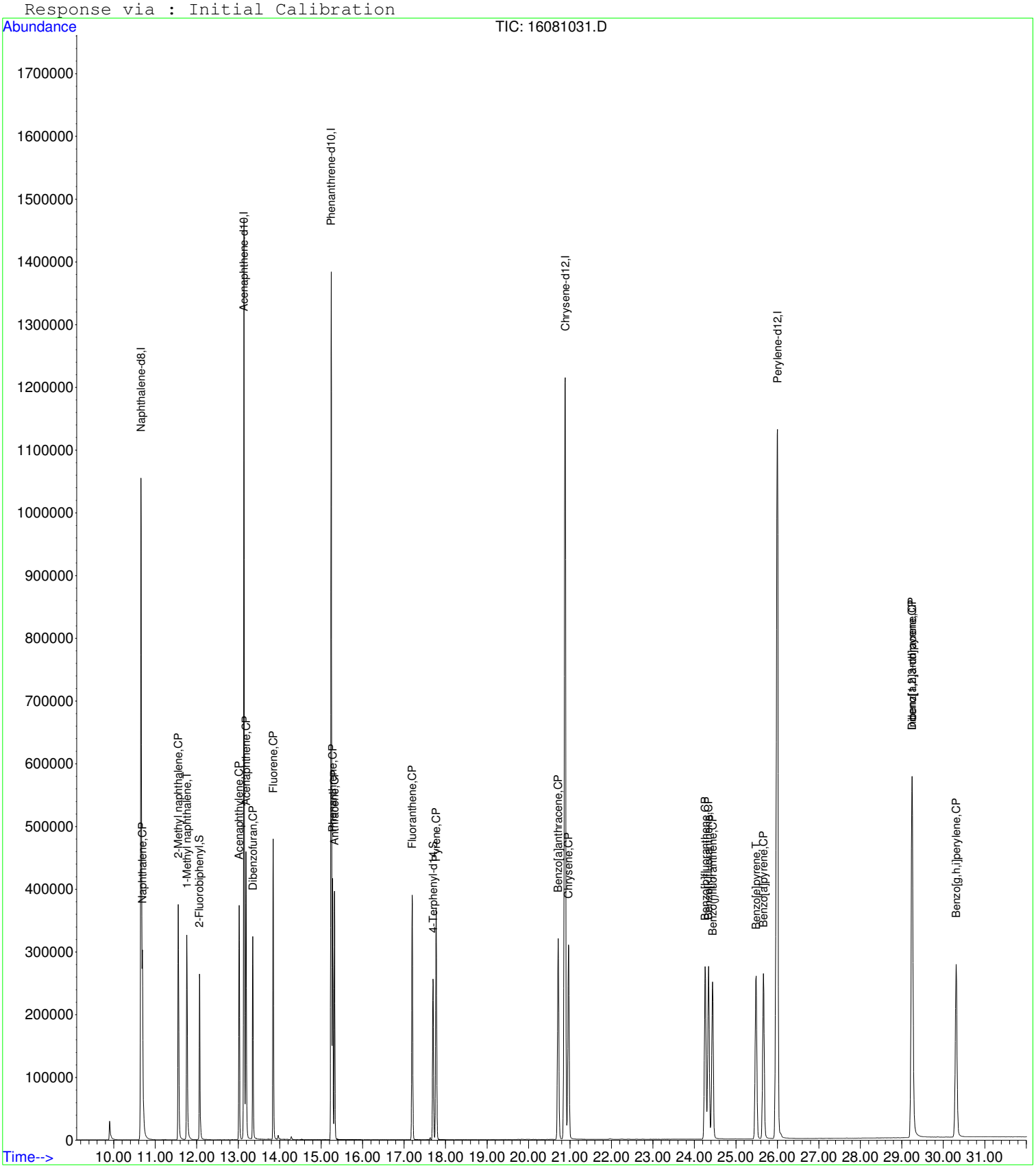
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1629057	4000.00	ug/kg	116
5) Acenaphthene-d10	13.14	164	868105	4000.00	ug/kg	145
11) Phenanthrene-d10	15.24	188	1639184	4000.00	ug/kg	103
17) Chrysene-d12	20.89	240	2206193	4000.00	ug/kg	120
20) Perylene-d12	26.00	264	2369292	4000.00	ug/kg	123
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	273930	904.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.62%#			
16) 4-Terphenyl-d14	17.70	244	362600	937.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.43%#			
Target Compounds						Qvalue
2) Naphthalene	10.69	128	342945	925.25	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	245418	1021.37	ug/kg	97
4) 1-Methyl naphthalene	11.76	142	220877	1037.78	ug/kg	98
6) Dibenzofuran	13.35	168	316104	899.78	ug/kg	99
8) Acenaphthylene	13.02	152	366362	953.00	ug/kg	100
9) Acenaphthene	13.19	154	212814	955.84	ug/kg	99
10) Fluorene	13.84	166	263658	942.07	ug/kg	98
12) Phenanthrene	15.28	178	365741	941.12	ug/kg	99
13) Anthracene	15.32	178	373528	913.44	ug/kg	100
14) Fluoranthene	17.20	202	426035	925.05	ug/kg	99
15) Pyrene	17.77	202	431339	923.66	ug/kg	100
18) Benzo[a]anthracene	20.71	228	484303	973.94	ug/kg	99
19) Chrysene	20.96	228	460155	961.89	ug/kg	100
21) Benzo[b]fluoranthene	24.26	252	544036	994.65	ug/kg	100
22) Benzo[k]fluoranthene	24.34	252	522237	1040.76	ug/kg	100
23) Benzo(j)fluoranthene	24.44	252	485716	1007.25	ug/kg	99
24) Benzo[e]pyrene	25.49	252	529925	998.36	ug/kg	99
25) Benzo[a]pyrene	25.67	252	525192	993.77	ug/kg	99
26) Dibenz[a,h]anthracene	29.24	278	552909	1081.13	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.26	276	649953	1070.97	ug/kg	97
28) Benzo[g,h,i]perylene	30.31	276	547983	1078.07	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160810\16081031.D Vial: 31
Acq On : 11 Aug 2016 2:29 am Operator: DEW
Sample : CCV1-160810 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 8:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 17:05:09 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1607294

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			

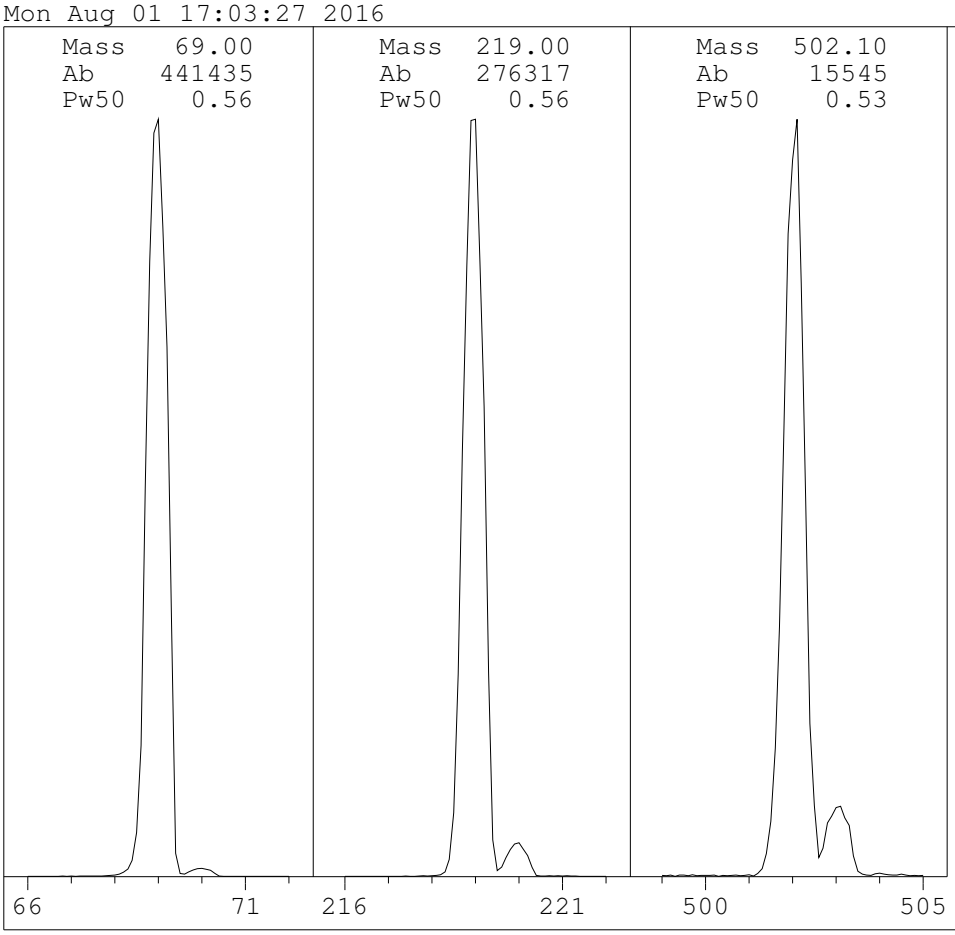
Analyst: Karyn Lane Date: 08/2/2016

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



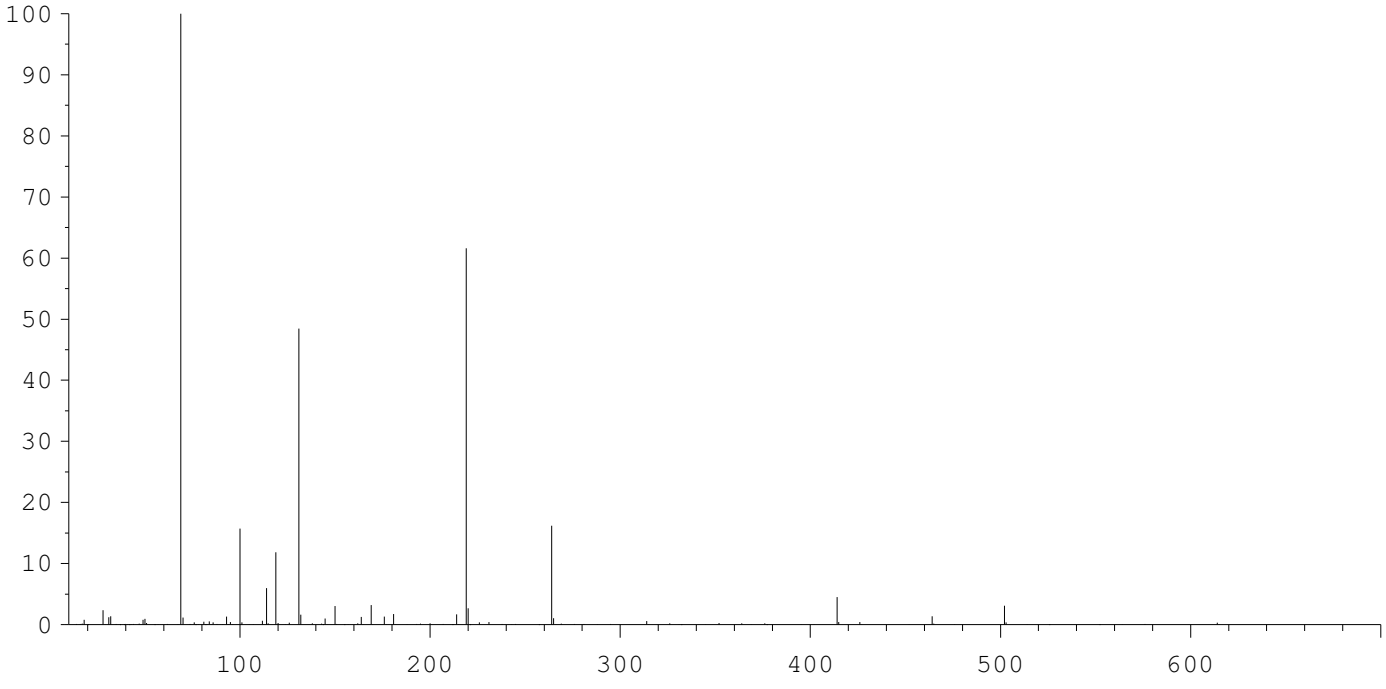
Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2205
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	79.7	HED	ON
EntLens	11.5	EMVolts	1635
EntOffs	17.32		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10

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

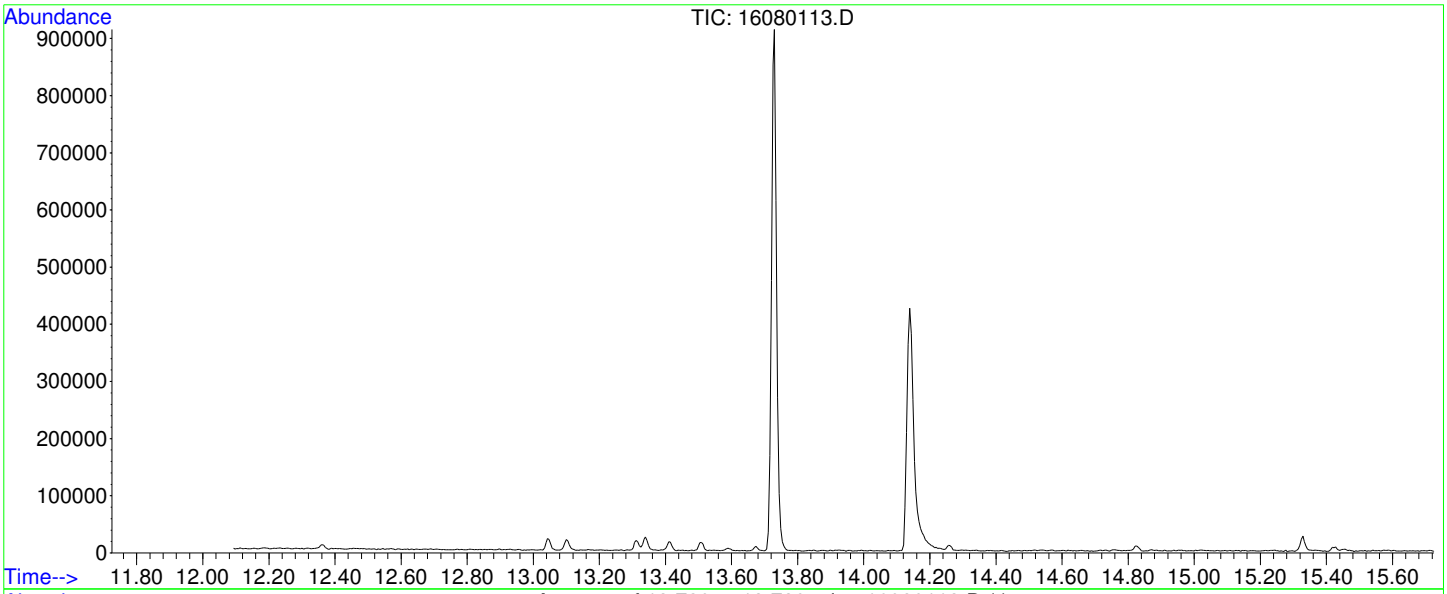
Sequence Name: C:\HPCHEM\1\SEQUENCE\160801.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160801\
Pre-Seq Cmd:
Post-Seq Cmd:

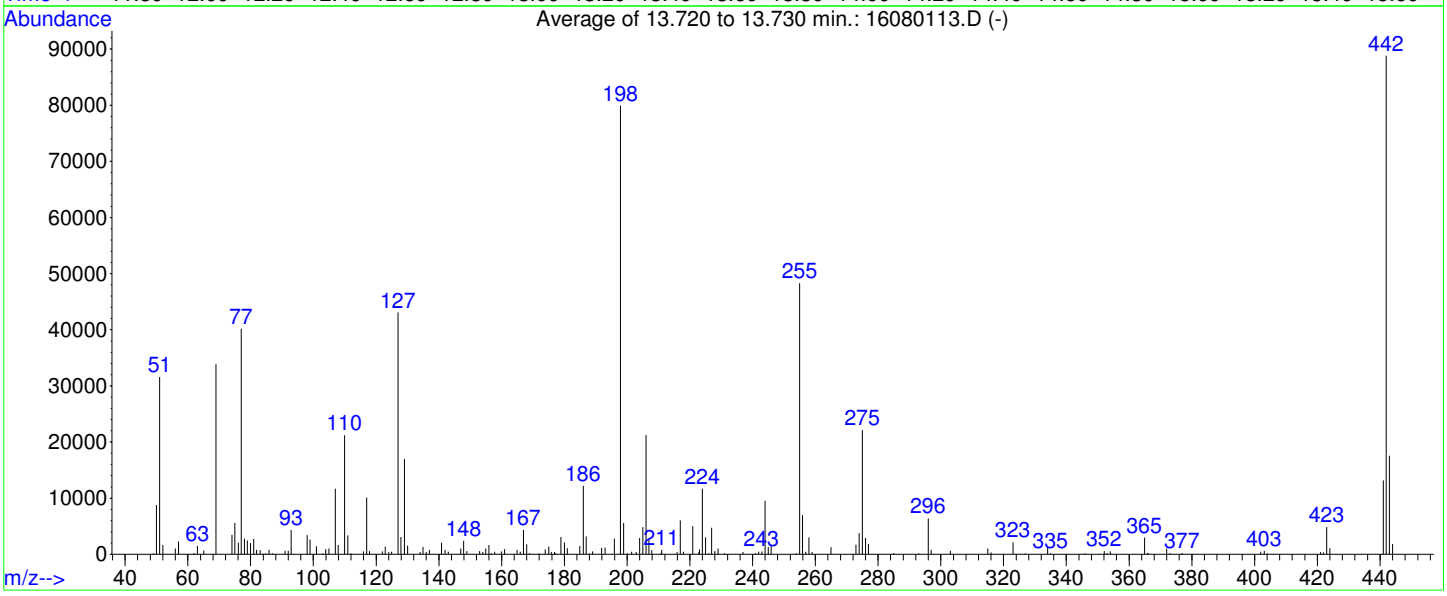
Method Sections To Run
(X) Full Method
( ) Reprocessing Only

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

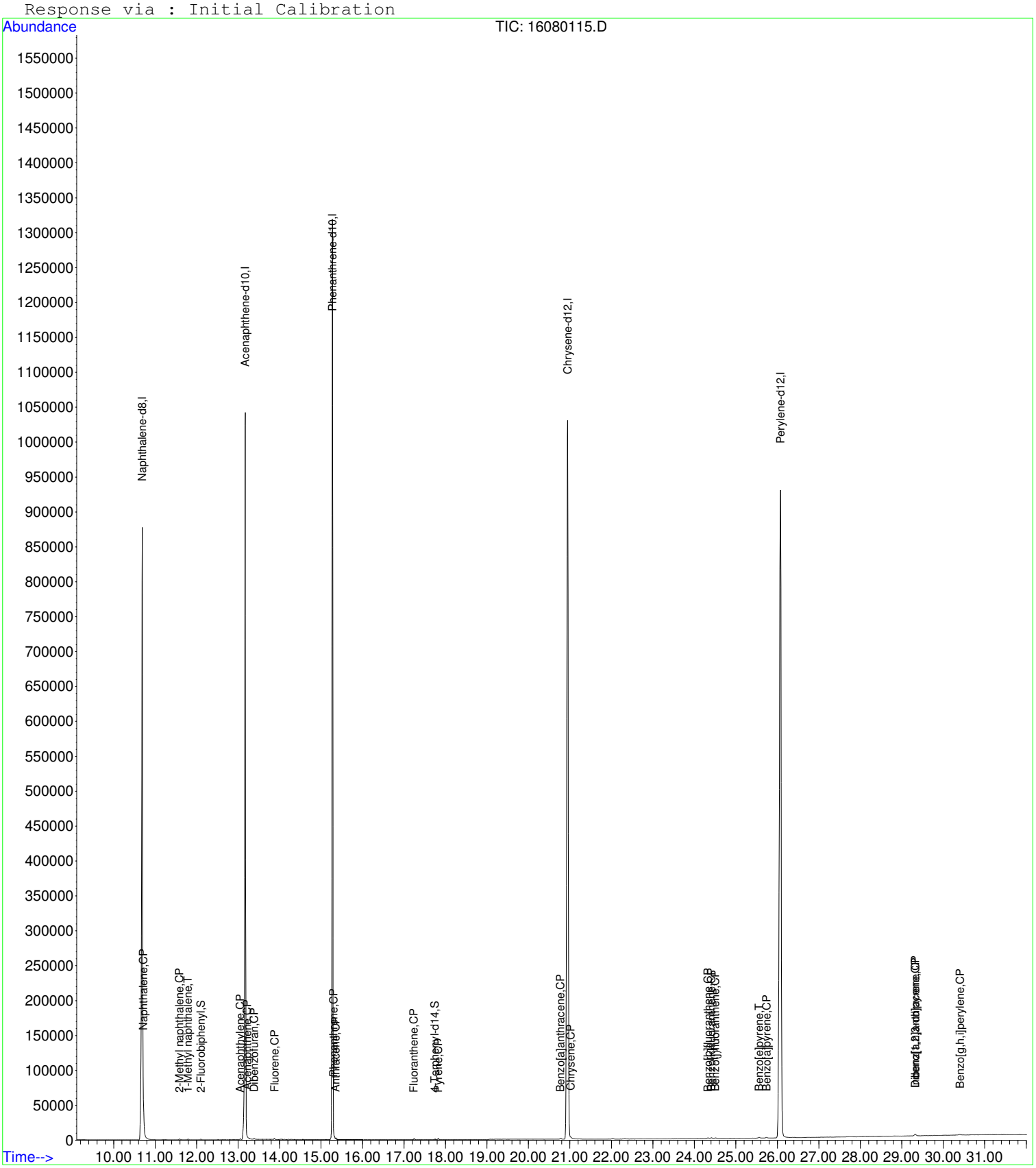
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1503719	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	680588	4000.00	ug/kg	114
11) Phenanthrene-d10	15.28	188	1532486	4000.00	ug/kg	96
17) Chrysene-d12	20.95	240	1863885	4000.00	ug/kg	102
20) Perylene-d12	26.08	264	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.

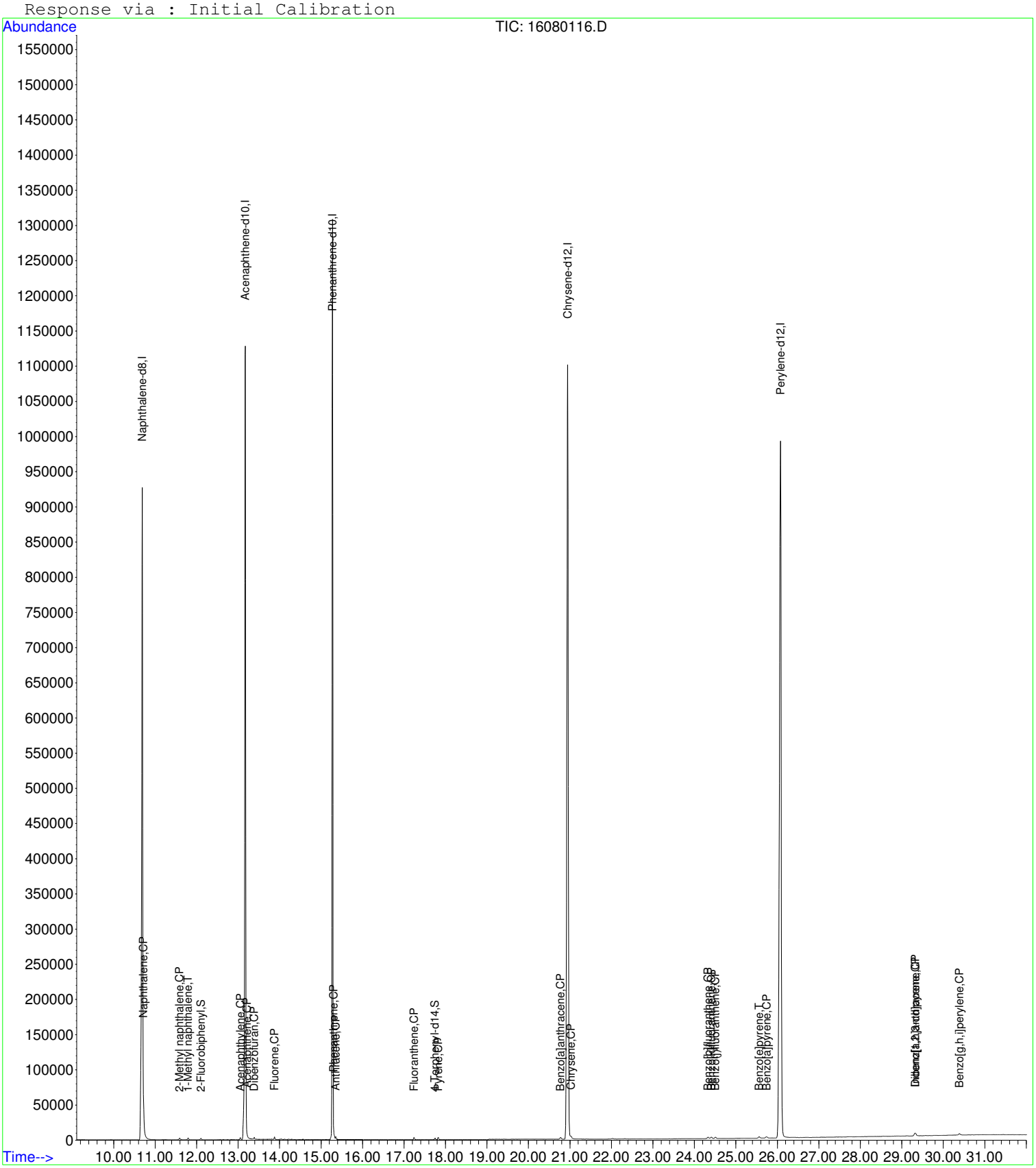
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1613626	4000.00	ug/kg	115
5) Acenaphthene-d10	13.17	164	738139	4000.00	ug/kg	123
11) Phenanthrene-d10	15.28	188	1503918	4000.00	ug/kg	95
17) Chrysene-d12	20.95	240	1941488	4000.00	ug/kg	106
20) Perylene-d12	26.08	264	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

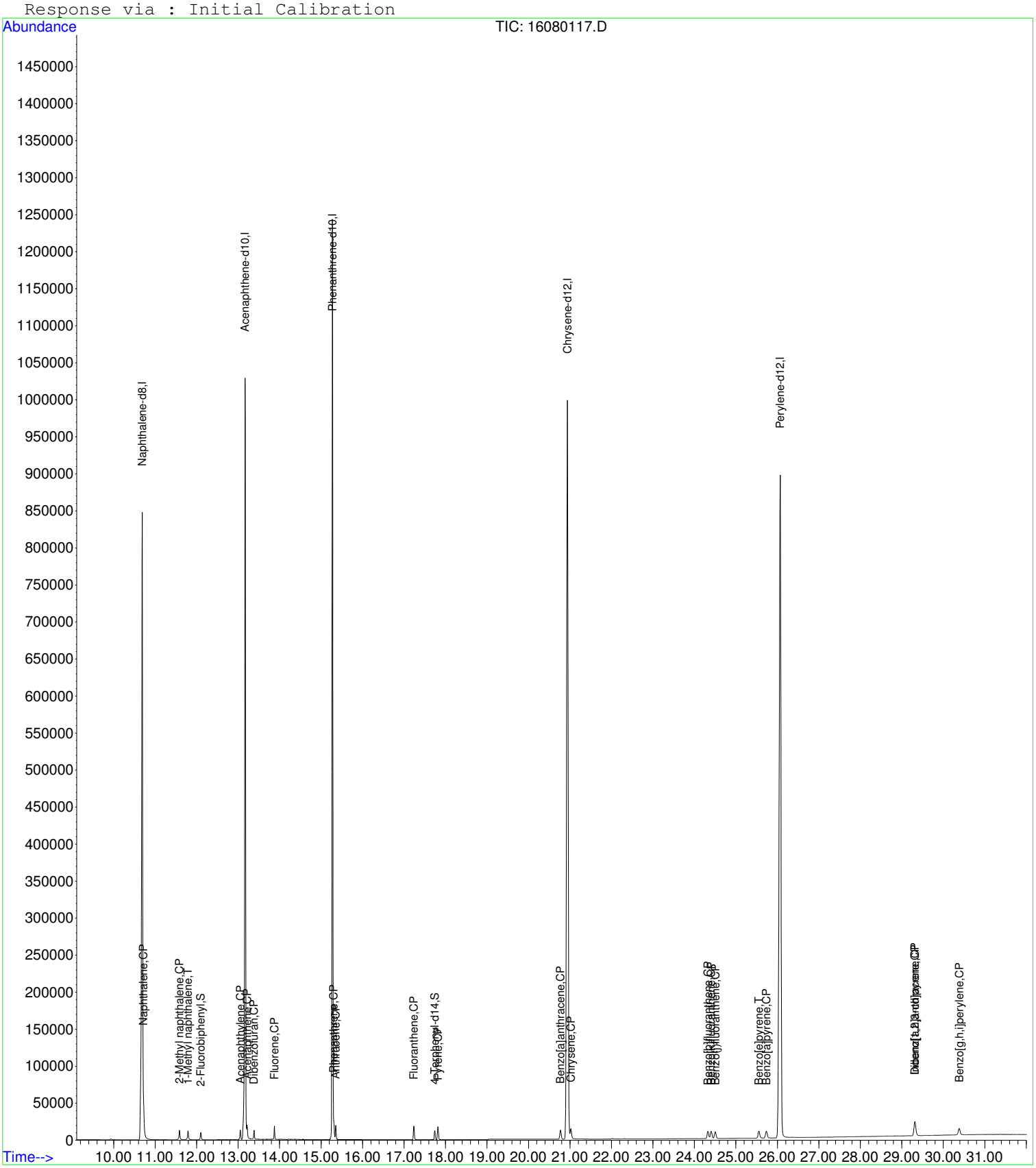
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1483617	4000.00	ug/kg	106
5) Acenaphthene-d10	13.17	164	671495	4000.00	ug/kg	112
11) Phenanthrene-d10	15.27	188	1461166	4000.00	ug/kg	92
17) Chrysene-d12	20.94	240	1828455	4000.00	ug/kg	100
20) Perylene-d12	26.07	264	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

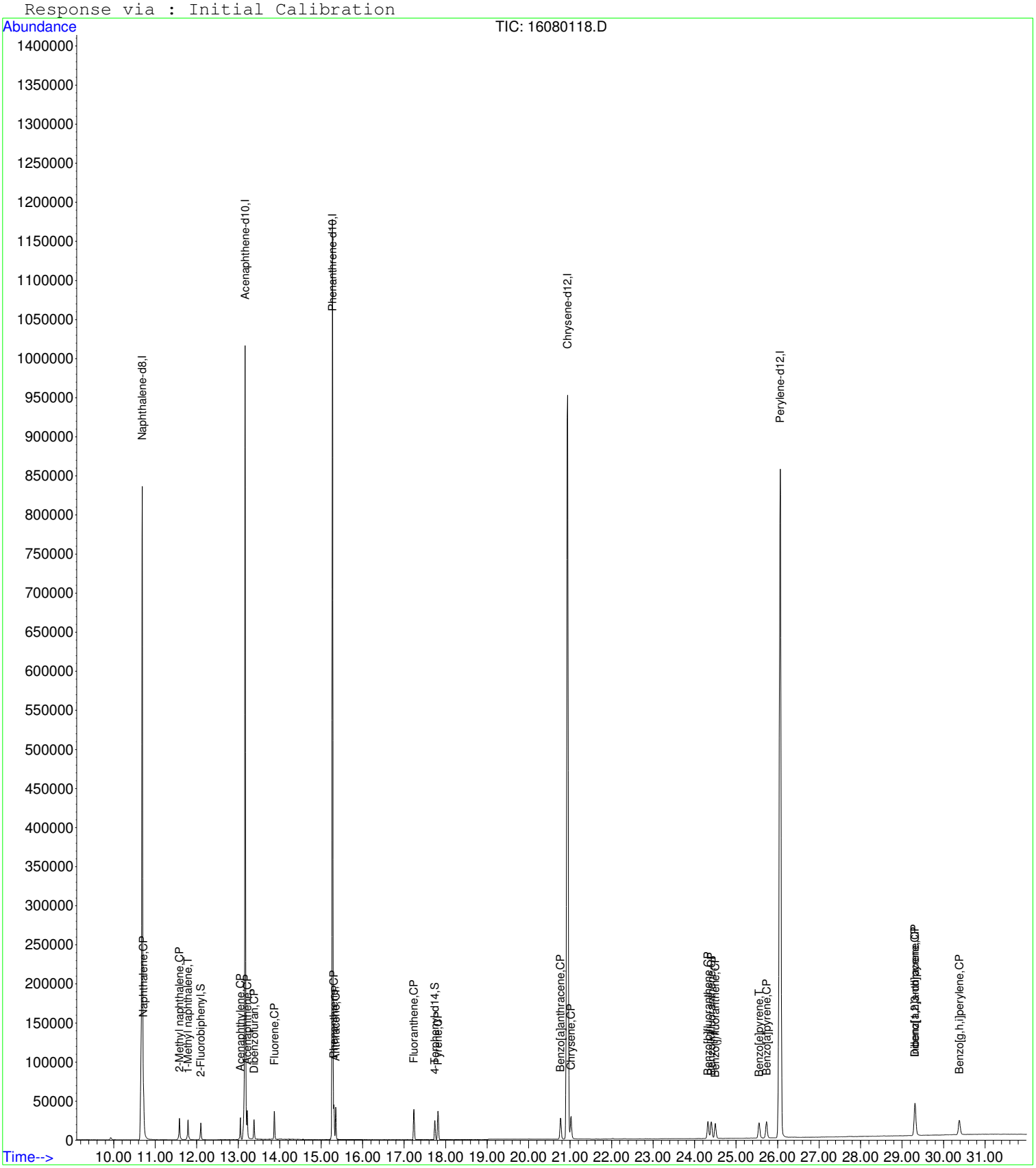
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1417424	4000.00	ug/kg	101
5) Acenaphthene-d10	13.17	164	638853	4000.00	ug/kg	107
11) Phenanthrene-d10	15.27	188	1381998	4000.00	ug/kg	87
17) Chrysene-d12	20.94	240	1743437	4000.00	ug/kg	95
20) Perylene-d12	26.06	264	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

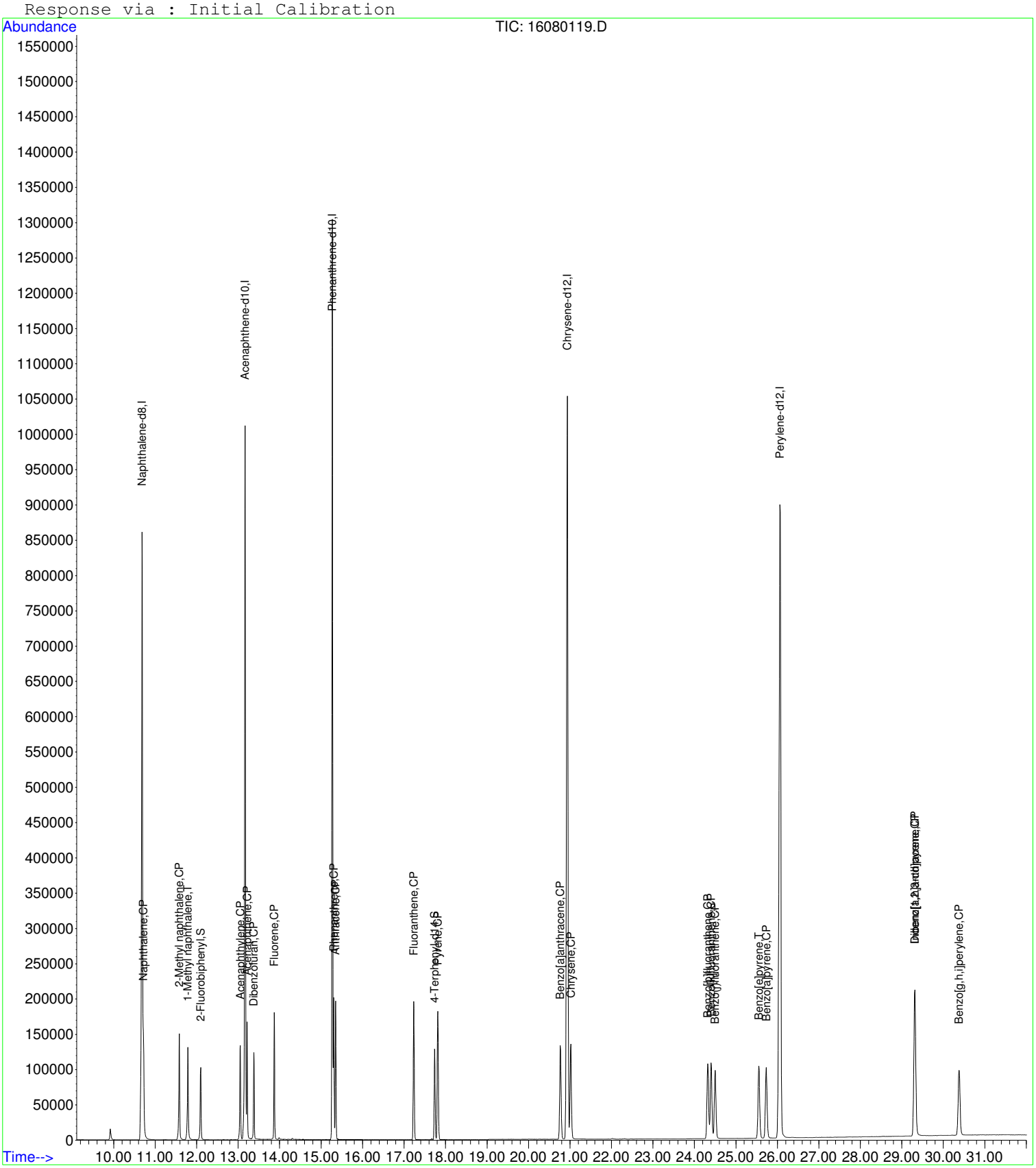
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1438697	4000.00	ug/kg	103
5) Acenaphthene-d10	13.17	164	632331	4000.00	ug/kg	105
11) Phenanthrene-d10	15.27	188	1502812	4000.00	ug/kg	94
17) Chrysene-d12	20.94	240	1837823	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	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

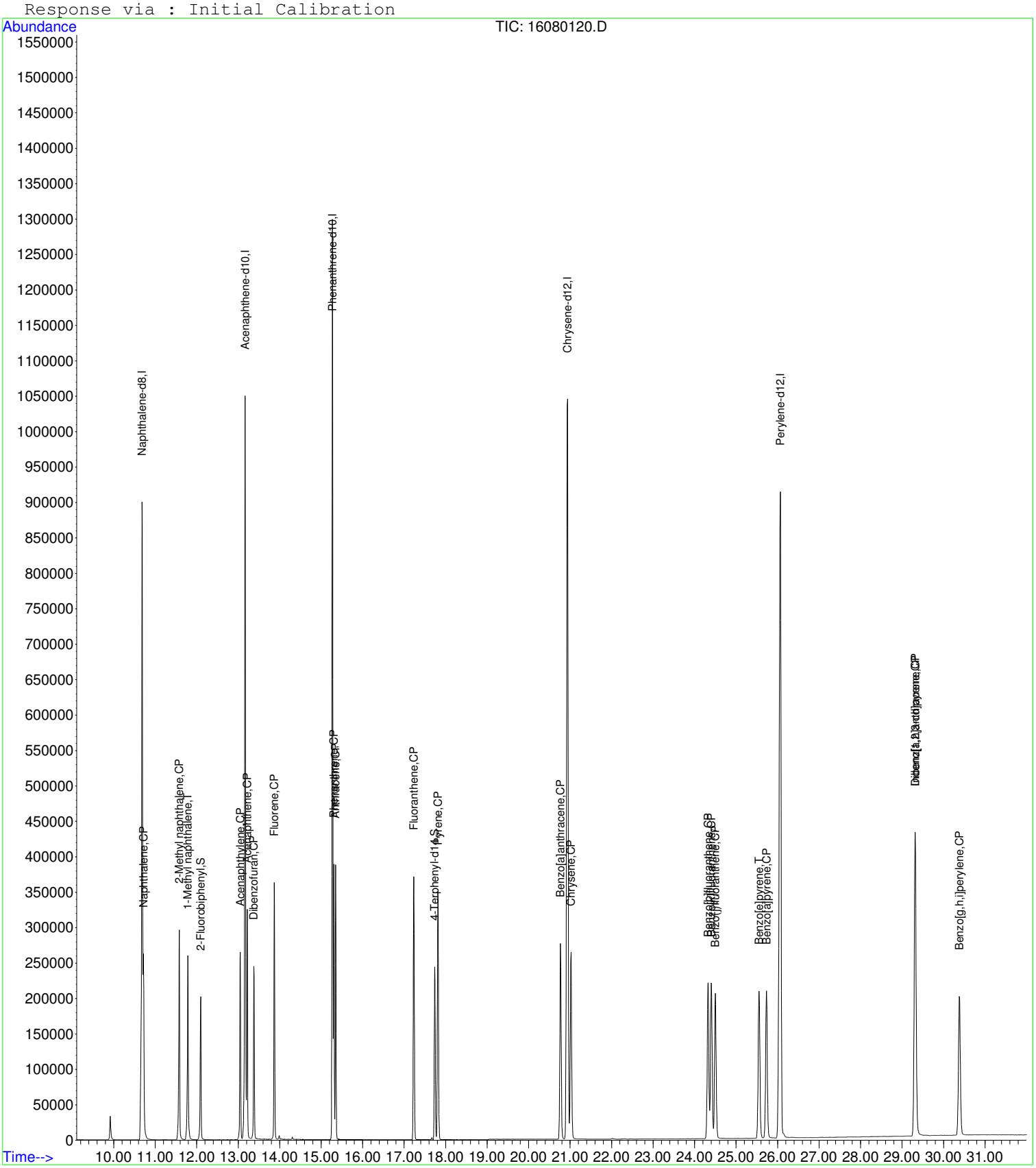
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1499252	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	657692	4000.00	ug/kg	110
11) Phenanthrene-d10	15.27	188	1538575	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1921341	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	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

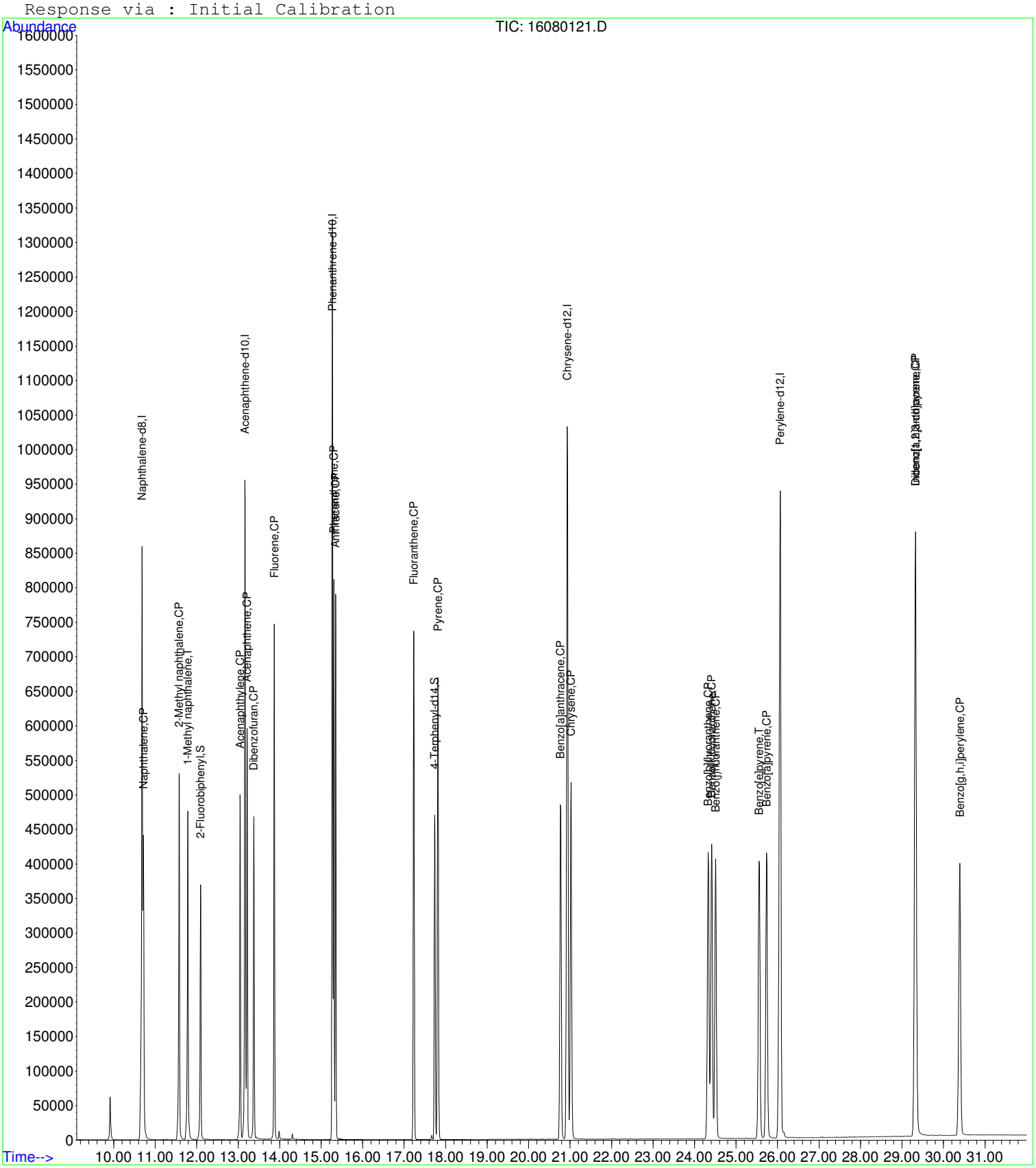
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1403212	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	599493	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	1590654	4000.00	ug/kg	100
17) Chrysene-d12	20.93	240	1834195	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	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

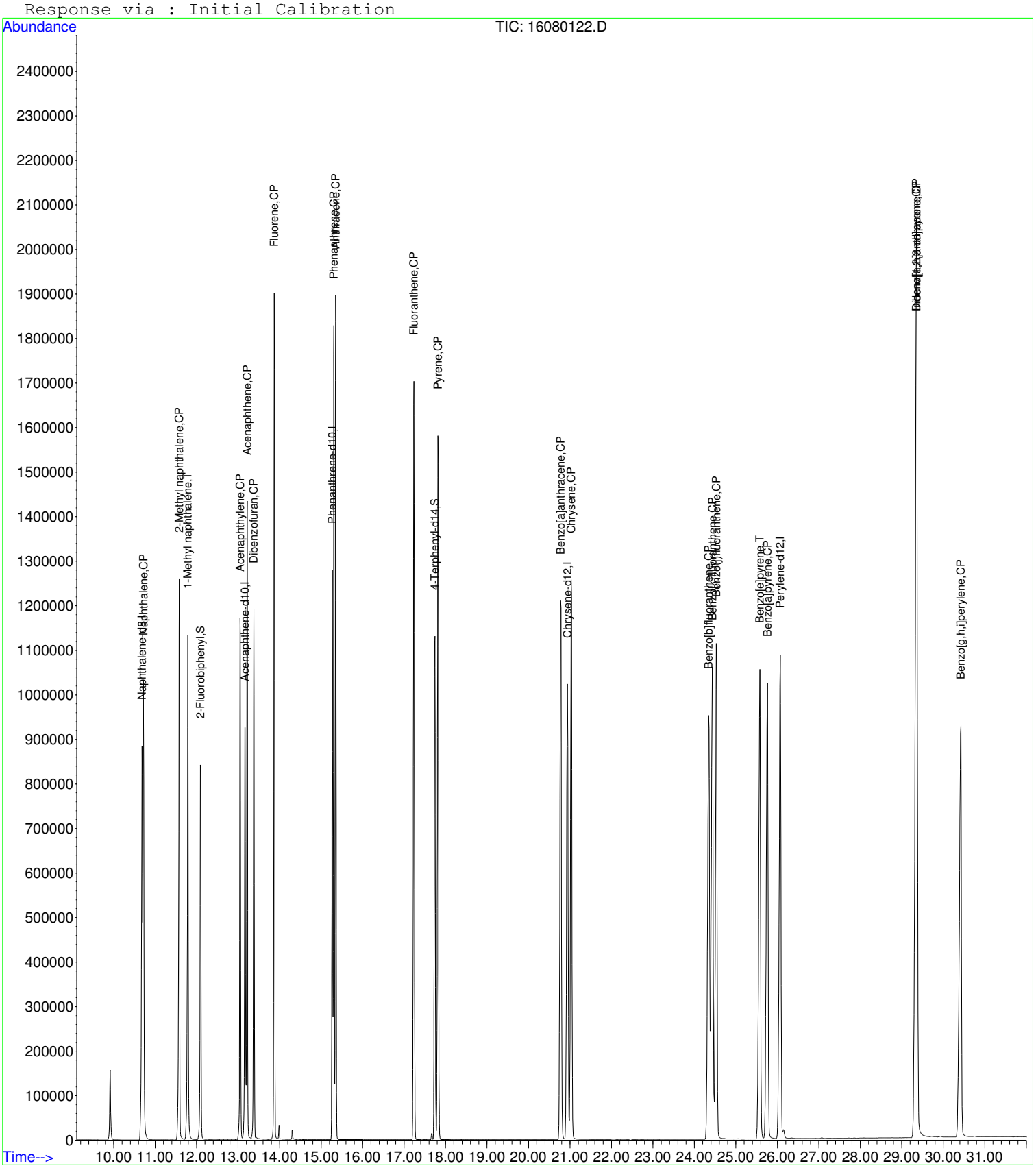
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1300974	4000.00	ug/kg	93
5) Acenaphthene-d10	13.16	164	578980	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1540055	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1926331	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	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



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

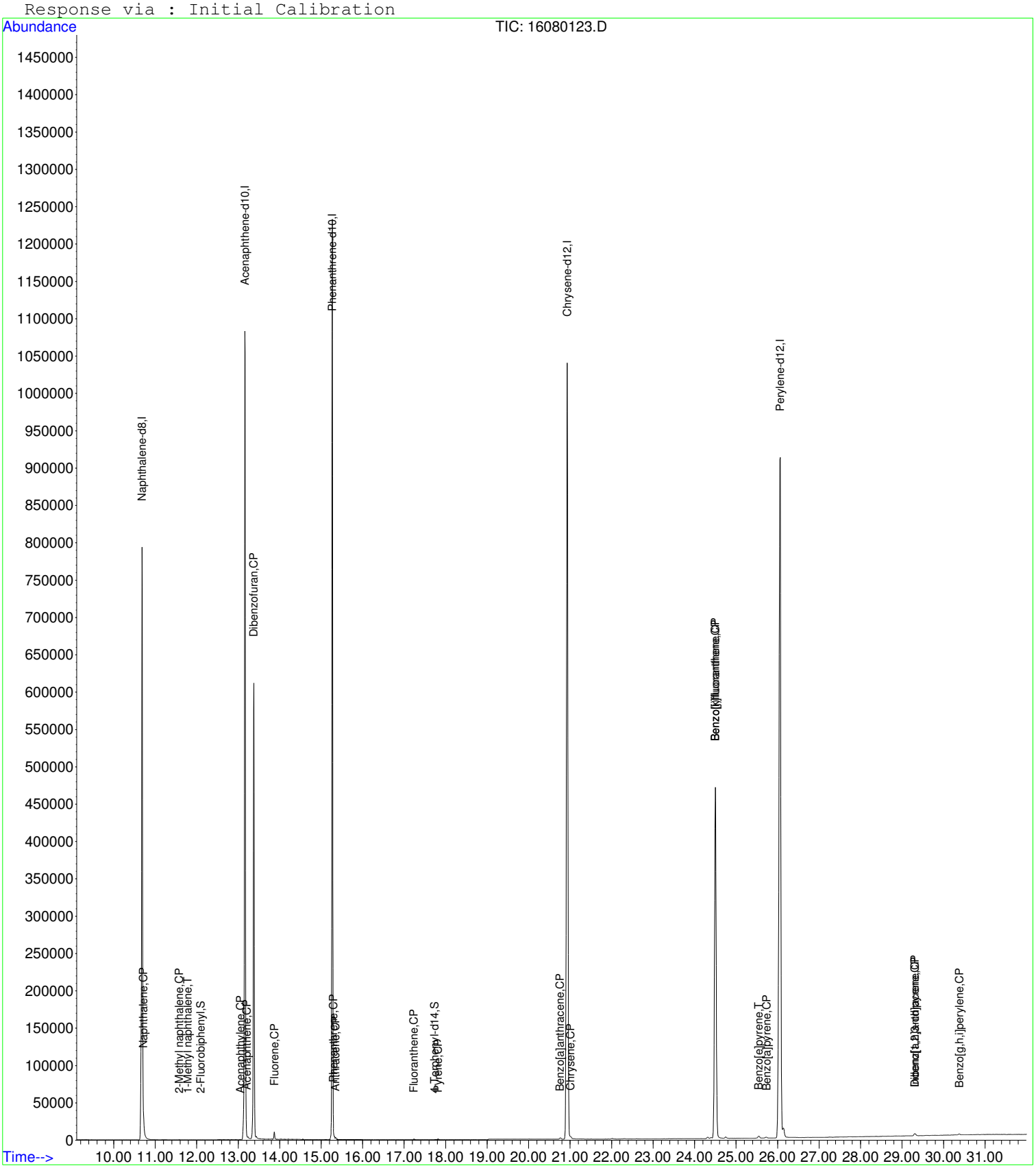
REVIEWED/APPROVED
By Sherri Herschmann at 9:39:32 AM, 8/10/2016

(#) = 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

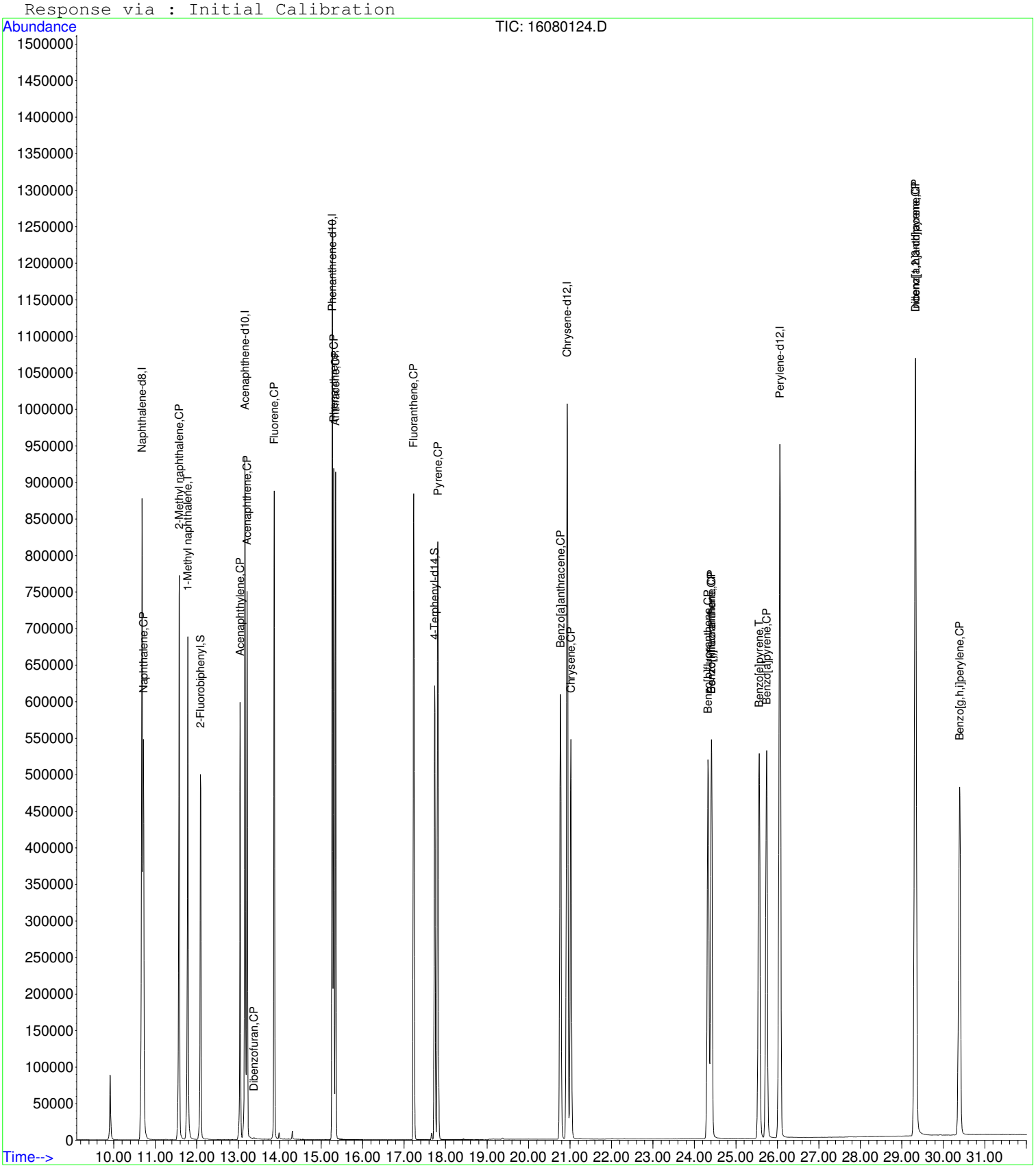
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1382829	4000.00	ug/kg	99
5) Acenaphthene-d10	13.16	164	584199	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1507995	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	1806763	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1922214	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
1607294

GCMS8_160803B
For

DHL Work Order
1607294

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_160803B
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 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			

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	X 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
X Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

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

One surrogate low - see run log. The other surrogate is passing. Sample is past hold time - no corrective action taken.

Analyst: Karyn Lane Date: 8/4/2016

Second-Level Review: Date: REVIEWED/APPROVED By Sherri Herschmann at 11:20:53 AM, 8/10/2016 08/10/2016

DHL Analytical, Inc.

Run ID: GCMS8_160803B **Run No.:** 87401

Analytical Run Date: 8/3/2016 **InstrumentID:** GCMS8

Analyst: Karyn Lane **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-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 8:30:00 AM		
ICV-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 9:09:00 AM		
LCS-76564	1	PAH_LL_WDOD1	LCS	76564	8/3/2016 9:49:00 AM		Equipment blanks - LCS and MB only required.
MB-76564	1	PAH_LL_WDOD1	MBLK	76564	8/3/2016 11:08:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 1:47:00 PM		Surrogate 4-Terphenyl-d14 low - confirmed by reanalysis.
1607294-24B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:07:00 PM		
1607294-37B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:47:00 PM		
1607294-50B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 4:27:00 PM		
1607294-63B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:07:00 PM		
1607294-76B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:47:00 PM		
1607314-07B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 6:27:00 PM		
1607317-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 7:06:00 PM		
DFTPP2-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 7:48:00 PM		
ICV2-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 8:27:00 PM		
SBLK-160803	1	PAH_LL_WDOD1	SBLK	76564	8/3/2016 9:47:00 PM		
1607317-26B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 10:26:00 PM		
1607317-39B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:06:00 PM		
1607337-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:46:00 PM		
1607337-26B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 12:26:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 1:06:00 AM		DNR - for confirmation only.
CCV-160803	1	PAH_LL_WDOD1	CCV	R87401	8/4/2016 1:45:00 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 11:21:45 AM, 8/10/2016

Sequence Name: C:\msdchem\1\sequence\160803.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160803\
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	16080301	DFTPPPAH	DFTPP-160803
2)	Sample	2	16080302	PAH160802	ICV-160803
3)	Sample	3	16080303	PAH160802	LCS-76564
4)	Sample	4	16080304	PAH160802	LCSD-76563
5)	Sample	5	16080305	PAH160802	MB-76564
6)	Sample	6	16080306	PAH160802	DCS-76288
7)	Sample	7	16080307	PAH160802	LQV1-73288
8)	Sample	8	16080308	PAH160802	1607303-11C
9)	Sample	9	16080309	PAH160802	1607294-13B
10)	Sample	10	16080310	PAH160802	1607303-11C
11)	Sample	11	16080311	PAH160802	1607294-24B
12)	Sample	12	16080312	PAH160802	1607294-37B
13)	Sample	13	16080313	PAH160802	1607294-50B
14)	Sample	14	16080314	PAH160802	1607294-63B
15)	Sample	15	16080315	PAH160802	1607294-76B
16)	Sample	16	16080316	PAH160802	1607314-07B
17)	Sample	17	16080317	PAH160802	1607317-13B
18)	Sample	18	16080318	DFTPPPAH	DFTPP2-160803
19)	Sample	19	16080319	PAH160802	ICV2-160803
20)	Sample	20	16080320	PAH160802	SBLK
21)	Sample	21	16080321	PAH160802	SBLK-160803
22)	Sample	22	16080322	PAH160802	1607317-26B
23)	Sample	23	16080323	PAH160802	1607317-39B
24)	Sample	24	16080324	PAH160802	1607337-13B
25)	Sample	25	16080325	PAH160802	1607337-26B
26)	Sample	26	16080326	PAH160802	1607294-13B
27)	Sample	27	16080327	PAH160802	CCV-160803

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: **7/29/2016 2:03:00 PM**

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

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
1607294-13B	Equip Blank	6	254.9	1	0.004	1 of 1	
1607294-24B	Equip Blank	6	252.3	1	0.004	1 of 1	
1607294-37B	Equip Blank	6	251.6	1	0.004	1 of 1	
1607294-50B	Equip Blank	6	251.4	1	0.004	1 of 1	
1607294-63B	Equip Blank	6	253.9	1	0.004	1 of 1	
1607294-76B	Equip Blank	6	251	1	0.004	1 of 1	
1607314-07B	Equip Blank	6	253.4	1	0.004	1 of 1	
1607317-13B	Equip Blank	6	251.1	1	0.004	1 of 1	
1607317-26B	Equip Blank	6	250.8	1	0.004	1 of 1	
1607317-39B	Equip Blank	6	254.2	1	0.004	1 of 1	
1607337-13B	Aqueous	6	252.9	1	0.004	1 of 1	
1607337-26B	Aqueous	6	252.3	1	0.004	1 of 1	
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	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
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:21:52 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: 7/29/16 2:03 PM

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

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
1607294-13B	Equip Blank	6	500	1	0.002	1 of 1	794.2 - 539.3 = 254.9
1607294-24B	Equip Blank		500	1	0.002	1 of 1	775.4 - 523.1 = 252.3
1607294-37B	Equip Blank		500	1	0.002	1 of 1	788.9 - 537.3 = 251.6
1607294-50B	Equip Blank		500	1	0.002	1 of 1	775.7 - 524.3 = 251.4
1607294-63B	Equip Blank		500	1	0.002	1 of 1	781.2 - 527.7 = 253.9
1607294-76B	Equip Blank		500	1	0.002	1 of 1	780.4 - 529.4 = 251.0
1607314-07B	Equip Blank		500	1	0.002	1 of 1	~~773.2 - =~~ 7/29/16 773.9 - 520.5 = 253.4
1607317-13B	Equip Blank		500	1	0.002	1 of 1	772.2 - 521.1 = 251.1
1607317-26B	Equip Blank		500	1	0.002	1 of 1	765.7 - 514.9 = 250.8
1607317-39B	Equip Blank		500	1	0.002	1 of 1	771.3 - 517.1 = 254.2
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	Aqueous	6	500	1	0.002	of	

1607337-13B
337-26B

764.1 - 511.2 = 252.9
781.9 - 529.6 = 252.3

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:24 AM, 8/10/2016

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

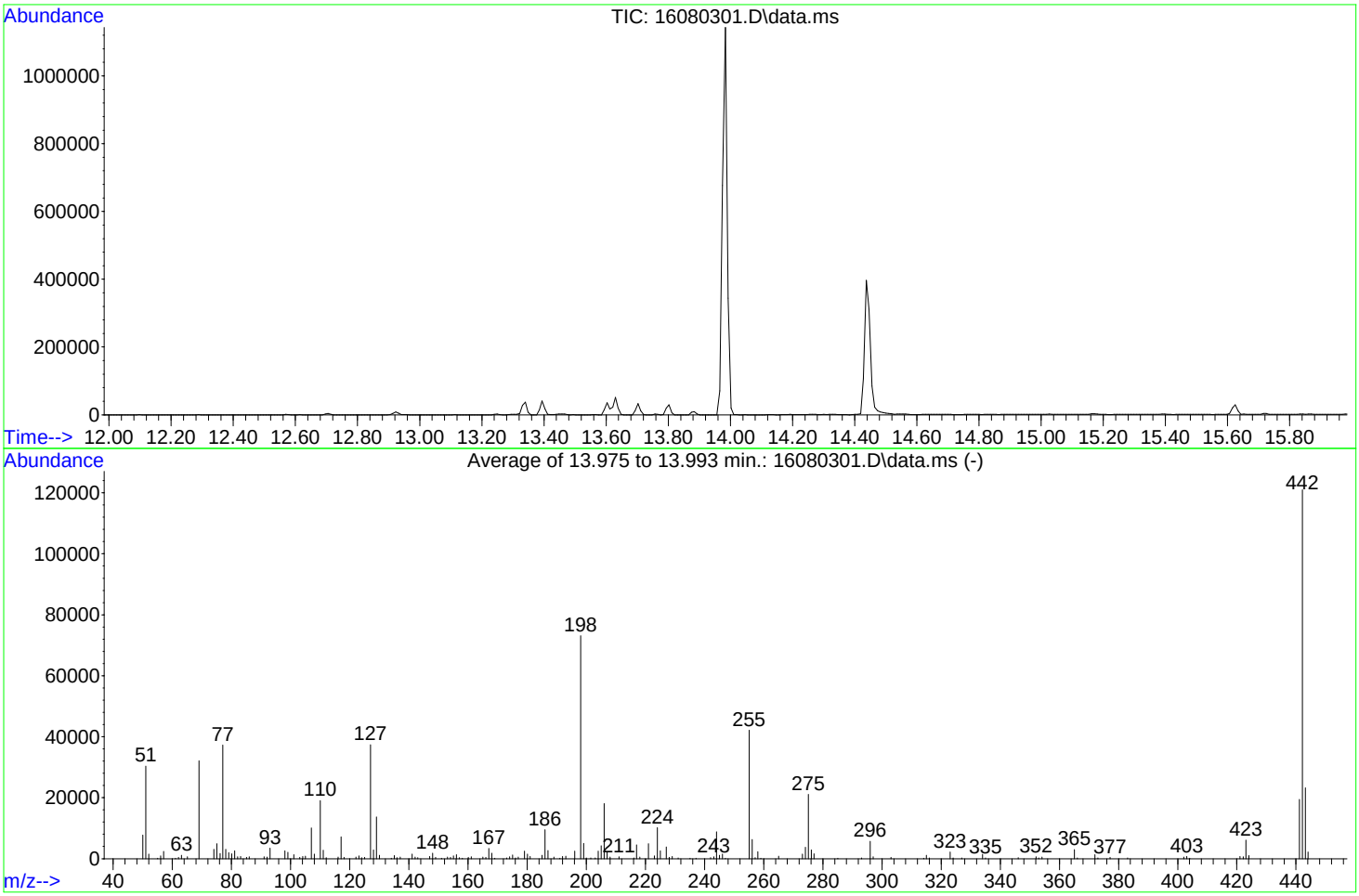
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

7/29/16 7/29/16 7/29/16

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080301.D
Acq On : 3 Aug 2016 8:30 am
Operator :
Sample : DFTPP-160803
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	41.5	30395	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.9	32151	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.1	37380	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	73176	PASS
199	198	5	9	6.9	5031	PASS
275	198	10	60	28.8	21092	PASS
365	198	1	200	4.1	3004	PASS
441	442	0.01	24	16.1	19486	PASS
442	198	50	400	165.4	121034	PASS
443	442	15	24	19.2	23240	PASS

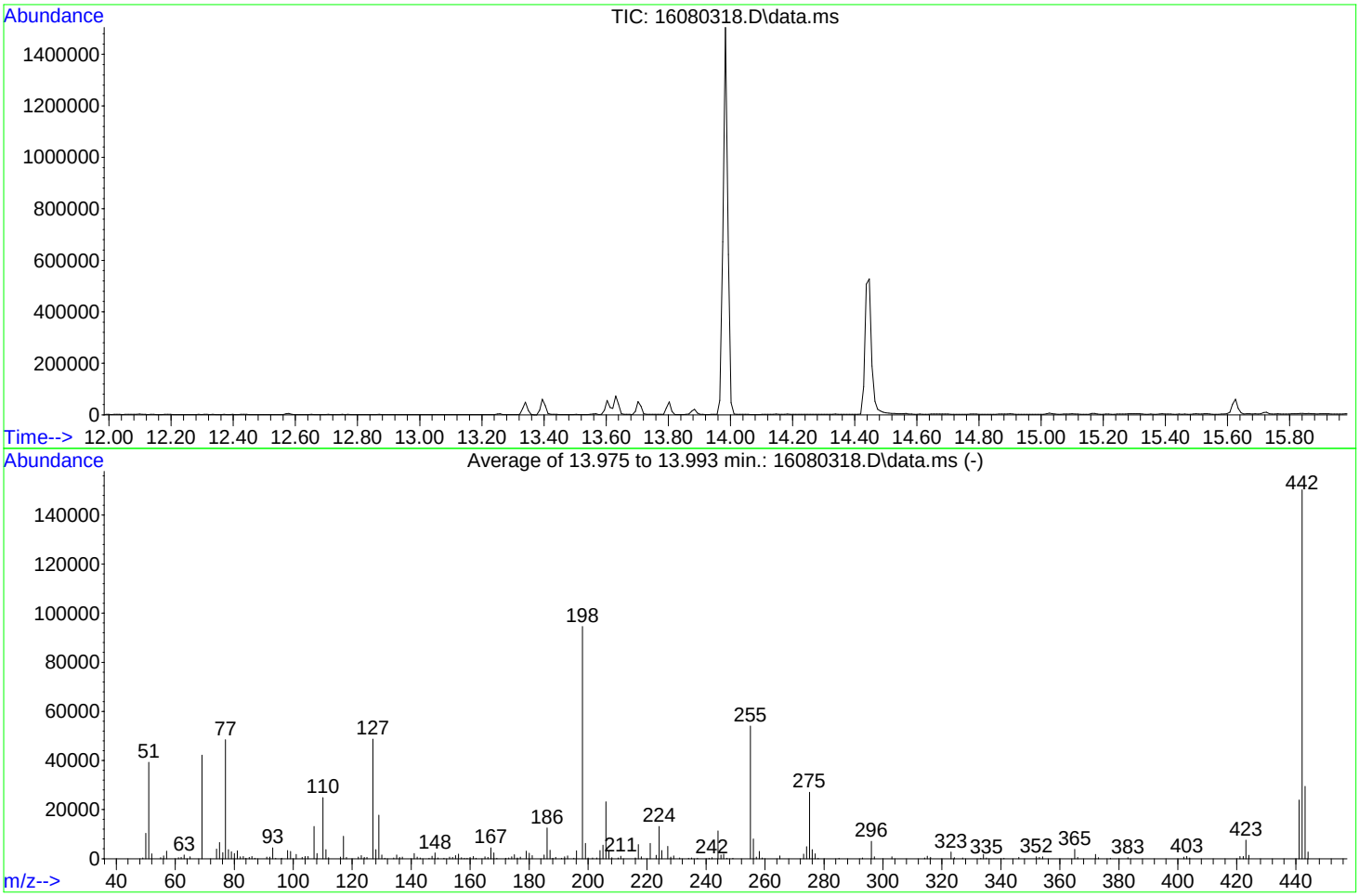
REVIEWED/APPROVED
By Sherri Herschmann at 9:49:02 AM, 8/4/2016

DFTPP

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080318.D
Acq On : 3 Aug 2016 7:48 pm
Operator :
Sample : DFTPP2-160803
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	41.5	39277	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.5	42136	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	48754	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	94600	PASS
199	198	5	9	6.7	6295	PASS
275	198	10	60	28.6	27089	PASS
365	198	1	200	4.0	3811	PASS
441	442	0.01	24	15.9	23947	PASS
442	198	50	400	158.9	150304	PASS
443	442	15	24	19.6	29507	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:44 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 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

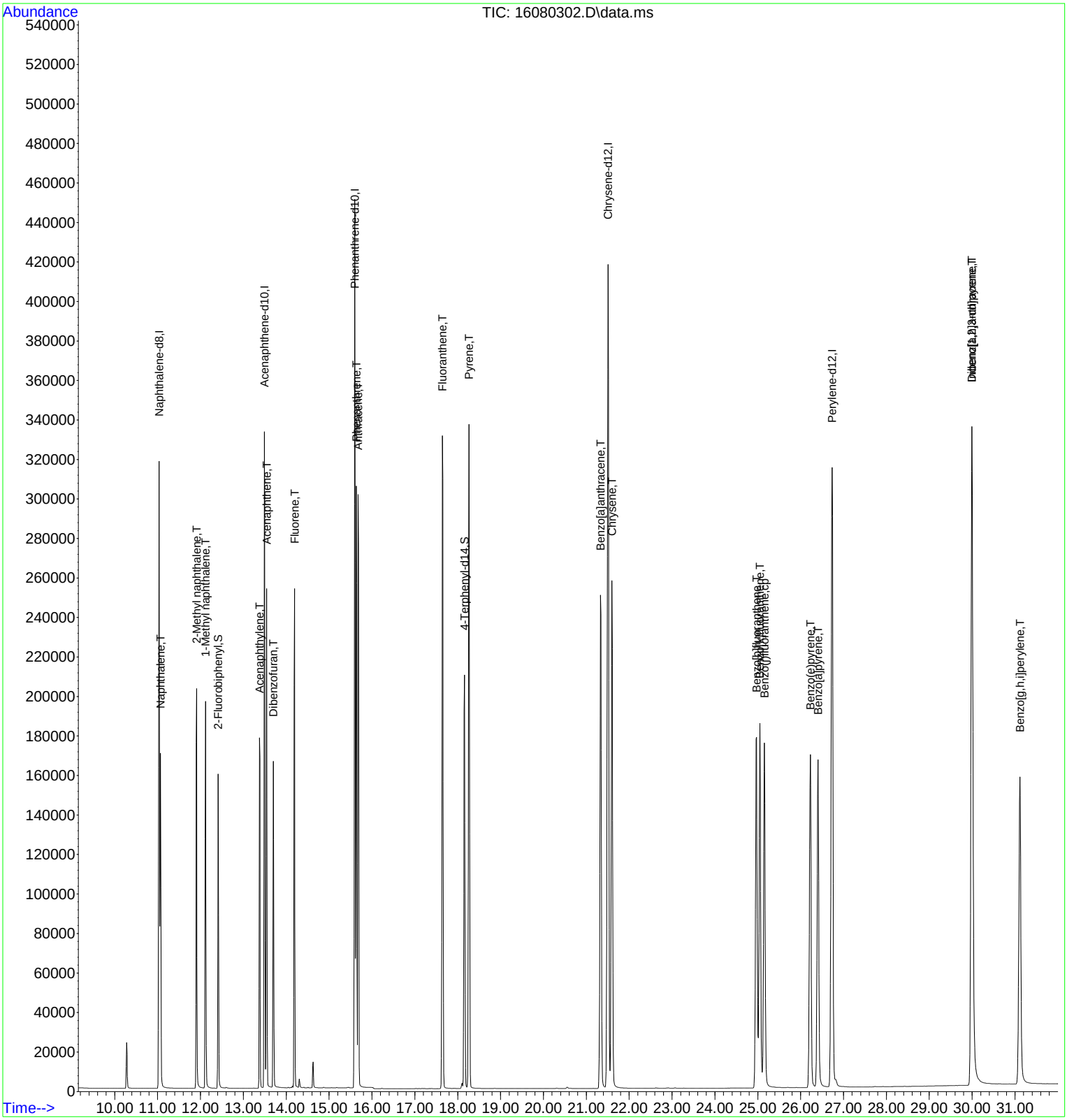
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	390553	4000.00	ug/kg	100
6) Acenaphthene-d10	13.490	164	183562	4000.00	ug/kg	100
11) Phenanthrene-d10	15.600	188	509810	4000.00	ug/kg	102
17) Chrysene-d12	21.508	240	654325	4000.00	ug/kg	97
20) Perylene-d12	26.733	264	594983	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	125265	1934.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.35%			
15) 4-Terphenyl-d14	18.159	244	242415	1909.23	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.73%#			
Target Compounds						Qvalue
2) Naphthalene	11.068	128	178905	1883.99	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	117561	1967.33	ug/kg	97
4) 1-Methyl naphthalene	12.118	142	107352	1956.46	ug/kg	98
7) Acenaphthylene	13.377	152	176868	2009.63	ug/kg	99
8) Acenaphthene	13.542	153	110322	1978.58	ug/kg	99
9) Dibenzofuran	13.698	168	155670	1970.36	ug/kg	71
10) Fluorene	14.193	166	134789	2021.51	ug/kg	99
12) Phenanthrene	15.634	178	262008	1900.99	ug/kg	99
13) Anthracene	15.678	178	269388	1910.93	ug/kg	99
14) Fluoranthene	17.643	202	358655	1939.37	ug/kg	100
16) Pyrene	18.263	202	364075	1896.47	ug/kg	100
18) Benzo[a]anthracene	21.331	228	350831	2067.91	ug/kg	100
19) Chrysene	21.597	228	328075	2026.60	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	336445	2095.75	ug/kg	99
22) Benzo[k]fluoranthene	25.051	252	296090	2155.96	ug/kg	99
23) Benzo(j)fluoranthene	25.155	252	281469	2098.35	ug/kg	100
24) Benzo(e)pyrene	26.226	252	313111	2015.57	ug/kg	100
25) Benzo[a]pyrene	26.403	252	307070	2082.90	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	369754	2123.66	ug/kg	98
27) Dibenz[a,h]anthracene	29.994	278	306446	2140.51	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	311193	2034.70	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

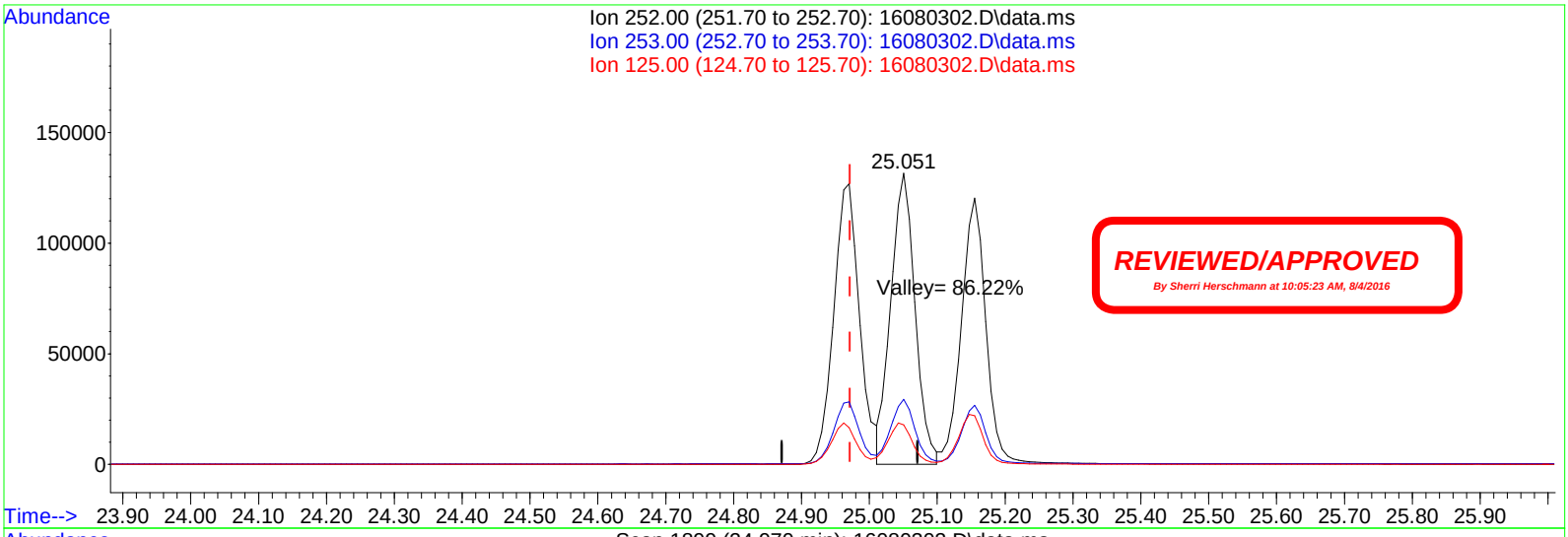
Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

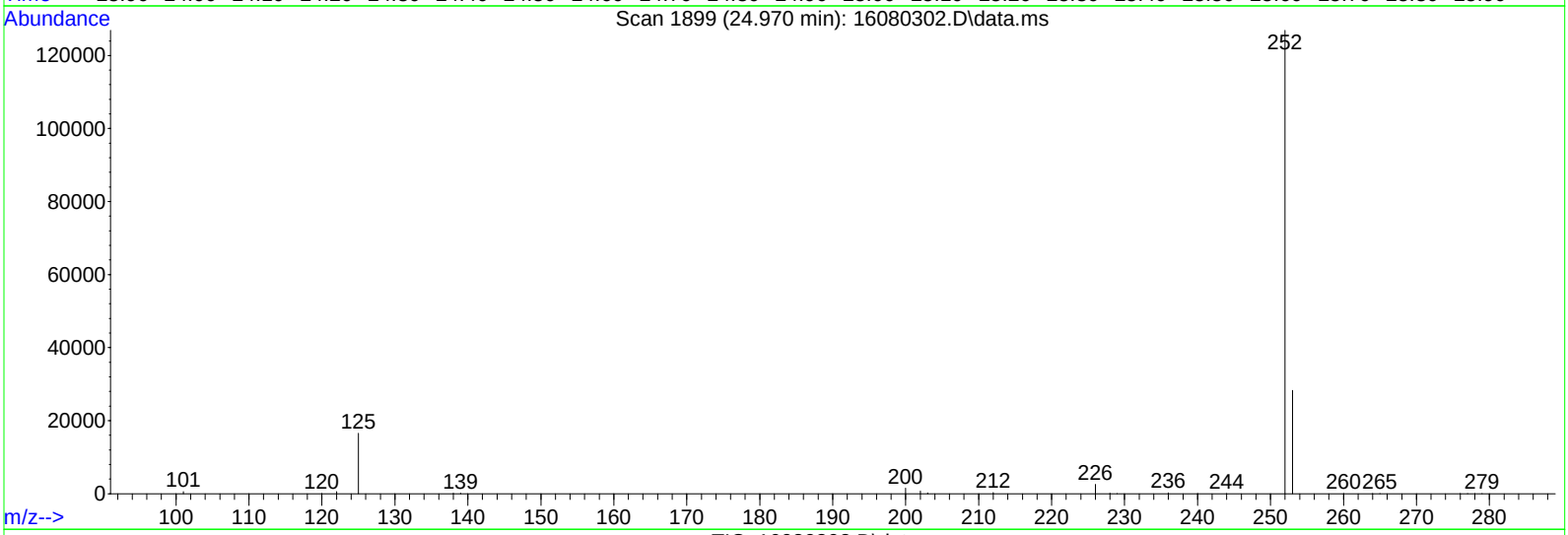


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 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: 16080302.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.970min (-0.001) 2095.75ug/kg

response 336445

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.04
125.00	13.90	13.01
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 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

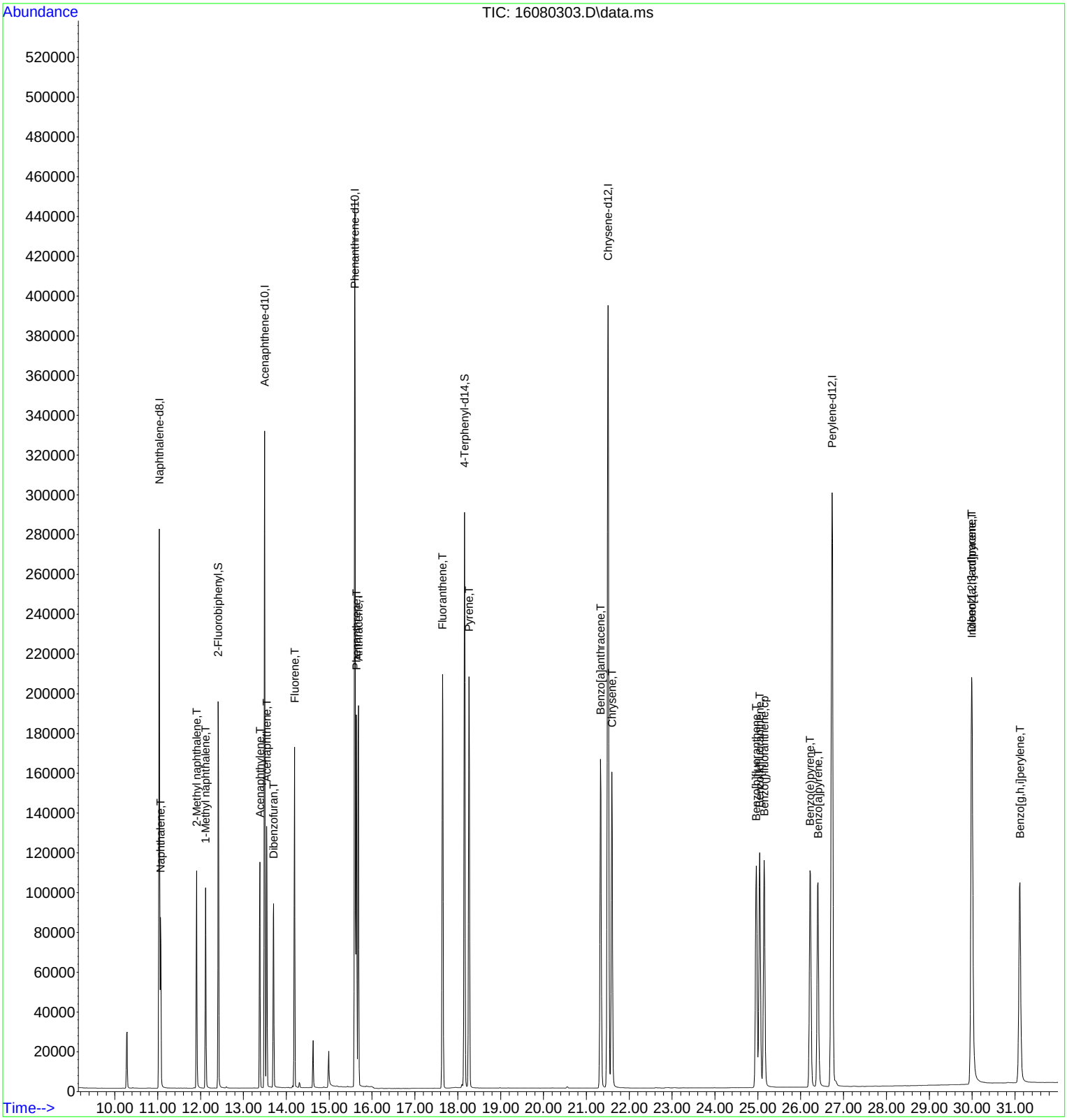
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	368907	4000.00	ug/kg	94
6) Acenaphthene-d10	13.496	164	180794	4000.00	ug/kg	99
11) Phenanthrene-d10	15.597	188	514572	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	620547	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	566556	4000.00	ug/kg	92
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.410	172	160816	2628.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 65.72%			
15) 4-Terphenyl-d14	18.158	244	323974	2527.96	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.20%			
Target Compounds						Qvalue
2) Naphthalene	11.065	128	93399	1041.27	ug/kg	100
3) 2-Methyl naphthalene	11.907	142	59580	1055.55	ug/kg	100
4) 1-Methyl naphthalene	12.115	142	56031	1081.07	ug/kg	99
7) Acenaphthylene	13.383	152	103886	1198.46	ug/kg	100
8) Acenaphthene	13.539	153	63907	1163.69	ug/kg	100
9) Dibenzofuran	13.704	168	93926	1207.05	ug/kg	98
10) Fluorene	14.190	166	84248	1282.86	ug/kg	100
12) Phenanthrene	15.640	178	170562	1226.06	ug/kg	100
13) Anthracene	15.684	178	171191	1203.12	ug/kg	100
14) Fluoranthene	17.643	202	225310	1207.06	ug/kg	98
16) Pyrene	18.263	202	229843	1186.17	ug/kg	98
18) Benzo[a]anthracene	21.331	228	221604	1377.31	ug/kg	100
19) Chrysene	21.596	228	202551	1319.31	ug/kg	99
21) Benzo[b]fluoranthene	24.962	252	209253	1368.86	ug/kg	100
22) Benzo[k]fluoranthene	25.042	252	193018	1475.97	ug/kg	100
23) Benzo(j)fluoranthene	25.147	252	183085	1433.38	ug/kg	100
24) Benzo(e)pyrene	26.226	252	202065	1366.00	ug/kg	100
25) Benzo[a]pyrene	26.403	252	194973	1388.89	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.002	276	235137	1418.25	ug/kg	93
27) Dibenz[a,h]anthracene	29.986	278	190770	1399.38	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	198941	1366.02	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 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\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 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	371236	4000.00	ug/kg	95
6) Acenaphthene-d10	13.496	164	187440	4000.00	ug/kg	103
11) Phenanthrene-d10	15.597	188	516421	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	618317	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	568486	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.411	172	176201	2862.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 71.55%			
15) 4-Terphenyl-d14	18.159	244	324574	2523.58	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.09%			

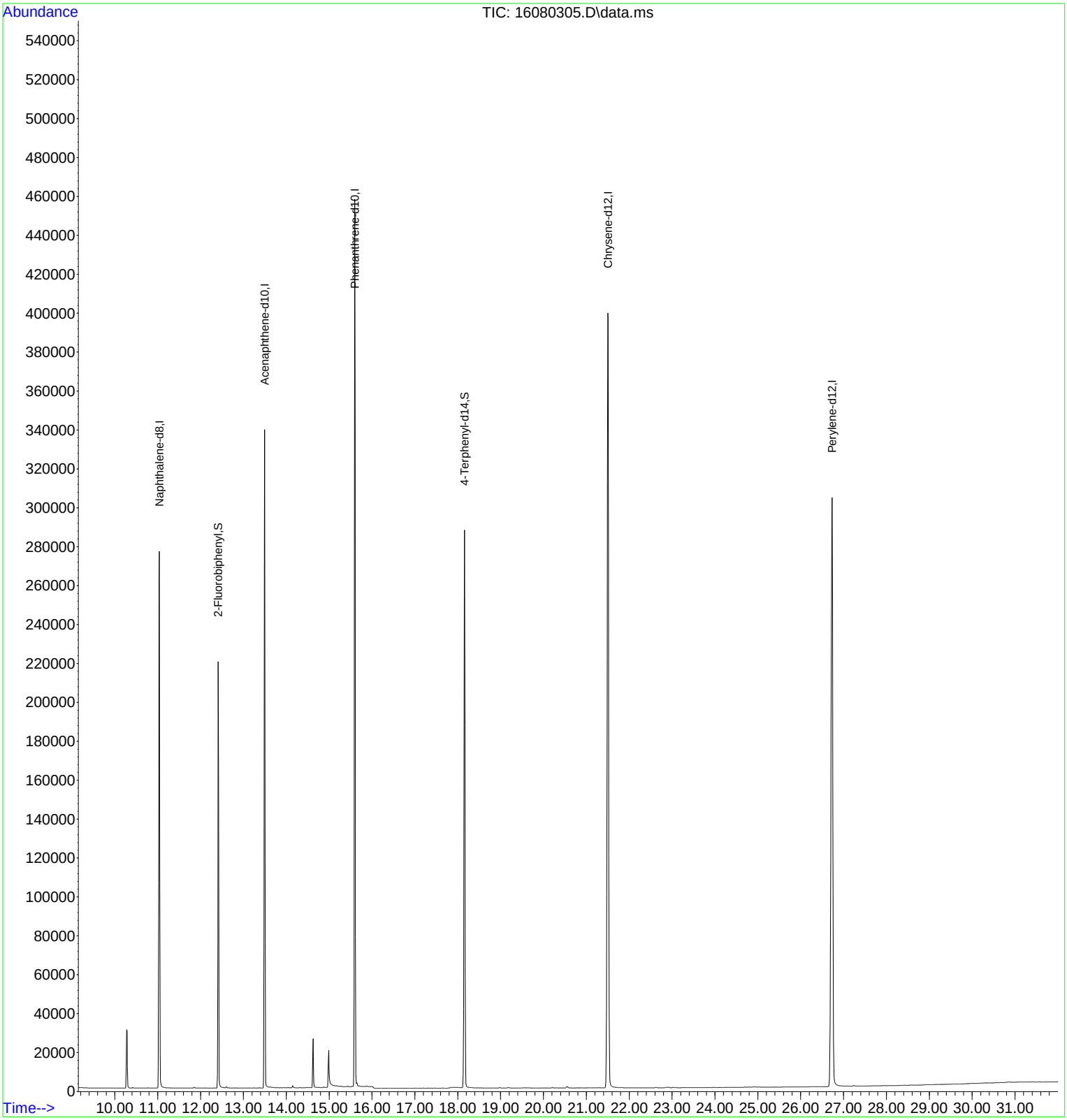
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 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\160803\
Data File : 16080309.D
Acq On : 3 Aug 2016 1:47 pm
Operator :
Sample : 1607294-13B
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 16:14:35 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	495278	4000.00	ug/kg	126
6) Acenaphthene-d10	13.499	164	245210	4000.00	ug/kg	134
11) Phenanthrene-d10	15.600	188	687379	4000.00	ug/kg	138
17) Chrysene-d12	21.517	240	820458	4000.00	ug/kg	122
20) Perylene-d12	26.742	264	769850	4000.00	ug/kg	126

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	206363	2512.50	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 62.81%			
15) 4-Terphenyl-d14	18.159	244	387209	2261.81	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 56.55%			

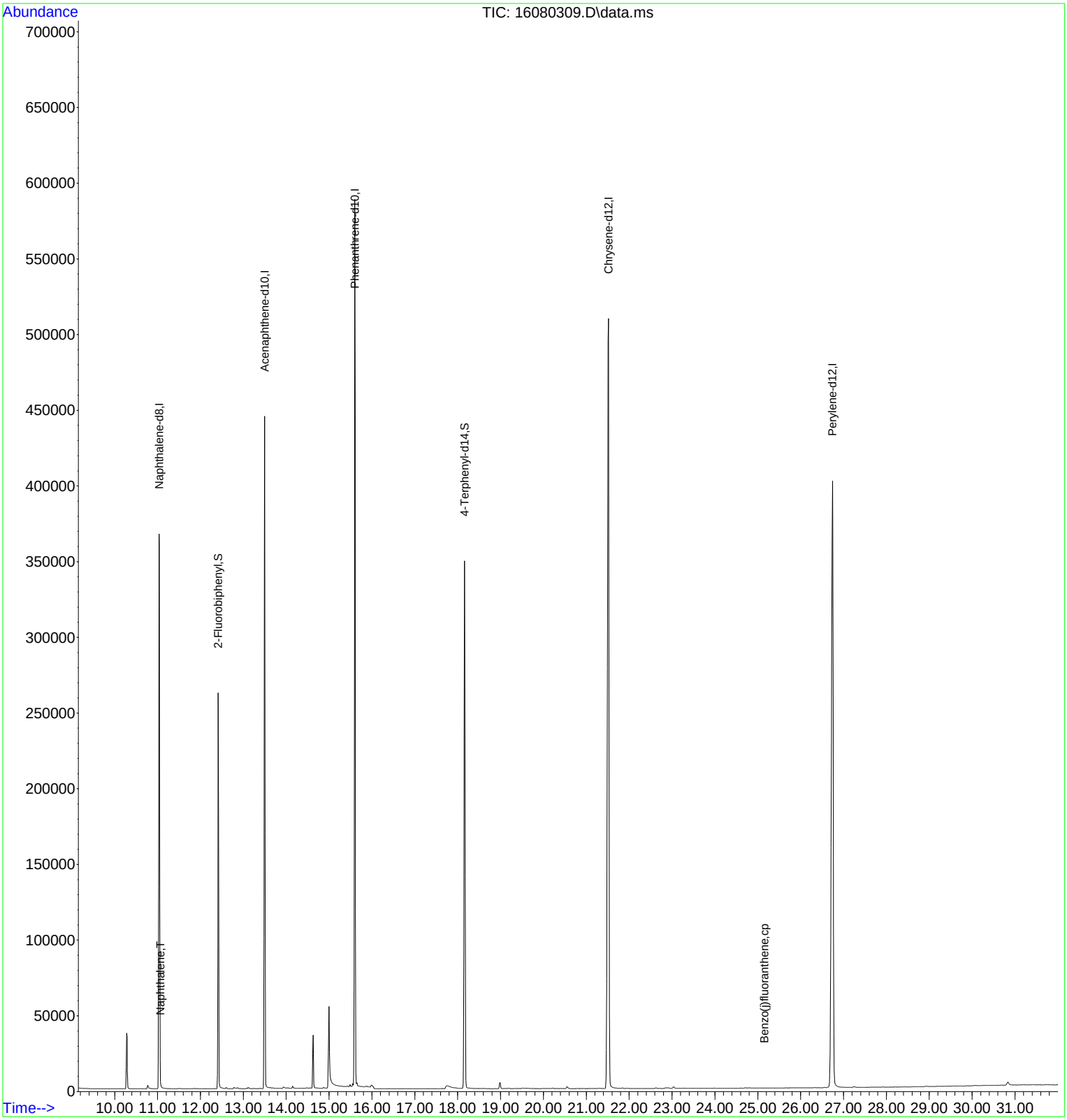
Target Compounds						Qvalue
2) Naphthalene	11.068	128	658	5.46	ug/kg	85
23) Benzo(j)fluoranthene	25.148	252	52	0.30	ug/kg#	1

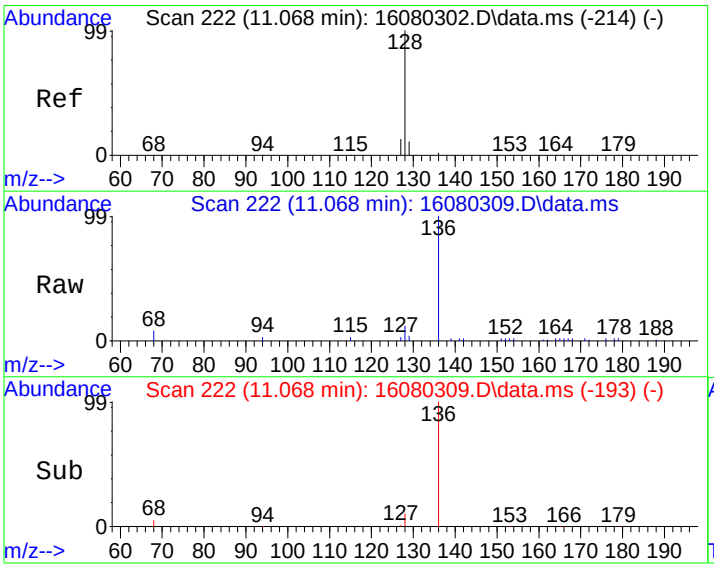
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080309.D
Acq On : 3 Aug 2016 1:47 pm
Operator :
Sample : 1607294-13B
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 16:14:35 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

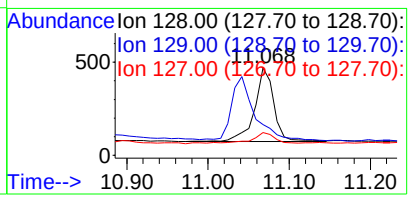


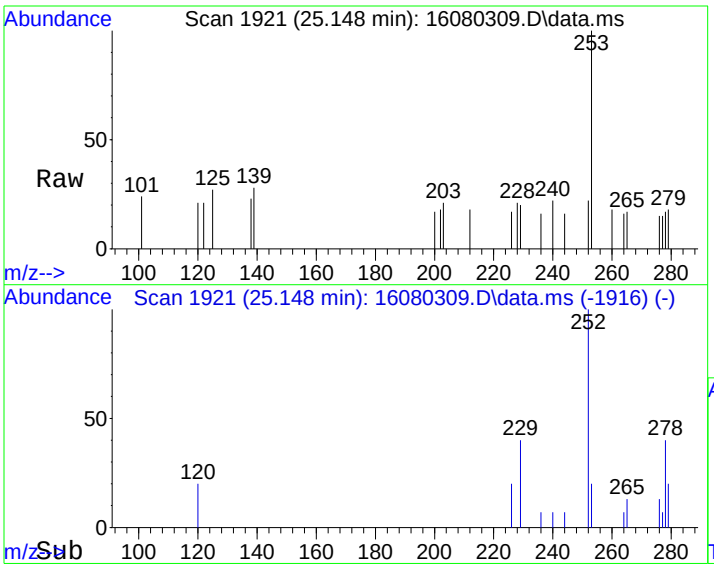


#2
Naphthalene
Concen: 5.46 ug/kg
RT: 11.068 min Scan# 222
Delta R.T. 0.001 min
Lab File: 16080309.D
Acq: 3 Aug 2016 1:47 pm

Tgt Ion:128 Resp: 658

Ion	Ratio	Lower	Upper
128	100		
129	21.5	0.0	31.0
127	14.9	0.0	33.0

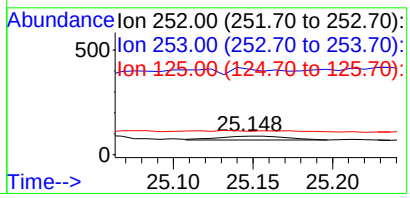




#23
Benzo(j)fluoranthene
Concen: 0.30 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.008 min
Lab File: 16080309.D
Acq: 3 Aug 2016 1:47 pm

Tgt Ion:252 Resp: 52

Ion	Ratio	Lower	Upper
252	100		
253	107.7	2.0	42.0#
125	0.0	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080311.D
Acq On : 3 Aug 2016 3:07 pm
Operator :
Sample : 1607294-24B
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 16:14:43 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	368505	4000.00	ug/kg	94
6) Acenaphthene-d10	13.496	164	180812	4000.00	ug/kg	99
11) Phenanthrene-d10	15.605	188	517337	4000.00	ug/kg	104
17) Chrysene-d12	21.510	240	625804	4000.00	ug/kg	93
20) Perylene-d12	26.743	264	569862	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	170606	2791.73	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	69.79%		
15) 4-Terphenyl-d14	18.160	244	312490	2425.32	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	60.63%		

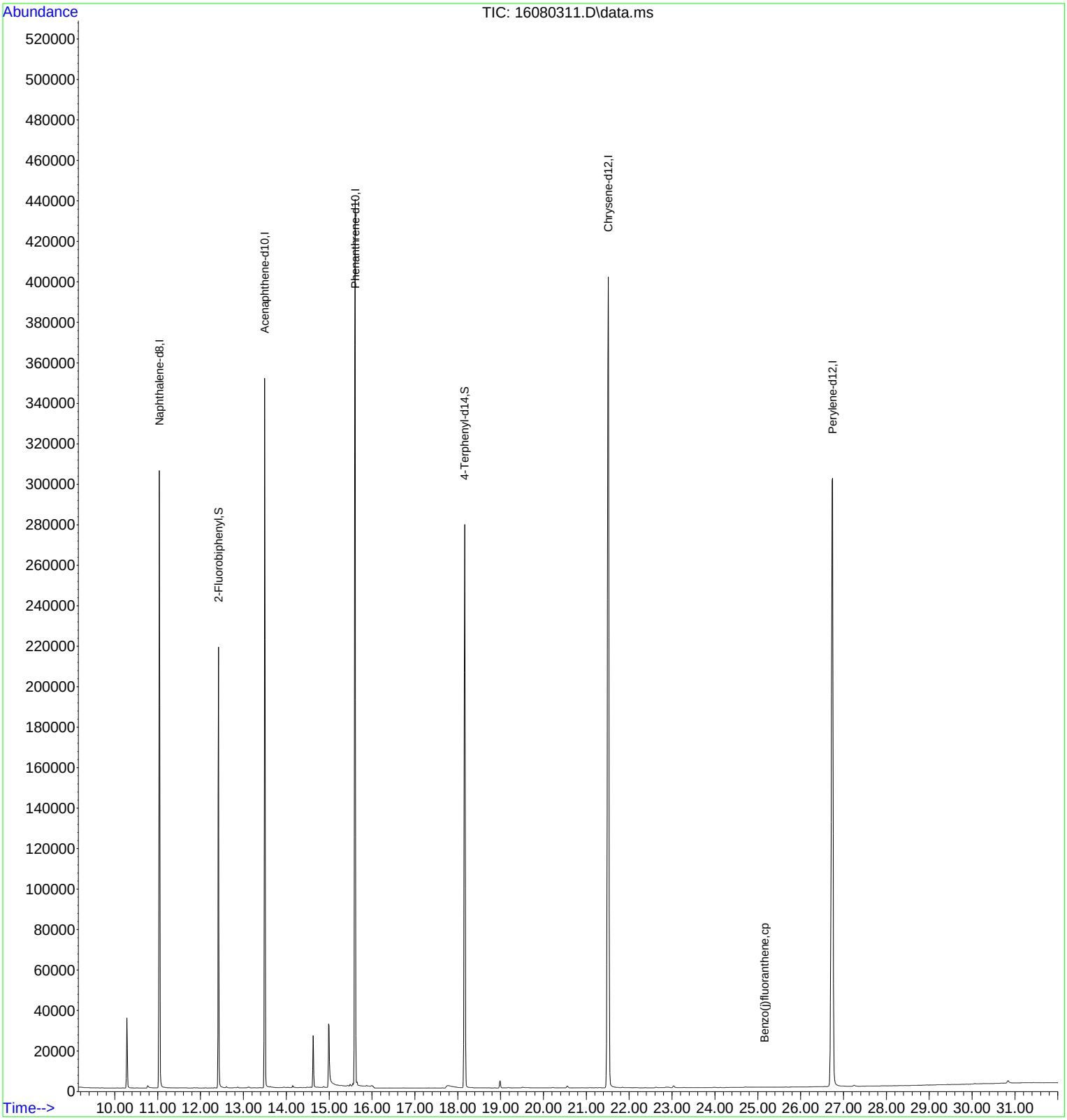
Target Compounds					Qvalue
23) Benzo(j)fluoranthene	25.157	252	14	0.11 ug/kg#	1

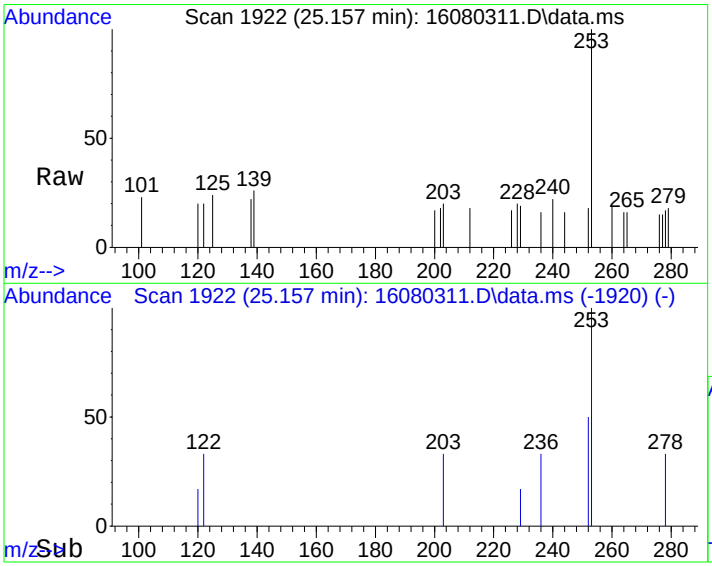
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080311.D
Acq On : 3 Aug 2016 3:07 pm
Operator :
Sample : 1607294-24B
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 16:14:43 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

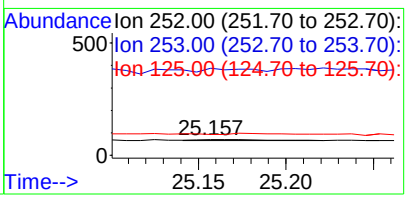




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 25.157 min Scan# 1922
Delta R.T. 0.001 min
Lab File: 16080311.D
Acq: 3 Aug 2016 3:07 pm

Tgt Ion:252 Resp: 14

Ion	Ratio	Lower	Upper
252	100		
253	185.7	2.0	42.0#
125	57.1	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080312.D
Acq On : 3 Aug 2016 3:47 pm
Operator :
Sample : 1607294-37B
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 04 09:00:48 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	365403	4000.00	ug/kg	93
6) Acenaphthene-d10	13.496	164	187409	4000.00	ug/kg	103
11) Phenanthrene-d10	15.605	188	525957	4000.00	ug/kg	105
17) Chrysene-d12	21.516	240	624921	4000.00	ug/kg	93
20) Perylene-d12	26.741	264	575871	4000.00	ug/kg	94

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	165268	2727.34	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 68.18%			
15) 4-Terphenyl-d14	18.166	244	339421	2591.17	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 64.78%			

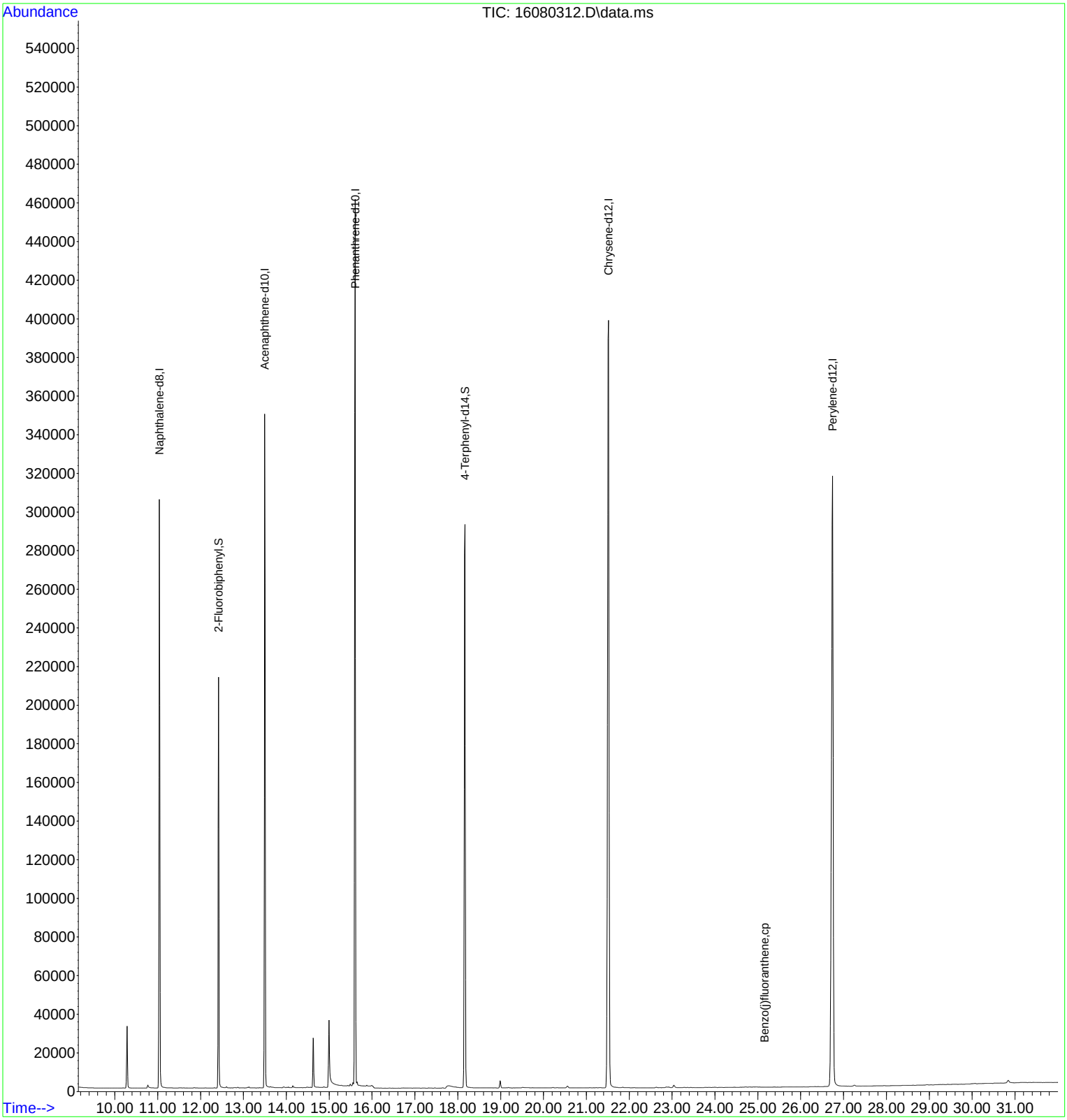
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.147	252	54	0.42	ug/kg	91

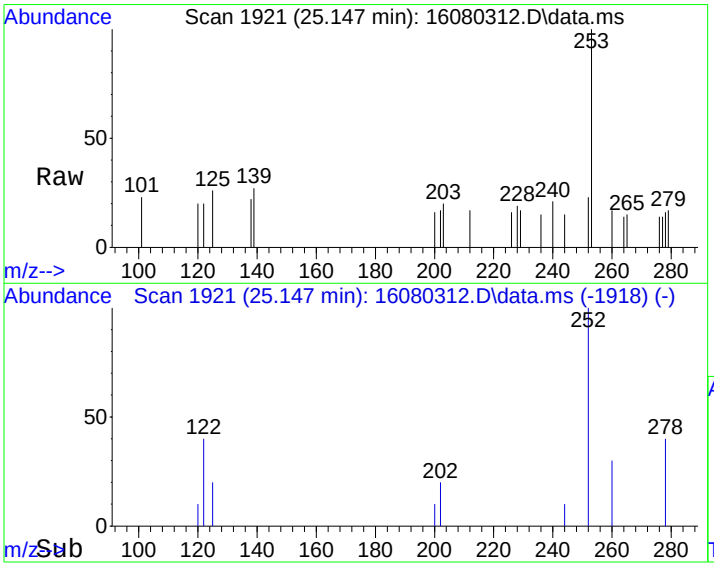
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080312.D
Acq On : 3 Aug 2016 3:47 pm
Operator :
Sample : 1607294-37B
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 04 09:00:48 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

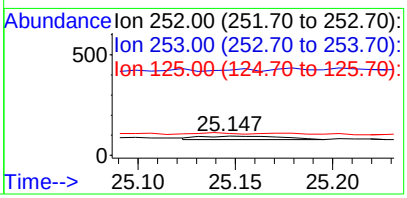




#23
Benzo(j)fluoranthene
Concen: 0.42 ug/kg
RT: 25.147 min Scan# 1921
Delta R.T. -0.009 min
Lab File: 16080312.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:252 Resp: 54

Ion	Ratio	Lower	Upper
252	100		
253	18.5	2.0	42.0
125	24.1	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080313.D
Acq On : 3 Aug 2016 4:27 pm
Operator :
Sample : 1607294-50B
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 04 09:00:52 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	420485	4000.00	ug/kg	107
6) Acenaphthene-d10	13.496	164	208842	4000.00	ug/kg	114
11) Phenanthrene-d10	15.606	188	587234	4000.00	ug/kg	118
17) Chrysene-d12	21.517	240	717417	4000.00	ug/kg	107
20) Perylene-d12	26.742	264	668338	4000.00	ug/kg	109

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	191525	2746.61	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 68.67%			
15) 4-Terphenyl-d14	18.168	244	378810	2590.10	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 64.75%			

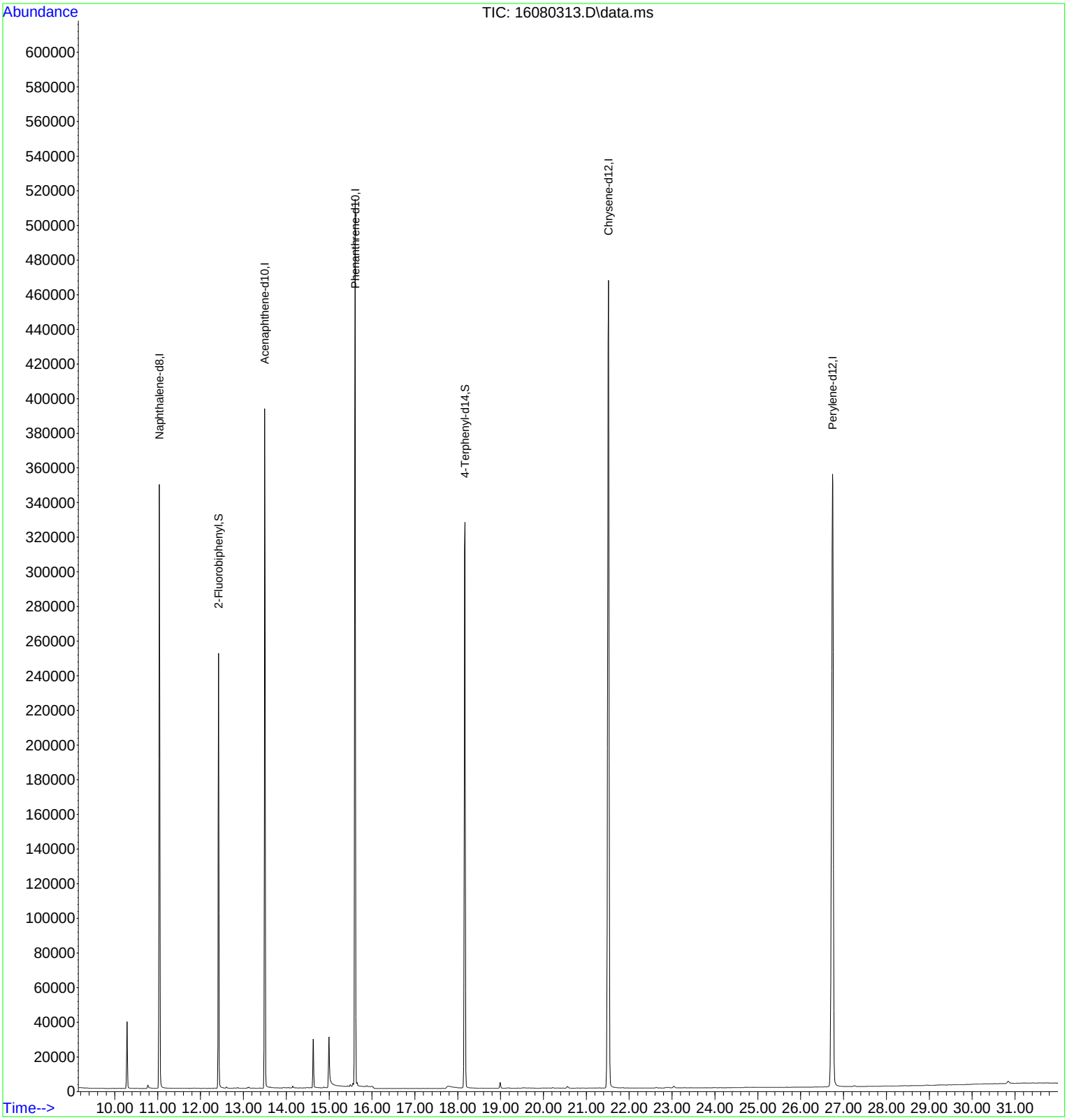
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080313.D
Acq On : 3 Aug 2016 4:27 pm
Operator :
Sample : 1607294-50B
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 04 09:00:52 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\160803\
Data File : 16080314.D
Acq On : 3 Aug 2016 5:07 pm
Operator :
Sample : 1607294-63B
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 04 09:00:55 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	500317	4000.00	ug/kg	127
6) Acenaphthene-d10	13.499	164	252505	4000.00	ug/kg	138
11) Phenanthrene-d10	15.608	188	701834	4000.00	ug/kg	141
17) Chrysene-d12	21.517	240	841986	4000.00	ug/kg	125
20) Perylene-d12	26.751	264	783742	4000.00	ug/kg	128

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	227649	2743.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	68.59%		
15) 4-Terphenyl-d14	18.168	244	442645	2532.37	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	63.31%		

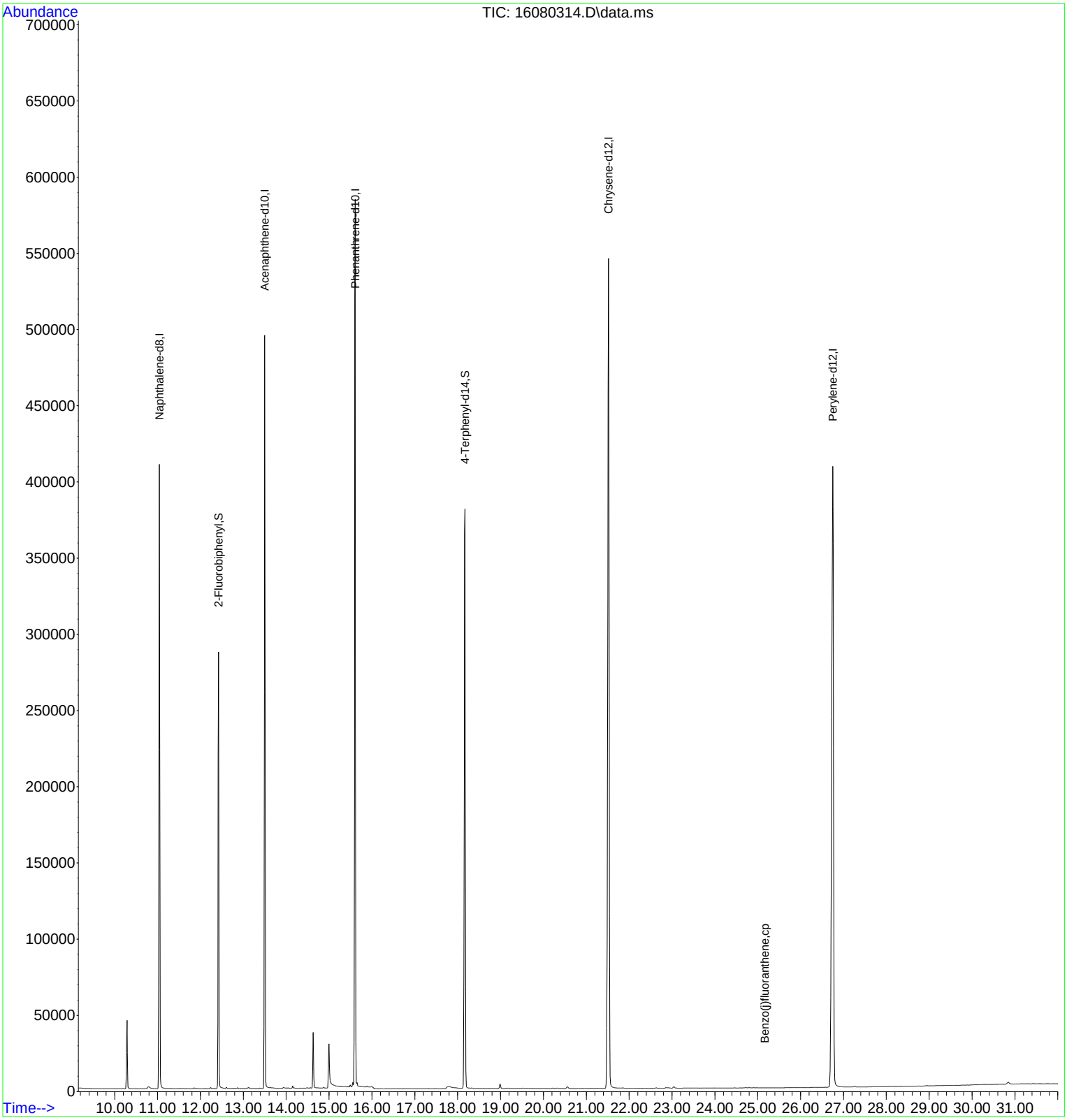
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.157	252	45	0.25	ug/kg#	1

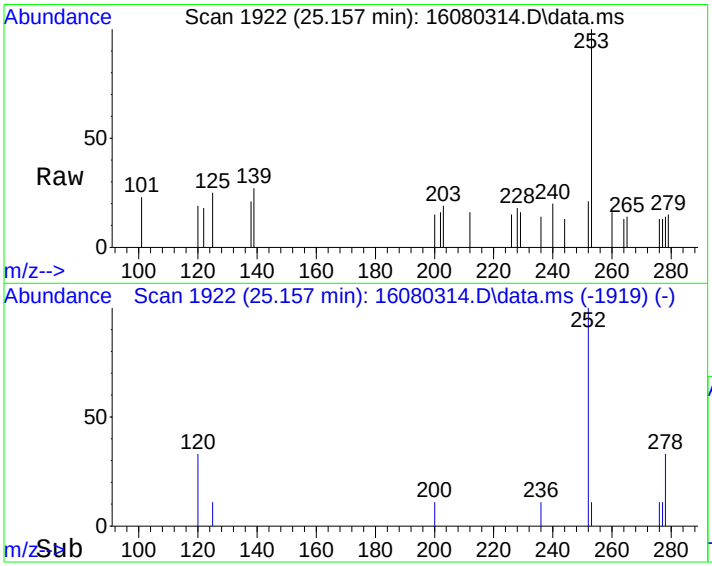
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080314.D
Acq On : 3 Aug 2016 5:07 pm
Operator :
Sample : 1607294-63B
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 04 09:00:55 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

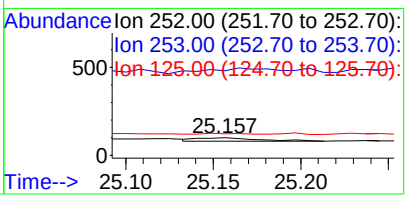




#23
Benzo(j)fluoranthene
Concen: 0.25 ug/kg
RT: 25.157 min Scan# 1922
Delta R.T. 0.000 min
Lab File: 16080314.D
Acq: 3 Aug 2016 5:07 pm

Tgt Ion:252 Resp: 45

Ion	Ratio	Lower	Upper
252	100		
253	248.9	2.0	42.0#
125	15.6	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080315.D
Acq On : 3 Aug 2016 5:47 pm
Operator :
Sample : 1607294-76B
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 04 09:00:59 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

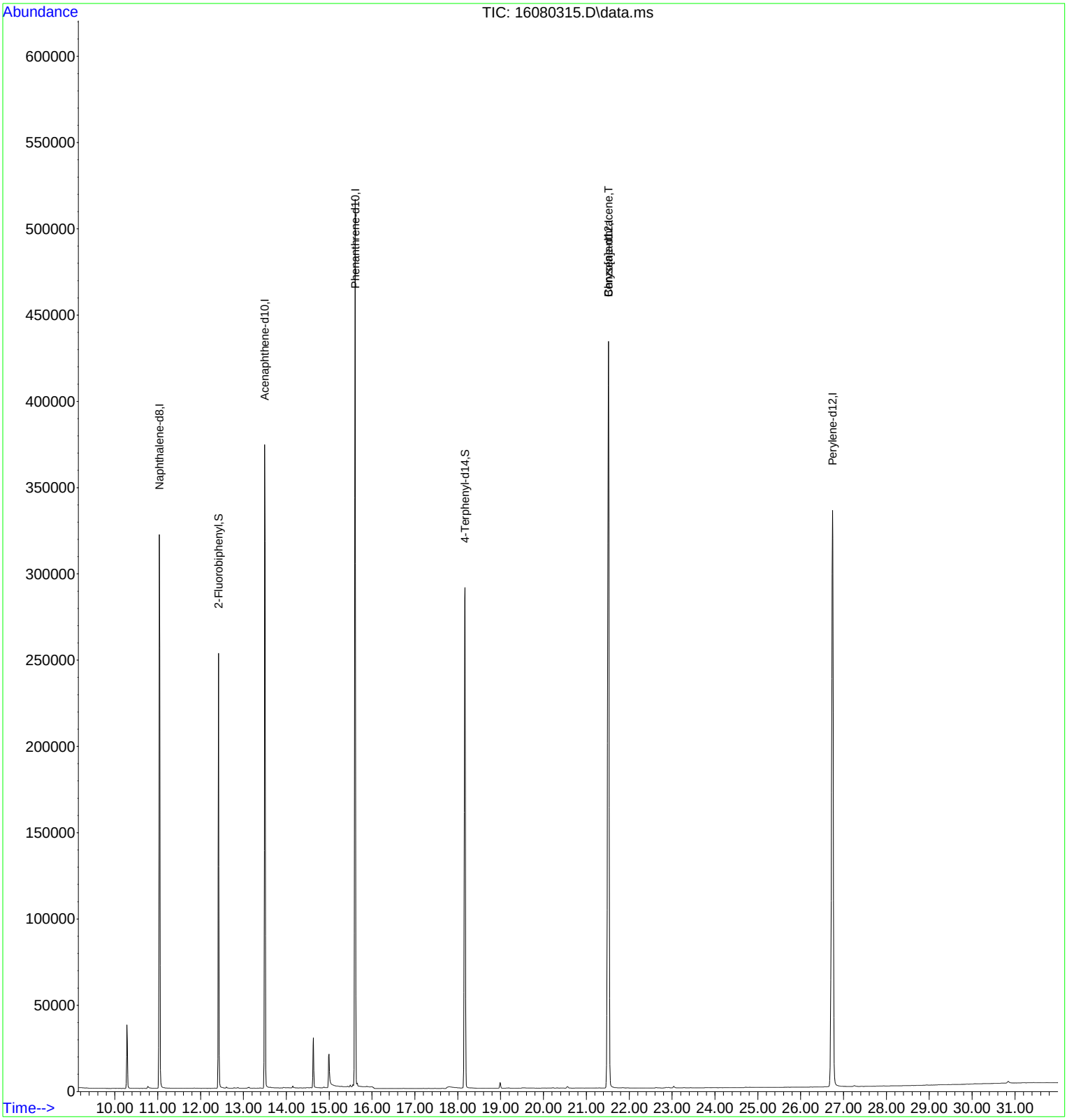
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	402029	4000.00	ug/kg	102
6) Acenaphthene-d10	13.495	164	207660	4000.00	ug/kg	114
11) Phenanthrene-d10	15.605	188	583532	4000.00	ug/kg	117
17) Chrysene-d12	21.517	240	673365	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	630320	4000.00	ug/kg	103
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	192230	2883.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 72.08%			
15) 4-Terphenyl-d14	18.168	244	340301	2341.56	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 58.54%			
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.517	228	1861	10.66	ug/kg	70

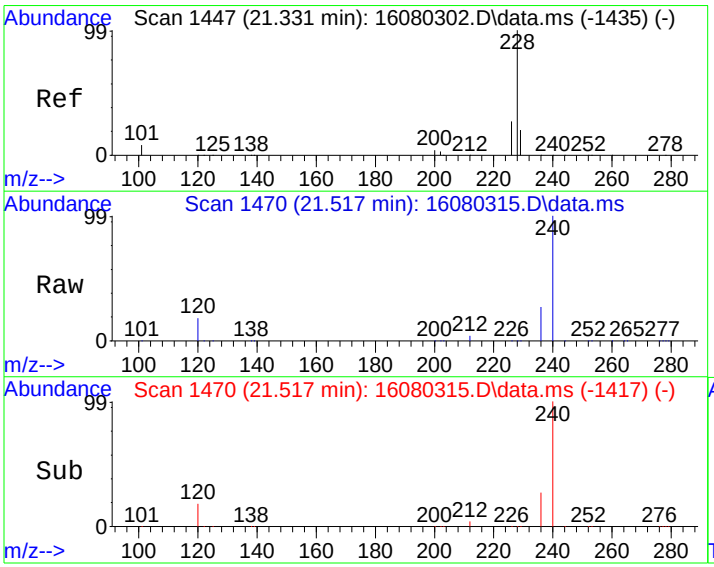
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080315.D
Acq On : 3 Aug 2016 5:47 pm
Operator :
Sample : 1607294-76B
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 04 09:00:59 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

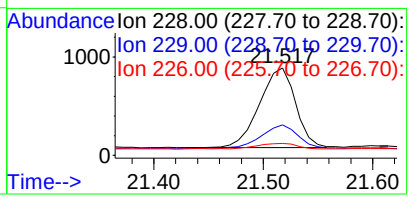




#18
Benzo[a]anthracene
Concen: 10.66 ug/kg
RT: 21.517 min Scan# 1470
Delta R.T. 0.178 min
Lab File: 16080315.D
Acq: 3 Aug 2016 5:47 pm

Tgt Ion:228 Resp: 1861

Ion	Ratio	Lower	Upper
228	100		
229	29.3	0.0	39.9
226	7.0	6.5	46.5



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 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	11.042	136	387288	4000.00	ug/kg	99
6) Acenaphthene-d10	13.499	164	209956	4000.00	ug/kg	115
11) Phenanthrene-d10	15.608	188	609657	4000.00	ug/kg	122
17) Chrysene-d12	21.516	240	657322	4000.00	ug/kg	98
20) Perylene-d12	26.741	264	594208	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	130518	2032.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.80%			
15) 4-Terphenyl-d14	18.167	244	251408	1655.77	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 41.39%#			

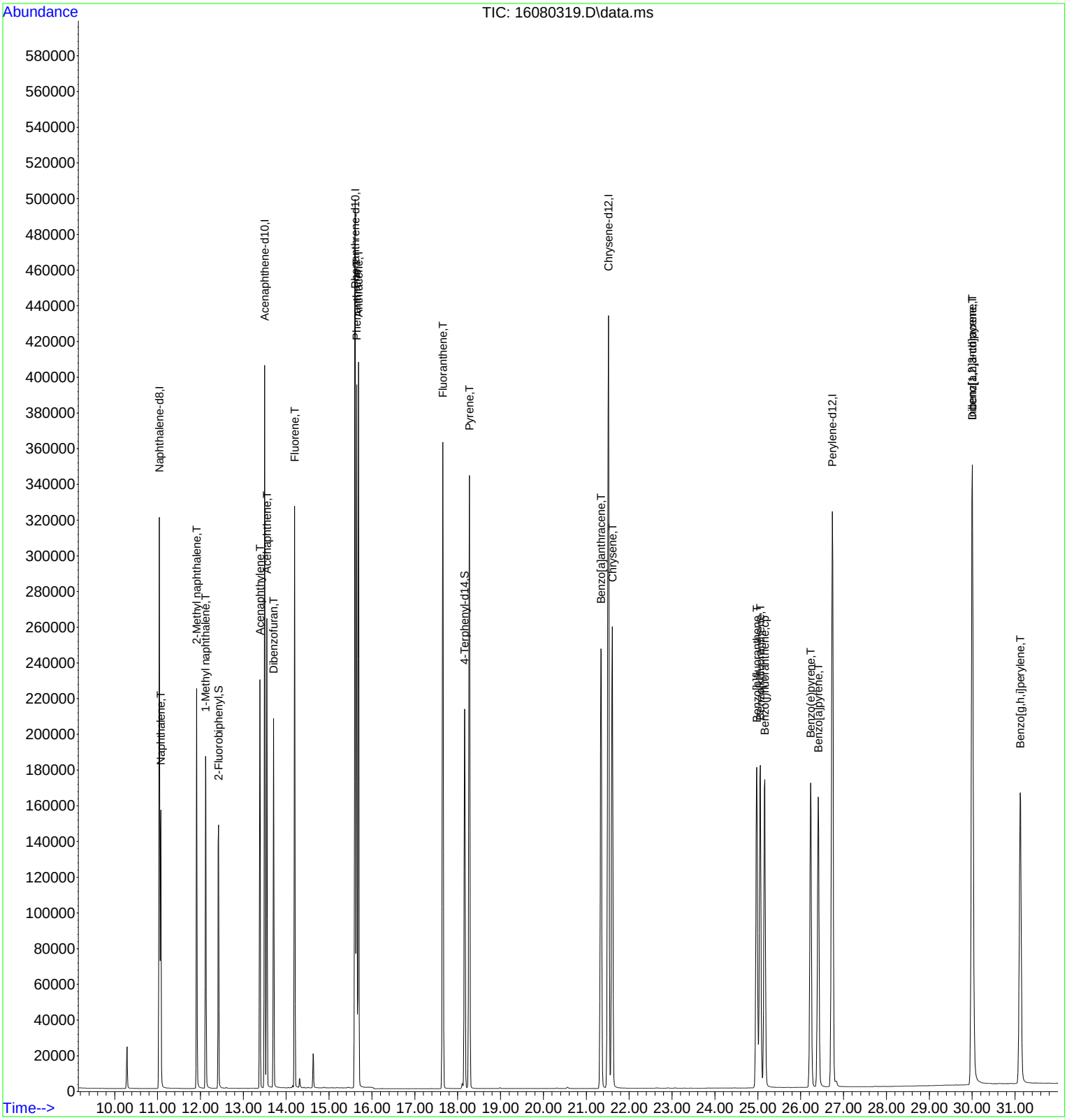
Target Compounds						Qvalue
2) Naphthalene	11.076	128	177263	1882.44	ug/kg	99
3) 2-Methyl naphthalene	11.910	142	119739	2020.67	ug/kg	100
4) 1-Methyl naphthalene	12.127	142	110170	2024.75	ug/kg	95
7) Acenaphthylene	13.386	152	200745	1994.19	ug/kg	99
8) Acenaphthene	13.551	153	125065	1961.01	ug/kg	97
9) Dibenzofuran	13.707	168	186459	2063.38	ug/kg	89
10) Fluorene	14.193	166	168105	2204.22	ug/kg	99
12) Phenanthrene	15.643	178	328719	1994.40	ug/kg	99
13) Anthracene	15.687	178	314489	1865.50	ug/kg	99
14) Fluoranthene	17.651	202	379720	1717.00	ug/kg	99
16) Pyrene	18.271	202	383475	1670.38	ug/kg	99
18) Benzo[a]anthracene	21.347	228	352868	2070.44	ug/kg	100
19) Chrysene	21.605	228	326961	2010.51	ug/kg	100
21) Benzo[b]fluoranthene	24.978	252	339971	2120.48	ug/kg	99
22) Benzo[k]fluoranthene	25.059	252	304117	2217.30	ug/kg	99
23) Benzo(j)fluoranthene	25.163	252	287778	2148.18	ug/kg	100
24) Benzo(e)pyrene	26.234	252	314023	2024.07	ug/kg	100
25) Benzo[a]pyrene	26.411	252	305106	2072.28	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.010	276	377399	2170.39	ug/kg	97
27) Dibenz[a,h]anthracene	30.002	278	313771	2194.54	ug/kg	98
28) Benzo[g,h,i]perylene	31.121	276	321130	2102.41	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

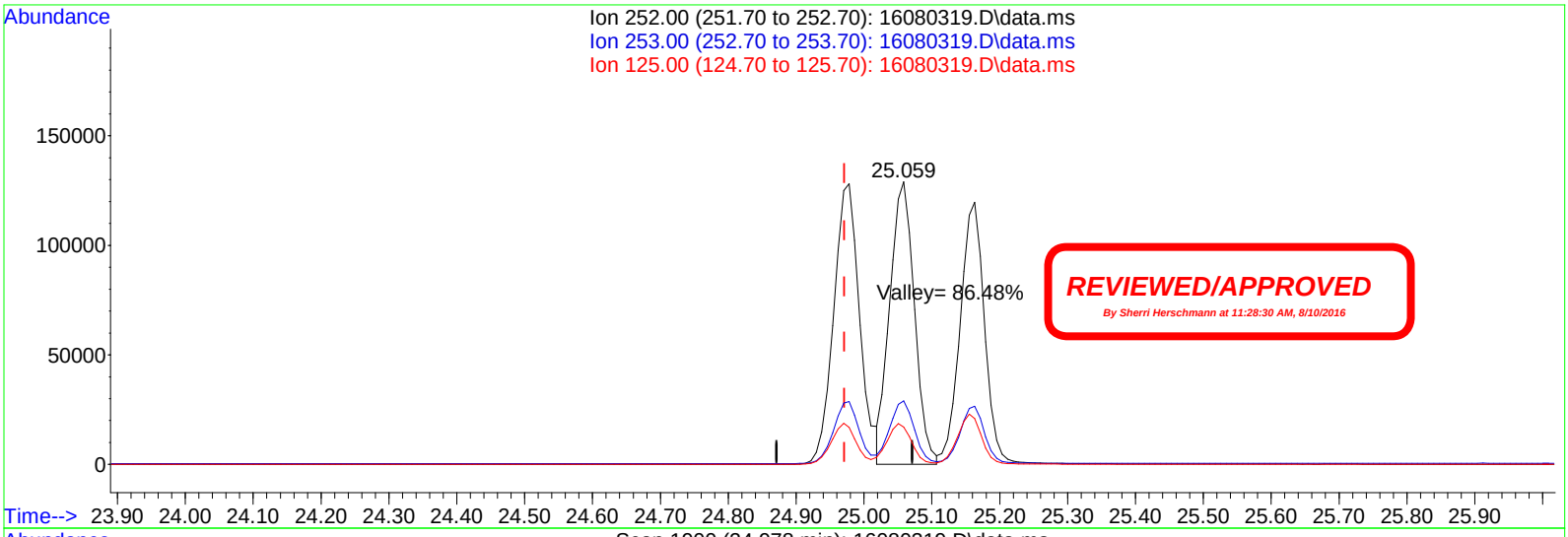
Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

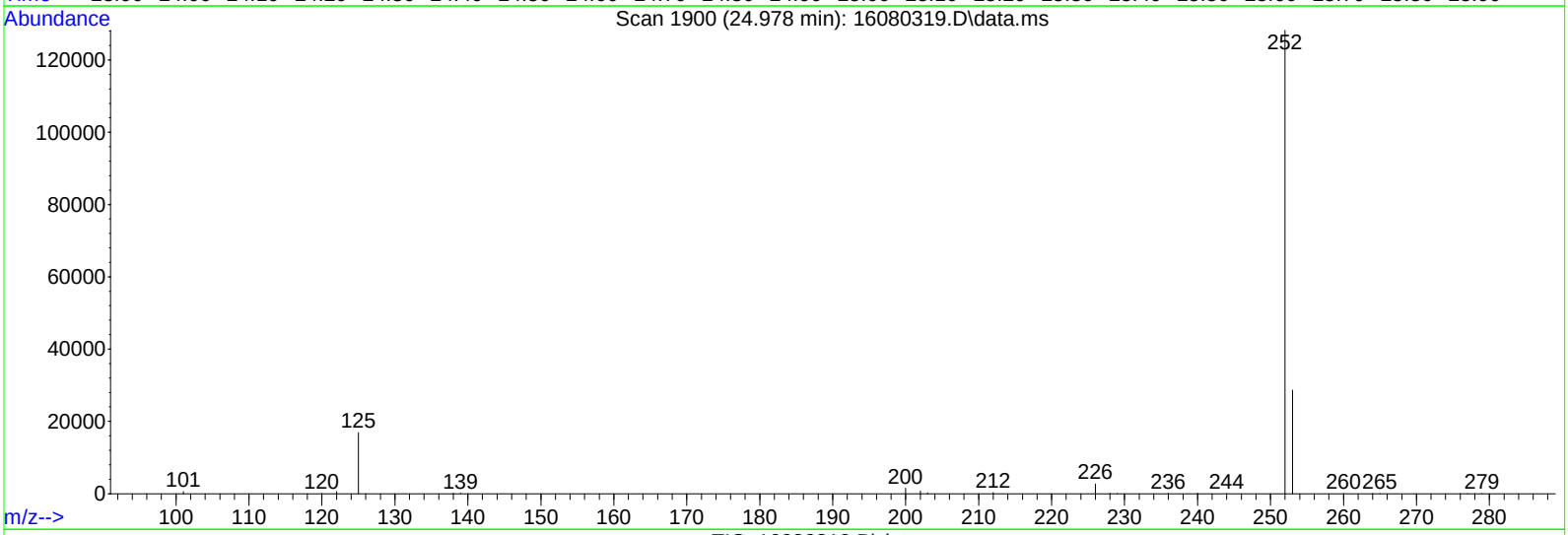


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 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





TIC: 16080319.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.978min (+0.007) 2120.48ug/kg

response 339971

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.03
125.00	13.90	13.12
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 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	11.039	136	341177	4000.00	ug/kg	87
6) Acenaphthene-d10	13.496	164	221523	4000.00	ug/kg	121
11) Phenanthrene-d10	15.606	188	589500	4000.00	ug/kg	118
17) Chrysene-d12	21.509	240	575268	4000.00	ug/kg	85
20) Perylene-d12	26.734	264	532525	4000.00	ug/kg	87

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	45	0.80	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			
15) 4-Terphenyl-d14	18.159	244	243	1.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.04%#			

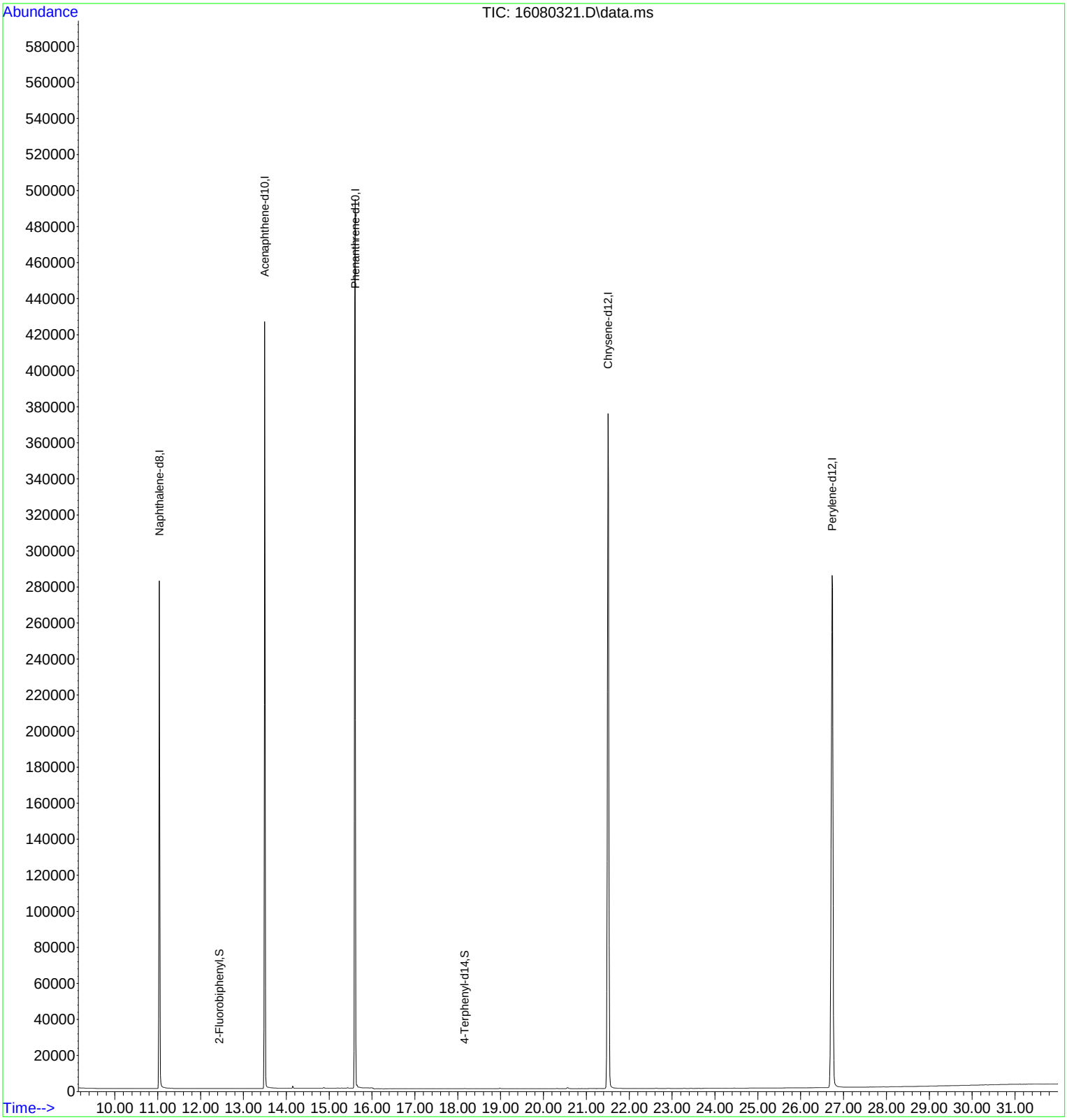
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 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



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080326.D
Acq On : 4 Aug 2016 1:06 am
Operator :
Sample : 1607294-13B
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 1

DNR - for confirmation only.

