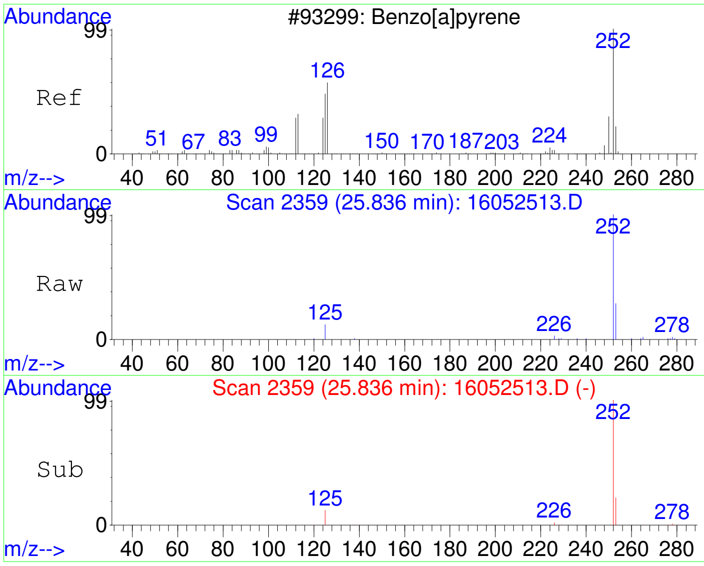
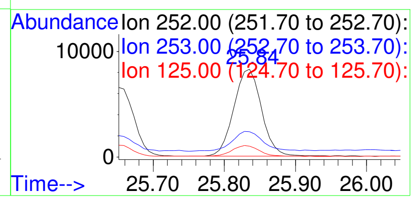
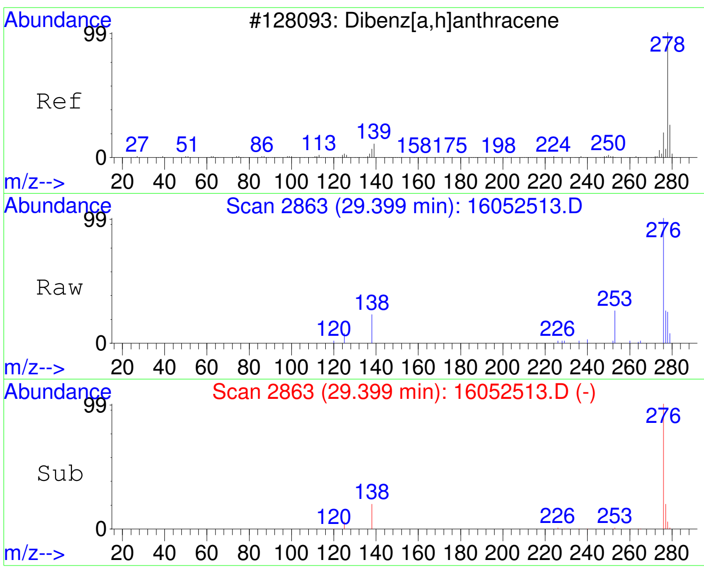


#25
Benzo[a]pyrene
Concen: 62.76 ug/kg
RT: 25.84 min Scan# 2359
Delta R.T. -0.02 min
Lab File: 16052513.D
Acq: 25 May 2016 4:51 pm

Tgt Ion:252 Resp: 22224

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	11.8	0.0	31.7

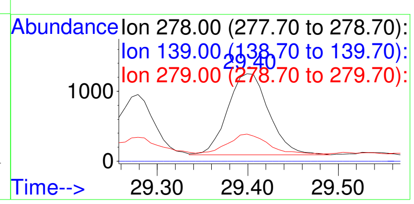


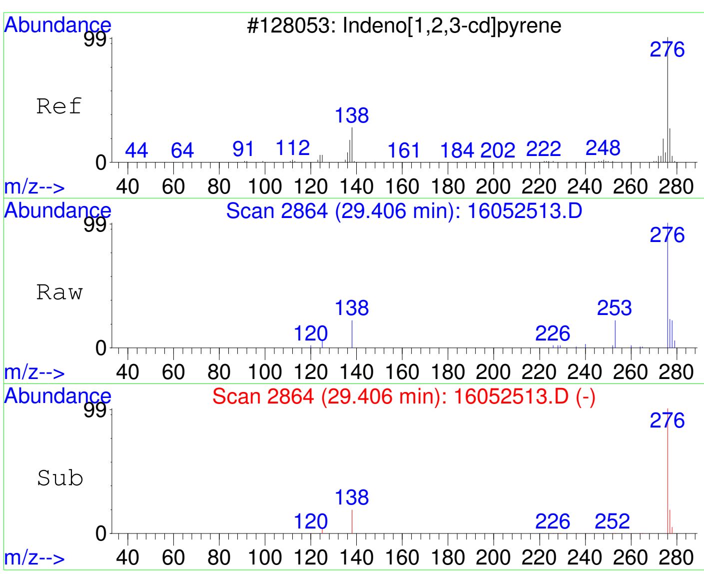


#26
Dibenz[a,h]anthracene
Concen: 11.31 ug/kg
RT: 29.40 min Scan# 2863
Delta R.T. -0.04 min
Lab File: 16052513.D
Acq: 25 May 2016 4:51 pm

Tgt Ion:278 Resp: 3648

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	24.0	4.2	44.2

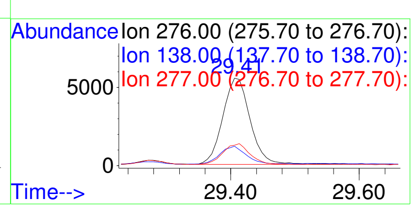


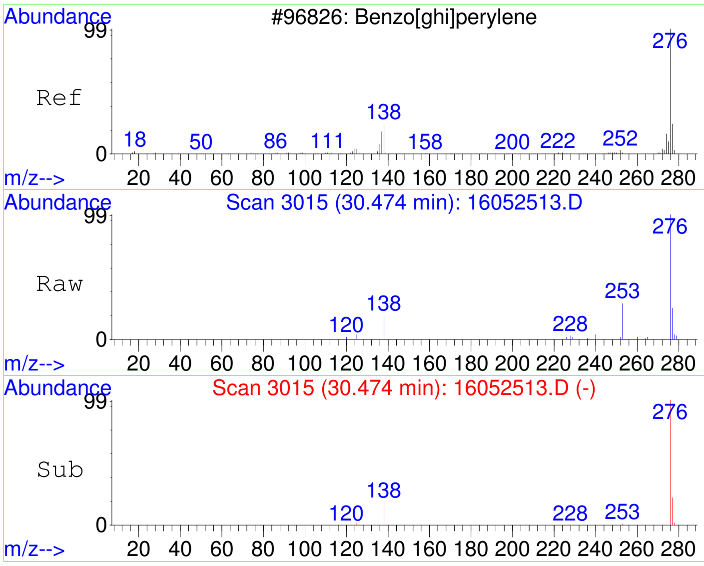


#27
Indeno[1,2,3-cd]pyrene
Concen: 42.64 ug/kg
RT: 29.41 min Scan# 2864
Delta R.T. -0.04 min
Lab File: 16052513.D
Acq: 25 May 2016 4:51 pm

Tgt Ion:276 Resp: 16407

Ion	Ratio	Lower	Upper
276	100		
138	20.9	6.7	46.7
277	22.4	5.8	45.8

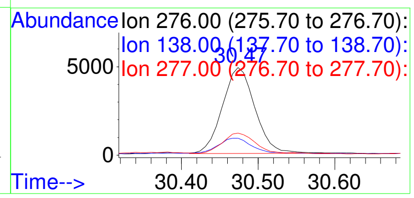




#28
Benzo[g,h,i]perylene
Concen: 47.76 ug/kg
RT: 30.47 min   Scan# 3015
Delta R.T.   -0.04 min
Lab File: 16052513.D
Acq: 25 May 2016   4:51 pm

Tgt Ion:276 Resp: 14328

Ion	Ratio	Lower	Upper
276	100		
138	17.8	0.0	39.1
277	23.8	4.0	44.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160525\16052514.D          Vial: 14
Acq On    : 25 May 2016   5:31 pm                   Operator: AR
Sample    : 1605144-03A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: May 26  8:43 2016            Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421
```

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1252113	4000.00 ug/kg	108
5) Acenaphthene-d10	13.25	164	812558	4000.00 ug/kg	71
11) Phenanthrene-d10	15.33	188	1414595	4000.00 ug/kg	69
17) Chrysene-d12	21.04	240	1665931	4000.00 ug/kg	73
20) Perylene-d12	26.18	264	1521486	4000.00 ug/kg	74

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.18	172	18073	76.25 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#	
16) 4-Terphenyl-d14	17.82	244	26284	71.82 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#	

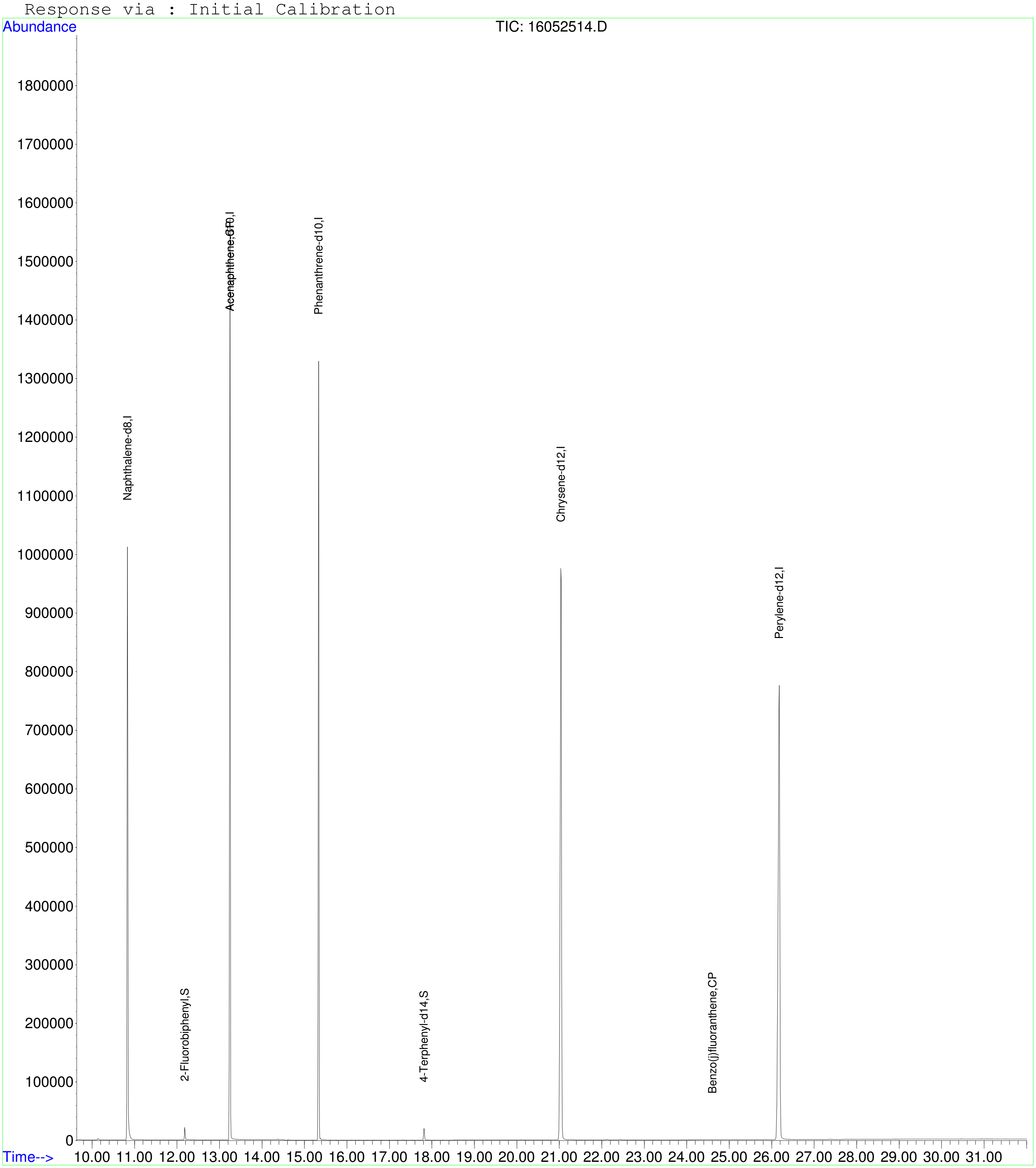
Target Compounds					Qvalue
9) Acenaphthene	13.25	154	2445	~~11.26 ug/kg#~~	~~9~~
23) Benzo(j)fluoranthene	24.60	252	199	0.59 ug/kg#	70

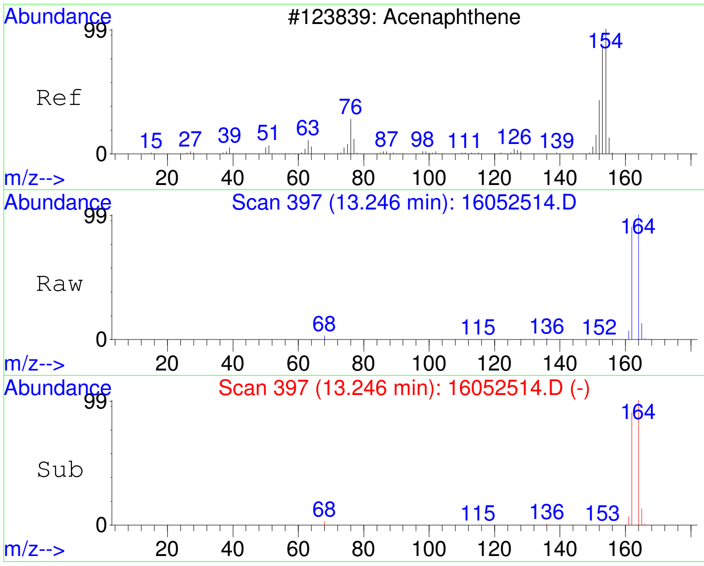
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160525\16052514.D          Vial: 14
Acq On    : 25 May 2016   5:31 pm                   Operator: AR
Sample    : 1605144-03A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:43 2016            Quant Results File: PP160421.RES

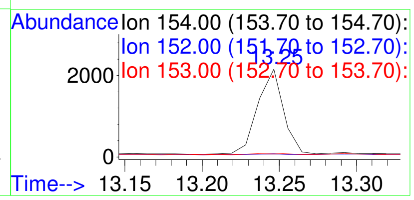
Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
```

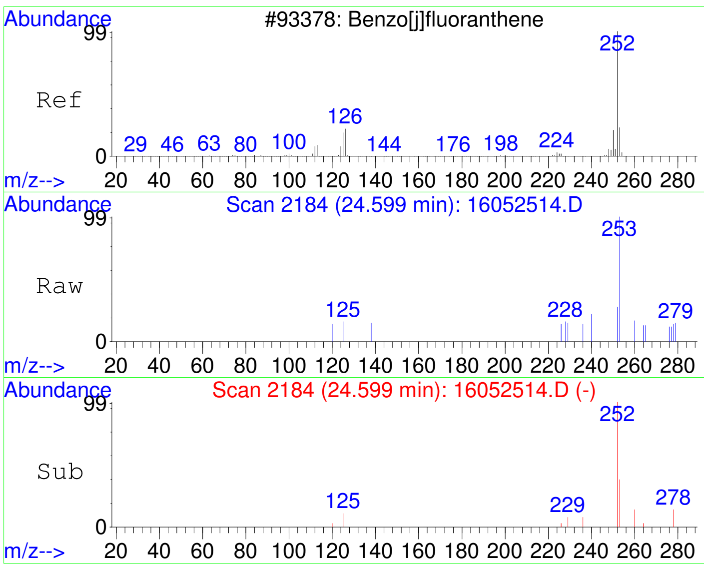




#9
Acenaphthene
Concen: 11.26 ug/kg
RT: 13.25 min Scan# 397
Delta R.T. -0.05 min
Lab File: 16052514.D
Acq: 25 May 2016 5:31 pm

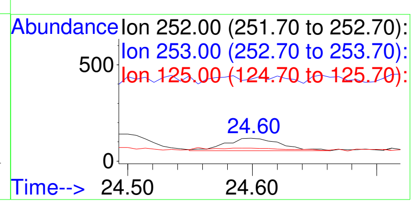
Tgt Ion:154	Resp:		2445
Ion	Ratio	Lower	Upper
154	100		
152	0.7	18.9	78.9#
153	1.6	75.2	135.2#





#23
Benzo(j)fluoranthene
Concen: 0.59 ug/kg
RT: 24.60 min Scan# 2184
Delta R.T. -0.03 min
Lab File: 16052514.D
Acq: 25 May 2016 5:31 pm

Tgt Ion:252	Resp:		199
Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	16.9	0.0	34.4



```
Data File : C:\HPCHEM\1\DATA\160525\16052515.D          Vial: 15
Acq On    : 25 May 2016   6:12 pm                    Operator: AR
Sample    : 1605144-04A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: May 26  8:43 2016            Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421
```

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1241388	4000.00 ug/kg	107
5) Acenaphthene-d10	13.25	164	789458	4000.00 ug/kg	69
11) Phenanthrene-d10	15.33	188	1408725	4000.00 ug/kg	69
17) Chrysene-d12	21.04	240	1643942	4000.00 ug/kg	72
20) Perylene-d12	26.18	264	1503403	4000.00 ug/kg	73

System Monitoring Compounds

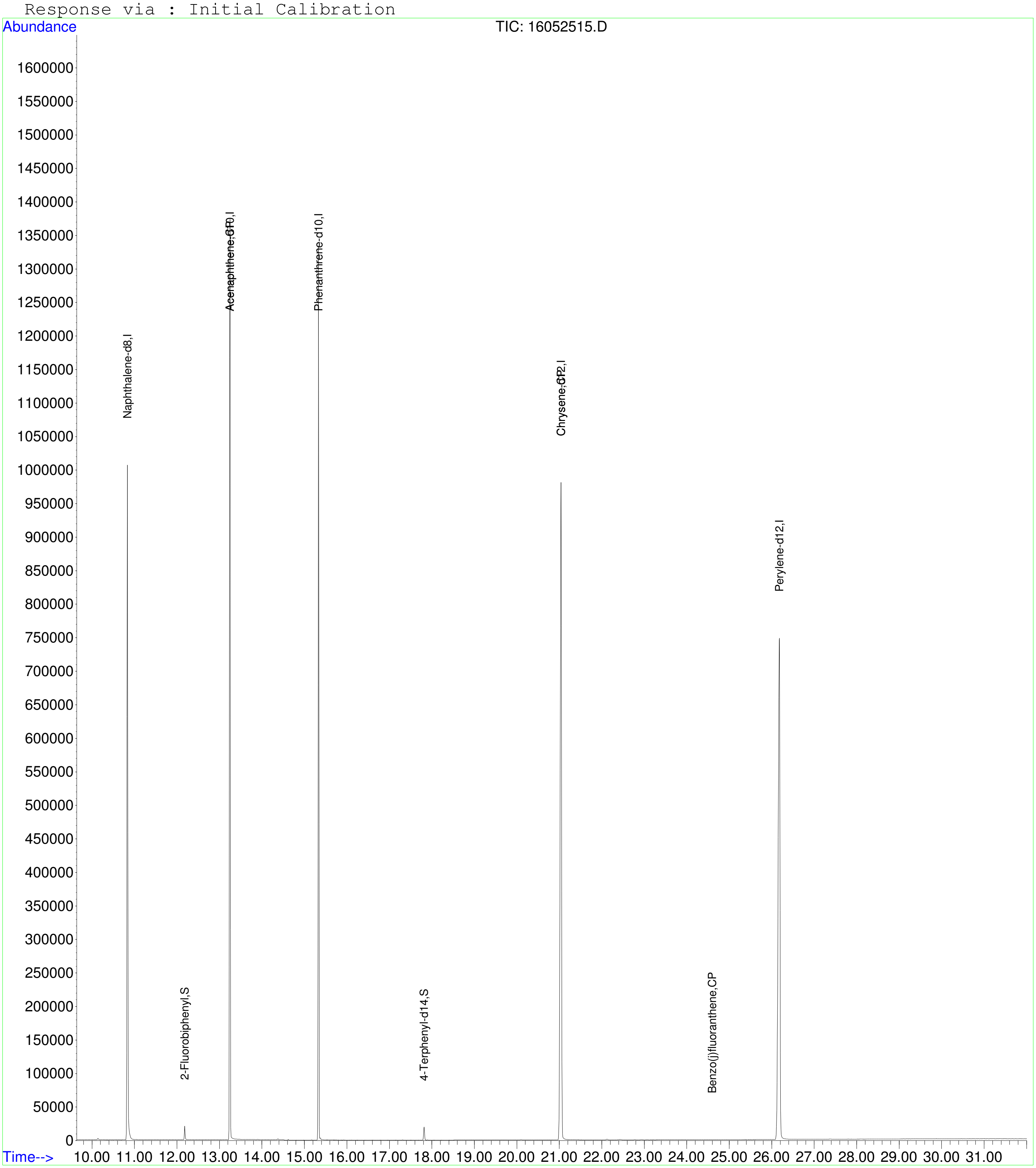
7) 2-Fluorobiphenyl	12.18	172	17052	74.05 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#	
16) 4-Terphenyl-d14	17.82	244	25435	69.79 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.74%#	

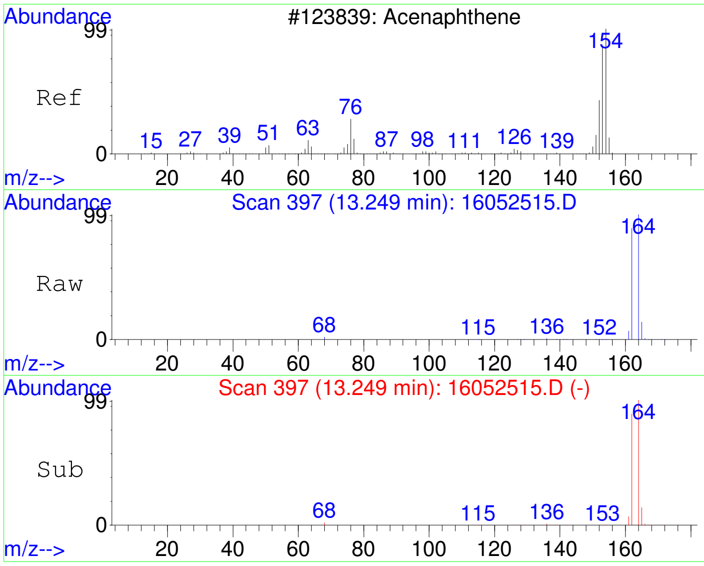
Target Compounds					Qvalue
9) Acenaphthene	13.25	154	2370	~~11.23 ug/kg#~~	~~9~~
19) Chrysene	21.03	228	3335	~~8.96 ug/kg~~	~~74~~
23) Benzo(j)fluoranthene	24.60	252	74	0.22 ug/kg#	1

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

Data File : C:\HPCHEM\1\DATA\160525\16052515.D Vial: 15
Acq On : 25 May 2016 6:12 pm Operator: AR
Sample : 1605144-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:43 2016 Quant Results File: PP160421.RES

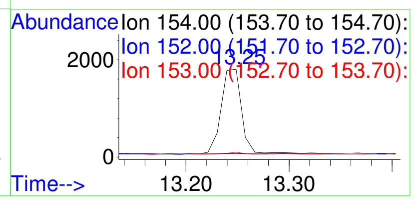
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration

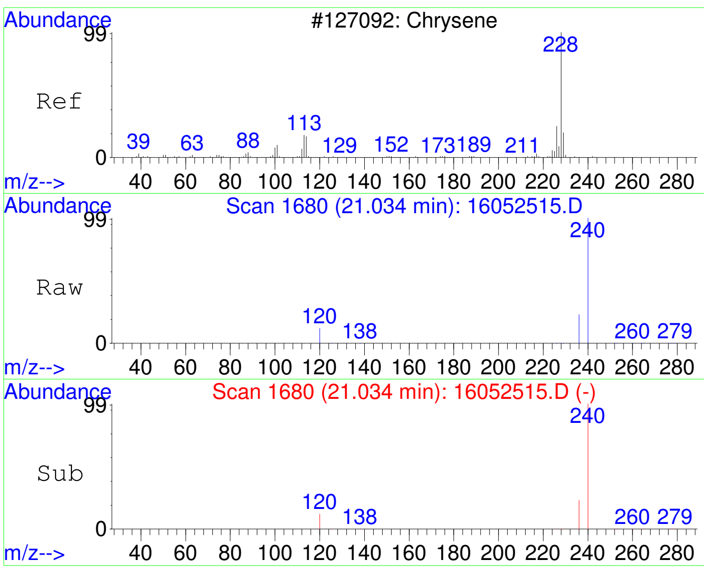





```
#9
Acenaphthene
Concen:    11.23 ug/kg
RT: 13.25 min   Scan# 397
Delta R.T.    -0.05 min
Lab File:    16052515.D
Acq: 25 May 2016    6:12 pm

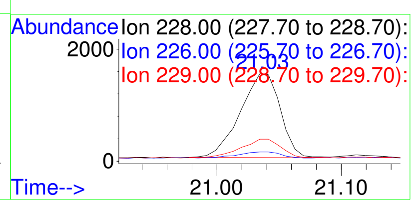
Tgt Ion:154 Resp:     2370
Ion  Ratio   Lower   Upper
154  100
152    0.5    18.9    78.9#
153    2.4    75.2   135.2#
```

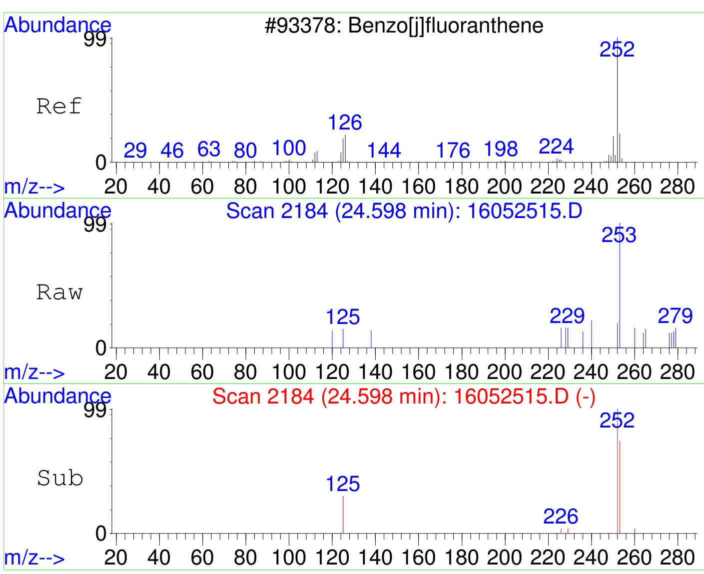





```
#19
Chrysene
Concen:     8.96 ug/kg
RT: 21.03 min   Scan# 1680
Delta R.T.    -0.10 min
Lab File:    16052515.D
Acq: 25 May 2016    6:12 pm

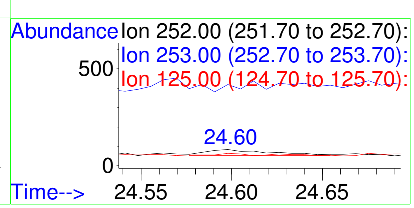
Tgt Ion:228 Resp:     3335
Ion  Ratio   Lower   Upper
228  100
226    6.9     0.0    58.1
229   22.4     0.0    50.1
```






```
#23
Benzo(j)fluoranthene
Concen:     0.22 ug/kg
RT: 24.60 min   Scan# 2184
Delta R.T.    -0.03 min
Lab File:    16052515.D
Acq: 25 May 2016    6:12 pm

Tgt Ion:252 Resp:       74
Ion  Ratio   Lower   Upper
252  100
253   84.0     2.1    42.1#
125   40.0     0.0    34.4#
```



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160525\16052516.D          Vial: 16
Acq On    : 25 May 2016   6:52 pm                   Operator: AR
Sample    : 1605144-05A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: May 26  8:43 2016            Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421
```

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1190079	4000.00 ug/kg	103
5) Acenaphthene-d10	13.25	164	759958	4000.00 ug/kg	66
11) Phenanthrene-d10	15.33	188	1304291	4000.00 ug/kg	64
17) Chrysene-d12	21.04	240	1542295	4000.00 ug/kg	68
20) Perylene-d12	26.17	264	1394177	4000.00 ug/kg	68

System Monitoring Compounds

	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.18	172	17642	79.58 ug/kg	0.00
Spiked Amount 4000.000 Range 40 - 140				Recovery = 1.99%#	
16) 4-Terphenyl-d14	17.82	244	24687	73.16 ug/kg	0.00
Spiked Amount 4000.000 Range 40 - 140				Recovery = 1.83%#	

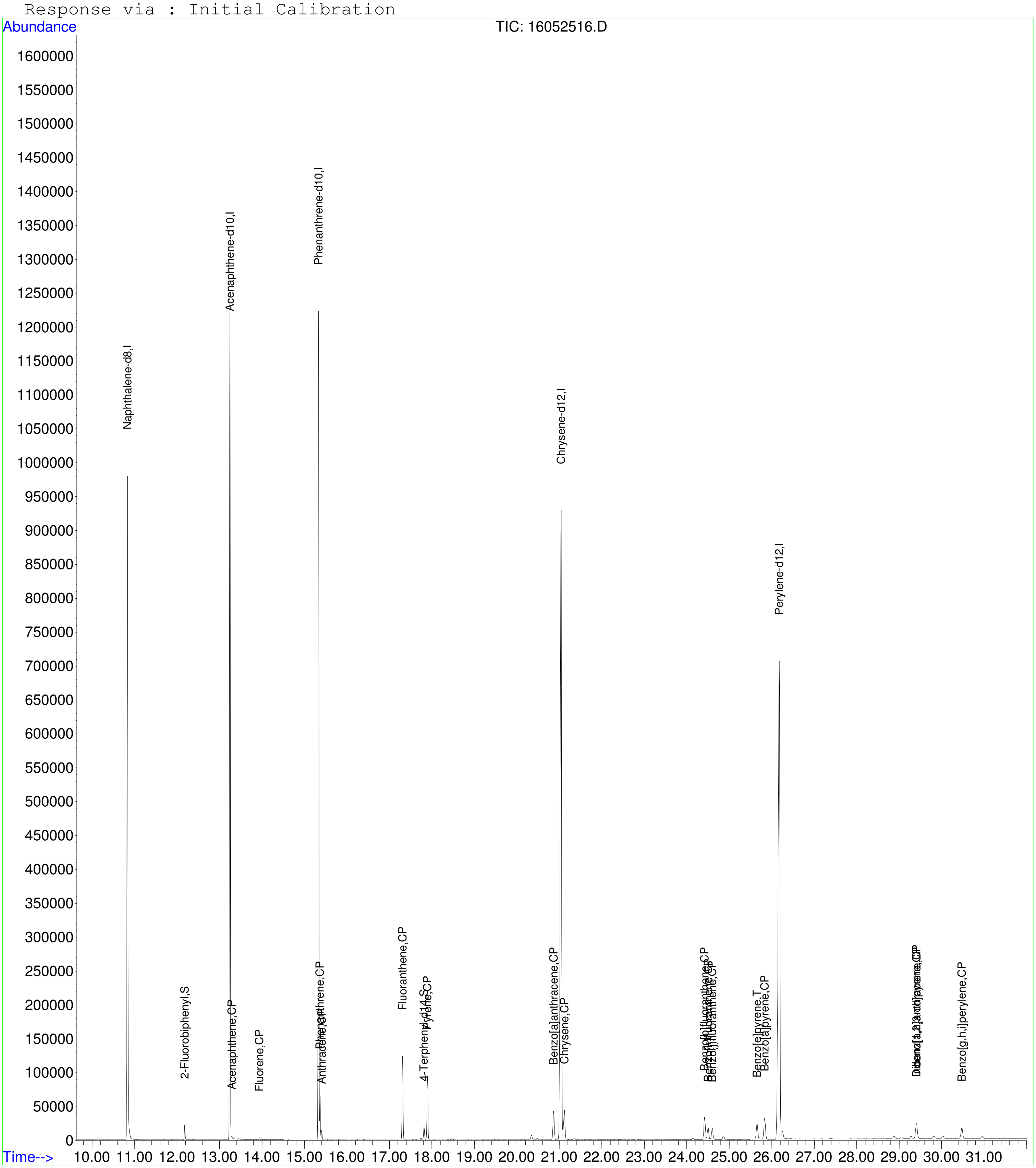
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
9) Acenaphthene	13.29	154	1346	6.63 ug/kg	99
10) Fluorene	13.94	166	1325	5.37 ug/kg	98
12) Phenanthrene	15.36	178	55423	161.58 ug/kg	99
13) Anthracene	15.41	178	11606	35.75 ug/kg	100
14) Fluoranthene	17.31	202	122760	345.85 ug/kg	98
15) Pyrene	17.90	202	101497	275.27 ug/kg	99
18) Benzo[a]anthracene	20.86	228	61545	170.33 ug/kg	99
19) Chrysene	21.12	228	67682	193.87 ug/kg	99
21) Benzo[b]fluoranthene	24.42	252	61189	166.52 ug/kg	100
22) Benzo[k]fluoranthene	24.50	252	29114	84.46 ug/kg	98
23) Benzo(j)fluoranthene	24.60	252	28029	91.28 ug/kg	91
24) Benzo[e]pyrene	25.65	252	43090	130.94 ug/kg	99
25) Benzo[a]pyrene	25.84	252	58803	174.86 ug/kg	99
26) Dibenz[a,h]anthracene	29.40	278	8927	29.15 ug/kg	92
27) Indeno[1,2,3-cd]pyrene	29.41	276	37191	101.79 ug/kg	92
28) Benzo[g,h,i]perylene	30.47	276	31655	111.11 ug/kg	98

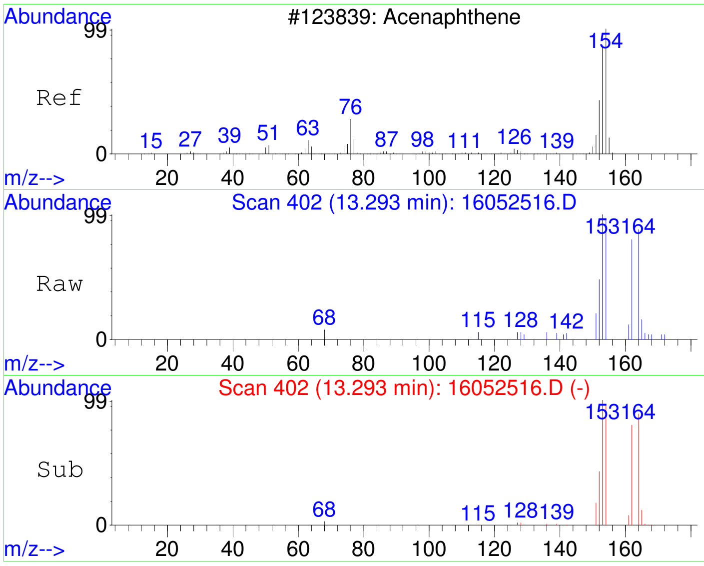
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160525\16052516.D Vial: 16
Acq On : 25 May 2016 6:52 pm Operator: AR
Sample : 1605144-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:43 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration

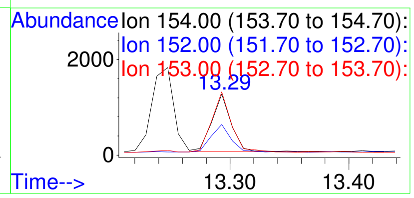


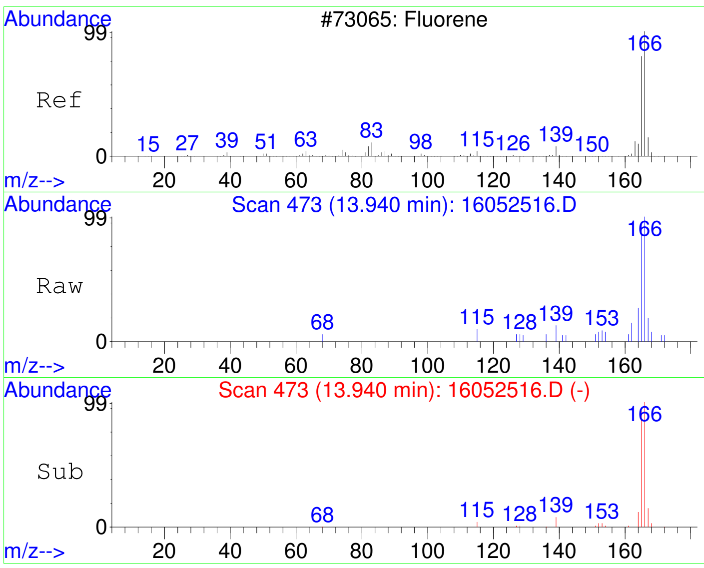


#9
Acenaphthene
Concen: 6.63 ug/kg
RT: 13.29 min Scan# 402
Delta R.T. -0.01 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:154 Resp: 1346

Ion	Ratio	Lower	Upper
154	100		
152	48.0	18.9	78.9
153	104.8	75.2	135.2

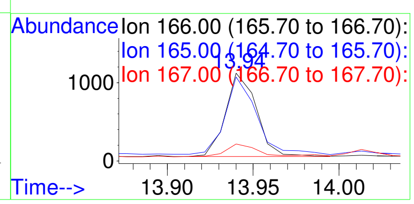


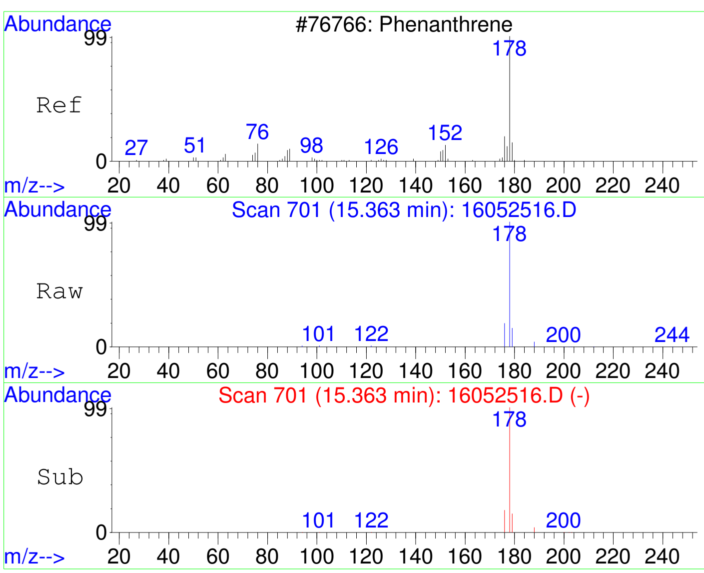


#10
Fluorene
Concen: 5.37 ug/kg
RT: 13.94 min Scan# 473
Delta R.T. -0.01 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:166 Resp: 1325

Ion	Ratio	Lower	Upper
166	100		
165	93.5	61.8	121.8
167	15.1	0.0	43.6

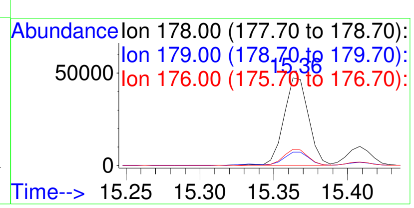


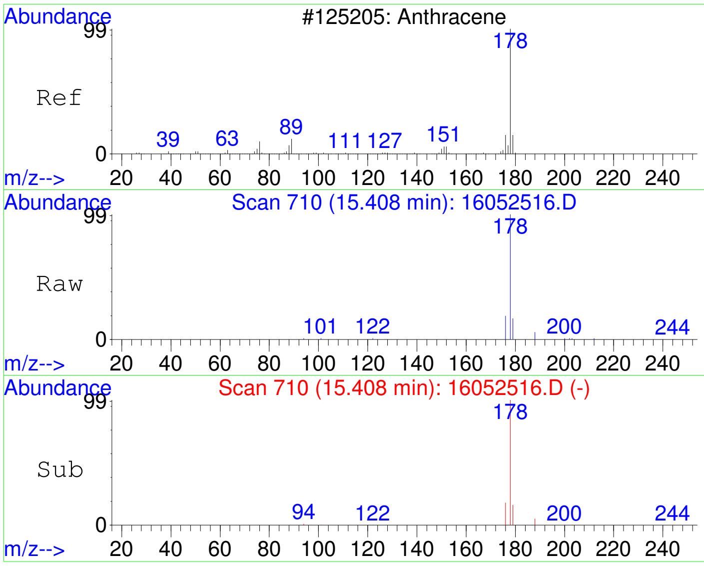


#12
Phenanthrene
Concen: 161.58 ug/kg
RT: 15.36 min Scan# 701
Delta R.T. -0.01 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:178 Resp: 55423

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.5	0.0	48.5

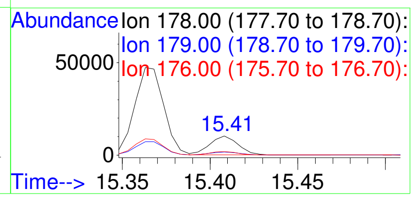


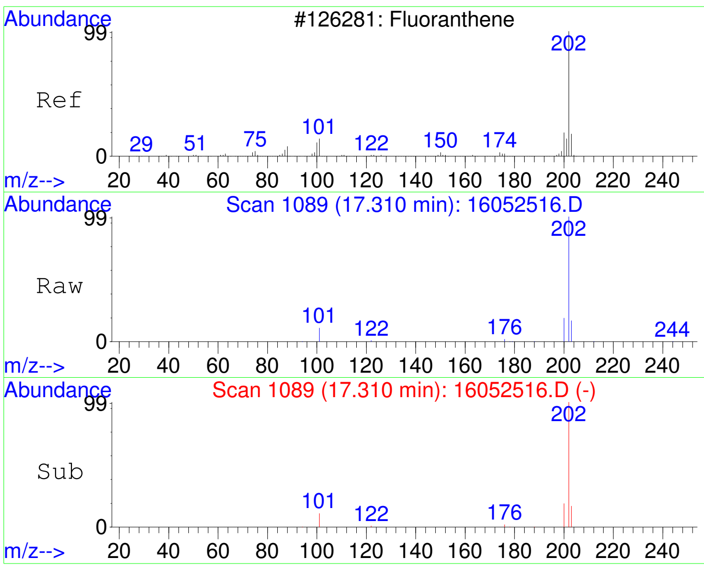


#13
Anthracene
Concen: 35.75 ug/kg
RT: 15.41 min Scan# 710
Delta R.T. -0.00 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:178 Resp: 11606

Ion	Ratio	Lower	Upper
178	100		
179	15.9	0.0	45.9
176	18.4	0.0	48.2

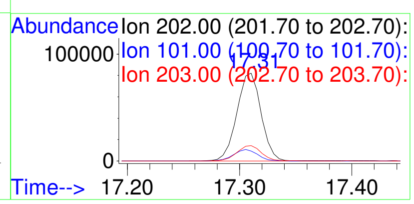


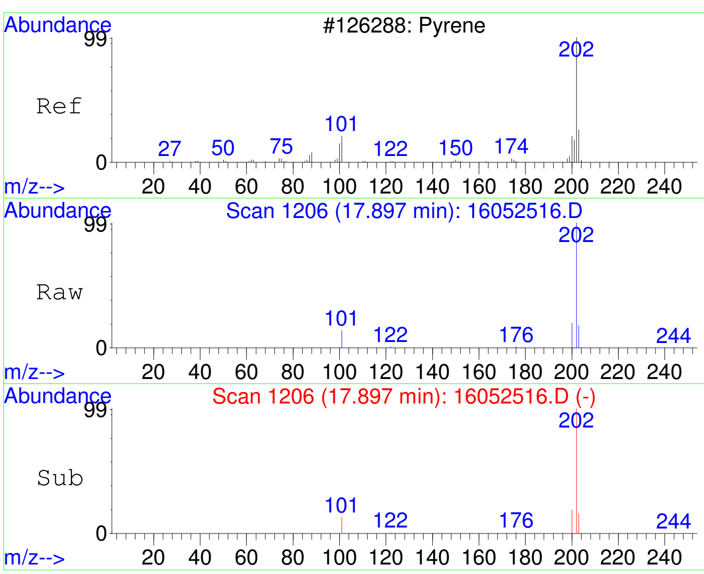


#14
Fluoranthene
Concen: 345.85 ug/kg
RT: 17.31 min Scan# 1089
Delta R.T. -0.00 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:202 Resp: 122760

Ion	Ratio	Lower	Upper
202	100		
101	11.4	0.0	43.0
203	17.4	0.0	47.9

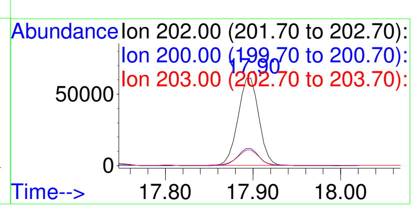


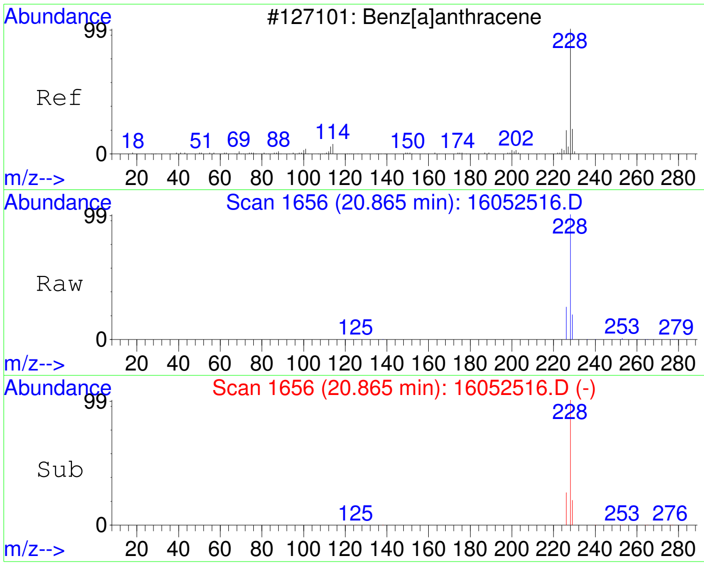


#15
Pyrene
Concen: 275.27 ug/kg
RT: 17.90 min Scan# 1206
Delta R.T. -0.00 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:202 Resp: 101497

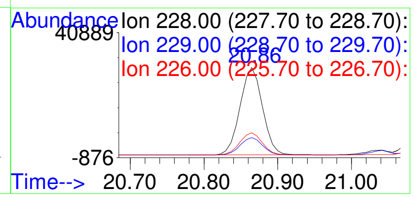
Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	50.0
203	17.6	0.0	48.0

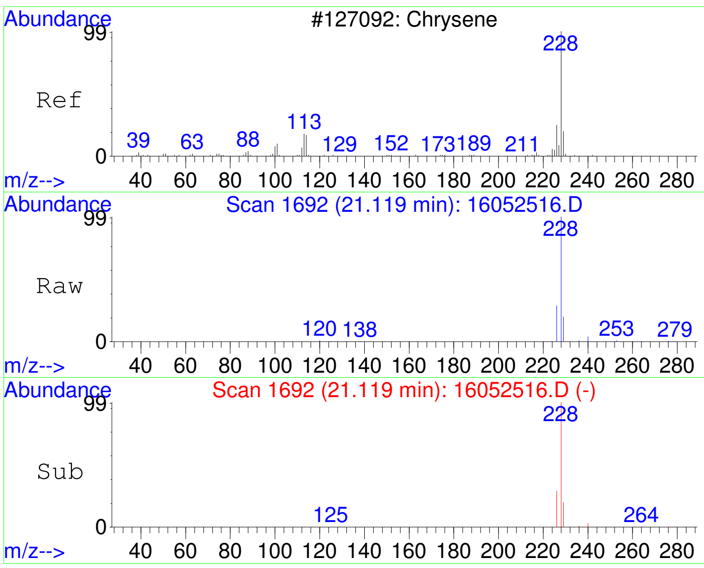





```
#18
Benzo[a]anthracene
Concen:  170.33 ug/kg
RT: 20.86 min   Scan# 1656
Delta R.T.    -0.01 min
Lab File:    16052516.D
Acq: 25 May 2016    6:52 pm

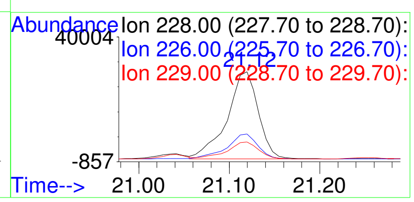
Tgt Ion:228 Resp:   61545
Ion  Ratio  Lower  Upper
228  100
229   19.9    0.0   50.1
226   25.5    0.0   55.2
```

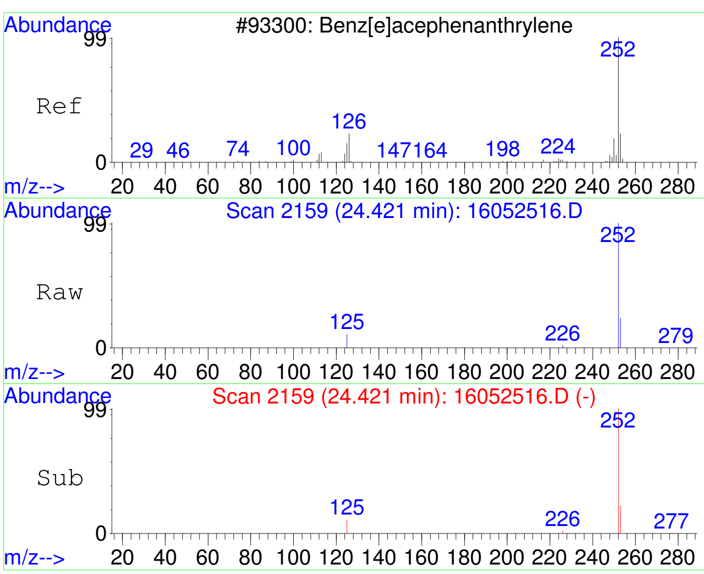





```
#19
Chrysene
Concen:  193.87 ug/kg
RT: 21.12 min   Scan# 1692
Delta R.T.    -0.02 min
Lab File:    16052516.D
Acq: 25 May 2016    6:52 pm

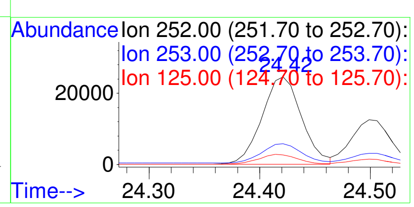
Tgt Ion:228 Resp:   67682
Ion  Ratio  Lower  Upper
228  100
226   28.7    0.0   58.1
229   19.6    0.0   50.1
```

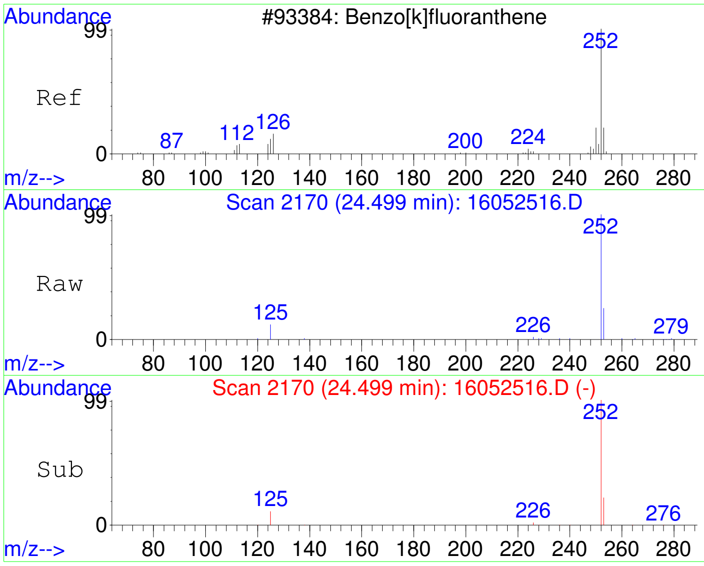





```
#21
Benzo[b]fluoranthene
Concen:  166.52 ug/kg
RT: 24.42 min   Scan# 2159
Delta R.T.    -0.02 min
Lab File:    16052516.D
Acq: 25 May 2016    6:52 pm

Tgt Ion:252 Resp:   61189
Ion  Ratio  Lower  Upper
252  100
253   22.2    0.0   52.2
125   10.6    0.0   41.0
```

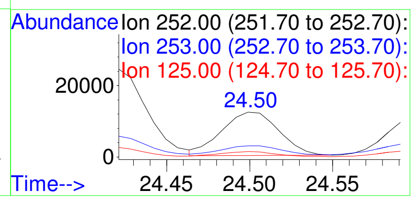


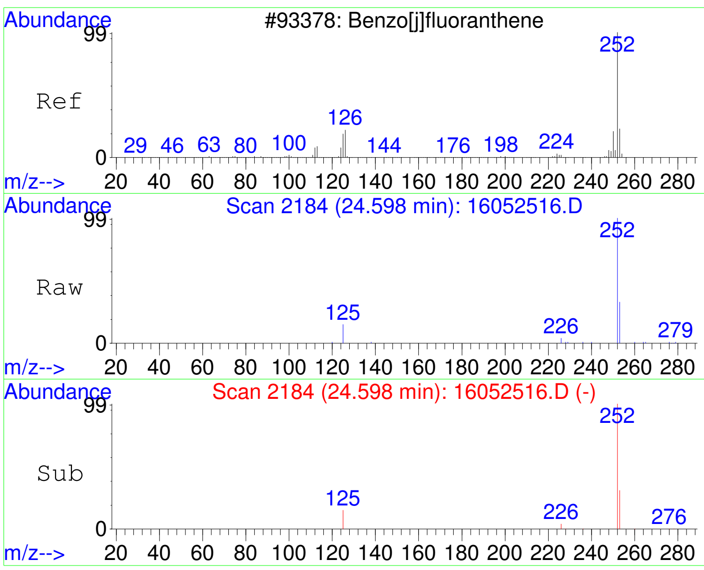


#22
Benzo[k]fluoranthene
Concen: 84.46 ug/kg
RT: 24.50 min Scan# 2170
Delta R.T. -0.03 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:252 Resp: 29114

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.1	42.1
125	11.5	0.0	31.3

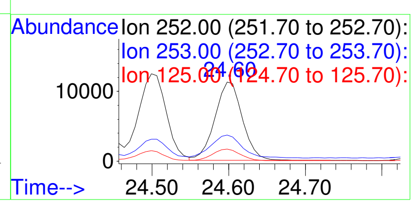


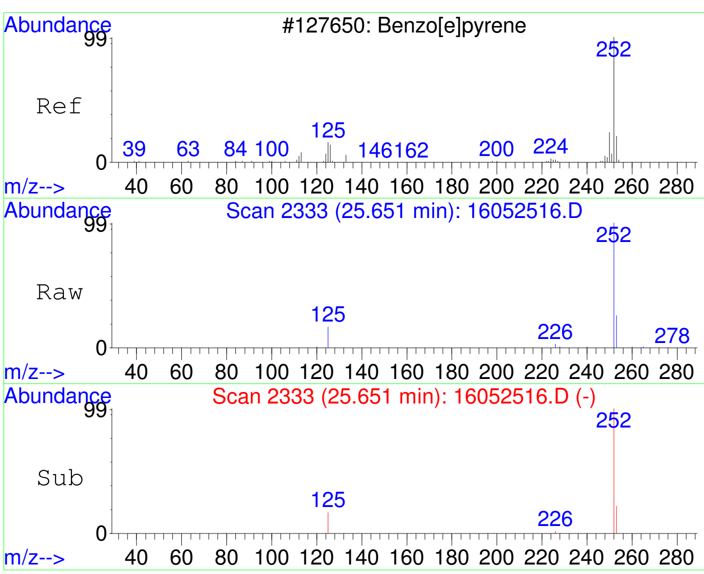


#23
Benzo(j)fluoranthene
Concen: 91.28 ug/kg
RT: 24.60 min Scan# 2184
Delta R.T. -0.03 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:252 Resp: 28029

Ion	Ratio	Lower	Upper
252	100		
253	28.9	2.1	42.1
125	14.7	0.0	34.4

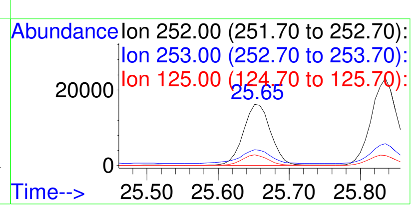


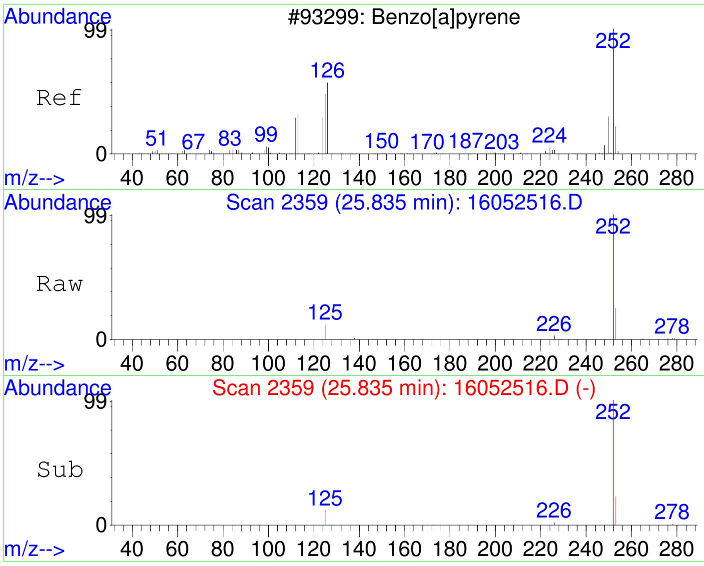


#24
Benzo[e]pyrene
Concen: 130.94 ug/kg
RT: 25.65 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:252 Resp: 43090

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	17.0	0.0	36.1

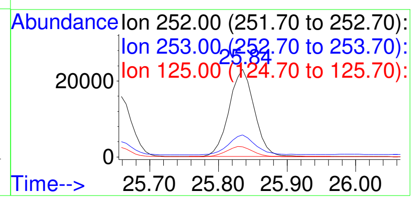


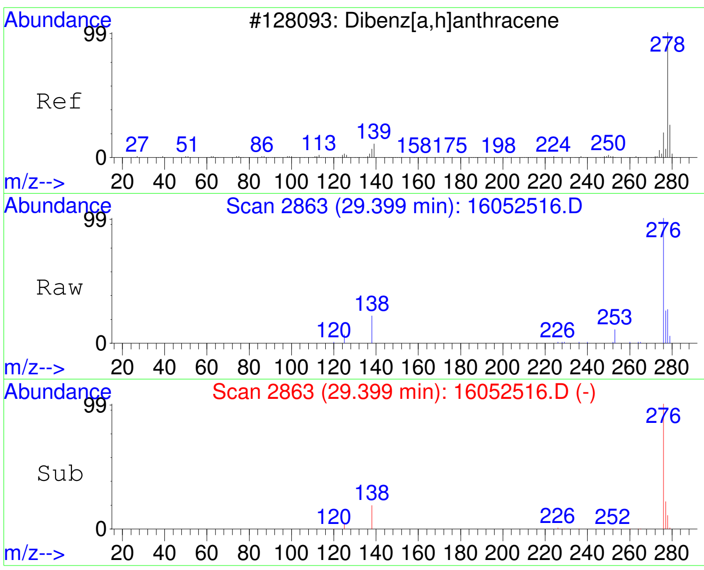


#25
Benzo[a]pyrene
Concen: 174.86 ug/kg
RT: 25.84 min Scan# 2359
Delta R.T. -0.02 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:252 Resp: 58803

Ion	Ratio	Lower	Upper
252	100		
253	22.9	1.9	41.9
125	11.5	0.0	31.7

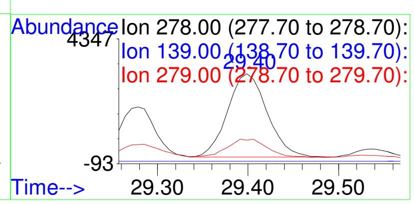


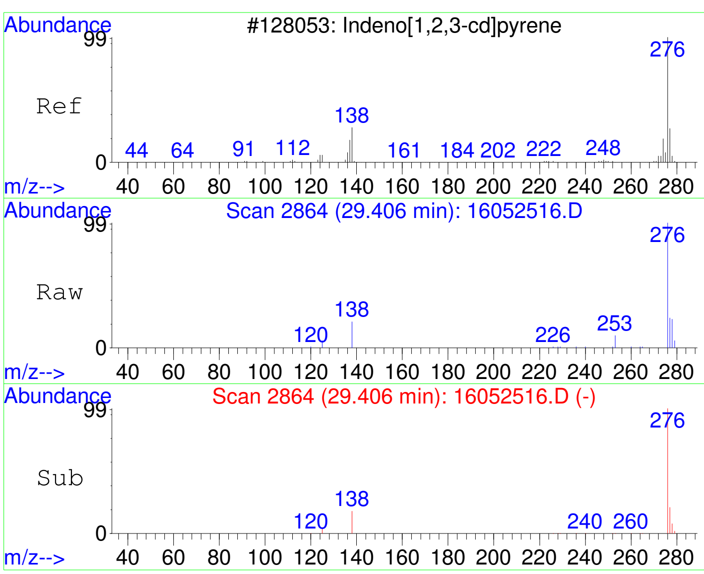


#26
Dibenz[a,h]anthracene
Concen: 29.15 ug/kg
RT: 29.40 min Scan# 2863
Delta R.T. -0.04 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:278 Resp: 8927

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	20.1	4.2	44.2

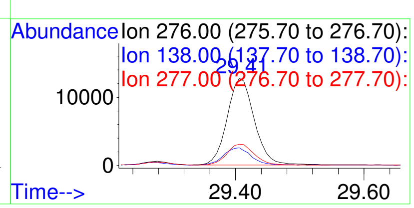


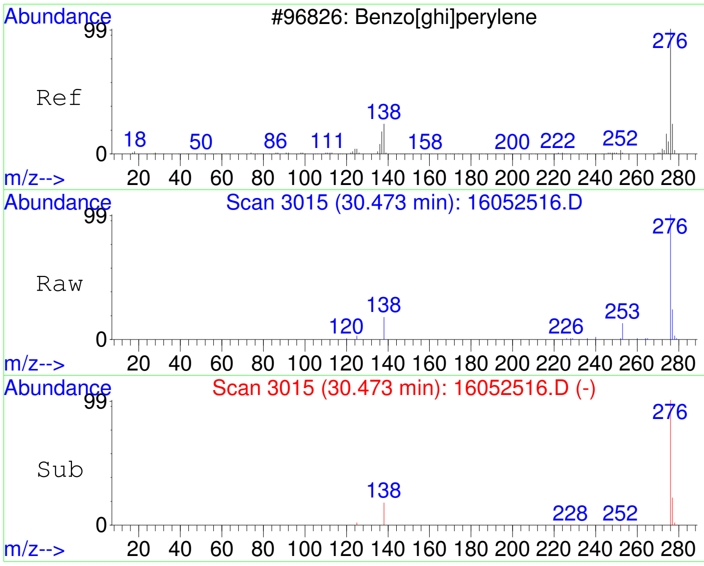


#27
Indeno[1,2,3-cd]pyrene
Concen: 101.79 ug/kg
RT: 29.41 min Scan# 2864
Delta R.T. -0.04 min
Lab File: 16052516.D
Acq: 25 May 2016 6:52 pm

Tgt Ion:276 Resp: 37191

Ion	Ratio	Lower	Upper
276	100		
138	19.9	6.7	46.7
277	24.0	5.8	45.8

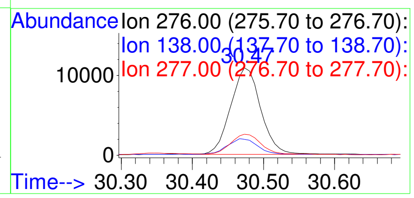




#28
Benzo[g,h,i]perylene
Concen: 111.11 ug/kg
RT: 30.47 min   Scan# 3015
Delta R.T.   -0.04 min
Lab File: 16052516.D
Acq: 25 May 2016   6:52 pm

Tgt Ion:276 Resp: 31655

Ion	Ratio	Lower	Upper
276	100		
138	17.6	0.0	39.1
277	23.5	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160525\16052517.D Vial: 17
Acq On : 25 May 2016 7:32 pm Operator: AR
Sample : 1605135-36AMS Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:42 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1138528	4000.00	ug/kg	98
5) Acenaphthene-d10	13.24	164	724981	4000.00	ug/kg	63
11) Phenanthrene-d10	15.33	188	1272375	4000.00	ug/kg	62
17) Chrysene-d12	21.04	240	1494687	4000.00	ug/kg	66
20) Perylene-d12	26.18	264	1360436	4000.00	ug/kg	66

System Monitoring Compounds

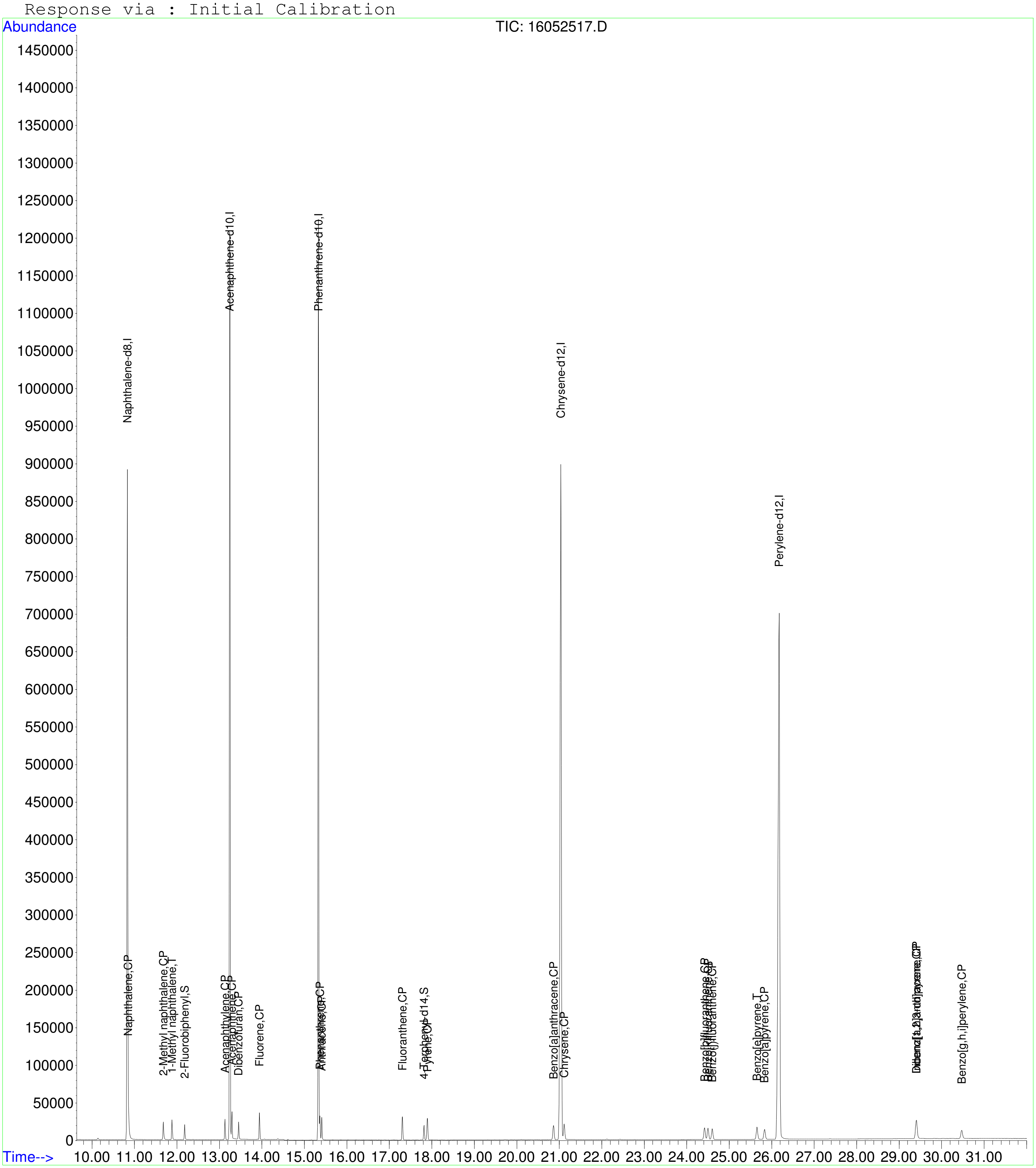
	R.T.	QIon	Response	Conc	Units	Dev(Min)
7) 2-Fluorobiphenyl	12.18	172	17302	81.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.82	244	25169	76.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.86	128	20335	71.40	ug/kg	100
3) 2-Methyl naphthalene	11.68	142	15506	61.64	ug/kg	99
4) 1-Methyl naphthalene	11.88	142	14342	62.25	ug/kg	95
6) Dibenzofuran	13.45	168	21392	78.73	ug/kg	97
8) Acenaphthylene	13.13	152	24241	77.64	ug/kg	98
9) Acenaphthene	13.29	154	14290	73.74	ug/kg	99
10) Fluorene	13.94	166	17188	73.03	ug/kg	99
12) Phenanthrene	15.37	178	26840	80.21	ug/kg	98
13) Anthracene	15.41	178	24907	78.64	ug/kg	99
14) Fluoranthene	17.31	202	30788	88.91	ug/kg	97
15) Pyrene	17.90	202	31420	87.35	ug/kg	99
18) Benzo[a]anthracene	20.87	228	28212	80.57	ug/kg	99
19) Chrysene	21.11	228	27169	80.30	ug/kg	100
21) Benzo[b]fluoranthene	24.42	252	28920	80.66	ug/kg	99
22) Benzo[k]fluoranthene	24.50	252	26525	78.86	ug/kg	99
23) Benzo(j)fluoranthene	24.60	252	25214	84.15	ug/kg	100
24) Benzo[e]pyrene	25.65	252	29272	91.16	ug/kg	99
25) Benzo[a]pyrene	25.83	252	25864	78.82	ug/kg	99
26) Dibenz[a,h]anthracene	29.41	278	23246	77.79	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.41	276	28375	79.59	ug/kg	97
28) Benzo[g,h,i]perylene	30.47	276	21623	77.78	ug/kg	98

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

```
Data File : C:\HPCHEM\1\DATA\160525\16052517.D          Vial: 17
Acq On    : 25 May 2016   7:32 pm                    Operator: AR
Sample    : 1605135-36AMS                            Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:42 2016          Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
```



Data File : C:\HPCHEM\1\DATA\160525\16052518.D   Vial: 18
Acq On   : 25 May 2016   8:12 pm   Operator: AR
Sample   : 1605135-36AMSD   Inst   : GC/MS #6
Misc   : SAMP   Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:42 2016   Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1244352	4000.00	ug/kg	107
5) Acenaphthene-d10	13.25	164	790406	4000.00	ug/kg	69
11) Phenanthrene-d10	15.33	188	1411061	4000.00	ug/kg	69
17) Chrysene-d12	21.04	240	1647150	4000.00	ug/kg	73
20) Perylene-d12	26.18	264	1493717	4000.00	ug/kg	73

System Monitoring Compounds
7) 2-Fluorobiphenyl	12.18	172	17618	76.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
16) 4-Terphenyl-d14	17.81	244	25997	71.21	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#		

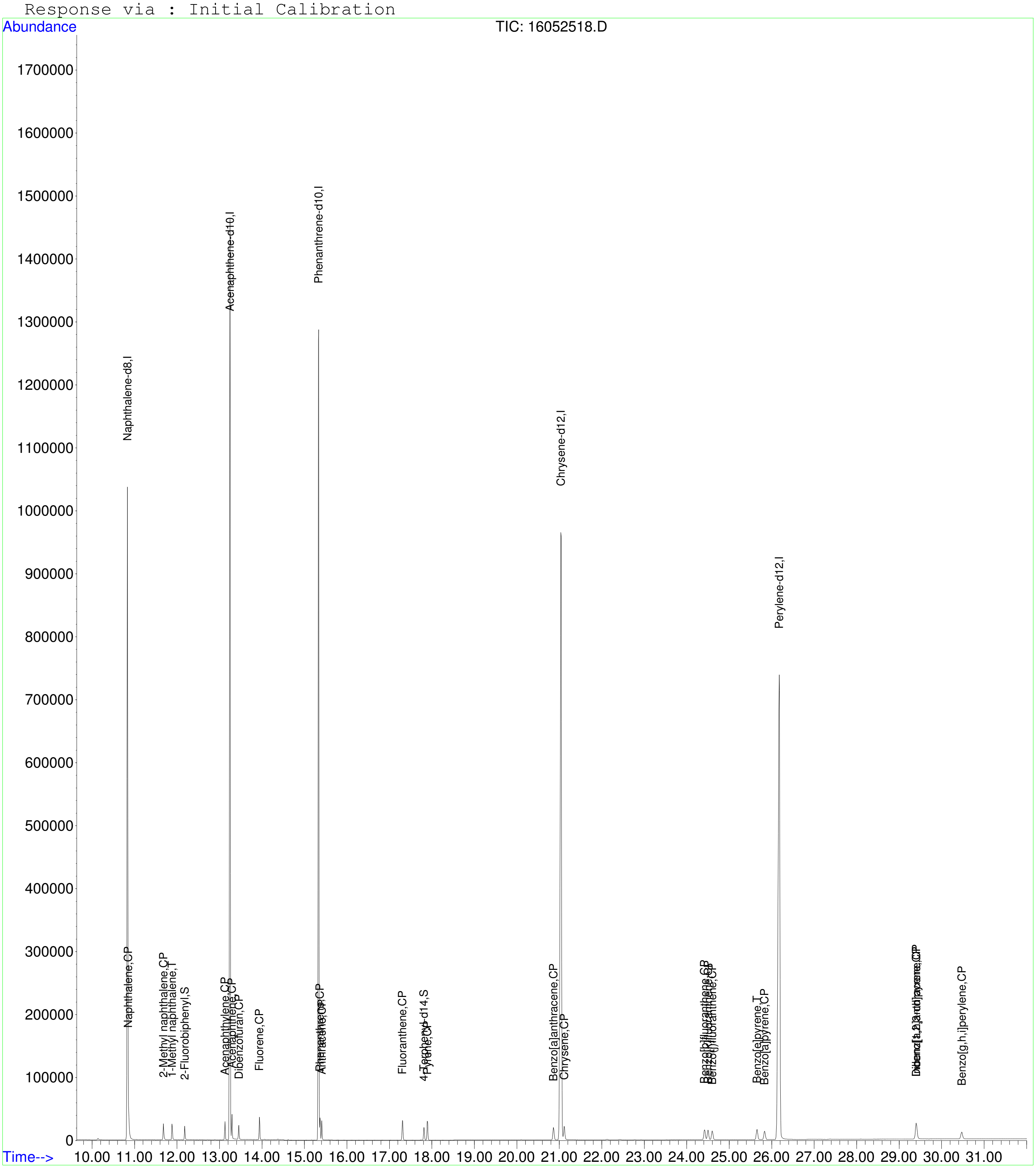
Target Compounds						Qvalue
2) Naphthalene	10.86	128	21199	68.11	ug/kg	99
3) 2-Methyl naphthalene	11.68	142	15871	57.72	ug/kg	99
4) 1-Methyl naphthalene	11.88	142	14603	57.99	ug/kg	92
6) Dibenzofuran	13.46	168	22307	75.30	ug/kg	98
8) Acenaphthylene	13.13	152	24364	71.58	ug/kg	99
9) Acenaphthene	13.29	154	14869	70.38	ug/kg	99
10) Fluorene	13.94	166	17951	69.96	ug/kg	98
12) Phenanthrene	15.36	178	28045	75.58	ug/kg	99
13) Anthracene	15.41	178	25835	73.55	ug/kg	98
14) Fluoranthene	17.30	202	31721	82.60	ug/kg	99
15) Pyrene	17.89	202	32135	80.56	ug/kg	99
18) Benzo[a]anthracene	20.86	228	29135	75.50	ug/kg	99
19) Chrysene	21.11	228	27477	73.70	ug/kg	99
21) Benzo[b]fluoranthene	24.42	252	29213	74.20	ug/kg	99
22) Benzo[k]fluoranthene	24.50	252	26945	72.96	ug/kg	97
23) Benzo(j)fluoranthene	24.60	252	25699	78.12	ug/kg	99
24) Benzo[e]pyrene	25.65	252	29517	83.72	ug/kg	99
25) Benzo[a]pyrene	25.83	252	25877	71.82	ug/kg	99
26) Dibenz[a,h]anthracene	29.40	278	23954	73.00	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.41	276	28899	73.83	ug/kg	95
28) Benzo[g,h,i]perylene	30.47	276	22243	72.87	ug/kg	99

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160525\16052518.D          Vial: 18
Acq On    : 25 May 2016   8:12 pm                    Operator: AR
Sample    : 1605135-36AMSD                           Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:42 2016           Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160525\16052520.D Vial: 20
Acq On : 25 May 2016 9:28 pm Operator: AR
Sample : ICV2-160525 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:42 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1632535	4000.00	ug/kg	141
5) Acenaphthene-d10	13.25	164	1303917	4000.00	ug/kg	113
11) Phenanthrene-d10	15.33	188	2146514	4000.00	ug/kg	105
17) Chrysene-d12	21.05	240	2482886	4000.00	ug/kg	109
20) Perylene-d12	26.19	264	2271782	4000.00	ug/kg	110

System Monitoring Compounds

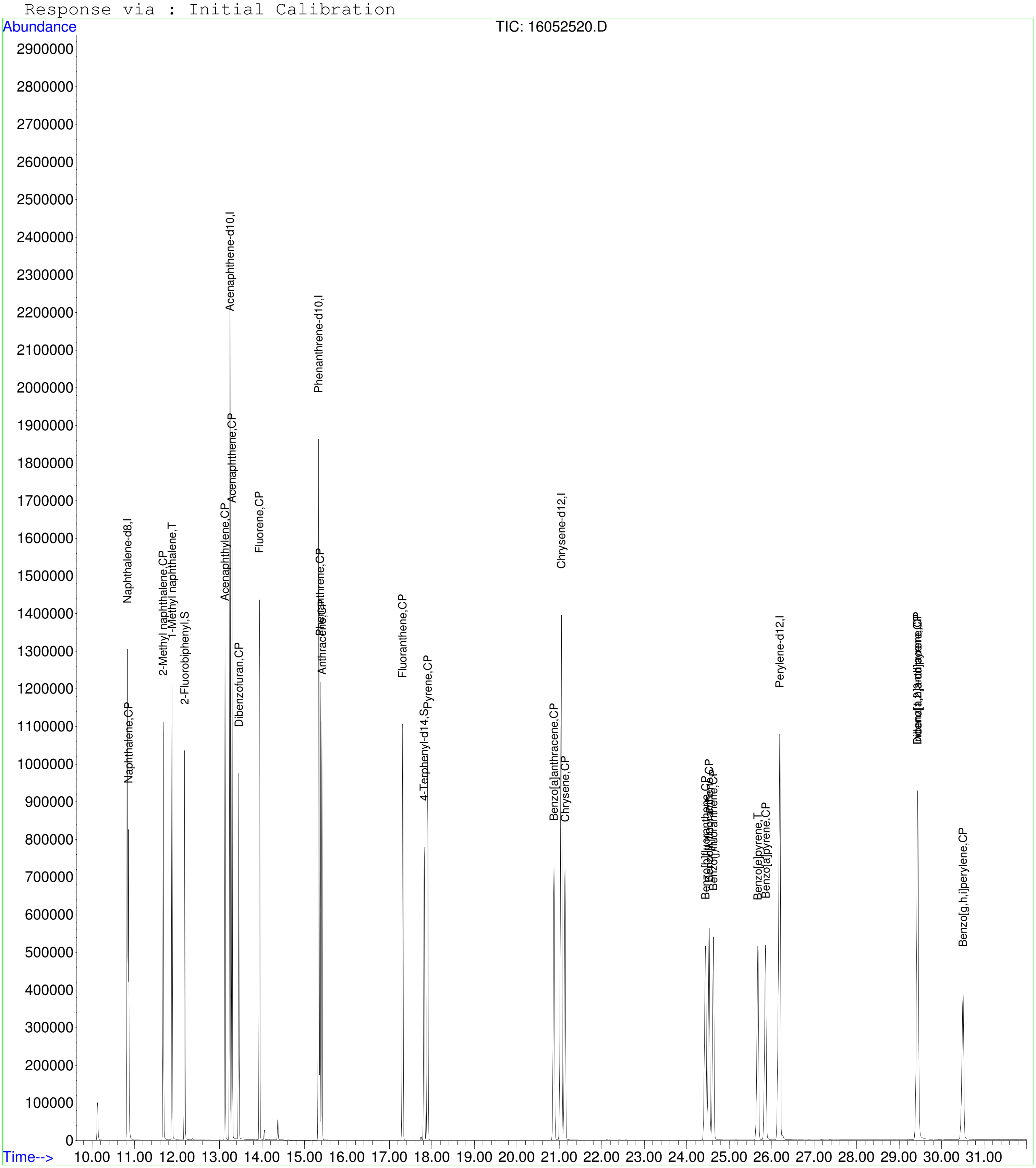
	R.T.	QIon	Response	Conc	Units	Dev(Min)
7) 2-Fluorobiphenyl	12.18	172	779104	2048.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 51.21%			
16) 4-Terphenyl-d14	17.82	244	1028789	1852.54	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.31%			

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.86	128	765912	1875.59	ug/kg	99
3) 2-Methyl naphthalene	11.68	142	656409	1819.76	ug/kg	96
4) 1-Methyl naphthalene	11.88	142	590154	1786.38	ug/kg	96
6) Dibenzofuran	13.46	168	899818	1841.27	ug/kg	97
8) Acenaphthylene	13.13	152	1112945	1981.94	ug/kg	100
9) Acenaphthene	13.29	154	656725	1884.20	ug/kg	98
10) Fluorene	13.94	166	767186	1812.43	ug/kg	99
12) Phenanthrene	15.37	178	1008883	1787.22	ug/kg	99
13) Anthracene	15.41	178	937999	1755.56	ug/kg	100
14) Fluoranthene	17.31	202	1123519	1923.31	ug/kg	98
15) Pyrene	17.90	202	1125962	1855.53	ug/kg	100
18) Benzo[a]anthracene	20.87	228	1114943	1916.77	ug/kg	99
19) Chrysene	21.13	228	1015542	1806.96	ug/kg	100
21) Benzo[b]fluoranthene	24.44	252	1115346	1862.75	ug/kg	100
22) Benzo[k]fluoranthene	24.53	252	1012478	1802.54	ug/kg	100
23) Benzo(j)fluoranthene	24.63	252	933438	1865.56	ug/kg	99
24) Benzo[e]pyrene	25.67	252	992678	1851.23	ug/kg	99
25) Benzo[a]pyrene	25.86	252	1000748	1826.32	ug/kg	100
26) Dibenz[a,h]anthracene	29.44	278	929688	1862.94	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.44	276	1078205	1811.08	ug/kg	96
28) Benzo[g,h,i]perylene	30.50	276	830055	1788.02	ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160525\16052520.D          Vial: 20
Acq On    : 25 May 2016   9:28 pm                   Operator: AR
Sample    : ICV2-160525                             Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:42 2016            Quant Results File: PP160421.RES

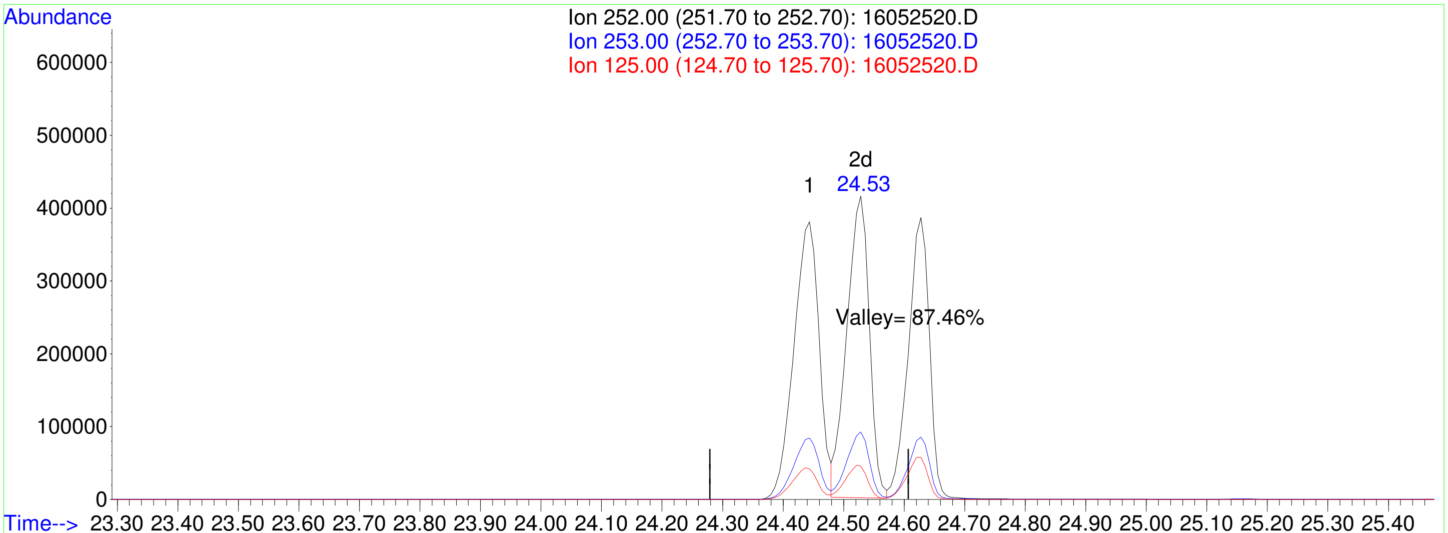
Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
```

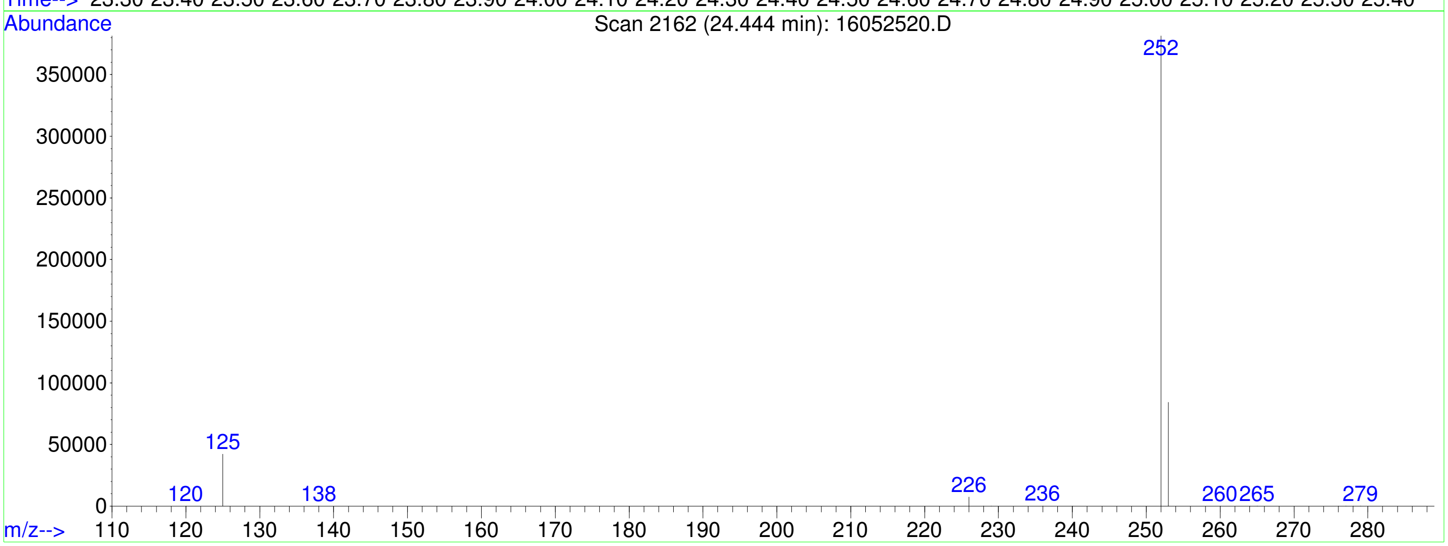


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160525\16052520.D          Vial: 20
Acq On    : 25 May 2016   9:28 pm                   Operator: AR
Sample    : ICV2-160525                             Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 25 22:00 2016                Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Multiple Level Calibration
```





TIC: 16052520.D

(21) Benzo[b]fluoranthene (CP)

24.44min 1862.75ug/kg

response 1115346

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	22.03
125.00	11.00	11.07
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160525\16052522.D          Vial: 22
Acq On    : 25 May 2016  10:47 pm                   Operator: AR
Sample    : SB-160525                               Inst    : GC/MS #6
Misc      : SBLK                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: May 26  8:42 2016              Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

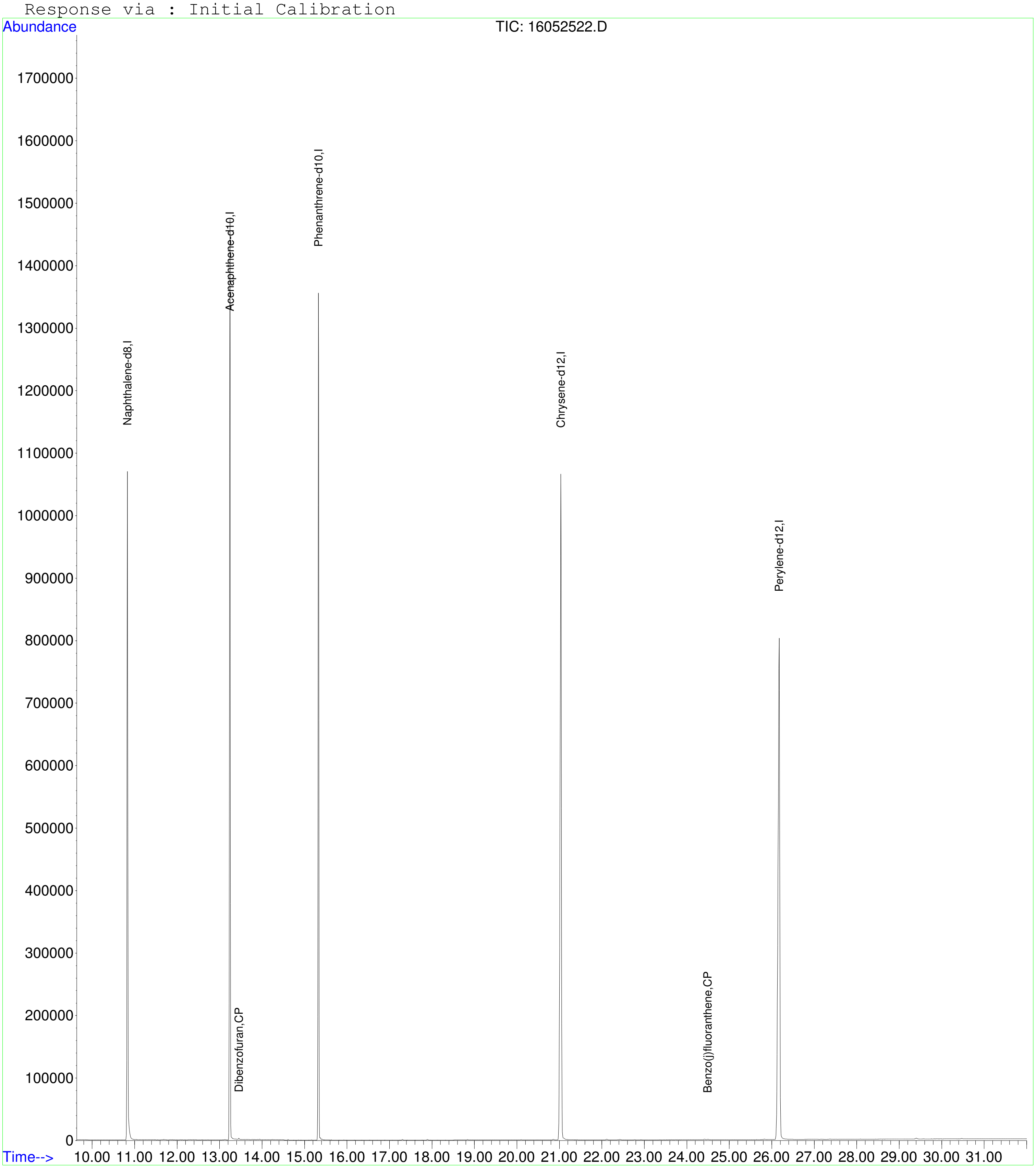
 Internal Standards                  R.T. QIon  Response  Conc Units Dev(Min)
 -----------------------------------------------------------------------------
   1) Naphthalene-d8                10.83  136  1323019   4000.00 ug/kg  114
   5) Acenaphthene-d10              13.25  164   804205   4000.00 ug/kg   70
  11) Phenanthrene-d10              15.33  188  1450667   4000.00 ug/kg   71
  17) Chrysene-d12                  21.03  240  1745866   4000.00 ug/kg   77
  20) Perylene-d12                  26.17  264  1588788   4000.00 ug/kg   77

 System Monitoring Compounds
   7) 2-Fluorobiphenyl              12.19  172       62     0.26 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    0.01%#
  16) 4-Terphenyl-d14               17.81  244      101     0.27 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    0.01%#

 Target Compounds                                                   Qvalue
   6) Dibenzofuran                  13.45  168     1595     5.29 ug/kg     95
  23) Benzo(j)fluoranthene          24.49  252     1337     3.82 ug/kg     94
```

Data File : C:\HPCHEM\1\DATA\160525\16052522.D Vial: 22
Acq On : 25 May 2016 10:47 pm Operator: AR
Sample : SB-160525 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:42 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160525\16052523.D Vial: 23
Acq On : 25 May 2016 11:27 pm Operator: AR
Sample : 1605144-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:44 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1231493	4000.00	ug/kg	106
5) Acenaphthene-d10	13.24	164	789606	4000.00	ug/kg	69
11) Phenanthrene-d10	15.33	188	1375124	4000.00	ug/kg	67
17) Chrysene-d12	21.03	240	1639712	4000.00	ug/kg	72
20) Perylene-d12	26.17	264	1500866	4000.00	ug/kg	73

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.18	172	18250	79.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		
16) 4-Terphenyl-d14	17.81	244	26492	74.46	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		

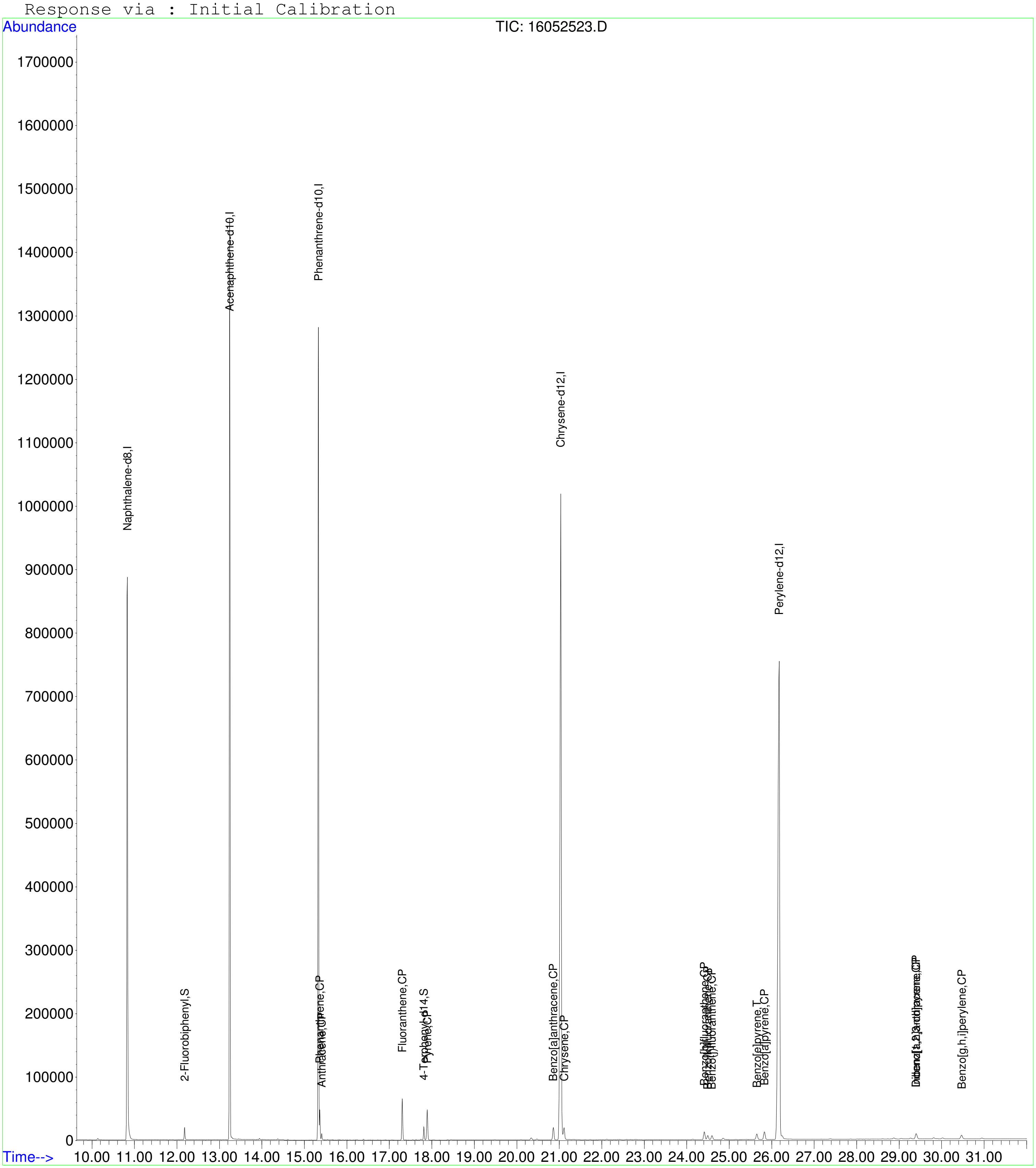
Target Compounds						Qvalue
12) Phenanthrene	15.36	178	36839	101.87	ug/kg	99
13) Anthracene	15.41	178	8170	23.87	ug/kg	99
14) Fluoranthene	17.30	202	63609	169.97	ug/kg	99
15) Pyrene	17.89	202	50572	130.09	ug/kg	99
18) Benzo[a]anthracene	20.86	228	28097	73.14	ug/kg	98
19) Chrysene	21.11	228	27978	75.38	ug/kg	99
21) Benzo[b]fluoranthene	24.41	252	22647	57.25	ug/kg	99
22) Benzo[k]fluoranthene	24.49	252	11663	31.43	ug/kg	97
23) Benzo(j)fluoranthene	24.60	252	11240	34.00	ug/kg	94
24) Benzo[e]pyrene	25.65	252	16056	45.32	ug/kg	98
25) Benzo[a]pyrene	25.83	252	22841	63.09	ug/kg	98
26) Dibenz[a,h]anthracene	29.39	278	3438	10.43	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.40	276	13575	34.51	ug/kg	92
28) Benzo[g,h,i]perylene	30.47	276	11652	37.99	ug/kg	97

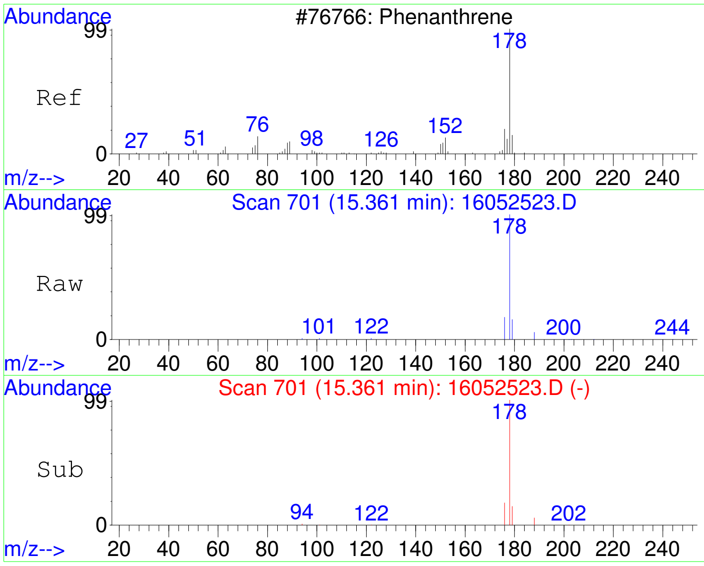
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160525\16052523.D          Vial: 23
Acq On    : 25 May 2016  11:27 pm                    Operator: AR
Sample    : 1605144-06A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:44 2016             Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
```

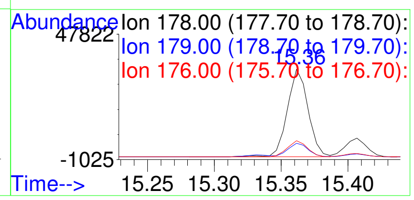


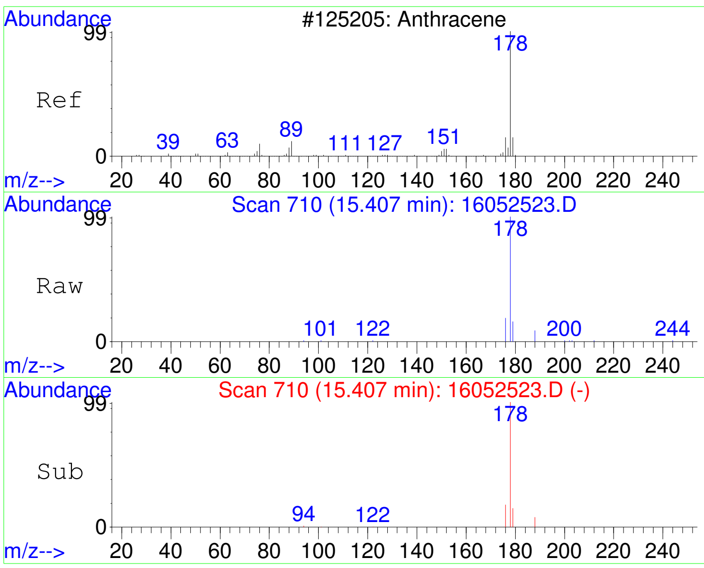


#12
Phenanthrene
Concen: 101.87 ug/kg
RT: 15.36 min Scan# 701
Delta R.T. -0.01 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:178 Resp: 36839

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	18.3	0.0	48.5

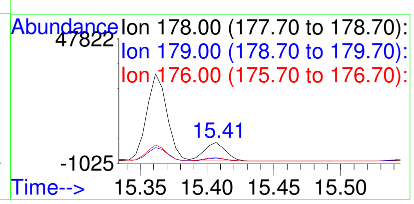


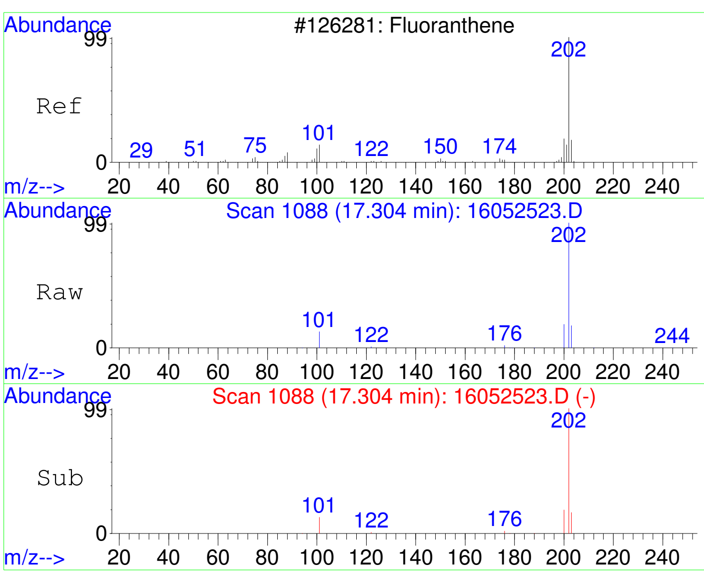


#13
Anthracene
Concen: 23.87 ug/kg
RT: 15.41 min Scan# 710
Delta R.T. -0.01 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:178 Resp: 8170

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	45.9
176	18.1	0.0	48.2

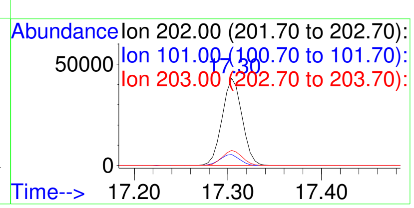


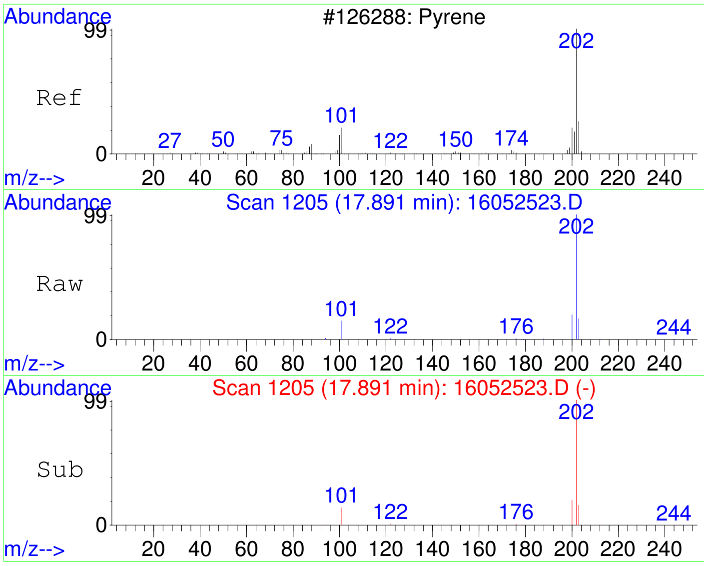


#14
Fluoranthene
Concen: 169.97 ug/kg
RT: 17.30 min Scan# 1088
Delta R.T. -0.01 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:202 Resp: 63609

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	43.0
203	17.4	0.0	47.9

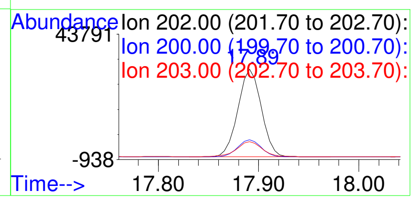


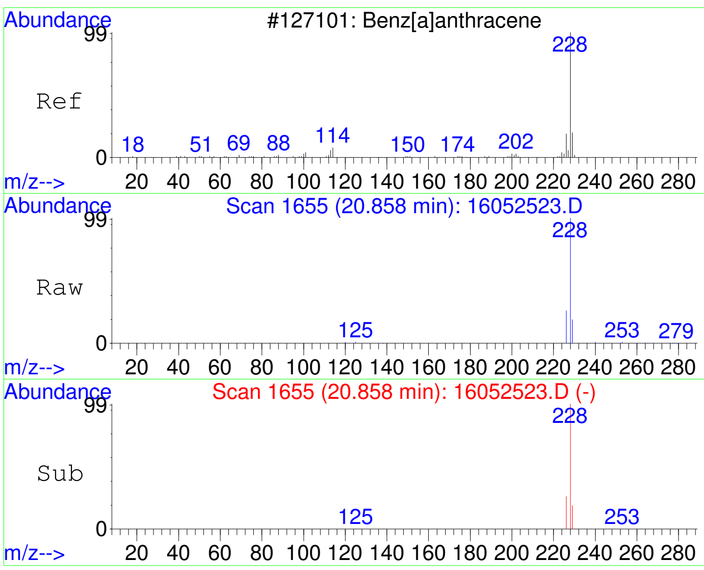


#15
Pyrene
Concen: 130.09 ug/kg
RT: 17.89 min Scan# 1205
Delta R.T. -0.01 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:202 Resp: 50572

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	50.0
203	17.1	0.0	48.0

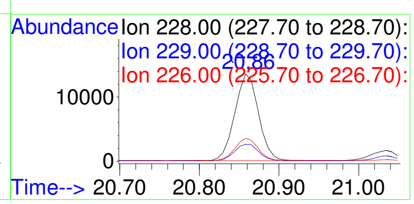


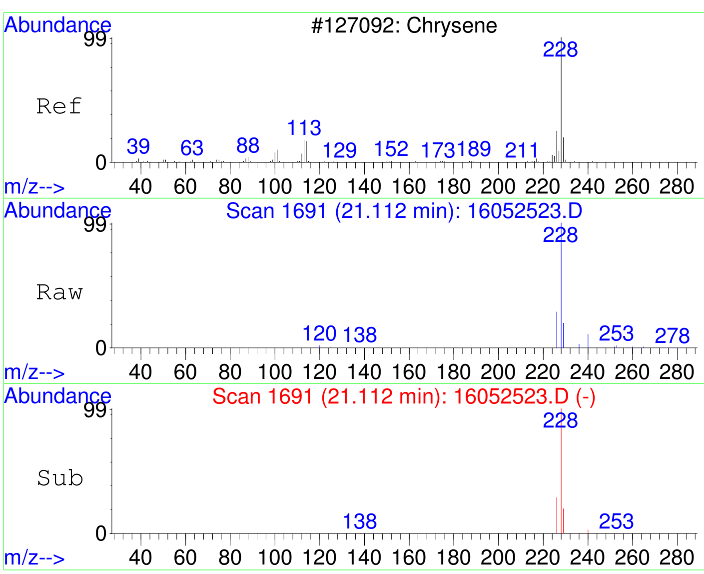


#18
Benzo[a]anthracene
Concen: 73.14 ug/kg
RT: 20.86 min Scan# 1655
Delta R.T. -0.02 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:228 Resp: 28097

Ion	Ratio	Lower	Upper
228	100		
229	18.9	0.0	50.1
226	25.7	0.0	55.2

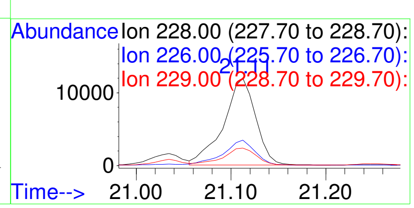


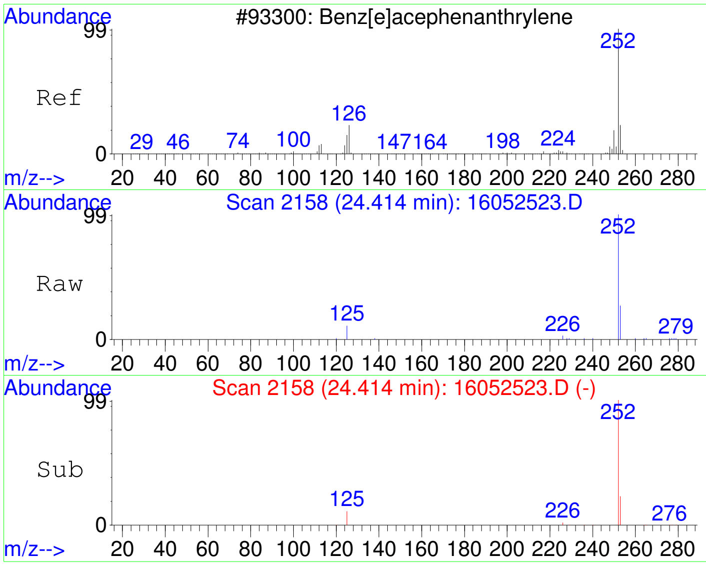


#19
Chrysene
Concen: 75.38 ug/kg
RT: 21.11 min Scan# 1691
Delta R.T. -0.02 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:228 Resp: 27978

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.1
229	19.6	0.0	50.1

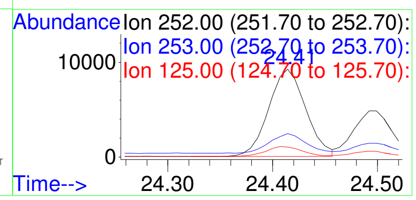


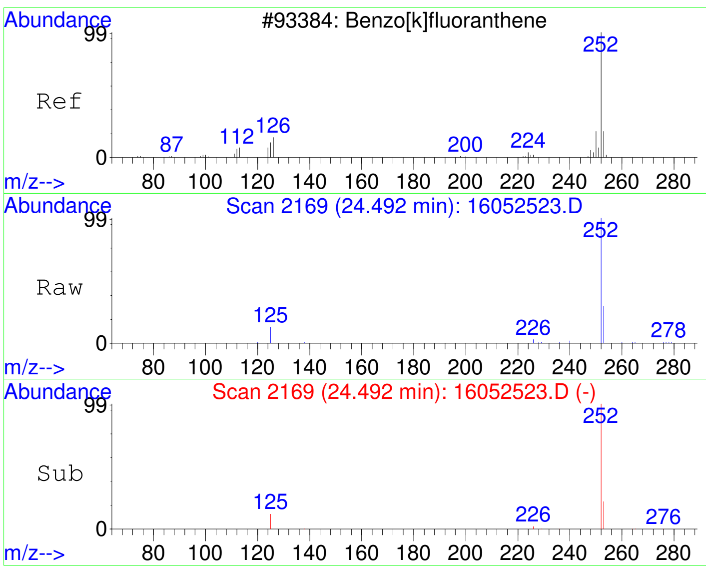


#21
Benzo[b]fluoranthene
Concen: 57.25 ug/kg
RT: 24.41 min Scan# 2158
Delta R.T. -0.03 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:252 Resp: 22647

Ion	Ratio	Lower	Upper
252	100		
253	22.6	0.0	52.2
125	10.7	0.0	41.0

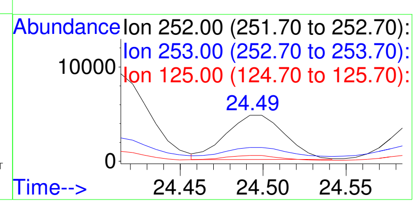


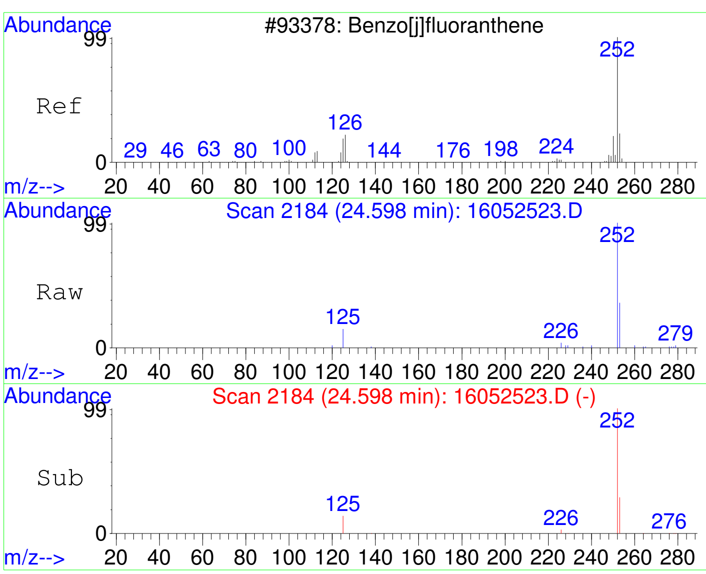


#22
Benzo[k]fluoranthene
Concen: 31.43 ug/kg
RT: 24.49 min Scan# 2169
Delta R.T. -0.04 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:252 Resp: 11663

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.1	42.1
125	11.6	0.0	31.3

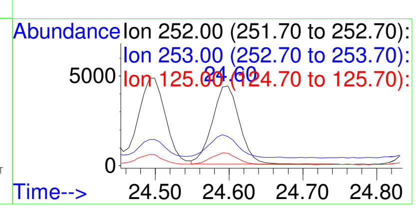


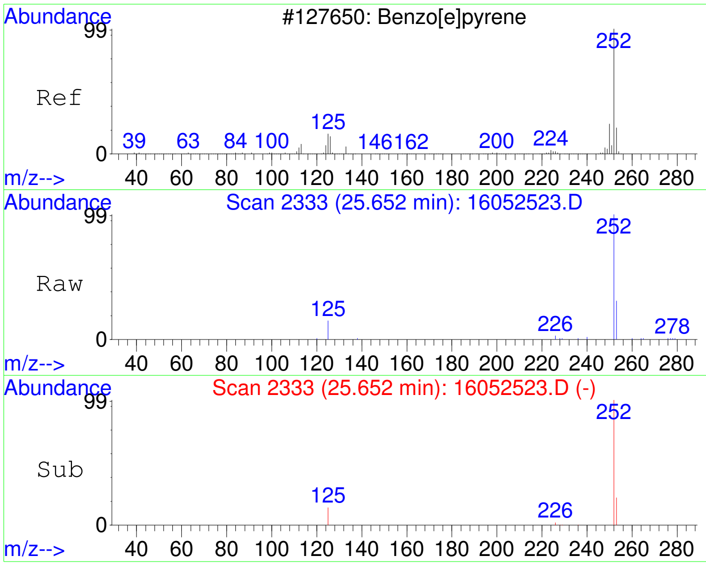


#23
Benzo(j)fluoranthene
Concen: 34.00 ug/kg
RT: 24.60 min Scan# 2184
Delta R.T. -0.03 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:252 Resp: 11240

Ion	Ratio	Lower	Upper
252	100		
253	26.8	2.1	42.1
125	14.3	0.0	34.4

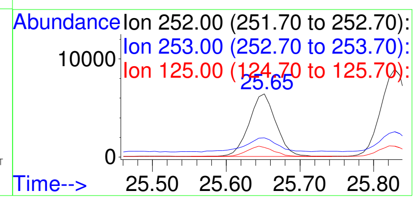


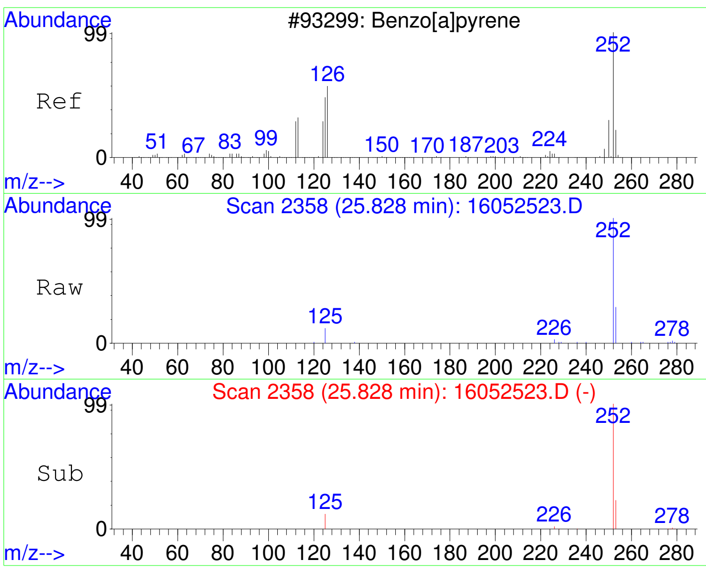


#24
Benzo[e]pyrene
Concen: 45.32 ug/kg
RT: 25.65 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:252 Resp: 16056

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	14.5	0.0	36.1

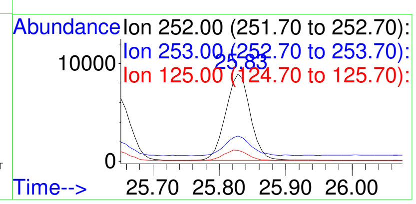


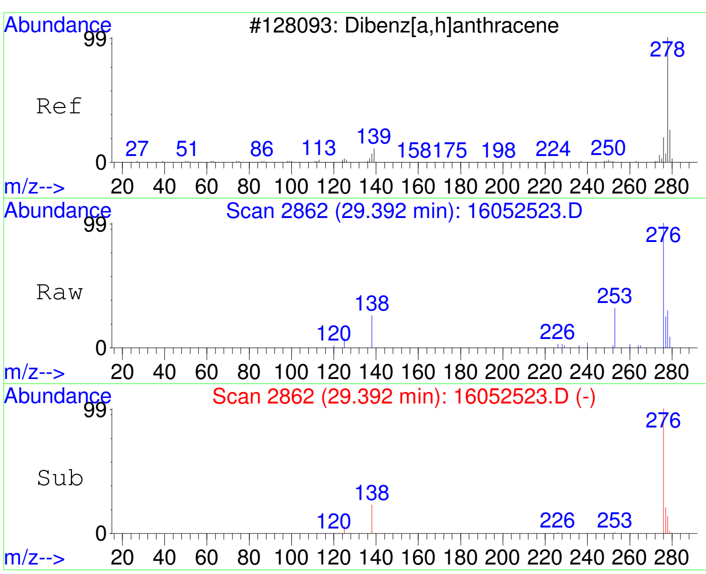


#25
Benzo[a]pyrene
Concen: 63.09 ug/kg
RT: 25.83 min Scan# 2358
Delta R.T. -0.03 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:252 Resp: 22841

Ion	Ratio	Lower	Upper
252	100		
253	23.0	1.9	41.9
125	11.6	0.0	31.7

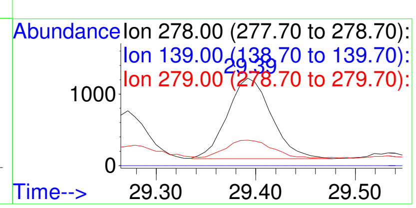


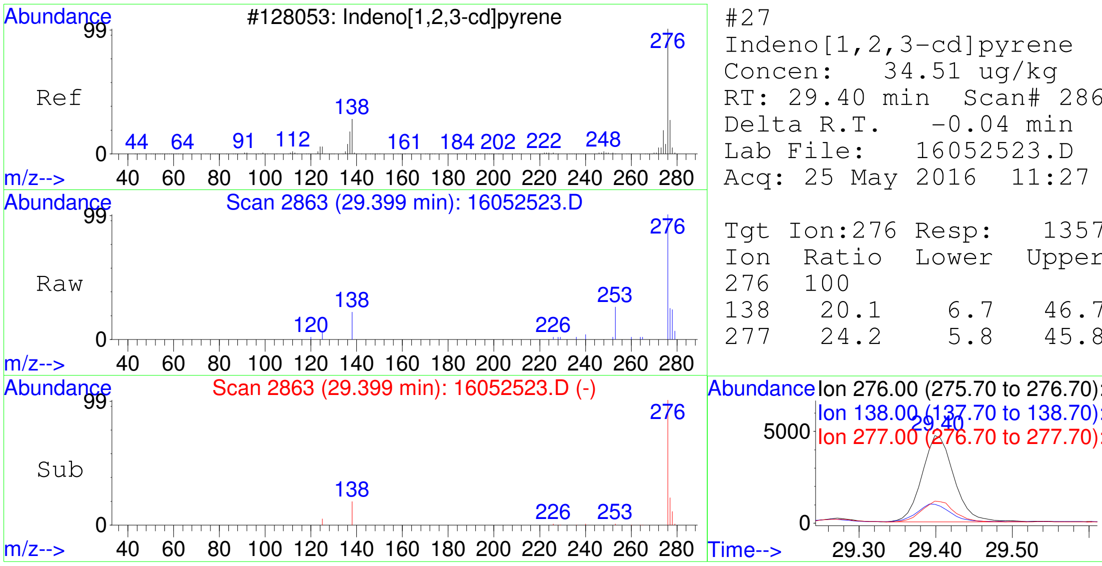


#26
Dibenz[a,h]anthracene
Concen: 10.43 ug/kg
RT: 29.39 min Scan# 2862
Delta R.T. -0.05 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:278 Resp: 3438

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.7	4.2	44.2

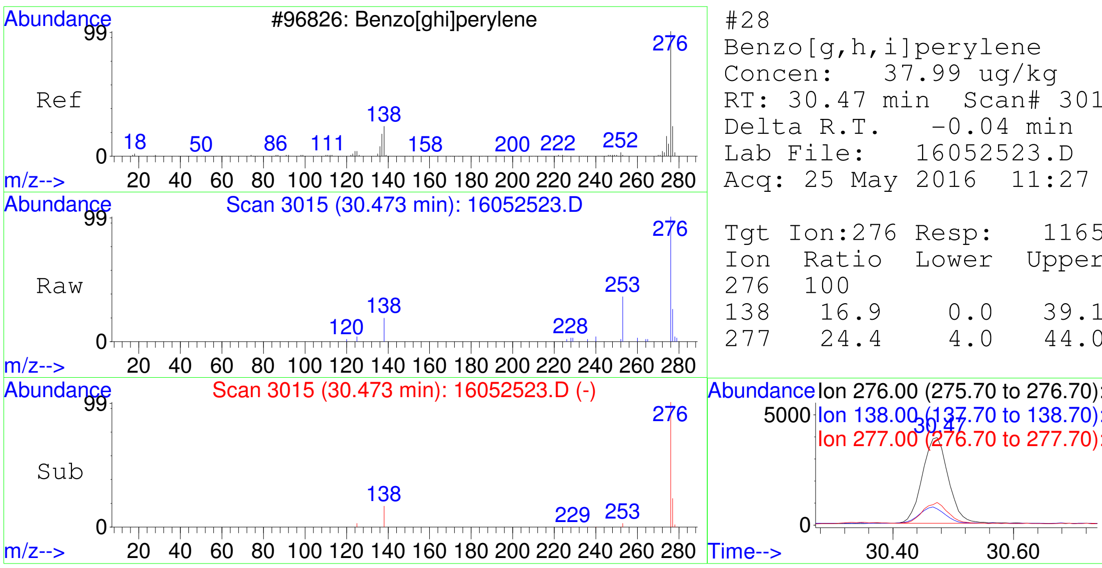




#27
Indeno[1,2,3-cd]pyrene
Concen: 34.51 ug/kg
RT: 29.40 min Scan# 2863
Delta R.T. -0.04 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:276 Resp: 13575

Ion	Ratio	Lower	Upper
276	100		
138	20.1	6.7	46.7
277	24.2	5.8	45.8



#28
Benzo[g,h,i]perylene
Concen: 37.99 ug/kg
RT: 30.47 min Scan# 3015
Delta R.T. -0.04 min
Lab File: 16052523.D
Acq: 25 May 2016 11:27 pm

Tgt Ion:276 Resp: 11652

Ion	Ratio	Lower	Upper
276	100		
138	16.9	0.0	39.1
277	24.4	4.0	44.0

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160525\16052524.D Vial: 24
Acq On : 26 May 2016 12:07 am Operator: AR
Sample : 1605144-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:44 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

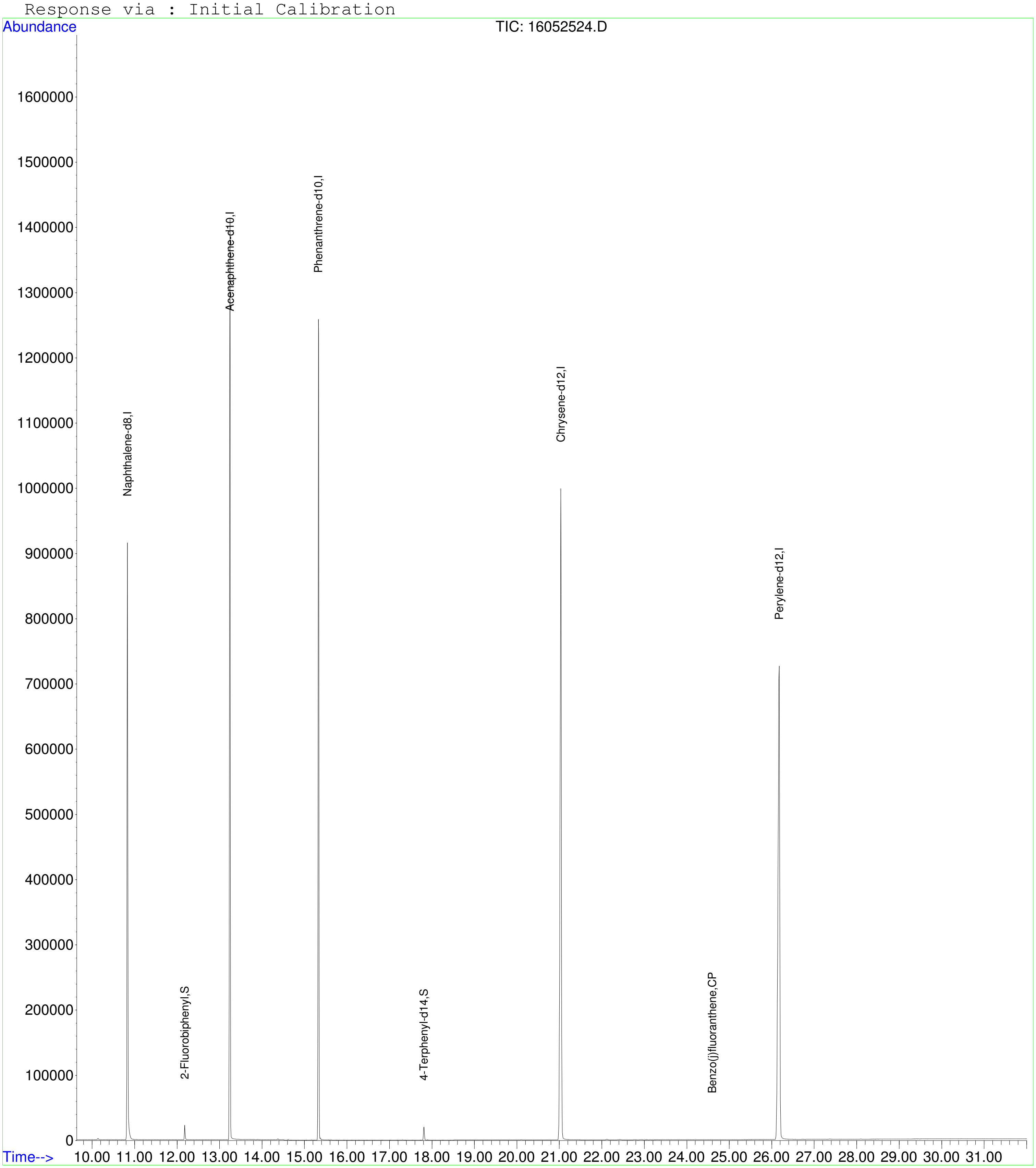
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1126366	4000.00 ug/kg	97
5) Acenaphthene-d10	13.25	164	768486	4000.00 ug/kg	67
11) Phenanthrene-d10	15.33	188	1375564	4000.00 ug/kg	67
17) Chrysene-d12	21.03	240	1614312	4000.00 ug/kg	71
20) Perylene-d12	26.17	264	1468676	4000.00 ug/kg	71
System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.18	172	18635	83.13 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#	
16) 4-Terphenyl-d14	17.81	244	26244	73.74 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#	
Target Compounds					Qvalue
23) Benzo(j)fluoranthene	24.59	252	98	0.30 ug/kg#	71

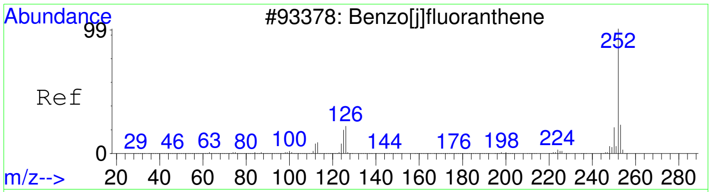
(#) = qualifier out of range (m) = manual integration

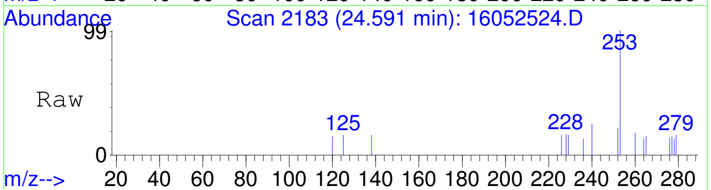
Quantitation Report

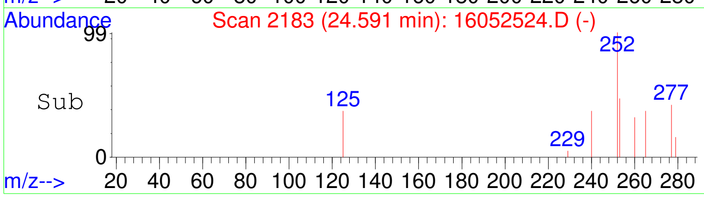
Data File : C:\HPCHEM\1\DATA\160525\16052524.D   Vial: 24
Acq On   : 26 May 2016 12:07 am   Operator: AR
Sample   : 1605144-07A   Inst   : GC/MS #6
Misc   : SAMP   Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:44 2016   Quant Results File: PP160421.RES

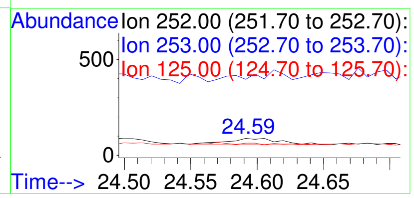
Method   : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration











#23
Benzo(j)fluoranthene
Concen: 0.30 ug/kg
RT: 24.59 min Scan# 2183
Delta R.T. -0.04 min
Lab File: 16052524.D
Acq: 26 May 2016 12:07 am

Tgt Ion:252 Resp: 98

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	15.2	0.0	34.4

Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160525\16052525.D          Vial: 25
Acq On    : 26 May 2016  12:47 am                    Operator: AR
Sample    : 1605144-08A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: May 26  8:44 2016            Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421
```

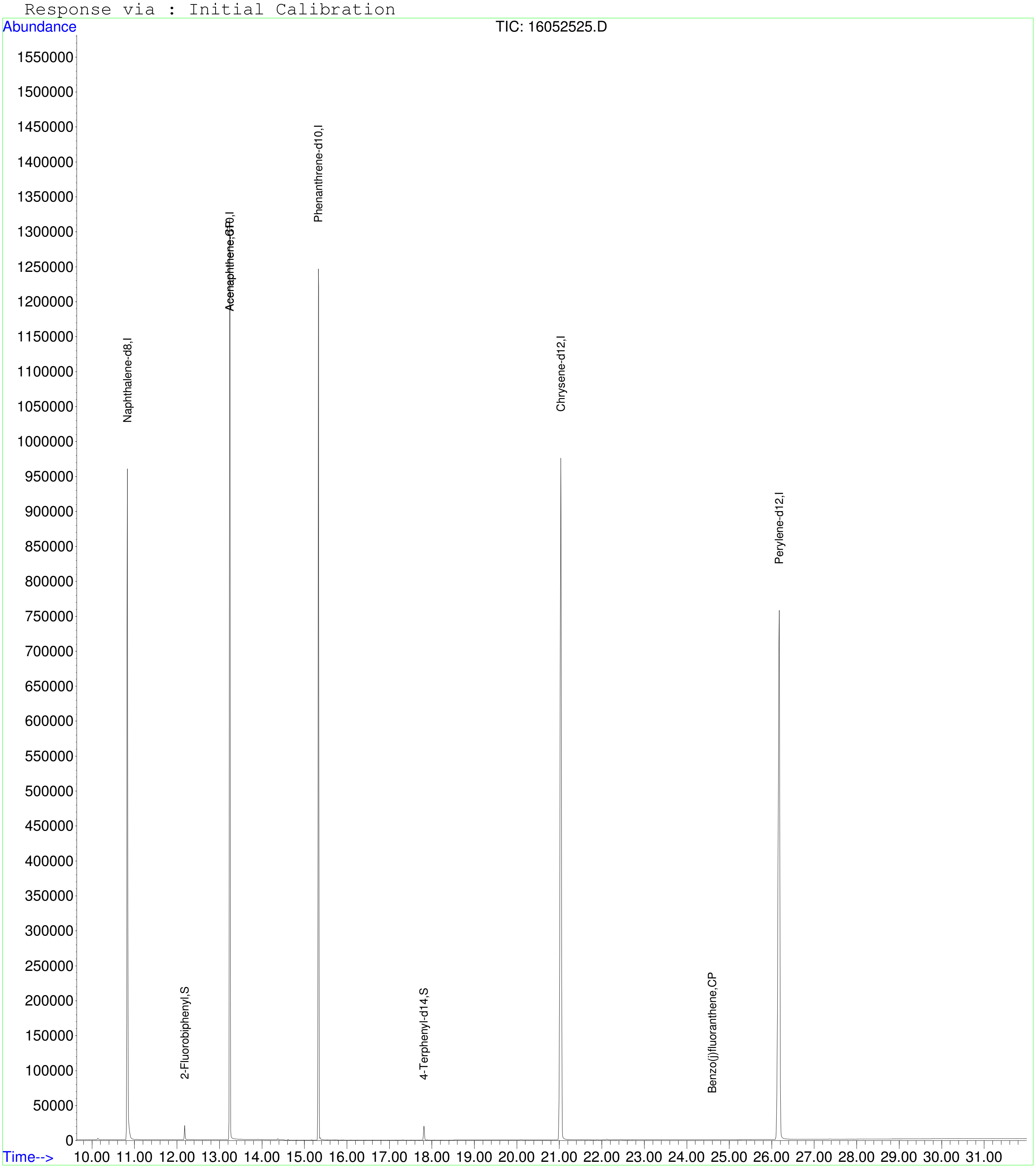
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1218514	4000.00 ug/kg	105
5) Acenaphthene-d10	13.24	164	787160	4000.00 ug/kg	68
11) Phenanthrene-d10	15.33	188	1394381	4000.00 ug/kg	68
17) Chrysene-d12	21.03	240	1654908	4000.00 ug/kg	73
20) Perylene-d12	26.17	264	1504912	4000.00 ug/kg	73
System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.18	172	17747	77.29 ug/kg	0.00
Spiked Amount 4000.000 Range 40 - 140				Recovery = 1.93%#	
16) 4-Terphenyl-d14	17.81	244	26391	73.16 ug/kg	0.00
Spiked Amount 4000.000 Range 40 - 140				Recovery = 1.83%#	
Target Compounds					Qvalue
9) Acenaphthene	13.24	154	2322	~~11.04 ug/kg#~~	~~9~~
23) Benzo(j)fluoranthene	24.60	252	98	0.30 ug/kg#	1

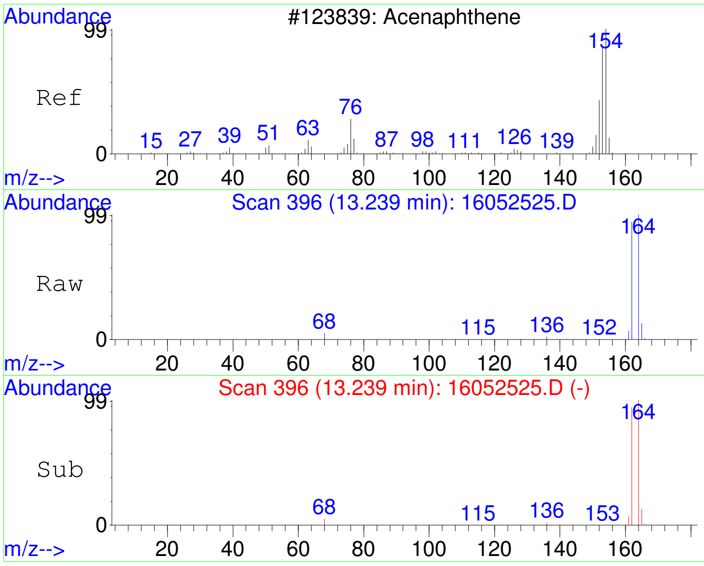
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160525\16052525.D          Vial: 25
Acq On    : 26 May 2016  12:47 am                   Operator: AR
Sample    : 1605144-08A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:44 2016             Quant Results File: PP160421.RES

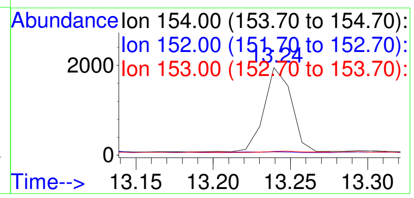
Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
```

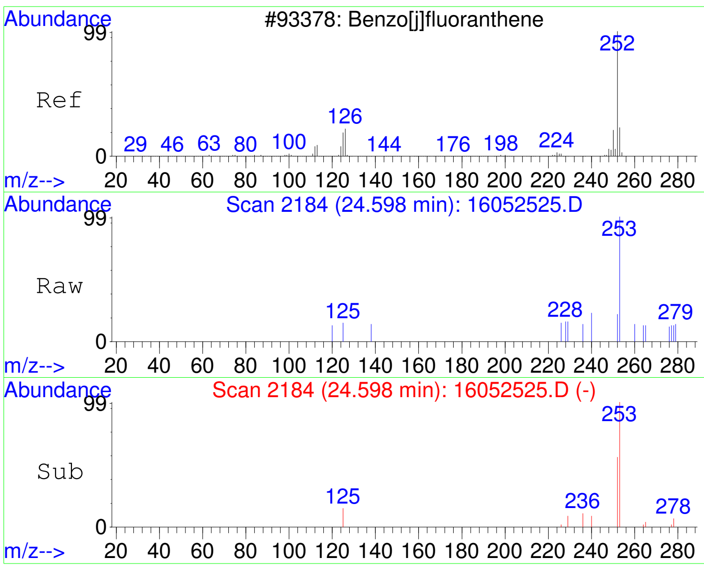




#9
Acenaphthene
Concen: 11.04 ug/kg
RT: 13.24 min Scan# 396
Delta R.T.   -0.06 min
Lab File: 16052525.D
Acq: 26 May 2016 12:47 am

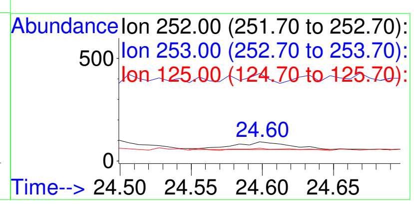
Tgt Ion:154	Resp:		2322
Ion	Ratio	Lower	Upper
154	100		
152	0.9	18.9	78.9#
153	1.3	75.2	135.2#





#23
Benzo(j)fluoranthene
Concen: 0.30 ug/kg
RT: 24.60 min Scan# 2184
Delta R.T.   -0.03 min
Lab File: 16052525.D
Acq: 26 May 2016 12:47 am

Tgt Ion:252	Resp:		98
Ion	Ratio	Lower	Upper
252	100		
253	118.4	2.1	42.1#
125	28.9	0.0	34.4



Data File : C:\HPCHEM\1\DATA\160525\16052526.D Vial: 26
Acq On : 26 May 2016 1:27 am Operator: AR
Sample : 1605144-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:44 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1261183	4000.00 ug/kg	109
5) Acenaphthene-d10	13.25	164	817172	4000.00 ug/kg	71
11) Phenanthrene-d10	15.33	188	1406044	4000.00 ug/kg	69
17) Chrysene-d12	21.03	240	1625386	4000.00 ug/kg	72
20) Perylene-d12	26.17	264	1483015	4000.00 ug/kg	72

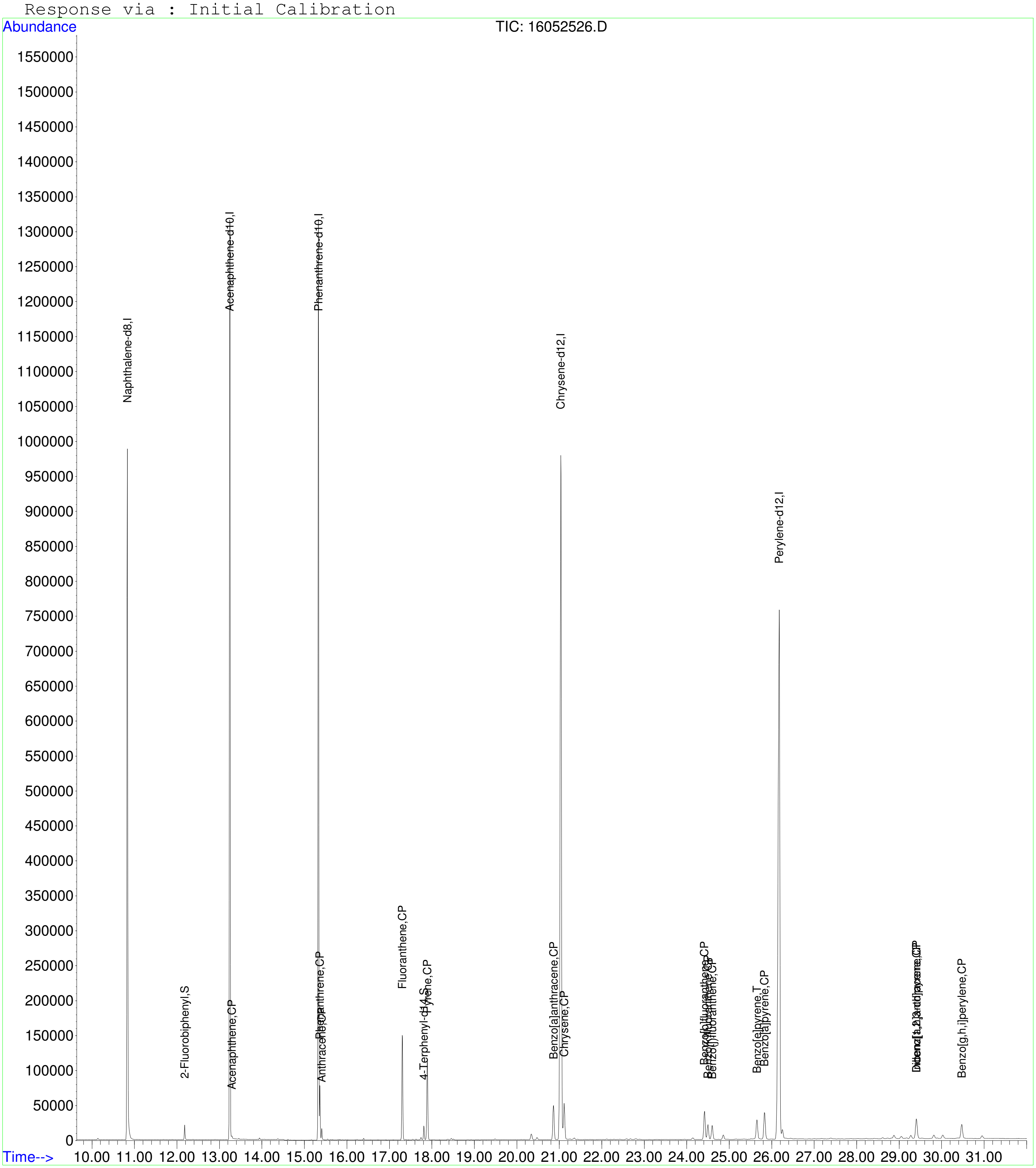
System Monitoring Compounds
7) 2-Fluorobiphenyl 12.18 172 18006 75.54 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 1.89%#
16) 4-Terphenyl-d14 17.81 244 26106 71.77 ug/kg -0.01
Spiked Amount 4000.000 Range 40 - 140 Recovery = 1.79%#

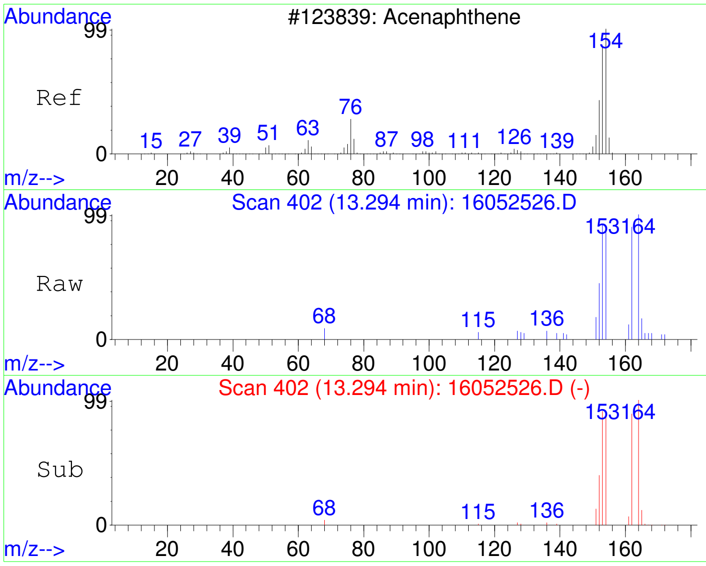
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
9) Acenaphthene	13.29	154	1221	5.59 ug/kg	99
12) Phenanthrene	15.36	178	64739	175.08 ug/kg	99
13) Anthracene	15.41	178	13615	38.90 ug/kg	99
14) Fluoranthene	17.30	202	148082	387.00 ug/kg	99
15) Pyrene	17.89	202	122530	308.26 ug/kg	99
18) Benzo[a]anthracene	20.87	228	74184	194.82 ug/kg	99
19) Chrysene	21.11	228	80317	218.30 ug/kg	99
21) Benzo[b]fluoranthene	24.42	252	74570	190.78 ug/kg	99
22) Benzo[k]fluoranthene	24.50	252	36430	99.35 ug/kg	96
23) Benzo(j)fluoranthene	24.60	252	33969	104.00 ug/kg	91
24) Benzo[e]pyrene	25.65	252	52331	149.50 ug/kg	99
25) Benzo[a]pyrene	25.83	252	71198	199.04 ug/kg	99
26) Dibenz[a,h]anthracene	29.40	278	10882	33.40 ug/kg	94
27) Indeno[1,2,3-cd]pyrene	29.41	276	46115	118.66 ug/kg	91
28) Benzo[g,h,i]perylene	30.47	276	39706	131.02 ug/kg	98

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

```
Data File : C:\HPCHEM\1\DATA\160525\16052526.D          Vial: 26
Acq On    : 26 May 2016   1:27 am                    Operator: AR
Sample    : 1605144-09A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:44 2016          Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
```

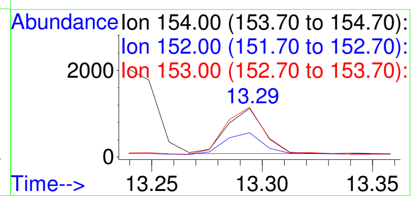


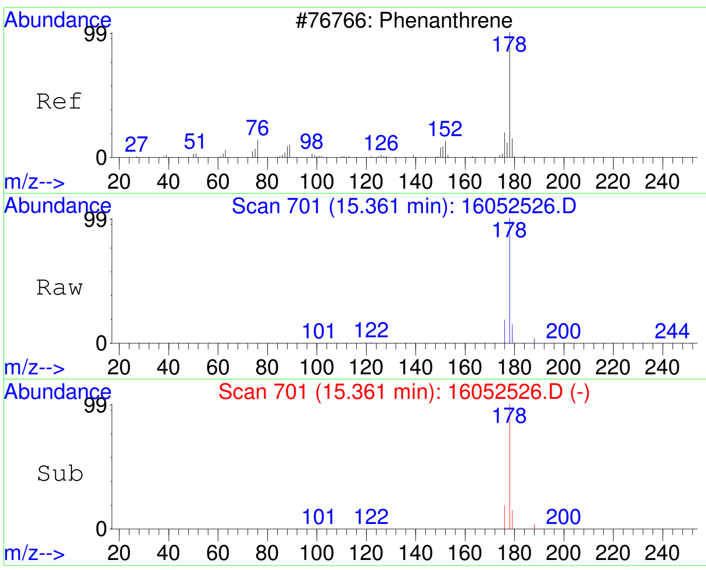


#9
Acenaphthene
Concen: 5.59 ug/kg
RT: 13.29 min Scan# 402
Delta R.T. -0.01 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:154 Resp: 1221

Ion	Ratio	Lower	Upper
154	100		
152	48.3	18.9	78.9
153	103.6	75.2	135.2

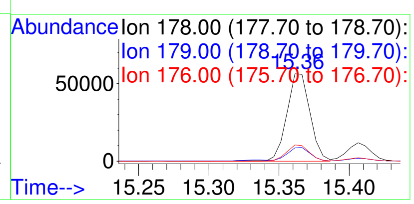


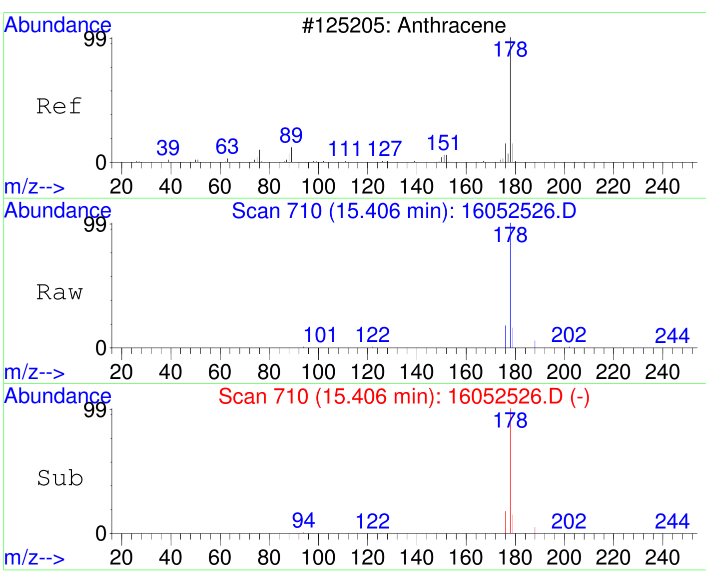


#12
Phenanthrene
Concen: 175.08 ug/kg
RT: 15.36 min Scan# 701
Delta R.T. -0.01 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:178 Resp: 64739

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.5	0.0	48.5

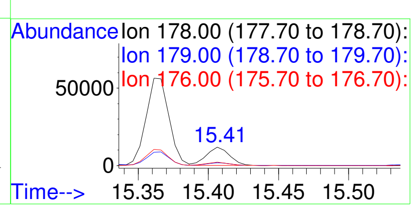


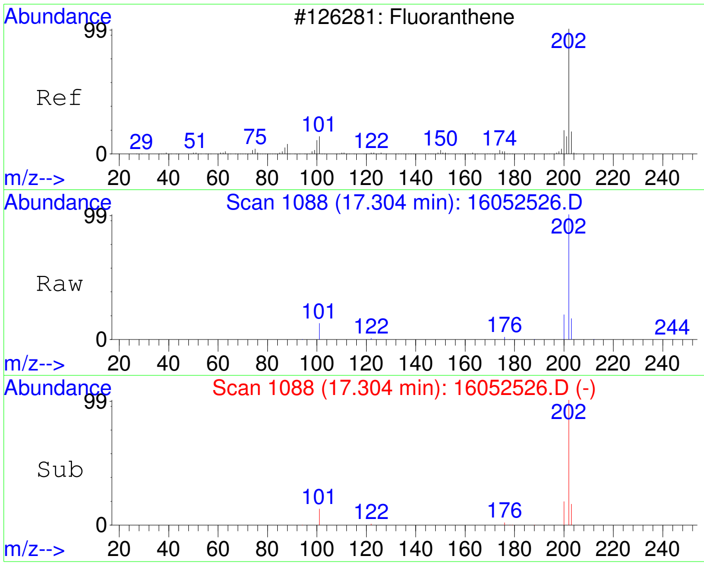


#13
Anthracene
Concen: 38.90 ug/kg
RT: 15.41 min Scan# 710
Delta R.T. -0.01 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:178 Resp: 13615

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.6	0.0	48.2

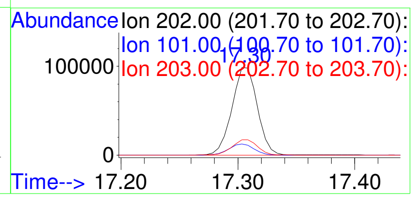


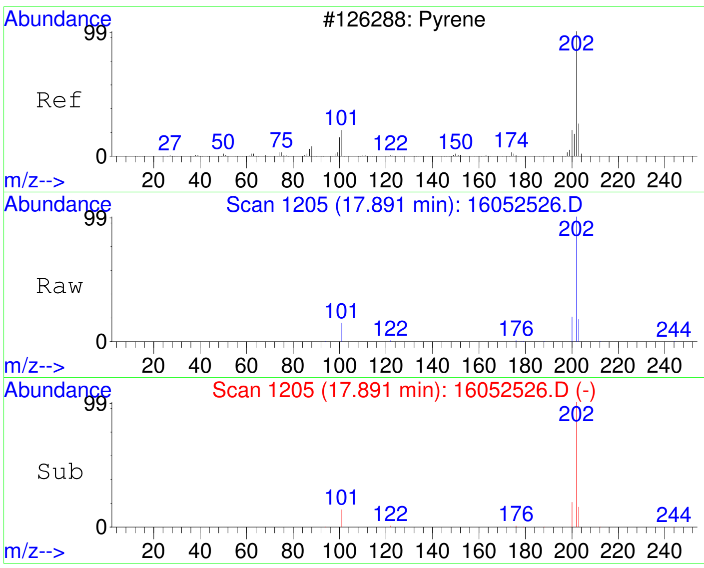


#14
Fluoranthene
Concen: 387.00 ug/kg
RT: 17.30 min Scan# 1088
Delta R.T. -0.01 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:202 Resp: 148082

Ion	Ratio	Lower	Upper
202	100		
101	12.8	0.0	43.0
203	17.4	0.0	47.9

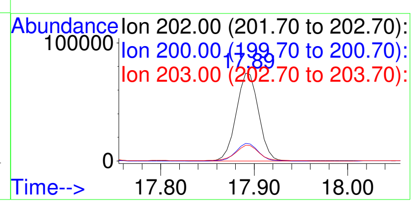


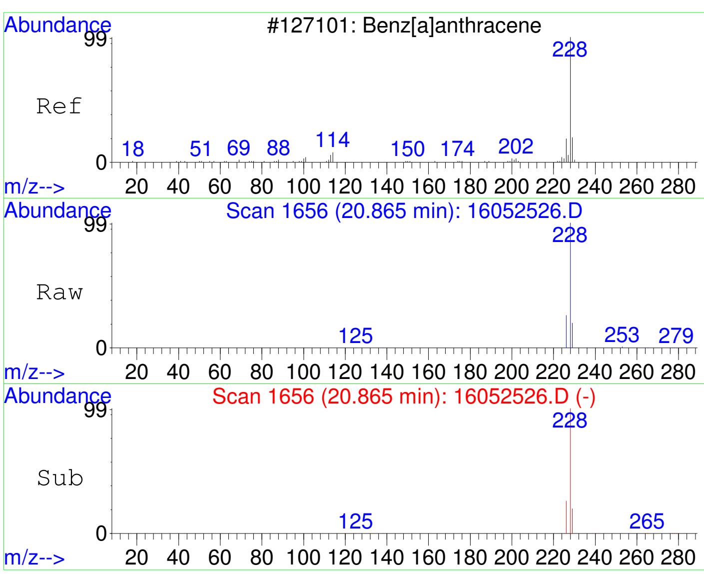


#15
Pyrene
Concen: 308.26 ug/kg
RT: 17.89 min Scan# 1205
Delta R.T. -0.01 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:202 Resp: 122530

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	50.0
203	17.7	0.0	48.0

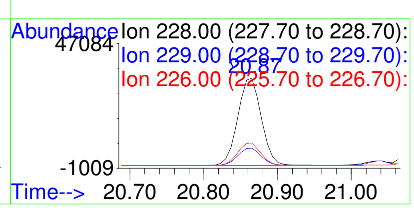


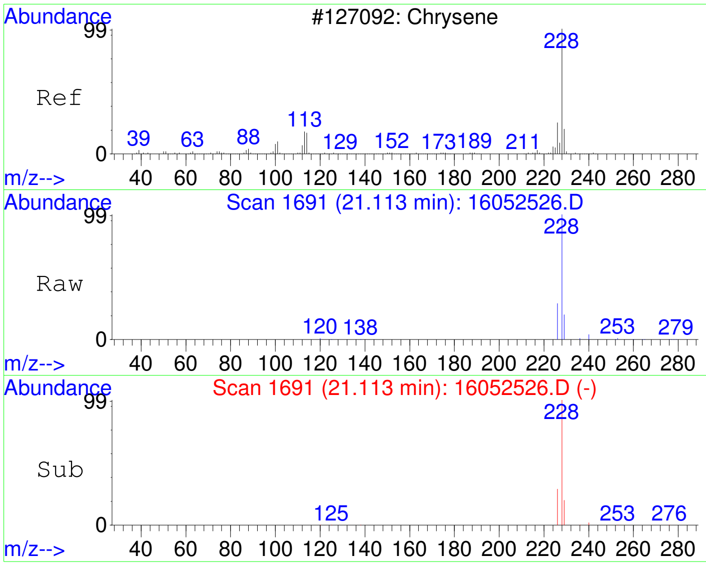


#18
Benzo[a]anthracene
Concen: 194.82 ug/kg
RT: 20.87 min Scan# 1656
Delta R.T. -0.01 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:228 Resp: 74184

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.6	0.0	55.2

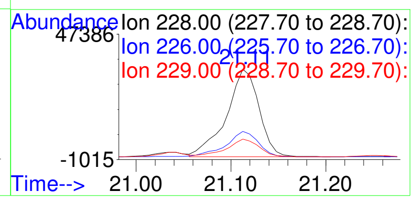


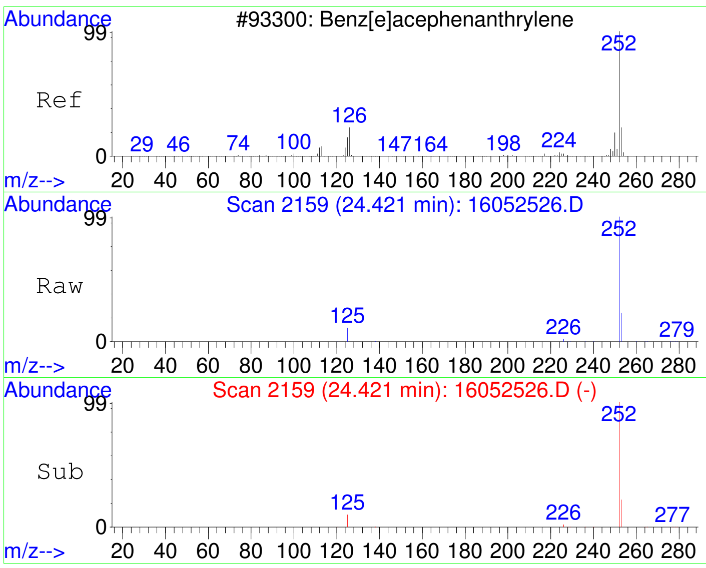


#19
Chrysene
Concen: 218.30 ug/kg
RT: 21.11 min Scan# 1691
Delta R.T. -0.02 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:228 Resp: 80317

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.1
229	20.2	0.0	50.1

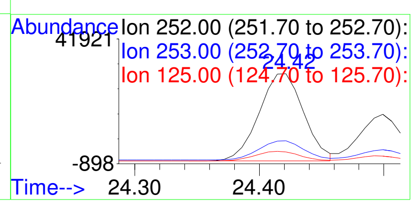


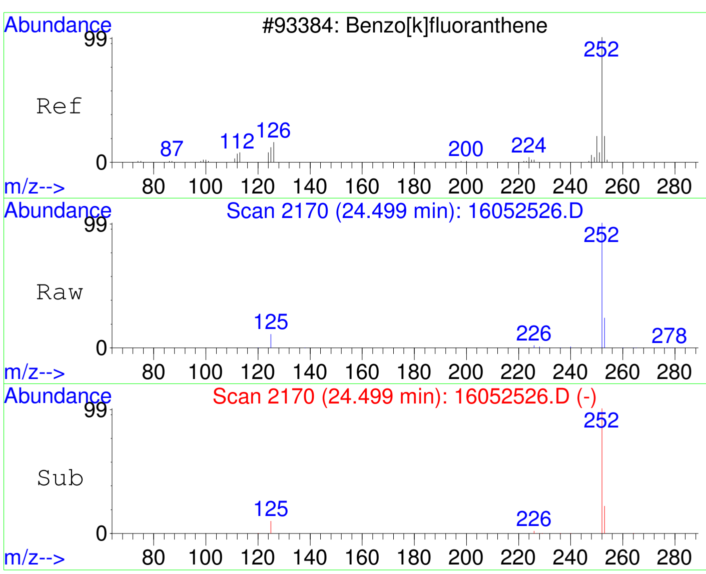


#21
Benzo[b]fluoranthene
Concen: 190.78 ug/kg
RT: 24.42 min Scan# 2159
Delta R.T. -0.02 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:252 Resp: 74570

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	10.4	0.0	41.0

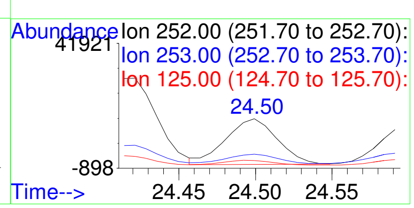


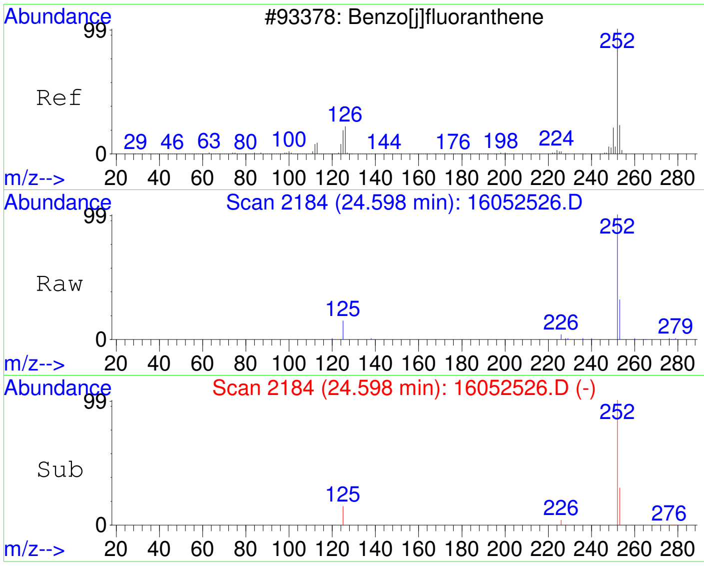


#22
Benzo[k]fluoranthene
Concen: 99.35 ug/kg
RT: 24.50 min Scan# 2170
Delta R.T. -0.03 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:252 Resp: 36430

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.1	42.1
125	10.0	0.0	31.3

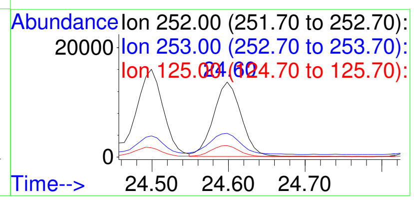


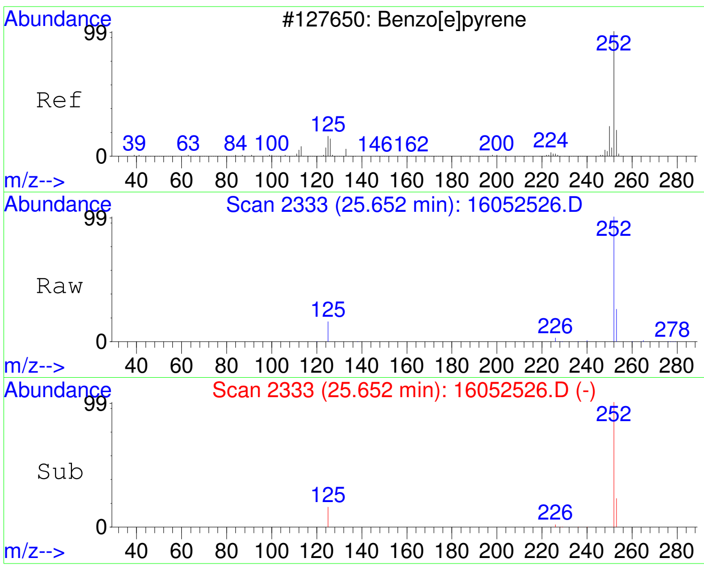


#23
Benzo(j)fluoranthene
Concen: 104.00 ug/kg
RT: 24.60 min Scan# 2184
Delta R.T. -0.03 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:252 Resp: 33969

Ion	Ratio	Lower	Upper
252	100		
253	28.7	2.1	42.1
125	14.7	0.0	34.4

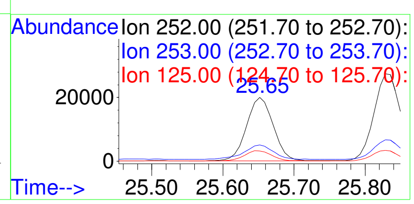


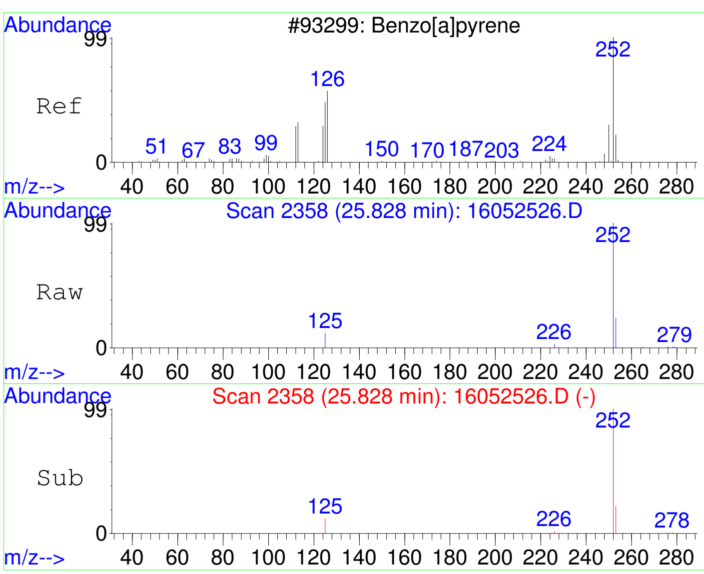


#24
Benzo[e]pyrene
Concen: 149.50 ug/kg
RT: 25.65 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:252 Resp: 52331

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.2	42.2
125	15.6	0.0	36.1

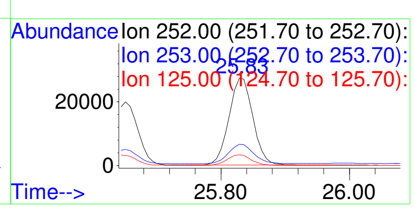


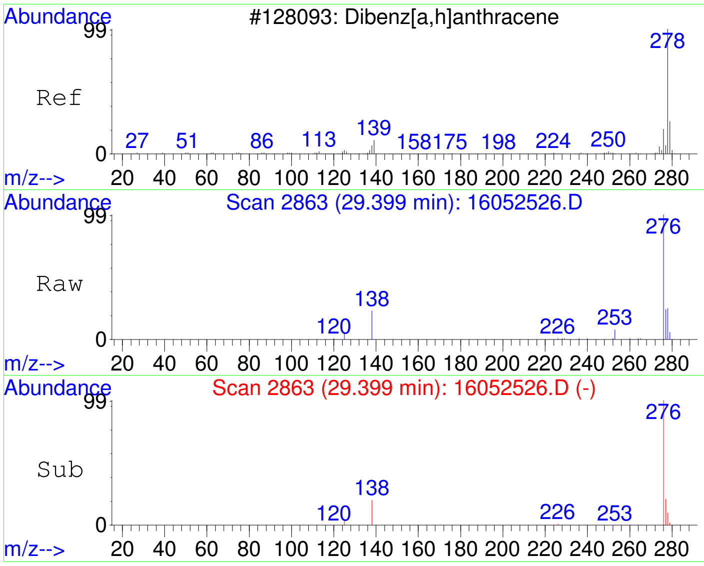


#25
Benzo[a]pyrene
Concen: 199.04 ug/kg
RT: 25.83 min Scan# 2358
Delta R.T. -0.03 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:252 Resp: 71198

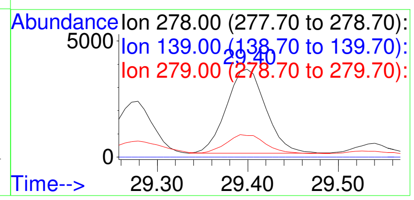
Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	12.1	0.0	31.7

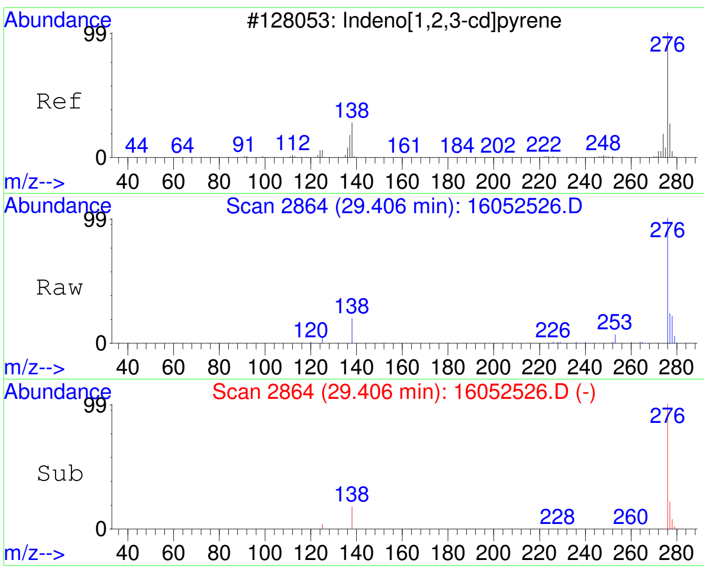




#26
Dibenz[a,h]anthracene
Concen: 33.40 ug/kg
RT: 29.40 min Scan# 2863
Delta R.T. -0.04 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

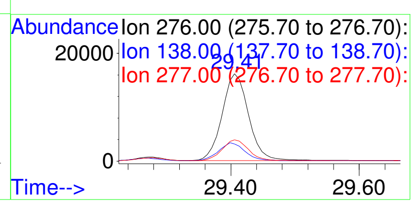
Tgt Ion:278	Resp:		10882
Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.4	4.2	44.2

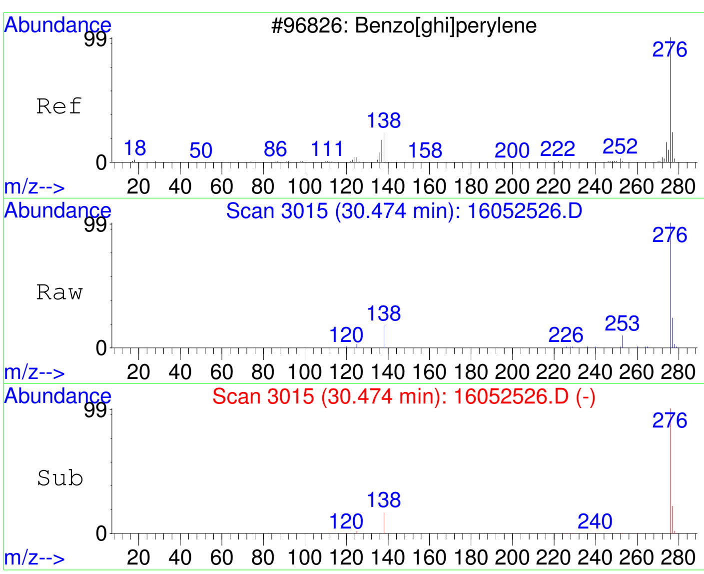




#27
Indeno[1,2,3-cd]pyrene
Concen: 118.66 ug/kg
RT: 29.41 min Scan# 2864
Delta R.T. -0.04 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

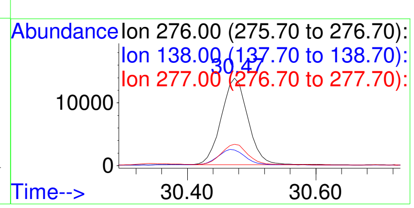
Tgt Ion:276	Resp:		46115
Ion	Ratio	Lower	Upper
276	100		
138	19.1	6.7	46.7
277	24.0	5.8	45.8





#28
Benzo[g,h,i]perylene
Concen: 131.02 ug/kg
RT: 30.47 min Scan# 3015
Delta R.T. -0.04 min
Lab File: 16052526.D
Acq: 26 May 2016 1:27 am

Tgt Ion:276	Resp:		39706
Ion	Ratio	Lower	Upper
276	100		
138	17.2	0.0	39.1
277	23.8	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160525\16052527.D Vial: 27
Acq On : 26 May 2016 2:06 am Operator: AR
Sample : 1605144-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:44 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1139666	4000.00	ug/kg	98
5) Acenaphthene-d10	13.24	164	729557	4000.00	ug/kg	63
11) Phenanthrene-d10	15.33	188	1282076	4000.00	ug/kg	63
17) Chrysene-d12	21.04	240	1524698	4000.00	ug/kg	67
20) Perylene-d12	26.17	264	1386749	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.18	172	16219	76.21	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
16) 4-Terphenyl-d14	17.81	244	24435	73.67	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
Target Compounds						Qvalue
12) Phenanthrene	15.36	178	19154	56.81	ug/kg	99
13) Anthracene	15.41	178	4821	15.11	ug/kg	98
14) Fluoranthene	17.30	202	34467	98.79	ug/kg	99
15) Pyrene	17.90	202	27042	74.61	ug/kg	99
18) Benzo[a]anthracene	20.86	228	15960	44.68	ug/kg	99
19) Chrysene	21.11	228	16085	46.61	ug/kg	99
21) Benzo[b]fluoranthene	24.42	252	13236	36.21	ug/kg	99
22) Benzo[k]fluoranthene	24.50	252	6520	19.02	ug/kg	98
23) Benzo(j)fluoranthene	24.60	252	6210	20.33	ug/kg	92
24) Benzo[e]pyrene	25.65	252	8962	27.38	ug/kg	98
25) Benzo[a]pyrene	25.83	252	13243	39.59	ug/kg	99
26) Dibenz[a,h]anthracene	29.40	278	1998	6.56	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.41	276	7717	21.24	ug/kg	92
28) Benzo[g,h,i]perylene	30.47	276	6382	22.52	ug/kg	96

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160525\16052527.D          Vial: 27
Acq On    : 26 May 2016   2:06 am                     Operator: AR
Sample    : 1605144-10A                               Inst    : GC/MS #6
Misc      : SAMP                                      Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:44 2016            Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
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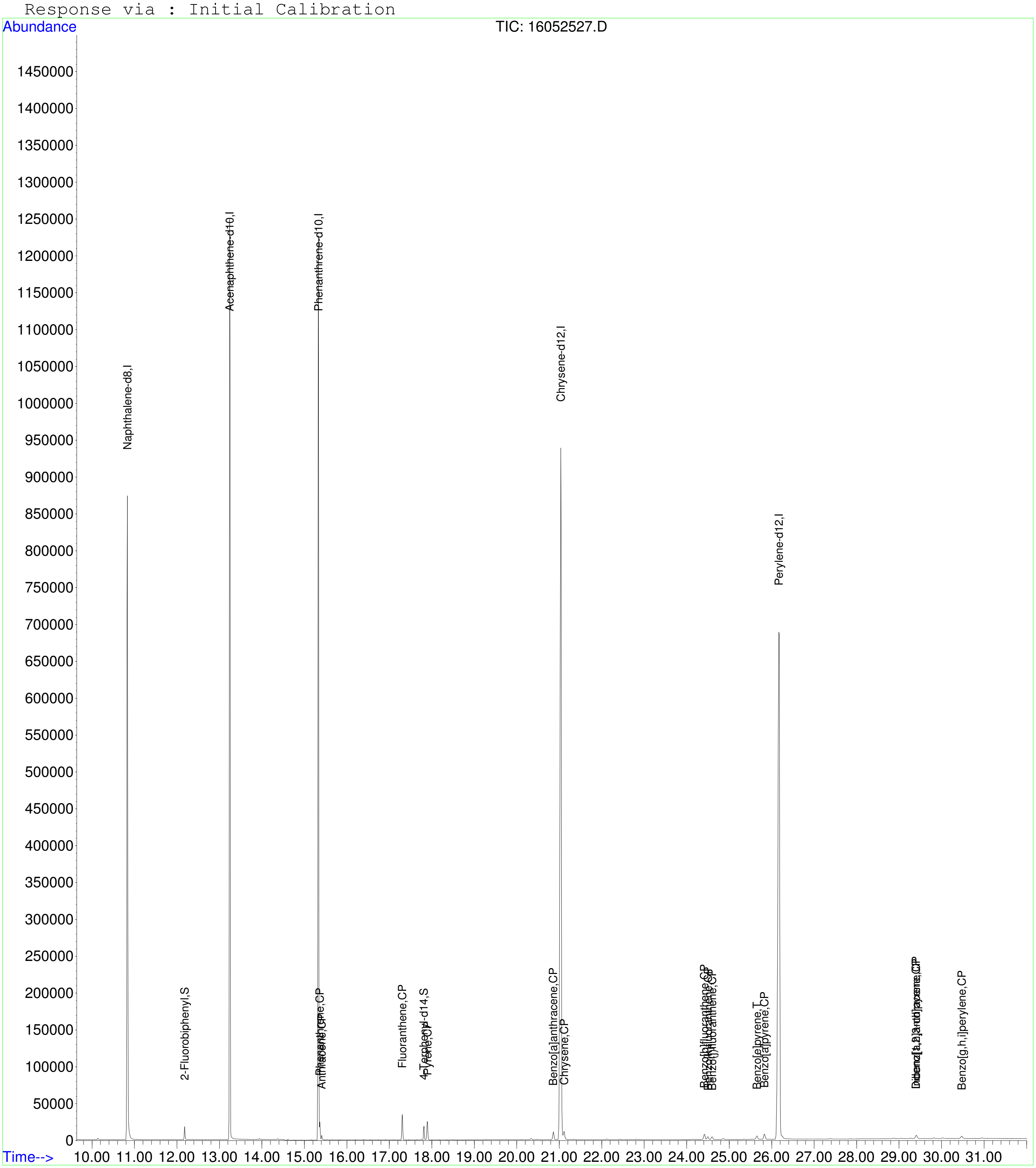
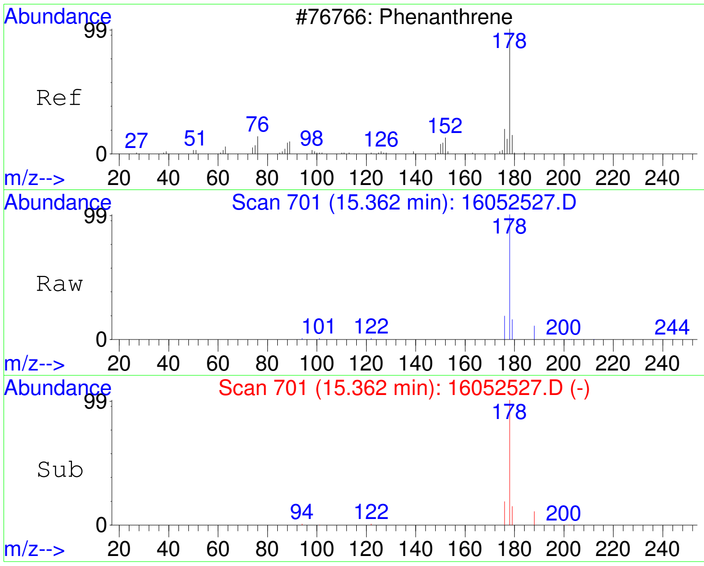
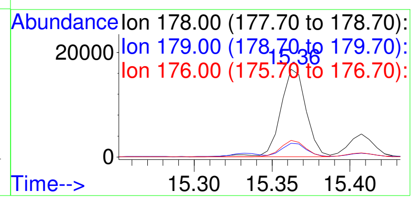


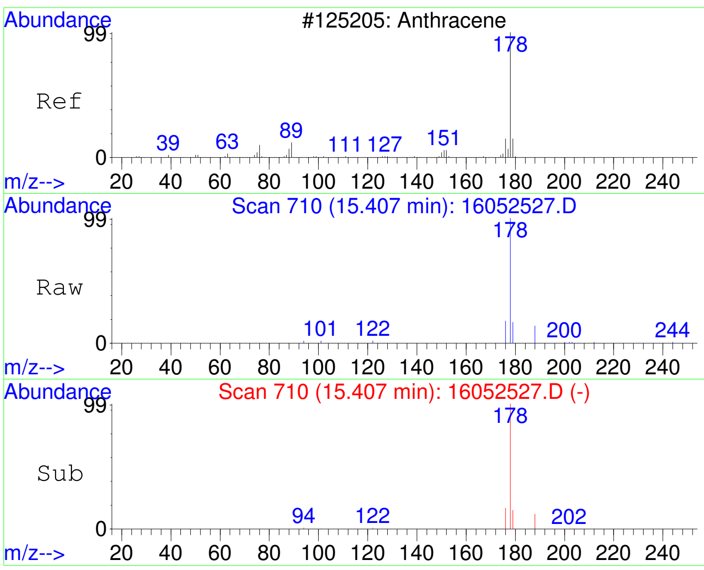


#12
Phenanthrene
Concen: 56.81 ug/kg
RT: 15.36 min Scan# 701
Delta R.T. -0.01 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:178 Resp: 19154

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	18.8	0.0	48.5

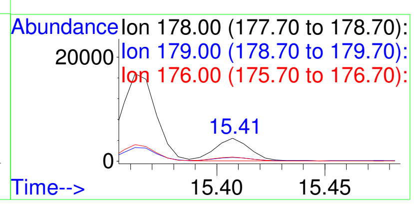


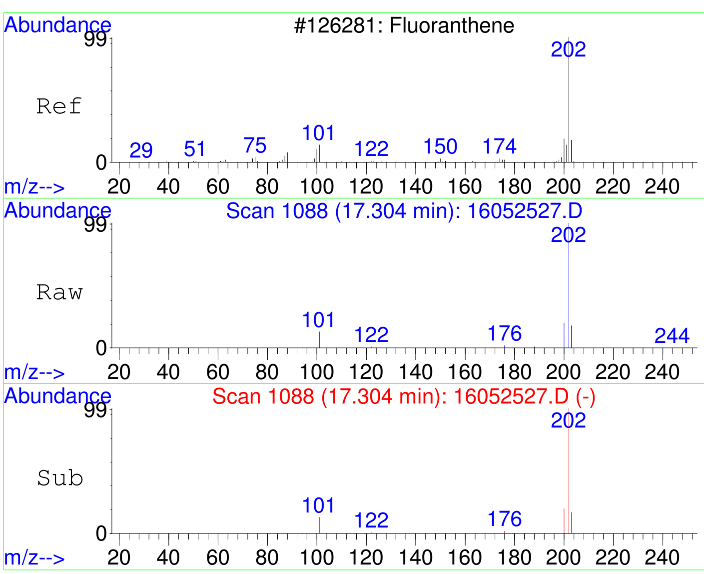


#13
Anthracene
Concen: 15.11 ug/kg
RT: 15.41 min Scan# 710
Delta R.T. -0.01 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:178 Resp: 4821

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	17.1	0.0	48.2

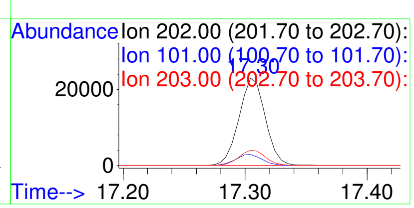


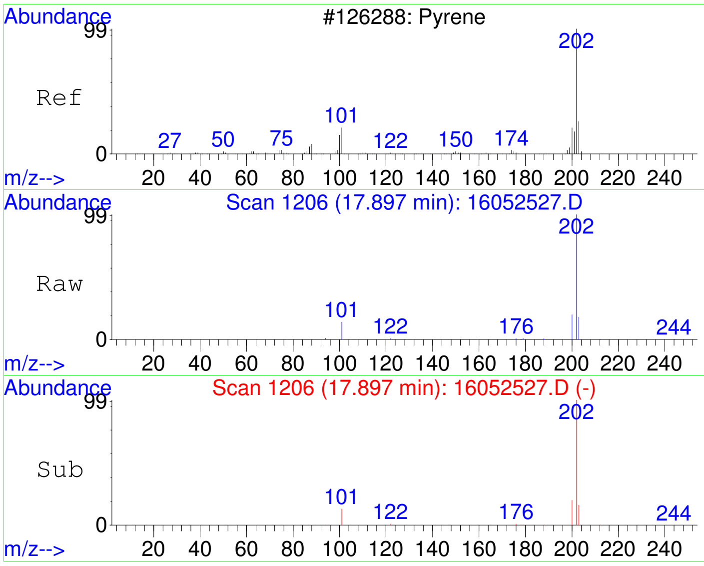


#14
Fluoranthene
Concen: 98.79 ug/kg
RT: 17.30 min Scan# 1088
Delta R.T. -0.01 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:202 Resp: 34467

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	43.0
203	17.4	0.0	47.9

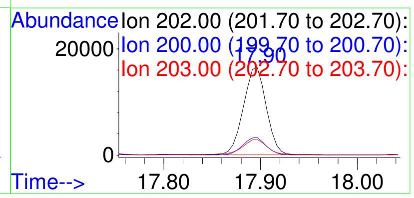


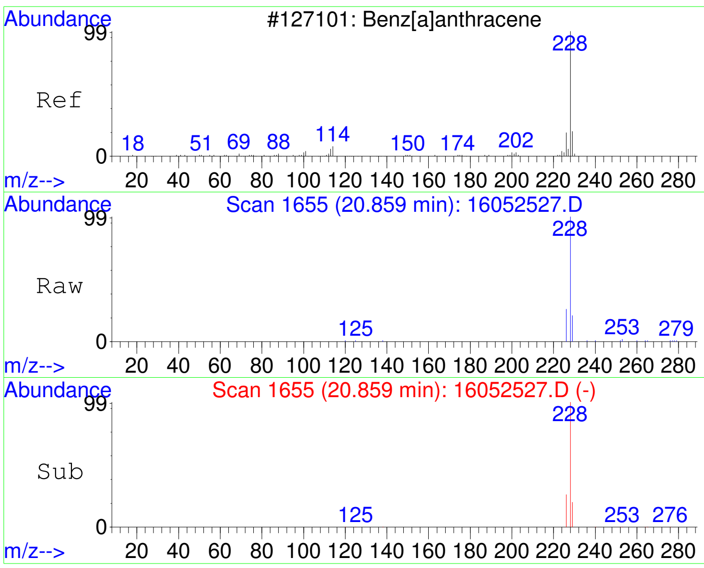


#15
Pyrene
Concen: 74.61 ug/kg
RT: 17.90 min Scan# 1206
Delta R.T. -0.01 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:202 Resp: 27042

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	50.0
203	17.5	0.0	48.0

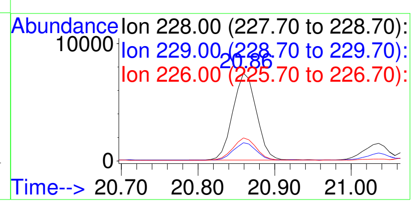


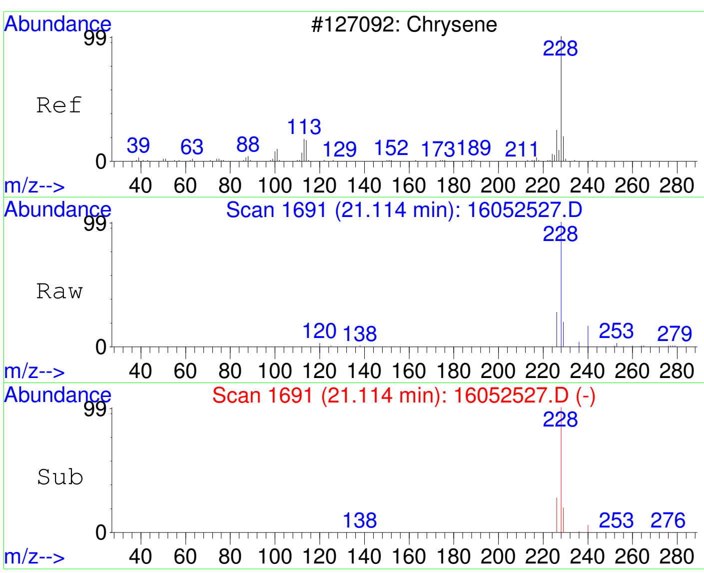


#18
Benzo[a]anthracene
Concen: 44.68 ug/kg
RT: 20.86 min Scan# 1655
Delta R.T. -0.01 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:228 Resp: 15960

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.1
226	25.8	0.0	55.2

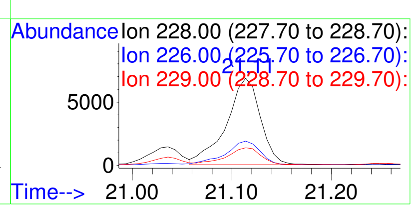


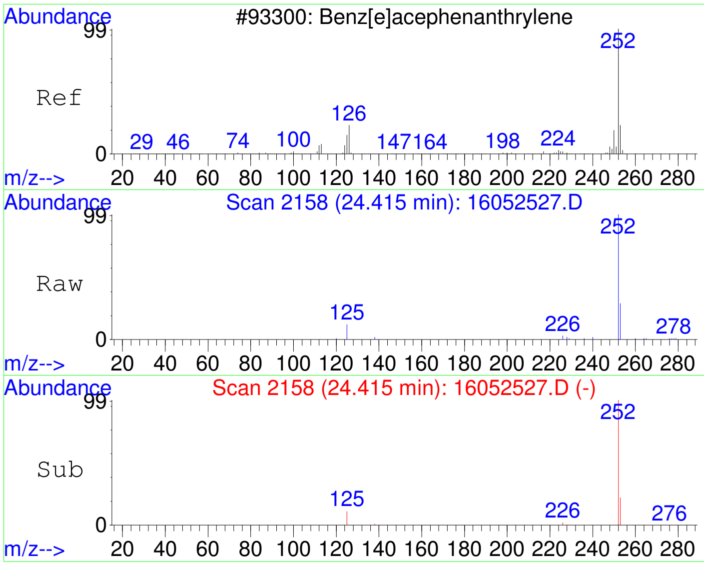


#19
Chrysene
Concen: 46.61 ug/kg
RT: 21.11 min Scan# 1691
Delta R.T. -0.02 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:228 Resp: 16085

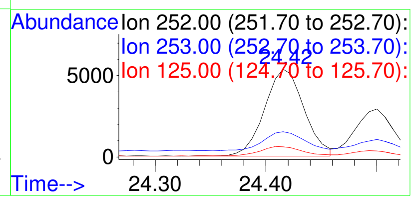
Ion	Ratio	Lower	Upper
228	100		
226	27.6	0.0	58.1
229	19.7	0.0	50.1

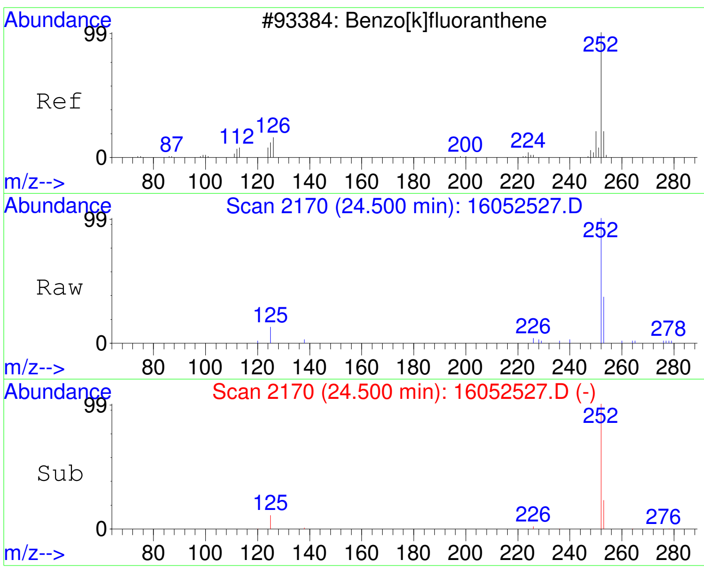




#21
Benzo[b]fluoranthene
Concen: 36.21 ug/kg
RT: 24.42 min Scan# 2158
Delta R.T. -0.03 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

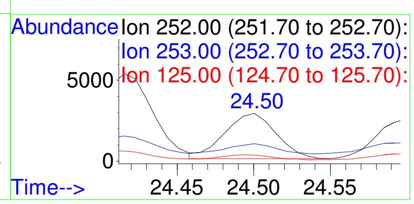
Tgt	Ion:252	Resp:	13236
Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.2
125	10.6	0.0	41.0

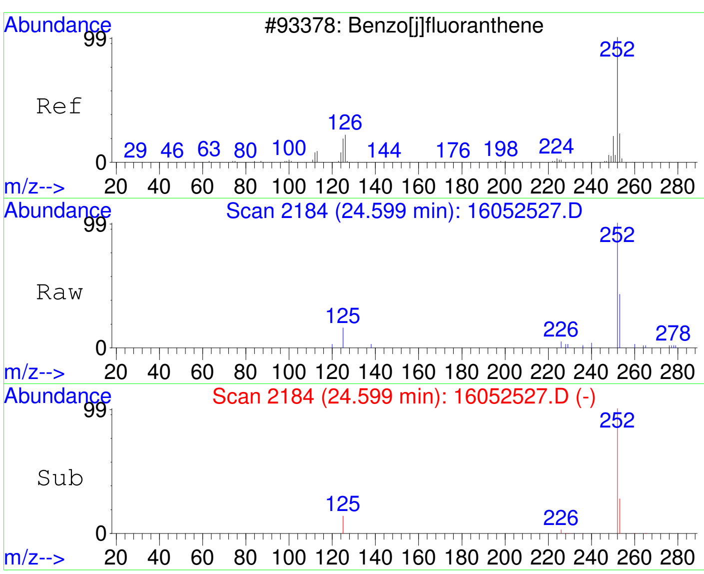




#22
Benzo[k]fluoranthene
Concen: 19.02 ug/kg
RT: 24.50 min Scan# 2170
Delta R.T. -0.03 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

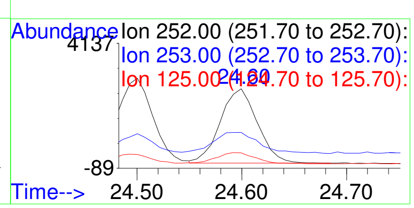
Tgt	Ion:252	Resp:	6520
Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.1	42.1
125	10.0	0.0	31.3

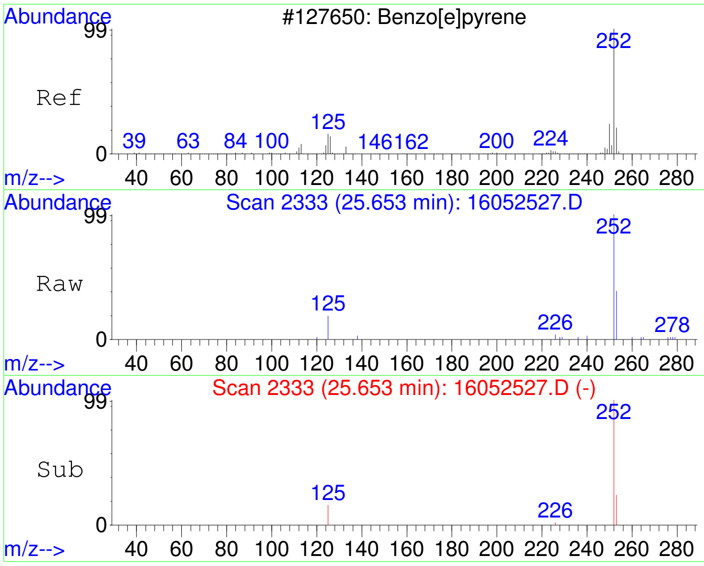




#23
Benzo(j)fluoranthene
Concen: 20.33 ug/kg
RT: 24.60 min Scan# 2184
Delta R.T. -0.03 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt	Ion:252	Resp:	6210
Ion	Ratio	Lower	Upper
252	100		
253	28.4	2.1	42.1
125	14.5	0.0	34.4

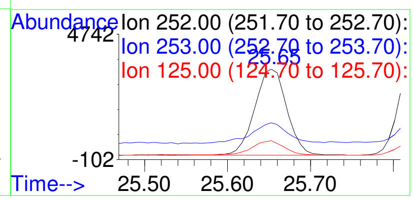


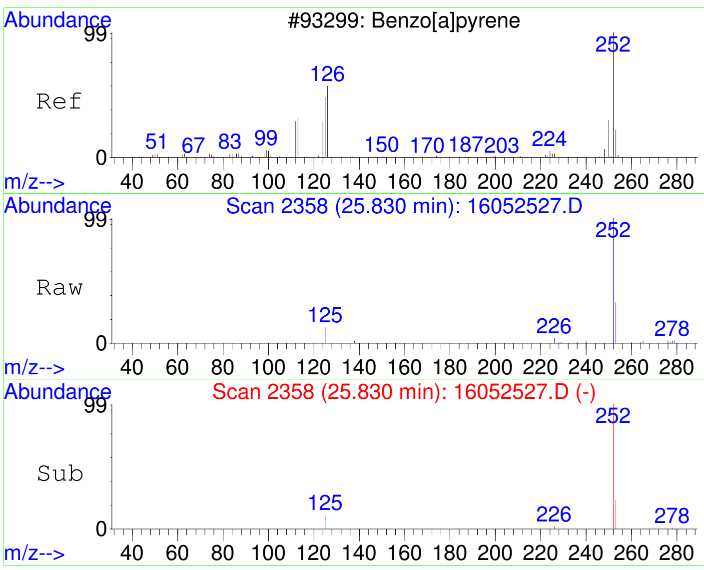


#24
Benzo[e]pyrene
Concen: 27.38 ug/kg
RT: 25.65 min Scan# 2333
Delta R.T. -0.03 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:252 Resp: 8962

Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.2	42.2
125	16.5	0.0	36.1

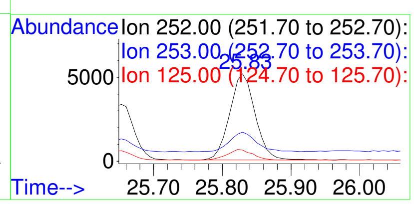


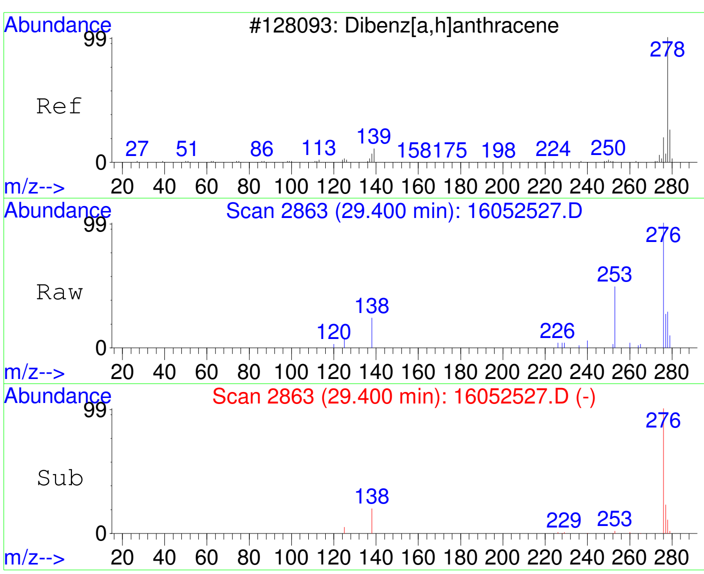


#25
Benzo[a]pyrene
Concen: 39.59 ug/kg
RT: 25.83 min Scan# 2358
Delta R.T. -0.03 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:252 Resp: 13243

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.4	0.0	31.7

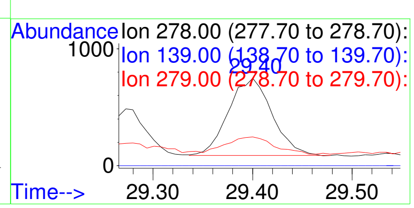


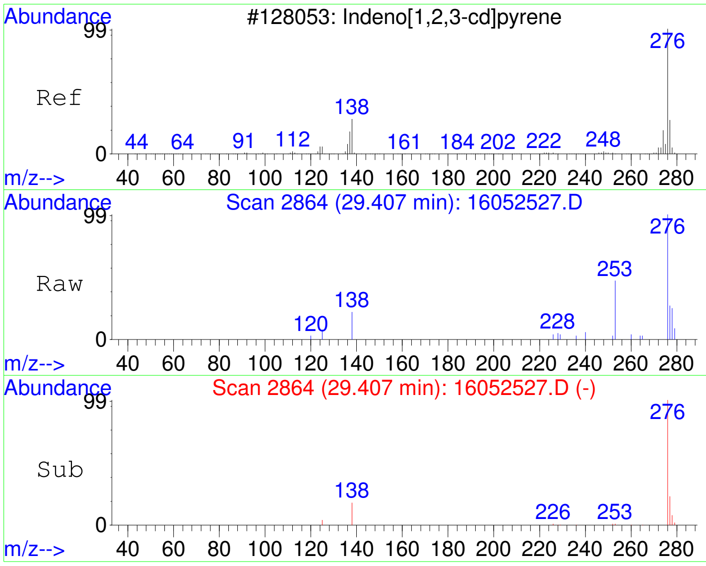


#26
Dibenz[a,h]anthracene
Concen: 6.56 ug/kg
RT: 29.40 min Scan# 2863
Delta R.T. -0.04 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:278 Resp: 1998

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.5	4.2	44.2

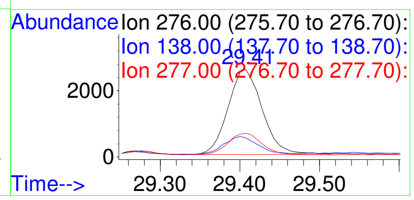


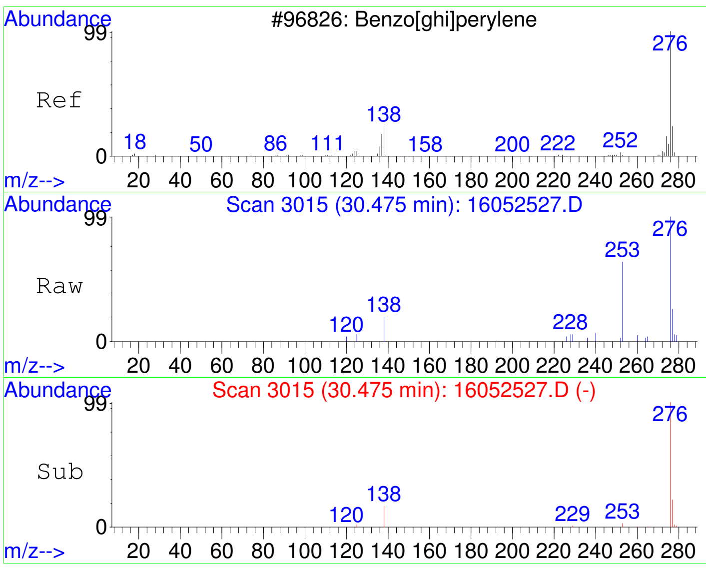


#27
Indeno[1,2,3-cd]pyrene
Concen: 21.24 ug/kg
RT: 29.41 min Scan# 2864
Delta R.T. -0.03 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:276 Resp: 7717

Ion	Ratio	Lower	Upper
276	100		
138	19.1	6.7	46.7
277	25.0	5.8	45.8

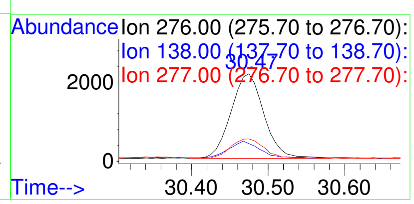




#28
Benzo[g,h,i]perylene
Concen: 22.52 ug/kg
RT: 30.47 min Scan# 3015
Delta R.T. -0.03 min
Lab File: 16052527.D
Acq: 26 May 2016 2:06 am

Tgt Ion:276 Resp: 6382

Ion	Ratio	Lower	Upper
276	100		
138	16.5	0.0	39.1
277	23.2	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160525\16052528.D Vial: 28
Acq On : 26 May 2016 2:46 am Operator: AR
Sample : 1605144-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:45 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1235083	4000.00 ug/kg	107
5) Acenaphthene-d10	13.24	164	793853	4000.00 ug/kg	69
11) Phenanthrene-d10	15.33	188	1381836	4000.00 ug/kg	68
17) Chrysene-d12	21.04	240	1658706	4000.00 ug/kg	73
20) Perylene-d12	26.18	264	1509287	4000.00 ug/kg	73

System Monitoring Compounds

	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.18	172	17366	74.99 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.87%#	
16) 4-Terphenyl-d14	17.81	244	26320	73.62 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
9) Acenaphthene	13.24	154	2415	~~11.38 ug/kg#~~	~~9~~
14) Fluoranthene	17.31	202	4071	10.83 ug/kg	97
15) Pyrene	17.89	202	3629	9.29 ug/kg	97
18) Benzo[a]anthracene	20.86	228	2216	5.70 ug/kg	99
19) Chrysene	21.11	228	2573	6.85 ug/kg	99
21) Benzo[b]fluoranthene	24.42	252	2653	6.67 ug/kg	98
23) Benzo(j)fluoranthene	24.60	252	1189	3.58 ug/kg	95
24) Benzo[e]pyrene	25.65	252	1969	5.53 ug/kg	95
25) Benzo[a]pyrene	25.83	252	2454	6.74 ug/kg	90
28) Benzo[g,h,i]perylene	30.47	276	1618	5.25 ug/kg	97

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160525\16052528.D          Vial: 28
Acq On    : 26 May 2016   2:46 am                   Operator: AR
Sample    : 1605144-11A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:45 2016            Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
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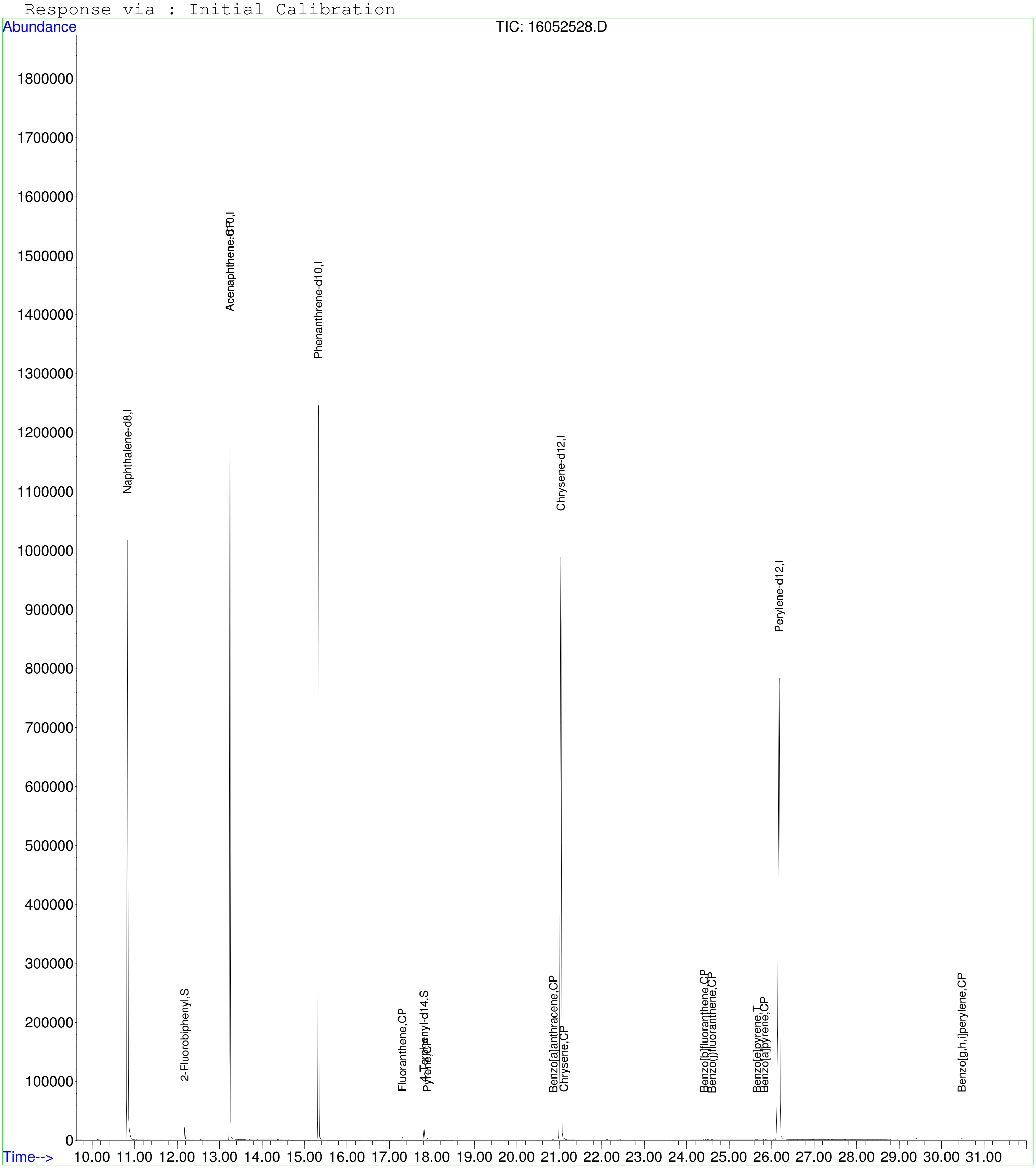
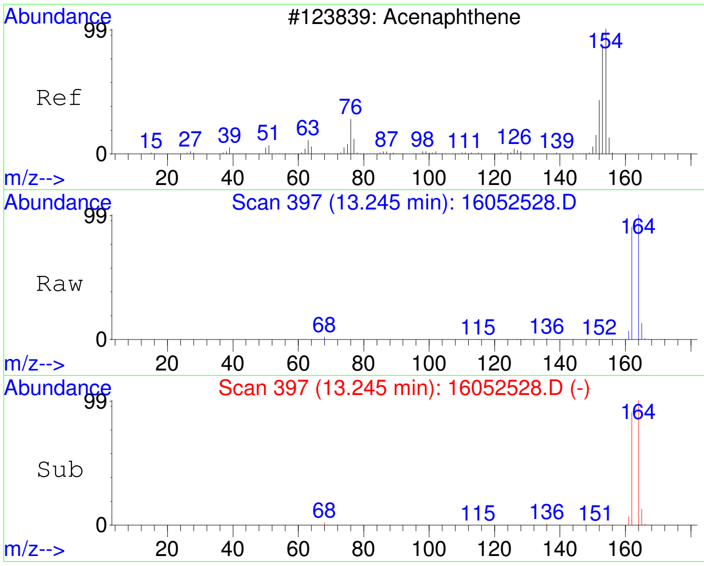
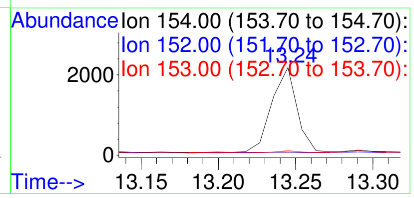
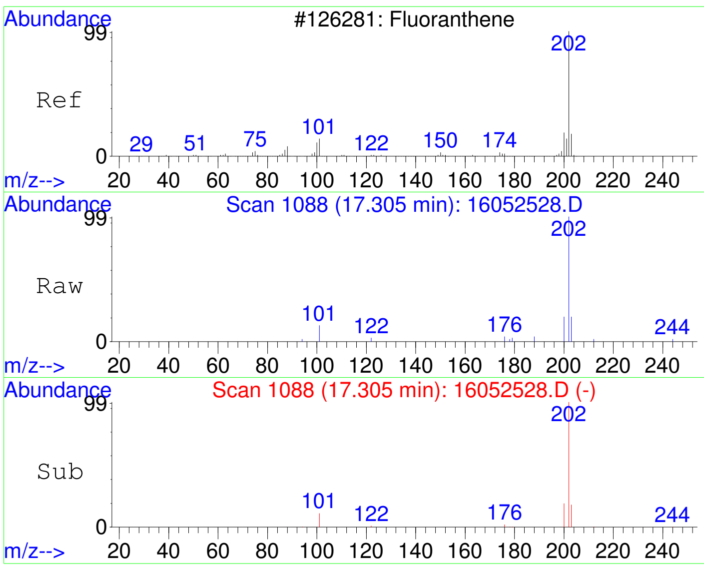




#9	
Acenaphthene	
Concen:	11.38 ug/kg
RT: 13.24 min	Scan# 397
Delta R.T.	-0.05 min
Lab File:	16052528.D
Acq: 26 May 2016	2:46 am

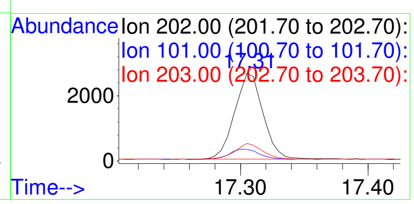
Tgt Ion:154	Resp:		2415
Ion	Ratio	Lower	Upper
154	100		
152	0.9	18.9	78.9#
153	2.3	75.2	135.2#

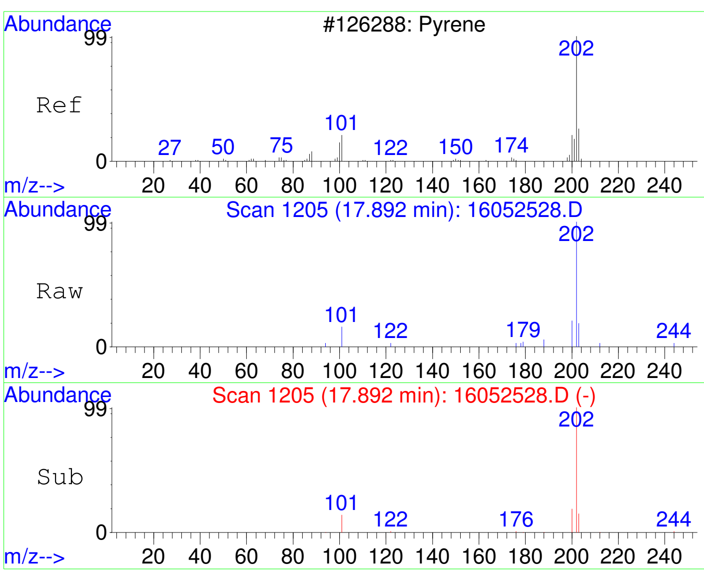




#14	
Fluoranthene	
Concen:	10.83 ug/kg
RT: 17.31 min	Scan# 1088
Delta R.T.	-0.01 min
Lab File:	16052528.D
Acq: 26 May 2016	2:46 am

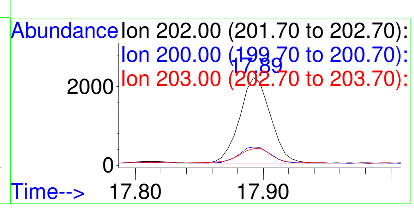
Tgt Ion:202	Resp:		4071
Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	43.0
203	18.4	0.0	47.9

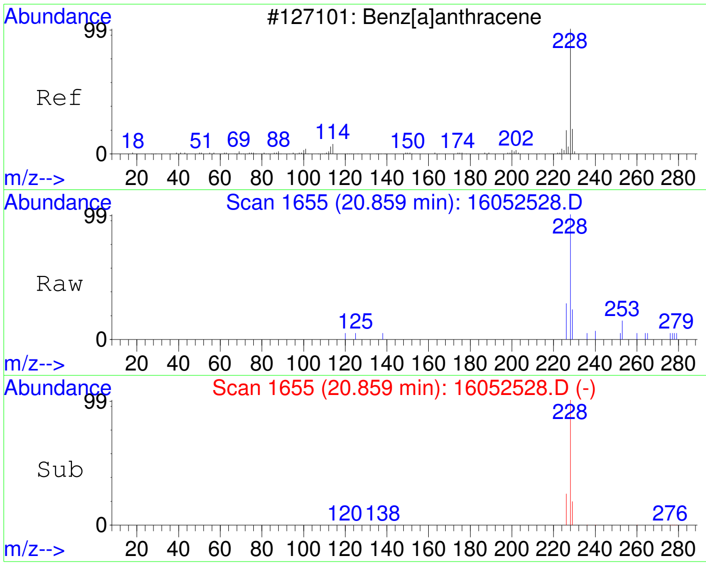




#15	
Pyrene	
Concen:	9.29 ug/kg
RT: 17.89 min	Scan# 1205
Delta R.T.	-0.01 min
Lab File:	16052528.D
Acq: 26 May 2016	2:46 am

Tgt Ion:202	Resp:		3629
Ion	Ratio	Lower	Upper
202	100		
200	19.0	0.0	50.0
203	16.6	0.0	48.0

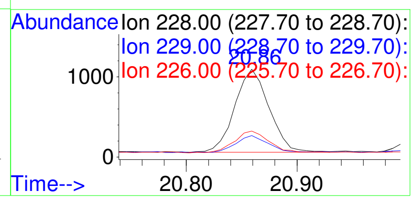


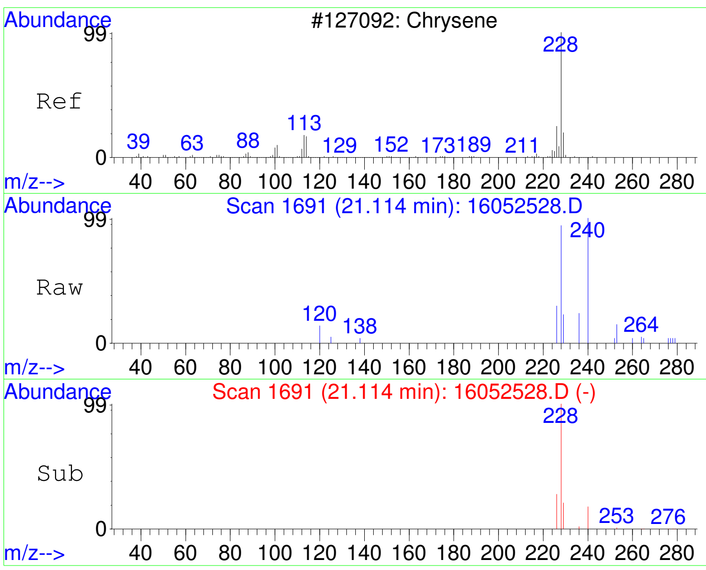


#18
Benzo[a]anthracene
Concen: 5.70 ug/kg
RT: 20.86 min Scan# 1655
Delta R.T. -0.01 min
Lab File: 16052528.D
Acq: 26 May 2016 2:46 am

Tgt Ion:228 Resp: 2216

Ion	Ratio	Lower	Upper
228	100		
229	20.2	0.0	50.1
226	26.1	0.0	55.2

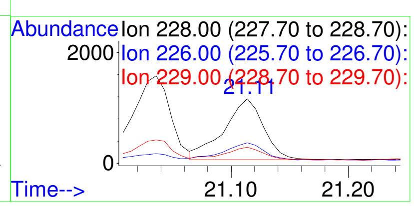


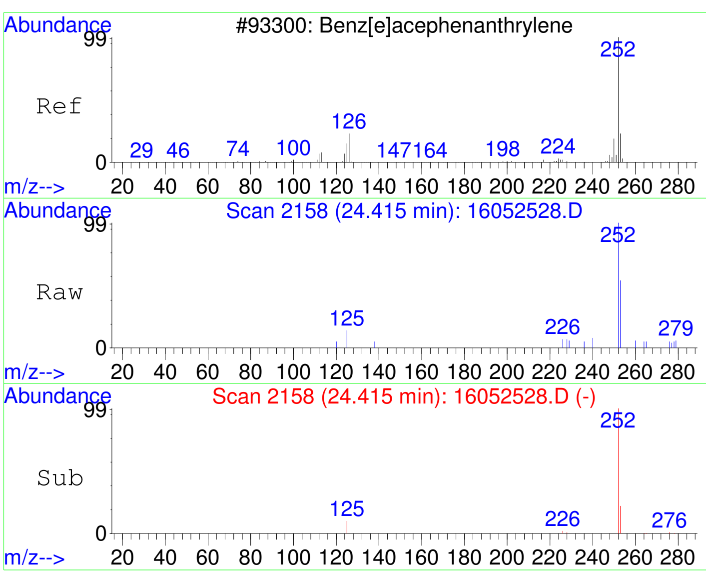


#19
Chrysene
Concen: 6.85 ug/kg
RT: 21.11 min Scan# 1691
Delta R.T. -0.02 min
Lab File: 16052528.D
Acq: 26 May 2016 2:46 am

Tgt Ion:228 Resp: 2573

Ion	Ratio	Lower	Upper
228	100		
226	27.8	0.0	58.1
229	20.7	0.0	50.1

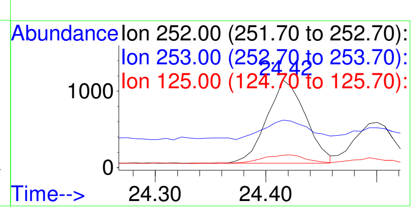


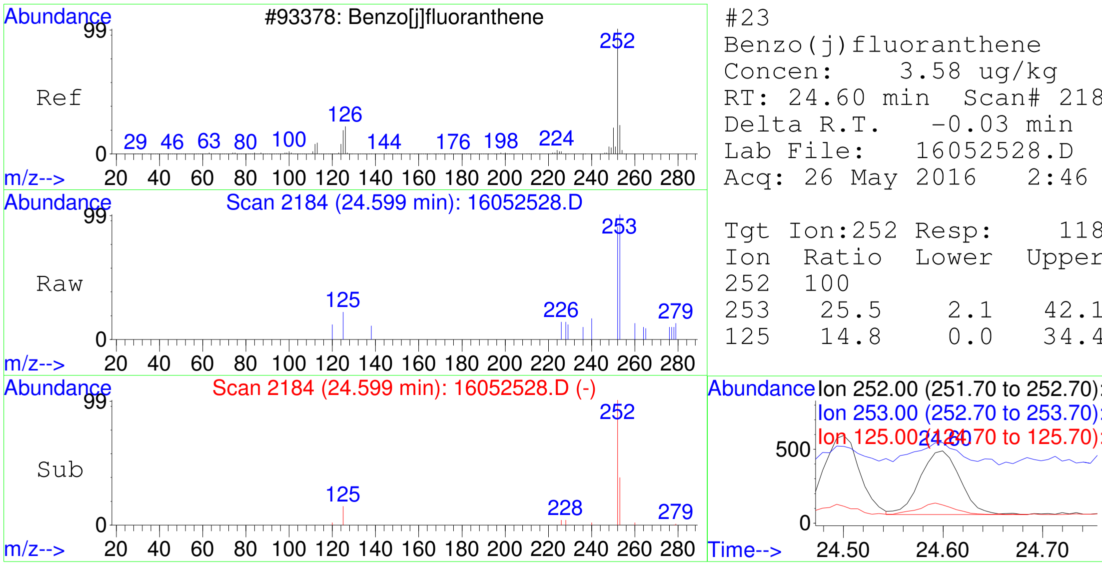


#21
Benzo[b]fluoranthene
Concen: 6.67 ug/kg
RT: 24.42 min Scan# 2158
Delta R.T. -0.03 min
Lab File: 16052528.D
Acq: 26 May 2016 2:46 am

Tgt Ion:252 Resp: 2653

Ion	Ratio	Lower	Upper
252	100		
253	21.2	0.0	52.2
125	10.0	0.0	41.0

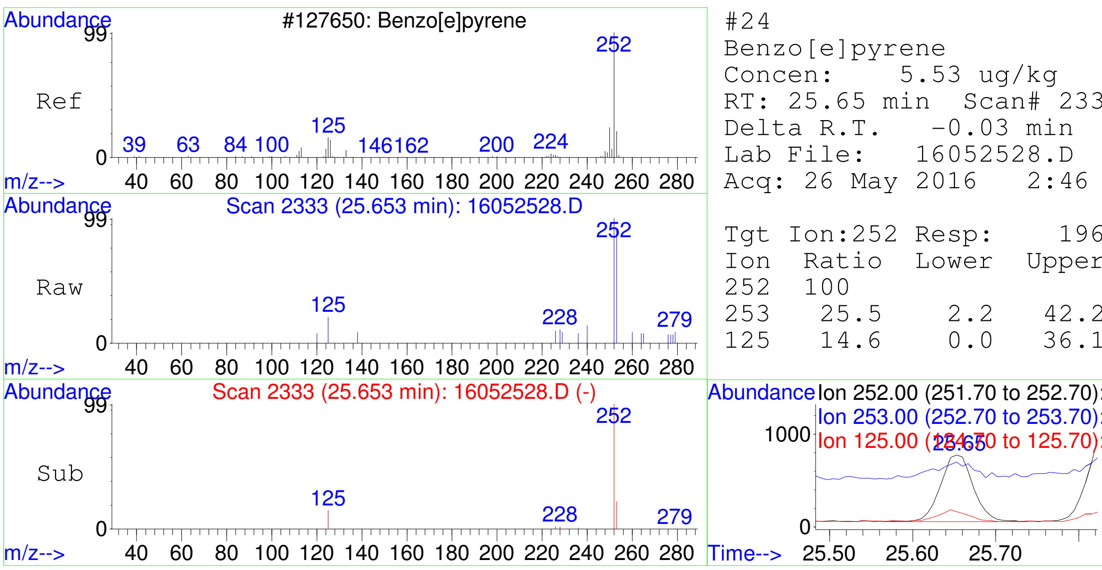




#23
Benzo(j)fluoranthene
Concen: 3.58 ug/kg
RT: 24.60 min   Scan# 2184
Delta R.T.   -0.03 min
Lab File: 16052528.D
Acq: 26 May 2016   2:46 am

Tgt Ion:252 Resp: 1189

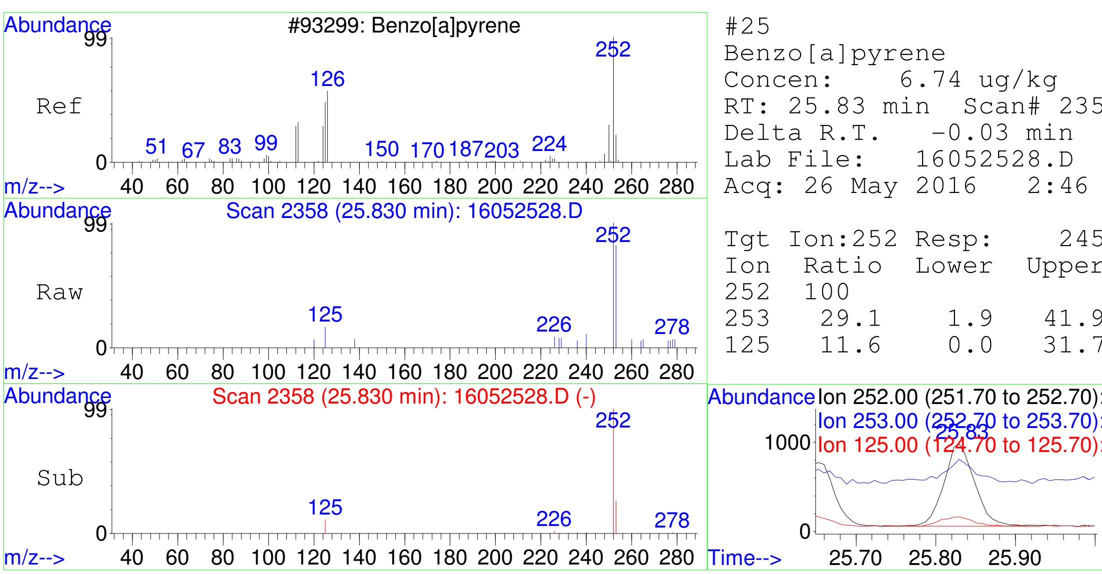
Ion	Ratio	Lower	Upper
252	100		
253	25.5	2.1	42.1
125	14.8	0.0	34.4



#24
Benzo[e]pyrene
Concen: 5.53 ug/kg
RT: 25.65 min   Scan# 2333
Delta R.T.   -0.03 min
Lab File: 16052528.D
Acq: 26 May 2016   2:46 am

Tgt Ion:252 Resp: 1969

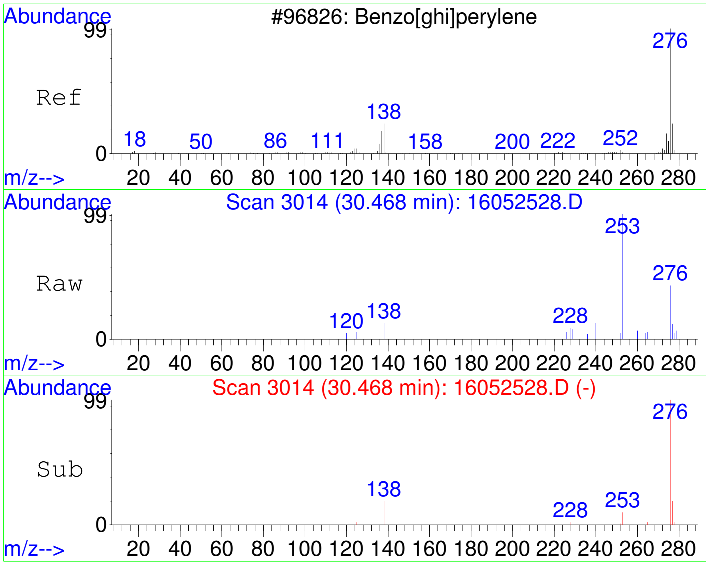
Ion	Ratio	Lower	Upper
252	100		
253	25.5	2.2	42.2
125	14.6	0.0	36.1



#25
Benzo[a]pyrene
Concen: 6.74 ug/kg
RT: 25.83 min   Scan# 2358
Delta R.T.   -0.03 min
Lab File: 16052528.D
Acq: 26 May 2016   2:46 am

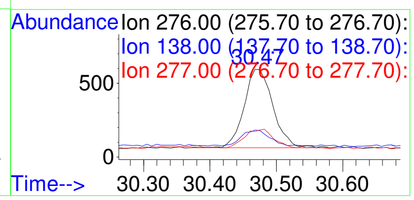
Tgt Ion:252 Resp: 2454

Ion	Ratio	Lower	Upper
252	100		
253	29.1	1.9	41.9
125	11.6	0.0	31.7



#28
Benzo[g,h,i]perylene
Concen: 5.25 ug/kg
RT: 30.47 min   Scan# 3014
Delta R.T.   -0.04 min
Lab File: 16052528.D
Acq: 26 May 2016   2:46 am

Tgt	Ion:276	Resp:	1618
Ion	Ratio	Lower	Upper
276	100		
138	19.5	0.0	39.1
277	21.8	4.0	44.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160525\16052529.D          Vial: 29
Acq On    : 26 May 2016   3:25 am                   Operator: AR
Sample    : 1605144-12A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: May 26  8:45 2016             Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421
```

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1229216	4000.00 ug/kg	106
5) Acenaphthene-d10	13.25	164	779405	4000.00 ug/kg	68
11) Phenanthrene-d10	15.33	188	1398770	4000.00 ug/kg	68
17) Chrysene-d12	21.04	240	1636690	4000.00 ug/kg	72
20) Perylene-d12	26.18	264	1488237	4000.00 ug/kg	72

System Monitoring Compounds

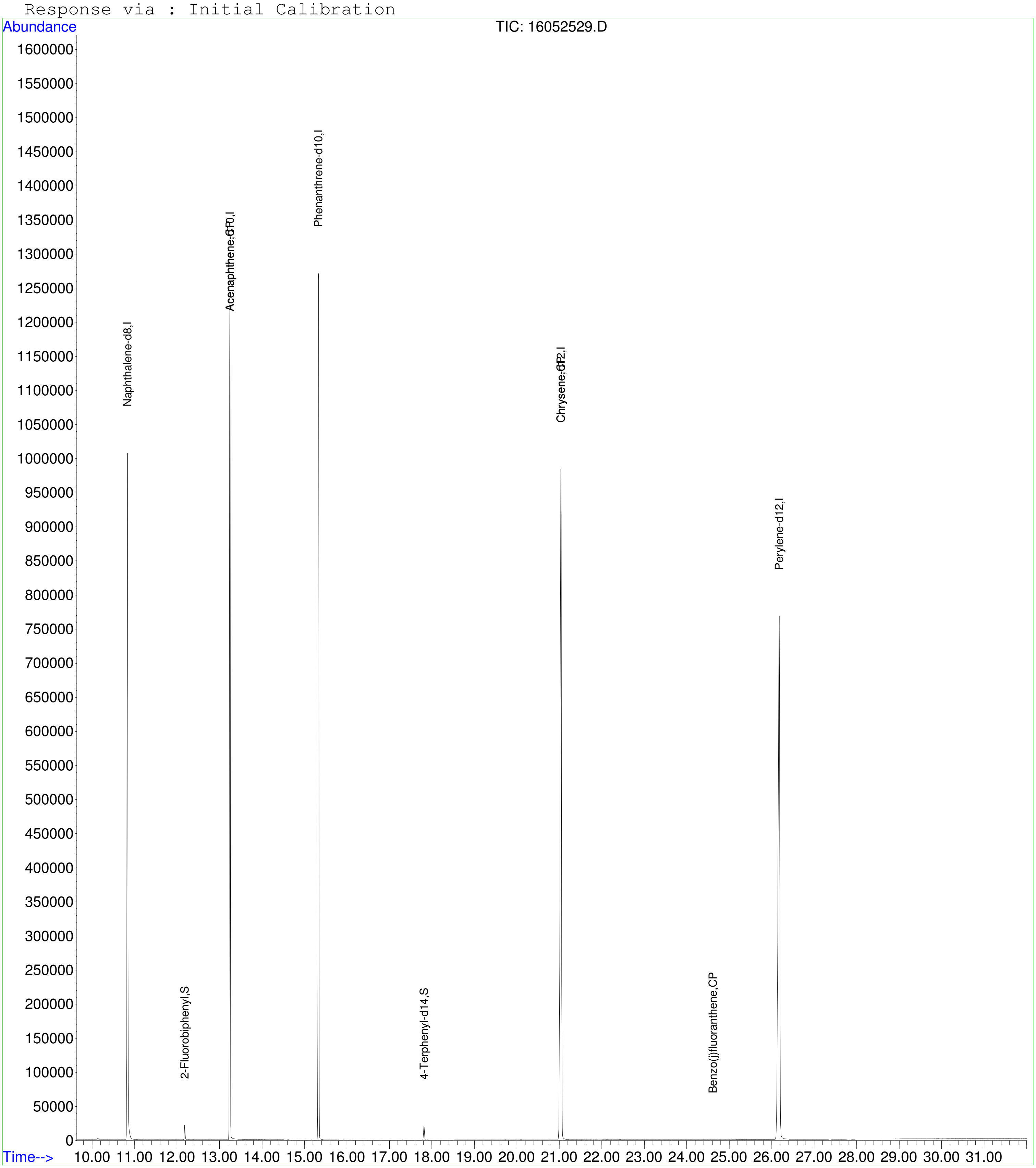
7) 2-Fluorobiphenyl	12.18	172	18120	79.70 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery = 1.99%#	
16) 4-Terphenyl-d14	17.81	244	26696	73.77 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery = 1.84%#	

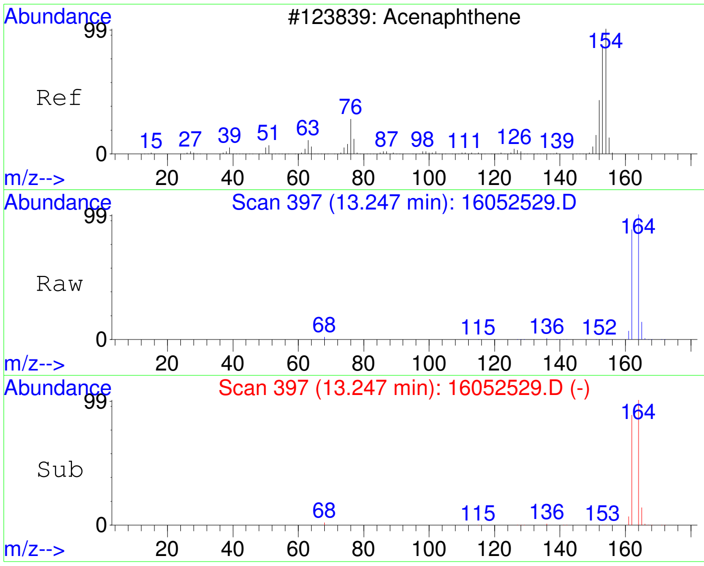
Target Compounds					Qvalue
9) Acenaphthene	13.25	154	2322	11.15 ug/kg#	9
19) Chrysene	21.04	228	3294	~~8.89 ug/kg~~	~~76~~
23) Benzo(j)fluoranthene	24.61	252	56	0.17 ug/kg#	22

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

Data File : C:\HPCHEM\1\DATA\160525\16052529.D Vial: 29
Acq On : 26 May 2016 3:25 am Operator: AR
Sample : 1605144-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:45 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration

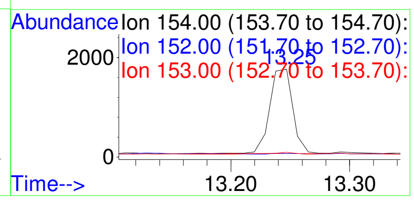


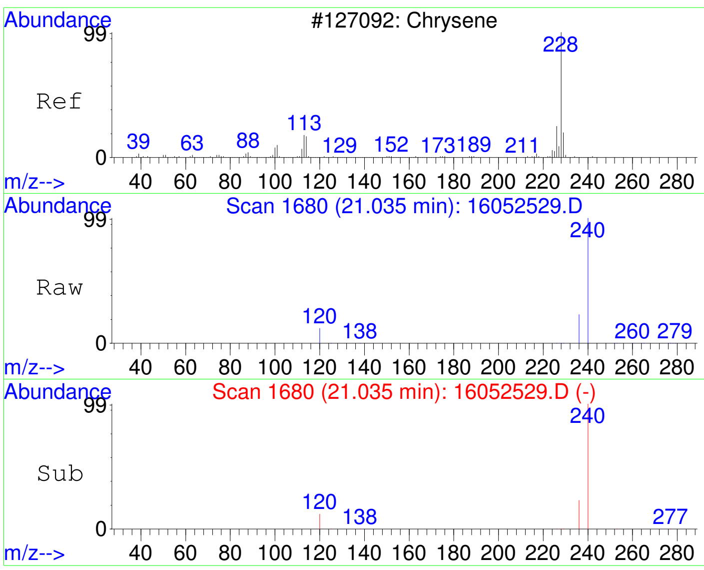


#9
Acenaphthene
Concen: 11.15 ug/kg
RT: 13.25 min Scan# 397
Delta R.T. -0.05 min
Lab File: 16052529.D
Acq: 26 May 2016 3:25 am

Tgt Ion:154 Resp: 2322

Ion	Ratio	Lower	Upper
154	100		
152	0.6	18.9	78.9#
153	2.1	75.2	135.2#

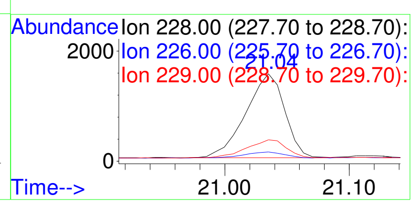


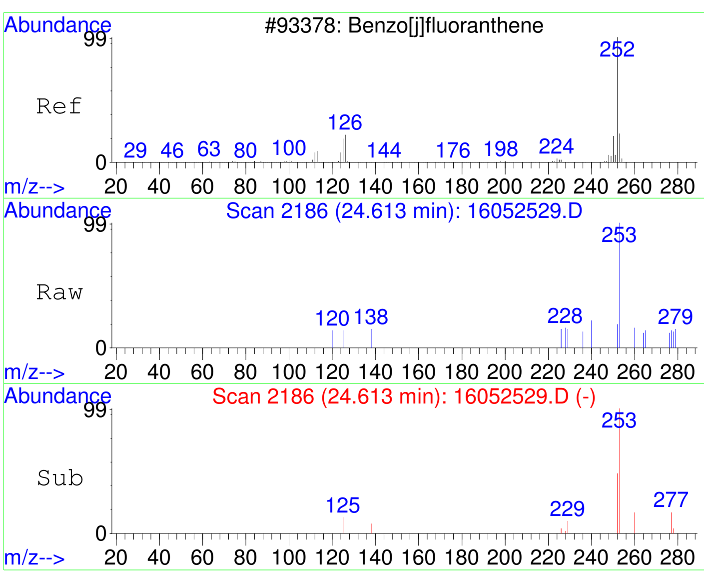


#19
Chrysene
Concen: 8.89 ug/kg
RT: 21.04 min Scan# 1680
Delta R.T. -0.10 min
Lab File: 16052529.D
Acq: 26 May 2016 3:25 am

Tgt Ion:228 Resp: 3294

Ion	Ratio	Lower	Upper
228	100		
226	7.4	0.0	58.1
229	21.6	0.0	50.1

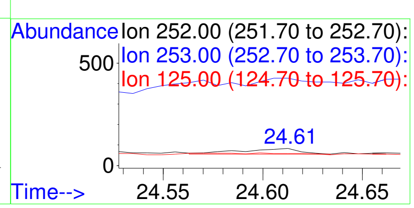




#23
Benzo(j)fluoranthene
Concen: 0.17 ug/kg
RT: 24.61 min Scan# 2186
Delta R.T. -0.01 min
Lab File: 16052529.D
Acq: 26 May 2016 3:25 am

Tgt Ion:252 Resp: 56

Ion	Ratio	Lower	Upper
252	100		
253	77.8	2.1	42.1#
125	22.2	0.0	34.4



Quantitation Report   (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160525\16052530.D   Vial: 30
Acq On   : 26 May 2016   4:05 am   Operator: AR
Sample   : CCV1-160525   Inst   : GC/MS #6
Misc   : CCV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 26 8:42 2016   Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Wed May 25 16:21:31 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.83	136	1466704	4000.00	ug/kg	127
5) Acenaphthene-d10	13.24	164	975107	4000.00	ug/kg	85
11) Phenanthrene-d10	15.33	188	1645129	4000.00	ug/kg	81
17) Chrysene-d12	21.04	240	1941750	4000.00	ug/kg	85
20) Perylene-d12	26.18	264	1764380	4000.00	ug/kg	86
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.17	172	288612	1014.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.37%#			
16) 4-Terphenyl-d14	17.81	244	382745	899.26	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.48%#			
Target Compounds						Qvalue
2) Naphthalene	10.86	128	320606	873.88	ug/kg	100
3) 2-Methyl naphthalene	11.67	142	255827	789.42	ug/kg	97
4) 1-Methyl naphthalene	11.88	142	230377	776.19	ug/kg	99
6) Dibenzofuran	13.45	168	316275	865.42	ug/kg	98
8) Acenaphthylene	13.13	152	388820	925.90	ug/kg	99
9) Acenaphthene	13.29	154	224191	860.12	ug/kg	98
10) Fluorene	13.94	166	262229	828.40	ug/kg	99
12) Phenanthrene	15.37	178	363808	840.90	ug/kg	99
13) Anthracene	15.41	178	360691	880.81	ug/kg	99
14) Fluoranthene	17.31	202	413178	922.87	ug/kg	98
15) Pyrene	17.90	202	413886	889.93	ug/kg	99
18) Benzo[a]anthracene	20.87	228	408941	898.96	ug/kg	99
19) Chrysene	21.12	228	375418	854.14	ug/kg	100
21) Benzo[b]fluoranthene	24.42	252	407590	876.48	ug/kg	99
22) Benzo[k]fluoranthene	24.51	252	385697	884.14	ug/kg	99
23) Benzo(j)fluoranthene	24.61	252	353937	910.80	ug/kg	99
24) Benzo[e]pyrene	25.66	252	374680	899.68	ug/kg	100
25) Benzo[a]pyrene	25.84	252	368529	865.96	ug/kg	99
26) Dibenz[a,h]anthracene	29.41	278	341523	881.17	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.41	276	400529	866.25	ug/kg	99
28) Benzo[g,h,i]perylene	30.48	276	308334	855.19	ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160525\16052530.D          Vial: 30
Acq On    : 26 May 2016   4:05 am                   Operator: AR
Sample    : CCV1-160525                             Inst    : GC/MS #6
Misc      : CCV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 26  8:42 2016             Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed May 25 16:21:31 2016
Response via : Initial Calibration
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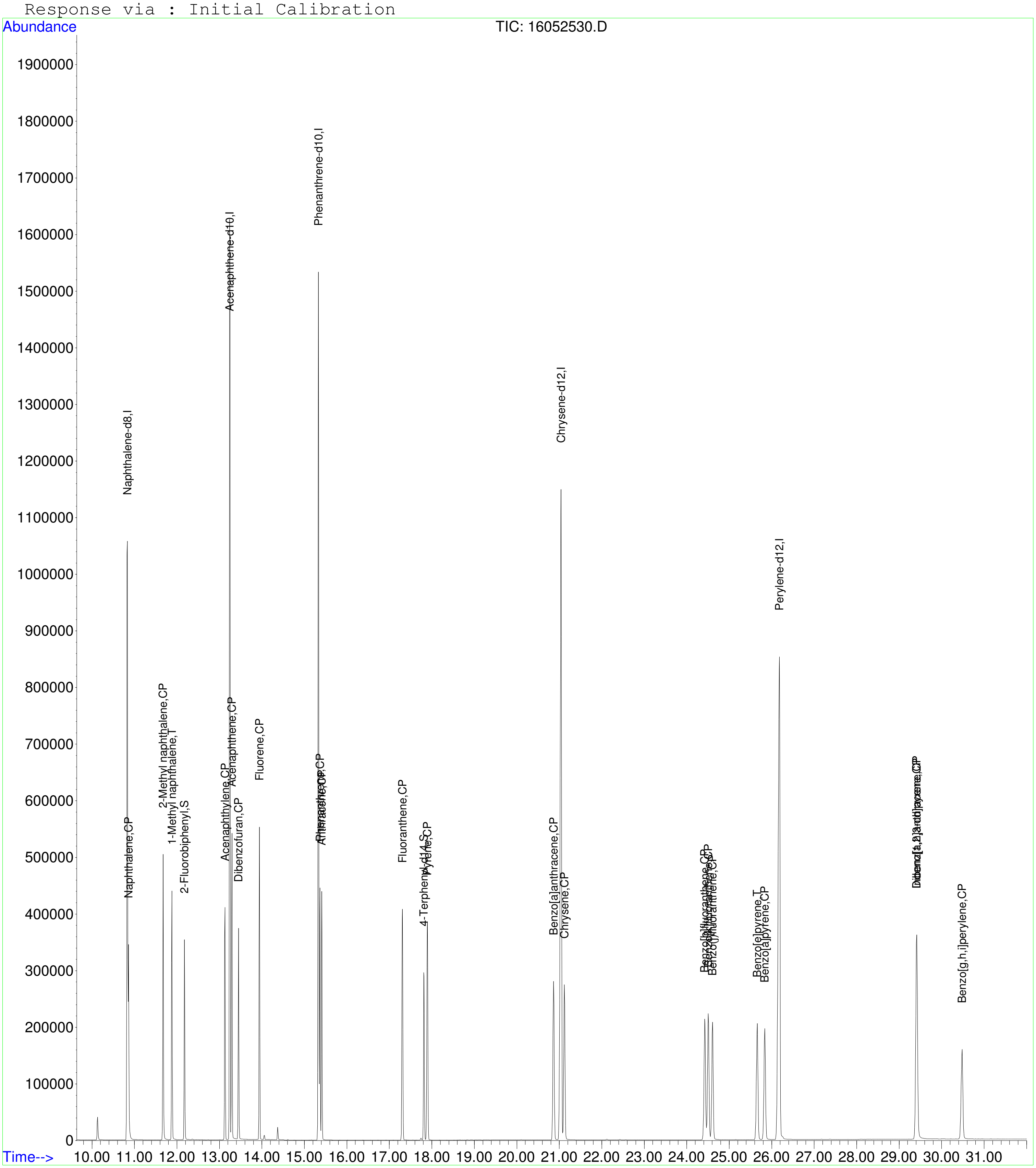


GCMS6
Calibration Curve
For

DHL Work Order
1605144

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PP160421.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	----	PAHCAL160421	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160317-1	1
SSCV 2500 ppb	----	PAHSSCV160322-2	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	**PAHCAL160421**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160317-1**
		5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160322-2**

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	X
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			X
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			X
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			X
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			X

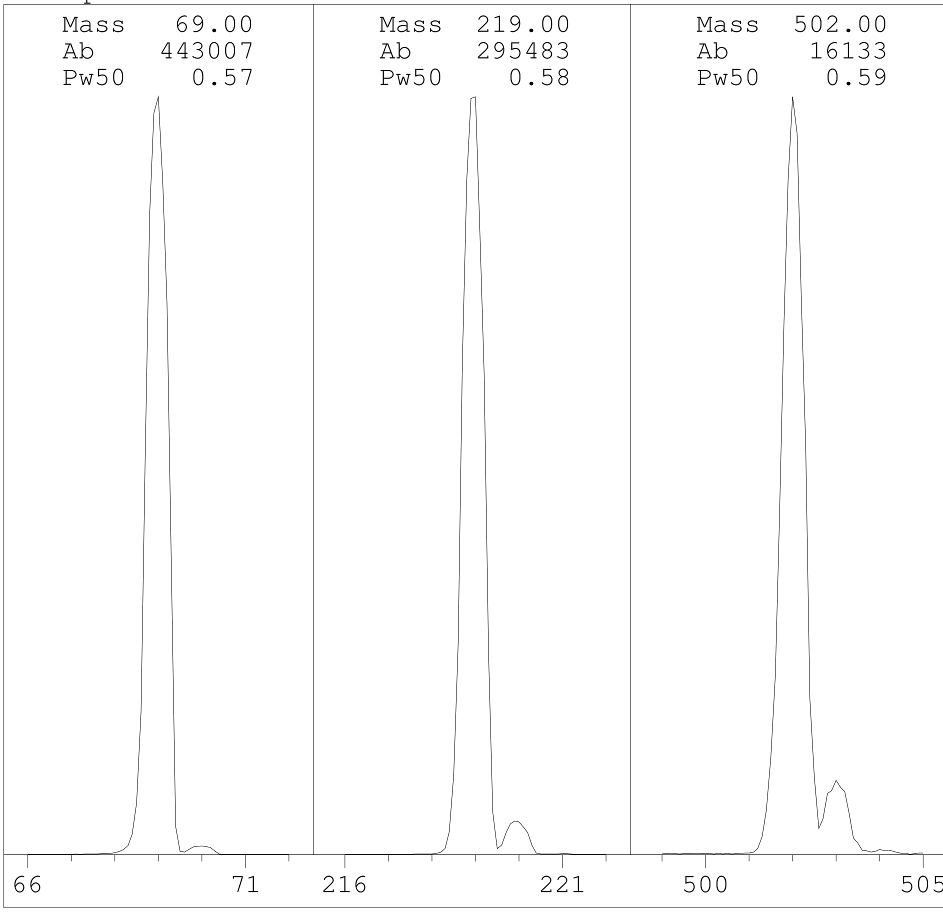
Analyst: Karyn Lane Date: 04/22/16

Second-Level Review: [signature] Date: 04/22/2016

HP5973

Instrument: GC/MS #6

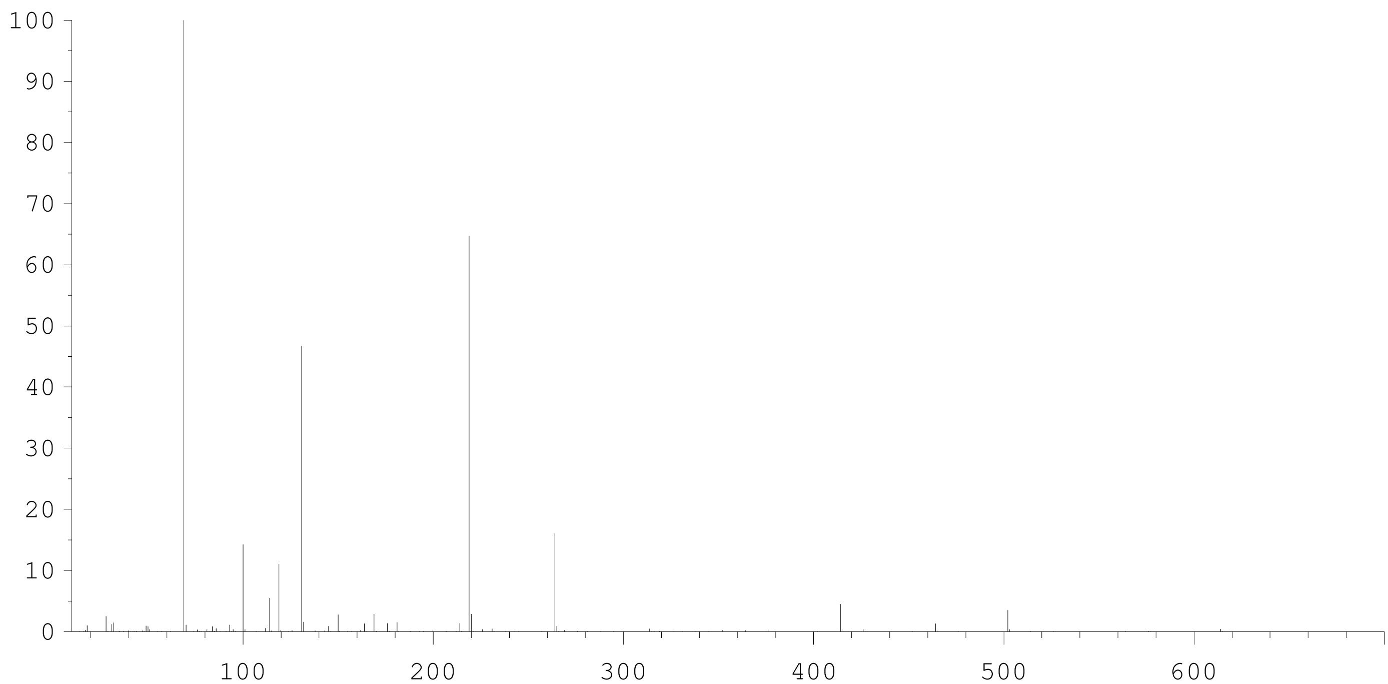
Thu Apr 21 13:07:27 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2195
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	80.7	HED	ON
EntLens	14.0	EMVolts	1424
EntOffs	16.06		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	71
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

125 peaks Base: 69.00 Abundance: 394176



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	394176	100.00	70.00	4405	1.12
218.90	254912	64.67	220.00	11307	4.44
502.00	13826	3.51	503.00	1441	10.42

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	46.7	[illegible].7	4.5	3.5

DHL Analytical, Inc.