Quant Time: Aug 04 09:01:27 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	514233	4000.00	ug/kg	131
6) Acenaphthene-d10	13.499	164	278687	4000.00	ug/kg	153
11) Phenanthrene-d10	15.600	188	733521	4000.00	ug/kg	147
17) Chrysene-d12	21.516	240	815749	4000.00	ug/kg	121
20) Perylene-d12	26.742	264	775414	4000.00	ug/kg	127

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.414	172	220486	2585.49	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 64.64%			
15) 4-Terphenyl-d14	18.159	244	392599	2149.03	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 53.73%			

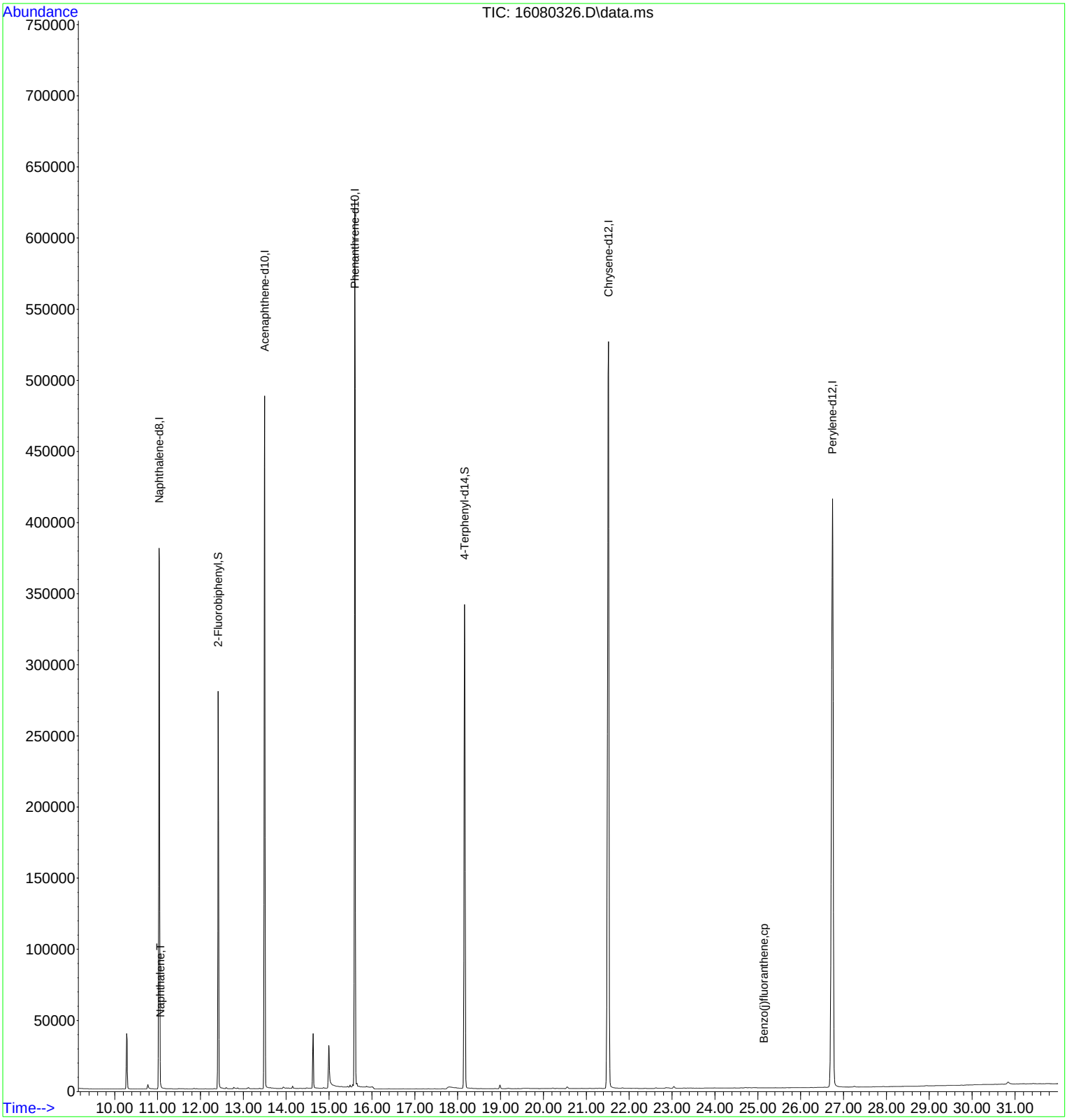
Target Compounds						Qvalue
2) Naphthalene	11.068	128	694	5.55	ug/kg	79
23) Benzo(j)fluoranthene	25.140	252	92	0.53	ug/kg#	59

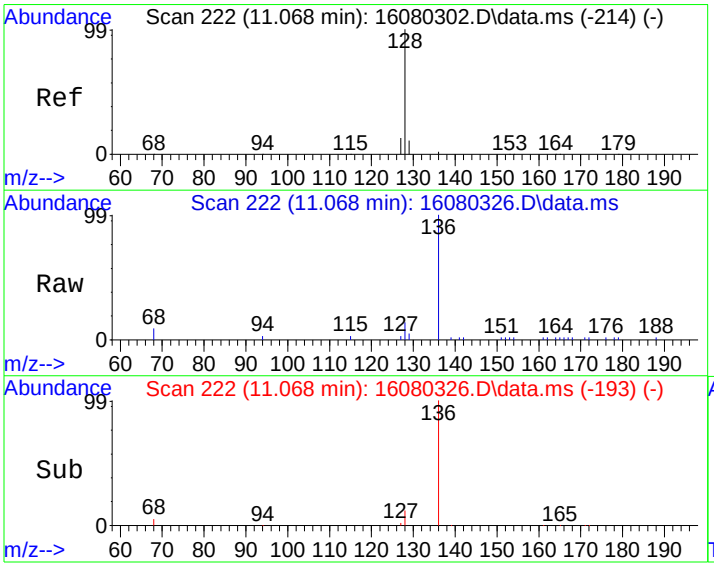
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080326.D
Acq On : 4 Aug 2016 1:06 am
Operator :
Sample : 1607294-13B
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Aug 04 09:01:27 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

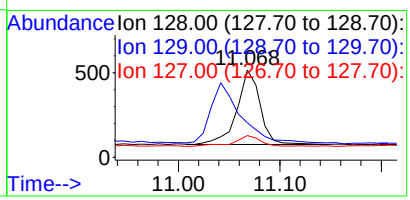


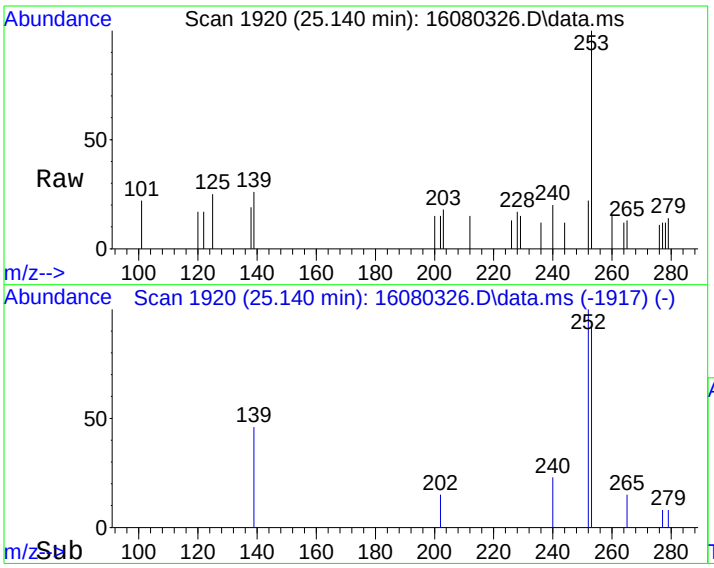


#2
Naphthalene
Concen: 5.55 ug/kg
RT: 11.068 min Scan# 222
Delta R.T. 0.001 min
Lab File: 16080326.D
Acq: 4 Aug 2016 1:06 am

Tgt Ion:128 Resp: 694

Ion	Ratio	Lower	Upper
128	100		
129	27.0	0.0	31.0
127	14.3	0.0	33.0

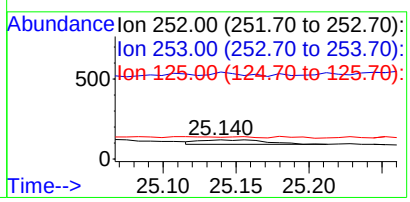




#23
Benzo(j)fluoranthene
Concen: 0.53 ug/kg
RT: 25.140 min Scan# 1920
Delta R.T. -0.017 min
Lab File: 16080326.D
Acq: 4 Aug 2016 1:06 am

Tgt Ion:252 Resp: 92

Ion	Ratio	Lower	Upper
252	100		
253	41.3	2.0	42.0
125	0.0	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 04 09:01:49 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

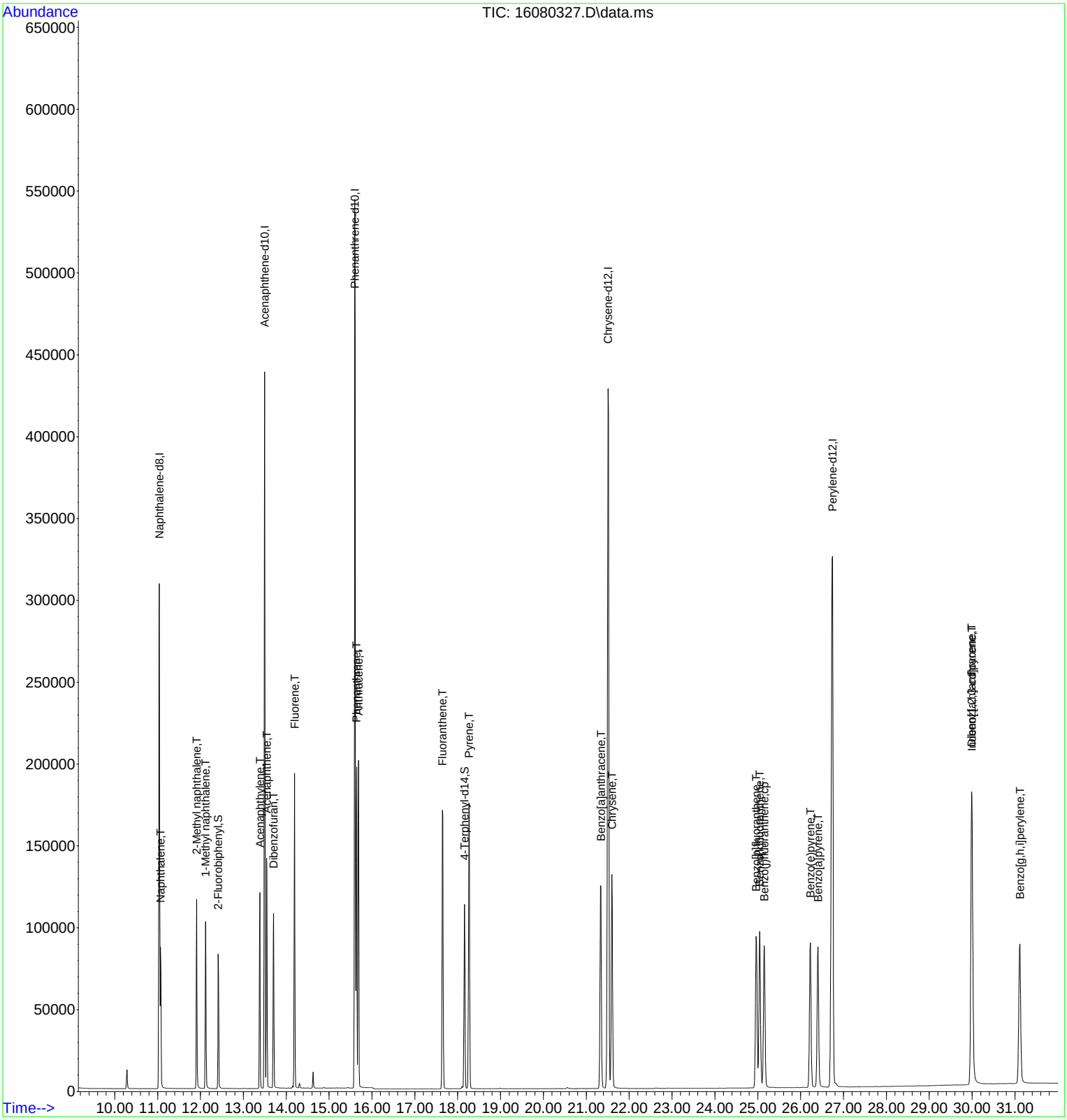
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	409391	4000.00	ug/kg	104
6) Acenaphthene-d10	13.498	164	237519	4000.00	ug/kg	130
11) Phenanthrene-d10	15.599	188	651082	4000.00	ug/kg	130
17) Chrysene-d12	21.509	240	671659	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	627164	4000.00	ug/kg	102
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	70807	1042.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.07%#			
15) 4-Terphenyl-d14	18.160	244	124759	769.38	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 19.23%#			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	92674	931.01	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	63055	1006.64	ug/kg	100
4) 1-Methyl naphthalene	12.118	142	58193	1011.75	ug/kg	100
7) Acenaphthylene	13.385	152	111325	977.56	ug/kg	100
8) Acenaphthene	13.541	153	69742	966.65	ug/kg	100
9) Dibenzofuran	13.706	168	106268	1039.51	ug/kg	97
10) Fluorene	14.193	166	94669	1097.27	ug/kg	100
12) Phenanthrene	15.642	178	166343	945.02	ug/kg	100
13) Anthracene	15.686	178	171132	950.54	ug/kg	100
14) Fluoranthene	17.644	202	190210	805.36	ug/kg	99
16) Pyrene	18.264	202	190806	778.25	ug/kg	98
18) Benzo[a]anthracene	21.340	228	175783	1009.38	ug/kg	99
19) Chrysene	21.598	228	165503	995.97	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	169176	999.74	ug/kg	99
22) Benzo[k]fluoranthene	25.044	252	159278	1100.26	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	148663	1051.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	159582	974.55	ug/kg	100
25) Benzo[a]pyrene	26.404	252	158866	1022.32	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	199081	1084.74	ug/kg	92
27) Dibenz[a,h]anthracene	29.987	278	165023	1093.53	ug/kg	100
28) Benzo[g,h,i]perylene	31.115	276	169994	1054.46	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 04 09:01:49 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_160808A
For

DHL Work Order
1607294

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_160808A
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: 8/9/2016

Second-Level Review: Janice Whitt Date: 8/15/2016

REVIEWED BY
By Janice Whitt at 5:09:01 PM, 8/15/2016

DHL Analytical, Inc.

Run ID: GCMS8_160808A **Run No.:** 87491

Analytical Run Date: 8/8/2016 **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-160808	1	PAH_LL_SDOD1	TUNE	R87491	8/8/2016 8:03:00 AM		
ICV-160808	1	PAH_LL_SDOD1	ICV	R87491	8/8/2016 8:42:00 AM		
LCS-76553	1	PAH_LL_SDOD1	LCS	76553	8/8/2016 9:21:00 AM		
MB-76553	1	PAH_LL_SDOD1	MBLK	76553	8/8/2016 10:01:00 AM		
1607294-45A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 10:41:00 AM		
1607294-49A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 11:20:00 AM		
1607294-51A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 12:00:00 PM		
1607294-52A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 12:39:00 PM		
1607294-53A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 1:19:00 PM		
1607294-54A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 1:59:00 PM		
1607294-56A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 2:39:00 PM		
1607294-57A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 3:19:00 PM		
1607294-58A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 3:59:00 PM		
1607294-59A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 4:39:00 PM		
1607294-60A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 5:19:00 PM		
1607294-61A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 5:59:00 PM		
1607294-62A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 6:39:00 PM		
DFTPP2-160808	1	PAH_LL_SDOD1	TUNE	R87491	8/8/2016 7:18:00 PM		
ICV2-160808	1	PAH_LL_SDOD1	ICV	R87491	8/8/2016 7:57:00 PM		
SB-160808	1	PAH_LL_SDOD1	SBLK	76553	8/8/2016 9:17:00 PM		
1607294-64A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 9:56:00 PM		
1607294-65A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 10:36:00 PM		
1607294-46A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 11:15:00 PM		
1607294-55A	10	PAH_LL_SDOD1	SAMP	76553	8/8/2016 11:54:00 PM		
1607294-44A	10	PAH_LL_SDOD1	SAMP	76553	8/9/2016 12:34:00 AM		
1607294-47A	10	PAH_LL_SDOD1	SAMP	76553	8/9/2016 1:14:00 AM		
1607294-48A	10	PAH_LL_SDOD1	SAMP	76553	8/9/2016 1:54:00 AM		
1607294-52AMS	10	PAH_LL_SDOD1	MS	76553	8/9/2016 2:34:00 AM		
1607294-52AMSD	10	PAH_LL_SDOD1	MSD	76553	8/9/2016 3:14:00 AM		
CCV1-160808	1	PAH_LL_SDOD1	CCV	R87491	8/9/2016 3:54:00 AM		

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\160808.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160808\
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	16080801 DFTPPPAH	DFTPP-160808
2)	Sample	2	16080802 PAH160806	ICV-160808
3)	Sample	3	16080803 PAH160806	LCS-76553
4)	Sample	4	16080804 PAH160806	MB-76553
5)	Sample	5	16080805 PAH160806	1607294-45A
6)	Sample	6	16080806 PAH160806	1607294-49A
7)	Sample	7	16080807 PAH160806	1607294-51A
8)	Sample	8	16080808 PAH160806	1607294-52A
9)	Sample	9	16080809 PAH160806	1607294-53A
10)	Sample	10	16080810 PAH160806	1607294-54A
11)	Sample	11	16080811 PAH160806	1607294-56A
12)	Sample	12	16080812 PAH160806	1607294-57A
13)	Sample	13	16080813 PAH160806	1607294-58A
14)	Sample	14	16080814 PAH160806	1607294-59A
15)	Sample	15	16080815 PAH160806	1607294-60A
16)	Sample	16	16080816 PAH160806	1607294-61A
17)	Sample	17	16080817 PAH160806	1607294-62A
18)	Sample	18	16080818 DFTPPPAH	DFTPP2-160808
19)	Sample	19	16080819 PAH160806	ICV2-160808
20)	Sample	20	16080820 PAH160806	SBLK
21)	Sample	21	16080821 PAH160806	SB-160808
22)	Sample	22	16080822 PAH160806	1607294-64A
23)	Sample	23	16080823 PAH160806	1607294-65A
24)	Sample	24	16080824 PAH160806	1607294-46A
25)	Sample	25	16080825 PAH160806	1607294-55A
26)	Sample	26	16080826 PAH160806	1607294-44A
27)	Sample	27	16080827 PAH160806	1607294-47A
28)	Sample	28	16080828 PAH160806	1607294-48A
29)	Sample	29	16080829 PAH160806	1607294-52AMS
30)	Sample	30	16080830 PAH160806	1607294-52AMSD
31)	Sample	31	16080831 PAH160806	CCV1-160808

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 8:37:53 AM**
Digestion:
Prep End Date: 7/29/2016 4:05PM

Prep Batch **76553** Prep Code: **3550_PAHDOD** Technician: **Duston Bezner**

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
1607294-44A	Soil		10.61	10	1.000	1 of 1	
1607294-45A	Soil		10.12	10	1.000	1 of 1	
1607294-46A	Soil		10.06	10	1.000	1 of 1	
1607294-47A	Soil		10.28	10	1.000	1 of 1	
1607294-48A	Soil		10.10	10	1.000	1 of 1	
1607294-49A	Soil		10.27	10	1.000	1 of 1	
1607294-51A	Soil		10.02	10	1.000	1 of 1	
1607294-52A	Soil		10.13	10	1.000	1 of 1	
1607294-53A	Soil		10.21	10	1.000	1 of 1	
1607294-54A	Soil		10.08	10	1.000	1 of 1	
1607294-55A	Soil		10.13	10	1.000	1 of 1	
1607294-56A	Soil		10.06	10	1.000	1 of 1	
1607294-57A	Soil		10.87	10	1.000	1 of 1	
1607294-58A	Soil		10.63	10	1.000	1 of 1	
1607294-59A	Soil		10.25	10	1.000	1 of 1	
1607294-60A	Soil		10.11	10	1.000	1 of 1	
1607294-61A	Soil		10.02	10	1.000	1 of 1	
1607294-62A	Soil		10.15	10	1.000	1 of 1	
1607294-64A	Soil		10.03	10	1.000	1 of 1	
1607294-65A	Soil		10.12	10	1.000	1 of 1	
LCS-76553	Soil		10	10	1.000	of	
MB-76553	Soil		10	10	1.000	of	

52AMS 10.12
52AMSD 10.02

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 4:49:05 PM, 8/15/2016

7/29/16 7/29/16 7/29/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 7:00:00 AM**
Prep End Date: **7/29/2016 1:30:00 PM**

Prep Batch **76516** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-44A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-45A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-46A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-47A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-48A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-49A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-51A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-52A	Soil		0	0	#Num!	of 3	
	SS MS/MSD						
1607294-53A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-54A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-55A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-56A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-57A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

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By Janice Whitt at 4:49:09 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 7:00:00 AM**
Prep End Date: **7/29/2016 1:30:00 PM**

Prep Batch **76516** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-58A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-59A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-60A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-61A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-62A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-64A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-65A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 4:49:16 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 8:37:53 AM**
Digestion:
Prep End Date: **7/29/2016 4:05:00 PM**

Prep Batch **76553** Prep Code: **3550_PAHDOD** Technician: **Duston Bezner**

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
1607294-44A	Soil		10.61	10	0.943	1 of 1	
1607294-45A	Soil		10.12	10	0.988	1 of 1	
1607294-46A	Soil		10.06	10	0.994	1 of 1	
1607294-47A	Soil		10.28	10	0.973	1 of 1	
1607294-48A	Soil		10.1	10	0.990	1 of 1	
1607294-49A	Soil		10.27	10	0.974	1 of 1	
1607294-51A	Soil		10.02	10	0.998	1 of 1	
1607294-52A	Soil		10.43	10	0.959	of 3	
1607294-52AMS	Soil		10.12	10	0.988	of	
1607294-52AMSD	Soil		10.02	10	0.998	of	
1607294-53A	Soil		10.21	10	0.979	1 of 1	
1607294-54A	Soil		10.08	10	0.992	1 of 1	
1607294-55A	Soil		10.13	10	0.987	1 of 1	
1607294-56A	Soil		10.06	10	0.994	1 of 1	
1607294-57A	Soil		10.87	10	0.920	1 of 1	
1607294-58A	Soil		10.63	10	0.941	1 of 1	
1607294-59A	Soil		10.25	10	0.976	1 of 1	
1607294-60A	Soil		10.11	10	0.989	1 of 1	
1607294-61A	Soil		10.02	10	0.998	1 of 1	
1607294-62A	Soil		10.15	10	0.985	1 of 1	
1607294-64A	Soil		10.03	10	0.997	1 of 1	
1607294-65A	Soil		10.72	10	0.933	1 of 1	
LCS-76553	Soil		10	10	1.000	of	
MB-76553	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

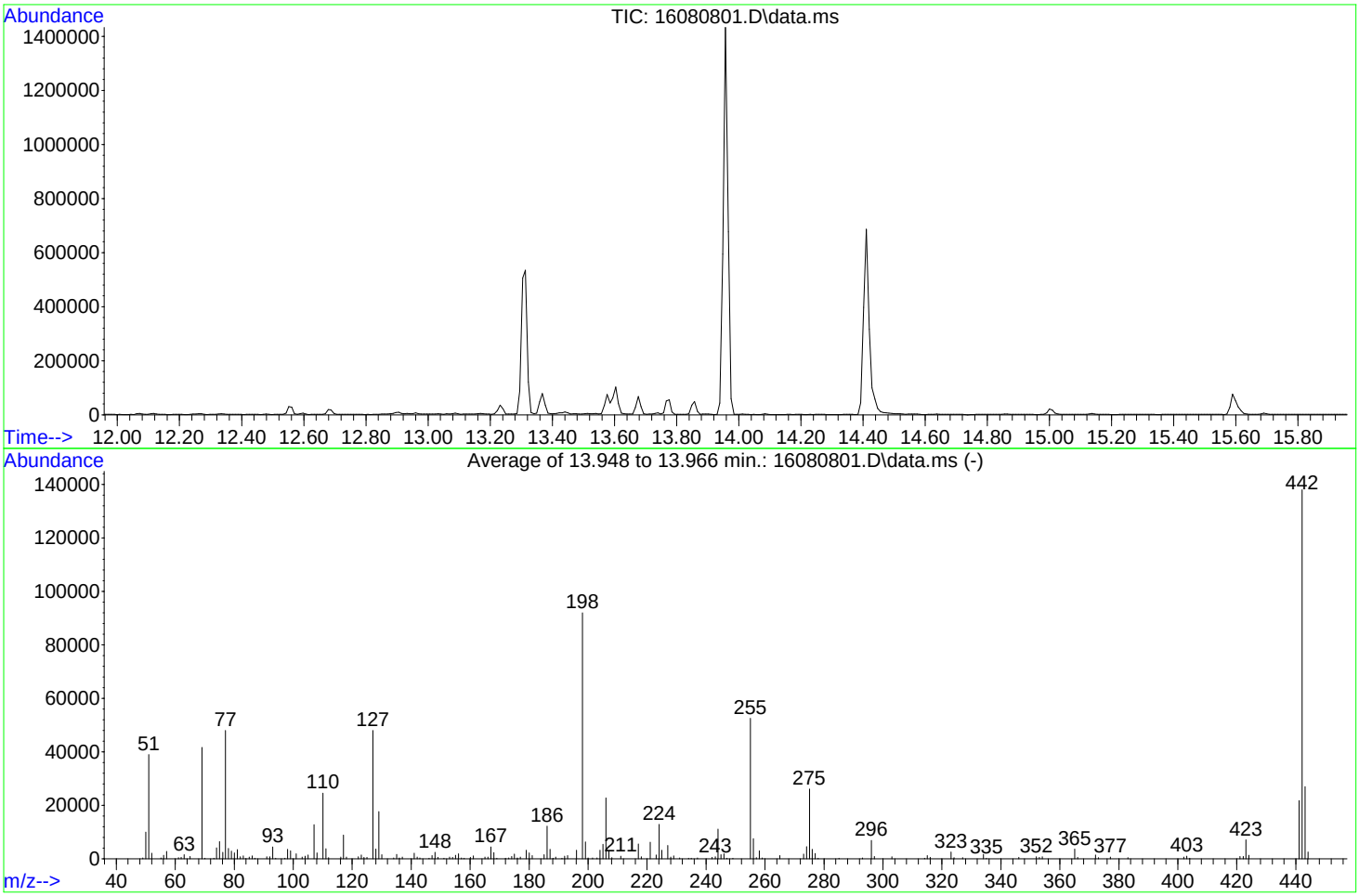
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160720	40 PPM Surrogate Standard	ALL	0.25	10/18/2016

REVIEWED BY
By Janice Whitt at 4:49:19 PM, 8/15/2016

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080801.D
Acq On : 8 Aug 2016 8:03 am
Operator :
Sample : DFTPP-160808
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

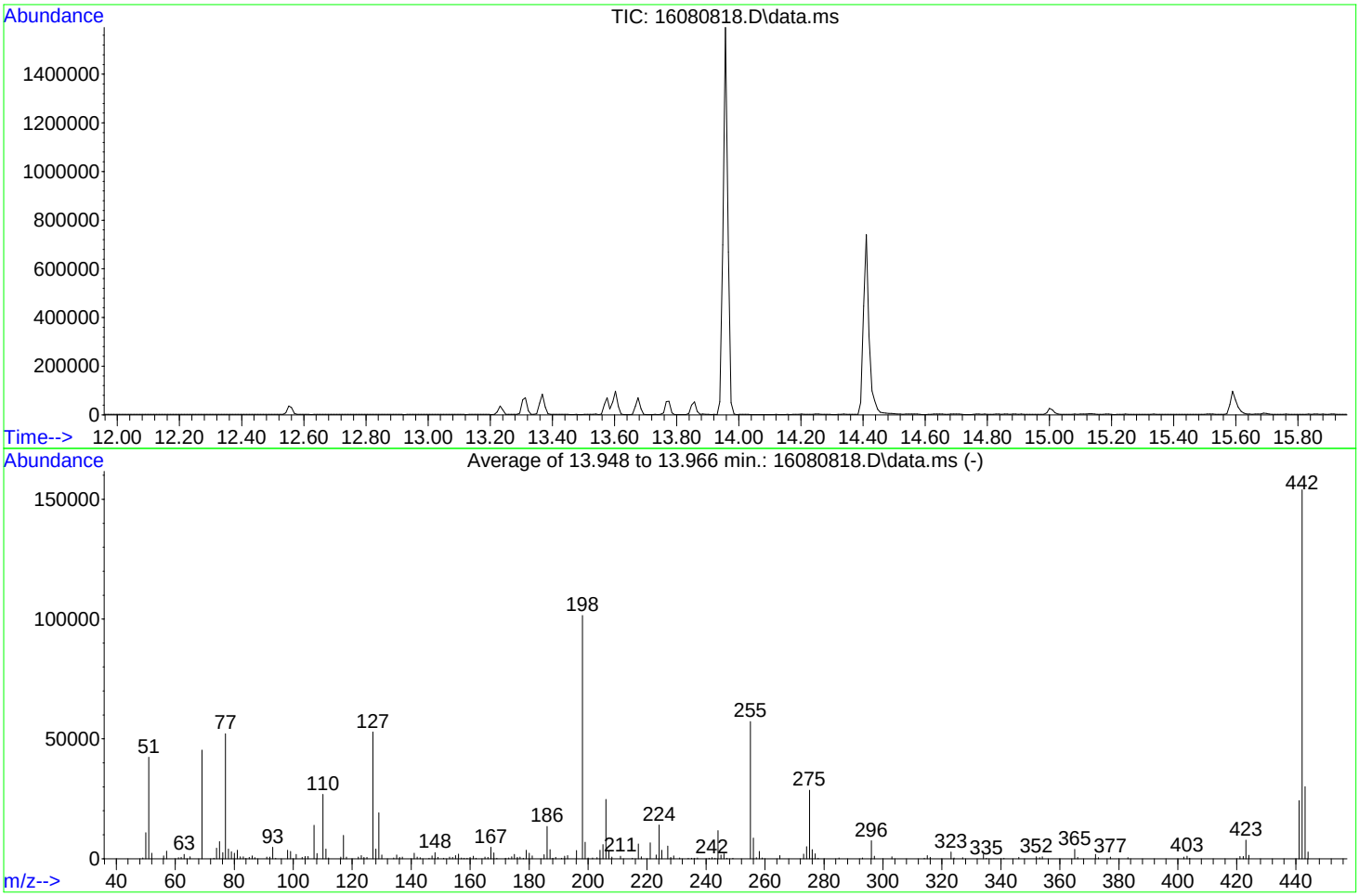
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.4	38955	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.2	41594	PASS
70	69	0.00	2	0.4	174	PASS
127	198	10	80	52.2	47978	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	91922	PASS
199	198	5	9	6.8	6291	PASS
275	198	10	60	28.4	26094	PASS
365	198	1	200	4.0	3641	PASS
441	442	0.01	24	15.7	21718	PASS
442	198	50	400	150.2	138032	PASS
443	442	15	24	19.6	26997	PASS

REVIEWED BY
By Janice Whitt at 4:49:28 PM, 8/15/2016

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080818.D
Acq On : 8 Aug 2016 7:18 pm
Operator :
Sample : DFTPP2-160808
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 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	41.7	42398	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.6	45312	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	52.1	52925	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	101554	PASS
199	198	5	9	6.8	6900	PASS
275	198	10	60	28.1	28550	PASS
365	198	1	200	3.9	3951	PASS
441	442	0.01	24	15.7	24254	PASS
442	198	50	400	151.7	154024	PASS
443	442	15	24	19.5	30085	PASS

REVIEWED BY
By Janice Whitt at 4:49:32 PM, 8/15/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080802.D
Acq On : 8 Aug 2016 8:42 am
Operator :
Sample : ICV-160808
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 09 09:11:43 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	11.000	136	281043	4000.00	ug/kg	106
6) Acenaphthene-d10	13.461	164	174716	4000.00	ug/kg	108
11) Phenanthrene-d10	15.568	188	512994	4000.00	ug/kg	100
17) Chrysene-d12	21.449	240	467226	4000.00	ug/kg	101
20) Perylene-d12	26.664	264	436673	4000.00	ug/kg	104

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	111317	1780.45	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.51%			
15) 4-Terphenyl-d14	18.123	244	179204	1987.00	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.68%#			

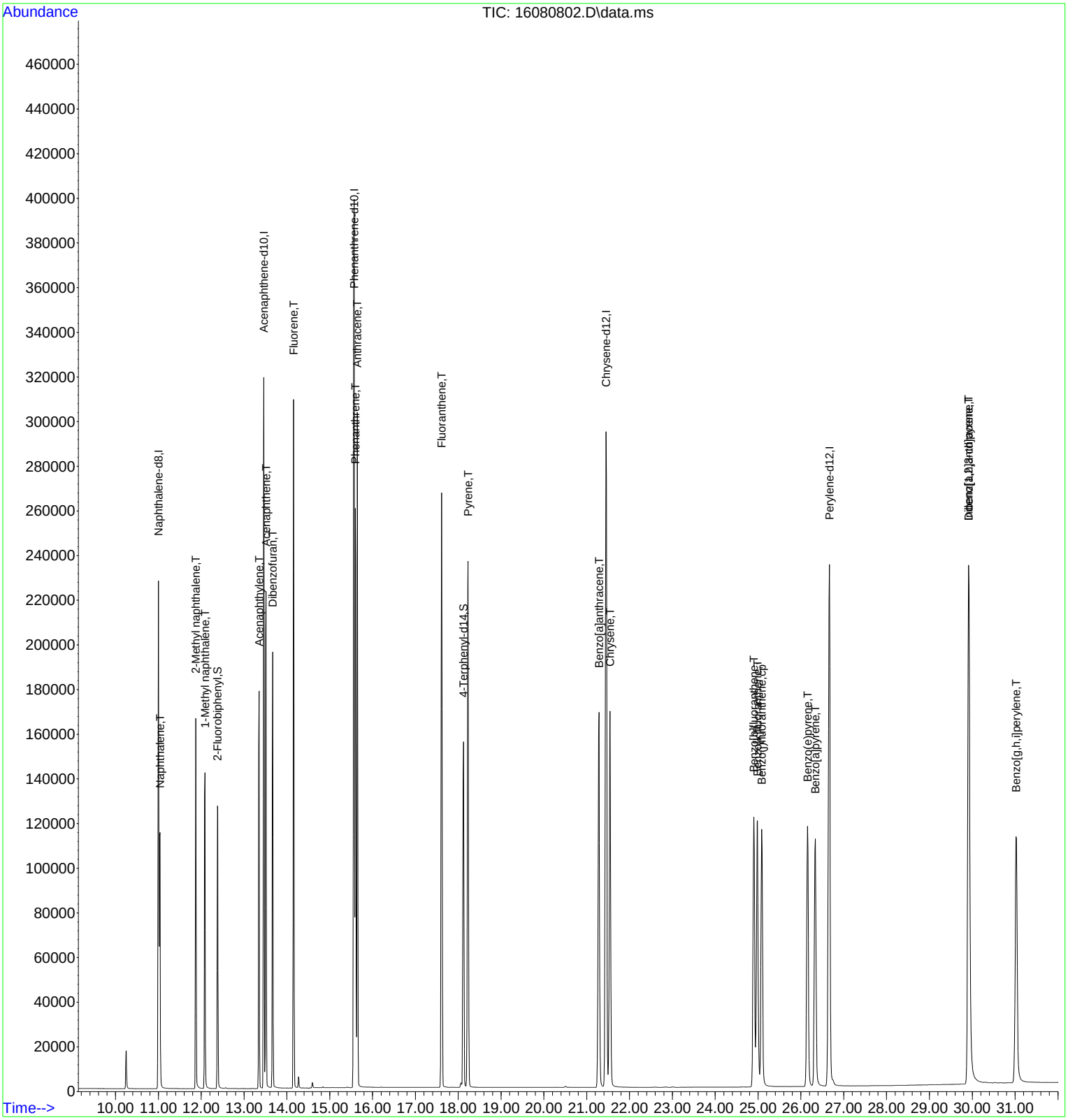
Target Compounds						Qvalue
2) Naphthalene	11.036	128	128600	1918.28	ug/kg	100
3) 2-Methyl naphthalene	11.872	142	88660	1940.16	ug/kg	98
4) 1-Methyl naphthalene	12.085	142	80366	1913.01	ug/kg	99
7) Acenaphthylene	13.348	152	163297	2020.21	ug/kg	100
8) Acenaphthene	13.511	153	103744	1963.89	ug/kg	100
9) Dibenzofuran	13.667	168	173566	1914.28	ug/kg	94
10) Fluorene	14.156	166	153886	1962.71	ug/kg	100
12) Phenanthrene	15.597	178	267467	2049.20	ug/kg	99
13) Anthracene	15.645	178	260851	1948.03	ug/kg	100
14) Fluoranthene	17.612	202	274966	1974.74	ug/kg	96
16) Pyrene	18.229	202	273933	1967.70	ug/kg	96
18) Benzo[a]anthracene	21.285	228	235601	2002.16	ug/kg	100
19) Chrysene	21.545	228	221892	1992.28	ug/kg	100
21) Benzo[b]fluoranthene	24.900	252	225492	2036.68	ug/kg	99
22) Benzo[k]fluoranthene	24.987	252	204309	2215.26	ug/kg	98
23) Benzo(j)fluoranthene	25.083	252	190150	2124.90	ug/kg	100
24) Benzo(e)pyrene	26.153	252	217067	1970.21	ug/kg	100
25) Benzo[a]pyrene	26.336	252	212534	2051.34	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.923	276	268249	2087.12	ug/kg	98
27) Dibenz[a,h]anthracene	29.913	278	220464	2139.19	ug/kg	98
28) Benzo[g,h,i]perylene	31.031	276	229421	2010.78	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080802.D
Acq On : 8 Aug 2016 8:42 am
Operator :
Sample : ICV-160808
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

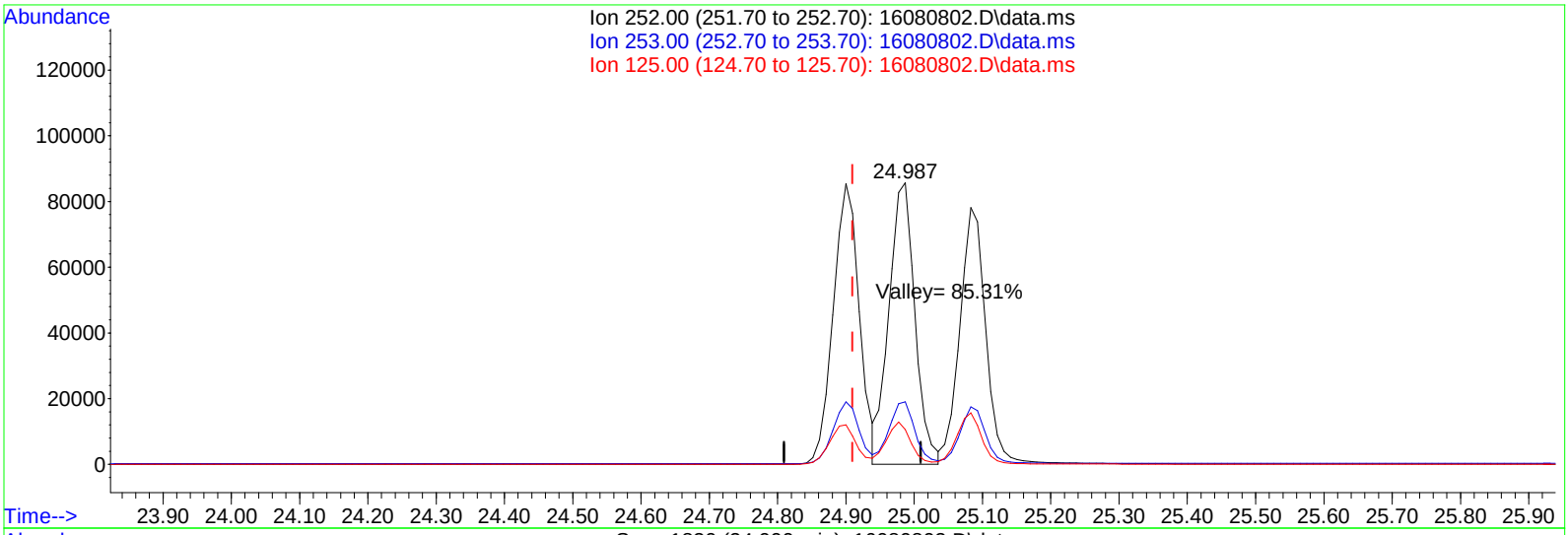
Quant Time: Aug 09 09:11:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

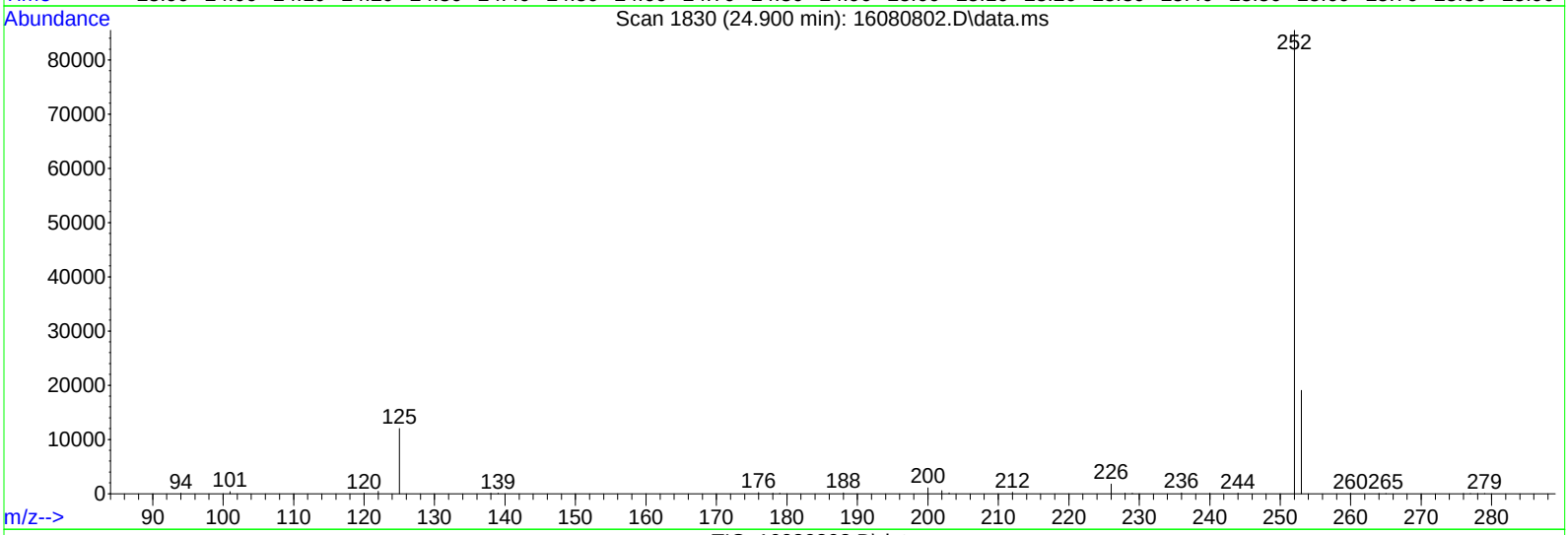


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080802.D
Acq On : 8 Aug 2016 8:42 am
Operator :
Sample : ICV-160808
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 09 09:11:43 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





TIC: 16080802.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.900min (-0.010) 2036.68ug/kg

response 225492

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	22.03
125.00	13.20	13.97
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080803.D
Acq On : 8 Aug 2016 9:21 am
Operator :
Sample : LCS-76553
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 09 09:11:46 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	11.002	136	332543	4000.00	ug/kg	126
6) Acenaphthene-d10	13.456	164	148467	4000.00	ug/kg	92
11) Phenanthrene-d10	15.567	188	355710	4000.00	ug/kg	69
17) Chrysene-d12	21.448	240	387673	4000.00	ug/kg	84
20) Perylene-d12	26.654	264	378544	4000.00	ug/kg	90

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.378	172	43290	585.17	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.63%#			
15) 4-Terphenyl-d14	18.122	244	61160	977.99	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 24.45%#			

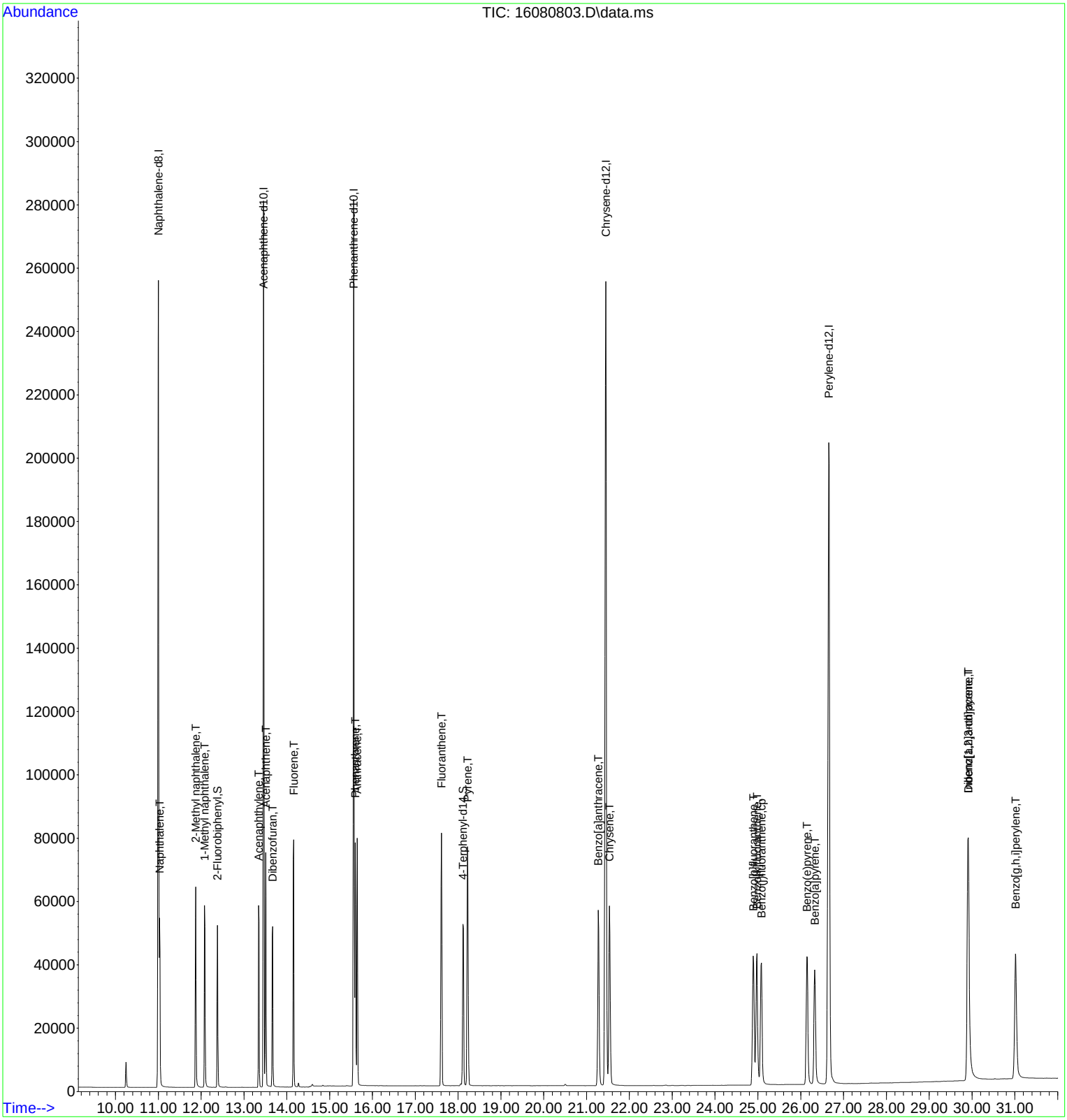
Target Compounds						Qvalue
2) Naphthalene	11.031	128	55973	705.63	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	36286	671.08	ug/kg	97
4) 1-Methyl naphthalene	12.080	142	33292	669.74	ug/kg	97
7) Acenaphthylene	13.343	152	54787	797.62	ug/kg	100
8) Acenaphthene	13.506	153	34010	757.64	ug/kg	98
9) Dibenzofuran	13.669	168	49224	638.88	ug/kg	87
10) Fluorene	14.158	166	41450	622.14	ug/kg	100
12) Phenanthrene	15.596	178	73961	803.25	ug/kg	99
13) Anthracene	15.644	178	68424	736.93	ug/kg	99
14) Fluoranthene	17.611	202	83674	866.64	ug/kg	93
16) Pyrene	18.218	202	85918	890.05	ug/kg	97
18) Benzo[a]anthracene	21.275	228	76652	785.07	ug/kg	100
19) Chrysene	21.535	228	72686	786.54	ug/kg	100
21) Benzo[b]fluoranthene	24.890	252	78798	821.01	ug/kg	99
22) Benzo[k]fluoranthene	24.976	252	67215	840.70	ug/kg	98
23) Benzo(j)fluoranthene	25.083	252	63758	821.89	ug/kg	100
24) Benzo(e)pyrene	26.153	252	76971	805.91	ug/kg	100
25) Benzo[a]pyrene	26.326	252	70442	784.30	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.912	276	95224	854.67	ug/kg	100
27) Dibenz[a,h]anthracene	29.903	278	75919	849.77	ug/kg	99
28) Benzo[g,h,i]perylene	31.021	276	82495	834.06	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080803.D
Acq On : 8 Aug 2016 9:21 am
Operator :
Sample : LCS-76553
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 09 09:11:46 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



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080804.D
Acq On : 8 Aug 2016 10:01 am
Operator :
Sample : MB-76553
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 09 09:11:49 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	351383	4000.00	ug/kg	133
6) Acenaphthene-d10	13.457	164	159049	4000.00	ug/kg	98
11) Phenanthrene-d10	15.558	188	361999	4000.00	ug/kg	70
17) Chrysene-d12	21.449	240	415283	4000.00	ug/kg	90
20) Perylene-d12	26.654	264	403890	4000.00	ug/kg	96

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	43929	561.97	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.05%#			
15) 4-Terphenyl-d14	18.123	244	62615	983.86	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 24.60%#			

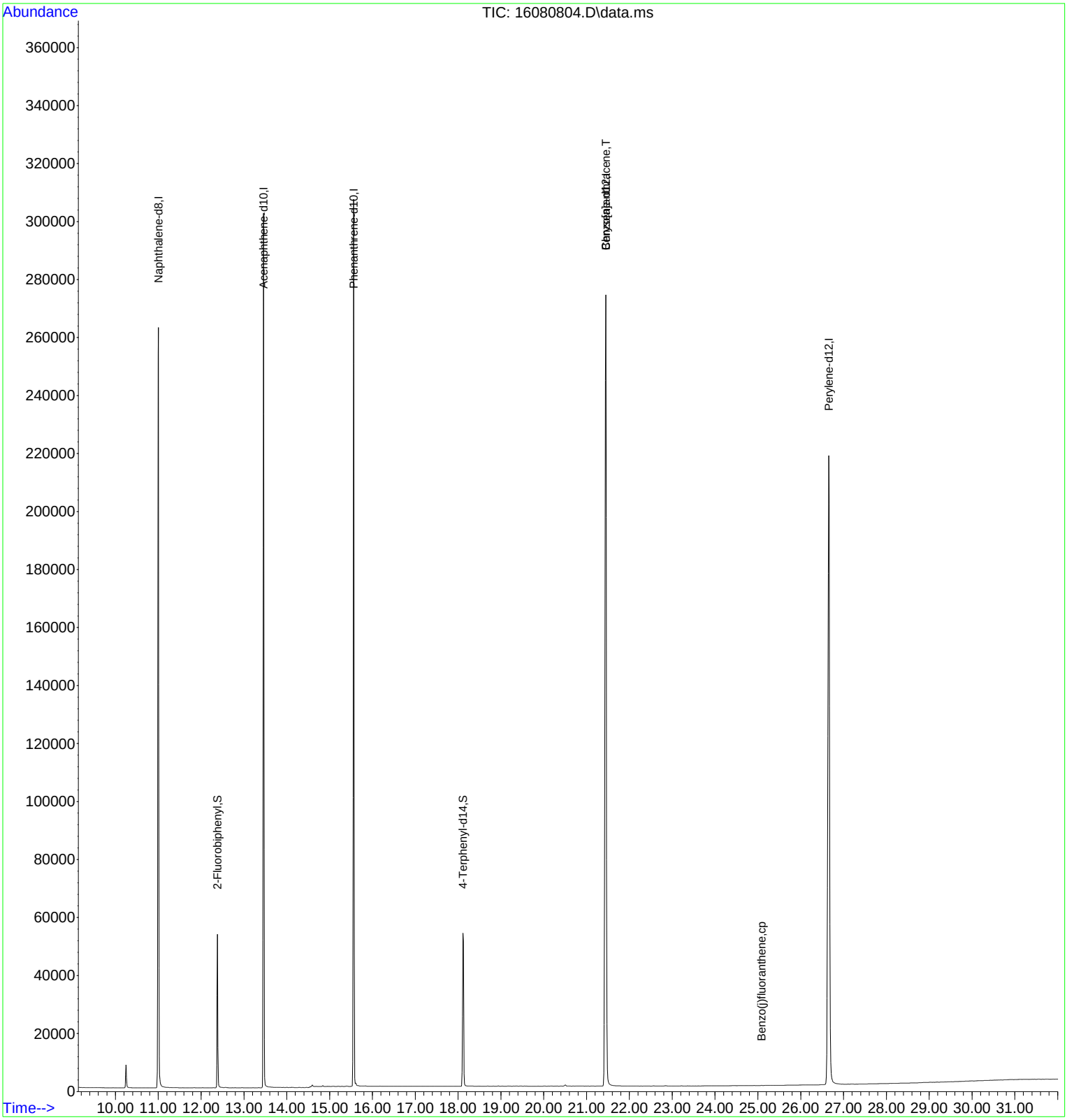
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.449	228	1126	10.77	ug/kg	71
23) Benzo(j)fluoranthene	25.083	252	4	0.05	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080804.D
Acq On : 8 Aug 2016 10:01 am
Operator :
Sample : MB-76553
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 09 09:11:49 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\160808\
Data File : 16080805.D
Acq On : 8 Aug 2016 10:41 am
Operator :
Sample : 1607294-45A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 09 09:12:28 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	286795	4000.00	ug/kg	108
6) Acenaphthene-d10	13.455	164	184700	4000.00	ug/kg	114
11) Phenanthrene-d10	15.567	188	497293	4000.00	ug/kg	97
17) Chrysene-d12	21.448	240	445013	4000.00	ug/kg	96
20) Perylene-d12	26.654	264	415617	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4981	78.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.95%#			
15) 4-Terphenyl-d14	18.122	244	7138	81.64	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.04%#			

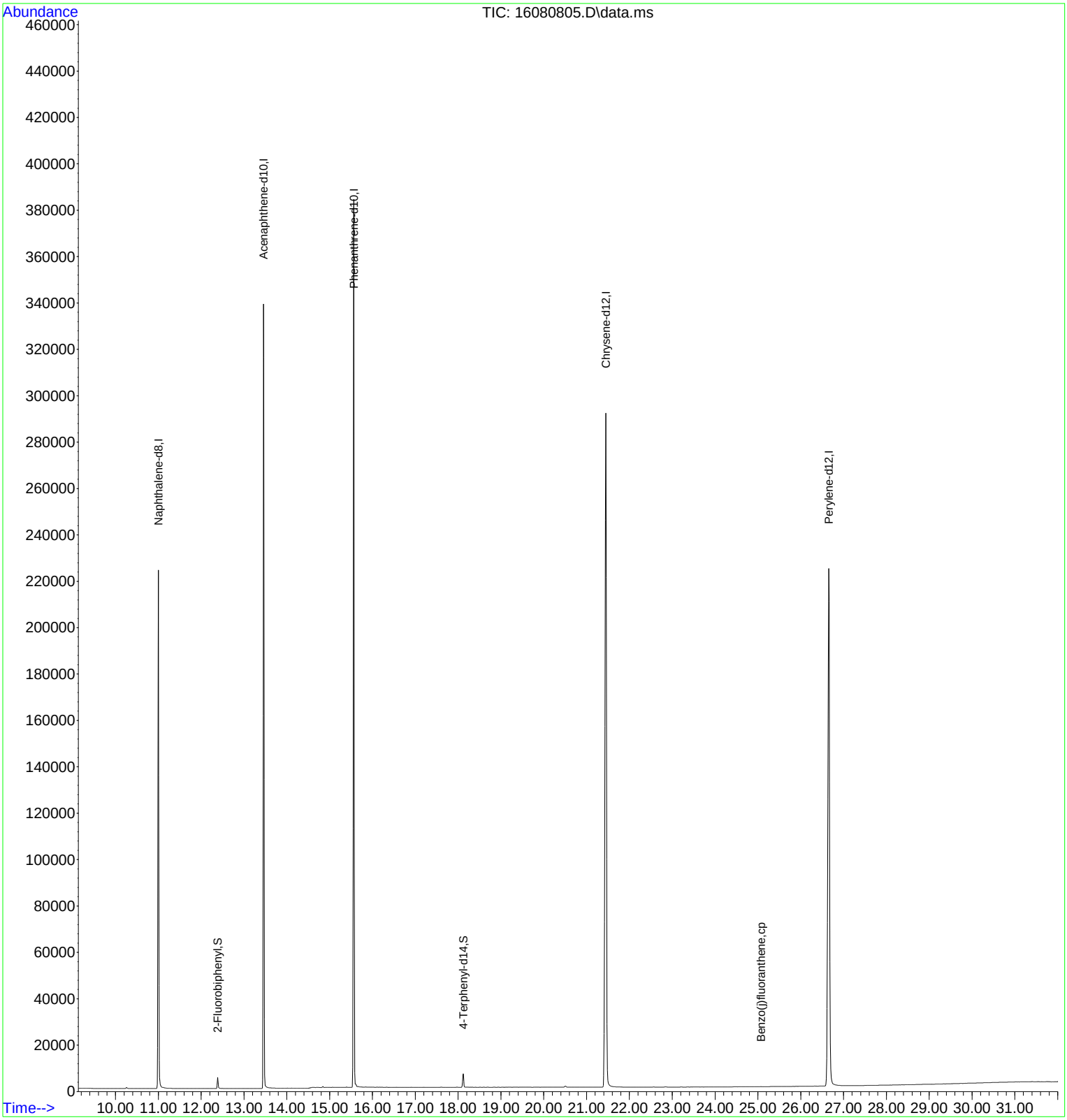
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.082	252	24	0.28	ug/kg#	16

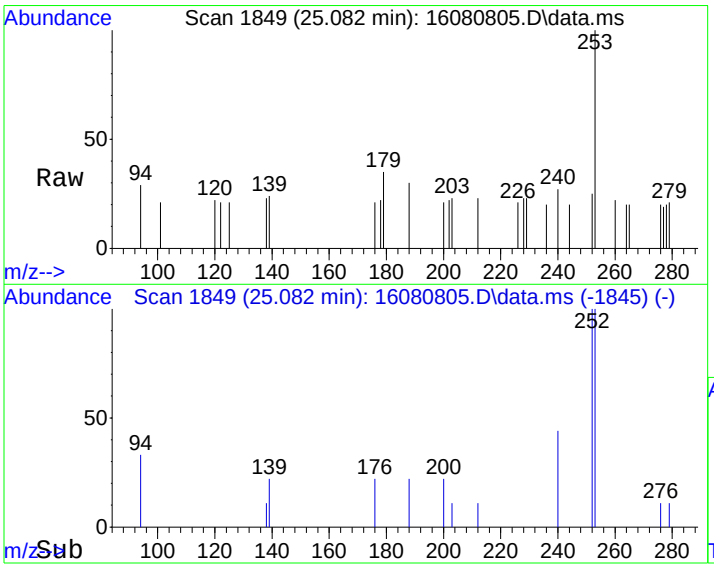
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080805.D
Acq On : 8 Aug 2016 10:41 am
Operator :
Sample : 1607294-45A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 09 09:12:28 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

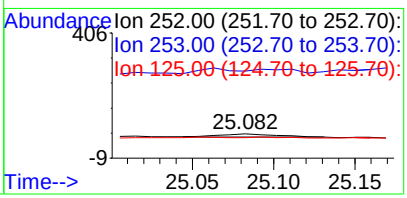




#23
Benzo(j)fluoranthene
Concen: 0.28 ug/kg
RT: 25.082 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16080805.D
Acq: 8 Aug 2016 10:41 am

Tgt Ion:252 Resp: 24

Ion	Ratio	Lower	Upper
252	100		
253	95.8	1.9	41.9#
125	20.8	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080806.D
Acq On : 8 Aug 2016 11:20 am
Operator :
Sample : 1607294-49A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 09 09:12:31 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	287513	4000.00	ug/kg	109
6) Acenaphthene-d10	13.455	164	179736	4000.00	ug/kg	111
11) Phenanthrene-d10	15.558	188	480280	4000.00	ug/kg	93
17) Chrysene-d12	21.448	240	449923	4000.00	ug/kg	97
20) Perylene-d12	26.654	264	415873	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4762	74.45	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.86%#			
15) 4-Terphenyl-d14	18.122	244	6957	82.39	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.06%#			

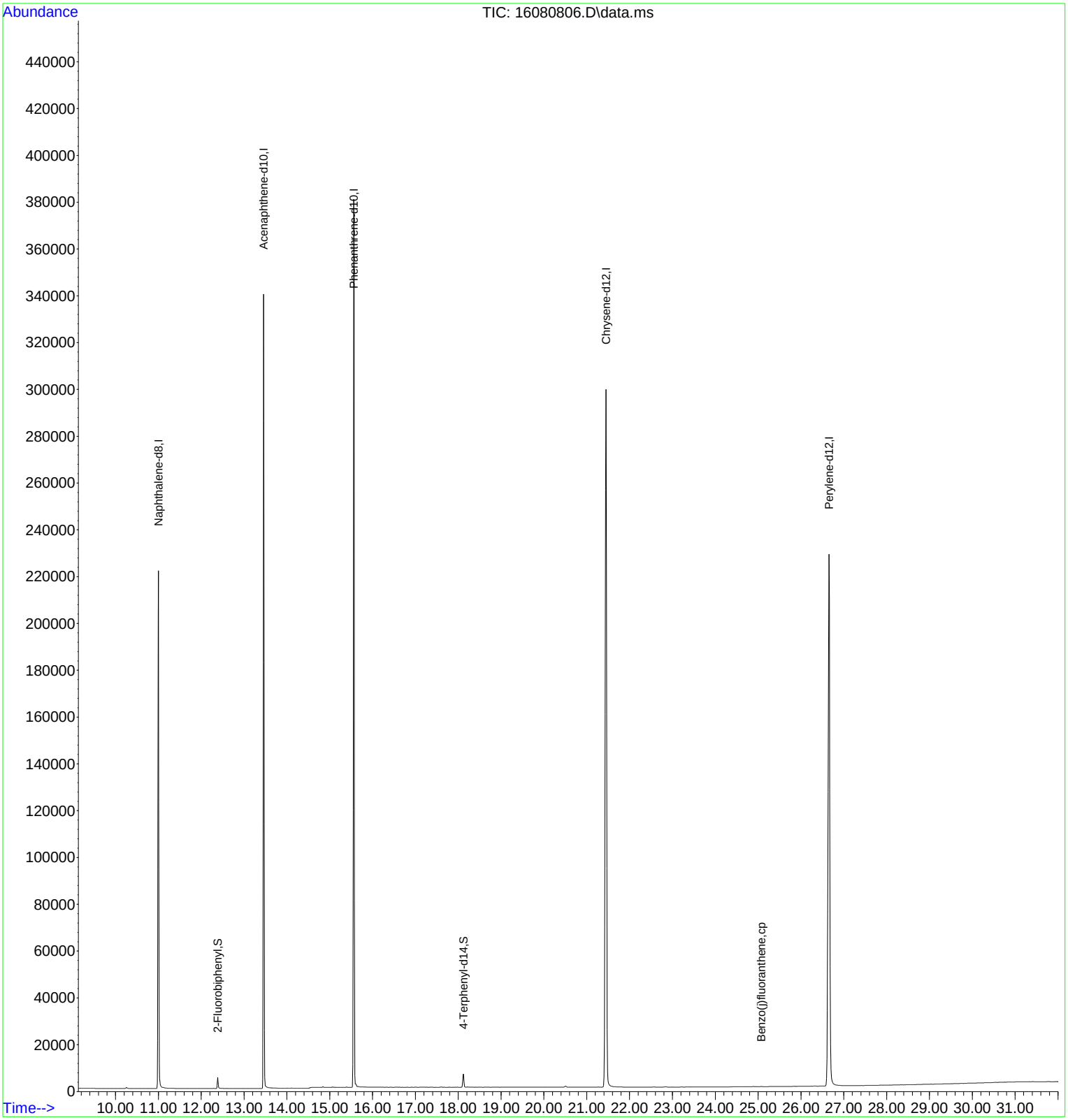
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.073	252	40	0.47	ug/kg#	1

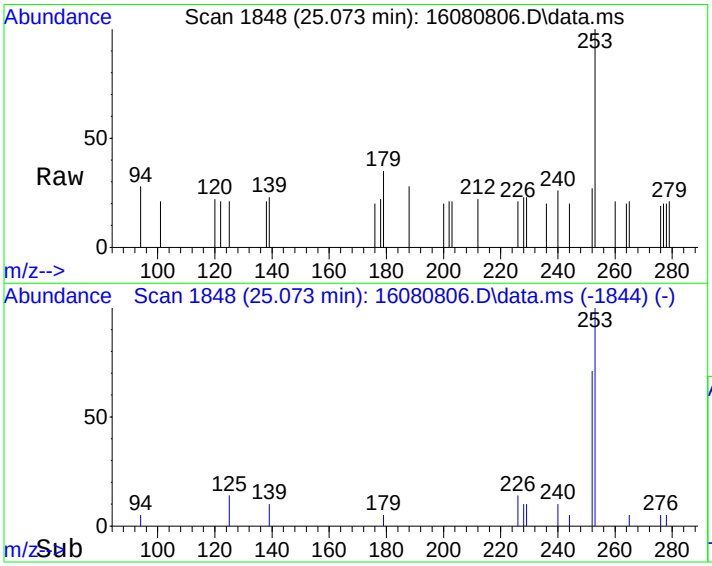
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080806.D
Acq On : 8 Aug 2016 11:20 am
Operator :
Sample : 1607294-49A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 09 09:12:31 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

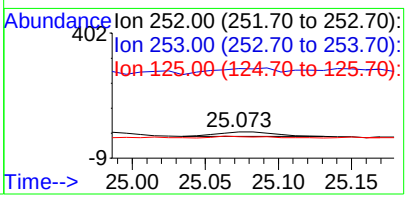




#23
Benzo(j)fluoranthene
Concen: 0.47 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080806.D
Acq: 8 Aug 2016 11:20 am

Tgt Ion:252 Resp: 40

Ion	Ratio	Lower	Upper
252	100		
253	182.5	1.9	41.9#
125	32.5	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080807.D
Acq On : 8 Aug 2016 12:00 pm
Operator :
Sample : 1607294-51A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 09 09:12:35 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	292160	4000.00	ug/kg	110
6) Acenaphthene-d10	13.455	164	186125	4000.00	ug/kg	115
11) Phenanthrene-d10	15.567	188	501702	4000.00	ug/kg	97
17) Chrysene-d12	21.447	240	458712	4000.00	ug/kg	99
20) Perylene-d12	26.653	264	423811	4000.00	ug/kg	101

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4803	73.90	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.85%#			
15) 4-Terphenyl-d14	18.121	244	7006	79.43	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.99%#			

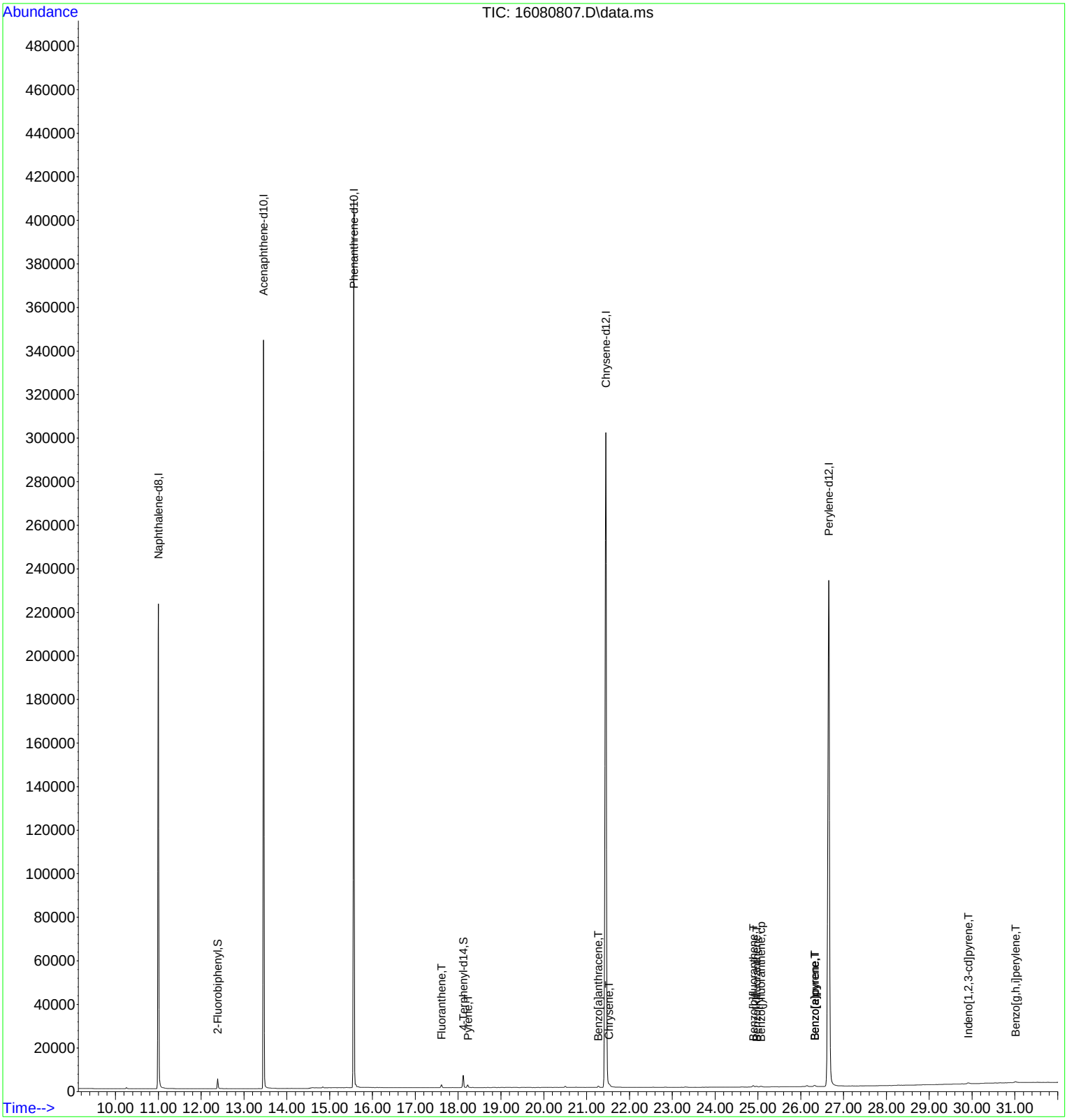
Target Compounds						Qvalue
14) Fluoranthene	17.610	202	1426	10.47	ug/kg	94
16) Pyrene	18.227	202	1431	10.51	ug/kg	96
18) Benzo[a]anthracene	21.274	228	993	8.60	ug/kg	100
19) Chrysene	21.534	228	1101	10.07	ug/kg	99
21) Benzo[b]fluoranthene	24.889	252	1235	11.49	ug/kg	99
22) Benzo[k]fluoranthene	24.966	252	500	5.59	ug/kg	98
23) Benzo(j)fluoranthene	25.072	252	495	5.70	ug/kg	79
24) Benzo(e)pyrene	26.325	252	1060	9.91	ug/kg	88
25) Benzo[a]pyrene	26.325	252	1196	11.89	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.912	276	1033	8.28	ug/kg	93
28) Benzo[g,h,i]perylene	31.011	276	1136	10.26	ug/kg	95

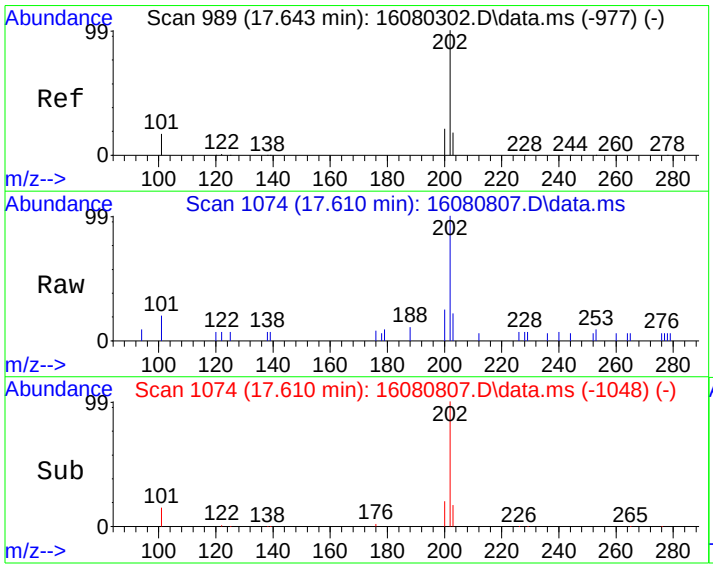
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080807.D
Acq On : 8 Aug 2016 12:00 pm
Operator :
Sample : 1607294-51A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 09 09:12:35 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

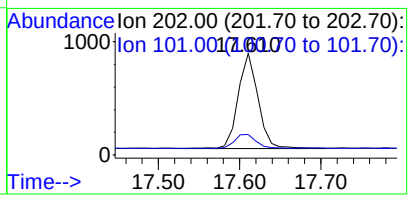


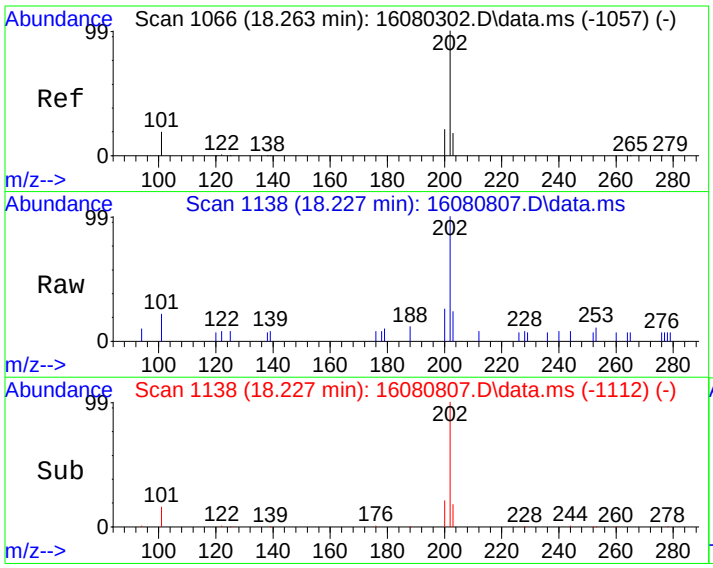


#14
Fluoranthene
Concen: 10.47 ug/kg
RT: 17.610 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:202 Resp: 1426

Ion	Ratio	Lower	Upper
202	100		
101	14.6	0.0	37.2

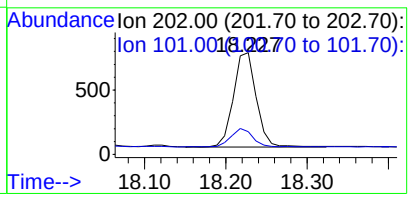


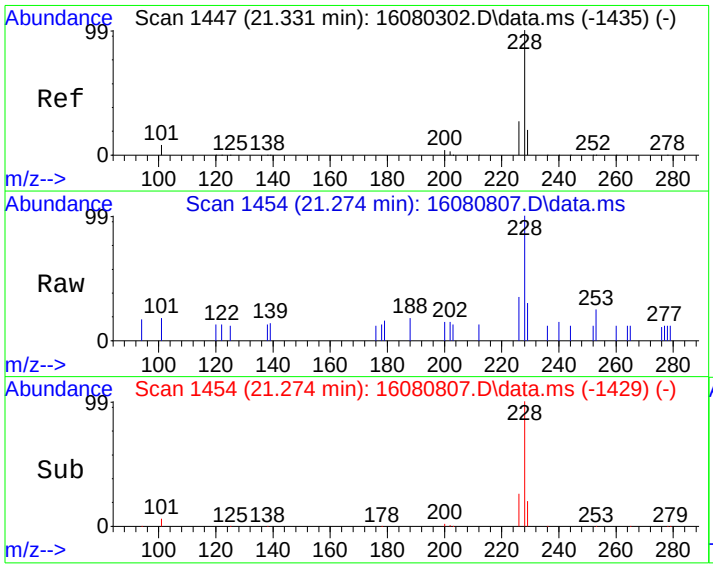


#16
Pyrene
Concen: 10.51 ug/kg
RT: 18.227 min Scan# 1138
Delta R.T. -0.001 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:202 Resp: 1431

Ion	Ratio	Lower	Upper
202	100		
101	16.1	0.0	38.0

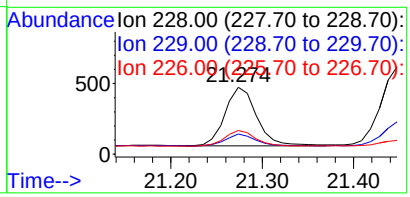


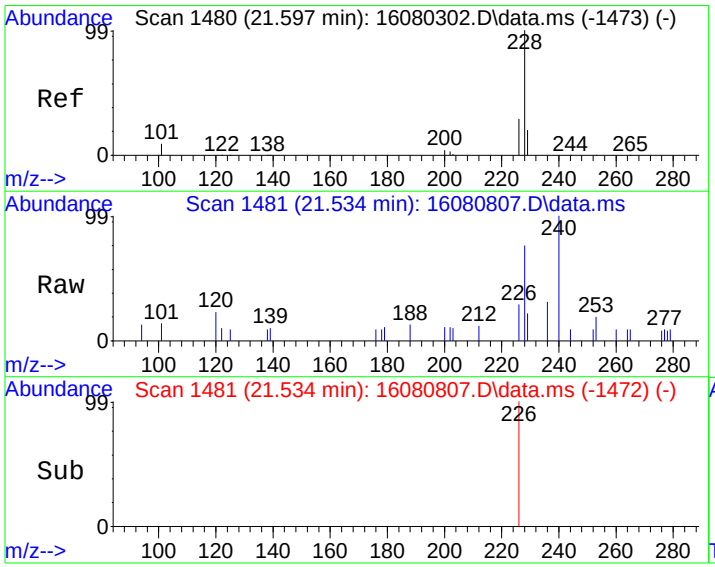


#18
Benzo[a]anthracene
Concen: 8.60 ug/kg
RT: 21.274 min Scan# 1454
Delta R.T. -0.011 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:228 Resp: 993

Ion	Ratio	Lower	Upper
228	100		
229	20.3	0.0	39.9
226	26.6	6.7	46.7

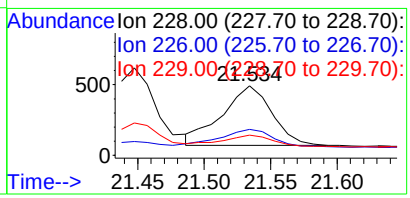


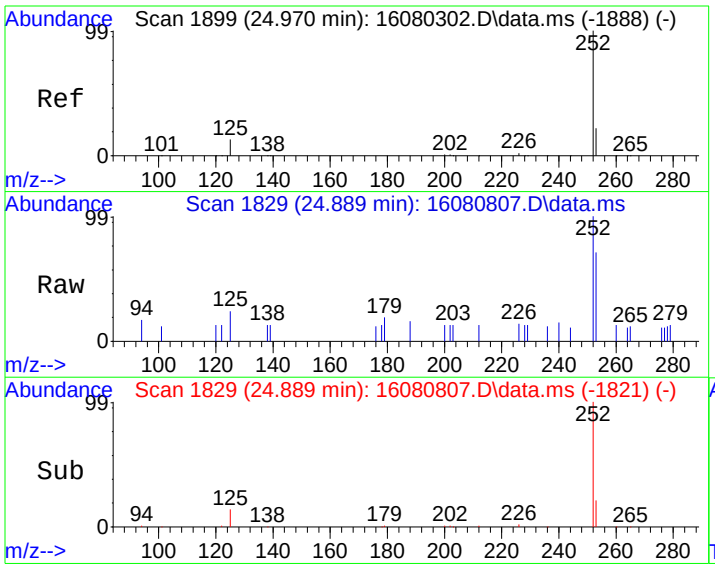


#19
Chrysene
Concen: 10.07 ug/kg
RT: 21.534 min Scan# 1481
Delta R.T. -0.011 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:228 Resp: 1101

Ion	Ratio	Lower	Upper
228	100		
226	29.1	9.3	49.3
229	18.7	0.0	39.8

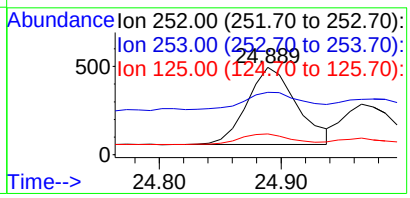


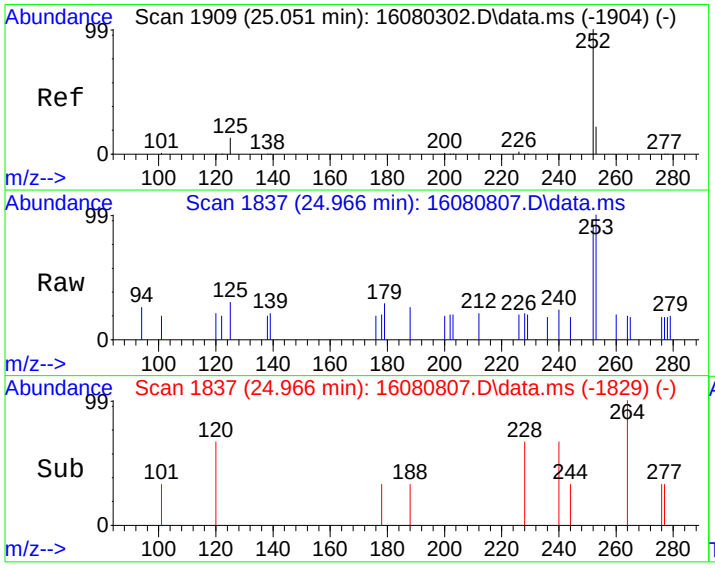


#21
Benzo[b]fluoranthene
Concen: 11.49 ug/kg
RT: 24.889 min Scan# 1829
Delta R.T. -0.021 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:252 Resp: 1235

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	13.8	0.0	33.2

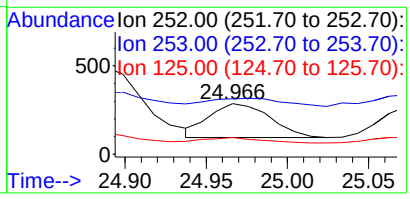


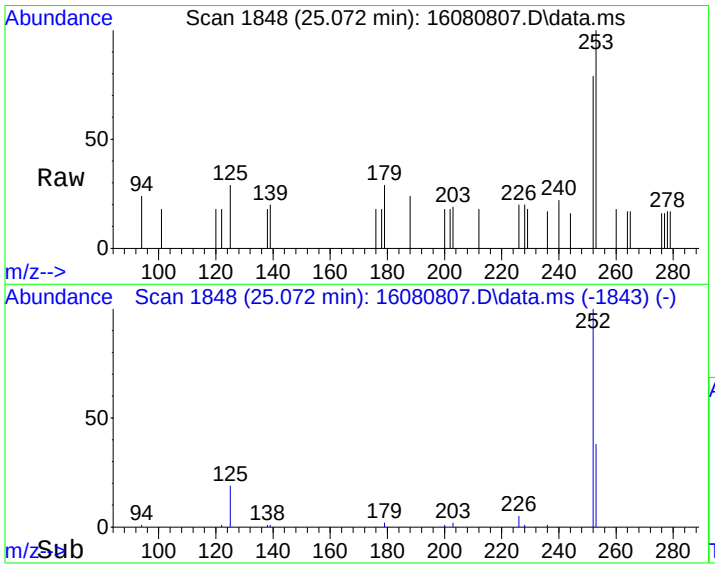


#22
Benzo[k]fluoranthene
Concen: 5.59 ug/kg
RT: 24.966 min Scan# 1837
Delta R.T. -0.021 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:252 Resp: 500

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.1	42.1
125	15.5	0.0	33.9

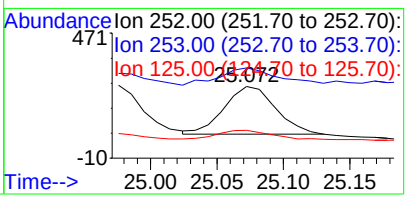


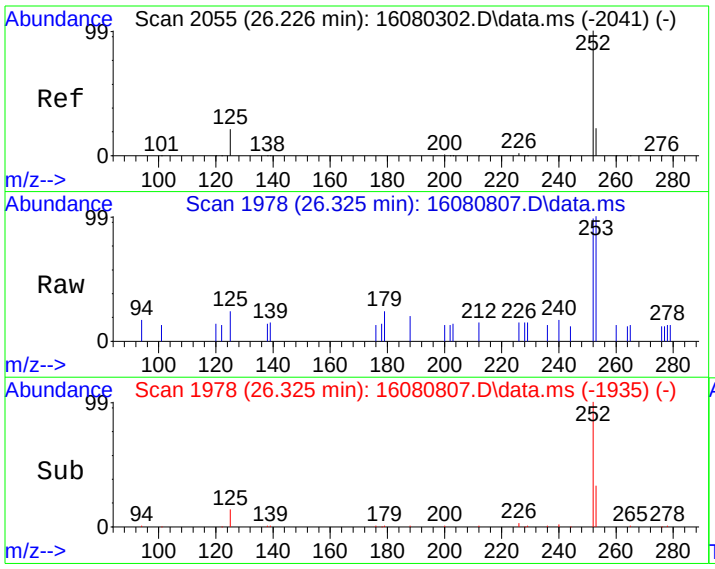


#23
Benzo(j)fluoranthene
Concen: 5.70 ug/kg
RT: 25.072 min Scan# 1848
Delta R.T. -0.021 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:252 Resp: 495

Ion	Ratio	Lower	Upper
252	100		
253	40.4	1.9	41.9
125	19.2	0.0	39.4

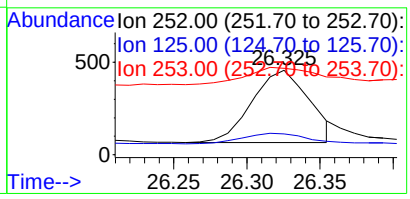


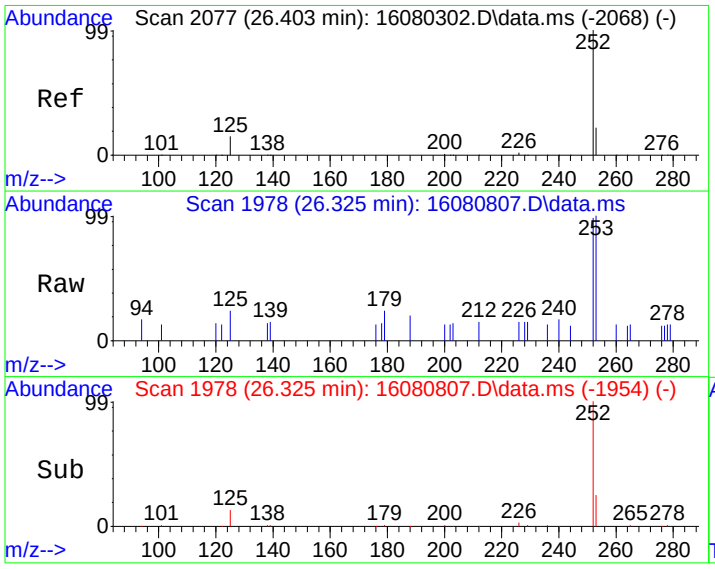


#24
Benzo(e)pyrene
Concen: 9.91 ug/kg
RT: 26.325 min Scan# 1978
Delta R.T. 0.163 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:252 Resp: 1060

Ion	Ratio	Lower	Upper
252	100		
125	15.6	0.5	40.5
253	28.1	2.1	42.1

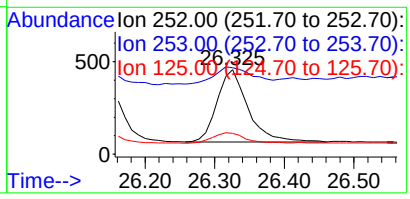


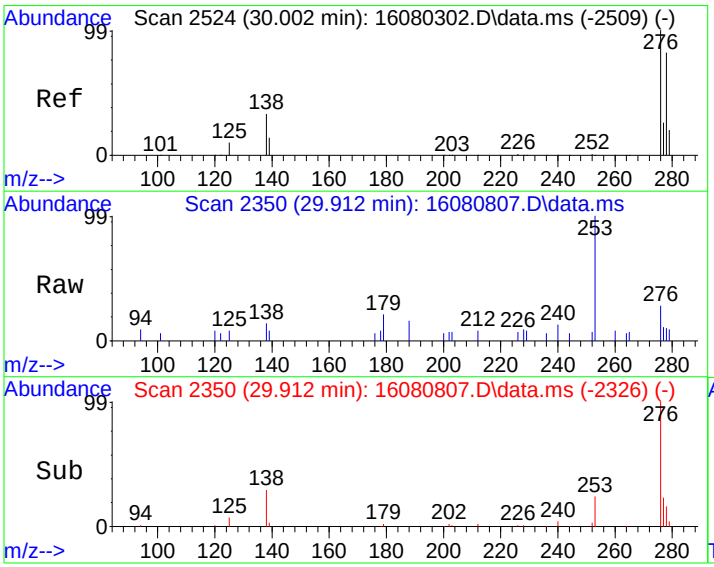


#25
Benzo[a]pyrene
Concen: 11.89 ug/kg
RT: 26.325 min Scan# 1978
Delta R.T. -0.021 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:252 Resp: 1196

Ion	Ratio	Lower	Upper
252	100		
253	22.9	1.9	41.9
125	13.6	0.0	33.5

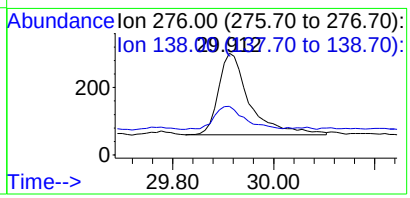


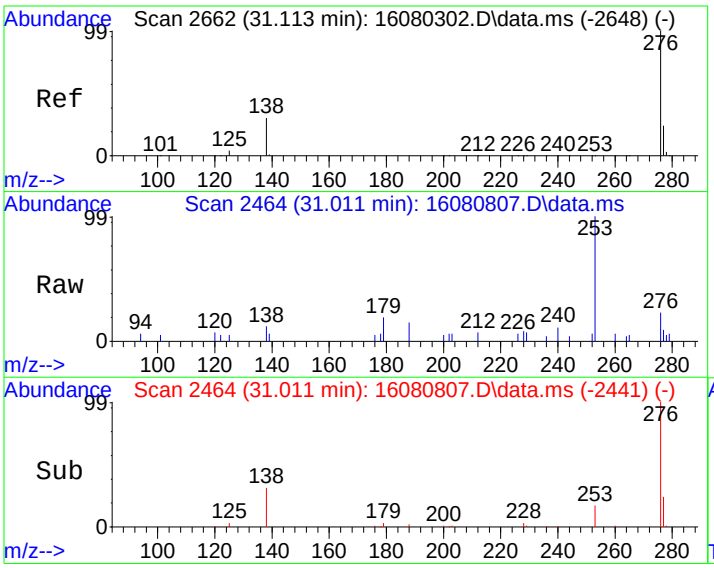


#26
Indeno[1,2,3-cd]pyrene
Concen: 8.28 ug/kg
RT: 29.912 min Scan# 2350
Delta R.T. -0.021 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:276 Resp: 1033

Ion	Ratio	Lower	Upper
276	100		
138	28.1	12.2	52.2

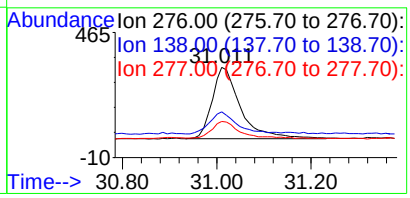




#28
Benzo[g,h,i]perylene
Concen: 10.26 ug/kg
RT: 31.011 min Scan# 2464
Delta R.T. -0.030 min
Lab File: 16080807.D
Acq: 8 Aug 2016 12:00 pm

Tgt Ion:276 Resp: 1136

Ion	Ratio	Lower	Upper
276	100		
138	31.3	6.9	46.9
277	23.5	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080808.D
Acq On : 8 Aug 2016 12:39 pm
Operator :
Sample : 1607294-52A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: Aug 09 09:12:43 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	10.996	136	300012	4000.00	ug/kg	113
6) Acenaphthene-d10	13.457	164	191558	4000.00	ug/kg	118
11) Phenanthrene-d10	15.567	188	507868	4000.00	ug/kg	99
17) Chrysene-d12	21.448	240	458208	4000.00	ug/kg	99
20) Perylene-d12	26.654	264	422232	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	4780	71.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.79%#			
15) 4-Terphenyl-d14	18.113	244	6520	73.02	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.83%#			

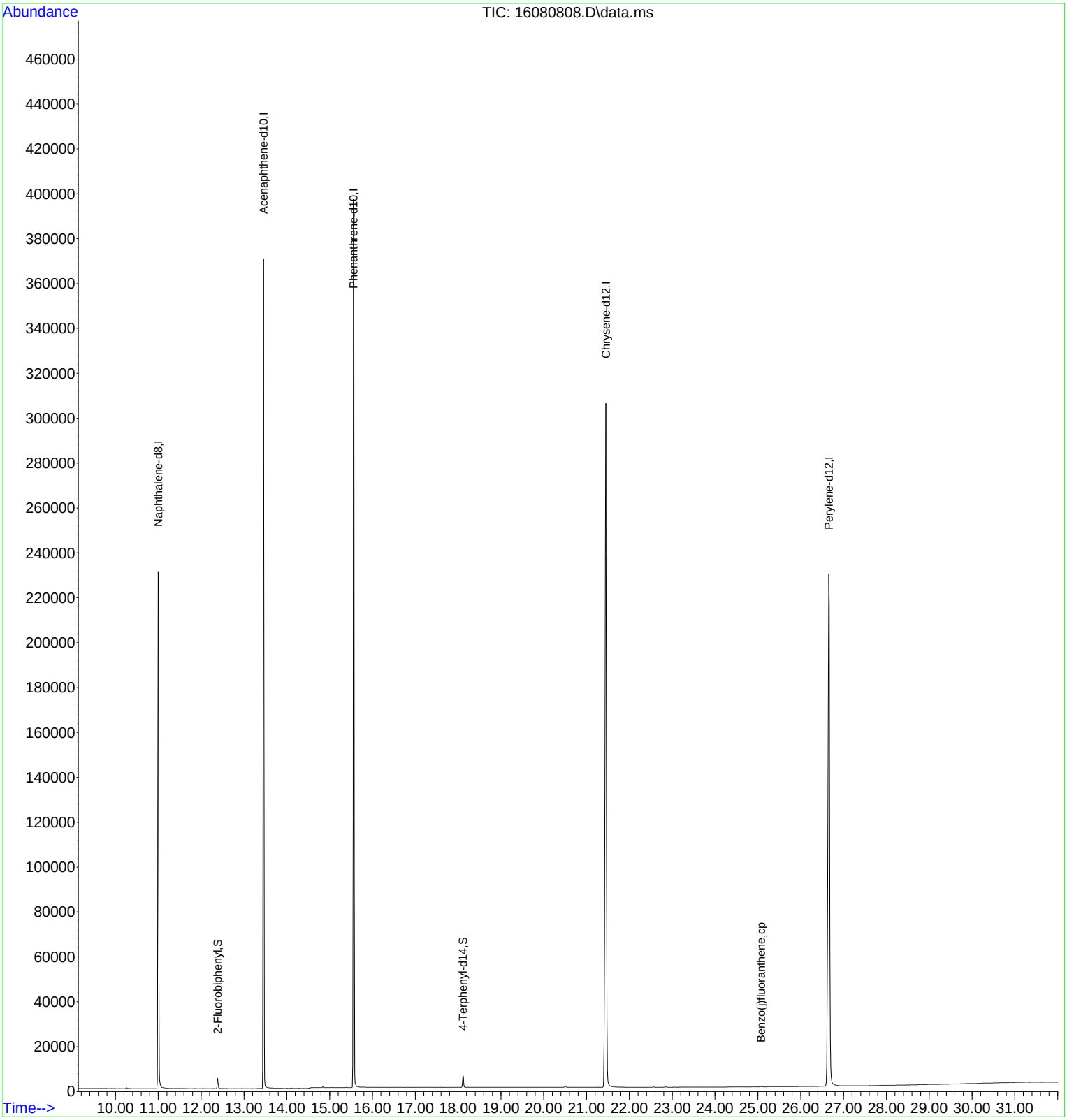
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.073	252	23	0.27	ug/kg#	1

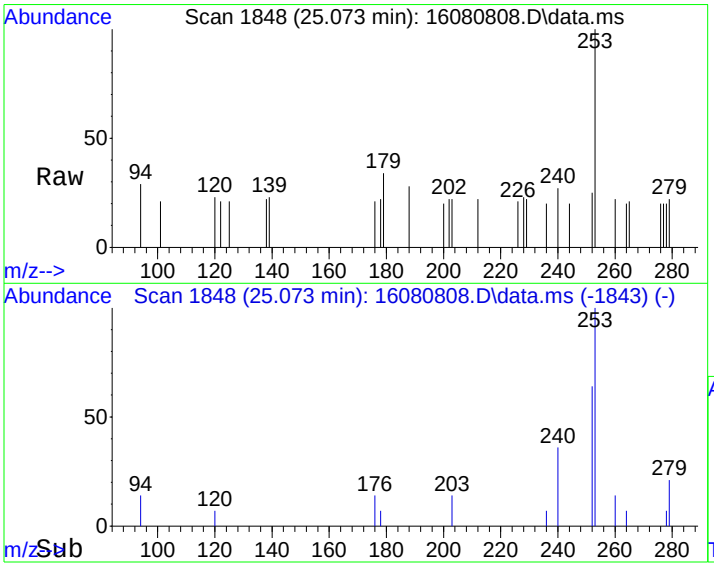
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080808.D
Acq On : 8 Aug 2016 12:39 pm
Operator :
Sample : 1607294-52A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

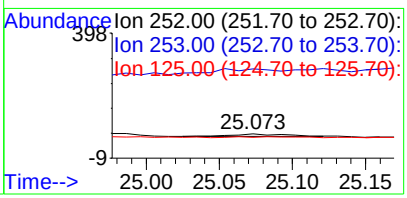
Quant Time: Aug 09 09:12:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





#23
Benzo(j)fluoranthene
Concen: 0.27 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080808.D
Acq: 8 Aug 2016 12:39 pm

Tgt Ion:252	Resp:	23	
Ion	Ratio	Lower	Upper
252	100		
253	278.3	1.9	41.9#
125	13.0	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080809.D
Acq On : 8 Aug 2016 1:19 pm
Operator :
Sample : 1607294-53A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 09 09:12:46 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	304955	4000.00	ug/kg	115
6) Acenaphthene-d10	13.455	164	193911	4000.00	ug/kg	120
11) Phenanthrene-d10	15.567	188	501797	4000.00	ug/kg	97
17) Chrysene-d12	21.448	240	465867	4000.00	ug/kg	101
20) Perylene-d12	26.663	264	432759	4000.00	ug/kg	103

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4929	72.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.82%#		
15) 4-Terphenyl-d14	18.122	244	6994	79.28	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.98%#		

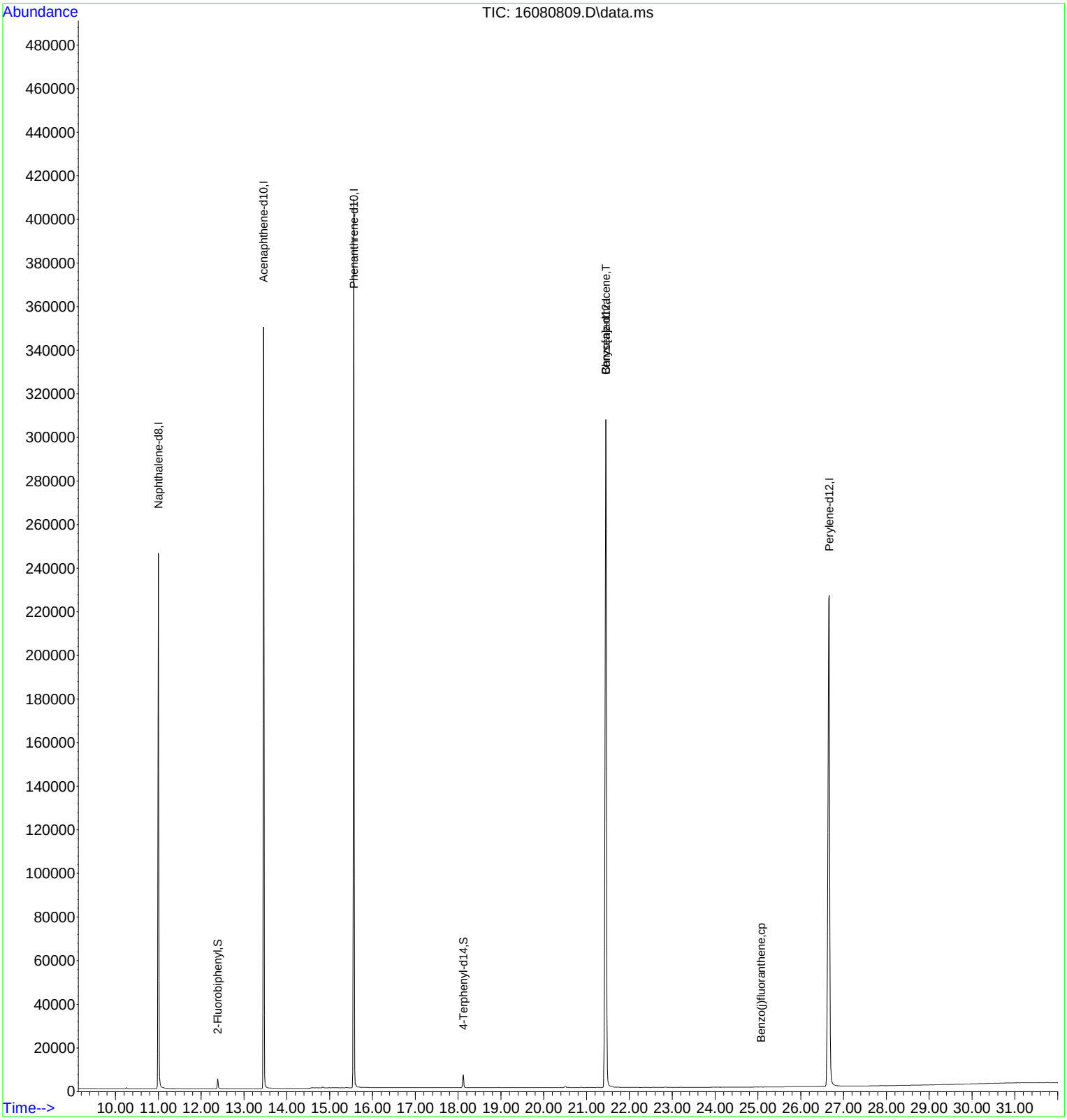
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1265	10.78	ug/kg	71
23) Benzo(j)fluoranthene	25.082	252	5	0.06	ug/kg#	1

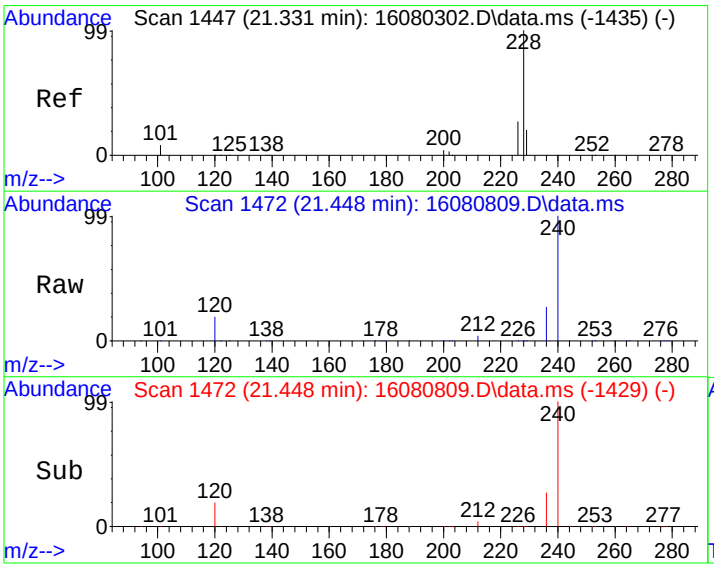
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080809.D
Acq On : 8 Aug 2016 1:19 pm
Operator :
Sample : 1607294-53A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 09 09:12:46 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

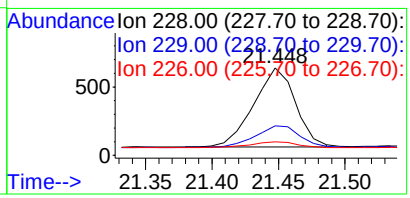


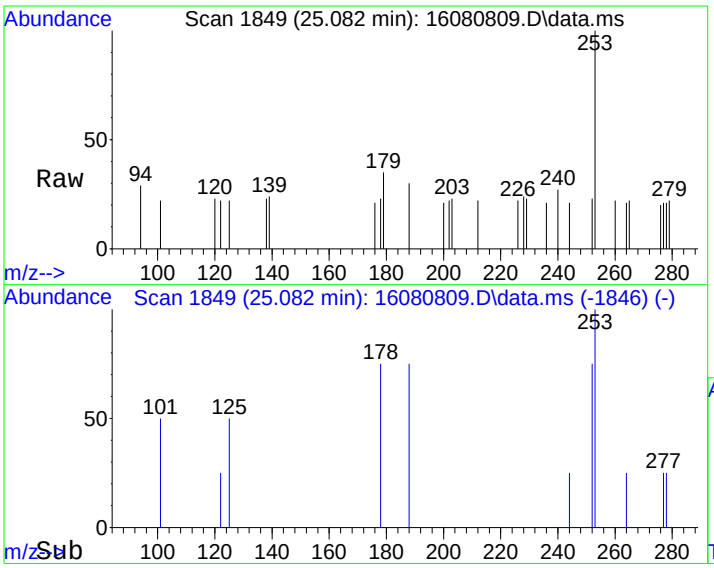


#18
Benzo[a]anthracene
Concen: 10.78 ug/kg
RT: 21.448 min Scan# 1472
Delta R.T. 0.163 min
Lab File: 16080809.D
Acq: 8 Aug 2016 1:19 pm

Tgt Ion:228 Resp: 1265

Ion	Ratio	Lower	Upper
228	100		
229	27.2	0.0	39.9
226	7.1	6.7	46.7

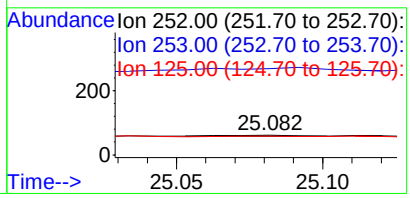




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 25.082 min Scan# 1849
Delta R.T. -0.011 min
Lab File: 16080809.D
Acq: 8 Aug 2016 1:19 pm

Tgt Ion:252 Resp: 5

Ion	Ratio	Lower	Upper
252	100		
253	480.0	1.9	41.9#
125	120.0	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080810.D
Acq On : 8 Aug 2016 1:59 pm
Operator :
Sample : 1607294-54A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 09 09:12:50 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	282017	4000.00	ug/kg	107
6) Acenaphthene-d10	13.458	164	185384	4000.00	ug/kg	114
11) Phenanthrene-d10	15.568	188	483960	4000.00	ug/kg	94
17) Chrysene-d12	21.448	240	438024	4000.00	ug/kg	95
20) Perylene-d12	26.654	264	409023	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.387	172	4991	79.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.99%#			
15) 4-Terphenyl-d14	18.122	244	7066	83.05	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.08%#			

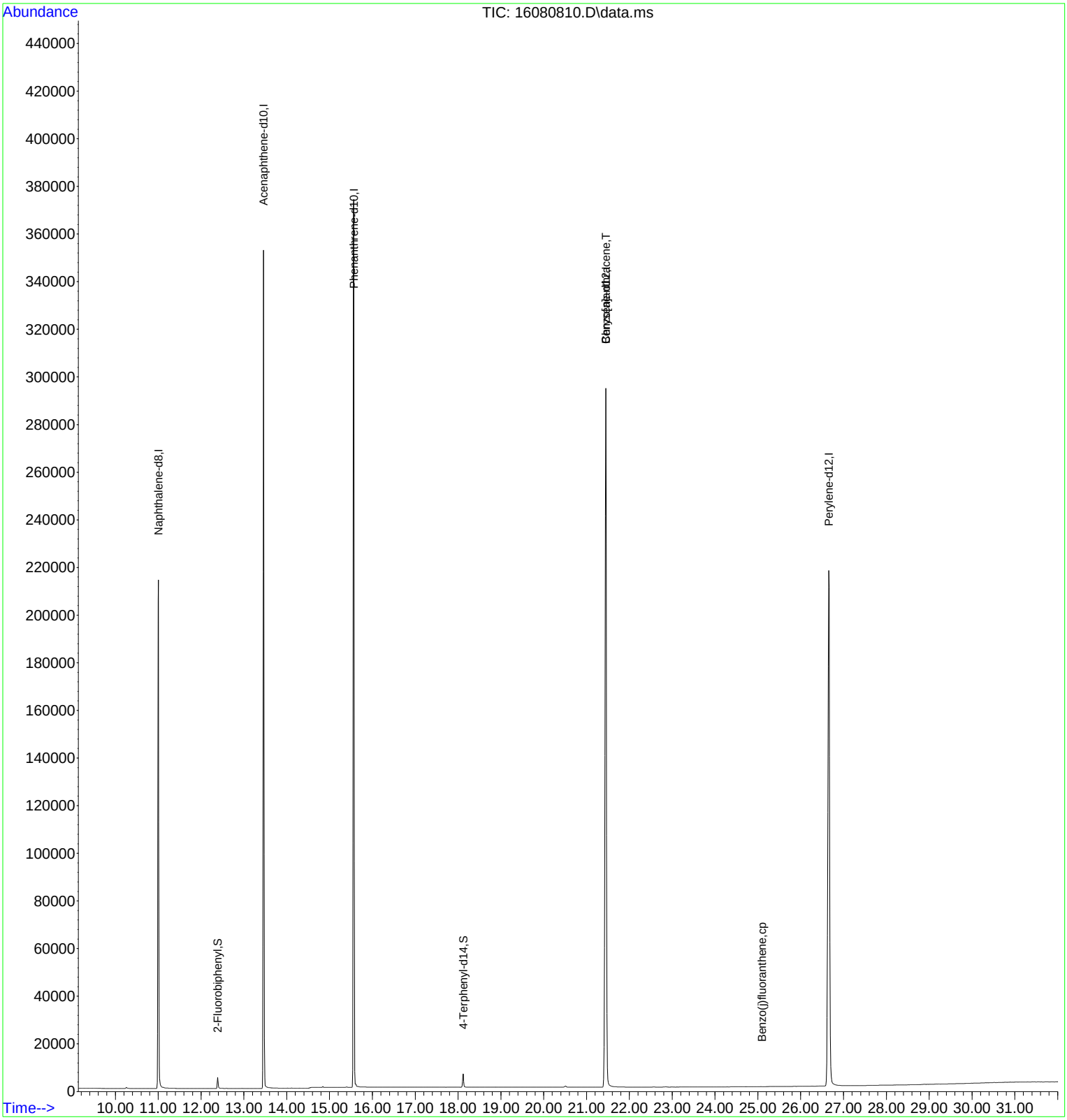
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1181	10.71	ug/kg#	71
23) Benzo(j)fluoranthene	25.092	252	3	0.04	ug/kg#	61

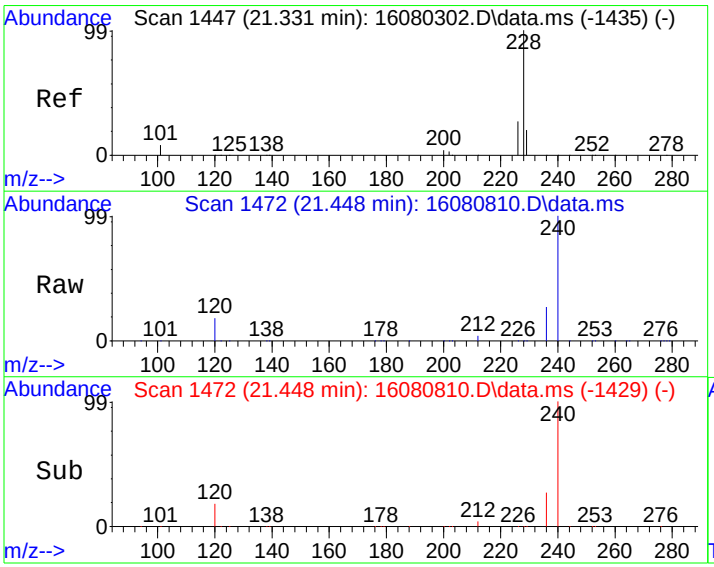
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080810.D
Acq On : 8 Aug 2016 1:59 pm
Operator :
Sample : 1607294-54A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 09 09:12:50 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

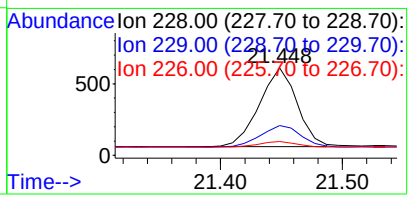


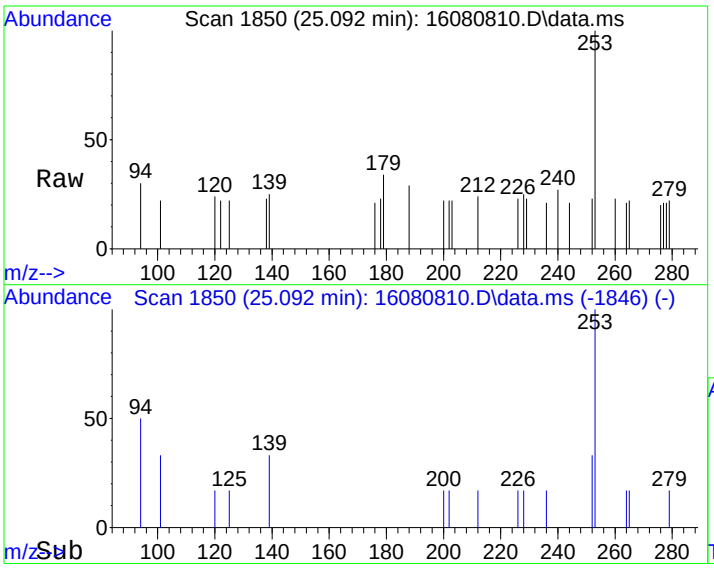


#18
Benzo[a]anthracene
Concen: 10.71 ug/kg
RT: 21.448 min Scan# 1472
Delta R.T. 0.164 min
Lab File: 16080810.D
Acq: 8 Aug 2016 1:59 pm

Tgt Ion:228 Resp: 1181

Ion	Ratio	Lower	Upper
228	100		
229	27.3	0.0	39.9
226	6.5	6.7	46.7#

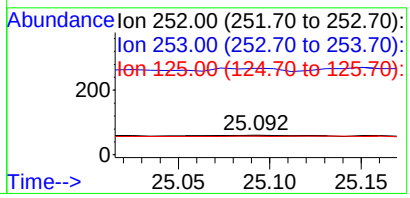




#23
Benzo(j)fluoranthene
Concen: 0.04 ug/kg
RT: 25.092 min Scan# 1850
Delta R.T. -0.000 min
Lab File: 16080810.D
Acq: 8 Aug 2016 1:59 pm

Tgt Ion:252 Resp: 3

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	33.3	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080811.D
Acq On : 8 Aug 2016 2:39 pm
Operator :
Sample : 1607294-56A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 09 09:12:54 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	295660	4000.00	ug/kg	112
6) Acenaphthene-d10	13.457	164	190471	4000.00	ug/kg	117
11) Phenanthrene-d10	15.567	188	503890	4000.00	ug/kg	98
17) Chrysene-d12	21.448	240	461559	4000.00	ug/kg	100
20) Perylene-d12	26.664	264	426917	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	5048	76.75	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.92%#			
15) 4-Terphenyl-d14	18.122	244	7190	81.16	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.03%#			

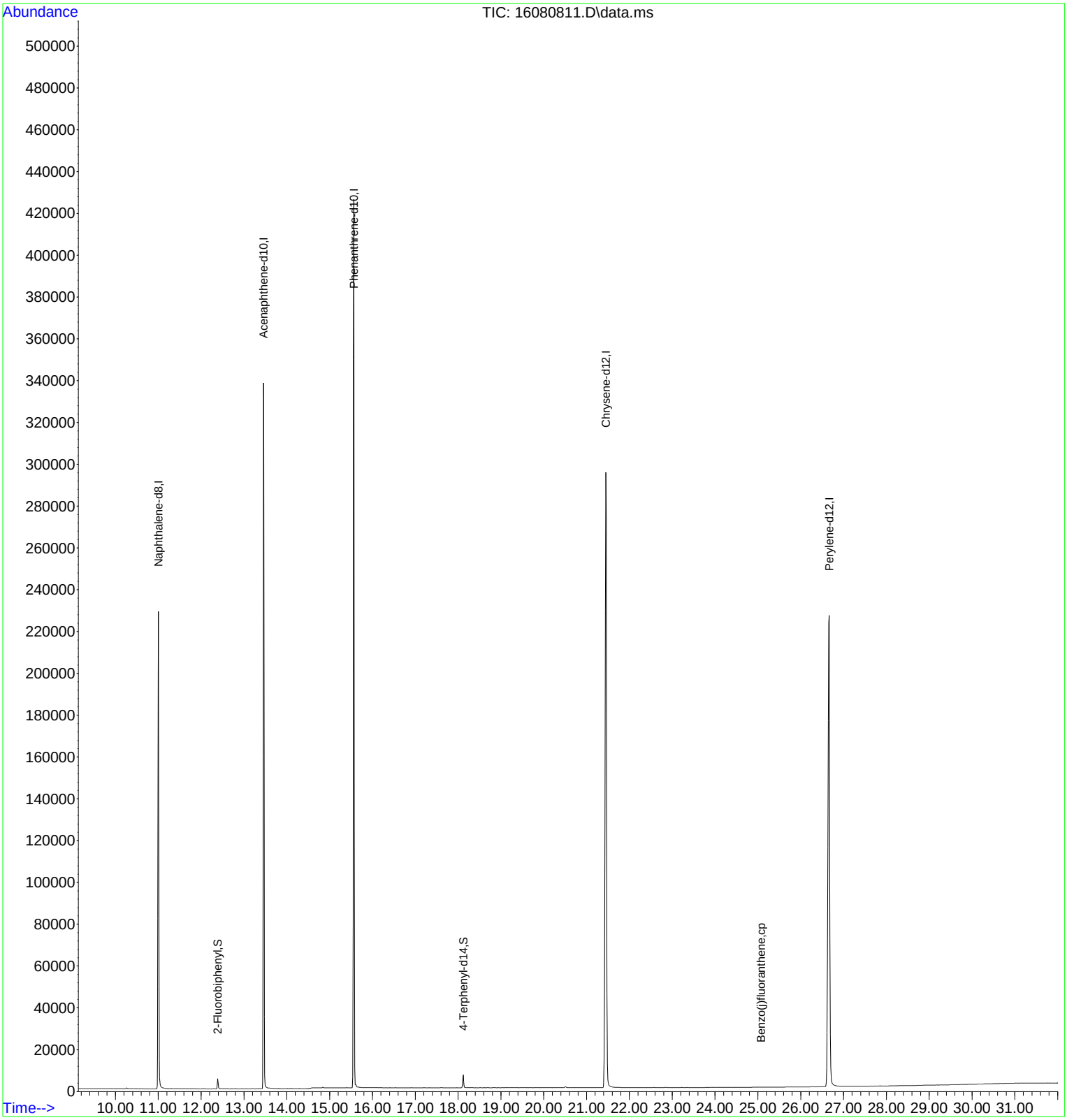
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.083	252	23	0.26	ug/kg#	50

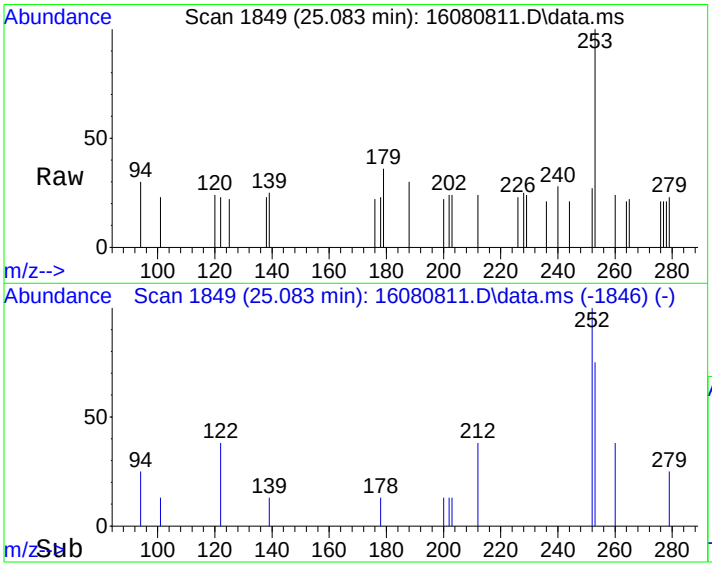
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080811.D
Acq On : 8 Aug 2016 2:39 pm
Operator :
Sample : 1607294-56A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 09 09:12:54 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

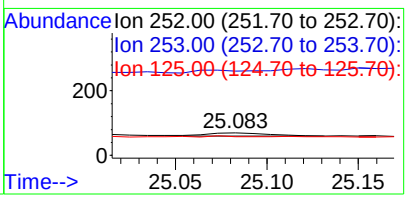




#23
Benzo(j)fluoranthene
Concen: 0.26 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16080811.D
Acq: 8 Aug 2016 2:39 pm

Tgt Ion:252 Resp: 23

Ion	Ratio	Lower	Upper
252	100		
253	60.9	1.9	41.9#
125	26.1	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080812.D
Acq On : 8 Aug 2016 3:19 pm
Operator :
Sample : 1607294-57A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 09 09:12:58 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	284440	4000.00	ug/kg	107
6) Acenaphthene-d10	13.457	164	186328	4000.00	ug/kg	115
11) Phenanthrene-d10	15.567	188	484851	4000.00	ug/kg	94
17) Chrysene-d12	21.448	240	440951	4000.00	ug/kg	95
20) Perylene-d12	26.663	264	405344	4000.00	ug/kg	96

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	5051	79.82	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.00%#			
15) 4-Terphenyl-d14	18.122	244	7136	83.72	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.09%#			

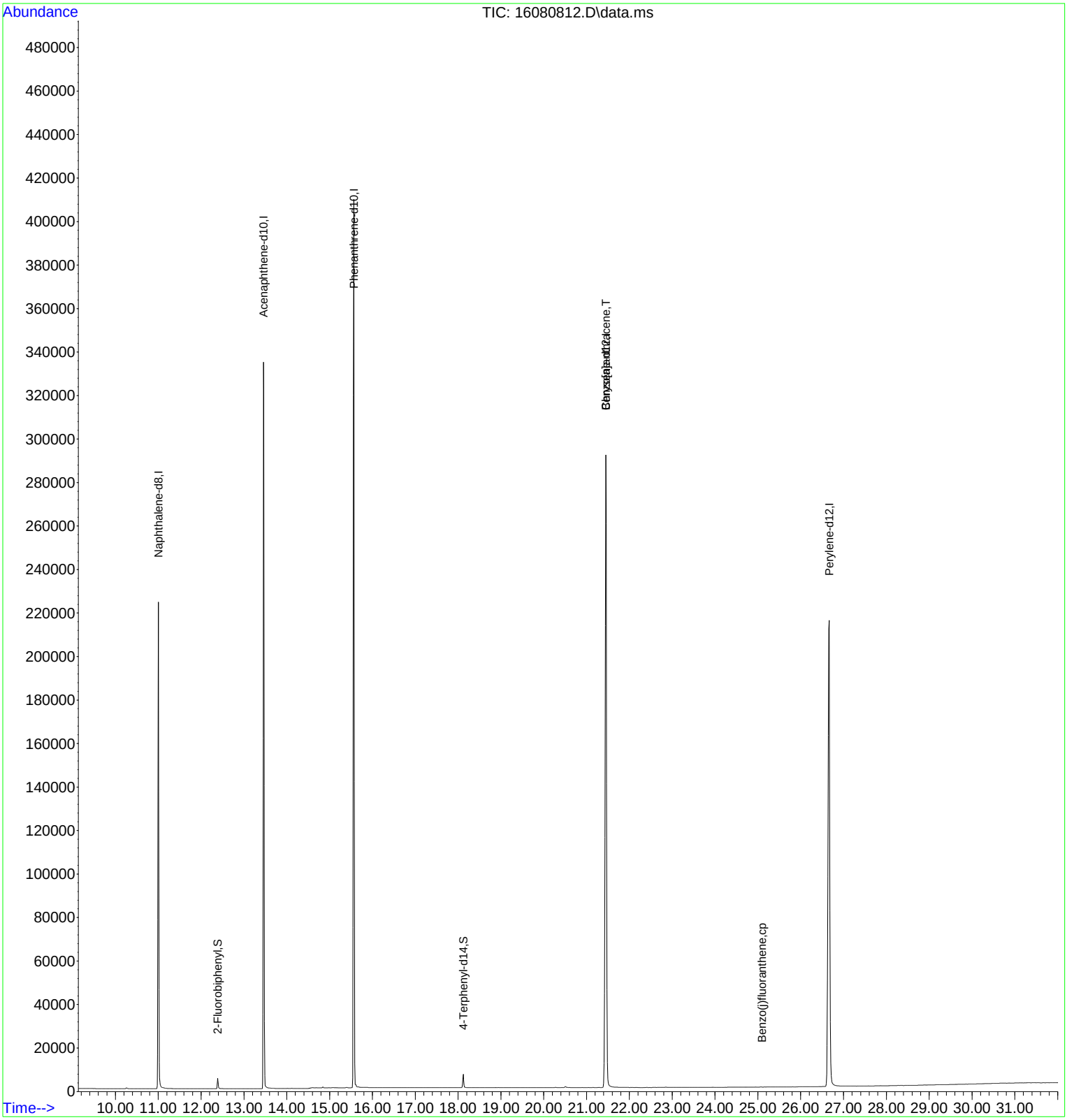
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1197	10.78	ug/kg#	71
23) Benzo(j)fluoranthene	25.082	252	11	0.13	ug/kg#	1

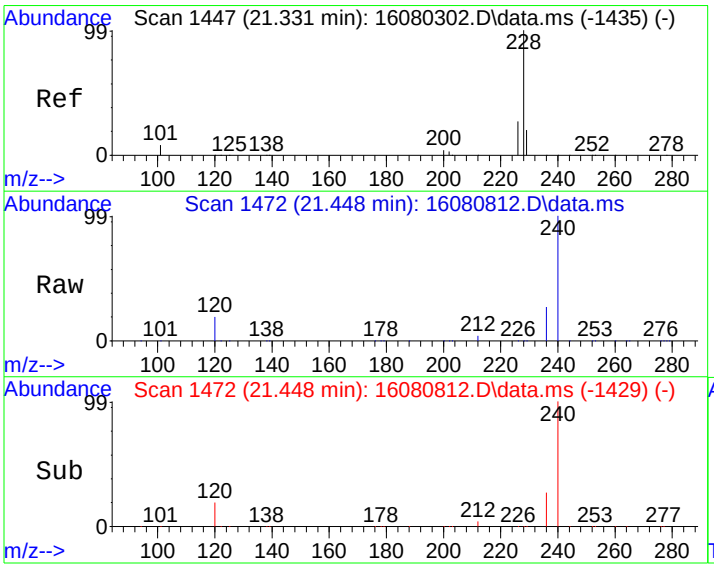
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080812.D
Acq On : 8 Aug 2016 3:19 pm
Operator :
Sample : 1607294-57A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 09 09:12:58 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

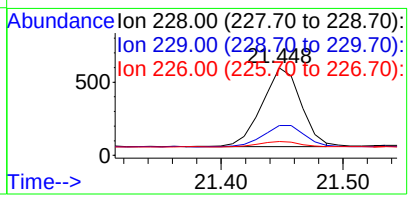


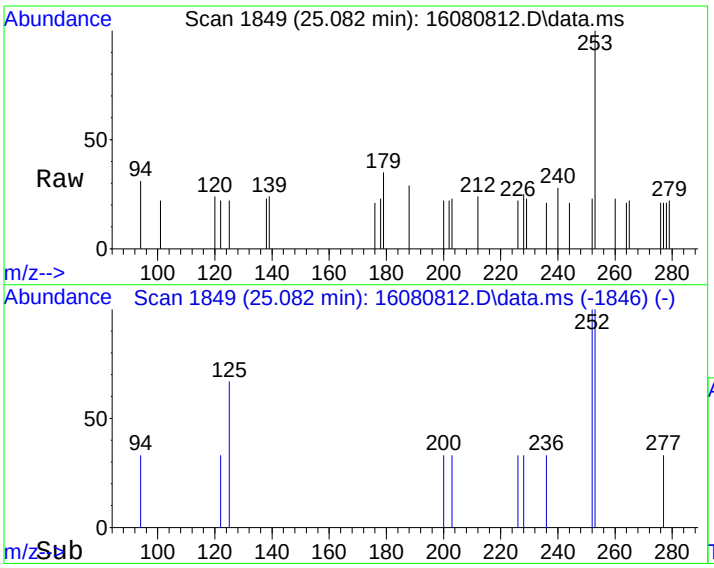


#18
Benzo[a]anthracene
Concen: 10.78 ug/kg
RT: 21.448 min Scan# 1472
Delta R.T. 0.163 min
Lab File: 16080812.D
Acq: 8 Aug 2016 3:19 pm

Tgt Ion:228 Resp: 1197

Ion	Ratio	Lower	Upper
228	100		
229	26.9	0.0	39.9
226	6.7	6.7	46.7#

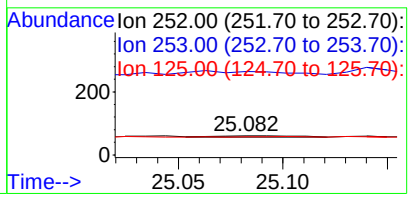




#23
Benzo(j)fluoranthene
Concen: 0.13 ug/kg
RT: 25.082 min Scan# 1849
Delta R.T. -0.011 min
Lab File: 16080812.D
Acq: 8 Aug 2016 3:19 pm

Tgt Ion:252 Resp: 11

Ion	Ratio	Lower	Upper
252	100		
253	281.8	1.9	41.9#
125	63.6	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080813.D
Acq On : 8 Aug 2016 3:59 pm
Operator :
Sample : 1607294-58A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 09 09:13:02 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	282379	4000.00	ug/kg	107
6) Acenaphthene-d10	13.464	164	177994	4000.00	ug/kg	110
11) Phenanthrene-d10	15.567	188	472475	4000.00	ug/kg	92
17) Chrysene-d12	21.448	240	441094	4000.00	ug/kg	95
20) Perylene-d12	26.664	264	410469	4000.00	ug/kg	98

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.393	172	4859	77.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.93%#			
15) 4-Terphenyl-d14	18.122	244	7130	85.84	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.15%#			

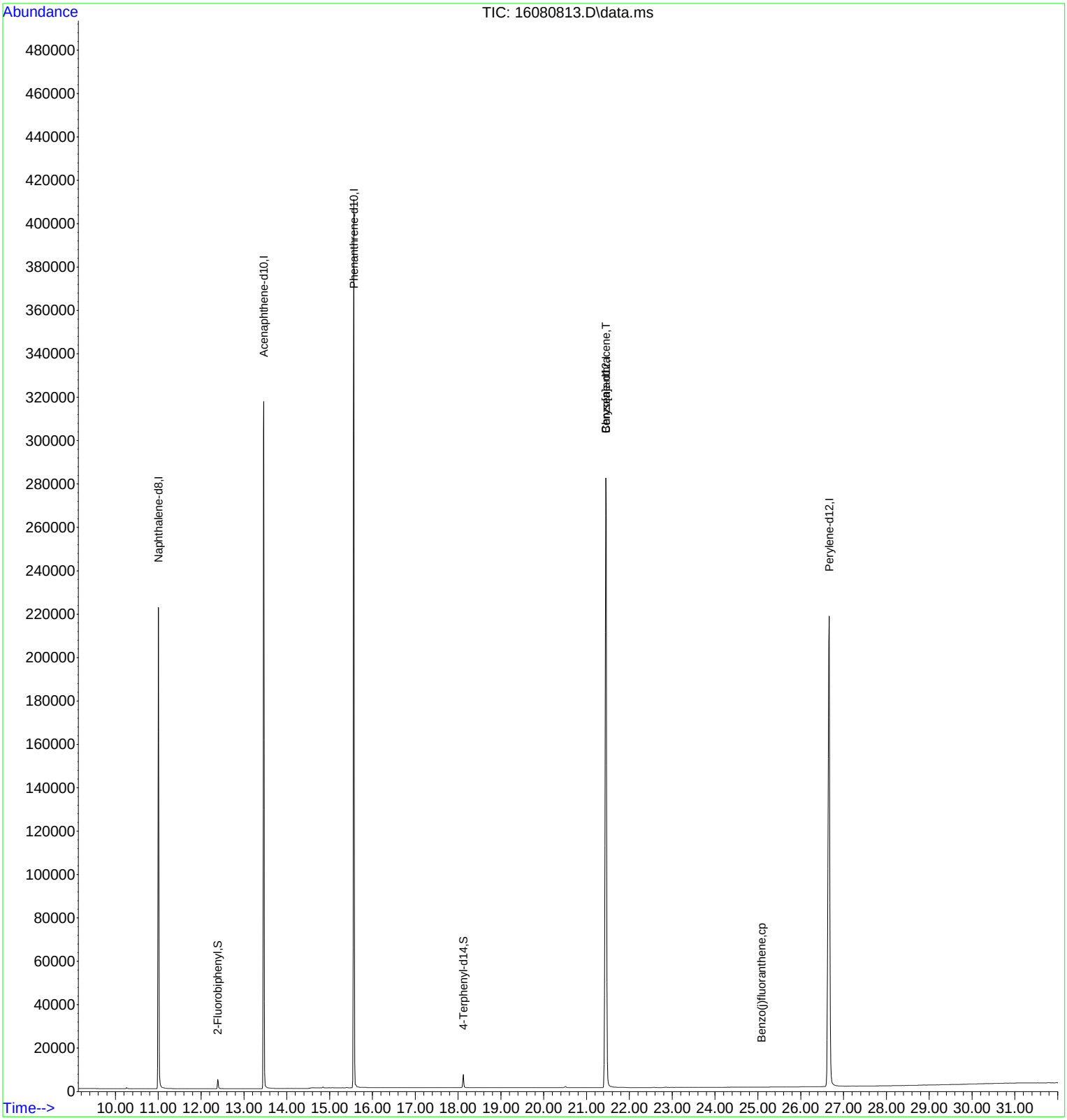
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1192	10.73	ug/kg	73
23) Benzo(j)fluoranthene	25.083	252	4	0.05	ug/kg#	1

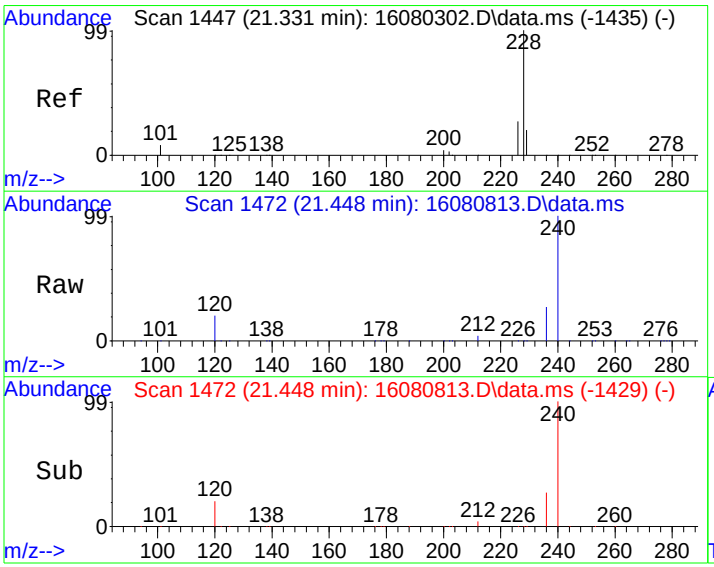
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080813.D
Acq On : 8 Aug 2016 3:59 pm
Operator :
Sample : 1607294-58A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 09 09:13:02 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

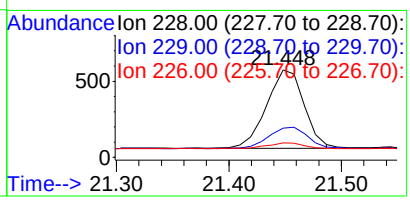


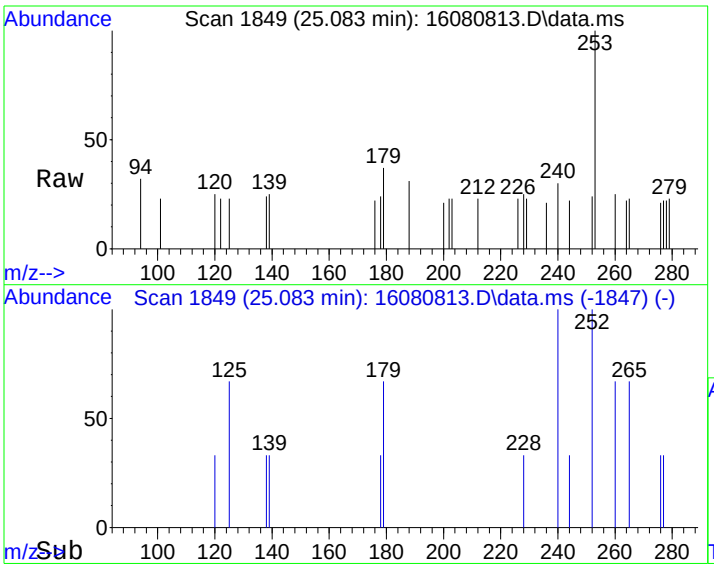


#18
Benzo[a]anthracene
Concen: 10.73 ug/kg
RT: 21.448 min Scan# 1472
Delta R.T. 0.163 min
Lab File: 16080813.D
Acq: 8 Aug 2016 3:59 pm

Tgt Ion:228 Resp: 1192

Ion	Ratio	Lower	Upper
228	100		
229	25.8	0.0	39.9
226	7.2	6.7	46.7

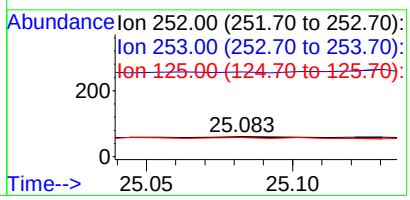




#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16080813.D
Acq: 8 Aug 2016 3:59 pm

Tgt Ion:252 Resp: 4

Ion	Ratio	Lower	Upper
252	100		
253	25.0	1.9	41.9
125	150.0	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080814.D
Acq On : 8 Aug 2016 4:39 pm
Operator :
Sample : 1607294-59A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 09 09:13:06 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	289784	4000.00	ug/kg	109
6) Acenaphthene-d10	13.458	164	182273	4000.00	ug/kg	112
11) Phenanthrene-d10	15.568	188	480347	4000.00	ug/kg	93
17) Chrysene-d12	21.449	240	459746	4000.00	ug/kg	99
20) Perylene-d12	26.664	264	425599	4000.00	ug/kg	101

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.387	172	4920	76.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.91%#			
15) 4-Terphenyl-d14	18.123	244	7199	85.25	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.13%#			

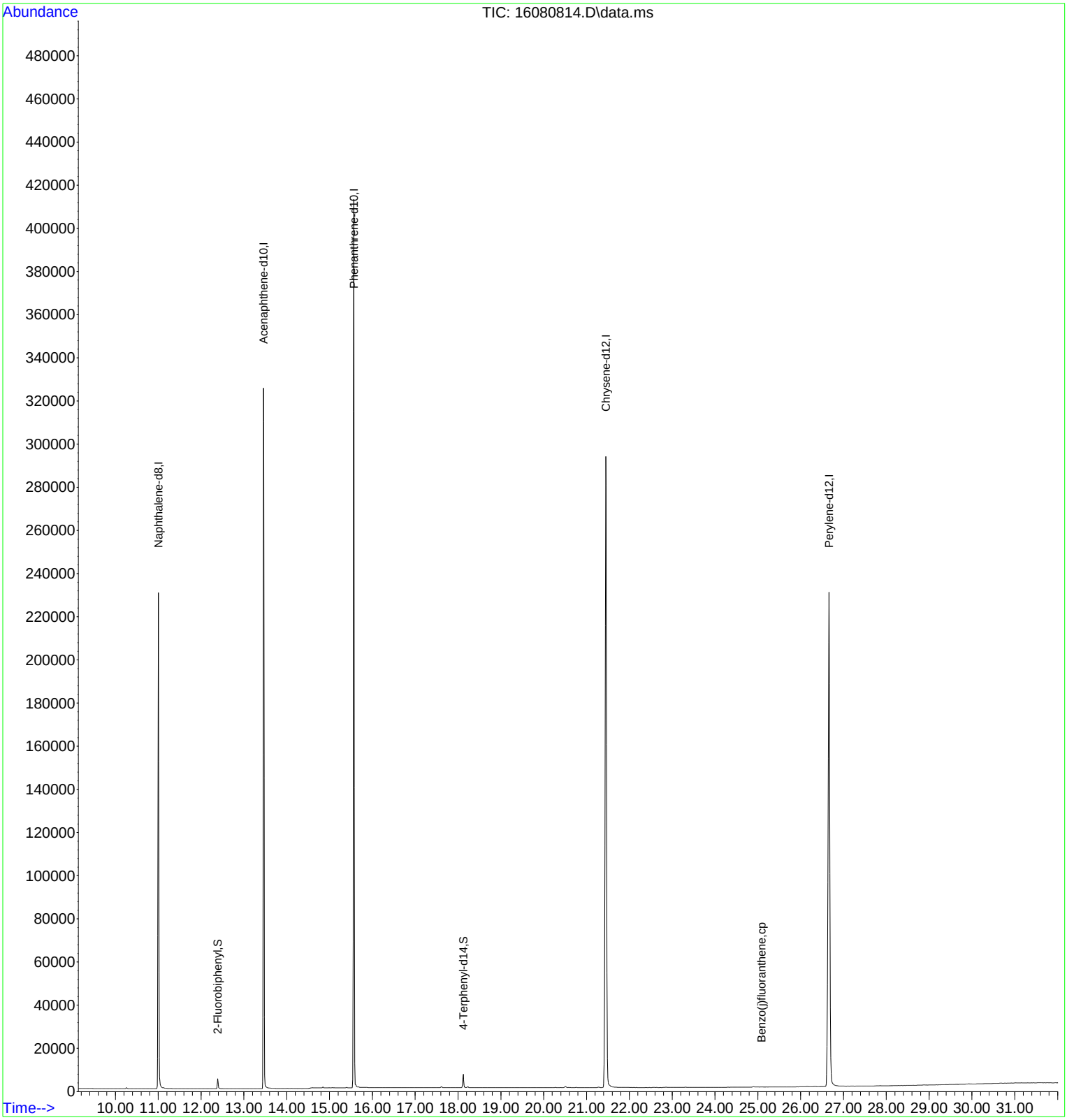
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.083	252	131	1.50	ug/kg#	44

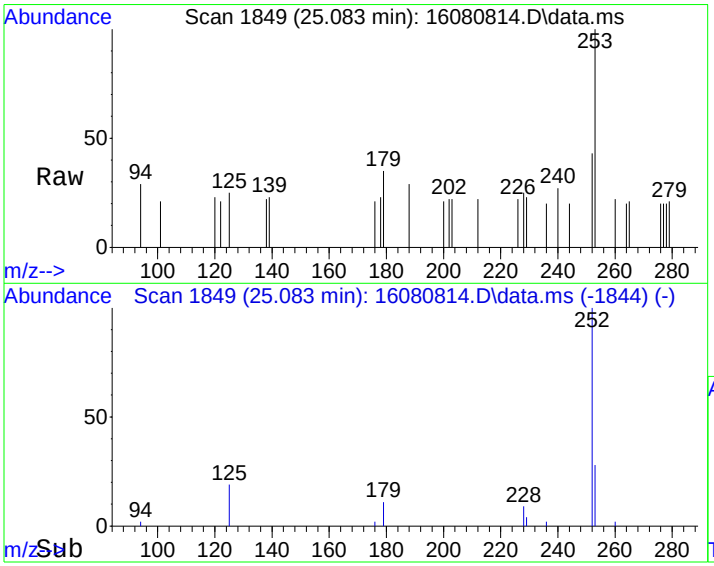
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080814.D
Acq On : 8 Aug 2016 4:39 pm
Operator :
Sample : 1607294-59A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 09 09:13:06 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

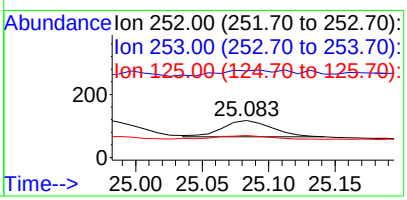




#23
Benzo(j)fluoranthene
Concen: 1.50 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.009 min
Lab File: 16080814.D
Acq: 8 Aug 2016 4:39 pm

Tgt Ion:252 Resp: 131

Ion	Ratio	Lower	Upper
252	100		
253	65.6	1.9	41.9#
125	26.7	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080815.D
Acq On : 8 Aug 2016 5:19 pm
Operator :
Sample : 1607294-60A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 09 09:13:10 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	11.001	136	289758	4000.00	ug/kg	109
6) Acenaphthene-d10	13.462	164	185799	4000.00	ug/kg	115
11) Phenanthrene-d10	15.568	188	489522	4000.00	ug/kg	95
17) Chrysene-d12	21.459	240	452272	4000.00	ug/kg	98
20) Perylene-d12	26.665	264	421092	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.391	172	5073	78.70	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.97%#			
15) 4-Terphenyl-d14	18.123	244	7221	83.91	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.10%#			

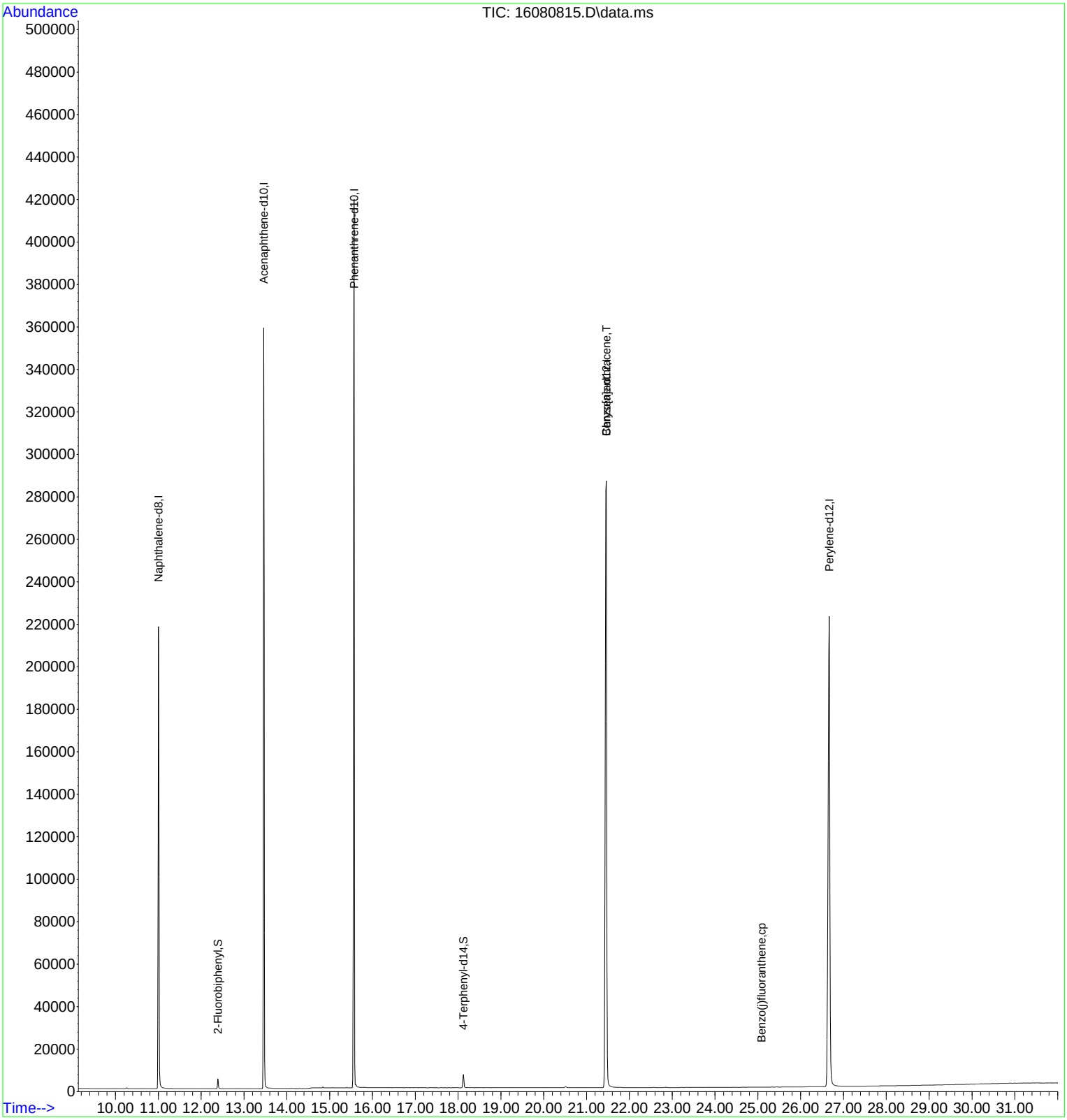
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.459	228	1226	10.76	ug/kg	70
23) Benzo(j)fluoranthene	25.093	252	13	0.15	ug/kg#	1

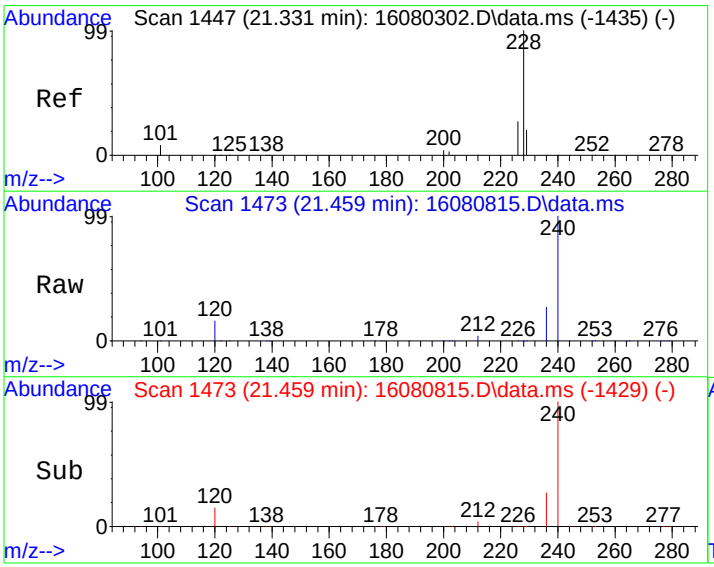
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080815.D
Acq On : 8 Aug 2016 5:19 pm
Operator :
Sample : 1607294-60A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 09 09:13:10 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

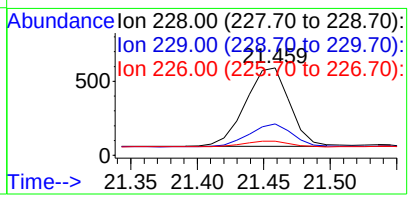


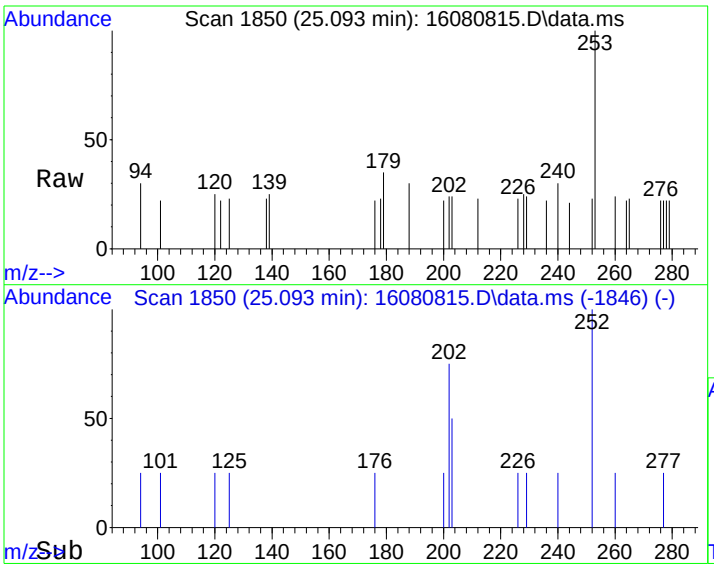


#18
Benzo[a]anthracene
Concen: 10.76 ug/kg
RT: 21.459 min Scan# 1473
Delta R.T. 0.174 min
Lab File: 16080815.D
Acq: 8 Aug 2016 5:19 pm

Tgt Ion:228 Resp: 1226

Ion	Ratio	Lower	Upper
228	100		
229	29.0	0.0	39.9
226	7.2	6.7	46.7

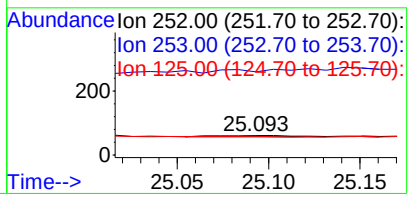




#23
Benzo(j)fluoranthene
Concen: 0.15 ug/kg
RT: 25.093 min Scan# 1850
Delta R.T. 0.000 min
Lab File: 16080815.D
Acq: 8 Aug 2016 5:19 pm

Tgt Ion:252 Resp: 13

Ion	Ratio	Lower	Upper
252	100		
253	307.7	1.9	41.9#
125	61.5	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080816.D
Acq On : 8 Aug 2016 5:59 pm
Operator :
Sample : 1607294-61A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 09 09:13:14 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	11.003	136	301942	4000.00	ug/kg	114
6) Acenaphthene-d10	13.464	164	190672	4000.00	ug/kg	118
11) Phenanthrene-d10	15.568	188	502063	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	453601	4000.00	ug/kg	98
20) Perylene-d12	26.664	264	425923	4000.00	ug/kg	101

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	5103	75.97	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.90%#			
15) 4-Terphenyl-d14	18.123	244	7205	81.63	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.04%#			

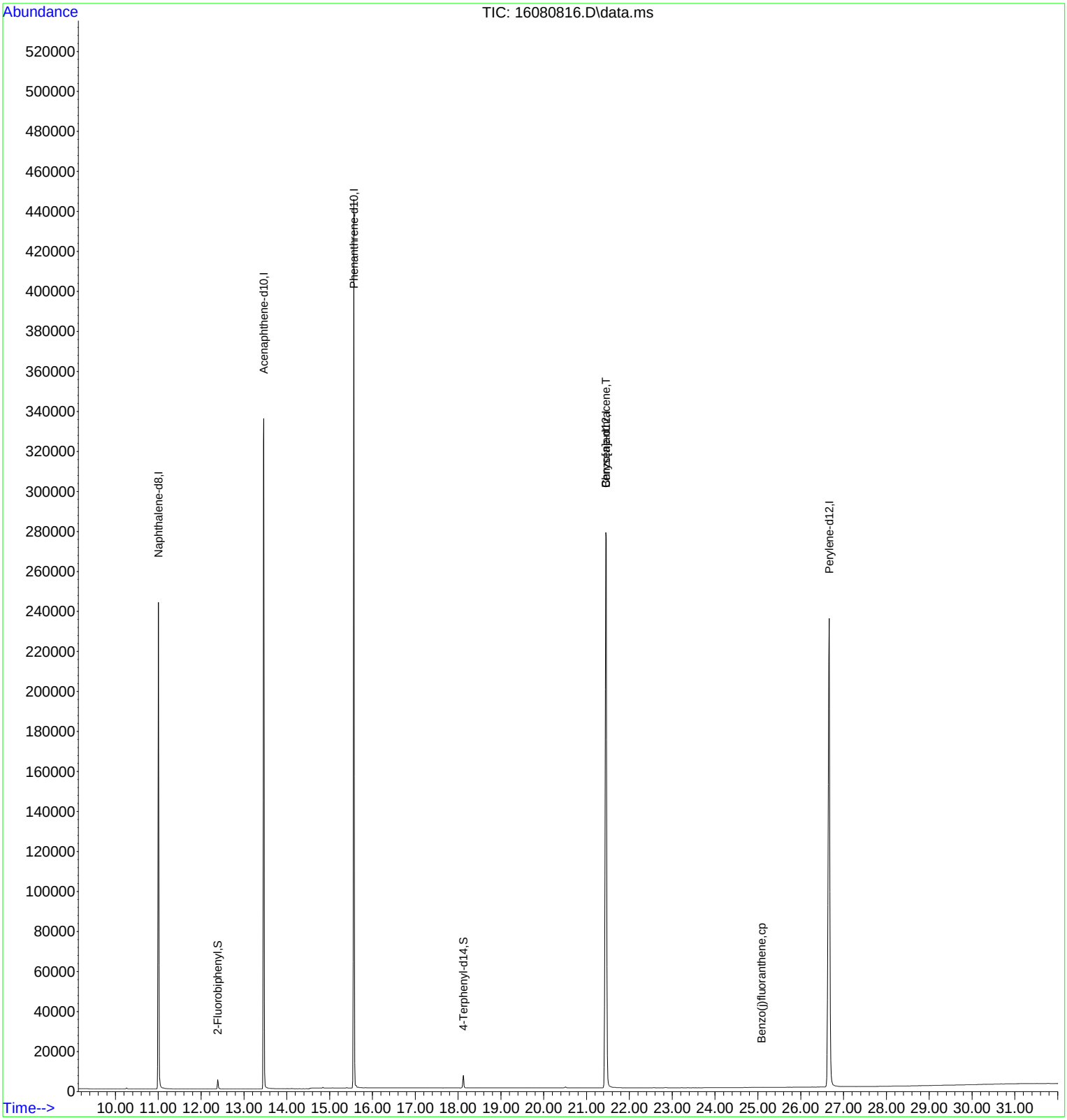
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.458	228	1234	10.80	ug/kg	70
23) Benzo(j)fluoranthene	25.074	252	5	0.06	ug/kg#	1

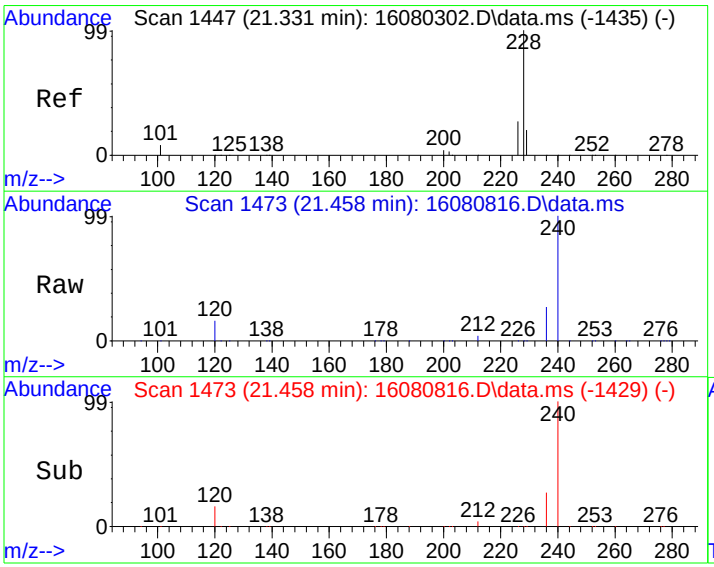
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080816.D
Acq On : 8 Aug 2016 5:59 pm
Operator :
Sample : 1607294-61A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 09 09:13:14 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

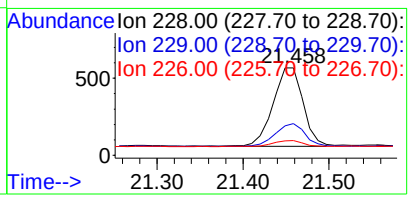


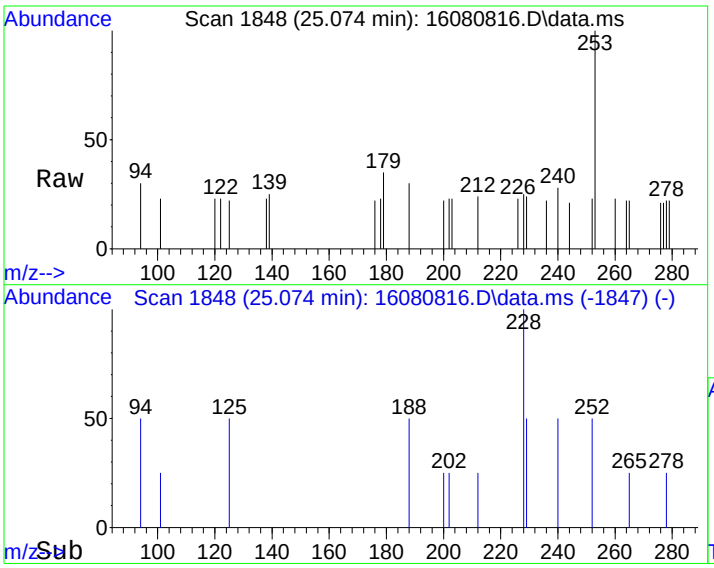


#18
Benzo[a]anthracene
Concen: 10.80 ug/kg
RT: 21.458 min Scan# 1473
Delta R.T. 0.174 min
Lab File: 16080816.D
Acq: 8 Aug 2016 5:59 pm

Tgt Ion:228 Resp: 1234

Ion	Ratio	Lower	Upper
228	100		
229	29.1	0.0	39.9
226	7.9	6.7	46.7

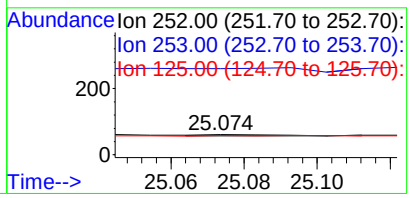




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080816.D
Acq: 8 Aug 2016 5:59 pm

Tgt Ion:252 Resp: 5

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	100.0	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080817.D
Acq On : 8 Aug 2016 6:39 pm
Operator :
Sample : 1607294-62A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: Aug 09 09:13:16 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	296538	4000.00	ug/kg	112
6) Acenaphthene-d10	13.462	164	192826	4000.00	ug/kg	119
11) Phenanthrene-d10	15.568	188	485209	4000.00	ug/kg	94
17) Chrysene-d12	21.449	240	444893	4000.00	ug/kg	96
20) Perylene-d12	26.665	264	419059	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.391	172	4983	75.54	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.89%#			
15) 4-Terphenyl-d14	18.123	244	6680	78.31	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.96%#			

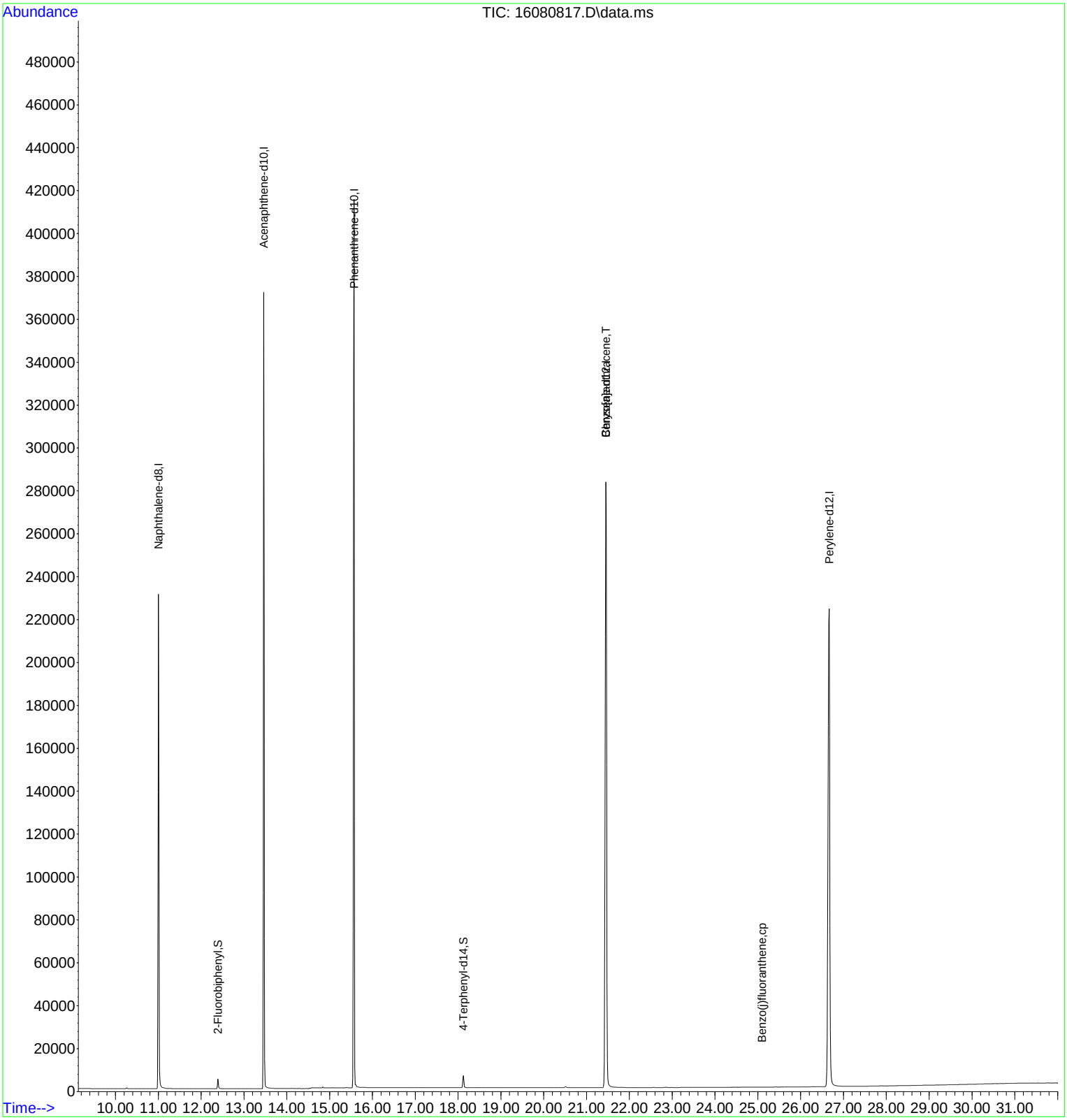
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.449	228	1203	10.74	ug/kg	71
23) Benzo(j)fluoranthene	25.084	252	8	0.09	ug/kg#	1

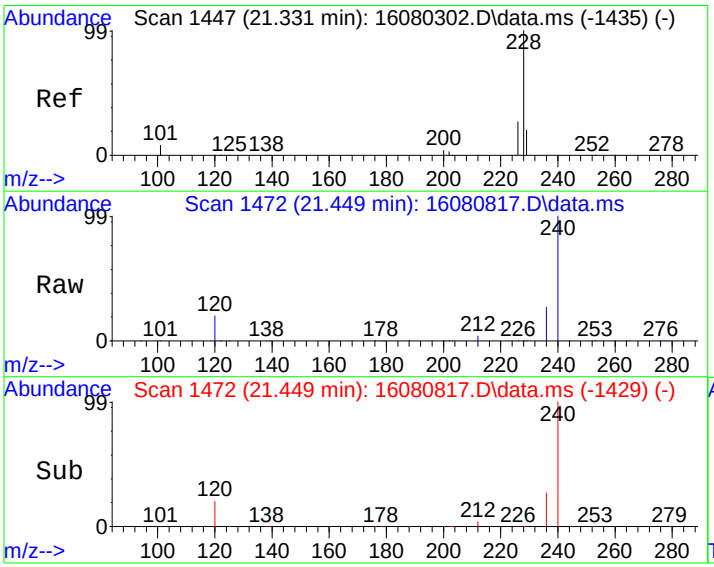
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080817.D
Acq On : 8 Aug 2016 6:39 pm
Operator :
Sample : 1607294-62A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: Aug 09 09:13:16 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

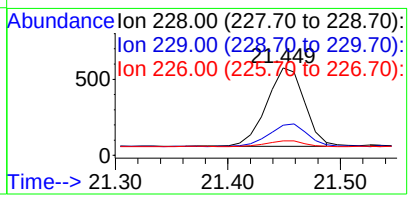


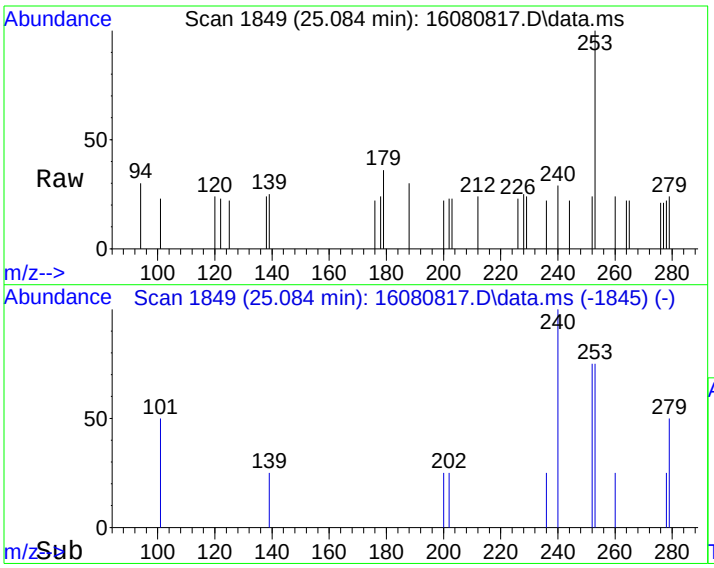


#18
Benzo[a]anthracene
Concen: 10.74 ug/kg
RT: 21.449 min Scan# 1472
Delta R.T. 0.164 min
Lab File: 16080817.D
Acq: 8 Aug 2016 6:39 pm

Tgt Ion:228 Resp: 1203

Ion	Ratio	Lower	Upper
228	100		
229	27.0	0.0	39.9
226	7.0	6.7	46.7

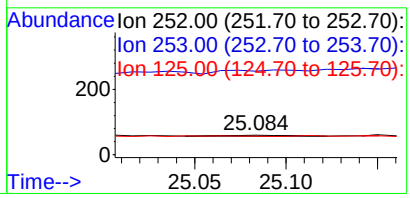




#23
Benzo(j)fluoranthene
Concen: 0.09 ug/kg
RT: 25.084 min Scan# 1849
Delta R.T. -0.009 min
Lab File: 16080817.D
Acq: 8 Aug 2016 6:39 pm

Tgt Ion:252 Resp: 8

Ion	Ratio	Lower	Upper
252	100		
253	212.5	1.9	41.9#
125	37.5	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080819.D
Acq On : 8 Aug 2016 7:57 pm
Operator :
Sample : ICV2-160808
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 09 09:11:52 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

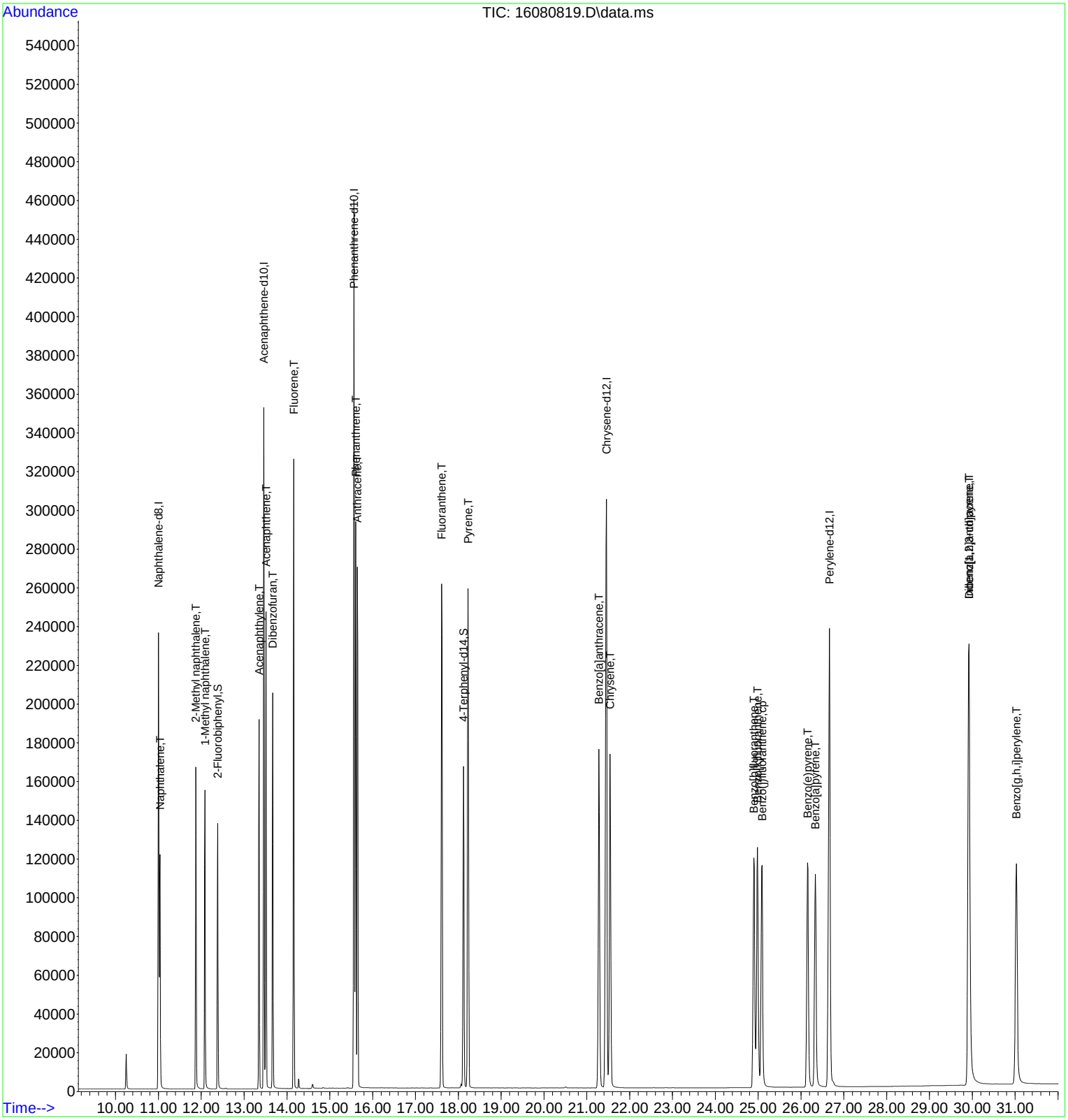
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	284358	4000.00	ug/kg	107
6) Acenaphthene-d10	13.462	164	183392	4000.00	ug/kg	113
11) Phenanthrene-d10	15.567	188	523622	4000.00	ug/kg	102
17) Chrysene-d12	21.457	240	472458	4000.00	ug/kg	102
20) Perylene-d12	26.663	264	436835	4000.00	ug/kg	104
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	115722	1829.33	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.73%			
15) 4-Terphenyl-d14	18.121	244	182624	1983.82	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.60%#			
Target Compounds						Qvalue
2) Naphthalene	11.036	128	129419	1907.99	ug/kg	100
3) 2-Methyl naphthalene	11.873	142	90250	1951.93	ug/kg	99
4) 1-Methyl naphthalene	12.086	142	82446	1939.64	ug/kg	100
7) Acenaphthylene	13.348	152	170672	2011.56	ug/kg	100
8) Acenaphthene	13.512	153	109247	1970.23	ug/kg	99
9) Dibenzofuran	13.668	168	179397	1884.99	ug/kg	98
10) Fluorene	14.157	166	158434	1925.12	ug/kg	100
12) Phenanthrene	15.605	178	264395	1982.82	ug/kg	100
13) Anthracene	15.644	178	266474	1949.63	ug/kg	100
14) Fluoranthene	17.610	202	280568	1974.07	ug/kg	100
16) Pyrene	18.227	202	280916	1976.90	ug/kg	100
18) Benzo[a]anthracene	21.284	228	236880	1990.73	ug/kg	100
19) Chrysene	21.544	228	223835	1987.47	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	230625	2082.27	ug/kg	98
22) Benzo[k]fluoranthene	24.986	252	198982	2156.70	ug/kg	99
23) Benzo(j)fluoranthene	25.092	252	190060	2123.10	ug/kg	100
24) Benzo(e)pyrene	26.152	252	218379	1981.38	ug/kg	100
25) Benzo[a]pyrene	26.335	252	210526	2031.20	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.931	276	264122	2054.25	ug/kg	95
27) Dibenz[a,h]anthracene	29.912	278	217059	2105.37	ug/kg	97
28) Benzo[g,h,i]perylene	31.030	276	224898	1970.41	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080819.D
Acq On : 8 Aug 2016 7:57 pm
Operator :
Sample : ICV2-160808
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

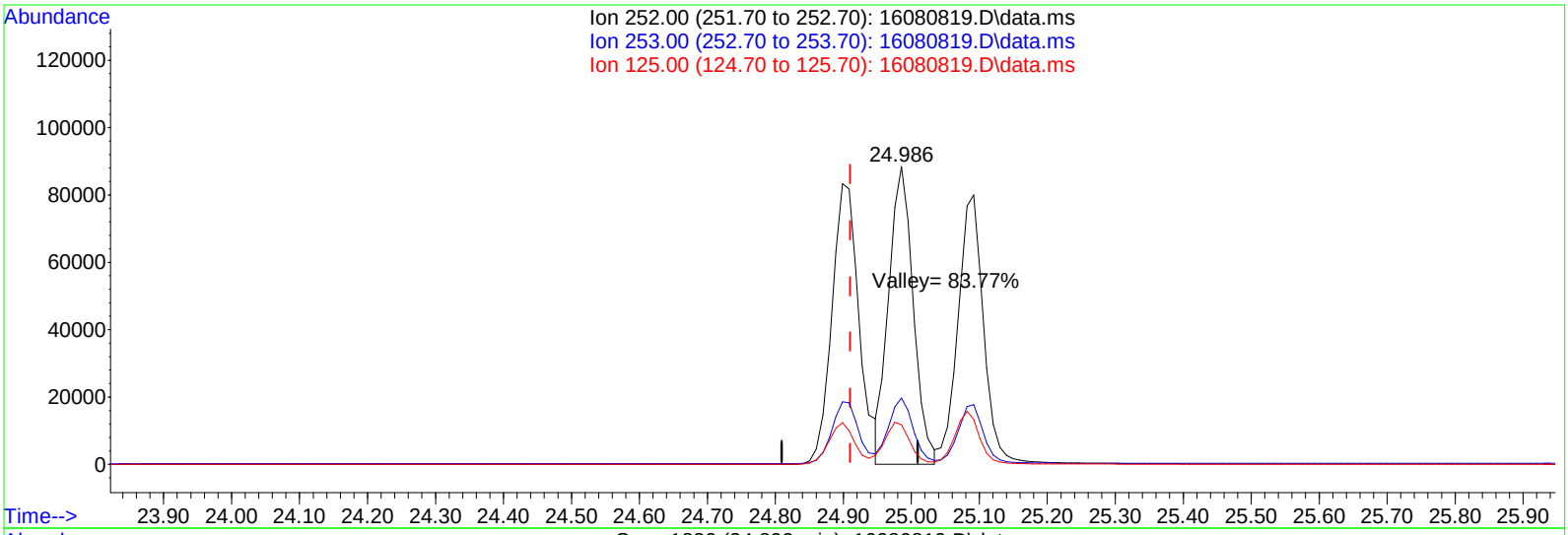
Quant Time: Aug 09 09:11:52 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

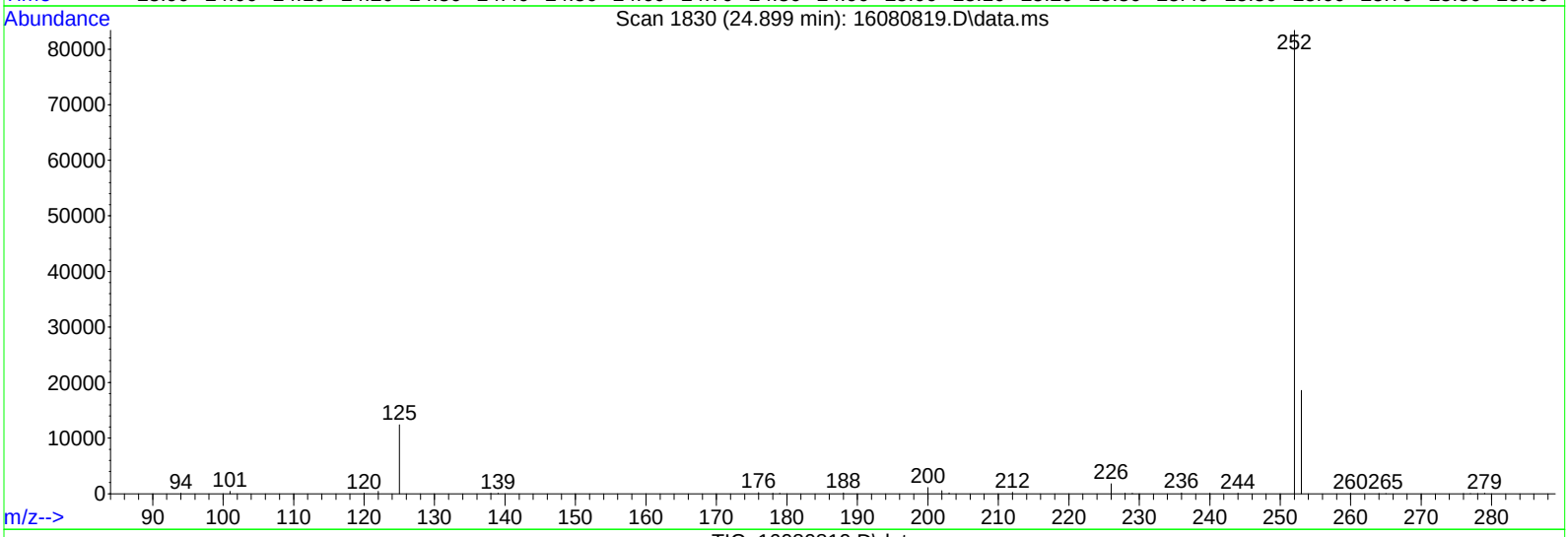


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080819.D
Acq On : 8 Aug 2016 7:57 pm
Operator :
Sample : ICV2-160808
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 09 09:11:52 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: 16080819.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.899min (-0.011) 2082.27ug/kg

response 230625

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	21.99
125.00	13.20	14.78
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080821.D
Acq On : 8 Aug 2016 9:17 pm
Operator :
Sample : SB-160808
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 09 09:11:55 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	265029	4000.00	ug/kg	100
6) Acenaphthene-d10	13.462	164	188670	4000.00	ug/kg	116
11) Phenanthrene-d10	15.568	188	484183	4000.00	ug/kg	94
17) Chrysene-d12	21.448	240	429664	4000.00	ug/kg	93
20) Perylene-d12	26.654	264	395761	4000.00	ug/kg	94

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.292	172	14	0.24	ug/kg	-0.09
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
15) 4-Terphenyl-d14	18.132	244	12	0.14	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	0.00%#		

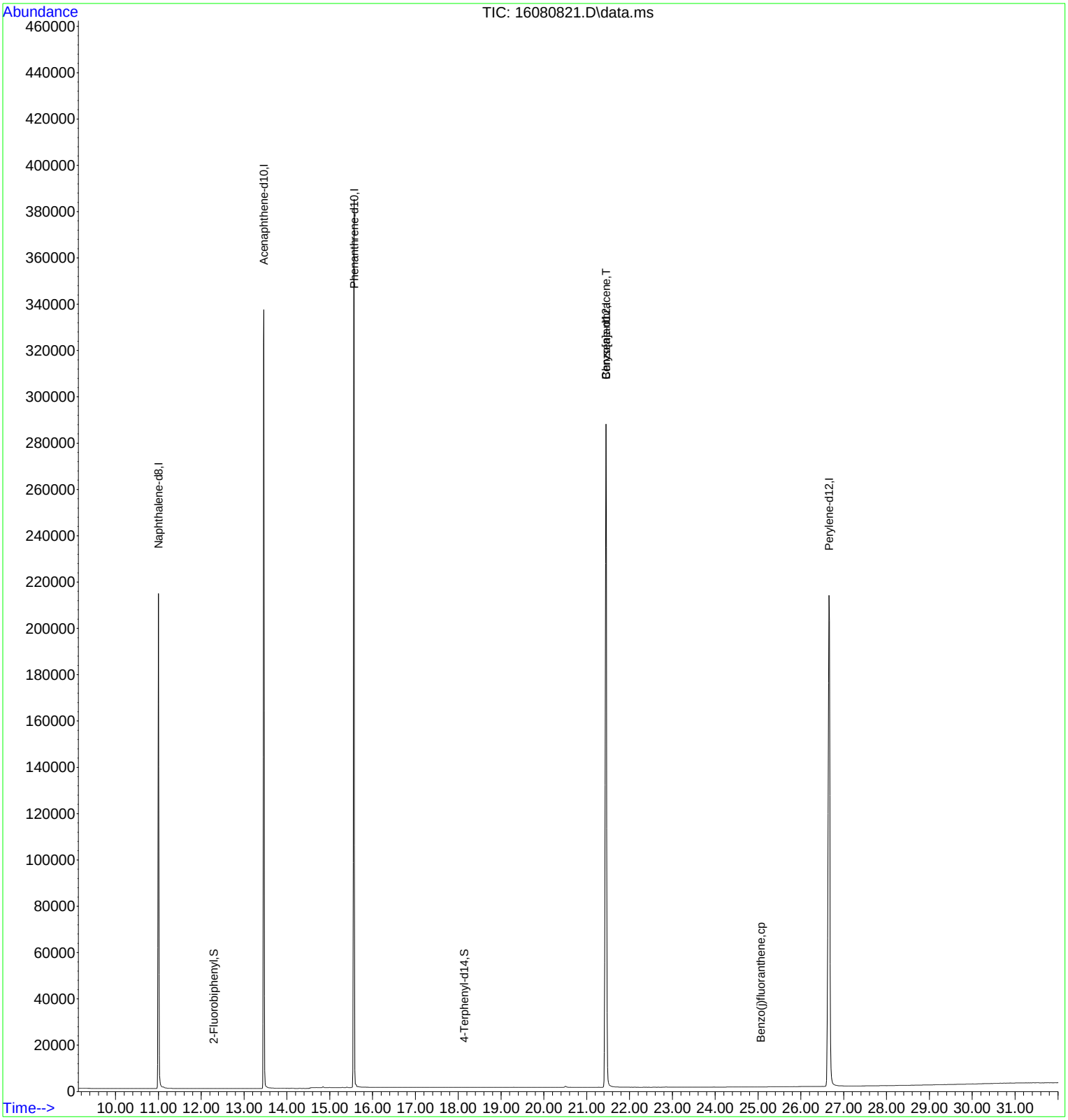
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1148	10.61	ug/kg	71
23) Benzo(j)fluoranthene	25.073	252	5	0.06	ug/kg#	1

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080821.D
Acq On : 8 Aug 2016 9:17 pm
Operator :
Sample : SB-160808
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 09 09:11:55 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\160808\
Data File : 16080822.D
Acq On : 8 Aug 2016 9:56 pm
Operator :
Sample : 1607294-64A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 09 09:13:21 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	297499	4000.00	ug/kg	112
6) Acenaphthene-d10	13.456	164	190647	4000.00	ug/kg	118
11) Phenanthrene-d10	15.567	188	476977	4000.00	ug/kg	93
17) Chrysene-d12	21.447	240	441982	4000.00	ug/kg	95
20) Perylene-d12	26.653	264	417113	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	5133	77.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.94%#			
15) 4-Terphenyl-d14	18.121	244	6802	81.12	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.03%#			

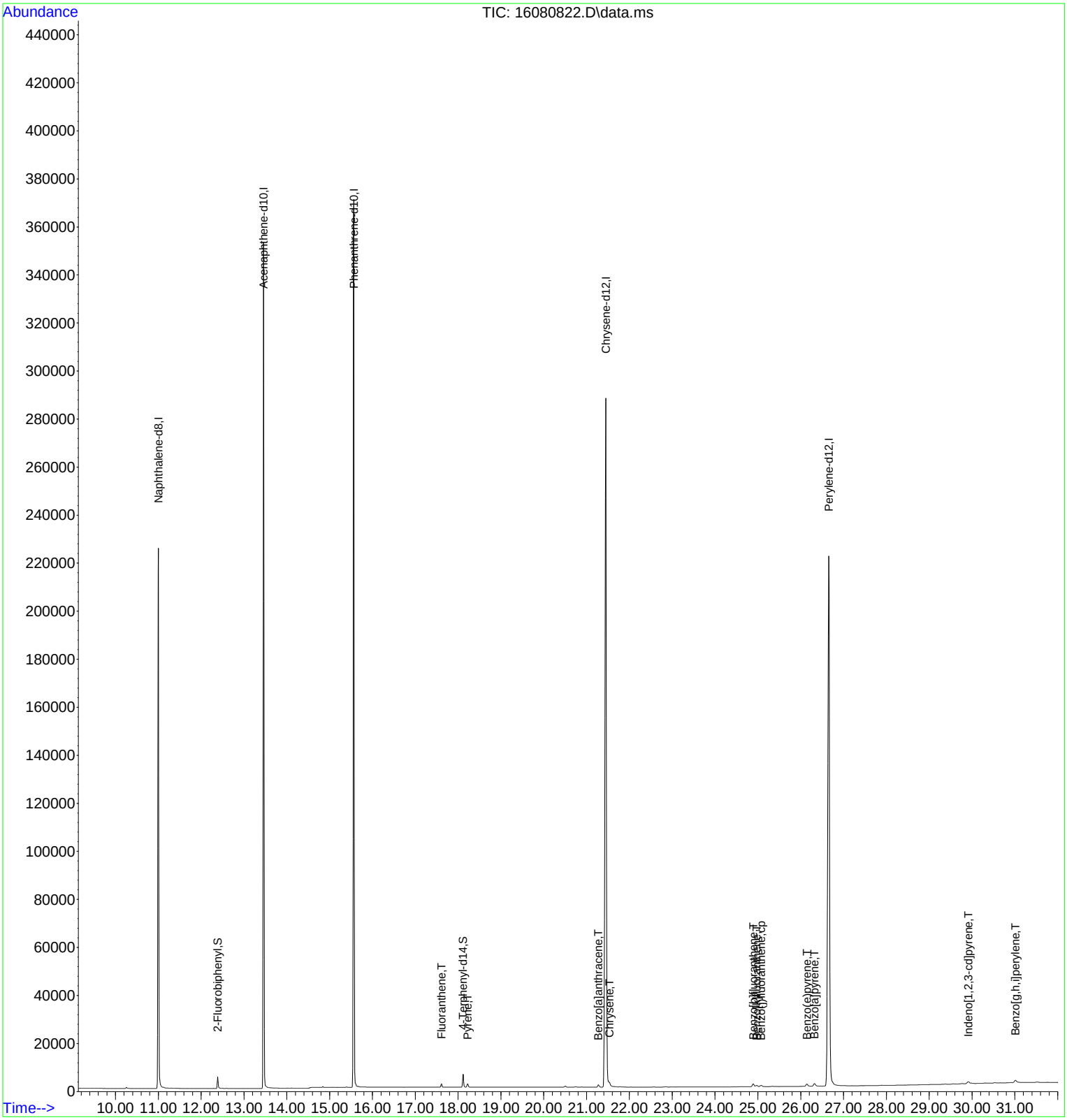
Target Compounds						Qvalue
14) Fluoranthene	17.610	202	1614	12.47	ug/kg	94
16) Pyrene	18.227	202	1732	13.38	ug/kg	94
18) Benzo[a]anthracene	21.274	228	1463	13.14	ug/kg	98
19) Chrysene	21.534	228	1941	18.42	ug/kg	99
21) Benzo[b]fluoranthene	24.889	252	2443	23.10	ug/kg	99
22) Benzo[k]fluoranthene	24.966	252	913	10.36	ug/kg	99
23) Benzo(j)fluoranthene	25.072	252	884	10.34	ug/kg	90
24) Benzo(e)pyrene	26.142	252	2082	19.78	ug/kg	92
25) Benzo[a]pyrene	26.325	252	2635	26.63	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.912	276	2097	17.08	ug/kg	89
28) Benzo[g,h,i]perylene	31.011	276	2532	23.23	ug/kg	97

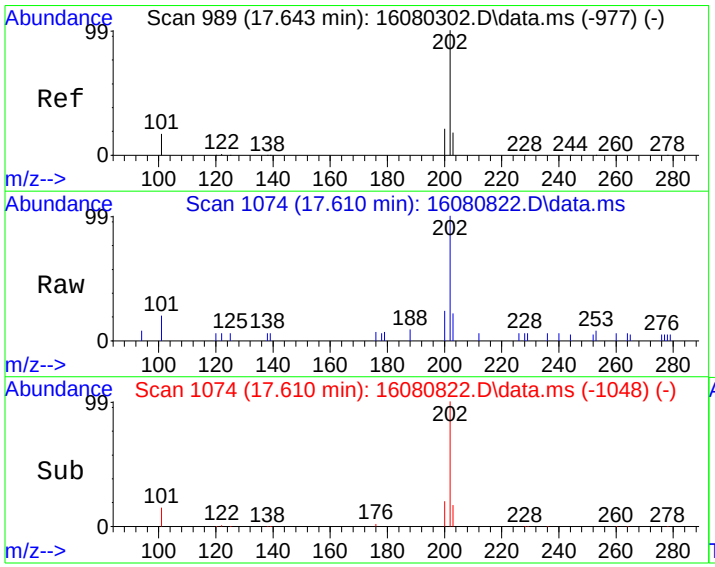
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080822.D
Acq On : 8 Aug 2016 9:56 pm
Operator :
Sample : 1607294-64A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 09 09:13:21 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

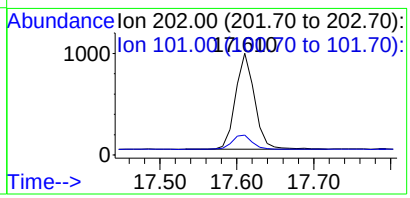


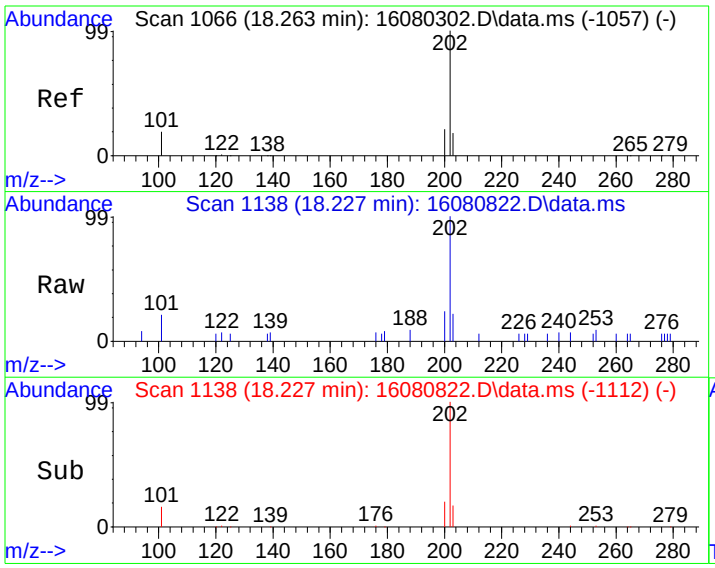


#14
Fluoranthene
Concen: 12.47 ug/kg
RT: 17.610 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:202 Resp: 1614

Ion	Ratio	Lower	Upper
202	100		
101	14.7	0.0	37.2

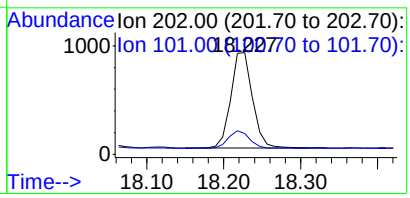


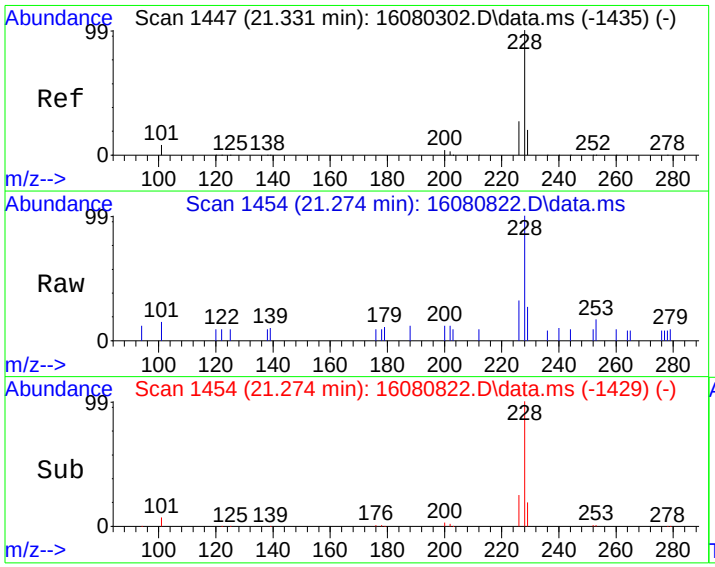


#16
Pyrene
Concen: 13.38 ug/kg
RT: 18.227 min Scan# 1138
Delta R.T. -0.001 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:202 Resp: 1732

Ion	Ratio	Lower	Upper
202	100		
101	15.5	0.0	38.0

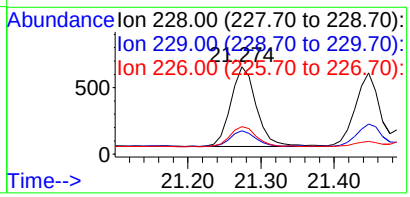


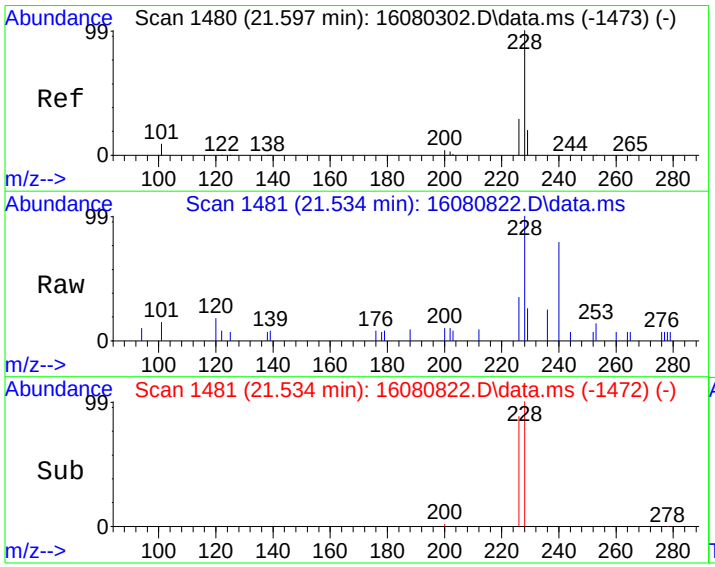


#18
Benzo[a]anthracene
Concen: 13.14 ug/kg
RT: 21.274 min Scan# 1454
Delta R.T. -0.011 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:228 Resp: 1463

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	39.9
226	25.4	6.7	46.7

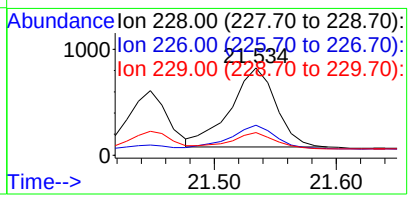


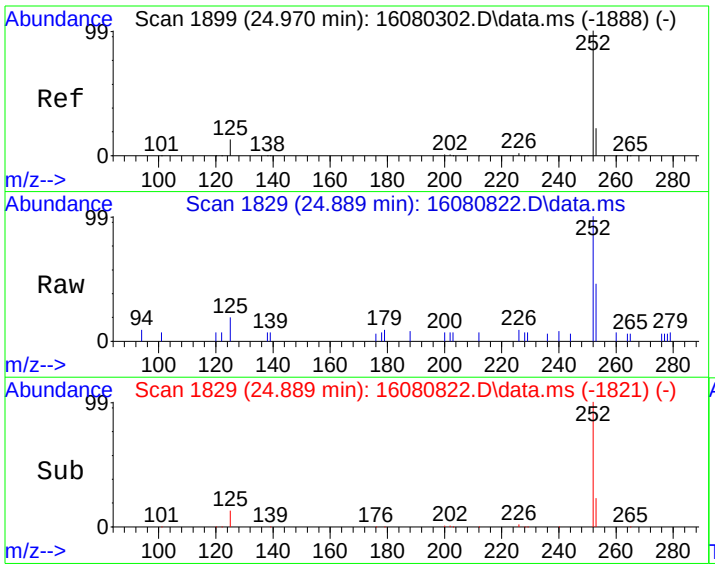


#19
Chrysene
Concen: 18.42 ug/kg
RT: 21.534 min Scan# 1481
Delta R.T. -0.011 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:228 Resp: 1941

Ion	Ratio	Lower	Upper
228	100		
226	29.7	9.3	49.3
229	20.5	0.0	39.8

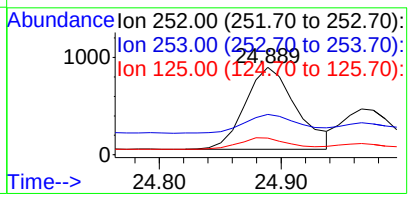


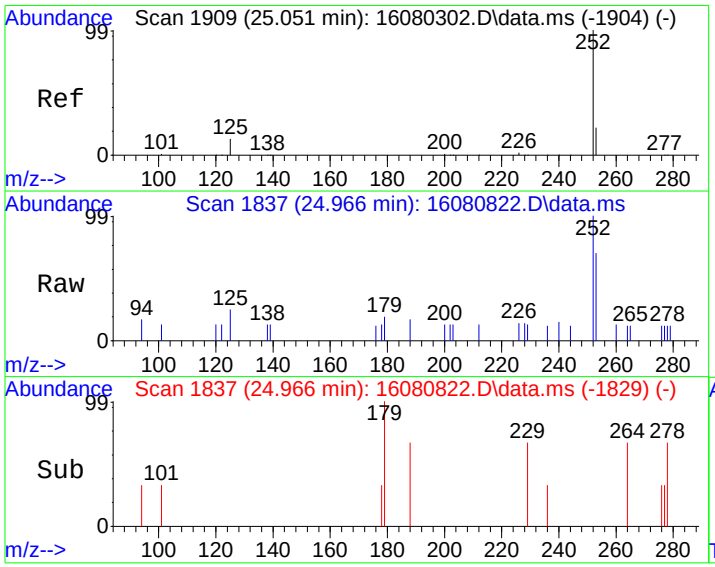


#21
Benzo[b]fluoranthene
Concen: 23.10 ug/kg
RT: 24.889 min Scan# 1829
Delta R.T. -0.021 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:252 Resp: 2443

Ion	Ratio	Lower	Upper
252	100		
253	22.7	1.9	41.9
125	13.5	0.0	33.2

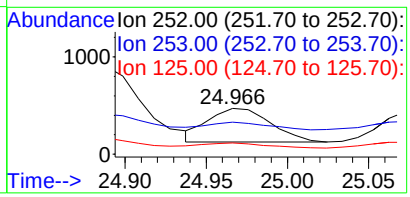


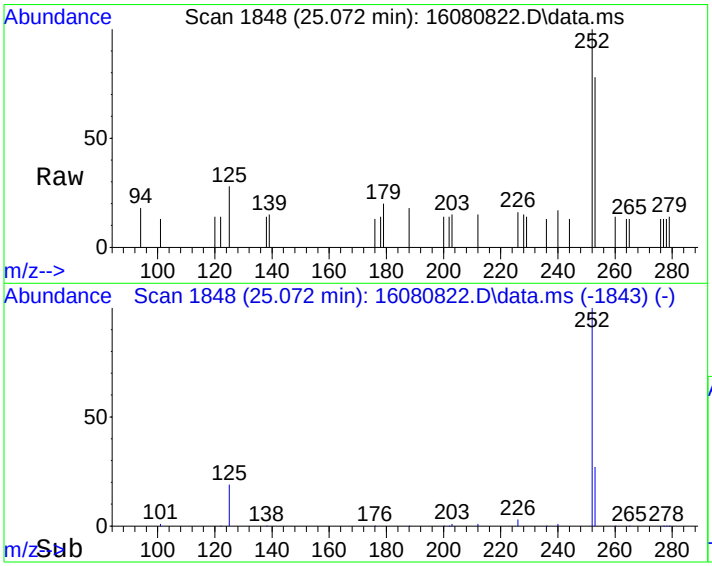


#22
Benzo[k]fluoranthene
Concen: 10.36 ug/kg
RT: 24.966 min Scan# 1837
Delta R.T. -0.021 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:252 Resp: 913

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.1	42.1
125	15.2	0.0	33.9

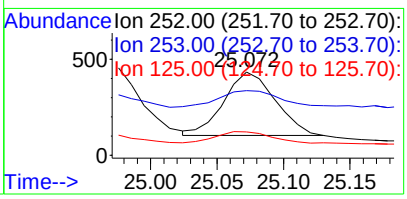


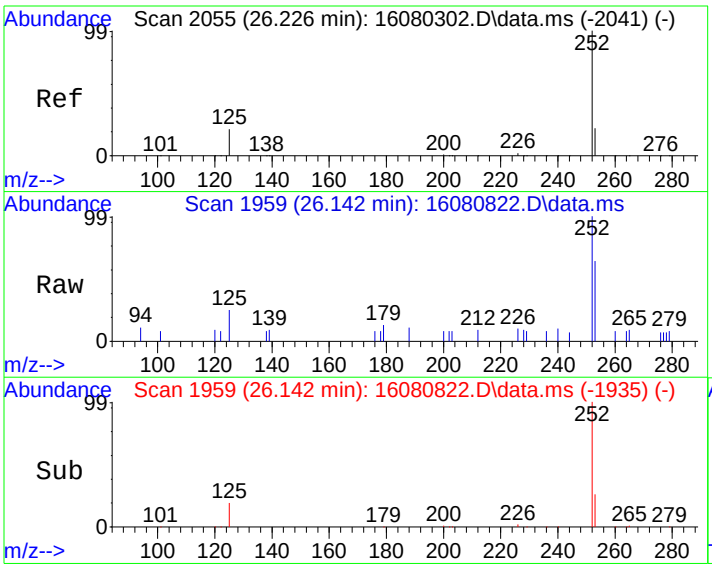


#23
Benzo(j)fluoranthene
Concen: 10.34 ug/kg
RT: 25.072 min Scan# 1848
Delta R.T. -0.021 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:252 Resp: 884

Ion	Ratio	Lower	Upper
252	100		
253	30.5	1.9	41.9
125	19.0	0.0	39.4

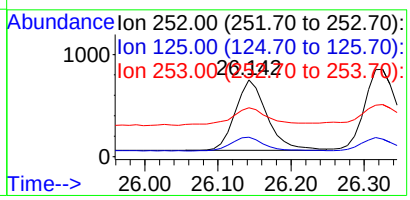


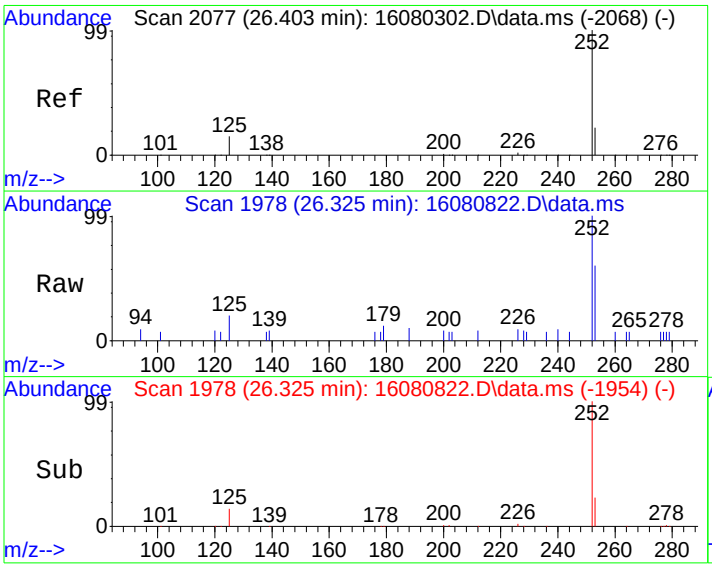


#24
Benzo(e)pyrene
Concen: 19.78 ug/kg
RT: 26.142 min Scan# 1959
Delta R.T. -0.021 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:252 Resp: 2082

Ion	Ratio	Lower	Upper
252	100		
125	20.2	0.5	40.5
253	29.3	2.1	42.1

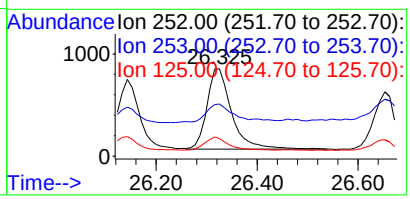


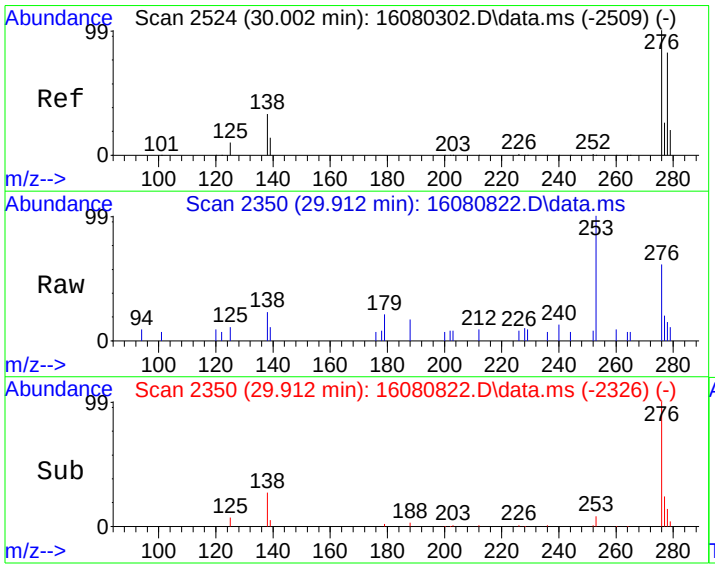


#25
Benzo[a]pyrene
Concen: 26.63 ug/kg
RT: 26.325 min Scan# 1978
Delta R.T. -0.021 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:252 Resp: 2635

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	14.5	0.0	33.5

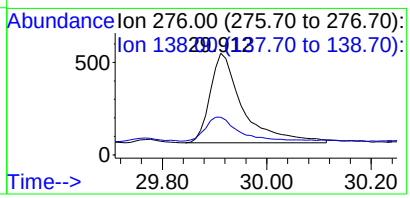


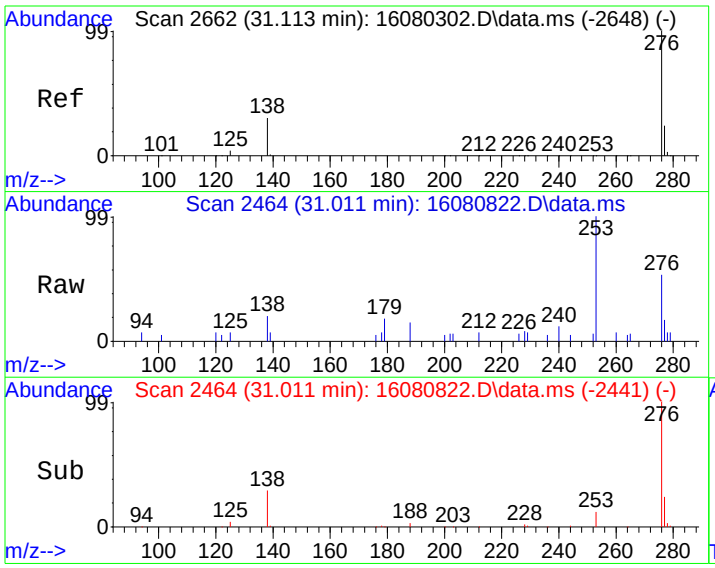


#26
Indeno[1,2,3-cd]pyrene
Concen: 17.08 ug/kg
RT: 29.912 min Scan# 2350
Delta R.T. -0.021 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:276 Resp: 2097

Ion	Ratio	Lower	Upper
276	100		
138	26.3	12.2	52.2

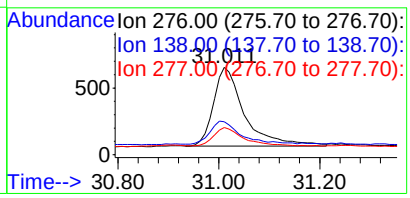




#28
Benzo[g,h,i]perylene
Concen: 23.23 ug/kg
RT: 31.011 min Scan# 2464
Delta R.T. -0.030 min
Lab File: 16080822.D
Acq: 8 Aug 2016 9:56 pm

Tgt Ion:276 Resp: 2532

Ion	Ratio	Lower	Upper
276	100		
138	28.6	6.9	46.9
277	23.1	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080823.D
Acq On : 8 Aug 2016 10:36 pm
Operator :
Sample : 1607294-65A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 09 09:13:28 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	291382	4000.00	ug/kg	110
6) Acenaphthene-d10	13.455	164	188914	4000.00	ug/kg	116
11) Phenanthrene-d10	15.559	188	487127	4000.00	ug/kg	95
17) Chrysene-d12	21.449	240	433244	4000.00	ug/kg	94
20) Perylene-d12	26.655	264	405661	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	4748	73.25	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.83%#		
15) 4-Terphenyl-d14	18.113	244	6462	75.45	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.89%#		

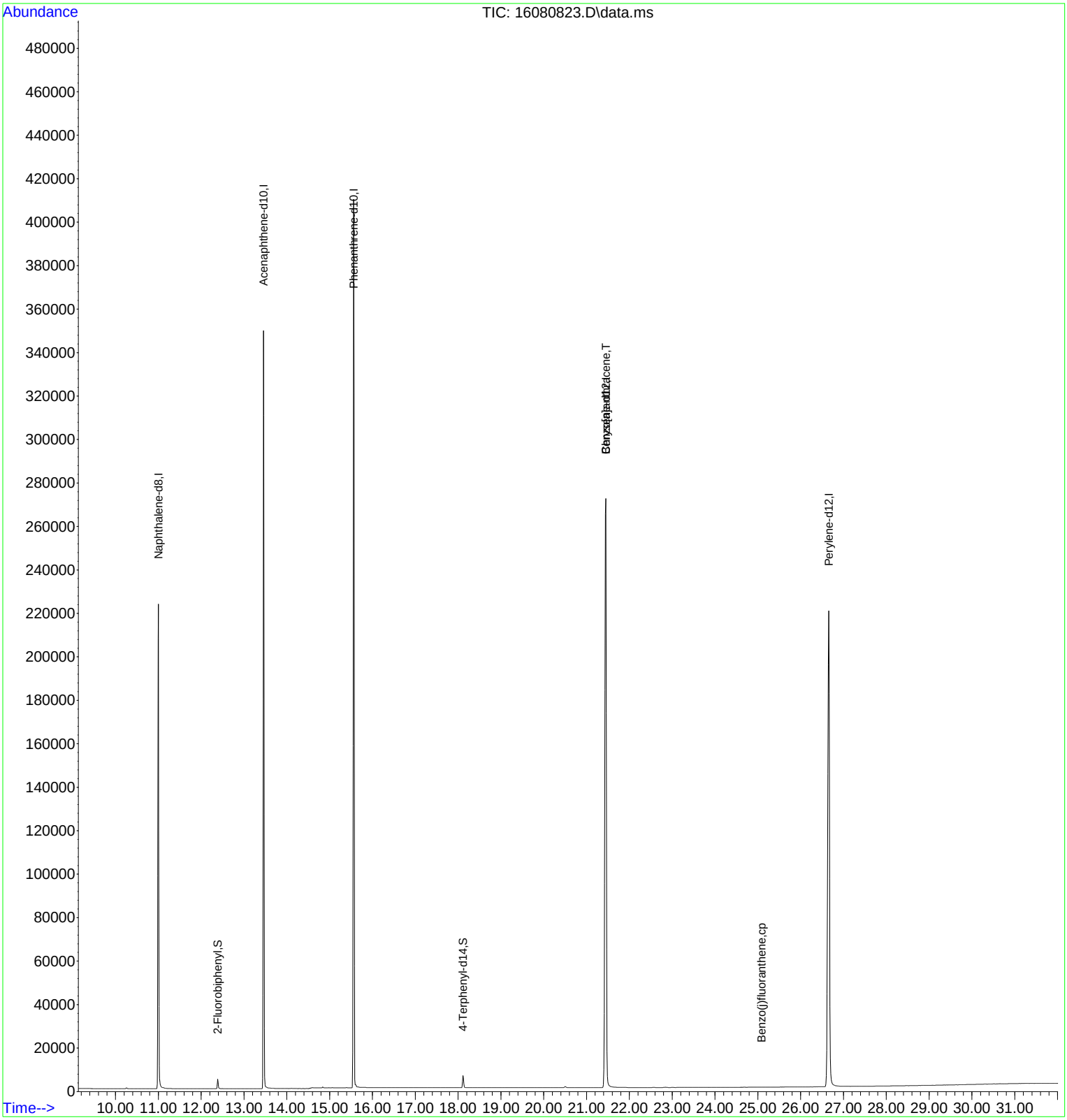
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.449	228	1181	10.82	ug/kg	71
23) Benzo(j)fluoranthene	25.074	252	12	0.14	ug/kg#	1

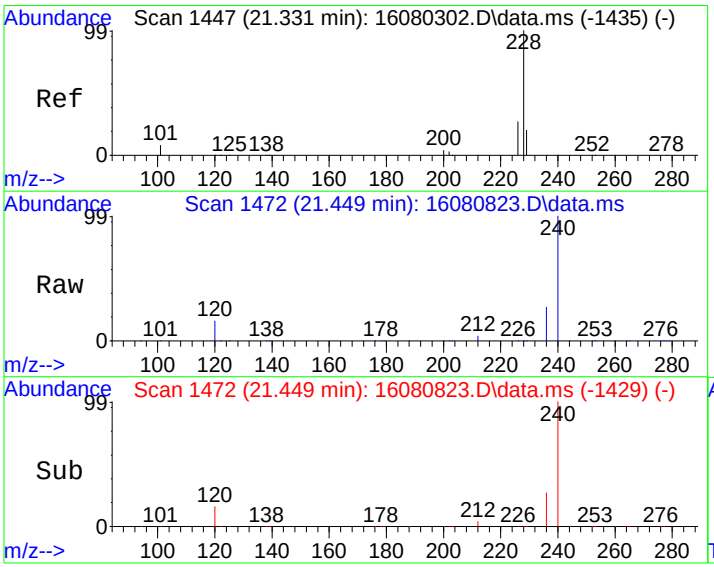
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080823.D
Acq On : 8 Aug 2016 10:36 pm
Operator :
Sample : 1607294-65A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 09 09:13:28 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

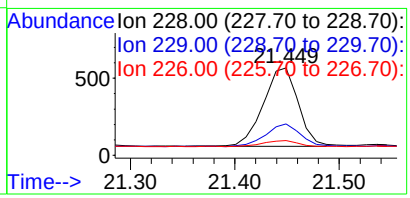


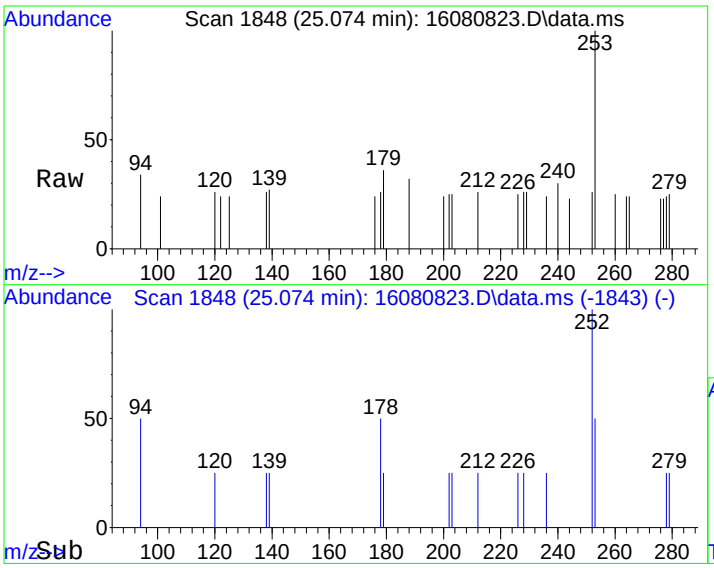


#18
Benzo[a]anthracene
Concen: 10.82 ug/kg
RT: 21.449 min Scan# 1472
Delta R.T. 0.164 min
Lab File: 16080823.D
Acq: 8 Aug 2016 10:36 pm

Tgt Ion:228 Resp: 1181

Ion	Ratio	Lower	Upper
228	100		
229	28.9	0.0	39.9
226	7.9	6.7	46.7

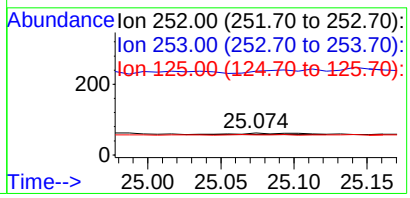




#23
Benzo(j)fluoranthene
Concen: 0.14 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080823.D
Acq: 8 Aug 2016 10:36 pm

Tgt Ion:252 Resp: 12

Ion	Ratio	Lower	Upper
252	100		
253	150.0	1.9	41.9#
125	25.0	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080824.D
Acq On : 8 Aug 2016 11:15 pm
Operator :
Sample : 1607294-46A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 09 09:13:32 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	11.000	136	288787	4000.00	ug/kg	109
6) Acenaphthene-d10	13.454	164	185861	4000.00	ug/kg	115
11) Phenanthrene-d10	15.558	188	466333	4000.00	ug/kg	91
17) Chrysene-d12	21.449	240	431605	4000.00	ug/kg	93
20) Perylene-d12	26.655	264	403727	4000.00	ug/kg	96

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	4786	74.50	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.86%#			
15) 4-Terphenyl-d14	18.113	244	6378	77.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.94%#			

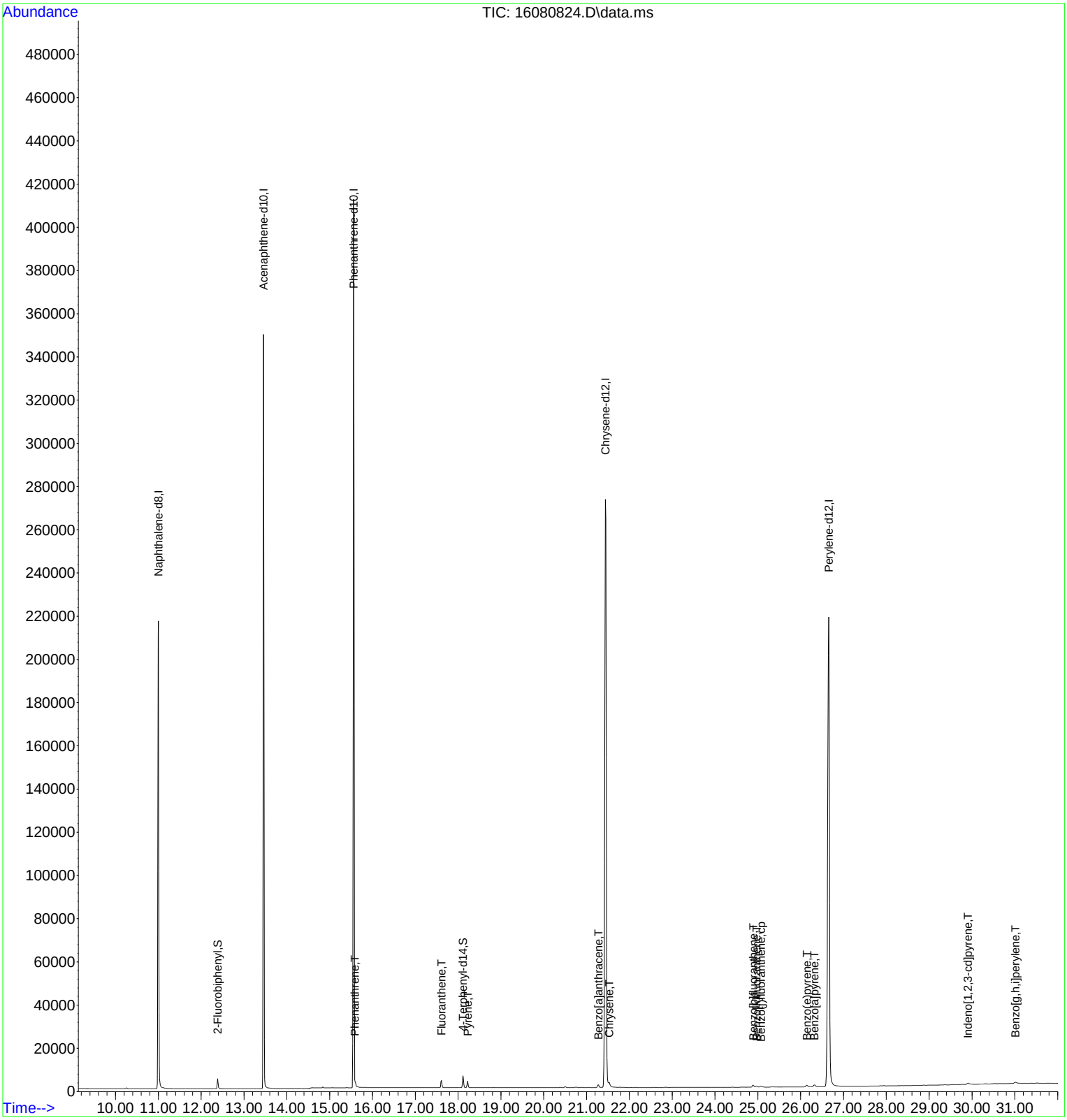
Target Compounds						Qvalue
12) Phenanthrene	15.597	178	1614	10.92	ug/kg	99
14) Fluoranthene	17.612	202	3859	30.49	ug/kg	90
16) Pyrene	18.219	202	3481	27.51	ug/kg	99
18) Benzo[a]anthracene	21.275	228	1935	17.80	ug/kg	99
19) Chrysene	21.526	228	2238	21.75	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	1945	19.00	ug/kg	99
22) Benzo[k]fluoranthene	24.968	252	827	9.70	ug/kg	91
23) Benzo(j)fluoranthene	25.074	252	781	9.44	ug/kg	83
24) Benzo(e)pyrene	26.144	252	1629	15.99	ug/kg	89
25) Benzo[a]pyrene	26.327	252	2026	21.15	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.913	276	1546	13.01	ug/kg	87
28) Benzo[g,h,i]perylene	31.012	276	1811	17.17	ug/kg	99

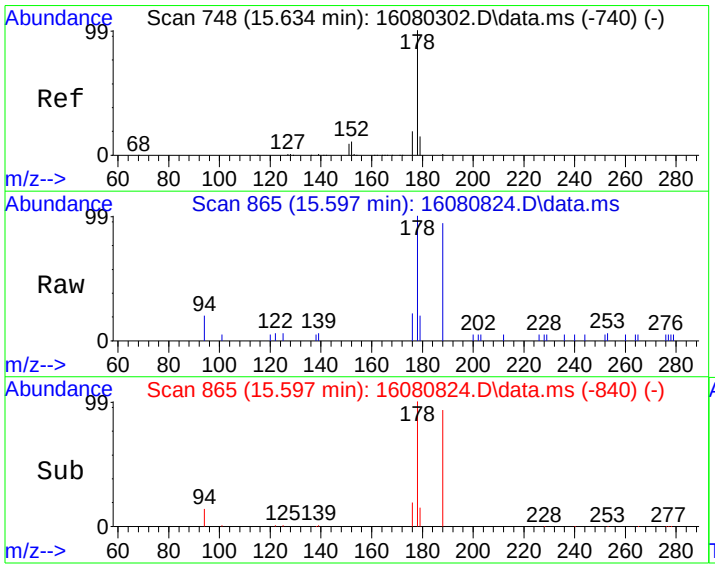
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080824.D
Acq On : 8 Aug 2016 11:15 pm
Operator :
Sample : 1607294-46A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 09 09:13:32 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

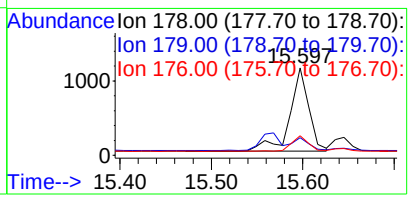


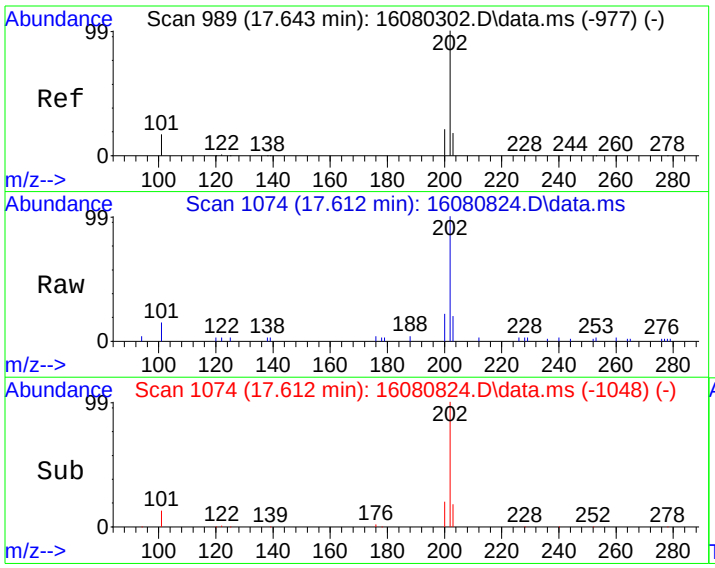


#12
Phenanthrene
Concen: 10.92 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:178 Resp: 1614

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	35.7
176	18.4	0.0	38.8

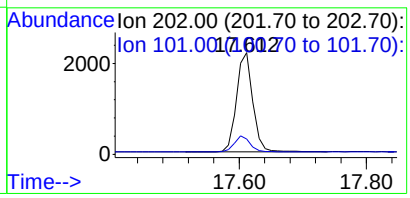


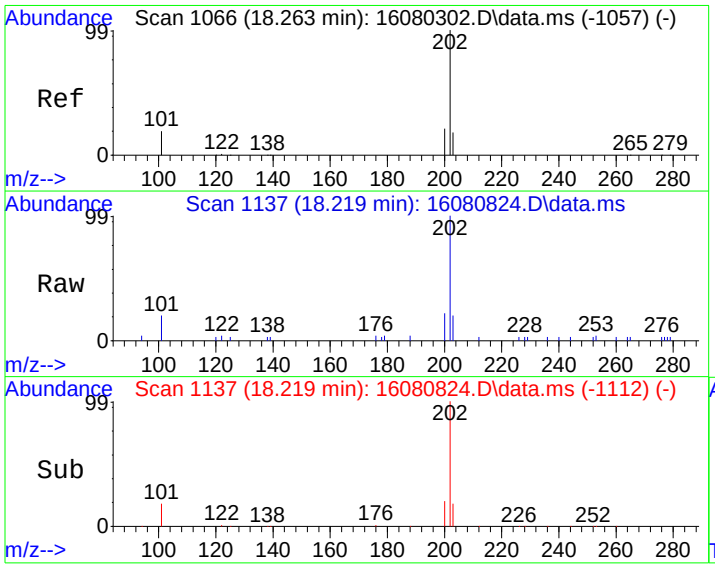


#14
Fluoranthene
Concen: 30.49 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.000 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:202 Resp: 3859

Ion	Ratio	Lower	Upper
202	100		
101	13.0	0.0	37.2

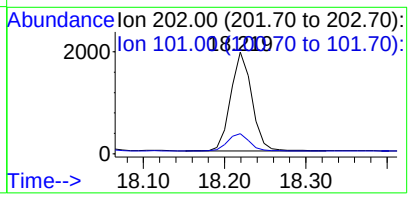


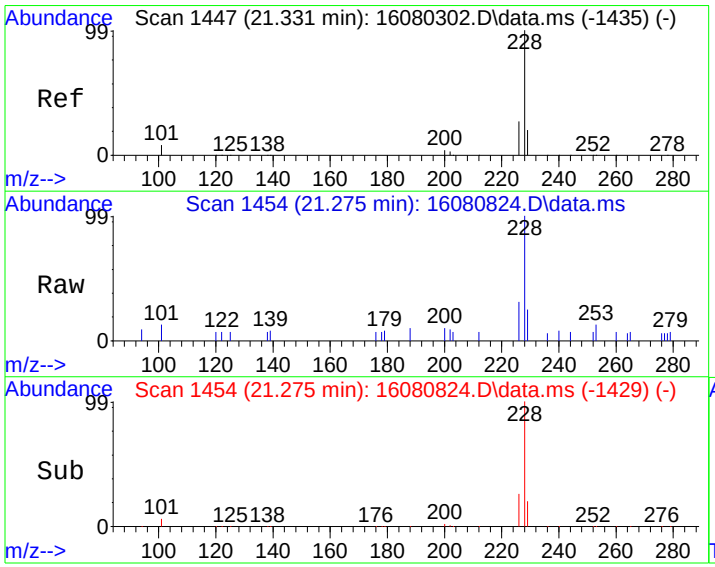


#16
Pyrene
Concen: 27.51 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:202 Resp: 3481

Ion	Ratio	Lower	Upper
202	100		
101	17.6	0.0	38.0

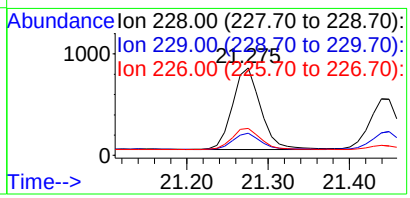


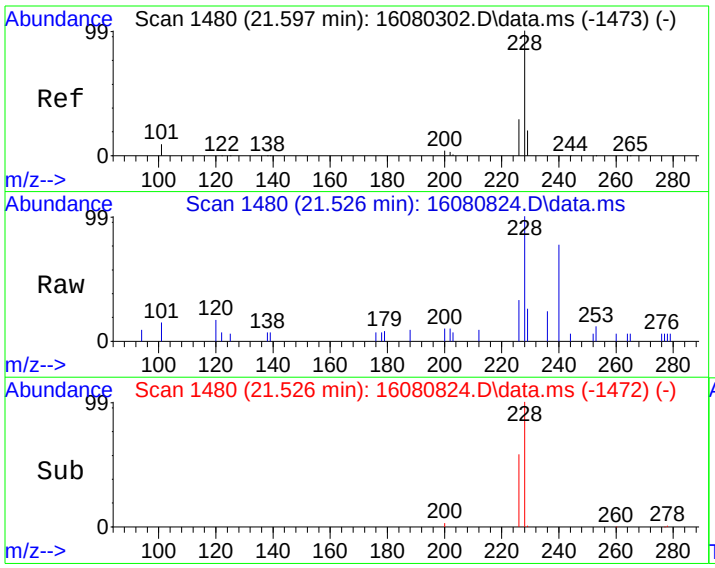


#18
Benzo[a]anthracene
Concen: 17.80 ug/kg
RT: 21.275 min Scan# 1454
Delta R.T. -0.009 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:228 Resp: 1935

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	39.9
226	25.7	6.7	46.7

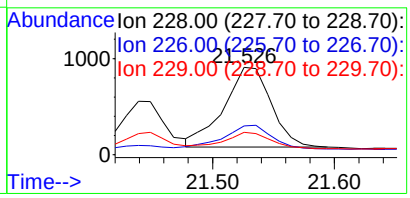


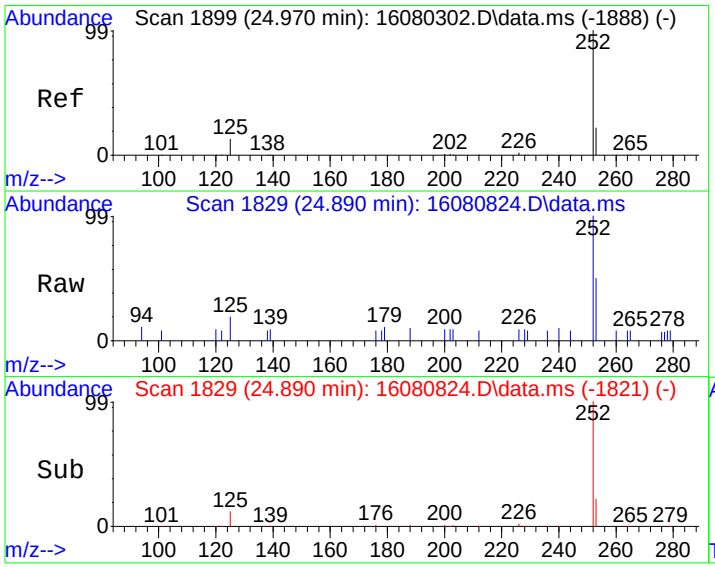


#19
Chrysene
Concen: 21.75 ug/kg
RT: 21.526 min Scan# 1480
Delta R.T. -0.019 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:228 Resp: 2238

Ion	Ratio	Lower	Upper
228	100		
226	29.0	9.3	49.3
229	20.5	0.0	39.8

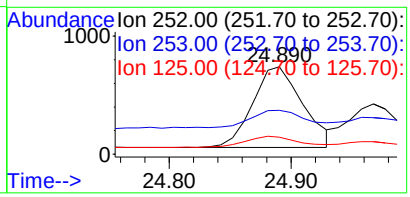


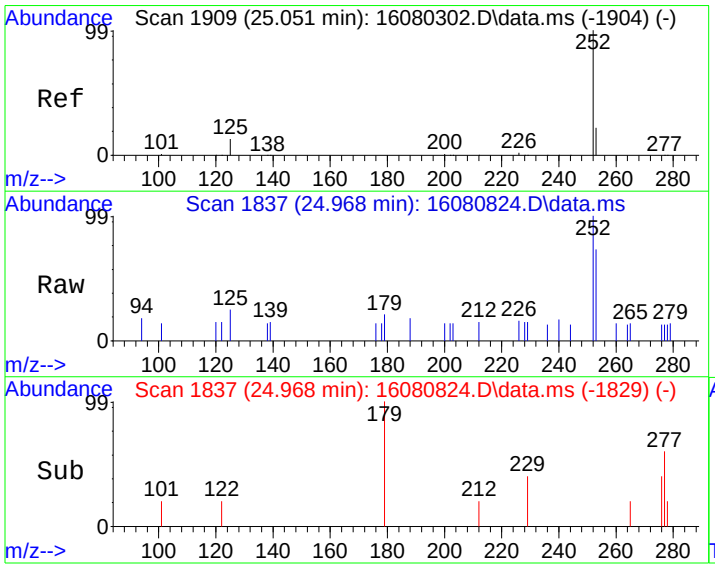


#21
Benzo[b]fluoranthene
Concen: 19.00 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:252 Resp: 1945

Ion	Ratio	Lower	Upper
252	100		
253	21.6	1.9	41.9
125	12.3	0.0	33.2

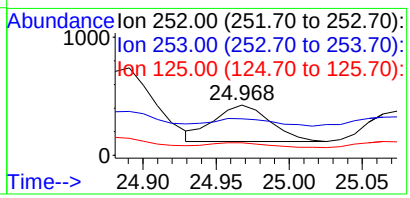


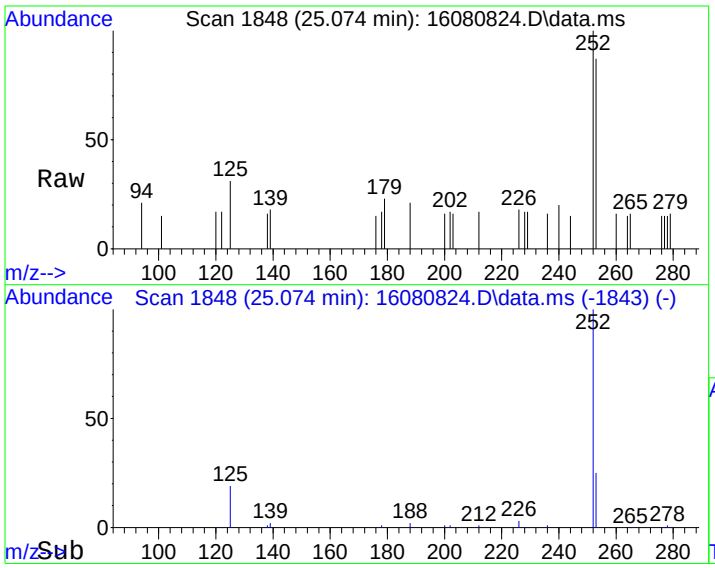


#22
Benzo[k]fluoranthene
Concen: 9.70 ug/kg
RT: 24.968 min Scan# 1837
Delta R.T. -0.019 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:252 Resp: 827

Ion	Ratio	Lower	Upper
252	100		
253	15.9	2.1	42.1
125	13.0	0.0	33.9

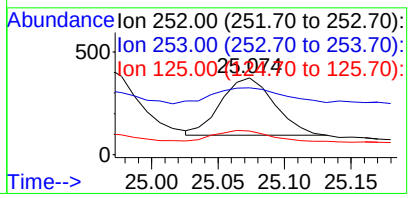


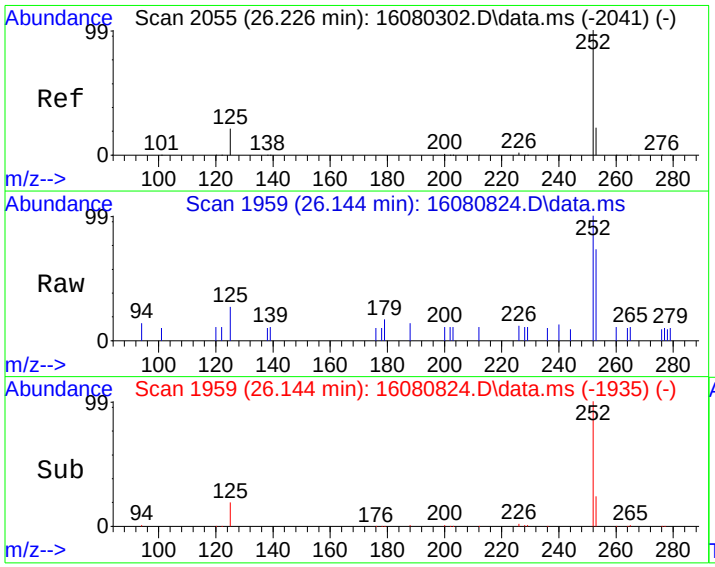


#23
Benzo(j)fluoranthene
Concen: 9.44 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:252 Resp: 781

Ion	Ratio	Lower	Upper
252	100		
253	36.5	1.9	41.9
125	18.8	0.0	39.4

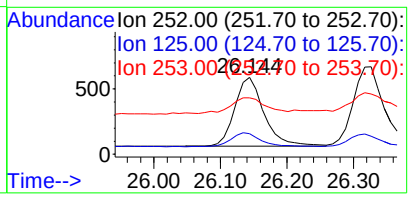


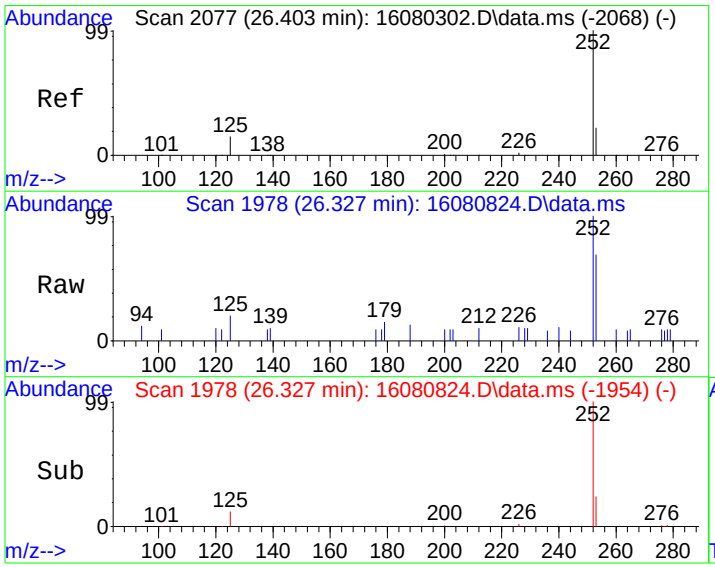


#24
Benzo(e)pyrene
Concen: 15.99 ug/kg
RT: 26.144 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:252 Resp: 1629

Ion	Ratio	Lower	Upper
252	100		
125	20.7	0.5	40.5
253	32.1	2.1	42.1

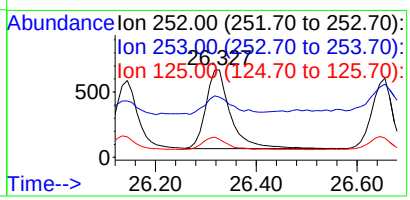


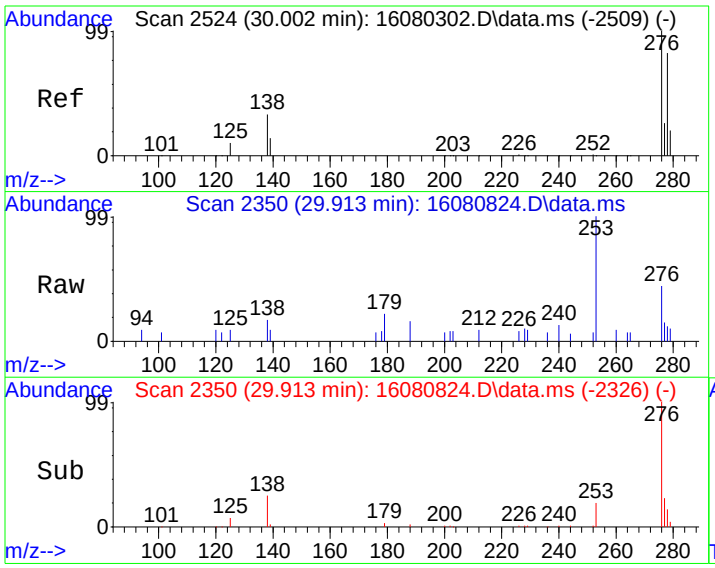


#25
Benzo[a]pyrene
Concen: 21.15 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:252 Resp: 2026

Ion	Ratio	Lower	Upper
252	100		
253	20.9	1.9	41.9
125	12.6	0.0	33.5

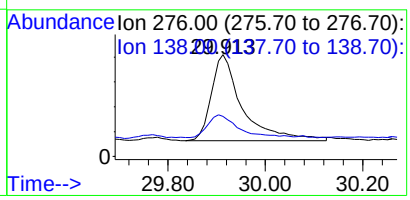


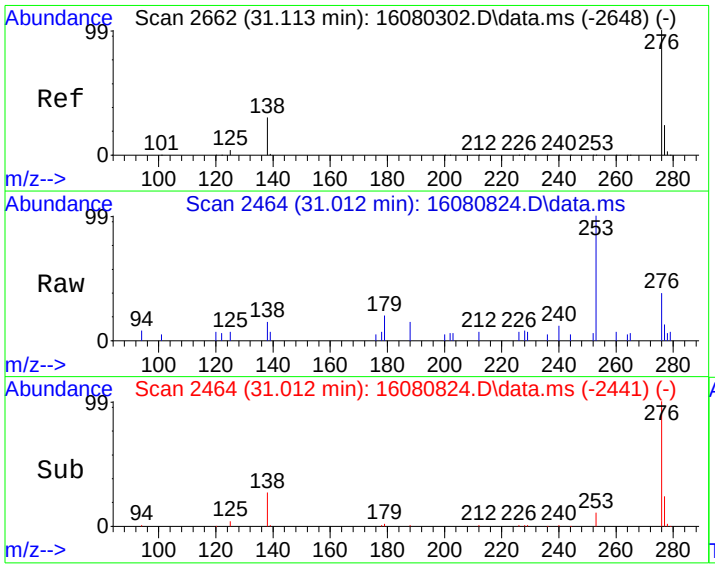


#26
Indeno[1,2,3-cd]pyrene
Concen: 13.01 ug/kg
RT: 29.913 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:276 Resp: 1546

Ion	Ratio	Lower	Upper
276	100		
138	24.8	12.2	52.2

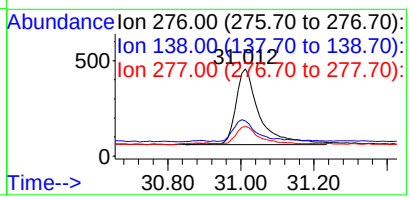




#28
Benzo[g,h,i]perylene
Concen: 17.17 ug/kg
RT: 31.012 min Scan# 2464
Delta R.T. -0.029 min
Lab File: 16080824.D
Acq: 8 Aug 2016 11:15 pm

Tgt Ion:276 Resp: 1811

Ion	Ratio	Lower	Upper
276	100		
138	27.1	6.9	46.9
277	22.6	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080825.D
Acq On : 8 Aug 2016 11:54 pm
Operator :
Sample : 1607294-55A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 09 09:13:40 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	10.994	136	299178	4000.00	ug/kg	113
6) Acenaphthene-d10	13.455	164	188041	4000.00	ug/kg	116
11) Phenanthrene-d10	15.557	188	485346	4000.00	ug/kg	94
17) Chrysene-d12	21.448	240	448944	4000.00	ug/kg	97
20) Perylene-d12	26.654	264	414486	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5051	75.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.90%#			
15) 4-Terphenyl-d14	18.112	244	6932	81.24	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.03%#			

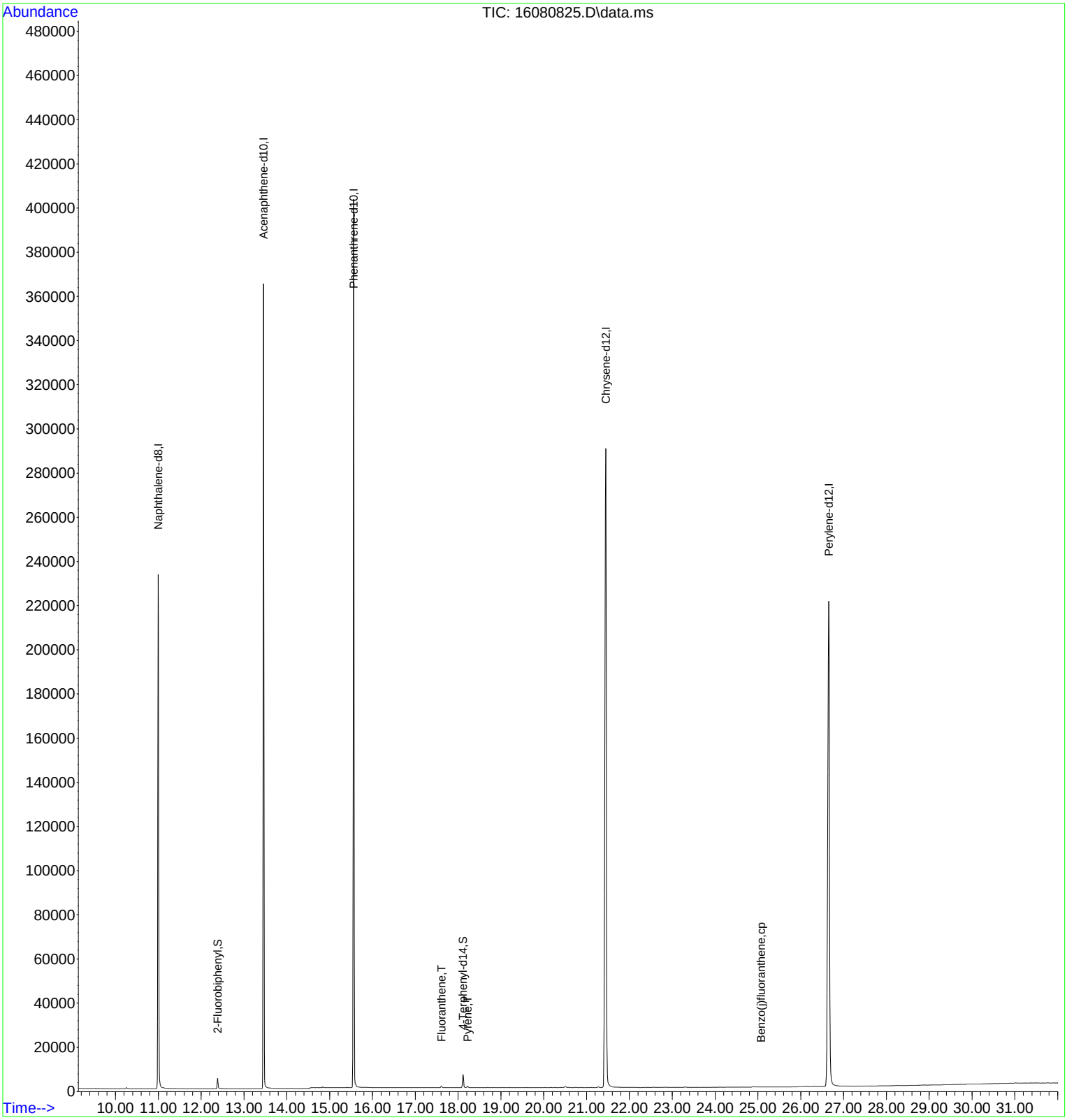
Target Compounds						Qvalue
14) Fluoranthene	17.611	202	716	5.44	ug/kg	93
16) Pyrene	18.218	202	662	5.03	ug/kg	95
23) Benzo(j)fluoranthene	25.073	252	183	2.15	ug/kg#	76

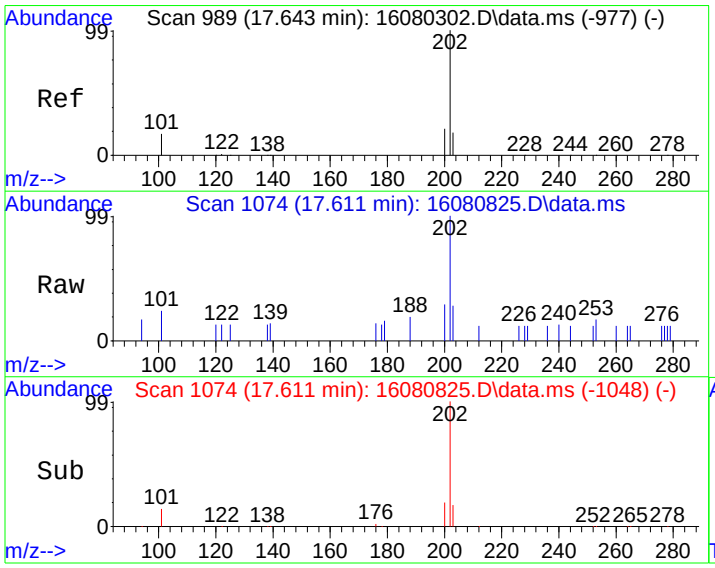
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080825.D
Acq On : 8 Aug 2016 11:54 pm
Operator :
Sample : 1607294-55A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 09 09:13:40 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

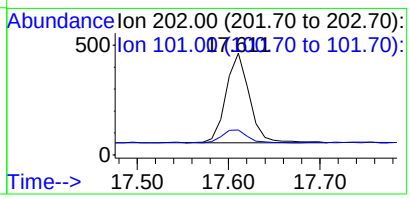


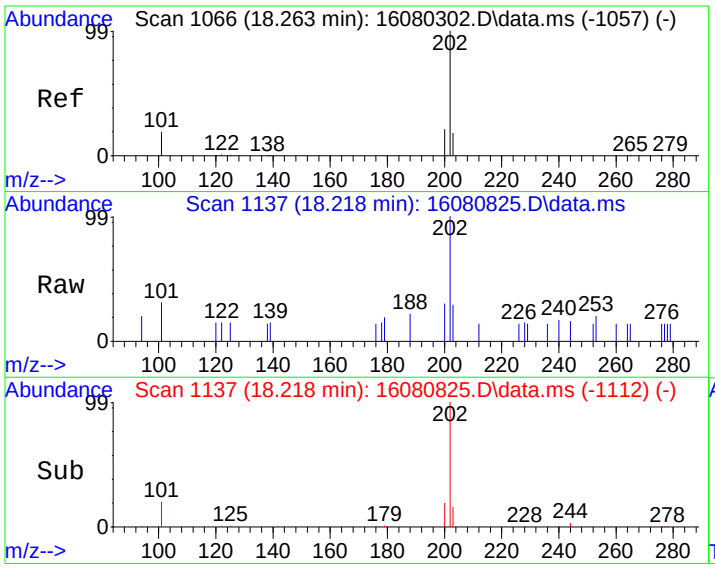


#14
Fluoranthene
Concen: 5.44 ug/kg
RT: 17.611 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080825.D
Acq: 8 Aug 2016 11:54 pm

Tgt Ion:202 Resp: 716

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	37.2

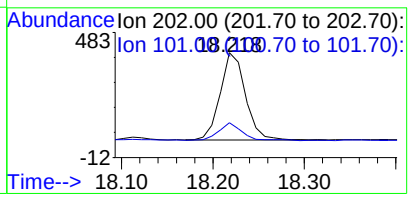


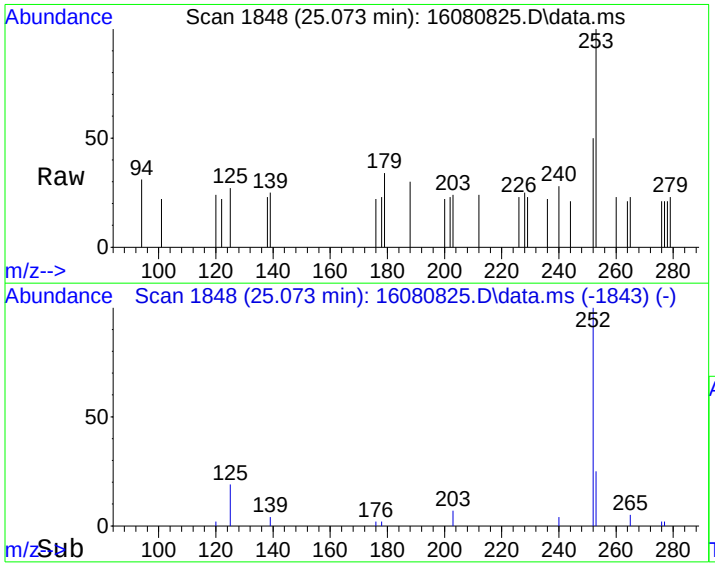


#16
Pyrene
Concen: 5.03 ug/kg
RT: 18.218 min Scan# 1137
Delta R.T. -0.011 min
Lab File: 16080825.D
Acq: 8 Aug 2016 11:54 pm

Tgt Ion:202 Resp: 662

Ion	Ratio	Lower	Upper
202	100		
101	20.2	0.0	38.0

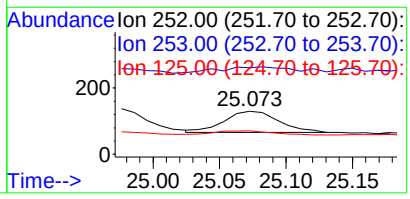




#23
Benzo(j)fluoranthene
Concen: 2.15 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080825.D
Acq: 8 Aug 2016 11:54 pm

Tgt Ion:252 Resp: 183

Ion	Ratio	Lower	Upper
252	100		
253	42.1	1.9	41.9#
125	20.8	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080826.D
Acq On : 9 Aug 2016 12:34 am
Operator :
Sample : 1607294-44A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 09 09:13:45 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	288039	4000.00	ug/kg	109
6) Acenaphthene-d10	13.457	164	195790	4000.00	ug/kg	121
11) Phenanthrene-d10	15.559	188	500738	4000.00	ug/kg	97
17) Chrysene-d12	21.449	240	437769	4000.00	ug/kg	95
20) Perylene-d12	26.655	264	417770	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	5184	80.90	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.02%#			
15) 4-Terphenyl-d14	18.113	244	6902	78.40	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.96%#			

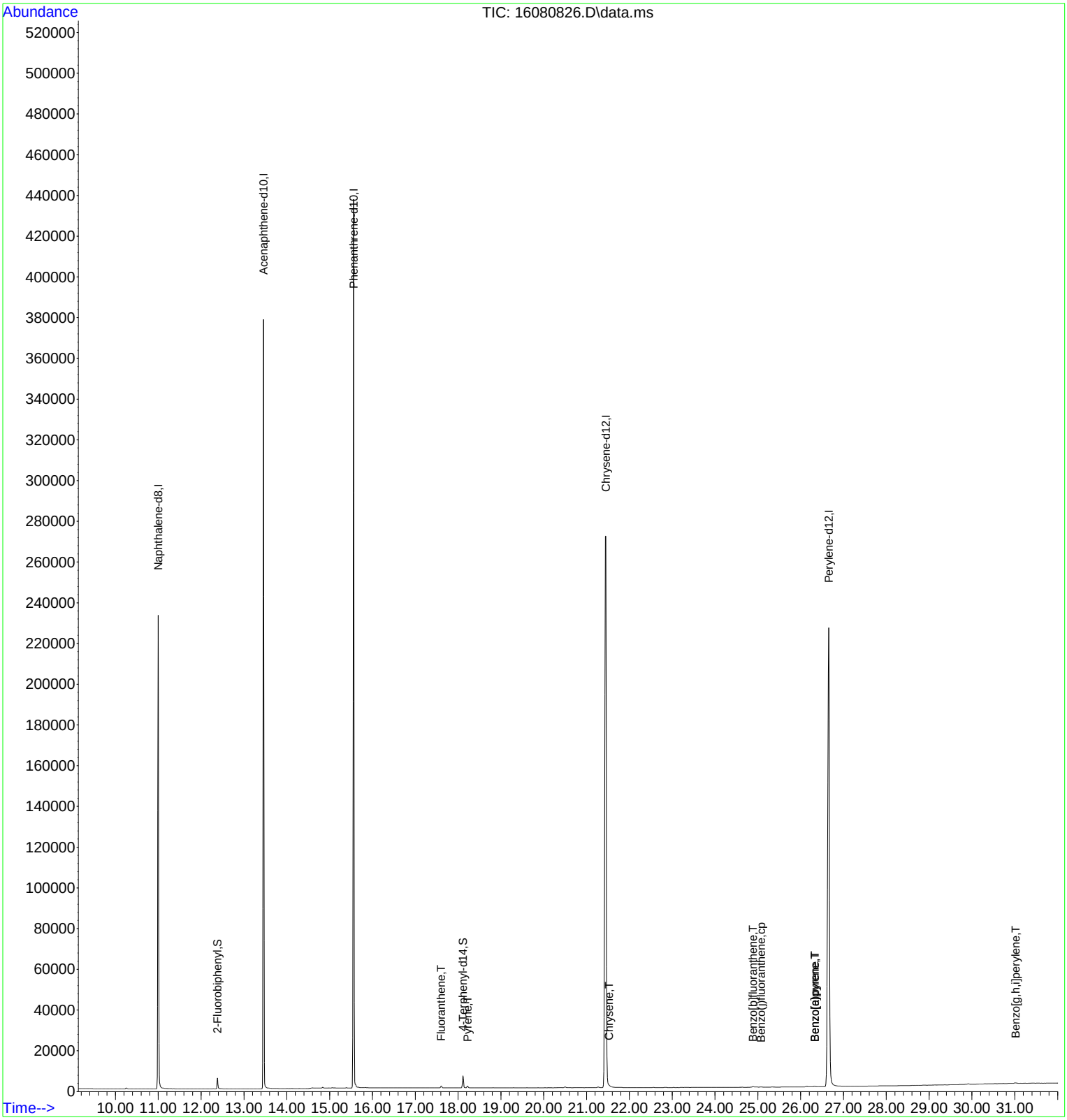
Target Compounds						Qvalue
14) Fluoranthene	17.612	202	1088	8.00	ug/kg	89
16) Pyrene	18.219	202	964	7.09	ug/kg	99
19) Chrysene	21.536	228	641	6.14	ug/kg	99
21) Benzo[b]fluoranthene	24.891	252	689	6.50	ug/kg	97
23) Benzo(j)fluoranthene	25.074	252	260	3.04	ug/kg	80
24) Benzo(e)pyrene	26.317	252	574	5.45	ug/kg	94
25) Benzo[a]pyrene	26.317	252	644	6.50	ug/kg	97
28) Benzo[g,h,i]perylene	31.012	276	725	6.64	ug/kg	97

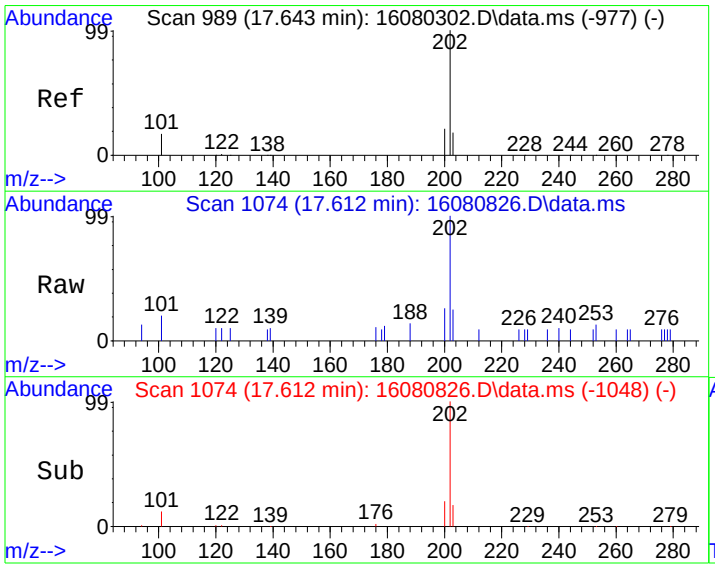
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080826.D
Acq On : 9 Aug 2016 12:34 am
Operator :
Sample : 1607294-44A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 09 09:13:45 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

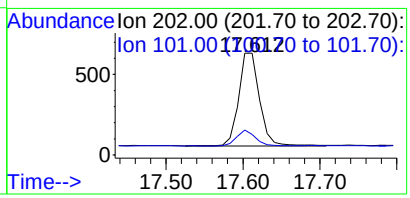


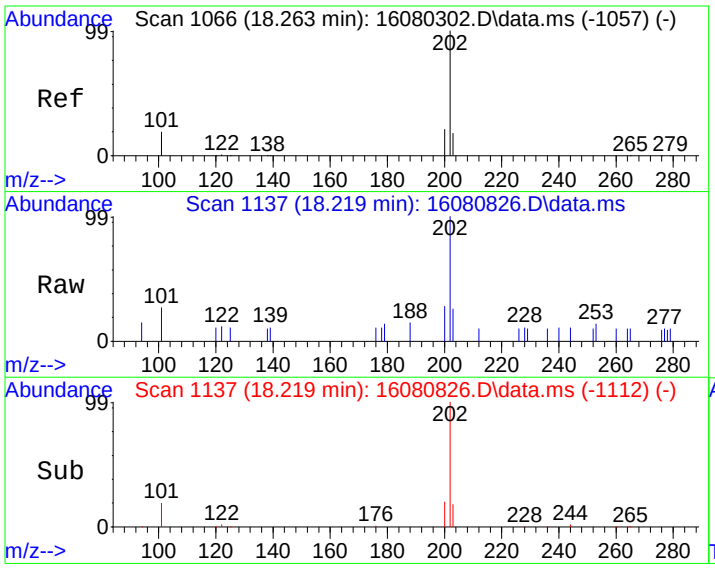


#14
Fluoranthene
Concen: 8.00 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. 0.000 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:202 Resp: 1088

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	37.2

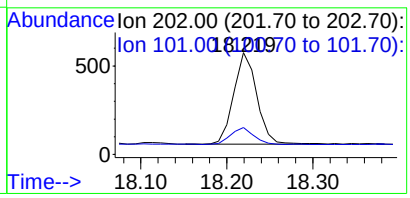


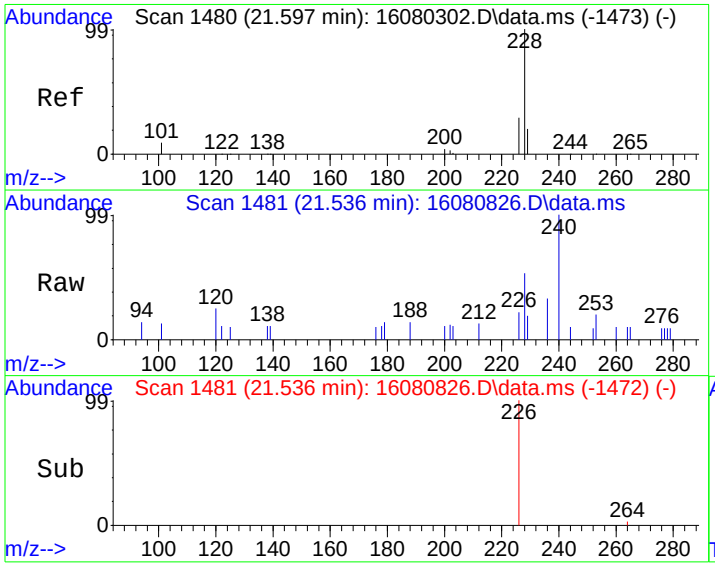


#16
Pyrene
Concen: 7.09 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.009 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:202 Resp: 964

Ion	Ratio	Lower	Upper
202	100		
101	18.6	0.0	38.0

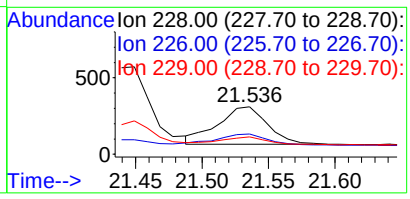


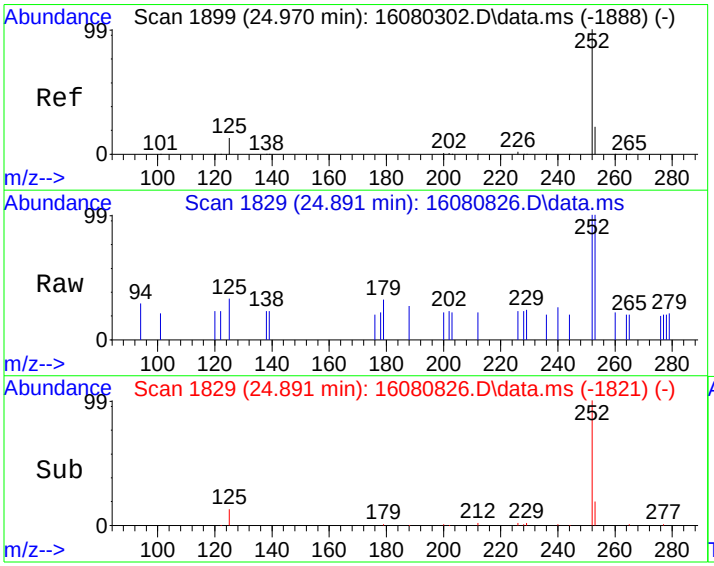


#19
Chrysene
Concen: 6.14 ug/kg
RT: 21.536 min Scan# 1481
Delta R.T. -0.009 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:228 Resp: 641

Ion	Ratio	Lower	Upper
228	100		
226	29.0	9.3	49.3
229	20.8	0.0	39.8

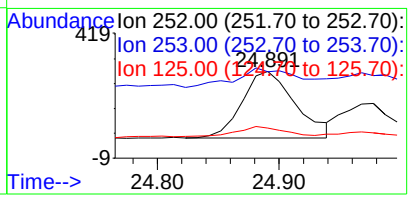


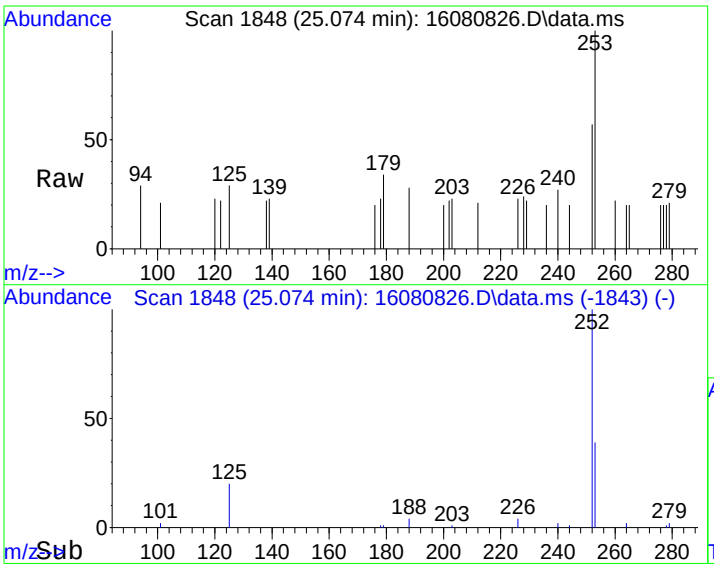


#21
Benzo[b]fluoranthene
Concen: 6.50 ug/kg
RT: 24.891 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:252 Resp: 689

Ion	Ratio	Lower	Upper
252	100		
253	23.7	1.9	41.9
125	12.7	0.0	33.2

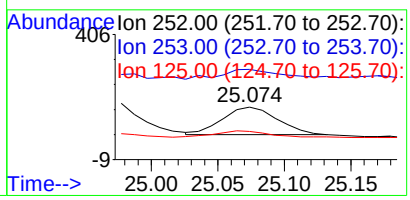


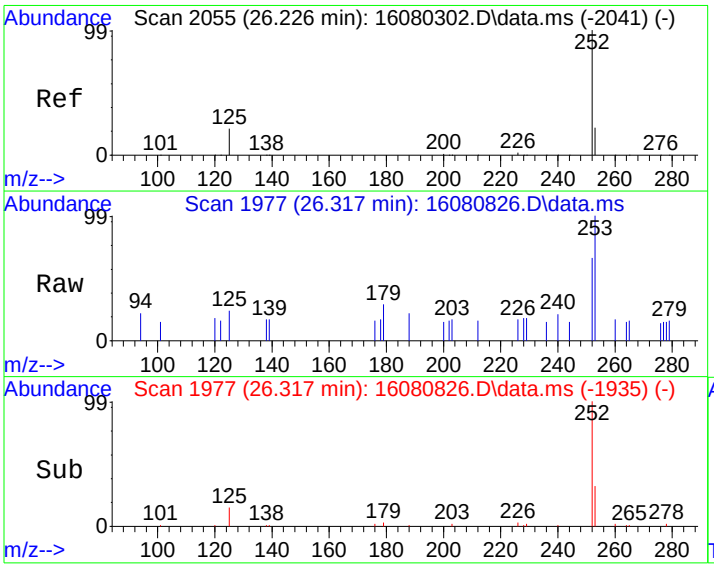


#23
Benzo(j)fluoranthene
Concen: 3.04 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:252 Resp: 260

Ion	Ratio	Lower	Upper
252	100		
253	37.7	1.9	41.9
125	21.5	0.0	39.4

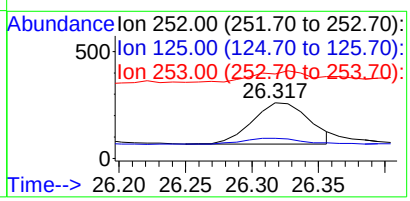


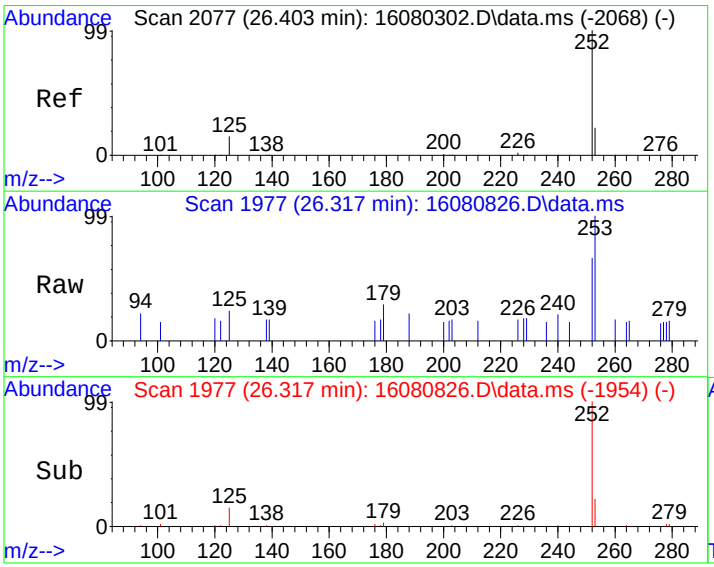


#24
Benzo(e)pyrene
Concen: 5.45 ug/kg
RT: 26.317 min Scan# 1977
Delta R.T. 0.155 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:252 Resp: 574

Ion	Ratio	Lower	Upper
252	100		
125	15.5	0.5	40.5
253	22.6	2.1	42.1

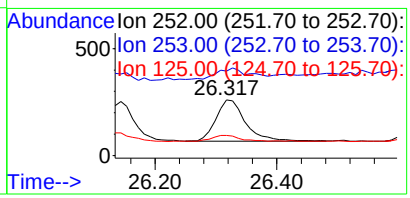


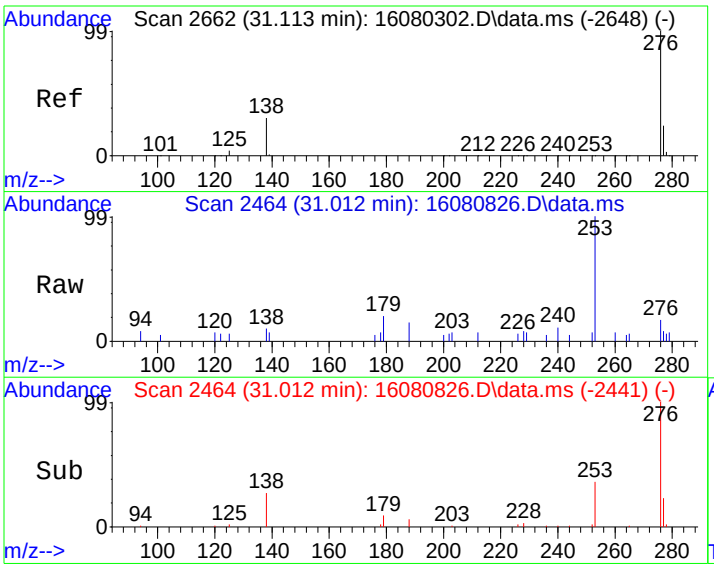


#25
Benzo[a]pyrene
Concen: 6.50 ug/kg
RT: 26.317 min Scan# 1977
Delta R.T. -0.029 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:252 Resp: 644

Ion	Ratio	Lower	Upper
252	100		
253	20.2	1.9	41.9
125	14.0	0.0	33.5

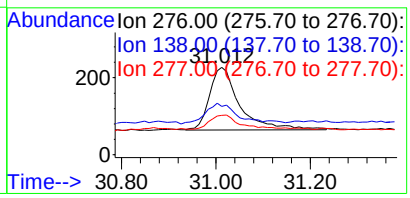




#28
Benzo[g,h,i]perylene
Concen: 6.64 ug/kg
RT: 31.012 min Scan# 2464
Delta R.T. -0.029 min
Lab File: 16080826.D
Acq: 9 Aug 2016 12:34 am

Tgt Ion:276 Resp: 725

Ion	Ratio	Lower	Upper
276	100		
138	25.9	6.9	46.9
277	21.6	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080827.D
Acq On : 9 Aug 2016 1:14 am
Operator :
Sample : 1607294-47A
Misc : SAMP
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 09 09:13:51 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	10.996	136	323646	4000.00	ug/kg	122
6) Acenaphthene-d10	13.457	164	225936	4000.00	ug/kg	139
11) Phenanthrene-d10	15.558	188	487882	4000.00	ug/kg	95
17) Chrysene-d12	21.448	240	461732	4000.00	ug/kg	100
20) Perylene-d12	26.654	264	463227	4000.00	ug/kg	110

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	5598	77.75	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.94%#			
15) 4-Terphenyl-d14	18.112	244	6721	78.36	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.96%#			

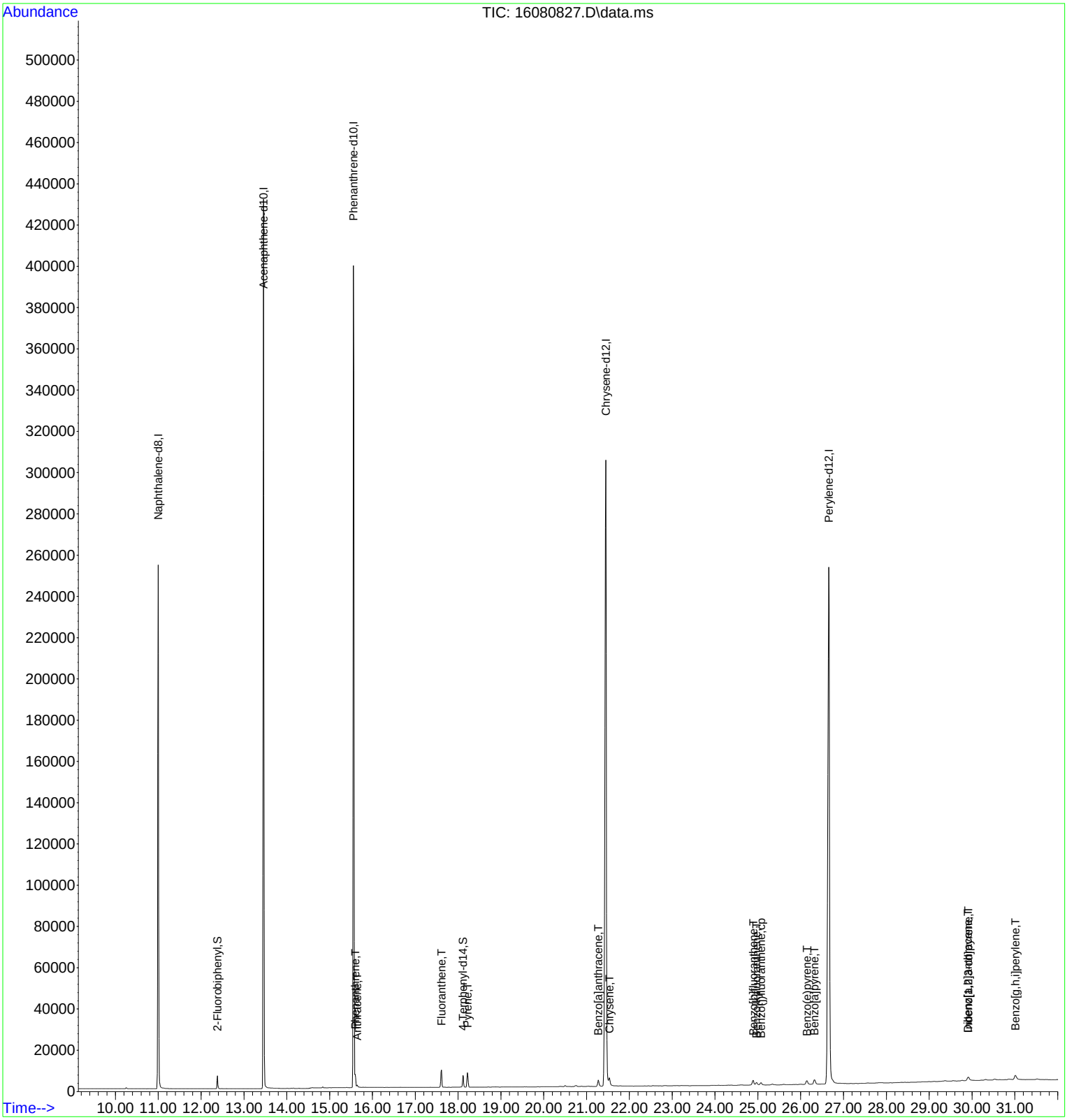
Target Compounds						Qvalue
12) Phenanthrene	15.596	178	5165	38.27	ug/kg	99
13) Anthracene	15.644	178	892	7.00	ug/kg	99
14) Fluoranthene	17.611	202	9364	70.71	ug/kg	91
16) Pyrene	18.218	202	7965	60.16	ug/kg	99
18) Benzo[a]anthracene	21.274	228	4188	36.01	ug/kg	99
19) Chrysene	21.535	228	4755	43.20	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	4692	39.95	ug/kg	99
22) Benzo[k]fluoranthene	24.967	252	1831	18.71	ug/kg	97
23) Benzo(j)fluoranthene	25.073	252	1845	19.44	ug/kg	93
24) Benzo(e)pyrene	26.143	252	3788	32.41	ug/kg	94
25) Benzo[a]pyrene	26.326	252	4675	42.54	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.912	276	3581	26.26	ug/kg	92
27) Dibenz[a,h]anthracene	29.893	278	731	6.69	ug/kg	97
28) Benzo[g,h,i]perylene	31.011	276	4780	39.49	ug/kg	99

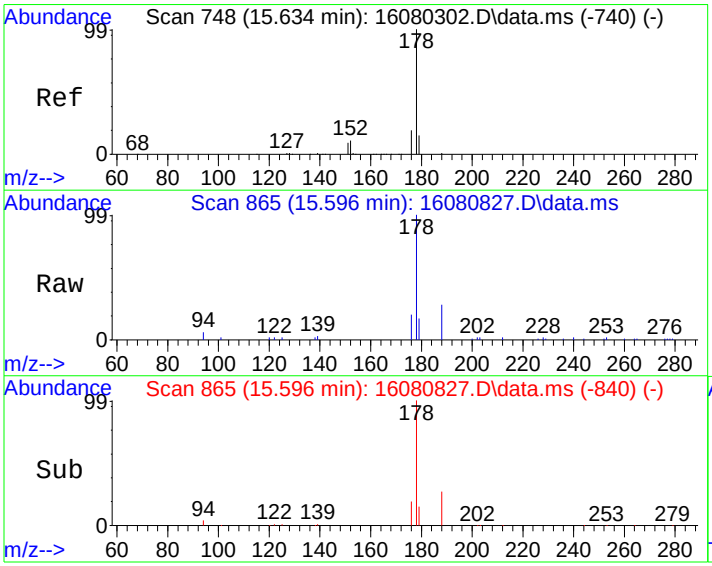
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080827.D
Acq On : 9 Aug 2016 1:14 am
Operator :
Sample : 1607294-47A
Misc : SAMP
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 09 09:13:51 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

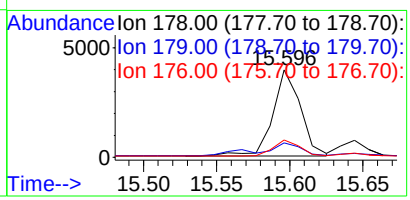


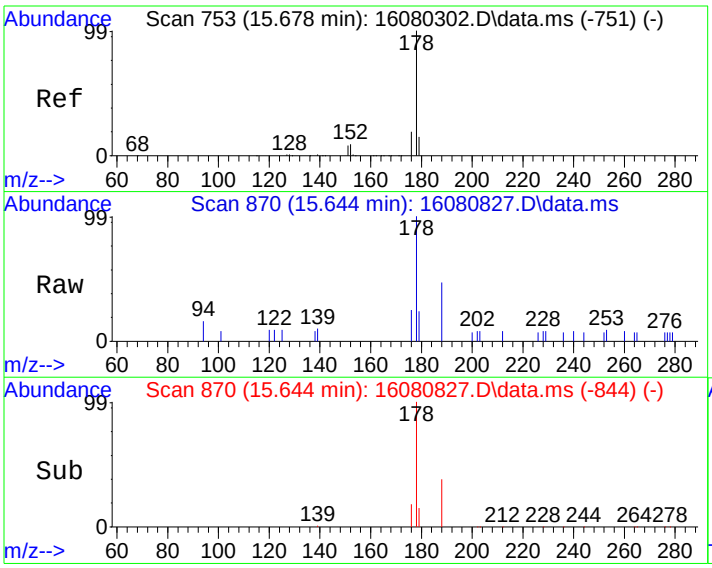


#12
Phenanthrene
Concen: 38.27 ug/kg
RT: 15.596 min Scan# 865
Delta R.T. -0.010 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:178 Resp: 5165

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	35.7
176	18.6	0.0	38.8

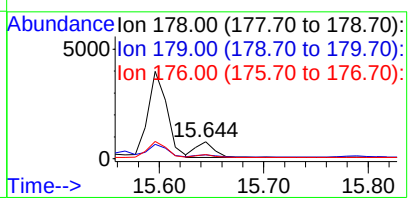


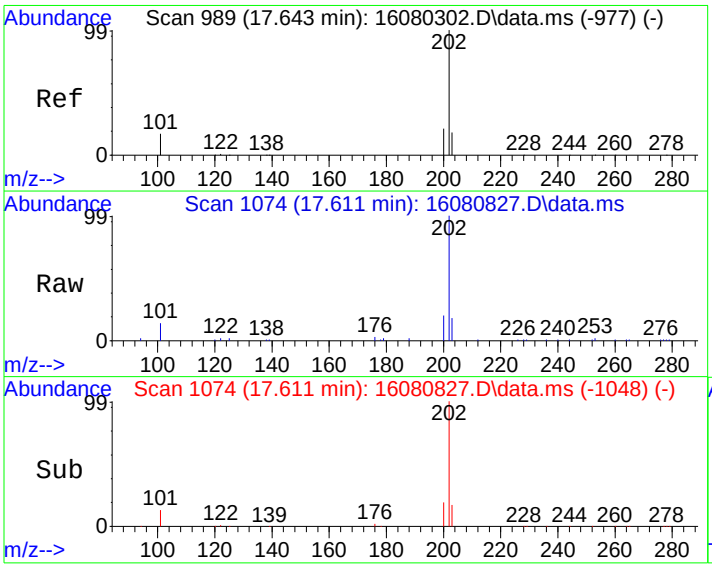


#13
Anthracene
Concen: 7.00 ug/kg
RT: 15.644 min Scan# 870
Delta R.T. -0.001 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:178 Resp: 892

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	35.5
176	18.5	0.0	38.7

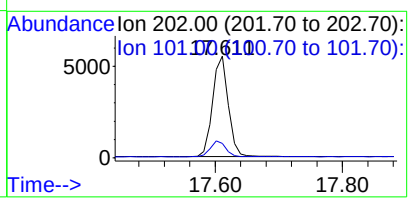


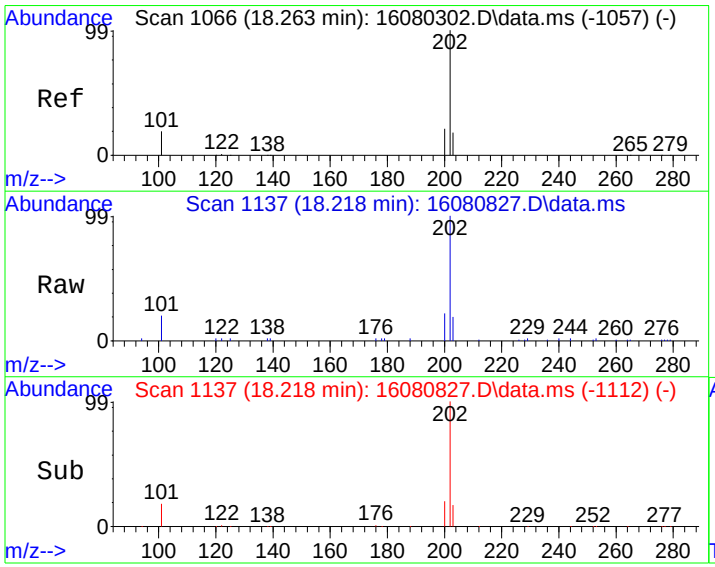


#14
Fluoranthene
Concen: 70.71 ug/kg
RT: 17.611 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:202 Resp: 9364

Ion	Ratio	Lower	Upper
202	100		
101	13.1	0.0	37.2

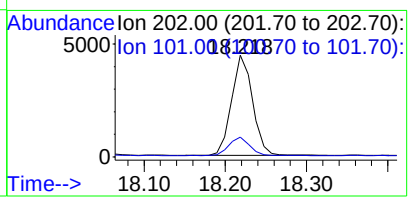


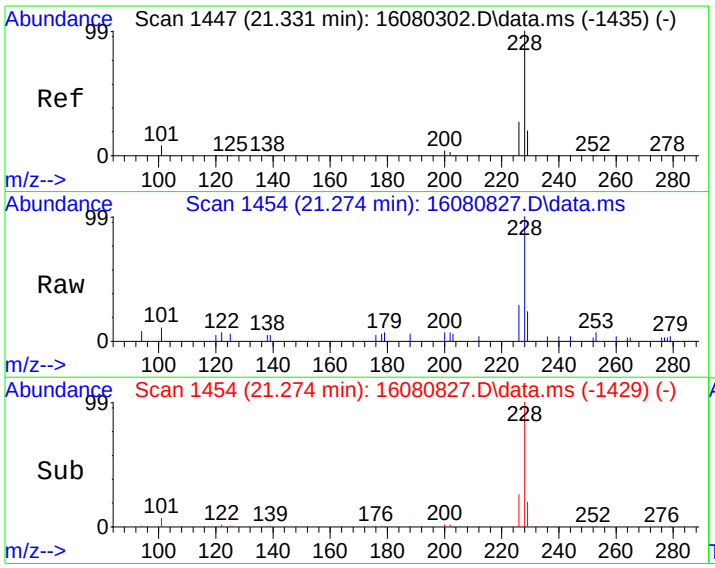


#16
Pyrene
Concen: 60.16 ug/kg
RT: 18.218 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:202 Resp: 7965

Ion	Ratio	Lower	Upper
202	100		
101	18.4	0.0	38.0

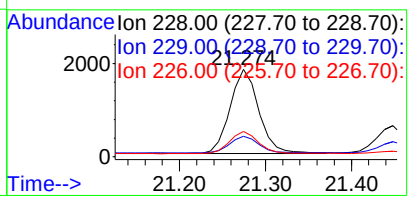


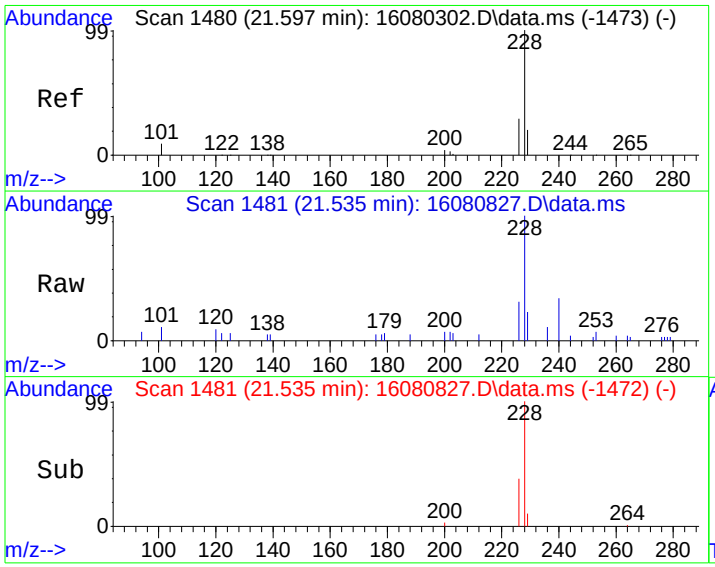


#18
Benzo[a]anthracene
Concen: 36.01 ug/kg
RT: 21.274 min Scan# 1454
Delta R.T. -0.010 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:228 Resp: 4188

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	39.9
226	26.2	6.7	46.7

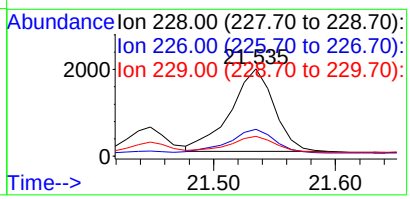


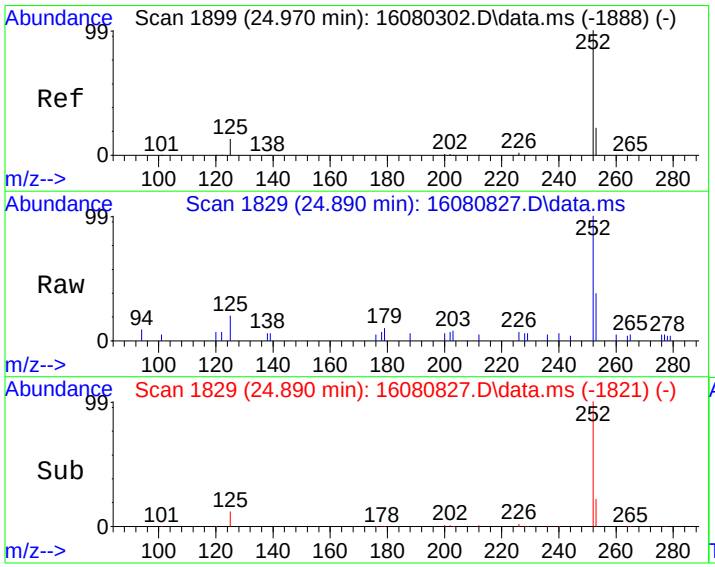


#19
Chrysene
Concen: 43.20 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:228 Resp: 4755

Ion	Ratio	Lower	Upper
228	100		
226	28.6	9.3	49.3
229	19.2	0.0	39.8

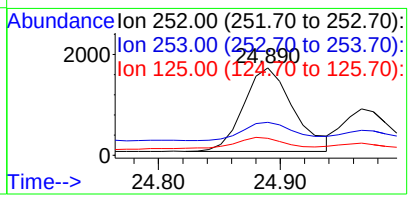


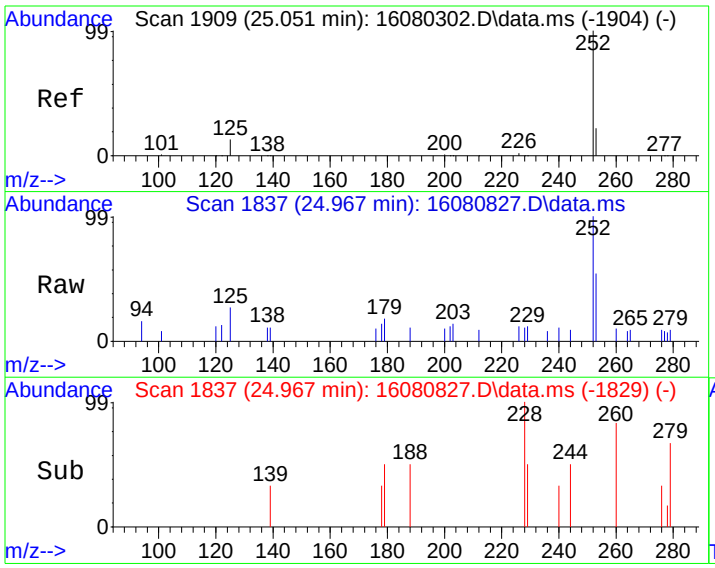


#21
Benzo[b]fluoranthene
Concen: 39.95 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.020 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:252 Resp: 4692

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	11.9	0.0	33.2

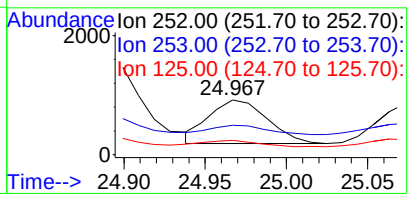


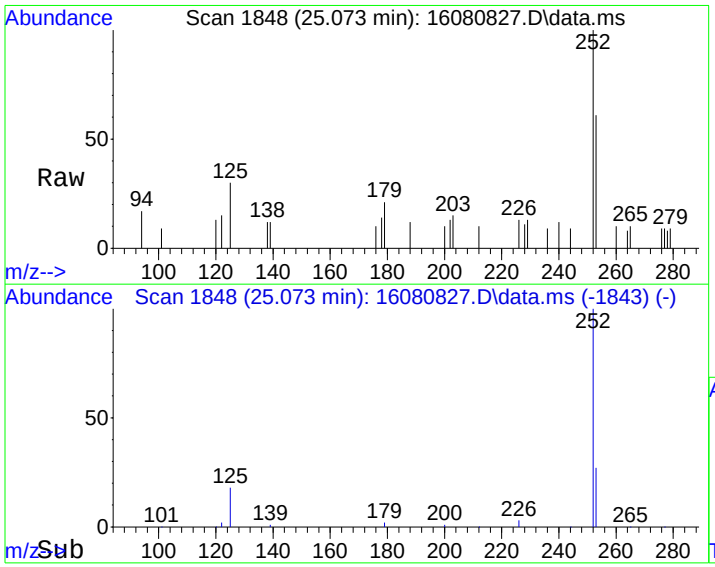


#22
Benzo[k]fluoranthene
Concen: 18.71 ug/kg
RT: 24.967 min Scan# 1837
Delta R.T. -0.020 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:252 Resp: 1831

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.1	42.1
125	14.9	0.0	33.9

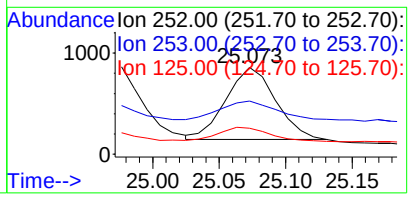


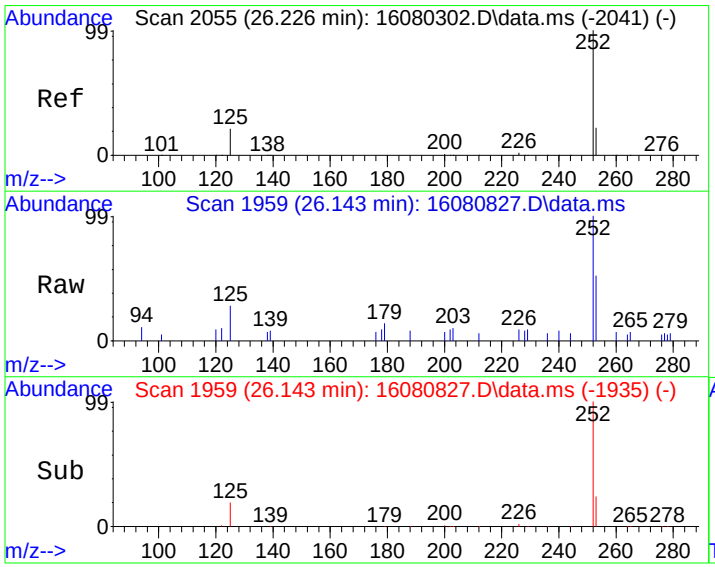


#23
Benzo(j)fluoranthene
Concen: 19.44 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:252 Resp: 1845

Ion	Ratio	Lower	Upper
252	100		
253	28.1	1.9	41.9
125	19.8	0.0	39.4

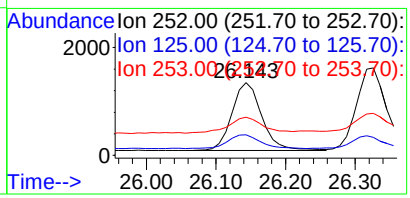


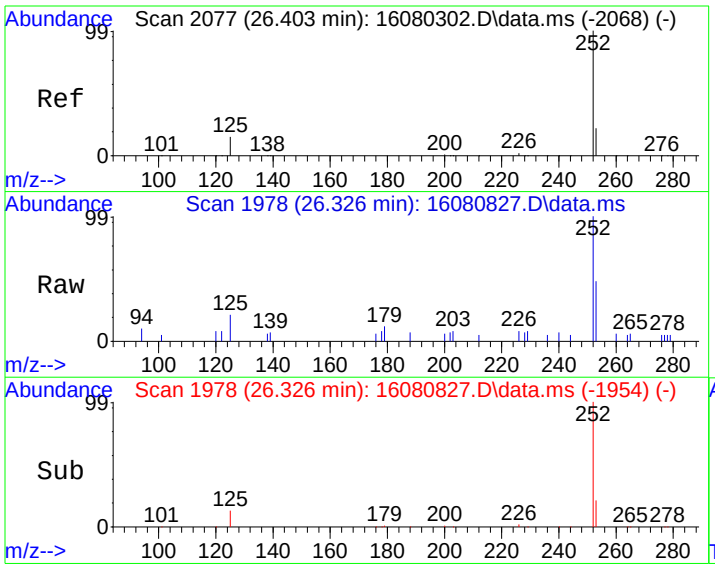


#24
Benzo(e)pyrene
Concen: 32.41 ug/kg
RT: 26.143 min Scan# 1959
Delta R.T. -0.020 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:252 Resp: 3788

Ion	Ratio	Lower	Upper
252	100		
125	21.6	0.5	40.5
253	27.0	2.1	42.1

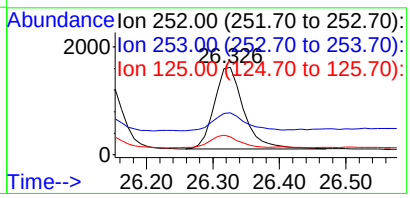


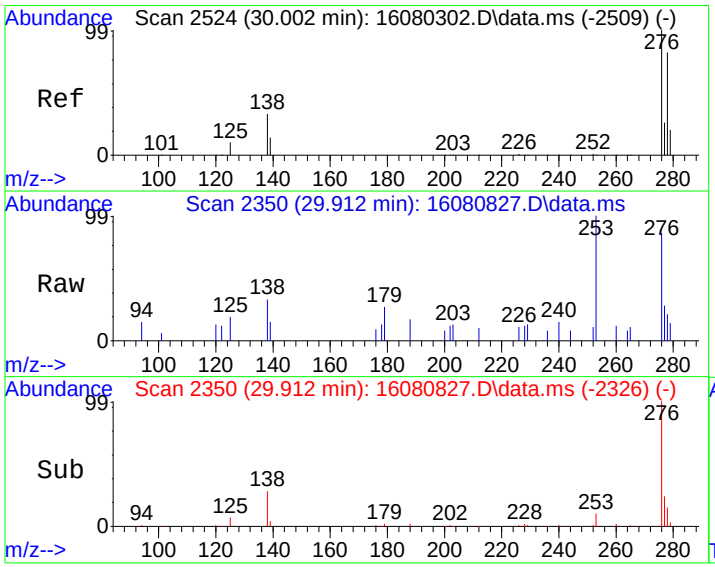


#25
Benzo[a]pyrene
Concen: 42.54 ug/kg
RT: 26.326 min Scan# 1978
Delta R.T. -0.020 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:252 Resp: 4675

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	13.1	0.0	33.5

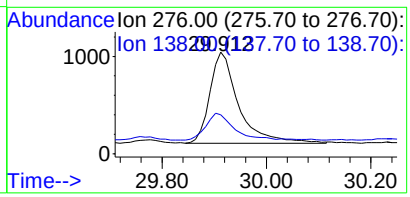


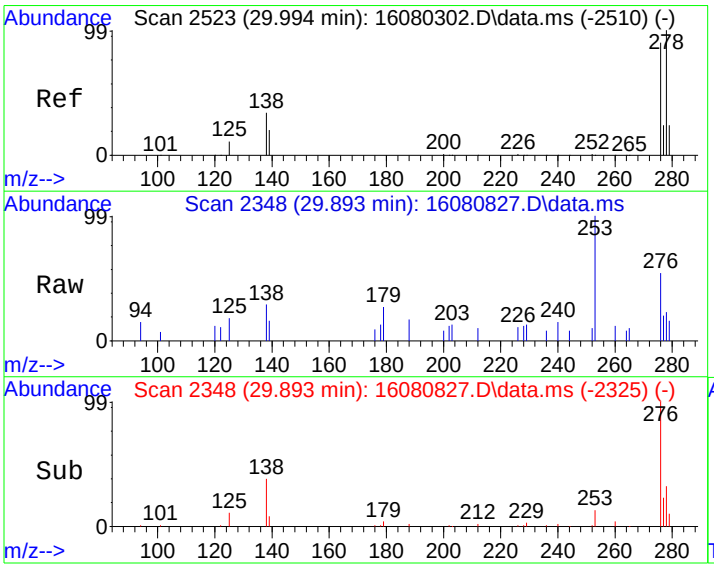


#26
Indeno[1,2,3-cd]pyrene
Concen: 26.26 ug/kg
RT: 29.912 min Scan# 2350
Delta R.T. -0.020 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:276 Resp: 3581

Ion	Ratio	Lower	Upper
276	100		
138	27.6	12.2	52.2

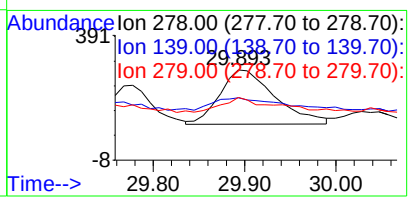


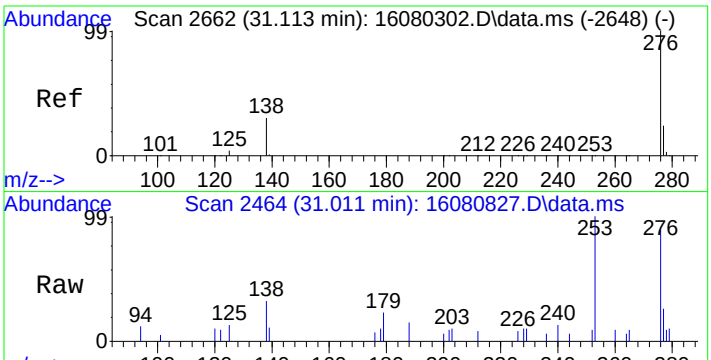


#27
Dibenz[a,h]anthracene
Concen: 6.69 ug/kg
RT: 29.893 min Scan# 2348
Delta R.T. -0.030 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:278 Resp: 731

Ion	Ratio	Lower	Upper
278	100		
139	21.2	0.2	40.2
279	26.1	3.9	43.9

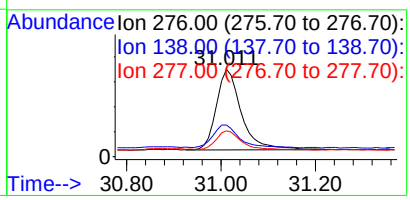




#28
Benzo[g,h,i]perylene
Concen: 39.49 ug/kg
RT: 31.011 min Scan# 2464
Delta R.T. -0.030 min
Lab File: 16080827.D
Acq: 9 Aug 2016 1:14 am

Tgt Ion:276 Resp: 4780

Ion	Ratio	Lower	Upper
276	100		
138	28.0	6.9	46.9
277	23.6	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080828.D
Acq On : 9 Aug 2016 1:54 am
Operator :
Sample : 1607294-48A
Misc : SAMP
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 09 09:14:00 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