Run ID: GCMS6_160421A

Run No.: 85382

Analytical Run Date: 4/21/2016

InstrumentID: GCMS6

Analyst: Karyn Lane

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

Calibration ID: 651

Column ID: 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160421	1	PAH_ALL_W	TUNE	R85382	4/21/2016 1:12:00 PM		
PCAL-160421 (5 ppb)	1	PAH_ALL_W	CAL1	R85382	4/21/2016 2:30:00 PM		
PCAL-160421 (10 ppb)	1	PAH_ALL_W	CAL	R85382	4/21/2016 3:10:00 PM		
PCAL-160421 (50 ppb)	1	PAH_ALL_W	CAL	R85382	4/21/2016 3:51:00 PM		
PCAL-160421 (100 ppb	1	PAH_ALL_W	CAL	R85382	4/21/2016 4:31:00 PM		
PCAL-160421 (500 ppb	1	PAH_ALL_W	CAL	R85382	4/21/2016 5:11:00 PM		
PCAL-160421 (1000 pp	1	PAH_ALL_W	CAL	R85382	4/21/2016 5:50:00 PM		
PCAL-160421 (2000 pp	1	PAH_ALL_W	CAL	R85382	4/21/2016 6:30:00 PM		
PCAL-160421 (5000 pp	1	PAH_ALL_W	CAL	R85382	4/21/2016 7:10:00 PM		
PSSCV-160421 (2500 p	1	PAH_ALL_W	ICV	R85382	4/21/2016 8:30:00 PM		
PSSCV-160421 (2500 p	1	PAH_ALL_W	ICV	R85382	4/21/2016 9:10:00 PM		

REVIEWED/APPROVED

By Sherri Herschmann at 9:42:32 AM, 4/28/2016

Method Path : F:\IC\GCMS#6\
Method File : PP160421.M
Title : PAH Calibration
Last Update : Fri Apr 22 09:12:07 2016
Response Via : Initial Calibration

REVIEWED/APPROVED
By Sherri Herschmann at 9:42:37 AM, 4/28/2016

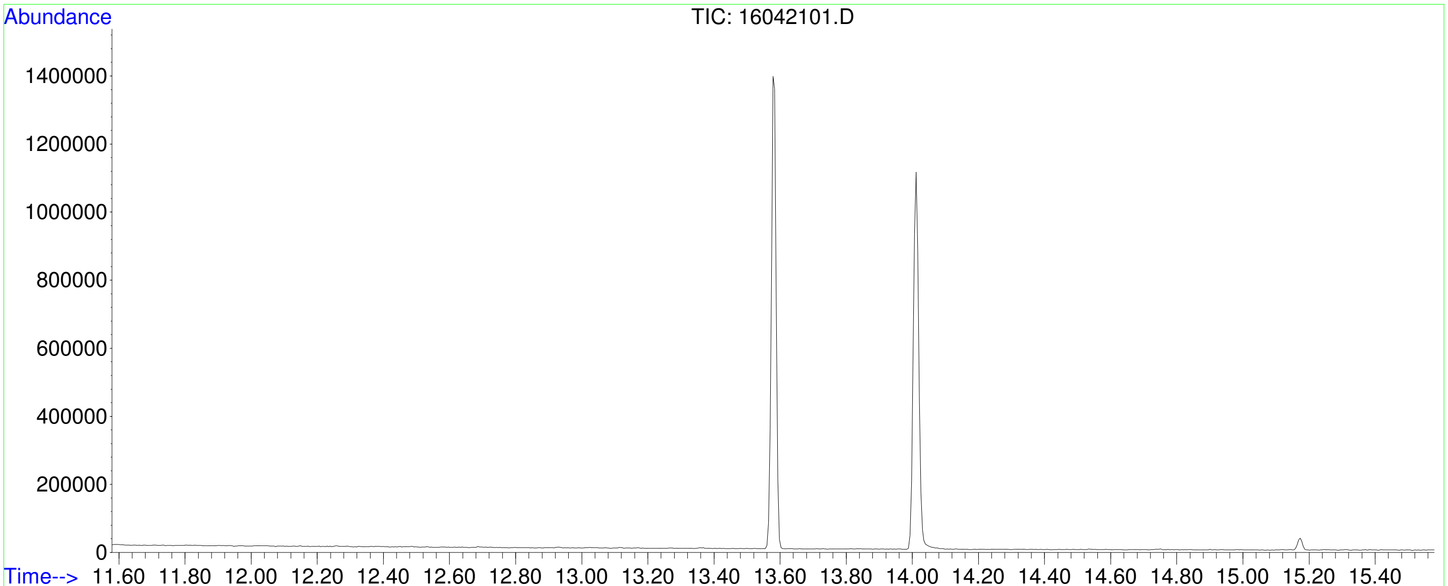
Calibration Files
1 =16042103.D 2 =16042104.D 3 =16042105.D 4 =16042106.D 5 =16042107.D 6 =16042108.D 7 =16042109.D
8 =16042110.D

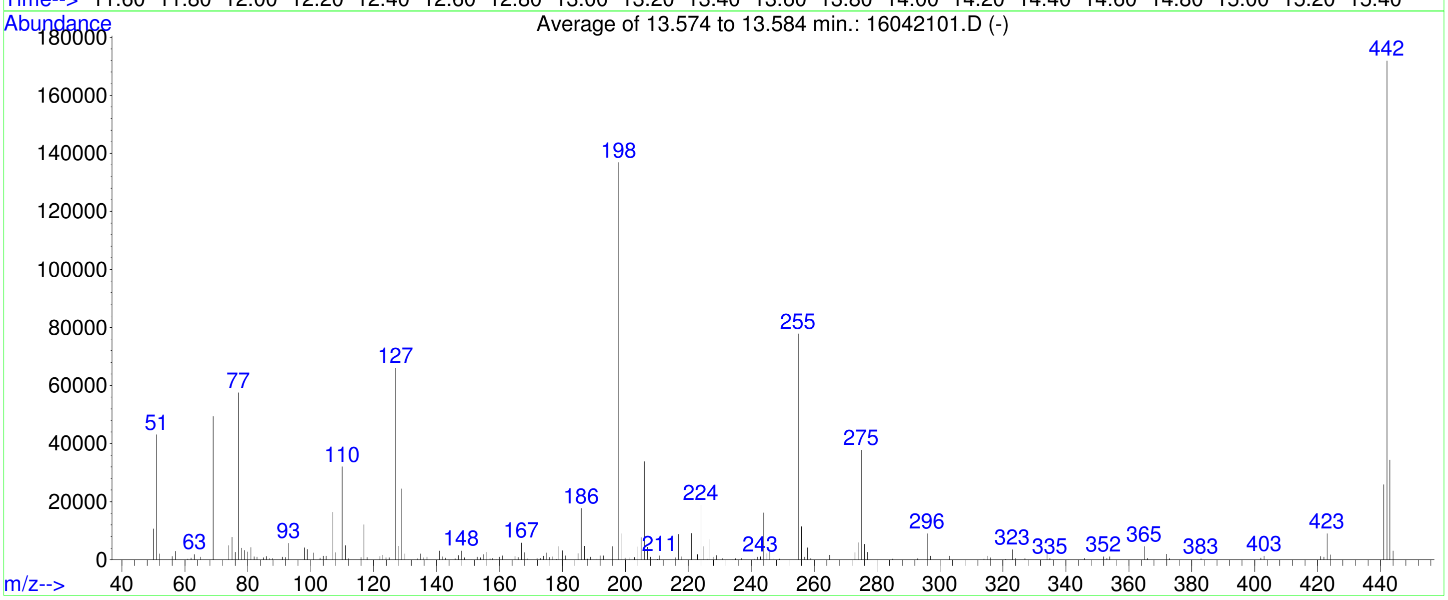
	Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1) I	Naphthalene-d8	-----	-----	-----	-ISTD-	-----	-----	-----								
2) CP	Naphthalene	1.072	1.056	1.009	0.988	1.009	0.977	0.968	0.925	1.001	4.73	A	0.0473	0.0000	1.0005	0.0000
3) CP	2-Methyl napht...	0.953	0.908	0.902	0.917	0.935	0.832	0.831	0.792	0.884	6.55	A	0.0655	0.0000	0.8838	0.0000
4) T	1-Methyl napht...	0.853	0.833	0.826	0.836	0.861	0.767	0.766	0.734	0.809	5.82	A	0.0582	0.0000	0.8094	0.0000
5) I	Acenaphthene-d10	-----	-----	-----	-ISTD-	-----	-----	-----								
6) CP	Dibenzofuran	1.545	1.518	1.528	1.405	1.512	1.565	1.518	1.402	1.499	4.09#	A	0.0409	0.0000	1.4992	0.0000
7) S	2-Fluorobiphenyl	1.227	1.249	1.171	1.271	1.202	1.091	1.074	1.049	1.167	7.28	A	0.0728	0.0000	1.1668	0.0000
8) CP	Acenaphthylene	1.674	1.692	1.669	1.714	1.816	1.765	1.778	1.672	1.723	3.28	A	0.0328	0.0000	1.7226	0.0000
9) CP	Acenaphthene	1.098	1.076	1.079	1.061	1.086	1.068	1.068	1.019	1.069	2.19	A	0.0219	0.0000	1.0692	0.0000
10) CP	Fluorene	1.289	1.261	1.290	1.183	1.319	1.395	1.381	1.270	1.299	5.23	A	0.0523	0.0000	1.2985	0.0000
11) I	Phenanthrene-d10	-----	-----	-----	-ISTD-	-----	-----	-----								
12) CP	Phenanthrene	1.112	1.104	1.033	1.056	1.077	1.042	1.021	0.970	1.052	4.44	A	0.0444	0.0000	1.0519	0.0000
13) CP	Anthracene	0.994	1.001	0.984	0.995	1.044	1.012	0.997	0.939	0.996	2.94	A	0.0294	0.0000	0.9957	0.0000
14) CP	Fluoranthene	1.097	1.126	1.050	1.113	1.130	1.091	1.082	1.033	1.090	3.18	A	0.0318	0.0000	1.0903	0.0000
15) CP	Pyrene	1.164	1.208	1.085	1.158	1.154	1.114	1.100	1.065	1.131	4.23	A	0.0423	0.0000	1.1308	0.0000
16) S	4-Terphenyl-d14	1.290	1.174	0.947	1.015	0.997	0.964	0.956	0.937	1.035	12.39	A	0.1239	0.0000	1.0349	0.0000
17) I	Chrysene-d12	-----	-----	-----	-ISTD-	-----	-----	-----								
18) CP	Benzo[a]anthra...	0.905	0.905	0.896	0.905	0.987	0.967	0.978	0.953	0.937	4.04	A	0.0404	0.0000	0.9371	0.0000
19) CP	Chrysene	0.917	0.912	0.890	0.892	0.939	0.912	0.909	0.873	0.905	2.24	A	0.0224	0.0000	0.9054	0.0000
20) I	Perylene-d12	-----	-----	-----	-ISTD-	-----	-----	-----								
21) CP	Benzo[b]fluora...	1.031	1.068	1.042	1.021	1.084	1.075	1.080	1.033	1.054	2.37	A	0.0237	0.0000	1.0543	0.0000
22) CP	Benzo[k]fluora...	0.949	0.988	0.978	0.973	1.045	1.016	1.004	0.961	0.989	3.18	A	0.0318	0.0000	0.9890	0.0000
23) CP	Benzo(j)fluora...	0.840	0.858	0.868	0.867	0.923	0.906	0.907	0.878	0.881	3.23	A	0.0323	0.0000	0.8810	0.0000
24) T	Benzo[e]pyrene	0.931	0.957	0.942	0.931	0.974	0.953	0.956	0.909	0.944	2.13	A	0.0213	0.0000	0.9442	0.0000
25) CP	Benzo[a]pyrene	0.955	0.941	0.944	0.932	0.997	0.991	0.998	0.962	0.965	2.76	A	0.0276	0.0000	0.9648	0.0000
26) CP	Dibenz[a,h]ant...	0.881	0.820	0.849	0.840	0.906	0.908	0.913	0.911	0.879	4.22	A	0.0422	0.0000	0.8787	0.0000
27) CP	Indeno[1,2,3-c...	1.037	0.991	1.024	1.016	1.084	1.078	1.084	1.071	1.048	3.43	A	0.0343	0.0000	1.0482	0.0000
28) CP	Benzo[g,h,i]pe...	0.797	0.782	0.792	0.796	0.842	0.843	0.852	0.834	0.817	3.44	A	0.0344	0.0000	0.8174	0.0000

(#) = Out of Range

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160421\16042101.D          Vial: 1
Acq On    : 21 Apr 2016   1:12 pm                      Operator:
Sample    : DFTPP-160421                               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 1592, 1593, 1594; Background Corrected with Scan 1586

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	31.5	43141	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	36.1	49451	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	48.3	66112	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	136896	PASS
199	198	5	9	6.6	9062	PASS
275	198	10	60	27.7	37883	PASS
365	198	1	200	3.4	4588	PASS
441	442	0.01	24	15.1	25970	PASS
442	198	50	400	125.6	171901	PASS
443	442	15	24	20.0	34379	PASS

Quantitation Report   (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160421\16042103.D   Vial: 3
Acq On   : 21 Apr 2016   2:30 pm   Operator:
Sample   : PCAL-160421 (5 ppb)   Inst   : GC/MS #6
Misc   : CAL1   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016   Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration   Reprocessed low point.
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1142778	4000.00	ug/kg	99
5) Acenaphthene-d10	13.30	164	1244911	4000.00	ug/kg	108
11) Phenanthrene-d10	15.39	188	1877690	4000.00	ug/kg	92
17) Chrysene-d12	21.15	240	2186100	4000.00	ug/kg	96
20) Perylene-d12	26.31	264	2056958	4000.00	ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.23	172	1910	5.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
16) 4-Terphenyl-d14	17.89	244	3028	6.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.16%#		

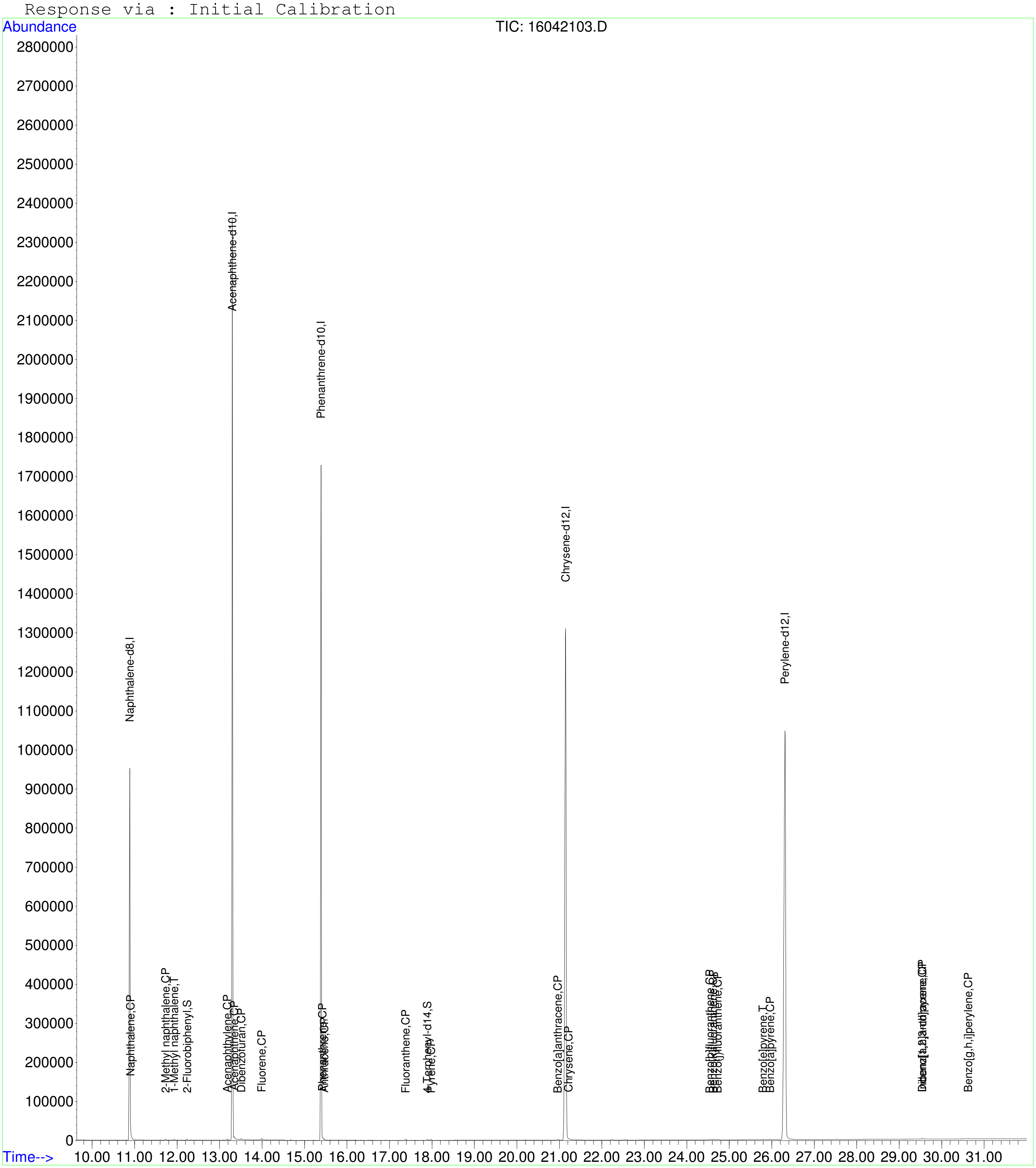
Target Compounds						Qvalue
2) Naphthalene	10.91	128	1531	5.36	ug/kg	98
3) 2-Methyl naphthalene	11.73	142	1362	5.39	ug/kg	98
4) 1-Methyl naphthalene	11.93	142	1218	5.27	ug/kg	92
6) Dibenzofuran	13.51	168	2405	5.15	ug/kg	100
8) Acenaphthylene	13.18	152	2605	4.86	ug/kg	99
9) Acenaphthene	13.35	154	1708	5.13	ug/kg	99
10) Fluorene	13.99	166	2006	4.96	ug/kg	100
12) Phenanthrene	15.42	178	2611	5.29	ug/kg	98
13) Anthracene	15.46	178	2334	4.99	ug/kg	97
14) Fluoranthene	17.38	202	2574	5.04	ug/kg	97
15) Pyrene	17.98	202	2731	5.14	ug/kg	98
18) Benzo[a]anthracene	20.96	228	2474	4.83	ug/kg	98
19) Chrysene	21.23	228	2506	5.06	ug/kg	98
21) Benzo[b]fluoranthene	24.54	252	2650	4.89	ug/kg	95
22) Benzo[k]fluoranthene	24.62	252	2439	4.80	ug/kg	99
23) Benzo(j)fluoranthene	24.73	252	2160	4.77	ug/kg	98
24) Benzo[e]pyrene	25.79	252	2395	4.93	ug/kg	99
25) Benzo[a]pyrene	25.96	252	2456	4.95	ug/kg	98
26) Dibenz[a,h]anthracene	29.54	278	2266	5.01	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.55	276	2667	4.95	ug/kg	94
28) Benzo[g,h,i]perylene	30.62	276	2050	4.88	ug/kg	98

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160421\16042103.D          Vial: 3
Acq On    : 21 Apr 2016   2:30 pm                     Operator:
Sample    : PCAL-160421 (5 ppb)                       Inst     : GC/MS #6
Misc      : CAL1                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016            Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
```



Data File : C:\HPCHEM\1\DATA\160421\16042104.D Vial: 4
Acq On : 21 Apr 2016 3:10 pm Operator:
Sample : PCAL-160421 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.89	136	1199002	4000.00	ug/kg	103
5) Acenaphthene-d10	13.30	164	1222079	4000.00	ug/kg	106
11) Phenanthrene-d10	15.39	188	1882400	4000.00	ug/kg	92
17) Chrysene-d12	21.15	240	2305426	4000.00	ug/kg	101
20) Perylene-d12	26.31	264	2097207	4000.00	ug/kg	102

System Monitoring Compounds

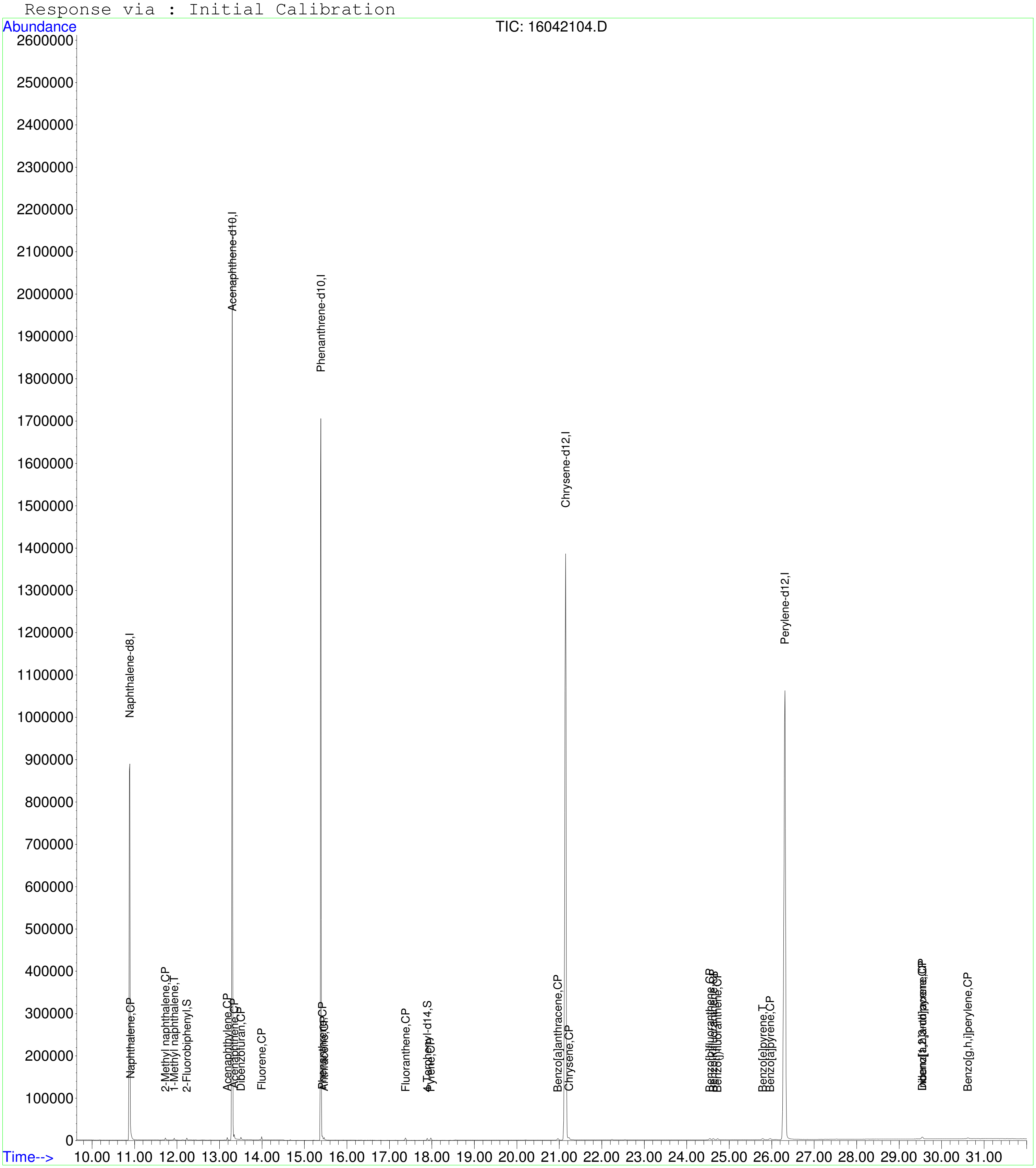
7) 2-Fluorobiphenyl	12.24	172	3816	10.70	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.27%#		
16) 4-Terphenyl-d14	17.89	244	5525	11.34	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.28%#		

Target Compounds						Qvalue
2) Naphthalene	10.91	128	3165	10.55	ug/kg	99
3) 2-Methyl naphthalene	11.72	142	2722	10.27	ug/kg	96
4) 1-Methyl naphthalene	11.93	142	2498	10.30	ug/kg	98
6) Dibenzofuran	13.50	168	4637	10.12	ug/kg	97
8) Acenaphthylene	13.18	152	5169	9.82	ug/kg	99
9) Acenaphthene	13.35	154	3288	10.07	ug/kg	99
10) Fluorene	13.99	166	3853	9.71	ug/kg	100
12) Phenanthrene	15.42	178	5197	10.50	ug/kg	100
13) Anthracene	15.46	178	4709	10.05	ug/kg	99
14) Fluoranthene	17.38	202	5273	10.29	ug/kg	98
15) Pyrene	17.97	202	5684	10.68	ug/kg	98
18) Benzo[a]anthracene	20.96	228	5216	9.66	ug/kg	99
19) Chrysene	21.23	228	5255	10.07	ug/kg	100
21) Benzo[b]fluoranthene	24.54	252	5597	10.13	ug/kg	99
22) Benzo[k]fluoranthene	24.63	252	5178	9.99	ug/kg	98
23) Benzo(j)fluoranthene	24.73	252	4498	9.74	ug/kg	97
24) Benzo[e]pyrene	25.79	252	5016	10.13	ug/kg	99
25) Benzo[a]pyrene	25.96	252	4933	9.75	ug/kg	99
26) Dibenz[a,h]anthracene	29.55	278	4301	9.34	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.55	276	5196	9.45	ug/kg	97
28) Benzo[g,h,i]perylene	30.62	276	4100	9.57	ug/kg	98

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

```
Data File : C:\HPCHEM\1\DATA\160421\16042104.D          Vial: 4
Acq On    : 21 Apr 2016   3:10 pm                   Operator:
Sample    : PCAL-160421 (10 ppb)                    Inst    : GC/MS #6
Misc      : CAL                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016            Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160421\16042105.D Vial: 5
Acq On : 21 Apr 2016 3:51 pm Operator:
Sample : PCAL-160421 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1080570	4000.00 ug/kg	93
5) Acenaphthene-d10	13.30	164	1201613	4000.00 ug/kg	104
11) Phenanthrene-d10	15.39	188	1885707	4000.00 ug/kg	92
17) Chrysene-d12	21.15	240	2199366	4000.00 ug/kg	97
20) Perylene-d12	26.31	264	2036632	4000.00 ug/kg	99

System Monitoring Compounds

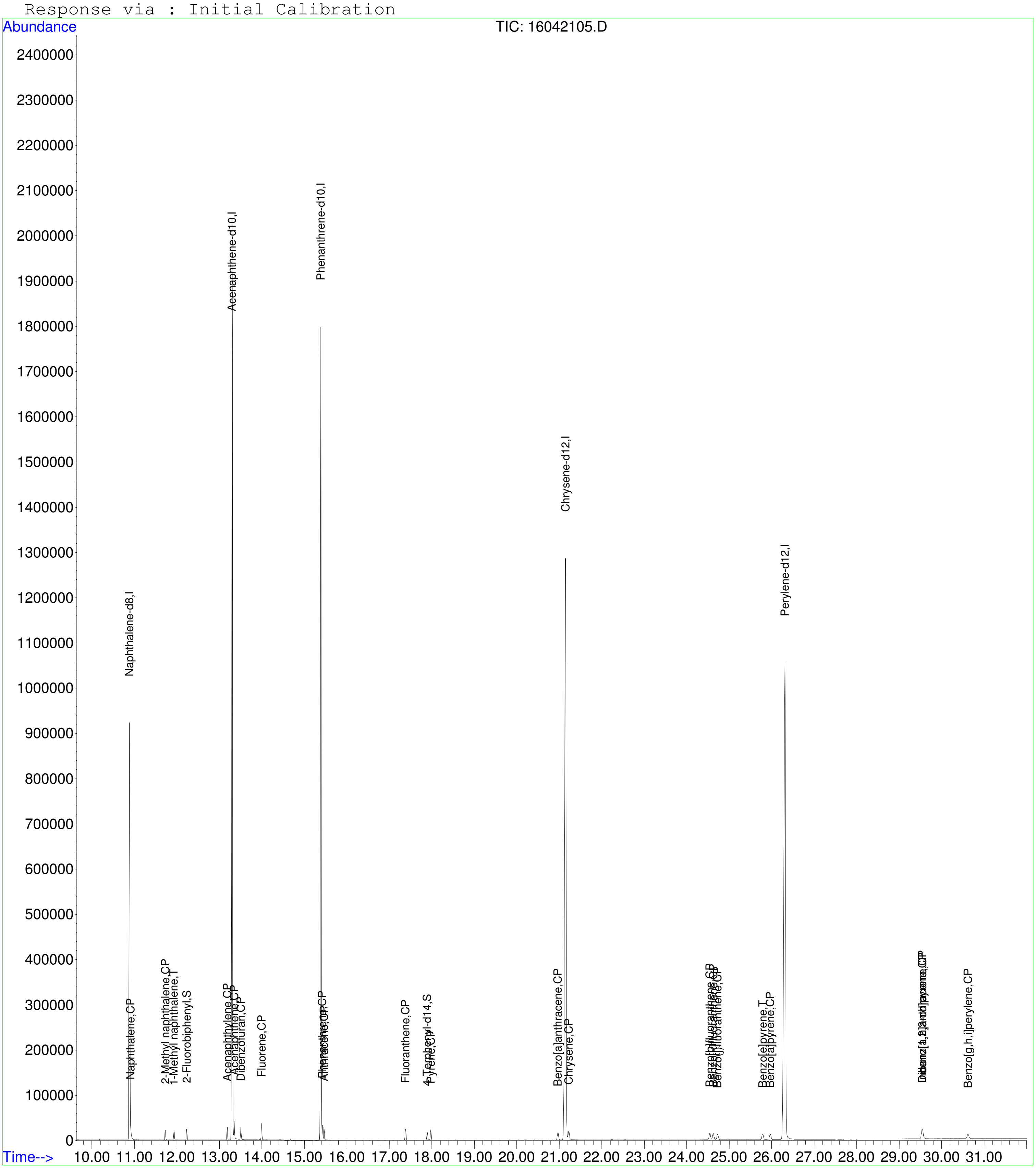
7) 2-Fluorobiphenyl	12.23	172	17592	50.19 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.25%#	
16) 4-Terphenyl-d14	17.89	244	22329	45.77 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.14%#	

Target Compounds					Qvalue
2) Naphthalene	10.92	128	13632	50.43 ug/kg	99
3) 2-Methyl naphthalene	11.73	142	12186	51.04 ug/kg	97
4) 1-Methyl naphthalene	11.94	142	11156	51.02 ug/kg	99
6) Dibenzofuran	13.51	168	22945	50.95 ug/kg	99
8) Acenaphthylene	13.19	152	25071	48.45 ug/kg	98
9) Acenaphthene	13.35	154	16206	50.45 ug/kg	98
10) Fluorene	14.00	166	19379	49.68 ug/kg	98
12) Phenanthrene	15.42	178	24341	49.08 ug/kg	98
13) Anthracene	15.46	178	23196	49.42 ug/kg	99
14) Fluoranthene	17.38	202	24647	48.03 ug/kg	99
15) Pyrene	17.98	202	25571	47.97 ug/kg	99
18) Benzo[a]anthracene	20.96	228	24646	47.83 ug/kg	100
19) Chrysene	21.23	228	24465	49.14 ug/kg	99
21) Benzo[b]fluoranthene	24.54	252	26529	49.42 ug/kg	99
22) Benzo[k]fluoranthene	24.63	252	24886	49.42 ug/kg	99
23) Benzo(j)fluoranthene	24.73	252	22107	49.28 ug/kg	98
24) Benzo[e]pyrene	25.79	252	23989	49.90 ug/kg	99
25) Benzo[a]pyrene	25.96	252	24021	48.90 ug/kg	100
26) Dibenz[a,h]anthracene	29.54	278	21621	48.33 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.55	276	26066	48.84 ug/kg	95
28) Benzo[g,h,i]perylene	30.62	276	20164	48.45 ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160421\16042105.D          Vial: 5
Acq On    : 21 Apr 2016   3:51 pm                    Operator:
Sample    : PCAL-160421 (50 ppb)                     Inst     : GC/MS #6
Misc      : CAL                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016           Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160421\16042106.D Vial: 6
Acq On : 21 Apr 2016 4:31 pm Operator:
Sample : PCAL-160421 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.89	136	1270878	4000.00	ug/kg	110
5) Acenaphthene-d10	13.30	164	1176698	4000.00	ug/kg	102
11) Phenanthrene-d10	15.39	188	1800254	4000.00	ug/kg	88
17) Chrysene-d12	21.15	240	2173217	4000.00	ug/kg	96
20) Perylene-d12	26.31	264	1915994	4000.00	ug/kg	93

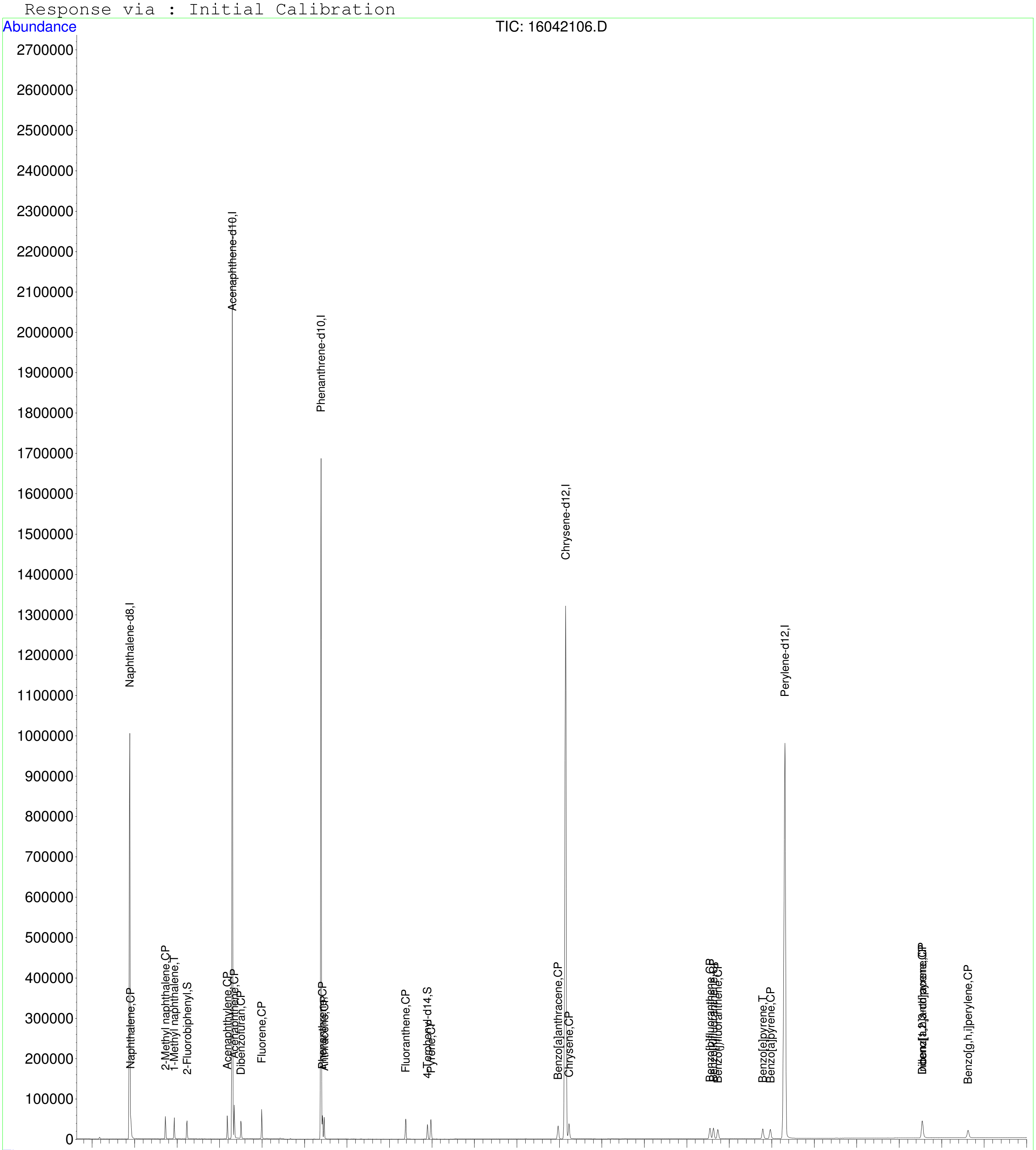
System Monitoring Compounds
7) 2-Fluorobiphenyl 12.23 172 37379 108.90 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 2.72%#
16) 4-Terphenyl-d14 17.89 244 45660 98.03 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 2.45%#

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.91	128	31387	98.73	ug/kg	100
3) 2-Methyl naphthalene	11.72	142	29129	103.73	ug/kg	96
4) 1-Methyl naphthalene	11.93	142	26563	103.29	ug/kg	97
6) Dibenzofuran	13.51	168	41336	93.73	ug/kg	98
8) Acenaphthylene	13.18	152	50435	99.53	ug/kg	99
9) Acenaphthene	13.35	154	31207	99.22	ug/kg	98
10) Fluorene	13.99	166	34802	91.11	ug/kg	100
12) Phenanthrene	15.42	178	47518	100.37	ug/kg	98
13) Anthracene	15.46	178	44798	99.97	ug/kg	99
14) Fluoranthene	17.38	202	50045	102.15	ug/kg	99
15) Pyrene	17.98	202	52116	102.40	ug/kg	99
18) Benzo[a]anthracene	20.97	228	49179	96.59	ug/kg	100
19) Chrysene	21.23	228	48443	98.48	ug/kg	99
21) Benzo[b]fluoranthene	24.55	252	48925	96.88	ug/kg	99
22) Benzo[k]fluoranthene	24.63	252	46589	98.35	ug/kg	99
23) Benzo(j)fluoranthene	24.73	252	41528	98.41	ug/kg	99
24) Benzo[e]pyrene	25.79	252	44578	98.57	ug/kg	99
25) Benzo[a]pyrene	25.97	252	44648	96.61	ug/kg	100
26) Dibenz[a,h]anthracene	29.54	278	40242	95.61	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.55	276	48662	96.92	ug/kg	95
28) Benzo[g,h,i]perylene	30.62	276	38139	97.41	ug/kg	99

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

Data File : C:\HPCHEM\1\DATA\160421\16042106.D   Vial: 6
Acq On   : 21 Apr 2016   4:31 pm   Operator:
Sample   : PCAL-160421 (100 ppb)   Inst   : GC/MS #6
Misc   : CAL   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016   Quant Results File: PP160421.RES

Method   : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\160421\16042107.D Vial: 7
Acq On : 21 Apr 2016 5:11 pm Operator:
Sample : PCAL-160421 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1148191	4000.00 ug/kg	99
5) Acenaphthene-d10	13.30	164	1212423	4000.00 ug/kg	105
11) Phenanthrene-d10	15.39	188	1918468	4000.00 ug/kg	94
17) Chrysene-d12	21.15	240	2190661	4000.00 ug/kg	96
20) Perylene-d12	26.31	264	2019677	4000.00 ug/kg	98

System Monitoring Compounds

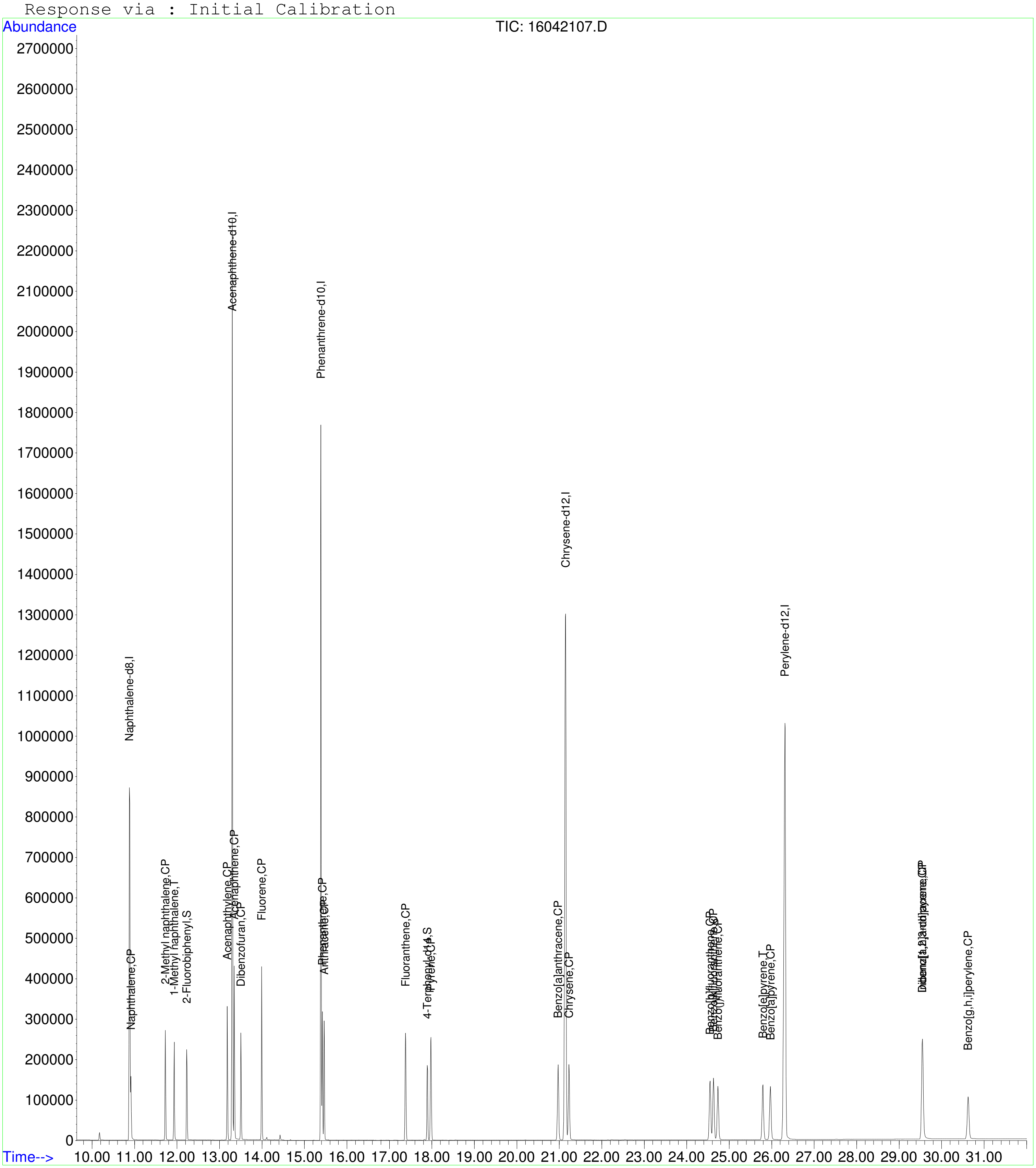
	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.23	172	182135	514.98 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	12.87%#	
16) 4-Terphenyl-d14	17.89	244	239044	481.61 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	12.04%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.91	128	144814	504.22 ug/kg	100
3) 2-Methyl naphthalene	11.72	142	134217	529.05 ug/kg	99
4) 1-Methyl naphthalene	11.93	142	123573	531.84 ug/kg	99
6) Dibenzofuran	13.50	168	229182	504.36 ug/kg	99
8) Acenaphthylene	13.18	152	275195	527.05 ug/kg	99
9) Acenaphthene	13.35	154	164525	507.66 ug/kg	99
10) Fluorene	13.99	166	199871	507.82 ug/kg	99
12) Phenanthrene	15.42	178	258354	512.07 ug/kg	99
13) Anthracene	15.46	178	250282	524.11 ug/kg	99
14) Fluoranthene	17.38	202	270526	518.15 ug/kg	99
15) Pyrene	17.98	202	276662	510.12 ug/kg	99
18) Benzo[a]anthracene	20.97	228	270207	526.50 ug/kg	100
19) Chrysene	21.23	228	257223	518.73 ug/kg	99
21) Benzo[b]fluoranthene	24.55	252	273668	514.11 ug/kg	99
22) Benzo[k]fluoranthene	24.63	252	263925	528.52 ug/kg	99
23) Benzo(j)fluoranthene	24.73	252	233097	524.02 ug/kg	99
24) Benzo[e]pyrene	25.79	252	245920	515.86 ug/kg	99
25) Benzo[a]pyrene	25.97	252	251605	516.48 ug/kg	100
26) Dibenz[a,h]anthracene	29.55	278	228786	515.68 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.55	276	273714	517.15 ug/kg	98
28) Benzo[g,h,i]perylene	30.62	276	212686	515.34 ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160421\16042107.D          Vial: 7
Acq On    : 21 Apr 2016   5:11 pm                    Operator:
Sample    : PCAL-160421 (500 ppb)                    Inst    : GC/MS #6
Misc      : CAL                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:45 2016             Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
```



Data File : C:\HPCHEM\1\DATA\160421\16042108.D Vial: 8
Acq On : 21 Apr 2016 5:50 pm Operator:
Sample : PCAL-160421 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1136496	4000.00	ug/kg	98
5) Acenaphthene-d10	13.30	164	1155470	4000.00	ug/kg	100
11) Phenanthrene-d10	15.39	188	2018968	4000.00	ug/kg	99
17) Chrysene-d12	21.15	240	2284860	4000.00	ug/kg	101
20) Perylene-d12	26.31	264	2095808	4000.00	ug/kg	102

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.23	172	315163	935.04	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.38%#			
16) 4-Terphenyl-d14	17.89	244	486503	931.39	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.28%#			

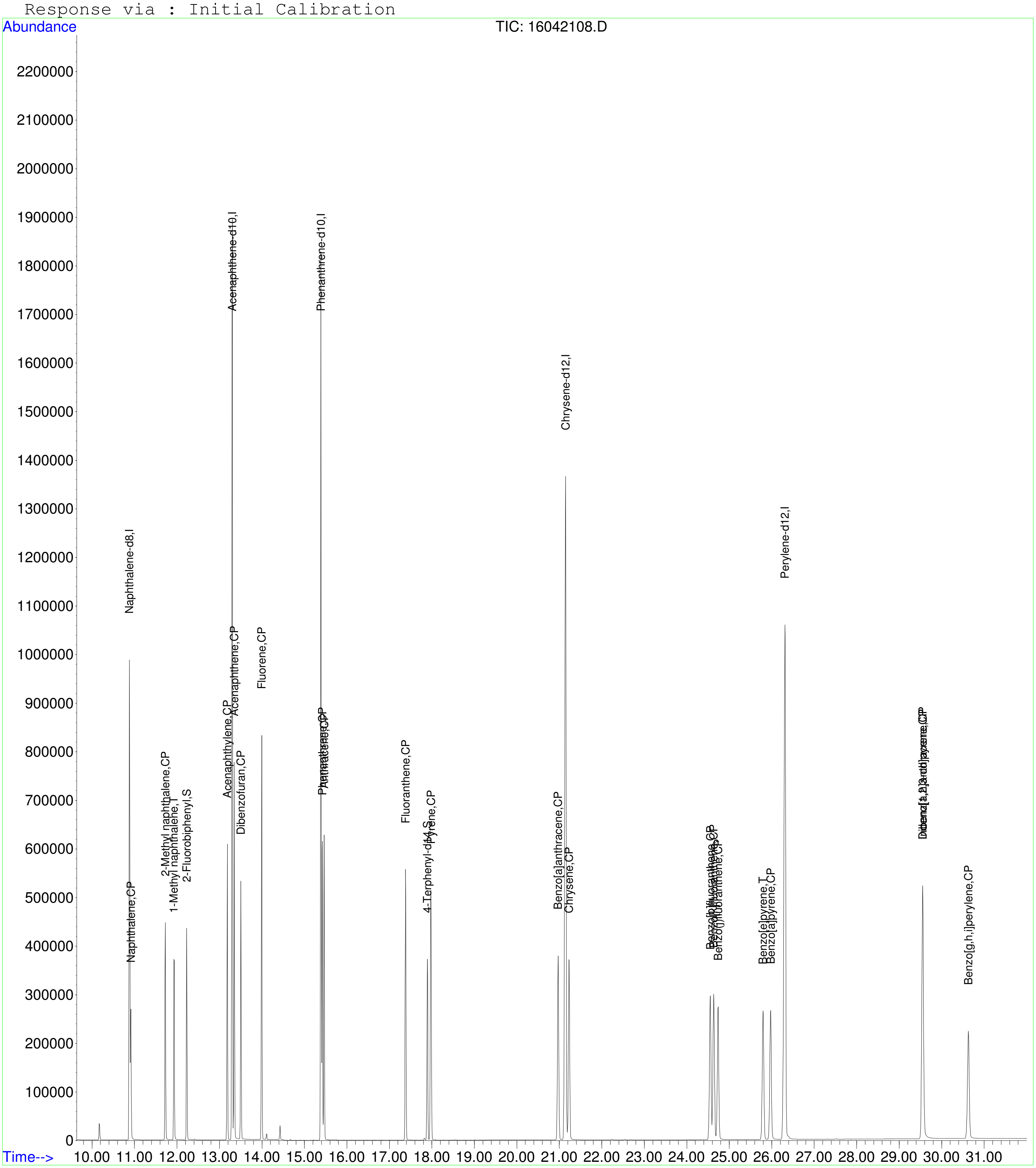
Target Compounds						Qvalue
2) Naphthalene	10.92	128	277677	976.77	ug/kg	100
3) 2-Methyl naphthalene	11.73	142	236454	941.63	ug/kg	97
4) 1-Methyl naphthalene	11.94	142	218047	948.10	ug/kg	98
6) Dibenzofuran	13.50	168	452065	1043.89	ug/kg	99
8) Acenaphthylene	13.18	152	509913	1024.72	ug/kg	99
9) Acenaphthene	13.35	154	308489	998.79	ug/kg	98
10) Fluorene	14.00	166	402991	1074.35	ug/kg	97
12) Phenanthrene	15.42	178	526173	990.99	ug/kg	99
13) Anthracene	15.46	178	510658	1016.12	ug/kg	99
14) Fluoranthene	17.38	202	550773	1002.41	ug/kg	99
15) Pyrene	17.98	202	562050	984.74	ug/kg	99
18) Benzo[a]anthracene	20.97	228	552303	1031.79	ug/kg	100
19) Chrysene	21.23	228	520856	1007.08	ug/kg	99
21) Benzo[b]fluoranthene	24.56	252	563310	1019.78	ug/kg	99
22) Benzo[k]fluoranthene	24.63	252	532095	1026.84	ug/kg	99
23) Benzo(j)fluoranthene	24.74	252	474751	1028.50	ug/kg	99
24) Benzo[e]pyrene	25.79	252	499171	1009.06	ug/kg	99
25) Benzo[a]pyrene	25.98	252	519265	1027.20	ug/kg	99
26) Dibenz[a,h]anthracene	29.55	278	475543	1032.92	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.55	276	565012	1028.75	ug/kg	97
28) Benzo[g,h,i]perylene	30.63	276	441808	1031.61	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160421\16042108.D   Vial: 8
Acq On   : 21 Apr 2016   5:50 pm   Operator:
Sample   : PCAL-160421 (1000 ppb)   Inst   : GC/MS #6
Misc   : CAL   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016   Quant Results File: PP160421.RES

Method   : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160421\16042109.D Vial: 9
Acq On : 21 Apr 2016 6:30 pm Operator:
Sample : PCAL-160421 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1159180	4000.00	ug/kg	100
5) Acenaphthene-d10	13.30	164	1151209	4000.00	ug/kg	100
11) Phenanthrene-d10	15.39	188	2042352	4000.00	ug/kg	100
17) Chrysene-d12	21.15	240	2271514	4000.00	ug/kg	100
20) Perylene-d12	26.31	264	2059792	4000.00	ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.23	172	618262	1841.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.03%			
16) 4-Terphenyl-d14	17.90	244	975941	1847.00	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.17%			

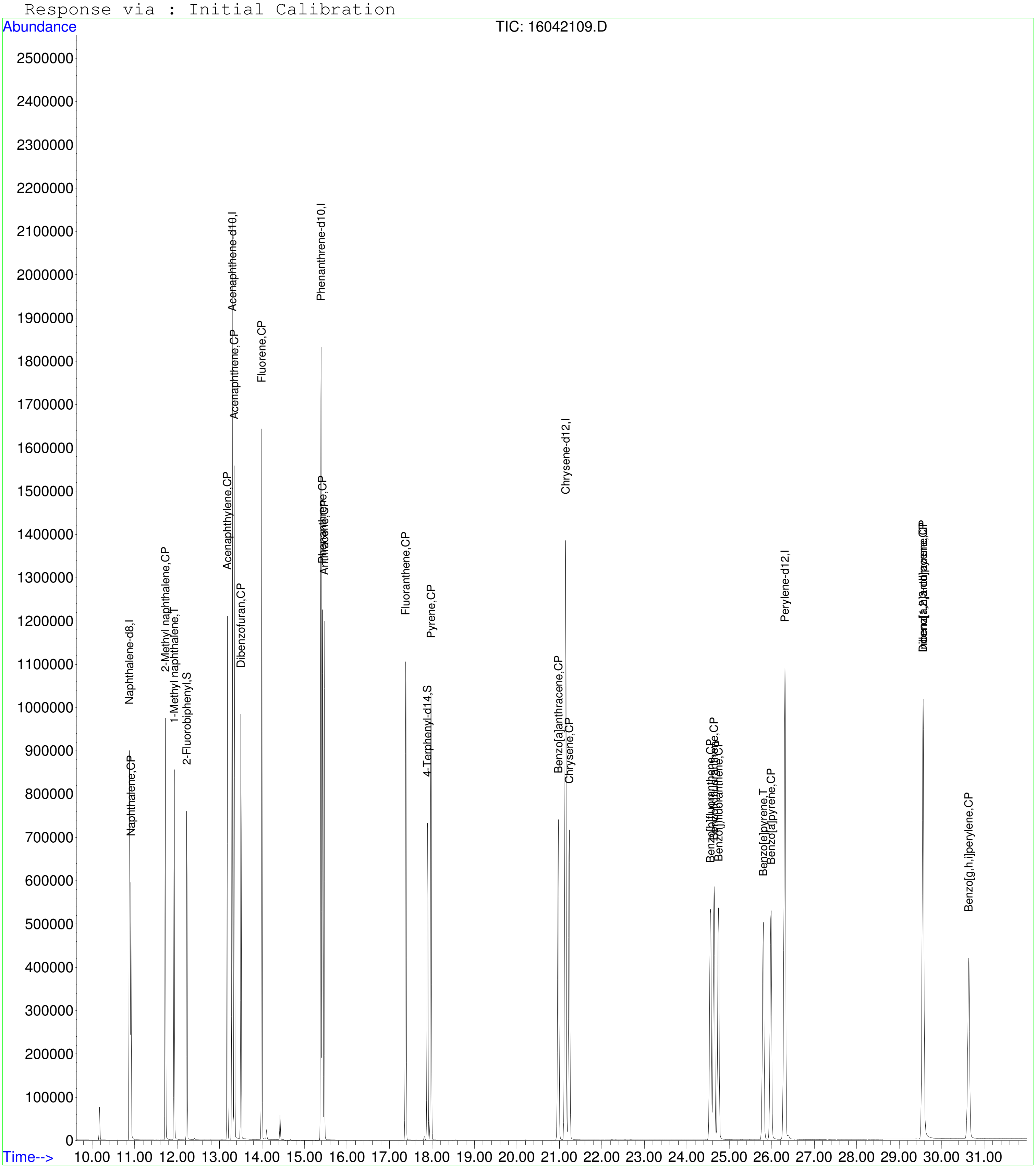
Target Compounds						Qvalue
2) Naphthalene	10.91	128	561019	1934.86	ug/kg	100
3) 2-Methyl naphthalene	11.72	142	481530	1880.07	ug/kg	100
4) 1-Methyl naphthalene	11.93	142	443761	1891.77	ug/kg	100
6) Dibenzofuran	13.50	168	873590	2024.72	ug/kg	100
8) Acenaphthylene	13.18	152	1023648	2064.73	ug/kg	100
9) Acenaphthene	13.35	154	614677	1997.49	ug/kg	100
10) Fluorene	13.99	166	794927	2127.08	ug/kg	100
12) Phenanthrene	15.42	178	1042190	1940.39	ug/kg	100
13) Anthracene	15.46	178	1017931	2002.32	ug/kg	100
14) Fluoranthene	17.38	202	1104168	1986.59	ug/kg	100
15) Pyrene	17.98	202	1123696	1946.24	ug/kg	100
18) Benzo[a]anthracene	20.98	228	1111322	2088.32	ug/kg	100
19) Chrysene	21.23	228	1032491	2008.06	ug/kg	100
21) Benzo[b]fluoranthene	24.56	252	1112314	2048.87	ug/kg	100
22) Benzo[k]fluoranthene	24.64	252	1033820	2029.96	ug/kg	100
23) Benzo(j)fluoranthene	24.75	252	933880	2058.53	ug/kg	100
24) Benzo[e]pyrene	25.80	252	984667	2025.28	ug/kg	100
25) Benzo[a]pyrene	25.98	252	1027353	2067.83	ug/kg	100
26) Dibenz[a,h]anthracene	29.56	278	940656	2078.92	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.56	276	1116484	2068.39	ug/kg	100
28) Benzo[g,h,i]perylene	30.64	276	877689	2085.21	ug/kg	100

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160421\16042109.D          Vial: 9
Acq On    : 21 Apr 2016   6:30 pm                    Operator:
Sample    : PCAL-160421 (2000 ppb)                   Inst    : GC/MS #6
Misc      : CAL                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016            Quant Results File: PP160421.RES

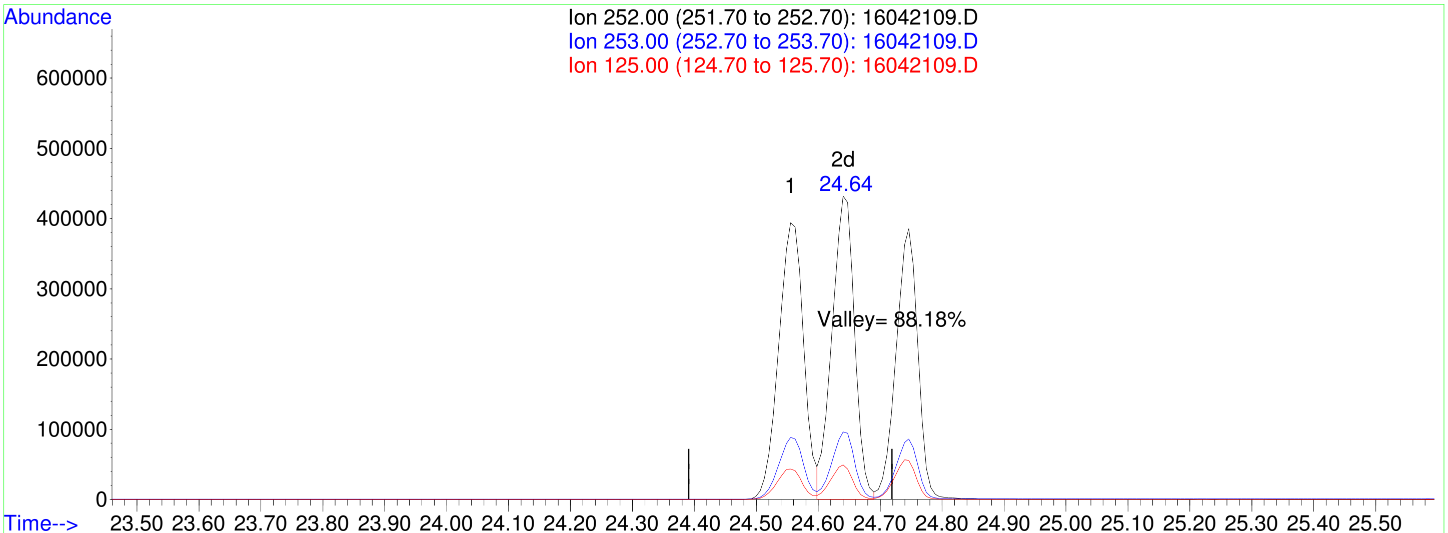
Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
```

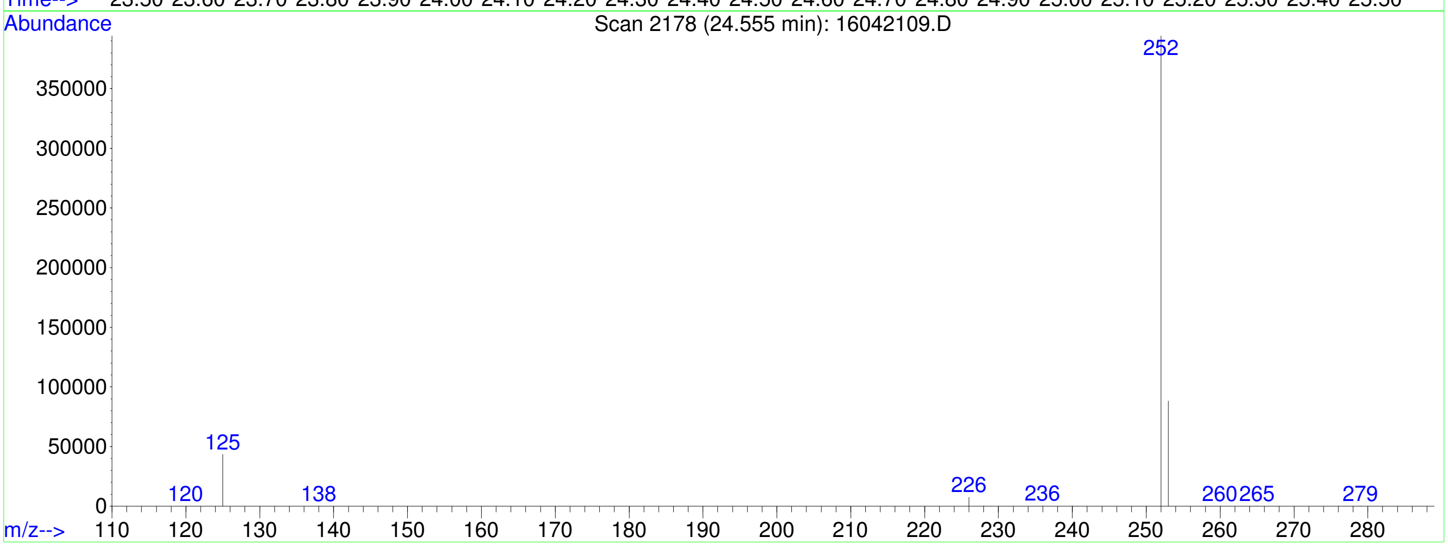


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160421\16042109.D Vial: 9
Acq On : 21 Apr 2016 6:30 pm Operator:
Sample : PCAL-160421 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 9:10 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 09:12:07 2016
Response via : Multiple Level Calibration





TIC: 16042109.D

(21) Benzo[b]fluoranthene (CP)

24.56min 1892.05ug/kg

response 1112314

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.23
125.00	10.50	11.00
0.00	0.00	0.00

Data File : C:\HPCHEM\1\DATA\160421\16042110.D Vial: 10
Acq On : 21 Apr 2016 7:10 pm Operator:
Sample : PCAL-160421 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1267887	4000.00 ug/kg	109
5) Acenaphthene-d10	13.30	164	1170622	4000.00 ug/kg	102
11) Phenanthrene-d10	15.39	188	2026803	4000.00 ug/kg	99
17) Chrysene-d12	21.15	240	2321115	4000.00 ug/kg	102
20) Perylene-d12	26.32	264	2077450	4000.00 ug/kg	101

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.23	172	1535636	4497.00 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 112.43%		
16) 4-Terphenyl-d14	17.90	244	2372972	4525.38 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 113.13%		

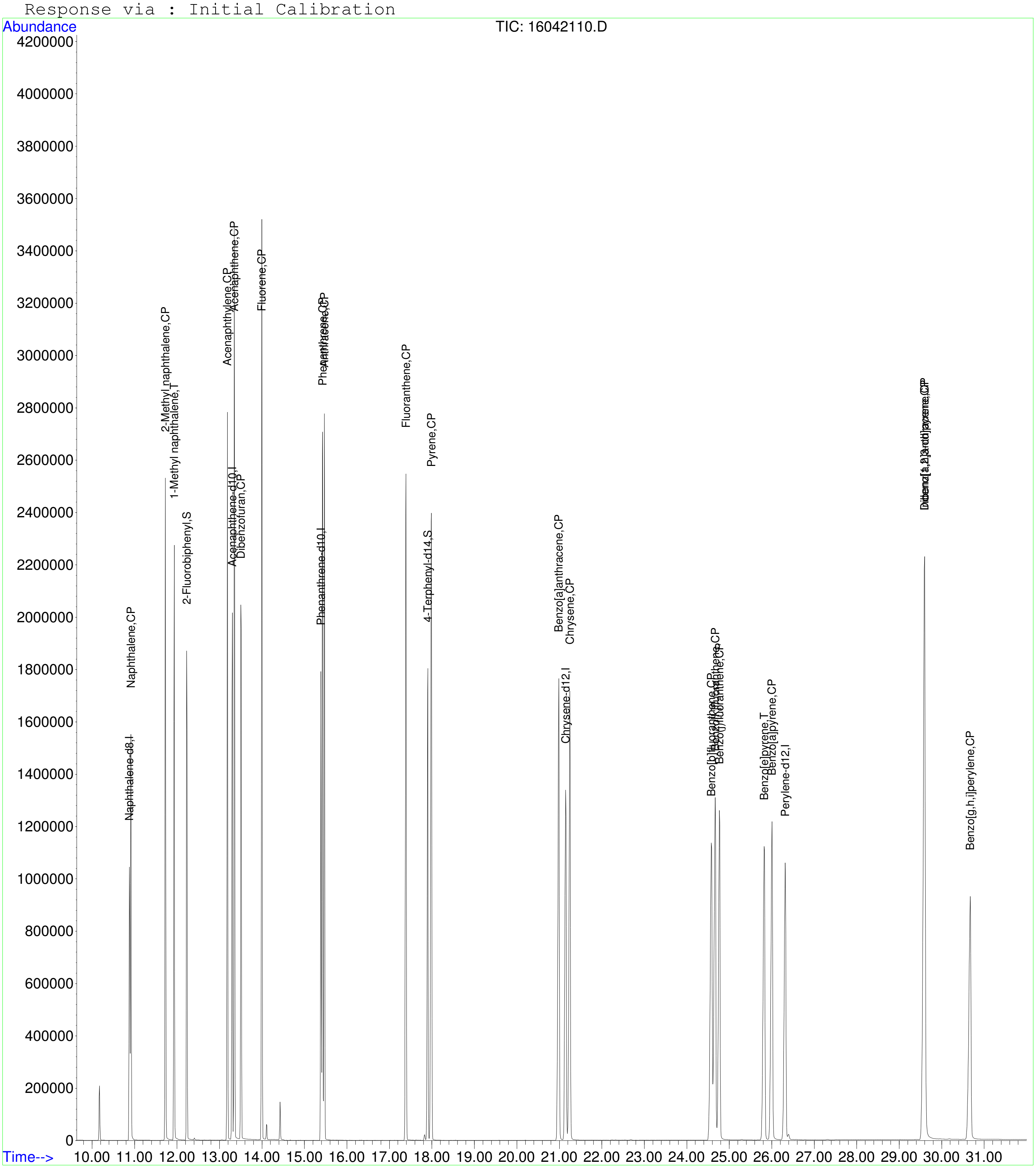
Target Compounds					Qvalue
2) Naphthalene	10.91	128	1466551	4624.22 ug/kg	99
3) 2-Methyl naphthalene	11.73	142	1254770	4479.04 ug/kg	99
4) 1-Methyl naphthalene	11.94	142	1162503	4530.90 ug/kg	99
6) Dibenzofuran	13.51	168	2052094	4677.28 ug/kg	99
8) Acenaphthylene	13.18	152	2446851	4853.52 ug/kg	98
9) Acenaphthene	13.35	154	1490789	4764.22 ug/kg	98
10) Fluorene	14.00	166	1858069	4889.40 ug/kg	100
12) Phenanthrene	15.43	178	2457176	4609.95 ug/kg	99
13) Anthracene	15.47	178	2377979	4713.49 ug/kg	98
14) Fluoranthene	17.39	202	2617800	4746.00 ug/kg	98
15) Pyrene	17.99	202	2697026	4707.07 ug/kg	99
18) Benzo[a]anthracene	20.99	228	2764069	5083.06 ug/kg	99
19) Chrysene	21.25	228	2532342	4819.83 ug/kg	99
21) Benzo[b]fluoranthene	24.58	252	2683309	4900.63 ug/kg	99
22) Benzo[k]fluoranthene	24.67	252	2495150	4857.71 ug/kg	99
23) Benzo(j)fluoranthene	24.77	252	2281068	4985.37 ug/kg	99
24) Benzo[e]pyrene	25.82	252	2361015	4814.90 ug/kg	99
25) Benzo[a]pyrene	26.00	252	2496967	4983.10 ug/kg	99
26) Dibenz[a,h]anthracene	29.60	278	2366235	5185.10 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.60	276	2781552	5109.27 ug/kg	99
28) Benzo[g,h,i]perylene	30.67	276	2164787	5099.38 ug/kg	98

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160421\16042110.D          Vial: 10
Acq On    : 21 Apr 2016   7:10 pm                    Operator:
Sample    : PCAL-160421 (5000 ppb)                   Inst     : GC/MS #6
Misc      : CAL                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016           Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160421\16042112.D          Vial: 12
Acq On    : 21 Apr 2016   8:30 pm                     Operator:
Sample    : PSSCV-160421 (2500 ppb)                   Inst     : GC/MS #6
Misc      : ICV                                       Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Apr 22 11:46 2016             Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322
```

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1773814	4000.00 ug/kg	153
5) Acenaphthene-d10	13.29	164	1073271	4000.00 ug/kg	93
11) Phenanthrene-d10	15.38	188	1966702	4000.00 ug/kg	96
17) Chrysene-d12	21.14	240	2203847	4000.00 ug/kg	97
20) Perylene-d12	26.30	264	1999501	4000.00 ug/kg	97

System Monitoring Compounds

	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.23	172	473	1.51 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.04%#	
16) 4-Terphenyl-d14	17.89	244	1537	3.02 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.08%#	

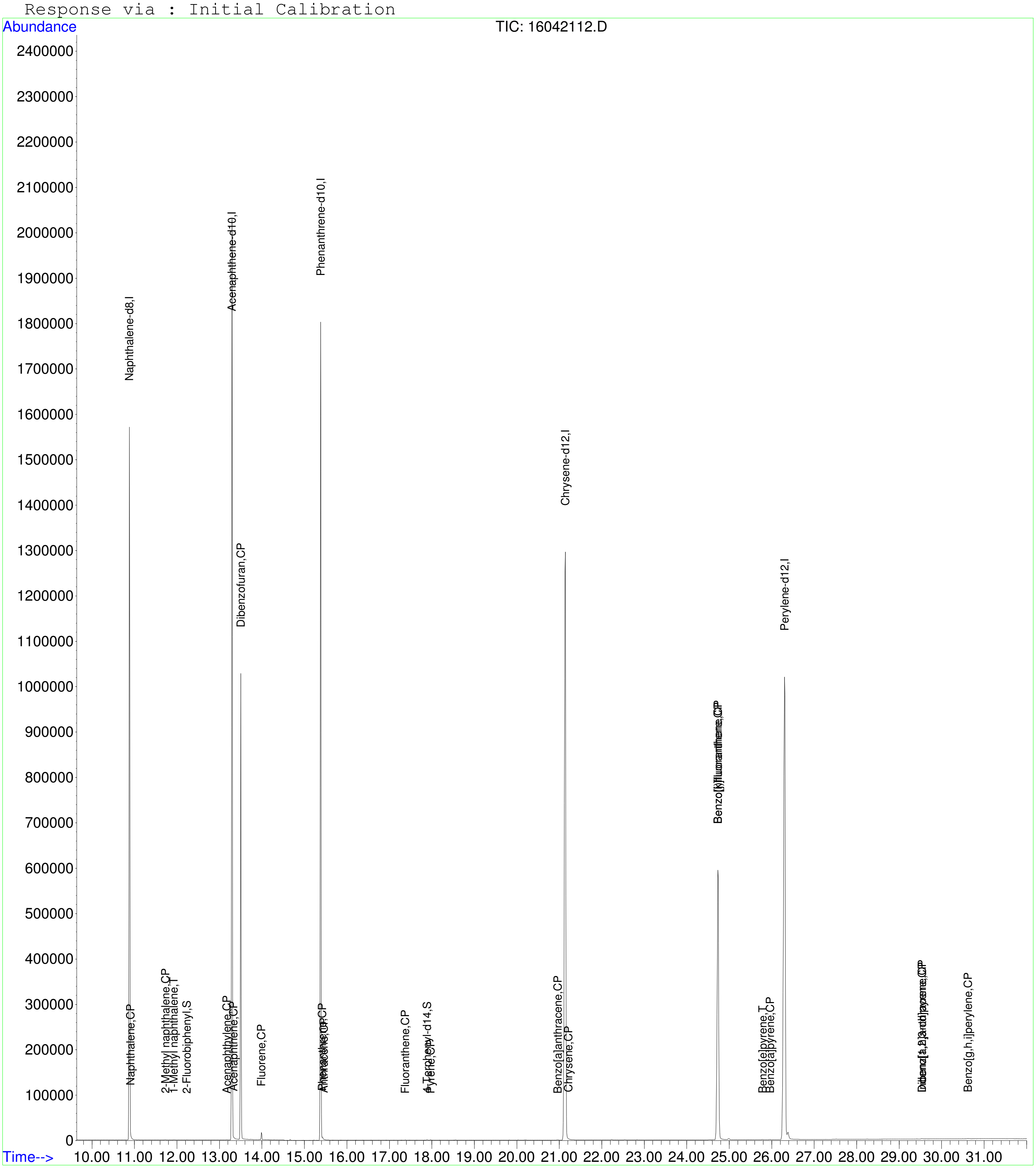
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue	
2) Naphthalene	10.92	128	667	1.50 ug/kg	98	
3) 2-Methyl naphthalene	11.73	142	541	1.38 ug/kg	94	
4) 1-Methyl naphthalene	11.93	142	390	1.09 ug/kg	96	
6) Dibenzofuran	13.50	168	930384	2312.95 ug/kg	99	**92.52%**
8) Acenaphthylene	13.18	152	654	1.41 ug/kg	99	
9) Acenaphthene	13.34	154	537	1.87 ug/kg	96	
10) Fluorene	13.99	166	8239	23.65 ug/kg	99	
12) Phenanthrene	15.42	178	915	1.77 ug/kg	99	
13) Anthracene	15.46	178	904	1.85 ug/kg	96	
14) Fluoranthene	17.37	202	754	1.41 ug/kg	97	
15) Pyrene	17.97	202	988	1.78 ug/kg	95	
18) Benzo[a]anthracene	20.96	228	786	1.52 ug/kg	92	
19) Chrysene	21.22	228	862	1.73 ug/kg	97	
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) Benzo[k]fluoranthene	~~24.73~~	~~252~~	~~1073092~~	~~2170.60 ug/kg~~	~~96~~	
23) Benzo(j)fluoranthene	24.73	252	1088009	2470.59 ug/kg	99	**98.80%**
24) Benzo[e]pyrene	25.79	252	711	1.51 ug/kg	85	
25) Benzo[a]pyrene	25.96	252	776	1.61 ug/kg	86	
26) Dibenz[a,h]anthracene	29.54	278	674	1.53 ug/kg	97	
27) Indeno[1,2,3-cd]pyrene	29.55	276	905	1.73 ug/kg	91	
28) Benzo[g,h,i]perylene	30.62	276	929	2.27 ug/kg	94	

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160421\16042112.D          Vial: 12
Acq On    : 21 Apr 2016   8:30 pm                     Operator:
Sample    : PSSCV-160421 (2500 ppb)                   Inst    : GC/MS #6
Misc      : ICV                                       Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016             Quant Results File: PP160421.RES

Method       : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
```



Data File : C:\HPCHEM\1\DATA\160421\16042113.D Vial: 13
Acq On : 21 Apr 2016 9:10 pm Operator:
Sample : PSSCV-160421 (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration
DataAcq Meth : PP160322

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1207407	4000.00	ug/kg	104
5) Acenaphthene-d10	13.29	164	1125201	4000.00	ug/kg	98
11) Phenanthrene-d10	15.38	188	2006052	4000.00	ug/kg	98
17) Chrysene-d12	21.14	240	2214439	4000.00	ug/kg	97
20) Perylene-d12	26.30	264	2022205	4000.00	ug/kg	98

System Monitoring Compounds
7) 2-Fluorobiphenyl 12.23 172 865296 2636.25 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 65.91%
16) 4-Terphenyl-d14 17.89 244 1276971 2460.44 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 61.51%

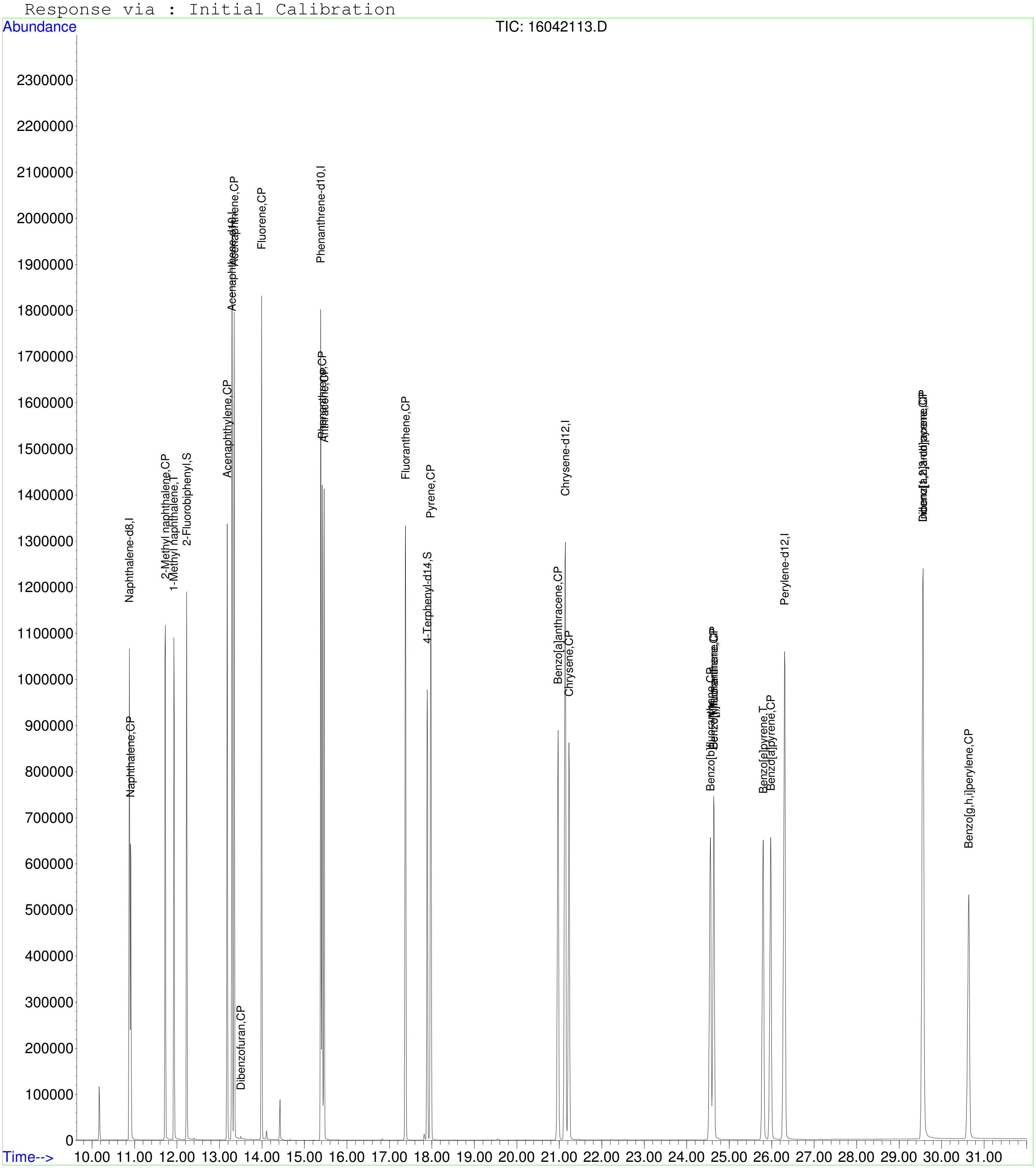
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.90	128	700486	2319.36	ug/kg	99
3) 2-Methyl naphthalene	11.72	142	646154	2422.05	ug/kg	96
4) 1-Methyl naphthalene	11.93	142	589122	2411.14	ug/kg	93
~~6) Dibenzofuran~~	~~13.50~~	~~168~~	~~4477~~	~~10.62~~	~~ug/kg~~	~~99~~
8) Acenaphthylene	13.18	152	1162279	2398.54	ug/kg	99
9) Acenaphthene	13.35	154	742241	2467.78	ug/kg	98
10) Fluorene	13.99	166	937451	2566.43	ug/kg	98
12) Phenanthrene	15.42	178	1224975	2321.97	ug/kg	100
13) Anthracene	15.46	178	1210391	2423.98	ug/kg	100
14) Fluoranthene	17.38	202	1343025	2460.06	ug/kg	99
15) Pyrene	17.98	202	1367241	2410.90	ug/kg	100
18) Benzo[a]anthracene	20.97	228	1320521	2545.39	ug/kg	100
19) Chrysene	21.23	228	1199457	2392.91	ug/kg	100
21) Benzo[b]fluoranthene	24.56	252	1332056	2499.24	ug/kg	100
22) Benzo[k]fluoranthene	24.63	252	1314395	2628.85	ug/kg	99
~~23) Benzo(j)fluoranthene~~	~~24.63~~	~~252~~	~~1324210~~	~~2973.18~~	~~ug/kg~~	~~96~~
24) Benzo[e]pyrene	25.80	252	1256065	2631.51	ug/kg	99
25) Benzo[a]pyrene	25.98	252	1257772	2578.66	ug/kg	99
26) Dibenz[a,h]anthracene	29.56	278	1181135	2658.91	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.56	276	1381760	2607.41	ug/kg	99
28) Benzo[g,h,i]perylene	30.64	276	1103924	2671.45	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160421\16042113.D Vial: 13
Acq On : 21 Apr 2016 9:10 pm Operator:
Sample : PSSCV-160421 (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 22 11:46 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration



GCMS8
For

DHL Work Order
1605144

GCMS8_160518B
For

DHL Work Order
1605144

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_160518B**
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			
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			
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		
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		X
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

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

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
X Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	X Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

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

Equipment blanks - LCS and MB is only QC requirement.

Analyst: Karyn Lane Date: 5/19/2016

Second-Level Review: Sherri Herschmann Date: **05/23/2016**

REVIEWED/APPROVED

By Sherri Herschmann at 4:06:35 PM, 5/23/2016

DHL Analytical, Inc.

Run ID: GCMS8_160518B

Run No.: 85875

Analytical Run Date: 5/18/2016

InstrumentID: GCMS8

Analyst: Karyn Lane

Column: Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 660

Column ID: 0.18mm

Column Length: 20m

Cal Comments: PAH160517.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160518	1	PAH_LL_WDOD1	TUNE	R85875	5/18/2016 8:58:00 AM		
ICV-160518	1	PAH_LL_WDOD1	ICV	R85875	5/18/2016 9:35:00 AM		Use DCS/LQV from GCMS8_160518A.
LCS-75146	1	PAH_LL_WDOD1	LCS	75146	5/18/2016 2:03:00 PM		Equipment blanks - LCS and MB is only QC requirement.
MB-75146	1	PAH_LL_WDOD1	MBLK	75146	5/18/2016 2:40:00 PM		
1605074-33B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 3:17:00 PM		
1605074-34B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 3:53:00 PM		
1605074-35B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 4:30:00 PM		
1605096-36B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 5:07:00 PM		
1605096-37B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 5:44:00 PM		
1605096-44B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 6:21:00 PM		
1605097-27B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 6:58:00 PM		
1605097-30B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 7:34:00 PM		
DFTPP2-160518	1	PAH_LL_WDOD1	TUNE	R85875	5/18/2016 8:11:00 PM		
ICV2-160518	1	PAH_LL_WDOD1	ICV	R85875	5/18/2016 8:49:00 PM		
SBLK-160518	1	PAH_LL_WDOD1	SBLK	75146	5/18/2016 10:03:00 PM		
1605098-42B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 10:40:00 PM		
1605121-46B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 11:17:00 PM		
1605121-47B	1	PAH_LL_WDOD1	SAMP	75146	5/18/2016 11:54:00 PM		
1605135-46B	1	PAH_LL_WDOD1	SAMP	75146	5/19/2016 12:31:00 AM		
1605144-16B	1	PAH_LL_WDOD1	SAMP	75146	5/19/2016 1:08:00 AM		
CCV-160520	1	PAH_LL_WDOD1	CCV	R85875	5/19/2016 2:59:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV-160509	1 PPM PAH CCV STANDARD	CCV	08/07/2016
PAHICV160509	2 PPM PAH ICV	ICV	08/07/2016
SVI150810-08	4000 PPM INTERNAL STANDAR	ALL	07/21/2016

REVIEWED/APPROVED

By Sherri Herschmann at 4:07:08 PM, 5/23/2016

```
   Sequence Name: C:\msdchem\1\sequence\160518.S
         Comment:
        Operator:
       Data Path: C:\MSDCHEM\1\DATA\160518\
 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     On A Barcode Mismatch
    (X) Full Method             (X) Inject Anyway
    ( ) Reprocessing Only       ( ) Don't Inject

   -----------------------------------------------------------------------
   Line                  Sample Name/Misc Info
 1)  Sample        1  16051801 DFTPPPAH        DFTPP-160518
 2)  Sample        2  16051802 PAH160517       ICV-160518
 3)  Sample        3  16051803 PAH160517       DCS-75209
 4)  Sample        4  16051804 PAH160517       LQV-75209
 5)  Sample        5  16051805 PAH160517       LCS-75209
 6)  Sample        6  16051806 PAH160517       LCSD-75209
 7)  Sample        7  16051807 PAH160517       MB-75209
 8)  Sample        8  16051808 PAH160517       1605142-01E
 9)  Sample        9  16051809 PAH160517       LCS-75146
10)  Sample       10  16051810 PAH160517       MB-75146
11)  Sample       11  16051811 PAH160517       1605074-33B
12)  Sample       12  16051812 PAH160517       1605074-34B
13)  Sample       13  16051813 PAH160517       1605074-35B
14)  Sample       14  16051814 PAH160517       1605096-36B
15)  Sample       15  16051815 PAH160517       1605096-37B
16)  Sample       16  16051816 PAH160517       1605096-44B
17)  Sample       17  16051817 PAH160517       1605097-27B
18)  Sample       18  16051818 PAH160517       1605097-30B
19)  Sample       19  16051819 DFTPPPAH        DFTPP2-160518
20)  Sample       20  16051820 PAH160517       ICV2-160518
21)  Sample       21  16051821 PAH160517       SBLK
22)  Sample       22  16051822 PAH160517       SBLK-160518
23)  Sample       23  16051823 PAH160517       1605098-42B
24)  Sample       24  16051824 PAH160517       1605121-46B
25)  Sample       25  16051825 PAH160517       1605121-47B
26)  Sample       26  16051826 PAH160517       1605135-46B
27)  Sample       27  16051827 PAH160517       1605144-16B
28)  Sample       28  16051828 PAH160517       1605071-38A
29)  Sample       29  16051829 PAH160517       1605071-32A
30)  Sample       30  16051830 PAH160517       CCV-160520
```

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 8:48:47 AM**
Digestion:
Prep End Date: 5/13/16 11:35AM
Prep Batch **75146** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605074-33B	Equip Blank	6	500	1	0.002	1 of 1	532.2 - 212.6 = 319.6
1605074-34B	Equip Blank		500	1	0.002	1 of 1	535.8 - 213.4 = 322.4
1605074-35B	Equip Blank		500	1	0.002	1 of 1	AR 5/13/16 ~~358.0~~ 538.0 - 214.4 = 323.6
1605096-36B	Equip Blank		500	1	0.002	1 of 1	543.3 - 213.4 = 329.9
1605096-37B	Equip Blank		500	1	0.002	1 of 1	538.9 - 213.6 = 318.4
1605096-44B	Equip Blank		500	1	0.002	1 of 1	531.6 - 212.5 = 319.1
1605097-27B	Equip Blank		500	1	0.002	1 of 1	536.8 - 212.2 = 324.6
1605097-30B	Equip Blank		500	1	0.002	1 of 1	537.3 - 213.3 = 324.0
1605098-42B	Equip Blank		500	1	0.002	1 of 1	537.9 - 212.9 = ~~315.1~~ 325
1605121-46B	Equip Blank		500	1	0.002	1 of 1	526.8 - 213.4 = 313.4
1605121-47B	Equip Blank		500	1	0.002	1 of 1	528.7 - 212.3 = ~~308.7~~ 316.4
1605135-46B	Equip Blank		500	1	0.002	1 of 1	534.2 - 212.8 = 321.4
LCS-75146	Aqueous		500	1	0.002	of	738.3 - 238.3 = 500.0
~~LCSD-75146~~ DB 5/13/16	Aqueous		500	1	0.002	of	~~Insufficient sample for MS/D~~ DB 5/13/16
MB-75146	Aqueous	↓	500	1	0.002	of	777.4 - 277.4 = 500.0
1605144-16B		6					536.0 - 214.7 = 321.3

Added @ 1:00PM 5/13/16.

REVIEWED/APPROVED
By Sherri Herschmann at 4:12:07 PM, 5/23/2016

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
9927	Purified Sodium Sulfate	10	g	07/04/2016
10169	Methylene Chloride	120	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/LCSD	0.01	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.1	08/08/2016

DB 5/13/16 AR 5/13/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 8:48:47 AM**
Digestion:
Prep End Date: **5/13/2016 2:10:17 PM**

Prep Batch **75146** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605074-33B	Equip Blank	6	319.6	1	0.003	1	of	1	
1605074-34B	Equip Blank	6	322.4	1	0.003	1	of	1	
1605074-35B	Equip Blank	6	323.6	1	0.003	1	of	1	
1605096-36B	Equip Blank	6	329.9	1	0.003	1	of	1	
1605096-37B	Equip Blank	6	318.4	1	0.003	1	of	1	
1605096-44B	Equip Blank	6	319.1	1	0.003	1	of	1	
1605097-27B	Equip Blank	6	324.6	1	0.003	1	of	1	
1605097-30B	Equip Blank	6	324	1	0.003	1	of	1	
1605098-42B	Equip Blank	6	~~315.1~~ 325	1	0.003	1	of	1	
1605121-46B	Equip Blank	6	313.4	1	0.003	1	of	1	
1605121-47B	Equip Blank	6	~~308.7~~ 316.4	1	0.003	1	of	1	
1605135-46B	Equip Blank	6	321.4	1	0.003	1	of	1	
1605144-16B	Equip Blank	6	321.3	1	0.003	1	of	1	
LCS-75146	Aqueous	6	500	1	0.002		of		
MB-75146	Aqueous	6	500	1	0.002		of		

REVIEWED/APPROVED

By Sherri Herschmann at 4:15:47 PM, 5/23/2016

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
9927	Purified Sodium Sulfate	10	g	07/04/2016
10169	Methylene Chloride	120	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/LCSD	0.01	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.1	08/08/2016

```
Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051801.D
Acq On    : 18 May 2016   8:58 am
Operator  :
Sample    : DFTPP-160518
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
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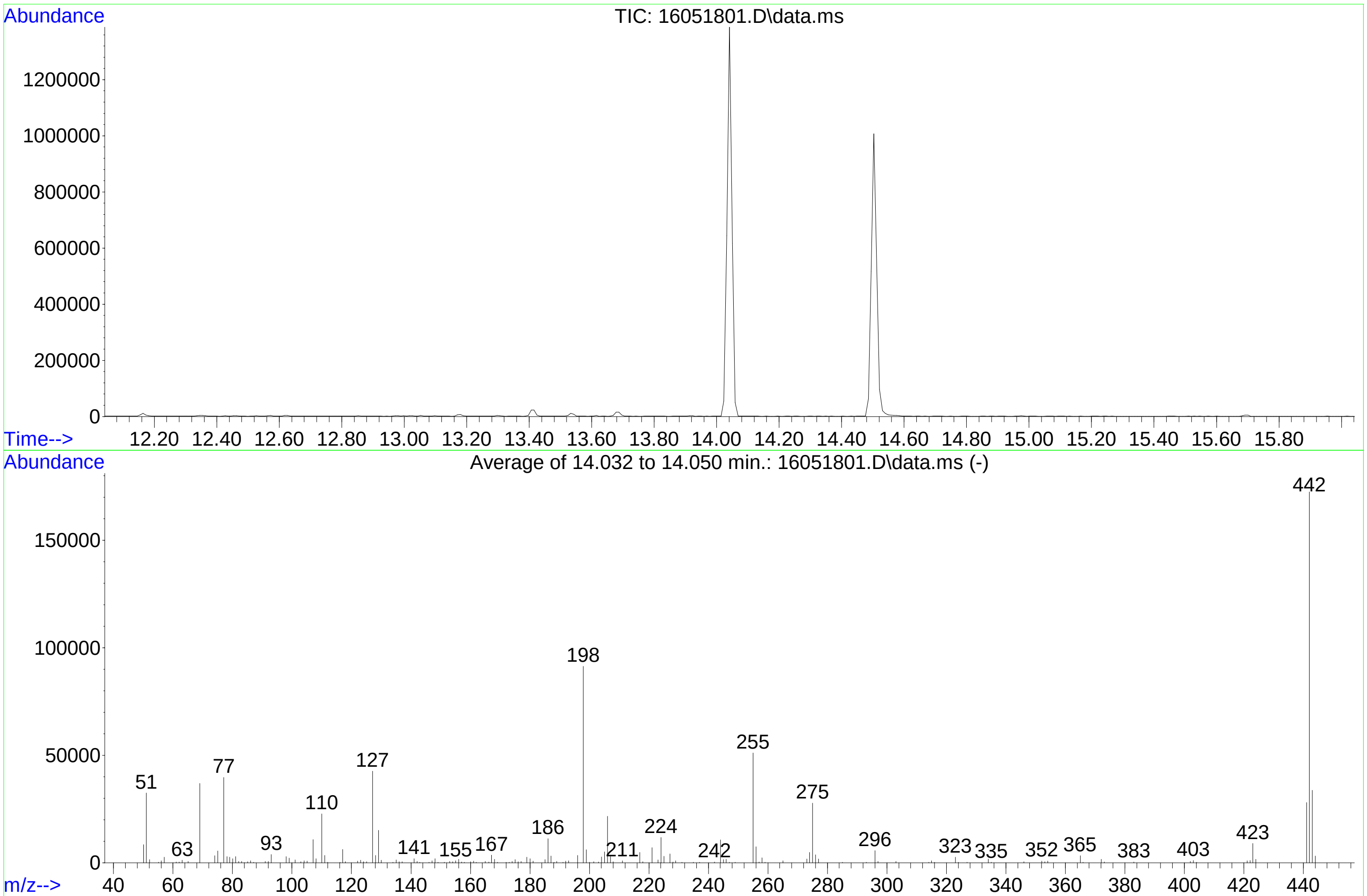


AutoFind: Scans 435, 436, 437; Background Corrected with Scan 431

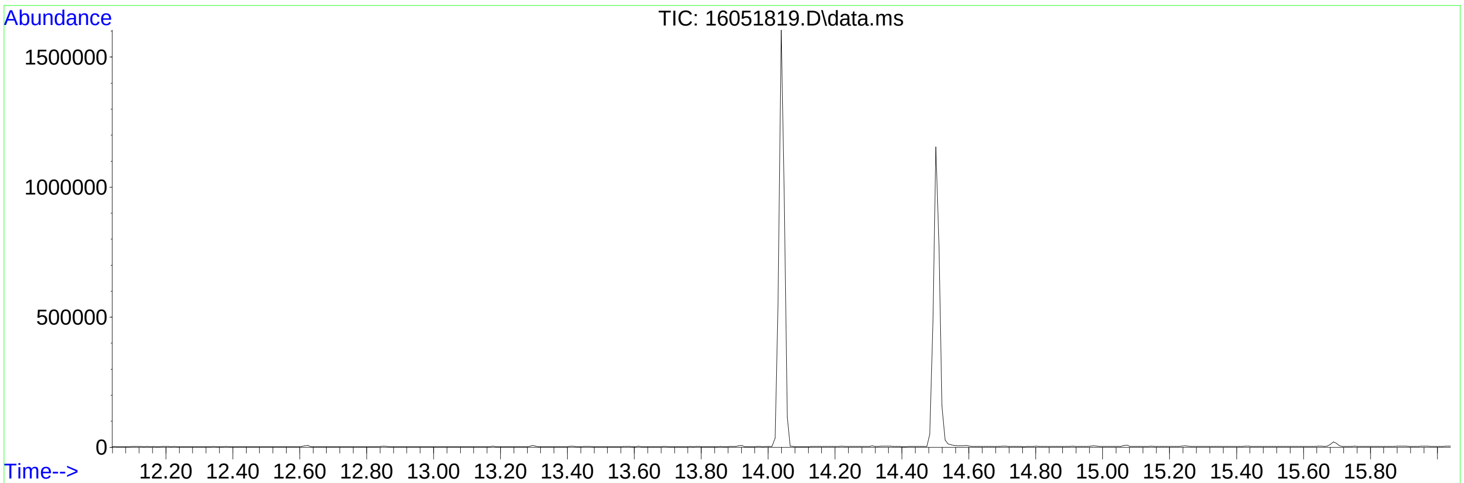
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.6	32471	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.5	36940	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	46.7	42606	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	91320	PASS
199	198	5	9	6.7	6088	PASS
275	198	10	60	30.3	27688	PASS
365	198	1	200	3.6	3268	PASS
441	442	0.01	24	16.3	28059	PASS
442	198	50	400	189.0	172605	PASS
443	442	15	24	19.6	33763	PASS

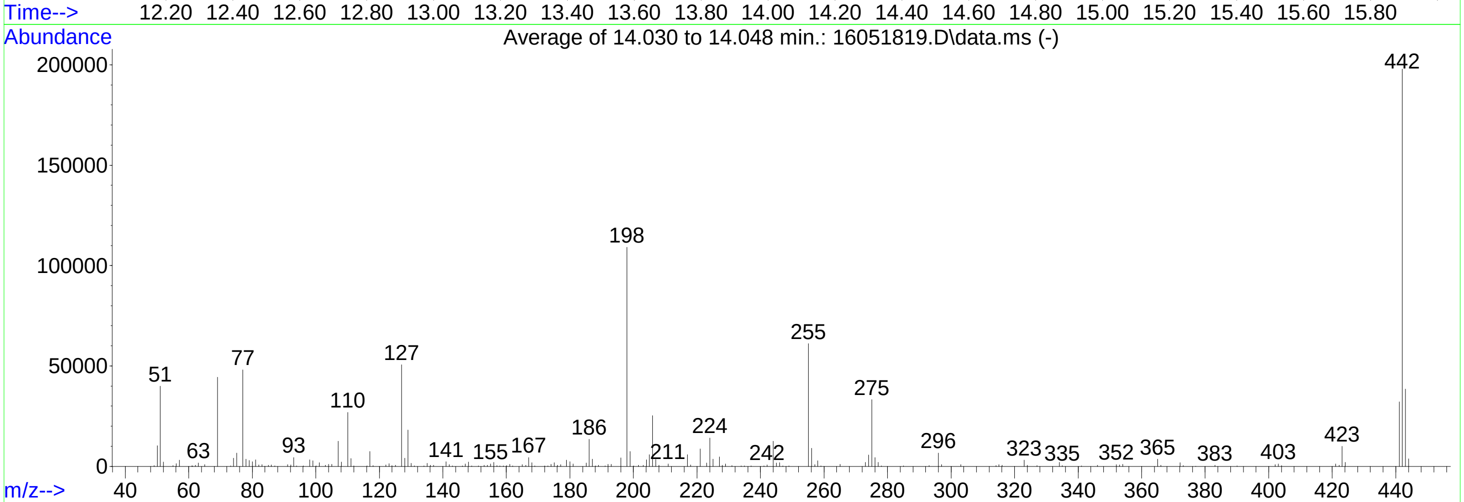
REVIEWED BY
By Janice Whitt at 2:34:46 PM, 5/19/2016

```
Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051819.D
Acq On    : 18 May 2016   8:11 pm
Operator  :
Sample    : DFTPP2-160518
Misc      : TUNE
ALS Vial  : 19   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 435, 436, 437; Background Corrected with Scan 431

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.6	39974	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.8	44482	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	46.4	50616	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	109152	PASS
199	198	5	9	6.8	7381	PASS
275	198	10	60	30.5	33283	PASS
365	198	1	200	3.4	3666	PASS
441	442	0.01	24	16.2	32122	PASS
442	198	50	400	181.4	197986	PASS
443	442	15	24	19.5	38521	PASS

REVIEWED BY
By Janice Whitt at 12:56:17 PM, 5/23/2016

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051802.D
Acq On : 18 May 2016 9:35 am
Operator :
Sample : ICV-160518
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 18 11:42:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.263	136	1439270	4000.00 ug/kg	88
6) Acenaphthene-d10	12.851	164	1096742	4000.00 ug/kg	87
11) Phenanthrene-d10	14.976	188	2537779	4000.00 ug/kg	87
16) Chrysene-d12	20.981	240	2403266	4000.00 ug/kg	89
20) Perylene-d12	26.247	264	2183143	4000.00 ug/kg	88

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.752	172	613046	1913.04 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.83%		
17) 4-Terphenyl-d14	17.584	244	1035464	2035.60 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 50.89%#		

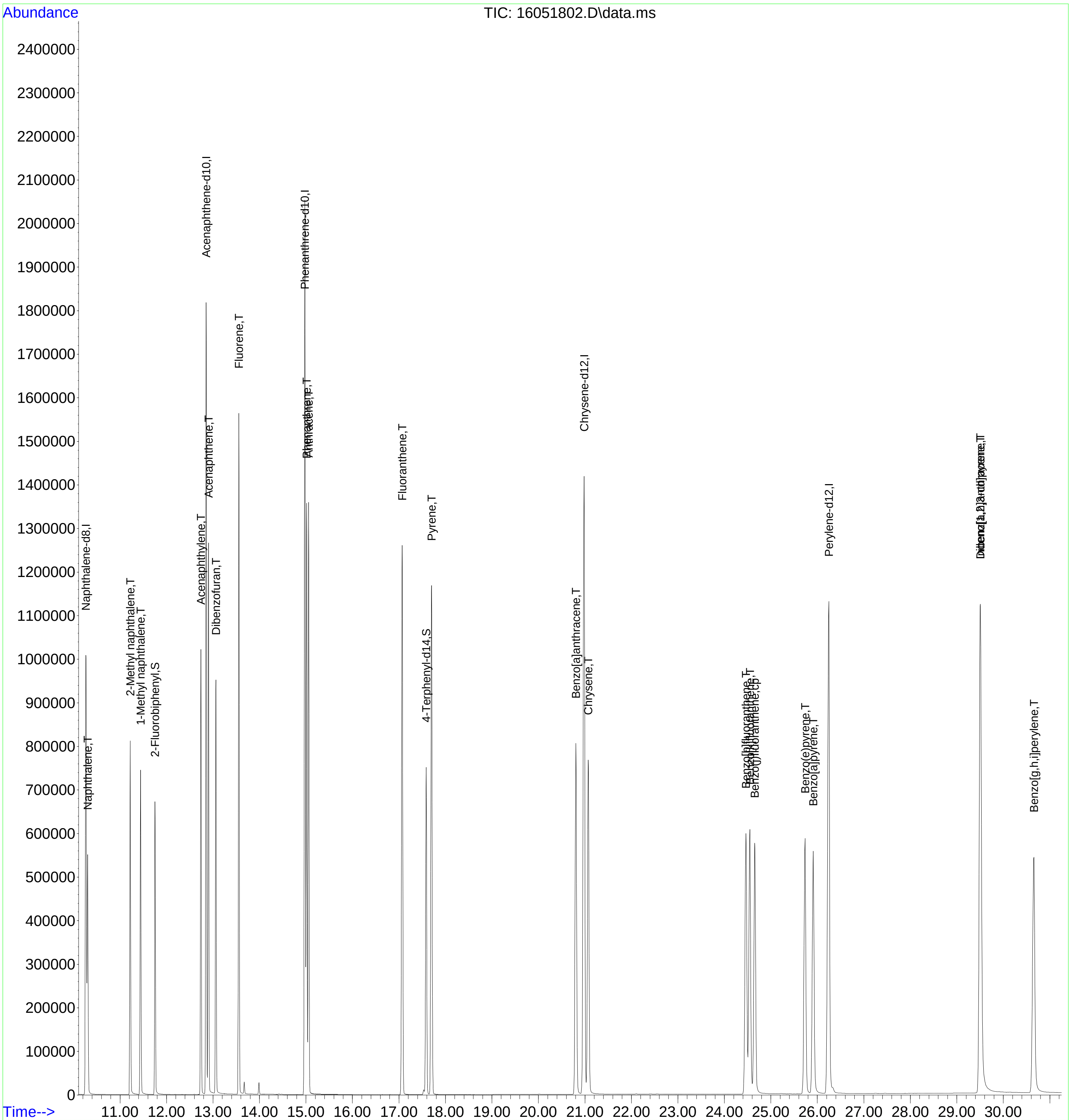
Target Compounds					Qvalue
2) Naphthalene	10.300	128	645598	2002.26 ug/kg	100
3) 2-Methyl naphthalene	11.217	142	500194	1995.54 ug/kg	98
4) 1-Methyl naphthalene	11.444	142	460727	1942.42 ug/kg	99
7) Acenaphthylene	12.738	152	964211	2011.33 ug/kg	100
8) Acenaphthene	12.905	153	609340	2014.36 ug/kg	100
9) Dibenzofuran	13.062	168	927693	2013.19 ug/kg	99
10) Fluorene	13.553	166	845853	2023.03 ug/kg	100
12) Phenanthrene	15.014	178	1313221	1880.65 ug/kg	100
13) Anthracene	15.056	178	1326462	1877.33 ug/kg	100
14) Fluoranthene	17.068	202	1419444	2135.93 ug/kg	100
15) Pyrene	17.701	202	1398615	2140.87 ug/kg	99
18) Benzo[a]anthracene	20.805	228	1261556	2123.30 ug/kg	100
19) Chrysene	21.069	228	1160852	2112.58 ug/kg	100
21) Benzo[b]fluoranthene	24.460	252	1189531	2127.79 ug/kg	99
22) Benzo[k]fluoranthene	24.548	252	1074594	2120.12 ug/kg	100
23) Benzo(j)fluoranthene	24.651	252	1026600	2124.35 ug/kg	100
24) Benzo(e)pyrene	25.735	252	1119451	2121.93 ug/kg	100
25) Benzo[a]pyrene	25.910	252	1107058	2114.72 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.514	276	1344214	2098.92 ug/kg	99
27) Dibenz[a,h]anthracene	29.500	278	1122117	2109.02 ug/kg	99
28) Benzo[g,h,i]perylene	30.657	276	1164995	2108.28 ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051802.D
Acq On : 18 May 2016 9:35 am
Operator :
Sample : ICV-160518
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

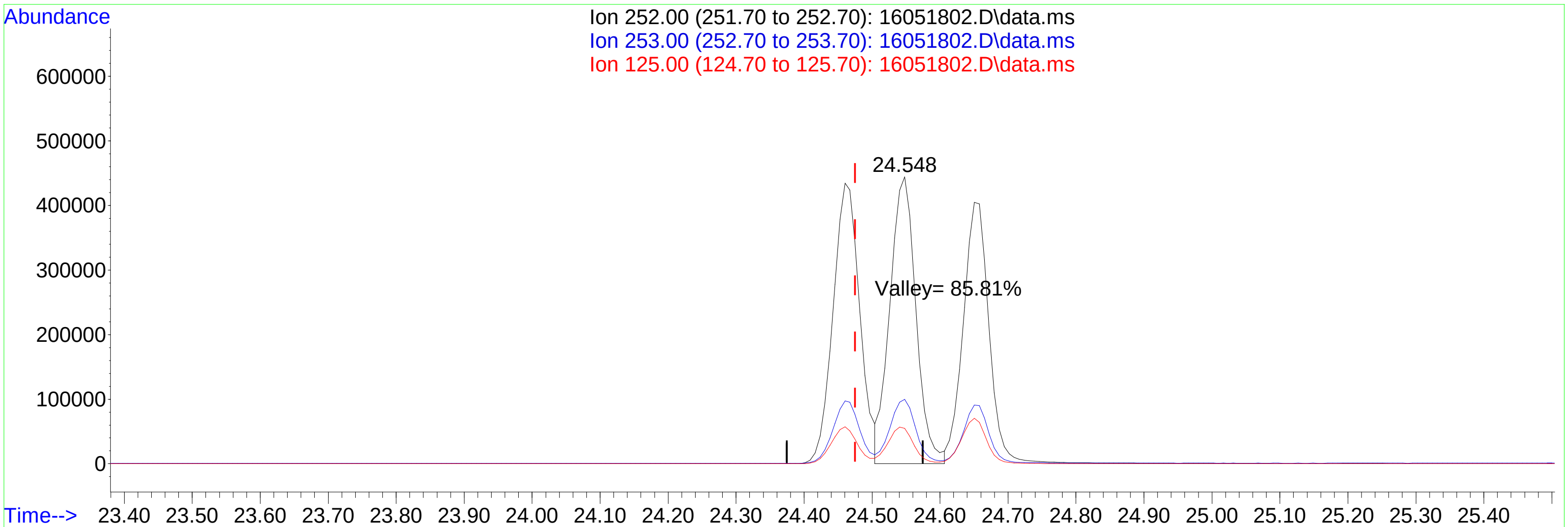
Quant Time: May 18 11:42:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

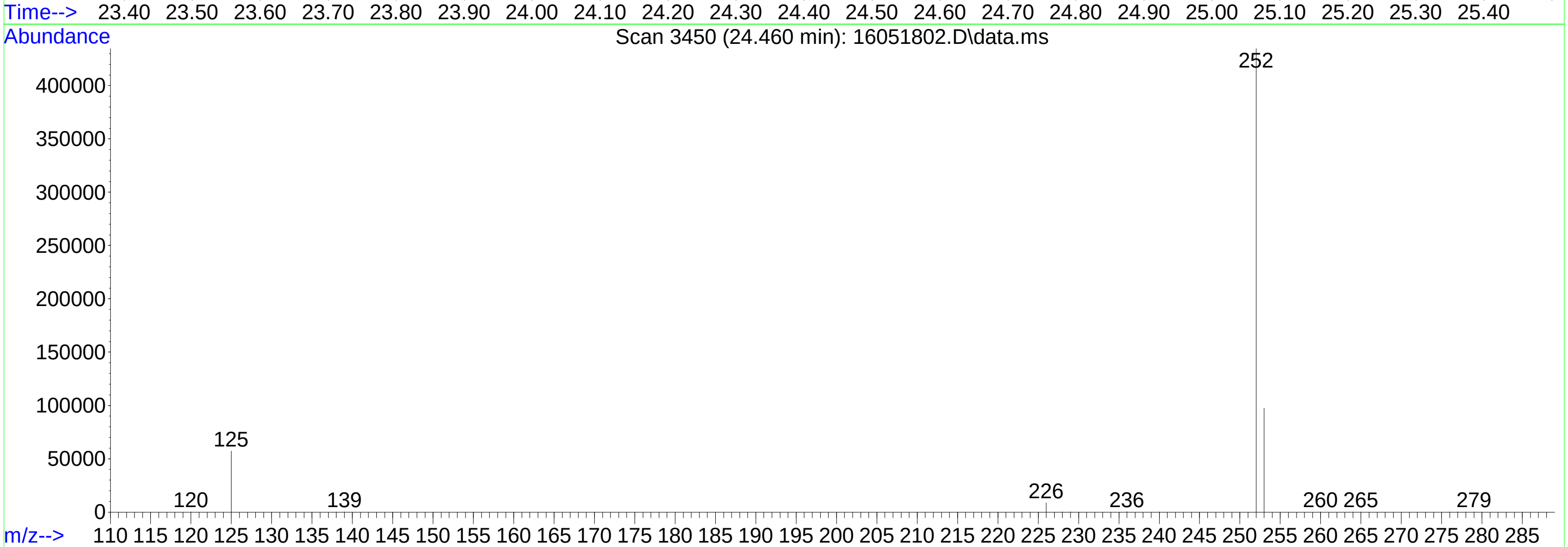


Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051802.D
Acq On    : 18 May 2016   9:35 am
Operator  :
Sample    : ICV-160518
Misc      : ICV
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: May 18 11:42:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
```





TIC: 16051802.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.460min (-0.015) 2127.79ug/kg

response 1189531

Ion	Exp%	Act%
252.00	100	100
253.00	22.30	22.26
125.00	12.20	13.16
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051809.D
Acq On : 18 May 2016 2:03 pm
Operator :
Sample : LCS-75146
Misc : LCS
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 19 09:16:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.269	136	1319910	4000.00 ug/kg	81
6) Acenaphthene-d10	12.857	164	979132	4000.00 ug/kg	78
11) Phenanthrene-d10	14.977	188	2285148	4000.00 ug/kg	78
16) Chrysene-d12	20.981	240	2110098	4000.00 ug/kg	78
20) Perylene-d12	26.241	264	1904087	4000.00 ug/kg	77

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.754	172	657780	2238.26 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery = 55.96%	
17) 4-Terphenyl-d14	17.586	244	1177981	2637.52 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135			Recovery = 65.94%	

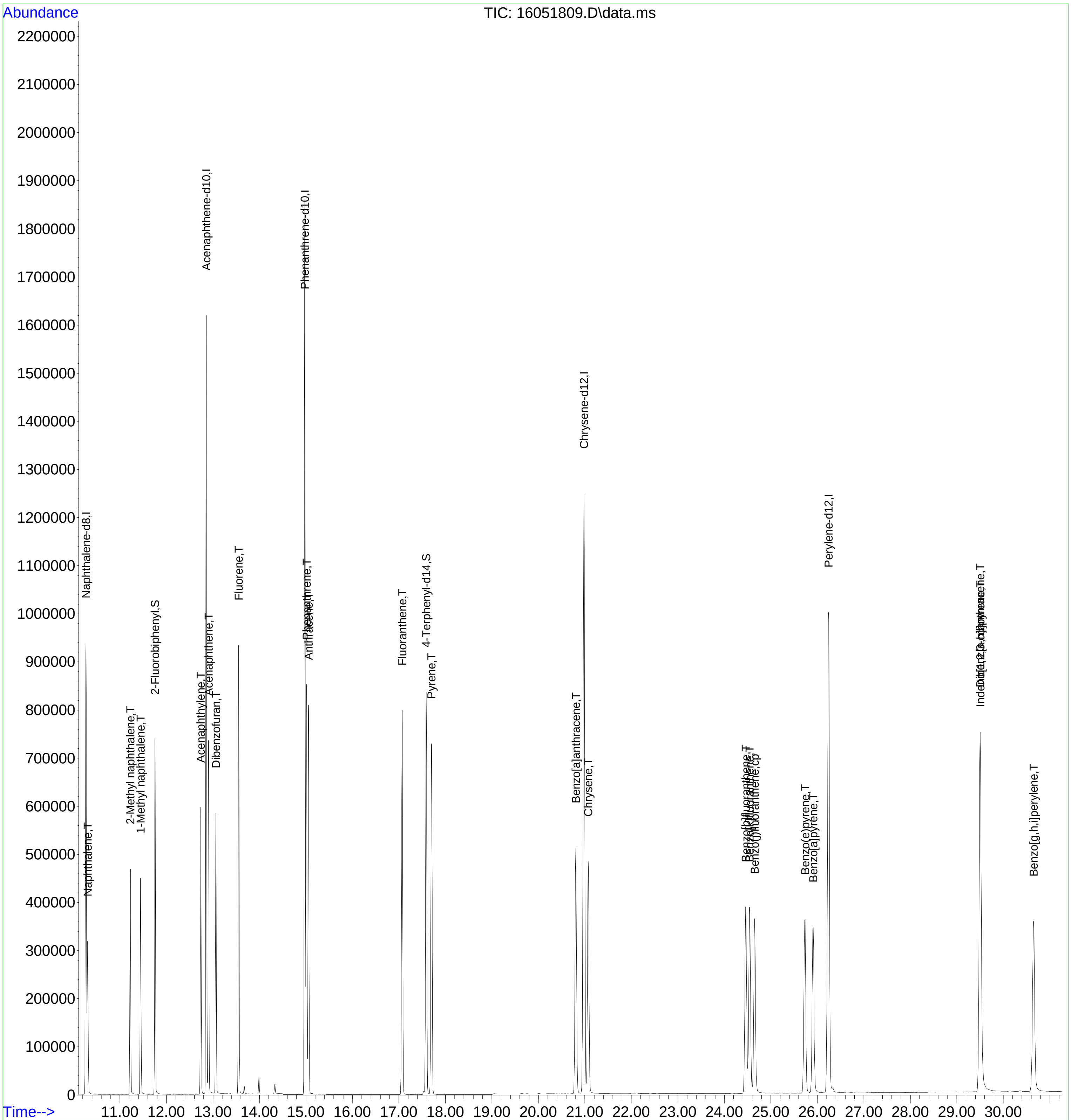
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.306	128	366938	1240.93 ug/kg	99
3) 2-Methyl naphthalene	11.224	142	288325	1254.30 ug/kg	99
4) 1-Methyl naphthalene	11.446	142	267309	1228.89 ug/kg	99
7) Acenaphthylene	12.739	152	559567	1307.45 ug/kg	99
8) Acenaphthene	12.906	153	353590	1309.30 ug/kg	99
9) Dibenzofuran	13.063	168	539351	1311.04 ug/kg	99
10) Fluorene	13.554	166	507450	1359.45 ug/kg	100
12) Phenanthrene	15.015	178	815126	1296.39 ug/kg	99
13) Anthracene	15.057	178	785637	1234.83 ug/kg	99
14) Fluoranthene	17.070	202	887651	1454.69 ug/kg	99
15) Pyrene	17.700	202	872881	1459.82 ug/kg	98
18) Benzo[a]anthracene	20.805	228	787235	1485.78 ug/kg	100
19) Chrysene	21.069	228	729981	1491.09 ug/kg	100
21) Benzo[b]fluoranthene	24.461	252	762202	1545.20 ug/kg	99
22) Benzo[k]fluoranthene	24.541	252	688207	1542.68 ug/kg	99
23) Benzo(j)fluoranthene	24.651	252	630685	1475.70 ug/kg	100
24) Benzo(e)pyrene	25.735	252	687368	1472.95 ug/kg	100
25) Benzo[a]pyrene	25.911	252	693028	1503.32 ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.515	276	848810	1500.32 ug/kg	98
27) Dibenz[a,h]anthracene	29.500	278	709881	1508.82 ug/kg	99
28) Benzo[g,h,i]perylene	30.650	276	731582	1498.98 ug/kg	98

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

Quantitation Report   (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051809.D
Acq On   : 18 May 2016   2:03 pm
Operator :
Sample   : LCS-75146
Misc   : LCS
ALS Vial : 9   Sample Multiplier: 1

Quant Time: May 19 09:16:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051810.D
Acq On : 18 May 2016 2:40 pm
Operator :
Sample : MB-75146
Misc : MBLK
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 19 09:16:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.270	136	1390449	4000.00 ug/kg	85
6) Acenaphthene-d10	12.857	164	1037657	4000.00 ug/kg	83
11) Phenanthrene-d10	14.977	188	2466155	4000.00 ug/kg	84
16) Chrysene-d12	20.981	240	2313139	4000.00 ug/kg	85
20) Perylene-d12	26.248	264	2116938	4000.00 ug/kg	85

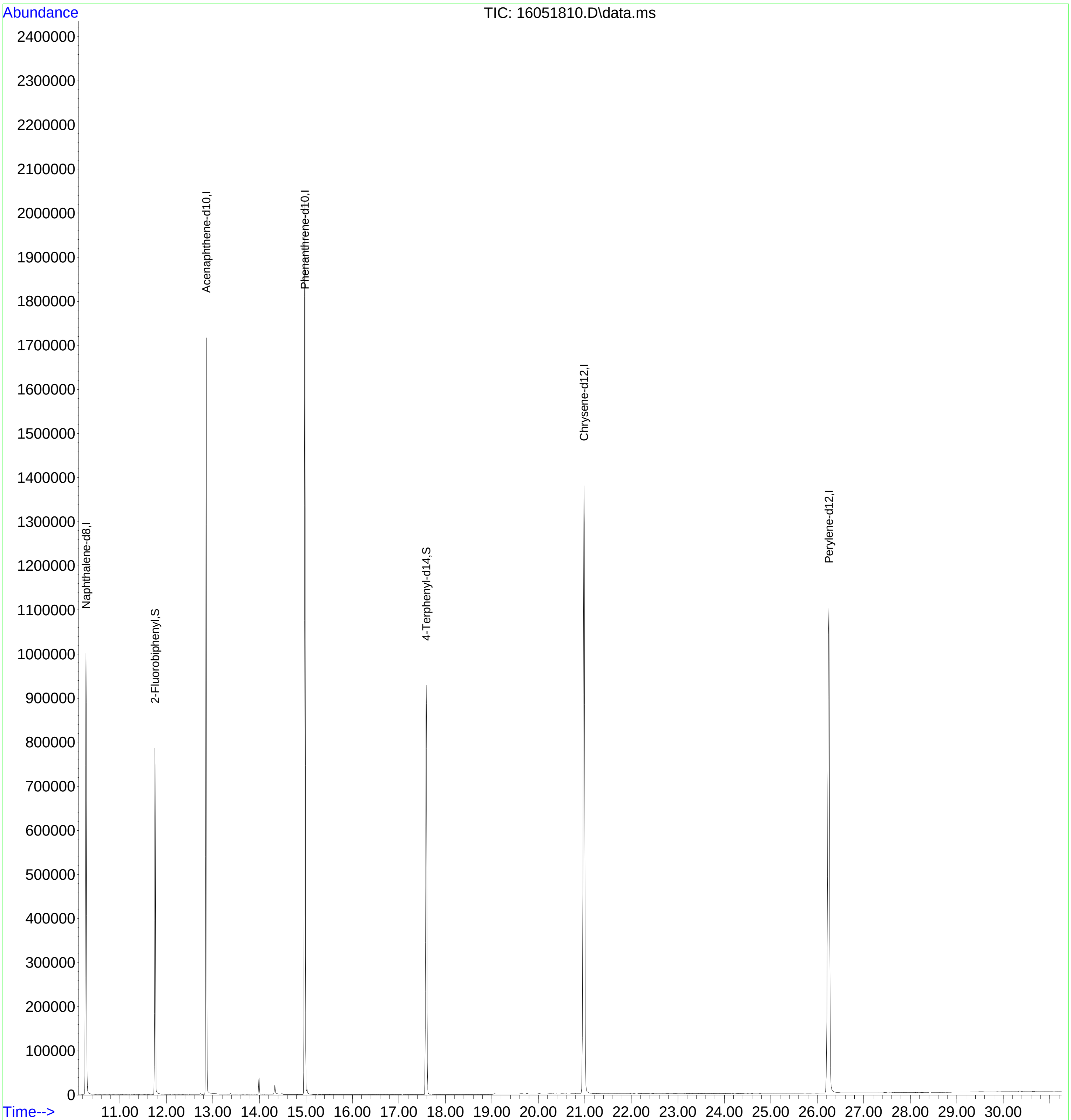
System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.755	172	713716	2305.39 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.63%		
17) 4-Terphenyl-d14	17.590	244	1305557	2666.57 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 66.66%		

Target Compounds Qvalue

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

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051810.D
Acq On   : 18 May 2016   2:40 pm
Operator :
Sample   : MB-75146
Misc   : MBLK
ALS Vial : 10   Sample Multiplier: 1

Quant Time: May 19 09:16:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051820.D
Acq On : 18 May 2016 8:49 pm
Operator :
Sample : ICV2-160518
Misc : ICV
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 19 09:16:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.270	136	1541947	4000.00 ug/kg	95
6) Acenaphthene-d10	12.857	164	1207997	4000.00 ug/kg	96
11) Phenanthrene-d10	14.979	188	2731012	4000.00 ug/kg	93
16) Chrysene-d12	20.989	240	2535151	4000.00 ug/kg	94
20) Perylene-d12	26.248	264	2319324	4000.00 ug/kg	93

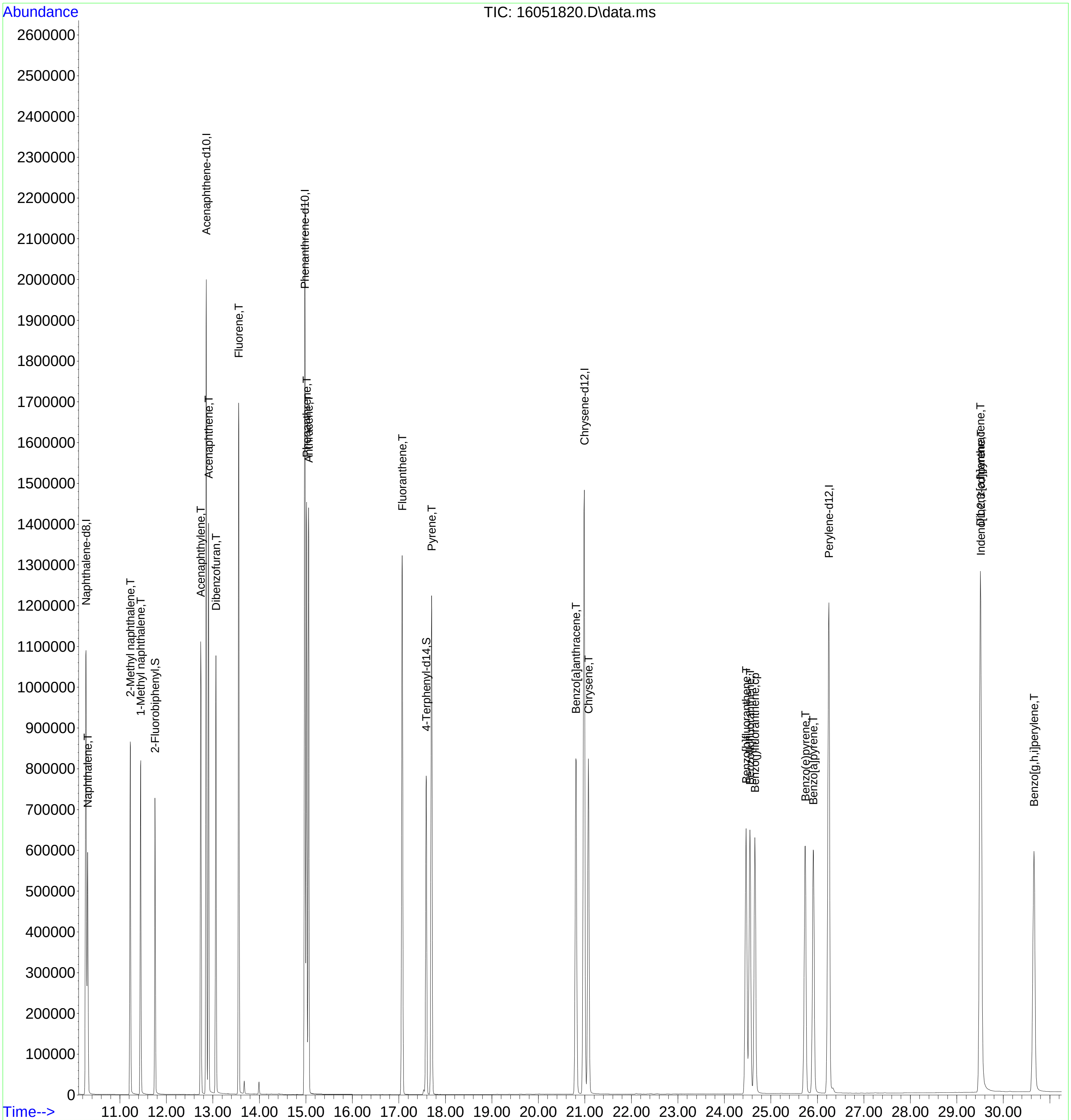
System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.755	172	660318	1923.35 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.08%		
17) 4-Terphenyl-d14	17.587	244	1090974	2033.15 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 50.83%#		

Target Compounds					Qvalue
2) Naphthalene	10.303	128	692653	2005.15 ug/kg	100
3) 2-Methyl naphthalene	11.224	142	543376	2023.46 ug/kg	99
4) 1-Methyl naphthalene	11.446	142	498034	1959.89 ug/kg	99
7) Acenaphthylene	12.739	152	1052817	1993.89 ug/kg	100
8) Acenaphthene	12.906	153	669198	2008.49 ug/kg	100
9) Dibenzofuran	13.064	168	1014806	1999.41 ug/kg	98
10) Fluorene	13.555	166	927758	2014.57 ug/kg	100
12) Phenanthrene	15.015	178	1399624	1862.57 ug/kg	100
13) Anthracene	15.059	178	1414791	1860.66 ug/kg	99
14) Fluoranthene	17.071	202	1484668	2072.21 ug/kg	99
15) Pyrene	17.704	202	1458241	2070.73 ug/kg	99
18) Benzo[a]anthracene	20.805	228	1322898	2110.03 ug/kg	100
19) Chrysene	21.076	228	1217225	2099.27 ug/kg	100
21) Benzo[b]fluoranthene	24.468	252	1259735	2120.76 ug/kg	100
22) Benzo[k]fluoranthene	24.549	252	1175849	2185.94 ug/kg	99
23) Benzo(j)fluoranthene	24.658	252	1091106	2125.31 ug/kg	100
24) Benzo(e)pyrene	25.742	252	1183382	2110.90 ug/kg	100
25) Benzo[a]pyrene	25.918	252	1185414	2132.02 ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.522	276	1433865	2107.85 ug/kg	98
27) Dibenz[a,h]anthracene	29.508	278	1204388	2131.84 ug/kg	99
28) Benzo[g,h,i]perylene	30.658	276	1254977	2139.12 ug/kg	98

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

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051820.D
Acq On : 18 May 2016 8:49 pm
Operator :
Sample : ICV2-160518
Misc : ICV
ALS Vial : 20 Sample Multiplier: 1

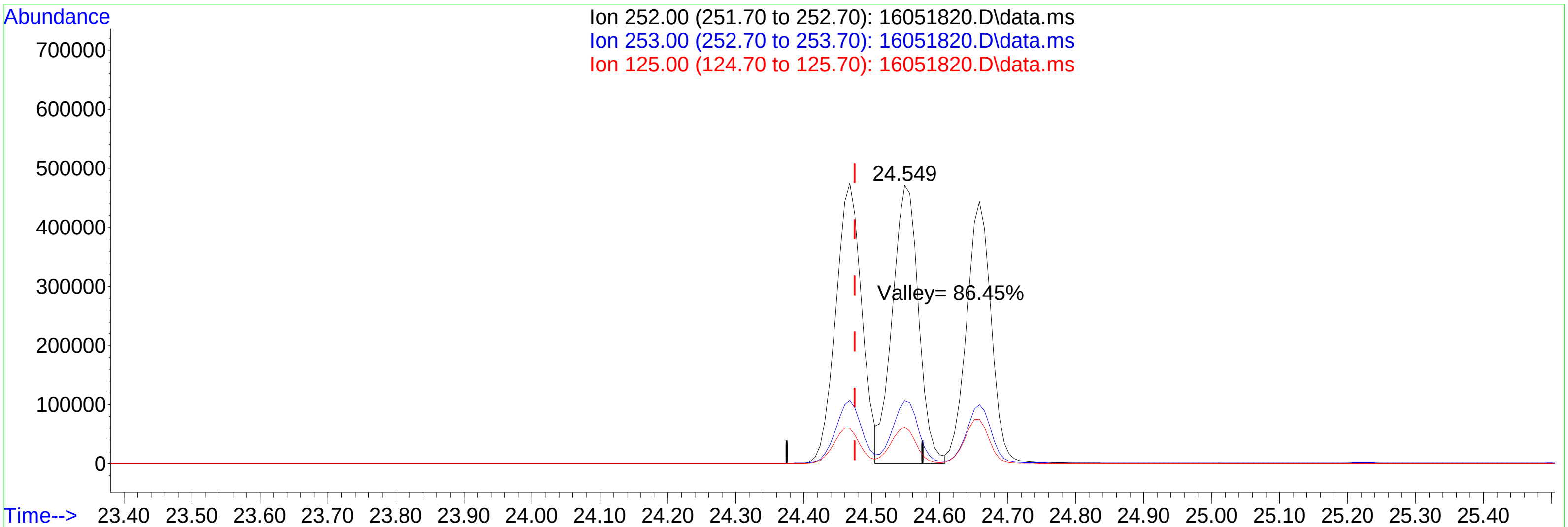
Quant Time: May 19 09:16:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

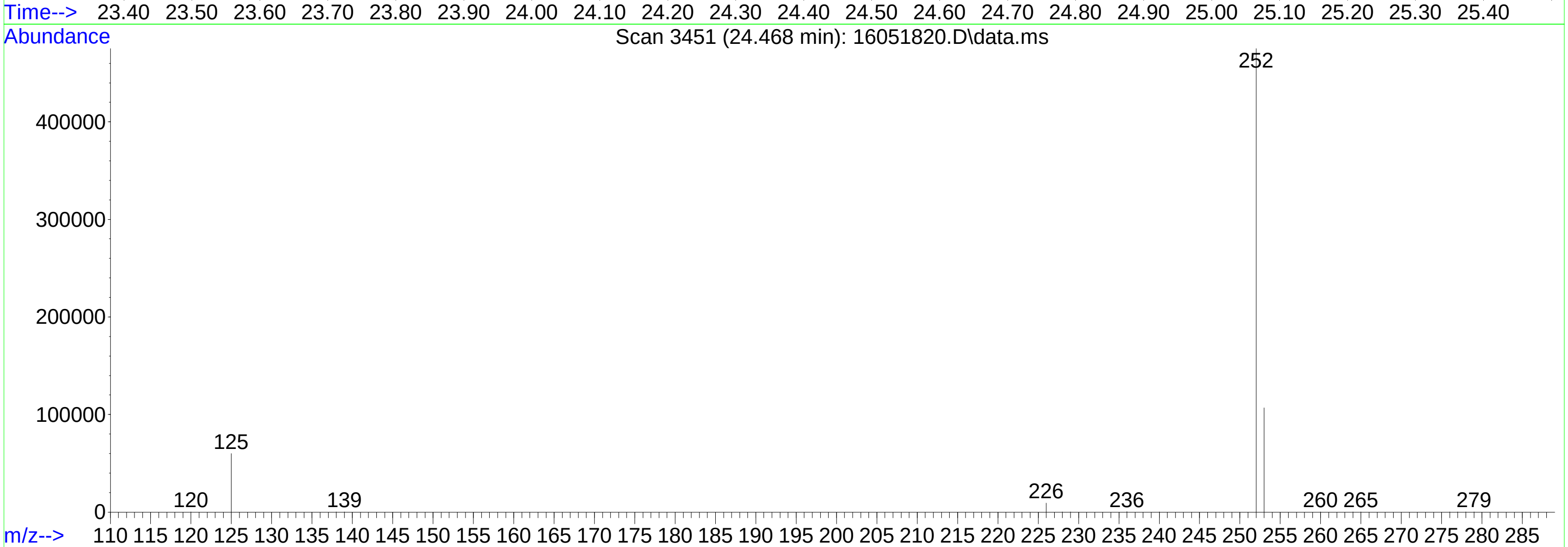


Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051820.D
Acq On    : 18 May 2016   8:49 pm
Operator  :
Sample    : ICV2-160518
Misc      : ICV
ALS Vial  : 20   Sample Multiplier: 1

Quant Time: May 18 21:20:24 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
```





TIC: 16051820.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.468min (-0.007) 2120.76ug/kg

response 1259735

Ion	Exp%	Act%
252.00	100	100
253.00	22.30	22.27
125.00	12.20	12.57
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051822.D
Acq On : 18 May 2016 10:03 pm
Operator :
Sample : SBLK-160518
Misc : SBLK
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 19 09:16:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.268	136	1648675	4000.00 ug/kg	101
6) Acenaphthene-d10	12.857	164	1399121	4000.00 ug/kg	112
11) Phenanthrene-d10	14.977	188	2780441	4000.00 ug/kg	95
16) Chrysene-d12	20.980	240	2664039	4000.00 ug/kg	98
20) Perylene-d12	26.247	264	2504352	4000.00 ug/kg	101

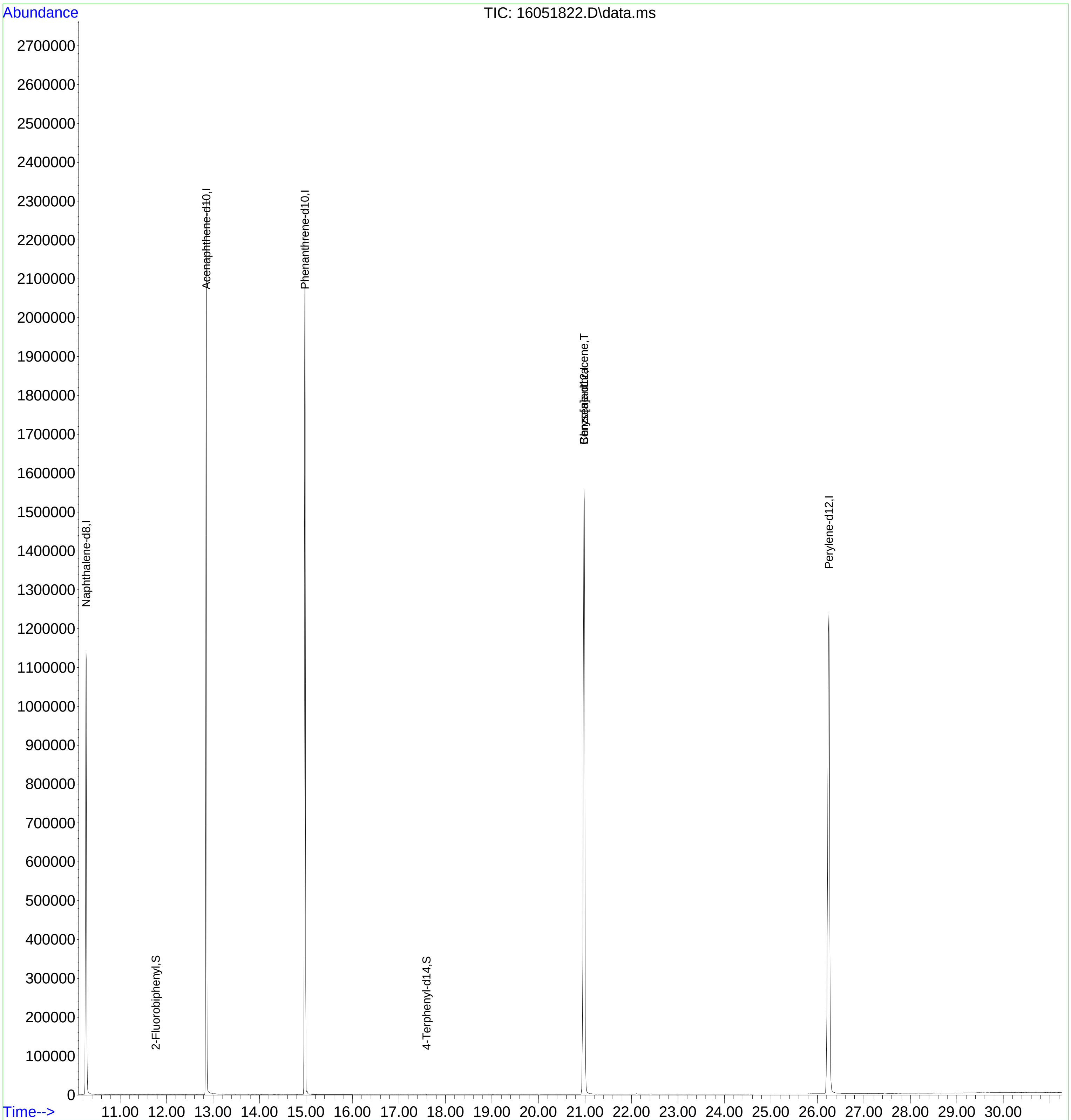
System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	70	0.19 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#	
17) 4-Terphenyl-d14	17.592	244	276	0.49 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	0.01%#	

Target Compounds					Qvalue
18) Benzo[a]anthracene	20.980	228	6062	6.97 ug/kg	77

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

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051822.D
Acq On : 18 May 2016 10:03 pm
Operator :
Sample : SBLK-160518
Misc : SBLK
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 19 09:16:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

```
Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051827.D
Acq On    : 19 May 2016   1:08 am
Operator  :
Sample    : 1605144-16B
Misc      : SAMP
ALS Vial  : 27   Sample Multiplier: 1

Quant Time: May 19 09:19:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
```

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.267	136	1470149	4000.00 ug/kg	90
6) Acenaphthene-d10	12.857	164	1122140	4000.00 ug/kg	89
11) Phenanthrene-d10	14.979	188	2517217	4000.00 ug/kg	86
16) Chrysene-d12	20.988	240	2430114	4000.00 ug/kg	90
20) Perylene-d12	26.247	264	2246436	4000.00 ug/kg	90

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.756	172	832928	2544.60 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	63.62%	
17) 4-Terphenyl-d14	17.590	244	1438712	2797.09 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	69.93%	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.304	128	4825	14.65 ug/kg	99
12) Phenanthrene	15.012	178	5435	7.85 ug/kg	96
14) Fluoranthene	17.071	202	15014	19.46 ug/kg	97
15) Pyrene	17.700	202	12963	16.81 ug/kg	95
18) Benzo[a]anthracene	20.805	228	8107	11.05 ug/kg	98
19) Chrysene	21.068	228	9077	12.88 ug/kg	98
21) Benzo[b]fluoranthene	24.460	252	9720	14.53 ug/kg	99
22) Benzo[k]fluoranthene	24.541	252	4452	7.16 ug/kg	98
23) Benzo(j)fluoranthene	24.650	252	4184	4.90 ug/kg	90
24) Benzo(e)pyrene	25.727	252	7061	9.99 ug/kg	88
25) Benzo[a]pyrene	25.910	252	9502	14.99 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.507	276	7795	8.49 ug/kg	93
28) Benzo[g,h,i]perylene	30.650	276	7872	10.28 ug/kg	99

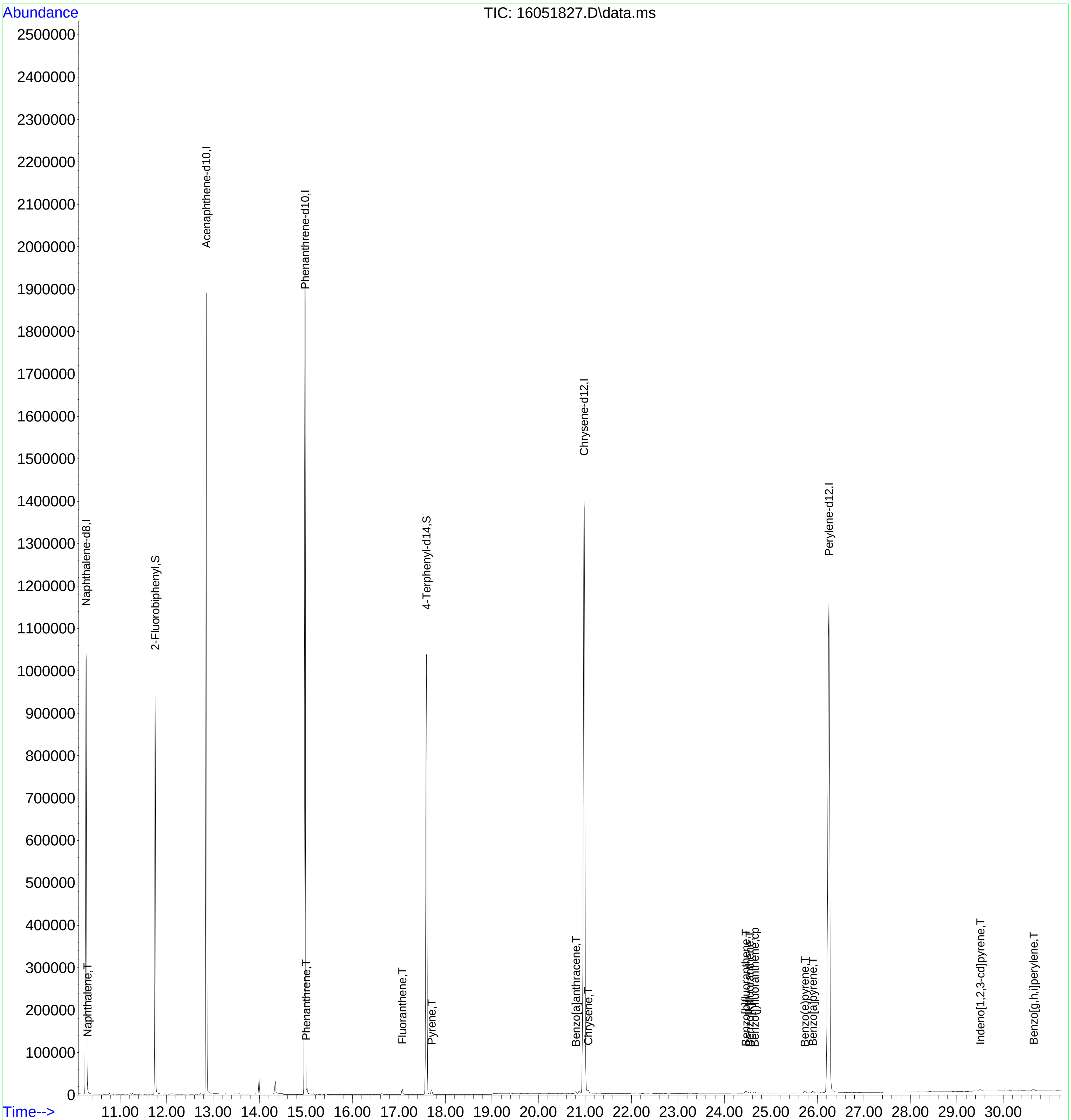
CONFIRMED
By Sherri Herschmann at 4:21:27 PM, 5/23/2016

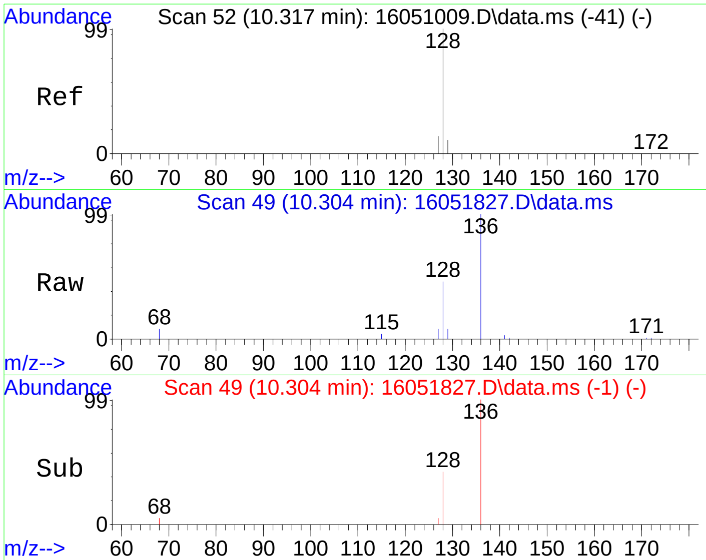
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051827.D
Acq On : 19 May 2016 1:08 am
Operator :
Sample : 1605144-16B
Misc : SAMP
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 19 09:19:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

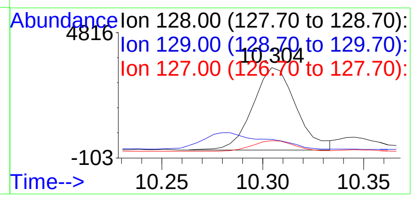


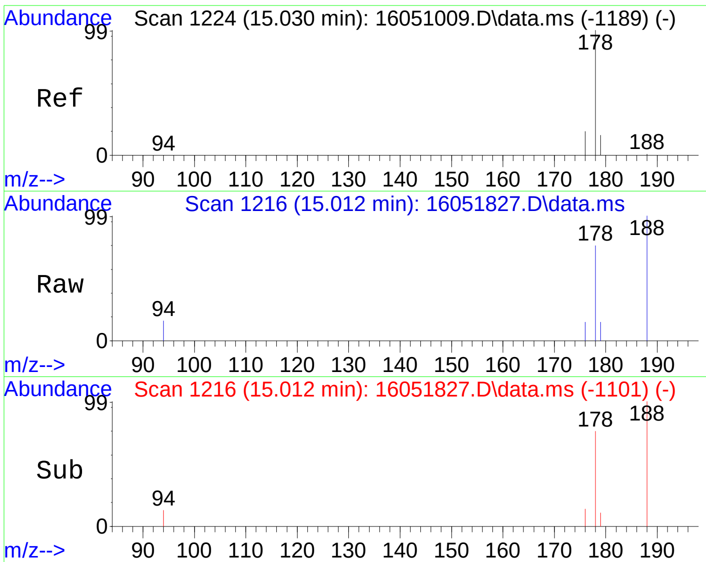


#2
Naphthalene
Concen: 14.65 ug/kg
RT: 10.304 min Scan# 49
Delta R.T. -0.005 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:128 Resp: 4825

Ion	Ratio	Lower	Upper
128	100		
129	11.5	0.0	31.3
127	12.8	0.0	33.6

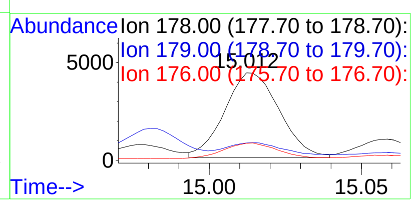


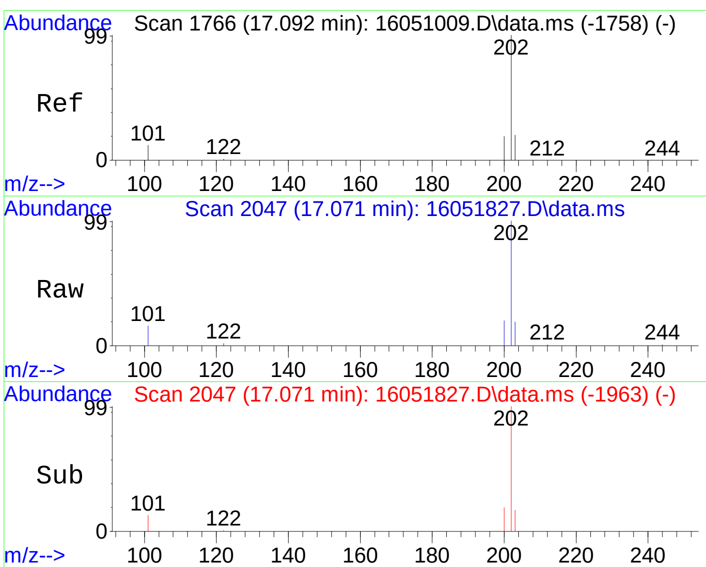


#12
Phenanthrene
Concen: 7.85 ug/kg
RT: 15.012 min Scan# 1216
Delta R.T. -0.007 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:178 Resp: 5435

Ion	Ratio	Lower	Upper
178	100		
179	14.3	0.0	36.4
176	17.9	0.0	39.0

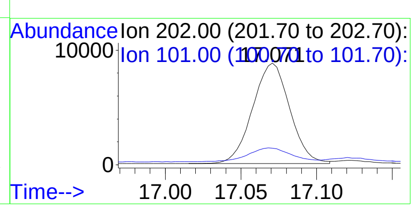


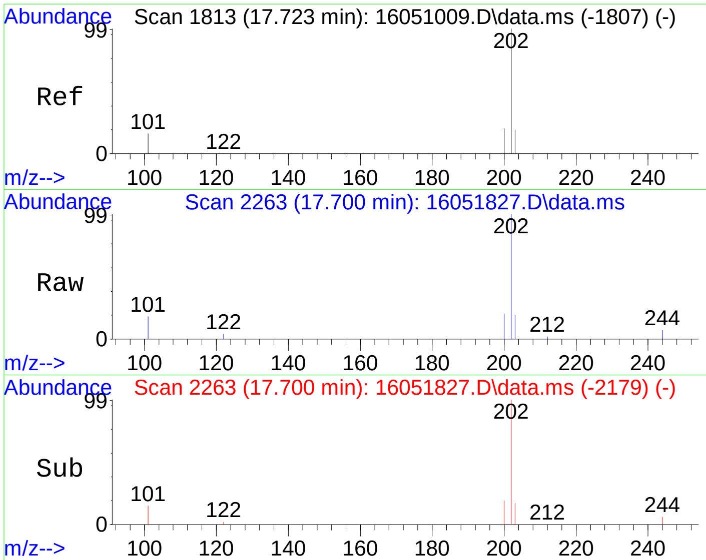


#14
Fluoranthene
Concen: 19.46 ug/kg
RT: 17.071 min Scan# 2047
Delta R.T. -0.005 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:202 Resp: 15014

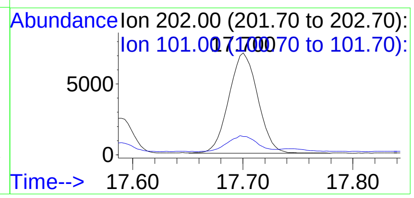
Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	34.4

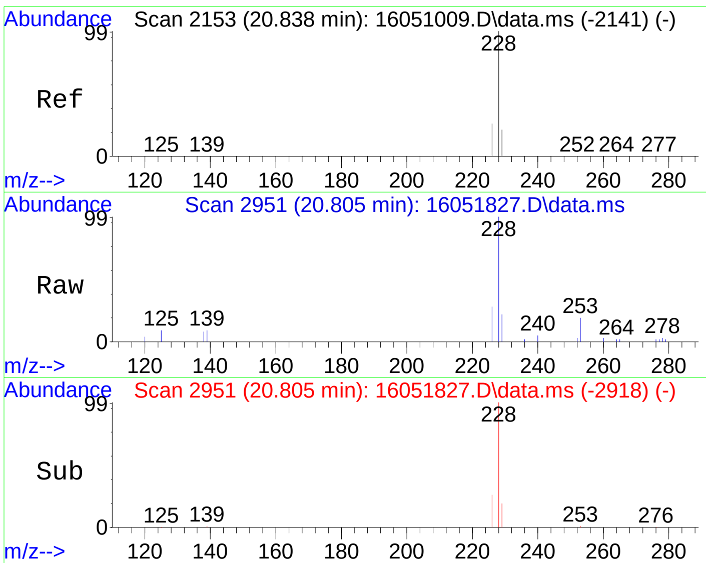




#15
Pyrene
Concen: 16.81 ug/kg
RT: 17.700 min Scan# 2263
Delta R.T. -0.006 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

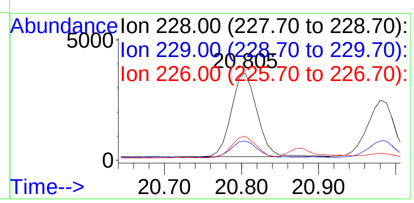
Tgt	Ion:202	Resp:	12963
Ion	Ratio	Lower	Upper
202	100		
101	15.0	0.0	37.3

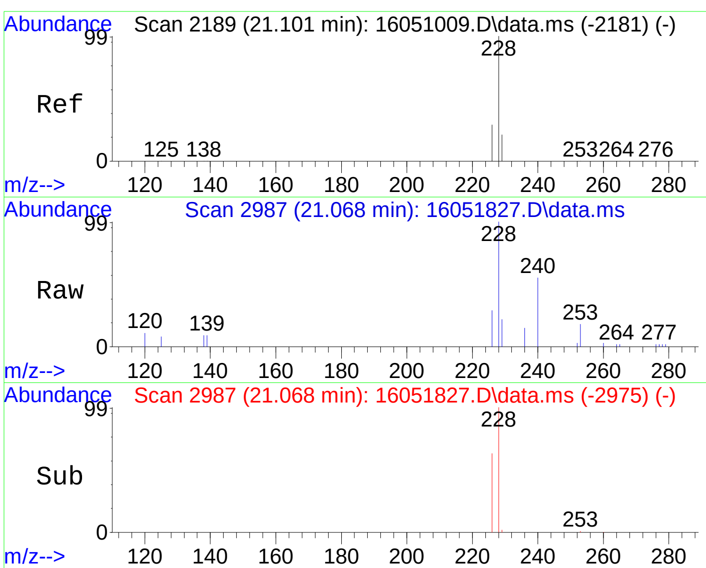




#18
Benzo[a]anthracene
Concen: 11.05 ug/kg
RT: 20.805 min Scan# 2951
Delta R.T. -0.007 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

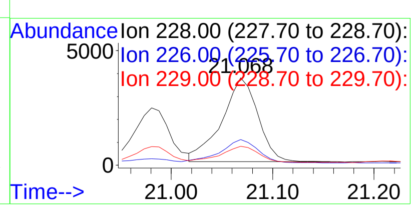
Tgt	Ion:228	Resp:	8107
Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.3	40.3
226	25.2	5.7	45.7

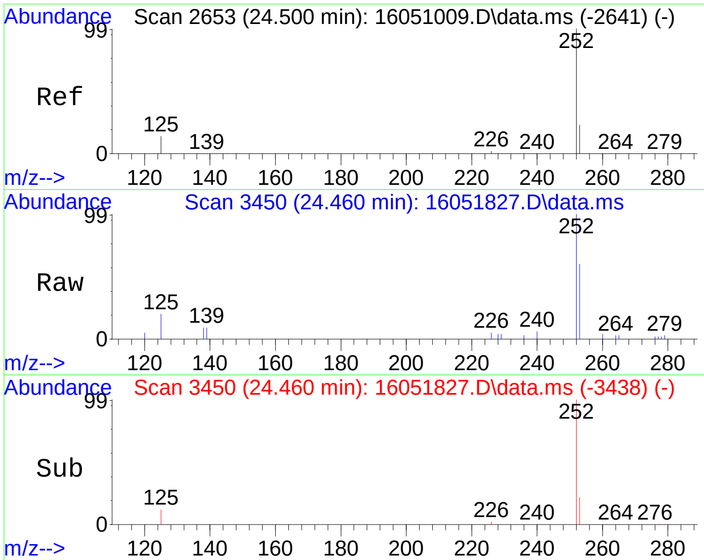




#19
Chrysene
Concen: 12.88 ug/kg
RT: 21.068 min Scan# 2987
Delta R.T. -0.015 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt	Ion:228	Resp:	9077
Ion	Ratio	Lower	Upper
228	100		
226	27.7	8.2	48.2
229	19.2	0.3	40.3

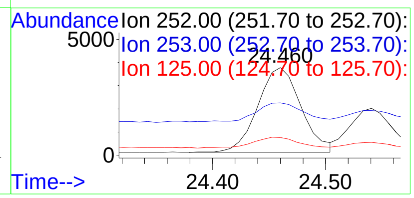


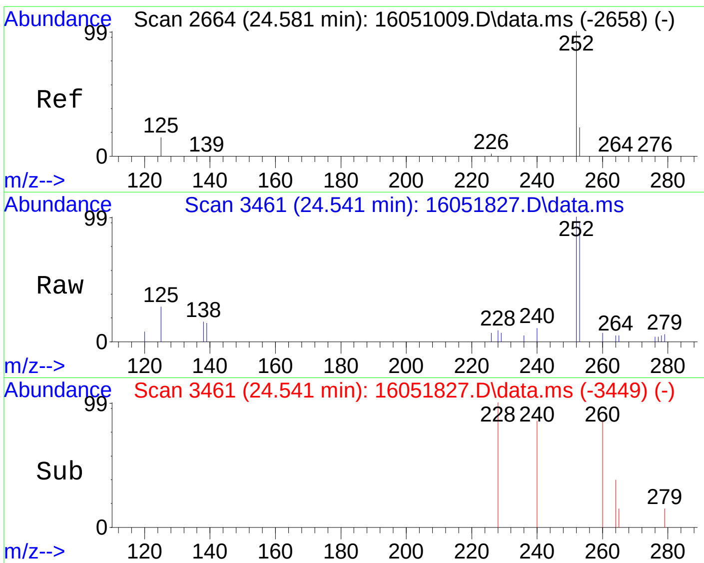


#21
Benzo[b]fluoranthene
Concen: 14.53 ug/kg
RT: 24.460 min Scan# 3450
Delta R.T. -0.015 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:252 Resp: 9720

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.3	42.3
125	11.6	0.0	32.2

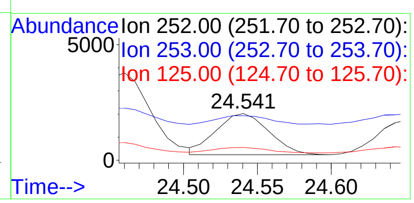


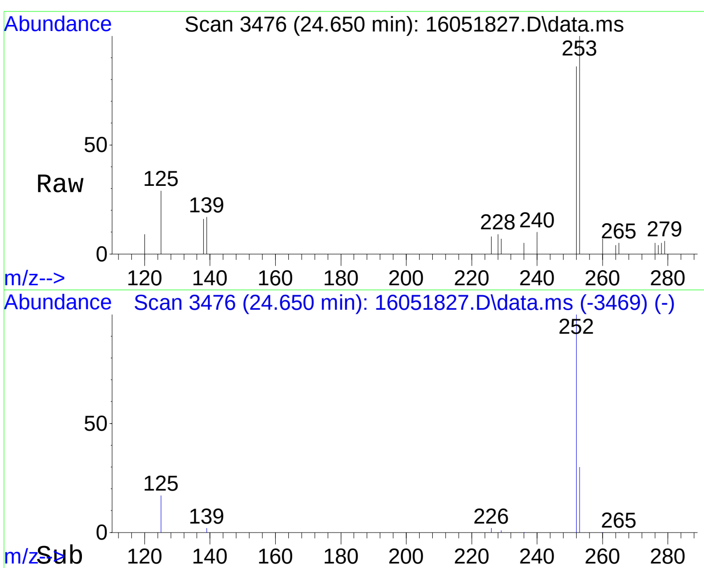


#22
Benzo[k]fluoranthene
Concen: 7.16 ug/kg
RT: 24.541 min Scan# 3461
Delta R.T. -0.014 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:252 Resp: 4452

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.5	42.5
125	13.0	0.0	32.6

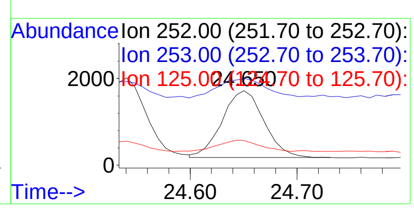


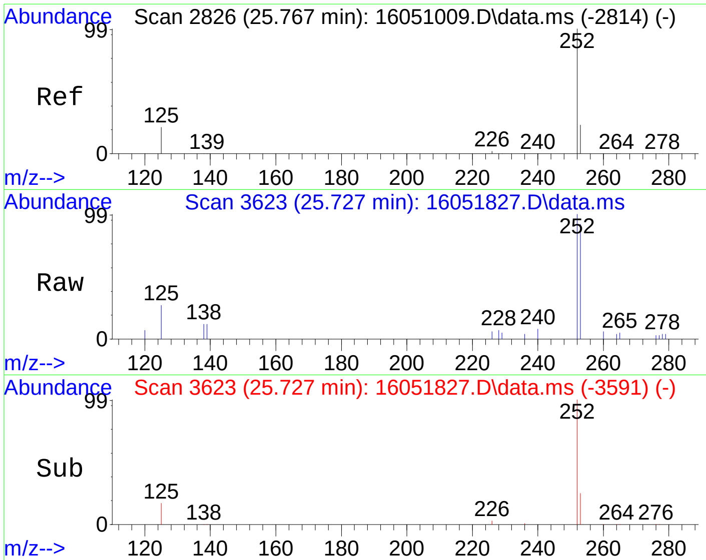


#23
Benzo(j)fluoranthene
Concen: 4.90 ug/kg
RT: 24.650 min Scan# 3476
Delta R.T. -0.015 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:252 Resp: 4184

Ion	Ratio	Lower	Upper
252	100		
253	30.6	2.2	42.2
125	16.9	0.0	37.3

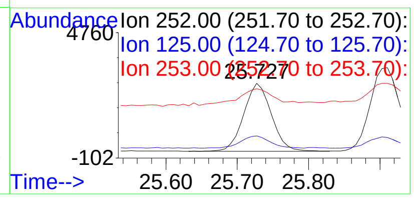


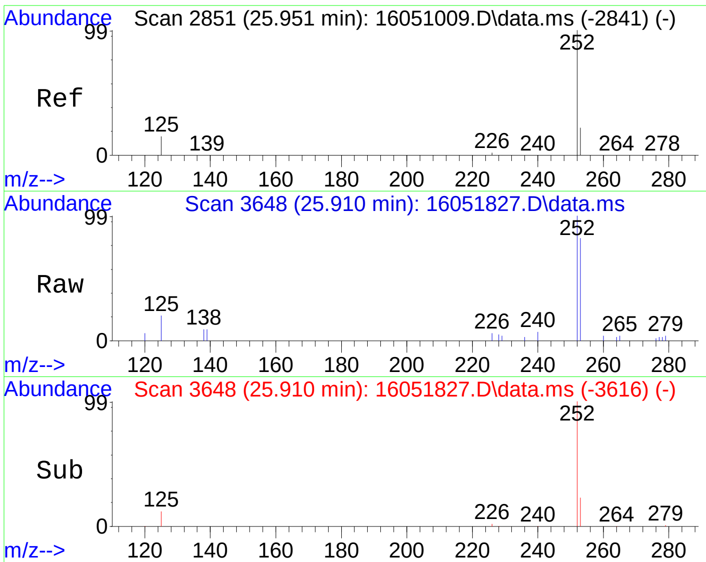


#24
Benzo(e)pyrene
Concen: 9.99 ug/kg
RT: 25.727 min Scan# 3623
Delta R.T. -0.015 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:252 Resp: 7061

Ion	Ratio	Lower	Upper
252	100		
125	19.0	0.0	38.7
253	32.9	2.3	42.3

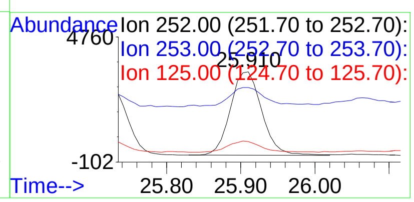


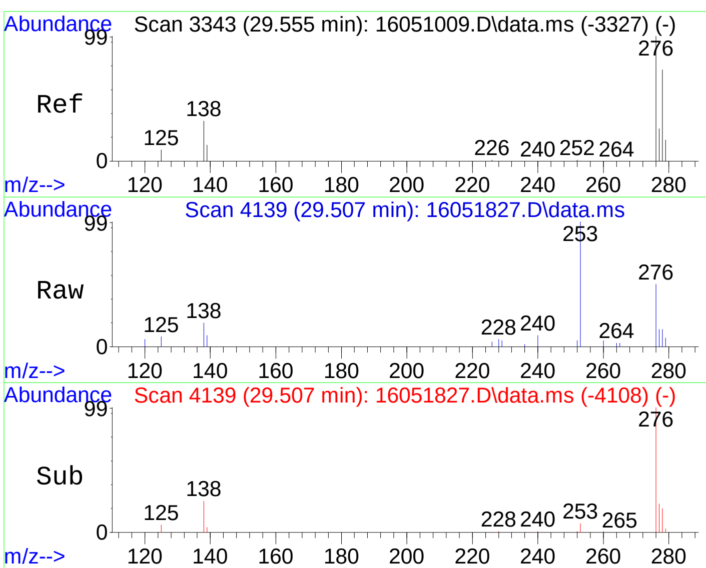


#25
Benzo[a]pyrene
Concen: 14.99 ug/kg
RT: 25.910 min Scan# 3648
Delta R.T. -0.015 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:252 Resp: 9502

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.3	42.3
125	12.8	0.0	33.5

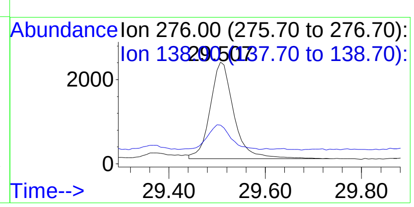


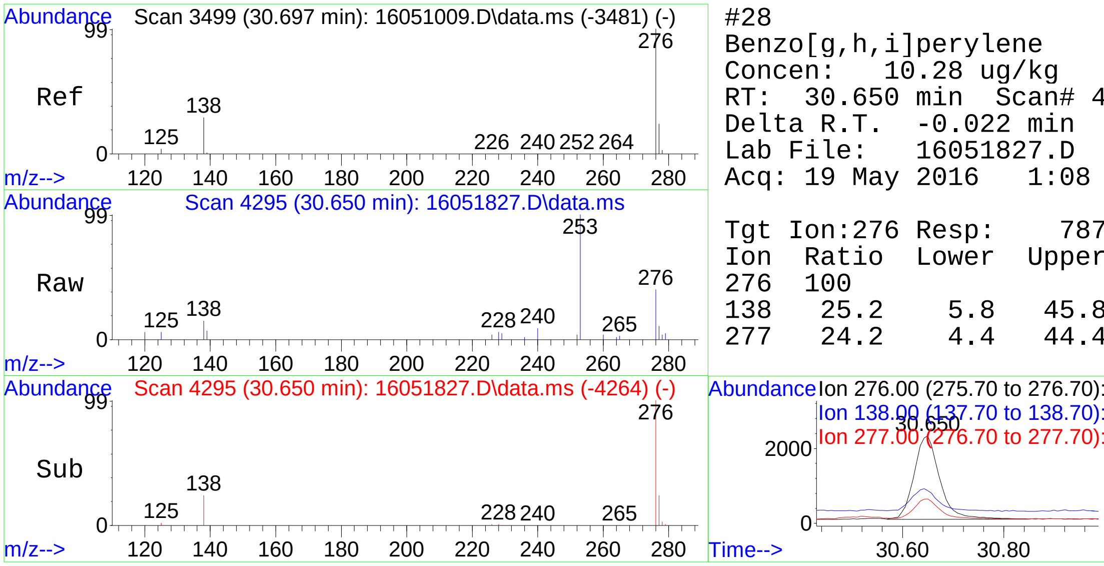


#26
Indeno[1,2,3-cd]pyrene
Concen: 8.49 ug/kg
RT: 29.507 min Scan# 4139
Delta R.T. -0.022 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:276 Resp: 7795

Ion	Ratio	Lower	Upper
276	100		
138	24.6	8.3	48.3





#28
Benzo[g,h,i]perylene
Concen: 10.28 ug/kg
RT: 30.650 min Scan# 4295
Delta R.T. -0.022 min
Lab File: 16051827.D
Acq: 19 May 2016 1:08 am

Tgt Ion:276 Resp: 7872

Ion	Ratio	Lower	Upper
276	100		
138	25.2	5.8	45.8
277	24.2	4.4	44.4

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051830.D
Acq On : 19 May 2016 2:59 am
Operator :
Sample : CCV-160520
Misc : CCV
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 19 09:16:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.270	136	1631750	4000.00 ug/kg	100
6) Acenaphthene-d10	12.857	164	1319311	4000.00 ug/kg	105
11) Phenanthrene-d10	14.979	188	2784459	4000.00 ug/kg	95
16) Chrysene-d12	20.987	240	2573498	4000.00 ug/kg	95
20) Perylene-d12	26.254	264	2394128	4000.00 ug/kg	96

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.759	172	363303	999.98 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.00%#		
17) 4-Terphenyl-d14	17.589	244	544298	999.25 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 24.98%#		

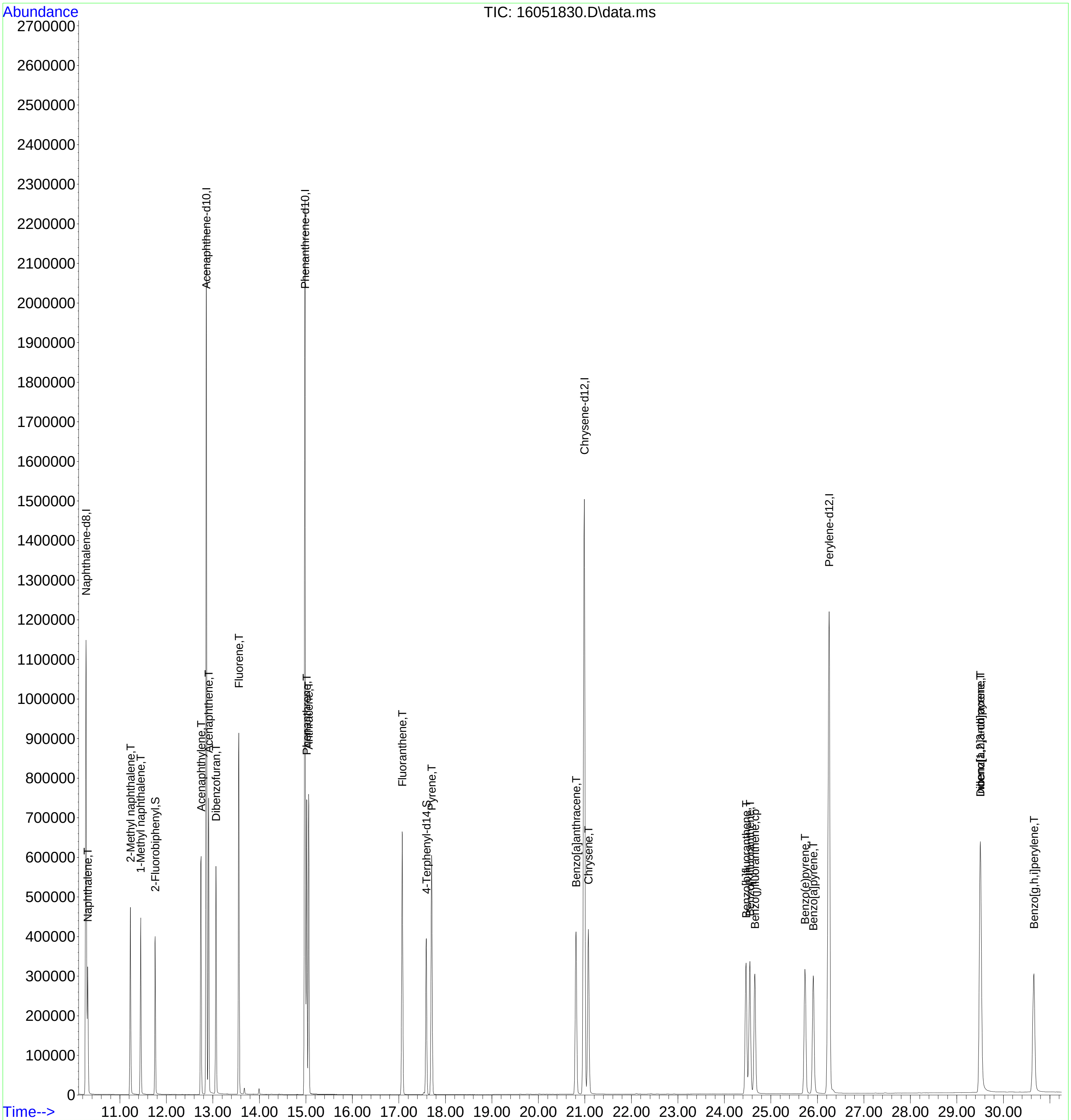
Target Compounds					Qvalue
2) Naphthalene	10.307	128	357903	979.07 ug/kg	100
3) 2-Methyl naphthalene	11.224	142	290768	1023.19 ug/kg	100
4) 1-Methyl naphthalene	11.446	142	267657	995.33 ug/kg	100
7) Acenaphthylene	12.744	152	575333	997.67 ug/kg	99
8) Acenaphthene	12.906	153	360034	989.41 ug/kg	98
9) Dibenzofuran	13.063	168	545327	983.77 ug/kg	91
10) Fluorene	13.559	166	492027	978.26 ug/kg	100
12) Phenanthrene	15.015	178	720203	940.02 ug/kg	99
13) Anthracene	15.059	178	727233	938.06 ug/kg	99
14) Fluoranthene	17.071	202	741258	983.41 ug/kg	100
15) Pyrene	17.703	202	725670	984.46 ug/kg	98
18) Benzo[a]anthracene	20.811	228	655624	1002.53 ug/kg	99
19) Chrysene	21.075	228	607054	1004.84 ug/kg	100
21) Benzo[b]fluoranthene	24.466	252	630356	1005.29 ug/kg	100
22) Benzo[k]fluoranthene	24.547	252	586004	1036.28 ug/kg	99
23) Benzo(j)fluoranthene	24.657	252	547475	1008.23 ug/kg	99
24) Benzo(e)pyrene	25.734	252	600311	1012.62 ug/kg	99
25) Benzo[a]pyrene	25.909	252	592256	1013.62 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.513	276	732052	1018.20 ug/kg	99
27) Dibenz[a,h]anthracene	29.499	278	612851	1023.88 ug/kg	100
28) Benzo[g,h,i]perylene	30.656	276	630506	1016.87 ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051830.D
Acq On : 19 May 2016 2:59 am
Operator :
Sample : CCV-160520
Misc : CCV
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 19 09:16:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



GCMS8_160525A
For

DHL Work Order
1605144

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_160525A**
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			
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			
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		
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		x
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	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	Criteria	Yes	No	N/A	2nd Level Review
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	___ 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 Dustin Beyer Date: 5/26/2016

Second-Level Review: Janice Whitt Date: 5/31/2016

REVIEWED BY
By Janice Whitt at 4:45:35 PM, 5/31/2016

8270-PAH-SOIL-GCMS6

DHL Analytical, Inc.