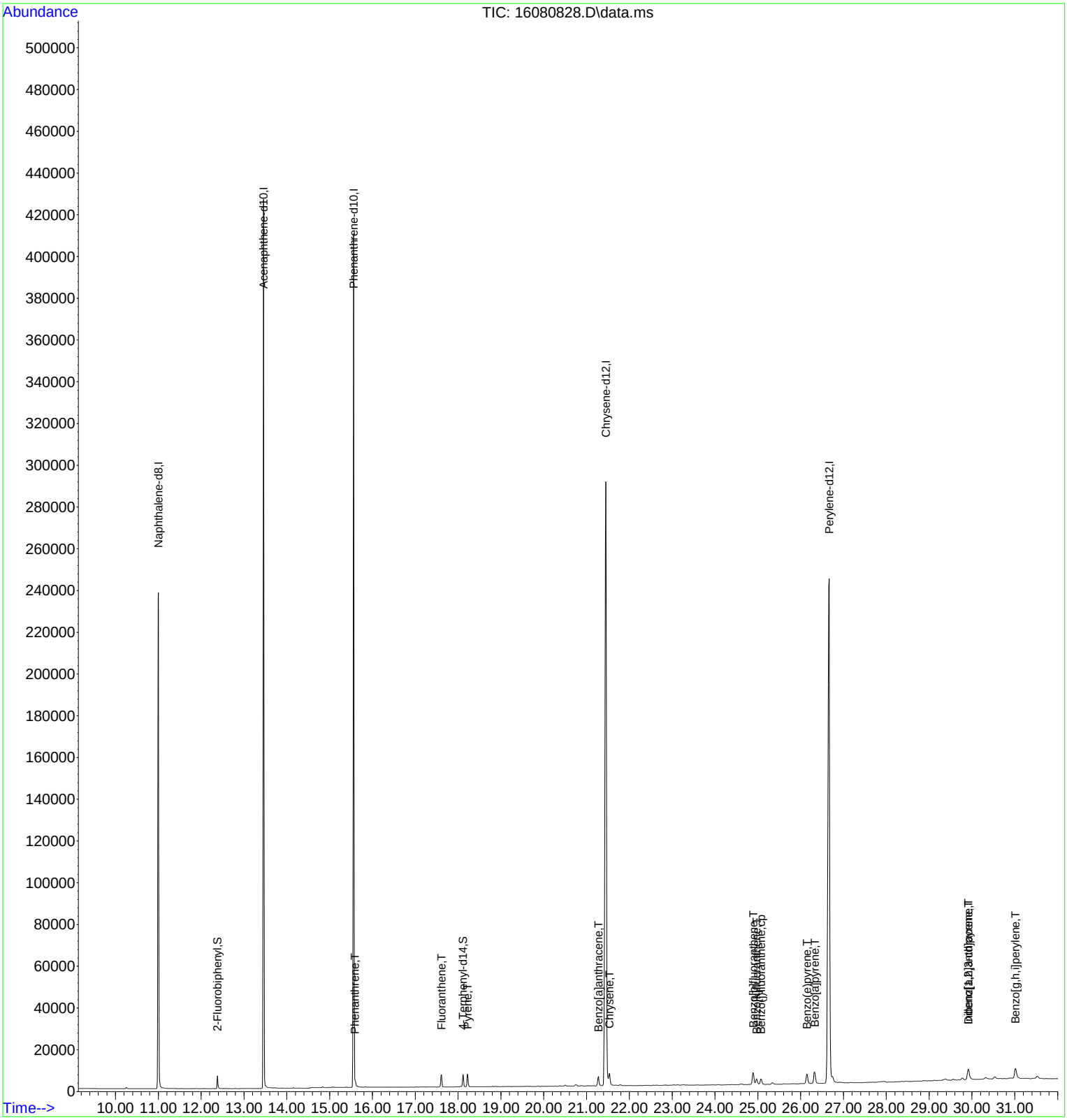
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	315119	4000.00	ug/kg	119
6) Acenaphthene-d10	13.456	164	222655	4000.00	ug/kg	137
11) Phenanthrene-d10	15.558	188	471383	4000.00	ug/kg	92
17) Chrysene-d12	21.449	240	452122	4000.00	ug/kg	98
20) Perylene-d12	26.664	264	459605	4000.00	ug/kg	109
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.378	172	5710	81.45	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.04%#			
15) 4-Terphenyl-d14	18.113	244	7004	84.52	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.11%#			
Target Compounds						Qvalue
12) Phenanthrene	15.597	178	2223	15.73	ug/kg	99
14) Fluoranthene	17.612	202	6716	52.49	ug/kg	90
16) Pyrene	18.219	202	7052	55.13	ug/kg	99
18) Benzo[a]anthracene	21.275	228	6209	54.53	ug/kg	100
19) Chrysene	21.535	228	7919	73.48	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	11206	96.16	ug/kg	99
22) Benzo[k]fluoranthene	24.967	252	4430	45.64	ug/kg	97
23) Benzo(j)fluoranthene	25.073	252	4425	46.98	ug/kg	90
24) Benzo(e)pyrene	26.143	252	8936	77.06	ug/kg	95
25) Benzo[a]pyrene	26.327	252	11925	109.36	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.913	276	9714	71.81	ug/kg	92
27) Dibenz[a,h]anthracene	29.903	278	1986	18.31	ug/kg	95
28) Benzo[g,h,i]perylene	31.022	276	10667	88.83	ug/kg	97

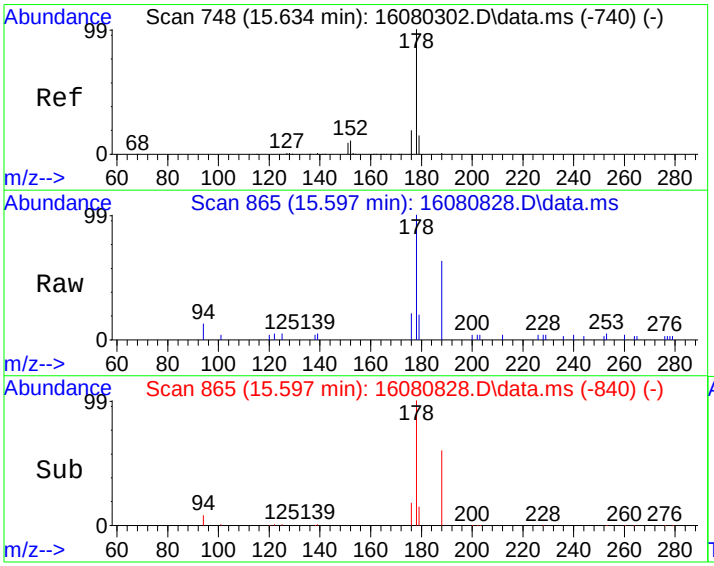
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080828.D
Acq On : 9 Aug 2016 1:54 am
Operator :
Sample : 1607294-48A
Misc : SAMP
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 09 09:14:00 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

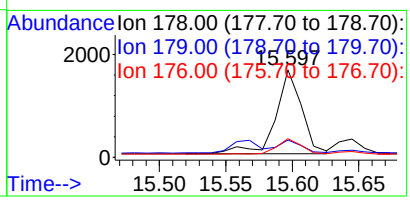


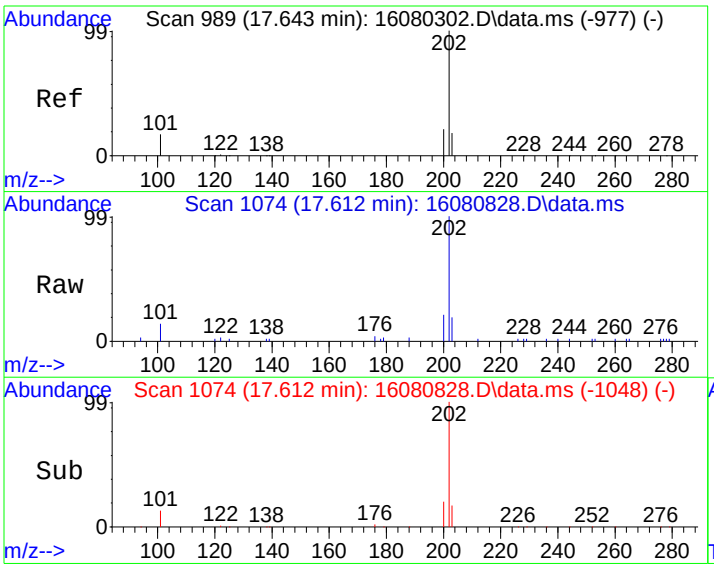


#12
Phenanthrene
Concen: 15.73 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:178 Resp: 2223

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	35.7
176	18.3	0.0	38.8

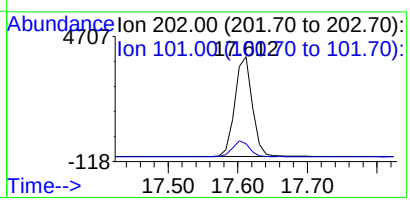


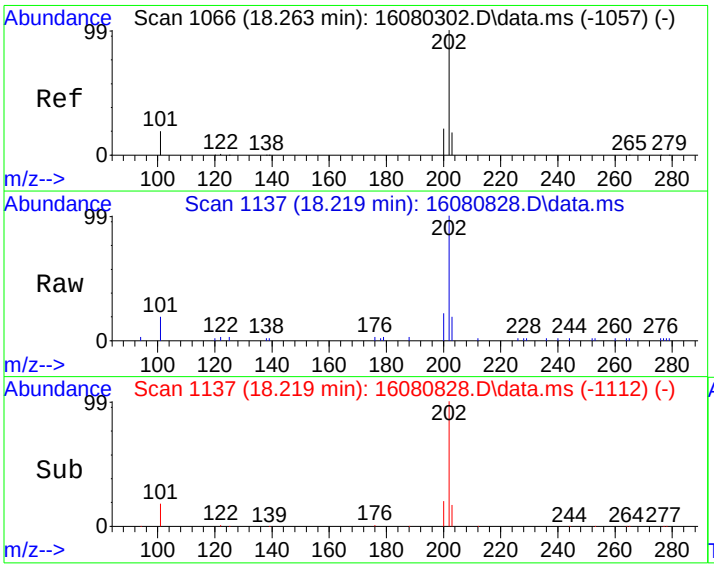


#14
Fluoranthene
Concen: 52.49 ug/kg
RT: 17.612 min Scan# 1074
Delta R.T. -0.000 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:202 Resp: 6716

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	37.2

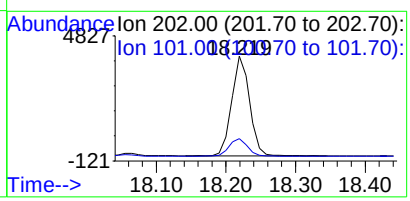


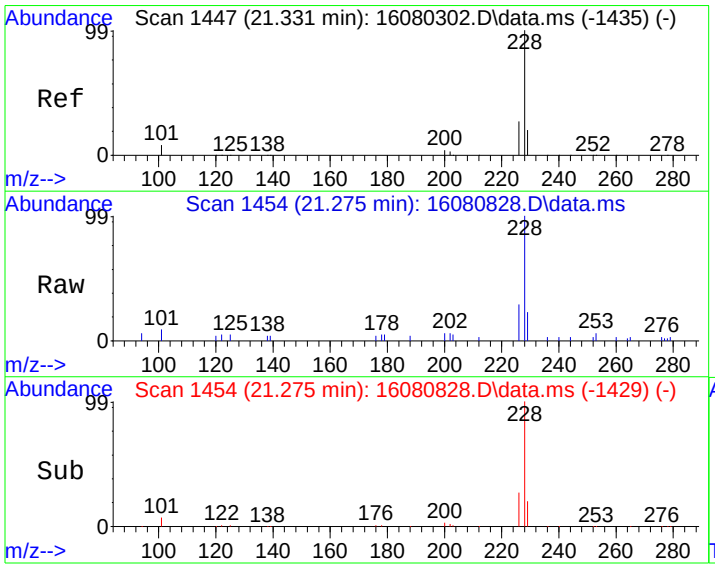


#16
Pyrene
Concen: 55.13 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:202 Resp: 7052

Ion	Ratio	Lower	Upper
202	100		
101	17.7	0.0	38.0

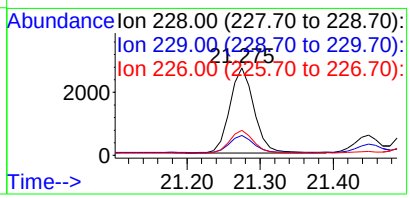


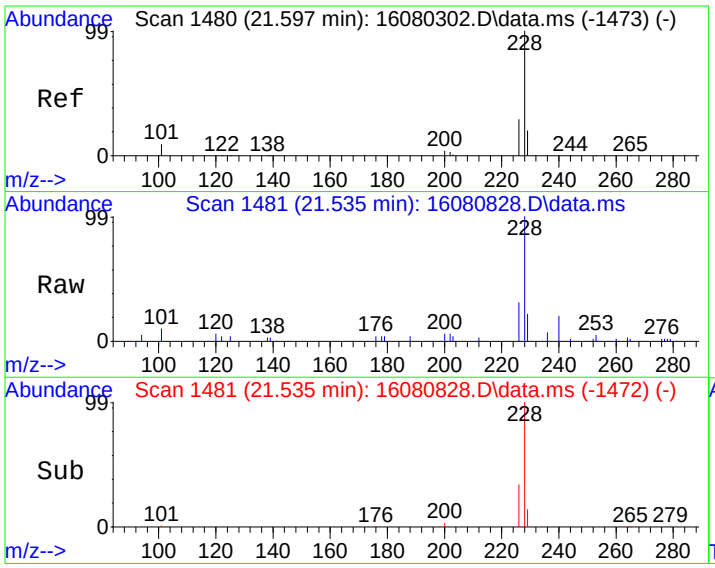


#18
Benzo[a]anthracene
Concen: 54.53 ug/kg
RT: 21.275 min Scan# 1454
Delta R.T. -0.010 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:228 Resp: 6209

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	39.9
226	26.6	6.7	46.7

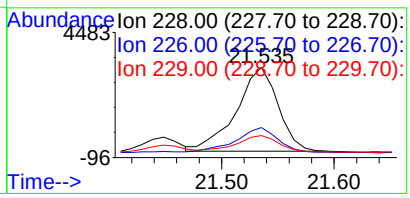


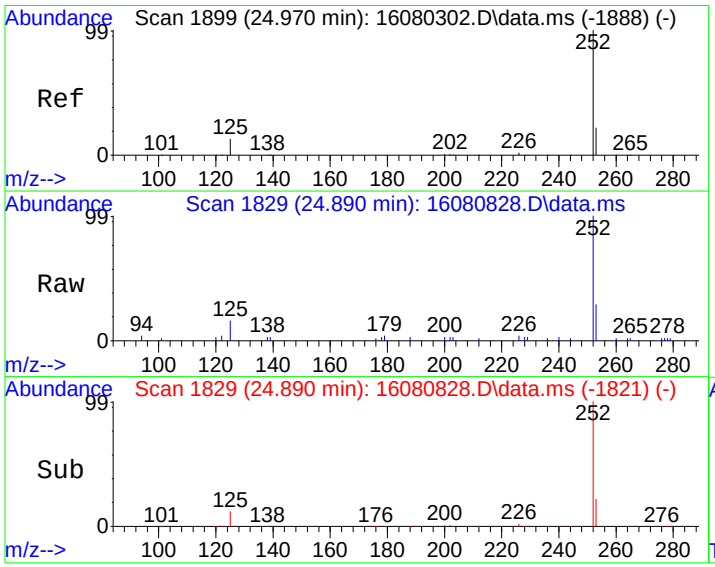


#19
Chrysene
Concen: 73.48 ug/kg
RT: 21.535 min Scan# 1481
Delta R.T. -0.010 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:228 Resp: 7919

Ion	Ratio	Lower	Upper
228	100		
226	29.6	9.3	49.3
229	19.4	0.0	39.8

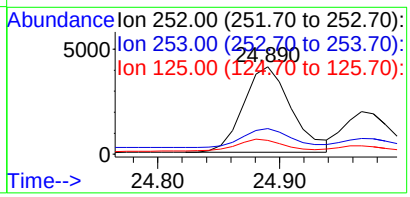


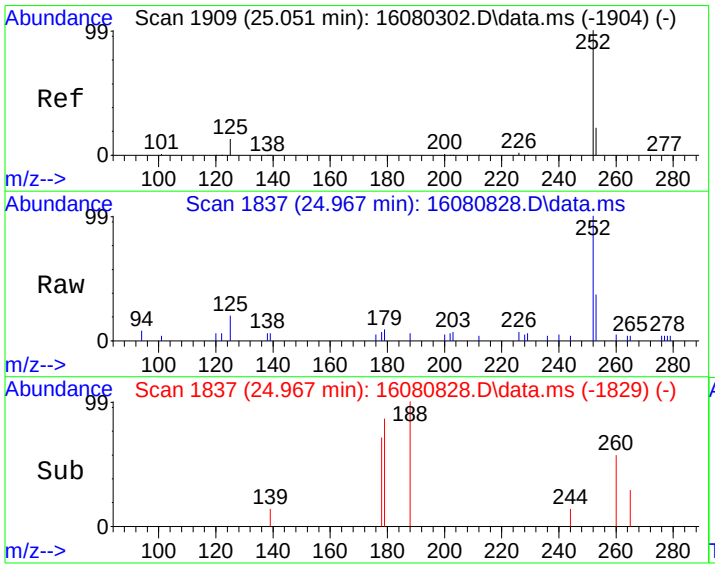


#21
Benzo[b]fluoranthene
Concen: 96.16 ug/kg
RT: 24.890 min Scan# 1829
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:252 Resp: 11206

Ion	Ratio	Lower	Upper
252	100		
253	22.0	1.9	41.9
125	12.1	0.0	33.2

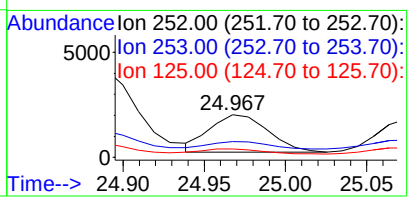


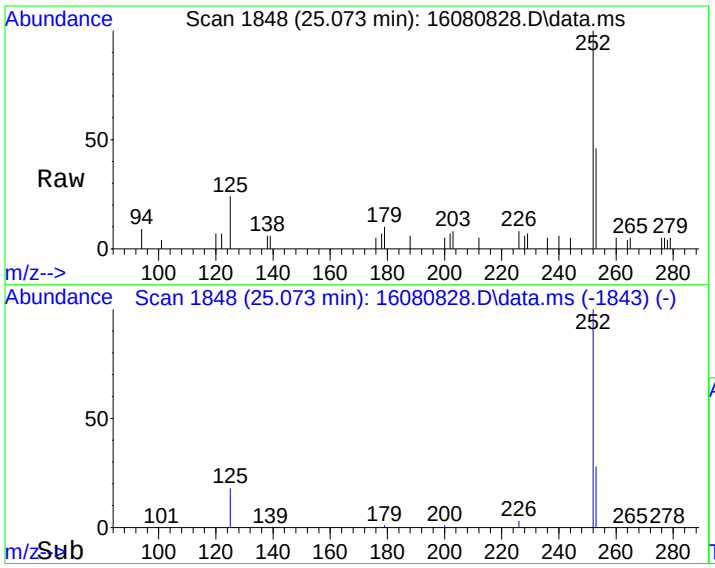


#22
Benzo[k]fluoranthene
Concen: 45.64 ug/kg
RT: 24.967 min Scan# 1837
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:252 Resp: 4430

Ion	Ratio	Lower	Upper
252	100		
253	20.1	2.1	42.1
125	14.0	0.0	33.9

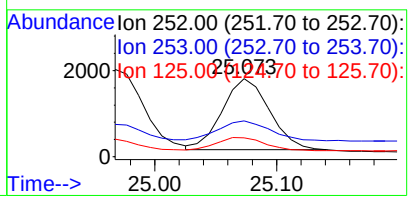


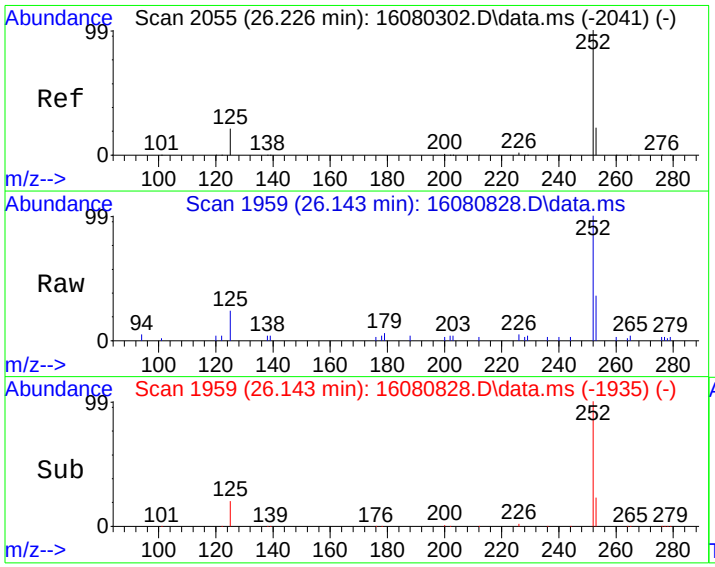


#23
Benzo(j)fluoranthene
Concen: 46.98 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:252 Resp: 4425

Ion	Ratio	Lower	Upper
252	100		
253	30.1	1.9	41.9
125	18.8	0.0	39.4

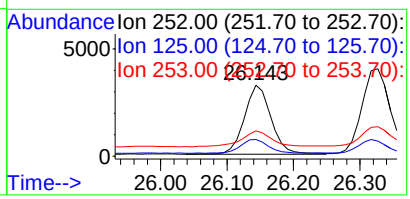


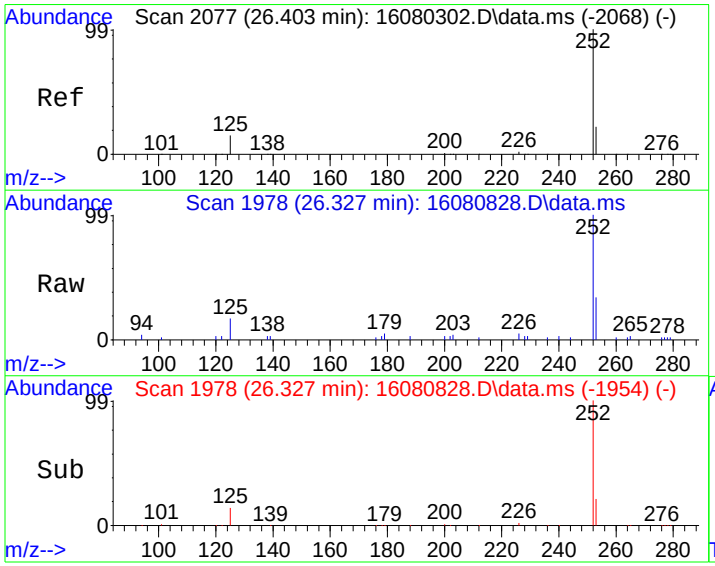


#24
Benzo(e)pyrene
Concen: 77.06 ug/kg
RT: 26.143 min Scan# 1959
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:252 Resp: 8936

Ion	Ratio	Lower	Upper
252	100		
125	20.4	0.5	40.5
253	26.5	2.1	42.1

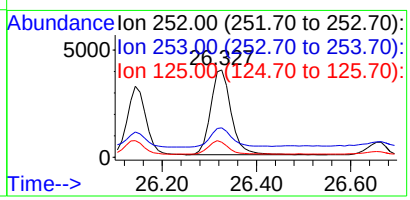


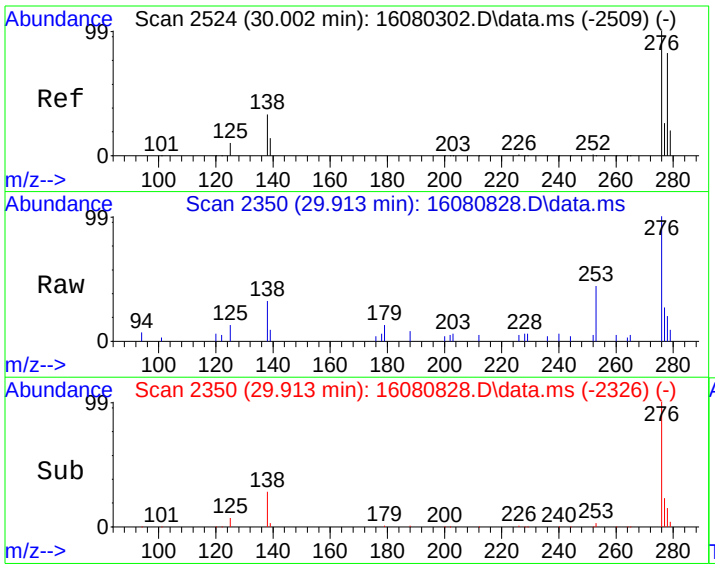


#25
Benzo[a]pyrene
Concen: 109.36 ug/kg
RT: 26.327 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:252 Resp: 11925

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	14.1	0.0	33.5

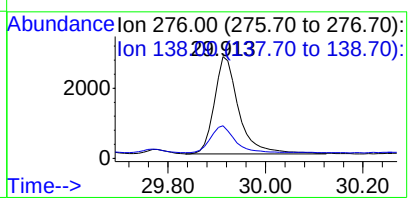


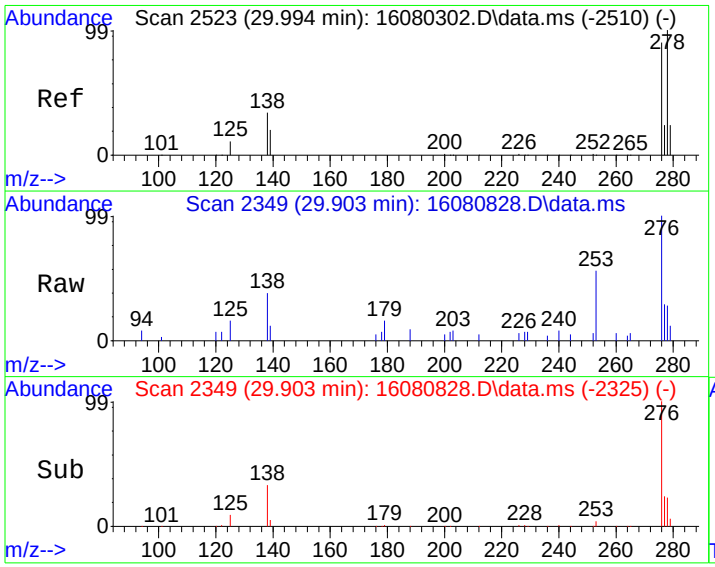


#26
Indeno[1,2,3-cd]pyrene
Concen: 71.81 ug/kg
RT: 29.913 min Scan# 2350
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:276 Resp: 9714

Ion	Ratio	Lower	Upper
276	100		
138	27.6	12.2	52.2

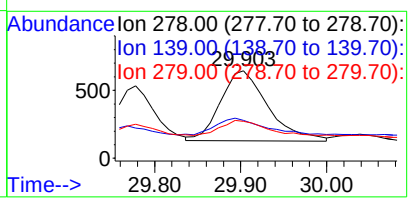


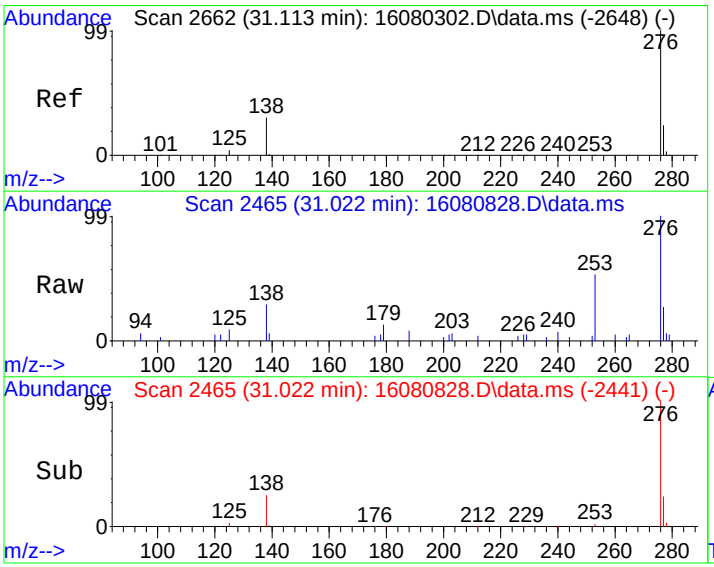


#27
Dibenz[a,h]anthracene
Concen: 18.31 ug/kg
RT: 29.903 min Scan# 2349
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:278 Resp: 1986

Ion	Ratio	Lower	Upper
278	100		
139	21.1	0.2	40.2
279	20.4	3.9	43.9

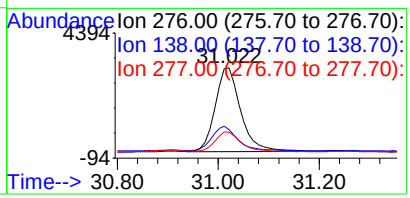




#28
Benzo[g,h,i]perylene
Concen: 88.83 ug/kg
RT: 31.022 min Scan# 2465
Delta R.T. -0.019 min
Lab File: 16080828.D
Acq: 9 Aug 2016 1:54 am

Tgt Ion:276 Resp: 10667

Ion	Ratio	Lower	Upper
276	100		
138	24.8	6.9	46.9
277	23.5	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080829.D
Acq On : 9 Aug 2016 2:34 am
Operator :
Sample : 1607294-52AMS
Misc : MS
ALS Vial : 29 Sample Multiplier: 10

Quant Time: Aug 09 09:11:58 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

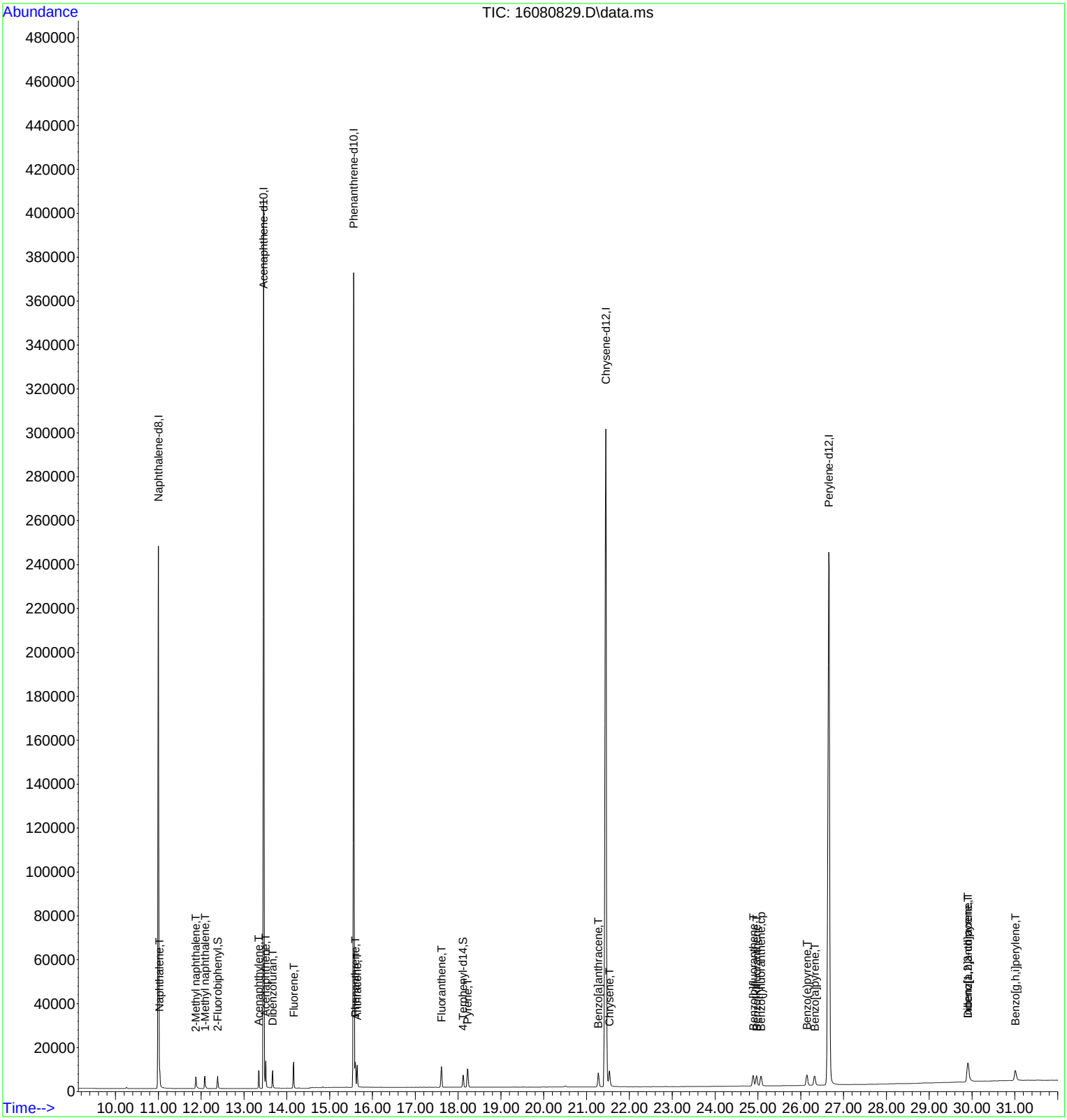
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	317352	4000.00	ug/kg	120
6) Acenaphthene-d10	13.455	164	221024	4000.00	ug/kg	136
11) Phenanthrene-d10	15.566	188	476944	4000.00	ug/kg	93
17) Chrysene-d12	21.447	240	459960	4000.00	ug/kg	99
20) Perylene-d12	26.653	264	462889	4000.00	ug/kg	110
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5685	80.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.01%#			
15) 4-Terphenyl-d14	18.121	244	6889	82.16	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.05%#			
Target Compounds						Qvalue
2) Naphthalene	11.029	128	5504	72.71	ug/kg	99
3) 2-Methyl naphthalene	11.873	142	4130	80.04	ug/kg	99
4) 1-Methyl naphthalene	12.086	142	3878	81.75	ug/kg	99
7) Acenaphthylene	13.341	152	8045	78.68	ug/kg	99
8) Acenaphthene	13.505	153	5146	77.00	ug/kg	98
9) Dibenzofuran	13.668	168	7651	66.70	ug/kg	94
10) Fluorene	14.157	166	6475	65.28	ug/kg	99
12) Phenanthrene	15.595	178	10357	81.03	ug/kg	99
13) Anthracene	15.644	178	8912	71.59	ug/kg	99
14) Fluoranthene	17.610	202	10083	77.89	ug/kg	93
16) Pyrene	18.218	202	10081	77.89	ug/kg	97
18) Benzo[a]anthracene	21.274	228	8963	77.37	ug/kg	99
19) Chrysene	21.534	228	8332	75.99	ug/kg	100
21) Benzo[b]fluoranthene	24.889	252	9144	77.91	ug/kg	99
22) Benzo[k]fluoranthene	24.966	252	8023	82.06	ug/kg	99
23) Benzo(j)fluoranthene	25.072	252	7754	81.74	ug/kg	98
24) Benzo(e)pyrene	26.142	252	9236	79.08	ug/kg	98
25) Benzo[a]pyrene	26.325	252	8575	78.08	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.912	276	11352	83.32	ug/kg	96
27) Dibenz[a,h]anthracene	29.902	278	8971	82.12	ug/kg	100
28) Benzo[g,h,i]perylene	31.011	276	9803	81.05	ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080829.D
Acq On : 9 Aug 2016 2:34 am
Operator :
Sample : 1607294-52AMS
Misc : MS
ALS Vial : 29 Sample Multiplier: 10

Quant Time: Aug 09 09:11:58 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



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080830.D
Acq On : 9 Aug 2016 3:14 am
Operator :
Sample : 1607294-52AMSD
Misc : MSD
ALS Vial : 30 Sample Multiplier: 10

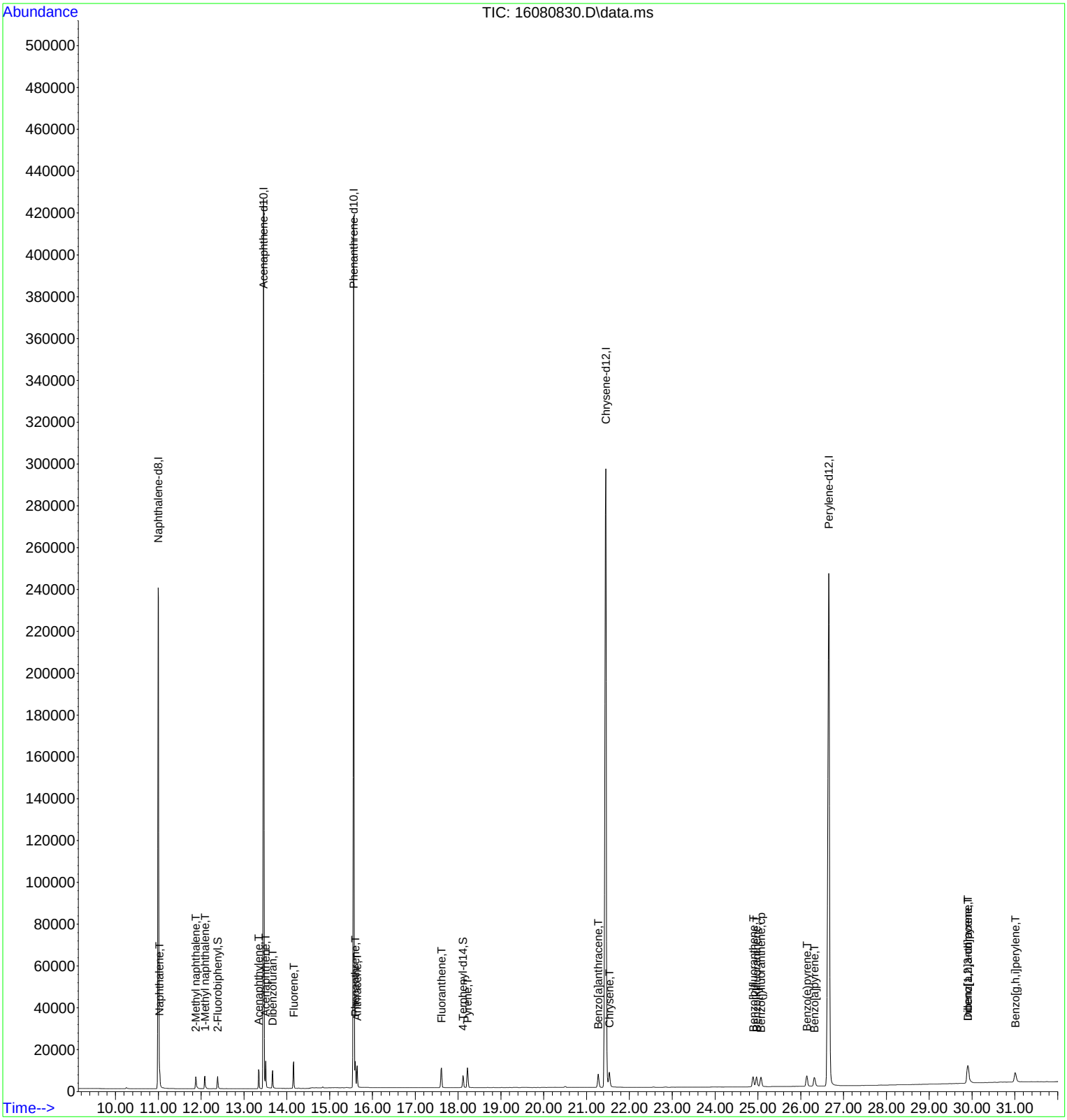
Quant Time: Aug 09 09:12:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	315915	4000.00	ug/kg	119
6) Acenaphthene-d10	13.456	164	227820	4000.00	ug/kg	140
11) Phenanthrene-d10	15.558	188	495923	4000.00	ug/kg	96
17) Chrysene-d12	21.448	240	455482	4000.00	ug/kg	98
20) Perylene-d12	26.654	264	455779	4000.00	ug/kg	108
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	5944	84.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.11%#			
15) 4-Terphenyl-d14	18.113	244	6977	80.02	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.00%#			
Target Compounds						Qvalue
2) Naphthalene	11.030	128	5659	75.10	ug/kg	100
3) 2-Methyl naphthalene	11.874	142	4289	83.50	ug/kg	100
4) 1-Methyl naphthalene	12.087	142	4086	86.53	ug/kg	99
7) Acenaphthylene	13.342	152	8704	82.58	ug/kg	99
8) Acenaphthene	13.506	153	5442	79.00	ug/kg	98
9) Dibenzofuran	13.669	168	8274	69.98	ug/kg	91
10) Fluorene	14.158	166	7021	68.67	ug/kg	100
12) Phenanthrene	15.596	178	10643	80.06	ug/kg	100
13) Anthracene	15.645	178	10033	77.51	ug/kg	99
14) Fluoranthene	17.611	202	10599	78.74	ug/kg	90
16) Pyrene	18.219	202	10661	79.22	ug/kg	99
18) Benzo[a]anthracene	21.275	228	9143	79.70	ug/kg	99
19) Chrysene	21.535	228	8613	79.33	ug/kg	100
21) Benzo[b]fluoranthene	24.890	252	9265	80.17	ug/kg	99
22) Benzo[k]fluoranthene	24.967	252	8054	83.67	ug/kg	99
23) Benzo(j)fluoranthene	25.073	252	7791	83.41	ug/kg	99
24) Benzo(e)pyrene	26.143	252	9338	81.20	ug/kg	98
25) Benzo[a]pyrene	26.317	252	8692	80.38	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.913	276	11372	84.77	ug/kg	94
27) Dibenz[a,h]anthracene	29.893	278	9017	83.83	ug/kg	98
28) Benzo[g,h,i]perylene	31.012	276	9850	82.71	ug/kg	98

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

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080830.D
Acq On : 9 Aug 2016 3:14 am
Operator :
Sample : 1607294-52AMSD
Misc : MSD
ALS Vial : 30 Sample Multiplier: 10

Quant Time: Aug 09 09:12:01 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\160808\
Data File : 16080831.D
Acq On : 9 Aug 2016 3:54 am
Operator :
Sample : CCV1-160808
Misc : CCV
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Aug 09 09:12:04 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	10.997	136	326542	4000.00	ug/kg	123
6) Acenaphthene-d10	13.458	164	252200	4000.00	ug/kg	155
11) Phenanthrene-d10	15.558	188	530789	4000.00	ug/kg	103
17) Chrysene-d12	21.448	240	464144	4000.00	ug/kg	100
20) Perylene-d12	26.654	264	463559	4000.00	ug/kg	110

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.380	172	76198	1048.93	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.22%#			
15) 4-Terphenyl-d14	18.113	244	84419	904.65	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 22.62%#			

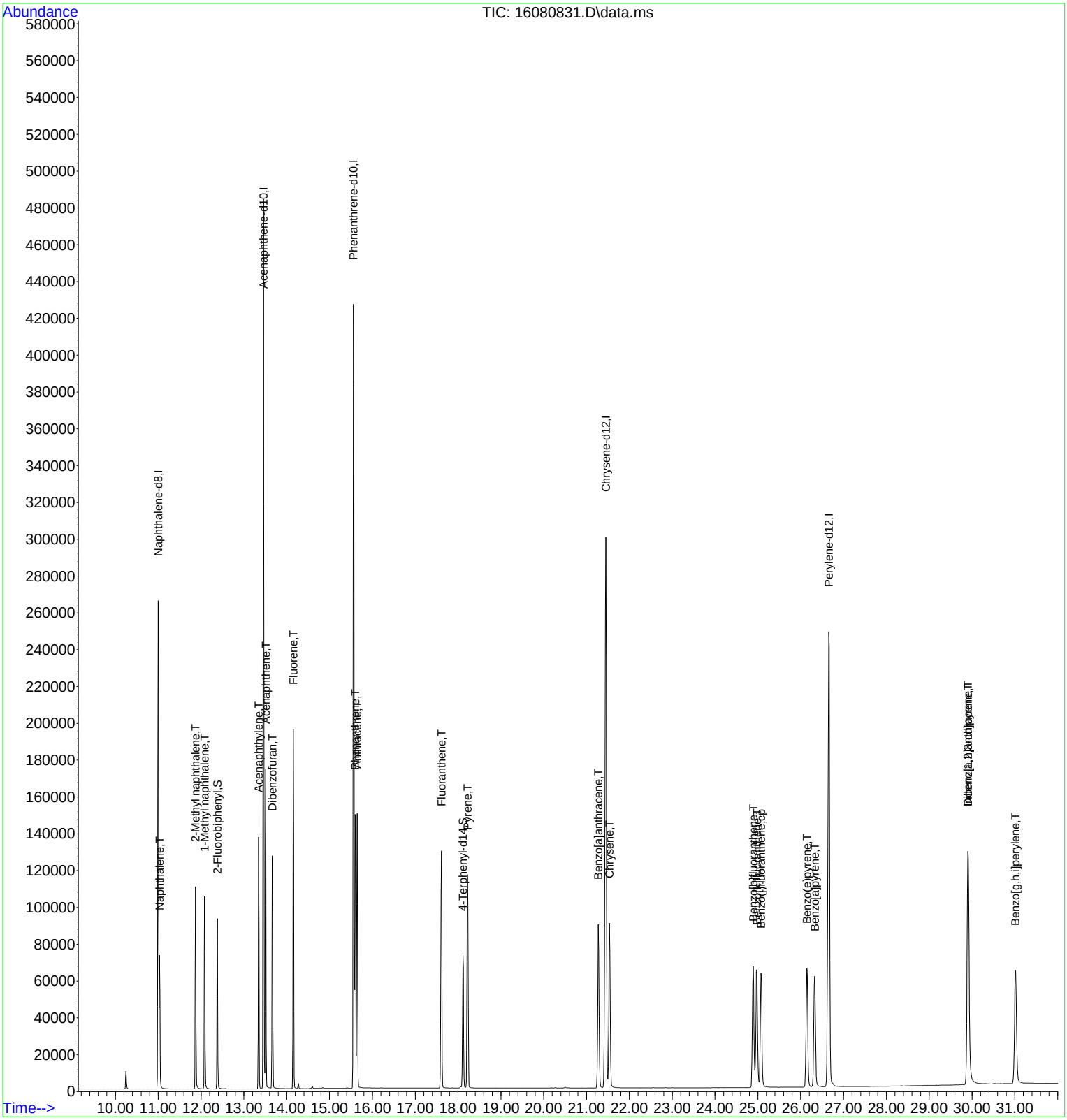
Target Compounds						Qvalue
2) Naphthalene	11.032	128	75428	968.36	ug/kg	100
3) 2-Methyl naphthalene	11.869	142	60637	1142.04	ug/kg	100
4) 1-Methyl naphthalene	12.082	142	56175	1150.86	ug/kg	99
7) Acenaphthylene	13.344	152	121740	1043.37	ug/kg	100
8) Acenaphthene	13.507	153	76691	1005.74	ug/kg	99
9) Dibenzofuran	13.663	168	114202	872.57	ug/kg	98
10) Fluorene	14.153	166	96948	856.61	ug/kg	99
12) Phenanthrene	15.597	178	143819	1050.66	ug/kg	99
13) Anthracene	15.645	178	132052	953.10	ug/kg	99
14) Fluoranthene	17.611	202	134091	930.72	ug/kg	92
16) Pyrene	18.219	202	133840	929.16	ug/kg	97
18) Benzo[a]anthracene	21.275	228	119549	1022.68	ug/kg	100
19) Chrysene	21.535	228	113426	1025.17	ug/kg	99
21) Benzo[b]fluoranthene	24.890	252	120563	1025.79	ug/kg	99
22) Benzo[k]fluoranthene	24.977	252	110807	1131.76	ug/kg	98
23) Benzo(j)fluoranthene	25.073	252	102177	1075.59	ug/kg	100
24) Benzo(e)pyrene	26.143	252	117133	1001.49	ug/kg	100
25) Benzo[a]pyrene	26.326	252	115084	1046.35	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.913	276	147762	1082.99	ug/kg	98
27) Dibenz[a,h]anthracene	29.903	278	121410	1109.73	ug/kg	99
28) Benzo[g,h,i]perylene	31.021	276	125806	1038.69	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160808\
Data File : 16080831.D
Acq On : 9 Aug 2016 3:54 am
Operator :
Sample : CCV1-160808
Misc : CCV
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Aug 09 09:12:04 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



GCMS8
Calibration Curve
For

DHL Work Order
1607294

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

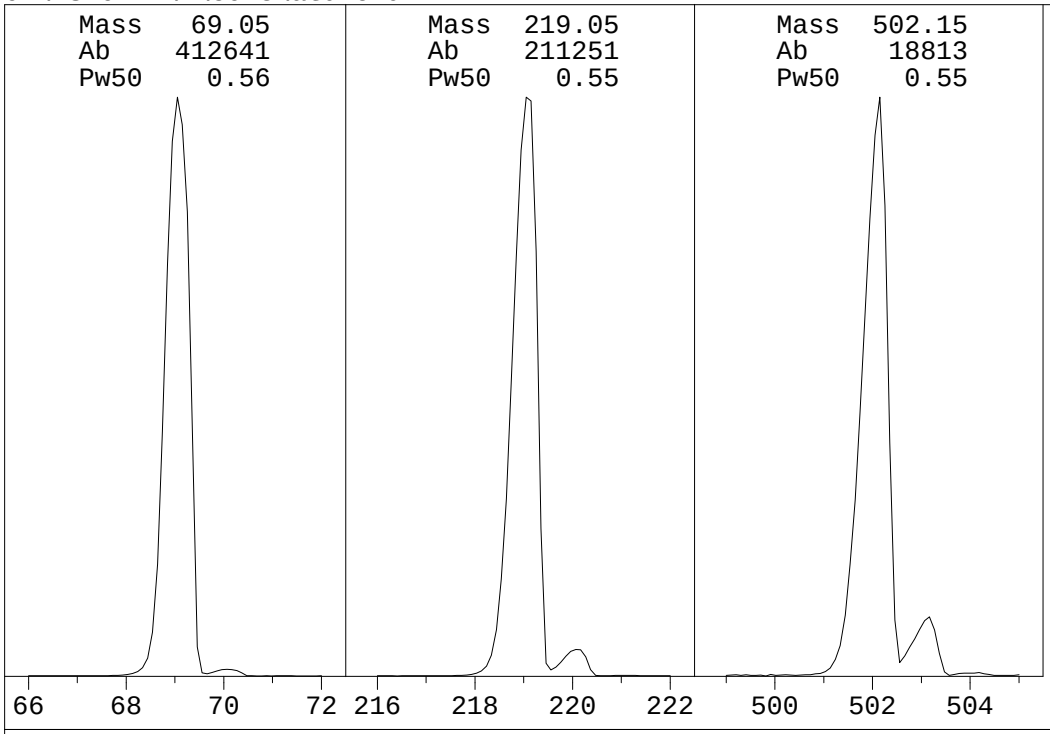
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

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

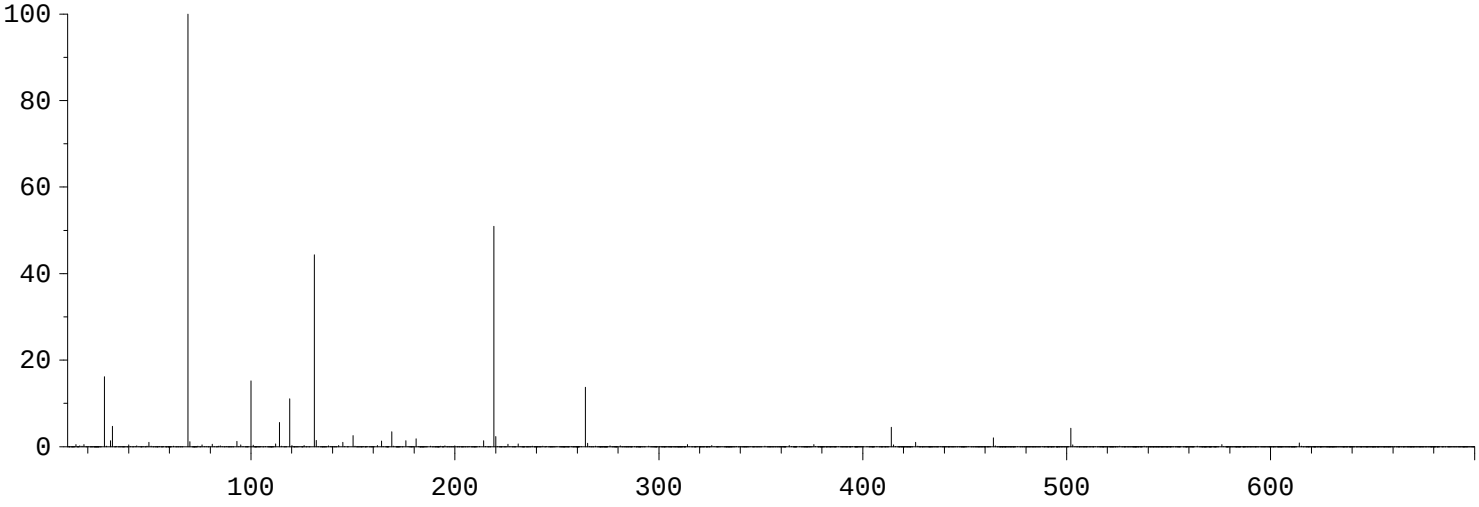


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2075
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	-0.002
		DC Pol	NEG
Repeller	31.46		
IonFcus	100.6	HEDEnab	ON
EntLens	14.5	EMVolts	1259
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

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

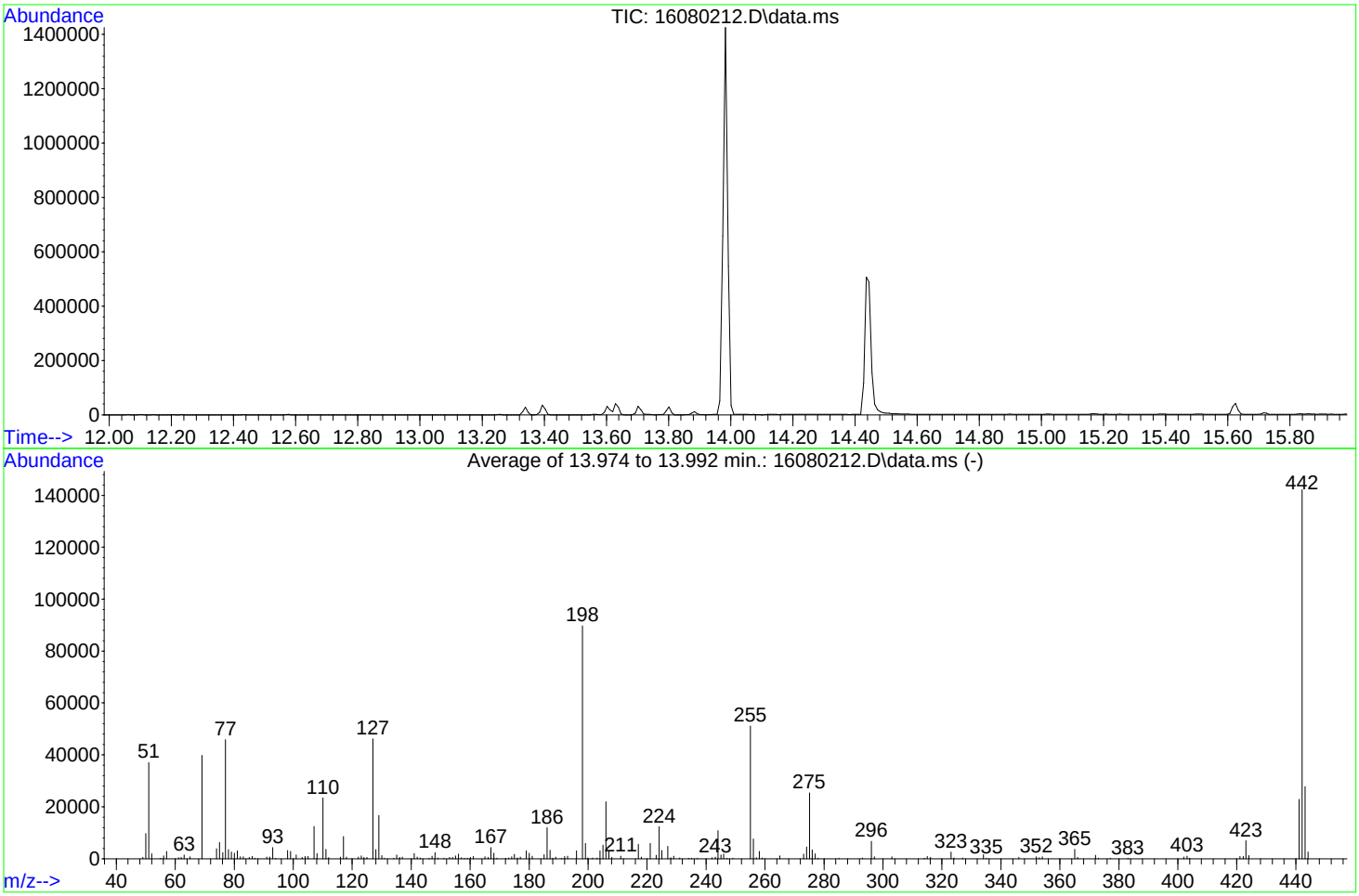
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line				
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

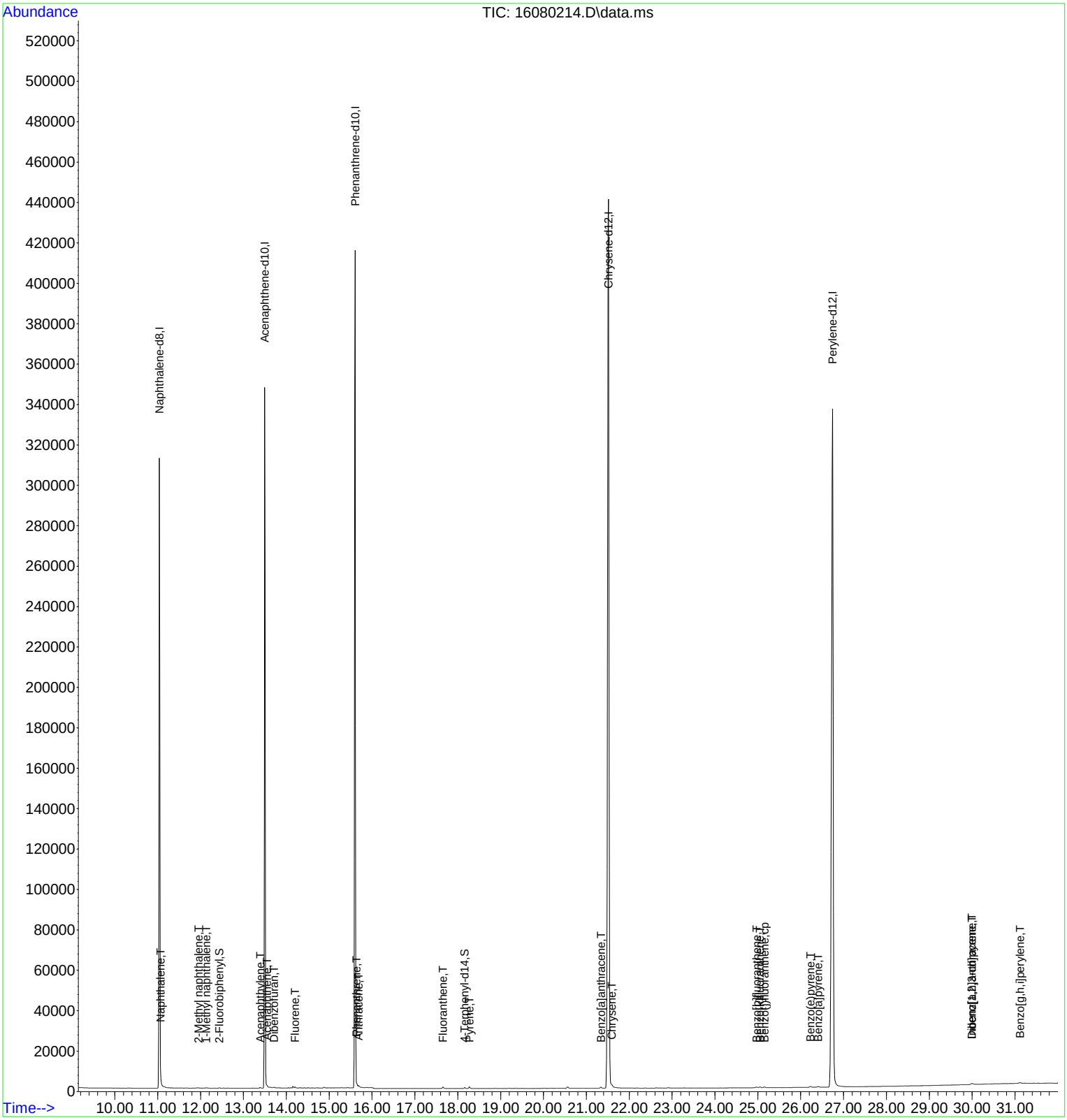
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	385396	4000.00	ug/kg	98
6) Acenaphthene-d10	13.495	164	185765	4000.00	ug/kg	102
11) Phenanthrene-d10	15.605	188	486418	4000.00	ug/kg	97
17) Chrysene-d12	21.516	240	689401	4000.00	ug/kg	102
20) Perylene-d12	26.741	264	619616	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

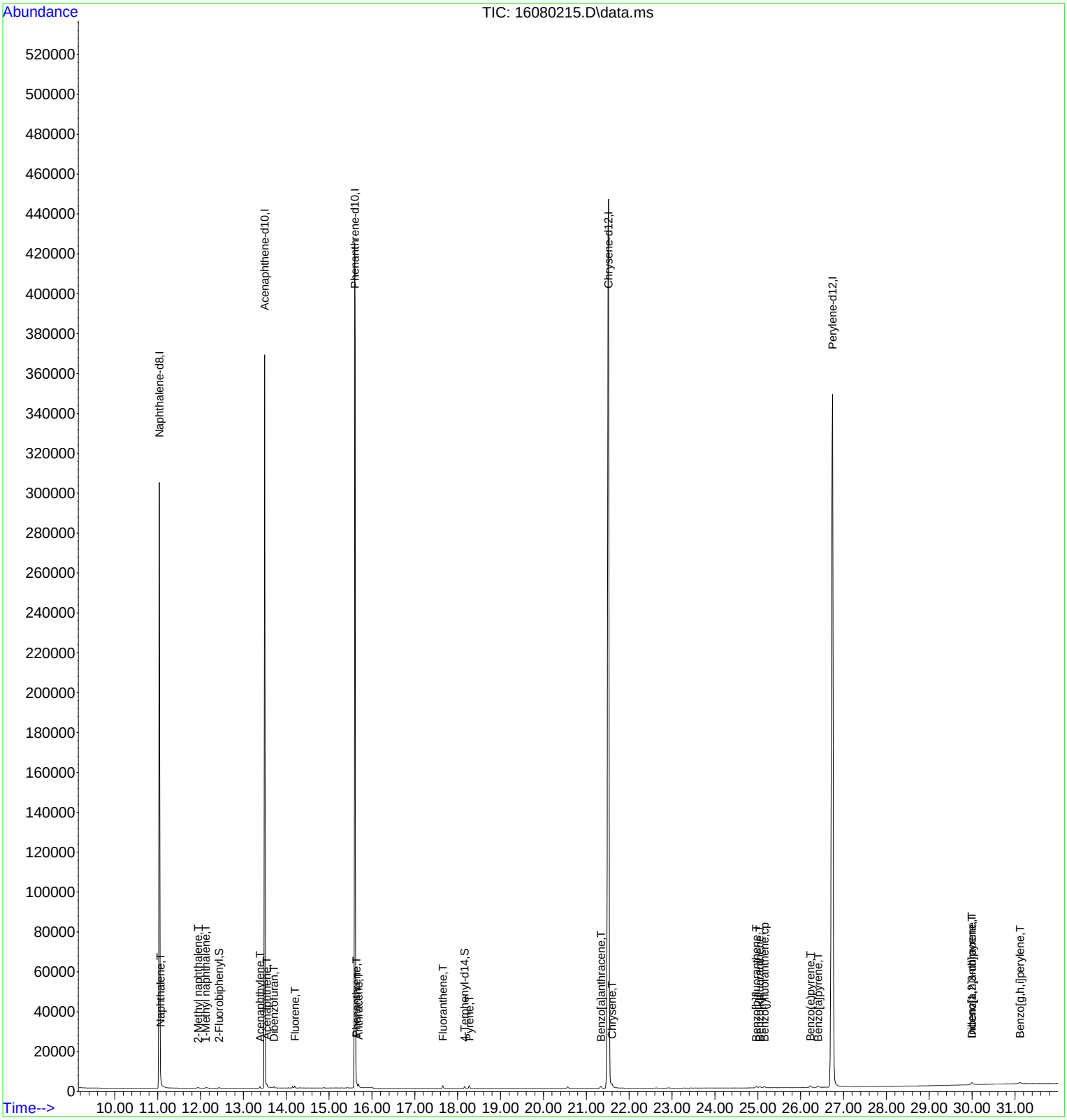
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	379089	4000.00	ug/kg	97
6) Acenaphthene-d10	13.498	164	187838	4000.00	ug/kg	103
11) Phenanthrene-d10	15.599	188	505178	4000.00	ug/kg	101
17) Chrysene-d12	21.517	240	701631	4000.00	ug/kg	104
20) Perylene-d12	26.742	264	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%#			

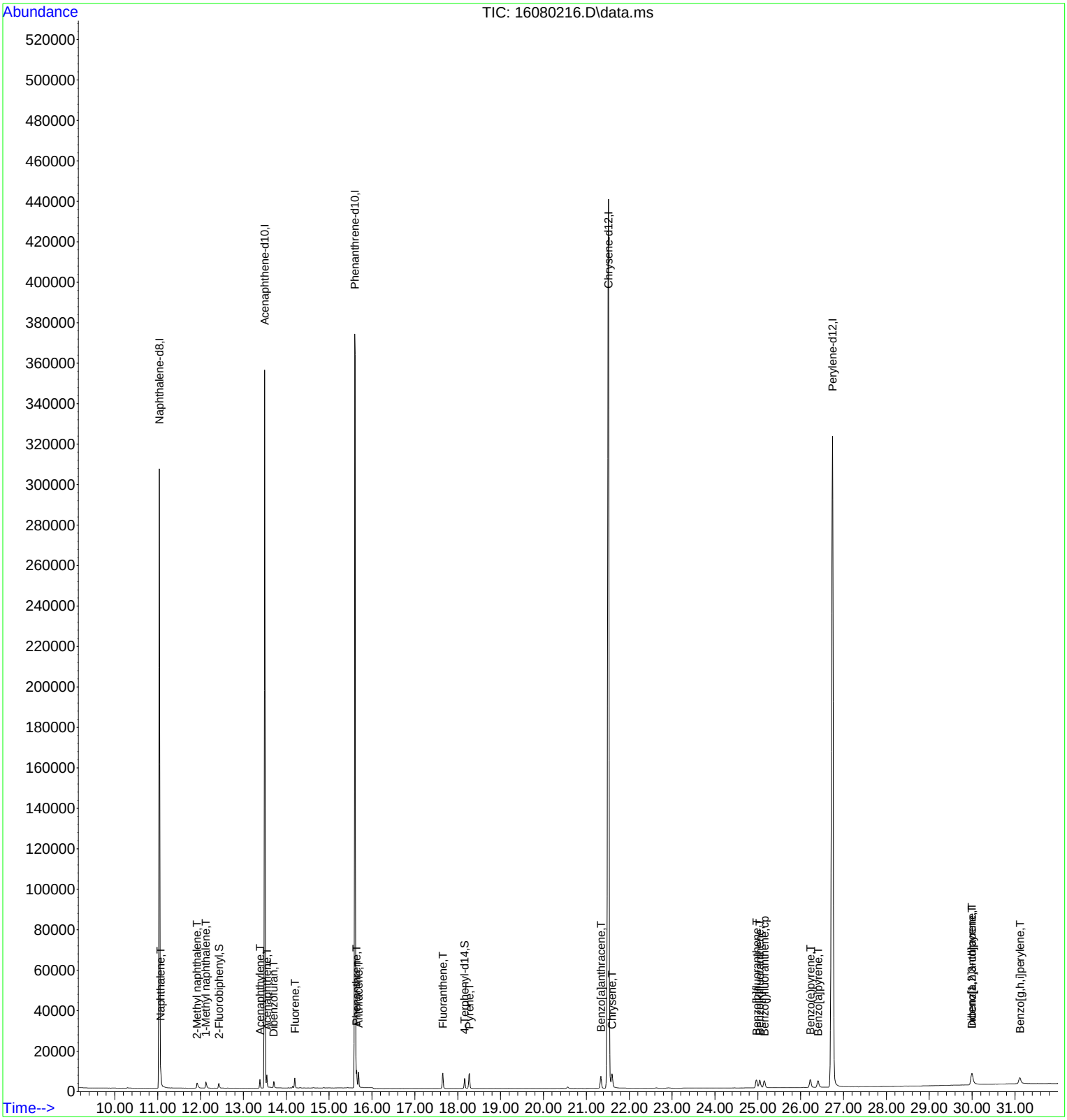
Target Compounds						Qvalue
2) Naphthalene	11.075	128	4581	50.12	ug/kg	100
3) 2-Methyl naphthalene	11.926	142	2854	49.62	ug/kg	96
4) 1-Methyl naphthalene	12.125	142	2646	50.10	ug/kg	99
7) Acenaphthylene	13.384	152	4231	48.86	ug/kg	99
8) Acenaphthene	13.549	153	2750	50.13	ug/kg	98
9) Dibenzofuran	13.714	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

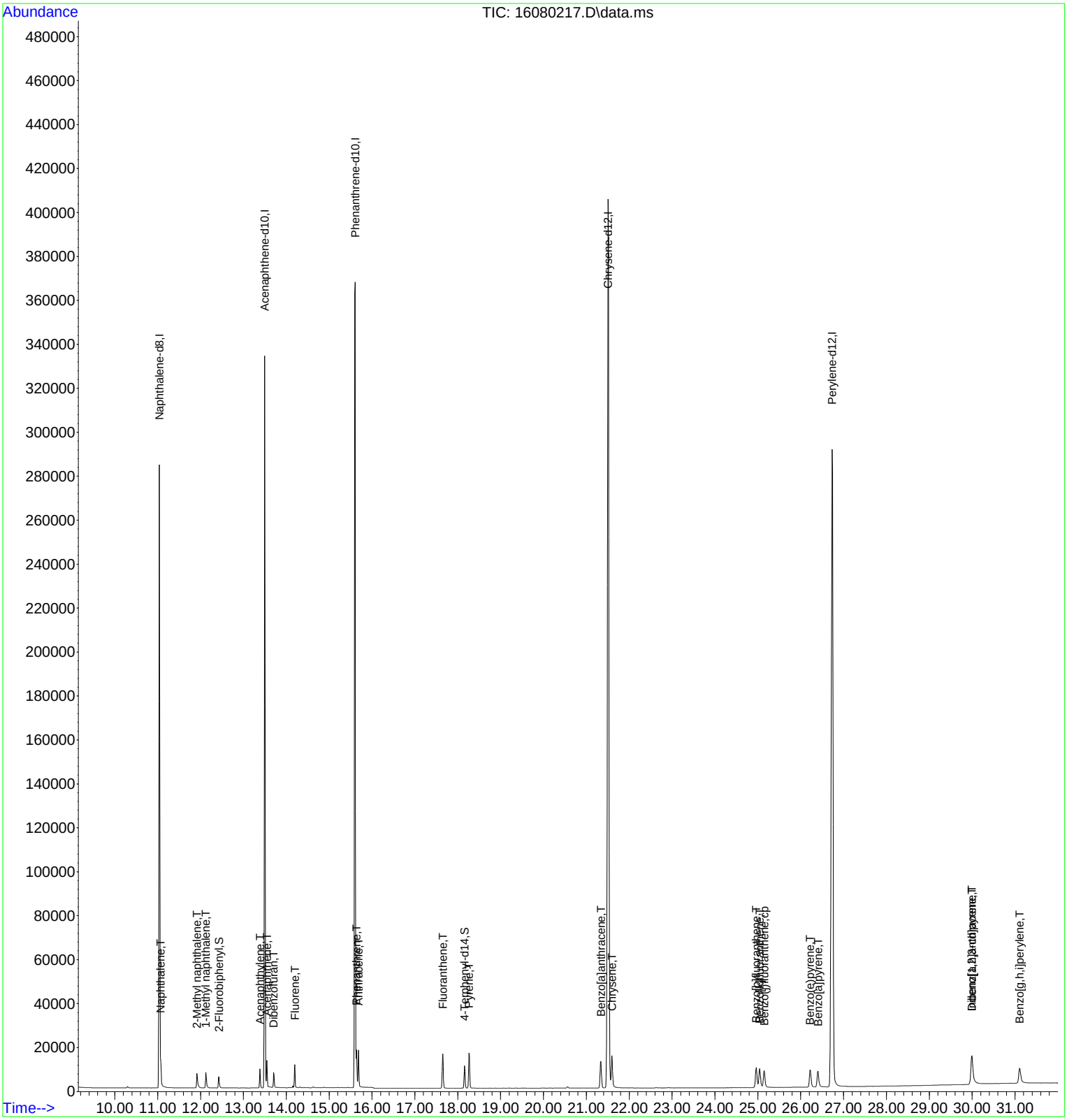
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	343877	4000.00	ug/kg	88
6) Acenaphthene-d10	13.496	164	171051	4000.00	ug/kg	94
11) Phenanthrene-d10	15.606	188	460478	4000.00	ug/kg	92
17) Chrysene-d12	21.508	240	638849	4000.00	ug/kg	95
20) Perylene-d12	26.734	264	558956	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

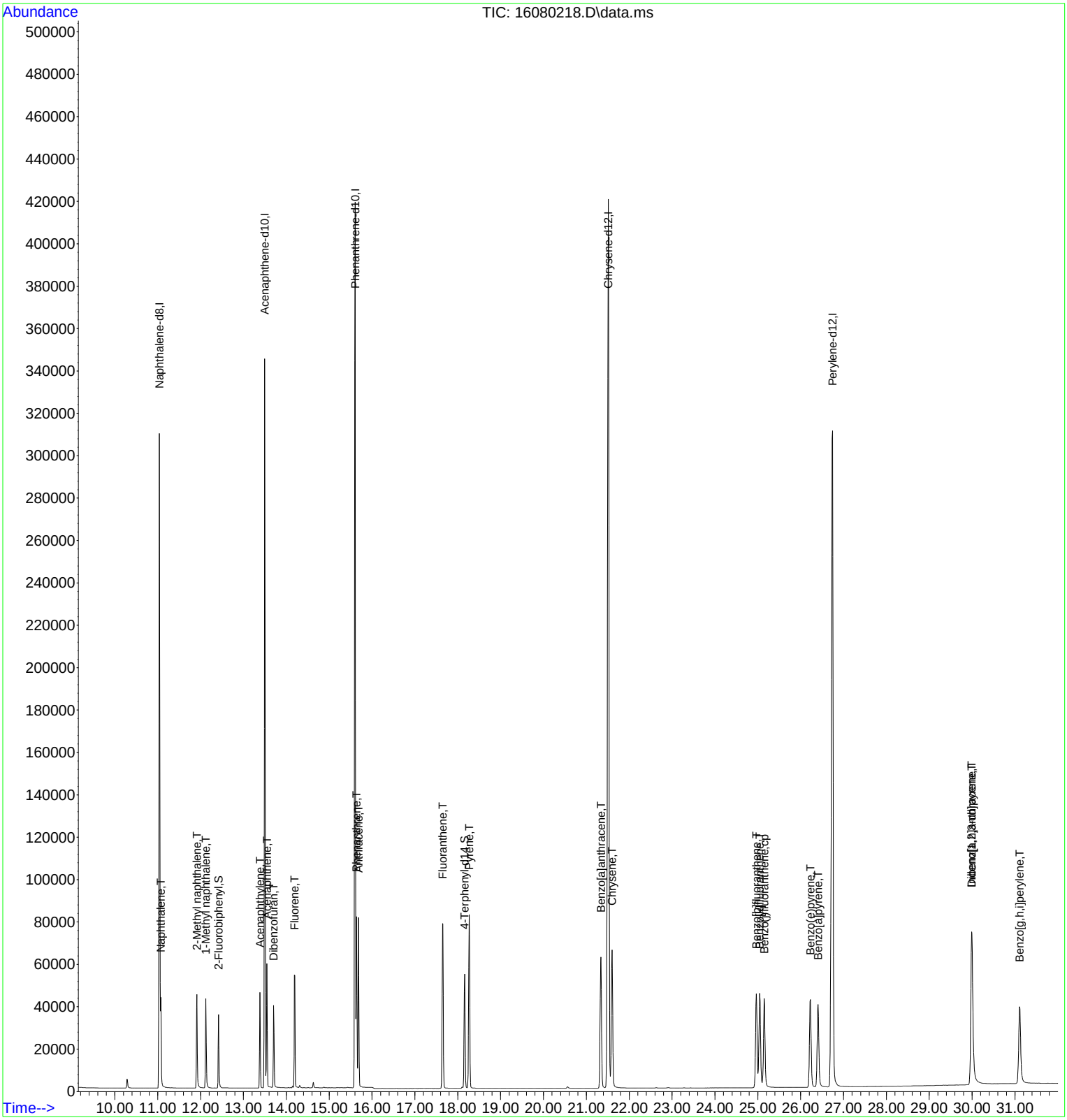
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	368275	4000.00	ug/kg	94
6) Acenaphthene-d10	13.495	164	176937	4000.00	ug/kg	97
11) Phenanthrene-d10	15.605	188	485885	4000.00	ug/kg	97
17) Chrysene-d12	21.509	240	652222	4000.00	ug/kg	97
20) Perylene-d12	26.743	264	588578	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

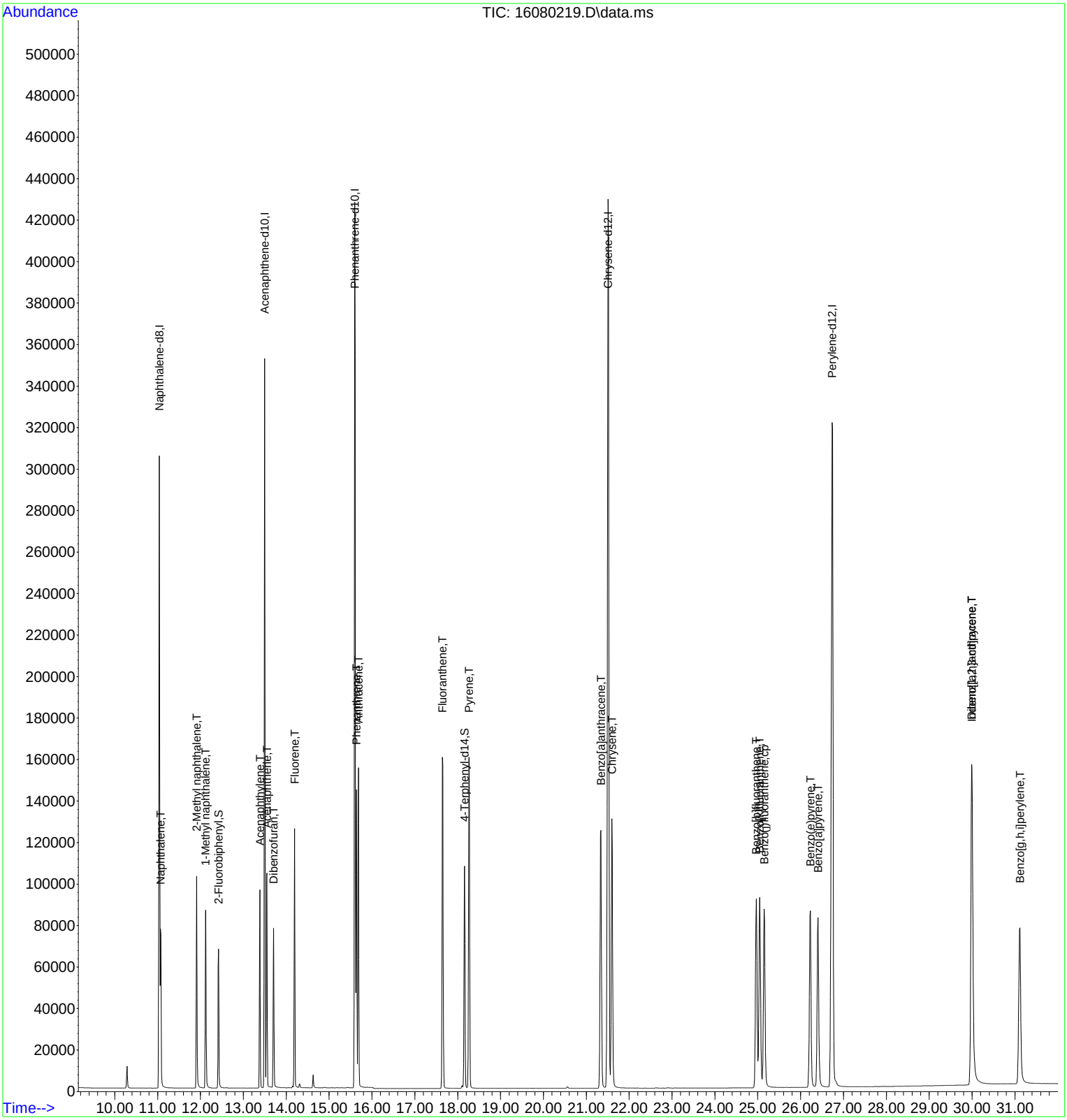
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	386528	4000.00	ug/kg	98
6) Acenaphthene-d10	13.497	164	183850	4000.00	ug/kg	101
11) Phenanthrene-d10	15.598	188	503015	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	674037	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	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%#			

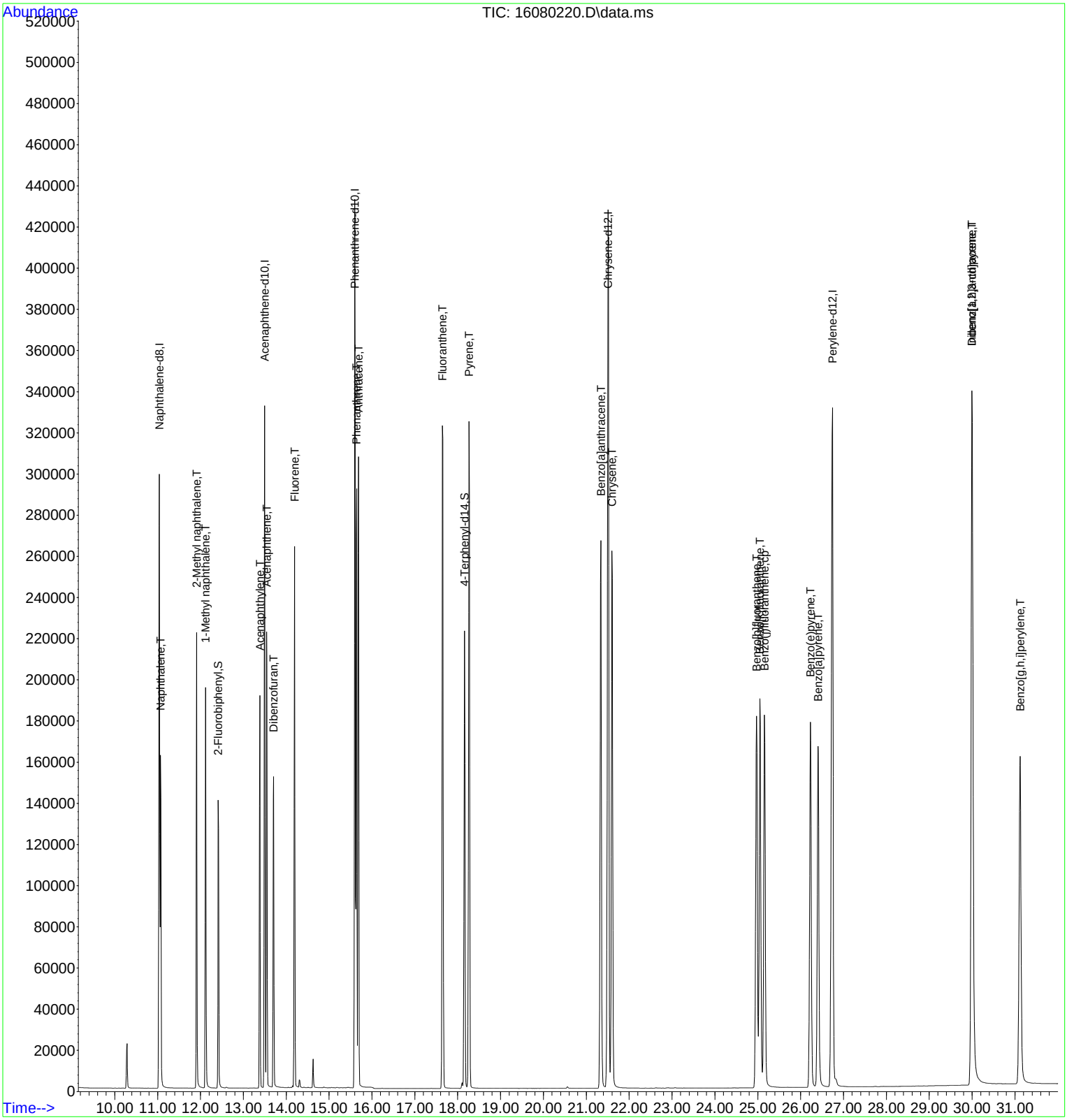
Target Compounds						Qvalue
2) Naphthalene	11.067	128	178638	1872.25	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	116176	1934.93	ug/kg	100
4) 1-Methyl naphthalene	12.117	142	106548	1932.59	ug/kg	100
7) Acenaphthylene	13.385	152	174601	1993.09	ug/kg	100
8) Acenaphthene	13.541	153	108721	1958.92	ug/kg	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

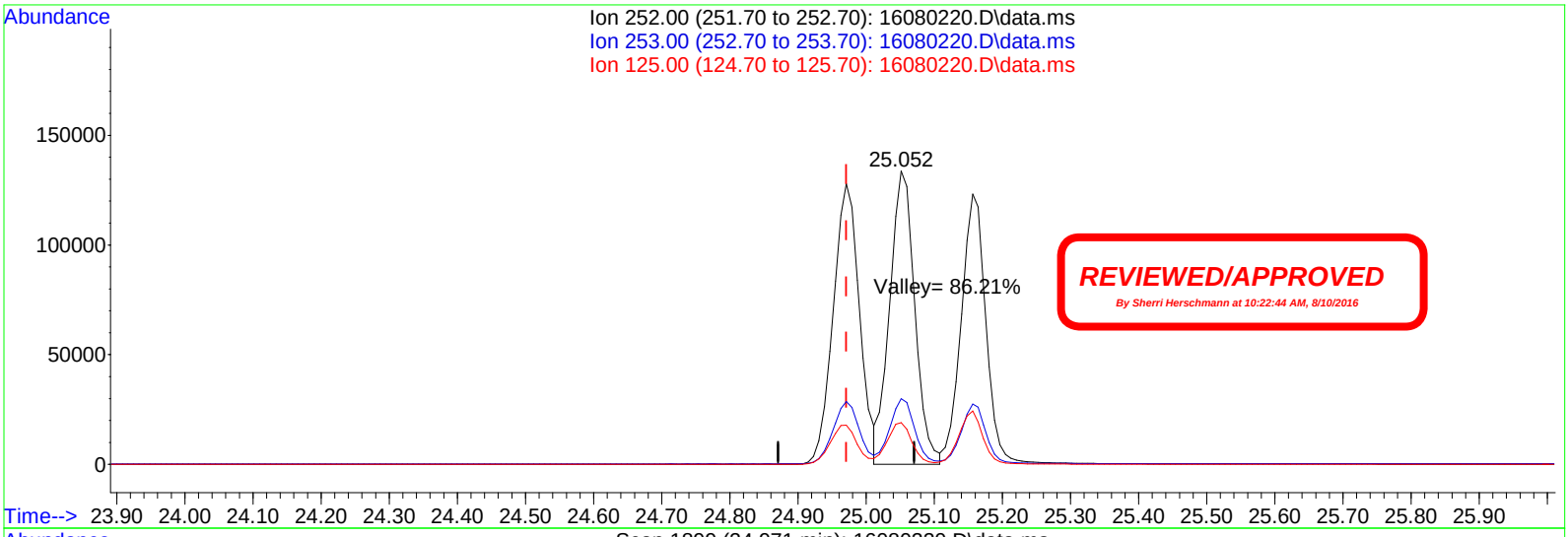
Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

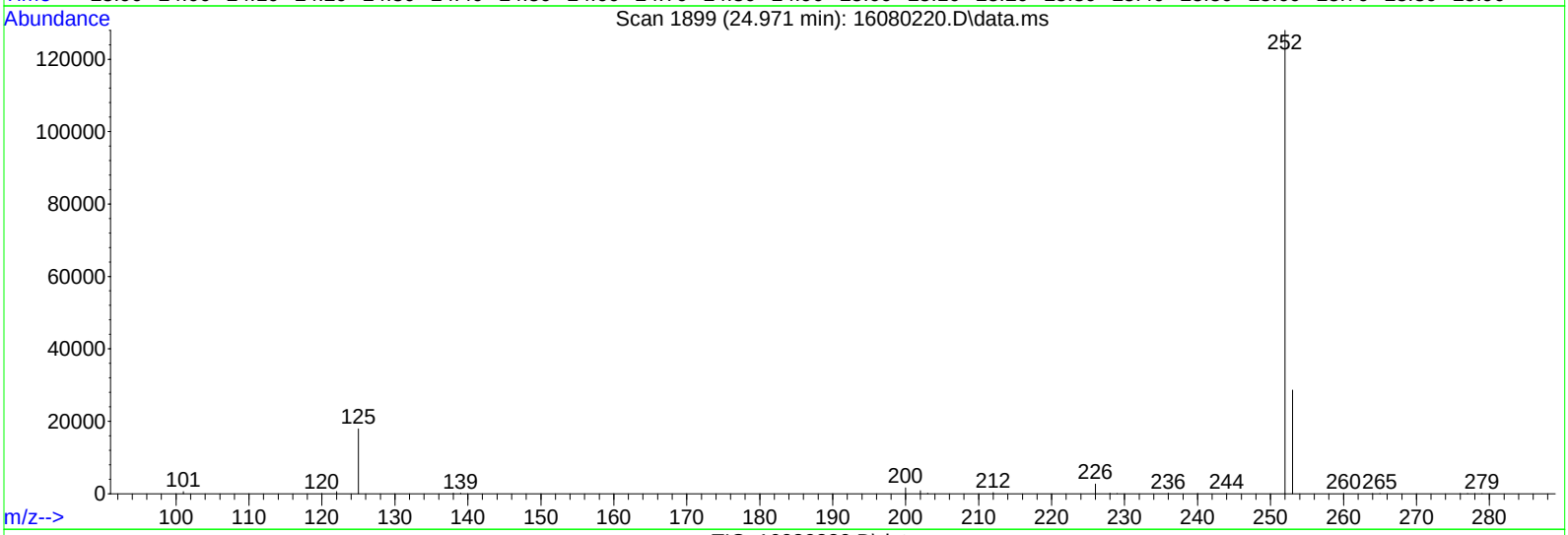


Quantitation Report (Qedit)

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%			

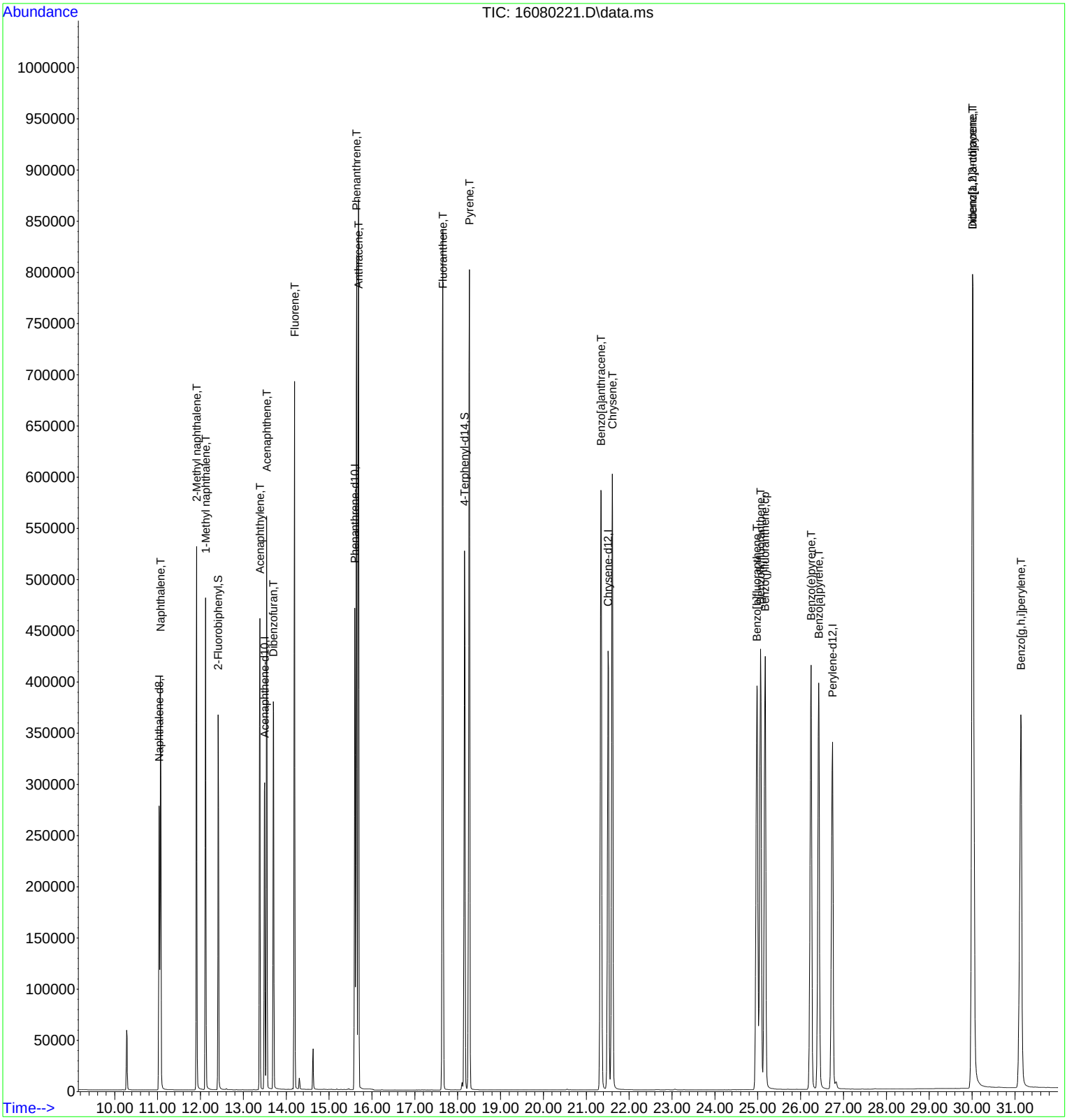
Target Compounds						Qvalue
2) Naphthalene	11.067	128	431837	4756.84	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	282882	4951.78	ug/kg	99
4) 1-Methyl naphthalene	12.118	142	255849	4877.39	ug/kg	99
7) Acenaphthylene	13.386	152	429570	5114.51	ug/kg	99
8) Acenaphthene	13.542	153	265597	4991.34	ug/kg	99
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%#			

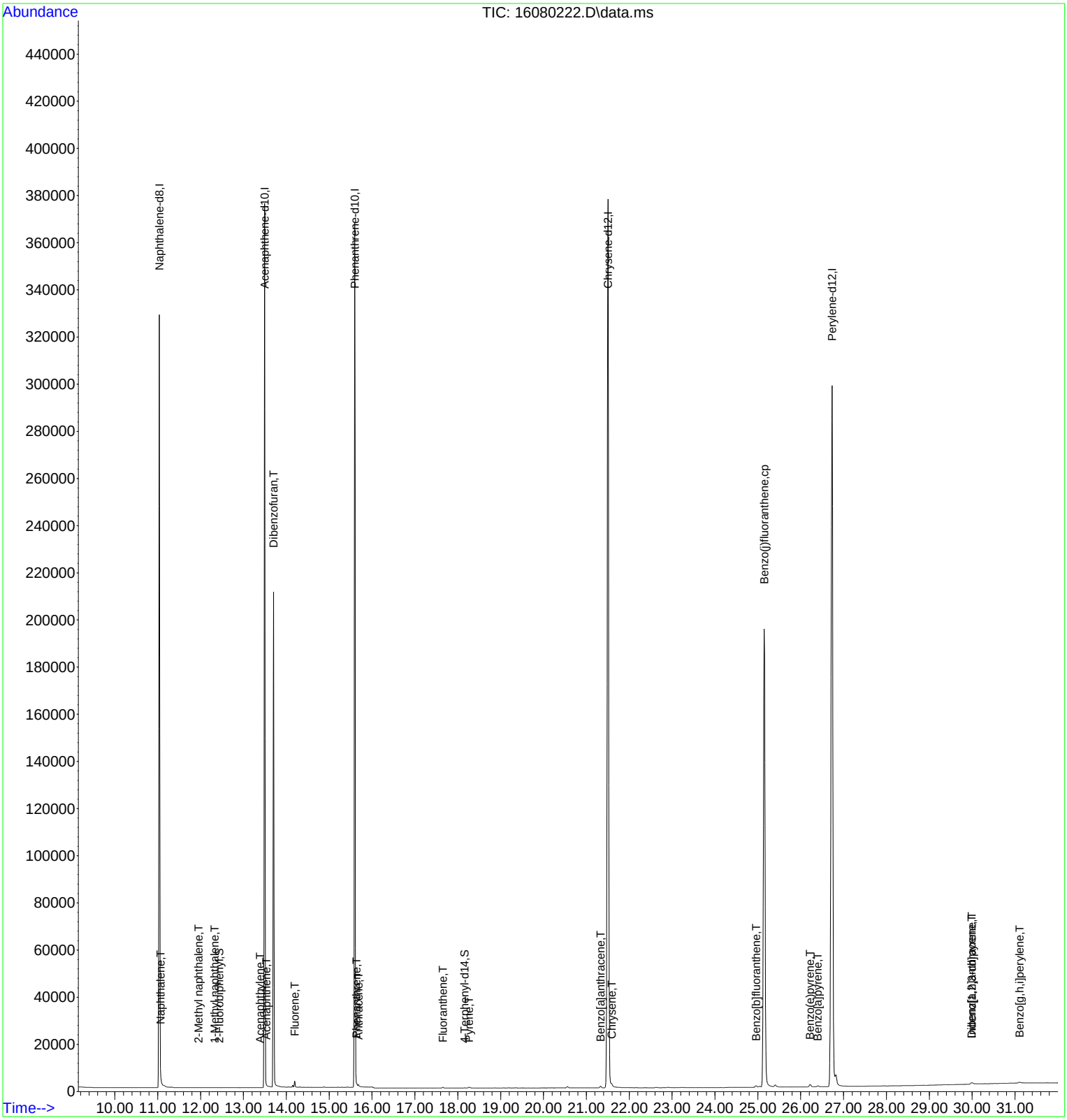
Target Compounds						Qvalue
2) Naphthalene	11.074	128	64	0.64	ug/kg	87
3) 2-Methyl naphthalene	11.950	142	46	0.73	ug/kg	89
4) 1-Methyl naphthalene	12.315	142	3	0.05	ug/kg	91
7) Acenaphthylene	13.383	152	54	0.57	ug/kg	92
8) Acenaphthene	13.539	153	55	0.91	ug/kg	95
9) Dibenzofuran	13.704	168	201819	2356.16	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

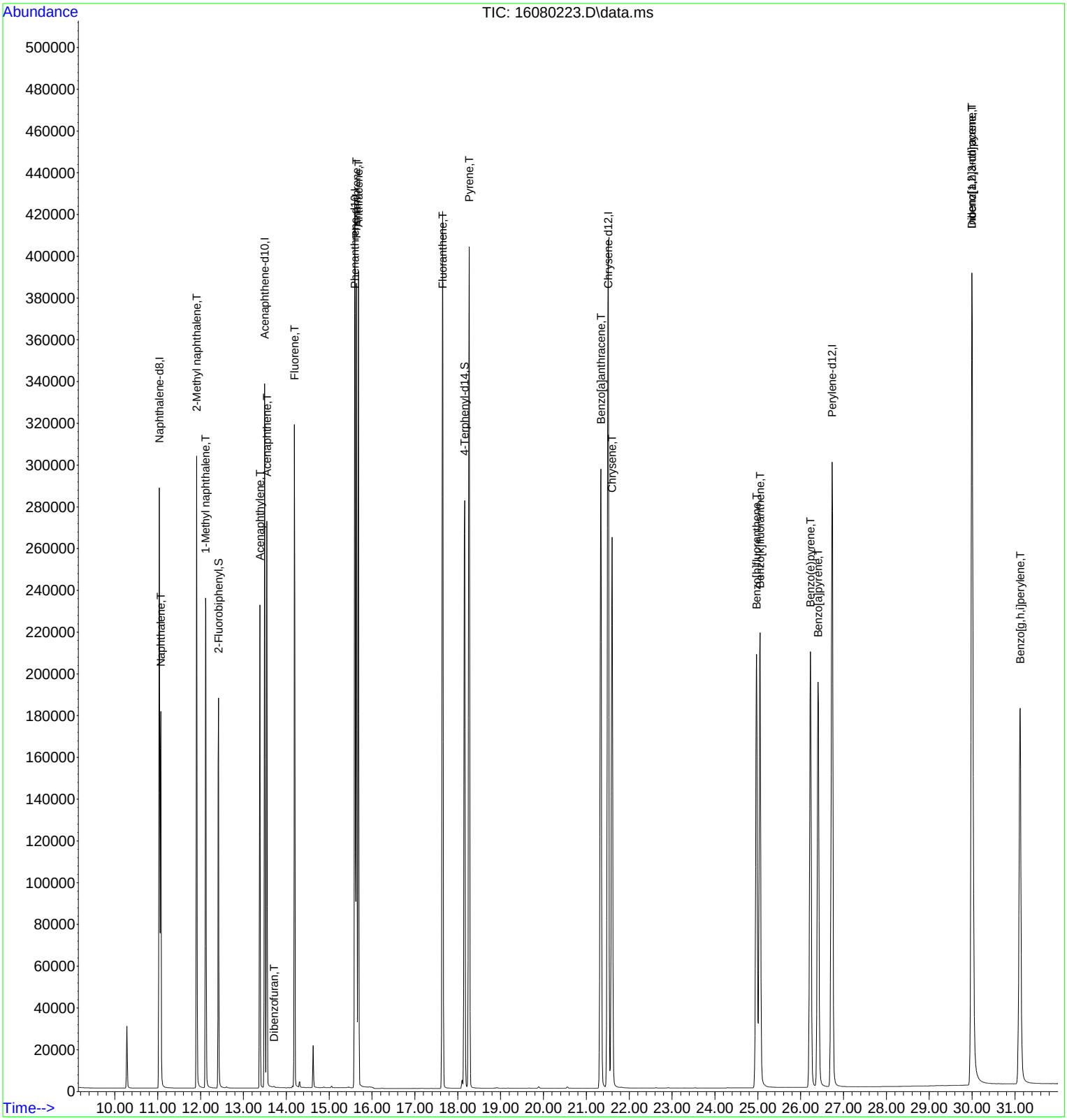
(#) = qualifier out of range (m) = manual integration (+) = signals summed

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

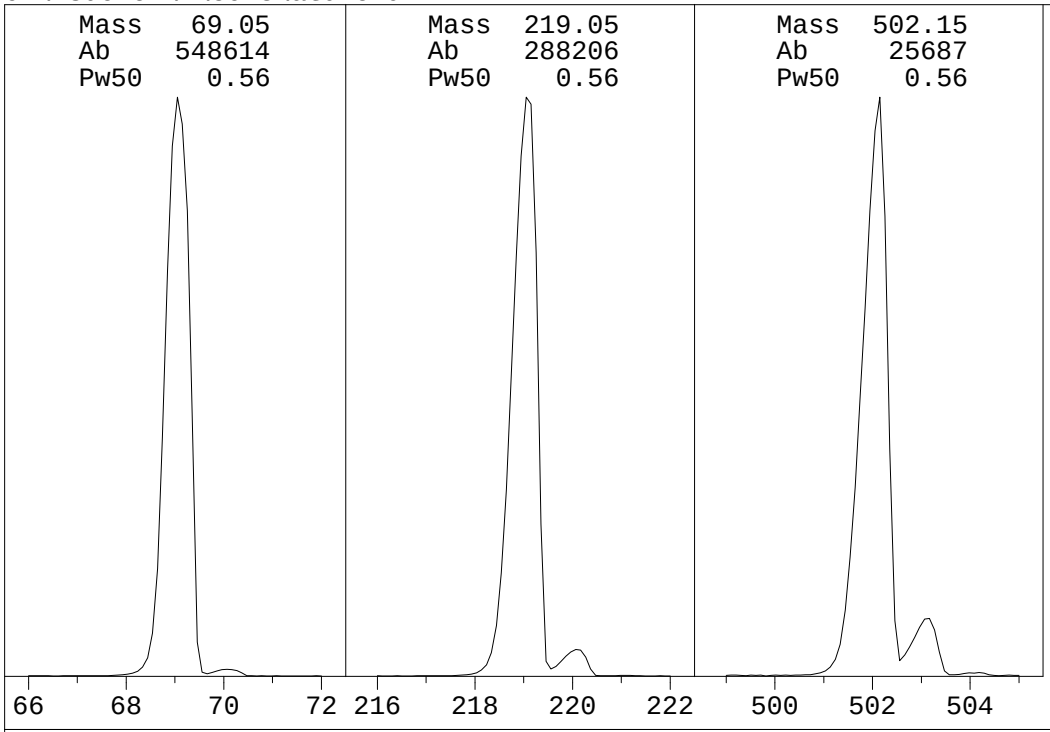
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160805**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160806-1**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160806-2**

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

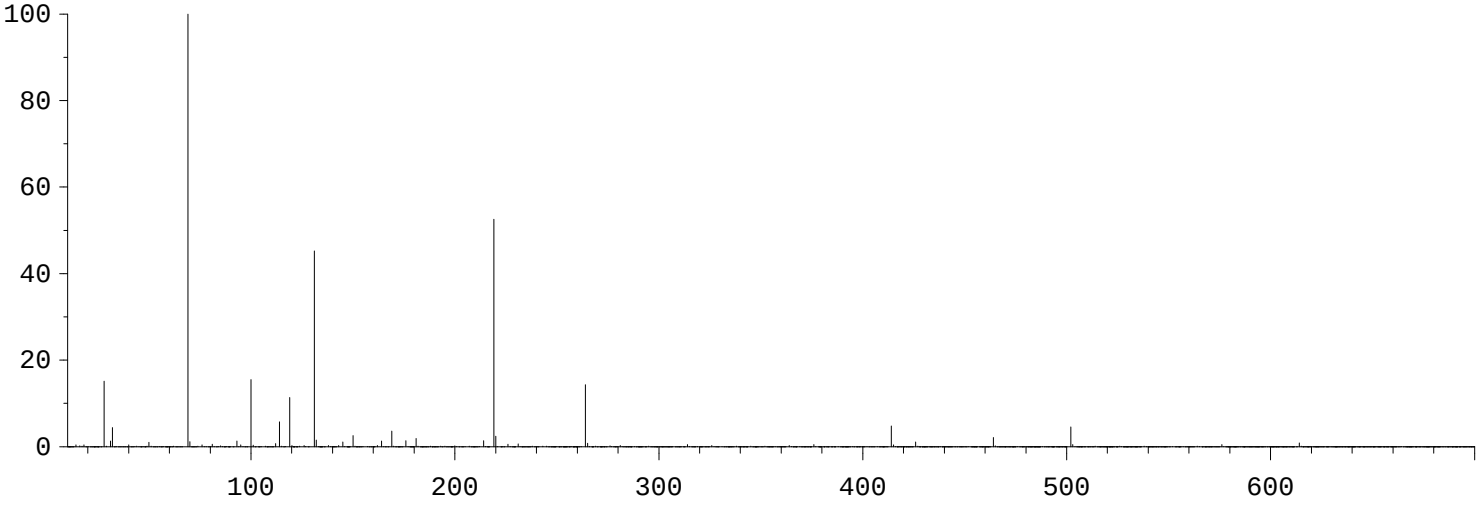


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2078
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	0.004
		DC Pol	NEG
Repeller	32.13		
IonFcus	101.5	HEDEnab	ON
EntLens	14.5	EMVolts	1271
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

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

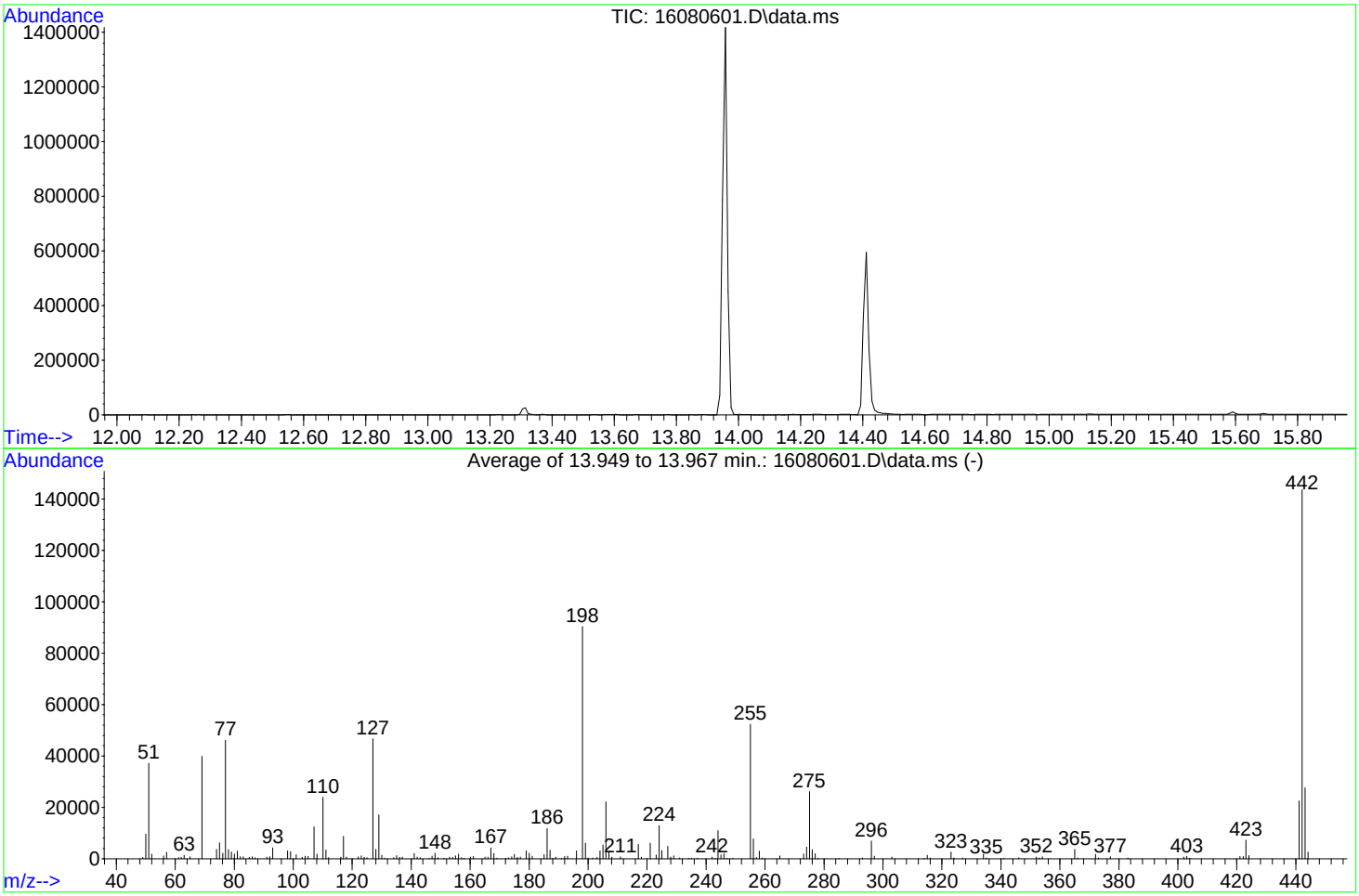
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

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

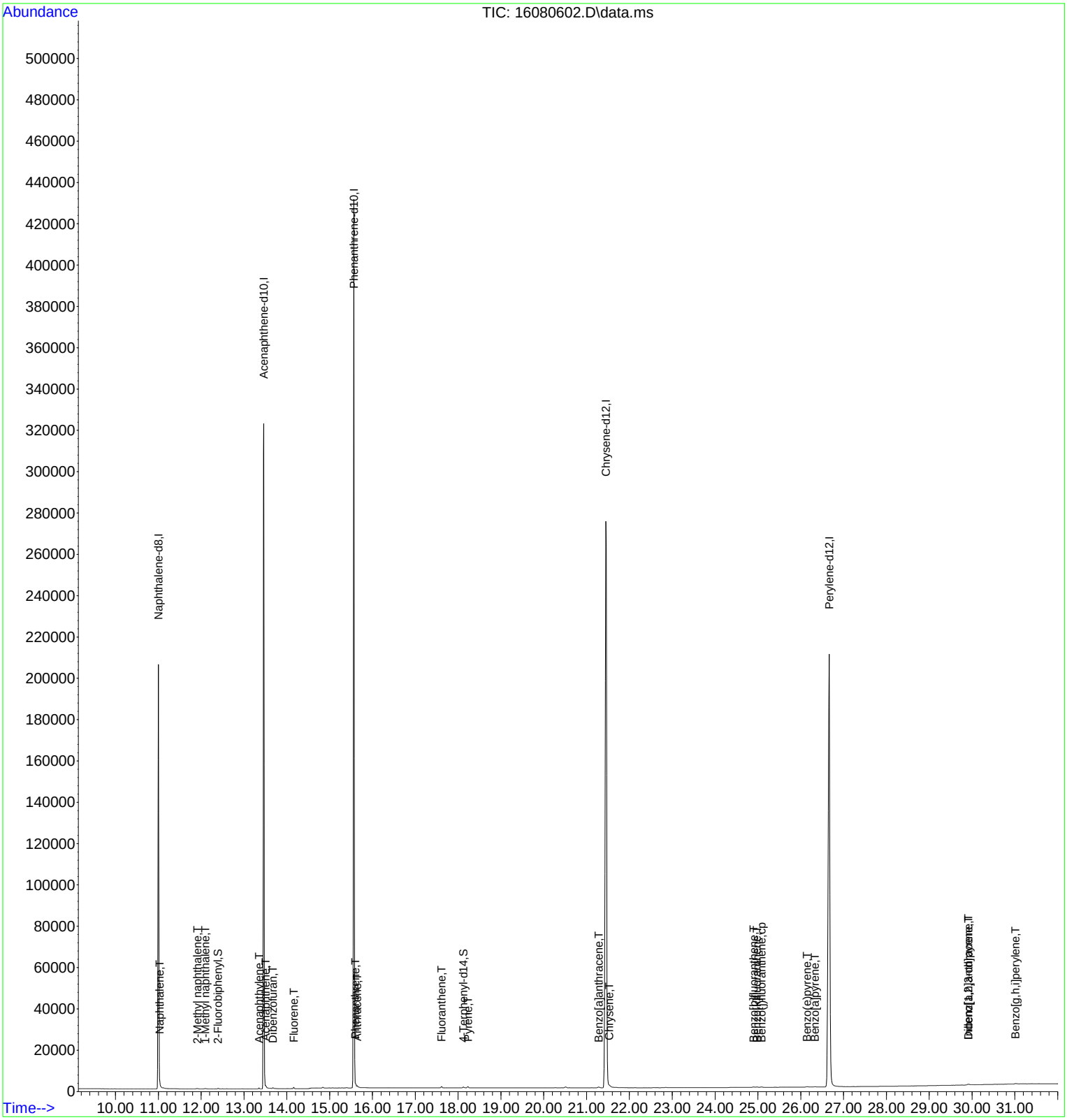
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	252361	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	178320	4000.00	ug/kg	110
11) Phenanthrene-d10	15.567	188	500638	4000.00	ug/kg	97
17) Chrysene-d12	21.448	240	428962	4000.00	ug/kg	93
20) Perylene-d12	26.664	264	384584	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

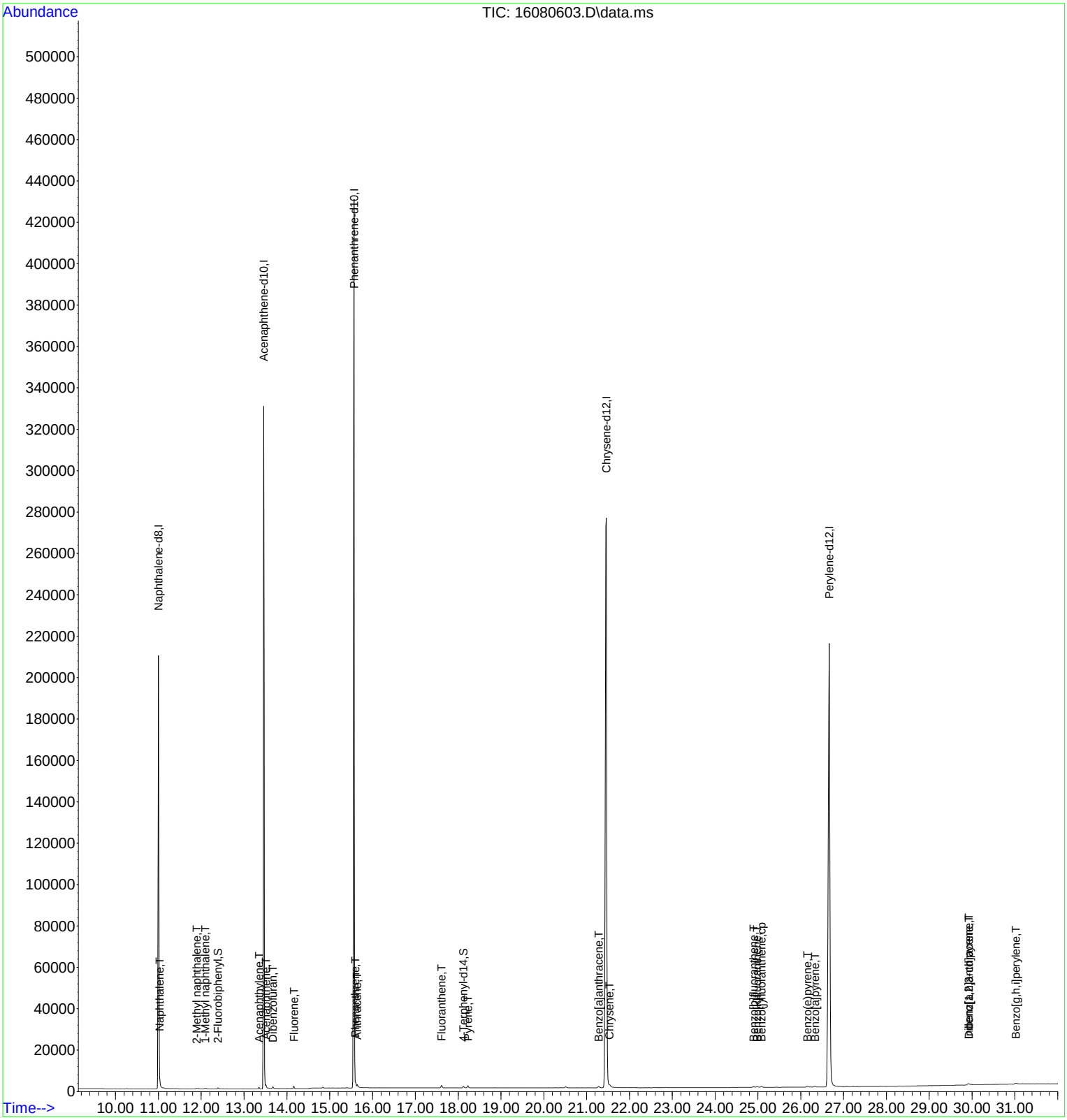
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	260907	4000.00	ug/kg	99
6) Acenaphthene-d10	13.462	164	173258	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	498791	4000.00	ug/kg	97
17) Chrysene-d12	21.457	240	438240	4000.00	ug/kg	95
20) Perylene-d12	26.663	264	396275	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%#			

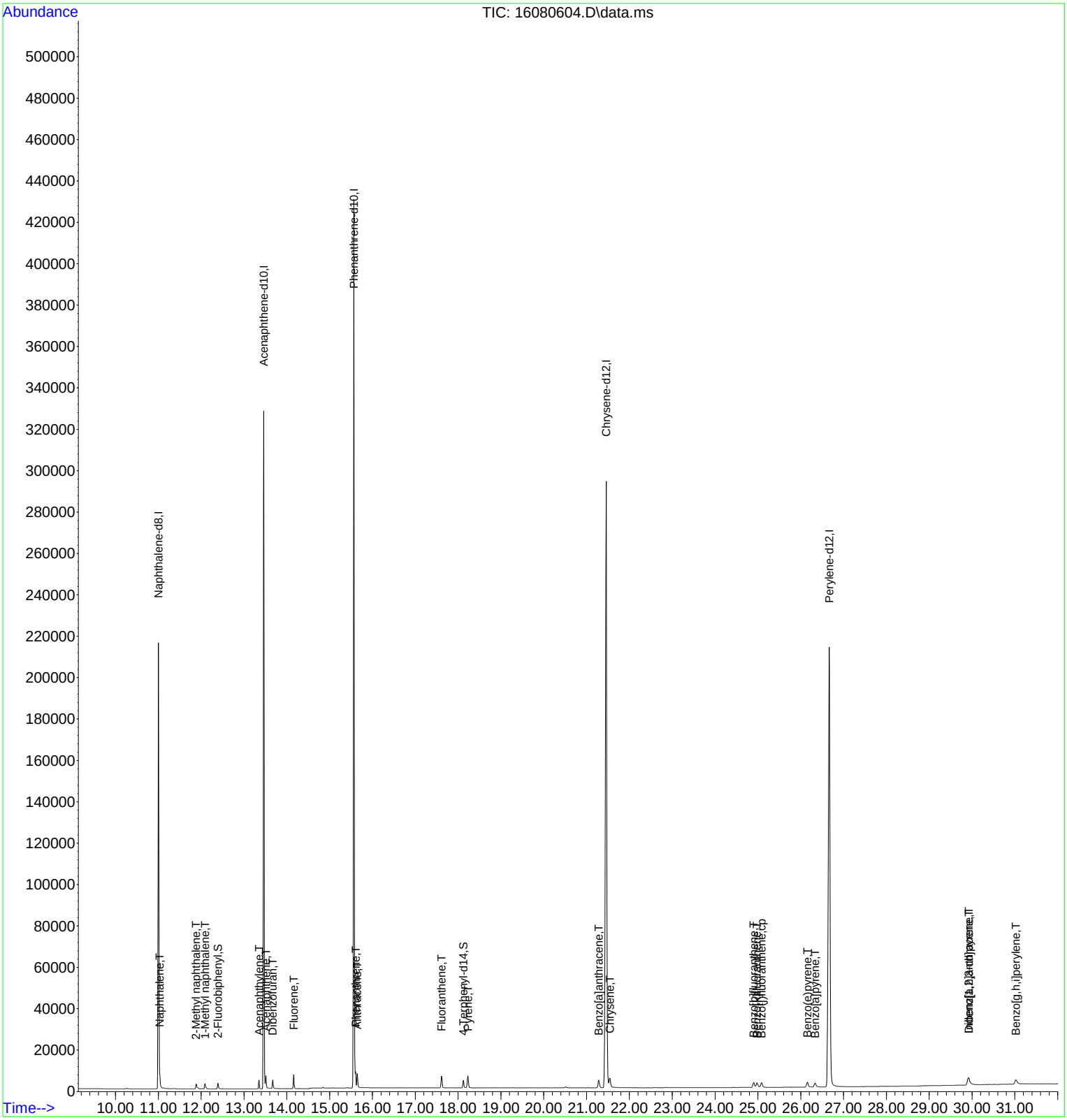
Target Compounds						Qvalue
2) Naphthalene	11.037	128	3197	50.23	ug/kg	100
3) 2-Methyl naphthalene	11.881	142	2222	51.22	ug/kg	99
4) 1-Methyl naphthalene	12.094	142	2011	50.42	ug/kg	98
7) Acenaphthylene	13.349	152	3956	49.26	ug/kg	99
8) Acenaphthene	13.512	153	2595	49.44	ug/kg	99
9) Dibenzofuran	13.675	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

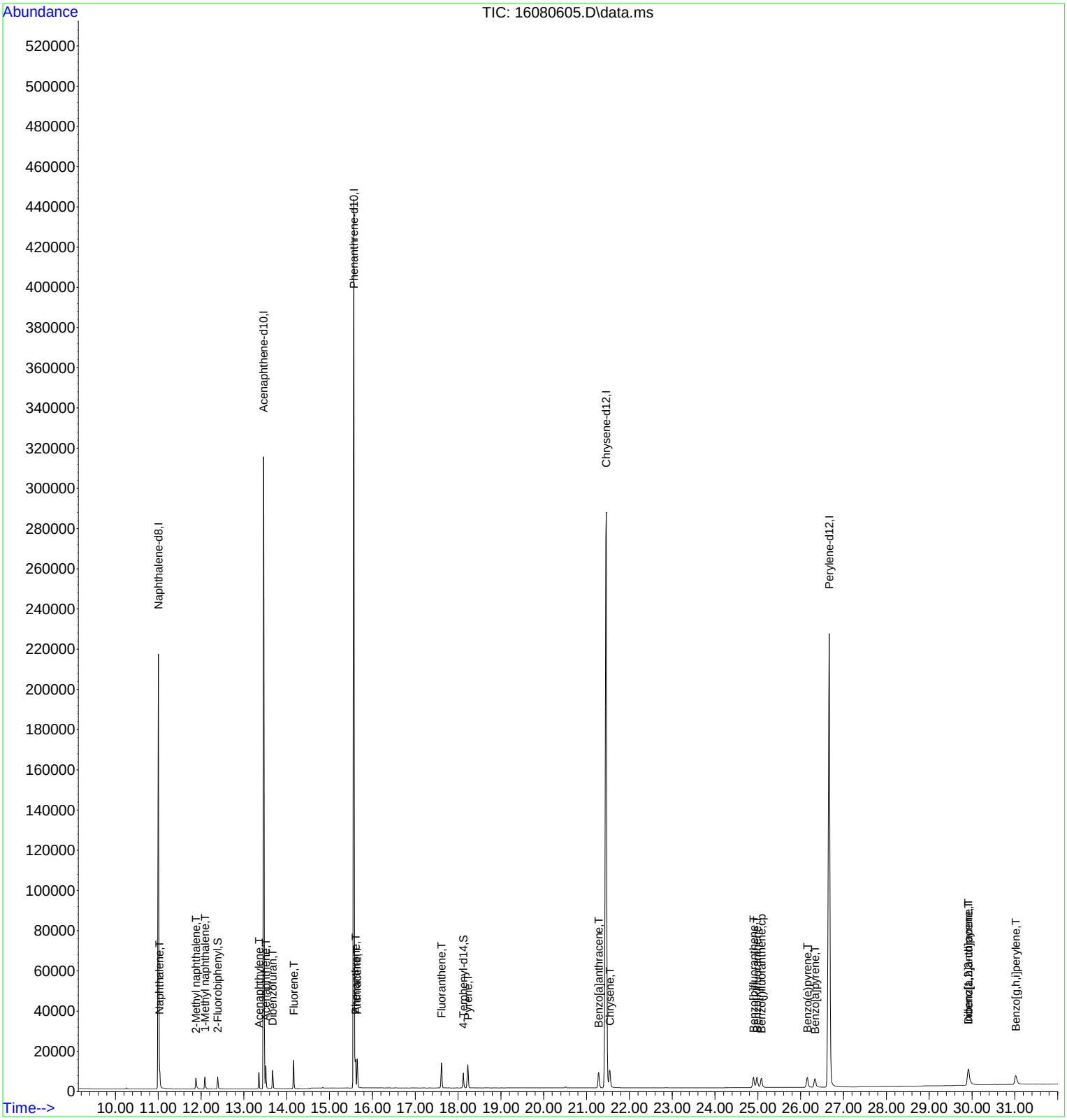
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.004	136	274991	4000.00	ug/kg	104
6) Acenaphthene-d10	13.458	164	178176	4000.00	ug/kg	110
11) Phenanthrene-d10	15.568	188	502679	4000.00	ug/kg	98
17) Chrysene-d12	21.458	240	453820	4000.00	ug/kg	98
20) Perylene-d12	26.664	264	411967	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%#			

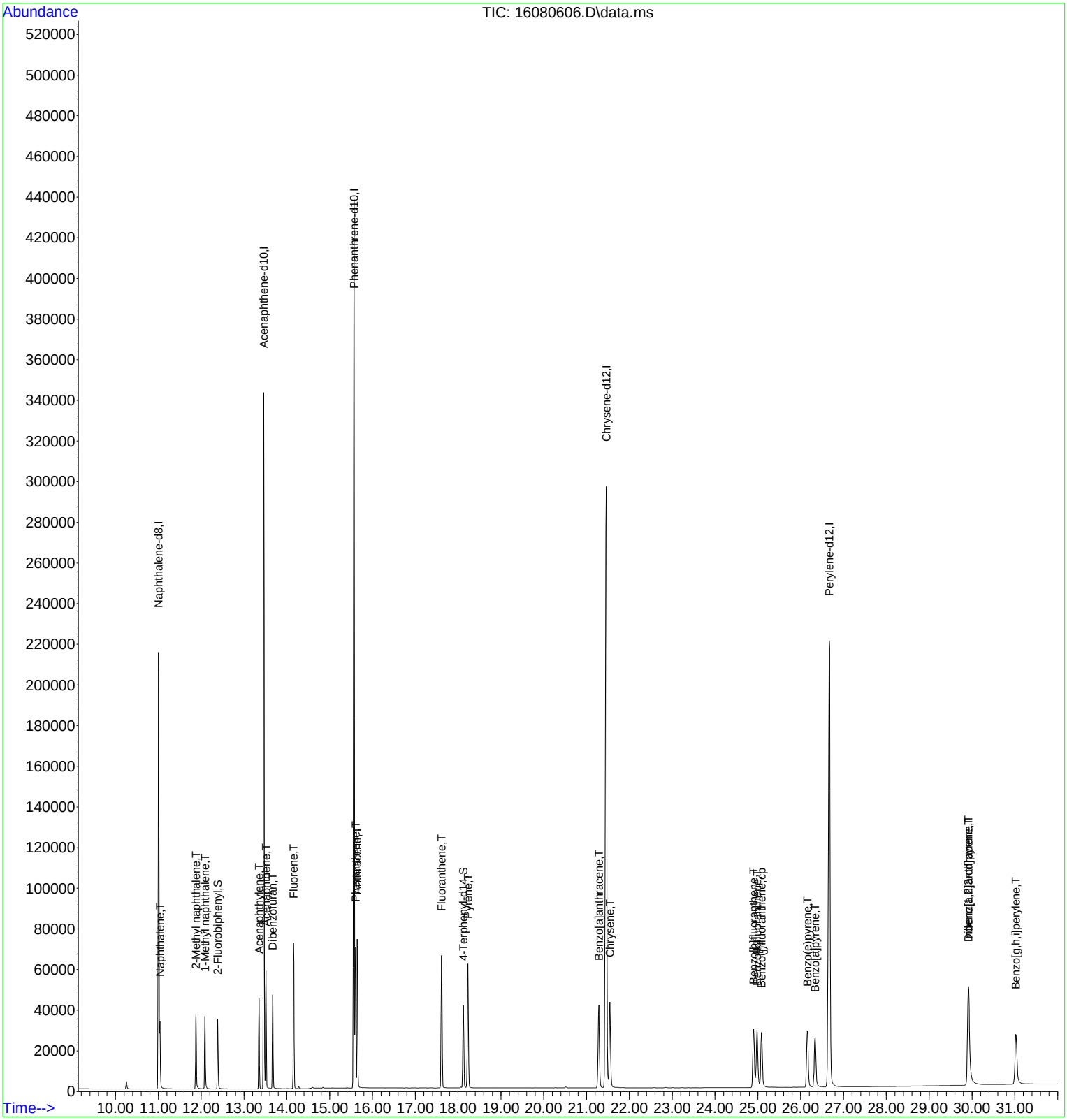
Target Compounds						Qvalue
2) Naphthalene	11.036	128	31957	481.49	ug/kg	100
3) 2-Methyl naphthalene	11.880	142	22525	497.88	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	20452	491.73	ug/kg	97
7) Acenaphthylene	13.348	152	39741	489.08	ug/kg	100
8) Acenaphthene	13.511	153	25750	484.90	ug/kg	98
9) Dibenzofuran	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

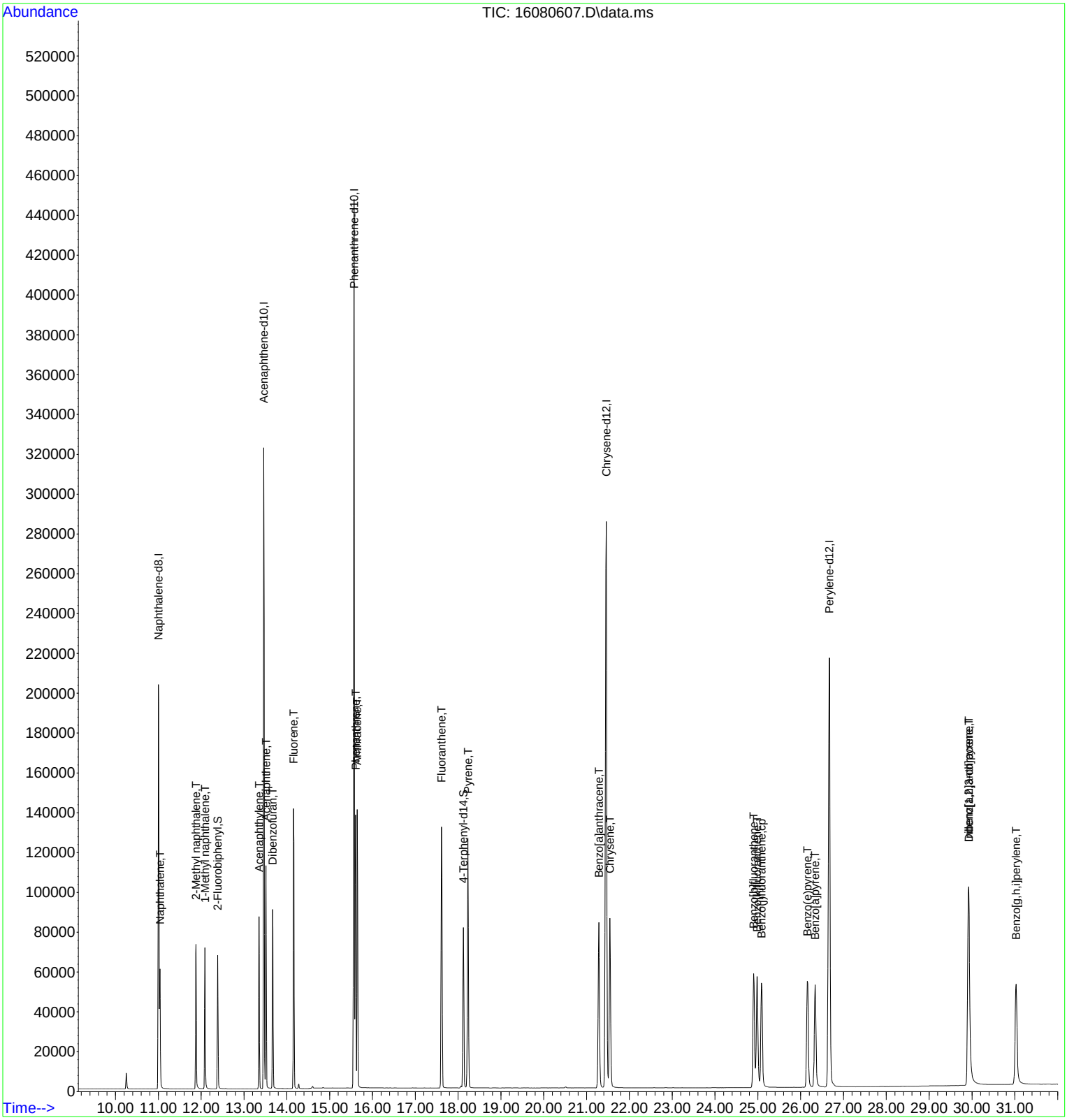
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	267822	4000.00	ug/kg	101
6) Acenaphthene-d10	13.461	164	166716	4000.00	ug/kg	103
11) Phenanthrene-d10	15.568	188	501021	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	446752	4000.00	ug/kg	97
20) Perylene-d12	26.674	264	404758	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

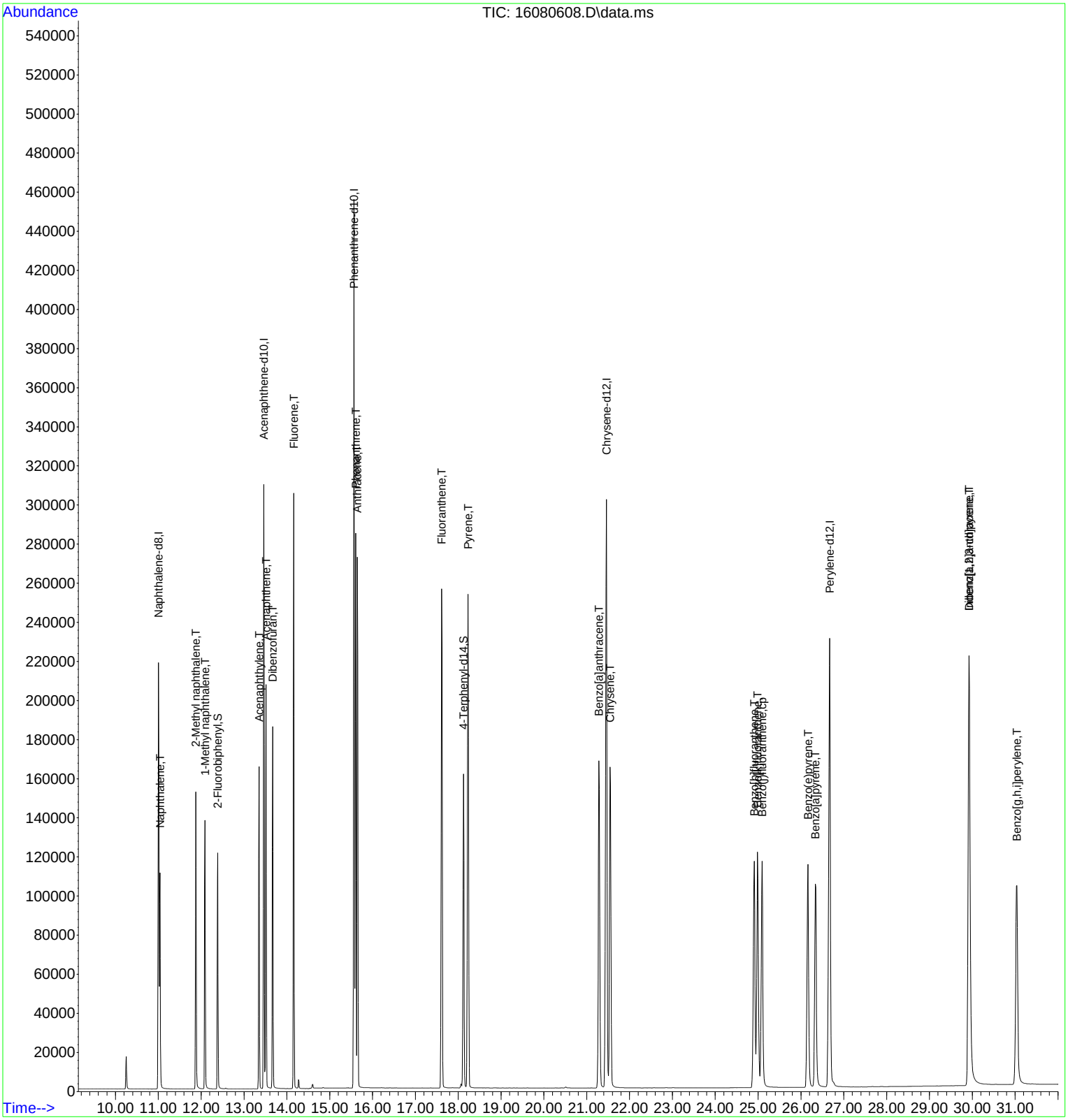
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	264758	4000.00	ug/kg	100
6) Acenaphthene-d10	13.464	164	162191	4000.00	ug/kg	100
11) Phenanthrene-d10	15.568	188	514937	4000.00	ug/kg	100
17) Chrysene-d12	21.458	240	462813	4000.00	ug/kg	100
20) Perylene-d12	26.674	264	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

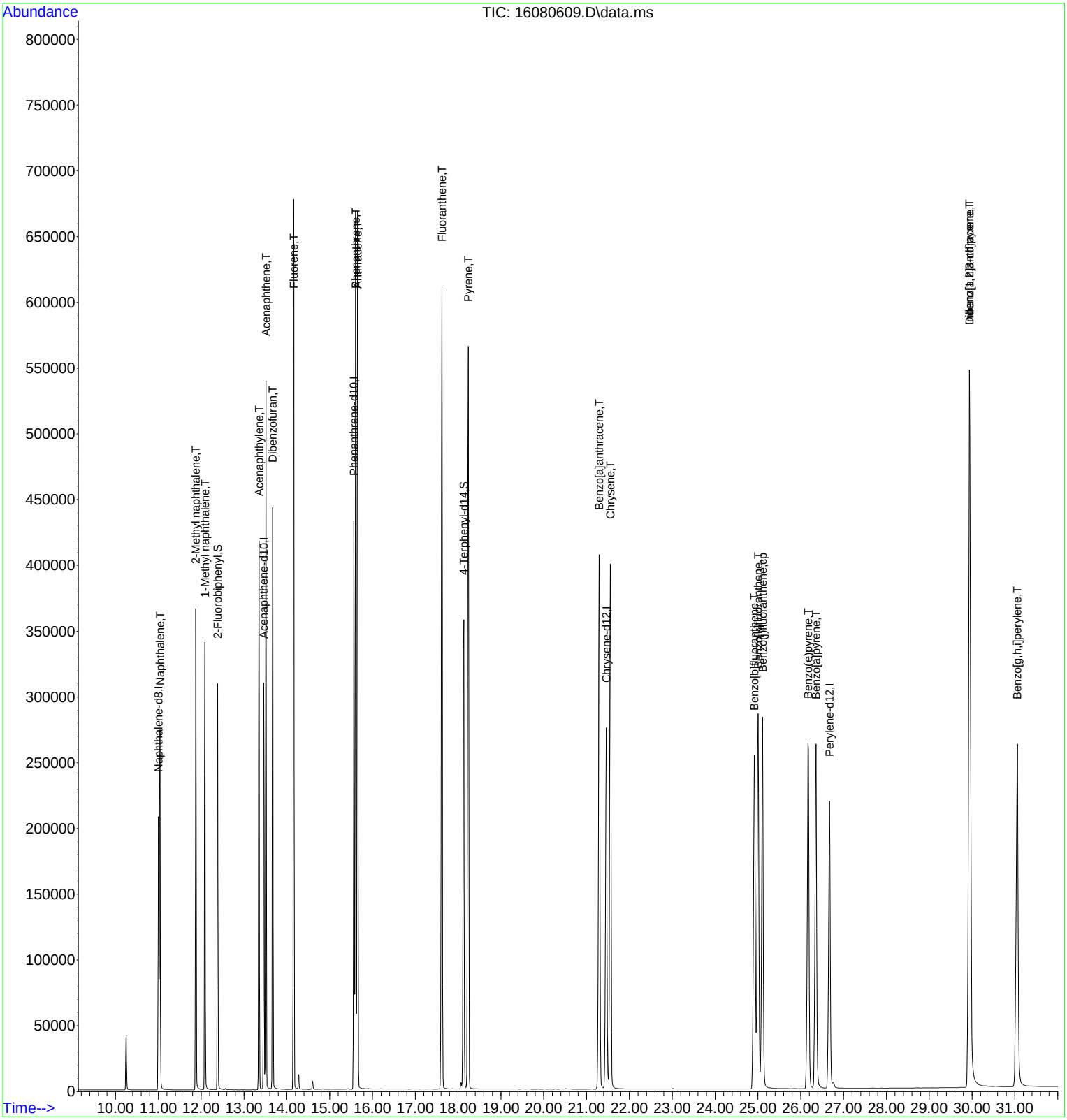
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	252241	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	159272	4000.00	ug/kg	98
11) Phenanthrene-d10	15.567	188	499657	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	432494	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	396956	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

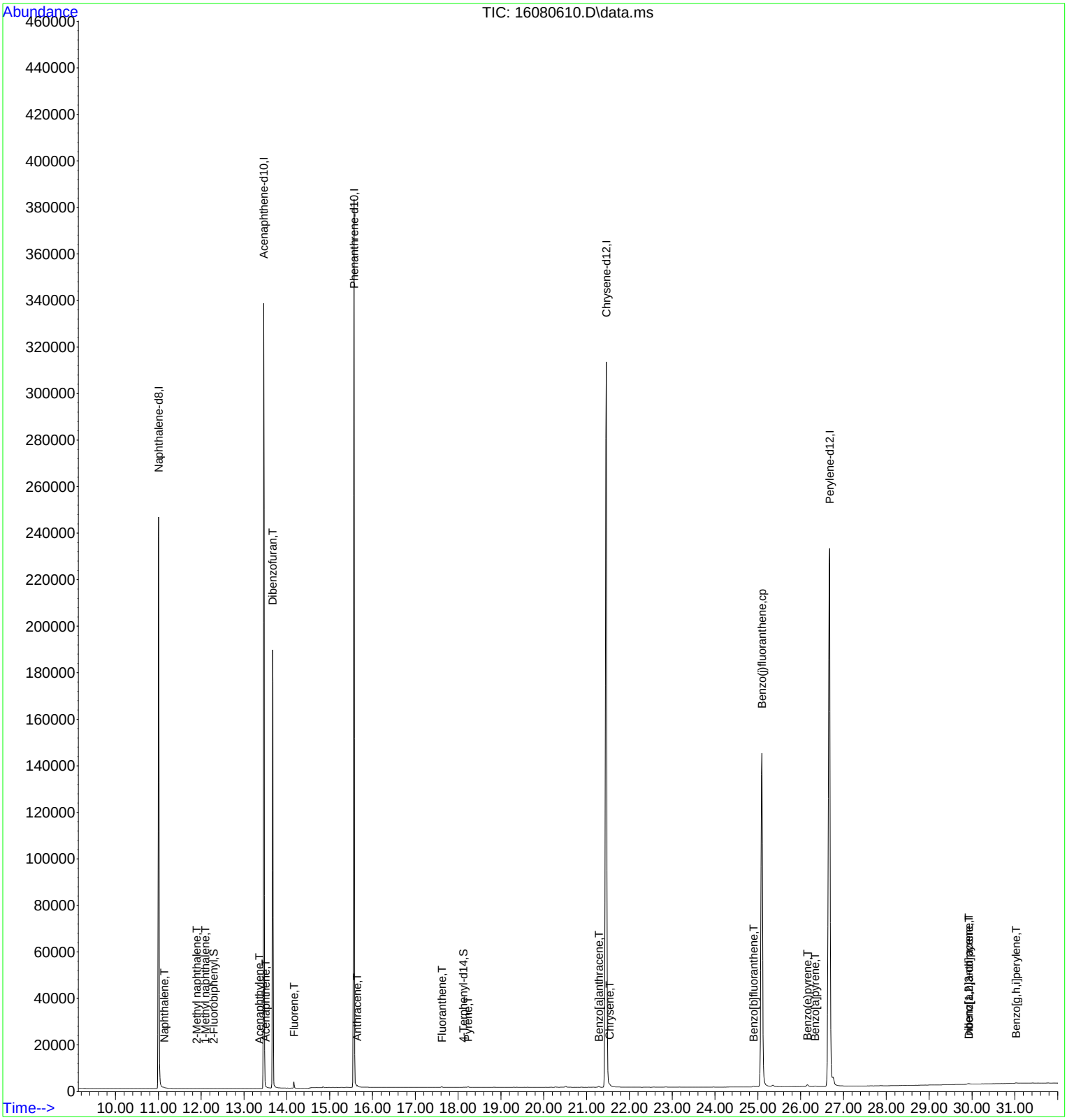
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.008	136	322112	4000.00	ug/kg	122
6) Acenaphthene-d10	13.462	164	171075	4000.00	ug/kg	105
11) Phenanthrene-d10	15.568	188	430799	4000.00	ug/kg	84
17) Chrysene-d12	21.459	240	477806	4000.00	ug/kg	103
20) Perylene-d12	26.674	264	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

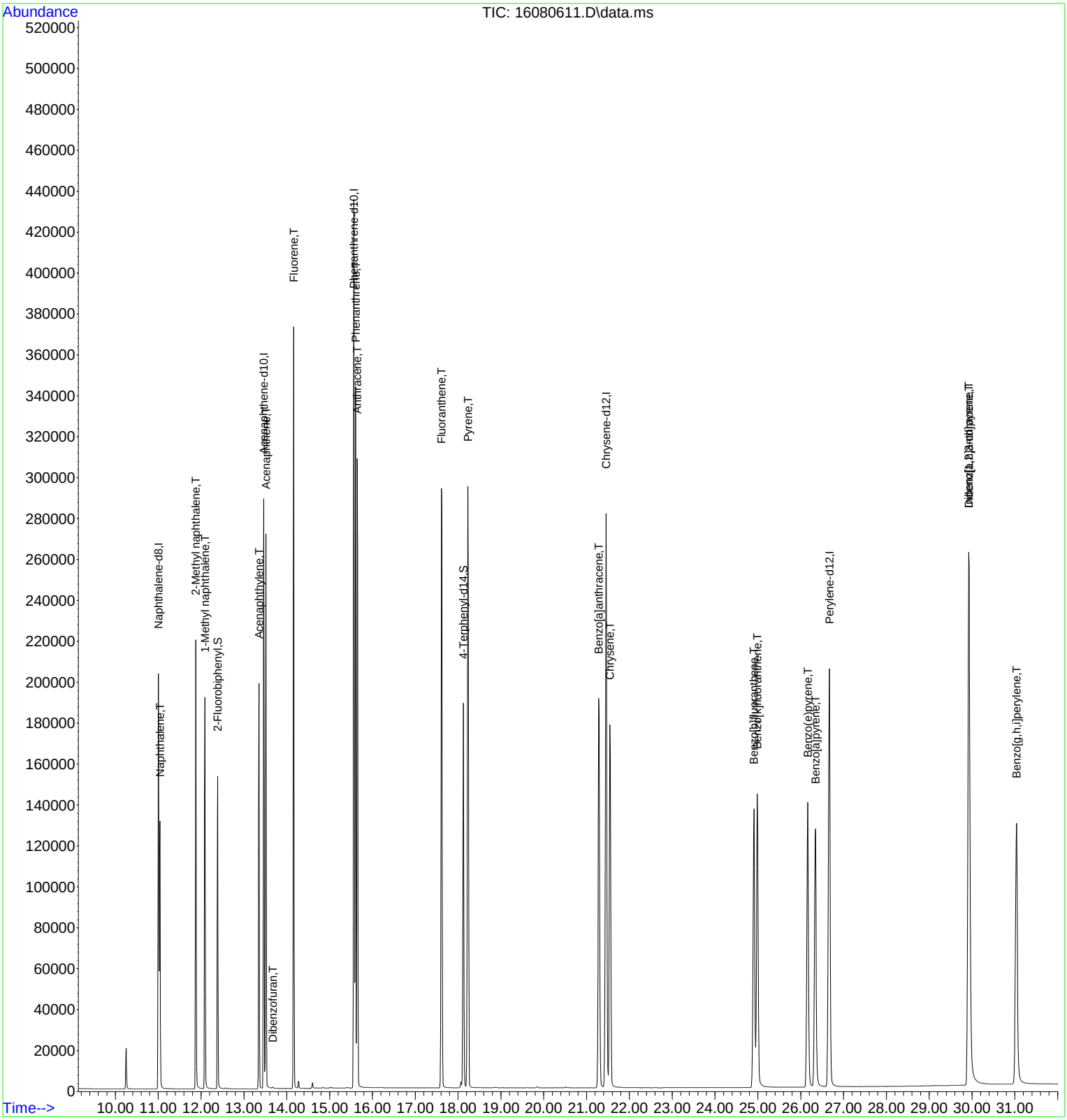
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	245742	4000.00	ug/kg	93
6) Acenaphthene-d10	13.464	164	154116	4000.00	ug/kg	95
11) Phenanthrene-d10	15.567	188	484926	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	430894	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	395276	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
1607294

ICP-MS3_160809A
For

DHL Work Order
1607294

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: **8/4/2016 3:46:43 PM**
Digestion:
Prep End Date:

Prep Batch **76670** 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
1607294-04A	Soil		1.05	50	50.000	1 of 1	
1607294-05A	Soil		1.03	50	50.000	1 of 1	
1607294-06A	Soil		1.12	50	50.000	1 of 1	
1607294-07A	Soil		1.03	50	50.000	1 of 1	
1607294-08A	Soil		1.11	50	50.000	1 of 1	
1607294-09A	Soil		1.04	50	50.000	2 of 3	
1607294-09AMS	Soil		1.02	50	50.000	2 of 3	
1607294-09AMSD	Soil		1.04	50	50.000	2 of 3	
1607294-10A	Soil		1.06	50	50.000	1 of 1	
1607294-11A	Soil		1.08	50	50.000	1 of 1	
1607294-12A	Soil		1.04	50	50.000	1 of 1	
1607294-14A	Soil		1.06	50	50.000	1 of 1	
1607294-15A	Soil		1.01	50	50.000	1 of 1	
1607294-16A	Soil		1.06	50	50.000	1 of 1	
1607294-17A	Soil		1.12	50	50.000	1 of 1	
1607294-18A	Soil		1.02	50	50.000	1 of 1	
1607294-19A	Soil		1.12	50	50.000	1 of 1	
1607294-20A	Soil		1.07	50	50.000	1 of 1	
1607294-21A	Soil		1.04	50	50.000	1 of 1	
1607294-22A	Soil		1.04	50	50.000	1 of 1	
1607294-23A	Soil		1.05	50	50.000	1 of 1	
1607294-25A	Soil		1.12	50	50.000	1 of 1	
LCS-76670	Soil		1	50	50.000	of	
LCSD-76670	Soil		1	50	50.000	of	
MB-76670	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

7:30 - 7:40
7:42 - 9:42
10:07 - 12:07
12:18 - 12:28

8/5/16

REVIEWED BY
By Janice Whitt at 12:40:53 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-02A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:41:08 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-15A SS	Soil		0	0	#Num!	1 of 1	
1607294-16A SS	Soil		0	0	#Num!	1 of 1	
1607294-17A SS	Soil		0	0	#Num!	1 of 1	
1607294-18A SS	Soil		0	0	#Num!	1 of 1	
1607294-19A SS	Soil		0	0	#Num!	1 of 1	
1607294-20A SS	Soil		0	0	#Num!	1 of 1	
1607294-21A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:41:13 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-27A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-28A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-29A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-31A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:41:23 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-38A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-39A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-40A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-41A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-42A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-43A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:41:26 PM, 8/11/2016

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 12:41:28 PM, 8/11/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 3:46:43 PM**
Digestion: **Start: 8/5/2016 7:30:00 AM / Stop: 8/5/2016 12:28:00 PM**
Prep End Date: **8/5/2016 3:07:45 PM**