Run ID: GCMS8_160525A

Run No.: 86005

Analytical Run Date: 5/25/2016

InstrumentID: GCMS8

Analyst: Karyn Lane

Column: Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 660

Column ID: 0.18mm

Column Length: 20m

Cal Comments: PAH160517.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160525	1	PAH_LL_SDOD1	TUNE	R86005	5/25/2016 8:53:00 AM		
ICV-160525	1	PAH_LL_SDOD1	ICV	R86005	5/25/2016 9:31:00 AM		
LCS-75241	1	PAH_LL_SDOD1	LCS	75241	5/25/2016 10:11:00 AM		
MB-75241	1	PAH_LL_SDOD1	MBLK	75241	5/25/2016 10:48:00 AM		
1605135-10A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 11:25:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
1605135-11A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 12:02:00 PM		
1605135-12A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 12:41:00 PM		
1605135-13A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 1:18:00 PM		
1605135-14A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 1:56:00 PM		
1605135-15A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 2:33:00 PM		
1605135-43A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 3:10:00 PM		
1605135-44A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 3:47:00 PM		
1605135-45A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 4:24:00 PM		
1605144-13A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 5:02:00 PM		
1605144-14A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 5:38:00 PM		
1605144-15A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 6:16:00 PM		
1605144-17A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 6:53:00 PM		
1605144-18A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 7:30:00 PM		
DFTPP2-160525	1	PAH_LL_SDOD1	TUNE	R86005	5/25/2016 8:07:00 PM		
ICV2-160525	1	PAH_LL_SDOD1	ICV	R86005	5/25/2016 8:44:00 PM		
SBLK-160525	1	PAH_LL_SDOD1	SBLK	75241	5/25/2016 9:59:00 PM		
1605144-19A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 10:36:00 PM		
1605144-20A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 11:12:00 PM		
1605144-21A	10	PAH_LL_SDOD1	SAMP	75241	5/25/2016 11:49:00 PM		
1605135-14AMS	10	PAH_LL_SDOD1	MS	75241	5/26/2016 12:27:00 AM		
1605135-14AMSD	10	PAH_LL_SDOD1	MSD	75241	5/26/2016 1:04:00 AM		
1605098-36A	10	PAH_LL_SDOD1	SAMP	75218	5/26/2016 1:41:00 AM		
1605098-39A	10	PAH_LL_SDOD1	SAMP	75218	5/26/2016 2:18:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV-160509	1 PPM PAH CCV STANDARD	CCV	08/07/2016
PAHICV160509	2 PPM PAH ICV	ICV	08/07/2016
SVI150810-09	4000 PPM INTERNAL STANDAR	ALL	05/13/2017

Run ID: **GCMS8_160525A** **Run No.:** 86005

CCV-160525	1	PAH_LL_SDOD1	CCV	R86005	5/26/2016 2:55:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV-160509	1 PPM PAH CCV STANDARD	CCV	08/07/2016
PAHICV160509	2 PPM PAH ICV	ICV	08/07/2016
SVI150810-09	4000 PPM INTERNAL STANDAR	ALL	05/13/2017

```
   Sequence Name: C:\msdchem\1\sequence\160525.S
         Comment:
        Operator:
       Data Path: C:\MSDCHEM\1\DATA\160525\
 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     On A Barcode Mismatch
    (X) Full Method             (X) Inject Anyway
    ( ) Reprocessing Only       ( ) Don't Inject

   ----------------------------------------------------------------------
   Line                  Sample Name/Misc Info
 1)  Sample        1  16052501 DFTPPPAH        DFTPP-160525
 2)  Sample        2  16052502 PAH160517       ICV-160525
 3)  Sample        3  16052503 PAH160517       LCS-75240
 4)  Sample        4  16052504 PAH160517       MB-75240
 5)  Sample        5  16052505 PAH160517       1605135-10A
 6)  Sample        6  16052506 PAH160517       1605135-11A
 7)  Sample        7  16052507 PAH160517       1605135-12A
 8)  Sample        8  16052508 PAH160517       1605135-13A
 9)  Sample        9  16052509 PAH160517       1605135-14A
10)  Sample       10  16052510 PAH160517       1605135-15A
11)  Sample       11  16052511 PAH160517       1605135-43A
12)  Sample       12  16052512 PAH160517       1605135-44A
13)  Sample       13  16052513 PAH160517       1605135-45A
14)  Sample       14  16052514 PAH160517       1605144-13A
15)  Sample       15  16052515 PAH160517       1605144-14A
16)  Sample       16  16052516 PAH160517       1605144-15A
17)  Sample       17  16052517 PAH160517       1605144-17A
18)  Sample       18  16052518 PAH160517       1605144-18A
19)  Sample       19  16052519 DFTPPPAH        DFTPP2-160525
20)  Sample       20  16052520 PAH160517       ICV2-160525
21)  Sample       21  16052521 PAH160517       SBLK
22)  Sample       22  16052522 PAH160517       SBLK-160525
23)  Sample       23  16052523 PAH160517       1605144-19A
24)  Sample       24  16052524 PAH160517       1605144-20A
25)  Sample       25  16052525 PAH160517       1605144-21A
26)  Sample       26  16052526 PAH160517       1605135-14AMS
27)  Sample       27  16052527 PAH160517       1605135-14AMSD
28)  Sample       28  16052528 PAH160517       1605098-36A
29)  Sample       29  16052529 PAH160517       1605098-39A
30)  Sample       30  16052530 PAH160517       CCV-160525
```

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/19/2016 1:57:19 PM**
Digestion:
Prep End Date: **5/19/2016 4:40:00 PM**

Prep Batch **75241** 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
1605135-10A	Soil		10.05	10	0.995	1 of 1	
1605135-11A	Soil		10.78	10	0.928	1 of 1	
1605135-12A	Soil		10.06	10	0.994	1 of 1	
1605135-13A	Soil		10.1	10	0.990	1 of 1	
1605135-14A	Soil		10.2	10	0.980	1 of 3	
1605135-14AMS	Soil		10	10	1.000	1 of	
1605135-14AMSD	Soil		10.15	10	0.985	1 of	
1605135-15A	Soil		10.07	10	0.993	1 of 1	
1605135-43A	Soil		10.03	10	0.997	1 of 1	
1605135-44A	Soil		10.06	10	0.994	1 of 1	
1605135-45A	Soil		10.03	10	0.997	1 of 1	
1605144-13A	Soil		10.13	10	0.987	1 of 1	
1605144-14A	Soil		10.12	10	0.988	1 of 1	
1605144-15A	Soil		10	10	1.000	1 of 1	
1605144-17A	Soil		10.12	10	0.988	1 of 1	
1605144-18A	Soil		10.65	10	0.939	1 of 1	
1605144-19A	Soil		10.05	10	0.995	1 of 1	
1605144-20A	Soil		10.1	10	0.990	1 of 1	
1605144-21A	Soil		10.02	10	0.998	1 of 1	
LCS-75241	Soil		10	10	1.000	1 of	
MB-75241	Soil		10	10	1.000	1 of	

Number	Reagent Name	Amt	Units	Exp. Da
10215	Whatman 41 Filter	1	filter	03/20/2026
10216	Purified Sodium Sulfate	10	g	03/30/2026
10340	Methylene Chloride	8	ml	05/05/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160516	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	08/16/2016
SVPREP160517	40 PPM Surrogate Standard	ALL	0.25	08/15/2016

REVIEWED BY
By Janice Whitt at 4:18:59 PM, 5/31/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Start Date: **5/19/2016 1:57:19 PM**

Digestion:

Prep End Date: 5/19/2016 @ 4:40 PM

Prep Factor Units: **mL/g**

Prep Batch **75241** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605135-10A	Soil		10.05	10	1.000	1 of 1	
1605135-11A	Soil		10.78	10	1.000	1 of 1	
1605135-12A	Soil		10.06	10	1.000	1 of 1	
1605135-13A	Soil		10.10	10	1.000	1 of 1	
1605135-14A	Soil		10.20	10	1.000	of 3	
1605135-14AMS	Soil		10.06	10	1.000	of	
1605135-14AMSD	Soil		10.15	10	1.000	of	
1605135-15A	Soil		10.07	10	1.000	1 of 1	
1605135-43A	Soil		10.03	10	1.000	1 of 1	
1605135-44A	Soil		10.00	10	1.000	1 of 1	
1605135-45A	Soil		10.03	10	1.000	1 of 1	
1605144-13A	Soil		10.13	10	1.000	1 of 1	
1605144-14A	Soil		10.12	10	1.000	1 of 1	
1605144-15A	Soil		10.00	10	1.000	1 of 1	
1605144-17A	Soil		10.12	10	1.000	1 of 1	
1605144-18A	Soil		10.05	10	1.000	1 of 1	
1605144-19A	Soil		10.05	10	1.000	1 of 1	
1605144-20A	Soil		10.10	10	1.000	1 of 1	
1605144-21A	Soil		10.02	10	1.000	1 of 1	
LCS-75241	Soil		10	10	1.000	of	
MB-75241	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10215	Whatman 41 Filter	1	filter	03/20/2026
10216	Purified Sodium Sulfate	10	g	03/30/2026
10340	Methylene Chloride	8	ml	05/05/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160516	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	08/16/2016
SVPREP160517	40 PPM Surrogate Standard	ALL	0.25	08/15/2016

REVIEWED BY
By Janice Whitt at 4:18:56 PM, 5/31/2016

5/19/16

AR 05/19/16

5/19/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/16/2016 3:40:00 PM**
Digestion: **Start: 5/16/2016 4:45:00 PM / Stop: 5/18/2016 11:00:00 AM**
Prep End Date: **5/18/2016 3:00:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75188** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605121-41A	Soil		0	0	#Num!	1 of 1	
1605121-42A	Soil		0	0	#Num!	1 of 1	
1605121-43A	Soil		0	0	#Num!	1 of 1	
	Sieve only no subsampling hard clay MS/MSD						
1605121-44A	Soil		0	0	#Num!	1 of 1	
	Sieve only no subsampling hard clay						
1605121-45A	Soil		0	0	#Num!	1 of 1	
1605135-01A	Soil		0	0	#Num!	1 of 1	
1605135-02A	Soil		0	0	#Num!	1 of 1	
1605135-03A	Soil		0	0	#Num!	1 of 1	
1605135-04A	Soil		0	0	#Num!	1 of 1	
1605135-05A	Soil		0	0	#Num!	1 of 1	
1605135-06A	Soil		0	0	#Num!	1 of 1	
1605135-07A	Soil		0	0	#Num!	1 of 1	
1605135-08A	Soil		0	0	#Num!	1 of 1	
1605135-09A	Soil		0	0	#Num!	1 of 1	
1605135-10A	Soil		0	0	#Num!	1 of 1	
1605135-11A	Soil		0	0	#Num!	1 of 1	
1605135-12A	Soil		0	0	#Num!	1 of 1	
1605135-13A	Soil		0	0	#Num!	1 of 1	
1605135-14A	Soil		0	0	#Num!	of 3	
	Extra sub sampled for MS/MSD						
1605135-15A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 4:22:34 PM, 5/31/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 2:17:28 PM**
Digestion: **Start: 5/17/2016 5:00:00 PM / Stop: 5/18/2016 9:00:00 AM**
Prep End Date: **5/18/2016 10:00:00 AM**

Prep Factor Units: **mL/**

Prep Batch **75212** Prep Code: **ISM250_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605135-43A	Soil		0	0	#Num!	1 of 1	
Subsampled extra for MS/MSD							
1605135-44A	Soil		0	0	#Num!	1 of 1	
1605135-45A	Soil		0	0	#Num!	1 of 1	
1605144-13A	Soil		0	0	#Num!	1 of 1	
Subsampled extra MS/MSD							
1605144-14A	Soil		0	0	#Num!	1 of 1	
1605144-15A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 4:22:36 PM, 5/31/2016

```
Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052501.D
Acq On    : 25 May 2016   8:53 am
Operator  :
Sample    : DFTPP-160525
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
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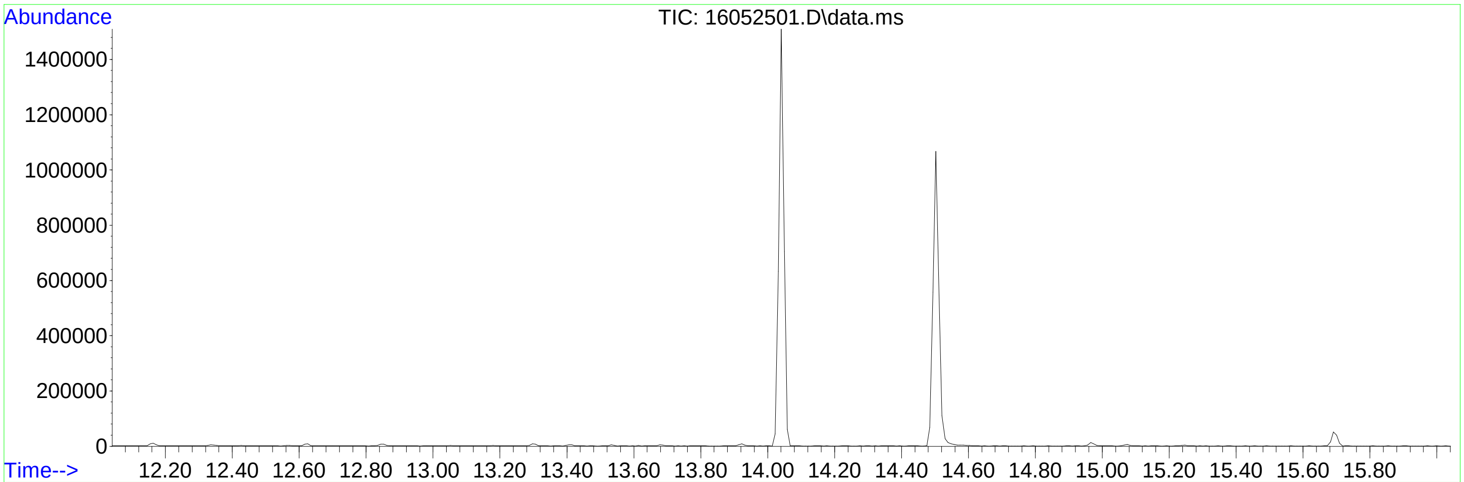

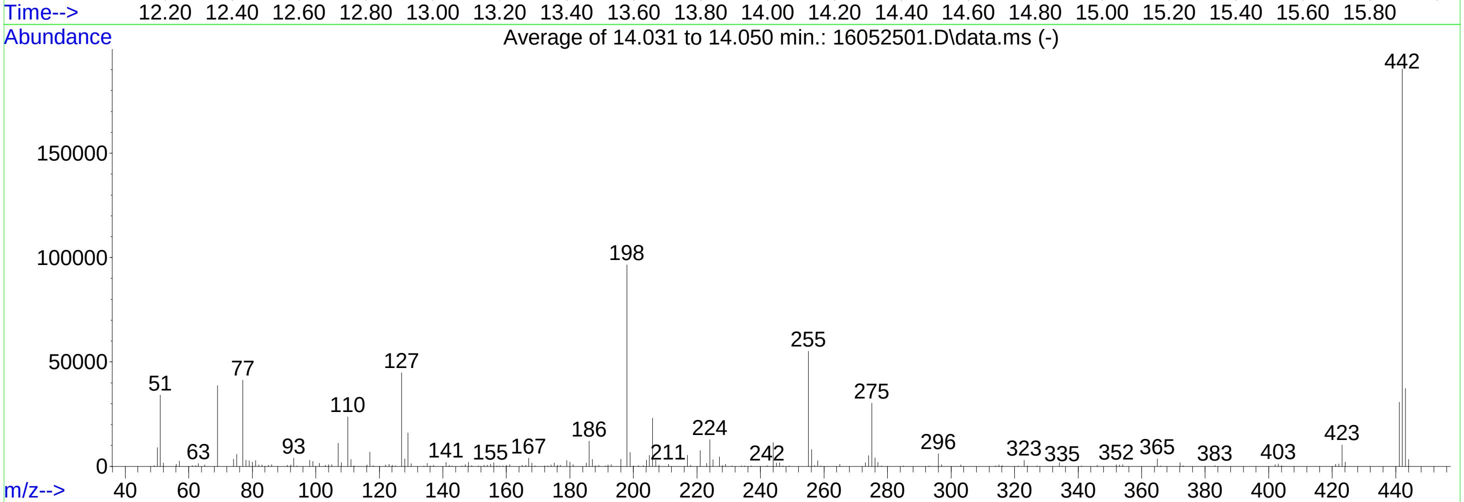

AutoFind: Scans 435, 436, 437; Background Corrected with Scan 431

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.4	34181	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.1	38708	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	46.5	44912	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	96589	PASS
199	198	5	9	6.9	6644	PASS
275	198	10	60	31.3	30208	PASS
365	198	1	200	3.7	3576	PASS
441	442	0.01	24	16.2	30808	PASS
442	198	50	400	197.1	190405	PASS
443	442	15	24	19.6	37297	PASS

REVIEWED BY
By Janice Whitt at 4:22:39 PM, 5/31/2016

```
Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052519.D
Acq On    : 25 May 2016   8:07 pm
Operator  :
Sample    : DFTPP2-160525
Misc      : TUNE
ALS Vial  : 19   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
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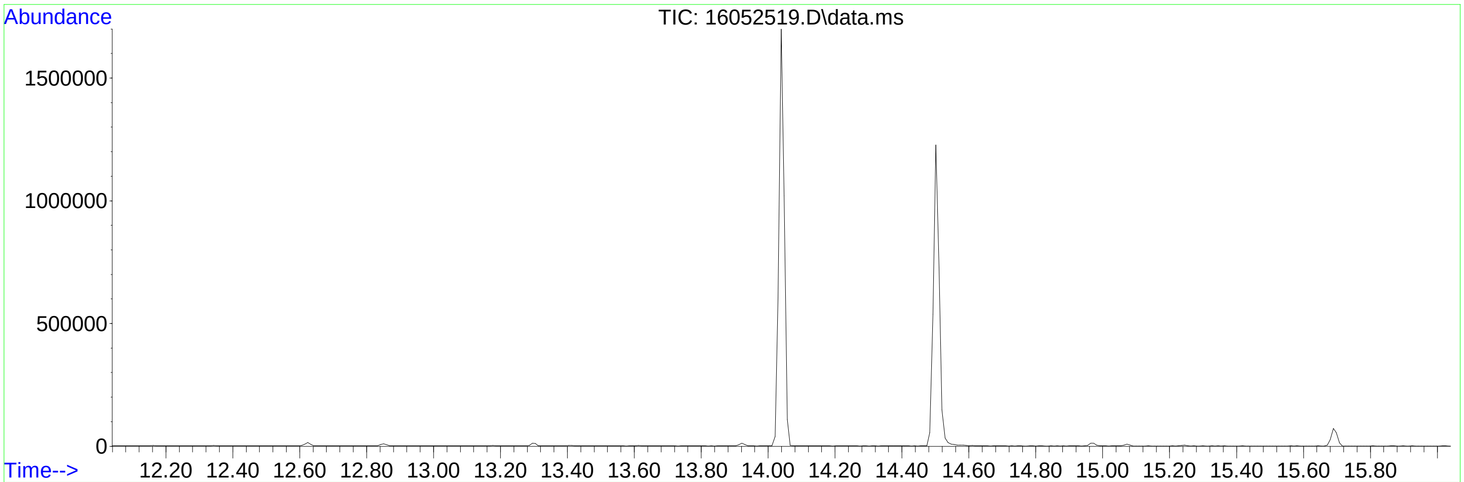
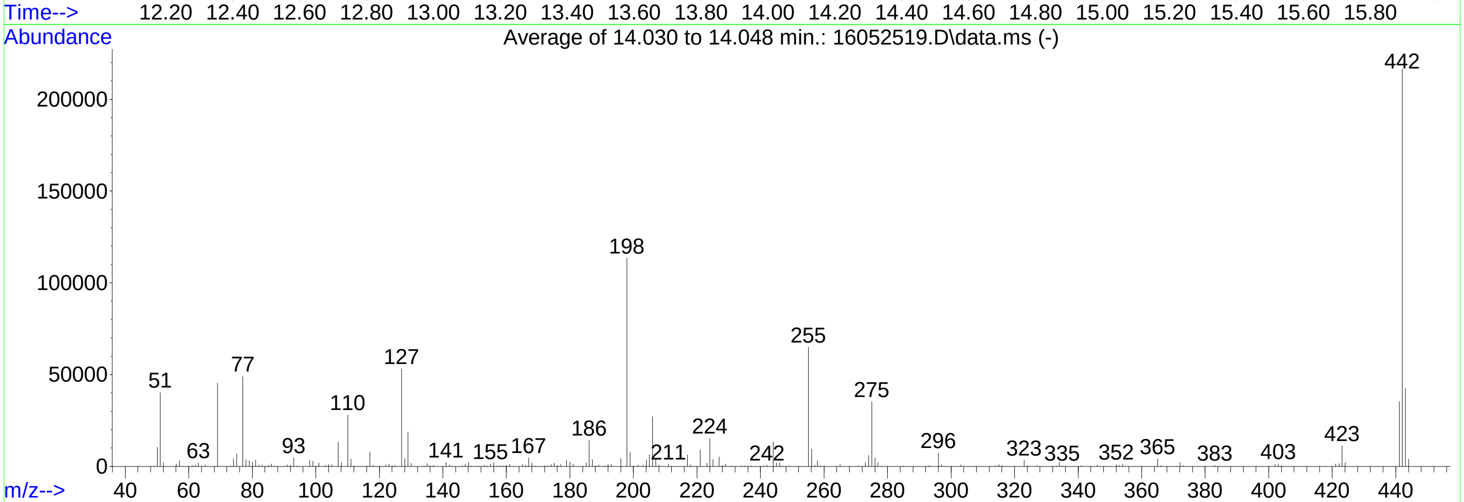




AutoFind: Scans 435, 436, 437; Background Corrected with Scan 431

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.4	40180	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.0	45389	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	46.8	53149	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	113477	PASS
199	198	5	9	6.8	7728	PASS
275	198	10	60	30.9	35072	PASS
365	198	1	200	3.6	4032	PASS
441	442	0.01	24	16.3	35275	PASS
442	198	50	400	190.9	216600	PASS
443	442	15	24	19.6	42516	PASS

REVIEWED BY
By Janice Whitt at 4:22:45 PM, 5/31/2016

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052502.D
Acq On : 25 May 2016 9:31 am
Operator :
Sample : ICV-160525
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 15:49:12 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.267	136	1461647	4000.00 ug/kg	90
6) Acenaphthene-d10	12.856	164	1227683	4000.00 ug/kg	98
11) Phenanthrene-d10	14.974	188	2343674	4000.00 ug/kg	80
16) Chrysene-d12	20.980	240	2251506	4000.00 ug/kg	83
20) Perylene-d12	26.247	264	2147295	4000.00 ug/kg	86

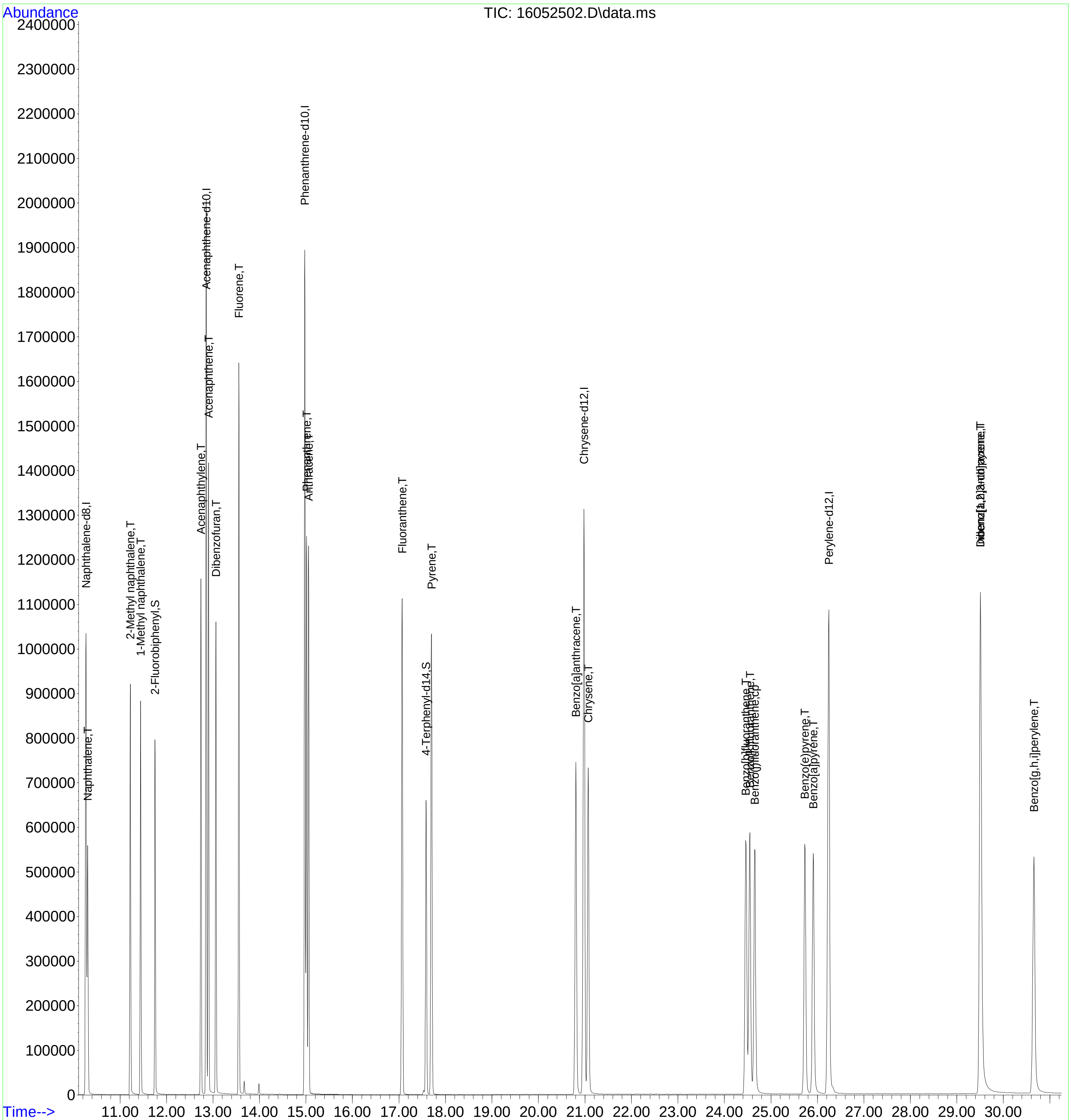
System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.752	172	722975	2221.54 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 55.54%		
17) 4-Terphenyl-d14	17.586	244	926637	1944.45 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 48.61%#		

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.304	128	666393	2035.11 ug/kg	100
3) 2-Methyl naphthalene	11.222	142	573828	2254.25 ug/kg	99
4) 1-Methyl naphthalene	11.444	142	524824	2178.78 ug/kg	99
7) Acenaphthylene	12.739	152	1106441	2061.85 ug/kg	100
8) Acenaphthene	12.905	153	690106	2038.03 ug/kg	99
9) Dibenzofuran	13.063	168	1011668	1961.27 ug/kg	98
10) Fluorene	13.554	166	888356	1898.08 ug/kg	100
12) Phenanthrene	15.012	178	1207793	1872.92 ug/kg	100
13) Anthracene	15.056	178	1210578	1855.22 ug/kg	100
14) Fluoranthene	17.067	202	1271086	2067.00 ug/kg	99
15) Pyrene	17.700	202	1247644	2064.16 ug/kg	98
18) Benzo[a]anthracene	20.805	228	1178703	2117.26 ug/kg	100
19) Chrysene	21.068	228	1081869	2100.98 ug/kg	100
21) Benzo[b]fluoranthene	24.460	252	1158667	2106.28 ug/kg	99
22) Benzo[k]fluoranthene	24.548	252	1025492	2054.91 ug/kg	100
23) Benzo(j)fluoranthene	24.658	252	1000503	2104.00 ug/kg	99
24) Benzo(e)pyrene	25.727	252	1099003	2117.76 ug/kg	100
25) Benzo[a]pyrene	25.910	252	1086115	2109.17 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.514	276	1333492	2117.79 ug/kg	96
27) Dibenz[a,h]anthracene	29.507	278	1106542	2114.74 ug/kg	99
28) Benzo[g,h,i]perylene	30.657	276	1143981	2104.66 ug/kg	99

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

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052502.D
Acq On : 25 May 2016 9:31 am
Operator :
Sample : ICV-160525
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

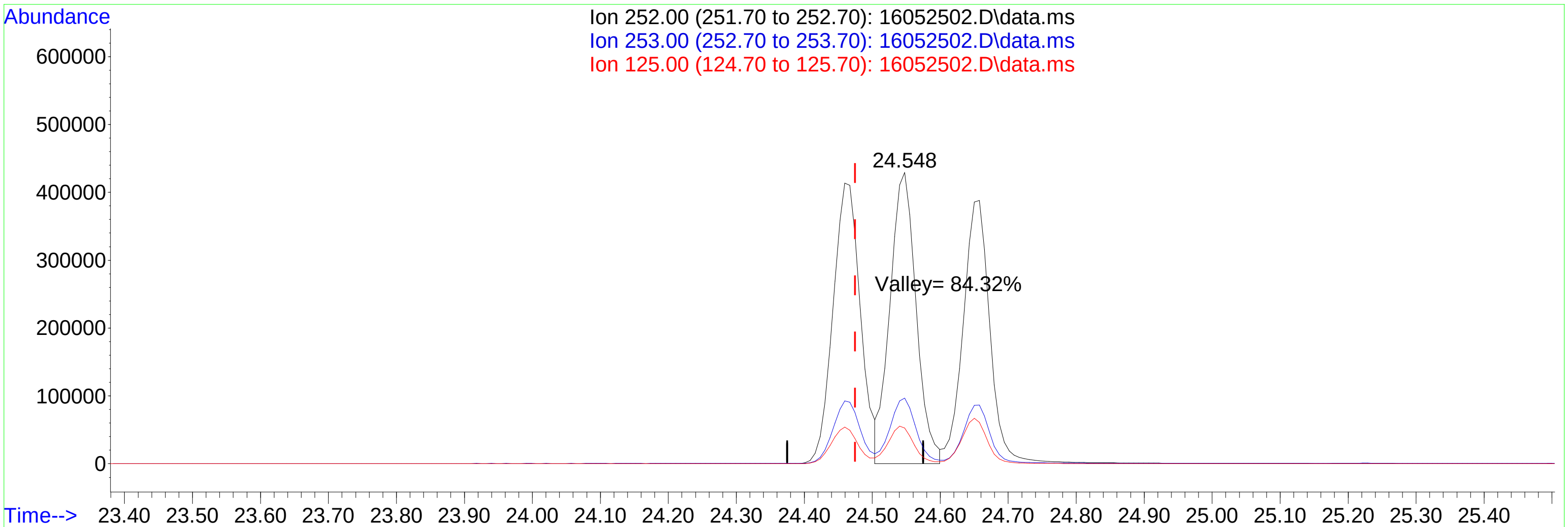
Quant Time: May 25 15:49:12 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

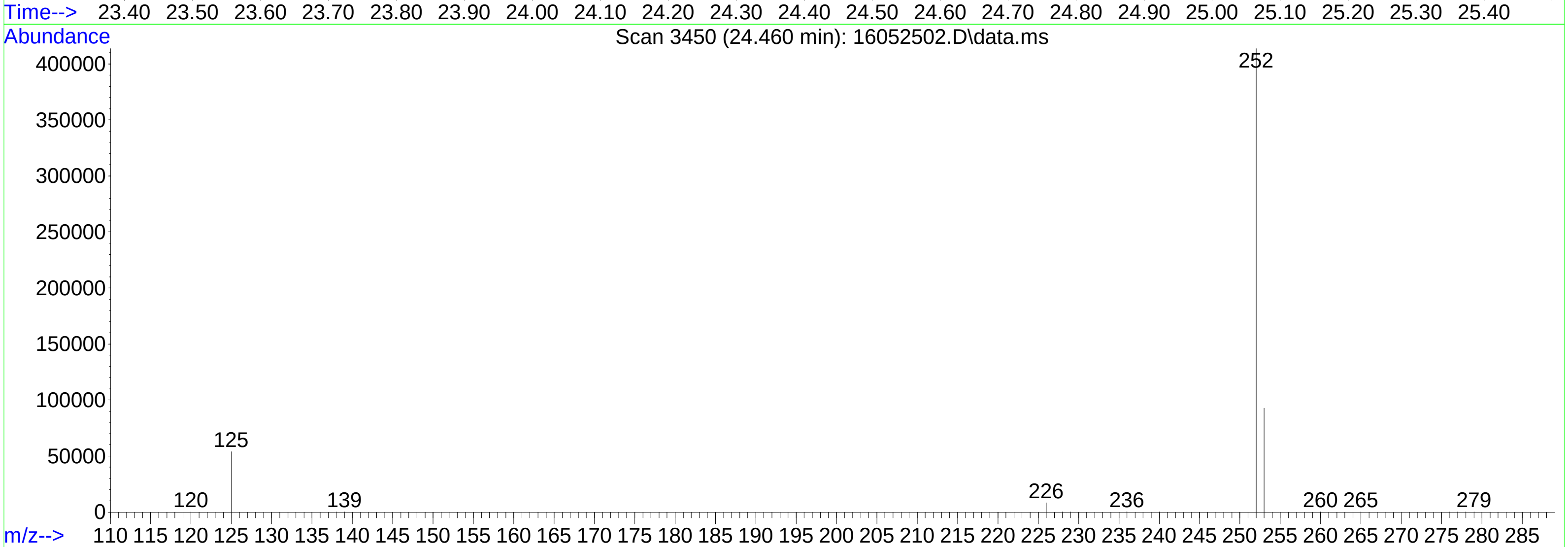


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052502.D
Acq On : 25 May 2016 9:31 am
Operator :
Sample : ICV-160525
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 15:49:12 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration





TIC: 16052502.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.460min (-0.015) 2106.28ug/kg

response 1158667

Ion	Exp%	Act%
252.00	100	100
253.00	22.30	22.32
125.00	12.20	13.01
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052503.D
Acq On : 25 May 2016 10:11 am
Operator :
Sample : LCS-75241
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 16:01:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.267	136	1377827	4000.00 ug/kg	85
6) Acenaphthene-d10	12.856	164	1020324	4000.00 ug/kg	81
11) Phenanthrene-d10	14.974	188	2014624	4000.00 ug/kg	69
16) Chrysene-d12	20.980	240	2217671	4000.00 ug/kg	82
20) Perylene-d12	26.246	264	2076653	4000.00 ug/kg	84

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.756	172	248921	811.41 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.29%#	
17) 4-Terphenyl-d14	17.584	244	357238	761.06 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	19.03%#	

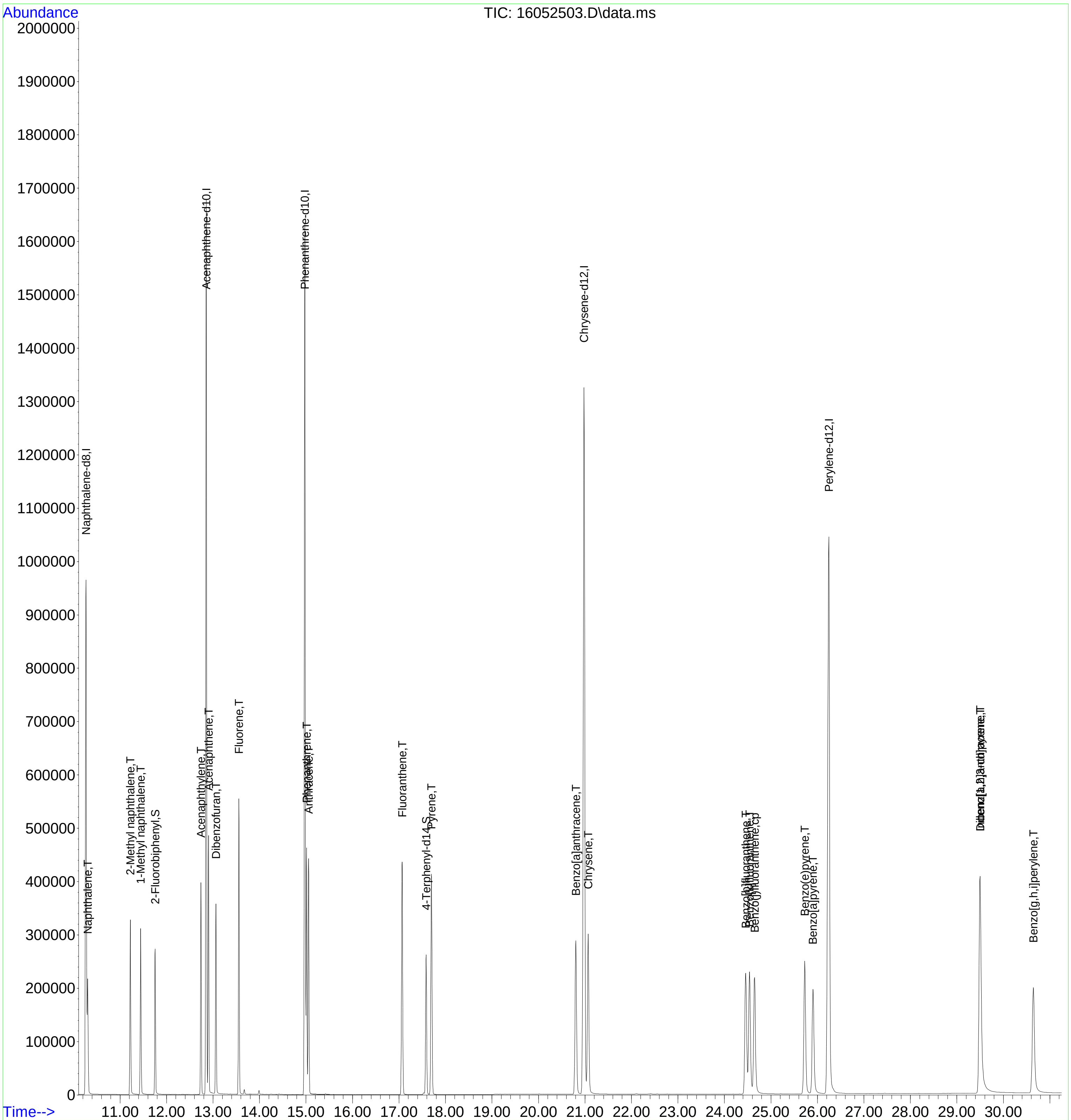
Target Compounds					Qvalue
2) Naphthalene	10.304	128	247639	802.28 ug/kg	100
3) 2-Methyl naphthalene	11.221	142	199482	831.33 ug/kg	100
4) 1-Methyl naphthalene	11.443	142	183431	807.83 ug/kg	99
7) Acenaphthylene	12.738	152	366428	821.61 ug/kg	99
8) Acenaphthene	12.905	153	227174	807.24 ug/kg	99
9) Dibenzofuran	13.062	168	338219	788.94 ug/kg	100
10) Fluorene	13.553	166	294288	756.57 ug/kg	99
12) Phenanthrene	15.012	178	432770	780.71 ug/kg	98
13) Anthracene	15.054	178	430952	768.31 ug/kg	98
14) Fluoranthene	17.068	202	492019	899.95 ug/kg	98
15) Pyrene	17.697	202	486629	910.73 ug/kg	97
18) Benzo[a]anthracene	20.804	228	467518	825.87 ug/kg	99
19) Chrysene	21.068	228	434176	830.29 ug/kg	99
21) Benzo[b]fluoranthene	24.459	252	450904	825.90 ug/kg	99
22) Benzo[k]fluoranthene	24.540	252	406828	826.55 ug/kg	99
23) Benzo(j)fluoranthene	24.650	252	403639	853.85 ug/kg	99
24) Benzo(e)pyrene	25.726	252	474267	920.34 ug/kg	99
25) Benzo[a]pyrene	25.902	252	407255	800.57 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.506	276	512582	818.08 ug/kg	98
27) Dibenz[a,h]anthracene	29.491	278	422341	808.84 ug/kg	99
28) Benzo[g,h,i]perylene	30.649	276	437539	809.66 ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052503.D
Acq On : 25 May 2016 10:11 am
Operator :
Sample : LCS-75241
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 16:01:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052504.D
Acq On : 25 May 2016 10:48 am
Operator :
Sample : MB-75241
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 25 16:01:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.269	136	1444229	4000.00 ug/kg	89
6) Acenaphthene-d10	12.856	164	1150181	4000.00 ug/kg	92
11) Phenanthrene-d10	14.974	188	2155478	4000.00 ug/kg	74
16) Chrysene-d12	20.981	240	2267486	4000.00 ug/kg	84
20) Perylene-d12	26.240	264	2158786	4000.00 ug/kg	87

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.753	172	259448	806.84 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.17%#		
17) 4-Terphenyl-d14	17.581	244	357629	745.16 ug/kg	-0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 18.63%#		

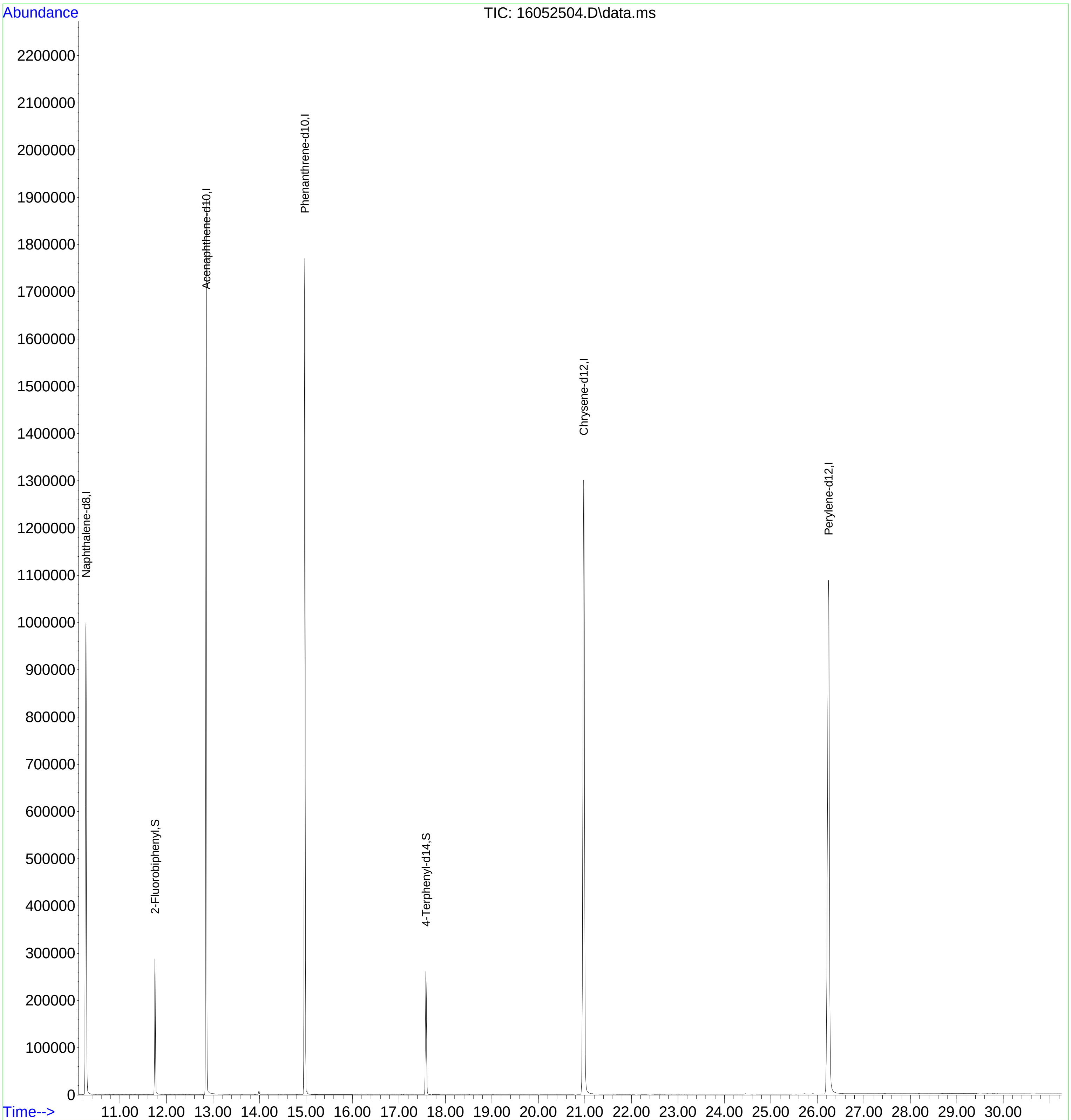
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052504.D
Acq On : 25 May 2016 10:48 am
Operator :
Sample : MB-75241
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 25 16:01:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052514.D
Acq On : 25 May 2016 5:02 pm
Operator :
Sample : 1605144-13A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: May 26 08:55:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.270	136	1534557	4000.00 ug/kg	94
6) Acenaphthene-d10	12.857	164	1251573	4000.00 ug/kg	100
11) Phenanthrene-d10	14.977	188	2162371	4000.00 ug/kg	74
16) Chrysene-d12	20.980	240	2123861	4000.00 ug/kg	78
20) Perylene-d12	26.247	264	2041652	4000.00 ug/kg	82

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.755	172	31223	91.38 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.28%#	
17) 4-Terphenyl-d14	17.586	244	36563	81.33 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.03%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
14) Fluoranthene	17.070	202	6685	9.10 ug/kg	97
15) Pyrene	17.700	202	5626	7.37 ug/kg	96
19) Chrysene	21.068	228	3971	5.08 ug/kg	98
21) Benzo[b]fluoranthene	24.460	252	3984	5.61 ug/kg	96
23) Benzo(j)fluoranthene	24.643	252	1681	0.39 ug/kg	97

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

Quantitation Report (Not Reviewed)

```
Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052514.D
Acq On    : 25 May 2016   5:02 pm
Operator  :
Sample    : 1605144-13A
Misc      : SAMP
ALS Vial  : 14   Sample Multiplier: 10

Quant Time: May 26 08:55:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
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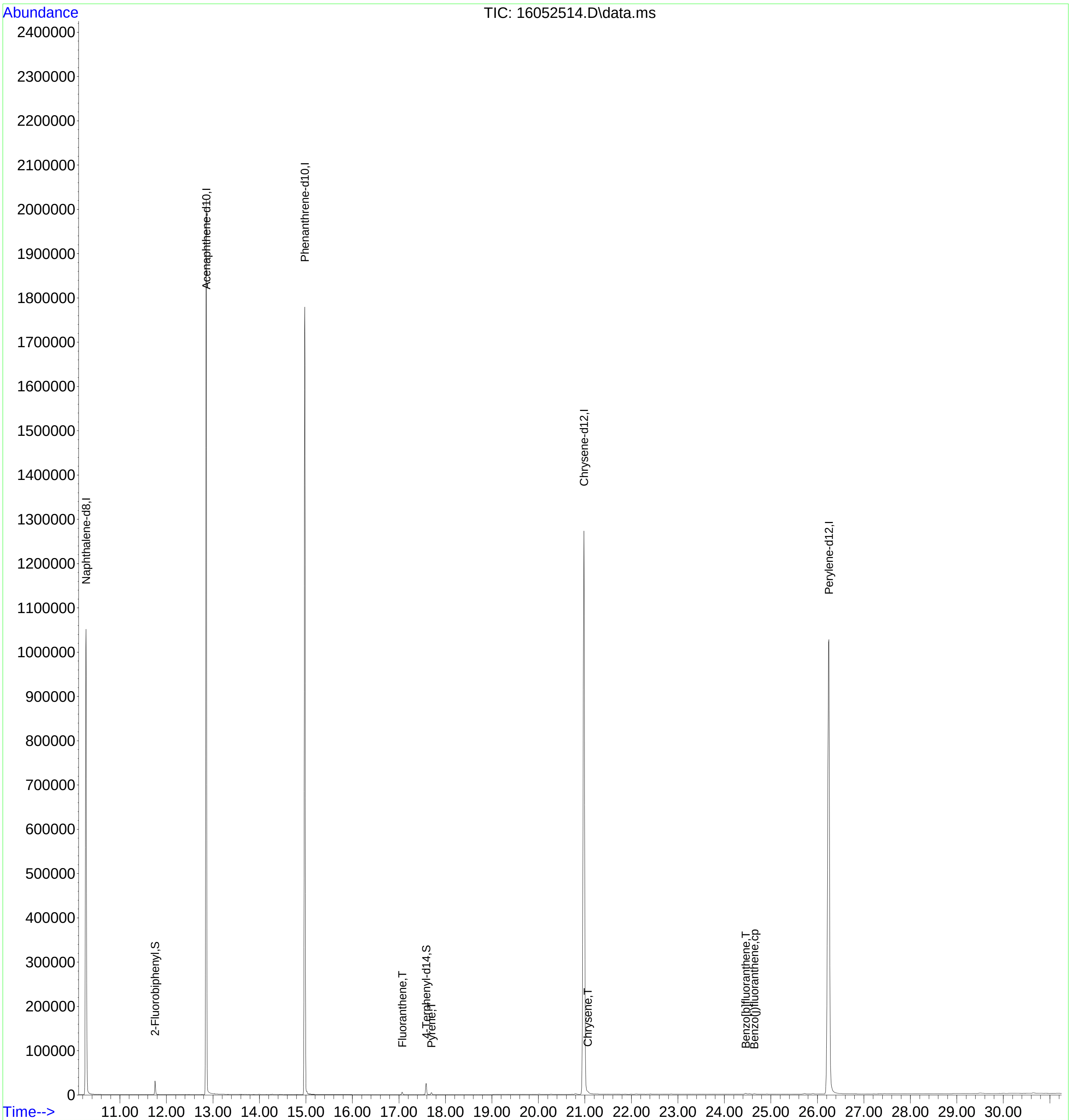
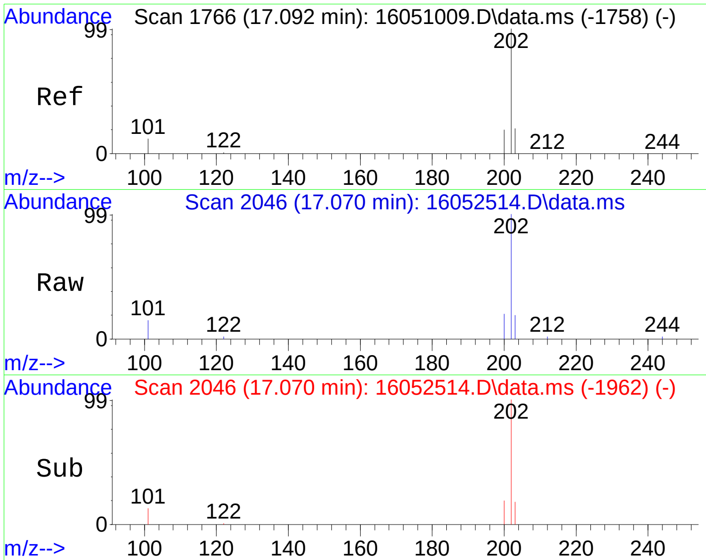
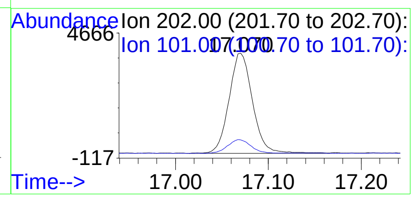


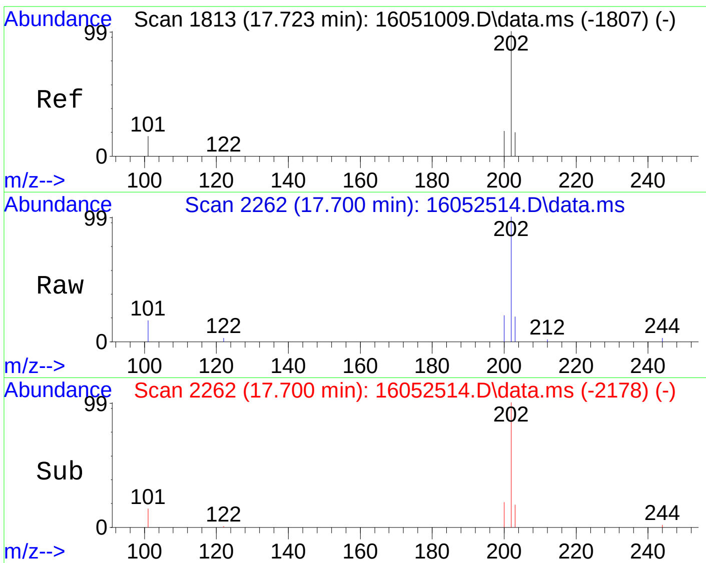


#14
Fluoranthene
Concen: 9.10 ug/kg
RT: 17.070 min Scan# 2046
Delta R.T. -0.006 min
Lab File: 16052514.D
Acq: 25 May 2016 5:02 pm

Tgt Ion:202 Resp: 6685

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	34.4

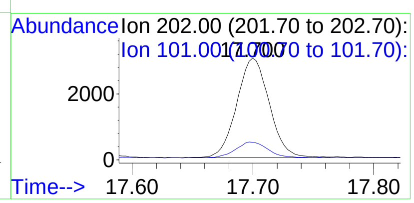


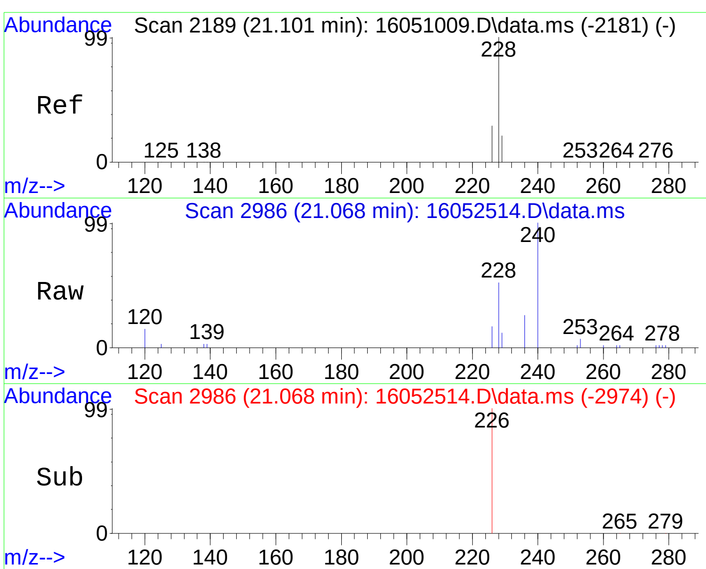


#15
Pyrene
Concen: 7.37 ug/kg
RT: 17.700 min Scan# 2262
Delta R.T. -0.006 min
Lab File: 16052514.D
Acq: 25 May 2016 5:02 pm

Tgt Ion:202 Resp: 5626

Ion	Ratio	Lower	Upper
202	100		
101	15.5	0.0	37.3

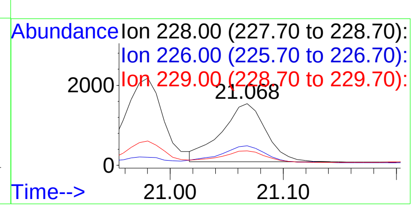


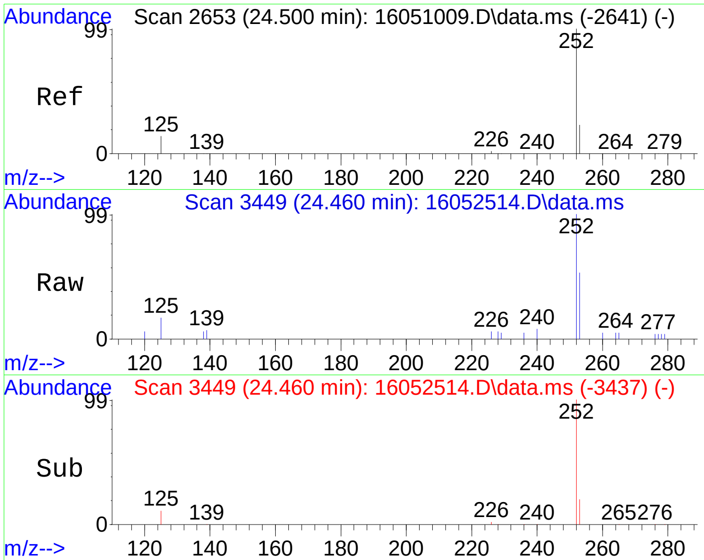


#19
Chrysene
Concen: 5.08 ug/kg
RT: 21.068 min Scan# 2986
Delta R.T. -0.015 min
Lab File: 16052514.D
Acq: 25 May 2016 5:02 pm

Tgt Ion:228 Resp: 3971

Ion	Ratio	Lower	Upper
228	100		
226	28.9	8.2	48.2
229	19.5	0.3	40.3

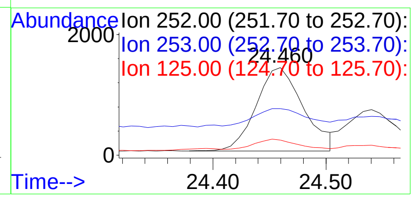


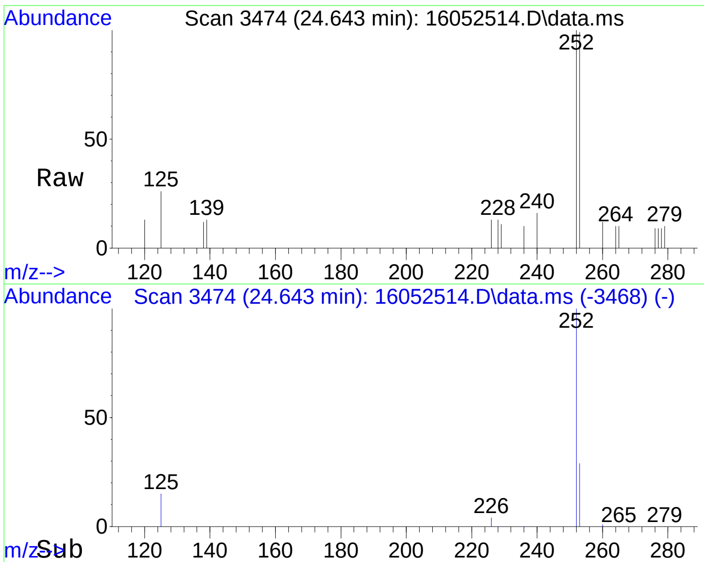


#21
Benzo[b]fluoranthene
Concen: 5.61 ug/kg
RT: 24.460 min Scan# 3449
Delta R.T. -0.015 min
Lab File: 16052514.D
Acq: 25 May 2016 5:02 pm

Tgt Ion:252 Resp: 3984

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.3	42.3
125	10.6	0.0	32.2

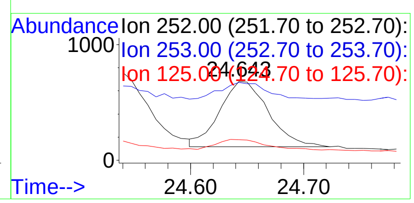




#23
Benzo(j)fluoranthene
Concen: 0.39 ug/kg
RT: 24.643 min Scan# 3474
Delta R.T. -0.022 min
Lab File: 16052514.D
Acq: 25 May 2016 5:02 pm

Tgt Ion:252 Resp: 1681

Ion	Ratio	Lower	Upper
252	100		
253	23.9	2.2	42.2
125	15.9	0.0	37.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052515.D
Acq On : 25 May 2016 5:38 pm
Operator :
Sample : 1605144-14A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: May 26 08:55:09 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

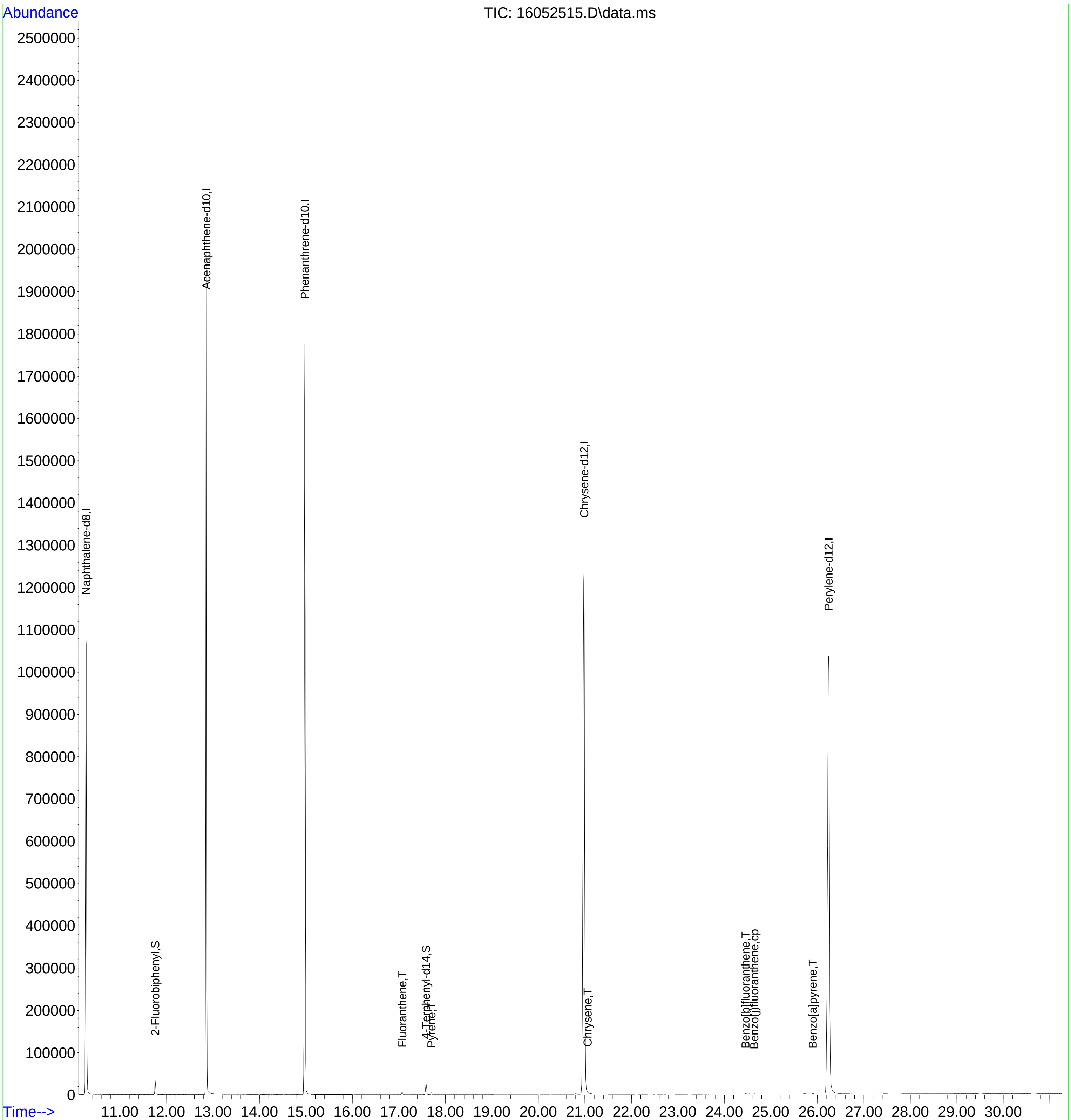
Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.268	136	1566320	4000.00 ug/kg	96
6) Acenaphthene-d10	12.857	164	1264694	4000.00 ug/kg	101
11) Phenanthrene-d10	14.975	188	2187269	4000.00 ug/kg	75
16) Chrysene-d12	20.981	240	2141978	4000.00 ug/kg	79
20) Perylene-d12	26.240	264	2066166	4000.00 ug/kg	83
System Monitoring Compounds					**Dev(Min)**
5) 2-Fluorobiphenyl	11.757	172	33108	94.93 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.37%#	
17) 4-Terphenyl-d14	17.583	244	37306	82.29 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.06%#	
Target Compounds					**Qvalue**
14) Fluoranthene	17.067	202	7086	9.63 ug/kg	98
15) Pyrene	17.700	202	6006	7.91 ug/kg	95
19) Chrysene	21.062	228	4141	5.34 ug/kg	98
21) Benzo[b]fluoranthene	24.453	252	4149	5.83 ug/kg	98
23) Benzo(j)fluoranthene	24.644	252	1778	0.55 ug/kg	90
25) Benzo[a]pyrene	25.903	252	3722	5.16 ug/kg	98

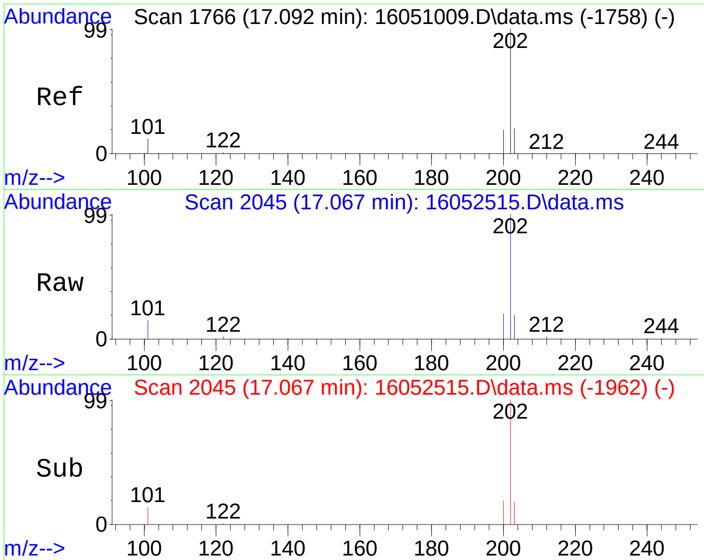
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052515.D
Acq On : 25 May 2016 5:38 pm
Operator :
Sample : 1605144-14A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: May 26 08:55:09 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

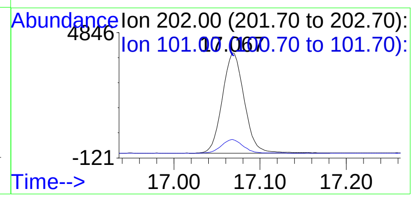


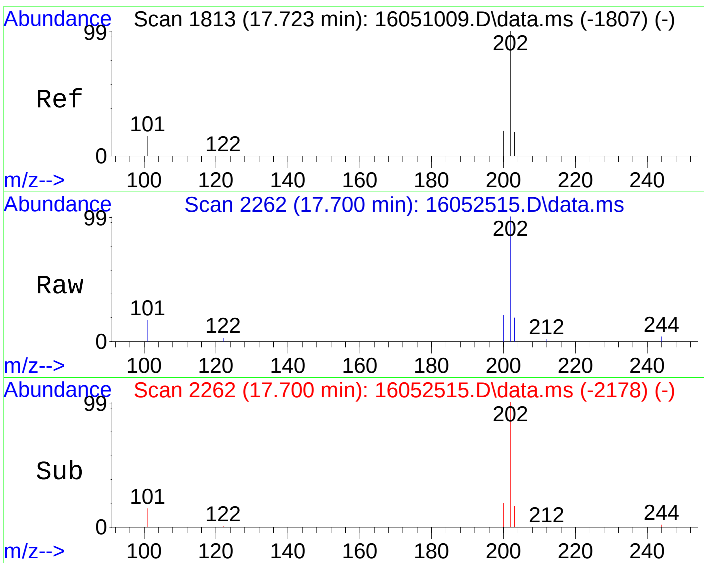


#14
Fluoranthene
Concen: 9.63 ug/kg
RT: 17.067 min Scan# 2045
Delta R.T. -0.009 min
Lab File: 16052515.D
Acq: 25 May 2016 5:38 pm

Tgt Ion:202 Resp: 7086

Ion	Ratio	Lower	Upper
202	100		
101	13.8	0.0	34.4

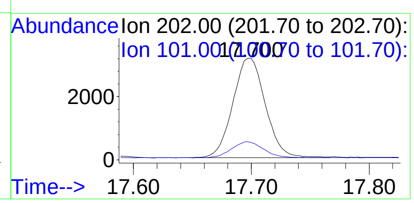


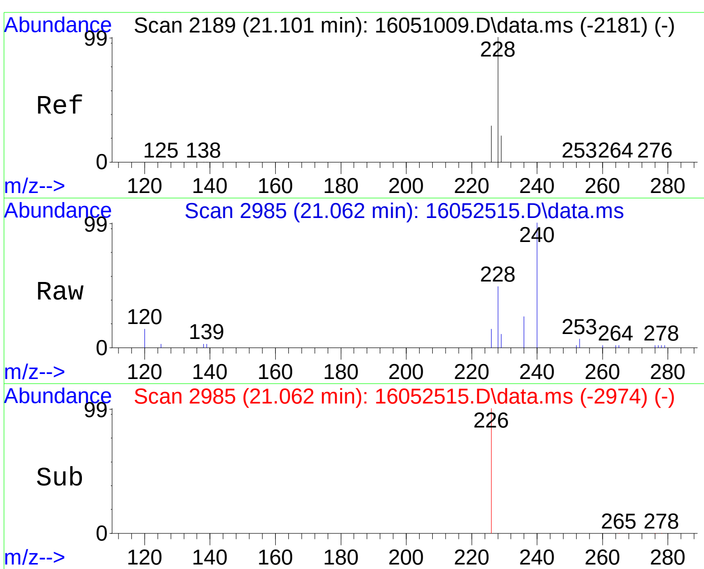


#15
Pyrene
Concen: 7.91 ug/kg
RT: 17.700 min Scan# 2262
Delta R.T. -0.006 min
Lab File: 16052515.D
Acq: 25 May 2016 5:38 pm

Tgt Ion:202 Resp: 6006

Ion	Ratio	Lower	Upper
202	100		
101	15.2	0.0	37.3

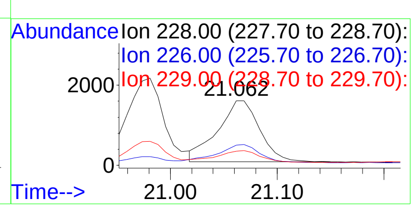


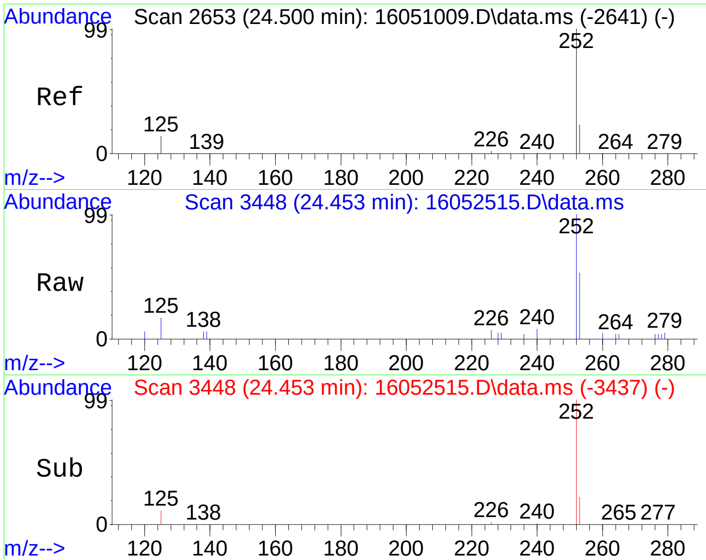


#19
Chrysene
Concen: 5.34 ug/kg
RT: 21.062 min Scan# 2985
Delta R.T. -0.021 min
Lab File: 16052515.D
Acq: 25 May 2016 5:38 pm

Tgt Ion:228 Resp: 4141

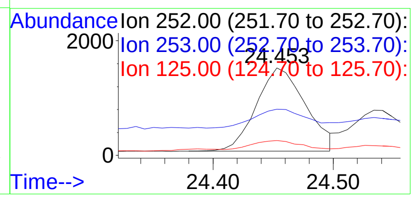
Ion	Ratio	Lower	Upper
228	100		
226	28.6	8.2	48.2
229	18.5	0.3	40.3

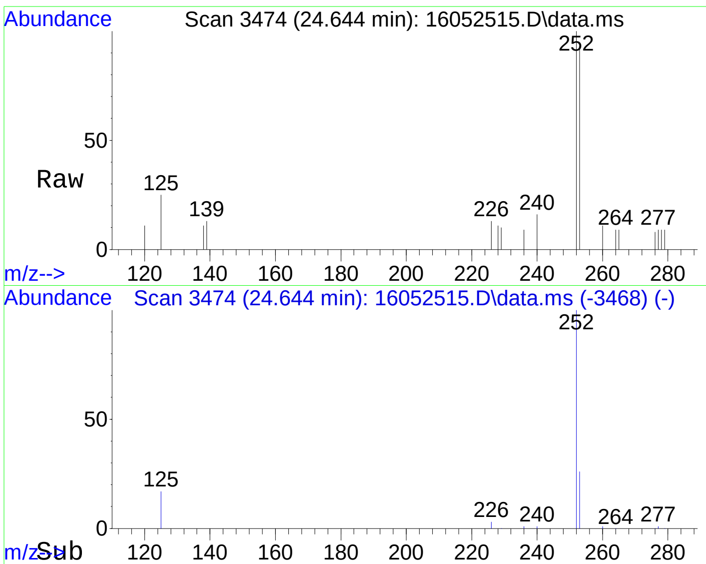




#21
Benzo[b]fluoranthene
Concen: 5.83 ug/kg
RT: 24.453 min Scan# 3448
Delta R.T. -0.022 min
Lab File: 16052515.D
Acq: 25 May 2016 5:38 pm

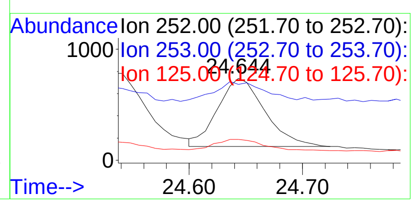
Tgt	Ion:252	Resp:	4149
Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.3	42.3
125	10.2	0.0	32.2

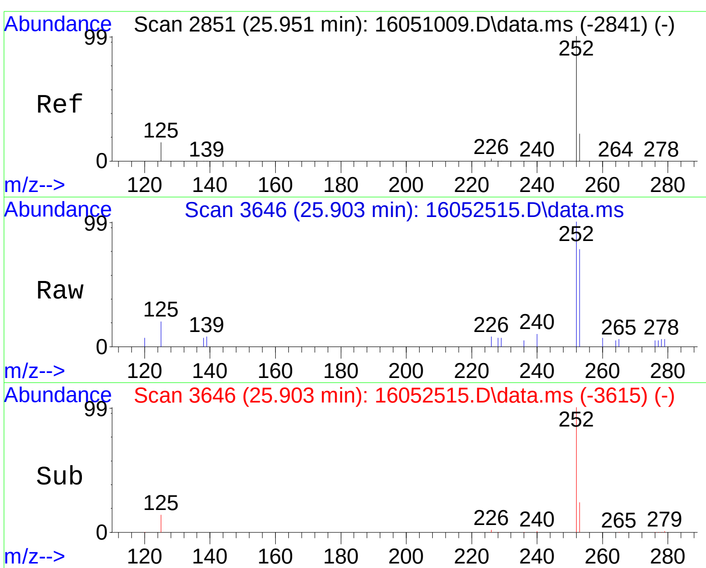




#23
Benzo(j)fluoranthene
Concen: 0.55 ug/kg
RT: 24.644 min Scan# 3474
Delta R.T. -0.021 min
Lab File: 16052515.D
Acq: 25 May 2016 5:38 pm

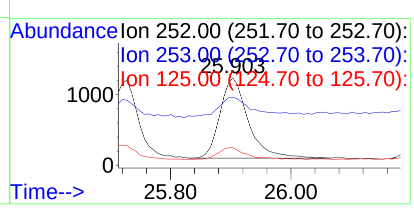
Tgt	Ion:252	Resp:	1778
Ion	Ratio	Lower	Upper
252	100		
253	29.9	2.2	42.2
125	16.6	0.0	37.3





#25
Benzo[a]pyrene
Concen: 5.16 ug/kg
RT: 25.903 min Scan# 3646
Delta R.T. -0.022 min
Lab File: 16052515.D
Acq: 25 May 2016 5:38 pm

Tgt	Ion:252	Resp:	3722
Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.3	42.3
125	14.5	0.0	33.5



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Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052516.D
Acq On    : 25 May 2016   6:16 pm
Operator  :
Sample    : 1605144-15A
Misc      : SAMP
ALS Vial  : 16   Sample Multiplier: 10

Quant Time: May 26 08:55:15 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

 Internal Standards                 R.T. QIon  Response  Conc Units    %Rec
 ---------------------------------------------------------------------------
   1) Naphthalene-d8               10.268  136  1632106   4000.00 ug/kg  100
   6) Acenaphthene-d10             12.857  164  1302073   4000.00 ug/kg  104
  11) Phenanthrene-d10             14.975  188  2251628   4000.00 ug/kg   77
  16) Chrysene-d12                 20.981  240  2312661   4000.00 ug/kg   85
  20) Perylene-d12                 26.248  264  2230188   4000.00 ug/kg   90

 System Monitoring Compounds                                          Dev(Min)
   5) 2-Fluorobiphenyl             11.757  172    33092    91.06 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery    =    2.28%#
  17) 4-Terphenyl-d14              17.586  244    37185    75.97 ug/kg   0.00
   Spiked Amount   4000.000   Range  51 - 135    Recovery    =    1.90%#

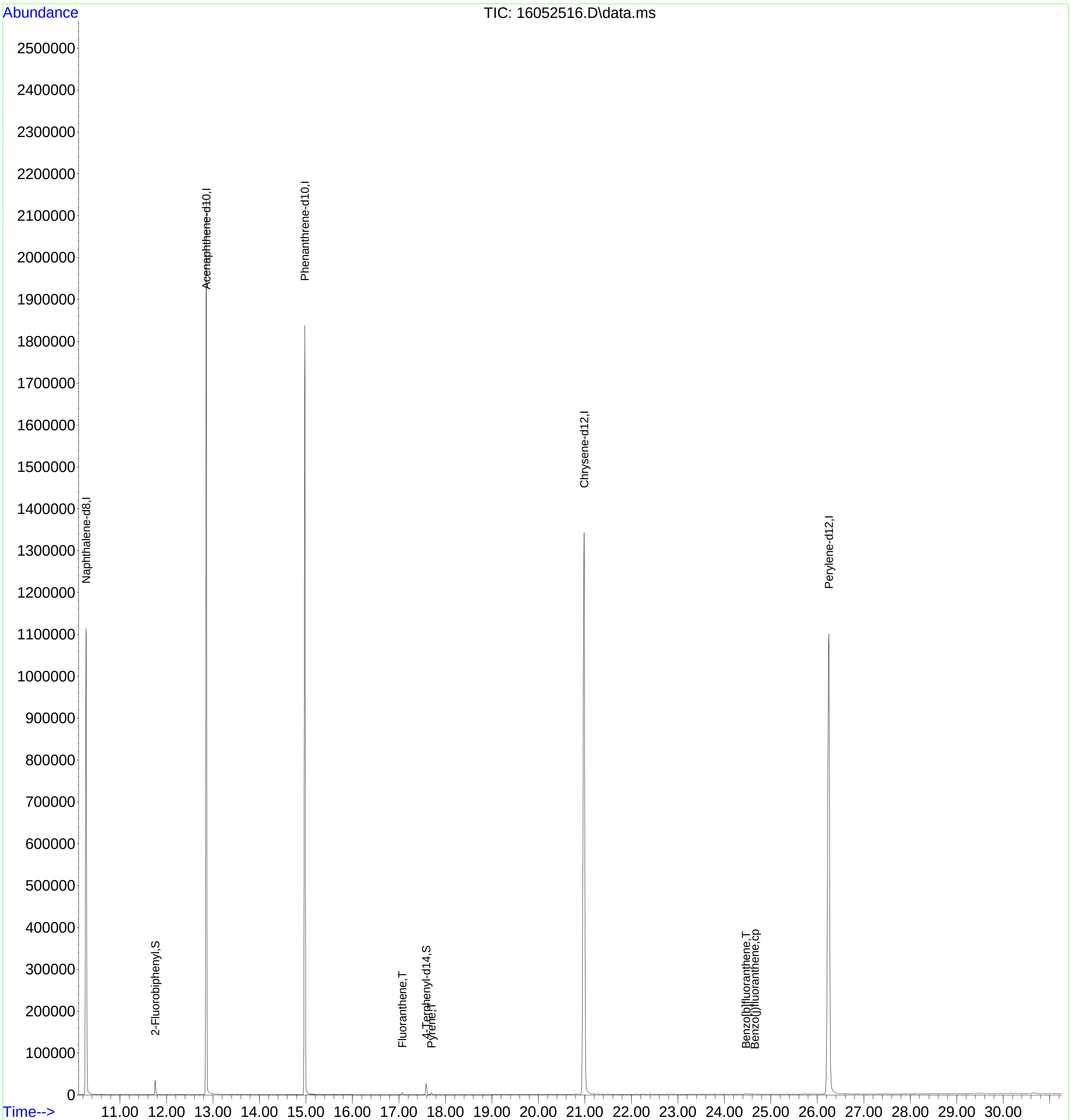
 Target Compounds                                                    Qvalue
  14) Fluoranthene                 17.070  202     6353      8.12 ug/kg     97
  15) Pyrene                       17.700  202     5402      6.62 ug/kg     97
  21) Benzo[b]fluoranthene         24.460  252     4051      5.11 ug/kg     98
  23) Benzo(j)fluoranthene         24.644  252     1749      0.22 ug/kg     95
 ---------------------------------------------------------------------------

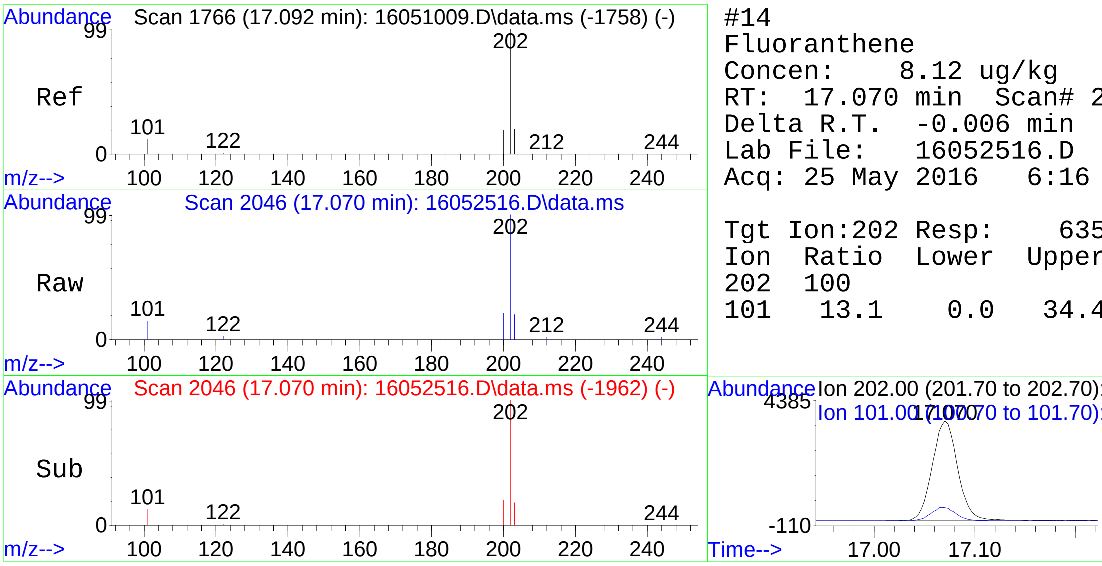
 (#) = qualifier out of range (m) = manual integration (+) = signals summed
```

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052516.D
Acq On : 25 May 2016 6:16 pm
Operator :
Sample : 1605144-15A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: May 26 08:55:15 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

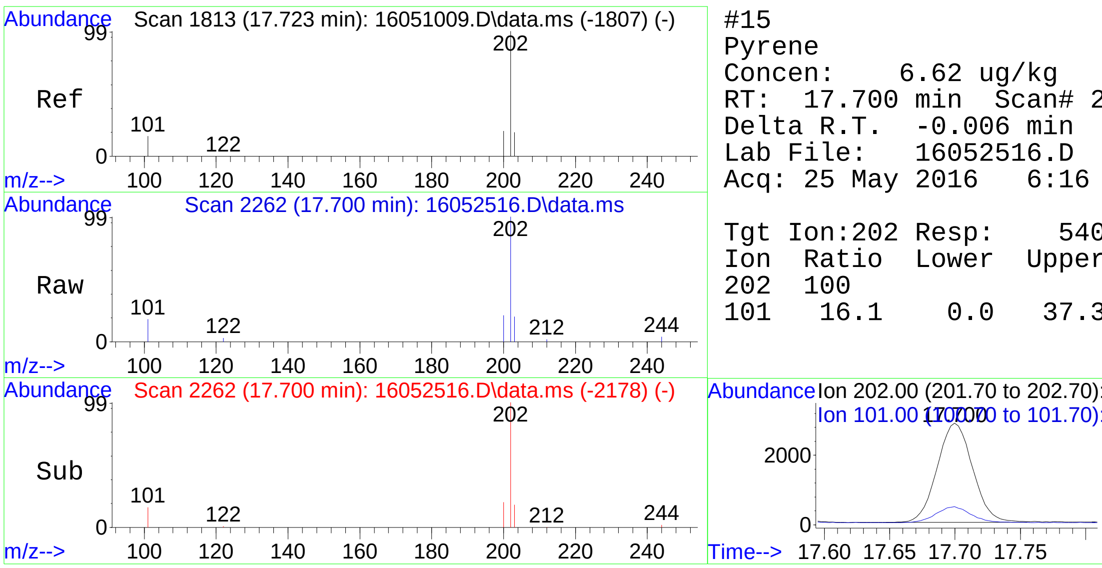




#14
Fluoranthene
Concen: 8.12 ug/kg
RT: 17.070 min Scan# 2046
Delta R.T. -0.006 min
Lab File: 16052516.D
Acq: 25 May 2016 6:16 pm

Tgt Ion:202 Resp: 6353

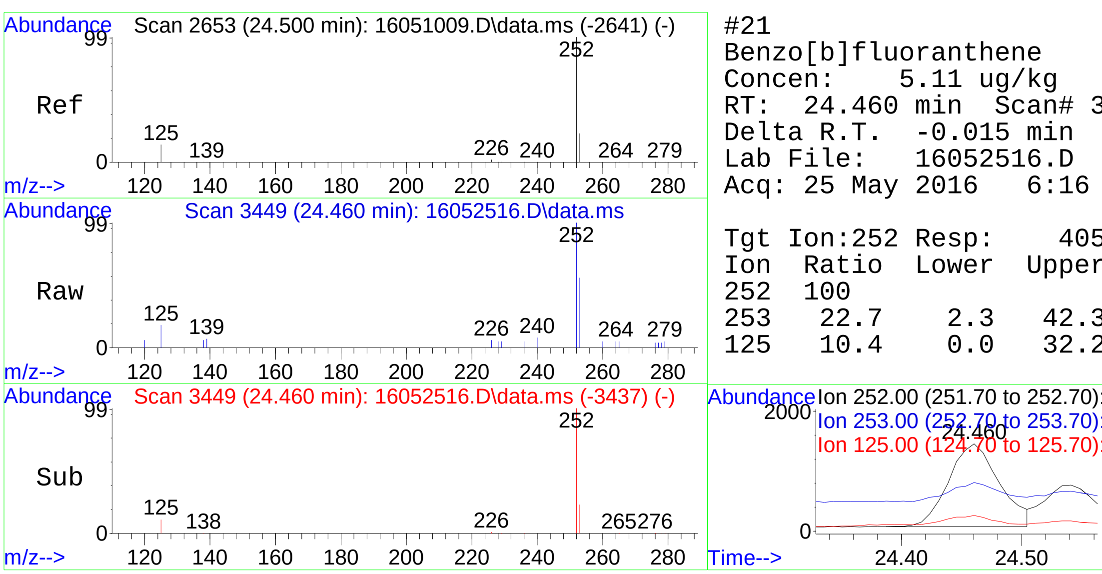
Ion	Ratio	Lower	Upper
202	100		
101	13.1	0.0	34.4



#15
Pyrene
Concen: 6.62 ug/kg
RT: 17.700 min Scan# 2262
Delta R.T. -0.006 min
Lab File: 16052516.D
Acq: 25 May 2016 6:16 pm

Tgt Ion:202 Resp: 5402

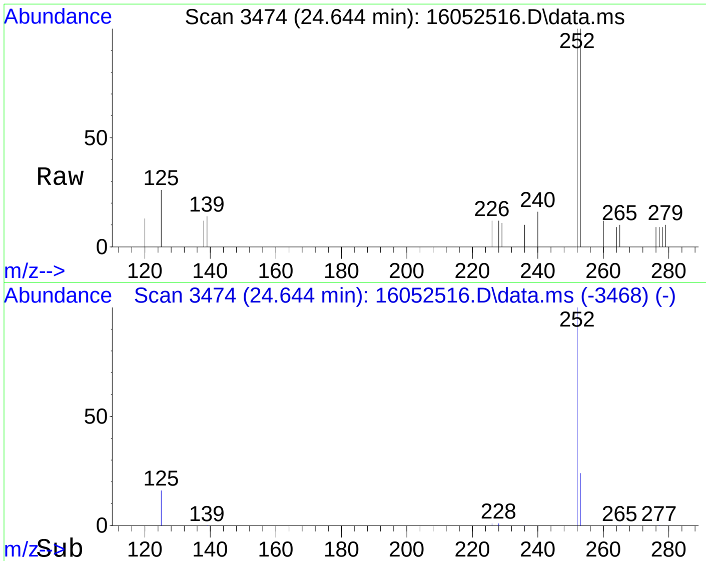
Ion	Ratio	Lower	Upper
202	100		
101	16.1	0.0	37.3



#21
Benzo[b]fluoranthene
Concen: 5.11 ug/kg
RT: 24.460 min Scan# 3449
Delta R.T. -0.015 min
Lab File: 16052516.D
Acq: 25 May 2016 6:16 pm

Tgt Ion:252 Resp: 4051

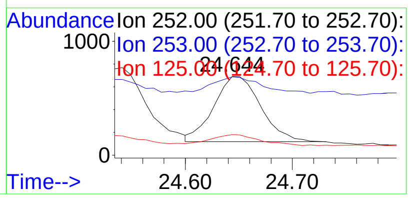
Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.3	42.3
125	10.4	0.0	32.2



#23
Benzo(j)fluoranthene
Concen: 0.22 ug/kg
RT: 24.644 min Scan# 3474
Delta R.T. -0.021 min
Lab File: 16052516.D
Acq: 25 May 2016 6:16 pm

Tgt Ion:252 Resp: 1749

Ion	Ratio	Lower	Upper
252	100		
253	25.7	2.2	42.2
125	17.8	0.0	37.3



```
Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052517.D
Acq On    : 25 May 2016   6:53 pm
Operator  :
Sample    : 1605144-17A
Misc      : SAMP
ALS Vial  : 17   Sample Multiplier: 10

Quant Time: May 26 08:55:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

 Internal Standards                 R.T. QIon  Response  Conc Units    %Rec
-------------------------------------------------------------------------------
  1) Naphthalene-d8               10.269  136  1606481   4000.00 ug/kg   99
  6) Acenaphthene-d10             12.857  164  1325680   4000.00 ug/kg  106
 11) Phenanthrene-d10             14.977  188  2276991   4000.00 ug/kg   78
 16) Chrysene-d12                 20.981  240  2239598   4000.00 ug/kg   83
 20) Perylene-d12                 26.247  264  2154604   4000.00 ug/kg   87

 System Monitoring Compounds                                        Dev(Min)
  5) 2-Fluorobiphenyl             11.758  172    27500    76.88 ug/kg   0.00
  Spiked Amount   4000.000   Range  40 - 140    Recovery    =    1.92%#
 17) 4-Terphenyl-d14              17.583  244    36062    76.07 ug/kg  -0.01
  Spiked Amount   4000.000   Range  51 - 135    Recovery    =    1.90%#

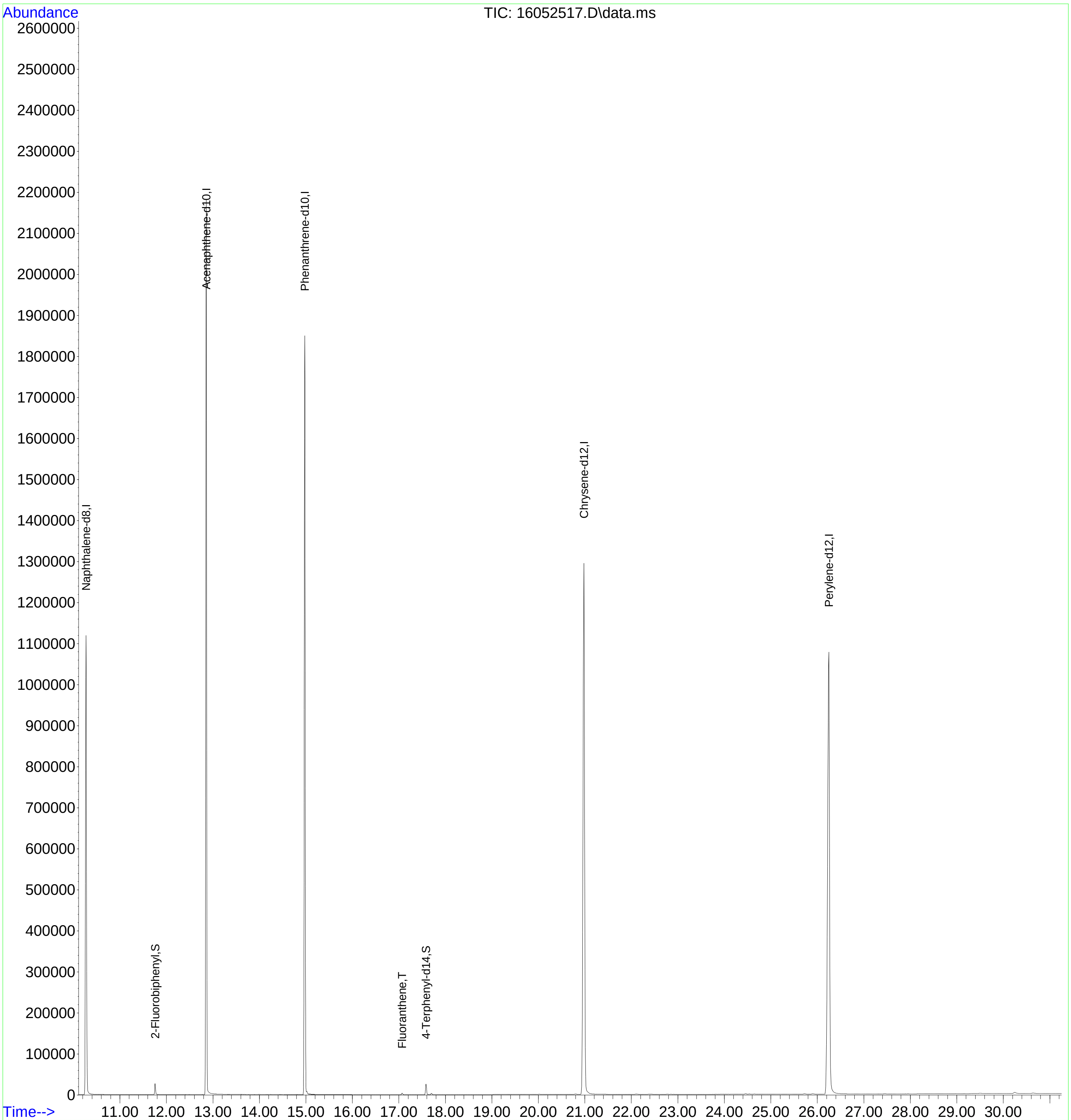
 Target Compounds                                                   Qvalue
 14) Fluoranthene                 17.070  202     4529     5.12 ug/kg      96
-------------------------------------------------------------------------------

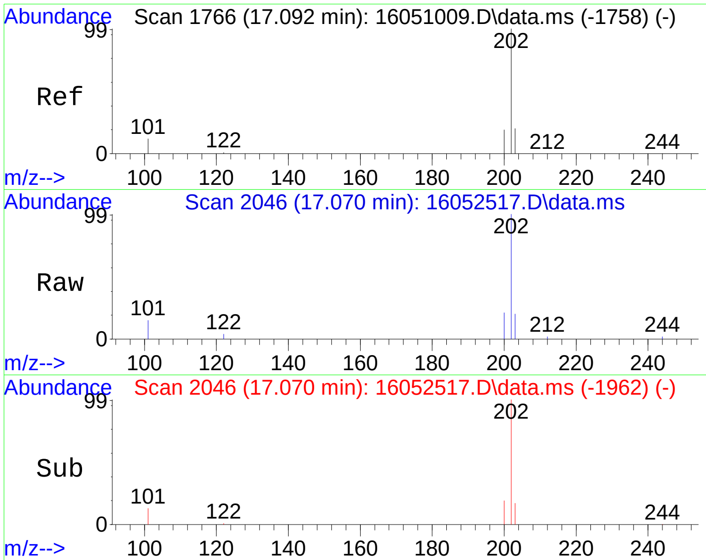
 (#) = qualifier out of range (m) = manual integration (+) = signals summed
```

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052517.D
Acq On : 25 May 2016 6:53 pm
Operator :
Sample : 1605144-17A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: May 26 08:55:19 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

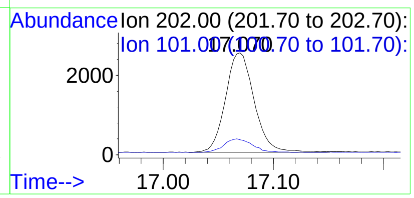




#14
Fluoranthene
Concen: 5.12 ug/kg
RT: 17.070 min Scan# 2046
Delta R.T. -0.006 min
Lab File: 16052517.D
Acq: 25 May 2016 6:53 pm

Tgt Ion:202 Resp: 4529

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	34.4



Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052518.D
Acq On : 25 May 2016 7:30 pm
Operator :
Sample : 1605144-18A
Misc : SAMP
ALS Vial : 18 Sample Multiplier: 10

Quant Time: May 26 08:55:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.268	136	1638868	4000.00 ug/kg	101
6) Acenaphthene-d10	12.856	164	1316784	4000.00 ug/kg	105
11) Phenanthrene-d10	14.976	188	2317149	4000.00 ug/kg	79
16) Chrysene-d12	20.980	240	2269762	4000.00 ug/kg	84
20) Perylene-d12	26.240	264	2187326	4000.00 ug/kg	88

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.757	172	29772	81.59 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.04%#		
17) 4-Terphenyl-d14	17.584	244	35164	73.19 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 1.83%#		

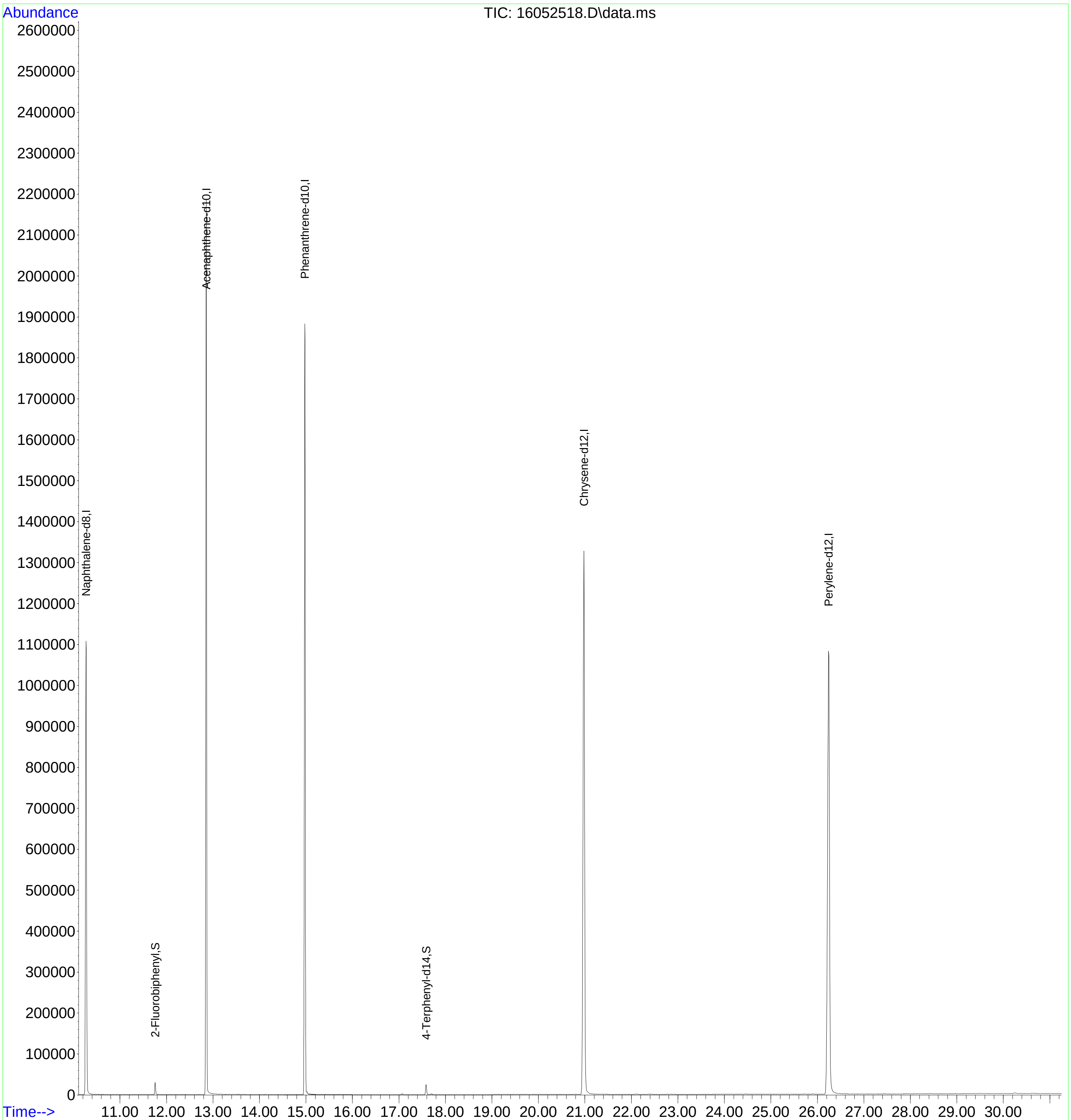
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052518.D
Acq On : 25 May 2016 7:30 pm
Operator :
Sample : 1605144-18A
Misc : SAMP
ALS Vial : 18 Sample Multiplier: 10

Quant Time: May 26 08:55:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052520.D
Acq On : 25 May 2016 8:44 pm
Operator :
Sample : ICV2-160525
Misc : ICV
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 26 08:52:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.267	136	1494885	4000.00 ug/kg	92
6) Acenaphthene-d10	12.856	164	1264223	4000.00 ug/kg	101
11) Phenanthrene-d10	14.976	188	2389176	4000.00 ug/kg	82
16) Chrysene-d12	20.980	240	2196591	4000.00 ug/kg	81
20) Perylene-d12	26.246	264	2100898	4000.00 ug/kg	85

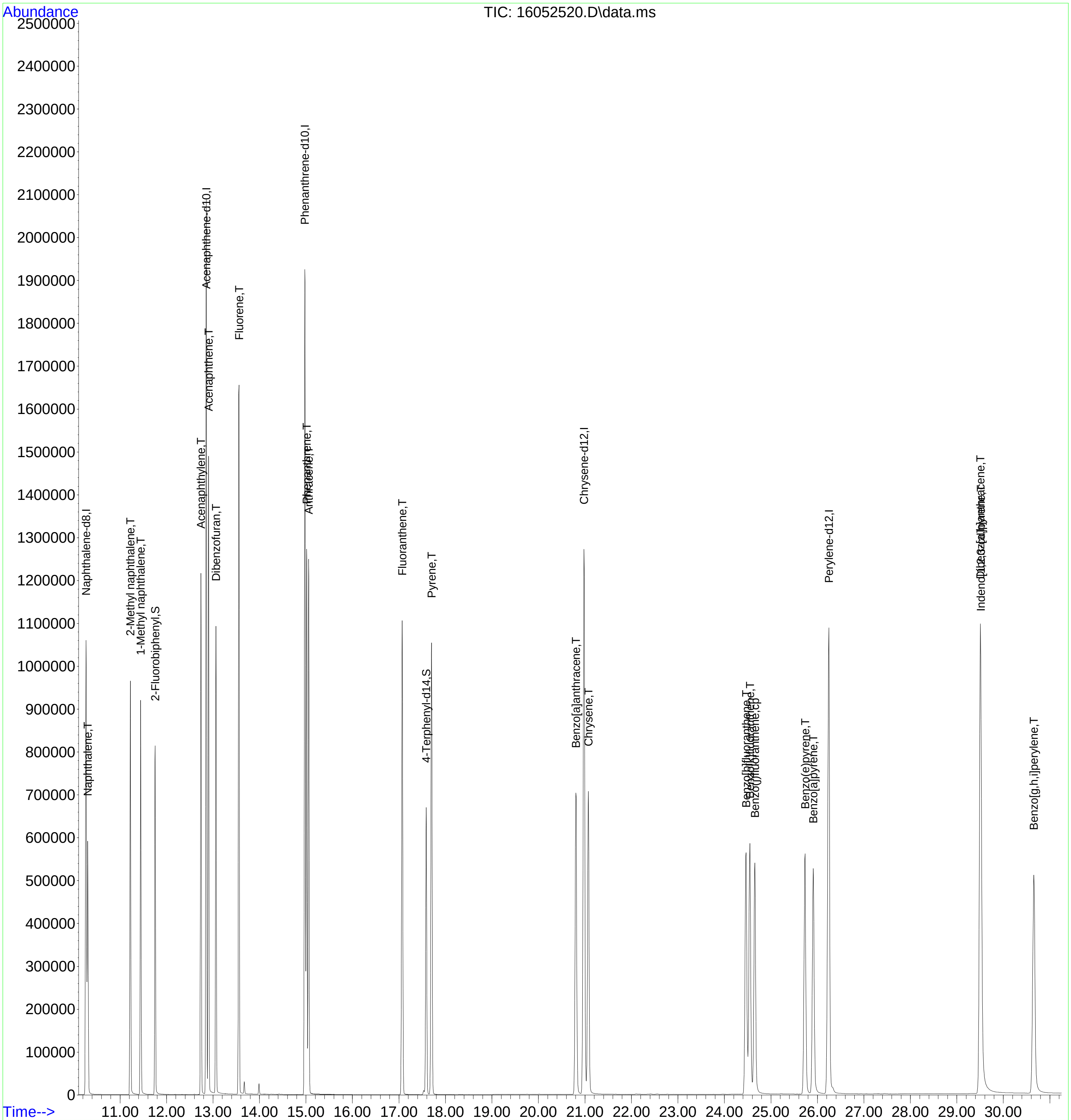
System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.756	172	742841	2231.83 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 55.80%		
17) 4-Terphenyl-d14	17.587	244	926153	1992.02 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 49.80%#		

Target Compounds					Qvalue
2) Naphthalene	10.304	128	684059	2042.61 ug/kg	100
3) 2-Methyl naphthalene	11.222	142	587543	2256.81 ug/kg	99
4) 1-Methyl naphthalene	11.444	142	541490	2197.99 ug/kg	100
7) Acenaphthylene	12.738	152	1141279	2065.30 ug/kg	100
8) Acenaphthene	12.905	153	703753	2018.27 ug/kg	99
9) Dibenzofuran	13.062	168	1040854	1959.53 ug/kg	92
10) Fluorene	13.558	166	909821	1887.75 ug/kg	98
12) Phenanthrene	15.014	178	1233688	1876.65 ug/kg	100
13) Anthracene	15.058	178	1218362	1831.59 ug/kg	99
14) Fluoranthene	17.071	202	1260500	2007.31 ug/kg	99
15) Pyrene	17.700	202	1238813	2007.81 ug/kg	98
18) Benzo[a]anthracene	20.804	228	1149249	2115.89 ug/kg	100
19) Chrysene	21.075	228	1066450	2123.95 ug/kg	100
21) Benzo[b]fluoranthene	24.466	252	1128791	2096.90 ug/kg	100
22) Benzo[k]fluoranthene	24.547	252	1011092	2071.33 ug/kg	99
23) Benzo(j)fluoranthene	24.657	252	968859	2081.46 ug/kg	100
24) Benzo(e)pyrene	25.734	252	1081161	2129.95 ug/kg	99
25) Benzo[a]pyrene	25.909	252	1058487	2100.63 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.521	276	1313826	2133.34 ug/kg	98
27) Dibenz[a,h]anthracene	29.506	278	1092077	2134.12 ug/kg	99
28) Benzo[g,h,i]perylene	30.656	276	1125373	2116.67 ug/kg	99

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

```
Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052520.D
Acq On    : 25 May 2016   8:44 pm
Operator  :
Sample    : ICV2-160525
Misc      : ICV
ALS Vial  : 20   Sample Multiplier: 1

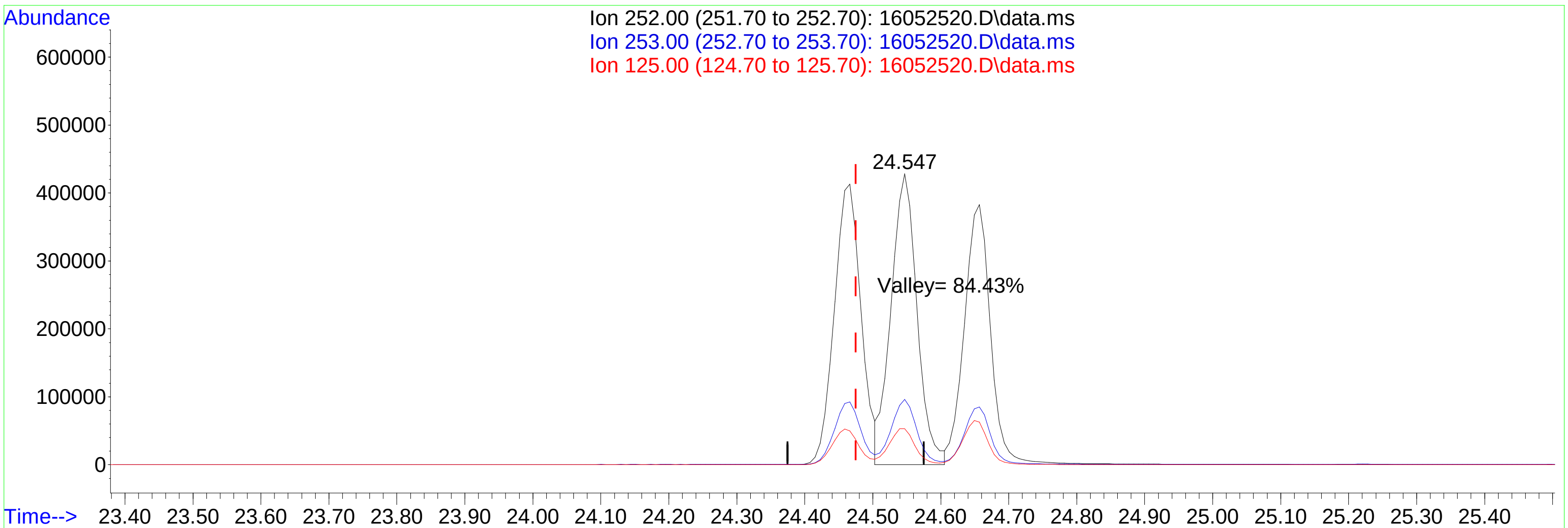
Quant Time: May 26 08:52:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
```

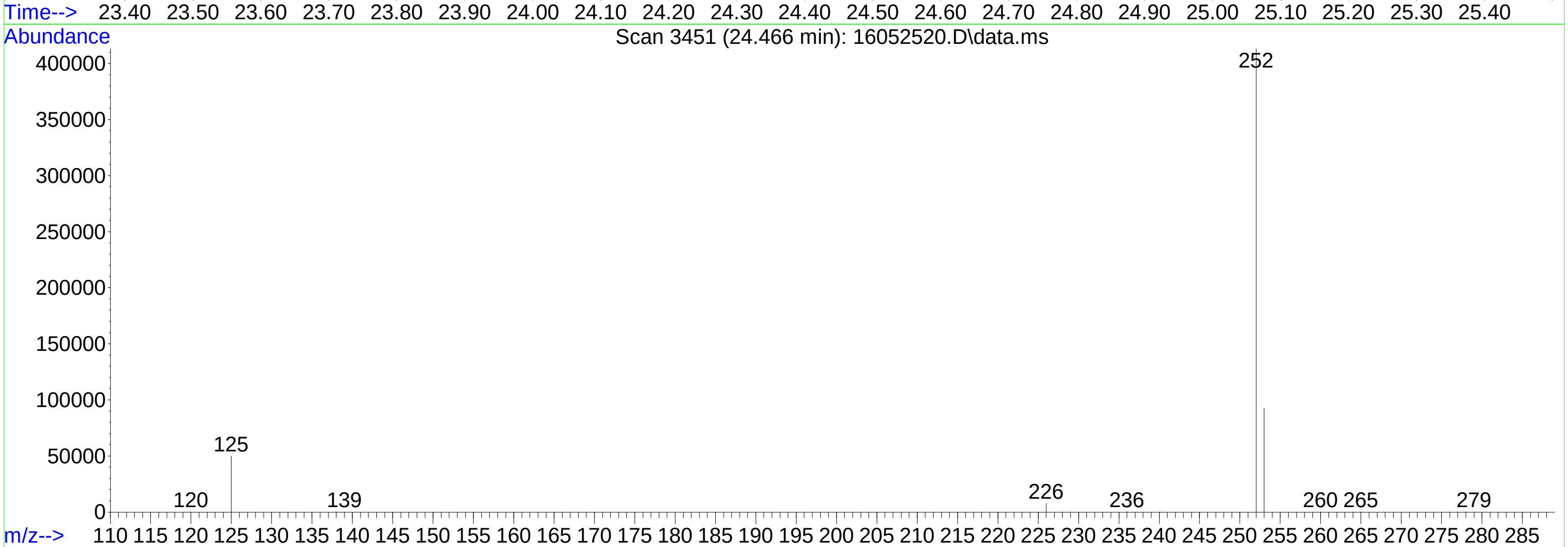


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052520.D
Acq On : 25 May 2016 8:44 pm
Operator :
Sample : ICV2-160525
Misc : ICV
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 25 21:16:10 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration





TIC: 16052520.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.466min (-0.009) 2096.90ug/kg

response 1128791

Ion	Exp%	Act%
252.00	100	100
253.00	22.30	22.30
125.00	12.20	12.08
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052522.D
Acq On   : 25 May 2016   9:59 pm
Operator :
Sample   : SBLK-160525
Misc   : SBLK
ALS Vial : 22   Sample Multiplier: 1

Quant Time: May 26 08:52:36 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.267	136	1332571	4000.00	ug/kg	82
6) Acenaphthene-d10	12.851	164	1091779	4000.00	ug/kg	87
11) Phenanthrene-d10	14.972	188	1861067	4000.00	ug/kg	64
16) Chrysene-d12	20.973	240	1766225	4000.00	ug/kg	65
20) Perylene-d12	26.232	264	1703661	4000.00	ug/kg	69

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.756	172	46	0.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
17) 4-Terphenyl-d14	17.586	244	156	0.42	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	0.01%#		

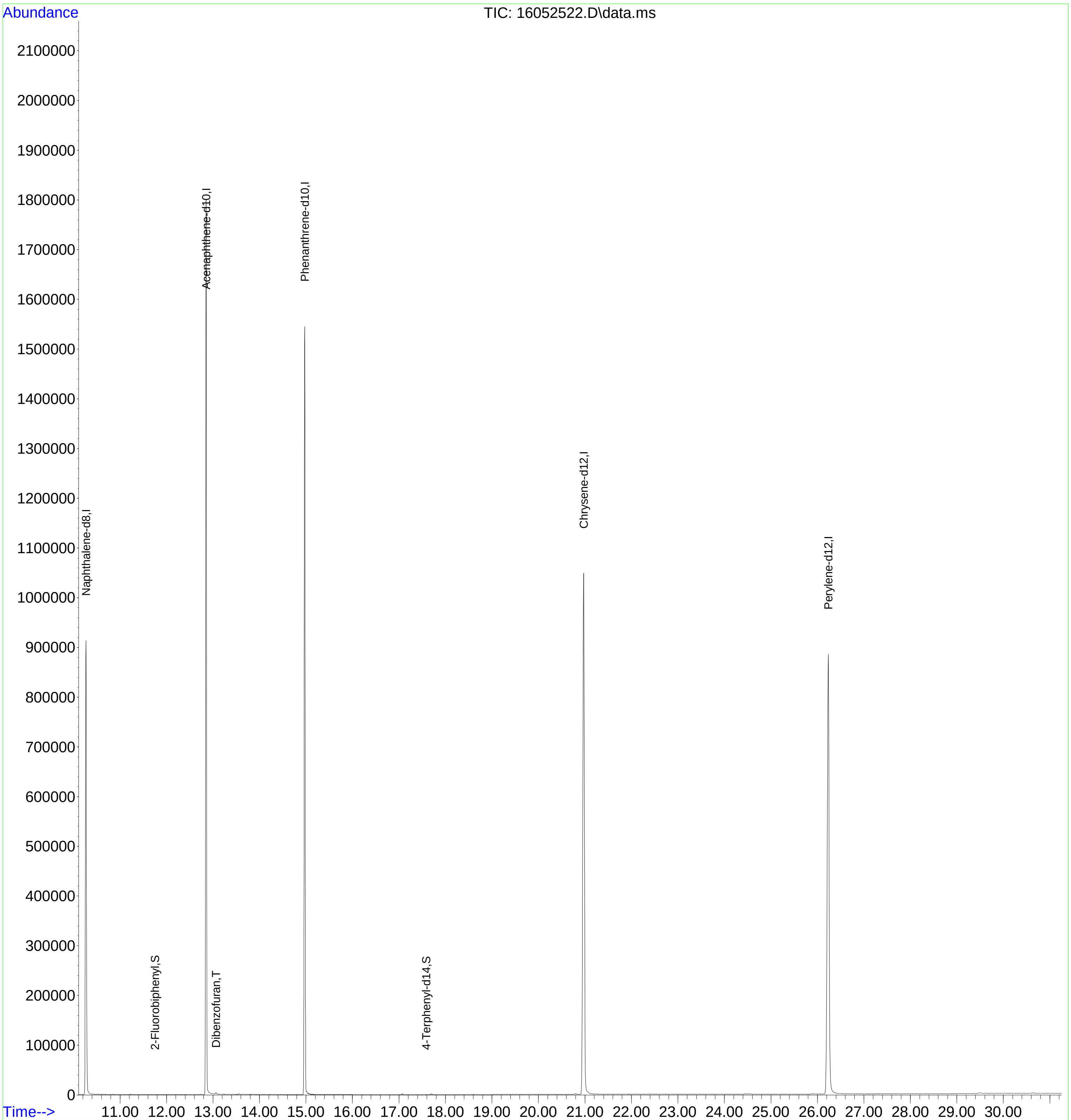
Target Compounds						Qvalue
9) Dibenzofuran	13.063	168	3254	7.09	ug/kg	93

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052522.D
Acq On : 25 May 2016 9:59 pm
Operator :
Sample : SBLK-160525
Misc : SBLK
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 26 08:52:36 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052523.D
Acq On : 25 May 2016 10:36 pm
Operator :
Sample : 1605144-19A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: May 26 08:55:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.266	136	1520872	4000.00 ug/kg	93
6) Acenaphthene-d10	12.852	164	1219063	4000.00 ug/kg	97
11) Phenanthrene-d10	14.973	188	2128054	4000.00 ug/kg	73
16) Chrysene-d12	20.979	240	2184951	4000.00 ug/kg	81
20) Perylene-d12	26.239	264	2069891	4000.00 ug/kg	83

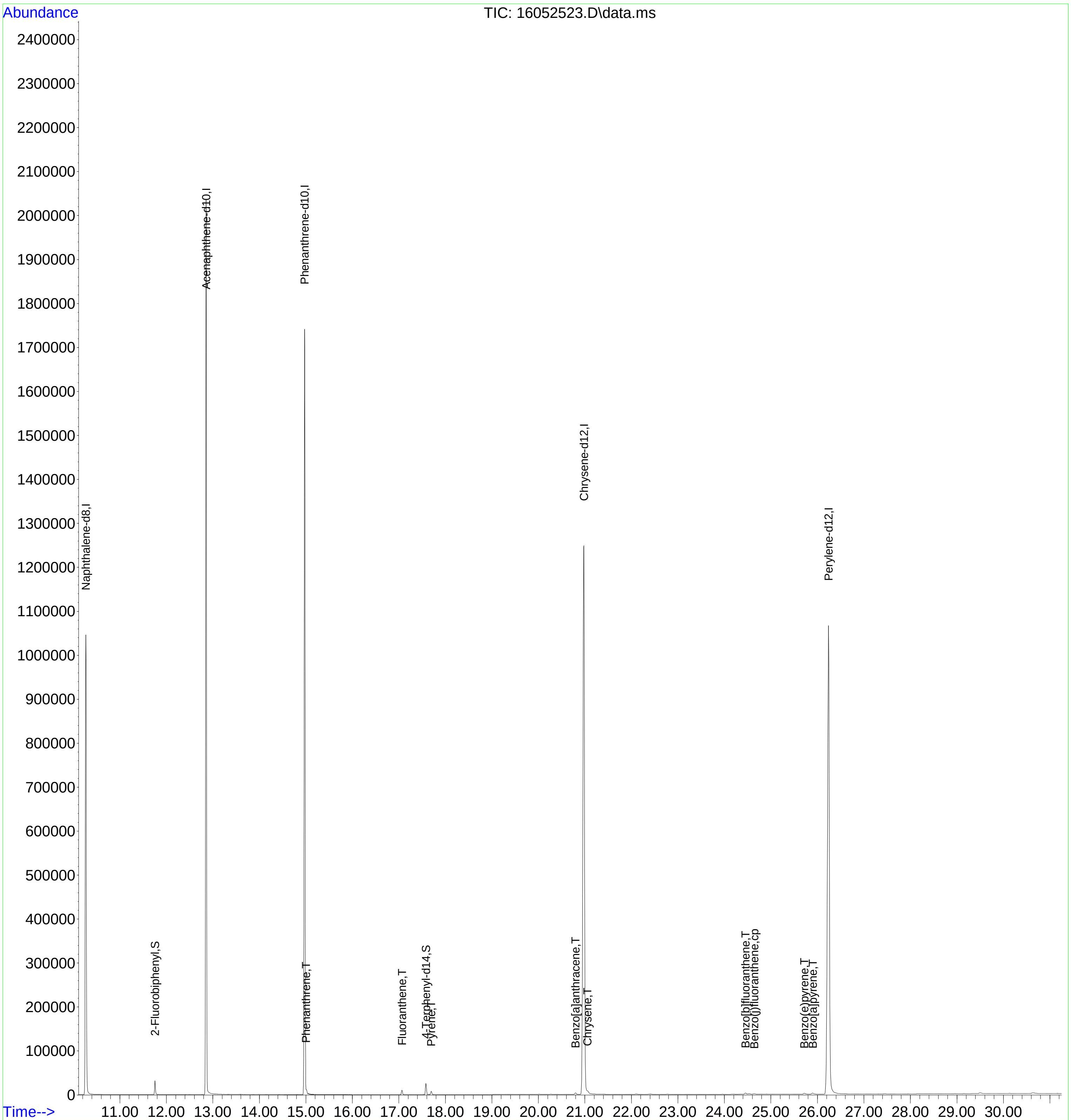
System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.755	172	32294	95.37 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.38%#	
17) 4-Terphenyl-d14	17.581	244	36328	78.55 ug/kg	-0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	1.96%#	

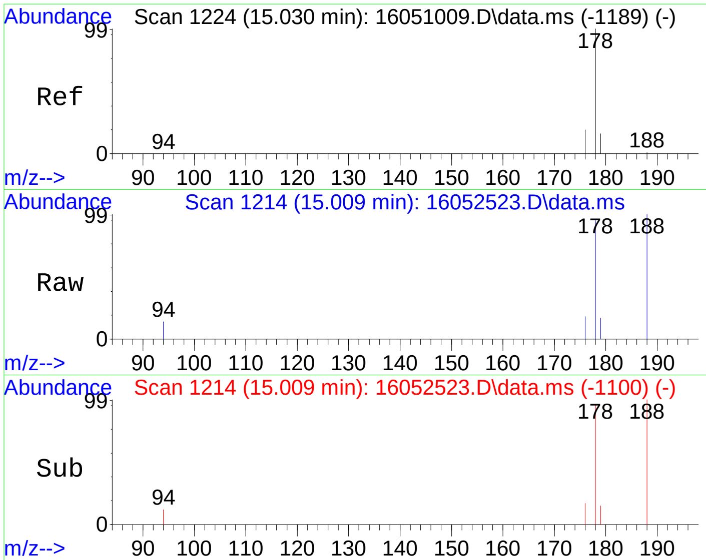
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
12) Phenanthrene	15.009	178	5900	10.08 ug/kg	99
14) Fluoranthene	17.065	202	12034	18.34 ug/kg	97
15) Pyrene	17.694	202	9691	14.61 ug/kg	96
18) Benzo[a]anthracene	20.796	228	5496	7.89 ug/kg	99
19) Chrysene	21.060	228	6437	9.58 ug/kg	100
21) Benzo[b]fluoranthene	24.451	252	5641	8.52 ug/kg	99
23) Benzo(j)fluoranthene	24.642	252	2482	2.02 ug/kg	90
24) Benzo(e)pyrene	25.719	252	4543	6.22 ug/kg	95
25) Benzo[a]pyrene	25.902	252	5304	8.24 ug/kg	96

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

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052523.D
Acq On : 25 May 2016 10:36 pm
Operator :
Sample : 1605144-19A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: May 26 08:55:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

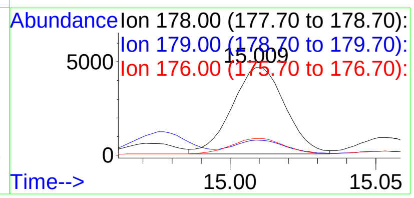


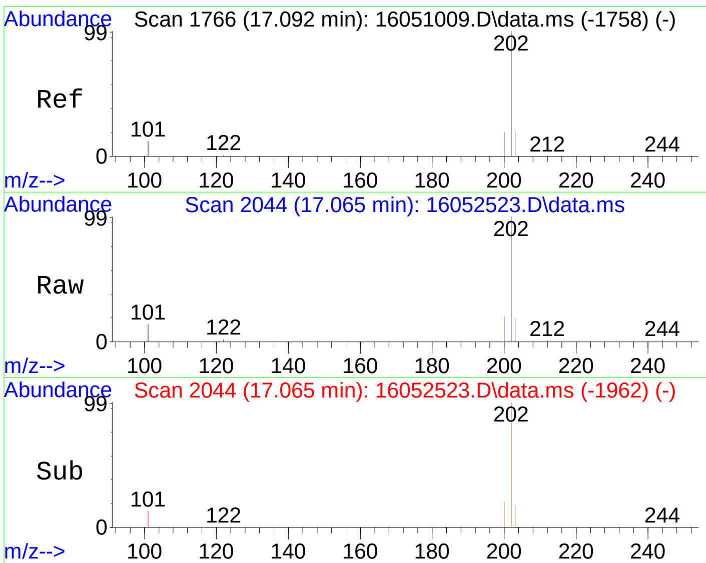


#12
Phenanthrene
Concen: 10.08 ug/kg
RT: 15.009 min Scan# 1214
Delta R.T. -0.010 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

Tgt Ion:178 Resp: 5900

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	36.4
176	18.4	0.0	39.0

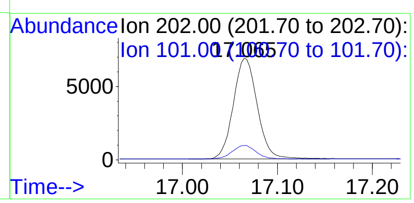


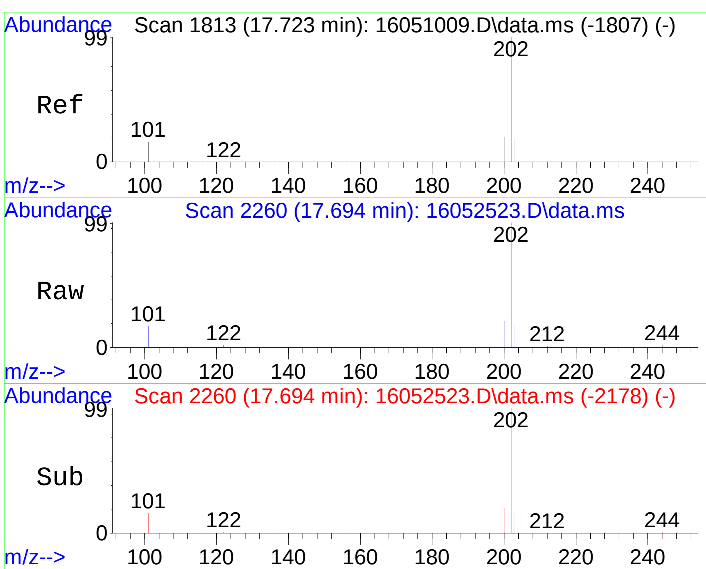


#14
Fluoranthene
Concen: 18.34 ug/kg
RT: 17.065 min Scan# 2044
Delta R.T. -0.011 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

Tgt Ion:202 Resp: 12034

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	34.4

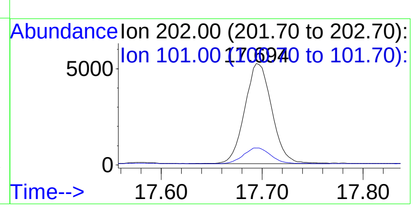


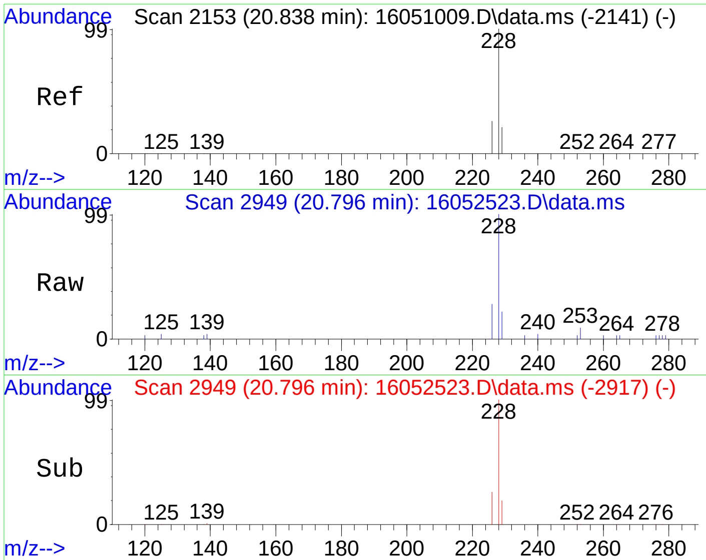


#15
Pyrene
Concen: 14.61 ug/kg
RT: 17.694 min Scan# 2260
Delta R.T. -0.012 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

Tgt Ion:202 Resp: 9691

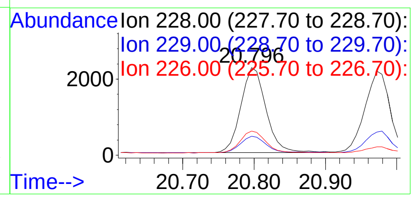
Ion	Ratio	Lower	Upper
202	100		
101	15.7	0.0	37.3

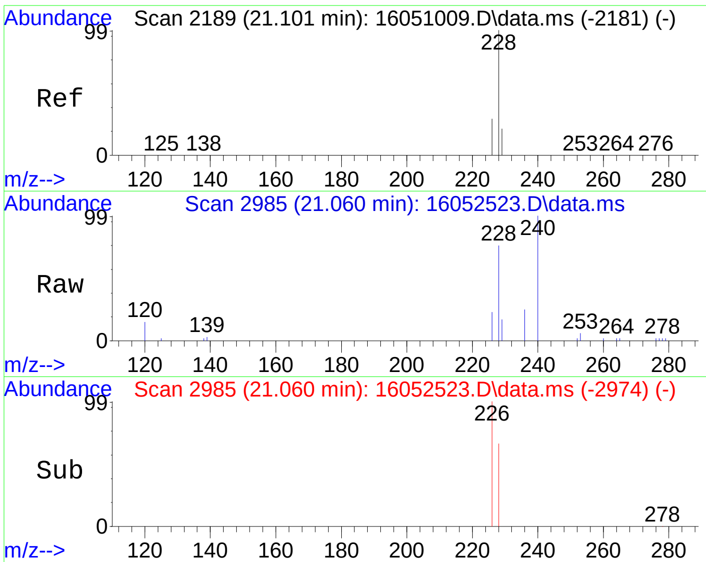




#18
Benzo[a]anthracene
Concen: 7.89 ug/kg
RT: 20.796 min Scan# 2949
Delta R.T. -0.016 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

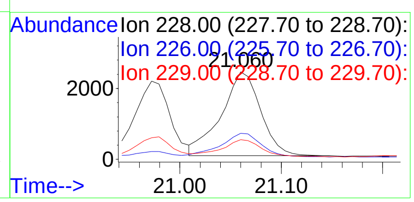
Tgt Ion:228	Resp:	5496	
Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.3	40.3
226	25.5	5.7	45.7

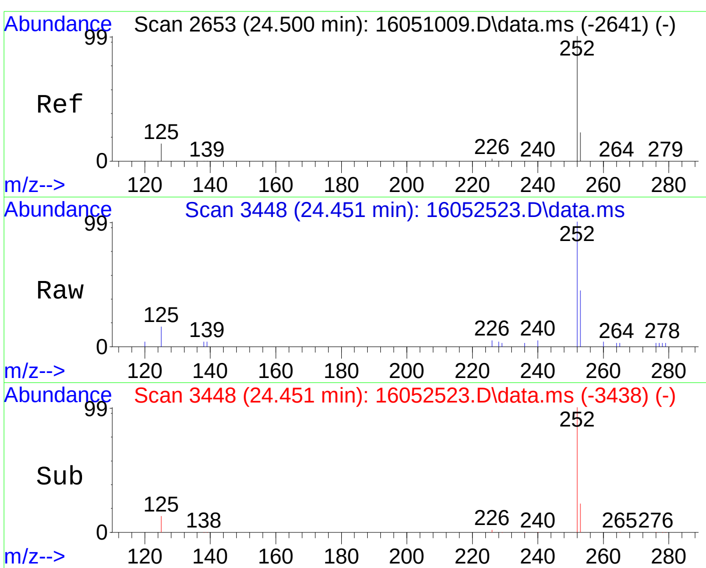




#19
Chrysene
Concen: 9.58 ug/kg
RT: 21.060 min Scan# 2985
Delta R.T. -0.023 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

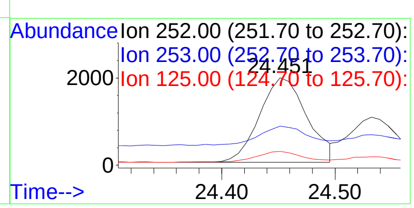
Tgt Ion:228	Resp:	6437	
Ion	Ratio	Lower	Upper
228	100		
226	28.2	8.2	48.2
229	20.2	0.3	40.3

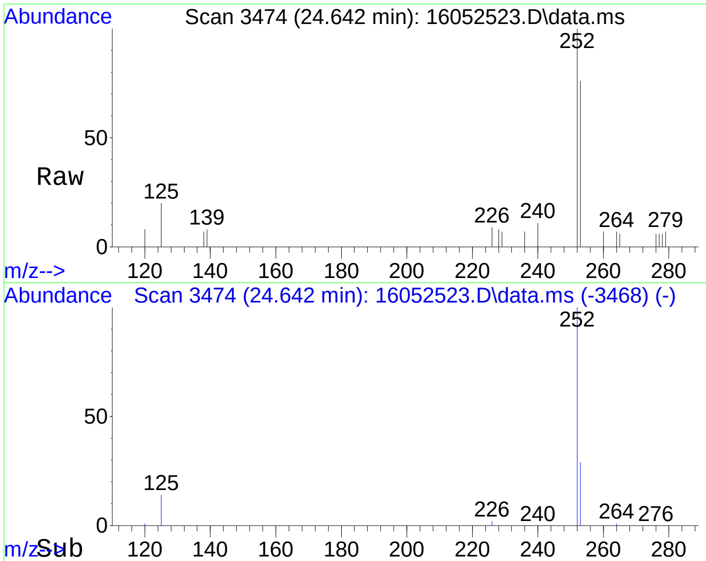




#21
Benzo[b]fluoranthene
Concen: 8.52 ug/kg
RT: 24.451 min Scan# 3448
Delta R.T. -0.024 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

Tgt Ion:252	Resp:	5641	
Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.3	42.3
125	12.7	0.0	32.2

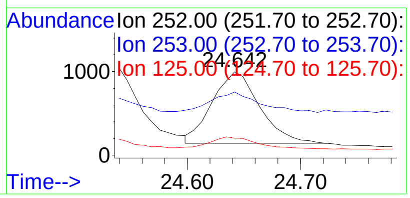


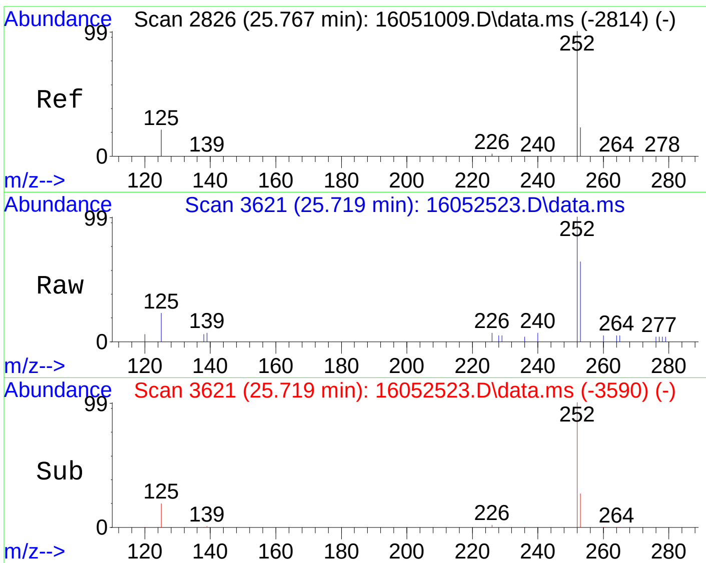


#23
Benzo(j)fluoranthene
Concen: 2.02 ug/kg
RT: 24.642 min Scan# 3474
Delta R.T. -0.023 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

Tgt Ion:252 Resp: 2482

Ion	Ratio	Lower	Upper
252	100		
253	29.4	2.2	42.2
125	16.0	0.0	37.3

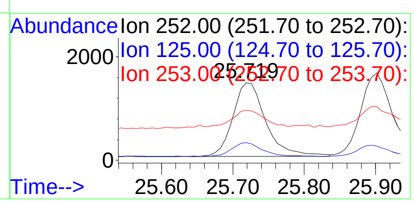


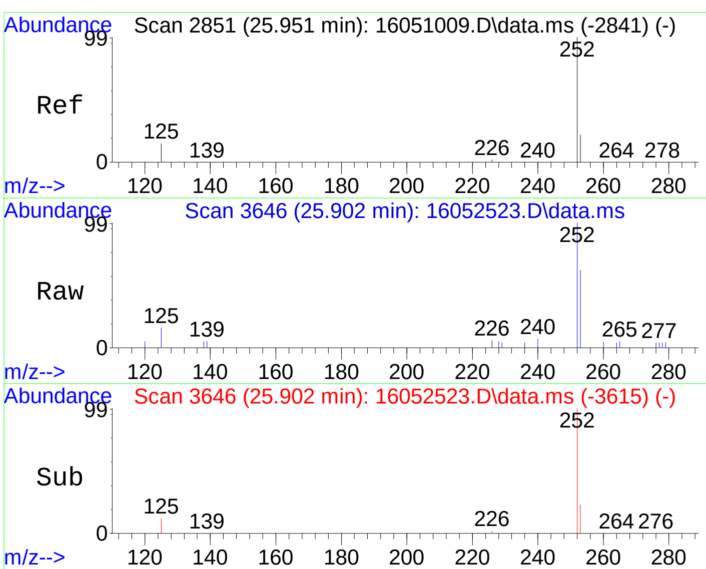


#24
Benzo(e)pyrene
Concen: 6.22 ug/kg
RT: 25.719 min Scan# 3621
Delta R.T. -0.023 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

Tgt Ion:252 Resp: 4543

Ion	Ratio	Lower	Upper
252	100		
125	19.0	0.0	38.7
253	26.1	2.3	42.3

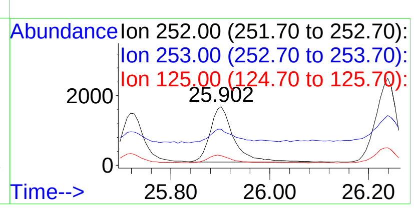




#25
Benzo[a]pyrene
Concen: 8.24 ug/kg
RT: 25.902 min Scan# 3646
Delta R.T. -0.023 min
Lab File: 16052523.D
Acq: 25 May 2016 10:36 pm

Tgt Ion:252 Resp: 5304

Ion	Ratio	Lower	Upper
252	100		
253	24.5	2.3	42.3
125	12.3	0.0	33.5



Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052524.D
Acq On   : 25 May 2016 11:12 pm
Operator :
Sample   : 1605144-20A
Misc   : SAMP
ALS Vial : 24   Sample Multiplier: 10

Quant Time: May 26 08:55:30 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.268	136	1546533	4000.00	ug/kg	95
6) Acenaphthene-d10	12.852	164	1248968	4000.00	ug/kg	100
11) Phenanthrene-d10	14.975	188	2148301	4000.00	ug/kg	73
16) Chrysene-d12	20.980	240	2144674	4000.00	ug/kg	79
20) Perylene-d12	26.239	264	2063728	4000.00	ug/kg	83

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.753	172	30828	89.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.24%#		
17) 4-Terphenyl-d14	17.583	244	35375	77.93	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	1.95%#		

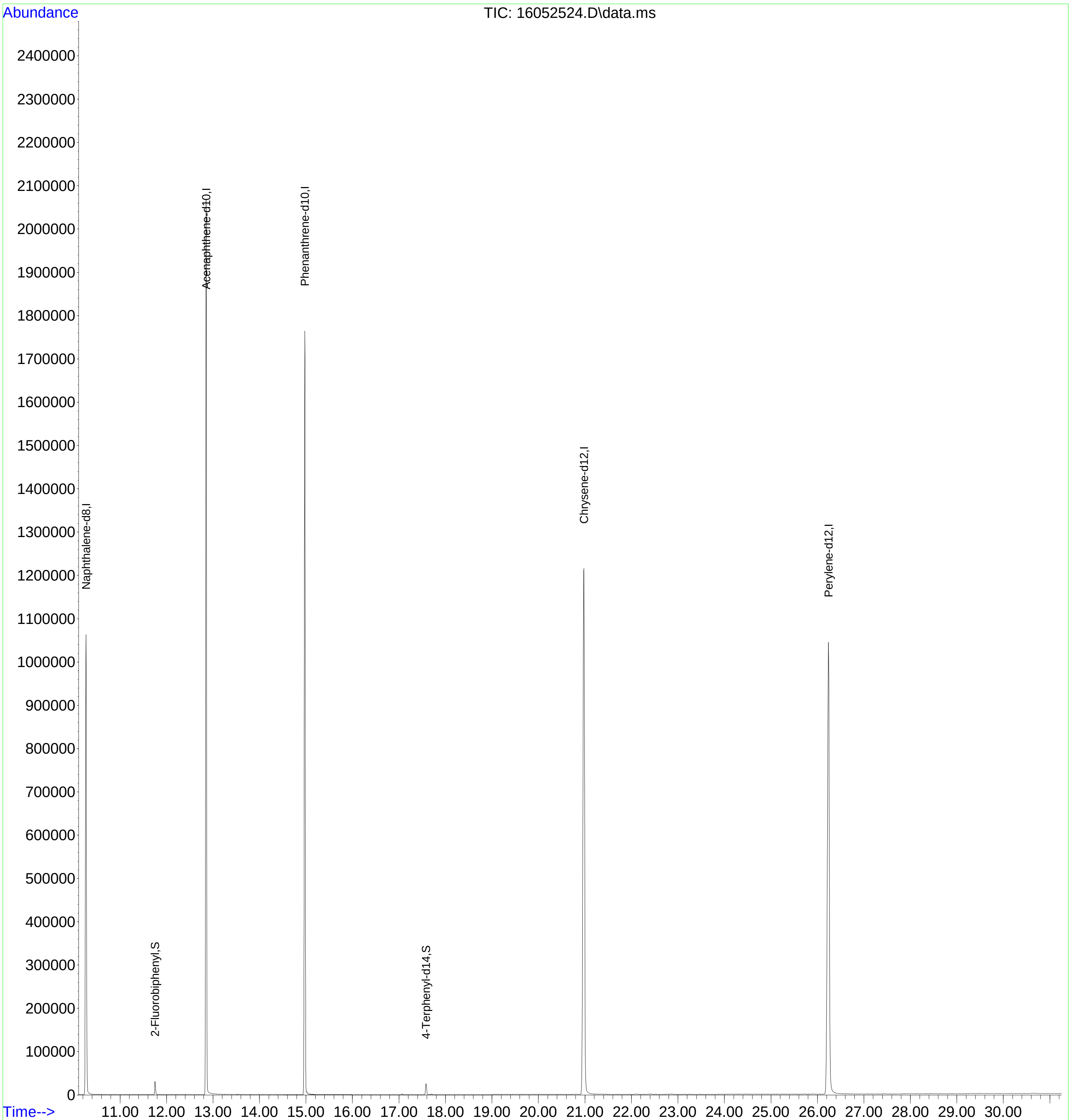
Target Compounds   Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052524.D
Acq On : 25 May 2016 11:12 pm
Operator :
Sample : 1605144-20A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: May 26 08:55:30 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052525.D
Acq On : 25 May 2016 11:49 pm
Operator :
Sample : 1605144-21A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: May 26 08:55:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.265	136	1622445	4000.00 ug/kg	100
6) Acenaphthene-d10	12.852	164	1308543	4000.00 ug/kg	104
11) Phenanthrene-d10	14.974	188	2271363	4000.00 ug/kg	78
16) Chrysene-d12	20.981	240	2261058	4000.00 ug/kg	83
20) Perylene-d12	26.240	264	2152154	4000.00 ug/kg	87

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.755	172	31106	86.11 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#	
17) 4-Terphenyl-d14	17.584	244	36047	75.32 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	1.88%#	

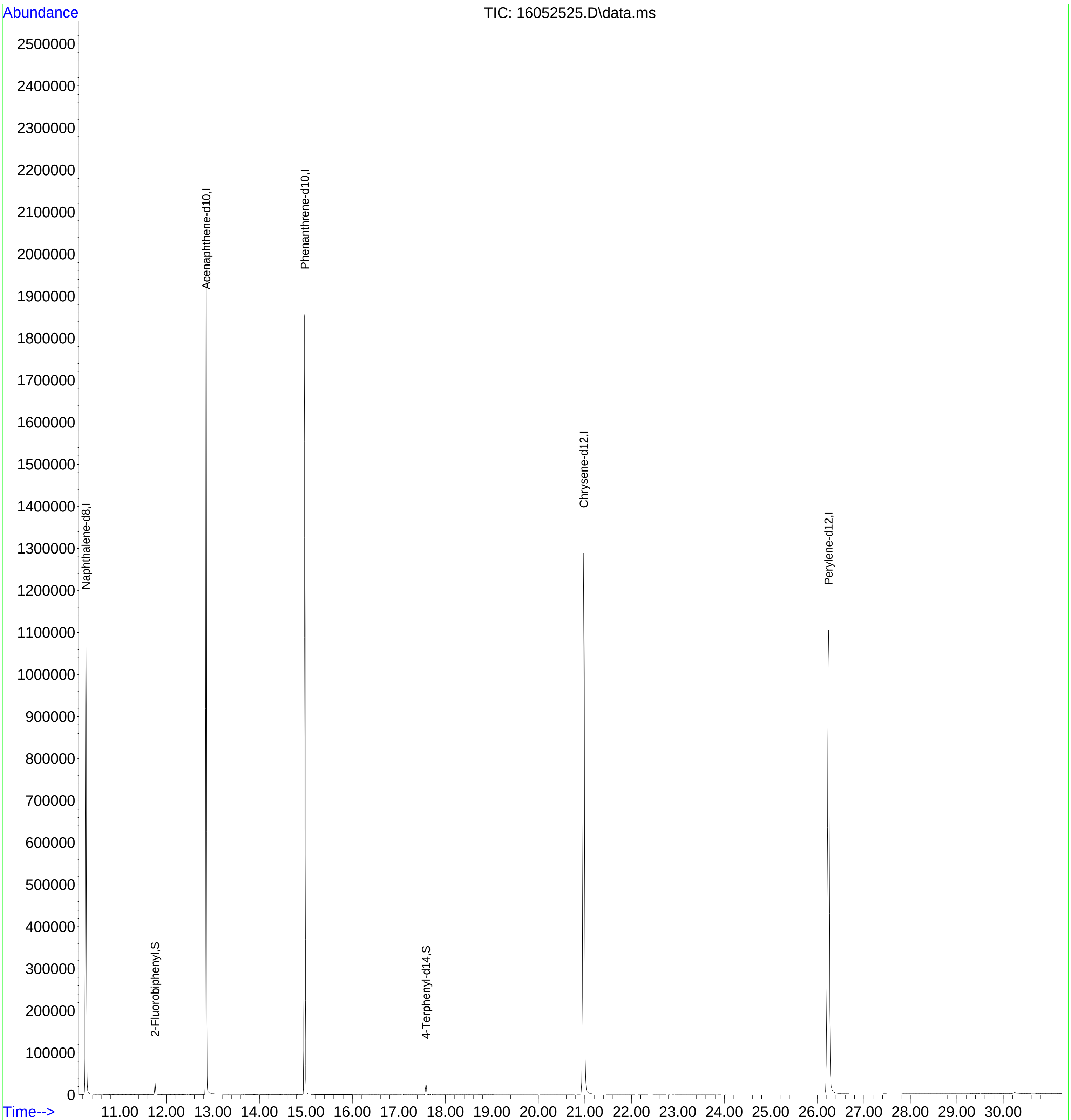
Target Compounds Qvalue

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

Quantitation Report (Not Reviewed)

```
Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052525.D
Acq On    : 25 May 2016  11:49 pm
Operator  :
Sample    : 1605144-21A
Misc      : SAMP
ALS Vial  : 25   Sample Multiplier: 10

Quant Time: May 26 08:55:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052526.D
Acq On : 26 May 2016 12:27 am
Operator :
Sample : 1605135-14AMS
Misc : MS
ALS Vial : 26 Sample Multiplier: 10

Quant Time: May 26 08:52:39 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.268	136	1667312	4000.00 ug/kg	102
6) Acenaphthene-d10	12.857	164	1329017	4000.00 ug/kg	106
11) Phenanthrene-d10	14.975	188	2301887	4000.00 ug/kg	79
16) Chrysene-d12	20.981	240	2316922	4000.00 ug/kg	85
20) Perylene-d12	26.240	264	2193820	4000.00 ug/kg	88

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.757	172	32536	87.64 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery = 2.19%#	
17) 4-Terphenyl-d14	17.584	244	35806	73.01 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135			Recovery = 1.83%#	

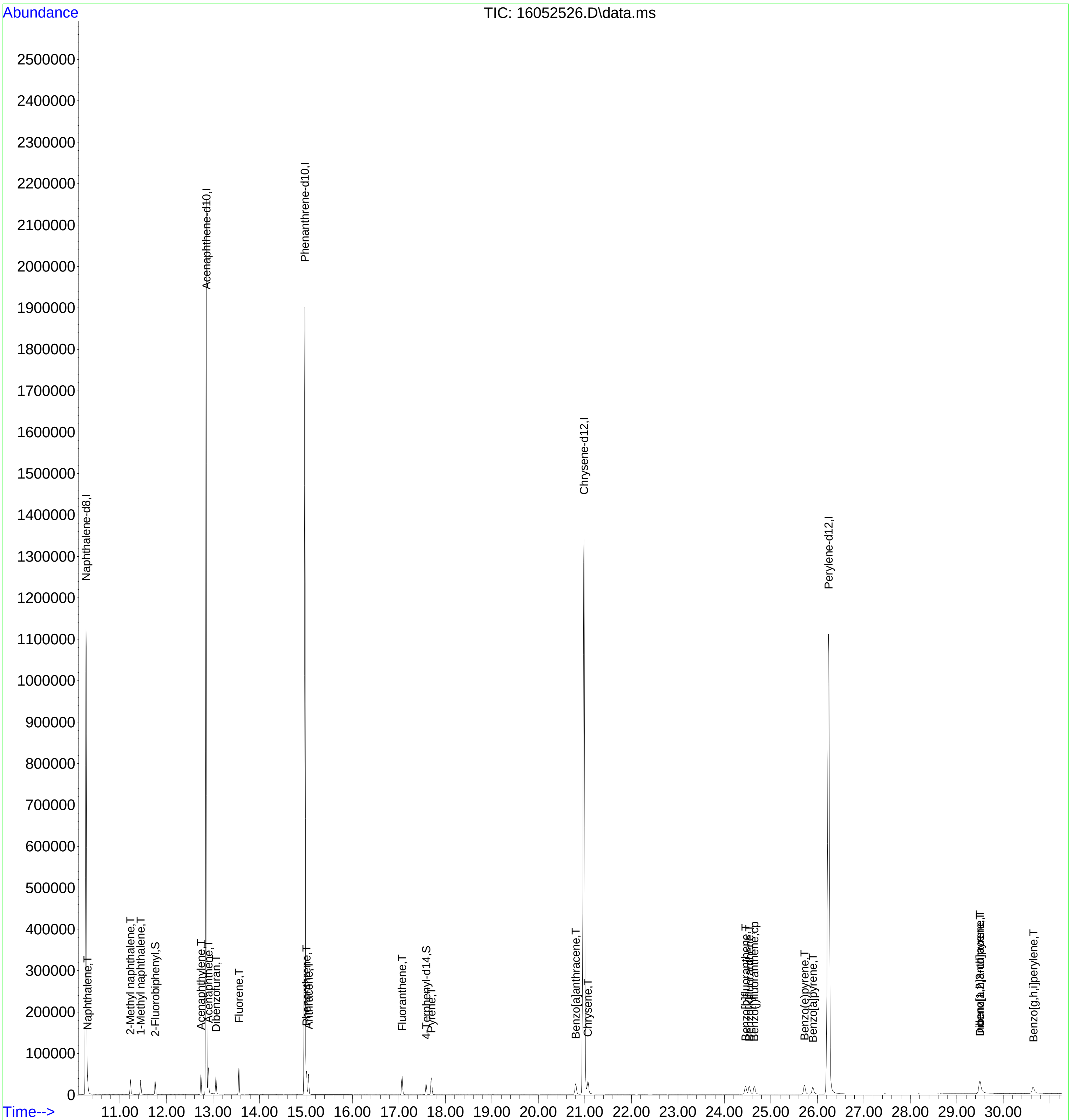
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.305	128	27124	72.62 ug/kg	99
3) 2-Methyl naphthalene	11.222	142	24368	83.92 ug/kg	96
4) 1-Methyl naphthalene	11.444	142	22493	81.86 ug/kg	99
7) Acenaphthylene	12.739	152	45589	78.48 ug/kg	99
8) Acenaphthene	12.901	153	28394	77.46 ug/kg	97
9) Dibenzofuran	13.063	168	42144	75.47 ug/kg	98
10) Fluorene	13.554	166	35482	70.03 ug/kg	98
12) Phenanthrene	15.010	178	48111	75.96 ug/kg	97
13) Anthracene	15.055	178	47025	73.37 ug/kg	98
14) Fluoranthene	17.068	202	51339	78.51 ug/kg	97
15) Pyrene	17.697	202	50097	78.47 ug/kg	96
18) Benzo[a]anthracene	20.798	228	43202	70.14 ug/kg	99
19) Chrysene	21.069	228	40828	71.00 ug/kg	99
21) Benzo[b]fluoranthene	24.453	252	40434	67.54 ug/kg	99
22) Benzo[k]fluoranthene	24.533	252	33431	62.53 ug/kg	98
23) Benzo(j)fluoranthene	24.643	252	36131	68.31 ug/kg	98
24) Benzo(e)pyrene	25.720	252	44394	77.89 ug/kg	99
25) Benzo[a]pyrene	25.903	252	37215	66.56 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.500	276	46990	67.32 ug/kg	99
27) Dibenz[a,h]anthracene	29.485	278	36996	61.89 ug/kg	99
28) Benzo[g,h,i]perylene	30.643	276	41088	68.19 ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052526.D
Acq On : 26 May 2016 12:27 am
Operator :
Sample : 1605135-14AMS
Misc : MS
ALS Vial : 26 Sample Multiplier: 10

Quant Time: May 26 08:52:39 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052527.D
Acq On : 26 May 2016 1:04 am
Operator :
Sample : 1605135-14AMSD
Misc : MSD
ALS Vial : 27 Sample Multiplier: 10

Quant Time: May 26 08:52:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.267	136	1651635	4000.00 ug/kg	101
6) Acenaphthene-d10	12.856	164	1302306	4000.00 ug/kg	104
11) Phenanthrene-d10	14.976	188	2228867	4000.00 ug/kg	76
16) Chrysene-d12	20.980	240	2310573	4000.00 ug/kg	85
20) Perylene-d12	26.247	264	2216809	4000.00 ug/kg	89

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.756	172	32852	89.33 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.23%#	
17) 4-Terphenyl-d14	17.584	244	36180	73.98 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	1.85%#	

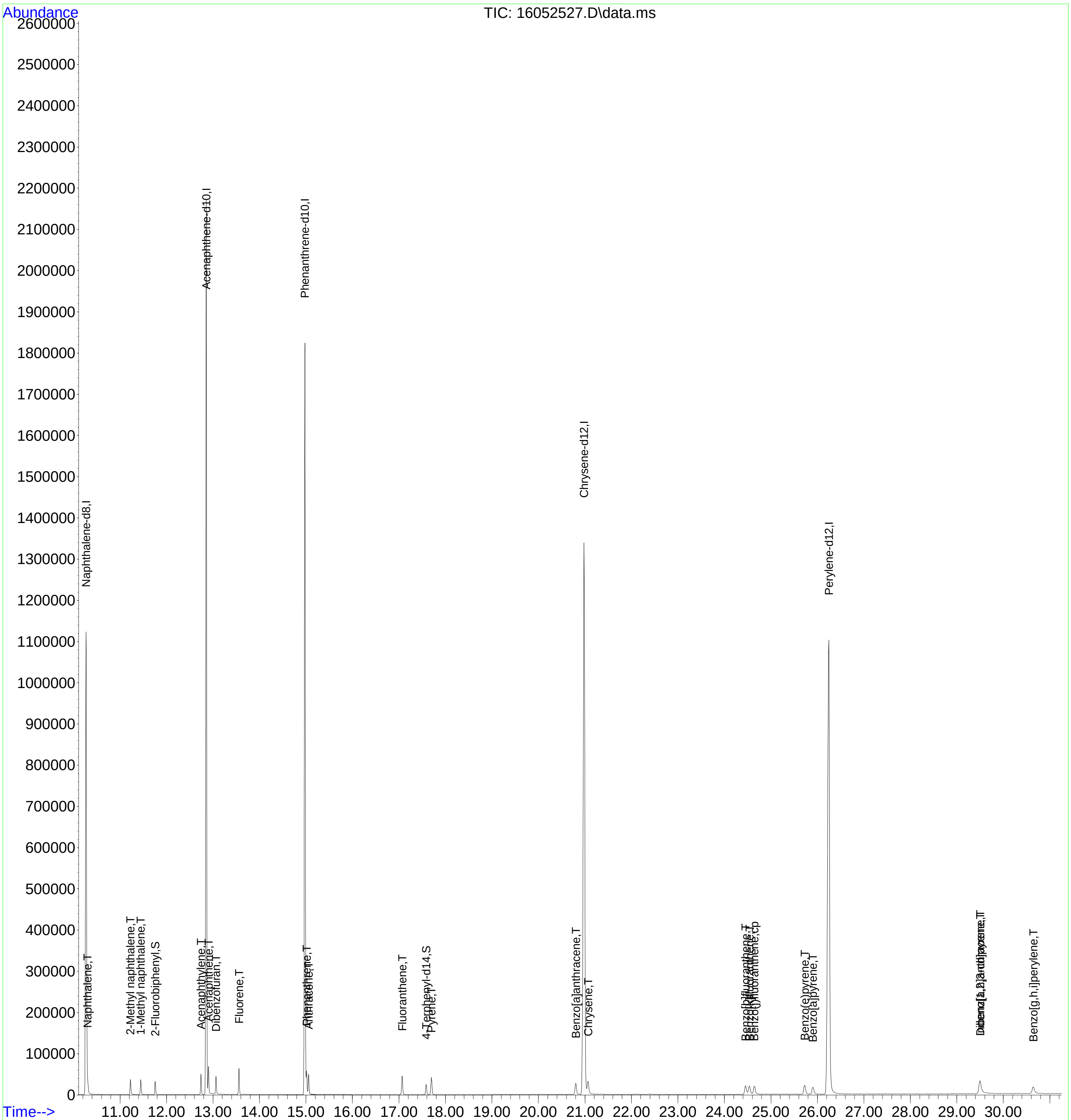
Target Compounds					Qvalue
2) Naphthalene	10.304	128	28551	77.16 ug/kg	99
3) 2-Methyl naphthalene	11.226	142	25478	88.58 ug/kg	99
4) 1-Methyl naphthalene	11.448	142	23543	86.49 ug/kg	99
7) Acenaphthylene	12.738	152	47191	82.90 ug/kg	99
8) Acenaphthene	12.905	153	29370	81.77 ug/kg	99
9) Dibenzofuran	13.063	168	42937	78.47 ug/kg	94
10) Fluorene	13.558	166	36021	72.55 ug/kg	99
12) Phenanthrene	15.012	178	48107	78.44 ug/kg	97
13) Anthracene	15.054	178	47280	76.19 ug/kg	98
14) Fluoranthene	17.068	202	51738	81.81 ug/kg	97
15) Pyrene	17.698	202	51033	82.68 ug/kg	96
18) Benzo[a]anthracene	20.804	228	44481	72.48 ug/kg	99
19) Chrysene	21.068	228	42224	73.74 ug/kg	99
21) Benzo[b]fluoranthene	24.452	252	41910	69.33 ug/kg	99
22) Benzo[k]fluoranthene	24.540	252	34896	64.63 ug/kg	98
23) Benzo(j)fluoranthene	24.643	252	37655	70.56 ug/kg	99
24) Benzo(e)pyrene	25.727	252	46090	80.10 ug/kg	99
25) Benzo[a]pyrene	25.903	252	38683	68.53 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.499	276	48777	69.24 ug/kg	98
27) Dibenz[a,h]anthracene	29.492	278	38465	63.82 ug/kg	99
28) Benzo[g,h,i]perylene	30.642	276	42637	70.11 ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052527.D
Acq On : 26 May 2016 1:04 am
Operator :
Sample : 1605135-14AMSD
Misc : MSD
ALS Vial : 27 Sample Multiplier: 10

Quant Time: May 26 08:52:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052530.D
Acq On : 26 May 2016 2:55 am
Operator :
Sample : CCV-160525
Misc : CCV
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 26 08:52:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.267	136	1875325	4000.00 ug/kg	115
6) Acenaphthene-d10	12.856	164	1539094	4000.00 ug/kg	123
11) Phenanthrene-d10	14.978	188	2805100	4000.00 ug/kg	96
16) Chrysene-d12	20.987	240	2687223	4000.00 ug/kg	99
20) Perylene-d12	26.254	264	2544373	4000.00 ug/kg	102

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.756	172	462827	1108.45 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 27.71%#		
17) 4-Terphenyl-d14	17.584	244	558281	981.54 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 24.54%#		

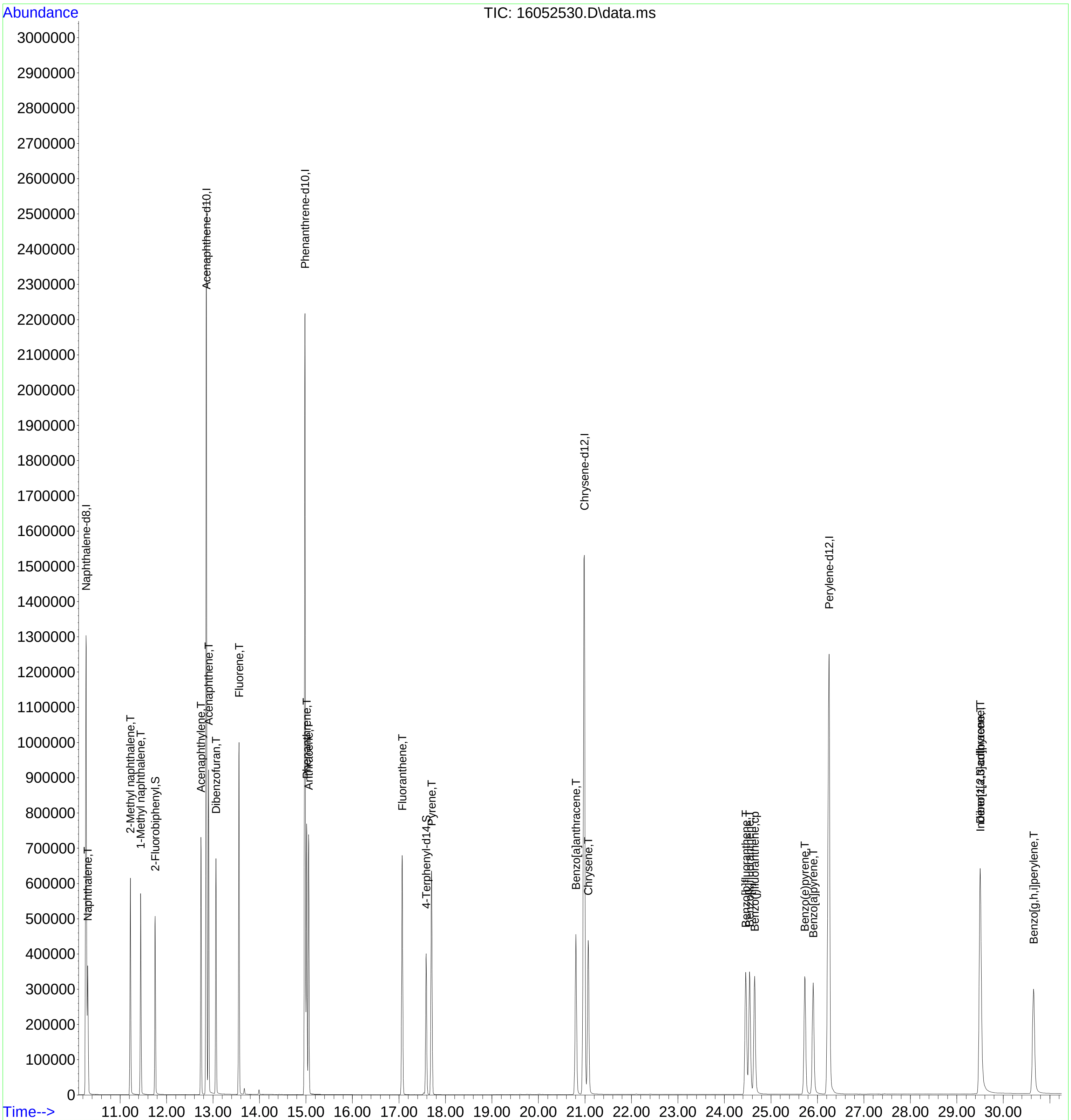
Target Compounds					Qvalue
2) Naphthalene	10.304	128	419632	998.83 ug/kg	100
3) 2-Methyl naphthalene	11.221	142	366484	1122.13 ug/kg	99
4) 1-Methyl naphthalene	11.444	142	337591	1092.34 ug/kg	99
7) Acenaphthylene	12.738	152	695535	1033.88 ug/kg	99
8) Acenaphthene	12.905	153	426987	1005.85 ug/kg	99
9) Dibenzofuran	13.062	168	630442	974.91 ug/kg	94
10) Fluorene	13.558	166	543082	925.58 ug/kg	99
12) Phenanthrene	15.014	178	724960	939.27 ug/kg	99
13) Anthracene	15.058	178	718686	920.22 ug/kg	99
14) Fluoranthene	17.068	202	760167	1001.61 ug/kg	99
15) Pyrene	17.701	202	747957	1007.82 ug/kg	97
18) Benzo[a]anthracene	20.804	228	698634	1023.62 ug/kg	99
19) Chrysene	21.068	228	642432	1018.74 ug/kg	100
21) Benzo[b]fluoranthene	24.459	252	680004	1020.75 ug/kg	100
22) Benzo[k]fluoranthene	24.540	252	595704	990.49 ug/kg	99
23) Benzo(j)fluoranthene	24.650	252	584622	1013.18 ug/kg	99
24) Benzo(e)pyrene	25.727	252	645929	1025.54 ug/kg	99
25) Benzo[a]pyrene	25.910	252	629826	1014.28 ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.514	276	777859	1018.02 ug/kg	97
27) Dibenz[a,h]anthracene	29.499	278	644267	1012.52 ug/kg	98
28) Benzo[g,h,i]perylene	30.649	276	659869	1001.03 ug/kg	99

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

Quantitation Report   (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160525\
Data File : 16052530.D
Acq On   : 26 May 2016   2:55 am
Operator :
Sample   : CCV-160525
Misc   : CCV
ALS Vial : 30   Sample Multiplier: 1

Quant Time: May 26 08:52:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



GCMS8
Calibration Curve
For

DHL Work Order
1605144

CAL ID: 660

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #8 **Calibration File Name:** PP160517.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	----	PAHCAL160510	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160510-1	1
SSCV 2500 ppb	----	PAHSSCV160510-2	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	**PAHCAL160510**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160510-1**
		5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160510-2**

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	X
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			X
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			X
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			X
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			X

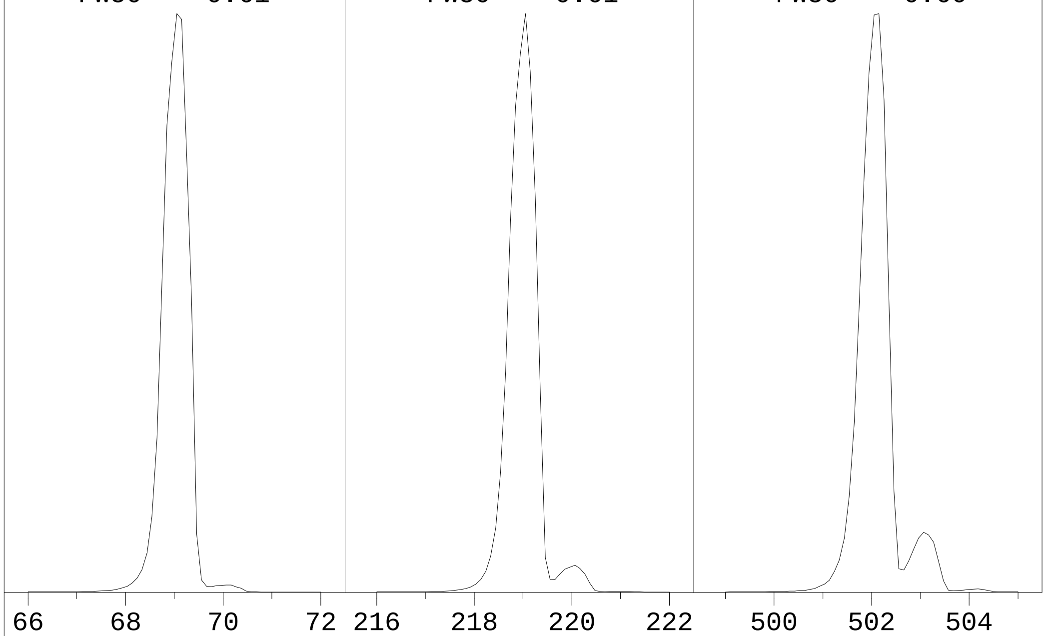
Analyst: Karyn Lane Date: 05/18/16

Second-Level Review: Dew Wenceh Date: 05/19/2016

Tue May 17 15:37:19 2016 Instrument: GCMS #8

C:\MSDCHEM\1\5973\atune.u

Mass 69.05	Mass 219.05	Mass 502.15
Ab 2055160	Ab 1199996	Ab 105627
Pw50 0.61	Pw50 0.61	Pw50 0.60

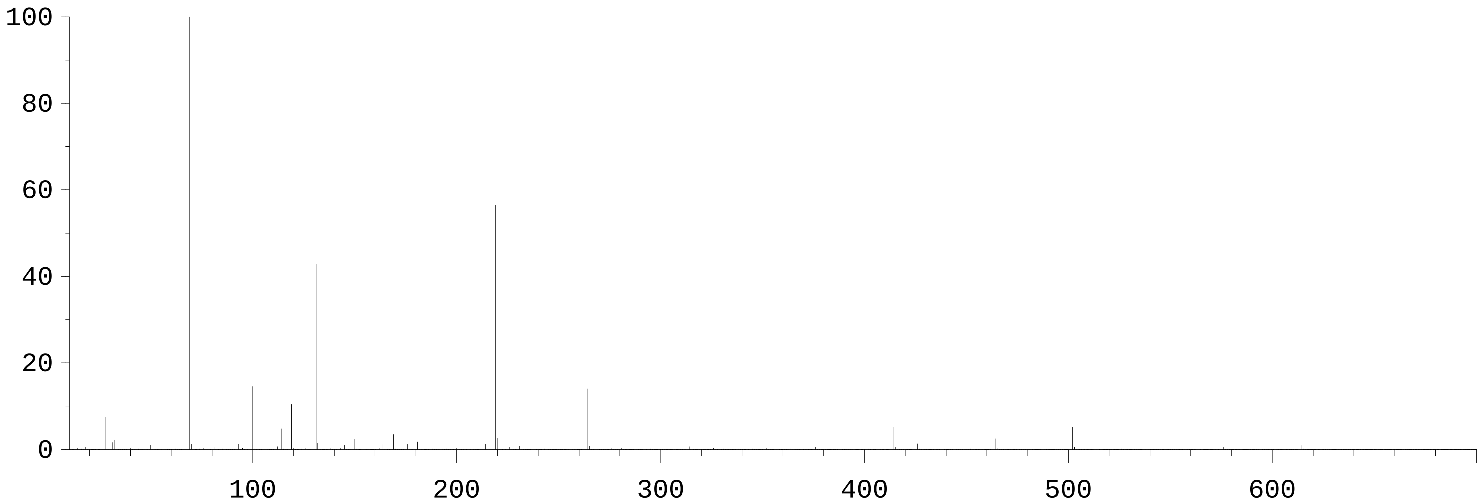


Ion Pol	POS	MassGain	48
		MassOffs	-11
Emission	34.6	AmuGain	2098
EIEnrgy	69.9	AmuOffs	132
Filament	2	Wid219	-0.001
		DC Pol	NEG
Repeller	37.83		
IonFcus	95.9	HEDEnab	ON
EntLens	12.0	EMVolts	1506
EntOffs	19.33		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	41
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
862 peaks Base: 69.05 Abundance: 1927168



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	1927168	100.00	70.05	23616	1.23
219.05	1086464	56.38	219.95	49704	4.57
502.05	98928	5.13	503.05	10766	10.88

Air/Water Check: H20~0.48% N2~7.48% O2~2.21% CO2~0.12% N2/H2O~1565.94%

Column Flow: Front: 0 Back: 1.887 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 34065
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 48@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	132.0	132.0	132.0	132.0	132.0	132.0	132.0
Entrance Lens Offset:	19.3	19.3	19.3	19.3	19.3	19.3	19.3

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160517.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Wed May 18 08:55:04 2016
Response Via : Initial Calibration

Calibration Files
1 =16051715.D 2 =16051716.D 3 =16051717.D 4 =16051718.D 5 =16051719.D 6 =16051720.D 7 =16051721.D
8 =16051722.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	0.971	0.931	0.909	0.923	0.896	0.882	0.854	0.803	0.896	5.70	A	0.0570	0.0000	0.8961	0.0000
3) T	2-Methyl napht...	0.668	0.737	0.723	0.752	0.728	0.704	0.661	0.601	0.697	7.19	A	0.0719	0.0000	0.6966	0.0000
4) T	1-Methyl napht...	0.697	0.702	0.687	0.699	0.676	0.648	0.610	0.555	0.659	7.98	A	0.0798	0.0000	0.6592	0.0000
5) S	2-Fluorobiphenyl	0.930	0.951	0.942	0.982	0.925	0.877	0.808	0.711	0.891	10.09	A	0.1009	0.0000	0.8906	0.0000
6) I	Acenaphthene-d10	----------------ISTD--------------------														
7) T	Acenaphthylene	1.873	1.811	1.779	1.812	1.778	1.749	1.659	1.526	1.748	6.23	A	0.0623	0.0000	1.7484	0.0000
8) T	Acenaphthene	1.167	1.152	1.126	1.146	1.113	1.099	1.051	0.972	1.103	5.81	A	0.0581	0.0000	1.1033	0.0000
9) T	Dibenzofuran	1.723	1.773	1.714	1.766	1.706	1.690	1.606	1.468	1.681	5.96	A	0.0596	0.0000	1.6806	0.0000
10) T	Fluorene	1.574	1.580	1.544	1.570	1.557	1.539	1.475	1.360	1.525	4.88	A	0.0488	0.0000	1.5249	0.0000
11) I	Phenanthrene-d10	----------------ISTD--------------------														
12) T	Phenanthrene	1.343	1.225	1.137	1.093	1.075	1.049	0.987	0.896	1.101	12.58	A	0.1258	0.0000	1.1006	0.0000
13) T	Anthracene	1.350	1.221	1.143	1.125	1.092	1.066	1.009	0.903	1.114	12.07	A	0.1207	0.0000	1.1137	0.0000
14) T	Fluoranthene	1.583	1.275	1.196	1.123	1.107	1.088	1.044	0.963	1.172	16.25	*Q	1.0000	0.0006	1.1096	-0.1184
15) T	Pyrene	1.586	1.256	1.180	1.100	1.074	1.064	1.028	0.961	1.156	16.94	*Q	1.0000	0.0006	1.0802	-0.0964
16) I	Chrysene-d12	----------------ISTD--------------------														
17) S	4-Terphenyl-d14	0.872	0.888	0.864	0.856	0.860	0.858	0.821	0.754	0.847	4.97	A	0.0497	0.0000	0.8466	0.0000
18) T	Benzo[a]anthra...	1.506	1.204	1.026	1.022	1.027	1.032	0.987	0.920	1.091	17.03	*Q	0.9999	0.0005	1.0384	-0.0949
19) T	Chrysene	1.521	1.202	0.989	0.969	0.955	0.951	0.910	0.854	1.044	20.85	*Q	1.0000	0.0007	0.9573	-0.0833
20) I	Perylene-d12	----------------ISTD--------------------														
21) T	Benzo[b]fluora...	1.525	1.225	1.056	1.050	1.055	1.058	1.026	0.966	1.120	15.99	*Q	1.0000	0.0005	1.0659	-0.0797
22) T	Benzo[k]fluora...	1.318	1.047	0.912	0.909	0.937	0.953	0.939	0.886	0.987	14.39	*Q	0.9999	0.0003	0.9587	-0.0575
23) cp	Benzo(j)fluora...	1.597	1.138	0.982	0.939	0.908	0.923	0.883	0.833	1.025	24.19#	*Q	0.9999	0.0007	0.9226	-0.0727
24) T	Benzo(e)pyrene	1.554	1.244	1.042	1.019	0.993	1.003	0.966	0.907	1.091	19.34	*Q	1.0000	0.0006	1.0086	-0.0814
25) T	Benzo[a]pyrene	1.491	1.168	1.005	0.982	0.978	0.983	0.962	0.916	1.061	17.79	*Q	1.0000	0.0005	0.9888	-0.0580
26) T	Indeno[1,2,3-c...	1.996	1.545	1.257	1.238	1.216	1.208	1.175	1.102	1.342	21.92	*Q	1.0000	0.0009	1.2223	-0.0964
27) T	Dibenz[a,h]ant...	2.036	1.480	1.029	1.030	1.006	1.007	0.982	0.912	1.185	32.52	*Q	0.9999	0.0011	1.0172	-0.0844
28) T	Benzo[g,h,i]pe...	1.728	1.360	1.090	1.080	1.051	1.040	1.013	0.954	1.164	22.12	*Q	1.0000	0.0008	1.0532	-0.0802

(#) = Out of Range

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   Sequence Name: C:\msdchem\1\sequence\160517.S
         Comment:
        Operator:
       Data Path: C:\MSDCHEM\1\DATA\160517\
 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     On A Barcode Mismatch
    (X) Full Method             (X) Inject Anyway
    ( ) Reprocessing Only       ( ) Don't Inject

   -----------------------------------------------------------------------
   Line                  Sample Name/Misc Info
 1)  Sample        1  16051601 DFTPPPCB        DFTPP-160517
 2)  Sample        2  16051602 1660-160511     ICV-160517
 3)  Sample        3  16051703 1660-160511     LCS-75186
 4)  Sample        4  16051704 1660-160511     LCSD-75186
 5)  Sample        5  16051705 1660-160511     MB-75186
 6)  Sample        6  16051706 1660-160511     1605115-01B
 7)  Sample        7  16051707 1660-160511     1605115-02B
 8)  Sample        1  16051708 DFTPPPAH        DFTPP-160517
 9)  Sample        2  16051709 PAH160510       ICV-160517
10)  Sample        1  16051710 DFTPPPAH        DFTPP-160517
11)  Sample        2  16051711 PAH160510       ICV-160517
12)  Sample        3  16051712 PAH160510       SBLK
13)  Sample        3  16051713 PAH160510       SBLK
14)  Sample        3  16051714 PAH160510       SBLK
15)  Sample        4  16051715 PAH160510       P1-160517 5
16)  Sample        5  16051716 PAH160510       P2-160517 10
17)  Sample        6  16051717 PAH160510       P3-160517 50
18)  Sample        7  16051718 PAH160510       P4-160517 100
19)  Sample        8  16051719 PAH160510       P5-160517 500
20)  Sample        9  16051720 PAH160510       P6-160517 1000
21)  Sample       10  16051721 PAH160510       P7-160517 2000
22)  Sample       11  16051722 PAH160510       P8-160517 5000
23)  Sample       12  16051723 PAH160510       SSCV-160517
24)  Sample       13  16051724 PAH160510       SSCV-160517
```

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Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051710.D
Acq On    : 17 May 2016   1:34 pm
Operator  :
Sample    : DFTPP-160517
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
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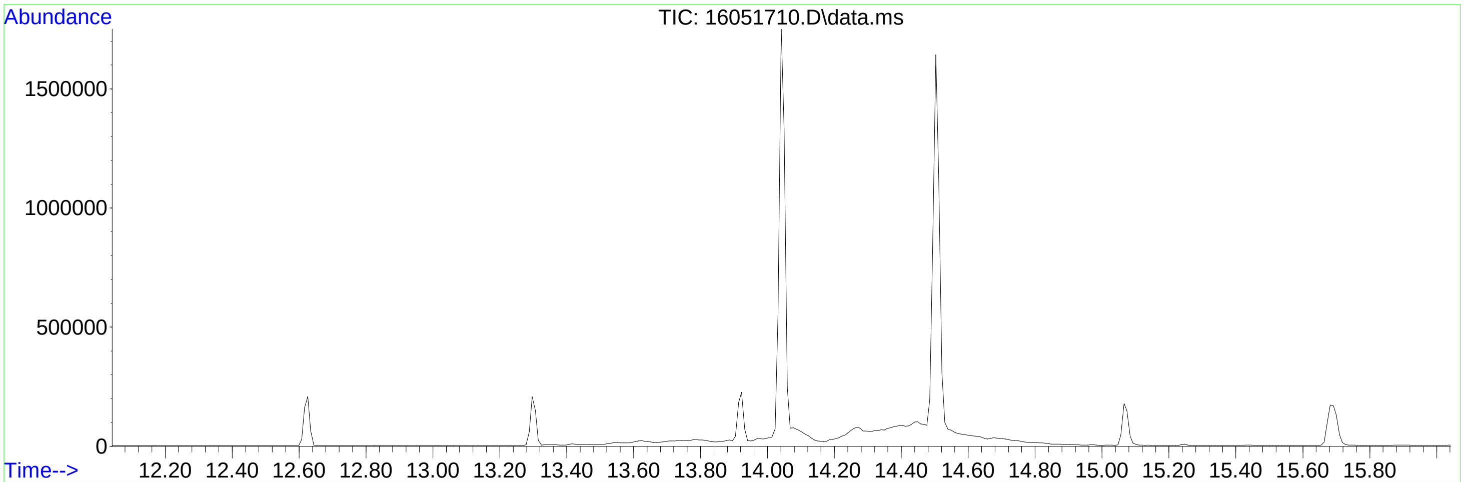

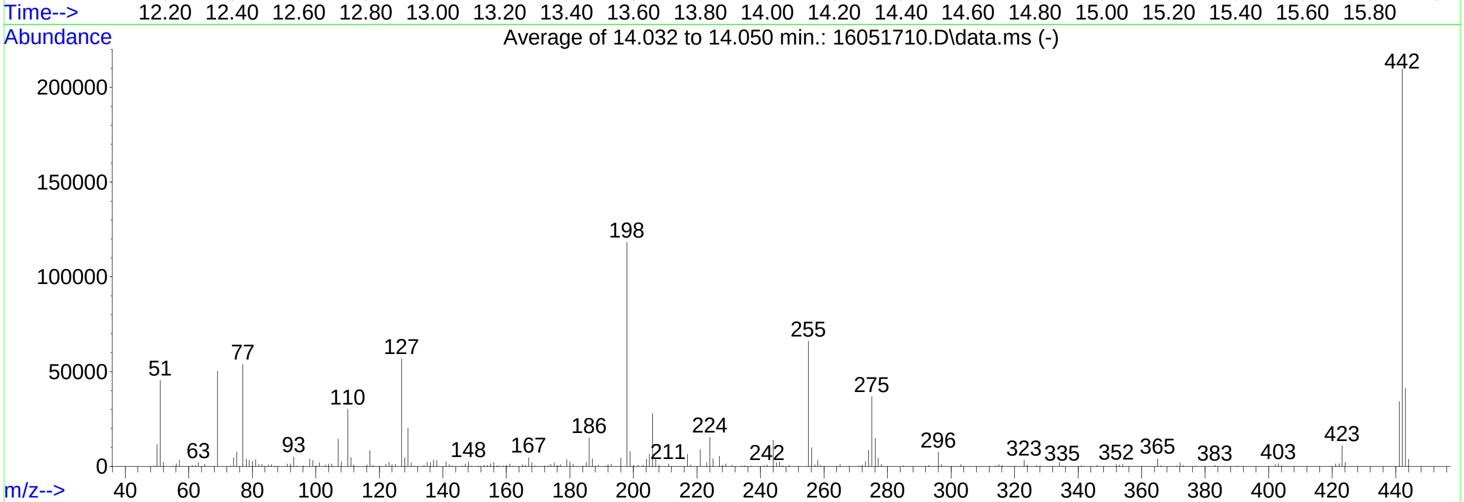

AutoFind: Scans 435, 436, 437; Background Corrected with Scan 431

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.3	45352	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.4	50218	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	48.0	56837	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	118309	PASS
199	198	5	9	6.7	7917	PASS
275	198	10	60	31.0	36677	PASS
365	198	1	200	3.4	4059	PASS
441	442	0.01	24	16.3	34164	PASS
442	198	50	400	177.3	209768	PASS
443	442	15	24	19.7	41255	PASS

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051715.D
Acq On : 17 May 2016 4:58 pm
Operator :
Sample : P1-160517 5
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 18 14:55:15 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.276	136	1615408	4000.00 ug/kg	99
6) Acenaphthene-d10	12.862	164	1299470	4000.00 ug/kg	104
11) Phenanthrene-d10	14.983	188	2692201	4000.00 ug/kg	92
16) Chrysene-d12	20.996	240	2729963	4000.00 ug/kg	101
20) Perylene-d12	26.262	264	2530056	4000.00 ug/kg	102

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	1877	5.22 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#	
17) 4-Terphenyl-d14	17.598	244	2976	5.15 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	0.13%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.313	128	1960	5.42 ug/kg	99
3) 2-Methyl naphthalene	11.234	142	1349	4.80 ug/kg	100
4) 1-Methyl naphthalene	11.457	142	1407	5.29 ug/kg	95
7) Acenaphthylene	12.749	152	3043	5.36 ug/kg	98
8) Acenaphthene	12.911	153	1895	5.29 ug/kg	96
9) Dibenzofuran	13.073	168	2799	5.13 ug/kg	93
10) Fluorene	13.564	166	2556	5.16 ug/kg	99
12) Phenanthrene	15.019	178	4521	6.10 ug/kg	97
13) Anthracene	15.063	178	4542	6.06 ug/kg	98
14) Fluoranthene	17.079	202	5328	5.09 ug/kg	100
15) Pyrene	17.709	202	5338	5.08 ug/kg	96
18) Benzo[a]anthracene	20.812	228	5140	5.45 ug/kg	99
19) Chrysene	21.083	228	5190	5.21 ug/kg	98
21) Benzo[b]fluoranthene	24.475	252	4824	5.45 ug/kg	98
22) Benzo[k]fluoranthene	24.556	252	4169	5.77 ug/kg	98
23) Benzo(j)fluoranthene	24.665	252	5051	5.48 ug/kg	98
24) Benzo(e)pyrene	25.742	252	4914	5.22 ug/kg	97
25) Benzo[a]pyrene	25.918	252	4715	5.41 ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.522	276	6312	5.30 ug/kg	97
27) Dibenz[a,h]anthracene	29.507	278	6440	5.51 ug/kg	98
28) Benzo[g,h,i]perylene	30.657	276	5466	5.18 ug/kg	99

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

Quantitation Report   (Not Reviewed)

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Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051715.D
Acq On    : 17 May 2016   4:58 pm
Operator  :
Sample    : P1-160517 5
Misc      : CAL1
ALS Vial  : 4   Sample Multiplier: 1

Quant Time: May 18 14:55:15 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
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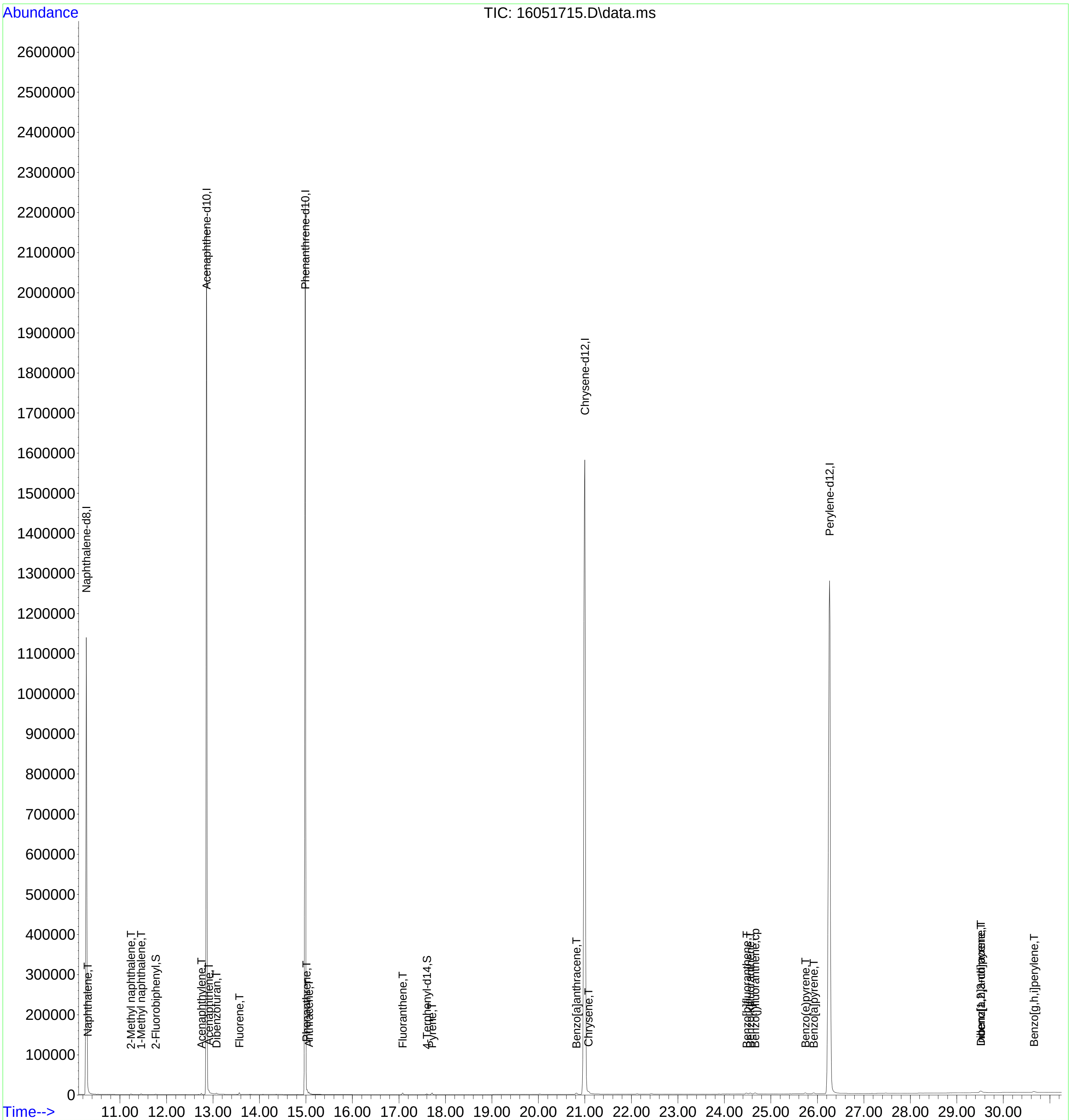


Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051716.D
Acq On : 17 May 2016 5:34 pm
Operator :
Sample : P2-160517 10
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 18 14:21:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.277	136	1669821	4000.00 ug/kg	102
6) Acenaphthene-d10	12.862	164	1410989	4000.00 ug/kg	113
11) Phenanthrene-d10	14.983	188	2926710	4000.00 ug/kg	100
16) Chrysene-d12	20.995	240	2655348	4000.00 ug/kg	98
20) Perylene-d12	26.262	264	2418020	4000.00 ug/kg	97

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.766	172	3970	10.68 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.27%#	
17) 4-Terphenyl-d14	17.595	244	5897	10.49 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	0.26%#	

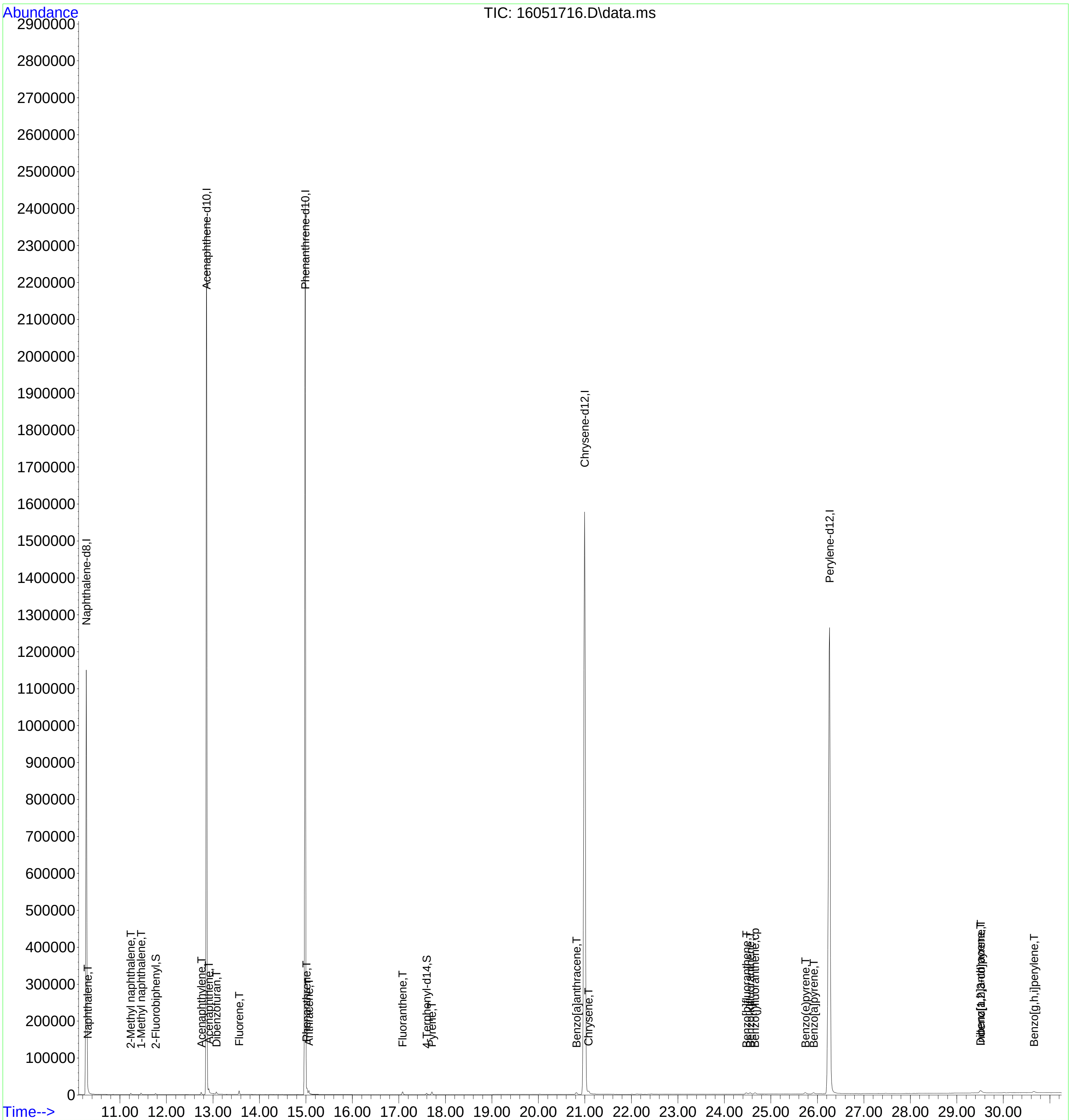
Target Compounds					Qvalue
2) Naphthalene	10.314	128	3887	10.39 ug/kg	99
3) 2-Methyl naphthalene	11.231	142	3075	10.57 ug/kg	100
4) 1-Methyl naphthalene	11.453	142	2932	10.65 ug/kg	98
7) Acenaphthylene	12.749	152	6390	10.36 ug/kg	98
8) Acenaphthene	12.911	153	4063	10.44 ug/kg	98
9) Dibenzofuran	13.073	168	6254	10.55 ug/kg	99
10) Fluorene	13.564	166	5573	10.36 ug/kg	99
12) Phenanthrene	15.019	178	8966	11.13 ug/kg	98
13) Anthracene	15.063	178	8936	10.97 ug/kg	98
14) Fluoranthene	17.079	202	9332	9.45 ug/kg	98
15) Pyrene	17.708	202	9188	9.36 ug/kg	98
18) Benzo[a]anthracene	20.820	228	7990	9.79 ug/kg	98
19) Chrysene	21.083	228	7982	9.83 ug/kg	98
21) Benzo[b]fluoranthene	24.475	252	7404	9.78 ug/kg	99
22) Benzo[k]fluoranthene	24.555	252	6327	9.81 ug/kg	96
23) Benzo(j)fluoranthene	24.658	252	6882	9.16 ug/kg	99
24) Benzo(e)pyrene	25.742	252	7518	9.85 ug/kg	95
25) Benzo[a]pyrene	25.918	252	7061	9.69 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.522	276	9340	9.78 ug/kg	99
27) Dibenz[a,h]anthracene	29.507	278	8949	10.05 ug/kg	98
28) Benzo[g,h,i]perylene	30.657	276	8222	9.89 ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051716.D
Acq On : 17 May 2016 5:34 pm
Operator :
Sample : P2-160517 10
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 18 14:21:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051717.D
Acq On : 17 May 2016 6:12 pm
Operator :
Sample : P3-160517 50
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 18 14:21:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.275	136	1691963	4000.00	ug/kg	104
6) Acenaphthene-d10	12.861	164	1420682	4000.00	ug/kg	113
11) Phenanthrene-d10	14.984	188	2974690	4000.00	ug/kg	102
16) Chrysene-d12	20.995	240	2826915	4000.00	ug/kg	104
20) Perylene-d12	26.262	264	2545051	4000.00	ug/kg	102

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	19916	52.87	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.32%#		
17) 4-Terphenyl-d14	17.596	244	30536	51.03	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	1.28%#		

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.313	128	19225	50.72	ug/kg	100
3) 2-Methyl naphthalene	11.230	142	15281	51.86	ug/kg	98
4) 1-Methyl naphthalene	11.452	142	14530	52.11	ug/kg	98
7) Acenaphthylene	12.748	152	31599	50.89	ug/kg	98
8) Acenaphthene	12.910	153	20004	51.05	ug/kg	97
9) Dibenzofuran	13.072	168	30435	50.99	ug/kg	97
10) Fluorene	13.563	166	27428	50.64	ug/kg	100
12) Phenanthrene	15.020	178	42270	51.64	ug/kg	97
13) Anthracene	15.062	178	42517	51.34	ug/kg	98
14) Fluoranthene	17.077	202	44464	51.91	ug/kg	98
15) Pyrene	17.709	202	43861	52.40	ug/kg	97
18) Benzo[a]anthracene	20.812	228	36261	47.66	ug/kg	98
19) Chrysene	21.083	228	34959	48.99	ug/kg	99
21) Benzo[b]fluoranthene	24.467	252	33604	47.88	ug/kg	99
22) Benzo[k]fluoranthene	24.548	252	29005	46.47	ug/kg	98
23) Benzo(j)fluoranthene	24.658	252	31228	50.07	ug/kg	99
24) Benzo(e)pyrene	25.742	252	33142	49.21	ug/kg	99
25) Benzo[a]pyrene	25.918	252	31972	48.73	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.514	276	39995	48.61	ug/kg	99
27) Dibenz[a,h]anthracene	29.500	278	32742	46.13	ug/kg	99
28) Benzo[g,h,i]perylene	30.657	276	34676	48.76	ug/kg	99

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

Quantitation Report (Not Reviewed)

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Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051717.D
Acq On    : 17 May 2016   6:12 pm
Operator  :
Sample    : P3-160517 50
Misc      : CAL
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: May 18 14:21:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
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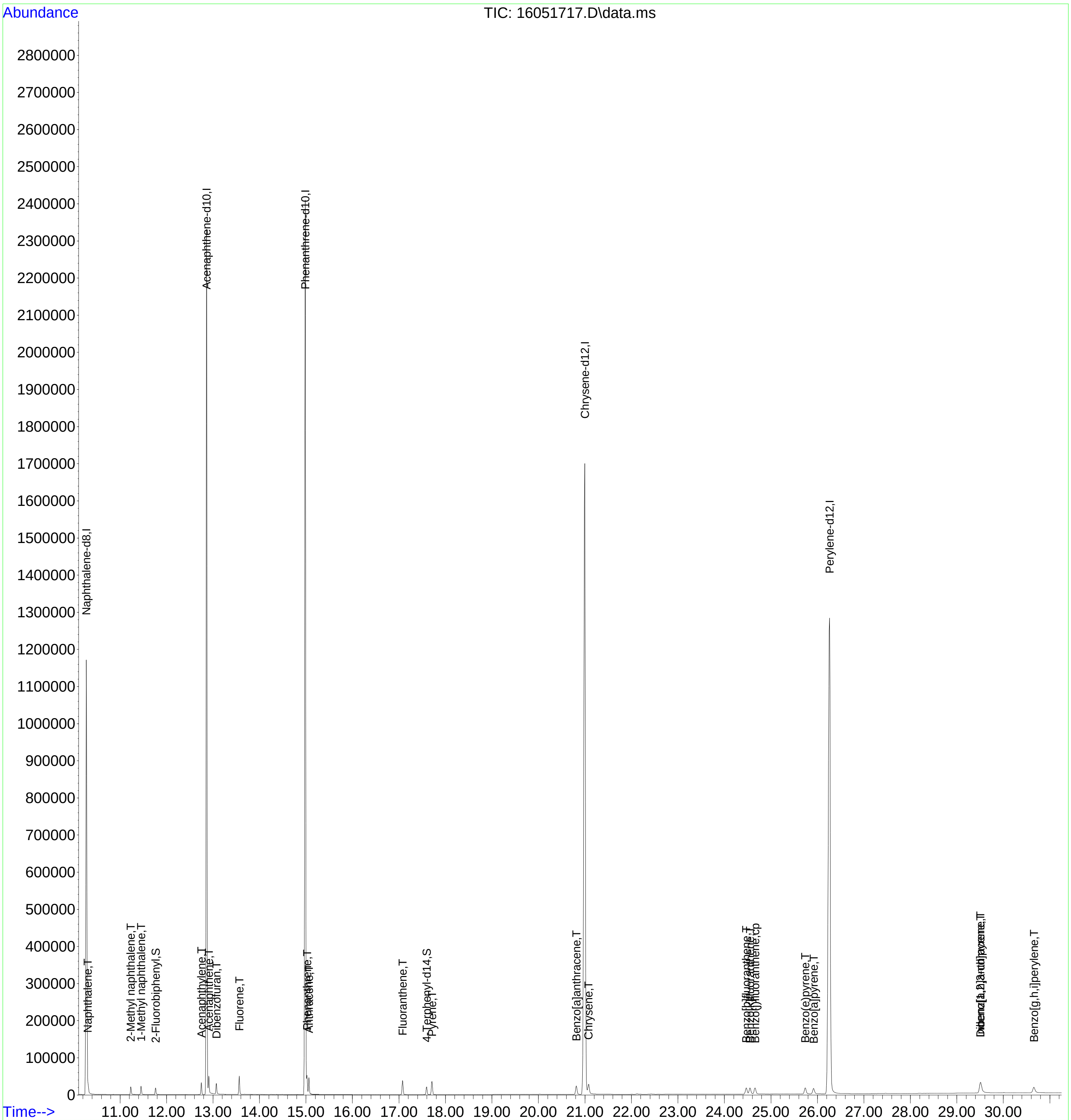


Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051718.D
Acq On : 17 May 2016 6:49 pm
Operator :
Sample : P4-160517 100
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 18 14:21:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.276	136	1693906	4000.00 ug/kg	104
6) Acenaphthene-d10	12.861	164	1440728	4000.00 ug/kg	115
11) Phenanthrene-d10	14.983	188	2966427	4000.00 ug/kg	101
16) Chrysene-d12	20.994	240	2706021	4000.00 ug/kg	100
20) Perylene-d12	26.254	264	2498423	4000.00 ug/kg	101

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.760	172	41597	110.29 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.76%#	
17) 4-Terphenyl-d14	17.592	244	57884	101.06 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.53%#	

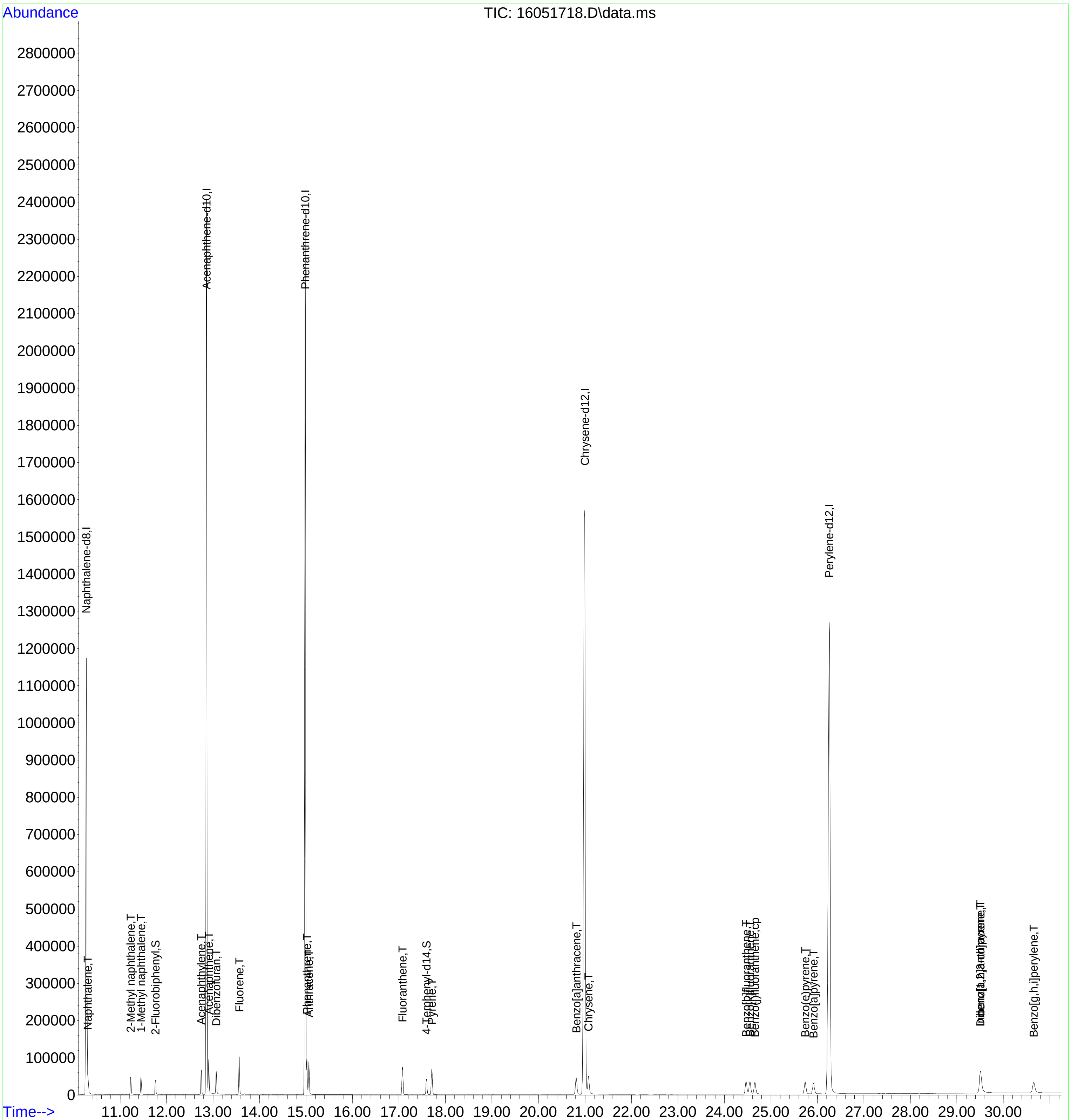
Target Compounds					Qvalue
2) Naphthalene	10.313	128	39101	103.04 ug/kg	100
3) 2-Methyl naphthalene	11.230	142	31845	107.95 ug/kg	99
4) 1-Methyl naphthalene	11.452	142	29622	106.11 ug/kg	99
7) Acenaphthylene	12.743	152	65260	103.63 ug/kg	99
8) Acenaphthene	12.910	153	41268	103.85 ug/kg	98
9) Dibenzofuran	13.067	168	63596	105.06 ug/kg	94
10) Fluorene	13.563	166	56542	102.94 ug/kg	100
12) Phenanthrene	15.019	178	81029	99.27 ug/kg	97
13) Anthracene	15.061	178	83432	101.02 ug/kg	98
14) Fluoranthene	17.076	202	83259	99.39 ug/kg	99
15) Pyrene	17.705	202	81588	99.81 ug/kg	98
18) Benzo[a]anthracene	20.811	228	69165	96.87 ug/kg	99
19) Chrysene	21.075	228	65585	98.75 ug/kg	99
21) Benzo[b]fluoranthene	24.467	252	65590	96.99 ug/kg	99
22) Benzo[k]fluoranthene	24.547	252	56746	93.79 ug/kg	100
23) Benzo(j)fluoranthene	24.657	252	58663	98.81 ug/kg	99
24) Benzo(e)pyrene	25.734	252	63628	98.71 ug/kg	99
25) Benzo[a]pyrene	25.917	252	61356	97.35 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.514	276	77335	98.62 ug/kg	99
27) Dibenz[a,h]anthracene	29.499	278	64324	96.94 ug/kg	99
28) Benzo[g,h,i]perylene	30.656	276	67436	99.67 ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051718.D
Acq On : 17 May 2016 6:49 pm
Operator :
Sample : P4-160517 100
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 18 14:21:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051719.D
Acq On : 17 May 2016 7:26 pm
Operator :
Sample : P5-160517 500
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 18 14:22:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.275	136	1716888	4000.00 ug/kg	105
6) Acenaphthene-d10	12.861	164	1420427	4000.00 ug/kg	113
11) Phenanthrene-d10	14.984	188	3065132	4000.00 ug/kg	105
16) Chrysene-d12	20.996	240	2806740	4000.00 ug/kg	104
20) Perylene-d12	26.255	264	2612071	4000.00 ug/kg	105

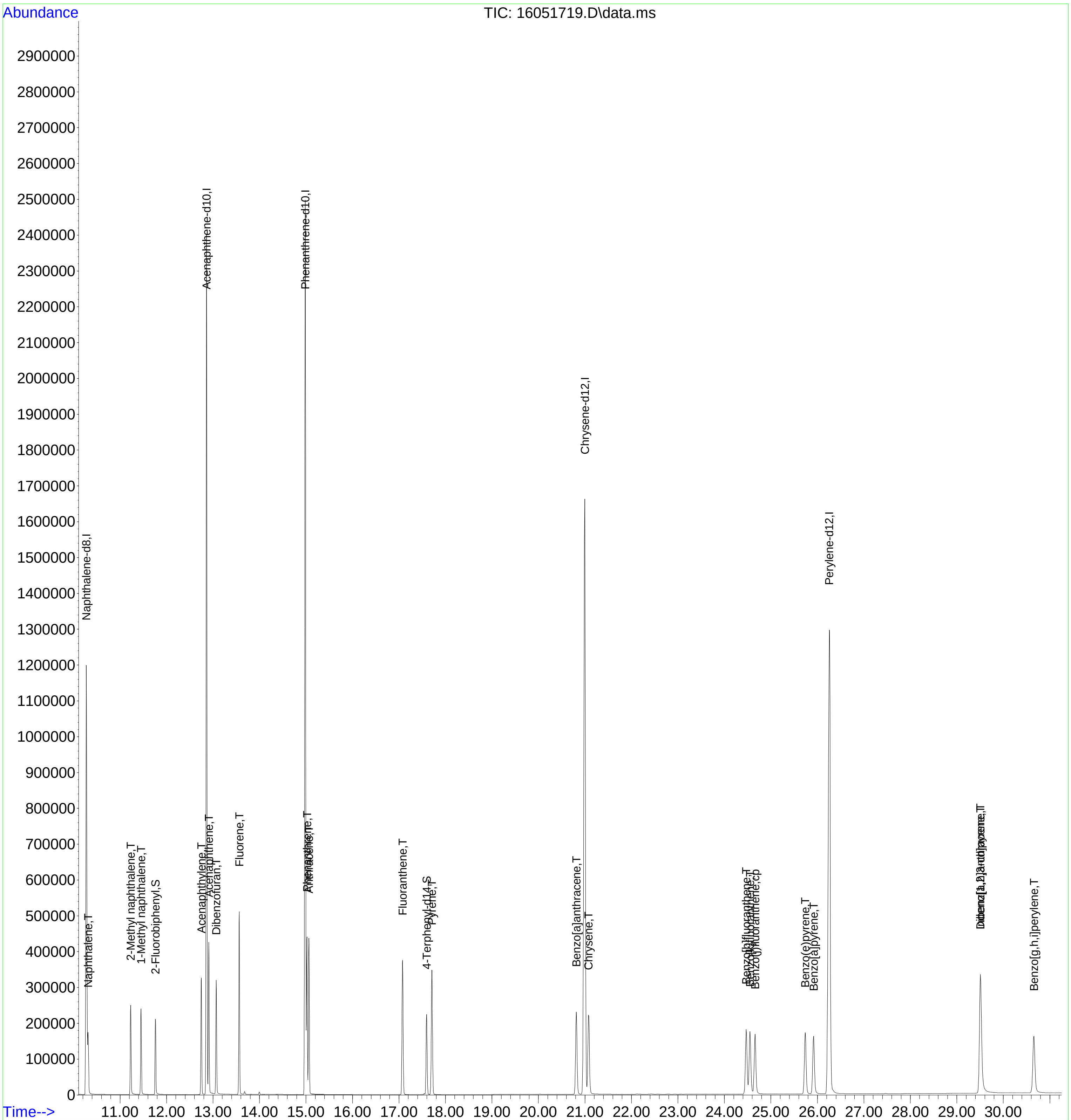
System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.760	172	198425	519.07 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	12.98%#	
17) 4-Terphenyl-d14	17.593	244	301886	508.16 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	12.70%#	

Target Compounds					Qvalue
2) Naphthalene	10.312	128	192186	499.67 ug/kg	100
3) 2-Methyl naphthalene	11.229	142	156202	522.41 ug/kg	99
4) 1-Methyl naphthalene	11.451	142	144981	512.40 ug/kg	99
7) Acenaphthylene	12.748	152	315668	508.42 ug/kg	99
8) Acenaphthene	12.910	153	197655	504.51 ug/kg	98
9) Dibenzofuran	13.067	168	302969	507.65 ug/kg	91
10) Fluorene	13.563	166	276455	510.53 ug/kg	99
12) Phenanthrene	15.020	178	411797	488.27 ug/kg	98
13) Anthracene	15.062	178	418563	490.47 ug/kg	98
14) Fluoranthene	17.077	202	424180	503.59 ug/kg	99
15) Pyrene	17.709	202	411312	500.25 ug/kg	97
18) Benzo[a]anthracene	20.812	228	360174	498.19 ug/kg	99
19) Chrysene	21.076	228	335004	501.45 ug/kg	99
21) Benzo[b]fluoranthene	24.468	252	344489	497.86 ug/kg	99
22) Benzo[k]fluoranthene	24.548	252	306053	491.39 ug/kg	99
23) Benzo(j)fluoranthene	24.658	252	296427	493.61 ug/kg	99
24) Benzo(e)pyrene	25.735	252	324231	494.73 ug/kg	99
25) Benzo[a]pyrene	25.918	252	319375	496.08 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.515	276	396879	499.27 ug/kg	98
27) Dibenz[a,h]anthracene	29.500	278	328543	495.21 ug/kg	99
28) Benzo[g,h,i]perylene	30.657	276	343154	500.70 ug/kg	99

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

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051719.D
Acq On : 17 May 2016 7:26 pm
Operator :
Sample : P5-160517 500
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 18 14:22:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051720.D
Acq On : 17 May 2016 8:03 pm
Operator :
Sample : P6-160517 1000
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 18 14:22:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.276	136	1672746	4000.00 ug/kg	103
6) Acenaphthene-d10	12.862	164	1335900	4000.00 ug/kg	107
11) Phenanthrene-d10	14.983	188	3005081	4000.00 ug/kg	103
16) Chrysene-d12	20.996	240	2748497	4000.00 ug/kg	101
20) Perylene-d12	26.263	264	2515463	4000.00 ug/kg	101

System Monitoring Compounds					Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	366689	984.56 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.61%#		
17) 4-Terphenyl-d14	17.592	244	589485	1013.30 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 25.33%#		

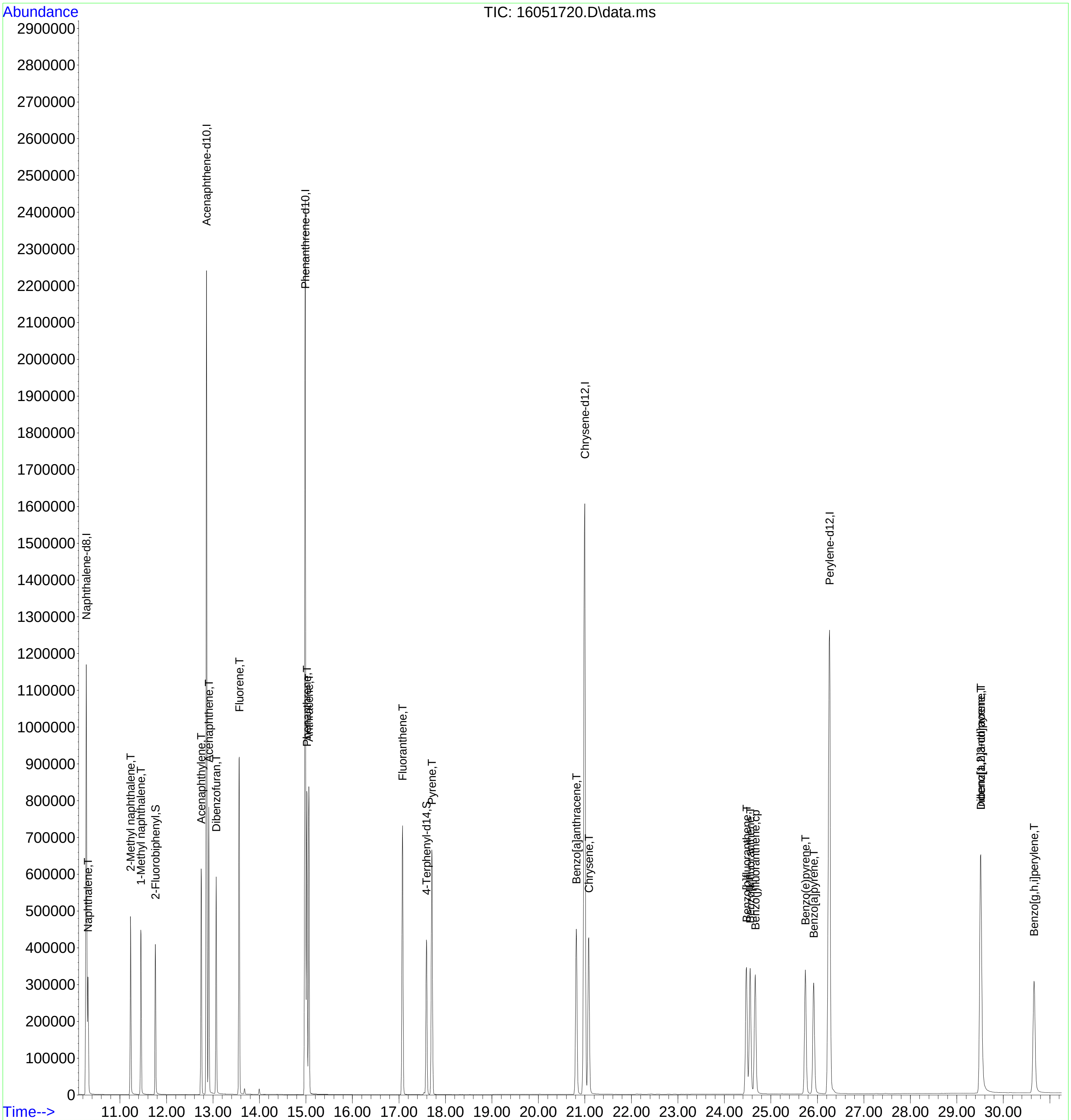
Target Compounds					Qvalue
2) Naphthalene	10.313	128	368948	984.54 ug/kg	100
3) 2-Methyl naphthalene	11.227	142	294264	1010.11 ug/kg	99
4) 1-Methyl naphthalene	11.449	142	270777	982.25 ug/kg	98
7) Acenaphthylene	12.744	152	584017	1000.15 ug/kg	99
8) Acenaphthene	12.911	153	367052	996.17 ug/kg	99
9) Dibenzofuran	13.068	168	564260	1005.29 ug/kg	95
10) Fluorene	13.564	166	514152	1009.56 ug/kg	99
12) Phenanthrene	15.019	178	788028	953.04 ug/kg	99
13) Anthracene	15.063	178	800602	956.88 ug/kg	99
14) Fluoranthene	17.076	202	817359	1005.41 ug/kg	99
15) Pyrene	17.709	202	799661	1005.73 ug/kg	98
18) Benzo[a]anthracene	20.813	228	709426	1016.07 ug/kg	100
19) Chrysene	21.084	228	653281	1012.70 ug/kg	99
21) Benzo[b]fluoranthene	24.475	252	665603	1010.40 ug/kg	100
22) Benzo[k]fluoranthene	24.556	252	599301	1008.21 ug/kg	99
23) Benzo(j)fluoranthene	24.666	252	580263	1017.28 ug/kg	99
24) Benzo(e)pyrene	25.743	252	630968	1013.00 ug/kg	100
25) Benzo[a]pyrene	25.918	252	618328	1007.08 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.522	276	759719	1005.42 ug/kg	99
27) Dibenz[a,h]anthracene	29.508	278	633064	1006.18 ug/kg	100
28) Benzo[g,h,i]perylene	30.665	276	654258	1003.99 ug/kg	100

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

Quantitation Report   (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051720.D
Acq On   : 17 May 2016   8:03 pm
Operator :
Sample   : P6-160517 1000
Misc   : CAL
ALS Vial : 9   Sample Multiplier: 1

Quant Time: May 18 14:22:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



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Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051721.D
Acq On    : 17 May 2016   8:40 pm
Operator  :
Sample    : P7-160517 2000
Misc      : CAL
ALS Vial  : 10   Sample Multiplier: 1

Quant Time: May 18 14:22:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration
```

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.273	136	1630045	4000.00 ug/kg	100
6) Acenaphthene-d10	12.862	164	1254060	4000.00 ug/kg	100
11) Phenanthrene-d10	14.981	188	2926310	4000.00 ug/kg	100
16) Chrysene-d12	20.989	240	2710742	4000.00 ug/kg	100
20) Perylene-d12	26.255	264	2483020	4000.00 ug/kg	100

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.762	172	658153	1813.43 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.34%		
17) 4-Terphenyl-d14	17.593	244	1112679	1939.28 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 48.48%#		

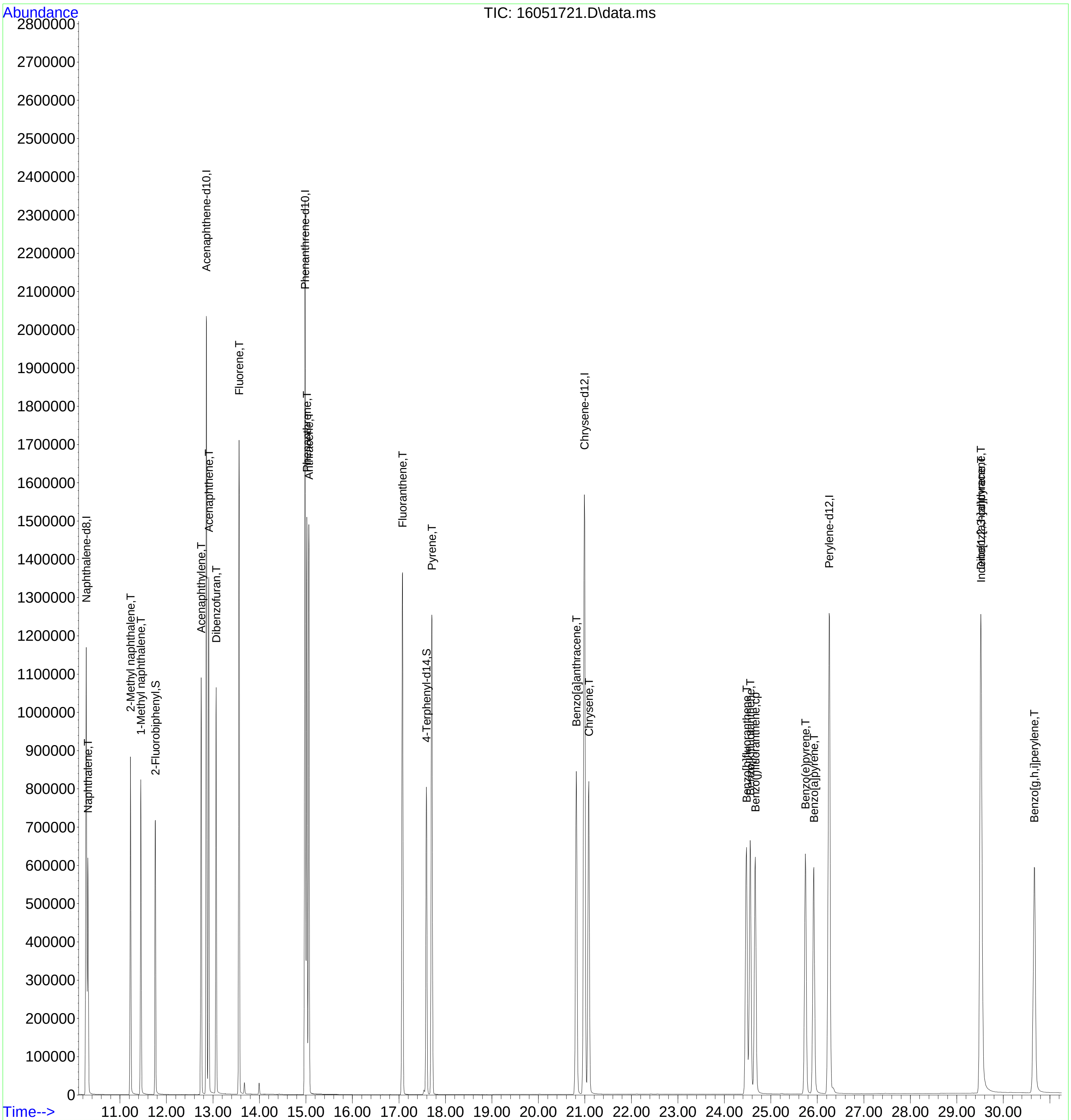
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.310	128	695769	1905.31 ug/kg	100
3) 2-Methyl naphthalene	11.227	142	538753	1897.81 ug/kg	100
4) 1-Methyl naphthalene	11.449	142	497158	1850.70 ug/kg	100
7) Acenaphthylene	12.744	152	1039945	1897.17 ug/kg	100
8) Acenaphthene	12.911	153	659005	1905.25 ug/kg	100
9) Dibenzofuran	13.068	168	1007003	1911.16 ug/kg	100
10) Fluorene	13.559	166	925041	1934.89 ug/kg	100
12) Phenanthrene	15.019	178	1444658	1794.20 ug/kg	100
13) Anthracene	15.061	178	1476119	1811.76 ug/kg	100
14) Fluoranthene	17.077	202	1527667	1984.95 ug/kg	100
15) Pyrene	17.706	202	1503502	1988.60 ug/kg	100
18) Benzo[a]anthracene	20.813	228	1337835	1989.79 ug/kg	100
19) Chrysene	21.084	228	1233351	1983.94 ug/kg	100
21) Benzo[b]fluoranthene	24.475	252	1273446	1997.62 ug/kg	100
22) Benzo[k]fluoranthene	24.556	252	1165290	2018.15 ug/kg	100
23) Benzo(j)fluoranthene	24.666	252	1096280	1988.83 ug/kg	100
24) Benzo(e)pyrene	25.742	252	1199708	1993.89 ug/kg	100
25) Benzo[a]pyrene	25.926	252	1194718	2003.05 ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.530	276	1458740	1998.39 ug/kg	100
27) Dibenz[a,h]anthracene	29.515	278	1219313	2010.42 ug/kg	100
28) Benzo[g,h,i]perylene	30.672	276	1257350	1996.01 ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051721.D
Acq On : 17 May 2016 8:40 pm
Operator :
Sample : P7-160517 2000
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 18 14:22:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051722.D
Acq On : 17 May 2016 9:17 pm
Operator :
Sample : P8-160517 5000
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 18 14:22:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.276	136	1589455	4000.00 ug/kg	98
6) Acenaphthene-d10	12.862	164	1157466	4000.00 ug/kg	92
11) Phenanthrene-d10	14.984	188	2872086	4000.00 ug/kg	98
16) Chrysene-d12	20.995	240	2715512	4000.00 ug/kg	100
20) Perylene-d12	26.262	264	2467636	4000.00 ug/kg	99

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	1413417	3993.89 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 99.85%		
17) 4-Terphenyl-d14	17.598	244	2558145	4450.75 ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 111.27%		

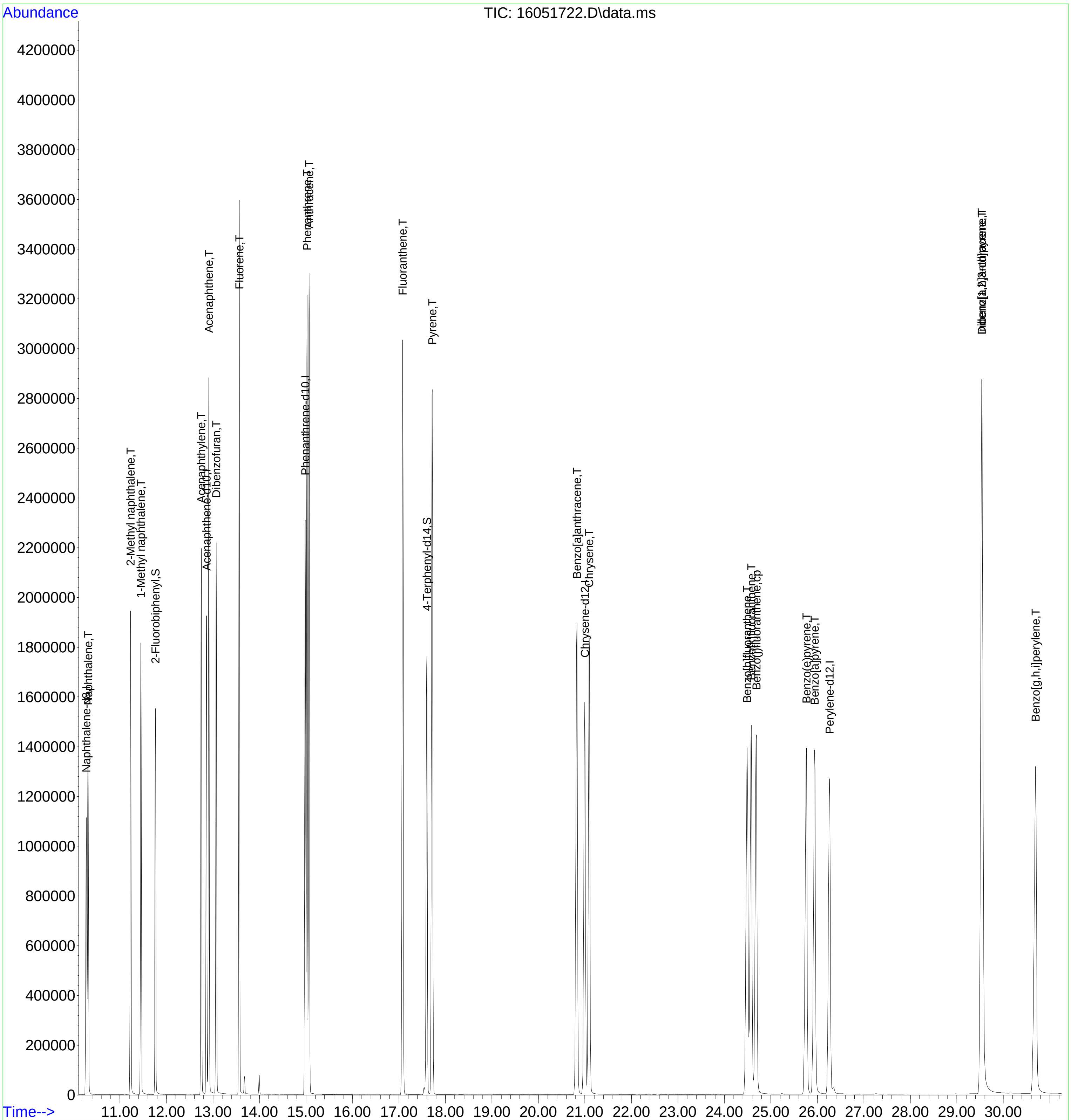
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.313	128	1596025	4482.20 ug/kg	99
3) 2-Methyl naphthalene	11.226	142	1194581	4315.50 ug/kg	98
4) 1-Methyl naphthalene	11.453	142	1102506	4208.96 ug/kg	98
7) Acenaphthylene	12.749	152	2208060	4364.33 ug/kg	99
8) Acenaphthene	12.911	153	1406596	4405.99 ug/kg	99
9) Dibenzofuran	13.068	168	2123466	4366.39 ug/kg	87
10) Fluorene	13.564	166	1967421	4458.63 ug/kg	100
12) Phenanthrene	15.024	178	3215270	4068.60 ug/kg	97
13) Anthracene	15.068	178	3242032	4054.33 ug/kg	97
14) Fluoranthene	17.080	202	3457212	5005.46 ug/kg	96
15) Pyrene	17.715	202	3449381	5003.88 ug/kg	97
18) Benzo[a]anthracene	20.827	228	3123986	5001.18 ug/kg	98
19) Chrysene	21.090	228	2900176	5004.26 ug/kg	98
21) Benzo[b]fluoranthene	24.489	252	2980787	4998.98 ug/kg	98
22) Benzo[k]fluoranthene	24.577	252	2731461	4991.28 ug/kg	98
23) Benzo(j)fluoranthene	24.687	252	2544105	4948.79 ug/kg	98
24) Benzo(e)pyrene	25.764	252	2799050	5000.38 ug/kg	99
25) Benzo[a]pyrene	25.940	252	2826486	4997.57 ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.544	276	3400603	4999.58 ug/kg	88
27) Dibenz[a,h]anthracene	29.536	278	2812177	4994.40 ug/kg	97
28) Benzo[g,h,i]perylene	30.694	276	2941935	5000.81 ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051722.D
Acq On : 17 May 2016 9:17 pm
Operator :
Sample : P8-160517 5000
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 18 14:22:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

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Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051723.D
Acq On    : 17 May 2016   9:54 pm
Operator  :
Sample    : SSCV-160517
Misc      : ICV
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: May 18 14:22:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title  : CLP BNA Calibration -  Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

 Internal Standards                R.T. QIon  Response  Conc Units    %Rec
 ---------------------------------------------------------------------------
   1) Naphthalene-d8              10.273  136  1550711   4000.00 ug/kg   95
   6) Acenaphthene-d10            12.856  164  1014776   4000.00 ug/kg   81
  11) Phenanthrene-d10            14.978  188  2298444   4000.00 ug/kg   79
  16) Chrysene-d12                20.987  240  2487435   4000.00 ug/kg   92
  20) Perylene-d12                26.254  264  2286057   4000.00 ug/kg   92

 System Monitoring Compounds                                        Dev(Min)
   5) 2-Fluorobiphenyl            11.762  172      122     0.35 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    0.01%#
  17) 4-Terphenyl-d14             17.592  244      528     1.00 ug/kg   0.00
   Spiked Amount   4000.000   Range  51 - 135    Recovery   =    0.03%#

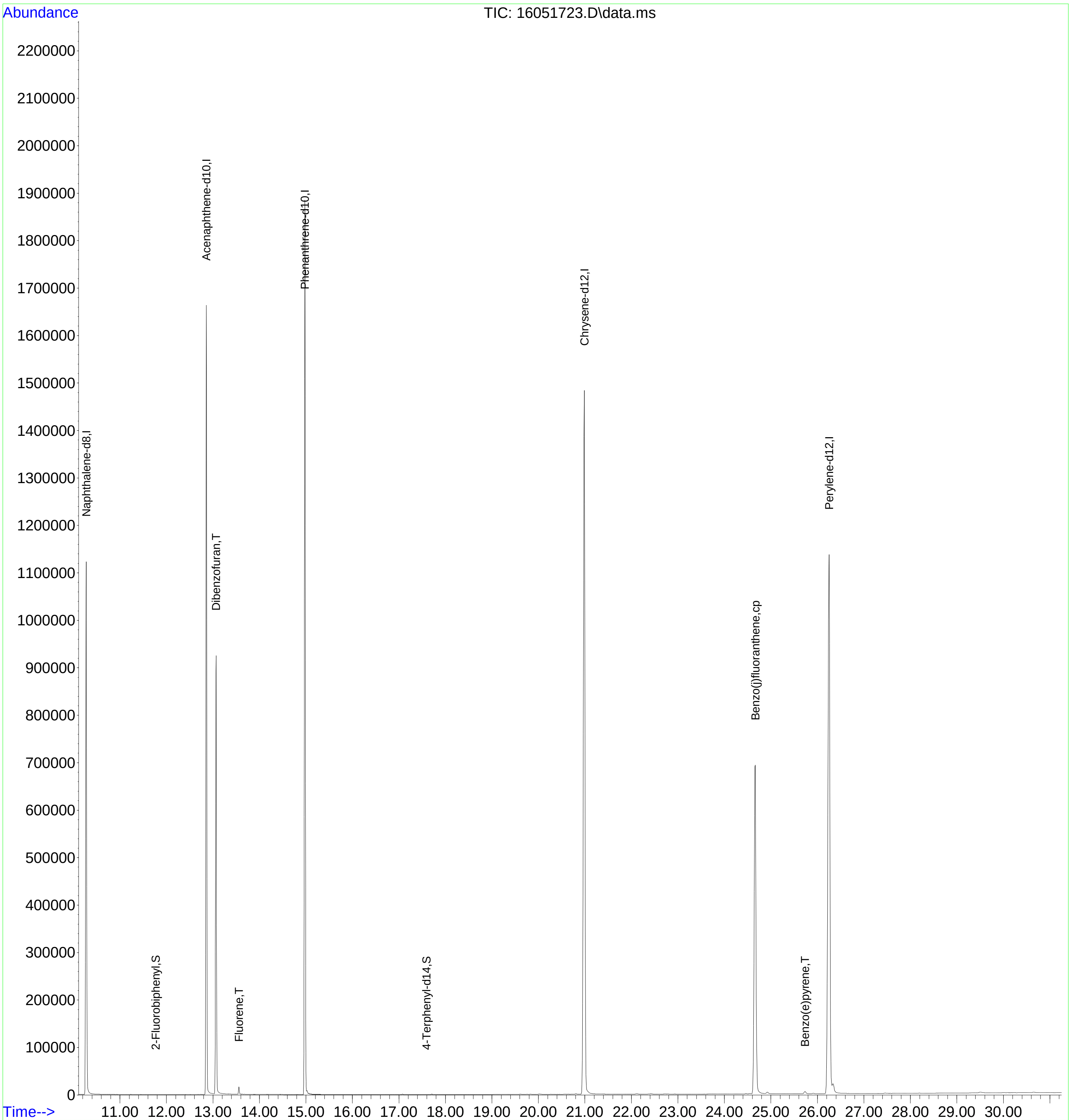
 Target Compounds                                                   Qvalue
   9) Dibenzofuran                13.067  168   911536  2137.91 ug/kg     99
  10) Fluorene                    13.558  166     9200    23.78 ug/kg     98
  23) Benzo(j)fluoranthene        24.664  252  1314135  2624.66 ug/kg    100
  24) Benzo(e)pyrene              25.734  252     9708    14.36 ug/kg     97
 ---------------------------------------------------------------------------

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051723.D
Acq On : 17 May 2016 9:54 pm
Operator :
Sample : SSCV-160517
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 18 14:22:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051724.D
Acq On : 17 May 2016 10:30 pm
Operator :
Sample : SSCV-160517
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 18 14:22:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	%Rec
1) Naphthalene-d8	10.272	136	1465767	4000.00 ug/kg	90
6) Acenaphthene-d10	12.857	164	1139119	4000.00 ug/kg	91
11) Phenanthrene-d10	14.979	188	2615766	4000.00 ug/kg	89
16) Chrysene-d12	20.988	240	2355864	4000.00 ug/kg	87
20) Perylene-d12	26.254	264	2172980	4000.00 ug/kg	88

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
5) 2-Fluorobiphenyl	11.757	172	752192	2304.82 ug/kg	0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 57.62%					
17) 4-Terphenyl-d14	17.590	244	1171361	2349.09 ug/kg	0.00
Spiked Amount 4000.000 Range 51 - 135 Recovery = 58.73%					

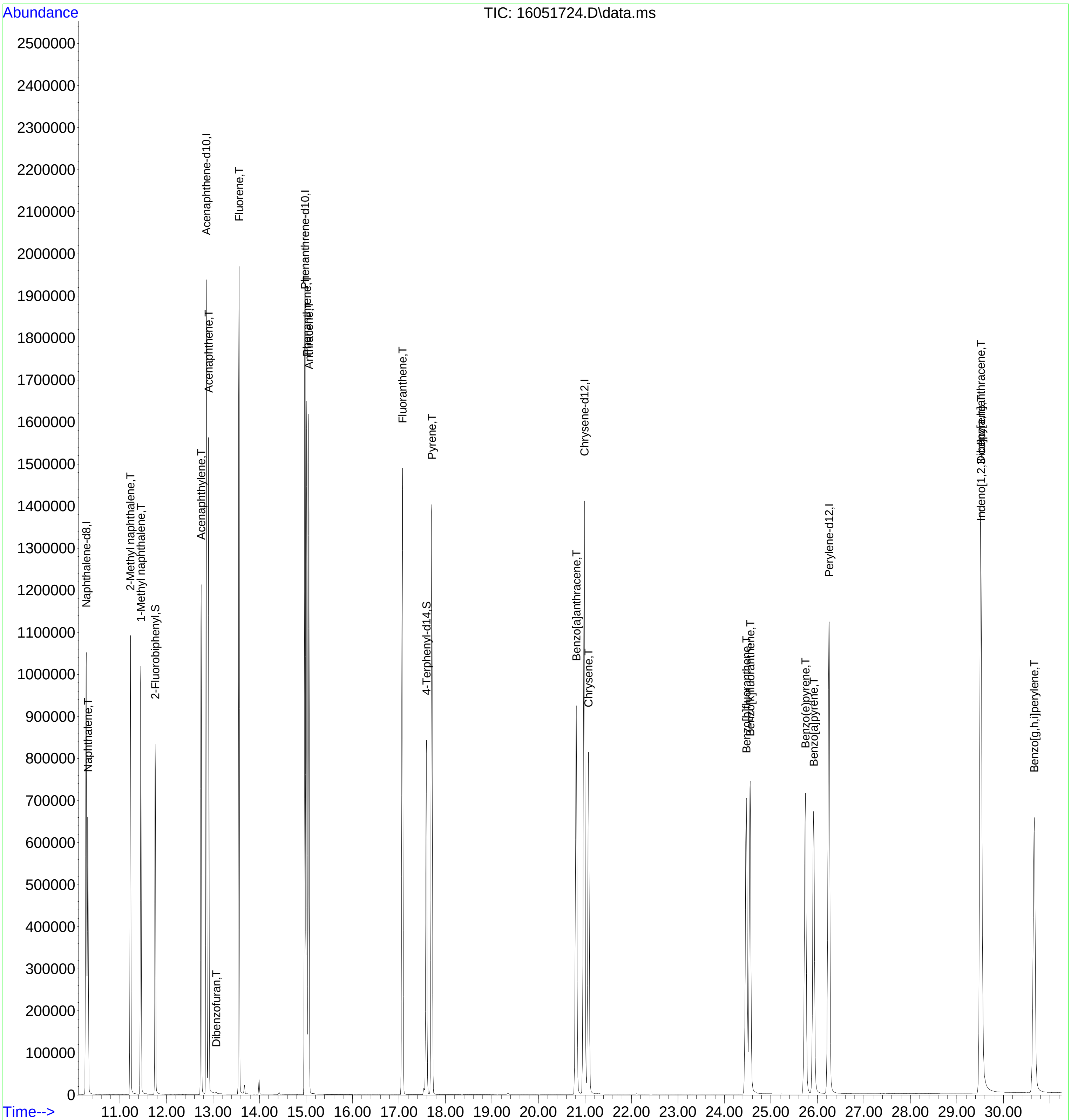
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.309	128	777437	2367.56 ug/kg	100
3) 2-Methyl naphthalene	11.226	142	679588	2662.22 ug/kg	99
4) 1-Methyl naphthalene	11.449	142	612646	2536.22 ug/kg	99
7) Acenaphthylene	12.744	152	1159951	2329.62 ug/kg	100
8) Acenaphthene	12.906	153	767350	2442.34 ug/kg	98
9) Dibenzofuran	13.068	168	3474	7.26 ug/kg	96
10) Fluorene	13.559	166	1054874	2429.09 ug/kg	99
12) Phenanthrene	15.017	178	1585495	2202.88 ug/kg	100
13) Anthracene	15.061	178	1575915	2163.88 ug/kg	100
14) Fluoranthene	17.074	202	1676150	2470.73 ug/kg	99
15) Pyrene	17.706	202	1652248	2473.32 ug/kg	99
18) Benzo[a]anthracene	20.812	228	1439635	2494.31 ug/kg	100
19) Chrysene	21.075	228	1238892	2310.65 ug/kg	100
21) Benzo[b]fluoranthene	24.474	252	1404261	2544.63 ug/kg	100
22) Benzo[k]fluoranthene	24.555	252	1350774	2702.15 ug/kg	100
24) Benzo(e)pyrene	25.741	252	1385526	2670.03 ug/kg	100
25) Benzo[a]pyrene	25.917	252	1334073	2578.87 ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.529	276	1609547	2549.19 ug/kg	98
27) Dibenz[a,h]anthracene	29.507	278	1345063	2566.28 ug/kg	98
28) Benzo[g,h,i]perylene	30.664	276	1389147	2548.55 ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160517\
Data File : 16051724.D
Acq On : 17 May 2016 10:30 pm
Operator :
Sample : SSCV-160517
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 18 14:22:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration



ICP-MS3
For

DHL Work Order
1605144

ICP-MS3_160526A
For

DHL Work Order
1605144

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_160526A
	SOP:	Metals-ICP-MS-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

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

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X		X
P/A Factor	Before ICAL	Increasing trend	X		
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125/80-120 (6020A)	X			

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

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

VARIANCE REPORT

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

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

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

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

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

VARIANCE ITEM

__ CCV out of control (± 10%)
__ CCB out of control (> MDL / >½ RL)
__ MB out of control (> RL / >½ RL)
__ LCS __ LCSD out of control (± 20%)
__ MS __ MSD out of control (± 20%)
__ RPD out of control for MS/MSD (15/25)
__ Internal Standard(s) out of control (see Method)
__ No MS/MSD prepared - LCS/LCSD used instead
__ Missing QC (other than MS/MSD)
__ QC sample(s) was mis-spiked
__ ICSA/ICSAB missing or out of control (± 20%)
__ LCVL out of control (± 30%)
__ Other (describe below)

REASON

__ Carryover from previous run
__ Cross contamination
__ Lab Artifact
__ Prep Spike error (describe)
__ Matrix Effect
__ High Levels of Target Metals
__ Insufficient sample for QC
__ Digestion/Prep Error
__ Analytical Error
__ Client Request
__ Other (describe below)

CORRECTIVE ACTION

__ Reanalyze QC to confirm
__ Recalibrate
__ Reprep/Reanalyze sample
__ Reprep/Reanalyze Batch
__ Reanalyze Batch/Sample/QC
__ Verify reagents are clean
__ Reanalyze sample to confirm
__ Sample results ND w/ dilution
__ Client notified and approved
__ Flag data / Case narrative
__ Accept data
__ Cal Std high and sample ND
__ Other (describe below)

General Comments and Impact on Data:

Analyst: Karyn Lane   Date of Completion: 05/27/2016

Second-Level Review: Sherri Herschmann   Date Stamp: 05/31/2016

REVIEWED/APPROVED
By Sherri Herschmann at 10:44:03 AM, 5/31/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160526A** **Run No.:** 86047

Analytical Run Date: 5/26/2016 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 11:35:00 AM		
L2-160526	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 11:41:00 AM		
L-160526	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 11:47:00 AM		
10X-160526	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 11:53:00 AM		
5X-160526	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 12:00:00 PM		
2X-160526	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 12:06:00 PM		
H-160526	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 12:11:00 PM		
H2-160526	1	ICPMS_TWDOD	CAL	R86047	5/26/2016 12:17:00 PM		
ICSA-160526	1	ICPMS_TWDOD	ICSA	R86047	5/26/2016 12:35:00 PM		
ICSAB-160526	1	ICPMS_TWDOD	ICSB	R86047	5/26/2016 12:41:00 PM		
ICV1-160526	1	ICPMS_TWDOD	ICV	R86047	5/26/2016 12:59:00 PM		
ICB1-160526	1	ICPMS_TWDOD	ICB	R86047	5/26/2016 1:05:00 PM		
ILCVL-160526	1	ICPMS_TWDOD	LCVL	R86047	5/26/2016 1:11:00 PM		
MB-75258	5	ICPMS_TSDOD1	MBLK	75258	5/26/2016 1:17:00 PM		
LCS-75258	5	ICPMS_TSDOD1	LCS	75258	5/26/2016 1:23:00 PM		
LCSD-75258	5	ICPMS_TSDOD1	LCSD	75258	5/26/2016 1:29:00 PM		
1605121-43A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 1:42:00 PM		
1605121-43A SD	25	ICPMS_TSDOD1	SD	75258	5/26/2016 1:48:00 PM		
1605121-38A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 1:54:00 PM		
1605121-39A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:00:00 PM		
1605121-40A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:06:00 PM		
1605121-41A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:12:00 PM		
1605121-42A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:17:00 PM		
1605121-44A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:23:00 PM		
1605121-45A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:29:00 PM		
1605135-01A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:35:00 PM		
1605135-02A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 2:41:00 PM		
1605121-43A PDS	5	ICPMS_TSDOD1	PDS	75258	5/26/2016 2:47:00 PM		
1605121-43A MS	5	ICPMS_TSDOD1	MS	75258	5/26/2016 2:53:00 PM		
1605121-43A MSD	5	ICPMS_TSDOD1	MSD	75258	5/26/2016 2:59:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160511	ICPMS CCV 200/5000 PPB		08/10/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/10/2016
MET-HCAL-16051	ICPMS High Cal 500ppb/10ppm s		08/10/2016
MET-ICV-160511	ICPMS ICV 100 ppb		08/10/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16051	ICPMS Low Cal2 1/20ppb std 2		08/10/2016
MET-LCAL-160511	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/10/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/09/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16051	ICPMS Mid Cal 250/5000ppb std		08/10/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160502-	10 PPM Ag+Sb PDS		07/31/2016
MET-PDS-160502-	10 PPM CUSTOM PDS SOLUTI		07/31/2016
MET-PDS-160502-	250 PPM Naturals+Al+Fe PDS		07/31/2016

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Run ID: **ICP-MS3_160526A** **Run No.:** 86047

CCV1-160526	1	ICPMS_TWDOD	CCV	R86047	5/26/2016 3:05:00 PM		
CCB1-160526	1	ICPMS_TWDOD	CCB	R86047	5/26/2016 3:11:00 PM		
LCVL1-160526	1	ICPMS_TWDOD	LCVL	R86047	5/26/2016 3:17:00 PM		
1605135-03A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 3:23:00 PM		
1605135-04A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 3:29:00 PM		
1605135-05A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 3:35:00 PM		
1605135-06A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 3:41:00 PM		
1605135-07A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 3:47:00 PM		
1605135-08A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 3:53:00 PM		
1605135-09A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 3:59:00 PM		
1605135-10A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 4:05:00 PM		
1605135-11A	5	ICPMS_TSDOD1	SAMP	75258	5/26/2016 4:11:00 PM		
CCV2-160526	1	ICPMS_TWDOD	CCV	R86047	5/26/2016 4:17:00 PM		
CCB2-160526	1	ICPMS_TWDOD	CCB	R86047	5/26/2016 4:23:00 PM		
LCVL2-160526	1	ICPMS_TWDOD	LCVL	R86047	5/26/2016 4:29:00 PM		
MB-75286	5	ICPMS_TSDOD1	MBLK	75286	5/26/2016 4:35:00 PM		
LCS-75286	5	ICPMS_TSDOD1	LCS	75286	5/26/2016 4:41:00 PM		
LCSD-75286	5	ICPMS_TSDOD1	LCSD	75286	5/26/2016 4:48:00 PM		
1605135-14A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:00:00 PM		
1605135-14A SD	25	ICPMS_TSDOD1	SD	75286	5/26/2016 5:06:00 PM		
1605135-12A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:12:00 PM		
1605135-13A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:18:00 PM		
1605135-15A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:24:00 PM		
1605135-16A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:29:00 PM		
1605135-17A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:35:00 PM		
1605135-18A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:41:00 PM		
1605135-19A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:47:00 PM		
1605135-20A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:53:00 PM		
1605135-21A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 5:59:00 PM		
1605135-14A PDS	5	ICPMS_TSDOD1	PDS	75286	5/26/2016 6:05:00 PM		
1605135-14A MS	5	ICPMS_TSDOD1	MS	75286	5/26/2016 6:11:00 PM		
1605135-14A MSD	5	ICPMS_TSDOD1	MSD	75286	5/26/2016 6:17:00 PM		
CCV3-160526	1	ICPMS_TWDOD	CCV	R86047	5/26/2016 6:29:00 PM		
LCVL3-160526	1	ICPMS_TWDOD	LCVL	R86047	5/26/2016 6:41:00 PM		
CCB3-160526	1	ICPMS_TWDOD	CCB	R86047	5/26/2016 6:47:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160511	ICPMS CCV 200/5000 PPB		08/10/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/10/2016
MET-HCAL-16051	ICPMS High Cal 500ppb/10ppm s		08/10/2016
MET-ICV-160511	ICPMS ICV 100 ppb		08/10/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16051	ICPMS Low Cal2 1/20ppb std 2		08/10/2016
MET-LCAL-160511	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/10/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/09/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16051	ICPMS Mid Cal 250/5000ppb std		08/10/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160502-	10 PPM Ag+Sb PDS		07/31/2016
MET-PDS-160502-	10 PPM CUSTOM PDS SOLUTI		07/31/2016
MET-PDS-160502-	250 PPM Naturals+Al+Fe PDS		07/31/2016

REVIEWED/APPROVED

By Sherri Herschmann at 10:50:08 AM, 5/31/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160526A** **Run No.:** 86047

1605135-22A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 6:53:00 PM		
1605135-23A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 6:59:00 PM		
1605135-24A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:05:00 PM		
1605135-25A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:11:00 PM		
1605135-26A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:17:00 PM		
1605135-27A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:23:00 PM		
1605135-28A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:29:00 PM		
1605135-29A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:35:00 PM		
1605135-30A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:41:00 PM		
1605135-31A	5	ICPMS_TSDOD1	SAMP	75286	5/26/2016 7:47:00 PM		
CCV4-160526	1	ICPMS_TWDOD	CCV	R86047	5/26/2016 7:53:00 PM		
LCVL4-160526	1	ICPMS_TWDOD	LCVL	R86047	5/26/2016 8:05:00 PM		
CCB4-160526	1	ICPMS_TWDOD	CCB	R86047	5/26/2016 8:12:00 PM		
MB-75292	5	ICPMS_TSDOD1	MBLK	75292	5/26/2016 8:18:00 PM		
LCS-75292	5	ICPMS_TSDOD1	LCS	75292	5/26/2016 8:24:00 PM		
LCSD-75292	5	ICPMS_TSDOD1	LCSD	75292	5/26/2016 8:30:00 PM		
1605144-13A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 8:42:00 PM		
1605144-13A SD	25	ICPMS_TSDOD1	SD	75292	5/26/2016 8:48:00 PM		
1605144-07A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 8:54:00 PM		
1605144-08A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:00:00 PM		
1605144-09A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:06:00 PM		
1605144-10A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:12:00 PM		
1605144-11A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:18:00 PM		
1605144-12A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:24:00 PM		
1605144-14A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:30:00 PM		
1605144-15A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:36:00 PM		
1605144-17A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 9:42:00 PM		
1605144-13A PDS	5	ICPMS_TSDOD1	PDS	75292	5/26/2016 9:48:00 PM		
1605144-13A MS	5	ICPMS_TSDOD1	MS	75292	5/26/2016 9:54:00 PM		
1605144-13A MSD	5	ICPMS_TSDOD1	MSD	75292	5/26/2016 10:00:00 PM		
CCV5-160526	1	ICPMS_TWDOD	CCV	R86047	5/26/2016 10:12:00 PM		
LCVL5-160526	1	ICPMS_TWDOD	LCVL	R86047	5/26/2016 10:24:00 PM		
CCB5-160526	1	ICPMS_TWDOD	CCB	R86047	5/26/2016 10:30:00 PM		
1605144-18A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 10:36:00 PM		
1605144-19A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 10:42:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160511	ICPMS CCV 200/5000 PPB		08/10/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/10/2016
MET-HCAL-16051	ICPMS High Cal 500ppb/10ppm s		08/10/2016
MET-ICV-160511	ICPMS ICV 100 ppb		08/10/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16051	ICPMS Low Cal2 1/20ppb std 2		08/10/2016
MET-LCAL-160511	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/10/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/09/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16051	ICPMS Mid Cal 250/5000ppb std		08/10/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160502-	10 PPM Ag+Sb PDS		07/31/2016
MET-PDS-160502-	10 PPM CUSTOM PDS SOLUTI		07/31/2016
MET-PDS-160502-	250 PPM Naturals+Al+Fe PDS		07/31/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160526A** **Run No.:** 86047

1605144-20A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 10:48:00 PM		
1605144-21A	5	ICPMS_TSDOD1	SAMP	75292	5/26/2016 10:54:00 PM		
CCV6-160526	1	ICPMS_TWDOD	CCV	R86047	5/26/2016 11:00:00 PM		
LCVL6-160526	1	ICPMS_TWDOD	LCVL	R86047	5/26/2016 11:12:00 PM		
CCB6-160526	1	ICPMS_TWDOD	CCB	R86047	5/26/2016 11:18:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160511	ICPMS CCV 200/5000 PPB		08/10/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/10/2016
MET-HCAL-16051	ICPMS High Cal 500ppb/10ppm s		08/10/2016
MET-ICV-160511	ICPMS ICV 100 ppb		08/10/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16051	ICPMS Low Cal2 1/20ppb std 2		08/10/2016
MET-LCAL-160511	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/10/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/09/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16051	ICPMS Mid Cal 250/5000ppb std		08/10/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160502-	10 PPM Ag+Sb PDS		07/31/2016
MET-PDS-160502-	10 PPM CUSTOM PDS SOLUTI		07/31/2016
MET-PDS-160502-	250 PPM Naturals+Al+Fe PDS		07/31/2016

	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		L2-160526	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160526	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160526	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160526	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160526	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160526	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160526	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-160526	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160526	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		ICV1-160526	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		ICB1-160526	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160526	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-75258	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-75258	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-75258	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		1605121-43A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1605121-43A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1605121-38A	SAMPICPMS_TSDOD1	5.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1605121-39A	SAMPICPMS_TSDOD1	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1605121-40A	SAMPICPMS_TSDOD1	5.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1605121-41A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1605121-42A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1605121-44A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1605121-45A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1605135-01A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1605135-02A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1605121-43A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1605121-43A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1605121-43A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160526	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160526	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160526	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1605135-03A	SAMPICPMS_TSDOD1	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1605135-04A	SAMPICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1605135-05A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1605135-06A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1605135-07A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1605135-08A	SAMPICPMS_TSDOD1	5.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1605135-09A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1605135-10A	SAMPICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1605135-11A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160526	CCV ICPMS_TW	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160526	CCB ICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-160526	LCVLICPMS_TW	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-75286	MBLKICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-75286	LCS ICPMS_TSDOD1	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-75286	LCSDICPMS_TSDOD1	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1605135-14A	SAMPICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1605135-14A SD	SD ICPMS_TSDOD1	25.00				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1605135-12A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1605135-13A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1605135-15A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1605135-16A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1605135-17A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1605135-18A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1605135-19A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1605135-20A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1605135-21A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1605135-14A PDS	PDS ICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1605135-14A MS	MS ICPMS_TSDOD1	5.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1605135-14A MSD	MSD ICPMS_TSDOD1	5.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160526	CCV ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-160526	CCB ICPMS_TW	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160526	LCVLICPMS_TW	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160526	CCB ICPMS_TW	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1605135-22A	SAMPICPMS_TSDOD1	5.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1605135-23A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1605135-24A	SAMPICPMS_TSDOD1	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3304		1605135-25A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1605135-26A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1605135-27A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3307		1605135-28A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1605135-29A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1605135-30A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1605135-31A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160526	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160526	CCB ICPMS_TW	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160526	LCVLICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160526	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-75292	MBLKICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-75292	LCS ICPMS_TSDOD1	5.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-75292	LCSDICPMS_TSDOD1	5.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1605144-13A	SAMPICPMS_TSDOD1	5.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1605144-13A SD	SD ICPMS_TSDOD1	25.00				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1605144-07A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1605144-08A	SAMPICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1605144-09A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1605144-10A	SAMPICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1605144-11A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1605144-12A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1605144-14A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1605144-15A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1605144-17A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1605144-13A PDS	PDS ICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1605144-13A MS	MS ICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1605144-13A MSD	MSD ICPMS_TSDOD1	5.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160526	CCV ICPMS_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	1104		CCB5-160526	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-160526	LCVLICPMS_TW	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160526	CCB ICPMS_TW	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3506		1605144-18A	SAMPICPMS_TSDOD1	5.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3507		1605144-19A	SAMPICPMS_TSDOD1	5.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3508		1605144-20A	SAMPICPMS_TSDOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3509		1605144-21A	SAMPICPMS_TSDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160526	CCV ICPMS_TW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160526	CCB ICPMS_TW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160526	LCVLICPMS_TW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160526	CCB ICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		IDL1-160526	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		IDL2-160526	CCB ICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		IDL3-160526	CCB ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		IDL4-160526	CCB ICPMS_TW	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		IDL5-160526	CCB ICPMS_TW	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		IDL6-160526	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		IDL7-160526	CCB ICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
137		Keyword		StandBy							
138		Keyword		SMPLEND	End of SMPL						
139		Keyword		End	End of Sequence						
140		Keyword		CCVBEG	Start of CCV						
141		Keyword		CCVEND	End of CCV						
142		Keyword		BLKBEG	Start of BLANK						
143		Keyword		BLKEND	End of BLANK						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
144		Keyword		ERRBEG	Start of ERRTERM						
145		Keyword		ERREND	End of ERRTERM						

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	KL	**BALANCE #:**	26
TEST DATE:	05/26/2016	**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**	3.9943	3.9863	**99.66**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		3.9791	3.9711	**99.28**		
3		3.9750	3.9671	**99.18**		
AVERAGE (MEAN)		**3.983**	**3.975**	**99.37**		**0.255**
						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	**0.50**	0.4971	0.4961	**99.22**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.4962	0.4952	**99.04**		
3		0.4950	0.4940	**98.80**		
AVERAGE (MEAN)		**0.496**	**0.495**	**99.02**		**0.212**
						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	**0.200**	0.2003	0.1999	**99.95**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.1994	0.1990	**99.50**		
3		0.1993	0.1989	**99.45**		
AVERAGE (MEAN)		**0.200**	**0.199**	**99.63**		**0.276**
						PASS

Karyn Lane 5/26/16
Analyst / Date

S. Hersch 05/31/2016
Review and Approved / Date

REVIEWED/APPROVED
By Sherri Herschmann at 10:44:06 AM, 5/31/2016

C:\Users\METALS\Desktop\Pipetter Accuracy Check- RO 3-29-2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/24/2016 9:15:49 AM**
Digestion: **Start: 5/24/2016 10:38:00 AM / Stop: 5/24/2016 3:35:00 PM**
Prep End Date: **5/24/2016 5:35:01 PM**

Prep Batch **75292** Prep Code: **3050_IDOD** Technician: **Will Boston**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #4
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605144-07A	Soil		1.05	50	47.619	1	of	1	
1605144-08A	Soil		1.01	50	49.505	1	of	1	
1605144-09A	Soil		1.12	50	44.643	1	of	1	
1605144-10A	Soil		1.04	50	48.077	1	of	1	
1605144-11A	Soil		1.09	50	45.872	1	of	1	
1605144-12A	Soil		1.03	50	48.544	1	of	1	
1605144-13A	Soil		1.16	50	43.103	1	of	1	
1605144-13A MS	Soil		1.12	50	44.643		of		
1605144-13A MSD	Soil		1.06	50	47.170		of		
1605144-13A PDS	Soil		1.16	50	43.103		of		
1605144-13A SD	Soil		1.16	50	43.103		of		
1605144-14A	Soil		1.05	50	47.619	1	of	1	
1605144-15A	Soil		1.04	50	48.077	1	of	1	
1605144-17A	Soil		1.19	50	42.017	1	of	1	
1605144-18A	Soil		1.03	50	48.544	1	of	1	
1605144-19A	Soil		1.18	50	42.373	1	of	1	
1605144-20A	Soil		1.14	50	43.860	1	of	1	
1605144-21A	Soil		1.16	50	43.103	1	of	1	
LCS-75292	Soil		1	50	50.000		of		
LCSD-75292	Soil		1	50	50.000		of		
MB-75292	Soil		1	50	50.000		of		

Started sample preparation day prior to digestion

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10136	Nitric Acid (Trace Metal Grade)	10	ml	01/10/2026
10137	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2026
10318	Hydrogen Peroxide, 30%	3	ml	11/30/2017

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-160519-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	08/17/2016
MET-SPIKE-160519-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/17/2016
MET-SPIKE-160520-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 12:00:00 PM**
Digestion: **Start: 5/17/2016 1:20:00 PM / Stop: 5/19/2016 8:30:00 AM**
Prep End Date: **5/19/2016 1:00:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75205** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605135-36A	Soil		0	0	#Num!		of	3	
	Extra subsampled for MS/MSD								
1605135-37A	Soil		0	0	#Num!	1	of	1	
1605135-38A	Soil		0	0	#Num!	1	of	1	
1605135-39A	Soil		0	0	#Num!	1	of	1	
1605135-40A	Soil		0	0	#Num!	1	of	1	
1605135-41A	Soil		0	0	#Num!	1	of	1	
1605135-42A	Soil		0	0	#Num!	1	of	1	
1605144-01A	Soil		0	0	#Num!	1	of	1	
1605144-02A	Soil		0	0	#Num!	1	of	1	
	Sieve only no subsampling hard clay								
1605144-03A	Soil		0	0	#Num!	1	of	1	
	Sieve only no subsampling hard clay								
1605144-04A	Soil		0	0	#Num!	1	of	1	
1605144-05A	Soil		0	0	#Num!	1	of	1	
	Sieve only no subsampling hard clay								
1605144-06A	Soil		0	0	#Num!	1	of	1	
	Sieve only no subsampling hard clay								
1605144-07A	Soil		0	0	#Num!	1	of	1	
1605144-08A	Soil		0	0	#Num!	1	of	1	
1605144-09A	Soil		0	0	#Num!	1	of	1	
1605144-10A	Soil		0	0	#Num!	1	of	1	
	Sieve only no subsampling hard clay								
1605144-11A	Soil		0	0	#Num!	1	of	1	
	Sieve only no subsampling hard clay								
1605144-12A	Soil		0	0	#Num!	1	of	1	

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 2:17:28 PM**
Digestion: **Start: 5/17/2016 5:00:00 PM / Stop: 5/18/2016 9:00:00 AM**
Prep End Date: **5/18/2016 10:00:00 AM**

Prep Factor Units: **mL/**

Prep Batch **75212** Prep Code: **ISM250_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605135-43A	Soil		0	0	#Num!	1 of 1	
Subsampled extra for MS/MSD							
1605135-44A	Soil		0	0	#Num!	1 of 1	
1605135-45A	Soil		0	0	#Num!	1 of 1	
1605144-13A	Soil		0	0	#Num!	1 of 1	
Subsampled extra MS/MSD							
1605144-14A	Soil		0	0	#Num!	1 of 1	
1605144-15A	Soil		0	0	#Num!	1 of 1	

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/23/2016 11:15:49 AM**
Digestion:
Prep End Date:

Prep Batch **75292** Prep Code: **3050_IDOD** Technician: **Will Boston** Prep Factor Units: mL/g

Equipment List
Hot Block #4
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605144-07A	Soil		1.05	50	50.000	1 of 1	
1605144-08A	Soil		1.01	50	50.000	1 of 1	
1605144-09A	Soil		1.12	50	50.000	1 of 1	
1605144-10A	Soil		1.04	50	50.000	1 of 1	
1605144-11A	Soil		1.09	50	50.000	1 of 1	
1605144-12A	Soil		1.03	50	50.000	1 of 1	
1605144-13A	Soil		1.16	50	50.000	1 of 1	
1605144-14A	Soil		1.05	50	50.000	1 of 1	
1605144-15A	Soil		1.04	50	50.000	1 of 1	
1605144-17A	Soil		1.19	50	50.000	1 of 1	
1605144-18A	Soil		1.03	50	50.000	1 of 1	
1605144-19A	Soil		1.18	50	50.000	1 of 1	
1605144-20A	Soil		1.14	50	50.000	1 of 1	
1605144-21A	Soil		1.16	50	50.000	1 of 1	
LCS-75292	Soil		1	50	50.000	of	
LCSD-75292	Soil		1	50	50.000	of	
MB-75292	Soil		1	50	50.000	of	
1605144-13A	MS		1.12				
1605144-13A	MSD		1.06				

REVIEWED/APPROVED
By Sherri Herschmann at 11:19:14 AM, 5/31/2016

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10136	Nitric Acid (Trace Metal Grade)	10	ml	01/10/2026
10137	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2026
10318	Hydrogen Peroxide, 30%	3	ml	10/29/2016

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-160519-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	08/17/2016
MET-SPIKE-160519-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/17/2016
MET-SPIKE-160520-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/18/2016

10:38 - 10:48
10:52 - 12:52
13:11 - 15:11
15:20 - 15:35

WBoston 05-24-16

Calibration Summary Report

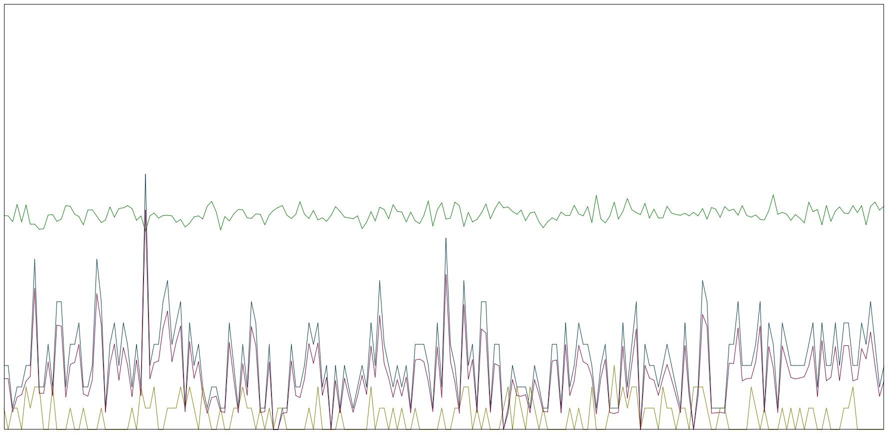
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: May 26 2016 12:20 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	May 26 2016 11:35 am	c:\icpchem\1\data\16e26l01.b\006calb.d\
L2-160526	May 26 2016 11:41 am	c:\icpchem\1\data\16e26l01.b\007cals.d\
L-160526	May 26 2016 11:47 am	c:\icpchem\1\data\16e26l01.b\008cals.d\
10X-160526	May 26 2016 11:53 am	c:\icpchem\1\data\16e26l01.b\009cals.d\
5X-160526	May 26 2016 12:00 pm	c:\icpchem\1\data\16e26l01.b\010cals.d\
2X-160526	May 26 2016 12:06 pm	c:\icpchem\1\data\16e26l01.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	0.3366	0.02913	1.01	254	499		2000	
Be	0.9998	0.08368	0.0005551	1.04	258	495	99%	--------	######
B	0.9999	0.06756	0.1378	1.13	255	523	105%	1,994	100%
Na	1.0000	0.2752	2.928	18.60	5,041	10,030	100%	24,980	100%
Mg	1.0000	0.1278	0.2399	20.28	4,922	10,020	100%	25,010	100%
Al	1.0000	0.03286	0.223	21.41	5,021	9,994	100%	--------	######
K	0.9999	0.07297	2.879	17.62	4,884	9,752	98%	25,130	101%
Ca	1.0000	0.008501	0.1555	18.59	4,930	10,140	101%	24,970	100%
Ti	1.0000	0.02844	0.00105	1.04	253	502	100%	1,999	100%
V	1.0000	1.192	0.1319	0.98	245	487	97%	2,004	100%
Cr	1.0000	1.555	0.05859	1.00	248	496	99%	2,001	100%
Mn	1.0000	0.6224	0.04795	1.02	255	504	101%	1,998	100%
Fe	1.0000	1.978	3.526	20.00	4,973	10,000	100%	--------	######
Co	0.9999	4.849	0.156	1.02	252	523	105%	1,994	100%
Ni	1.0000	1.456	0.1004	0.95	244	489	98%	2,004	100%
Cu	1.0000	3.942	0.2957	0.98	253	506	101%	1,998	100%
Zn	1.0000	0.3815	0.1666	1.02	261	511	102%	1,996	100%
As	1.0000	0.2183	0.01784	0.98	253	501	100%	1,999	100%
Se	1.0000	0.01243	0.005578	1.14	262	506	101%	1,997	100%
Sr	1.0000	0.303	0.03115	0.99	259	500	100%	1,999	100%
Mo	0.9999	0.05615	0.001224	0.95	240	481	96%	2,006	100%
Ag	0.9999	0.149	0.0009176	0.99	254	498	100%	--------	######
Cd	1.0000	0.03237	0.0006313	1.07	247	486	97%	2,004	100%
Sn	1.0000	0.08914	0.007554	0.96	246	516	103%	1,997	100%
Sb	0.9999	0.1041	0.003608	0.95	245	503	101%	--------	######
Ba	0.9999	0.04368	0.002479	0.94	238	476	95%	2,008	100%
Tl	1.0000	0.3286	0.00266	0.92	253	509	102%	1,998	100%
Pb	1.0000	0.4377	0.008346	0.97	249	510	102%	1,998	100%

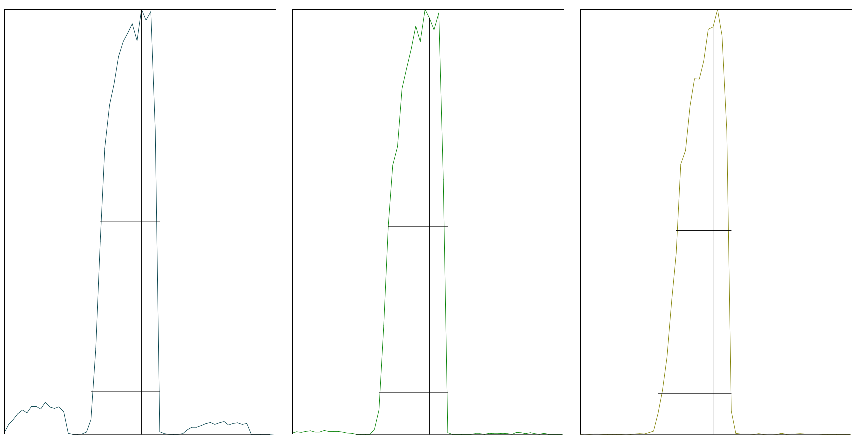
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.3100 sec
n: 200
Oxide: 156/140 0.337%
Doubly Charged: 70/140 2.927%

m/z	Range	Count	Mean	RSD%	Background
51	20	3.0	3.2	58.08	0.10
59	5,000	2622.0	2529.1	3.21	0.30
75	20	0.0	0.6	119.43	0.30
51/59	1	0.114%	0.128%	59.20	



m/z:	59	89	205
Height:	2,619	1,156	2,499
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.60
W-10%:	0.7500	0.7500	0.800

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : May 26, 2016 10:44:33
Printed : May 26, 2016 10:44:36

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 :	121
RF Matching :	1.6 V	Extract 2 :	-110 V	AMU Offset :	121
Smpl Depth :	9 mm	Omega Bias-ce :	-24 V	Axis Gain :	0.9993
Torch-H :	0 mm	Omega Lens-ce :	-2 V	Axis Offset :	-0.03
Torch-V :	0.5 mm	Cell Entrance :	-40 V	QP Bias :	-15 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 :	1740 V
Sample Pump :	--- rps	OctP RF :	170 V	Pulse HV :	1460 V
S/C Temp :	2 degC	OctP Bias :	-18 V		

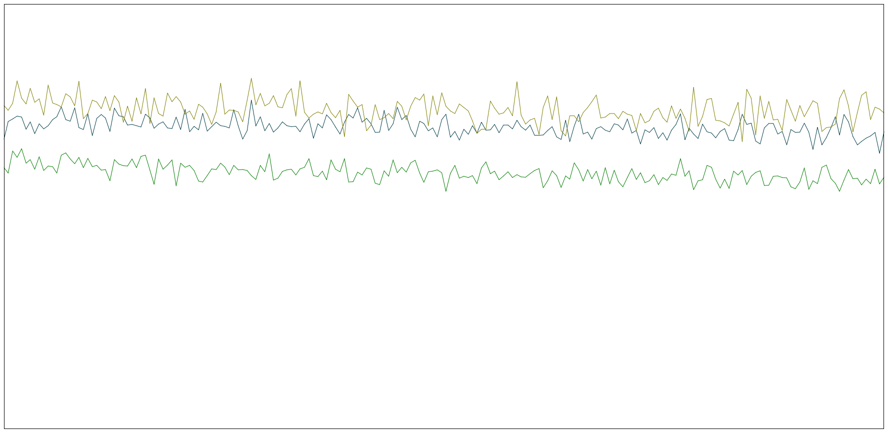
===Reaction Cell===

Reaction Mode :	ON				
H2 Gas :	0 mL/min	He Gas :	4.8 mL/min	Optional Gas :	--- %

Generated : May 26, 2016 10:44:33
Printed : May 26, 2016 10:44:38

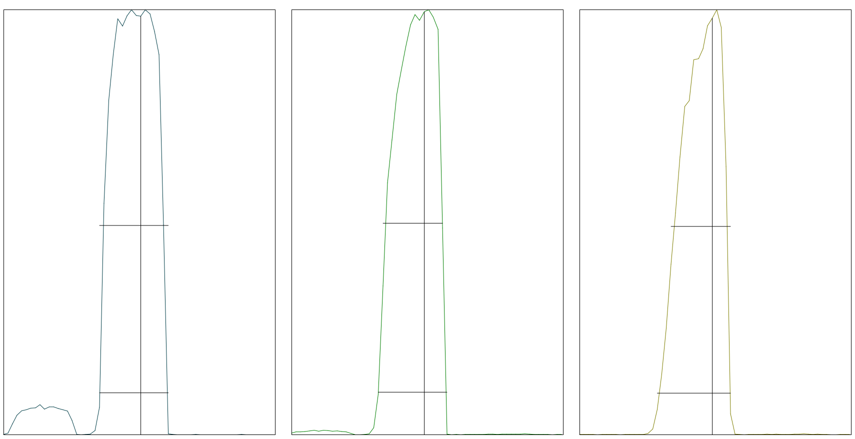
Tune Report

Tune File : nogas.u
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.8200 sec
n: 200
Oxide: 156/140 1.040%
Doubly Charged: 70/140 1.312%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	6992.0	7099.4	2.91	2.00
89	20,000	11841.0	12054.4	3.39	4.00
205	10,000	7437.0	7508.7	3.86	11.60
156/140	2	0.851%	1.014%	11.65	
70/140	2	1.169%	1.169%	10.03	
63	500	222.0	280.8	7.45	2.40
23	20,000	10169.0	10894.1	3.85	2.40



m/z:	7	89	205
Height:	6,839	11,728	7,449
Axis:	7.05	89.00	205.00
W-50%:	0.75	0.65	0.65
W-10%:	0.7500	0.7500	0.800

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

Generated : May 26, 2016 10:40:54
Printed : May 26, 2016 10:40:56

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	:	121
RF Matching	:	1.6 V	Extract 2	:	-110 V	AMU Offset	:	121
Smpl Depth	:	9 mm	Omega Bias-ce	:	-20 V	Axis Gain	:	0.9993
Torch-H	:	0 mm	Omega Lens-ce	:	-1 V	Axis Offset	:	-0.03
Torch-V	:	0.5 mm	Cell Entrance	:	-30 V	QP Bias	:	-1 V
Carrier Gas	:	1.2 L/min	QP Focus	:	4 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	:	1740 V
Sample Pump	:	--- rps	OctP RF	:	170 V	Pulse HV	:	1460 V
S/C Temp	:	2 degC	OctP Bias	:	-6 V			

===Reaction Cell===

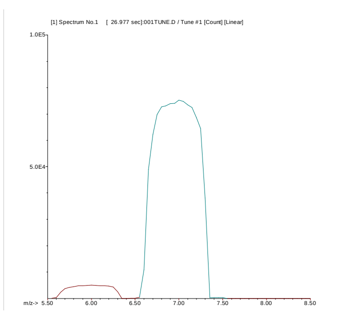
Reaction Mode	:	OFF						
H2 Gas	:	0 mL/min	He Gas	:	0 mL/min	Optional Gas	:	--- %

6020 QC Tune Report

Data File:	C:\ICPCHEM\1\DATA\16E26k00.B\001TUNE.D
Date Acquired:	May 26 2016 10:52 am
Acq. Method:	TN6020.M
Operator:	KL
Sample Name:	TUNE CHECK
Misc Info:	
Vial Number:	1301
Current Method:	C:\ICPCHEM\1\METHODS\TN6020.M

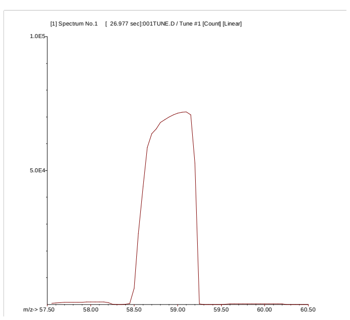
RSD (%)

Element	Actual	Required	Flag
7 Li	2.69	5.00	
59 Co	4.86	5.00	
115 In	2.79	5.00	
205 Tl	2.70	5.00	

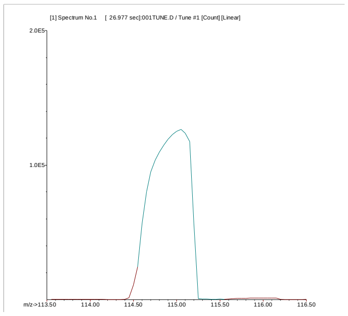


7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:

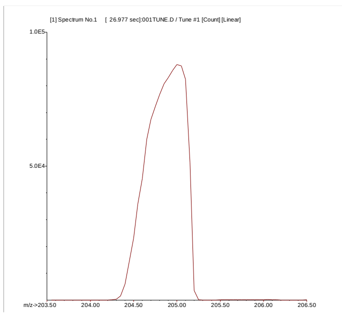
REVIEWED/APPROVED
By Sherri Herschmann at 11:22:22 AM, 5/31/2016



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:




```
115 In
```
Mass Calib.
```
  Actual:    115.00
  Required:  114.90 -  115.10
  Flag:
```
Peak Width
```
  Actual:      0.65
  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:
```

P/A Factor Tuning Report

Acquired:May 26 2016 10:49 am

Mass[amu]	Element	P/A Factor
6	Li	0.071167
23	Na	0.086629
24	Mg	0.091020
27	Al	0.094920
39	K	0.095510
44	Ca	Sensitivity too low
45	Sc	0.096377
47	Ti	Sensitivity too low
51	V	0.098935
52	Cr	0.101915
55	Mn	0.103383
59	Co	0.107147
60	Ni	0.109965
63	Cu	0.112207
66	Zn	0.111739
72	Ge	0.110602
75	As	0.109640
78	Se	Sensitivity too low
88	Sr	0.110320
95	Mo	0.109090
106	(Cd)	0.115897
107	Ag	Sensitivity too low
108	(Cd)	0.116123
111	Cd	0.117892
115	In	0.116952
118	Sn	0.116558
121	Sb	0.116308
137	Ba	Sensitivity too low
205	Tl	0.126999
206	(Pb)	0.126840
207	(Pb)	0.127005
208	Pb	0.126839
209	Bi	0.126647
238		0.125660

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1740 V
Pulse HV: 1460 V

Calibration Blank QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	BLANK STD 1
Operator:	KL	Instrument:	ICPMS3
Last Cal. Update:	May 26 2016 11:39 am		
Date Acquired:	May 26 2016 11:35 am		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	22.89	P	11.75	51.33
7	Li	2	45	642.26	P	12.62	1.96
9	Be	2	45	12.22	P	6.94	56.77
11	B	2	45	3037.17	P	36.06	1.19
23	Na	1	45	2469.24	P	95.33	3.86
24	Mg	1	45	202.23	P	32.89	16.26
27	Al	1	45	188.00	P	3.53	1.88
39	K	1	45	2428.12	P	89.25	3.68
44	Ca	2	45	3431.72	P	159.90	4.66
45	Sc	1	---	168636.09	P	1517.00	0.90
45	Sc	2	---	4411245.00	A	91060.00	2.06
47	Ti	1	45	0.89	P	0.77	86.60
51	V	1	45	111.11	P	10.36	9.32
51	V	2	---		P		
52	Cr	1	45	49.33	P	11.62	23.55
55	Mn	1	45	40.45	P	6.01	14.87
56	Fe	1	72	1777.94	P	176.90	9.95
59	Co	1	72	78.67	P	4.62	5.87
60	Ni	1	72	50.67	P	6.11	12.06
60	Ni	2	---		P		
63	Cu	1	72	149.34	P	19.37	12.97
63	Cu	2	---		P		
66	Zn	1	72	84.00	P	7.42	8.84
66	Zn	2	---		P		
72	Ge	1	---	100925.70	P	970.30	0.96
72	Ge	2	---		P		
75	As	1	72	9.00	P	0.38	4.28
78	Se	1	72	2.81	P	0.17	6.03
88	Sr	2	###	1017.86	P	16.44	1.62
95	Mo	2	###	40.00	P	0.00	0.00
107	Ag	2	###	30.00	P	3.33	11.11
111	Cd	2	###	20.61	P	10.46	50.75
115	In	2	---	6534497.00	A	74010.00	1.13
118	Sn	2	###	246.68	P	16.67	6.76
121	Sb	2	###	117.78	P	12.62	10.72
137	Ba	2	###	81.11	P	22.20	27.37
205	Tl	2	###	64.45	P	3.85	5.97
208	Pb	2	###	202.23	P	48.57	24.02
209	Bi	2	---	4845836.00	A	5263.00	0.11

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	L2-160526
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	May 26 2016 11:41 am		
Last Cal. Update:	May 26 2016 11:39 am		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-227.07	P	55.37	24.39	ISFail
7	Li	2	45	8054.00	P	134.90	1.67	
9	Be	2	45	1902.44	P	74.13	3.90	
11	B	2	45	4649.92	P	67.38	1.45	
23	Na	1	45	6889.97	P	45.29	0.66	
24	Mg	1	45	2425.90	P	75.00	3.09	
27	Al	1	45	793.37	P	9.33	1.18	
39	K	1	45	3566.22	P	30.98	0.87	
44	Ca	2	45	6817.75	P	166.80	2.45	
45	Sc	1	---	171268.80	P	1426.00	0.83	
45	Sc	2	---	4348096.00	A	24070.00	0.55	
47	Ti	1	45	26.22	P	8.15	31.07	
51	V	1	45	1112.07	P	34.64	3.11	
51	V	2	---		P			
52	Cr	1	45	1377.88	P	104.70	7.60	
55	Mn	1	45	584.91	P	26.14	4.47	
56	Fe	1	72	21962.82	P	531.10	2.42	
59	Co	1	72	2609.21	P	49.49	1.90	
60	Ni	1	72	758.70	P	17.33	2.28	
60	Ni	2	---		P			
63	Cu	1	72	2110.44	P	60.02	2.84	
63	Cu	2	---		P			
66	Zn	1	72	283.12	P	14.26	5.04	
66	Zn	2	---		P			
72	Ge	1	---	101930.60	P	160.20	0.16	
72	Ge	2	---		P			
75	As	1	72	117.78	P	1.93	1.64	
78	Se	1	72	10.04	P	0.74	7.37	
88	Sr	2	115	10552.80	P	188.60	1.79	
95	Mo	2	115	1743.53	P	58.13	3.33	
107	Ag	2	115	4742.24	P	236.60	4.99	
111	Cd	2	115	1129.57	P	79.02	7.00	
115	In	2	---	6399852.00	A	71650.00	1.12	
118	Sn	2	115	2970.51	P	140.00	4.71	
121	Sb	2	115	3295.05	P	126.20	3.83	
137	Ba	2	115	1392.37	P	63.02	4.53	
205	Tl	2	209	7480.56	P	22.20	0.30	
208	Pb	2	209	10592.39	P	243.70	2.30	
209	Bi	2	---	4892523.00	A	32760.00	0.67	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-227.07	24.39	22.89	-991.9	70 - 120	ISFail
45	Sc	1	171268.78	0.83	168636.11	101.6	70 - 120	
45	Sc	2	4348096.00	0.55	4411244.50	98.6	70 - 120	
72	Ge	1	101930.59	0.16	100925.69	101.0	70 - 120	
115	In	2	6399852.50	1.12	6534497.50	97.9	70 - 120	
209	Bi	2	4892523.00	0.67	4845836.50	101.0	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	L-160526
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	May 26 2016 11:47 am		
Last Cal. Update:	May 26 2016 11:45 am		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-2853.03	P	197.30	6.92	ISFail
7	Li	2	45	74406.89	P	1183.00	1.59	Fail
9	Be	2	45	18379.55	P	334.00	1.82	Fail
11	B	2	45	17512.86	P	404.30	2.31	Fail
23	Na	1	45	48760.43	P	422.10	0.87	Fail
24	Mg	1	45	21735.13	P	291.70	1.34	Fail
27	Al	1	45	5678.71	P	62.30	1.10	Fail
39	K	1	45	14016.23	P	113.90	0.81	Fail
44	Ca	2	45	39486.07	P	974.50	2.47	Fail
45	Sc	1	---	168489.80	P	862.70	0.51	
45	Sc	2	---	4346676.00	A	83690.00	1.93	
47	Ti	1	45	250.23	P	9.08	3.63	Fail
51	V	1	45	9816.04	P	119.80	1.22	Fail
51	V	2	---		P			
52	Cr	1	45	13241.91	P	131.80	1.00	Fail
55	Mn	1	45	5455.06	P	96.32	1.77	Fail
56	Fe	1	72	200825.91	P	2321.00	1.16	Fail
59	Co	1	72	24544.59	P	237.90	0.97	Fail
60	Ni	1	72	7264.92	P	109.80	1.51	Fail
60	Ni	2	---		P			
63	Cu	1	72	20467.45	P	153.30	0.75	Fail
63	Cu	2	---		P			
66	Zn	1	72	2187.79	P	49.01	2.24	Fail
66	Zn	2	---		P			
72	Ge	1	---	100347.00	P	757.50	0.75	
72	Ge	2	---		P			
75	As	1	72	1122.46	P	15.77	1.40	Fail
78	Se	1	72	69.44	P	2.46	3.54	Fail
88	Sr	2	115	95572.36	P	1410.00	1.48	Fail
95	Mo	2	115	17210.60	P	598.40	3.48	Fail
107	Ag	2	115	47745.14	P	876.10	1.84	Fail
111	Cd	2	115	10552.84	P	216.20	2.05	Fail
115	In	2	---	6494819.00	A	84050.00	1.29	
118	Sn	2	115	28959.69	P	472.00	1.63	Fail
121	Sb	2	115	32449.74	P	643.00	1.98	Fail
137	Ba	2	115	13570.54	P	272.20	2.01	Fail
205	Tl	2	209	77095.92	P	1656.00	2.15	Fail
208	Pb	2	209	103645.20	P	826.60	0.80	Fail
209	Bi	2	---	4924977.00	A	59300.00	1.20	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-2853.03	6.92	22.89	-12462.4	70 - 120	ISFail
45	Sc	1	168489.81	0.51	168636.11	99.9	70 - 120	
45	Sc	2	4346675.50	1.93	4411244.50	98.5	70 - 120	
72	Ge	1	100346.99	0.75	100925.69	99.4	70 - 120	
115	In	2	6494818.50	1.29	6534497.50	99.4	70 - 120	
209	Bi	2	4924977.00	1.20	4845836.50	101.6	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	10X-160526
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	May 26 2016 11:53 am		
Last Cal. Update:	May 26 2016 11:51 am		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-14495.79	P	241.50	1.67	ISFail
7	Li	2	45	368393.91	P	4734.00	1.29	Fail
9	Be	2	45	92563.86	P	1778.00	1.92	Fail
11	B	2	45	77851.37	P	1375.00	1.77	Fail
23	Na	1	45	229791.91	P	2959.00	1.29	Fail
24	Mg	1	45	105968.90	P	1539.00	1.45	Fail
27	Al	1	45	27241.77	P	477.30	1.75	Fail
39	K	1	45	60364.88	P	831.90	1.38	Fail
44	Ca	2	45	180640.00	P	4169.00	2.31	Fail
45	Sc	1	---	164793.30	P	1223.00	0.74	
45	Sc	2	---	4331415.00	A	63170.00	1.46	
47	Ti	1	45	1192.08	P	26.97	2.26	
51	V	1	45	48173.05	P	589.10	1.22	Fail
51	V	2	---		P			
52	Cr	1	45	64556.11	P	1446.00	2.24	
55	Mn	1	45	26149.18	P	521.40	1.99	Fail
56	Fe	1	72	980871.81	P	11120.00	1.13	
59	Co	1	72	121114.60	P	1407.00	1.16	
60	Ni	1	72	35624.92	P	346.90	0.97	
60	Ni	2	---		P			
63	Cu	1	72	99116.49	P	1273.00	1.28	
63	Cu	2	---		P			
66	Zn	1	72	10013.11	P	71.08	0.71	Fail
66	Zn	2	---		P			
72	Ge	1	---	97589.42	P	1162.00	1.19	
72	Ge	2	---		P			
75	As	1	72	5465.07	P	28.80	0.53	
78	Se	1	72	322.60	P	5.60	1.74	Fail
88	Sr	2	115	475911.41	P	12140.00	2.55	Fail
95	Mo	2	115	84947.17	P	986.10	1.16	Fail
107	Ag	2	115	236413.80	P	2317.00	0.98	Fail
111	Cd	2	115	51850.21	P	475.10	0.92	Fail
115	In	2	---	6447723.00	A	51790.00	0.80	
118	Sn	2	115	141358.50	P	2925.00	2.07	Fail
121	Sb	2	115	162336.09	P	3836.00	2.36	Fail
137	Ba	2	115	65999.50	P	2209.00	3.35	Fail
205	Tl	2	209	381669.81	P	6171.00	1.62	Fail
208	Pb	2	209	516578.59	P	8319.00	1.61	Fail
209	Bi	2	---	4918655.00	A	65340.00	1.33	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14495.79	1.67	22.89	-63319.6	70 - 120	ISFail
45	Sc	1	164793.33	0.74	168636.11	97.7	70 - 120	
45	Sc	2	4331414.50	1.46	4411244.50	98.2	70 - 120	
72	Ge	1	97589.41	1.19	100925.69	96.7	70 - 120	
115	In	2	6447723.00	0.80	6534497.50	98.7	70 - 120	
209	Bi	2	4918655.00	1.33	4845836.50	101.5	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	5X-160526
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	May 26 2016 12:00 pm		
Last Cal. Update:	May 26 2016 11:57 am		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-29158.50	P	1014.00	3.48	ISFail
7	Li	2	45	736902.38	A	19540.00	2.65	Fail
9	Be	2	45	185362.30	P	3536.00	1.91	Fail
11	B	2	45	149951.50	P	1692.00	1.13	Fail
23	Na	1	45	457975.81	P	3107.00	0.68	Fail
24	Mg	1	45	210458.50	P	2170.00	1.03	
27	Al	1	45	54325.29	P	728.60	1.34	Fail
39	K	1	45	118726.50	P	732.50	0.62	Fail
44	Ca	2	45	356693.19	P	8182.00	2.29	Fail
45	Sc	1	---	166716.70	P	655.10	0.39	
45	Sc	2	---	4306344.00	A	93420.00	2.17	
47	Ti	1	45	2353.15	P	46.59	1.98	
51	V	1	45	96531.47	P	2236.00	2.32	
51	V	2	---		P			
52	Cr	1	45	128789.00	P	1664.00	1.29	
55	Mn	1	45	52020.13	P	683.20	1.31	
56	Fe	1	72	1985262.00	A	20400.00	1.03	
59	Co	1	72	240217.80	P	3230.00	1.34	
60	Ni	1	72	70843.21	P	1119.00	1.58	
60	Ni	2	---		P			
63	Cu	1	72	198214.41	P	2267.00	1.14	
63	Cu	2	---		P			
66	Zn	1	72	19982.66	P	103.00	0.52	Fail
66	Zn	2	---		P			
72	Ge	1	---	97991.54	P	580.90	0.59	
72	Ge	2	---		P			
75	As	1	72	10856.13	P	111.90	1.03	
78	Se	1	72	642.72	P	8.49	1.32	Fail
88	Sr	2	115	963155.69	M	26940.00	2.80	Fail
95	Mo	2	115	171238.50	P	2895.00	1.69	Fail
107	Ag	2	115	473196.41	P	12300.00	2.60	Fail
111	Cd	2	115	102299.90	P	3009.00	2.94	Fail
115	In	2	---	6419535.00	A	40530.00	0.63	
118	Sn	2	115	280883.09	P	6245.00	2.22	Fail
121	Sb	2	115	324213.09	P	6272.00	1.93	Fail
137	Ba	2	115	130490.80	P	3322.00	2.55	Fail
205	Tl	2	209	749869.69	P	11560.00	1.54	Fail
208	Pb	2	209	1008207.00	P	16570.00	1.64	Fail
209	Bi	2	---	4780422.00	A	51650.00	1.08	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-29158.51	3.48	22.89	-127368.4	70 - 120	ISFail
45	Sc	1	166716.70	0.39	168636.11	98.9	70 - 120	
45	Sc	2	4306344.50	2.17	4411244.50	97.6	70 - 120	
72	Ge	1	97991.54	0.59	100925.69	97.1	70 - 120	
115	In	2	6419535.50	0.63	6534497.50	98.2	70 - 120	
209	Bi	2	4780421.50	1.08	4845836.50	98.7	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	2X-160526
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	May 26 2016 12:06 pm		
Last Cal. Update:	May 26 2016 12:03 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-70471.73	P	1437.00	2.04	ISFail
7	Li	2	45	1807047.00	A	16860.00	0.93	Fail
9	Be	2	45	456731.50	P	6546.00	1.43	
11	B	2	45	367061.69	P	6478.00	1.76	Fail
23	Na	1	45	1164363.00	A	21250.00	1.83	Fail
24	Mg	1	45	527160.50	P	10800.00	2.05	
27	Al	1	45	138352.09	P	1812.00	1.31	Fail
39	K	1	45	300885.81	P	1087.00	0.36	Fail
44	Ca	2	45	888808.13	M	40400.00	4.55	Fail
45	Sc	1	---	167494.09	P	951.50	0.57	
45	Sc	2	---	4224350.00	A	83120.00	1.97	
47	Ti	1	45	6029.12	P	35.66	0.59	
51	V	1	45	244170.91	P	2403.00	0.98	
51	V	2	---		A			
52	Cr	1	45	323235.91	P	2725.00	0.84	
55	Mn	1	45	133135.50	P	860.00	0.65	
56	Fe	1	72	4845755.00	A	30750.00	0.63	
59	Co	1	72	601062.69	P	4270.00	0.71	
60	Ni	1	72	175083.09	P	441.40	0.25	
60	Ni	2	---		P			
63	Cu	1	72	490695.69	P	3225.00	0.66	
63	Cu	2	---		P			
66	Zn	1	72	49171.62	P	699.30	1.42	
66	Zn	2	---		P			
72	Ge	1	---	98470.84	P	640.90	0.65	
72	Ge	2	---		P			
75	As	1	72	27200.44	P	121.40	0.45	
78	Se	1	72	1608.44	P	24.48	1.52	
88	Sr	2	115	2452718.00	A	20500.00	0.84	Fail
95	Mo	2	115	422343.31	P	6915.00	1.64	Fail
107	Ag	2	115	1184420.00	A	16580.00	1.40	
111	Cd	2	115	249780.50	P	5961.00	2.39	Fail
115	In	2	---	6257524.00	A	85220.00	1.36	
118	Sn	2	115	686210.38	P	12360.00	1.80	Fail
121	Sb	2	115	797247.63	P	16380.00	2.05	Fail
137	Ba	2	115	324773.69	P	6188.00	1.91	Fail
205	Tl	2	209	1958548.00	A	27100.00	1.38	
208	Pb	2	209	2565249.00	A	26460.00	1.03	Fail
209	Bi	2	---	4715737.00	A	21610.00	0.46	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-70471.73	2.04	22.89	-307830.3	70 - 120	ISFail
45	Sc	1	167494.09	0.57	168636.11	99.3	70 - 120	
45	Sc	2	4224349.50	1.97	4411244.50	95.8	70 - 120	
72	Ge	1	98470.84	0.65	100925.69	97.6	70 - 120	
115	In	2	6257524.00	1.36	6534497.50	95.8	70 - 120	
209	Bi	2	4715737.00	0.46	4845836.50	97.3	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	H-160526
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	May 26 2016 12:11 pm		
Last Cal. Update:	May 26 2016 12:09 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-132861.91	P	2177.00	1.64	ISFail
7	Li	2	45	3508284.00	A	38330.00	1.09	Fail
9	Be	2	45	864896.88	A	14120.00	1.63	
11	B	2	45	740353.19	A	29940.00	4.04	Fail
23	Na	1	45	2288264.00	A	6624.00	0.29	
24	Mg	1	45	1061258.00	A	7676.00	0.72	
27	Al	1	45	272175.41	P	4544.00	1.67	
39	K	1	45	591750.31	P	3637.00	0.61	Fail
44	Ca	2	45	1802629.00	A	28580.00	1.59	Fail
45	Sc	1	---	165642.50	P	288.60	0.17	
45	Sc	2	---	4175889.00	A	80940.00	1.94	
47	Ti	1	45	11821.35	P	81.54	0.69	
51	V	1	45	480969.41	P	5472.00	1.14	
51	V	2	---		A			
52	Cr	1	45	638365.69	P	6338.00	0.99	
55	Mn	1	45	259638.09	P	1946.00	0.75	
56	Fe	1	72	9520204.00	A	135800.00	1.43	
59	Co	1	72	1219065.00	A	11490.00	0.94	
60	Ni	1	72	342652.81	P	3298.00	0.96	
60	Ni	2	---		P			
63	Cu	1	72	958707.81	P	9060.00	0.95	
63	Cu	2	---		A			
66	Zn	1	72	93784.77	P	455.10	0.49	
66	Zn	2	---		P			
72	Ge	1	---	96193.00	P	109.10	0.11	
72	Ge	2	---		P			
75	As	1	72	52649.53	P	394.20	0.75	
78	Se	1	72	3029.27	P	32.02	1.06	
88	Sr	2	115	4711314.00	A	82860.00	1.76	Fail
95	Mo	2	115	839991.31	P	7998.00	0.95	Fail
107	Ag	2	115	2308572.00	A	22780.00	0.99	
111	Cd	2	115	488632.19	P	5254.00	1.08	Fail
115	In	2	---	6218405.00	A	37950.00	0.61	
118	Sn	2	115	1430087.00	A	11650.00	0.81	Fail
121	Sb	2	115	1628869.00	A	17120.00	1.05	Fail
137	Ba	2	115	645862.81	P	7157.00	1.11	Fail
205	Tl	2	209	3879082.00	A	39070.00	1.01	
208	Pb	2	209	5179257.00	A	49440.00	0.95	
209	Bi	2	---	4639222.00	A	40220.00	0.87	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-132861.92	1.64	22.89	-580359.3	70 - 120	ISFail
45	Sc	1	165642.52	0.17	168636.11	98.2	70 - 120	
45	Sc	2	4175889.00	1.94	4411244.50	94.7	70 - 120	
72	Ge	1	96193.00	0.11	100925.69	95.3	70 - 120	
115	In	2	6218405.50	0.61	6534497.50	95.2	70 - 120	
209	Bi	2	4639222.00	0.87	4845836.50	95.7	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	H2-160526
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	May 26 2016 12:17 pm		
Last Cal. Update:	May 26 2016 12:15 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-509995.91	P	3854.00	0.76	ISFail
7	Li	2	45	13441910.00	A	26400.00	0.20	
9	Be	2	45	3154331.00	A	49580.00	1.57	
11	B	2	45	2692521.00	A	28860.00	1.07	Fail
23	Na	1	45	5413152.00	A	15890.00	0.29	
24	Mg	1	45	2516737.00	A	12710.00	0.51	
27	Al	1	45	1090.73	P	27.36	2.51	Fail
39	K	1	45	1445588.00	A	6917.00	0.48	Fail
44	Ca	2	45	4240984.00	A	37070.00	0.87	Fail
45	Sc	1	---	157418.30	P	226.70	0.14	
45	Sc	2	---	3993967.00	A	47680.00	1.19	
47	Ti	1	45	44753.04	P	785.50	1.76	
51	V	1	45	1879829.00	A	10140.00	0.54	
51	V	2	---		A			
52	Cr	1	45	2450212.00	A	23830.00	0.97	
55	Mn	1	45	978944.00	M	9552.00	0.98	
56	Fe	1	72	12968.46	P	1113.00	8.58	Fail
59	Co	1	72	4393587.00	A	55010.00	1.25	
60	Ni	1	72	1325923.00	A	13450.00	1.01	
60	Ni	2	---		A			
63	Cu	1	72	3579196.00	A	44960.00	1.26	
63	Cu	2	---		A			
66	Zn	1	72	346018.81	P	1461.00	0.42	
66	Zn	2	---		A			
72	Ge	1	---	90882.19	P	416.00	0.46	
72	Ge	2	---		P			
75	As	1	72	198315.59	P	1161.00	0.59	
78	Se	1	72	11280.52	P	62.48	0.55	
88	Sr	2	115	17988920.00	A	164700.00	0.92	Fail
95	Mo	2	115	3345117.00	A	36480.00	1.09	
107	Ag	2	115	2218.19	P	500.50	22.56	Fail
111	Cd	2	115	1926422.00	A	21080.00	1.09	
115	In	2	---	5939000.00	A	10480.00	0.18	
118	Sn	2	115	5285574.00	A	43870.00	0.83	Fail
121	Sb	2	115	2279.25	P	433.00	19.00	Fail
137	Ba	2	115	2605059.00	A	25600.00	0.98	
205	Tl	2	209	14883310.00	A	84140.00	0.57	
208	Pb	2	209	19828910.00	A	107100.00	0.54	
209	Bi	2	---	4534559.00	A	31890.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-509995.94	0.76	22.89	#########	70 - 120	ISFail
45	Sc	1	157418.30	0.14	168636.11	93.3	70 - 120	
45	Sc	2	3993967.00	1.19	4411244.50	90.5	70 - 120	
72	Ge	1	90882.19	0.46	100925.69	90.0	70 - 120	
115	In	2	5939000.00	0.18	6534497.50	90.9	70 - 120	
209	Bi	2	4534559.00	0.70	4845836.50	93.6	70 - 120	

ICSA QC Report C:\ICPCHEM\1\DATA\16E26l01.B\016ICSA.D\016ICSA.D#

Date Acquired:	May 26 2016 12:35 pm	Sample Name:	ICSA-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.488	ppb	5.16	8.00	5.00	
9	Be	2	45	0.207	ppb	8.66	0.32	0.80	
11	B	2	45	8.103	ppb	4.68	30.00	30.00	
23	Na	1	45	94780.000	ppb	1.74	#######	#######	
24	Mg	1	45	91940.000	ppb	0.92	#######	#######	
27	Al	1	45	100900.000	ppb	0.60	#######	#######	
39	K	1	45	95210.000	ppb	0.61	#######	#######	
44	Ca	2	45	94710.000	ppb	3.54	#######	#######	
47	Ti	1	45	2017.000	ppb	1.73	10.00	10.00	
51	V	1	45	0.289	ppb	2.68	10.00	10.00	
52	Cr	1	45	0.693	ppb	3.53	8.00	5.00	
55	Mn	1	45	2.089	ppb	4.64	8.00	10.00	
56	Fe	1	72	96900.000	ppb	1.50	#######	#######	
59	Co	1	72	0.829	ppb	1.33	8.00	10.00	
60	Ni	1	72	0.727	ppb	2.73	8.00	10.00	
63	Cu	1	72	0.777	ppb	1.44	8.00	10.00	
66	Zn	1	72	1.797	ppb	6.04	10.00	5.00	
75	As	1	72	0.992	ppb	4.03	4.00	5.00	
78	Se	1	72	0.569	ppb	13.73	2.00	5.00	
88	Sr	2	115	1.647	ppb	3.48	10.00	10.00	
95	Mo	2	115	1965.000	ppb	2.02	8.00	5.00	
107	Ag	2	115	0.181	ppb	4.24	0.80	2.00	
111	Cd	2	115	0.448	ppb	25.55	1.20	1.00	
118	Sn	2	115	0.635	ppb	6.10	10.00	10.00	
121	Sb	2	115	0.434	ppb	1.84	4.00	2.50	
137	Ba	2	115	0.539	ppb	5.83	8.00	10.00	
205	Tl	2	209	0.366	ppb	8.02	4.00	1.50	
208	Pb	2	209	0.664	ppb	4.93	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-55.73	18.57	22.89	-243.4	70 - 120	ISFail
45	Sc	1	159654.55	0.29	168636.11	94.7	70 - 120	
45	Sc	2	3995579.80	2.64	4411244.50	90.6	70 - 120	
72	Ge	1	90761.45	0.08	100925.69	89.9	70 - 120	
115	In	2	5758946.00	1.54	6534497.50	88.1	70 - 120	
209	Bi	2	4107273.30	0.60	4845836.50	84.8	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\017ICSB.D\017ICSB.D#

Date Acquired:	May 26 2016 12:41 pm	Sample Name:	ICSAB-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Flag
7	Li	2	45	0.36	ppb	4.26	---	80 -	120	
9	Be	2	45	0.13	ppb	12.74	---	80 -	120	
11	B	2	45	5.09	ppb	5.00	---	80 -	120	
23	Na	1	45	95160.00	ppb	0.97	100000.00	80 -	120	
24	Mg	1	45	90010.00	ppb	0.62	100000.00	80 -	120	
27	Al	1	45	99030.00	ppb	1.45	100000.00	80 -	120	
39	K	1	45	94510.00	ppb	0.77	100000.00	80 -	120	
44	Ca	2	45	94940.00	ppb	4.19	100000.00	80 -	120	
47	Ti	1	45	2001.00	ppb	0.31	---	80 -	120	
51	V	1	45	39.17	ppb	1.12	40.00	80 -	120	
52	Cr	1	45	20.64	ppb	1.72	20.00	80 -	120	
55	Mn	1	45	20.00	ppb	2.83	20.00	80 -	120	
56	Fe	1	72	95770.00	ppb	1.88	100000.00	80 -	120	
59	Co	1	72	40.41	ppb	1.44	40.00	80 -	120	
60	Ni	1	72	35.96	ppb	1.69	40.00	80 -	120	
63	Cu	1	72	19.75	ppb	0.58	20.00	80 -	120	
66	Zn	1	72	19.01	ppb	2.90	20.00	80 -	120	
75	As	1	72	19.93	ppb	0.69	20.00	80 -	120	
78	Se	1	72	20.40	ppb	1.87	20.00	80 -	120	
88	Sr	2	115	1.18	ppb	2.52	---	80 -	120	
95	Mo	2	115	1968.00	ppb	2.45	---	80 -	120	
107	Ag	2	115	18.18	ppb	3.39	20.00	80 -	120	
111	Cd	2	115	9.15	ppb	1.78	10.00	80 -	120	
118	Sn	2	115	0.56	ppb	3.69	---	80 -	120	
121	Sb	2	115	0.07	ppb	8.90	---	80 -	120	
137	Ba	2	115	0.55	ppb	11.05	---	80 -	120	
205	Tl	2	209	0.20	ppb	13.15	---	80 -	120	
208	Pb	2	209	0.46	ppb	4.54	---	80 -	120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-39.15	34.94	22.89	-171.0	70 -	120	ISFail
45	Sc	1	159302.56	0.39	168636.11	94.5	70 -	120	
45	Sc	2	3837165.80	3.82	4411244.50	87.0	70 -	120	
72	Ge	1	90530.78	0.25	100925.69	89.7	70 -	120	
115	In	2	5628280.50	2.65	6534497.50	86.1	70 -	120	
209	Bi	2	4071041.30	0.76	4845836.50	84.0	70 -	120	

CCV QC Report C:\ICPCHEM\1\DATA\16E26l01.B\020ICV.D\020ICV.D#

Date Acquired:	May 26 2016 12:59 pm	Sample Name:	ICV1-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	116.70	ppb	2.28	100.00	90 -	110	116.7	Fail
9	Be	2	45	111.30	ppb	2.03	100.00	90 -	110	111.3	Fail
11	B	2	45	112.50	ppb	1.13	100.00	90 -	110	112.5	Fail
23	Na	1	45	2651.00	ppb	0.27	2500.00	90 -	110	106.0	
24	Mg	1	45	2587.00	ppb	1.33	2500.00	90 -	110	103.5	
27	Al	1	45	2540.00	ppb	1.23	2500.00	90 -	110	101.6	
39	K	1	45	2515.00	ppb	0.34	2500.00	90 -	110	100.6	
44	Ca	2	45	2446.00	ppb	1.10	2500.00	90 -	110	97.8	
47	Ti	1	45	101.20	ppb	1.02	100.00	90 -	110	101.2	
51	V	1	45	100.50	ppb	1.11	100.00	90 -	110	100.5	
52	Cr	1	45	104.60	ppb	1.59	100.00	90 -	110	104.6	
55	Mn	1	45	99.70	ppb	1.27	100.00	90 -	110	99.7	
56	Fe	1	72	2640.00	ppb	1.67	2500.00	90 -	110	105.6	
59	Co	1	72	104.20	ppb	0.99	100.00	90 -	110	104.2	
60	Ni	1	72	100.40	ppb	1.16	100.00	90 -	110	100.4	
63	Cu	1	72	102.70	ppb	0.48	100.00	90 -	110	102.7	
66	Zn	1	72	105.10	ppb	1.21	100.00	90 -	110	105.1	
75	As	1	72	101.10	ppb	0.52	100.00	90 -	110	101.1	
78	Se	1	72	99.09	ppb	1.32	100.00	90 -	110	99.1	
88	Sr	2	115	98.66	ppb	1.92	100.00	90 -	110	98.7	
95	Mo	2	115	93.46	ppb	2.24	100.00	90 -	110	93.5	
107	Ag	2	115	97.69	ppb	2.31	100.00	90 -	110	97.7	
111	Cd	2	115	97.19	ppb	0.90	100.00	90 -	110	97.2	
118	Sn	2	115	101.70	ppb	2.04	100.00	90 -	110	101.7	
121	Sb	2	115	99.96	ppb	2.08	100.00	90 -	110	100.0	
137	Ba	2	115	97.26	ppb	1.52	100.00	90 -	110	97.3	
205	Tl	2	209	96.44	ppb	1.44	100.00	90 -	110	96.4	
208	Pb	2	209	98.21	ppb	0.88	100.00	90 -	110	98.2	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-12468.67	9.71	22.89	-54464.9	70 -	120	ISFail
45	Sc	1		161320.23	0.40	168636.11	95.7	70 -	120	
45	Sc	2		3646372.80	2.00	4411244.50	82.7	70 -	120	
72	Ge	1		95107.23	0.29	100925.69	94.2	70 -	120	
115	In	2		5797043.50	1.89	6534497.50	88.7	70 -	120	
209	Bi	2		4730840.00	1.04	4845836.50	97.6	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\021_ICB.D\021_ICB.D#

Date Acquired:	May 26 2016 01:05 pm	Sample Name:	ICB1-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.20	ppb	6.02	2.00	
9	Be	2	45	0.09	ppb	23.17	0.40	
11	B	2	45	2.02	ppb	3.90	10.00	
23	Na	1	45	16.05	ppb	7.98	50.00	
24	Mg	1	45	10.42	ppb	19.58	50.00	
27	Al	1	45	9.38	ppb	7.12	50.00	
39	K	1	45	11.87	ppb	4.15	50.00	
44	Ca	2	45	6.67	ppb	2.93	50.00	
47	Ti	1	45	0.28	ppb	26.96	4.00	
51	V	1	45	0.10	ppb	13.87	4.00	
52	Cr	1	45	0.11	ppb	18.55	2.00	
55	Mn	1	45	0.23	ppb	6.86	2.00	
56	Fe	1	72	10.06	ppb	20.74	50.00	
59	Co	1	72	0.11	ppb	19.35	2.00	
60	Ni	1	72	0.15	ppb	13.66	2.00	
63	Cu	1	72	0.17	ppb	13.23	2.00	
66	Zn	1	72	0.24	ppb	9.26	4.00	
75	As	1	72	0.14	ppb	13.25	2.00	
78	Se	1	72	0.10	ppb	15.23	0.60	
88	Sr	2	115	0.06	ppb	6.44	4.00	
95	Mo	2	115	0.28	ppb	16.31	2.00	
107	Ag	2	115	0.06	ppb	6.96	0.40	
111	Cd	2	115	0.07	ppb	19.79	0.40	
118	Sn	2	115	0.14	ppb	4.65	20.00	
121	Sb	2	115	0.06	ppb	15.39	2.00	
137	Ba	2	115	0.05	ppb	21.69	2.00	
205	Tl	2	209	0.17	ppb	8.63	2.00	
208	Pb	2	209	0.11	ppb	10.70	0.40	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-0.29	######	22.89	-1.3	70 - 120	ISFail
45	Sc	1		166252.50	0.87	168636.11	98.6	70 - 120	
45	Sc	2		3717545.80	1.65	4411244.50	84.3	70 - 120	
72	Ge	1		98903.38	0.13	100925.69	98.0	70 - 120	
115	In	2		5904958.00	1.54	6534497.50	90.4	70 - 120	
209	Bi	2		4901903.50	1.06	4845836.50	101.2	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\022LCVL.D\022LCVL.D#

Date Acquired:	May 26 2016 01:11 pm	Sample Name:	ILCVL-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.95	ppb	1.75	5.00	70 -	130	239.0	Fail
9	Be	2	45	1.12	ppb	2.80	1.00	70 -	130	112.1	
11	B	2	45	22.52	ppb	4.16	20.00	70 -	130	112.6	
23	Na	1	45	113.00	ppb	1.08	100.00	70 -	130	113.0	
24	Mg	1	45	107.20	ppb	2.11	100.00	70 -	130	107.2	
27	Al	1	45	107.40	ppb	3.20	100.00	70 -	130	107.4	
39	K	1	45	102.60	ppb	3.48	100.00	70 -	130	102.6	
44	Ca	2	45	104.90	ppb	5.35	100.00	70 -	130	104.9	
47	Ti	1	45	5.32	ppb	8.80	5.00	70 -	130	106.5	
51	V	1	45	1.05	ppb	3.85	1.00	70 -	130	104.9	
52	Cr	1	45	5.28	ppb	1.08	5.00	70 -	130	105.6	
55	Mn	1	45	5.12	ppb	2.37	5.00	70 -	130	102.5	
56	Fe	1	72	106.60	ppb	1.76	100.00	70 -	130	106.6	
59	Co	1	72	5.12	ppb	1.74	5.00	70 -	130	102.3	
60	Ni	1	72	5.08	ppb	4.92	5.00	70 -	130	101.6	
63	Cu	1	72	5.23	ppb	1.80	5.00	70 -	130	104.6	
66	Zn	1	72	5.29	ppb	4.78	5.00	70 -	130	105.8	
75	As	1	72	5.18	ppb	0.63	5.00	70 -	130	103.7	
78	Se	1	72	5.51	ppb	5.23	5.00	70 -	130	110.2	
88	Sr	2	115	4.87	ppb	2.71	5.00	70 -	130	97.4	
95	Mo	2	115	4.67	ppb	2.33	5.00	70 -	130	93.3	
107	Ag	2	115	2.01	ppb	1.55	2.00	70 -	130	100.5	
111	Cd	2	115	1.03	ppb	8.17	1.00	70 -	130	102.7	
118	Sn	2	115	5.07	ppb	5.15	5.00	70 -	130	101.3	
121	Sb	2	115	2.02	ppb	5.60	2.00	70 -	130	101.1	
137	Ba	2	115	4.93	ppb	1.99	5.00	70 -	130	98.5	
205	Tl	2	209	0.99	ppb	4.97	1.00	70 -	130	98.9	
208	Pb	2	209	1.01	ppb	2.23	1.00	70 -	130	100.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1241.10	1.60	22.89	-5421.3	70 -	120	ISFail
45	Sc	1	162653.64	0.57	168636.11	96.5	70 -	120	
45	Sc	2	3682736.30	1.79	4411244.50	83.5	70 -	120	
72	Ge	1	96966.94	0.14	100925.69	96.1	70 -	120	
115	In	2	5879880.50	1.74	6534497.50	90.0	70 -	120	
209	Bi	2	4872015.50	1.57	4845836.50	100.5	70 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\023__PB.D\023__PB.D#

Date Acquired:	May 26 2016 01:17 pm	Sample Name:	MB-75258
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.149	ppb	5.47	2.0	8.00	
9	Be	2	45	0.030	ppb	23.31	0.4	1.20	
11	B	2	45	0.943	ppb	2.73	10.0	30.00	
23	Na	1	45	15.720	ppb	0.74	50.0	#####	
24	Mg	1	45	30.790	ppb	3.89	50.0	#####	
27	Al	1	45	81.620	ppb	2.64	50.0	#####	J
39	K	1	45	6.372	ppb	4.12	50.0	#####	
44	Ca	2	45	103.800	ppb	2.97	50.0	#####	J
47	Ti	1	45	6.569	ppb	14.00	4.0	10.00	J
51	V	1	45	0.023	ppb	10.39	4.0	10.00	
52	Cr	1	45	0.306	ppb	4.15	2.0	8.00	
55	Mn	1	45	0.119	ppb	7.85	2.0	8.00	
56	Fe	1	72	6.915	ppb	5.71	50.0	#####	
59	Co	1	72	0.031	ppb	3.48	2.0	8.00	
60	Ni	1	72	0.299	ppb	4.47	2.0	8.00	
63	Cu	1	72	0.170	ppb	3.41	2.0	8.00	
66	Zn	1	72	10.930	ppb	1.93	4.0	10.00	Fail
75	As	1	72	0.031	ppb	10.30	2.0	4.00	
78	Se	1	72	-0.052	ppb	21.82	0.6	2.00	
88	Sr	2	115	0.106	ppb	1.30	4.0	10.00	
95	Mo	2	115	0.116	ppb	14.01	2.0	8.00	
107	Ag	2	115	0.015	ppb	21.73	0.4	0.80	
111	Cd	2	115	0.009	ppb	14.44	0.4	1.20	
118	Sn	2	115	4.075	ppb	2.41	20.0	40.00	
121	Sb	2	115	0.006	ppb	6.96	2.0	4.00	
137	Ba	2	115	0.054	ppb	11.62	2.0	8.00	
205	Tl	2	209	0.043	ppb	7.35	2.0	4.00	
208	Pb	2	209	0.074	ppb	2.47	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-1.37	######	22.89	-6.0	70 - 120	ISFail
45	Sc	1		163136.64	0.69	168636.11	96.7	70 - 120	
45	Sc	2		3735391.80	1.31	4411244.50	84.7	70 - 120	
72	Ge	1		94768.16	0.16	100925.69	93.9	70 - 120	
115	In	2		5955899.50	1.58	6534497.50	91.1	70 - 120	
209	Bi	2		4976295.50	0.60	4845836.50	102.7	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\024_LCS.D\024_LCS.D#

Date Acquired:	May 26 2016 01:23 pm	Sample Name:	LCS-75258
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	238.70	ppb	1.25	200.00	80 -	120	119.4	
9	Be	2	45	216.40	ppb	1.38	200.00	80 -	120	108.2	
11	B	2	45	210.80	ppb	2.17	200.00	80 -	120	105.4	
23	Na	1	45	5328.00	ppb	1.29	1000.00	80 -	120	532.8	Fail
24	Mg	1	45	5117.00	ppb	1.63	1000.00	80 -	120	511.7	Fail
27	Al	1	45	1010.00	ppb	2.08	1000.00	80 -	120	101.0	
39	K	1	45	4979.00	ppb	1.17	1000.00	80 -	120	497.9	Fail
44	Ca	2	45	4955.00	ppb	2.02	1000.00	80 -	120	495.5	Fail
47	Ti	1	45	202.70	ppb	0.31	200.00	80 -	120	101.4	
51	V	1	45	198.40	ppb	2.08	200.00	80 -	120	99.2	
52	Cr	1	45	203.60	ppb	1.47	200.00	80 -	120	101.8	
55	Mn	1	45	203.90	ppb	1.32	200.00	80 -	120	102.0	
56	Fe	1	72	1057.00	ppb	1.29	1000.00	80 -	120	105.7	
59	Co	1	72	209.60	ppb	1.38	200.00	80 -	120	104.8	
60	Ni	1	72	203.80	ppb	1.36	200.00	80 -	120	101.9	
63	Cu	1	72	209.20	ppb	1.20	200.00	80 -	120	104.6	
66	Zn	1	72	205.30	ppb	2.09	200.00	80 -	120	102.7	
75	As	1	72	197.20	ppb	0.52	200.00	80 -	120	98.6	
78	Se	1	72	192.90	ppb	2.84	200.00	80 -	120	96.5	
88	Sr	2	115	202.70	ppb	1.50	200.00	80 -	120	101.4	
95	Mo	2	115	185.70	ppb	1.46	200.00	80 -	120	92.9	
107	Ag	2	115	194.00	ppb	1.95	200.00	80 -	120	97.0	
111	Cd	2	115	191.60	ppb	2.10	200.00	80 -	120	95.8	
118	Sn	2	115	204.30	ppb	1.45	200.00	80 -	120	102.2	
121	Sb	2	115	192.60	ppb	1.90	200.00	80 -	120	96.3	
137	Ba	2	115	192.00	ppb	2.05	200.00	80 -	120	96.0	
205	Tl	2	209	207.30	ppb	2.03	200.00	80 -	120	103.7	
208	Pb	2	209	198.60	ppb	1.38	200.00	80 -	120	99.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-56825.68	3.01	22.89	-248222.5	70 -	120	ISFail
45	Sc	1	157769.45	0.57	168636.11	93.6	70 -	120	
45	Sc	2	3668085.80	2.14	4411244.50	83.2	70 -	120	
72	Ge	1	91421.31	0.77	100925.69	90.6	70 -	120	
115	In	2	5832783.00	2.07	6534497.50	89.3	70 -	120	
209	Bi	2	4696745.00	0.26	4845836.50	96.9	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\025_LCS.D\025_LCS.D#

Date Acquired:	May 26 2016 01:29 pm	Sample Name:	LCSD-75258
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	242.50	ppb	0.84	200.00	80 -	120	121.3	Fail
9	Be	2	45	221.70	ppb	2.04	200.00	80 -	120	110.9	
11	B	2	45	218.20	ppb	2.60	200.00	80 -	120	109.1	
23	Na	1	45	5515.00	ppb	1.39	1000.00	80 -	120	551.5	Fail
24	Mg	1	45	5252.00	ppb	1.43	1000.00	80 -	120	525.2	Fail
27	Al	1	45	1043.00	ppb	2.67	1000.00	80 -	120	104.3	
39	K	1	45	5091.00	ppb	0.14	1000.00	80 -	120	509.1	Fail
44	Ca	2	45	5014.00	ppb	1.96	1000.00	80 -	120	501.4	Fail
47	Ti	1	45	210.60	ppb	2.18	200.00	80 -	120	105.3	
51	V	1	45	206.80	ppb	1.72	200.00	80 -	120	103.4	
52	Cr	1	45	210.90	ppb	1.26	200.00	80 -	120	105.5	
55	Mn	1	45	212.00	ppb	1.66	200.00	80 -	120	106.0	
56	Fe	1	72	1081.00	ppb	1.52	1000.00	80 -	120	108.1	
59	Co	1	72	215.90	ppb	1.10	200.00	80 -	120	108.0	
60	Ni	1	72	209.70	ppb	1.40	200.00	80 -	120	104.9	
63	Cu	1	72	216.00	ppb	1.85	200.00	80 -	120	108.0	
66	Zn	1	72	213.60	ppb	0.97	200.00	80 -	120	106.8	
75	As	1	72	202.60	ppb	1.05	200.00	80 -	120	101.3	
78	Se	1	72	197.40	ppb	0.94	200.00	80 -	120	98.7	
88	Sr	2	115	204.90	ppb	1.76	200.00	80 -	120	102.5	
95	Mo	2	115	188.10	ppb	1.50	200.00	80 -	120	94.1	
107	Ag	2	115	195.80	ppb	1.44	200.00	80 -	120	97.9	
111	Cd	2	115	194.00	ppb	2.03	200.00	80 -	120	97.0	
118	Sn	2	115	206.40	ppb	1.32	200.00	80 -	120	103.2	
121	Sb	2	115	195.60	ppb	1.69	200.00	80 -	120	97.8	
137	Ba	2	115	195.60	ppb	2.06	200.00	80 -	120	97.8	
~~205~~	~~Tl~~	2	209	211.40	ppb	1.86	200.00	80 -	120	105.7	
208	Pb	2	209	202.30	ppb	1.86	200.00	80 -	120	101.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-57068.63	1.31	22.89	-249283.7	70 -	120	ISFail
45	Sc	1	154398.14	1.45	168636.11	91.6	70 -	120	
45	Sc	2	3630068.00	1.80	4411244.50	82.3	70 -	120	
72	Ge	1	90439.00	0.92	100925.69	89.6	70 -	120	
115	In	2	5841645.50	2.05	6534497.50	89.4	70 -	120	
209	Bi	2	4662055.00	0.53	4845836.50	96.2	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\028DT1.D\028DT1.D#

Date Acquired:	May 26 2016 01:48 pm	Sample Name:	1605121-43A SD
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	11.53	ppb	3.34	-689.42	90 - 110	-8.4	
9	Be	2	45	0.43	ppb	4.59	1.76	90 - 110	121.5	
11	B	2	45	21.10	ppb	1.70	91.48	90 - 110	115.3	
23	Na	1	45	3332.00	ppb	2.48	16280.00	90 - 110	102.3	GOOD
24	Mg	1	45	2078.00	ppb	3.01	10170.00	90 - 110	102.2	GOOD
27	Al	1	45	6325.00	ppb	4.10	31200.00	90 - 110	101.4	GOOD
39	K	1	45	1341.00	ppb	2.69	6647.00	90 - 110	100.9	GOOD
44	Ca	2	45	95650.00	ppb	2.41	478100.00	90 - 110	100.0	GOOD
47	Ti	1	45	15.30	ppb	3.72	72.07	90 - 110	106.1	GOOD
51	V	1	45	9.54	ppb	4.32	45.92	90 - 110	103.9	GOOD
52	Cr	1	45	5.81	ppb	3.90	27.05	90 - 110	107.4	GOOD
55	Mn	1	45	31.33	ppb	3.58	151.90	90 - 110	103.1	GOOD
56	Fe	1	72	9798.00	ppb	2.98	48760.00	90 - 110	100.5	GOOD
59	Co	1	72	2.58	ppb	1.43	12.51	90 - 110	103.2	GOOD
60	Ni	1	72	4.13	ppb	2.95	19.43	90 - 110	106.4	GOOD
63	Cu	1	72	2.49	ppb	1.84	11.37	90 - 110	109.7	GOOD
66	Zn	1	72	18.70	ppb	4.71	80.08	90 - 110	116.8	
75	As	1	72	3.58	ppb	1.85	17.54	90 - 110	102.0	GOOD
78	Se	1	72	2.38	ppb	2.90	11.55	90 - 110	103.2	GOOD
88	Sr	2	115	1392.00	ppb	2.53	7065.00	90 - 110	98.5	GOOD
95	Mo	2	115	0.26	ppb	10.76	1.18	90 - 110	109.9	GOOD
107	Ag	2	115	0.06	ppb	9.76	0.15	90 - 110	213.8	
111	Cd	2	115	0.13	ppb	12.13	0.61	90 - 110	106.1	GOOD
118	Sn	2	115	0.99	ppb	7.36	4.84	90 - 110	101.9	GOOD
121	Sb	2	115	0.04	ppb	22.38	0.14	90 - 110	140.2	
137	Ba	2	115	45.28	ppb	2.50	230.90	90 - 110	98.1	GOOD
205	Tl	2	209	0.14	ppb	15.79	0.40	90 - 110	174.8	
208	Pb	2	209	6.46	ppb	2.12	32.81	90 - 110	98.5	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-689.42	6.74	22.89	-3011.5	70 -	120	ISFail
45	Sc	1		147307.52	3.09	168636.11	87.4	70 -	120	
45	Sc	2		3211082.80	3.31	4411244.50	72.8	70 -	120	
72	Ge	1		87077.05	2.01	100925.69	86.3	70 -	120	
115	In	2		5208473.50	4.03	6534497.50	79.7	70 -	120	
209	Bi	2		4226713.50	2.20	4845836.50	87.2	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\038_PDS.D\038_PDS.D#

Date Acquired:	May 26 2016 02:47 pm	Sample Name:	1605121-43A PDS
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	258.80	ppb	3.33	-22581.34	200	75-125	######	Fail
9	Be	2	45	185.60	ppb	2.96	1.76	200	75-125	91.9	
11	B	2	45	245.30	ppb	4.00	91.48	200	75-125	76.9	
23	Na	1	45	20660.00	ppb	1.99	16280.00	5000	75-125	87.6	
24	Mg	1	45	14960.00	ppb	3.73	10170.00	5000	75-125	95.8	
27	Al	1	45	34620.00	ppb	3.68	31200.00	5000	75-125	68.4	Fail
39	K	1	45	11430.00	ppb	2.84	6647.00	5000	75-125	95.7	
44	Ca	2	45	473000.00	ppb	3.30	478100.00	5000	75-125	-102.0	Fail
47	Ti	1	45	264.80	ppb	5.96	72.07	200	75-125	96.4	
51	V	1	45	240.40	ppb	3.14	45.92	200	75-125	97.2	
52	Cr	1	45	221.10	ppb	2.95	27.05	200	75-125	97.0	
55	Mn	1	45	337.50	ppb	3.45	151.90	200	75-125	92.8	
56	Fe	1	72	53210.00	ppb	3.52	48760.00	5000	75-125	89.0	
59	Co	1	72	210.30	ppb	3.41	12.51	200	75-125	98.9	
60	Ni	1	72	202.10	ppb	3.68	19.43	200	75-125	91.3	
63	Cu	1	72	195.40	ppb	3.10	11.37	200	75-125	92.0	
66	Zn	1	72	254.30	ppb	3.49	80.08	200	75-125	87.1	
75	As	1	72	222.00	ppb	2.81	17.54	200	75-125	102.2	
78	Se	1	72	208.00	ppb	2.98	11.55	200	75-125	98.2	
88	Sr	2	115	7176.00	ppb	3.61	7065.00	200	75-125	55.5	Fail
95	Mo	2	115	187.00	ppb	3.48	1.18	200	75-125	92.9	
107	Ag	2	115	176.70	ppb	3.38	0.15	200	75-125	88.3	
111	Cd	2	115	175.40	ppb	3.48	0.61	200	75-125	87.4	
118	Sn	2	115	202.80	ppb	3.37	4.84	200	75-125	99.0	
121	Sb	2	115	199.80	ppb	3.02	0.14	200	75-125	99.8	
137	Ba	2	115	418.60	ppb	3.22	230.90	200	75-125	93.9	
205	Tl	2	209	198.40	ppb	6.41	0.40	200	75-125	99.0	
208	Pb	2	209	226.90	ppb	3.64	32.81	200	75-125	97.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-22581.34	8.85	22.89	-98638.4	70 -	120	ISFail
45	Sc	1		140036.17	3.24	168636.11	83.0	70 -	120	
45	Sc	2		2970911.00	2.49	4411244.50	67.3	70 -	120	ISFail
72	Ge	1		78988.16	2.91	100925.69	78.3	70 -	120	
115	In	2		4803728.50	3.35	6534497.50	73.5	70 -	120	
209	Bi	2		3518785.80	3.85	4845836.50	72.6	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\039_MS.D\039_MS.D#

Date Acquired:	May 26 2016 02:53 pm	Sample Name:	**1605121-43A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	265.10	ppb	3.09	########	200	80-120	######	Fail
9	Be	2	45	191.30	ppb	3.52	1.76	200	80-120	94.8	
11	B	2	45	232.10	ppb	4.96	91.48	200	80-120	70.3	Fail
23	Na	1	45	21490.00	ppb	2.24	16280.00	1000	80-120	521.0	Fail
24	Mg	1	45	17300.00	ppb	2.92	10170.00	1000	80-120	713.0	Fail
27	Al	1	45	50370.00	ppb	2.92	31200.00	1000	80-120	1917.0	Fail
39	K	1	45	12780.00	ppb	1.90	6647.00	1000	80-120	613.3	Fail
44	Ca	2	45	464300.00	ppb	3.98	########	1000	80-120	######	Fail
47	Ti	1	45	141.20	ppb	5.18	72.07	200	80-120	34.6	Fail
51	V	1	45	253.50	ppb	3.39	45.92	200	80-120	103.8	
52	Cr	1	45	257.30	ppb	3.47	27.05	200	80-120	115.1	
55	Mn	1	45	347.10	ppb	3.11	151.90	200	80-120	97.6	
56	Fe	1	72	50510.00	ppb	3.95	48760.00	1000	80-120	175.0	Fail
59	Co	1	72	216.50	ppb	3.35	12.51	200	80-120	102.0	
60	Ni	1	72	222.50	ppb	2.90	19.43	200	80-120	101.5	
63	Cu	1	72	204.30	ppb	2.70	11.37	200	80-120	96.5	
66	Zn	1	72	267.60	ppb	2.88	80.08	200	80-120	93.8	
75	As	1	72	225.20	ppb	2.57	17.54	200	80-120	103.8	
78	Se	1	72	211.40	ppb	3.59	11.55	200	80-120	99.9	
88	Sr	2	115	9815.00	ppb	3.26	7065.00	200	80-120	1375.0	Fail
95	Mo	2	115	161.70	ppb	3.42	1.18	200	80-120	80.3	
107	Ag	2	115	179.10	ppb	3.71	0.15	200	80-120	89.5	
111	Cd	2	115	185.40	ppb	4.07	0.61	200	80-120	92.4	
118	Sn	2	115	199.20	ppb	3.30	4.84	200	80-120	97.2	
121	Sb	2	115	30.88	ppb	4.35	0.14	200	80-120	15.4	Fail
137	Ba	2	115	450.80	ppb	3.46	230.90	200	80-120	110.0	
205	Tl	2	209	215.30	ppb	2.26	0.40	200	80-120	107.4	
208	Pb	2	209	240.70	ppb	2.26	32.81	200	80-120	103.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-47611.13	3.70	22.89	########	70 -	120	ISFail
45	Sc	1	137634.02	2.28	168636.11	81.6	70 -	120	
45	Sc	2	3274525.30	4.23	4411244.50	74.2	70 -	120	
72	Ge	1	78282.98	1.96	100925.69	77.6	70 -	120	
115	In	2	5286697.50	2.98	6534497.50	80.9	70 -	120	
209	Bi	2	3857024.00	2.20	4845836.50	79.6	70 -	120	

MS/MSD QC Report C:\ICPCHEM\1\DATA\16E26l01.B\040_MS.D\040_MS.D#

Date Acquired:	May 26 2016 02:59 pm	Sample Name:	1605121-43A MSD
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	263.60	ppb	0.58	########	200	80-120	######	Fail
9	Be	2	45	189.80	ppb	0.89	1.76	200	80-120	94.0	
11	B	2	45	228.50	ppb	2.31	91.48	200	80-120	68.5	Fail
23	Na	1	45	21020.00	ppb	1.31	16280.00	1000	80-120	474.0	Fail
24	Mg	1	45	16920.00	ppb	1.32	10170.00	1000	80-120	675.0	Fail
27	Al	1	45	48950.00	ppb	0.34	31200.00	1000	80-120	1775.0	Fail
39	K	1	45	12350.00	ppb	1.95	6647.00	1000	80-120	570.3	Fail
44	Ca	2	45	381000.00	ppb	1.42	########	1000	80-120	######	Fail
47	Ti	1	45	116.30	ppb	2.59	72.07	200	80-120	22.1	Fail
51	V	1	45	249.40	ppb	0.64	45.92	200	80-120	101.7	
52	Cr	1	45	236.10	ppb	0.62	27.05	200	80-120	104.5	
55	Mn	1	45	349.00	ppb	1.23	151.90	200	80-120	98.6	
56	Fe	1	72	60890.00	ppb	0.79	48760.00	1000	80-120	1213.0	Fail
59	Co	1	72	214.50	ppb	1.53	12.51	200	80-120	101.0	
60	Ni	1	72	211.50	ppb	1.46	19.43	200	80-120	96.0	
63	Cu	1	72	203.70	ppb	1.29	11.37	200	80-120	96.2	
66	Zn	1	72	264.30	ppb	1.13	80.08	200	80-120	92.1	
75	As	1	72	224.00	ppb	1.12	17.54	200	80-120	103.2	
78	Se	1	72	202.40	ppb	2.29	11.55	200	80-120	95.4	
88	Sr	2	115	4666.00	ppb	0.51	7065.00	200	80-120	######	Fail
95	Mo	2	115	162.60	ppb	0.35	1.18	200	80-120	80.7	
107	Ag	2	115	178.40	ppb	0.82	0.15	200	80-120	89.1	
111	Cd	2	115	183.30	ppb	0.37	0.61	200	80-120	91.3	
118	Sn	2	115	198.80	ppb	0.55	4.84	200	80-120	97.0	
121	Sb	2	115	34.09	ppb	0.76	0.14	200	80-120	17.0	Fail
137	Ba	2	115	408.20	ppb	1.09	230.90	200	80-120	88.7	
205	Tl	2	209	216.10	ppb	1.73	0.40	200	80-120	107.8	
208	Pb	2	209	233.00	ppb	0.36	32.81	200	80-120	100.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-48211.56	2.30	22.89	########	70 -	120	ISFail
45	Sc	1	139044.64	2.24	168636.11	82.5	70 -	120	
45	Sc	2	3322082.00	1.12	4411244.50	75.3	70 -	120	
72	Ge	1	78614.88	1.53	100925.69	77.9	70 -	120	
115	In	2	5341430.50	1.43	6534497.50	81.7	70 -	120	
209	Bi	2	3904216.30	0.69	4845836.50	80.6	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\041CCV1.D\041CCV1.D#

Date Acquired:	May 26 2016 03:05 pm	Sample Name:	CCV1-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	223.10	ppb	1.48	200.00	90	-	110	111.6	Fail
9	Be	2	45	210.40	ppb	2.09	200.00	90	-	110	105.2	
11	B	2	45	191.80	ppb	0.90	200.00	90	-	110	95.9	
23	Na	1	45	5059.00	ppb	0.73	5000.00	90	-	110	101.2	
24	Mg	1	45	4844.00	ppb	2.07	5000.00	90	-	110	96.9	
27	Al	1	45	4907.00	ppb	2.26	5000.00	90	-	110	98.1	
39	K	1	45	4777.00	ppb	1.34	5000.00	90	-	110	95.5	
44	Ca	2	45	5028.00	ppb	0.76	5000.00	90	-	110	100.6	
47	Ti	1	45	196.80	ppb	2.47	200.00	90	-	110	98.4	
51	V	1	45	196.80	ppb	1.22	200.00	90	-	110	98.4	
52	Cr	1	45	202.00	ppb	2.10	200.00	90	-	110	101.0	
55	Mn	1	45	200.90	ppb	2.31	200.00	90	-	110	100.5	
56	Fe	1	72	5014.00	ppb	2.46	5000.00	90	-	110	100.3	
59	Co	1	72	200.70	ppb	2.46	200.00	90	-	110	100.4	
60	Ni	1	72	195.00	ppb	1.90	200.00	90	-	110	97.5	
63	Cu	1	72	203.00	ppb	1.95	200.00	90	-	110	101.5	
66	Zn	1	72	204.90	ppb	2.04	200.00	90	-	110	102.5	
75	As	1	72	202.50	ppb	0.87	200.00	90	-	110	101.3	
78	Se	1	72	197.60	ppb	1.20	200.00	90	-	110	98.8	
88	Sr	2	115	207.80	ppb	2.01	200.00	90	-	110	103.9	
95	Mo	2	115	186.20	ppb	1.37	200.00	90	-	110	93.1	
107	Ag	2	115	193.40	ppb	1.60	200.00	90	-	110	96.7	
111	Cd	2	115	193.30	ppb	2.09	200.00	90	-	110	96.7	
118	Sn	2	115	197.00	ppb	1.88	200.00	90	-	110	98.5	
121	Sb	2	115	197.90	ppb	1.38	200.00	90	-	110	99.0	
137	Ba	2	115	194.20	ppb	2.14	200.00	90	-	110	97.1	
205	Tl	2	209	201.50	ppb	1.06	200.00	90	-	110	100.8	
208	Pb	2	209	192.40	ppb	1.80	200.00	90	-	110	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-48343.84	0.24	22.89	-211172.6	70	-	120	ISFail
45	Sc	1	143219.92	0.92	168636.11	84.9	70	-	120	
45	Sc	2	3396432.80	1.42	4411244.50	77.0	70	-	120	
72	Ge	1	85723.23	1.13	100925.69	84.9	70	-	120	
115	In	2	5544841.50	0.79	6534497.50	84.9	70	-	120	
209	Bi	2	4443310.50	0.19	4845836.50	91.7	70	-	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\042_CCB.D\042_CCB.D#

Date Acquired:	May 26 2016 03:11 pm	Sample Name:	CCB1-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.395	ppb	5.38	2.00	2.00	
9	Be	2	45	0.228	ppb	3.91	0.40	0.30	
11	B	2	45	2.788	ppb	5.52	10.00	10.00	
23	Na	1	45	23.210	ppb	6.05	50.00	#####	
24	Mg	1	45	12.800	ppb	6.10	50.00	#####	
27	Al	1	45	31.450	ppb	3.71	50.00	10.00	FailAq
39	K	1	45	15.660	ppb	4.73	50.00	#####	
44	Ca	2	45	193.600	ppb	4.59	50.00	#####	Failsoil
47	Ti	1	45	0.220	ppb	24.99	4.00	3.00	
51	V	1	45	0.255	ppb	6.57	4.00	3.00	
52	Cr	1	45	0.265	ppb	3.89	2.00	2.00	
55	Mn	1	45	0.428	ppb	9.78	2.00	3.00	
56	Fe	1	72	42.100	ppb	2.97	50.00	30.00	FailAq
59	Co	1	72	0.243	ppb	1.46	2.00	3.00	
60	Ni	1	72	0.269	ppb	8.87	2.00	3.00	
63	Cu	1	72	0.307	ppb	4.13	2.00	2.00	
66	Zn	1	72	0.295	ppb	8.12	4.00	2.00	
75	As	1	72	0.330	ppb	7.50	2.00	2.00	
78	Se	1	72	0.331	ppb	35.91	0.60	2.00	
88	Sr	2	115	2.584	ppb	8.49	4.00	3.00	
95	Mo	2	115	0.248	ppb	8.14	2.00	2.00	
107	Ag	2	115	0.205	ppb	19.42	0.40	1.00	
111	Cd	2	115	0.197	ppb	15.61	0.40	0.30	
118	Sn	2	115	0.211	ppb	15.93	20.00	3.00	
121	Sb	2	115	0.188	ppb	4.55	2.00	0.80	
137	Ba	2	115	0.364	ppb	4.09	2.00	3.00	
205	Tl	2	209	0.325	ppb	5.84	2.00	0.50	
208	Pb	2	209	0.249	ppb	8.97	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-49.01	43.95	22.89	-214.1	70 - 120	ISFail
45	Sc	1		146175.67	0.36	168636.11	86.7	70 - 120	
45	Sc	2		3508618.30	1.36	4411244.50	79.5	70 - 120	
72	Ge	1		89127.49	1.28	100925.69	88.3	70 - 120	
115	In	2		5710293.50	1.15	6534497.50	87.4	70 - 120	
209	Bi	2		4531261.00	0.42	4845836.50	93.5	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\043LCVL.D\043LCVL.D#

Date Acquired:	May 26 2016 03:17 pm	Sample Name:	LCVL1-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.73	ppb	0.66	5.00	70 -	130	214.6	Fail
9	Be	2	45	1.14	ppb	2.92	1.00	70 -	130	113.6	
11	B	2	45	20.11	ppb	2.91	20.00	70 -	130	100.6	
23	Na	1	45	114.50	ppb	1.42	100.00	70 -	130	114.5	
24	Mg	1	45	105.90	ppb	3.05	100.00	70 -	130	105.9	
27	Al	1	45	119.90	ppb	3.23	100.00	70 -	130	119.9	
39	K	1	45	104.50	ppb	1.85	100.00	70 -	130	104.5	
44	Ca	2	45	209.00	ppb	3.53	100.00	70 -	130	209.0	Fail
47	Ti	1	45	4.90	ppb	15.55	5.00	70 -	130	98.1	
51	V	1	45	1.06	ppb	5.15	1.00	70 -	130	106.4	
52	Cr	1	45	5.11	ppb	1.05	5.00	70 -	130	102.2	
55	Mn	1	45	5.36	ppb	2.00	5.00	70 -	130	107.1	
56	Fe	1	72	123.70	ppb	2.05	100.00	70 -	130	123.7	
59	Co	1	72	4.95	ppb	0.98	5.00	70 -	130	98.9	
60	Ni	1	72	4.96	ppb	3.74	5.00	70 -	130	99.2	
63	Cu	1	72	5.07	ppb	3.31	5.00	70 -	130	101.4	
66	Zn	1	72	5.17	ppb	2.79	5.00	70 -	130	103.4	
75	As	1	72	5.27	ppb	2.55	5.00	70 -	130	105.3	
78	Se	1	72	5.36	ppb	5.01	5.00	70 -	130	107.2	
88	Sr	2	115	6.24	ppb	2.21	5.00	70 -	130	124.8	
95	Mo	2	115	4.59	ppb	2.75	5.00	70 -	130	91.8	
107	Ag	2	115	1.99	ppb	2.35	2.00	70 -	130	99.7	
111	Cd	2	115	1.00	ppb	6.20	1.00	70 -	130	100.0	
118	Sn	2	115	4.93	ppb	0.98	5.00	70 -	130	98.6	
121	Sb	2	115	2.02	ppb	2.38	2.00	70 -	130	100.8	
137	Ba	2	115	4.97	ppb	3.22	5.00	70 -	130	99.5	
205	Tl	2	209	1.02	ppb	3.25	1.00	70 -	130	102.3	
208	Pb	2	209	1.03	ppb	3.75	1.00	70 -	130	102.8	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-1057.26	16.20	22.89	-4618.3	70 -	120	ISFail
45	Sc	1		147874.44	0.95	168636.11	87.7	70 -	120	
45	Sc	2		3571001.80	2.05	4411244.50	81.0	70 -	120	
72	Ge	1		89241.45	0.85	100925.69	88.4	70 -	120	
115	In	2		5723110.50	0.96	6534497.50	87.6	70 -	120	
209	Bi	2		4545912.50	1.28	4845836.50	93.8	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\053CCV1.D\053CCV1.D#

Date Acquired:	May 26 2016 04:17 pm	Sample Name:	CCV2-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	200.40	ppb	3.17	200.00	90	-	110	100.2	
9	Be	2	45	191.60	ppb	5.42	200.00	90	-	110	95.8	
11	B	2	45	177.00	ppb	3.64	200.00	90	-	110	88.5	Fail
23	Na	1	45	4982.00	ppb	1.13	5000.00	90	-	110	99.6	
24	Mg	1	45	4719.00	ppb	1.30	5000.00	90	-	110	94.4	
27	Al	1	45	4818.00	ppb	1.19	5000.00	90	-	110	96.4	
39	K	1	45	4695.00	ppb	0.60	5000.00	90	-	110	93.9	
44	Ca	2	45	4632.00	ppb	5.30	5000.00	90	-	110	92.6	
47	Ti	1	45	196.10	ppb	4.02	200.00	90	-	110	98.1	
51	V	1	45	193.70	ppb	1.63	200.00	90	-	110	96.9	
52	Cr	1	45	196.60	ppb	2.08	200.00	90	-	110	98.3	
55	Mn	1	45	199.20	ppb	1.46	200.00	90	-	110	99.6	
56	Fe	1	72	4963.00	ppb	1.52	5000.00	90	-	110	99.3	
59	Co	1	72	196.10	ppb	1.44	200.00	90	-	110	98.1	
60	Ni	1	72	190.70	ppb	1.28	200.00	90	-	110	95.4	
63	Cu	1	72	198.60	ppb	1.17	200.00	90	-	110	99.3	
66	Zn	1	72	199.60	ppb	0.77	200.00	90	-	110	99.8	
75	As	1	72	200.40	ppb	1.30	200.00	90	-	110	100.2	
78	Se	1	72	194.70	ppb	1.41	200.00	90	-	110	97.4	
88	Sr	2	115	196.70	ppb	4.89	200.00	90	-	110	98.4	
95	Mo	2	115	177.50	ppb	4.51	200.00	90	-	110	88.8	Fail
107	Ag	2	115	184.50	ppb	3.32	200.00	90	-	110	92.3	
111	Cd	2	115	185.50	ppb	4.54	200.00	90	-	110	92.8	
118	Sn	2	115	185.90	ppb	6.06	200.00	90	-	110	93.0	
121	Sb	2	115	189.10	ppb	4.98	200.00	90	-	110	94.6	
137	Ba	2	115	188.00	ppb	4.81	200.00	90	-	110	94.0	
205	Tl	2	209	197.40	ppb	3.48	200.00	90	-	110	98.7	
208	Pb	2	209	187.50	ppb	3.90	200.00	90	-	110	93.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-45248.27	3.83	22.89	-197650.7	70	-	120	ISFail
45	Sc	1	138964.20	0.44	168636.11	82.4	70	-	120	
45	Sc	2	3487940.30	1.62	4411244.50	79.1	70	-	120	
72	Ge	1	83254.24	0.49	100925.69	82.5	70	-	120	
115	In	2	5804800.50	1.63	6534497.50	88.8	70	-	120	
209	Bi	2	4483626.00	1.64	4845836.50	92.5	70	-	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\054_CCB.D\054_CCB.D#

Date Acquired:	May 26 2016 04:23 pm	Sample Name:	CCB2-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.	RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.271 ppb	3.22	2.00	2.00	
9	Be	2	45	0.178 ppb	11.69	0.40	0.30	
11	B	2	45	1.801 ppb	5.58	10.00	10.00	
23	Na	1	45	63.740 ppb	2.99	50.00	#####	Failsoil
24	Mg	1	45	10.330 ppb	4.07	50.00	#####	
27	Al	1	45	27.320 ppb	9.52	50.00	10.00	FailAq
39	K	1	45	11.730 ppb	1.90	50.00	#####	
44	Ca	2	45	63.610 ppb	2.90	50.00	#####	Failsoil
47	Ti	1	45	0.239 ppb	13.33	4.00	3.00	
51	V	1	45	0.201 ppb	4.89	4.00	3.00	
52	Cr	1	45	0.213 ppb	9.27	2.00	2.00	
55	Mn	1	45	0.399 ppb	9.97	2.00	3.00	
56	Fe	1	72	35.180 ppb	12.56	50.00	30.00	FailAq
59	Co	1	72	0.184 ppb	7.27	2.00	3.00	
60	Ni	1	72	0.220 ppb	13.13	2.00	3.00	
63	Cu	1	72	0.242 ppb	8.21	2.00	2.00	
66	Zn	1	72	0.298 ppb	13.07	4.00	2.00	
75	As	1	72	0.249 ppb	19.01	2.00	2.00	
78	Se	1	72	0.198 ppb	6.44	0.60	2.00	
88	Sr	2	115	0.530 ppb	1.91	4.00	3.00	
95	Mo	2	115	0.222 ppb	7.09	2.00	2.00	
107	Ag	2	115	0.145 ppb	3.76	0.40	1.00	
111	Cd	2	115	0.104 ppb	25.62	0.40	0.30	
118	Sn	2	115	0.191 ppb	5.62	20.00	3.00	
121	Sb	2	115	0.159 ppb	4.29	2.00	0.80	
137	Ba	2	115	0.272 ppb	12.80	2.00	3.00	
205	Tl	2	209	0.256 ppb	1.33	2.00	0.50	
208	Pb	2	209	0.214 ppb	2.59	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-32.60	62.79	22.89	-142.4	70 - 120	ISFail
45	Sc	1		147162.81	0.09	168636.11	87.3	70 - 120	
45	Sc	2		3699381.00	1.91	4411244.50	83.9	70 - 120	
72	Ge	1		89407.74	0.88	100925.69	88.6	70 - 120	
115	In	2		6021329.00	1.35	6534497.50	92.1	70 - 120	
209	Bi	2		4584997.50	1.82	4845836.50	94.6	70 - 120	

CCV QC Report C:\ICPCHEM\1\DATA\16E26l01.B\055LCVL.D\055LCVL.D#

Date Acquired:	May 26 2016 04:29 pm	Sample Name:	LCVL2-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	9.92	ppb	1.05	5.00	70	-	130	198.3	Fail
9	Be	2	45	1.03	ppb	5.02	1.00	70	-	130	103.2	
11	B	2	45	18.70	ppb	1.56	20.00	70	-	130	93.5	
23	Na	1	45	178.60	ppb	6.01	100.00	70	-	130	178.6	Fail
24	Mg	1	45	101.80	ppb	2.58	100.00	70	-	130	101.8	
27	Al	1	45	114.60	ppb	1.97	100.00	70	-	130	114.6	
39	K	1	45	107.90	ppb	0.25	100.00	70	-	130	107.9	
44	Ca	2	45	159.40	ppb	2.31	100.00	70	-	130	159.4	Fail
47	Ti	1	45	5.43	ppb	2.41	5.00	70	-	130	108.6	
51	V	1	45	1.01	ppb	6.58	1.00	70	-	130	100.6	
52	Cr	1	45	4.89	ppb	2.31	5.00	70	-	130	97.8	
55	Mn	1	45	5.07	ppb	2.73	5.00	70	-	130	101.4	
56	Fe	1	72	120.60	ppb	2.47	100.00	70	-	130	120.6	
59	Co	1	72	4.84	ppb	0.82	5.00	70	-	130	96.8	
60	Ni	1	72	4.84	ppb	2.12	5.00	70	-	130	96.8	
63	Cu	1	72	4.96	ppb	1.44	5.00	70	-	130	99.1	
66	Zn	1	72	5.19	ppb	4.19	5.00	70	-	130	103.7	
75	As	1	72	5.11	ppb	0.84	5.00	70	-	130	102.1	
78	Se	1	72	5.62	ppb	6.31	5.00	70	-	130	112.3	
88	Sr	2	115	5.14	ppb	1.07	5.00	70	-	130	102.7	
95	Mo	2	115	4.55	ppb	3.24	5.00	70	-	130	91.0	
107	Ag	2	115	1.92	ppb	1.97	2.00	70	-	130	95.9	
111	Cd	2	115	1.03	ppb	2.99	1.00	70	-	130	103.4	
118	Sn	2	115	4.80	ppb	3.43	5.00	70	-	130	96.1	
121	Sb	2	115	1.99	ppb	3.30	2.00	70	-	130	99.4	
137	Ba	2	115	4.86	ppb	2.67	5.00	70	-	130	97.2	
205	Tl	2	209	1.00	ppb	1.72	1.00	70	-	130	99.7	
208	Pb	2	209	1.05	ppb	1.18	1.00	70	-	130	105.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHigl	-1092.24	10.67	22.89	-4771.0	70	-	120	ISFail
45	Sc	1		148124.48	1.10	168636.11	87.8	70	-	120	
45	Sc	2		3670998.00	2.52	4411244.50	83.2	70	-	120	
72	Ge	1		89089.56	0.69	100925.69	88.3	70	-	120	
115	In	2		6052001.00	1.03	6534497.50	92.6	70	-	120	
209	Bi	2		4773090.50	1.89	4845836.50	98.5	70	-	120	

PB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\056__PB.D\056__PB.D#

Date Acquired:	May 26 2016 04:35 pm	Sample Name:	MB-75286
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.168	ppb	4.93	2.0	8.00	
9	Be	2	45	0.053	ppb	9.80	0.4	1.20	
11	B	2	45	0.445	ppb	6.90	10.0	30.00	
23	Na	1	45	84.300	ppb	3.15	50.0	#####	J
24	Mg	1	45	7.601	ppb	2.57	50.0	#####	
27	Al	1	45	14.050	ppb	8.46	50.0	#####	
39	K	1	45	13.190	ppb	1.48	50.0	#####	
44	Ca	2	45	61.380	ppb	0.30	50.0	#####	J
47	Ti	1	45	0.182	ppb	45.83	4.0	10.00	
51	V	1	45	0.082	ppb	8.25	4.0	10.00	
52	Cr	1	45	0.248	ppb	12.64	2.0	8.00	
55	Mn	1	45	0.380	ppb	4.49	2.0	8.00	
56	Fe	1	72	24.270	ppb	1.30	50.0	#####	
59	Co	1	72	0.042	ppb	8.93	2.0	8.00	
60	Ni	1	72	0.215	ppb	11.01	2.0	8.00	
63	Cu	1	72	0.172	ppb	3.08	2.0	8.00	
66	Zn	1	72	1.985	ppb	1.71	4.0	10.00	
75	As	1	72	0.096	ppb	7.31	2.0	4.00	
78	Se	1	72	0.065	ppb	13.21	0.6	2.00	
88	Sr	2	115	0.372	ppb	3.71	4.0	10.00	
95	Mo	2	115	0.071	ppb	15.16	2.0	8.00	
107	Ag	2	115	0.043	ppb	1.54	0.4	0.80	
111	Cd	2	115	0.048	ppb	18.43	0.4	1.20	
118	Sn	2	115	3.922	ppb	1.85	20.0	40.00	
121	Sb	2	115	0.024	ppb	7.44	2.0	4.00	
137	Ba	2	115	0.146	ppb	5.14	2.0	8.00	
205	Tl	2	209	0.063	ppb	8.86	2.0	4.00	
208	Pb	2	209	0.102	ppb	1.62	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-9.33	366.78	22.89	-40.8	70 - 120	ISFail
45	Sc	1		142337.83	0.78	168636.11	84.4	70 - 120	
45	Sc	2		3612112.30	0.80	4411244.50	81.9	70 - 120	
72	Ge	1		84564.77	0.59	100925.69	83.8	70 - 120	
115	In	2		5927814.50	1.34	6534497.50	90.7	70 - 120	
209	Bi	2		4687405.50	1.86	4845836.50	96.7	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\057_LCS.D\057_LCS.D#

Date Acquired:	May 26 2016 04:41 pm	Sample Name:	LCS-75286
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	201.80	ppb	1.00	200.00	80 -	120	100.9	
9	Be	2	45	189.00	ppb	0.76	200.00	80 -	120	94.5	
11	B	2	45	177.20	ppb	2.34	200.00	80 -	120	88.6	
23	Na	1	45	5142.00	ppb	0.89	1000.00	80 -	120	514.2	Fail
24	Mg	1	45	4837.00	ppb	0.39	1000.00	80 -	120	483.7	Fail
27	Al	1	45	986.80	ppb	0.77	1000.00	80 -	120	98.7	
39	K	1	45	4893.00	ppb	0.53	1000.00	80 -	120	489.3	Fail
44	Ca	2	45	4760.00	ppb	1.90	1000.00	80 -	120	476.0	Fail
47	Ti	1	45	197.30	ppb	0.70	200.00	80 -	120	98.7	
51	V	1	45	192.90	ppb	1.03	200.00	80 -	120	96.5	
52	Cr	1	45	196.40	ppb	1.36	200.00	80 -	120	98.2	
55	Mn	1	45	199.80	ppb	1.21	200.00	80 -	120	99.9	
56	Fe	1	72	1001.00	ppb	1.19	1000.00	80 -	120	100.1	
59	Co	1	72	195.80	ppb	0.42	200.00	80 -	120	97.9	
60	Ni	1	72	190.20	ppb	0.26	200.00	80 -	120	95.1	
63	Cu	1	72	196.40	ppb	0.63	200.00	80 -	120	98.2	
66	Zn	1	72	192.70	ppb	0.72	200.00	80 -	120	96.4	
75	As	1	72	192.30	ppb	0.68	200.00	80 -	120	96.2	
78	Se	1	72	184.60	ppb	0.28	200.00	80 -	120	92.3	
88	Sr	2	115	200.70	ppb	0.38	200.00	80 -	120	100.4	
95	Mo	2	115	182.20	ppb	1.56	200.00	80 -	120	91.1	
107	Ag	2	115	188.80	ppb	1.72	200.00	80 -	120	94.4	
111	Cd	2	115	184.90	ppb	1.83	200.00	80 -	120	92.5	
118	Sn	2	115	195.90	ppb	1.65	200.00	80 -	120	98.0	
121	Sb	2	115	192.60	ppb	1.02	200.00	80 -	120	96.3	
137	Ba	2	115	192.00	ppb	0.86	200.00	80 -	120	96.0	
205	Tl	2	209	201.30	ppb	1.38	200.00	80 -	120	100.7	
208	Pb	2	209	192.90	ppb	1.71	200.00	80 -	120	96.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-46150.16	1.58	22.89	-201590.3	70 -	120	ISFail
45	Sc	1	137475.39	1.06	168636.11	81.5	70 -	120	
45	Sc	2	3452792.80	1.22	4411244.50	78.3	70 -	120	
72	Ge	1	81579.74	0.13	100925.69	80.8	70 -	120	
115	In	2	5548910.50	0.50	6534497.50	84.9	70 -	120	
209	Bi	2	4259716.00	1.71	4845836.50	87.9	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\058_LCS.D\058_LCS.D#

Date Acquired:	May 26 2016 04:48 pm	Sample Name:	LCSD-75286
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	202.70	ppb	0.66	200.00	80 -	120	101.4	
9	Be	2	45	190.70	ppb	1.81	200.00	80 -	120	95.4	
11	B	2	45	177.10	ppb	2.18	200.00	80 -	120	88.6	
23	Na	1	45	5189.00	ppb	1.07	1000.00	80 -	120	518.9	Fail
24	Mg	1	45	4891.00	ppb	1.25	1000.00	80 -	120	489.1	Fail
27	Al	1	45	1004.00	ppb	1.36	1000.00	80 -	120	100.4	
39	K	1	45	4965.00	ppb	0.89	1000.00	80 -	120	496.5	Fail
44	Ca	2	45	4829.00	ppb	2.26	1000.00	80 -	120	482.9	Fail
47	Ti	1	45	205.30	ppb	3.29	200.00	80 -	120	102.7	
51	V	1	45	195.60	ppb	1.06	200.00	80 -	120	97.8	
52	Cr	1	45	200.30	ppb	1.30	200.00	80 -	120	100.2	
55	Mn	1	45	203.80	ppb	1.41	200.00	80 -	120	101.9	
56	Fe	1	72	1010.00	ppb	1.27	1000.00	80 -	120	101.0	
59	Co	1	72	198.90	ppb	0.97	200.00	80 -	120	99.5	
60	Ni	1	72	192.20	ppb	0.77	200.00	80 -	120	96.1	
63	Cu	1	72	198.00	ppb	0.82	200.00	80 -	120	99.0	
66	Zn	1	72	196.20	ppb	0.57	200.00	80 -	120	98.1	
75	As	1	72	196.10	ppb	0.71	200.00	80 -	120	98.1	
78	Se	1	72	183.30	ppb	0.47	200.00	80 -	120	91.7	
88	Sr	2	115	204.60	ppb	1.56	200.00	80 -	120	102.3	
95	Mo	2	115	185.90	ppb	1.82	200.00	80 -	120	93.0	
107	Ag	2	115	189.70	ppb	2.20	200.00	80 -	120	94.9	
111	Cd	2	115	186.70	ppb	2.25	200.00	80 -	120	93.4	
118	Sn	2	115	198.00	ppb	1.66	200.00	80 -	120	99.0	
121	Sb	2	115	194.80	ppb	1.83	200.00	80 -	120	97.4	
137	Ba	2	115	195.80	ppb	2.32	200.00	80 -	120	97.9	
205	Tl	2	209	207.90	ppb	0.74	200.00	80 -	120	104.0	
208	Pb	2	209	194.20	ppb	1.03	200.00	80 -	120	97.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-45748.89	2.56	22.89	-199837.5	70 -	120	ISFail
45	Sc	1	134196.89	1.13	168636.11	79.6	70 -	120	
45	Sc	2	3424443.00	1.27	4411244.50	77.6	70 -	120	
72	Ge	1	80008.41	0.37	100925.69	79.3	70 -	120	
115	In	2	5511413.50	1.23	6534497.50	84.3	70 -	120	
209	Bi	2	4117153.30	0.34	4845836.50	85.0	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\061DT1.D\061DT1.D#

Date Acquired:	May 26 2016 05:06 pm	Sample Name:	1605135-14A SD
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	11.12	ppb	3.72	-851.57	90 - 110	-6.5	
9	Be	2	45	0.53	ppb	3.87	2.21	90 - 110	119.0	
11	B	2	45	23.29	ppb	2.52	109.50	90 - 110	106.3	GOOD
23	Na	1	45	1147.00	ppb	0.44	5575.00	90 - 110	102.9	GOOD
24	Mg	1	45	1984.00	ppb	0.45	9873.00	90 - 110	100.5	GOOD
27	Al	1	45	9001.00	ppb	1.04	47470.00	90 - 110	94.8	GOOD
39	K	1	45	2780.00	ppb	0.26	13920.00	90 - 110	99.9	GOOD
44	Ca	2	45	38740.00	ppb	4.01	193600.00	90 - 110	100.1	GOOD
47	Ti	1	45	29.55	ppb	1.29	152.40	90 - 110	96.9	GOOD
51	V	1	45	12.67	ppb	0.69	63.38	90 - 110	100.0	GOOD
52	Cr	1	45	15.62	ppb	1.04	76.36	90 - 110	102.3	GOOD
55	Mn	1	45	14.15	ppb	1.83	70.03	90 - 110	101.0	GOOD
56	Fe	1	72	12340.00	ppb	1.31	62910.00	90 - 110	98.1	GOOD
59	Co	1	72	1.65	ppb	1.42	8.04	90 - 110	102.3	GOOD
60	Ni	1	72	6.68	ppb	0.45	32.46	90 - 110	102.9	GOOD
63	Cu	1	72	1.00	ppb	2.45	4.53	90 - 110	110.7	
66	Zn	1	72	42.19	ppb	1.24	191.00	90 - 110	110.4	
75	As	1	72	3.10	ppb	3.20	15.23	90 - 110	101.8	GOOD
78	Se	1	72	2.56	ppb	8.92	14.31	90 - 110	89.4	
88	Sr	2	115	218.80	ppb	3.96	1101.00	90 - 110	99.4	GOOD
95	Mo	2	115	1.00	ppb	7.09	4.67	90 - 110	106.6	GOOD
107	Ag	2	115	0.08	ppb	1.59	0.16	90 - 110	261.9	
111	Cd	2	115	0.15	ppb	18.65	0.54	90 - 110	140.0	
118	Sn	2	115	1.12	ppb	6.14	5.33	90 - 110	105.3	GOOD
121	Sb	2	115	0.07	ppb	4.19	0.14	90 - 110	238.2	
137	Ba	2	115	6.81	ppb	3.79	34.82	90 - 110	97.8	GOOD
205	Tl	2	209	0.16	ppb	9.11	0.37	90 - 110	211.1	
208	Pb	2	209	3.01	ppb	2.34	15.54	90 - 110	96.7	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-851.57	4.37	22.89	-3719.8	70 - 120	ISFail
45	Sc	1	136263.31	0.79	168636.11	80.8	70 - 120	
45	Sc	2	3369500.30	1.65	4411244.50	76.4	70 - 120	
72	Ge	1	82261.15	0.93	100925.69	81.5	70 - 120	
115	In	2	5509855.50	1.17	6534497.50	84.3	70 - 120	
209	Bi	2	4166163.30	0.89	4845836.50	86.0	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\071_PDS.D\071_PDS.D#

Date Acquired:	May 26 2016 06:05 pm	Sample Name:	1605135-14A PDS
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	232.50	ppb	0.86	-21760.04	200	75-125	######	Fail
9	Be	2	45	169.80	ppb	0.56	2.21	200	75-125	83.8	
11	B	2	45	250.20	ppb	0.34	109.50	200	75-125	70.4	Fail
23	Na	1	45	10250.00	ppb	1.47	5575.00	5000	75-125	93.5	
24	Mg	1	45	14600.00	ppb	1.05	9873.00	5000	75-125	94.5	
27	Al	1	45	49860.00	ppb	1.40	47470.00	5000	75-125	47.8	Fail
39	K	1	45	18450.00	ppb	1.67	13920.00	5000	75-125	90.6	
44	Ca	2	45	194700.00	ppb	0.66	193600.00	5000	75-125	22.0	Fail
47	Ti	1	45	342.30	ppb	3.08	152.40	200	75-125	95.0	
51	V	1	45	253.90	ppb	1.88	63.38	200	75-125	95.3	
52	Cr	1	45	235.90	ppb	2.17	76.36	200	75-125	79.8	
55	Mn	1	45	254.10	ppb	1.80	70.03	200	75-125	92.0	
56	Fe	1	72	65890.00	ppb	1.67	62910.00	5000	75-125	59.6	Fail
59	Co	1	72	198.70	ppb	1.62	8.04	200	75-125	95.3	
60	Ni	1	72	193.00	ppb	1.63	32.46	200	75-125	80.3	
63	Cu	1	72	182.60	ppb	1.33	4.53	200	75-125	89.0	
66	Zn	1	72	278.90	ppb	1.62	191.00	200	75-125	44.0	Fail
75	As	1	72	212.20	ppb	1.35	15.23	200	75-125	98.5	
78	Se	1	72	195.80	ppb	3.43	14.31	200	75-125	90.7	
88	Sr	2	115	1285.00	ppb	0.97	1101.00	200	75-125	92.0	
95	Mo	2	115	185.70	ppb	0.59	4.67	200	75-125	90.5	
107	Ag	2	115	177.10	ppb	1.73	0.16	200	75-125	88.5	
111	Cd	2	115	176.40	ppb	1.57	0.54	200	75-125	87.9	
118	Sn	2	115	203.50	ppb	1.39	5.33	200	75-125	99.1	
121	Sb	2	115	197.90	ppb	0.63	0.14	200	75-125	98.9	
137	Ba	2	115	226.70	ppb	1.51	34.82	200	75-125	95.9	
205	Tl	2	209	205.00	ppb	2.47	0.37	200	75-125	102.3	
208	Pb	2	209	208.00	ppb	2.06	15.54	200	75-125	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-21760.04	2.58	22.89	-95050.9	70 -	120	ISFail
45	Sc	1	122897.01	1.39	168636.11	72.9	70 -	120	
45	Sc	2	3348554.30	0.36	4411244.50	75.9	70 -	120	
72	Ge	1	71121.98	0.72	100925.69	70.5	70 -	120	
115	In	2	5463240.50	0.90	6534497.50	83.6	70 -	120	
209	Bi	2	3983668.80	2.55	4845836.50	82.2	70 -	120	

MS/MSD QC Report C:\ICPCHEM\1\DATA\16E26l01.B\072_MS.D\072_MS.D#

Date Acquired:	May 26 2016 06:11 pm	Sample Name:	**1605135-14A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	243.80	ppb	1.20	########	200	80-120	######	Fail
9	Be	2	45	175.00	ppb	2.06	2.21	200	80-120	86.4	
11	B	2	45	250.20	ppb	2.02	109.50	200	80-120	70.4	Fail
23	Na	1	45	10260.00	ppb	1.43	5575.00	1000	80-120	468.5	Fail
24	Mg	1	45	14910.00	ppb	2.40	9873.00	1000	80-120	503.7	Fail
27	Al	1	45	51740.00	ppb	3.09	47470.00	1000	80-120	427.0	Fail
39	K	1	45	18580.00	ppb	2.51	13920.00	1000	80-120	466.0	Fail
44	Ca	2	45	211800.00	ppb	2.50	########	1000	80-120	1820.0	Fail
47	Ti	1	45	276.40	ppb	3.39	152.40	200	80-120	62.0	Fail
51	V	1	45	258.30	ppb	1.85	63.38	200	80-120	97.5	
52	Cr	1	45	235.50	ppb	2.76	76.36	200	80-120	79.6	Fail
55	Mn	1	45	257.50	ppb	2.04	70.03	200	80-120	93.7	
56	Fe	1	72	62690.00	ppb	2.10	62910.00	1000	80-120	-22.0	Fail
59	Co	1	72	198.20	ppb	2.14	8.04	200	80-120	95.1	
60	Ni	1	72	194.10	ppb	1.71	32.46	200	80-120	80.8	
63	Cu	1	72	185.00	ppb	2.11	4.53	200	80-120	90.2	
66	Zn	1	72	273.00	ppb	1.33	191.00	200	80-120	41.0	Fail
75	As	1	72	213.40	ppb	1.36	15.23	200	80-120	99.1	
78	Se	1	72	197.50	ppb	1.20	14.31	200	80-120	91.6	
88	Sr	2	115	1054.00	ppb	1.71	1101.00	200	80-120	-23.5	Fail
95	Mo	2	115	180.30	ppb	1.65	4.67	200	80-120	87.8	
107	Ag	2	115	176.60	ppb	1.98	0.16	200	80-120	88.2	
111	Cd	2	115	179.70	ppb	2.61	0.54	200	80-120	89.6	
118	Sn	2	115	196.50	ppb	1.70	5.33	200	80-120	95.6	
121	Sb	2	115	63.71	ppb	1.58	0.14	200	80-120	31.8	Fail
137	Ba	2	115	229.70	ppb	0.72	34.82	200	80-120	97.4	
205	Tl	2	209	211.50	ppb	0.94	0.37	200	80-120	105.6	
208	Pb	2	209	213.70	ppb	0.77	15.54	200	80-120	99.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-42032.65	2.71	22.89	########	70 -	120	ISFail
45	Sc	1	132637.80	1.63	168636.11	78.7	70 -	120	
45	Sc	2	3124208.30	2.39	4411244.50	70.8	70 -	120	
72	Ge	1	76708.27	1.96	100925.69	76.0	70 -	120	
115	In	2	5140287.00	1.62	6534497.50	78.7	70 -	120	
209	Bi	2	3700261.30	1.33	4845836.50	76.4	70 -	120	

MS/MSD QC Report C:\ICPCHEM\1\DATA\16E26l01.B\073_MS.D\073_MS.D#

Date Acquired:	May 26 2016 06:17 pm	Sample Name:	1605135-14A MSD
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	244.50	ppb	3.27	########	200	80-120	######	Fail
9	Be	2	45	172.70	ppb	1.97	2.21	200	80-120	85.2	
11	B	2	45	260.10	ppb	3.19	109.50	200	80-120	75.3	Fail
23	Na	1	45	10290.00	ppb	3.32	5575.00	1000	80-120	471.5	Fail
24	Mg	1	45	14960.00	ppb	2.56	9873.00	1000	80-120	508.7	Fail
27	Al	1	45	53350.00	ppb	3.07	47470.00	1000	80-120	588.0	Fail
39	K	1	45	19160.00	ppb	2.06	13920.00	1000	80-120	524.0	Fail
44	Ca	2	45	204200.00	ppb	2.53	########	1000	80-120	1060.0	Fail
47	Ti	1	45	295.60	ppb	2.11	152.40	200	80-120	71.6	Fail
51	V	1	45	254.90	ppb	2.41	63.38	200	80-120	95.8	
52	Cr	1	45	232.30	ppb	2.21	76.36	200	80-120	78.0	Fail
55	Mn	1	45	262.00	ppb	1.99	70.03	200	80-120	96.0	
56	Fe	1	72	65600.00	ppb	3.00	62910.00	1000	80-120	269.0	Fail
59	Co	1	72	197.70	ppb	2.40	8.04	200	80-120	94.8	
60	Ni	1	72	193.20	ppb	2.21	32.46	200	80-120	80.4	
63	Cu	1	72	183.90	ppb	1.64	4.53	200	80-120	89.7	
66	Zn	1	72	272.10	ppb	1.34	191.00	200	80-120	40.6	Fail
75	As	1	72	210.80	ppb	1.55	15.23	200	80-120	97.8	
78	Se	1	72	198.30	ppb	2.57	14.31	200	80-120	92.0	
88	Sr	2	115	1137.00	ppb	2.30	1101.00	200	80-120	18.0	Fail
95	Mo	2	115	178.40	ppb	2.35	4.67	200	80-120	86.9	
107	Ag	2	115	176.00	ppb	2.11	0.16	200	80-120	87.9	
111	Cd	2	115	178.80	ppb	2.64	0.54	200	80-120	89.1	
118	Sn	2	115	196.40	ppb	2.95	5.33	200	80-120	95.5	
121	Sb	2	115	62.24	ppb	3.01	0.14	200	80-120	31.1	Fail
137	Ba	2	115	240.10	ppb	3.39	34.82	200	80-120	102.6	
205	Tl	2	209	206.60	ppb	3.68	0.37	200	80-120	103.1	
208	Pb	2	209	212.80	ppb	5.15	15.54	200	80-120	98.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-46101.79	4.54	22.89	########	70 -	120	ISFail
45	Sc	1	145290.77	1.75	168636.11	86.2	70 -	120	
45	Sc	2	3452643.00	1.64	4411244.50	78.3	70 -	120	
72	Ge	1	82579.11	1.67	100925.69	81.8	70 -	120	
115	In	2	5734377.00	2.99	6534497.50	87.8	70 -	120	
209	Bi	2	4304954.00	2.65	4845836.50	88.8	70 -	120	

CCV QC Report **C:\ICPCHEM\1\DATA\16E26l01.B\075CCV1.D\075CCV1.D#**

Date Acquired:	May 26 2016 06:29 pm	Sample Name:	CCV3-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	196.40	ppb	0.49	200.00	90 -	110	98.2	
9	Be	2	45	189.60	ppb	1.15	200.00	90 -	110	94.8	
11	B	2	45	175.40	ppb	1.81	200.00	90 -	110	87.7	Fail
23	Na	1	45	4940.00	ppb	1.44	5000.00	90 -	110	98.8	
24	Mg	1	45	4702.00	ppb	1.94	5000.00	90 -	110	94.0	
27	Al	1	45	4919.00	ppb	1.85	5000.00	90 -	110	98.4	
39	K	1	45	4829.00	ppb	0.63	5000.00	90 -	110	96.6	
44	Ca	2	45	4740.00	ppb	1.94	5000.00	90 -	110	94.8	
47	Ti	1	45	203.80	ppb	1.57	200.00	90 -	110	101.9	
51	V	1	45	192.00	ppb	1.78	200.00	90 -	110	96.0	
52	Cr	1	45	193.80	ppb	1.32	200.00	90 -	110	96.9	
55	Mn	1	45	200.90	ppb	1.29	200.00	90 -	110	100.5	
56	Fe	1	72	4965.00	ppb	1.99	5000.00	90 -	110	99.3	
59	Co	1	72	193.90	ppb	0.90	200.00	90 -	110	97.0	
60	Ni	1	72	188.10	ppb	1.61	200.00	90 -	110	94.1	
63	Cu	1	72	193.60	ppb	0.65	200.00	90 -	110	96.8	
66	Zn	1	72	200.80	ppb	1.15	200.00	90 -	110	100.4	
75	As	1	72	201.90	ppb	1.09	200.00	90 -	110	101.0	
78	Se	1	72	202.80	ppb	1.31	200.00	90 -	110	101.4	
88	Sr	2	115	201.00	ppb	0.39	200.00	90 -	110	100.5	
95	Mo	2	115	181.30	ppb	1.34	200.00	90 -	110	90.7	
107	Ag	2	115	186.90	ppb	1.84	200.00	90 -	110	93.5	
111	Cd	2	115	189.50	ppb	1.27	200.00	90 -	110	94.8	
118	Sn	2	115	193.60	ppb	1.17	200.00	90 -	110	96.8	
121	Sb	2	115	194.70	ppb	1.83	200.00	90 -	110	97.4	
137	Ba	2	115	191.70	ppb	2.08	200.00	90 -	110	95.9	
205	Tl	2	209	201.50	ppb	1.28	200.00	90 -	110	100.8	
208	Pb	2	209	190.80	ppb	0.56	200.00	90 -	110	95.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-44257.22	1.72	22.89	-193321.6	70 -	120	ISFail
45	Sc	1	139841.31	0.68	168636.11	82.9	70 -	120	
45	Sc	2	3491485.30	1.60	4411244.50	79.1	70 -	120	
72	Ge	1	83111.70	0.35	100925.69	82.3	70 -	120	
115	In	2	5869933.00	1.03	6534497.50	89.8	70 -	120	
209	Bi	2	4507379.00	0.88	4845836.50	93.0	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\077LCVL.D\077LCVL.D#

Date Acquired:	May 26 2016 06:41 pm	Sample Name:	LCVL3-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.66	ppb	1.70	5.00	70 -	130	193.2	Fail
9	Be	2	45	0.99	ppb	2.95	1.00	70 -	130	99.1	
11	B	2	45	18.73	ppb	1.28	20.00	70 -	130	93.7	
23	Na	1	45	131.20	ppb	0.90	100.00	70 -	130	131.2	Fail
24	Mg	1	45	102.90	ppb	3.45	100.00	70 -	130	102.9	
27	Al	1	45	118.80	ppb	0.99	100.00	70 -	130	118.8	
39	K	1	45	103.10	ppb	1.25	100.00	70 -	130	103.1	
44	Ca	2	45	153.10	ppb	1.24	100.00	70 -	130	153.1	Fail
47	Ti	1	45	4.41	ppb	8.19	5.00	70 -	130	88.2	
51	V	1	45	1.03	ppb	4.09	1.00	70 -	130	102.8	
52	Cr	1	45	4.96	ppb	0.40	5.00	70 -	130	99.2	
55	Mn	1	45	5.16	ppb	4.08	5.00	70 -	130	103.3	
56	Fe	1	72	119.70	ppb	0.85	100.00	70 -	130	119.7	
59	Co	1	72	4.84	ppb	1.62	5.00	70 -	130	96.8	
60	Ni	1	72	4.79	ppb	1.60	5.00	70 -	130	95.8	
63	Cu	1	72	4.84	ppb	1.79	5.00	70 -	130	96.9	
66	Zn	1	72	5.11	ppb	2.04	5.00	70 -	130	102.2	
75	As	1	72	5.21	ppb	0.98	5.00	70 -	130	104.1	
78	Se	1	72	5.89	ppb	9.06	5.00	70 -	130	117.8	
88	Sr	2	115	4.97	ppb	1.05	5.00	70 -	130	99.4	
95	Mo	2	115	4.40	ppb	6.05	5.00	70 -	130	88.0	
107	Ag	2	115	1.93	ppb	3.27	2.00	70 -	130	96.3	
111	Cd	2	115	1.04	ppb	16.03	1.00	70 -	130	103.7	
118	Sn	2	115	4.89	ppb	3.14	5.00	70 -	130	97.8	
121	Sb	2	115	2.02	ppb	1.12	2.00	70 -	130	101.2	
137	Ba	2	115	4.87	ppb	2.66	5.00	70 -	130	97.4	
205	Tl	2	209	1.04	ppb	2.23	1.00	70 -	130	103.6	
208	Pb	2	209	1.03	ppb	2.53	1.00	70 -	130	102.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-1025.60	15.06	22.89	-4480.0	70 -	120	ISFail
45	Sc	1		143261.48	0.49	168636.11	85.0	70 -	120	
45	Sc	2		3676986.00	2.25	4411244.50	83.4	70 -	120	
72	Ge	1		85387.91	0.95	100925.69	84.6	70 -	120	
115	In	2		6184134.50	1.14	6534497.50	94.6	70 -	120	
209	Bi	2		4899108.50	1.50	4845836.50	101.1	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\078_CCB.D\078_CCB.D#

Date Acquired:	May 26 2016 06:47 pm	Sample Name:	CCB3-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.154	ppb	6.42	2.00	2.00	
9	Be	2	45	0.055	ppb	42.11	0.40	0.30	
11	B	2	45	0.940	ppb	1.76	10.00	10.00	
23	Na	1	45	30.700	ppb	2.04	50.00	#####	
24	Mg	1	45	3.530	ppb	14.31	50.00	#####	
27	Al	1	45	12.320	ppb	4.93	50.00	10.00	FailAq
39	K	1	45	9.875	ppb	4.36	50.00	#####	
44	Ca	2	45	43.000	ppb	3.57	50.00	#####	
47	Ti	1	45	0.054	ppb	86.62	4.00	3.00	
51	V	1	45	0.053	ppb	12.99	4.00	3.00	
52	Cr	1	45	0.050	ppb	6.98	2.00	2.00	
55	Mn	1	45	0.114	ppb	8.00	2.00	3.00	
56	Fe	1	72	15.600	ppb	2.37	50.00	30.00	
59	Co	1	72	0.041	ppb	3.60	2.00	3.00	
60	Ni	1	72	0.036	ppb	21.74	2.00	3.00	
63	Cu	1	72	0.072	ppb	8.77	2.00	2.00	
66	Zn	1	72	0.051	ppb	6.89	4.00	2.00	
75	As	1	72	0.104	ppb	10.38	2.00	2.00	
78	Se	1	72	0.153	ppb	23.50	0.60	2.00	
88	Sr	2	115	0.259	ppb	1.35	4.00	3.00	
95	Mo	2	115	0.068	ppb	23.01	2.00	2.00	
107	Ag	2	115	0.054	ppb	6.69	0.40	1.00	
111	Cd	2	115	0.043	ppb	29.63	0.40	0.30	
118	Sn	2	115	0.054	ppb	8.44	20.00	3.00	
121	Sb	2	115	0.045	ppb	4.60	2.00	0.80	
137	Ba	2	115	0.086	ppb	12.65	2.00	3.00	
205	Tl	2	209	0.095	ppb	1.85	2.00	0.50	
208	Pb	2	209	0.082	ppb	12.03	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-6.18	369.68	22.89	-27.0	70 - 120	ISFail
45	Sc	1		138429.02	1.62	168636.11	82.1	70 - 120	
45	Sc	2		3668180.30	1.98	4411244.50	83.2	70 - 120	
72	Ge	1		84107.66	0.69	100925.69	83.3	70 - 120	
115	In	2		6110557.00	1.30	6534497.50	93.5	70 - 120	
209	Bi	2		4817383.50	1.62	4845836.50	99.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\089CCV1.D\089CCV1.D#

Date Acquired:	May 26 2016 07:53 pm	Sample Name:	CCV4-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	194.90	ppb	1.15	200.00	90 -	110	97.5	
9	Be	2	45	183.60	ppb	1.51	200.00	90 -	110	91.8	
11	B	2	45	166.10	ppb	0.73	200.00	90 -	110	83.1	Fail
23	Na	1	45	4835.00	ppb	1.24	5000.00	90 -	110	96.7	
24	Mg	1	45	4709.00	ppb	1.67	5000.00	90 -	110	94.2	
27	Al	1	45	5035.00	ppb	1.23	5000.00	90 -	110	100.7	
39	K	1	45	4920.00	ppb	1.47	5000.00	90 -	110	98.4	
44	Ca	2	45	4849.00	ppb	0.64	5000.00	90 -	110	97.0	
47	Ti	1	45	204.00	ppb	0.92	200.00	90 -	110	102.0	
51	V	1	45	192.30	ppb	1.34	200.00	90 -	110	96.2	
52	Cr	1	45	195.30	ppb	2.02	200.00	90 -	110	97.7	
55	Mn	1	45	203.40	ppb	2.05	200.00	90 -	110	101.7	
56	Fe	1	72	5053.00	ppb	2.37	5000.00	90 -	110	101.1	
59	Co	1	72	190.90	ppb	1.55	200.00	90 -	110	95.5	
60	Ni	1	72	184.60	ppb	1.22	200.00	90 -	110	92.3	
63	Cu	1	72	192.40	ppb	0.89	200.00	90 -	110	96.2	
66	Zn	1	72	200.00	ppb	0.98	200.00	90 -	110	100.0	
75	As	1	72	203.10	ppb	1.05	200.00	90 -	110	101.6	
78	Se	1	72	202.30	ppb	0.85	200.00	90 -	110	101.2	
88	Sr	2	115	201.90	ppb	0.91	200.00	90 -	110	101.0	
95	Mo	2	115	180.60	ppb	0.97	200.00	90 -	110	90.3	
107	Ag	2	115	185.30	ppb	1.35	200.00	90 -	110	92.7	
111	Cd	2	115	189.40	ppb	1.03	200.00	90 -	110	94.7	
118	Sn	2	115	192.50	ppb	1.87	200.00	90 -	110	96.3	
121	Sb	2	115	196.70	ppb	1.14	200.00	90 -	110	98.4	
137	Ba	2	115	195.10	ppb	0.73	200.00	90 -	110	97.6	
205	Tl	2	209	201.90	ppb	2.00	200.00	90 -	110	101.0	
208	Pb	2	209	191.20	ppb	0.47	200.00	90 -	110	95.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-38250.51	1.03	22.89	-167083.5	70 -	120	ISFail
45	Sc	1	118311.65	0.88	168636.11	70.2	70 -	120	
45	Sc	2	2978509.80	1.08	4411244.50	67.5	70 -	120	ISFail
72	Ge	1	71241.90	0.55	100925.69	70.6	70 -	120	
115	In	2	5126225.50	1.05	6534497.50	78.4	70 -	120	
209	Bi	2	4008607.50	0.13	4845836.50	82.7	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\091LCVL.D\091LCVL.D#

Date Acquired:	May 26 2016 08:05 pm	Sample Name:	LCVL4-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	9.47	ppb	1.74	5.00	70	-	130	189.4	Fail
9	Be	2	45	1.03	ppb	8.28	1.00	70	-	130	102.7	
11	B	2	45	17.36	ppb	1.55	20.00	70	-	130	86.8	
23	Na	1	45	107.60	ppb	0.87	100.00	70	-	130	107.6	
24	Mg	1	45	103.40	ppb	2.61	100.00	70	-	130	103.4	
27	Al	1	45	117.20	ppb	3.33	100.00	70	-	130	117.2	
39	K	1	45	113.40	ppb	5.02	100.00	70	-	130	113.4	
44	Ca	2	45	140.30	ppb	3.24	100.00	70	-	130	140.3	Fail
47	Ti	1	45	4.93	ppb	20.87	5.00	70	-	130	98.7	
51	V	1	45	1.00	ppb	2.99	1.00	70	-	130	99.7	
52	Cr	1	45	4.94	ppb	1.43	5.00	70	-	130	98.8	
55	Mn	1	45	5.10	ppb	2.38	5.00	70	-	130	102.0	
56	Fe	1	72	120.60	ppb	2.14	100.00	70	-	130	120.6	
59	Co	1	72	4.69	ppb	2.18	5.00	70	-	130	93.8	
60	Ni	1	72	4.51	ppb	4.02	5.00	70	-	130	90.3	
63	Cu	1	72	4.70	ppb	2.12	5.00	70	-	130	94.1	
66	Zn	1	72	5.07	ppb	3.91	5.00	70	-	130	101.4	
75	As	1	72	5.10	ppb	2.75	5.00	70	-	130	102.0	
78	Se	1	72	5.28	ppb	3.34	5.00	70	-	130	105.7	
88	Sr	2	115	5.00	ppb	1.76	5.00	70	-	130	100.0	
95	Mo	2	115	4.49	ppb	1.92	5.00	70	-	130	89.8	
107	Ag	2	115	1.90	ppb	2.65	2.00	70	-	130	95.1	
111	Cd	2	115	0.99	ppb	6.15	1.00	70	-	130	99.2	
118	Sn	2	115	4.89	ppb	3.56	5.00	70	-	130	97.9	
121	Sb	2	115	2.03	ppb	2.11	2.00	70	-	130	101.3	
137	Ba	2	115	4.99	ppb	3.16	5.00	70	-	130	99.8	
205	Tl	2	209	0.98	ppb	2.84	1.00	70	-	130	98.3	
208	Pb	2	209	1.03	ppb	0.83	1.00	70	-	130	103.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHigl	-808.14	10.51	22.89	-3530.0	70	-	120	ISFail
45	Sc	1		114453.98	0.21	168636.11	67.9	70	-	120	ISFail
45	Sc	2		2929802.00	1.18	4411244.50	66.4	70	-	120	ISFail
72	Ge	1		70050.45	1.13	100925.69	69.4	70	-	120	ISFail
115	In	2		4953002.00	1.29	6534497.50	75.8	70	-	120	
209	Bi	2		4003718.80	1.92	4845836.50	82.6	70	-	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\092_CCB.D\092_CCB.D#

Date Acquired:	May 26 2016 08:12 pm	Sample Name:	CCB4-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.130	ppb	5.27	2.00	2.00	
9	Be	2	45	0.023	ppb	48.60	0.40	0.30	
11	B	2	45	0.638	ppb	3.77	10.00	10.00	
23	Na	1	45	10.350	ppb	2.78	50.00	#####	
24	Mg	1	45	2.180	ppb	19.06	50.00	#####	
27	Al	1	45	10.710	ppb	9.01	50.00	10.00	FailAq
39	K	1	45	10.560	ppb	1.43	50.00	#####	
44	Ca	2	45	23.000	ppb	8.86	50.00	#####	
47	Ti	1	45	-0.010	ppb	173.20	4.00	3.00	
51	V	1	45	0.025	ppb	8.08	4.00	3.00	
52	Cr	1	45	0.034	ppb	31.13	2.00	2.00	
55	Mn	1	45	0.111	ppb	22.26	2.00	3.00	
56	Fe	1	72	13.990	ppb	11.07	50.00	30.00	
59	Co	1	72	0.015	ppb	11.48	2.00	3.00	
60	Ni	1	72	0.031	ppb	16.01	2.00	3.00	
63	Cu	1	72	0.043	ppb	15.14	2.00	2.00	
66	Zn	1	72	-0.031	ppb	10.91	4.00	2.00	
75	As	1	72	0.087	ppb	5.53	2.00	2.00	
78	Se	1	72	0.094	ppb	34.64	0.60	2.00	
88	Sr	2	115	0.143	ppb	2.47	4.00	3.00	
95	Mo	2	115	0.040	ppb	20.62	2.00	2.00	
107	Ag	2	115	0.026	ppb	22.11	0.40	1.00	
111	Cd	2	115	0.023	ppb	45.08	0.40	0.30	
118	Sn	2	115	0.020	ppb	11.13	20.00	3.00	
121	Sb	2	115	0.029	ppb	10.18	2.00	0.80	
137	Ba	2	115	0.035	ppb	24.17	2.00	3.00	
205	Tl	2	209	0.051	ppb	4.58	2.00	0.50	
208	Pb	2	209	0.048	ppb	3.87	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-8.51	189.64	22.89	-37.2	70 - 120	ISFail
45	Sc	1		116262.53	1.20	168636.11	68.9	70 - 120	ISFail
45	Sc	2		3078728.80	2.20	4411244.50	69.8	70 - 120	ISFail
72	Ge	1		71209.09	1.02	100925.69	70.6	70 - 120	
115	In	2		5207976.00	0.98	6534497.50	79.7	70 - 120	
209	Bi	2		4106173.30	1.95	4845836.50	84.7	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\093__PB.D\093__PB.D#

Date Acquired:	May 26 2016 08:18 pm	Sample Name:	MB-75292
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD:
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.128	ppb	12.98	2.0	8.00	
9	Be	2	45	0.014	ppb	21.65	0.4	1.20	
11	B	2	45	0.426	ppb	2.77	10.0	30.00	
23	Na	1	45	12.180	ppb	2.58	50.0	#####	
24	Mg	1	45	3.507	ppb	16.49	50.0	#####	
27	Al	1	45	5.259	ppb	19.08	50.0	#####	
39	K	1	45	13.790	ppb	2.73	50.0	#####	
44	Ca	2	45	25.270	ppb	6.10	50.0	#####	
47	Ti	1	45	0.222	ppb	69.30	4.0	10.00	
51	V	1	45	0.020	ppb	15.45	4.0	10.00	
52	Cr	1	45	0.229	ppb	5.16	2.0	8.00	
55	Mn	1	45	0.306	ppb	8.32	2.0	8.00	
56	Fe	1	72	24.950	ppb	3.27	50.0	#####	
59	Co	1	72	-0.009	ppb	30.77	2.0	8.00	
60	Ni	1	72	0.620	ppb	2.96	2.0	8.00	
63	Cu	1	72	0.152	ppb	4.96	2.0	8.00	
66	Zn	1	72	2.066	ppb	1.33	4.0	10.00	
75	As	1	72	0.052	ppb	8.89	2.0	4.00	
78	Se	1	72	-0.047	ppb	12.75	0.6	2.00	
88	Sr	2	115	0.091	ppb	5.77	4.0	10.00	
95	Mo	2	115	0.036	ppb	27.74	2.0	8.00	
107	Ag	2	115	0.021	ppb	22.38	0.4	0.80	
111	Cd	2	115	-0.016	ppb	115.54	0.4	1.20	
118	Sn	2	115	4.074	ppb	2.93	20.0	40.00	
121	Sb	2	115	0.008	ppb	18.24	2.0	4.00	
137	Ba	2	115	0.038	ppb	6.06	2.0	8.00	
205	Tl	2	209	0.035	ppb	16.31	2.0	4.00	
208	Pb	2	209	0.061	ppb	2.96	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-20.99	72.04	22.89	-91.7	70 - 120	ISFail
45	Sc	1		120373.62	1.31	168636.11	71.4	70 - 120	
45	Sc	2		3139304.30	2.65	4411244.50	71.2	70 - 120	
72	Ge	1		72606.69	0.39	100925.69	71.9	70 - 120	
115	In	2		5345453.50	2.10	6534497.50	81.8	70 - 120	
209	Bi	2		4250538.00	0.58	4845836.50	87.7	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\094_LCS.D\094_LCS.D#

Date Acquired:	May 26 2016 08:24 pm	Sample Name:	LCS-75292
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.20	ppb	0.86	200.00	80 -	120	95.6	
9	Be	2	45	177.50	ppb	1.75	200.00	80 -	120	88.8	
11	B	2	45	166.70	ppb	2.13	200.00	80 -	120	83.4	
23	Na	1	45	4978.00	ppb	1.94	1000.00	80 -	120	497.8	Fail
24	Mg	1	45	4855.00	ppb	1.00	1000.00	80 -	120	485.5	Fail
27	Al	1	45	1024.00	ppb	1.06	1000.00	80 -	120	102.4	
39	K	1	45	5113.00	ppb	0.72	1000.00	80 -	120	511.3	Fail
44	Ca	2	45	4838.00	ppb	2.26	1000.00	80 -	120	483.8	Fail
47	Ti	1	45	205.90	ppb	0.63	200.00	80 -	120	103.0	
51	V	1	45	189.70	ppb	1.09	200.00	80 -	120	94.9	
52	Cr	1	45	191.30	ppb	1.35	200.00	80 -	120	95.7	
55	Mn	1	45	203.30	ppb	1.17	200.00	80 -	120	101.7	
56	Fe	1	72	975.40	ppb	1.02	1000.00	80 -	120	97.5	
59	Co	1	72	188.40	ppb	0.74	200.00	80 -	120	94.2	
60	Ni	1	72	181.40	ppb	0.69	200.00	80 -	120	90.7	
63	Cu	1	72	186.70	ppb	0.92	200.00	80 -	120	93.4	
66	Zn	1	72	191.70	ppb	0.32	200.00	80 -	120	95.9	
75	As	1	72	194.30	ppb	0.42	200.00	80 -	120	97.2	
78	Se	1	72	194.50	ppb	0.76	200.00	80 -	120	97.3	
88	Sr	2	115	198.30	ppb	1.58	200.00	80 -	120	99.2	
95	Mo	2	115	180.20	ppb	1.52	200.00	80 -	120	90.1	
107	Ag	2	115	183.50	ppb	1.56	200.00	80 -	120	91.8	
111	Cd	2	115	183.20	ppb	1.62	200.00	80 -	120	91.6	
118	Sn	2	115	198.40	ppb	1.70	200.00	80 -	120	99.2	
121	Sb	2	115	192.80	ppb	1.58	200.00	80 -	120	96.4	
137	Ba	2	115	197.60	ppb	0.70	200.00	80 -	120	98.8	
205	Tl	2	209	205.30	ppb	1.37	200.00	80 -	120	102.7	
208	Pb	2	209	192.40	ppb	1.52	200.00	80 -	120	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-39768.09	1.27	22.89	-173712.5	70 -	120	ISFail
45	Sc	1	121522.96	0.59	168636.11	72.1	70 -	120	
45	Sc	2	3117824.80	1.80	4411244.50	70.7	70 -	120	
72	Ge	1	72444.83	0.84	100925.69	71.8	70 -	120	
115	In	2	5286002.50	1.22	6534497.50	80.9	70 -	120	
209	Bi	2	4142432.50	1.24	4845836.50	85.5	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\095_LCS.D\095_LCS.D#

Date Acquired:	May 26 2016 08:30 pm	Sample Name:	LCSD-75292
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	188.40	ppb	0.66	200.00	80 -	120	94.2	
9	Be	2	45	177.40	ppb	1.17	200.00	80 -	120	88.7	
11	B	2	45	168.40	ppb	1.90	200.00	80 -	120	84.2	
23	Na	1	45	4883.00	ppb	0.93	1000.00	80 -	120	488.3	Fail
24	Mg	1	45	4864.00	ppb	0.89	1000.00	80 -	120	486.4	Fail
27	Al	1	45	1018.00	ppb	1.90	1000.00	80 -	120	101.8	
39	K	1	45	5059.00	ppb	1.37	1000.00	80 -	120	505.9	Fail
44	Ca	2	45	4833.00	ppb	1.45	1000.00	80 -	120	483.3	Fail
47	Ti	1	45	201.60	ppb	4.54	200.00	80 -	120	100.8	
51	V	1	45	190.10	ppb	1.34	200.00	80 -	120	95.1	
52	Cr	1	45	192.70	ppb	1.65	200.00	80 -	120	96.4	
55	Mn	1	45	205.20	ppb	0.82	200.00	80 -	120	102.6	
56	Fe	1	72	980.50	ppb	1.31	1000.00	80 -	120	98.1	
59	Co	1	72	190.00	ppb	1.29	200.00	80 -	120	95.0	
60	Ni	1	72	183.60	ppb	1.04	200.00	80 -	120	91.8	
63	Cu	1	72	189.20	ppb	1.38	200.00	80 -	120	94.6	
66	Zn	1	72	194.20	ppb	0.77	200.00	80 -	120	97.1	
75	As	1	72	194.50	ppb	0.85	200.00	80 -	120	97.3	
78	Se	1	72	196.40	ppb	1.68	200.00	80 -	120	98.2	
88	Sr	2	115	201.60	ppb	2.15	200.00	80 -	120	100.8	
95	Mo	2	115	180.60	ppb	1.28	200.00	80 -	120	90.3	
107	Ag	2	115	186.00	ppb	1.61	200.00	80 -	120	93.0	
111	Cd	2	115	185.00	ppb	2.06	200.00	80 -	120	92.5	
118	Sn	2	115	198.60	ppb	1.71	200.00	80 -	120	99.3	
121	Sb	2	115	193.80	ppb	1.60	200.00	80 -	120	96.9	
137	Ba	2	115	200.20	ppb	1.43	200.00	80 -	120	100.1	
205	Tl	2	209	205.30	ppb	1.59	200.00	80 -	120	102.7	
208	Pb	2	209	192.30	ppb	1.24	200.00	80 -	120	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-39499.27	1.18	22.89	-172538.3	70 -	120	ISFail
45	Sc	1	117378.68	0.75	168636.11	69.6	70 -	120	ISFail
45	Sc	2	3150003.00	1.91	4411244.50	71.4	70 -	120	
72	Ge	1	70096.84	0.85	100925.69	69.5	70 -	120	ISFail
115	In	2	5303895.50	0.91	6534497.50	81.2	70 -	120	
209	Bi	2	4188152.00	1.19	4845836.50	86.4	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\097AREF.D\097AREF.D#

Date Acquired:	May 26 2016 08:42 pm	Sample Name:	1605144-13A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	44.840	ppb	#REF!	1.79	2000.00	>RL
9	Be	2	45	2.116	ppb	#REF!	4.64	2000.00	>RL
11	B	2	45	66.950	ppb	#REF!	2.25	2000.00	>RL
23	Na	1	45	1123.000	ppb	#REF!	0.46	25000.00	>RL
24	Mg	1	45	13080.000	ppb	#REF!	1.60	25000.00	>RL
27	Al	1	45	65830.000	ppb	#REF!	1.21	10000.00	OUTCAL
39	K	1	45	13950.000	ppb	#REF!	1.05	25000.00	>RL
44	Ca	2	45	49160.000	ppb	#REF!	2.15	25000.00	OUTCAL
47	Ti	1	45	320.300	ppb	#REF!	3.13	2000.00	>RL
51	V	1	45	86.370	ppb	#REF!	1.25	2000.00	>RL
52	Cr	1	45	56.340	ppb	#REF!	1.32	2000.00	>RL
55	Mn	1	45	761.500	ppb	#REF!	0.86	2000.00	>RL
56	Fe	1	72	55130.000	ppb	#REF!	1.33	10000.00	OUTCAL
59	Co	1	72	18.960	ppb	#REF!	0.65	2000.00	>RL
60	Ni	1	72	32.780	ppb	#REF!	0.91	2000.00	>RL
63	Cu	1	72	52.350	ppb	#REF!	1.64	2000.00	>RL
66	Zn	1	72	634.200	ppb	#REF!	1.32	2000.00	>RL
75	As	1	72	86.880	ppb	#REF!	1.32	2000.00	>RL
78	Se	1	72	15.500	ppb	#REF!	6.23	2000.00	>RL
88	Sr	2	115	382.200	ppb	#REF!	1.92	2000.00	>RL
95	Mo	2	115	1.886	ppb	#REF!	6.74	2000.00	ND
107	Ag	2	115	0.659	ppb	#REF!	4.08	500.00	J
111	Cd	2	115	1.861	ppb	#REF!	0.76	2000.00	>RL
118	Sn	2	115	8.190	ppb	#REF!	0.86	2000.00	J
121	Sb	2	115	3.688	ppb	#REF!	1.07	500.00	J
137	Ba	2	115	613.300	ppb	#REF!	1.72	2000.00	>RL
205	Tl	2	209	0.711	ppb	#REF!	3.43	2000.00	ND
208	Pb	2	209	144.600	ppb	#REF!	1.15	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3084.83	11.64	RHigh	22.89	-13475.0	70 - 120	ISFail
45	Sc	1	114811.72	0.78		168636.11	68.1	70 - 120	ISFail
45	Sc	2	3084816.80	2.73		4411244.50	69.9	70 - 120	ISFail
72	Ge	1	68222.69	0.62		100925.69	67.6	70 - 120	ISFail
115	In	2	5085099.00	1.20		6534497.50	77.8	70 - 120	
209	Bi	2	3860019.00	0.99		4845836.50	79.7	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\098DT1.D\098DT1.D#

Date Acquired:	May 26 2016 08:48 pm	Sample Name:	1605144-13A SD
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 26 2016 12:20 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	8.98	ppb	1.04	-593.58	90 - 110	-7.6	
9	Be	2	45	0.46	ppb	2.27	2.12	90 - 110	109.5	GOOD
11	B	2	45	14.05	ppb	1.90	66.95	90 - 110	104.9	GOOD
23	Na	1	45	226.70	ppb	0.68	1123.00	90 - 110	100.9	GOOD
24	Mg	1	45	2529.00	ppb	0.38	13080.00	90 - 110	96.7	GOOD
27	Al	1	45	12610.00	ppb	1.43	65830.00	90 - 110	95.8	GOOD
39	K	1	45	2767.00	ppb	1.10	13950.00	90 - 110	99.2	GOOD
44	Ca	2	45	10120.00	ppb	2.56	49160.00	90 - 110	102.9	GOOD
47	Ti	1	45	61.15	ppb	2.28	320.30	90 - 110	95.5	GOOD
51	V	1	45	16.80	ppb	1.21	86.37	90 - 110	97.3	GOOD
52	Cr	1	45	11.21	ppb	0.90	56.34	90 - 110	99.5	GOOD
55	Mn	1	45	151.20	ppb	1.47	761.50	90 - 110	99.3	GOOD
56	Fe	1	72	10800.00	ppb	1.02	55130.00	90 - 110	98.0	GOOD
59	Co	1	72	3.69	ppb	1.37	18.96	90 - 110	97.3	GOOD
60	Ni	1	72	6.56	ppb	4.97	32.78	90 - 110	100.0	GOOD
63	Cu	1	72	10.47	ppb	0.29	52.35	90 - 110	100.0	GOOD
66	Zn	1	72	135.80	ppb	1.42	634.20	90 - 110	107.1	GOOD
75	As	1	72	17.74	ppb	1.49	86.88	90 - 110	102.1	GOOD
78	Se	1	72	3.25	ppb	6.44	15.50	90 - 110	104.9	GOOD
88	Sr	2	115	70.04	ppb	1.86	382.20	90 - 110	91.6	GOOD
95	Mo	2	115	0.32	ppb	7.95	1.89	90 - 110	84.7	
107	Ag	2	115	0.15	ppb	3.49	0.66	90 - 110	111.1	
111	Cd	2	115	0.41	ppb	4.23	1.86	90 - 110	108.9	GOOD
118	Sn	2	115	1.58	ppb	2.95	8.19	90 - 110	96.4	GOOD
121	Sb	2	115	0.70	ppb	4.37	3.69	90 - 110	95.2	GOOD
137	Ba	2	115	119.20	ppb	1.87	613.30	90 - 110	97.2	GOOD
205	Tl	2	209	0.17	ppb	6.19	0.71	90 - 110	118.0	
208	Pb	2	209	27.51	ppb	1.56	144.60	90 - 110	95.1	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-593.58	5.65	22.89	-2592.8	70 -	120	ISFail
45	Sc	1		116763.95	0.55	168636.11	69.2	70 -	120	ISFail
45	Sc	2		3108935.80	2.49	4411244.50	70.5	70 -	120	
72	Ge	1		70839.27	0.31	100925.69	70.2	70 -	120	
115	In	2		5248727.50	1.41	6534497.50	80.3	70 -	120	
209	Bi	2		4199692.50	0.98	4845836.50	86.7	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\099SMPL.D\099SMPL.D#

Date Acquired:	May 26 2016 08:54 pm	Sample Name:	1605144-07A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	75.510	ppb	#REF!	1.76	2000.00	>RL
9	Be	2	45	2.256	ppb	#REF!	2.09	2000.00	>RL
11	B	2	45	94.000	ppb	#REF!	2.88	2000.00	>RL
23	Na	1	45	14460.000	ppb	#REF!	0.86	25000.00	>RL
24	Mg	1	45	18710.000	ppb	#REF!	0.97	25000.00	>RL
27	Al	1	45	71110.000	ppb	#REF!	0.96	10000.00	OUTCAL
39	K	1	45	13860.000	ppb	#REF!	0.94	25000.00	>RL
44	Ca	2	45	230800.000	ppb	#REF!	2.42	25000.00	OUTCAL
47	Ti	1	45	451.800	ppb	#REF!	2.30	2000.00	>RL
51	V	1	45	108.300	ppb	#REF!	1.82	2000.00	>RL
52	Cr	1	45	81.750	ppb	#REF!	1.45	2000.00	>RL
55	Mn	1	45	411.900	ppb	#REF!	1.73	2000.00	>RL
56	Fe	1	72	66190.000	ppb	#REF!	2.03	10000.00	OUTCAL
59	Co	1	72	22.390	ppb	#REF!	0.63	2000.00	>RL
60	Ni	1	72	46.350	ppb	#REF!	1.94	2000.00	>RL
63	Cu	1	72	13.500	ppb	#REF!	2.16	2000.00	>RL
66	Zn	1	72	151.000	ppb	#REF!	0.99	2000.00	>RL
75	As	1	72	19.880	ppb	#REF!	1.67	2000.00	>RL
78	Se	1	72	14.880	ppb	#REF!	5.58	2000.00	>RL
88	Sr	2	115	819.100	ppb	#REF!	1.97	2000.00	>RL
95	Mo	2	115	2.985	ppb	#REF!	4.19	2000.00	J
107	Ag	2	115	0.123	ppb	#REF!	11.33	500.00	ND
111	Cd	2	115	0.927	ppb	#REF!	3.38	2000.00	J
118	Sn	2	115	5.590	ppb	#REF!	2.68	2000.00	ND
121	Sb	2	115	0.276	ppb	#REF!	6.23	500.00	ND
137	Ba	2	115	1730.000	ppb	#REF!	2.26	2000.00	>RL
205	Tl	2	209	0.507	ppb	#REF!	1.87	2000.00	ND
208	Pb	2	209	23.500	ppb	#REF!	1.57	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5314.36	10.45	RHigh	22.89	-23213.9	70 - 120	ISFail
45	Sc	1	115940.25	0.79		168636.11	68.8	70 - 120	ISFail
45	Sc	2	3069505.30	2.00		4411244.50	69.6	70 - 120	ISFail
72	Ge	1	67540.00	0.58		100925.69	66.9	70 - 120	ISFail
115	In	2	5102916.50	1.43		6534497.50	78.1	70 - 120	
209	Bi	2	3747821.30	2.11		4845836.50	77.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\100SMPL.D\100SMPL.D#

Date Acquired:	May 26 2016 09:00 pm	Sample Name:	1605144-08A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	81.560	ppb	#REF!	1.51	2000.00	>RL
9	Be	2	45	3.253	ppb	#REF!	4.26	2000.00	>RL
11	B	2	45	129.300	ppb	#REF!	3.09	2000.00	>RL
23	Na	1	45	7453.000	ppb	#REF!	0.96	25000.00	>RL
24	Mg	1	45	17340.000	ppb	#REF!	2.04	25000.00	>RL
27	Al	1	45	65090.000	ppb	#REF!	1.72	10000.00	OUTCAL
39	K	1	45	23570.000	ppb	#REF!	0.18	25000.00	>RL
44	Ca	2	45	52130.000	ppb	#REF!	3.21	25000.00	OUTCAL
47	Ti	1	45	347.200	ppb	#REF!	0.47	2000.00	>RL
51	V	1	45	89.900	ppb	#REF!	0.95	2000.00	>RL
52	Cr	1	45	75.200	ppb	#REF!	0.80	2000.00	>RL
55	Mn	1	45	235.400	ppb	#REF!	0.87	2000.00	>RL
56	Fe	1	72	100900.000	ppb	#REF!	1.97	10000.00	OUTCAL
59	Co	1	72	28.050	ppb	#REF!	1.05	2000.00	>RL
60	Ni	1	72	41.140	ppb	#REF!	1.14	2000.00	>RL
63	Cu	1	72	5.861	ppb	#REF!	0.93	2000.00	J
66	Zn	1	72	202.700	ppb	#REF!	1.35	2000.00	>RL
75	As	1	72	20.450	ppb	#REF!	1.29	2000.00	>RL
78	Se	1	72	19.220	ppb	#REF!	3.01	2000.00	>RL
88	Sr	2	115	291.500	ppb	#REF!	1.68	2000.00	>RL
95	Mo	2	115	0.923	ppb	#REF!	2.27	2000.00	ND
107	Ag	2	115	0.108	ppb	#REF!	12.29	500.00	ND
111	Cd	2	115	0.871	ppb	#REF!	17.80	2000.00	J
118	Sn	2	115	5.612	ppb	#REF!	4.20	2000.00	ND
121	Sb	2	115	0.141	ppb	#REF!	6.59	500.00	ND
137	Ba	2	115	187.000	ppb	#REF!	1.82	2000.00	>RL
205	Tl	2	209	0.291	ppb	#REF!	4.97	2000.00	ND
208	Pb	2	209	19.500	ppb	#REF!	2.04	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5489.63	2.04	22.89	-23979.5	70 - 120	ISFail
45	Sc	1	115469.71	0.05	168636.11	68.5	70 - 120	ISFail
45	Sc	2	3062562.00	3.01	4411244.50	69.4	70 - 120	ISFail
72	Ge	1	68269.35	0.12	100925.69	67.6	70 - 120	ISFail
115	In	2	5021843.50	1.31	6534497.50	76.9	70 - 120	
209	Bi	2	3737886.50	1.02	4845836.50	77.1	70 - 120	

Sample QC Report **C:\ICPCHEM\1\DATA\16E26l01.B\101SMPL.D\101SMPL.D#**

Date Acquired:	May 26 2016 09:06 pm	Sample Name:	1605144-09A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	61.480	ppb	#REF!	2.16	2000.00	>RL
9	Be	2	45	2.319	ppb	#REF!	4.13	2000.00	>RL
11	B	2	45	68.870	ppb	#REF!	3.46	2000.00	>RL
23	Na	1	45	2440.000	ppb	#REF!	0.52	25000.00	>RL
24	Mg	1	45	14900.000	ppb	#REF!	0.66	25000.00	>RL
27	Al	1	45	77630.000	ppb	#REF!	0.75	10000.00	OUTCAL
39	K	1	45	16170.000	ppb	#REF!	0.51	25000.00	>RL
44	Ca	2	45	92460.000	ppb	#REF!	2.98	25000.00	OUTCAL
47	Ti	1	45	327.300	ppb	#REF!	1.18	2000.00	>RL
51	V	1	45	118.500	ppb	#REF!	0.91	2000.00	>RL
52	Cr	1	45	256.000	ppb	#REF!	0.52	2000.00	>RL
55	Mn	1	45	663.900	ppb	#REF!	0.18	2000.00	>RL
56	Fe	1	72	69250.000	ppb	#REF!	0.71	10000.00	OUTCAL
59	Co	1	72	22.810	ppb	#REF!	0.87	2000.00	>RL
60	Ni	1	72	39.110	ppb	#REF!	0.72	2000.00	>RL
63	Cu	1	72	41.330	ppb	#REF!	0.42	2000.00	>RL
66	Zn	1	72	329.700	ppb	#REF!	0.45	2000.00	>RL
75	As	1	72	42.110	ppb	#REF!	0.46	2000.00	>RL
78	Se	1	72	15.820	ppb	#REF!	5.34	2000.00	>RL
88	Sr	2	115	432.600	ppb	#REF!	2.03	2000.00	>RL
95	Mo	2	115	2.797	ppb	#REF!	3.95	2000.00	J
107	Ag	2	115	0.232	ppb	#REF!	4.67	500.00	ND
111	Cd	2	115	1.226	ppb	#REF!	6.05	2000.00	>RL
118	Sn	2	115	5.871	ppb	#REF!	5.74	2000.00	ND
121	Sb	2	115	4.559	ppb	#REF!	5.18	500.00	>RL
137	Ba	2	115	782.100	ppb	#REF!	2.40	2000.00	>RL
205	Tl	2	209	0.642	ppb	#REF!	5.29	2000.00	ND
208	Pb	2	209	196.500	ppb	#REF!	1.73	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3761.66	17.26	RHigh	22.89	-16431.5	70 - 120	ISFail
45	Sc	1	112254.78	0.42		168636.11	66.6	70 - 120	ISFail
45	Sc	2	2910371.00	2.05		4411244.50	66.0	70 - 120	ISFail
72	Ge	1	66243.93	0.57		100925.69	65.6	70 - 120	ISFail
115	In	2	4826993.50	2.13		6534497.50	73.9	70 - 120	
209	Bi	2	3631004.50	1.24		4845836.50	74.9	70 - 120	

Sample QC Report **C:\ICPCHEM\1\DATA\16E26l01.B\102SMPL.D\102SMPL.D#**

Date Acquired:	May 26 2016 09:12 pm	Sample Name:	**1605144-10A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	70.340	ppb	#REF!	1.40	2000.00	>RL
9	Be	2	45	2.372	ppb	#REF!	4.69	2000.00	>RL
11	B	2	45	78.090	ppb	#REF!	2.03	2000.00	>RL
23	Na	1	45	8185.000	ppb	#REF!	1.41	25000.00	>RL
24	Mg	1	45	17580.000	ppb	#REF!	1.03	25000.00	>RL
27	Al	1	45	85470.000	ppb	#REF!	2.46	10000.00	OUTCAL
39	K	1	45	16210.000	ppb	#REF!	0.69	25000.00	>RL
44	Ca	2	45	132800.000	ppb	#REF!	1.87	25000.00	OUTCAL
47	Ti	1	45	437.800	ppb	#REF!	0.15	2000.00	>RL
51	V	1	45	109.900	ppb	#REF!	1.09	2000.00	>RL
52	Cr	1	45	66.330	ppb	#REF!	0.78	2000.00	>RL
55	Mn	1	45	559.300	ppb	#REF!	1.51	2000.00	>RL
56	Fe	1	72	66300.000	ppb	#REF!	1.72	10000.00	OUTCAL
59	Co	1	72	21.820	ppb	#REF!	1.19	2000.00	>RL
60	Ni	1	72	38.190	ppb	#REF!	1.79	2000.00	>RL
63	Cu	1	72	17.270	ppb	#REF!	1.05	2000.00	>RL
66	Zn	1	72	173.700	ppb	#REF!	1.01	2000.00	>RL
75	As	1	72	21.780	ppb	#REF!	2.58	2000.00	>RL
78	Se	1	72	16.060	ppb	#REF!	3.54	2000.00	>RL
88	Sr	2	115	543.000	ppb	#REF!	2.45	2000.00	>RL
95	Mo	2	115	1.292	ppb	#REF!	2.69	2000.00	ND
107	Ag	2	115	0.173	ppb	#REF!	10.86	500.00	ND
111	Cd	2	115	1.029	ppb	#REF!	3.86	2000.00	J
118	Sn	2	115	6.848	ppb	#REF!	0.50	2000.00	ND
121	Sb	2	115	1.004	ppb	#REF!	6.83	500.00	ND
137	Ba	2	115	512.700	ppb	#REF!	1.65	2000.00	>RL
205	Tl	2	209	0.651	ppb	#REF!	3.77	2000.00	ND
208	Pb	2	209	36.680	ppb	#REF!	0.99	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4565.86	6.69	RHigh	22.89	-19944.3	70 - 120	ISFail
45	Sc	1	117535.38	1.07		168636.11	69.7	70 - 120	ISFail
45	Sc	2	3017668.80	1.69		4411244.50	68.4	70 - 120	ISFail
72	Ge	1	68808.09	1.32		100925.69	68.2	70 - 120	ISFail
115	In	2	5082068.00	0.74		6534497.50	77.8	70 - 120	
209	Bi	2	3828165.30	0.88		4845836.50	79.0	70 - 120	

Sample QC Report C:\ICPCHEM\1\DATA\16E26l01.B\103SMPL.D\103SMPL.D#

Date Acquired:	May 26 2016 09:18 pm	Sample Name:	1605144-11A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	73.760	ppb	#REF!	0.89	2000.00	>RL
9	Be	2	45	2.362	ppb	#REF!	6.47	2000.00	>RL
11	B	2	45	94.460	ppb	#REF!	2.74	2000.00	>RL
23	Na	1	45	15320.000	ppb	#REF!	0.15	25000.00	>RL
24	Mg	1	45	19440.000	ppb	#REF!	2.39	25000.00	>RL
27	Al	1	45	73480.000	ppb	#REF!	1.72	10000.00	OUTCAL
39	K	1	45	14180.000	ppb	#REF!	0.75	25000.00	>RL
44	Ca	2	45	260800.000	ppb	#REF!	2.32	25000.00	OUTCAL
47	Ti	1	45	457.000	ppb	#REF!	2.09	2000.00	>RL
51	V	1	45	115.000	ppb	#REF!	1.89	2000.00	>RL
52	Cr	1	45	71.820	ppb	#REF!	1.42	2000.00	>RL
55	Mn	1	45	428.900	ppb	#REF!	1.37	2000.00	>RL
56	Fe	1	72	69870.000	ppb	#REF!	1.55	10000.00	OUTCAL
59	Co	1	72	21.740	ppb	#REF!	0.70	2000.00	>RL
60	Ni	1	72	39.750	ppb	#REF!	1.44	2000.00	>RL
63	Cu	1	72	14.900	ppb	#REF!	1.24	2000.00	>RL
66	Zn	1	72	158.900	ppb	#REF!	0.96	2000.00	>RL
75	As	1	72	21.840	ppb	#REF!	1.14	2000.00	>RL
78	Se	1	72	18.100	ppb	#REF!	3.59	2000.00	>RL
88	Sr	2	115	646.900	ppb	#REF!	1.70	2000.00	>RL
95	Mo	2	115	1.859	ppb	#REF!	4.22	2000.00	ND
107	Ag	2	115	0.112	ppb	#REF!	7.53	500.00	ND
111	Cd	2	115	1.106	ppb	#REF!	4.69	2000.00	J
118	Sn	2	115	5.455	ppb	#REF!	3.46	2000.00	ND
121	Sb	2	115	0.337	ppb	#REF!	4.78	500.00	ND
137	Ba	2	115	750.000	ppb	#REF!	2.09	2000.00	>RL
205	Tl	2	209	0.528	ppb	#REF!	1.74	2000.00	ND
208	Pb	2	209	27.020	ppb	#REF!	1.34	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5154.43	10.92	RHigh	22.89	-22515.3	70 - 120	ISFail
45	Sc	1	116286.72	0.98		168636.11	69.0	70 - 120	ISFail
45	Sc	2	3128875.00	2.66		4411244.50	70.9	70 - 120	
72	Ge	1	67494.83	1.07		100925.69	66.9	70 - 120	ISFail
115	In	2	5314993.50	1.85		6534497.50	81.3	70 - 120	
209	Bi	2	3904092.50	1.44		4845836.50	80.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\104SMPL.D\104SMPL.D#

Date Acquired:	May 26 2016 09:24 pm	Sample Name:	1605144-12A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	82.540	ppb	#REF!	1.09	2000.00	>RL
9	Be	2	45	3.129	ppb	#REF!	0.39	2000.00	>RL
11	B	2	45	121.800	ppb	#REF!	2.92	2000.00	>RL
23	Na	1	45	8259.000	ppb	#REF!	2.94	25000.00	>RL
24	Mg	1	45	17380.000	ppb	#REF!	2.24	25000.00	>RL
27	Al	1	45	64680.000	ppb	#REF!	1.77	10000.00	OUTCAL
39	K	1	45	22450.000	ppb	#REF!	4.43	25000.00	>RL
44	Ca	2	45	98270.000	ppb	#REF!	2.32	25000.00	OUTCAL
47	Ti	1	45	353.400	ppb	#REF!	2.39	2000.00	>RL
51	V	1	45	92.440	ppb	#REF!	1.51	2000.00	>RL
52	Cr	1	45	74.420	ppb	#REF!	1.26	2000.00	>RL
55	Mn	1	45	265.200	ppb	#REF!	1.90	2000.00	>RL
56	Fe	1	72	99730.000	ppb	#REF!	1.46	10000.00	OUTCAL
59	Co	1	72	28.000	ppb	#REF!	1.82	2000.00	>RL
60	Ni	1	72	44.700	ppb	#REF!	1.69	2000.00	>RL
63	Cu	1	72	5.748	ppb	#REF!	0.45	2000.00	J
66	Zn	1	72	196.800	ppb	#REF!	0.98	2000.00	>RL
75	As	1	72	19.760	ppb	#REF!	1.91	2000.00	>RL
78	Se	1	72	19.140	ppb	#REF!	4.81	2000.00	>RL
88	Sr	2	115	425.500	ppb	#REF!	1.07	2000.00	>RL
95	Mo	2	115	0.857	ppb	#REF!	6.81	2000.00	ND
107	Ag	2	115	0.126	ppb	#REF!	15.69	500.00	ND
111	Cd	2	115	0.813	ppb	#REF!	3.65	2000.00	J
118	Sn	2	115	5.591	ppb	#REF!	4.46	2000.00	ND
121	Sb	2	115	0.117	ppb	#REF!	16.85	500.00	ND
137	Ba	2	115	244.900	ppb	#REF!	1.29	2000.00	>RL
205	Tl	2	209	0.305	ppb	#REF!	2.94	2000.00	ND
208	Pb	2	209	17.770	ppb	#REF!	1.35	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5328.98	9.69	RHigh	22.89	-23277.7	70 - 120	ISFail
45	Sc	1	114547.35	2.51		168636.11	67.9	70 - 120	ISFail
45	Sc	2	3019665.00	2.01		4411244.50	68.5	70 - 120	ISFail
72	Ge	1	68519.88	2.55		100925.69	67.9	70 - 120	ISFail
115	In	2	5066847.00	1.46		6534497.50	77.5	70 - 120	
209	Bi	2	3811841.30	0.63		4845836.50	78.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\105SMPL.D\105SMPL.D#

Date Acquired:	May 26 2016 09:30 pm	Sample Name:	1605144-14A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	41.410	ppb	#REF!	0.66	2000.00	>RL
9	Be	2	45	1.990	ppb	#REF!	7.70	2000.00	>RL
11	B	2	45	52.560	ppb	#REF!	2.01	2000.00	>RL
23	Na	1	45	907.800	ppb	#REF!	0.96	25000.00	>RL
24	Mg	1	45	11710.000	ppb	#REF!	0.83	25000.00	>RL
27	Al	1	45	62900.000	ppb	#REF!	0.09	10000.00	OUTCAL
39	K	1	45	12690.000	ppb	#REF!	0.57	25000.00	>RL
44	Ca	2	45	36840.000	ppb	#REF!	2.48	25000.00	OUTCAL
47	Ti	1	45	302.800	ppb	#REF!	0.95	2000.00	>RL
51	V	1	45	80.520	ppb	#REF!	0.68	2000.00	>RL
52	Cr	1	45	52.320	ppb	#REF!	0.84	2000.00	>RL
55	Mn	1	45	713.400	ppb	#REF!	0.72	2000.00	>RL
56	Fe	1	72	51070.000	ppb	#REF!	0.39	10000.00	OUTCAL
59	Co	1	72	17.550	ppb	#REF!	0.59	2000.00	>RL
60	Ni	1	72	31.760	ppb	#REF!	0.08	2000.00	>RL
63	Cu	1	72	51.700	ppb	#REF!	0.49	2000.00	>RL
66	Zn	1	72	565.500	ppb	#REF!	0.69	2000.00	>RL
75	As	1	72	73.640	ppb	#REF!	0.29	2000.00	>RL
78	Se	1	72	15.370	ppb	#REF!	4.66	2000.00	>RL
88	Sr	2	115	304.800	ppb	#REF!	1.20	2000.00	>RL
95	Mo	2	115	1.442	ppb	#REF!	4.68	2000.00	ND
107	Ag	2	115	0.487	ppb	#REF!	1.59	500.00	J
111	Cd	2	115	1.513	ppb	#REF!	6.00	2000.00	>RL
118	Sn	2	115	6.278	ppb	#REF!	2.32	2000.00	ND
121	Sb	2	115	3.345	ppb	#REF!	4.65	500.00	J
137	Ba	2	115	539.400	ppb	#REF!	2.12	2000.00	>RL
205	Tl	2	209	0.541	ppb	#REF!	1.35	2000.00	ND
208	Pb	2	209	145.300	ppb	#REF!	1.22	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-2364.65	8.34	RHigh	22.89	-10329.1	70 - 120	ISFail
45	Sc	1	108039.22	0.87		168636.11	64.1	70 - 120	ISFail
45	Sc	2	2882569.80	1.85		4411244.50	65.3	70 - 120	ISFail
72	Ge	1	64294.03	0.40		100925.69	63.7	70 - 120	ISFail
115	In	2	4871556.00	1.72		6534497.50	74.6	70 - 120	
209	Bi	2	3765092.80	0.63		4845836.50	77.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\106SMPL.D\106SMPL.D#

Date Acquired:	May 26 2016 09:36 pm	Sample Name:	1605144-15A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	37.320	ppb	#REF!	0.95	2000.00	>RL
9	Be	2	45	1.739	ppb	#REF!	2.44	2000.00	>RL
11	B	2	45	54.250	ppb	#REF!	2.30	2000.00	>RL
23	Na	1	45	890.800	ppb	#REF!	1.68	25000.00	>RL
24	Mg	1	45	10790.000	ppb	#REF!	2.17	25000.00	>RL
27	Al	1	45	57050.000	ppb	#REF!	2.48	10000.00	OUTCAL
39	K	1	45	11770.000	ppb	#REF!	1.32	25000.00	>RL
44	Ca	2	45	37590.000	ppb	#REF!	2.38	25000.00	OUTCAL
47	Ti	1	45	304.400	ppb	#REF!	1.64	2000.00	>RL
51	V	1	45	74.280	ppb	#REF!	2.96	2000.00	>RL
52	Cr	1	45	49.000	ppb	#REF!	2.54	2000.00	>RL
55	Mn	1	45	669.900	ppb	#REF!	1.95	2000.00	>RL
56	Fe	1	72	46690.000	ppb	#REF!	2.18	10000.00	OUTCAL
59	Co	1	72	16.270	ppb	#REF!	1.91	2000.00	>RL
60	Ni	1	72	28.370	ppb	#REF!	1.87	2000.00	>RL
63	Cu	1	72	53.600	ppb	#REF!	1.66	2000.00	>RL
66	Zn	1	72	531.000	ppb	#REF!	1.48	2000.00	>RL
75	As	1	72	67.680	ppb	#REF!	1.96	2000.00	>RL
78	Se	1	72	14.060	ppb	#REF!	4.41	2000.00	>RL
88	Sr	2	115	298.200	ppb	#REF!	1.75	2000.00	>RL
95	Mo	2	115	1.533	ppb	#REF!	3.66	2000.00	ND
107	Ag	2	115	0.443	ppb	#REF!	2.19	500.00	J
111	Cd	2	115	1.564	ppb	#REF!	3.20	2000.00	>RL
118	Sn	2	115	6.474	ppb	#REF!	2.25	2000.00	ND
121	Sb	2	115	2.945	ppb	#REF!	3.52	500.00	J
137	Ba	2	115	538.900	ppb	#REF!	1.73	2000.00	>RL
205	Tl	2	209	0.491	ppb	#REF!	3.68	2000.00	ND
208	Pb	2	209	125.900	ppb	#REF!	0.23	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-2452.14	12.80	RHigh	22.89	-10711.3	70 - 120	ISFail
45	Sc	1	108433.20	1.28		168636.11	64.3	70 - 120	ISFail
45	Sc	2	3005489.80	1.81		4411244.50	68.1	70 - 120	ISFail
72	Ge	1	64784.84	0.51		100925.69	64.2	70 - 120	ISFail
115	In	2	5169118.00	0.50		6534497.50	79.1	70 - 120	
209	Bi	2	4180096.50	0.23		4845836.50	86.3	70 - 120	

Sample QC Report **C:\ICPCHEM\1\DATA\16E26l01.B\107SMPL.D\107SMPL.D#**

Date Acquired:	May 26 2016 09:42 pm	Sample Name:	**1605144-17A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	45.240	ppb	#REF!	1.48	2000.00	>RL
9	Be	2	45	1.971	ppb	#REF!	0.27	2000.00	>RL
11	B	2	45	62.260	ppb	#REF!	2.48	2000.00	>RL
23	Na	1	45	1281.000	ppb	#REF!	0.65	25000.00	>RL
24	Mg	1	45	13000.000	ppb	#REF!	1.61	25000.00	>RL
27	Al	1	45	68470.000	ppb	#REF!	1.22	10000.00	OUTCAL
39	K	1	45	14130.000	ppb	#REF!	0.65	25000.00	>RL
44	Ca	2	45	78940.000	ppb	#REF!	2.00	25000.00	OUTCAL
47	Ti	1	45	302.500	ppb	#REF!	1.53	2000.00	>RL
51	V	1	45	91.930	ppb	#REF!	0.29	2000.00	>RL
52	Cr	1	45	55.070	ppb	#REF!	0.68	2000.00	>RL
55	Mn	1	45	774.100	ppb	#REF!	1.18	2000.00	>RL
56	Fe	1	72	55270.000	ppb	#REF!	0.48	10000.00	OUTCAL
59	Co	1	72	21.200	ppb	#REF!	0.70	2000.00	>RL
60	Ni	1	72	32.330	ppb	#REF!	1.18	2000.00	>RL
63	Cu	1	72	45.200	ppb	#REF!	0.89	2000.00	>RL
66	Zn	1	72	433.000	ppb	#REF!	0.87	2000.00	>RL
75	As	1	72	67.910	ppb	#REF!	0.44	2000.00	>RL
78	Se	1	72	15.080	ppb	#REF!	4.33	2000.00	>RL
88	Sr	2	115	391.800	ppb	#REF!	0.86	2000.00	>RL
95	Mo	2	115	1.608	ppb	#REF!	2.70	2000.00	ND
107	Ag	2	115	0.443	ppb	#REF!	3.52	500.00	J
111	Cd	2	115	1.243	ppb	#REF!	5.54	2000.00	>RL
118	Sn	2	115	5.612	ppb	#REF!	0.90	2000.00	ND
121	Sb	2	115	2.805	ppb	#REF!	4.08	500.00	J
137	Ba	2	115	617.500	ppb	#REF!	1.82	2000.00	>RL
205	Tl	2	209	0.567	ppb	#REF!	3.63	2000.00	ND
208	Pb	2	209	103.500	ppb	#REF!	1.42	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3142.80	2.04	22.89	-13728.2	70 - 120	ISFail
45	Sc	1	110398.59	0.06	168636.11	65.5	70 - 120	ISFail
45	Sc	2	3103897.80	1.50	4411244.50	70.4	70 - 120	
72	Ge	1	65854.49	0.50	100925.69	65.3	70 - 120	ISFail
115	In	2	5267900.50	1.19	6534497.50	80.6	70 - 120	
209	Bi	2	4044015.00	0.98	4845836.50	83.5	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\108_PDS.D\108_PDS.D#

Date Acquired:	May 26 2016 09:48 pm	Sample Name:	1605144-13A PDS
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	207.50	ppb	1.36	-21126.95	200	75-125	######	Fail
9	Be	2	45	160.50	ppb	1.82	2.12	200	75-125	79.2	
11	B	2	45	213.40	ppb	2.52	66.95	200	75-125	73.2	Fail
23	Na	1	45	5939.00	ppb	1.82	1123.00	5000	75-125	96.3	
24	Mg	1	45	17520.00	ppb	1.67	13080.00	5000	75-125	88.8	
27	Al	1	45	67470.00	ppb	1.79	65830.00	5000	75-125	32.8	Fail
39	K	1	45	18290.00	ppb	1.67	13950.00	5000	75-125	86.8	
44	Ca	2	45	52880.00	ppb	2.37	49160.00	5000	75-125	74.4	Fail
47	Ti	1	45	504.80	ppb	3.39	320.30	200	75-125	92.3	
51	V	1	45	271.80	ppb	1.87	86.37	200	75-125	92.7	
52	Cr	1	45	243.50	ppb	1.32	56.34	200	75-125	93.6	
55	Mn	1	45	940.40	ppb	1.92	761.50	200	75-125	89.5	
56	Fe	1	72	58770.00	ppb	2.23	55130.00	5000	75-125	72.8	Fail
59	Co	1	72	202.10	ppb	1.41	18.96	200	75-125	91.6	
60	Ni	1	72	204.30	ppb	2.24	32.78	200	75-125	85.8	
63	Cu	1	72	224.10	ppb	0.91	52.35	200	75-125	85.9	
66	Zn	1	72	789.20	ppb	1.86	634.20	200	75-125	77.5	
75	As	1	72	275.70	ppb	1.68	86.88	200	75-125	94.4	
78	Se	1	72	206.70	ppb	2.00	15.50	200	75-125	95.6	
88	Sr	2	115	560.30	ppb	2.10	382.20	200	75-125	89.0	
95	Mo	2	115	178.30	ppb	1.79	1.89	200	75-125	88.2	
107	Ag	2	115	176.90	ppb	1.92	0.66	200	75-125	88.1	
111	Cd	2	115	176.70	ppb	1.85	1.86	200	75-125	87.4	
118	Sn	2	115	205.00	ppb	1.67	8.19	200	75-125	98.4	
121	Sb	2	115	203.20	ppb	1.89	3.69	200	75-125	99.8	
137	Ba	2	115	807.00	ppb	1.45	613.30	200	75-125	96.9	
205	Tl	2	209	206.70	ppb	0.82	0.71	200	75-125	103.0	
208	Pb	2	209	346.90	ppb	0.84	144.60	200	75-125	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-21126.95	4.72	22.89	-92285.4	70 -	120	ISFail
45	Sc	1	112236.50	0.85	168636.11	66.6	70 -	120	ISFail
45	Sc	2	3202520.30	2.04	4411244.50	72.6	70 -	120	
72	Ge	1	66796.18	0.81	100925.69	66.2	70 -	120	ISFail
115	In	2	5455923.50	1.19	6534497.50	83.5	70 -	120	
209	Bi	2	4169810.80	1.29	4845836.50	86.0	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\109_MS.D\109_MS.D#

Date Acquired:	May 26 2016 09:54 pm	Sample Name:	**1605144-13A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	205.10	ppb	1.62	########	200	80-120	######	Fail
9	Be	2	45	156.50	ppb	2.40	2.12	200	80-120	77.2	Fail
11	B	2	45	205.50	ppb	3.00	66.95	200	80-120	69.3	Fail
23	Na	1	45	5661.00	ppb	1.19	1123.00	1000	80-120	453.8	Fail
24	Mg	1	45	16920.00	ppb	0.95	13080.00	1000	80-120	384.0	Fail
27	Al	1	45	65760.00	ppb	2.57	65830.00	1000	80-120	-7.0	Fail
39	K	1	45	18160.00	ppb	0.99	13950.00	1000	80-120	421.0	Fail
44	Ca	2	45	51160.00	ppb	3.01	49160.00	1000	80-120	200.0	Fail
47	Ti	1	45	498.10	ppb	1.59	320.30	200	80-120	88.9	
51	V	1	45	262.20	ppb	0.54	86.37	200	80-120	87.9	
52	Cr	1	45	234.10	ppb	1.44	56.34	200	80-120	88.9	
55	Mn	1	45	937.50	ppb	1.10	761.50	200	80-120	88.0	
56	Fe	1	72	53580.00	ppb	1.95	55130.00	1000	80-120	-155.0	Fail
59	Co	1	72	193.30	ppb	0.77	18.96	200	80-120	87.2	
60	Ni	1	72	198.60	ppb	1.25	32.78	200	80-120	82.9	
63	Cu	1	72	222.90	ppb	0.82	52.35	200	80-120	85.3	
66	Zn	1	72	763.70	ppb	0.77	634.20	200	80-120	64.7	Fail
75	As	1	72	266.90	ppb	1.01	86.88	200	80-120	90.0	
78	Se	1	72	202.10	ppb	2.35	15.50	200	80-120	93.3	
88	Sr	2	115	552.30	ppb	2.74	382.20	200	80-120	85.0	
95	Mo	2	115	166.80	ppb	2.63	1.89	200	80-120	82.5	
107	Ag	2	115	171.00	ppb	3.15	0.66	200	80-120	85.2	
111	Cd	2	115	177.30	ppb	2.51	1.86	200	80-120	87.7	
118	Sn	2	115	191.10	ppb	2.91	8.19	200	80-120	91.5	
121	Sb	2	115	76.77	ppb	3.00	3.69	200	80-120	36.5	Fail
137	Ba	2	115	789.30	ppb	2.58	613.30	200	80-120	88.0	
205	Tl	2	209	201.50	ppb	2.92	0.71	200	80-120	100.4	
208	Pb	2	209	333.10	ppb	2.70	144.60	200	80-120	94.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-37867.16	1.39	22.89	########	70 -	120	ISFail
45	Sc	1	117034.37	0.50	168636.11	69.4	70 -	120	ISFail
45	Sc	2	3150471.00	3.35	4411244.50	71.4	70 -	120	
72	Ge	1	69389.35	0.77	100925.69	68.8	70 -	120	ISFail
115	In	2	5354111.00	3.09	6534497.50	81.9	70 -	120	
209	Bi	2	4177820.30	2.82	4845836.50	86.2	70 -	120	

MS/MSD QC Report   C:\ICPCHEM\1\DATA\16E26l01.B\110_MS.D\110_MS.D#

Date Acquired:	May 26 2016 10:00 pm	Sample Name:	1605144-13A MSD
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 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	197.10	ppb	1.14	########	200	80-120	######	Fail
9	Be	2	45	151.80	ppb	1.52	2.12	200	80-120	74.8	Fail
11	B	2	45	202.90	ppb	2.02	66.95	200	80-120	68.0	Fail
23	Na	1	45	5365.00	ppb	2.41	1123.00	1000	80-120	424.2	Fail
24	Mg	1	45	15900.00	ppb	0.42	13080.00	1000	80-120	282.0	Fail
27	Al	1	45	60640.00	ppb	0.77	65830.00	1000	80-120	-519.0	Fail
39	K	1	45	16850.00	ppb	1.21	13950.00	1000	80-120	290.0	Fail
44	Ca	2	45	46780.00	ppb	2.40	49160.00	1000	80-120	-238.0	Fail
47	Ti	1	45	474.90	ppb	0.75	320.30	200	80-120	77.3	Fail
51	V	1	45	250.00	ppb	0.49	86.37	200	80-120	81.8	
52	Cr	1	45	224.00	ppb	0.51	56.34	200	80-120	83.8	
55	Mn	1	45	839.00	ppb	0.08	761.50	200	80-120	38.8	Fail
56	Fe	1	72	48770.00	ppb	0.58	55130.00	1000	80-120	-636.0	Fail
59	Co	1	72	185.90	ppb	0.53	18.96	200	80-120	83.5	
60	Ni	1	72	190.10	ppb	0.41	32.78	200	80-120	78.7	Fail
63	Cu	1	72	210.00	ppb	0.26	52.35	200	80-120	78.8	Fail
66	Zn	1	72	696.90	ppb	0.38	634.20	200	80-120	31.3	Fail
75	As	1	72	254.20	ppb	0.91	86.88	200	80-120	83.7	
78	Se	1	72	194.50	ppb	1.90	15.50	200	80-120	89.5	
88	Sr	2	115	499.90	ppb	1.22	382.20	200	80-120	58.8	Fail
95	Mo	2	115	159.40	ppb	1.90	1.89	200	80-120	78.8	Fail
107	Ag	2	115	164.10	ppb	1.42	0.66	200	80-120	81.7	
111	Cd	2	115	169.10	ppb	1.70	1.86	200	80-120	83.6	
118	Sn	2	115	184.40	ppb	1.66	8.19	200	80-120	88.1	
121	Sb	2	115	72.04	ppb	1.79	3.69	200	80-120	34.2	Fail
137	Ba	2	115	725.20	ppb	2.03	613.30	200	80-120	56.0	Fail
205	Tl	2	209	196.40	ppb	2.10	0.71	200	80-120	97.8	
208	Pb	2	209	317.00	ppb	1.96	144.60	200	80-120	86.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-35166.70	3.43	22.89	########	70 -	120	ISFail
45	Sc	1	110448.47	1.03	168636.11	65.5	70 -	120	ISFail
45	Sc	2	3051043.30	1.75	4411244.50	69.2	70 -	120	ISFail
72	Ge	1	65720.63	1.56	100925.69	65.1	70 -	120	ISFail
115	In	2	5264997.00	1.16	6534497.50	80.6	70 -	120	
209	Bi	2	4189733.30	1.81	4845836.50	86.5	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\112CCV1.D\112CCV1.D#

Date Acquired:	May 26 2016 10:12 pm	Sample Name:	CCV5-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	172.70	ppb	1.53	200.00	90 - 110	86.4	Fail
9	Be	2	45	167.70	ppb	3.65	200.00	90 - 110	83.9	Fail
11	B	2	45	158.20	ppb	3.07	200.00	90 - 110	79.1	Fail
23	Na	1	45	4593.00	ppb	0.76	5000.00	90 - 110	91.9	
24	Mg	1	45	4577.00	ppb	1.39	5000.00	90 - 110	91.5	
27	Al	1	45	4890.00	ppb	1.57	5000.00	90 - 110	97.8	
39	K	1	45	4828.00	ppb	1.12	5000.00	90 - 110	96.6	
44	Ca	2	45	4590.00	ppb	3.32	5000.00	90 - 110	91.8	
47	Ti	1	45	196.60	ppb	1.07	200.00	90 - 110	98.3	
51	V	1	45	187.90	ppb	1.12	200.00	90 - 110	94.0	
52	Cr	1	45	189.00	ppb	1.77	200.00	90 - 110	94.5	
55	Mn	1	45	202.80	ppb	1.14	200.00	90 - 110	101.4	
56	Fe	1	72	4828.00	ppb	1.30	5000.00	90 - 110	96.6	
59	Co	1	72	184.90	ppb	1.19	200.00	90 - 110	92.5	
60	Ni	1	72	178.30	ppb	1.25	200.00	90 - 110	89.2	Fail
63	Cu	1	72	185.30	ppb	1.23	200.00	90 - 110	92.7	
66	Zn	1	72	198.80	ppb	1.94	200.00	90 - 110	99.4	
75	As	1	72	200.80	ppb	1.09	200.00	90 - 110	100.4	
78	Se	1	72	206.30	ppb	0.77	200.00	90 - 110	103.2	
88	Sr	2	115	195.90	ppb	2.20	200.00	90 - 110	98.0	
95	Mo	2	115	175.30	ppb	2.45	200.00	90 - 110	87.7	Fail
107	Ag	2	115	179.70	ppb	2.42	200.00	90 - 110	89.9	Fail
111	Cd	2	115	182.30	ppb	2.56	200.00	90 - 110	91.2	
118	Sn	2	115	189.40	ppb	2.79	200.00	90 - 110	94.7	
121	Sb	2	115	193.40	ppb	2.93	200.00	90 - 110	96.7	
137	Ba	2	115	197.60	ppb	2.13	200.00	90 - 110	98.8	
205	Tl	2	209	200.60	ppb	2.14	200.00	90 - 110	100.3	
208	Pb	2	209	187.40	ppb	2.95	200.00	90 - 110	93.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-33386.47	2.04	22.89	-145836.7	70 - 120	ISFail
45	Sc	1	104854.91	0.50	168636.11	62.2	70 - 120	ISFail
45	Sc	2	2922918.80	1.58	4411244.50	66.3	70 - 120	ISFail
72	Ge	1	63637.11	0.95	100925.69	63.1	70 - 120	ISFail
115	In	2	5068153.50	0.98	6534497.50	77.6	70 - 120	
209	Bi	2	4049706.50	1.87	4845836.50	83.6	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\114LCVL.D\114LCVL.D#

Date Acquired:	May 26 2016 10:24 pm	Sample Name:	LCVL5-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.68	ppb	0.89	5.00	70 -	130	173.5	Fail
9	Be	2	45	0.92	ppb	6.75	1.00	70 -	130	92.1	
11	B	2	45	17.00	ppb	1.64	20.00	70 -	130	85.0	
23	Na	1	45	103.60	ppb	0.18	100.00	70 -	130	103.6	
24	Mg	1	45	99.40	ppb	1.12	100.00	70 -	130	99.4	
27	Al	1	45	115.60	ppb	3.30	100.00	70 -	130	115.6	
39	K	1	45	110.10	ppb	0.80	100.00	70 -	130	110.1	
44	Ca	2	45	106.60	ppb	2.01	100.00	70 -	130	106.6	
47	Ti	1	45	5.10	ppb	11.60	5.00	70 -	130	102.0	
51	V	1	45	1.11	ppb	3.67	1.00	70 -	130	111.4	
52	Cr	1	45	5.00	ppb	0.86	5.00	70 -	130	100.0	
55	Mn	1	45	5.15	ppb	2.53	5.00	70 -	130	102.9	
56	Fe	1	72	107.90	ppb	0.70	100.00	70 -	130	107.9	
59	Co	1	72	4.68	ppb	1.23	5.00	70 -	130	93.6	
60	Ni	1	72	4.51	ppb	3.73	5.00	70 -	130	90.1	
63	Cu	1	72	4.75	ppb	0.74	5.00	70 -	130	95.0	
66	Zn	1	72	5.11	ppb	3.55	5.00	70 -	130	102.2	
75	As	1	72	5.25	ppb	2.49	5.00	70 -	130	104.9	
78	Se	1	72	5.75	ppb	1.98	5.00	70 -	130	115.0	
88	Sr	2	115	4.75	ppb	1.04	5.00	70 -	130	95.1	
95	Mo	2	115	4.35	ppb	2.32	5.00	70 -	130	87.1	
107	Ag	2	115	1.89	ppb	2.68	2.00	70 -	130	94.3	
111	Cd	2	115	0.94	ppb	10.29	1.00	70 -	130	94.1	
118	Sn	2	115	4.90	ppb	3.63	5.00	70 -	130	98.0	
121	Sb	2	115	2.03	ppb	0.50	2.00	70 -	130	101.5	
137	Ba	2	115	5.28	ppb	0.88	5.00	70 -	130	105.5	
205	Tl	2	209	1.08	ppb	4.96	1.00	70 -	130	108.3	
208	Pb	2	209	1.04	ppb	1.75	1.00	70 -	130	103.8	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-712.84	6.55	22.89	-3113.8	70 -	120	ISFail
45	Sc	1		107145.51	0.23	168636.11	63.5	70 -	120	ISFail
45	Sc	2		2990691.00	1.29	4411244.50	67.8	70 -	120	ISFail
72	Ge	1		66632.87	0.34	100925.69	66.0	70 -	120	ISFail
115	In	2		5258168.00	1.01	6534497.50	80.5	70 -	120	
209	Bi	2		4347028.00	1.33	4845836.50	89.7	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\115_CCB.D\115_CCB.D#

Date Acquired:	May 26 2016 10:30 pm	Sample Name:	CCB5-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.136	ppb	5.92	2.00	2.00	
9	Be	2	45	0.036	ppb	6.25	0.40	0.30	
11	B	2	45	0.668	ppb	7.18	10.00	10.00	
23	Na	1	45	6.527	ppb	4.37	50.00	#####	
24	Mg	1	45	1.478	ppb	7.78	50.00	#####	
27	Al	1	45	8.465	ppb	10.61	50.00	10.00	
39	K	1	45	10.320	ppb	4.38	50.00	#####	
44	Ca	2	45	6.934	ppb	1.96	50.00	#####	
47	Ti	1	45	-0.007	ppb	173.20	4.00	3.00	
51	V	1	45	0.063	ppb	7.62	4.00	3.00	
52	Cr	1	45	0.051	ppb	21.36	2.00	2.00	
55	Mn	1	45	0.132	ppb	14.78	2.00	3.00	
56	Fe	1	72	7.213	ppb	5.77	50.00	30.00	
59	Co	1	72	0.039	ppb	7.06	2.00	3.00	
60	Ni	1	72	0.037	ppb	20.88	2.00	3.00	
63	Cu	1	72	0.058	ppb	2.37	2.00	2.00	
66	Zn	1	72	0.099	ppb	11.64	4.00	2.00	
75	As	1	72	0.096	ppb	11.77	2.00	2.00	
78	Se	1	72	0.168	ppb	13.48	0.60	2.00	
88	Sr	2	115	0.065	ppb	5.83	4.00	3.00	
95	Mo	2	115	0.043	ppb	16.68	2.00	2.00	
107	Ag	2	115	0.043	ppb	17.11	0.40	1.00	
111	Cd	2	115	0.031	ppb	26.58	0.40	0.30	
118	Sn	2	115	0.046	ppb	8.26	20.00	3.00	
121	Sb	2	115	0.041	ppb	14.98	2.00	0.80	
137	Ba	2	115	0.080	ppb	9.27	2.00	3.00	
205	Tl	2	209	0.077	ppb	8.84	2.00	0.50	
208	Pb	2	209	0.069	ppb	2.30	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-36.00	68.42	22.89	-157.2	70 - 120	ISFail
45	Sc	1		105745.16	0.46	168636.11	62.7	70 - 120	ISFail
45	Sc	2		3022424.80	1.42	4411244.50	68.5	70 - 120	ISFail
72	Ge	1		65665.65	0.63	100925.69	65.1	70 - 120	ISFail
115	In	2		5227148.00	1.12	6534497.50	80.0	70 - 120	
209	Bi	2		4190346.50	0.96	4845836.50	86.5	70 - 120	

Sample QC Report C:\ICPCHEM\1\DATA\16E26l01.B\116SMPL.D\116SMPL.D#

Date Acquired:	May 26 2016 10:36 pm	Sample Name:	1605144-18A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	37.010	ppb	#REF!	1.04	2000.00	>RL
9	Be	2	45	1.839	ppb	#REF!	1.97	2000.00	>RL
11	B	2	45	37.480	ppb	#REF!	1.62	2000.00	>RL
23	Na	1	45	998.100	ppb	#REF!	0.71	25000.00	>RL
24	Mg	1	45	10130.000	ppb	#REF!	0.89	25000.00	>RL
27	Al	1	45	61210.000	ppb	#REF!	1.77	10000.00	OUTCAL
39	K	1	45	9939.000	ppb	#REF!	0.92	25000.00	>RL
44	Ca	2	45	29610.000	ppb	#REF!	1.47	25000.00	OUTCAL
47	Ti	1	45	328.300	ppb	#REF!	1.54	2000.00	>RL
51	V	1	45	83.980	ppb	#REF!	1.24	2000.00	>RL
52	Cr	1	45	48.400	ppb	#REF!	0.99	2000.00	>RL
55	Mn	1	45	714.100	ppb	#REF!	1.59	2000.00	>RL
56	Fe	1	72	46720.000	ppb	#REF!	1.71	10000.00	OUTCAL
59	Co	1	72	16.570	ppb	#REF!	1.19	2000.00	>RL
60	Ni	1	72	28.890	ppb	#REF!	0.93	2000.00	>RL
63	Cu	1	72	72.080	ppb	#REF!	0.91	2000.00	>RL
66	Zn	1	72	502.800	ppb	#REF!	1.04	2000.00	>RL
75	As	1	72	91.520	ppb	#REF!	0.78	2000.00	>RL
78	Se	1	72	13.760	ppb	#REF!	4.54	2000.00	>RL
88	Sr	2	115	265.900	ppb	#REF!	1.45	2000.00	>RL
95	Mo	2	115	1.213	ppb	#REF!	2.14	2000.00	ND
107	Ag	2	115	0.591	ppb	#REF!	1.48	500.00	J
111	Cd	2	115	1.358	ppb	#REF!	4.17	2000.00	>RL
118	Sn	2	115	5.942	ppb	#REF!	2.92	2000.00	ND
121	Sb	2	115	2.399	ppb	#REF!	1.66	500.00	J
137	Ba	2	115	383.200	ppb	#REF!	1.57	2000.00	>RL
205	Tl	2	209	0.581	ppb	#REF!	2.59	2000.00	ND
208	Pb	2	209	132.400	ppb	#REF!	1.07	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-2568.37	11.88	RHigh	22.89	-11219.0	70 - 120	ISFail
45	Sc	1	105226.76	0.50		168636.11	62.4	70 - 120	ISFail
45	Sc	2	2974691.00	1.97		4411244.50	67.4	70 - 120	ISFail
72	Ge	1	63014.00	1.13		100925.69	62.4	70 - 120	ISFail
115	In	2	5113204.00	1.24		6534497.50	78.2	70 - 120	
209	Bi	2	4006534.00	0.50		4845836.50	82.7	70 - 120	

Sample QC Report   C:\ICPCHEM\1\DATA\16E26l01.B\117SMPL.D\117SMPL.D#

Date Acquired:	May 26 2016 10:42 pm	Sample Name:	**1605144-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	53.800	ppb	#REF!	1.65	2000.00	>RL
9	Be	2	45	2.340	ppb	#REF!	2.86	2000.00	>RL
11	B	2	45	56.010	ppb	#REF!	1.97	2000.00	>RL
23	Na	1	45	1965.000	ppb	#REF!	0.98	25000.00	>RL
24	Mg	1	45	14860.000	ppb	#REF!	1.91	25000.00	>RL
27	Al	1	45	78440.000	ppb	#REF!	0.69	10000.00	OUTCAL
39	K	1	45	15510.000	ppb	#REF!	1.41	25000.00	>RL
44	Ca	2	45	72300.000	ppb	#REF!	2.32	25000.00	OUTCAL
47	Ti	1	45	358.700	ppb	#REF!	2.38	2000.00	>RL
51	V	1	45	105.200	ppb	#REF!	1.71	2000.00	>RL
52	Cr	1	45	61.190	ppb	#REF!	1.29	2000.00	>RL
55	Mn	1	45	824.900	ppb	#REF!	1.26	2000.00	>RL
56	Fe	1	72	70330.000	ppb	#REF!	1.97	10000.00	OUTCAL
59	Co	1	72	23.610	ppb	#REF!	1.76	2000.00	>RL
60	Ni	1	72	37.670	ppb	#REF!	2.47	2000.00	>RL
63	Cu	1	72	50.910	ppb	#REF!	1.39	2000.00	>RL
66	Zn	1	72	536.800	ppb	#REF!	1.37	2000.00	>RL
75	As	1	72	84.670	ppb	#REF!	0.88	2000.00	>RL
78	Se	1	72	17.610	ppb	#REF!	1.74	2000.00	>RL
88	Sr	2	115	432.900	ppb	#REF!	1.77	2000.00	>RL
95	Mo	2	115	1.489	ppb	#REF!	5.75	2000.00	ND
107	Ag	2	115	0.483	ppb	#REF!	10.02	500.00	J
111	Cd	2	115	1.778	ppb	#REF!	4.69	2000.00	>RL
118	Sn	2	115	6.068	ppb	#REF!	2.76	2000.00	ND
121	Sb	2	115	2.568	ppb	#REF!	2.59	500.00	J
137	Ba	2	115	612.300	ppb	#REF!	2.02	2000.00	>RL
205	Tl	2	209	0.659	ppb	#REF!	2.68	2000.00	ND
208	Pb	2	209	132.700	ppb	#REF!	2.37	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3574.37	11.49	RHigh	22.89	-15613.4	70 - 120	ISFail
45	Sc	1	106196.95	0.82		168636.11	63.0	70 - 120	ISFail
45	Sc	2	3002791.30	2.15		4411244.50	68.1	70 - 120	ISFail
72	Ge	1	63441.86	0.75		100925.69	62.9	70 - 120	ISFail
115	In	2	5108535.00	2.60		6534497.50	78.2	70 - 120	
209	Bi	2	3958482.00	1.71		4845836.50	81.7	70 - 120	

Sample QC Report **C:\ICPCHEM\1\DATA\16E26l01.B\118SMPL.D\118SMPL.D#**

Date Acquired:	May 26 2016 10:48 pm	Sample Name:	1605144-20A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	45.950	ppb	#REF!	2.76	2000.00	>RL
9	Be	2	45	2.482	ppb	#REF!	2.52	2000.00	>RL
11	B	2	45	51.880	ppb	#REF!	3.74	2000.00	>RL
23	Na	1	45	1132.000	ppb	#REF!	0.65	25000.00	>RL
24	Mg	1	45	11600.000	ppb	#REF!	0.40	25000.00	>RL
27	Al	1	45	87870.000	ppb	#REF!	0.34	10000.00	OUTCAL
39	K	1	45	15820.000	ppb	#REF!	0.13	25000.00	>RL
44	Ca	2	45	18720.000	ppb	#REF!	3.04	25000.00	>RL
47	Ti	1	45	251.000	ppb	#REF!	1.37	2000.00	>RL
51	V	1	45	111.000	ppb	#REF!	0.51	2000.00	>RL
52	Cr	1	45	66.450	ppb	#REF!	0.32	2000.00	>RL
55	Mn	1	45	671.200	ppb	#REF!	0.33	2000.00	>RL
56	Fe	1	72	63710.000	ppb	#REF!	0.77	10000.00	OUTCAL
59	Co	1	72	20.640	ppb	#REF!	0.76	2000.00	>RL
60	Ni	1	72	33.900	ppb	#REF!	0.56	2000.00	>RL
63	Cu	1	72	45.670	ppb	#REF!	0.45	2000.00	>RL
66	Zn	1	72	493.000	ppb	#REF!	0.74	2000.00	>RL
75	As	1	72	107.800	ppb	#REF!	0.56	2000.00	>RL
78	Se	1	72	18.840	ppb	#REF!	1.48	2000.00	>RL
88	Sr	2	115	298.900	ppb	#REF!	2.81	2000.00	>RL
95	Mo	2	115	1.857	ppb	#REF!	4.87	2000.00	ND
107	Ag	2	115	0.546	ppb	#REF!	6.49	500.00	J
111	Cd	2	115	1.497	ppb	#REF!	4.97	2000.00	>RL
118	Sn	2	115	6.616	ppb	#REF!	3.21	2000.00	ND
121	Sb	2	115	3.781	ppb	#REF!	3.58	500.00	J
137	Ba	2	115	449.100	ppb	#REF!	3.32	2000.00	>RL
205	Tl	2	209	0.752	ppb	#REF!	4.20	2000.00	ND
208	Pb	2	209	230.500	ppb	#REF!	3.62	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3026.52	5.46	RHigh	22.89	-13220.3	70 - 120	ISFail
45	Sc	1	99693.98	0.08		168636.11	59.1	70 - 120	ISFail
45	Sc	2	2933918.30	3.16		4411244.50	66.5	70 - 120	ISFail
72	Ge	1	60167.25	0.58		100925.69	59.6	70 - 120	ISFail
115	In	2	5085541.00	3.56		6534497.50	77.8	70 - 120	
209	Bi	2	4016926.50	3.99		4845836.50	82.9	70 - 120	

Sample QC Report C:\ICPCHEM\1\DATA\16E26l01.B\119SMPL.D\119SMPL.D#

Date Acquired:	May 26 2016 10:54 pm	Sample Name:	**1605144-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	41.440	ppb	#REF!	2.32	2000.00	>RL
9	Be	2	45	1.920	ppb	#REF!	2.95	2000.00	>RL
11	B	2	45	54.710	ppb	#REF!	1.71	2000.00	>RL
23	Na	1	45	1201.000	ppb	#REF!	2.01	25000.00	>RL
24	Mg	1	45	12020.000	ppb	#REF!	2.53	25000.00	>RL
27	Al	1	45	65740.000	ppb	#REF!	2.43	10000.00	OUTCAL
39	K	1	45	13660.000	ppb	#REF!	2.18	25000.00	>RL
44	Ca	2	45	97060.000	ppb	#REF!	3.41	25000.00	OUTCAL
47	Ti	1	45	302.500	ppb	#REF!	4.78	2000.00	>RL
51	V	1	45	89.860	ppb	#REF!	2.68	2000.00	>RL
52	Cr	1	45	53.050	ppb	#REF!	3.34	2000.00	>RL
55	Mn	1	45	770.200	ppb	#REF!	2.56	2000.00	>RL
56	Fe	1	72	53960.000	ppb	#REF!	2.90	10000.00	OUTCAL
59	Co	1	72	18.880	ppb	#REF!	2.88	2000.00	>RL
60	Ni	1	72	30.830	ppb	#REF!	0.71	2000.00	>RL
63	Cu	1	72	43.370	ppb	#REF!	2.50	2000.00	>RL
66	Zn	1	72	404.800	ppb	#REF!	2.48	2000.00	>RL
75	As	1	72	64.440	ppb	#REF!	2.64	2000.00	>RL
78	Se	1	72	14.740	ppb	#REF!	5.01	2000.00	>RL
88	Sr	2	115	430.600	ppb	#REF!	2.06	2000.00	>RL
95	Mo	2	115	1.320	ppb	#REF!	2.32	2000.00	ND
107	Ag	2	115	0.338	ppb	#REF!	5.31	500.00	ND
111	Cd	2	115	1.179	ppb	#REF!	7.73	2000.00	J
118	Sn	2	115	5.579	ppb	#REF!	2.75	2000.00	ND
121	Sb	2	115	2.942	ppb	#REF!	1.75	500.00	J
137	Ba	2	115	594.300	ppb	#REF!	2.84	2000.00	>RL
205	Tl	2	209	0.579	ppb	#REF!	1.25	2000.00	ND
208	Pb	2	209	97.460	ppb	#REF!	1.91	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3082.73	6.69	RHigh	22.89	-13465.8	70 - 120	ISFail
45	Sc	1	103803.06	1.81		168636.11	61.6	70 - 120	ISFail
45	Sc	2	3074338.80	1.87		4411244.50	69.7	70 - 120	ISFail
72	Ge	1	62292.25	1.56		100925.69	61.7	70 - 120	ISFail
115	In	2	5293078.00	1.56		6534497.50	81.0	70 - 120	
209	Bi	2	3992587.80	0.56		4845836.50	82.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\120CCV1.D\120CCV1.D#

Date Acquired:	May 26 2016 11:00 pm	Sample Name:	CCV6-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	170.90	ppb	0.10	200.00	90 -	110	85.5	Fail
9	Be	2	45	167.60	ppb	1.11	200.00	90 -	110	83.8	Fail
11	B	2	45	155.20	ppb	2.05	200.00	90 -	110	77.6	Fail
23	Na	1	45	4580.00	ppb	1.22	5000.00	90 -	110	91.6	
24	Mg	1	45	4586.00	ppb	1.56	5000.00	90 -	110	91.7	
27	Al	1	45	5047.00	ppb	2.06	5000.00	90 -	110	100.9	
39	K	1	45	4940.00	ppb	1.24	5000.00	90 -	110	98.8	
44	Ca	2	45	4760.00	ppb	1.57	5000.00	90 -	110	95.2	
47	Ti	1	45	200.00	ppb	2.11	200.00	90 -	110	100.0	
51	V	1	45	188.50	ppb	1.49	200.00	90 -	110	94.3	
52	Cr	1	45	190.00	ppb	2.18	200.00	90 -	110	95.0	
55	Mn	1	45	205.50	ppb	1.67	200.00	90 -	110	102.8	
56	Fe	1	72	4926.00	ppb	1.61	5000.00	90 -	110	98.5	
59	Co	1	72	184.50	ppb	1.47	200.00	90 -	110	92.3	
60	Ni	1	72	179.10	ppb	2.23	200.00	90 -	110	89.6	Fail
63	Cu	1	72	185.60	ppb	1.43	200.00	90 -	110	92.8	
66	Zn	1	72	198.50	ppb	0.63	200.00	90 -	110	99.3	
75	As	1	72	200.90	ppb	1.39	200.00	90 -	110	100.5	
78	Se	1	72	208.50	ppb	1.91	200.00	90 -	110	104.3	
88	Sr	2	115	199.90	ppb	1.52	200.00	90 -	110	100.0	
95	Mo	2	115	177.10	ppb	1.59	200.00	90 -	110	88.6	Fail
107	Ag	2	115	181.70	ppb	1.54	200.00	90 -	110	90.9	
111	Cd	2	115	183.80	ppb	1.09	200.00	90 -	110	91.9	
118	Sn	2	115	192.40	ppb	1.50	200.00	90 -	110	96.2	
121	Sb	2	115	195.30	ppb	1.61	200.00	90 -	110	97.7	
137	Ba	2	115	200.90	ppb	1.54	200.00	90 -	110	100.5	
205	Tl	2	209	204.70	ppb	1.71	200.00	90 -	110	102.4	
208	Pb	2	209	190.20	ppb	1.40	200.00	90 -	110	95.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-34121.10	0.94	22.89	-149045.7	70 -	120	ISFail
45	Sc	1	108631.63	0.86	168636.11	64.4	70 -	120	ISFail
45	Sc	2	2975952.80	0.71	4411244.50	67.5	70 -	120	ISFail
72	Ge	1	65908.27	0.18	100925.69	65.3	70 -	120	ISFail
115	In	2	5216120.00	0.82	6534497.50	79.8	70 -	120	
209	Bi	2	4160339.00	1.63	4845836.50	85.9	70 -	120	

CCV QC Report C:\ICPCHEM\1\DATA\16E26l01.B\122LCVL.D\122LCVL.D#

Date Acquired:	May 26 2016 11:12 pm	Sample Name:	LCVL6-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	8.46	ppb	1.94	5.00	70	-	130	169.2	Fail
9	Be	2	45	0.89	ppb	7.43	1.00	70	-	130	88.6	
11	B	2	45	15.96	ppb	3.07	20.00	70	-	130	79.8	
23	Na	1	45	99.03	ppb	1.10	100.00	70	-	130	99.0	
24	Mg	1	45	99.23	ppb	1.25	100.00	70	-	130	99.2	
27	Al	1	45	124.10	ppb	2.02	100.00	70	-	130	124.1	
39	K	1	45	108.30	ppb	2.60	100.00	70	-	130	108.3	
44	Ca	2	45	117.60	ppb	2.33	100.00	70	-	130	117.6	
47	Ti	1	45	4.75	ppb	3.57	5.00	70	-	130	95.0	
51	V	1	45	1.09	ppb	3.49	1.00	70	-	130	109.3	
52	Cr	1	45	4.85	ppb	3.03	5.00	70	-	130	97.0	
55	Mn	1	45	5.41	ppb	3.42	5.00	70	-	130	108.2	
56	Fe	1	72	114.40	ppb	0.93	100.00	70	-	130	114.4	
59	Co	1	72	4.65	ppb	3.10	5.00	70	-	130	93.1	
60	Ni	1	72	4.56	ppb	2.44	5.00	70	-	130	91.3	
63	Cu	1	72	4.73	ppb	2.76	5.00	70	-	130	94.5	
66	Zn	1	72	5.41	ppb	3.96	5.00	70	-	130	108.1	
75	As	1	72	5.22	ppb	2.61	5.00	70	-	130	104.4	
78	Se	1	72	6.28	ppb	6.34	5.00	70	-	130	125.6	
88	Sr	2	115	4.85	ppb	3.32	5.00	70	-	130	97.1	
95	Mo	2	115	4.33	ppb	1.70	5.00	70	-	130	86.6	
107	Ag	2	115	1.87	ppb	1.24	2.00	70	-	130	93.7	
111	Cd	2	115	0.94	ppb	4.74	1.00	70	-	130	94.2	
118	Sn	2	115	4.85	ppb	3.76	5.00	70	-	130	97.0	
121	Sb	2	115	2.05	ppb	2.86	2.00	70	-	130	102.6	
137	Ba	2	115	5.13	ppb	3.03	5.00	70	-	130	102.5	
205	Tl	2	209	1.05	ppb	1.53	1.00	70	-	130	104.5	
208	Pb	2	209	1.06	ppb	2.08	1.00	70	-	130	106.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	-934.94	8.12	22.89	-4084.0	70	-	120	ISFail
45	Sc	1		109661.82	0.60	168636.11	65.0	70	-	120	ISFail
45	Sc	2		3127420.00	2.30	4411244.50	70.9	70	-	120	
72	Ge	1		68097.43	0.59	100925.69	67.5	70	-	120	ISFail
115	In	2		5557938.50	1.78	6534497.50	85.1	70	-	120	
209	Bi	2		4571607.00	2.67	4845836.50	94.3	70	-	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E26l01.B\123_CCB.D\123_CCB.D#

Date Acquired:	May 26 2016 11:18 pm	Sample Name:	CCB6-160526
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 26 2016 12:20 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.101	ppb	14.60	2.00	2.00	
9	Be	2	45	0.033	ppb	9.96	0.40	0.30	
11	B	2	45	0.340	ppb	4.17	10.00	10.00	
23	Na	1	45	4.777	ppb	5.41	50.00	#####	
24	Mg	1	45	1.600	ppb	14.10	50.00	#####	
27	Al	1	45	11.340	ppb	4.62	50.00	10.00	FailAq
39	K	1	45	7.394	ppb	3.61	50.00	#####	
44	Ca	2	45	10.130	ppb	6.74	50.00	#####	
47	Ti	1	45	-0.008	ppb	173.20	4.00	3.00	
51	V	1	45	0.060	ppb	9.44	4.00	3.00	
52	Cr	1	45	0.035	ppb	2.17	2.00	2.00	
55	Mn	1	45	0.142	ppb	1.04	2.00	3.00	
56	Fe	1	72	9.749	ppb	8.98	50.00	30.00	
59	Co	1	72	0.021	ppb	5.85	2.00	3.00	
60	Ni	1	72	0.028	ppb	9.85	2.00	3.00	
63	Cu	1	72	0.034	ppb	4.63	2.00	2.00	
66	Zn	1	72	0.028	ppb	21.74	4.00	2.00	
75	As	1	72	0.081	ppb	3.87	2.00	2.00	
78	Se	1	72	0.048	ppb	18.81	0.60	2.00	
88	Sr	2	115	0.080	ppb	1.21	4.00	3.00	
95	Mo	2	115	0.040	ppb	10.78	2.00	2.00	
107	Ag	2	115	0.030	ppb	15.35	0.40	1.00	
111	Cd	2	115	0.016	ppb	31.66	0.40	0.30	
118	Sn	2	115	0.039	ppb	6.67	20.00	3.00	
121	Sb	2	115	0.033	ppb	8.19	2.00	0.80	
137	Ba	2	115	0.060	ppb	18.59	2.00	3.00	
205	Tl	2	209	0.071	ppb	0.58	2.00	0.50	
208	Pb	2	209	0.071	ppb	3.76	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-18.89	172.28	22.89	-82.5	70 - 120	ISFail
45	Sc	1		108033.78	0.46	168636.11	64.1	70 - 120	ISFail
45	Sc	2		3093215.80	0.93	4411244.50	70.1	70 - 120	
72	Ge	1		67155.41	0.19	100925.69	66.5	70 - 120	ISFail
115	In	2		5468202.50	0.78	6534497.50	83.7	70 - 120	
209	Bi	2		4450011.00	1.12	4845836.50	91.8	70 - 120	

ICP-MS4
For

DHL Work Order
1605144

ICP-MS4_160520C
For

DHL Work Order
1605144

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_160520C**
	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: See Run Log

Analyst: [signature] Date of Completion: 05/23/2016

Second-Level Review: Janice Whitt Date Stamp: 5/23/2016

REVIEWED BY
By Janice Whitt at 2:57:44 PM, 5/23/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160520C** **Run No.:** 85935

Analytical Run Date: 5/20/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 10:52:00 AM		
L2-160520	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 10:54:00 AM		
L-160520	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 10:56:00 AM		
10X-160520	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 10:58:00 AM		
5X-160520	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 11:00:00 AM		
2X-160520	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 11:02:00 AM		
H-160520	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 11:04:00 AM		
H2-160520	1	ICPMS_TWDOD	CAL	R85935	5/20/2016 11:06:00 AM		
ICSA-160520	1	ICPMS_TWDOD	ICSA	R85935	5/20/2016 11:14:00 AM		
ICSAB-160520	1	ICPMS_TWDOD	ICSB	R85935	5/20/2016 11:16:00 AM		
ICV-160520	1	ICPMS_TWDOD	ICV	R85935	5/20/2016 11:28:00 AM		
LCVL-160520	1	ICPMS_TWDOD	LCVL	R85935	5/20/2016 11:40:00 AM		
ICB-160520	1	ICPMS_TWDOD	ICB	R85935	5/20/2016 11:45:00 AM		
CCV2-160520	1	ICPMS_TWDOD	CCV	R85935	5/20/2016 1:06:00 PM		
LCVL2-160520	1	ICPMS_TWDOD	LCVL	R85935	5/20/2016 1:11:00 PM		
CCB2-160520	1	ICPMS_TWDOD	CCB	R85935	5/20/2016 1:20:00 PM		
MB-75180	1	ICPMS_TWDOD	MBLK	75180	5/20/2016 1:22:00 PM		
LCS-75180	1	ICPMS_TWDOD	LCS	75180	5/20/2016 1:24:00 PM		
LCSD-75180	1	ICPMS_TWDOD	LCSD	75180	5/20/2016 1:26:00 PM		
1605097-27A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:30:00 PM		
1605097-27A SD	5	ICPMS_TWDOD	SD	75180	5/20/2016 1:32:00 PM		
1605047-31A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:34:00 PM		
1605047-32A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:36:00 PM		
1605047-38A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:38:00 PM		
1605071-28A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:40:00 PM		
1605071-29A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:42:00 PM		
1605074-33A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:44:00 PM		
1605074-34A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:46:00 PM		
1605074-35A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:48:00 PM		
1605096-36A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 1:50:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160511	ICPMS CCV 200/5000 PPB		08/10/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/10/2016
MET-HCAL-16051	ICPMS High Cal 500ppb/10ppm s		08/10/2016
MET-ICV-160511	ICPMS ICV 100 ppb		08/10/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16051	ICPMS Low Cal2 1/20ppb std 2		08/10/2016
MET-LCAL-160511	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/10/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/09/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16051	ICPMS Mid Cal 250/5000ppb std		08/10/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160520-	10 PPM Ag+Sb PDS		11/18/2016
MET-PDS-160520-	10 PPM CUSTOM PDS SOLUTI		11/18/2016
MET-PDS-160520-	250 PPM Naturals+Al+Fe PDS		11/18/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160520C** **Run No.:** 85935

1605097-27A PDS	1	ICPMS_TWDOD	PDS	75180	5/20/2016 1:52:00 PM		
1605097-27A MS	1	ICPMS_TWDOD	MS	75180	5/20/2016 1:54:00 PM		S-flag Pb- Low
1605097-27A MSD	1	ICPMS_TWDOD	MSD	75180	5/20/2016 1:56:00 PM		
CCV3-160520	1	ICPMS_TWDOD	CCV	R85935	5/20/2016 1:58:00 PM		
LCVL3-160520	1	ICPMS_TWDOD	LCVL	R85935	5/20/2016 2:04:00 PM		
CCB3-160520	1	ICPMS_TWDOD	CCB	R85935	5/20/2016 2:06:00 PM		
1605096-37A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:08:00 PM		
1605096-44A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:10:00 PM		
1605097-30A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:12:00 PM		
1605098-42A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:14:00 PM		
1605121-46A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:16:00 PM		
1605121-47A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:18:00 PM		
1605135-46A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:20:00 PM		
1605144-16A	1	ICPMS_TWDOD	SAMP	75180	5/20/2016 2:22:00 PM		
CCV4-160520	1	ICPMS_TWDOD	CCV	R85935	5/20/2016 2:24:00 PM		
LCVL4-160520	1	ICPMS_TWDOD	LCVL	R85935	5/20/2016 2:41:00 PM		
CCB4-160520	1	ICPMS_TWDOD	CCB	R85935	5/20/2016 2:48:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160511	ICPMS CCV 200/5000 PPB		08/10/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/10/2016
MET-HCAL-16051	ICPMS High Cal 500ppb/10ppm s		08/10/2016
MET-ICV-160511	ICPMS ICV 100 ppb		08/10/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16051	ICPMS Low Cal2 1/20ppb std 2		08/10/2016
MET-LCAL-160511	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/10/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/09/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16051	ICPMS Mid Cal 250/5000ppb std		08/10/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160520-	10 PPM Ag+Sb PDS		11/18/2016
MET-PDS-160520-	10 PPM CUSTOM PDS SOLUTI		11/18/2016
MET-PDS-160520-	250 PPM Naturals+Al+Fe PDS		11/18/2016

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160520.b

Acquisition Order

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

Calibration Standards:

#	Sample Type	Sample Name	Comment	Vial#	File Name
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	2101	
13	CalStd	L2-160520	CAL ICPMS_TW	2102	
14	CalStd	L-160520	CAL ICPMS_TW	2103	
15	CalStd	10X-160520	CAL ICPMS_TW	2104	
16	CalStd	5X-160520	CAL ICPMS_TW	2105	
17	CalStd	2X-160520	CAL ICPMS_TW	2106	
18	CalStd	H-160520	CAL ICPMS_TW	2107	
19	CalStd	H2-160520	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12	1		
13	2		
14	3		
15	4		
16	5		
17	6		
18	7		
19	8		

Sample List

20

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	ICB	BLANK	CCB ICPMS_TW	1102	
22	ICB	BLANK	CCB ICPMS_TW	1103	
23	ICSA	ICSA-160520	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160520	ICSBICPMS_TW	2110	
25	ICB	BLANK	CCB ICPMS_TW	1101	
26	ICB	BLANK	CCB ICPMS_TW	1102	
27	ICB	BLANK	CCB ICPMS_TW	1103	
28	ICV	ICV-160520	ICV ICPMS_TW	2111	
29	ICB	ICB-160520	ICB ICPMS_TW	1101	
30	ICB	ICB-160520	ICB ICPMS_TW	1103	
31	LLICV	LCVL-160520	LCVLICPMS_TW	2112	
32	ICB	ICB-160520	ICB ICPMS_TW	1102	
33	ICB	ICB-160520	ICB ICPMS_TW	1103	
34	PB_W	MB-75206	MBLK200.8_EPA	2201	
35	LCS_W	LCS-75206	LCS 200.8_EPA	2202	
36	LCS_W	LCSD-75206	LCSD200.8_EPA	2203	
37	CCB	RINSE	CCB ICPMS_TW	1101	
38	AllRef	1605161-13A	SAMP200.8_EPA	2204	
39	SD	1605161-13A SD	SD 200.8_EPA	2205	
40	SAMP_W	1605161-01A	SAMP200.8_EPA	2206	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34		1	
35		1	
36		1	
37			
38		1	
39		5	
40		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	SAMP_W	1605161-02A	SAMP200.8_EPA	2207	
42	SAMP_W	1605161-03A	SAMP200.8_EPA	2208	
43	SAMP_W	1605161-04A	SAMP200.8_EPA	2209	
44	SAMP_W	1605161-05A	SAMP200.8_EPA	2210	
45	SAMP_W	1605161-06A	SAMP200.8_EPA	2211	

Sample List

46	SAMP_W	1605161-07A	SAMP200.8_EPA	2212
47	SAMP_W	1605161-08A	SAMP200.8_EPA	2301
48	SAMP_W	1605161-09A	SAMP200.8_EPA	2302
49	PDS	1605161-13A PDS	PDS 200.8_EPA	2303
50	MS_W	1605161-13A MS	MS 200.8_EPA	2304
51	MS_W	1605161-13A MSD	MSD 200.8_EPA	2305
52	CCV	CCV1-160520	CCV ICPMS_TW	1207
53	CCB	CCB1-160520	CCB ICPMS_TW	1102
54	LLCCV	LCVL1-160520	LCVLICPMS_TW	2112
55	CCB	CCB1-160520	CCB ICPMS_TW	1103
56	SAMP_W	1605161-10A	SAMP200.8_EPA	2306
57	SAMP_W	1605161-11A	SAMP200.8_EPA	2307
58	SAMP_W	1605161-12A	SAMP200.8_EPA	2308
59	SAMP_W	1605161-13A	SAMP200.8_EPA	2309
60	SAMP_W	1605161-14A	SAMP200.8_EPA	2310

#	Level	Dilution	Skip
41		1	
42		1	
43		1	
44		1	
45		1	
46		1	
47		1	
48		1	
49		1	
50		1	
51		1	
52			
53			
54			
55			
56		1	
57		1	
58		1	
59		1	
60		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	SAMP_W	1605161-15A	SAMP200.8_EPA	2311	
62	SAMP_W	1605161-16A	SAMP200.8_EPA	2312	
63	SAMP_W	1605161-17A	SAMP200.8_EPA	2401	
64	SAMP_W	1605161-18A	SAMP200.8_EPA	2402	
65	SAMP_W	1605161-19A	SAMP200.8_EPA	2403	
66	CCV	CCV2-160520	CCV ICPMS_TW	1207	
67	CCB	CCB2-160520	CCB ICPMS_TW	1102	
68	LLCCV	LCVL2-160520	LCVLICPMS_TW	2112	
69	CCB	CCB2-160520	CCB ICPMS_TW	1103	
70	PB_W	MB-75180	MBLKICPMS_TWDOD	3101	
71	LCS_W	LCS-75180	LCS ICPMS_TWDOD	3102	
72	LCS_W	LCSD-75180	LCSDICPMS_TWDOD	3103	
73	CCB	RINSE	CCB ICPMS_TW	1101	

Sample List

74	AllRef	1605097-27A	SAMPICPMS_TWDOD	3104
75	SD	1605097-27A SD	SD ICPMS_TWDOD	3105
76	SAMP_W	1605047-31A	SAMPICPMS_TWDOD	3106
77	SAMP_W	1605047-32A	SAMPICPMS_TWDOD	3107
78	SAMP_W	1605047-38A	SAMPICPMS_TWDOD	3108
79	SAMP_W	1605071-28A	SAMPICPMS_TWDOD	3109
80	SAMP_W	1605071-29A	SAMPICPMS_TWDOD	3110

#	Level	Dilution	Skip
61		1	
62		1	
63		1	
64		1	
65		1	
66			
67			
68			
69			
70		1	
71		1	
72		1	
73			
74		1	
75		5	
76		1	
77		1	
78		1	
79		1	
80		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1605074-33A	SAMPICPMS_TWDOD	3111	
82	SAMP_W	1605074-34A	SAMPICPMS_TWDOD	3112	
83	SAMP_W	1605074-35A	SAMPICPMS_TWDOD	3201	
84	SAMP_W	1605096-36A	SAMPICPMS_TWDOD	3202	
85	PDS	1605097-27A PDS	PDS ICPMS_TWDOD	3203	
86	MS_W	1605097-27A MS	MS ICPMS_TWDOD	3204	
87	MS_W	1605097-27A MSD	MSD ICPMS_TWDOD	3205	
88	CCV	CCV3-160520	CCV ICPMS_TW	1207	
89	CCB	CCB3-160520	CCB ICPMS_TW	1102	
90	LLCCV	LCVL3-160520	LCVLICPMS_TW	2512	
91	CCB	CCB3-160520	CCB ICPMS_TW	1103	
92	SAMP_W	1605096-37A	SAMPICPMS_TWDOD	3206	
93	SAMP_W	1605096-44A	SAMPICPMS_TWDOD	3207	
94	SAMP_W	1605097-30A	SAMPICPMS_TWDOD	3208	
95	SAMP_W	1605098-42A	SAMPICPMS_TWDOD	3209	
96	SAMP_W	1605121-46A	SAMPICPMS_TWDOD	3210	
97	SAMP_W	1605121-47A	SAMPICPMS_TWDOD	3211	
98	SAMP_W	1605135-46A	SAMPICPMS_TWDOD	3212	
99	SAMP_W	1605144-16A	SAMPICPMS_TWDOD	2501	
100	CCV	CCV4-160520	CCV ICPMS_TW	1207	

Sample List

#	Level	Dilution	Skip
81		1	
82		1	
83		1	
84		1	
85		1	
86		1	
87		1	
88			
89			
90			
91			
92		1	
93		1	
94		1	
95		1	
96		1	
97		1	
98		1	
99		1	
100			

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	CCB	CCB4-160520	CCB ICPMS_TW	1102	
102	LLCCV	LCVL4-160520	LCVLICPMS_TW	2512	
103	CCB	CCB4-160520	CCB ICPMS_TW	1103	
104	PB_W	MB-75233	MBLKICPMS_TW	3301	
105	LCS_W	LCS-75233	LCS ICPMS_TW	3302	
106	LCS_W	LCSD-75233	LCSDICPMS_TW	3303	
107	CCB	RINSE	CCB ICPMS_TW	1101	
108	AllRef	1605172-04C	SAMPICPMS_TW	3304	
109	SD	1605172-04C SD	SD ICPMS_TW	3305	
110	SAMP_W	1605169-01C	SAMPICPMS_TW	3306	
111	SAMP_W	1605183-01C	SAMP6020A_W	3307	
112	SAMP_W	1605173-01E	SAMPICPMS_TW	3308	
113	SAMP_W	1605173-02E	SAMPICPMS_TW	3309	
114	SAMP_W	1605173-03E	SAMPICPMS_TW	3310	
115	SAMP_W	1605173-04E	SAMPICPMS_TW	3311	
116	SAMP_W	1604114-25B	SAMPICPMS_TW	3312	
117	SAMP_W	1604114-26B	SAMPICPMS_TW	3401	
118	SAMP_W	1604114-27B	SAMPICPMS_TW	3402	
119	PDS	1605172-04C PDS	PDS ICPMS_TW	3403	
120	MS_W	1605172-04C MS	MS ICPMS_TW	3404	

#	Level	Dilution	Skip
101			
102			
103			
104		1	
105		1	
106		1	
107			

Sample List

108		1
109		5
110		1
111		1
112		1
113		1
114		1
115		1
116		1
117		1
118		1
119		1
120		1

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	MS_W	1605172-04C MSD	MSD ICPMS_TW	3405	
122	CCV	CCV5-160520	CCV ICPMS_TW	1207	
123	CCB	CCB5-160520	CCB ICPMS_TW	1102	
124	CCB	CCB5-160520	CCB ICPMS_TW	1102	
125	CCB	CCB5-160520	CCB ICPMS_TW	1102	
126	CCB	CCB5-160520	CCB ICPMS_TW	1103	
127	CCB	CCB5-160520	CCB ICPMS_TW	1103	
128	CCB	CCB5-160520	CCB ICPMS_TW	1103	
129	LLCCV	LCVL5-160520	LCVLICPMS_TW	2511	
130	CCB	CCB5-160520	CCB ICPMS_TW	1103	
131	SAMP_W	1605172-01C	SAMPICPMS_TW	3406	
132	SAMP_W	1605172-02C	SAMPICPMS_TW	3407	
133	SAMP_W	1605172-03C	SAMPICPMS_TW	3408	
134	SAMP_W	1605181-01A	SAMPICPMS_TW	3409	
135	CCV	CCV6-160520	CCV ICPMS_TW	1207	
136	CCB	CCB6-160520	CCB ICPMS_TW	1102	
137	CCB	CCB6-160520	CCB ICPMS_TW	1102	
138	CCB	CCB6-160520	CCB ICPMS_TW	1103	
139	CCB	CCB6-160520	CCB ICPMS_TW	1103	
140	LLCCV	LCVL6-160520	LCVLICPMS_TW	2511	

#	Level	Dilution	Skip
121		1	
122			
123			
124			
125			
126			
127			
128			
129			
130			
131		1	
132		1	
133		1	
134		1	
135			

136					
137					
138					
139					
140					

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	CCB	CCB6-160520	CCB ICPMS_TW	1102	
142	CCB	CCB6-160520	CCB ICPMS_TW	1102	
143	CCB	CCB6-160520	CCB ICPMS_TW	1102	
144	CCB	CCB6-160520	CCB ICPMS_TW	1103	
145	CCB	CCB6-160520	CCB ICPMS_TW	1103	
146	CCB	CCB6-160520	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
141			
142			
143			
144			
145			
146			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/19/2016 8:30:00 AM**
Digestion:
Prep End Date:

Prep Batch **75180** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: mL/mL

Equipment List
Hot Block #4
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605047-31A	Equip Blank		50	50	1.000	1 of 1	
1605047-32A	Equip Blank		50	50	1.000	1 of 1	
1605047-38A	Equip Blank		50	50	1.000	1 of 1	
1605071-28A	Equip Blank		50	50	1.000	1 of 1	
1605071-29A	Equip Blank		50	50	1.000	1 of 1	
1605074-33A	Equip Blank		50	50	1.000	1 of 1	
1605074-34A	Equip Blank		50	50	1.000	1 of 1	
1605074-35A	Equip Blank		50	50	1.000	1 of 1	
1605096-36A	Equip Blank		50	50	1.000	1 of 1	
1605096-37A	Equip Blank		50	50	1.000	1 of 1	
1605096-44A	Equip Blank		50	50	1.000	1 of 1	
1605097-27A	Equip Blank		50	50	1.000	1 of 1	MS + MSD
1605097-30A	Equip Blank		50	50	1.000	1 of 1	
1605098-42A	Equip Blank		50	50	1.000	1 of 1	
1605121-46A	Equip Blank		50	50	1.000	1 of 1	
1605121-47A	Equip Blank		50	50	1.000	1 of 1	
1605135-46A	Equip Blank		50	50	1.000	1 of 1	
1605144-16A	Equip Blank		50	50	1.000	1 of 1	
LCS-75180	Aqueous		50	50	1.000	of	
LCSD-75180	Aqueous		50	50	1.000	of	
MB-75180	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9641	Hydrochloric Acid (trace metal grade)	1	ml	09/22/2025
10056	Digestion Vessels	1	ml	02/10/2026
10136	Nitric Acid (Trace Metal Grade)	1	ml	01/10/2026

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-160406-1	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/09/2016

9:54 - 15:33

REVIEWED BY
By Janice Whitt at 2:45:04 PM, 5/23/2016

C V Dyk 5/19/16

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	26	
TEST DATE:	05/19/2016	**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**	4.9999	4.9899	99.80	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.9998	4.9898	99.80		
3		4.9952	4.9852	99.70		
AVERAGE (MEAN)		**4.998**	**4.988**	**99.77**		**0.054**
						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**	0.2007	0.2003	100.15	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2025	0.2021	101.05		
3		0.2027	0.2023	101.15		
AVERAGE (MEAN)		**0.202**	**0.202**	**100.78**		**0.545**
						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)						

CVD 5/19/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:45:08 PM, 5/23/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/19/2016 8:30:00 AM**

Digestion: **Start: 5/19/2016 9:54:00 AM / Stop: 5/19/2016 3:33:00 PM**

Prep End Date: **5/19/2016 3:41:51 PM**

Prep Batch **75180** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

- Hot Block #4
- Thermometer #71
- Pipette #P-09-Spikes
- Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605047-31A	Equip Blank		50	50	1.000	1	of	1	
1605047-32A	Equip Blank		50	50	1.000	1	of	1	
1605047-38A	Equip Blank		50	50	1.000	1	of	1	
1605071-28A	Equip Blank		50	50	1.000	1	of	1	
1605071-29A	Equip Blank		50	50	1.000	1	of	1	
1605074-33A	Equip Blank		50	50	1.000	1	of	1	
1605074-34A	Equip Blank		50	50	1.000	1	of	1	
1605074-35A	Equip Blank		50	50	1.000	1	of	1	
1605096-36A	Equip Blank		50	50	1.000	1	of	1	
1605096-37A	Equip Blank		50	50	1.000	1	of	1	
1605096-44A	Equip Blank		50	50	1.000	1	of	1	
1605097-27A	Equip Blank		50	50	1.000	1	of	1	
1605097-27A MS	Equip Blank		50	50	1.000		of		
1605097-27A MSD	Equip Blank		50	50	1.000		of		
1605097-27A PDS	Equip Blank		50	50	1.000		of		
1605097-27A SD	Equip Blank		50	50	1.000		of		
1605097-30A	Equip Blank		50	50	1.000	1	of	1	
1605098-42A	Equip Blank		50	50	1.000	1	of	1	
1605121-46A	Equip Blank		50	50	1.000	1	of	1	
1605121-47A	Equip Blank		50	50	1.000	1	of	1	
1605135-46A	Equip Blank		50	50	1.000	1	of	1	
1605144-16A	Equip Blank		50	50	1.000	1	of	1	
LCS-75180	Aqueous		50	50	1.000		of		
LCSD-75180	Aqueous		50	50	1.000		of		
MB-75180	Aqueous		50	50	1.000		of		

Number	Reagent Name	Amt	Units	Exp. Da
9641	Hydrochloric Acid (trace metal grade)	1	ml	09/22/2025
10056	Digestion Vessels	1	ml	02/10/2026
10136	Nitric Acid (Trace Metal Grade)	1	ml	01/10/2026

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-160406-1	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/09/2016

REVIEWED BY

By Janice Whitt at 2:45:11 PM, 5/23/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30
TEST DATE:	05/20/2016	**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

PIPETTE ID: P-31	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	4.00	3.9957	3.9877	99.69	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		3.9968	3.9888	99.72		
3		3.9926	3.9846	99.62		
AVERAGE (MEAN)		3.995	3.987	99.68		0.055
						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	0.9998	0.9978	99.78	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.9976	0.9956	99.56		
3		0.9977	0.9957	99.57		
AVERAGE (MEAN)		0.998	0.996	99.64		0.124
						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	0.4996	0.4986	99.72	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.4999	0.4989	99.78		
3		0.4989	0.4979	99.58		
AVERAGE (MEAN)		0.499	0.498	99.69		0.103
						PASS

5/20/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:45:14 PM, 5/23/2016

Review and Approved / Date

X:\LOGS\Syringe and Pipetter Cal Logbook\MET\Pipetter Accuracy Check- RO 5-20-2016

Calibration Summary Report

Date Acquired 5/20/2016 10:52
Data Batch 160520.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 = 0.0014 * x + 1.9173E-004
Be	1.0000	y = 6.7611E-005 * x + 4.0753E-006
B	1.0000	y = 2.3935E-005 * x + 6.6671E-005
Na	0.9999	y = 8.2020E-004 * x + 0.0425
Mg	0.9999	y = 4.1094E-004 * x + 0.0010
Al	1.0000	y = 1.4756E-004 * x + 3.6385E-004
K	0.9999	y = 3.9899E-004 * x + 0.0507
Ca	1.0000	y = 2.2762E-005 * x + 2.4734E-004
Ti	1.0000	y = 1.5550E-004 * x + 2.4548E-006
V	1.0000	y = 0.0053 * x + 0.0030
Cr	1.0000	y = 0.0064 * x + 0.0010
Mn	1.0000	y = 0.0034 * x + 1.2334E-004
Fe	1.0000	y = 0.0054 * x + 0.0075
Co	1.0000	y = 0.0134 * x + 1.6697E-004
Ni	1.0000	y = 0.0037 * x + 5.9595E-004
Cu	1.0000	y = 0.0102 * x + 0.0033
Zn	1.0000	y = 0.0017 * x + 3.7275E-004
Se	1.0000	y = 7.9937E-005 * x + 9.8739E-005
Sr	1.0000	y = 6.4021E-004 * x + 3.3178E-005
Mo	1.0000	y = 6.0622E-004 * x + 4.8584E-006
Ag	0.9999	y = 0.0019 * x + 7.8947E-006
Cd	1.0000	y = 2.8420E-004 * x + 1.5075E-006
Sn	1.0000	y = 5.9872E-004 * x + 6.4692E-005
Sb	1.0000	y = 9.1882E-004 * x + 2.1127E-005
Tl	1.0000	y = 0.0017 * x + 2.3075E-006
Ba	1.0000	y = 2.9131E-004 * x + 3.1689E-006
Pb	1.0000	y = 0.0023 * x + 2.2673E-005
Li	1.0000	y = 5.2630E-005 * x + 1.4809E-005

REVIEWED BY
By Janice Whitt at 2:45:18 PM, 5/23/2016

Calibration Summary Report

Level 7 Cal

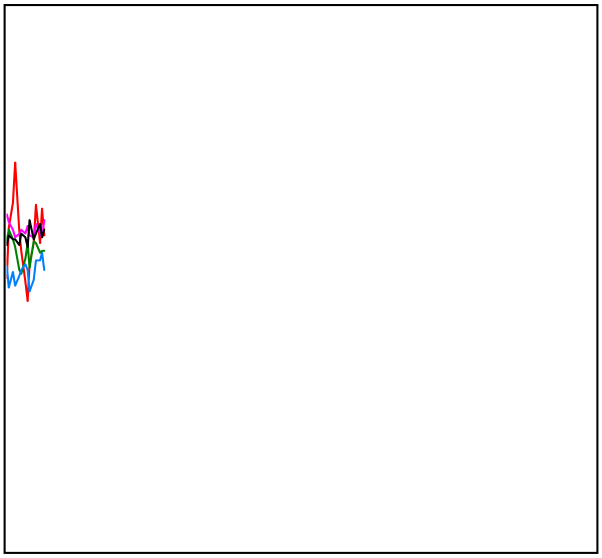
Ele	Conc	Calc	%Rec
As	500	494.27	99
Be	500	507.25	101
B	500	512.43	102
Na	10000	10274.86	103
Mg	10000	10243.18	102
Al	10000	9999.22	100
K	10000	10218.11	102
Ca	10000	9805.32	98
Ti	500	501.17	100
V	500	507.40	101
Cr	500	509.33	102
Mn	500	509.95	102
Fe	10000	9967.53	100
Co	500	512.00	102
Ni	500	505.16	101
Cu	500	508.82	102
Zn	500	506.99	101
Se	500	497.89	100
Sr	500	505.73	101
Mo	500	498.28	100
Ag	500	497.63	100
Cd	500	496.13	99
Sn	500	494.23	99
Sb	500	501.03	100
Tl	500	509.21	102
Ba	500	495.71	99
Pb	500	503.45	101

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2001.88	100
Be	2000	1997.64	100
B	2000	1996.74	100
Na	25000	24858.90	101
Mg	25000	24867.65	101
K	25000	24896.46	100
Ca	25000	25100.13	100
Ti	2000	1999.82	100
V	2000	1997.81	100
Cr	2000	1997.17	100
Mn	2000	1996.76	100
Co	2000	1995.80	100
Ni	2000	1997.77	100
Cu	2000	1996.80	100
Zn	2000	1997.23	100
Se	2000	2000.32	100
Sr	2000	1998.31	100
Mo	2000	2000.69	100
Cd	2000	2001.01	100
Sn	2000	2001.88	100
Tl	2000	1997.65	100
Ba	2000	2001.53	100
Pb	2000	1999.22	100
Li	2000	1995.26	100

REVIEWED BY
By Janice Whitt at 2:45:21 PM, 5/23/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51	200	116	114.9	11.79
59	2000	1105	1102.9	4.38
89	2000	1032	1025.3	4.05
140	5000	3033	2949.5	2.29
205	5000	2959	2890.5	2.51
156/140	1	0.462 %	0.345 %	35.57
75	20	3	4.9	44.86
78	20	3	7.9	39.26
56	5000	2420	2326.3	2.61
31	100	56	49.2	9.44

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.55
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	6.6
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-80	Cell Exit	-60
Deflect	2.4		

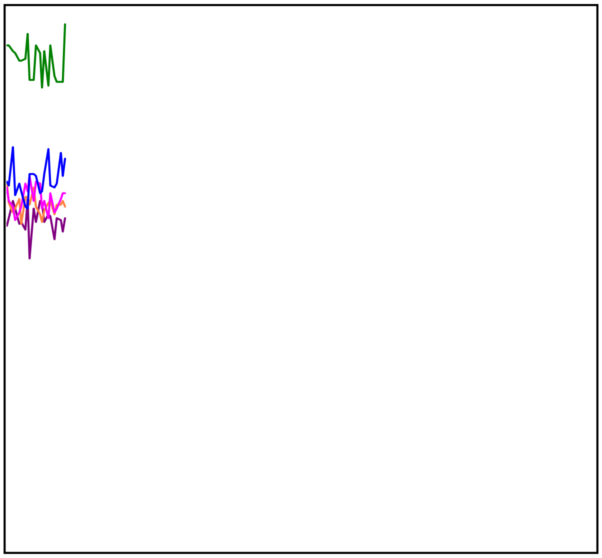
Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.7	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.26E+2	Pa	Carrier Gas(BP)	2.53E+2	kPa
Analyzer Press	2.03E-4	Pa	Reflected Power	1	W
Forward Power	1550	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
7	2000	1222	1219.4	4.17
59	2000	1933	1800.7	3.77
89	5000	3170	3179.9	2.86
140	5000	3279	3231.5	3.58
205	5000	2137	2197.3	4.10
156/140	2	1.373 %	1.107 %	20.36
78	5000	2219	2298.0	2.84
63	500	361	341.0	4.61
75	10000	5042	4978.2	1.76

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.55
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	6.6
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-80	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	2.25E+2	Pa	Carrier Gas(BP)	2.51E+2	kPa
Analyzer Press	1.15E-4	Pa	Reflected Power	1	W
Forward Power	1549	W			

US EPA Tune Check Sample Report

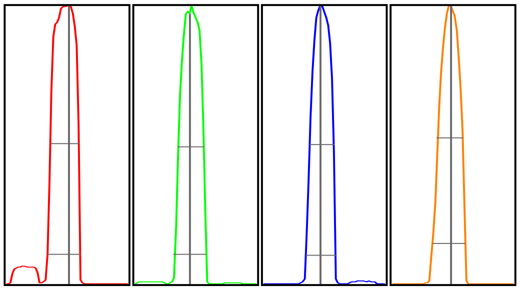
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	766071	0.59	5.00	
59	1002535	0.88	5.00	
115	1534120	0.47	5.00	
205	1337735	0.65	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	761000	762770	766402	767567	772618
59	994287	996607	1000508	1004518	1016753
115	1531586	1527087	1528422	1540459	1543047
205	1347346	1339137	1338492	1340161	1323539

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	114427	7.05	6.9 - 7.1		0.792	0.850	
59	169781	58.90	58.9 - 59.1		0.757	0.850	
115	281192	114.95	114.9 - 115.1		0.715	0.850	
205	235049	205.00	204.9 - 205.1		0.792	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	0.55 L/min	Makeup/Dilution Gas	0.50 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	-80 V	Deflect	7.0 V
Omega Lens	6.6 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 2:45:29 PM, 5/23/2016

P/A Factor Tuning Report

=================== Current Sample ====================
Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 05/20/2016 10:52:47

========= Detector Parameters and P/A Factors =========
Discriminator: 4.5 mV
AnalogHV: 1756 V
PulseHV: 1224 V

Acquired: 05/20/2016 10:17:33

Mass[u]	Element	P/A Factor
6	Li	0.098134
9	Be	0.112424
23	Na	0.120362
24	Mg	0.125799
27	Al	0.129086
39	K	0.130962
45	Sc	0.132626
48		0.132901
51	V	0.134336
52	Cr	0.138170
55	Mn	0.140003
59	Co	0.143275
60	Ni	0.144291
63	Cu	0.146894
66	Zn	0.146603
72		0.145810
74	Ge	0.145819
75	As	0.144825
88	Sr	0.145917
89		0.145627
95		0.145741
97	Mo	0.145945
98	Mo	0.146160
99	[Mo]	0.149063
101		0.148703
105		0.151466
111	Cd	0.152171
114	Cd	0.152307
115	In	0.152070
118	Sn	0.152341
121		0.151907
123	Sb	0.151213
135	Ba	0.153085
138		0.153114
175		0.157166
193		0.158115
205	Tl	0.159390
206	[Pb]	0.158901
207	[Pb]	0.160233
208	Pb	0.160034
209	Bi	0.160265
232		0.160153
238	U	0.160001
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 2:45:32 PM, 5/23/2016

Calibration Blank Report

Date Acquired	5/20/2016 10:52	Sample Name	BLANK STD 1
Data Batch	160520.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	13	11.46
9	Be	45	4	31.49
11	B	45	60	38.88
23	Na	45	38295	1.98
24	Mg	45	929	4.13
27	Al	45	328	9.67
39	K	45	45687	1.92
44	Ca	45	223	14.74
47	Ti	45	2	173.21
51	V	45	2712	3.25
52	Cr	45	932	8.94
55	Mn	45	111	4.58
56	Fe	45	6780	0.46
59	Co	72	116	10.13
60	Ni	72	412	4.45
63	Cu	72	2314	7.14
66	Zn	72	258	12.02
75	As	72	133	9.18
78	Se	72	68	18.46
88	Sr	115	220	6.60
95	Mo	115	32	39.17
107	Ag	115	52	47.91
111	Cd	115	10	0.00
118	Sn	115	429	7.22
121	Sb	115	140	14.48
137	Ba	115	21	59.77
205	Tl	209	38	10.19
208	Pb	209	371	5.49

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	900744	0.58
72	Ge	691836	0.52
115	In	6634288	1.31
209	Bi	16365010	0.86

Calibration Standard Report

Date Acquired	5/20/2016 10:54	Sample Name	L2-160520
Data Batch	160520.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	51	19.61
9	Be	45	59	16.17
11	B	45	81	47.63
23	Na	45	54693	1.98
24	Mg	45	8631	1.06
27	Al	45	3024	4.27
39	K	45	52837	1.33
44	Ca	45	673	9.59
47	Ti	45	142	21.27
51	V	45	7566	1.37
52	Cr	45	6659	1.56
55	Mn	45	3339	3.35
56	Fe	45	103212	0.39
59	Co	72	9894	1.63
60	Ni	72	3053	2.78
63	Cu	72	9651	1.49
66	Zn	72	1510	9.51
75	As	72	1134	3.65
78	Se	72	138	13.66
88	Sr	115	4758	9.98
95	Mo	115	4017	1.96
107	Ag	115	13061	1.16
111	Cd	115	1892	1.58
118	Sn	115	4368	1.85
121	Sb	115	6040	1.52
137	Ba	115	1957	3.12
205	Tl	209	28454	0.85
208	Pb	209	38051	1.40

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	888675	0.90	900744	98.66	70	120	
72	Ge	693617	1.22	691836	100.26	70	120	
115	In	6537693	1.64	6634288	98.54	70	120	
209	Bi	16272142	1.22	16365010	99.43	70	120	

Calibration Standard Report

Date Acquired	5/20/2016 10:56	Sample Name	L-160520
Data Batch	160520.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	475	4.33
9	Be	45	589	2.81
11	B	45	213	8.70
23	Na	45	187072	0.24
24	Mg	45	75079	1.15
27	Al	45	26142	0.55
39	K	45	117199	0.47
44	Ca	45	4092	2.49
47	Ti	45	1508	7.61
51	V	45	49367	1.70
52	Cr	45	57479	0.64
55	Mn	45	30593	1.12
56	Fe	45	958300	0.88
59	Co	72	94946	1.52
60	Ni	72	26516	2.15
63	Cu	72	74283	1.74
66	Zn	72	11910	2.27
75	As	72	9774	0.72
78	Se	72	636	2.65
88	Sr	115	41218	0.48
95	Mo	115	38411	0.41
107	Ag	115	126475	0.65
111	Cd	115	18563	1.42
118	Sn	115	38626	1.15
121	Sb	115	58717	1.10
137	Ba	115	18171	0.63
205	Tl	209	272304	0.87
208	Pb	209	366431	0.81

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	873243	0.62	900744	96.95	70	120	
72	Ge	678023	0.58	691836	98.00	70	120	
115	In	6551099	0.64	6634288	98.75	70	120	
209	Bi	15917913	1.04	16365010	97.27	70	120	

Calibration Standard Report

Date Acquired	5/20/2016 10:58	Sample Name	10X-160520
Data Batch	160520.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	2372	1.63
9	Be	45	2923	2.25
11	B	45	1067	9.08
23	Na	45	770119	0.18
24	Mg	45	367454	0.88
27	Al	45	128655	0.92
39	K	45	399073	0.48
44	Ca	45	19370	0.75
47	Ti	45	6789	2.58
51	V	45	235086	0.94
52	Cr	45	281473	0.22
55	Mn	45	151664	1.11
56	Fe	45	4726262	0.52
59	Co	72	472848	1.31
60	Ni	72	128482	0.55
63	Cu	72	359776	1.03
66	Zn	72	59442	1.18
75	As	72	47843	0.10
78	Se	72	2827	1.34
88	Sr	115	207253	0.76
95	Mo	115	189832	0.47
107	Ag	115	625220	0.51
111	Cd	115	90493	0.63
118	Sn	115	188562	0.79
121	Sb	115	291979	0.59
137	Ba	115	91676	0.52
205	Tl	209	1369668	0.21
208	Pb	209	1836011	0.28

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	870783	0.49	900744	96.67	70	120	
72	Ge	675804	0.16	691836	97.68	70	120	
115	In	6511848	1.01	6634288	98.15	70	120	
209	Bi	15817982	1.93	16365010	96.66	70	120	

Calibration Standard Report

Date Acquired	5/20/2016 11:00	Sample Name	5X-160520
Data Batch	160520.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	4719	0.99
9	Be	45	6031	2.61
11	B	45	2106	2.38
23	Na	45	1487744	0.34
24	Mg	45	730325	0.75
27	Al	45	254158	1.00
39	K	45	743764	0.35
44	Ca	45	38890	0.92
47	Ti	45	13122	1.48
51	V	45	464545	0.24
52	Cr	45	553845	0.36
55	Mn	45	296245	0.64
56	Fe	45	9475567	0.90
59	Co	72	929518	0.70
60	Ni	72	254645	0.94
63	Cu	72	705956	0.91
66	Zn	72	115636	0.55
75	As	72	94999	1.00
78	Se	72	5517	1.18
88	Sr	115	407209	0.73
95	Mo	115	382159	0.27
107	Ag	115	1246974	0.27
111	Cd	115	180002	0.67
118	Sn	115	373685	0.75
121	Sb	115	581845	0.44
137	Ba	115	181959	0.36
205	Tl	209	2721048	0.56
208	Pb	209	3638595	0.14

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	867111	0.94	900744	96.27	70	120	
72	Ge	670073	0.40	691836	96.85	70	120	
115	In	6345212	1.15	6634288	95.64	70	120	
209	Bi	15774838	1.13	16365010	96.39	70	120	

Calibration Standard Report

Date Acquired	5/20/2016 11:02	Sample Name	2X-160520
Data Batch	160520.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	11645	1.45
9	Be	45	14799	0.87
11	B	45	5271	3.09
23	Na	45	3674579	0.75
24	Mg	45	1829610	0.19
27	Al	45	638745	0.27
39	K	45	1790546	0.40
44	Ca	45	96796	0.45
47	Ti	45	33606	0.77
51	V	45	1166196	0.37
52	Cr	45	1399555	0.43
55	Mn	45	749211	1.10
56	Fe	45	23607094	0.99
59	Co	72	2343107	0.54
60	Ni	72	639981	0.74
63	Cu	72	1763980	0.57
66	Zn	72	293583	0.29
75	As	72	238361	0.79
78	Se	72	13619	1.02
88	Sr	115	1023414	0.41
95	Mo	115	955739	0.13
107	Ag	115	3129309	0.67
111	Cd	115	450580	1.28
118	Sn	115	940332	0.60
121	Sb	115	1446811	0.41
137	Ba	115	456887	0.89
205	Tl	209	6865122	2.34
208	Pb	209	9182346	0.28

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	863899	0.62	900744	95.91	70	120	
72	Ge	676172	1.16	691836	97.74	70	120	
115	In	6342174	1.08	6634288	95.60	70	120	
209	Bi	15798184	1.06	16365010	96.54	70	120	

Calibration Standard Report

Date Acquired	5/20/2016 11:04		Sample Name	H-160520
Data Batch	160520.b		Comment	CAL ICPMS_TW
Data File Name	018CALS.d		Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	23477	0.78
9	Be	45	29678	0.77
11	B	45	10670	2.57
23	Na	45	7328693	1.45
24	Mg	45	3642987	0.46
27	Al	45	1276992	0.43
39	K	45	3571412	0.39
44	Ca	45	193325	1.27
47	Ti	45	67432	0.26
51	V	45	2342136	0.46
52	Cr	45	2811568	0.73
55	Mn	45	1497737	1.02
56	Fe	45	46607699	0.12
59	Co	72	4664541	0.37
60	Ni	72	1265436	0.57
63	Cu	72	3510221	0.93
66	Zn	72	580522	0.69
75	As	72	478495	0.53
78	Se	72	27052	0.42
88	Sr	115	2062251	0.76
95	Mo	115	1923834	1.60
107	Ag	115	6149064	1.18
111	Cd	115	897958	0.69
118	Sn	115	1885001	0.48
121	Sb	115	2931945	1.17
137	Ba	115	919713	0.73
205	Tl	209	13843577	0.15
208	Pb	209	18376231	1.17

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	865250	0.07	900744	96.06	70	120	
72	Ge	678053	0.72	691836	98.01	70	120	
115	In	6368809	0.55	6634288	96.00	70	120	
209	Bi	15682376	1.12	16365010	95.83	70	120	

Calibration Standard Report

Date Acquired	5/20/2016 11:06	Sample Name	H2-160520
Data Batch	160520.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	91520	0.61
9	Be	45	117696	1.05
11	B	45	41703	2.00
23	Na	45	17804069	1.61
24	Mg	45	8905730	0.41
27	Al	45	1268	15.64
39	K	45	8700336	3.99
44	Ca	45	498064	0.89
47	Ti	45	270980	0.88
51	V	45	9279476	1.91
52	Cr	45	11100250	2.57
55	Mn	45	5906029	1.36
56	Fe	45	31079	21.18
59	Co	72	18091149	2.15
60	Ni	72	4978053	0.80
63	Cu	72	13698455	1.21
66	Zn	72	2274547	0.47
75	As	72	1927729	0.53
78	Se	72	107929	0.33
88	Sr	115	8069912	1.86
95	Mo	115	7651186	1.88
107	Ag	115	2167	27.48
111	Cd	115	3587268	0.74
118	Sn	115	7561068	0.94
121	Sb	115	4899	3.75
137	Ba	115	3678176	0.64
205	Tl	209	54027345	1.56
208	Pb	209	72597616	1.51

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	871411	0.35	900744	96.74	70	120	
72	Ge	674585	0.55	691836	97.51	70	120	
115	In	6308303	0.56	6634288	95.09	70	120	
209	Bi	15600790	0.51	16365010	95.33	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	5/20/2016 11:14	Sample Name	ICSA-160520
Data Batch	160520.b	Comment	ICSAICPMS_TW
Data File Name	023ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.178	13	11.5	1.2	0.8	
11	B	12.857	310	15.8	30	30	
51	V	-0.035	2337	3.4	10	10	
52	Cr	0.435	3153	9.6	8	5	
55	Mn	1.453	4183	2.6	8	10	
59	Co	0.572	5053	6.0	8	10	
60	Ni	0.460	1477	4.3	8	10	
63	Cu	0.966	8479	8.6	8	10	
66	Zn	1.514	1886	2.4	10	5	
75	As	0.723	788	5.3	4	5	
78	Se	0.403	84	12.1	2	5	
88	Sr	1.450	5706	4.5	10	10	
107	Ag	0.149	1757	1.5	0.8	2	
111	Cd	0.508	864	8.0	1.2	1	
118	Sn	1.337	5130	5.4	10	10	
121	Sb	0.431	2474	8.2	4	2.5	
137	Ba	0.360	641	0.8	8	10	
205	Tl	0.057	1457	3.8	4	1.5	
208	Pb	0.112	4071	5.3	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	827611	0.57	900744	91.88	70	120	
72	Ge	643920	0.43	691836	93.07	70	120	
115	In	5931990	0.71	6634288	89.41	70	120	
209	Bi	14414677	1.32	16365010	88.08	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	5/20/2016 11:16	Sample Name	ICSAB-160520
Data Batch	160520.b	Comment	ICSBICPMS_TW
Data File Name	024ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	40.230	179228	0.38	40	100.6	80	120	
52	Cr	45	21.180	112220	0.68	20	105.9	80	120	
55	Mn	45	20.090	56319	0.85	20	100.5	80	120	
59	Co	72	40.765	350154	0.67	40	101.9	80	120	
60	Ni	72	37.991	90057	0.27	40	95.0	80	120	
63	Cu	72	21.028	138786	0.46	20	105.1	80	120	
66	Zn	72	20.320	22160	1.43	20	101.6	80	120	
75	As	72	19.962	18332	0.50	20	99.8	80	120	
78	Se	72	20.880	1130	1.09	20	104.4	80	120	
107	Ag	115	19.272	219521	0.59	20	96.4	80	120	
111	Cd	115	10.173	16977	1.44	10	101.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	824440	0.46	900744	91.53	70	120	
72	Ge	639098	0.68	691836	92.38	70	120	
115	In	5869841	0.52	6634288	88.48	70	120	
209	Bi	14474563	1.18	16365010	88.45	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	5/20/2016 11:28		Sample Name	ICV-160520
Data Batch	160520.b		Comment	ICV ICPMS_TW
Data File Name	028_ICV.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	100.332	4824	1.81	100	100.3	90	110	
9	Be	45	103.176	6359	1.46	100	103.2	90	110	
11	B	45	106.105	2375	2.15	100	106.1	90	110	
23	Na	45	2619.649	1996303	0.67	2500	104.8	90	110	
24	Mg	45	2613.352	979367	0.11	2500	104.5	90	110	
27	Al	45	2492.346	335405	0.21	2500	99.7	90	110	
39	K	45	2576.179	982676	0.45	2500	103.0	90	110	
44	Ca	45	2392.260	49836	0.98	2500	95.7	90	110	
47	Ti	45	102.414	14511	1.78	100	102.4	90	110	
51	V	45	103.304	504292	0.75	100	103.3	90	110	
52	Cr	45	105.424	613523	0.38	100	105.4	90	110	
55	Mn	45	102.300	316459	1.21	100	102.3	90	110	
56	Fe	45	2567.305	12645614	0.68	2500	102.7	90	110	
59	Co	72	106.357	1016420	0.67	100	106.4	90	110	
60	Ni	72	103.434	272118	0.62	100	103.4	90	110	
63	Cu	72	102.858	746210	0.57	100	102.9	90	110	
66	Zn	72	103.642	124695	1.04	100	103.6	90	110	
75	As	72	100.339	101992	0.91	100	100.3	90	110	
78	Se	72	104.060	5986	1.79	100	104.1	90	110	
88	Sr	115	103.091	442072	0.16	100	103.1	90	110	
95	Mo	115	98.299	398988	0.75	100	98.3	90	110	
107	Ag	115	98.962	1285452	0.32	100	99.0	90	110	
111	Cd	115	99.483	189297	1.17	100	99.5	90	110	
118	Sn	115	101.471	407166	1.20	100	101.5	90	110	
121	Sb	115	98.770	607715	0.72	100	98.8	90	110	
137	Ba	115	98.652	192414	0.96	100	98.7	90	110	
205	Tl	209	101.466	2836271	0.84	100	101.5	90	110	
208	Pb	209	101.685	3816480	0.50	100	101.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	911084	0.27	900744	101.15	70	120	
72	Ge	711191	0.51	691836	102.80	70	120	
115	In	6694931	0.54	6634288	100.91	70	120	
209	Bi	16123032	0.92	16365010	98.52	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/20/2016 11:40	Sample Name	LCVL-160520
Data Batch	160520.b	Comment	LCVLICPMS_TW
Data File Name	031LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.211	493	3.28	10	102.1	70	130	
9	Be	45	0.883	57	3.51	1	88.3	70	130	
11	B	45	23.200	556	15.56	20	116.0	70	130	
23	Na	45	105.249	115108	0.58	100	105.2	70	130	
24	Mg	45	100.404	37782	2.89	100	100.4	70	130	
27	Al	45	96.019	12984	1.75	100	96.0	70	130	
39	K	45	105.822	83035	0.80	100	105.8	70	130	
44	Ca	45	97.034	2194	6.79	100	97.0	70	130	
47	Ti	45	4.981	694	16.24	5	99.6	70	130	
51	V	45	0.990	7405	1.67	1	99.0	70	130	
52	Cr	45	5.164	30348	0.92	5	103.3	70	130	
55	Mn	45	4.932	15067	0.98	5	98.6	70	130	
56	Fe	45	98.316	481338	0.67	100	98.3	70	130	
59	Co	72	5.160	48099	1.92	5	103.2	70	130	
60	Ni	72	5.266	13871	3.84	5	105.3	70	130	
63	Cu	72	5.055	37891	1.05	5	101.1	70	130	
66	Zn	72	5.003	6103	1.75	5	100.1	70	130	
75	As	72	5.096	5168	1.25	5	101.9	70	130	
78	Se	72	4.860	337	3.91	5	97.2	70	130	
88	Sr	115	5.140	21310	1.33	5	102.8	70	130	
95	Mo	115	4.953	19283	2.26	5	99.1	70	130	
107	Ag	115	1.964	24482	0.47	2	98.2	70	130	
111	Cd	115	1.030	1888	5.78	1	103.0	70	130	
118	Sn	115	5.127	20100	1.89	5	102.5	70	130	
121	Sb	115	1.951	11631	2.50	2	97.6	70	130	
137	Ba	115	5.004	9363	2.13	5	100.1	70	130	
205	Tl	209	0.992	27078	1.04	1	99.2	70	130	
208	Pb	209	0.967	35772	0.59	1	96.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	893427	0.34	900744	99.19	70	120	
72	Ge	692133	0.84	691836	100.04	70	120	
115	In	6412520	1.80	6634288	96.66	70	120	
209	Bi	15729452	0.95	16365010	96.12	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	5/20/2016 11:45	Sample Name	ICB-160520
Data Batch	160520.b	Comment	ICB ICPMS_TW
Data File Name	033_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.079	17	24.0	2	5	
9	Be	45	0.096	10	11.9	0.4	0.3	
11	B	45	2.797	122	14.0	10	10	
23	Na	45	1.389	39897	0.2	50	100	
24	Mg	45	-0.816	636	7.3	50	100	
27	Al	45	-0.630	248	10.8	50	10	
39	K	45	4.622	48039	0.4	50	100	
44	Ca	45	0.493	236	7.3	50	100	
47	Ti	45	0.032	7	132.3	4	3	
51	V	45	0.003	2768	7.0	4	3	
52	Cr	45	-0.004	922	6.2	2	2	
55	Mn	45	0.012	149	15.9	2	3	
56	Fe	45	0.182	7778	2.3	50	50	
59	Co	72	0.001	131	10.3	2	3	
60	Ni	72	-0.045	304	13.2	2	3	
63	Cu	72	-0.086	1743	2.3	2	2	
66	Zn	72	0.005	270	10.7	4	2	
75	As	72	0.026	161	5.5	2	2	
78	Se	72	0.216	82	13.1	1	2	
88	Sr	115	-0.005	196	17.2	4	3	
95	Mo	115	0.004	49	43.3	2	2	
107	Ag	115	0.002	71	15.1	0.4	1	
111	Cd	115	-0.002	7	50.0	0.4	0.3	
118	Sn	115	0.236	1351	4.6	4	3	
121	Sb	115	0.008	189	2.7	2	0.8	
137	Ba	115	-0.002	18	57.3	2	3	
205	Tl	209	0.000	32	39.2	2	0.5	
208	Pb	209	-0.001	313	21.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	914027	1.10	900744	101.47	70	120	
72	Ge	707118	0.50	691836	102.21	70	120	
115	In	6559701	1.67	6634288	98.88	70	120	
209	Bi	15784059	0.77	16365010	96.45	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/20/2016 13:06	Sample Name	CCV2-160520
Data Batch	160520.b	Comment	CCV ICPMS_TW
Data File Name	066_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	206.782	9383	0.75	200	103.4	90	110	
9	Be	45	206.653	12034	2.11	200	103.3	90	110	
11	B	45	208.432	4353	3.34	200	104.2	90	110	
23	Na	45	5168.925	3686872	0.54	5000	103.4	90	110	
24	Mg	45	5109.315	1808629	0.07	5000	102.2	90	110	
27	Al	45	4965.141	631105	1.07	5000	99.3	90	110	
39	K	45	5070.813	1785627	0.49	5000	101.4	90	110	
44	Ca	45	4837.310	95013	0.31	5000	96.7	90	110	
47	Ti	45	201.140	26931	1.95	200	100.6	90	110	
51	V	45	203.158	934716	0.26	200	101.6	90	110	
52	Cr	45	203.913	1120596	0.27	200	102.0	90	110	
55	Mn	45	203.279	594158	0.25	200	101.6	90	110	
56	Fe	45	5042.514	23467994	2.63	5000	100.9	90	110	
59	Co	72	209.877	1876358	0.40	200	104.9	90	110	
60	Ni	72	207.066	509243	0.87	200	103.5	90	110	
63	Cu	72	208.708	1414211	0.15	200	104.4	90	110	
66	Zn	72	207.264	233038	0.84	200	103.6	90	110	
75	As	72	201.926	191894	0.46	200	101.0	90	110	
78	Se	72	202.755	10849	1.10	200	101.4	90	110	
88	Sr	115	204.295	814939	0.35	200	102.1	90	110	
95	Mo	115	202.212	763670	0.55	200	101.1	90	110	
107	Ag	115	205.239	2480385	1.13	200	102.6	90	110	
111	Cd	115	199.199	352656	0.69	200	99.6	90	110	
118	Sn	115	197.089	735458	0.76	200	98.5	90	110	
121	Sb	115	199.804	1143701	0.34	200	99.9	90	110	
137	Ba	115	198.088	359480	0.42	200	99.0	90	110	
205	Tl	209	200.163	5318716	0.54	200	100.1	90	110	
208	Pb	209	199.769	7127416	0.69	200	99.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	861013	0.67	900744	95.59	70	120	
72	Ge	665333	0.20	691836	96.17	70	120	
115	In	6231428	2.47	6634288	93.93	70	120	
209	Bi	15327196	0.94	16365010	93.66	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/20/2016 13:11	Sample Name	LCVL2-160520
Data Batch	160520.b	Comment	LCVLICPMS_TW
Data File Name	068LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.180	474	2.40	10	101.8	70	130	
9	Be	45	0.959	59	8.65	1	95.9	70	130	
11	B	45	21.476	500	5.81	20	107.4	70	130	
23	Na	45	114.680	117582	1.00	100	114.7	70	130	
24	Mg	45	102.970	37317	0.48	100	103.0	70	130	
27	Al	45	98.909	12880	4.15	100	98.9	70	130	
39	K	45	108.787	81036	0.93	100	108.8	70	130	
44	Ca	45	94.480	2064	3.75	100	94.5	70	130	
47	Ti	45	5.005	672	10.88	5	100.1	70	130	
51	V	45	1.123	7743	1.49	1	112.3	70	130	
52	Cr	45	5.141	29121	0.49	5	102.8	70	130	
55	Mn	45	4.988	14682	1.06	5	99.8	70	130	
56	Fe	45	99.852	470995	0.94	100	99.9	70	130	
59	Co	72	5.265	47388	0.94	5	105.3	70	130	
60	Ni	72	5.263	13389	2.18	5	105.3	70	130	
63	Cu	72	4.987	36119	2.85	5	99.7	70	130	
66	Zn	72	5.046	5941	3.03	5	100.9	70	130	
75	As	72	5.075	4969	1.43	5	101.5	70	130	
78	Se	72	4.862	326	7.08	5	97.2	70	130	
88	Sr	115	5.081	20655	2.50	5	101.6	70	130	
95	Mo	115	4.888	18659	3.10	5	97.8	70	130	
107	Ag	115	1.957	23909	0.54	2	97.8	70	130	
111	Cd	115	0.957	1719	2.72	1	95.7	70	130	
118	Sn	115	5.006	19243	1.11	5	100.1	70	130	
121	Sb	115	1.956	11427	1.88	2	97.8	70	130	
137	Ba	115	4.966	9110	2.66	5	99.3	70	130	
205	Tl	209	0.981	26754	0.55	1	98.1	70	130	
208	Pb	209	0.963	35540	1.14	1	96.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	860941	0.31	900744	95.58	70	120	
72	Ge	668324	0.73	691836	96.60	70	120	
115	In	6285266	1.03	6634288	94.74	70	120	
209	Bi	15704344	0.74	16365010	95.96	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/20/2016 13:20	Sample Name	CCB2-160520
Data Batch	160520.b	Comment	CCB ICPMS_TW
Data File Name	069_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.014	13	25.4	2	5	
9	Be	45	-0.006	3	34.6	0.4	0.3	
11	B	45	2.688	118	17.3	10	10	
23	Na	45	1.684	39484	2.0	50	100	
24	Mg	45	-0.399	780	2.7	50	100	
27	Al	45	-0.348	281	7.9	50	10	
39	K	45	7.540	48329	1.2	50	100	
44	Ca	45	-1.660	189	6.3	50	100	
47	Ti	45	0.008	3	100.1	4	3	
51	V	45	0.049	2943	3.7	4	3	
52	Cr	45	-0.015	847	3.8	2	2	
55	Mn	45	-0.011	78	8.9	2	3	
56	Fe	45	0.069	7107	2.5	50	50	
59	Co	72	-0.007	53	43.7	2	3	
60	Ni	72	-0.065	244	13.7	2	3	
63	Cu	72	-0.125	1426	1.3	2	2	
66	Zn	72	-0.037	213	14.9	4	2	
75	As	72	0.009	141	11.2	2	2	
78	Se	72	-0.189	58	22.2	1	2	
88	Sr	115	0.038	371	62.4	4	3	
95	Mo	115	-0.003	19	56.7	2	2	
107	Ag	115	0.003	94	22.4	0.4	1	
111	Cd	115	0.005	19	62.0	0.4	0.3	
118	Sn	115	0.076	714	4.9	4	3	
121	Sb	115	0.016	233	23.8	2	0.8	
137	Ba	115	0.007	33	17.3	2	3	
205	Tl	209	0.000	34	39.1	2	0.5	
208	Pb	209	-0.001	310	17.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	899519	0.65	900744	99.86	70	120	
72	Ge	688533	0.82	691836	99.52	70	120	
115	In	6468049	0.42	6634288	97.49	70	120	
209	Bi	16017395	0.29	16365010	97.88	70	120	

Method Blank Report

Date Acquired	5/20/16 1:22 PM	Sample Name	MB-75180
Data Batch	160520.b	Comment	MBLKICPMS_TWDOD
Data File Name	070_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.065	16	43.00		
9	Be	45	-0.016	3	43.30		
11	B	45	3.680	139	7.33		
23	Na	45	1.602	39357	1.68		
24	Mg	45	1.079	1323	9.33		
27	Al	45	6.638	1207	6.50		
39	K	45	6.087	47729	1.50		
44	Ca	45	17.031	570	6.85		
47	Ti	45	0.000	2	86.60		
51	V	45	0.098	3175	2.84		
52	Cr	45	0.003	946	10.81		
55	Mn	45	0.007	131	27.42		
56	Fe	45	0.701	10161	1.53		
59	Co	72	-0.006	58	35.25		
60	Ni	72	-0.056	270	9.64		
63	Cu	72	-0.120	1478	9.63		
66	Zn	72	0.584	947	5.99		
75	As	72	-0.003	131	9.62		
78	Se	72	0.231	82	12.61		
88	Sr	115	0.102	651	7.42		
95	Mo	115	-0.004	14	74.18		
107	Ag	115	0.004	98	20.55		
111	Cd	115	-0.005	0	#DIV/0!		
118	Sn	115	0.027	536	6.23		
121	Sb	115	0.014	222	8.66		
137	Ba	115	0.032	82	24.77		
205	Tl	209	0.000	47	25.75		
208	Pb	209	0.004	533	7.68		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	898027	1.16	900744	99.70	70	120	
72	Ge	696733	0.54	691836	100.71	70	120	
115	In	6624535	1.15	6634288	99.85	70	120	
209	Bi	16420634	0.64	16365010	100.34	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/20/2016 13:24	Sample Name	LCS-75180
Data Batch	160520.b	Comment	LCS ICPMS_TWDOD
Data File Name	071_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	207.477	9515	1.62	200	103.7	80	120	
9	Be	45	202.266	11905	1.32	200	101.1	80	120	
11	B	45	195.161	4124	4.40	200	97.6	80	120	
23	Na	45	5153.894	3715782	0.89	5000	103.1	80	120	
24	Mg	45	5118.954	1831544	0.71	5000	102.4	80	120	
27	Al	45	4981.246	639961	1.20	5000	99.6	80	120	
39	K	45	5041.266	1794560	0.13	5000	100.8	80	120	
44	Ca	45	4740.164	94110	0.45	5000	94.8	80	120	
47	Ti	45	192.838	26098	0.93	200	96.4	80	120	
51	V	45	200.032	930245	0.81	200	100.0	80	120	
52	Cr	45	200.955	1116256	0.75	200	100.5	80	120	
55	Mn	45	199.655	589846	0.43	200	99.8	80	120	
56	Fe	45	5071.775	23856763	1.05	5000	101.4	80	120	
59	Co	72	207.626	1874260	0.84	200	103.8	80	120	
60	Ni	72	204.682	508272	0.59	200	102.3	80	120	
63	Cu	72	205.447	1405663	1.66	200	102.7	80	120	
66	Zn	72	202.971	230430	0.68	200	101.5	80	120	
75	As	72	196.603	188655	0.16	200	98.3	80	120	
78	Se	72	200.300	10823	0.38	200	100.1	80	120	
88	Sr	115	196.190	794822	0.55	200	98.1	80	120	
95	Mo	115	195.187	748613	0.26	200	97.6	80	120	
107	Ag	115	196.529	2412668	1.27	200	98.3	80	120	
111	Cd	115	196.284	352950	1.05	200	98.1	80	120	
118	Sn	115	193.543	733613	1.09	200	96.8	80	120	
121	Sb	115	198.951	1156640	0.59	200	99.5	80	120	
137	Ba	115	195.083	359597	1.11	200	97.5	80	120	
205	Tl	209	200.277	5442896	1.66	200	100.1	80	120	
208	Pb	209	196.766	7180277	0.50	200	98.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	870277	0.61	900744	96.62	70	120	
72	Ge	671795	0.07	691836	97.10	70	120	
115	In	6329080	2.64	6634288	95.40	70	120	
209	Bi	15677643	1.30	16365010	95.80	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/20/2016 13:26	Sample Name	LCSD-75180
Data Batch	160520.b	Comment	LCSDICPMS_TWDOD
Data File Name	072_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	211.628	9552	1.66	200	105.8	80	120	
9	Be	45	207.907	12043	0.86	200	104.0	80	120	
11	B	45	207.539	4312	1.43	200	103.8	80	120	
23	Na	45	5362.484	3803524	0.49	5000	107.2	80	120	
24	Mg	45	5350.645	1884119	0.41	5000	107.0	80	120	
27	Al	45	4623.801	584689	0.66	5000	92.5	80	120	
39	K	45	5298.886	1854221	0.78	5000	106.0	80	120	
44	Ca	45	4926.669	96259	0.97	5000	98.5	80	120	
47	Ti	45	200.210	26667	0.20	200	100.1	80	120	
51	V	45	205.077	938586	0.55	200	102.5	80	120	
52	Cr	45	204.586	1118439	0.90	200	102.3	80	120	
55	Mn	45	205.641	597919	0.06	200	102.8	80	120	
56	Fe	45	5087.447	23550804	1.09	5000	101.7	80	120	
59	Co	72	214.414	1904053	0.24	200	107.2	80	120	
60	Ni	72	209.839	512595	0.45	200	104.9	80	120	
63	Cu	72	210.981	1419956	0.46	200	105.5	80	120	
66	Zn	72	204.234	228100	0.64	200	102.1	80	120	
75	As	72	202.120	190788	0.15	200	101.1	80	120	
78	Se	72	201.529	10711	1.06	200	100.8	80	120	
88	Sr	115	196.352	801400	0.82	200	98.2	80	120	
95	Mo	115	195.900	756939	0.79	200	98.0	80	120	
107	Ag	115	195.076	2412277	0.22	200	97.5	80	120	
111	Cd	115	198.025	358702	0.47	200	99.0	80	120	
118	Sn	115	194.683	743307	0.78	200	97.3	80	120	
121	Sb	115	195.279	1143707	0.47	200	97.6	80	120	
137	Ba	115	194.998	362068	0.19	200	97.5	80	120	
205	Tl	209	201.393	5413984	0.64	200	100.7	80	120	
208	Pb	209	200.604	7241369	0.67	200	100.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	856491	0.13	900744	95.09	70	120	
72	Ge	660905	0.92	691836	95.53	70	120	
115	In	6373621	0.51	6634288	96.07	70	120	
209	Bi	15514322	2.64	16365010	94.80	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/20/2016 13:32	Sample Name	1605097-27A SD
Data Batch	160520.b	Comment	SD ICPMS_TWDOD
Data File Name	075_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	0.068	16	12.50	0.2	180.5	110	90	
9	Be	45	-0.038	1	114.56	0.1	-141.3	110	90	
11	B	45	17.535	423	8.52	77.9	112.5	110	90	
23	Na	45	35.699	62521	0.91	172.1	103.7	110	90	Good
24	Mg	45	3.836	2271	5.49	19.3	99.3	110	90	Good
27	Al	45	34.453	4743	3.67	166.6	103.4	110	90	Good
39	K	45	11.074	48015	1.21	33.2	166.9	110	90	
44	Ca	45	74.540	1693	4.14	360.4	103.4	110	90	Good
47	Ti	45	0.107	17	87.16	0.3	169.7	110	90	
51	V	45	0.073	2960	6.49	0.2	205.2	110	90	
52	Cr	45	0.197	1996	7.06	1.1	92.7	110	90	Good
55	Mn	45	0.148	544	14.36	0.8	93.8	110	90	Good
56	Fe	45	5.267	31343	1.57	26.2	100.7	110	90	Good
59	Co	72	0.009	193	14.73	0.0	121.3	110	90	
60	Ni	72	0.263	1052	2.56	1.7	76.4	110	90	
63	Cu	72	-0.047	1923	10.96	0.3	-91.9	110	90	
66	Zn	72	0.853	1217	12.34	4.1	103.4	110	90	Good
75	As	72	0.029	157	5.00	0.1	222.6	110	90	
78	Se	72	0.336	84	9.94	0.1	1399.8	110	90	
88	Sr	115	0.548	2455	2.52	2.7	102.1	110	90	Good
95	Mo	115	0.153	626	21.59	0.7	110.5	110	90	
107	Ag	115	0.009	164	25.34	0.0	250.0	110	90	
111	Cd	115	0.003	16	32.73	0.0	143.0	110	90	
118	Sn	115	0.074	696	6.98	0.2	169.5	110	90	
121	Sb	115	0.045	399	25.38	0.1	235.1	110	90	
137	Ba	115	0.117	239	11.62	0.7	90.2	110	90	Good
205	Tl	209	0.005	176	19.02	0.0	164.6	110	90	
208	Pb	209	0.027	1372	7.85	0.1	113.9	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	870854	0.91	900744	96.68	70	120	
72	Ge	671393	0.27	691836	97.05	70	120	
115	In	6391281	1.83	6634288	96.34	70	120	
209	Bi	15830888	0.33	16365010	96.74	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/20/2016 13:52	Sample Name	1605097-27A PDS
Data Batch	160520.b	Comment	PDS ICPMS_TWDOD
Data File Name	085_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	208.981	9280	1.02	0.2	200	104.4	75	125	
9	Be	45	205.509	11711	0.53	0.1	200	102.7	75	125	
11	B	45	285.809	5820	2.43	77.9	200	104.0	75	125	
23	Na	45	5404.541	3770772	0.71	172.1	5000	104.6	75	125	
24	Mg	45	5227.887	1811012	0.25	19.3	5000	104.2	75	125	
27	Al	45	5186.356	645154	1.11	166.6	5000	100.4	75	125	
39	K	45	5131.767	1767946	0.81	33.2	5000	102.0	75	125	
44	Ca	45	5036.090	96794	0.63	360.4	5000	93.5	75	125	
47	Ti	45	204.672	26818	0.31	0.3	200	102.2	75	125	
51	V	45	205.614	925765	1.11	0.2	200	102.7	75	125	
52	Cr	45	209.415	1126215	0.10	1.1	200	104.2	75	125	
55	Mn	45	201.270	575717	0.99	0.8	200	100.2	75	125	
56	Fe	45	5141.790	23416040	2.86	26.2	5000	102.3	75	125	
59	Co	72	212.432	1865010	0.28	0.0	200	106.2	75	125	
60	Ni	72	206.554	498845	0.40	1.7	200	102.4	75	125	
63	Cu	72	205.509	1367501	0.81	0.3	200	102.6	75	125	
66	Zn	72	206.091	227552	0.83	4.1	200	101.0	75	125	
75	As	72	197.771	184566	0.70	0.1	200	98.9	75	125	
78	Se	72	202.393	10635	0.90	0.1	200	101.1	75	125	
88	Sr	115	206.704	815896	0.34	2.7	200	102.0	75	125	
95	Mo	115	198.384	741330	0.42	0.7	200	98.8	75	125	
107	Ag	115	184.548	2207022	0.22	0.0	200	92.3	75	125	
111	Cd	115	195.191	341931	0.27	0.0	200	97.6	75	125	
118	Sn	115	202.579	748007	0.46	0.2	200	101.2	75	125	
121	Sb	115	188.867	1069835	1.39	0.1	200	94.4	75	125	
137	Ba	115	199.288	357867	0.43	0.7	200	99.3	75	125	
205	Tl	209	199.302	5296717	0.74	0.0	200	99.6	75	125	
208	Pb	209	199.936	7134456	0.42	0.1	200	99.9	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	842584	0.33	900744	93.54	70	120	
72	Ge	653370	0.47	691836	94.44	70	120	
115	In	6164044	0.75	6634288	92.91	70	120	
209	Bi	15329899	0.74	16365010	93.67	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/20/2016 13:54	Sample Name	1605097-27A MS
Data Batch	160520.b	Comment	MS ICPMS_TWDOD
Data File Name	086_MSW.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	170.064	7584	1.95	0.2	200	84.9	80	120	
9	Be	45	170.036	9730	0.33	0.1	200	85.0	80	120	
11	B	45	211.300	4335	2.63	77.9	200	66.7	80	120	Fail
23	Na	45	5276.203	3697081	0.68	172.1	5000	102.1	80	120	
24	Mg	45	5130.074	1784373	1.29	19.3	5000	102.2	80	120	
27	Al	45	4817.494	601724	1.24	166.6	5000	93.0	80	120	
39	K	45	5034.751	1742366	0.92	33.2	5000	100.0	80	120	
44	Ca	45	4749.301	91663	0.93	360.4	5000	87.8	80	120	
47	Ti	45	161.792	21287	1.94	0.3	200	80.7	80	120	
51	V	45	167.529	757849	1.08	0.2	200	83.7	80	120	
52	Cr	45	169.182	913736	0.52	1.1	200	84.1	80	120	
55	Mn	45	167.173	480133	1.01	0.8	200	83.2	80	120	
56	Fe	45	4989.600	22816465	1.30	26.2	5000	99.3	80	120	
59	Co	72	170.716	1510248	1.41	0.0	200	85.3	80	120	
60	Ni	72	170.393	414746	0.92	1.7	200	84.3	80	120	
63	Cu	72	170.672	1144804	0.98	0.3	200	85.2	80	120	
66	Zn	72	171.664	191038	0.75	4.1	200	83.8	80	120	
75	As	72	164.901	155123	1.29	0.1	200	82.4	80	120	
78	Se	72	162.927	8642	1.69	0.1	200	81.4	80	120	
88	Sr	115	166.659	660795	1.05	2.7	200	82.0	80	120	
95	Mo	115	163.856	615005	0.41	0.7	200	81.6	80	120	
107	Ag	115	198.800	2387903	0.89	0.0	200	99.4	80	120	
111	Cd	115	165.115	290524	0.61	0.0	200	82.6	80	120	
118	Sn	115	163.476	606381	0.54	0.2	200	81.6	80	120	
121	Sb	115	201.813	1148120	0.30	0.1	200	100.9	80	120	
137	Ba	115	165.330	298187	0.64	0.7	200	82.3	80	120	
205	Tl	209	163.516	4397378	0.75	0.0	200	81.8	80	120	
208	Pb	209	161.721	5839522	0.48	0.1	200	80.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	846025	0.40	900744	93.93	70	120	
72	Ge	658505	1.30	691836	95.18	70	120	
115	In	6191469	0.95	6634288	93.33	70	120	
209	Bi	15511736	0.59	16365010	94.79	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/20/2016 13:56	Sample Name	1605097-27A MSD
Data Batch	160520.b	Comment	MSD ICPMS_TWDOD
Data File Name	087_MSW.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	205.597	9304	1.62	0.2	200	102.7	80	120	
9	Be	45	203.064	11793	1.41	0.1	200	101.5	80	120	
11	B	45	242.909	5050	4.50	77.9	200	82.5	80	120	
23	Na	45	5177.237	3682905	1.10	172.1	5000	100.1	80	120	
24	Mg	45	4993.908	1763105	0.25	19.3	5000	99.5	80	120	
27	Al	45	4936.520	625831	0.74	166.6	5000	95.4	80	120	
39	K	45	4965.228	1744703	1.20	33.2	5000	98.6	80	120	
44	Ca	45	4753.640	93125	1.29	360.4	5000	87.9	80	120	
47	Ti	45	195.210	26068	0.98	0.3	200	97.4	80	120	
51	V	45	200.675	920875	0.73	0.2	200	100.2	80	120	
52	Cr	45	203.955	1117867	0.41	1.1	200	101.4	80	120	
55	Mn	45	202.473	590229	0.83	0.8	200	100.8	80	120	
56	Fe	45	5112.057	23726119	2.33	26.2	5000	101.7	80	120	
59	Co	72	206.133	1846156	0.73	0.0	200	103.0	80	120	
60	Ni	72	206.533	508832	0.56	1.7	200	102.4	80	120	
63	Cu	72	206.199	1399718	0.23	0.3	200	103.0	80	120	
66	Zn	72	204.471	230307	1.38	4.1	200	100.2	80	120	
75	As	72	198.160	188652	0.84	0.1	200	99.0	80	120	
78	Se	72	201.130	10782	0.12	0.1	200	100.5	80	120	
88	Sr	115	201.026	801163	0.72	2.7	200	99.2	80	120	
95	Mo	115	199.764	753727	1.09	0.7	200	99.5	80	120	
107	Ag	115	197.459	2384307	0.18	0.0	200	98.7	80	120	
111	Cd	115	200.097	353929	0.48	0.0	200	100.0	80	120	
118	Sn	115	197.870	737731	0.96	0.2	200	98.8	80	120	
121	Sb	115	201.125	1150215	0.35	0.1	200	100.5	80	120	
137	Ba	115	199.346	361437	0.39	0.7	200	99.3	80	120	
205	Tl	209	195.932	5357915	0.27	0.0	200	98.0	80	120	
208	Pb	209	195.812	7189529	0.20	0.1	200	97.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	858705	0.07	900744	95.33	70	120	
72	Ge	666512	0.03	691836	96.34	70	120	
115	In	6223826	0.86	6634288	93.81	70	120	
209	Bi	15779807	2.46	16365010	96.42	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/20/2016 13:58	Sample Name	CCV3-160520
Data Batch	160520.b	Comment	CCV ICPMS_TW
Data File Name	088_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	203.180	9274	0.83	200	101.6	90	110	
9	Be	45	203.486	11920	1.02	200	101.7	90	110	
11	B	45	210.276	4416	1.73	200	105.1	90	110	
23	Na	45	5132.134	3682741	0.63	5000	102.6	90	110	
24	Mg	45	5086.454	1811320	0.58	5000	101.7	90	110	
27	Al	45	4980.080	636833	0.78	5000	99.6	90	110	
39	K	45	5081.672	1800039	0.46	5000	101.6	90	110	
44	Ca	45	4836.944	95568	0.34	5000	96.7	90	110	
47	Ti	45	200.071	26952	1.98	200	100.0	90	110	
51	V	45	203.154	940224	0.55	200	101.6	90	110	
52	Cr	45	202.100	1117262	0.18	200	101.1	90	110	
55	Mn	45	202.982	596833	0.52	200	101.5	90	110	
56	Fe	45	5019.103	23493427	1.22	5000	100.4	90	110	
59	Co	72	208.419	1864213	1.18	200	104.2	90	110	
60	Ni	72	205.434	505495	0.52	200	102.7	90	110	
63	Cu	72	209.149	1417980	1.14	200	104.6	90	110	
66	Zn	72	205.831	231556	1.37	200	102.9	90	110	
75	As	72	201.676	191753	0.22	200	100.8	90	110	
78	Se	72	204.247	10934	1.41	200	102.1	90	110	
88	Sr	115	201.502	818714	0.86	200	100.8	90	110	
95	Mo	115	199.699	768114	0.40	200	99.8	90	110	
107	Ag	115	202.247	2489708	0.73	200	101.1	90	110	
111	Cd	115	199.234	359250	0.46	200	99.6	90	110	
118	Sn	115	196.022	745053	0.39	200	98.0	90	110	
121	Sb	115	199.544	1163397	0.25	200	99.8	90	110	
137	Ba	115	198.512	366908	1.08	200	99.3	90	110	
205	Tl	209	199.782	5446376	0.37	200	99.9	90	110	
208	Pb	209	197.855	7242369	0.64	200	98.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	866202	1.29	900744	96.17	70	120	
72	Ge	665686	0.56	691836	96.22	70	120	
115	In	6344920	0.75	6634288	95.64	70	120	
209	Bi	15726160	1.52	16365010	96.10	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/20/2016 14:04		Sample Name	LCVL3-160520
Data Batch	160520.b		Comment	LCVLICPMS_TW
Data File Name	090LCCV.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.230	527	10.42	10	112.3	70	130	
9	Be	45	1.010	63	17.89	1	101.0	70	130	
11	B	45	24.634	571	4.38	20	123.2	70	130	
23	Na	45	98.195	107074	0.50	100	98.2	70	130	
24	Mg	45	101.451	37176	1.95	100	101.5	70	130	
27	Al	45	99.147	13048	0.90	100	99.1	70	130	
39	K	45	103.570	80094	1.64	100	103.6	70	130	
44	Ca	45	100.317	2202	2.99	100	100.3	70	130	
47	Ti	45	5.093	691	7.81	5	101.9	70	130	
51	V	45	1.066	7563	1.15	1	106.6	70	130	
52	Cr	45	5.146	29458	1.00	5	102.9	70	130	
55	Mn	45	5.131	15261	1.50	5	102.6	70	130	
56	Fe	45	100.203	477688	0.08	100	100.2	70	130	
59	Co	72	5.197	47885	1.12	5	103.9	70	130	
60	Ni	72	5.154	13429	0.94	5	103.1	70	130	
63	Cu	72	5.013	37155	1.61	5	100.3	70	130	
66	Zn	72	5.311	6389	4.69	5	106.2	70	130	
75	As	72	4.952	4966	1.28	5	99.0	70	130	
78	Se	72	5.555	371	4.76	5	111.1	70	130	
88	Sr	115	5.152	21317	0.76	5	103.0	70	130	
95	Mo	115	4.876	18942	2.94	5	97.5	70	130	
107	Ag	115	1.956	24332	2.20	2	97.8	70	130	
111	Cd	115	0.961	1757	3.66	1	96.1	70	130	
118	Sn	115	5.019	19639	1.08	5	100.4	70	130	
121	Sb	115	2.013	11969	1.61	2	100.7	70	130	
137	Ba	115	4.958	9262	1.20	5	99.2	70	130	
205	Tl	209	0.992	27281	1.62	1	99.2	70	130	
208	Pb	209	0.977	36361	0.51	1	97.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	870167	0.41	900744	96.61	70	120	
72	Ge	684121	0.81	691836	98.88	70	120	
115	In	6398204	0.37	6634288	96.44	70	120	
209	Bi	15843229	2.06	16365010	96.81	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/20/2016 14:06		Sample Name	CCB3-160520
Data Batch	160520.b		Comment	CCB ICPMS_TW
Data File Name	091_CCB.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.018	12	28.9	2	5	
9	Be	45	0.007	4	75.0	0.4	0.3	
11	B	45	5.180	166	19.3	10	10	
23	Na	45	-4.493	33660	2.0	50	100	
24	Mg	45	-1.062	516	7.2	50	100	
27	Al	45	-0.474	254	16.5	50	10	
39	K	45	5.967	46044	0.9	50	100	
44	Ca	45	0.316	221	16.5	50	100	
47	Ti	45	0.034	7	86.6	4	3	
51	V	45	0.086	3011	4.6	4	3	
52	Cr	45	0.000	899	4.6	2	2	
55	Mn	45	-0.001	103	29.6	2	3	
56	Fe	45	0.192	7426	0.8	50	50	
59	Co	72	0.009	199	23.8	2	3	
60	Ni	72	-0.070	230	15.3	2	3	
63	Cu	72	-0.120	1441	7.2	2	2	
66	Zn	72	-0.026	223	3.9	4	2	
75	As	72	0.026	155	2.8	2	2	
78	Se	72	0.144	75	6.5	1	2	
88	Sr	115	-0.007	181	12.5	4	3	
95	Mo	115	0.003	42	22.8	2	2	
107	Ag	115	0.009	161	2.4	0.4	1	
111	Cd	115	0.000	10	33.3	0.4	0.3	
118	Sn	115	0.131	907	6.1	4	3	
121	Sb	115	0.092	671	12.4	2	0.8	
137	Ba	115	0.013	44	11.5	2	3	
205	Tl	209	0.004	156	14.3	2	0.5	
208	Pb	209	0.003	463	8.5	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	867169	1.51	900744	96.27	70	120	
72	Ge	678651	0.28	691836	98.09	70	120	
115	In	6326752	0.94	6634288	95.36	70	120	
209	Bi	15694418	1.64	16365010	95.90	70	120	

Sample Report

Date Acquired	5/20/16 2:22 PM	Sample Name	1605144-16A
Data Batch	160520.b	Comment	SAMPICPMS_TWDOD
Data File Name	099_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.004	13	40.70	2000	
9	Be	45	-0.027	2	50.00	2000	
11	B	45	38.113	870	7.28	2000	>RL
23	Na	45	128.194	131209	0.76	25000	>RL
24	Mg	45	1.684	1531	3.28	25000	
27	Al	45	18.737	2780	1.14	10000	J
39	K	45	15.479	50557	1.13	25000	
44	Ca	45	27.662	779	6.26	25000	
47	Ti	45	0.161	24	39.37	2000	
51	V	45	0.046	2891	2.94	2000	
52	Cr	45	1.135	7354	2.44	2000	
55	Mn	45	0.406	1336	4.40	2000	
56	Fe	45	8.593	47948	1.31	10000	
59	Co	72	0.021	304	18.07	2000	
60	Ni	72	1.521	4242	4.10	2000	
63	Cu	72	0.045	2597	6.19	2000	
66	Zn	72	2.559	3204	6.71	2000	J
75	As	72	0.012	143	10.91	2000	
78	Se	72	-0.080	63	11.67	2000	
88	Sr	115	0.092	598	7.93	2000	
95	Mo	115	0.665	2640	1.83	2000	
107	Ag	115	0.003	92	7.52	500	
111	Cd	115	-0.004	3	100.05	2000	
118	Sn	115	0.094	782	7.45	2000	
121	Sb	115	0.033	334	20.36	500	
137	Ba	115	0.097	202	20.61	2000	
205	Tl	209	0.003	110	3.03	2000	
208	Pb	209	0.020	1117	10.96	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	888627	0.39	900744	98.65	70	120	
72	Ge	682750	0.40	691836	98.69	70	120	
115	In	6470705	1.04	6634288	97.53	70	120	
209	Bi	16294708	1.37	16365010	99.57	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/20/2016 14:24	Sample Name	CCV4-160520
Data Batch	160520.b	Comment	CCV ICPMS_TW
Data File Name	100_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	209.123	9388	0.80	200	104.6	90	110	
9	Be	45	208.207	11994	0.48	200	104.1	90	110	
11	B	45	203.797	4212	3.86	200	101.9	90	110	
23	Na	45	5148.990	3633551	0.68	5000	103.0	90	110	
24	Mg	45	5123.233	1794203	0.40	5000	102.5	90	110	
27	Al	45	4980.045	626267	0.50	5000	99.6	90	110	
39	K	45	5038.185	1755471	0.35	5000	100.8	90	110	
44	Ca	45	4785.666	92998	0.86	5000	95.7	90	110	
47	Ti	45	199.374	26410	2.03	200	99.7	90	110	
51	V	45	202.096	919918	0.37	200	101.0	90	110	
52	Cr	45	202.131	1098976	0.19	200	101.1	90	110	
55	Mn	45	202.769	586339	1.07	200	101.4	90	110	
56	Fe	45	5041.066	23208886	2.16	5000	100.8	90	110	
59	Co	72	207.997	1837266	0.54	200	104.0	90	110	
60	Ni	72	206.739	502343	0.77	200	103.4	90	110	
63	Cu	72	206.988	1385843	0.86	200	103.5	90	110	
66	Zn	72	203.079	225616	1.76	200	101.5	90	110	
75	As	72	199.013	186865	0.89	200	99.5	90	110	
78	Se	72	200.798	10616	0.97	200	100.4	90	110	
88	Sr	115	201.110	805597	1.18	200	100.6	90	110	
95	Mo	115	199.684	757215	0.24	200	99.8	90	110	
107	Ag	115	203.488	2469488	0.16	200	101.7	90	110	
111	Cd	115	199.985	355504	0.18	200	100.0	90	110	
118	Sn	115	197.462	739911	0.69	200	98.7	90	110	
121	Sb	115	198.318	1139914	0.61	200	99.2	90	110	
137	Ba	115	198.384	361502	0.28	200	99.2	90	110	
205	Tl	209	198.777	5414678	1.21	200	99.4	90	110	
208	Pb	209	196.887	7201152	0.36	200	98.4	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	851803	0.12	900744	94.57	70	120	
72	Ge	657385	0.52	691836	95.02	70	120	
115	In	6255271	0.87	6634288	94.29	70	120	
209	Bi	15713189	1.11	16365010	96.02	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/20/2016 14:41		Sample Name	LCVL4-160520
Data Batch	160520.b		Comment	LCVLICPMS_TW
Data File Name	102LCCV.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.685	502	3.49	10	106.9	70	130	
9	Be	45	1.096	68	6.41	1	109.6	70	130	
11	B	45	23.853	554	7.94	20	119.3	70	130	
23	Na	45	93.918	103987	0.70	100	93.9	70	130	
24	Mg	45	99.544	36480	0.51	100	99.5	70	130	
27	Al	45	99.184	13048	0.80	100	99.2	70	130	
39	K	45	105.038	80572	0.51	100	105.0	70	130	
44	Ca	45	92.119	2039	1.77	100	92.1	70	130	
47	Ti	45	5.333	723	9.71	5	106.7	70	130	
51	V	45	1.049	7481	3.19	1	104.9	70	130	
52	Cr	45	5.152	29482	1.43	5	103.0	70	130	
55	Mn	45	4.912	14610	1.67	5	98.2	70	130	
56	Fe	45	99.465	474042	0.99	100	99.5	70	130	
59	Co	72	5.203	47305	0.83	5	104.1	70	130	
60	Ni	72	5.133	13200	2.09	5	102.7	70	130	
63	Cu	72	5.024	36741	1.23	5	100.5	70	130	
66	Zn	72	5.226	6207	1.40	5	104.5	70	130	
75	As	72	5.050	4995	1.79	5	101.0	70	130	
78	Se	72	5.706	375	1.39	5	114.1	70	130	
88	Sr	115	4.972	21117	3.12	5	99.4	70	130	
95	Mo	115	4.710	18774	0.76	5	94.2	70	130	
107	Ag	115	1.888	24096	1.18	2	94.4	70	130	
111	Cd	115	0.955	1792	2.86	1	95.5	70	130	
118	Sn	115	4.754	19110	1.41	5	95.1	70	130	
121	Sb	115	1.846	11275	1.66	2	92.3	70	130	
137	Ba	115	4.953	9493	1.16	5	99.1	70	130	
205	Tl	209	0.994	26913	0.64	1	99.4	70	130	
208	Pb	209	0.974	35718	1.32	1	97.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	869866	0.59	900744	96.57	70	120	
72	Ge	675027	0.39	691836	97.57	70	120	
115	In	6564471	0.91	6634288	98.95	70	120	
209	Bi	15594017	0.83	16365010	95.29	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/20/2016 14:48	Sample Name	CCB4-160520
Data Batch	160520.b	Comment	CCB ICPMS_TW
Data File Name	103_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.025	11	58.7	2	5	
9	Be	45	-0.019	2	24.7	0.4	0.3	
11	B	45	0.364	63	39.7	10	10	
23	Na	45	-7.059	30783	0.7	50	100	
24	Mg	45	-1.361	396	1.0	50	100	
27	Al	45	-0.498	243	17.8	50	10	
39	K	45	4.451	44003	0.3	50	100	
44	Ca	45	1.218	230	6.8	50	100	
47	Ti	45	0.044	8	65.5	4	3	
51	V	45	0.114	3035	8.6	4	3	
52	Cr	45	-0.015	788	5.7	2	2	
55	Mn	45	-0.019	49	10.4	2	3	
56	Fe	45	0.164	7056	6.1	50	50	
59	Co	72	-0.003	86	9.8	2	3	
60	Ni	72	-0.033	309	9.1	2	3	
63	Cu	72	-0.124	1360	4.9	2	2	
66	Zn	72	-0.033	207	14.0	4	2	
75	As	72	-0.001	124	10.6	2	2	
78	Se	72	0.097	70	21.7	1	2	
88	Sr	115	0.011	251	13.3	4	3	
95	Mo	115	-0.004	14	35.3	2	2	
107	Ag	115	0.002	71	57.9	0.4	1	
111	Cd	115	-0.004	2	86.6	0.4	0.3	
118	Sn	115	0.031	519	5.5	4	3	
121	Sb	115	0.006	166	31.5	2	0.8	
137	Ba	115	0.015	47	18.9	2	3	
205	Tl	209	0.000	26	61.6	2	0.5	
208	Pb	209	-0.002	280	20.0	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	838258	0.89	900744	93.06	70	120	
72	Ge	652989	0.94	691836	94.38	70	120	
115	In	6222740	1.27	6634288	93.80	70	120	
209	Bi	15341203	0.92	16365010	93.74	70	120	

ICP-MS4_160526F
For

DHL Work Order
1605144

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_160526F
	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: See Run Log

Analyst: [signature] Date of Completion: 05/27/2016

Second-Level Review: Janice Whitt Date Stamp: 6/1/2016

REVIEWED BY
By Janice Whitt at 10:36:32 AM, 6/1/2016

DHL Analytical, Inc.

Run ID: **ICP-MS4_160526F** **Run No.:** 86044

Analytical Run Date: 5/26/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:10:00 AM		
L2-160526	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:12:00 AM		
L-160526	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:14:00 AM		
10X-160526	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:16:00 AM		
5X-160526	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:18:00 AM		
2X-160526	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:20:00 AM		
H-160526	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:22:00 AM		
H2-160526	1	ICPMS_TWDOD	CAL	R86044	5/26/2016 11:24:00 AM		
ICSA-160526	1	ICPMS_TWDOD	ICSA	R86044	5/26/2016 11:32:00 AM		
ICSAB-160526	1	ICPMS_TWDOD	ICSB	R86044	5/26/2016 11:34:00 AM		
ICV-160526	1	ICPMS_TWDOD	ICV	R86044	5/26/2016 11:43:00 AM		
LCVL-160526	1	ICPMS_TWDOD	LCVL	R86044	5/26/2016 11:49:00 AM		
ICB-160526	1	ICPMS_TWDOD	ICB	R86044	5/26/2016 11:56:00 AM		
CCV5-160526	1	ICPMS_TWDOD	CCV	R86044	5/26/2016 3:24:00 PM		
LCVL5-160526	1	ICPMS_TWDOD	LCVL	R86044	5/26/2016 3:29:00 PM		
CCB5-160526	1	ICPMS_TWDOD	CCB	R86044	5/26/2016 3:32:00 PM		
MB-75287	5	ICPMS_TSDOD1	MBLK	75287	5/26/2016 3:34:00 PM		
LCS-75287	5	ICPMS_TSDOD1	LCS	75287	5/26/2016 3:36:00 PM		
LCSD-75287	5	ICPMS_TSDOD1	LCSD	75287	5/26/2016 3:38:00 PM		
1605135-36A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:42:00 PM		
1605135-36A SD	25	ICPMS_TSDOD1	SD	75287	5/26/2016 3:44:00 PM		
1605135-32A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:46:00 PM		
1605135-33A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:48:00 PM		
1605135-34A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:50:00 PM		
1605135-35A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:52:00 PM		
1605135-37A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:54:00 PM		
1605135-38A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:56:00 PM		
1605135-39A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 3:58:00 PM		
1605135-40A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:00:00 PM		
1605135-41A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:02:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160525	ICPMS CCV 200/5000 PPB		08/23/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/23/2016
MET-HCAL-16052	ICPMS High Cal 500ppb/10ppm s		08/23/2016
MET-ICV-160525	ICPMS ICV 100 ppb		08/23/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16052	ICPMS Low Cal2 1/20ppb std 2		08/23/2016
MET-LCAL-160525	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/23/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/23/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16052	ICPMS Mid Cal 250/5000ppb std		08/23/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160520-	10 PPM Ag+Sb PDS		11/18/2016
MET-PDS-160520-	10 PPM CUSTOM PDS SOLUTI		11/18/2016
MET-PDS-160520-	250 PPM Naturals+Al+Fe PDS		11/18/2016

Run ID: **ICP-MS4_160526F** **Run No.:** 86044

1605135-36A PDS	5	ICPMS_TSDOD1	PDS	75287	5/26/2016 4:04:00 PM		
1605135-36A MS	5	ICPMS_TSDOD1	MS	75287	5/26/2016 4:18:00 PM		
1605135-36A MSD	5	ICPMS_TSDOD1	MSD	75287	5/26/2016 4:20:00 PM		
CCV6-160526	1	ICPMS_TWDOD	CCV	R86044	5/26/2016 4:22:00 PM		
LCVL6-160526	1	ICPMS_TWDOD	LCVL	R86044	5/26/2016 4:26:00 PM		
CCB6-160526	1	ICPMS_TWDOD	CCB	R86044	5/26/2016 4:28:00 PM		
1605135-42A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:30:00 PM		
1605135-43A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:32:00 PM		
1605135-44A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:34:00 PM		
1605135-45A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:36:00 PM		
1605144-01A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:38:00 PM		
1605144-02A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:40:00 PM		
1605144-03A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:42:00 PM		
1605144-04A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:44:00 PM		
1605144-05A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:46:00 PM		
1605144-06A	5	ICPMS_TSDOD1	SAMP	75287	5/26/2016 4:48:00 PM		
CCV7-160526	1	ICPMS_TWDOD	CCV	R86044	5/26/2016 4:50:00 PM		
LCVL7-160526	1	ICPMS_TWDOD	LCVL	R86044	5/26/2016 4:54:00 PM		
CCB7-160526	1	ICPMS_TWDOD	CCB	R86044	5/26/2016 5:06:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160525	ICPMS CCV 200/5000 PPB		08/23/2016
MET-H2CAL-1605	ICPMS High Cal2 2000ppb std 8		08/23/2016
MET-HCAL-16052	ICPMS High Cal 500ppb/10ppm s		08/23/2016
MET-ICV-160525	ICPMS ICV 100 ppb		08/23/2016
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16052	ICPMS Low Cal2 1/20ppb std 2		08/23/2016
MET-LCAL-160525	ICPMS Low Cal 10/200ppb std 3		08/10/2016
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		08/23/2016
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		08/23/2016
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16052	ICPMS Mid Cal 250/5000ppb std		08/23/2016
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160520-	10 PPM Ag+Sb PDS		11/18/2016
MET-PDS-160520-	10 PPM CUSTOM PDS SOLUTI		11/18/2016
MET-PDS-160520-	250 PPM Naturals+Al+Fe PDS		11/18/2016

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160526.b

Acquisition Order

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

Calibration Standards:

#	Sample Type	Sample Name	Comment	Vial#	File Name
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	2101	
13	CalStd	L2-160526	CAL ICPMS_TW	2102	
14	CalStd	L-160526	CAL ICPMS_TW	2103	
15	CalStd	10X-160526	CAL ICPMS_TW	2104	
16	CalStd	5X-160526	CAL ICPMS_TW	2105	
17	CalStd	2X-160526	CAL ICPMS_TW	2106	
18	CalStd	H-160526	CAL ICPMS_TW	2107	
19	CalStd	H2-160526	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12	1		
13	2		
14	3		
15	4		
16	5		
17	6		
18	7		
19	8		

Sample List

20

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	CCB		CAL ICPMS_TW	1102	
22	CCB		CAL ICPMS_TW	1103	
23	CCB		CAL ICPMS_TW	1103	
24	CCB		CAL ICPMS_TW	1103	
25	CCB		CAL ICPMS_TW	1103	
26	CalBlk	BLANK STD 1	CAL ICPMS_TW	2101	
27	CalStd	L2-160526	CAL ICPMS_TW	2102	
28	CalStd	L-160526	CAL ICPMS_TW	2103	
29	CalStd	10X-160526	CAL ICPMS_TW	2104	
30	CalStd	5X-160526	CAL ICPMS_TW	2105	
31	CalStd	2X-160526	CAL ICPMS_TW	2106	
32	CalStd	H-160526	CAL ICPMS_TW	2107	
33	CalStd	H2-160526	CAL ICPMS_TW	2108	
34	ICB	BLANK	CCB ICPMS_TW	1101	
35	ICB	BLANK	CCB ICPMS_TW	1102	
36	ICB	BLANK	CCB ICPMS_TW	1103	
37	ICSA	ICSA-160526	ICSAICPMS_TW	2109	
38	ICSB	ICSAB-160526	ICSBICPMS_TW	2110	
39	ICB	BLANK	CCB ICPMS_TW	1101	
40	ICB	BLANK	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26	1		
27	2		
28	3		
29	4		
30	5		
31	6		
32	7		
33	8		
34			
35			
36			
37			
38			
39			
40			

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	ICB	BLANK	CCB ICPMS_TW	1103	
42	ICV	ICV-160526	ICV ICPMS_TW	2111	
43	ICB	ICB-160526	ICB ICPMS_TW	1101	
44	ICB	ICB-160526	ICB ICPMS_TW	1103	
45	LLICV	LCVL-160526	LCVLICPMS_TW	2112	

Sample List

46	ICB	ICB-160526	ICB ICPMS_TW	1102
47	ICB	ICB-160526	ICB ICPMS_TW	1103
48	AllRef	1605194-03B	SAMPICPMS_TW	2201
49	SD	1605194-03B SD	SD ICPMS_TW	2202
50	SAMP_W	1605194-01B	SAMPICPMS_TW	2203
51	SAMP_W	1605194-02B	SAMPICPMS_TW	2204
52	SAMP_W	1605194-04B	SAMPICPMS_TW	2205
53	SAMP_W	1605194-05B	SAMPICPMS_TW	2206
54	SAMP_W	1605194-06B	SAMPICPMS_TW	2207
55	SAMP_W	1605194-07B	SAMPICPMS_TW	2208
56	SAMP_W	1605194-08B	SAMPICPMS_TW	2209
57	SAMP_W	1605194-09B	SAMPICPMS_TW	2210
58	SAMP_W	1605194-11B	SAMPICPMS_TW	2211
59	PDS	1605194-03B PDS	PDS ICPMS_TW	2212
60	CCV	CCV1-160526	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
41			
42			
43			
44			
45			
46			
47			
48		10	
49		50	
50		10	
51		10	
52		10	
53		10	
54		10	
55		10	
56		10	
57		10	
58		10	
59		10	
60			

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	CCB	CCB1-160526	CCB ICPMS_TW	1102	
62	LLCCV	LCVL1-160526	LCVLICPMS_TW	2112	
63	CCB	CCB1-160526	CCB ICPMS_TW	1103	
64	SAMP_W	1605192-01A	SAMPICPMS_TW	2301	
65	SAMP_W	1605192-02A	SAMPICPMS_TW	2302	
66	SAMP_W	1605192-03A	SAMPICPMS_TW	2303	
67	SAMP_W	1605192-04A	SAMPICPMS_TW	2304	
68	SAMP_W	1605192-05A	SAMPICPMS_TW	2305	
69	SAMP_W	1605193-01A	SAMPICPMS_TW	2306	
70	SAMP_W	1605193-01A	SAMPICPMS_TW	2307	
71	SAMP_W	1605192-01A	SAMPICPMS_TW	2308	
72	SAMP_W	1605192-02A	SAMPICPMS_TW	2309	
73	SAMP_W	1605192-03A	SAMPICPMS_TW	2310	

Sample List

74	CCB	CCB2-160526	CCB ICPMS_TW	1102
75	CCB	CCB2-160526	CCB ICPMS_TW	1103
76	CCV	CCV2-160526	CCV ICPMS_TW	1207
77	CCB	CCB2-160526	CCB ICPMS_TW	1102
78	CCB	CCB2-160526	CCB ICPMS_TW	1103
79	LLCCV	LCVL2-160526	LCVLICPMS_TW	2112
80	CCB	CCB2-160526	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
61			
62			
63			
64		10	
65		50	
66		10	
67		50	
68		50	
69		100	
70		10	
71		1	
72		1	
73		1	
74			
75			
76			
77			
78			
79			
80			

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1605192-04A	SAMPICPMS_TW	2311	
82	SAMP_W	1605192-05A	SAMPICPMS_TW	2312	
83	CCB	RINSE	CCB ICPMS_TW	1102	
84	CCB	RINSE	CCB ICPMS_TW	1103	
85	PB_W	MB-75328	MBLKTCLP_MET	2401	
86	PB_W	MB-75315-TCLP	MBLKTCLP_MET	2402	
87	LCS_W	LCS-75328	LCS TCLP_MET	2403	
88	LCS_W	LCSD-75328	LCSDTCLP_MET	2404	
89	CCB	RINSE	CCB ICPMS_TW	1101	
90	AllRef	1605213-02A	SAMPICPMS_TSDOD	2405	
91	SD	1605213-02A SD	SD ICPMS_TSDOD	2406	
92	SAMP_W	1605206-01A	SAMPICPMS_TSDOD	2407	
93	PDS	1605213-02A PDS	PDS ICPMS_TSDOD	2408	
94	MS_W	1605213-02A MS	MS ICPMS_TSDOD	2409	
95	MS_W	1605213-02A MSD	MSD ICPMS_TSDOD	2410	
96	CCV	CCV3-160526	CCV ICPMS_TW	1207	
97	CCB	CCB3-160526	CCB ICPMS_TW	1102	
98	LLCCV	LCVL3-160526	LCVLICPMS_TW	2512	
99	CCB	CCB3-160526	CCB ICPMS_TW	1103	
100	CCB	CCB3-160526	CCB ICPMS_TW	1103	

Sample List

#	Level	Dilution	Skip
81		1	
82		1	
83			
84			
85		1	
86		1	
87		1	
88		1	
89			
90		1	
91		5	
92		1	
93		1	
94		1	
95		1	
96			
97			
98			
99			
100			

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	CCB	CCB3-160526	CCB ICPMS_TW	1103	
102	PB_W	MB-75325	MBLK200.8	3101	
103	LCS_200	LCS-75325	LCS 200.8	3102	
104	LCS_200	LCSD-75325	LCSD200.8	3103	
105	CCB	RINSE	CCB ICPMS_TW	1101	
106	AllRef	1605229-01A	SAMP200.8	3104	
107	SD	1605229-01A SD	SD 200.8	3105	
108	SAMP_W	1605237-01A	SAMP200.8	3106	
109	SAMP_W	1605237-02A	SAMP200.8	3107	
110	SAMP_W	1605238-01A	SAMP200.8	3108	
111	SAMP_W	1605238-02A	SAMP200.8	3109	
112	SAMP_W	1605238-03A	SAMP200.8	3110	
113	SAMP_W	1605238-04A	SAMP200.8	3111	
114	SAMP_W	1605238-05A	SAMP200.8	3112	
115	PDS	1605229-01A PDS	PDS 200.8	3201	
116	MS_W	1605229-01A MS	MS 200.8	3202	
117	MS_W	1605229-01A MSD	MSD 200.8	3203	
118	CCV	CCV4-160526	CCV ICPMS_TW	1207	
119	CCB	CCB4-160526	CCB ICPMS_TW	1102	
120	LLCCV	LCVL4-160526	LCVLICPMS_TW	2512	

#	Level	Dilution	Skip
101			
102		1	Skip
103		1	Skip
104		1	Skip
105			Skip
106		1	Skip
107		5	Skip

Sample List

108	1	Skip
109	1	Skip
110	1	Skip
111	1	Skip
112	1	Skip
113	1	Skip
114	1	Skip
115	1	Skip
116	1	Skip
117	1	Skip
118		Skip
119		Skip
120		Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	CCB	CCB4-160526	CCB ICPMS_TW	1103	
122	PB	MB-75327	MBLKICPMS_TS	3301	
123	LCS_S	LCS-75327	LCS ICPMS_TS	3302	
124	LCS_S	LCSD-75327	LCSDICPMS_TS	3303	
125	CCB	RINSE	CCB ICPMS_TW	1101	
126	AllRef	1605205-01C	SAMPICPMS_TS	3304	
127	SD	1605205-01C SD	SD ICPMS_TS	3305	
128	Sample	1605208-02C	SAMPICPMS_TS	3306	
129	Sample	1605202-01C	SAMPICPMS_TS	3307	
130	Sample	1605202-02C	SAMPICPMS_TS	3308	
131	Sample	1605201-02B	SAMPICPMS_TS	3309	
132	Sample	1605215-05A	SAMPICPMS_TS	3310	
133	Sample	1605215-11A	SAMPICPMS_TS	3311	
134	Sample	1605228-03A	SAMP6020A_S	3312	
135	Sample	1605228-04A	SAMP6020A_S	3401	
136	Sample	1605185-05A	SAMP6020A_S	3402	
137	PDS	1605205-01C PDS	PDS ICPMS_TS	3403	
138	MS_S	1605205-01C MS	MS ICPMS_TS	3404	
139	MS_S	1605205-01C MSD	MSD ICPMS_TS	3405	
140	CCV	CCV5-160526	CCV ICPMS_TW	1207	

#	Level	Dilution	Skip
121			Skip
122		5	Skip
123		5	Skip
124		5	Skip
125			Skip
126		5	Skip
127		25	Skip
128		5	Skip
129		5	Skip
130		5	Skip
131		5	Skip
132		5	Skip
133		5	Skip
134		5	Skip
135		5	Skip

Sample List

136		5	Skip
137		5	Skip
138		5	Skip
139		5	Skip
140			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	CCB	CCB5-160526	CCB ICPMS_TW	1102	
142	LLCCV	LCVL5-160526	LCVLICPMS_TW	2511	
143	CCB	CCB5-160526	CCB ICPMS_TW	1103	
144	Sample	1403264-08A	SAMPICPMS_TSDOD	3507	
145	Sample	1403264-09A	SAMPICPMS_TSDOD	3508	
146	Sample	1403264-11A	SAMPICPMS_TSDOD	3509	
147	Sample	1403264-12A	SAMPICPMS_TSDOD	3510	
148	Sample	1403264-13A	SAMPICPMS_TSDOD	3511	
149	Sample	1403264-14A	SAMPICPMS_TSDOD	3512	
150	Sample	1403264-15A	SAMPICPMS_TSDOD	3310	
151	Sample	1403264-16A	SAMPICPMS_TSDOD	3311	
152	Sample	1403264-17A	SAMPICPMS_TSDOD	3312	
153	Sample	1403264-12A	SAMPICPMS_TSDOD	3510	
154	CCV	CCV6-140402	CCV ICPMS_TW	1207	
155	CCB	CCB6-140402	CCB ICPMS_TW	1102	
156	LLCCV	LCVL6-140402	LCVLICPMS_TW	2511	
157	CCB	CCB6-140402	CCB ICPMS_TW	1103	
158	CCB	CCB6-140402	CCB ICPMS_TW	1102	
159	CCB	CCB6-140402	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
141			Skip
142			Skip
143			Skip
144		5	Skip
145		5	Skip
146		5	Skip
147		5	Skip
148		5	Skip
149		5	Skip
150		5	Skip
151		5	Skip
152		5	Skip
153		5	Skip
154			Skip
155			Skip
156			Skip
157			Skip
158			Skip
159			Skip

Unknown Samples:

Blank Samples:

Sample List

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160526.b

Acquisition Order

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

Calibration Standards:

#	Sample Type	Sample Name	Comment	Vial#	File Name
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	2101	
13	CalStd	L2-160526	CAL ICPMS_TW	2102	
14	CalStd	L-160526	CAL ICPMS_TW	2103	
15	CalStd	10X-160526	CAL ICPMS_TW	2104	
16	CalStd	5X-160526	CAL ICPMS_TW	2105	
17	CalStd	2X-160526	CAL ICPMS_TW	2106	
18	CalStd	H-160526	CAL ICPMS_TW	2107	
19	CalStd	H2-160526	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			Skip
2			Skip
3			Skip
4			Skip
5			Skip
6			Skip
7			Skip
8			Skip
9			Skip
10			Skip
11			Skip
12	1		Skip
13	2		Skip
14	3		Skip
15	4		Skip
16	5		Skip
17	6		Skip
18	7		Skip
19	8		Skip

Sample List

#			Comment
20			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	CCB		CAL ICPMS_TW	1102	
22	CCB		CAL ICPMS_TW	1103	
23	CCB		CAL ICPMS_TW	1103	
24	CCB		CAL ICPMS_TW	1103	
25	CCB		CAL ICPMS_TW	1103	
26	CalBlk	BLANK STD 1	CAL ICPMS_TW	2101	
27	CalStd	L2-160526	CAL ICPMS_TW	2102	
28	CalStd	L-160526	CAL ICPMS_TW	2103	
29	CalStd	10X-160526	CAL ICPMS_TW	2104	
30	CalStd	5X-160526	CAL ICPMS_TW	2105	
31	CalStd	2X-160526	CAL ICPMS_TW	2106	
32	CalStd	H-160526	CAL ICPMS_TW	2107	
33	CalStd	H2-160526	CAL ICPMS_TW	2108	
34	ICB	BLANK	CCB ICPMS_TW	1101	
35	ICB	BLANK	CCB ICPMS_TW	1102	
36	ICB	BLANK	CCB ICPMS_TW	1103	
37	ICSA	ICSA-160526	ICSAICPMS_TW	2109	
38	ICSB	ICSAB-160526	ICSBICPMS_TW	2110	
39	ICB	BLANK	CCB ICPMS_TW	1101	
40	ICB	BLANK	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
21			Skip
22			Skip
23			Skip
24			Skip
25			Skip
26	1		Skip
27	2		Skip
28	3		Skip
29	4		Skip
30	5		Skip
31	6		Skip
32	7		Skip
33	8		Skip
34			Skip
35			Skip
36			Skip
37			Skip
38			Skip
39			Skip
40			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	ICB	BLANK	CCB ICPMS_TW	1103	
42	ICV	ICV-160526	ICV ICPMS_TW	2111	
43	ICB	ICB-160526	ICB ICPMS_TW	1101	
44	ICB	ICB-160526	ICB ICPMS_TW	1103	
45	LLICV	LCVL-160526	LCVLICPMS_TW	2112	

Sample List

46	ICB	ICB-160526	ICB ICPMS_TW	1102
47	ICB	ICB-160526	ICB ICPMS_TW	1103
48	AllRef	1605194-03B	SAMPICPMS_TW	2201
49	SD	1605194-03B SD	SD ICPMS_TW	2202
50	SAMP_W	1605194-01B	SAMPICPMS_TW	2203
51	SAMP_W	1605194-02B	SAMPICPMS_TW	2204
52	SAMP_W	1605194-04B	SAMPICPMS_TW	2205
53	SAMP_W	1605194-05B	SAMPICPMS_TW	2206
54	SAMP_W	1605194-06B	SAMPICPMS_TW	2207
55	SAMP_W	1605194-07B	SAMPICPMS_TW	2208
56	SAMP_W	1605194-08B	SAMPICPMS_TW	2209
57	SAMP_W	1605194-09B	SAMPICPMS_TW	2210
58	SAMP_W	1605194-11B	SAMPICPMS_TW	2211
59	PDS	1605194-03B PDS	PDS ICPMS_TW	2212
60	CCV	CCV1-160526	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
41			Skip
42			Skip
43			Skip
44			Skip
45			Skip
46			Skip
47			Skip
48		10	Skip
49		50	Skip
50		10	Skip
51		10	Skip
52		10	Skip
53		10	Skip
54		10	Skip
55		10	Skip
56		10	Skip
57		10	Skip
58		10	Skip
59		10	Skip
60			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	CCB	CCB1-160526	CCB ICPMS_TW	1102	
62	LLCCV	LCVL1-160526	LCVLICPMS_TW	2112	
63	CCB	CCB1-160526	CCB ICPMS_TW	1103	
64	SAMP_W	1605192-01A	SAMPICPMS_TW	2301	
65	SAMP_W	1605192-02A	SAMPICPMS_TW	2302	
66	SAMP_W	1605192-03A	SAMPICPMS_TW	2303	
67	SAMP_W	1605192-04A	SAMPICPMS_TW	2304	
68	SAMP_W	1605192-05A	SAMPICPMS_TW	2305	
69	SAMP_W	1605193-01A	SAMPICPMS_TW	2306	
70	SAMP_W	1605193-01A	SAMPICPMS_TW	2307	
71	SAMP_W	1605192-01A	SAMPICPMS_TW	2308	
72	SAMP_W	1605192-02A	SAMPICPMS_TW	2309	
73	SAMP_W	1605192-03A	SAMPICPMS_TW	2310	

Sample List

74	CCB	CCB2-160526	CCB ICPMS_TW	1102
75	CCB	CCB2-160526	CCB ICPMS_TW	1103
76	CCV	CCV2-160526	CCV ICPMS_TW	1207
77	CCB	CCB2-160526	CCB ICPMS_TW	1102
78	CCB	CCB2-160526	CCB ICPMS_TW	1103
79	LLCCV	LCVL2-160526	LCVLICPMS_TW	2112
80	CCB	CCB2-160526	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
61			Skip
62			Skip
63			Skip
64		10	Skip
65		50	Skip
66		10	Skip
67		50	Skip
68		50	Skip
69		100	Skip
70		10	Skip
71		1	Skip
72		1	Skip
73		1	Skip
74			Skip
75			Skip
76			Skip
77			Skip
78			Skip
79			Skip
80			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	SAMP_W	1605192-04A	SAMPICPMS_TW	2311	
82	SAMP_W	1605192-05A	SAMPICPMS_TW	2312	
83	CCB	RINSE	CCB ICPMS_TW	1102	
84	CCB	RINSE	CCB ICPMS_TW	1103	
85	PB_W	MB-75328	MBLKTCLP_MET	2401	
86	PB_W	MB-75315-TCLP	MBLKTCLP_MET	2402	
87	LCS_W	LCS-75328	LCS TCLP_MET	2403	
88	LCS_W	LCSD-75328	LCSDTCLP_MET	2404	
89	CCB	RINSE	CCB ICPMS_TW	1101	
90	AllRef	1605213-02A	SAMPICPMS_TSDOD	2405	
91	SD	1605213-02A SD	SD ICPMS_TSDOD	2406	
92	SAMP_W	1605206-01A	SAMPICPMS_TSDOD	2407	
93	PDS	1605213-02A PDS	PDS ICPMS_TSDOD	2408	
94	MS_W	1605213-02A MS	MS ICPMS_TSDOD	2409	
95	MS_W	1605213-02A MSD	MSD ICPMS_TSDOD	2410	
96	CCV	CCV3-160526	CCV ICPMS_TW	1207	
97	CCB	CCB3-160526	CCB ICPMS_TW	1102	
98	LLCCV	LCVL3-160526	LCVLICPMS_TW	2512	
99	CCB	CCB3-160526	CCB ICPMS_TW	1103	
100	CCB	CCB3-160526	CCB ICPMS_TW	1103	

Sample List

#	Level	Dilution	Skip
81		1	Skip
82		1	Skip
83			Skip
84			Skip
85		1	Skip
86		1	Skip
87		1	Skip
88		1	Skip
89			Skip
90		1	Skip
91		5	Skip
92		1	Skip
93		1	Skip
94		1	Skip
95		1	Skip
96			Skip
97			Skip
98			Skip
99			Skip
100			Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	CCB	CCB3-160526	CCB ICPMS_TW	1103	
102	PB_W	MB-75325	MBLK200.8	3101	
103	LCS_200	LCS-75325	LCS 200.8	3102	
104	LCS_200	LCSD-75325	LCSD200.8	3103	
105	CCB	RINSE	CCB ICPMS_TW	1101	
106	AllRef	1605229-01A	SAMP200.8	3104	
107	SD	1605229-01A SD	SD 200.8	3105	
108	SAMP_W	1605237-01A	SAMP200.8	3106	
109	SAMP_W	1605237-02A	SAMP200.8	3107	
110	SAMP_W	1605238-01A	SAMP200.8	3108	
111	SAMP_W	1605238-02A	SAMP200.8	3109	
112	SAMP_W	1605238-03A	SAMP200.8	3110	
113	SAMP_W	1605238-04A	SAMP200.8	3111	
114	SAMP_W	1605238-05A	SAMP200.8	3112	
115	PDS	1605229-01A PDS	PDS 200.8	3201	
116	MS_W	1605229-01A MS	MS 200.8	3202	
117	MS_W	1605229-01A MSD	MSD 200.8	3203	
118	CCV	CCV4-160526	CCV ICPMS_TW	1207	
119	CCB	CCB4-160526	CCB ICPMS_TW	1102	
120	LLCCV	LCVL4-160526	LCVLICPMS_TW	2512	

#	Level	Dilution	Skip
101			Skip
102		1	
103		1	
104		1	
105			
106		1	
107		5	

Sample List

108		1	
109		1	
110		1	
111		1	
112		1	
113		1	
114		1	
115		1	
116		1	
117		1	
118			
119			
120			

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	CCB	CCB4-160526	CCB ICPMS_TW	1103	
122	PB	MB-75327	MBLKICPMS_TS	3301	
123	LCS_S	LCS-75327	LCS ICPMS_TS	3302	
124	LCS_S	LCSD-75327	LCSDICPMS_TS	3303	
125	CCB	RINSE	CCB ICPMS_TW	1101	
126	AllRef	1605205-01C	SAMPICPMS_TS	3304	
127	SD	1605205-01C SD	SD ICPMS_TS	3305	
128	Sample	1605208-02C	SAMPICPMS_TS	3306	
129	Sample	1605202-01C	SAMPICPMS_TS	3307	
130	Sample	1605202-02C	SAMPICPMS_TS	3308	
131	Sample	1605201-02B	SAMPICPMS_TS	3309	
132	Sample	1605215-05A	SAMPICPMS_TS	3310	
133	Sample	1605215-11A	SAMPICPMS_TS	3311	
134	Sample	1605228-03A	SAMP6020A_S	3312	
135	Sample	1605228-04A	SAMP6020A_S	3401	
136	Sample	1605185-05A	SAMP6020A_S	3402	
137	PDS	1605205-01C PDS	PDS ICPMS_TS	3403	
138	MS_S	1605205-01C MS	MS ICPMS_TS	3404	
139	MS_S	1605205-01C MSD	MSD ICPMS_TS	3405	
140	CCV	CCV5-160526	CCV ICPMS_TW	1207	

#	Level	Dilution	Skip
121			
122		5	
123		5	
124		5	
125			
126		5	
127		25	
128		5	
129		5	
130		5	
131		5	
132		5	
133		5	
134		5	
135		5	

Sample List

136		5
137		5
138		5
139		5
140		

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	CCB	CCB5-160526	CCB ICPMS_TW	1102	
142	LLCCV	LCVL5-160526	LCVLICPMS_TW	2511	
143	CCB	CCB5-160526	CCB ICPMS_TW	1103	
144	PB	MB-75287	MBLKICPMS_TSDOD1	4101	
145	LCS_S	LCS-75287	LCS ICPMS_TSDOD1	4102	
146	LCS_S	LCSD-75287	LCSDICPMS_TSDOD1	4103	
147	CCB	RINSE	CCB ICPMS_TW	1101	
148	AllRef	1605135-36A	SAMPICPMS_TSDOD1	4104	
149	SD	1605135-36A SD	SD ICPMS_TSDOD1	4105	
150	Sample	1605135-32A	SAMPICPMS_TSDOD1	4106	
151	Sample	1605135-33A	SAMPICPMS_TSDOD1	4107	
152	Sample	1605135-34A	SAMPICPMS_TSDOD1	4108	
153	Sample	1605135-35A	SAMPICPMS_TSDOD1	4109	
154	Sample	1605135-37A	SAMPICPMS_TSDOD1	4110	
155	Sample	1605135-38A	SAMPICPMS_TSDOD1	4111	
156	Sample	1605135-39A	SAMPICPMS_TSDOD1	4112	
157	Sample	1605135-40A	SAMPICPMS_TSDOD1	4201	
158	Sample	1605135-41A	SAMPICPMS_TSDOD1	4202	
159	PDS	1605135-36A PDS	PDS ICPMS_TSDOD1	4203	
160	MS_S	1605135-36A MS	MS ICPMS_TSDOD1	4204	

#	Level	Dilution	Skip
141			
142			
143			
144		5	
145		5	
146		5	
147			
148		5	
149		25	
150		5	
151		5	
152		5	
153		5	
154		5	
155		5	
156		5	
157		5	
158		5	
159		5	
160		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	MS_S	1605135-36A MSD	MSD ICPMS_TSDOD1	4205	

Sample List

162	CCV	CCV6-160526	CCV ICPMS_TW	1207
163	CCB	CCB6-160526	CCB ICPMS_TW	1102
164	LLCCV	LCVL6-160526	LCVLICPMS_TW	2511
165	CCB	CCB6-160526	CCB ICPMS_TW	1102
166	Sample	1605135-42A	SAMPICPMS_TSDOD1	4206
167	Sample	1605135-43A	SAMPICPMS_TSDOD1	4207
168	Sample	1605135-44A	SAMPICPMS_TSDOD1	4208
169	Sample	1605135-45A	SAMPICPMS_TSDOD1	4209
170	Sample	1605144-01A	SAMPICPMS_TSDOD1	4210
171	Sample	1605144-02A	SAMPICPMS_TSDOD1	4211
172	Sample	1605144-03A	SAMPICPMS_TSDOD1	4212
173	Sample	1605144-04A	SAMPICPMS_TSDOD1	4301
174	Sample	1605144-05A	SAMPICPMS_TSDOD1	4302
175	Sample	1605144-06A	SAMPICPMS_TSDOD1	4303
176	CCV	CCV7-160526	CCV ICPMS_TW	1207
177	CCB	CCB7-160526	CCB ICPMS_TW	1102
178	LLCCV	LCVL7-160526	LCVLICPMS_TW	2511
179	CCB	CCB7-160526	CCB ICPMS_TW	1102
180	CCB	CCB7-160526	CCB ICPMS_TW	1102

#	Level	Dilution	Skip
161		5	
162			
163			
164			
165			
166		5	
167		5	
168		5	
169		5	
170		5	
171		5	
172		5	
173		5	
174		5	
175		5	
176			
177			
178			
179			
180			

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	CCB	CCB7-160526	CCB ICPMS_TW	1102	
182	CCB	CCB7-160526	CCB ICPMS_TW	1103	
183	CCB	CCB7-160526	CCB ICPMS_TW	1103	
184	CCB	CCB7-160526	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
181			
182			
183			

Sample List

184

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/23/2016 10:33:07 AM**
Digestion:
Prep End Date:

Prep Batch **75287** 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
1605135-32A	Soil		1.13	50	50.000	1 of 1	
1605135-33A	Soil		1.09	50	50.000	1 of 1	
1605135-34A	Soil		1.04	50	50.000	1 of 1	
1605135-35A	Soil		1.11	50	50.000	1 of 1	
1605135-36A	Soil		1.07	50	50.000	3 of 3	
1605135-36A MS	Soil		1.03	50	50.000	3 of 3	
1605135-36A MSD	Soil		1.11	50	50.000	3 of 3	
1605135-37A	Soil		1.01	50	50.000	1 of 1	
1605135-38A	Soil		1.03	50	50.000	1 of 1	
1605135-39A	Soil		1.15	50	50.000	1 of 1	
1605135-40A	Soil		1.03	50	50.000	1 of 1	
1605135-41A	Soil		1.01	50	50.000	1 of 1	
1605135-42A	Soil		1.04	50	50.000	1 of 1	
1605135-43A	Soil		1.06	50	50.000	1 of 1	
1605135-44A	Soil		1.09	50	50.000	1 of 1	
1605135-45A	Soil		1.07	50	50.000	1 of 1	
1605144-01A	Soil		1.04	50	50.000	1 of 1	
1605144-02A	Soil		1.06	50	50.000	1 of 1	
1605144-03A	Soil		1.09	50	50.000	1 of 1	
1605144-04A	Soil		1.11	50	50.000	1 of 1	
1605144-05A	Soil		1.06	50	50.000	1 of 1	
1605144-06A	Soil		1.09	50	50.000	1 of 1	
LCS-75287	Soil		1	50	50.000	of	
LCSD-75287	Soil		1	50	50.000	of	
MB-75287	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10136	Nitric Acid (Trace Metal Grade)	10	ml	01/10/2026
10137	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2026
10318	Hydrogen Peroxide, 30%	3	ml	10/29/2016

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-160519-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	08/17/2016
MET-SPIKE-160519-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/17/2016
MET-SPIKE-160520-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/18/2016

11:34 - 11:44
11:49 - 13:49
14:20 - 16:20
16:41 - 16:56

REVIEWED BY
By Janice Whitt at 5:06:36 PM, 5/31/2016

5/23/16

PREP BATCH REPORT

DHL Analytical, Inc.

Prep Start Date: **5/16/2016 5:00:00 PM**
Digestion: **Start: 5/16/2016 5:30:00 PM / Stop: 5/18/2016 9:00:00 AM**
Prep End Date: **5/19/2016 9:00:00 AM**

Prep Batch **75190** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605135-16A	Soil		0	0	#Num!	of 3	
Extra sub sampled for MS/MSD							
1605135-17A	Soil		0	0	#Num!	1 of 1	
1605135-18A	Soil		0	0	#Num!	1 of 1	
1605135-19A	Soil		0	0	#Num!	1 of 1	
1605135-20A	Soil		0	0	#Num!	1 of 1	
1605135-21A	Soil		0	0	#Num!	1 of 1	
1605135-22A	Soil		0	0	#Num!	1 of 1	
1605135-23A	Soil		0	0	#Num!	1 of 1	
1605135-24A	Soil		0	0	#Num!	1 of 1	
1605135-25A	Soil		0	0	#Num!	1 of 1	
1605135-26A	Soil		0	0	#Num!	1 of 1	
1605135-27A	Soil		0	0	#Num!	1 of 1	
1605135-28A	Soil		0	0	#Num!	1 of 1	
1605135-29A	Soil		0	0	#Num!	1 of 1	
1605135-30A	Soil		0	0	#Num!	1 of 1	
1605135-31A	Soil		0	0	#Num!	1 of 1	
Sieved only no subsampling hard clay							
1605135-32A	Soil		0	0	#Num!	1 of 1	
1605135-33A	Soil		0	0	#Num!	1 of 1	
1605135-34A	Soil		0	0	#Num!	1 of 1	
1605135-35A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 5:08:10 PM, 5/31/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 12:00:00 PM**
Digestion: **Start: 5/17/2016 1:20:00 PM / Stop: 5/19/2016 8:30:00 AM**
Prep End Date: **5/19/2016 1:00:00 PM**

Prep Batch **75205** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605135-36A	Soil		0	0	#Num!		of	3	
Extra subsampled for MS/MSD									
1605135-37A	Soil		0	0	#Num!	1	of	1	
1605135-38A	Soil		0	0	#Num!	1	of	1	
1605135-39A	Soil		0	0	#Num!	1	of	1	
1605135-40A	Soil		0	0	#Num!	1	of	1	
1605135-41A	Soil		0	0	#Num!	1	of	1	
1605135-42A	Soil		0	0	#Num!	1	of	1	
1605144-01A	Soil		0	0	#Num!	1	of	1	
1605144-02A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-03A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-04A	Soil		0	0	#Num!	1	of	1	
1605144-05A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-06A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-07A	Soil		0	0	#Num!	1	of	1	
1605144-08A	Soil		0	0	#Num!	1	of	1	
1605144-09A	Soil		0	0	#Num!	1	of	1	
1605144-10A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-11A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-12A	Soil		0	0	#Num!	1	of	1	

REVIEWED BY
By Janice Whitt at 5:08:12 PM, 5/31/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 2:17:28 PM**
Digestion: **Start: 5/17/2016 5:00:00 PM / Stop: 5/18/2016 9:00:00 AM**
Prep End Date: **5/18/2016 10:00:00 AM**

Prep Batch **75212** Prep Code: **ISM250_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605135-43A	Soil		0	0	#Num!	1 of 1	
Subsampled extra for MS/MSD							
1605135-44A	Soil		0	0	#Num!	1 of 1	
1605135-45A	Soil		0	0	#Num!	1 of 1	
1605144-13A	Soil		0	0	#Num!	1 of 1	
Subsampled extra MS/MSD							
1605144-14A	Soil		0	0	#Num!	1 of 1	
1605144-15A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 5:08:14 PM, 5/31/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	26
TEST DATE:	05/23/2016	**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

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0095	4.9995	99.99	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0068	4.9968	99.94		
3		5.0003	4.9903	99.81		
AVERAGE (MEAN)		5.006	4.996	99.91		0.094
						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	0.2004	0.2000	100.00	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.1999	0.1995	99.75		
3		0.1996	0.1992	99.60		
AVERAGE (MEAN)		0.200	0.200	99.78		0.202
						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)						

CVD 5/23/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 5:08:16 PM, 5/31/2016

Review and Approved / Date

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	KL	**BALANCE #:**	26
TEST DATE:	05/26/2016	**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

PIPETTE ID: P-31	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS: MEAN CRITERIA (± 2%)	PRECISION: % RSD Calculated
1	4.00	3.9943	3.9863	99.66	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		3.9791	3.9711	99.28		
3		3.9750	3.9671	99.18		
AVERAGE (MEAN)		3.983	3.975	99.37		0.255
						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	0.50	0.4971	0.4961	99.22	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.4962	0.4952	99.04		
3		0.4950	0.4940	98.80		
AVERAGE (MEAN)		0.496	0.495	99.02		0.212
						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	0.200	0.2003	0.1999	99.95	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.1994	0.1990	99.50		
3		0.1993	0.1989	99.45		
AVERAGE (MEAN)		0.200	0.199	99.63		0.276
						PASS

Karyn Lane 5/26/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 5:08:19 PM, 5/31/2016

Review and Approved / Date

 C:\Users\METALS\Desktop\Pipetter Accuracy Check- RO 3-29-2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/23/2016 10:33:07 AM**

Digestion: **Start: 5/23/2016 11:34:00 AM / Stop: 5/23/2016 4:56:00 PM**

Prep End Date: **5/23/2016 5:35:27 PM**

Prep Factor Units: **mL/g**

Prep Batch **75287** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke**

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
1605135-32A	Soil		1.13	50	44.248	1 of 1	
1605135-33A	Soil		1.09	50	45.872	1 of 1	
1605135-34A	Soil		~~1.09~~ 1.04	50	45.872	1 of 1	
1605135-35A	Soil		~~1.04~~ 1.11	50	48.077	1 of 1	
1605135-36A	Soil		~~1.11~~ 1.07	50	45.045	3 of 3	
1605135-36A MS	Soil		~~1.07~~ 1.03	50	46.729	3 of	
1605135-36A MSD	Soil		~~1.03~~ 1.11	50	48.544	3 of	
1605135-36A PDS	Soil		~~1.11~~ 1.07	50	45.045	3 of	
1605135-36A SD	Soil		~~1.11~~ 1.07	50	45.045	3 of	
1605135-37A	Soil		~~1.11~~ 1.01	50	45.045	1 of 1	
1605135-38A	Soil		~~1.01~~ 1.03	50	49.505	1 of 1	
1605135-39A	Soil		~~1.03~~ 1.15	50	48.544	1 of 1	
1605135-40A	Soil		~~1.15~~ 1.03	50	43.478	1 of 1	
1605135-41A	Soil		~~1.03~~ 1.01	50	48.544	1 of 1	
1605135-42A	Soil		~~1.01~~ 1.04	50	49.505	1 of 1	
1605135-43A	Soil		~~1.04~~ 1.06	50	48.077	1 of 1	
1605135-44A	Soil		~~1.06~~ 1.09	50	47.170	1 of 1	
1605135-45A	Soil		~~1.09~~ 1.07	50	45.872	1 of 1	
1605144-01A	Soil		~~1.07~~ 1.04	50	46.729	1 of 1	
1605144-02A	Soil		~~1.04~~ 1.06	50	48.077	1 of 1	
1605144-03A	Soil		~~1.06~~ 1.09	50	47.170	1 of 1	
1605144-04A	Soil		~~1.09~~ 1.11	50	45.872	1 of 1	
1605144-05A	Soil		~~1.11~~ 1.06	50	45.045	1 of 1	
1605144-06A	Soil		~~1.06~~ 1.09	50	47.170	1 of 1	
LCS-75287	Soil		1	50	50.000	of	
LCSD-75287	Soil		1	50	50.000	of	
MB-75287	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10136	Nitric Acid (Trace Metal Grade)	10	ml	01/10/2026
10137	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2026
10318	Hydrogen Peroxide, 30%	3	ml	11/30/2017

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-160519-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	08/17/2016
MET-SPIKE-160519-4	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/17/2016
MET-SPIKE-160520-5	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/18/2016

REVIEWED BY

By Janice Whitt at 5:16:19 PM, 5/31/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 12:00:00 PM**
Digestion: **Start: 5/17/2016 1:20:00 PM / Stop: 5/19/2016 8:30:00 AM**
Prep End Date: **5/19/2016 1:00:00 PM**

Prep Batch **75205** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605135-36A	Soil		0	0	#Num!		of	3	
Extra subsampled for MS/MSD									
1605135-37A	Soil		0	0	#Num!	1	of	1	
1605135-38A	Soil		0	0	#Num!	1	of	1	
1605135-39A	Soil		0	0	#Num!	1	of	1	
1605135-40A	Soil		0	0	#Num!	1	of	1	
1605135-41A	Soil		0	0	#Num!	1	of	1	
1605135-42A	Soil		0	0	#Num!	1	of	1	
1605144-01A	Soil		0	0	#Num!	1	of	1	
1605144-02A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-03A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-04A	Soil		0	0	#Num!	1	of	1	
1605144-05A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-06A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-07A	Soil		0	0	#Num!	1	of	1	
1605144-08A	Soil		0	0	#Num!	1	of	1	
1605144-09A	Soil		0	0	#Num!	1	of	1	
1605144-10A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-11A	Soil		0	0	#Num!	1	of	1	
Sieve only no subsampling hard clay									
1605144-12A	Soil		0	0	#Num!	1	of	1	

REVIEWED BY
By Janice Whitt at 5:18:38 PM, 5/31/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 2:17:28 PM**
Digestion: **Start: 5/17/2016 5:00:00 PM / Stop: 5/18/2016 9:00:00 AM**
Prep End Date: **5/18/2016 10:00:00 AM**

Prep Batch **75212** Prep Code: **ISM250_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605135-43A	Soil		0	0	#Num!	1 of 1	
Subsampled extra for MS/MSD							
1605135-44A	Soil		0	0	#Num!	1 of 1	
1605135-45A	Soil		0	0	#Num!	1 of 1	
1605144-13A	Soil		0	0	#Num!	1 of 1	
Subsampled extra MS/MSD							
1605144-14A	Soil		0	0	#Num!	1 of 1	
1605144-15A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 5:18:47 PM, 5/31/2016

BATCH 75287

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	BALANCE #:	26
TEST DATE:	05/24/2016	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

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % RSD Calculated
1	5.00	5.0017	4.9917	99.83	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0044	4.9944	99.89		
3		4.9995	4.9895	99.79		
AVERAGE (MEAN)		5.002	4.992	99.84		0.049
						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	0.2002	0.1998	99.90	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2000	0.1996	99.80		
3		0.2001	0.1997	99.85		
AVERAGE (MEAN)		0.200	0.200	99.85		0.050
						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)						

C VanDyk 5/24/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 5:18:49 PM, 5/31/2016

Review and Approved / Date

Calibration Summary Report

Date Acquired 5/26/2016 11:10
Data Batch 160526.b

Level	Calibration File Name
1	026CALB.d
2	027CALS.d
3	028CALS.d
4	029CALS.d
5	030CALS.d
6	031CALS.d
7	032CALS.d
8	033CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0013 * x + 2.0566E-004
Be	1.0000	y = 4.9412E-005 * x + 7.0139E-007
B	0.9999	y = 1.7131E-005 * x + 6.8781E-005
Na	0.9999	y = 7.9732E-004 * x + 0.0304
Mg	1.0000	y = 3.8888E-004 * x + 6.4819E-004
Al	1.0000	y = 1.4153E-004 * x + 0.0011
K	1.0000	y = 4.0521E-004 * x + 0.0539
Ca	0.9997	y = 2.3860E-005 * x + 6.0810E-004
Ti	1.0000	y = 1.5457E-004 * x + 3.5029E-006
V	1.0000	y = 0.0050 * x + 0.0027
Cr	1.0000	y = 0.0061 * x + 0.0015
Mn	1.0000	y = 0.0033 * x + 1.6205E-004
Fe	1.0000	y = 0.0051 * x + 0.0093
Co	1.0000	y = 0.0137 * x + 5.1483E-005
Ni	1.0000	y = 0.0038 * x + 4.0195E-004
Cu	1.0000	y = 0.0106 * x + 0.0023
Zn	1.0000	y = 0.0016 * x + 5.0490E-004
Se	1.0000	y = 7.5969E-005 * x + 1.4458E-004
Sr	1.0000	y = 6.6763E-004 * x + 6.2663E-005
Mo	1.0000	y = 5.9589E-004 * x + 4.8946E-006
Ag	1.0000	y = 0.0018 * x + 5.0710E-006
Cd	1.0000	y = 2.5731E-004 * x + 1.2295E-006
Sn	1.0000	y = 5.5070E-004 * x + 1.3219E-004
Sb	1.0000	y = 7.8882E-004 * x + 2.3251E-004
Tl	1.0000	y = 0.0018 * x + 3.2448E-006
Ba	1.0000	y = 2.6902E-004 * x + 6.3036E-006
Pb	1.0000	y = 0.0023 * x + 2.2095E-004
Li	1.0000	y = 3.7462E-005 * x + 1.0137E-005

REVIEWED BY
By Janice Whitt at 4:27:22 PM, 5/26/2016

Calibration Summary Report

Level 7 Cal

Ele	Conc	Calc	%Rec
As	500	499.20	100
Be	500	506.65	101
B	500	521.64	104
Na	10000	9728.22	97
Mg	10000	10098.76	101
Al	10000	9987.94	100
K	10000	9925.25	99
Ca	10000	9454.48	95
Ti	500	505.29	101
V	500	503.79	101
Cr	500	501.60	100
Mn	500	513.33	103
Fe	10000	10005.99	100
Co	500	511.08	102
Ni	500	509.10	102
Cu	500	509.49	102
Zn	500	507.65	102
Se	500	508.31	102
Sr	500	507.39	101
Mo	500	511.41	102
Ag	500	501.38	100
Cd	500	504.21	101
Sn	500	510.91	102
Sb	500	501.03	100
Tl	500	499.40	100
Ba	500	507.27	101
Pb	500	501.82	100

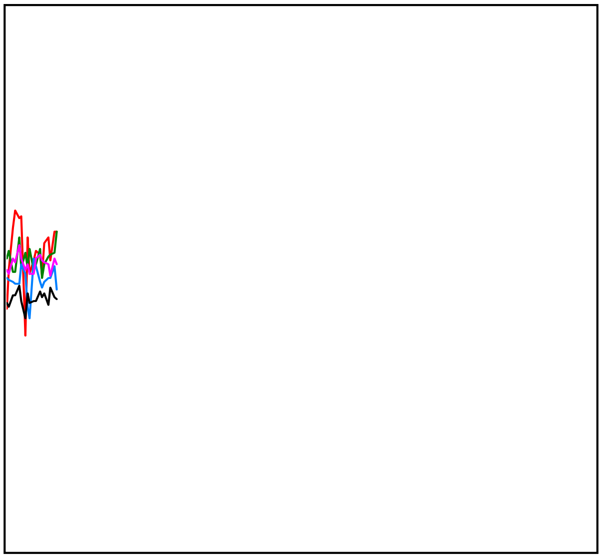
Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	1999.76	100
Be	2000	1998.45	100
B	2000	1995.58	100
Na	25000	25110.08	100
Mg	25000	24949.36	100
K	25000	25033.04	100
Ca	25000	25271.73	99
Ti	2000	1998.50	100
V	2000	1998.80	100
Cr	2000	1999.48	100
Mn	2000	1995.78	100
Co	2000	1995.83	100
Ni	2000	1996.40	100
Cu	2000	1996.31	100
Zn	2000	1996.90	100
Se	2000	1996.65	100
Sr	2000	1998.64	100
Mo	2000	1997.58	100
Cd	2000	1998.88	100
Sn	2000	1996.95	100
Tl	2000	2000.91	100
Ba	2000	1998.33	100
Pb	2000	2000.13	100
Li	2000	1998.86	100

REVIEWED/APPROVED

By Sherri Herschmann at 2:39:38 PM, 5/26/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51	200	117	109.6	10.81
59	2000	1170	1074.8	4.24
89	2000	959	991.6	5.37
140	5000	2631	2636.6	2.74
205	5000	2316	2319.7	3.04
156/140	1	0.228 %	0.253 %	64.56
75	20	5	6.2	49.17
78	20	12	10.8	28.74
56	20000	12091	11969.4	3.06
31	100	50	43.3	16.60

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.52
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	8.1
Extract 2	-190.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	2.2		

Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.7	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	200
Energy Discrimination	3.0		

Meters

IF/BK Press	2.22E+2	Pa	Carrier Gas(BP)	9.32E+1	kPa
Analyzer Press	1.96E-4	Pa	Reflected Power	3	W
Forward Power	1549	W			

Current Signal

Mass	Range	Count	Avg. Count	RSD [%]
7	1000	803	847.8	5.73
59	5000	1755	1851.7	5.51
89	5000	3048	3148.0	2.47
140	5000	2972	2900.8	2.20
205	2000	1781	1756.3	2.95
156/140	2	0.673 %	0.790 %	34.48
78	5000	2211	2202.4	2.20
63	1000	573	513.8	6.92
75	5000	4407	4401.0	3.57

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.52
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	8.1
Extract 2	-190.0	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	2.20E+2	Pa	Carrier Gas(BP)	9.29E+1	kPa
Analyzer Press	1.14E-4	Pa	Reflected Power	3	W
Forward Power	1550	W			

US EPA Tune Check Sample Report

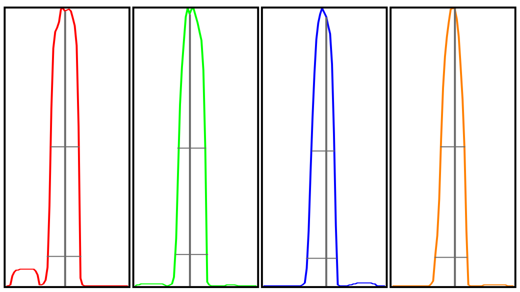
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	549179	0.50	5.00	
59	1011732	0.61	5.00	
115	1307301	0.32	5.00	
205	1027109	0.87	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	548781	549593	551910	550867	544747
59	1007940	1015404	1018863	1003215	1013238
115	1305003	1304049	1312696	1303940	1310818
205	1014528	1037244	1029963	1021770	1032040

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	82529	7.00	6.9 - 7.1		0.784	0.850	
59	164724	58.90	58.9 - 59.1		0.761	0.850	
115	246468	115.05	114.9 - 115.1		0.715	0.850	
205	193785	205.05	204.9 - 205.1		0.779	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	0.52 L/min	Makeup/Dilution Gas	0.53 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	-190.0 V	Cell Exit	-60 V
Omega Bias	-100 V	Deflect	7.0 V
Omega Lens	8.1 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 4:27:30 PM, 5/26/2016

P/A Factor Tuning Report

=================== Current Sample ====================
Sample Name: BLANK STD 1
Data File: 026CALB.d
Acquired: 05/26/2016 11:10:12

========= Detector Parameters and P/A Factors =========
Discriminator: 4.5 mV
AnalogHV: 1756 V
PulseHV: 1228 V

Acquired: 05/26/2016 10:02:14

Mass[u]	Element	P/A Factor
6	Li	0.097659
9	Be	0.110610
23	Na	0.118985
24	Mg	0.123481
27	Al	0.127642
39	K	0.129482
45	Sc	0.130875
48		0.132219
51	V	0.132364
52	Cr	0.136419
55	Mn	0.137810
59	Co	0.140965
60	Ni	0.142912
63	Cu	0.144808
66	Zn	0.144676
72		0.143383
74	Ge	0.144323
75	As	0.143027
88	Sr	0.144603
89		0.143460
95		0.142674
97	Mo	0.143568
98	Mo	0.143465
99	[Mo]	0.145747
101		0.145236
105		0.147916
111	Cd	0.149615
114	Cd	0.149822
115	In	0.149894
118	Sn	0.149825
121		0.149379
123	Sb	0.149521
135	Ba	0.149219
138		0.150277
175		0.154552
193		0.155872
205	Tl	0.156620
206	[Pb]	0.156038
207	[Pb]	0.157020
208	Pb	0.157616
209	Bi	0.157299
232		0.157679
238	U	0.157889
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 4:27:33 PM, 5/26/2016

Calibration Blank Report

Date Acquired	5/26/2016 11:10	Sample Name	BLANK STD 1
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	026CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	10	52.07
9	Be	45	1	173.21
11	B	45	66	16.35
23	Na	45	28922	1.59
24	Mg	45	618	11.94
27	Al	45	1051	4.94
39	K	45	51399	1.28
44	Ca	45	579	0.93
47	Ti	45	3	100.05
51	V	45	2579	3.30
52	Cr	45	1383	4.57
55	Mn	45	154	22.15
56	Fe	45	8874	4.70
59	Co	72	34	5.60
60	Ni	72	269	11.72
63	Cu	72	1536	3.72
66	Zn	72	338	3.99
75	As	72	138	7.88
78	Se	72	97	25.67
88	Sr	115	398	11.41
95	Mo	115	31	24.74
107	Ag	115	32	31.61
111	Cd	115	8	89.21
118	Sn	115	840	6.98
121	Sb	115	1477	3.70
137	Ba	115	40	36.33
205	Tl	209	42	38.95
208	Pb	209	2879	4.54

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	952886	0.30
72	Ge	669007	0.06
115	In	6352005	1.03
209	Bi	13029062	2.26

Calibration Standard Report

Date Acquired	5/26/2016 11:12	Sample Name	L2-160526
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	027CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	41	11.18
9	Be	45	49	16.48
11	B	45	77	11.51
23	Na	45	44782	1.84
24	Mg	45	8010	0.39
27	Al	45	3668	4.04
39	K	45	60499	0.50
44	Ca	45	1059	7.54
47	Ti	45	148	16.00
51	V	45	7507	4.40
52	Cr	45	7182	1.91
55	Mn	45	3785	1.72
56	Fe	45	104999	1.20
59	Co	72	9652	1.15
60	Ni	72	2891	1.33
63	Cu	72	8791	1.89
66	Zn	72	1436	3.12
75	As	72	985	3.75
78	Se	72	150	3.30
88	Sr	115	4642	2.26
95	Mo	115	3736	2.63
107	Ag	115	11183	1.66
111	Cd	115	1600	3.66
118	Sn	115	4328	4.23
121	Sb	115	6440	3.82
137	Ba	115	1706	2.22
205	Tl	209	22145	1.85
208	Pb	209	31503	1.81

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	963897	0.66	952886	101.16	70	120	
72	Ge	664182	0.68	669007	99.28	70	120	
115	In	6381075	0.83	6352005	100.46	70	120	
209	Bi	13588982	3.36	13029062	104.30	70	120	

Calibration Standard Report

Date Acquired	5/26/2016 11:14	Sample Name	L-160526
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	028CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	344	5.28
9	Be	45	479	5.99
11	B	45	202	18.16
23	Na	45	183594	0.28
24	Mg	45	76179	0.41
27	Al	45	27853	1.39
39	K	45	130456	0.74
44	Ca	45	5151	4.54
47	Ti	45	1398	3.26
51	V	45	50302	0.98
52	Cr	45	60712	2.07
55	Mn	45	37654	2.80
56	Fe	45	979230	0.37
59	Co	72	95495	1.04
60	Ni	72	26348	1.50
63	Cu	72	74355	0.88
66	Zn	72	11946	1.53
75	As	72	8602	1.23
78	Se	72	625	6.99
88	Sr	115	42941	1.58
95	Mo	115	37363	3.57
107	Ag	115	112752	0.76
111	Cd	115	16336	2.03
118	Sn	115	35836	0.62
121	Sb	115	50437	1.16
137	Ba	115	17163	2.19
205	Tl	209	220341	1.19
208	Pb	209	295133	0.92

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	974743	0.18	952886	102.29	70	120	
72	Ge	675285	0.48	669007	100.94	70	120	
115	In	6460866	1.65	6352005	101.71	70	120	
209	Bi	13348850	0.92	13029062	102.45	70	120	

Calibration Standard Report

Date Acquired	5/26/2016 11:16	Sample Name	10X-160526
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	029CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1814	5.06
9	Be	45	2351	4.16
11	B	45	772	8.89
23	Na	45	792768	0.55
24	Mg	45	378362	0.41
27	Al	45	138968	0.80
39	K	45	443619	1.11
44	Ca	45	22454	0.74
47	Ti	45	7524	1.42
51	V	45	246252	0.71
52	Cr	45	297433	0.36
55	Mn	45	161456	1.57
56	Fe	45	4961140	0.29
59	Co	72	481433	0.54
60	Ni	72	133876	1.09
63	Cu	72	373362	0.38
66	Zn	72	56483	0.40
75	As	72	42990	0.76
78	Se	72	2746	3.35
88	Sr	115	212275	0.28
95	Mo	115	189393	0.39
107	Ag	115	576665	0.82
111	Cd	115	82440	0.83
118	Sn	115	176299	0.77
121	Sb	115	252487	0.29
137	Ba	115	85746	0.84
205	Tl	209	1122110	1.17
208	Pb	209	1495173	0.32

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	967701	0.38	952886	101.55	70	120	
72	Ge	673067	0.43	669007	100.61	70	120	
115	In	6397126	0.74	6352005	100.71	70	120	
209	Bi	13392390	2.74	13029062	102.79	70	120	

Calibration Standard Report

Date Acquired	5/26/2016 11:18	Sample Name	5X-160526
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	030CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	3584	1.93
9	Be	45	4735	1.35
11	B	45	1675	5.66
23	Na	45	1564459	0.96
24	Mg	45	762740	0.13
27	Al	45	273309	0.45
39	K	45	828970	0.73
44	Ca	45	44166	1.64
47	Ti	45	14996	2.79
51	V	45	487641	0.24
52	Cr	45	592084	1.21
55	Mn	45	324289	0.85
56	Fe	45	9848906	2.14
59	Co	72	957922	0.25
60	Ni	72	266262	0.71
63	Cu	72	737545	0.52
66	Zn	72	113416	1.68
75	As	72	84477	0.60
78	Se	72	5394	1.09
88	Sr	115	425888	0.31
95	Mo	115	377816	0.73
107	Ag	115	1143843	0.20
111	Cd	115	166171	0.95
118	Sn	115	355323	0.42
121	Sb	115	506670	1.03
137	Ba	115	172136	0.85
205	Tl	209	2283243	0.71
208	Pb	209	3000642	0.34

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	976183	0.32	952886	102.44	70	120	
72	Ge	672158	0.16	669007	100.47	70	120	
115	In	6454463	2.11	6352005	101.61	70	120	
209	Bi	13391467	0.69	13029062	102.78	70	120	

Calibration Standard Report

Date Acquired	5/26/2016 11:20	Sample Name	2X-160526
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	031CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	8858	1.69
9	Be	45	11693	0.36
11	B	45	4042	2.76
23	Na	45	3807285	0.56
24	Mg	45	1860266	1.26
27	Al	45	675550	0.30
39	K	45	1968739	0.28
44	Ca	45	108867	1.04
47	Ti	45	36828	1.15
51	V	45	1202528	0.47
52	Cr	45	1459690	0.21
55	Mn	45	789728	0.70
56	Fe	45	24031441	1.21
59	Co	72	2358022	0.19
60	Ni	72	649868	1.19
63	Cu	72	1816871	0.96
66	Zn	72	274799	0.62
75	As	72	210363	0.32
78	Se	72	13097	1.49
88	Sr	115	1040130	0.22
95	Mo	115	930429	0.90
107	Ag	115	2813288	0.99
111	Cd	115	406845	0.82
118	Sn	115	879504	1.05
121	Sb	115	1237977	0.23
137	Ba	115	423220	0.25
205	Tl	209	5673381	1.23
208	Pb	209	7444077	0.10

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	946571	0.14	952886	99.34	70	120	
72	Ge	662603	0.48	669007	99.04	70	120	
115	In	6312921	0.20	6352005	99.38	70	120	
209	Bi	13169813	0.35	13029062	101.08	70	120	

Calibration Standard Report

Date Acquired	5/26/2016 11:22	Sample Name	H-160526
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	032CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	17652	1.04
9	Be	45	23335	0.23
11	B	45	8392	4.41
23	Na	45	7258001	1.28
24	Mg	45	3660978	0.50
27	Al	45	1318582	0.75
39	K	45	3798876	0.47
44	Ca	45	210824	0.15
47	Ti	45	72800	0.69
51	V	45	2360509	0.56
52	Cr	45	2865716	0.07
55	Mn	45	1559091	0.15
56	Fe	45	47406986	0.27
59	Co	72	4620879	0.48
60	Ni	72	1272422	0.31
63	Cu	72	3555007	0.10
66	Zn	72	538581	0.37
75	As	72	412021	0.29
78	Se	72	25530	0.37
88	Sr	115	2070738	0.95
95	Mo	115	1862358	0.84
107	Ag	115	5510637	0.15
111	Cd	115	792957	0.34
118	Sn	115	1720486	0.62
121	Sb	115	2416881	0.09
137	Ba	115	834040	0.17
205	Tl	209	11292290	1.09
208	Pb	209	14823685	0.79

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	932070	0.49	952886	97.82	70	120	
72	Ge	658661	0.36	669007	98.45	70	120	
115	In	6112868	1.74	6352005	96.24	70	120	
209	Bi	12887126	0.36	13029062	98.91	70	120	

Calibration Standard Report

Date Acquired	5/26/2016 11:24	Sample Name	H2-160526
Data Batch	160526.b	Comment	CAL ICPMS_TW
Data File Name	033CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	68885	0.58
9	Be	45	90832	0.21
11	B	45	31508	2.05
23	Na	45	18442850	0.72
24	Mg	45	8925160	0.17
27	Al	45	4997	5.68
39	K	45	9382057	2.87
44	Ca	45	555238	0.92
47	Ti	45	284174	1.08
51	V	45	9235385	0.93
52	Cr	45	11270428	1.16
55	Mn	45	5981914	0.55
56	Fe	45	52708	26.89
59	Co	72	17803433	1.25
60	Ni	72	4922216	0.45
63	Cu	72	13738491	0.69
66	Zn	72	2089289	0.30
75	As	72	1628042	0.38
78	Se	72	98665	0.45
88	Sr	115	8164849	2.07
95	Mo	115	7284580	1.85
107	Ag	115	3858	30.57
111	Cd	115	3146786	0.49
118	Sn	115	6730010	1.97
121	Sb	115	7161	7.29
137	Ba	115	3289217	0.21
205	Tl	209	44525992	2.48
208	Pb	209	58129077	0.75

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	919913	1.22	952886	96.54	70	120	
72	Ge	649847	0.45	669007	97.14	70	120	
115	In	6120018	2.03	6352005	96.35	70	120	
209	Bi	12682261	1.18	13029062	97.34	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	5/26/2016 11:32	Sample Name	ICSA-160526
Data Batch	160526.b	Comment	ICSAICPMS_TW
Data File Name	037ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.095	5	20.0	1.2	0.8	
11	B	20.191	383	5.7	30	30	
51	V	-0.114	1971	5.2	10	10	
52	Cr	0.406	3643	3.3	8	5	
55	Mn	1.442	4491	3.3	8	10	
59	Co	0.575	5151	6.5	8	10	
60	Ni	0.472	1422	2.6	8	10	
63	Cu	0.485	4819	2.6	8	10	
66	Zn	1.540	1936	5.4	10	5	
75	As	0.638	652	1.6	4	5	
78	Se	0.343	111	25.8	2	5	
88	Sr	1.457	6178	1.5	10	10	
107	Ag	0.145	1581	6.1	0.8	2	
111	Cd	0.450	698	2.3	1.2	1	
118	Sn	1.096	4391	3.5	10	10	
121	Sb	0.431	3417	2.9	4	2.5	
137	Ba	0.352	603	5.8	8	10	
205	Tl	0.053	1160	7.2	4	1.5	
208	Pb	0.269	10098	3.2	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	924581	1.44	952886	97.03	70	120	
72	Ge	648731	0.49	669007	96.97	70	120	
115	In	5967235	0.96	6352005	93.94	70	120	
209	Bi	12053863	1.83	13029062	92.52	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	5/26/2016 11:34	Sample Name	ICSAB-160526
Data Batch	160526.b	Comment	ICSBICPMS_TW
Data File Name	038ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	39.772	194011	0.88	40	99.4	80	120	
52	Cr	45	20.823	123661	1.48	20	104.1	80	120	
55	Mn	45	21.479	67228	0.38	20	107.4	80	120	
59	Co	72	40.575	372395	0.92	40	101.4	80	120	
60	Ni	72	37.792	96122	0.79	40	94.5	80	120	
63	Cu	72	20.444	146256	0.88	20	102.2	80	120	
66	Zn	72	20.174	22048	1.26	20	100.9	80	120	
75	As	72	19.878	16784	0.94	20	99.4	80	120	
78	Se	72	20.682	1147	2.23	20	103.4	80	120	
107	Ag	115	19.169	210306	0.47	20	95.8	80	120	
111	Cd	115	10.309	16189	0.65	10	103.1	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	958484	1.31	952886	100.59	70	120	
72	Ge	668531	0.45	669007	99.93	70	120	
115	In	6100412	1.12	6352005	96.04	70	120	
209	Bi	12081778	2.06	13029062	92.73	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	5/26/2016 11:43		Sample Name	ICV-160526
Data Batch	160526.b		Comment	ICV ICPMS_TW
Data File Name	042_ICV.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	103.830	3759	1.81	100	103.8	90	110	
9	Be	45	105.414	5021	1.50	100	105.4	90	110	
11	B	45	116.773	1995	0.26	100	116.8	90	110	Fail
23	Na	45	2610.161	2035282	0.32	2500	104.4	90	110	
24	Mg	45	2596.573	973957	0.60	2500	103.9	90	110	
27	Al	45	2539.755	347542	0.55	2500	101.6	90	110	
39	K	45	2557.845	1051048	0.54	2500	102.3	90	110	
44	Ca	45	2305.189	53603	0.81	2500	92.2	90	110	
47	Ti	45	100.663	15002	0.40	100	100.7	90	110	
51	V	45	101.932	496006	0.39	100	101.9	90	110	
52	Cr	45	104.212	616836	0.40	100	104.2	90	110	
55	Mn	45	101.512	318977	0.68	100	101.5	90	110	
56	Fe	45	2586.113	12678007	2.22	2500	103.4	90	110	
59	Co	72	106.317	980287	0.32	100	106.3	90	110	
60	Ni	72	104.428	266374	0.10	100	104.4	90	110	
63	Cu	72	102.290	729055	0.87	100	102.3	90	110	
66	Zn	72	102.713	111395	0.37	100	102.7	90	110	
75	As	72	100.751	84911	0.50	100	100.8	90	110	
78	Se	72	102.115	5307	2.14	100	102.1	90	110	
88	Sr	115	102.660	431836	1.05	100	102.7	90	110	
95	Mo	115	100.419	376689	0.38	100	100.4	90	110	
107	Ag	115	100.163	1133783	0.64	100	100.2	90	110	
111	Cd	115	100.385	162582	0.87	100	100.4	90	110	
118	Sn	115	104.543	363208	0.41	100	104.5	90	110	
121	Sb	115	101.120	503516	0.62	100	101.1	90	110	
137	Ba	115	100.049	169458	0.56	100	100.0	90	110	
205	Tl	209	96.553	2243714	0.58	100	96.6	90	110	
208	Pb	209	98.884	3004888	0.58	100	98.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	963914	0.18	952886	101.16	70	120	
72	Ge	671689	0.61	669007	100.40	70	120	
115	In	6295863	1.97	6352005	99.12	70	120	
209	Bi	13253003	2.95	13029062	101.72	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/26/2016 11:49	Sample Name	LCVL-160526
Data Batch	160526.b	Comment	LCVLICPMS_TW
Data File Name	045LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.560	387	1.47	10	105.6	70	130	
9	Be	45	0.984	47	16.06	1	98.4	70	130	
11	B	45	24.699	469	6.76	20	123.5	70	130	
23	Na	45	106.089	109545	0.55	100	106.1	70	130	
24	Mg	45	102.431	38582	2.08	100	102.4	70	130	
27	Al	45	98.200	14298	0.80	100	98.2	70	130	
39	K	45	100.975	90402	1.23	100	101.0	70	130	
44	Ca	45	90.591	2640	2.45	100	90.6	70	130	
47	Ti	45	5.331	789	12.06	5	106.6	70	130	
51	V	45	1.218	8408	3.27	1	121.8	70	130	
52	Cr	45	5.050	30872	1.19	5	101.0	70	130	
55	Mn	45	4.964	15569	2.79	5	99.3	70	130	
56	Fe	45	100.054	493525	0.42	100	100.1	70	130	
59	Co	72	5.069	46603	2.19	5	101.4	70	130	
60	Ni	72	5.161	13372	1.53	5	103.2	70	130	
63	Cu	72	5.017	37094	2.23	5	100.3	70	130	
66	Zn	72	5.531	6297	6.85	5	110.6	70	130	
75	As	72	4.965	4300	0.82	5	99.3	70	130	
78	Se	72	4.832	342	4.87	5	96.6	70	130	
88	Sr	115	4.990	21492	2.61	5	99.8	70	130	
95	Mo	115	4.802	18150	0.59	5	96.0	70	130	
107	Ag	115	1.953	22272	0.70	2	97.7	70	130	
111	Cd	115	0.927	1519	10.63	1	92.7	70	130	
118	Sn	115	5.282	19256	2.11	5	105.6	70	130	
121	Sb	115	1.932	11122	2.35	2	96.6	70	130	
137	Ba	115	5.110	8745	1.35	5	102.2	70	130	
205	Tl	209	0.934	21860	2.85	1	93.4	70	130	
208	Pb	209	0.931	31358	1.18	1	93.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	953080	0.46	952886	100.02	70	120	
72	Ge	669272	0.25	669007	100.04	70	120	
115	In	6332544	0.86	6352005	99.69	70	120	
209	Bi	13316814	1.87	13029062	102.21	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	5/26/2016 11:56	Sample Name	ICB-160526
Data Batch	160526.b	Comment	ICB ICPMS_TW
Data File Name	047_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.046	11	5.1	2	5	
9	Be	45	-0.007	0	173.2	0.4	0.3	
11	B	45	2.016	99	25.5	10	10	
23	Na	45	3.194	31455	1.6	50	100	
24	Mg	45	-0.459	449	10.1	50	100	
27	Al	45	-1.527	848	8.5	50	10	
39	K	45	-2.315	50678	0.9	50	100	
44	Ca	45	-4.399	481	18.8	50	100	
47	Ti	45	0.007	4	114.6	4	3	
51	V	45	0.126	3191	2.9	4	3	
52	Cr	45	-0.003	1368	1.9	2	2	
55	Mn	45	-0.001	151	11.1	2	3	
56	Fe	45	0.020	9002	3.6	50	50	
59	Co	72	-0.001	24	88.7	2	3	
60	Ni	72	-0.005	258	16.2	2	3	
63	Cu	72	-0.055	1162	4.4	2	2	
66	Zn	72	0.154	509	8.4	4	2	
75	As	72	0.006	144	4.7	2	2	
78	Se	72	0.124	104	13.6	1	2	
88	Sr	115	-0.009	362	14.1	4	3	
95	Mo	115	0.006	54	46.4	2	2	
107	Ag	115	0.002	59	45.8	0.4	1	
111	Cd	115	-0.001	7	50.0	0.4	0.3	
118	Sn	115	0.126	1289	5.8	4	3	
121	Sb	115	-0.065	1161	8.6	2	0.8	
137	Ba	115	-0.003	36	21.6	2	3	
205	Tl	209	0.000	44	22.9	2	0.5	
208	Pb	209	-0.053	1337	2.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	956185	0.66	952886	100.35	70	120	
72	Ge	676699	1.02	669007	101.15	70	120	
115	In	6404070	2.13	6352005	100.82	70	120	
209	Bi	13366342	1.64	13029062	102.59	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/26/2016 15:24	Sample Name	CCV5-160526
Data Batch	160526.b	Comment	CCV ICPMS_TW
Data File Name	140_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	211.307	7419	1.74	200	105.7	90	110	
9	Be	45	204.968	9481	1.68	200	102.5	90	110	
11	B	45	204.703	3347	1.57	200	102.4	90	110	
23	Na	45	5060.034	3805042	0.40	5000	101.2	90	110	
24	Mg	45	5072.725	1847239	0.71	5000	101.5	90	110	
27	Al	45	5015.048	665457	0.50	5000	100.3	90	110	
39	K	45	4950.579	1928302	0.35	5000	99.0	90	110	
44	Ca	45	4591.756	103126	0.48	5000	91.8	90	110	
47	Ti	45	201.547	29167	0.97	200	100.8	90	110	
51	V	45	202.601	954891	0.58	200	101.3	90	110	
52	Cr	45	201.560	1157374	1.25	200	100.8	90	110	
55	Mn	45	207.107	631843	0.58	200	103.6	90	110	
56	Fe	45	5077.545	24167512	3.06	5000	101.6	90	110	
59	Co	72	205.052	1884407	0.35	200	102.5	90	110	
60	Ni	72	202.450	514451	0.62	200	101.2	90	110	
63	Cu	72	202.299	1435679	0.74	200	101.1	90	110	
66	Zn	72	201.296	217281	0.86	200	100.6	90	110	
75	As	72	199.374	167344	0.18	200	99.7	90	110	
78	Se	72	201.707	10355	1.86	200	100.9	90	110	
88	Sr	115	199.257	851860	0.64	200	99.6	90	110	
95	Mo	115	201.009	766814	0.90	200	100.5	90	110	
107	Ag	115	198.439	2284448	0.72	200	99.2	90	110	
111	Cd	115	200.009	329446	0.85	200	100.0	90	110	
118	Sn	115	203.075	716746	0.77	200	101.5	90	110	
121	Sb	115	198.177	1002226	0.87	200	99.1	90	110	
137	Ba	115	202.092	348024	0.19	200	101.0	90	110	
205	Tl	209	195.544	4717205	1.31	200	97.8	90	110	
208	Pb	209	198.877	6269065	0.38	200	99.4	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	936098	0.48	952886	98.24	70	120	
72	Ge	669519	1.03	669007	100.08	70	120	
115	In	6404401	3.01	6352005	100.82	70	120	
209	Bi	13748441	0.84	13029062	105.52	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/26/2016 15:29		Sample Name	LCVL5-160526
Data Batch	160526.b		Comment	LCVLICPMS_TW
Data File Name	142LCCV.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.515	384	6.60	10	105.2	70	130	
9	Be	45	1.000	48	13.49	1	100.0	70	130	
11	B	45	26.757	501	8.48	20	133.8	70	130	Fail
23	Na	45	122.213	121456	0.37	100	122.2	70	130	
24	Mg	45	103.389	38826	2.06	100	103.4	70	130	
27	Al	45	104.429	15096	3.07	100	104.4	70	130	
39	K	45	96.636	88483	0.52	100	96.6	70	130	
44	Ca	45	97.264	2784	5.65	100	97.3	70	130	
47	Ti	45	4.940	729	10.23	5	98.8	70	130	
51	V	45	1.029	7484	1.75	1	102.9	70	130	
52	Cr	45	5.075	30931	0.54	5	101.5	70	130	
55	Mn	45	5.104	15958	3.16	5	102.1	70	130	
56	Fe	45	101.756	500371	0.61	100	101.8	70	130	
59	Co	72	5.118	47332	1.00	5	102.4	70	130	
60	Ni	72	5.126	13363	2.69	5	102.5	70	130	
63	Cu	72	5.072	37705	1.19	5	101.4	70	130	
66	Zn	72	5.362	6151	3.85	5	107.2	70	130	
75	As	72	5.024	4375	1.16	5	100.5	70	130	
78	Se	72	5.015	354	8.16	5	100.3	70	130	
88	Sr	115	5.049	22209	1.37	5	101.0	70	130	
95	Mo	115	4.854	18743	2.12	5	97.1	70	130	
107	Ag	115	2.014	23466	1.07	2	100.7	70	130	
111	Cd	115	0.974	1629	4.34	1	97.4	70	130	
118	Sn	115	5.152	19209	0.58	5	103.0	70	130	
121	Sb	115	1.917	11288	1.24	2	95.9	70	130	
137	Ba	115	5.010	8760	0.70	5	100.2	70	130	
205	Tl	209	0.940	23561	2.99	1	94.0	70	130	
208	Pb	209	0.908	32831	1.11	1	90.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	950420	0.40	952886	99.74	70	120	
72	Ge	673242	0.67	669007	100.63	70	120	
115	In	6469580	1.10	6352005	101.85	70	120	
209	Bi	14261665	1.88	13029062	109.46	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/26/2016 15:32	Sample Name	CCB5-160526
Data Batch	160526.b	Comment	CCB ICPMS_TW
Data File Name	143_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.427	25	38.3	2	5	
9	Be	45	0.000	1	86.6	0.4	0.3	
11	B	45	7.401	184	16.8	10	10	
23	Na	45	21.632	44877	0.1	50	100	
24	Mg	45	-0.551	409	10.9	50	100	
27	Al	45	-0.682	949	2.1	50	10	
39	K	45	-4.557	49116	0.8	50	100	
44	Ca	45	-3.952	485	12.7	50	100	
47	Ti	45	0.008	4	114.6	4	3	
51	V	45	0.069	2877	4.0	4	3	
52	Cr	45	-0.003	1352	5.5	2	2	
55	Mn	45	0.018	208	21.7	2	3	
56	Fe	45	0.199	9733	3.6	50	50	
59	Co	72	0.006	87	63.3	2	3	
60	Ni	72	-0.007	252	5.3	2	3	
63	Cu	72	-0.033	1302	3.0	2	2	
66	Zn	72	0.020	360	12.7	4	2	
75	As	72	0.015	150	17.4	2	2	
78	Se	72	-0.168	88	13.9	1	2	
88	Sr	115	0.015	462	6.1	4	3	
95	Mo	115	0.005	50	40.5	2	2	
107	Ag	115	0.017	226	10.9	0.4	1	
111	Cd	115	0.001	9	43.3	0.4	0.3	
118	Sn	115	0.006	864	7.6	4	3	
121	Sb	115	-0.144	761	3.0	2	0.8	
137	Ba	115	0.000	41	26.1	2	3	
205	Tl	209	0.006	182	17.4	2	0.5	
208	Pb	209	-0.055	1316	5.9	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	942811	0.33	952886	98.94	70	120	
72	Ge	669150	1.01	669007	100.02	70	120	
115	In	6386586	2.23	6352005	100.54	70	120	
209	Bi	13928422	1.63	13029062	106.90	70	120	

Method Blank Report

Date Acquired	5/26/16 3:34 PM	Sample Name	MB-75287
Data Batch	160526.b	Comment	MBLKICPMS_TSDOD1
Data File Name	144_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.142	14	35.80		
9	Be	45	-0.014	0	#DIV/0!		
11	B	45	4.978	143	12.95		
23	Na	45	27.594	48678	1.09		
24	Mg	45	2.548	1525	8.21		
27	Al	45	2.531	1359	5.73		
39	K	45	-1.218	49698	0.78		
44	Ca	45	29.795	1227	5.09		
47	Ti	45	0.202	32	26.04		
51	V	45	0.131	3130	2.92		
52	Cr	45	0.216	2580	1.57		
55	Mn	45	0.104	466	8.36		
56	Fe	45	5.788	36009	1.28		
59	Co	72	0.009	118	18.85		
60	Ni	72	0.140	621	9.48		
63	Cu	72	0.037	1792	3.25		
66	Zn	72	5.267	5987	0.70		J
75	As	72	0.018	152	5.77		
78	Se	72	-0.089	92	3.26		
88	Sr	115	0.014	474	4.93		
95	Mo	115	0.020	109	4.68		
107	Ag	115	0.017	229	9.70		
111	Cd	115	-0.001	6	34.70		
118	Sn	115	4.235	16167	0.72		J
121	Sb	115	-0.162	687	0.97		
137	Ba	115	0.058	143	18.46		
205	Tl	209	0.003	110	22.88		
208	Pb	209	-0.025	2308	4.92		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	929874	0.72	952886	97.59	70	120	
72	Ge	666443	0.20	669007	99.62	70	120	
115	In	6562798	2.37	6352005	103.32	70	120	
209	Bi	14128705	1.16	13029062	108.44	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/26/2016 15:36		Sample Name	LCS-75287
Data Batch	160526.b		Comment	LCS ICPMS_TSDOD1
Data File Name	145_LS.d		Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	218.031	7653	1.80	200	109.0	80	120	
9	Be	45	201.036	9296	1.27	200	100.5	80	120	
11	B	45	209.966	3430	3.34	200	105.0	80	120	
23	Na	45	5207.436	3913718	0.84	1000	520.7	80	120	Fail
24	Mg	45	5194.672	1890970	1.03	1000	519.5	80	120	Fail
27	Al	45	1031.932	137695	0.41	1000	103.2	80	120	
39	K	45	5063.300	1970274	0.60	1000	506.3	80	120	Fail
44	Ca	45	4743.626	106484	1.01	1000	474.4	80	120	Fail
47	Ti	45	206.041	29805	2.09	200	103.0	80	120	
51	V	45	208.174	980740	0.86	200	104.1	80	120	
52	Cr	45	207.678	1192009	0.46	200	103.8	80	120	
55	Mn	45	210.960	643383	0.86	200	105.5	80	120	
56	Fe	45	1036.948	4940409	0.85	1000	103.7	80	120	
59	Co	72	209.296	1916355	1.16	200	104.6	80	120	
60	Ni	72	207.579	525555	1.17	200	103.8	80	120	
63	Cu	72	207.449	1466787	0.29	200	103.7	80	120	
66	Zn	72	210.787	226667	0.54	200	105.4	80	120	
75	As	72	201.435	168453	0.55	200	100.7	80	120	
78	Se	72	203.428	10404	0.92	200	101.7	80	120	
88	Sr	115	195.781	852750	0.75	200	97.9	80	120	
95	Mo	115	198.426	771068	0.80	200	99.2	80	120	
107	Ag	115	199.755	2342765	0.66	200	99.9	80	120	
111	Cd	115	199.520	334796	1.00	200	99.8	80	120	
118	Sn	115	208.172	748555	0.88	200	104.1	80	120	
121	Sb	115	198.120	1020665	0.67	200	99.1	80	120	
137	Ba	115	202.801	355812	1.17	200	101.4	80	120	
205	Tl	209	199.141	4779555	0.77	200	99.6	80	120	
208	Pb	209	203.836	6393227	0.35	200	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	935779	0.77	952886	98.20	70	120	
72	Ge	667025	0.40	669007	99.70	70	120	
115	In	6522992	1.86	6352005	102.69	70	120	
209	Bi	13680771	1.13	13029062	105.00	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/26/2016 15:38	Sample Name	LCSD-75287
Data Batch	160526.b	Comment	LCSDICPMS_TSDOD1
Data File Name	146_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	220.588	7743	0.70	200	110.3	80	120	
9	Be	45	205.160	9488	1.14	200	102.6	80	120	
11	B	45	206.421	3374	1.91	200	103.2	80	120	
23	Na	45	5175.464	3890471	0.83	1000	517.5	80	120	Fail
24	Mg	45	5226.535	1902866	0.71	1000	522.7	80	120	Fail
27	Al	45	1036.625	138343	0.61	1000	103.7	80	120	
39	K	45	5121.880	1992834	0.37	1000	512.2	80	120	Fail
44	Ca	45	4774.693	107185	0.80	1000	477.5	80	120	Fail
47	Ti	45	202.249	29258	2.42	200	101.1	80	120	
51	V	45	207.272	976712	1.33	200	103.6	80	120	
52	Cr	45	207.277	1189932	1.32	200	103.6	80	120	
55	Mn	45	212.042	646760	0.64	200	106.0	80	120	
56	Fe	45	1038.447	4947979	0.67	1000	103.8	80	120	
59	Co	72	210.964	1932160	0.91	200	105.5	80	120	
60	Ni	72	208.581	528226	0.73	200	104.3	80	120	
63	Cu	72	207.499	1467524	0.47	200	103.7	80	120	
66	Zn	72	210.208	226122	0.62	200	105.1	80	120	
75	As	72	202.259	169182	0.66	200	101.1	80	120	
78	Se	72	203.501	10413	2.00	200	101.8	80	120	
88	Sr	115	202.059	861466	1.20	200	101.0	80	120	
95	Mo	115	204.387	777411	0.59	200	102.2	80	120	
107	Ag	115	203.647	2337473	0.75	200	101.8	80	120	
111	Cd	115	203.681	334495	1.01	200	101.8	80	120	
118	Sn	115	213.592	751670	0.59	200	106.8	80	120	
121	Sb	115	203.062	1023935	1.05	200	101.5	80	120	
137	Ba	115	207.532	356409	0.56	200	103.8	80	120	
205	Tl	209	200.782	4806829	1.29	200	100.4	80	120	
208	Pb	209	203.030	6351809	1.14	200	101.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	935915	0.70	952886	98.22	70	120	
72	Ge	667246	0.89	669007	99.74	70	120	
115	In	6384453	1.84	6352005	100.51	70	120	
209	Bi	13645546	1.06	13029062	104.73	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/26/2016 15:44	Sample Name	1605135-36A SD
Data Batch	160526.b	Comment	SD ICPMS_TSDOD1
Data File Name	149_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	21.668	785	3.65	105.9	102.3	110	90	Good
9	Be	45	0.502	24	27.36	2.6	96.8	110	90	Good
11	B	45	32.794	602	4.00	145.2	113.0	110	90	
23	Na	45	1072.314	845580	1.46	5222.2	102.7	110	90	Good
24	Mg	45	2204.496	819433	0.66	10768.1	102.4	110	90	Good
27	Al	45	11003.777	1488547	0.28	53694.7	102.5	110	90	Good
39	K	45	2171.394	891930	0.78	10813.3	100.4	110	90	Good
44	Ca	45	43113.212	983119	1.31	213434.1	101.0	110	90	Good
47	Ti	45	31.900	4713	1.92	158.5	100.6	110	90	Good
51	V	45	19.704	97094	1.25	98.4	100.1	110	90	Good
52	Cr	45	11.719	69966	0.22	57.5	101.9	110	90	Good
55	Mn	45	49.328	153673	0.79	242.8	101.6	110	90	Good
56	Fe	45	17799.014	86413537	2.18	86554.9	102.8	110	90	Good
59	Co	72	8.824	82126	0.52	44.3	99.6	110	90	Good
60	Ni	72	9.112	23703	0.16	44.5	102.3	110	90	Good
63	Cu	72	1.996	15881	2.64	9.9	101.1	110	90	Good
66	Zn	72	49.653	54517	0.37	237.0	104.8	110	90	Good
75	As	72	4.015	3548	0.84	20.2	99.4	110	90	Good
78	Se	72	0.847	142	26.11	5.3	79.7	110	90	
88	Sr	115	317.587	1375773	0.35	1617.2	98.2	110	90	Good
95	Mo	115	0.431	1697	10.11	2.2	99.5	110	90	Good
107	Ag	115	0.022	284	5.90	0.0	239.5	110	90	
111	Cd	115	0.007	20	16.65	0.1	67.0	110	90	
118	Sn	115	1.037	4561	3.48	5.6	92.7	110	90	Good
121	Sb	115	-0.172	627	19.68	0.0	2141.4	110	90	
137	Ba	115	20.226	35335	0.66	103.1	98.0	110	90	Good
205	Tl	209	0.064	1595	2.42	0.3	101.7	110	90	Good
208	Pb	209	4.629	149519	0.40	23.0	100.7	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	955142	0.48	952886	100.24	70	120	
72	Ge	677781	0.59	669007	101.31	70	120	
115	In	6486878	0.81	6352005	102.12	70	120	
209	Bi	13806473	1.20	13029062	105.97	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/26/2016 16:04	Sample Name	1605135-36A PDS
Data Batch	160526.b	Comment	PDS ICPMS_TSDOD1
Data File Name	159_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	323.767	11286	1.15	105.9	200	108.9	75	125	
9	Be	45	208.548	9581	1.51	2.6	200	103.0	75	125	
11	B	45	352.512	5681	6.10	145.2	200	103.7	75	125	
23	Na	45	10339.963	7693011	0.88	5222.2	5000	102.4	75	125	
24	Mg	45	16108.073	5825241	2.29	10768.1	5000	106.8	75	125	
27	Al	45	59653.689	7851759	2.79	53694.7	5000	119.2	75	125	
39	K	45	16034.340	6092114	3.67	10813.3	5000	104.4	75	125	
44	Ca	45	########	4903282	1.85	213434.1	5000	151.1	75	125	Fail
47	Ti	45	367.016	52745	0.91	158.5	200	104.2	75	125	
51	V	45	308.949	1444947	1.07	98.4	200	105.3	75	125	
52	Cr	45	264.558	1508337	1.16	57.5	200	103.5	75	125	
55	Mn	45	445.504	1349725	0.89	242.8	200	101.3	75	125	
56	Fe	45	94172.375	445013662	1.70	86554.9	5000	152.3	75	125	Fail
59	Co	72	255.398	2270069	0.74	44.3	200	105.5	75	125	
60	Ni	72	249.131	612255	0.79	44.5	200	102.3	75	125	
63	Cu	72	207.455	1423894	0.43	9.9	200	98.8	75	125	
66	Zn	72	439.902	458852	0.73	237.0	200	101.5	75	125	
75	As	72	224.216	181999	0.44	20.2	200	102.0	75	125	
78	Se	72	208.187	10334	1.76	5.3	200	101.4	75	125	
88	Sr	115	1849.136	7643659	1.59	1617.2	200	116.0	75	125	
95	Mo	115	205.248	757361	1.39	2.2	200	101.5	75	125	
107	Ag	115	196.997	2193610	1.40	0.0	200	98.5	75	125	
111	Cd	115	196.344	312840	1.37	0.1	200	98.1	75	125	
118	Sn	115	218.734	746555	0.93	5.6	200	106.6	75	125	
121	Sb	115	210.817	1030981	0.98	0.0	200	105.4	75	125	
137	Ba	115	310.453	517125	0.04	103.1	200	103.7	75	125	
205	Tl	209	196.695	4550809	0.49	0.3	200	98.2	75	125	
208	Pb	209	223.255	6749540	0.99	23.0	200	100.1	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	929763	1.38	952886	97.57	70	120	
72	Ge	647499	0.16	669007	96.79	70	120	
115	In	6192316	1.51	6352005	97.49	70	120	
209	Bi	13186151	0.31	13029062	101.21	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/26/2016 16:18	Sample Name	1605135-36A MS
Data Batch	160526.b	Comment	MS ICPMS_TSDOD1
Data File Name	160_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	342.727	11746	2.29	105.9	200	118.4	80	120	
9	Be	45	204.972	9261	3.05	2.6	200	101.2	80	120	
11	B	45	341.518	5414	6.14	145.2	200	98.2	80	120	
23	Na	45	10630.902	7777776	1.18	5222.2	1000	540.9	80	120	Fail
24	Mg	45	16593.543	5900161	0.22	10768.1	1000	582.5	80	120	Fail
27	Al	45	60734.020	7859307	0.67	53694.7	1000	703.9	80	120	Fail
39	K	45	16652.598	6218772	1.23	10813.3	1000	583.9	80	120	Fail
44	Ca	45	########	5024414	0.66	213434.1	1000	1686.9	80	120	Fail
47	Ti	45	319.634	45173	1.47	158.5	200	80.6	80	120	
51	V	45	307.642	1414933	0.47	98.4	200	104.6	80	120	
52	Cr	45	263.226	1475781	0.21	57.5	200	102.9	80	120	
55	Mn	45	431.652	1285993	0.42	242.8	200	94.4	80	120	
56	Fe	45	86074.534	399932366	1.19	86554.9	1000	-48.0	80	120	Fail
59	Co	72	244.190	2143945	0.72	44.3	200	99.9	80	120	
60	Ni	72	248.385	602971	0.53	44.5	200	101.9	80	120	
63	Cu	72	210.425	1426646	0.08	9.9	200	100.3	80	120	
66	Zn	72	431.529	444628	0.39	237.0	200	97.3	80	120	
75	As	72	220.365	176693	0.66	20.2	200	100.1	80	120	
78	Se	72	201.561	9886	1.54	5.3	200	98.1	80	120	
88	Sr	115	2182.393	8833270	2.16	1617.2	200	282.6	80	120	Fail
95	Mo	115	197.313	712846	0.40	2.2	200	97.6	80	120	
107	Ag	115	198.645	2165725	0.38	0.0	200	99.3	80	120	
111	Cd	115	199.234	310796	0.46	0.1	200	99.6	80	120	
118	Sn	115	210.513	703645	0.21	5.6	200	102.5	80	120	
121	Sb	115	62.189	298805	0.60	0.0	200	31.1	80	120	Fail
137	Ba	115	326.277	532167	0.48	103.1	200	111.6	80	120	
205	Tl	209	201.190	4564952	0.62	0.3	200	100.4	80	120	
208	Pb	209	227.568	6747004	0.23	23.0	200	102.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	914337	1.16	952886	95.95	70	120	
72	Ge	639601	0.27	669007	95.60	70	120	
115	In	6063066	1.09	6352005	95.45	70	120	
209	Bi	12931621	0.14	13029062	99.25	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/26/2016 16:20	Sample Name	1605135-36A MSD
Data Batch	160526.b	Comment	MSD ICPMS_TSDOD1
Data File Name	161_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	344.881	11912	1.10	105.9	200	119.5	80	120	
9	Be	45	209.354	9531	0.65	2.6	200	103.4	80	120	
11	B	45	362.376	5782	4.70	145.2	200	108.6	80	120	
23	Na	45	11045.210	8141188	2.60	5222.2	1000	582.3	80	120	Fail
24	Mg	45	17343.412	6214284	1.31	10768.1	1000	657.5	80	120	Fail
27	Al	45	66354.605	8652574	0.77	53694.7	1000	1266.0	80	120	Fail
39	K	45	17732.396	6669733	3.80	10813.3	1000	691.9	80	120	Fail
44	Ca	45	########	5423396	1.73	213434.1	1000	3327.2	80	120	Fail
47	Ti	45	327.713	46666	1.97	158.5	200	84.6	80	120	
51	V	45	319.261	1479464	0.35	98.4	200	110.4	80	120	
52	Cr	45	270.098	1525889	1.14	57.5	200	106.3	80	120	
55	Mn	45	453.296	1360793	0.71	242.8	200	105.2	80	120	
56	Fe	45	97726.912	457580435	3.35	86554.9	1000	1117.2	80	120	Fail
59	Co	72	249.999	2199706	1.19	44.3	200	102.8	80	120	
60	Ni	72	253.342	616312	0.42	44.5	200	104.4	80	120	
63	Cu	72	213.276	1449051	0.46	9.9	200	101.7	80	120	
66	Zn	72	457.375	472242	0.30	237.0	200	110.2	80	120	
75	As	72	225.521	181209	0.17	20.2	200	102.7	80	120	
78	Se	72	207.017	10173	1.46	5.3	200	100.9	80	120	
88	Sr	115	1742.673	7145047	0.88	1617.2	200	62.7	80	120	Fail
95	Mo	115	198.143	725115	0.29	2.2	200	98.0	80	120	
107	Ag	115	196.804	2173410	1.40	0.0	200	98.4	80	120	
111	Cd	115	197.267	311714	0.96	0.1	200	98.6	80	120	
118	Sn	115	208.960	707487	0.17	5.6	200	101.7	80	120	
121	Sb	115	63.053	306865	0.69	0.0	200	31.5	80	120	Fail
137	Ba	115	307.322	507740	0.87	103.1	200	102.1	80	120	
205	Tl	209	200.765	4555916	1.12	0.3	200	100.2	80	120	
208	Pb	209	229.642	6809735	0.35	23.0	200	103.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	921261	0.57	952886	96.68	70	120	
72	Ge	640966	0.37	669007	95.81	70	120	
115	In	6141122	0.43	6352005	96.68	70	120	
209	Bi	12934882	1.21	13029062	99.28	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/26/2016 16:22	Sample Name	CCV6-160526
Data Batch	160526.b	Comment	CCV ICPMS_TW
Data File Name	162_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	229.646	7971	1.44	200	114.8	90	110	Fail
9	Be	45	216.615	9906	0.57	200	108.3	90	110	
11	B	45	223.237	3603	1.43	200	111.6	90	110	Fail
23	Na	45	5120.261	3805981	0.58	5000	102.4	90	110	
24	Mg	45	5120.144	1843214	0.49	5000	102.4	90	110	
27	Al	45	4996.440	655402	0.24	5000	99.9	90	110	
39	K	45	4993.302	1922365	1.20	5000	99.9	90	110	
44	Ca	45	4738.934	105199	0.85	5000	94.8	90	110	
47	Ti	45	200.610	28699	0.58	200	100.3	90	110	
51	V	45	204.775	954115	0.77	200	102.4	90	110	
52	Cr	45	203.694	1156201	0.40	200	101.8	90	110	
55	Mn	45	206.545	622930	0.22	200	103.3	90	110	
56	Fe	45	5204.690	24488854	2.08	5000	104.1	90	110	
59	Co	72	206.018	1883460	1.04	200	103.0	90	110	
60	Ni	72	204.428	516781	1.47	200	102.2	90	110	
63	Cu	72	205.548	1451120	1.12	200	102.8	90	110	
66	Zn	72	201.987	216888	1.60	200	101.0	90	110	
75	As	72	200.612	167499	0.57	200	100.3	90	110	
78	Se	72	201.176	10274	1.06	200	100.6	90	110	
88	Sr	115	198.250	834087	0.31	200	99.1	90	110	
95	Mo	115	201.653	756908	0.72	200	100.8	90	110	
107	Ag	115	201.794	2285827	0.19	200	100.9	90	110	
111	Cd	115	201.636	326798	0.43	200	100.8	90	110	
118	Sn	115	204.673	710757	0.79	200	102.3	90	110	
121	Sb	115	197.813	984275	0.70	200	98.9	90	110	
137	Ba	115	203.143	344258	0.41	200	101.6	90	110	
205	Tl	209	193.959	4621501	0.74	200	97.0	90	110	
208	Pb	209	197.715	6156443	0.52	200	98.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	925407	0.53	952886	97.12	70	120	
72	Ge	665982	0.69	669007	99.55	70	120	
115	In	6299098	0.93	6352005	99.17	70	120	
209	Bi	13581872	1.16	13029062	104.24	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/26/2016 16:26	Sample Name	LCVL6-160526
Data Batch	160526.b	Comment	LCVLICPMS_TW
Data File Name	164LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.092	407	9.87	10	110.9	70	130	
9	Be	45	1.221	58	10.33	1	122.1	70	130	
11	B	45	31.070	574	12.90	20	155.3	70	130	Fail
23	Na	45	119.785	120254	0.77	100	119.8	70	130	
24	Mg	45	104.410	39415	1.09	100	104.4	70	130	
27	Al	45	99.367	14491	2.73	100	99.4	70	130	
39	K	45	97.597	89326	0.81	100	97.6	70	130	
44	Ca	45	99.911	2859	3.32	100	99.9	70	130	
47	Ti	45	4.641	689	5.44	5	92.8	70	130	
51	V	45	0.998	7374	2.34	1	99.8	70	130	
52	Cr	45	5.167	31637	0.74	5	103.3	70	130	
55	Mn	45	5.171	16254	1.73	5	103.4	70	130	
56	Fe	45	102.178	505081	0.57	100	102.2	70	130	
59	Co	72	5.196	48594	1.28	5	103.9	70	130	
60	Ni	72	5.187	13670	2.08	5	103.7	70	130	
63	Cu	72	5.029	37822	1.82	5	100.6	70	130	
66	Zn	72	5.377	6237	2.09	5	107.5	70	130	
75	As	72	5.015	4417	1.40	5	100.3	70	130	
78	Se	72	4.965	355	8.71	5	99.3	70	130	
88	Sr	115	5.007	21957	1.08	5	100.1	70	130	
95	Mo	115	4.842	18640	0.38	5	96.8	70	130	
107	Ag	115	2.032	23588	1.96	2	101.6	70	130	
111	Cd	115	1.047	1746	3.40	1	104.7	70	130	
118	Sn	115	5.176	19238	2.23	5	103.5	70	130	
121	Sb	115	1.864	10982	0.72	2	93.2	70	130	
137	Ba	115	5.111	8905	2.42	5	102.2	70	130	
205	Tl	209	0.977	23792	3.16	1	97.7	70	130	
208	Pb	209	0.927	32504	0.83	1	92.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	955494	0.34	952886	100.27	70	120	
72	Ge	680849	0.33	669007	101.77	70	120	
115	In	6450795	2.26	6352005	101.56	70	120	
209	Bi	13858414	0.62	13029062	106.37	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/26/2016 16:28	Sample Name	CCB6-160526
Data Batch	160526.b	Comment	CCB ICPMS_TW
Data File Name	165_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.177	16	31.3	2	5	
9	Be	45	0.028	2	132.3	0.4	0.3	
11	B	45	6.866	178	2.9	10	10	
23	Na	45	15.303	40587	0.9	50	100	
24	Mg	45	-0.472	443	12.5	50	100	
27	Al	45	-1.003	917	3.5	50	10	
39	K	45	-3.166	50224	0.2	50	100	
44	Ca	45	0.807	598	9.2	50	100	
47	Ti	45	0.000	3	100.1	4	3	
51	V	45	-0.080	2199	2.1	4	3	
52	Cr	45	-0.006	1351	10.1	2	2	
55	Mn	45	0.020	217	13.7	2	3	
56	Fe	45	0.546	11528	4.3	50	50	
59	Co	72	0.006	92	24.1	2	3	
60	Ni	72	-0.014	239	14.8	2	3	
63	Cu	72	-0.057	1153	5.6	2	2	
66	Zn	72	0.044	393	7.3	4	2	
75	As	72	-0.037	109	10.2	2	2	
78	Se	72	-0.191	89	4.2	1	2	
88	Sr	115	-0.003	398	6.5	4	3	
95	Mo	115	0.008	64	57.7	2	2	
107	Ag	115	0.024	316	11.7	0.4	1	
111	Cd	115	0.000	8	49.5	0.4	0.3	
118	Sn	115	-0.055	664	7.1	4	3	
121	Sb	115	-0.154	722	8.8	2	0.8	
137	Ba	115	0.002	46	59.1	2	3	
205	Tl	209	0.006	191	5.3	2	0.5	
208	Pb	209	-0.057	1253	6.0	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	953792	0.51	952886	100.10	70	120	
72	Ge	683405	0.47	669007	102.15	70	120	
115	In	6525148	0.86	6352005	102.73	70	120	
209	Bi	13799301	0.94	13029062	105.91	70	120	

Sample Report

Date Acquired	5/26/16 4:38 PM	Sample Name	1605144-01A
Data Batch	160526.b	Comment	SAMPICPMS_TSDOD1
Data File Name	170SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	75.647	2645	1.71	2000	>RL
9	Be	45	2.500	116	19.22	2000	>RL
11	B	45	93.726	1557	4.14	2000	>RL
23	Na	45	2645.554	1989962	0.67	25000	>RL
24	Mg	45	15405.170	5572533	1.99	25000	>RL
27	Al	45	75093.226	9885582	1.29	10000	OUTCAL
39	K	45	15274.454	5806609	2.49	25000	>RL
44	Ca	45	77433.696	1718851	0.79	25000	OUTCAL
47	Ti	45	253.391	36436	3.09	2000	>RL
51	V	45	124.465	583810	0.99	2000	>RL
52	Cr	45	64.384	368213	0.77	2000	>RL
55	Mn	45	624.344	1892117	0.78	2000	>RL
56	Fe	45	72207.251	341323978	1.75	10000	OUTCAL
59	Co	72	25.417	227503	0.61	2000	>RL
60	Ni	72	42.575	105565	1.91	2000	>RL
63	Cu	72	37.994	263800	1.11	2000	>RL
66	Zn	72	272.866	286705	0.71	2000	>RL
75	As	72	41.507	34033	0.86	2000	>RL
78	Se	72	6.522	417	4.00	2000	>RL
88	Sr	115	448.374	1846637	0.66	2000	>RL
95	Mo	115	2.357	8694	2.42	2000	>RL
107	Ag	115	0.193	2172	6.93	500	
111	Cd	115	0.762	1217	7.12	2000	>RL
118	Sn	115	6.052	21370	0.77	2000	>RL
121	Sb	115	3.323	17599	1.56	500	>RL
137	Ba	115	739.885	1227692	0.86	2000	>RL
205	Tl	209	0.604	13966	0.99	2000	
208	Pb	209	281.173	8463040	0.60	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	930048	1.04	952886	97.60	70	120	
72	Ge	651956	0.44	669007	97.45	70	120	
115	In	6168113	1.37	6352005	97.10	70	120	
209	Bi	13131275	1.26	13029062	100.78	70	120	

Sample Report

Date Acquired	5/26/16 4:40 PM	Sample Name	1605144-02A
Data Batch	160526.b	Comment	SAMPICPMS_TSDOD1
Data File Name	171SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	86.900	2976	3.13	2000	>RL
9	Be	45	3.096	140	10.30	2000	>RL
11	B	45	116.258	1878	2.84	2000	>RL
23	Na	45	8158.239	5956808	1.92	25000	>RL
24	Mg	45	17904.316	6348014	2.82	25000	>RL
27	Al	45	79092.531	10204635	1.33	10000	OUTCAL
39	K	45	15232.669	5675544	1.57	25000	>RL
44	Ca	45	108975.229	2370612	0.83	25000	OUTCAL
47	Ti	45	348.256	49072	1.49	2000	>RL
51	V	45	112.062	515397	0.67	2000	>RL
52	Cr	45	69.466	389236	1.04	2000	>RL
55	Mn	45	542.229	1610521	0.69	2000	>RL
56	Fe	45	68934.757	319309472	1.61	10000	OUTCAL
59	Co	72	23.040	202030	1.13	2000	>RL
60	Ni	72	42.913	104233	0.41	2000	>RL
63	Cu	72	19.726	134867	0.15	2000	>RL
66	Zn	72	190.528	196205	0.49	2000	>RL
75	As	72	20.162	16261	1.29	2000	>RL
78	Se	72	5.754	372	6.24	2000	>RL
88	Sr	115	557.575	2305982	0.80	2000	>RL
95	Mo	115	1.616	5997	4.32	2000	
107	Ag	115	0.128	1462	2.98	500	
111	Cd	115	0.433	698	3.46	2000	>RL
118	Sn	115	7.156	25224	0.22	2000	>RL
121	Sb	115	0.157	2206	1.14	500	
137	Ba	115	542.699	904248	0.90	2000	>RL
205	Tl	209	0.613	14147	2.99	2000	
208	Pb	209	32.609	983159	1.00	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	911526	0.97	952886	95.66	70	120	
72	Ge	638661	0.48	669007	95.46	70	120	
115	In	6193703	0.95	6352005	97.51	70	120	
209	Bi	13118041	1.10	13029062	100.68	70	120	

Sample Report

Date Acquired	5/26/16 4:42 PM	Sample Name	1605144-03A
Data Batch	160526.b	Comment	SAMPICPMS_TSDOD1
Data File Name	172SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	86.565	3008	1.86	2000	>RL
9	Be	45	2.904	133	16.52	2000	>RL
11	B	45	118.342	1938	4.31	2000	>RL
23	Na	45	15226.228	11251925	2.04	25000	>RL
24	Mg	45	18298.976	6579742	1.35	25000	>RL
27	Al	45	66192.541	8662147	2.67	10000	OUTCAL
39	K	45	12767.271	4832893	0.91	25000	>RL
44	Ca	45	206074.320	4546480	0.75	25000	OUTCAL
47	Ti	45	364.750	52130	0.92	2000	>RL
51	V	45	113.748	530606	0.45	2000	>RL
52	Cr	45	80.808	459074	0.31	2000	>RL
55	Mn	45	438.774	1321952	0.49	2000	>RL
56	Fe	45	67831.098	318738583	0.35	10000	OUTCAL
59	Co	72	23.149	205399	0.87	2000	>RL
60	Ni	72	50.488	124048	1.05	2000	>RL
63	Cu	72	15.234	105742	0.43	2000	>RL
66	Zn	72	161.149	167988	0.42	2000	>RL
75	As	72	18.971	15492	1.13	2000	>RL
78	Se	72	5.597	368	4.54	2000	>RL
88	Sr	115	591.155	2423422	0.15	2000	>RL
95	Mo	115	2.590	9504	1.84	2000	>RL
107	Ag	115	0.058	668	14.42	500	
111	Cd	115	0.460	733	8.22	2000	>RL
118	Sn	115	5.071	17959	0.47	2000	>RL
121	Sb	115	-0.039	1239	7.07	500	
137	Ba	115	905.942	1496430	1.04	2000	>RL
205	Tl	209	0.491	11161	1.82	2000	
208	Pb	209	25.198	747721	1.11	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	924551	0.21	952886	97.03	70	120	
72	Ge	646315	0.57	669007	96.61	70	120	
115	In	6140057	1.22	6352005	96.66	70	120	
209	Bi	12898683	1.01	13029062	99.00	70	120	

Sample Report

Date Acquired	5/26/16 4:44 PM	Sample Name	1605144-04A
Data Batch	160526.b	Comment	SAMPICPMS_TSDOD1
Data File Name	173SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	115.202	4134	3.36	2000	>RL
9	Be	45	4.835	229	4.80	2000	>RL
11	B	45	181.517	3038	5.30	2000	>RL
23	Na	45	9047.551	6923127	0.60	25000	>RL
24	Mg	45	20518.876	7625283	2.93	25000	>RL
27	Al	45	69828.903	9445959	0.32	10000	OUTCAL
39	K	45	23665.455	9216225	0.43	25000	>RL
44	Ca	45	69433.866	1583824	0.75	25000	OUTCAL
47	Ti	45	343.739	50785	1.50	2000	>RL
51	V	45	107.376	517874	0.91	2000	>RL
52	Cr	45	85.964	504716	1.05	2000	>RL
55	Mn	45	389.728	1213704	0.65	2000	>RL
56	Fe	45	119775.254	581829097	1.99	10000	OUTCAL
59	Co	72	42.366	385945	0.96	2000	>RL
60	Ni	72	62.611	157882	0.39	2000	>RL
63	Cu	72	7.631	55138	1.00	2000	>RL
66	Zn	72	245.907	263007	0.52	2000	>RL
75	As	72	19.589	16420	0.49	2000	>RL
78	Se	72	8.182	509	4.19	2000	>RL
88	Sr	115	347.082	1453671	0.06	2000	>RL
95	Mo	115	1.084	4081	4.12	2000	
107	Ag	115	0.043	519	12.61	500	
111	Cd	115	0.105	178	6.03	2000	
118	Sn	115	5.785	20813	1.79	2000	>RL
121	Sb	115	-0.155	691	14.58	500	
137	Ba	115	366.637	618641	0.30	2000	>RL
205	Tl	209	0.324	7331	1.43	2000	
208	Pb	209	21.815	644665	0.05	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	955726	0.85	952886	100.30	70	120	
72	Ge	663593	0.91	669007	99.19	70	120	
115	In	6273929	2.31	6352005	98.77	70	120	
209	Bi	12837913	0.31	13029062	98.53	70	120	

Sample Report

Date Acquired	5/26/16 4:46 PM	Sample Name	1605144-05A
Data Batch	160526.b	Comment	SAMPICPMS_TSDOD1
Data File Name	174SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	66.592	2359	3.23	2000	>RL
9	Be	45	2.370	111	20.31	2000	>RL
11	B	45	97.633	1640	8.75	2000	>RL
23	Na	45	2673.777	2035904	0.42	25000	>RL
24	Mg	45	12965.809	4748362	0.12	25000	>RL
27	Al	45	59906.080	7984660	0.91	10000	OUTCAL
39	K	45	12721.298	4904633	0.85	25000	>RL
44	Ca	45	72684.774	1633593	0.73	25000	OUTCAL
47	Ti	45	248.687	36200	1.13	2000	>RL
51	V	45	95.934	456166	0.32	2000	>RL
52	Cr	45	54.880	317972	0.68	2000	>RL
55	Mn	45	584.401	1793155	0.65	2000	>RL
56	Fe	45	59595.776	285197126	1.07	10000	OUTCAL
59	Co	72	21.942	200902	0.85	2000	>RL
60	Ni	72	36.845	93487	0.59	2000	>RL
63	Cu	72	37.883	269046	0.39	2000	>RL
66	Zn	72	309.382	332467	1.28	2000	>RL
75	As	72	32.453	27249	0.66	2000	>RL
78	Se	72	5.082	354	5.19	2000	>RL
88	Sr	115	398.195	1655872	0.49	2000	>RL
95	Mo	115	1.942	7238	3.15	2000	
107	Ag	115	0.253	2861	3.50	500	
111	Cd	115	0.912	1469	4.22	2000	>RL
118	Sn	115	5.342	19144	2.18	2000	>RL
121	Sb	115	1.690	9750	2.74	500	
137	Ba	115	738.261	1236837	0.05	2000	>RL
205	Tl	209	0.506	11742	1.79	2000	
208	Pb	209	132.665	4005554	0.29	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	941617	0.52	952886	98.82	70	120	
72	Ge	666894	0.59	669007	99.68	70	120	
115	In	6228389	1.57	6352005	98.05	70	120	
209	Bi	13166499	1.39	13029062	101.05	70	120	

Sample Report

Date Acquired	5/26/16 4:48 PM	Sample Name	1605144-06A
Data Batch	160526.b	Comment	SAMPICPMS_TSDOD1
Data File Name	175SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	88.171	3103	2.69	2000	>RL
9	Be	45	2.918	136	6.65	2000	>RL
11	B	45	108.475	1806	9.50	2000	>RL
23	Na	45	7807.030	5858585	1.99	25000	>RL
24	Mg	45	18055.401	6576903	0.95	25000	>RL
27	Al	45	82761.899	10972144	3.15	10000	OUTCAL
39	K	45	15569.930	5959773	0.31	25000	>RL
44	Ca	45	120580.931	2695346	0.67	25000	OUTCAL
47	Ti	45	337.014	48799	1.17	2000	>RL
51	V	45	118.347	559139	1.40	2000	>RL
52	Cr	45	72.494	417360	0.53	2000	>RL
55	Mn	45	589.304	1798592	0.97	2000	>RL
56	Fe	45	69474.628	330705774	2.50	10000	OUTCAL
59	Co	72	24.630	221052	0.53	2000	>RL
60	Ni	72	45.439	112953	0.34	2000	>RL
63	Cu	72	20.691	144730	0.78	2000	>RL
66	Zn	72	194.269	204763	0.42	2000	>RL
75	As	72	20.222	16694	2.16	2000	>RL
78	Se	72	5.961	391	9.96	2000	>RL
88	Sr	115	586.922	2416127	0.91	2000	>RL
95	Mo	115	1.964	7246	1.54	2000	
107	Ag	115	0.109	1242	4.36	500	
111	Cd	115	0.403	647	5.81	2000	>RL
118	Sn	115	5.503	19499	2.47	2000	>RL
121	Sb	115	0.312	2949	6.36	500	
137	Ba	115	566.336	939314	1.51	2000	>RL
205	Tl	209	0.630	14660	3.01	2000	
208	Pb	209	42.021	1275956	0.75	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	936677	0.76	952886	98.30	70	120	
72	Ge	653705	0.05	669007	97.71	70	120	
115	In	6165872	1.10	6352005	97.07	70	120	
209	Bi	13219268	0.65	13029062	101.46	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/26/2016 16:50		Sample Name	CCV7-160526
Data Batch	160526.b		Comment	CCV ICPMS_TW
Data File Name	176_CCV.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	228.449	7917	0.49	200	114.2	90	110	Fail
9	Be	45	211.777	9672	2.00	200	105.9	90	110	
11	B	45	214.519	3459	0.39	200	107.3	90	110	
23	Na	45	5065.308	3760166	1.02	5000	101.3	90	110	
24	Mg	45	5011.370	1801342	0.76	5000	100.2	90	110	
27	Al	45	4929.455	645678	0.05	5000	98.6	90	110	
39	K	45	4937.024	1898474	0.64	5000	98.7	90	110	
44	Ca	45	4668.222	103484	0.60	5000	93.4	90	110	
47	Ti	45	204.003	29142	2.43	200	102.0	90	110	
51	V	45	205.291	955094	0.29	200	102.6	90	110	
52	Cr	45	205.633	1165549	0.78	200	102.8	90	110	
55	Mn	45	208.664	628391	0.20	200	104.3	90	110	
56	Fe	45	5165.716	24267992	0.43	5000	103.3	90	110	
59	Co	72	207.551	1896717	0.45	200	103.8	90	110	
60	Ni	72	205.207	518542	0.73	200	102.6	90	110	
63	Cu	72	205.887	1452922	0.25	200	102.9	90	110	
66	Zn	72	200.378	215074	0.21	200	100.2	90	110	
75	As	72	200.085	167001	1.28	200	100.0	90	110	
78	Se	72	199.696	10196	0.80	200	99.8	90	110	
88	Sr	115	194.319	838875	0.99	200	97.2	90	110	
95	Mo	115	198.470	764390	0.71	200	99.2	90	110	
107	Ag	115	196.898	2288442	0.95	200	98.4	90	110	
111	Cd	115	197.845	328998	0.16	200	98.9	90	110	
118	Sn	115	200.899	715917	1.03	200	100.4	90	110	
121	Sb	115	195.365	997436	0.26	200	97.7	90	110	
137	Ba	115	198.819	345682	0.18	200	99.4	90	110	
205	Tl	209	193.879	4644626	0.87	200	96.9	90	110	
208	Pb	209	197.700	6188723	0.47	200	98.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	924113	1.22	952886	96.98	70	120	
72	Ge	665727	0.38	669007	99.51	70	120	
115	In	6464774	2.37	6352005	101.78	70	120	
209	Bi	13655478	1.94	13029062	104.81	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/26/2016 16:54		Sample Name	LCVL7-160526
Data Batch	160526.b		Comment	LCVLICPMS_TW
Data File Name	178LCCV.d		Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.294	402	4.09	10	112.9	70	130	
9	Be	45	1.076	50	25.53	1	107.6	70	130	
11	B	45	27.786	506	9.61	20	138.9	70	130	Fail
23	Na	45	116.221	114147	0.69	100	116.2	70	130	
24	Mg	45	101.873	37362	1.18	100	101.9	70	130	
27	Al	45	98.687	13984	1.33	100	98.7	70	130	
39	K	45	96.263	86246	0.36	100	96.3	70	130	
44	Ca	45	95.930	2688	3.40	100	95.9	70	130	
47	Ti	45	4.912	708	4.38	5	98.2	70	130	
51	V	45	0.919	6795	1.25	1	91.9	70	130	
52	Cr	45	5.093	30300	0.95	5	101.9	70	130	
55	Mn	45	5.077	15499	2.62	5	101.5	70	130	
56	Fe	45	102.796	493414	0.76	100	102.8	70	130	
59	Co	72	5.167	47418	0.40	5	103.3	70	130	
60	Ni	72	5.187	13416	1.43	5	103.7	70	130	
63	Cu	72	5.003	36926	2.00	5	100.1	70	130	
66	Zn	72	5.090	5810	7.09	5	101.8	70	130	
75	As	72	5.067	4378	3.37	5	101.3	70	130	
78	Se	72	4.748	338	16.41	5	95.0	70	130	
88	Sr	115	4.693	21250	1.58	5	93.9	70	130	
95	Mo	115	4.791	19007	1.21	5	95.8	70	130	
107	Ag	115	1.943	23250	2.84	2	97.2	70	130	
111	Cd	115	0.903	1553	3.16	1	90.3	70	130	
118	Sn	115	4.777	18368	1.17	5	95.5	70	130	
121	Sb	115	1.710	10513	3.31	2	85.5	70	130	
137	Ba	115	4.845	8703	2.95	5	96.9	70	130	
205	Tl	209	0.962	23168	0.27	1	96.2	70	130	
208	Pb	209	0.936	32409	0.21	1	93.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	927901	0.19	952886	97.38	70	120	
72	Ge	668100	0.95	669007	99.86	70	120	
115	In	6651507	2.97	6352005	104.72	70	120	
209	Bi	13702069	1.15	13029062	105.17	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/26/2016 17:06	Sample Name	CCB7-160526
Data Batch	160526.b	Comment	CCB ICPMS_TW
Data File Name	184_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.076	12	41.7	2	5	
9	Be	45	0.008	1	173.2	0.4	0.3	
11	B	45	3.085	112	19.8	10	10	
23	Na	45	13.475	37943	1.8	50	100	
24	Mg	45	-0.627	373	5.6	50	100	
27	Al	45	-1.097	876	8.0	50	10	
39	K	45	-5.687	47674	1.9	50	100	
44	Ca	45	-3.544	484	7.5	50	100	
47	Ti	45	0.024	7	132.3	4	3	
51	V	45	0.004	2519	1.8	4	3	
52	Cr	45	0.010	1396	6.8	2	2	
55	Mn	45	0.010	179	14.0	2	3	
56	Fe	45	0.349	10237	4.8	50	50	
59	Co	72	0.002	49	20.8	2	3	
60	Ni	72	-0.014	231	8.7	2	3	
63	Cu	72	-0.074	1001	6.3	2	2	
66	Zn	72	0.030	367	6.4	4	2	
75	As	72	-0.021	119	5.0	2	2	
78	Se	72	-0.235	84	21.7	1	2	
88	Sr	115	0.013	451	0.9	4	3	
95	Mo	115	-0.001	28	68.2	2	2	
107	Ag	115	0.011	156	23.5	0.4	1	
111	Cd	115	-0.003	2	86.6	0.4	0.3	
118	Sn	115	-0.145	330	24.8	4	3	
121	Sb	115	-0.181	568	12.1	2	0.8	
137	Ba	115	0.014	64	33.7	2	3	
205	Tl	209	0.000	50	17.6	2	0.5	
208	Pb	209	-0.070	828	3.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	923386	0.91	952886	96.90	70	120	
72	Ge	663388	1.04	669007	99.16	70	120	
115	In	6348906	1.70	6352005	99.95	70	120	
209	Bi	13541688	0.92	13029062	103.93	70	120	

Pmoist
For

DHL Work Order
1605144

PMOIST_160519A
For

DHL Work Order
1605144

DHL Analytical, Inc.

Run ID: **PMOIST_160519A** **Run No.:** 85919

Analytical Run Date: 5/19/2016 **InstrumentID:** Pmoist

Analyst: Will Boston

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
1605071-32A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605071-38A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605098-35A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605098-38A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605144-17A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605144-18A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605144-19A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605144-20A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605144-21A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605148-01A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605185-01A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605185-02A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605185-03A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605185-04A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605185-05A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605187-01A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605187-02A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605187-03A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605187-04A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605187-05A	1	PMOIST	SAMP	75243	5/20/2016 9:12:00 AM		
1605187-01A DUP	1	PMOIST	DUP	75243	5/20/2016 9:12:00 AM		

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/19/2016 2:01:48 PM**
Digestion: **Start: 5/19/2016 4:51:00 PM / Stop: 5/20/2016 9:12:00 AM**
Prep End Date: **5/20/2016 10:30:00 AM**

Prep Batch **75243** Prep Code: **PMOIST_PREP** Technician: **Will Boston**

Prep Factor Units: **mL/g**

Equipment List

Oven #2
Balance #20
Thermometer # 81

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605071-32A	Soil		10	10	1.000	1	of	1	
1605071-38A	Soil		10	10	1.000	1	of	1	
1605098-35A	Soil		10	10	1.000	1	of	1	
1605098-38A	Soil		10	10	1.000	1	of	1	
1605144-17A	Soil		10	10	1.000	1	of	1	
1605144-18A	Soil		10	10	1.000	1	of	1	
1605144-19A	Soil		10	10	1.000	1	of	1	
1605144-20A	Soil		10	10	1.000	1	of	1	
1605144-21A	Soil		10	10	1.000	1	of	1	
1605148-01A	Soil		10	10	1.000	1	of	1	
1605185-01A	Soil		10	10	1.000		of	2	
1605185-02A	Soil		10	10	1.000		of	2	
1605185-03A	Soil		10	10	1.000		of	2	
1605185-04A	Soil		10	10	1.000		of	2	
1605185-05A	Soil		10	10	1.000		of	2	
1605187-01A	Soil		10	10	1.000	1	of	1	
1605187-01A DUP	Soil		10	10	1.000		of		
1605187-02A	Soil		10	10	1.000	1	of	1	
1605187-03A	Soil		10	10	1.000	1	of	1	
1605187-04A	Soil		10	10	1.000	1	of	1	
1605187-05A	Soil		10	10	1.000	1	of	1	

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/19/2016 2:01:48 PM**
Digestion: **Start: 5/19/2016 4:51:00 PM / Stop: 5/20/2016 9:12:00 AM**
Prep End Date: **5/20/2016 10:30:00 AM**

Prep Batch **75243** Prep Code: **PMOIST_PREP** Technician: **Will Boston**

Prep Factor Units: **mL/g**

Equipment List
Oven #2
Balance #20
Thermometer # 81

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605071-32A	Soil		10	10	1.000	1	of	1	
1605071-38A	Soil		10	10	1.000	1	of	1	
1605098-35A	Soil		10	10	1.000	1	of	1	
1605098-38A	Soil		10	10	1.000	1	of	1	
1605144-17A	Soil		10	10	1.000	1	of	1	
1605144-18A	Soil		10	10	1.000	1	of	1	
1605144-19A	Soil		10	10	1.000	1	of	1	
1605144-20A	Soil		10	10	1.000	1	of	1	
1605144-21A	Soil		10	10	1.000	1	of	1	
1605148-01A	Soil		10	10	1.000	1	of	1	
1605185-01A	Soil		10	10	1.000		of	2	
1605185-02A	Soil		10	10	1.000		of	2	
1605185-03A	Soil		10	10	1.000		of	2	
1605185-04A	Soil		10	10	1.000		of	2	
1605185-05A	Soil		10	10	1.000		of	2	
1605187-01A	Soil		10	10	1.000	1	of	1	
1605187-01A DUP	Soil		10	10	1.000		of		
1605187-02A	Soil		10	10	1.000	1	of	1	
1605187-03A	Soil		10	10	1.000	1	of	1	
1605187-04A	Soil		10	10	1.000	1	of	1	
1605187-05A	Soil		10	10	1.000	1	of	1	

REVIEWED BY
By Janice Whitt at 4:09:41 PM, 5/20/2016

Percent Moisture - Bench Sheet

Enter ALL weights into the DHL LIMS - Single Analyte Worksheet

Method Requirements: Samples dried to constant weight (12-16 hours) at oven temperature of 110 ± 5°C

Constant Weight is achieved if 2nd weight is <0.1% of 1st weight

[(Final Weight - 2nd Weight|) / (Final Weight|)] x 100%

RUN ID:	160519 PMOIST A				
Date Started:	05/19/2016	Date Ended:	05-20-16	Date Ended:	
Time Started:	16:51	Time Ended:	09:12	Time Ended:	
Analyst Start:	WB	Analyst End:	WB	Analyst End:	
Balance #	20	Balance #	20	Balance #	
Oven #	FISHER-2	Thermometer #	81	**2nd Weighing - if 1st dry is <12 hrs**	
		Correction Factor	0.0		
Initial Temperature	107.9°C	Final Temperature	107.8°C		

Sample ID	**Tare Wt (g)**	**Tare + Sample (g)**	**Final Wt (g)**	**2nd Weight**	**<0.1% (Y/N)**
SampID					
1605071-32A	1.01	12.55	9.12		
1605071-38A	0.98	13.25	11.70		
1605098-35A	1.03	12.36	11.60		
1605098-38A	1.01	12.01	10.95		
1605144-17A	0.99	12.80	10.36		
1605144-18A	1.02	12.46	10.34		
1605144-19A	1.02	12.69	12.09		
1605144-20A	1.02	12.37	9.88		
1605144-21A	1.02	12.40	10.06		
1605148-01A	1.01	12.54	10.04		
1605185-01A	1.02	13.23	10.53		
1605185-02A	1.01	12.44	9.86		
1605185-03A	1.02	13.00	10.55		
1605185-04A	0.99	13.33	10.70		
1605185-05A	1.00	13.32	10.57		
1605187-01A	1.00	13.44	13.05		
1605187-02A	1.00	12.23	11.98		
1605187-03A	1.01	13.00	12.75		
1605187-04A	1.02	12.58	12.36		
1605187-05A	1.01	12.39	12.16		
1605187-01A DUP	1.02	13.69	13.30		

Data Folder Contents	Review Items	Check	2nd Level Review
Hard Copies MUST match LIMS data			
1. Is the Prep Batch Report included?	Prep Start/End Dates SampAmt=10, FinVol=10 20 field samples/batch, 1 DUP/batch	X	
2. Is the Run Log included?	Test Code, Sample Type Batch ID, and Analysis Date/Time	X	x
3. Is PMOIST bench sheet included?	Bench sheet vs. LIMS - Single Analyte Worksheet	X	
4. Is the RPD for the sample DUP ≤30%?	If RPD fails criteria, then state reason below:	X	

Analyst: WMBel[illegible] 05-20-16 Date:

Second-Level Review: Janice Whitt Date: 5/20/2016

F:\IC\Pmoist\PMOIST 2016\160519 PMOIST A

REVIEWED BY
By Janice Whitt at 4:13:23 PM, 5/20/2016

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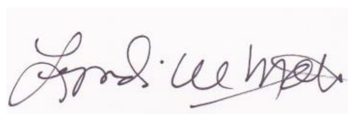

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	□□ □□□ □110□6□8 □□	□□□□	□□	□□
	□□02□20160□1□□	□□□□	□□	□□

/

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DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: *www.dhlanalytical.com*
E-Mail: *login@dhlanalytical.com*

nelap ACCREDITING AUTHORITY

DEPARTMENT OF DEFENSE UNITED STATES OF AMERICA

№ 72213

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 18275 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: 7-19-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607219
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon 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

ANALYSES

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESERVED	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 X 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 X	PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	CHLORIDE ☐ ANIONS ___ ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ FLASHPOINT ☐ DGAS ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐				FIELD NOTES
SGR-DU190(0-2)-A	01	7-19-16	1050	S	Bag	1				X						X					X										
SGR-DU190(2-4)-A	02	7-19-16	1052	S	Bag	1				X						X					X										
SGR-DU190(4-6)-A	03	7-19-16	1058	S	Bag	1				X						X					X										
SGR-DU190(6-8)-A	04	7-19-16	1102	S	Bag	1				X						X					X										
SGR-DU190(0-2)-B	05	7-19-16	1111	S	Bag	1				X						X					X										
SGR-DU190(2-4)-B	06	7-19-16	1113	S	Bag	1				X						X					X										
SGR-DU190(4-6)-B	07	7-19-16	1117	S	Bag	1				X						X					X										
SGR-DU190(6-8)-B	08	7-19-16	1120	S	Bag	1				X						X					X										
SGR-DU190(0-2)-C	09	7-19-16	1129	S	Bag	1				X						X					X										
SGR-DU190(2-4)-C	10	7-19-16	1130	S	Bag	1				X						X					X										
SGR-DU190(4-6)-C	11	7-19-16	1132	S	Bag	1				X						X					X										
SGR-DU190(6-8)-C	12	7-19-16	1134	S	Bag	1				X						X					X										
EB01(20160719)	13	7-19-16	1140	W	Glass/Poly	2	~~X~~	X		X						X					X										

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Jordon Beem	7-19-16/1725	Fedex
Fedex	7/20/16 9:15	C Strman

☐ *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: 1.0/0.3/1.3/1.1 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

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

DHL ANALYTICAL

№ 72214

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Rd. 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: 7-19-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607019
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

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESERVED	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 X 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 X	PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	CHLORIDE ☐ ANIONS ____ ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ FLASHPOINT ☐ DGAS ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐				FIELD NOTES
SGR-DU110(0-2)-A	14	7-19-16	1443		Bag	1				X						X					X										
SGR-DU110(2-4)-A	15	7-19-16	1445		Bag	1				X						X					X										
SGR-DU110(4-6)-A	16	7-19-16	1448		Bag	1				X						X					X										
SGR-DU110(6-8)-A	17	7-19-16	1449		Bag	1				X						X					X										
SGR-DU110(02)-B	18	7-19-16	1454		Bag	1				X						X					X										
SGR-DU110(2-4)-B	19	7-19-16	1455		Bag	1				X						X					X										
SGR-DU110(4-6)-B	20	7-19-16	1457		Bag	1				X						X					X										
SGR-DU110(6-8)-B	21	7-19-16	1459		Bag	1				X						X					X										
SGR-DU110(0-2)-C	22	7-19-16	1505		Bag	1				X						X					X										
SGR-DU110(2-4)-C	23	7-19-16	1506		Bag	1				X						X					X										
SGR-DU110(4-6)-C	24	7-19-16	1508		Bag	1				X						X					X										
SGR-DU110(6-8)-C	25	7-19-16	15[illegible]		Bag	1				X						X					X										
~~EB02(20160719)~~	~~26~~																														
EB02(20160719)	~~27~~ 26	7-19-16	1515		500mL Amber 500mL Plastic	2		X		X						X					X										

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7/19/16 / 1725 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 7/20/16 9:15 RECEIVED BY: (Signature) [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: 1.0 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** | Date Received: **7/20/2016**

Work Order Number **1607219** | Received by **JT**

Checklist completed by: [signature] 7/20/2016 (Signature / Date)

Reviewed by JD 7/20/2016 (Initials / Date)

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	**1.0** °C , 0.3, 1.3, 1.1
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 [initials]
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 ______

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-01
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:50 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	110	0.0893	0.268	0.134		mg/Kg-dry	5	08/04/16 05:52 PM
IS: Bismuth	67.6	0	30-120	0		%REC	5	08/04/16 05:52 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Fluoranthene	0.0500	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	07/26/16 12:38 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
IS: Acenaphthene-d10	89.3	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Chrysene-d12	98.1	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Naphthalene-d8	94.1	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Perylene-d12	96.8	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Phenanthrene-d10	90.1	0	50-200	0		%REC	10	07/26/16 12:38 PM
Surr: 2-Fluorobiphenyl	78.8	0	46-115	0		%REC	10	07/26/16 12:38 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-DU190(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-01
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:50 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.6	0	58-133	0		%REC	10	07/26/16 12:38 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		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-02
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:52 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	19.1	0.0840	0.252	0.126		mg/Kg-dry	5	08/04/16 05:58 PM
IS: Bismuth	66.8	0	30-120	0		%REC	5	08/04/16 05:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
IS: Acenaphthene-d10	91.4	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Naphthalene-d8	96.6	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Perylene-d12	99.6	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Phenanthrene-d10	91.4	0	50-200	0		%REC	10	07/26/16 01:16 PM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	07/26/16 01:16 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-DU190(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-02
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:52 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.4	0	58-133	0		%REC	10	07/26/16 01:16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607219-03
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:58 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.1	0.0962	0.288	0.144		mg/Kg-dry	5	08/04/16 05:40 PM
IS: Bismuth	66.1	0	30-120	0		%REC	5	08/04/16 05:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
IS: Acenaphthene-d10	83.9	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Chrysene-d12	96.7	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Naphthalene-d8	92.5	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Perylene-d12	95.8	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Phenanthrene-d10	85.3	0	50-200	0		%REC	10	07/26/16 01:54 PM
Surr: 2-Fluorobiphenyl	78.1	0	46-115	0		%REC	10	07/26/16 01:54 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-DU190(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607219-03
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:58 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.9	0	58-133	0		%REC	10	07/26/16 01:54 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-DU190(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-04
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:02 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.53	0.0855	0.256	0.128		mg/Kg-dry	5	08/04/16 06:04 PM
IS: Bismuth	62.5	0	30-120	0		%REC	5	08/04/16 06:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
IS: Acenaphthene-d10	83.9	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Chrysene-d12	98.7	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Naphthalene-d8	94.6	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Perylene-d12	97.5	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Phenanthrene-d10	83.3	0	50-200	0		%REC	10	07/26/16 02:32 PM
Surr: 2-Fluorobiphenyl	73.7	0	46-115	0		%REC	10	07/26/16 02:32 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-04
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:02 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.2	0	58-133	0		%REC	10	07/26/16 02:32 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-05
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:11 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	94.3	0.0877	0.263	0.132		mg/Kg-dry	5	08/04/16 06:10 PM
IS: Bismuth	64.7	0	30-120	0		%REC	5	08/04/16 06:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[a]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[a]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[b]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[e]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[g,h,i]perylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[j]fluoranthene	0.0745	0.0497	0.0993	0.0745	NU	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[k]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Chrysene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Indeno[1,2,3-cd]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Phenanthrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
IS: Acenaphthene-d10	83.8	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Chrysene-d12	93.8	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Naphthalene-d8	89.6	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Perylene-d12	91.9	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Phenanthrene-d10	86.7	0	50-200	0		%REC	10	07/26/16 03:10 PM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	07/26/16 03:10 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-05
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:11 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.6	0	58-133	0		%REC	10	07/26/16 03:10 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-06
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:13 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	31.0	0.0885	0.265	0.133		mg/Kg-dry	5	08/04/16 06:22 PM
IS: Bismuth	64.0	0	30-120	0		%REC	5	08/04/16 06:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
IS: Acenaphthene-d10	84.5	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Naphthalene-d8	94.9	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Phenanthrene-d10	86.6	0	50-200	0		%REC	10	07/26/16 03:48 PM
Surr: 2-Fluorobiphenyl	79.6	0	46-115	0		%REC	10	07/26/16 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-DU190(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-06
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:13 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.4	0	58-133	0		%REC	10	07/26/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-07
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:17 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.48	0.0943	0.283	0.142		mg/Kg-dry	5	08/04/16 06:28 PM
IS: Bismuth	59.2	0	30-120	0		%REC	5	08/04/16 06:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
IS: Acenaphthene-d10	92.1	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Naphthalene-d8	99.2	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Phenanthrene-d10	88.3	0	50-200	0		%REC	10	07/26/16 04:25 PM
Surr: 2-Fluorobiphenyl	76.0	0	46-115	0		%REC	10	07/26/16 04:25 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-07
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:17 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.3	0	58-133	0		%REC	10	07/26/16 04:25 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-08
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:20 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.73	0.100	0.300	0.150		mg/Kg-dry	5	08/04/16 06:34 PM
IS: Bismuth	59.4	0	30-120	0		%REC	5	08/04/16 06:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[a]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[b]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[e]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[g,h,i]perylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Chrysene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
IS: Acenaphthene-d10	85.7	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Naphthalene-d8	97.8	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Phenanthrene-d10	89.2	0	50-200	0		%REC	10	07/26/16 05:04 PM
Surr: 2-Fluorobiphenyl	75.1	0	46-115	0		%REC	10	07/26/16 05:04 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-08
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:20 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	71.4	0	58-133	0		%REC	10	07/26/16 05:04 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method 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: *11-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Project No: 04285081.0000.00044
Lab Order: 1607219

Client Sample ID: SGR-DU190(0-2)-C
Lab ID: 1607219-09
Collection Date: 07/19/16 11:29 AM
Matrix: SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	45.9	0.0935	0.280	0.140		mg/Kg-dry	5	08/04/16 06:40 PM
IS: Bismuth	60.0	0	30-120	0		%REC	5	08/04/16 06:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Acenaphthylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[a]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[a]pyrene	0.0544	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[b]fluoranthene	0.0538	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[e]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[g,h,i]perylene	0.0525	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[j]fluoranthene	0.0736	0.0491	0.0981	0.0736	NU	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[k]fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Chrysene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Dibenz[a,h]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Fluoranthene	0.0602	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Fluorene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Indeno[1,2,3-cd]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Phenanthrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Pyrene	0.0536	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
IS: Acenaphthene-d10	89.0	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Chrysene-d12	93.4	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Naphthalene-d8	89.2	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Perylene-d12	91.6	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Phenanthrene-d10	91.1	0	50-200	0		%REC	10	07/26/16 05:41 PM
Surr: 2-Fluorobiphenyl	77.3	0	46-115	0		%REC	10	07/26/16 05:41 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607219-09
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:29 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	67.1	0	58-133	0		%REC	10	07/26/16 05:41 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-10
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:30 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	37.1	0.0909	0.273	0.136		mg/Kg-dry	5	08/04/16 06:46 PM
IS: Bismuth	59.3	0	30-120	0		%REC	5	08/04/16 06:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Anthracene	0.0679	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[a]anthracene	0.310	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[a]pyrene	0.278	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[b]fluoranthene	0.264	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[e]pyrene	0.192	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[g,h,i]perylene	0.180	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[j]fluoranthene	0.142	0.0499	0.0997	0.0748	N	mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[k]fluoranthene	0.139	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Chrysene	0.343	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Fluoranthene	0.749	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Indeno[1,2,3-cd]pyrene	0.159	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Phenanthrene	0.347	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Pyrene	0.593	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
IS: Acenaphthene-d10	94.2	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Naphthalene-d8	99.7	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Phenanthrene-d10	90.3	0	50-200	0		%REC	10	07/26/16 06:18 PM
Surr: 2-Fluorobiphenyl	76.2	0	46-115	0		%REC	10	07/26/16 06:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-10
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:30 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	71.2	0	58-133	0		%REC	10	07/26/16 06:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-11
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:32 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.82	0.0935	0.280	0.140		mg/Kg-dry	5	08/04/16 07:40 PM
IS: Bismuth	50.8	0	30-120	0		%REC	5	08/04/16 07:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
IS: Acenaphthene-d10	98.7	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	07/26/16 06:55 PM
Surr: 2-Fluorobiphenyl	75.0	0	46-115	0		%REC	10	07/26/16 06:55 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-11
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:32 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	68.5	0	58-133	0		%REC	10	07/26/16 06:55 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-12
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:34 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.52	0.0971	0.291	0.146		mg/Kg-dry	5	08/04/16 07:46 PM
IS: Bismuth	51.2	0	30-120	0		%REC	5	08/04/16 07:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[a]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[a]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[b]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[g,h,i]perylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[k]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Chrysene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Phenanthrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
IS: Acenaphthene-d10	92.6	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Naphthalene-d8	98.9	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Phenanthrene-d10	94.7	0	50-200	0		%REC	10	07/26/16 10:01 PM
Surr: 2-Fluorobiphenyl	75.7	0	46-115	0		%REC	10	07/26/16 10:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-12
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:34 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	66.7	0	58-133	0		%REC	10	07/26/16 10:01 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-13
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:40 AM
Lab Order:	1607219	**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	08/09/16 11:33 PM
IS: Bismuth	87.9	0	30-120	0		%REC	1	08/09/16 11:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000775	0.0000484	0.0000968	0.0000775	U JL	mg/L	1	07/28/16 11:16 AM
Acenaphthylene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Anthracene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[a]anthracene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[a]pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[b]fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[e]pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[g,h,i]perylene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[j]fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	NU	mg/L	1	07/28/16 11:16 AM
Benzo[k]fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Chrysene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Dibenz[a,h]anthracene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Fluorene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Indeno[1,2,3-cd]pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Phenanthrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
IS: Acenaphthene-d10	96.6	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Chrysene-d12	105	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Naphthalene-d8	99.3	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Perylene-d12	99.1	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Phenanthrene-d10	106	0	50-200	0		%REC	1	07/28/16 11:16 AM
Surr: 2-Fluorobiphenyl	59.8	0	53-106	0		%REC	1	07/28/16 11:16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-13
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:40 AM
Lab Order:	1607219	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	53.6	0	58-132	0	S	%REC	1	07/28/16 11:16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-14
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:43 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	18.0	0.0870	0.261	0.130		mg/Kg-dry	5	08/04/16 07:52 PM
IS: Bismuth	54.3	0	30-120	0		%REC	5	08/04/16 07:52 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[a]pyrene	0.0501	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[e]pyrene	0.0627	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[g,h,i]perylene	0.0512	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Chrysene	0.0716	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
IS: Acenaphthene-d10	96.9	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Phenanthrene-d10	98.2	0	50-200	0		%REC	10	07/26/16 10:38 PM
Surr: 2-Fluorobiphenyl	70.9	0	46-115	0		%REC	10	07/26/16 10:38 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-DU110(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-14
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:43 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	63.2	0	58-133	0		%REC	10	07/26/16 10:38 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		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-15
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:45 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.99	0.0971	0.291	0.146		mg/Kg-dry	5	08/04/16 07:58 PM
IS: Bismuth	55.1	0	30-120	0		%REC	5	08/04/16 07:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
IS: Acenaphthene-d10	99.0	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Chrysene-d12	107	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Phenanthrene-d10	95.9	0	50-200	0		%REC	10	07/26/16 11:15 PM
Surr: 2-Fluorobiphenyl	70.4	0	46-115	0		%REC	10	07/26/16 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-DU110(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-15
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:45 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.7	0	58-133	0		%REC	10	07/26/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607219-16
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:48 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.46	0.0943	0.283	0.142		mg/Kg-dry	5	08/04/16 08:04 PM
IS: Bismuth	54.2	0	30-120	0		%REC	5	08/04/16 08:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
IS: Acenaphthene-d10	98.6	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	07/26/16 11:52 PM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	07/26/16 11:52 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-DU110(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607219-16
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:48 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.4	0	58-133	0		%REC	10	07/26/16 11:52 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-17
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:49 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.74	0.0943	0.283	0.142		mg/Kg-dry	5	08/04/16 08:16 PM
IS: Bismuth	53.5	0	30-120	0		%REC	5	08/04/16 08:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[a]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[b]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 12:29 AM
Surr: 2-Fluorobiphenyl	70.8	0	46-115	0		%REC	10	07/27/16 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-DU110(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-17
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:49 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	61.6	0	58-133	0		%REC	10	07/27/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-18
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:54 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	25.8	0.0877	0.263	0.132		mg/Kg-dry	5	08/04/16 08:22 PM
IS: Bismuth	49.4	0	30-120	0		%REC	5	08/04/16 08:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Anthracene	0.0602	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[a]anthracene	0.123	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[a]pyrene	0.152	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[b]fluoranthene	0.178	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[e]pyrene	0.0769	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[g,h,i]perylene	0.156	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[j]fluoranthene	0.0500	0.0484	0.0968	0.0726	JN	mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[k]fluoranthene	0.107	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Chrysene	0.144	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Dibenz[a,h]anthracene	0.0814	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/03/16 02:25 PM
Fluoranthene	0.117	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Indeno[1,2,3-cd]pyrene	0.147	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Phenanthrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Pyrene	0.112	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Chrysene-d12	98.8	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Perylene-d12	95.2	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Phenanthrene-d10	93.2	0	50-200	0		%REC	10	08/03/16 02:25 PM
Surr: 2-Fluorobiphenyl	81.0	0	46-115	0		%REC	10	08/03/16 02:25 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-DU110(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-18
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:54 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.0	0	58-133	0		%REC	10	08/03/16 02:25 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-19
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:55 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.70	0.0980	0.294	0.147		mg/Kg-dry	5	08/04/16 08:28 PM
IS: Bismuth	50.7	0	30-120	0		%REC	5	08/04/16 08:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
IS: Acenaphthene-d10	96.7	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Perylene-d12	103	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	07/27/16 01:43 AM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	07/27/16 01:43 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-DU110(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-19
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:55 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.6	0	58-133	0		%REC	10	07/27/16 01:43 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-20
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:57 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.37	0.0980	0.294	0.147		mg/Kg-dry	5	08/04/16 08:34 PM
IS: Bismuth	51.1	0	30-120	0		%REC	5	08/04/16 08:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[a]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[a]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[b]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[e]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[g,h,i]perylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[j]fluoranthene	0.0741	0.0494	0.0988	0.0741	NU	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[k]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Chrysene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Indeno[1,2,3-cd]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Phenanthrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
IS: Acenaphthene-d10	99.7	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	07/27/16 02:20 AM
Surr: 2-Fluorobiphenyl	78.2	0	46-115	0		%REC	10	07/27/16 02:20 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-DU110(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-20
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:57 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	69.5	0	58-133	0		%REC	10	07/27/16 02:20 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-21
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:59 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.3	0.0909	0.273	0.136		mg/Kg-dry	5	08/04/16 08:40 PM
IS: Bismuth	50.1	0	30-120	0		%REC	5	08/04/16 08:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Perylene-d12	107	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 02:56 AM
Surr: 2-Fluorobiphenyl	69.1	0	46-115	0		%REC	10	07/27/16 02:56 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-DU110(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-21
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:59 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	61.2	0	58-133	0		%REC	10	07/27/16 02:56 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607219-22
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:05 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	24.4	0.0877	0.263	0.132		mg/Kg-dry	5	08/05/16 02:02 PM
IS: Bismuth	94.7	0	30-120	0		%REC	5	08/05/16 02:02 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Anthracene	0.0643	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[a]anthracene	0.0981	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[a]pyrene	0.103	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[b]fluoranthene	0.131	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[g,h,i]perylene	0.107	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[k]fluoranthene	0.0853	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Chrysene	0.103	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Dibenz[a,h]anthracene	0.0734	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Fluoranthene	0.0915	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Indeno[1,2,3-cd]pyrene	0.105	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Phenanthrene	0.0552	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Pyrene	0.0836	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Chrysene-d12	99.4	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Perylene-d12	95.7	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Phenanthrene-d10	95.4	0	50-200	0		%REC	10	08/03/16 03:06 PM
Surr: 2-Fluorobiphenyl	78.5	0	46-115	0		%REC	10	08/03/16 03:06 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-DU110(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607219-22
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:05 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.9	0	58-133	0		%REC	10	08/03/16 03:06 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		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-23
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:06 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.07	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 02:08 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/05/16 02:08 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Acenaphthylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[a]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[a]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[b]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[e]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[g,h,i]perylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[j]fluoranthene	0.0700	0.0467	0.0934	0.0700	NU	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[k]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Chrysene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Dibenz[a,h]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Fluorene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Indeno[1,2,3-cd]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Phenanthrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
IS: Acenaphthene-d10	92.9	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Phenanthrene-d10	98.7	0	50-200	0		%REC	10	07/27/16 12:31 PM
Surr: 2-Fluorobiphenyl	71.2	0	46-115	0		%REC	10	07/27/16 12:31 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-23
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:06 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	60.5	0	58-133	0		%REC	10	07/27/16 12:31 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-24
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:08 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.88	0.0885	0.265	0.133		mg/Kg-dry	5	08/05/16 02:14 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/05/16 02:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[a]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[a]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[b]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[e]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[g,h,i]perylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Chrysene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
IS: Acenaphthene-d10	99.9	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Perylene-d12	110	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	07/27/16 01:08 PM
Surr: 2-Fluorobiphenyl	66.6	0	46-115	0		%REC	10	07/27/16 01:08 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-DU110(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-24
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:08 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	58.3	0	58-133	0		%REC	10	07/27/16 01:08 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-25
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:10 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.33	0.0962	0.288	0.144		mg/Kg-dry	5	08/05/16 02:20 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/05/16 02:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Acenaphthylene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Anthracene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[a]anthracene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[a]pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[b]fluoranthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[e]pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[g,h,i]perylene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[j]fluoranthene	0.0717	0.0478	0.0956	0.0717	NU	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[k]fluoranthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Chrysene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Dibenz[a,h]anthracene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Fluoranthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Fluorene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Indeno[1,2,3-cd]pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Phenanthrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
IS: Acenaphthene-d10	99.4	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	07/27/16 01:45 PM
Surr: 2-Fluorobiphenyl	69.7	0	46-115	0		%REC	10	07/27/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-25
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:10 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	62.6	0	58-133	0		%REC	10	07/27/16 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:**	EB02(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-26
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:15 PM
Lab Order:	1607219	**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	08/09/16 11:39 PM
IS: Bismuth	87.6	0	30-120	0		%REC	1	08/09/16 11:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000794	0.0000496	0.0000992	0.0000794	U JL	mg/L	1	07/28/16 11:54 AM
Acenaphthylene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Anthracene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[a]anthracene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[a]pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[b]fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[e]pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[g,h,i]perylene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[j]fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	NU	mg/L	1	07/28/16 11:54 AM
Benzo[k]fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Chrysene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Dibenz[a,h]anthracene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Fluorene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Indeno[1,2,3-cd]pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Phenanthrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
IS: Acenaphthene-d10	87.2	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Chrysene-d12	99.3	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Naphthalene-d8	91.8	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Perylene-d12	93.6	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Phenanthrene-d10	92.7	0	50-200	0		%REC	1	07/28/16 11:54 AM
Surr: 2-Fluorobiphenyl	53.5	0	53-106	0		%REC	1	07/28/16 11:54 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:**	EB02(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-26
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:15 PM
Lab Order:	1607219	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **KL**
Surr: 4-Terphenyl-d14	52.0	0	58-132	0	S	%REC	1	07/28/16 11:54 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		

August 11, 2016

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

Order No.: 1607219

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 26 sample(s) on 7/20/2016 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

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

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*

№ 72213

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 18275 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: 7-19-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607219
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon 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

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8015] ☐ | 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	SVOC 8270 / PAH 8270	RCRA / TX11 / Lead	FIELD NOTES
SGR-DU190(0-2)-A	01	7-19-16	1050	S	Bag	1				X		X	X	
SGR-DU190(2-4)-A	02	7-19-16	1052	S	Bag	1				X		X	X	
SGR-DU190(4-6)-A	03	7-19-16	1058	S	Bag	1				X		X	X	
SGR-DU190(6-8)-A	04	7-19-16	1102	S	Bag	1				X		X	X	
SGR-DU190(0-2)-B	05	7-19-16	1111	S	Bag	1				X		X	X	
SGR-DU190(2-4)-B	06	7-19-16	1113	S	Bag	1				X		X	X	
SGR-DU190(4-6)-B	07	7-19-16	1117	S	Bag	1				X		X	X	
SGR-DU190(6-8)-B	08	7-19-16	1120	S	Bag	1				X		X	X	
SGR-DU190(0-2)-C	09	7-19-16	1129	S	Bag	1				X		X	X	
SGR-DU190(2-4)-C	10	7-19-16	1130	S	Bag	1				X		X	X	
SGR-DU190(4-6)-C	11	7-19-16	1132	S	Bag	1				X		X	X	
SGR-DU190(6-8)-C	12	7-19-16	1134	S	Bag	1				X		X	X	
EB01(20160719)	13	7-19-16	1140	W	Glass/Poly	2	~~X~~	X		X		X	X	

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-19-16/1725 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/20/16 9:15 RECEIVED BY: (Signature) [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: 1.0/0.3/1.3/1.1 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
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Web: *www.dhlanalytical.com*
E-Mail: *login@dhlanalytical.com*

№ 72214

CHAIN-OF-CUSTOD

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Rd. 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: 7-19-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607015
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon 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

ANALYSES

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐ [METHOD 8021]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC8270 ☐ PAH 8270 X 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 X	PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	CHLORIDE ☐ ANIONS ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ FLASHPOINT ☐ DGAS ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
SGR-DU110(0-2)-A	14	7-19-16	1443		Bag	1				X						X					X							
SGR-DU110(2-4)-A	15	7-19-16	1445		Bag	1				X						X					X							
SGR-DU110(4-6)-A	16	7-19-16	1448		Bag	1				X						X					X							
SGR-DU110(6-8)-A	17	7-19-16	1449		Bag	1				X						X					X							
SGR-DU110(02)-B	18	7-19-16	1454		Bag	1				X						X					X							
SGR-DU110(2-4)-B	19	7-19-16	1455		Bag	1				X						X					X							
SGR-DU110(4-6)-B	20	7-19-16	1457		Bag	1				X						X					X							
SGR-DU110(6-8)-B	21	7-19-16	1459		Bag	1				X						X					X							
SGR-DU110(0-2)-C	22	7-19-16	1505		Bag	1				X						X					X							
SGR-DU110(2-4)-C	23	7-19-16	1506		Bag	1				X						X					X							
SGR-DU110(4-6)-C	24	7-19-16	1508		Bag	1				X						X					X							
SGR-DU110(6-8)-C	25	7-19-16	15[illegible]		Bag	1				X						X					X							
~~EB02(20160718)~~	~~[illegible]~~																											
EB02(20160719)	~~27~~ 26	7-19-16	1515		500mL Amber 500mL Plastic	2		X		X						X					X							

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7/19/16 /1725 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 7/20/16 9:15 RECEIVED BY: (Signature) [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: 1.0 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USEI
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHEF
☐ COURIER DELIVERY
☐ HAND DELIVERED

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

SHIP DATE: 19JUL
ACTWGT:
CAD:
DIMS:

BILL THIRD PARTY

TO SAMPLE RECEIVING
DHL ANALYTLEAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx
Express

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2 of 4
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Mstr# 7836 1832 1560 0201

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CUSTODY SEAL
DATE 07/19/2016
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

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

SHIP DATE: 19JUL16
ACTWGT: 84.50 LB
CAD: 006994464/SSF 11704
DIMS: 23x13x14 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
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2300 DOUBLE CREEK DR

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(512) 388-8222
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JORDON BEEM
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 662'ᵉ
UNITED STATES

SHIP DATE: 19JUL16
ACTWGT: 80.80 LB
CAD: 006934464/SSFE170
DIMS: 23x13x14 IN

BILL THIRD PARTY

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2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
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PO: DEPT:

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1 of 4
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DATE 07/19/2016
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QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

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

SHIP DATE
ACTWGT
CAD:
DIMS

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ROUND ROCK TX 78664
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4 of 4
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TX-US AUS

CUSTODY SEAL
DATE 7/19/16
SIGNATURE

QEC
Quality Environmental Containers
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DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Arcadis | Date Received: 7/20/2016

Work Order Number 1607219 | Received by JT

Checklist completed by: [signature] 7/20/2016 (Signature / Date)

Reviewed by JD 7/20/2016 (Initials / Date)

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.0 °C , 0.3, 1.3, 1.1
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 [initials]
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:** 8/11/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607219
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]
R1	OI	**Chain-of-Custody (C-O-C)**					
		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				
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				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				R10-01
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.

Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo SGR	**Date:** 8/11/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607219

#[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).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director

John DuPont ________ Signature

08/11/16 ________ Date

CLIENT:	Arcadis
Project:	Laredo SGR
Lab Order:	1607219

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 7/20/2016. A total of 26 samples were received and analyzed. The sample arrived in good condition and were properly packaged.

Exception Report R4-02

For PAH Analysis of Equipment Blank matrix, the recovery of surrogate 4-Terphenyl-d14 for two Samples, the Laboratory Control Spike Duplicate (LCSD-76453) and the Matrix Spike Duplicate (1607239-01 MSD) was below the method control limits. These are flagged accordingly in the Analytical Data Report and the QC Summary Report. The remaining surrogate for these samples was within method control limits. No further corrective action was taken.

Exception Report R7-02

For PAH Analysis, for Batch 76453, an MS/SMD was not performed due to matrix being Equipment Blank. An LCS/LCSD was performed as Batch QC.

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.

CLIENT:	Arcadis	
Project:	Laredo SGR	**CASE NARRATIVE**
Lab Order:	1607219	

For all of the samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. All of the soil samples in this workorder consist of the following sample types: subsurface soil samples processed to pass a #10 sieve (2mm).

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 a Sample Summary was sent on 7/20/2016. 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.

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607219

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607219-01	SGR-DU190(0-2)-A		07/19/16 10:50 AM	7/20/2016
1607219-02	SGR-DU190(2-4)-A		07/19/16 10:52 AM	7/20/2016
1607219-03	SGR-DU190(4-6)-A		07/19/16 10:58 AM	7/20/2016
1607219-04	SGR-DU190(6-8)-A		07/19/16 11:02 AM	7/20/2016
1607219-05	SGR-DU190(0-2)-B		07/19/16 11:11 AM	7/20/2016
1607219-06	SGR-DU190(2-4)-B		07/19/16 11:13 AM	7/20/2016
1607219-07	SGR-DU190(4-6)-B		07/19/16 11:17 AM	7/20/2016
1607219-08	SGR-DU190(6-8)-B		07/19/16 11:20 AM	7/20/2016
1607219-09	SGR-DU190(0-2)-C		07/19/16 11:29 AM	7/20/2016
1607219-10	SGR-DU190(2-4)-C		07/19/16 11:30 AM	7/20/2016
1607219-11	SGR-DU190(4-6)-C		07/19/16 11:32 AM	7/20/2016
1607219-12	SGR-DU190(6-8)-C		07/19/16 11:34 AM	7/20/2016
1607219-13	EB01(20160719)		07/19/16 11:40 AM	7/20/2016
1607219-14	SGR-DU110(0-2)-A		07/19/16 02:43 PM	7/20/2016
1607219-15	SGR-DU110(2-4)-A		07/19/16 02:45 PM	7/20/2016
1607219-16	SGR-DU110(4-6)-A		07/19/16 02:48 PM	7/20/2016
1607219-17	SGR-DU110(6-8)-A		07/19/16 02:49 PM	7/20/2016
1607219-18	SGR-DU110(0-2)-B		07/19/16 02:54 PM	7/20/2016
1607219-19	SGR-DU110(2-4)-B		07/19/16 02:55 PM	7/20/2016
1607219-20	SGR-DU110(4-6)-B		07/19/16 02:57 PM	7/20/2016
1607219-21	SGR-DU110(6-8)-B		07/19/16 02:59 PM	7/20/2016
1607219-22	SGR-DU110(0-2)-C		07/19/16 03:05 PM	7/20/2016
1607219-23	SGR-DU110(2-4)-C		07/19/16 03:06 PM	7/20/2016
1607219-24	SGR-DU110(4-6)-C		07/19/16 03:08 PM	7/20/2016
1607219-25	SGR-DU110(6-8)-C		07/19/16 03:10 PM	7/20/2016
1607219-26	EB02(20160719)		07/19/16 03:15 PM	7/20/2016

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607219-01A	SGR-DU190(0-2)-A	07/19/16 10:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(0-2)-A	07/19/16 10:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-02A	SGR-DU190(2-4)-A	07/19/16 10:52 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(2-4)-A	07/19/16 10:52 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-03A	SGR-DU190(4-6)-A	07/19/16 10:58 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(4-6)-A	07/19/16 10:58 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-04A	SGR-DU190(6-8)-A	07/19/16 11:02 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(6-8)-A	07/19/16 11:02 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-05A	SGR-DU190(0-2)-B	07/19/16 11:11 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(0-2)-B	07/19/16 11:11 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-06A	SGR-DU190(2-4)-B	07/19/16 11:13 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(2-4)-B	07/19/16 11:13 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-07A	SGR-DU190(4-6)-B	07/19/16 11:17 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(4-6)-B	07/19/16 11:17 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-08A	SGR-DU190(6-8)-B	07/19/16 11:20 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(6-8)-B	07/19/16 11:20 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-09A	SGR-DU190(0-2)-C	07/19/16 11:29 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(0-2)-C	07/19/16 11:29 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-10A	SGR-DU190(2-4)-C	07/19/16 11:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(2-4)-C	07/19/16 11:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-11A	SGR-DU190(4-6)-C	07/19/16 11:32 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(4-6)-C	07/19/16 11:32 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-12A	SGR-DU190(6-8)-C	07/19/16 11:34 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU190(6-8)-C	07/19/16 11:34 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-13A	EB01(20160719)	07/19/16 11:40 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607219-13B	EB01(20160719)	07/19/16 11:40 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453
1607219-14A	SGR-DU110(0-2)-A	07/19/16 02:43 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(0-2)-A	07/19/16 02:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607219-15A	SGR-DU110(2-4)-A	07/19/16 02:45 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(2-4)-A	07/19/16 02:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-16A	SGR-DU110(4-6)-A	07/19/16 02:48 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(4-6)-A	07/19/16 02:48 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-17A	SGR-DU110(6-8)-A	07/19/16 02:49 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(6-8)-A	07/19/16 02:49 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-18A	SGR-DU110(0-2)-B	07/19/16 02:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(0-2)-B	07/19/16 02:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(0-2)-B	07/19/16 02:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(0-2)-B	07/19/16 02:54 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-19A	SGR-DU110(2-4)-B	07/19/16 02:55 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(2-4)-B	07/19/16 02:55 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-20A	SGR-DU110(4-6)-B	07/19/16 02:57 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(4-6)-B	07/19/16 02:57 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-21A	SGR-DU110(6-8)-B	07/19/16 02:59 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 08:50 AM	76420
	SGR-DU110(6-8)-B	07/19/16 02:59 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76548
1607219-22A	SGR-DU110(0-2)-C	07/19/16 03:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU110(0-2)-C	07/19/16 03:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU110(0-2)-C	07/19/16 03:05 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU110(0-2)-C	07/19/16 03:05 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607219-23A	SGR-DU110(2-4)-C	07/19/16 03:06 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU110(2-4)-C	07/19/16 03:06 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607219-24A	SGR-DU110(4-6)-C	07/19/16 03:08 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU110(4-6)-C	07/19/16 03:08 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607219-25A	SGR-DU110(6-8)-C	07/19/16 03:10 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU110(6-8)-C	07/19/16 03:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607219-26A	EB02(20160719)	07/19/16 03:15 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607219-26B	EB02(20160719)	07/19/16 03:15 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453

DHL Analytical, Inc.

11-Aug-16

Lab Order: 1607219
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
1607219-01A	SGR-DU190(0-2)-A	7/19/2016 10:50:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-02A	SGR-DU190(2-4)-A	7/19/2016 10:52:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-03A	SGR-DU190(4-6)-A	7/19/2016 10:58:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-04A	SGR-DU190(6-8)-A	7/19/2016 11:02:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-05A	SGR-DU190(0-2)-B	7/19/2016 11:11:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-06A	SGR-DU190(2-4)-B	7/19/2016 11:13:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-07A	SGR-DU190(4-6)-B	7/19/2016 11:17:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-08A	SGR-DU190(6-8)-B	7/19/2016 11:20:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-09A	SGR-DU190(0-2)-C	7/19/2016 11:29:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-10A	SGR-DU190(2-4)-C	7/19/2016 11:30:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-11A	SGR-DU190(4-6)-C	7/19/2016 11:32:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-12A	SGR-DU190(6-8)-C	7/19/2016 11:34:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-14A	SGR-DU110(0-2)-A	7/19/2016 2:43:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-15A	SGR-DU110(2-4)-A	7/19/2016 2:45:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-16A	SGR-DU110(4-6)-A	7/19/2016 2:48:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-17A	SGR-DU110(6-8)-A	7/19/2016 2:49:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-18A	SGR-DU110(0-2)-B	7/19/2016 2:54:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-19A	SGR-DU110(2-4)-B	7/19/2016 2:55:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-20A	SGR-DU110(4-6)-B	7/19/2016 2:57:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-21A	SGR-DU110(6-8)-B	7/19/2016 2:59:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-22A	SGR-DU110(0-2)-C	7/19/2016 3:05:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-23A	SGR-DU110(2-4)-C	7/19/2016 3:06:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-24A	SGR-DU110(4-6)-C	7/19/2016 3:08:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357
1607219-25A	SGR-DU110(6-8)-C	7/19/2016 3:10:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/20/2016 2:15:00 PM	76357

Lab Order: 1607219
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
1607219-01A	SGR-DU190(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 12:38 PM	GCMS6_160726A
	SGR-DU190(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 05:52 PM	ICP-MS3_160804C
1607219-02A	SGR-DU190(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 01:16 PM	GCMS6_160726A
	SGR-DU190(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 05:58 PM	ICP-MS3_160804C
1607219-03A	SGR-DU190(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 01:54 PM	GCMS6_160726A
	SGR-DU190(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 05:40 PM	ICP-MS3_160804C
1607219-04A	SGR-DU190(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 02:32 PM	GCMS6_160726A
	SGR-DU190(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 06:04 PM	ICP-MS3_160804C
1607219-05A	SGR-DU190(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 03:10 PM	GCMS6_160726A
	SGR-DU190(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 06:10 PM	ICP-MS3_160804C
1607219-06A	SGR-DU190(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 03:48 PM	GCMS6_160726A
	SGR-DU190(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 06:22 PM	ICP-MS3_160804C
1607219-07A	SGR-DU190(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 04:25 PM	GCMS6_160726A
	SGR-DU190(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 06:28 PM	ICP-MS3_160804C
1607219-08A	SGR-DU190(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 05:04 PM	GCMS6_160726A
	SGR-DU190(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 06:34 PM	ICP-MS3_160804C
1607219-09A	SGR-DU190(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 05:41 PM	GCMS6_160726A
	SGR-DU190(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 06:40 PM	ICP-MS3_160804C
1607219-10A	SGR-DU190(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 06:18 PM	GCMS6_160726A
	SGR-DU190(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 06:46 PM	ICP-MS3_160804C
1607219-11A	SGR-DU190(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 06:55 PM	GCMS6_160726A
	SGR-DU190(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 07:40 PM	ICP-MS3_160804C
1607219-12A	SGR-DU190(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 10:01 PM	GCMS6_160726A
	SGR-DU190(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 07:46 PM	ICP-MS3_160804C
1607219-13A	EB01(20160719)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/09/16 11:33 PM	ICP-MS3_160809B
1607219-13B	EB01(20160719)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 11:16 AM	GCMS6_160728A
1607219-14A	SGR-DU110(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 10:38 PM	GCMS6_160726A
	SGR-DU110(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 07:52 PM	ICP-MS3_160804C

Lab Order: 1607219
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
1607219-15A	SGR-DU110(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 11:15 PM	GCMS6_160726A
	SGR-DU110(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 07:58 PM	ICP-MS3_160804C
1607219-16A	SGR-DU110(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/26/16 11:52 PM	GCMS6_160726A
	SGR-DU110(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 08:04 PM	ICP-MS3_160804C
1607219-17A	SGR-DU110(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/27/16 12:29 AM	GCMS6_160726A
	SGR-DU110(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 08:16 PM	ICP-MS3_160804C
1607219-18A	SGR-DU110(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/27/16 01:06 AM	GCMS6_160726A
	SGR-DU110(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	08/03/16 02:59 AM	GCMS6_160802B
	SGR-DU110(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	08/03/16 02:25 PM	GCMS6_160803A
	SGR-DU110(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 08:22 PM	ICP-MS3_160804C
1607219-19A	SGR-DU110(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/27/16 01:43 AM	GCMS6_160726A
	SGR-DU110(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 08:28 PM	ICP-MS3_160804C
1607219-20A	SGR-DU110(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/27/16 02:20 AM	GCMS6_160726A
	SGR-DU110(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 08:34 PM	ICP-MS3_160804C
1607219-21A	SGR-DU110(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76420	10	07/27/16 02:56 AM	GCMS6_160726A
	SGR-DU110(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76548	5	08/04/16 08:40 PM	ICP-MS3_160804C
1607219-22A	SGR-DU110(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 11:54 AM	GCMS6_160727A
	SGR-DU110(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 03:40 AM	GCMS6_160802B
	SGR-DU110(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 03:06 PM	GCMS6_160803A
	SGR-DU110(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:02 PM	ICP-MS3_160805A
1607219-23A	SGR-DU110(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 12:31 PM	GCMS6_160727A
	SGR-DU110(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:08 PM	ICP-MS3_160805A
1607219-24A	SGR-DU110(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 01:08 PM	GCMS6_160727A
	SGR-DU110(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:14 PM	ICP-MS3_160805A
1607219-25A	SGR-DU110(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 01:45 PM	GCMS6_160727A
	SGR-DU110(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:20 PM	ICP-MS3_160805A
1607219-26A	EB02(20160719)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/09/16 11:39 PM	ICP-MS3_160809B
1607219-26B	EB02(20160719)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 11:54 AM	GCMS6_160728A

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-01
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:50 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	110	0.0893	0.268	0.134		mg/Kg-dry	5	08/04/16 05:52 PM
IS: Bismuth	67.6	0	30-120	0		%REC	5	08/04/16 05:52 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	07/26/16 12:38 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Fluoranthene	0.0500	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	07/26/16 12:38 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 12:38 PM
IS: Acenaphthene-d10	89.3	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Chrysene-d12	98.1	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Naphthalene-d8	94.1	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Perylene-d12	96.8	0	50-200	0		%REC	10	07/26/16 12:38 PM
IS: Phenanthrene-d10	90.1	0	50-200	0		%REC	10	07/26/16 12:38 PM
Surr: 2-Fluorobiphenyl	78.8	0	46-115	0		%REC	10	07/26/16 12:38 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-DU190(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-01
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:50 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.6	0	58-133	0		%REC	10	07/26/16 12:38 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		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-02
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:52 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	19.1	0.0840	0.252	0.126		mg/Kg-dry	5	08/04/16 05:58 PM
IS: Bismuth	66.8	0	30-120	0		%REC	5	08/04/16 05:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 01:16 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 01:16 PM
IS: Acenaphthene-d10	91.4	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Naphthalene-d8	96.6	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Perylene-d12	99.6	0	50-200	0		%REC	10	07/26/16 01:16 PM
IS: Phenanthrene-d10	91.4	0	50-200	0		%REC	10	07/26/16 01:16 PM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	07/26/16 01:16 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-DU190(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-02
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:52 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.4	0	58-133	0		%REC	10	07/26/16 01:16 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: *11-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Project No: 04285081.0000.00044
Lab Order: 1607219

Client Sample ID: SGR-DU190(4-6)-A
Lab ID: 1607219-03
Collection Date: 07/19/16 10:58 AM
Matrix: SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.1	0.0962	0.288	0.144		mg/Kg-dry	5	08/04/16 05:40 PM
IS: Bismuth	66.1	0	30-120	0		%REC	5	08/04/16 05:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	07/26/16 01:54 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 01:54 PM
IS: Acenaphthene-d10	83.9	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Chrysene-d12	96.7	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Naphthalene-d8	92.5	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Perylene-d12	95.8	0	50-200	0		%REC	10	07/26/16 01:54 PM
IS: Phenanthrene-d10	85.3	0	50-200	0		%REC	10	07/26/16 01:54 PM
Surr: 2-Fluorobiphenyl	78.1	0	46-115	0		%REC	10	07/26/16 01:54 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-DU190(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607219-03
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 10:58 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.9	0	58-133	0		%REC	10	07/26/16 01:54 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-04
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:02 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.53	0.0855	0.256	0.128		mg/Kg-dry	5	08/04/16 06:04 PM
IS: Bismuth	62.5	0	30-120	0		%REC	5	08/04/16 06:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 02:32 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 02:32 PM
IS: Acenaphthene-d10	83.9	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Chrysene-d12	98.7	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Naphthalene-d8	94.6	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Perylene-d12	97.5	0	50-200	0		%REC	10	07/26/16 02:32 PM
IS: Phenanthrene-d10	83.3	0	50-200	0		%REC	10	07/26/16 02:32 PM
Surr: 2-Fluorobiphenyl	73.7	0	46-115	0		%REC	10	07/26/16 02:32 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-04
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:02 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.2	0	58-133	0		%REC	10	07/26/16 02:32 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-05
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:11 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	94.3	0.0877	0.263	0.132		mg/Kg-dry	5	08/04/16 06:10 PM
IS: Bismuth	64.7	0	30-120	0		%REC	5	08/04/16 06:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[a]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[a]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[b]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[e]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[g,h,i]perylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[j]fluoranthene	0.0745	0.0497	0.0993	0.0745	NU	mg/Kg-dry	10	07/26/16 03:10 PM
Benzo[k]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Chrysene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Indeno[1,2,3-cd]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Phenanthrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
Pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/26/16 03:10 PM
IS: Acenaphthene-d10	83.8	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Chrysene-d12	93.8	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Naphthalene-d8	89.6	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Perylene-d12	91.9	0	50-200	0		%REC	10	07/26/16 03:10 PM
IS: Phenanthrene-d10	86.7	0	50-200	0		%REC	10	07/26/16 03:10 PM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	07/26/16 03:10 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-05
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:11 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.6	0	58-133	0		%REC	10	07/26/16 03:10 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-06
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:13 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	31.0	0.0885	0.265	0.133		mg/Kg-dry	5	08/04/16 06:22 PM
IS: Bismuth	64.0	0	30-120	0		%REC	5	08/04/16 06:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 03:48 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 03:48 PM
IS: Acenaphthene-d10	84.5	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Naphthalene-d8	94.9	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Perylene-d12	98.9	0	50-200	0		%REC	10	07/26/16 03:48 PM
IS: Phenanthrene-d10	86.6	0	50-200	0		%REC	10	07/26/16 03:48 PM
Surr: 2-Fluorobiphenyl	79.6	0	46-115	0		%REC	10	07/26/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-06
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:13 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.4	0	58-133	0		%REC	10	07/26/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-07
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:17 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.48	0.0943	0.283	0.142		mg/Kg-dry	5	08/04/16 06:28 PM
IS: Bismuth	59.2	0	30-120	0		%REC	5	08/04/16 06:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	07/26/16 04:25 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/26/16 04:25 PM
IS: Acenaphthene-d10	92.1	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Naphthalene-d8	99.2	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	07/26/16 04:25 PM
IS: Phenanthrene-d10	88.3	0	50-200	0		%REC	10	07/26/16 04:25 PM
Surr: 2-Fluorobiphenyl	76.0	0	46-115	0		%REC	10	07/26/16 04:25 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-DU190(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-07
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:17 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.3	0	58-133	0		%REC	10	07/26/16 04:25 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-08
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:20 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.73	0.100	0.300	0.150		mg/Kg-dry	5	08/04/16 06:34 PM
IS: Bismuth	59.4	0	30-120	0		%REC	5	08/04/16 06:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[a]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[b]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[e]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[g,h,i]perylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	07/26/16 05:04 PM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Chrysene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
Pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	07/26/16 05:04 PM
IS: Acenaphthene-d10	85.7	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Naphthalene-d8	97.8	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	07/26/16 05:04 PM
IS: Phenanthrene-d10	89.2	0	50-200	0		%REC	10	07/26/16 05:04 PM
Surr: 2-Fluorobiphenyl	75.1	0	46-115	0		%REC	10	07/26/16 05:04 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-08
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:20 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	71.4	0	58-133	0		%REC	10	07/26/16 05:04 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607219-09
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:29 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	45.9	0.0935	0.280	0.140		mg/Kg-dry	5	08/04/16 06:40 PM
IS: Bismuth	60.0	0	30-120	0		%REC	5	08/04/16 06:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Acenaphthylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[a]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[a]pyrene	0.0544	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[b]fluoranthene	0.0538	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[e]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[g,h,i]perylene	0.0525	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[j]fluoranthene	0.0736	0.0491	0.0981	0.0736	NU	mg/Kg-dry	10	07/26/16 05:41 PM
Benzo[k]fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Chrysene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Dibenz[a,h]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Fluoranthene	0.0602	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
Fluorene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Indeno[1,2,3-cd]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Phenanthrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	07/26/16 05:41 PM
Pyrene	0.0536	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	07/26/16 05:41 PM
IS: Acenaphthene-d10	89.0	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Chrysene-d12	93.4	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Naphthalene-d8	89.2	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Perylene-d12	91.6	0	50-200	0		%REC	10	07/26/16 05:41 PM
IS: Phenanthrene-d10	91.1	0	50-200	0		%REC	10	07/26/16 05:41 PM
Surr: 2-Fluorobiphenyl	77.3	0	46-115	0		%REC	10	07/26/16 05:41 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607219-09
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:29 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	67.1	0	58-133	0		%REC	10	07/26/16 05:41 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-10
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:30 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	37.1	0.0909	0.273	0.136		mg/Kg-dry	5	08/04/16 06:46 PM
IS: Bismuth	59.3	0	30-120	0		%REC	5	08/04/16 06:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Anthracene	0.0679	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[a]anthracene	0.310	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[a]pyrene	0.278	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[b]fluoranthene	0.264	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[e]pyrene	0.192	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[g,h,i]perylene	0.180	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[j]fluoranthene	0.142	0.0499	0.0997	0.0748	N	mg/Kg-dry	10	07/26/16 06:18 PM
Benzo[k]fluoranthene	0.139	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Chrysene	0.343	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Fluoranthene	0.749	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 06:18 PM
Indeno[1,2,3-cd]pyrene	0.159	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Phenanthrene	0.347	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
Pyrene	0.593	0.0499	0.0997	0.0748		mg/Kg-dry	10	07/26/16 06:18 PM
IS: Acenaphthene-d10	94.2	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Naphthalene-d8	99.7	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	07/26/16 06:18 PM
IS: Phenanthrene-d10	90.3	0	50-200	0		%REC	10	07/26/16 06:18 PM
Surr: 2-Fluorobiphenyl	76.2	0	46-115	0		%REC	10	07/26/16 06:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-10
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:30 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	71.2	0	58-133	0		%REC	10	07/26/16 06:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-11
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:32 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.82	0.0935	0.280	0.140		mg/Kg-dry	5	08/04/16 07:40 PM
IS: Bismuth	50.8	0	30-120	0		%REC	5	08/04/16 07:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	07/26/16 06:55 PM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	07/26/16 06:55 PM
IS: Acenaphthene-d10	98.7	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	07/26/16 06:55 PM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	07/26/16 06:55 PM
Surr: 2-Fluorobiphenyl	75.0	0	46-115	0		%REC	10	07/26/16 06:55 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-11
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:32 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	68.5	0	58-133	0		%REC	10	07/26/16 06:55 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-12
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:34 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.52	0.0971	0.291	0.146		mg/Kg-dry	5	08/04/16 07:46 PM
IS: Bismuth	51.2	0	30-120	0		%REC	5	08/04/16 07:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[a]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[a]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[b]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[g,h,i]perylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	07/26/16 10:01 PM
Benzo[k]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Chrysene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Phenanthrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
Pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	07/26/16 10:01 PM
IS: Acenaphthene-d10	92.6	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Naphthalene-d8	98.9	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	07/26/16 10:01 PM
IS: Phenanthrene-d10	94.7	0	50-200	0		%REC	10	07/26/16 10:01 PM
Surr: 2-Fluorobiphenyl	75.7	0	46-115	0		%REC	10	07/26/16 10:01 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU190(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-12
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:34 AM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	66.7	0	58-133	0		%REC	10	07/26/16 10:01 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-13
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:40 AM
Lab Order:	1607219	**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	08/09/16 11:33 PM
IS: Bismuth	87.9	0	30-120	0		%REC	1	08/09/16 11:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Acenaphthylene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Anthracene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[a]anthracene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[a]pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[b]fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[e]pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[g,h,i]perylene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Benzo[j]fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	NU	mg/L	1	07/28/16 11:16 AM
Benzo[k]fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Chrysene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Dibenz[a,h]anthracene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Fluoranthene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Fluorene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Indeno[1,2,3-cd]pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Phenanthrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
Pyrene	0.0000775	0.0000484	0.0000968	0.0000775	U	mg/L	1	07/28/16 11:16 AM
IS: Acenaphthene-d10	96.6	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Chrysene-d12	105	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Naphthalene-d8	99.3	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Perylene-d12	99.1	0	50-200	0		%REC	1	07/28/16 11:16 AM
IS: Phenanthrene-d10	106	0	50-200	0		%REC	1	07/28/16 11:16 AM
Surr: 2-Fluorobiphenyl	59.8	0	53-106	0		%REC	1	07/28/16 11:16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-13
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 11:40 AM
Lab Order:	1607219	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	53.6	0	58-132	0	S	%REC	1	07/28/16 11:16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-14
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:43 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	18.0	0.0870	0.261	0.130		mg/Kg-dry	5	08/04/16 07:52 PM
IS: Bismuth	54.3	0	30-120	0		%REC	5	08/04/16 07:52 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[a]pyrene	0.0501	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[e]pyrene	0.0627	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[g,h,i]perylene	0.0512	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	07/26/16 10:38 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Chrysene	0.0716	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	07/26/16 10:38 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	07/26/16 10:38 PM
IS: Acenaphthene-d10	96.9	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	07/26/16 10:38 PM
IS: Phenanthrene-d10	98.2	0	50-200	0		%REC	10	07/26/16 10:38 PM
Surr: 2-Fluorobiphenyl	70.9	0	46-115	0		%REC	10	07/26/16 10:38 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-DU110(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607219-14
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:43 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	63.2	0	58-133	0		%REC	10	07/26/16 10:38 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		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-15
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:45 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.99	0.0971	0.291	0.146		mg/Kg-dry	5	08/04/16 07:58 PM
IS: Bismuth	55.1	0	30-120	0		%REC	5	08/04/16 07:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	07/26/16 11:15 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/26/16 11:15 PM
IS: Acenaphthene-d10	99.0	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Chrysene-d12	107	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	07/26/16 11:15 PM
IS: Phenanthrene-d10	95.9	0	50-200	0		%REC	10	07/26/16 11:15 PM
Surr: 2-Fluorobiphenyl	70.4	0	46-115	0		%REC	10	07/26/16 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-DU110(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607219-15
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:45 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.7	0	58-133	0		%REC	10	07/26/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607219-16
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:48 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.46	0.0943	0.283	0.142		mg/Kg-dry	5	08/04/16 08:04 PM
IS: Bismuth	54.2	0	30-120	0		%REC	5	08/04/16 08:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	07/26/16 11:52 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	07/26/16 11:52 PM
IS: Acenaphthene-d10	98.6	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	07/26/16 11:52 PM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	07/26/16 11:52 PM
Surr: 2-Fluorobiphenyl	73.5	0	46-115	0		%REC	10	07/26/16 11:52 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607219-16
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:48 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.4	0	58-133	0		%REC	10	07/26/16 11:52 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-17
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:49 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.74	0.0943	0.283	0.142		mg/Kg-dry	5	08/04/16 08:16 PM
IS: Bismuth	53.5	0	30-120	0		%REC	5	08/04/16 08:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[a]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[b]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	07/27/16 12:29 AM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
Pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	07/27/16 12:29 AM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 12:29 AM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 12:29 AM
Surr: 2-Fluorobiphenyl	70.8	0	46-115	0		%REC	10	07/27/16 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-DU110(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607219-17
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:49 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	61.6	0	58-133	0		%REC	10	07/27/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-18
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:54 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	25.8	0.0877	0.263	0.132		mg/Kg-dry	5	08/04/16 08:22 PM
IS: Bismuth	49.4	0	30-120	0		%REC	5	08/04/16 08:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Anthracene	0.0602	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[a]anthracene	0.123	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[a]pyrene	0.152	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[b]fluoranthene	0.178	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[e]pyrene	0.0769	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[g,h,i]perylene	0.156	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[j]fluoranthene	0.0500	0.0484	0.0968	0.0726	JN	mg/Kg-dry	10	08/03/16 02:25 PM
Benzo[k]fluoranthene	0.107	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Chrysene	0.144	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Dibenz[a,h]anthracene	0.0814	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/03/16 02:25 PM
Fluoranthene	0.117	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Indeno[1,2,3-cd]pyrene	0.147	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
Phenanthrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/03/16 02:25 PM
Pyrene	0.112	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/03/16 02:25 PM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Chrysene-d12	98.8	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Perylene-d12	95.2	0	50-200	0		%REC	10	08/03/16 02:25 PM
IS: Phenanthrene-d10	93.2	0	50-200	0		%REC	10	08/03/16 02:25 PM
Surr: 2-Fluorobiphenyl	81.0	0	46-115	0		%REC	10	08/03/16 02:25 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-DU110(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607219-18
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:54 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.0	0	58-133	0		%REC	10	08/03/16 02:25 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-19
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:55 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.70	0.0980	0.294	0.147		mg/Kg-dry	5	08/04/16 08:28 PM
IS: Bismuth	50.7	0	30-120	0		%REC	5	08/04/16 08:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[a]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[a]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[b]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[e]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[j]fluoranthene	0.0735	0.0490	0.0979	0.0735	NU	mg/Kg-dry	10	07/27/16 01:43 AM
Benzo[k]fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Chrysene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Fluoranthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Phenanthrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
Pyrene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	07/27/16 01:43 AM
IS: Acenaphthene-d10	96.7	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Perylene-d12	103	0	50-200	0		%REC	10	07/27/16 01:43 AM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	07/27/16 01:43 AM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	07/27/16 01:43 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607219-19
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:55 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.6	0	58-133	0		%REC	10	07/27/16 01:43 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-20
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:57 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.37	0.0980	0.294	0.147		mg/Kg-dry	5	08/04/16 08:34 PM
IS: Bismuth	51.1	0	30-120	0		%REC	5	08/04/16 08:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Acenaphthylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[a]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[a]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[b]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[e]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[g,h,i]perylene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[j]fluoranthene	0.0741	0.0494	0.0988	0.0741	NU	mg/Kg-dry	10	07/27/16 02:20 AM
Benzo[k]fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Chrysene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Dibenz[a,h]anthracene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Fluoranthene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Fluorene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Indeno[1,2,3-cd]pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Phenanthrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
Pyrene	0.0741	0.0494	0.0988	0.0741	U	mg/Kg-dry	10	07/27/16 02:20 AM
IS: Acenaphthene-d10	99.7	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	07/27/16 02:20 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	07/27/16 02:20 AM
Surr: 2-Fluorobiphenyl	78.2	0	46-115	0		%REC	10	07/27/16 02:20 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-DU110(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607219-20
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:57 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	69.5	0	58-133	0		%REC	10	07/27/16 02:20 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-21
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:59 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.3	0.0909	0.273	0.136		mg/Kg-dry	5	08/04/16 08:40 PM
IS: Bismuth	50.1	0	30-120	0		%REC	5	08/04/16 08:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	07/27/16 02:56 AM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	07/27/16 02:56 AM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Perylene-d12	107	0	50-200	0		%REC	10	07/27/16 02:56 AM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 02:56 AM
Surr: 2-Fluorobiphenyl	69.1	0	46-115	0		%REC	10	07/27/16 02:56 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-DU110(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607219-21
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 02:59 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	61.2	0	58-133	0		%REC	10	07/27/16 02:56 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607219-22
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:05 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	24.4	0.0877	0.263	0.132		mg/Kg-dry	5	08/05/16 02:02 PM
IS: Bismuth	94.7	0	30-120	0		%REC	5	08/05/16 02:02 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Anthracene	0.0643	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[a]anthracene	0.0981	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[a]pyrene	0.103	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[b]fluoranthene	0.131	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[g,h,i]perylene	0.107	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/03/16 03:06 PM
Benzo[k]fluoranthene	0.0853	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Chrysene	0.103	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Dibenz[a,h]anthracene	0.0734	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Fluoranthene	0.0915	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:06 PM
Indeno[1,2,3-cd]pyrene	0.105	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:06 PM
Phenanthrene	0.0552	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
Pyrene	0.0836	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:06 PM
IS: Acenaphthene-d10	119	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Chrysene-d12	99.4	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Perylene-d12	95.7	0	50-200	0		%REC	10	08/03/16 03:06 PM
IS: Phenanthrene-d10	95.4	0	50-200	0		%REC	10	08/03/16 03:06 PM
Surr: 2-Fluorobiphenyl	78.5	0	46-115	0		%REC	10	08/03/16 03:06 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-DU110(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607219-22
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:05 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.9	0	58-133	0		%REC	10	08/03/16 03:06 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		

DHL Analytical, Inc.

Date: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-23
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:06 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.07	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 02:08 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/05/16 02:08 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Acenaphthylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[a]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[a]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[b]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[e]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[g,h,i]perylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[j]fluoranthene	0.0700	0.0467	0.0934	0.0700	NU	mg/Kg-dry	10	07/27/16 12:31 PM
Benzo[k]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Chrysene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Dibenz[a,h]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Fluorene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Indeno[1,2,3-cd]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Phenanthrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
Pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 12:31 PM
IS: Acenaphthene-d10	92.9	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Chrysene-d12	110	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	07/27/16 12:31 PM
IS: Phenanthrene-d10	98.7	0	50-200	0		%REC	10	07/27/16 12:31 PM
Surr: 2-Fluorobiphenyl	71.2	0	46-115	0		%REC	10	07/27/16 12:31 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607219-23
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:06 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	60.5	0	58-133	0		%REC	10	07/27/16 12:31 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-24
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:08 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.88	0.0885	0.265	0.133		mg/Kg-dry	5	08/05/16 02:14 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/05/16 02:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[a]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[a]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[b]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[e]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[g,h,i]perylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	07/27/16 01:08 PM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Chrysene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
Pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	07/27/16 01:08 PM
IS: Acenaphthene-d10	99.9	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Perylene-d12	110	0	50-200	0		%REC	10	07/27/16 01:08 PM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	07/27/16 01:08 PM
Surr: 2-Fluorobiphenyl	66.6	0	46-115	0		%REC	10	07/27/16 01:08 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-DU110(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607219-24
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:08 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	58.3	0	58-133	0		%REC	10	07/27/16 01:08 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU110(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-25
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:10 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.33	0.0962	0.288	0.144		mg/Kg-dry	5	08/05/16 02:20 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/05/16 02:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Acenaphthylene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Anthracene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[a]anthracene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[a]pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[b]fluoranthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[e]pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[g,h,i]perylene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[j]fluoranthene	0.0717	0.0478	0.0956	0.0717	NU	mg/Kg-dry	10	07/27/16 01:45 PM
Benzo[k]fluoranthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Chrysene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Dibenz[a,h]anthracene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Fluoranthene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Fluorene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Indeno[1,2,3-cd]pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Phenanthrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
Pyrene	0.0717	0.0478	0.0956	0.0717	U	mg/Kg-dry	10	07/27/16 01:45 PM
IS: Acenaphthene-d10	99.4	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	07/27/16 01:45 PM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	07/27/16 01:45 PM
Surr: 2-Fluorobiphenyl	69.7	0	46-115	0		%REC	10	07/27/16 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-DU110(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607219-25
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:10 PM
Lab Order:	1607219	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	62.6	0	58-133	0		%REC	10	07/27/16 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: *11-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-26
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:15 PM
Lab Order:	1607219	**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	08/09/16 11:39 PM
IS: Bismuth	87.6	0	30-120	0		%REC	1	08/09/16 11:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Acenaphthylene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Anthracene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[a]anthracene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[a]pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[b]fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[e]pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[g,h,i]perylene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Benzo[j]fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	NU	mg/L	1	07/28/16 11:54 AM
Benzo[k]fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Chrysene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Dibenz[a,h]anthracene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Fluoranthene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Fluorene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Indeno[1,2,3-cd]pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Phenanthrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
Pyrene	0.0000794	0.0000496	0.0000992	0.0000794	U	mg/L	1	07/28/16 11:54 AM
IS: Acenaphthene-d10	87.2	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Chrysene-d12	99.3	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Naphthalene-d8	91.8	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Perylene-d12	93.6	0	50-200	0		%REC	1	07/28/16 11:54 AM
IS: Phenanthrene-d10	92.7	0	50-200	0		%REC	1	07/28/16 11:54 AM
Surr: 2-Fluorobiphenyl	53.5	0	53-106	0		%REC	1	07/28/16 11:54 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:**	EB02(20160719)
Project:	Laredo SGR	**Lab ID:**	1607219-26
Project No:	04285081.0000.00044	**Collection Date:**	07/19/16 03:15 PM
Lab Order:	1607219	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	52.0	0	58-132	0	S	%REC	1	07/28/16 11:54 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
Work Order: 1607219
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: 1607219
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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160804C**

The QC data in batch 76548 applies to the following samples: 1607219-01A, 1607219-02A, 1607219-03A, 1607219-04A, 1607219-05A, 1607219-06A, 1607219-07A, 1607219-08A, 1607219-09A, 1607219-10A, 1607219-11A, 1607219-12A, 1607219-14A, 1607219-15A, 1607219-16A, 1607219-17A, 1607219-18A, 1607219-19A, 1607219-20A, 1607219-21A

Sample ID **MB-76548** Batch ID: **76548** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 5:16:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		66.9	30	120			

Sample ID **LCS-76548** Batch ID: **76548** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 5:22:00 PM** Prep Date: **8/3/2016**

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			
IS: Bismuth	50.0		200.0		64.2	30	120			

Sample ID **LCSD-76548** Batch ID: **76548** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 5:28:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.9	0.300	50.00	0	99.8	84	118	0.502	20	
IS: Bismuth	50.0		200.0		63.7	30	120	0	0	

Sample ID **1607219-03A SD** Batch ID: **76548** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 5:46:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	9.86	1.44	0	10.06				2.08	10	
IS: Bismuth	240		192.3		68.0	30	120	0	0	

Sample ID **1607219-03A PDS** Batch ID: **76548** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 6:52:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	57.9	0.288	48.08	10.06	99.6	80	120			
IS: Bismuth	48.1		961.5		55.7	30	120			

Sample ID **1607219-03A MS** Batch ID: **76548** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 6:58:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.9	0.250	41.67	10.06	98.0	84	118			
IS: Bismuth	41.7		166.7		55.1	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160804C**

Sample ID **1607219-03A MSD**	Batch ID: **76548**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **ICP-MS3_160804C**	Analysis Date: **8/4/2016 7:04:00 PM**	Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	53.7	0.265	44.25	10.06	98.7	84	118	5.43	20	
IS: Bismuth	44.2		177.0		53.8	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160804C**

Sample ID **ICV1-160804** Batch ID: **R87438** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 2:45:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0965	0.00100	0.100	0	96.5	90	110			
IS: Bismuth	0.200		0.200		82.1	30	120			

Sample ID **ILCVL-160804** Batch ID: **R87438** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 2:57:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000995	0.00100	0.00100	0	99.5	80	120			
IS: Bismuth	0.200		0.200		83.2	30	120			

Sample ID **CCV1-160804** Batch ID: **R87438** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 4:15:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.4	90	110			
IS: Bismuth	0.200		0.200		68.2	30	120			

Sample ID **LCVL1-160804** Batch ID: **R87438** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 4:27:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00108	0.00100	0.00100	0	108	80	120			
IS: Bismuth	0.200		0.200		69.4	30	120			

Sample ID **CCV2-160804** Batch ID: **R87438** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 7:16:00 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		51.6	30	120			

Sample ID **LCVL2-160804** Batch ID: **R87438** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160804C** Analysis Date: **8/4/2016 7:28:00 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		53.8	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

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160804C**

Sample ID **CCV3-160804**	Batch ID: **R87438**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160804C**	Analysis Date: **8/4/2016 8:52:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.4	90	110			
IS: Bismuth	0.200		0.200		45.1	30	120			

Sample ID **LCVL3-160804**	Batch ID: **R87438**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160804C**	Analysis Date: **8/4/2016 9:04:00 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		46.1	30	120			

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

The QC data in batch 76602 applies to the following samples: 1607219-22A, 1607219-23A, 1607219-24A, 1607219-25A

Sample ID **MB-76602** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:27:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		94.4	30	120			

Sample ID **LCS-76602** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:33:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.2	0.300	50.00	0	98.3	84	118			
IS: Bismuth	50.0		200.0		92.7	30	120			

Sample ID **LCSD-76602** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:39:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	48.6	0.300	50.00	0	97.2	84	118	1.07	20	
IS: Bismuth	50.0		200.0		92.3	30	120	0	0	

Sample ID **1607239-01A SD** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:56:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	43.7	1.46	0	46.58				6.43	10	
IS: Bismuth	243		194.2		95.5	30	120	0	0	

Sample ID **1607239-01A PDS** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 2:55:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	103	0.291	48.54	46.58	116	80	120			
IS: Bismuth	48.5		970.9		83.7	30	120			

Sample ID **1607239-01A MS** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 3:01:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	101	0.283	47.17	46.58	115	84	118			
IS: Bismuth	47.2		188.7		81.1	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

Sample ID **1607239-01A MSD**	Batch ID: **76602**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 3:06:00 PM**	Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	95.1	0.294	49.02	46.58	99.0	84	118	5.85	20	
IS: Bismuth	49.0		196.1		79.2	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

Sample ID **ICV1-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 1:09:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0967	0.00100	0.100	0	96.7	90	110			
IS: Bismuth	0.200		0.200		93.9	30	120			

Sample ID **ILCVL-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 1:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	80	120			
IS: Bismuth	0.200		0.200		94.6	30	120			

Sample ID **CCV1-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 3:12:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.6	90	110			
IS: Bismuth	0.200		0.200		80.2	30	120			

Sample ID **LCVL1-160805**	Batch ID: **R87466**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 3:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00108	0.00100	0.00100	0	108	80	120			
IS: Bismuth	0.200		0.200		81.3	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160809B**

The QC data in batch 76687 applies to the following samples: 1607219-13A, 1607219-26A

Sample ID **MB-76687** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 10:57:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		89.9	30	120			

Sample ID **LCS-76687** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 11:03:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	88	115			
IS: Bismuth	0.200		0.200		83.5	30	120			

Sample ID **LCSD-76687** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 11:09:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115	0.498	20	
IS: Bismuth	0.200		0.200		82.3	30	120	0	0	

Sample ID **1607337-26A PDS** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS3_160809B** Analysis Date: **8/10/2016 12:34:00 AM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.193	0.00100	0.200	0	96.6	80	120			
IS: Bismuth	0.200		0.200		84.0	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160809B**

Sample ID **ICV1-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		83.9	30	120			

Sample ID **LCVL5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		86.9	30	120			

Sample ID **CCV6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		86.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160502D**

Sample ID	**DCS-74876**	Batch ID:	**74876**	TestNo:	**SW8270D-LL**	Units:	**mg/Kg-dry**
SampType:	**DCS**	Run ID:	**GCMS6_160502D**	Analysis Date:	**5/2/2016 1:24:00 PM**	Prep Date:	**4/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00921	0.0100	0.01000	0	92.1	20	200	0	0	
Acenaphthylene	0.00964	0.0100	0.01000	0	96.4	20	200	0	0	
Anthracene	0.00923	0.0100	0.01000	0	92.3	20	200	0	0	
Benzo[a]anthracene	0.00934	0.0100	0.01000	0	93.4	20	200	0	0	
Benzo[a]pyrene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	
Benzo[b]fluoranthene	0.00923	0.0100	0.01000	0	92.3	20	200	0	0	
Benzo[e]pyrene	0.00939	0.0100	0.01000	0	93.9	20	200	0	0	
Benzo[g,h,i]perylene	0.0109	0.0100	0.01000	0	109	20	200	0	0	
Benzo[j]fluoranthene	0.00874	0.0100	0.01000	0	87.4	20	200	0	0	N
Benzo[k]fluoranthene	0.00895	0.0100	0.01000	0	89.5	20	200	0	0	
Chrysene	0.00935	0.0100	0.01000	0	93.5	20	200	0	0	
Dibenz[a,h]anthracene	0.0102	0.0100	0.01000	0	102	20	200	0	0	
Fluoranthene	0.0109	0.0100	0.01000	0	109	20	200	0	0	
Fluorene	0.00957	0.0100	0.01000	0	95.7	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.0102	0.0100	0.01000	0	102	20	200	0	0	
Phenanthrene	0.0100	0.0100	0.01000	0	100	20	200	0	0	
Pyrene	0.0107	0.0100	0.01000	0	107	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160509B**

Sample ID **DCS-74985**	Batch ID: **74985**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS6_160509B**	Analysis Date: **5/9/2016 7:07:00 PM**	Prep Date: **5/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Acenaphthylene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Anthracene	0.0000402	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[a]anthracene	0.0000413	0.0000500	0.0000400	0	103	20	170	0	0	
Benzo[a]pyrene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[e]pyrene	0.0000386	0.0000500	0.0000400	0	96.6	20	170	0	0	
Benzo[g,h,i]perylene	0.0000354	0.0000500	0.0000400	0	88.5	20	170	0	0	
Benzo[j]fluoranthene	0.0000389	0.0000500	0.0000400	0	97.2	20	170	0	0	N
Benzo[k]fluoranthene	0.0000393	0.0000500	0.0000400	0	98.3	20	170	0	0	
Chrysene	0.0000398	0.0000500	0.0000400	0	99.5	20	170	0	0	
Dibenz[a,h]anthracene	0.0000333	0.0000500	0.0000400	0	83.2	20	170	0	0	
Fluoranthene	0.0000453	0.0000500	0.0000400	0	113	20	170	0	0	
Fluorene	0.0000429	0.0000500	0.0000400	0	107	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000336	0.0000500	0.0000400	0	84.1	20	170	0	0	
Phenanthrene	0.0000397	0.0000500	0.0000400	0	99.2	20	170	0	0	
Pyrene	0.0000403	0.0000500	0.0000400	0	101	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160726A**

The QC data in batch 76420 applies to the following samples: 1607219-01A, 1607219-02A, 1607219-03A, 1607219-04A, 1607219-05A, 1607219-06A, 1607219-07A, 1607219-08A, 1607219-09A, 1607219-10A, 1607219-11A, 1607219-12A, 1607219-14A, 1607219-15A, 1607219-16A, 1607219-17A, 1607219-18A, 1607219-19A, 1607219-20A, 1607219-21A

Sample ID **LCS-76420** Batch ID: **76420** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160726A** Analysis Date: **7/26/2016 10:10:00 AM** Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.907	0.0100	1.000	0	90.7	44	111			
Acenaphthylene	0.912	0.0100	1.000	0	91.2	39	116			
Anthracene	0.855	0.0100	1.000	0	85.5	50	114			
Benzo[a]anthracene	0.949	0.0100	1.000	0	94.9	54	122			
Benzo[a]pyrene	0.917	0.0100	1.000	0	91.7	50	125			
Benzo[b]fluoranthene	0.944	0.0100	1.000	0	94.4	53	128			
Benzo[e]pyrene	0.987	0.0100	1.000	0	98.7	43	140			
Benzo[g,h,i]perylene	1.00	0.0100	1.000	0	100	49	127			
Benzo[j]fluoranthene	0.974	0.0100	1.000	0	97.4	45	125			N
Benzo[k]fluoranthene	0.891	0.0100	1.000	0	89.1	56	123			
Chrysene	0.949	0.0100	1.000	0	94.9	57	118			
Dibenz[a,h]anthracene	1.01	0.0100	1.000	0	101	50	129			
Fluoranthene	0.843	0.0100	1.000	0	84.3	55	119			
Fluorene	0.790	0.0100	1.000	0	79.0	47	114			
Indeno[1,2,3-cd]pyrene	0.994	0.0100	1.000	0	99.4	49	130			
Phenanthrene	0.887	0.0100	1.000	0	88.7	49	113			
Pyrene	0.832	0.0100	1.000	0	83.2	55	117			
IS: Acenaphthene-d10	4.00		4.000		76.9	50	200			
IS: Chrysene-d12	4.00		4.000		57.5	50	200			
IS: Naphthalene-d8	4.00		4.000		102	50	200			
IS: Perylene-d12	4.00		4.000		62.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		54.7	50	200			
Surr: 2-Fluorobiphenyl	0.921		1.000		92.1	46	115			
Surr: 4-Terphenyl-d14	0.824		1.000		82.4	58	133			

Sample ID **1607219-03AMS** Batch ID: **76420** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160726A** Analysis Date: **7/26/2016 10:47:00 AM** Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.766	0.0944	0.9443	0	81.2	44	111			
Acenaphthylene	0.742	0.0944	0.9443	0	78.6	39	116			
Anthracene	0.751	0.0944	0.9443	0	79.5	50	114			
Benzo[a]anthracene	0.743	0.0944	0.9443	0	78.7	54	122			
Benzo[a]pyrene	0.721	0.0944	0.9443	0	76.4	50	125			
Benzo[b]fluoranthene	0.741	0.0944	0.9443	0	78.5	53	128			
Benzo[e]pyrene	0.796	0.0944	0.9443	0	84.3	43	140			
Benzo[g,h,i]perylene	0.747	0.0944	0.9443	0	79.1	49	127			
Benzo[j]fluoranthene	0.781	0.0944	0.9443	0	82.7	45	125			N
Benzo[k]fluoranthene	0.765	0.0944	0.9443	0	81.0	56	123			

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 **1607219-03AMS**	Batch ID: **76420**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 10:47:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.763	0.0944	0.9443	0	80.8	57	118			
Dibenz[a,h]anthracene	0.760	0.0944	0.9443	0	80.5	50	129			
Fluoranthene	0.820	0.0944	0.9443	0	86.9	55	119			
Fluorene	0.777	0.0944	0.9443	0	82.3	47	114			
Indeno[1,2,3-cd]pyrene	0.750	0.0944	0.9443	0	79.5	49	130			
Phenanthrene	0.759	0.0944	0.9443	0	80.4	49	113			
Pyrene	0.821	0.0944	0.9443	0	86.9	55	117			
IS: Acenaphthene-d10	37.8		3.777		92.6	50	200			
IS: Chrysene-d12	37.8		3.777		103	50	200			
IS: Naphthalene-d8	37.8		3.777		96.8	50	200			
IS: Perylene-d12	37.8		3.777		101	50	200			
IS: Phenanthrene-d10	37.8		3.777		91.3	50	200			
Surr: 2-Fluorobiphenyl	0.696		0.9443		73.7	46	115			
Surr: 4-Terphenyl-d14	0.630		0.9443		66.7	58	133			

Sample ID **1607219-03AMSD**	Batch ID: **76420**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 11:24:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.826	0.0978	0.9775	0	84.5	44	111	7.44	20	
Acenaphthylene	0.799	0.0978	0.9775	0	81.8	39	116	7.42	20	
Anthracene	0.821	0.0978	0.9775	0	84.0	50	114	8.97	20	
Benzo[a]anthracene	0.820	0.0978	0.9775	0	83.9	54	122	9.88	20	
Benzo[a]pyrene	0.807	0.0978	0.9775	0	82.6	50	125	11.2	20	
Benzo[b]fluoranthene	0.824	0.0978	0.9775	0	84.3	53	128	10.6	20	
Benzo[e]pyrene	0.881	0.0978	0.9775	0	90.2	43	140	10.1	20	
Benzo[g,h,i]perylene	0.837	0.0978	0.9775	0	85.7	49	127	11.5	20	
Benzo[j]fluoranthene	0.879	0.0978	0.9775	0	89.9	45	125	11.8	20	N
Benzo[k]fluoranthene	0.842	0.0978	0.9775	0	86.2	56	123	9.59	20	
Chrysene	0.852	0.0978	0.9775	0	87.1	57	118	10.9	20	
Dibenz[a,h]anthracene	0.845	0.0978	0.9775	0	86.5	50	129	10.6	20	
Fluoranthene	0.904	0.0978	0.9775	0	92.5	55	119	9.74	20	
Fluorene	0.836	0.0978	0.9775	0	85.6	47	114	7.33	20	
Indeno[1,2,3-cd]pyrene	0.829	0.0978	0.9775	0	84.8	49	130	9.94	20	
Phenanthrene	0.835	0.0978	0.9775	0	85.4	49	113	9.45	20	
Pyrene	0.900	0.0978	0.9775	0	92.0	55	117	9.14	20	
IS: Acenaphthene-d10	39.1		3.910		88.9	50	200	0	0	
IS: Chrysene-d12	39.1		3.910		95.1	50	200	0	0	
IS: Naphthalene-d8	39.1		3.910		94.0	50	200	0	0	
IS: Perylene-d12	39.1		3.910		94.0	50	200	0	0	
IS: Phenanthrene-d10	39.1		3.910		84.8	50	200	0	0	

CLIENT:	Arcadis		
Work Order:	1607219		
Project:	Laredo SGR	**RunID:**	**GCMS6_160726A**

ANALYTICAL QC SUMMARY REPORT

Sample ID **1607219-03AMSD**	Batch ID: **76420**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 11:24:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.780		0.9775		79.8	46	115	0	0	
Surr: 4-Terphenyl-d14	0.723		0.9775		74.0	58	133	0	0	

Sample ID **MB-76420**	Batch ID: **76420**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 12:01:00 PM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U
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		84.3	50	200			
IS: Chrysene-d12	4.00		4.000		61.3	50	200			
IS: Naphthalene-d8	4.00		4.000		107	50	200			
IS: Perylene-d12	4.00		4.000		65.8	50	200			
IS: Phenanthrene-d10	4.00		4.000		59.9	50	200			
Surr: 2-Fluorobiphenyl	0.869		1.000		86.9	46	115			
Surr: 4-Terphenyl-d14	0.789		1.000		78.9	58	133			

Sample ID **SB-160726**	Batch ID: **76420**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 9:24:00 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

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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160726A**

Sample ID **SB-160726**	Batch ID: **76420**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 9:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0		0							
Surr: 4-Terphenyl-d14	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160726A**

Sample ID **ICV-160726**	Batch ID: **R87232**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 9:33:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.21	0.0100	2.000	0	111	80	120			
Acenaphthylene	2.19	0.0100	2.000	0	110	80	120			
Anthracene	1.74	0.0100	2.000	0	87.1	80	120			
Benzo[a]anthracene	2.11	0.0100	2.000	0	106	80	120			
Benzo[a]pyrene	2.11	0.0100	2.000	0	106	80	120			
Benzo[b]fluoranthene	2.06	0.0100	2.000	0	103	80	120			
Benzo[e]pyrene	2.04	0.0100	2.000	0	102	80	120			
Benzo[g,h,i]perylene	1.98	0.0100	2.000	0	98.9	80	120			
Benzo[j]fluoranthene	2.09	0.0100	2.000	0	105	80	120			N
Benzo[k]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Chrysene	2.01	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.35	0.0100	2.000	0	118	80	120			
Fluoranthene	2.07	0.0100	2.000	0	104	80	120			
Fluorene	2.29	0.0100	2.000	0	114	80	120			
Indeno[1,2,3-cd]pyrene	2.30	0.0100	2.000	0	115	80	120			
Phenanthrene	1.68	0.0100	2.000	0	83.8	80	120			
Pyrene	2.03	0.0100	2.000	0	101	80	120			
IS: Acenaphthene-d10	4.00		4.000		99.0	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		102	50	200			
IS: Perylene-d12	4.00		4.000		103	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	1.98		2.000		98.9	65	120			
Surr: 4-Terphenyl-d14	2.28		2.000		114	65	120			

Sample ID **ICV2-160726**	Batch ID: **R87232**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 8:09:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	97.8	80	120			
Acenaphthylene	1.99	0.0100	2.000	0	99.5	80	120			
Anthracene	1.91	0.0100	2.000	0	95.5	80	120			
Benzo[a]anthracene	1.96	0.0100	2.000	0	97.9	80	120			
Benzo[a]pyrene	1.94	0.0100	2.000	0	97.1	80	120			
Benzo[b]fluoranthene	1.97	0.0100	2.000	0	98.6	80	120			
Benzo[e]pyrene	1.94	0.0100	2.000	0	97.0	80	120			
Benzo[g,h,i]perylene	2.18	0.0100	2.000	0	109	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	97.9	80	120			N
Benzo[k]fluoranthene	1.95	0.0100	2.000	0	97.3	80	120			
Chrysene	1.92	0.0100	2.000	0	95.8	80	120			
Dibenz[a,h]anthracene	1.94	0.0100	2.000	0	97.2	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160726A**

Sample ID **ICV2-160726**	Batch ID: **R87232**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160726A**	Analysis Date: **7/26/2016 8:09:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.83	0.0100	2.000	0	91.7	80	120			
Fluorene	1.99	0.0100	2.000	0	99.6	80	120			
Indeno[1,2,3-cd]pyrene	1.91	0.0100	2.000	0	95.7	80	120			
Phenanthrene	1.88	0.0100	2.000	0	94.2	80	120			
Pyrene	1.79	0.0100	2.000	0	89.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		102	50	200			
IS: Chrysene-d12	4.00		4.000		108	50	200			
IS: Naphthalene-d8	4.00		4.000		107	50	200			
IS: Perylene-d12	4.00		4.000		108	50	200			
IS: Phenanthrene-d10	4.00		4.000		106	50	200			
Surr: 2-Fluorobiphenyl	2.03		2.000		101	65	120			
Surr: 4-Terphenyl-d14	1.99		2.000		99.3	65	120			

Sample ID **CCV1-160726**	Batch ID: **R87232**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160726A**	Analysis Date: **7/27/2016 3:34:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.934	0.0100	1.000	0	93.4	50	150			
Acenaphthylene	0.943	0.0100	1.000	0	94.3	50	150			
Anthracene	0.907	0.0100	1.000	0	90.7	50	150			
Benzo[a]anthracene	0.964	0.0100	1.000	0	96.4	50	150			
Benzo[a]pyrene	0.949	0.0100	1.000	0	94.9	50	150			
Benzo[b]fluoranthene	0.971	0.0100	1.000	0	97.1	50	150			
Benzo[e]pyrene	0.944	0.0100	1.000	0	94.4	50	150			
Benzo[g,h,i]perylene	1.07	0.0100	1.000	0	107	50	150			
Benzo[j]fluoranthene	0.961	0.0100	1.000	0	96.1	50	150			N
Benzo[k]fluoranthene	0.965	0.0100	1.000	0	96.5	50	150			
Chrysene	0.931	0.0100	1.000	0	93.1	50	150			
Dibenz[a,h]anthracene	0.961	0.0100	1.000	0	96.1	50	150			
Fluoranthene	0.916	0.0100	1.000	0	91.6	50	150			
Fluorene	0.965	0.0100	1.000	0	96.5	50	150			
Indeno[1,2,3-cd]pyrene	0.947	0.0100	1.000	0	94.7	50	150			
Phenanthrene	0.895	0.0100	1.000	0	89.5	50	150			
Pyrene	0.896	0.0100	1.000	0	89.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		104	50	200			
IS: Chrysene-d12	4.00		4.000		113	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		111	50	200			
IS: Phenanthrene-d10	4.00		4.000		111	50	200			
Surr: 2-Fluorobiphenyl	0.976		1.000		97.6	50	150			
Surr: 4-Terphenyl-d14	0.987		1.000		98.7	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

The QC data in batch 76442 applies to the following samples: 1607219-22A, 1607219-23A, 1607219-24A, 1607219-25A

Sample ID **LCS-76442** Batch ID: **76442** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160727A** Analysis Date: **7/27/2016 10:40:00 AM** Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.754	0.0100	1.000	0	75.4	44	111			
Acenaphthylene	0.754	0.0100	1.000	0	75.4	39	116			
Anthracene	0.730	0.0100	1.000	0	73.0	50	114			
Benzo[a]anthracene	0.768	0.0100	1.000	0	76.8	54	122			
Benzo[a]pyrene	0.744	0.0100	1.000	0	74.4	50	125			
Benzo[b]fluoranthene	0.746	0.0100	1.000	0	74.6	53	128			
Benzo[e]pyrene	0.801	0.0100	1.000	0	80.1	43	140			
Benzo[g,h,i]perylene	0.979	0.0100	1.000	0	97.9	49	127			
Benzo[j]fluoranthene	0.780	0.0100	1.000	0	78.0	45	125			N
Benzo[k]fluoranthene	0.739	0.0100	1.000	0	73.9	56	123			
Chrysene	0.771	0.0100	1.000	0	77.1	57	118			
Dibenz[a,h]anthracene	0.861	0.0100	1.000	0	86.1	50	129			
Fluoranthene	0.728	0.0100	1.000	0	72.8	55	119			
Fluorene	0.648	0.0100	1.000	0	64.8	47	114			
Indeno[1,2,3-cd]pyrene	0.844	0.0100	1.000	0	84.4	49	130			
Phenanthrene	0.916	0.0100	1.000	0	91.6	49	113			
Pyrene	0.725	0.0100	1.000	0	72.5	55	117			
IS: Acenaphthene-d10	4.00		4.000		90.6	50	200			
IS: Chrysene-d12	4.00		4.000		70.0	50	200			
IS: Naphthalene-d8	4.00		4.000		121	50	200			
IS: Perylene-d12	4.00		4.000		76.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		62.7	50	200			
Surr: 2-Fluorobiphenyl	0.744		1.000		74.4	46	115			
Surr: 4-Terphenyl-d14	0.690		1.000		69.0	58	133			

Sample ID **MB-76442** Batch ID: **76442** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160727A** Analysis Date: **7/27/2016 11:17:00 AM** Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160727A

Sample ID **MB-76442**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 11:17:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		89.4	50	200			
IS: Chrysene-d12	4.00		4.000		70.6	50	200			
IS: Naphthalene-d8	4.00		4.000		113	50	200			
IS: Perylene-d12	4.00		4.000		78.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		58.3	50	200			
Surr: 2-Fluorobiphenyl	0.786		1.000		78.6	46	115			
Surr: 4-Terphenyl-d14	0.820		1.000		82.0	58	133			

Sample ID **SB-160727**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 9:49:00 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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

Sample ID **1607239-01AMS**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 2:46:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.750	0.0936	0.9363	0	80.1	44	111			
Acenaphthylene	0.708	0.0936	0.9363	0	75.6	39	116			
Anthracene	0.790	0.0936	0.9363	0	84.4	50	114			
Benzo[a]anthracene	1.20	0.0936	0.9363	0.3377	91.6	54	122			
Benzo[a]pyrene	1.25	0.0936	0.9363	0.4660	83.3	50	125			
Benzo[b]fluoranthene	1.27	0.0936	0.9363	0.4549	86.9	53	128			
Benzo[e]pyrene	1.19	0.0936	0.9363	0.3698	87.5	43	140			
Benzo[g,h,i]perylene	1.29	0.0936	0.9363	0.4246	92.4	49	127			
Benzo[j]fluoranthene	1.05	0.0936	0.9363	0.2338	87.4	45	125			N
Benzo[k]fluoranthene	1.04	0.0936	0.9363	0.2321	86.7	56	123			
Chrysene	1.32	0.0936	0.9363	0.4545	92.5	57	118			
Dibenz[a,h]anthracene	0.833	0.0936	0.9363	0.08338	80.1	50	129			
Fluoranthene	1.63	0.0936	0.9363	0.5681	113	55	119			
Fluorene	0.753	0.0936	0.9363	0	80.4	47	114			
Indeno[1,2,3-cd]pyrene	1.07	0.0936	0.9363	0.3109	81.5	49	130			
Phenanthrene	1.12	0.0936	0.9363	0.2155	96.2	49	113			
Pyrene	1.48	0.0936	0.9363	0.4982	105	55	117			
IS: Acenaphthene-d10	37.5		3.745		98.4	50	200			
IS: Chrysene-d12	37.5		3.745		115	50	200			
IS: Naphthalene-d8	37.5		3.745		105	50	200			
IS: Perylene-d12	37.5		3.745		111	50	200			
IS: Phenanthrene-d10	37.5		3.745		104	50	200			
Surr: 2-Fluorobiphenyl	0.660		0.9363		70.5	46	115			
Surr: 4-Terphenyl-d14	0.553		0.9363		59.1	58	133			

Sample ID **1607239-01AMSD**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 3:23:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.789	0.0955	0.9551	0	82.6	44	111	5.07	20	
Acenaphthylene	0.737	0.0955	0.9551	0	77.1	39	116	3.95	20	
Anthracene	0.767	0.0955	0.9551	0	80.4	50	114	2.88	20	
Benzo[a]anthracene	1.29	0.0955	0.9551	0.3377	99.5	54	122	7.40	20	
Benzo[a]pyrene	1.47	0.0955	0.9551	0.4660	105	50	125	16.3	20	
Benzo[b]fluoranthene	1.45	0.0955	0.9551	0.4549	104	53	128	13.1	20	
Benzo[e]pyrene	1.35	0.0955	0.9551	0.3698	102	43	140	12.5	20	
Benzo[g,h,i]perylene	1.49	0.0955	0.9551	0.4246	112	49	127	14.5	20	
Benzo[j]fluoranthene	1.17	0.0955	0.9551	0.2338	98.2	45	125	10.8	20	N
Benzo[k]fluoranthene	1.16	0.0955	0.9551	0.2321	97.0	56	123	10.4	20	
Chrysene	1.45	0.0955	0.9551	0.4545	105	57	118	9.65	20	
Dibenz[a,h]anthracene	0.877	0.0955	0.9551	0.08338	83.1	50	129	5.17	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

Sample ID **1607239-01AMSD**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 3:23:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.66	0.0955	0.9551	0.5681	114	55	119	2.11	20	
Fluorene	0.763	0.0955	0.9551	0	79.9	47	114	1.34	20	
Indeno[1,2,3-cd]pyrene	1.22	0.0955	0.9551	0.3109	95.6	49	130	13.0	20	
Phenanthrene	1.03	0.0955	0.9551	0.2155	85.5	49	113	7.85	20	
Pyrene	1.55	0.0955	0.9551	0.4982	110	55	117	4.60	20	
IS: Acenaphthene-d10	38.2		3.820		104	50	200	0	0	
IS: Chrysene-d12	38.2		3.820		115	50	200	0	0	
IS: Naphthalene-d8	38.2		3.820		110	50	200	0	0	
IS: Perylene-d12	38.2		3.820		111	50	200	0	0	
IS: Phenanthrene-d10	38.2		3.820		108	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.675		0.9551		70.7	46	115	0	0	
Surr: 4-Terphenyl-d14	0.538		0.9551		56.3	58	133	0	0	S

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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160727A

Sample ID **ICV-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 10:00:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.93	0.0100	2.000	0	96.6	80	120			
Acenaphthylene	1.95	0.0100	2.000	0	97.6	80	120			
Anthracene	1.80	0.0100	2.000	0	90.2	80	120			
Benzo[a]anthracene	1.96	0.0100	2.000	0	98.1	80	120			
Benzo[a]pyrene	1.93	0.0100	2.000	0	96.7	80	120			
Benzo[b]fluoranthene	1.95	0.0100	2.000	0	97.3	80	120			
Benzo[e]pyrene	1.92	0.0100	2.000	0	95.8	80	120			
Benzo[g,h,i]perylene	2.17	0.0100	2.000	0	109	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	98.1	80	120			N
Benzo[k]fluoranthene	1.93	0.0100	2.000	0	96.3	80	120			
Chrysene	1.91	0.0100	2.000	0	95.3	80	120			
Dibenz[a,h]anthracene	1.93	0.0100	2.000	0	96.4	80	120			
Fluoranthene	1.76	0.0100	2.000	0	87.9	80	120			
Fluorene	1.97	0.0100	2.000	0	98.7	80	120			
Indeno[1,2,3-cd]pyrene	1.90	0.0100	2.000	0	95.1	80	120			
Phenanthrene	2.22	0.0100	2.000	0	111	80	120			
Pyrene	1.72	0.0100	2.000	0	86.2	80	120			
IS: Acenaphthene-d10	4.00		4.000		103	50	200			
IS: Chrysene-d12	4.00		4.000		108	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		108	50	200			
IS: Phenanthrene-d10	4.00		4.000		112	50	200			
Surr: 2-Fluorobiphenyl	2.00		2.000		100	65	120			
Surr: 4-Terphenyl-d14	1.90		2.000		95.1	65	120			

Sample ID **ICV2-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 8:35:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	96.9	80	120			
Acenaphthylene	1.96	0.0100	2.000	0	98.0	80	120			
Anthracene	1.84	0.0100	2.000	0	92.0	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.7	80	120			
Benzo[a]pyrene	1.92	0.0100	2.000	0	96.0	80	120			
Benzo[b]fluoranthene	1.93	0.0100	2.000	0	96.4	80	120			
Benzo[e]pyrene	1.93	0.0100	2.000	0	96.5	80	120			
Benzo[g,h,i]perylene	2.19	0.0100	2.000	0	109	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	97.8	80	120			N
Benzo[k]fluoranthene	1.90	0.0100	2.000	0	95.0	80	120			
Chrysene	1.91	0.0100	2.000	0	95.6	80	120			
Dibenz[a,h]anthracene	1.95	0.0100	2.000	0	97.3	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: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160727A

Sample ID **ICV2-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 8:35:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.83	0.0100	2.000	0	91.6	80	120			
Fluorene	1.97	0.0100	2.000	0	98.5	80	120			
Indeno[1,2,3-cd]pyrene	1.92	0.0100	2.000	0	95.9	80	120			
Phenanthrene	1.82	0.0100	2.000	0	90.9	80	120			
Pyrene	1.79	0.0100	2.000	0	89.6	80	120			
IS: Acenaphthene-d10	4.00		4.000		102	50	200			
IS: Chrysene-d12	4.00		4.000		109	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		109	50	200			
IS: Phenanthrene-d10	4.00		4.000		108	50	200			
Surr: 2-Fluorobiphenyl	2.00		2.000		100	65	120			
Surr: 4-Terphenyl-d14	1.98		2.000		99.1	65	120			

Sample ID **CCV1-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 4:00:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.932	0.0100	1.000	0	93.2	50	150			
Acenaphthylene	0.942	0.0100	1.000	0	94.2	50	150			
Anthracene	0.903	0.0100	1.000	0	90.3	50	150			
Benzo[a]anthracene	0.962	0.0100	1.000	0	96.2	50	150			
Benzo[a]pyrene	0.946	0.0100	1.000	0	94.6	50	150			
Benzo[b]fluoranthene	0.968	0.0100	1.000	0	96.8	50	150			
Benzo[e]pyrene	0.953	0.0100	1.000	0	95.3	50	150			
Benzo[g,h,i]perylene	1.06	0.0100	1.000	0	106	50	150			
Benzo[j]fluoranthene	0.963	0.0100	1.000	0	96.3	50	150			N
Benzo[k]fluoranthene	0.963	0.0100	1.000	0	96.3	50	150			
Chrysene	0.940	0.0100	1.000	0	94.0	50	150			
Dibenz[a,h]anthracene	0.948	0.0100	1.000	0	94.8	50	150			
Fluoranthene	0.914	0.0100	1.000	0	91.4	50	150			
Fluorene	0.930	0.0100	1.000	0	93.0	50	150			
Indeno[1,2,3-cd]pyrene	0.937	0.0100	1.000	0	93.7	50	150			
Phenanthrene	1.09	0.0100	1.000	0	109	50	150			
Pyrene	0.894	0.0100	1.000	0	89.4	50	150			
IS: Acenaphthene-d10	4.00		4.000		116	50	200			
IS: Chrysene-d12	4.00		4.000		122	50	200			
IS: Naphthalene-d8	4.00		4.000		122	50	200			
IS: Perylene-d12	4.00		4.000		120	50	200			
IS: Phenanthrene-d10	4.00		4.000		118	50	200			
Surr: 2-Fluorobiphenyl	0.988		1.000		98.8	50	150			
Surr: 4-Terphenyl-d14	0.984		1.000		98.4	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

The QC data in batch 76453 applies to the following samples: 1607219-13B, 1607219-26B

Sample ID **LCS-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **LCS**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 9:24:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00232	0.0000500	0.00400	0	57.9	48	114			
Acenaphthylene	0.00238	0.0000500	0.00400	0	59.4	35	121			
Anthracene	0.00242	0.0000500	0.00400	0	60.5	53	119			
Benzo[a]anthracene	0.00281	0.0000500	0.00400	0	70.1	59	120			
Benzo[a]pyrene	0.00274	0.0000500	0.00400	0	68.5	53	120			
Benzo[b]fluoranthene	0.00281	0.0000500	0.00400	0	70.2	53	126			
Benzo[e]pyrene	0.00286	0.0000500	0.00400	0	71.5	40	140			
Benzo[g,h,i]perylene	0.00292	0.0000500	0.00400	0	73.1	44	128			
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124			N
Benzo[k]fluoranthene	0.00264	0.0000500	0.00400	0	66.1	54	125			
Chrysene	0.00274	0.0000500	0.00400	0	68.4	57	120			
Dibenz[a,h]anthracene	0.00268	0.0000500	0.00400	0	67.0	44	131			
Fluoranthene	0.00259	0.0000500	0.00400	0	64.7	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.2	50	118			
Indeno[1,2,3-cd]pyrene	0.00261	0.0000500	0.00400	0	65.2	48	130			
Phenanthrene	0.00298	0.0000500	0.00400	0	74.4	53	115			
Pyrene	0.00251	0.0000500	0.00400	0	62.8	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		95.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		108	50	200			
IS: Naphthalene-d8	0.00800		0.00800		101	50	200			
IS: Perylene-d12	0.00800		0.00800		106	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	4.56		8.000		57.0	53	106			
Surr: 4-Terphenyl-d14	4.75		8.000		59.3	58	132			

Sample ID **LCSD-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **LCSD**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:01:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00239	0.0000500	0.00400	0	59.6	48	114	2.91	20	
Acenaphthylene	0.00244	0.0000500	0.00400	0	61.0	35	121	2.59	20	
Anthracene	0.00227	0.0000500	0.00400	0	56.6	53	119	6.66	20	
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.8	59	120	1.91	20	
Benzo[a]pyrene	0.00270	0.0000500	0.00400	0	67.4	53	120	1.56	20	
Benzo[b]fluoranthene	0.00275	0.0000500	0.00400	0	68.7	53	126	2.09	20	
Benzo[e]pyrene	0.00283	0.0000500	0.00400	0	70.8	40	140	1.01	20	
Benzo[g,h,i]perylene	0.00267	0.0000500	0.00400	0	66.8	44	128	8.96	20	
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124	0.002	2	N
Benzo[k]fluoranthene	0.00268	0.0000500	0.00400	0	66.9	54	125	1.22	20	
Chrysene	0.00268	0.0000500	0.00400	0	67.0	57	120	2.01	20	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID **LCSD-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **LCSD**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:01:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00252	0.0000500	0.00400	0	63.1	44	131	5.98	20	
Fluoranthene	0.00249	0.0000500	0.00400	0	62.3	58	120	3.76	20	
Fluorene	0.00252	0.0000500	0.00400	0	63.1	50	118	1.67	20	
Indeno[1,2,3-cd]pyrene	0.00246	0.0000500	0.00400	0	61.5	48	130	5.77	20	
Phenanthrene	0.00291	0.0000500	0.00400	0	72.7	53	115	2.35	20	
Pyrene	0.00241	0.0000500	0.00400	0	60.2	53	121	4.29	20	
IS: Acenaphthene-d10	0.00800		0.00800		91.4	50	200	0	0	
IS: Chrysene-d12	0.00800		0.00800		104	50	200	0	0	
IS: Naphthalene-d8	0.00800		0.00800		97.4	50	200	0	0	
IS: Perylene-d12	0.00800		0.00800		99.9	50	200	0	0	
IS: Phenanthrene-d10	0.00800		0.00800		101	50	200	0	0	
Surr: 2-Fluorobiphenyl	4.37		8.000		54.7	53	106	0	0	
Surr: 4-Terphenyl-d14	4.49		8.000		56.1	58	132	0	0	S

Sample ID **MB-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:39:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		88.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		102	50	200			
IS: Naphthalene-d8	0.00800		0.00800		93.3	50	200			
IS: Perylene-d12	0.00800		0.00800		97.0	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		94.1	50	200			
Surr: 2-Fluorobiphenyl	4.65		8.000		58.1	53	106			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID **MB-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:39:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	5.02		8.000		62.7	58	132			

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID **ICV-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 8:46:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0000500	2.00	0	96.8	80	120			
Acenaphthylene	1.96	0.0000500	2.00	0	97.8	80	120			
Anthracene	1.80	0.0000500	2.00	0	89.9	80	120			
Benzo[a]anthracene	1.96	0.0000500	2.00	0	98.0	80	120			
Benzo[a]pyrene	1.95	0.0000500	2.00	0	97.3	80	120			
Benzo[b]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Benzo[e]pyrene	1.94	0.0000500	2.00	0	97.0	80	120			
Benzo[g,h,i]perylene	2.18	0.0000500	2.00	0	109	80	120			
Benzo[j]fluoranthene	1.98	0.0000500	2.00	0	99.2	80	120			N
Benzo[k]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Chrysene	1.91	0.0000500	2.00	0	95.5	80	120			
Dibenz[a,h]anthracene	1.93	0.0000500	2.00	0	96.6	80	120			
Fluoranthene	1.82	0.0000500	2.00	0	91.2	80	120			
Fluorene	1.96	0.0000500	2.00	0	97.9	80	120			
Indeno[1,2,3-cd]pyrene	1.90	0.0000500	2.00	0	95.2	80	120			
Phenanthrene	2.21	0.0000500	2.00	0	111	80	120			
Pyrene	1.79	0.0000500	2.00	0	89.4	80	120			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		117	50	200			
IS: Naphthalene-d8	4.00		4.00		111	50	200			
IS: Perylene-d12	4.00		4.00		115	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	2010		2000		101	65	120			
Surr: 4-Terphenyl-d14	2000		2000		99.9	65	120			

Sample ID **ICV2-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 5:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.82	0.0000500	2.00	0	91.1	50	150			
Acenaphthylene	1.86	0.0000500	2.00	0	92.9	50	150			
Anthracene	1.73	0.0000500	2.00	0	86.4	50	150			
Benzo[a]anthracene	1.84	0.0000500	2.00	0	92.1	50	150			
Benzo[a]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[b]fluoranthene	1.85	0.0000500	2.00	0	92.7	50	150			
Benzo[e]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[g,h,i]perylene	1.49	0.0000500	2.00	0	74.5	50	150			
Benzo[j]fluoranthene	1.88	0.0000500	2.00	0	94.1	50	150			N
Benzo[k]fluoranthene	1.85	0.0000500	2.00	0	92.5	50	150			
Chrysene	1.80	0.0000500	2.00	0	89.8	50	150			
Dibenz[a,h]anthracene	1.42	0.0000500	2.00	0	71.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID **ICV2-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 5:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	86.2	50	150			
Fluorene	1.86	0.0000500	2.00	0	93.0	50	150			
Indeno[1,2,3-cd]pyrene	1.39	0.0000500	2.00	0	69.3	50	150			
Phenanthrene	2.09	0.0000500	2.00	0	104	50	150			
Pyrene	1.69	0.0000500	2.00	0	84.4	50	150			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		116	50	200			
IS: Naphthalene-d8	4.00		4.00		109	50	200			
IS: Perylene-d12	4.00		4.00		114	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	1900		2000		95.2	50	150			
Surr: 4-Terphenyl-d14	1880		2000		93.9	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

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	

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160803A**

The QC data in batch 76420 applies to the following samples: 1607219-01A, 1607219-02A, 1607219-03A, 1607219-04A, 1607219-05A, 1607219-06A, 1607219-07A, 1607219-08A, 1607219-09A, 1607219-10A, 1607219-11A, 1607219-12A, 1607219-14A, 1607219-15A, 1607219-16A, 1607219-17A, 1607219-18A, 1607219-19A, 1607219-20A, 1607219-21A

Sample ID **SB-160803** Batch ID: **76420** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **SBLK** Run ID: **GCMS6_160803A** Analysis Date: **8/3/2016 12:23:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000630		0							
Surr: 4-Terphenyl-d14	0.00209		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160803A**

Sample ID **ICV-160803** Batch ID: **R87405** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **ICV** Run ID: **GCMS6_160803A** Analysis Date: **8/3/2016 11:02:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.03	0.0100	2.000	0	101	80	120			
Acenaphthylene	2.01	0.0100	2.000	0	101	80	120			
Anthracene	1.91	0.0100	2.000	0	95.3	80	120			
Benzo[a]anthracene	2.03	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Benzo[e]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.29	0.0100	2.000	0	115	80	120			
Benzo[j]fluoranthene	2.05	0.0100	2.000	0	102	80	120			N
Benzo[k]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.31	0.0100	2.000	0	115	80	120			
Fluoranthene	1.95	0.0100	2.000	0	97.5	80	120			
Fluorene	2.05	0.0100	2.000	0	102	80	120			
Indeno[1,2,3-cd]pyrene	2.29	0.0100	2.000	0	114	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.5	80	120			
Pyrene	1.93	0.0100	2.000	0	96.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		103	50	200			
IS: Perylene-d12	4.00		4.000		103	50	200			
IS: Phenanthrene-d10	4.00		4.000		92.2	50	200			
Surr: 2-Fluorobiphenyl	1.97		2.000		98.7	65	120			
Surr: 4-Terphenyl-d14	1.99		2.000		99.6	65	120			

Sample ID **CCV1-160803** Batch ID: **R87405** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **CCV** Run ID: **GCMS6_160803A** Analysis Date: **8/3/2016 6:30:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.959	0.0100	1.000	0	95.9	50	150			
Acenaphthylene	0.937	0.0100	1.000	0	93.7	50	150			
Anthracene	0.917	0.0100	1.000	0	91.7	50	150			
Benzo[a]anthracene	0.947	0.0100	1.000	0	94.7	50	150			
Benzo[a]pyrene	0.940	0.0100	1.000	0	94.0	50	150			
Benzo[b]fluoranthene	0.956	0.0100	1.000	0	95.6	50	150			
Benzo[e]pyrene	0.949	0.0100	1.000	0	94.9	50	150			
Benzo[g,h,i]perylene	1.11	0.0100	1.000	0	111	50	150			
Benzo[j]fluoranthene	0.955	0.0100	1.000	0	95.5	50	150			N
Benzo[k]fluoranthene	0.994	0.0100	1.000	0	99.4	50	150			
Chrysene	0.939	0.0100	1.000	0	93.9	50	150			
Dibenz[a,h]anthracene	1.11	0.0100	1.000	0	111	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607219
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160803A**

Sample ID **CCV1-160803**	Batch ID: **R87405**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160803A**	Analysis Date: **8/3/2016 6:30:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.915	0.0100	1.000	0	91.5	50	150			
Fluorene	0.985	0.0100	1.000	0	98.5	50	150			
Indeno[1,2,3-cd]pyrene	1.10	0.0100	1.000	0	110	50	150			
Phenanthrene	0.928	0.0100	1.000	0	92.8	50	150			
Pyrene	0.896	0.0100	1.000	0	89.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		99.0	50	200			
IS: Naphthalene-d8	4.00		4.000		101	50	200			
IS: Perylene-d12	4.00		4.000		98.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		93.8	50	200			
Surr: 2-Fluorobiphenyl	0.918		1.000		91.8	50	150			
Surr: 4-Terphenyl-d14	0.925		1.000		92.5	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

11-Aug-16

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

Sequence Report

Run ID: GCMS6_160502D

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DCS-74876	-----	SW8270D-LL	74876	1	5/2/2016 1:24:00 PM	4/29/2016 9:09:15 AM	S

Run ID: GCMS6_160509B

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DCS-74985	-----	SW8270D-LL	74985	1	5/9/2016 7:07:00 PM	5/6/2016 2:10:35 PM	A

Run ID: GCMS6_160726A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DFTPP-160726	-----	SW8270D-LL	R87232	1	7/26/2016 8:56:00 AM		S
ICV-160726	-----	SW8270D-LL	R87232	1	7/26/2016 9:33:00 AM		S
LCS-76420	-----	SW8270D-LL	76420	1	7/26/2016 10:10:00 AM	7/25/2016 8:50:03 AM	S
1607219-03AMS	SGR-DU190(4-6)-AMS	SW8270D-LL	76420	10	7/26/2016 10:47:00 AM	7/25/2016 8:50:03 AM	S
1607219-03AMSD	SGR-DU190(4-6)-AMSD	SW8270D-LL	76420	10	7/26/2016 11:24:00 AM	7/25/2016 8:50:03 AM	S
MB-76420	-----	SW8270D-LL	76420	1	7/26/2016 12:01:00 PM	7/25/2016 8:50:03 AM	S
1607219-01A	SGR-DU190(0-2)-A	SW8270D-LL	76420	10	7/26/2016 12:38:00 PM	7/25/2016 8:50:03 AM	S
1607219-02A	SGR-DU190(2-4)-A	SW8270D-LL	76420	10	7/26/2016 1:16:00 PM	7/25/2016 8:50:03 AM	S
1607219-03A	SGR-DU190(4-6)-A	SW8270D-LL	76420	10	7/26/2016 1:54:00 PM	7/25/2016 8:50:03 AM	S
1607219-04A	SGR-DU190(6-8)-A	SW8270D-LL	76420	10	7/26/2016 2:32:00 PM	7/25/2016 8:50:03 AM	S
1607219-05A	SGR-DU190(0-2)-B	SW8270D-LL	76420	10	7/26/2016 3:10:00 PM	7/25/2016 8:50:03 AM	S
1607219-06A	SGR-DU190(2-4)-B	SW8270D-LL	76420	10	7/26/2016 3:48:00 PM	7/25/2016 8:50:03 AM	S
1607219-07A	SGR-DU190(4-6)-B	SW8270D-LL	76420	10	7/26/2016 4:25:00 PM	7/25/2016 8:50:03 AM	S
1607219-08A	SGR-DU190(6-8)-B	SW8270D-LL	76420	10	7/26/2016 5:04:00 PM	7/25/2016 8:50:03 AM	S
1607219-09A	SGR-DU190(0-2)-C	SW8270D-LL	76420	10	7/26/2016 5:41:00 PM	7/25/2016 8:50:03 AM	S
1607219-10A	SGR-DU190(2-4)-C	SW8270D-LL	76420	10	7/26/2016 6:18:00 PM	7/25/2016 8:50:03 AM	S
1607219-11A	SGR-DU190(4-6)-C	SW8270D-LL	76420	10	7/26/2016 6:55:00 PM	7/25/2016 8:50:03 AM	S
DFTPP2-160726	-----	SW8270D-LL	R87232	1	7/26/2016 7:32:00 PM		S
ICV2-160726	-----	SW8270D-LL	R87232	1	7/26/2016 8:09:00 PM		S
SB-160726	-----	SW8270D-LL	76420	1	7/26/2016 9:24:00 PM		S
1607219-12A	SGR-DU190(6-8)-C	SW8270D-LL	76420	10	7/26/2016 10:01:00 PM	7/25/2016 8:50:03 AM	S
1607219-14A	SGR-DU110(0-2)-A	SW8270D-LL	76420	10	7/26/2016 10:38:00 PM	7/25/2016 8:50:03 AM	S
1607219-15A	SGR-DU110(2-4)-A	SW8270D-LL	76420	10	7/26/2016 11:15:00 PM	7/25/2016 8:50:03 AM	S
1607219-16A	SGR-DU110(4-6)-A	SW8270D-LL	76420	10	7/26/2016 11:52:00 PM	7/25/2016 8:50:03 AM	S
1607219-17A	SGR-DU110(6-8)-A	SW8270D-LL	76420	10	7/27/2016 12:29:00 AM	7/25/2016 8:50:03 AM	S
1607219-18A	SGR-DU110(0-2)-B	SW8270D-LL	76420	10	7/27/2016 1:06:00 AM	7/25/2016 8:50:03 AM	S
1607219-19A	SGR-DU110(2-4)-B	SW8270D-LL	76420	10	7/27/2016 1:43:00 AM	7/25/2016 8:50:03 AM	S
1607219-20A	SGR-DU110(4-6)-B	SW8270D-LL	76420	10	7/27/2016 2:20:00 AM	7/25/2016 8:50:03 AM	S
1607219-21A	SGR-DU110(6-8)-B	SW8270D-LL	76420	10	7/27/2016 2:56:00 AM	7/25/2016 8:50:03 AM	S
CCV1-160726	-----	SW8270D-LL	R87232	1	7/27/2016 3:34:00 AM		S

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

Sequence Report

Run ID: GCMS6_160727A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DFTPP-160727	-----	SW8270D-LL	R87264	1	7/27/2016 9:23:00 AM		S
ICV-160727	-----	SW8270D-LL	R87264	1	7/27/2016 10:00:00 AM		S
LCS-76442	-----	SW8270D-LL	76442	1	7/27/2016 10:40:00 AM	7/25/2016 1:21:12 PM	S
MB-76442	-----	SW8270D-LL	76442	1	7/27/2016 11:17:00 AM	7/25/2016 1:21:12 PM	S
1607219-22A	SGR-DU110(0-2)-C	SW8270D-LL	76442	10	7/27/2016 11:54:00 AM	7/25/2016 1:21:12 PM	S
1607219-23A	SGR-DU110(2-4)-C	SW8270D-LL	76442	10	7/27/2016 12:31:00 PM	7/25/2016 1:21:12 PM	S
1607219-24A	SGR-DU110(4-6)-C	SW8270D-LL	76442	10	7/27/2016 1:08:00 PM	7/25/2016 1:21:12 PM	S
1607219-25A	SGR-DU110(6-8)-C	SW8270D-LL	76442	10	7/27/2016 1:45:00 PM	7/25/2016 1:21:12 PM	S
DFTPP2-160727	-----	SW8270D-LL	R87264	1	7/27/2016 7:57:00 PM		S
ICV2-160727	-----	SW8270D-LL	R87264	1	7/27/2016 8:35:00 PM		S
SB-160727	-----	SW8270D-LL	76442	1	7/27/2016 9:49:00 PM		S
1607239-01AMS	-----	SW8270D-LL	76442	10	7/28/2016 2:46:00 AM	7/25/2016 1:21:12 PM	S
1607239-01AMSD	-----	SW8270D-LL	76442	10	7/28/2016 3:23:00 AM	7/25/2016 1:21:12 PM	S
CCV1-160727	-----	SW8270D-LL	R87264	1	7/28/2016 4:00:00 AM		S

Run ID: GCMS6_160728A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DFTPP-160728	-----	SW8270D-LL	R87529	1	7/28/2016 8:09:00 AM		A
ICV-160728	-----	SW8270D-LL	R87529	1	7/28/2016 8:46:00 AM		A
LCS-76453	-----	SW8270D-LL	76453	1	7/28/2016 9:24:00 AM	7/26/2016 8:42:45 AM	A
LCSD-76453	-----	SW8270D-LL	76453	1	7/28/2016 10:01:00 AM	7/26/2016 8:42:45 AM	A
MB-76453	-----	SW8270D-LL	76453	1	7/28/2016 10:39:00 AM	7/26/2016 8:42:45 AM	A
1607219-13B	EB01(20160719)	SW8270D-LL	76453	1	7/28/2016 11:16:00 AM	7/26/2016 8:42:45 AM	E
1607219-26B	EB02(20160719)	SW8270D-LL	76453	1	7/28/2016 11:54:00 AM	7/26/2016 8:42:45 AM	E
DFTPP2-160728	-----	SW8270D-LL	R87529	1	7/28/2016 4:55:00 PM		A
ICV2-160728	-----	SW8270D-LL	R87529	1	7/28/2016 5:31:00 PM		A

Run ID: GCMS6_160802A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DCS-76288	-----	SW8270D-LL	76288	1	8/3/2016 9:01:00 AM	7/18/2016 9:19:54 AM	S

Run ID: GCMS6_160802B

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
1607219-18A	SGR-DU110(0-2)-B	SW8270D-LL	76420	10	8/3/2016 2:59:00 AM	7/25/2016 8:50:03 AM	S
1607219-22A	SGR-DU110(0-2)-C	SW8270D-LL	76442	10	8/3/2016 3:40:00 AM	7/25/2016 1:21:12 PM	S

DHL Analytical, Inc.

11-Aug-16

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

Sequence Report

Run ID: GCMS6_160803A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DFTPP-160803	-----	SW8270D-LL	R87405	1	8/3/2016 10:22:00 AM		S
ICV-160803	-----	SW8270D-LL	R87405	1	8/3/2016 11:02:00 AM		S
SB-160803	-----	SW8270D-LL	76420	1	8/3/2016 12:23:00 PM		S
1607219-18A	SGR-DU110(0-2)-B	SW8270D-LL	76420	10	8/3/2016 2:25:00 PM	7/25/2016 8:50:03 AM	S
1607219-22A	SGR-DU110(0-2)-C	SW8270D-LL	76442	10	8/3/2016 3:06:00 PM	7/25/2016 1:21:12 PM	S
CCV1-160803	-----	SW8270D-LL	R87405	1	8/3/2016 6:30:00 PM		S

Run ID: ICP-MS3_160729A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
DCS1-76274	-----	SW6020A	76274	5	7/29/2016 1:13:00 PM	7/18/2016 7:00:00 AM	S
DCS1-76458	-----	SW6020A	76458	1	7/29/2016 1:50:00 PM	7/26/2016 9:31:26 AM	A

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

Sequence Report

Run ID: ICP-MS3_160804C

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
BLANK STD 1	-----	SW6020A	R87438	1	8/4/2016 1:21:00 PM		A
L2-160804	-----	SW6020A	R87438	1	8/4/2016 1:27:00 PM		A
L-160804	-----	SW6020A	R87438	1	8/4/2016 1:33:00 PM		A
10X-160804	-----	SW6020A	R87438	1	8/4/2016 1:39:00 PM		A
5X-160804	-----	SW6020A	R87438	1	8/4/2016 1:45:00 PM		A
2X-160804	-----	SW6020A	R87438	1	8/4/2016 1:51:00 PM		A
H-160804	-----	SW6020A	R87438	1	8/4/2016 1:57:00 PM		A
H2-160804	-----	SW6020A	R87438	1	8/4/2016 2:03:00 PM		A
ICSA-160804	-----	SW6020A	R87438	1	8/4/2016 2:21:00 PM		A
ICSAB-160804	-----	SW6020A	R87438	1	8/4/2016 2:27:00 PM		A
ICV1-160804	-----	SW6020A	R87438	1	8/4/2016 2:45:00 PM		A
ICB1-160804	-----	SW6020A	R87438	1	8/4/2016 2:51:00 PM		A
ILCVL-160804	-----	SW6020A	R87438	1	8/4/2016 2:57:00 PM		A
CCV1-160804	-----	SW6020A	R87438	1	8/4/2016 4:15:00 PM		A
CCB1-160804	-----	SW6020A	R87438	1	8/4/2016 4:21:00 PM		A
LCVL1-160804	-----	SW6020A	R87438	1	8/4/2016 4:27:00 PM		A
MB-76548	-----	SW6020A	76548	5	8/4/2016 5:16:00 PM	8/3/2016 8:30:00 AM	S
LCS-76548	-----	SW6020A	76548	5	8/4/2016 5:22:00 PM	8/3/2016 8:30:00 AM	S
LCSD-76548	-----	SW6020A	76548	5	8/4/2016 5:28:00 PM	8/3/2016 8:30:00 AM	S
1607219-03A	SGR-DU190(4-6)-A	SW6020A	76548	5	8/4/2016 5:40:00 PM	8/3/2016 8:30:00 AM	S
1607219-03A SD	SGR-DU190(4-6)-A	SW6020A	76548	25	8/4/2016 5:46:00 PM	8/3/2016 8:30:00 AM	S
1607219-01A	SGR-DU190(0-2)-A	SW6020A	76548	5	8/4/2016 5:52:00 PM	8/3/2016 8:30:00 AM	S
1607219-02A	SGR-DU190(2-4)-A	SW6020A	76548	5	8/4/2016 5:58:00 PM	8/3/2016 8:30:00 AM	S
1607219-04A	SGR-DU190(6-8)-A	SW6020A	76548	5	8/4/2016 6:04:00 PM	8/3/2016 8:30:00 AM	S
1607219-05A	SGR-DU190(0-2)-B	SW6020A	76548	5	8/4/2016 6:10:00 PM	8/3/2016 8:30:00 AM	S
1607219-06A	SGR-DU190(2-4)-B	SW6020A	76548	5	8/4/2016 6:22:00 PM	8/3/2016 8:30:00 AM	S
1607219-07A	SGR-DU190(4-6)-B	SW6020A	76548	5	8/4/2016 6:28:00 PM	8/3/2016 8:30:00 AM	S
1607219-08A	SGR-DU190(6-8)-B	SW6020A	76548	5	8/4/2016 6:34:00 PM	8/3/2016 8:30:00 AM	S
1607219-09A	SGR-DU190(0-2)-C	SW6020A	76548	5	8/4/2016 6:40:00 PM	8/3/2016 8:30:00 AM	S
1607219-10A	SGR-DU190(2-4)-C	SW6020A	76548	5	8/4/2016 6:46:00 PM	8/3/2016 8:30:00 AM	S
1607219-03A PDS	SGR-DU190(4-6)-A	SW6020A	76548	5	8/4/2016 6:52:00 PM	8/3/2016 8:30:00 AM	S
1607219-03A MS	SGR-DU190(4-6)-AMS	SW6020A	76548	5	8/4/2016 6:58:00 PM	8/3/2016 8:30:00 AM	S
1607219-03A MSD	SGR-DU190(4-6)-AMSD	SW6020A	76548	5	8/4/2016 7:04:00 PM	8/3/2016 8:30:00 AM	S
CCV2-160804	-----	SW6020A	R87438	1	8/4/2016 7:16:00 PM		A
LCVL2-160804	-----	SW6020A	R87438	1	8/4/2016 7:28:00 PM		A
CCB2-160804	-----	SW6020A	R87438	1	8/4/2016 7:34:00 PM		A
1607219-11A	SGR-DU190(4-6)-C	SW6020A	76548	5	8/4/2016 7:40:00 PM	8/3/2016 8:30:00 AM	S
1607219-12A	SGR-DU190(6-8)-C	SW6020A	76548	5	8/4/2016 7:46:00 PM	8/3/2016 8:30:00 AM	S

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

Sequence Report

1607219-14A	SGR-DU110(0-2)-A	SW6020A	76548	5	8/4/2016 7:52:00 PM	8/3/2016 8:30:00 AM	S
1607219-15A	SGR-DU110(2-4)-A	SW6020A	76548	5	8/4/2016 7:58:00 PM	8/3/2016 8:30:00 AM	S
1607219-16A	SGR-DU110(4-6)-A	SW6020A	76548	5	8/4/2016 8:04:00 PM	8/3/2016 8:30:00 AM	S
1607219-17A	SGR-DU110(6-8)-A	SW6020A	76548	5	8/4/2016 8:16:00 PM	8/3/2016 8:30:00 AM	S
1607219-18A	SGR-DU110(0-2)-B	SW6020A	76548	5	8/4/2016 8:22:00 PM	8/3/2016 8:30:00 AM	S
1607219-19A	SGR-DU110(2-4)-B	SW6020A	76548	5	8/4/2016 8:28:00 PM	8/3/2016 8:30:00 AM	S
1607219-20A	SGR-DU110(4-6)-B	SW6020A	76548	5	8/4/2016 8:34:00 PM	8/3/2016 8:30:00 AM	S
1607219-21A	SGR-DU110(6-8)-B	SW6020A	76548	5	8/4/2016 8:40:00 PM	8/3/2016 8:30:00 AM	S
CCV3-160804	-----	SW6020A	R87438	1	8/4/2016 8:52:00 PM		A
LCVL3-160804	-----	SW6020A	R87438	1	8/4/2016 9:04:00 PM		A
CCB3-160804	-----	SW6020A	R87438	1	8/4/2016 9:10:00 PM		A

Run ID: ICP-MS3_160805A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
BLANK STD 1	-----	SW6020A	R87466	1	8/5/2016 11:46:00 AM		A
L2-160805	-----	SW6020A	R87466	1	8/5/2016 11:52:00 AM		A
L-160805	-----	SW6020A	R87466	1	8/5/2016 11:58:00 AM		A
10X-160805	-----	SW6020A	R87466	1	8/5/2016 12:04:00 PM		A
5X-160805	-----	SW6020A	R87466	1	8/5/2016 12:10:00 PM		A
2X-160805	-----	SW6020A	R87466	1	8/5/2016 12:16:00 PM		A
H-160805	-----	SW6020A	R87466	1	8/5/2016 12:22:00 PM		A
H2-160805	-----	SW6020A	R87466	1	8/5/2016 12:27:00 PM		A
ICSA-160805	-----	SW6020A	R87466	1	8/5/2016 12:45:00 PM		A
ICSAB-160805	-----	SW6020A	R87466	1	8/5/2016 12:51:00 PM		A
ICV1-160805	-----	SW6020A	R87466	1	8/5/2016 1:09:00 PM		A
ICB1-160805	-----	SW6020A	R87466	1	8/5/2016 1:15:00 PM		A
ILCVL-160805	-----	SW6020A	R87466	1	8/5/2016 1:21:00 PM		A
MB-76602	-----	SW6020A	76602	5	8/5/2016 1:27:00 PM	8/3/2016 8:30:00 AM	S
LCS-76602	-----	SW6020A	76602	5	8/5/2016 1:33:00 PM	8/3/2016 8:30:00 AM	S
LCSD-76602	-----	SW6020A	76602	5	8/5/2016 1:39:00 PM	8/3/2016 8:30:00 AM	S
1607239-01A SD	-----	SW6020A	76602	25	8/5/2016 1:56:00 PM	8/3/2016 8:30:00 AM	S
1607219-22A	SGR-DU110(0-2)-C	SW6020A	76602	5	8/5/2016 2:02:00 PM	8/3/2016 8:30:00 AM	S
1607219-23A	SGR-DU110(2-4)-C	SW6020A	76602	5	8/5/2016 2:08:00 PM	8/3/2016 8:30:00 AM	S
1607219-24A	SGR-DU110(4-6)-C	SW6020A	76602	5	8/5/2016 2:14:00 PM	8/3/2016 8:30:00 AM	S
1607219-25A	SGR-DU110(6-8)-C	SW6020A	76602	5	8/5/2016 2:20:00 PM	8/3/2016 8:30:00 AM	S
1607239-01A PDS	-----	SW6020A	76602	5	8/5/2016 2:55:00 PM	8/3/2016 8:30:00 AM	S
1607239-01A MS	-----	SW6020A	76602	5	8/5/2016 3:01:00 PM	8/3/2016 8:30:00 AM	S
1607239-01A MSD	-----	SW6020A	76602	5	8/5/2016 3:06:00 PM	8/3/2016 8:30:00 AM	S
CCV1-160805	-----	SW6020A	R87466	1	8/5/2016 3:12:00 PM		A
LCVL1-160805	-----	SW6020A	R87466	1	8/5/2016 3:24:00 PM		A
CCB1-160805	-----	SW6020A	R87466	1	8/5/2016 3:31:00 PM		A

Lab Order: 1607219
Client: Arcadis
Project: Laredo SGR

Sequence Report

Run ID: ICP-MS3_160809B

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
BLANK STD 1	-----	SW6020A	R87530	1	8/9/2016 12:19:00 PM		A
L2-160809	-----	SW6020A	R87530	1	8/9/2016 12:25:00 PM		A
L-160809	-----	SW6020A	R87530	1	8/9/2016 12:31:00 PM		A
10X-160809	-----	SW6020A	R87530	1	8/9/2016 12:37:00 PM		A
5X-160809	-----	SW6020A	R87530	1	8/9/2016 12:43:00 PM		A
2X-160809	-----	SW6020A	R87530	1	8/9/2016 12:49:00 PM		A
H-160809	-----	SW6020A	R87530	1	8/9/2016 12:55:00 PM		A
H2-160809	-----	SW6020A	R87530	1	8/9/2016 1:01:00 PM		A
ICSA-160809	-----	SW6020A	R87530	1	8/9/2016 1:18:00 PM		A
ICSAB-160809	-----	SW6020A	R87530	1	8/9/2016 1:24:00 PM		A
ICV1-160809	-----	SW6020A	R87530	1	8/9/2016 1:42:00 PM		A
ICB1-160809	-----	SW6020A	R87530	1	8/9/2016 1:48:00 PM		A
ILCVL-160809	-----	SW6020A	R87530	1	8/9/2016 1:54:00 PM		A
CCV5-160809	-----	SW6020A	R87530	1	8/9/2016 10:34:00 PM		A
LCVL5-160809	-----	SW6020A	R87530	1	8/9/2016 10:45:00 PM		A
CCB5-160809	-----	SW6020A	R87530	1	8/9/2016 10:51:00 PM		A
MB-76687	-----	SW6020A	76687	1	8/9/2016 10:57:00 PM	8/5/2016 10:30:04 AM	A
LCS-76687	-----	SW6020A	76687	1	8/9/2016 11:03:00 PM	8/5/2016 10:30:04 AM	A
LCSD-76687	-----	SW6020A	76687	1	8/9/2016 11:09:00 PM	8/5/2016 10:30:04 AM	A
1607219-13A	EB01(20160719)	SW6020A	76687	1	8/9/2016 11:33:00 PM	8/5/2016 10:30:04 AM	E
1607219-26A	EB02(20160719)	SW6020A	76687	1	8/9/2016 11:39:00 PM	8/5/2016 10:30:04 AM	E
1607337-26A PDS	-----	SW6020A	76687	1	8/10/2016 12:34:00 AM	8/5/2016 10:30:04 AM	A
CCV6-160809	-----	SW6020A	R87530	1	8/10/2016 12:40:00 AM		A
LCVL6-160809	-----	SW6020A	R87530	1	8/10/2016 12:52:00 AM		A
CCB6-160809	-----	SW6020A	R87530	1	8/10/2016 12:58:00 AM		A
ICSA-160809	-----	SW6020A	R87530	1	8/10/2016 1:28:00 AM		A
ICSAB-160809	-----	SW6020A	R87530	1	8/10/2016 1:34:00 AM		A

CLIENT:	Arcadis
Work Order:	1607219
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
1607219

GCMS6_160726A
For

DHL Work Order
1607219

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_160726A**
Batch Number(s): See Run Log.	**SOP:** ORGANICS-PAH-01
Matrix: See Run Log.	

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
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			
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		
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		X
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

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

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

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

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.**

1607219-18A: Low recovery for surrogate 4-Terphenyl-d14. DNR

Analyst: Don Winston Date: 7/27/2016

Second-Level Review: Sherri Herschmann Date: REVIEWED/APPROVED By Sherri Herschmann at 8:49:33 AM, 8/10/2016 08/10/2016

8270-PAH-SOIL-GCMS6

DHL Analytical, Inc.

Run ID: GCMS6_160726A
Run No.: 87232
Analytical Run Date: 7/26/2016
InstrumentID: GCMS6
Analyst: Don Winston
Column: Agilent (J&W) DB-EUPAH (20m x 0.18mmI
Calibration ID: 676
Column ID: 0.18mm
Column Length: 20m

Cal Comments: PP160725.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160726	1	PAH_LL_SDOD1	TUNE	R87232	7/26/2016 8:56:00 AM		
ICV-160726	1	PAH_LL_SDOD1	ICV	R87232	7/26/2016 9:33:00 AM		
LCS-76420	1	PAH_LL_SDOD1	LCS	76420	7/26/2016 10:10:00 AM		
1607219-03AMS	10	PAH_LL_SDOD1	MS	76420	7/26/2016 10:47:00 AM		
1607219-03AMSD	10	PAH_LL_SDOD1	MSD	76420	7/26/2016 11:24:00 AM		
MB-76420	1	PAH_LL_SDOD1	MBLK	76420	7/26/2016 12:01:00 PM		
1607219-01A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 12:38:00 PM		
1607219-02A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 1:16:00 PM		
1607219-03A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 1:54:00 PM		
1607219-04A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 2:32:00 PM		
1607219-05A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 3:10:00 PM		
1607219-06A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 3:48:00 PM		
1607219-07A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 4:25:00 PM		
1607219-08A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 5:04:00 PM		
1607219-09A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 5:41:00 PM		
1607219-10A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 6:18:00 PM		
1607219-11A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 6:55:00 PM		
DFTPP2-160726	1	PAH_LL_SDOD1	TUNE	R87232	7/26/2016 7:32:00 PM		
ICV2-160726	1	PAH_LL_SDOD1	ICV	R87232	7/26/2016 8:09:00 PM		
SB-160726	1	PAH_LL_SDOD1	SBLK	76420	7/26/2016 9:24:00 PM		
1607219-12A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 10:01:00 PM		
1607219-14A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 10:38:00 PM		
1607219-15A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 11:15:00 PM		
1607219-16A	10	PAH_LL_SDOD1	SAMP	76420	7/26/2016 11:52:00 PM		
1607219-17A	10	PAH_LL_SDOD1	SAMP	76420	7/27/2016 12:29:00 AM		
1607219-18A	10	PAH_LL_SDOD1	SAMP	76420	7/27/2016 1:06:00 AM		Low recovery for surrogate 4-Terphenyl-d14. **DNR**
1607219-19A	10	PAH_LL_SDOD1	SAMP	76420	7/27/2016 1:43:00 AM		
1607219-20A	10	PAH_LL_SDOD1	SAMP	76420	7/27/2016 2:20:00 AM		
1607219-21A	10	PAH_LL_SDOD1	SAMP	76420	7/27/2016 2:56:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

REVIEWED/APPROVED
By Sherri Herschmann at 8:51:34 AM, 8/10/2016

Run ID: **GCMS6_160726A** **Run No.:** 87232

CCV1-160726	1	PAH_LL_SDOD1	CCV	R87232	7/27/2016 3:34:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

REVIEWED/APPROVED
By Sherri Herschmann at 8:53:16 AM, 8/10/2016

Sequence Name: C:\HPCHEM\1\SEQUENCE\160726.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160726\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run	On A Barcode Mismatch
(X) Full Method	(X) Inject Anyway
( ) Reprocessing Only	( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16072601	DFTPPPAH	DFTPP-160726
2	Sample	2	16072602	PP160606	ICV-160726
3	Sample	3	16072603	PP160725	LCS-76420
4	Sample	4	16072604	PP160725	1607219-03AMS
5	Sample	5	16072605	PP160725	1607219-03AMSD
6	Sample	6	16072606	PP160725	MB-76420
7	Sample	7	16072607	PP160725	1607219-01A
8	Sample	8	16072608	PP160725	1607219-02A
9	Sample	9	16072609	PP160725	1607219-03A
10	Sample	10	16072610	PP160725	1607219-04A
11	Sample	11	16072611	PP160725	1607219-05A
12	Sample	12	16072612	PP160725	1607219-06A
13	Sample	13	16072613	PP160725	1607219-07A
14	Sample	14	16072614	PP160725	1607219-08A
15	Sample	15	16072615	PP160725	1607219-09A
16	Sample	16	16072616	PP160725	1607219-10A
17	Sample	17	16072617	PP160725	1607219-11A
18	Sample	18	16072618	DFTPPPAH	DFTPP2-160726
19	Sample	19	16072619	PP160725	ICV2-160726
20	Sample	20	16072620	PP160725	SBLK
21	Sample	21	16072621	PP160725	SB-160726
22	Sample	22	16072622	PP160725	1607219-12A
23	Sample	23	16072623	PP160725	1607219-14A
24	Sample	24	16072624	PP160725	1607219-15A
25	Sample	25	16072625	PP160725	1607219-16A
26	Sample	26	16072626	PP160725	1607219-17A
27	Sample	27	16072627	PP160725	1607219-18A
28	Sample	28	16072628	PP160725	1607219-19A
29	Sample	29	16072629	PP160725	1607219-20A
30	Sample	30	16072630	PP160725	1607219-21A
31	Sample	31	16072631	PP160725	CCV1-160726

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 8:50:03 AM**
Digestion:
Prep End Date: **7/25/2016 12:20:00 PM**

Prep Batch **76420** 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
1607219-01A	Soil		10.21	10	0.979	1	of	1	
1607219-02A	Soil		10.04	10	0.996	1	of	1	
1607219-03A	Soil		10.08	10	0.992	1	of	3	
1607219-03AMS	Soil		10.59	10	0.944	1	of		
1607219-03AMSD	Soil		10.23	10	0.978	12	of		
1607219-04A	Soil		10.04	10	0.996	1	of	1	
1607219-05A	Soil		10.07	10	0.993	1	of	1	
1607219-06A	Soil		10.04	10	0.996	1	of	1	
1607219-07A	Soil		10.01	10	0.999	1	of	1	
1607219-08A	Soil		10.1	10	0.990	1	of	1	
1607219-09A	Soil		10.19	10	0.981	1	of	1	
1607219-10A	Soil		10.03	10	0.997	1	of	1	
1607219-11A	Soil		10.04	10	0.996	1	of	1	
1607219-12A	Soil		10.05	10	0.995	1	of	1	
1607219-14A	Soil		10.03	10	0.997	1	of	1	
1607219-15A	Soil		10.21	10	0.979	1	of	1	
1607219-16A	Soil		10.08	10	0.992	1	of	1	
1607219-17A	Soil		10.06	10	0.994	1	of	1	
1607219-18A	Soil		10.33	10	0.968	1	of	1	
1607219-19A	Soil		10.21	10	0.979	1	of	1	
1607219-20A	Soil		10.12	10	0.988	1	of	1	
1607219-21A	Soil		10.02	10	0.998	1	of	1	
LCS-76420	Soil		10	10	1.000		of		
MB-76420	Soil		10	10	1.000		of		

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

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

REVIEWED/APPROVED
By Sherri Herschmann at 8:59:31 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 8:50:03 AM**
Digestion:
Prep End Date: 7/25/16 12:20PM
Prep Batch **76420** 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
1607219-01A	Soil		10.21	10	1.000	1 of 1	
1607219-02A	Soil		10.04	10	1.000	1 of 1	
1607219-03A	Soil		10.08	10	1.000	1 of 3	
1607219-03AMS	Soil		10.59	10	1.000	1 of	
1607219-03AMSD	Soil		10.23	10	1.000	1,2 of	
1607219-04A	Soil		10.04	10	1.000	1 of 1	
1607219-05A	Soil		10.07	10	1.000	1 of 1	
1607219-06A	Soil		10.04	10	1.000	1 of 1	
1607219-07A	Soil		10.01	10	1.000	1 of 1	
1607219-08A	Soil		10.10	10	1.000	1 of 1	
1607219-09A	Soil		10.19	10	1.000	1 of 1	
1607219-10A	Soil		10.03	10	1.000	1 of 1	
1607219-11A	Soil		10.04	10	1.000	1 of 1	
1607219-12A	Soil		10.05	10	1.000	1 of 1	
1607219-14A	Soil		10.03	10	1.000	1 of 1	
1607219-15A	Soil		10.21	10	1.000	1 of 1	
1607219-16A	Soil		10.08	10	1.000	1 of 1	
1607219-17A	Soil		10.06	10	1.000	1 of 1	
1607219-18A	Soil		10.33	10	1.000	1 of 1	
1607219-19A	Soil		10.21	10 AR	1.000	1 of 1	
1607219-20A	Soil		10.~~21~~ 12	~~10~~	1.000	1 of 1	
1607219-21A	Soil		10.02	10	1.000	1 of 1	
LCS-76420	Soil		10	10	1.000	of	
MB-76420	Soil		10	10	1.000	of	

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

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

AR 7/25/16

7/25/16

REVIEWED/APPROVED
By Sherri Herschmann at 8:53:28 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

REVIEWED BY
By Janice Whitt at 1:10:20 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

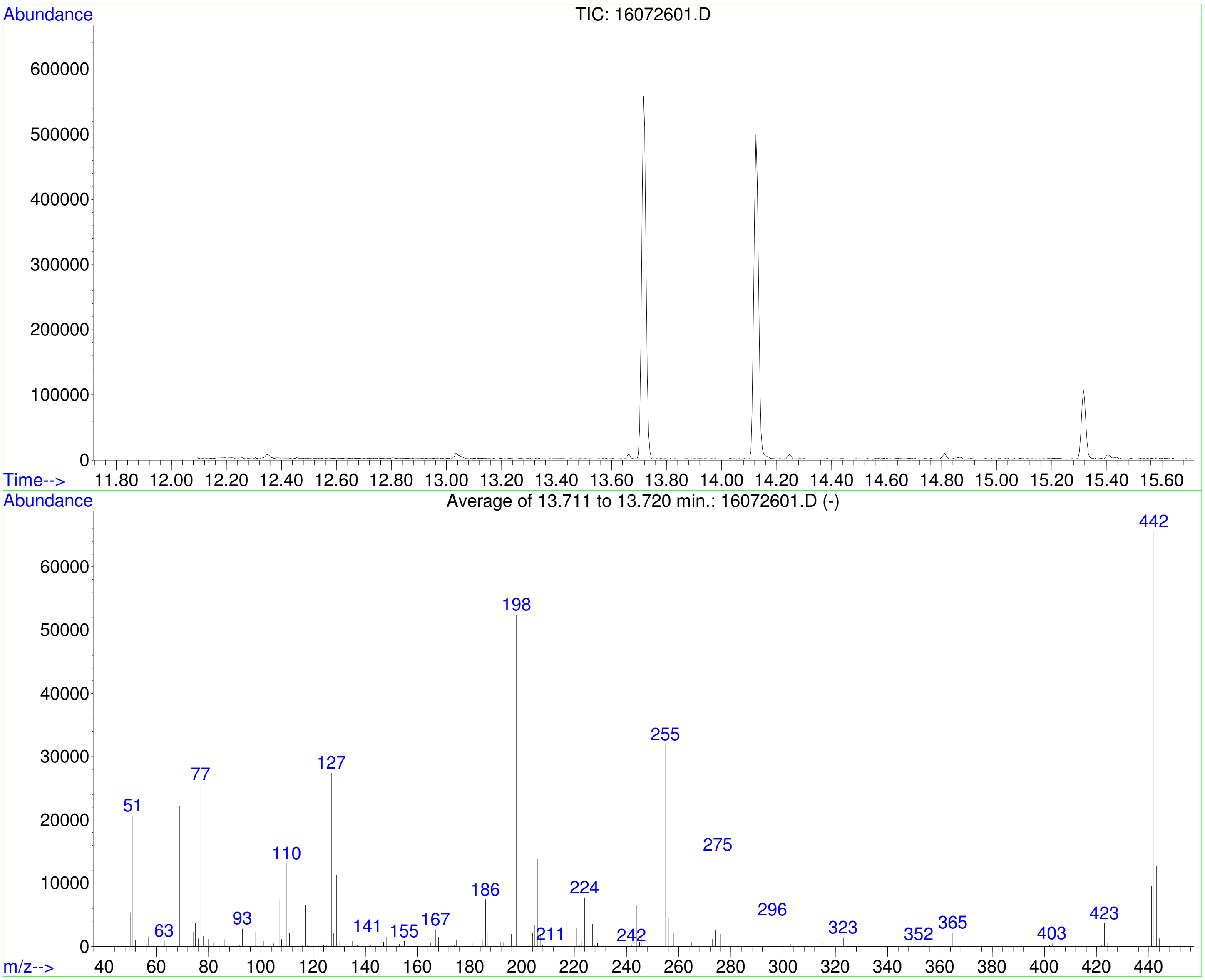
Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

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

REVIEWED BY
By Janice Whitt at 1:10:22 PM, 8/10/2016

DFTPP

Data File : C:\HPCHEM\1\DATA\160726\16072601.D   Vial: 1
Acq On   : 26 Jul 2016   8:56 am   Operator: DEW
Sample   : DFTPP-160726   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



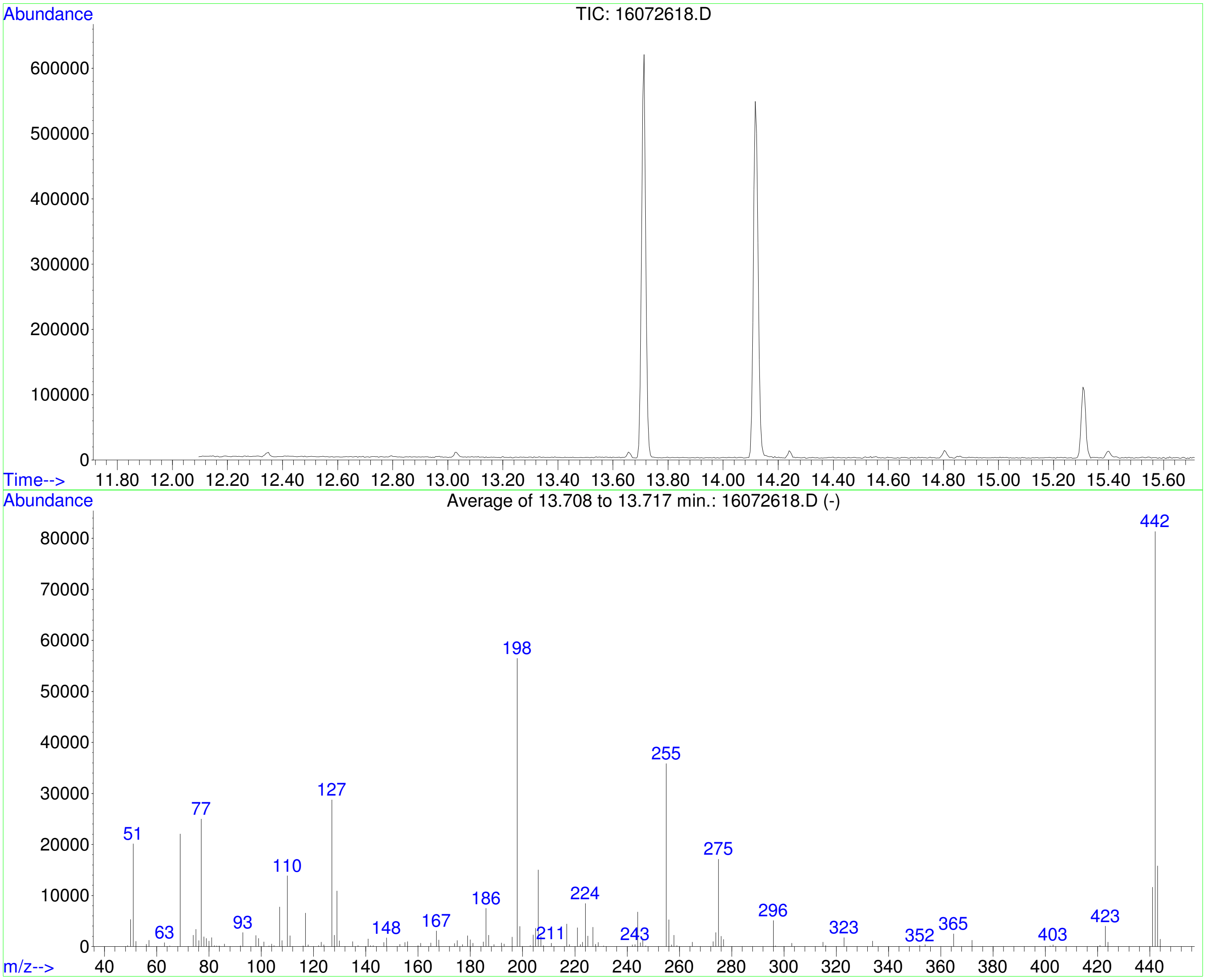
AutoFind: Scans 345, 346, 347; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.4	20691	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.5	22280	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	52.3	27456	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	52461	PASS
199	198	5	9	7.0	3678	PASS
275	198	10	60	27.7	14519	PASS
365	198	1	200	4.2	2227	PASS
441	442	0.01	24	14.6	9545	PASS
442	198	50	400	125.0	65579	PASS
443	442	15	24	19.5	12800	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:00:49 AM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160726\16072618.D          Vial: 18
Acq On    : 26 Jul 2016   7:32 pm                   Operator: DEW
Sample    : DFTPP2-160726                           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	35.6	20138	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	39.1	22109	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.9	28768	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	56531	PASS
199	198	5	9	7.0	3982	PASS
275	198	10	60	30.3	17140	PASS
365	198	1	200	4.4	2502	PASS
441	442	0.01	24	14.3	11634	PASS
442	198	50	400	143.9	81368	PASS
443	442	15	24	19.5	15831	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:00:51 AM, 8/10/2016