Prep Batch **76670** 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
1607294-04A	Soil		1.05	50	47.619	1 of 1	
1607294-05A	Soil		1.03	50	48.544	1 of 1	
1607294-06A	Soil		1.12	50	44.643	1 of 1	
1607294-07A	Soil		1.03	50	48.544	1 of 1	
1607294-08A	Soil		1.11	50	45.045	1 of 1	
1607294-09A	Soil		1.04	50	48.077	of 3	
1607294-09A MS	Soil		1.02	50	49.020	of	
1607294-09A MSD	Soil		1.04	50	48.077	of	
1607294-09A PDS	Soil		1.04	50	48.077	of	
1607294-09A SD	Soil		1.04	50	48.077	of	
1607294-10A	Soil		1.06	50	47.170	1 of 1	
1607294-11A	Soil		1.08	50	46.296	1 of 1	
1607294-12A	Soil		1.04	50	48.077	1 of 1	
1607294-14A	Soil		1.06	50	47.170	1 of 1	
1607294-15A	Soil		1.01	50	49.505	1 of 1	
1607294-16A	Soil		1.06	50	47.170	1 of 1	
1607294-17A	Soil		1.12	50	44.643	1 of 1	
1607294-18A	Soil		1.02	50	49.020	1 of 1	
1607294-19A	Soil		1.12	50	44.643	1 of 1	
1607294-20A	Soil		1.07	50	46.729	1 of 1	
1607294-21A	Soil		1.04	50	48.077	1 of 1	
1607294-22A	Soil		1.04	50	48.077	1 of 1	
1607294-23A	Soil		1.05	50	47.619	1 of 1	
1607294-25A	Soil		1.12	50	44.643	1 of 1	
LCS-76670	Soil		1	50	50.000	of	
LCSD-76670	Soil		1	50	50.000	of	
MB-76670	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 12:41:33 PM, 8/11/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**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**	4.0017	3.9937	**99.84**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.0056	3.9976	**99.94**		
3		4.0028	3.9948	**99.87**		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		**0.050**
						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**	1.0036	1.0016	**100.16**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		1.0024	1.0004	**100.04**		
3		1.0013	0.9993	**99.93**		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		**0.115**
						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**	0.5049	0.5039	**100.78**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.5051	0.5041	**100.82**		
3		0.5038	0.5028	**100.56**		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		**0.139**
						PASS

Analyst / Date — 8/10/16

REVIEWED BY
By Janice Whitt at 12:41:39 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]

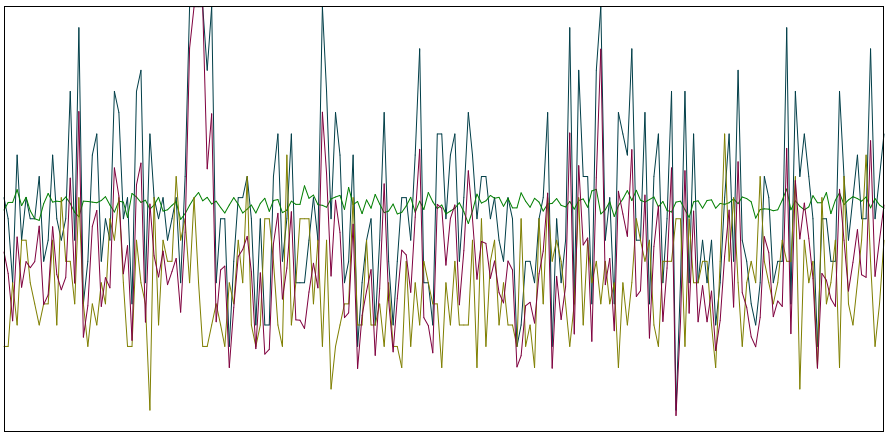
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
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

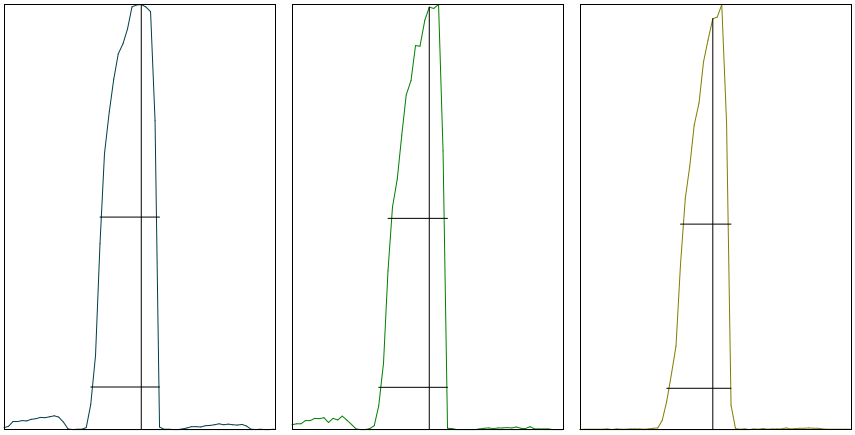
Tune Report

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

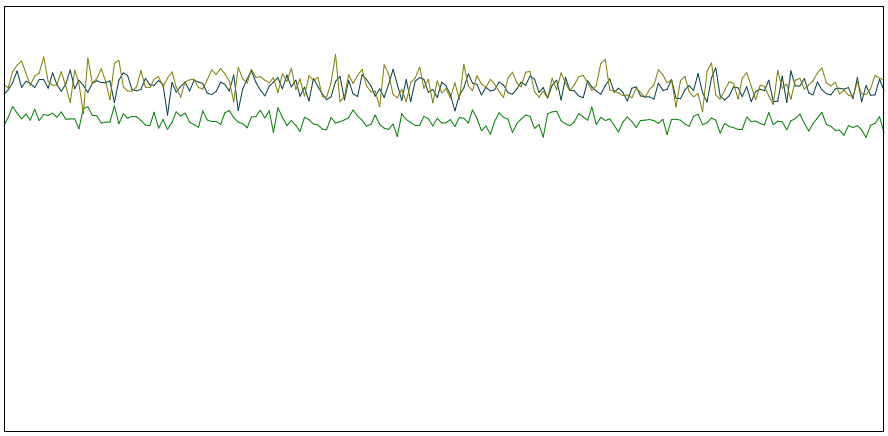
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===		
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03
Torch-V	:	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

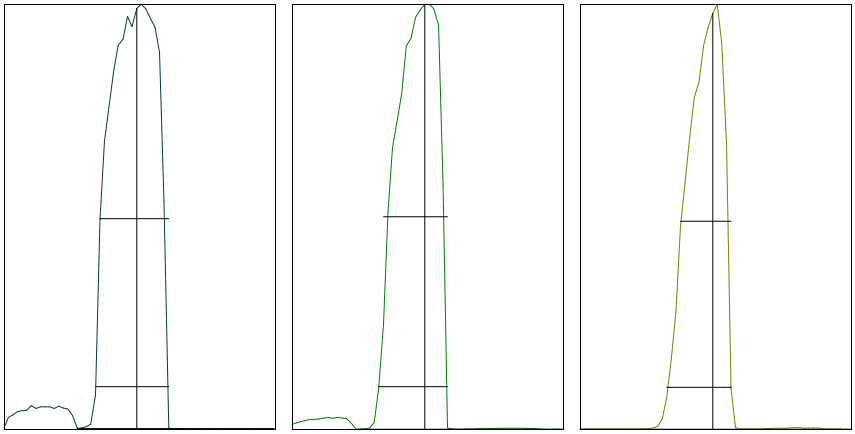
Tune Report

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	:	---	%

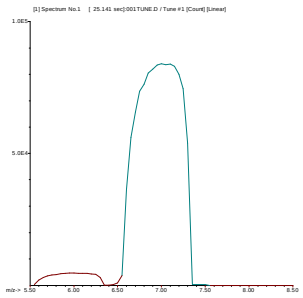
Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:05

6020 QC Tune Report

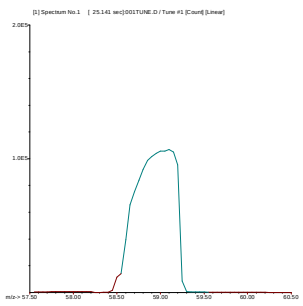
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

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	

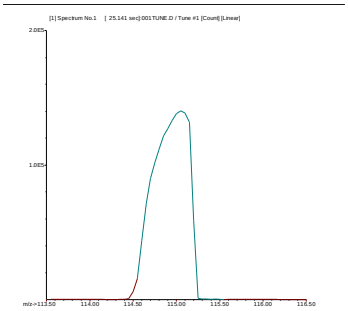


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



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

REVIEWED BY
By Janice Whitt at 2:24:52 PM, 8/10/2016



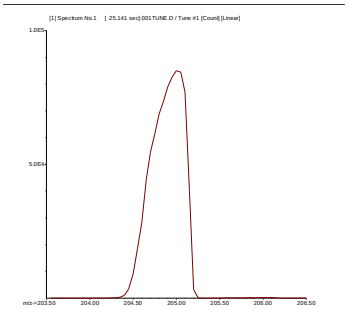
115 In

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	

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	

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	

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	RHigh	-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	

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	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09L01.B\080AREF.D\080AREF.D#

Date Acquired:	Aug 9 2016 07:38 pm	Sample Name:	**1607294-09A**
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	80.700	ppb	#REF!	1.02	2000.00	>RL
9	Be	2	45	2.698	ppb	#REF!	4.12	2000.00	>RL
11	B	2	45	98.030	ppb	#REF!	0.41	2000.00	>RL
23	Na	1	45	5817.000	ppb	#REF!	2.29	25000.00	>RL
24	Mg	1	45	16450.000	ppb	#REF!	2.49	25000.00	>RL
27	Al	1	45	67350.000	ppb	#REF!	2.53	10000.00	OUTCAL
39	K	1	45	15480.000	ppb	#REF!	1.08	25000.00	>RL
44	Ca	2	45	156900.000	ppb	#REF!	1.64	25000.00	OUTCAL
47	Ti	1	45	296.500	ppb	#REF!	2.51	2000.00	>RL
51	V	1	45	110.100	ppb	#REF!	1.63	2000.00	>RL
52	Cr	1	45	62.160	ppb	#REF!	1.57	2000.00	>RL
55	Mn	1	45	747.400	ppb	#REF!	1.09	2000.00	>RL
56	Fe	1	72	68480.000	ppb	#REF!	1.75	10000.00	OUTCAL
59	Co	1	72	30.130	ppb	#REF!	2.07	2000.00	>RL
60	Ni	1	72	47.020	ppb	#REF!	0.04	2000.00	>RL
63	Cu	1	72	25.420	ppb	#REF!	1.12	2000.00	>RL
66	Zn	1	72	211.500	ppb	#REF!	0.74	2000.00	>RL
75	As	1	72	23.980	ppb	#REF!	0.81	2000.00	>RL
78	Se	1	72	18.030	ppb	#REF!	1.74	2000.00	>RL
88	Sr	2	115	488.300	ppb	#REF!	1.48	2000.00	>RL
95	Mo	2	115	1.545	ppb	#REF!	1.07	2000.00	ND
107	Ag	2	115	0.257	ppb	#REF!	3.51	500.00	ND
111	Cd	2	115	1.156	ppb	#REF!	8.32	2000.00	J
118	Sn	2	115	10.090	ppb	#REF!	1.64	2000.00	>RL
121	Sb	2	115	0.934	ppb	#REF!	6.03	500.00	ND
137	Ba	2	115	564.300	ppb	#REF!	1.07	2000.00	>RL
205	Tl	2	209	0.725	ppb	#REF!	0.56	2000.00	ND
208	Pb	2	209	74.020	ppb	#REF!	1.20	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15682.87	2.83	76.78	-20426.8	70 - 120	ISFail
45	Sc	1	136441.69	0.45	158070.19	86.3	70 - 120	
45	Sc	2	6368199.50	2.06	6406944.50	99.4	70 - 120	
72	Ge	1	74720.49	0.63	88651.82	84.3	70 - 120	
115	In	2	6607143.00	1.40	7384352.50	89.5	70 - 120	
209	Bi	2	4213680.00	0.91	5202967.00	81.0	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

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\082SMPL.D\082SMPL.D#

Date Acquired:	Aug 9 2016 07:49 pm	Sample Name:	**1607294-04A**
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	99.370	ppb	#REF!	2.16	2000.00	>RL
9	Be	2	45	2.651	ppb	#REF!	1.13	2000.00	>RL
11	B	2	45	99.000	ppb	#REF!	2.50	2000.00	>RL
23	Na	1	45	4541.000	ppb	#REF!	1.33	25000.00	>RL
24	Mg	1	45	10070.000	ppb	#REF!	0.91	25000.00	>RL
27	Al	1	45	44790.000	ppb	#REF!	1.28	10000.00	OUTCAL
39	K	1	45	8331.000	ppb	#REF!	1.52	25000.00	>RL
44	Ca	2	45	171200.000	ppb	#REF!	3.13	25000.00	OUTCAL
47	Ti	1	45	120.600	ppb	#REF!	1.16	2000.00	>RL
51	V	1	45	83.440	ppb	#REF!	1.23	2000.00	>RL
52	Cr	1	45	48.260	ppb	#REF!	2.62	2000.00	>RL
55	Mn	1	45	269.800	ppb	#REF!	2.34	2000.00	>RL
56	Fe	1	72	80160.000	ppb	#REF!	2.07	10000.00	OUTCAL
59	Co	1	72	37.010	ppb	#REF!	1.88	2000.00	>RL
60	Ni	1	72	42.150	ppb	#REF!	1.45	2000.00	>RL
63	Cu	1	72	10.080	ppb	#REF!	1.49	2000.00	>RL
66	Zn	1	72	200.200	ppb	#REF!	0.81	2000.00	>RL
75	As	1	72	24.490	ppb	#REF!	0.63	2000.00	>RL
78	Se	1	72	14.570	ppb	#REF!	1.68	2000.00	>RL
88	Sr	2	115	862.600	ppb	#REF!	1.86	2000.00	>RL
95	Mo	2	115	2.455	ppb	#REF!	6.00	2000.00	J
107	Ag	2	115	0.078	ppb	#REF!	9.74	500.00	ND
111	Cd	2	115	0.565	ppb	#REF!	13.30	2000.00	J
118	Sn	2	115	5.476	ppb	#REF!	0.27	2000.00	ND
121	Sb	2	115	0.113	ppb	#REF!	8.96	500.00	ND
137	Ba	2	115	102.300	ppb	#REF!	1.04	2000.00	>RL
205	Tl	2	209	0.483	ppb	#REF!	4.92	2000.00	ND
208	Pb	2	209	36.370	ppb	#REF!	1.86	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-20137.71	3.14	76.78	-26229.2	70 - 120	ISFail
45	Sc	1	135453.97	0.81	158070.19	85.7	70 - 120	
45	Sc	2	6670077.50	2.18	6406944.50	104.1	70 - 120	
72	Ge	1	74052.11	0.18	88651.82	83.5	70 - 120	
115	In	2	6976388.00	2.22	7384352.50	94.5	70 - 120	
209	Bi	2	4319920.00	1.88	5202967.00	83.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\083SMPL.D\083SMPL.D#

Date Acquired:	Aug 9 2016 07:55 pm	Sample Name:	**1607294-05A**
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	82.700	ppb	#REF!	0.85	2000.00	>RL
9	Be	2	45	2.656	ppb	#REF!	2.19	2000.00	>RL
11	B	2	45	82.590	ppb	#REF!	1.73	2000.00	>RL
23	Na	1	45	4902.000	ppb	#REF!	1.31	25000.00	>RL
24	Mg	1	45	16620.000	ppb	#REF!	1.68	25000.00	>RL
27	Al	1	45	68520.000	ppb	#REF!	1.29	10000.00	OUTCAL
39	K	1	45	15410.000	ppb	#REF!	1.17	25000.00	>RL
44	Ca	2	45	169000.000	ppb	#REF!	1.94	25000.00	OUTCAL
47	Ti	1	45	242.400	ppb	#REF!	0.54	2000.00	>RL
51	V	1	45	115.900	ppb	#REF!	0.50	2000.00	>RL
52	Cr	1	45	63.690	ppb	#REF!	0.54	2000.00	>RL
55	Mn	1	45	689.300	ppb	#REF!	0.79	2000.00	>RL
56	Fe	1	72	67080.000	ppb	#REF!	1.07	10000.00	OUTCAL
59	Co	1	72	30.980	ppb	#REF!	1.03	2000.00	>RL
60	Ni	1	72	49.430	ppb	#REF!	0.38	2000.00	>RL
63	Cu	1	72	30.170	ppb	#REF!	0.39	2000.00	>RL
66	Zn	1	72	237.700	ppb	#REF!	1.30	2000.00	>RL
75	As	1	72	24.150	ppb	#REF!	1.14	2000.00	>RL
78	Se	1	72	17.830	ppb	#REF!	1.09	2000.00	>RL
88	Sr	2	115	486.500	ppb	#REF!	1.34	2000.00	>RL
95	Mo	2	115	1.308	ppb	#REF!	4.00	2000.00	ND
107	Ag	2	115	0.223	ppb	#REF!	3.61	500.00	ND
111	Cd	2	115	1.210	ppb	#REF!	2.42	2000.00	>RL
118	Sn	2	115	4.947	ppb	#REF!	1.36	2000.00	ND
121	Sb	2	115	1.003	ppb	#REF!	1.86	500.00	ND
137	Ba	2	115	610.000	ppb	#REF!	1.73	2000.00	>RL
205	Tl	2	209	0.628	ppb	#REF!	2.29	2000.00	ND
208	Pb	2	209	84.140	ppb	#REF!	1.65	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16407.88	3.68	76.78	-21371.1	70 - 120	ISFail
45	Sc	1	130304.98	0.69	158070.19	82.4	70 - 120	
45	Sc	2	6499823.50	2.20	6406944.50	101.4	70 - 120	
72	Ge	1	71867.45	0.42	88651.82	81.1	70 - 120	
115	In	2	6838388.00	1.29	7384352.50	92.6	70 - 120	
209	Bi	2	4132696.30	1.88	5202967.00	79.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\084SMPL.D\084SMPL.D#

Date Acquired:	Aug 9 2016 08:01 pm	Sample Name:	**1607294-06A**
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	125.500	ppb	#REF!	1.42	2000.00	>RL
9	Be	2	45	2.847	ppb	#REF!	5.93	2000.00	>RL
11	B	2	45	110.700	ppb	#REF!	3.18	2000.00	>RL
23	Na	1	45	9646.000	ppb	#REF!	1.77	25000.00	>RL
24	Mg	1	45	17050.000	ppb	#REF!	0.14	25000.00	>RL
27	Al	1	45	60470.000	ppb	#REF!	1.56	10000.00	OUTCAL
39	K	1	45	10380.000	ppb	#REF!	0.94	25000.00	>RL
44	Ca	2	45	263700.000	ppb	#REF!	2.82	25000.00	OUTCAL
47	Ti	1	45	169.000	ppb	#REF!	2.19	2000.00	>RL
51	V	1	45	113.900	ppb	#REF!	0.81	2000.00	>RL
52	Cr	1	45	59.370	ppb	#REF!	1.09	2000.00	>RL
55	Mn	1	45	495.700	ppb	#REF!	2.20	2000.00	>RL
56	Fe	1	72	77010.000	ppb	#REF!	2.67	10000.00	OUTCAL
59	Co	1	72	32.810	ppb	#REF!	1.59	2000.00	>RL
60	Ni	1	72	48.500	ppb	#REF!	0.18	2000.00	>RL
63	Cu	1	72	12.730	ppb	#REF!	1.36	2000.00	>RL
66	Zn	1	72	212.500	ppb	#REF!	0.84	2000.00	>RL
75	As	1	72	23.070	ppb	#REF!	1.57	2000.00	>RL
78	Se	1	72	17.330	ppb	#REF!	3.40	2000.00	>RL
88	Sr	2	115	14070.000	ppb	#REF!	1.21	2000.00	OUTCAL
95	Mo	2	115	1.615	ppb	#REF!	2.07	2000.00	ND
107	Ag	2	115	0.124	ppb	#REF!	4.66	500.00	ND
111	Cd	2	115	1.017	ppb	#REF!	10.63	2000.00	J
118	Sn	2	115	5.305	ppb	#REF!	2.55	2000.00	ND
121	Sb	2	115	0.232	ppb	#REF!	4.94	500.00	ND
137	Ba	2	115	1400.000	ppb	#REF!	2.11	2000.00	>RL
205	Tl	2	209	0.474	ppb	#REF!	1.15	2000.00	ND
208	Pb	2	209	38.030	ppb	#REF!	1.19	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-23992.45	1.20	76.78	-31249.9	70 - 120	ISFail
45	Sc	1	132805.70	1.06	158070.19	84.0	70 - 120	
45	Sc	2	6439518.50	2.36	6406944.50	100.5	70 - 120	
72	Ge	1	73302.50	0.65	88651.82	82.7	70 - 120	
115	In	2	6942311.50	1.00	7384352.50	94.0	70 - 120	
209	Bi	2	4141374.50	1.04	5202967.00	79.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\085SMPL.D\085SMPL.D#

Date Acquired:	Aug 9 2016 08:07 pm	Sample Name:	**1607294-07A**
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	109.700	ppb	#REF!	2.79	2000.00	>RL
9	Be	2	45	3.024	ppb	#REF!	2.01	2000.00	>RL
11	B	2	45	91.800	ppb	#REF!	2.50	2000.00	>RL
23	Na	1	45	4640.000	ppb	#REF!	1.10	25000.00	>RL
24	Mg	1	45	9994.000	ppb	#REF!	1.16	25000.00	>RL
27	Al	1	45	41150.000	ppb	#REF!	1.48	10000.00	OUTCAL
39	K	1	45	8144.000	ppb	#REF!	0.24	25000.00	>RL
44	Ca	2	45	178200.000	ppb	#REF!	3.44	25000.00	OUTCAL
47	Ti	1	45	153.100	ppb	#REF!	1.69	2000.00	>RL
51	V	1	45	73.040	ppb	#REF!	0.46	2000.00	>RL
52	Cr	1	45	46.800	ppb	#REF!	0.65	2000.00	>RL
55	Mn	1	45	351.800	ppb	#REF!	0.74	2000.00	>RL
56	Fe	1	72	61470.000	ppb	#REF!	0.72	10000.00	OUTCAL
59	Co	1	72	44.650	ppb	#REF!	0.59	2000.00	>RL
60	Ni	1	72	56.870	ppb	#REF!	1.19	2000.00	>RL
63	Cu	1	72	10.180	ppb	#REF!	0.62	2000.00	>RL
66	Zn	1	72	239.200	ppb	#REF!	0.45	2000.00	>RL
75	As	1	72	17.800	ppb	#REF!	0.37	2000.00	>RL
78	Se	1	72	14.560	ppb	#REF!	2.81	2000.00	>RL
88	Sr	2	115	4024.000	ppb	#REF!	1.75	2000.00	OUTCAL
95	Mo	2	115	2.002	ppb	#REF!	0.72	2000.00	J
107	Ag	2	115	0.096	ppb	#REF!	8.98	500.00	ND
111	Cd	2	115	0.728	ppb	#REF!	10.93	2000.00	J
118	Sn	2	115	4.844	ppb	#REF!	0.91	2000.00	ND
121	Sb	2	115	0.191	ppb	#REF!	1.48	500.00	ND
137	Ba	2	115	284.500	ppb	#REF!	1.25	2000.00	>RL
205	Tl	2	209	0.358	ppb	#REF!	6.87	2000.00	ND
208	Pb	2	209	26.900	ppb	#REF!	0.94	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-22262.59	2.93	76.78	-28996.8	70 - 120	ISFail
45	Sc	1	137374.06	0.36	158070.19	86.9	70 - 120	
45	Sc	2	6737657.50	2.35	6406944.50	105.2	70 - 120	
72	Ge	1	74774.51	0.25	88651.82	84.3	70 - 120	
115	In	2	6967739.00	1.41	7384352.50	94.4	70 - 120	
209	Bi	2	4252534.50	2.19	5202967.00	81.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09L01.B\086SMPL.D\086SMPL.D#

Date Acquired:	Aug 9 2016 08:13 pm	Sample Name:	**1607294-08A**
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	117.400	ppb	#REF!	1.83	2000.00	>RL
9	Be	2	45	2.577	ppb	#REF!	3.42	2000.00	>RL
11	B	2	45	92.120	ppb	#REF!	2.84	2000.00	>RL
23	Na	1	45	4466.000	ppb	#REF!	0.63	25000.00	>RL
24	Mg	1	45	10120.000	ppb	#REF!	1.24	25000.00	>RL
27	Al	1	45	45530.000	ppb	#REF!	0.89	10000.00	OUTCAL
39	K	1	45	8383.000	ppb	#REF!	1.01	25000.00	>RL
44	Ca	2	45	229200.000	ppb	#REF!	2.02	25000.00	OUTCAL
47	Ti	1	45	118.900	ppb	#REF!	2.04	2000.00	>RL
51	V	1	45	78.460	ppb	#REF!	1.06	2000.00	>RL
52	Cr	1	45	47.440	ppb	#REF!	1.35	2000.00	>RL
55	Mn	1	45	257.900	ppb	#REF!	1.35	2000.00	>RL
56	Fe	1	72	61680.000	ppb	#REF!	1.58	10000.00	OUTCAL
59	Co	1	72	36.430	ppb	#REF!	1.54	2000.00	>RL
60	Ni	1	72	47.050	ppb	#REF!	1.52	2000.00	>RL
63	Cu	1	72	9.068	ppb	#REF!	0.95	2000.00	>RL
66	Zn	1	72	233.600	ppb	#REF!	1.55	2000.00	>RL
75	As	1	72	18.410	ppb	#REF!	1.06	2000.00	>RL
78	Se	1	72	12.980	ppb	#REF!	2.01	2000.00	>RL
88	Sr	2	115	2041.000	ppb	#REF!	1.62	2000.00	OUTCAL
95	Mo	2	115	1.659	ppb	#REF!	2.84	2000.00	ND
107	Ag	2	115	0.076	ppb	#REF!	5.84	500.00	ND
111	Cd	2	115	0.580	ppb	#REF!	13.11	2000.00	J
118	Sn	2	115	5.446	ppb	#REF!	1.96	2000.00	ND
121	Sb	2	115	0.104	ppb	#REF!	16.29	500.00	ND
137	Ba	2	115	193.200	ppb	#REF!	2.04	2000.00	>RL
205	Tl	2	209	0.389	ppb	#REF!	3.10	2000.00	ND
208	Pb	2	209	35.710	ppb	#REF!	1.87	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-23093.17	1.79	76.78	-30078.6	70 - 120	ISFail
45	Sc	1	130585.70	0.98	158070.19	82.6	70 - 120	
45	Sc	2	6629123.50	2.59	6406944.50	103.5	70 - 120	
72	Ge	1	71278.24	1.07	88651.82	80.4	70 - 120	
115	In	2	6811538.50	1.73	7384352.50	92.2	70 - 120	
209	Bi	2	4120887.00	1.32	5202967.00	79.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\087SMPL.D\087SMPL.D#

Date Acquired:	Aug 9 2016 08:19 pm	Sample Name:	**1607294-10A**
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	148.900	ppb	#REF!	1.55	2000.00	>RL
9	Be	2	45	3.128	ppb	#REF!	2.77	2000.00	>RL
11	B	2	45	123.100	ppb	#REF!	2.18	2000.00	>RL
23	Na	1	45	11790.000	ppb	#REF!	0.43	25000.00	>RL
24	Mg	1	45	17090.000	ppb	#REF!	1.10	25000.00	>RL
27	Al	1	45	56440.000	ppb	#REF!	1.01	10000.00	OUTCAL
39	K	1	45	10280.000	ppb	#REF!	1.08	25000.00	>RL
44	Ca	2	45	196400.000	ppb	#REF!	3.93	25000.00	OUTCAL
47	Ti	1	45	152.200	ppb	#REF!	1.39	2000.00	>RL
51	V	1	45	110.600	ppb	#REF!	0.94	2000.00	>RL
52	Cr	1	45	58.420	ppb	#REF!	1.25	2000.00	>RL
55	Mn	1	45	556.700	ppb	#REF!	1.07	2000.00	>RL
56	Fe	1	72	77990.000	ppb	#REF!	1.46	10000.00	OUTCAL
59	Co	1	72	44.020	ppb	#REF!	1.72	2000.00	>RL
60	Ni	1	72	55.890	ppb	#REF!	0.29	2000.00	>RL
63	Cu	1	72	13.300	ppb	#REF!	0.59	2000.00	>RL
66	Zn	1	72	222.500	ppb	#REF!	0.64	2000.00	>RL
75	As	1	72	26.520	ppb	#REF!	1.24	2000.00	>RL
78	Se	1	72	16.980	ppb	#REF!	0.40	2000.00	>RL
88	Sr	2	115	577.100	ppb	#REF!	1.66	2000.00	>RL
95	Mo	2	115	1.636	ppb	#REF!	3.19	2000.00	ND
107	Ag	2	115	0.107	ppb	#REF!	11.39	500.00	ND
111	Cd	2	115	0.877	ppb	#REF!	1.51	2000.00	J
118	Sn	2	115	5.255	ppb	#REF!	1.79	2000.00	ND
121	Sb	2	115	0.193	ppb	#REF!	8.98	500.00	ND
137	Ba	2	115	937.900	ppb	#REF!	2.01	2000.00	>RL
205	Tl	2	209	0.465	ppb	#REF!	4.53	2000.00	ND
208	Pb	2	209	35.220	ppb	#REF!	1.77	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-30020.99	5.94	RHigh	76.78	-39102.0	70 - 120	ISFail
45	Sc	1	130227.79	1.14		158070.19	82.4	70 - 120	
45	Sc	2	6771615.50	2.33		6406944.50	105.7	70 - 120	
72	Ge	1	73111.44	0.20		88651.82	82.5	70 - 120	
115	In	2	7003637.50	1.88		7384352.50	94.8	70 - 120	
209	Bi	2	4173273.80	1.26		5202967.00	80.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\088SMPL.D\088SMPL.D#

Date Acquired:	Aug 9 2016 08:24 pm	Sample Name:	**1607294-11A**
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	147.600	ppb	#REF!	2.38	2000.00	>RL
9	Be	2	45	2.696	ppb	#REF!	4.73	2000.00	>RL
11	B	2	45	97.380	ppb	#REF!	1.61	2000.00	>RL
23	Na	1	45	5510.000	ppb	#REF!	0.72	25000.00	>RL
24	Mg	1	45	10850.000	ppb	#REF!	1.36	25000.00	>RL
27	Al	1	45	44860.000	ppb	#REF!	2.26	10000.00	OUTCAL
39	K	1	45	7589.000	ppb	#REF!	1.23	25000.00	>RL
44	Ca	2	45	239600.000	ppb	#REF!	2.38	25000.00	OUTCAL
47	Ti	1	45	125.700	ppb	#REF!	1.29	2000.00	>RL
51	V	1	45	78.570	ppb	#REF!	0.57	2000.00	>RL
52	Cr	1	45	47.310	ppb	#REF!	0.48	2000.00	>RL
55	Mn	1	45	433.400	ppb	#REF!	0.80	2000.00	>RL
56	Fe	1	72	63740.000	ppb	#REF!	1.19	10000.00	OUTCAL
59	Co	1	72	57.910	ppb	#REF!	0.81	2000.00	>RL
60	Ni	1	72	59.490	ppb	#REF!	0.22	2000.00	>RL
63	Cu	1	72	9.786	ppb	#REF!	0.58	2000.00	>RL
66	Zn	1	72	270.200	ppb	#REF!	0.63	2000.00	>RL
75	As	1	72	21.300	ppb	#REF!	0.84	2000.00	>RL
78	Se	1	72	14.420	ppb	#REF!	1.19	2000.00	>RL
88	Sr	2	115	4558.000	ppb	#REF!	1.81	2000.00	OUTCAL
95	Mo	2	115	2.593	ppb	#REF!	2.50	2000.00	J
107	Ag	2	115	0.082	ppb	#REF!	4.05	500.00	ND
111	Cd	2	115	0.693	ppb	#REF!	6.97	2000.00	J
118	Sn	2	115	5.159	ppb	#REF!	2.03	2000.00	ND
121	Sb	2	115	0.193	ppb	#REF!	5.10	500.00	ND
137	Ba	2	115	217.100	ppb	#REF!	2.00	2000.00	>RL
205	Tl	2	209	0.379	ppb	#REF!	3.94	2000.00	ND
208	Pb	2	209	25.900	ppb	#REF!	1.02	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-28996.98	2.27	76.78	-37768.3	70 - 120	ISFail
45	Sc	1	131569.80	0.54	158070.19	83.2	70 - 120	
45	Sc	2	7007938.50	2.70	6406944.50	109.4	70 - 120	
72	Ge	1	71828.74	0.46	88651.82	81.0	70 - 120	
115	In	2	7166206.50	1.49	7384352.50	97.0	70 - 120	
209	Bi	2	4326013.00	1.67	5202967.00	83.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\089SMPL.D\089SMPL.D#

Date Acquired:	Aug 9 2016 08:30 pm	Sample Name:	**1607294-12A**
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	117.300	ppb	#REF!	1.00	2000.00	>RL
9	Be	2	45	2.710	ppb	#REF!	2.80	2000.00	>RL
11	B	2	45	88.870	ppb	#REF!	3.00	2000.00	>RL
23	Na	1	45	3901.000	ppb	#REF!	0.99	25000.00	>RL
24	Mg	1	45	10560.000	ppb	#REF!	0.31	25000.00	>RL
27	Al	1	45	42470.000	ppb	#REF!	0.69	10000.00	OUTCAL
39	K	1	45	7918.000	ppb	#REF!	0.30	25000.00	>RL
44	Ca	2	45	208500.000	ppb	#REF!	2.52	25000.00	OUTCAL
47	Ti	1	45	184.400	ppb	#REF!	0.96	2000.00	>RL
51	V	1	45	75.340	ppb	#REF!	0.56	2000.00	>RL
52	Cr	1	45	45.410	ppb	#REF!	1.28	2000.00	>RL
55	Mn	1	45	380.400	ppb	#REF!	0.69	2000.00	>RL
56	Fe	1	72	60000.000	ppb	#REF!	0.61	10000.00	OUTCAL
59	Co	1	72	38.410	ppb	#REF!	0.45	2000.00	>RL
60	Ni	1	72	50.750	ppb	#REF!	1.03	2000.00	>RL
63	Cu	1	72	11.350	ppb	#REF!	0.88	2000.00	>RL
66	Zn	1	72	221.200	ppb	#REF!	0.57	2000.00	>RL
75	As	1	72	19.190	ppb	#REF!	1.49	2000.00	>RL
78	Se	1	72	13.580	ppb	#REF!	7.39	2000.00	>RL
88	Sr	2	115	1168.000	ppb	#REF!	2.51	2000.00	>RL
95	Mo	2	115	2.263	ppb	#REF!	1.74	2000.00	J
107	Ag	2	115	0.096	ppb	#REF!	11.60	500.00	ND
111	Cd	2	115	0.744	ppb	#REF!	8.81	2000.00	J
118	Sn	2	115	4.880	ppb	#REF!	3.14	2000.00	ND
121	Sb	2	115	0.289	ppb	#REF!	4.15	500.00	ND
137	Ba	2	115	196.200	ppb	#REF!	2.77	2000.00	>RL
205	Tl	2	209	0.351	ppb	#REF!	4.80	2000.00	ND
208	Pb	2	209	28.220	ppb	#REF!	1.13	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-22792.87	3.43	76.78	-29687.5	70 - 120	ISFail
45	Sc	1	135559.39	0.41	158070.19	85.8	70 - 120	
45	Sc	2	6847458.00	2.45	6406944.50	106.9	70 - 120	
72	Ge	1	74138.86	0.21	88651.82	83.6	70 - 120	
115	In	2	6914339.00	2.18	7384352.50	93.6	70 - 120	
209	Bi	2	4187855.00	0.40	5202967.00	80.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\090SMPL.D\090SMPL.D#

Date Acquired:	Aug 9 2016 08:36 pm	Sample Name:	**1607294-14A**
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	56.140	ppb	#REF!	2.96	2000.00	>RL
9	Be	2	45	2.214	ppb	#REF!	1.78	2000.00	>RL
11	B	2	45	55.960	ppb	#REF!	3.39	2000.00	>RL
23	Na	1	45	760.800	ppb	#REF!	0.89	25000.00	>RL
24	Mg	1	45	12610.000	ppb	#REF!	2.00	25000.00	>RL
27	Al	1	45	53070.000	ppb	#REF!	1.23	10000.00	OUTCAL
39	K	1	45	11820.000	ppb	#REF!	1.04	25000.00	>RL
44	Ca	2	45	261600.000	ppb	#REF!	3.51	25000.00	OUTCAL
47	Ti	1	45	172.100	ppb	#REF!	3.13	2000.00	>RL
51	V	1	45	86.480	ppb	#REF!	0.88	2000.00	>RL
52	Cr	1	45	52.650	ppb	#REF!	1.14	2000.00	>RL
55	Mn	1	45	1450.000	ppb	#REF!	0.73	2000.00	>RL
56	Fe	1	72	56890.000	ppb	#REF!	0.23	10000.00	OUTCAL
59	Co	1	72	24.940	ppb	#REF!	1.76	2000.00	>RL
60	Ni	1	72	36.710	ppb	#REF!	1.60	2000.00	>RL
63	Cu	1	72	14.780	ppb	#REF!	1.06	2000.00	>RL
66	Zn	1	72	140.500	ppb	#REF!	1.15	2000.00	>RL
75	As	1	72	19.840	ppb	#REF!	0.46	2000.00	>RL
78	Se	1	72	16.500	ppb	#REF!	5.94	2000.00	>RL
88	Sr	2	115	508.000	ppb	#REF!	2.03	2000.00	>RL
95	Mo	2	115	1.739	ppb	#REF!	6.25	2000.00	ND
107	Ag	2	115	0.181	ppb	#REF!	9.92	500.00	ND
111	Cd	2	115	0.886	ppb	#REF!	6.72	2000.00	J
118	Sn	2	115	4.332	ppb	#REF!	3.56	2000.00	ND
121	Sb	2	115	0.860	ppb	#REF!	1.40	500.00	ND
137	Ba	2	115	404.600	ppb	#REF!	2.69	2000.00	>RL
205	Tl	2	209	0.484	ppb	#REF!	1.20	2000.00	ND
208	Pb	2	209	43.690	ppb	#REF!	1.81	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10674.12	7.26	RHigh	76.78	-13902.9	70 - 120	ISFail
45	Sc	1	129096.15	0.59		158070.19	81.7	70 - 120	
45	Sc	2	6732066.00	2.61		6406944.50	105.1	70 - 120	
72	Ge	1	71220.72	0.45		88651.82	80.3	70 - 120	
115	In	2	6943098.00	2.40		7384352.50	94.0	70 - 120	
209	Bi	2	4155797.50	1.32		5202967.00	79.9	70 - 120	

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		

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\099SMPL.D\099SMPL.D#

Date Acquired:	Aug 9 2016 09:29 pm	Sample Name:	**1607294-15A**
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	57.360	ppb	#REF!	2.56	2000.00	>RL
9	Be	2	45	2.241	ppb	#REF!	4.41	2000.00	>RL
11	B	2	45	74.490	ppb	#REF!	1.97	2000.00	>RL
23	Na	1	45	4045.000	ppb	#REF!	1.28	25000.00	>RL
24	Mg	1	45	12240.000	ppb	#REF!	1.96	25000.00	>RL
27	Al	1	45	46270.000	ppb	#REF!	2.42	10000.00	OUTCAL
39	K	1	45	11920.000	ppb	#REF!	0.90	25000.00	>RL
44	Ca	2	45	199300.000	ppb	#REF!	3.15	25000.00	OUTCAL
47	Ti	1	45	131.500	ppb	#REF!	1.55	2000.00	>RL
51	V	1	45	89.950	ppb	#REF!	1.94	2000.00	>RL
52	Cr	1	45	55.400	ppb	#REF!	1.62	2000.00	>RL
55	Mn	1	45	615.100	ppb	#REF!	0.92	2000.00	>RL
56	Fe	1	72	57820.000	ppb	#REF!	1.21	10000.00	OUTCAL
59	Co	1	72	23.510	ppb	#REF!	1.43	2000.00	>RL
60	Ni	1	72	32.020	ppb	#REF!	0.90	2000.00	>RL
63	Cu	1	72	7.711	ppb	#REF!	1.14	2000.00	J
66	Zn	1	72	112.600	ppb	#REF!	1.35	2000.00	>RL
75	As	1	72	18.830	ppb	#REF!	1.50	2000.00	>RL
78	Se	1	72	18.270	ppb	#REF!	4.75	2000.00	>RL
88	Sr	2	115	389.000	ppb	#REF!	1.97	2000.00	>RL
95	Mo	2	115	1.667	ppb	#REF!	2.63	2000.00	ND
107	Ag	2	115	0.204	ppb	#REF!	4.07	500.00	ND
111	Cd	2	115	0.871	ppb	#REF!	7.12	2000.00	J
118	Sn	2	115	4.799	ppb	#REF!	2.12	2000.00	ND
121	Sb	2	115	0.317	ppb	#REF!	5.12	500.00	ND
137	Ba	2	115	974.300	ppb	#REF!	1.18	2000.00	>RL
205	Tl	2	209	0.674	ppb	#REF!	4.14	2000.00	ND
208	Pb	2	209	22.550	ppb	#REF!	1.64	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11243.56	3.58	76.78	-14644.6	70 - 120	ISFail
45	Sc	1	134365.61	0.68	158070.19	85.0	70 - 120	
45	Sc	2	6464316.00	3.49	6406944.50	100.9	70 - 120	
72	Ge	1	72580.21	1.04	88651.82	81.9	70 - 120	
115	In	2	6809222.00	1.46	7384352.50	92.2	70 - 120	
209	Bi	2	4305148.00	2.01	5202967.00	82.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\100SMPL.D\100SMPL.D#

Date Acquired:	Aug 9 2016 09:35 pm	Sample Name:	**1607294-16A**
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	60.450	ppb	#REF!	1.54	2000.00	>RL
9	Be	2	45	2.272	ppb	#REF!	2.69	2000.00	>RL
11	B	2	45	67.500	ppb	#REF!	1.76	2000.00	>RL
23	Na	1	45	2346.000	ppb	#REF!	0.86	25000.00	>RL
24	Mg	1	45	11740.000	ppb	#REF!	0.08	25000.00	>RL
27	Al	1	45	47670.000	ppb	#REF!	0.71	10000.00	OUTCAL
39	K	1	45	12260.000	ppb	#REF!	0.97	25000.00	>RL
44	Ca	2	45	110900.000	ppb	#REF!	2.81	25000.00	OUTCAL
47	Ti	1	45	126.900	ppb	#REF!	2.49	2000.00	>RL
51	V	1	45	77.150	ppb	#REF!	0.97	2000.00	>RL
52	Cr	1	45	55.780	ppb	#REF!	0.87	2000.00	>RL
55	Mn	1	45	657.000	ppb	#REF!	0.97	2000.00	>RL
56	Fe	1	72	60890.000	ppb	#REF!	0.65	10000.00	OUTCAL
59	Co	1	72	28.860	ppb	#REF!	0.31	2000.00	>RL
60	Ni	1	72	42.780	ppb	#REF!	1.42	2000.00	>RL
63	Cu	1	72	12.450	ppb	#REF!	1.85	2000.00	>RL
66	Zn	1	72	155.800	ppb	#REF!	0.56	2000.00	>RL
75	As	1	72	19.660	ppb	#REF!	0.68	2000.00	>RL
78	Se	1	72	19.960	ppb	#REF!	1.81	2000.00	>RL
88	Sr	2	115	316.900	ppb	#REF!	2.27	2000.00	>RL
95	Mo	2	115	2.541	ppb	#REF!	3.39	2000.00	J
107	Ag	2	115	0.168	ppb	#REF!	12.37	500.00	ND
111	Cd	2	115	0.775	ppb	#REF!	12.06	2000.00	J
118	Sn	2	115	4.992	ppb	#REF!	1.50	2000.00	ND
121	Sb	2	115	0.960	ppb	#REF!	1.19	500.00	ND
137	Ba	2	115	266.900	ppb	#REF!	1.96	2000.00	>RL
205	Tl	2	209	0.575	ppb	#REF!	2.75	2000.00	ND
208	Pb	2	209	39.810	ppb	#REF!	1.58	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12038.94	2.72	76.78	-15680.6	70 - 120	ISFail
45	Sc	1	128802.16	0.38	158070.19	81.5	70 - 120	
45	Sc	2	6381833.50	2.52	6406944.50	99.6	70 - 120	
72	Ge	1	71001.99	0.14	88651.82	80.1	70 - 120	
115	In	2	6631221.50	1.71	7384352.50	89.8	70 - 120	
209	Bi	2	4277593.50	1.53	5202967.00	82.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\101SMPL.D\101SMPL.D#

Date Acquired:	Aug 9 2016 09:41 pm	Sample Name:	**1607294-17A**
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	93.600	ppb	#REF!	1.97	2000.00	>RL
9	Be	2	45	2.692	ppb	#REF!	3.86	2000.00	>RL
11	B	2	45	87.390	ppb	#REF!	1.29	2000.00	>RL
23	Na	1	45	253.200	ppb	#REF!	0.29	25000.00	>RL
24	Mg	1	45	11340.000	ppb	#REF!	1.16	25000.00	>RL
27	Al	1	45	52860.000	ppb	#REF!	2.30	10000.00	OUTCAL
39	K	1	45	13490.000	ppb	#REF!	1.41	25000.00	>RL
44	Ca	2	45	246100.000	ppb	#REF!	1.56	25000.00	OUTCAL
47	Ti	1	45	142.300	ppb	#REF!	3.19	2000.00	>RL
51	V	1	45	86.220	ppb	#REF!	0.75	2000.00	>RL
52	Cr	1	45	69.100	ppb	#REF!	1.03	2000.00	>RL
55	Mn	1	45	633.100	ppb	#REF!	1.50	2000.00	>RL
56	Fe	1	72	67420.000	ppb	#REF!	0.79	10000.00	OUTCAL
59	Co	1	72	63.420	ppb	#REF!	0.87	2000.00	>RL
60	Ni	1	72	53.250	ppb	#REF!	0.56	2000.00	>RL
63	Cu	1	72	7.373	ppb	#REF!	1.43	2000.00	J
66	Zn	1	72	192.700	ppb	#REF!	1.39	2000.00	>RL
75	As	1	72	20.180	ppb	#REF!	0.55	2000.00	>RL
78	Se	1	72	24.610	ppb	#REF!	2.35	2000.00	>RL
88	Sr	2	115	721.700	ppb	#REF!	1.26	2000.00	>RL
95	Mo	2	115	4.158	ppb	#REF!	1.43	2000.00	J
107	Ag	2	115	0.112	ppb	#REF!	3.25	500.00	ND
111	Cd	2	115	0.860	ppb	#REF!	17.88	2000.00	J
118	Sn	2	115	5.394	ppb	#REF!	3.08	2000.00	ND
121	Sb	2	115	0.192	ppb	#REF!	3.93	500.00	ND
137	Ba	2	115	66.990	ppb	#REF!	1.87	2000.00	>RL
205	Tl	2	209	0.514	ppb	#REF!	4.69	2000.00	ND
208	Pb	2	209	26.710	ppb	#REF!	1.24	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19319.37	2.98	76.78	-25163.3	70 - 120	ISFail
45	Sc	1	130411.30	0.97	158070.19	82.5	70 - 120	
45	Sc	2	6752595.50	1.05	6406944.50	105.4	70 - 120	
72	Ge	1	71720.58	0.98	88651.82	80.9	70 - 120	
115	In	2	7140329.00	1.16	7384352.50	96.7	70 - 120	
209	Bi	2	4308923.50	1.08	5202967.00	82.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\102SMPL.D\102SMPL.D#

Date Acquired:	Aug 9 2016 09:46 pm	Sample Name:	**1607294-18A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	50
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	56.850	ppb	#REF!	2.20	2000.00	>RL
9	Be	2	45	2.256	ppb	#REF!	3.89	2000.00	>RL
11	B	2	45	59.720	ppb	#REF!	1.71	2000.00	>RL
23	Na	1	45	354.600	ppb	#REF!	1.30	25000.00	>RL
24	Mg	1	45	13780.000	ppb	#REF!	2.52	25000.00	>RL
27	Al	1	45	63040.000	ppb	#REF!	2.48	10000.00	OUTCAL
39	K	1	45	13870.000	ppb	#REF!	0.82	25000.00	>RL
44	Ca	2	45	151600.000	ppb	#REF!	2.75	25000.00	OUTCAL
47	Ti	1	45	194.500	ppb	#REF!	0.52	2000.00	>RL
51	V	1	45	90.520	ppb	#REF!	1.46	2000.00	>RL
52	Cr	1	45	56.430	ppb	#REF!	0.87	2000.00	>RL
55	Mn	1	45	935.200	ppb	#REF!	0.88	2000.00	>RL
56	Fe	1	72	60110.000	ppb	#REF!	1.49	10000.00	OUTCAL
59	Co	1	72	25.790	ppb	#REF!	1.14	2000.00	>RL
60	Ni	1	72	38.250	ppb	#REF!	1.07	2000.00	>RL
63	Cu	1	72	19.610	ppb	#REF!	0.76	2000.00	>RL
66	Zn	1	72	166.600	ppb	#REF!	0.95	2000.00	>RL
75	As	1	72	21.240	ppb	#REF!	0.99	2000.00	>RL
78	Se	1	72	16.700	ppb	#REF!	1.67	2000.00	>RL
88	Sr	2	115	365.000	ppb	#REF!	2.28	2000.00	>RL
95	Mo	2	115	1.859	ppb	#REF!	4.59	2000.00	ND
107	Ag	2	115	0.158	ppb	#REF!	6.67	500.00	ND
111	Cd	2	115	0.882	ppb	#REF!	9.29	2000.00	J
118	Sn	2	115	4.710	ppb	#REF!	1.97	2000.00	ND
121	Sb	2	115	1.427	ppb	#REF!	5.59	500.00	ND
137	Ba	2	115	356.400	ppb	#REF!	2.25	2000.00	>RL
205	Tl	2	209	0.589	ppb	#REF!	2.36	2000.00	ND
208	Pb	2	209	62.480	ppb	#REF!	1.86	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10652.85	2.04	76.78	-13875.2	70 - 120	ISFail
45	Sc	1	130814.74	0.15	158070.19	82.8	70 - 120	
45	Sc	2	6591778.50	3.13	6406944.50	102.9	70 - 120	
72	Ge	1	71848.86	0.70	88651.82	81.0	70 - 120	
115	In	2	6756442.50	1.75	7384352.50	91.5	70 - 120	
209	Bi	2	4302069.00	1.68	5202967.00	82.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\103SMPL.D\103SMPL.D#

Date Acquired:	Aug 9 2016 09:52 pm	Sample Name:	**1607294-19A**
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	60.360	ppb	#REF!	1.84	2000.00	>RL
9	Be	2	45	2.280	ppb	#REF!	1.25	2000.00	>RL
11	B	2	45	73.970	ppb	#REF!	3.47	2000.00	>RL
23	Na	1	45	3746.000	ppb	#REF!	2.02	25000.00	>RL
24	Mg	1	45	13830.000	ppb	#REF!	1.68	25000.00	>RL
27	Al	1	45	51710.000	ppb	#REF!	1.62	10000.00	OUTCAL
39	K	1	45	12820.000	ppb	#REF!	0.21	25000.00	>RL
44	Ca	2	45	329000.000	ppb	#REF!	3.42	25000.00	OUTCAL
47	Ti	1	45	146.300	ppb	#REF!	3.43	2000.00	>RL
51	V	1	45	102.700	ppb	#REF!	0.13	2000.00	>RL
52	Cr	1	45	60.400	ppb	#REF!	1.19	2000.00	>RL
55	Mn	1	45	1389.000	ppb	#REF!	0.47	2000.00	>RL
56	Fe	1	72	63960.000	ppb	#REF!	1.27	10000.00	OUTCAL
59	Co	1	72	26.490	ppb	#REF!	1.23	2000.00	>RL
60	Ni	1	72	37.250	ppb	#REF!	0.74	2000.00	>RL
63	Cu	1	72	9.885	ppb	#REF!	1.45	2000.00	>RL
66	Zn	1	72	122.500	ppb	#REF!	1.11	2000.00	>RL
75	As	1	72	20.570	ppb	#REF!	1.12	2000.00	>RL
78	Se	1	72	18.820	ppb	#REF!	3.32	2000.00	>RL
88	Sr	2	115	571.200	ppb	#REF!	2.08	2000.00	>RL
95	Mo	2	115	1.519	ppb	#REF!	8.53	2000.00	ND
107	Ag	2	115	0.107	ppb	#REF!	6.85	500.00	ND
111	Cd	2	115	0.807	ppb	#REF!	2.82	2000.00	J
118	Sn	2	115	4.396	ppb	#REF!	2.30	2000.00	ND
121	Sb	2	115	0.157	ppb	#REF!	5.76	500.00	ND
137	Ba	2	115	709.100	ppb	#REF!	1.06	2000.00	>RL
205	Tl	2	209	0.399	ppb	#REF!	7.17	2000.00	ND
208	Pb	2	209	24.050	ppb	#REF!	1.07	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11483.49	2.44	76.78	-14957.1	70 - 120	ISFail
45	Sc	1	122123.76	0.16	158070.19	77.3	70 - 120	
45	Sc	2	6344366.00	2.51	6406944.50	99.0	70 - 120	
72	Ge	1	66832.55	0.26	88651.82	75.4	70 - 120	
115	In	2	6800719.00	1.10	7384352.50	92.1	70 - 120	
209	Bi	2	4115918.80	1.15	5202967.00	79.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\105SMPL.D\105SMPL.D#

Date Acquired:	Aug 9 2016 10:04 pm	Sample Name:	**1607294-20A**
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	64.220	ppb	#REF!	2.71	2000.00	>RL
9	Be	2	45	2.269	ppb	#REF!	3.09	2000.00	>RL
11	B	2	45	73.110	ppb	#REF!	2.46	2000.00	>RL
23	Na	1	45	3925.000	ppb	#REF!	0.97	25000.00	>RL
24	Mg	1	45	12240.000	ppb	#REF!	1.18	25000.00	>RL
27	Al	1	45	49020.000	ppb	#REF!	1.40	10000.00	OUTCAL
39	K	1	45	12960.000	ppb	#REF!	1.54	25000.00	>RL
44	Ca	2	45	147700.000	ppb	#REF!	2.61	25000.00	OUTCAL
47	Ti	1	45	134.600	ppb	#REF!	1.88	2000.00	>RL
51	V	1	45	84.640	ppb	#REF!	1.34	2000.00	>RL
52	Cr	1	45	58.360	ppb	#REF!	0.60	2000.00	>RL
55	Mn	1	45	655.800	ppb	#REF!	1.91	2000.00	>RL
56	Fe	1	72	62020.000	ppb	#REF!	1.99	10000.00	OUTCAL
59	Co	1	72	24.220	ppb	#REF!	0.93	2000.00	>RL
60	Ni	1	72	37.870	ppb	#REF!	0.89	2000.00	>RL
63	Cu	1	72	10.000	ppb	#REF!	1.60	2000.00	>RL
66	Zn	1	72	142.900	ppb	#REF!	0.30	2000.00	>RL
75	As	1	72	19.800	ppb	#REF!	0.75	2000.00	>RL
78	Se	1	72	19.850	ppb	#REF!	5.40	2000.00	>RL
88	Sr	2	115	346.300	ppb	#REF!	2.30	2000.00	>RL
95	Mo	2	115	2.315	ppb	#REF!	4.91	2000.00	J
107	Ag	2	115	0.108	ppb	#REF!	8.83	500.00	ND
111	Cd	2	115	0.816	ppb	#REF!	10.99	2000.00	J
118	Sn	2	115	4.941	ppb	#REF!	2.20	2000.00	ND
121	Sb	2	115	0.411	ppb	#REF!	5.59	500.00	ND
137	Ba	2	115	407.000	ppb	#REF!	2.02	2000.00	>RL
205	Tl	2	209	0.397	ppb	#REF!	1.77	2000.00	ND
208	Pb	2	209	36.170	ppb	#REF!	1.22	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12558.19	5.36	RHigh	76.78	-16356.9	70 - 120	ISFail
45	Sc	1	125730.88	0.90		158070.19	79.5	70 - 120	
45	Sc	2	6304356.50	2.65		6406944.50	98.4	70 - 120	
72	Ge	1	68904.61	1.06		88651.82	77.7	70 - 120	
115	In	2	6448208.00	1.43		7384352.50	87.3	70 - 120	
209	Bi	2	4154835.30	1.84		5202967.00	79.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\106SMPL.D\106SMPL.D#

Date Acquired:	Aug 9 2016 10:10 pm	Sample Name:	**1607294-21A**
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	54.770	ppb	#REF!	2.29	2000.00	>RL
9	Be	2	45	2.321	ppb	#REF!	3.06	2000.00	>RL
11	B	2	45	57.250	ppb	#REF!	2.20	2000.00	>RL
23	Na	1	45	355.700	ppb	#REF!	0.70	25000.00	>RL
24	Mg	1	45	13770.000	ppb	#REF!	1.30	25000.00	>RL
27	Al	1	45	64410.000	ppb	#REF!	1.89	10000.00	OUTCAL
39	K	1	45	14370.000	ppb	#REF!	1.45	25000.00	>RL
44	Ca	2	45	81890.000	ppb	#REF!	3.16	25000.00	OUTCAL
47	Ti	1	45	192.100	ppb	#REF!	3.62	2000.00	>RL
51	V	1	45	90.890	ppb	#REF!	1.48	2000.00	>RL
52	Cr	1	45	55.930	ppb	#REF!	0.85	2000.00	>RL
55	Mn	1	45	654.900	ppb	#REF!	1.27	2000.00	>RL
56	Fe	1	72	65420.000	ppb	#REF!	1.48	10000.00	OUTCAL
59	Co	1	72	25.090	ppb	#REF!	0.59	2000.00	>RL
60	Ni	1	72	38.200	ppb	#REF!	2.03	2000.00	>RL
63	Cu	1	72	21.650	ppb	#REF!	1.99	2000.00	>RL
66	Zn	1	72	181.800	ppb	#REF!	1.20	2000.00	>RL
75	As	1	72	21.920	ppb	#REF!	1.95	2000.00	>RL
78	Se	1	72	16.050	ppb	#REF!	6.14	2000.00	>RL
88	Sr	2	115	288.400	ppb	#REF!	2.41	2000.00	>RL
95	Mo	2	115	1.807	ppb	#REF!	3.14	2000.00	ND
107	Ag	2	115	0.183	ppb	#REF!	7.43	500.00	ND
111	Cd	2	115	0.937	ppb	#REF!	10.33	2000.00	J
118	Sn	2	115	4.929	ppb	#REF!	4.08	2000.00	ND
121	Sb	2	115	1.803	ppb	#REF!	6.47	500.00	ND
137	Ba	2	115	355.400	ppb	#REF!	2.44	2000.00	>RL
205	Tl	2	209	0.575	ppb	#REF!	2.83	2000.00	ND
208	Pb	2	209	111.300	ppb	#REF!	1.80	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10862.01	2.84	76.78	-14147.7	70 - 120	ISFail
45	Sc	1	129224.84	1.05	158070.19	81.8	70 - 120	
45	Sc	2	6456638.00	3.44	6406944.50	100.8	70 - 120	
72	Ge	1	70729.59	0.77	88651.82	79.8	70 - 120	
115	In	2	6770498.50	1.61	7384352.50	91.7	70 - 120	
209	Bi	2	4366401.00	2.06	5202967.00	83.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\107SMPL.D\107SMPL.D#

Date Acquired:	Aug 9 2016 10:16 pm	Sample Name:	**1607294-22A**
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	61.070	ppb	#REF!	2.95	2000.00	>RL
9	Be	2	45	2.409	ppb	#REF!	3.43	2000.00	>RL
11	B	2	45	70.650	ppb	#REF!	3.25	2000.00	>RL
23	Na	1	45	3053.000	ppb	#REF!	0.96	25000.00	>RL
24	Mg	1	45	14470.000	ppb	#REF!	0.88	25000.00	>RL
27	Al	1	45	60410.000	ppb	#REF!	0.73	10000.00	OUTCAL
39	K	1	45	13110.000	ppb	#REF!	1.23	25000.00	>RL
44	Ca	2	45	268900.000	ppb	#REF!	3.37	25000.00	OUTCAL
47	Ti	1	45	182.900	ppb	#REF!	2.29	2000.00	>RL
51	V	1	45	111.500	ppb	#REF!	0.47	2000.00	>RL
52	Cr	1	45	61.160	ppb	#REF!	0.55	2000.00	>RL
55	Mn	1	45	918.500	ppb	#REF!	0.44	2000.00	>RL
56	Fe	1	72	67410.000	ppb	#REF!	0.86	10000.00	OUTCAL
59	Co	1	72	27.080	ppb	#REF!	1.34	2000.00	>RL
60	Ni	1	72	39.780	ppb	#REF!	0.67	2000.00	>RL
63	Cu	1	72	13.270	ppb	#REF!	0.42	2000.00	>RL
66	Zn	1	72	141.500	ppb	#REF!	0.38	2000.00	>RL
75	As	1	72	22.480	ppb	#REF!	0.78	2000.00	>RL
78	Se	1	72	18.210	ppb	#REF!	6.39	2000.00	>RL
88	Sr	2	115	498.900	ppb	#REF!	1.60	2000.00	>RL
95	Mo	2	115	1.713	ppb	#REF!	2.79	2000.00	ND
107	Ag	2	115	0.112	ppb	#REF!	3.39	500.00	ND
111	Cd	2	115	0.856	ppb	#REF!	15.23	2000.00	J
118	Sn	2	115	4.380	ppb	#REF!	1.30	2000.00	ND
121	Sb	2	115	0.321	ppb	#REF!	9.21	500.00	ND
137	Ba	2	115	469.500	ppb	#REF!	2.40	2000.00	>RL
205	Tl	2	209	0.499	ppb	#REF!	3.02	2000.00	ND
208	Pb	2	209	34.940	ppb	#REF!	2.36	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11861.42	3.10	76.78	-15449.4	70 - 120	ISFail
45	Sc	1	120768.62	0.57	158070.19	76.4	70 - 120	
45	Sc	2	6228920.00	2.59	6406944.50	97.2	70 - 120	
72	Ge	1	65853.26	0.35	88651.82	74.3	70 - 120	
115	In	2	6671011.00	1.99	7384352.50	90.3	70 - 120	
209	Bi	2	4109581.50	1.93	5202967.00	79.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\108SMPL.D\108SMPL.D#

Date Acquired:	Aug 9 2016 10:22 pm	Sample Name:	**1607294-23A**
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	69.630	ppb	#REF!	3.44	2000.00	>RL
9	Be	2	45	2.361	ppb	#REF!	2.27	2000.00	>RL
11	B	2	45	79.890	ppb	#REF!	3.41	2000.00	>RL
23	Na	1	45	7267.000	ppb	#REF!	2.24	25000.00	>RL
24	Mg	1	45	14450.000	ppb	#REF!	2.83	25000.00	>RL
27	Al	1	45	58010.000	ppb	#REF!	2.51	10000.00	OUTCAL
39	K	1	45	13240.000	ppb	#REF!	2.11	25000.00	>RL
44	Ca	2	45	232800.000	ppb	#REF!	1.81	25000.00	OUTCAL
47	Ti	1	45	167.700	ppb	#REF!	4.29	2000.00	>RL
51	V	1	45	114.500	ppb	#REF!	1.30	2000.00	>RL
52	Cr	1	45	62.750	ppb	#REF!	1.25	2000.00	>RL
55	Mn	1	45	796.800	ppb	#REF!	1.62	2000.00	>RL
56	Fe	1	72	66200.000	ppb	#REF!	0.87	10000.00	OUTCAL
59	Co	1	72	28.400	ppb	#REF!	0.86	2000.00	>RL
60	Ni	1	72	37.710	ppb	#REF!	2.12	2000.00	>RL
63	Cu	1	72	9.999	ppb	#REF!	1.04	2000.00	>RL
66	Zn	1	72	135.700	ppb	#REF!	2.64	2000.00	>RL
75	As	1	72	21.820	ppb	#REF!	1.74	2000.00	>RL
78	Se	1	72	18.420	ppb	#REF!	8.67	2000.00	>RL
88	Sr	2	115	443.500	ppb	#REF!	2.04	2000.00	>RL
95	Mo	2	115	1.646	ppb	#REF!	4.66	2000.00	ND
107	Ag	2	115	0.101	ppb	#REF!	6.61	500.00	ND
111	Cd	2	115	0.828	ppb	#REF!	12.57	2000.00	J
118	Sn	2	115	5.000	ppb	#REF!	1.02	2000.00	ND
121	Sb	2	115	0.148	ppb	#REF!	3.81	500.00	ND
137	Ba	2	115	410.600	ppb	#REF!	2.07	2000.00	>RL
205	Tl	2	209	0.466	ppb	#REF!	3.38	2000.00	ND
208	Pb	2	209	27.240	ppb	#REF!	1.07	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13255.30	5.17	RHigh	76.78	-17264.9	70 - 120	ISFail
45	Sc	1	121307.29	0.82		158070.19	76.7	70 - 120	
45	Sc	2	6154304.50	2.29		6406944.50	96.1	70 - 120	
72	Ge	1	66094.11	1.15		88651.82	74.6	70 - 120	
115	In	2	6596233.00	1.73		7384352.50	89.3	70 - 120	
209	Bi	2	4115185.30	1.55		5202967.00	79.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\109SMPL.D\109SMPL.D#

Date Acquired:	Aug 9 2016 10:28 pm	Sample Name:	**1607294-25A**
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	51.950	ppb	#REF!	2.67	2000.00	>RL
9	Be	2	45	2.433	ppb	#REF!	0.62	2000.00	>RL
11	B	2	45	57.740	ppb	#REF!	2.08	2000.00	>RL
23	Na	1	45	1546.000	ppb	#REF!	1.90	25000.00	>RL
24	Mg	1	45	14740.000	ppb	#REF!	2.95	25000.00	>RL
27	Al	1	45	74160.000	ppb	#REF!	2.26	10000.00	OUTCAL
39	K	1	45	18070.000	ppb	#REF!	2.42	25000.00	>RL
44	Ca	2	45	45650.000	ppb	#REF!	2.24	25000.00	OUTCAL
47	Ti	1	45	225.700	ppb	#REF!	2.99	2000.00	>RL
51	V	1	45	100.500	ppb	#REF!	1.12	2000.00	>RL
52	Cr	1	45	60.770	ppb	#REF!	1.25	2000.00	>RL
55	Mn	1	45	619.600	ppb	#REF!	1.14	2000.00	>RL
56	Fe	1	72	62440.000	ppb	#REF!	1.31	10000.00	OUTCAL
59	Co	1	72	23.130	ppb	#REF!	1.71	2000.00	>RL
60	Ni	1	72	38.840	ppb	#REF!	0.42	2000.00	>RL
63	Cu	1	72	27.610	ppb	#REF!	0.14	2000.00	>RL
66	Zn	1	72	212.400	ppb	#REF!	1.48	2000.00	>RL
75	As	1	72	26.640	ppb	#REF!	1.38	2000.00	>RL
78	Se	1	72	16.790	ppb	#REF!	1.14	2000.00	>RL
88	Sr	2	115	291.400	ppb	#REF!	2.83	2000.00	>RL
95	Mo	2	115	1.402	ppb	#REF!	2.06	2000.00	ND
107	Ag	2	115	0.248	ppb	#REF!	5.17	500.00	ND
111	Cd	2	115	1.039	ppb	#REF!	6.84	2000.00	J
118	Sn	2	115	5.372	ppb	#REF!	2.64	2000.00	ND
121	Sb	2	115	2.014	ppb	#REF!	3.25	500.00	J
137	Ba	2	115	358.400	ppb	#REF!	2.50	2000.00	>RL
205	Tl	2	209	0.604	ppb	#REF!	3.87	2000.00	ND
208	Pb	2	209	90.380	ppb	#REF!	1.99	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10112.48	4.44	76.78	-13171.4	70 - 120	ISFail
45	Sc	1	126690.75	1.03	158070.19	80.1	70 - 120	
45	Sc	2	6304659.50	2.42	6406944.50	98.4	70 - 120	
72	Ge	1	69103.65	1.29	88651.82	77.9	70 - 120	
115	In	2	6490091.00	1.96	7384352.50	87.9	70 - 120	
209	Bi	2	4306916.00	1.64	5202967.00	82.8	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	

ICP-MS3_160809B
For

DHL Work Order
1607294

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	**% 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**	5.0031	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]

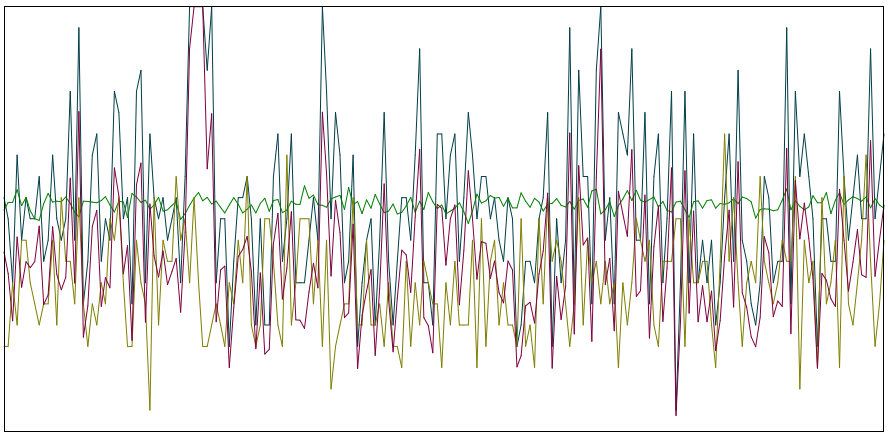
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
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

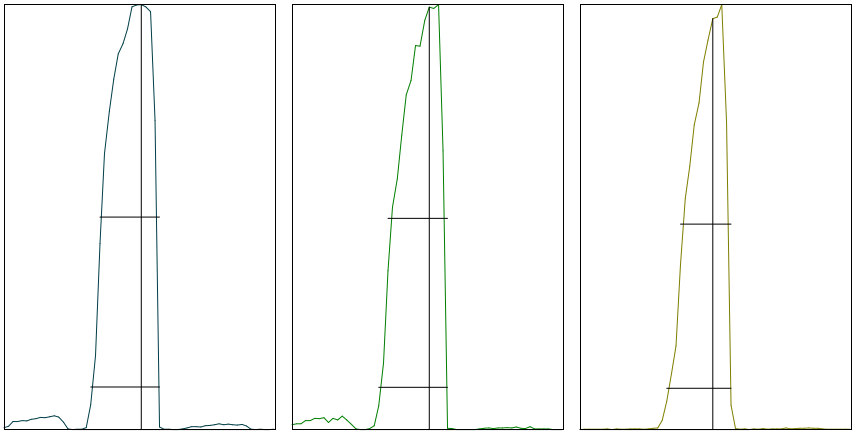
Tune Report

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				

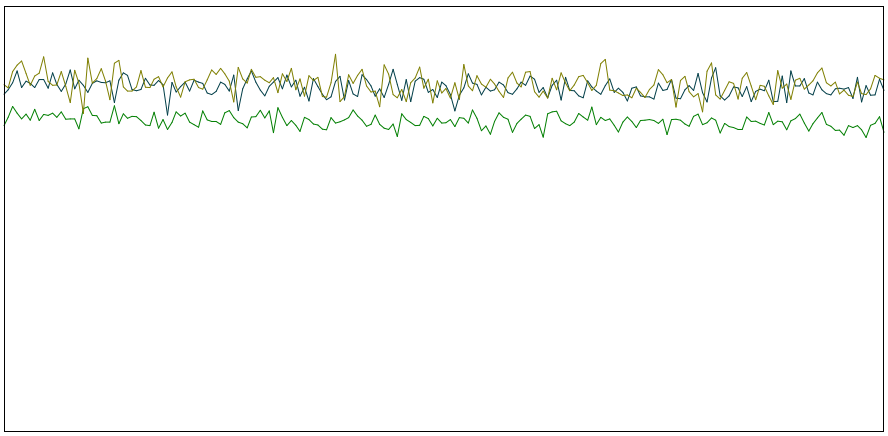
===Reaction Cell===

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

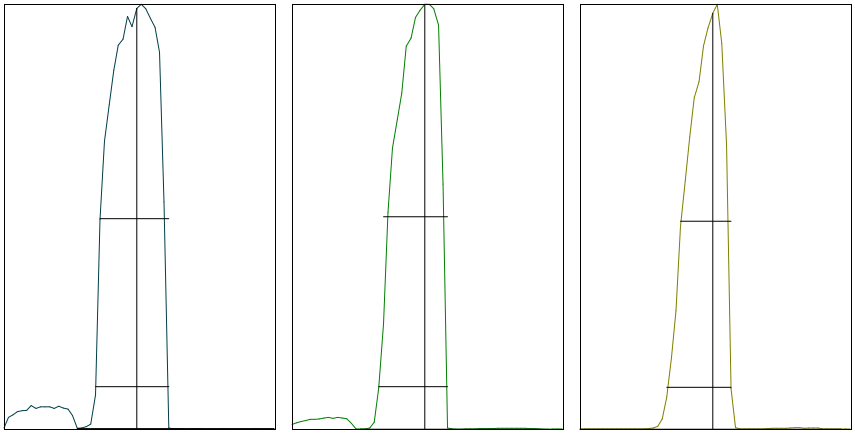
Tune Report

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 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	:	---	%

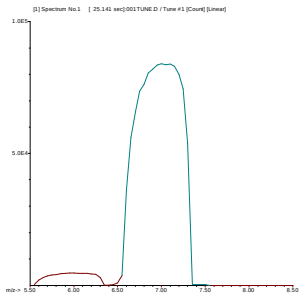
Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:05

6020 QC Tune Report

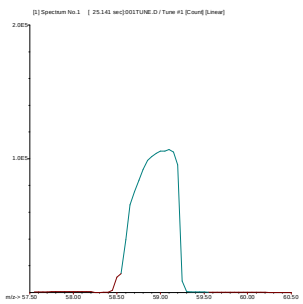
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

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	

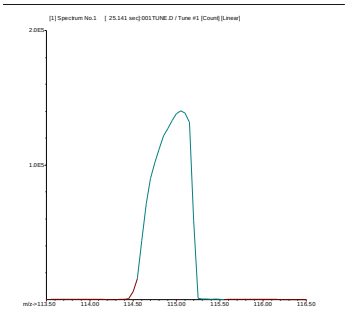


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



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

REVIEWED BY
By Janice Whitt at 2:24:52 PM, 8/10/2016



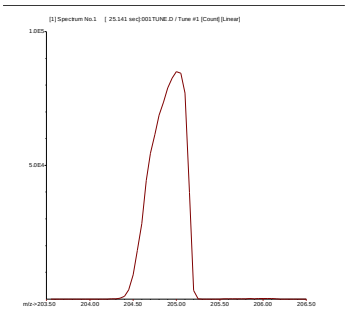
115 In

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	

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

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	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\135SMPL.D\135SMPL.D#

Date Acquired:	Aug 10 2016 01:04 am	Sample Name:	**1607294-13A**
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	0.126	ppb	#REF!	6.65	2000.00	ND
9	Be	2	45	-0.002	ppb	#REF!	26.01	2000.00	ND
11	B	2	45	23.470	ppb	#REF!	1.73	2000.00	J
23	Na	1	45	159.500	ppb	#REF!	1.95	25000.00	J
24	Mg	1	45	33.940	ppb	#REF!	4.87	25000.00	ND
27	Al	1	45	57.120	ppb	#REF!	5.52	10000.00	>RL
39	K	1	45	8.281	ppb	#REF!	3.58	25000.00	ND
44	Ca	2	45	205.800	ppb	#REF!	3.58	25000.00	J
47	Ti	1	45	0.285	ppb	#REF!	21.66	2000.00	ND
51	V	1	45	0.064	ppb	#REF!	2.74	2000.00	ND
52	Cr	1	45	-0.007	ppb	#REF!	8.48	2000.00	ND
55	Mn	1	45	0.148	ppb	#REF!	10.72	2000.00	ND
56	Fe	1	72	12.520	ppb	#REF!	5.72	10000.00	ND
59	Co	1	72	0.005	ppb	#REF!	18.17	2000.00	ND
60	Ni	1	72	0.004	ppb	#REF!	4.20	2000.00	ND
63	Cu	1	72	0.584	ppb	#REF!	3.08	2000.00	ND
66	Zn	1	72	1.095	ppb	#REF!	10.52	2000.00	ND
75	As	1	72	-0.095	ppb	#REF!	5.10	2000.00	ND
78	Se	1	72	-0.086	ppb	#REF!	26.47	2000.00	ND
88	Sr	2	115	2.485	ppb	#REF!	1.27	2000.00	ND
95	Mo	2	115	0.018	ppb	#REF!	22.71	2000.00	ND
107	Ag	2	115	0.014	ppb	#REF!	17.70	500.00	ND
111	Cd	2	115	0.008	ppb	#REF!	82.78	2000.00	ND
118	Sn	2	115	0.096	ppb	#REF!	15.39	2000.00	ND
121	Sb	2	115	0.077	ppb	#REF!	7.29	500.00	ND
137	Ba	2	115	0.335	ppb	#REF!	12.23	2000.00	ND
205	Tl	2	209	0.054	ppb	#REF!	7.79	2000.00	ND
208	Pb	2	209	0.097	ppb	#REF!	5.42	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-25.52	57.53	RHigh	76.78	-33.2	70 - 120	ISFail
45	Sc	1	130994.91	0.52		158070.19	82.9	70 - 120	
45	Sc	2	5303094.50	0.98		6406944.50	82.8	70 - 120	
72	Ge	1	70236.69	1.27		88651.82	79.2	70 - 120	
115	In	2	5859313.50	0.77		7384352.50	79.3	70 - 120	
209	Bi	2	4461906.00	0.78		5202967.00	85.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\136SMPL.D\136SMPL.D#

Date Acquired:	Aug 10 2016 01:10 am	Sample Name:	**1607294-24A**
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!	6.38	2000.00	ND
9	Be	2	45	-0.003	ppb	#REF!	19.67	2000.00	ND
11	B	2	45	29.390	ppb	#REF!	0.34	2000.00	J
23	Na	1	45	36.680	ppb	#REF!	1.83	25000.00	ND
24	Mg	1	45	12.820	ppb	#REF!	1.17	25000.00	ND
27	Al	1	45	92.320	ppb	#REF!	2.58	10000.00	>RL
39	K	1	45	2.608	ppb	#REF!	4.15	25000.00	ND
44	Ca	2	45	206.800	ppb	#REF!	1.47	25000.00	J
47	Ti	1	45	0.468	ppb	#REF!	21.65	2000.00	ND
51	V	1	45	0.084	ppb	#REF!	1.29	2000.00	ND
52	Cr	1	45	0.011	ppb	#REF!	3.59	2000.00	ND
55	Mn	1	45	0.146	ppb	#REF!	3.01	2000.00	ND
56	Fe	1	72	6.228	ppb	#REF!	0.36	10000.00	ND
59	Co	1	72	0.006	ppb	#REF!	3.79	2000.00	ND
60	Ni	1	72	0.044	ppb	#REF!	16.59	2000.00	ND
63	Cu	1	72	0.468	ppb	#REF!	2.37	2000.00	ND
66	Zn	1	72	1.378	ppb	#REF!	6.28	2000.00	ND
75	As	1	72	-0.096	ppb	#REF!	1.68	2000.00	ND
78	Se	1	72	-0.094	ppb	#REF!	6.42	2000.00	ND
88	Sr	2	115	1.589	ppb	#REF!	0.83	2000.00	ND
95	Mo	2	115	0.001	ppb	#REF!	27.89	2000.00	ND
107	Ag	2	115	0.006	ppb	#REF!	8.82	500.00	ND
111	Cd	2	115	0.004	ppb	#REF!	35.80	2000.00	ND
118	Sn	2	115	0.049	ppb	#REF!	11.15	2000.00	ND
121	Sb	2	115	0.049	ppb	#REF!	17.09	500.00	ND
137	Ba	2	115	0.302	ppb	#REF!	7.78	2000.00	ND
205	Tl	2	209	0.029	ppb	#REF!	5.04	2000.00	ND
208	Pb	2	209	0.152	ppb	#REF!	9.74	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-27.69	70.84	RHigh	76.78	-36.1	70 - 120	ISFail
45	Sc	1	130303.38	0.57		158070.19	82.4	70 - 120	
45	Sc	2	5369150.50	1.66		6406944.50	83.8	70 - 120	
72	Ge	1	70062.16	0.59		88651.82	79.0	70 - 120	
115	In	2	5940133.00	0.17		7384352.50	80.4	70 - 120	
209	Bi	2	4549705.00	0.76		5202967.00	87.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\137SMPL.D\137SMPL.D#

Date Acquired:	Aug 10 2016 01:16 am	Sample Name:	**1607294-37A**
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	0.145	ppb	#REF!	8.64	2000.00	ND
9	Be	2	45	0.000	ppb	#REF!	21.65	2000.00	ND
11	B	2	45	36.560	ppb	#REF!	2.19	2000.00	>RL
23	Na	1	45	138.000	ppb	#REF!	1.50	25000.00	J
24	Mg	1	45	37.820	ppb	#REF!	5.36	25000.00	ND
27	Al	1	45	136.100	ppb	#REF!	4.35	10000.00	>RL
39	K	1	45	12.720	ppb	#REF!	2.78	25000.00	ND
44	Ca	2	45	385.600	ppb	#REF!	2.12	25000.00	>RL
47	Ti	1	45	0.449	ppb	#REF!	15.07	2000.00	ND
51	V	1	45	0.102	ppb	#REF!	8.81	2000.00	ND
52	Cr	1	45	0.029	ppb	#REF!	6.08	2000.00	ND
55	Mn	1	45	0.208	ppb	#REF!	18.73	2000.00	ND
56	Fe	1	72	5.817	ppb	#REF!	7.77	10000.00	ND
59	Co	1	72	-0.002	ppb	#REF!	9.73	2000.00	ND
60	Ni	1	72	0.003	ppb	#REF!	21.25	2000.00	ND
63	Cu	1	72	0.502	ppb	#REF!	1.81	2000.00	ND
66	Zn	1	72	2.275	ppb	#REF!	6.47	2000.00	J
75	As	1	72	-0.071	ppb	#REF!	3.08	2000.00	ND
78	Se	1	72	0.018	ppb	#REF!	26.58	2000.00	ND
88	Sr	2	115	3.564	ppb	#REF!	1.16	2000.00	J
95	Mo	2	115	0.010	ppb	#REF!	28.37	2000.00	ND
107	Ag	2	115	0.003	ppb	#REF!	2.19	500.00	ND
111	Cd	2	115	-0.008	ppb	#REF!	71.46	2000.00	ND
118	Sn	2	115	0.121	ppb	#REF!	6.65	2000.00	ND
121	Sb	2	115	0.041	ppb	#REF!	11.98	500.00	ND
137	Ba	2	115	0.508	ppb	#REF!	5.67	2000.00	ND
205	Tl	2	209	0.021	ppb	#REF!	13.17	2000.00	ND
208	Pb	2	209	0.158	ppb	#REF!	2.44	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19.75	210.63	RHigh	76.78	-25.7	70 - 120	ISFail
45	Sc	1	129534.50	1.85		158070.19	81.9	70 - 120	
45	Sc	2	5393432.50	1.80		6406944.50	84.2	70 - 120	
72	Ge	1	69684.27	0.83		88651.82	78.6	70 - 120	
115	In	2	6125605.50	0.42		7384352.50	83.0	70 - 120	
209	Bi	2	4558277.50	0.91		5202967.00	87.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\138SMPL.D\138SMPL.D#

Date Acquired:	Aug 10 2016 01:22 am	Sample Name:	**1607294-50A**
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	0.059	ppb	#REF!	5.74	2000.00	ND
9	Be	2	45	-0.008	ppb	#REF!	17.32	2000.00	ND
11	B	2	45	18.000	ppb	#REF!	1.03	2000.00	J
23	Na	1	45	22.870	ppb	#REF!	1.45	25000.00	ND
24	Mg	1	45	2.260	ppb	#REF!	5.75	25000.00	ND
27	Al	1	45	10.540	ppb	#REF!	3.11	10000.00	J
39	K	1	45	-1.554	ppb	#REF!	5.58	25000.00	ND
44	Ca	2	45	5.133	ppb	#REF!	6.02	25000.00	ND
47	Ti	1	45	0.104	ppb	#REF!	108.25	2000.00	ND
51	V	1	45	0.048	ppb	#REF!	3.20	2000.00	ND
52	Cr	1	45	-0.044	ppb	#REF!	17.03	2000.00	ND
55	Mn	1	45	0.013	ppb	#REF!	14.87	2000.00	ND
56	Fe	1	72	1.947	ppb	#REF!	6.67	10000.00	ND
59	Co	1	72	-0.008	ppb	#REF!	8.25	2000.00	ND
60	Ni	1	72	0.149	ppb	#REF!	2.59	2000.00	ND
63	Cu	1	72	0.136	ppb	#REF!	6.56	2000.00	ND
66	Zn	1	72	0.241	ppb	#REF!	2.92	2000.00	ND
75	As	1	72	-0.080	ppb	#REF!	3.26	2000.00	ND
78	Se	1	72	0.187	ppb	#REF!	20.99	2000.00	ND
88	Sr	2	115	0.037	ppb	#REF!	1.95	2000.00	ND
95	Mo	2	115	-0.002	ppb	#REF!	24.29	2000.00	ND
107	Ag	2	115	0.003	ppb	#REF!	21.66	500.00	ND
111	Cd	2	115	0.015	ppb	#REF!	6.21	2000.00	ND
118	Sn	2	115	0.047	ppb	#REF!	7.85	2000.00	ND
121	Sb	2	115	0.032	ppb	#REF!	10.76	500.00	ND
137	Ba	2	115	0.074	ppb	#REF!	14.47	2000.00	ND
205	Tl	2	209	0.028	ppb	#REF!	7.96	2000.00	ND
208	Pb	2	209	0.005	ppb	#REF!	8.55	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-17.79	85.76	RHigh	76.78	-23.2	70 - 120	ISFail
45	Sc	1	132362.14	1.60		158070.19	83.7	70 - 120	
45	Sc	2	5385196.50	1.71		6406944.50	84.1	70 - 120	
72	Ge	1	71143.71	1.07		88651.82	80.3	70 - 120	
115	In	2	6107013.00	0.13		7384352.50	82.7	70 - 120	
209	Bi	2	4602915.50	0.77		5202967.00	88.5	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	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\143SMPL.D\143SMPL.D#

Date Acquired:	Aug 10 2016 01:52 am	Sample Name:	**1607294-63A**
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	0.143	ppb	#REF!	1.18	2000.00	ND
9	Be	2	45	-0.011	ppb	#REF!	28.19	2000.00	ND
11	B	2	45	18.220	ppb	#REF!	2.66	2000.00	J
23	Na	1	45	192.800	ppb	#REF!	1.07	25000.00	J
24	Mg	1	45	41.850	ppb	#REF!	3.74	25000.00	ND
27	Al	1	45	17.740	ppb	#REF!	6.70	10000.00	J
39	K	1	45	10.670	ppb	#REF!	4.29	25000.00	ND
44	Ca	2	45	107.700	ppb	#REF!	4.96	25000.00	J
47	Ti	1	45	0.427	ppb	#REF!	43.83	2000.00	ND
51	V	1	45	0.013	ppb	#REF!	15.62	2000.00	ND
52	Cr	1	45	-0.023	ppb	#REF!	10.92	2000.00	ND
55	Mn	1	45	0.051	ppb	#REF!	9.44	2000.00	ND
56	Fe	1	72	10.740	ppb	#REF!	9.50	10000.00	ND
59	Co	1	72	-0.005	ppb	#REF!	5.59	2000.00	ND
60	Ni	1	72	-0.013	ppb	#REF!	1.88	2000.00	ND
63	Cu	1	72	0.287	ppb	#REF!	3.02	2000.00	ND
66	Zn	1	72	0.123	ppb	#REF!	18.26	2000.00	ND
75	As	1	72	0.070	ppb	#REF!	4.88	2000.00	ND
78	Se	1	72	0.191	ppb	#REF!	13.66	2000.00	ND
88	Sr	2	115	1.926	ppb	#REF!	1.72	2000.00	ND
95	Mo	2	115	0.242	ppb	#REF!	9.47	2000.00	ND
107	Ag	2	115	0.008	ppb	#REF!	3.01	500.00	ND
111	Cd	2	115	-0.003	ppb	#REF!	25.62	2000.00	ND
118	Sn	2	115	0.037	ppb	#REF!	4.68	2000.00	ND
121	Sb	2	115	0.010	ppb	#REF!	22.94	500.00	ND
137	Ba	2	115	0.171	ppb	#REF!	12.69	2000.00	ND
205	Tl	2	209	0.003	ppb	#REF!	17.07	2000.00	ND
208	Pb	2	209	0.017	ppb	#REF!	6.78	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-32.61	36.30	RHigh	76.78	-42.5	70 - 120	ISFail
45	Sc	1	129447.49	1.21		158070.19	81.9	70 - 120	
45	Sc	2	7137435.50	1.67		6406944.50	111.4	70 - 120	
72	Ge	1	73330.74	1.23		88651.82	82.7	70 - 120	
115	In	2	7101215.00	1.38		7384352.50	96.2	70 - 120	
209	Bi	2	4645005.50	0.93		5202967.00	89.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\145SMPL.D\145SMPL.D#

Date Acquired:	Aug 10 2016 02:04 am	Sample Name:	**1607294-76A**
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	0.120	ppb	#REF!	2.96	2000.00	ND
9	Be	2	45	-0.007	ppb	#REF!	53.66	2000.00	ND
11	B	2	45	16.590	ppb	#REF!	1.86	2000.00	J
23	Na	1	45	154.000	ppb	#REF!	0.83	25000.00	J
24	Mg	1	45	29.870	ppb	#REF!	3.39	25000.00	ND
27	Al	1	45	9.544	ppb	#REF!	3.36	10000.00	ND
39	K	1	45	2.561	ppb	#REF!	2.46	25000.00	ND
44	Ca	2	45	88.100	ppb	#REF!	5.11	25000.00	ND
47	Ti	1	45	0.034	ppb	#REF!	69.30	2000.00	ND
51	V	1	45	0.006	ppb	#REF!	10.18	2000.00	ND
52	Cr	1	45	-0.015	ppb	#REF!	16.45	2000.00	ND
55	Mn	1	45	0.100	ppb	#REF!	6.05	2000.00	ND
56	Fe	1	72	16.310	ppb	#REF!	2.93	10000.00	ND
59	Co	1	72	-0.005	ppb	#REF!	11.46	2000.00	ND
60	Ni	1	72	-0.011	ppb	#REF!	9.37	2000.00	ND
63	Cu	1	72	0.379	ppb	#REF!	3.78	2000.00	ND
66	Zn	1	72	0.557	ppb	#REF!	13.51	2000.00	ND
75	As	1	72	0.143	ppb	#REF!	3.24	2000.00	ND
78	Se	1	72	0.108	ppb	#REF!	10.05	2000.00	ND
88	Sr	2	115	1.703	ppb	#REF!	3.89	2000.00	ND
95	Mo	2	115	0.080	ppb	#REF!	10.63	2000.00	ND
107	Ag	2	115	0.003	ppb	#REF!	13.15	500.00	ND
111	Cd	2	115	-0.006	ppb	#REF!	59.85	2000.00	ND
118	Sn	2	115	0.041	ppb	#REF!	5.25	2000.00	ND
121	Sb	2	115	0.023	ppb	#REF!	16.45	500.00	ND
137	Ba	2	115	0.181	ppb	#REF!	8.12	2000.00	ND
205	Tl	2	209	0.006	ppb	#REF!	4.38	2000.00	ND
208	Pb	2	209	0.033	ppb	#REF!	5.55	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18.72	80.75	RHigh	76.78	-24.4	70 - 120	ISFail
45	Sc	1	135664.75	0.83		158070.19	85.8	70 - 120	
45	Sc	2	7201064.50	2.09		6406944.50	112.4	70 - 120	
72	Ge	1	75017.02	1.44		88651.82	84.6	70 - 120	
115	In	2	7112430.50	1.65		7384352.50	96.3	70 - 120	
209	Bi	2	4572113.50	1.04		5202967.00	87.9	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	

ICP-MS3_160810B
For

DHL Work Order
1607294

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_160810B 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			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 (DoD) / 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: 08/11/2016

Second-Level Review: Janice Whitt Date Stamp: 8/15/2016

REVIEWED BY
By Janice Whitt at 11:19:28 AM, 8/15/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160810B** **Run No.:** 87549

Analytical Run Date: 8/10/2016 **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	R87549	8/10/2016 11:23:00 AM		
L2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:29:00 AM		
L-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:35:00 AM		
10X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:41:00 AM		
5X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:47:00 AM		
2X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:53:00 AM		
H-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:59:00 AM		
H2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 12:05:00 PM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/10/2016 12:23:00 PM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/10/2016 12:29:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:47:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:59:00 PM		ICV1 reran for missed analytes from another work order. Pb passes in both runs.
ILCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 1:05:00 PM		
ICB1-160810	1	ICPMS_TWDOD	ICB	R87549	8/10/2016 1:11:00 PM		
1607294-09A	5	ICPMS_TSDOD1	SAMP	76670	8/10/2016 3:09:00 PM		
1607294-09A SD	25	ICPMS_TSDOD1	SD	76670	8/10/2016 3:15:00 PM		
1607294-09A PDS	5	ICPMS_TSDOD1	PDS	76670	8/10/2016 3:21:00 PM		
1607294-09A MS	5	ICPMS_TSDOD1	MS	76670	8/10/2016 3:27:00 PM		
1607294-09A MSD	5	ICPMS_TSDOD1	MSD	76670	8/10/2016 3:32:00 PM		S flag for Pb (High); R flag Pb; Verified from previous run.
CCV1-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 3:38:00 PM		
LCVL1-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 3:50:00 PM		
CCB1-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 3:56:00 PM		
MB-76690	5	ICPMS_TSDOD1	MBLK	76690	8/10/2016 4:02:00 PM		
LCS-76690	5	ICPMS_TSDOD1	LCS	76690	8/10/2016 4:08:00 PM		
LCSD-76690	5	ICPMS_TSDOD1	LCSD	76690	8/10/2016 4:14:00 PM		
1607314-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:26:00 PM		
1607314-03A SD	25	ICPMS_TSDOD1	SD	76690	8/10/2016 4:31:00 PM		
1607294-69A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:56:00 PM		Rounds. jw 8/15/2016
1607294-70A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:02:00 PM		~~S flag for INST Sc (High); Does not affect Pb.~~

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_160810B **Run No.:** 87549

1607294-71A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:08:00 PM		
1607294-72A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:13:00 PM		
1607294-73A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:19:00 PM		
1607294-74A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:31:00 PM		
1607294-75A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:37:00 PM		
1607314-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:43:00 PM		
1607314-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:49:00 PM		
1607314-03A PDS	5	ICPMS_TSDOD1	PDS	76690	8/10/2016 5:55:00 PM		
1607314-03A MS	5	ICPMS_TSDOD1	MS	76690	8/10/2016 6:00:00 PM		
1607314-03A MSD	5	ICPMS_TSDOD1	MSD	76690	8/10/2016 6:06:00 PM		
CCV2-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 6:12:00 PM		
LCVL2-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 6:24:00 PM		
CCB2-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 6:30:00 PM		
1607314-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:36:00 PM		
1607314-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:42:00 PM		
1607314-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:48:00 PM		
1607317-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:54:00 PM		
1607317-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:59:00 PM		
1607317-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:11:00 PM		
1607317-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:17:00 PM		
1607317-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:23:00 PM		
1607317-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:29:00 PM		
1607317-07A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:35:00 PM		
CCV3-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 7:41:00 PM		
LCVL3-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 7:53:00 PM		
CCB3-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 7:59:00 PM		
MB-76716	5	ICPMS_TSDOD1	MBLK	76716	8/10/2016 8:05:00 PM		
LCS-76716	5	ICPMS_TSDOD1	LCS	76716	8/10/2016 8:11:00 PM		
LCSD-76716	5	ICPMS_TSDOD1	LCSD	76716	8/10/2016 8:17:00 PM		
1607317-09A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:30:00 PM		
1607317-09A SD	25	ICPMS_TSDOD1	SD	76716	8/10/2016 8:35:00 PM		
1607317-08A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:41:00 PM		
1607317-10A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:47:00 PM		
1607317-11A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:53:00 PM		
1607317-12A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:59:00 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_160810B **Run No.:** 87549

1607317-14A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:05:00 PM		
1607317-15A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:17:00 PM		
1607317-16A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:23:00 PM		
1607317-17A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:29:00 PM		
1607317-18A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:35:00 PM		
1607317-09A PDS	5	ICPMS_TSDOD1	PDS	76716	8/10/2016 9:41:00 PM		
1607317-09A MS	5	ICPMS_TSDOD1	MS	76716	8/10/2016 9:46:00 PM		S flag for Pb (High).
1607317-09A MSD	5	ICPMS_TSDOD1	MSD	76716	8/10/2016 9:52:00 PM		S flag for Pb (High).
CCV4-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 9:58:00 PM		
LCVL4-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 10:10:00 PM		
CCB4-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 10:17:00 PM		
1607317-19A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:23:00 PM		
1607317-20A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:29:00 PM		
1607317-21A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:34:00 PM		
1607317-22A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:40:00 PM		
1607317-23A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:46:00 PM		
1607317-24A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:58:00 PM		
1607317-25A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:04:00 PM		
1607317-28A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:10:00 PM		
1607317-29A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:16:00 PM		
1607317-30A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:22:00 PM		
CCV5-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 11:28:00 PM		
LCVL5-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 11:40:00 PM		
CCB5-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 11:46:00 PM		
MB-76717	5	ICPMS_TSDOD1	MBLK	76717	8/10/2016 11:52:00 PM		
LCS-76717	5	ICPMS_TSDOD1	LCS	76717	8/10/2016 11:58:00 PM		
LCSD-76717	5	ICPMS_TSDOD1	LCSD	76717	8/11/2016 12:04:00 AM		
1607317-27A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:17:00 AM		DNR - SD misprepared. See rerun of QC.
1607317-27A SD	25	ICPMS_TSDOD1	SD	76717	8/11/2016 12:23:00 AM		DNR
1607317-31A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:29:00 AM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/11/2016 12:35:00 AM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/11/2016 12:41:00 AM		
1607317-32A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:59:00 AM		
1607317-33A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:05:00 AM		
1607317-34A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:11:00 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_160810B **Run No.:** 87549

1607317-35A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:16:00 AM		
1607317-36A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:29:00 AM		
1607317-37A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:35:00 AM		
1607317-38A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:40:00 AM		
1607337-01A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:46:00 AM		
1607317-27A PDS	5	ICPMS_TSDOD1	PDS	76717	8/11/2016 1:52:00 AM		DNR
1607317-27A MS	5	ICPMS_TSDOD1	MS	76717	8/11/2016 1:58:00 AM		S flag for Pb (High). DNR
1607317-27A MSD	5	ICPMS_TSDOD1	MSD	76717	8/11/2016 2:04:00 AM		S flag for Pb (High). DNR
CCV6-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 2:10:00 AM		
LCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 2:22:00 AM		
CCB6-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 2:28:00 AM		
1607337-02A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:34:00 AM		
1607337-03A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:40:00 AM		
1607337-04A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:46:00 AM		
1607337-05A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:52:00 AM		
1607337-06A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:58:00 AM		
1607337-07A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:10:00 AM		
1607337-08A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:16:00 AM		
1607337-09A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:22:00 AM		
1607337-11A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:28:00 AM		
1607337-12A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:34:00 AM		
CCV7-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 3:40:00 AM		
LCVL7-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 3:52:00 AM		
CCB7-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 3:58:00 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		L2-160810	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160810	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160810	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160810	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160810	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160810	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160810	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-160810	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160810	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		ICV1-160810	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		ICB1-160810	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2510		ICV1-160810	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160810	LCVLICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160810	ICB ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-76606	MBLK200.8_EPA	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2202		LCS-76606	LCS 200.8_EPA	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2203		LCSD-76606	LCSD200.8_EPA	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607168-22A	SAMP200.8_EPA	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607168-22A SD	SD_200.8_EPA	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1607168-21A	SAMP200.8_EPA	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1607168-23A	SAMP200.8_EPA	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1607168-24A	SAMP200.8_EPA	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1607168-25A	SAMP200.8_EPA	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1607168-26A	SAMP200.8_EPA	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1607168-27A	SAMP200.8_EPA	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1607168-28A	SAMP200.8_EPA	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2301		1607168-22A PDS	PDS 200.8_EPA	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2302		1607168-22A MS	MS_200.8_EPA	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2303		1607168-22A MSD	MSD 200.8_EPA	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2304		1607294-09A	SAMPICPMS_TSDOD1	5.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2305		1607294-09A SD	SD_ICPMS_TSDOD1	25.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2306		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2307		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2308		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160810	CCV ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160810	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160810	LCVLICPMS_TW	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160810	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76690	MBLKICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76690	LCS ICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76690	LCSDICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607314-03A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607314-03A SD	SD_ICPMS_TSDOD1	25.00				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-69A	SAMPICPMS_TSDOD1	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-70A	SAMPICPMS_TSDOD1	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-71A	SAMPICPMS_TSDOD1	5.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-72A	SAMPICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-73A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-74A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-75A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607314-01A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607314-02A	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	PDS	3203		1607314-03A PDS	PDS ICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607314-03A MS	MS_ICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607314-03A MSD	MSD ICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160810	CCV ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160810	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160810	LCVLICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160810	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607314-04A	SAMPICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607314-05A	SAMPICPMS_TSDOD1	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607314-06A	SAMPICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607317-01A	SAMPICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607317-02A	SAMPICPMS_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	SampleS	3211		1607317-03A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607317-04A	SAMPICPMS_TSDOD1	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607317-05A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607317-06A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607317-07A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160810	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-160810	CCB ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL3-160810	LCVLICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160810	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2309		MB-76716	MBLKICPMS_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	LCS	2310		LCS-76716	LCS ICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2311		LCSD-76716	LCSDICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2312		1607317-09A	SAMPICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2401		1607317-09A SD	SD ICPMS_TSDOD1	25.00				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607317-08A	SAMPICPMS_TSDOD1	5.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607317-10A	SAMPICPMS_TSDOD1	5.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1607317-11A	SAMPICPMS_TSDOD1	5.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1607317-12A	SAMPICPMS_TSDOD1	5.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1607317-14A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1607317-15A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1607317-16A	SAMPICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1607317-17A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2410		1607317-18A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2411		1607317-09A PDS	PDS ICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2412		1607317-09A MS	MS ICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2501		1607317-09A MSD	MSD ICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160810	CCV ICPMS_TW	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160810	CCB ICPMS_TW	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160810	LCVLICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160810	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607317-19A	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	2503		1607317-20A	SAMPICPMS_TSDOD1	5.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607317-21A	SAMPICPMS_TSDOD1	5.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607317-22A	SAMPICPMS_TSDOD1	5.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607317-23A	SAMPICPMS_TSDOD1	5.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607317-24A	SAMPICPMS_TSDOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607317-25A	SAMPICPMS_TSDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607317-28A	SAMPICPMS_TSDOD1	5.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1607317-29A	SAMPICPMS_TSDOD1	5.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1607317-30A	SAMPICPMS_TSDOD1	5.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160810	CCV ICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160810	LCVLICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-76717	MBLKICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-76717	LCS ICPMS_TSDOD1	5.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-76717	LCSDICPMS_TSDOD1	5.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607317-27A	SAMPICPMS_TSDOD1	5.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607317-27A SD	SD ICPMS_TSDOD1	25.00				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1607317-31A	SAMPICPMS_TSDOD1	5.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1607317-32A	SAMPICPMS_TSDOD1	5.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1607317-33A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1607317-34A	SAMPICPMS_TSDOD1	5.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1607317-35A	SAMPICPMS_TSDOD1	5.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1607317-36A	SAMPICPMS_TSDOD1	5.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1607317-37A	SAMPICPMS_TSDOD1	5.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1607317-38A	SAMPICPMS_TSDOD1	5.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1607337-01A	SAMPICPMS_TSDOD1	5.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607317-27A PDS	PDS ICPMS_TSDOD1	5.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1607317-27A MS	MS_ICPMS_TSDOD1	5.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1607317-27A MSD	MSD ICPMS_TSDOD1	5.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160810	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160810	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL-160810	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160810	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3506		1607337-02A	SAMPICPMS_TSDOD1	5.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3507		1607337-03A	SAMPICPMS_TSDOD1	5.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3508		1607337-04A	SAMPICPMS_TSDOD1	5.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3509		1607337-05A	SAMPICPMS_TSDOD1	5.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3510		1607337-06A	SAMPICPMS_TSDOD1	5.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3511		1607337-07A	SAMPICPMS_TSDOD1	5.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3512		1607337-08A	SAMPICPMS_TSDOD1	5.000				
163	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1607337-09A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
164	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1607337-11A	SAMPICPMS_TSDOD1	5.000				
165	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1607337-12A	SAMPICPMS_TSDOD1	5.000				
166	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160810	CCV ICPMS_TW	1.000				
167	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
168	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160810	LCVLICPMS_TW	1.000				
169	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
170	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
171	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
172	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
173	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
174	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
175	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
176	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
177	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
178		Keyword		StandBy							
179		Keyword		SMPLEND	End of SMPL						
180		Keyword		End	End of Sequence						
181		Keyword		CCVBEG	Start of CCV						
182		Keyword		CCVEND	End of CCV						
183		Keyword		BLKBEG	Start of BLANK						
184		Keyword		BLKEND	End of BLANK						
185		Keyword		ERRBEG	Start of ERRTERM						
186		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 3:46:43 PM**
Digestion:
Prep End Date:

Prep Batch **76670** 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
1607294-04A	Soil		1.05	50	50.000	1 of 1	
1607294-05A	Soil		1.03	50	50.000	1 of 1	
1607294-06A	Soil		1.12	50	50.000	1 of 1	
1607294-07A	Soil		1.03	50	50.000	1 of 1	
1607294-08A	Soil		1.11	50	50.000	1 of 1	
1607294-09A	Soil		1.04	50	50.000	2 of 3	
1607294-09AMS	Soil		1.02	50	50.000	2 of 3	
1607294-09AMSD	Soil		1.04	50	50.000	2 of 3	
1607294-10A	Soil		1.06	50	50.000	1 of 1	
1607294-11A	Soil		1.08	50	50.000	1 of 1	
1607294-12A	Soil		1.04	50	50.000	1 of 1	
1607294-14A	Soil		1.06	50	50.000	1 of 1	
1607294-15A	Soil		1.01	50	50.000	1 of 1	
1607294-16A	Soil		1.06	50	50.000	1 of 1	
1607294-17A	Soil		1.12	50	50.000	1 of 1	
1607294-18A	Soil		1.02	50	50.000	1 of 1	
1607294-19A	Soil		1.12	50	50.000	1 of 1	
1607294-20A	Soil		1.07	50	50.000	1 of 1	
1607294-21A	Soil		1.04	50	50.000	1 of 1	
1607294-22A	Soil		1.04	50	50.000	1 of 1	
1607294-23A	Soil		1.05	50	50.000	1 of 1	
1607294-25A	Soil		1.12	50	50.000	1 of 1	
LCS-76670	Soil		1	50	50.000	of	
LCSD-76670	Soil		1	50	50.000	of	
MB-76670	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

7:30 - 7:40
7:42 - 9:42
10:07 - 12:07
12:18 - 12:28

8/5/16

REVIEWED BY
By Janice Whitt at 12:40:53 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-02A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:41:08 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-15A SS	Soil		0	0	#Num!	1 of 1	
1607294-16A SS	Soil		0	0	#Num!	1 of 1	
1607294-17A SS	Soil		0	0	#Num!	1 of 1	
1607294-18A SS	Soil		0	0	#Num!	1 of 1	
1607294-19A SS	Soil		0	0	#Num!	1 of 1	
1607294-20A SS	Soil		0	0	#Num!	1 of 1	
1607294-21A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:41:13 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-26A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-27A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-28A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-29A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-30A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-31A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-34A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-35A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:41:23 PM, 8/11/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-38A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-39A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-40A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-41A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-42A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-43A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:41:26 PM, 8/11/2016

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 12:41:28 PM, 8/11/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 3:46:43 PM**
Digestion: **Start: 8/5/2016 7:30:00 AM / Stop: 8/5/2016 12:28:00 PM**
Prep End Date: **8/5/2016 3:07:45 PM**

Prep Batch **76670** 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
1607294-04A	Soil		1.05	50	47.619	1 of 1	
1607294-05A	Soil		1.03	50	48.544	1 of 1	
1607294-06A	Soil		1.12	50	44.643	1 of 1	
1607294-07A	Soil		1.03	50	48.544	1 of 1	
1607294-08A	Soil		1.11	50	45.045	1 of 1	
1607294-09A	Soil		1.04	50	48.077	of 3	
1607294-09A MS	Soil		1.02	50	49.020	of	
1607294-09A MSD	Soil		1.04	50	48.077	of	
1607294-09A PDS	Soil		1.04	50	48.077	of	
1607294-09A SD	Soil		1.04	50	48.077	of	
1607294-10A	Soil		1.06	50	47.170	1 of 1	
1607294-11A	Soil		1.08	50	46.296	1 of 1	
1607294-12A	Soil		1.04	50	48.077	1 of 1	
1607294-14A	Soil		1.06	50	47.170	1 of 1	
1607294-15A	Soil		1.01	50	49.505	1 of 1	
1607294-16A	Soil		1.06	50	47.170	1 of 1	
1607294-17A	Soil		1.12	50	44.643	1 of 1	
1607294-18A	Soil		1.02	50	49.020	1 of 1	
1607294-19A	Soil		1.12	50	44.643	1 of 1	
1607294-20A	Soil		1.07	50	46.729	1 of 1	
1607294-21A	Soil		1.04	50	48.077	1 of 1	
1607294-22A	Soil		1.04	50	48.077	1 of 1	
1607294-23A	Soil		1.05	50	47.619	1 of 1	
1607294-25A	Soil		1.12	50	44.643	1 of 1	
LCS-76670	Soil		1	50	50.000	of	
LCSD-76670	Soil		1	50	50.000	of	
MB-76670	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 12:41:33 PM, 8/11/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**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**	4.0017	3.9937	**99.84**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.0056	3.9976	**99.94**		
3		4.0028	3.9948	**99.87**		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		**0.050**
						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**	1.0036	1.0016	**100.16**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		1.0024	1.0004	**100.04**		
3		1.0013	0.9993	**99.93**		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		**0.115**
						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**	0.5049	0.5039	**100.78**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.5051	0.5041	**100.82**		
3		0.5038	0.5028	**100.56**		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		**0.139**
						PASS

CVB 8/10/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 12:41:39 PM, 8/11/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:20 AM**
Digestion:
Prep End Date:

Prep Batch **76690** 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
1607294-69A	Soil		1.08	50	50.000	1 of 1	
1607294-70A	Soil		1.04	50	50.000	1 of 1	
1607294-71A	Soil		1.01	50	50.000	1 of 1	
1607294-72A	Soil		1.08	50	50.000	1 of 1	
1607294-73A	Soil		1.02	50	50.000	1 of 1	
1607294-74A	Soil		1.15	50	50.000	1 of 1	
1607294-75A	Soil		1.10	50	50.000	1 of 1	
1607314-01A	Soil		1.01	50	50.000	1 of 1	
1607314-02A	Soil		1.13	50	50.000	1 of 1	
1607314-03A	Soil		1.17	50	50.000	3 of 3	
1607314-03A MS	Soil		1.03	50	50.000	3 of 3	
1607314-03A MSD	Soil		1.08	50	50.000	3 of 3	
1607314-04A	Soil		1.05	50	50.000	1 of 1	
1607314-05A	Soil		1.00	50	50.000	1 of 1	
1607314-06A	Soil		1.09	50	50.000	1 of 1	
1607317-01A	Soil		1.10	50	50.000	1 of 1	
1607317-02A	Soil		1.06	50	50.000	1 of 1	
1607317-03A	Soil		1.07	50	50.000	1 of 1	
1607317-04A	Soil		1.03	50	50.000	1 of 1	
1607317-05A	Soil		1.05	50	50.000	1 of 1	
1607317-06A	Soil		1.13	50	50.000	1 of 1	
1607317-07A	Soil		1.08	50	50.000	1 of 1	
LCS-76690	Soil		1	50	50.000	of	
LCSD-76690	Soil		1	50	50.000	of	
MB-76690	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-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

12:29-12:39
12:40-14:40
15:00-17:00
17:32-17:47

REVIEWED BY
By Janice Whitt at 10:34:35 AM, 8/15/2016

8/5/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 1:40:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76518** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-67A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-68A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-69A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-70A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-71A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-72A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-73A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-74A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-75A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 10:35:45 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 12:00:00 PM**
Digestion: **Start: 7/28/2016 12:10:00 PM / Stop: 7/29/2016 1:30:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76539** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607314-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-03A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607314-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-06A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:35:47 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:36:27 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A SS	Soil		0	0	#Num!	1 of 1	
1607317-16A SS	Soil		0	0	#Num!	1 of 1	
1607317-17A SS	Soil		0	0	#Num!	1 of 1	
1607317-18A SS	Soil		0	0	#Num!	1 of 1	
1607317-19A SS	Soil		0	0	#Num!	1 of 1	
1607317-20A SS	Soil		0	0	#Num!	1 of 1	
1607317-21A SS	Soil		0	0	#Num!	1 of 1	
1607317-22A SS	Soil		0	0	#Num!	1 of 1	
1607317-23A SS	Soil		0	0	#Num!	1 of 1	
1607317-24A SS	Soil		0	0	#Num!	1 of 1	
1607317-25A SS	Soil		0	0	#Num!	1 of 1	
1607317-27A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607317-28A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:36:37 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:36:40 AM, 8/15/2016

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	**% 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**	5.0031	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 10:36:43 AM, 8/15/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:20 AM**
Digestion: **Start: 8/5/2016 12:29:00 PM / Stop: 8/5/2016 5:47:00 PM**
Prep End Date: **8/5/2016 6:04:00 PM**

Prep Batch **76690** 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
1607294-69A	Soil		1.08	50	46.296	1 of 1	
1607294-70A	Soil		1.04	50	48.077	1 of 1	
1607294-71A	Soil		1.01	50	49.505	1 of 1	
1607294-72A	Soil		1.08	50	46.296	1 of 1	
1607294-73A	Soil		1.02	50	49.020	1 of 1	
1607294-74A	Soil		1.15	50	43.478	1 of 1	
1607294-75A	Soil		1.1	50	45.455	1 of 1	
1607314-01A	Soil		1.01	50	49.505	1 of 1	
1607314-02A	Soil		1.13	50	44.248	1 of 1	
1607314-03A	Soil		1.17	50	42.735	of 3	
1607314-03A MS	Soil		1.03	50	48.544	of	
1607314-03A MSD	Soil		1.08	50	46.296	of	
1607314-03A PDS	Soil		1.17	50	42.735	of	
1607314-03A SD	Soil		1.17	50	42.735	of	
1607314-04A	Soil		1.05	50	47.619	1 of 1	
1607314-05A	Soil		1	50	50.000	1 of 1	
1607314-06A	Soil		1.09	50	45.872	1 of 1	
1607317-01A	Soil		1.1	50	45.455	1 of 1	
1607317-02A	Soil		1.06	50	47.170	1 of 1	
1607317-03A	Soil		1.07	50	46.729	1 of 1	
1607317-04A	Soil		1.03	50	48.544	1 of 1	
1607317-05A	Soil		1.05	50	47.619	1 of 1	
1607317-06A	Soil		1.13	50	44.248	1 of 1	
1607317-07A	Soil		1.08	50	46.296	1 of 1	
LCS-76690	Soil		1	50	50.000	of	
LCSD-76690	Soil		1	50	50.000	of	
MB-76690	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-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 10:34:31 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30
TEST DATE:	08/10/2016	**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	4.0017	3.9937	99.84	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0056	3.9976	99.94		
3		4.0028	3.9948	99.87		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		0.050
						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	1.0036	1.0016	100.16	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		1.0024	1.0004	100.04		
3		1.0013	0.9993	99.93		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		0.115
						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	0.5049	0.5039	100.78	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5051	0.5041	100.82		
3		0.5038	0.5028	100.56		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		0.139
						PASS

Analyst / Date 8/10/16

REVIEWED BY
By Janice Whitt at 10:36:52 AM, 8/15/2016

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 10 2016 02:34 pm
Cal Type: Y=aX+[blank]

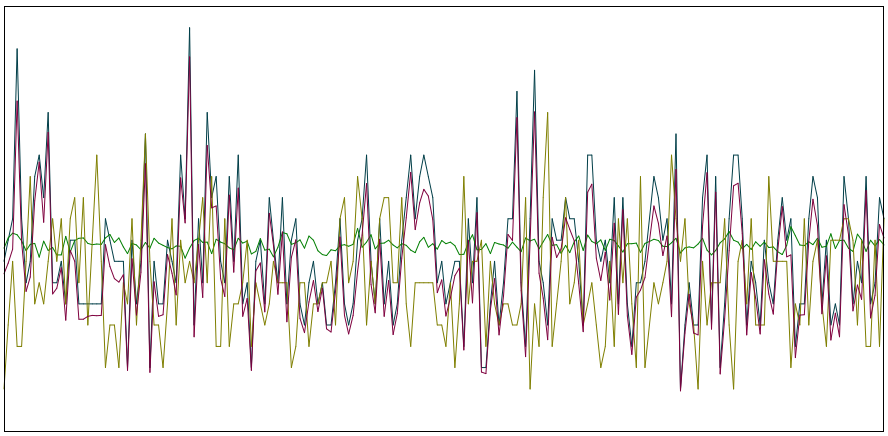
Standard	Date Acquired	File
BLANK STD 1	Aug 10 2016 11:23 am	c:\icpchem\1\data\16h10k01.b\006calb.d\
L2-160810	Aug 10 2016 11:29 am	c:\icpchem\1\data\16h10k01.b\007cals.d\
L-160810	Aug 10 2016 11:35 am	c:\icpchem\1\data\16h10k01.b\008cals.d\
10X-160810	Aug 10 2016 11:41 am	c:\icpchem\1\data\16h10k01.b\009cals.d\
5X-160810	Aug 10 2016 11:47 am	c:\icpchem\1\data\16h10k01.b\010cals.d\
2X-160810	Aug 10 2016 11:53 am	c:\icpchem\1\data\16h10k01.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	0.2521	0.02647	1.02	251	495		2001	
Be	0.9998	0.08084	0.001981	1.02	258	495	99%	--------	######
B	1.0000	0.06709	0.1279	1.03	246	506	101%	1,999	100%
Na	0.9999	0.3114	16.92	21.48	5,224	10,290	103%	24,840	99%
Mg	0.9999	0.1379	0.6385	20.85	4,942	10,290	103%	24,890	100%
Al	1.0000	0.03346	0.4768	19.83	4,968	10,020	100%	--------	######
K	1.0000	0.07929	5.958	21.58	4,873	9,826	98%	25,100	100%
Ca	0.9999	0.009081	0.3945	22.79	5,134	10,200	102%	24,900	100%
Ti	0.9999	0.03024	0.003928	0.77	245	480	96%	2,006	100%
V	1.0000	1.163	0.3249	1.05	247	488	98%	2,003	100%
Cr	0.9999	1.535	0.173	1.01	249	--------	######	--------	######
Mn	1.0000	0.6303	0.06545	1.05	248	496	99%	2,001	100%
Fe	1.0000	2.099	18.68	19.83	5,019	9,972	100%	--------	######
Co	1.0000	4.784	0.09645	1.04	252	519	104%	1,995	100%
Ni	1.0000	1.394	0.07902	1.03	249	492	98%	2,002	100%
Cu	1.0000	3.723	0.4669	1.05	255	504	101%	1,998	100%
Zn	1.0000	0.3847	0.2802	1.28	261	511	102%	1,996	100%
As	1.0000	0.2316	0.1742	1.01	252	499	100%	2,000	100%
Se	1.0000	0.01415	0.009581	1.21	251	500	100%	2,000	100%
Sr	1.0000	0.3439	0.06934	1.01	251	495	99%	2,001	100%
Mo	1.0000	0.05919	0.002267	0.98	248	502	100%	--------	######
Ag	1.0000	0.1533	0.002021	1.00	252	499	100%	--------	######
Cd	1.0000	0.0328	0.0007325	0.97	247	489	98%	2,003	100%
Sn	1.0000	0.09083	0.007435	0.95	243	511	102%	1,998	100%
Sb	0.9999	0.1069	0.002337	0.95	245	503	101%	--------	######
Ba	0.9999	0.04217	0.003401	0.91	240	482	96%	2,006	100%
Tl	1.0000	0.3331	0.006798	0.95	255	502	100%	1,999	100%
Pb	1.0000	0.4539	0.0208	0.99	248	506	101%	1,999	100%

REVIEWED BY
By Janice Whitt at 11:07:05 AM, 8/11/2016

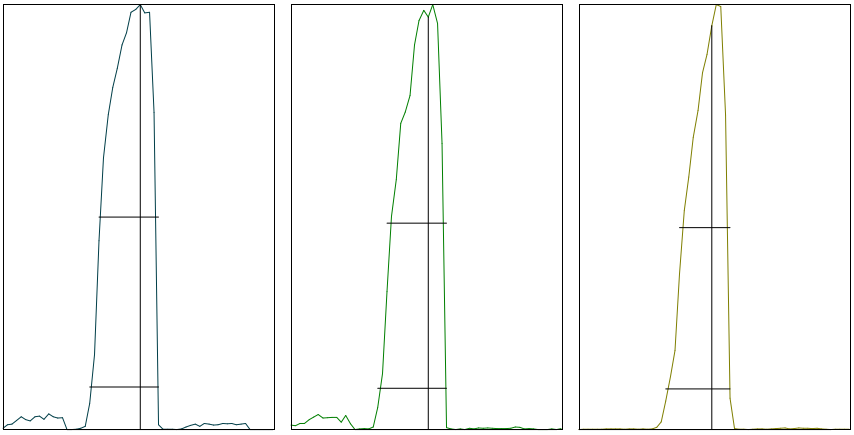
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.385%
Doubly Charged:	70/140	2.643%

m/z	Range	Count	Mean	RSD%	Background
51	20	10.0	8.4	35.34	0.50
59	5,000	2195.0	2199.1	3.09	0.90
75	20	10.0	7.1	36.32	1.20
51/59	1	0.456%	0.382%	35.16	



m/z:	59	89	205
Height:	2,270	1,125	3,573
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 10, 2016 10:18:09
Printed : Aug 10, 2016 10:18:11

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	:	-14.6	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				

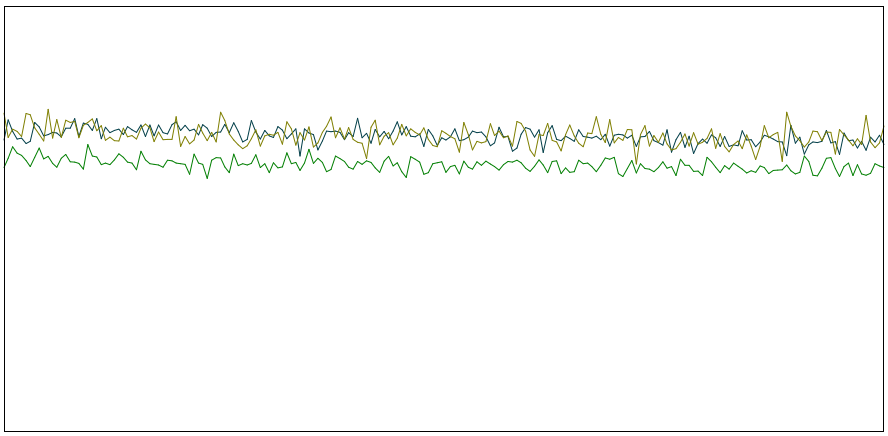
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Aug 10, 2016 10:18:09
Printed : Aug 10, 2016 10:18:13

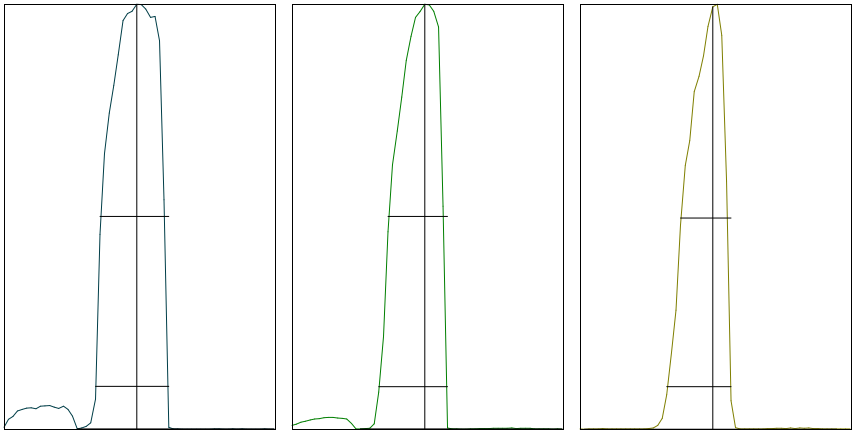
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.004%
Doubly Charged:	70/140	3.091%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	6748.0	6954.2	2.55	3.50
89	20,000	12414.0	12546.5	2.35	7.90
205	10,000	7187.0	6955.3	3.35	18.10
156/140	2	0.976%	0.984%	11.55	
70/140	5	2.759%	2.987%	12.13	
63	10,000	9316.0	9605.4	2.52	5.30
23	50,000	38173.0	40461.4	7.69	3.60



m/z:	7	89	205
Height:	6,849	12,456	7,056
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.65	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 10, 2016 10:11:16
Printed : Aug 10, 2016 10:11:18

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	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	:	---	%

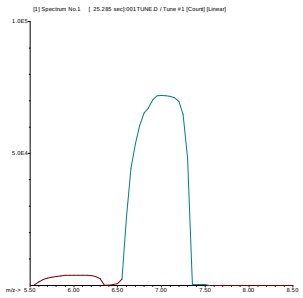
Generated : Aug 10, 2016 10:11:16
Printed : Aug 10, 2016 10:11:21

6020 QC Tune Report

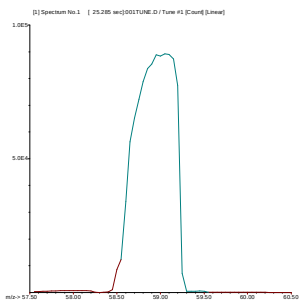
Data File: C:\ICPCHEM\1\DATA\16H10k00.B\001TUNE.D
Date Acquired: Aug 10 2016 10:25 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	1.73	5.00	
59 Co	1.52	5.00	
115 In	0.92	5.00	
205 Tl	0.90	5.00	

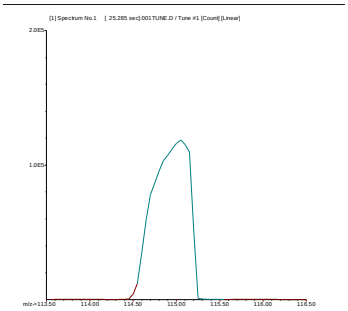


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:

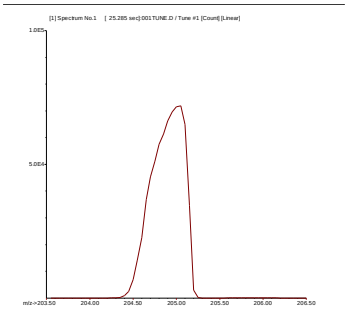


59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

REVIEWED BY
By Janice Whitt at 11:07:10 AM, 8/11/2016



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 11:07:32 AM, 8/11/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 10 2016 11:27 am
Date Acquired: Aug 10 2016 11:23 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	36.77	P	19.13	52.03
7	Li	2	45	771.16	P	25.02	3.24
9	Be	2	45	57.78	P	21.43	37.09
11	B	2	45	3726.25	P	104.10	2.79
23	Na	1	45	13352.08	P	101.40	0.76
24	Mg	1	45	503.36	P	72.19	14.34
27	Al	1	45	376.01	P	41.40	11.01
39	K	1	45	4699.97	P	296.10	6.30
44	Ca	2	45	11491.50	P	244.80	2.13
45	Sc	1	---	157844.09	P	1644.00	1.04
45	Sc	2	---	5827273.00	A	60900.00	1.05
47	Ti	1	45	3.11	P	3.36	107.87
51	V	1	45	256.45	P	8.47	3.30
51	V	2	---		P		
52	Cr	1	45	136.45	P	14.63	10.72
55	Mn	1	45	51.56	P	14.26	27.66
56	Fe	1	72	8091.08	P	747.10	9.23
59	Co	1	72	41.78	P	12.60	30.16
60	Ni	1	72	34.22	P	0.77	2.25
60	Ni	2	---		P		
63	Cu	1	72	202.23	P	25.80	12.76
63	Cu	2	---		P		
66	Zn	1	72	121.34	P	11.85	9.77
66	Zn	2	---		P		
72	Ge	1	---	86621.49	P	464.30	0.54
72	Ge	2	---		A		
75	As	1	72	75.44	P	2.32	3.08
78	Se	1	72	4.15	P	0.68	16.37
88	Sr	2	###	2175.85	P	30.05	1.38
95	Mo	2	###	71.11	P	19.25	27.07
107	Ag	2	###	63.34	P	21.86	34.51
111	Cd	2	###	23.01	P	9.54	41.47
115	In	2	---	6276207.00	A	44580.00	0.71
118	Sn	2	###	233.35	P	37.57	16.10
121	Sb	2	###	73.34	P	5.77	7.87
137	Ba	2	###	106.67	P	8.82	8.27
205	Tl	2	###	151.12	P	8.39	5.55
208	Pb	2	###	462.25	P	53.99	11.68
209	Bi	2	---	4446754.00	A	35290.00	0.79

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:29 am
Last Cal. Update: Aug 10 2016 11:27 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-328.35	P	19.46	5.93	ISFail
7	Li	2	45	8137.34	P	35.37	0.43	
9	Be	2	45	2439.22	P	57.39	2.35	
11	B	2	45	5671.50	P	203.50	3.59	
23	Na	1	45	18414.17	P	362.80	1.97	
24	Mg	1	45	2740.42	P	55.08	2.01	
27	Al	1	45	889.83	P	25.03	2.81	
39	K	1	45	5981.68	P	116.20	1.94	
44	Ca	2	45	17307.85	P	1365.00	7.89	
45	Sc	1	---	156019.70	P	2042.00	1.31	
45	Sc	2	---	5753219.00	A	103700.00	1.80	
47	Ti	1	45	21.33	P	3.53	16.54	
51	V	1	45	1208.08	P	57.62	4.77	
51	V	2	---		P			
52	Cr	1	45	1349.43	P	65.85	4.88	
55	Mn	1	45	565.35	P	77.88	13.78	
56	Fe	1	72	25863.22	P	777.10	3.00	
59	Co	1	72	2173.56	P	69.90	3.22	
60	Ni	1	72	649.81	P	44.81	6.90	
60	Ni	2	---		P			
63	Cu	1	72	1873.06	P	47.34	2.53	
63	Cu	2	---		P			
66	Zn	1	72	330.68	P	48.66	14.72	
66	Zn	2	---		P			
72	Ge	1	---	85788.02	P	840.50	0.98	
72	Ge	2	---		A			
75	As	1	72	174.74	P	4.47	2.56	
78	Se	1	72	11.48	P	1.39	12.10	
88	Sr	2	115	12990.83	P	150.40	1.16	
95	Mo	2	115	1889.12	P	177.40	9.39	
107	Ag	2	115	4866.74	P	56.82	1.17	
111	Cd	2	115	1017.47	P	47.71	4.69	
115	In	2	---	6256392.00	A	51380.00	0.82	
118	Sn	2	115	2939.38	P	130.90	4.45	
121	Sb	2	115	3259.47	P	56.41	1.73	
137	Ba	2	115	1307.91	P	122.80	9.39	
205	Tl	2	209	7082.51	P	241.20	3.41	
208	Pb	2	209	10285.66	P	46.71	0.45	
209	Bi	2	---	4395361.00	A	35260.00	0.80	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-328.35	5.93	36.77	-893.0	70 - 120	ISFail
45	Sc	1	156019.70	1.31	157844.06	98.8	70 - 120	
45	Sc	2	5753218.50	1.80	5827273.50	98.7	70 - 120	
72	Ge	1	85788.02	0.98	86621.49	99.0	70 - 120	
115	In	2	6256392.50	0.82	6276207.00	99.7	70 - 120	
209	Bi	2	4395361.00	0.80	4446753.50	98.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:35 am
Last Cal. Update: Aug 10 2016 11:33 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3446.19	P	24.24	0.70	ISFail
7	Li	2	45	74023.09	P	803.60	1.09	Fail
9	Be	2	45	23731.76	P	450.30	1.90	Fail
11	B	2	45	22654.39	P	294.00	1.30	Fail
23	Na	1	45	62444.13	P	432.30	0.69	Fail
24	Mg	1	45	21934.39	P	787.50	3.59	Fail
27	Al	1	45	5561.32	P	208.90	3.76	Fail
39	K	1	45	16884.32	P	603.60	3.57	Fail
44	Ca	2	45	63351.58	P	1583.00	2.50	Fail
45	Sc	1	---	154506.50	P	1761.00	1.14	
45	Sc	2	---	5765751.00	A	98200.00	1.70	
47	Ti	1	45	234.23	P	28.79	12.29	Fail
51	V	1	45	9247.59	P	182.40	1.97	Fail
51	V	2	---		P			
52	Cr	1	45	12348.09	P	215.10	1.74	Fail
55	Mn	1	45	5062.45	P	94.05	1.86	Fail
56	Fe	1	72	185385.50	P	3934.00	2.12	Fail
59	Co	1	72	20770.16	P	359.00	1.73	
60	Ni	1	72	6012.67	P	207.60	3.45	Fail
60	Ni	2	---		P			
63	Cu	1	72	16708.88	P	634.70	3.80	Fail
63	Cu	2	---		P			
66	Zn	1	72	1811.72	P	55.16	3.04	Fail
66	Zn	2	---		P			
72	Ge	1	---	84879.22	P	755.20	0.89	
72	Ge	2	---		A			
75	As	1	72	1068.16	P	36.54	3.42	Fail
78	Se	1	72	65.82	P	1.45	2.20	Fail
88	Sr	2	115	104718.70	P	1624.00	1.55	Fail
95	Mo	2	115	18214.37	P	515.00	2.83	Fail
107	Ag	2	115	47348.87	P	548.90	1.16	Fail
111	Cd	2	115	10296.76	P	70.30	0.68	Fail
115	In	2	---	6293745.00	A	92900.00	1.48	
118	Sn	2	115	27584.96	P	664.80	2.41	Fail
121	Sb	2	115	32392.72	P	789.00	2.44	Fail
137	Ba	2	115	12473.77	P	154.70	1.24	Fail
205	Tl	2	209	69134.29	P	1115.00	1.61	Fail
208	Pb	2	209	96323.04	P	425.00	0.44	Fail
209	Bi	2	---	4398510.00	A	66790.00	1.52	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3446.19	0.70	36.77	-9372.4	70 - 120	ISFail
45	Sc	1	154506.55	1.14	157844.06	97.9	70 - 120	
45	Sc	2	5765751.50	1.70	5827273.50	98.9	70 - 120	
72	Ge	1	84879.22	0.89	86621.49	98.0	70 - 120	
115	In	2	6293745.50	1.48	6276207.00	100.3	70 - 120	
209	Bi	2	4398510.00	1.52	4446753.50	98.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:41 am
Last Cal. Update: Aug 10 2016 11:39 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-16925.15	P	124.60	0.74	ISFail
7	Li	2	45	363170.19	P	5760.00	1.59	Fail
9	Be	2	45	117723.50	P	715.80	0.61	Fail
11	B	2	45	97217.87	P	1719.00	1.77	Fail
23	Na	1	45	257709.59	P	4337.00	1.68	Fail
24	Mg	1	45	105580.90	P	1684.00	1.60	Fail
27	Al	1	45	26057.05	P	655.20	2.51	Fail
39	K	1	45	64147.34	P	1129.00	1.76	Fail
44	Ca	2	45	264485.91	P	4460.00	1.69	Fail
45	Sc	1	---	154967.59	P	449.70	0.29	
45	Sc	2	---	5754845.00	A	82050.00	1.43	
47	Ti	1	45	1117.40	P	25.75	2.30	Fail
51	V	1	45	45041.05	P	864.60	1.92	Fail
51	V	2	---		P			
52	Cr	1	45	59896.97	P	1879.00	3.14	Fail
55	Mn	1	45	24399.85	P	828.30	3.39	Fail
56	Fe	1	72	918985.88	A	47070.00	5.12	Fail
59	Co	1	72	103000.50	P	1801.00	1.75	
60	Ni	1	72	29999.42	P	917.90	3.06	
60	Ni	2	---		P			
63	Cu	1	72	82424.35	P	2167.00	2.63	Fail
63	Cu	2	---		P			
66	Zn	1	72	8729.45	P	386.50	4.43	Fail
66	Zn	2	---		P			
72	Ge	1	---	84495.81	P	565.10	0.67	
72	Ge	2	---		A			
75	As	1	72	5056.71	P	165.10	3.27	Fail
78	Se	1	72	309.67	P	5.15	1.66	Fail
88	Sr	2	115	517301.50	P	9021.00	1.74	Fail
95	Mo	2	115	91068.24	P	806.60	0.89	Fail
107	Ag	2	115	235191.09	P	2666.00	1.13	Fail
111	Cd	2	115	51361.26	P	669.30	1.30	Fail
115	In	2	---	6274154.00	A	77530.00	1.24	
118	Sn	2	115	137732.20	P	2102.00	1.53	Fail
121	Sb	2	115	161537.70	P	2133.00	1.32	Fail
137	Ba	2	115	61993.64	P	752.70	1.21	Fail
205	Tl	2	209	348700.09	P	5832.00	1.67	Fail
208	Pb	2	209	482299.50	P	6717.00	1.39	Fail
209	Bi	2	---	4385129.00	A	23640.00	0.54	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16925.15	0.74	36.77	-46030.3	70 - 120	ISFail
45	Sc	1	154967.56	0.29	157844.06	98.2	70 - 120	
45	Sc	2	5754844.50	1.43	5827273.50	98.8	70 - 120	
72	Ge	1	84495.81	0.67	86621.49	97.5	70 - 120	
115	In	2	6274154.50	1.24	6276207.00	100.0	70 - 120	
209	Bi	2	4385129.50	0.54	4446753.50	98.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:47 am
Last Cal. Update: Aug 10 2016 11:45 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-33999.55	P	841.10	2.47	ISFail
7	Li	2	45	724475.31	A	12440.00	1.72	Fail
9	Be	2	45	233784.20	P	2832.00	1.21	Fail
11	B	2	45	189854.91	P	3998.00	2.11	Fail
23	Na	1	45	498223.19	P	7132.00	1.43	Fail
24	Mg	1	45	211925.09	P	7472.00	3.53	Fail
27	Al	1	45	51322.30	P	1710.00	3.33	Fail
39	K	1	45	122943.10	P	512.20	0.42	Fail
44	Ca	2	45	512646.09	P	13140.00	2.56	Fail
45	Sc	1	---	152689.30	P	624.80	0.41	
45	Sc	2	---	5611635.00	A	96700.00	1.72	
47	Ti	1	45	2242.46	P	83.24	3.71	Fail
51	V	1	45	89126.53	P	2011.00	2.26	Fail
51	V	2	---		A			
52	Cr	1	45	119844.20	P	3672.00	3.06	
55	Mn	1	45	48634.02	P	1452.00	2.99	
56	Fe	1	72	1817413.00	A	40580.00	2.23	Fail
59	Co	1	72	204377.70	P	4944.00	2.42	
60	Ni	1	72	59600.60	P	1530.00	2.57	
60	Ni	2	---		P			
63	Cu	1	72	162708.41	P	3612.00	2.22	
63	Cu	2	---		P			
66	Zn	1	72	17136.57	P	316.90	1.85	Fail
66	Zn	2	---		P			
72	Ge	1	---	82968.47	P	313.80	0.38	
72	Ge	2	---		A			
75	As	1	72	9928.12	P	226.30	2.28	Fail
78	Se	1	72	618.24	P	13.49	2.18	Fail
88	Sr	2	115	1064290.00	A	19210.00	1.81	Fail
95	Mo	2	115	177487.50	P	2170.00	1.22	Fail
107	Ag	2	115	462284.91	P	5678.00	1.23	Fail
111	Cd	2	115	100039.20	P	1639.00	1.64	Fail
115	In	2	---	6104971.00	A	98290.00	1.61	
118	Sn	2	115	270212.81	P	3858.00	1.43	Fail
121	Sb	2	115	319318.19	P	3214.00	1.01	Fail
137	Ba	2	115	122455.10	P	1212.00	0.99	Fail
205	Tl	2	209	696208.88	P	7814.00	1.12	Fail
208	Pb	2	209	951484.69	P	8998.00	0.95	Fail
209	Bi	2	---	4305669.00	A	50180.00	1.17	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-33999.56	2.47	36.77	-92466.5	70 - 120	ISFail
45	Sc	1	152689.34	0.41	157844.06	96.7	70 - 120	
45	Sc	2	5611634.50	1.72	5827273.50	96.3	70 - 120	
72	Ge	1	82968.48	0.38	86621.49	95.8	70 - 120	
115	In	2	6104970.50	1.61	6276207.00	97.3	70 - 120	
209	Bi	2	4305669.00	1.17	4446753.50	96.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:53 am
Last Cal. Update: Aug 10 2016 11:51 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-79656.35	P	1985.00	2.49	ISFail
7	Li	2	45	1732888.00	A	28500.00	1.64	Fail
9	Be	2	45	571237.31	P	5775.00	1.01	Fail
11	B	2	45	454411.09	P	3383.00	0.74	Fail
23	Na	1	45	1251735.00	A	25840.00	2.06	Fail
24	Mg	1	45	519337.31	P	15240.00	2.93	
27	Al	1	45	126975.90	P	4337.00	3.42	Fail
39	K	1	45	298749.31	P	3502.00	1.17	Fail
44	Ca	2	45	1286593.00	A	26640.00	2.07	Fail
45	Sc	1	---	152296.50	P	633.40	0.42	
45	Sc	2	---	5472111.00	A	64810.00	1.18	
47	Ti	1	45	5645.38	P	148.10	2.62	
51	V	1	45	219021.59	P	5335.00	2.44	
51	V	2	---		A			
52	Cr	1	45	291330.81	P	7197.00	2.47	
55	Mn	1	45	118984.90	P	3218.00	2.70	
56	Fe	1	72	4350439.00	A	117800.00	2.71	
59	Co	1	72	497496.00	P	11230.00	2.26	
60	Ni	1	72	143370.30	P	3172.00	2.21	
60	Ni	2	---		P			
63	Cu	1	72	391464.50	P	8876.00	2.27	
63	Cu	2	---		A			
66	Zn	1	72	41493.13	P	965.10	2.33	Fail
66	Zn	2	---		P			
72	Ge	1	---	82448.43	P	478.20	0.58	
72	Ge	2	---		M			
75	As	1	72	24106.80	P	561.70	2.33	Fail
78	Se	1	72	1469.13	P	34.34	2.34	Fail
88	Sr	2	115	2507826.00	A	54600.00	2.18	Fail
95	Mo	2	115	427054.59	P	6922.00	1.62	Fail
107	Ag	2	115	1124659.00	A	11420.00	1.02	Fail
111	Cd	2	115	235766.20	P	4371.00	1.85	Fail
115	In	2	---	5818367.00	A	88790.00	1.53	
118	Sn	2	115	643320.31	P	11090.00	1.72	Fail
121	Sb	2	115	762252.69	P	10600.00	1.39	Fail
137	Ba	2	115	293872.69	P	3651.00	1.24	Fail
205	Tl	2	209	1768332.00	A	20360.00	1.15	Fail
208	Pb	2	209	2347279.00	A	23760.00	1.01	Fail
209	Bi	2	---	4163915.00	A	17870.00	0.43	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-79656.36	2.49	36.77	-216636.5	70 -	120	ISFail
45	Sc	1		152296.45	0.42	157844.06	96.5	70 -	120	
45	Sc	2		5472111.50	1.18	5827273.50	93.9	70 -	120	
72	Ge	1		82448.43	0.58	86621.49	95.2	70 -	120	
115	In	2		5818367.50	1.53	6276207.00	92.7	70 -	120	
209	Bi	2		4163915.30	0.43	4446753.50	93.6	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:59 am
Last Cal. Update: Aug 10 2016 11:57 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-152111.80	P	1777.00	1.17	ISFail
7	Li	2	45	3354208.00	A	31470.00	0.94	Fail
9	Be	2	45	1074800.00	A	793.70	0.07	Fail
11	B	2	45	915593.81	A	4288.00	0.47	Fail
23	Na	1	45	2430604.00	A	37730.00	1.55	Fail
24	Mg	1	45	1071620.00	A	37510.00	3.50	
27	Al	1	45	253384.09	P	9365.00	3.70	Fail
39	K	1	45	592514.88	P	8144.00	1.37	Fail
44	Ca	2	45	2496344.00	A	25730.00	1.03	Fail
45	Sc	1	---	150944.70	P	592.40	0.39	
45	Sc	2	---	5370158.00	A	86780.00	1.62	
47	Ti	1	45	10957.01	P	481.60	4.40	
51	V	1	45	428728.59	P	12660.00	2.95	
51	V	2	---		A			
52	Cr	1	45	569223.88	P	14110.00	2.48	
55	Mn	1	45	235983.30	P	5414.00	2.29	
56	Fe	1	72	8429479.00	A	278300.00	3.30	
59	Co	1	72	998344.81	A	33180.00	3.32	
60	Ni	1	72	275846.41	P	5561.00	2.02	
60	Ni	2	---		M			
63	Cu	1	72	754637.31	P	15590.00	2.07	
63	Cu	2	---		A			
66	Zn	1	72	79187.46	P	1635.00	2.06	
66	Zn	2	---		P			
72	Ge	1	---	80473.09	P	435.80	0.54	
72	Ge	2	---		P			
75	As	1	72	46579.15	P	854.20	1.83	
78	Se	1	72	2850.22	P	71.20	2.50	
88	Sr	2	115	4732621.00	A	41080.00	0.87	Fail
95	Mo	2	115	825129.31	P	9393.00	1.14	Fail
107	Ag	2	115	2127568.00	A	11210.00	0.53	
111	Cd	2	115	445565.00	P	1737.00	0.39	Fail
115	In	2	---	5559739.00	A	40490.00	0.73	
118	Sn	2	115	1290863.00	A	17080.00	1.32	Fail
121	Sb	2	115	1494746.00	A	15710.00	1.05	Fail
137	Ba	2	115	565167.50	P	3596.00	0.64	Fail
205	Tl	2	209	3394220.00	A	5824.00	0.17	
208	Pb	2	209	4660657.00	A	31480.00	0.68	Fail
209	Bi	2	---	4057351.00	A	39750.00	0.98	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-152111.83	1.17	36.77	-413689.1	70 - 120	ISFail
45	Sc	1	150944.67	0.39	157844.06	95.6	70 - 120	
45	Sc	2	5370158.50	1.62	5827273.50	92.2	70 - 120	
72	Ge	1	80473.09	0.54	86621.49	92.9	70 - 120	
115	In	2	5559739.00	0.73	6276207.00	88.6	70 - 120	
209	Bi	2	4057350.80	0.98	4446753.50	91.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 12:05 pm
Last Cal. Update: Aug 10 2016 12:03 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-616473.50	P	2650.00	0.43	ISFail
7	Li	2	45	13670800.00	A	69170.00	0.51	Fail
9	Be	2	45	4122176.00	A	34070.00	0.83	
11	B	2	45	3637751.00	A	14700.00	0.40	Fail
23	Na	1	45	5869594.00	A	126000.00	2.15	Fail
24	Mg	1	45	2599353.00	A	70230.00	2.70	
27	Al	1	45	2474.95	P	94.59	3.82	Fail
39	K	1	45	1511420.00	A	38730.00	2.56	Fail
44	Ca	2	45	6139222.00	A	153100.00	2.49	Fail
45	Sc	1	---	151426.09	P	1263.00	0.83	
45	Sc	2	---	5420262.00	A	87790.00	1.62	
47	Ti	1	45	45931.27	P	1693.00	3.69	
51	V	1	45	1765041.00	A	66230.00	3.75	
51	V	2	---		A			
52	Cr	1	45	2302081.00	A	112900.00	4.90	
55	Mn	1	45	955336.69	A	56550.00	5.92	
56	Fe	1	72	17049.73	P	1483.00	8.70	Fail
59	Co	1	72	3812633.00	A	134700.00	3.53	
60	Ni	1	72	1114991.00	A	44920.00	4.03	
60	Ni	2	---		A			
63	Cu	1	72	2972362.00	A	103700.00	3.49	
63	Cu	2	---		A			
66	Zn	1	72	306760.41	P	8765.00	2.86	
66	Zn	2	---		A			
72	Ge	1	---	79885.80	P	592.50	0.74	
72	Ge	2	---		P			
75	As	1	72	185073.30	P	5638.00	3.05	
78	Se	1	72	11305.28	P	327.60	2.90	
88	Sr	2	115	19730250.00	A	255900.00	1.30	Fail
95	Mo	2	115	3543295.00	A	22830.00	0.64	
107	Ag	2	115	1420.19	P	265.60	18.70	Fail
111	Cd	2	115	1883541.00	A	8693.00	0.46	
115	In	2	---	5733262.00	A	40360.00	0.70	
118	Sn	2	115	5202843.00	A	38800.00	0.75	Fail
121	Sb	2	115	2048.06	P	294.40	14.38	Fail
137	Ba	2	115	2425181.00	A	32160.00	1.33	Fail
205	Tl	2	209	13437230.00	A	161800.00	1.20	
208	Pb	2	209	18304710.00	A	221400.00	1.21	
209	Bi	2	---	4035457.00	A	49250.00	1.22	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-616473.56	0.43	36.77	#########	70 -	120	ISFail
45	Sc	1		151426.05	0.83	157844.06	95.9	70 -	120	
45	Sc	2		5420262.50	1.62	5827273.50	93.0	70 -	120	
72	Ge	1		79885.81	0.74	86621.49	92.2	70 -	120	
115	In	2		5733261.50	0.70	6276207.00	91.3	70 -	120	
209	Bi	2		4035457.00	1.22	4446753.50	90.8	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 10 2016 12:23 pm	Sample Name:	**ICSA-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.324	ppb	3.91	8.00	5.00	
9	Be	2	45	0.129	ppb	7.00	0.32	0.80	
11	B	2	45	8.018	ppb	0.60	30.00	30.00	
23	Na	1	45	101900.000	ppb	1.35	#######	#######	
24	Mg	1	45	87700.000	ppb	2.35	#######	#######	
27	Al	1	45	96110.000	ppb	2.66	#######	#######	
39	K	1	45	92240.000	ppb	1.02	#######	#######	
44	Ca	2	45	91140.000	ppb	1.71	#######	#######	
47	Ti	1	45	1925.000	ppb	2.62	10.00	10.00	
51	V	1	45	0.065	ppb	7.99	10.00	10.00	
52	Cr	1	45	0.957	ppb	4.25	8.00	5.00	
55	Mn	1	45	0.967	ppb	0.82	8.00	10.00	
56	Fe	1	72	93720.000	ppb	2.26	#######	#######	
59	Co	1	72	1.344	ppb	1.74	8.00	10.00	
60	Ni	1	72	0.525	ppb	4.30	8.00	10.00	
63	Cu	1	72	2.165	ppb	3.38	8.00	10.00	
66	Zn	1	72	2.336	ppb	5.77	10.00	5.00	
75	As	1	72	0.656	ppb	1.71	4.00	5.00	
78	Se	1	72	0.553	ppb	4.76	2.00	5.00	
88	Sr	2	115	1.198	ppb	3.12	10.00	10.00	
95	Mo	2	115	1975.000	ppb	1.13	8.00	5.00	
107	Ag	2	115	0.101	ppb	9.49	0.80	2.00	
111	Cd	2	115	0.332	ppb	11.93	1.20	1.00	
118	Sn	2	115	0.561	ppb	4.43	10.00	10.00	
121	Sb	2	115	0.160	ppb	7.02	4.00	2.50	
137	Ba	2	115	0.544	ppb	14.03	8.00	10.00	
205	Tl	2	209	0.274	ppb	7.24	4.00	1.50	
208	Pb	2	209	0.404	ppb	6.78	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-62.59	17.96	36.77	-170.2	70 - 120	ISFail
45	Sc	1	144664.08	0.15	157844.06	91.6	70 - 120	
45	Sc	2	5565209.50	2.13	5827273.50	95.5	70 - 120	
72	Ge	1	77422.91	0.57	86621.49	89.4	70 - 120	
115	In	2	5928991.50	1.45	6276207.00	94.5	70 - 120	
209	Bi	2	3705677.50	1.14	4446753.50	83.3	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 10 2016 12:29 pm	Sample Name:	**ICSAB-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.23	ppb	8.75	---	80 -		120	
9	Be	2	45	0.05	ppb	30.48	---	80 -		120	
11	B	2	45	6.15	ppb	2.34	---	80 -		120	
23	Na	1	45	98370.00	ppb	1.62	100000.00	80 -		120	
24	Mg	1	45	90520.00	ppb	3.05	100000.00	80 -		120	
27	Al	1	45	95830.00	ppb	4.01	100000.00	80 -		120	
39	K	1	45	92790.00	ppb	2.12	100000.00	80 -		120	
44	Ca	2	45	93720.00	ppb	1.74	100000.00	80 -		120	
47	Ti	1	45	1970.00	ppb	3.17	---	80 -		120	
51	V	1	45	40.24	ppb	3.66	40.00	80 -		120	
52	Cr	1	45	21.23	ppb	3.64	20.00	80 -		120	
55	Mn	1	45	19.32	ppb	3.51	20.00	80 -		120	
56	Fe	1	72	94770.00	ppb	4.59	100000.00	80 -		120	
59	Co	1	72	40.68	ppb	3.40	40.00	80 -		120	
60	Ni	1	72	36.94	ppb	2.87	40.00	80 -		120	
63	Cu	1	72	20.18	ppb	2.83	20.00	80 -		120	
66	Zn	1	72	18.79	ppb	3.52	20.00	80 -		120	
75	As	1	72	20.15	ppb	2.11	20.00	80 -		120	
78	Se	1	72	19.24	ppb	9.13	20.00	80 -		120	
88	Sr	2	115	1.16	ppb	6.26	---	80 -		120	
95	Mo	2	115	2077.00	ppb	1.33	---	80 -		120	
107	Ag	2	115	18.45	ppb	1.32	20.00	80 -		120	
111	Cd	2	115	9.29	ppb	5.45	10.00	80 -		120	
118	Sn	2	115	0.54	ppb	14.11	---	80 -		120	
121	Sb	2	115	0.06	ppb	9.60	---	80 -		120	
137	Ba	2	115	0.51	ppb	5.35	---	80 -		120	
205	Tl	2	209	0.15	ppb	5.39	---	80 -		120	
208	Pb	2	209	0.37	ppb	9.16	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-29.01	17.82	36.77	-78.9	70 -		120	ISFail
45	Sc	1	141553.92	0.22	157844.06	89.7	70 -		120	
45	Sc	2	5969840.50	1.76	5827273.50	102.4	70 -		120	
72	Ge	1	77063.06	0.73	86621.49	89.0	70 -		120	
115	In	2	6082927.00	0.62	6276207.00	96.9	70 -		120	
209	Bi	2	3667072.80	1.03	4446753.50	82.5	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 10 2016 12:47 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	133.60	ppb	1.77	100.00	90 -	110	133.6	Fail
9	Be	2	45	117.10	ppb	1.44	100.00	90 -	110	117.1	Fail
11	B	2	45	109.80	ppb	2.42	100.00	90 -	110	109.8	
23	Na	1	45	2852.00	ppb	3.97	2500.00	90 -	110	114.1	Fail
24	Mg	1	45	2602.00	ppb	4.03	2500.00	90 -	110	104.1	
27	Al	1	45	2335.00	ppb	3.14	2500.00	90 -	110	93.4	
39	K	1	45	2467.00	ppb	1.52	2500.00	90 -	110	98.7	
44	Ca	2	45	2546.00	ppb	3.83	2500.00	90 -	110	101.8	
47	Ti	1	45	99.15	ppb	3.69	100.00	90 -	110	99.2	
51	V	1	45	105.00	ppb	3.63	100.00	90 -	110	105.0	
52	Cr	1	45	109.70	ppb	3.70	100.00	90 -	110	109.7	
55	Mn	1	45	98.48	ppb	3.49	100.00	90 -	110	98.5	
56	Fe	1	72	2611.00	ppb	3.90	2500.00	90 -	110	104.4	
59	Co	1	72	106.50	ppb	2.97	100.00	90 -	110	106.5	
60	Ni	1	72	104.10	ppb	1.95	100.00	90 -	110	104.1	
63	Cu	1	72	106.20	ppb	2.29	100.00	90 -	110	106.2	
66	Zn	1	72	103.90	ppb	3.06	100.00	90 -	110	103.9	
75	As	1	72	101.00	ppb	1.70	100.00	90 -	110	101.0	
78	Se	1	72	93.51	ppb	2.87	100.00	90 -	110	93.5	
88	Sr	2	115	112.40	ppb	2.00	100.00	90 -	110	112.4	Fail
95	Mo	2	115	102.90	ppb	1.87	100.00	90 -	110	102.9	
107	Ag	2	115	101.20	ppb	1.60	100.00	90 -	110	101.2	
111	Cd	2	115	98.92	ppb	2.13	100.00	90 -	110	98.9	
118	Sn	2	115	96.57	ppb	1.44	100.00	90 -	110	96.6	
121	Sb	2	115	96.82	ppb	1.91	100.00	90 -	110	96.8	
137	Ba	2	115	94.41	ppb	1.87	100.00	90 -	110	94.4	
205	Tl	2	209	97.04	ppb	1.27	100.00	90 -	110	97.0	
208	Pb	2	209	97.52	ppb	1.65	100.00	90 -	110	97.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28291.06	4.87	36.77	-76941.5	70 -	120		ISFail
45	Sc	1	154570.78	0.40	157844.06	97.9	70 -	120		
45	Sc	2	6889101.50	2.78	5827273.50	118.2	70 -	120		
72	Ge	1	86927.37	0.80	86621.49	100.4	70 -	120		
115	In	2	6576274.50	1.50	6276207.00	104.8	70 -	120		
209	Bi	2	4138242.50	1.88	4446753.50	93.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\022ICV.D\022ICV.D#

Date Acquired:	Aug 10 2016 12:59 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	134.50	ppb	1.34	100.00	90 -	110	134.5	Fail
9	Be	2	45	118.30	ppb	2.41	100.00	90 -	110	118.3	Fail
11	B	2	45	111.00	ppb	2.05	100.00	90 -	110	111.0	Fail
23	Na	1	45	2936.00	ppb	2.32	2500.00	90 -	110	117.4	Fail
24	Mg	1	45	2637.00	ppb	3.26	2500.00	90 -	110	105.5	
27	Al	1	45	2382.00	ppb	3.48	2500.00	90 -	110	95.3	
39	K	1	45	2493.00	ppb	2.20	2500.00	90 -	110	99.7	
44	Ca	2	45	2506.00	ppb	4.78	2500.00	90 -	110	100.2	
47	Ti	1	45	98.40	ppb	5.68	100.00	90 -	110	98.4	
51	V	1	45	105.20	ppb	3.66	100.00	90 -	110	105.2	
52	Cr	1	45	110.50	ppb	3.70	100.00	90 -	110	110.5	Fail
55	Mn	1	45	99.71	ppb	2.41	100.00	90 -	110	99.7	
56	Fe	1	72	2619.00	ppb	3.33	2500.00	90 -	110	104.8	
59	Co	1	72	107.90	ppb	2.61	100.00	90 -	110	107.9	
60	Ni	1	72	106.00	ppb	3.24	100.00	90 -	110	106.0	
63	Cu	1	72	107.40	ppb	2.83	100.00	90 -	110	107.4	
66	Zn	1	72	105.20	ppb	2.29	100.00	90 -	110	105.2	
75	As	1	72	102.40	ppb	2.09	100.00	90 -	110	102.4	
78	Se	1	72	95.97	ppb	4.28	100.00	90 -	110	96.0	
88	Sr	2	115	114.90	ppb	1.13	100.00	90 -	110	114.9	Fail
95	Mo	2	115	104.50	ppb	1.90	100.00	90 -	110	104.5	
107	Ag	2	115	101.80	ppb	1.48	100.00	90 -	110	101.8	
111	Cd	2	115	100.60	ppb	1.64	100.00	90 -	110	100.6	
118	Sn	2	115	97.71	ppb	2.23	100.00	90 -	110	97.7	
121	Sb	2	115	97.73	ppb	1.54	100.00	90 -	110	97.7	
137	Ba	2	115	96.22	ppb	1.82	100.00	90 -	110	96.2	
205	Tl	2	209	97.08	ppb	1.01	100.00	90 -	110	97.1	
208	Pb	2	209	97.68	ppb	1.35	100.00	90 -	110	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-27573.77	2.48	36.77	-74990.7	70 -	120		ISFail
45	Sc	1	154283.36	0.69	157844.06	97.7	70 -	120		
45	Sc	2	6908818.00	2.71	5827273.50	118.6	70 -	120		
72	Ge	1	85934.37	1.11	86621.49	99.2	70 -	120		
115	In	2	6362271.00	1.52	6276207.00	101.4	70 -	120		
209	Bi	2	4051822.50	0.55	4446753.50	91.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\023LCVL.D\023LCVL.D#

Date Acquired:	Aug 10 2016 01:05 pm	Sample Name:	**ILCVL-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	14.61	ppb	2.75	10.00	70 -	130	146.1	Fail
9	Be	2	45	1.28	ppb	2.90	1.00	70 -	130	127.9	
11	B	2	45	25.21	ppb	2.50	20.00	70 -	130	126.1	
23	Na	1	45	129.00	ppb	0.61	100.00	70 -	130	129.0	
24	Mg	1	45	107.70	ppb	3.02	100.00	70 -	130	107.7	
27	Al	1	45	100.70	ppb	2.97	100.00	70 -	130	100.7	
39	K	1	45	109.90	ppb	1.36	100.00	70 -	130	109.9	
44	Ca	2	45	96.93	ppb	2.01	100.00	70 -	130	96.9	
47	Ti	1	45	5.02	ppb	5.82	5.00	70 -	130	100.3	
51	V	1	45	1.12	ppb	3.78	1.00	70 -	130	111.8	
52	Cr	1	45	5.69	ppb	2.72	5.00	70 -	130	113.7	
55	Mn	1	45	5.13	ppb	2.54	5.00	70 -	130	102.6	
56	Fe	1	72	111.90	ppb	2.66	100.00	70 -	130	111.9	
59	Co	1	72	5.53	ppb	1.89	5.00	70 -	130	110.6	
60	Ni	1	72	5.53	ppb	5.77	5.00	70 -	130	110.5	
63	Cu	1	72	5.67	ppb	2.24	5.00	70 -	130	113.4	
66	Zn	1	72	5.15	ppb	3.33	5.00	70 -	130	103.0	
75	As	1	72	5.58	ppb	2.76	5.00	70 -	130	111.6	
78	Se	1	72	5.22	ppb	0.92	5.00	70 -	130	104.5	
88	Sr	2	115	5.73	ppb	1.29	5.00	70 -	130	114.7	
95	Mo	2	115	5.60	ppb	3.27	5.00	70 -	130	112.0	
107	Ag	2	115	2.18	ppb	3.09	2.00	70 -	130	108.9	
111	Cd	2	115	1.08	ppb	6.38	1.00	70 -	130	107.9	
118	Sn	2	115	5.10	ppb	1.76	5.00	70 -	130	102.0	
121	Sb	2	115	2.07	ppb	1.55	2.00	70 -	130	103.5	
137	Ba	2	115	4.79	ppb	2.65	5.00	70 -	130	95.8	
205	Tl	2	209	1.19	ppb	2.87	1.00	70 -	130	119.2	
208	Pb	2	209	1.10	ppb	1.09	1.00	70 -	130	109.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-2938.40	6.35	36.77	-7991.4	70 -	120	ISFail
45	Sc	1		156003.47	1.14	157844.06	98.8	70 -	120	
45	Sc	2		6769750.50	2.03	5827273.50	116.2	70 -	120	
72	Ge	1		87067.64	1.39	86621.49	100.5	70 -	120	
115	In	2		6360994.00	1.47	6276207.00	101.4	70 -	120	
209	Bi	2		4069238.30	1.80	4446753.50	91.5	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\024_ICB.D\024_ICB.D#

Date Acquired:	Aug 10 2016 01:11 pm	Sample Name:	**ICB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 Li 2 45	0.22 ppb	7.04	2.00	
9 Be 2 45	0.07 ppb	24.15	0.40	
11 B 2 45	2.98 ppb	1.41	10.00	
23 Na 1 45	13.00 ppb	1.57	50.00	
24 Mg 1 45	0.69 ppb	11.11	50.00	
27 Al 1 45	2.96 ppb	1.79	50.00	
39 K 1 45	3.15 ppb	0.94	50.00	
44 Ca 2 45	10.76 ppb	4.80	50.00	
47 Ti 1 45	0.08 ppb	41.67	4.00	
51 V 1 45	-0.02 ppb	10.93	4.00	
52 Cr 1 45	0.10 ppb	9.78	2.00	
55 Mn 1 45	0.08 ppb	18.10	2.00	
56 Fe 1 72	1.31 ppb	8.28	50.00	
59 Co 1 72	0.06 ppb	13.76	2.00	
60 Ni 1 72	0.07 ppb	3.94	2.00	
63 Cu 1 72	0.11 ppb	5.06	2.00	
66 Zn 1 72	-0.21 ppb	8.43	4.00	
75 As 1 72	0.20 ppb	4.65	2.00	
78 Se 1 72	0.30 ppb	17.09	0.60	
88 Sr 2 115	0.16 ppb	5.97	4.00	
95 Mo 2 115	0.14 ppb	12.66	2.00	
107 Ag 2 115	0.04 ppb	19.84	0.40	
111 Cd 2 115	0.04 ppb	25.93	0.40	
118 Sn 2 115	0.13 ppb	7.54	20.00	
121 Sb 2 115	0.06 ppb	1.40	2.00	
137 Ba 2 115	0.07 ppb	5.16	2.00	
205 Tl 2 209	0.14 ppb	2.98	2.00	
208 Pb 2 209	0.09 ppb	7.41	0.40	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2 RHig	-61.21	26.40	36.77	-166.5	70 - 120	ISFail
45 Sc 1	155618.23	0.74	157844.06	98.6	70 - 120	
45 Sc 2	6799310.00	2.24	5827273.50	116.7	70 - 120	
72 Ge 1	87826.74	0.71	86621.49	101.4	70 - 120	
115 In 2	6371903.50	1.57	6276207.00	101.5	70 - 120	
209 Bi 2	4064265.30	0.93	4446753.50	91.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\042AREF.D\042AREF.D#

Date Acquired:	Aug 10 2016 03:09 pm	Sample Name:	**1607294-09A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	90.310	ppb	#REF!	0.53	2000.00	>RL
9	Be	2	45	3.016	ppb	#REF!	3.32	2000.00	>RL
11	B	2	45	106.900	ppb	#REF!	2.43	2000.00	>RL
23	Na	1	45	5744.000	ppb	#REF!	1.77	25000.00	>RL
24	Mg	1	45	16290.000	ppb	#REF!	2.17	25000.00	>RL
27	Al	1	45	68890.000	ppb	#REF!	3.36	10000.00	OUTCAL
39	K	1	45	15750.000	ppb	#REF!	1.56	25000.00	>RL
44	Ca	2	45	154000.000	ppb	#REF!	3.13	25000.00	OUTCAL
47	Ti	1	45	306.900	ppb	#REF!	2.98	2000.00	>RL
51	V	1	45	107.300	ppb	#REF!	3.53	2000.00	>RL
52	Cr	1	45	60.460	ppb	#REF!	3.19	2000.00	>RL
55	Mn	1	45	754.200	ppb	#REF!	2.85	2000.00	>RL
56	Fe	1	72	69200.000	ppb	#REF!	4.19	10000.00	OUTCAL
59	Co	1	72	29.540	ppb	#REF!	3.23	2000.00	>RL
60	Ni	1	72	45.750	ppb	#REF!	3.94	2000.00	>RL
63	Cu	1	72	24.510	ppb	#REF!	2.67	2000.00	>RL
66	Zn	1	72	211.800	ppb	#REF!	2.37	2000.00	>RL
75	As	1	72	23.150	ppb	#REF!	1.38	2000.00	>RL
78	Se	1	72	14.400	ppb	#REF!	6.38	2000.00	>RL
88	Sr	2	115	478.000	ppb	#REF!	1.89	2000.00	>RL
95	Mo	2	115	1.685	ppb	#REF!	1.92	2000.00	ND
107	Ag	2	115	0.262	ppb	#REF!	4.29	500.00	ND
111	Cd	2	115	1.097	ppb	#REF!	10.39	2000.00	J
118	Sn	2	115	10.120	ppb	#REF!	1.00	2000.00	>RL
121	Sb	2	115	1.063	ppb	#REF!	3.15	500.00	ND
137	Ba	2	115	554.800	ppb	#REF!	1.66	2000.00	>RL
205	Tl	2	209	0.754	ppb	#REF!	3.13	2000.00	ND
208	Pb	2	209	73.780	ppb	#REF!	1.30	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15952.67	4.51	36.77	-43385.5	70 - 120	ISFail
45	Sc	1	161247.20	1.13	157844.06	102.2	70 - 120	
45	Sc	2	6269875.50	2.19	5827273.50	107.6	70 - 120	
72	Ge	1	85368.29	0.72	86621.49	98.6	70 - 120	
115	In	2	6192706.50	0.56	6276207.00	98.7	70 - 120	
209	Bi	2	3883172.50	1.08	4446753.50	87.3	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\043DT1.D\043DT1.D#

Date Acquired:	Aug 10 2016 03:15 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 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	17.67	ppb	0.67	-3442.13	90 -	110	-2.6	
9	Be	2	45	0.63	ppb	5.02	3.02	90 -	110	104.6	GOOD
11	B	2	45	25.07	ppb	2.68	106.90	90 -	110	117.3	
23	Na	1	45	1108.00	ppb	2.04	5744.00	90 -	110	96.4	GOOD
24	Mg	1	45	3199.00	ppb	3.59	16290.00	90 -	110	98.2	GOOD
27	Al	1	45	13430.00	ppb	4.35	68890.00	90 -	110	97.5	GOOD
39	K	1	45	3067.00	ppb	2.18	15750.00	90 -	110	97.4	GOOD
44	Ca	2	45	31350.00	ppb	2.51	154000.00	90 -	110	101.8	GOOD
47	Ti	1	45	60.39	ppb	0.22	306.90	90 -	110	98.4	GOOD
51	V	1	45	21.52	ppb	3.32	107.30	90 -	110	100.3	GOOD
52	Cr	1	45	12.23	ppb	4.06	60.46	90 -	110	101.1	GOOD
55	Mn	1	45	155.30	ppb	3.77	754.20	90 -	110	103.0	GOOD
56	Fe	1	72	14020.00	ppb	3.33	69200.00	90 -	110	101.3	GOOD
59	Co	1	72	5.96	ppb	2.52	29.54	90 -	110	100.8	GOOD
60	Ni	1	72	9.41	ppb	2.69	45.75	90 -	110	102.9	GOOD
63	Cu	1	72	5.16	ppb	4.06	24.51	90 -	110	105.3	GOOD
66	Zn	1	72	47.56	ppb	2.56	211.80	90 -	110	112.3	
75	As	1	72	4.85	ppb	5.23	23.15	90 -	110	104.7	GOOD
78	Se	1	72	3.14	ppb	4.02	14.40	90 -	110	109.1	GOOD
88	Sr	2	115	96.76	ppb	1.78	478.00	90 -	110	101.2	GOOD
95	Mo	2	115	0.38	ppb	4.93	1.68	90 -	110	112.2	
107	Ag	2	115	0.06	ppb	11.28	0.26	90 -	110	122.3	
111	Cd	2	115	0.23	ppb	22.85	1.10	90 -	110	107.0	GOOD
118	Sn	2	115	2.05	ppb	2.56	10.12	90 -	110	101.1	GOOD
121	Sb	2	115	0.26	ppb	5.34	1.06	90 -	110	120.7	
137	Ba	2	115	109.00	ppb	1.17	554.80	90 -	110	98.2	GOOD
205	Tl	2	209	0.19	ppb	3.15	0.75	90 -	110	127.9	
208	Pb	2	209	14.31	ppb	1.47	73.78	90 -	110	97.0	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3442.13	2.67	36.77	-9361.4	70 -	120	ISFail
45	Sc	1	167941.36	1.05	157844.06	106.4	70 -	120	
45	Sc	2	6425786.00	2.77	5827273.50	110.3	70 -	120	
72	Ge	1	90857.88	0.63	86621.49	104.9	70 -	120	
115	In	2	6501785.50	1.17	6276207.00	103.6	70 -	120	
209	Bi	2	4224544.50	0.83	4446753.50	95.0	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\044_PDS.D\044_PDS.D#

Date Acquired:	Aug 10 2016 03:21 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 10 2016 01:05 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	311.80	ppb	1.92	-60184.45	200	75-125	######	Fail
9	Be	2	45	206.40	ppb	0.78	3.02	200	75-125	101.7	
11	B	2	45	301.70	ppb	2.04	106.90	200	75-125	97.4	
23	Na	1	45	10690.00	ppb	2.12	5744.00	5000	75-125	98.9	
24	Mg	1	45	21310.00	ppb	1.66	16290.00	5000	75-125	100.4	
27	Al	1	45	74800.00	ppb	3.52	68890.00	5000	75-125	118.2	
39	K	1	45	21050.00	ppb	1.55	15750.00	5000	75-125	106.0	
44	Ca	2	45	160900.00	ppb	2.03	154000.00	5000	75-125	138.0	Fail
47	Ti	1	45	517.00	ppb	3.24	306.90	200	75-125	105.1	
51	V	1	45	304.10	ppb	2.59	107.30	200	75-125	98.4	
52	Cr	1	45	256.80	ppb	2.89	60.46	200	75-125	98.2	
55	Mn	1	45	957.20	ppb	2.89	754.20	200	75-125	101.5	
56	Fe	1	72	76080.00	ppb	3.07	69200.00	5000	75-125	137.6	Fail
59	Co	1	72	224.30	ppb	2.19	29.54	200	75-125	97.4	
60	Ni	1	72	232.30	ppb	1.94	45.75	200	75-125	93.3	
63	Cu	1	72	208.20	ppb	1.95	24.51	200	75-125	91.8	
66	Zn	1	72	392.40	ppb	2.48	211.80	200	75-125	90.3	
75	As	1	72	210.90	ppb	1.84	23.15	200	75-125	93.9	
78	Se	1	72	189.90	ppb	1.84	14.40	200	75-125	87.8	
88	Sr	2	115	687.50	ppb	1.81	478.00	200	75-125	104.8	
95	Mo	2	115	198.50	ppb	2.02	1.68	200	75-125	98.4	
107	Ag	2	115	182.20	ppb	1.62	0.26	200	75-125	91.0	
111	Cd	2	115	180.60	ppb	1.43	1.10	200	75-125	89.8	
118	Sn	2	115	203.00	ppb	1.16	10.12	200	75-125	96.4	
121	Sb	2	115	186.30	ppb	1.41	1.06	200	75-125	92.6	
137	Ba	2	115	786.40	ppb	1.88	554.80	200	75-125	115.8	
205	Tl	2	209	207.30	ppb	2.69	0.75	200	75-125	103.3	
208	Pb	2	209	274.40	ppb	1.40	73.78	200	75-125	100.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-60184.45	3.06	36.77	-163679.9	70 - 120	ISFail
45	Sc	1	161731.20	0.42	157844.06	102.5	70 - 120	
45	Sc	2	6242884.50	1.83	5827273.50	107.1	70 - 120	
72	Ge	1	85202.16	0.59	86621.49	98.4	70 - 120	
115	In	2	6248320.00	1.23	6276207.00	99.6	70 - 120	
209	Bi	2	3872849.50	1.06	4446753.50	87.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\045_MS.D\045_MS.D#

Date Acquired:	Aug 10 2016 03:27 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 10 2016 01:05 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	320.30	ppb	1.68	########	200	80-120	######	Fail
9	Be	2	45	209.00	ppb	1.44	3.02	200	80-120	103.0	
11	B	2	45	309.50	ppb	2.09	106.90	200	80-120	101.3	
23	Na	1	45	10620.00	ppb	2.74	5744.00	5000	80-120	97.5	
24	Mg	1	45	21610.00	ppb	2.64	16290.00	5000	80-120	106.4	
27	Al	1	45	75510.00	ppb	3.29	68890.00	1000	80-120	662.0	Fail
39	K	1	45	21650.00	ppb	1.40	15750.00	5000	80-120	118.0	
44	Ca	2	45	165200.00	ppb	2.55	########	5000	80-120	224.0	Fail
47	Ti	1	45	638.50	ppb	3.67	306.90	200	80-120	165.8	Fail
51	V	1	45	314.40	ppb	2.24	107.30	200	80-120	103.6	
52	Cr	1	45	258.20	ppb	2.85	60.46	200	80-120	98.9	
55	Mn	1	45	1070.00	ppb	2.89	754.20	200	80-120	157.9	Fail
56	Fe	1	72	70900.00	ppb	2.58	69200.00	1000	80-120	170.0	Fail
59	Co	1	72	233.20	ppb	2.39	29.54	200	80-120	101.8	
60	Ni	1	72	241.40	ppb	1.90	45.75	200	80-120	97.8	
63	Cu	1	72	216.40	ppb	2.40	24.51	200	80-120	95.9	
66	Zn	1	72	409.10	ppb	2.15	211.80	200	80-120	98.7	
75	As	1	72	214.30	ppb	1.99	23.15	200	80-120	95.6	
78	Se	1	72	194.20	ppb	2.70	14.40	200	80-120	89.9	
88	Sr	2	115	730.10	ppb	1.81	478.00	200	80-120	126.1	Fail
95	Mo	2	115	192.00	ppb	2.07	1.68	200	80-120	95.2	
107	Ag	2	115	184.30	ppb	1.96	0.26	200	80-120	92.0	
111	Cd	2	115	187.50	ppb	2.04	1.10	200	80-120	93.2	
118	Sn	2	115	201.60	ppb	1.80	10.12	200	80-120	95.7	
121	Sb	2	115	46.66	ppb	1.66	1.06	200	80-120	22.8	Fail
137	Ba	2	115	822.10	ppb	1.09	554.80	200	80-120	133.7	Fail
205	Tl	2	209	216.70	ppb	1.33	0.75	200	80-120	108.0	
208	Pb	2	209	297.70	ppb	1.32	73.78	200	80-120	112.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-95289.85	2.05	36.77	########	70	-	120	ISFail
45	Sc	1	161990.89	0.39	157844.06	102.6	70	-	120	
45	Sc	2	6354399.50	1.98	5827273.50	109.0	70	-	120	
72	Ge	1	85002.87	0.15	86621.49	98.1	70	-	120	
115	In	2	6244975.00	0.98	6276207.00	99.5	70	-	120	
209	Bi	2	3860573.30	1.91	4446753.50	86.8	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\046_MS.D\046_MS.D#

Date Acquired:	Aug 10 2016 03:32 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 10 2016 01:05 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	312.20	ppb	1.49	########	200	80-120	######	Fail
9	Be	2	45	203.50	ppb	1.46	3.02	200	80-120	100.2	
11	B	2	45	298.50	ppb	2.84	106.90	200	80-120	95.8	
23	Na	1	45	10280.00	ppb	1.62	5744.00	5000	80-120	90.7	
24	Mg	1	45	21290.00	ppb	2.36	16290.00	5000	80-120	100.0	
27	Al	1	45	74270.00	ppb	3.50	68890.00	1000	80-120	538.0	Fail
39	K	1	45	21080.00	ppb	1.97	15750.00	5000	80-120	106.6	
44	Ca	2	45	165000.00	ppb	2.64	########	5000	80-120	220.0	Fail
47	Ti	1	45	612.00	ppb	2.89	306.90	200	80-120	152.6	Fail
51	V	1	45	305.30	ppb	2.64	107.30	200	80-120	99.0	
52	Cr	1	45	254.00	ppb	2.37	60.46	200	80-120	96.8	
55	Mn	1	45	972.80	ppb	1.68	754.20	200	80-120	109.3	
56	Fe	1	72	67340.00	ppb	2.60	69200.00	1000	80-120	-186.0	Fail
59	Co	1	72	222.70	ppb	2.38	29.54	200	80-120	96.6	
60	Ni	1	72	231.60	ppb	1.69	45.75	200	80-120	92.9	
63	Cu	1	72	212.70	ppb	1.58	24.51	200	80-120	94.1	
66	Zn	1	72	393.80	ppb	2.18	211.80	200	80-120	91.0	
75	As	1	72	209.20	ppb	1.73	23.15	200	80-120	93.0	
78	Se	1	72	189.00	ppb	0.80	14.40	200	80-120	87.3	
88	Sr	2	115	709.60	ppb	1.17	478.00	200	80-120	115.8	
95	Mo	2	115	187.20	ppb	1.49	1.68	200	80-120	92.8	
107	Ag	2	115	180.10	ppb	1.76	0.26	200	80-120	89.9	
111	Cd	2	115	183.60	ppb	1.33	1.10	200	80-120	91.3	
118	Sn	2	115	196.20	ppb	1.67	10.12	200	80-120	93.0	
121	Sb	2	115	46.51	ppb	0.98	1.06	200	80-120	22.7	Fail
137	Ba	2	115	841.70	ppb	1.93	554.80	200	80-120	143.5	Fail
205	Tl	2	209	209.20	ppb	1.44	0.75	200	80-120	104.2	
208	Pb	2	209	449.40	ppb	1.59	73.78	200	80-120	187.8	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-92929.43	1.73	36.77	########	70 - 120	ISFail
45	Sc	1	162675.55	0.34	157844.06	103.1	70 - 120	
45	Sc	2	6371595.50	2.53	5827273.50	109.3	70 - 120	
72	Ge	1	85552.65	0.42	86621.49	98.8	70 - 120	
115	In	2	6269330.50	1.45	6276207.00	99.9	70 - 120	
209	Bi	2	3864451.30	0.22	4446753.50	86.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\047CCV1.D\047CCV1.D#

Date Acquired:	Aug 10 2016 03:38 pm	Sample Name:	**CCV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	241.10	ppb	1.13	200.00	90 -	110	120.6	Fail
9	Be	2	45	223.20	ppb	1.61	200.00	90 -	110	111.6	Fail
11	B	2	45	215.00	ppb	1.77	200.00	90 -	110	107.5	
23	Na	1	45	5548.00	ppb	2.20	5000.00	90 -	110	111.0	Fail
24	Mg	1	45	5207.00	ppb	3.25	5000.00	90 -	110	104.1	
27	Al	1	45	5100.00	ppb	2.79	5000.00	90 -	110	102.0	
39	K	1	45	5194.00	ppb	1.43	5000.00	90 -	110	103.9	
44	Ca	2	45	5420.00	ppb	1.25	5000.00	90 -	110	108.4	
47	Ti	1	45	196.70	ppb	3.09	200.00	90 -	110	98.4	
51	V	1	45	201.50	ppb	3.17	200.00	90 -	110	100.8	
52	Cr	1	45	204.50	ppb	3.38	200.00	90 -	110	102.3	
55	Mn	1	45	203.50	ppb	2.69	200.00	90 -	110	101.8	
56	Fe	1	72	5141.00	ppb	2.74	5000.00	90 -	110	102.8	
59	Co	1	72	207.60	ppb	2.42	200.00	90 -	110	103.8	
60	Ni	1	72	202.90	ppb	2.01	200.00	90 -	110	101.5	
63	Cu	1	72	208.60	ppb	2.56	200.00	90 -	110	104.3	
66	Zn	1	72	206.60	ppb	2.37	200.00	90 -	110	103.3	
75	As	1	72	206.20	ppb	2.07	200.00	90 -	110	103.1	
78	Se	1	72	206.20	ppb	2.68	200.00	90 -	110	103.1	
88	Sr	2	115	217.70	ppb	2.16	200.00	90 -	110	108.9	
95	Mo	2	115	209.50	ppb	1.57	200.00	90 -	110	104.8	
107	Ag	2	115	209.40	ppb	2.11	200.00	90 -	110	104.7	
111	Cd	2	115	202.30	ppb	1.64	200.00	90 -	110	101.2	
118	Sn	2	115	198.00	ppb	1.44	200.00	90 -	110	99.0	
121	Sb	2	115	195.30	ppb	1.32	200.00	90 -	110	97.7	
137	Ba	2	115	195.20	ppb	1.42	200.00	90 -	110	97.6	
205	Tl	2	209	212.10	ppb	0.60	200.00	90 -	110	106.1	
208	Pb	2	209	203.70	ppb	2.11	200.00	90 -	110	101.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86652.00	1.66	36.77	-235662.1	70 -	120	ISFail
45	Sc	1	165486.64	0.45	157844.06	104.8	70 -	120	
45	Sc	2	6574466.00	1.93	5827273.50	112.8	70 -	120	
72	Ge	1	89509.84	0.83	86621.49	103.3	70 -	120	
115	In	2	6334299.00	1.68	6276207.00	100.9	70 -	120	
209	Bi	2	4137339.50	1.24	4446753.50	93.0	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 10 2016 03:50 pm	Sample Name:	**LCVL1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	12.59	ppb	2.24	10.00	70 -	130	125.9	
9	Be	2	45	1.21	ppb	1.93	1.00	70 -	130	120.5	
11	B	2	45	24.99	ppb	1.26	20.00	70 -	130	125.0	
23	Na	1	45	113.70	ppb	0.51	100.00	70 -	130	113.7	
24	Mg	1	45	110.40	ppb	2.96	100.00	70 -	130	110.4	
27	Al	1	45	112.80	ppb	2.26	100.00	70 -	130	112.8	
39	K	1	45	114.80	ppb	2.42	100.00	70 -	130	114.8	
44	Ca	2	45	115.50	ppb	3.16	100.00	70 -	130	115.5	
47	Ti	1	45	5.35	ppb	13.35	5.00	70 -	130	106.9	
51	V	1	45	1.03	ppb	3.39	1.00	70 -	130	103.0	
52	Cr	1	45	5.21	ppb	3.79	5.00	70 -	130	104.2	
55	Mn	1	45	5.28	ppb	2.21	5.00	70 -	130	105.6	
56	Fe	1	72	114.70	ppb	1.09	100.00	70 -	130	114.7	
59	Co	1	72	5.25	ppb	3.47	5.00	70 -	130	104.9	
60	Ni	1	72	5.31	ppb	5.53	5.00	70 -	130	106.1	
63	Cu	1	72	5.26	ppb	3.88	5.00	70 -	130	105.2	
66	Zn	1	72	6.64	ppb	20.26	5.00	70 -	130	132.8	Fail
75	As	1	72	5.28	ppb	0.98	5.00	70 -	130	105.6	
78	Se	1	72	5.51	ppb	10.53	5.00	70 -	130	110.2	
88	Sr	2	115	5.36	ppb	2.52	5.00	70 -	130	107.2	
95	Mo	2	115	5.22	ppb	3.41	5.00	70 -	130	104.4	
107	Ag	2	115	2.08	ppb	2.68	2.00	70 -	130	104.1	
111	Cd	2	115	1.12	ppb	5.91	1.00	70 -	130	111.5	
118	Sn	2	115	5.15	ppb	3.81	5.00	70 -	130	103.1	
121	Sb	2	115	2.04	ppb	1.61	2.00	70 -	130	102.0	
137	Ba	2	115	4.91	ppb	3.48	5.00	70 -	130	98.3	
205	Tl	2	209	1.15	ppb	1.21	1.00	70 -	130	114.9	
208	Pb	2	209	1.13	ppb	0.51	1.00	70 -	130	113.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2750.00	2.55	36.77	-7479.0	70 -	120	ISFail
45	Sc	1	166725.66	1.84	157844.06	105.6	70 -	120	
45	Sc	2	6332806.00	1.91	5827273.50	108.7	70 -	120	
72	Ge	1	90575.79	1.12	86621.49	104.6	70 -	120	
115	In	2	6233634.50	1.32	6276207.00	99.3	70 -	120	
209	Bi	2	4197759.50	1.54	4446753.50	94.4	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 10 2016 03:56 pm	Sample Name:	**CCB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.177	ppb	1.13	2.00	2.00	
9	Be	2	45	0.037	ppb	11.06	0.40	0.30	
11	B	2	45	3.631	ppb	3.34	10.00	10.00	
23	Na	1	45	12.710	ppb	2.10	50.00	#####	
24	Mg	1	45	2.342	ppb	13.82	50.00	#####	
27	Al	1	45	10.340	ppb	3.32	50.00	10.00	FailAq
39	K	1	45	11.940	ppb	3.59	50.00	#####	
44	Ca	2	45	32.860	ppb	4.42	50.00	#####	
47	Ti	1	45	0.152	ppb	10.83	4.00	3.00	
51	V	1	45	0.013	ppb	12.91	4.00	3.00	
52	Cr	1	45	0.073	ppb	6.24	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.70	2.00	3.00	
56	Fe	1	72	3.064	ppb	10.79	50.00	30.00	
59	Co	1	72	0.043	ppb	16.11	2.00	3.00	
60	Ni	1	72	0.135	ppb	7.66	2.00	3.00	
63	Cu	1	72	0.093	ppb	8.48	2.00	2.00	
66	Zn	1	72	1.139	ppb	11.47	4.00	2.00	
75	As	1	72	0.009	ppb	5.34	2.00	2.00	
78	Se	1	72	0.095	ppb	15.56	0.60	2.00	
88	Sr	2	115	0.143	ppb	8.35	4.00	3.00	
95	Mo	2	115	0.086	ppb	15.51	2.00	2.00	
107	Ag	2	115	0.037	ppb	4.28	0.40	1.00	
111	Cd	2	115	0.054	ppb	17.39	0.40	0.30	
118	Sn	2	115	0.163	ppb	4.08	20.00	3.00	
121	Sb	2	115	0.074	ppb	17.96	2.00	0.80	
137	Ba	2	115	0.130	ppb	15.86	2.00	3.00	
205	Tl	2	209	0.128	ppb	2.33	2.00	0.50	
208	Pb	2	209	0.089	ppb	8.91	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-47.78	21.45	36.77	-129.9	70 - 120	ISFail
45	Sc	1		167009.52	1.37	157844.06	105.8	70 - 120	
45	Sc	2		6290814.50	2.41	5827273.50	108.0	70 - 120	
72	Ge	1		91555.22	1.43	86621.49	105.7	70 - 120	
115	In	2		6177034.50	1.10	6276207.00	98.4	70 - 120	
209	Bi	2		4190757.50	0.64	4446753.50	94.2	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\051__PB.D\051__PB.D#

Date Acquired:	Aug 10 2016 04:02 pm	Sample Name:	**MB-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.119	ppb	4.77	2.0	8.00	
9	Be	2	45	0.014	ppb	47.95	0.4	1.20	
11	B	2	45	2.606	ppb	2.41	10.0	30.00	
23	Na	1	45	20.670	ppb	0.64	50.0	#####	
24	Mg	1	45	10.690	ppb	4.06	50.0	#####	
27	Al	1	45	5.007	ppb	9.19	50.0	#####	
39	K	1	45	25.440	ppb	1.00	50.0	#####	
44	Ca	2	45	41.360	ppb	5.44	50.0	#####	
47	Ti	1	45	0.042	ppb	45.83	4.0	10.00	
51	V	1	45	-0.030	ppb	10.26	4.0	10.00	
52	Cr	1	45	0.206	ppb	5.90	2.0	8.00	
55	Mn	1	45	0.143	ppb	14.00	2.0	8.00	
56	Fe	1	72	4.339	ppb	11.28	50.0	#####	
59	Co	1	72	0.006	ppb	20.09	2.0	8.00	
60	Ni	1	72	0.143	ppb	14.62	2.0	8.00	
63	Cu	1	72	0.138	ppb	3.20	2.0	8.00	
66	Zn	1	72	2.386	ppb	5.38	4.0	10.00	
75	As	1	72	0.017	ppb	0.99	2.0	4.00	
78	Se	1	72	0.082	ppb	18.60	0.6	2.00	
88	Sr	2	115	0.092	ppb	7.61	4.0	10.00	
95	Mo	2	115	0.049	ppb	12.64	2.0	8.00	
107	Ag	2	115	0.013	ppb	12.08	0.4	0.80	
111	Cd	2	115	0.003	ppb	7.86	0.4	1.20	
118	Sn	2	115	4.467	ppb	2.30	20.0	40.00	
121	Sb	2	115	0.038	ppb	15.93	2.0	4.00	
137	Ba	2	115	0.053	ppb	14.34	2.0	8.00	
205	Tl	2	209	0.081	ppb	6.28	2.0	4.00	
208	Pb	2	209	0.083	ppb	8.37	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-31.47	51.25	36.77	-85.6	70 - 120	ISFail
45	Sc	1		171408.14	0.73	157844.06	108.6	70 - 120	
45	Sc	2		6442825.50	2.04	5827273.50	110.6	70 - 120	
72	Ge	1		91171.99	1.42	86621.49	105.3	70 - 120	
115	In	2		6212227.50	1.89	6276207.00	99.0	70 - 120	
209	Bi	2		4269142.00	1.10	4446753.50	96.0	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\052_LCS.D\052_LCS.D#

Date Acquired:	Aug 10 2016 04:08 pm	Sample Name:	**LCS-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	238.30	ppb	1.16	200.00	80 -	120	119.2	
9	Be	2	45	215.70	ppb	1.51	200.00	80 -	120	107.9	
11	B	2	45	212.80	ppb	1.34	200.00	80 -	120	106.4	
23	Na	1	45	5347.00	ppb	1.04	5000.00	80 -	120	106.9	
24	Mg	1	45	5044.00	ppb	2.31	5000.00	80 -	120	100.9	
27	Al	1	45	1006.00	ppb	3.94	1000.00	80 -	120	100.6	
39	K	1	45	5042.00	ppb	1.84	5000.00	80 -	120	100.8	
44	Ca	2	45	5210.00	ppb	2.02	5000.00	80 -	120	104.2	
47	Ti	1	45	200.90	ppb	3.31	200.00	80 -	120	100.5	
51	V	1	45	199.40	ppb	2.60	200.00	80 -	120	99.7	
52	Cr	1	45	200.50	ppb	2.87	200.00	80 -	120	100.3	
55	Mn	1	45	202.00	ppb	2.05	200.00	80 -	120	101.0	
56	Fe	1	72	1075.00	ppb	4.22	1000.00	80 -	120	107.5	
59	Co	1	72	208.90	ppb	3.12	200.00	80 -	120	104.5	
60	Ni	1	72	204.40	ppb	1.61	200.00	80 -	120	102.2	
63	Cu	1	72	207.30	ppb	2.17	200.00	80 -	120	103.7	
66	Zn	1	72	203.00	ppb	2.24	200.00	80 -	120	101.5	
75	As	1	72	198.40	ppb	2.63	200.00	80 -	120	99.2	
78	Se	1	72	193.20	ppb	3.40	200.00	80 -	120	96.6	
88	Sr	2	115	218.80	ppb	1.22	200.00	80 -	120	109.4	
95	Mo	2	115	209.20	ppb	1.62	200.00	80 -	120	104.6	
107	Ag	2	115	206.30	ppb	2.37	200.00	80 -	120	103.2	
111	Cd	2	115	197.90	ppb	2.37	200.00	80 -	120	99.0	
118	Sn	2	115	205.20	ppb	1.31	200.00	80 -	120	102.6	
121	Sb	2	115	190.30	ppb	1.54	200.00	80 -	120	95.2	
137	Ba	2	115	196.10	ppb	1.33	200.00	80 -	120	98.1	
205	Tl	2	209	213.90	ppb	1.14	200.00	80 -	120	107.0	
208	Pb	2	209	206.60	ppb	1.44	200.00	80 -	120	103.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86131.67	1.64	36.77	-234247.0	70 -	120	ISFail
45	Sc	1	172287.91	0.48	157844.06	109.2	70 -	120	
45	Sc	2	6365078.00	2.42	5827273.50	109.2	70 -	120	
72	Ge	1	90262.32	0.57	86621.49	104.2	70 -	120	
115	In	2	6101695.50	1.38	6276207.00	97.2	70 -	120	
209	Bi	2	4137535.00	0.92	4446753.50	93.0	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\053_LCS.D\053_LCS.D#

Date Acquired:	Aug 10 2016 04:14 pm	Sample Name:	**LCSD-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	235.40	ppb	0.57	200.00	80 -	120	117.7	
9	Be	2	45	214.90	ppb	1.18	200.00	80 -	120	107.5	
11	B	2	45	211.80	ppb	1.00	200.00	80 -	120	105.9	
23	Na	1	45	5372.00	ppb	2.39	5000.00	80 -	120	107.4	
24	Mg	1	45	5104.00	ppb	1.91	5000.00	80 -	120	102.1	
27	Al	1	45	1034.00	ppb	3.47	1000.00	80 -	120	103.4	
39	K	1	45	5050.00	ppb	1.40	5000.00	80 -	120	101.0	
44	Ca	2	45	5249.00	ppb	1.72	5000.00	80 -	120	105.0	
47	Ti	1	45	203.10	ppb	4.79	200.00	80 -	120	101.6	
51	V	1	45	200.40	ppb	2.85	200.00	80 -	120	100.2	
52	Cr	1	45	201.00	ppb	2.73	200.00	80 -	120	100.5	
55	Mn	1	45	202.50	ppb	2.00	200.00	80 -	120	101.3	
56	Fe	1	72	1083.00	ppb	2.31	1000.00	80 -	120	108.3	
59	Co	1	72	208.20	ppb	2.42	200.00	80 -	120	104.1	
60	Ni	1	72	203.90	ppb	1.92	200.00	80 -	120	102.0	
63	Cu	1	72	207.30	ppb	1.74	200.00	80 -	120	103.7	
66	Zn	1	72	205.10	ppb	1.90	200.00	80 -	120	102.6	
75	As	1	72	199.70	ppb	1.50	200.00	80 -	120	99.9	
78	Se	1	72	195.60	ppb	1.60	200.00	80 -	120	97.8	
88	Sr	2	115	219.20	ppb	1.30	200.00	80 -	120	109.6	
95	Mo	2	115	209.90	ppb	1.67	200.00	80 -	120	105.0	
107	Ag	2	115	203.40	ppb	2.99	200.00	80 -	120	101.7	
111	Cd	2	115	198.30	ppb	1.39	200.00	80 -	120	99.2	
118	Sn	2	115	206.20	ppb	1.46	200.00	80 -	120	103.1	
121	Sb	2	115	191.20	ppb	1.17	200.00	80 -	120	95.6	
137	Ba	2	115	195.90	ppb	1.40	200.00	80 -	120	98.0	
205	Tl	2	209	214.00	ppb	1.33	200.00	80 -	120	107.0	
208	Pb	2	209	207.00	ppb	0.98	200.00	80 -	120	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-81958.80	0.49	36.77	-222898.3	70 -	120	ISFail
45	Sc	1	172426.50	0.65	157844.06	109.2	70 -	120	
45	Sc	2	6187878.00	2.40	5827273.50	106.2	70 -	120	
72	Ge	1	90369.60	0.27	86621.49	104.3	70 -	120	
115	In	2	5997364.50	1.14	6276207.00	95.6	70 -	120	
209	Bi	2	4103592.80	1.06	4446753.50	92.3	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\056DT1.D\056DT1.D#

Date Acquired:	Aug 10 2016 04:31 pm	Sample Name:	**1607314-03A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	16.10	ppb	1.41	-2940.88	90 - 110	-2.7	
9	Be	2	45	0.63	ppb	9.47	2.87	90 - 110	110.3	
11	B	2	45	19.73	ppb	1.07	81.55	90 - 110	121.0	
23	Na	1	45	332.40	ppb	0.97	1626.00	90 - 110	102.2	GOOD
24	Mg	1	45	3020.00	ppb	3.59	14950.00	90 - 110	101.0	GOOD
27	Al	1	45	15730.00	ppb	3.48	77560.00	90 - 110	101.4	GOOD
39	K	1	45	3176.00	ppb	1.46	15950.00	90 - 110	99.6	GOOD
44	Ca	2	45	25240.00	ppb	1.71	122000.00	90 - 110	103.4	GOOD
47	Ti	1	45	46.32	ppb	7.35	242.40	90 - 110	95.5	GOOD
51	V	1	45	21.50	ppb	4.08	105.90	90 - 110	101.5	GOOD
52	Cr	1	45	13.47	ppb	3.22	64.67	90 - 110	104.1	GOOD
55	Mn	1	45	127.40	ppb	2.65	611.00	90 - 110	104.3	GOOD
56	Fe	1	72	14400.00	ppb	3.80	70570.00	90 - 110	102.0	GOOD
59	Co	1	72	5.33	ppb	2.75	26.20	90 - 110	101.6	GOOD
60	Ni	1	72	8.72	ppb	2.97	40.77	90 - 110	107.0	GOOD
63	Cu	1	72	5.92	ppb	2.30	27.76	90 - 110	106.7	GOOD
66	Zn	1	72	56.83	ppb	3.21	250.20	90 - 110	113.6	
75	As	1	72	5.31	ppb	4.29	25.20	90 - 110	105.3	GOOD
78	Se	1	72	2.99	ppb	5.44	13.90	90 - 110	107.6	GOOD
88	Sr	2	115	84.20	ppb	3.52	422.70	90 - 110	99.6	GOOD
95	Mo	2	115	0.70	ppb	2.68	3.38	90 - 110	103.2	GOOD
107	Ag	2	115	0.07	ppb	15.17	0.24	90 - 110	139.9	
111	Cd	2	115	0.28	ppb	16.62	1.25	90 - 110	112.6	
118	Sn	2	115	1.18	ppb	2.18	5.74	90 - 110	102.6	GOOD
121	Sb	2	115	0.40	ppb	4.70	1.88	90 - 110	106.6	GOOD
137	Ba	2	115	167.30	ppb	1.53	883.40	90 - 110	94.7	GOOD
205	Tl	2	209	0.23	ppb	7.77	0.84	90 - 110	137.7	
208	Pb	2	209	17.50	ppb	1.12	88.41	90 - 110	99.0	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-2940.88	9.28	36.77	-7998.1	70 -	120	ISFail
45	Sc	1		169045.33	0.81	157844.06	107.1	70 -	120	
45	Sc	2		6002183.50	1.10	5827273.50	103.0	70 -	120	
72	Ge	1		90463.91	1.02	86621.49	104.4	70 -	120	
115	In	2		6110808.50	1.03	6276207.00	97.4	70 -	120	
209	Bi	2		4164325.30	1.41	4446753.50	93.6	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\057SMPL.D\057SMPL.D#

Date Acquired:	Aug 10 2016 04:56 pm	Sample Name:	**1607294-69A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	105.800	ppb	#REF!	1.53	2000.00	>RL
9	Be	2	45	1.247	ppb	#REF!	1.84	2000.00	>RL
11	B	2	45	88.670	ppb	#REF!	2.72	2000.00	>RL
23	Na	1	45	5341.000	ppb	#REF!	2.59	25000.00	>RL
24	Mg	1	45	10590.000	ppb	#REF!	3.29	25000.00	>RL
27	Al	1	45	48140.000	ppb	#REF!	2.86	10000.00	OUTCAL
39	K	1	45	7598.000	ppb	#REF!	3.18	25000.00	>RL
44	Ca	2	45	489700.000	ppb	#REF!	3.53	25000.00	OUTCAL
47	Ti	1	45	181.600	ppb	#REF!	3.22	2000.00	>RL
51	V	1	45	71.100	ppb	#REF!	2.53	2000.00	>RL
52	Cr	1	45	34.850	ppb	#REF!	2.05	2000.00	>RL
55	Mn	1	45	135.600	ppb	#REF!	2.08	2000.00	>RL
56	Fe	1	72	36010.000	ppb	#REF!	2.75	10000.00	OUTCAL
59	Co	1	72	7.149	ppb	#REF!	1.80	2000.00	J
60	Ni	1	72	14.390	ppb	#REF!	1.37	2000.00	>RL
63	Cu	1	72	8.292	ppb	#REF!	1.82	2000.00	>RL
66	Zn	1	72	57.710	ppb	#REF!	3.07	2000.00	>RL
75	As	1	72	13.550	ppb	#REF!	2.35	2000.00	>RL
78	Se	1	72	6.098	ppb	#REF!	4.42	2000.00	>RL
88	Sr	2	115	4033.000	ppb	#REF!	3.42	2000.00	OUTCAL
95	Mo	2	115	1.157	ppb	#REF!	4.12	2000.00	ND
107	Ag	2	115	0.113	ppb	#REF!	13.23	500.00	ND
111	Cd	2	115	0.675	ppb	#REF!	4.26	2000.00	J
118	Sn	2	115	4.791	ppb	#REF!	2.98	2000.00	ND
121	Sb	2	115	0.605	ppb	#REF!	5.93	500.00	ND
137	Ba	2	115	347.000	ppb	#REF!	3.73	2000.00	>RL
205	Tl	2	209	0.348	ppb	#REF!	2.48	2000.00	ND
208	Pb	2	209	49.890	ppb	#REF!	3.55	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18526.71	3.48	36.77	-50385.9	70 - 120	ISFail
45	Sc	1	184031.38	3.76	157844.06	116.6	70 - 120	
45	Sc	2	6402214.50	3.49	5827273.50	109.9	70 - 120	
72	Ge	1	92369.60	3.64	86621.49	106.6	70 - 120	
115	In	2	6502534.50	3.72	6276207.00	103.6	70 - 120	
209	Bi	2	3787255.00	4.31	4446753.50	85.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\058SMPL.D\058SMPL.D#

Date Acquired:	Aug 10 2016 05:02 pm	Sample Name:	**1607294-70A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	83.310	ppb	#REF!	0.70	2000.00	>RL
9	Be	2	45	1.444	ppb	#REF!	2.40	2000.00	>RL
11	B	2	45	109.900	ppb	#REF!	2.07	2000.00	>RL
23	Na	1	45	6887.000	ppb	#REF!	2.38	25000.00	>RL
24	Mg	1	45	11750.000	ppb	#REF!	2.40	25000.00	>RL
27	Al	1	45	51250.000	ppb	#REF!	2.22	10000.00	OUTCAL
39	K	1	45	7120.000	ppb	#REF!	1.55	25000.00	>RL
44	Ca	2	45	402800.000	ppb	#REF!	3.10	25000.00	OUTCAL
47	Ti	1	45	135.900	ppb	#REF!	3.37	2000.00	>RL
51	V	1	45	71.800	ppb	#REF!	1.68	2000.00	>RL
52	Cr	1	45	40.800	ppb	#REF!	2.76	2000.00	>RL
55	Mn	1	45	72.340	ppb	#REF!	2.76	2000.00	>RL
56	Fe	1	72	39870.000	ppb	#REF!	1.90	10000.00	OUTCAL
59	Co	1	72	6.234	ppb	#REF!	2.67	2000.00	J
60	Ni	1	72	12.710	ppb	#REF!	1.31	2000.00	>RL
63	Cu	1	72	7.349	ppb	#REF!	0.90	2000.00	J
66	Zn	1	72	53.780	ppb	#REF!	1.51	2000.00	>RL
75	As	1	72	11.200	ppb	#REF!	0.10	2000.00	>RL
78	Se	1	72	5.913	ppb	#REF!	8.28	2000.00	>RL
88	Sr	2	115	5032.000	ppb	#REF!	2.90	2000.00	OUTCAL
95	Mo	2	115	1.240	ppb	#REF!	5.76	2000.00	ND
107	Ag	2	115	0.107	ppb	#REF!	2.15	500.00	ND
111	Cd	2	115	0.647	ppb	#REF!	12.20	2000.00	J
118	Sn	2	115	5.606	ppb	#REF!	2.20	2000.00	ND
121	Sb	2	115	0.130	ppb	#REF!	15.01	500.00	ND
137	Ba	2	115	263.100	ppb	#REF!	2.34	2000.00	>RL
205	Tl	2	209	0.307	ppb	#REF!	1.89	2000.00	ND
208	Pb	2	209	25.070	ppb	#REF!	0.97	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14950.22	2.46	36.77	-40659.2	70 - 120	ISFail
45	Sc	1	171635.50	1.42	157844.06	108.7	70 - 120	
45	Sc	2	7006547.50	1.98	5827273.50	120.2	70 - 120	ISFail
72	Ge	1	87606.10	1.32	86621.49	101.1	70 - 120	
115	In	2	6751635.00	0.84	6276207.00	107.6	70 - 120	
209	Bi	2	3984562.80	0.85	4446753.50	89.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\059SMPL.D\059SMPL.D#

Date Acquired:	Aug 10 2016 05:08 pm	Sample Name:	**1607294-71A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	84.970	ppb	#REF!	2.17	2000.00	>RL
9	Be	2	45	2.611	ppb	#REF!	5.51	2000.00	>RL
11	B	2	45	207.800	ppb	#REF!	2.32	2000.00	>RL
23	Na	1	45	16150.000	ppb	#REF!	0.58	25000.00	>RL
24	Mg	1	45	19760.000	ppb	#REF!	1.63	25000.00	>RL
27	Al	1	45	80540.000	ppb	#REF!	2.16	10000.00	OUTCAL
39	K	1	45	11140.000	ppb	#REF!	1.83	25000.00	>RL
44	Ca	2	45	206000.000	ppb	#REF!	2.66	25000.00	OUTCAL
47	Ti	1	45	124.500	ppb	#REF!	2.74	2000.00	>RL
51	V	1	45	103.800	ppb	#REF!	2.07	2000.00	>RL
52	Cr	1	45	64.950	ppb	#REF!	1.42	2000.00	>RL
55	Mn	1	45	92.040	ppb	#REF!	2.15	2000.00	>RL
56	Fe	1	72	65270.000	ppb	#REF!	0.80	10000.00	OUTCAL
59	Co	1	72	16.520	ppb	#REF!	1.68	2000.00	>RL
60	Ni	1	72	18.740	ppb	#REF!	2.96	2000.00	>RL
63	Cu	1	72	18.060	ppb	#REF!	1.76	2000.00	>RL
66	Zn	1	72	119.300	ppb	#REF!	1.02	2000.00	>RL
75	As	1	72	19.200	ppb	#REF!	2.49	2000.00	>RL
78	Se	1	72	12.980	ppb	#REF!	2.31	2000.00	>RL
88	Sr	2	115	1123.000	ppb	#REF!	2.27	2000.00	>RL
95	Mo	2	115	1.677	ppb	#REF!	6.44	2000.00	ND
107	Ag	2	115	0.116	ppb	#REF!	7.71	500.00	ND
111	Cd	2	115	0.743	ppb	#REF!	11.63	2000.00	J
118	Sn	2	115	7.194	ppb	#REF!	2.25	2000.00	ND
121	Sb	2	115	0.118	ppb	#REF!	10.84	500.00	ND
137	Ba	2	115	420.200	ppb	#REF!	2.67	2000.00	>RL
205	Tl	2	209	0.423	ppb	#REF!	6.50	2000.00	ND
208	Pb	2	209	39.890	ppb	#REF!	1.74	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14284.45	2.46	36.77	-38848.5	70 - 120	ISFail
45	Sc	1	170357.86	1.23	157844.06	107.9	70 - 120	
45	Sc	2	6766274.50	2.65	5827273.50	116.1	70 - 120	
72	Ge	1	87971.07	2.14	86621.49	101.6	70 - 120	
115	In	2	6244866.50	2.25	6276207.00	99.5	70 - 120	
209	Bi	2	3828669.50	2.01	4446753.50	86.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\060SMPL.D\060SMPL.D#

Date Acquired:	Aug 10 2016 05:13 pm	Sample Name:	**1607294-72A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	70.700	ppb	#REF!	3.36	2000.00	>RL
9	Be	2	45	1.809	ppb	#REF!	4.73	2000.00	>RL
11	B	2	45	85.490	ppb	#REF!	2.74	2000.00	>RL
23	Na	1	45	4643.000	ppb	#REF!	2.11	25000.00	>RL
24	Mg	1	45	11050.000	ppb	#REF!	3.79	25000.00	>RL
27	Al	1	45	52060.000	ppb	#REF!	3.30	10000.00	OUTCAL
39	K	1	45	10300.000	ppb	#REF!	2.03	25000.00	>RL
44	Ca	2	45	341700.000	ppb	#REF!	3.42	25000.00	OUTCAL
47	Ti	1	45	274.000	ppb	#REF!	3.29	2000.00	>RL
51	V	1	45	91.850	ppb	#REF!	3.49	2000.00	>RL
52	Cr	1	45	44.250	ppb	#REF!	4.09	2000.00	>RL
55	Mn	1	45	350.600	ppb	#REF!	2.94	2000.00	>RL
56	Fe	1	72	47390.000	ppb	#REF!	3.32	10000.00	OUTCAL
59	Co	1	72	14.760	ppb	#REF!	3.04	2000.00	>RL
60	Ni	1	72	25.250	ppb	#REF!	2.74	2000.00	>RL
63	Cu	1	72	15.520	ppb	#REF!	2.95	2000.00	>RL
66	Zn	1	72	117.600	ppb	#REF!	3.08	2000.00	>RL
75	As	1	72	26.440	ppb	#REF!	2.65	2000.00	>RL
78	Se	1	72	8.317	ppb	#REF!	3.77	2000.00	>RL
88	Sr	2	115	1819.000	ppb	#REF!	2.62	2000.00	>RL
95	Mo	2	115	1.727	ppb	#REF!	2.18	2000.00	ND
107	Ag	2	115	0.163	ppb	#REF!	5.74	500.00	ND
111	Cd	2	115	0.826	ppb	#REF!	8.35	2000.00	J
118	Sn	2	115	5.272	ppb	#REF!	2.96	2000.00	ND
121	Sb	2	115	5.340	ppb	#REF!	3.26	500.00	>RL
137	Ba	2	115	393.600	ppb	#REF!	3.27	2000.00	>RL
205	Tl	2	209	0.407	ppb	#REF!	0.20	2000.00	ND
208	Pb	2	209	496.800	ppb	#REF!	2.77	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10520.83	4.74	36.77	-28612.8	70 - 120	ISFail
45	Sc	1	155004.67	1.00	157844.06	98.2	70 - 120	
45	Sc	2	6210522.50	3.96	5827273.50	106.6	70 - 120	
72	Ge	1	80897.04	1.77	86621.49	93.4	70 - 120	
115	In	2	5850299.00	3.48	6276207.00	93.2	70 - 120	
209	Bi	2	3522131.30	2.16	4446753.50	79.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\061SMPL.D\061SMPL.D#

Date Acquired:	Aug 10 2016 05:19 pm	Sample Name:	**1607294-73A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	112.300	ppb	#REF!	6.39	2000.00	>RL
9	Be	2	45	1.228	ppb	#REF!	8.34	2000.00	>RL
11	B	2	45	85.250	ppb	#REF!	8.33	2000.00	>RL
23	Na	1	45	5346.000	ppb	#REF!	1.62	25000.00	>RL
24	Mg	1	45	10350.000	ppb	#REF!	1.88	25000.00	>RL
27	Al	1	45	42610.000	ppb	#REF!	2.27	10000.00	OUTCAL
39	K	1	45	6633.000	ppb	#REF!	1.36	25000.00	>RL
44	Ca	2	45	497900.000	ppb	#REF!	7.50	25000.00	OUTCAL
47	Ti	1	45	196.100	ppb	#REF!	1.70	2000.00	>RL
51	V	1	45	66.100	ppb	#REF!	1.37	2000.00	>RL
52	Cr	1	45	33.870	ppb	#REF!	2.45	2000.00	>RL
55	Mn	1	45	148.500	ppb	#REF!	0.69	2000.00	>RL
56	Fe	1	72	32110.000	ppb	#REF!	1.61	10000.00	OUTCAL
59	Co	1	72	7.080	ppb	#REF!	1.39	2000.00	J
60	Ni	1	72	14.410	ppb	#REF!	2.28	2000.00	>RL
63	Cu	1	72	9.039	ppb	#REF!	1.58	2000.00	>RL
66	Zn	1	72	56.830	ppb	#REF!	0.30	2000.00	>RL
75	As	1	72	12.920	ppb	#REF!	1.15	2000.00	>RL
78	Se	1	72	5.146	ppb	#REF!	4.27	2000.00	>RL
88	Sr	2	115	4174.000	ppb	#REF!	6.37	2000.00	OUTCAL
95	Mo	2	115	1.045	ppb	#REF!	5.18	2000.00	ND
107	Ag	2	115	0.102	ppb	#REF!	6.62	500.00	ND
111	Cd	2	115	0.571	ppb	#REF!	13.34	2000.00	J
118	Sn	2	115	4.881	ppb	#REF!	9.32	2000.00	ND
121	Sb	2	115	1.666	ppb	#REF!	8.35	500.00	ND
137	Ba	2	115	283.900	ppb	#REF!	6.53	2000.00	>RL
205	Tl	2	209	0.302	ppb	#REF!	8.45	2000.00	ND
208	Pb	2	209	225.300	ppb	#REF!	7.28	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16141.07	2.69		36.77	-43897.9	70 - 120	ISFail
45	Sc	1	160627.66	1.41		157844.06	101.8	70 - 120	
45	Sc	2	5920700.50	7.07	RHigh	5827273.50	101.6	70 - 120	
72	Ge	1	83781.48	0.65		86621.49	96.7	70 - 120	
115	In	2	5730999.50	6.54	RHigh	6276207.00	91.3	70 - 120	
209	Bi	2	3348396.30	5.56	RHigh	4446753.50	75.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\063SMPL.D\063SMPL.D#

Date Acquired:	Aug 10 2016 05:31 pm	Sample Name:	**1607294-74A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	91.970	ppb	#REF!	2.45	2000.00	>RL
9	Be	2	45	1.322	ppb	#REF!	6.84	2000.00	>RL
11	B	2	45	111.800	ppb	#REF!	1.82	2000.00	>RL
23	Na	1	45	5730.000	ppb	#REF!	3.75	25000.00	>RL
24	Mg	1	45	11860.000	ppb	#REF!	3.62	25000.00	>RL
27	Al	1	45	50200.000	ppb	#REF!	3.88	10000.00	OUTCAL
39	K	1	45	6802.000	ppb	#REF!	3.99	25000.00	>RL
44	Ca	2	45	485400.000	ppb	#REF!	1.73	25000.00	OUTCAL
47	Ti	1	45	144.900	ppb	#REF!	6.00	2000.00	>RL
51	V	1	45	73.860	ppb	#REF!	3.75	2000.00	>RL
52	Cr	1	45	40.980	ppb	#REF!	3.99	2000.00	>RL
55	Mn	1	45	84.040	ppb	#REF!	4.19	2000.00	>RL
56	Fe	1	72	46070.000	ppb	#REF!	3.79	10000.00	OUTCAL
59	Co	1	72	7.783	ppb	#REF!	4.12	2000.00	J
60	Ni	1	72	12.000	ppb	#REF!	4.84	2000.00	>RL
63	Cu	1	72	9.076	ppb	#REF!	3.98	2000.00	>RL
66	Zn	1	72	57.690	ppb	#REF!	3.84	2000.00	>RL
75	As	1	72	14.160	ppb	#REF!	4.11	2000.00	>RL
78	Se	1	72	6.332	ppb	#REF!	3.34	2000.00	>RL
88	Sr	2	115	5119.000	ppb	#REF!	1.60	2000.00	OUTCAL
95	Mo	2	115	1.997	ppb	#REF!	3.49	2000.00	ND
107	Ag	2	115	0.082	ppb	#REF!	11.79	500.00	ND
111	Cd	2	115	0.546	ppb	#REF!	6.48	2000.00	J
118	Sn	2	115	5.741	ppb	#REF!	1.47	2000.00	ND
121	Sb	2	115	0.190	ppb	#REF!	6.40	500.00	ND
137	Ba	2	115	361.000	ppb	#REF!	1.27	2000.00	>RL
205	Tl	2	209	0.267	ppb	#REF!	5.39	2000.00	ND
208	Pb	2	209	24.610	ppb	#REF!	1.76	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13675.62	6.02	RHigh	36.77	-37192.7	70 - 120	ISFail
45	Sc	1	148251.75	4.64		157844.06	93.9	70 - 120	
45	Sc	2	6018615.50	0.59		5827273.50	103.3	70 - 120	
72	Ge	1	76305.99	4.34		86621.49	88.1	70 - 120	
115	In	2	5794223.00	1.28		6276207.00	92.3	70 - 120	
209	Bi	2	3431614.00	1.94		4446753.50	77.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\064SMPL.D\064SMPL.D#

Date Acquired:	Aug 10 2016 05:37 pm	Sample Name:	**1607294-75A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	86.050	ppb	#REF!	5.72	2000.00	>RL
9	Be	2	45	2.592	ppb	#REF!	4.93	2000.00	>RL
11	B	2	45	206.300	ppb	#REF!	4.81	2000.00	>RL
23	Na	1	45	16910.000	ppb	#REF!	1.45	25000.00	>RL
24	Mg	1	45	21040.000	ppb	#REF!	2.55	25000.00	>RL
27	Al	1	45	79460.000	ppb	#REF!	3.64	10000.00	OUTCAL
39	K	1	45	10620.000	ppb	#REF!	1.64	25000.00	>RL
44	Ca	2	45	237700.000	ppb	#REF!	4.82	25000.00	OUTCAL
47	Ti	1	45	107.100	ppb	#REF!	4.13	2000.00	>RL
51	V	1	45	113.100	ppb	#REF!	2.61	2000.00	>RL
52	Cr	1	45	68.340	ppb	#REF!	3.09	2000.00	>RL
55	Mn	1	45	97.870	ppb	#REF!	3.06	2000.00	>RL
56	Fe	1	72	84750.000	ppb	#REF!	2.64	10000.00	OUTCAL
59	Co	1	72	16.790	ppb	#REF!	2.42	2000.00	>RL
60	Ni	1	72	20.220	ppb	#REF!	3.02	2000.00	>RL
63	Cu	1	72	22.750	ppb	#REF!	1.97	2000.00	>RL
66	Zn	1	72	133.500	ppb	#REF!	1.99	2000.00	>RL
75	As	1	72	27.230	ppb	#REF!	1.81	2000.00	>RL
78	Se	1	72	14.320	ppb	#REF!	3.58	2000.00	>RL
88	Sr	2	115	2703.000	ppb	#REF!	4.41	2000.00	OUTCAL
95	Mo	2	115	2.323	ppb	#REF!	4.64	2000.00	J
107	Ag	2	115	0.120	ppb	#REF!	13.95	500.00	ND
111	Cd	2	115	0.954	ppb	#REF!	13.34	2000.00	J
118	Sn	2	115	7.050	ppb	#REF!	5.50	2000.00	ND
121	Sb	2	115	0.153	ppb	#REF!	10.80	500.00	ND
137	Ba	2	115	387.800	ppb	#REF!	3.59	2000.00	>RL
205	Tl	2	209	0.413	ppb	#REF!	4.57	2000.00	ND
208	Pb	2	209	53.040	ppb	#REF!	3.53	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13449.45	3.90	36.77	-36577.6	70 - 120	ISFail
45	Sc	1	152258.86	1.11	157844.06	96.5	70 - 120	
45	Sc	2	6097658.50	4.27	5827273.50	104.6	70 - 120	
72	Ge	1	79357.54	0.94	86621.49	91.6	70 - 120	
115	In	2	5673690.00	3.45	6276207.00	90.4	70 - 120	
209	Bi	2	3496638.30	3.36	4446753.50	78.6	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\067_PDS.D\067_PDS.D#

Date Acquired:	Aug 10 2016 05:55 pm	Sample Name:	**1607314-03A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	332.70	ppb	2.69	-58463.21	200	75-125	######	Fail
9	Be	2	45	213.70	ppb	2.61	2.87	200	75-125	105.4	
11	B	2	45	281.20	ppb	2.97	81.55	200	75-125	99.8	
23	Na	1	45	7346.00	ppb	1.71	1626.00	5000	75-125	114.4	
24	Mg	1	45	21120.00	ppb	2.68	14950.00	5000	75-125	123.4	
27	Al	1	45	83780.00	ppb	3.29	77560.00	5000	75-125	124.4	
39	K	1	45	21520.00	ppb	1.15	15950.00	5000	75-125	111.4	
44	Ca	2	45	133300.00	ppb	3.00	122000.00	5000	75-125	226.0	Fail
47	Ti	1	45	448.50	ppb	3.98	242.40	200	75-125	103.1	
51	V	1	45	318.00	ppb	2.59	105.90	200	75-125	106.1	
52	Cr	1	45	277.50	ppb	2.66	64.67	200	75-125	106.4	
55	Mn	1	45	829.60	ppb	1.97	611.00	200	75-125	109.3	
56	Fe	1	72	78780.00	ppb	3.01	70570.00	5000	75-125	164.2	Fail
59	Co	1	72	233.10	ppb	1.86	26.20	200	75-125	103.4	
60	Ni	1	72	239.60	ppb	1.23	40.77	200	75-125	99.4	
63	Cu	1	72	226.50	ppb	1.66	27.76	200	75-125	99.4	
66	Zn	1	72	442.50	ppb	2.22	250.20	200	75-125	96.2	
75	As	1	72	218.90	ppb	2.27	25.20	200	75-125	96.8	
78	Se	1	72	189.80	ppb	3.02	13.90	200	75-125	88.0	
88	Sr	2	115	677.70	ppb	1.87	422.70	200	75-125	127.5	Fail
95	Mo	2	115	211.20	ppb	2.35	3.38	200	75-125	103.9	
107	Ag	2	115	190.80	ppb	1.79	0.24	200	75-125	95.3	
111	Cd	2	115	188.30	ppb	1.30	1.25	200	75-125	93.5	
118	Sn	2	115	204.80	ppb	1.54	5.74	200	75-125	99.5	
121	Sb	2	115	193.20	ppb	1.74	1.88	200	75-125	95.7	
137	Ba	2	115	1119.00	ppb	1.49	883.40	200	75-125	117.8	
205	Tl	2	209	208.90	ppb	1.31	0.84	200	75-125	104.0	
208	Pb	2	209	295.40	ppb	0.92	88.41	200	75-125	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-58463.21	2.99	36.77	-158998.8	70 - 120	ISFail
45	Sc	1	155074.30	0.41	157844.06	98.2	70 - 120	
45	Sc	2	6351654.50	2.66	5827273.50	109.0	70 - 120	
72	Ge	1	81892.20	0.16	86621.49	94.5	70 - 120	
115	In	2	5728518.00	1.19	6276207.00	91.3	70 - 120	
209	Bi	2	3743962.00	0.35	4446753.50	84.2	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\068_MS.D\068_MS.D#

Date Acquired:	Aug 10 2016 06:00 pm	Sample Name:	**1607314-03A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	334.70	ppb	1.83	########	200	80-120	######	Fail
9	Be	2	45	221.60	ppb	1.89	2.87	200	80-120	109.4	
11	B	2	45	286.70	ppb	1.43	81.55	200	80-120	102.6	
23	Na	1	45	7352.00	ppb	1.97	1626.00	5000	80-120	114.5	
24	Mg	1	45	20220.00	ppb	2.73	14950.00	5000	80-120	105.4	
27	Al	1	45	79020.00	ppb	3.42	77560.00	1000	80-120	146.0	Fail
39	K	1	45	20960.00	ppb	2.78	15950.00	5000	80-120	100.2	
44	Ca	2	45	117400.00	ppb	2.54	########	5000	80-120	-92.0	Fail
47	Ti	1	45	473.40	ppb	1.40	242.40	200	80-120	115.5	
51	V	1	45	319.50	ppb	3.20	105.90	200	80-120	106.8	
52	Cr	1	45	272.00	ppb	3.51	64.67	200	80-120	103.7	
55	Mn	1	45	756.30	ppb	2.83	611.00	200	80-120	72.7	Fail
56	Fe	1	72	68180.00	ppb	2.72	70570.00	1000	80-120	-239.0	Fail
59	Co	1	72	240.00	ppb	2.61	26.20	200	80-120	106.9	
60	Ni	1	72	244.50	ppb	2.38	40.77	200	80-120	101.9	
63	Cu	1	72	229.60	ppb	2.34	27.76	200	80-120	100.9	
66	Zn	1	72	424.50	ppb	3.30	250.20	200	80-120	87.2	
75	As	1	72	224.80	ppb	3.03	25.20	200	80-120	99.8	
78	Se	1	72	201.80	ppb	1.40	13.90	200	80-120	94.0	
88	Sr	2	115	638.80	ppb	2.32	422.70	200	80-120	108.0	
95	Mo	2	115	209.30	ppb	1.89	3.38	200	80-120	103.0	
107	Ag	2	115	198.60	ppb	1.81	0.24	200	80-120	99.2	
111	Cd	2	115	202.80	ppb	1.55	1.25	200	80-120	100.8	
118	Sn	2	115	215.40	ppb	1.49	5.74	200	80-120	104.8	
121	Sb	2	115	62.33	ppb	1.63	1.88	200	80-120	30.2	Fail
137	Ba	2	115	971.40	ppb	1.75	883.40	200	80-120	44.0	Fail
205	Tl	2	209	228.30	ppb	0.69	0.84	200	80-120	113.7	
208	Pb	2	209	298.10	ppb	0.95	88.41	200	80-120	104.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-96826.02	1.86	36.77	########	70 - 120	ISFail
45	Sc	1	152598.89	0.79	157844.06	96.7	70 - 120	
45	Sc	2	6171120.00	2.11	5827273.50	105.9	70 - 120	
72	Ge	1	80772.27	0.44	86621.49	93.2	70 - 120	
115	In	2	5568273.50	1.39	6276207.00	88.7	70 - 120	
209	Bi	2	3694395.30	0.96	4446753.50	83.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\069_MS.D\069_MS.D#

Date Acquired:	Aug 10 2016 06:06 pm	Sample Name:	**1607314-03A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	333.70	ppb	1.03	########	200	80-120	######	Fail
9	Be	2	45	219.70	ppb	1.07	2.87	200	80-120	108.4	
11	B	2	45	286.40	ppb	1.57	81.55	200	80-120	102.4	
23	Na	1	45	7302.00	ppb	1.83	1626.00	5000	80-120	113.5	
24	Mg	1	45	20900.00	ppb	3.48	14950.00	5000	80-120	119.0	
27	Al	1	45	82070.00	ppb	4.53	77560.00	1000	80-120	451.0	Fail
39	K	1	45	21230.00	ppb	1.98	15950.00	5000	80-120	105.6	
44	Ca	2	45	127700.00	ppb	1.38	########	5000	80-120	114.0	
47	Ti	1	45	486.40	ppb	4.47	242.40	200	80-120	122.0	Fail
51	V	1	45	323.60	ppb	3.24	105.90	200	80-120	108.9	
52	Cr	1	45	276.20	ppb	4.03	64.67	200	80-120	105.8	
55	Mn	1	45	840.60	ppb	3.42	611.00	200	80-120	114.8	
56	Fe	1	72	71050.00	ppb	3.82	70570.00	1000	80-120	48.0	Fail
59	Co	1	72	240.30	ppb	3.35	26.20	200	80-120	107.0	
60	Ni	1	72	246.60	ppb	3.44	40.77	200	80-120	102.9	
63	Cu	1	72	232.80	ppb	2.98	27.76	200	80-120	102.5	
66	Zn	1	72	434.60	ppb	3.55	250.20	200	80-120	92.2	
75	As	1	72	226.80	ppb	2.43	25.20	200	80-120	100.8	
78	Se	1	72	200.40	ppb	2.41	13.90	200	80-120	93.3	
88	Sr	2	115	676.80	ppb	1.52	422.70	200	80-120	127.0	Fail
95	Mo	2	115	212.20	ppb	1.83	3.38	200	80-120	104.4	
107	Ag	2	115	200.20	ppb	1.56	0.24	200	80-120	100.0	
111	Cd	2	115	202.70	ppb	1.79	1.25	200	80-120	100.7	
118	Sn	2	115	217.90	ppb	1.50	5.74	200	80-120	106.1	
121	Sb	2	115	63.82	ppb	1.20	1.88	200	80-120	31.0	Fail
137	Ba	2	115	1006.00	ppb	1.73	883.40	200	80-120	61.3	Fail
205	Tl	2	209	227.90	ppb	1.21	0.84	200	80-120	113.5	
208	Pb	2	209	313.30	ppb	1.06	88.41	200	80-120	112.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-94850.23	0.37	36.77	########	70	-	120	ISFail
45	Sc	1	152052.97	0.81	157844.06	96.3	70	-	120	
45	Sc	2	6049218.50	1.92	5827273.50	103.8	70	-	120	
72	Ge	1	79875.96	0.85	86621.49	92.2	70	-	120	
115	In	2	5438859.50	1.06	6276207.00	86.7	70	-	120	
209	Bi	2	3646787.50	1.68	4446753.50	82.0	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\070CCV1.D\070CCV1.D#

Date Acquired:	Aug 10 2016 06:12 pm	Sample Name:	**CCV2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	256.20	ppb	0.73	200.00	90 -	110	128.1	Fail
9	Be	2	45	233.50	ppb	1.05	200.00	90 -	110	116.8	Fail
11	B	2	45	222.50	ppb	0.95	200.00	90 -	110	111.3	Fail
23	Na	1	45	6002.00	ppb	2.01	5000.00	90 -	110	120.0	Fail
24	Mg	1	45	5605.00	ppb	2.64	5000.00	90 -	110	112.1	Fail
27	Al	1	45	5430.00	ppb	4.39	5000.00	90 -	110	108.6	
39	K	1	45	5422.00	ppb	2.27	5000.00	90 -	110	108.4	
44	Ca	2	45	5742.00	ppb	2.02	5000.00	90 -	110	114.8	Fail
47	Ti	1	45	213.30	ppb	3.87	200.00	90 -	110	106.7	
51	V	1	45	214.50	ppb	4.12	200.00	90 -	110	107.3	
52	Cr	1	45	217.40	ppb	3.56	200.00	90 -	110	108.7	
55	Mn	1	45	214.90	ppb	3.45	200.00	90 -	110	107.5	
56	Fe	1	72	5449.00	ppb	4.38	5000.00	90 -	110	109.0	
59	Co	1	72	219.60	ppb	3.07	200.00	90 -	110	109.8	
60	Ni	1	72	216.30	ppb	2.43	200.00	90 -	110	108.2	
63	Cu	1	72	220.60	ppb	3.01	200.00	90 -	110	110.3	Fail
66	Zn	1	72	218.70	ppb	2.70	200.00	90 -	110	109.4	
75	As	1	72	215.50	ppb	2.39	200.00	90 -	110	107.8	
78	Se	1	72	213.40	ppb	3.67	200.00	90 -	110	106.7	
88	Sr	2	115	237.80	ppb	1.72	200.00	90 -	110	118.9	Fail
95	Mo	2	115	226.90	ppb	1.52	200.00	90 -	110	113.5	Fail
107	Ag	2	115	215.90	ppb	1.70	200.00	90 -	110	108.0	
111	Cd	2	115	214.10	ppb	1.78	200.00	90 -	110	107.1	
118	Sn	2	115	209.90	ppb	1.04	200.00	90 -	110	105.0	
121	Sb	2	115	205.60	ppb	1.23	200.00	90 -	110	102.8	
137	Ba	2	115	206.00	ppb	0.81	200.00	90 -	110	103.0	
205	Tl	2	209	220.30	ppb	0.62	200.00	90 -	110	110.2	Fail
208	Pb	2	209	208.10	ppb	0.69	200.00	90 -	110	104.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-83207.28	1.06	36.77	-226293.7	70 -	120		ISFail
45	Sc	1	149053.86	0.63	157844.06	94.4	70 -	120		
45	Sc	2	5934816.50	1.02	5827273.50	101.8	70 -	120		
72	Ge	1	80521.56	0.83	86621.49	93.0	70 -	120		
115	In	2	5231951.00	1.48	6276207.00	83.4	70 -	120		
209	Bi	2	3706362.00	0.81	4446753.50	83.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\072LCVL.D\072LCVL.D#

Date Acquired:	Aug 10 2016 06:24 pm	Sample Name:	**LCVL2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.08	ppb	0.91	10.00	70 -	130	130.8	Fail
9	Be	2	45	1.22	ppb	2.65	1.00	70 -	130	121.8	
11	B	2	45	24.68	ppb	1.52	20.00	70 -	130	123.4	
23	Na	1	45	114.80	ppb	1.38	100.00	70 -	130	114.8	
24	Mg	1	45	116.10	ppb	3.78	100.00	70 -	130	116.1	
27	Al	1	45	120.20	ppb	0.24	100.00	70 -	130	120.2	
39	K	1	45	110.90	ppb	4.98	100.00	70 -	130	110.9	
44	Ca	2	45	118.60	ppb	7.04	100.00	70 -	130	118.6	
47	Ti	1	45	4.68	ppb	11.30	5.00	70 -	130	93.6	
51	V	1	45	1.10	ppb	3.57	1.00	70 -	130	110.4	
52	Cr	1	45	5.64	ppb	2.74	5.00	70 -	130	112.8	
55	Mn	1	45	5.38	ppb	3.84	5.00	70 -	130	107.5	
56	Fe	1	72	121.30	ppb	2.35	100.00	70 -	130	121.3	
59	Co	1	72	5.48	ppb	2.86	5.00	70 -	130	109.6	
60	Ni	1	72	5.61	ppb	4.67	5.00	70 -	130	112.2	
63	Cu	1	72	5.55	ppb	1.17	5.00	70 -	130	111.0	
66	Zn	1	72	5.43	ppb	7.30	5.00	70 -	130	108.6	
75	As	1	72	5.40	ppb	3.59	5.00	70 -	130	108.0	
78	Se	1	72	5.86	ppb	9.38	5.00	70 -	130	117.3	
88	Sr	2	115	5.84	ppb	2.20	5.00	70 -	130	116.8	
95	Mo	2	115	5.75	ppb	4.26	5.00	70 -	130	115.0	
107	Ag	2	115	2.24	ppb	1.73	2.00	70 -	130	112.0	
111	Cd	2	115	1.11	ppb	9.36	1.00	70 -	130	110.7	
118	Sn	2	115	5.35	ppb	2.63	5.00	70 -	130	106.9	
121	Sb	2	115	2.16	ppb	0.66	2.00	70 -	130	108.0	
137	Ba	2	115	5.21	ppb	2.78	5.00	70 -	130	104.2	
205	Tl	2	209	1.20	ppb	1.47	1.00	70 -	130	119.8	
208	Pb	2	209	1.16	ppb	1.50	1.00	70 -	130	116.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-2574.01	5.30	36.77	-7000.4	70 -	120	ISFail
45	Sc	1	147271.14	0.49	157844.06	93.3	70 -	120	
45	Sc	2	5772612.00	2.91	5827273.50	99.1	70 -	120	
72	Ge	1	81263.09	0.63	86621.49	93.8	70 -	120	
115	In	2	5218325.50	1.75	6276207.00	83.1	70 -	120	
209	Bi	2	3771712.50	1.42	4446753.50	84.8	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\073_CCB.D\073_CCB.D#

Date Acquired:	Aug 10 2016 06:30 pm	Sample Name:	**CCB2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.201	ppb	0.44	2.00	2.00	
9	Be	2	45	0.047	ppb	6.20	0.40	0.30	
11	B	2	45	3.098	ppb	3.39	10.00	10.00	
23	Na	1	45	7.005	ppb	1.29	50.00	#####	
24	Mg	1	45	2.226	ppb	10.59	50.00	#####	
27	Al	1	45	11.450	ppb	11.39	50.00	10.00	FailAq
39	K	1	45	7.467	ppb	2.98	50.00	#####	
44	Ca	2	45	35.240	ppb	7.52	50.00	#####	
47	Ti	1	45	0.028	ppb	21.65	4.00	3.00	
51	V	1	45	0.014	ppb	7.95	4.00	3.00	
52	Cr	1	45	0.048	ppb	12.28	2.00	2.00	
55	Mn	1	45	0.134	ppb	11.84	2.00	3.00	
56	Fe	1	72	3.963	ppb	20.65	50.00	30.00	
59	Co	1	72	0.039	ppb	28.81	2.00	3.00	
60	Ni	1	72	0.135	ppb	4.45	2.00	3.00	
63	Cu	1	72	0.095	ppb	17.19	2.00	2.00	
66	Zn	1	72	1.372	ppb	13.87	4.00	2.00	
75	As	1	72	-0.071	ppb	3.17	2.00	2.00	
78	Se	1	72	0.149	ppb	13.73	0.60	2.00	
88	Sr	2	115	0.194	ppb	6.54	4.00	3.00	
95	Mo	2	115	0.086	ppb	9.86	2.00	2.00	
107	Ag	2	115	0.040	ppb	17.61	0.40	1.00	
111	Cd	2	115	0.036	ppb	32.41	0.40	0.30	
118	Sn	2	115	0.122	ppb	6.57	20.00	3.00	
121	Sb	2	115	0.063	ppb	6.69	2.00	0.80	
137	Ba	2	115	0.153	ppb	7.23	2.00	3.00	
205	Tl	2	209	0.138	ppb	12.42	2.00	0.50	
208	Pb	2	209	0.082	ppb	3.81	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-55.23	74.93	36.77	-150.2	70 - 120	ISFail
45	Sc	1		148403.08	1.55	157844.06	94.0	70 - 120	
45	Sc	2		5709613.50	1.58	5827273.50	98.0	70 - 120	
72	Ge	1		81008.06	1.19	86621.49	93.5	70 - 120	
115	In	2		5213931.00	1.47	6276207.00	83.1	70 - 120	
209	Bi	2		3796520.80	0.85	4446753.50	85.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\085CCV1.D\085CCV1.D#

Date Acquired:	Aug 10 2016 07:41 pm	Sample Name:	**CCV3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	228.60	ppb	1.06	200.00	90 -	110	114.3	Fail
9	Be	2	45	211.80	ppb	1.56	200.00	90 -	110	105.9	
11	B	2	45	199.00	ppb	1.48	200.00	90 -	110	99.5	
23	Na	1	45	5728.00	ppb	1.72	5000.00	90 -	110	114.6	Fail
24	Mg	1	45	5369.00	ppb	2.39	5000.00	90 -	110	107.4	
27	Al	1	45	5328.00	ppb	3.48	5000.00	90 -	110	106.6	
39	K	1	45	5341.00	ppb	1.02	5000.00	90 -	110	106.8	
44	Ca	2	45	5699.00	ppb	1.79	5000.00	90 -	110	114.0	Fail
47	Ti	1	45	207.80	ppb	3.24	200.00	90 -	110	103.9	
51	V	1	45	209.20	ppb	2.80	200.00	90 -	110	104.6	
52	Cr	1	45	210.40	ppb	2.98	200.00	90 -	110	105.2	
55	Mn	1	45	209.80	ppb	2.91	200.00	90 -	110	104.9	
56	Fe	1	72	5269.00	ppb	3.17	5000.00	90 -	110	105.4	
59	Co	1	72	211.90	ppb	3.11	200.00	90 -	110	106.0	
60	Ni	1	72	207.80	ppb	2.47	200.00	90 -	110	103.9	
63	Cu	1	72	212.60	ppb	2.52	200.00	90 -	110	106.3	
66	Zn	1	72	212.90	ppb	2.26	200.00	90 -	110	106.5	
75	As	1	72	209.60	ppb	1.97	200.00	90 -	110	104.8	
78	Se	1	72	211.30	ppb	3.35	200.00	90 -	110	105.7	
88	Sr	2	115	233.30	ppb	2.19	200.00	90 -	110	116.7	Fail
95	Mo	2	115	220.90	ppb	1.92	200.00	90 -	110	110.5	Fail
107	Ag	2	115	209.90	ppb	1.58	200.00	90 -	110	105.0	
111	Cd	2	115	208.90	ppb	0.81	200.00	90 -	110	104.5	
118	Sn	2	115	206.40	ppb	1.27	200.00	90 -	110	103.2	
121	Sb	2	115	203.80	ppb	0.88	200.00	90 -	110	101.9	
137	Ba	2	115	203.00	ppb	1.36	200.00	90 -	110	101.5	
205	Tl	2	209	214.20	ppb	0.52	200.00	90 -	110	107.1	
208	Pb	2	209	203.20	ppb	0.96	200.00	90 -	110	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-67866.80	0.86	36.77	-184573.1	70 -	120		ISFail
45	Sc	1	139865.91	0.42	157844.06	88.6	70 -	120		
45	Sc	2	5305360.50	2.19	5827273.50	91.0	70 -	120		
72	Ge	1	76163.90	0.19	86621.49	87.9	70 -	120		
115	In	2	4746292.00	1.15	6276207.00	75.6	70 -	120		
209	Bi	2	3442046.50	1.24	4446753.50	77.4	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\087LCVL.D\087LCVL.D#

Date Acquired:	Aug 10 2016 07:53 pm	Sample Name:	**LCVL3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.33	ppb	1.90	10.00	70 -	130	113.3	
9	Be	2	45	1.08	ppb	4.80	1.00	70 -	130	107.6	
11	B	2	45	20.91	ppb	2.17	20.00	70 -	130	104.6	
23	Na	1	45	104.00	ppb	2.07	100.00	70 -	130	104.0	
24	Mg	1	45	110.10	ppb	2.35	100.00	70 -	130	110.1	
27	Al	1	45	113.30	ppb	6.13	100.00	70 -	130	113.3	
39	K	1	45	106.40	ppb	0.94	100.00	70 -	130	106.4	
44	Ca	2	45	112.50	ppb	5.01	100.00	70 -	130	112.5	
47	Ti	1	45	5.27	ppb	6.72	5.00	70 -	130	105.5	
51	V	1	45	1.00	ppb	6.08	1.00	70 -	130	99.9	
52	Cr	1	45	5.27	ppb	3.44	5.00	70 -	130	105.4	
55	Mn	1	45	5.30	ppb	5.85	5.00	70 -	130	106.0	
56	Fe	1	72	112.40	ppb	4.44	100.00	70 -	130	112.4	
59	Co	1	72	5.25	ppb	3.35	5.00	70 -	130	105.1	
60	Ni	1	72	5.20	ppb	5.25	5.00	70 -	130	103.9	
63	Cu	1	72	5.30	ppb	4.88	5.00	70 -	130	106.1	
66	Zn	1	72	5.10	ppb	1.14	5.00	70 -	130	101.9	
75	As	1	72	5.23	ppb	1.26	5.00	70 -	130	104.7	
78	Se	1	72	5.41	ppb	5.35	5.00	70 -	130	108.3	
88	Sr	2	115	5.58	ppb	1.02	5.00	70 -	130	111.5	
95	Mo	2	115	5.34	ppb	1.92	5.00	70 -	130	106.9	
107	Ag	2	115	2.15	ppb	1.50	2.00	70 -	130	107.6	
111	Cd	2	115	1.10	ppb	2.16	1.00	70 -	130	110.1	
118	Sn	2	115	5.13	ppb	2.14	5.00	70 -	130	102.6	
121	Sb	2	115	2.06	ppb	2.42	2.00	70 -	130	103.1	
137	Ba	2	115	5.03	ppb	1.56	5.00	70 -	130	100.7	
205	Tl	2	209	1.10	ppb	3.05	1.00	70 -	130	110.2	
208	Pb	2	209	1.09	ppb	3.59	1.00	70 -	130	109.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2118.22	3.54	36.77	-5760.8	70 -	120	ISFail
45	Sc	1	138201.03	0.58	157844.06	87.6	70 -	120	
45	Sc	2	5241182.50	1.47	5827273.50	89.9	70 -	120	
72	Ge	1	75282.13	0.93	86621.49	86.9	70 -	120	
115	In	2	4910939.00	0.99	6276207.00	78.2	70 -	120	
209	Bi	2	3588281.30	0.80	4446753.50	80.7	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\088_CCB.D\088_CCB.D#

Date Acquired:	Aug 10 2016 07:59 pm	Sample Name:	**CCB3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.130	ppb	7.80	2.00	2.00	
9	Be	2	45	0.024	ppb	29.23	0.40	0.30	
11	B	2	45	2.166	ppb	3.07	10.00	10.00	
23	Na	1	45	3.339	ppb	1.60	50.00	#####	
24	Mg	1	45	1.692	ppb	11.72	50.00	#####	
27	Al	1	45	9.499	ppb	5.31	50.00	10.00	
39	K	1	45	8.680	ppb	0.61	50.00	#####	
44	Ca	2	45	26.130	ppb	8.44	50.00	#####	
47	Ti	1	45	0.060	ppb	33.32	4.00	3.00	
51	V	1	45	-0.005	ppb	10.77	4.00	3.00	
52	Cr	1	45	0.018	ppb	10.46	2.00	2.00	
55	Mn	1	45	0.075	ppb	22.03	2.00	3.00	
56	Fe	1	72	1.209	ppb	16.37	50.00	30.00	
59	Co	1	72	0.029	ppb	18.16	2.00	3.00	
60	Ni	1	72	0.106	ppb	15.38	2.00	3.00	
63	Cu	1	72	0.069	ppb	2.22	2.00	2.00	
66	Zn	1	72	1.071	ppb	3.78	4.00	2.00	
75	As	1	72	-0.024	ppb	3.00	2.00	2.00	
78	Se	1	72	0.088	ppb	17.83	0.60	2.00	
88	Sr	2	115	0.138	ppb	7.93	4.00	3.00	
95	Mo	2	115	0.069	ppb	10.42	2.00	2.00	
107	Ag	2	115	0.020	ppb	3.07	0.40	1.00	
111	Cd	2	115	0.045	ppb	11.57	0.40	0.30	
118	Sn	2	115	0.089	ppb	12.02	20.00	3.00	
121	Sb	2	115	0.051	ppb	12.07	2.00	0.80	
137	Ba	2	115	0.104	ppb	13.47	2.00	3.00	
205	Tl	2	209	0.096	ppb	8.22	2.00	0.50	
208	Pb	2	209	0.047	ppb	12.03	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-24.61	36.89	36.77	-66.9	70 - 120	ISFail
45	Sc	1		139436.95	1.35	157844.06	88.3	70 - 120	
45	Sc	2		5229415.00	1.76	5827273.50	89.7	70 - 120	
72	Ge	1		76538.14	1.47	86621.49	88.4	70 - 120	
115	In	2		4959201.00	1.52	6276207.00	79.0	70 - 120	
209	Bi	2		3613380.80	1.28	4446753.50	81.3	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\089__PB.D\089__PB.D#

Date Acquired:	Aug 10 2016 08:05 pm	Sample Name:	**MB-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	0.077 ppb	1.57	2.0	8.00	
9	Be	2	45	-0.003 ppb	7.14	0.4	1.20	
11	B	2	45	1.216 ppb	3.20	10.0	30.00	
23	Na	1	45	-1.529 ppb	3.25	50.0	#####	
24	Mg	1	45	5.869 ppb	1.40	50.0	#####	
27	Al	1	45	5.205 ppb	8.11	50.0	#####	
39	K	1	45	11.790 ppb	1.69	50.0	#####	
44	Ca	2	45	28.190 ppb	5.67	50.0	#####	
47	Ti	1	45	0.136 ppb	53.29	4.0	10.00	
51	V	1	45	-0.010 ppb	20.51	4.0	10.00	
52	Cr	1	45	0.144 ppb	15.99	2.0	8.00	
55	Mn	1	45	0.134 ppb	18.07	2.0	8.00	
56	Fe	1	72	3.122 ppb	11.58	50.0	#####	
59	Co	1	72	0.004 ppb	39.75	2.0	8.00	
60	Ni	1	72	0.111 ppb	12.45	2.0	8.00	
63	Cu	1	72	0.193 ppb	4.76	2.0	8.00	
66	Zn	1	72	3.543 ppb	2.00	4.0	10.00	
75	As	1	72	-0.113 ppb	5.48	2.0	4.00	
78	Se	1	72	0.087 ppb	4.09	0.6	2.00	
88	Sr	2	115	0.103 ppb	5.99	4.0	10.00	
95	Mo	2	115	0.034 ppb	29.41	2.0	8.00	
107	Ag	2	115	0.013 ppb	12.25	0.4	0.80	
111	Cd	2	115	0.000 ppb	167.88	0.4	1.20	
118	Sn	2	115	4.334 ppb	1.54	20.0	40.00	
121	Sb	2	115	0.013 ppb	9.80	2.0	4.00	
137	Ba	2	115	0.088 ppb	13.59	2.0	8.00	
205	Tl	2	209	0.051 ppb	7.82	2.0	4.00	
208	Pb	2	209	0.071 ppb	4.23	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-26.82	66.18	36.77	-72.9	70 - 120	ISFail
45	Sc	1		143243.34	0.69	157844.06	90.7	70 - 120	
45	Sc	2		5257679.50	2.16	5827273.50	90.2	70 - 120	
72	Ge	1		76715.16	0.82	86621.49	88.6	70 - 120	
115	In	2		4787413.00	1.49	6276207.00	76.3	70 - 120	
209	Bi	2		3534476.30	1.03	4446753.50	79.5	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\090_LCS.D\090_LCS.D#

Date Acquired:	Aug 10 2016 08:11 pm	Sample Name:	**LCS-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	214.70	ppb	0.95	200.00	80 -	120	107.4	
9	Be	2	45	195.20	ppb	0.87	200.00	80 -	120	97.6	
11	B	2	45	191.00	ppb	1.04	200.00	80 -	120	95.5	
23	Na	1	45	5597.00	ppb	3.42	5000.00	80 -	120	111.9	
24	Mg	1	45	5268.00	ppb	2.41	5000.00	80 -	120	105.4	
27	Al	1	45	1064.00	ppb	2.84	1000.00	80 -	120	106.4	
39	K	1	45	5219.00	ppb	1.76	5000.00	80 -	120	104.4	
44	Ca	2	45	5499.00	ppb	0.88	5000.00	80 -	120	110.0	
47	Ti	1	45	206.90	ppb	3.58	200.00	80 -	120	103.5	
51	V	1	45	204.30	ppb	3.18	200.00	80 -	120	102.2	
52	Cr	1	45	205.70	ppb	3.16	200.00	80 -	120	102.9	
55	Mn	1	45	208.70	ppb	2.65	200.00	80 -	120	104.4	
56	Fe	1	72	1047.00	ppb	3.27	1000.00	80 -	120	104.7	
59	Co	1	72	211.20	ppb	2.65	200.00	80 -	120	105.6	
60	Ni	1	72	206.30	ppb	3.11	200.00	80 -	120	103.2	
63	Cu	1	72	209.80	ppb	2.12	200.00	80 -	120	104.9	
66	Zn	1	72	207.90	ppb	2.19	200.00	80 -	120	104.0	
75	As	1	72	201.60	ppb	2.34	200.00	80 -	120	100.8	
78	Se	1	72	195.50	ppb	3.48	200.00	80 -	120	97.8	
88	Sr	2	115	232.20	ppb	1.53	200.00	80 -	120	116.1	
95	Mo	2	115	217.60	ppb	1.54	200.00	80 -	120	108.8	
107	Ag	2	115	205.70	ppb	0.98	200.00	80 -	120	102.9	
111	Cd	2	115	200.60	ppb	1.30	200.00	80 -	120	100.3	
118	Sn	2	115	210.10	ppb	0.60	200.00	80 -	120	105.1	
121	Sb	2	115	195.30	ppb	0.72	200.00	80 -	120	97.7	
137	Ba	2	115	203.60	ppb	1.05	200.00	80 -	120	101.8	
205	Tl	2	209	214.90	ppb	0.43	200.00	80 -	120	107.5	
208	Pb	2	209	203.00	ppb	0.56	200.00	80 -	120	101.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-62863.27	1.70	36.77	-170965.3	70 -	120	ISFail
45	Sc	1	138957.77	0.32	157844.06	88.0	70 -	120	
45	Sc	2	5063692.00	0.78	5827273.50	86.9	70 -	120	
72	Ge	1	73428.23	0.59	86621.49	84.8	70 -	120	
115	In	2	4544809.00	0.13	6276207.00	72.4	70 -	120	
209	Bi	2	3348332.50	0.47	4446753.50	75.3	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\091_LCS.D\091_LCS.D#

Date Acquired:	Aug 10 2016 08:17 pm	Sample Name:	**LCSD-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	209.10	ppb	0.92	200.00	80 -	120	104.6	
9	Be	2	45	192.60	ppb	1.01	200.00	80 -	120	96.3	
11	B	2	45	186.30	ppb	0.73	200.00	80 -	120	93.2	
23	Na	1	45	5508.00	ppb	2.51	5000.00	80 -	120	110.2	
24	Mg	1	45	5191.00	ppb	2.76	5000.00	80 -	120	103.8	
27	Al	1	45	1047.00	ppb	2.17	1000.00	80 -	120	104.7	
39	K	1	45	5152.00	ppb	2.01	5000.00	80 -	120	103.0	
44	Ca	2	45	5381.00	ppb	1.35	5000.00	80 -	120	107.6	
47	Ti	1	45	206.90	ppb	6.19	200.00	80 -	120	103.5	
51	V	1	45	201.20	ppb	3.01	200.00	80 -	120	100.6	
52	Cr	1	45	202.60	ppb	3.59	200.00	80 -	120	101.3	
55	Mn	1	45	204.50	ppb	2.58	200.00	80 -	120	102.3	
56	Fe	1	72	1018.00	ppb	3.27	1000.00	80 -	120	101.8	
59	Co	1	72	205.80	ppb	2.93	200.00	80 -	120	102.9	
60	Ni	1	72	201.60	ppb	2.40	200.00	80 -	120	100.8	
63	Cu	1	72	205.00	ppb	2.53	200.00	80 -	120	102.5	
66	Zn	1	72	204.70	ppb	3.02	200.00	80 -	120	102.4	
75	As	1	72	199.60	ppb	2.26	200.00	80 -	120	99.8	
78	Se	1	72	195.60	ppb	1.40	200.00	80 -	120	97.8	
88	Sr	2	115	225.50	ppb	1.05	200.00	80 -	120	112.8	
95	Mo	2	115	213.30	ppb	1.30	200.00	80 -	120	106.7	
107	Ag	2	115	202.40	ppb	1.06	200.00	80 -	120	101.2	
111	Cd	2	115	197.70	ppb	1.10	200.00	80 -	120	98.9	
118	Sn	2	115	206.70	ppb	0.43	200.00	80 -	120	103.4	
121	Sb	2	115	195.40	ppb	0.03	200.00	80 -	120	97.7	
137	Ba	2	115	199.70	ppb	0.54	200.00	80 -	120	99.9	
205	Tl	2	209	209.50	ppb	0.32	200.00	80 -	120	104.8	
208	Pb	2	209	198.60	ppb	0.71	200.00	80 -	120	99.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-59964.26	1.58	36.77	-163081.1	70 -	120	ISFail
45	Sc	1	135174.03	1.00	157844.06	85.6	70 -	120	
45	Sc	2	4950650.50	0.74	5827273.50	85.0	70 -	120	
72	Ge	1	72003.48	0.47	86621.49	83.1	70 -	120	
115	In	2	4576596.00	0.70	6276207.00	72.9	70 -	120	
209	Bi	2	3395703.00	0.43	4446753.50	76.4	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\094DT1.D\094DT1.D#

Date Acquired:	Aug 10 2016 08:35 pm	Sample Name:	**1607317-09A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	9.84	ppb	0.22	-1495.64	90 - 110	-3.3	
9	Be	2	45	0.49	ppb	9.17	2.33	90 - 110	105.5	GOOD
11	B	2	45	11.94	ppb	1.84	52.50	90 - 110	113.7	
23	Na	1	45	646.80	ppb	1.94	3282.00	90 - 110	98.5	GOOD
24	Mg	1	45	2460.00	ppb	2.96	12820.00	90 - 110	95.9	GOOD
27	Al	1	45	13310.00	ppb	3.58	70500.00	90 - 110	94.4	GOOD
39	K	1	45	2885.00	ppb	0.96	14640.00	90 - 110	98.5	GOOD
44	Ca	2	45	10890.00	ppb	1.39	53410.00	90 - 110	101.9	GOOD
47	Ti	1	45	44.10	ppb	7.19	205.30	90 - 110	107.4	GOOD
51	V	1	45	17.48	ppb	4.39	87.36	90 - 110	100.0	GOOD
52	Cr	1	45	10.40	ppb	3.98	51.47	90 - 110	101.0	GOOD
55	Mn	1	45	150.60	ppb	3.82	749.90	90 - 110	100.4	GOOD
56	Fe	1	72	11470.00	ppb	3.58	57960.00	90 - 110	98.9	GOOD
59	Co	1	72	4.55	ppb	4.91	22.61	90 - 110	100.6	GOOD
60	Ni	1	72	7.02	ppb	5.54	34.39	90 - 110	102.0	GOOD
63	Cu	1	72	5.87	ppb	2.36	28.30	90 - 110	103.6	GOOD
66	Zn	1	72	55.00	ppb	3.43	253.50	90 - 110	108.5	GOOD
75	As	1	72	7.17	ppb	3.14	35.35	90 - 110	101.5	GOOD
78	Se	1	72	2.98	ppb	12.97	11.78	90 - 110	126.4	
88	Sr	2	115	56.57	ppb	1.18	299.20	90 - 110	94.5	GOOD
95	Mo	2	115	0.35	ppb	11.23	1.73	90 - 110	102.0	GOOD
107	Ag	2	115	0.06	ppb	9.46	0.32	90 - 110	94.2	GOOD
111	Cd	2	115	0.30	ppb	10.71	1.31	90 - 110	114.8	
118	Sn	2	115	1.12	ppb	1.82	5.73	90 - 110	97.3	GOOD
121	Sb	2	115	0.75	ppb	2.12	3.39	90 - 110	110.2	
137	Ba	2	115	86.52	ppb	0.65	440.60	90 - 110	98.2	GOOD
205	Tl	2	209	0.18	ppb	9.31	0.68	90 - 110	131.5	
208	Pb	2	209	25.49	ppb	0.46	130.90	90 - 110	97.4	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1495.64	9.29	36.77	-4067.6	70 -	120	ISFail
45	Sc	1		133766.89	0.63	157844.06	84.7	70 -	120	
45	Sc	2		4632488.50	1.11	5827273.50	79.5	70 -	120	
72	Ge	1		71798.76	0.46	86621.49	82.9	70 -	120	
115	In	2		4408075.00	0.38	6276207.00	70.2	70 -	120	
209	Bi	2		3359444.30	0.27	4446753.50	75.5	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\105_PDS.D\105_PDS.D#

Date Acquired:	Aug 10 2016 09:41 pm	Sample Name:	**1607317-09A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	233.40	ppb	2.05	-39481.89	200	75-125	######	Fail
9	Be	2	45	177.00	ppb	1.78	2.33	200	75-125	87.3	
11	B	2	45	209.20	ppb	1.29	52.50	200	75-125	78.4	
23	Na	1	45	8573.00	ppb	1.49	3282.00	5000	75-125	105.8	
24	Mg	1	45	17830.00	ppb	2.78	12820.00	5000	75-125	100.2	
27	Al	1	45	75230.00	ppb	3.43	70500.00	5000	75-125	94.6	
39	K	1	45	20400.00	ppb	1.39	14640.00	5000	75-125	115.2	
44	Ca	2	45	59120.00	ppb	2.50	53410.00	5000	75-125	114.2	
47	Ti	1	45	409.70	ppb	3.19	205.30	200	75-125	102.2	
51	V	1	45	290.10	ppb	2.80	87.36	200	75-125	101.4	
52	Cr	1	45	253.20	ppb	2.86	51.47	200	75-125	100.9	
55	Mn	1	45	966.00	ppb	2.23	749.90	200	75-125	108.0	
56	Fe	1	72	63660.00	ppb	2.46	57960.00	5000	75-125	114.0	
59	Co	1	72	219.20	ppb	2.41	22.61	200	75-125	98.3	
60	Ni	1	72	221.30	ppb	2.34	34.39	200	75-125	93.5	
63	Cu	1	72	213.30	ppb	2.16	28.30	200	75-125	92.5	
66	Zn	1	72	445.60	ppb	2.86	253.50	200	75-125	96.1	
75	As	1	72	229.30	ppb	2.29	35.35	200	75-125	97.0	
78	Se	1	72	197.00	ppb	1.49	11.78	200	75-125	92.6	
88	Sr	2	115	508.70	ppb	2.01	299.20	200	75-125	104.7	
95	Mo	2	115	200.90	ppb	1.65	1.73	200	75-125	99.6	
107	Ag	2	115	186.70	ppb	1.32	0.32	200	75-125	93.2	
111	Cd	2	115	185.30	ppb	1.08	1.31	200	75-125	92.0	
118	Sn	2	115	204.90	ppb	1.02	5.73	200	75-125	99.6	
121	Sb	2	115	201.70	ppb	0.55	3.39	200	75-125	99.2	
137	Ba	2	115	643.30	ppb	0.67	440.60	200	75-125	101.3	
205	Tl	2	209	203.90	ppb	0.62	0.68	200	75-125	101.6	
208	Pb	2	209	334.80	ppb	0.99	130.90	200	75-125	102.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39481.89	2.97	36.77	-107376.4	70 - 120	ISFail
45	Sc	1	131038.41	0.14	157844.06	83.0	70 - 120	
45	Sc	2	4702444.50	2.42	5827273.50	80.7	70 - 120	
72	Ge	1	70037.72	0.06	86621.49	80.9	70 - 120	
115	In	2	4599213.50	0.50	6276207.00	73.3	70 - 120	
209	Bi	2	3272732.80	1.01	4446753.50	73.6	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\106_MS.D\106_MS.D#

Date Acquired:	Aug 10 2016 09:46 pm	Sample Name:	**1607317-09A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	243.90	ppb	1.50	########	200	80-120	######	Fail
9	Be	2	45	176.80	ppb	1.27	2.33	200	80-120	87.2	
11	B	2	45	218.30	ppb	0.93	52.50	200	80-120	82.9	
23	Na	1	45	8843.00	ppb	2.11	3282.00	5000	80-120	111.2	
24	Mg	1	45	19800.00	ppb	3.29	12820.00	5000	80-120	139.6	Fail
27	Al	1	45	88960.00	ppb	3.71	70500.00	1000	80-120	1846.0	Fail
39	K	1	45	23550.00	ppb	0.69	14640.00	5000	80-120	178.2	Fail
44	Ca	2	45	64700.00	ppb	1.61	53410.00	5000	80-120	225.8	Fail
47	Ti	1	45	459.90	ppb	3.38	205.30	200	80-120	127.3	Fail
51	V	1	45	320.50	ppb	3.08	87.36	200	80-120	116.6	
52	Cr	1	45	255.50	ppb	3.40	51.47	200	80-120	102.0	
55	Mn	1	45	1282.00	ppb	2.99	749.90	200	80-120	266.0	Fail
56	Fe	1	72	70950.00	ppb	2.74	57960.00	1000	80-120	1299.0	Fail
59	Co	1	72	226.60	ppb	2.43	22.61	200	80-120	102.0	
60	Ni	1	72	224.10	ppb	2.87	34.39	200	80-120	94.9	
63	Cu	1	72	216.00	ppb	2.82	28.30	200	80-120	93.9	
66	Zn	1	72	477.90	ppb	2.26	253.50	200	80-120	112.2	
75	As	1	72	236.40	ppb	2.28	35.35	200	80-120	100.5	
78	Se	1	72	197.50	ppb	3.06	11.78	200	80-120	92.9	
88	Sr	2	115	560.60	ppb	2.16	299.20	200	80-120	130.7	Fail
95	Mo	2	115	193.70	ppb	1.99	1.73	200	80-120	96.0	
107	Ag	2	115	186.80	ppb	1.84	0.32	200	80-120	93.2	
111	Cd	2	115	189.70	ppb	1.48	1.31	200	80-120	94.2	
118	Sn	2	115	208.10	ppb	1.02	5.73	200	80-120	101.2	
121	Sb	2	115	73.76	ppb	0.56	3.39	200	80-120	35.2	Fail
137	Ba	2	115	817.50	ppb	0.91	440.60	200	80-120	188.4	Fail
205	Tl	2	209	211.20	ppb	1.43	0.68	200	80-120	105.3	
208	Pb	2	209	387.50	ppb	0.68	130.90	200	80-120	128.3	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-58590.41	1.13	36.77	########	70	-	120	ISFail
45	Sc	1	132937.44	0.58	157844.06	84.2	70	-	120	
45	Sc	2	4618868.50	2.37	5827273.50	79.3	70	-	120	
72	Ge	1	70291.84	0.45	86621.49	81.1	70	-	120	
115	In	2	4452912.50	0.67	6276207.00	70.9	70	-	120	
209	Bi	2	3186888.30	1.02	4446753.50	71.7	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\107_MS.D\107_MS.D#

Date Acquired:	Aug 10 2016 09:52 pm	Sample Name:	**1607317-09A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	242.60	ppb	1.41	########	200	80-120	######	Fail
9	Be	2	45	177.60	ppb	0.63	2.33	200	80-120	87.6	
11	B	2	45	222.30	ppb	0.37	52.50	200	80-120	84.9	
23	Na	1	45	8820.00	ppb	2.32	3282.00	5000	80-120	110.8	
24	Mg	1	45	19640.00	ppb	3.81	12820.00	5000	80-120	136.4	Fail
27	Al	1	45	85510.00	ppb	3.58	70500.00	1000	80-120	1501.0	Fail
39	K	1	45	23220.00	ppb	2.64	14640.00	5000	80-120	171.6	Fail
44	Ca	2	45	60660.00	ppb	1.38	53410.00	5000	80-120	145.0	Fail
47	Ti	1	45	467.30	ppb	3.36	205.30	200	80-120	131.0	Fail
51	V	1	45	303.90	ppb	3.05	87.36	200	80-120	108.3	
52	Cr	1	45	260.70	ppb	3.06	51.47	200	80-120	104.6	
55	Mn	1	45	974.30	ppb	2.50	749.90	200	80-120	112.2	
56	Fe	1	72	68320.00	ppb	3.26	57960.00	1000	80-120	1036.0	Fail
59	Co	1	72	233.30	ppb	3.22	22.61	200	80-120	105.3	
60	Ni	1	72	231.60	ppb	2.75	34.39	200	80-120	98.6	
63	Cu	1	72	222.00	ppb	2.03	28.30	200	80-120	96.9	
66	Zn	1	72	479.90	ppb	2.19	253.50	200	80-120	113.2	
75	As	1	72	232.70	ppb	1.57	35.35	200	80-120	98.7	
78	Se	1	72	199.00	ppb	2.03	11.78	200	80-120	93.6	
88	Sr	2	115	560.10	ppb	1.24	299.20	200	80-120	130.4	Fail
95	Mo	2	115	199.00	ppb	1.15	1.73	200	80-120	98.6	
107	Ag	2	115	191.00	ppb	1.08	0.32	200	80-120	95.3	
111	Cd	2	115	193.70	ppb	1.29	1.31	200	80-120	96.2	
118	Sn	2	115	213.10	ppb	0.59	5.73	200	80-120	103.7	
121	Sb	2	115	71.86	ppb	0.49	3.39	200	80-120	34.2	Fail
137	Ba	2	115	721.00	ppb	0.42	440.60	200	80-120	140.2	Fail
205	Tl	2	209	215.30	ppb	1.47	0.68	200	80-120	107.3	
208	Pb	2	209	376.60	ppb	0.66	130.90	200	80-120	122.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-57818.87	1.86	36.77	########	70	-	120	ISFail
45	Sc	1	131948.41	0.29	157844.06	83.6	70	-	120	
45	Sc	2	4587145.50	0.91	5827273.50	78.7	70	-	120	
72	Ge	1	69201.56	0.18	86621.49	79.9	70	-	120	
115	In	2	4275379.50	0.64	6276207.00	68.1	70	-	120	ISFail
209	Bi	2	3090457.80	0.08	4446753.50	69.5	70	-	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\108CCV1.D\108CCV1.D#

Date Acquired:	Aug 10 2016 09:58 pm	Sample Name:	**CCV4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	200.10	ppb	1.14	200.00	90 -	110	100.1	
9	Be	2	45	191.10	ppb	0.56	200.00	90 -	110	95.6	
11	B	2	45	177.00	ppb	0.87	200.00	90 -	110	88.5	Fail
23	Na	1	45	5516.00	ppb	2.24	5000.00	90 -	110	110.3	Fail
24	Mg	1	45	5244.00	ppb	3.70	5000.00	90 -	110	104.9	
27	Al	1	45	5306.00	ppb	4.58	5000.00	90 -	110	106.1	
39	K	1	45	5330.00	ppb	1.65	5000.00	90 -	110	106.6	
44	Ca	2	45	5572.00	ppb	1.78	5000.00	90 -	110	111.4	Fail
47	Ti	1	45	197.40	ppb	6.24	200.00	90 -	110	98.7	
51	V	1	45	204.40	ppb	3.87	200.00	90 -	110	102.2	
52	Cr	1	45	205.00	ppb	3.69	200.00	90 -	110	102.5	
55	Mn	1	45	209.90	ppb	3.57	200.00	90 -	110	105.0	
56	Fe	1	72	5272.00	ppb	4.55	5000.00	90 -	110	105.4	
59	Co	1	72	207.00	ppb	3.41	200.00	90 -	110	103.5	
60	Ni	1	72	203.00	ppb	3.35	200.00	90 -	110	101.5	
63	Cu	1	72	206.80	ppb	3.26	200.00	90 -	110	103.4	
66	Zn	1	72	219.50	ppb	6.56	200.00	90 -	110	109.8	
75	As	1	72	209.40	ppb	2.92	200.00	90 -	110	104.7	
78	Se	1	72	209.90	ppb	3.49	200.00	90 -	110	105.0	
88	Sr	2	115	229.40	ppb	0.84	200.00	90 -	110	114.7	Fail
95	Mo	2	115	216.80	ppb	1.28	200.00	90 -	110	108.4	
107	Ag	2	115	204.40	ppb	1.08	200.00	90 -	110	102.2	
111	Cd	2	115	203.90	ppb	1.45	200.00	90 -	110	102.0	
118	Sn	2	115	204.10	ppb	0.64	200.00	90 -	110	102.1	
121	Sb	2	115	204.50	ppb	0.34	200.00	90 -	110	102.3	
137	Ba	2	115	203.60	ppb	0.32	200.00	90 -	110	101.8	
205	Tl	2	209	211.30	ppb	0.58	200.00	90 -	110	105.7	
208	Pb	2	209	199.20	ppb	0.48	200.00	90 -	110	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56569.73	2.13	36.77	-153849.2	70 -	120		ISFail
45	Sc	1	131748.33	0.66	157844.06	83.5	70 -	120		
45	Sc	2	4851440.50	1.46	5827273.50	83.3	70 -	120		
72	Ge	1	70997.86	0.64	86621.49	82.0	70 -	120		
115	In	2	4482388.00	0.80	6276207.00	71.4	70 -	120		
209	Bi	2	3345980.50	0.34	4446753.50	75.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\110LCVL.D\110LCVL.D#

Date Acquired:	Aug 10 2016 10:10 pm	Sample Name:	**LCVL4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.10	ppb	0.73	10.00	70 -	130	101.0	
9	Be	2	45	0.99	ppb	8.05	1.00	70 -	130	99.0	
11	B	2	45	19.25	ppb	1.68	20.00	70 -	130	96.3	
23	Na	1	45	95.50	ppb	0.92	100.00	70 -	130	95.5	
24	Mg	1	45	108.50	ppb	2.32	100.00	70 -	130	108.5	
27	Al	1	45	119.60	ppb	2.45	100.00	70 -	130	119.6	
39	K	1	45	111.90	ppb	2.64	100.00	70 -	130	111.9	
44	Ca	2	45	114.20	ppb	8.57	100.00	70 -	130	114.2	
47	Ti	1	45	5.12	ppb	6.10	5.00	70 -	130	102.4	
51	V	1	45	1.09	ppb	3.34	1.00	70 -	130	109.2	
52	Cr	1	45	5.21	ppb	4.31	5.00	70 -	130	104.2	
55	Mn	1	45	5.32	ppb	2.24	5.00	70 -	130	106.4	
56	Fe	1	72	117.50	ppb	2.56	100.00	70 -	130	117.5	
59	Co	1	72	5.14	ppb	1.56	5.00	70 -	130	102.8	
60	Ni	1	72	5.15	ppb	2.82	5.00	70 -	130	103.0	
63	Cu	1	72	5.13	ppb	1.13	5.00	70 -	130	102.6	
66	Zn	1	72	5.59	ppb	6.43	5.00	70 -	130	111.8	
75	As	1	72	5.17	ppb	1.71	5.00	70 -	130	103.3	
78	Se	1	72	5.64	ppb	3.90	5.00	70 -	130	112.7	
88	Sr	2	115	5.64	ppb	1.80	5.00	70 -	130	112.7	
95	Mo	2	115	5.35	ppb	3.92	5.00	70 -	130	107.0	
107	Ag	2	115	2.21	ppb	2.44	2.00	70 -	130	110.7	
111	Cd	2	115	1.01	ppb	5.24	1.00	70 -	130	100.6	
118	Sn	2	115	5.23	ppb	0.62	5.00	70 -	130	104.5	
121	Sb	2	115	2.16	ppb	6.21	2.00	70 -	130	108.2	
137	Ba	2	115	5.15	ppb	2.39	5.00	70 -	130	103.1	
205	Tl	2	209	1.16	ppb	4.06	1.00	70 -	130	116.0	
208	Pb	2	209	1.13	ppb	3.97	1.00	70 -	130	112.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1665.19	1.92	36.77	-4528.7	70 -	120	ISFail
45	Sc	1	137764.58	0.23	157844.06	87.3	70 -	120	
45	Sc	2	4780224.00	2.24	5827273.50	82.0	70 -	120	
72	Ge	1	75130.02	0.59	86621.49	86.7	70 -	120	
115	In	2	4390816.00	1.02	6276207.00	70.0	70 -	120	ISFail
209	Bi	2	3321052.50	0.99	4446753.50	74.7	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\111_CCB.D\111_CCB.D#

Date Acquired:	Aug 10 2016 10:17 pm	Sample Name:	**CCB4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.164	ppb	8.69	2.00	2.00	
9	Be	2	45	0.037	ppb	3.24	0.40	0.30	
11	B	2	45	2.157	ppb	3.64	10.00	10.00	
23	Na	1	45	-1.930	ppb	3.28	50.00	#####	
24	Mg	1	45	4.110	ppb	10.98	50.00	#####	
27	Al	1	45	14.430	ppb	3.29	50.00	10.00	FailAq
39	K	1	45	5.803	ppb	1.18	50.00	#####	
44	Ca	2	45	35.540	ppb	10.10	50.00	#####	
47	Ti	1	45	0.026	ppb	49.50	4.00	3.00	
51	V	1	45	0.037	ppb	3.23	4.00	3.00	
52	Cr	1	45	0.045	ppb	7.13	2.00	2.00	
55	Mn	1	45	0.194	ppb	8.10	2.00	3.00	
56	Fe	1	72	6.910	ppb	16.03	50.00	30.00	
59	Co	1	72	0.054	ppb	8.15	2.00	3.00	
60	Ni	1	72	0.140	ppb	21.11	2.00	3.00	
63	Cu	1	72	0.110	ppb	5.52	2.00	2.00	
66	Zn	1	72	1.683	ppb	7.16	4.00	2.00	
75	As	1	72	-0.095	ppb	1.27	2.00	2.00	
78	Se	1	72	0.194	ppb	30.31	0.60	2.00	
88	Sr	2	115	0.195	ppb	8.97	4.00	3.00	
95	Mo	2	115	0.089	ppb	19.47	2.00	2.00	
107	Ag	2	115	0.047	ppb	16.46	0.40	1.00	
111	Cd	2	115	0.039	ppb	51.20	0.40	0.30	
118	Sn	2	115	0.123	ppb	8.38	20.00	3.00	
121	Sb	2	115	0.078	ppb	16.37	2.00	0.80	
137	Ba	2	115	0.145	ppb	19.18	2.00	3.00	
205	Tl	2	209	0.152	ppb	5.16	2.00	0.50	
208	Pb	2	209	0.090	ppb	16.51	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-25.45	25.01	36.77	-69.2	70 - 120	ISFail
45	Sc	1		131554.20	1.30	157844.06	83.3	70 - 120	
45	Sc	2		4746576.00	1.40	5827273.50	81.5	70 - 120	
72	Ge	1		72017.73	1.52	86621.49	83.1	70 - 120	
115	In	2		4499025.50	0.66	6276207.00	71.7	70 - 120	
209	Bi	2		3373030.30	0.33	4446753.50	75.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\123CCV1.D\123CCV1.D#

Date Acquired:	Aug 10 2016 11:28 pm	Sample Name:	**CCV5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	210.60	ppb	0.35	200.00	90 -	110	105.3	
9	Be	2	45	196.10	ppb	1.31	200.00	90 -	110	98.1	
11	B	2	45	174.50	ppb	1.75	200.00	90 -	110	87.3	Fail
23	Na	1	45	5658.00	ppb	2.86	5000.00	90 -	110	113.2	Fail
24	Mg	1	45	5324.00	ppb	3.40	5000.00	90 -	110	106.5	
27	Al	1	45	5362.00	ppb	3.68	5000.00	90 -	110	107.2	
39	K	1	45	5447.00	ppb	2.52	5000.00	90 -	110	108.9	
44	Ca	2	45	5831.00	ppb	4.15	5000.00	90 -	110	116.6	Fail
47	Ti	1	45	206.10	ppb	3.61	200.00	90 -	110	103.1	
51	V	1	45	211.60	ppb	3.52	200.00	90 -	110	105.8	
52	Cr	1	45	211.50	ppb	4.22	200.00	90 -	110	105.8	
55	Mn	1	45	211.10	ppb	3.28	200.00	90 -	110	105.6	
56	Fe	1	72	5255.00	ppb	3.21	5000.00	90 -	110	105.1	
59	Co	1	72	207.90	ppb	3.00	200.00	90 -	110	104.0	
60	Ni	1	72	202.80	ppb	3.17	200.00	90 -	110	101.4	
63	Cu	1	72	205.70	ppb	3.01	200.00	90 -	110	102.9	
66	Zn	1	72	210.90	ppb	3.41	200.00	90 -	110	105.5	
75	As	1	72	213.40	ppb	2.48	200.00	90 -	110	106.7	
78	Se	1	72	208.50	ppb	1.71	200.00	90 -	110	104.3	
88	Sr	2	115	234.60	ppb	1.39	200.00	90 -	110	117.3	Fail
95	Mo	2	115	217.80	ppb	1.43	200.00	90 -	110	108.9	
107	Ag	2	115	204.30	ppb	1.25	200.00	90 -	110	102.2	
111	Cd	2	115	207.30	ppb	0.91	200.00	90 -	110	103.7	
118	Sn	2	115	206.30	ppb	1.06	200.00	90 -	110	103.2	
121	Sb	2	115	207.70	ppb	0.87	200.00	90 -	110	103.9	
137	Ba	2	115	203.20	ppb	1.11	200.00	90 -	110	101.6	
205	Tl	2	209	213.80	ppb	0.83	200.00	90 -	110	106.9	
208	Pb	2	209	202.00	ppb	1.05	200.00	90 -	110	101.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-61362.46	1.49	36.77	-166883.7	70 -	120		ISFail
45	Sc	1	131068.99	1.04	157844.06	83.0	70 -	120		
45	Sc	2	5058765.00	2.37	5827273.50	86.8	70 -	120		
72	Ge	1	72377.49	0.37	86621.49	83.6	70 -	120		
115	In	2	4754028.50	1.42	6276207.00	75.7	70 -	120		
209	Bi	2	3357645.50	1.01	4446753.50	75.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\125LCVL.D\125LCVL.D#

Date Acquired:	Aug 10 2016 11:40 pm	Sample Name:	**LCVL5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.23	ppb	1.06	10.00	70 -	130	102.3	
9	Be	2	45	0.96	ppb	2.65	1.00	70 -	130	96.0	
11	B	2	45	18.18	ppb	1.92	20.00	70 -	130	90.9	
23	Na	1	45	97.71	ppb	1.46	100.00	70 -	130	97.7	
24	Mg	1	45	107.00	ppb	2.43	100.00	70 -	130	107.0	
27	Al	1	45	111.50	ppb	4.90	100.00	70 -	130	111.5	
39	K	1	45	119.80	ppb	0.54	100.00	70 -	130	119.8	
44	Ca	2	45	111.50	ppb	1.46	100.00	70 -	130	111.5	
47	Ti	1	45	5.29	ppb	6.64	5.00	70 -	130	105.8	
51	V	1	45	1.06	ppb	4.61	1.00	70 -	130	106.4	
52	Cr	1	45	5.21	ppb	2.52	5.00	70 -	130	104.2	
55	Mn	1	45	5.25	ppb	0.68	5.00	70 -	130	105.1	
56	Fe	1	72	111.40	ppb	0.75	100.00	70 -	130	111.4	
59	Co	1	72	5.00	ppb	2.93	5.00	70 -	130	100.0	
60	Ni	1	72	4.89	ppb	3.54	5.00	70 -	130	97.8	
63	Cu	1	72	5.04	ppb	3.21	5.00	70 -	130	100.8	
66	Zn	1	72	6.33	ppb	9.56	5.00	70 -	130	126.6	
75	As	1	72	5.23	ppb	2.97	5.00	70 -	130	104.6	
78	Se	1	72	5.53	ppb	4.34	5.00	70 -	130	110.5	
88	Sr	2	115	5.63	ppb	1.85	5.00	70 -	130	112.6	
95	Mo	2	115	5.34	ppb	1.07	5.00	70 -	130	106.8	
107	Ag	2	115	2.03	ppb	1.25	2.00	70 -	130	101.7	
111	Cd	2	115	1.03	ppb	11.14	1.00	70 -	130	102.5	
118	Sn	2	115	5.19	ppb	1.53	5.00	70 -	130	103.7	
121	Sb	2	115	2.11	ppb	1.72	2.00	70 -	130	105.5	
137	Ba	2	115	5.01	ppb	2.70	5.00	70 -	130	100.1	
205	Tl	2	209	1.09	ppb	1.79	1.00	70 -	130	109.3	
208	Pb	2	209	1.01	ppb	2.28	1.00	70 -	130	101.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1542.50	1.52	36.77	-4195.0	70 -	120	ISFail
45	Sc	1	121017.99	1.30	157844.06	76.7	70 -	120	
45	Sc	2	4481616.50	1.79	5827273.50	76.9	70 -	120	
72	Ge	1	67685.16	1.41	86621.49	78.1	70 -	120	
115	In	2	4247796.50	1.14	6276207.00	67.7	70 -	120	ISFail
209	Bi	2	3125507.50	0.51	4446753.50	70.3	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\126_CCB.D\126_CCB.D#

Date Acquired:	Aug 10 2016 11:46 pm	Sample Name:	**CCB5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.148	ppb	8.38	2.00	2.00	
9	Be	2	45	0.025	ppb	18.65	0.40	0.30	
11	B	2	45	1.565	ppb	4.50	10.00	10.00	
23	Na	1	45	1.739	ppb	4.45	50.00	#####	
24	Mg	1	45	2.696	ppb	8.82	50.00	#####	
27	Al	1	45	11.430	ppb	10.51	50.00	10.00	FailAq
39	K	1	45	14.090	ppb	0.96	50.00	#####	
44	Ca	2	45	29.550	ppb	5.75	50.00	#####	
47	Ti	1	45	0.071	ppb	21.65	4.00	3.00	
51	V	1	45	0.030	ppb	7.02	4.00	3.00	
52	Cr	1	45	0.044	ppb	17.18	2.00	2.00	
55	Mn	1	45	0.141	ppb	16.35	2.00	3.00	
56	Fe	1	72	2.865	ppb	27.61	50.00	30.00	
59	Co	1	72	0.042	ppb	13.43	2.00	3.00	
60	Ni	1	72	0.097	ppb	23.89	2.00	3.00	
63	Cu	1	72	0.060	ppb	10.37	2.00	2.00	
66	Zn	1	72	1.934	ppb	20.68	4.00	2.00	
75	As	1	72	-0.028	ppb	7.33	2.00	2.00	
78	Se	1	72	0.072	ppb	17.07	0.60	2.00	
88	Sr	2	115	0.161	ppb	9.19	4.00	3.00	
95	Mo	2	115	0.053	ppb	18.43	2.00	2.00	
107	Ag	2	115	0.047	ppb	18.20	0.40	1.00	
111	Cd	2	115	0.053	ppb	29.77	0.40	0.30	
118	Sn	2	115	0.100	ppb	8.92	20.00	3.00	
121	Sb	2	115	0.053	ppb	5.75	2.00	0.80	
137	Ba	2	115	0.133	ppb	8.81	2.00	3.00	
205	Tl	2	209	0.080	ppb	15.91	2.00	0.50	
208	Pb	2	209	0.055	ppb	9.48	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-31.54	38.80	36.77	-85.8	70 - 120	ISFail
45	Sc	1		116900.03	1.10	157844.06	74.1	70 - 120	
45	Sc	2		4228102.00	2.48	5827273.50	72.6	70 - 120	
72	Ge	1		65115.57	1.51	86621.49	75.2	70 - 120	
115	In	2		3843549.00	1.56	6276207.00	61.2	70 - 120	ISFail
209	Bi	2		2891584.80	0.73	4446753.50	65.0	70 - 120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\127__PB.D\127__PB.D#

Date Acquired:	Aug 10 2016 11:52 pm	Sample Name:	MB-76717
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.120	ppb	3.31	2.0	8.00	
9	Be	2	45	-0.005	ppb	52.92	0.4	1.20	
11	B	2	45	1.318	ppb	1.30	10.0	30.00	
23	Na	1	45	-3.849	ppb	2.35	50.0	#####	
24	Mg	1	45	5.857	ppb	15.41	50.0	#####	
27	Al	1	45	5.807	ppb	10.44	50.0	#####	
39	K	1	45	12.500	ppb	1.61	50.0	#####	
44	Ca	2	45	33.740	ppb	12.05	50.0	#####	
47	Ti	1	45	0.270	ppb	39.04	4.0	10.00	
51	V	1	45	-0.010	ppb	3.16	4.0	10.00	
52	Cr	1	45	0.090	ppb	5.51	2.0	8.00	
55	Mn	1	45	0.148	ppb	14.50	2.0	8.00	
56	Fe	1	72	3.974	ppb	12.27	50.0	#####	
59	Co	1	72	0.008	ppb	42.05	2.0	8.00	
60	Ni	1	72	0.112	ppb	14.17	2.0	8.00	
63	Cu	1	72	0.080	ppb	5.10	2.0	8.00	
66	Zn	1	72	2.845	ppb	4.76	4.0	10.00	
75	As	1	72	-0.132	ppb	4.15	2.0	4.00	
78	Se	1	72	0.081	ppb	4.98	0.6	2.00	
88	Sr	2	115	0.136	ppb	18.45	4.0	10.00	
95	Mo	2	115	0.034	ppb	26.06	2.0	8.00	
107	Ag	2	115	0.017	ppb	25.85	0.4	0.80	
111	Cd	2	115	0.000	ppb	102.56	0.4	1.20	
118	Sn	2	115	4.250	ppb	2.18	20.0	40.00	
121	Sb	2	115	0.017	ppb	8.80	2.0	4.00	
137	Ba	2	115	0.055	ppb	5.25	2.0	8.00	
205	Tl	2	209	0.046	ppb	14.02	2.0	4.00	
208	Pb	2	209	0.057	ppb	17.70	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-35.89	32.18	36.77	-97.6	70 - 120	ISFail
45	Sc	1		117485.54	1.06	157844.06	74.4	70 - 120	
45	Sc	2		4266841.50	1.11	5827273.50	73.2	70 - 120	
72	Ge	1		63498.12	0.61	86621.49	73.3	70 - 120	
115	In	2		3844484.00	1.16	6276207.00	61.3	70 - 120	ISFail
209	Bi	2		2890698.30	0.39	4446753.50	65.0	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\128_LCS.D\128_LCS.D#

Date Acquired:	Aug 10 2016 11:58 pm	Sample Name:	**LCS-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	195.40	ppb	1.48	200.00	80 -	120	97.7	
9	Be	2	45	182.20	ppb	1.24	200.00	80 -	120	91.1	
11	B	2	45	163.70	ppb	1.14	200.00	80 -	120	81.9	
23	Na	1	45	5531.00	ppb	1.71	5000.00	80 -	120	110.6	
24	Mg	1	45	5236.00	ppb	2.31	5000.00	80 -	120	104.7	
27	Al	1	45	1073.00	ppb	2.29	1000.00	80 -	120	107.3	
39	K	1	45	5304.00	ppb	1.25	5000.00	80 -	120	106.1	
44	Ca	2	45	5410.00	ppb	2.20	5000.00	80 -	120	108.2	
47	Ti	1	45	208.50	ppb	1.93	200.00	80 -	120	104.3	
51	V	1	45	207.80	ppb	2.47	200.00	80 -	120	103.9	
52	Cr	1	45	209.00	ppb	2.79	200.00	80 -	120	104.5	
55	Mn	1	45	211.80	ppb	2.96	200.00	80 -	120	105.9	
56	Fe	1	72	1045.00	ppb	3.14	1000.00	80 -	120	104.5	
59	Co	1	72	208.40	ppb	2.27	200.00	80 -	120	104.2	
60	Ni	1	72	201.60	ppb	2.43	200.00	80 -	120	100.8	
63	Cu	1	72	205.90	ppb	2.13	200.00	80 -	120	103.0	
66	Zn	1	72	209.10	ppb	1.50	200.00	80 -	120	104.6	
75	As	1	72	206.90	ppb	1.83	200.00	80 -	120	103.5	
78	Se	1	72	194.40	ppb	1.22	200.00	80 -	120	97.2	
88	Sr	2	115	234.90	ppb	1.25	200.00	80 -	120	117.5	
95	Mo	2	115	218.10	ppb	1.47	200.00	80 -	120	109.1	
107	Ag	2	115	200.70	ppb	0.48	200.00	80 -	120	100.4	
111	Cd	2	115	199.60	ppb	0.51	200.00	80 -	120	99.8	
118	Sn	2	115	208.30	ppb	0.37	200.00	80 -	120	104.2	
121	Sb	2	115	203.40	ppb	0.36	200.00	80 -	120	101.7	
137	Ba	2	115	206.40	ppb	1.10	200.00	80 -	120	103.2	
205	Tl	2	209	197.60	ppb	0.56	200.00	80 -	120	98.8	
208	Pb	2	209	198.90	ppb	0.79	200.00	80 -	120	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-48089.16	1.84	36.77	-130785.1	70 -	120	ISFail
45	Sc	1	116598.05	0.61	157844.06	73.9	70 -	120	
45	Sc	2	4236061.50	1.61	5827273.50	72.7	70 -	120	
72	Ge	1	62824.13	0.29	86621.49	72.5	70 -	120	
115	In	2	3863850.00	0.44	6276207.00	61.6	70 -	120	ISFail
209	Bi	2	2872098.30	0.71	4446753.50	64.6	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\129_LCS.D\129_LCS.D#

Date Acquired:	Aug 11 2016 12:04 am	Sample Name:	**LCSD-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	196.50	ppb	0.44	200.00	80 -	120	98.3	
9	Be	2	45	183.70	ppb	1.17	200.00	80 -	120	91.9	
11	B	2	45	168.90	ppb	1.49	200.00	80 -	120	84.5	
23	Na	1	45	5467.00	ppb	2.51	5000.00	80 -	120	109.3	
24	Mg	1	45	5191.00	ppb	3.63	5000.00	80 -	120	103.8	
27	Al	1	45	1085.00	ppb	4.60	1000.00	80 -	120	108.5	
39	K	1	45	5367.00	ppb	1.63	5000.00	80 -	120	107.3	
44	Ca	2	45	5462.00	ppb	1.27	5000.00	80 -	120	109.2	
47	Ti	1	45	212.40	ppb	3.25	200.00	80 -	120	106.2	
51	V	1	45	205.10	ppb	3.06	200.00	80 -	120	102.6	
52	Cr	1	45	204.60	ppb	3.46	200.00	80 -	120	102.3	
55	Mn	1	45	209.60	ppb	2.68	200.00	80 -	120	104.8	
56	Fe	1	72	1027.00	ppb	2.73	1000.00	80 -	120	102.7	
59	Co	1	72	202.60	ppb	2.48	200.00	80 -	120	101.3	
60	Ni	1	72	197.70	ppb	2.03	200.00	80 -	120	98.9	
63	Cu	1	72	199.80	ppb	2.63	200.00	80 -	120	99.9	
66	Zn	1	72	205.00	ppb	3.14	200.00	80 -	120	102.5	
75	As	1	72	204.90	ppb	1.77	200.00	80 -	120	102.5	
78	Se	1	72	195.60	ppb	2.41	200.00	80 -	120	97.8	
88	Sr	2	115	236.90	ppb	1.01	200.00	80 -	120	118.5	
95	Mo	2	115	220.20	ppb	1.14	200.00	80 -	120	110.1	
107	Ag	2	115	202.90	ppb	1.12	200.00	80 -	120	101.5	
111	Cd	2	115	200.50	ppb	0.39	200.00	80 -	120	100.3	
118	Sn	2	115	210.80	ppb	0.56	200.00	80 -	120	105.4	
121	Sb	2	115	204.30	ppb	0.82	200.00	80 -	120	102.2	
137	Ba	2	115	208.20	ppb	1.21	200.00	80 -	120	104.1	
205	Tl	2	209	199.70	ppb	0.30	200.00	80 -	120	99.9	
208	Pb	2	209	201.30	ppb	0.36	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-47244.52	0.58	36.77	-128488.0	70 -	120	ISFail
45	Sc	1	117346.59	0.88	157844.06	74.3	70 -	120	
45	Sc	2	4104465.00	1.66	5827273.50	70.4	70 -	120	
72	Ge	1	63277.79	0.46	86621.49	73.1	70 -	120	
115	In	2	3694957.50	0.65	6276207.00	58.9	70 -	120	ISFail
209	Bi	2	2771013.50	0.04	4446753.50	62.3	70 -	120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\132DT1.D\132DT1.D#

Date Acquired:	Aug 11 2016 12:23 am	Sample Name:	**1607317-27A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	0.09	ppb	26.26	-8.87	90 -	110	-4.9	
9	Be	2	45	0.00	ppb	48.24	2.32	90 -	110	0.7	
11	B	2	45	1.78	ppb	2.10	56.74	90 -	110	15.7	
23	Na	1	45	-0.86	ppb	0.58	2146.00	90 -	110	-0.2	
24	Mg	1	45	7.61	ppb	13.12	13730.00	90 -	110	0.3	
27	Al	1	45	41.06	ppb	19.73	75820.00	90 -	110	0.3	
39	K	1	45	23.29	ppb	2.89	15520.00	90 -	110	0.8	
44	Ca	2	45	32.30	ppb	33.47	52160.00	90 -	110	0.3	
47	Ti	1	45	0.31	ppb	28.86	202.90	90 -	110	0.8	
51	V	1	45	-0.03	ppb	11.81	96.82	90 -	110	-0.2	
52	Cr	1	45	0.05	ppb	1.83	59.33	90 -	110	0.4	
55	Mn	1	45	0.48	ppb	11.22	572.40	90 -	110	0.4	
56	Fe	1	72	40.96	ppb	20.49	66040.00	90 -	110	0.3	
59	Co	1	72	0.02	ppb	30.81	23.38	90 -	110	0.5	
60	Ni	1	72	0.08	ppb	6.65	37.95	90 -	110	1.1	
63	Cu	1	72	0.58	ppb	5.42	22.50	90 -	110	12.9	
66	Zn	1	72	3.74	ppb	13.18	207.40	90 -	110	9.0	
75	As	1	72	-0.03	ppb	1.02	23.43	90 -	110	-0.6	
78	Se	1	72	0.27	ppb	22.93	13.08	90 -	110	10.1	
88	Sr	2	115	0.26	ppb	32.83	344.30	90 -	110	0.4	
95	Mo	2	115	0.05	ppb	53.69	1.79	90 -	110	15.1	
107	Ag	2	115	0.01	ppb	56.06	0.28	90 -	110	25.6	
111	Cd	2	115	0.02	ppb	48.31	1.13	90 -	110	9.5	
118	Sn	2	115	0.03	ppb	1.94	5.58	90 -	110	3.1	
121	Sb	2	115	0.06	ppb	34.44	4.91	90 -	110	5.6	
137	Ba	2	115	0.28	ppb	32.69	334.90	90 -	110	0.4	
205	Tl	2	209	0.11	ppb	5.04	0.78	90 -	110	67.8	
208	Pb	2	209	0.18	ppb	40.16	188.00	90 -	110	0.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-8.87	220.34	36.77	-24.1	70 -	120	ISFail
45	Sc	1		118966.98	1.35	157844.06	75.4	70 -	120	
45	Sc	2		3778620.30	2.77	5827273.50	64.8	70 -	120	ISFail
72	Ge	1		65575.34	0.94	86621.49	75.7	70 -	120	
115	In	2		3757943.30	1.69	6276207.00	59.9	70 -	120	ISFail
209	Bi	2		2916052.00	1.20	4446753.50	65.6	70 -	120	ISFail

ICSA QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\134ICSA.D\134ICSA.D#

Date Acquired:	Aug 11 2016 12:35 am	Sample Name:	**ICSA-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.148	ppb	5.27	8.00	5.00	
9	Be	2	45	0.012	ppb	17.29	0.32	0.80	
11	B	2	45	2.787	ppb	3.51	30.00	30.00	
23	Na	1	45	100200.000	ppb	2.75	#######	#######	
24	Mg	1	45	89250.000	ppb	3.62	#######	#######	
27	Al	1	45	102200.000	ppb	4.62	#######	#######	
39	K	1	45	98040.000	ppb	3.21	#######	#######	
44	Ca	2	45	94350.000	ppb	1.94	#######	#######	
47	Ti	1	45	1940.000	ppb	5.51	10.00	10.00	
51	V	1	45	0.074	ppb	17.42	10.00	10.00	
52	Cr	1	45	0.857	ppb	1.26	8.00	5.00	
55	Mn	1	45	1.183	ppb	8.90	8.00	10.00	
56	Fe	1	72	91530.000	ppb	4.75	#######	#######	
59	Co	1	72	1.239	ppb	1.88	8.00	10.00	
60	Ni	1	72	0.424	ppb	12.69	8.00	10.00	
63	Cu	1	72	1.983	ppb	2.45	8.00	10.00	
66	Zn	1	72	3.395	ppb	3.97	10.00	5.00	
75	As	1	72	0.410	ppb	7.87	4.00	5.00	
78	Se	1	72	0.388	ppb	8.64	2.00	5.00	
88	Sr	2	115	1.323	ppb	5.72	10.00	10.00	
95	Mo	2	115	2059.000	ppb	0.60	8.00	5.00	
107	Ag	2	115	0.098	ppb	10.88	0.80	2.00	
111	Cd	2	115	0.207	ppb	51.36	1.20	1.00	
118	Sn	2	115	0.139	ppb	4.75	10.00	10.00	
121	Sb	2	115	0.150	ppb	11.65	4.00	2.50	
137	Ba	2	115	0.673	ppb	13.18	8.00	10.00	
205	Tl	2	209	0.074	ppb	0.78	4.00	1.50	
208	Pb	2	209	0.368	ppb	6.04	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-17.77	29.61	36.77	-48.3	70 -	120	ISFail
45	Sc	1	110337.30	1.98	157844.06	69.9	70 -	120	ISFail
45	Sc	2	3956714.00	1.83	5827273.50	67.9	70 -	120	ISFail
72	Ge	1	60022.06	2.41	86621.49	69.3	70 -	120	ISFail
115	In	2	3977300.80	0.48	6276207.00	63.4	70 -	120	ISFail
209	Bi	2	2720411.50	0.56	4446753.50	61.2	70 -	120	ISFail

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\135ICSB.D\135ICSB.D#

Date Acquired:	Aug 11 2016 12:41 am	Sample Name:	**ICSAB-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.13	ppb	8.72	---	80 -	120		
9	Be	2	45	0.00	ppb	27.94	---	80 -	120		
11	B	2	45	2.40	ppb	0.91	---	80 -	120		
23	Na	1	45	94680.00	ppb	2.48	100000.00	80 -	120		
24	Mg	1	45	89700.00	ppb	3.60	100000.00	80 -	120		
27	Al	1	45	100500.00	ppb	3.98	100000.00	80 -	120		
39	K	1	45	97910.00	ppb	1.39	100000.00	80 -	120		
44	Ca	2	45	94370.00	ppb	2.09	100000.00	80 -	120		
47	Ti	1	45	1944.00	ppb	3.44	---	80 -	120		
51	V	1	45	39.30	ppb	4.47	40.00	80 -	120		
52	Cr	1	45	20.00	ppb	4.12	20.00	80 -	120		
55	Mn	1	45	19.65	ppb	2.74	20.00	80 -	120		
56	Fe	1	72	89870.00	ppb	3.51	100000.00	80 -	120		
59	Co	1	72	37.04	ppb	2.88	40.00	80 -	120		
60	Ni	1	72	33.35	ppb	3.10	40.00	80 -	120		
63	Cu	1	72	18.34	ppb	2.29	20.00	80 -	120		
66	Zn	1	72	18.88	ppb	8.37	20.00	80 -	120		
75	As	1	72	19.81	ppb	3.17	20.00	80 -	120		
78	Se	1	72	18.11	ppb	5.90	20.00	80 -	120		
88	Sr	2	115	1.11	ppb	2.71	---	80 -	120		
95	Mo	2	115	2060.00	ppb	0.90	---	80 -	120		
107	Ag	2	115	17.56	ppb	1.58	20.00	80 -	120		
111	Cd	2	115	9.05	ppb	3.08	10.00	80 -	120		
118	Sn	2	115	0.31	ppb	13.19	---	80 -	120		
121	Sb	2	115	0.06	ppb	8.30	---	80 -	120		
137	Ba	2	115	0.43	ppb	4.42	---	80 -	120		
205	Tl	2	209	0.07	ppb	19.28	---	80 -	120		
208	Pb	2	209	0.21	ppb	3.67	---	80 -	120		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28.35	61.91	36.77	-77.1	70 -	120		ISFail
45	Sc	1	108485.65	0.93	157844.06	68.7	70 -	120		ISFail
45	Sc	2	4039613.00	2.23	5827273.50	69.3	70 -	120		ISFail
72	Ge	1	59653.77	0.92	86621.49	68.9	70 -	120		ISFail
115	In	2	4029364.00	0.57	6276207.00	64.2	70 -	120		ISFail
209	Bi	2	2705154.30	1.27	4446753.50	60.8	70 -	120		ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\147_PDS.D\147_PDS.D#

Date Acquired:	Aug 11 2016 01:52 am	Sample Name:	**1607317-27A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	267.00	ppb	1.65	-41710.06	200	75-125	######	Fail
9	Be	2	45	173.50	ppb	1.91	2.32	200	75-125	85.6	
11	B	2	45	217.60	ppb	2.05	56.74	200	75-125	80.4	
23	Na	1	45	7659.00	ppb	1.77	2146.00	5000	75-125	110.3	
24	Mg	1	45	19900.00	ppb	3.73	13730.00	5000	75-125	123.4	
27	Al	1	45	84980.00	ppb	4.87	75820.00	5000	75-125	183.2	Fail
39	K	1	45	22650.00	ppb	2.81	15520.00	5000	75-125	142.6	Fail
44	Ca	2	45	61490.00	ppb	1.99	52160.00	5000	75-125	186.6	Fail
47	Ti	1	45	409.70	ppb	2.36	202.90	200	75-125	103.4	
51	V	1	45	302.60	ppb	2.84	96.82	200	75-125	102.9	
52	Cr	1	45	263.40	ppb	3.44	59.33	200	75-125	102.0	
55	Mn	1	45	806.20	ppb	3.10	572.40	200	75-125	116.9	
56	Fe	1	72	77190.00	ppb	3.17	66040.00	5000	75-125	223.0	Fail
59	Co	1	72	220.70	ppb	2.58	23.38	200	75-125	98.7	
60	Ni	1	72	228.70	ppb	2.45	37.95	200	75-125	95.4	
63	Cu	1	72	208.50	ppb	2.61	22.50	200	75-125	93.0	
66	Zn	1	72	402.20	ppb	2.24	207.40	200	75-125	97.4	
75	As	1	72	214.10	ppb	2.82	23.43	200	75-125	95.3	
78	Se	1	72	189.90	ppb	1.85	13.08	200	75-125	88.4	
88	Sr	2	115	626.30	ppb	1.07	344.30	200	75-125	141.0	Fail
95	Mo	2	115	212.40	ppb	1.42	1.79	200	75-125	105.3	
107	Ag	2	115	188.60	ppb	1.47	0.28	200	75-125	94.2	
111	Cd	2	115	185.10	ppb	1.14	1.13	200	75-125	92.0	
118	Sn	2	115	202.80	ppb	1.31	5.58	200	75-125	98.6	
121	Sb	2	115	196.10	ppb	1.14	4.91	200	75-125	95.6	
137	Ba	2	115	542.20	ppb	0.72	334.90	200	75-125	103.7	
205	Tl	2	209	192.70	ppb	0.60	0.78	200	75-125	96.0	
208	Pb	2	209	410.40	ppb	0.71	188.00	200	75-125	111.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-41710.06	0.74	36.77	-113436.3	70	-	120	ISFail
45	Sc	1	121423.96	1.02	157844.06	76.9	70	-	120	
45	Sc	2	4688560.50	2.06	5827273.50	80.5	70	-	120	
72	Ge	1	64344.19	0.92	86621.49	74.3	70	-	120	
115	In	2	4008963.80	1.37	6276207.00	63.9	70	-	120	ISFail
209	Bi	2	2737126.00	0.61	4446753.50	61.6	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\148_MS.D\148_MS.D#