```
Data File : C:\HPCHEM\1\DATA\160726\16072602.D          Vial: 2
Acq On    : 26 Jul 2016   9:33 am                    Operator: DEW
Sample    : ICV-160726                               Inst    : GC/MS #6
Misc      : ICV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:57 2016            Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	911730	4000.00	ug/kg	102
5) Acenaphthene-d10	12.45	164	563665	4000.00	ug/kg	99
11) Phenanthrene-d10	14.56	188	1548251	4000.00	ug/kg	103
17) Chrysene-d12	20.24	240	1699907	4000.00	ug/kg	105
20) Perylene-d12	25.36	264	1710140	4000.00	ug/kg	103

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	367825	2014.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.36%			
16) 4-Terphenyl-d14	17.04	244	653546	1987.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.69%			

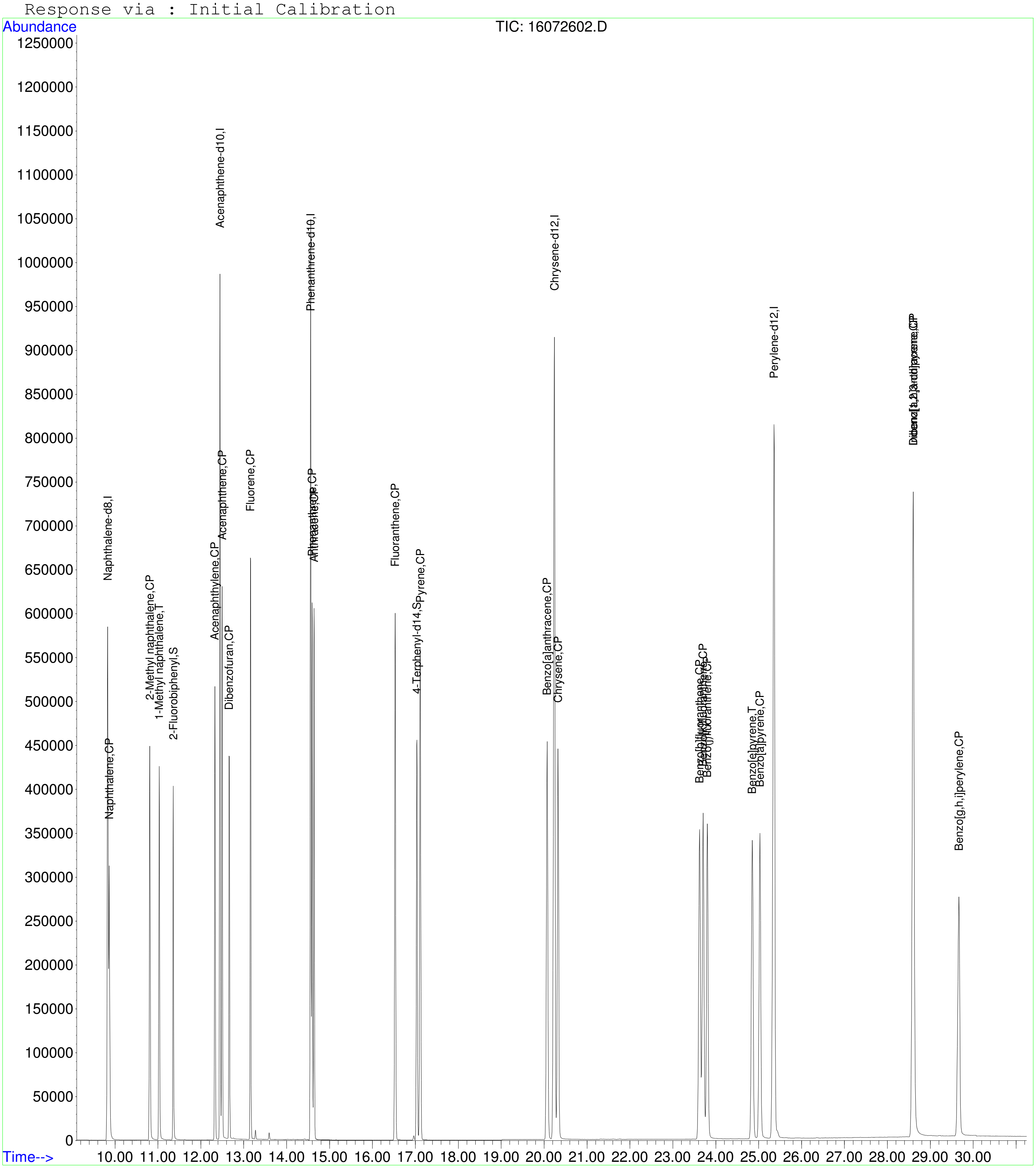
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.86	128	388623	1874.45	ug/kg	100
3) 2-Methyl naphthalene	10.81	142	289496	1931.95	ug/kg	96
4) 1-Methyl naphthalene	11.03	142	264830	1921.41	ug/kg	96
6) Dibenzofuran	12.66	168	419412	1874.05	ug/kg	100
8) Acenaphthylene	12.33	152	484801	1976.63	ug/kg	100
9) Acenaphthene	12.50	154	282680	1940.46	ug/kg	97
10) Fluorene	13.16	166	359312	1973.92	ug/kg	99
12) Phenanthrene	14.59	178	537930	1836.08	ug/kg	100
13) Anthracene	14.64	178	561934	1873.65	ug/kg	99
14) Fluoranthene	16.53	202	662922	1840.31	ug/kg	100
15) Pyrene	17.11	202	667281	1798.74	ug/kg	100
18) Benzo[a]anthracene	20.07	228	720860	1977.81	ug/kg	99
19) Chrysene	20.33	228	655003	1908.14	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	759081	1942.52	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	689025	1923.34	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	666658	1965.57	ug/kg	100
24) Benzo[e]pyrene	24.85	252	722382	1945.98	ug/kg	99
25) Benzo[a]pyrene	25.03	252	718542	1950.50	ug/kg	99
26) Dibenz[a,h]anthracene	28.61	278	725019	1899.00	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.61	276	860963	1877.68	ug/kg	99
28) Benzo[g,h,i]perylene	29.67	276	624106	1875.58	ug/kg	97

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

Quantitation Report

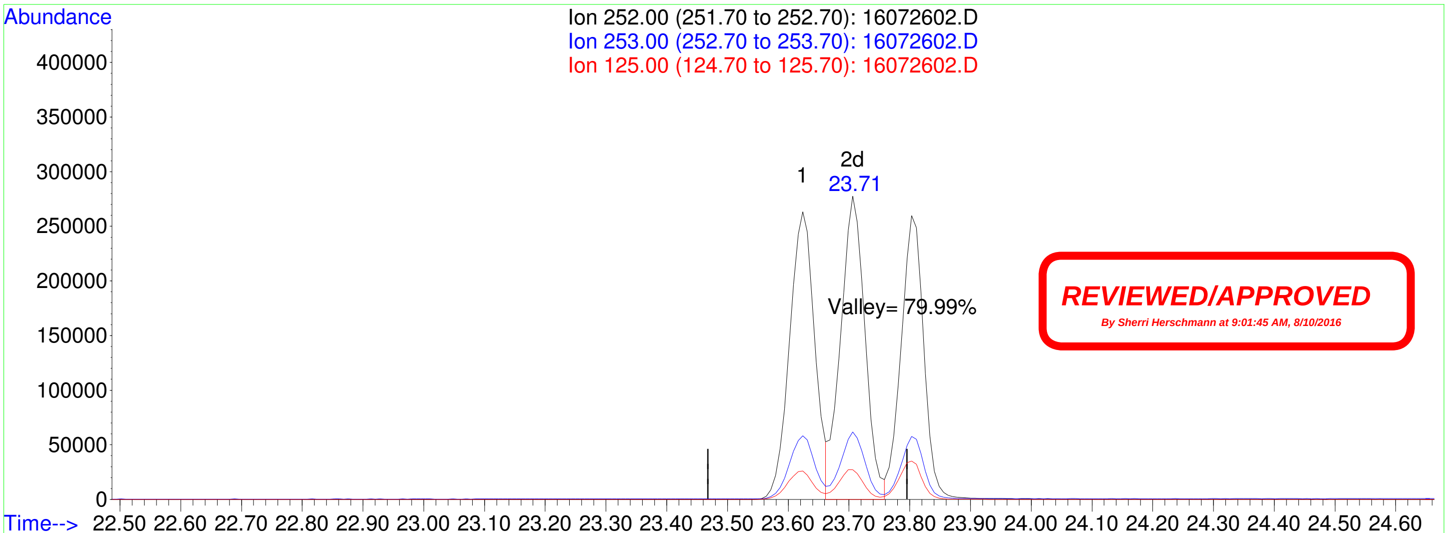
```
Data File : C:\HPCHEM\1\DATA\160726\16072602.D          Vial: 2
Acq On    : 26 Jul 2016   9:33 am                   Operator: DEW
Sample    : ICV-160726                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:57 2016            Quant Results File: PP160725.RES

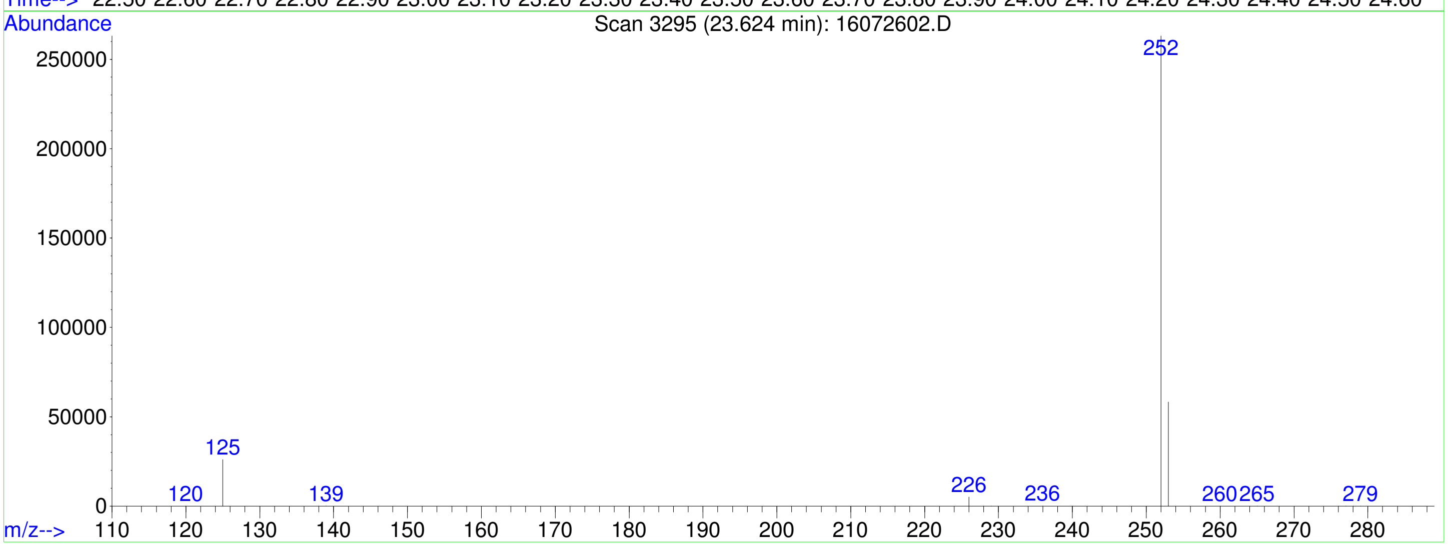
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```



```
Data File : C:\HPCHEM\1\DATA\160726\16072602.D          Vial: 2
Acq On    : 26 Jul 2016   9:33 am                   Operator: DEW
Sample    : ICV-160726                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 10:04 2016                 Quant Results File: temp.res

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





TIC: 16072602.D

(21) Benzo[b]fluoranthene (CP)

23.62min 1942.52ug/kg

response 759081

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	21.96
125.00	9.30	9.92
0.00	0.00	0.00

```
Data File : C:\HPCHEM\1\DATA\160726\16072603.D          Vial: 3
Acq On    : 26 Jul 2016  10:10 am                    Operator: DEW
Sample    : LCS-76420                                Inst    : GC/MS #6
Misc      : LCS                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:57 2016             Quant Results File: PP160725.RES

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

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
 --------------------------------------------------------------------------
   1) Naphthalene-d8                9.83  136   909456   4000.00 ug/kg  102
   5) Acenaphthene-d10             12.45  164   437709   4000.00 ug/kg   77
  11) Phenanthrene-d10             14.56  188   821569   4000.00 ug/kg   55
  17) Chrysene-d12                 20.23  240   927261   4000.00 ug/kg   58
  20) Perylene-d12                 25.35  264  1035574   4000.00 ug/kg   62

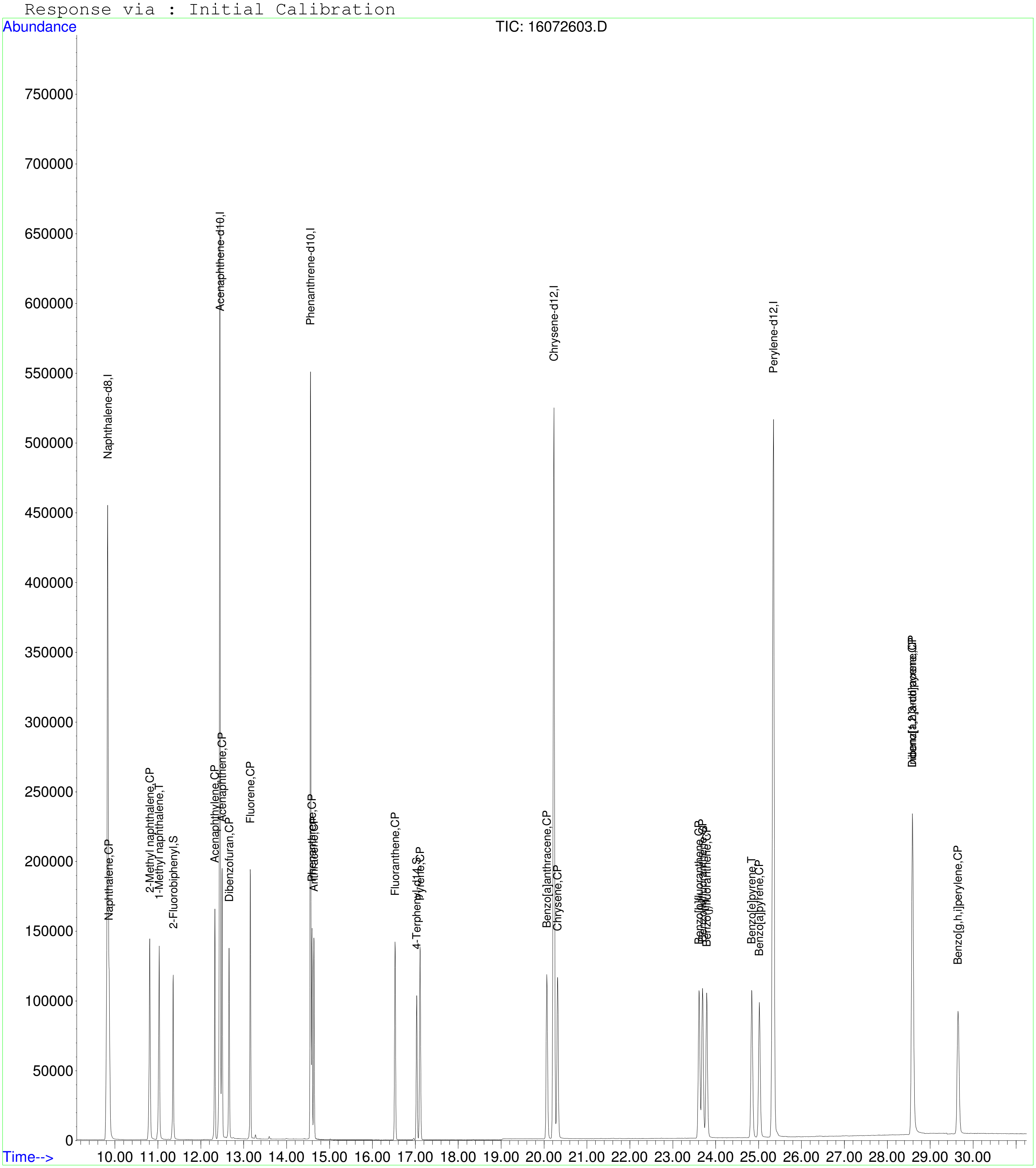
 System Monitoring Compounds
   7) 2-Fluorobiphenyl             11.36  172   130850   921.40 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =   23.04%#
  16) 4-Terphenyl-d14              17.03  244   147769   824.29 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =   20.61%#

 Target Compounds                                                   Qvalue
   2) Naphthalene                   9.87  128   168646   815.47 ug/kg    100
   3) 2-Methyl naphthalene         10.81  142   119104   796.83 ug/kg     97
   4) 1-Methyl naphthalene         11.03  142   108099   786.25 ug/kg     97
   6) Dibenzofuran                 12.66  168   147566   849.11 ug/kg     99
   8) Acenaphthylene               12.33  152   173669   911.84 ug/kg     99
   9) Acenaphthene                 12.50  154   102602   906.99 ug/kg     97
  10) Fluorene                     13.16  166   111698   790.20 ug/kg     99
  12) Phenanthrene                 14.59  178   137924   887.16 ug/kg     99
  13) Anthracene                   14.64  178   136051   854.87 ug/kg     99
  14) Fluoranthene                 16.53  202   161074   842.66 ug/kg    100
  15) Pyrene                       17.11  202   163758   831.88 ug/kg    100
  18) Benzo[a]anthracene           20.06  228   188582   948.54 ug/kg     99
  19) Chrysene                     20.31  228   177706   949.06 ug/kg     99
  21) Benzo[b]fluoranthene         23.61  252   223263   943.51 ug/kg     99
  22) Benzo[k]fluoranthene         23.69  252   193340   891.24 ug/kg     99
  23) Benzo(j)fluoranthene         23.79  252   199971   973.65 ug/kg     99
  24) Benzo[e]pyrene               24.84  252   221769   986.56 ug/kg     99
  25) Benzo[a]pyrene               25.02  252   204650   917.40 ug/kg     99
  26) Dibenz[a,h]anthracene        28.58  278   233949  1011.92 ug/kg    100
  27) Indeno[1,2,3-cd]pyrene       28.59  276   275971   993.92 ug/kg     96
  28) Benzo[g,h,i]perylene         29.65  276   201566  1000.33 ug/kg     97
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072603.D          Vial: 3
Acq On    : 26 Jul 2016  10:10 am                   Operator: DEW
Sample    : LCS-76420                               Inst    : GC/MS #6
Misc      : LCS                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:57 2016             Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160726\16072604.D Vial: 4
Acq On : 26 Jul 2016 10:47 am Operator: DEW
Sample : 1607219-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 7:57 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	864801	4000.00 ug/kg	97
5) Acenaphthene-d10	12.45	164	527348	4000.00 ug/kg	93
11) Phenanthrene-d10	14.56	188	1371519	4000.00 ug/kg	91
17) Chrysene-d12	20.24	240	1657844	4000.00 ug/kg	103
20) Perylene-d12	25.35	264	1672728	4000.00 ug/kg	101

System Monitoring Compounds

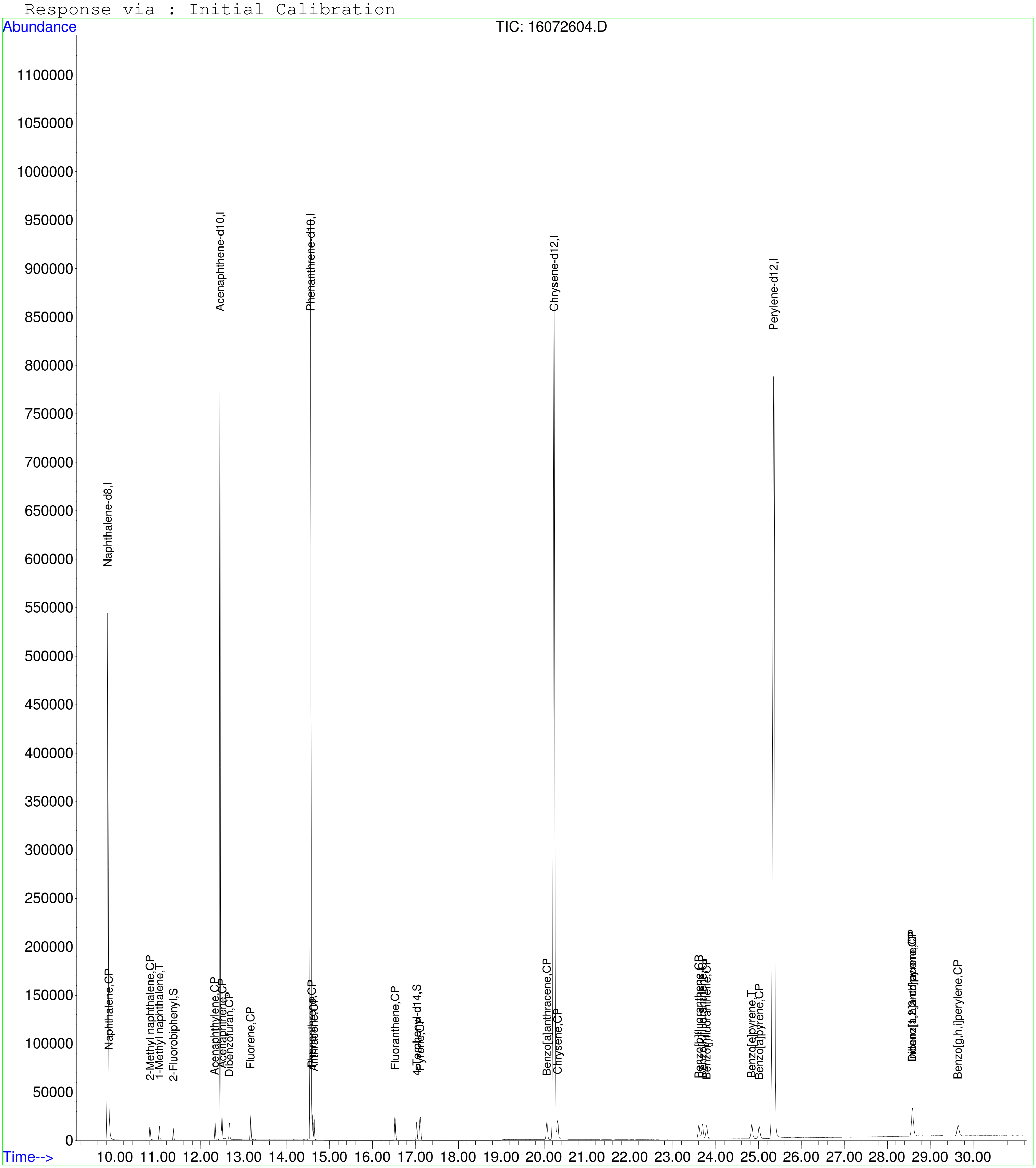
7) 2-Fluorobiphenyl	11.36	172	13289	73.69 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#	
16) 4-Terphenyl-d14	17.03	244	25952	66.72 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#	

Target Compounds					Qvalue
2) Naphthalene	9.86	128	14791	75.21 ug/kg	100
3) 2-Methyl naphthalene	10.82	142	10869	76.47 ug/kg	97
4) 1-Methyl naphthalene	11.03	142	9953	76.13 ug/kg	96
6) Dibenzofuran	12.66	168	17165	81.98 ug/kg	100
8) Acenaphthylene	12.33	152	18037	78.60 ug/kg	100
9) Acenaphthene	12.50	154	11062	81.16 ug/kg	96
10) Fluorene	13.16	166	14016	82.30 ug/kg	100
12) Phenanthrene	14.59	178	20875	80.43 ug/kg	98
13) Anthracene	14.64	178	21125	79.51 ug/kg	99
14) Fluoranthene	16.53	202	27727	86.89 ug/kg	100
15) Pyrene	17.11	202	28570	86.94 ug/kg	100
18) Benzo[a]anthracene	20.06	228	27973	78.70 ug/kg	98
19) Chrysene	20.32	228	27055	80.82 ug/kg	99
21) Benzo[b]fluoranthene	23.61	252	30001	78.49 ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	28395	81.03 ug/kg	99
23) Benzo(j)fluoranthene	23.79	252	27435	82.70 ug/kg	97
24) Benzo[e]pyrene	24.84	252	30616	84.32 ug/kg	100
25) Benzo[a]pyrene	25.02	252	27529	76.40 ug/kg	98
26) Dibenz[a,h]anthracene	28.58	278	30049	80.47 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.58	276	35640	79.47 ug/kg	97
28) Benzo[g,h,i]perylene	29.65	276	25734	79.07 ug/kg	97

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

```
Data File : C:\HPCHEM\1\DATA\160726\16072604.D          Vial: 4
Acq On    : 26 Jul 2016  10:47 am                    Operator: DEW
Sample    : 1607219-03AMS                            Inst     : GC/MS #6
Misc      : MS                                       Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:57 2016            Quant Results File: PP160725.RES

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



```
Data File : C:\HPCHEM\1\DATA\160726\16072605.D          Vial: 5
Acq On    : 26 Jul 2016  11:24 am                   Operator: DEW
Sample    : 1607219-03AMSD                          Inst    : GC/MS #6
Misc      : MSD                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:57 2016             Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	840037	4000.00 ug/kg	94
5) Acenaphthene-d10	12.44	164	506356	4000.00 ug/kg	89
11) Phenanthrene-d10	14.56	188	1273681	4000.00 ug/kg	85
17) Chrysene-d12	20.24	240	1533208	4000.00 ug/kg	95
20) Perylene-d12	25.35	264	1560886	4000.00 ug/kg	94

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	13755	79.78 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#	
16) 4-Terphenyl-d14	17.03	244	26077	73.97 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#	

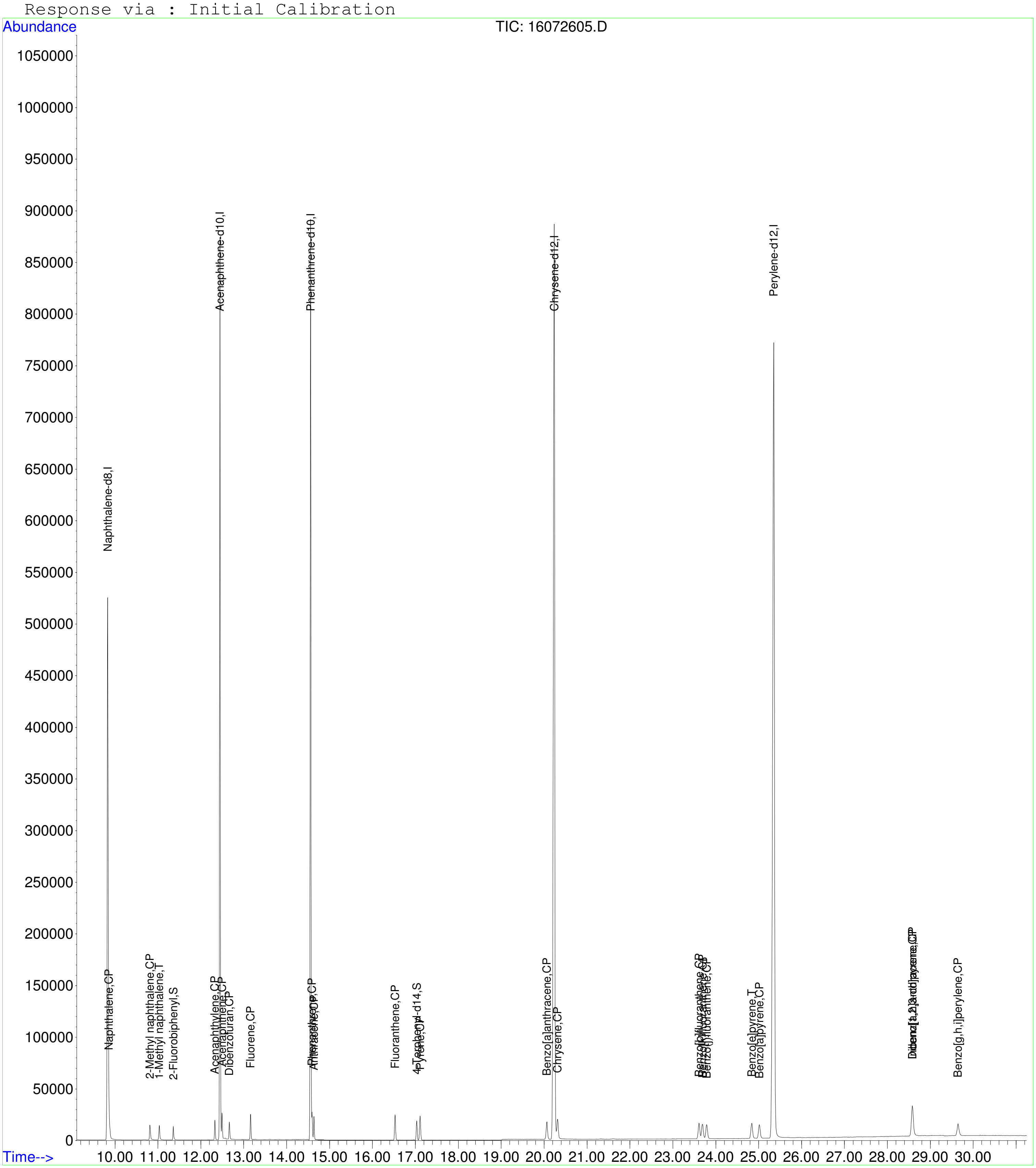
Target Compounds					Qvalue
2) Naphthalene	9.86	128	15173	79.43 ug/kg	100
3) 2-Methyl naphthalene	10.82	142	11181	80.98 ug/kg	93
4) 1-Methyl naphthalene	11.03	142	10241	80.64 ug/kg	100
6) Dibenzofuran	12.66	168	17271	85.91 ug/kg	99
8) Acenaphthylene	12.33	152	18018	81.78 ug/kg	99
9) Acenaphthene	12.49	154	11053	84.46 ug/kg	99
10) Fluorene	13.16	166	13989	85.55 ug/kg	100
12) Phenanthrene	14.59	178	20582	85.40 ug/kg	99
13) Anthracene	14.64	178	20731	84.02 ug/kg	99
14) Fluoranthene	16.53	202	27419	92.53 ug/kg	99
15) Pyrene	17.11	202	28085	92.03 ug/kg	99
18) Benzo[a]anthracene	20.06	228	27592	83.93 ug/kg	98
19) Chrysene	20.31	228	26970	87.11 ug/kg	98
21) Benzo[b]fluoranthene	23.61	252	30070	84.31 ug/kg	98
22) Benzo[k]fluoranthene	23.69	252	28171	86.16 ug/kg	97
23) Benzo(j)fluoranthene	23.79	252	27836	89.92 ug/kg	98
24) Benzo[e]pyrene	24.84	252	30548	90.16 ug/kg	99
25) Benzo[a]pyrene	25.02	252	27774	82.60 ug/kg	98
26) Dibenz[a,h]anthracene	28.58	278	30127	86.46 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.58	276	35489	84.80 ug/kg	97
28) Benzo[g,h,i]perylene	29.65	276	26015	85.66 ug/kg	95

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072605.D          Vial: 5
Acq On    : 26 Jul 2016  11:24 am                   Operator: DEW
Sample    : 1607219-03AMSD                          Inst     : GC/MS #6
Misc      : MSD                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:57 2016            Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072606.D          Vial: 6
Acq On    : 26 Jul 2016  12:01 pm                   Operator: DEW
Sample    : MB-76420                                Inst    : GC/MS #6
Misc      : MSD                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:57 2016            Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	954229	4000.00 ug/kg	107
5) Acenaphthene-d10	12.44	164	479775	4000.00 ug/kg	84
11) Phenanthrene-d10	14.56	188	898844	4000.00 ug/kg	60
17) Chrysene-d12	20.23	240	988436	4000.00 ug/kg	61
20) Perylene-d12	25.34	264	1092497	4000.00 ug/kg	66

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	135307	869.04 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 21.73%#		
16) 4-Terphenyl-d14	17.03	244	155073	789.49 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.74%#		

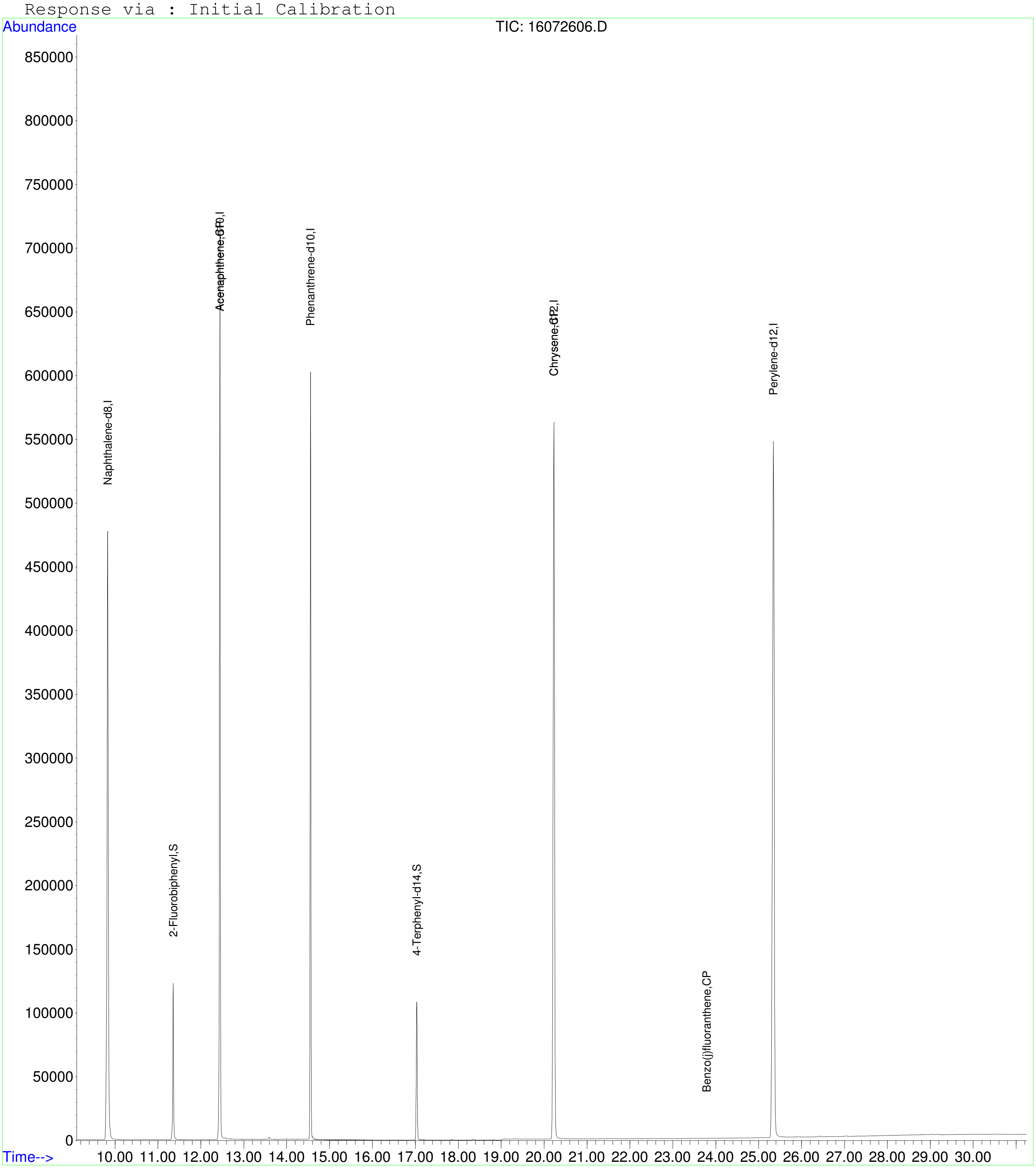
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1662	~~13.40 ug/kg#~~	10
19) Chrysene	20.23	228	2134	~~10.69 ug/kg~~	70
23) Benzo(j)fluoranthene	23.78	252	39	~~0.18 ug/kg#~~	~~1~~

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072606.D          Vial: 6
Acq On    : 26 Jul 2016  12:01 pm                    Operator: DEW
Sample    : MB-76420                                 Inst    : GC/MS #6
Misc      : MSD                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:57 2016             Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072607.D          Vial: 7
Acq On    : 26 Jul 2016  12:38 pm                    Operator: DEW
Sample    : 1607219-01A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:59 2016            Quant Results File: PP160725.RES

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

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
 ---------------------------------------------------------------------------
   1) Naphthalene-d8                 9.83  136   841225   4000.00 ug/kg   94
   5) Acenaphthene-d10              12.45  164   508513   4000.00 ug/kg   89
  11) Phenanthrene-d10              14.56  188  1353117   4000.00 ug/kg   90
  17) Chrysene-d12                  20.24  240  1582204   4000.00 ug/kg   98
  20) Perylene-d12                  25.35  264  1606406   4000.00 ug/kg   97

 System Monitoring Compounds
   7) 2-Fluorobiphenyl              11.36  172    13656    78.82 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.97%#
  16) 4-Terphenyl-d14               17.03  244    27610    73.64 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.84%#

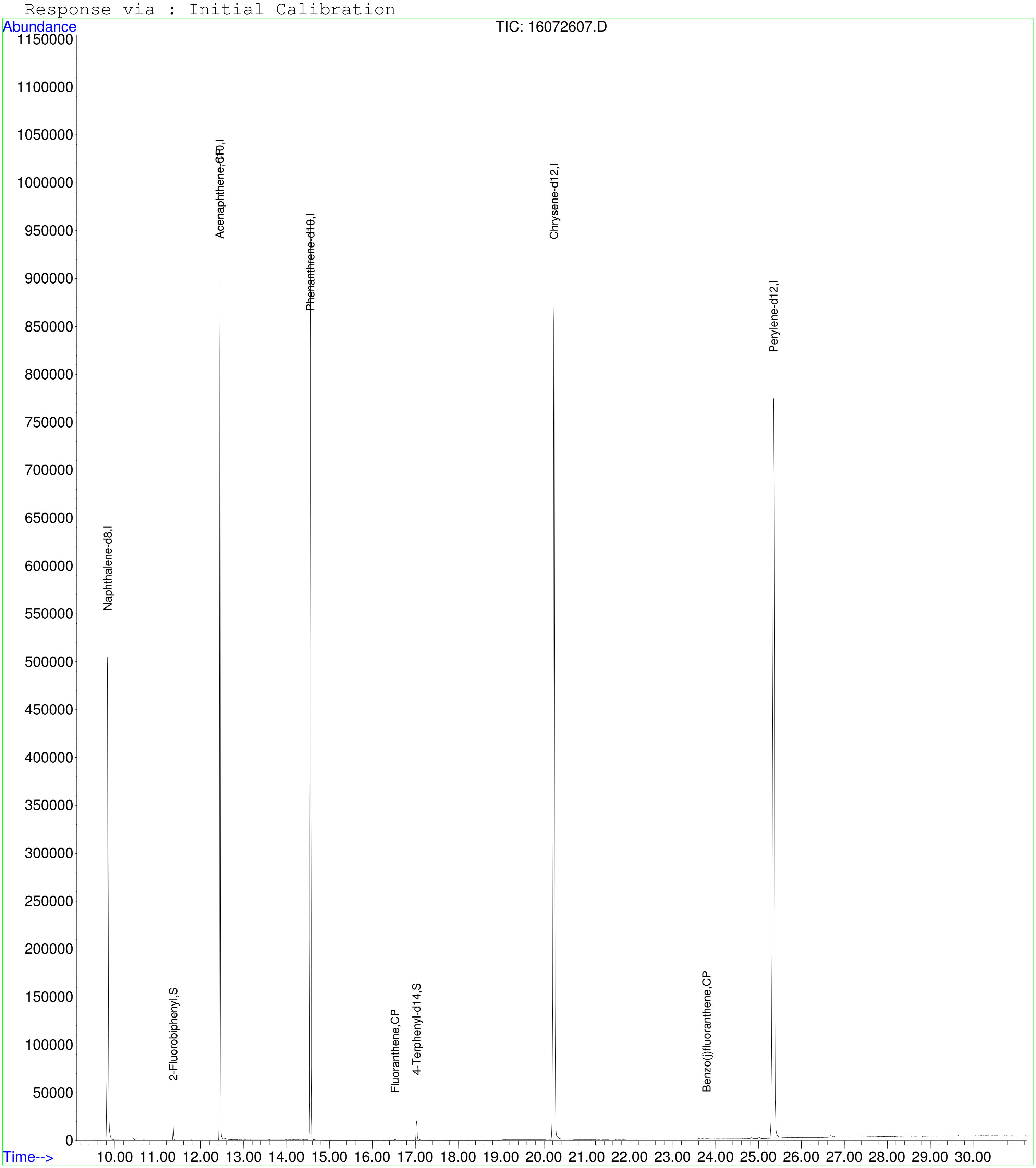
 Target Compounds                                                   Qvalue
   9) Acenaphthene                  12.45  154     1674    12.74 ug/kg#    11
  14) Fluoranthene                  16.53  202     1609     5.11 ug/kg     98
  23) Benzo(j)fluoranthene          23.79  252      718     2.25 ug/kg     95

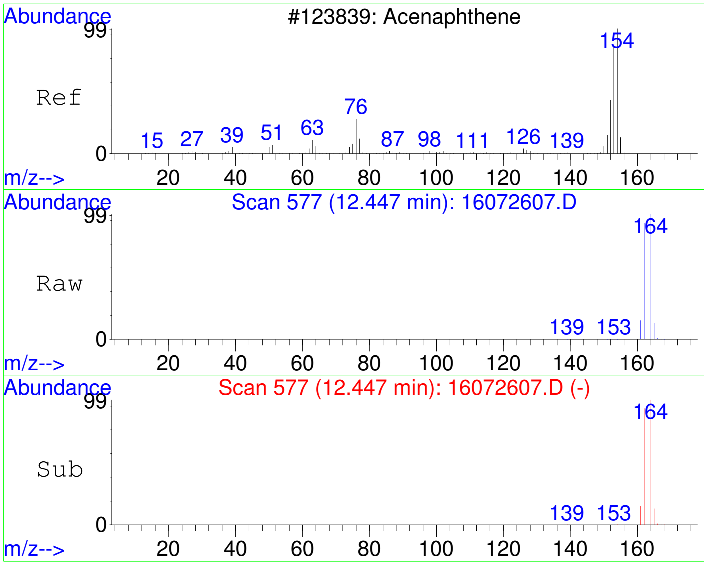
 ---------------------------------------------------------------------------
 (#) = qualifier out of range (m) = manual integration
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072607.D          Vial: 7
Acq On    : 26 Jul 2016  12:38 pm                   Operator: DEW
Sample    : 1607219-01A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:59 2016             Quant Results File: PP160725.RES

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

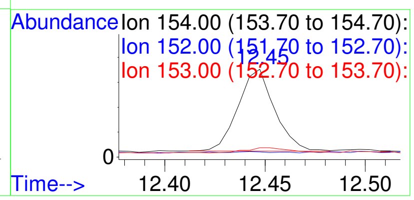


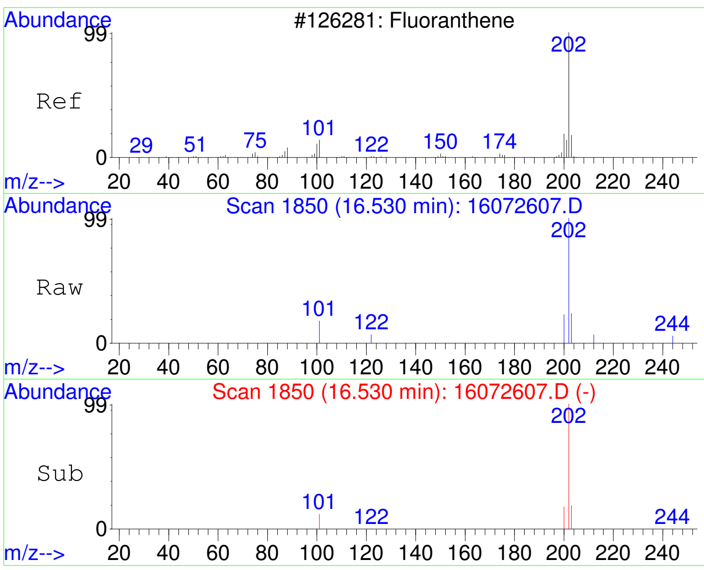


#9
Acenaphthene
Concen: ~~12.74 ug/kg~~
RT: 12.45 min Scan# 577
Delta R.T. -0.05 min
Lab File: 16072607.D
Acq: 26 Jul 2016 12:38 pm

Tgt Ion:154 Resp: 1674

Ion	Ratio	Lower	Upper
154	100		
152	0.7	20.4	80.4#
153	6.0	78.2	138.2#

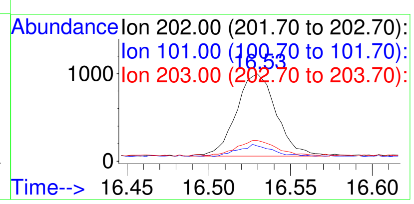


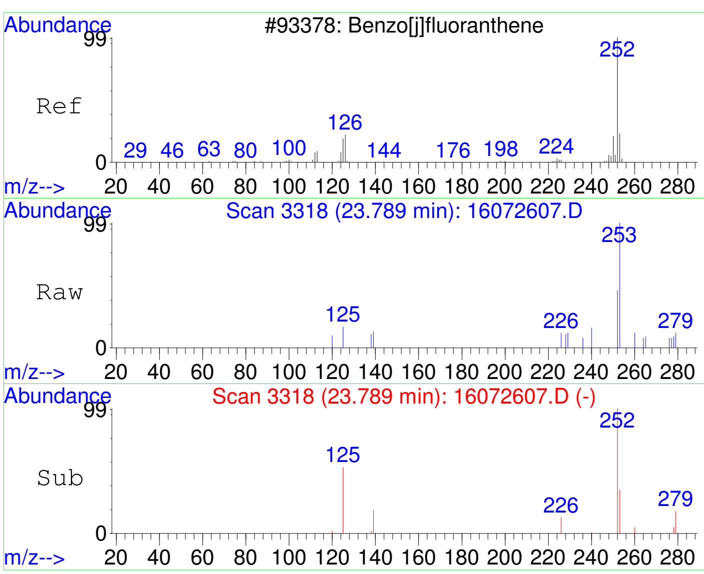


#14
Fluoranthene
Concen: 5.11 ug/kg
RT: 16.53 min Scan# 1850
Delta R.T. -0.00 min
Lab File: 16072607.D
Acq: 26 Jul 2016 12:38 pm

Tgt Ion:202 Resp: 1609

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	41.4
203	18.6	0.0	47.7

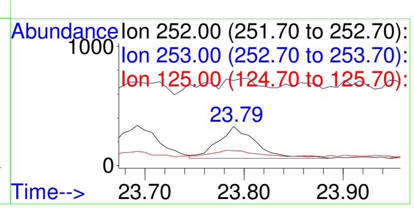




#23
Benzo(j)fluoranthene
Concen: 2.25 ug/kg
RT: 23.79 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072607.D
Acq: 26 Jul 2016 12:38 pm

Tgt Ion:252 Resp: 718

Ion	Ratio	Lower	Upper
252	100		
253	19.3	2.1	42.1
125	16.0	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072608.D          Vial: 8
Acq On    : 26 Jul 2016   1:16 pm                    Operator: DEW
Sample    : 1607219-02A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:59 2016             Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	862961	4000.00 ug/kg	97
5) Acenaphthene-d10	12.45	164	520632	4000.00 ug/kg	91
11) Phenanthrene-d10	14.56	188	1371976	4000.00 ug/kg	91
17) Chrysene-d12	20.24	240	1642271	4000.00 ug/kg	102
20) Perylene-d12	25.35	264	1654306	4000.00 ug/kg	100

System Monitoring Compounds

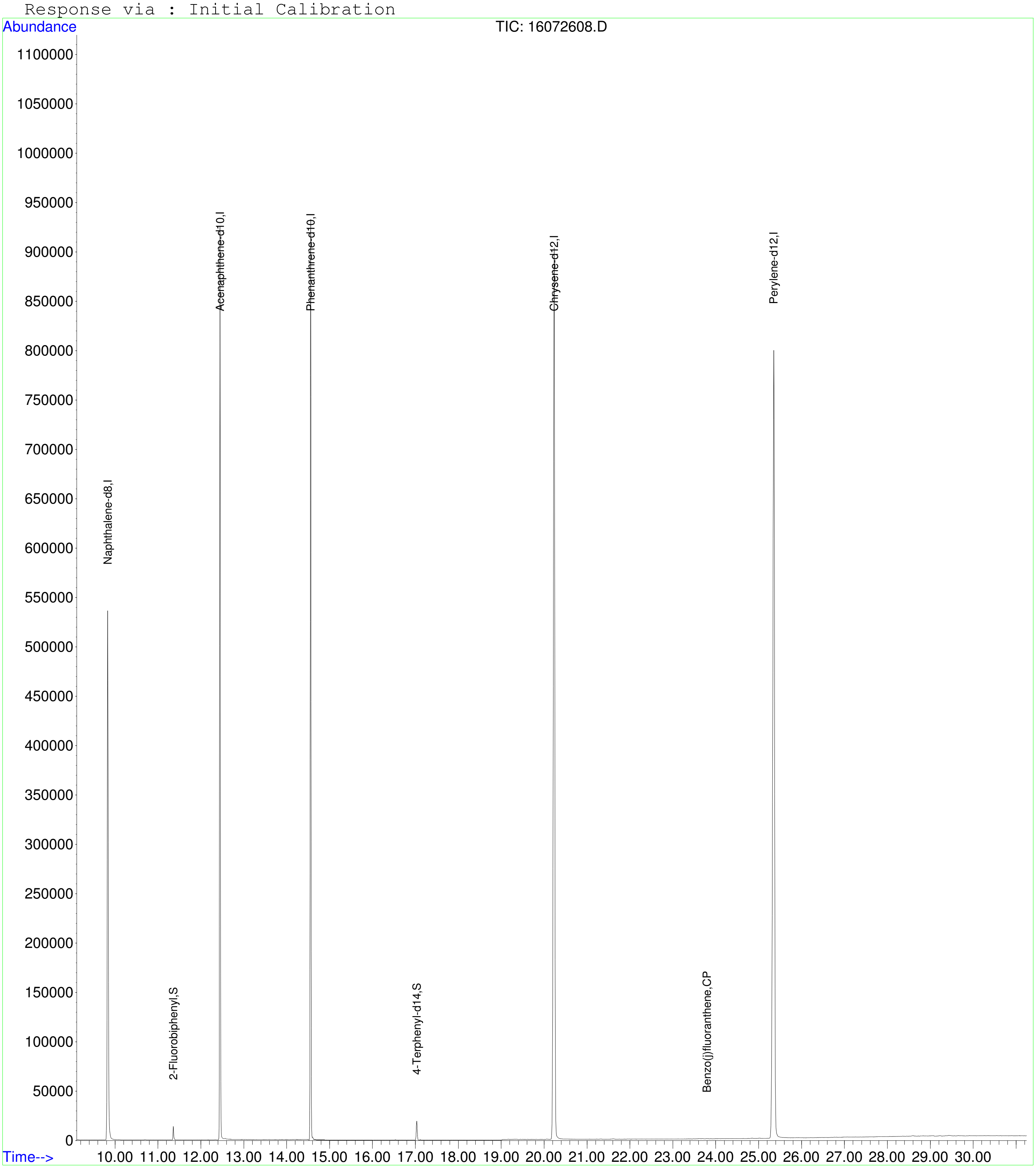
7) 2-Fluorobiphenyl	11.36	172	13821	77.86 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#	
16) 4-Terphenyl-d14	17.03	244	27621	72.37 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.81%#	

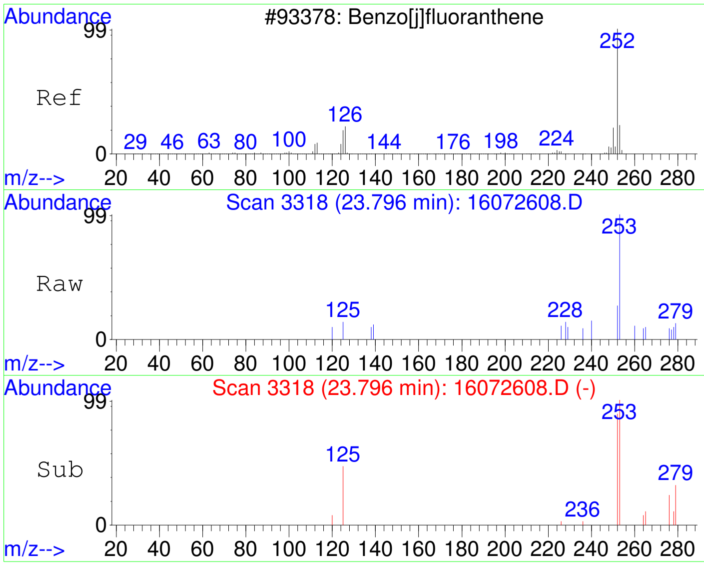
Target Compounds					Qvalue
23) Benzo(j)fluoranthene	23.80	252	360	1.10 ug/kg#	32

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072608.D          Vial: 8
Acq On    : 26 Jul 2016   1:16 pm                    Operator: DEW
Sample    : 1607219-02A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:59 2016             Quant Results File: PP160725.RES

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

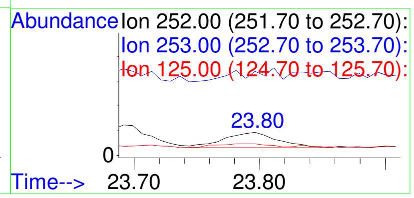




#23
Benzo(j)fluoranthene
Concen: 1.10 ug/kg
RT: 23.80 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072608.D
Acq: 26 Jul 2016 1:16 pm

Tgt Ion:252 Resp: 360

Ion	Ratio	Lower	Upper
252	100		
253	69.1	2.1	42.1#
125	22.0	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072609.D          Vial: 9
Acq On    : 26 Jul 2016   1:54 pm                    Operator: DEW
Sample    : 1607219-03A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:59 2016            Quant Results File: PP160725.RES

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

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 ---------------------------------------------------------------------------
   1) Naphthalene-d8               9.83  136    826504   4000.00 ug/kg   92
   5) Acenaphthene-d10            12.45  164    477887   4000.00 ug/kg   84
  11) Phenanthrene-d10            14.56  188   1281214   4000.00 ug/kg   85
  17) Chrysene-d12                20.24  240   1558555   4000.00 ug/kg   97
  20) Perylene-d12                25.35  264   1591062   4000.00 ug/kg   96

 System Monitoring Compounds
   7) 2-Fluorobiphenyl            11.36  172     12717    78.06 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.95%#
  16) 4-Terphenyl-d14             17.03  244     26489    74.91 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.87%#

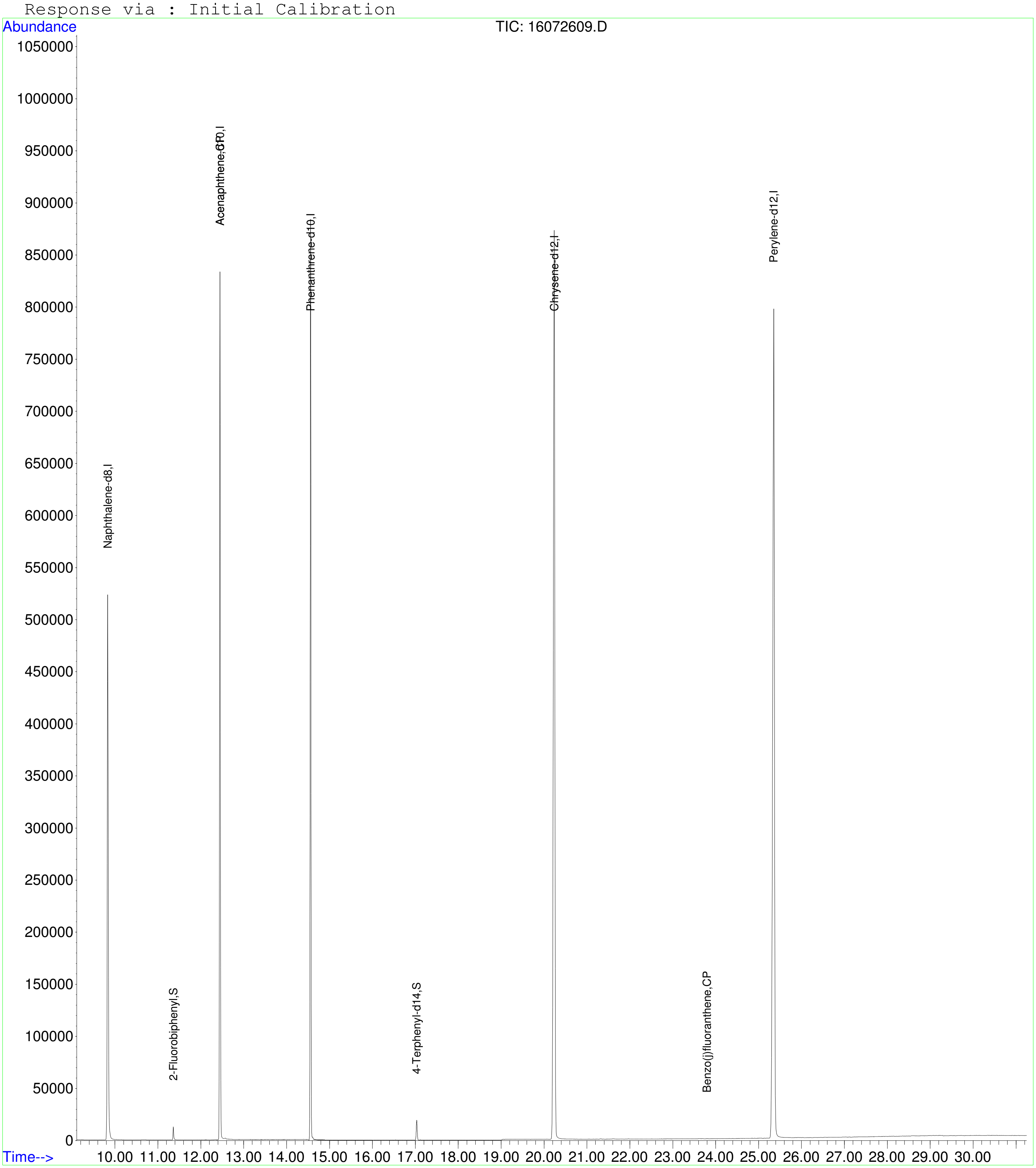
 Target Compounds                                                   Qvalue
   9) Acenaphthene                12.45  154      1650    13.36 ug/kg#    11
  23) Benzo(j)fluoranthene        23.80  252       137     0.43 ug/kg     90
```

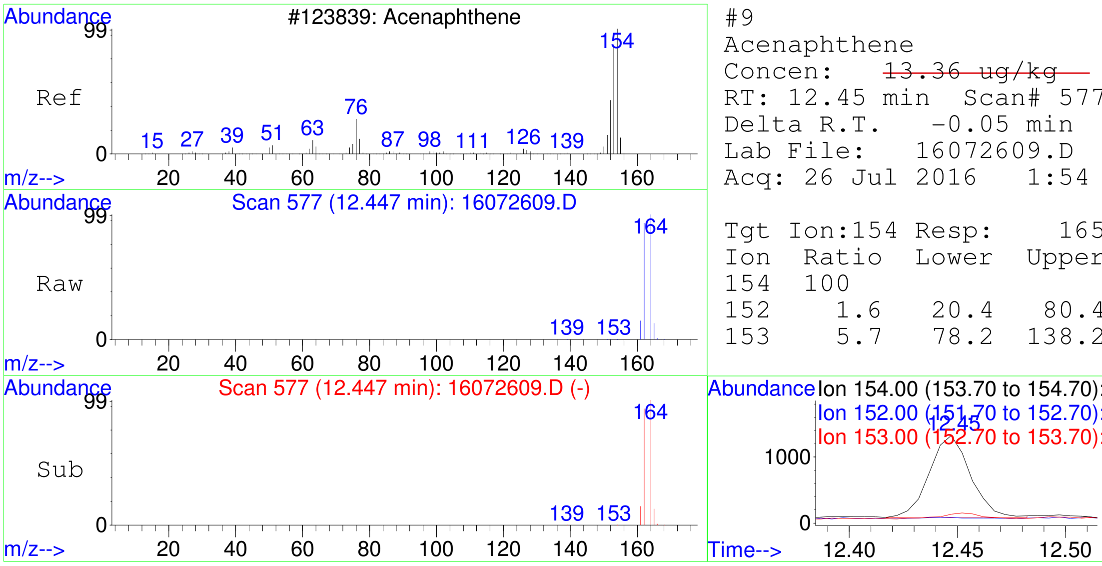
```
 ---------------------------------------------------------------------------
 (#) = qualifier out of range (m) = manual integration
```

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160726\16072609.D Vial: 9
Acq On : 26 Jul 2016 1:54 pm Operator: DEW
Sample : 1607219-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 7:59 2016 Quant Results File: PP160725.RES

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

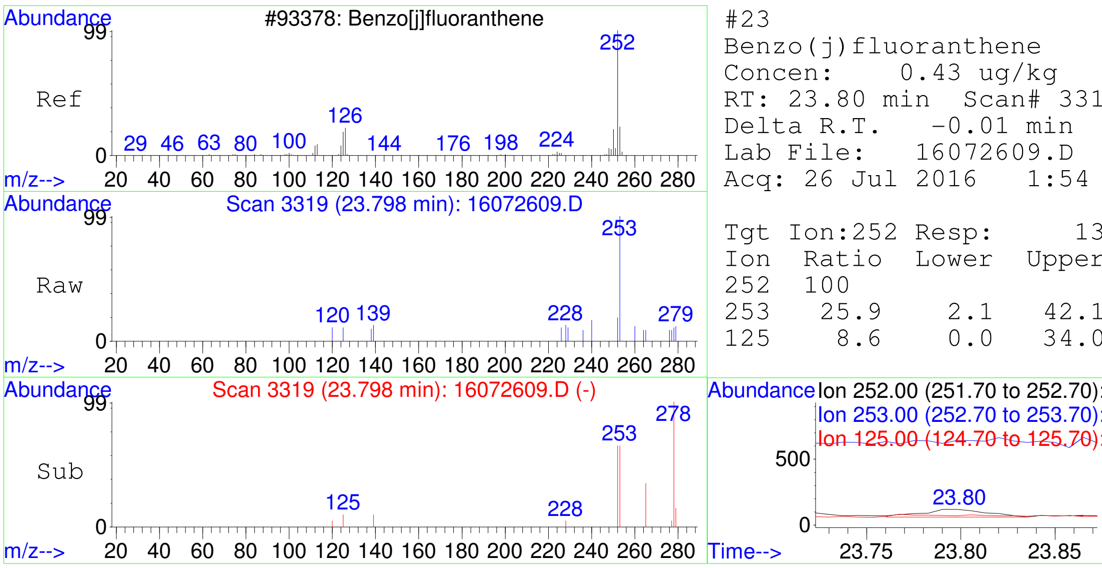




#9
Acenaphthene
Concen: ~~13.36 ug/kg~~
RT: 12.45 min Scan# 577
Delta R.T. -0.05 min
Lab File: 16072609.D
Acq: 26 Jul 2016 1:54 pm

Tgt Ion:154 Resp: 1650

Ion	Ratio	Lower	Upper
154	100		
152	1.6	20.4	80.4#
153	5.7	78.2	138.2#



#23
Benzo(j)fluoranthene
Concen: 0.43 ug/kg
RT: 23.80 min Scan# 3319
Delta R.T. -0.01 min
Lab File: 16072609.D
Acq: 26 Jul 2016 1:54 pm

Tgt Ion:252 Resp: 137

Ion	Ratio	Lower	Upper
252	100		
253	25.9	2.1	42.1
125	8.6	0.0	34.0

Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072610.D          Vial: 10
Acq On    : 26 Jul 2016   2:32 pm                    Operator: DEW
Sample    : 1607219-04A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:59 2016            Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	844884	4000.00 ug/kg	95
5) Acenaphthene-d10	12.45	164	477703	4000.00 ug/kg	84
11) Phenanthrene-d10	14.56	188	1251555	4000.00 ug/kg	83
17) Chrysene-d12	20.24	240	1590808	4000.00 ug/kg	99
20) Perylene-d12	25.36	264	1617821	4000.00 ug/kg	97

System Monitoring Compounds

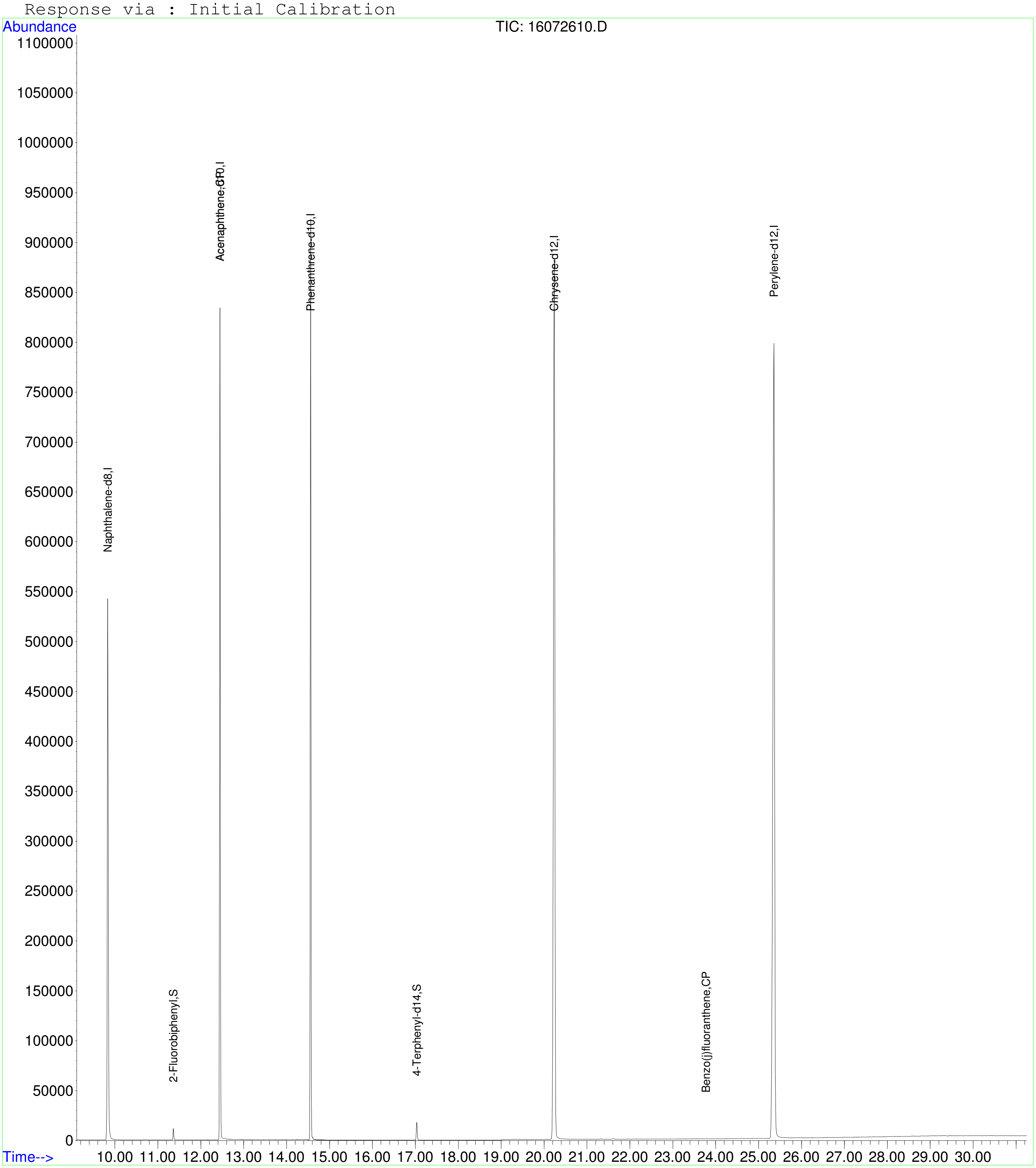
7) 2-Fluorobiphenyl	11.36	172	12036	73.67 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#	
16) 4-Terphenyl-d14	17.03	244	25408	73.16 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.83%#	

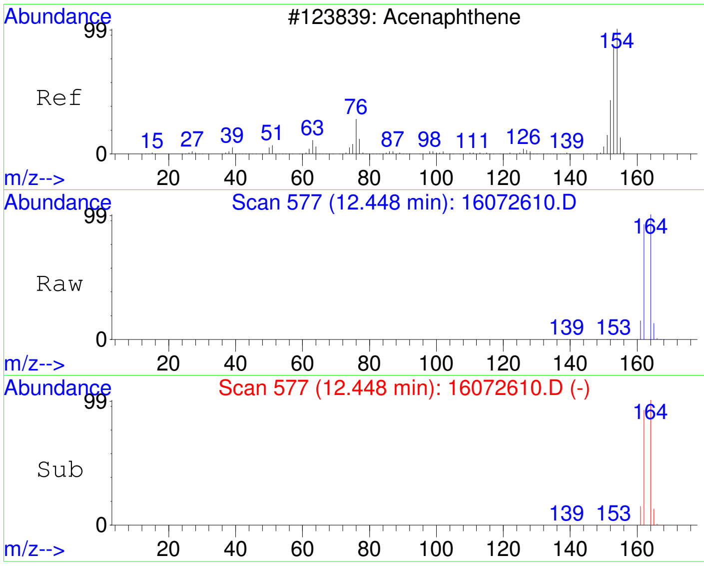
Target Compounds

					Qvalue
9) Acenaphthene	12.45	154	1657	~~13.42 ug/kg#~~	~~10~~
23) Benzo(j)fluoranthene	23.77	252	15	~~0.05 ug/kg#~~	~~1~~

```
Data File : C:\HPCHEM\1\DATA\160726\16072610.D          Vial: 10
Acq On    : 26 Jul 2016   2:32 pm                   Operator: DEW
Sample    : 1607219-04A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:59 2016            Quant Results File: PP160725.RES

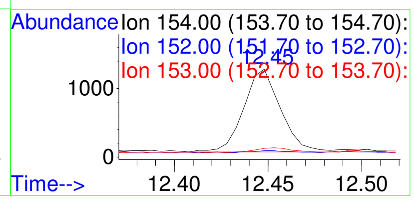
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

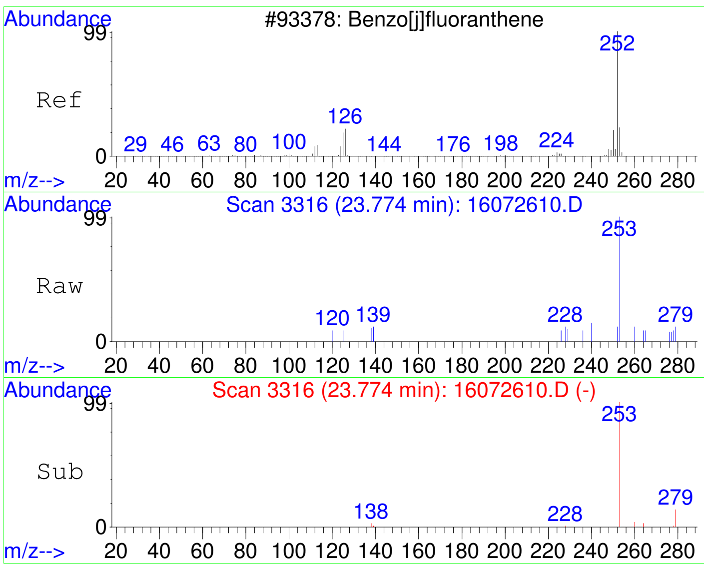




#9
Acenaphthene
Concen: ~~13.42 ug/kg~~
RT: 12.45 min Scan# 577
Delta R.T. -0.05 min
Lab File: 16072610.D
Acq: 26 Jul 2016 2:32 pm

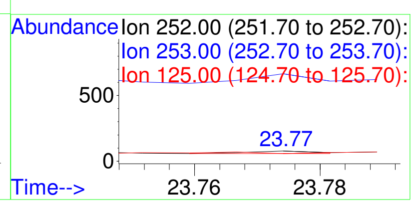
Tgt	Ion:154	Resp:	1657
Ion	Ratio	Lower	Upper
154	100		
152	1.7	20.4	80.4#
153	5.0	78.2	138.2#





#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 23.77 min Scan# 3316
Delta R.T. -0.03 min
Lab File: 16072610.D
Acq: 26 Jul 2016 2:32 pm

Tgt	Ion:252	Resp:	15
Ion	Ratio	Lower	Upper
252	100		
253	373.7	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072611.D          Vial: 11
Acq On    : 26 Jul 2016   3:10 pm                   Operator: DEW
Sample    : 1607219-05A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:59 2016            Quant Results File: PP160725.RES

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

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 --------------------------------------------------------------------------
   1) Naphthalene-d8               9.83  136   800944   4000.00 ug/kg   90
   5) Acenaphthene-d10            12.45  164   477092   4000.00 ug/kg   84
  11) Phenanthrene-d10            14.56  188  1302431   4000.00 ug/kg   87
  17) Chrysene-d12                20.24  240  1512046   4000.00 ug/kg   94
  20) Perylene-d12                25.35  264  1525841   4000.00 ug/kg   92

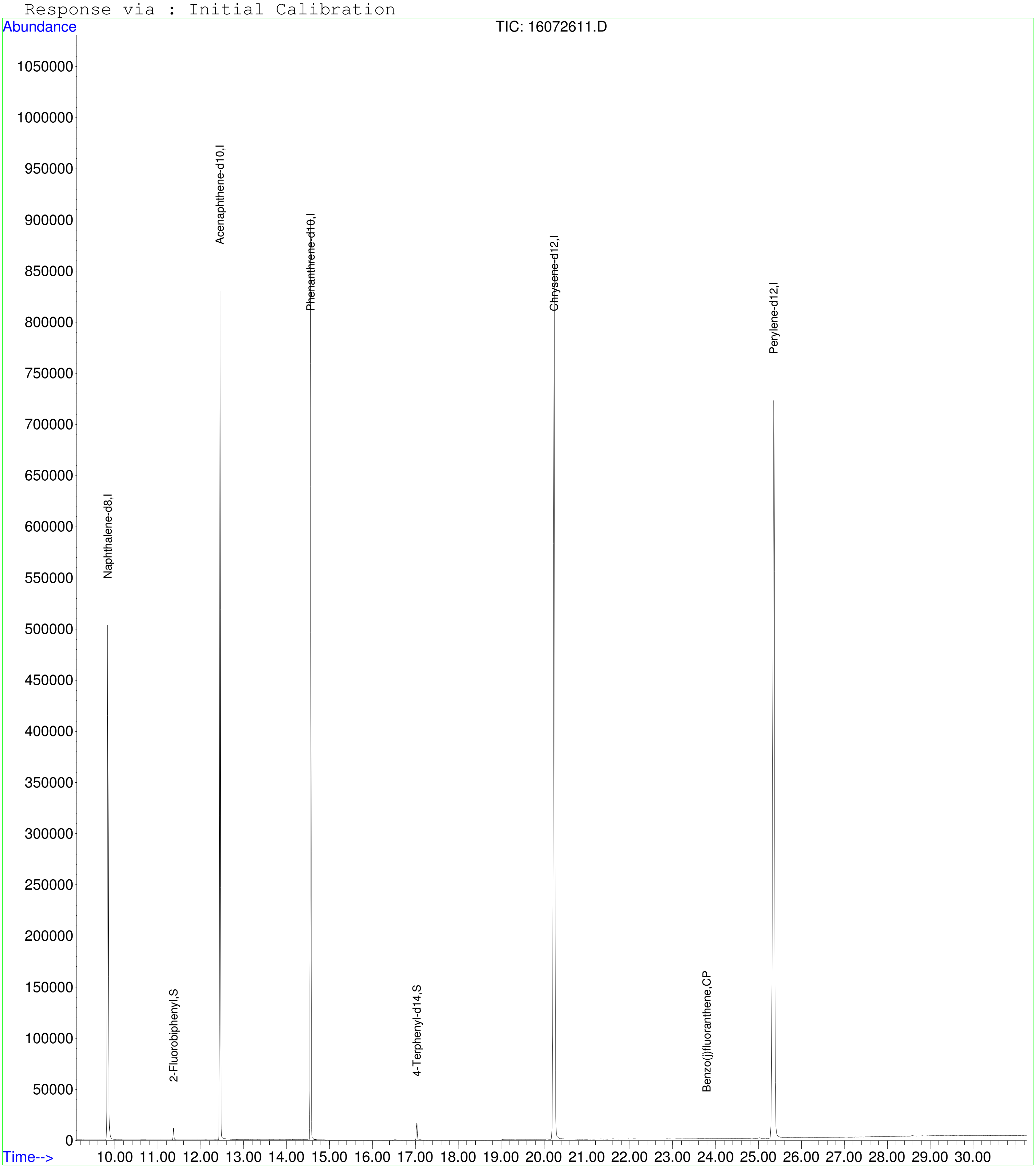
 System Monitoring Compounds
   7) 2-Fluorobiphenyl            11.36  172    12057    73.91 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.85%#
  16) 4-Terphenyl-d14             17.03  244    24320    65.55 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.64%#

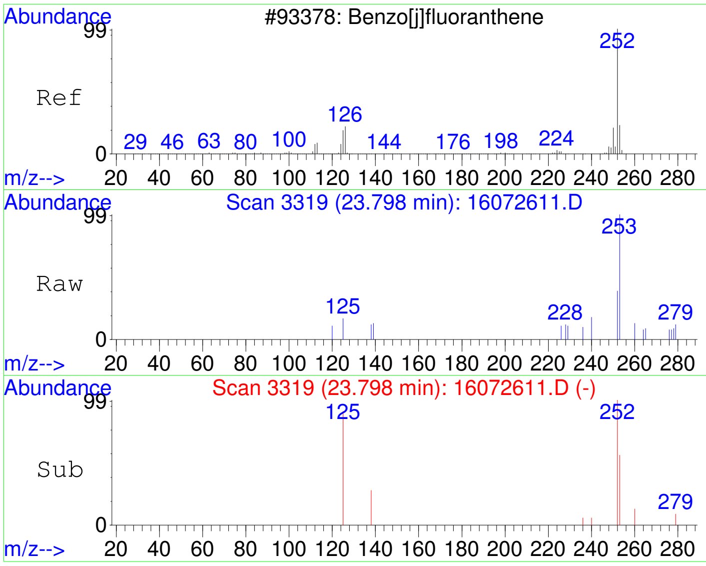
 Target Compounds                                                 Qvalue
  23) Benzo(j)fluoranthene        23.80  252      479     1.58 ug/kg     75
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072611.D          Vial: 11
Acq On    : 26 Jul 2016   3:10 pm                    Operator: DEW
Sample    : 1607219-05A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:59 2016            Quant Results File: PP160725.RES

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

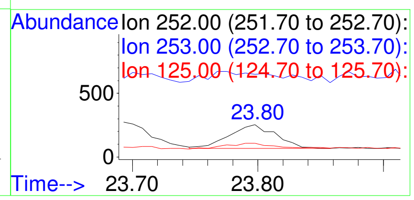




#23
Benzo(j)fluoranthene
Concen: 1.58 ug/kg
RT: 23.80 min Scan# 3319
Delta R.T. -0.01 min
Lab File: 16072611.D
Acq: 26 Jul 2016 3:10 pm

Tgt Ion:252 Resp: 479

Ion	Ratio	Lower	Upper
252	100		
253	34.6	2.1	42.1
125	23.9	0.0	34.0



```
Data File : C:\HPCHEM\1\DATA\160726\16072612.D          Vial: 12
Acq On    : 26 Jul 2016   3:48 pm                   Operator: DEW
Sample    : 1607219-06A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:00 2016            Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	847582	4000.00 ug/kg	95
5) Acenaphthene-d10	12.45	164	480919	4000.00 ug/kg	84
11) Phenanthrene-d10	14.56	188	1300423	4000.00 ug/kg	87
17) Chrysene-d12	20.24	240	1615608	4000.00 ug/kg	100
20) Perylene-d12	25.35	264	1641486	4000.00 ug/kg	99

System Monitoring Compounds

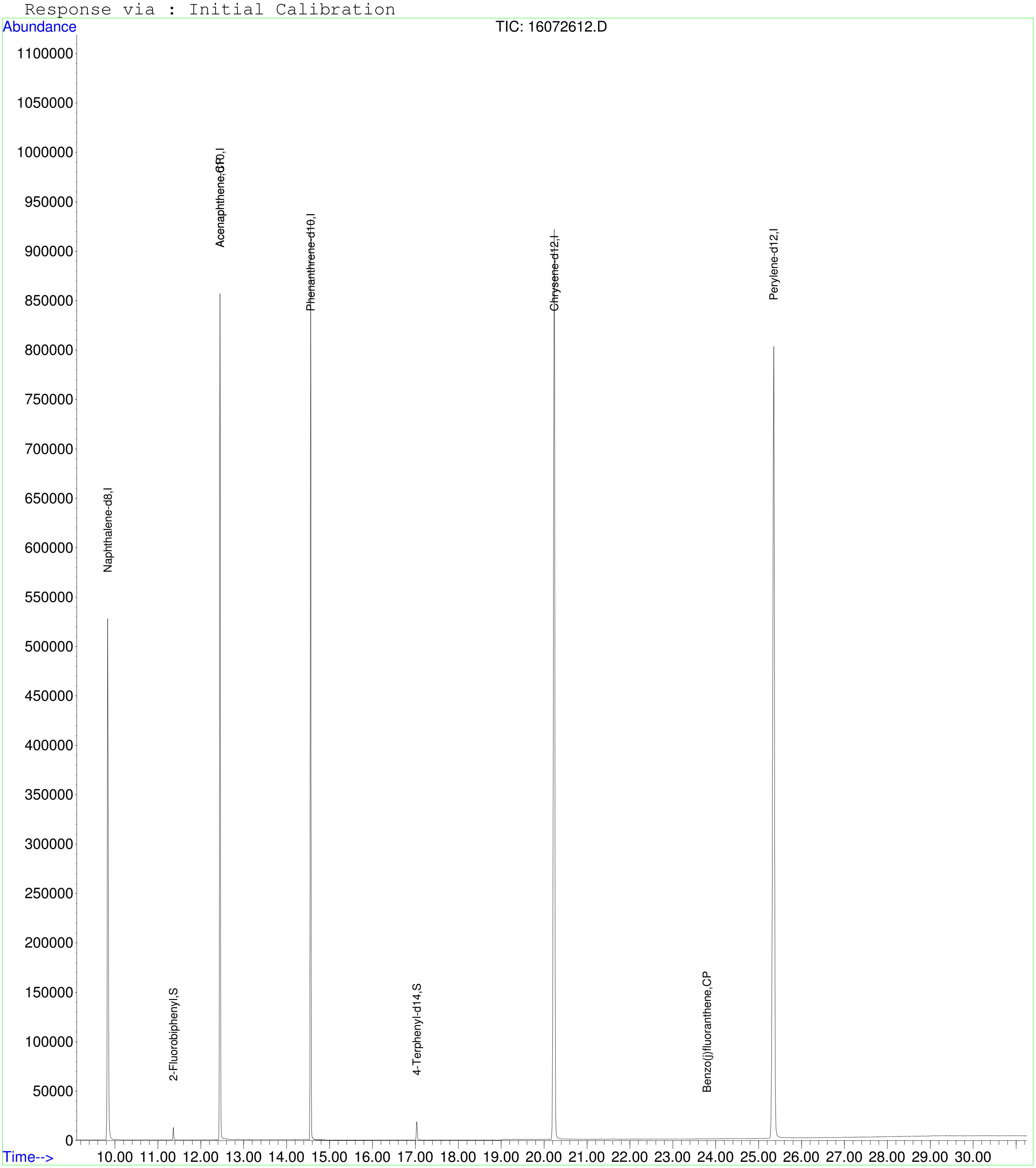
7) 2-Fluorobiphenyl	11.36	172	13038	79.61 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#	
16) 4-Terphenyl-d14	17.03	244	26737	74.37 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#	

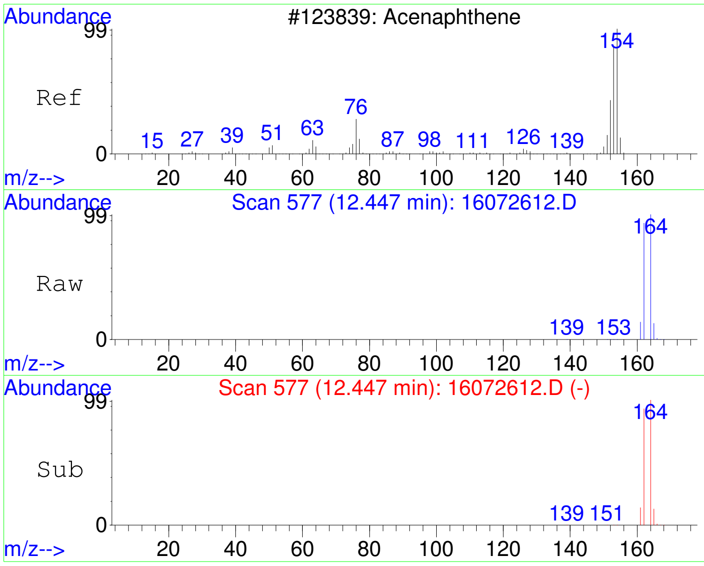
Target Compounds					Qvalue
9) Acenaphthene	12.45	154	1604	~~12.91 ug/kg#~~	~~10~~
23) Benzo(j)fluoranthene	23.79	252	69	~~0.21 ug/kg#~~	~~1~~

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

```
Data File : C:\HPCHEM\1\DATA\160726\16072612.D          Vial: 12
Acq On    : 26 Jul 2016   3:48 pm                   Operator: DEW
Sample    : 1607219-06A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:00 2016            Quant Results File: PP160725.RES

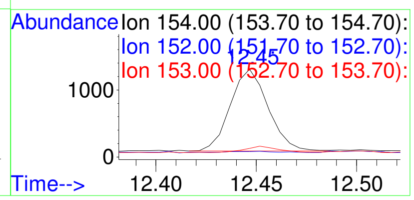
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

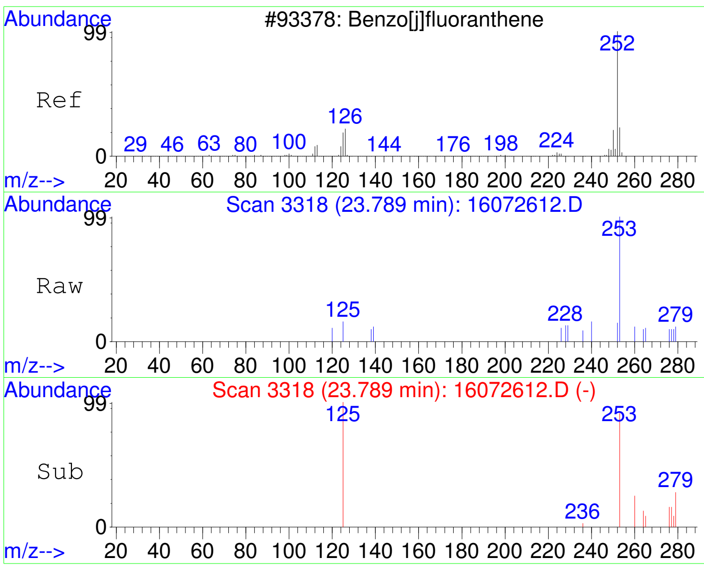




#9
Acenaphthene
Concen: ~~12.91 ug/kg~~
RT: 12.45 min Scan# 577
Delta R.T. -0.05 min
Lab File: 16072612.D
Acq: 26 Jul 2016 3:48 pm

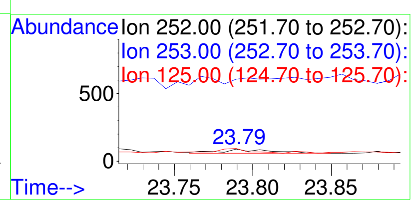
Tgt Ion:154	Resp:	1604	
Ion	Ratio	Lower	Upper
154	100		
152	0.8	20.4	80.4#
153	4.8	78.2	138.2#





#23
Benzo(j)fluoranthene
Concen: ~~0.21 ug/kg~~
RT: 23.79 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072612.D
Acq: 26 Jul 2016 3:48 pm

Tgt Ion:252	Resp:	69	
Ion	Ratio	Lower	Upper
252	100		
253	151.6	2.1	42.1#
125	93.5	0.0	34.0#



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072613.D          Vial: 13
Acq On    : 26 Jul 2016   4:25 pm                   Operator: DEW
Sample    : 1607219-07A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:00 2016            Quant Results File: PP160725.RES

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

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
 ---------------------------------------------------------------------------
   1) Naphthalene-d8                9.83  136    885975   4000.00 ug/kg   99
   5) Acenaphthene-d10             12.45  164    524364   4000.00 ug/kg   92
  11) Phenanthrene-d10             14.56  188   1325499   4000.00 ug/kg   88
  17) Chrysene-d12                 20.24  240   1654005   4000.00 ug/kg  103
  20) Perylene-d12                 25.35  264   1671617   4000.00 ug/kg  101

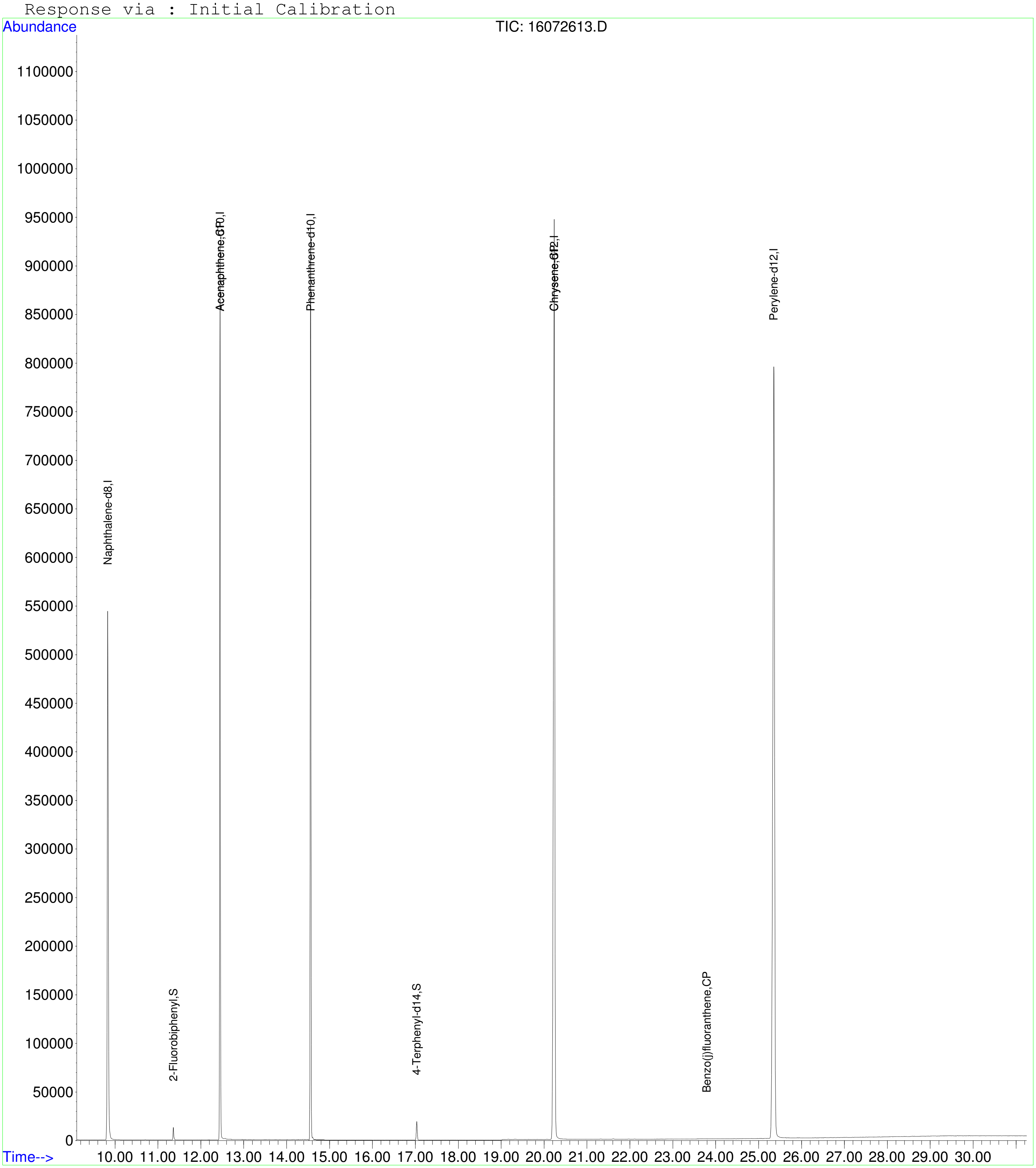
 System Monitoring Compounds
   7) 2-Fluorobiphenyl             11.36  172     13605    76.00 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.90%#
  16) 4-Terphenyl-d14              17.03  244     26938    73.26 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.83%#

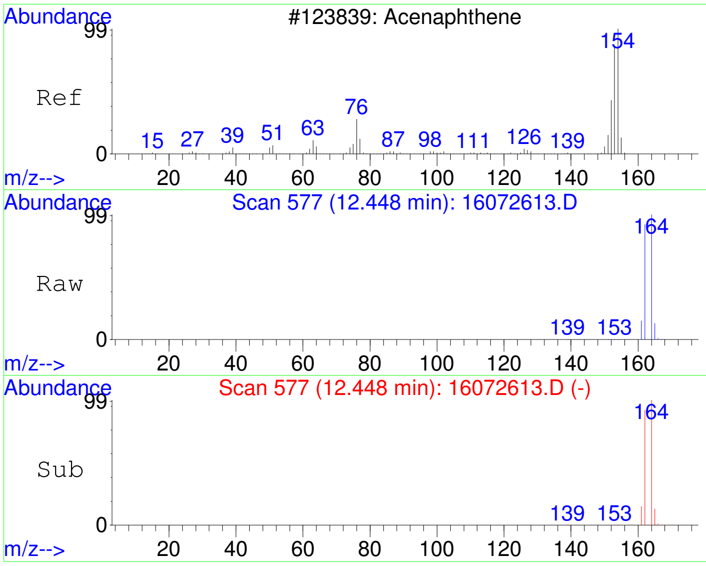
 Target Compounds                                                      Qvalue
   9) Acenaphthene                 12.45  154      1798    13.27 ug/kg#    10
  19) Chrysene                     20.24  228      3516    10.53 ug/kg     67
  23) Benzo(j)fluoranthene         23.79  252        29     0.09 ug/kg#     1
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072613.D          Vial: 13
Acq On    : 26 Jul 2016   4:25 pm                   Operator: DEW
Sample    : 1607219-07A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:00 2016             Quant Results File: PP160725.RES

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

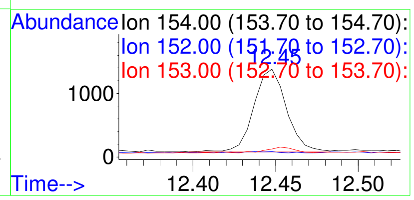


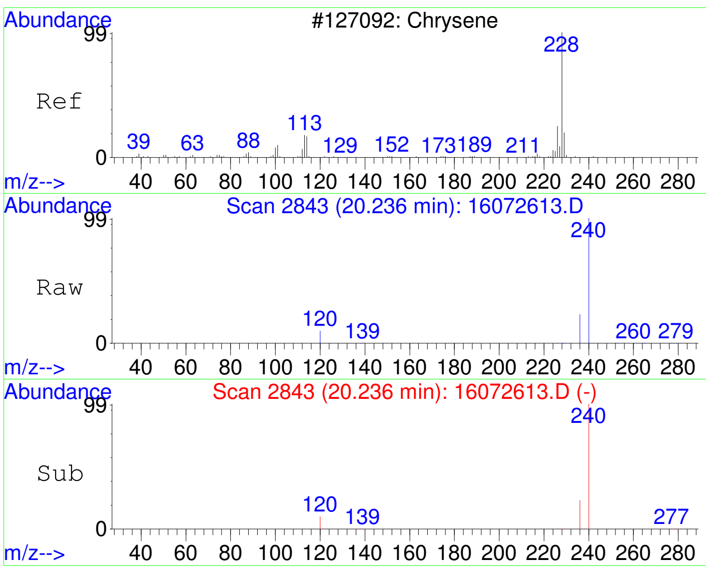


#9
Acenaphthene
Concen: ~~13.27 ug/kg~~
RT: 12.45 min Scan# 577
Delta R.T. -0.05 min
Lab File: 16072613.D
Acq: 26 Jul 2016 4:25 pm

Tgt Ion:154 Resp: 1798

Ion	Ratio	Lower	Upper
154	100		
152	1.2	20.4	80.4#
153	4.8	78.2	138.2#

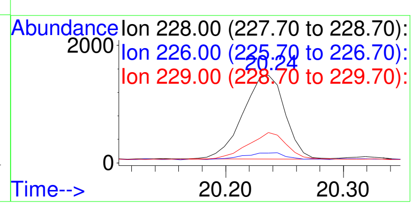


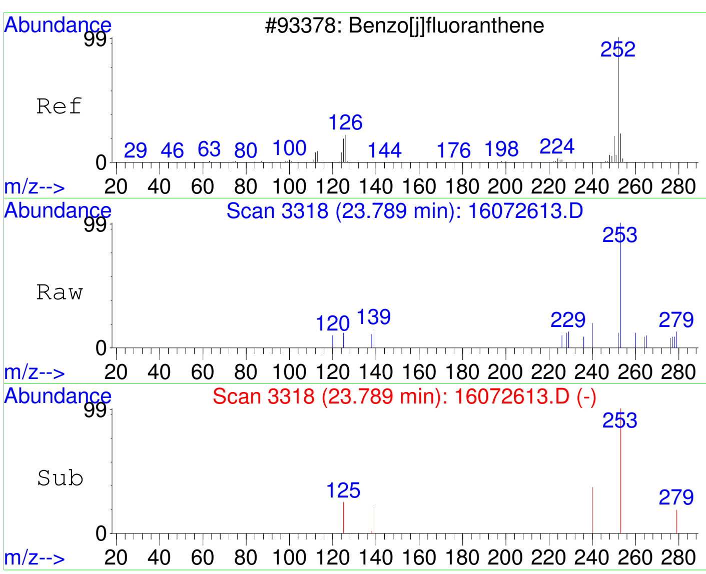


#19
Chrysene
Concen: ~~10.53 ug/kg~~
RT: 20.24 min Scan# 2843
Delta R.T. -0.09 min
Lab File: 16072613.D
Acq: 26 Jul 2016 4:25 pm

Tgt Ion:228 Resp: 3516

Ion	Ratio	Lower	Upper
228	100		
226	7.7	0.0	58.1
229	31.6	0.0	49.9

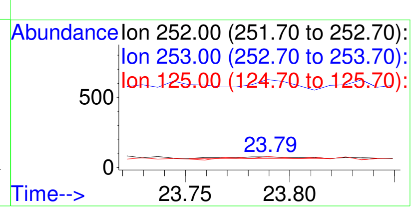




#23
Benzo(j)fluoranthene
Concen: 0.09 ug/kg
RT: 23.79 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072613.D
Acq: 26 Jul 2016 4:25 pm

Tgt Ion:252 Resp: 29

Ion	Ratio	Lower	Upper
252	100		
253	333.3	2.1	42.1#
125	166.7	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160726\16072614.D Vial: 14
Acq On : 26 Jul 2016 5:04 pm Operator: DEW
Sample : 1607219-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 8:00 2016 Quant Results File: PP160725.RES

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

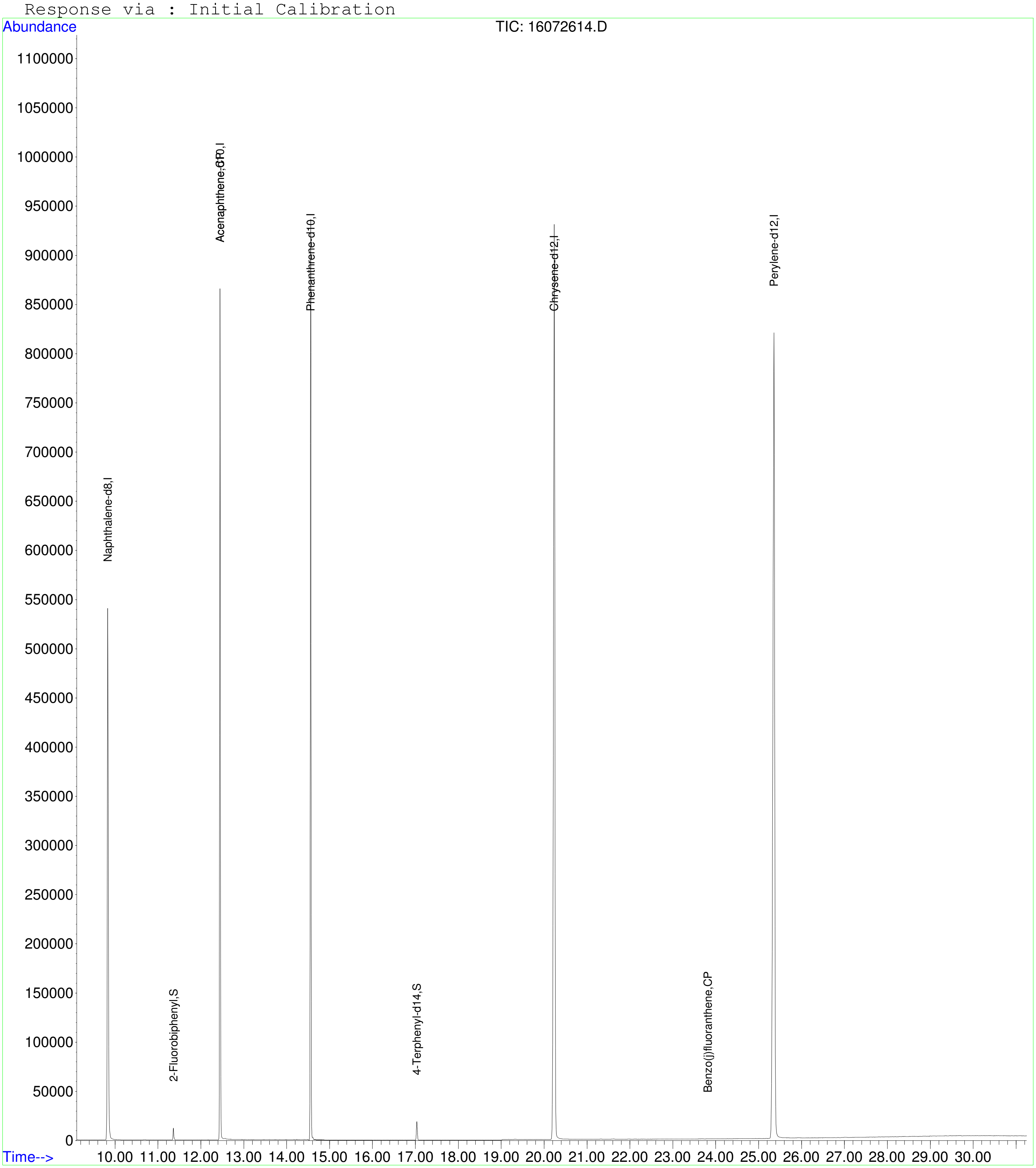
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	873834	4000.00 ug/kg	98
5) Acenaphthene-d10	12.45	164	487706	4000.00 ug/kg	86
11) Phenanthrene-d10	14.56	188	1339896	4000.00 ug/kg	89
17) Chrysene-d12	20.24	240	1662045	4000.00 ug/kg	103
20) Perylene-d12	25.36	264	1677798	4000.00 ug/kg	101
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.36	172	12508	75.07 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#	
16) 4-Terphenyl-d14	17.03	244	26688	71.37 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#	
Target Compounds					Qvalue
9) Acenaphthene	12.45	154	1627	~~12.91 ug/kg#~~	~~10~~
23) Benzo(j)fluoranthene	23.81	252	24	~~0.07 ug/kg#~~	~~40~~

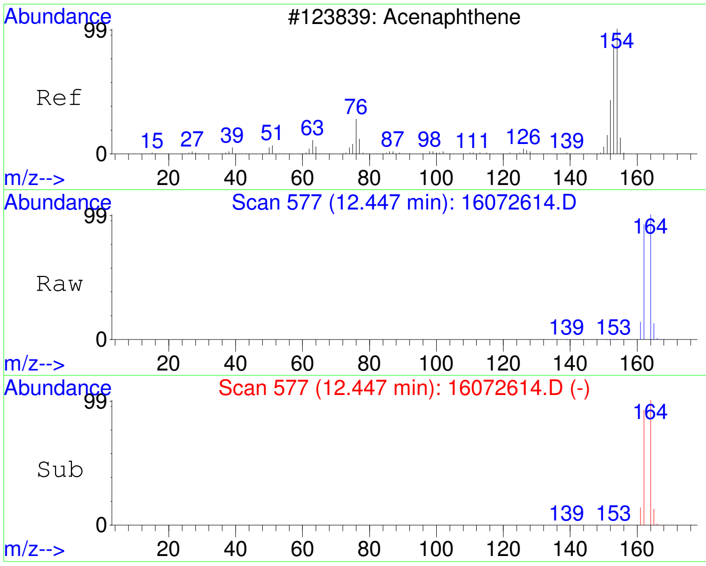
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072614.D          Vial: 14
Acq On    : 26 Jul 2016   5:04 pm                    Operator: DEW
Sample    : 1607219-08A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:00 2016          Quant Results File: PP160725.RES

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

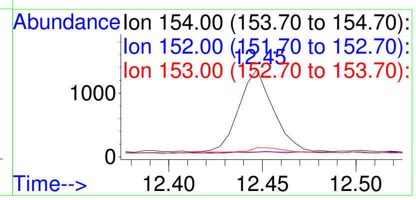


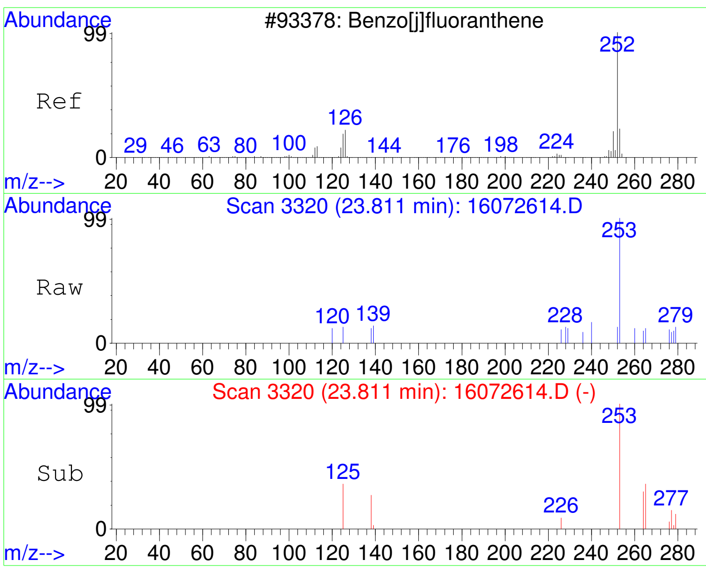


#9
Acenaphthene
Concen: ~~12.91 ug/kg~~
RT: 12.45 min Scan# 577
Delta R.T. -0.05 min
Lab File: 16072614.D
Acq: 26 Jul 2016 5:04 pm

Tgt Ion:154 Resp: 1627

Ion	Ratio	Lower	Upper
154	100		
152	0.5	20.4	80.4#
153	5.9	78.2	138.2#

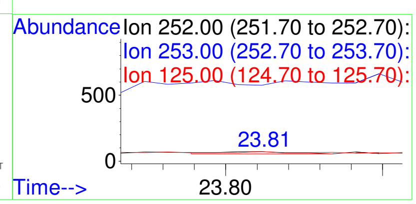




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 23.81 min Scan# 3320
Delta R.T. 0.01 min
Lab File: 16072614.D
Acq: 26 Jul 2016 5:04 pm

Tgt Ion:252 Resp: 24

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	47.1	0.0	34.0#



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072615.D          Vial: 15
Acq On    : 26 Jul 2016   5:41 pm                   Operator: DEW
Sample    : 1607219-09A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:00 2016            Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	796661	4000.00 ug/kg	89
5) Acenaphthene-d10	12.45	164	506712	4000.00 ug/kg	89
11) Phenanthrene-d10	14.56	188	1368370	4000.00 ug/kg	91
17) Chrysene-d12	20.24	240	1505569	4000.00 ug/kg	93
20) Perylene-d12	25.35	264	1520799	4000.00 ug/kg	92

System Monitoring Compounds

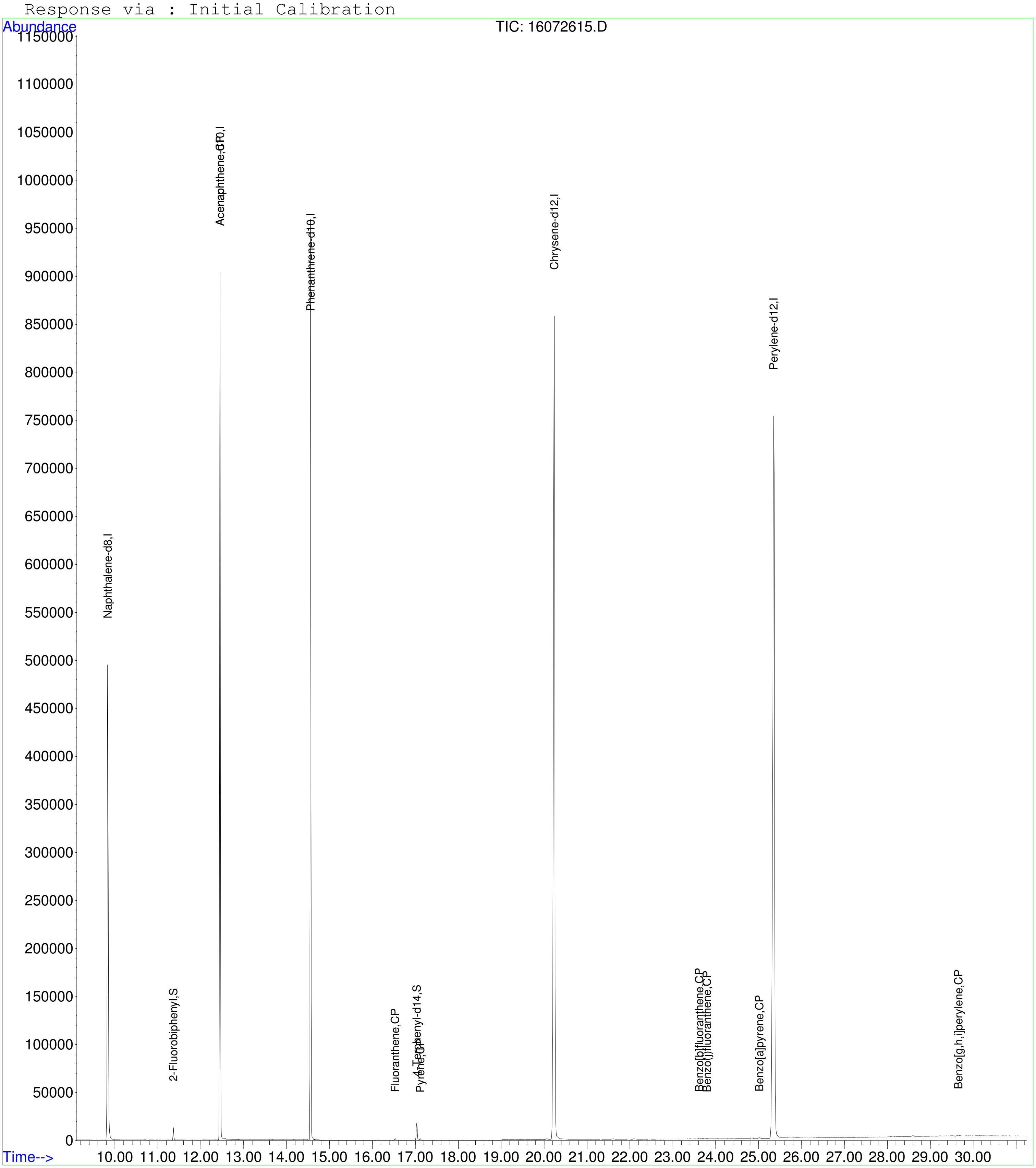
7) 2-Fluorobiphenyl	11.36	172	13352	77.25 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#	
16) 4-Terphenyl-d14	17.03	244	26002	67.09 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.68%#	

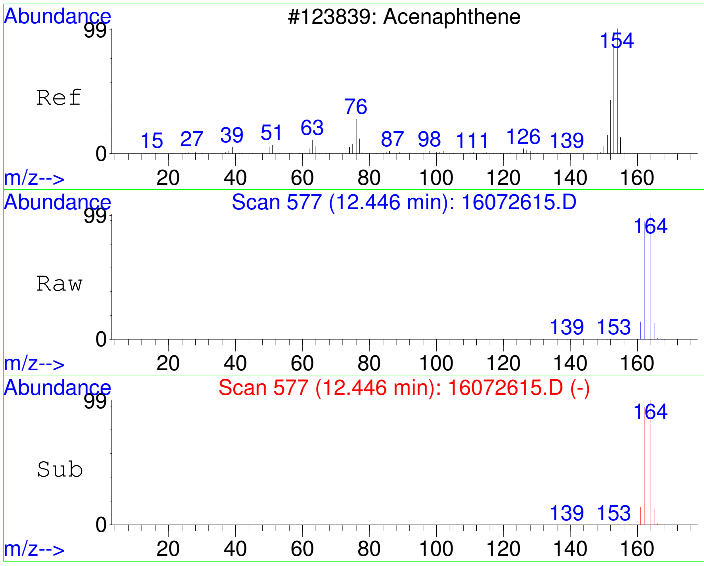
Target Compounds					Qvalue
9) Acenaphthene	12.45	154	1695	~~12.94 ug/kg#~~	~~9~~
14) Fluoranthene	16.53	202	1952	6.13 ug/kg	99
15) Pyrene	17.11	202	1789	5.46 ug/kg	97
21) Benzo[b]fluoranthene	23.62	252	1904	5.48 ug/kg	88
23) Benzo(j)fluoranthene	23.80	252	840	2.78 ug/kg	88
25) Benzo[a]pyrene	25.02	252	1815	5.54 ug/kg	95
28) Benzo[g,h,i]perylene	29.65	276	1582	5.35 ug/kg	96

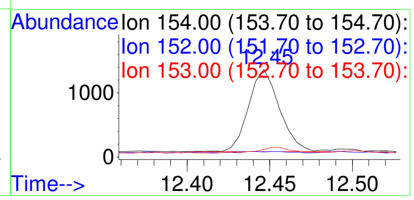
(#) = qualifier out of range (m) = manual integration