Date Acquired:	Aug 11 2016 01:58 am	Sample Name:	**1607317-27A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	273.90	ppb	1.85	########	200	80-120	######	Fail
9	Be	2	45	177.00	ppb	1.77	2.32	200	80-120	87.3	
11	B	2	45	224.00	ppb	2.02	56.74	200	80-120	83.6	
23	Na	1	45	7854.00	ppb	1.69	2146.00	5000	80-120	114.2	
24	Mg	1	45	20730.00	ppb	2.31	13730.00	5000	80-120	140.0	Fail
27	Al	1	45	87760.00	ppb	2.78	75820.00	1000	80-120	1194.0	Fail
39	K	1	45	23740.00	ppb	0.55	15520.00	5000	80-120	164.4	Fail
44	Ca	2	45	59630.00	ppb	2.58	52160.00	5000	80-120	149.4	Fail
47	Ti	1	45	482.50	ppb	2.15	202.90	200	80-120	139.8	Fail
51	V	1	45	316.30	ppb	2.93	96.82	200	80-120	109.7	
52	Cr	1	45	269.00	ppb	3.22	59.33	200	80-120	104.8	
55	Mn	1	45	806.50	ppb	2.54	572.40	200	80-120	117.0	
56	Fe	1	72	76600.00	ppb	2.98	66040.00	1000	80-120	1056.0	Fail
59	Co	1	72	228.60	ppb	2.46	23.38	200	80-120	102.6	
60	Ni	1	72	235.80	ppb	2.30	37.95	200	80-120	98.9	
63	Cu	1	72	219.20	ppb	1.88	22.50	200	80-120	98.4	
66	Zn	1	72	419.00	ppb	2.18	207.40	200	80-120	105.8	
75	As	1	72	222.90	ppb	2.00	23.43	200	80-120	99.7	
78	Se	1	72	196.20	ppb	0.96	13.08	200	80-120	91.6	
88	Sr	2	115	755.60	ppb	0.85	344.30	200	80-120	205.7	Fail
95	Mo	2	115	208.00	ppb	1.46	1.79	200	80-120	103.1	
107	Ag	2	115	194.20	ppb	1.58	0.28	200	80-120	97.0	
111	Cd	2	115	194.00	ppb	1.19	1.13	200	80-120	96.4	
118	Sn	2	115	209.20	ppb	1.17	5.58	200	80-120	101.8	
121	Sb	2	115	74.89	ppb	1.17	4.91	200	80-120	35.0	Fail
137	Ba	2	115	554.70	ppb	0.90	334.90	200	80-120	109.9	
205	Tl	2	209	201.10	ppb	1.22	0.78	200	80-120	100.2	
208	Pb	2	209	719.70	ppb	1.35	188.00	200	80-120	265.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-61257.54	1.34	36.77	########	70 - 120	ISFail
45	Sc	1	118607.66	0.19	157844.06	75.1	70 - 120	
45	Sc	2	4539775.00	1.83	5827273.50	77.9	70 - 120	
72	Ge	1	62980.31	0.66	86621.49	72.7	70 - 120	
115	In	2	3899716.50	1.12	6276207.00	62.1	70 - 120	ISFail
209	Bi	2	2707252.50	0.85	4446753.50	60.9	70 - 120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\149_MS.D\149_MS.D#

Date Acquired:	Aug 11 2016 02:04 am	Sample Name:	**1607317-27A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 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	254.50	ppb	1.19	########	200	80-120	######	Fail
9	Be	2	45	169.60	ppb	1.49	2.32	200	80-120	83.6	
11	B	2	45	208.50	ppb	1.98	56.74	200	80-120	75.9	Fail
23	Na	1	45	7422.00	ppb	2.19	2146.00	5000	80-120	105.5	
24	Mg	1	45	18870.00	ppb	2.25	13730.00	5000	80-120	102.8	
27	Al	1	45	78910.00	ppb	3.13	75820.00	1000	80-120	309.0	Fail
39	K	1	45	21960.00	ppb	2.38	15520.00	5000	80-120	128.8	Fail
44	Ca	2	45	51140.00	ppb	2.46	52160.00	5000	80-120	-20.4	Fail
47	Ti	1	45	453.70	ppb	2.47	202.90	200	80-120	125.4	Fail
51	V	1	45	298.40	ppb	1.60	96.82	200	80-120	100.8	
52	Cr	1	45	256.60	ppb	2.26	59.33	200	80-120	98.6	
55	Mn	1	45	743.70	ppb	1.87	572.40	200	80-120	85.6	
56	Fe	1	72	66890.00	ppb	2.49	66040.00	1000	80-120	85.0	
59	Co	1	72	219.90	ppb	1.79	23.38	200	80-120	98.3	
60	Ni	1	72	226.70	ppb	1.66	37.95	200	80-120	94.4	
63	Cu	1	72	210.50	ppb	1.19	22.50	200	80-120	94.0	
66	Zn	1	72	394.50	ppb	1.57	207.40	200	80-120	93.6	
75	As	1	72	218.40	ppb	1.62	23.43	200	80-120	97.5	
78	Se	1	72	193.50	ppb	2.07	13.08	200	80-120	90.2	
88	Sr	2	115	607.10	ppb	1.45	344.30	200	80-120	131.4	Fail
95	Mo	2	115	202.50	ppb	1.64	1.79	200	80-120	100.4	
107	Ag	2	115	188.80	ppb	1.79	0.28	200	80-120	94.3	
111	Cd	2	115	189.20	ppb	1.88	1.13	200	80-120	94.0	
118	Sn	2	115	203.60	ppb	1.80	5.58	200	80-120	99.0	
121	Sb	2	115	74.01	ppb	1.41	4.91	200	80-120	34.6	Fail
137	Ba	2	115	536.50	ppb	1.02	334.90	200	80-120	100.8	
205	Tl	2	209	196.70	ppb	1.10	0.78	200	80-120	98.0	
208	Pb	2	209	625.80	ppb	0.93	188.00	200	80-120	218.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-56722.36	0.54	36.77	########	70 - 120	ISFail
45	Sc	1	118827.66	0.62	157844.06	75.3	70 - 120	
45	Sc	2	4419396.50	2.53	5827273.50	75.8	70 - 120	
72	Ge	1	63089.75	0.46	86621.49	72.8	70 - 120	
115	In	2	3814919.50	0.92	6276207.00	60.8	70 - 120	ISFail
209	Bi	2	2663219.50	0.85	4446753.50	59.9	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 11 2016 02:10 am	Sample Name:	**CCV6-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	205.40	ppb	1.33	200.00	90 -	110	102.7	
9	Be	2	45	189.30	ppb	0.57	200.00	90 -	110	94.7	
11	B	2	45	171.10	ppb	0.44	200.00	90 -	110	85.6	Fail
23	Na	1	45	5643.00	ppb	3.00	5000.00	90 -	110	112.9	Fail
24	Mg	1	45	5337.00	ppb	3.67	5000.00	90 -	110	106.7	
27	Al	1	45	5385.00	ppb	3.61	5000.00	90 -	110	107.7	
39	K	1	45	5506.00	ppb	0.64	5000.00	90 -	110	110.1	Fail
44	Ca	2	45	5760.00	ppb	0.87	5000.00	90 -	110	115.2	Fail
47	Ti	1	45	206.80	ppb	5.45	200.00	90 -	110	103.4	
51	V	1	45	207.60	ppb	3.53	200.00	90 -	110	103.8	
52	Cr	1	45	208.20	ppb	3.58	200.00	90 -	110	104.1	
55	Mn	1	45	211.90	ppb	3.31	200.00	90 -	110	106.0	
56	Fe	1	72	5265.00	ppb	3.99	5000.00	90 -	110	105.3	
59	Co	1	72	204.20	ppb	3.04	200.00	90 -	110	102.1	
60	Ni	1	72	198.50	ppb	3.57	200.00	90 -	110	99.3	
63	Cu	1	72	203.40	ppb	2.98	200.00	90 -	110	101.7	
66	Zn	1	72	210.50	ppb	3.03	200.00	90 -	110	105.3	
75	As	1	72	210.20	ppb	2.77	200.00	90 -	110	105.1	
78	Se	1	72	208.40	ppb	1.66	200.00	90 -	110	104.2	
88	Sr	2	115	252.30	ppb	0.55	200.00	90 -	110	126.2	Fail
95	Mo	2	115	231.70	ppb	1.02	200.00	90 -	110	115.9	Fail
107	Ag	2	115	212.50	ppb	0.97	200.00	90 -	110	106.3	
111	Cd	2	115	207.00	ppb	0.25	200.00	90 -	110	103.5	
118	Sn	2	115	206.10	ppb	0.54	200.00	90 -	110	103.1	
121	Sb	2	115	204.70	ppb	0.94	200.00	90 -	110	102.4	
137	Ba	2	115	205.20	ppb	0.10	200.00	90 -	110	102.6	
205	Tl	2	209	200.90	ppb	0.12	200.00	90 -	110	100.5	
208	Pb	2	209	202.10	ppb	0.09	200.00	90 -	110	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-50194.16	1.59	36.77	-136509.9	70 -	120		ISFail
45	Sc	1	116261.23	0.18	157844.06	73.7	70 -	120		
45	Sc	2	4258000.50	1.15	5827273.50	73.1	70 -	120		
72	Ge	1	63651.25	0.27	86621.49	73.5	70 -	120		
115	In	2	3531460.00	0.23	6276207.00	56.3	70 -	120		ISFail
209	Bi	2	2622581.80	0.69	4446753.50	59.0	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 11 2016 02:22 am	Sample Name:	**LCVL-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.97	ppb	1.83	10.00	70 -	130	99.7	
9	Be	2	45	0.96	ppb	3.06	1.00	70 -	130	96.2	
11	B	2	45	18.29	ppb	1.87	20.00	70 -	130	91.5	
23	Na	1	45	100.00	ppb	2.02	100.00	70 -	130	100.0	
24	Mg	1	45	112.30	ppb	2.09	100.00	70 -	130	112.3	
27	Al	1	45	125.70	ppb	4.22	100.00	70 -	130	125.7	
39	K	1	45	120.50	ppb	3.05	100.00	70 -	130	120.5	
44	Ca	2	45	111.90	ppb	9.17	100.00	70 -	130	111.9	
47	Ti	1	45	5.38	ppb	16.48	5.00	70 -	130	107.7	
51	V	1	45	1.18	ppb	3.27	1.00	70 -	130	118.4	
52	Cr	1	45	5.54	ppb	4.23	5.00	70 -	130	110.8	
55	Mn	1	45	5.50	ppb	4.33	5.00	70 -	130	109.9	
56	Fe	1	72	123.40	ppb	3.50	100.00	70 -	130	123.4	
59	Co	1	72	5.28	ppb	3.16	5.00	70 -	130	105.5	
60	Ni	1	72	5.10	ppb	2.38	5.00	70 -	130	102.0	
63	Cu	1	72	5.26	ppb	4.66	5.00	70 -	130	105.2	
66	Zn	1	72	5.84	ppb	8.62	5.00	70 -	130	116.7	
75	As	1	72	5.33	ppb	3.62	5.00	70 -	130	106.6	
78	Se	1	72	5.72	ppb	1.59	5.00	70 -	130	114.5	
88	Sr	2	115	6.05	ppb	2.70	5.00	70 -	130	120.9	
95	Mo	2	115	5.55	ppb	1.83	5.00	70 -	130	110.9	
107	Ag	2	115	2.20	ppb	3.25	2.00	70 -	130	109.9	
111	Cd	2	115	1.08	ppb	5.25	1.00	70 -	130	108.0	
118	Sn	2	115	5.23	ppb	1.32	5.00	70 -	130	104.7	
121	Sb	2	115	2.13	ppb	3.23	2.00	70 -	130	106.5	
137	Ba	2	115	5.21	ppb	1.93	5.00	70 -	130	104.2	
205	Tl	2	209	1.23	ppb	4.01	1.00	70 -	130	122.6	
208	Pb	2	209	1.12	ppb	5.44	1.00	70 -	130	111.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1538.31	4.09	36.77	-4183.7	70 -	120		ISFail
45	Sc	1	112526.34	1.11	157844.06	71.3	70 -	120		
45	Sc	2	4205417.50	4.05	5827273.50	72.2	70 -	120		
72	Ge	1	62249.54	1.83	86621.49	71.9	70 -	120		
115	In	2	3610795.80	3.69	6276207.00	57.5	70 -	120		ISFail
209	Bi	2	2723052.00	3.22	4446753.50	61.2	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 11 2016 02:28 am	Sample Name:	**CCB6-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.152	ppb	8.84	2.00	2.00	
9	Be	2	45	0.052	ppb	13.57	0.40	0.30	
11	B	2	45	1.840	ppb	2.23	10.00	10.00	
23	Na	1	45	-6.216	ppb	3.71	50.00	#####	
24	Mg	1	45	3.115	ppb	6.08	50.00	#####	
27	Al	1	45	14.400	ppb	4.61	50.00	10.00	FailAq
39	K	1	45	10.100	ppb	3.52	50.00	#####	
44	Ca	2	45	28.190	ppb	10.12	50.00	#####	
47	Ti	1	45	-0.007	ppb	34.64	4.00	3.00	
51	V	1	45	0.051	ppb	3.74	4.00	3.00	
52	Cr	1	45	0.033	ppb	3.46	2.00	2.00	
55	Mn	1	45	0.165	ppb	10.60	2.00	3.00	
56	Fe	1	72	5.592	ppb	5.66	50.00	30.00	
59	Co	1	72	0.056	ppb	7.94	2.00	3.00	
60	Ni	1	72	0.137	ppb	10.04	2.00	3.00	
63	Cu	1	72	0.099	ppb	8.51	2.00	2.00	
66	Zn	1	72	1.595	ppb	15.95	4.00	2.00	
75	As	1	72	-0.052	ppb	5.78	2.00	2.00	
78	Se	1	72	0.121	ppb	12.49	0.60	2.00	
88	Sr	2	115	0.208	ppb	8.92	4.00	3.00	
95	Mo	2	115	0.100	ppb	12.65	2.00	2.00	
107	Ag	2	115	0.057	ppb	16.66	0.40	1.00	
111	Cd	2	115	0.018	ppb	68.71	0.40	0.30	
118	Sn	2	115	0.104	ppb	7.21	20.00	3.00	
121	Sb	2	115	0.062	ppb	13.66	2.00	0.80	
137	Ba	2	115	0.166	ppb	6.44	2.00	3.00	
205	Tl	2	209	0.153	ppb	5.46	2.00	0.50	
208	Pb	2	209	0.102	ppb	12.44	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-27.08	62.99	36.77	-73.7	70 - 120	ISFail
45	Sc	1		118991.57	1.04	157844.06	75.4	70 - 120	
45	Sc	2		4196573.50	2.04	5827273.50	72.0	70 - 120	
72	Ge	1		65588.79	0.94	86621.49	75.7	70 - 120	
115	In	2		3586732.50	0.96	6276207.00	57.1	70 - 120	ISFail
209	Bi	2		2712654.30	0.77	4446753.50	61.0	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\165CCV1.D\165CCV1.D#

Date Acquired:	Aug 11 2016 03:40 am	Sample Name:	**CCV7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	189.40	ppb	1.03	200.00	90 -	110	94.7	
9	Be	2	45	175.00	ppb	0.53	200.00	90 -	110	87.5	Fail
11	B	2	45	150.60	ppb	0.35	200.00	90 -	110	75.3	Fail
23	Na	1	45	5452.00	ppb	3.11	5000.00	90 -	110	109.0	
24	Mg	1	45	5136.00	ppb	3.97	5000.00	90 -	110	102.7	
27	Al	1	45	5166.00	ppb	4.28	5000.00	90 -	110	103.3	
39	K	1	45	5421.00	ppb	2.08	5000.00	90 -	110	108.4	
44	Ca	2	45	5668.00	ppb	1.11	5000.00	90 -	110	113.4	Fail
47	Ti	1	45	199.90	ppb	5.44	200.00	90 -	110	100.0	
51	V	1	45	206.00	ppb	3.79	200.00	90 -	110	103.0	
52	Cr	1	45	204.90	ppb	3.91	200.00	90 -	110	102.5	
55	Mn	1	45	208.20	ppb	4.27	200.00	90 -	110	104.1	
56	Fe	1	72	5130.00	ppb	3.87	5000.00	90 -	110	102.6	
59	Co	1	72	200.20	ppb	3.47	200.00	90 -	110	100.1	
60	Ni	1	72	195.20	ppb	2.77	200.00	90 -	110	97.6	
63	Cu	1	72	199.40	ppb	2.95	200.00	90 -	110	99.7	
66	Zn	1	72	210.60	ppb	4.45	200.00	90 -	110	105.3	
75	As	1	72	211.60	ppb	2.91	200.00	90 -	110	105.8	
78	Se	1	72	205.60	ppb	3.09	200.00	90 -	110	102.8	
88	Sr	2	115	245.00	ppb	0.78	200.00	90 -	110	122.5	Fail
95	Mo	2	115	226.10	ppb	0.52	200.00	90 -	110	113.1	Fail
107	Ag	2	115	204.60	ppb	0.59	200.00	90 -	110	102.3	
111	Cd	2	115	202.50	ppb	0.36	200.00	90 -	110	101.3	
118	Sn	2	115	201.50	ppb	0.74	200.00	90 -	110	100.8	
121	Sb	2	115	203.10	ppb	0.30	200.00	90 -	110	101.6	
137	Ba	2	115	200.90	ppb	0.82	200.00	90 -	110	100.5	
205	Tl	2	209	196.60	ppb	0.44	200.00	90 -	110	98.3	
208	Pb	2	209	197.40	ppb	0.64	200.00	90 -	110	98.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-39824.36	2.91	36.77	-108307.8	70 -	120		ISFail
45	Sc	1	95158.43	0.62	157844.06	60.3	70 -	120		ISFail
45	Sc	2	3598345.00	0.95	5827273.50	61.8	70 -	120		ISFail
72	Ge	1	52385.56	0.64	86621.49	60.5	70 -	120		ISFail
115	In	2	3080674.30	0.32	6276207.00	49.1	70 -	120		ISFail
209	Bi	2	2287627.30	0.52	4446753.50	51.4	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\167LCVL.D\167LCVL.D#

Date Acquired:	Aug 11 2016 03:52 am	Sample Name:	**LCVL7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.42	ppb	0.85	10.00	70 -	130	94.2	
9	Be	2	45	0.89	ppb	3.28	1.00	70 -	130	88.7	
11	B	2	45	16.57	ppb	1.76	20.00	70 -	130	82.9	
23	Na	1	45	90.96	ppb	1.51	100.00	70 -	130	91.0	
24	Mg	1	45	106.80	ppb	4.63	100.00	70 -	130	106.8	
27	Al	1	45	115.10	ppb	6.15	100.00	70 -	130	115.1	
39	K	1	45	121.30	ppb	2.12	100.00	70 -	130	121.3	
44	Ca	2	45	115.60	ppb	3.18	100.00	70 -	130	115.6	
47	Ti	1	45	4.26	ppb	11.53	5.00	70 -	130	85.2	
51	V	1	45	1.00	ppb	1.63	1.00	70 -	130	100.0	
52	Cr	1	45	5.25	ppb	6.12	5.00	70 -	130	105.1	
55	Mn	1	45	5.45	ppb	3.71	5.00	70 -	130	109.1	
56	Fe	1	72	117.20	ppb	6.40	100.00	70 -	130	117.2	
59	Co	1	72	4.97	ppb	2.46	5.00	70 -	130	99.4	
60	Ni	1	72	5.09	ppb	3.07	5.00	70 -	130	101.9	
63	Cu	1	72	4.97	ppb	1.95	5.00	70 -	130	99.4	
66	Zn	1	72	5.27	ppb	9.03	5.00	70 -	130	105.5	
75	As	1	72	5.17	ppb	1.96	5.00	70 -	130	103.4	
78	Se	1	72	5.71	ppb	1.80	5.00	70 -	130	114.2	
88	Sr	2	115	6.11	ppb	1.48	5.00	70 -	130	122.2	
95	Mo	2	115	5.79	ppb	3.13	5.00	70 -	130	115.9	
107	Ag	2	115	2.17	ppb	5.38	2.00	70 -	130	108.6	
111	Cd	2	115	0.99	ppb	6.72	1.00	70 -	130	99.2	
118	Sn	2	115	5.17	ppb	0.92	5.00	70 -	130	103.5	
121	Sb	2	115	2.09	ppb	1.94	2.00	70 -	130	104.6	
137	Ba	2	115	5.04	ppb	3.36	5.00	70 -	130	100.7	
205	Tl	2	209	1.06	ppb	3.25	1.00	70 -	130	106.1	
208	Pb	2	209	1.09	ppb	2.39	1.00	70 -	130	109.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1094.09	4.54	36.77	-2975.5	70 -	120		ISFail
45	Sc	1	99179.54	0.99	157844.06	62.8	70 -	120		ISFail
45	Sc	2	3406155.80	1.46	5827273.50	58.5	70 -	120		ISFail
72	Ge	1	55142.63	0.79	86621.49	63.7	70 -	120		ISFail
115	In	2	2814354.00	0.76	6276207.00	44.8	70 -	120		ISFail
209	Bi	2	2211154.00	0.67	4446753.50	49.7	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\168_CCB.D\168_CCB.D#

Date Acquired:	Aug 11 2016 03:58 am	Sample Name:	**CCB7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.147	ppb	2.21	2.00	2.00	
9	Be	2	45	0.022	ppb	16.36	0.40	0.30	
11	B	2	45	1.560	ppb	3.46	10.00	10.00	
23	Na	1	45	-4.759	ppb	1.61	50.00	#####	
24	Mg	1	45	3.644	ppb	15.70	50.00	#####	
27	Al	1	45	12.450	ppb	15.84	50.00	10.00	FailAq
39	K	1	45	13.340	ppb	3.48	50.00	#####	
44	Ca	2	45	31.800	ppb	6.58	50.00	#####	
47	Ti	1	45	0.054	ppb	49.99	4.00	3.00	
51	V	1	45	-0.001	ppb	5.72	4.00	3.00	
52	Cr	1	45	0.054	ppb	10.14	2.00	2.00	
55	Mn	1	45	0.182	ppb	15.80	2.00	3.00	
56	Fe	1	72	6.676	ppb	15.79	50.00	30.00	
59	Co	1	72	0.052	ppb	14.06	2.00	3.00	
60	Ni	1	72	0.129	ppb	12.29	2.00	3.00	
63	Cu	1	72	0.068	ppb	11.49	2.00	2.00	
66	Zn	1	72	1.303	ppb	5.76	4.00	2.00	
75	As	1	72	-0.046	ppb	1.17	2.00	2.00	
78	Se	1	72	0.190	ppb	25.13	0.60	2.00	
88	Sr	2	115	0.199	ppb	7.55	4.00	3.00	
95	Mo	2	115	0.072	ppb	36.20	2.00	2.00	
107	Ag	2	115	0.058	ppb	6.93	0.40	1.00	
111	Cd	2	115	0.018	ppb	110.53	0.40	0.30	
118	Sn	2	115	0.085	ppb	26.56	20.00	3.00	
121	Sb	2	115	0.062	ppb	9.33	2.00	0.80	
137	Ba	2	115	0.114	ppb	6.00	2.00	3.00	
205	Tl	2	209	0.113	ppb	14.29	2.00	0.50	
208	Pb	2	209	0.072	ppb	6.03	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-16.38	103.31	36.77	-44.5	70 - 120	ISFail
45	Sc	1		95675.22	1.47	157844.06	60.6	70 - 120	ISFail
45	Sc	2		3322419.80	1.76	5827273.50	57.0	70 - 120	ISFail
72	Ge	1		53121.97	0.89	86621.49	61.3	70 - 120	ISFail
115	In	2		2816927.80	0.80	6276207.00	44.9	70 - 120	ISFail
209	Bi	2		2198136.80	0.60	4446753.50	49.4	70 - 120	ISFail

ICP-MS4
For

DHL Work Order
1607294

ICP-MS4_160809D
For

DHL Work Order
1607294

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-MS4_160809D 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			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			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: _____ Date of Completion: 08/11/2016

Second-Level Review: Janice Whitt Date Stamp: 8/12/2016

REVIEWED BY
By Janice Whitt at 3:16:18 PM, 8/12/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160809D** **Run No.:** 87520

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:41:00 AM		
L2-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:43:00 AM		
L-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:45:00 AM		
10X-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:47:00 AM		
5X-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:49:00 AM		
2X-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:51:00 AM		
H-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:53:00 AM		
H2-160809	1	ICPMS_TWDOD	CAL	R87520	8/9/2016 10:55:00 AM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87520	8/9/2016 11:01:00 AM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87520	8/9/2016 11:03:00 AM		
ICV-160809	1	ICPMS_TWDOD	ICV	R87520	8/9/2016 11:09:00 AM		
LCVL-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 11:14:00 AM		
ICB-160809	1	ICPMS_TWDOD	ICB	R87520	8/9/2016 11:18:00 AM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 3:03:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 3:08:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 3:11:00 PM		
MB-76664	5	ICPMS_TSDOD1	MBLK	76664	8/9/2016 3:13:00 PM		
LCS-76664	5	ICPMS_TSDOD1	LCS	76664	8/9/2016 3:15:00 PM		
LCSD-76664	5	ICPMS_TSDOD1	LCSD	76664	8/9/2016 3:17:00 PM		
1607265-18A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:21:00 PM		
1607265-18A SD	25	ICPMS_TSDOD1	SD	76664	8/9/2016 3:23:00 PM		
1607265-08A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:25:00 PM		
1607265-09A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:27:00 PM		
1607265-10A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:29:00 PM		
1607265-11A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:31:00 PM		
1607265-12A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:33:00 PM		
1607265-14A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:35:00 PM		
1607265-15A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:37:00 PM		
1607265-16A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:39:00 PM		
1607265-17A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:41:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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-MS4_160809D **Run No.:** 87520

1607265-18A PDS	5	ICPMS_TSDOD1	PDS	76664	8/9/2016 3:43:00 PM		
1607265-18A MS	5	ICPMS_TSDOD1	MS	76664	8/9/2016 3:45:00 PM		
1607265-18A MSD	5	ICPMS_TSDOD1	MSD	76664	8/9/2016 3:47:00 PM		S-flag Pb- High; R-flag Pb; Verified by rerun; Data accepted per JD
CCV6-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 3:49:00 PM		
LCVL6-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 3:54:00 PM		
CCB6-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 3:57:00 PM		
1607265-19A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 3:59:00 PM		
1607265-20A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:01:00 PM		
1607265-21A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:02:00 PM		
1607265-22A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:04:00 PM		
1607265-23A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:06:00 PM		
1607265-24A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:08:00 PM		
1607265-25A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:10:00 PM		
1607294-01A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:12:00 PM		
1607294-02A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:14:00 PM		
1607294-03A	5	ICPMS_TSDOD1	SAMP	76664	8/9/2016 4:16:00 PM		
CCV7-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 4:18:00 PM		
LCVL7-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 4:27:00 PM		
CCB7-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 4:29:00 PM		
MB-76671	5	ICPMS_TSDOD1	MBLK	76671	8/9/2016 4:31:00 PM		
LCS-76671	5	ICPMS_TSDOD1	LCS	76671	8/9/2016 4:33:00 PM		
LCSD-76671	5	ICPMS_TSDOD1	LCSD	76671	8/9/2016 4:35:00 PM		
1607294-29A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:39:00 PM		
1607294-29A SD	25	ICPMS_TSDOD1	SD	76671	8/9/2016 4:41:00 PM		
1607294-26A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:43:00 PM		
1607294-27A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:45:00 PM		
1607294-28A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:47:00 PM		
1607294-30A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:49:00 PM		
1607294-31A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:51:00 PM		
1607294-32A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:53:00 PM		
1607294-33A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:55:00 PM		
1607294-34A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:57:00 PM		
1607294-35A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 4:59:00 PM		
1607294-29A PDS	5	ICPMS_TSDOD1	PDS	76671	8/9/2016 5:01:00 PM		
1607294-29A MS	5	ICPMS_TSDOD1	MS	76671	8/9/2016 5:03:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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-MS4_160809D **Run No.:** 87520

1607294-29A MSD	5	ICPMS_TSDOD1	MSD	76671	8/9/2016 5:05:00 PM		
CCV8-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 5:07:00 PM		
LCVL8-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 5:11:00 PM		
CCB8-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 5:13:00 PM		
1607294-36A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:15:00 PM		
1607294-38A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:17:00 PM		
1607294-39A	50	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:19:00 PM		Ran @ 50X dilution due top color; >RL
1607294-40A	50	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:21:00 PM		Ran @ 50X dilution due top color; >RL
1607294-41A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:23:00 PM		
1607294-42A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:25:00 PM		
1607294-43A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:27:00 PM		
1607294-44A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:29:00 PM		
1607294-45A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:31:00 PM		
1607294-46A	5	ICPMS_TSDOD1	SAMP	76671	8/9/2016 5:33:00 PM		
CCV8-160809	1	ICPMS_TWDOD	CCV	R87520	8/9/2016 5:35:00 PM		
LCVL8-160809	1	ICPMS_TWDOD	LCVL	R87520	8/9/2016 5:39:00 PM		
CCB8-160809	1	ICPMS_TWDOD	CCB	R87520	8/9/2016 5:41:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160809.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160809	CAL ICPMS_TW	2	2102	
14	CalStd	L-160809	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160809	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160809	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160809	CAL ICPMS_TW	6	2106	
18	CalStd	H-160809	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160809	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICSA	ICSA-160809	ICSAICPMS_TW		2109	
23	ICSB	ICSAB-160809	ICSBICPMS_TW		2110	
24	ICB	BLANK	CCB ICPMS_TW		1101	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICV	ICV-160809	ICV ICPMS_TW		2111	
27	ICB	ICB-160809	ICB ICPMS_TW		1101	
28	LLICV	LCVL-160809	LCVLICPMS_TW		2112	
29	ICB	ICB-160809	ICB ICPMS_TW		1102	
30	ICB	ICB-160809	ICB ICPMS_TW		1103	
31	PB_W	MB-76709	MBLKTCLP_MET		2201	1
32	PB_W	MB-76677-TCLP	MBLKTCLP_MET		2202	1
33	LCS_W	LCS-76709	LCS TCLP_MET		2203	1
34	LCS_W	LCSD-76709	LCSDTCLP_MET		2204	1
35	CCB	RINSE	CCB ICPMS_TW		1101	
36	AllRef	1608053-04B	SAMPTCLP_MET		2205	1
37	SD	1608053-04B SD	SD TCLP_MET		2206	5
38	SAMP_W	1608053-01B	SAMPTCLP_MET		2207	1
39	SAMP_W	1608053-02B	SAMPTCLP_MET		2208	1
40	SAMP_W	1608053-03B	SAMPTCLP_MET		2209	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	SAMP_W	1608066-01A	SAMPTCLP_MET		2210	1
42	SAMP_W	1608066-02A	SAMPTCLP_MET		2211	1
43	SAMP_W	1608061-01A	SAMPTCLP_MET		2212	1
44	PDS	1608053-04B PDS	PDS TCLP_MET		2301	1
45	MS_W	1608053-04B MS	MS TCLP_MET		2302	1
46	MS_W	1608053-04B MSD	MSD TCLP_MET		2303	1
47	CCV	CCV1-160809	CCV ICPMS_TW		1207	

Sample List

48	CCB	CCB1-160809	CCB ICPMS_TW		1102	
49	LLCCV	LCVL1-160809	LCVLICPMS_TW		2112	
50	CCB	CCB1-160809	CCB ICPMS_TW		1103	
51	PB_W	MB-76707	MBLK6020A_W		2304	1
52	LCS_W	LCS-76707	LCS 6020A_W		2305	1
53	LCS_W	LCSD-76707	LCSD6020A_W		2306	1
54	CCB	RINSE	CCB ICPMS_TW		1101	
55	AllRef	1608032-06C	SAMP6020A_W		2307	1
56	SD	1608032-06C SD	SD 6020A_W		2308	5
57	SAMP_W	1608032-01C	SAMP6020A_W		2309	1
58	SAMP_W	1608032-02C	SAMP6020A_W		2310	1
59	SAMP_W	1608032-03C	SAMP6020A_W		2311	1
60	SAMP_W	1608032-04C	SAMP6020A_W		2312	1

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50	
51	Skip
52	Skip
53	Skip
54	Skip
55	Skip
56	Skip
57	Skip
58	Skip
59	Skip
60	Skip

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	SAMP_W	1608032-05C	SAMP6020A_W		2401	1
62	SAMP_W	1608032-07C	SAMP6020A_W		2402	1
63	SAMP_W	1608032-08C	SAMP6020A_W		2403	1
64	SAMP_W	1608032-09C	SAMP6020A_W		2404	1
65	SAMP_W	1604232-04A	SAMPICPMS_TW		2405	1
66	PDS	1608032-06C PDS	PDS 6020A_W		2406	1
67	MS_W	1608032-06C MS	MS 6020A_W		2407	1
68	MS_W	1608032-06C MSD	MSD 6020A_W		2408	1
69	CCV	CCV2-160809	CCV ICPMS_TW		1207	
70	CCB	CCB2-160809	CCB ICPMS_TW		1102	
71	LLCCV	LCVL2-160809	LCVLICPMS_TW		2112	
72	CCB	CCB2-160809	CCB ICPMS_TW		1103	
73	SAMP_W	1604232-05A	SAMPICPMS_TW		2409	1
74	SAMP_W	1604232-06A	SAMPICPMS_TW		2410	1
75	SAMP_W	1608070-01A	SAMPICPMS_TW		2411	1
76	SAMP_W	1608051-01A	SAMPICPMS_TW		2412	1

Sample List

77	SAMP_W	1608051-02A	SAMPICPMS_TW		2501	1
78	SAMP_W	1608051-03A	SAMPICPMS_TW		2502	1
79	SAMP_W	1608051-04A	SAMPICPMS_TW		2503	1
80	SAMP_W	1608051-05A	SAMPICPMS_TW		2504	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	SAMP_W	1608051-06A	SAMPICPMS_TW		2505	1
82	SAMP_W	1608051-07A	SAMPICPMS_TW		2506	1
83	CCV	CCV3-160809	CCV ICPMS_TW		1207	
84	CCB	CCB3-160809	CCB ICPMS_TW		1102	
85	LLCCV	LCVL3-160809	LCVLICPMS_TW		2512	
86	CCB	CCB3-160809	CCB ICPMS_TW		1103	
87	Sample	1403262-12A	SAMPICPMS_TSDOD		3207	5
88	Sample	1403262-13A	SAMPICPMS_TSDOD		3208	5
89	Sample	1403262-14A	SAMPICPMS_TSDOD		3209	5
90	Sample	1403263-01A	SAMPICPMS_TSDOD		3210	5
91	Sample	1403263-02A	SAMPICPMS_TSDOD		3211	5
92	Sample	1403263-03A	SAMPICPMS_TSDOD		3212	5
93	Sample	1403263-04A	SAMPICPMS_TSDOD		3301	5
94	Sample	1403263-05A	SAMPICPMS_TSDOD		3302	5
95	Sample	1403263-06A	SAMPICPMS_TSDOD		3303	5
96	Sample	1403263-07A	SAMPICPMS_TSDOD		3304	5
97	CCV	CCV4-140402	CCV ICPMS_TW		1207	
98	CCB	CCB4-140402	CCB ICPMS_TW		1102	
99	LLCCV	LCVL4-140402	LCVLICPMS_TW		2512	
100	CCB	CCB4-140402	CCB ICPMS_TW		1103	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	PB	MB-62609	MBLKICPMS_TSDOD		3401	5
102	Sample	PAINT CHIPS AW-13	SAMPICPMS_TSDOD		3402	50
103	LCS_S	LCS-62609	LCS ICPMS_TSDOD		3403	5
104	LCS_S	LCSD-62609	LCSDICPMS_TSDOD		3404	5
105	CCB	RINSE	CCB ICPMS_TW		1101	
106	AllRef	1403264-10A	SAMPICPMS_TSDOD		3405	5
107	SD	1403264-10A SD	SD ICPMS_TSDOD		3406	25
108	Sample	1403263-08A	SAMPICPMS_TSDOD		3407	5
109	Sample	1403263-09A	SAMPICPMS_TSDOD		3408	5
110	Sample	1403264-01A	SAMPICPMS_TSDOD		3409	5
111	Sample	1403264-02A	SAMPICPMS_TSDOD		3410	5
112	Sample	1403264-03A	SAMPICPMS_TSDOD		3411	5
113	Sample	1403264-04A	SAMPICPMS_TSDOD		3412	5
114	Sample	1403264-05A	SAMPICPMS_TSDOD		3501	5
115	Sample	1403264-06A	SAMPICPMS_TSDOD		3502	5
116	Sample	1403264-07A	SAMPICPMS_TSDOD		3503	5
117	PDS	1403264-10A PDS	PDS ICPMS_TSDOD		3504	5
118	MS_S	1403264-10A MS	MS ICPMS_TSDOD		3505	5
119	MS_S	1403264-10A MSD	MSD ICPMS_TSDOD		3506	5
120	CCV	CCV5-140402	CCV ICPMS_TW		1207	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	CCB	CCB5-140402	CCB ICPMS_TW		1102	
122	LLCCV	LCVL5-140402	LCVLICPMS_TW		2511	
123	CCB	CCB5-140402	CCB ICPMS_TW		1103	
124	Sample	1403264-08A	SAMPICPMS_TSDOD		3507	5
125	Sample	1403264-09A	SAMPICPMS_TSDOD		3508	5
126	Sample	1403264-11A	SAMPICPMS_TSDOD		3509	5
127	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
128	Sample	1403264-13A	SAMPICPMS_TSDOD		3511	5
129	Sample	1403264-14A	SAMPICPMS_TSDOD		3512	5
130	Sample	1403264-15A	SAMPICPMS_TSDOD		3310	5
131	Sample	1403264-16A	SAMPICPMS_TSDOD		3311	5
132	Sample	1403264-17A	SAMPICPMS_TSDOD		3312	5
133	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
134	CCV	CCV6-140402	CCV ICPMS_TW		1207	
135	CCB	CCB6-140402	CCB ICPMS_TW		1102	
136	LLCCV	LCVL6-140402	LCVLICPMS_TW		2511	
137	CCB	CCB6-140402	CCB ICPMS_TW		1103	
138	CCB	CCB6-140402	CCB ICPMS_TW		1102	
139	CCB	CCB6-140402	CCB ICPMS_TW		1102	

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Unknown Samples:

Sample List

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160809.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160809	CAL ICPMS_TW	2	2102	
14	CalStd	L-160809	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160809	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160809	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160809	CAL ICPMS_TW	6	2106	
18	CalStd	H-160809	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160809	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICSA	ICSA-160809	ICSAICPMS_TW		2109	
23	ICSB	ICSAB-160809	ICSBICPMS_TW		2110	
24	ICB	BLANK	CCB ICPMS_TW		1101	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICV	ICV-160809	ICV ICPMS_TW		2111	
27	ICB	ICB-160809	ICB ICPMS_TW		1101	
28	LLICV	LCVL-160809	LCVLICPMS_TW		2112	
29	ICB	ICB-160809	ICB ICPMS_TW		1102	
30	ICB	ICB-160809	ICB ICPMS_TW		1103	
31	PB_W	MB-76709	MBLKTCLP_MET		2201	1
32	PB_W	MB-76677-TCLP	MBLKTCLP_MET		2202	1
33	LCS_W	LCS-76709	LCS TCLP_MET		2203	1
34	LCS_W	LCSD-76709	LCSDTCLP_MET		2204	1
35	CCB	RINSE	CCB ICPMS_TW		1101	
36	AllRef	1608053-04B	SAMPTCLP_MET		2205	1
37	SD	1608053-04B SD	SD TCLP_MET		2206	5
38	SAMP_W	1608053-01B	SAMPTCLP_MET		2207	1
39	SAMP_W	1608053-02B	SAMPTCLP_MET		2208	1
40	SAMP_W	1608053-03B	SAMPTCLP_MET		2209	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	SAMP_W	1608066-01A	SAMPTCLP_MET		2210	1
42	SAMP_W	1608066-02A	SAMPTCLP_MET		2211	1
43	SAMP_W	1608061-01A	SAMPTCLP_MET		2212	1
44	PDS	1608053-04B PDS	PDS TCLP_MET		2301	1
45	MS_W	1608053-04B MS	MS TCLP_MET		2302	1
46	MS_W	1608053-04B MSD	MSD TCLP_MET		2303	1
47	CCV	CCV1-160809	CCV ICPMS_TW		1207	

Sample List

48	CCB	CCB1-160809	CCB ICPMS_TW		1102	
49	LLCCV	LCVL1-160809	LCVLICPMS_TW		2112	
50	CCB	CCB1-160809	CCB ICPMS_TW		1103	
51	PB_W	MB-76707	MBLK6020A_W		2304	1
52	LCS_W	LCS-76707	LCS 6020A_W		2305	1
53	LCS_W	LCSD-76707	LCSD6020A_W		2306	1
54	CCB	RINSE	CCB ICPMS_TW		1101	
55	AllRef	1608032-06C	SAMP6020A_W		2307	1
56	SD	1608032-06C SD	SD 6020A_W		2308	5
57	SAMP_W	1608032-01C	SAMP6020A_W		2309	1
58	SAMP_W	1608032-02C	SAMP6020A_W		2310	1
59	SAMP_W	1608032-03C	SAMP6020A_W		2311	1
60	SAMP_W	1608032-04C	SAMP6020A_W		2312	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	SAMP_W	1608032-05C	SAMP6020A_W		2401	1
62	SAMP_W	1608032-07C	SAMP6020A_W		2402	1
63	SAMP_W	1608032-08C	SAMP6020A_W		2403	1
64	SAMP_W	1608032-09C	SAMP6020A_W		2404	1
65	SAMP_W	1604232-04A	SAMPICPMS_TW		2405	1
66	PDS	1608032-06C PDS	PDS 6020A_W		2406	1
67	MS_W	1608032-06C MS	MS 6020A_W		2407	1
68	MS_W	1608032-06C MSD	MSD 6020A_W		2408	1
69	CCV	CCV2-160809	CCV ICPMS_TW		1207	
70	CCB	CCB2-160809	CCB ICPMS_TW		1102	
71	LLCCV	LCVL2-160809	LCVLICPMS_TW		2112	
72	CCB	CCB2-160809	CCB ICPMS_TW		1103	
73	SAMP_W	1604232-05A	SAMPICPMS_TW		2409	1
74	SAMP_W	1604232-06A	SAMPICPMS_TW		2410	1
75	SAMP_W	1608070-01A	SAMPICPMS_TW		2411	1
76	SAMP_W	1608051-01A	SAMPICPMS_TW		2412	1

Sample List

77	SAMP_W	1608051-02A	SAMPICPMS_TW	2501	1
78	SAMP_W	1608051-03A	SAMPICPMS_TW	2502	1
79	SAMP_W	1608051-04A	SAMPICPMS_TW	2503	1
80	SAMP_W	1608051-05A	SAMPICPMS_TW	2504	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	SAMP_W	1608051-06A	SAMPICPMS_TW		2505	1
82	SAMP_W	1608051-07A	SAMPICPMS_TW		2506	1
83	CCV	CCV3-160809	CCV ICPMS_TW		1207	
84	CCB	CCB3-160809	CCB ICPMS_TW		1102	
85	LLCCV	LCVL3-160809	LCVLICPMS_TW		2512	
86	CCB	CCB3-160809	CCB ICPMS_TW		1103	
87	PB_W	MB-76686	MBLK6020A_W		3101	1
88	LCS_W	LCS-76686	LCS 6020A_W		3102	1
89	LCS_W	LCSD-76686	LCSD6020A_W		3103	1
90	CCB	RINSE	CCB ICPMS_TW		1101	
91	AllRef	1608050-03A	SAMP6020A_W		3104	1
92	SD	1608050-03A SD	SD 6020A_W		3105	5
93	SAMP_W	1608050-01A	SAMP6020A_W		3106	1
94	SAMP_W	1608050-02A	SAMP6020A_W		3107	1
95	SAMP_W	1608050-04A	SAMP6020A_W		3108	1
96	SAMP_W	1608050-05A	SAMP6020A_W		3109	1
97	SAMP_W	1608050-06A	SAMP6020A_W		3110	1
98	SAMP_W	1608050-07A	SAMP6020A_W		3111	1
99	SAMP_W	1608050-08A	SAMP6020A_W		3112	1
100	SAMP_W	1608050-09A	SAMP6020A_W		3201	1

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	SAMP_W	1608050-10A	SAMP6020A_W		3202	1
102	PDS	1608050-03A PDS	PDS 6020A_W		3203	1
103	MS_W	1608050-03A MS	MS 6020A_W		3204	1
104	MS_W	1608050-03A MSD	MSD 6020A_W		3205	1
105	CCV	CCV4-160809	CCV ICPMS_TW		1207	
106	CCB	CCB4-160809	CCB ICPMS_TW		1102	
107	LLCCV	LCVL4-160809	LCVLICPMS_TW		2512	
108	CCB	CCB4-160809	CCB ICPMS_TW		1103	
109	SAMP_W	1608050-11A	SAMP6020A_W		3206	1
110	SAMP_W	1608050-12A	SAMP6020A_W		3207	1
111	SAMP_W	1608050-13A	SAMP6020A_W		3208	1
112	SAMP_W	1608050-14A	SAMP6020A_W		3209	1
113	SAMP_W	1608050-15A	SAMP6020A_W		3210	1
114	SAMP_W	1608050-16A	SAMP6020A_W		3211	1
115	SAMP_W	1608050-17A	SAMP6020A_W		3212	1
116	SAMP_W	1608050-18A	SAMP6020A_W		3301	1
117	SAMP_W	1608050-19A	SAMP6020A_W		3302	1
118	SAMP_W	1608050-20A	SAMP6020A_W		3303	1
119	CCV	CCV5-160809	CCV ICPMS_TW		1207	
120	CCB	CCB5-160809	CCB ICPMS_TW		1102	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	LLCCV	LCVL5-160809	LCVLICPMS_TW		2511	
122	CCB	CCB5-160809	CCB ICPMS_TW		1103	
123	PB	MB-76664	MBLKICPMS_TSDOD1		3310	5
124	LCS_S	LCS-76664	LCS ICPMS_TSDOD1		3311	5
125	LCS_S	LCSD-76664	LCSDICPMS_TSDOD1		3312	5
126	CCB	RINSE	CCB ICPMS_TW		1101	
127	AllRef	1607265-18A	SAMPICPMS_TSDOD1		3401	5
128	SD	1607265-18A SD	SD ICPMS_TSDOD1		3402	25
129	Sample	1607265-08A	SAMPICPMS_TSDOD1		3403	5
130	Sample	1607265-09A	SAMPICPMS_TSDOD1		3404	5
131	Sample	1607265-10A	SAMPICPMS_TSDOD1		3405	5
132	Sample	1607265-11A	SAMPICPMS_TSDOD1		3406	5
133	Sample	1607265-12A	SAMPICPMS_TSDOD1		3407	5
134	Sample	1607265-14A	SAMPICPMS_TSDOD1		3408	5
135	Sample	1607265-15A	SAMPICPMS_TSDOD1		3409	5
136	Sample	1607265-16A	SAMPICPMS_TSDOD1		3410	5
137	Sample	1607265-17A	SAMPICPMS_TSDOD1		3411	5
138	PDS	1607265-18A PDS	PDS ICPMS_TSDOD1		3412	5
139	MS_S	1607265-18A MS	MS ICPMS_TSDOD1		3501	5
140	MS_S	1607265-18A MSD	MSD ICPMS_TSDOD1		3502	5

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
141	CCV	CCV6-160809	CCV ICPMS_TW		1207	
142	CCB	CCB6-160809	CCB ICPMS_TW		1102	
143	LLCCV	LCVL6-160809	LCVLICPMS_TW		2511	
144	CCB	CCB6-160809	CCB ICPMS_TW		1103	
145	Sample	1607265-19A	SAMPICPMS_TSDOD1		3503	5
146	Sample	1607265-20A	SAMPICPMS_TSDOD1		3504	5
147	Sample	1607265-21A	SAMPICPMS_TSDOD1		3505	5
148	Sample	1607265-22A	SAMPICPMS_TSDOD1		3506	5
149	Sample	1607265-23A	SAMPICPMS_TSDOD1		3507	5
150	Sample	1607265-24A	SAMPICPMS_TSDOD1		3508	5
151	Sample	1607265-25A	SAMPICPMS_TSDOD1		3509	5
152	Sample	1607294-01A	SAMPICPMS_TSDOD1		3510	5
153	Sample	1607294-02A	SAMPICPMS_TSDOD1		3511	5
154	Sample	1607294-03A	SAMPICPMS_TSDOD1		3512	5
155	CCV	CCV7-160809	CCV ICPMS_TW		1207	
156	CCB	CCB7-160809	CCB ICPMS_TW		1102	
157	LLCCV	LCVL7-160809	LCVLICPMS_TW		2510	
158	CCB	CCB7-160809	CCB ICPMS_TW		1102	
159	PB	MB-76671	MBLKICPMS_TSDOD1		4101	5
160	LCS_S	LCS-76671	LCS ICPMS_TSDOD1		4102	5

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
161	LCS_S	LCSD-76671	LCSDICPMS_TSDOD1		4103	5
162	CCB	RINSE	CCB ICPMS_TW		1101	
163	AllRef	1607294-29A	SAMPICPMS_TSDOD1		4104	5
164	SD	1607294-29A SD	SD ICPMS_TSDOD1		4105	25
165	Sample	1607294-26A	SAMPICPMS_TSDOD1		4106	5
166	Sample	1607294-27A	SAMPICPMS_TSDOD1		4107	5
167	Sample	1607294-28A	SAMPICPMS_TSDOD1		4108	5
168	Sample	1607294-30A	SAMPICPMS_TSDOD1		4109	5

Sample List

169	Sample	1607294-31A	SAMPICPMS_TSDOD1	4110	5
170	Sample	1607294-32A	SAMPICPMS_TSDOD1	4111	5
171	Sample	1607294-33A	SAMPICPMS_TSDOD1	4112	5
172	Sample	1607294-34A	SAMPICPMS_TSDOD1	4201	5
173	Sample	1607294-35A	SAMPICPMS_TSDOD1	4202	5
174	PDS	1607294-29A PDS	PDS ICPMS_TSDOD1	4203	5
175	MS_S	1607294-29A MS	MS ICPMS_TSDOD1	4204	5
176	MS_S	1607294-29A MSD	MSD ICPMS_TSDOD1	4205	5
177	CCV	CCV8-160809	CCV ICPMS_TW	1207	
178	CCB	CCB8-160809	CCB ICPMS_TW	1102	
179	LLCCV	LCVL8-160809	LCVLICPMS_TW	2510	
180	CCB	CCB8-160809	CCB ICPMS_TW	1103	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
181	Sample	1607294-36A	SAMPICPMS_TSDOD1		4206	5
182	Sample	1607294-38A	SAMPICPMS_TSDOD1		4207	5
183	Sample	1607294-39A	SAMPICPMS_TSDOD1		4208	5
184	Sample	1607294-40A	SAMPICPMS_TSDOD1		4209	5
185	Sample	1607294-41A	SAMPICPMS_TSDOD1		4210	5
186	Sample	1607294-42A	SAMPICPMS_TSDOD1		4211	5
187	Sample	1607294-43A	SAMPICPMS_TSDOD1		4212	5
188	Sample	1607294-44A	SAMPICPMS_TSDOD1		4301	5
189	Sample	1607294-45A	SAMPICPMS_TSDOD1		4302	5
190	Sample	1607294-46A	SAMPICPMS_TSDOD1		4303	5
191	CCV	CCV8-160809	CCV ICPMS_TW		1207	
192	CCB	CCB8-160809	CCB ICPMS_TW		1102	
193	LLCCV	LCVL8-160809	LCVLICPMS_TW		2510	
194	CCB	CCB8-160809	CCB ICPMS_TW		1102	
195	PB_W	MB-76743	MBLKICPMS_DW		4401	1
196	PB_W	FB-76743	MBLKICPMS_DW		4402	1
197	LCS_W	LCS-76743	LCS ICPMS_DW		4403	1

Sample List

198	LCS_W	LCSD-76743	LCSDICPMS_DW	4404	1
199	CCB	RINSE	CCB ICPMS_TW	1101	
200	AllRef	1607331-02B	SAMPICPMS_DW	4405	1

#	Skip
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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
201	SD	1607331-02B SD	SD ICPMS_DW		4406	5
202	SAMP_W	1608062-08B	SAMPICPMS_DW		4407	1
203	SAMP_W	1607331-01B	SAMPICPMS_DW		4408	1
204	SAMP_W	1607331-03B	SAMPICPMS_DW		4409	1
205	SAMP_W	1607331-04B	SAMPICPMS_DW		4410	1
206	SAMP_W	1607331-05B	SAMPICPMS_DW		4411	1
207	SAMP_W	1607331-06B	SAMPICPMS_DW		4412	1
208	SAMP_W	1608051-01B	SAMPICPMS_DW		4501	1
209	SAMP_W	1608051-02B	SAMPICPMS_DW		4502	1
210	SAMP_W	1608051-03B	SAMPICPMS_DW		4503	1
211	PDS	1607331-02B PDS	PDS ICPMS_DW		4504	1
212	MS_W	1607331-02B MS	MS ICPMS_DW		4505	1
213	MS_W	1607331-02B MSD	MSD ICPMS_DW		4506	1
214	CCV	CCV9-160809	CCV ICPMS_TW		1207	
215	CCB	CCB9-160809	CCB ICPMS_TW		1102	
216	LLCCV	LCVL9-160809	LCVLICPMS_TW		2510	
217	CCB	CCB9-160809	CCB ICPMS_TW		1103	
218	SAMP_W	1607331-01A	SAMPICPMS_TW		4511	10
219	SAMP_W	1607331-01B	SAMPICPMS_DW		4512	10
220	SAMP_W	1608051-04B	SAMPICPMS_DW		4507	1

#	Skip
201	
202	
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204	

Sample List

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220

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
221	SAMP_W	1608051-05B	SAMPICPMS_DW		4508	1
222	SAMP_W	1608051-06B	SAMPICPMS_DW		4509	1
223	SAMP_W	1608051-07B	SAMPICPMS_DW		4510	1
224	CCV	CCV10-160809	CCV ICPMS_TW		1207	
225	CCB	CCB10-160809	CCB ICPMS_TW		1102	
226	LLCCV	LCVL10-160809	LCVLICPMS_TW		2512	
227	CCB	CCB10-160809	CCB ICPMS_TW		1102	
228	CCB	CCB10-160809	CCB ICPMS_TW		1102	
229	CCB	CCB10-160809	CCB ICPMS_TW		1102	
230	CCB	CCB10-160809	CCB ICPMS_TW		1103	
231	CCB	CCB10-160809	CCB ICPMS_TW		1103	
232	CCB	CCB10-160809	CCB ICPMS_TW		1103	

#	Skip
221	
222	
223	
224	
225	
226	
227	
228	
229	
230	
231	
232	

Unknown Samples:

Blank Samples:

Periodic Block

Sample List

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 11:25:38 AM**
Digestion:
Prep End Date:

Prep Batch **76664** 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
1607265-08A	Soil		1.10	50	50.000	1 of 1	
1607265-09A	Soil		1.03	50	50.000	1 of 1	
1607265-10A	Soil		1.05	50	50.000	1 of 1	
1607265-11A	Soil		1.11	50	50.000	1 of 1	
1607265-12A	Soil		1.06	50	50.000	1 of 1	
1607265-14A	Soil		1.09	50	50.000	1 of 1	
1607265-15A	Soil		1.06	50	50.000	1 of 1	
1607265-16A	Soil		1.13	50	50.000	1 of 1	
1607265-17A	Soil		1.02	50	50.000	1 of 1	
1607265-18A	Soil		1.02	50	50.000	2 of 3	
1607265-18A MS	Soil		1.09	50	50.000	2 of 3	
1607265-18A MSD	Soil		1.12	50	50.000	2 of 3	
1607265-18A PDS	Soil		1.02	50	50.000	2 of 3	
1607265-18A SD	Soil		1.02	50	50.000	2 of 3	
1607265-19A	Soil		1.04	50	50.000	1 of 1	
1607265-20A	Soil		1.13	50	50.000	1 of 1	
1607265-21A	Soil		1.14	50	50.000	1 of 1	
1607265-22A	Soil		1.16	50	50.000	1 of 1	
1607265-23A	Soil		1.16	50	50.000	1 of 1	
1607265-24A	Soil		1.11	50	50.000	1 of 1	
1607265-25A	Soil		1.02	50	50.000	1 of 1	
1607294-01A	Soil		1.08	50	50.000	1 of 1	
1607294-02A	Soil		1.19	50	50.000	1 of 1	
1607294-03A	Soil		1.06	50	50.000	1 of 1	
LCS-76664	Soil		1	50	50.000	of	
LCSD-76664	Soil		1	50	50.000	of	
MB-76664	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

12:31 - 12:41
12:44 - 14:44
15:11 - 17:11
17:25 - 17:40

REVIEWED BY
By Janice Whitt at 2:27:02 PM, 8/12/2016

8/5/16

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 2:27:09 PM, 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							

REVIEWED BY
By Janice Whitt at 2:27:11 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-02A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607294-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 2:27:15 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 7:00:00 AM**
Prep End Date: **7/28/2016 12:30:00 PM**

Prep Batch **76484** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-15A SS	Soil		0	0	#Num!	1 of 1	
1607294-16A SS	Soil		0	0	#Num!	1 of 1	
1607294-17A SS	Soil		0	0	#Num!	1 of 1	
1607294-18A SS	Soil		0	0	#Num!	1 of 1	
1607294-19A SS	Soil		0	0	#Num!	1 of 1	
1607294-20A SS	Soil		0	0	#Num!	1 of 1	
1607294-21A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 2:27:17 PM, 8/12/2016

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)						

QM 8/4/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:27:23 PM, 8/12/2016
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 2:27:30 PM, 8/12/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 11:25:38 AM**
Digestion: **Start: 8/4/2016 12:31:00 PM / Stop: 8/4/2016 5:40:00 PM**
Prep End Date: **8/4/2016 5:55:00 PM**

Prep Batch **76664** 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
1607265-08A	Soil		1.1	50	45.455	1 of 1	
1607265-09A	Soil		1.03	50	48.544	1 of 1	
1607265-10A	Soil		1.05	50	47.619	1 of 1	
1607265-11A	Soil		1.11	50	45.045	1 of 1	
1607265-12A	Soil		1.06	50	47.170	1 of 1	
1607265-14A	Soil		1.09	50	45.872	1 of 1	
1607265-15A	Soil		1.06	50	47.170	1 of 1	
1607265-16A	Soil		1.13	50	44.248	1 of 1	
1607265-17A	Soil		1.02	50	49.020	1 of 1	
1607265-18A	Soil		1.02	50	49.020	2 of 3	
1607265-18A MS	Soil		1.09	50	45.872	2 of	
1607265-18A MSD	Soil		1.12	50	44.643	2 of	
1607265-18A PDS	Soil		1.02	50	49.020	2 of	
1607265-18A SD	Soil		1.02	50	49.020	2 of	
1607265-19A	Soil		1.04	50	48.077	1 of 1	
1607265-20A	Soil		1.13	50	44.248	1 of 1	
1607265-21A	Soil		1.14	50	43.860	1 of 1	
1607265-22A	Soil		1.16	50	43.103	1 of 1	
1607265-23A	Soil		1.16	50	43.103	1 of 1	
1607265-24A	Soil		1.11	50	45.045	1 of 1	
1607265-25A	Soil		1.02	50	49.020	1 of 1	
1607294-01A	Soil		1.08	50	46.296	1 of 1	
1607294-02A	Soil		1.19	50	42.017	1 of 1	
1607294-03A	Soil		1.06	50	47.170	1 of 1	
LCS-76664	Soil		1	50	50.000	of	
LCSD-76664	Soil		1	50	50.000	of	
MB-76664	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 2:40:32 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 3:48:25 PM**
Digestion:
Prep End Date:

Prep Batch **76671** 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
1607294-26A	Soil		1.04	50	50.000	1 of 1	
1607294-27A	Soil		1.02	50	50.000	1 of 1	
1607294-28A	Soil		1.13	50	50.000	1 of 1	
1607294-29A	Soil		1.06	50	50.000	1 of 3	
1607294-29AMS	Soil		1.05	50	50.000	1 of 3	
1607294-29AMSD	Soil		1.08	50	50.000	1 of 3	
1607294-30A	Soil		1.04	50	50.000	1 of 1	
1607294-31A	Soil		1.02	50	50.000	1 of 1	
1607294-32A	Soil		1.14	50	50.000	1 of 1	
1607294-33A	Soil		1.08	50	50.000	1 of 1	
1607294-34A	Soil		1.03	50	50.000	1 of 1	
1607294-35A	Soil		1.09	50	50.000	1 of 1	
1607294-36A	Soil		1.14	50	50.000	1 of 1	
1607294-38A	Soil		1.03	50	50.000	1 of 1	
1607294-39A	Soil		1.08	50	50.000	1 of 1	
1607294-40A	Soil		1.05	50	50.000	1 of 1	
1607294-41A	Soil		1.06	50	50.000	1 of 1	
1607294-42A	Soil		1.06	50	50.000	1 of 1	
1607294-43A	Soil		1.06	50	50.000	1 of 1	
1607294-44A	Soil		1.18	50	50.000	1 of 1	
1607294-45A	Soil		1.04	50	50.000	1 of 1	
1607294-46A	Soil		1.10	50	50.000	1 of 1	
LCS-76671	Soil		1	50	50.000	of	
LCSD-76671	Soil		1	50	50.000	of	
MB-76671	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

7:30 - 7:40
7:42 - 9:42
10:07 - 12:07
12:18 - 12:28

8/5/16

REVIEWED BY
By Janice Whitt at 2:38:34 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-22A SS	Soil		0	0	#Num!	1 of 1	
1607294-23A SS	Soil		0	0	#Num!	1 of 1	
1607294-25A SS	Soil		0	0	#Num!	1 of 1	
1607294-26A SS	Soil		0	0	#Num!	1 of 1	
1607294-27A SS	Soil		0	0	#Num!	1 of 1	
1607294-28A SS	Soil		0	0	#Num!	1 of 1	
1607294-29A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607294-30A SS	Soil		0	0	#Num!	1 of 1	
1607294-31A Sieve Only hard clay	Soil		0	0	#Num!	1 of 1	
1607294-32A SS	Soil		0	0	#Num!	1 of 1	
1607294-33A SS	Soil		0	0	#Num!	1 of 1	
1607294-34A SS	Soil		0	0	#Num!	1 of 1	
1607294-35A SS	Soil		0	0	#Num!	1 of 1	

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By Janice Whitt at 2:27:45 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/28/2016 12:40:00 PM**
Prep End Date: **7/28/2016 3:40:00 PM**

Prep Batch **76515** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-38A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-39A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-40A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-41A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-42A	Soil		0	0	#Num!	1 of 1	
Sieve Only hard clay							
1607294-43A	Soil		0	0	#Num!	1 of 1	
SS							

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By Janice Whitt at 2:27:47 PM, 8/12/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 7:00:00 AM**
Prep End Date: **7/29/2016 1:30:00 PM**

Prep Batch **76516** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-44A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-45A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-46A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-47A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-48A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-49A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-51A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-52A	Soil		0	0	#Num!	of 3	
	SS MS/MSD						
1607294-53A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-54A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-55A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-56A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-57A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

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By Janice Whitt at 2:27:59 PM, 8/12/2016

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PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 7:00:00 AM**
Prep End Date: **7/29/2016 1:30:00 PM**

Prep Batch **76516** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-58A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-59A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-60A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-61A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-62A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-64A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-65A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 2:28:02 PM, 8/12/2016

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 2:28:06 PM, 8/12/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/4/2016 3:48:25 PM**
Digestion: **Start: 8/5/2016 7:30:00 AM / Stop: 8/5/2016 12:28:00 PM**
Prep End Date: **8/5/2016 3:11:17 PM**

Prep Batch **76671** 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
1607294-26A	Soil		1.04	50	48.077	1 of 1	
1607294-27A	Soil		1.02	50	49.020	1 of 1	
1607294-28A	Soil		1.13	50	44.248	1 of 1	
1607294-29A	Soil		1.06	50	47.170	of 3	
1607294-29A MS	Soil		1.05	50	47.619	of	
1607294-29A MSD	Soil		1.08	50	46.296	of	
1607294-29A PDS	Soil		1.06	50	47.170	of	
1607294-29A SD	Soil		1.06	50	47.170	of	
1607294-30A	Soil		1.04	50	48.077	1 of 1	
1607294-31A	Soil		1.02	50	49.020	1 of 1	
1607294-32A	Soil		1.14	50	43.860	1 of 1	
1607294-33A	Soil		1.08	50	46.296	1 of 1	
1607294-34A	Soil		1.03	50	48.544	1 of 1	
1607294-35A	Soil		1.09	50	45.872	1 of 1	
1607294-36A	Soil		1.14	50	43.860	1 of 1	
1607294-38A	Soil		1.03	50	48.544	1 of 1	
1607294-39A	Soil		1.08	50	46.296	1 of 1	
1607294-40A	Soil		1.05	50	47.619	1 of 1	
1607294-41A	Soil		1.06	50	47.170	1 of 1	
1607294-42A	Soil		1.06	50	47.170	1 of 1	
1607294-43A	Soil		1.06	50	47.170	1 of 1	
1607294-44A	Soil		1.18	50	42.373	1 of 1	
1607294-45A	Soil		1.04	50	48.077	1 of 1	
1607294-46A	Soil		1.1	50	45.455	1 of 1	
LCS-76671	Soil		1	50	50.000	of	
LCSD-76671	Soil		1	50	50.000	of	
MB-76671	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 2:38:39 PM, 8/12/2016

Calibration Summary Report

Date Acquired 8/9/2016 10:41
Data Batch 160809.b

Level	Calibration File Name
1	012CALB.d
2	013CALS.d
3	014CALS.d
4	015CALS.d
5	016CALS.d
6	017CALS.d
7	018CALS.d
8	019CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0013 * x + 2.3711E-004
Be	1.0000	y = 3.2553E-005 * x + 6.6038E-007
B	1.0000	y = 1.5650E-005 * x + 3.9620E-005
Na	1.0000	y = 7.8050E-004 * x + 0.0433
Mg	1.0000	y = 3.9467E-004 * x + 7.1743E-004
Al	1.0000	y = 1.4915E-004 * x + 0.0010
K	1.0000	y = 3.8496E-004 * x + 0.0507
Ca	0.9997	y = 2.2814E-005 * x + 4.1959E-004
Ti	0.9999	y = 1.5061E-004 * x + 2.2057E-005
V	1.0000	y = 0.0045 * x + 0.0027
Cr	1.0000	y = 0.0055 * x + 0.0012
Mn	1.0000	y = 0.0032 * x + 1.4761E-004
Fe	1.0000	y = 0.0048 * x + 0.0063
Co	1.0000	y = 0.0130 * x + 1.4841E-004
Ni	1.0000	y = 0.0035 * x + 5.9412E-004
Cu	1.0000	y = 0.0096 * x + 0.0070
Zn	1.0000	y = 0.0016 * x + 6.0394E-004
Se	1.0000	y = 8.1884E-005 * x + 5.9469E-005
Sr	0.9999	y = 6.4658E-004 * x + 6.0463E-005
Mo	0.9999	y = 5.6678E-004 * x + 1.0103E-005
Ag	0.9999	y = 0.0016 * x + 5.3008E-006
Cd	1.0000	y = 2.5668E-004 * x + 1.3267E-006
Sn	0.9999	y = 5.4917E-004 * x + 1.3209E-004
Sb	1.0000	y = 7.7943E-004 * x + 4.7973E-005
Tl	1.0000	y = 0.0016 * x + 1.6058E-005
Ba	1.0000	y = 2.6449E-004 * x + 4.6456E-006
Pb	1.0000	y = 0.0022 * x + 1.2274E-004
Li	1.0000	y = 1.8669E-005 * x + 4.2895E-006

REVIEWED BY
By Janice Whitt at 1:02:45 PM, 8/9/2016

Calibration Summary Report

Level 7 Cal

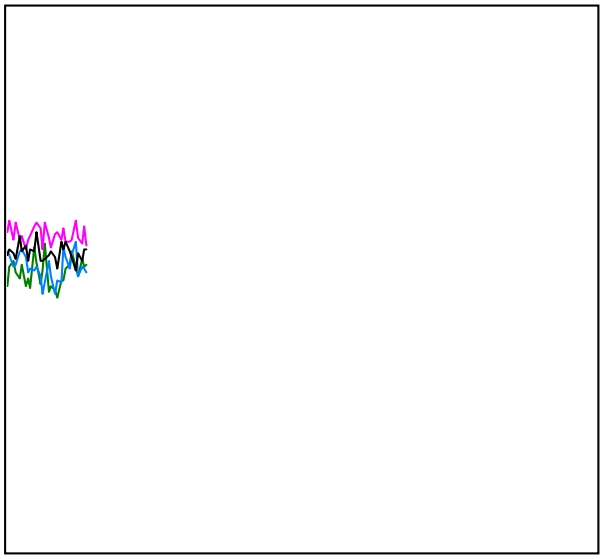
Ele	Conc	Calc	%Rec
As	500	498.45	100
Be	500	505.78	101
B	500	486.01	97
Na	10000	10049.69	100
Mg	10000	10181.61	102
Al	10000	9994.42	100
K	10000	9900.92	99
Ca	10000	9454.09	95
Ti	500	481.85	96
V	500	498.19	100
Cr	500	512.27	102
Mn	500	505.41	101
Fe	10000	9974.46	100
Co	500	501.66	100
Ni	500	511.56	102
Cu	500	515.53	103
Zn	500	506.64	101
Se	500	496.41	99
Sr	500	474.31	95
Mo	500	480.66	96
Ag	500	496.79	99
Cd	500	489.19	98
Sn	500	472.68	95
Sb	500	498.99	100
Tl	500	501.85	100
Ba	500	491.58	98
Pb	500	492.45	98

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2000.42	100
Be	2000	1997.84	100
B	2000	2005.03	100
Na	25000	24958.35	100
Mg	25000	24894.77	100
K	25000	25041.62	100
Ca	25000	25271.64	99
Ti	2000	2005.89	100
V	2000	2000.28	100
Cr	2000	1995.77	100
Mn	2000	1998.13	100
Co	2000	1999.12	100
Ni	2000	1996.02	100
Cu	2000	1994.66	100
Zn	2000	1997.85	100
Se	2000	2000.78	100
Sr	2000	2007.96	100
Mo	2000	2005.89	100
Cd	2000	2003.00	100
Sn	2000	2008.38	100
Tl	2000	1998.56	100
Ba	2000	2002.32	100
Pb	2000	2002.16	100
Li	2000	2000.09	100

REVIEWED BY
By Janice Whitt at 1:02:55 PM, 8/9/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51	200	102	111.6	10.57
59	2000	1050	1024.8	4.82
89	2000	1023	1045.5	4.60
140	5000	2803	2905.1	2.81
205	5000	2779	2742.4	2.86
156/140	1	0.107 %	0.256 %	46.31
75	20	4	4.9	56.23
78	20	3	5.0	51.69
56	2000	1187	1212.8	4.17
31	100	53	51.4	20.41
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.53
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	8.6
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	1.6		

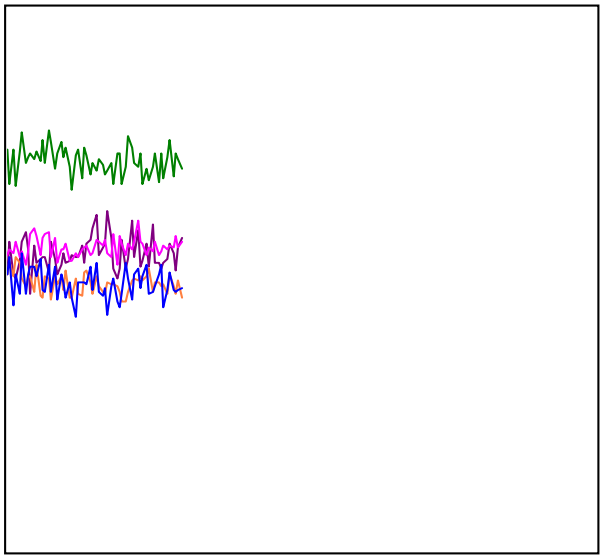
Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.5	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.52E+2	Pa	Carrier Gas(BP)	1.80E+2	kPa
Analyzer Press	2.18E-4	Pa	Reflected Power	6	W
Forward Power	1549	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
7	1000	576	546.3	5.50
59	2000	1410	1435.3	3.61
89	5000	2331	2464.1	3.87
140	5000	2837	2793.1	2.98
205	5000	1880	1906.3	3.20
156/140	2	1.058 %	0.912 %	22.17
95	20	5	4.6	56.28
78	2000	1086	1012.0	3.82
63	1000	484	492.2	5.44
75	5000	2420	2404.1	2.93
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.53
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	8.6
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	7.0		

Cell Parameters

Use Gas	false	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.50E+2	Pa	Carrier Gas(BP)	1.79E+2	kPa
Analyzer Press	1.25E-4	Pa	Reflected Power	6	W
Forward Power	1550	W			

US EPA Tune Check Sample Report

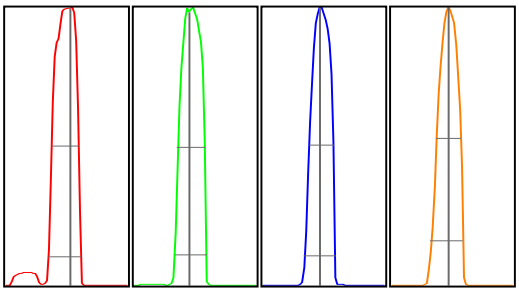
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	820387	0.57	5.00	
59	2076305	0.59	5.00	
115	3149979	0.94	5.00	
205	2840526	0.66	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	820840	827901	817950	815407	819840
59	2076233	2091314	2081446	2057502	2075032
115	3126808	3160878	3118622	3150181	3193406
205	2869353	2846304	2835576	2820303	2831093

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	131004	7.10	6.9 - 7.1		0.792	0.850	
59	338072	58.90	58.9 - 59.1		0.764	0.850	
115	573941	114.95	114.9 - 115.1		0.726	0.850	
205	510080	204.95	204.9 - 205.1		0.760	0.850	

X% = 10 **Int Time [sec] =** 0.1 **Acq Time [sec] =** 135.05 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Nebulizer Pump	0.10	rps
RF Matching	1.90	V	S/C Temp	2	℃
Smpl Depth	8.0	mm	Gas Switch	Dilution Gas	
Carrier Gas	0.53	L/min	Makeup/Dilution Gas	0.52	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-100	V	Deflect	7.0	V
Omega Lens	8.6	V	Plate Bias	-60	V

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By Janice Whitt at 1:03:08 PM, 8/9/2016

Cell Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	false		OctP Bias	-18.0	V
He Flow	0.0	mL/min	OctP RF	200	V
H2 Flow	0.0	mL/min	Energy Discrimination	3.0	V
3rd Gas Flow	0	%			

P/A Factor Tuning Report

Current Sample

Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 08/09/2016 10:41:35

Detector Parameters and P/A Factors

Discriminator: 5.1 mV
AnalogHV: 1716 V
PulseHV: 1377 V

Acquired: 08/09/2016 10:08:37

Mass[u]	Element	P/A Factor
6	Li	0.103820
9	Be	0.115883
23	Na	0.124152
24	Mg	0.127430
27	Al	0.130455
39	K	0.131998
45	Sc	0.133301
48		0.134713
51	V	0.134993
52	Cr	0.137286
55	Mn	0.138038
59	Co	0.140475
60	Ni	0.139582
63	Cu	0.140798
66	Zn	0.142369
72		0.141234
74	Ge	0.142200
75	As	0.141974
88	Sr	0.142053
89		0.142165
95		0.141080
97	Mo	0.142218
98	Mo	0.142414
99	[Mo]	0.142858
101		0.143936
105		0.144761
111	Cd	0.144731
114	Cd	0.144821
115	In	0.144826
118	Sn	0.145614
121		0.144762
123	Sb	0.144930
135	Ba	0.145648
138		0.145906
175		0.146699
193		0.147401
205	Tl	0.147164
206	[Pb]	0.147946
207	[Pb]	0.148617
208	Pb	0.148302
209	Bi	0.148228
232		0.148249
238	U	0.148202
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

REVIEWED BY
By Janice Whitt at 1:03:06 PM, 8/9/2016

Calibration Blank Report

Date Acquired	8/9/2016 10:41	Sample Name	BLANK STD 1
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	4	70.50
9	Be	45	1	86.60
11	B	45	40	30.04
23	Na	45	43629	1.36
24	Mg	45	723	3.32
27	Al	45	1049	6.36
39	K	45	51133	0.91
44	Ca	45	423	17.41
47	Ti	45	22	31.22
51	V	45	2727	2.20
52	Cr	45	1217	5.50
55	Mn	45	149	16.81
56	Fe	45	6305	1.09
59	Co	72	101	9.52
60	Ni	72	404	8.09
63	Cu	72	4733	3.73
66	Zn	72	411	4.89
75	As	72	161	10.42
78	Se	72	41	14.59
88	Sr	115	406	9.09
95	Mo	115	68	15.02
107	Ag	115	36	14.32
111	Cd	115	9	86.60
118	Sn	115	887	0.65
121	Sb	115	322	6.24
137	Ba	115	31	40.56
205	Tl	209	253	1.32
208	Pb	209	1936	2.22

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1008225	0.69
72	Ge	680921	0.97
115	In	6714019	1.44
209	Bi	15779460	2.19

Calibration Standard Report

Date Acquired	8/9/2016 10:43	Sample Name	L2-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	18	24.22
9	Be	45	33	12.12
11	B	45	46	29.58
23	Na	45	61485	1.59
24	Mg	45	9481	3.32
27	Al	45	4092	1.76
39	K	45	59251	1.54
44	Ca	45	804	5.30
47	Ti	45	170	15.69
51	V	45	7663	1.42
52	Cr	45	7013	3.03
55	Mn	45	3694	4.92
56	Fe	45	106215	0.44
59	Co	72	9238	2.91
60	Ni	72	3004	2.00
63	Cu	72	11848	2.14
66	Zn	72	1478	4.38
75	As	72	1002	5.92
78	Se	72	106	16.28
88	Sr	115	4667	2.25
95	Mo	115	3617	0.94
107	Ag	115	11304	2.53
111	Cd	115	1686	4.34
118	Sn	115	4337	2.73
121	Sb	115	5701	5.30
137	Ba	115	1873	5.13
205	Tl	209	26009	0.81
208	Pb	209	36838	1.14

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1010492	0.13	1008225	100.22	70	120	
72	Ge	679939	0.18	680921	99.86	70	120	
115	In	6637335	1.72	6714019	98.86	70	120	
209	Bi	15674633	0.76	15779460	99.34	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:45	Sample Name	L-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	181	12.33
9	Be	45	356	8.01
11	B	45	179	16.91
23	Na	45	209868	0.25
24	Mg	45	84316	0.94
27	Al	45	31881	0.26
39	K	45	132003	0.68
44	Ca	45	4888	2.12
47	Ti	45	1462	3.01
51	V	45	49807	0.10
52	Cr	45	59429	0.86
55	Mn	45	33462	0.22
56	Fe	45	1011376	0.45
59	Co	72	93307	2.09
60	Ni	72	26365	0.63
63	Cu	72	74894	1.13
66	Zn	72	11829	1.48
75	As	72	8723	0.25
78	Se	72	589	3.42
88	Sr	115	41738	1.85
95	Mo	115	36822	1.67
107	Ag	115	114426	1.35
111	Cd	115	17091	2.54
118	Sn	115	36413	1.39
121	Sb	115	52603	1.16
137	Ba	115	17440	1.06
205	Tl	209	256069	0.66
208	Pb	209	345529	0.19

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1027602	0.15	1008225	101.92	70	120	
72	Ge	679641	0.87	680921	99.81	70	120	
115	In	6702371	0.33	6714019	99.83	70	120	
209	Bi	15930288	1.46	15779460	100.96	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:47	Sample Name	10X-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	942	4.69
9	Be	45	1658	3.43
11	B	45	858	5.28
23	Na	45	863297	0.45
24	Mg	45	417526	0.22
27	Al	45	154394	0.85
39	K	45	445157	0.26
44	Ca	45	22760	1.92
47	Ti	45	7533	3.07
51	V	45	237037	0.56
52	Cr	45	292323	0.60
55	Mn	45	164679	0.76
56	Fe	45	4969406	0.92
59	Co	72	450999	0.65
60	Ni	72	126792	0.75
63	Cu	72	351530	0.27
66	Zn	72	57092	1.16
75	As	72	43588	0.64
78	Se	72	2794	2.36
88	Sr	115	208213	0.83
95	Mo	115	184542	0.90
107	Ag	115	565576	0.64
111	Cd	115	85310	1.12
118	Sn	115	176345	0.76
121	Sb	115	263432	0.49
137	Ba	115	87826	0.61
205	Tl	209	1262976	0.40
208	Pb	209	1714355	0.98

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1023120	1.22	1008225	101.48	70	120	
72	Ge	680780	0.14	680921	99.98	70	120	
115	In	6738804	1.40	6714019	100.37	70	120	
209	Bi	15870769	0.79	15779460	100.58	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:49	Sample Name	5X-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1847	2.03
9	Be	45	3348	0.81
11	B	45	1658	2.75
23	Na	45	1676972	0.71
24	Mg	45	834226	0.43
27	Al	45	308086	0.46
39	K	45	844559	0.96
44	Ca	45	45169	0.27
47	Ti	45	15055	1.88
51	V	45	471890	1.40
52	Cr	45	584368	0.53
55	Mn	45	330819	0.47
56	Fe	45	10084502	0.99
59	Co	72	904871	0.63
60	Ni	72	252075	0.36
63	Cu	72	697640	0.30
66	Zn	72	114774	0.45
75	As	72	86702	0.52
78	Se	72	5668	1.52
88	Sr	115	417898	0.27
95	Mo	115	367281	0.93
107	Ag	115	1129378	0.44
111	Cd	115	172657	0.58
118	Sn	115	351810	0.40
121	Sb	115	526275	0.29
137	Ba	115	175794	1.77
205	Tl	209	2563479	0.38
208	Pb	209	3428750	0.54

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1029269	1.36	1008225	102.09	70	120	
72	Ge	678661	0.52	680921	99.67	70	120	
115	In	6759315	3.88	6714019	100.67	70	120	
209	Bi	16108379	1.30	15779460	102.08	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:51	Sample Name	2X-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	4719	1.49
9	Be	45	8480	1.79
11	B	45	3824	1.72
23	Na	45	4091130	0.15
24	Mg	45	2065213	0.21
27	Al	45	762255	0.86
39	K	45	2008476	0.37
44	Ca	45	111530	1.91
47	Ti	45	36951	1.87
51	V	45	1159188	0.69
52	Cr	45	1439165	0.56
55	Mn	45	816287	0.50
56	Fe	45	24362618	1.60
59	Co	72	2223301	0.64
60	Ni	72	616644	0.33
63	Cu	72	1698410	0.12
66	Zn	72	277498	1.21
75	As	72	212780	0.60
78	Se	72	13964	0.76
88	Sr	115	1026606	0.43
95	Mo	115	913435	0.53
107	Ag	115	2778690	0.36
111	Cd	115	421073	0.37
118	Sn	115	873791	0.75
121	Sb	115	1299959	0.22
137	Ba	115	435834	0.37
205	Tl	209	6460258	2.28
208	Pb	209	8513571	0.84

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1018655	0.93	1008225	101.03	70	120	
72	Ge	678566	0.45	680921	99.65	70	120	
115	In	6616875	1.49	6714019	98.55	70	120	
209	Bi	15804808	0.19	15779460	100.16	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:53	Sample Name	H-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	9540	1.29
9	Be	45	16767	0.53
11	B	45	7785	3.68
23	Na	45	8031386	2.69
24	Mg	45	4092498	0.93
27	Al	45	1518993	0.39
39	K	45	3932916	0.55
44	Ca	45	220063	0.62
47	Ti	45	73925	1.47
51	V	45	2297809	0.54
52	Cr	45	2859996	0.51
55	Mn	45	1627926	0.77
56	Fe	45	48345990	0.16
59	Co	72	4409451	1.28
60	Ni	72	1227882	0.46
63	Cu	72	3373188	0.46
66	Zn	72	556381	0.69
75	As	72	424887	0.32
78	Se	72	27570	0.79
88	Sr	115	2052383	0.50
95	Mo	115	1822972	0.07
107	Ag	115	5465324	1.11
111	Cd	115	840336	0.83
118	Sn	115	1738025	0.64
121	Sb	115	2602639	0.67
137	Ba	115	869956	0.52
205	Tl	209	12690921	1.61
208	Pb	209	17006927	0.99

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1018317	0.53	1008225	101.00	70	120	
72	Ge	677260	0.09	680921	99.46	70	120	
115	In	6694384	2.56	6714019	99.71	70	120	
209	Bi	15939527	1.55	15779460	101.01	70	120	

Calibration Standard Report

Date Acquired	8/9/2016 10:55	Sample Name	H2-160809
Data Batch	160809.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	37660	1.09
9	Be	45	65585	0.28
11	B	45	31683	0.40
23	Na	45	19688218	0.64
24	Mg	45	9908900	0.49
27	Al	45	12817	3.46
39	K	45	9772674	0.59
44	Ca	45	581835	0.17
47	Ti	45	304688	0.51
51	V	45	9128636	2.42
52	Cr	45	11031042	1.12
55	Mn	45	6373127	1.44
56	Fe	45	36272	5.18
59	Co	72	17438869	0.65
60	Ni	72	4753877	0.70
63	Cu	72	12940749	1.94
66	Zn	72	2176396	1.21
75	As	72	1691815	0.54
78	Se	72	110163	0.54
88	Sr	115	8413825	1.09
95	Mo	115	7367472	1.03
107	Ag	115	2218	3.62
111	Cd	115	3331691	0.64
118	Sn	115	7148189	0.91
121	Sb	115	3163	4.82
137	Ba	115	3431916	0.75
205	Tl	209	49550818	0.57
208	Pb	209	67798691	0.59

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1008447	0.22	1008225	100.02	70	120	
72	Ge	672184	0.87	680921	98.72	70	120	
115	In	6480222	0.33	6714019	96.52	70	120	
209	Bi	15628900	1.01	15779460	99.05	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	8/9/2016 11:01	Sample Name	ICSA-160809
Data Batch	160809.b	Comment	ICSAICPMS_TW
Data File Name	022ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.071	3	66.7	1.2	0.8	
11	B	19.374	348	13.9	30	30	
51	V	-0.112	2229	4.6	10	10	
52	Cr	0.918	6326	3.5	8	5	
55	Mn	0.492	1728	6.0	8	10	
59	Co	1.342	11642	1.9	8	10	
60	Ni	0.541	1665	6.9	8	10	
63	Cu	2.579	21098	1.6	8	10	
66	Zn	2.181	2742	4.0	10	5	
75	As	0.533	602	1.4	4	5	
78	Se	0.575	71	9.6	2	5	
88	Sr	1.208	5427	0.9	10	10	
107	Ag	0.120	1302	8.6	0.8	2	
111	Cd	0.668	1113	13.8	1.2	1	
118	Sn	0.754	3523	6.2	10	10	
121	Sb	0.213	1380	0.9	4	2.5	
137	Ba	0.534	940	10.7	8	10	
205	Tl	0.125	3215	4.2	4	1.5	
208	Pb	0.511	18427	1.3	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1014292	0.58	1008225	100.60	70	120	
72	Ge	662699	1.45	680921	97.32	70	120	
115	In	6447383	0.10	6714019	96.03	70	120	
209	Bi	14975372	0.88	15779460	94.90	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	8/9/2016 11:03	Sample Name	ICSAB-160809
Data Batch	160809.b	Comment	ICSBICPMS_TW
Data File Name	023ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	40.152	189256	0.21	40	100.4	80	120	
52	Cr	45	21.295	121046	1.61	20	106.5	80	120	
55	Mn	45	20.068	65307	1.24	20	100.3	80	120	
59	Co	72	40.309	355199	1.25	40	100.8	80	120	
60	Ni	72	38.143	92138	1.24	40	95.4	80	120	
63	Cu	72	21.233	143773	0.73	20	106.2	80	120	
66	Zn	72	20.725	23205	0.44	20	103.6	80	120	
75	As	72	20.281	17482	1.16	20	101.4	80	120	
78	Se	72	20.036	1154	6.20	20	100.2	80	120	
107	Ag	115	19.358	208415	0.63	20	96.8	80	120	
111	Cd	115	10.121	17022	1.43	10	101.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1026600	0.34	1008225	101.82	70	120	
72	Ge	678810	0.41	680921	99.69	70	120	
115	In	6548924	0.54	6714019	97.54	70	120	
209	Bi	14692869	1.09	15779460	93.11	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	8/9/2016 11:09	Sample Name	ICV-160809
Data Batch	160809.b	Comment	ICV ICPMS_TW
Data File Name	026_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	93.870	1816	1.91	100	93.9	90	110	
9	Be	45	102.514	3450	3.41	100	102.5	90	110	
11	B	45	90.801	1510	4.63	100	90.8	90	110	
23	Na	45	2646.217	2179833	0.75	2500	105.8	90	110	
24	Mg	45	2644.617	1079737	0.31	2500	105.8	90	110	
27	Al	45	2525.033	390402	0.91	2500	101.0	90	110	
39	K	45	2558.187	1070483	0.60	2500	102.3	90	110	
44	Ca	45	2362.855	56159	0.83	2500	94.5	90	110	
47	Ti	45	98.935	15428	2.05	100	98.9	90	110	
51	V	45	104.273	490461	0.65	100	104.3	90	110	
52	Cr	45	108.424	615490	1.15	100	108.4	90	110	
55	Mn	45	103.373	338138	0.33	100	103.4	90	110	
56	Fe	45	2628.605	12939607	1.13	2500	105.1	90	110	
59	Co	72	104.675	937583	0.78	100	104.7	90	110	
60	Ni	72	104.833	256721	0.83	100	104.8	90	110	
63	Cu	72	105.478	707053	1.01	100	105.5	90	110	
66	Zn	72	102.815	115386	0.94	100	102.8	90	110	
75	As	72	101.185	88014	0.84	100	101.2	90	110	
78	Se	72	102.302	5822	1.14	100	102.3	90	110	
88	Sr	115	98.318	435436	1.15	100	98.3	90	110	
95	Mo	115	96.721	375207	1.15	100	96.7	90	110	
107	Ag	115	102.189	1149512	1.63	100	102.2	90	110	
111	Cd	115	99.450	174693	0.76	100	99.4	90	110	
118	Sn	115	97.260	366416	0.77	100	97.3	90	110	
121	Sb	115	101.809	543343	1.57	100	101.8	90	110	
137	Ba	115	100.138	181280	0.79	100	100.1	90	110	
205	Tl	209	101.214	2589626	0.59	100	101.2	90	110	
208	Pb	209	100.005	3496041	0.86	100	100.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1033827	0.72	1008225	102.54	70	120	
72	Ge	690121	0.66	680921	101.35	70	120	
115	In	6843440	0.48	6714019	101.93	70	120	
209	Bi	16125425	0.14	15779460	102.19	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 11:14	Sample Name	LCVL-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	028LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.093	219	3.82	10	110.9	70	130	
9	Be	45	0.700	24	6.28	1	70.0	70	130	
11	B	45	22.517	407	12.73	20	112.6	70	130	
23	Na	45	117.964	140421	0.97	100	118.0	70	130	
24	Mg	45	106.822	44485	0.91	100	106.8	70	130	
27	Al	45	105.448	17397	1.41	100	105.4	70	130	
39	K	45	97.585	91598	1.78	100	97.6	70	130	
44	Ca	45	101.347	2834	1.71	100	101.3	70	130	
47	Ti	45	4.817	776	13.32	5	96.3	70	130	
51	V	45	1.197	8427	0.63	1	119.7	70	130	
52	Cr	45	5.344	31638	0.34	5	106.9	70	130	
55	Mn	45	5.091	16859	2.61	5	101.8	70	130	
56	Fe	45	112.660	562781	0.74	100	112.7	70	130	
59	Co	72	5.253	47408	1.22	5	105.1	70	130	
60	Ni	72	5.352	13570	1.18	5	107.0	70	130	
63	Cu	72	5.190	39570	0.77	5	103.8	70	130	
66	Zn	72	5.346	6429	0.94	5	106.9	70	130	
75	As	72	5.199	4704	1.17	5	104.0	70	130	
78	Se	72	4.948	323	7.38	5	99.0	70	130	
88	Sr	115	4.958	22293	1.23	5	99.2	70	130	
95	Mo	115	5.197	20169	0.99	5	103.9	70	130	
107	Ag	115	2.087	23448	0.49	2	104.3	70	130	
111	Cd	115	0.995	1751	5.22	1	99.5	70	130	
118	Sn	115	5.083	19953	2.09	5	101.7	70	130	
121	Sb	115	2.003	10982	1.87	2	100.1	70	130	
137	Ba	115	5.034	9118	1.21	5	100.7	70	130	
205	Tl	209	1.043	27007	0.90	1	104.3	70	130	
208	Pb	209	1.068	39408	1.46	1	106.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1037525	0.15	1008225	102.91	70	120	
72	Ge	693966	1.02	680921	101.92	70	120	
115	In	6826040	1.60	6714019	101.67	70	120	
209	Bi	16169004	1.50	15779460	102.47	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	8/9/2016 11:18	Sample Name	ICB-160809
Data Batch	160809.b	Comment	ICB ICPMS_TW
Data File Name	030_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.353	11	57.4	2	5	
9	Be	45	-0.010	0	173.2	0.4	0.3	
11	B	45	1.961	73	24.0	10	10	
23	Na	45	9.350	52723	0.5	50	100	
24	Mg	45	0.559	978	6.6	50	100	
27	Al	45	0.527	1167	8.5	50	10	
39	K	45	-8.887	49311	0.9	50	100	
44	Ca	45	2.318	493	8.8	50	100	
47	Ti	45	-0.005	22	48.2	4	3	
51	V	45	0.184	3686	4.1	4	3	
52	Cr	45	0.003	1276	7.3	2	2	
55	Mn	45	0.001	158	36.0	2	3	
56	Fe	45	1.938	16134	2.2	50	50	
59	Co	72	0.000	107	32.9	2	3	
60	Ni	72	0.008	436	22.6	2	3	
63	Cu	72	-0.149	3857	4.0	2	2	
66	Zn	72	-0.125	281	10.2	4	2	
75	As	72	0.067	225	3.8	2	2	
78	Se	72	0.194	53	20.4	1	2	
88	Sr	115	0.000	419	6.6	4	3	
95	Mo	115	0.187	801	7.3	2	2	
107	Ag	115	0.010	144	29.3	0.4	1	
111	Cd	115	0.013	31	34.4	0.4	0.3	
118	Sn	115	0.092	1261	1.1	4	3	
121	Sb	115	0.000	329	11.2	2	0.8	
137	Ba	115	-0.003	27	64.9	2	3	
205	Tl	209	0.004	363	8.0	2	0.5	
208	Pb	209	0.045	3508	4.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1042570	0.23	1008225	103.41	70	120	
72	Ge	698835	0.63	680921	102.63	70	120	
115	In	6912017	3.92	6714019	102.95	70	120	
209	Bi	15943450	0.42	15779460	101.04	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 15:03	Sample Name	CCV5-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	119_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	188.205	3524	1.00	200	94.1	90	110	
9	Be	45	190.821	6223	0.91	200	95.4	90	110	
11	B	45	247.567	3919	3.53	200	123.8	90	110	Fail
23	Na	45	5232.683	4133951	0.48	5000	104.7	90	110	
24	Mg	45	5123.609	2026048	0.60	5000	102.5	90	110	
27	Al	45	4995.158	747236	1.21	5000	99.9	90	110	
39	K	45	5164.764	2042106	0.81	5000	103.3	90	110	
44	Ca	45	4833.006	110856	0.10	5000	96.7	90	110	
47	Ti	45	196.831	29713	1.42	200	98.4	90	110	
51	V	45	213.721	971118	1.08	200	106.9	90	110	
52	Cr	45	211.497	1162102	0.32	200	105.7	90	110	
55	Mn	45	209.428	663581	0.31	200	104.7	90	110	
56	Fe	45	5272.158	25137941	1.49	5000	105.4	90	110	
59	Co	72	205.075	1852858	0.56	200	102.5	90	110	
60	Ni	72	204.138	503869	1.48	200	102.1	90	110	
63	Cu	72	205.931	1387811	1.40	200	103.0	90	110	
66	Zn	72	201.808	228053	0.21	200	100.9	90	110	
75	As	72	209.243	183429	0.29	200	104.6	90	110	
78	Se	72	203.615	11647	1.20	200	101.8	90	110	
88	Sr	115	197.236	869380	0.62	200	98.6	90	110	
95	Mo	115	197.920	764435	0.53	200	99.0	90	110	
107	Ag	115	205.826	2305361	0.35	200	102.9	90	110	
111	Cd	115	200.376	350450	1.23	200	100.2	90	110	
118	Sn	115	200.039	749430	0.63	200	100.0	90	110	
121	Sb	115	212.011	1126304	0.37	200	106.0	90	110	
137	Ba	115	206.557	372291	1.57	200	103.3	90	110	
205	Tl	209	204.108	5186795	0.70	200	102.1	90	110	
208	Pb	209	200.881	6973157	0.79	200	100.4	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1001638	0.83	1008225	99.35	70	120	
72	Ge	696160	0.68	680921	102.24	70	120	
115	In	6813960	0.48	6714019	101.49	70	120	
209	Bi	16017950	1.21	15779460	101.51	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 15:08	Sample Name	LCVL5-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	121LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.028	192	2.56	10	100.3	70	130	
9	Be	45	1.153	38	10.54	1	115.3	70	130	
11	B	45	65.960	1077	4.06	20	329.8	70	130	Fail
23	Na	45	199.063	199509	1.47	100	199.1	70	130	Fail
24	Mg	45	107.235	43228	1.45	100	107.2	70	130	
27	Al	45	104.380	16682	0.38	100	104.4	70	130	
39	K	45	106.680	92196	1.03	100	106.7	70	130	
44	Ca	45	106.143	2854	4.48	100	106.1	70	130	
47	Ti	45	4.465	698	7.88	5	89.3	70	130	
51	V	45	1.527	9655	0.99	1	152.7	70	130	Fail
52	Cr	45	5.472	31334	0.64	5	109.4	70	130	
55	Mn	45	5.263	16868	1.89	5	105.3	70	130	
56	Fe	45	111.432	538951	0.05	100	111.4	70	130	
59	Co	72	5.224	47811	2.02	5	104.5	70	130	
60	Ni	72	5.248	13498	3.50	5	105.0	70	130	
63	Cu	72	4.796	37444	1.32	5	95.9	70	130	
66	Zn	72	5.278	6442	1.82	5	105.6	70	130	
75	As	72	5.379	4929	2.11	5	107.6	70	130	
78	Se	72	5.632	366	4.59	5	112.6	70	130	
88	Sr	115	5.236	23803	0.99	5	104.7	70	130	
95	Mo	115	4.931	19373	1.12	5	98.6	70	130	
107	Ag	115	2.073	23566	1.39	2	103.6	70	130	
111	Cd	115	1.003	1787	4.83	1	100.3	70	130	
118	Sn	115	5.003	19891	2.38	5	100.1	70	130	
121	Sb	115	2.072	11487	2.61	2	103.6	70	130	
137	Ba	115	5.135	9413	1.11	5	102.7	70	130	
205	Tl	209	1.043	26992	1.04	1	104.3	70	130	
208	Pb	209	1.022	37741	1.47	1	102.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1004431	0.56	1008225	99.62	70	120	
72	Ge	703631	0.53	680921	103.34	70	120	
115	In	6909364	1.84	6714019	102.91	70	120	
209	Bi	16158629	2.37	15779460	102.40	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 15:11	Sample Name	CCB5-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	122_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.234	9	54.5	2	5	
9	Be	45	-0.020	0	#DIV/0!	0.4	0.3	
11	B	45	33.903	570	13.8	10	10	FailAq FailSoil
23	Na	45	73.465	100520	1.9	50	100	FailSoil
24	Mg	45	1.080	1142	7.2	50	100	
27	Al	45	-1.098	876	3.2	50	10	
39	K	45	-1.732	50002	0.7	50	100	
44	Ca	45	4.287	517	12.6	50	100	
47	Ti	45	-0.080	10	57.7	4	3	
51	V	45	0.330	4193	5.7	4	3	
52	Cr	45	-0.048	942	9.5	2	2	
55	Mn	45	-0.001	143	20.3	2	3	
56	Fe	45	0.137	6896	1.7	50	50	
59	Co	72	-0.004	64	16.6	2	3	
60	Ni	72	-0.039	316	14.3	2	3	
63	Cu	72	-0.434	1908	5.7	2	2	
66	Zn	72	-0.069	340	13.2	4	2	
75	As	72	0.058	214	11.2	2	2	
78	Se	72	0.406	64	4.9	1	2	
88	Sr	115	0.107	912	8.7	4	3	
95	Mo	115	0.032	200	20.8	2	2	
107	Ag	115	0.011	159	5.3	0.4	1	
111	Cd	115	0.000	9	21.6	0.4	0.3	
118	Sn	115	-0.098	550	10.4	4	3	
121	Sb	115	-0.005	312	12.0	2	0.8	
137	Ba	115	0.002	37	87.7	2	3	
205	Tl	209	0.004	351	7.9	2	0.5	
208	Pb	209	-0.009	1656	5.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	999033	0.79	1008225	99.09	70	120	
72	Ge	691102	0.92	680921	101.50	70	120	
115	In	7033122	0.66	6714019	104.75	70	120	
209	Bi	16148499	0.60	15779460	102.34	70	120	

Method Blank Report

Date Acquired	8/9/16 3:13 PM	Sample Name	MB-76664
Data Batch	160809.b	Comment	MBLKICPMS_TSDOD1
Data File Name	123_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.178	8	54.30		
9	Be	45	-0.020	0	#DIV/0!		
11	B	45	29.870	511	6.69		J
23	Na	45	69.665	98415	1.67		FAIL
24	Mg	45	12.791	5811	1.06		
27	Al	45	6.908	2087	7.22		
39	K	45	1.840	51832	1.22		
44	Ca	45	45.204	1462	4.17		
47	Ti	45	0.000	22	37.76		
51	V	45	0.295	4073	2.09		
52	Cr	45	0.159	2096	3.20		
55	Mn	45	0.127	554	9.20		
56	Fe	45	4.982	30196	2.87		
59	Co	72	0.000	100	27.28		
60	Ni	72	0.107	674	2.72		
63	Cu	72	-0.332	2602	7.94		
66	Zn	72	2.951	3736	8.36		
75	As	72	0.056	213	7.02		
78	Se	72	0.246	55	14.78		
88	Sr	115	0.231	1451	8.04		
95	Mo	115	0.037	213	10.25		
107	Ag	115	0.013	180	19.51		
111	Cd	115	-0.003	3	100.05		
118	Sn	115	4.348	17411	1.61		J
121	Sb	115	-0.028	180	19.34		
137	Ba	115	0.049	122	12.89		
205	Tl	209	0.005	407	3.28		
208	Pb	209	0.022	2828	5.35		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1007862	0.33	1008225	99.96	70	120	
72	Ge	693804	0.32	680921	101.89	70	120	
115	In	6909701	0.84	6714019	102.91	70	120	
209	Bi	16685363	2.23	15779460	105.74	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 15:15	Sample Name	LCS-76664
Data Batch	160809.b	Comment	LCS ICPMS_TSDOD1
Data File Name	124_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	191.315	3573	3.44	200	95.7	80	120	
9	Be	45	192.369	6257	1.48	200	96.2	80	120	
11	B	45	205.892	3259	3.96	200	102.9	80	120	
23	Na	45	5251.793	4138202	0.37	1000	525.2	80	120	Fail
24	Mg	45	5234.270	2064480	0.62	1000	523.4	80	120	Fail
27	Al	45	1021.933	153312	1.18	1000	102.2	80	120	
39	K	45	5253.195	2070954	0.98	1000	525.3	80	120	Fail
44	Ca	45	4945.853	113148	1.41	1000	494.6	80	120	Fail
47	Ti	45	195.787	29485	2.64	200	97.9	80	120	
51	V	45	216.385	980635	0.28	200	108.2	80	120	
52	Cr	45	214.687	1176541	0.55	200	107.3	80	120	
55	Mn	45	211.860	669525	0.42	200	105.9	80	120	
56	Fe	45	1052.087	5008033	0.90	1000	105.2	80	120	
59	Co	72	208.198	1859287	0.35	200	104.1	80	120	
60	Ni	72	208.492	508677	0.75	200	104.2	80	120	
63	Cu	72	207.425	1381725	0.54	200	103.7	80	120	
66	Zn	72	209.343	233801	0.87	200	104.7	80	120	
75	As	72	210.073	182022	0.43	200	105.0	80	120	
78	Se	72	202.019	11424	3.13	200	101.0	80	120	
88	Sr	115	195.713	873127	1.14	200	97.9	80	120	
95	Mo	115	196.448	767948	0.58	200	98.2	80	120	
107	Ag	115	204.528	2318633	0.83	200	102.3	80	120	
111	Cd	115	200.366	354702	0.20	200	100.2	80	120	
118	Sn	115	206.479	782941	0.18	200	103.2	80	120	
121	Sb	115	210.098	1129653	1.53	200	105.0	80	120	
137	Ba	115	203.039	370389	0.66	200	101.5	80	120	
205	Tl	209	199.692	5187137	0.70	200	99.8	80	120	
208	Pb	209	198.351	7038196	0.73	200	99.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	999044	0.92	1008225	99.09	70	120	
72	Ge	688080	0.55	680921	101.05	70	120	
115	In	6896808	0.52	6714019	102.72	70	120	
209	Bi	16374330	1.17	15779460	103.77	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 15:17	Sample Name	LCSD-76664
Data Batch	160809.b	Comment	LCSDICPMS_TSDOD1
Data File Name	125_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	188.881	3505	1.49	200	94.4	80	120	
9	Be	45	193.496	6254	3.02	200	96.7	80	120	
11	B	45	205.802	3237	3.30	200	102.9	80	120	
23	Na	45	5132.548	4020551	0.50	1000	513.3	80	120	Fail
24	Mg	45	5143.450	2016220	0.35	1000	514.3	80	120	Fail
27	Al	45	1009.534	150544	0.98	1000	101.0	80	120	
39	K	45	5145.012	2016894	0.46	1000	514.5	80	120	Fail
44	Ca	45	4806.626	109299	0.77	1000	480.7	80	120	Fail
47	Ti	45	198.348	29684	0.37	200	99.2	80	120	
51	V	45	215.752	971832	0.70	200	107.9	80	120	
52	Cr	45	213.359	1162153	0.37	200	106.7	80	120	
55	Mn	45	211.086	663003	0.62	200	105.5	80	120	
56	Fe	45	1067.839	5052527	2.57	1000	106.8	80	120	
59	Co	72	205.143	1843858	1.25	200	102.6	80	120	
60	Ni	72	203.955	500824	0.63	200	102.0	80	120	
63	Cu	72	203.068	1361542	0.96	200	101.5	80	120	
66	Zn	72	205.927	231478	0.72	200	103.0	80	120	
75	As	72	206.538	180114	0.37	200	103.3	80	120	
78	Se	72	199.281	11341	0.29	200	99.6	80	120	
88	Sr	115	193.318	860717	0.42	200	96.7	80	120	
95	Mo	115	196.192	765402	0.55	200	98.1	80	120	
107	Ag	115	203.047	2297113	0.16	200	101.5	80	120	
111	Cd	115	196.455	347067	0.88	200	98.2	80	120	
118	Sn	115	206.702	782173	1.03	200	103.4	80	120	
121	Sb	115	208.089	1116602	1.13	200	104.0	80	120	
137	Ba	115	200.470	364947	0.44	200	100.2	80	120	
205	Tl	209	200.809	5128520	0.57	200	100.4	80	120	
208	Pb	209	198.565	6927334	0.39	200	99.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	992931	0.69	1008225	98.48	70	120	
72	Ge	692513	0.41	680921	101.70	70	120	
115	In	6882752	0.82	6714019	102.51	70	120	
209	Bi	16099377	1.65	15779460	102.03	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/9/2016 15:23	Sample Name	1607265-18A SD
Data Batch	160809.b	Comment	SD ICPMS_TSDOD1
Data File Name	128_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	12.284	236	7.85	60.3	101.8	110	90	Good
9	Be	45	0.517	18	31.17	2.4	105.8	110	90	Good
11	B	45	36.117	610	13.69	112.7	160.2	110	90	
23	Na	45	840.258	705369	0.11	3984.1	105.5	110	90	Good
24	Mg	45	2854.769	1137510	0.22	14095.3	101.3	110	90	Good
27	Al	45	13371.447	2013299	0.30	67074.3	99.7	110	90	Good
39	K	45	3082.047	1248295	0.37	15274.6	100.9	110	90	Good
44	Ca	45	15278.816	352123	0.33	73990.4	103.2	110	90	Good
47	Ti	45	51.189	7801	2.00	257.3	99.5	110	90	Good
51	V	45	21.995	103124	1.09	108.5	101.3	110	90	Good
52	Cr	45	13.261	74543	0.33	64.0	103.7	110	90	Good
55	Mn	45	106.860	341147	0.57	519.1	102.9	110	90	Good
56	Fe	45	14742.210	70793279	2.39	71163.1	103.6	110	90	Good
59	Co	72	4.694	42704	2.01	23.4	100.3	110	90	Good
60	Ni	72	7.707	19507	0.79	37.8	102.1	110	90	Good
63	Cu	72	3.681	29692	0.25	19.5	94.5	110	90	Good
66	Zn	72	40.731	46565	0.71	196.1	103.9	110	90	Good
75	As	72	4.692	4293	2.91	23.4	100.4	110	90	Good
78	Se	72	1.408	122	5.22	5.0	140.0	110	90	
88	Sr	115	74.850	332245	0.34	369.5	101.3	110	90	Good
95	Mo	115	0.381	1549	1.83	1.8	106.8	110	90	Good
107	Ag	115	0.042	506	9.33	0.1	150.4	110	90	
111	Cd	115	0.112	207	6.45	0.5	122.7	110	90	
118	Sn	115	1.141	5201	2.06	6.1	92.9	110	90	Good
121	Sb	115	0.930	5300	3.05	4.6	100.2	110	90	Good
137	Ba	115	95.612	173425	0.51	473.8	100.9	110	90	Good
205	Tl	209	0.134	3726	1.90	0.6	115.8	110	90	
208	Pb	209	48.465	1710223	0.39	246.5	98.3	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1008986	0.46	1008225	100.08	70	120	
72	Ge	699213	0.74	680921	102.69	70	120	
115	In	6857379	1.58	6714019	102.14	70	120	
209	Bi	16269533	1.41	15779460	103.11	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/9/2016 15:43	Sample Name	1607265-18A PDS
Data Batch	160809.b	Comment	PDS ICPMS_TSDOD1
Data File Name	138_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	214.580	3986	1.98	60.3	200	77.1	75	125	
9	Be	45	180.709	5848	1.89	2.4	200	89.1	75	125	
11	B	45	247.486	3888	2.01	112.7	200	67.4	75	125	Fail
23	Na	45	8917.244	6961396	2.70	3984.1	5000	98.7	75	125	
24	Mg	45	19028.911	7465017	2.04	14095.3	5000	98.7	75	125	
27	Al	45	71689.350	10626971	2.01	67074.3	5000	92.3	75	125	
39	K	45	20901.987	8047937	1.63	15274.6	5000	112.5	75	125	
44	Ca	45	78758.418	1786200	1.07	73990.4	5000	95.4	75	125	
47	Ti	45	450.565	67478	2.40	257.3	200	96.6	75	125	
51	V	45	317.111	1428596	1.18	108.5	200	104.3	75	125	
52	Cr	45	270.902	1476810	1.05	64.0	200	103.5	75	125	
55	Mn	45	719.943	2263329	0.91	519.1	200	100.4	75	125	
56	Fe	45	77159.471	365042074	2.92	71163.1	5000	119.9	75	125	
59	Co	72	216.243	1920480	1.40	23.4	200	96.4	75	125	
60	Ni	72	228.209	553640	1.06	37.8	200	95.2	75	125	
63	Cu	72	206.100	1365327	0.52	19.5	200	93.3	75	125	
66	Zn	72	383.782	425891	0.82	196.1	200	93.9	75	125	
75	As	72	226.082	194791	0.41	23.4	200	101.4	75	125	
78	Se	72	194.247	10924	0.61	5.0	200	94.6	75	125	
88	Sr	115	560.779	2419039	0.78	369.5	200	95.7	75	125	
95	Mo	115	188.348	712111	0.28	1.8	200	93.3	75	125	
107	Ag	115	195.446	2142776	0.46	0.1	200	97.7	75	125	
111	Cd	115	184.977	316710	0.47	0.5	200	92.3	75	125	
118	Sn	115	199.158	730413	0.40	6.1	200	96.5	75	125	
121	Sb	115	206.693	1074886	0.63	4.6	200	101.0	75	125	
137	Ba	115	663.316	1170269	0.93	473.8	200	94.8	75	125	
205	Tl	209	196.860	4688956	0.72	0.6	200	98.1	75	125	
208	Pb	209	459.120	14935872	0.74	246.5	200	106.3	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	993933	0.89	1008225	98.58	70	120	
72	Ge	684272	0.79	680921	100.49	70	120	
115	In	6671286	1.72	6714019	99.36	70	120	
209	Bi	15012458	0.40	15779460	95.14	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 15:45	Sample Name	1607265-18A MS
Data Batch	160809.b	Comment	MS ICPMS_TSDOD1
Data File Name	139_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	222.160	4190	0.55	60.3	200	80.9	80	120	
9	Be	45	184.478	6061	1.97	2.4	200	91.0	80	120	
11	B	45	275.626	4393	2.43	112.7	200	81.5	80	120	
23	Na	45	9196.787	7287086	2.56	3984.1	1000	521.3	80	120	Fail
24	Mg	45	20436.138	8139823	1.08	14095.3	1000	634.1	80	120	Fail
27	Al	45	75056.691	11298363	1.94	67074.3	1000	798.2	80	120	Fail
39	K	45	22694.323	8868331	3.90	15274.6	1000	742.0	80	120	Fail
44	Ca	45	83369.436	1919850	0.70	73990.4	1000	937.9	80	120	Fail
47	Ti	45	540.501	82176	0.69	257.3	200	141.6	80	120	Fail
51	V	45	328.117	1500745	0.51	108.5	200	109.8	80	120	
52	Cr	45	282.360	1562824	0.84	64.0	200	109.2	80	120	
55	Mn	45	733.807	2342234	0.60	519.1	200	107.3	80	120	
56	Fe	45	75552.102	362868750	2.20	71163.1	1000	438.9	80	120	Fail
59	Co	72	226.964	2010529	1.23	23.4	200	101.8	80	120	
60	Ni	72	242.292	586291	0.99	37.8	200	102.3	80	120	
63	Cu	72	222.776	1471630	0.38	19.5	200	101.7	80	120	
66	Zn	72	435.236	481716	0.29	196.1	200	119.6	80	120	
75	As	72	235.015	201967	0.75	23.4	200	105.8	80	120	
78	Se	72	207.263	11623	0.85	5.0	200	101.1	80	120	
88	Sr	115	578.078	2476997	0.46	369.5	200	104.3	80	120	
95	Mo	115	190.579	715750	0.45	1.8	200	94.4	80	120	
107	Ag	115	201.088	2190078	0.65	0.1	200	100.5	80	120	
111	Cd	115	199.149	338706	0.40	0.5	200	99.3	80	120	
118	Sn	115	211.009	768704	0.91	6.1	200	102.4	80	120	
121	Sb	115	78.618	406351	1.08	4.6	200	37.0	80	120	Fail
137	Ba	115	617.832	1082793	0.73	473.8	200	72.0	80	120	Fail
205	Tl	209	203.539	4968151	0.76	0.6	200	101.5	80	120	
208	Pb	209	447.021	14903006	1.21	246.5	200	100.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1009164	0.36	1008225	100.09	70	120	
72	Ge	682506	0.46	680921	100.23	70	120	
115	In	6625982	0.62	6714019	98.69	70	120	
209	Bi	15385055	1.15	15779460	97.50	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 15:47	Sample Name	1607265-18A MSD
Data Batch	160809.b	Comment	MSD ICPMS_TSDOD1
Data File Name	140_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	238.292	4488	1.87	60.3	200	89.0	80	120	
9	Be	45	193.823	6358	1.29	2.4	200	95.7	80	120	
11	B	45	295.707	4703	1.49	112.7	200	91.5	80	120	
23	Na	45	9664.662	7645680	2.32	3984.1	1000	568.1	80	120	Fail
24	Mg	45	21050.773	8373380	1.53	14095.3	1000	695.5	80	120	Fail
27	Al	45	79907.602	12010995	0.14	67074.3	1000	1283.3	80	120	Fail
39	K	45	23148.201	9030636	1.05	15274.6	1000	787.4	80	120	Fail
44	Ca	45	90671.874	2084927	0.34	73990.4	1000	1668.1	80	120	Fail
47	Ti	45	565.757	85890	0.35	257.3	200	154.2	80	120	Fail
51	V	45	348.737	1592589	0.39	108.5	200	120.1	80	120	Fail
52	Cr	45	320.166	1769380	0.64	64.0	200	128.1	80	120	Fail
55	Mn	45	766.276	2442416	0.73	519.1	200	123.6	80	120	Fail
56	Fe	45	79217.714	379924456	0.34	71163.1	1000	805.5	80	120	Fail
59	Co	72	236.687	2111918	0.36	23.4	200	106.6	80	120	
60	Ni	72	265.534	647195	1.03	37.8	200	113.9	80	120	
63	Cu	72	232.219	1545131	1.19	19.5	200	106.4	80	120	
66	Zn	72	689.791	768822	0.89	196.1	200	246.9	80	120	Fail
75	As	72	248.110	214758	0.33	23.4	200	112.4	80	120	
78	Se	72	216.076	12204	1.21	5.0	200	105.5	80	120	
88	Sr	115	638.818	2729239	1.14	369.5	200	134.7	80	120	Fail
95	Mo	115	204.450	765581	0.37	1.8	200	101.3	80	120	
107	Ag	115	202.445	2198422	0.30	0.1	200	101.2	80	120	
111	Cd	115	210.809	357500	1.42	0.5	200	105.2	80	120	
118	Sn	115	223.472	811662	1.15	6.1	200	108.7	80	120	
121	Sb	115	77.220	397956	1.13	4.6	200	36.3	80	120	Fail
137	Ba	115	656.777	1147623	0.25	473.8	200	91.5	80	120	
205	Tl	209	216.048	5233949	0.17	0.6	200	107.7	80	120	
208	Pb	209	573.808	18986677	1.24	246.5	200	163.7	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1007739	0.88	1008225	99.95	70	120	
72	Ge	687551	1.29	680921	100.97	70	120	
115	In	6606488	0.61	6714019	98.40	70	120	
209	Bi	15269902	0.95	15779460	96.77	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 15:49	Sample Name	CCV6-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	141_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	170.203	3143	2.24	200	85.1	90	110	Fail
9	Be	45	186.934	6011	1.20	200	93.5	90	110	
11	B	45	186.137	2916	7.89	200	93.1	90	110	
23	Na	45	5046.918	3933908	0.85	5000	100.9	90	110	
24	Mg	45	5014.510	1955718	1.20	5000	100.3	90	110	
27	Al	45	4783.822	705831	0.48	5000	95.7	90	110	
39	K	45	5150.671	2008614	1.18	5000	103.0	90	110	
44	Ca	45	4700.037	106334	1.30	5000	94.0	90	110	
47	Ti	45	195.698	29141	2.56	200	97.8	90	110	
51	V	45	215.398	965255	0.48	200	107.7	90	110	
52	Cr	45	214.371	1161700	0.71	200	107.2	90	110	
55	Mn	45	207.966	649903	1.33	200	104.0	90	110	
56	Fe	45	5334.301	25087007	2.51	5000	106.7	90	110	
59	Co	72	204.235	1833744	1.24	200	102.1	90	110	
60	Ni	72	205.417	503874	1.22	200	102.7	90	110	
63	Cu	72	206.627	1383832	0.17	200	103.3	90	110	
66	Zn	72	204.014	229092	0.16	200	102.0	90	110	
75	As	72	209.900	182850	0.36	200	104.9	90	110	
78	Se	72	197.972	11256	1.61	200	99.0	90	110	
88	Sr	115	192.819	837735	0.60	200	96.4	90	110	
95	Mo	115	197.022	750092	1.24	200	98.5	90	110	
107	Ag	115	205.889	2272869	0.96	200	102.9	90	110	
111	Cd	115	200.855	346240	0.27	200	100.4	90	110	
118	Sn	115	197.043	727540	0.75	200	98.5	90	110	
121	Sb	115	208.987	1094232	0.69	200	104.5	90	110	
137	Ba	115	202.112	359048	0.87	200	101.1	90	110	
205	Tl	209	205.249	5051692	0.26	200	102.6	90	110	
208	Pb	209	202.233	6799198	0.15	200	101.1	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	987870	1.13	1008225	97.98	70	120	
72	Ge	691776	0.42	680921	101.59	70	120	
115	In	6716951	1.66	6714019	100.04	70	120	
209	Bi	15513174	0.65	15779460	98.31	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 15:54	Sample Name	LCVL6-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	143LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.419	172	2.63	10	94.2	70	130	
9	Be	45	1.000	32	28.65	1	100.0	70	130	
11	B	45	32.944	529	8.20	20	164.7	70	130	Fail
23	Na	45	128.270	136653	0.72	100	128.3	70	130	
24	Mg	45	106.371	40692	0.43	100	106.4	70	130	
27	Al	45	100.927	15340	3.35	100	100.9	70	130	
39	K	45	109.379	88463	1.26	100	109.4	70	130	
44	Ca	45	110.939	2812	3.10	100	110.9	70	130	
47	Ti	45	5.250	774	4.60	5	105.0	70	130	
51	V	45	0.928	6577	0.72	1	92.8	70	130	
52	Cr	45	5.627	30540	1.16	5	112.5	70	130	
55	Mn	45	5.310	16147	3.57	5	106.2	70	130	
56	Fe	45	115.324	529028	0.99	100	115.3	70	130	
59	Co	72	5.243	45668	1.34	5	104.9	70	130	
60	Ni	72	5.289	12946	0.53	5	105.8	70	130	
63	Cu	72	4.729	35212	1.26	5	94.6	70	130	
66	Zn	72	5.320	6177	1.88	5	106.4	70	130	
75	As	72	5.387	4698	1.91	5	107.7	70	130	
78	Se	72	5.383	335	3.22	5	107.7	70	130	
88	Sr	115	5.081	22035	1.01	5	101.6	70	130	
95	Mo	115	5.000	18730	1.25	5	100.0	70	130	
107	Ag	115	2.096	22725	1.46	2	104.8	70	130	
111	Cd	115	0.967	1645	0.82	1	96.7	70	130	
118	Sn	115	4.950	18776	1.36	5	99.0	70	130	
121	Sb	115	2.140	11299	0.82	2	107.0	70	130	
137	Ba	115	5.149	9003	1.45	5	103.0	70	130	
205	Tl	209	1.055	26076	0.77	1	105.5	70	130	
208	Pb	209	1.096	38539	1.16	1	109.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	953030	0.67	1008225	94.53	70	120	
72	Ge	669666	0.54	680921	98.35	70	120	
115	In	6588801	2.20	6714019	98.13	70	120	
209	Bi	15437073	1.02	15779460	97.83	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 15:57	Sample Name	CCB6-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	144_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.041	3	17.3	2	5	
9	Be	45	0.001	1	173.2	0.4	0.3	
11	B	45	12.619	224	7.0	10	10	FailAq FailSoil
23	Na	45	20.740	56296	0.7	50	100	
24	Mg	45	-0.141	627	7.2	50	100	
27	Al	45	1.012	1128	3.4	50	10	
39	K	45	1.862	48699	0.5	50	100	
44	Ca	45	8.973	591	8.0	50	100	
47	Ti	45	-0.092	8	65.5	4	3	
51	V	45	-0.134	1988	3.7	4	3	
52	Cr	45	-0.006	1109	2.9	2	2	
55	Mn	45	0.018	192	9.9	2	3	
56	Fe	45	2.809	18579	5.1	50	50	
59	Co	72	0.001	110	24.8	2	3	
60	Ni	72	-0.040	301	8.9	2	3	
63	Cu	72	-0.516	1317	11.0	2	2	
66	Zn	72	-0.053	346	22.8	4	2	
75	As	72	0.008	165	2.7	2	2	
78	Se	72	0.386	61	16.1	1	2	
88	Sr	115	0.053	624	7.5	4	3	
95	Mo	115	0.056	277	5.5	2	2	
107	Ag	115	0.020	252	15.8	0.4	1	
111	Cd	115	0.002	12	31.5	0.4	0.3	
118	Sn	115	-0.073	607	16.2	4	3	
121	Sb	115	0.015	391	13.9	2	0.8	
137	Ba	115	0.025	73	4.5	2	3	
205	Tl	209	0.025	862	6.7	2	0.5	
208	Pb	209	0.055	3709	1.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	946808	0.43	1008225	93.91	70	120	
72	Ge	667532	0.37	680921	98.03	70	120	
115	In	6580355	2.05	6714019	98.01	70	120	
209	Bi	15388494	0.74	15779460	97.52	70	120	

Sample Report

Date Acquired	8/9/16 4:12 PM	Sample Name	1607294-01A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	152SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	59.791	1125	1.03	2000	>RL
9	Be	45	2.447	81	14.69	2000	>RL
11	B	45	88.346	1428	3.42	2000	>RL
23	Na	45	5124.584	4059283	1.04	25000	>RL
24	Mg	45	15770.792	6249971	2.10	25000	>RL
27	Al	45	62332.203	9334830	2.47	10000	OUTCAL
39	K	45	14612.374	5698575	1.26	25000	>RL
44	Ca	45	162236.759	3716531	1.08	25000	OUTCAL
47	Ti	45	425.027	64295	0.89	2000	>RL
51	V	45	127.024	579676	1.34	2000	>RL
52	Cr	45	64.457	355866	0.79	2000	>RL
55	Mn	45	826.127	2623469	0.41	2000	>RL
56	Fe	45	69494.422	332072262	1.65	10000	OUTCAL
59	Co	72	28.547	253265	0.62	2000	>RL
60	Ni	72	47.374	115094	0.66	2000	>RL
63	Cu	72	43.611	292249	0.54	2000	>RL
66	Zn	72	272.192	301775	0.48	2000	>RL
75	As	72	24.290	21045	1.90	2000	>RL
78	Se	72	5.716	360	6.06	2000	>RL
88	Sr	115	529.342	2259147	1.60	2000	>RL
95	Mo	115	1.733	6547	1.71	2000	
107	Ag	115	0.255	2800	1.60	500	
111	Cd	115	0.754	1287	1.87	2000	>RL
118	Sn	115	6.140	23121	3.15	2000	>RL
121	Sb	115	2.674	14072	1.29	500	>RL
137	Ba	115	1945.329	3395609	0.12	2000	>RL
205	Tl	209	0.626	14981	1.42	2000	
208	Pb	209	82.456	2656121	0.30	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1004020	0.33	1008225	99.58	70	120	
72	Ge	683309	0.16	680921	100.35	70	120	
115	In	6599535	0.41	6714019	98.29	70	120	
209	Bi	14858380	1.04	15779460	94.16	70	120	

Sample Report

Date Acquired	8/9/16 4:14 PM	Sample Name	1607294-02A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	153SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	114.112	2158	2.13	2000	>RL
9	Be	45	2.989	99	5.62	2000	>RL
11	B	45	129.111	2082	8.07	2000	>RL
23	Na	45	11876.652	9415699	0.65	25000	>RL
24	Mg	45	18379.715	7334933	1.50	25000	>RL
27	Al	45	62878.372	9483158	0.95	10000	OUTCAL
39	K	45	11351.736	4469647	1.29	25000	>RL
44	Ca	45	177525.125	4095249	0.88	25000	OUTCAL
47	Ti	45	190.070	28963	1.09	2000	>RL
51	V	45	134.573	618273	0.84	2000	>RL
52	Cr	45	67.969	377826	0.75	2000	>RL
55	Mn	45	544.152	1740123	0.49	2000	>RL
56	Fe	45	87811.786	422528899	0.78	10000	OUTCAL
59	Co	72	43.239	387961	0.93	2000	>RL
60	Ni	72	64.638	158690	0.67	2000	>RL
63	Cu	72	12.240	86419	0.39	2000	>RL
66	Zn	72	262.842	294774	0.94	2000	>RL
75	As	72	22.755	19950	0.54	2000	>RL
78	Se	72	6.142	389	4.95	2000	>RL
88	Sr	115	561.835	2371594	0.27	2000	>RL
95	Mo	115	1.095	4117	4.04	2000	
107	Ag	115	0.051	587	2.05	500	
111	Cd	115	0.281	479	3.96	2000	
118	Sn	115	6.045	22530	1.57	2000	>RL
121	Sb	115	0.255	1610	7.53	500	
137	Ba	115	1670.310	2883683	0.30	2000	>RL
205	Tl	209	0.434	10489	0.53	2000	
208	Pb	209	31.837	1029323	0.85	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1011057	0.86	1008225	100.28	70	120	
72	Ge	691179	1.11	680921	101.51	70	120	
115	In	6527370	0.38	6714019	97.22	70	120	
209	Bi	14896277	1.35	15779460	94.40	70	120	

Sample Report

Date Acquired	8/9/16 4:16 PM	Sample Name	1607294-03A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	154SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	82.083	1553	1.09	2000	>RL
9	Be	45	2.524	84	11.36	2000	>RL
11	B	45	86.285	1405	1.72	2000	>RL
23	Na	45	4524.945	3612424	0.96	25000	>RL
24	Mg	45	9854.565	3930664	0.53	25000	>RL
27	Al	45	40640.451	6125812	1.33	10000	OUTCAL
39	K	45	8640.137	3412228	1.41	25000	>RL
44	Ca	45	203498.557	4691559	0.69	25000	OUTCAL
47	Ti	45	168.224	25625	1.81	2000	>RL
51	V	45	77.290	356058	0.82	2000	>RL
52	Cr	45	47.639	265025	0.44	2000	>RL
55	Mn	45	618.844	1977846	0.15	2000	>RL
56	Fe	45	67124.596	322801889	1.01	10000	OUTCAL
59	Co	72	44.088	398507	0.32	2000	>RL
60	Ni	72	55.768	137984	0.11	2000	>RL
63	Cu	72	10.369	74494	1.04	2000	>RL
66	Zn	72	247.892	280083	0.08	2000	>RL
75	As	72	16.877	14950	0.80	2000	>RL
78	Se	72	5.405	350	7.13	2000	>RL
88	Sr	115	1485.644	6509746	1.47	2000	>RL
95	Mo	115	2.247	8701	1.32	2000	>RL
107	Ag	115	0.052	618	14.68	500	
111	Cd	115	0.136	246	13.73	2000	
118	Sn	115	5.335	20753	2.63	2000	>RL
121	Sb	115	0.305	1935	0.95	500	
137	Ba	115	189.231	339245	0.84	2000	>RL
205	Tl	209	0.341	8342	3.61	2000	
208	Pb	209	33.546	1091318	0.60	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1010457	0.38	1008225	100.22	70	120	
72	Ge	696314	1.03	680921	102.26	70	120	
115	In	6778072	1.35	6714019	100.95	70	120	
209	Bi	14990194	1.12	15779460	95.00	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 16:18	Sample Name	CCV7-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	155_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	169.111	3032	1.37	200	84.6	90	110	Fail
9	Be	45	188.138	5876	3.52	200	94.1	90	110	
11	B	45	176.461	2686	1.15	200	88.2	90	110	Fail
23	Na	45	5117.643	3872078	1.09	5000	102.4	90	110	
24	Mg	45	5042.524	1909266	1.46	5000	100.9	90	110	
27	Al	45	4756.510	681344	0.91	5000	95.1	90	110	
39	K	45	5196.024	1966880	1.10	5000	103.9	90	110	
44	Ca	45	4739.282	104098	1.59	5000	94.8	90	110	
47	Ti	45	195.557	28264	0.90	200	97.8	90	110	
51	V	45	216.070	940023	1.17	200	108.0	90	110	
52	Cr	45	213.815	1124951	1.73	200	106.9	90	110	
55	Mn	45	206.900	627699	1.21	200	103.5	90	110	
56	Fe	45	5276.974	24093027	1.97	5000	105.5	90	110	
59	Co	72	204.060	1787365	1.45	200	102.0	90	110	
60	Ni	72	203.534	487046	1.20	200	101.8	90	110	
63	Cu	72	205.599	1343273	0.86	200	102.8	90	110	
66	Zn	72	202.232	221553	1.42	200	101.1	90	110	
75	As	72	209.956	178427	0.95	200	105.0	90	110	
78	Se	72	198.514	11010	1.15	200	99.3	90	110	
88	Sr	115	195.143	818618	0.59	200	97.6	90	110	
95	Mo	115	198.701	730411	0.91	200	99.4	90	110	
107	Ag	115	208.340	2220813	0.89	200	104.2	90	110	
111	Cd	115	200.545	333856	1.58	200	100.3	90	110	
118	Sn	115	197.666	704912	1.53	200	98.8	90	110	
121	Sb	115	209.481	1059167	1.15	200	104.7	90	110	
137	Ba	115	203.635	349323	1.14	200	101.8	90	110	
205	Tl	209	205.015	4824103	0.62	200	102.5	90	110	
208	Pb	209	203.530	6541879	0.27	200	101.8	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	959087	1.72	1008225	95.13	70	120	
72	Ge	674885	1.38	680921	99.11	70	120	
115	In	6486717	2.39	6714019	96.61	70	120	
209	Bi	14831393	1.00	15779460	93.99	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 16:27	Sample Name	LCVL7-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	157LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	8.956	169	12.80	10	89.6	70	130	
9	Be	45	1.135	37	12.39	1	113.5	70	130	
11	B	45	24.418	414	10.68	20	122.1	70	130	
23	Na	45	130.652	142778	1.67	100	130.7	70	130	Fail
24	Mg	45	102.633	40521	0.28	100	102.6	70	130	
27	Al	45	99.725	15644	1.42	100	99.7	70	130	
39	K	45	115.914	93716	0.32	100	115.9	70	130	
44	Ca	45	103.655	2737	2.71	100	103.7	70	130	
47	Ti	45	4.830	737	9.35	5	96.6	70	130	
51	V	45	0.930	6794	2.53	1	93.0	70	130	
52	Cr	45	5.439	30483	1.53	5	108.8	70	130	
55	Mn	45	5.173	16226	1.51	5	103.5	70	130	
56	Fe	45	111.842	529339	0.44	100	111.8	70	130	
59	Co	72	5.166	45980	0.46	5	103.3	70	130	
60	Ni	72	5.304	13266	2.63	5	106.1	70	130	
63	Cu	72	4.750	36111	1.50	5	95.0	70	130	
66	Zn	72	5.200	6179	2.12	5	104.0	70	130	
75	As	72	5.406	4816	2.49	5	108.1	70	130	
78	Se	72	5.398	343	6.27	5	108.0	70	130	
88	Sr	115	5.034	22433	1.27	5	100.7	70	130	
95	Mo	115	4.816	18538	1.53	5	96.3	70	130	
107	Ag	115	2.074	23106	0.59	2	103.7	70	130	
111	Cd	115	1.006	1757	5.93	1	100.6	70	130	
118	Sn	115	4.782	18665	1.16	5	95.6	70	130	
121	Sb	115	2.043	11100	1.69	2	102.2	70	130	
137	Ba	115	5.099	9157	2.44	5	102.0	70	130	
205	Tl	209	1.026	25574	0.50	1	102.6	70	130	
208	Pb	209	1.043	37054	1.77	1	104.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	982991	0.80	1008225	97.50	70	120	
72	Ge	684269	0.26	680921	100.49	70	120	
115	In	6766452	0.06	6714019	100.78	70	120	
209	Bi	15556031	1.00	15779460	98.58	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 16:29	Sample Name	CCB7-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	158_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.026	4	83.3	2	5	
9	Be	45	-0.010	0	173.2	0.4	0.3	
11	B	45	6.469	136	10.2	10	10	
23	Na	45	22.488	58548	1.0	50	100	
24	Mg	45	-0.464	514	5.9	50	100	
27	Al	45	0.244	1037	6.3	50	10	
39	K	45	8.249	51877	1.0	50	100	
44	Ca	45	4.688	507	11.0	50	100	
47	Ti	45	-0.116	4	114.6	4	3	
51	V	45	-0.145	1971	4.1	4	3	
52	Cr	45	-0.034	982	5.5	2	2	
55	Mn	45	0.029	230	12.6	2	3	
56	Fe	45	2.013	15244	3.3	50	50	
59	Co	72	-0.003	76	16.7	2	3	
60	Ni	72	-0.012	376	5.1	2	3	
63	Cu	72	-0.521	1313	5.3	2	2	
66	Zn	72	0.104	527	4.9	4	2	
75	As	72	-0.029	137	15.8	2	2	
78	Se	72	0.461	66	9.4	1	2	
88	Sr	115	0.046	601	9.5	4	3	
95	Mo	115	0.025	160	11.0	2	2	
107	Ag	115	0.014	193	6.2	0.4	1	
111	Cd	115	-0.004	2	86.6	0.4	0.3	
118	Sn	115	-0.102	504	6.0	4	3	
121	Sb	115	-0.017	232	16.8	2	0.8	
137	Ba	115	0.036	93	7.1	2	3	
205	Tl	209	0.007	417	5.6	2	0.5	
208	Pb	209	0.010	2237	3.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	962611	0.55	1008225	95.48	70	120	
72	Ge	682298	0.70	680921	100.20	70	120	
115	In	6645349	1.42	6714019	98.98	70	120	
209	Bi	15483034	1.37	15779460	98.12	70	120	

Method Blank Report

Date Acquired	8/9/16 4:31 PM	Sample Name	MB-76671
Data Batch	160809.b	Comment	MBLKICPMS_TSDOD1
Data File Name	159_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.013	4	58.08		
9	Be	45	-0.010	0	173.21		
11	B	45	6.244	131	25.47		
23	Na	45	22.242	57942	1.16		
24	Mg	45	4.513	2388	5.12		
27	Al	45	5.559	1787	5.88		
39	K	45	8.891	51741	1.74		
44	Ca	45	28.080	1014	8.04		
47	Ti	45	0.085	33	20.00		
51	V	45	-0.125	2043	1.98		
52	Cr	45	0.127	1818	5.19		
55	Mn	45	0.217	799	12.27		
56	Fe	45	5.536	31154	0.82		
59	Co	72	-0.002	82	15.35		
60	Ni	72	0.098	637	9.70		
63	Cu	72	-0.445	1805	2.67		
66	Zn	72	3.145	3863	5.40		
75	As	72	-0.024	141	10.68		
78	Se	72	0.234	53	6.97		
88	Sr	115	0.120	922	3.98		
95	Mo	115	0.029	178	20.74		
107	Ag	115	0.015	197	8.48		
111	Cd	115	0.002	12	15.73		
118	Sn	115	4.299	16669	3.02		J
121	Sb	115	-0.029	170	26.96		
137	Ba	115	0.116	237	14.70		
205	Tl	209	0.005	382	11.51		
208	Pb	209	0.038	3289	2.95		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	955691	0.88	1008225	94.79	70	120	
72	Ge	677599	0.63	680921	99.51	70	120	
115	In	6685583	1.05	6714019	99.58	70	120	
209	Bi	15984688	0.94	15779460	101.30	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 16:33	Sample Name	LCS-76671
Data Batch	160809.b	Comment	LCS ICPMS_TSDOD1
Data File Name	160_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	180.378	3252	2.23	200	90.2	80	120	
9	Be	45	191.634	6017	2.05	200	95.8	80	120	
11	B	45	175.948	2694	2.50	200	88.0	80	120	
23	Na	45	5014.917	3816372	0.35	1000	501.5	80	120	Fail
24	Mg	45	4966.052	1890762	0.25	1000	496.6	80	120	Fail
27	Al	45	964.221	139696	1.42	1000	96.4	80	120	
39	K	45	5047.803	1922847	0.32	1000	504.8	80	120	Fail
44	Ca	45	4644.683	102590	0.96	1000	464.5	80	120	Fail
47	Ti	45	199.205	28956	1.68	200	99.6	80	120	
51	V	45	214.492	938406	0.91	200	107.2	80	120	
52	Cr	45	214.773	1136260	1.01	200	107.4	80	120	
55	Mn	45	206.564	630139	1.09	200	103.3	80	120	
56	Fe	45	1028.571	4726559	1.18	1000	102.9	80	120	
59	Co	72	202.200	1776818	0.59	200	101.1	80	120	
60	Ni	72	201.966	484863	0.41	200	101.0	80	120	
63	Cu	72	203.549	1334248	0.32	200	101.8	80	120	
66	Zn	72	208.220	228829	0.30	200	104.1	80	120	
75	As	72	207.141	176607	0.72	200	103.6	80	120	
78	Se	72	195.122	10857	1.78	200	97.6	80	120	
88	Sr	115	194.129	818361	0.76	200	97.1	80	120	
95	Mo	115	198.569	733475	0.80	200	99.3	80	120	
107	Ag	115	201.640	2159932	0.37	200	100.8	80	120	
111	Cd	115	198.558	332125	0.56	200	99.3	80	120	
118	Sn	115	204.866	734005	0.34	200	102.4	80	120	
121	Sb	115	204.950	1041303	0.66	200	102.5	80	120	
137	Ba	115	200.679	345914	0.27	200	100.3	80	120	
205	Tl	209	197.956	4884837	0.47	200	99.0	80	120	
208	Pb	209	197.236	6648679	0.35	200	98.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	964363	0.47	1008225	95.65	70	120	
72	Ge	677050	0.63	680921	99.43	70	120	
115	In	6516542	0.29	6714019	97.06	70	120	
209	Bi	15559648	2.30	15779460	98.61	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/9/2016 16:35	Sample Name	LCSD-76671
Data Batch	160809.b	Comment	LCSDICPMS_TSDOD1
Data File Name	161_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	181.341	3281	1.61	200	90.7	80	120	
9	Be	45	189.035	5957	2.08	200	94.5	80	120	
11	B	45	177.920	2734	2.08	200	89.0	80	120	
23	Na	45	4975.598	3800408	0.55	1000	497.6	80	120	Fail
24	Mg	45	4917.272	1878937	0.50	1000	491.7	80	120	Fail
27	Al	45	951.731	138406	1.32	1000	95.2	80	120	
39	K	45	4988.027	1907634	0.78	1000	498.8	80	120	Fail
44	Ca	45	4619.210	102410	1.31	1000	461.9	80	120	Fail
47	Ti	45	194.209	28339	2.75	200	97.1	80	120	
51	V	45	211.986	930906	1.23	200	106.0	80	120	
52	Cr	45	210.507	1117807	1.14	200	105.3	80	120	
55	Mn	45	202.878	621212	1.21	200	101.4	80	120	
56	Fe	45	1013.010	4672451	1.28	1000	101.3	80	120	
59	Co	72	200.836	1761825	0.25	200	100.4	80	120	
60	Ni	72	200.357	480187	0.15	200	100.2	80	120	
63	Cu	72	199.399	1304953	1.13	200	99.7	80	120	
66	Zn	72	203.602	223387	0.76	200	101.8	80	120	
75	As	72	204.041	173677	1.23	200	102.0	80	120	
78	Se	72	195.424	10856	0.86	200	97.7	80	120	
88	Sr	115	192.848	818279	0.95	200	96.4	80	120	
95	Mo	115	196.357	730080	0.66	200	98.2	80	120	
107	Ag	115	199.458	2150679	1.06	200	99.7	80	120	
111	Cd	115	195.601	329322	1.28	200	97.8	80	120	
118	Sn	115	202.092	728877	0.66	200	101.0	80	120	
121	Sb	115	201.030	1028106	0.49	200	100.5	80	120	
137	Ba	115	198.052	343618	1.09	200	99.0	80	120	
205	Tl	209	196.639	4838460	0.76	200	98.3	80	120	
208	Pb	209	195.721	6578758	0.47	200	97.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	967967	1.50	1008225	96.01	70	120	
72	Ge	675924	0.81	680921	99.27	70	120	
115	In	6560097	1.05	6714019	97.71	70	120	
209	Bi	15510011	1.24	15779460	98.29	70	120	

Sample Report

Date Acquired	8/9/16 4:39 PM	Sample Name	1607294-29A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	163_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	47.829	868	3.27	2000	>RL
9	Be	45	2.912	92	3.48	2000	>RL
11	B	45	68.883	1081	3.47	2000	>RL
23	Na	45	1589.696	1242161	1.02	25000	>RL
24	Mg	45	14109.633	5387673	0.35	25000	>RL
27	Al	45	68668.880	9908911	0.43	10000	OUTCAL
39	K	45	17705.957	6642950	1.31	25000	>RL
44	Ca	45	62306.511	1375497	0.39	25000	OUTCAL
47	Ti	45	224.478	32729	2.53	2000	>RL
51	V	45	107.257	472034	1.39	2000	>RL
52	Cr	45	62.000	329860	0.43	2000	>RL
55	Mn	45	639.517	1956805	0.63	2000	>RL
56	Fe	45	67064.826	308774459	0.94	10000	OUTCAL
59	Co	72	22.375	191819	0.54	2000	>RL
60	Ni	72	38.158	89651	0.92	2000	>RL
63	Cu	72	23.830	156372	0.05	2000	>RL
66	Zn	72	203.636	218239	0.65	2000	>RL
75	As	72	25.368	21229	1.05	2000	>RL
78	Se	72	5.203	321	6.42	2000	>RL
88	Sr	115	324.205	1343346	1.13	2000	>RL
95	Mo	115	1.706	6258	2.74	2000	
107	Ag	115	0.194	2079	7.50	500	
111	Cd	115	0.489	812	4.52	2000	>RL
118	Sn	115	5.458	20047	1.20	2000	>RL
121	Sb	115	2.256	11570	3.89	500	>RL
137	Ba	115	414.320	702038	0.19	2000	>RL
205	Tl	209	0.623	15362	0.46	2000	
208	Pb	209	83.777	2779489	0.90	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	967385	0.31	1008225	95.95	70	120	
72	Ge	660238	0.83	680921	96.96	70	120	
115	In	6406785	1.17	6714019	95.42	70	120	
209	Bi	15305466	1.91	15779460	97.00	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/9/2016 16:41	Sample Name	1607294-29A SD
Data Batch	160809.b	Comment	SD ICPMS_TSDOD1
Data File Name	164_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	9.342	175	11.89	47.8	97.7	110	90	Good
9	Be	45	0.533	18	8.65	2.9	91.5	110	90	Good
11	B	45	16.794	297	4.90	68.9	121.9	110	90	
23	Na	45	334.422	298515	0.71	1589.7	105.2	110	90	Good
24	Mg	45	2830.820	1096713	0.49	14109.6	100.3	110	90	Good
27	Al	45	13671.060	2001295	0.66	68668.9	99.5	110	90	Good
39	K	45	3625.613	1418967	0.29	17706.0	102.4	110	90	Good
44	Ca	45	12715.418	284990	1.08	62306.5	102.0	110	90	Good
47	Ti	45	45.360	6724	1.24	224.5	101.0	110	90	Good
51	V	45	21.659	98776	0.39	107.3	101.0	110	90	Good
52	Cr	45	12.629	69082	1.04	62.0	101.8	110	90	Good
55	Mn	45	130.292	404397	1.15	639.5	101.9	110	90	Good
56	Fe	45	13952.189	65147586	1.52	67064.8	104.0	110	90	Good
59	Co	72	4.523	39876	2.45	22.4	101.1	110	90	Good
60	Ni	72	7.957	19504	4.60	38.2	104.3	110	90	Good
63	Cu	72	4.544	34414	0.67	23.8	95.3	110	90	Good
66	Zn	72	42.270	46815	0.53	203.6	103.8	110	90	Good
75	As	72	5.040	4457	2.29	25.4	99.3	110	90	Good
78	Se	72	1.246	109	20.19	5.2	119.7	110	90	
88	Sr	115	63.990	276354	0.95	324.2	98.7	110	90	Good
95	Mo	115	0.364	1442	5.20	1.7	106.6	110	90	Good
107	Ag	115	0.051	599	9.00	0.2	132.4	110	90	
111	Cd	115	0.097	174	15.33	0.5	99.0	110	90	Good
118	Sn	115	0.925	4268	3.57	5.5	84.7	110	90	
121	Sb	115	0.439	2604	3.78	2.3	97.4	110	90	Good
137	Ba	115	82.345	145288	0.83	414.3	99.4	110	90	Good
205	Tl	209	0.143	3785	2.38	0.6	114.6	110	90	
208	Pb	209	16.978	575996	0.74	83.8	101.3	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	981015	0.51	1008225	97.30	70	120	
72	Ge	677552	0.58	680921	99.51	70	120	
115	In	6669562	0.33	6714019	99.34	70	120	
209	Bi	15606665	0.64	15779460	98.90	70	120	

Sample Report

Date Acquired	8/9/16 4:43 PM	Sample Name	1607294-26A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	165SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.532	900	4.76	2000	>RL
9	Be	45	2.659	84	20.17	2000	>RL
11	B	45	60.996	962	11.08	2000	>RL
23	Na	45	3342.850	2567694	0.56	25000	>RL
24	Mg	45	14809.228	5659148	0.68	25000	>RL
27	Al	45	72472.190	10465720	1.94	10000	OUTCAL
39	K	45	18029.151	6767625	1.69	25000	>RL
44	Ca	45	87728.443	1937982	0.25	25000	OUTCAL
47	Ti	45	263.460	38439	1.06	2000	>RL
51	V	45	108.324	477035	0.22	2000	>RL
52	Cr	45	60.323	321204	0.43	2000	>RL
55	Mn	45	613.457	1878407	0.39	2000	>RL
56	Fe	45	64804.394	298551721	1.14	10000	OUTCAL
59	Co	72	22.135	191127	0.48	2000	>RL
60	Ni	72	38.205	90404	0.16	2000	>RL
63	Cu	72	20.770	137877	0.52	2000	>RL
66	Zn	72	176.198	190249	0.20	2000	>RL
75	As	72	19.589	16547	1.26	2000	>RL
78	Se	72	5.120	318	8.00	2000	>RL
88	Sr	115	372.671	1551862	1.16	2000	>RL
95	Mo	115	1.200	4443	4.72	2000	
107	Ag	115	0.116	1267	2.77	500	
111	Cd	115	0.441	738	7.36	2000	>RL
118	Sn	115	4.779	17747	0.91	2000	>RL
121	Sb	115	0.463	2631	9.55	500	
137	Ba	115	403.722	687533	0.63	2000	>RL
205	Tl	209	0.629	14972	1.07	2000	
208	Pb	209	29.464	944522	0.25	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	968181	1.25	1008225	96.03	70	120	
72	Ge	664981	0.30	680921	97.66	70	120	
115	In	6438536	0.30	6714019	95.90	70	120	
209	Bi	14767497	0.69	15779460	93.59	70	120	

Sample Report

Date Acquired	8/9/16 4:45 PM	Sample Name	1607294-27A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	166SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	51.619	949	4.88	2000	>RL
9	Be	45	1.965	63	3.29	2000	>RL
11	B	45	75.235	1193	10.79	2000	>RL
23	Na	45	5839.551	4509350	1.10	25000	>RL
24	Mg	45	13490.930	5218689	0.49	25000	>RL
27	Al	45	56615.777	8276517	3.48	10000	OUTCAL
39	K	45	11012.200	4204395	0.81	25000	>RL
44	Ca	45	202007.104	4517125	1.07	25000	OUTCAL
47	Ti	45	266.479	39354	1.07	2000	>RL
51	V	45	123.506	550235	0.34	2000	>RL
52	Cr	45	50.796	274014	1.09	2000	>RL
55	Mn	45	494.253	1532149	0.76	2000	>RL
56	Fe	45	63391.423	295691028	1.24	10000	OUTCAL
59	Co	72	21.021	180752	2.02	2000	>RL
60	Ni	72	31.509	74322	1.87	2000	>RL
63	Cu	72	15.459	103362	0.90	2000	>RL
66	Zn	72	142.798	153612	0.48	2000	>RL
75	As	72	20.904	17574	1.56	2000	>RL
78	Se	72	4.750	297	6.30	2000	>RL
88	Sr	115	523.093	2173327	0.62	2000	>RL
95	Mo	115	1.282	4732	3.69	2000	
107	Ag	115	0.067	743	1.96	500	
111	Cd	115	0.430	718	6.74	2000	>RL
118	Sn	115	5.265	19430	2.45	2000	>RL
121	Sb	115	0.212	1371	4.55	500	
137	Ba	115	1295.128	2200677	0.26	2000	>RL
205	Tl	209	0.491	11848	2.37	2000	
208	Pb	209	28.262	913812	0.53	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	980066	1.00	1008225	97.21	70	120	
72	Ge	662201	0.88	680921	97.25	70	120	
115	In	6426221	2.09	6714019	95.71	70	120	
209	Bi	14895072	1.61	15779460	94.40	70	120	

Sample Report

Date Acquired	8/9/16 4:47 PM	Sample Name	1607294-28A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	167SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	67.499	1228	4.99	2000	>RL
9	Be	45	2.405	77	10.62	2000	>RL
11	B	45	109.317	1700	4.15	2000	>RL
23	Na	45	8559.944	6530017	1.46	25000	>RL
24	Mg	45	13689.052	5247115	0.87	25000	>RL
27	Al	45	57060.367	8266420	2.21	10000	OUTCAL
39	K	45	11275.913	4264612	0.64	25000	>RL
44	Ca	45	226372.015	5015836	0.85	25000	OUTCAL
47	Ti	45	214.571	31407	1.42	2000	>RL
51	V	45	132.850	586291	0.44	2000	>RL
52	Cr	45	55.601	297090	0.95	2000	>RL
55	Mn	45	397.433	1220863	0.95	2000	>RL
56	Fe	45	83360.568	385282269	0.41	10000	OUTCAL
59	Co	72	24.172	208420	0.51	2000	>RL
60	Ni	72	33.121	78318	0.21	2000	>RL
63	Cu	72	12.694	85943	1.68	2000	>RL
66	Zn	72	160.226	172798	0.15	2000	>RL
75	As	72	28.907	24313	2.34	2000	>RL
78	Se	72	5.158	320	4.49	2000	>RL
88	Sr	115	836.453	3488230	0.40	2000	>RL
95	Mo	115	2.277	8387	1.63	2000	>RL
107	Ag	115	0.042	480	11.11	500	
111	Cd	115	0.325	547	11.62	2000	
118	Sn	115	5.773	21298	0.71	2000	>RL
121	Sb	115	0.147	1047	14.02	500	
137	Ba	115	293.240	500188	0.44	2000	>RL
205	Tl	209	0.447	10973	2.41	2000	
208	Pb	209	29.679	975334	0.34	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	971148	0.78	1008225	96.32	70	120	
72	Ge	664127	1.27	680921	97.53	70	120	
115	In	6449143	0.83	6714019	96.05	70	120	
209	Bi	15140676	1.37	15779460	95.95	70	120	