```
Data File : C:\HPCHEM\1\DATA\160726\16072615.D          Vial: 15
Acq On    : 26 Jul 2016   5:41 pm                    Operator: DEW
Sample    : 1607219-09A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:00 2016           Quant Results File: PP160725.RES

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

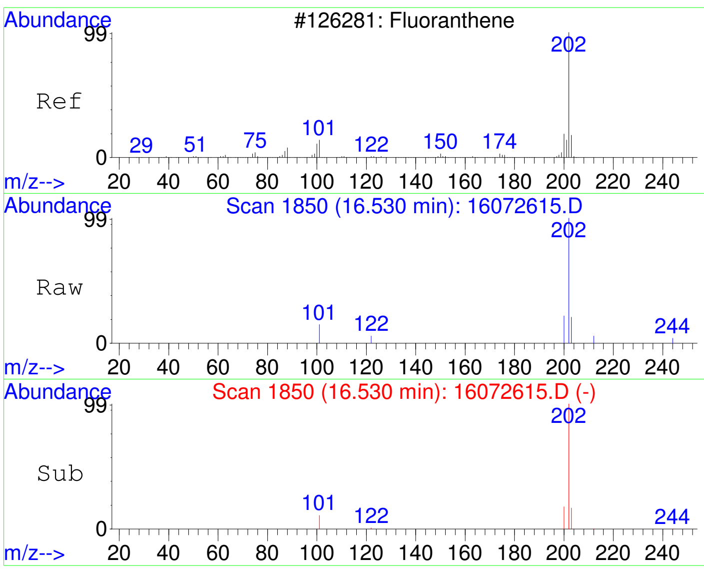


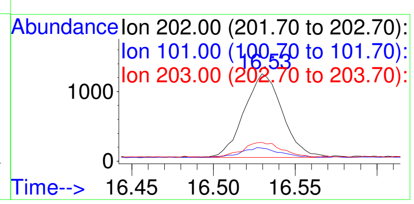





```
#9
Acenaphthene
Concen:    ~~12.94 ug/kg~~
RT: 12.45 min   Scan# 577
Delta R.T.    -0.05 min
Lab File:    16072615.D
Acq: 26 Jul 2016    5:41 pm

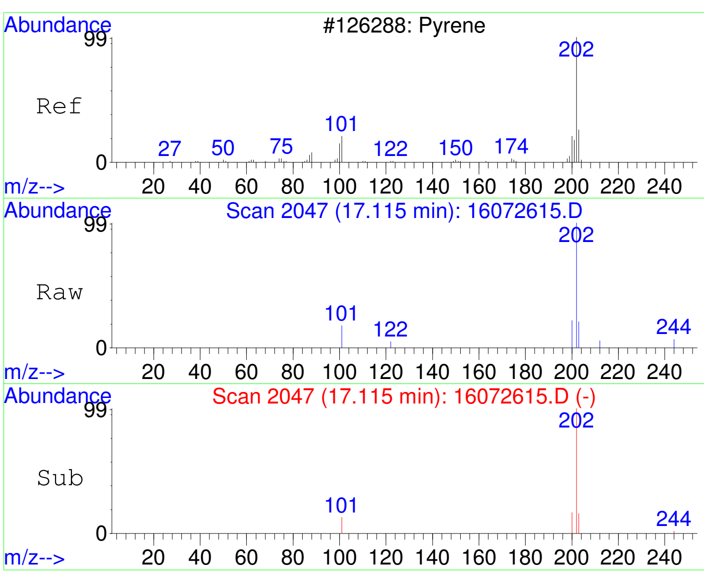
Tgt Ion:154 Resp:    1695
Ion  Ratio  Lower  Upper
154  100
152    0.5   20.4   80.4#
153    3.7   78.2  138.2#
```

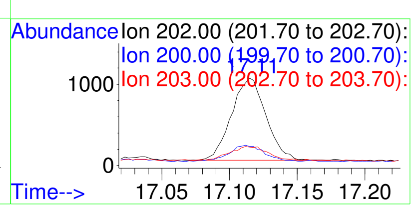





```
#14
Fluoranthene
Concen:     6.13 ug/kg
RT: 16.53 min   Scan# 1850
Delta R.T.    -0.00 min
Lab File:    16072615.D
Acq: 26 Jul 2016    5:41 pm

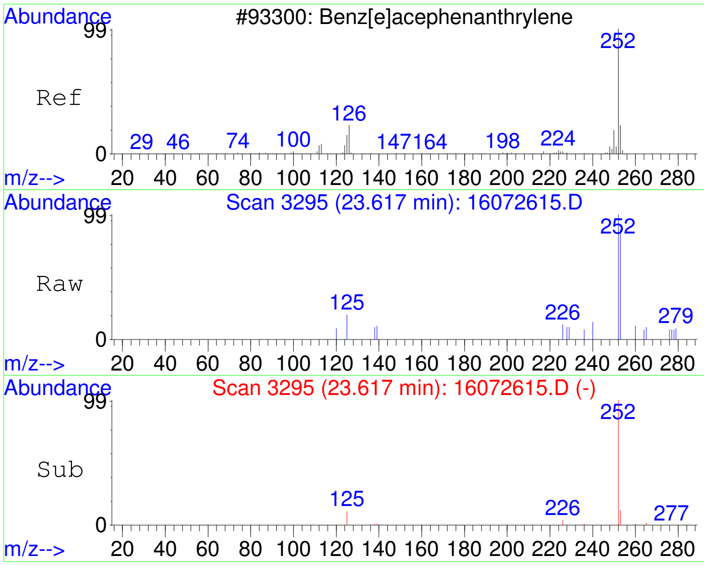
Tgt Ion:202 Resp:    1952
Ion  Ratio  Lower  Upper
202  100
101   11.3    0.0   41.4
203   17.3    0.0   47.7
```






```
#15
Pyrene
Concen:     5.46 ug/kg
RT: 17.11 min   Scan# 2047
Delta R.T.    -0.00 min
Lab File:    16072615.D
Acq: 26 Jul 2016    5:41 pm

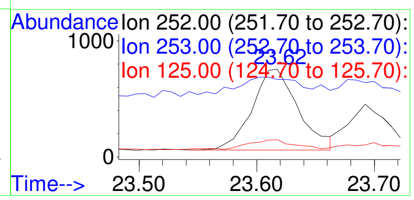
Tgt Ion:202 Resp:    1789
Ion  Ratio  Lower  Upper
202  100
200   18.0    0.0   49.7
203   16.4    0.0   47.6
```

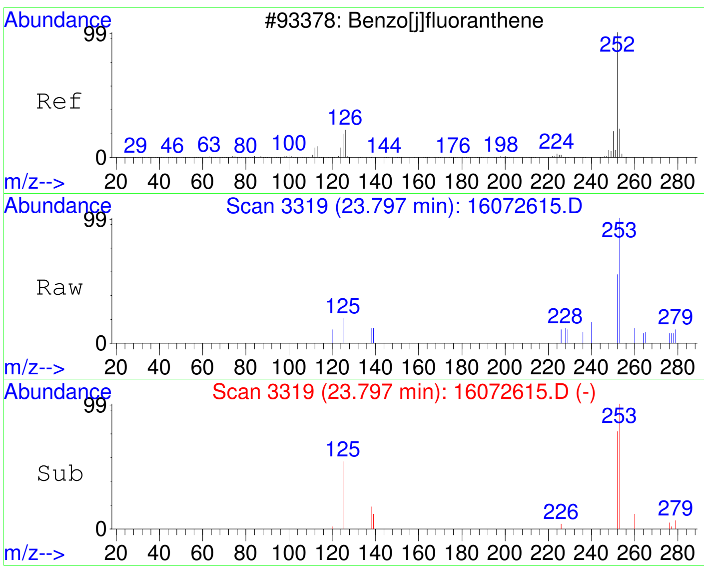


#21
Benzo[b]fluoranthene
Concen: 5.48 ug/kg
RT: 23.62 min Scan# 3295
Delta R.T. -0.01 min
Lab File: 16072615.D
Acq: 26 Jul 2016 5:41 pm

Tgt Ion:252 Resp: 1904

Ion	Ratio	Lower	Upper
252	100		
253	15.1	0.0	52.1
125	11.6	0.0	39.3

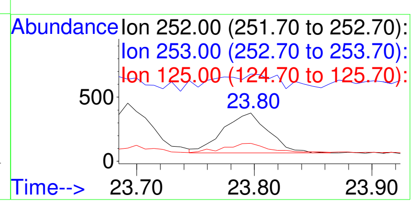


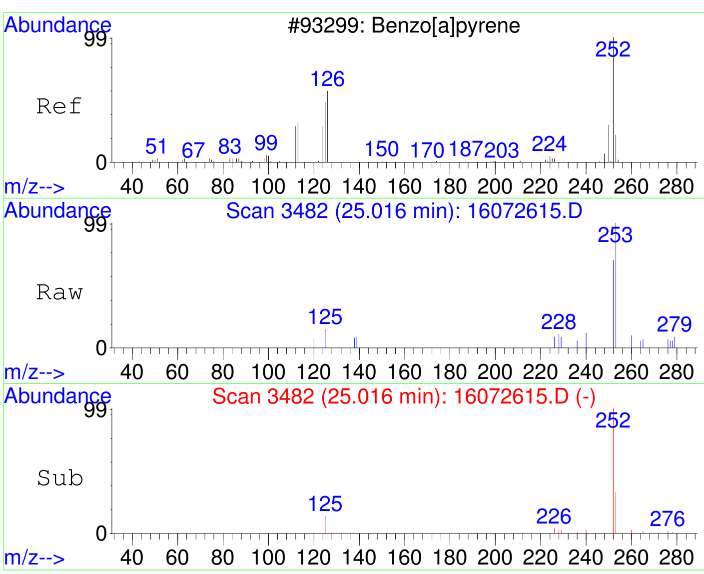


#23
Benzo(j)fluoranthene
Concen: 2.78 ug/kg
RT: 23.80 min Scan# 3319
Delta R.T. -0.01 min
Lab File: 16072615.D
Acq: 26 Jul 2016 5:41 pm

Tgt Ion:252 Resp: 840

Ion	Ratio	Lower	Upper
252	100		
253	24.7	2.1	42.1
125	23.1	0.0	34.0

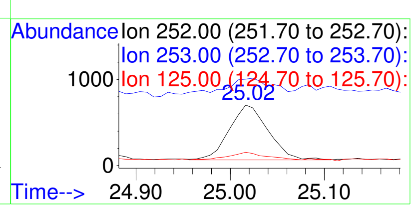


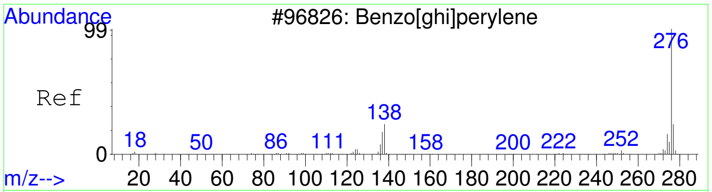


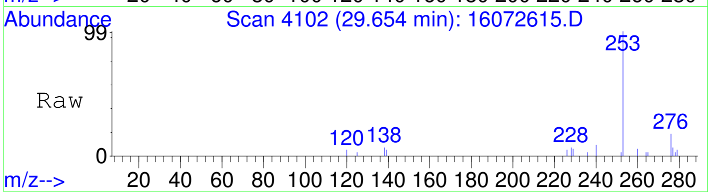
#25
Benzo[a]pyrene
Concen: 5.54 ug/kg
RT: 25.02 min Scan# 3482
Delta R.T. -0.01 min
Lab File: 16072615.D
Acq: 26 Jul 2016 5:41 pm

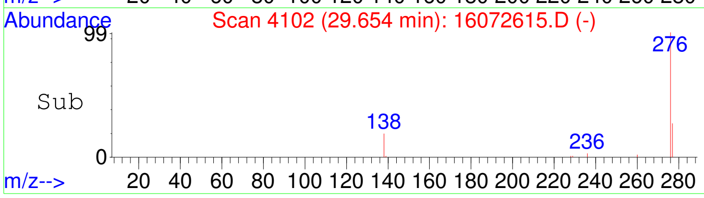
Tgt Ion:252 Resp: 1815

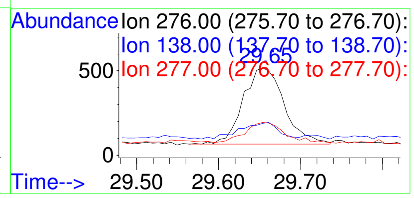
Ion	Ratio	Lower	Upper
252	100		
253	23.8	1.8	41.8
125	13.6	0.0	31.6











#28
Benzo[g,h,i]perylene
Concen: 5.35 ug/kg
RT: 29.65 min Scan# 4102
Delta R.T. -0.01 min
Lab File: 16072615.D
Acq: 26 Jul 2016 5:41 pm

Tgt Ion:276 Resp: 1582

Ion	Ratio	Lower	Upper
276	100		
138	20.6	0.0	39.4
277	26.5	3.9	43.9

```
Data File : C:\HPCHEM\1\DATA\160726\16072616.D          Vial: 16
Acq On    : 26 Jul 2016   6:18 pm                   Operator: DEW
Sample    : 1607219-10A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:00 2016              Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	890928	4000.00 ug/kg	100
5) Acenaphthene-d10	12.45	164	536309	4000.00 ug/kg	94
11) Phenanthrene-d10	14.56	188	1355831	4000.00 ug/kg	90
17) Chrysene-d12	20.24	240	1642060	4000.00 ug/kg	102
20) Perylene-d12	25.35	264	1667113	4000.00 ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	13954	76.22 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#	
16) 4-Terphenyl-d14	17.03	244	26942	71.15 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#	

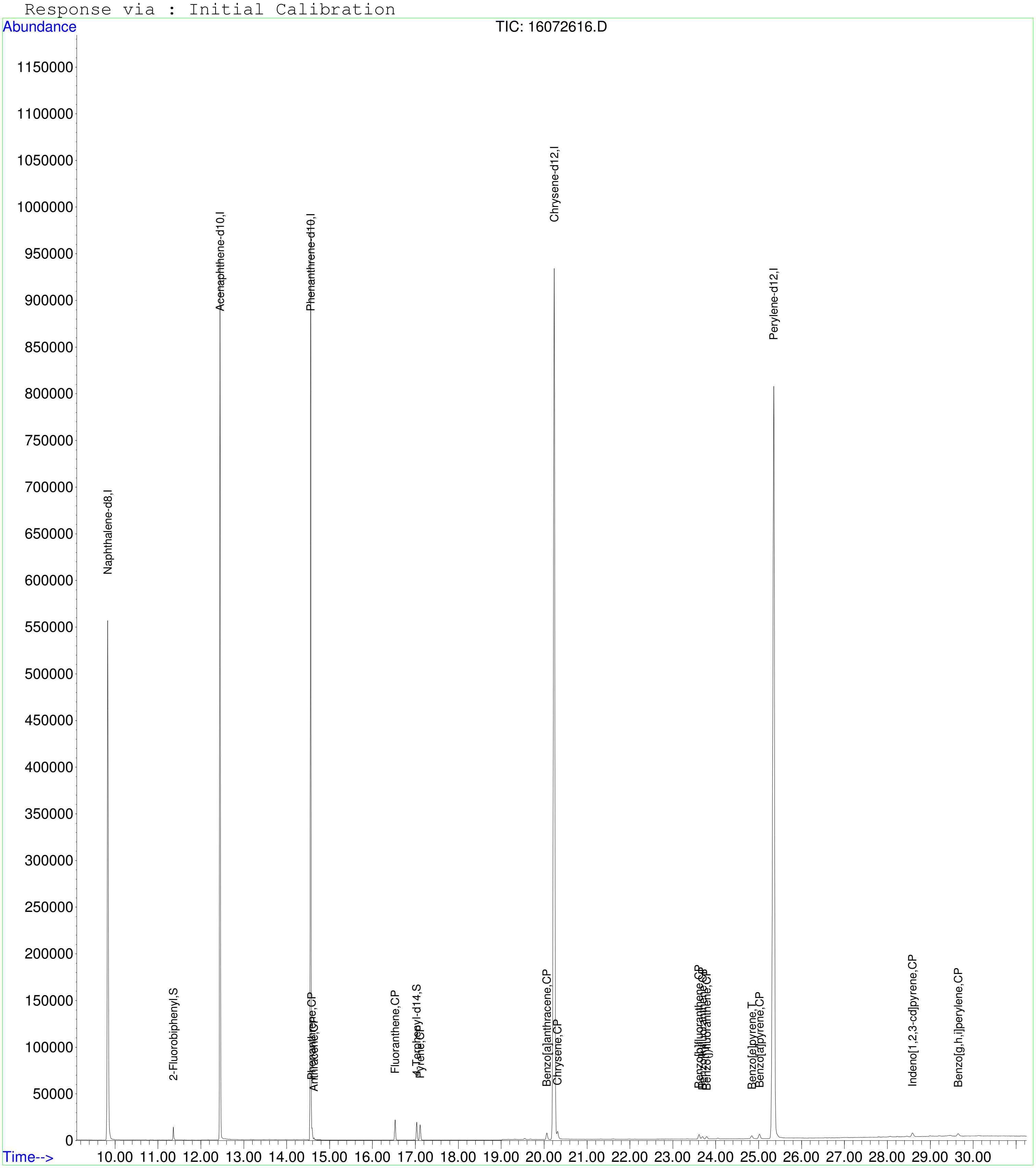
Target Compounds					Qvalue
12) Phenanthrene	14.59	178	8933	34.82 ug/kg	99
13) Anthracene	14.64	178	1789	6.81 ug/kg	97
14) Fluoranthene	16.53	202	23705	75.15 ug/kg	99
15) Pyrene	17.11	202	19327	59.49 ug/kg	99
18) Benzo[a]anthracene	20.06	228	10958	31.12 ug/kg	99
19) Chrysene	20.32	228	11421	34.44 ug/kg	98
21) Benzo[b]fluoranthene	23.61	252	10081	26.46 ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	4876	13.96 ug/kg	96
23) Benzo(j)fluoranthene	23.79	252	4700	14.22 ug/kg	94
24) Benzo[e]pyrene	24.84	252	6967	19.25 ug/kg	97
25) Benzo[a]pyrene	25.02	252	9998	27.84 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.59	276	7120	15.93 ug/kg	90
28) Benzo[g,h,i]perylene	29.65	276	5846	18.02 ug/kg	96

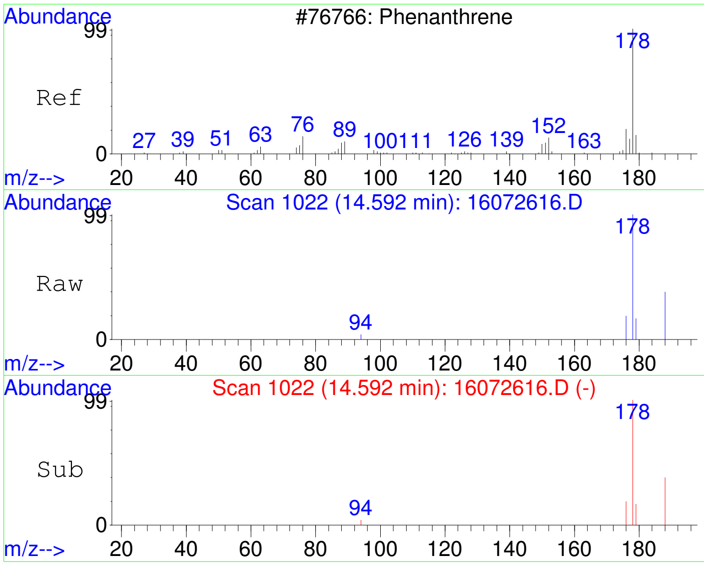
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160726\16072616.D   Vial: 16
Acq On   : 26 Jul 2016   6:18 pm   Operator: DEW
Sample   : 1607219-10A   Inst   : GC/MS #6
Misc   : SAMP   Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 8:00 2016   Quant Results File: PP160725.RES

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

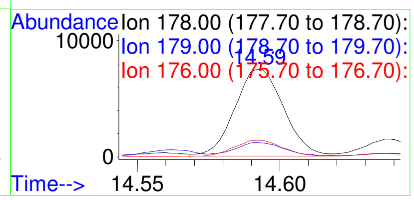


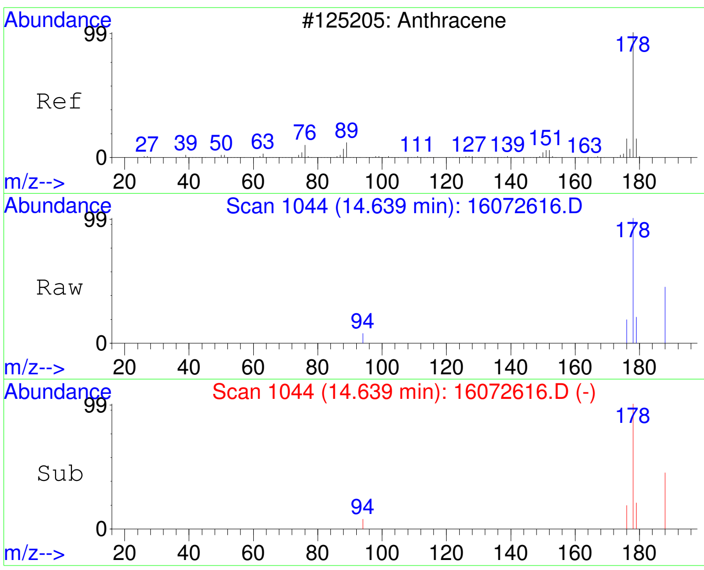


#12
Phenanthrene
Concen: 34.82 ug/kg
RT: 14.59 min Scan# 1022
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:178 Resp: 8933

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.7
176	18.9	0.0	48.4

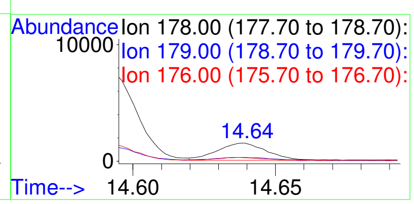


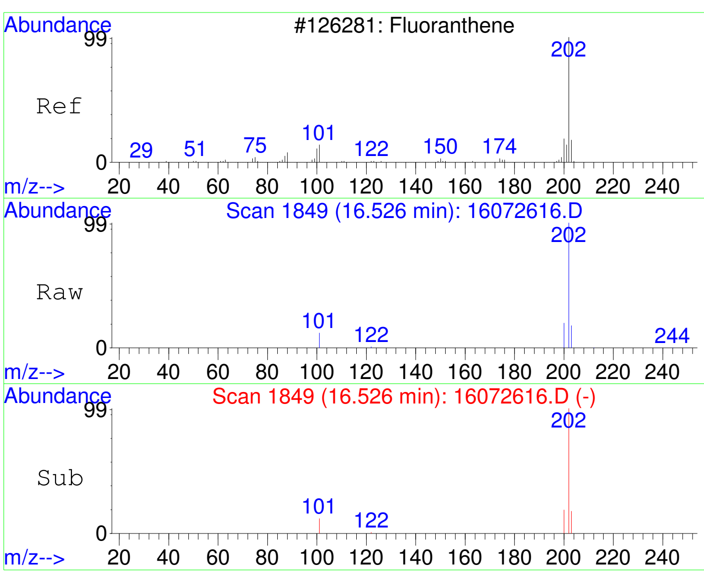


#13
Anthracene
Concen: 6.81 ug/kg
RT: 14.64 min Scan# 1044
Delta R.T. -0.00 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:178 Resp: 1789

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.8
176	16.0	0.0	48.0

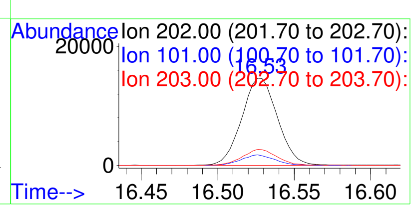


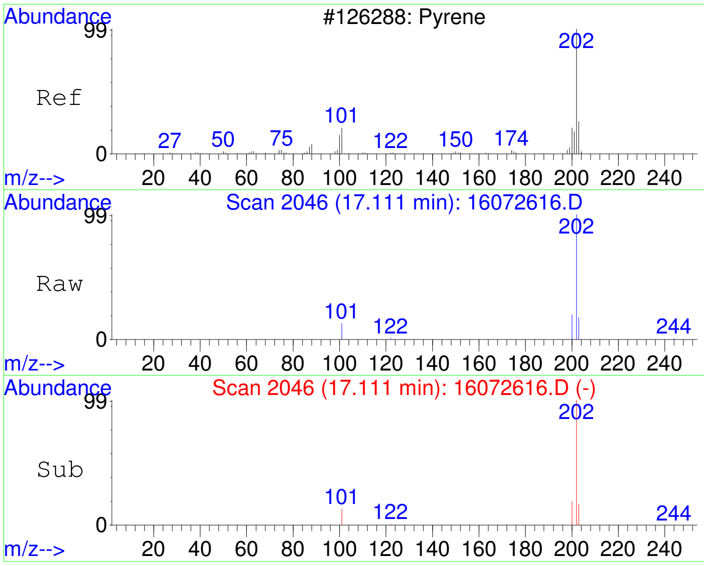


#14
Fluoranthene
Concen: 75.15 ug/kg
RT: 16.53 min Scan# 1849
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:202 Resp: 23705

Ion	Ratio	Lower	Upper
202	100		
101	11.9	0.0	41.4
203	18.1	0.0	47.7

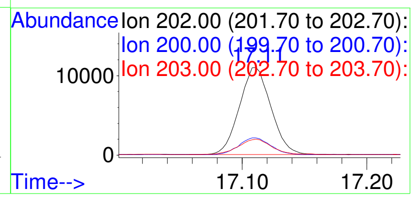


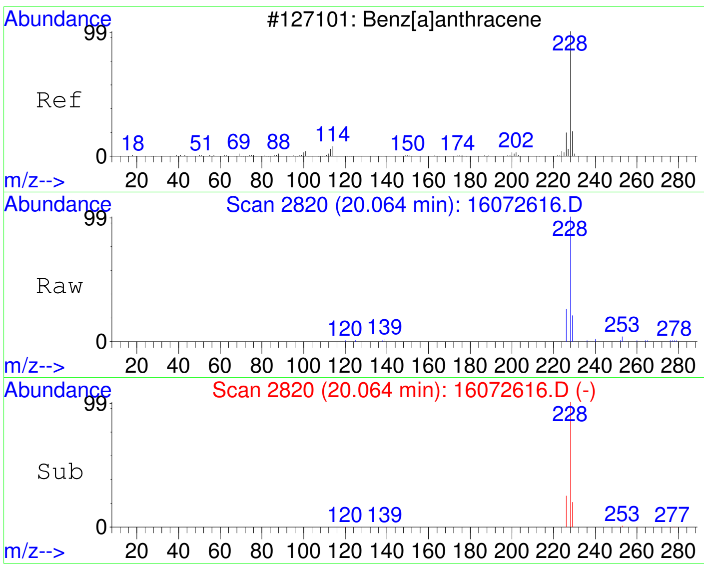


#15
Pyrene
Concen: 59.49 ug/kg
RT: 17.11 min Scan# 2046
Delta R.T. -0.00 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:202 Resp: 19327

Ion	Ratio	Lower	Upper
202	100		
200	19.2	0.0	49.7
203	17.5	0.0	47.6

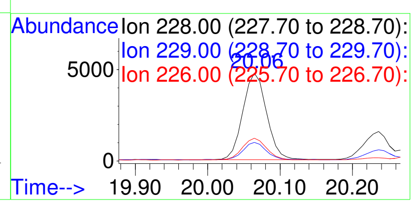


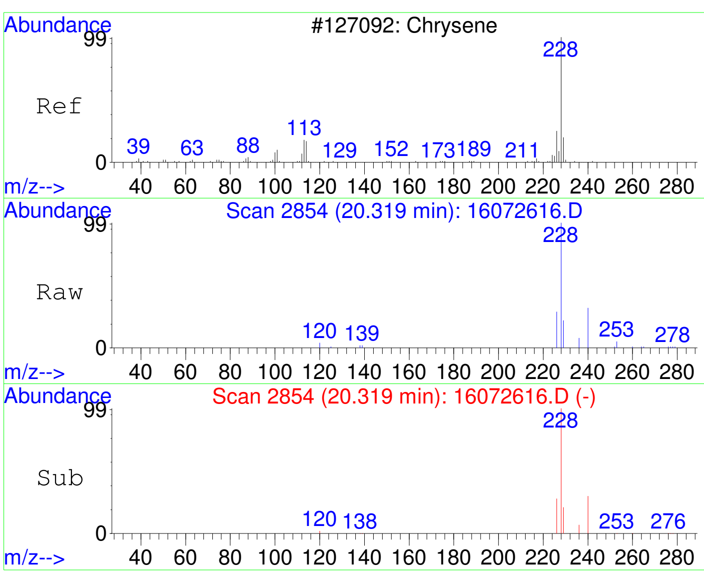


#18
Benzo[a]anthracene
Concen: 31.12 ug/kg
RT: 20.06 min Scan# 2820
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:228 Resp: 10958

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	49.9
226	24.8	0.0	55.9

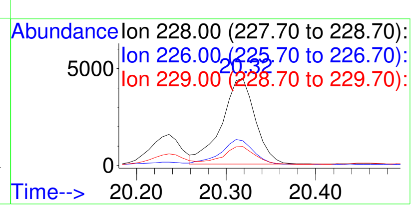


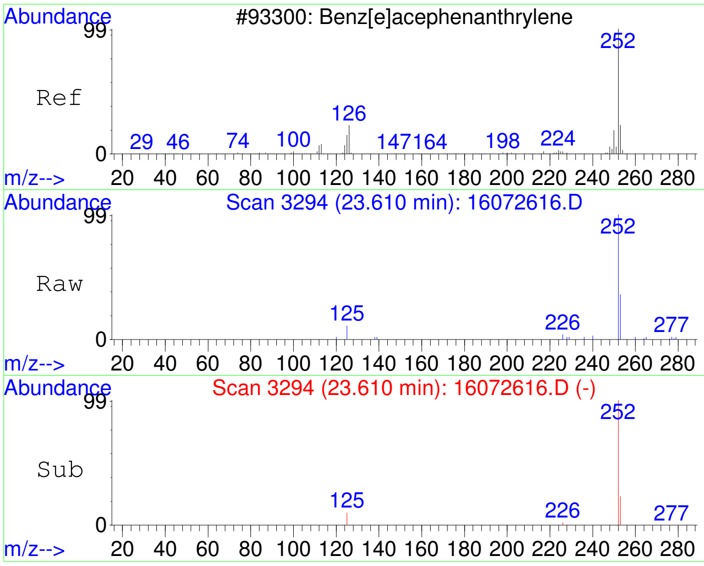


#19
Chrysene
Concen: 34.44 ug/kg
RT: 20.32 min Scan# 2854
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:228 Resp: 11421

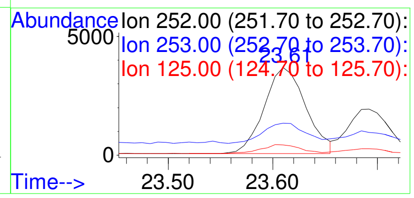
Ion	Ratio	Lower	Upper
228	100		
226	27.6	0.0	58.1
229	20.9	0.0	49.9

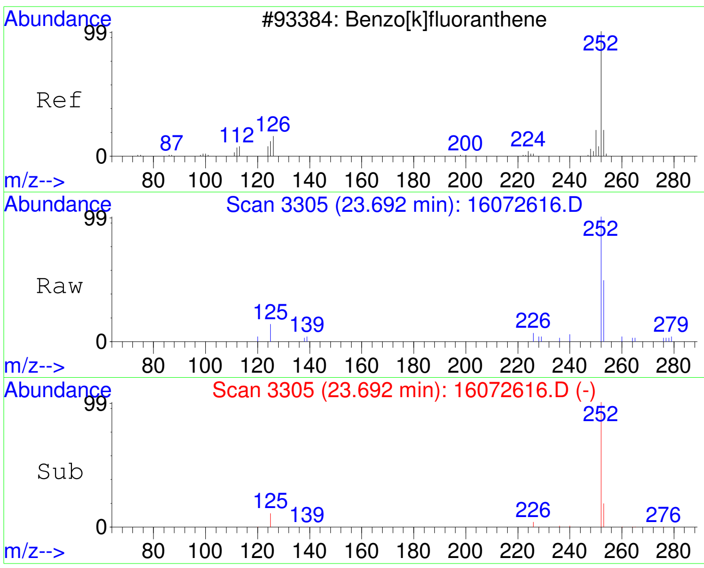




#21
Benzo[b]fluoranthene
Concen: 26.46 ug/kg
RT: 23.61 min Scan# 3294
Delta R.T. -0.02 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

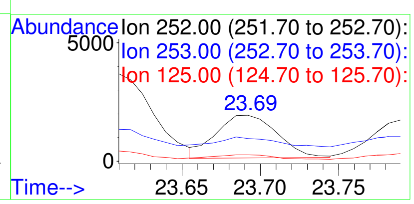
Tgt	Ion:252	Resp:	10081
Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.1
125	10.0	0.0	39.3

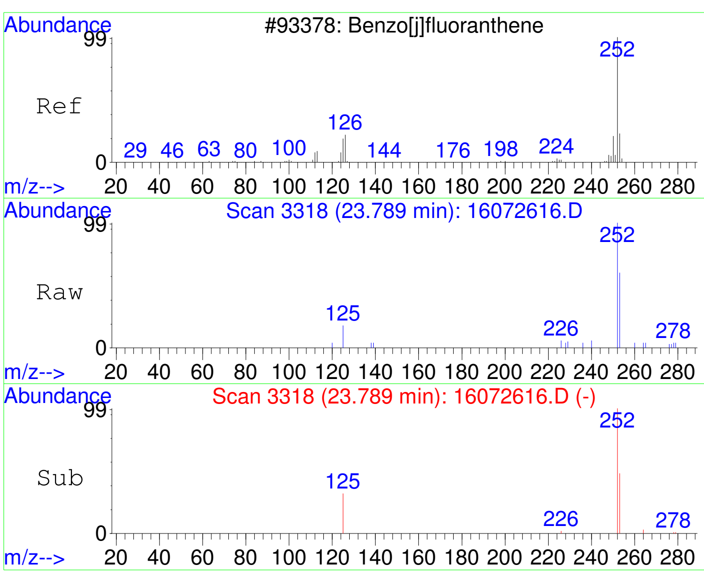




#22
Benzo[k]fluoranthene
Concen: 13.96 ug/kg
RT: 23.69 min Scan# 3305
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

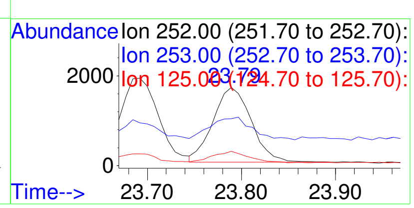
Tgt	Ion:252	Resp:	4876
Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	10.6	0.0	30.0

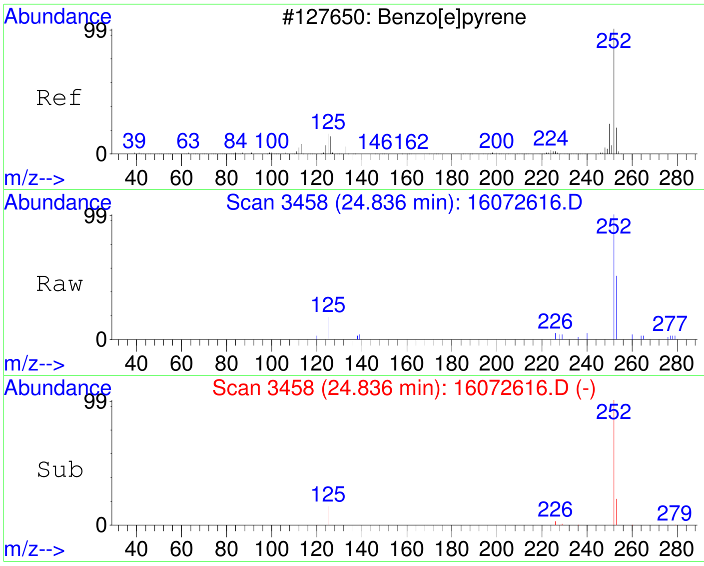




#23
Benzo(j)fluoranthene
Concen: 14.22 ug/kg
RT: 23.79 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt	Ion:252	Resp:	4700
Ion	Ratio	Lower	Upper
252	100		
253	26.4	2.1	42.1
125	14.7	0.0	34.0

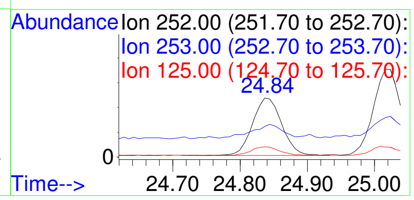


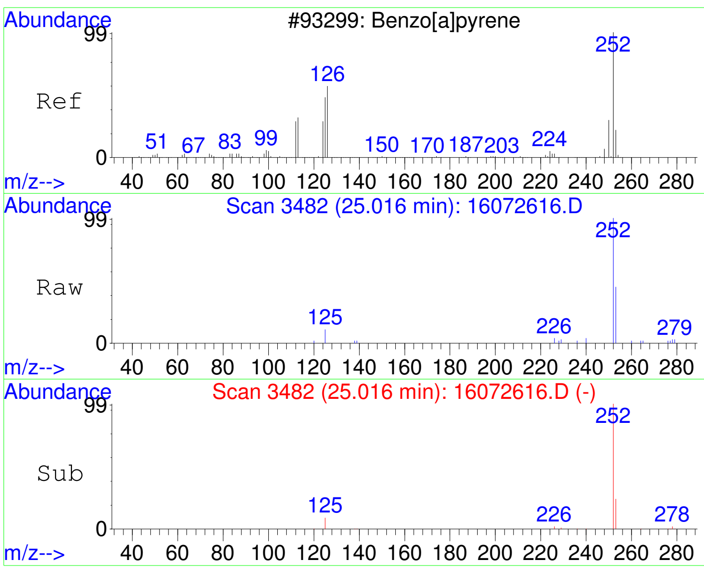


#24
Benzo[e]pyrene
Concen: 19.25 ug/kg
RT: 24.84 min Scan# 3458
Delta R.T. -0.02 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:252 Resp: 6967

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.1	42.1
125	14.8	0.0	33.9

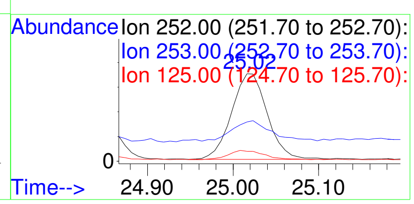


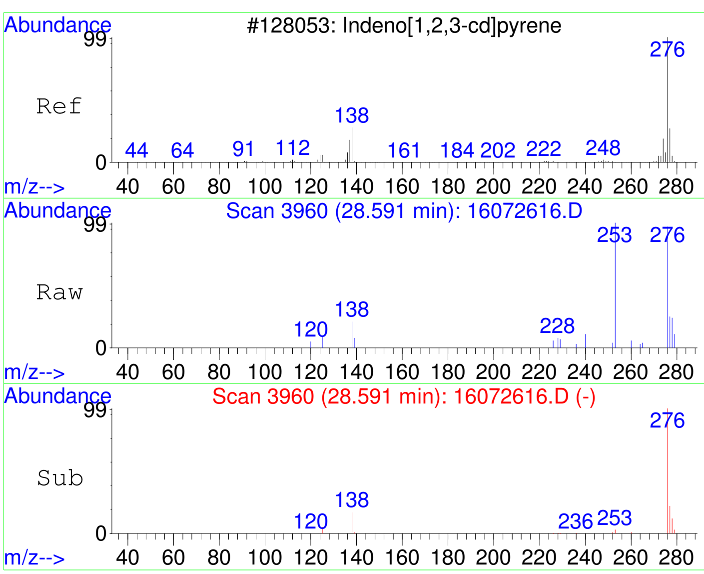


#25
Benzo[a]pyrene
Concen: 27.84 ug/kg
RT: 25.02 min Scan# 3482
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:252 Resp: 9998

Ion	Ratio	Lower	Upper
252	100		
253	21.7	1.8	41.8
125	9.7	0.0	31.6

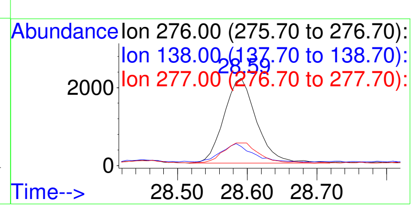


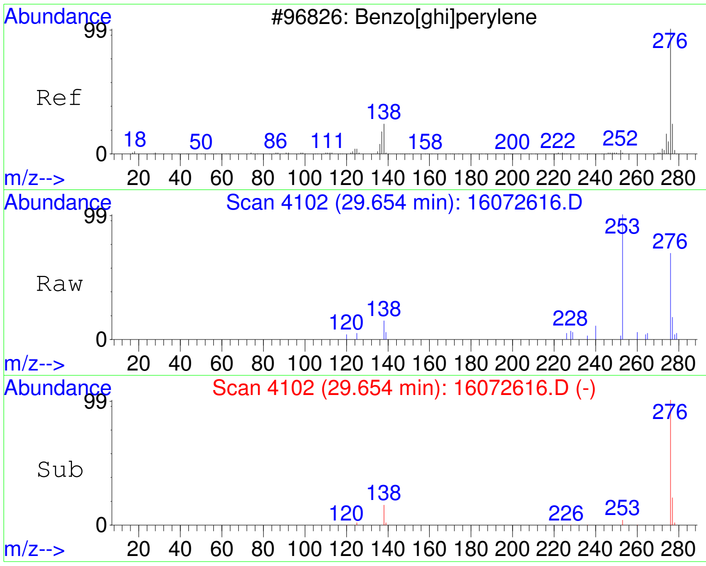


#27
Indeno[1,2,3-cd]pyrene
Concen: 15.93 ug/kg
RT: 28.59 min Scan# 3960
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:276 Resp: 7120

Ion	Ratio	Lower	Upper
276	100		
138	17.8	5.3	45.3
277	23.4	5.8	45.8

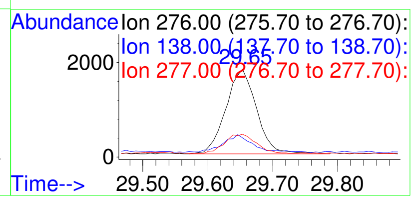




#28
Benzo[g,h,i]perylene
Concen: 18.02 ug/kg
RT: 29.65 min Scan# 4102
Delta R.T. -0.01 min
Lab File: 16072616.D
Acq: 26 Jul 2016 6:18 pm

Tgt Ion:276 Resp: 5846

Ion	Ratio	Lower	Upper
276	100		
138	16.6	0.0	39.4
277	22.6	3.9	43.9



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072617.D          Vial: 17
Acq On    : 26 Jul 2016   6:55 pm                    Operator: DEW
Sample    : 1607219-11A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:00 2016            Quant Results File: PP160725.RES

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

 Internal Standards                  R.T. QIon  Response  Conc Units Dev(Min)
 ------------------------------------------------------------------------------
   1) Naphthalene-d8                 9.83  136   929273   4000.00 ug/kg  104
   5) Acenaphthene-d10              12.45  164   562208   4000.00 ug/kg   99
  11) Phenanthrene-d10              14.56  188  1452287   4000.00 ug/kg   97
  17) Chrysene-d12                  20.24  240  1707067   4000.00 ug/kg  106
  20) Perylene-d12                  25.35  264  1730420   4000.00 ug/kg  104

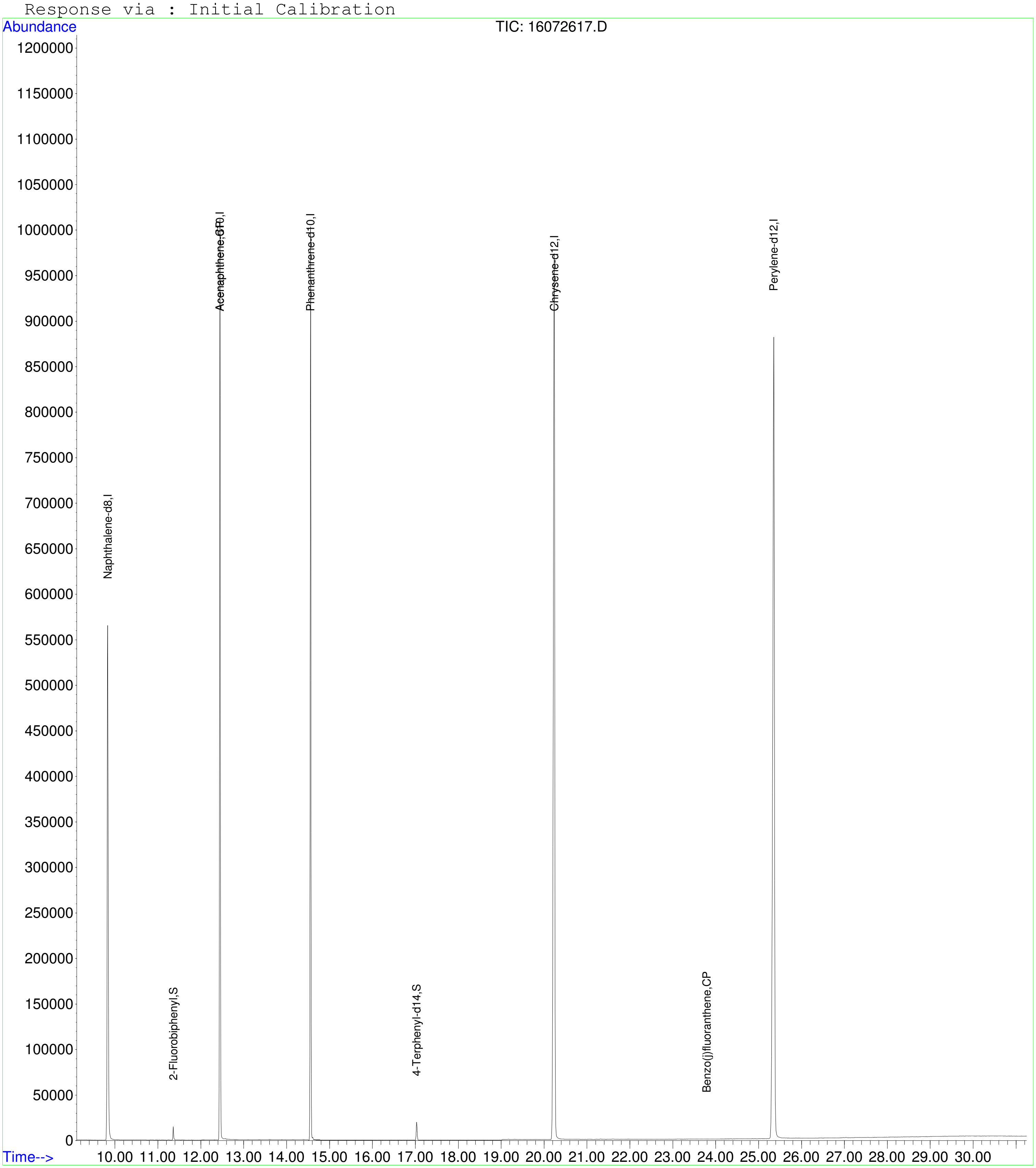
 System Monitoring Compounds
   7) 2-Fluorobiphenyl              11.36  172    14412    75.03 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.88%#
  16) 4-Terphenyl-d14               17.03  244    28042    68.52 ug/kg  -0.01
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.71%#

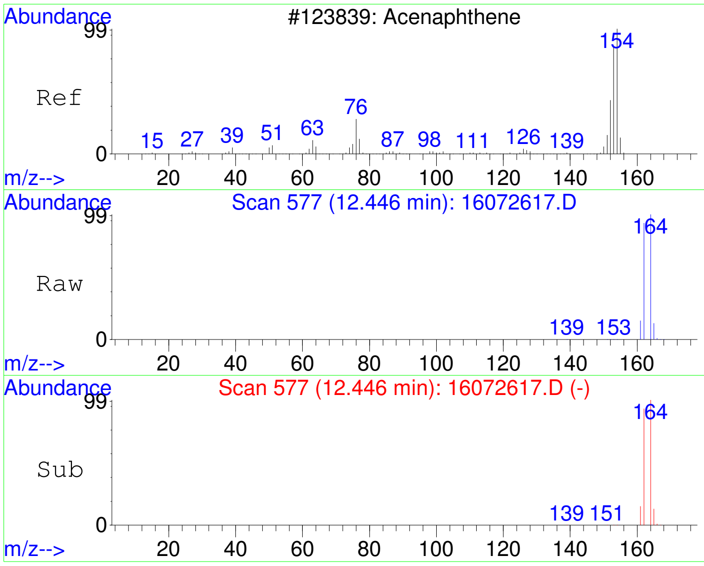
 Target Compounds                                                   Qvalue
   9) Acenaphthene                  12.45  154     1926    13.26 ug/kg#     9
  23) Benzo(j)fluoranthene          23.79  252       33     0.10 ug/kg#    50
```

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

```
Data File : C:\HPCHEM\1\DATA\160726\16072617.D          Vial: 17
Acq On    : 26 Jul 2016   6:55 pm                    Operator: DEW
Sample    : 1607219-11A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:00 2016             Quant Results File: PP160725.RES

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

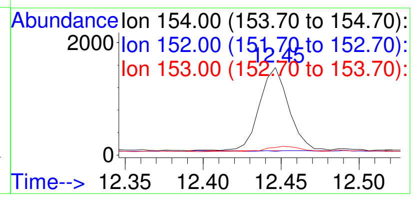


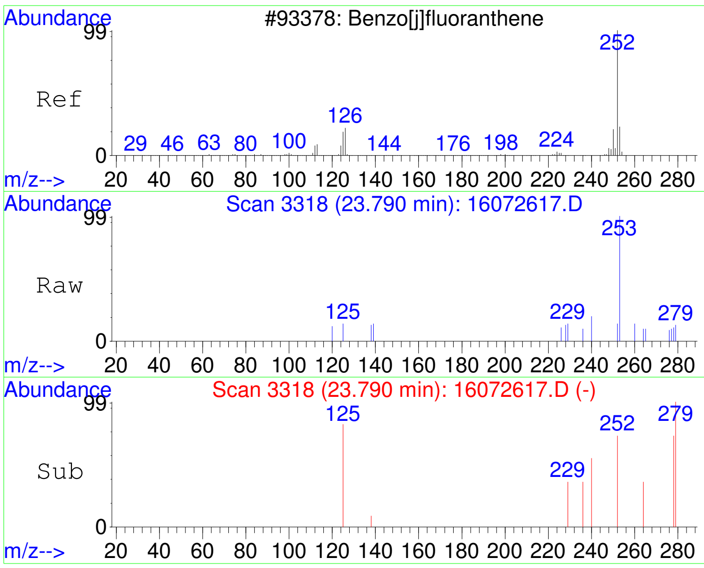


#9
Acenaphthene
Concen: ~~13.26 ug/kg~~
RT: 12.45 min Scan# 577
Delta R.T. -0.05 min
Lab File: 16072617.D
Acq: 26 Jul 2016 6:55 pm

Tgt Ion:154 Resp: 1926

Ion	Ratio	Lower	Upper
154	100		
152	0.1	20.4	80.4#
153	4.7	78.2	138.2#

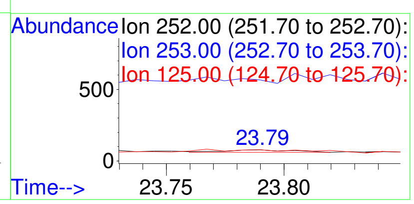




#23
Benzo(j)fluoranthene
Concen: ~~0.10 ug/kg~~
RT: 23.79 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072617.D
Acq: 26 Jul 2016 6:55 pm

Tgt Ion:252 Resp: 33

Ion	Ratio	Lower	Upper
252	100		
253	11.8	2.1	42.1
125	52.9	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160726\16072619.D Vial: 19
Acq On : 26 Jul 2016 8:09 pm Operator: DEW
Sample : ICV2-160726 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 7:57 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	956038	4000.00	ug/kg	107
5) Acenaphthene-d10	12.45	164	581563	4000.00	ug/kg	102
11) Phenanthrene-d10	14.56	188	1596234	4000.00	ug/kg	106
17) Chrysene-d12	20.24	240	1747142	4000.00	ug/kg	108
20) Perylene-d12	25.36	264	1788512	4000.00	ug/kg	108

System Monitoring Compounds
7) 2-Fluorobiphenyl 11.36 172 381532 2025.06 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 50.63%
16) 4-Terphenyl-d14 17.03 244 672921 1985.06 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 49.63%

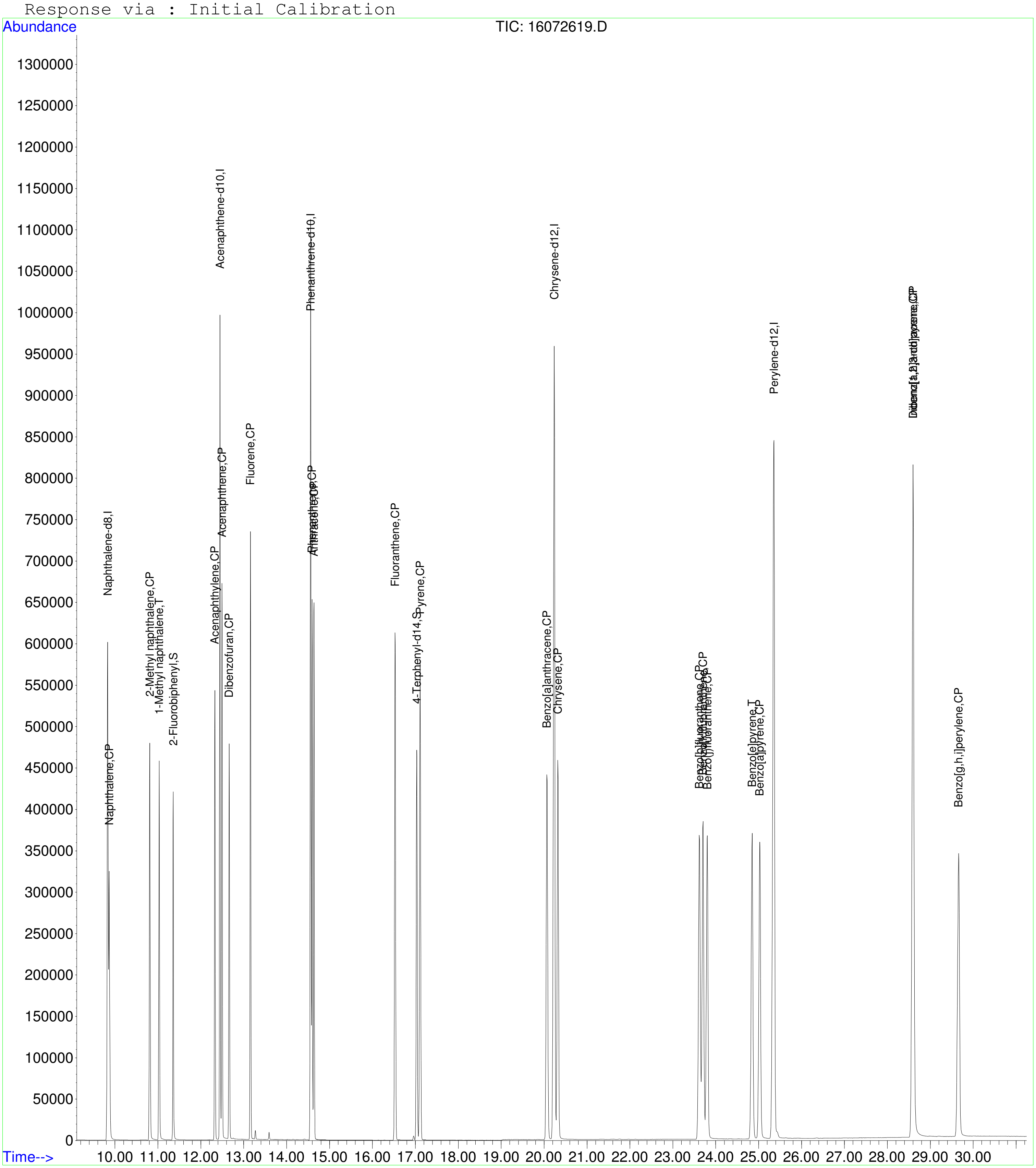
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.87	128	409762	1884.81	ug/kg	100
3) 2-Methyl naphthalene	10.81	142	302801	1927.09	ug/kg	95
4) 1-Methyl naphthalene	11.03	142	275059	1903.13	ug/kg	98
6) Dibenzofuran	12.66	168	438238	1897.91	ug/kg	100
8) Acenaphthylene	12.33	152	503700	1990.48	ug/kg	100
9) Acenaphthene	12.49	154	294005	1956.09	ug/kg	100
10) Fluorene	13.15	166	374027	1991.53	ug/kg	99
12) Phenanthrene	14.59	178	568809	1883.11	ug/kg	100
13) Anthracene	14.64	178	590578	1909.96	ug/kg	99
14) Fluoranthene	16.53	202	680856	1833.28	ug/kg	100
15) Pyrene	17.11	202	684891	1790.72	ug/kg	100
18) Benzo[a]anthracene	20.06	228	733433	1957.90	ug/kg	100
19) Chrysene	20.32	228	676091	1916.33	ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	806182	1972.65	ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	728890	1945.46	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	694300	1957.37	ug/kg	99
24) Benzo[e]pyrene	24.85	252	753433	1940.68	ug/kg	100
25) Benzo[a]pyrene	25.02	252	748227	1942.08	ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	776270	1944.15	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	917889	1914.12	ug/kg	100
28) Benzo[g,h,i]perylene	29.66	276	757048	2175.41	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160726\16072619.D   Vial: 19
Acq On   : 26 Jul 2016   8:09 pm   Operator: DEW
Sample   : ICV2-160726   Inst   : GC/MS #6
Misc   : ICV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 7:57 2016   Quant Results File: PP160725.RES

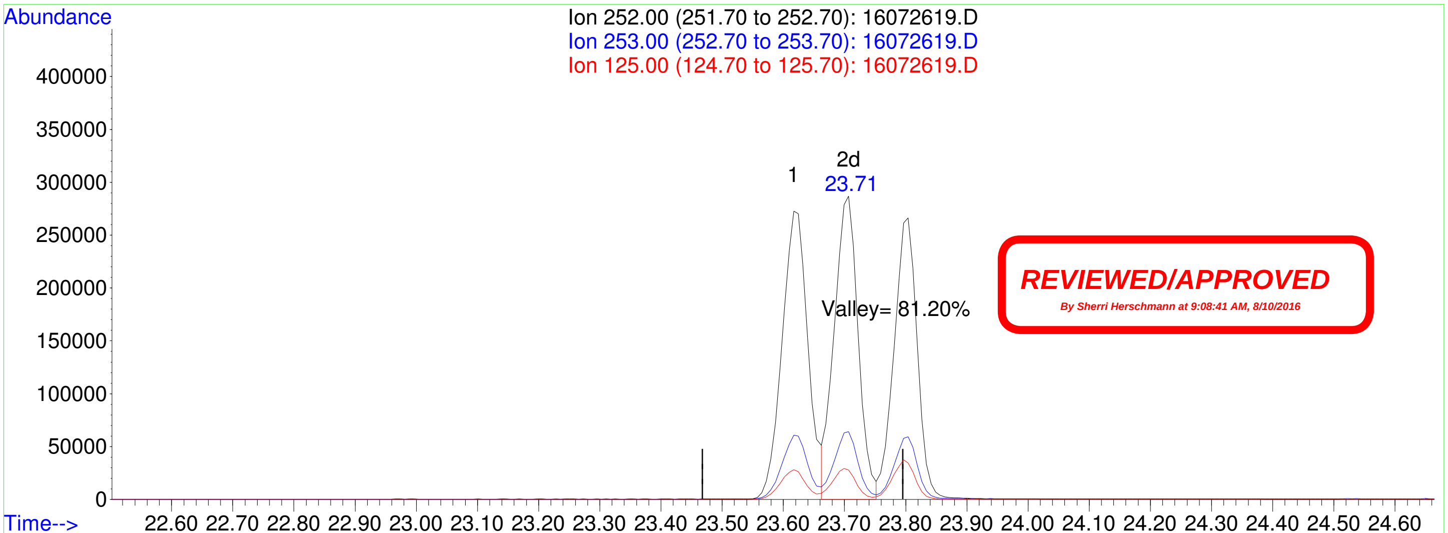
Method   : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration

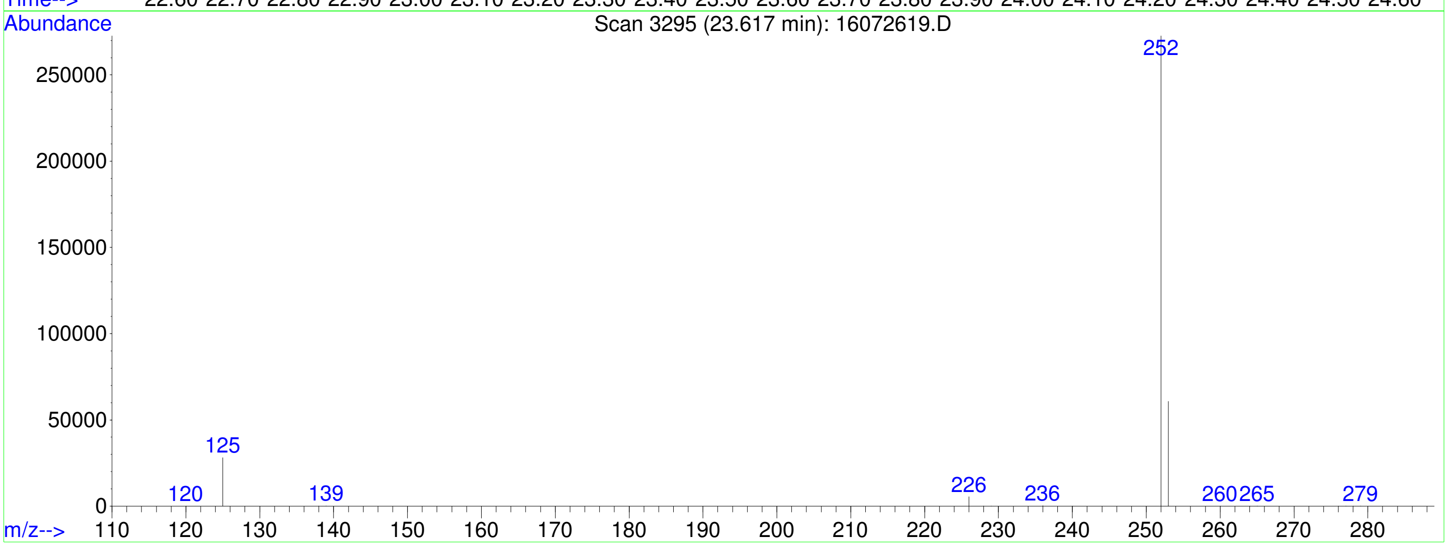


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160726\16072619.D          Vial: 19
Acq On    : 26 Jul 2016   8:09 pm                   Operator: DEW
Sample    : ICV2-160726                             Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 20:40 2016              Quant Results File: temp.res

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





TIC: 16072619.D

(21) Benzo[b]fluoranthene (CP)

23.62min 1972.65ug/kg

response 806182

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.17
125.00	9.30	10.34
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072621.D          Vial: 21
Acq On    : 26 Jul 2016   9:24 pm                    Operator: DEW
Sample    : SB-160726                                Inst    : GC/MS #6
Misc      : SBLK                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  7:57 2016            Quant Results File: PP160725.RES

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

 Internal Standards                  R.T. QIon  Response  Conc Units Dev(Min)
 --------------------------------------------------------------------------
   1) Naphthalene-d8                 9.83  136   915793   4000.00 ug/kg  102
   5) Acenaphthene-d10              12.44  164   561306   4000.00 ug/kg   99
  11) Phenanthrene-d10              14.56  188  1484757   4000.00 ug/kg   99
  17) Chrysene-d12                  20.23  240  1680692   4000.00 ug/kg  104
  20) Perylene-d12                  25.35  264  1711327   4000.00 ug/kg  103

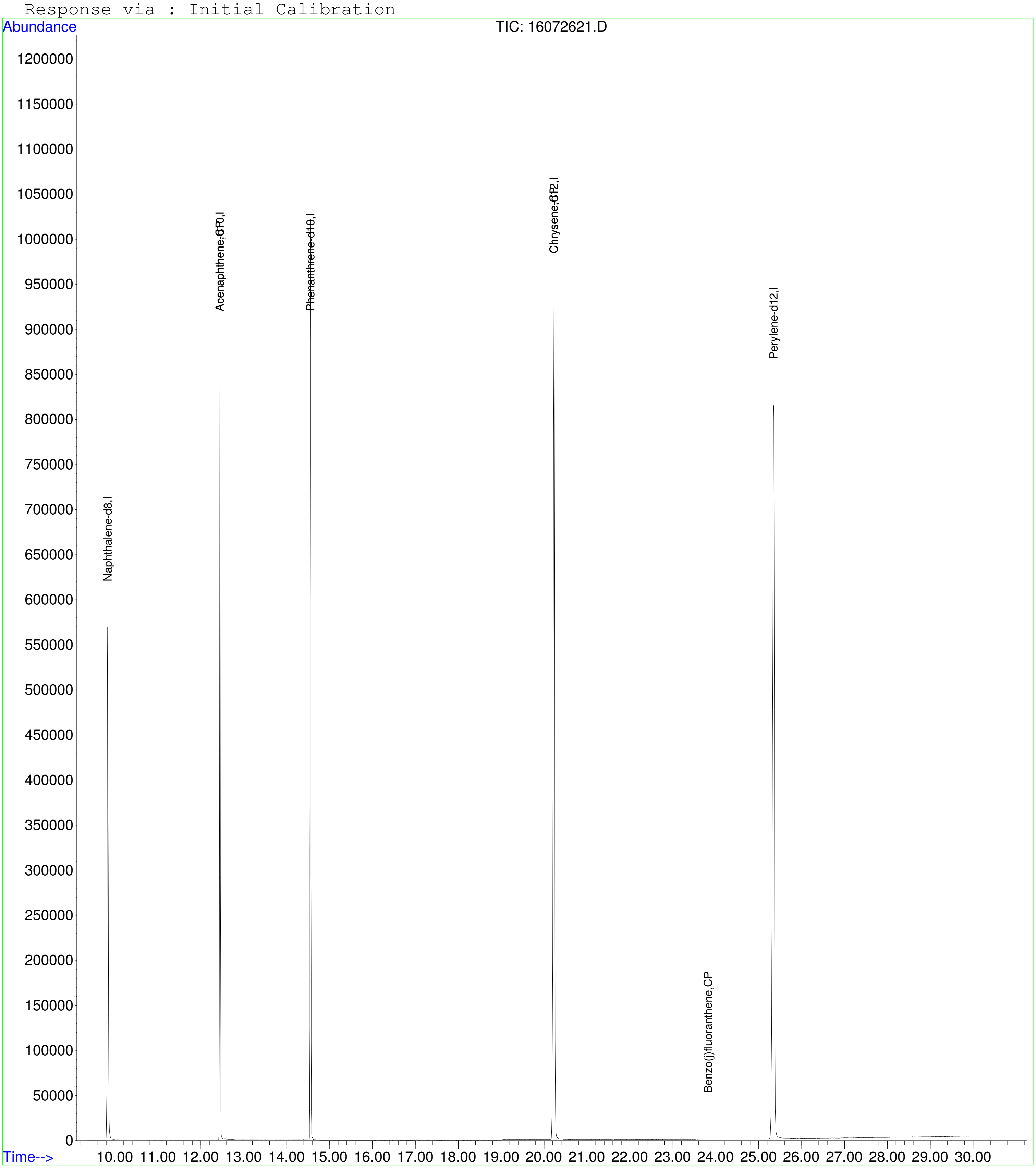
 System Monitoring Compounds
   7) 2-Fluorobiphenyl              11.36  172      132    -1.00 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =   -0.03%#
  16) 4-Terphenyl-d14               17.03  244     1128    -1.00 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =   -0.03%#

 Target Compounds                                                   Qvalue
   9) Acenaphthene                  12.44  154     1957    ~~13.49 ug/kg#     10~~
  19) Chrysene                      20.23  228     3586    ~~10.57 ug/kg      71~~
  23) Benzo(j)fluoranthene          23.82  252       28     ~~0.08 ug/kg#     18~~
```

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160726\16072621.D Vial: 21
Acq On : 26 Jul 2016 9:24 pm Operator: DEW
Sample : SB-160726 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 7:57 2016 Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072622.D          Vial: 22
Acq On    : 26 Jul 2016  10:01 pm                    Operator: DEW
Sample    : 1607219-12A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:00 2016              Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	883398	4000.00 ug/kg	99
5) Acenaphthene-d10	12.44	164	527381	4000.00 ug/kg	93
11) Phenanthrene-d10	14.56	188	1421637	4000.00 ug/kg	95
17) Chrysene-d12	20.23	240	1656240	4000.00 ug/kg	103
20) Perylene-d12	25.35	264	1671163	4000.00 ug/kg	101

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	13637	75.73 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#	
16) 4-Terphenyl-d14	17.03	244	26902	66.72 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#	

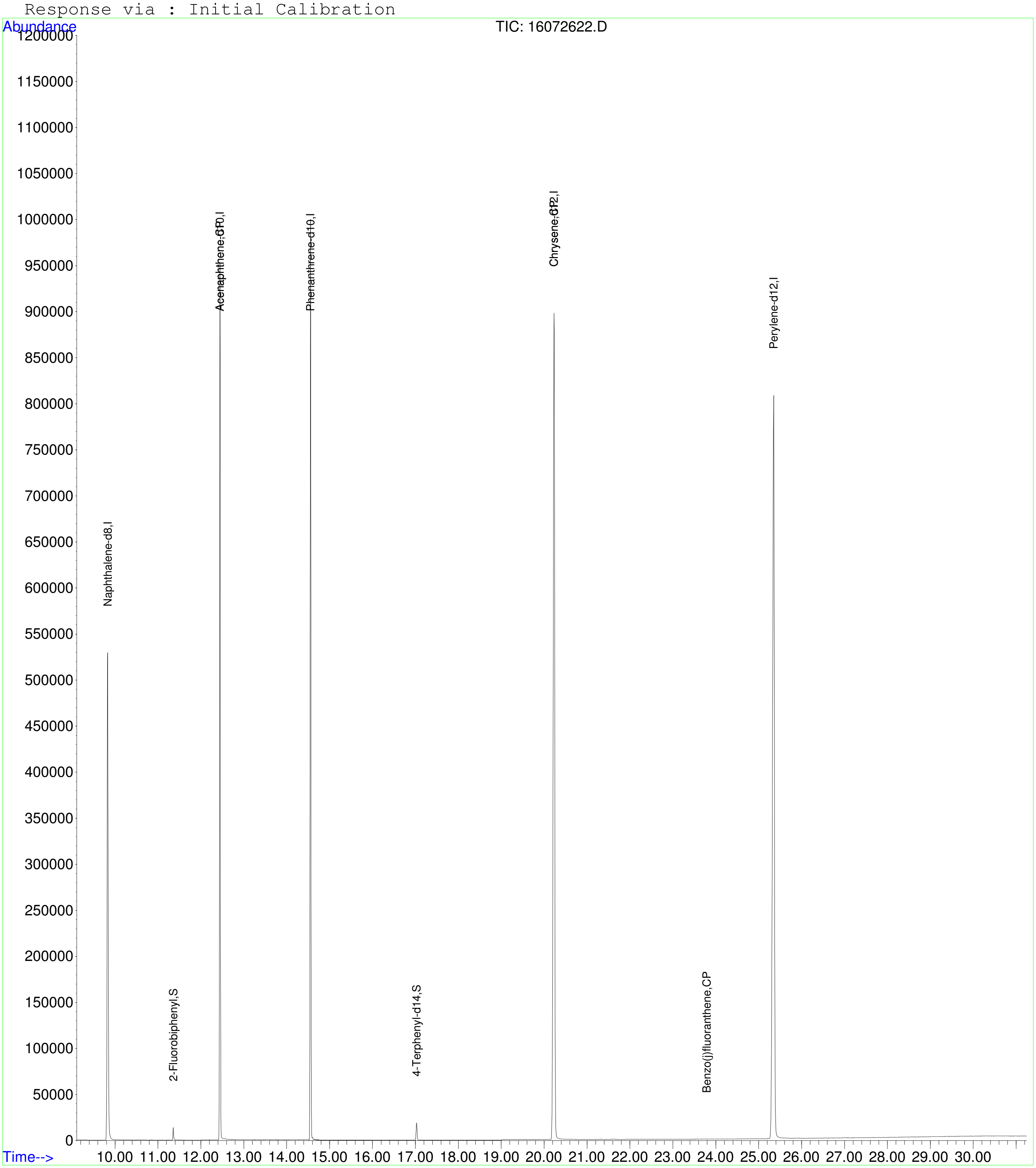
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1807	~~13.26 ug/kg#~~	~~10~~
19) Chrysene	20.23	228	3534	~~10.57 ug/kg~~	~~75~~
23) Benzo(j)fluoranthene	23.79	252	12	~~0.04 ug/kg#~~	~~26~~

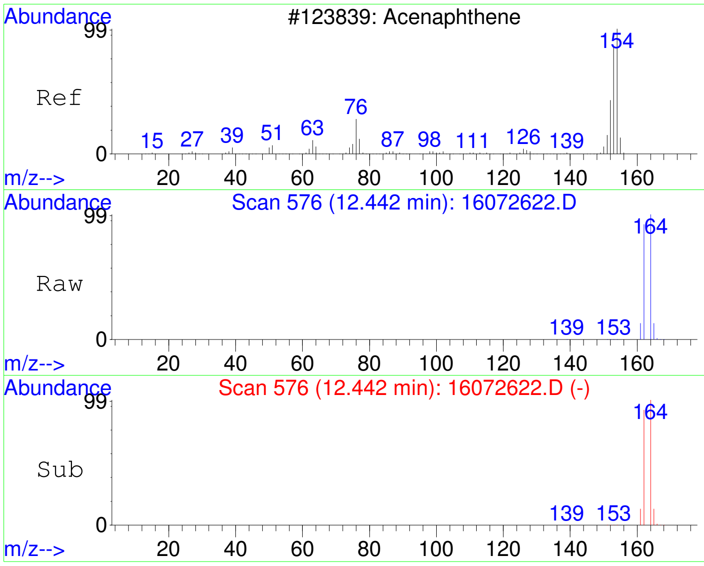
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072622.D          Vial: 22
Acq On    : 26 Jul 2016  10:01 pm                   Operator: DEW
Sample    : 1607219-12A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:00 2016           Quant Results File: PP160725.RES

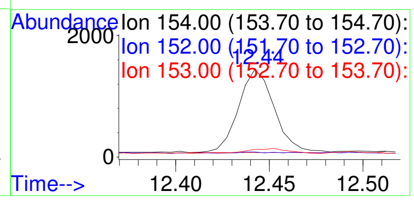
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

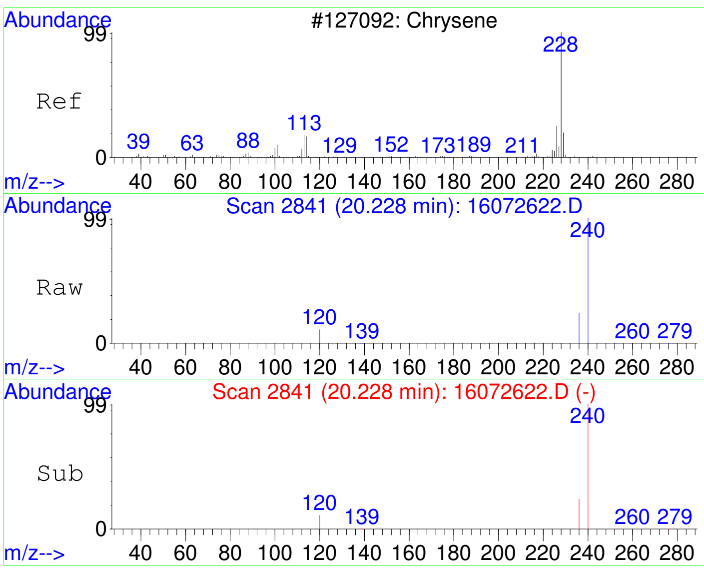




#9
Acenaphthene
Concen: ~~13.26 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072622.D
Acq: 26 Jul 2016 10:01 pm

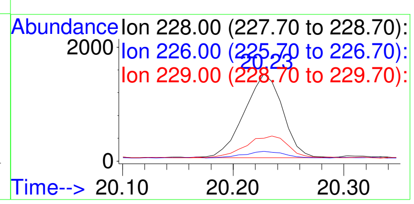
Tgt Ion:154	Resp:		1807
Ion	Ratio	Lower	Upper
154	100		
152	1.5	20.4	80.4#
153	4.6	78.2	138.2#

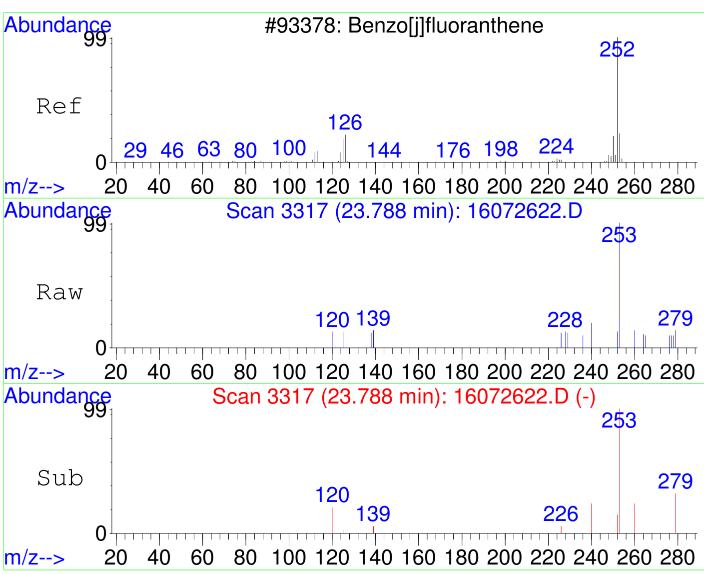




#19
Chrysene
Concen: ~~10.57 ug/kg~~
RT: 20.23 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072622.D
Acq: 26 Jul 2016 10:01 pm

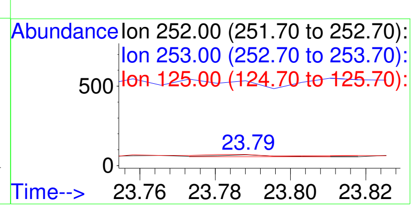
Tgt Ion:228	Resp:		3534
Ion	Ratio	Lower	Upper
228	100		
226	8.1	0.0	58.1
229	23.3	0.0	49.9





#23
Benzo(j)fluoranthene
Concen: 0.04 ug/kg
RT: 23.79 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072622.D
Acq: 26 Jul 2016 10:01 pm

Tgt Ion:252	Resp:		12
Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	61.5	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160726\16072623.D Vial: 23
Acq On : 26 Jul 2016 10:38 pm Operator: DEW
Sample : 1607219-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 8:01 2016 Quant Results File: PP160725.RES

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

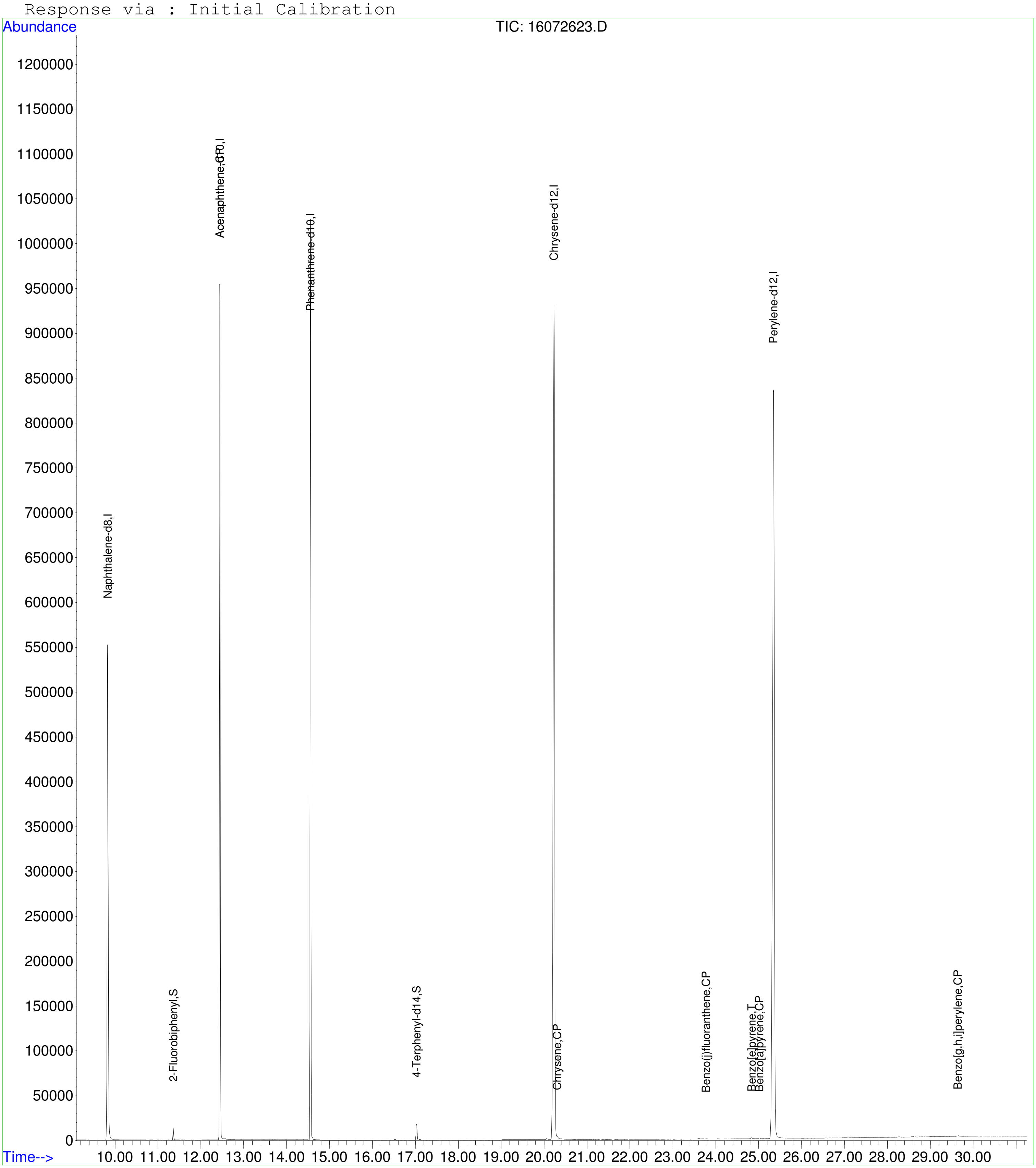
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	902875	4000.00	ug/kg	101
5) Acenaphthene-d10	12.44	164	551607	4000.00	ug/kg	97
11) Phenanthrene-d10	14.56	188	1474757	4000.00	ug/kg	98
17) Chrysene-d12	20.23	240	1690123	4000.00	ug/kg	105
20) Perylene-d12	25.34	264	1717211	4000.00	ug/kg	103
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.36	172	13411	70.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
16) 4-Terphenyl-d14	17.03	244	26787	63.18	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.58%#		
Target Compounds						Qvalue
9) Acenaphthene	12.44	154	1877	~~13.17~~	~~ug/kg#~~	~~9~~
19) Chrysene	20.31	228	2451	7.18	ug/kg	98
23) Benzo(j)fluoranthene	23.78	252	572	1.68	ug/kg	91
24) Benzo[e]pyrene	24.84	252	2343	6.29	ug/kg	100
25) Benzo[a]pyrene	25.02	252	1862	5.03	ug/kg	83
28) Benzo[g,h,i]perylene	29.65	276	1719	5.14	ug/kg	94

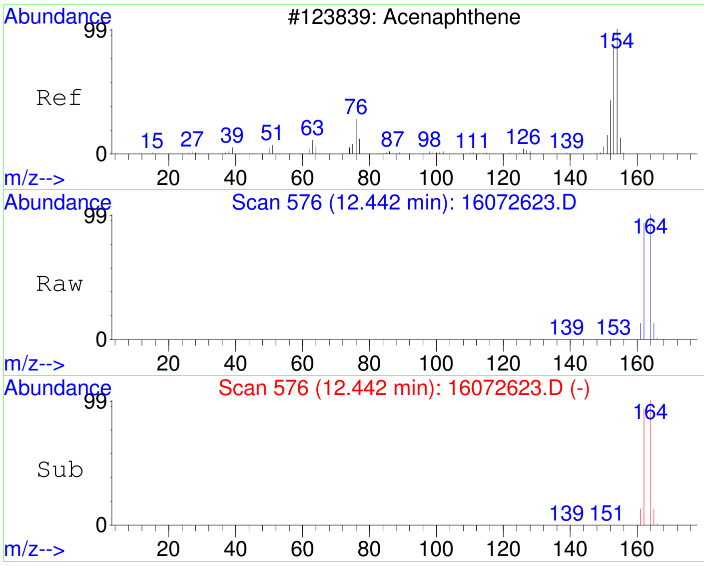
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072623.D          Vial: 23
Acq On    : 26 Jul 2016  10:38 pm                   Operator: DEW
Sample    : 1607219-14A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:01 2016            Quant Results File: PP160725.RES

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

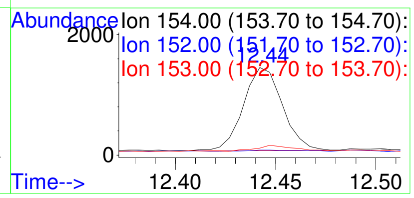


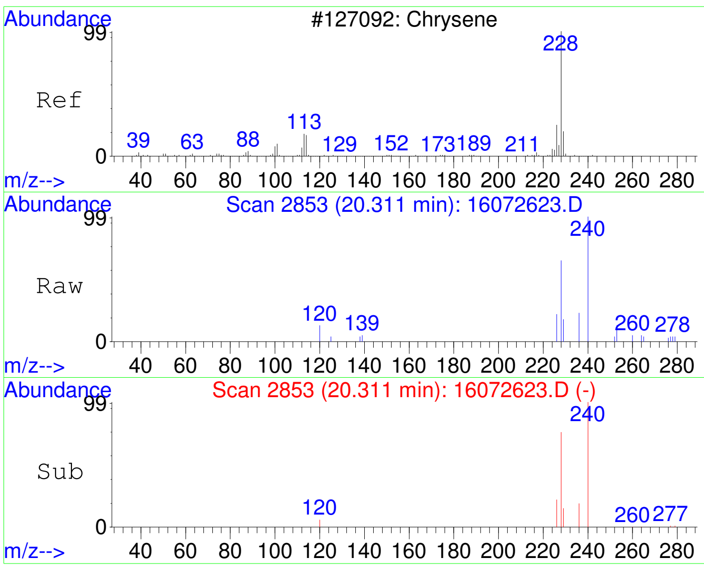


#9
Acenaphthene
Concen: ~~13.17 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072623.D
Acq: 26 Jul 2016 10:38 pm

Tgt Ion:154 Resp: 1877

Ion	Ratio	Lower	Upper
154	100		
152	1.3	20.4	80.4#
153	3.2	78.2	138.2#

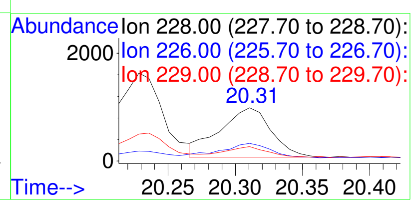


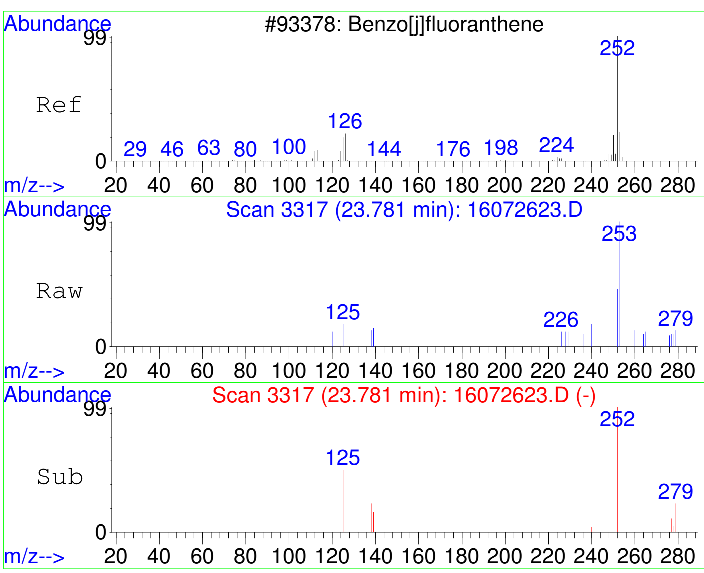


#19
Chrysene
Concen: 7.18 ug/kg
RT: 20.31 min Scan# 2853
Delta R.T. -0.02 min
Lab File: 16072623.D
Acq: 26 Jul 2016 10:38 pm

Tgt Ion:228 Resp: 2451

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	58.1
229	22.5	0.0	49.9

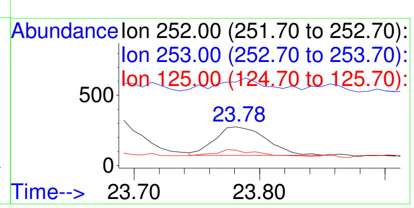


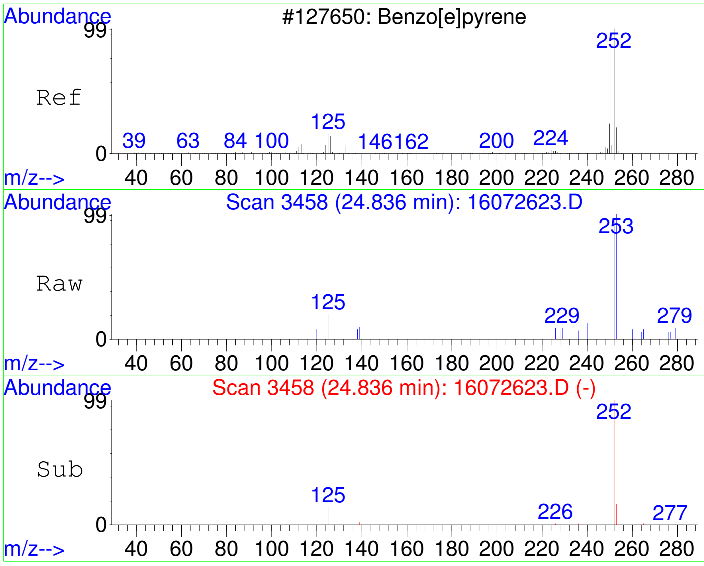


#23
Benzo(j)fluoranthene
Concen: 1.68 ug/kg
RT: 23.78 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072623.D
Acq: 26 Jul 2016 10:38 pm

Tgt Ion:252 Resp: 572

Ion	Ratio	Lower	Upper
252	100		
253	25.2	2.1	42.1
125	19.3	0.0	34.0

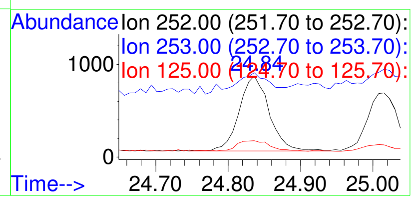


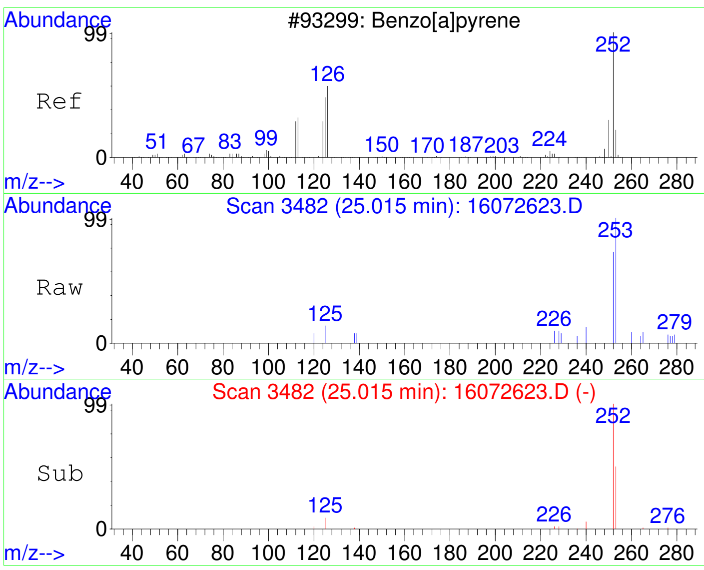


#24
Benzo[e]pyrene
Concen: 6.29 ug/kg
RT: 24.84 min Scan# 3458
Delta R.T. -0.02 min
Lab File: 16072623.D
Acq: 26 Jul 2016 10:38 pm

Tgt Ion:252 Resp: 2343

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.1	42.1
125	13.8	0.0	33.9

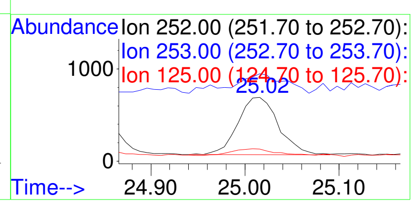


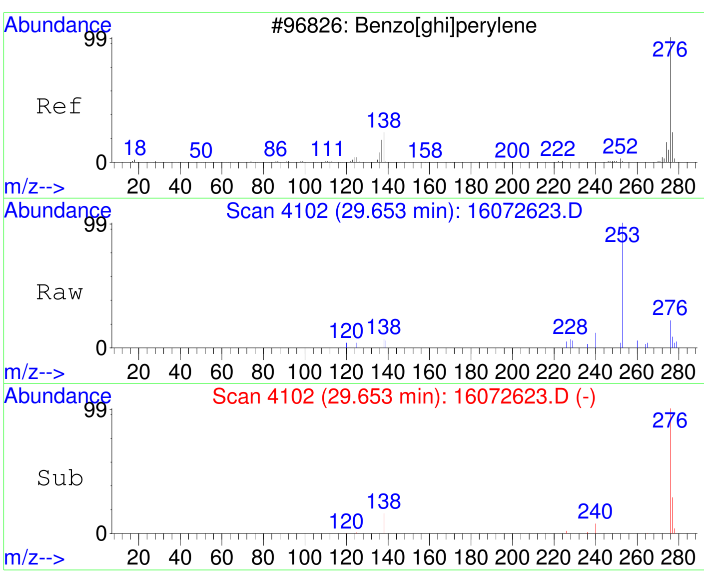


#25
Benzo[a]pyrene
Concen: 5.03 ug/kg
RT: 25.02 min Scan# 3482
Delta R.T. -0.01 min
Lab File: 16072623.D
Acq: 26 Jul 2016 10:38 pm

Tgt Ion:252 Resp: 1862

Ion	Ratio	Lower	Upper
252	100		
253	34.0	1.8	41.8
125	10.8	0.0	31.6

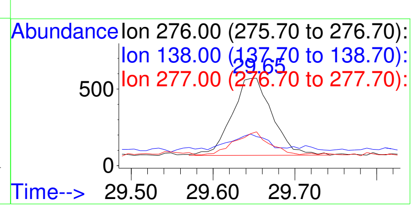




#28
Benzo[g,h,i]perylene
Concen: 5.14 ug/kg
RT: 29.65 min Scan# 4102
Delta R.T. -0.01 min
Lab File: 16072623.D
Acq: 26 Jul 2016 10:38 pm

Tgt Ion:276 Resp: 1719

Ion	Ratio	Lower	Upper
276	100		
138	18.1	0.0	39.4
277	28.5	3.9	43.9



Quantitation Report   (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072624.D          Vial: 24
Acq On    : 26 Jul 2016  11:15 pm                   Operator: DEW
Sample    : 1607219-15A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:01 2016             Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	919478	4000.00 ug/kg	103
5) Acenaphthene-d10	12.44	164	563891	4000.00 ug/kg	99
11) Phenanthrene-d10	14.55	188	1439571	4000.00 ug/kg	96
17) Chrysene-d12	20.23	240	1728875	4000.00 ug/kg	107
20) Perylene-d12	25.35	264	1724275	4000.00 ug/kg	104

System Monitoring Compounds

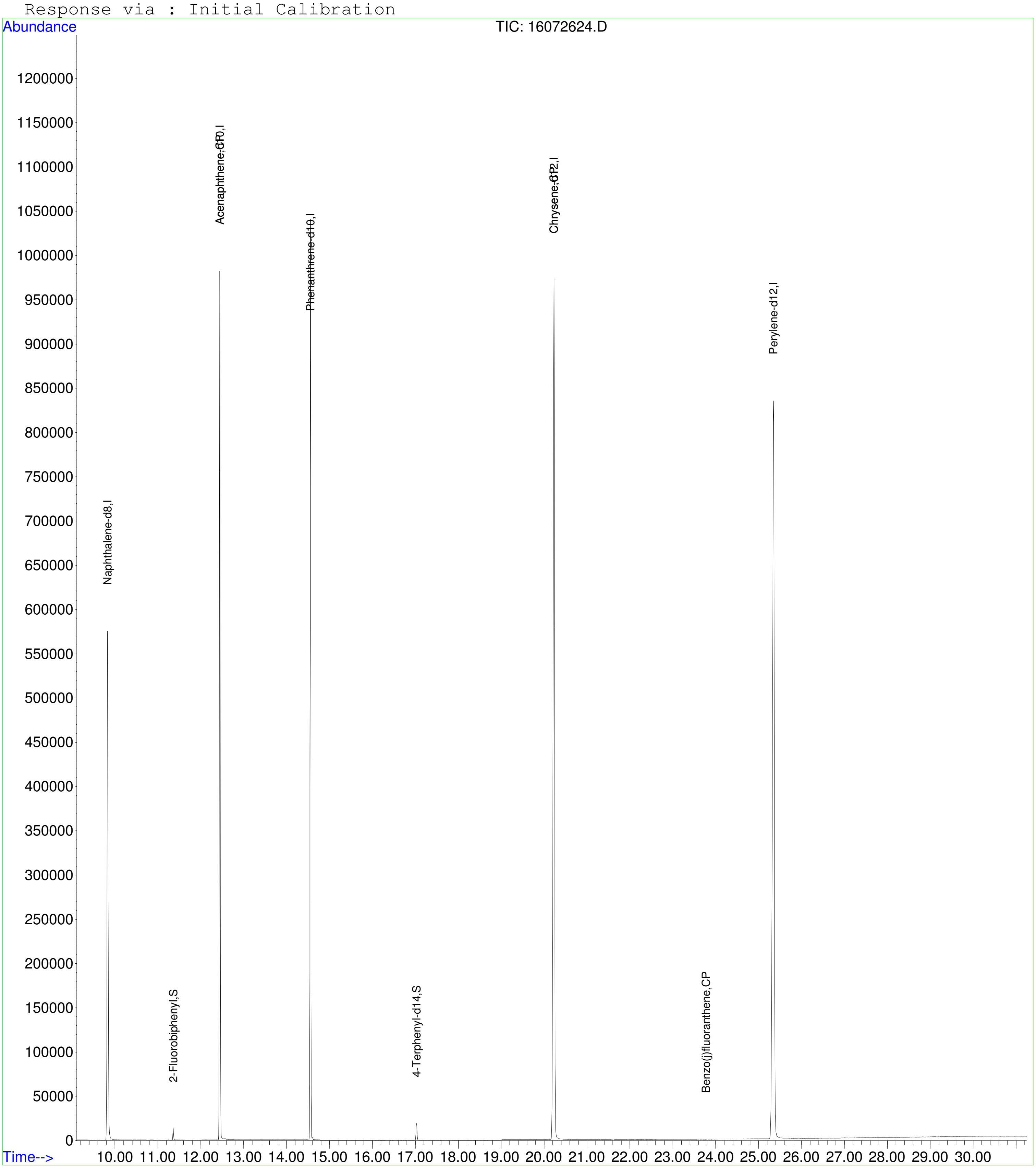
7) 2-Fluorobiphenyl	11.36	172	13615	70.42 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#	
16) 4-Terphenyl-d14	17.03	244	26932	65.72 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.64%#	

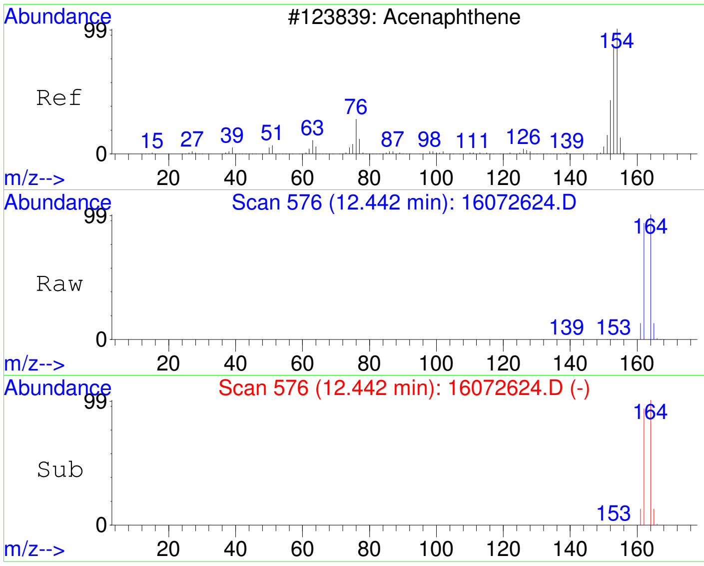
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1921	~~13.18 ug/kg#~~	~~9~~
19) Chrysene	20.23	228	3663	~~10.49 ug/kg~~	~~67~~
23) Benzo(j)fluoranthene	23.77	252	18	~~0.05 ug/kg#~~	~~1~~

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072624.D          Vial: 24
Acq On    : 26 Jul 2016  11:15 pm                   Operator: DEW
Sample    : 1607219-15A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:01 2016           Quant Results File: PP160725.RES

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

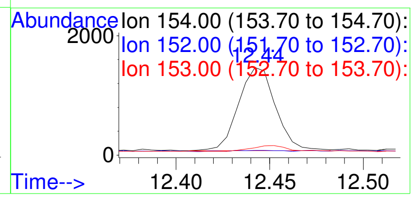


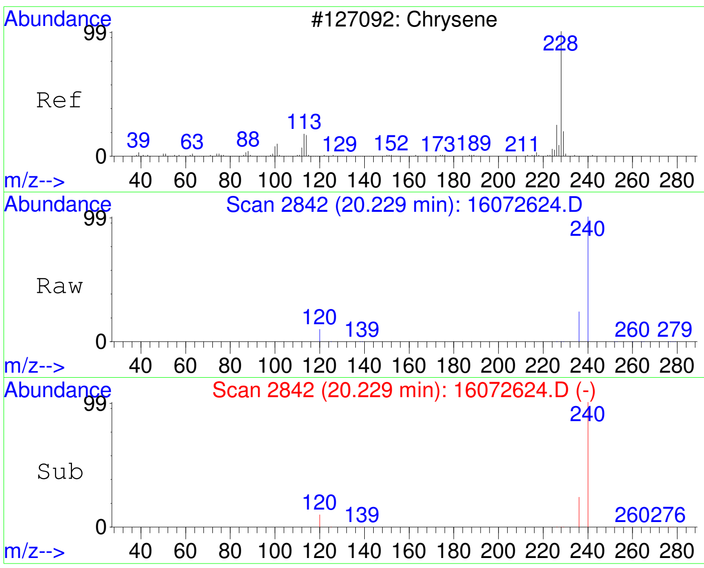


#9
Acenaphthene
Concen: ~~13.18 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072624.D
Acq: 26 Jul 2016 11:15 pm

Tgt Ion:154 Resp: 1921

Ion	Ratio	Lower	Upper
154	100		
152	1.1	20.4	80.4#
153	3.8	78.2	138.2#

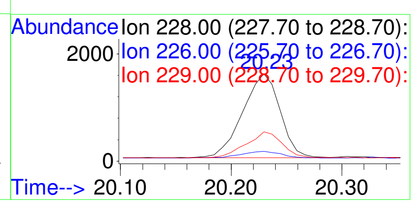


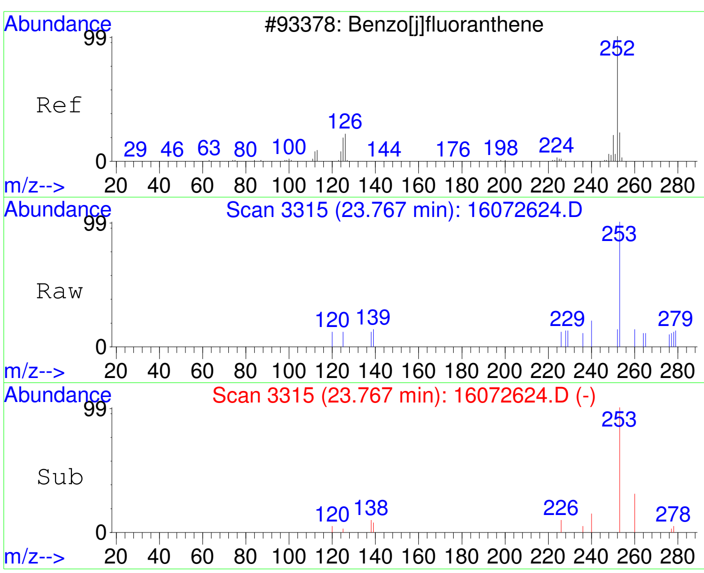


#19
Chrysene
Concen: ~~10.49 ug/kg~~
RT: 20.23 min Scan# 2842
Delta R.T. -0.10 min
Lab File: 16072624.D
Acq: 26 Jul 2016 11:15 pm

Tgt Ion:228 Resp: 3663

Ion	Ratio	Lower	Upper
228	100		
226	7.8	0.0	58.1
229	31.0	0.0	49.9

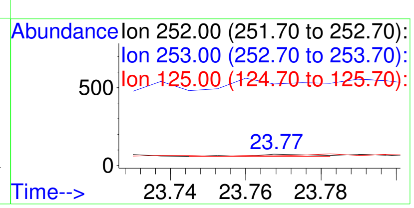




#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 23.77 min Scan# 3315
Delta R.T. -0.04 min
Lab File: 16072624.D
Acq: 26 Jul 2016 11:15 pm

Tgt Ion:252 Resp: 18

Ion	Ratio	Lower	Upper
252	100		
253	280.0	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160726\16072625.D          Vial: 25
Acq On    : 26 Jul 2016  11:52 pm                    Operator: DEW
Sample    : 1607219-16A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:01 2016             Quant Results File: PP160725.RES

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

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 -------------------------------------------------------------------------
   1) Naphthalene-d8               9.82  136    939300   4000.00 ug/kg  105
   5) Acenaphthene-d10            12.44  164    561314   4000.00 ug/kg   99
  11) Phenanthrene-d10            14.56  188   1488631   4000.00 ug/kg   99
  17) Chrysene-d12                20.23  240   1714258   4000.00 ug/kg  106
  20) Perylene-d12                25.34  264   1736786   4000.00 ug/kg  105

 System Monitoring Compounds
   7) 2-Fluorobiphenyl            11.36  172     14102    73.45 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.84%#
  16) 4-Terphenyl-d14             17.03  244     27752    65.41 ug/kg  -0.01
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.64%#

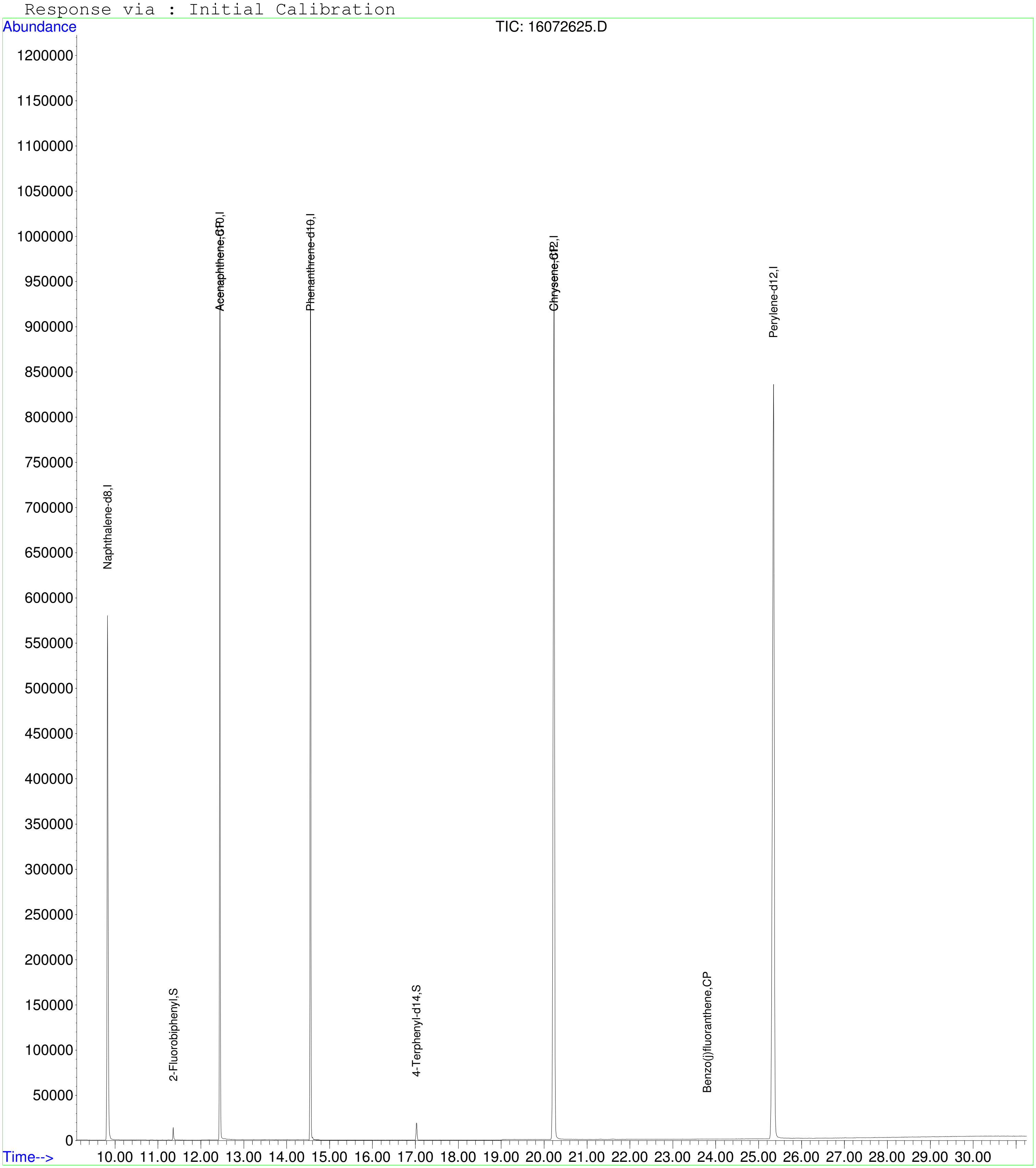
 Target Compounds                                                  Qvalue
   9) Acenaphthene                12.44  154      1889    ~~13.02 ug/kg#     10~~
  19) Chrysene                    20.23  228      3682    ~~10.64 ug/kg      69~~
  23) Benzo(j)fluoranthene        23.80  252        24    ~~0.07 ug/kg#       1~~

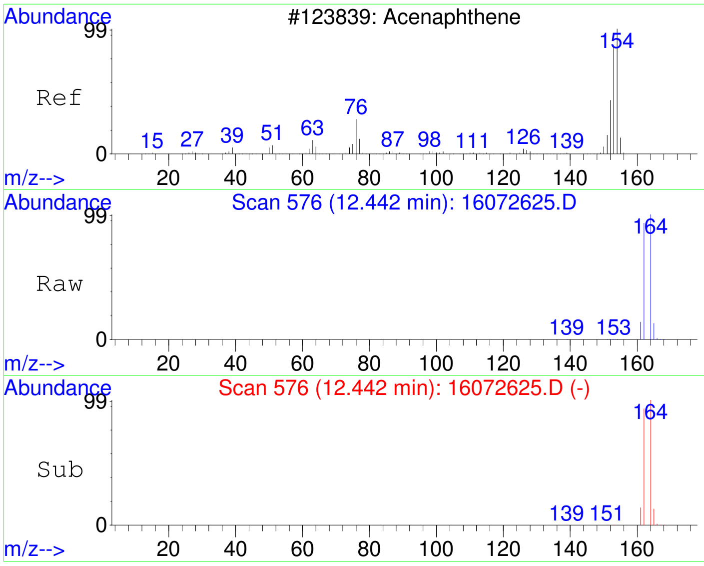
 -------------------------------------------------------------------------
 (#) = qualifier out of range (m) = manual integration
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072625.D          Vial: 25
Acq On    : 26 Jul 2016  11:52 pm                    Operator: DEW
Sample    : 1607219-16A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:01 2016            Quant Results File: PP160725.RES

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

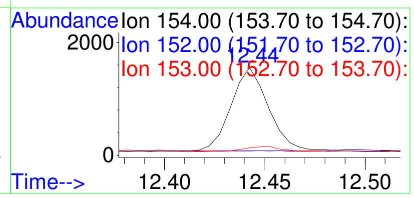


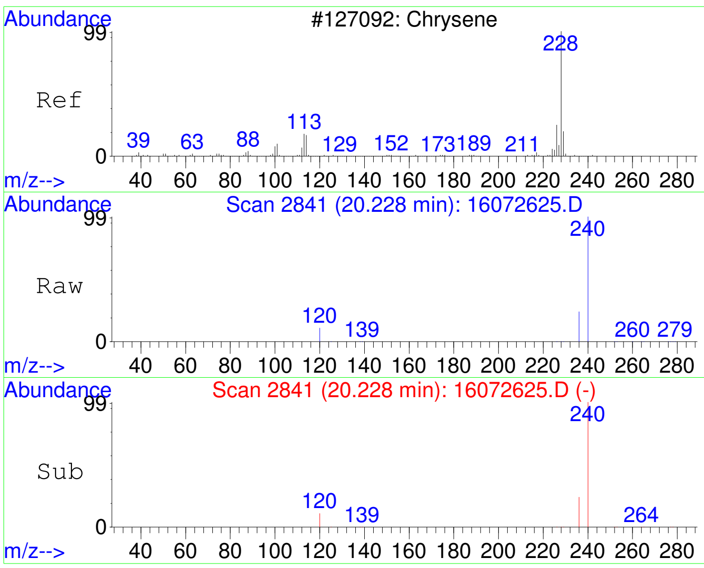


#9
Acenaphthene
Concen: ~~13.02 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.05 min
Lab File: 16072625.D
Acq: 26 Jul 2016 11:52 pm

Tgt Ion:154 Resp: 1889

Ion	Ratio	Lower	Upper
154	100		
152	0.7	20.4	80.4#
153	4.7	78.2	138.2#

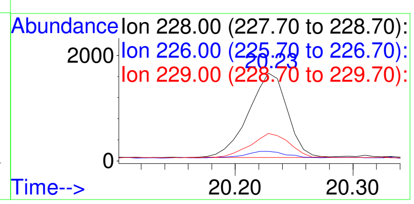


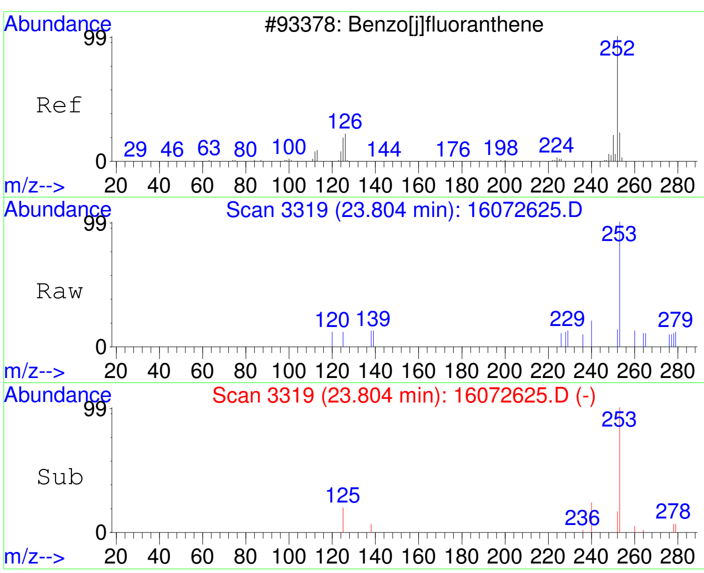


#19
Chrysene
Concen: ~~10.64 ug/kg~~
RT: 20.23 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072625.D
Acq: 26 Jul 2016 11:52 pm

Tgt Ion:228 Resp: 3682

Ion	Ratio	Lower	Upper
228	100		
226	7.6	0.0	58.1
229	28.7	0.0	49.9

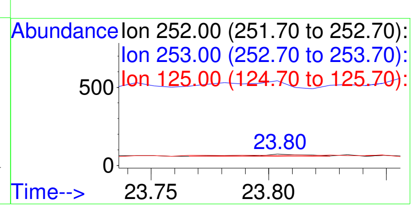




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 23.80 min Scan# 3319
Delta R.T. -0.00 min
Lab File: 16072625.D
Acq: 26 Jul 2016 11:52 pm

Tgt Ion:252 Resp: 24

Ion	Ratio	Lower	Upper
252	100		
253	218.8	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160726\16072626.D Vial: 26
Acq On : 27 Jul 2016 12:29 am Operator: DEW
Sample : 1607219-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 8:01 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	976971	4000.00 ug/kg	109
5) Acenaphthene-d10	12.44	164	585931	4000.00 ug/kg	103
11) Phenanthrene-d10	14.55	188	1556912	4000.00 ug/kg	104
17) Chrysene-d12	20.23	240	1785882	4000.00 ug/kg	111
20) Perylene-d12	25.35	264	1804313	4000.00 ug/kg	109

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	14226	70.83 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#	
16) 4-Terphenyl-d14	17.03	244	27772	61.65 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.54%#	

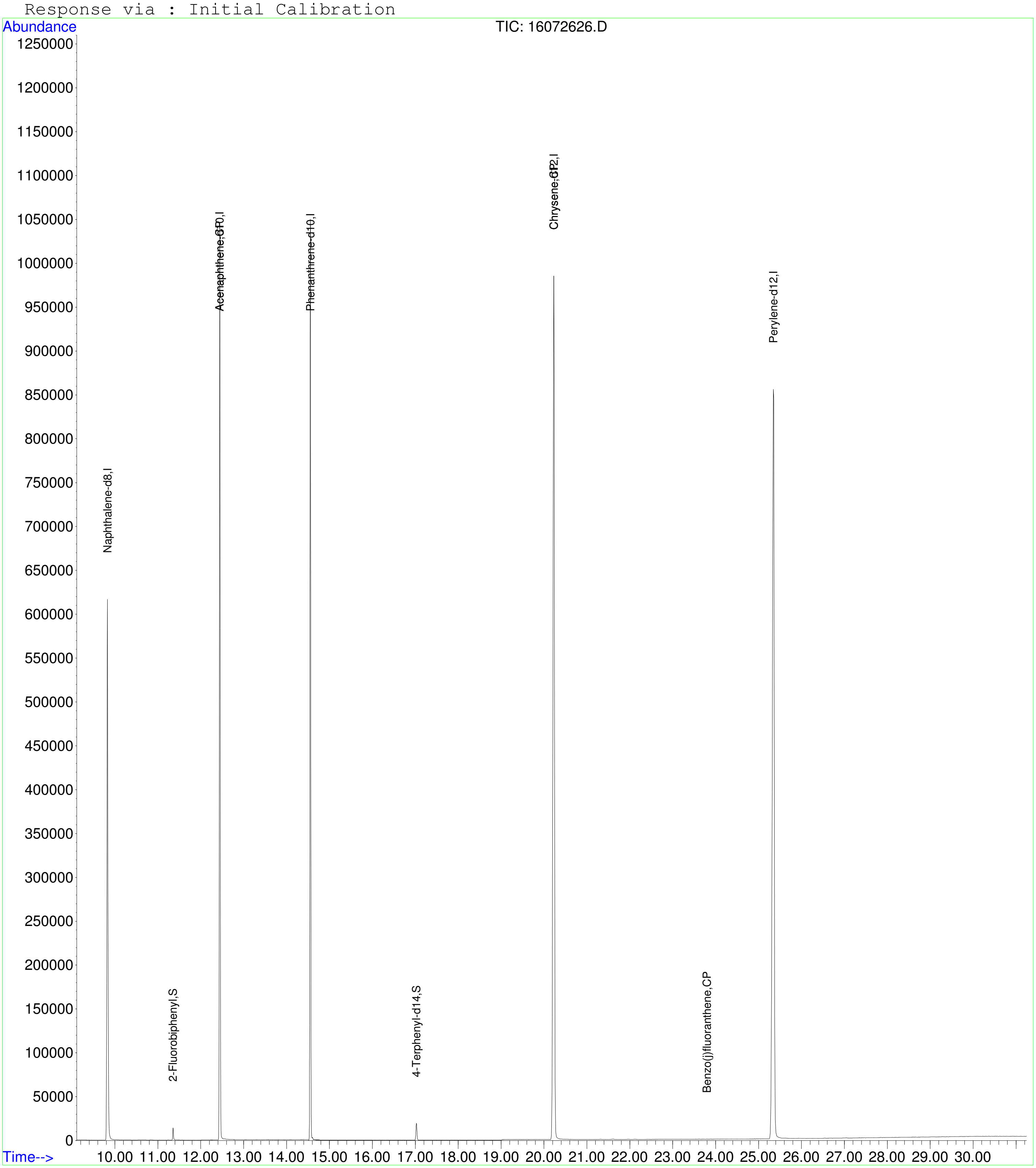
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1972	~~13.02 ug/kg#~~	~~10~~
19) Chrysene	20.23	228	3790	~~10.51 ug/kg~~	~~68~~
23) Benzo(j)fluoranthene	23.79	252	18	~~0.05 ug/kg#~~	~~1~~

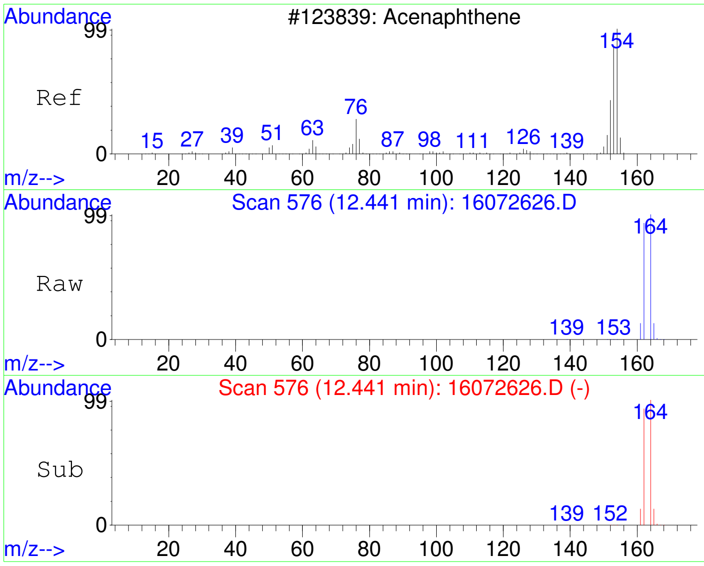
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160726\16072626.D Vial: 26
Acq On : 27 Jul 2016 12:29 am Operator: DEW
Sample : 1607219-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 8:01 2016 Quant Results File: PP160725.RES

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

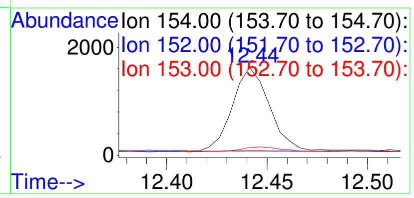


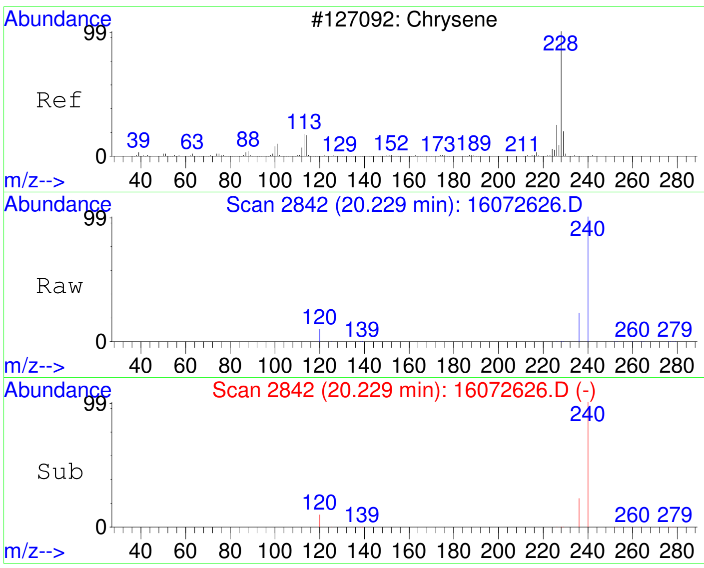


#9
Acenaphthene
Concen: ~~13.02 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072626.D
Acq: 27 Jul 2016 12:29 am

Tgt Ion:154 Resp: 1972

Ion	Ratio	Lower	Upper
154	100		
152	1.6	20.4	80.4#
153	5.1	78.2	138.2#

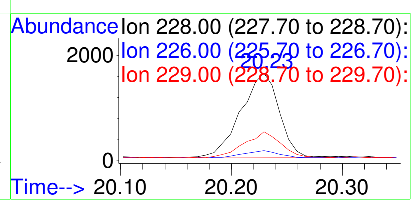


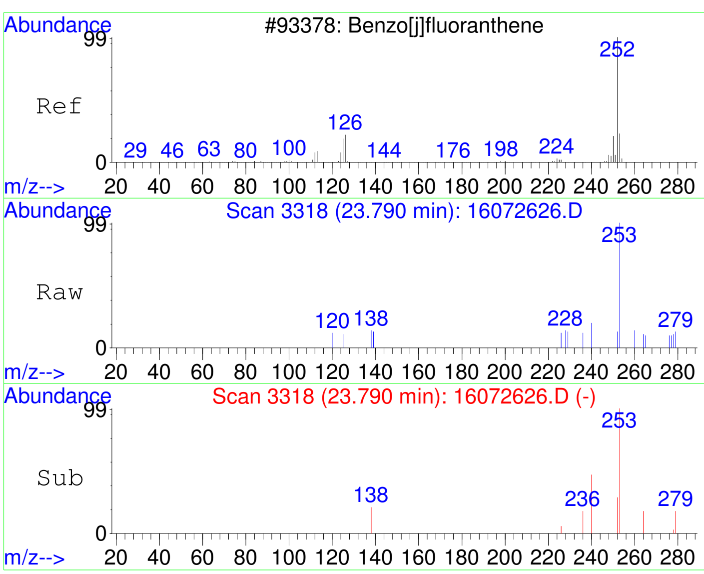


#19
Chrysene
Concen: ~~10.51 ug/kg~~
RT: 20.23 min Scan# 2842
Delta R.T. -0.10 min
Lab File: 16072626.D
Acq: 27 Jul 2016 12:29 am

Tgt Ion:228 Resp: 3790

Ion	Ratio	Lower	Upper
228	100		
226	8.1	0.0	58.1
229	30.8	0.0	49.9

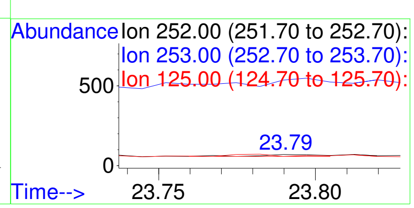




#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 23.79 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072626.D
Acq: 27 Jul 2016 12:29 am

Tgt Ion:252 Resp: 18

Ion	Ratio	Lower	Upper
252	100		
253	225.0	2.1	42.1#
125	0.0	0.0	34.0



```
Data File : C:\HPCHEM\1\DATA\160726\16072627.D          Vial: 27
Acq On    : 27 Jul 2016   1:06 am                    Operator: DEW
Sample    : 1607219-18A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:01 2016            Quant Results File: PP160725.RES

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

DNR

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	890301	4000.00 ug/kg	100
5) Acenaphthene-d10	12.44	164	587877	4000.00 ug/kg	103
11) Phenanthrene-d10	14.56	188	1538664	4000.00 ug/kg	102
17) Chrysene-d12	20.23	240	1701397	4000.00 ug/kg	106
20) Perylene-d12	25.35	264	1694855	4000.00 ug/kg	102

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	11.36	172	13527	66.90 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#	
16) 4-Terphenyl-d14	17.03	244	25557	55.92 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.40%#	

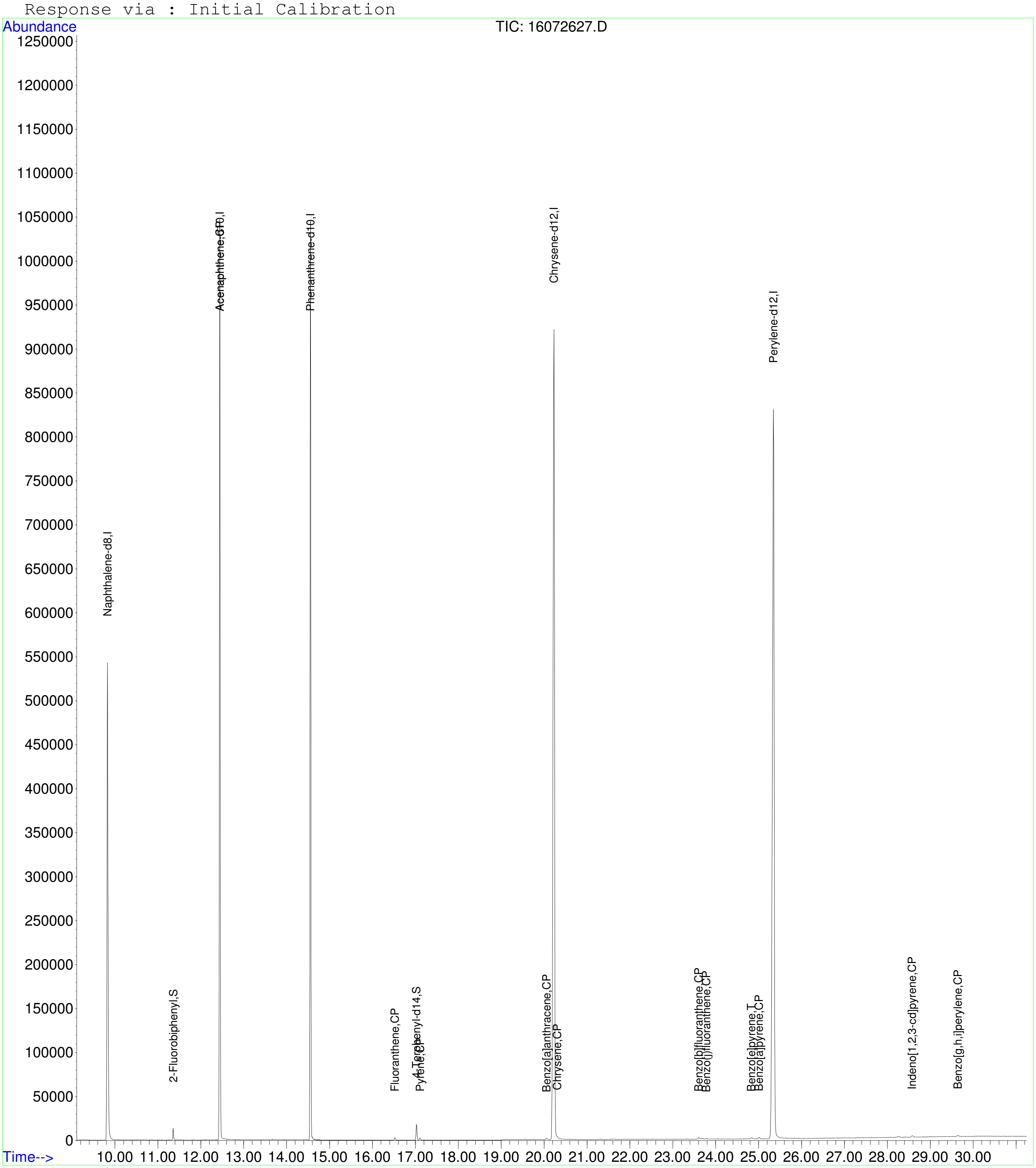
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
9) Acenaphthene	12.44	154	2034	~~13.39 ug/kg#~~	~~9~~
14) Fluoranthene	16.52	202	3195	8.92 ug/kg	96
15) Pyrene	17.11	202	3183	8.63 ug/kg	99
18) Benzo[a]anthracene	20.06	228	2340	6.41 ug/kg	97
19) Chrysene	20.31	228	2847	8.29 ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	3453	8.92 ug/kg	96
23) Benzo(j)fluoranthene	23.78	252	1517	4.51 ug/kg	79
24) Benzo[e]pyrene	24.83	252	2762	7.51 ug/kg	93
25) Benzo[a]pyrene	25.02	252	3405	9.33 ug/kg	94
27) Indeno[1,2,3-cd]pyrene	28.58	276	2878	6.33 ug/kg	95
28) Benzo[g,h,i]perylene	29.65	276	2939	8.91 ug/kg	97

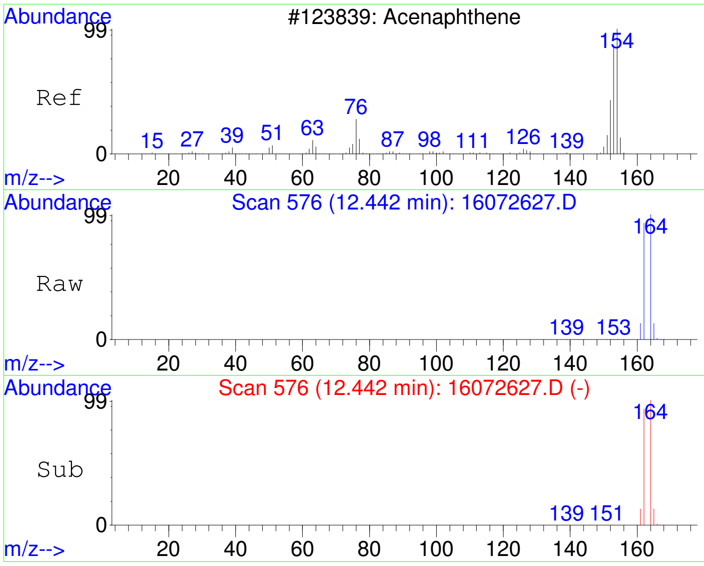
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072627.D          Vial: 27
Acq On    : 27 Jul 2016   1:06 am                   Operator: DEW
Sample    : 1607219-18A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:01 2016            Quant Results File: PP160725.RES

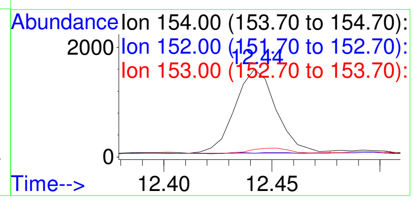
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

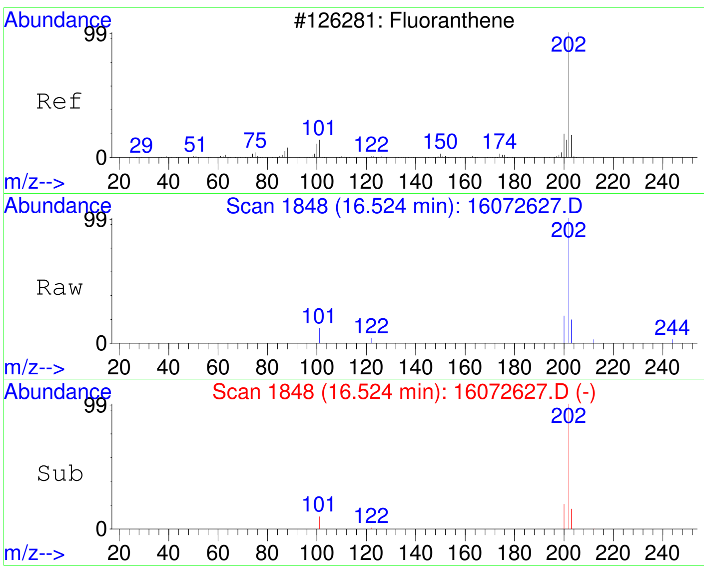




#9
Acenaphthene
Concen: ~~13.39 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

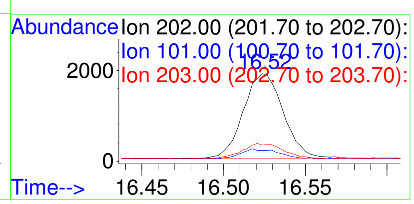
Tgt	Ion:154	Resp:	2034
Ion	Ratio	Lower	Upper
154	100		
152	0.0	20.4	80.4#
153	4.5	78.2	138.2#

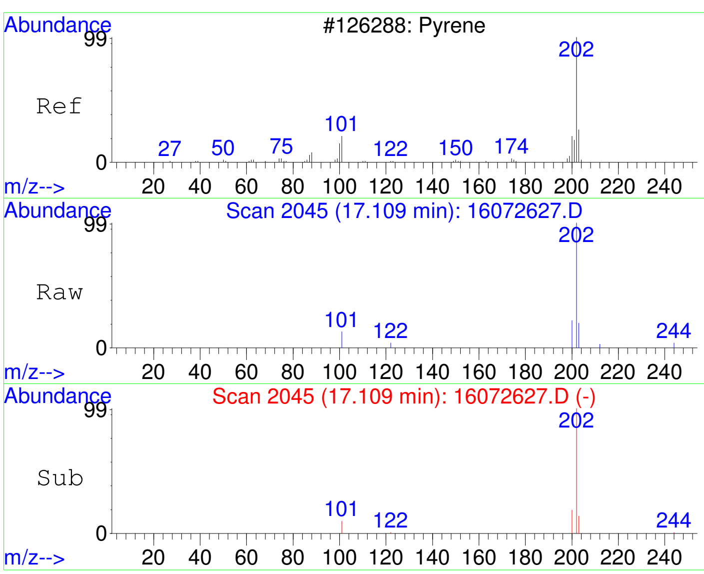




#14
Fluoranthene
Concen: 8.92 ug/kg
RT: 16.52 min Scan# 1848
Delta R.T. -0.01 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

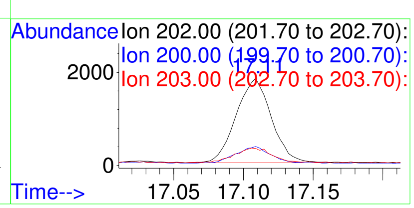
Tgt	Ion:202	Resp:	3195
Ion	Ratio	Lower	Upper
202	100		
101	9.8	0.0	41.4
203	15.7	0.0	47.7

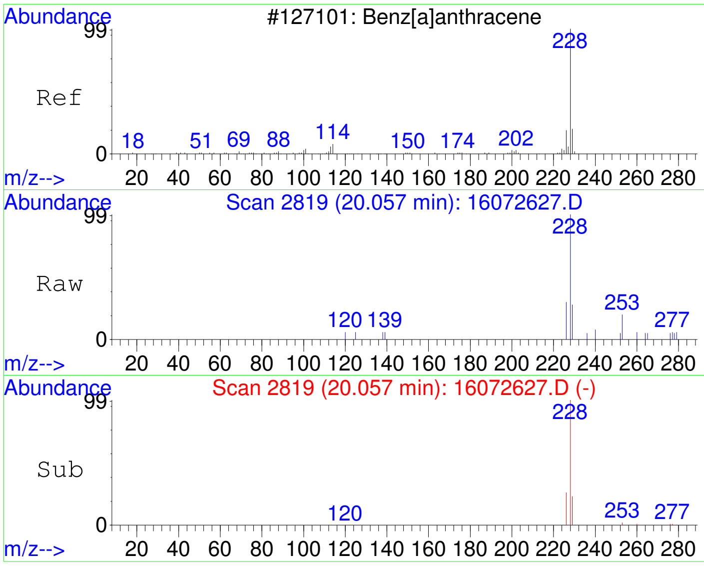




#15
Pyrene
Concen: 8.63 ug/kg
RT: 17.11 min Scan# 2045
Delta R.T. -0.01 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt	Ion:202	Resp:	3183
Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	49.7
203	17.0	0.0	47.6

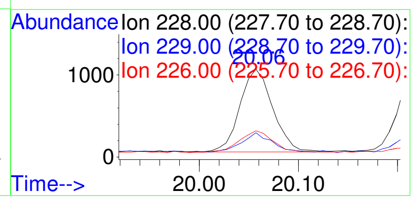


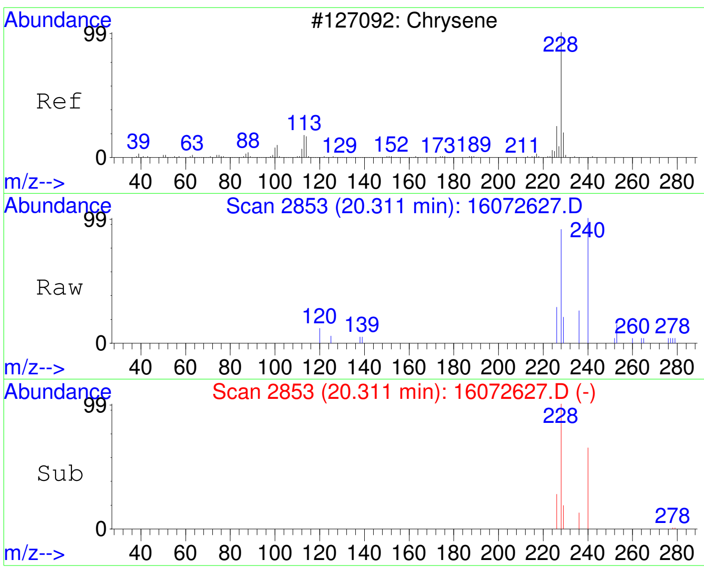


#18
Benzo[a]anthracene
Concen: 6.41 ug/kg
RT: 20.06 min Scan# 2819
Delta R.T. -0.01 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt Ion:228 Resp: 2340

Ion	Ratio	Lower	Upper
228	100		
229	23.0	0.0	49.9
226	26.4	0.0	55.9

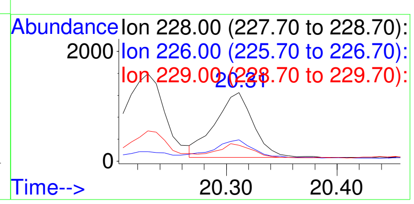


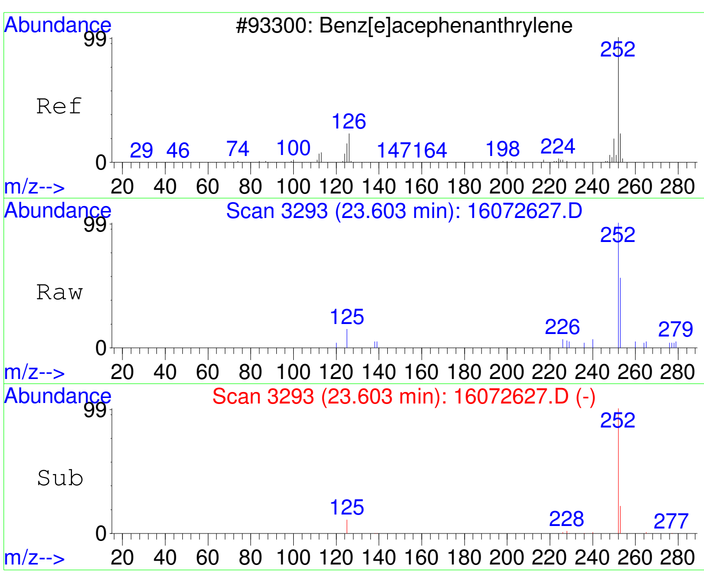


#19
Chrysene
Concen: 8.29 ug/kg
RT: 20.31 min Scan# 2853
Delta R.T. -0.01 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt Ion:228 Resp: 2847

Ion	Ratio	Lower	Upper
228	100		
226	27.9	0.0	58.1
229	19.3	0.0	49.9

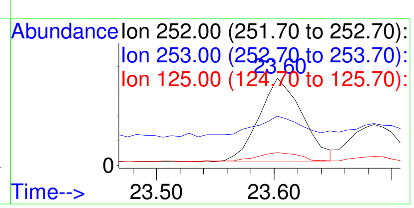


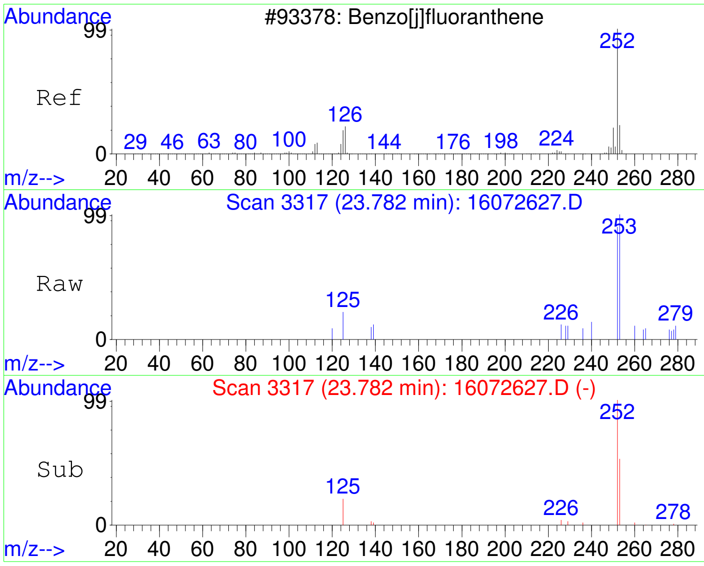


#21
Benzo[b]fluoranthene
Concen: 8.92 ug/kg
RT: 23.60 min Scan# 3293
Delta R.T. -0.03 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt Ion:252 Resp: 3453

Ion	Ratio	Lower	Upper
252	100		
253	20.0	0.0	52.1
125	10.7	0.0	39.3

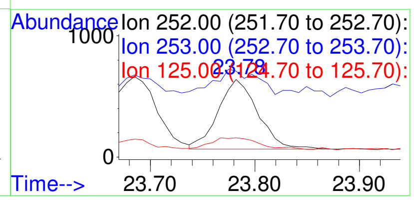


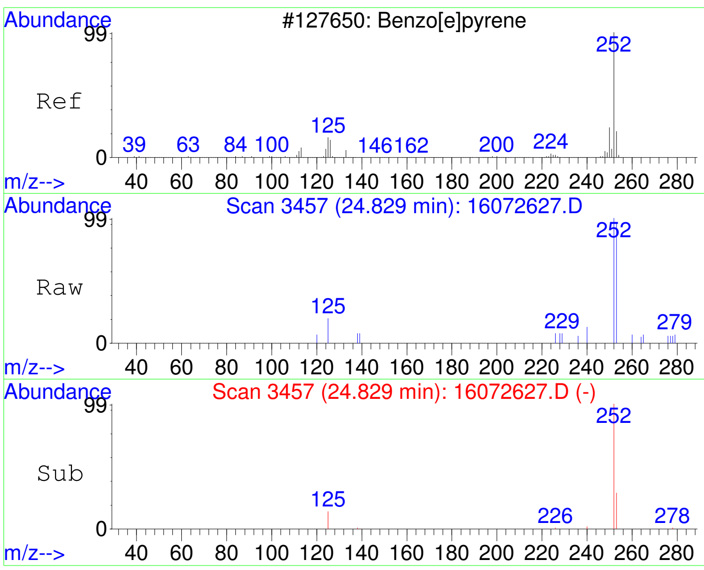


#23
Benzo(j)fluoranthene
Concen: 4.51 ug/kg
RT: 23.78 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt Ion:252 Resp: 1517

Ion	Ratio	Lower	Upper
252	100		
253	36.6	2.1	42.1
125	16.3	0.0	34.0

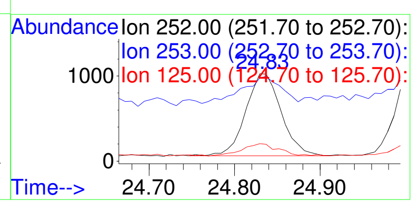


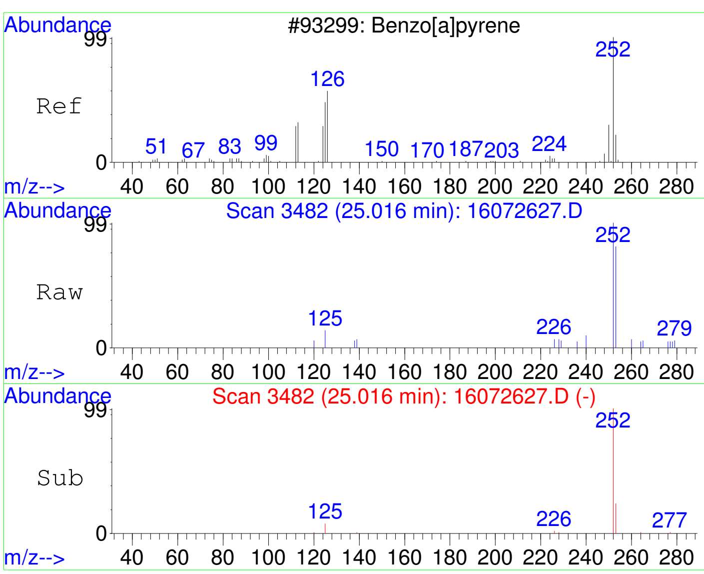


#24
Benzo[e]pyrene
Concen: 7.51 ug/kg
RT: 24.83 min Scan# 3457
Delta R.T. -0.03 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt Ion:252 Resp: 2762

Ion	Ratio	Lower	Upper
252	100		
253	26.6	2.1	42.1
125	14.9	0.0	33.9

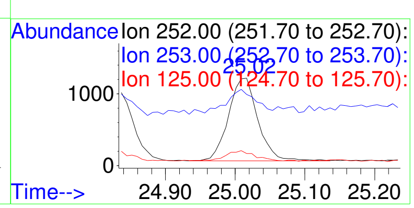


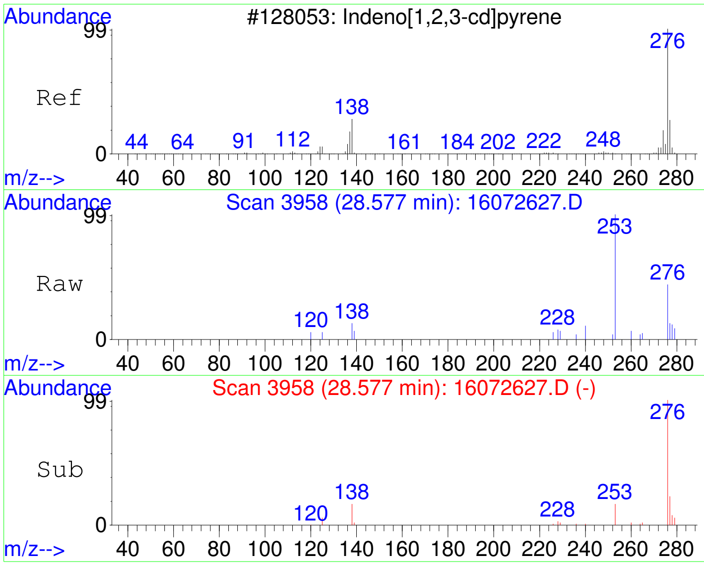


#25
Benzo[a]pyrene
Concen: 9.33 ug/kg
RT: 25.02 min Scan# 3482
Delta R.T. -0.01 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt Ion:252 Resp: 3405

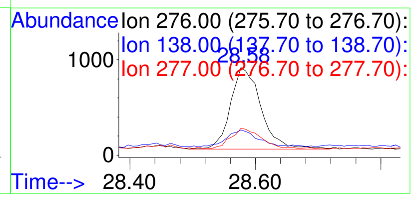
Ion	Ratio	Lower	Upper
252	100		
253	23.9	1.8	41.8
125	8.3	0.0	31.6

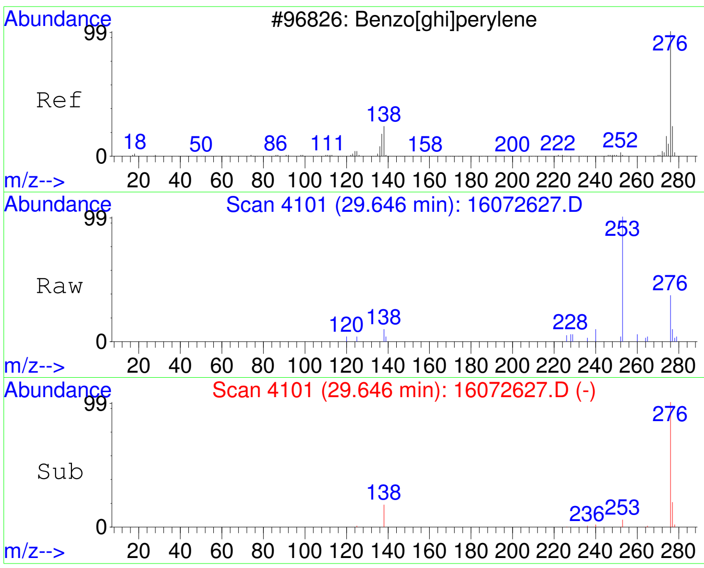




#27
Indeno[1,2,3-cd]pyrene
Concen: 6.33 ug/kg
RT: 28.58 min Scan# 3958
Delta R.T. -0.03 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

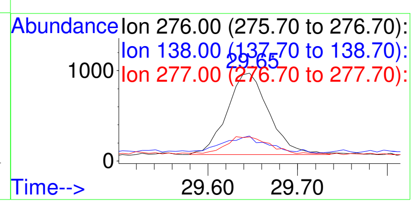
Tgt Ion:276	Resp:		2878
Ion	Ratio	Lower	Upper
276	100		
138	20.8	5.3	45.3
277	25.0	5.8	45.8





#28
Benzo[g,h,i]perylene
Concen: 8.91 ug/kg
RT: 29.65 min Scan# 4101
Delta R.T. -0.02 min
Lab File: 16072627.D
Acq: 27 Jul 2016 1:06 am

Tgt Ion:276	Resp:		2939
Ion	Ratio	Lower	Upper
276	100		
138	19.6	0.0	39.4
277	21.4	3.9	43.9



Quantitation Report (Not Reviewed)

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Data File : C:\HPCHEM\1\DATA\160726\16072628.D          Vial: 28
Acq On    : 27 Jul 2016   1:43 am                   Operator: DEW
Sample    : 1607219-19A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:01 2016           Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	915988	4000.00 ug/kg	103
5) Acenaphthene-d10	12.44	164	550823	4000.00 ug/kg	97
11) Phenanthrene-d10	14.56	188	1451691	4000.00 ug/kg	97
17) Chrysene-d12	20.23	240	1690342	4000.00 ug/kg	105
20) Perylene-d12	25.35	264	1706832	4000.00 ug/kg	103

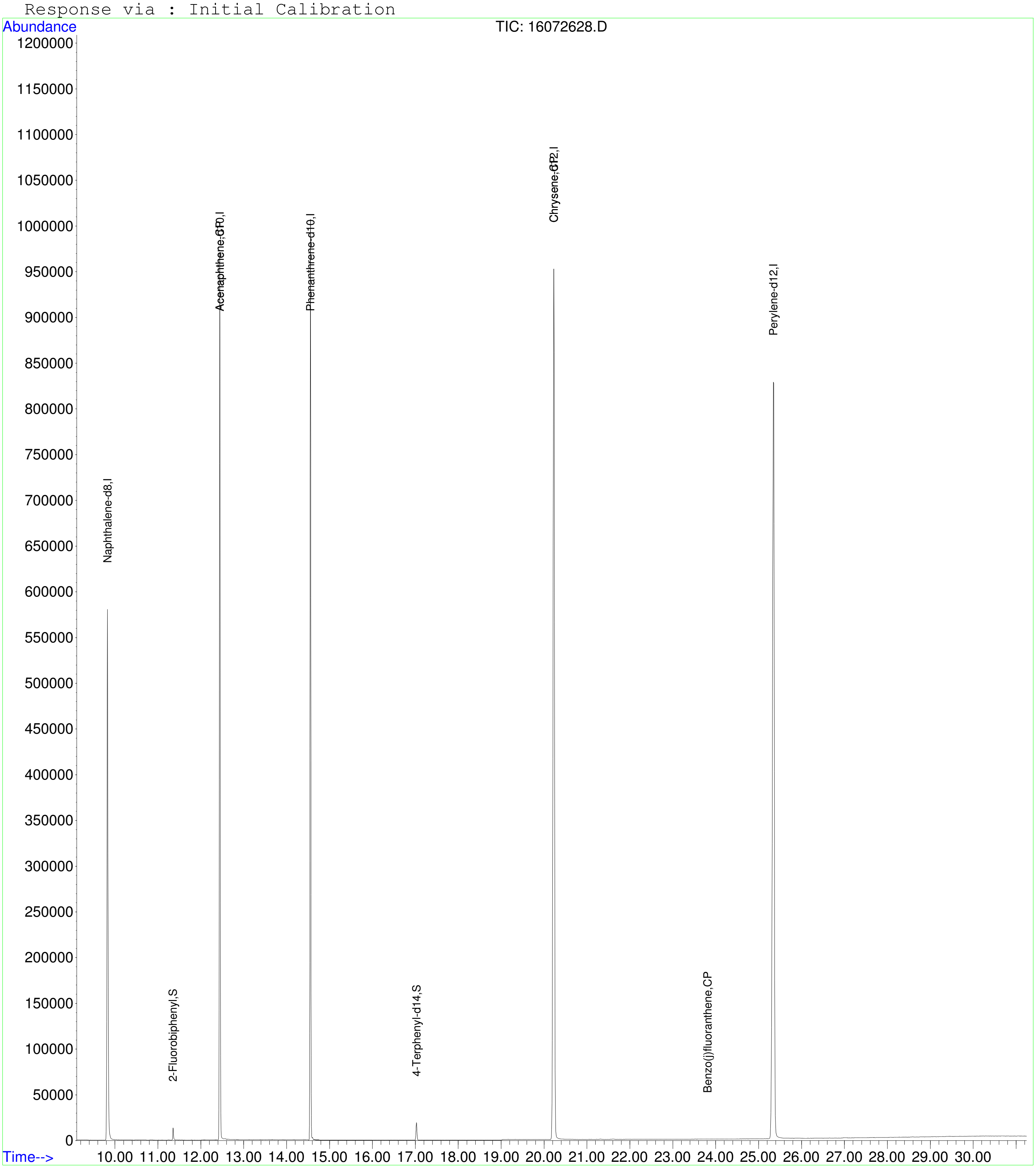
System Monitoring Compounds

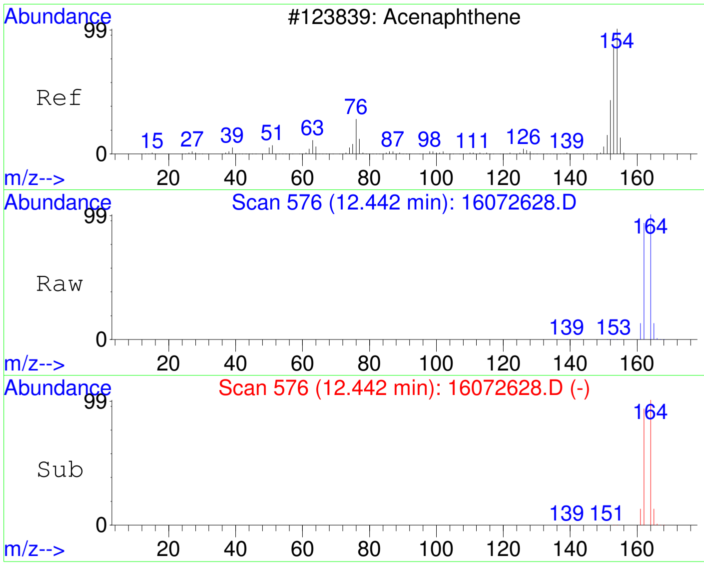
7) 2-Fluorobiphenyl	11.35	172	13614	72.19 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#	
16) 4-Terphenyl-d14	17.03	244	27112	65.57 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.64%#	

Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1854	~~13.02 ug/kg#~~	~~9~~
19) Chrysene	20.23	228	3621	~~10.61 ug/kg~~	~~70~~
23) Benzo(j)fluoranthene	23.81	252	21	~~0.06 ug/kg#~~	~~1~~

Data File : C:\HPCHEM\1\DATA\160726\16072628.D   Vial: 28
Acq On   : 27 Jul 2016   1:43 am   Operator: DEW
Sample   : 1607219-19A   Inst   : GC/MS #6
Misc   : SAMP   Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 8:01 2016   Quant Results File: PP160725.RES

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

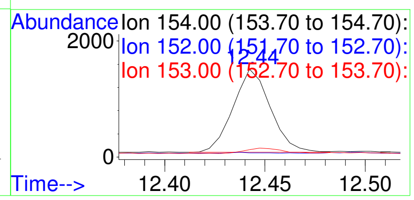


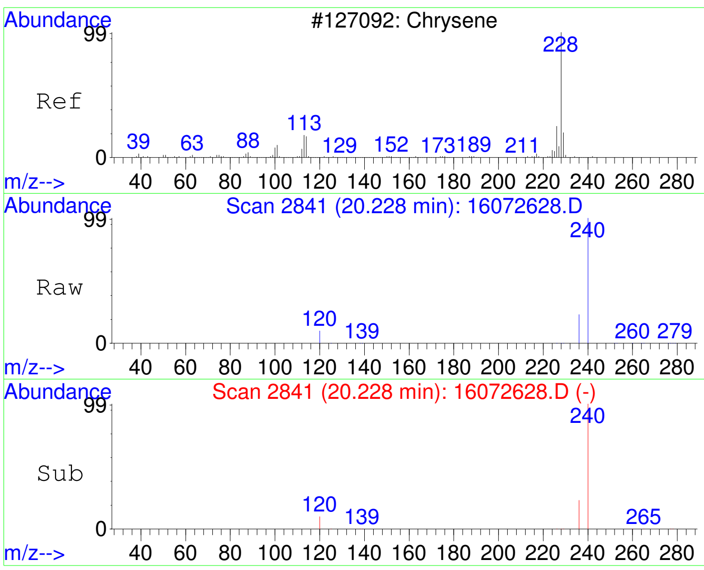


#9
Acenaphthene
Concen: ~~13.02 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072628.D
Acq: 27 Jul 2016 1:43 am

Tgt Ion:154 Resp: 1854

Ion	Ratio	Lower	Upper
154	100		
152	0.3	20.4	80.4#
153	4.2	78.2	138.2#

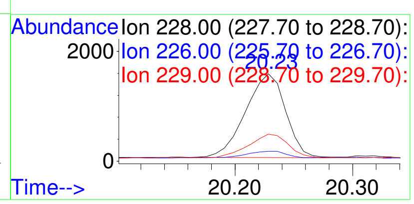


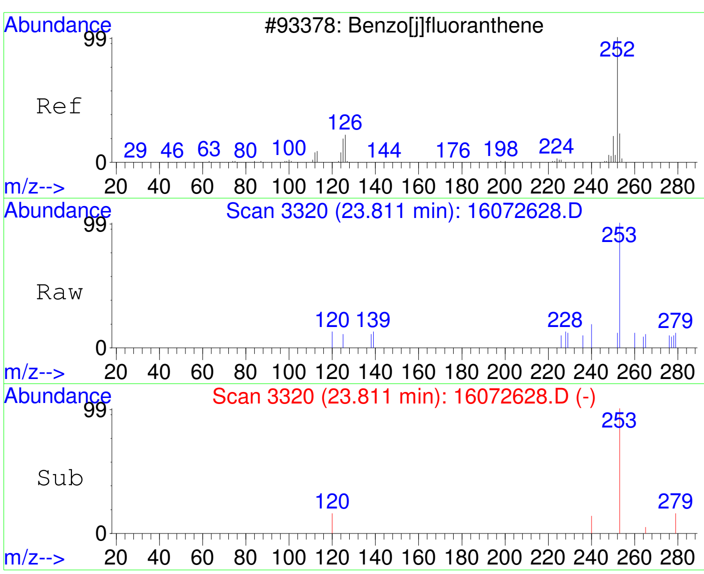


#19
Chrysene
Concen: ~~10.61 ug/kg~~
RT: 20.23 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072628.D
Acq: 27 Jul 2016 1:43 am

Tgt Ion:228 Resp: 3621

Ion	Ratio	Lower	Upper
228	100		
226	8.0	0.0	58.1
229	28.5	0.0	49.9

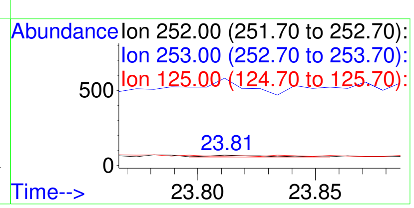




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 23.81 min Scan# 3320
Delta R.T. 0.01 min
Lab File: 16072628.D
Acq: 27 Jul 2016 1:43 am

Tgt Ion:252 Resp: 21

Ion	Ratio	Lower	Upper
252	100		
253	536.4	2.1	42.1#
125	0.0	0.0	34.0



```
Data File : C:\HPCHEM\1\DATA\160726\16072629.D          Vial: 29
Acq On    : 27 Jul 2016   2:20 am                   Operator: DEW
Sample    : 1607219-20A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 27  8:02 2016            Quant Results File: PP160725.RES

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

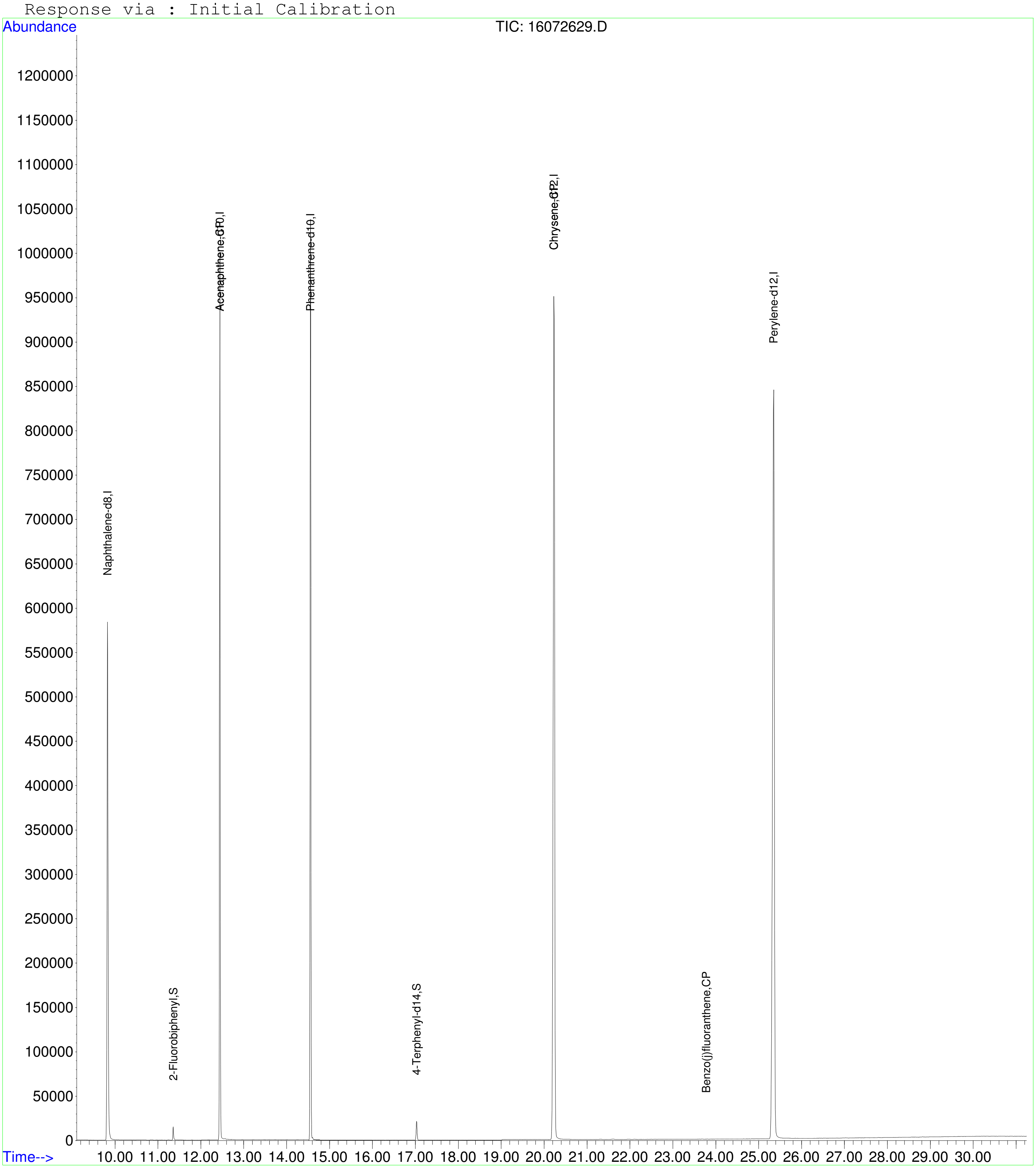
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	946313	4000.00 ug/kg	106
5) Acenaphthene-d10	12.44	164	567826	4000.00 ug/kg	100
11) Phenanthrene-d10	14.56	188	1511127	4000.00 ug/kg	101
17) Chrysene-d12	20.23	240	1735228	4000.00 ug/kg	108
20) Perylene-d12	25.35	264	1761736	4000.00 ug/kg	106

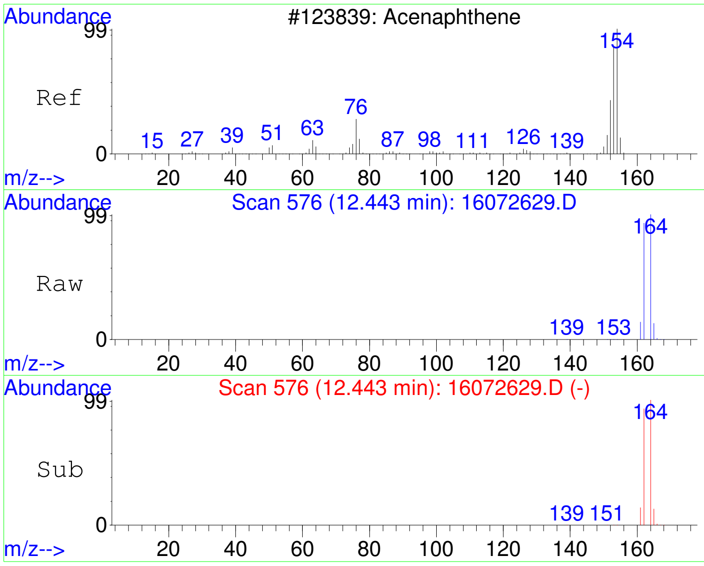
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.36	172	15138	78.21 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#	
16) 4-Terphenyl-d14	17.03	244	29492	69.49 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.74%#	

Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1978	~~13.48 ug/kg#~~	~~9~~
19) Chrysene	20.23	228	3847	~~10.98 ug/kg~~	~~72~~
23) Benzo(j)fluoranthene	23.78	252	18	~~0.05 ug/kg#~~	~~1~~

```
Data File : C:\HPCHEM\1\DATA\160726\16072629.D          Vial: 29
Acq On    : 27 Jul 2016   2:20 am                   Operator: DEW
Sample    : 1607219-20A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:02 2016             Quant Results File: PP160725.RES

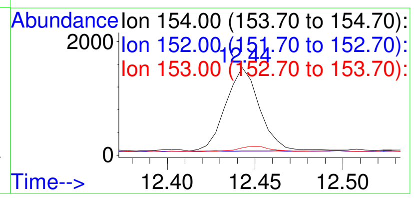
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

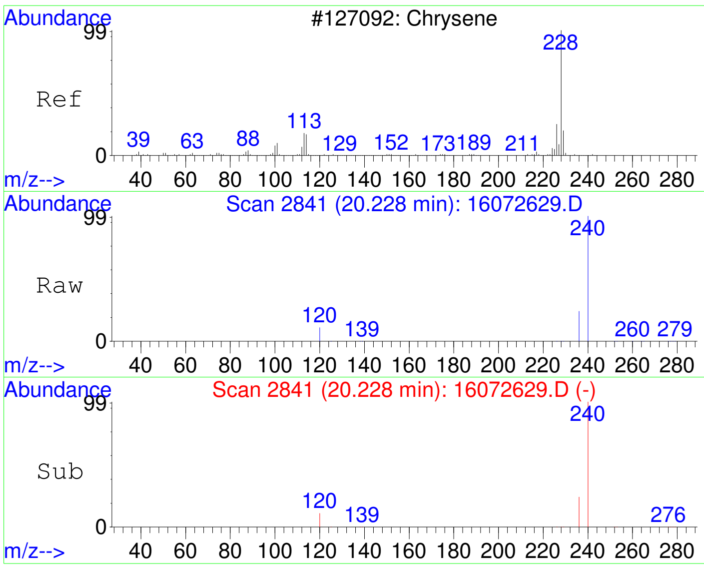




#9
Acenaphthene
Concen: ~~13.48 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.05 min
Lab File: 16072629.D
Acq: 27 Jul 2016 2:20 am

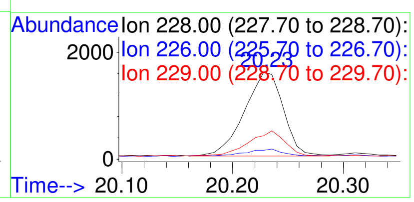
Tgt Ion:154	Resp:		1978
Ion	Ratio	Lower	Upper
154	100		
152	0.6	20.4	80.4#
153	4.4	78.2	138.2#

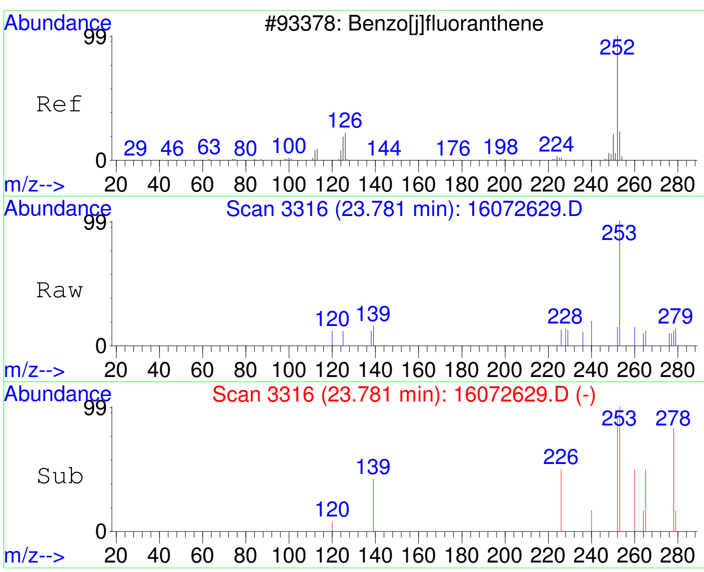




#19
Chrysene
Concen: ~~10.98 ug/kg~~
RT: 20.23 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072629.D
Acq: 27 Jul 2016 2:20 am

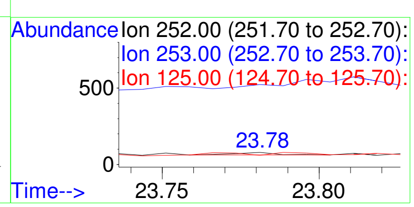
Tgt Ion:228	Resp:		3847
Ion	Ratio	Lower	Upper
228	100		
226	6.7	0.0	58.1
229	24.2	0.0	49.9





#23
Benzo(j)fluoranthene
Concen: ~~0.05 ug/kg~~
RT: 23.78 min Scan# 3316
Delta R.T. -0.02 min
Lab File: 16072629.D
Acq: 27 Jul 2016 2:20 am

Tgt Ion:252	Resp:		18
Ion	Ratio	Lower	Upper
252	100		
253	94.1	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160726\16072630.D Vial: 30
Acq On : 27 Jul 2016 2:56 am Operator: DEW
Sample : 1607219-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 8:02 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	978754	4000.00 ug/kg	110
5) Acenaphthene-d10	12.44	164	594512	4000.00 ug/kg	104
11) Phenanthrene-d10	14.55	188	1557299	4000.00 ug/kg	104
17) Chrysene-d12	20.23	240	1793820	4000.00 ug/kg	111
20) Perylene-d12	25.35	264	1783783	4000.00 ug/kg	107

System Monitoring Compounds

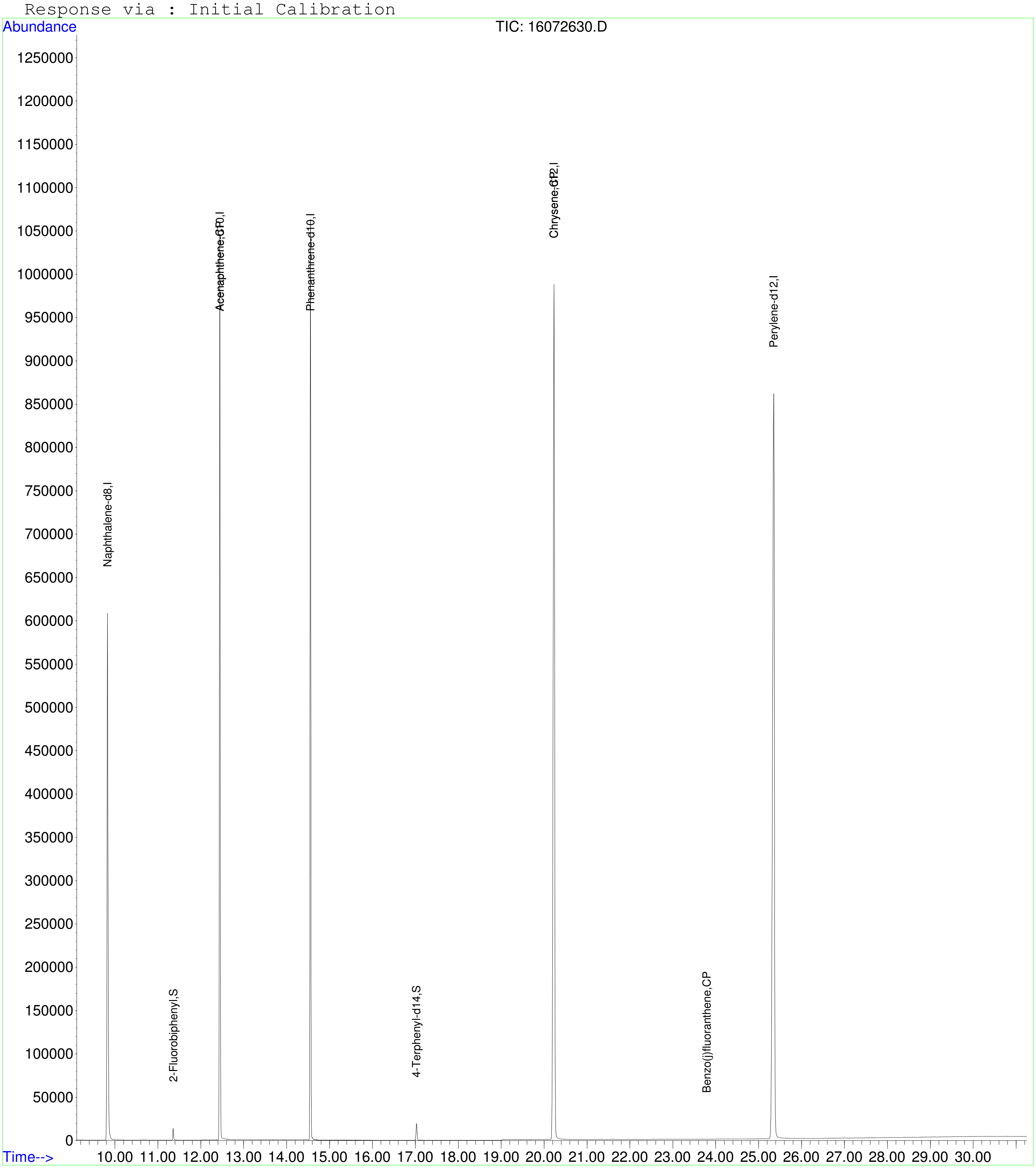
7) 2-Fluorobiphenyl	11.36	172	14097	69.08 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#	
16) 4-Terphenyl-d14	17.03	244	27631	61.21 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.53%#	

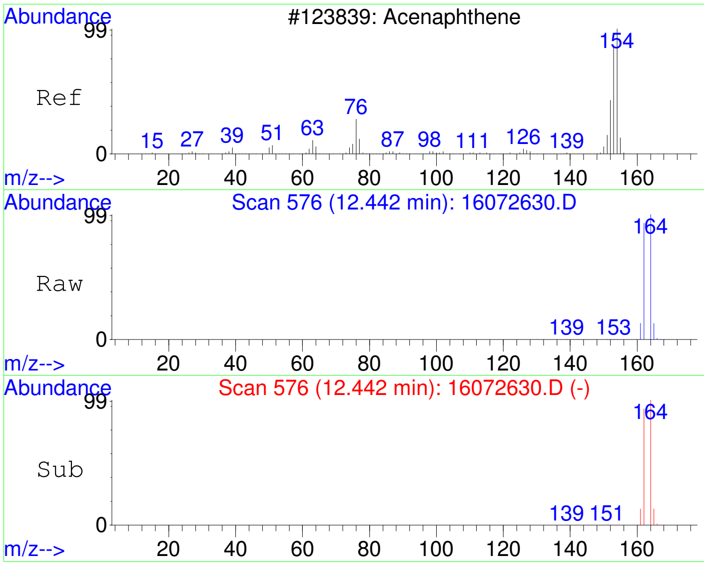
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	2022	~~13.16 ug/kg#~~	~~10~~
19) Chrysene	20.23	228	3823	~~10.55 ug/kg~~	~~70~~
23) Benzo(j)fluoranthene	23.78	252	26	~~0.07 ug/kg#~~	~~1~~

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160726\16072630.D          Vial: 30
Acq On    : 27 Jul 2016   2:56 am                   Operator: DEW
Sample    : 1607219-21A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  8:02 2016              Quant Results File: PP160725.RES

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

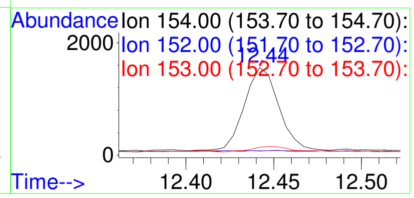


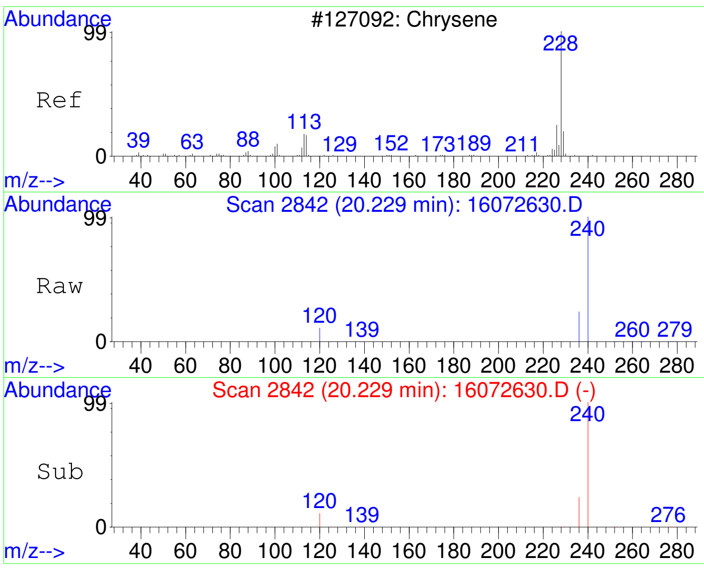


#9
Acenaphthene
Concen: ~~13.16 ug/kg~~
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072630.D
Acq: 27 Jul 2016 2:56 am

Tgt Ion:154 Resp: 2022

Ion	Ratio	Lower	Upper
154	100		
152	0.4	20.4	80.4#
153	4.8	78.2	138.2#

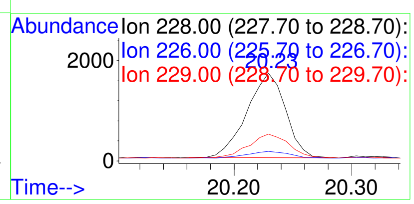


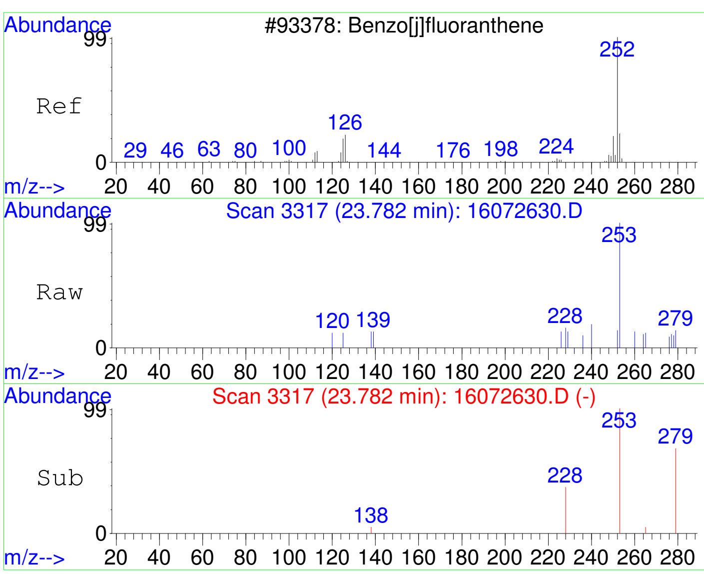


#19
Chrysene
Concen: ~~10.55 ug/kg~~
RT: 20.23 min Scan# 2842
Delta R.T. -0.10 min
Lab File: 16072630.D
Acq: 27 Jul 2016 2:56 am

Tgt Ion:228 Resp: 3823

Ion	Ratio	Lower	Upper
228	100		
226	8.0	0.0	58.1
229	28.3	0.0	49.9

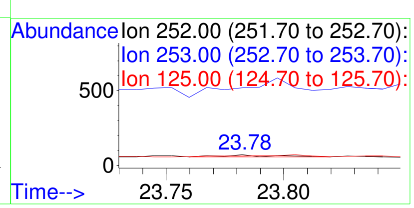




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 23.78 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072630.D
Acq: 27 Jul 2016 2:56 am

Tgt Ion:252 Resp: 26

Ion	Ratio	Lower	Upper
252	100		
253	393.8	2.1	42.1#
125	25.0	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160726\16072631.D Vial: 31
Acq On : 27 Jul 2016 3:34 am Operator: DEW
Sample : CCV1-160726 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 7:57 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	990095	4000.00 ug/kg	111
5) Acenaphthene-d10	12.44	164	593153	4000.00 ug/kg	104
11) Phenanthrene-d10	14.56	188	1660282	4000.00 ug/kg	111
17) Chrysene-d12	20.24	240	1822697	4000.00 ug/kg	113
20) Perylene-d12	25.35	264	1850497	4000.00 ug/kg	111

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	187748	975.79 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.39%#	
16) 4-Terphenyl-d14	17.03	244	355567	987.29 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.68%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	9.86	128	202954	901.43 ug/kg	100
3) 2-Methyl naphthalene	10.81	142	148206	910.77 ug/kg	97
4) 1-Methyl naphthalene	11.03	142	135735	906.85 ug/kg	97
6) Dibenzofuran	12.66	168	215799	916.31 ug/kg	99
8) Acenaphthylene	12.33	152	243348	942.85 ug/kg	100
9) Acenaphthene	12.49	154	143193	934.08 ug/kg	99
10) Fluorene	13.15	166	184914	965.35 ug/kg	100
12) Phenanthrene	14.59	178	281292	895.33 ug/kg	99
13) Anthracene	14.63	178	291582	906.62 ug/kg	99
14) Fluoranthene	16.53	202	353971	916.34 ug/kg	99
15) Pyrene	17.11	202	356443	896.00 ug/kg	100
18) Benzo[a]anthracene	20.06	228	376902	964.44 ug/kg	99
19) Chrysene	20.32	228	342524	930.61 ug/kg	99
21) Benzo[b]fluoranthene	23.61	252	410482	970.77 ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	374182	965.26 ug/kg	99
23) Benzo(j)fluoranthene	23.79	252	352603	960.76 ug/kg	100
24) Benzo[e]pyrene	24.84	252	379248	944.14 ug/kg	99
25) Benzo[a]pyrene	25.02	252	378132	948.60 ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	397054	961.10 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.59	276	469773	946.82 ug/kg	97
28) Benzo[g,h,i]perylene	29.65	276	386202	1072.59 ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160726\16072631.D          Vial: 31
Acq On    : 27 Jul 2016   3:34 am                    Operator: DEW
Sample    : CCV1-160726                              Inst    : GC/MS #6
Misc      : CCV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27  7:57 2016              Quant Results File: PP160725.RES

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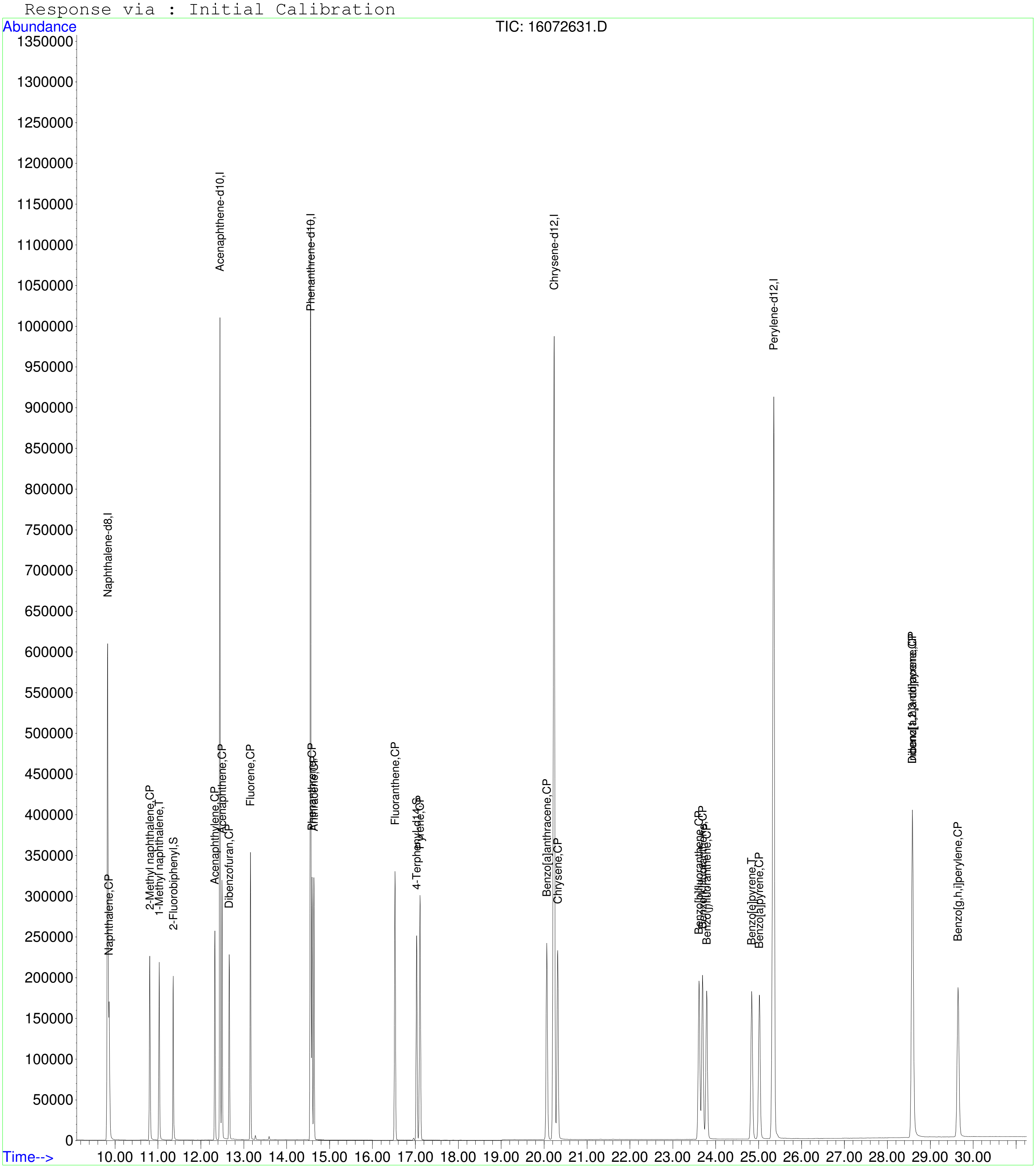


GCMS6_160727A
For

DHL Work Order
1607219

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_160727A			
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.

Review Item	Criteria	Yes	No	N/A	2nd Level Review
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	___ 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: 7/28/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:01:14 PM, 8/10/2016

8270-PAH-SOIL-GCMS6

DHL Analytical, Inc.

Run ID: **GCMS6_160727A** **Run No.:** 87264

Analytical Run Date: 7/27/2016 **InstrumentID:** GCMS6

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

Calibration ID: 676 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160725.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160727	1	PAH_LL_SDOD1	TUNE	R87264	7/27/2016 9:23:00 AM		
ICV-160727	1	PAH_LL_SDOD1	ICV	R87264	7/27/2016 10:00:00 AM		
LCS-76442	1	PAH_LL_SDOD1	LCS	76442	7/27/2016 10:40:00 AM		
MB-76442	1	PAH_LL_SDOD1	MBLK	76442	7/27/2016 11:17:00 AM		
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 11:54:00 AM		Low recovery for surrogate 4-Terphenyl-d14.
1607219-23A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 12:31:00 PM		
1607219-24A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 1:08:00 PM		
1607219-25A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 1:45:00 PM		
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 2:22:00 PM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-02A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 2:59:00 PM		
1607239-03A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 3:37:00 PM		
1607239-04A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 4:15:00 PM		
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 4:52:00 PM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-06A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 5:29:00 PM		
1607239-07A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 6:07:00 PM		
1607239-08A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 6:44:00 PM		
1607239-09A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 7:20:00 PM		
DFTPP2-160727	1	PAH_LL_SDOD1	TUNE	R87264	7/27/2016 7:57:00 PM		
ICV2-160727	1	PAH_LL_SDOD1	ICV	R87264	7/27/2016 8:35:00 PM		
SB-160727	1	PAH_LL_SDOD1	SBLK	76442	7/27/2016 9:49:00 PM		
1607239-10A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 10:26:00 PM		
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 11:03:00 PM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-12A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 11:40:00 PM		
1607239-13A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 12:17:00 AM		
1607239-14A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 12:54:00 AM		
1607239-15A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 1:31:00 AM		
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 2:08:00 AM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-01AMS	10	PAH_LL_SDOD1	MS	76442	7/28/2016 2:46:00 AM		
1607239-01AMSD	10	PAH_LL_SDOD1	MSD	76442	7/28/2016 3:23:00 AM		Low recovery for surrogate 4-Terphenyl-d14.

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

Run ID: **GCMS6_160727A** **Run No.:** 87264

CCV1-160727	1	PAH_LL_SDOD1	CCV	R87264	7/28/2016 4:00:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160727.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160727\
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	16072703	DFTPPPAH	DFTPP-160727
2	Sample	2	16072704	PP160725	ICV-160727
3	Sample	3	16072705	PP160725	LCS-76442
4	Sample	4	16072706	PP160725	MB-76442
5	Sample	5	16072707	PP160725	1607219-22A
6	Sample	6	16072708	PP160725	1607219-23A
7	Sample	7	16072709	PP160725	1607219-24A
8	Sample	8	16072710	PP160725	1607219-25A
9	Sample	9	16072711	PP160725	1607239-01A
10	Sample	10	16072712	PP160725	1607239-02A
11	Sample	11	16072713	PP160725	1607239-03A
12	Sample	12	16072714	PP160725	1607239-04A
13	Sample	13	16072715	PP160725	1607239-05A
14	Sample	14	16072716	PP160725	1607239-06A
15	Sample	15	16072717	PP160725	1607239-07A
16	Sample	16	16072718	PP160725	1607239-08A
17	Sample	17	16072719	PP160725	1607239-09A
18	Sample	18	16072720	DFTPPPAH	DFTPP2-160727
19	Sample	19	16072721	PP160725	ICV2-160727
20	Sample	20	16072722	PP160725	SBLK
21	Sample	21	16072723	PP160725	SB-160727
22	Sample	22	16072724	PP160725	1607239-10A
23	Sample	23	16072725	PP160725	1607239-11A
24	Sample	24	16072726	PP160725	1607239-12A
25	Sample	25	16072727	PP160725	1607239-13A
26	Sample	26	16072728	PP160725	1607239-14A
27	Sample	27	16072729	PP160725	1607239-15A
28	Sample	28	16072730	PP160725	1607239-17A
29	Sample	29	16072731	PP160725	1607239-01AMS
30	Sample	30	16072732	PP160725	1607239-01AMSD
31	Sample	31	16072733	PP160725	CCV1-160727

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: 7/25/16 5:00 pm

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	1.000	1 of 1	
1607219-23A	Soil		10.71	10	1.000	1 of 1	
1607219-24A	Soil		10.27	10	1.000	1 of 1	
1607219-25A	Soil		10.46	10	1.000	1 of 1	
1607239-01A	Soil		10.05	10	1.000	1 of 3	
1607239-01AMS	Soil		10.68	10	1.000	1 of 3	
1607239-01AMSD	Soil		10.47	10	1.000	1 of 3	
1607239-02A	Soil		10.13	10	1.000	1 of 1	
1607239-03A	Soil		10.14	10	1.000	1 of 1	
1607239-04A	Soil		10.14	10	1.000	1 of 1	
1607239-05A	Soil		10.42	10	1.000	1 of 1	
1607239-06A	Soil		10.07	10	1.000	1 of 1	
1607239-07A	Soil		10.26	10	1.000	1 of 1	
1607239-08A	Soil		10.33	10	1.000	1 of 1	
1607239-09A	Soil		10.01	10	1.000	1 of 1	
1607239-10A	Soil		10.71	10	1.000	1 of 1	
1607239-11A	Soil		10.22	10	1.000	1 of 1	
1607239-12A	Soil		10.22	10	1.000	1 of 1	
1607239-13A	Soil		10.29	10	1.000	1 of 1	
1607239-14A	Soil		10.83	10	1.000	1 of 1	
1607239-15A	Soil		10.53	10	1.000	1 of 1	
1607239-17A	Soil		10.74	10	1.000	1 of 1	
LCS-76442	Soil		10	10	1.000	of	
MB-76442	Soil		10	10	1.000	of	

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

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

REVIEWED BY
By Janice Whitt at 12:36:50 PM, 8/10/2016

DB 7/25/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: **7/25/2016 5:00:00 PM**

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	0.995	1 of 1	
1607219-23A	Soil		10.71	10	0.934	1 of 1	
1607219-24A	Soil		10.27	10	0.974	1 of 1	
1607219-25A	Soil		10.46	10	0.956	1 of 1	
1607239-01A	Soil		10.05	10	0.995	1 of 3	
1607239-01AMS	Soil		10.68	10	0.936	1 of	
1607239-01AMSD	Soil		10.47	10	0.955	1 of	
1607239-02A	Soil		10.13	10	0.987	1 of 1	
1607239-03A	Soil		10.14	10	0.986	1 of 1	
1607239-04A	Soil		10.14	10	0.986	1 of 1	
1607239-05A	Soil		10.42	10	0.960	1 of 1	
1607239-06A	Soil		10.07	10	0.993	1 of 1	
1607239-07A	Soil		10.26	10	0.975	1 of 1	
1607239-08A	Soil		10.33	10	0.968	1 of 1	
1607239-09A	Soil		10.01	10	0.999	1 of 1	
1607239-10A	Soil		10.71	10	0.934	1 of 1	
1607239-11A	Soil		10.22	10	0.978	1 of 1	
1607239-12A	Soil		10.22	10	0.978	1 of 1	
1607239-13A	Soil		10.29	10	0.972	1 of 1	
1607239-14A	Soil		10.83	10	0.923	1 of 1	
1607239-15A	Soil		10.53	10	0.950	1 of 1	
1607239-17A	Soil		10.74	10	0.931	1 of 1	
LCS-76442	Soil		10	10	1.000	of	
MB-76442	Soil		10	10	1.000	of	

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

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

REVIEWED BY
By Janice Whitt at 12:36:52 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:00 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:05 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:07 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**

Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**

Prep End Date: **7/22/2016 6:00:00 PM**

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:14 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

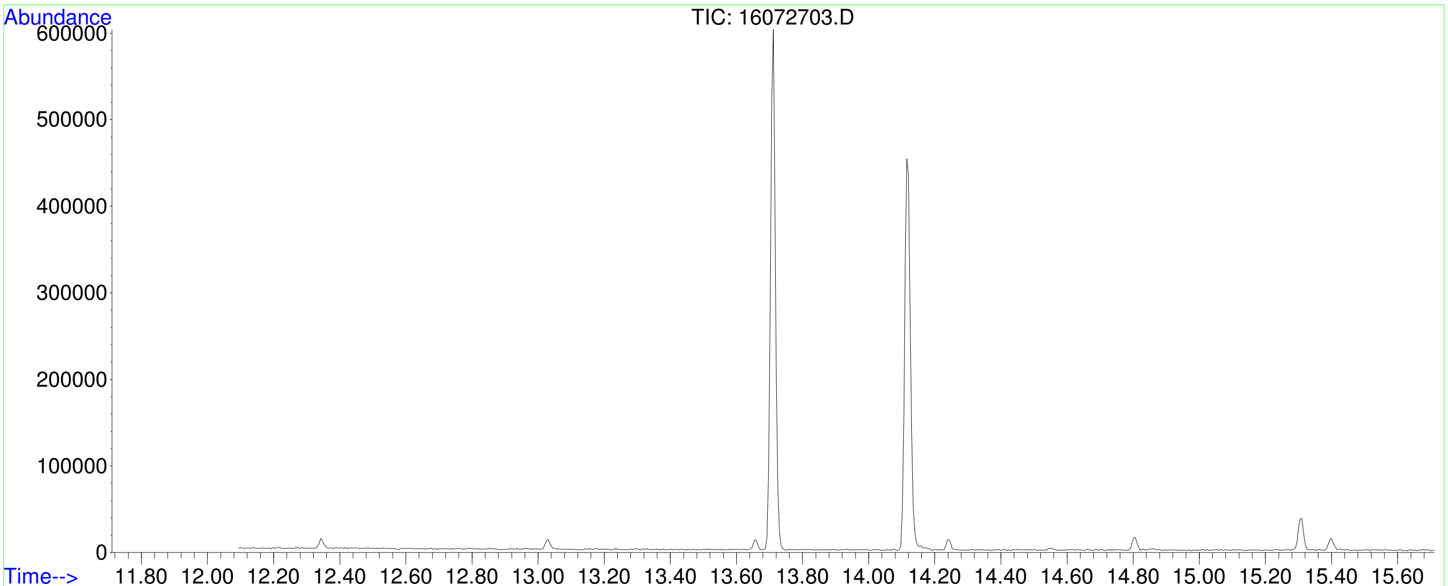
Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

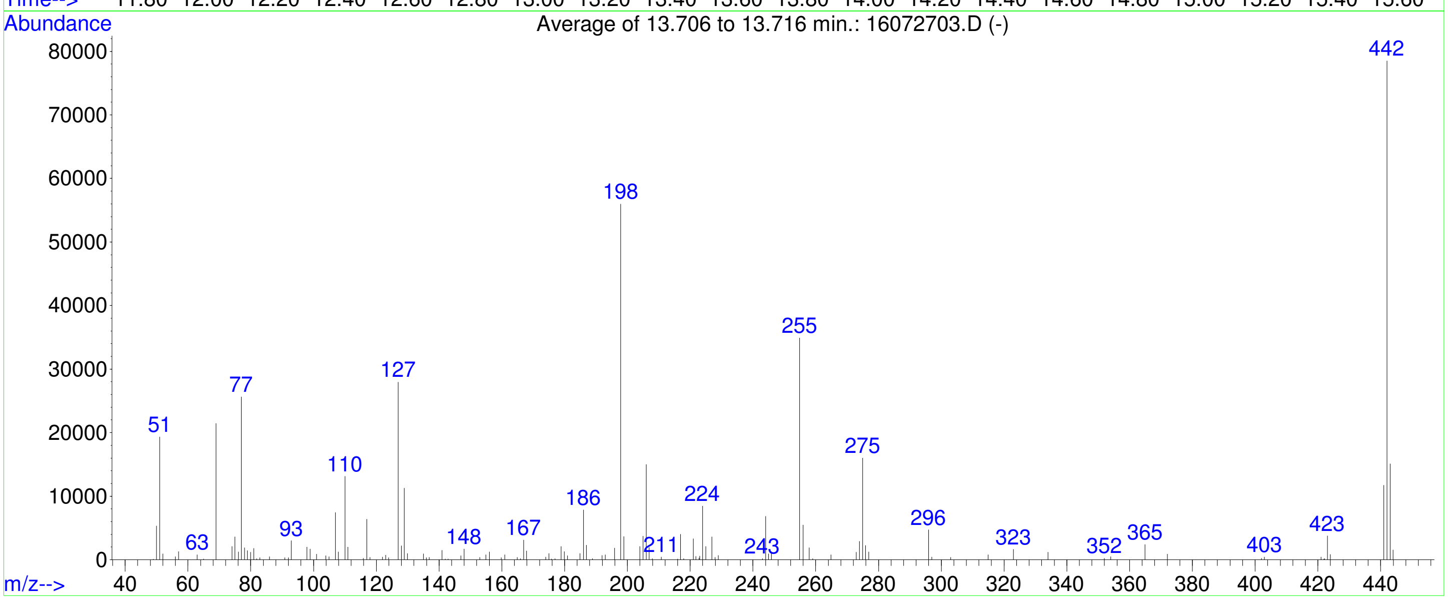
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-15A SS	Soil		0	0	#Num!	1 of 1	
1607219-16A SS	Soil		0	0	#Num!	1 of 1	
1607219-17A SS	Soil		0	0	#Num!	1 of 1	
1607219-18A SS	Soil		0	0	#Num!	1 of 1	
1607219-19A SS	Soil		0	0	#Num!	1 of 1	
1607219-20A SS	Soil		0	0	#Num!	1 of 1	
1607219-21A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

REVIEWED BY
By Janice Whitt at 12:31:16 PM, 8/10/2016

DFTPP

Data File : C:\HPCHEM\1\DATA\160727\16072703.D   Vial: 1
Acq On : 27 Jul 2016 9:23 am   Operator: DEW
Sample : DFTPP-160727   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





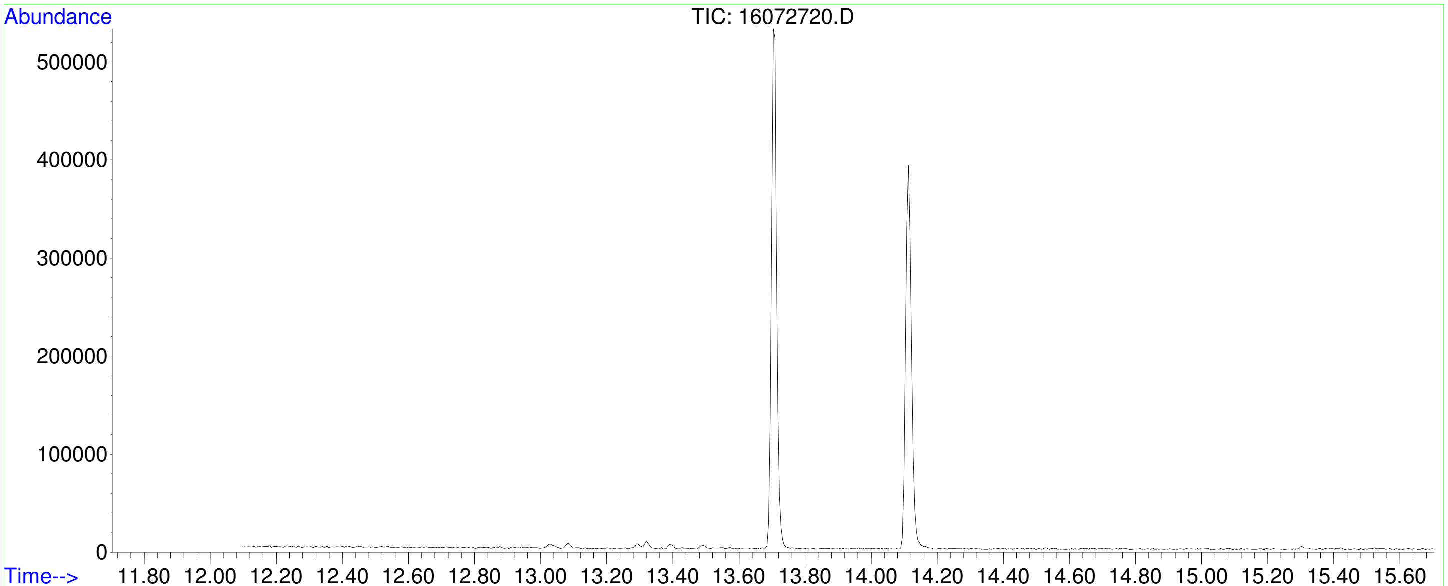
AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

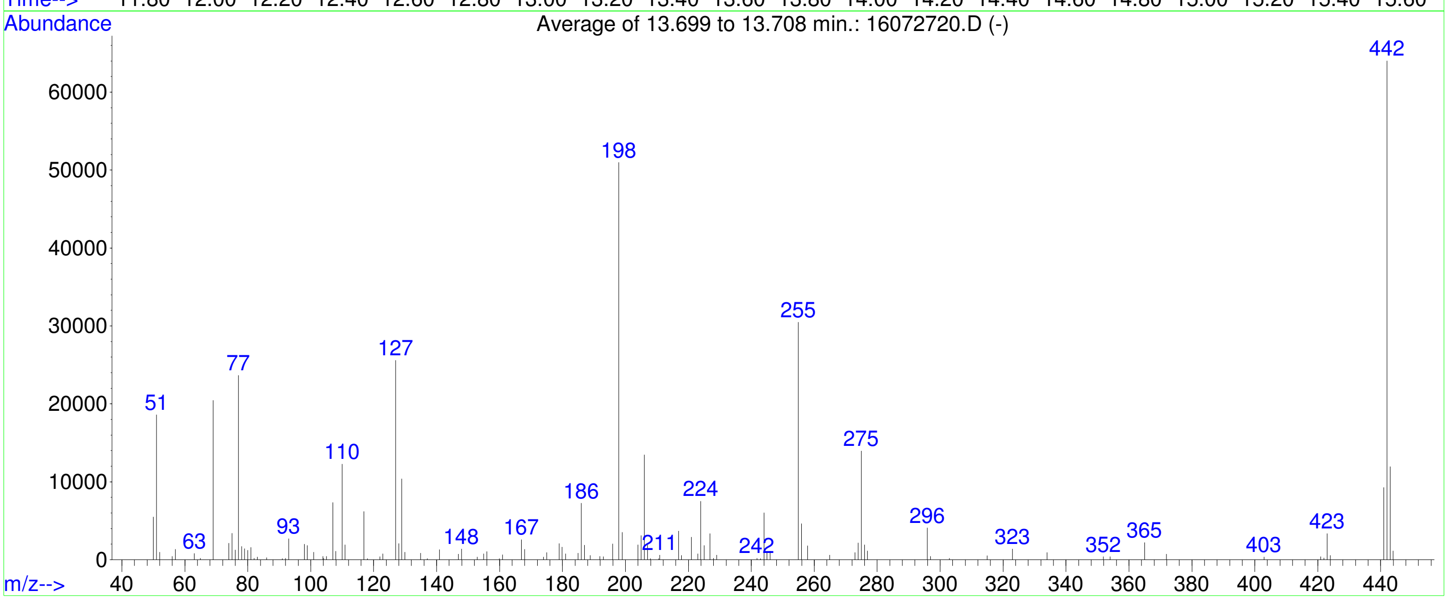
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.6	19352	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	38.4	21479	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.0	27984	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	56005	PASS
199	198	5	9	6.5	3663	PASS
275	198	10	60	28.6	16037	PASS
365	198	1	200	4.3	2400	PASS
441	442	0.01	24	15.0	11743	PASS
442	198	50	400	140.2	78523	PASS
443	442	15	24	19.2	15115	PASS

REVIEWED BY
By Janice Whitt at 12:34:39 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160727\16072720.D          Vial: 18
Acq On    : 27 Jul 2016   7:57 pm                   Operator: DEW
Sample    : DFTPP2-160727                           Inst    : GC/MS #6
Misc      : TUNE                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title     : PAH Calibration
```





AutoFind: Scans 342, 343, 344; Background Corrected with Scan 336

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.5	18610	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.1	20451	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.2	25608	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	50981	PASS
199	198	5	9	7.0	3555	PASS
275	198	10	60	27.4	13980	PASS
365	198	1	200	4.3	2216	PASS
441	442	0.01	24	14.5	9282	PASS
442	198	50	400	125.6	64029	PASS
443	442	15	24	18.7	11946	PASS

REVIEWED BY
By Janice Whitt at 12:34:44 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072704.D Vial: 2
Acq On : 27 Jul 2016 10:00 am Operator: DEW
Sample : ICV-160727 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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

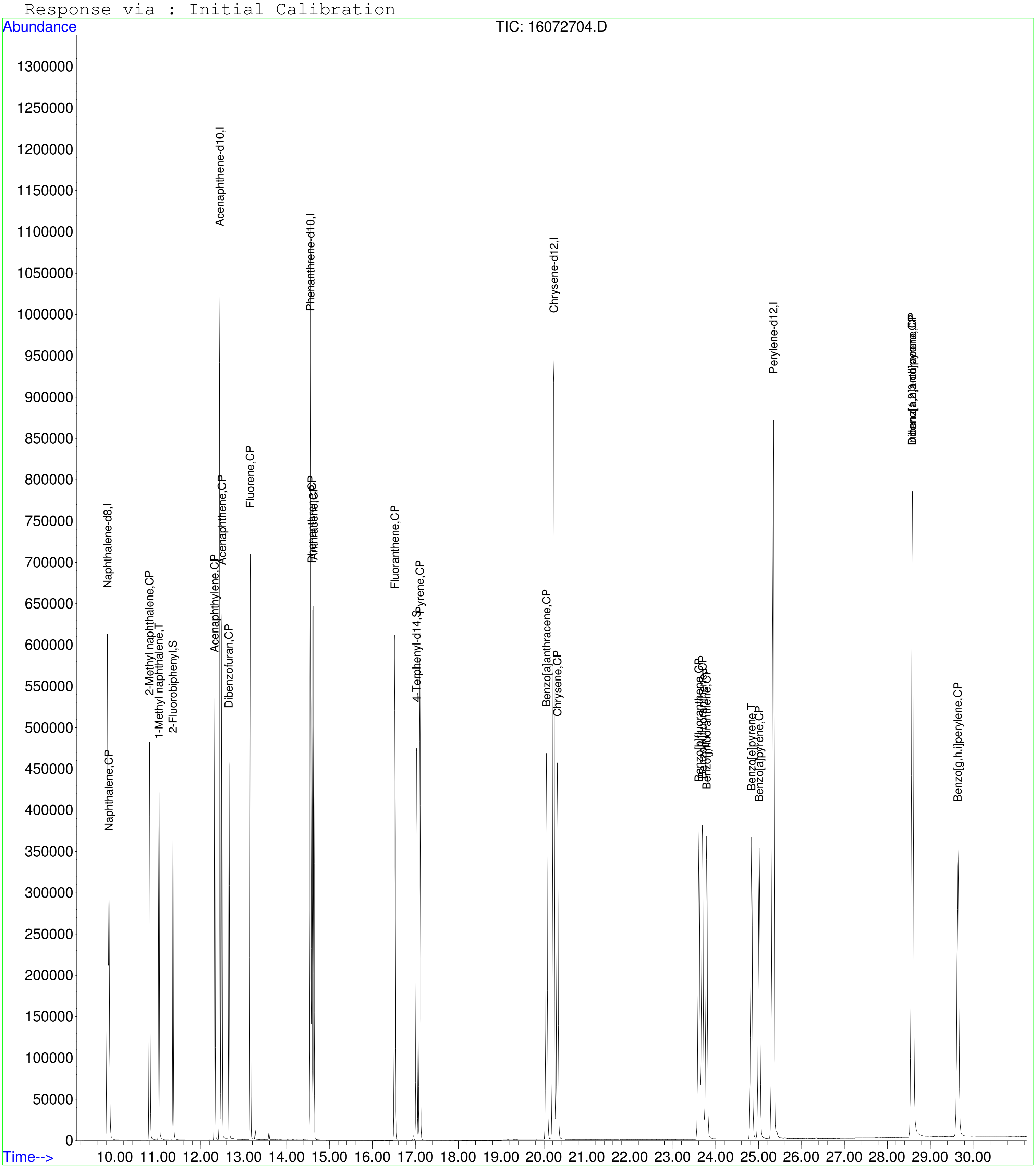
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	951136	4000.00	ug/kg	106
5) Acenaphthene-d10	12.44	164	588176	4000.00	ug/kg	103
11) Phenanthrene-d10	14.55	188	1678493	4000.00	ug/kg	112
17) Chrysene-d12	20.23	240	1748134	4000.00	ug/kg	108
20) Perylene-d12	25.34	264	1795174	4000.00	ug/kg	108