Sample Report

Date Acquired	8/9/16 4:49 PM	Sample Name	1607294-30A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	168SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.680	911	2.60	2000	>RL
9	Be	45	2.338	75	7.42	2000	>RL
11	B	45	68.191	1081	7.81	2000	>RL
23	Na	45	4298.441	3321267	0.54	25000	>RL
24	Mg	45	15560.209	6003211	1.72	25000	>RL
27	Al	45	72233.967	10531521	1.58	10000	OUTCAL
39	K	45	17917.256	6791822	4.49	25000	>RL
44	Ca	45	119532.873	2665785	1.21	25000	OUTCAL
47	Ti	45	273.310	40255	1.62	2000	>RL
51	V	45	117.279	521231	1.25	2000	>RL
52	Cr	45	61.934	332906	1.04	2000	>RL
55	Mn	45	623.702	1928143	0.87	2000	>RL
56	Fe	45	68201.178	317219685	0.97	10000	OUTCAL
59	Co	72	23.031	200625	1.25	2000	>RL
60	Ni	72	39.281	93759	0.56	2000	>RL
63	Cu	72	19.698	132144	1.18	2000	>RL
66	Zn	72	178.581	194521	0.57	2000	>RL
75	As	72	20.469	17437	1.70	2000	>RL
78	Se	72	5.420	338	2.18	2000	>RL
88	Sr	115	437.620	1833933	1.03	2000	>RL
95	Mo	115	1.032	3856	1.86	2000	
107	Ag	115	0.084	930	2.71	500	
111	Cd	115	0.472	793	13.66	2000	>RL
118	Sn	115	4.714	17631	1.83	2000	>RL
121	Sb	115	0.273	1691	1.61	500	
137	Ba	115	421.856	723049	0.26	2000	>RL
205	Tl	209	0.617	14685	3.04	2000	
208	Pb	209	28.900	925886	0.63	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	977397	0.97	1008225	96.94	70	120	
72	Ge	670878	0.96	680921	98.53	70	120	
115	In	6479997	0.37	6714019	96.51	70	120	
209	Bi	14760085	1.76	15779460	93.54	70	120	

Sample Report

Date Acquired	8/9/16 4:51 PM	Sample Name	1607294-31A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	169SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	50.299	917	3.73	2000	>RL
9	Be	45	2.307	74	4.77	2000	>RL
11	B	45	76.604	1205	5.43	2000	>RL
23	Na	45	7671.877	5864277	2.85	25000	>RL
24	Mg	45	14073.834	5400735	1.84	25000	>RL
27	Al	45	57415.236	8327654	1.39	10000	OUTCAL
39	K	45	11469.190	4342211	0.42	25000	>RL
44	Ca	45	191714.046	4252923	0.67	25000	OUTCAL
47	Ti	45	275.021	40287	5.10	2000	>RL
51	V	45	120.047	530662	0.84	2000	>RL
52	Cr	45	51.891	277666	0.61	2000	>RL
55	Mn	45	524.857	1614106	0.12	2000	>RL
56	Fe	45	67444.287	312103472	0.94	10000	OUTCAL
59	Co	72	20.065	173848	0.11	2000	>RL
60	Ni	72	31.371	74559	1.48	2000	>RL
63	Cu	72	15.474	104243	0.59	2000	>RL
66	Zn	72	146.475	158764	1.00	2000	>RL
75	As	72	20.785	17606	0.76	2000	>RL
78	Se	72	4.806	302	2.94	2000	>RL
88	Sr	115	533.868	2221713	0.43	2000	>RL
95	Mo	115	1.435	5298	3.10	2000	
107	Ag	115	0.072	790	8.72	500	
111	Cd	115	0.417	698	3.46	2000	>RL
118	Sn	115	5.177	19150	1.66	2000	>RL
121	Sb	115	0.186	1242	7.31	500	
137	Ba	115	542.350	923259	1.14	2000	>RL
205	Tl	209	0.512	12155	0.92	2000	
208	Pb	209	26.325	839314	0.24	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	972330	0.89	1008225	96.44	70	120	
72	Ge	667238	0.58	680921	97.99	70	120	
115	In	6436908	1.88	6714019	95.87	70	120	
209	Bi	14686128	1.58	15779460	93.07	70	120	

Sample Report

Date Acquired	8/9/16 4:53 PM	Sample Name	1607294-32A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	170SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	77.486	1435	0.72	2000	>RL
9	Be	45	2.828	92	13.20	2000	>RL
11	B	45	114.042	1805	1.98	2000	>RL
23	Na	45	9117.309	7083150	2.87	25000	>RL
24	Mg	45	15608.915	6094898	0.78	25000	>RL
27	Al	45	64463.851	9513493	1.55	10000	OUTCAL
39	K	45	12480.915	4803610	1.21	25000	>RL
44	Ca	45	209870.944	4737204	0.95	25000	OUTCAL
47	Ti	45	226.250	33737	2.02	2000	>RL
51	V	45	124.556	560167	0.98	2000	>RL
52	Cr	45	59.782	325302	0.57	2000	>RL
55	Mn	45	455.510	1425410	1.10	2000	>RL
56	Fe	45	75066.093	353473853	2.14	10000	OUTCAL
59	Co	72	24.343	211623	0.53	2000	>RL
60	Ni	72	33.398	79627	1.70	2000	>RL
63	Cu	72	14.981	101428	0.96	2000	>RL
66	Zn	72	162.007	176166	1.25	2000	>RL
75	As	72	24.052	20419	0.54	2000	>RL
78	Se	72	6.042	371	11.96	2000	>RL
88	Sr	115	670.204	2803709	0.95	2000	>RL
95	Mo	115	1.861	6887	4.13	2000	
107	Ag	115	0.051	576	2.92	500	
111	Cd	115	0.367	618	0.82	2000	
118	Sn	115	5.793	21440	3.56	2000	>RL
121	Sb	115	0.168	1159	4.92	500	
137	Ba	115	1026.294	1756043	1.26	2000	>RL
205	Tl	209	0.523	12538	1.43	2000	
208	Pb	209	30.284	974172	0.55	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	989342	0.94	1008225	98.13	70	120	
72	Ge	669551	0.94	680921	98.33	70	120	
115	In	6469108	1.07	6714019	96.35	70	120	
209	Bi	14822123	2.03	15779460	93.93	70	120	

Sample Report

Date Acquired	8/9/16 4:55 PM	Sample Name	1607294-33A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	171SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	51.578	950	6.36	2000	>RL
9	Be	45	2.753	89	9.12	2000	>RL
11	B	45	69.347	1104	5.89	2000	>RL
23	Na	45	2455.507	1924330	0.63	25000	>RL
24	Mg	45	15681.205	6077520	2.40	25000	>RL
27	Al	45	75727.254	11091278	1.02	10000	OUTCAL
39	K	45	19692.007	7493271	0.59	25000	>RL
44	Ca	45	74258.569	1663884	1.27	25000	OUTCAL
47	Ti	45	233.855	34607	0.49	2000	>RL
51	V	45	113.396	506377	0.17	2000	>RL
52	Cr	45	64.883	350322	0.64	2000	>RL
55	Mn	45	713.876	2217051	0.71	2000	>RL
56	Fe	45	71265.701	333037080	0.61	10000	OUTCAL
59	Co	72	24.028	210514	1.16	2000	>RL
60	Ni	72	41.756	100221	1.18	2000	>RL
63	Cu	72	28.601	190871	0.24	2000	>RL
66	Zn	72	222.328	243473	0.65	2000	>RL
75	As	72	28.196	24095	0.58	2000	>RL
78	Se	72	5.846	363	5.14	2000	>RL
88	Sr	115	381.587	1599487	0.24	2000	>RL
95	Mo	115	1.747	6480	3.16	2000	
107	Ag	115	0.186	2012	1.77	500	
111	Cd	115	0.559	938	3.49	2000	>RL
118	Sn	115	5.062	18880	2.84	2000	>RL
121	Sb	115	2.932	15124	1.26	500	>RL
137	Ba	115	534.887	917011	0.60	2000	>RL
205	Tl	209	0.654	15689	1.13	2000	
208	Pb	209	144.145	4651065	0.15	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	981906	0.38	1008225	97.39	70	120	
72	Ge	674738	0.71	680921	99.09	70	120	
115	In	6482963	1.95	6714019	96.56	70	120	
209	Bi	14886909	0.84	15779460	94.34	70	120	

Sample Report

Date Acquired	8/9/16 4:57 PM	Sample Name	1607294-34A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	172SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	50.241	921	3.60	2000	>RL
9	Be	45	2.298	74	21.22	2000	>RL
11	B	45	66.487	1056	2.37	2000	>RL
23	Na	45	5105.123	3937546	1.37	25000	>RL
24	Mg	45	15560.638	6004111	0.88	25000	>RL
27	Al	45	74455.998	10858755	2.58	10000	OUTCAL
39	K	45	18652.842	7068368	0.74	25000	>RL
44	Ca	45	126202.606	2815077	1.52	25000	OUTCAL
47	Ti	45	282.864	41671	1.68	2000	>RL
51	V	45	120.091	533695	1.00	2000	>RL
52	Cr	45	63.479	341250	0.92	2000	>RL
55	Mn	45	651.231	2013509	0.61	2000	>RL
56	Fe	45	71018.192	330410405	0.88	10000	OUTCAL
59	Co	72	24.052	210096	1.19	2000	>RL
60	Ni	72	40.719	97447	0.66	2000	>RL
63	Cu	72	22.444	150335	0.70	2000	>RL
66	Zn	72	182.962	199838	1.11	2000	>RL
75	As	72	21.767	18582	0.56	2000	>RL
78	Se	72	5.361	335	1.05	2000	>RL
88	Sr	115	460.191	1946791	0.76	2000	>RL
95	Mo	115	1.125	4238	3.16	2000	
107	Ag	115	0.128	1410	2.46	500	
111	Cd	115	0.445	756	5.76	2000	>RL
118	Sn	115	4.724	17836	0.76	2000	>RL
121	Sb	115	0.308	1886	5.82	500	
137	Ba	115	375.947	650500	0.49	2000	>RL
205	Tl	209	0.625	15185	0.14	2000	
208	Pb	209	33.377	1091178	0.62	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	977620	1.55	1008225	96.96	70	120	
72	Ge	672728	1.10	680921	98.80	70	120	
115	In	6542944	1.82	6714019	97.45	70	120	
209	Bi	15068123	2.60	15779460	95.49	70	120	

Sample Report

Date Acquired	8/9/16 4:59 PM	Sample Name	1607294-35A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	173SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	57.113	1051	1.39	2000	>RL
9	Be	45	2.160	70	15.21	2000	>RL
11	B	45	79.357	1258	6.16	2000	>RL
23	Na	45	6582.842	5084871	1.88	25000	>RL
24	Mg	45	15751.822	6102189	1.75	25000	>RL
27	Al	45	65130.499	9534687	2.00	10000	OUTCAL
39	K	45	12994.052	4959129	0.44	25000	>RL
44	Ca	45	207279.022	4641536	0.79	25000	OUTCAL
47	Ti	45	276.561	40903	1.89	2000	>RL
51	V	45	130.460	581916	0.93	2000	>RL
52	Cr	45	57.810	312126	1.14	2000	>RL
55	Mn	45	540.102	1676634	0.50	2000	>RL
56	Fe	45	65981.114	308192886	1.36	10000	OUTCAL
59	Co	72	21.929	190579	1.27	2000	>RL
60	Ni	72	34.715	82717	0.62	2000	>RL
63	Cu	72	18.062	121285	1.16	2000	>RL
66	Zn	72	156.749	170392	0.60	2000	>RL
75	As	72	23.709	20123	0.64	2000	>RL
78	Se	72	5.428	337	5.14	2000	>RL
88	Sr	115	569.186	2351827	0.45	2000	>RL
95	Mo	115	1.438	5273	0.79	2000	
107	Ag	115	0.064	708	1.90	500	
111	Cd	115	0.434	721	9.94	2000	>RL
118	Sn	115	5.344	19596	0.59	2000	>RL
121	Sb	115	0.269	1648	4.02	500	
137	Ba	115	1466.889	2479102	1.00	2000	>RL
205	Tl	209	0.539	12805	0.88	2000	
208	Pb	209	30.078	959717	0.57	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	981443	0.26	1008225	97.34	70	120	
72	Ge	669296	0.32	680921	98.29	70	120	
115	In	6389832	1.24	6714019	95.17	70	120	
209	Bi	14699153	0.42	15779460	93.15	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/9/2016 17:01	Sample Name	1607294-29A PDS
Data Batch	160809.b	Comment	PDS ICPMS_TSDOD1
Data File Name	174_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	197.323	3664	1.38	47.8	200	74.7	75	125	Fail
9	Be	45	181.341	5865	1.59	2.9	200	89.2	75	125	
11	B	45	220.172	3463	1.81	68.9	200	75.6	75	125	
23	Na	45	6359.771	4974334	0.29	1589.7	5000	95.4	75	125	
24	Mg	45	18746.787	7351584	2.53	14109.6	5000	92.7	75	125	
27	Al	45	73907.666	10952326	1.17	68668.9	5000	104.8	75	125	
39	K	45	23447.341	9017762	0.31	17706.0	5000	114.8	75	125	
44	Ca	45	67077.375	1520756	0.98	62306.5	5000	95.4	75	125	
47	Ti	45	416.176	62292	1.17	224.5	200	95.8	75	125	
51	V	45	315.162	1419154	0.74	107.3	200	104.0	75	125	
52	Cr	45	266.470	1451993	0.18	62.0	200	102.2	75	125	
55	Mn	45	830.222	2608752	0.23	639.5	200	95.4	75	125	
56	Fe	45	71921.703	340047080	2.13	67064.8	5000	97.1	75	125	
59	Co	72	216.979	1903970	0.40	22.4	200	97.3	75	125	
60	Ni	72	229.288	549626	0.38	38.2	200	95.6	75	125	
63	Cu	72	213.342	1396272	0.54	23.8	200	94.8	75	125	
66	Zn	72	397.170	435495	0.50	203.6	200	96.8	75	125	
75	As	72	227.508	193683	0.63	25.4	200	101.1	75	125	
78	Se	72	194.330	10799	0.85	5.2	200	94.6	75	125	
88	Sr	115	521.202	2210988	0.26	324.2	200	98.5	75	125	
95	Mo	115	188.954	702495	0.65	1.7	200	93.6	75	125	
107	Ag	115	194.415	2096310	0.52	0.2	200	97.1	75	125	
111	Cd	115	186.676	314354	1.23	0.5	200	93.1	75	125	
118	Sn	115	200.213	722189	0.99	5.5	200	97.4	75	125	
121	Sb	115	205.957	1053373	0.44	2.3	200	101.9	75	125	
137	Ba	115	614.503	1066239	0.69	414.3	200	100.1	75	125	
205	Tl	209	195.007	4598411	1.04	0.6	200	97.2	75	125	
208	Pb	209	278.250	8961809	0.58	83.8	200	97.2	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	993478	0.45	1008225	98.54	70	120	
72	Ge	676090	0.17	680921	99.29	70	120	
115	In	6561368	2.06	6714019	97.73	70	120	
209	Bi	14866315	1.94	15779460	94.21	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 17:03	Sample Name	1607294-29A MS
Data Batch	160809.b	Comment	MS ICPMS_TSDOD1
Data File Name	175_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	217.533	4017	2.87	47.8	200	84.9	80	120	
9	Be	45	187.233	6024	0.17	2.9	200	92.2	80	120	
11	B	45	227.726	3562	2.78	68.9	200	79.4	80	120	Fail
23	Na	45	6611.996	5142761	0.93	1589.7	1000	502.2	80	120	Fail
24	Mg	45	20108.364	7844002	1.27	14109.6	1000	599.9	80	120	Fail
27	Al	45	79875.544	11775915	1.94	68668.9	1000	1120.7	80	120	Fail
39	K	45	24871.714	9512322	0.23	17706.0	1000	716.6	80	120	Fail
44	Ca	45	70822.201	1597216	0.39	62306.5	1000	851.6	80	120	Fail
47	Ti	45	502.783	74866	1.82	224.5	200	139.2	80	120	Fail
51	V	45	332.487	1489234	0.78	107.3	200	112.6	80	120	
52	Cr	45	276.810	1500401	0.13	62.0	200	107.4	80	120	
55	Mn	45	908.892	2840857	1.11	639.5	200	134.7	80	120	Fail
56	Fe	45	71421.623	335911756	1.10	67064.8	1000	435.7	80	120	Fail
59	Co	72	222.473	1954435	1.26	22.4	200	100.0	80	120	
60	Ni	72	238.223	571677	0.70	38.2	200	100.0	80	120	
63	Cu	72	223.585	1464710	0.04	23.8	200	99.9	80	120	
66	Zn	72	418.618	459493	0.52	203.6	200	107.5	80	120	
75	As	72	231.215	197055	0.09	25.4	200	102.9	80	120	
78	Se	72	199.086	11075	0.83	5.2	200	96.9	80	120	
88	Sr	115	542.049	2290443	0.90	324.2	200	108.9	80	120	
95	Mo	115	181.627	672802	0.52	1.7	200	90.0	80	120	
107	Ag	115	194.411	2088338	0.06	0.2	200	97.1	80	120	
111	Cd	115	194.125	325608	0.44	0.5	200	96.8	80	120	
118	Sn	115	202.520	727557	0.97	5.5	200	98.5	80	120	
121	Sb	115	53.084	270666	0.82	2.3	200	25.4	80	120	Fail
137	Ba	115	637.062	1101050	1.06	414.3	200	111.4	80	120	
205	Tl	209	201.694	4762410	0.61	0.6	200	100.5	80	120	
208	Pb	209	295.791	9539683	0.66	83.8	200	106.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	988311	0.83	1008225	98.02	70	120	
72	Ge	676875	0.84	680921	99.41	70	120	
115	In	6536471	1.97	6714019	97.36	70	120	
209	Bi	14882601	0.92	15779460	94.32	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/9/2016 17:05	Sample Name	1607294-29A MSD
Data Batch	160809.b	Comment	MSD ICPMS_TSDOD1
Data File Name	176_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	217.486	3998	3.85	47.8	200	84.8	80	120	
9	Be	45	182.178	5834	0.41	2.9	200	89.6	80	120	
11	B	45	234.100	3643	1.70	68.9	200	82.6	80	120	
23	Na	45	6398.685	4955048	0.79	1589.7	1000	480.9	80	120	Fail
24	Mg	45	20341.795	7897600	1.33	14109.6	1000	623.2	80	120	Fail
27	Al	45	79314.795	11637520	1.48	68668.9	1000	1064.6	80	120	Fail
39	K	45	25671.963	9770527	2.24	17706.0	1000	796.6	80	120	Fail
44	Ca	45	70774.312	1588663	1.16	62306.5	1000	846.8	80	120	Fail
47	Ti	45	460.182	68200	1.58	224.5	200	117.9	80	120	
51	V	45	320.524	1428995	0.27	107.3	200	106.6	80	120	
52	Cr	45	267.829	1444969	0.72	62.0	200	102.9	80	120	
55	Mn	45	898.887	2796604	0.90	639.5	200	129.7	80	120	Fail
56	Fe	45	71469.598	334586129	0.98	67064.8	1000	440.5	80	120	Fail
59	Co	72	214.408	1890798	1.34	22.4	200	96.0	80	120	
60	Ni	72	230.640	555621	1.39	38.2	200	96.2	80	120	
63	Cu	72	215.838	1419600	0.92	23.8	200	96.0	80	120	
66	Zn	72	415.569	457930	0.38	203.6	200	106.0	80	120	
75	As	72	223.493	191219	0.75	25.4	200	99.1	80	120	
78	Se	72	189.134	10563	2.10	5.2	200	92.0	80	120	
88	Sr	115	530.211	2245691	1.20	324.2	200	103.0	80	120	
95	Mo	115	174.421	647540	0.65	1.7	200	86.4	80	120	
107	Ag	115	186.845	2011468	0.26	0.2	200	93.3	80	120	
111	Cd	115	186.718	313925	0.96	0.5	200	93.1	80	120	
118	Sn	115	196.838	708861	0.48	5.5	200	95.7	80	120	
121	Sb	115	51.653	263956	0.92	2.3	200	24.7	80	120	Fail
137	Ba	115	667.782	1156854	0.72	414.3	200	126.7	80	120	Fail
205	Tl	209	196.882	4606217	0.81	0.6	200	98.1	80	120	
208	Pb	209	286.256	9148338	0.70	83.8	200	101.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	983638	0.38	1008225	97.56	70	120	
72	Ge	679472	0.18	680921	99.79	70	120	
115	In	6551376	2.30	6714019	97.58	70	120	
209	Bi	14752624	2.58	15779460	93.49	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 17:07	Sample Name	CCV8-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	177_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	166.314	3019	3.79	200	83.2	90	110	Fail
9	Be	45	184.385	5827	1.62	200	92.2	90	110	
11	B	45	171.975	2651	6.93	200	86.0	90	110	Fail
23	Na	45	5030.528	3853456	0.15	5000	100.6	90	110	
24	Mg	45	5005.517	1918414	0.28	5000	100.1	90	110	
27	Al	45	4754.479	689386	0.23	5000	95.1	90	110	
39	K	45	5131.508	1966827	0.70	5000	102.6	90	110	
44	Ca	45	4732.839	105223	0.53	5000	94.7	90	110	
47	Ti	45	194.940	28526	2.48	200	97.5	90	110	
51	V	45	213.605	940691	0.16	200	106.8	90	110	
52	Cr	45	212.711	1132768	0.12	200	106.4	90	110	
55	Mn	45	207.903	638408	0.82	200	104.0	90	110	
56	Fe	45	5319.814	24583283	0.61	5000	106.4	90	110	
59	Co	72	202.772	1791745	0.37	200	101.4	90	110	
60	Ni	72	202.082	487870	1.32	200	101.0	90	110	
63	Cu	72	201.441	1327897	1.23	200	100.7	90	110	
66	Zn	72	201.450	222647	0.88	200	100.7	90	110	
75	As	72	209.083	179249	0.55	200	104.5	90	110	
78	Se	72	195.759	10953	0.81	200	97.9	90	110	
88	Sr	115	195.310	824797	0.88	200	97.7	90	110	
95	Mo	115	199.205	737221	1.56	200	99.6	90	110	
107	Ag	115	206.209	2212719	0.32	200	103.1	90	110	
111	Cd	115	199.507	334318	0.85	200	99.8	90	110	
118	Sn	115	197.718	709740	1.03	200	98.9	90	110	
121	Sb	115	208.773	1062564	0.40	200	104.4	90	110	
137	Ba	115	203.753	351825	0.42	200	101.9	90	110	
205	Tl	209	202.274	4835326	0.62	200	101.1	90	110	
208	Pb	209	201.304	6573628	0.52	200	100.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	970792	0.99	1008225	96.29	70	120	
72	Ge	680860	1.15	680921	99.99	70	120	
115	In	6529252	1.86	6714019	97.25	70	120	
209	Bi	15069042	1.59	15779460	95.50	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 17:11	Sample Name	LCVL8-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	179LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	8.164	151	8.27	10	81.6	70	130	
9	Be	45	1.031	33	10.93	1	103.1	70	130	
11	B	45	25.809	428	23.33	20	129.0	70	130	
23	Na	45	127.377	137495	0.43	100	127.4	70	130	
24	Mg	45	105.102	40663	1.66	100	105.1	70	130	
27	Al	45	105.827	16213	1.75	100	105.8	70	130	
39	K	45	116.637	92139	0.75	100	116.6	70	130	
44	Ca	45	111.822	2862	4.26	100	111.8	70	130	
47	Ti	45	4.669	699	8.56	5	93.4	70	130	
51	V	45	0.986	6907	6.45	1	98.6	70	130	
52	Cr	45	5.471	30051	0.83	5	109.4	70	130	
55	Mn	45	5.327	16377	1.44	5	106.5	70	130	
56	Fe	45	118.705	550372	0.90	100	118.7	70	130	
59	Co	72	5.307	46948	0.41	5	106.1	70	130	
60	Ni	72	5.222	12992	3.46	5	104.4	70	130	
63	Cu	72	4.666	35350	1.28	5	93.3	70	130	
66	Zn	72	5.423	6388	0.79	5	108.5	70	130	
75	As	72	5.384	4768	0.76	5	107.7	70	130	
78	Se	72	5.861	367	5.71	5	117.2	70	130	
88	Sr	115	5.117	22268	0.85	5	102.3	70	130	
95	Mo	115	5.032	18917	1.90	5	100.6	70	130	
107	Ag	115	2.119	23055	1.89	2	105.9	70	130	
111	Cd	115	0.924	1577	3.49	1	92.4	70	130	
118	Sn	115	4.958	18871	1.23	5	99.2	70	130	
121	Sb	115	2.121	11242	2.26	2	106.0	70	130	
137	Ba	115	5.246	9202	1.33	5	104.9	70	130	
205	Tl	209	1.090	26598	0.73	1	109.0	70	130	
208	Pb	209	1.093	37954	0.67	1	109.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	963596	0.64	1008225	95.57	70	120	
72	Ge	680210	1.06	680921	99.90	70	120	
115	In	6609801	0.46	6714019	98.45	70	120	
209	Bi	15240927	0.72	15779460	96.59	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 17:13	Sample Name	CCB8-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	180_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.166	7	14.3	2	5	
9	Be	45	-0.020	0	#DIV/0!	0.4	0.3	
11	B	45	8.628	166	25.0	10	10	
23	Na	45	16.683	53299	0.5	50	100	
24	Mg	45	0.264	778	8.4	50	100	
27	Al	45	4.543	1627	12.7	50	10	
39	K	45	2.888	49075	0.8	50	100	
44	Ca	45	10.135	616	10.8	50	100	
47	Ti	45	-0.084	9	57.3	4	3	
51	V	45	-0.121	2041	4.3	4	3	
52	Cr	45	-0.032	976	10.9	2	2	
55	Mn	45	0.109	466	6.2	2	3	
56	Fe	45	4.956	28248	5.6	50	50	
59	Co	72	0.009	176	25.2	2	3	
60	Ni	72	-0.024	338	5.0	2	3	
63	Cu	72	-0.552	1084	10.5	2	2	
66	Zn	72	-0.054	343	10.1	4	2	
75	As	72	0.018	173	6.3	2	2	
78	Se	72	0.349	58	13.6	1	2	
88	Sr	115	0.067	674	2.2	4	3	
95	Mo	115	0.069	319	22.0	2	2	
107	Ag	115	0.028	338	8.3	0.4	1	
111	Cd	115	0.006	19	36.7	0.4	0.3	
118	Sn	115	-0.073	599	1.7	4	3	
121	Sb	115	0.009	358	20.5	2	0.8	
137	Ba	115	0.061	136	6.2	2	3	
205	Tl	209	0.043	1256	3.5	2	0.5	
208	Pb	209	0.050	3451	5.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	946870	0.74	1008225	93.91	70	120	
72	Ge	664466	0.14	680921	97.58	70	120	
115	In	6513584	0.49	6714019	97.01	70	120	
209	Bi	14957021	0.88	15779460	94.79	70	120	

Sample Report

Date Acquired	8/9/16 5:15 PM	Sample Name	1607294-36A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	181SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	68.531	1234	5.07	2000	>RL
9	Be	45	2.484	78	8.50	2000	>RL
11	B	45	105.172	1620	2.88	2000	>RL
23	Na	45	7873.288	5948023	2.21	25000	>RL
24	Mg	45	14131.887	5361473	0.34	25000	>RL
27	Al	45	58051.316	8323203	0.20	10000	OUTCAL
39	K	45	11077.451	4147583	0.10	25000	>RL
44	Ca	45	204666.172	4488342	0.30	25000	OUTCAL
47	Ti	45	247.202	35807	0.85	2000	>RL
51	V	45	118.456	517702	0.31	2000	>RL
52	Cr	45	53.879	284965	0.93	2000	>RL
55	Mn	45	390.010	1185741	0.55	2000	>RL
56	Fe	45	66942.796	306243650	0.97	10000	OUTCAL
59	Co	72	20.904	177987	0.59	2000	>RL
60	Ni	72	31.034	72485	1.36	2000	>RL
63	Cu	72	13.724	91378	0.88	2000	>RL
66	Zn	72	150.475	160266	0.34	2000	>RL
75	As	72	22.029	18329	0.36	2000	>RL
78	Se	72	4.587	285	4.18	2000	>RL
88	Sr	115	600.062	2460334	0.07	2000	>RL
95	Mo	115	1.845	6695	1.04	2000	
107	Ag	115	0.063	687	8.02	500	
111	Cd	115	0.312	517	13.33	2000	
118	Sn	115	5.475	19901	1.90	2000	>RL
121	Sb	115	0.199	1291	9.57	500	
137	Ba	115	1080.961	1812773	0.84	2000	>RL
205	Tl	209	0.498	11796	1.17	2000	
208	Pb	209	26.363	837106	1.33	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	961196	0.56	1008225	95.34	70	120	
72	Ge	655702	0.19	680921	96.30	70	120	
115	In	6342444	2.31	6714019	94.47	70	120	
209	Bi	14624021	0.62	15779460	92.68	70	120	

Sample Report

Date Acquired	8/9/16 5:17 PM	Sample Name	1607294-38A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	182SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	59.802	1094	4.07	2000	>RL
9	Be	45	2.559	82	4.88	2000	>RL
11	B	45	75.534	1193	5.57	2000	>RL
23	Na	45	975.857	786138	0.20	25000	>RL
24	Mg	45	15009.872	5786971	2.61	25000	>RL
27	Al	45	68489.133	9978461	1.06	10000	OUTCAL
39	K	45	16683.290	6322351	2.36	25000	>RL
44	Ca	45	123742.066	2757784	1.25	25000	OUTCAL
47	Ti	45	221.189	32562	1.73	2000	>RL
51	V	45	128.012	568323	1.70	2000	>RL
52	Cr	45	67.368	361819	2.20	2000	>RL
55	Mn	45	711.474	2198056	1.43	2000	>RL
56	Fe	45	81569.529	379186038	1.33	10000	OUTCAL
59	Co	72	26.304	228407	1.64	2000	>RL
60	Ni	72	43.996	104646	1.61	2000	>RL
63	Cu	72	34.408	226659	0.55	2000	>RL
66	Zn	72	240.631	261160	0.76	2000	>RL
75	As	72	29.772	25210	1.38	2000	>RL
78	Se	72	5.731	354	1.85	2000	>RL
88	Sr	115	468.899	1932848	1.93	2000	>RL
95	Mo	115	1.862	6792	0.66	2000	
107	Ag	115	0.152	1631	1.39	500	
111	Cd	115	0.557	920	6.61	2000	>RL
118	Sn	115	5.638	20577	2.17	2000	>RL
121	Sb	115	1.492	7720	1.86	500	
137	Ba	115	697.368	1175732	0.52	2000	>RL
205	Tl	209	0.627	14682	2.32	2000	
208	Pb	209	99.094	3122381	0.76	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	976736	1.12	1008225	96.88	70	120	
72	Ge	668788	0.17	680921	98.22	70	120	
115	In	6374450	0.82	6714019	94.94	70	120	
209	Bi	14534887	1.08	15779460	92.11	70	120	

Sample Report

Date Acquired	8/9/16 5:19 PM	Sample Name	1607294-39A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	183SMPL.d	Dilution	~~5~~ 50

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	6.290	119	14.57	2000	>RL
9	Be	45	0.325	11	31.49	2000	
11	B	45	13.263	242	4.83	2000	>RL
23	Na	45	317.438	285127	0.33	25000	>RL
24	Mg	45	1323.561	512476	1.13	25000	>RL
27	Al	45	5727.828	837987	0.37	10000	>RL
39	K	45	1324.154	549118	1.25	25000	>RL
44	Ca	45	23485.298	525354	0.99	25000	>RL
47	Ti	45	26.350	3911	2.89	2000	>RL
51	V	45	10.310	48348	0.96	2000	>RL
52	Cr	45	5.851	32593	1.13	2000	>RL
55	Mn	45	64.431	199781	0.44	2000	>RL
56	Fe	45	6361.647	29669160	2.09	10000	>RL
59	Co	72	2.186	19421	0.20	2000	>RL
60	Ni	72	3.774	9512	1.43	2000	>RL
63	Cu	72	1.814	16653	1.53	2000	
66	Zn	72	16.306	18406	2.98	2000	>RL
75	As	72	2.281	2116	3.07	2000	>RL
78	Se	72	0.779	84	15.06	2000	>RL
88	Sr	115	60.617	262268	0.59	2000	>RL
95	Mo	115	0.278	1119	6.14	2000	
107	Ag	115	0.026	321	7.79	500	
111	Cd	115	0.053	100	17.64	2000	
118	Sn	115	0.361	2208	1.70	2000	
121	Sb	115	0.087	774	5.94	500	
137	Ba	115	95.256	168379	1.02	2000	>RL
205	Tl	209	0.065	1841	4.32	2000	
208	Pb	209	7.119	239420	0.14	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	979759	0.95	1008225	97.18	70	120	
72	Ge	681101	0.66	680921	100.03	70	120	
115	In	6682386	1.51	6714019	99.53	70	120	
209	Bi	15400313	0.50	15779460	97.60	70	120	

Sample Report

Date Acquired	8/9/16 5:21 PM	Sample Name	1607294-40A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	184SMPL.d	Dilution	~~5~~ 50

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	5.688	107	4.20	2000	>RL
9	Be	45	0.296	10	30.00	2000	
11	B	45	14.425	258	3.25	2000	>RL
23	Na	45	667.981	548441	0.84	25000	>RL
24	Mg	45	1566.315	601146	0.90	25000	>RL
27	Al	45	5856.367	849428	0.31	10000	>RL
39	K	45	1278.523	527326	0.68	25000	>RL
44	Ca	45	22261.633	493732	1.39	25000	>RL
47	Ti	45	29.784	4378	1.04	2000	>RL
51	V	45	10.946	50730	2.08	2000	>RL
52	Cr	45	6.802	37377	0.51	2000	>RL
55	Mn	45	69.796	214558	0.98	2000	>RL
56	Fe	45	5960.872	27561657	0.80	10000	>RL
59	Co	72	2.114	18648	2.10	2000	>RL
60	Ni	72	4.437	11029	3.36	2000	>RL
63	Cu	72	1.970	17550	0.77	2000	
66	Zn	72	19.249	21494	2.62	2000	>RL
75	As	72	2.229	2056	1.99	2000	>RL
78	Se	72	0.826	86	8.01	2000	>RL
88	Sr	115	51.716	223916	0.58	2000	>RL
95	Mo	115	0.257	1042	9.19	2000	
107	Ag	115	0.029	356	12.66	500	
111	Cd	115	0.070	129	3.95	2000	
118	Sn	115	0.358	2198	3.60	2000	
121	Sb	115	0.159	1148	3.50	500	
137	Ba	115	84.757	149875	1.22	2000	>RL
205	Tl	209	0.067	1879	2.45	2000	
208	Pb	209	11.664	387761	0.49	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	971320	0.69	1008225	96.34	70	120	
72	Ge	676006	0.55	680921	99.28	70	120	
115	In	6684159	0.22	6714019	99.56	70	120	
209	Bi	15268834	0.30	15779460	96.76	70	120	

Sample Report

Date Acquired	8/9/16 5:23 PM	Sample Name	1607294-41A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	185SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	63.708	1144	0.58	2000	>RL
9	Be	45	1.913	60	14.95	2000	>RL
11	B	45	85.157	1316	0.73	2000	>RL
23	Na	45	7058.641	5323024	1.42	25000	>RL
24	Mg	45	16929.762	6406215	0.97	25000	>RL
27	Al	45	59027.273	8441430	1.68	10000	OUTCAL
39	K	45	9810.427	3669220	0.46	25000	>RL
44	Ca	45	251679.492	5505068	0.93	25000	OUTCAL
47	Ti	45	355.491	51350	1.41	2000	>RL
51	V	45	129.254	563181	1.05	2000	>RL
52	Cr	45	53.503	282253	0.65	2000	>RL
55	Mn	45	432.919	1312765	0.94	2000	>RL
56	Fe	45	58885.402	268684327	1.32	10000	OUTCAL
59	Co	72	17.849	150929	0.42	2000	>RL
60	Ni	72	31.057	72027	0.64	2000	>RL
63	Cu	72	15.484	101791	0.54	2000	>RL
66	Zn	72	133.433	141166	0.88	2000	>RL
75	As	72	20.293	16779	0.92	2000	>RL
78	Se	72	4.796	294	7.18	2000	>RL
88	Sr	115	566.864	2310106	0.47	2000	>RL
95	Mo	115	1.491	5392	3.47	2000	
107	Ag	115	0.035	391	9.69	500	
111	Cd	115	0.411	674	9.25	2000	>RL
118	Sn	115	5.544	20014	1.42	2000	>RL
121	Sb	115	0.220	1382	7.50	500	
137	Ba	115	2315.398	3859016	1.13	2000	OUTCAL
205	Tl	209	0.508	11875	2.41	2000	
208	Pb	209	29.788	934800	0.54	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	958692	0.31	1008225	95.09	70	120	
72	Ge	651127	0.76	680921	95.62	70	120	
115	In	6302808	1.85	6714019	93.88	70	120	
209	Bi	14458549	1.56	15779460	91.63	70	120	

Sample Report

Date Acquired	8/9/16 5:25 PM	Sample Name	1607294-42A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	186SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	59.541	1093	4.13	2000	>RL
9	Be	45	2.885	93	12.03	2000	>RL
11	B	45	73.734	1169	3.61	2000	>RL
23	Na	45	2390.692	1870010	0.67	25000	>RL
24	Mg	45	15204.469	5878337	1.94	25000	>RL
27	Al	45	72030.177	10524233	3.38	10000	OUTCAL
39	K	45	16039.861	6097708	1.97	25000	>RL
44	Ca	45	104879.921	2344024	1.24	25000	OUTCAL
47	Ti	45	235.052	34698	1.79	2000	>RL
51	V	45	120.084	534754	0.29	2000	>RL
52	Cr	45	69.086	372031	1.77	2000	>RL
55	Mn	45	653.851	2025670	1.27	2000	>RL
56	Fe	45	70842.914	330239969	1.72	10000	OUTCAL
59	Co	72	24.095	208712	0.62	2000	>RL
60	Ni	72	41.876	99374	1.00	2000	>RL
63	Cu	72	26.987	178334	0.78	2000	>RL
66	Zn	72	207.899	225125	0.36	2000	>RL
75	As	72	22.978	19444	0.56	2000	>RL
78	Se	72	5.902	362	2.63	2000	>RL
88	Sr	115	466.324	1917883	1.03	2000	>RL
95	Mo	115	1.720	6267	4.98	2000	
107	Ag	115	0.121	1297	4.45	500	
111	Cd	115	0.462	763	11.15	2000	>RL
118	Sn	115	5.380	19628	1.54	2000	>RL
121	Sb	115	1.447	7476	0.32	500	
137	Ba	115	623.020	1047894	0.43	2000	>RL
205	Tl	209	0.627	14842	2.24	2000	
208	Pb	209	88.791	2825790	0.13	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	979458	0.33	1008225	97.15	70	120	
72	Ge	667124	0.54	680921	97.97	70	120	
115	In	6360406	1.89	6714019	94.73	70	120	
209	Bi	14679409	0.67	15779460	93.03	70	120	

Sample Report

Date Acquired	8/9/16 5:27 PM	Sample Name	1607294-43A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	187SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	43.690	804	3.90	2000	>RL
9	Be	45	2.207	71	18.31	2000	>RL
11	B	45	58.034	929	1.36	2000	>RL
23	Na	45	2668.348	2083521	0.61	25000	>RL
24	Mg	45	11493.998	4446547	1.16	25000	>RL
27	Al	45	51474.105	7525320	0.80	10000	OUTCAL
39	K	45	11122.179	4245827	1.01	25000	>RL
44	Ca	45	243426.419	5443015	0.41	25000	OUTCAL
47	Ti	45	334.363	49375	1.00	2000	>RL
51	V	45	106.093	473036	0.79	2000	>RL
52	Cr	45	77.836	419239	0.57	2000	>RL
55	Mn	45	618.008	1915756	0.78	2000	>RL
56	Fe	45	57066.615	266191714	2.16	10000	OUTCAL
59	Co	72	19.533	170063	1.52	2000	>RL
60	Ni	72	36.563	87252	0.46	2000	>RL
63	Cu	72	21.444	143374	0.30	2000	>RL
66	Zn	72	162.499	176937	0.66	2000	>RL
75	As	72	23.087	19634	1.35	2000	>RL
78	Se	72	4.964	312	5.66	2000	>RL
88	Sr	115	469.856	1966144	0.59	2000	>RL
95	Mo	115	10.216	37532	0.88	2000	>RL
107	Ag	115	0.100	1098	8.83	500	
111	Cd	115	0.477	801	4.17	2000	>RL
118	Sn	115	5.309	19721	0.36	2000	>RL
121	Sb	115	1.060	5656	3.47	500	
137	Ba	115	985.790	1687098	0.27	2000	>RL
205	Tl	209	0.506	11759	2.80	2000	
208	Pb	209	70.977	2211474	0.99	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	980059	0.52	1008225	97.21	70	120	
72	Ge	670479	0.31	680921	98.47	70	120	
115	In	6470859	1.07	6714019	96.38	70	120	
209	Bi	14369197	1.11	15779460	91.06	70	120	

Sample Report

Date Acquired	8/9/16 5:29 PM	Sample Name	1607294-44A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	188SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	53.068	972	1.40	2000	>RL
9	Be	45	1.972	63	14.33	2000	>RL
11	B	45	93.588	1469	3.53	2000	>RL
23	Na	45	7524.916	5777675	1.80	25000	>RL
24	Mg	45	16451.827	6341321	1.63	25000	>RL
27	Al	45	63547.739	9257270	2.37	10000	OUTCAL
39	K	45	12000.761	4561162	0.37	25000	>RL
44	Ca	45	197591.376	4402717	0.79	25000	OUTCAL
47	Ti	45	559.631	82335	1.54	2000	>RL
51	V	45	125.904	558899	0.37	2000	>RL
52	Cr	45	93.055	499204	0.21	2000	>RL
55	Mn	45	705.312	2178628	0.77	2000	>RL
56	Fe	45	64359.420	299128219	1.18	10000	OUTCAL
59	Co	72	21.228	182366	0.63	2000	>RL
60	Ni	72	50.065	117736	1.32	2000	>RL
63	Cu	72	26.950	176606	0.96	2000	>RL
66	Zn	72	193.017	207301	0.69	2000	>RL
75	As	72	25.630	21490	0.27	2000	>RL
78	Se	72	4.903	305	6.42	2000	>RL
88	Sr	115	543.621	2224114	0.89	2000	>RL
95	Mo	115	7.724	27763	1.15	2000	>RL
107	Ag	115	0.169	1791	4.29	500	
111	Cd	115	0.509	836	5.42	2000	>RL
118	Sn	115	5.841	21129	1.94	2000	>RL
121	Sb	115	1.857	9457	3.03	500	
137	Ba	115	737.694	1234451	0.47	2000	>RL
205	Tl	209	0.561	13047	1.81	2000	
208	Pb	209	145.286	4531906	0.18	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	976583	0.39	1008225	96.86	70	120	
72	Ge	661566	0.43	680921	97.16	70	120	
115	In	6327508	1.26	6714019	94.24	70	120	
209	Bi	14394663	1.99	15779460	91.22	70	120	

Sample Report

Date Acquired	8/9/16 5:31 PM	Sample Name	1607294-45A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	189SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	59.345	1085	4.90	2000	>RL
9	Be	45	2.086	67	23.46	2000	>RL
11	B	45	90.722	1425	10.98	2000	>RL
23	Na	45	7089.058	5439894	1.66	25000	>RL
24	Mg	45	16568.458	6380385	1.38	25000	>RL
27	Al	45	60131.555	8751000	1.09	10000	OUTCAL
39	K	45	10615.775	4036328	0.57	25000	>RL
44	Ca	45	215079.055	4787432	0.72	25000	OUTCAL
47	Ti	45	369.986	54388	1.20	2000	>RL
51	V	45	126.837	562426	1.28	2000	>RL
52	Cr	45	63.426	340256	1.04	2000	>RL
55	Mn	45	570.368	1759964	0.29	2000	>RL
56	Fe	45	60615.196	281434184	0.52	10000	OUTCAL
59	Co	72	19.844	169155	1.13	2000	>RL
60	Ni	72	39.936	93271	0.55	2000	>RL
63	Cu	72	17.404	114786	1.36	2000	>RL
66	Zn	72	140.200	149519	0.21	2000	>RL
75	As	72	20.928	17440	0.40	2000	>RL
78	Se	72	4.520	282	7.35	2000	>RL
88	Sr	115	534.797	2180119	0.43	2000	>RL
95	Mo	115	2.205	7942	2.87	2000	>RL
107	Ag	115	0.034	389	5.51	500	
111	Cd	115	0.449	734	10.60	2000	>RL
118	Sn	115	5.426	19617	1.56	2000	>RL
121	Sb	115	0.234	1451	2.23	500	
137	Ba	115	981.660	1636692	0.68	2000	>RL
205	Tl	209	0.528	12230	2.45	2000	
208	Pb	209	28.775	894193	0.38	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	975608	0.97	1008225	96.76	70	120	
72	Ge	656446	0.27	680921	96.41	70	120	
115	In	6303690	0.36	6714019	93.89	70	120	
209	Bi	14314491	0.50	15779460	90.72	70	120	

Sample Report

Date Acquired	8/9/16 5:33 PM	Sample Name	1607294-46A
Data Batch	160809.b	Comment	SAMPICPMS_TSDOD1
Data File Name	190SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	60.840	1114	2.27	2000	>RL
9	Be	45	2.527	81	17.81	2000	>RL
11	B	45	73.289	1159	10.71	2000	>RL
23	Na	45	932.369	753312	0.65	25000	>RL
24	Mg	45	15510.951	5982054	0.76	25000	>RL
27	Al	45	70162.874	10225517	1.95	10000	OUTCAL
39	K	45	16937.207	6419963	0.97	25000	>RL
44	Ca	45	126263.547	2814973	0.36	25000	OUTCAL
47	Ti	45	277.526	40860	1.45	2000	>RL
51	V	45	124.612	553450	1.11	2000	>RL
52	Cr	45	68.402	367457	0.63	2000	>RL
55	Mn	45	842.560	2603813	0.27	2000	>RL
56	Fe	45	73939.643	343830271	0.52	10000	OUTCAL
59	Co	72	25.492	221216	1.22	2000	>RL
60	Ni	72	42.782	101697	0.69	2000	>RL
63	Cu	72	28.719	189808	0.48	2000	>RL
66	Zn	72	238.837	259020	0.81	2000	>RL
75	As	72	23.627	20025	0.48	2000	>RL
78	Se	72	5.646	349	5.00	2000	>RL
88	Sr	115	721.434	3015730	0.11	2000	>RL
95	Mo	115	1.618	5993	0.26	2000	
107	Ag	115	0.165	1787	4.36	500	
111	Cd	115	0.582	974	0.26	2000	>RL
118	Sn	115	5.305	19691	1.90	2000	>RL
121	Sb	115	1.432	7526	1.38	500	
137	Ba	115	739.469	1264264	0.27	2000	>RL
205	Tl	209	0.635	14703	2.97	2000	
208	Pb	209	68.608	2135842	0.65	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	977105	0.72	1008225	96.91	70	120	
72	Ge	668323	0.69	680921	98.15	70	120	
115	In	6466111	2.16	6714019	96.31	70	120	
209	Bi	14356816	0.81	15779460	90.98	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/9/2016 17:35	Sample Name	CCV8-160809
Data Batch	160809.b	Comment	CCV ICPMS_TW
Data File Name	191_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	168.441	3000	2.45	200	84.2	90	110	Fail
9	Be	45	184.693	5730	0.47	200	92.3	90	110	
11	B	45	175.761	2659	7.59	200	87.9	90	110	Fail
23	Na	45	5082.732	3821821	1.74	5000	101.7	90	110	
24	Mg	45	5004.261	1882666	0.63	5000	100.1	90	110	
27	Al	45	4751.480	676278	0.29	5000	95.0	90	110	
39	K	45	5199.769	1955733	0.57	5000	104.0	90	110	
44	Ca	45	4766.090	104017	1.24	5000	95.3	90	110	
47	Ti	45	198.651	28530	1.25	200	99.3	90	110	
51	V	45	216.787	937192	1.40	200	108.4	90	110	
52	Cr	45	215.190	1124932	1.03	200	107.6	90	110	
55	Mn	45	208.674	629076	1.39	200	104.3	90	110	
56	Fe	45	5317.579	24120338	0.38	5000	106.4	90	110	
59	Co	72	203.785	1766850	0.19	200	101.9	90	110	
60	Ni	72	202.326	479254	0.55	200	101.2	90	110	
63	Cu	72	203.838	1318307	0.28	200	101.9	90	110	
66	Zn	72	202.336	219411	0.42	200	101.2	90	110	
75	As	72	211.271	177726	0.61	200	105.6	90	110	
78	Se	72	198.634	10905	1.34	200	99.3	90	110	
88	Sr	115	196.584	818103	0.81	200	98.3	90	110	
95	Mo	115	198.369	723293	0.54	200	99.2	90	110	
107	Ag	115	205.768	2175850	0.67	200	102.9	90	110	
111	Cd	115	199.033	328667	0.60	200	99.5	90	110	
118	Sn	115	197.893	699941	0.60	200	98.9	90	110	
121	Sb	115	209.789	1052166	0.58	200	104.9	90	110	
137	Ba	115	203.996	347119	1.57	200	102.0	90	110	
205	Tl	209	202.112	4724689	0.60	200	101.1	90	110	
208	Pb	209	199.976	6386026	1.09	200	100.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	952950	1.24	1008225	94.52	70	120	
72	Ge	668060	1.07	680921	98.11	70	120	
115	In	6434027	1.63	6714019	95.83	70	120	
209	Bi	14734956	1.42	15779460	93.38	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/9/2016 17:39	Sample Name	LCVL8-160809
Data Batch	160809.b	Comment	LCVLICPMS_TW
Data File Name	193LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.336	166	9.08	10	93.4	70	130	
9	Be	45	0.808	25	18.33	1	80.8	70	130	
11	B	45	26.007	414	3.04	20	130.0	70	130	Fail
23	Na	45	130.493	134671	0.32	100	130.5	70	130	Fail
24	Mg	45	106.943	39833	0.44	100	106.9	70	130	
27	Al	45	105.527	15571	2.24	100	105.5	70	130	
39	K	45	123.384	91146	0.77	100	123.4	70	130	
44	Ca	45	115.561	2836	1.77	100	115.6	70	130	
47	Ti	45	5.187	746	7.38	5	103.7	70	130	
51	V	45	0.949	6492	2.74	1	94.9	70	130	
52	Cr	45	5.579	29489	1.34	5	111.6	70	130	
55	Mn	45	5.416	16034	0.17	5	108.3	70	130	
56	Fe	45	118.422	528811	1.60	100	118.4	70	130	
59	Co	72	5.242	44676	0.51	5	104.8	70	130	
60	Ni	72	5.375	12869	2.20	5	107.5	70	130	
63	Cu	72	4.789	34830	1.29	5	95.8	70	130	
66	Zn	72	5.333	6058	1.93	5	106.7	70	130	
75	As	72	5.502	4692	2.16	5	110.0	70	130	
78	Se	72	5.694	344	4.63	5	113.9	70	130	
88	Sr	115	5.120	21571	1.71	5	102.4	70	130	
95	Mo	115	4.951	18023	0.73	5	99.0	70	130	
107	Ag	115	2.115	22283	1.12	2	105.8	70	130	
111	Cd	115	0.994	1641	3.81	1	99.4	70	130	
118	Sn	115	5.038	18551	0.38	5	100.8	70	130	
121	Sb	115	2.094	10754	2.15	2	104.7	70	130	
137	Ba	115	5.244	8906	1.57	5	104.9	70	130	
205	Tl	209	1.062	25088	0.28	1	106.2	70	130	
208	Pb	209	1.054	35519	2.73	1	105.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	927998	0.57	1008225	92.04	70	120	
72	Ge	655283	0.46	680921	96.23	70	120	
115	In	6400843	1.68	6714019	95.34	70	120	
209	Bi	14766073	3.26	15779460	93.58	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/9/2016 17:41	Sample Name	CCB8-160809
Data Batch	160809.b	Comment	CCB ICPMS_TW
Data File Name	194_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.250	8	27.7	2	5	
9	Be	45	0.023	1	173.2	0.4	0.3	
11	B	45	6.320	129	7.9	10	10	
23	Na	45	18.547	53714	0.7	50	100	
24	Mg	45	0.146	721	6.3	50	100	
27	Al	45	2.062	1253	7.7	50	10	
39	K	45	9.459	50565	1.3	50	100	
44	Ca	45	13.034	667	6.8	50	100	
47	Ti	45	-0.083	9	57.3	4	3	
51	V	45	-0.143	1913	7.4	4	3	
52	Cr	45	-0.033	952	5.3	2	2	
55	Mn	45	0.070	343	11.4	2	3	
56	Fe	45	3.993	23495	1.8	50	50	
59	Co	72	0.002	118	11.8	2	3	
60	Ni	72	-0.003	380	12.9	2	3	
63	Cu	72	-0.542	1123	5.7	2	2	
66	Zn	72	0.071	468	13.5	4	2	
75	As	72	-0.001	154	5.9	2	2	
78	Se	72	0.510	66	16.4	1	2	
88	Sr	115	0.054	602	3.6	4	3	
95	Mo	115	0.039	204	16.1	2	2	
107	Ag	115	0.018	221	24.8	0.4	1	
111	Cd	115	0.005	17	34.6	0.4	0.3	
118	Sn	115	-0.072	588	4.7	4	3	
121	Sb	115	0.002	314	11.7	2	0.8	
137	Ba	115	0.099	196	18.8	2	3	
205	Tl	209	0.019	676	9.2	2	0.5	
208	Pb	209	0.027	2663	5.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	930188	0.63	1008225	92.26	70	120	
72	Ge	651452	1.06	680921	95.67	70	120	
115	In	6333558	0.94	6714019	94.33	70	120	
209	Bi	14665209	0.60	15779460	92.94	70	120	

ICP-MS4_160810C
For

DHL Work Order
1607294

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-MS4_160810C 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: [signature] Date of Completion: 08/11/2016

Second-Level Review: Janice Whitt Date Stamp: 8/15/2016

REVIEWED BY
By Janice Whitt at 2:26:23 PM, 8/15/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160810C** **Run No.:** 87547

Analytical Run Date: 8/10/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:03:00 PM		
L2-160810	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:05:00 PM		
L-160810	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:07:00 PM		
10X-160810	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:09:00 PM		
5X-160810	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:11:00 PM		
2X-160810	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:13:00 PM		
H-160810	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:15:00 PM		
H2-160810	1	ICPMS_TWDOD	CAL	R87547	8/10/2016 12:17:00 PM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87547	8/10/2016 1:01:00 PM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87547	8/10/2016 1:03:00 PM		
ICV-160810	1	ICPMS_TWDOD	ICV	R87547	8/10/2016 1:12:00 PM		
LCVL-160810	1	ICPMS_TWDOD	LCVL	R87547	8/10/2016 1:18:00 PM		
ICB-160810	1	ICPMS_TWDOD	ICB	R87547	8/10/2016 1:23:00 PM		
CCV5-160810	1	ICPMS_TWDOD	CCV	R87547	8/10/2016 4:59:00 PM		
LCVL5-160810	1	ICPMS_TWDOD	LCVL	R87547	8/10/2016 5:04:00 PM		
CCB5-160810	1	ICPMS_TWDOD	CCB	R87547	8/10/2016 5:06:00 PM		
MB-76691	5	ICPMS_TSDOD1	MBLK	76691	8/10/2016 5:09:00 PM		
LCS-76691	5	ICPMS_TSDOD1	LCS	76691	8/10/2016 5:11:00 PM		
LCSD-76691	5	ICPMS_TSDOD1	LCSD	76691	8/10/2016 5:13:00 PM		
1607294-52A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:17:00 PM		
1607294-52A SD	25	ICPMS_TSDOD1	SD	76691	8/10/2016 5:19:00 PM		
1607294-47A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:21:00 PM		
1607294-48A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:23:00 PM		
1607294-49A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:25:00 PM		
1607294-51A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:27:00 PM		
1607294-53A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:29:00 PM		
1607294-54A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:31:00 PM		
1607294-55A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:33:00 PM		
1607294-56A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:35:00 PM		
1607294-57A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:37:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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-MS4_160810C **Run No.:** 87547

1607294-52A PDS	5	ICPMS_TSDOD1	PDS	76691	8/10/2016 5:39:00 PM		
1607294-52A MS	5	ICPMS_TSDOD1	MS	76691	8/10/2016 5:40:00 PM		
1607294-52A MSD	5	ICPMS_TSDOD1	MSD	76691	8/10/2016 5:42:00 PM		
CCV6-160810	1	ICPMS_TWDOD	CCV	R87547	8/10/2016 5:50:00 PM		
LCVL6-160810	1	ICPMS_TWDOD	LCVL	R87547	8/10/2016 5:54:00 PM		
CCB6-160810	1	ICPMS_TWDOD	CCB	R87547	8/10/2016 5:56:00 PM		
1607294-58A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 5:59:00 PM		
1607294-59A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:01:00 PM		
1607294-60A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:03:00 PM		
1607294-61A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:04:00 PM		
1607294-62A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:06:00 PM		
1607294-64A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:08:00 PM		
1607294-65A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:10:00 PM		
1607294-66A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:12:00 PM		
1607294-67A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:14:00 PM		
1607294-68A	5	ICPMS_TSDOD1	SAMP	76691	8/10/2016 6:16:00 PM		
CCV7-140402	1	ICPMS_TWDOD	CCV	R87547	8/10/2016 6:18:00 PM		
LCVL7-140402	1	ICPMS_TWDOD	LCVL	R87547	8/10/2016 6:22:00 PM		
CCB7-140402	1	ICPMS_TWDOD	CCB	R87547	8/10/2016 6:29:00 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-160630	INTERNAL STANDARD 1 PPM		12/28/2016
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

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160810.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160810	CAL ICPMS_TW	2	2102	
14	CalStd	L-160810	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160810	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160810	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160810	CAL ICPMS_TW	6	2106	
18	CalStd	H-160810	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160810	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICB	BLANK	CCB ICPMS_TW		1103	
23	ICSA	ICSA-160810	ICSAICPMS_TW		2109	
24	ICSB	ICSAB-160810	ICSBICPMS_TW		2110	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICB	BLANK	CCB ICPMS_TW		1103	
27	ICSA	ICSA-160810	ICSAICPMS_TW		2109	
28	ICSB	ICSAB-160810	ICSBICPMS_TW		2110	
29	ICB	BLANK	CCB ICPMS_TW		1103	
30	ICSA	ICSA-160810	ICSAICPMS_TW		2109	
31	ICSB	ICSAB-160810	ICSBICPMS_TW		2110	
32	ICB	BLANK	CCB ICPMS_TW		1102	
33	ICB	BLANK	CCB ICPMS_TW		1103	
34	ICV	ICV-160810	ICV ICPMS_TW		2111	
35	ICB	ICB-160810	ICB ICPMS_TW		1101	
36	ICB	ICB-160810	ICB ICPMS_TW		1103	
37	LLICV	LCVL-160810	LCVLICPMS_TW		2112	
38	ICB	ICB-160810	ICB ICPMS_TW		1102	
39	ICB	ICB-160810	ICB ICPMS_TW		1103	
40	PB_W	MB-76707	MBLKICPMS_TW		2201	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	LCS_W	LCS-76707	LCS ICPMS_TW		2202	1
42	LCS_W	LCSD-76707	LCSDICPMS_TW		2203	1
43	CCB	RINSE	CCB ICPMS_TW		1101	
44	AllRef	1608032-06C	SAMPICPMS_TW		2204	10
45	SD	1608032-06C SD	SD ICPMS_TW		2205	50
46	PDS	1608032-06C PDS	PDS ICPMS_TW		2206	10
47	SAMP_W	1604232-04A	SAMPICPMS_TW		2207	50

Sample List

48	SAMP_W	1604232-05A	SAMPICPMS_TW		2208	50
49	SAMP_W	1604232-06A	SAMPICPMS_TW		2209	10
50	SAMP_W	1604232-06A	SAMPICPMS_TW		2210	1
51	MS_W	1608032-06C MS	MS ICPMS_TW		2211	10
52	MS_W	1608032-06C MSD	MSD ICPMS_TW		2212	10
53	CCB	CCB1-160810	CCB ICPMS_TW		1102	
54	CCB	CCB1-160810	CCB ICPMS_TW		1103	
55	CCV	CCV1-160810	CCV ICPMS_TW		1207	
56	CCB	CCB1-160810	CCB ICPMS_TW		1102	
57	CCB	CCB1-160810	CCB ICPMS_TW		1102	
58	CCB	CCB1-160810	CCB ICPMS_TW		1103	
59	CCB	CCB1-160810	CCB ICPMS_TW		1103	
60	LLCCV	LCVL1-160810	LCVLICPMS_TW		2112	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	CCB	CCB1-160810	CCB ICPMS_TW		1102	
62	CCB	CCB1-160810	CCB ICPMS_TW		1102	
63	CCB	CCB1-160810	CCB ICPMS_TW		1103	
64	CCB	CCB1-160810	CCB ICPMS_TW		1103	
65	CCB	CCB1-160810	CCB ICPMS_TW		1103	
66	CCB	CCB1-160810	CCB ICPMS_TW		1103	
67	LLCCV	LCVL1-160810	LCVLICPMS_TW		2112	
68	CCB	CCB1-160810	CCB ICPMS_TW		1103	
69	PB_W	MB-76723	MBLK6020A_W		3101	1
70	LCS_W	LCS-76723	LCS 6020A_W		3102	1
71	LCS_W	LCSD-73723	LCSD6020A_W		3103	1
72	CCB	RINSE	CCB ICPMS_TW		1101	
73	AllRef	1608052-02C	SAMP6020A_W		3104	1
74	SD	1608052-02C SD	SD 6020A_W		3105	5
75	SAMP_W	1608052-01C	SAMP6020A_W		3106	1
76	SAMP_W	1608052-03C	SAMP6020A_W		3107	1

Sample List

77	SAMP_W	1608052-04C	SAMP6020A_W		3108	1
78	SAMP_W	1608052-05C	SAMP6020A_W		3109	1
79	SAMP_W	1608052-06C	SAMP6020A_W		3110	1
80	SAMP_W	1608052-07C	SAMP6020A_W		3111	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	SAMP_W	1608073-01C	SAMP6020A_W		3112	1
82	SAMP_W	1608073-02C	SAMP6020A_W		3201	1
83	SAMP_W	1608073-03C	SAMP6020A_W		3202	1
84	PDS	1608052-02C PDS	PDS 6020A_W		3203	1
85	MS_W	1608052-02C MS	MS 6020A_W		3204	1
86	MS_W	1608052-02C MSD	MSD 6020A_W		3205	1
87	CCV	CCV2-160810	CCV ICPMS_TW		1207	
88	CCB	CCB2-160810	CCB ICPMS_TW		1102	
89	LLCCV	LCVL2-160810	LCVLICPMS_TW		2112	
90	CCB	CCB2-160810	CCB ICPMS_TW		1103	
91	SAMP_W	1608073-04C	SAMP6020A_W		3206	1
92	SAMP_W	1608073-05C	SAMP6020A_W		3207	1
93	SAMP_W	1608073-06C	SAMP6020A_W		3208	1
94	SAMP_W	1608073-07C	SAMP6020A_W		3209	1
95	SAMP_W	1608073-08C	SAMP6020A_W		3210	1
96	SAMP_W	1608073-09C	SAMP6020A_W		3211	1
97	SAMP_W	1608073-10C	SAMP6020A_W		3212	1
98	CCV	CCV3-160810	CCV ICPMS_TW		1207	
99	CCB	CCB3-160810	CCB ICPMS_TW		1102	
100	LLCCV	LCVL3-160810	LCVLICPMS_TW		2512	

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Sample List

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	CCB	CCB3-160810	CCB ICPMS_TW		1103	
102	Sample	1403262-12A	SAMPICPMS_TSDOD		3207	5
103	Sample	1403262-13A	SAMPICPMS_TSDOD		3208	5
104	Sample	1403262-14A	SAMPICPMS_TSDOD		3209	5
105	Sample	1403263-01A	SAMPICPMS_TSDOD		3210	5
106	Sample	1403263-02A	SAMPICPMS_TSDOD		3211	5
107	Sample	1403263-03A	SAMPICPMS_TSDOD		3212	5
108	Sample	1403263-04A	SAMPICPMS_TSDOD		3301	5
109	Sample	1403263-05A	SAMPICPMS_TSDOD		3302	5
110	Sample	1403263-06A	SAMPICPMS_TSDOD		3303	5
111	Sample	1403263-07A	SAMPICPMS_TSDOD		3304	5
112	CCV	CCV4-140402	CCV ICPMS_TW		1207	
113	CCB	CCB4-140402	CCB ICPMS_TW		1102	
114	LLCCV	LCVL4-140402	LCVLICPMS_TW		2512	
115	CCB	CCB4-140402	CCB ICPMS_TW		1103	
116	PB	MB-62609	MBLKICPMS_TSDOD		3401	5
117	Sample	PAINT CHIPS AW-13	SAMPICPMS_TSDOD		3402	50
118	LCS_S	LCS-62609	LCS ICPMS_TSDOD		3403	5
119	LCS_S	LCSD-62609	LCSDICPMS_TSDOD		3404	5
120	CCB	RINSE	CCB ICPMS_TW		1101	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	AllRef	1403264-10A	SAMPICPMS_TSDOD		3405	5
122	SD	1403264-10A SD	SD ICPMS_TSDOD		3406	25
123	Sample	1403263-08A	SAMPICPMS_TSDOD		3407	5
124	Sample	1403263-09A	SAMPICPMS_TSDOD		3408	5
125	Sample	1403264-01A	SAMPICPMS_TSDOD		3409	5
126	Sample	1403264-02A	SAMPICPMS_TSDOD		3410	5
127	Sample	1403264-03A	SAMPICPMS_TSDOD		3411	5
128	Sample	1403264-04A	SAMPICPMS_TSDOD		3412	5
129	Sample	1403264-05A	SAMPICPMS_TSDOD		3501	5
130	Sample	1403264-06A	SAMPICPMS_TSDOD		3502	5
131	Sample	1403264-07A	SAMPICPMS_TSDOD		3503	5
132	PDS	1403264-10A PDS	PDS ICPMS_TSDOD		3504	5
133	MS_S	1403264-10A MS	MS ICPMS_TSDOD		3505	5
134	MS_S	1403264-10A MSD	MSD ICPMS_TSDOD		3506	5
135	CCV	CCV5-140402	CCV ICPMS_TW		1207	
136	CCB	CCB5-140402	CCB ICPMS_TW		1102	
137	LLCCV	LCVL5-140402	LCVLICPMS_TW		2511	
138	CCB	CCB5-140402	CCB ICPMS_TW		1103	
139	Sample	1403264-08A	SAMPICPMS_TSDOD		3507	5
140	Sample	1403264-09A	SAMPICPMS_TSDOD		3508	5

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
141	Sample	1403264-11A	SAMPICPMS_TSDOD		3509	5
142	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
143	Sample	1403264-13A	SAMPICPMS_TSDOD		3511	5
144	Sample	1403264-14A	SAMPICPMS_TSDOD		3512	5
145	Sample	1403264-15A	SAMPICPMS_TSDOD		3310	5
146	Sample	1403264-16A	SAMPICPMS_TSDOD		3311	5
147	Sample	1403264-17A	SAMPICPMS_TSDOD		3312	5
148	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
149	CCV	CCV6-140402	CCV ICPMS_TW		1207	
150	CCB	CCB6-140402	CCB ICPMS_TW		1102	
151	LLCCV	LCVL6-140402	LCVLICPMS_TW		2511	
152	CCB	CCB6-140402	CCB ICPMS_TW		1103	
153	CCB	CCB6-140402	CCB ICPMS_TW		1102	
154	CCB	CCB6-140402	CCB ICPMS_TW		1102	

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Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

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Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160810.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160810	CAL ICPMS_TW	2	2102	
14	CalStd	L-160810	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160810	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160810	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160810	CAL ICPMS_TW	6	2106	
18	CalStd	H-160810	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160810	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICB	BLANK	CCB ICPMS_TW		1103	
23	ICSA	ICSA-160810	ICSAICPMS_TW		2109	
24	ICSB	ICSAB-160810	ICSBICPMS_TW		2110	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICB	BLANK	CCB ICPMS_TW		1103	
27	ICSA	ICSA-160810	ICSAICPMS_TW		2109	
28	ICSB	ICSAB-160810	ICSBICPMS_TW		2110	
29	ICB	BLANK	CCB ICPMS_TW		1103	
30	ICSA	ICSA-160810	ICSAICPMS_TW		2109	
31	ICSB	ICSAB-160810	ICSBICPMS_TW		2110	
32	ICB	BLANK	CCB ICPMS_TW		1102	
33	ICB	BLANK	CCB ICPMS_TW		1103	
34	ICV	ICV-160810	ICV ICPMS_TW		2111	
35	ICB	ICB-160810	ICB ICPMS_TW		1101	
36	ICB	ICB-160810	ICB ICPMS_TW		1103	
37	LLICV	LCVL-160810	LCVLICPMS_TW		2112	
38	ICB	ICB-160810	ICB ICPMS_TW		1102	
39	ICB	ICB-160810	ICB ICPMS_TW		1103	
40	PB_W	MB-76707	MBLKICPMS_TW		2201	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	LCS_W	LCS-76707	LCS ICPMS_TW		2202	1
42	LCS_W	LCSD-76707	LCSDICPMS_TW		2203	1
43	CCB	RINSE	CCB ICPMS_TW		1101	
44	AllRef	1608032-06C	SAMPICPMS_TW		2204	10
45	SD	1608032-06C SD	SD ICPMS_TW		2205	50
46	PDS	1608032-06C PDS	PDS ICPMS_TW		2206	10
47	SAMP_W	1604232-04A	SAMPICPMS_TW		2207	50

Sample List

48	SAMP_W	1604232-05A	SAMPICPMS_TW		2208	50
49	SAMP_W	1604232-06A	SAMPICPMS_TW		2209	10
50	SAMP_W	1604232-06A	SAMPICPMS_TW		2210	1
51	MS_W	1608032-06C MS	MS ICPMS_TW		2211	10
52	MS_W	1608032-06C MSD	MSD ICPMS_TW		2212	10
53	CCB	CCB1-160810	CCB ICPMS_TW		1102	
54	CCB	CCB1-160810	CCB ICPMS_TW		1103	
55	CCV	CCV1-160810	CCV ICPMS_TW		1207	
56	CCB	CCB1-160810	CCB ICPMS_TW		1102	
57	CCB	CCB1-160810	CCB ICPMS_TW		1102	
58	CCB	CCB1-160810	CCB ICPMS_TW		1103	
59	CCB	CCB1-160810	CCB ICPMS_TW		1103	
60	LLCCV	LCVL1-160810	LCVLICPMS_TW		2112	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	CCB	CCB1-160810	CCB ICPMS_TW		1102	
62	CCB	CCB1-160810	CCB ICPMS_TW		1102	
63	CCB	CCB1-160810	CCB ICPMS_TW		1103	
64	CCB	CCB1-160810	CCB ICPMS_TW		1103	
65	CCB	CCB1-160810	CCB ICPMS_TW		1103	
66	CCB	CCB1-160810	CCB ICPMS_TW		1103	
67	LLCCV	LCVL1-160810	LCVLICPMS_TW		2112	
68	CCB	CCB1-160810	CCB ICPMS_TW		1103	
69	PB_W	MB-76723	MBLK6020A_W		3101	1
70	LCS_W	LCS-76723	LCS 6020A_W		3102	1
71	LCS_W	LCSD-73723	LCSD6020A_W		3103	1
72	CCB	RINSE	CCB ICPMS_TW		1101	
73	AllRef	1608052-02C	SAMP6020A_W		3104	1
74	SD	1608052-02C SD	SD 6020A_W		3105	5
75	SAMP_W	1608052-01C	SAMP6020A_W		3106	1
76	SAMP_W	1608052-03C	SAMP6020A_W		3107	1

Sample List

77	SAMP_W	1608052-04C	SAMP6020A_W		3108	1
78	SAMP_W	1608052-05C	SAMP6020A_W		3109	1
79	SAMP_W	1608052-06C	SAMP6020A_W		3110	1
80	SAMP_W	1608052-07C	SAMP6020A_W		3111	1

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61	Skip
62	Skip
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64	Skip
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67	Skip
68	Skip
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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	SAMP_W	1608073-01C	SAMP6020A_W		3112	1
82	SAMP_W	1608073-02C	SAMP6020A_W		3201	1
83	SAMP_W	1608073-03C	SAMP6020A_W		3202	1
84	PDS	1608052-02C PDS	PDS 6020A_W		3203	1
85	MS_W	1608052-02C MS	MS 6020A_W		3204	1
86	MS_W	1608052-02C MSD	MSD 6020A_W		3205	1
87	CCV	CCV2-160810	CCV ICPMS_TW		1207	
88	CCB	CCB2-160810	CCB ICPMS_TW		1102	
89	LLCCV	LCVL2-160810	LCVLICPMS_TW		2112	
90	CCB	CCB2-160810	CCB ICPMS_TW		1103	
91	SAMP_W	1608073-04C	SAMP6020A_W		3206	1
92	SAMP_W	1608073-05C	SAMP6020A_W		3207	1
93	SAMP_W	1608073-06C	SAMP6020A_W		3208	1
94	SAMP_W	1608073-07C	SAMP6020A_W		3209	1
95	SAMP_W	1608073-08C	SAMP6020A_W		3210	1
96	SAMP_W	1608073-09C	SAMP6020A_W		3211	1
97	SAMP_W	1608073-10C	SAMP6020A_W		3212	1
98	CCV	CCV3-160810	CCV ICPMS_TW		1207	
99	CCB	CCB3-160810	CCB ICPMS_TW		1102	
100	LLCCV	LCVL3-160810	LCVLICPMS_TW		2512	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	CCB	CCB3-160810	CCB ICPMS_TW		1103	
102	PB_W	MB-76722	MBLK6020A_W		3301	1
103	LCS_W	LCS-76722	LCS 6020A_W		3302	1
104	LCS_W	LCSD-73722	LCSD6020A_W		3303	1
105	CCB	RINSE	CCB ICPMS_TW		1101	
106	AllRef	1608049-01A	SAMP6020A_W		3304	1
107	SD	1608049-01A SD	SD 6020A_W		3305	5
108	SAMP_W	1608049-02A	SAMP6020A_W		3306	1
109	SAMP_W	1608049-03A	SAMP6020A_W		3307	1
110	SAMP_W	1608049-04A	SAMP6020A_W		3308	1
111	SAMP_W	1608049-05A	SAMP6020A_W		3309	1
112	SAMP_W	1608049-06A	SAMP6020A_W		3310	1
113	SAMP_W	1608049-07A	SAMP6020A_W		3311	1
114	SAMP_W	1608049-08A	SAMP6020A_W		3312	1
115	SAMP_W	1608049-09A	SAMP6020A_W		3401	1
116	SAMP_W	1608049-10A	SAMP6020A_W		3402	1
117	PDS	1608049-01A PDS	PDS 6020A_W		3403	1
118	MS_W	1608049-01A MS	MS 6020A_W		3404	1
119	MS_W	1608049-01A MSD	MSD 6020A_W		3405	1
120	CCV	CCV4-160810	CCV ICPMS_TW		1207	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	CCB	CCB4-160810	CCB ICPMS_TW		1102	
122	LLCCV	LCVL4-160810	LCVLICPMS_TW		2512	
123	CCB	CCB4-160810	CCB ICPMS_TW		1103	
124	SAMP_W	1608049-11A	SAMP6020A_W		3406	1
125	SAMP_W	1608050-21A	SAMP6020A_W		3407	1
126	SAMP_W	1608050-22A	SAMP6020A_W		3408	1
127	SAMP_W	1608050-23A	SAMP6020A_W		3409	1
128	SAMP_W	1608050-24A	SAMP6020A_W		3410	1
129	SAMP_W	1608050-25A	SAMP6020A_W		3411	1
130	SAMP_W	1608050-26A	SAMP6020A_W		3412	1
131	SAMP_W	1608050-27A	SAMP6020A_W		3501	1
132	CCV	CCV5-160810	CCV ICPMS_TW		1207	
133	CCB	CCB5-160810	CCB ICPMS_TW		1102	
134	LLCCV	LCVL5-160810	LCVLICPMS_TW		2511	
135	CCB	CCB5-160810	CCB ICPMS_TW		1103	
136	PB	MB-76691	MBLKICPMS_TSDOD1		4101	5
137	LCS_S	LCS-76691	LCS ICPMS_TSDOD1		4102	5
138	LCS_S	LCSD-76691	LCSDICPMS_TSDOD1		4103	5
139	CCB	RINSE	CCB ICPMS_TW		1101	
140	AllRef	1607294-52A	SAMPICPMS_TSDOD1		4104	5

#	Skip

Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
141	SD	1607294-52A SD	SD ICPMS_TSDOD1		4105	25
142	Sample	1607294-47A	SAMPICPMS_TSDOD1		4106	5
143	Sample	1607294-48A	SAMPICPMS_TSDOD1		4107	5
144	Sample	1607294-49A	SAMPICPMS_TSDOD1		4108	5
145	Sample	1607294-51A	SAMPICPMS_TSDOD1		4109	5
146	Sample	1607294-53A	SAMPICPMS_TSDOD1		4110	5
147	Sample	1607294-54A	SAMPICPMS_TSDOD1		4111	5
148	Sample	1607294-55A	SAMPICPMS_TSDOD1		4112	5
149	Sample	1607294-56A	SAMPICPMS_TSDOD1		4201	5
150	Sample	1607294-57A	SAMPICPMS_TSDOD1		4202	5
151	PDS	1607294-52A PDS	PDS ICPMS_TSDOD1		4203	5
152	MS_S	1607294-52A MS	MS ICPMS_TSDOD1		4204	5
153	MS_S	1607294-52A MSD	MSD ICPMS_TSDOD1		4205	5
154	CCB	RINSE	CCB ICPMS_TW		1101	
155	MS_S	1607265-18A MS	MS ICPMS_TSDOD1		4304	5
156	MS_S	1607265-18A MSD	MSD ICPMS_TSDOD1		4305	5
157	CCV	CCV6-160810	CCV ICPMS_TW		1207	
158	CCB	CCB6-160810	CCB ICPMS_TW		1102	
159	LLCCV	LCVL6-160810	LCVLICPMS_TW		2511	
160	CCB	CCB6-160810	CCB ICPMS_TW		1103	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
161	Sample	1607294-58A	SAMPICPMS_TSDOD1		4206	5
162	Sample	1607294-59A	SAMPICPMS_TSDOD1		4207	5
163	Sample	1607294-60A	SAMPICPMS_TSDOD1		4208	5
164	Sample	1607294-61A	SAMPICPMS_TSDOD1		4209	5
165	Sample	1607294-62A	SAMPICPMS_TSDOD1		4210	5
166	Sample	1607294-64A	SAMPICPMS_TSDOD1		4211	5
167	Sample	1607294-65A	SAMPICPMS_TSDOD1		4212	5
168	Sample	1607294-66A	SAMPICPMS_TSDOD1		4301	5

Sample List

169	Sample	1607294-67A	SAMPICPMS_TSDOD1	4302	5
170	Sample	1607294-68A	SAMPICPMS_TSDOD1	4303	5
171	CCV	CCV7-140402	CCV ICPMS_TW	1207	
172	CCB	CCB7-140402	CCB ICPMS_TW	1102	
173	LLCCV	LCVL7-140402	LCVLICPMS_TW	2511	
174	CCB	CCB7-140402	CCB ICPMS_TW	1103	
175	CCB	CCB7-140402	CCB ICPMS_TW	1102	
176	CCB	CCB7-140402	CCB ICPMS_TW	1102	

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Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:27 AM**
Digestion:
Prep End Date:

Prep Batch **76691** 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
1607294-47A	Soil		1.02	50	50.000	1 of 1	
1607294-48A	Soil		1.04	50	50.000	1 of 1	
1607294-49A	Soil		1.04	50	50.000	1 of 1	
1607294-51A	Soil		1.01	50	50.000	1 of 1	
1607294-52A	Soil		1.16	50	50.000	3 of 3	
1607294-52A MS	Soil		1.06	50	50.000	3 of 3	
1607294-52A MSD	Soil		1.10	50	50.000	3 of 3	
1607294-53A	Soil		1.15	50	50.000	1 of 1	
1607294-54A	Soil		1.01	50	50.000	1 of 1	
1607294-55A	Soil		1.09	50	50.000	1 of 1	
1607294-56A	Soil		1.08	50	50.000	1 of 1	
1607294-57A	Soil		1.02	50	50.000	1 of 1	
1607294-58A	Soil		1.15	50	50.000	1 of 1	
1607294-59A	Soil		1.09	50	50.000	1 of 1	
1607294-60A	Soil		1.14	50	50.000	1 of 1	
1607294-61A	Soil		1.04	50	50.000	1 of 1	
1607294-62A	Soil		1.18	50	50.000	1 of 1	
1607294-64A	Soil		1.03	50	50.000	1 of 1	
1607294-65A	Soil		1.04	50	50.000	1 of 1	
1607294-66A	Soil		1.07	50	50.000	1 of 1	
1607294-67A	Soil		1.16	50	50.000	1 of 1	
1607294-68A	Soil		1.10	50	50.000	1 of 1	
LCS-76691	Soil		1	50	50.000	of	
LCSD-76691	Soil		1	50	50.000	of	
MB-76691	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-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

12:29 - 12:39
12:40 - 14:40
15:00 - 17:00
17:32 - 17:47

REVIEWED BY
By Janice Whitt at 2:07:01 PM, 8/15/2016

8/5/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 7:00:00 AM**
Prep End Date: **7/29/2016 1:30:00 PM**

Prep Batch **76516** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-44A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-45A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-46A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-47A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-48A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-49A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-51A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-52A	Soil		0	0	#Num!	of 3	
	SS MS/MSD						
1607294-53A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-54A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-55A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-56A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-57A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 2:07:14 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 7:00:00 AM**
Prep End Date: **7/29/2016 1:30:00 PM**

Prep Batch **76516** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-58A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-59A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-60A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-61A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607294-62A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-64A	Soil		0	0	#Num!	1 of 1	
SS							
1607294-65A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 2:07:17 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 1:40:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76518** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-67A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-68A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-69A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-70A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-71A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-72A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-73A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-74A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-75A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 2:07:21 PM, 8/15/2016

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	**% 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	5.0031	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)						

SMH 8/5/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:07:54 PM, 8/15/2016
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 2:08:00 PM, 8/15/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:27 AM**
Digestion: **Start: 8/5/2016 12:29:00 PM / Stop: 8/5/2016 5:47:00 PM**
Prep End Date: **8/5/2016 6:08:00 PM**

Prep Batch **76691** 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
1607294-47A	Soil		1.02	50	49.020	1 of 1	
1607294-48A	Soil		1.04	50	48.077	1 of 1	
1607294-49A	Soil		1.04	50	48.077	1 of 1	
1607294-51A	Soil		1.01	50	49.505	1 of 1	
1607294-52A	Soil		1.16	50	43.103	of 3	
1607294-52A MS	Soil		1.06	50	47.170	of	
1607294-52A MSD	Soil		1.1	50	45.455	of	
1607294-52A PDS	Soil		1.16	50	43.103	of	
1607294-52A SD	Soil		1.16	50	43.103	of	
1607294-53A	Soil		1.15	50	43.478	1 of 1	
1607294-54A	Soil		1.01	50	49.505	1 of 1	
1607294-55A	Soil		1.09	50	45.872	1 of 1	
1607294-56A	Soil		1.08	50	46.296	1 of 1	
1607294-57A	Soil		1.02	50	49.020	1 of 1	
1607294-58A	Soil		1.15	50	43.478	1 of 1	
1607294-59A	Soil		1.09	50	45.872	1 of 1	
1607294-60A	Soil		1.14	50	43.860	1 of 1	
1607294-61A	Soil		1.04	50	48.077	1 of 1	
1607294-62A	Soil		1.18	50	42.373	1 of 1	
1607294-64A	Soil		1.03	50	48.544	1 of 1	
1607294-65A	Soil		1.04	50	48.077	1 of 1	
1607294-66A	Soil		1.07	50	46.729	1 of 1	
1607294-67A	Soil		1.16	50	43.103	1 of 1	
1607294-68A	Soil		1.1	50	45.455	1 of 1	
LCS-76691	Soil		1	50	50.000	of	
LCSD-76691	Soil		1	50	50.000	of	
MB-76691	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-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 2:07:07 PM, 8/15/2016

Calibration Summary Report

Date Acquired 8/10/2016 12:03
Data Batch 160810.b

Level	Calibration File Name
1	012CALB.d
2	013CALS.d
3	014CALS.d
4	015CALS.d
5	016CALS.d
6	017CALS.d
7	018CALS.d
8	019CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0012 * x + 3.0179E-004
Be	1.0000	y = 2.9567E-005 * x + 1.6484E-006
B	1.0000	y = 1.3588E-005 * x + 3.8521E-005
Na	1.0000	y = 7.4485E-004 * x + 0.0494
Mg	1.0000	y = 3.8205E-004 * x + 7.5362E-004
Al	1.0000	y = 1.4216E-004 * x + 0.0011
K	1.0000	y = 3.8180E-004 * x + 0.0551
Ca	0.9999	y = 2.1450E-005 * x + 4.5765E-004
Ti	1.0000	y = 1.4614E-004 * x + 6.5919E-006
V	1.0000	y = 0.0047 * x + 0.0029
Cr	1.0000	y = 0.0056 * x + 0.0014
Mn	1.0000	y = 0.0032 * x + 1.5845E-004
Fe	1.0000	y = 0.0048 * x + 0.0070
Co	1.0000	y = 0.0122 * x + 2.4884E-004
Ni	1.0000	y = 0.0033 * x + 4.1797E-004
Cu	1.0000	y = 0.0090 * x + 0.0038
Zn	1.0000	y = 0.0015 * x + 5.4648E-004
Se	1.0000	y = 7.4947E-005 * x + 9.5875E-005
Sr	1.0000	y = 6.3031E-004 * x + 7.2002E-005
Mo	1.0000	y = 5.4335E-004 * x + 1.3007E-005
Ag	1.0000	y = 0.0017 * x + 4.2752E-006
Cd	1.0000	y = 2.5008E-004 * x + 1.4400E-006
Sn	1.0000	y = 5.4321E-004 * x + 2.0648E-004
Sb	0.9999	y = 8.0846E-004 * x + 5.0928E-005
Tl	1.0000	y = 0.0016 * x + 4.6987E-005
Ba	1.0000	y = 2.6515E-004 * x + 6.2021E-006
Pb	1.0000	y = 0.0021 * x + 3.3152E-004
Li	1.0000	y = 1.7511E-005 * x + 4.9541E-006

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By Janice Whitt at 2:59:18 PM, 8/10/2016

Calibration Summary Report

Level 7 Cal

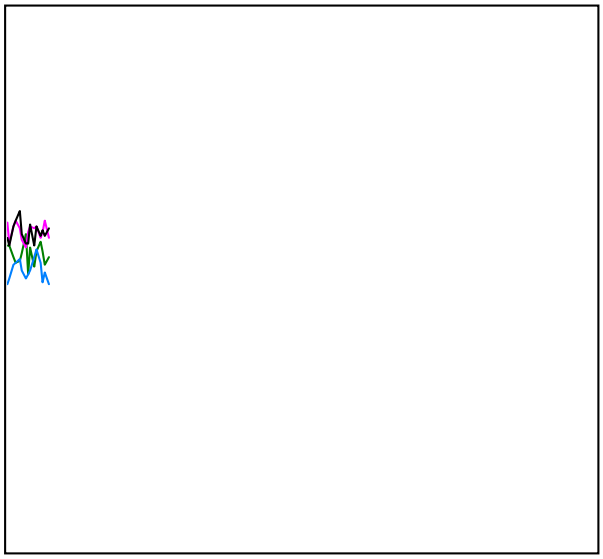
Ele	Conc	Calc	%Rec
As	500	497.54	100
Be	500	498.09	100
B	500	497.79	100
Na	10000	9843.28	98
Mg	10000	9982.44	100
Al	10000	9990.52	100
K	10000	9903.28	99
Ca	10000	9635.04	96
Ti	500	482.72	97
V	500	495.01	99
Cr	500	500.41	100
Mn	500	498.97	100
Fe	10000	9985.52	100
Co	500	504.91	101
Ni	500	509.11	102
Cu	500	512.09	102
Zn	500	504.31	101
Se	500	503.18	101
Sr	500	492.93	99
Mo	500	500.12	100
Ag	500	501.63	100
Cd	500	504.17	101
Sn	500	492.26	98
Sb	500	502.41	100
Tl	500	498.25	100
Ba	500	501.70	100
Pb	500	498.56	100

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2000.55	100
Be	2000	2000.45	100
B	2000	2001.77	100
Na	25000	25044.07	100
Mg	25000	25000.28	100
K	25000	25038.46	100
Ca	25000	25165.37	99
Ti	2000	2005.34	100
V	2000	2001.40	100
Cr	2000	1999.51	100
Mn	2000	2000.09	100
Co	2000	1998.02	100
Ni	2000	1996.89	100
Cu	2000	1995.93	100
Zn	2000	1998.11	100
Se	2000	1998.54	100
Sr	2000	2002.91	100
Mo	2000	2000.88	100
Cd	2000	1999.11	100
Sn	2000	2003.04	100
Tl	2000	2000.85	100
Ba	2000	2000.03	100
Pb	2000	2000.51	100
Li	2000	2005.13	100

REVIEWED BY
By Janice Whitt at 2:59:21 PM, 8/10/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51	200	117	131.7	9.81
59	2000	1079	1091.9	3.63
89	2000	984	1033.7	3.69
140	5000	2885	2941.6	2.69
205	5000	2965	2928.6	3.17
156/140	1	0.416 %	0.332 %	26.12
75	50	7	9.9	42.96
78	20	4	8.1	45.50
56	2000	986	1033.5	4.75
31	100	63	49.1	14.63

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.48
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	7.7
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	1.4		

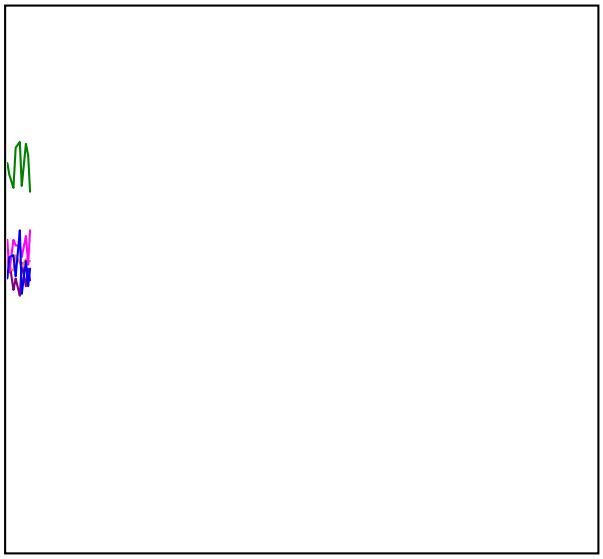
Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.5	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.46E+2	Pa	Carrier Gas(BP)	1.69E+2	kPa
Analyzer Press	2.16E-4	Pa	Reflected Power	6	W
Forward Power	1552	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
7	1000	498	505.7	4.65
59	2000	1319	1417.2	5.18
89	5000	2664	2647.4	1.78
140	5000	2949	2787.9	4.58
205	5000	2275	2150.4	3.58
156/140	2	0.848 %	0.936 %	22.76
95	20	9	7.2	59.47
78	2000	1630	1708.3	4.49
63	500	259	260.7	6.83
75	5000	4067	4130.0	2.73

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.48
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	7.7
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	7.0		

Cell Parameters

Use Gas	false	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.45E+2	Pa	Carrier Gas(BP)	1.69E+2	kPa
Analyzer Press	1.20E-4	Pa	Reflected Power	6	W
Forward Power	1552	W			

US EPA Tune Check Sample Report

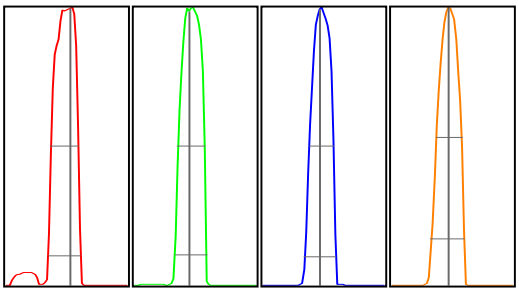
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	828113	0.33	5.00	
59	2233642	0.49	5.00	
115	3605346	1.50	5.00	
205	3270540	0.46	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	827675	830315	824815	831319	826439
59	2226663	2237305	2239932	2245860	2218447
115	3581658	3529102	3611944	3673945	3630079
205	3291268	3272044	3251330	3276399	3261658

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	131854	7.10	6.9 - 7.1		0.799	0.850	
59	366098	58.90	58.9 - 59.1		0.762	0.850	
115	653840	114.95	114.9 - 115.1		0.756	0.850	
205	569141	204.95	204.9 - 205.1		0.788	0.850	

X% = 10 **Int Time [sec] =** 0.1 **Acq Time [sec] =** 135.05 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Nebulizer Pump	0.10	rps
RF Matching	1.90	V	S/C Temp	2	℃
Smpl Depth	8.0	mm	Gas Switch	Dilution Gas	
Carrier Gas	0.48	L/min	Makeup/Dilution Gas	0.57	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-90	V	Deflect	7.0	V
Omega Lens	7.7	V	Plate Bias	-60	V

Cell Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	false		OctP Bias	-18.0	V
He Flow	0.0	mL/min	OctP RF	200	V
H2 Flow	0.0	mL/min	Energy Discrimination	3.0	V
3rd Gas Flow	0	%			

REVIEWED BY
By Janice Whitt at 2:59:27 PM, 8/10/2016

P/A Factor Tuning Report

Current Sample

Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 08/10/2016 12:03:44

Detector Parameters and P/A Factors

Discriminator: 4.5 mV
AnalogHV: 1742 V
PulseHV: 1369 V

Acquired: 08/10/2016 11:27:51

Mass[u]	Element	P/A Factor
6	Li	0.097905
9	Be	0.111137
23	Na	0.120187
24	Mg	0.124331
27	Al	0.127859
39	K	0.130186
45	Sc	0.131169
48		0.132193
51	V	0.132984
52	Cr	0.136345
55	Mn	0.138058
59	Co	0.141453
60	Ni	0.141392
63	Cu	0.144802
66	Zn	0.143947
72		0.143214
74	Ge	0.143854
75	As	0.143238
88	Sr	0.144425
89		0.143693
95		0.143538
97	Mo	0.143544
98	Mo	0.144302
99	[Mo]	0.145131
101		0.145828
105		0.148482
111	Cd	0.150063
114	Cd	0.149591
115	In	0.149958
118	Sn	0.149731
121		0.149859
123	Sb	0.149511
135	Ba	0.149730
138		0.150801
175		0.156682
193		0.154636
205	Tl	0.156057
206	[Pb]	0.156045
207	[Pb]	0.156444
208	Pb	0.157386
209	Bi	0.157380
232		0.156961
238	U	0.157714
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

REVIEWED BY
By Janice Whitt at 2:59:30 PM, 8/10/2016

Calibration Blank Report

Date Acquired	8/10/2016 12:03	Sample Name	BLANK STD 1
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	5	20.00
9	Be	45	2	124.90
11	B	45	39	27.55
23	Na	45	49866	0.74
24	Mg	45	761	7.95
27	Al	45	1127	2.82
39	K	45	55646	0.37
44	Ca	45	462	8.70
47	Ti	45	7	132.33
51	V	45	2934	4.00
52	Cr	45	1379	3.76
55	Mn	45	160	5.51
56	Fe	45	7053	2.21
59	Co	72	183	22.12
60	Ni	72	308	20.33
63	Cu	72	2788	3.61
66	Zn	72	402	19.19
75	As	72	222	7.13
78	Se	72	71	23.20
88	Sr	115	503	11.77
95	Mo	115	91	17.29
107	Ag	115	30	33.33
111	Cd	115	10	100.00
118	Sn	115	1445	4.04
121	Sb	115	357	6.74
137	Ba	115	43	15.38
205	Tl	209	769	11.31
208	Pb	209	5424	1.66

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1009769	0.40
72	Ge	736750	0.99
115	In	7000350	1.74
209	Bi	16359618	0.72

Calibration Standard Report

Date Acquired	8/10/2016 12:05	Sample Name	L2-160810
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	22	38.08
9	Be	45	30	11.84
11	B	45	72	42.63
23	Na	45	65330	0.91
24	Mg	45	8988	3.10
27	Al	45	4073	1.55
39	K	45	63342	1.13
44	Ca	45	979	12.64
47	Ti	45	161	4.31
51	V	45	7636	3.88
52	Cr	45	7353	0.18
55	Mn	45	3483	2.45
56	Fe	45	105875	0.85
59	Co	72	9842	2.10
60	Ni	72	2811	7.25
63	Cu	72	9869	2.35
66	Zn	72	1495	13.98
75	As	72	1124	4.16
78	Se	72	126	5.07
88	Sr	115	4933	2.17
95	Mo	115	3800	1.60
107	Ag	115	11995	2.12
111	Cd	115	1862	5.02
118	Sn	115	5130	5.05
121	Sb	115	6016	5.32
137	Ba	115	1856	5.35
205	Tl	209	26919	1.33
208	Pb	209	40442	0.18

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1011064	0.79	1009769	100.13	70	120	
72	Ge	730622	0.49	736750	99.17	70	120	
115	In	6966924	1.16	7000350	99.52	70	120	
209	Bi	16245937	2.41	16359618	99.31	70	120	

Calibration Standard Report

Date Acquired	8/10/2016 12:07	Sample Name	L-160810
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	174	15.06
9	Be	45	277	5.42
11	B	45	193	6.22
23	Na	45	211174	0.11
24	Mg	45	79974	1.83
27	Al	45	30658	0.92
39	K	45	136611	0.10
44	Ca	45	5090	3.69
47	Ti	45	1435	5.67
51	V	45	49215	1.11
52	Cr	45	59528	0.86
55	Mn	45	33413	0.65
56	Fe	45	980340	0.97
59	Co	72	93427	0.43
60	Ni	72	25718	1.53
63	Cu	72	72558	0.89
66	Zn	72	12580	2.17
75	As	72	9309	0.85
78	Se	72	632	6.56
88	Sr	115	44608	1.04
95	Mo	115	37490	2.48
107	Ag	115	116661	0.35
111	Cd	115	17943	2.30
118	Sn	115	38951	0.55
121	Sb	115	57074	2.16
137	Ba	115	18814	1.85
205	Tl	209	263174	0.43
208	Pb	209	357519	0.21

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1011206	0.33	1009769	100.14	70	120	
72	Ge	722143	0.46	736750	98.02	70	120	
115	In	7008262	0.48	7000350	100.11	70	120	
209	Bi	16427868	1.14	16359618	100.42	70	120	

Calibration Standard Report

Date Acquired	8/10/2016 12:09	Sample Name	10X-160810
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	858	2.37
9	Be	45	1488	3.93
11	B	45	659	13.67
23	Na	45	809672	0.78
24	Mg	45	390262	1.46
27	Al	45	146957	0.97
39	K	45	441581	0.75
44	Ca	45	21622	0.89
47	Ti	45	7087	2.77
51	V	45	238519	0.72
52	Cr	45	288792	0.14
55	Mn	45	163558	0.74
56	Fe	45	4876897	0.25
59	Co	72	461480	0.20
60	Ni	72	125511	0.71
63	Cu	72	352273	0.48
66	Zn	72	58002	0.55
75	As	72	44933	2.00
78	Se	72	2884	4.49
88	Sr	115	216246	1.11
95	Mo	115	184211	1.30
107	Ag	115	574798	0.76
111	Cd	115	88713	1.40
118	Sn	115	186834	0.17
121	Sb	115	277185	1.50
137	Ba	115	91455	0.24
205	Tl	209	1304397	0.54
208	Pb	209	1760134	0.13

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	998814	1.02	1009769	98.92	70	120	
72	Ge	716521	0.35	736750	97.25	70	120	
115	In	7038344	1.03	7000350	100.54	70	120	
209	Bi	16235729	0.52	16359618	99.24	70	120	

Calibration Standard Report

Date Acquired	8/10/2016 12:11	Sample Name	5X-160810
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1640	4.02
9	Be	45	2962	1.35
11	B	45	1343	7.56
23	Na	45	1552286	0.44
24	Mg	45	773291	0.46
27	Al	45	286872	0.44
39	K	45	813161	1.07
44	Ca	45	42121	1.13
47	Ti	45	14381	3.08
51	V	45	468303	1.01
52	Cr	45	569664	0.50
55	Mn	45	321592	0.80
56	Fe	45	9693670	1.19
59	Co	72	912601	0.33
60	Ni	72	247461	1.07
63	Cu	72	690244	1.39
66	Zn	72	114404	2.00
75	As	72	88123	0.32
78	Se	72	5617	0.94
88	Sr	115	423897	0.37
95	Mo	115	366118	0.50
107	Ag	115	1141186	0.44
111	Cd	115	176633	1.13
118	Sn	115	371815	0.47
121	Sb	115	556198	0.82
137	Ba	115	183703	0.52
205	Tl	209	2611687	0.28
208	Pb	209	3503913	0.50

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	980378	0.51	1009769	97.09	70	120	
72	Ge	714150	0.92	736750	96.93	70	120	
115	In	6843119	1.10	7000350	97.75	70	120	
209	Bi	16308197	1.37	16359618	99.69	70	120	

Calibration Standard Report

Date Acquired	8/10/2016 12:13	Sample Name	2X-160810
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	4111	3.22
9	Be	45	7291	0.78
11	B	45	3288	1.41
23	Na	45	3778693	0.26
24	Mg	45	1891192	0.63
27	Al	45	702982	0.94
39	K	45	1937082	0.91
44	Ca	45	104636	0.39
47	Ti	45	34985	1.06
51	V	45	1151366	0.57
52	Cr	45	1405161	1.07
55	Mn	45	786509	0.81
56	Fe	45	23776845	1.54
59	Co	72	2248058	0.31
60	Ni	72	608162	1.19
63	Cu	72	1676879	0.33
66	Zn	72	280548	0.89
75	As	72	218914	0.48
78	Se	72	13869	0.44
88	Sr	115	1054228	0.59
95	Mo	115	915536	0.24
107	Ag	115	2828114	0.84
111	Cd	115	427744	1.20
118	Sn	115	908768	0.47
121	Sb	115	1370972	0.80
137	Ba	115	451061	1.05
205	Tl	209	6495887	1.40
208	Pb	209	8667265	0.25

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	988791	0.31	1009769	97.92	70	120	
72	Ge	726735	0.55	736750	98.64	70	120	
115	In	6913472	1.21	7000350	98.76	70	120	
209	Bi	16333346	0.72	16359618	99.84	70	120	

Calibration Standard Report

Date Acquired	8/10/2016 12:15	Sample Name	H-160810
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	8346	0.64
9	Be	45	14406	0.53
11	B	45	6654	2.54
23	Na	45	7219246	0.40
24	Mg	45	3730947	0.43
27	Al	45	1390241	0.88
39	K	45	3752023	0.08
44	Ca	45	202582	0.28
47	Ti	45	69003	1.18
51	V	45	2268801	0.39
52	Cr	45	2761017	0.43
55	Mn	45	1553712	0.55
56	Fe	45	46933703	1.71
59	Co	72	4412255	0.89
60	Ni	72	1201203	1.21
63	Cu	72	3317416	0.45
66	Zn	72	549064	0.55
75	As	72	430283	0.47
78	Se	72	27078	0.52
88	Sr	115	2087245	0.74
95	Mo	115	1825130	0.49
107	Ag	115	5587423	0.57
111	Cd	115	846814	0.16
118	Sn	115	1797244	0.29
121	Sb	115	2728277	0.76
137	Ba	115	893487	0.82
205	Tl	209	12987120	0.44
208	Pb	209	17233719	0.22

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	978082	0.43	1009769	96.86	70	120	
72	Ge	716225	0.45	736750	97.21	70	120	
115	In	6716468	0.85	7000350	95.94	70	120	
209	Bi	16193855	2.12	16359618	98.99	70	120	

Calibration Standard Report

Date Acquired	8/10/2016 12:17	Sample Name	H2-160810
Data Batch	160810.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	33501	0.18
9	Be	45	56428	0.52
11	B	45	25990	2.58
23	Na	45	17843157	1.33
24	Mg	45	9112377	0.55
27	Al	45	12033	1.18
39	K	45	9173328	2.80
44	Ca	45	515416	1.35
47	Ti	45	279579	1.09
51	V	45	8939336	1.74
52	Cr	45	10756613	0.50
55	Mn	45	6074961	2.64
56	Fe	45	40434	9.67
59	Co	72	17092508	1.97
60	Ni	72	4611831	0.35
63	Cu	72	12650796	0.72
66	Zn	72	2128638	0.93
75	As	72	1693203	0.40
78	Se	72	105095	0.81
88	Sr	115	8409865	0.94
95	Mo	115	7242028	1.17
107	Ag	115	2891	10.97
111	Cd	115	3329923	0.29
118	Sn	115	7248526	0.92
121	Sb	115	4220	0.67
137	Ba	115	3532607	0.92
205	Tl	209	50767824	2.53
208	Pb	209	67297882	0.21

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	954024	0.89	1009769	94.48	70	120	
72	Ge	701189	0.49	736750	95.17	70	120	
115	In	6661447	1.25	7000350	95.16	70	120	
209	Bi	15758825	0.76	16359618	96.33	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	8/10/2016 13:01	Sample Name	ICSA-160810
Data Batch	160810.b	Comment	ICSAICPMS_TW
Data File Name	030ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	-0.056	0	#DIV/0!	1.2	0.8	
11	B	7.093	136	17.4	30	30	
51	V	-0.118	2364	1.8	10	10	
52	Cr	0.767	5719	3.5	8	5	
55	Mn	0.324	1196	3.7	8	10	
59	Co	1.273	11391	1.1	8	10	
60	Ni	0.320	1062	2.3	8	10	
63	Cu	2.072	16246	1.3	8	10	
66	Zn	1.306	1826	2.3	10	5	
75	As	0.243	430	5.4	4	5	
78	Se	-0.010	69	8.7	2	5	
88	Sr	1.137	5315	3.2	10	10	
107	Ag	0.089	1028	3.4	0.8	2	
111	Cd	0.533	908	8.0	1.2	1	
118	Sn	-0.070	1136	9.8	10	10	
121	Sb	0.026	482	4.2	4	2.5	
137	Ba	0.557	1037	5.0	8	10	
205	Tl	-0.006	579	10.3	4	1.5	
208	Pb	0.128	9411	4.5	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1005379	0.93	1009769	99.57	70	120	
72	Ge	721773	0.85	736750	97.97	70	120	
115	In	6737121	1.44	7000350	96.24	70	120	
209	Bi	15534423	1.18	16359618	94.96	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	8/10/2016 13:03	Sample Name	ICSAB-160810
Data Batch	160810.b	Comment	ICSBICPMS_TW
Data File Name	031ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	39.063	186648	0.33	40	97.7	80	120	
52	Cr	45	20.711	118733	0.77	20	103.6	80	120	
55	Mn	45	19.800	63500	0.50	20	99.0	80	120	
59	Co	72	39.910	352281	0.84	40	99.8	80	120	
60	Ni	72	38.298	91508	2.19	40	95.7	80	120	
63	Cu	72	21.304	141961	1.06	20	106.5	80	120	
66	Zn	72	21.453	23958	1.53	20	107.3	80	120	
75	As	72	20.093	17753	0.44	20	100.5	80	120	
78	Se	72	20.141	1161	2.41	20	100.7	80	120	
107	Ag	115	19.196	213348	0.66	20	96.0	80	120	
111	Cd	115	9.878	16562	0.60	10	98.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1004962	0.55	1009769	99.52	70	120	
72	Ge	723085	0.21	736750	98.15	70	120	
115	In	6700708	0.50	7000350	95.72	70	120	
209	Bi	15392529	0.90	16359618	94.09	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	8/10/2016 13:12	Sample Name	ICV-160810
Data Batch	160810.b	Comment	ICV ICPMS_TW
Data File Name	034_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	92.104	1632	2.29	100	92.1	90	110	
9	Be	45	101.925	3042	1.10	100	101.9	90	110	
11	B	45	99.858	1408	5.67	100	99.9	90	110	
23	Na	45	2679.906	2063536	0.44	2500	107.2	90	110	
24	Mg	45	2606.782	1005455	0.81	2500	104.3	90	110	
27	Al	45	2514.260	361710	0.47	2500	100.6	90	110	
39	K	45	2592.269	1054040	0.56	2500	103.7	90	110	
44	Ca	45	2373.250	51816	0.81	2500	94.9	90	110	
47	Ti	45	100.409	14809	3.36	100	100.4	90	110	
51	V	45	102.229	485606	0.10	100	102.2	90	110	
52	Cr	45	105.255	600088	1.20	100	105.3	90	110	
55	Mn	45	101.513	326152	0.87	100	101.5	90	110	
56	Fe	45	2560.267	12417162	0.64	2500	102.4	90	110	
59	Co	72	104.124	931593	0.93	100	104.1	90	110	
60	Ni	72	103.537	250309	0.95	100	103.5	90	110	
63	Cu	72	103.854	690889	0.49	100	103.9	90	110	
66	Zn	72	102.322	114352	0.51	100	102.3	90	110	
75	As	72	100.709	89332	1.34	100	100.7	90	110	
78	Se	72	99.860	5558	1.77	100	99.9	90	110	
88	Sr	115	97.736	432826	0.19	100	97.7	90	110	
95	Mo	115	96.608	368469	0.23	100	96.6	90	110	
107	Ag	115	99.006	1152354	0.17	100	99.0	90	110	
111	Cd	115	98.671	173176	0.37	100	98.7	90	110	
118	Sn	115	98.697	377696	0.38	100	98.7	90	110	
121	Sb	115	99.552	565170	0.47	100	99.6	90	110	
137	Ba	115	99.559	185306	0.45	100	99.6	90	110	
205	Tl	209	96.146	2577575	0.28	100	96.1	90	110	
208	Pb	209	98.036	3489081	0.84	100	98.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1008822	0.28	1009769	99.91	70	120	
72	Ge	733147	0.55	736750	99.51	70	120	
115	In	7018074	0.82	7000350	100.25	70	120	
209	Bi	16646742	0.98	16359618	101.76	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/10/2016 13:18	Sample Name	LCVL-160810
Data Batch	160810.b	Comment	LCVLICPMS_TW
Data File Name	037LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	8.707	161	7.16	10	87.1	70	130	
9	Be	45	1.124	36	4.28	1	112.4	70	130	
11	B	45	24.915	386	10.02	20	124.6	70	130	
23	Na	45	117.948	140368	0.33	100	117.9	70	130	
24	Mg	45	106.880	42535	1.62	100	106.9	70	130	
27	Al	45	103.384	16174	1.21	100	103.4	70	130	
39	K	45	112.641	100354	0.24	100	112.6	70	130	
44	Ca	45	106.635	2808	3.76	100	106.6	70	130	
47	Ti	45	5.584	841	11.76	5	111.7	70	130	
51	V	45	1.135	8403	3.30	1	113.5	70	130	
52	Cr	45	5.251	31681	1.10	5	105.0	70	130	
55	Mn	45	5.146	16919	1.59	5	102.9	70	130	
56	Fe	45	110.826	551789	0.30	100	110.8	70	130	
59	Co	72	5.334	48498	0.64	5	106.7	70	130	
60	Ni	72	5.409	13536	2.20	5	108.2	70	130	
63	Cu	72	5.386	38949	0.27	5	107.7	70	130	
66	Zn	72	5.236	6310	3.11	5	104.7	70	130	
75	As	72	5.339	5008	1.34	5	106.8	70	130	
78	Se	72	5.305	366	3.64	5	106.1	70	130	
88	Sr	115	5.155	23558	3.94	5	103.1	70	130	
95	Mo	115	5.178	20051	2.09	5	103.6	70	130	
107	Ag	115	2.055	24216	0.82	2	102.8	70	130	
111	Cd	115	1.022	1825	3.59	1	102.2	70	130	
118	Sn	115	5.016	20800	2.02	5	100.3	70	130	
121	Sb	115	1.991	11781	1.62	2	99.5	70	130	
137	Ba	115	5.142	9719	2.54	5	102.8	70	130	
205	Tl	209	1.012	27372	0.48	1	101.2	70	130	
208	Pb	209	0.998	40222	1.85	1	99.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1022836	0.46	1009769	101.29	70	120	
72	Ge	742411	0.28	736750	100.77	70	120	
115	In	7095460	1.09	7000350	101.36	70	120	
209	Bi	16335770	1.11	16359618	99.85	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	8/10/2016 13:23	Sample Name	ICB-160810
Data Batch	160810.b	Comment	ICB ICPMS_TW
Data File Name	039_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.023	5	118.0	2	5	
9	Be	45	-0.056	0	#DIV/0!	0.4	0.3	
11	B	45	2.991	81	40.5	10	10	
23	Na	45	6.952	55894	0.6	50	100	
24	Mg	45	0.651	1027	3.4	50	100	
27	Al	45	2.909	1567	3.6	50	10	
39	K	45	-0.241	56360	0.7	50	100	
44	Ca	45	6.690	616	15.9	50	100	
47	Ti	45	0.029	11	62.5	4	3	
51	V	45	0.020	3073	6.2	4	3	
52	Cr	45	-0.003	1381	1.6	2	2	
55	Mn	45	-0.008	137	8.8	2	3	
56	Fe	45	1.683	15438	1.3	50	50	
59	Co	72	-0.010	92	26.6	2	3	
60	Ni	72	-0.013	277	23.7	2	3	
63	Cu	72	-0.147	1811	3.5	2	2	
66	Zn	72	-0.053	343	9.3	4	2	
75	As	72	-0.041	186	4.8	2	2	
78	Se	72	0.075	75	5.3	1	2	
88	Sr	115	0.056	752	3.7	4	3	
95	Mo	115	0.141	629	14.1	2	2	
107	Ag	115	0.005	92	13.7	0.4	1	
111	Cd	115	0.000	10	57.8	0.4	0.3	
118	Sn	115	-0.151	877	12.2	4	3	
121	Sb	115	-0.030	186	23.9	2	0.8	
137	Ba	115	0.018	78	41.2	2	3	
205	Tl	209	-0.020	249	14.4	2	0.5	
208	Pb	209	-0.062	3210	4.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1024410	0.06	1009769	101.45	70	120	
72	Ge	737554	0.48	736750	100.11	70	120	
115	In	7028107	0.91	7000350	100.40	70	120	
209	Bi	16160984	0.66	16359618	98.79	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/10/2016 16:59	Sample Name	CCV5-160810
Data Batch	160810.b	Comment	CCV ICPMS_TW
Data File Name	132_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	208.158	3458	1.47	200	104.1	90	110	
9	Be	45	218.559	6125	2.57	200	109.3	90	110	
11	B	45	283.657	3690	6.80	200	141.8	90	110	Fail
23	Na	45	5633.066	4022083	0.82	5000	112.7	90	110	Fail
24	Mg	45	5380.775	1948546	0.53	5000	107.6	90	110	
27	Al	45	5190.325	700195	0.56	5000	103.8	90	110	
39	K	45	5245.409	1949776	0.55	5000	104.9	90	110	
44	Ca	45	4935.488	100747	1.76	5000	98.7	90	110	
47	Ti	45	203.481	28181	0.38	200	101.7	90	110	
51	V	45	208.898	929159	1.05	200	104.4	90	110	
52	Cr	45	209.272	1119368	0.66	200	104.6	90	110	
55	Mn	45	206.671	623543	1.16	200	103.3	90	110	
56	Fe	45	5214.502	23745581	1.09	5000	104.3	90	110	
59	Co	72	215.293	1788153	1.37	200	107.6	90	110	
60	Ni	72	214.342	480766	1.01	200	107.2	90	110	
63	Cu	72	216.468	1334130	1.02	200	108.2	90	110	
66	Zn	72	215.143	222804	0.38	200	107.6	90	110	
75	As	72	215.345	177105	1.02	200	107.7	90	110	
78	Se	72	210.416	10798	0.97	200	105.2	90	110	
88	Sr	115	198.213	828197	0.42	200	99.1	90	110	
95	Mo	115	202.265	728206	0.73	200	101.1	90	110	
107	Ag	115	206.029	2263851	0.49	200	103.0	90	110	
111	Cd	115	204.732	339197	0.26	200	102.4	90	110	
118	Sn	115	201.174	725351	0.45	200	100.6	90	110	
121	Sb	115	205.555	1101352	0.60	200	102.8	90	110	
137	Ba	115	203.107	356846	1.09	200	101.6	90	110	
205	Tl	209	197.991	5165552	0.63	200	99.0	90	110	
208	Pb	209	199.419	6902743	0.36	200	99.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	947569	1.22	1009769	93.84	70	120	
72	Ge	680666	1.11	736750	92.39	70	120	
115	In	6625904	1.50	7000350	94.65	70	120	
209	Bi	16215742	3.51	16359618	99.12	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/10/2016 17:04	Sample Name	LCVL5-160810
Data Batch	160810.b	Comment	LCVLICPMS_TW
Data File Name	134LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.848	191	1.32	10	108.5	70	130	
9	Be	45	1.046	32	12.50	1	104.6	70	130	
11	B	45	73.231	1014	7.84	20	366.2	70	130	Fail
23	Na	45	217.850	207778	0.88	100	217.9	70	130	Fail
24	Mg	45	115.179	43939	0.53	100	115.2	70	130	
27	Al	45	110.017	16448	1.08	100	110.0	70	130	
39	K	45	124.413	100733	0.55	100	124.4	70	130	
44	Ca	45	119.810	2973	4.78	100	119.8	70	130	
47	Ti	45	5.228	757	9.81	5	104.6	70	130	
51	V	45	1.486	9679	4.00	1	148.6	70	130	Fail
52	Cr	45	5.445	31481	2.48	5	108.9	70	130	
55	Mn	45	5.331	16818	3.51	5	106.6	70	130	
56	Fe	45	111.832	534341	0.24	100	111.8	70	130	
59	Co	72	5.477	47577	0.61	5	109.5	70	130	
60	Ni	72	5.582	13338	1.51	5	111.6	70	130	
63	Cu	72	5.296	36630	2.59	5	105.9	70	130	
66	Zn	72	5.633	6458	3.73	5	112.7	70	130	
75	As	72	5.414	4850	3.95	5	108.3	70	130	
78	Se	72	5.832	378	6.25	5	116.6	70	130	
88	Sr	115	5.323	23962	1.61	5	106.5	70	130	
95	Mo	115	4.990	19052	2.00	5	99.8	70	130	
107	Ag	115	2.066	23985	2.76	2	103.3	70	130	
111	Cd	115	1.021	1796	7.46	1	102.1	70	130	
118	Sn	115	4.961	20286	1.43	5	99.2	70	130	
121	Sb	115	1.959	11430	2.74	2	98.0	70	130	
137	Ba	115	5.058	9415	3.31	5	101.2	70	130	
205	Tl	209	0.999	27129	1.79	1	99.9	70	130	
208	Pb	209	0.948	38583	1.38	1	94.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	981732	0.81	1009769	97.22	70	120	
72	Ge	709377	0.84	736750	96.28	70	120	
115	In	6992742	1.91	7000350	99.89	70	120	
209	Bi	16384348	1.01	16359618	100.15	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/10/2016 17:06	Sample Name	CCB5-160810
Data Batch	160810.b	Comment	CCB ICPMS_TW
Data File Name	135_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.084	6	24.1	2	5	
9	Be	45	-0.022	1	173.2	0.4	0.3	
11	B	45	45.998	654	4.8	10	10	FailAq FailSoil
23	Na	45	95.467	118840	1.4	50	100	FailSoil
24	Mg	45	3.163	1936	8.3	50	100	
27	Al	45	1.728	1342	6.5	50	10	
39	K	45	14.847	59936	1.1	50	100	
44	Ca	45	16.577	802	2.2	50	100	
47	Ti	45	0.055	14	58.1	4	3	
51	V	45	0.358	4517	1.4	4	3	
52	Cr	45	-0.049	1077	9.6	2	2	
55	Mn	45	-0.005	141	5.5	2	3	
56	Fe	45	0.266	8148	3.3	50	50	
59	Co	72	-0.010	88	23.2	2	3	
60	Ni	72	-0.026	239	21.0	2	3	
63	Cu	72	-0.197	1442	8.8	2	2	
66	Zn	72	-0.081	304	5.2	4	2	
75	As	72	0.016	231	8.1	2	2	
78	Se	72	-0.019	68	27.0	1	2	
88	Sr	115	0.261	1630	2.5	4	3	
95	Mo	115	0.038	232	10.8	2	2	
107	Ag	115	0.018	239	11.4	0.4	1	
111	Cd	115	0.011	29	24.0	0.4	0.3	
118	Sn	115	-0.199	679	10.6	4	3	
121	Sb	115	-0.015	269	1.4	2	0.8	
137	Ba	115	0.015	71	17.7	2	3	
205	Tl	209	-0.015	372	12.5	2	0.5	
208	Pb	209	-0.094	2127	3.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	986257	0.82	1009769	97.67	70	120	
72	Ge	719477	0.75	736750	97.66	70	120	
115	In	6891467	1.59	7000350	98.44	70	120	
209	Bi	16347940	0.96	16359618	99.93	70	120	

Method Blank Report

Date Acquired	8/10/16 5:09 PM	Sample Name	MB-76691
Data Batch	160810.b	Comment	MBLKICPMS_TSDOD1
Data File Name	136_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.136	7	7.87		
9	Be	45	-0.056	0	#DIV/0!		
11	B	45	50.457	723	3.23		FAIL
23	Na	45	89.859	116183	0.97		FAIL
24	Mg	45	8.202	3883	3.17		
27	Al	45	6.385	2021	5.69		
39	K	45	17.130	61580	0.54		
44	Ca	45	42.010	1357	7.42		
47	Ti	45	0.054	14	74.18		
51	V	45	0.441	4964	1.30		
52	Cr	45	0.170	2324	2.01		
55	Mn	45	0.134	583	3.02		
56	Fe	45	4.511	28628	1.00		
59	Co	72	-0.011	86	2.25		
60	Ni	72	0.084	498	8.04		
63	Cu	72	0.029	2901	4.52		
66	Zn	72	3.685	4404	2.73		
75	As	72	0.049	259	10.50		
78	Se	72	0.102	74	5.96		
88	Sr	115	0.199	1383	8.08		
95	Mo	115	0.036	226	18.71		
107	Ag	115	0.018	238	13.25		
111	Cd	115	-0.001	8	65.47		
118	Sn	115	4.467	18414	0.82		J
121	Sb	115	-0.027	206	13.50		
137	Ba	115	0.043	122	17.75		
205	Tl	209	-0.017	340	5.96		
208	Pb	209	-0.060	3526	3.69		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	998887	0.41	1009769	98.92	70	120	
72	Ge	716766	0.61	736750	97.29	70	120	
115	In	6994587	1.50	7000350	99.92	70	120	
209	Bi	17392838	1.08	16359618	106.32	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/10/2016 17:11	Sample Name	LCS-76691
Data Batch	160810.b	Comment	LCS ICPMS_TSDOD1
Data File Name	137_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	209.941	3663	1.28	200	105.0	80	120	
9	Be	45	217.942	6414	1.44	200	109.0	80	120	
11	B	45	252.426	3452	0.56	200	126.2	80	120	
23	Na	45	5494.660	4121762	0.11	1000	549.5	80	120	Fail
24	Mg	45	5352.436	2035591	0.39	1000	535.2	80	120	Fail
27	Al	45	1042.368	148556	1.84	1000	104.2	80	120	
39	K	45	5237.446	2044646	0.25	1000	523.7	80	120	Fail
44	Ca	45	4953.532	106193	1.75	1000	495.4	80	120	Fail
47	Ti	45	206.689	30064	0.78	200	103.3	80	120	
51	V	45	210.961	985414	0.42	200	105.5	80	120	
52	Cr	45	212.179	1191878	0.08	200	106.1	80	120	
55	Mn	45	209.576	664028	0.56	200	104.8	80	120	
56	Fe	45	1041.740	4987587	0.78	1000	104.2	80	120	
59	Co	72	216.688	1906746	0.87	200	108.3	80	120	
60	Ni	72	214.593	509982	0.70	200	107.3	80	120	
63	Cu	72	214.522	1400896	0.14	200	107.3	80	120	
66	Zn	72	216.025	237044	0.72	200	108.0	80	120	
75	As	72	215.261	187587	1.33	200	107.6	80	120	
78	Se	72	208.224	11323	2.37	200	104.1	80	120	
88	Sr	115	202.430	886086	0.83	200	101.2	80	120	
95	Mo	115	205.120	773612	1.06	200	102.6	80	120	
107	Ag	115	205.239	2362491	0.96	200	102.6	80	120	
111	Cd	115	206.328	358136	1.05	200	103.2	80	120	
118	Sn	115	209.000	789389	0.44	200	104.5	80	120	
121	Sb	115	203.145	1140213	1.01	200	101.6	80	120	
137	Ba	115	203.608	374747	0.37	200	101.8	80	120	
205	Tl	209	204.342	5421228	0.58	200	102.2	80	120	
208	Pb	209	206.731	7275540	0.26	200	103.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	995122	0.63	1009769	98.55	70	120	
72	Ge	721190	0.78	736750	97.89	70	120	
115	In	6940605	0.34	7000350	99.15	70	120	
209	Bi	16476017	1.00	16359618	100.71	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/10/2016 17:13	Sample Name	LCSD-76691
Data Batch	160810.b	Comment	LCSDICPMS_TSDOD1
Data File Name	138_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	223.706	3863	0.80	200	111.9	80	120	
9	Be	45	226.263	6591	1.98	200	113.1	80	120	
11	B	45	268.247	3628	2.55	200	134.1	80	120	
23	Na	45	5562.567	4129625	0.58	1000	556.3	80	120	Fail
24	Mg	45	5413.308	2037827	0.57	1000	541.3	80	120	Fail
27	Al	45	1059.491	149452	0.43	1000	105.9	80	120	
39	K	45	5294.193	2045165	0.31	1000	529.4	80	120	Fail
44	Ca	45	4974.913	105554	0.57	1000	497.5	80	120	Fail
47	Ti	45	207.848	29921	2.11	200	103.9	80	120	
51	V	45	214.406	991236	0.14	200	107.2	80	120	
52	Cr	45	215.389	1197557	0.91	200	107.7	80	120	
55	Mn	45	213.299	668957	0.91	200	106.6	80	120	
56	Fe	45	1042.639	4941101	0.69	1000	104.3	80	120	
59	Co	72	207.523	1903502	0.66	200	103.8	80	120	
60	Ni	72	207.571	514189	0.73	200	103.8	80	120	
63	Cu	72	211.406	1439383	0.28	200	105.7	80	120	
66	Zn	72	214.481	245359	0.46	200	107.2	80	120	
75	As	72	208.608	189486	0.49	200	104.3	80	120	
78	Se	72	204.242	11581	0.20	200	102.1	80	120	
88	Sr	115	205.561	889974	0.60	200	102.8	80	120	
95	Mo	115	208.676	778456	0.13	200	104.3	80	120	
107	Ag	115	209.347	2383554	0.26	200	104.7	80	120	
111	Cd	115	211.550	363209	0.98	200	105.8	80	120	
118	Sn	115	213.556	797779	1.08	200	106.8	80	120	
121	Sb	115	206.484	1146267	0.51	200	103.2	80	120	
137	Ba	115	207.982	378621	0.26	200	104.0	80	120	
205	Tl	209	204.556	5496417	0.50	200	102.3	80	120	
208	Pb	209	207.843	7408694	0.72	200	103.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	984975	0.53	1009769	97.54	70	120	
72	Ge	753021	4.87	736750	102.21	70	120	
115	In	6865538	1.30	7000350	98.07	70	120	
209	Bi	16686758	0.84	16359618	102.00	70	120	

Sample Report

Date Acquired	8/10/16 5:17 PM	Sample Name	1607294-52A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	140_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	79.572	1353	3.93	2000	>RL
9	Be	45	3.102	90	2.79	2000	>RL
11	B	45	123.870	1666	5.94	2000	>RL
23	Na	45	951.538	733526	0.79	25000	>RL
24	Mg	45	18712.770	6917772	1.76	25000	>RL
27	Al	45	87755.499	12071505	1.36	10000	OUTCAL
39	K	45	23056.712	8570290	0.64	25000	>RL
44	Ca	45	124152.603	2577021	0.73	25000	OUTCAL
47	Ti	45	321.503	45465	1.02	2000	>RL
51	V	45	126.246	574502	0.65	2000	>RL
52	Cr	45	75.917	415491	0.57	2000	>RL
55	Mn	45	507.951	1564637	0.34	2000	>RL
56	Fe	45	83835.674	389736171	0.20	10000	OUTCAL
59	Co	72	25.826	224791	1.53	2000	>RL
60	Ni	72	42.002	98909	1.86	2000	>RL
63	Cu	72	17.536	115657	1.06	2000	>RL
66	Zn	72	212.660	230645	0.76	2000	>RL
75	As	72	22.556	19619	0.32	2000	>RL
78	Se	72	5.879	382	7.57	2000	>RL
88	Sr	115	401.582	1667331	0.92	2000	>RL
95	Mo	115	1.207	4405	2.32	2000	
107	Ag	115	0.113	1259	5.83	500	
111	Cd	115	0.403	673	8.15	2000	>RL
118	Sn	115	5.842	22262	0.20	2000	>RL
121	Sb	115	0.720	4173	2.70	500	
137	Ba	115	823.912	1438823	0.41	2000	>RL
205	Tl	209	0.607	16118	0.66	2000	
208	Pb	209	45.056	1517566	0.31	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	967567	0.75	1009769	95.82	70	120	
72	Ge	712802	0.61	736750	96.75	70	120	
115	In	6589632	2.82	7000350	94.13	70	120	
209	Bi	15725314	0.97	16359618	96.12	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/10/2016 17:19	Sample Name	1607294-52A SD
Data Batch	160810.b	Comment	SD ICPMS_TSDOD1
Data File Name	141_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	16.450	287	10.59	79.6	103.4	110	90	Good
9	Be	45	0.970	30	10.84	3.1	156.3	110	90	
11	B	45	62.146	863	14.84	123.9	250.9	110	90	
23	Na	45	235.728	220163	0.43	951.5	123.9	110	90	
24	Mg	45	3899.412	1458728	0.79	18712.8	104.2	110	90	Good
27	Al	45	18109.843	2520618	1.00	87755.5	103.2	110	90	Good
39	K	45	4738.062	1824335	1.12	23056.7	102.7	110	90	Good
44	Ca	45	25676.442	539430	0.16	124152.6	103.4	110	90	Good
47	Ti	45	67.394	9645	1.89	321.5	104.8	110	90	Good
51	V	45	25.762	120840	0.70	126.2	102.0	110	90	Good
52	Cr	45	15.894	89041	0.55	75.9	104.7	110	90	Good
55	Mn	45	106.705	332589	0.71	508.0	105.0	110	90	Good
56	Fe	45	17773.339	83581368	0.99	83835.7	106.0	110	90	Good
59	Co	72	5.587	48247	1.25	25.8	108.2	110	90	Good
60	Ni	72	9.020	21244	1.28	42.0	107.4	110	90	Good
63	Cu	72	3.716	26353	1.36	17.5	106.0	110	90	Good
66	Zn	72	47.383	51151	1.42	212.7	111.4	110	90	
75	As	72	4.763	4267	2.53	22.6	105.6	110	90	Good
78	Se	72	1.267	135	10.23	5.9	107.7	110	90	Good
88	Sr	115	80.549	348500	0.72	401.6	100.3	110	90	Good
95	Mo	115	0.275	1111	4.85	1.2	113.7	110	90	
107	Ag	115	0.046	548	8.10	0.1	202.7	110	90	
111	Cd	115	0.095	172	5.91	0.4	117.4	110	90	
118	Sn	115	0.917	4830	3.09	5.8	78.5	110	90	
121	Sb	115	0.130	1071	12.01	0.7	90.3	110	90	Good
137	Ba	115	165.136	300188	1.37	823.9	100.2	110	90	Good
205	Tl	209	0.125	4134	3.20	0.6	103.0	110	90	Good
208	Pb	209	8.879	321031	0.65	45.1	98.5	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	978726	1.14	1009769	96.93	70	120	
72	Ge	705281	0.87	736750	95.73	70	120	
115	In	6854840	1.29	7000350	97.92	70	120	
209	Bi	16648211	1.46	16359618	101.76	70	120	

Sample Report

Date Acquired	8/10/16 5:21 PM	Sample Name	1607294-47A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	142SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	55.594	957	2.83	2000	>RL
9	Be	45	2.248	67	11.36	2000	>RL
11	B	45	105.067	1435	5.55	2000	>RL
23	Na	45	2424.912	1815638	1.52	25000	>RL
24	Mg	45	12387.655	4631506	1.15	25000	>RL
27	Al	45	54795.729	7623145	1.19	10000	OUTCAL
39	K	45	11711.690	4428998	0.54	25000	>RL
44	Ca	45	203138.570	4263793	0.95	25000	OUTCAL
47	Ti	45	289.765	41439	1.48	2000	>RL
51	V	45	96.237	443537	0.37	2000	>RL
52	Cr	45	55.837	309387	0.62	2000	>RL
55	Mn	45	568.848	1771967	0.94	2000	>RL
56	Fe	45	57108.876	268480878	0.47	10000	OUTCAL
59	Co	72	19.833	169705	0.63	2000	>RL
60	Ni	72	36.940	85527	0.78	2000	>RL
63	Cu	72	21.150	136574	0.94	2000	>RL
66	Zn	72	164.736	175705	1.01	2000	>RL
75	As	72	20.950	17926	1.26	2000	>RL
78	Se	72	4.615	309	4.04	2000	>RL
88	Sr	115	465.064	1964867	0.26	2000	>RL
95	Mo	115	3.273	12006	0.33	2000	>RL
107	Ag	115	0.107	1218	5.54	500	
111	Cd	115	0.463	786	4.36	2000	>RL
118	Sn	115	5.146	20116	1.29	2000	>RL
121	Sb	115	1.504	8488	0.60	500	
137	Ba	115	825.568	1466906	0.57	2000	>RL
205	Tl	209	0.457	12558	2.71	2000	
208	Pb	209	52.973	1819479	0.50	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	978441	0.48	1009769	96.90	70	120	
72	Ge	700663	1.16	736750	95.10	70	120	
115	In	6701997	1.25	7000350	95.74	70	120	
209	Bi	16045970	1.70	16359618	98.08	70	120	

Sample Report

Date Acquired	8/10/16 5:23 PM	Sample Name	1607294-48A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	143SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	56.811	983	5.32	2000	>RL
9	Be	45	2.603	77	10.84	2000	>RL
11	B	45	112.346	1539	2.42	2000	>RL
23	Na	45	4835.105	3590107	0.53	25000	>RL
24	Mg	45	15007.326	5639106	1.02	25000	>RL
27	Al	45	58230.577	8141004	2.03	10000	OUTCAL
39	K	45	12586.520	4779822	0.31	25000	>RL
44	Ca	45	208172.211	4391498	0.29	25000	OUTCAL
47	Ti	45	394.238	56662	0.50	2000	>RL
51	V	45	104.156	482225	0.87	2000	>RL
52	Cr	45	66.340	369195	0.28	2000	>RL
55	Mn	45	760.063	2379444	1.04	2000	>RL
56	Fe	45	57729.252	272780034	1.20	10000	OUTCAL
59	Co	72	20.699	175736	1.51	2000	>RL
60	Ni	72	40.035	91944	1.18	2000	>RL
63	Cu	72	33.760	214727	0.81	2000	>RL
66	Zn	72	277.627	293536	0.70	2000	>RL
75	As	72	21.430	18188	0.32	2000	>RL
78	Se	72	5.082	331	0.30	2000	>RL
88	Sr	115	522.094	2219479	1.14	2000	>RL
95	Mo	115	4.538	16716	1.95	2000	>RL
107	Ag	115	0.160	1816	7.91	500	
111	Cd	115	0.674	1147	0.58	2000	>RL
118	Sn	115	4.990	19671	2.01	2000	>RL
121	Sb	115	3.479	19310	1.72	500	>RL
137	Ba	115	794.455	1420372	0.48	2000	>RL
205	Tl	209	0.521	13942	1.23	2000	
208	Pb	209	116.261	3909247	0.71	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	983409	0.61	1009769	97.39	70	120	
72	Ge	695131	0.46	736750	94.35	70	120	
115	In	6743693	1.82	7000350	96.33	70	120	
209	Bi	15734599	1.85	16359618	96.18	70	120	

Sample Report

Date Acquired	8/10/16 5:25 PM	Sample Name	1607294-49A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	144SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	69.355	1196	2.80	2000	>RL
9	Be	45	2.555	76	22.01	2000	>RL
11	B	45	123.683	1686	2.25	2000	>RL
23	Na	45	5184.240	3834654	0.33	25000	>RL
24	Mg	45	16117.342	6038376	0.68	25000	>RL
27	Al	45	59677.413	8319562	1.35	10000	OUTCAL
39	K	45	9575.063	3638518	0.34	25000	>RL
44	Ca	45	211280.544	4443988	0.44	25000	OUTCAL
47	Ti	45	355.966	51012	2.67	2000	>RL
51	V	45	119.939	553254	0.71	2000	>RL
52	Cr	45	56.081	311395	0.54	2000	>RL
55	Mn	45	437.771	1366561	0.36	2000	>RL
56	Fe	45	55994.486	263803430	1.62	10000	OUTCAL
59	Co	72	19.182	162427	1.25	2000	>RL
60	Ni	72	36.250	83059	0.81	2000	>RL
63	Cu	72	16.371	105194	0.06	2000	>RL
66	Zn	72	134.080	141570	0.68	2000	>RL
75	As	72	22.890	19361	0.78	2000	>RL
78	Se	72	4.373	294	7.66	2000	>RL
88	Sr	115	548.547	2299265	0.71	2000	>RL
95	Mo	115	2.090	7639	2.52	2000	>RL
107	Ag	115	0.043	499	16.11	500	
111	Cd	115	0.412	694	6.25	2000	>RL
118	Sn	115	5.789	22290	3.94	2000	>RL
121	Sb	115	0.294	1921	3.71	500	
137	Ba	115	2125.675	3747702	0.46	2000	OUTCAL
205	Tl	209	0.463	12625	2.96	2000	
208	Pb	209	27.937	955085	0.37	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	980512	0.07	1009769	97.10	70	120	
72	Ge	693272	0.86	736750	94.10	70	120	
115	In	6649911	1.56	7000350	94.99	70	120	
209	Bi	15927306	0.68	16359618	97.36	70	120	

Sample Report

Date Acquired	8/10/16 5:27 PM	Sample Name	1607294-51A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	145SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	56.170	982	3.09	2000	>RL
9	Be	45	2.724	82	10.41	2000	>RL
11	B	45	83.250	1162	8.07	2000	>RL
23	Na	45	794.014	636794	0.09	25000	>RL
24	Mg	45	14394.778	5465805	0.68	25000	>RL
27	Al	45	72885.595	10297876	1.77	10000	OUTCAL
39	K	45	18769.624	7175994	0.64	25000	>RL
44	Ca	45	55156.537	1176124	0.45	25000	OUTCAL
47	Ti	45	230.011	33407	2.88	2000	>RL
51	V	45	102.714	480587	1.89	2000	>RL
52	Cr	45	63.256	355791	1.13	2000	>RL
55	Mn	45	509.243	1611058	1.38	2000	>RL
56	Fe	45	67750.758	323489196	1.57	10000	OUTCAL
59	Co	72	22.768	194551	1.62	2000	>RL
60	Ni	72	36.674	84813	0.86	2000	>RL
63	Cu	72	21.094	136044	1.20	2000	>RL
66	Zn	72	194.793	207430	0.47	2000	>RL
75	As	72	22.072	18851	0.56	2000	>RL
78	Se	72	5.213	341	5.01	2000	>RL
88	Sr	115	268.339	1149185	0.68	2000	>RL
95	Mo	115	1.423	5342	3.39	2000	
107	Ag	115	0.119	1371	3.61	500	
111	Cd	115	0.401	691	5.29	2000	>RL
118	Sn	115	5.564	21927	0.56	2000	>RL
121	Sb	115	1.520	8691	0.63	500	
137	Ba	115	501.758	903587	0.72	2000	>RL
205	Tl	209	0.512	13886	1.05	2000	
208	Pb	209	77.607	2643204	0.54	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	993747	0.31	1009769	98.41	70	120	
72	Ge	699748	0.52	736750	94.98	70	120	
115	In	6792718	1.91	7000350	97.03	70	120	
209	Bi	15924410	1.08	16359618	97.34	70	120	

Sample Report

Date Acquired	8/10/16 5:29 PM	Sample Name	1607294-53A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	146SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	83.439	1429	1.17	2000	>RL
9	Be	45	3.250	95	10.19	2000	>RL
11	B	45	134.885	1825	2.66	2000	>RL
23	Na	45	831.315	651837	0.77	25000	>RL
24	Mg	45	16077.244	5989334	0.62	25000	>RL
27	Al	45	55863.181	7743856	0.61	10000	OUTCAL
39	K	45	18841.997	7067486	1.07	25000	>RL
44	Ca	45	342835.485	7170346	1.86	25000	OUTCAL
47	Ti	45	320.100	45614	0.82	2000	>RL
51	V	45	101.667	466733	0.56	2000	>RL
52	Cr	45	66.930	369269	0.31	2000	>RL
55	Mn	45	2788.577	8654529	1.19	2000	OUTCAL
56	Fe	45	83859.304	392846109	0.52	10000	OUTCAL
59	Co	72	26.839	223833	0.50	2000	>RL
60	Ni	72	39.231	88532	1.05	2000	>RL
63	Cu	72	7.582	49385	0.88	2000	>RL
66	Zn	72	171.923	178750	0.88	2000	>RL
75	As	72	20.034	16720	0.52	2000	>RL
78	Se	72	5.194	331	8.72	2000	>RL
88	Sr	115	862.833	3642772	0.65	2000	>RL
95	Mo	115	0.778	2918	1.22	2000	
107	Ag	115	0.059	687	4.45	500	
111	Cd	115	0.169	292	8.86	2000	
118	Sn	115	5.404	21045	1.33	2000	>RL
121	Sb	115	0.082	783	8.73	500	
137	Ba	115	986.733	1751992	1.45	2000	>RL
205	Tl	209	0.260	7261	2.08	2000	
208	Pb	209	17.748	595708	0.63	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	974973	0.54	1009769	96.55	70	120	
72	Ge	683032	0.73	736750	92.71	70	120	
115	In	6698964	2.11	7000350	95.69	70	120	
209	Bi	15588655	0.82	16359618	95.29	70	120	

Sample Report

Date Acquired	8/10/16 5:31 PM	Sample Name	1607294-54A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	147SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	94.576	1657	2.70	2000	>RL
9	Be	45	3.495	105	8.13	2000	>RL
11	B	45	153.773	2122	4.85	2000	>RL
23	Na	45	670.369	547319	0.06	25000	>RL
24	Mg	45	16060.044	6121374	1.45	25000	>RL
27	Al	45	61386.688	8706949	2.34	10000	OUTCAL
39	K	45	23190.745	8886469	1.15	25000	>RL
44	Ca	45	41494.761	888266	0.45	25000	OUTCAL
47	Ti	45	299.140	43611	0.80	2000	>RL
51	V	45	90.021	423153	0.17	2000	>RL
52	Cr	45	74.834	422270	0.87	2000	>RL
55	Mn	45	159.770	507475	0.24	2000	>RL
56	Fe	45	108969.801	522285099	0.92	10000	OUTCAL
59	Co	72	26.854	232036	0.59	2000	>RL
60	Ni	72	37.705	88171	1.28	2000	>RL
63	Cu	72	4.691	32677	0.96	2000	>RL
66	Zn	72	217.257	233923	0.92	2000	>RL
75	As	72	17.865	15472	1.65	2000	>RL
78	Se	72	5.284	348	6.18	2000	>RL
88	Sr	115	399.296	1698646	0.55	2000	>RL
95	Mo	115	0.625	2379	6.48	2000	
107	Ag	115	0.034	407	3.76	500	
111	Cd	115	0.051	96	5.33	2000	
118	Sn	115	6.500	25216	2.05	2000	>RL
121	Sb	115	0.018	444	9.16	500	
137	Ba	115	252.306	451405	0.78	2000	>RL
205	Tl	209	0.215	6330	4.69	2000	
208	Pb	209	16.413	569779	0.71	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	997524	0.94	1009769	98.79	70	120	
72	Ge	707672	0.61	736750	96.05	70	120	
115	In	6747387	0.79	7000350	96.39	70	120	
209	Bi	16112395	0.87	16359618	98.49	70	120	

Sample Report

Date Acquired	8/10/16 5:33 PM	Sample Name	1607294-55A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	148SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	56.015	976	4.22	2000	>RL
9	Be	45	2.653	79	16.26	2000	>RL
11	B	45	90.277	1252	7.15	2000	>RL
23	Na	45	816.217	650738	0.46	25000	>RL
24	Mg	45	14018.630	5302552	3.12	25000	>RL
27	Al	45	70257.401	9888080	1.49	10000	OUTCAL
39	K	45	16991.900	6476646	1.12	25000	>RL
44	Ca	45	72309.379	1535904	0.50	25000	OUTCAL
47	Ti	45	245.116	35466	1.85	2000	>RL
51	V	45	100.373	467929	0.91	2000	>RL
52	Cr	45	60.531	339230	0.60	2000	>RL
55	Mn	45	540.400	1703157	0.35	2000	>RL
56	Fe	45	64538.796	306982912	0.62	10000	OUTCAL
59	Co	72	21.983	185447	0.78	2000	>RL
60	Ni	72	36.998	84465	0.38	2000	>RL
63	Cu	72	22.538	143324	0.80	2000	>RL
66	Zn	72	191.245	201068	1.28	2000	>RL
75	As	72	22.933	19329	0.47	2000	>RL
78	Se	72	4.895	320	2.21	2000	>RL
88	Sr	115	314.179	1320620	1.62	2000	>RL
95	Mo	115	1.477	5435	1.78	2000	
107	Ag	115	0.132	1485	4.24	500	
111	Cd	115	0.397	671	16.52	2000	
118	Sn	115	5.482	21228	1.02	2000	>RL
121	Sb	115	2.263	12534	1.67	500	>RL
137	Ba	115	642.458	1135691	0.44	2000	>RL
205	Tl	209	0.513	14008	1.69	2000	
208	Pb	209	170.710	5853428	0.16	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	989979	0.59	1009769	98.04	70	120	
72	Ge	690810	0.77	736750	93.76	70	120	
115	In	6666708	0.49	7000350	95.23	70	120	
209	Bi	16052402	1.87	16359618	98.12	70	120	

Sample Report

Date Acquired	8/10/16 5:35 PM	Sample Name	1607294-56A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	149SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	67.683	1179	5.77	2000	>RL
9	Be	45	3.343	99	20.14	2000	>RL
11	B	45	99.446	1376	6.27	2000	>RL
23	Na	45	806.628	643807	0.93	25000	>RL
24	Mg	45	16882.743	6387277	1.41	25000	>RL
27	Al	45	81645.764	11493993	0.89	10000	OUTCAL
39	K	45	21566.404	8207524	1.21	25000	>RL
44	Ca	45	81503.891	1731545	1.14	25000	OUTCAL
47	Ti	45	286.159	41412	0.41	2000	>RL
51	V	45	119.897	558531	1.25	2000	>RL
52	Cr	45	70.215	393364	0.58	2000	>RL
55	Mn	45	518.468	1634414	0.91	2000	>RL
56	Fe	45	82560.662	392781238	0.91	10000	OUTCAL
59	Co	72	25.868	217240	1.58	2000	>RL
60	Ni	72	43.682	99232	0.96	2000	>RL
63	Cu	72	19.391	123120	0.40	2000	>RL
66	Zn	72	206.839	216468	1.26	2000	>RL
75	As	72	34.859	29143	1.05	2000	>RL
78	Se	72	5.024	325	8.07	2000	>RL
88	Sr	115	307.009	1283412	0.85	2000	>RL
95	Mo	115	1.279	4696	3.80	2000	
107	Ag	115	0.164	1835	4.65	500	
111	Cd	115	0.409	689	8.78	2000	>RL
118	Sn	115	5.631	21648	1.01	2000	>RL
121	Sb	115	6.896	37298	0.35	500	>RL
137	Ba	115	592.058	1040814	0.75	2000	>RL
205	Tl	209	0.551	15026	3.70	2000	
208	Pb	209	914.052	31365854	0.77	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	990210	1.18	1009769	98.06	70	120	
72	Ge	687834	1.79	736750	93.36	70	120	
115	In	6631184	2.19	7000350	94.73	70	120	
209	Bi	16077708	2.54	16359618	98.28	70	120	

Sample Report

Date Acquired	8/10/16 5:37 PM	Sample Name	1607294-57A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	150SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	101.435	1730	4.24	2000	>RL
9	Be	45	2.962	87	16.33	2000	>RL
11	B	45	124.908	1686	6.39	2000	>RL
23	Na	45	837.548	653810	0.24	25000	>RL
24	Mg	45	17477.537	6485345	2.02	25000	>RL
27	Al	45	69064.638	9536035	1.82	10000	OUTCAL
39	K	45	20633.748	7704062	0.88	25000	>RL
44	Ca	45	151262.667	3151341	0.43	25000	OUTCAL
47	Ti	45	331.755	47089	1.28	2000	>RL
51	V	45	119.033	543851	0.35	2000	>RL
52	Cr	45	77.092	423476	1.03	2000	>RL
55	Mn	45	332.295	1027439	0.33	2000	>RL
56	Fe	45	90754.246	423478730	2.08	10000	OUTCAL
59	Co	72	28.194	235867	1.07	2000	>RL
60	Ni	72	44.421	100527	0.92	2000	>RL
63	Cu	72	10.156	65479	1.22	2000	>RL
66	Zn	72	193.454	201714	1.45	2000	>RL
75	As	72	21.313	17830	0.73	2000	>RL
78	Se	72	4.892	317	9.29	2000	>RL
88	Sr	115	434.361	1801513	0.16	2000	>RL
95	Mo	115	1.132	4131	0.95	2000	
107	Ag	115	0.056	637	9.70	500	
111	Cd	115	0.232	391	10.27	2000	
118	Sn	115	5.598	21363	1.39	2000	>RL
121	Sb	115	0.149	1126	5.15	500	
137	Ba	115	1101.756	1921977	1.25	2000	>RL
205	Tl	209	0.346	9464	2.88	2000	
208	Pb	209	22.950	771675	0.15	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	971152	0.16	1009769	96.18	70	120	
72	Ge	685172	0.56	736750	93.00	70	120	
115	In	6579076	1.22	7000350	93.98	70	120	
209	Bi	15647714	1.28	16359618	95.65	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/10/2016 17:39	Sample Name	1607294-52A PDS
Data Batch	160810.b	Comment	PDS ICPMS_TSDOD1
Data File Name	151_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	268.994	4638	1.73	79.6	200	94.7	75	125	
9	Be	45	209.074	6082	0.66	3.1	200	103.0	75	125	
11	B	45	294.606	3976	2.49	123.9	200	85.4	75	125	
23	Na	45	5985.807	4434145	0.72	951.5	5000	100.7	75	125	
24	Mg	45	23543.072	8848180	1.07	18712.8	5000	96.6	75	125	
27	Al	45	92424.082	12924398	1.95	87755.5	5000	93.4	75	125	
39	K	45	28338.486	10696935	0.68	23056.7	5000	105.6	75	125	
44	Ca	45	########	2722243	0.38	124152.6	5000	96.9	75	125	
47	Ti	45	517.743	74431	0.56	321.5	200	98.1	75	125	
51	V	45	327.031	1508409	0.28	126.2	200	100.4	75	125	
52	Cr	45	278.439	1545700	0.38	75.9	200	101.3	75	125	
55	Mn	45	708.017	2217194	0.47	508.0	200	100.0	75	125	
56	Fe	45	90620.008	428295539	0.61	83835.7	5000	135.7	75	125	Fail
59	Co	72	235.823	1972111	0.45	25.8	200	105.0	75	125	
60	Ni	72	247.999	560095	0.98	42.0	200	103.0	75	125	
63	Cu	72	218.894	1358480	0.70	17.5	200	100.7	75	125	
66	Zn	72	425.634	443489	0.53	212.7	200	106.5	75	125	
75	As	72	229.717	190219	0.31	22.6	200	103.6	75	125	
78	Se	72	207.022	10700	1.88	5.9	200	100.6	75	125	
88	Sr	115	607.087	2505724	0.63	401.6	200	102.8	75	125	
95	Mo	115	199.858	711061	0.13	1.2	200	99.3	75	125	
107	Ag	115	199.001	2160883	0.24	0.1	200	99.4	75	125	
111	Cd	115	198.303	324710	0.63	0.4	200	98.9	75	125	
118	Sn	115	209.490	746381	1.23	5.8	200	101.8	75	125	
121	Sb	115	205.838	1089837	0.85	0.7	200	102.6	75	125	
137	Ba	115	1043.524	1811550	0.77	823.9	200	109.8	75	125	
205	Tl	209	197.501	4955731	0.81	0.6	200	98.4	75	125	
208	Pb	209	246.330	8198600	0.47	45.1	200	100.6	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	983683	0.65	1009769	97.42	70	120	
72	Ge	685380	0.60	736750	93.03	70	120	
115	In	6547581	0.97	7000350	93.53	70	120	
209	Bi	15582339	0.26	16359618	95.25	70	120	