System Monitoring Compounds
7) 2-Fluorobiphenyl 11.35 172 381342 2001.29 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 50.03%
16) 4-Terphenyl-d14 17.03 244 678853 1901.87 ug/kg -0.01
Spiked Amount 4000.000 Range 40 - 140 Recovery = 47.55%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.86	128	405541	1875.01	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	301725	1930.14	ug/kg	98
4) 1-Methyl naphthalene	11.03	142	274093	1906.22	ug/kg	98
6) Dibenzofuran	12.66	168	439142	1880.44	ug/kg	100
8) Acenaphthylene	12.32	152	499719	1952.54	ug/kg	100
9) Acenaphthene	12.49	154	293637	1931.68	ug/kg	97
10) Fluorene	13.15	166	374858	1973.51	ug/kg	99
12) Phenanthrene	14.59	178	705989	2222.72	ug/kg	100
13) Anthracene	14.63	178	586405	1803.53	ug/kg	100
14) Fluoranthene	16.52	202	686324	1757.43	ug/kg	100
15) Pyrene	17.11	202	693712	1724.89	ug/kg	100
18) Benzo[a]anthracene	20.06	228	735312	1961.81	ug/kg	100
19) Chrysene	20.31	228	672725	1905.71	ug/kg	100
21) Benzo[b]fluoranthene	23.61	252	798351	1946.24	ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	724048	1925.36	ug/kg	100
23) Benzo(j)fluoranthene	23.79	252	698866	1962.93	ug/kg	100
24) Benzo[e]pyrene	24.84	252	746446	1915.55	ug/kg	99
25) Benzo[a]pyrene	25.02	252	747923	1934.09	ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	772981	1928.73	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.59	276	915300	1901.63	ug/kg	97
28) Benzo[g,h,i]perylene	29.65	276	758273	2170.84	ug/kg	99

```
Data File : C:\HPCHEM\1\DATA\160727\16072704.D          Vial: 2
Acq On    : 27 Jul 2016  10:00 am                    Operator: DEW
Sample    : ICV-160727                               Inst    : GC/MS #6
Misc      : ICV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016             Quant Results File: PP160725.RES

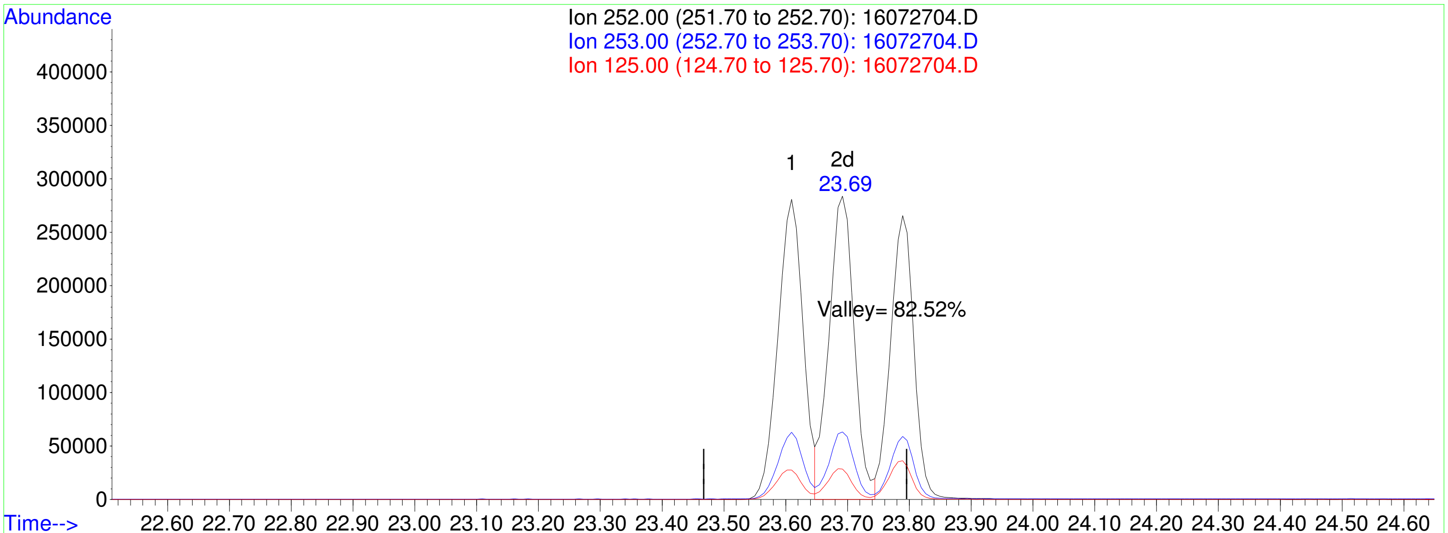
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

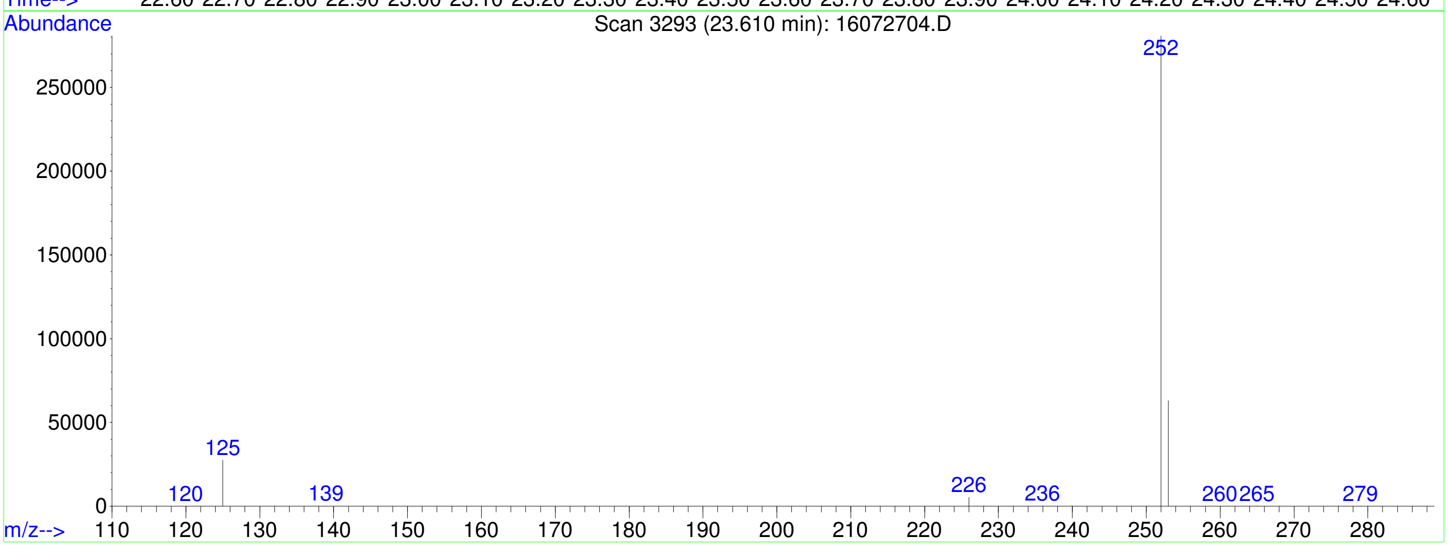


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160727\16072704.D          Vial: 2
Acq On    : 27 Jul 2016  10:00 am                   Operator: DEW
Sample    : ICV-160727                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016                 Quant Results File: temp.res

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





TIC: 16072704.D

(21) Benzo[b]fluoranthene (CP)

23.61min 1946.24ug/kg

response 798351

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.26
125.00	9.30	9.80
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072705.D Vial: 3
Acq On : 27 Jul 2016 10:40 am Operator: DEW
Sample : LCS-76442 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	1084250	4000.00 ug/kg	121
5) Acenaphthene-d10	12.44	164	515635	4000.00 ug/kg	91
11) Phenanthrene-d10	14.55	188	941072	4000.00 ug/kg	63
17) Chrysene-d12	20.22	240	1128854	4000.00 ug/kg	70
20) Perylene-d12	25.34	264	1268338	4000.00 ug/kg	76

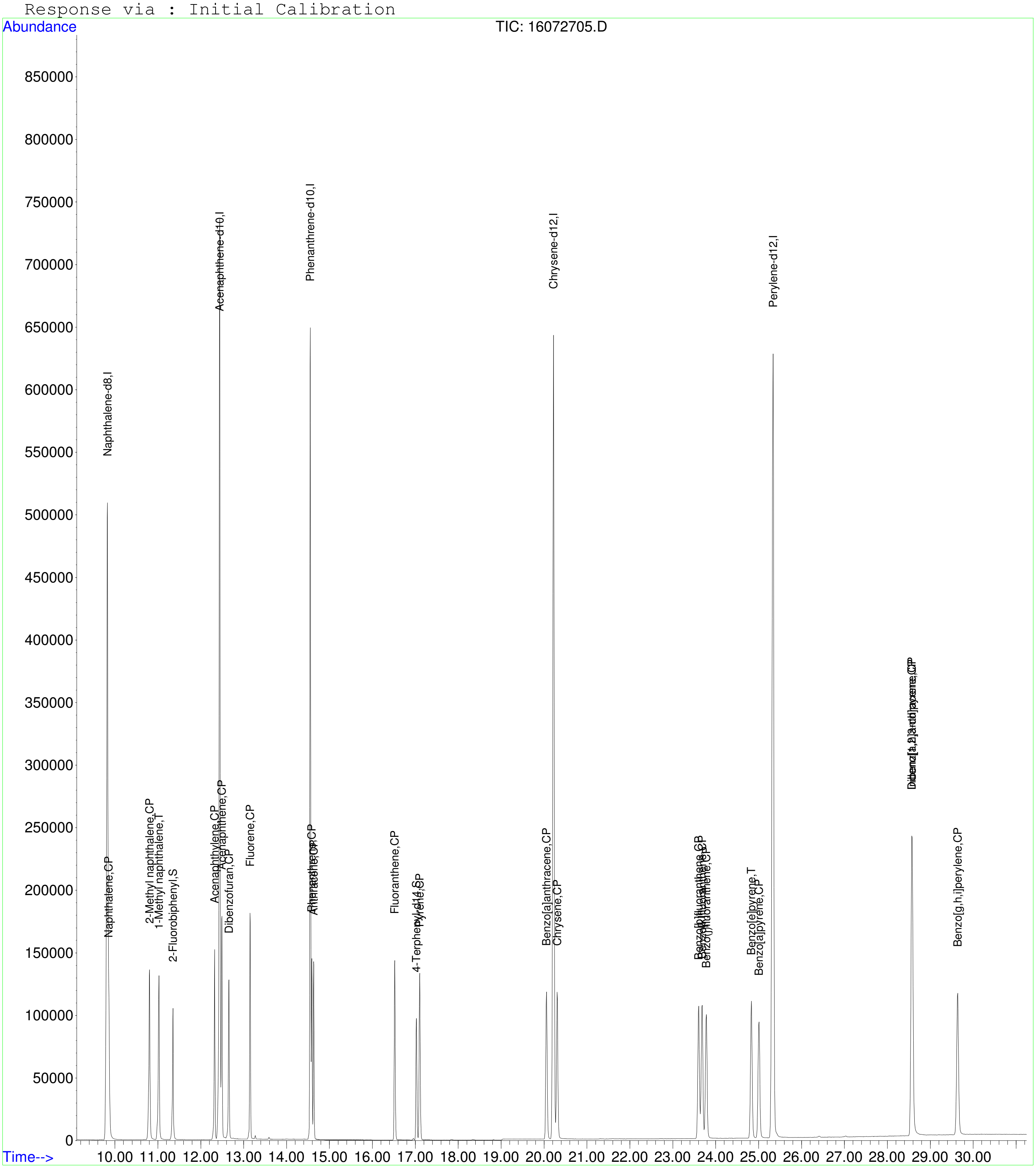
System Monitoring Compounds
7) 2-Fluorobiphenyl 11.35 172 124566 743.87 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 18.60%#
16) 4-Terphenyl-d14 17.03 244 142531 689.71 ug/kg -0.01
Spiked Amount 4000.000 Range 40 - 140 Recovery = 17.24%#

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	9.86	128	172030	697.73 ug/kg	100
3) 2-Methyl naphthalene	10.81	142	120017	673.49 ug/kg	97
4) 1-Methyl naphthalene	11.02	142	108826	663.93 ug/kg	99
6) Dibenzofuran	12.66	168	143787	702.33 ug/kg	99
8) Acenaphthylene	12.32	152	169225	754.23 ug/kg	100
9) Acenaphthene	12.49	154	100515	754.26 ug/kg	97
10) Fluorene	13.15	166	107843	647.63 ug/kg	98
12) Phenanthrene	14.59	178	163122	916.00 ug/kg	100
13) Anthracene	14.63	178	133085	730.05 ug/kg	99
14) Fluoranthene	16.52	202	159426	728.12 ug/kg	100
15) Pyrene	17.10	202	163376	724.55 ug/kg	100
18) Benzo[a]anthracene	20.06	228	185974	768.38 ug/kg	99
19) Chrysene	20.30	228	175787	771.16 ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	216166	745.87 ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	196239	738.59 ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	196210	780.01 ug/kg	99
24) Benzo[e]pyrene	24.83	252	220489	800.86 ug/kg	98
25) Benzo[a]pyrene	25.01	252	203222	743.81 ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	243666	860.53 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.58	276	287168	844.44 ug/kg	98
28) Benzo[g,h,i]perylene	29.64	276	241719	979.46 ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160727\16072705.D          Vial: 3
Acq On    : 27 Jul 2016  10:40 am                   Operator: DEW
Sample    : LCS-76442                               Inst    : GC/MS #6
Misc      : LCS                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016              Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072706.D Vial: 4
Acq On : 27 Jul 2016 11:17 am Operator: DEW
Sample : MB-76442 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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

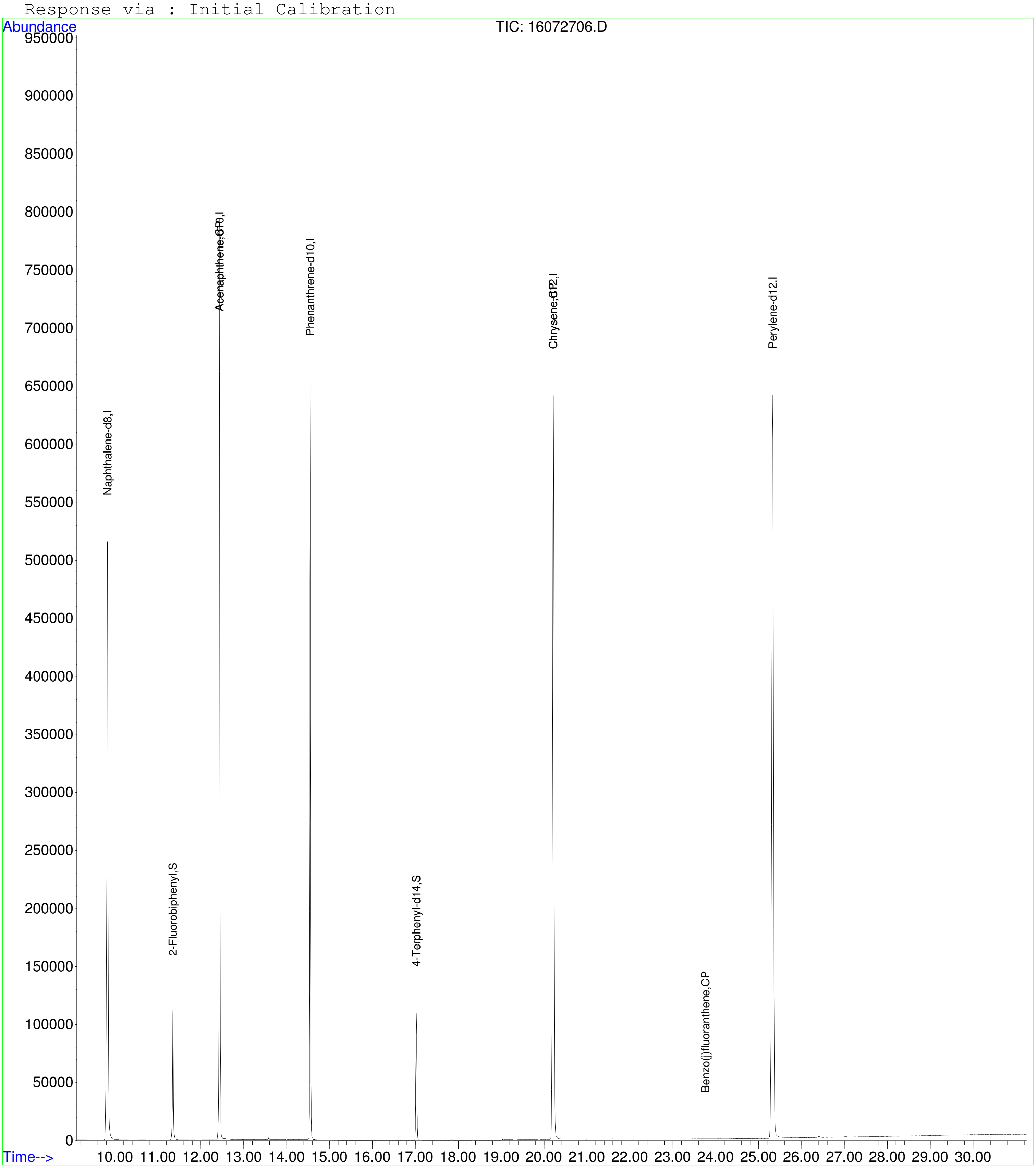
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	1011969	4000.00 ug/kg	113
5) Acenaphthene-d10	12.44	164	509062	4000.00 ug/kg	89
11) Phenanthrene-d10	14.55	188	876006	4000.00 ug/kg	58
17) Chrysene-d12	20.21	240	1138254	4000.00 ug/kg	71
20) Perylene-d12	25.33	264	1294077	4000.00 ug/kg	78

System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.35	172	129962	786.33 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	19.66%#	
16) 4-Terphenyl-d14	17.02	244	156793	820.13 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.50%#	

Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1698	~~12.91 ug/kg#~~	11
19) Chrysene	20.21	228	2428	~~10.56 ug/kg~~	67
23) Benzo(j)fluoranthene	23.77	252	40	0.16 ug/kg#	44

Data File : C:\HPCHEM\1\DATA\160727\16072706.D Vial: 4
Acq On : 27 Jul 2016 11:17 am Operator: DEW
Sample : MB-76442 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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



Data File : C:\HPCHEM\1\DATA\160727\16072707.D Vial: 5
Acq On : 27 Jul 2016 11:54 am Operator: DEW
Sample : 1607219-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:22 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	916168	4000.00 ug/kg	103
5) Acenaphthene-d10	12.44	164	606461	4000.00 ug/kg	107
11) Phenanthrene-d10	14.55	188	1652888	4000.00 ug/kg	110
17) Chrysene-d12	20.23	240	1852321	4000.00 ug/kg	115
20) Perylene-d12	25.34	264	1839731	4000.00 ug/kg	111

System Monitoring Compounds

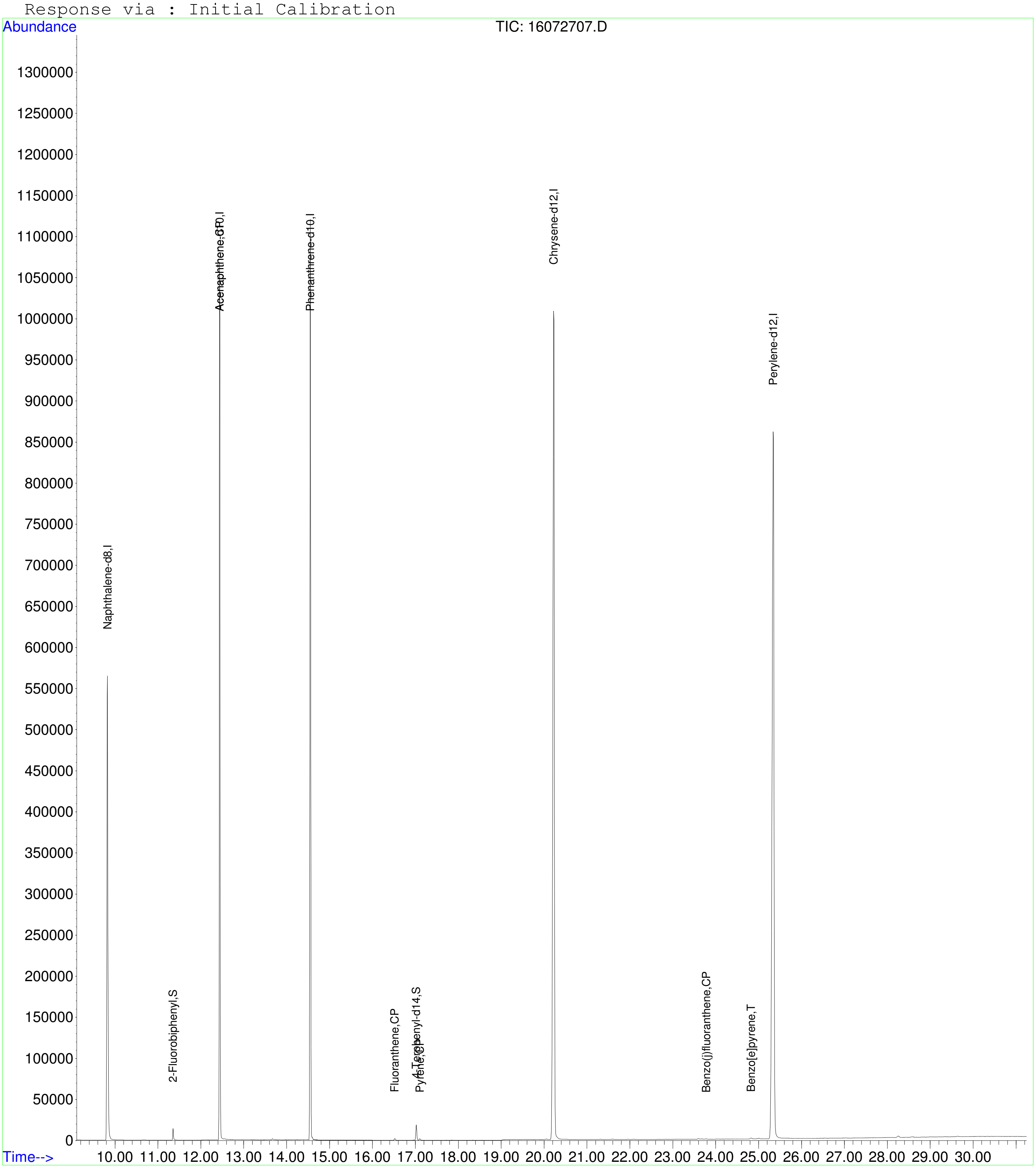
7) 2-Fluorobiphenyl	11.35	172	13962	66.94 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#	
16) 4-Terphenyl-d14	17.02	244	26605	53.52 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.34%#	

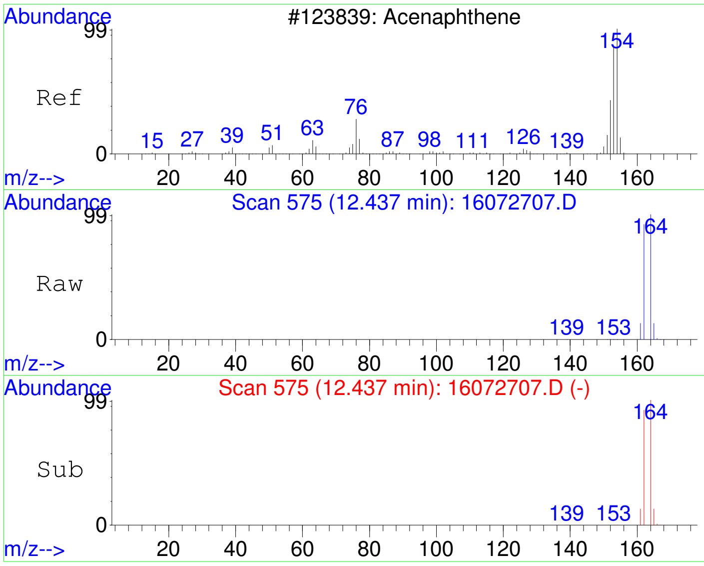
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	2099	~~13.39 ug/kg#~~	9
14) Fluoranthene	16.52	202	2426	6.31 ug/kg	97
15) Pyrene	17.11	202	2195	5.54 ug/kg	96
23) Benzo(j)fluoranthene	23.78	252	802	2.20 ug/kg	95
24) Benzo[e]pyrene	24.82	252	2495	6.25 ug/kg	89

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

Data File : C:\HPCHEM\1\DATA\160727\16072707.D Vial: 5
Acq On : 27 Jul 2016 11:54 am Operator: DEW
Sample : 1607219-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:22 2016 Quant Results File: PP160725.RES

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

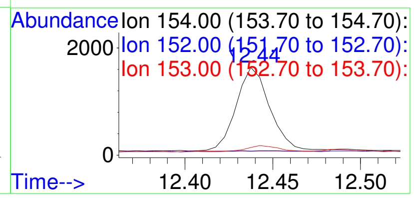


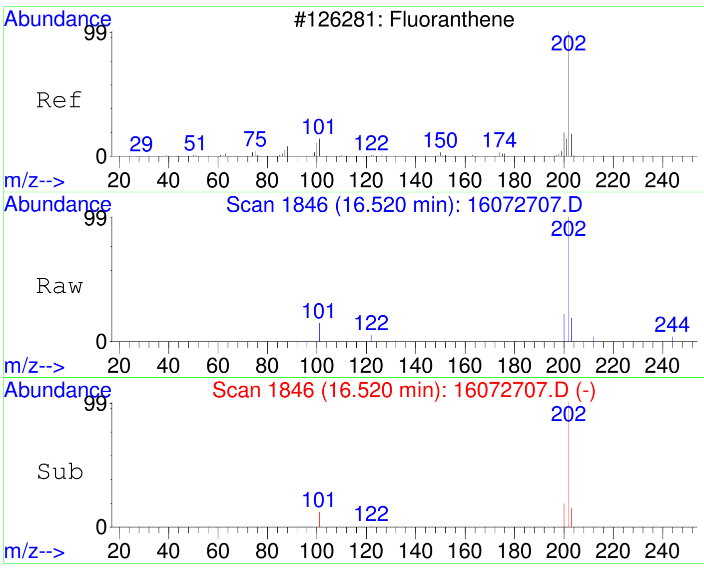


#9
Acenaphthene
Concen: 13.39 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072707.D
Acq: 27 Jul 2016 11:54 am

Tgt Ion:154 Resp: 2099

Ion	Ratio	Lower	Upper
154	100		
152	0.6	20.4	80.4#
153	4.4	78.2	138.2#

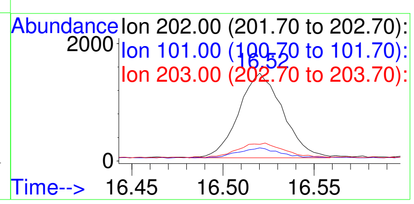


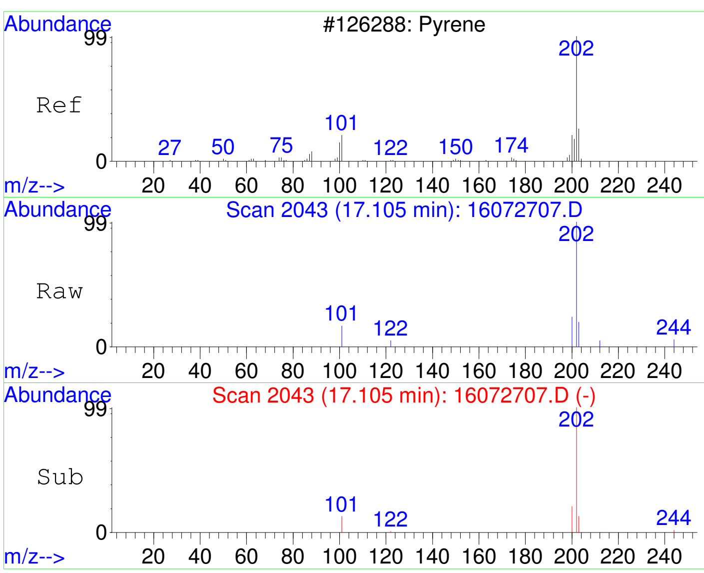


#14
Fluoranthene
Concen: 6.31 ug/kg
RT: 16.52 min Scan# 1846
Delta R.T. -0.01 min
Lab File: 16072707.D
Acq: 27 Jul 2016 11:54 am

Tgt Ion:202 Resp: 2426

Ion	Ratio	Lower	Upper
202	100		
101	11.5	0.0	41.4
203	15.6	0.0	47.7

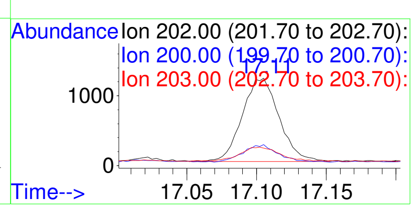


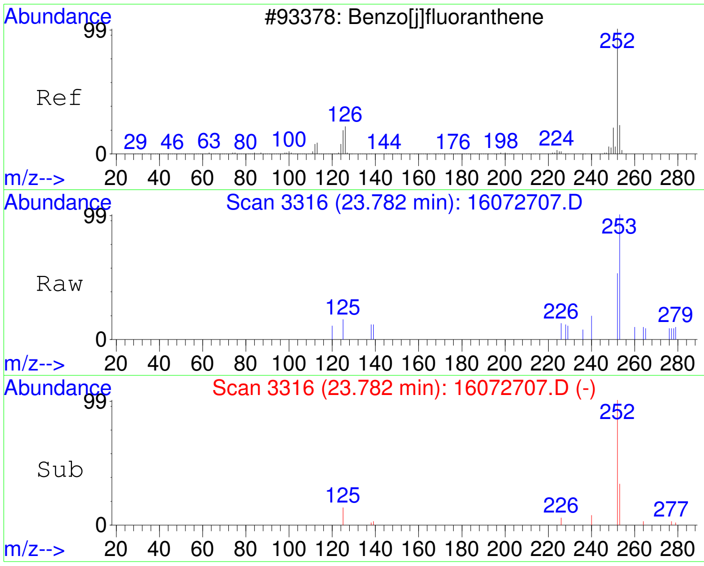


#15
Pyrene
Concen: 5.54 ug/kg
RT: 17.11 min Scan# 2043
Delta R.T. -0.01 min
Lab File: 16072707.D
Acq: 27 Jul 2016 11:54 am

Tgt Ion:202 Resp: 2195

Ion	Ratio	Lower	Upper
202	100		
200	20.9	0.0	49.7
203	15.4	0.0	47.6

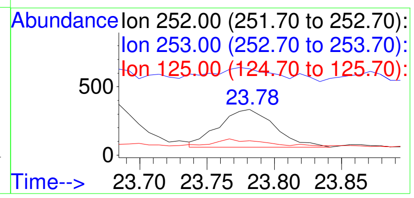


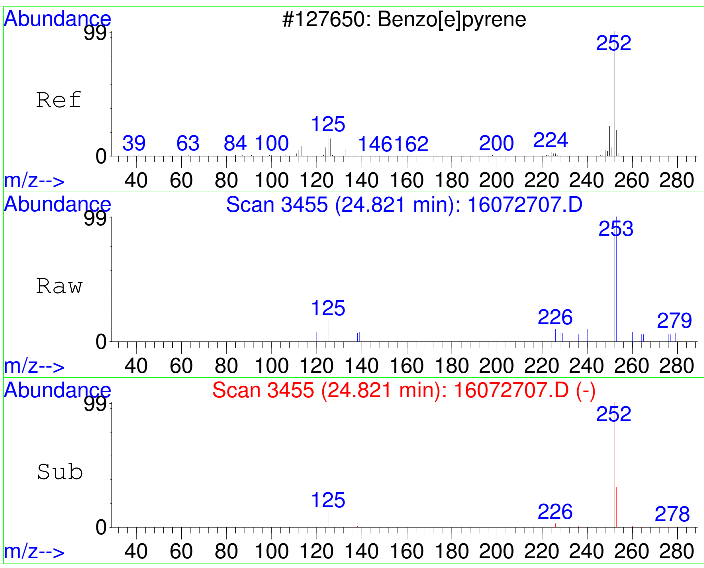


#23
Benzo(j)fluoranthene
Concen: 2.20 ug/kg
RT: 23.78 min Scan# 3316
Delta R.T. -0.02 min
Lab File: 16072707.D
Acq: 27 Jul 2016 11:54 am

Tgt Ion:252 Resp: 802

Ion	Ratio	Lower	Upper
252	100		
253	24.9	2.1	42.1
125	12.3	0.0	34.0

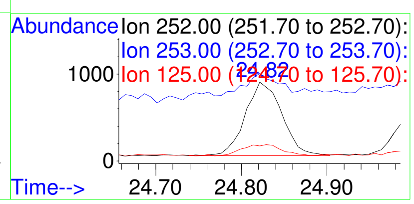




#24
Benzo[e]pyrene
Concen: 6.25 ug/kg
RT: 24.82 min Scan# 3455
Delta R.T. -0.04 min
Lab File: 16072707.D
Acq: 27 Jul 2016 11:54 am

Tgt Ion:252 Resp: 2495

Ion	Ratio	Lower	Upper
252	100		
253	29.8	2.1	42.1
125	12.8	0.0	33.9



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072708.D Vial: 6
Acq On : 27 Jul 2016 12:31 pm Operator: DEW
Sample : 1607219-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:22 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	904649	4000.00 ug/kg	101
5) Acenaphthene-d10	12.44	164	528689	4000.00 ug/kg	93
11) Phenanthrene-d10	14.55	188	1482559	4000.00 ug/kg	99
17) Chrysene-d12	20.22	240	1777855	4000.00 ug/kg	110
20) Perylene-d12	25.34	264	1790298	4000.00 ug/kg	108

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	12906	71.24 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#	
16) 4-Terphenyl-d14	17.02	244	26075	60.49 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.51%#	

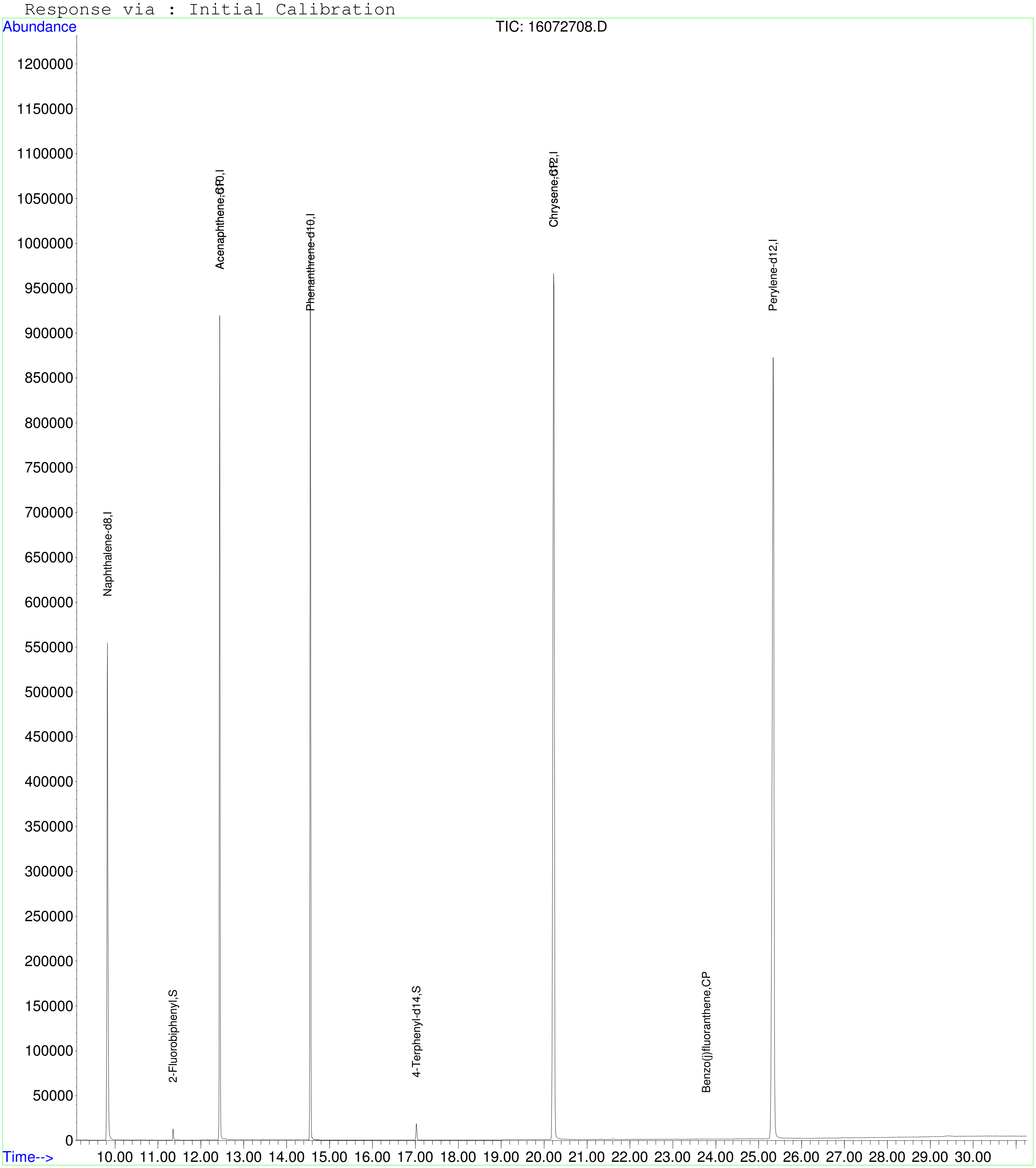
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1799	~~13.17 ug/kg#~~	11
19) Chrysene	20.23	228	3790	~~10.56 ug/kg~~	72
23) Benzo(j)fluoranthene	23.78	252	66	0.19 ug/kg#	1

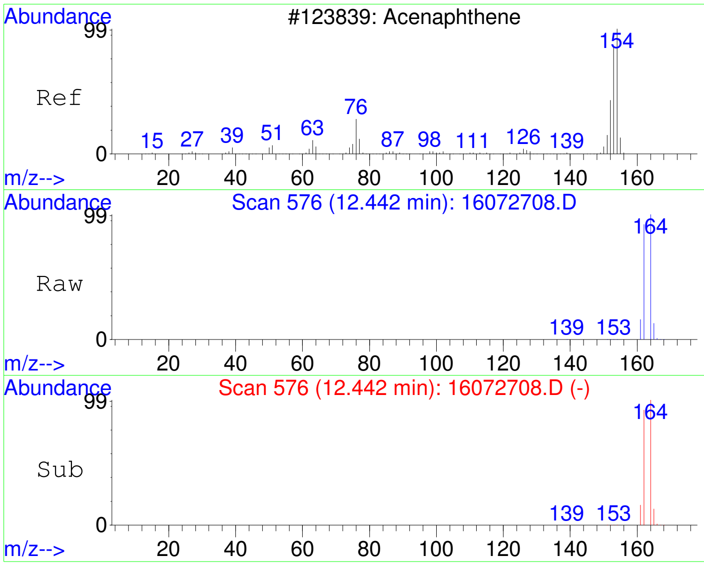
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072708.D          Vial: 6
Acq On    : 27 Jul 2016  12:31 pm                    Operator: DEW
Sample    : 1607219-23A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:22 2016            Quant Results File: PP160725.RES

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

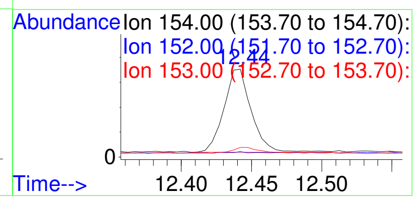


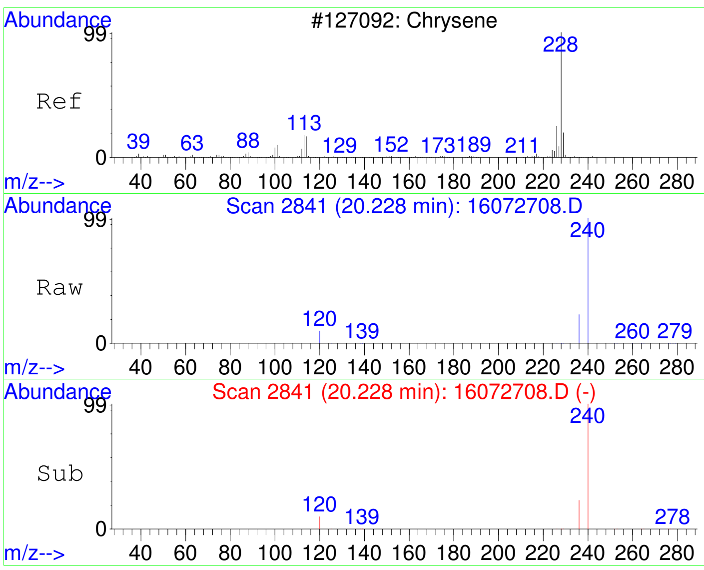


#9
Acenaphthene
Concen: 13.17 ug/kg
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072708.D
Acq: 27 Jul 2016 12:31 pm

Tgt Ion:154 Resp: 1799

Ion	Ratio	Lower	Upper
154	100		
152	1.4	20.4	80.4#
153	6.5	78.2	138.2#

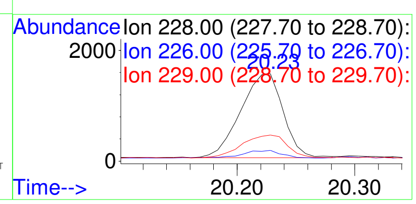


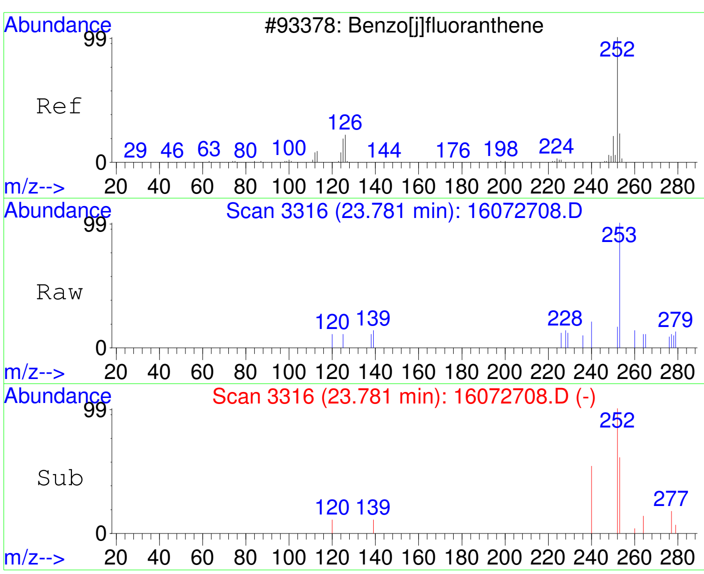


#19
Chrysene
Concen: 10.56 ug/kg
RT: 20.23 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072708.D
Acq: 27 Jul 2016 12:31 pm

Tgt Ion:228 Resp: 3790

Ion	Ratio	Lower	Upper
228	100		
226	8.8	0.0	58.1
229	27.4	0.0	49.9

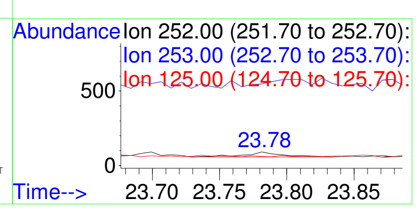




#23
Benzo(j)fluoranthene
Concen: 0.19 ug/kg
RT: 23.78 min Scan# 3316
Delta R.T. -0.02 min
Lab File: 16072708.D
Acq: 27 Jul 2016 12:31 pm

Tgt Ion:252 Resp: 66

Ion	Ratio	Lower	Upper
252	100		
253	90.9	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160727\16072709.D          Vial: 7
Acq On    : 27 Jul 2016   1:08 pm                   Operator: DEW
Sample    : 1607219-24A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:22 2016             Quant Results File: PP160725.RES

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

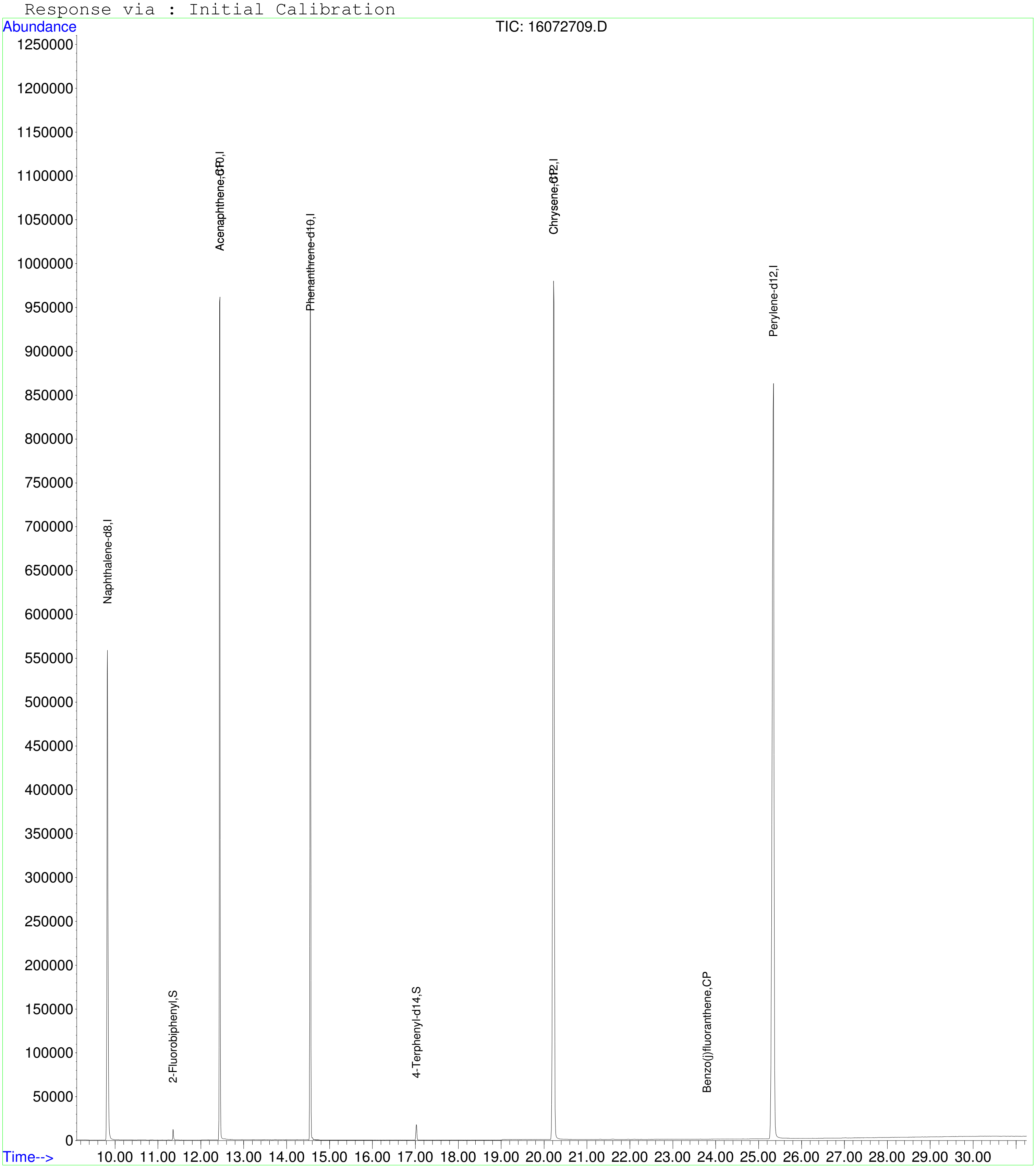
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	931639	4000.00 ug/kg	104
5) Acenaphthene-d10	12.44	164	569011	4000.00 ug/kg	100
11) Phenanthrene-d10	14.55	188	1498634	4000.00 ug/kg	100
17) Chrysene-d12	20.22	240	1812201	4000.00 ug/kg	112
20) Perylene-d12	25.35	264	1822875	4000.00 ug/kg	110
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.35	172	13044	66.63 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery = 1.67%#	
16) 4-Terphenyl-d14	17.02	244	25646	58.27 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140			Recovery = 1.46%#	
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1913	~~13.01 ug/kg#~~	10
19) Chrysene	20.22	228	3943	~~10.77 ug/kg~~	71
23) Benzo(j)fluoranthene	23.80	252	38	0.11 ug/kg#	1

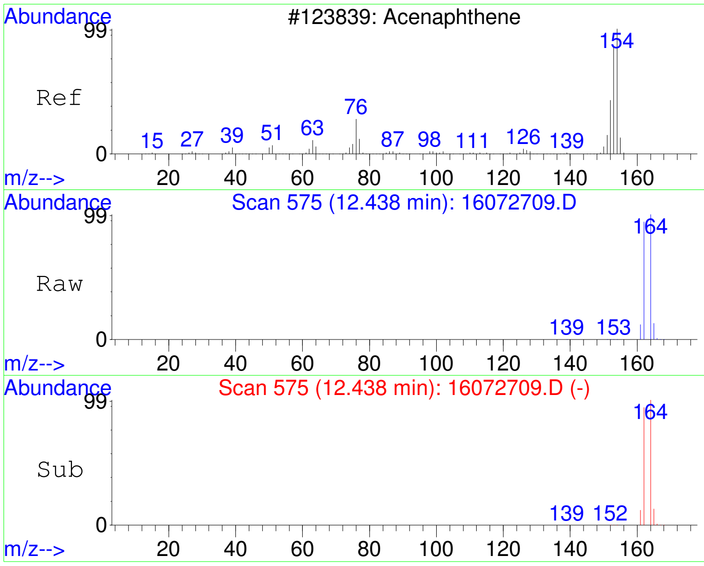
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072709.D          Vial: 7
Acq On    : 27 Jul 2016   1:08 pm                   Operator: DEW
Sample    : 1607219-24A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:22 2016             Quant Results File: PP160725.RES

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

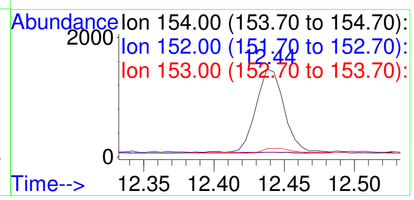


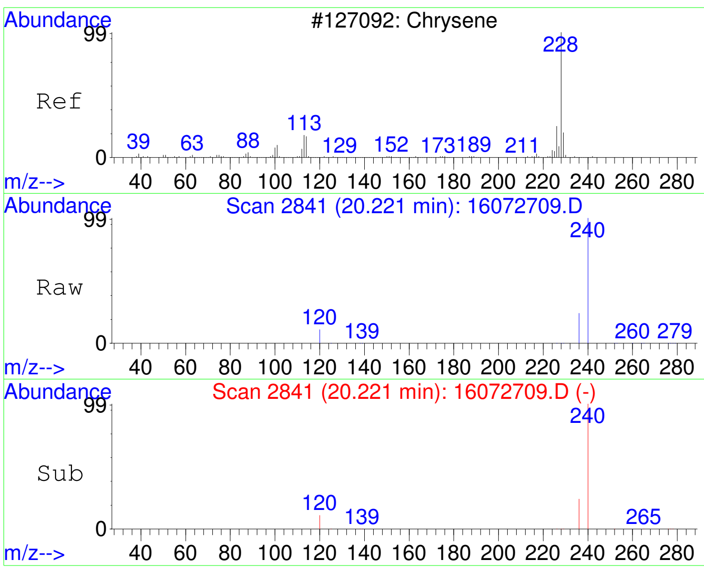


#9
Acenaphthene
Concen: 13.01 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072709.D
Acq: 27 Jul 2016 1:08 pm

Tgt Ion:154 Resp: 1913

Ion	Ratio	Lower	Upper
154	100		
152	0.8	20.4	80.4#
153	4.9	78.2	138.2#

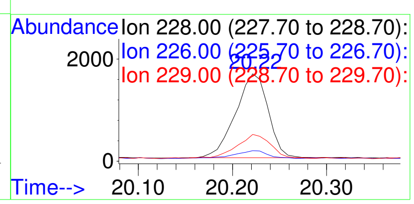


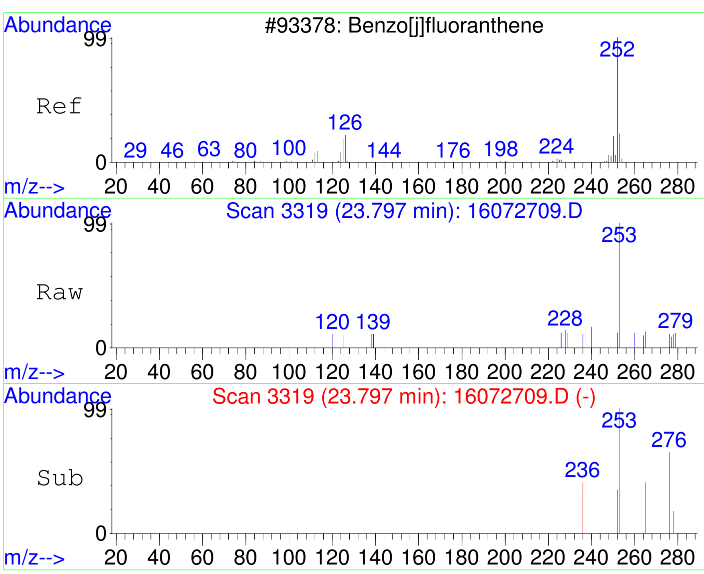


#19
Chrysene
Concen: 10.77 ug/kg
RT: 20.22 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072709.D
Acq: 27 Jul 2016 1:08 pm

Tgt Ion:228 Resp: 3943

Ion	Ratio	Lower	Upper
228	100		
226	8.6	0.0	58.1
229	28.2	0.0	49.9

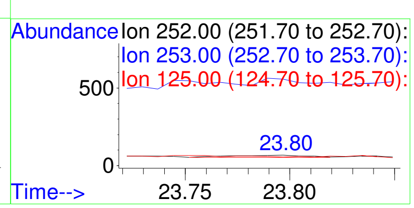




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 23.80 min Scan# 3319
Delta R.T. -0.01 min
Lab File: 16072709.D
Acq: 27 Jul 2016 1:08 pm

Tgt Ion:252 Resp: 38

Ion	Ratio	Lower	Upper
252	100		
253	142.9	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072710.D Vial: 8
Acq On : 27 Jul 2016 1:45 pm Operator: DEW
Sample : 1607219-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:22 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	920363	4000.00 ug/kg	103
5) Acenaphthene-d10	12.44	164	565934	4000.00 ug/kg	99
11) Phenanthrene-d10	14.55	188	1452786	4000.00 ug/kg	97
17) Chrysene-d12	20.22	240	1753900	4000.00 ug/kg	109
20) Perylene-d12	25.34	264	1762609	4000.00 ug/kg	106

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	13536	69.71 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.74%#	
16) 4-Terphenyl-d14	17.02	244	26202	62.58 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.56%#	

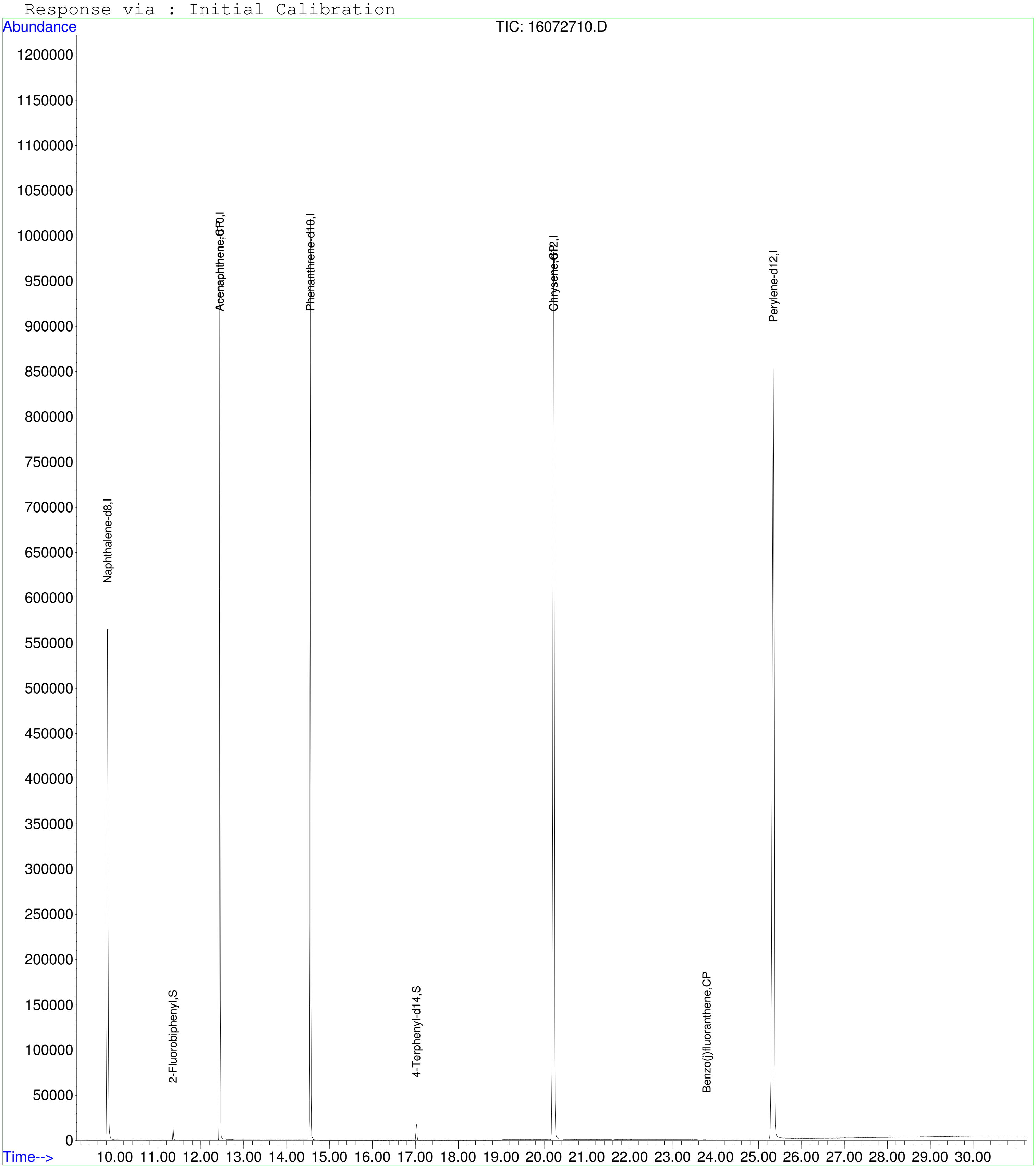
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1918	~~13.11 ug/kg#~~	9
19) Chrysene	20.22	228	3755	~~10.60 ug/kg~~	72
23) Benzo(j)fluoranthene	23.80	252	30	0.09 ug/kg#	58

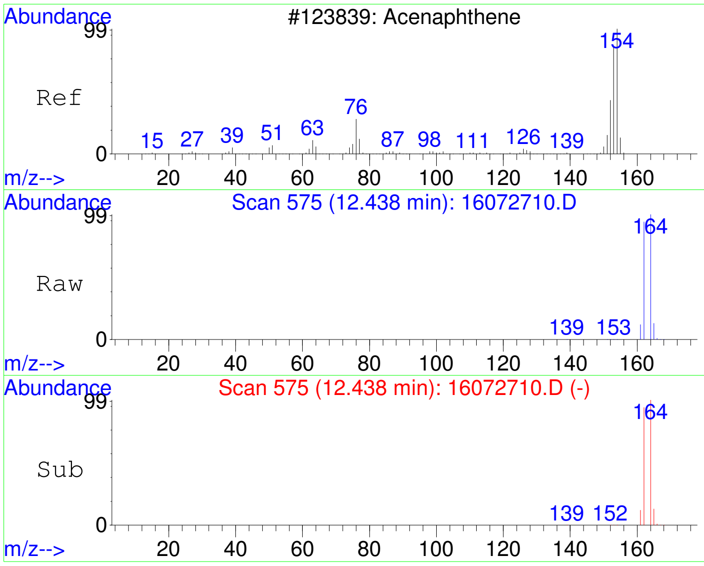
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160727\16072710.D Vial: 8
Acq On : 27 Jul 2016 1:45 pm Operator: DEW
Sample : 1607219-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:22 2016 Quant Results File: PP160725.RES

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

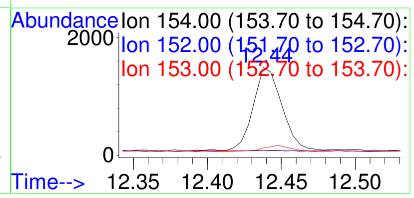


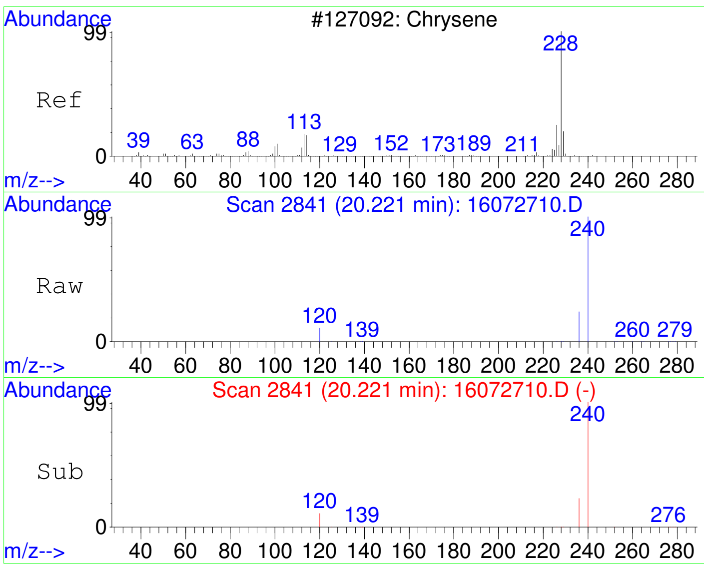


#9
Acenaphthene
Concen: 13.11 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072710.D
Acq: 27 Jul 2016 1:45 pm

Tgt Ion:154 Resp: 1918

Ion	Ratio	Lower	Upper
154	100		
152	0.6	20.4	80.4#
153	4.2	78.2	138.2#

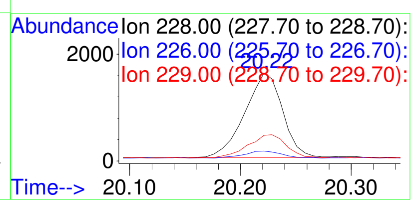


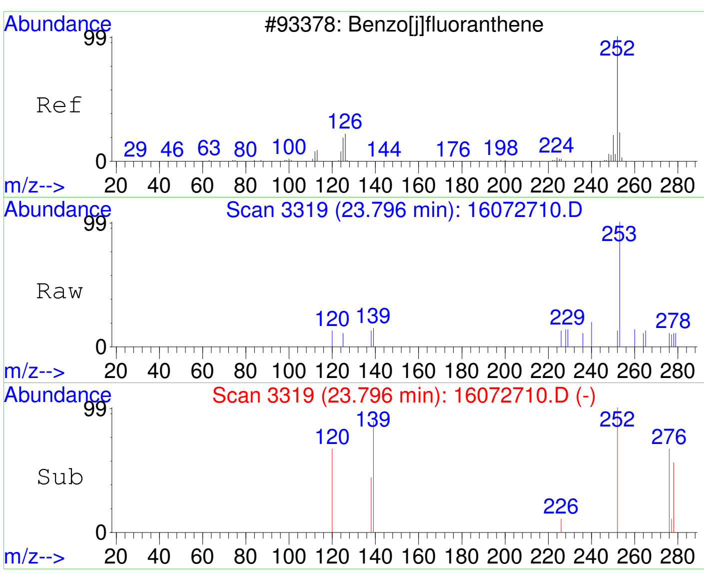


#19
Chrysene
Concen: 10.60 ug/kg
RT: 20.22 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072710.D
Acq: 27 Jul 2016 1:45 pm

Tgt Ion:228 Resp: 3755

Ion	Ratio	Lower	Upper
228	100		
226	8.3	0.0	58.1
229	26.8	0.0	49.9

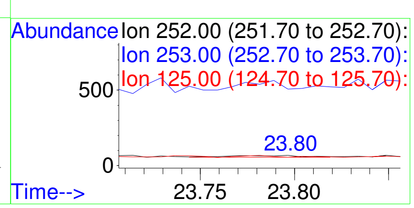




#23
Benzo(j)fluoranthene
Concen: 0.09 ug/kg
RT: 23.80 min Scan# 3319
Delta R.T. -0.01 min
Lab File: 16072710.D
Acq: 27 Jul 2016 1:45 pm

Tgt Ion:252 Resp: 30

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	0.0	0.0	34.0



Data File : C:\HPCHEM\1\DATA\160727\16072721.D   Vial: 19
Acq On   : 27 Jul 2016   8:35 pm   Operator: DEW
Sample   : ICV2-160727   Inst   : GC/MS #6
Misc   : ICV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016   Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	950042	4000.00 ug/kg	106
5) Acenaphthene-d10	12.44	164	578049	4000.00 ug/kg	102
11) Phenanthrene-d10	14.55	188	1621258	4000.00 ug/kg	108
17) Chrysene-d12	20.23	240	1765173	4000.00 ug/kg	109
20) Perylene-d12	25.35	264	1807414	4000.00 ug/kg	109

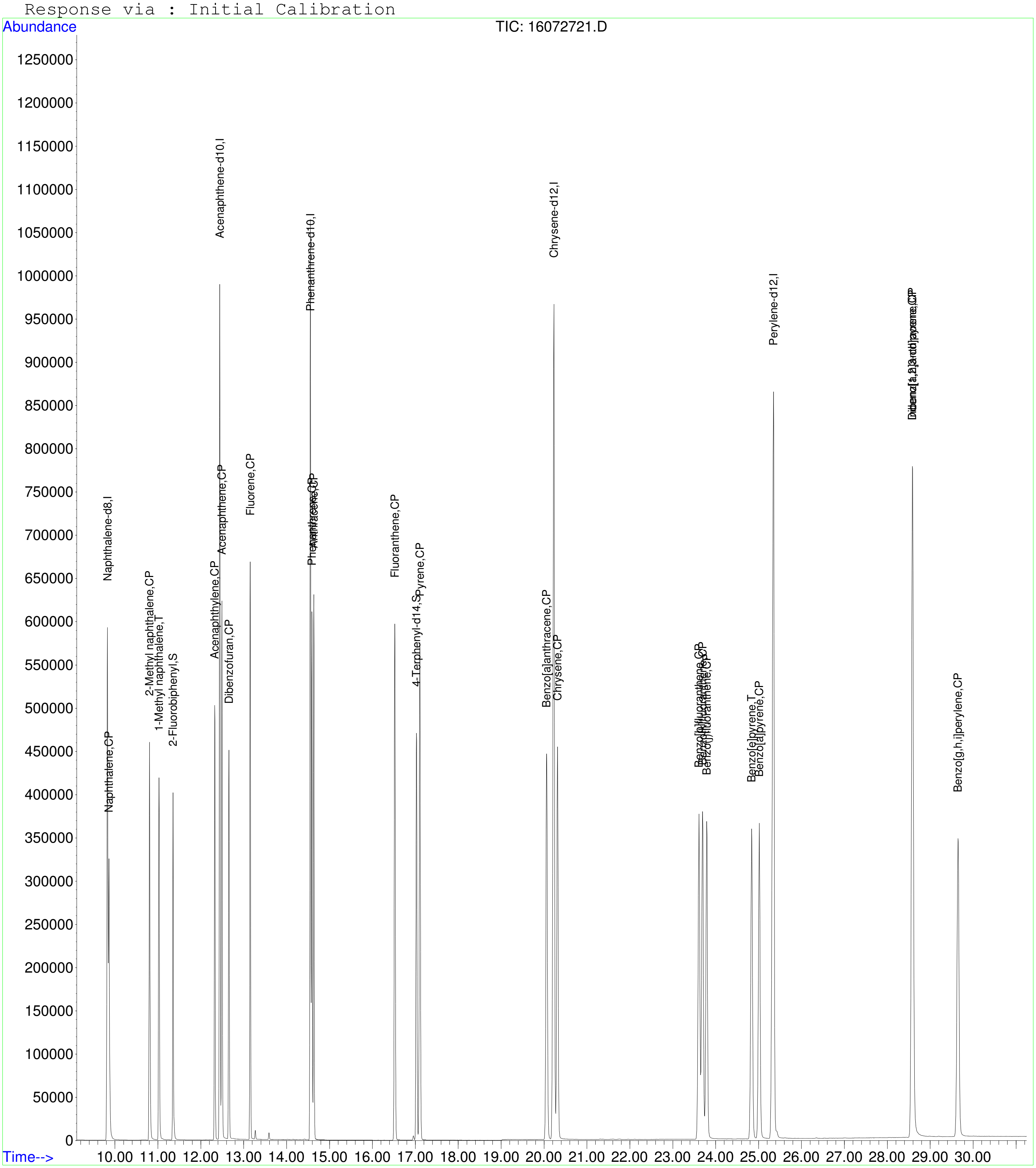
System Monitoring Compounds
7) 2-Fluorobiphenyl   11.35 172   375025   2002.62 ug/kg   0.00
Spiked Amount   4000.000   Range 40 - 140   Recovery   =   50.07%
16) 4-Terphenyl-d14   17.03 244   682502   1982.16 ug/kg -0.01
Spiked Amount   4000.000   Range 40 - 140   Recovery   =   49.55%

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	9.86	128	404149	1870.72 ug/kg	100
3) 2-Methyl naphthalene	10.80	142	298636	1912.58 ug/kg	98
4) 1-Methyl naphthalene	11.02	142	272482	1897.20 ug/kg	96
6) Dibenzofuran	12.66	168	431185	1878.72 ug/kg	100
8) Acenaphthylene	12.32	152	492848	1959.43 ug/kg	99
9) Acenaphthene	12.49	154	289556	1938.20 ug/kg	97
10) Fluorene	13.15	166	367873	1970.67 ug/kg	99
12) Phenanthrene	14.59	178	557577	1817.44 ug/kg	100
13) Anthracene	14.63	178	578062	1840.63 ug/kg	100
14) Fluoranthene	16.52	202	691054	1832.02 ug/kg	100
15) Pyrene	17.10	202	695948	1791.54 ug/kg	100
18) Benzo[a]anthracene	20.06	228	747314	1974.58 ug/kg	100
19) Chrysene	20.31	228	681277	1911.30 ug/kg	99
21) Benzo[b]fluoranthene	23.61	252	796143	1927.72 ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	719006	1899.01 ug/kg	100
23) Benzo(j)fluoranthene	23.79	252	701421	1956.76 ug/kg	100
24) Benzo[e]pyrene	24.84	252	757408	1930.52 ug/kg	99
25) Benzo[a]pyrene	25.02	252	747904	1920.94 ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	785212	1945.98 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.59	276	929856	1918.79 ug/kg	99
28) Benzo[g,h,i]perylene	29.65	276	768681	2185.73 ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160727\16072721.D          Vial: 19
Acq On    : 27 Jul 2016   8:35 pm                   Operator: DEW
Sample    : ICV2-160727                             Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016            Quant Results File: PP160725.RES

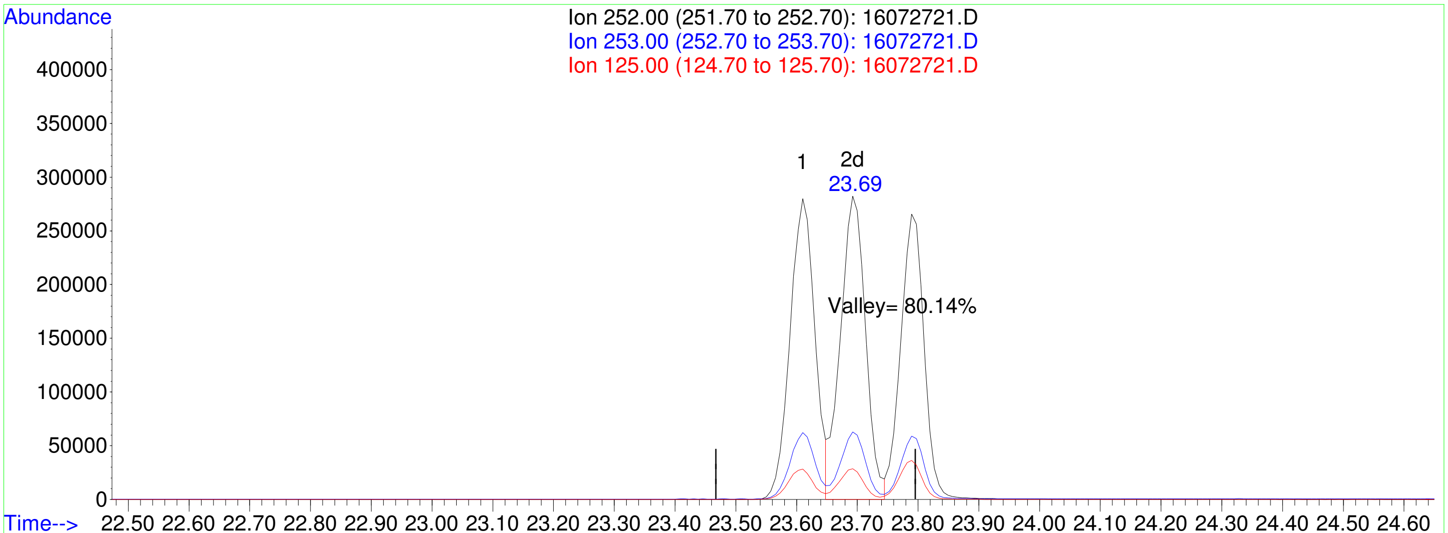
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

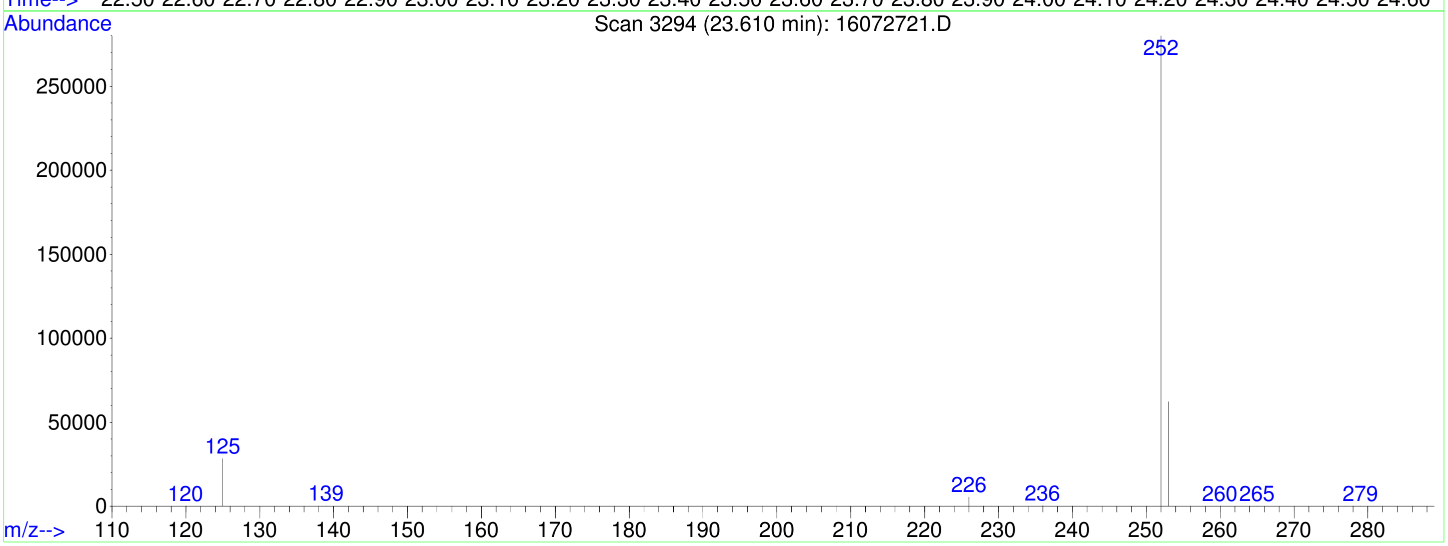


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160727\16072721.D   Vial: 19
Acq On : 27 Jul 2016 8:35 pm   Operator: DEW
Sample : ICV2-160727   Inst : GC/MS #6
Misc : ICV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016   Quant Results File: temp.res

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





TIC: 16072721.D

(21) Benzo[b]fluoranthene (CP)

23.61min 1927.72ug/kg

response 796143

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.09
125.00	9.30	10.14
0.00	0.00	0.00

Data File : C:\HPCHEM\1\DATA\160727\16072723.D Vial: 21
Acq On : 27 Jul 2016 9:49 pm Operator: DEW
Sample : SB-160727 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	846331	4000.00 ug/kg	95
5) Acenaphthene-d10	12.44	164	512805	4000.00 ug/kg	90
11) Phenanthrene-d10	14.55	188	1353012	4000.00 ug/kg	90
17) Chrysene-d12	20.22	240	1608750	4000.00 ug/kg	100
20) Perylene-d12	25.34	264	1607925	4000.00 ug/kg	97

System Monitoring Compounds

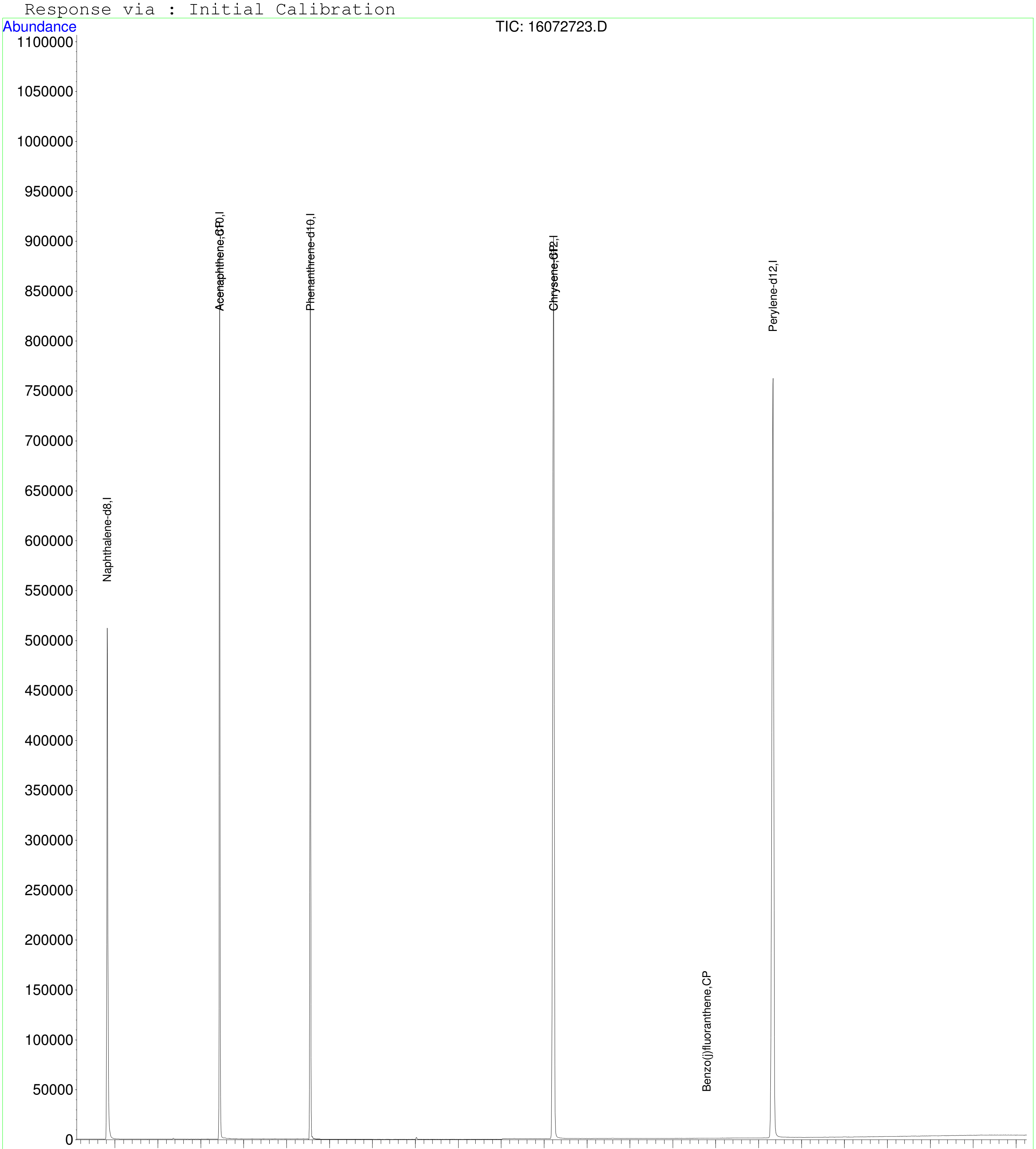
7) 2-Fluorobiphenyl	11.36	172	1483	4.54 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.11%#	
16) 4-Terphenyl-d14	17.02	244	2880	-1.00 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	-0.03%#	

Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1759	~~13.27 ug/kg#~~	9
19) Chrysene	20.22	228	3487	10.73 ug/kg	67
23) Benzo(j)fluoranthene	23.79	252	20	0.06 ug/kg#	1

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

Data File : C:\HPCHEM\1\DATA\160727\16072723.D Vial: 21
Acq On : 27 Jul 2016 9:49 pm Operator: DEW
Sample : SB-160727 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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



Data File : C:\HPCHEM\1\DATA\160727\16072731.D Vial: 29
Acq On : 28 Jul 2016 2:46 am Operator: DEW
Sample : 1607239-01AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	940796	4000.00	ug/kg	105
5) Acenaphthene-d10	12.44	164	559990	4000.00	ug/kg	98
11) Phenanthrene-d10	14.55	188	1563447	4000.00	ug/kg	104
17) Chrysene-d12	20.22	240	1846983	4000.00	ug/kg	115
20) Perylene-d12	25.34	264	1847579	4000.00	ug/kg	111

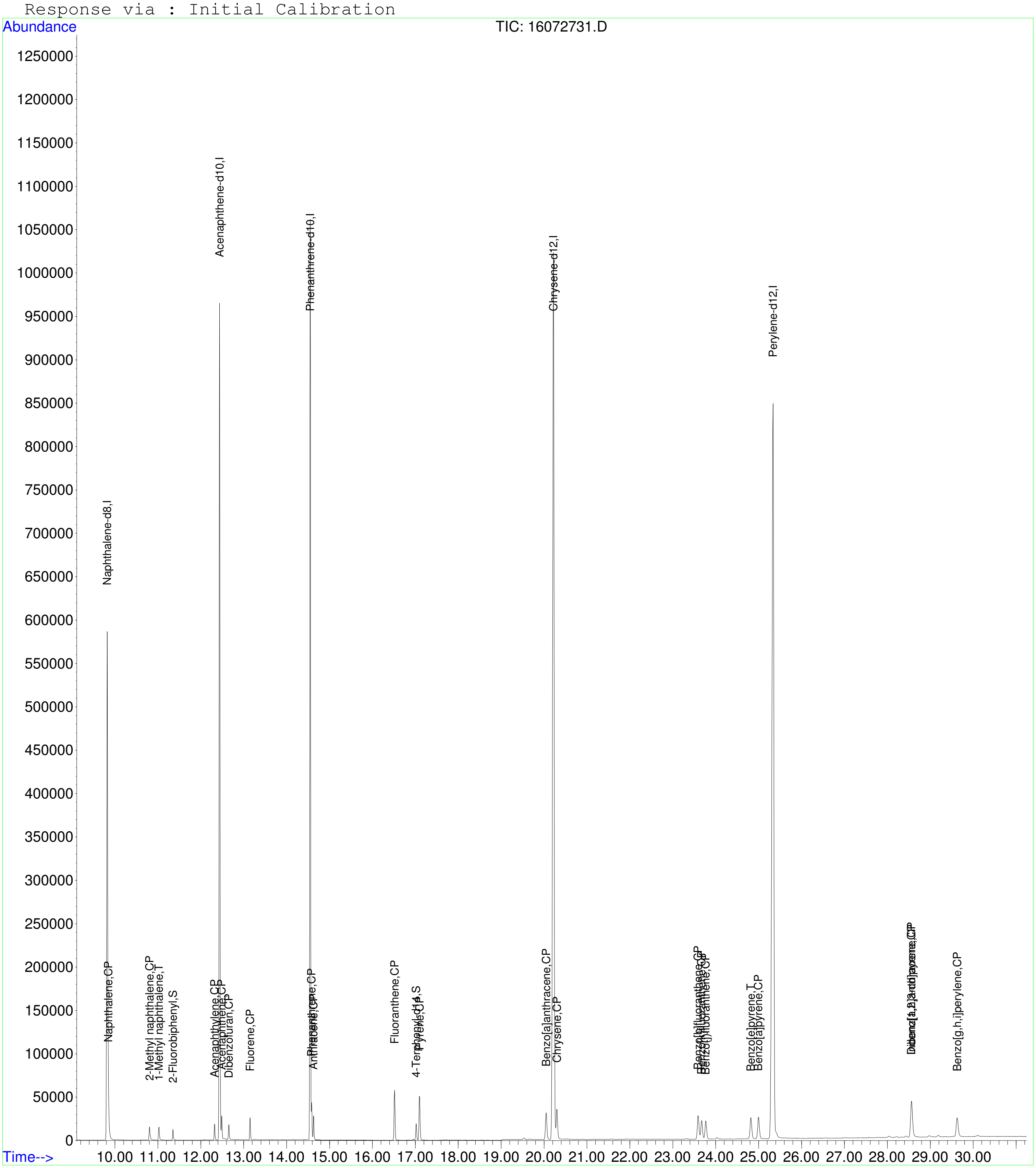
System Monitoring Compounds
7) 2-Fluorobiphenyl 11.35 172 13530 70.47 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 1.76%#
16) 4-Terphenyl-d14 17.02 244 27021 59.06 ug/kg -0.02
Spiked Amount 4000.000 Range 40 - 140 Recovery = 1.48%#

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.85	128	16412	76.71	ug/kg	99
3) 2-Methyl naphthalene	10.81	142	11734	75.89	ug/kg	95
4) 1-Methyl naphthalene	11.02	142	10855	76.32	ug/kg	98
6) Dibenzofuran	12.66	168	18090	81.36	ug/kg	98
8) Acenaphthylene	12.32	152	18427	75.62	ug/kg	99
9) Acenaphthene	12.49	154	11596	80.12	ug/kg	98
10) Fluorene	13.15	166	14542	80.41	ug/kg	98
12) Phenanthrene	14.58	178	35273	119.22	ug/kg	99
13) Anthracene	14.63	178	25550	84.36	ug/kg	99
14) Fluoranthene	16.52	202	63130	173.55	ug/kg	99
15) Pyrene	17.10	202	59171	157.95	ug/kg	99
18) Benzo[a]anthracene	20.05	228	50569	127.70	ug/kg	98
19) Chrysene	20.30	228	52591	141.01	ug/kg	99
21) Benzo[b]fluoranthene	23.59	252	57188	135.46	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	43156	111.50	ug/kg	98
23) Benzo(j)fluoranthene	23.77	252	41178	112.38	ug/kg	98
24) Benzo[e]pyrene	24.82	252	50909	126.94	ug/kg	100
25) Benzo[a]pyrene	25.00	252	52946	133.03	ug/kg	98
26) Dibenz[a,h]anthracene	28.56	278	36700	88.98	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.57	276	56830	114.72	ug/kg	95
28) Benzo[g,h,i]perylene	29.63	276	49525	137.76	ug/kg	100

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

Data File : C:\HPCHEM\1\DATA\160727\16072731.D Vial: 29
Acq On : 28 Jul 2016 2:46 am Operator: DEW
Sample : 1607239-01AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072732.D Vial: 30
Acq On : 28 Jul 2016 3:23 am Operator: DEW
Sample : 1607239-01AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	980876	4000.00	ug/kg	110
5) Acenaphthene-d10	12.44	164	593915	4000.00	ug/kg	104
11) Phenanthrene-d10	14.55	188	1619806	4000.00	ug/kg	108
17) Chrysene-d12	20.22	240	1860764	4000.00	ug/kg	115
20) Perylene-d12	25.34	264	1849935	4000.00	ug/kg	111

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	14384	70.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
16) 4-Terphenyl-d14	17.02	244	27044	56.32	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.41%#		

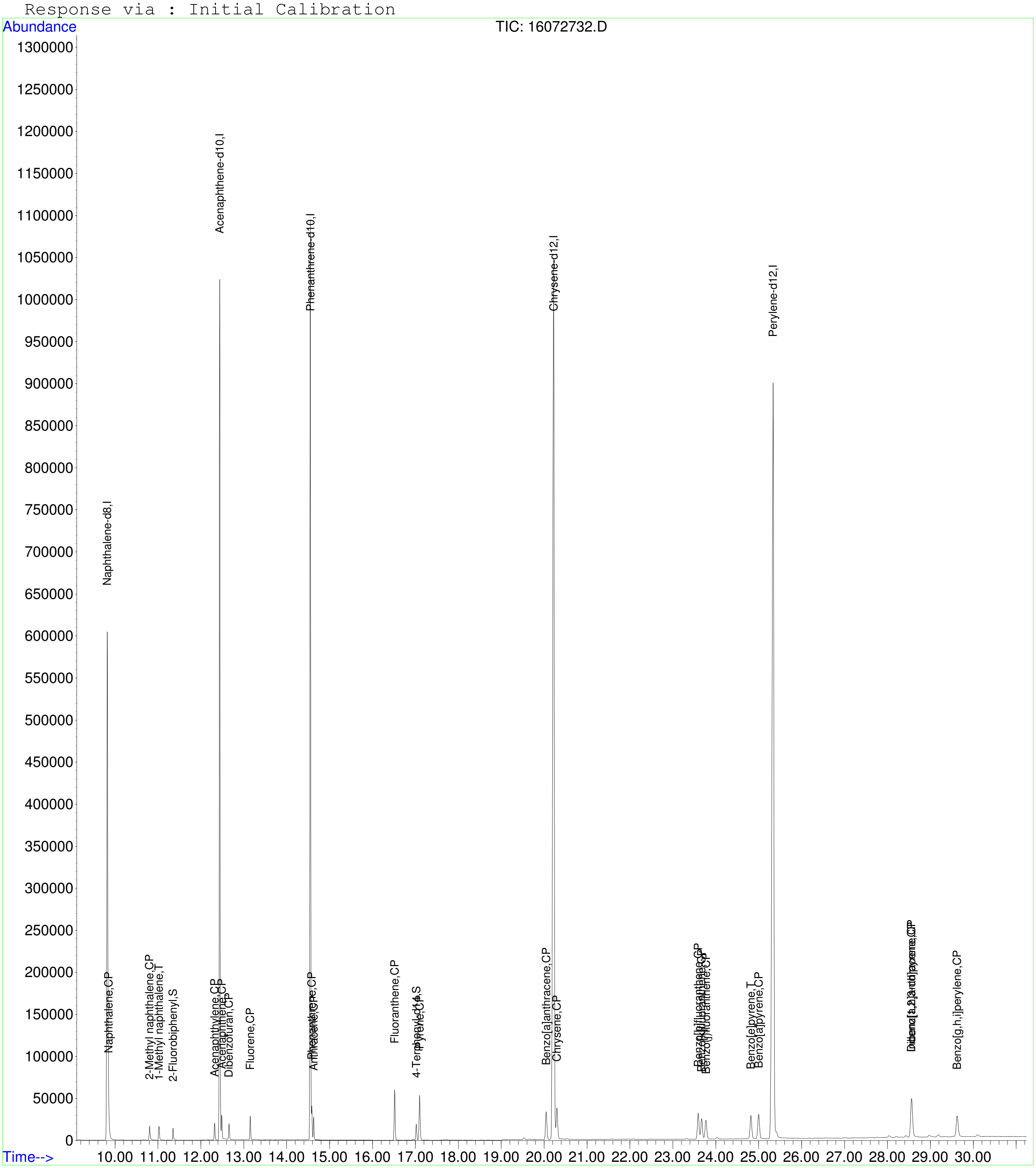
Target Compounds						Qvalue
2) Naphthalene	9.86	128	17585	78.84	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	12448	77.22	ug/kg	98
4) 1-Methyl naphthalene	11.02	142	11415	76.98	ug/kg	96
6) Dibenzofuran	12.66	168	19236	81.57	ug/kg	98
8) Acenaphthylene	12.32	152	19930	77.12	ug/kg	99
9) Acenaphthene	12.49	154	12683	82.63	ug/kg	96
10) Fluorene	13.15	166	15323	79.89	ug/kg	97
12) Phenanthrene	14.58	178	33118	108.05	ug/kg	98
13) Anthracene	14.63	178	25211	80.35	ug/kg	99
14) Fluoranthene	16.52	202	65486	173.76	ug/kg	99
15) Pyrene	17.10	202	62928	162.14	ug/kg	100
18) Benzo[a]anthracene	20.05	228	53786	134.81	ug/kg	99
19) Chrysene	20.29	228	57209	152.25	ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	64010	151.43	ug/kg	99
22) Benzo[k]fluoranthene	23.67	252	46990	121.26	ug/kg	99
23) Benzo(j)fluoranthene	23.77	252	45019	122.70	ug/kg	96
24) Benzo[e]pyrene	24.82	252	56623	141.01	ug/kg	100
25) Benzo[a]pyrene	25.00	252	61171	153.50	ug/kg	98
26) Dibenz[a,h]anthracene	28.56	278	37940	91.86	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.57	276	63568	128.16	ug/kg	95
28) Benzo[g,h,i]perylene	29.63	276	56211	156.16	ug/kg	98

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072732.D          Vial: 30
Acq On    : 28 Jul 2016   3:23 am                    Operator: DEW
Sample    : 1607239-01AMSD                           Inst    : GC/MS #6
Misc      : MSD                                      Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016            Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072733.D Vial: 31
Acq On : 28 Jul 2016 4:00 am Operator: DEW
Sample : CCV1-160727 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	1088109	4000.00	ug/kg	122
5) Acenaphthene-d10	12.44	164	662305	4000.00	ug/kg	116
11) Phenanthrene-d10	14.55	188	1776130	4000.00	ug/kg	118
17) Chrysene-d12	20.22	240	1961779	4000.00	ug/kg	122
20) Perylene-d12	25.34	264	1989590	4000.00	ug/kg	120

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	212348	988.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.71%#			
16) 4-Terphenyl-d14	17.02	244	379234	984.22	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.61%#			

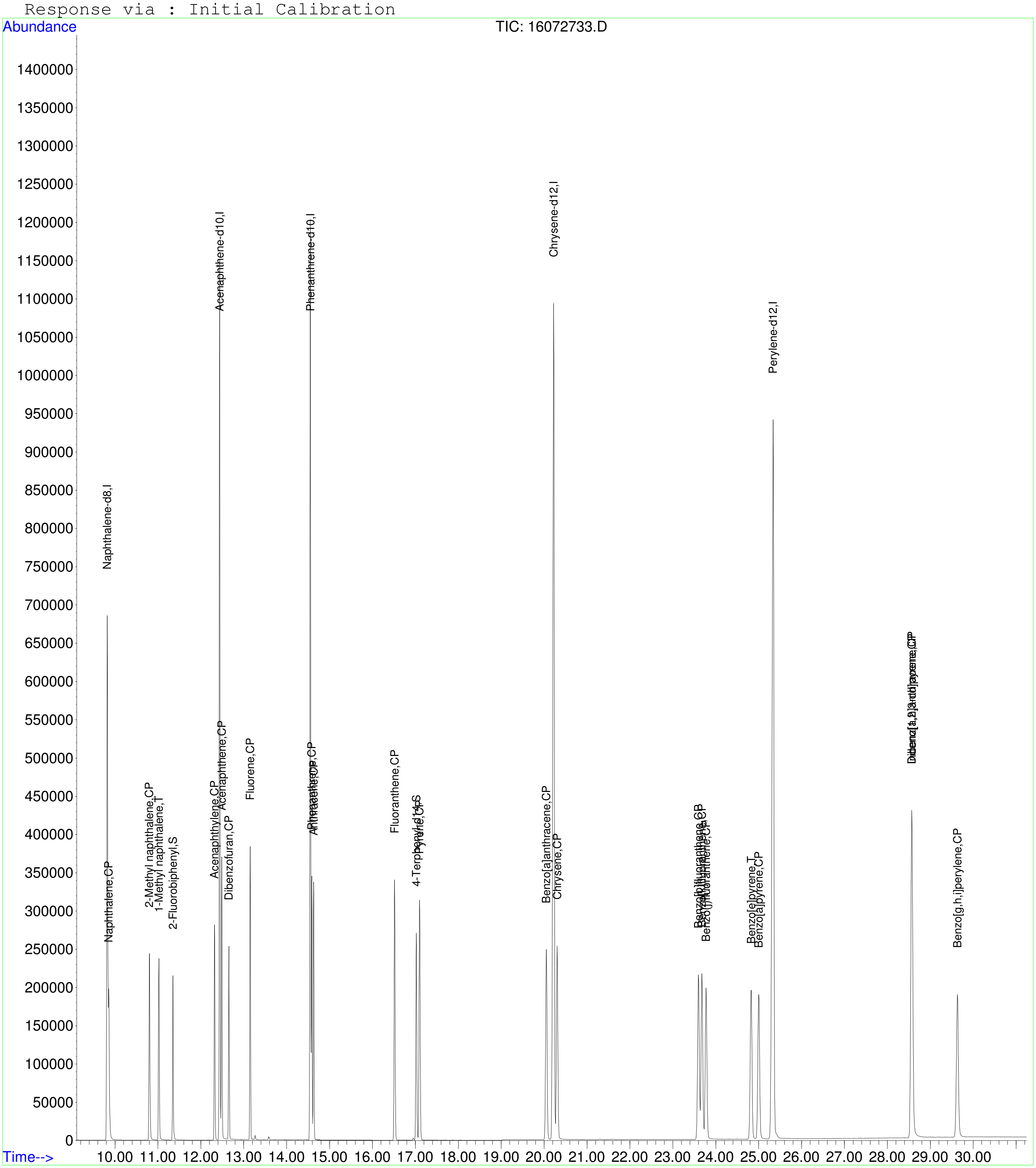
Target Compounds						Qvalue
2) Naphthalene	9.85	128	224890	908.88	ug/kg	99
3) 2-Methyl naphthalene	10.80	142	167720	937.85	ug/kg	95
4) 1-Methyl naphthalene	11.02	142	152505	927.11	ug/kg	99
6) Dibenzofuran	12.65	168	236694	900.10	ug/kg	99
8) Acenaphthylene	12.32	152	271467	941.98	ug/kg	99
9) Acenaphthene	12.49	154	159605	932.44	ug/kg	99
10) Fluorene	13.15	166	198821	929.57	ug/kg	100
12) Phenanthrene	14.59	178	366220	1089.62	ug/kg	99
13) Anthracene	14.63	178	310698	903.04	ug/kg	99
14) Fluoranthene	16.51	202	377787	914.20	ug/kg	100
15) Pyrene	17.10	202	380363	893.77	ug/kg	100
18) Benzo[a]anthracene	20.05	228	404583	961.87	ug/kg	99
19) Chrysene	20.30	228	372391	940.03	ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	439876	967.56	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	401361	962.99	ug/kg	99
23) Benzo(j)fluoranthene	23.77	252	379906	962.78	ug/kg	100
24) Benzo[e]pyrene	24.83	252	411668	953.20	ug/kg	100
25) Benzo[a]pyrene	25.00	252	405288	945.64	ug/kg	100
26) Dibenz[a,h]anthracene	28.57	278	421089	948.02	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.58	276	500046	937.38	ug/kg	97
28) Benzo[g,h,i]perylene	29.63	276	410962	1061.57	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160727\16072733.D Vial: 31
Acq On : 28 Jul 2016 4:00 am Operator: DEW
Sample : CCV1-160727 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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



GCMS6_160728A
For

DHL Work Order
1607219

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Project Number(s): SEE RUN LOG.	**Run ID:** **GCMS6_160728A**
Batch Number(s): SEE RUN LOG. **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	Criteria	Yes	No	N/A	2nd Level Review
1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?		X			
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

QA APPROVED
By John DuPont at 3:55:50 PM, 8/10/2016

Approved by: Date:

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

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

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___ LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
X Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		

___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data:

SEE RUN LOG - ONE SURROGATE OUT OF CONTROL LIMITS ON MANY RUNS. TWO SURROGATES FAIL FOR SAMPLE 1607256-13B. NO CORRECTIVE ACTION POSSIBLE DUE TO LACK OF HOLDING TIME AND ACCIDENTAL DISPOSAL OF 1 ML SAMPLE EXTRACT. CLIENT NOTIFIED AND APPROVED.

Analyst: Karyn Lane Date: 8/10/2016 15:05

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 3:52:17 PM, 8/10/2016

8270-PAH-RVU-R2

DHL Analytical, Inc.

Run ID: GCMS6_160728A   **Run No.:** 87529

Analytical Run Date: 7/28/2016   **InstrumentID:** GCMS6

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

Calibration ID: 676   **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160725.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 8:09:00 AM		
ICV-160728	1	PAH_LL_WDOD1	ICV	R87529	7/28/2016 8:46:00 AM		
LCS-76453	1	PAH_LL_WDOD1	LCS	76453	7/28/2016 9:24:00 AM		
LCSD-76453	1	PAH_LL_WDOD1	LCSD	76453	7/28/2016 10:01:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
MB-76453	1	PAH_LL_WDOD1	MBLK	76453	7/28/2016 10:39:00 AM		
1607219-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:16:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607219-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:54:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-16B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 12:31:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-32B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:08:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:46:00 PM		Both surrogates outside control limits (low). Sample past hold time and cannot be reanalyzed (extract accidentally disposed of) - see variance.
1607256-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 2:24:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-27B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:02:00 PM		
1607265-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:40:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607265-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 4:17:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
DFTPP2-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 4:55:00 PM		
ICV2-160728	1	PAH_LL_WDOD1	CCV	R87529	7/28/2016 5:31:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160728.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160728\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16072801	DFTPPPAH	DFTPP-160728
2	Sample	2	16072802	PP160725	ICV-160728
3	Sample	3	16072803	PP160725	LCS-76453
4	Sample	4	16072804	PP160725	LCSD-76453
5	Sample	5	16072805	PP160725	MB-76453
6	Sample	6	16072806	PP160725	1607219-13B
7	Sample	7	16072807	PP160725	1607219-26B
8	Sample	8	16072808	PP160725	1607239-16B
9	Sample	9	16072809	PP160725	1607239-32B
10	Sample	10	16072810	PP160725	1607256-13B
11	Sample	11	16072811	PP160725	1607256-26B
12	Sample	12	16072812	PP160725	1607256-27B
13	Sample	13	16072813	PP160725	1607265-13B
14	Sample	14	16072814	PP160725	1607265-26B
15	Sample	15	16072815	DFTPPPAH	DFTPP-160728
16	Sample	16	16072816	PP160725	ICV2-160728

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: 7/26/16 2:10PM

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: mL/mL

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup	
1607219-13B	Equip Blank	6	250	1	0.004	1 of 1		780.8 - 522.6 = 258.2
wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction								
1607219-26B	Equip Blank	6	250	1	0.004	1 of 1		800.1 - 548.2 = 251.9
1607239-16B	Equip Blank	6	250	1	0.004	1 of 1		764.3 - 507.9 = 256.4
1607239-32B	Equip Blank	6	250	1	0.004	1 of 1		771.6 - 519.4 = 252.2
1607256-13B	Equip Blank	6	250	1	0.004	1 of 1		781.9 - 526.7 = 255.2
1607256-26B	Equip Blank	6	250	1	0.004	1 of 1		760.3 - 507.0 = 253.3
1607256-27B	Equip Blank	6	250	1	0.004	1 of 1		792.4 - 539.7 = 252.7
1607265-13B	Equip Blank	6	250	1	0.004	1 of 1		776.4 - 519.8 = 256.6
1607265-26B	Equip Blank	6	250	1	0.004	1 of 1		777.7 - 522.3 = 255.4
LCS-76453	Aqueous	6	500	1	0.002	of		777.1 - 277.1 = 500.0
LCSD-76453	Aqueous	6	500	1	0.002	of		776.9 - 276.9 = 500.0
Insufficient volume for MS/MSD								
MB-76453	Aqueous	6	500	1	0.002	of		780.1 - 280.1 = 500.0

~~1607294-13B~~ AR 7/27/16

~~Added @ 8:30AM 7/27/16~~ DB 7/27/16 7/27/16

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/~~MS/MSD~~ LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

DB 7/26/16

REVIEWED BY
By Janice Whitt at 3:41:08 PM, 8/10/2016

DB 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: **7/26/2016 2:10:00 PM**

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List

Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13B	Equip Blank	6	258.2	1	0.004	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction						
1607219-26B	Equip Blank	6	251.9	1	0.004	1 of 1	
1607239-16B	Equip Blank	6	256.4	1	0.004	1 of 1	
1607239-32B	Equip Blank	6	252.2	1	0.004	1 of 1	
1607256-13B	Equip Blank	6	255.2	1	0.004	1 of 1	
1607256-26B	Equip Blank	6	253.3	1	0.004	1 of 1	
1607256-27B	Equip Blank	6	252.7	1	0.004	1 of 1	
1607265-13B	Equip Blank	6	256.6	1	0.004	1 of 1	
1607265-26B	Equip Blank	6	255.4	1	0.004	1 of 1	
LCS-76453	Aqueous	6	500	1	0.002	of	
LCSD-76453	Aqueous	6	500	1	0.002	of	
	Insufficient volume for MS/MSD						
MB-76453	Aqueous	6	500	1	0.002	of	

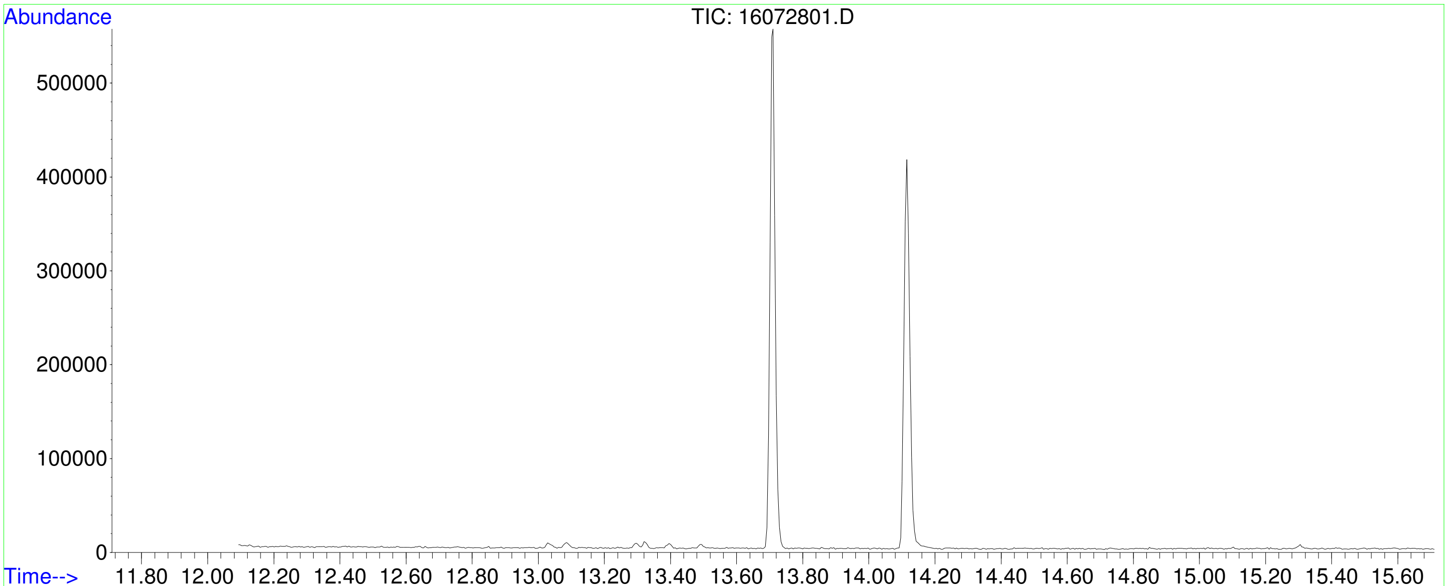
Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

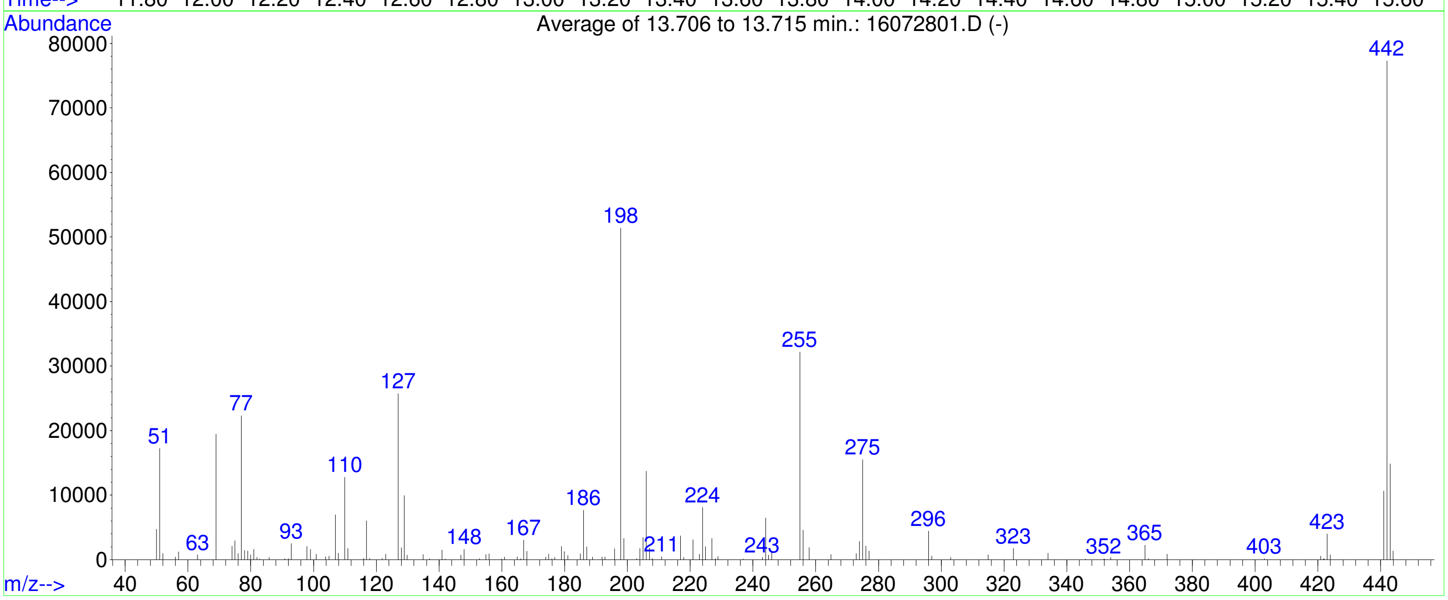
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

REVIEWED BY
By Janice Whitt at 3:41:09 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160728\16072801.D          Vial: 1
Acq On    : 28 Jul 2016   8:09 am                   Operator: DEW
Sample    : DFTPP-160728                            Inst     : GC/MS #6
Misc      : TUNE                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title     : PAH Calibration
```





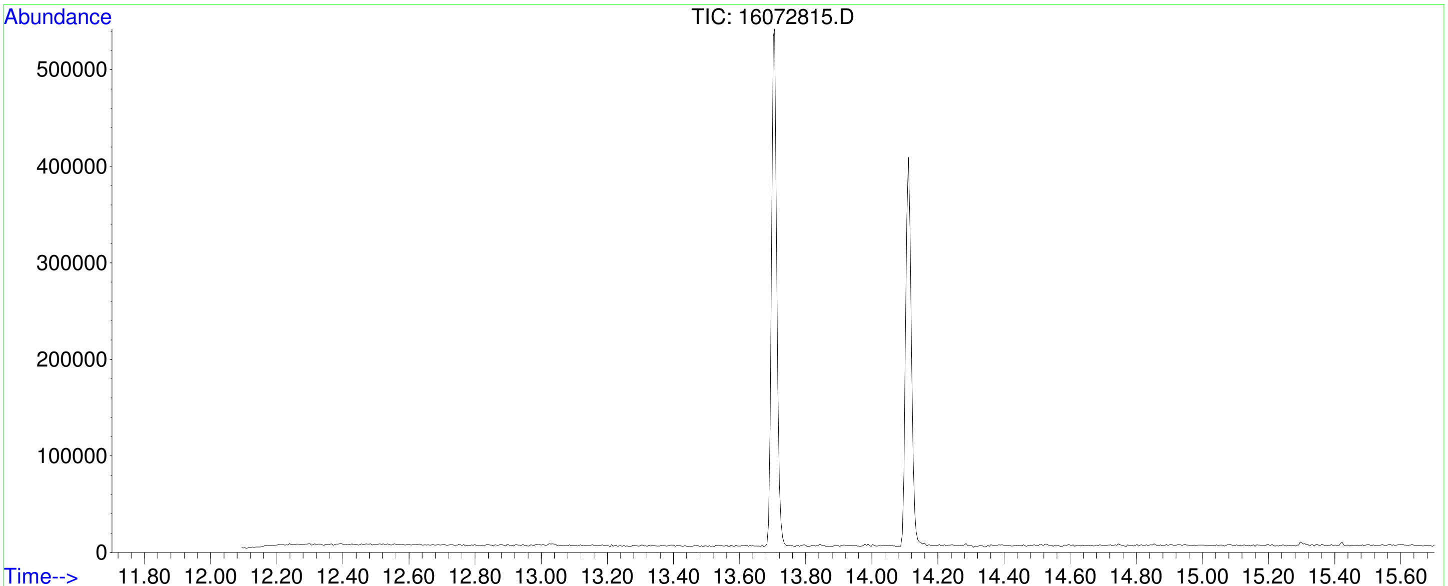
AutoFind: Scans 344, 345, 346; Background Corrected with Scan 337

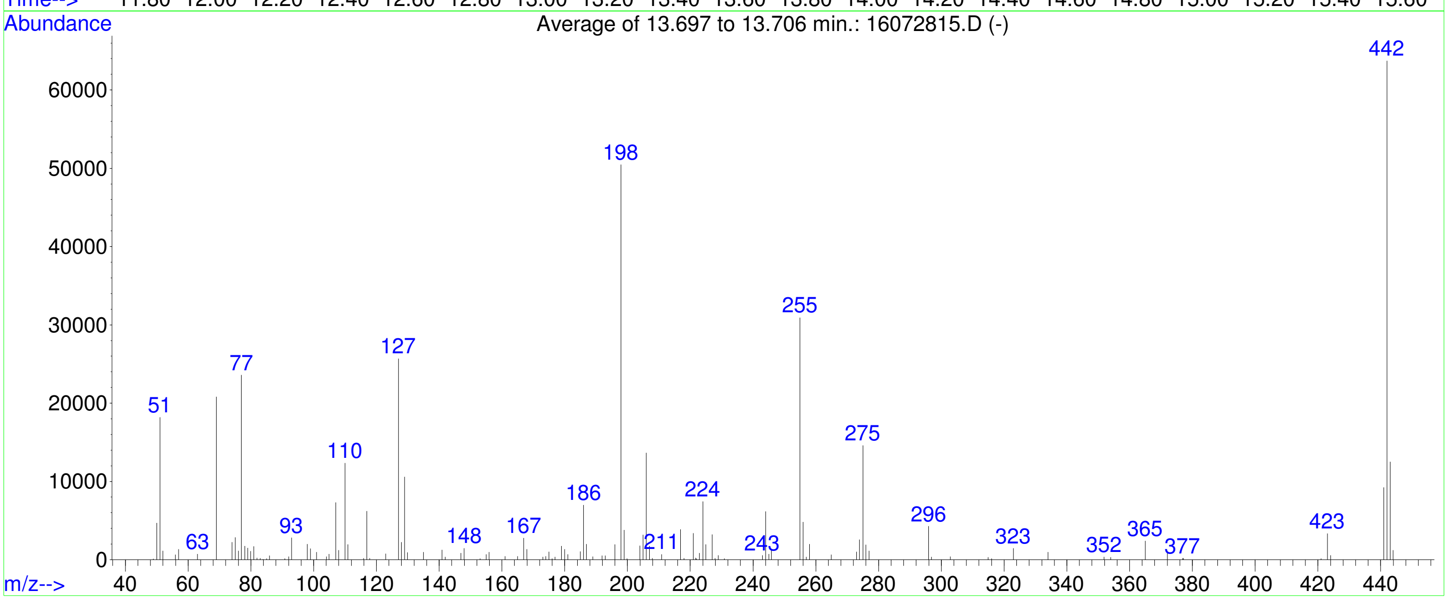
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.5	17249	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.9	19492	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	25761	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	51429	PASS
199	198	5	9	6.5	3348	PASS
275	198	10	60	30.2	15554	PASS
365	198	1	200	4.5	2293	PASS
441	442	0.01	24	13.8	10659	PASS
442	198	50	400	150.3	77312	PASS
443	442	15	24	19.3	14910	PASS

REVIEWED BY
By Janice Whitt at 3:41:15 PM, 8/10/2016

DFTPP

Data File : C:\HPCHEM\1\DATA\160728\16072815.D Vial: 15
Acq On : 28 Jul 2016 4:55 pm Operator: DEW
Sample : ~~DFTPP-160728~~ DFTPP2-160728 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration





AutoFind: Scans 342, 343, 344; Background Corrected with Scan 336

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.1	18208	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	41.3	20835	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.9	25701	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	50491	PASS
199	198	5	9	7.5	3798	PASS
275	198	10	60	29.0	14622	PASS
365	198	1	200	4.8	2403	PASS
441	442	0.01	24	14.5	9239	PASS
442	198	50	400	126.2	63736	PASS
443	442	15	24	19.6	12502	PASS

REVIEWED BY
By Janice Whitt at 3:41:17 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	993161	4000.00	ug/kg	111
5) Acenaphthene-d10	12.44	164	595036	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1704067	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1889673	4000.00	ug/kg	117
20) Perylene-d12	25.34	264	1906547	4000.00	ug/kg	115

System Monitoring Compounds

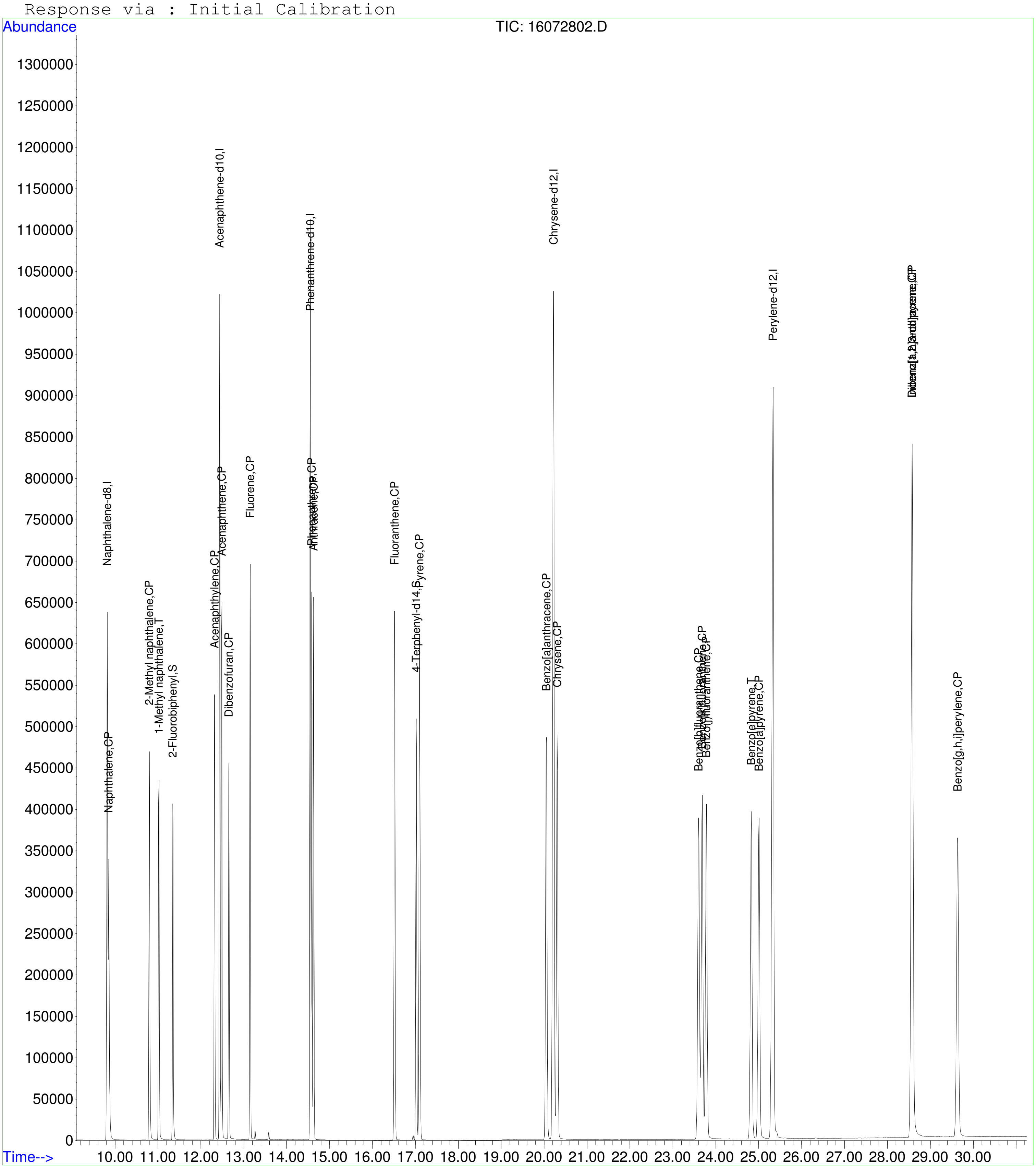
7) 2-Fluorobiphenyl	11.34	172	388316	2014.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.36%			
16) 4-Terphenyl-d14	17.02	244	722939	1998.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.95%			

Target Compounds						Qvalue
2) Naphthalene	9.85	128	423506	1875.21	ug/kg	99
3) 2-Methyl naphthalene	10.80	142	308279	1888.62	ug/kg	100
4) 1-Methyl naphthalene	11.02	142	281900	1877.56	ug/kg	100
6) Dibenzofuran	12.65	168	443140	1875.68	ug/kg	100
8) Acenaphthylene	12.32	152	506453	1956.04	ug/kg	100
9) Acenaphthene	12.49	154	297830	1936.67	ug/kg	97
10) Fluorene	13.15	166	376267	1958.09	ug/kg	98
12) Phenanthrene	14.59	178	714088	2214.48	ug/kg	100
13) Anthracene	14.63	178	593513	1797.99	ug/kg	99
14) Fluoranthene	16.52	202	723353	1824.45	ug/kg	100
15) Pyrene	17.10	202	730341	1788.71	ug/kg	100
18) Benzo[a]anthracene	20.06	228	794030	1959.79	ug/kg	99
19) Chrysene	20.30	228	728842	1910.03	ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	849690	1950.39	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	778475	1949.17	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	750461	1984.71	ug/kg	99
24) Benzo[e]pyrene	24.83	252	802759	1939.72	ug/kg	99
25) Benzo[a]pyrene	25.01	252	799379	1946.40	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	822523	1932.45	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.58	276	973504	1904.41	ug/kg	97
28) Benzo[g,h,i]perylene	29.64	276	807352	2176.33	ug/kg	99

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

Data File : C:\HPCHEM\1\DATA\160728\16072802.D   Vial: 2
Acq On   : 28 Jul 2016   8:46 am   Operator: DEW
Sample   : ICV-160728   Inst   : GC/MS #6
Misc   : ICV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016   Quant Results File: PP160725.RES

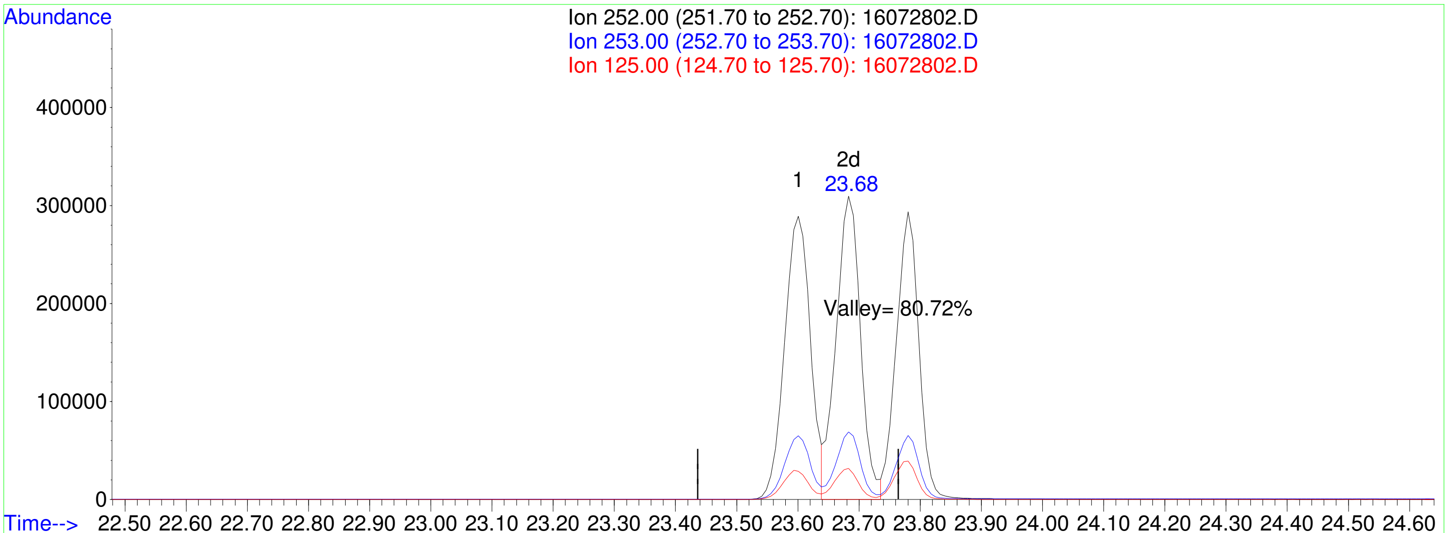
Method   : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

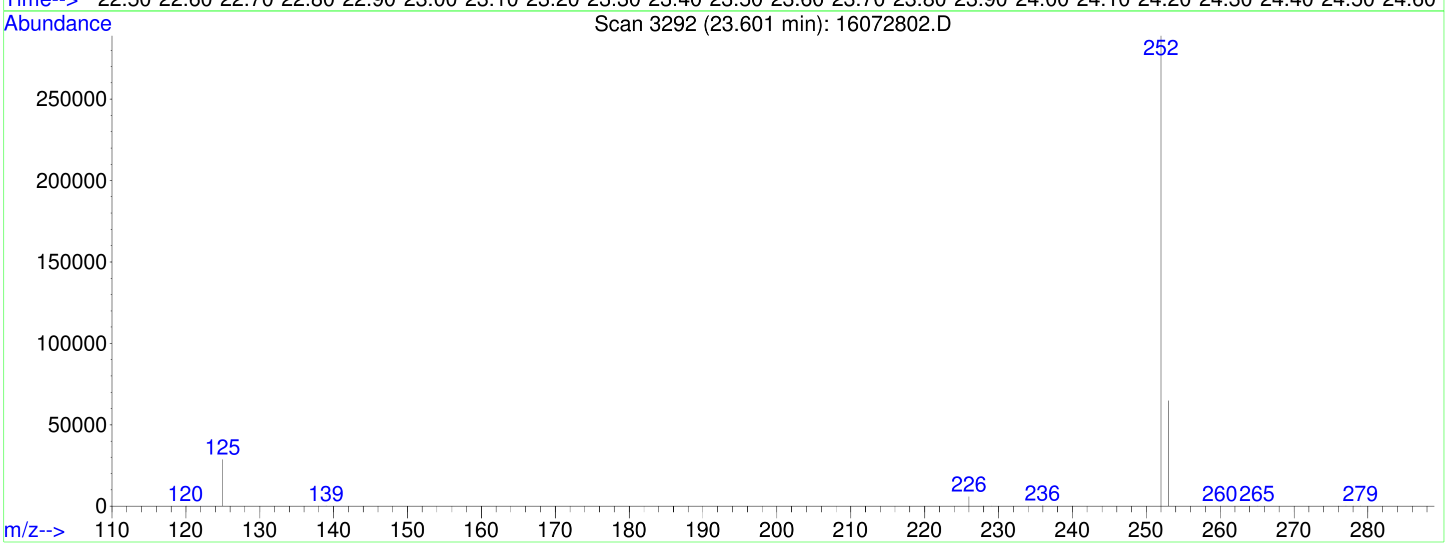


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Multiple Level Calibration





TIC: 16072802.D

(21) Benzo[b]fluoranthene (CP)

23.60min 1950.39ug/kg

response 849690

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.31
125.00	9.30	9.88
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072803.D Vial: 3
Acq On : 28 Jul 2016 9:24 am Operator: DEW
Sample : LCS-76453 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	901224	4000.00 ug/kg	101
5) Acenaphthene-d10	12.44	164	544856	4000.00 ug/kg	96
11) Phenanthrene-d10	14.55	188	1553455	4000.00 ug/kg	103
17) Chrysene-d12	20.22	240	1740242	4000.00 ug/kg	108
20) Perylene-d12	25.33	264	1767452	4000.00 ug/kg	106

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	402444	2279.92 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.00%		
16) 4-Terphenyl-d14	17.02	244	778310	2372.95 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 59.32%		

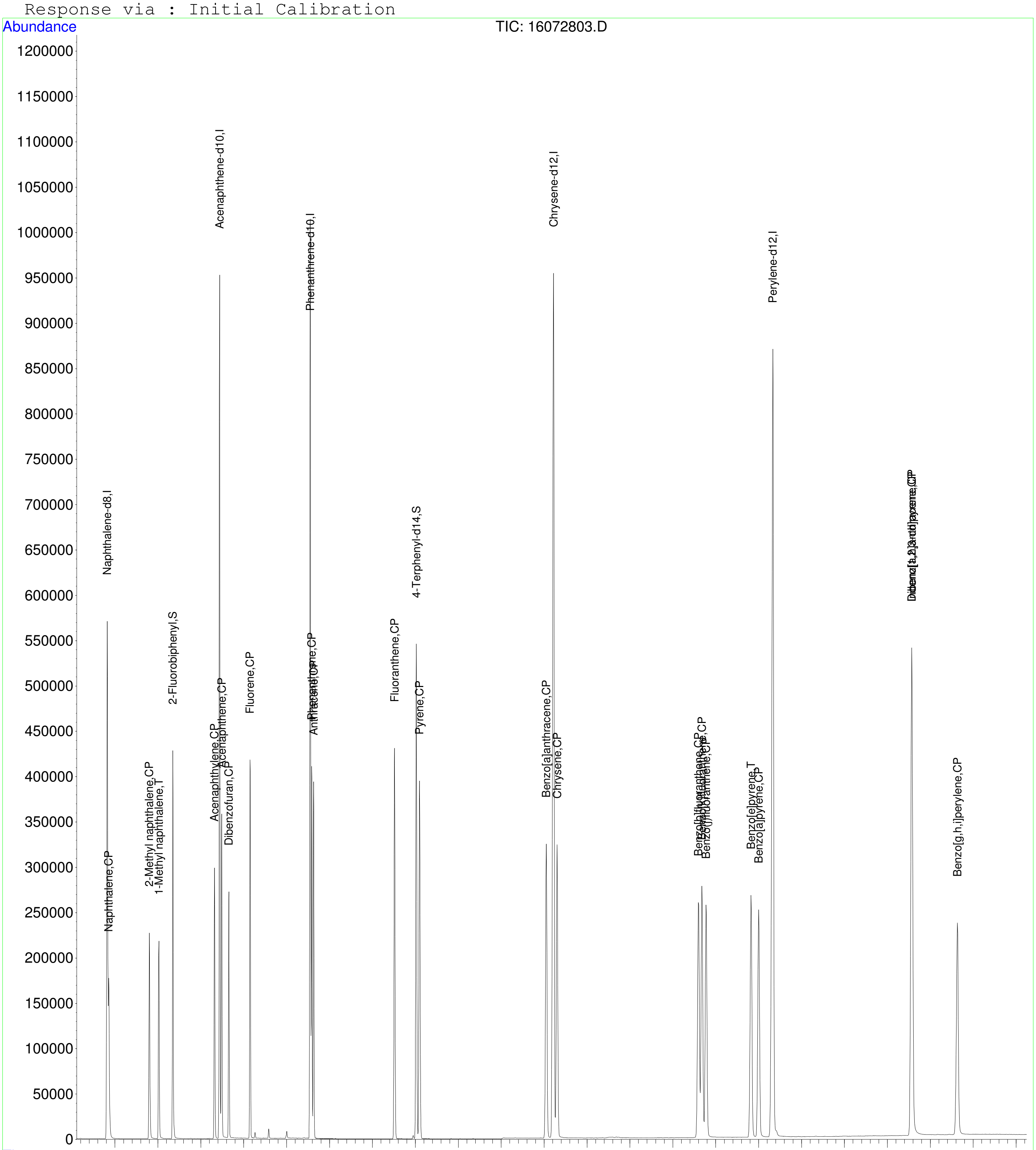
Target Compounds					Qvalue
2) Naphthalene	9.85	128	208183	1015.84 ug/kg	100
3) 2-Methyl naphthalene	10.80	142	149322	1008.12 ug/kg	99
4) 1-Methyl naphthalene	11.02	142	139286	1022.34 ug/kg	100
6) Dibenzofuran	12.65	168	260519	1204.26 ug/kg	99
8) Acenaphthylene	12.32	152	281773	1188.50 ug/kg	100
9) Acenaphthene	12.49	154	163129	1158.46 ug/kg	97
10) Fluorene	13.14	166	225833	1283.47 ug/kg	98
12) Phenanthrene	14.58	178	437488	1488.24 ug/kg	100
13) Anthracene	14.63	178	364335	1210.73 ug/kg	99
14) Fluoranthene	16.51	202	467864	1294.47 ug/kg	100
15) Pyrene	17.10	202	467518	1256.03 ug/kg	100
18) Benzo[a]anthracene	20.05	228	523420	1402.81 ug/kg	100
19) Chrysene	20.30	228	480633	1367.72 ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	566646	1403.05 ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	489447	1321.93 ug/kg	100
23) Benzo(j)fluoranthene	23.77	252	496835	1417.36 ug/kg	100
24) Benzo[e]pyrene	24.82	252	548539	1429.76 ug/kg	99
25) Benzo[a]pyrene	25.00	252	521378	1369.40 ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	528608	1339.66 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.57	276	617831	1303.74 ug/kg	98
28) Benzo[g,h,i]perylene	29.63	276	502776	1461.96 ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072803.D   Vial: 3
Acq On   : 28 Jul 2016   9:24 am   Operator: DEW
Sample   : LCS-76453   Inst   : GC/MS #6
Misc   : LCS   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016   Quant Results File: PP160725.RES

Method   : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\160728\16072804.D Vial: 4
Acq On : 28 Jul 2016 10:01 am Operator: DEW
Sample : LCSD-76453 Inst : GC/MS #6
Misc : LCSD Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	870249	4000.00 ug/kg	97
5) Acenaphthene-d10	12.44	164	520278	4000.00 ug/kg	91
11) Phenanthrene-d10	14.55	188	1521930	4000.00 ug/kg	101
17) Chrysene-d12	20.21	240	1670962	4000.00 ug/kg	104
20) Perylene-d12	25.33	264	1659219	4000.00 ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	368693	2187.41 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 54.69%		
16) 4-Terphenyl-d14	17.02	244	722203	2243.28 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 56.08%		

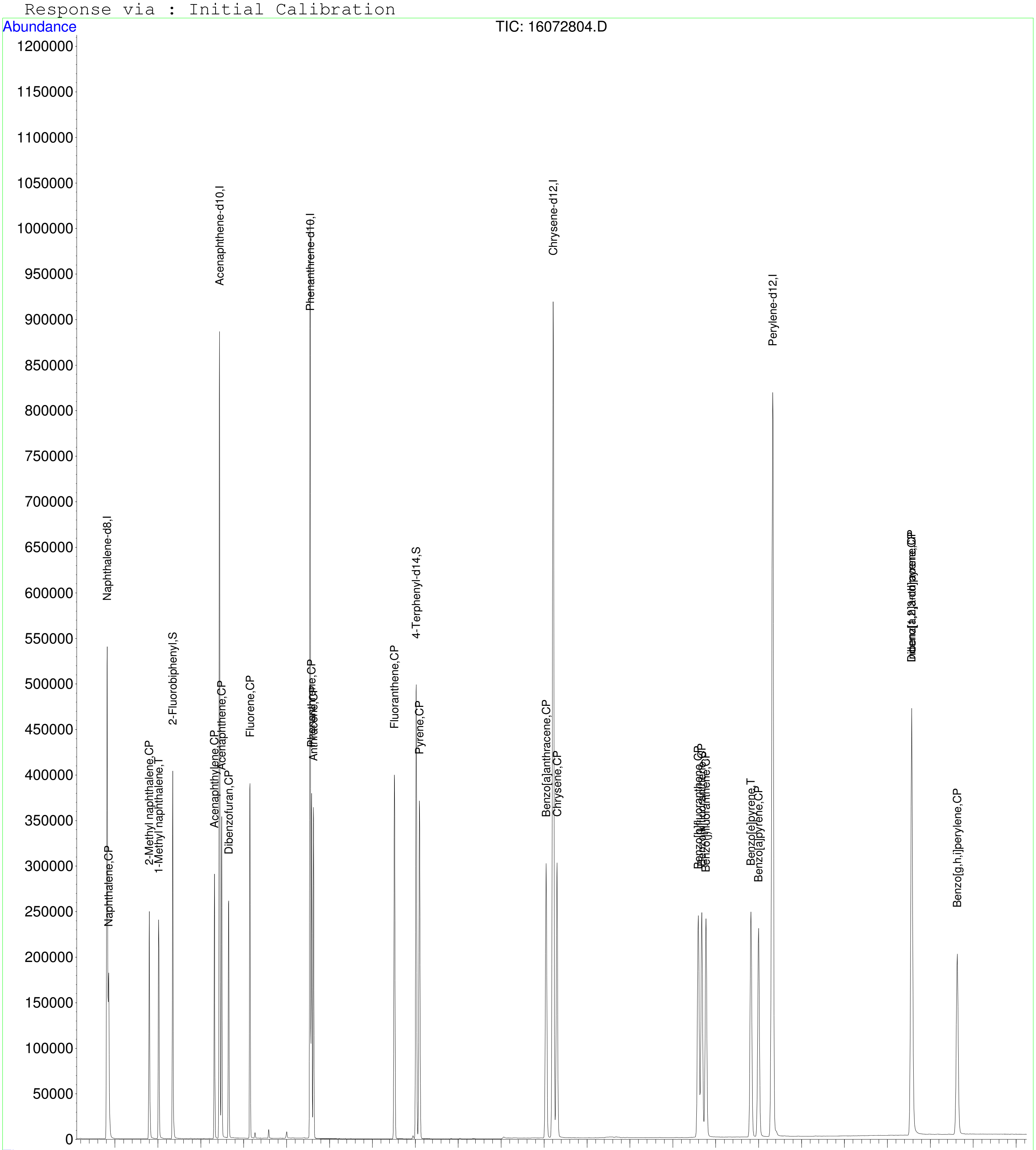
Target Compounds					Qvalue
2) Naphthalene	9.85	128	217995	1101.58 ug/kg	100
3) 2-Methyl naphthalene	10.80	142	160448	1121.79 ug/kg	96
4) 1-Methyl naphthalene	11.02	142	147487	1121.06 ug/kg	96
6) Dibenzofuran	12.65	168	251400	1217.00 ug/kg	99
8) Acenaphthylene	12.32	152	276116	1219.66 ug/kg	100
9) Acenaphthene	12.49	154	160377	1192.72 ug/kg	96
10) Fluorene	13.15	166	212077	1262.23 ug/kg	100
12) Phenanthrene	14.58	178	418635	1453.61 ug/kg	100
13) Anthracene	14.63	178	333925	1132.66 ug/kg	99
14) Fluoranthene	16.51	202	441449	1246.68 ug/kg	100
15) Pyrene	17.09	202	438777	1203.24 ug/kg	99
18) Benzo[a]anthracene	20.05	228	493082	1376.30 ug/kg	100
19) Chrysene	20.30	228	452335	1340.56 ug/kg	99
21) Benzo[b]fluoranthene	23.59	252	520939	1374.02 ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	465129	1338.20 ug/kg	99
23) Benzo(j)fluoranthene	23.77	252	466418	1417.39 ug/kg	99
24) Benzo[e]pyrene	24.82	252	509772	1415.38 ug/kg	99
25) Benzo[a]pyrene	25.00	252	481849	1348.14 ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	467447	1261.93 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.57	276	547461	1230.61 ug/kg	96
28) Benzo[g,h,i]perylene	29.63	276	431526	1336.63 ug/kg	96

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072804.D Vial: 4
Acq On : 28 Jul 2016 10:01 am Operator: DEW
Sample : LCSD-76453 Inst : GC/MS #6
Misc : LCSD Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072805.D Vial: 5
Acq On : 28 Jul 2016 10:39 am Operator: DEW
Sample : MB-76453 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

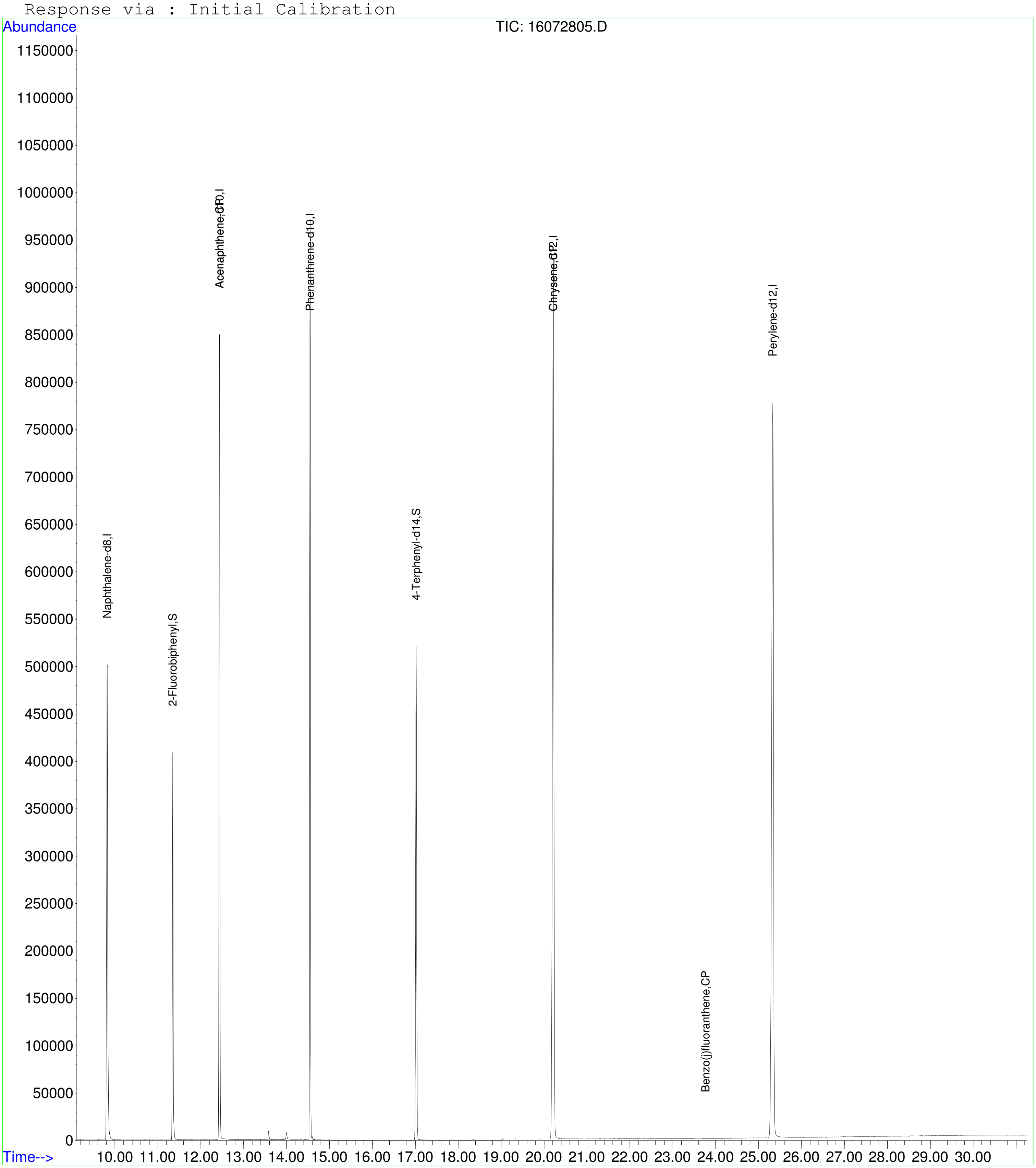
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	833741	4000.00	ug/kg	93
5) Acenaphthene-d10	12.44	164	505050	4000.00	ug/kg	89
11) Phenanthrene-d10	14.55	188	1412855	4000.00	ug/kg	94
17) Chrysene-d12	20.21	240	1642082	4000.00	ug/kg	102
20) Perylene-d12	25.33	264	1610987	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	380396	2324.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	58.12%		
16) 4-Terphenyl-d14	17.02	244	746608	2507.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	62.69%		
Target Compounds						Qvalue
9) Acenaphthene	12.43	154	1740	13.33	ug/kg#	9
19) Chrysene	20.21	228	3450	10.40	ug/kg	69
23) Benzo(j)fluoranthene	23.77	252	103	0.32	ug/kg#	37

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160728\16072805.D          Vial: 5
Acq On    : 28 Jul 2016  10:39 am                   Operator: DEW
Sample    : MB-76453                                Inst    : GC/MS #6
Misc      : MBLK                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016             Quant Results File: PP160725.RES

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160728\16072806.D          Vial: 6
Acq On    : 28 Jul 2016  11:16 am                   Operator: DEW
Sample    : 1607219-13B                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug 10 10:21 2016             Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725
```

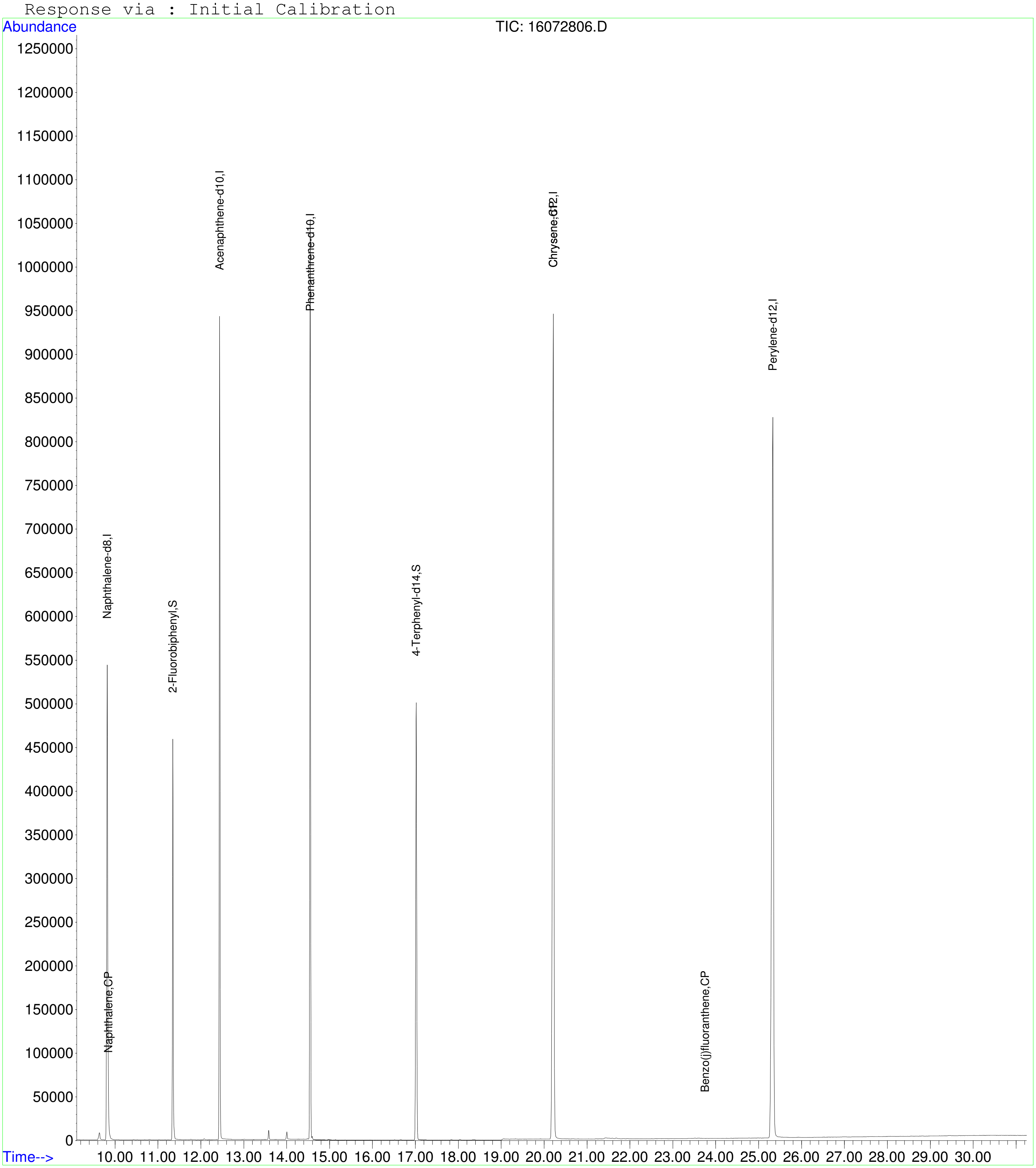
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	887124	4000.00	ug/kg	99
5) Acenaphthene-d10	12.44	164	549745	4000.00	ug/kg	97
11) Phenanthrene-d10	14.55	188	1588338	4000.00	ug/kg	106
17) Chrysene-d12	20.21	240	1686160	4000.00	ug/kg	105
20) Perylene-d12	25.33	264	1644608	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.34	172	426027	2392.01	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 59.80%			
16) 4-Terphenyl-d14	17.02	244	721564	2144.42	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 53.61%			
Target Compounds						Qvalue
2) Naphthalene	9.85	128	1041	5.16	ug/kg	79
19) Chrysene	20.21	228	3644	10.70	ug/kg	67
23) Benzo(j)fluoranthene	23.75	252	44	0.13	ug/kg#	1

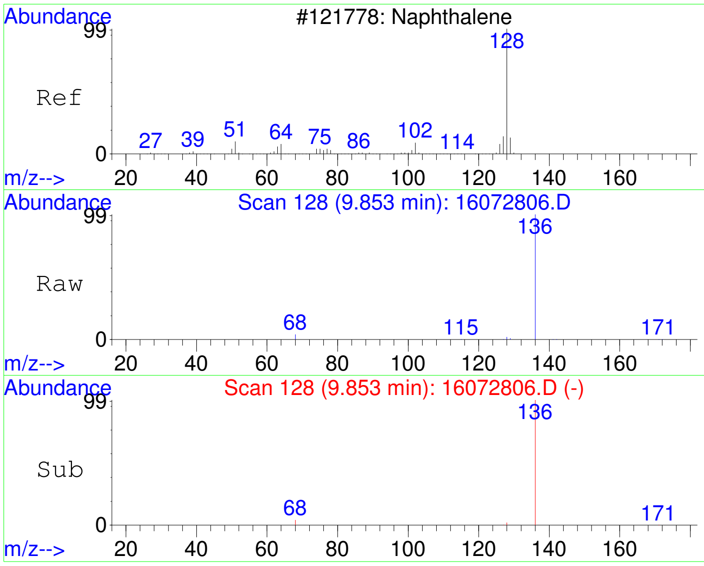
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072806.D Vial: 6
Acq On : 28 Jul 2016 11:16 am Operator: DEW
Sample : 1607219-13B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

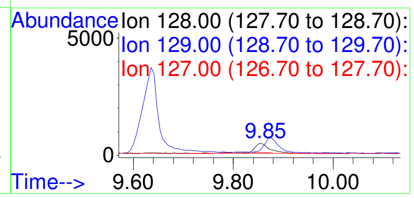


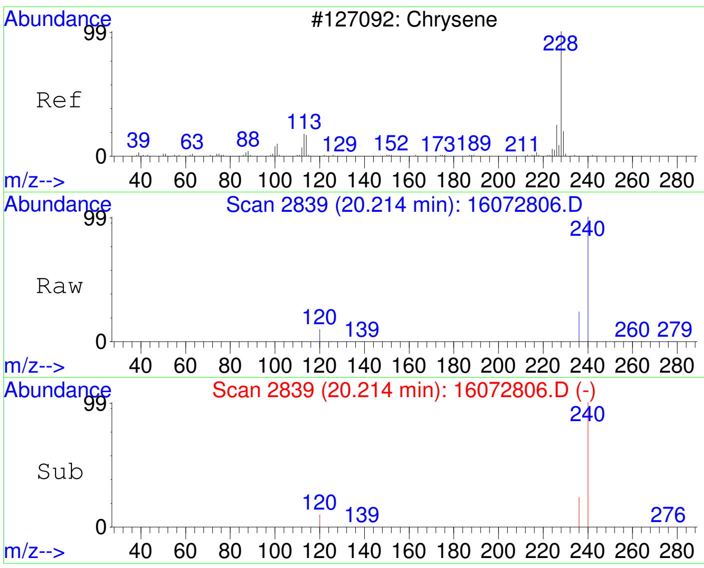


#2
Naphthalene
Concen: 5.16 ug/kg
RT: 9.85 min Scan# 128
Delta R.T. 0.00 min
Lab File: 16072806.D
Acq: 28 Jul 2016 11:16 am

Tgt Ion:128 Resp: 1041

Ion	Ratio	Lower	Upper
128	100		
129	24.9	0.0	41.2
127	9.7	0.0	42.5

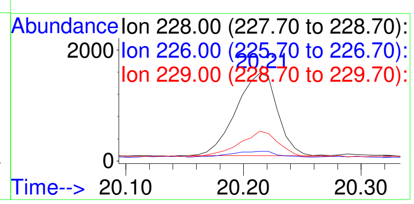


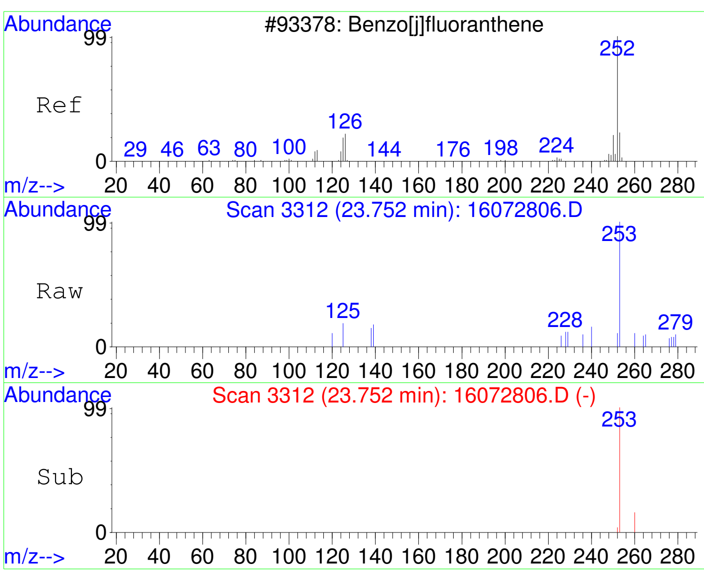


#19
Chrysene
Concen: 10.70 ug/kg
RT: 20.21 min Scan# 2839
Delta R.T. -0.09 min
Lab File: 16072806.D
Acq: 28 Jul 2016 11:16 am

Tgt Ion:228 Resp: 3644

Ion	Ratio	Lower	Upper
228	100		
226	7.1	0.0	58.1
229	30.5	0.0	49.9

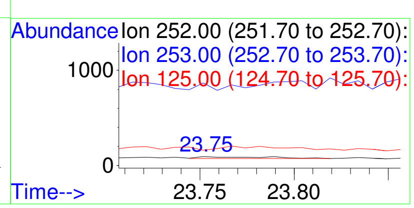




#23
Benzo(j)fluoranthene
Concen: 0.13 ug/kg
RT: 23.75 min Scan# 3312
Delta R.T. -0.03 min
Lab File: 16072806.D
Acq: 28 Jul 2016 11:16 am

Tgt Ion:252 Resp: 44

Ion	Ratio	Lower	Upper
252	100		
253	345.0	2.1	42.1#
125	0.0	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160728\16072807.D          Vial: 7
Acq On    : 28 Jul 2016  11:54 am                   Operator: DEW
Sample    : 1607219-26B                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug 10 10:21 2016              Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 --------------------------------------------------------------------------
   1) Naphthalene-d8               9.82  136   820715   4000.00 ug/kg   92
   5) Acenaphthene-d10            12.44  164   496738   4000.00 ug/kg   87
  11) Phenanthrene-d10            14.55  188  1391895   4000.00 ug/kg   93
  17) Chrysene-d12                20.21  240  1601138   4000.00 ug/kg   99
  20) Perylene-d12                25.33  264  1554643   4000.00 ug/kg   94

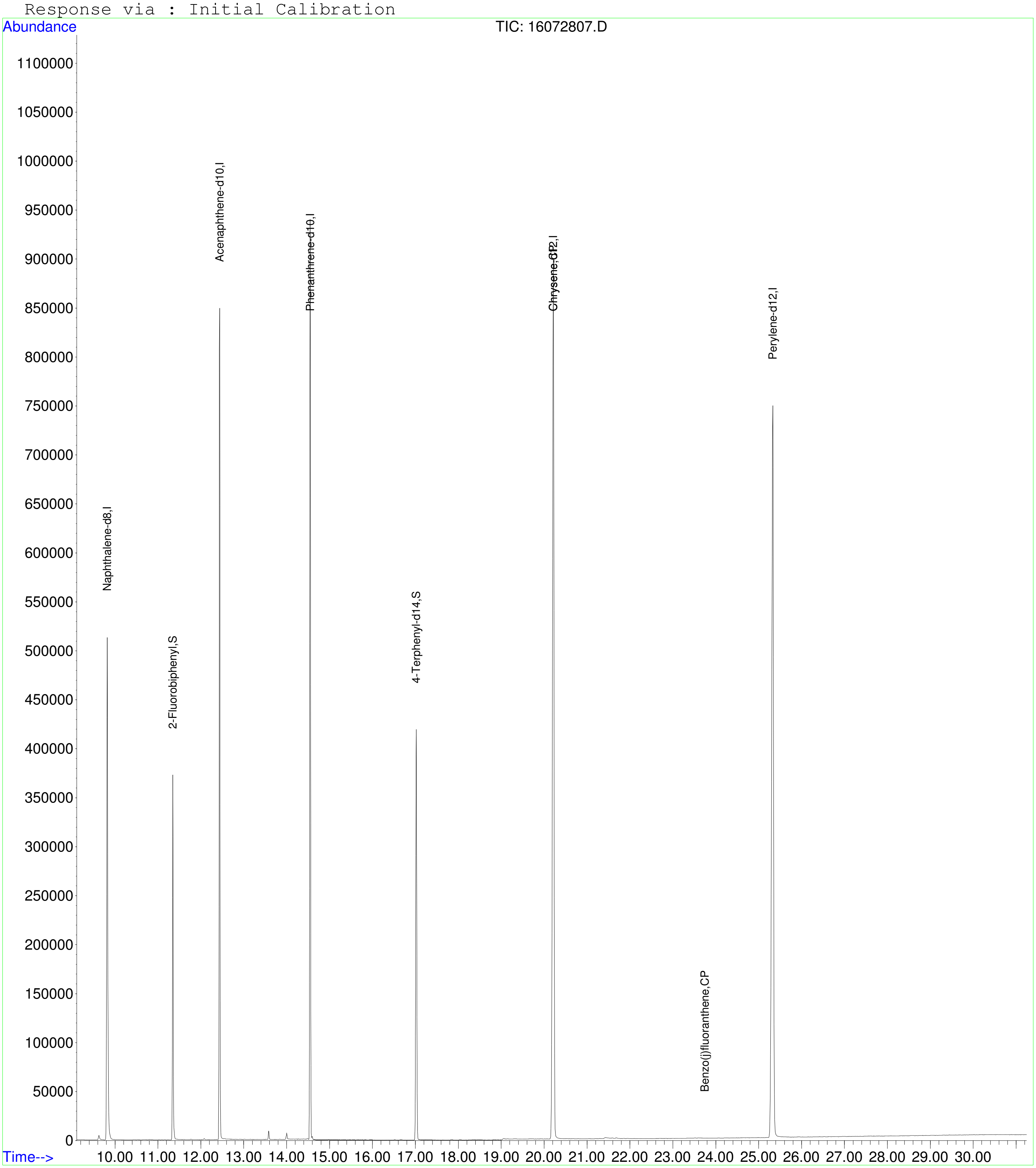
 System Monitoring Compounds
   7) 2-Fluorobiphenyl            11.35  172   344611   2141.43 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    53.54%
  16) 4-Terphenyl-d14             17.02  244   613856   2079.74 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    51.99%

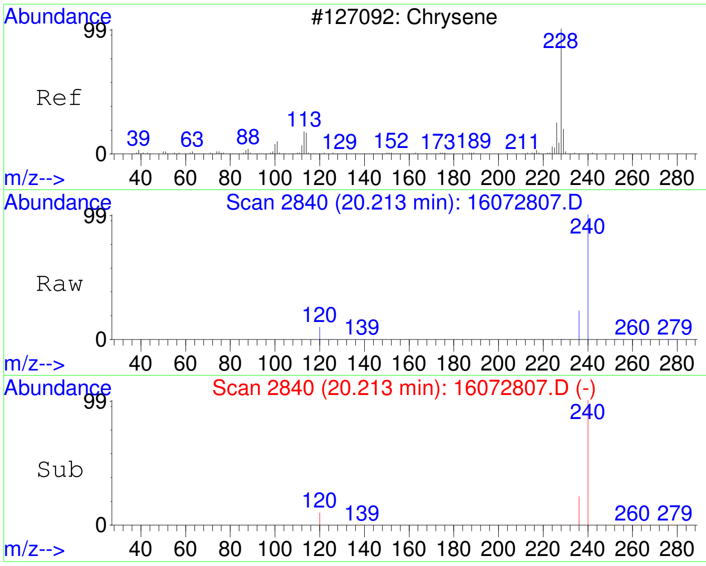
 Target Compounds                                                 Qvalue
  19) Chrysene                    20.21  228     3322    10.27 ug/kg     72
  23) Benzo(j)fluoranthene        23.75  252       81     0.26 ug/kg     58

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

Data File : C:\HPCHEM\1\DATA\160728\16072807.D Vial: 7
Acq On : 28 Jul 2016 11:54 am Operator: DEW
Sample : 1607219-26B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

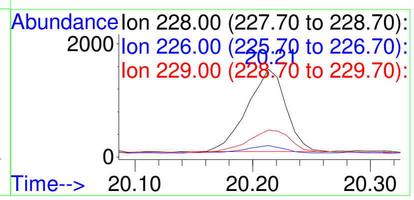


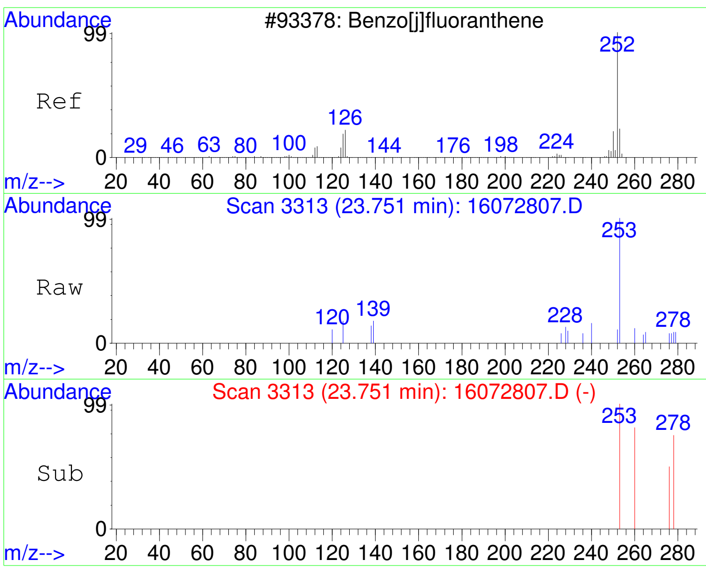


#19
Chrysene
Concen: 10.27 ug/kg
RT: 20.21 min Scan# 2840
Delta R.T. -0.09 min
Lab File: 16072807.D
Acq: 28 Jul 2016 11:54 am

Tgt Ion:228 Resp: 3322

Ion	Ratio	Lower	Upper
228	100		
226	8.9	0.0	58.1
229	27.1	0.0	49.9

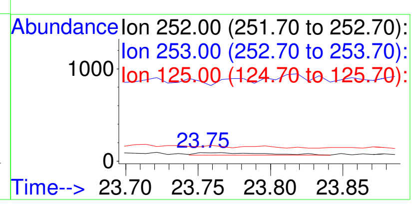




#23
Benzo(j)fluoranthene
Concen: 0.26 ug/kg
RT: 23.75 min Scan# 3313
Delta R.T. -0.03 min
Lab File: 16072807.D
Acq: 28 Jul 2016 11:54 am

Tgt Ion:252 Resp: 81

Ion	Ratio	Lower	Upper
252	100		
253	40.7	2.1	42.1
125	33.3	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072816.D Vial: 16
Acq On : 28 Jul 2016 5:31 pm Operator: DEW
Sample : ICV2-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	971538	4000.00	ug/kg	109
5) Acenaphthene-d10	12.44	164	596586	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1699263	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1873252	4000.00	ug/kg	116
20) Perylene-d12	25.34	264	1888346	4000.00	ug/kg	114

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	367882	1903.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.59%			
16) 4-Terphenyl-d14	17.02	244	678598	1877.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.93%			

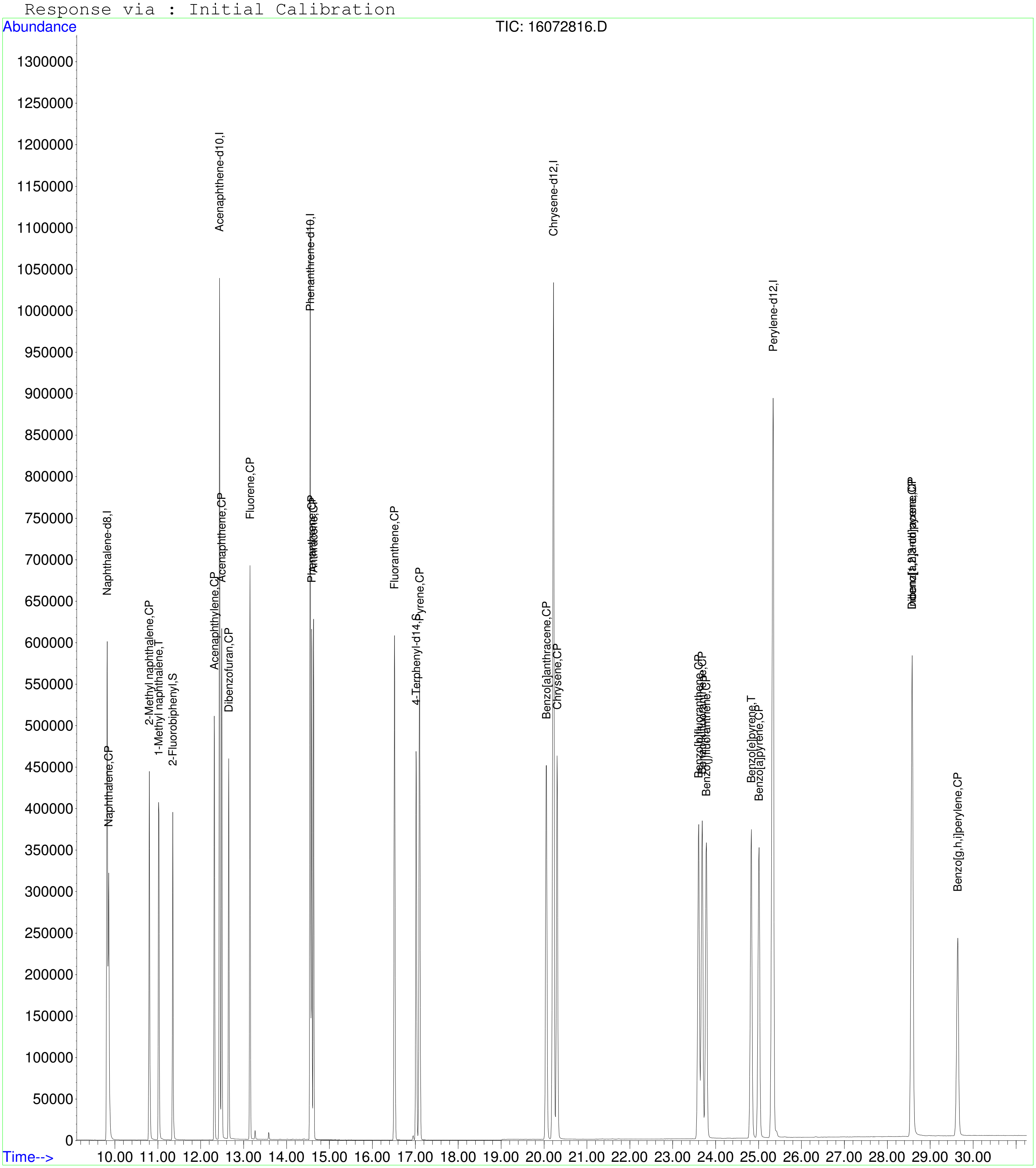
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.86	128	392628	1777.18	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	291499	1825.56	ug/kg	97
4) 1-Methyl naphthalene	11.02	142	266041	1811.37	ug/kg	98
6) Dibenzofuran	12.65	168	420847	1776.70	ug/kg	99
8) Acenaphthylene	12.32	152	482469	1858.57	ug/kg	99
9) Acenaphthene	12.49	154	280864	1821.60	ug/kg	97
10) Fluorene	13.15	166	358158	1859.01	ug/kg	100
12) Phenanthrene	14.59	178	671597	2088.60	ug/kg	100
13) Anthracene	14.63	178	568837	1728.11	ug/kg	100
14) Fluoranthene	16.52	202	681788	1724.48	ug/kg	100
15) Pyrene	17.10	202	686885	1687.04	ug/kg	100
18) Benzo[a]anthracene	20.06	228	740083	1842.65	ug/kg	99
19) Chrysene	20.30	228	679574	1796.53	ug/kg	100
21) Benzo[b]fluoranthene	23.60	252	799836	1853.65	ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	731652	1849.59	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	704600	1881.39	ug/kg	99
24) Benzo[e]pyrene	24.83	252	754358	1840.34	ug/kg	100
25) Benzo[a]pyrene	25.01	252	748553	1840.21	ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	598827	1420.46	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.58	276	701633	1385.79	ug/kg	94
28) Benzo[g,h,i]perylene	29.64	276	547403	1489.82	ug/kg	94

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160728\16072816.D          Vial: 16
Acq On    : 28 Jul 2016   5:31 pm                    Operator: DEW
Sample    : ICV2-160728                              Inst    : GC/MS #6
Misc      : ICV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016             Quant Results File: PP160725.RES

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
```



GCMS6_160802B
For

DHL Work Order
1607219

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	**Run ID: GCMS6_160802B**
Batch Number(s): See Run Log. **Matrix: See Run Log.**	**SOP:** ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
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			
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		
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		x
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction			X	x
	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		

VARIANCE REPORT

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

NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

QA APPROVED
By John DuPont at 2:33:23 PM, 8/10/2016

Approved by: Date:

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

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

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

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

All samples with detections will be reanalyzed. Only non-detect samples reported.

Analyst: Don Winston Date: 8/3/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:26:46 PM, 8/10/2016

8270-PAH-SOIL-GCMS6

DHL Analytical, Inc.

Run ID:	**GCMS6_160802B**	**Run No.:**	87388
Analytical Run Date:	8/2/2016	**InstrumentID:**	GCMS6
Analyst:	Don Winston	**Column:**	Agilent (J&W) DB-EUPAH (20m x 0.18mmI
Calibration ID:	680	**Column ID:**	0.18mm
		Column Length:	20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160802	1	PAH_LL_SDOD1	TUNE	R87388	8/2/2016 8:47:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160802	1	PAH_LL_SDOD1	ICV	R87388	8/2/2016 9:27:00 AM		
LCS-76473	1	PAH_LL_SDOD1	LCS	76473	8/2/2016 10:08:00 AM		
MB-76473	1	PAH_LL_SDOD1	MBLK	76473	8/2/2016 10:47:00 AM		
1607256-07A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 11:28:00 AM		
1607256-08A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 12:08:00 PM		
1607256-09A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 12:49:00 PM		
1607256-10A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 1:30:00 PM		
1607256-11A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 2:11:00 PM		
1607256-12A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 2:52:00 PM		
1607256-14A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 3:33:00 PM		
1607256-15A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 4:13:00 PM		
1607256-16A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 4:54:00 PM		
1607256-17A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 5:35:00 PM		
1607256-18A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 6:15:00 PM		
1607256-19A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 6:55:00 PM		
1607256-29A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 7:35:00 PM		
1607256-30A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 8:16:00 PM		
DFTPP2-160802	1	PAH_LL_SDOD1	TUNE	R87388	8/2/2016 8:56:00 PM		
ICV2-160802	1	PAH_LL_SDOD1	ICV	R87388	8/2/2016 9:36:00 PM		
SB-160802	1	PAH_LL_SDOD1	SBLK	76473	8/2/2016 10:17:00 PM		J value hits present in System Blank. Only non-detect samples reported.
1607256-31A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 10:57:00 PM		
1607256-32A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 11:37:00 PM		
1607256-33A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 12:17:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607256-34A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 12:58:00 AM		
1607256-35A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:38:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.

Run ID: **GCMS6_160802B** **Run No.:** 87388

1607256-36A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 2:19:00 AM		
1607219-18A	10	PAH_LL_SDOD1	SAMP	76420	8/3/2016 2:59:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:40:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 4:20:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:00:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:40:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 6:19:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607256-07AMS	10	PAH_LL_SDOD1	MS	76473	8/3/2016 6:59:00 AM		
1607256-07AMSD	10	PAH_LL_SDOD1	MSD	76473	8/3/2016 7:40:00 AM		
CCV1-160802	1	PAH_LL_SDOD1	CCV	R87388	8/3/2016 8:20:00 AM		

Sequence Name: C:\HPCHEM\1\SEQUENCE\160802.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160802\
Pre-Seq Cmd:
Post-Seq Cmd:

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

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

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080201	DFTPPPAH	DFTPP-160802
2	Sample	2	16080202	PP160801	ICV-160802
3	Sample	3	16080203	PP160801	LCS-76473
4	Sample	4	16080204	PP160801	MB-76473
5	Sample	5	16080205	PP160801	1607256-07A
6	Sample	6	16080206	PP160801	1607256-08A
7	Sample	7	16080207	PP160801	1607256-09A
8	Sample	8	16080208	PP160801	1607256-10A
9	Sample	9	16080209	PP160801	1607256-11A
10	Sample	10	16080210	PP160801	1607256-12A
11	Sample	11	16080211	PP160801	1607256-14A
12	Sample	12	16080212	PP160801	1607256-15A
13	Sample	13	16080213	PP160801	1607256-16A
14	Sample	14	16080214	PP160801	1607256-17A
15	Sample	15	16080215	PP160801	1607256-18A
16	Sample	16	16080216	PP160801	1607256-19A
17	Sample	17	16080217	PP160801	1607256-29A
18	Sample	18	16080218	PP160801	1607256-30A
19	Sample	19	16080219	DFTPPPAH	DFTPP2-160802
20	Sample	20	16080220	PP160801	ICV2-160802
21	Sample	21	16080221	PP160801	SB-160802
22	Sample	22	16080222	PP160801	1607256-31A
23	Sample	23	16080223	PP160801	1607256-32A
24	Sample	24	16080224	PP160801	1607256-33A
25	Sample	25	16080225	PP160801	1607256-34A
26	Sample	26	16080226	PP160801	1607256-35A
27	Sample	27	16080227	PP160801	1607256-36A
28	Sample	28	16080228	PP160801	1607219-18A
29	Sample	29	16080229	PP160801	1607219-22A
30	Sample	30	16080230	PP160801	1607239-01A
31	Sample	31	16080231	PP160801	1607239-05A
32	Sample	32	16080232	PP160801	1607239-11A
33	Sample	33	16080233	PP160801	1607239-17A
34	Sample	34	16080234	PP160801	1607256-07AMS
35	Sample	35	16080235	PP160801	1607256-07AMSD
36	Sample	36	16080236	PP160801	CCV1-160802
37	Sample	37	16080237	PP160801	DCS-~~73288~~ **76288**
38	Sample	38	16080238	PP160801	LQV1-~~73288~~**76288**

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 8:50:03 AM**
Digestion:
Prep End Date: **7/25/2016 12:20:00 PM**

Prep Batch **76420** 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
1607219-01A	Soil		10.21	10	0.979	1	of	1	
1607219-02A	Soil		10.04	10	0.996	1	of	1	
1607219-03A	Soil		10.08	10	0.992	1	of	3	
1607219-03AMS	Soil		10.59	10	0.944	1	of		
1607219-03AMSD	Soil		10.23	10	0.978	12	of		
1607219-04A	Soil		10.04	10	0.996	1	of	1	
1607219-05A	Soil		10.07	10	0.993	1	of	1	
1607219-06A	Soil		10.04	10	0.996	1	of	1	
1607219-07A	Soil		10.01	10	0.999	1	of	1	
1607219-08A	Soil		10.1	10	0.990	1	of	1	
1607219-09A	Soil		10.19	10	0.981	1	of	1	
1607219-10A	Soil		10.03	10	0.997	1	of	1	
1607219-11A	Soil		10.04	10	0.996	1	of	1	
1607219-12A	Soil		10.05	10	0.995	1	of	1	
1607219-14A	Soil		10.03	10	0.997	1	of	1	
1607219-15A	Soil		10.21	10	0.979	1	of	1	
1607219-16A	Soil		10.08	10	0.992	1	of	1	
1607219-17A	Soil		10.06	10	0.994	1	of	1	
1607219-18A	Soil		10.33	10	0.968	1	of	1	
1607219-19A	Soil		10.21	10	0.979	1	of	1	
1607219-20A	Soil		10.12	10	0.988	1	of	1	
1607219-21A	Soil		10.02	10	0.998	1	of	1	
LCS-76420	Soil		10	10	1.000		of		
MB-76420	Soil		10	10	1.000		of		

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

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

REVIEWED/APPROVED
By Sherri Herschmann at 8:59:31 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 8:50:03 AM**
Digestion:
Prep End Date: 7/25/16 12:20PM

Prep Batch **76420** 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
1607219-01A	Soil		10.21	10	1.000	1	of	1	
1607219-02A	Soil		10.04	10	1.000	1	of	1	
1607219-03A	Soil		10.08	10	1.000	1	of	3	
1607219-03AMS	Soil		10.59	10	1.000	1	of		
1607219-03AMSD	Soil		10.23	10	1.000	1,2	of		
1607219-04A	Soil		10.04	10	1.000	1	of	1	
1607219-05A	Soil		10.07	10	1.000	1	of	1	
1607219-06A	Soil		10.04	10	1.000	1	of	1	
1607219-07A	Soil		10.01	10	1.000	1	of	1	
1607219-08A	Soil		10.10	10	1.000	1	of	1	
1607219-09A	Soil		10.19	10	1.000	1	of	1	
1607219-10A	Soil		10.03	10	1.000	1	of	1	
1607219-11A	Soil		10.04	10	1.000	1	of	1	
1607219-12A	Soil		10.05	10	1.000	1	of	1	
1607219-14A	Soil		10.03	10	1.000	1	of	1	
1607219-15A	Soil		10.21	10	1.000	1	of	1	
1607219-16A	Soil		10.08	10	1.000	1	of	1	
1607219-17A	Soil		10.06	10	1.000	1	of	1	
1607219-18A	Soil		10.33	10	1.000	1	of	1	
1607219-19A	Soil		10.21	10	1.000	1	of	1	
1607219-20A	Soil		10.~~21~~12	10 AR	1.000	1	of	1	
1607219-21A	Soil		10.02	10	1.000	1	of	1	
LCS-76420	Soil		10	10	1.000		of		
MB-76420	Soil		10	10	1.000		of		

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

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

AR 7/25/16

7/25/16

REVIEWED/APPROVED
By Sherri Herschmann at 8:53:28 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 1:10:20 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**

Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**

Prep End Date: **7/22/2016 6:00:00 PM**

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 1:10:22 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: 7/25/16 5:00 Pm

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	1.000	1 of 1	
1607219-23A	Soil		10.71	10	1.000	1 of 1	
1607219-24A	Soil		10.27	10	1.000	1 of 1	
1607219-25A	Soil		10.46	10	1.000	1 of 1	
1607239-01A	Soil		10.05	10	1.000	1 of 3	
1607239-01AMS	Soil		10.68	10	1.000	1 of 3	
1607239-01AMSD	Soil		10.47	10	1.000	1 of 3	
1607239-02A	Soil		10.13	10	1.000	1 of 1	
1607239-03A	Soil		10.14	10	1.000	1 of 1	
1607239-04A	Soil		10.14	10	1.000	1 of 1	
1607239-05A	Soil		10.42	10	1.000	1 of 1	
1607239-06A	Soil		10.07	10	1.000	1 of 1	
1607239-07A	Soil		10.26	10	1.000	1 of 1	
1607239-08A	Soil		10.33	10	1.000	1 of 1	
1607239-09A	Soil		10.01	10	1.000	1 of 1	
1607239-10A	Soil		10.71	10	1.000	1 of 1	
1607239-11A	Soil		10.22	10	1.000	1 of 1	
1607239-12A	Soil		10.22	10	1.000	1 of 1	
1607239-13A	Soil		10.29	10	1.000	1 of 1	
1607239-14A	Soil		10.83	10	1.000	1 of 1	
1607239-15A	Soil		10.53	10	1.000	1 of 1	
1607239-17A	Soil		10.74	10	1.000	1 of 1	
LCS-76442	Soil		10	10	1.000	of	
MB-76442	Soil		10	10	1.000	of	

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

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

REVIEWED BY
By Janice Whitt at 12:36:50 PM, 8/10/2016

7/25/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: **7/25/2016 5:00:00 PM**

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	0.995	1	of	1	
1607219-23A	Soil		10.71	10	0.934	1	of	1	
1607219-24A	Soil		10.27	10	0.974	1	of	1	
1607219-25A	Soil		10.46	10	0.956	1	of	1	
1607239-01A	Soil		10.05	10	0.995	1	of	3	
1607239-01AMS	Soil		10.68	10	0.936	1	of		
1607239-01AMSD	Soil		10.47	10	0.955	1	of		
1607239-02A	Soil		10.13	10	0.987	1	of	1	
1607239-03A	Soil		10.14	10	0.986	1	of	1	
1607239-04A	Soil		10.14	10	0.986	1	of	1	
1607239-05A	Soil		10.42	10	0.960	1	of	1	
1607239-06A	Soil		10.07	10	0.993	1	of	1	
1607239-07A	Soil		10.26	10	0.975	1	of	1	
1607239-08A	Soil		10.33	10	0.968	1	of	1	
1607239-09A	Soil		10.01	10	0.999	1	of	1	
1607239-10A	Soil		10.71	10	0.934	1	of	1	
1607239-11A	Soil		10.22	10	0.978	1	of	1	
1607239-12A	Soil		10.22	10	0.978	1	of	1	
1607239-13A	Soil		10.29	10	0.972	1	of	1	
1607239-14A	Soil		10.83	10	0.923	1	of	1	
1607239-15A	Soil		10.53	10	0.950	1	of	1	
1607239-17A	Soil		10.74	10	0.931	1	of	1	
LCS-76442	Soil		10	10	1.000		of		
MB-76442	Soil		10	10	1.000		of		

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

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

REVIEWED BY
By Janice Whitt at 12:36:52 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:00 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

REVIEWED BY
By Janice Whitt at 12:31:05 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:07 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:14 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

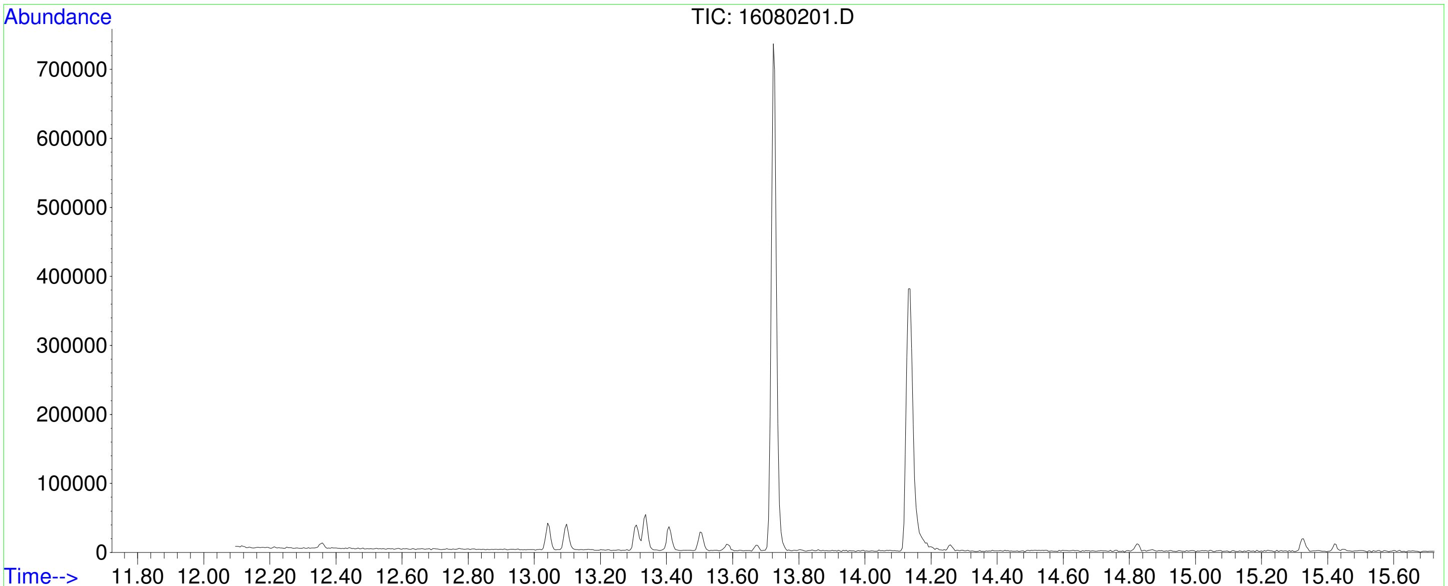
Prep Factor Units: **mL/**

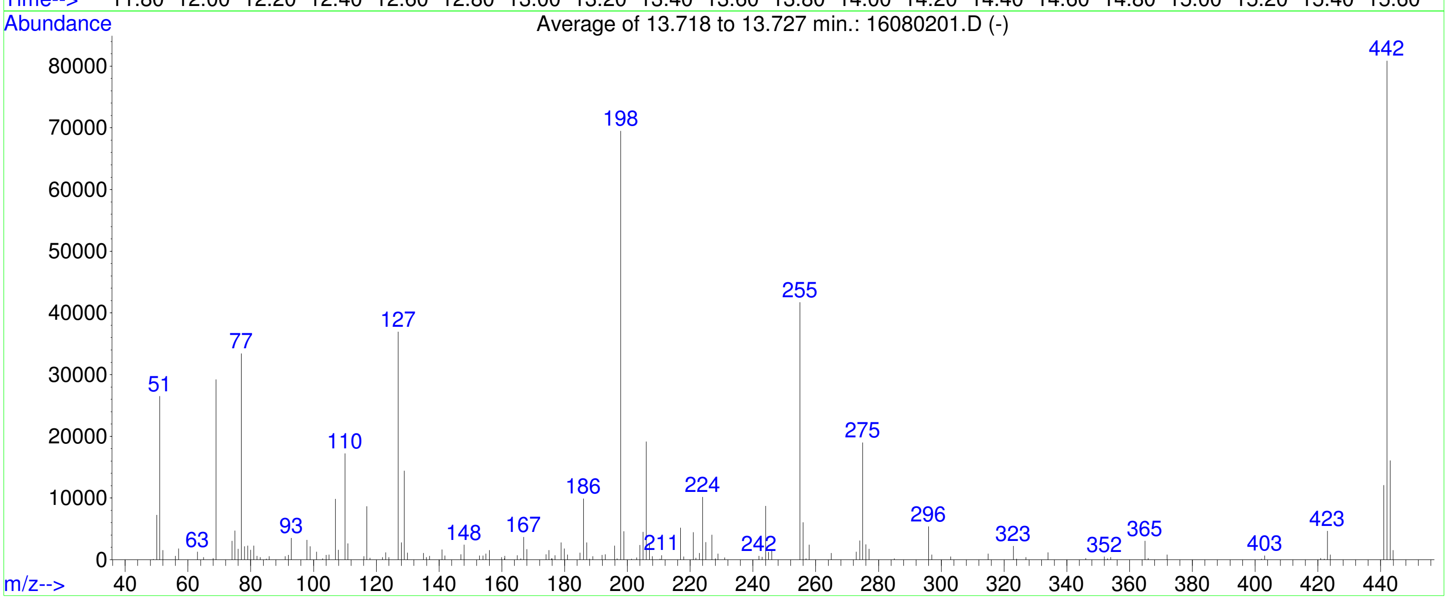
Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

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

REVIEWED BY
By Janice Whitt at 12:31:16 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160802\16080201.D Vial: 1
Acq On : 2 Aug 2016 8:47 am Operator: DEW
Sample : DFTPP-160802 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration





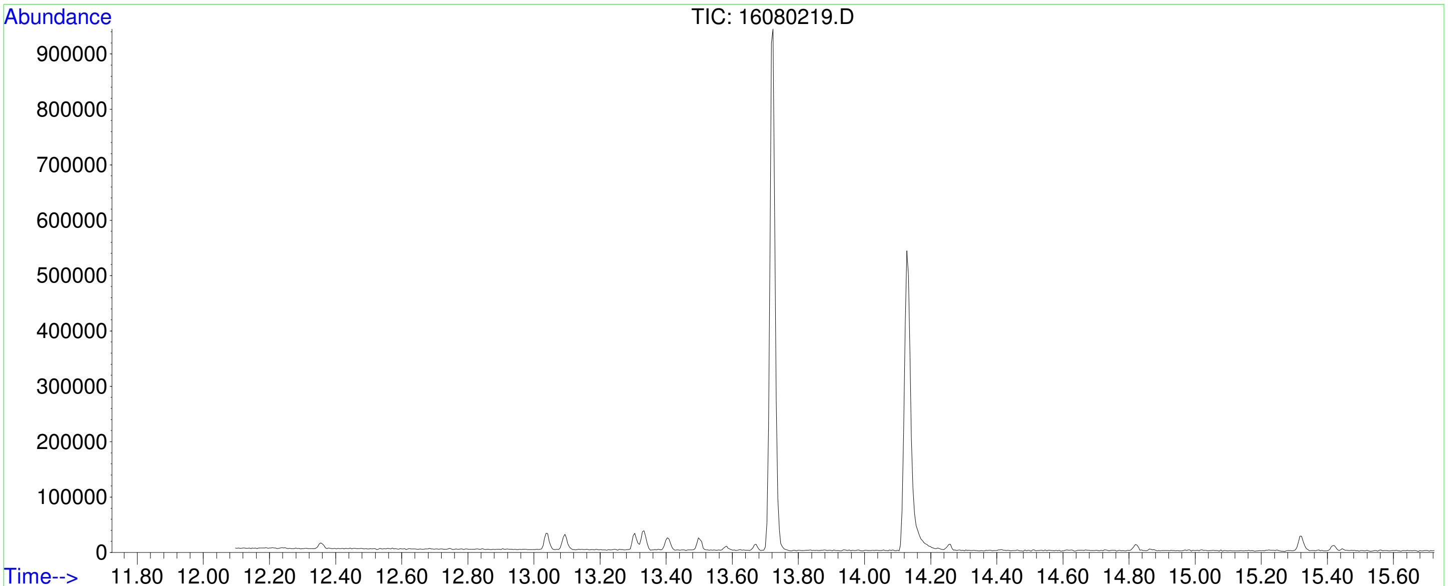
AutoFind: Scans 346, 347, 348; Background Corrected with Scan 340

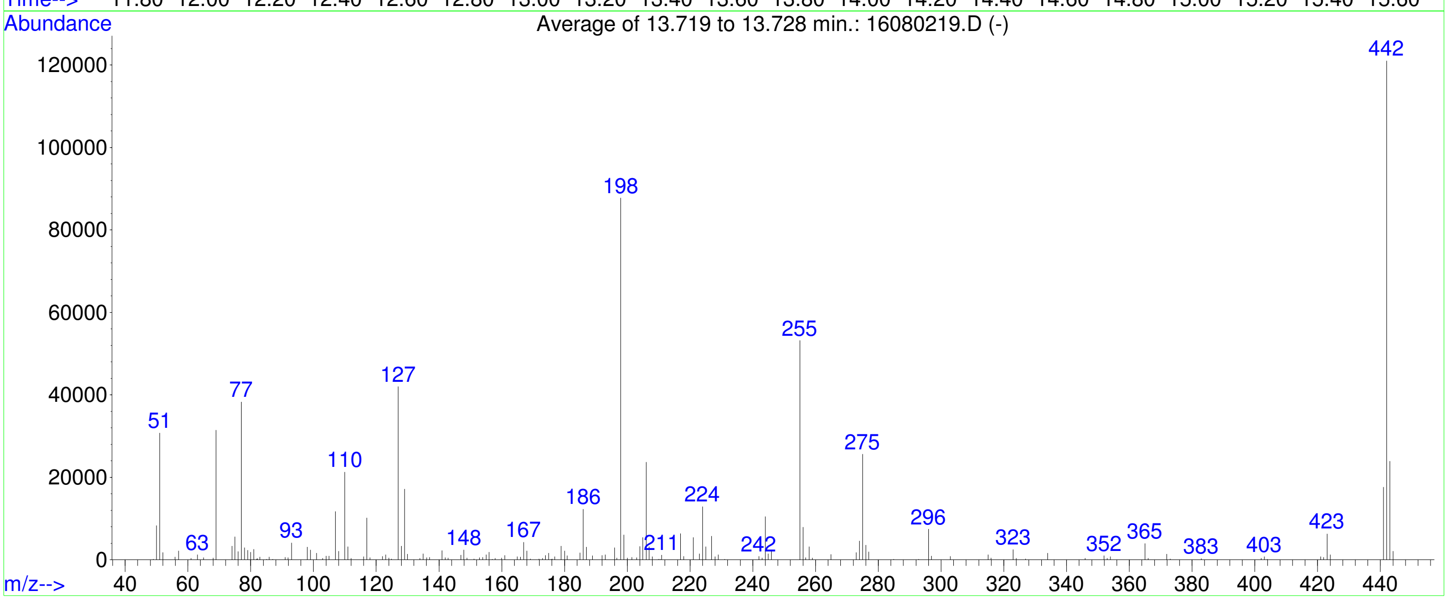
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.2	26520	PASS
68	69	0.00	2	0.8	237	PASS
69	198	0.00	100	42.1	29245	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.2	36949	PASS
197	198	0.00	2	0.3	226	PASS
198	198	100	100	100.0	69507	PASS
199	198	5	9	6.7	4643	PASS
275	198	10	60	27.4	19018	PASS
365	198	1	200	4.4	3070	PASS
441	442	0.01	24	15.0	12104	PASS
442	198	50	400	116.4	80875	PASS
443	442	15	24	19.9	16087	PASS

REVIEWED BY
By Janice Whitt at 1:11:40 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160802\16080219.D          Vial: 19
Acq On    :  2 Aug 2016   8:56 pm                   Operator: DEW
Sample    : DFTPP2-160802                           Inst    : GC/MS #6
Misc      : TUNE                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title     : PAH Calibration
```





AutoFind: Scans 346, 347, 348; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.1	30792	PASS
68	69	0.00	2	1.6	491	PASS
69	198	0.00	100	35.8	31435	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	47.9	42021	PASS
197	198	0.00	2	0.6	485	PASS
198	198	100	100	100.0	87760	PASS
199	198	5	9	6.9	6078	PASS
275	198	10	60	29.2	25605	PASS
365	198	1	200	4.5	3955	PASS
441	442	0.01	24	14.6	17673	PASS
442	198	50	400	137.9	121053	PASS
443	442	15	24	19.8	23925	PASS

REVIEWED BY
By Janice Whitt at 1:11:46 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080202.D Vial: 2
Acq On : 2 Aug 2016 9:27 am Operator: DEW
Sample : ICV-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1473446	4000.00 ug/kg	105
5) Acenaphthene-d10	13.16	164	614716	4000.00 ug/kg	103
11) Phenanthrene-d10	15.27	188	1514689	4000.00 ug/kg	95
17) Chrysene-d12	20.93	240	1883018	4000.00 ug/kg	103
20) Perylene-d12	26.06	264	1991822	4000.00 ug/kg	103

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	413910	1930.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	48.26%	
16) 4-Terphenyl-d14	17.73	244	672951	1882.65 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.07%	

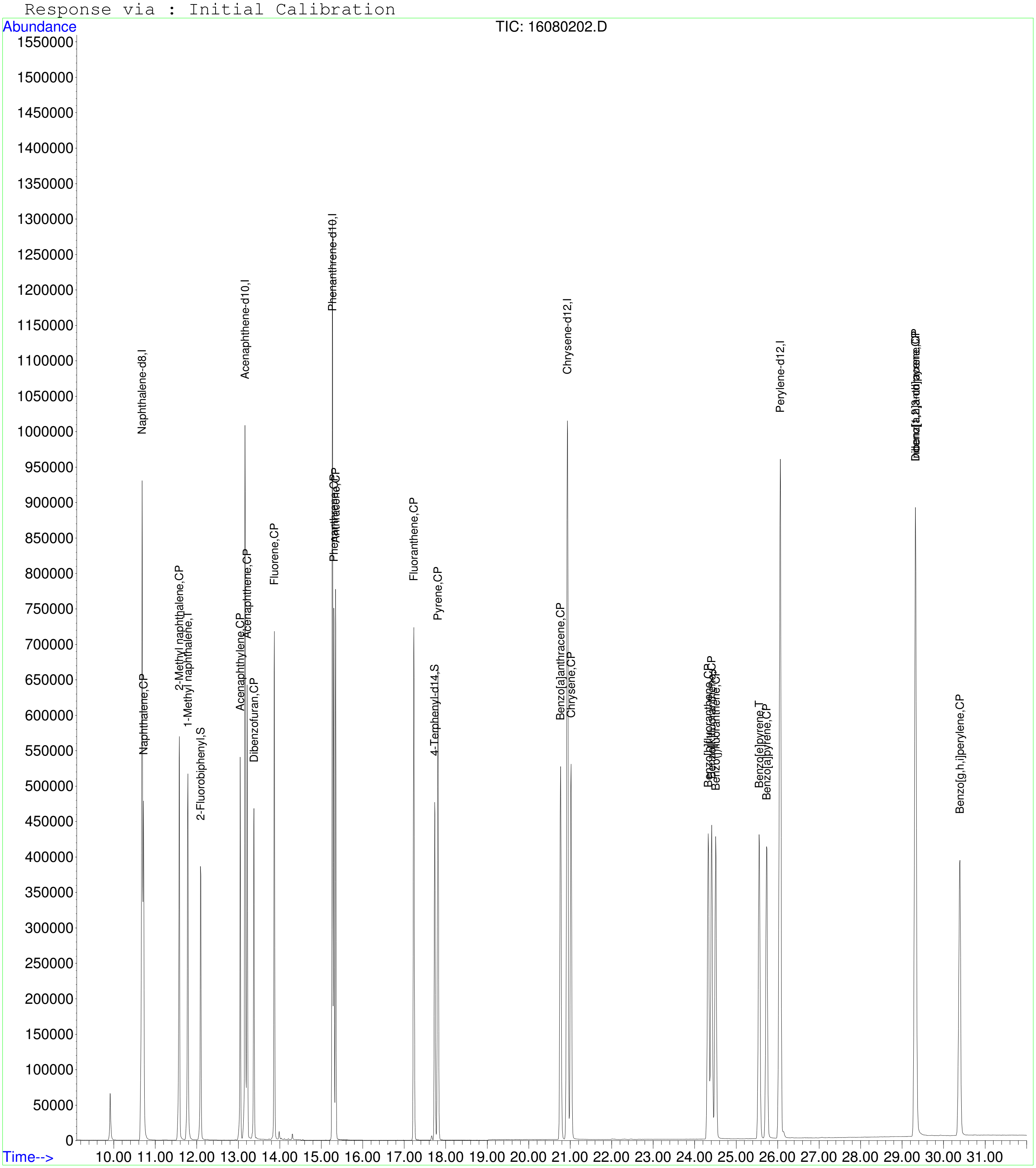
Target Compounds					Qvalue
2) Naphthalene	10.72	128	621794	1854.75 ug/kg	100
3) 2-Methyl naphthalene	11.58	142	402999	1854.31 ug/kg	100
4) 1-Methyl naphthalene	11.79	142	358716	1863.40 ug/kg	100
6) Dibenzofuran	13.38	168	462775	1860.27 ug/kg	100
8) Acenaphthylene	13.05	152	530337	1948.19 ug/kg	100
9) Acenaphthene	13.21	154	308432	1956.33 ug/kg	99
10) Fluorene	13.87	166	397172	2004.09 ug/kg	98
12) Phenanthrene	15.30	178	677652	1887.05 ug/kg	100
13) Anthracene	15.35	178	705762	1867.75 ug/kg	100
14) Fluoranthene	17.23	202	800055	1879.95 ug/kg	100
15) Pyrene	17.81	202	799778	1853.39 ug/kg	100
18) Benzo[a]anthracene	20.77	228	835938	1969.59 ug/kg	99
19) Chrysene	21.02	228	790987	1937.23 ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	913080	1985.72 ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	827924	1962.64 ug/kg	99
23) Benzo(j)fluoranthene	24.51	252	806179	1988.63 ug/kg	100
24) Benzo[e]pyrene	25.55	252	890597	1995.83 ug/kg	100
25) Benzo[a]pyrene	25.74	252	886141	1994.52 ug/kg	99
26) Dibenz[a,h]anthracene	29.32	278	874633	2034.32 ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	1030665	2020.13 ug/kg	100
28) Benzo[g,h,i]perylene	30.39	276	860197	2013.01 ug/kg	99

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080202.D          Vial: 2
Acq On    :  2 Aug 2016   9:27 am                   Operator: DEW
Sample    : ICV-160802                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:57 2016              Quant Results File: PP160801.RES

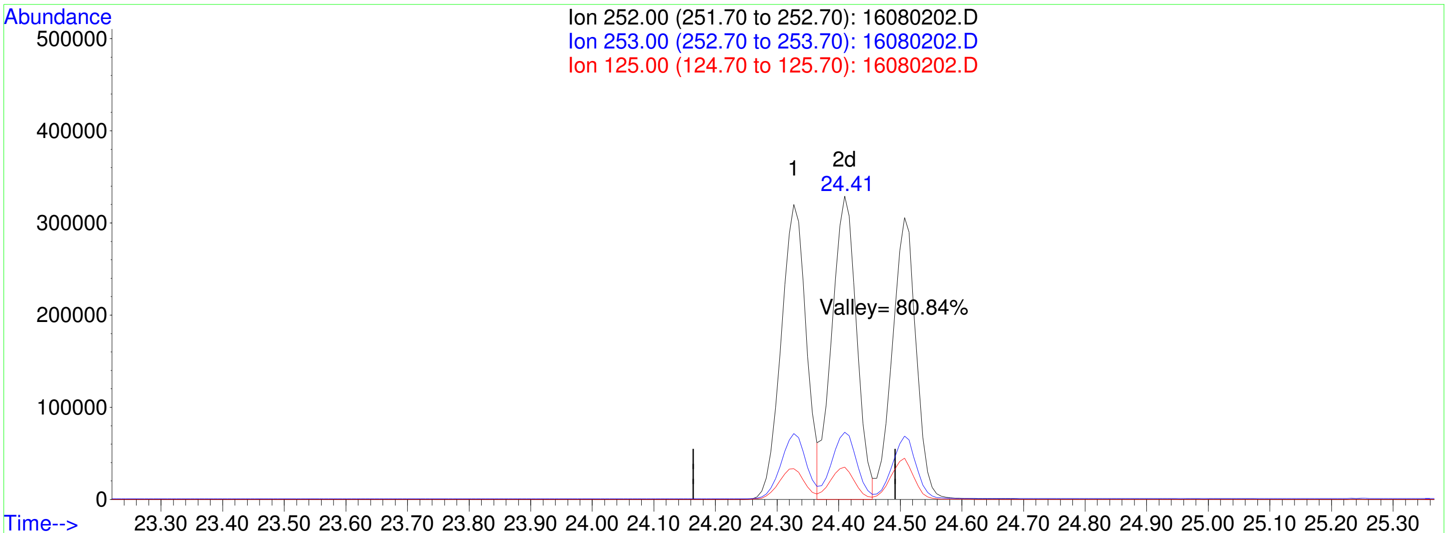
Method       : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
```

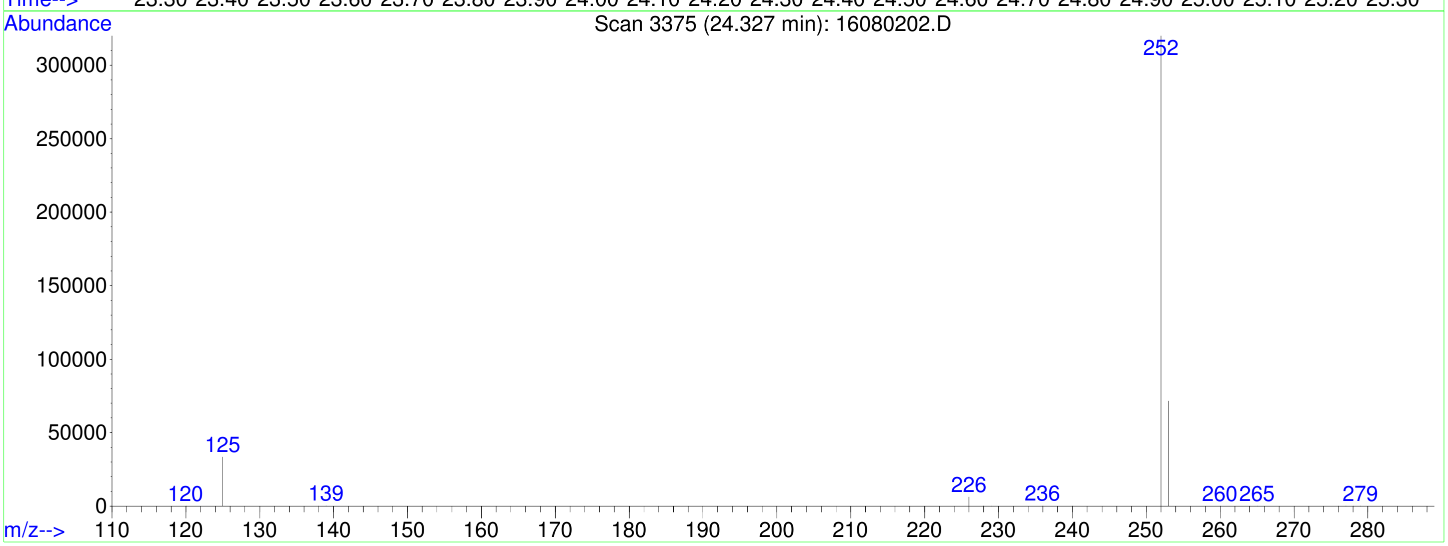


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160802\16080202.D          Vial: 2
Acq On    :  2 Aug 2016    9:27 am                 Operator: DEW
Sample    : ICV-160802                             Inst    : GC/MS #6
Misc      : ICV                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  2  9:59 2016             Quant Results File: temp.res

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





TIC: 16080202.D

(21) Benzo[b]fluoranthene (CP)

24.33min 1985.72ug/kg

response 913080

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.12
125.00	10.60	10.44
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080203.D Vial: 3
Acq On : 2 Aug 2016 10:08 am Operator: DEW
Sample : LCS-76473 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1893675	4000.00 ug/kg	135
5) Acenaphthene-d10	13.16	164	946238	4000.00 ug/kg	158
11) Phenanthrene-d10	15.27	188	1778578	4000.00 ug/kg	112
17) Chrysene-d12	20.93	240	2163815	4000.00 ug/kg	118
20) Perylene-d12	26.06	264	2201421	4000.00 ug/kg	114

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.09	172	273729	829.33 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.73%#	
16) 4-Terphenyl-d14	17.73	244	336376	801.42 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.04%#	

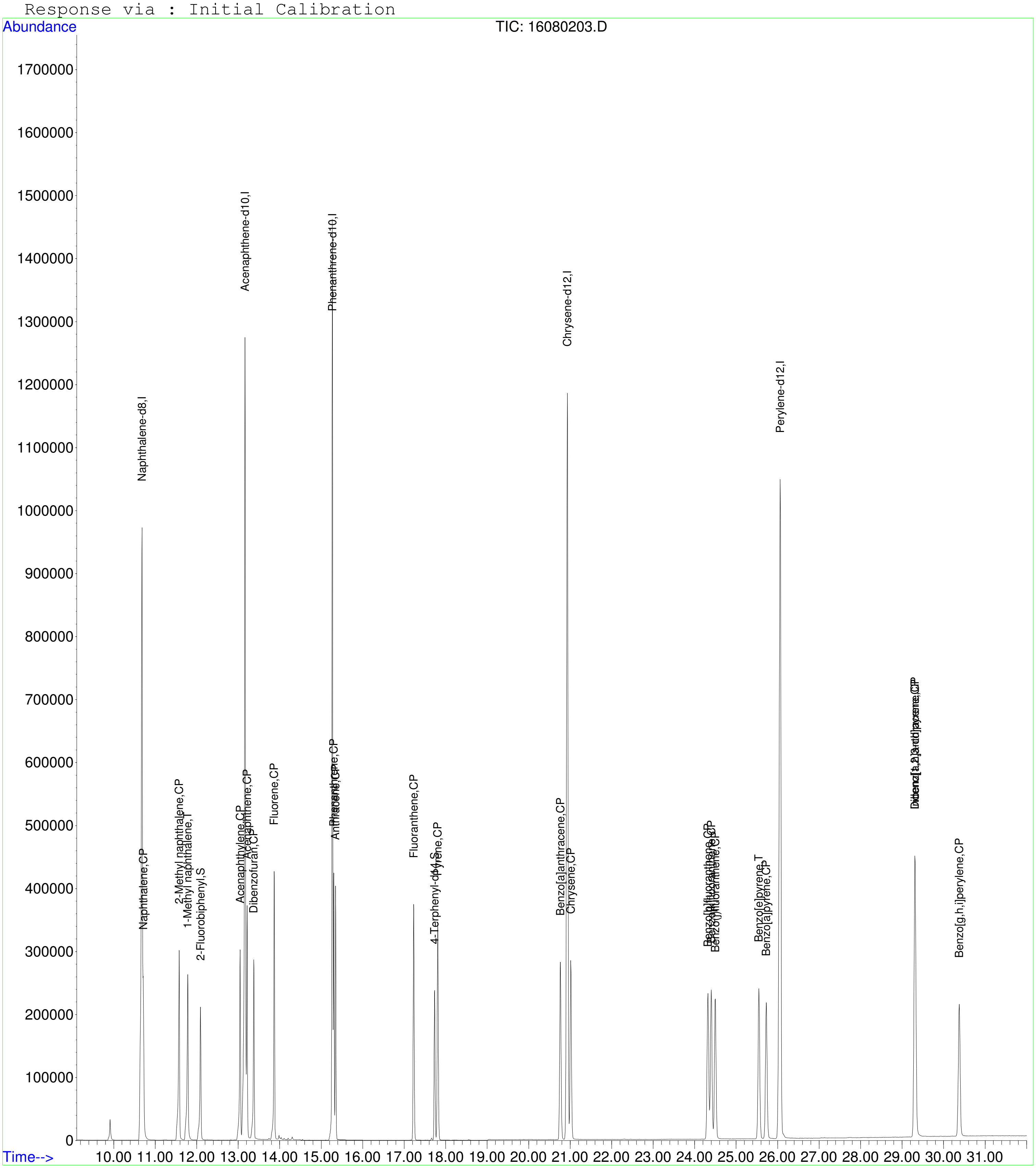
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.71	128	358934	833.07 ug/kg	99
3) 2-Methyl naphthalene	11.58	142	257188	920.78 ug/kg	97
4) 1-Methyl naphthalene	11.78	142	231617	936.17 ug/kg	96
6) Dibenzofuran	13.38	168	340284	888.63 ug/kg	99
8) Acenaphthylene	13.05	152	380315	907.61 ug/kg	100
9) Acenaphthene	13.21	154	223671	921.65 ug/kg	99
10) Fluorene	13.87	166	273934	897.96 ug/kg	98
12) Phenanthrene	15.30	178	402095	953.58 ug/kg	99
13) Anthracene	15.35	178	374145	843.24 ug/kg	100
14) Fluoranthene	17.23	202	423176	846.83 ug/kg	99
15) Pyrene	17.81	202	422896	834.61 ug/kg	100
18) Benzo[a]anthracene	20.77	228	449840	922.35 ug/kg	99
19) Chrysene	21.01	228	424924	905.64 ug/kg	100
21) Benzo[b]fluoranthene	24.32	252	486371	957.03 ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	463309	993.73 ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	447763	999.35 ug/kg	99
24) Benzo[e]pyrene	25.55	252	487702	988.88 ug/kg	99
25) Benzo[a]pyrene	25.73	252	446962	910.24 ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	443518	933.37 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	524150	929.53 ug/kg	98
28) Benzo[g,h,i]perylene	30.38	276	434176	919.31 ug/kg	100

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080203.D          Vial: 3
Acq On    :  2 Aug 2016  10:08 am                   Operator: DEW
Sample    : LCS-76473                               Inst    : GC/MS #6
Misc      : LCS                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:57 2016              Quant Results File: PP160801.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080204.D Vial: 4
Acq On : 2 Aug 2016 10:47 am Operator: DEW
Sample : MB-76473 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1786404	4000.00 ug/kg	127
5) Acenaphthene-d10	13.16	164	921564	4000.00 ug/kg	154
11) Phenanthrene-d10	15.27	188	1729778	4000.00 ug/kg	109
17) Chrysene-d12	20.93	240	2066622	4000.00 ug/kg	113
20) Perylene-d12	26.06	264	2089664	4000.00 ug/kg	108

System Monitoring Compounds

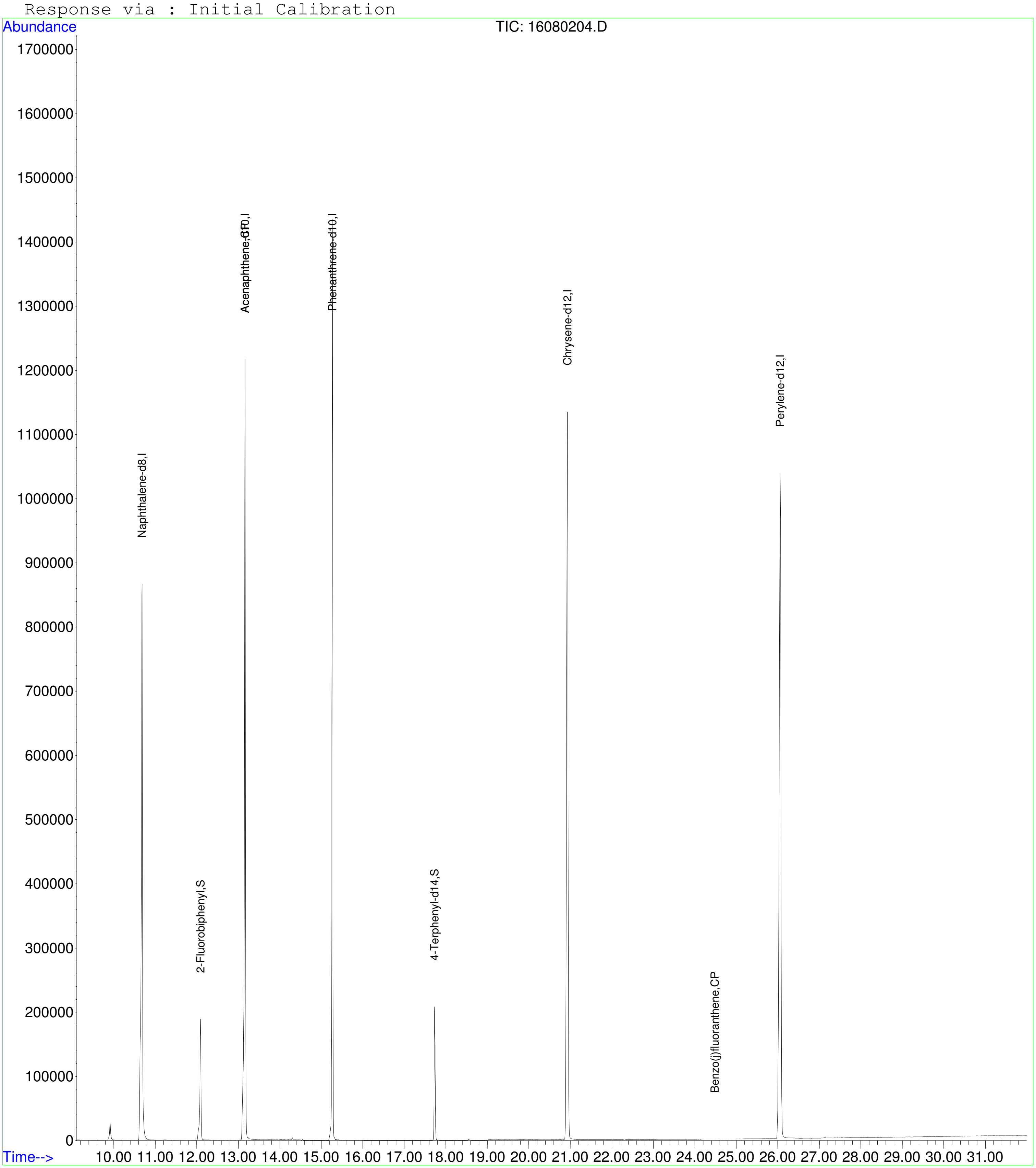
7) 2-Fluorobiphenyl	12.09	172	243964	758.94 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	18.97%#	
16) 4-Terphenyl-d14	17.73	244	294201	720.71 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	18.02%#	

Target Compounds					Qvalue
9) Acenaphthene	13.16	154	3214	~~13.60 ug/kg#~~	~~12~~
23) Benzo(j)fluoranthene	24.49	252	125	0.29 ug/kg#	64

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080204.D Vial: 4
Acq On : 2 Aug 2016 10:47 am Operator: DEW
Sample : MB-76473 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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



Data File : C:\HPCHEM\1\DATA\160802\16080220.D Vial: 20
Acq On : 2 Aug 2016 9:36 pm Operator: DEW
Sample : ICV2-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1428404	4000.00	ug/kg	102
5) Acenaphthene-d10	13.16	164	616048	4000.00	ug/kg	103
11) Phenanthrene-d10	15.27	188	1455983	4000.00	ug/kg	92
17) Chrysene-d12	20.93	240	1819892	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1940069	4000.00	ug/kg	101

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	426849	1986.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.66%			
16) 4-Terphenyl-d14	17.73	244	680429	1980.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.51%			

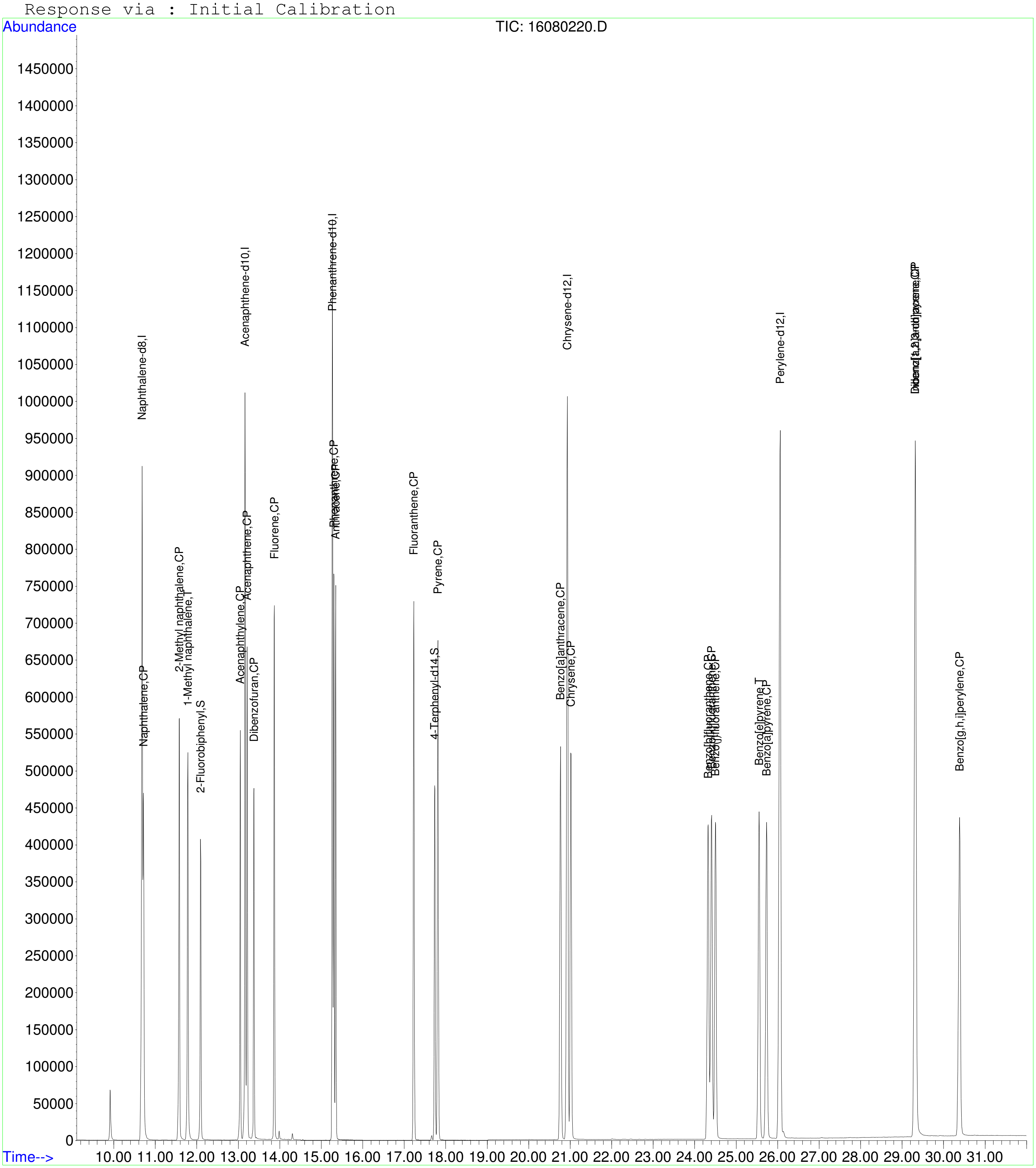
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.72	128	625047	1923.24	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	405157	1923.02	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	363270	1946.57	ug/kg	100
6) Dibenzofuran	13.38	168	478316	1918.58	ug/kg	100
8) Acenaphthylene	13.05	152	546460	2003.08	ug/kg	100
9) Acenaphthene	13.21	154	320643	2029.39	ug/kg	99
10) Fluorene	13.87	166	408037	2054.46	ug/kg	98
12) Phenanthrene	15.30	178	672376	1947.85	ug/kg	100
13) Anthracene	15.35	178	696883	1918.62	ug/kg	100
14) Fluoranthene	17.23	202	798801	1952.68	ug/kg	99
15) Pyrene	17.81	202	798579	1925.23	ug/kg	100
18) Benzo[a]anthracene	20.77	228	833842	2032.80	ug/kg	99
19) Chrysene	21.02	228	791179	2004.91	ug/kg	99
21) Benzo[b]fluoranthene	24.33	252	929251	2074.80	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	847369	2062.32	ug/kg	99
23) Benzo(j)fluoranthene	24.51	252	811958	2056.31	ug/kg	98
24) Benzo[e]pyrene	25.55	252	890278	2048.34	ug/kg	99
25) Benzo[a]pyrene	25.73	252	881247	2036.42	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	939847	2244.32	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	1103464	2220.51	ug/kg	99
28) Benzo[g,h,i]perylene	30.39	276	926459	2225.91	ug/kg	98

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

Quantitation Report

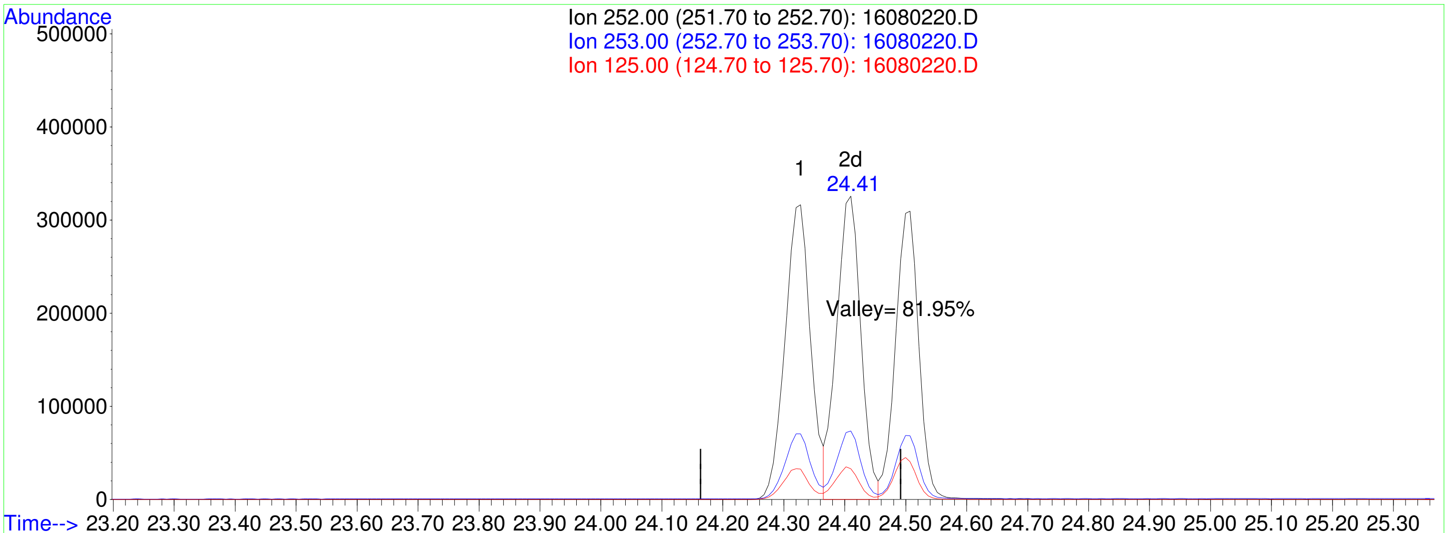
```
Data File : C:\HPCHEM\1\DATA\160802\16080220.D          Vial: 20
Acq On    :  2 Aug 2016   9:36 pm                   Operator: DEW
Sample    : ICV2-160802                             Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:57 2016           Quant Results File: PP160801.RES

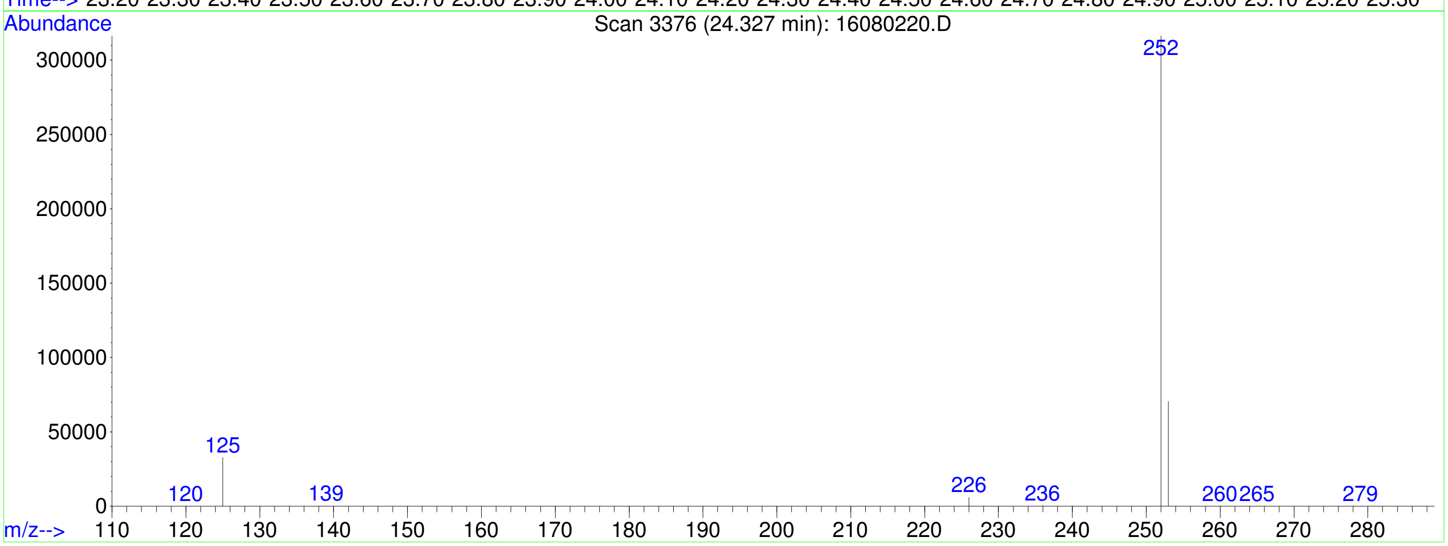
Method       : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
```



Data File : C:\HPCHEM\1\DATA\160802\16080220.D   Vial: 20
Acq On : 2 Aug 2016 9:36 pm   Operator: DEW
Sample : ICV2-160802   Inst : GC/MS #6
Misc : ICV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 22:08 2016   Quant Results File: temp.res

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





TIC: 16080220.D

(21) Benzo[b]fluoranthene (CP)

24.33min 2074.80ug/kg

response 929251

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.07
125.00	10.60	10.35
0.00	0.00	0.00

Data File : C:\HPCHEM\1\DATA\160802\16080221.D Vial: 21
Acq On : 2 Aug 2016 10:17 pm Operator: DEW
Sample : SB-160802 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 8:07 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1402621	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	638620	4000.00	ug/kg	107
11) Phenanthrene-d10	15.26	188	1500540	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1787462	4000.00	ug/kg	97
20) Perylene-d12	26.06	264	1781699	4000.00	ug/kg	92

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.10	172	18	0.08	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.74	244	100	0.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		

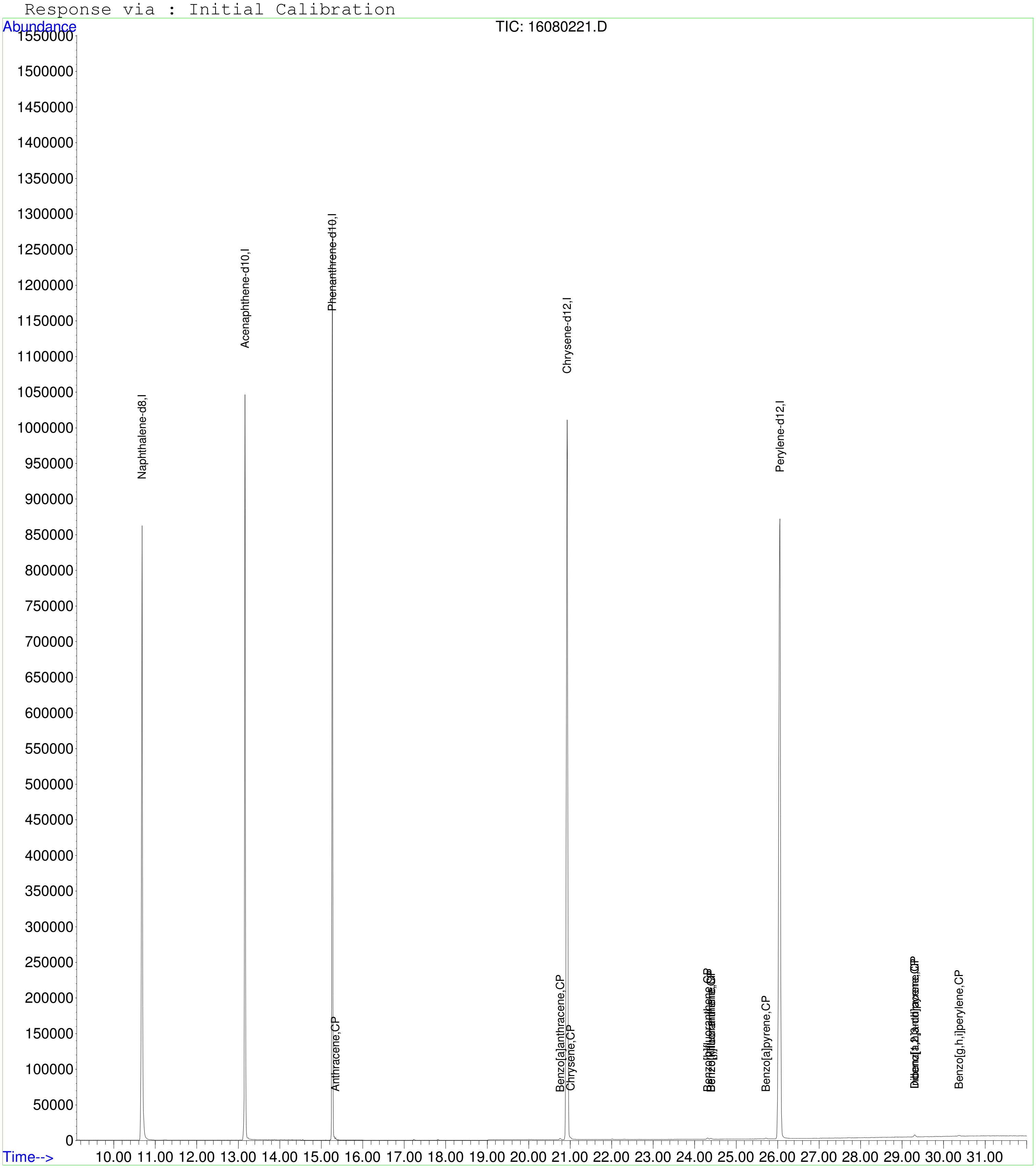
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
13) Anthracene	15.35	178	2460	6.57	ug/kg	98
18) Benzo[a]anthracene	20.76	228	2783	6.91	ug/kg	95
19) Chrysene	21.01	228	2500	6.45	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	3744	9.10	ug/kg	95
22) Benzo[k]fluoranthene	24.39	252	2396	6.35	ug/kg	96
23) Benzo(j)fluoranthene	24.39	252	2346	6.47	ug/kg	93
25) Benzo[a]pyrene	25.72	252	2541	6.39	ug/kg	98
26) Dibenz[a,h]anthracene	29.30	278	2765	7.19	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.31	276	3424	7.50	ug/kg	96
28) Benzo[g,h,i]perylene	30.37	276	2576	6.74	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080221.D Vial: 21
Acq On : 2 Aug 2016 10:17 pm Operator: DEW
Sample : SB-160802 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 8:07 2016 Quant Results File: PP160801.RES

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



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160802\16080228.D          Vial: 28
Acq On    :  3 Aug 2016   2:59 am                   Operator: DEW
Sample    : 1607219-18A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  3 11:01 2016            Quant Results File: PP160801.RES

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

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 --------------------------------------------------------------------------
   1) Naphthalene-d8              10.68  136  1445074   4000.00 ug/kg  103
   5) Acenaphthene-d10            13.16  164   674748   4000.00 ug/kg  113
  11) Phenanthrene-d10            15.27  188  1488790   4000.00 ug/kg   94
  17) Chrysene-d12                20.92  240  1806299   4000.00 ug/kg   98
  20) Perylene-d12                26.06  264  1813321   4000.00 ug/kg   94

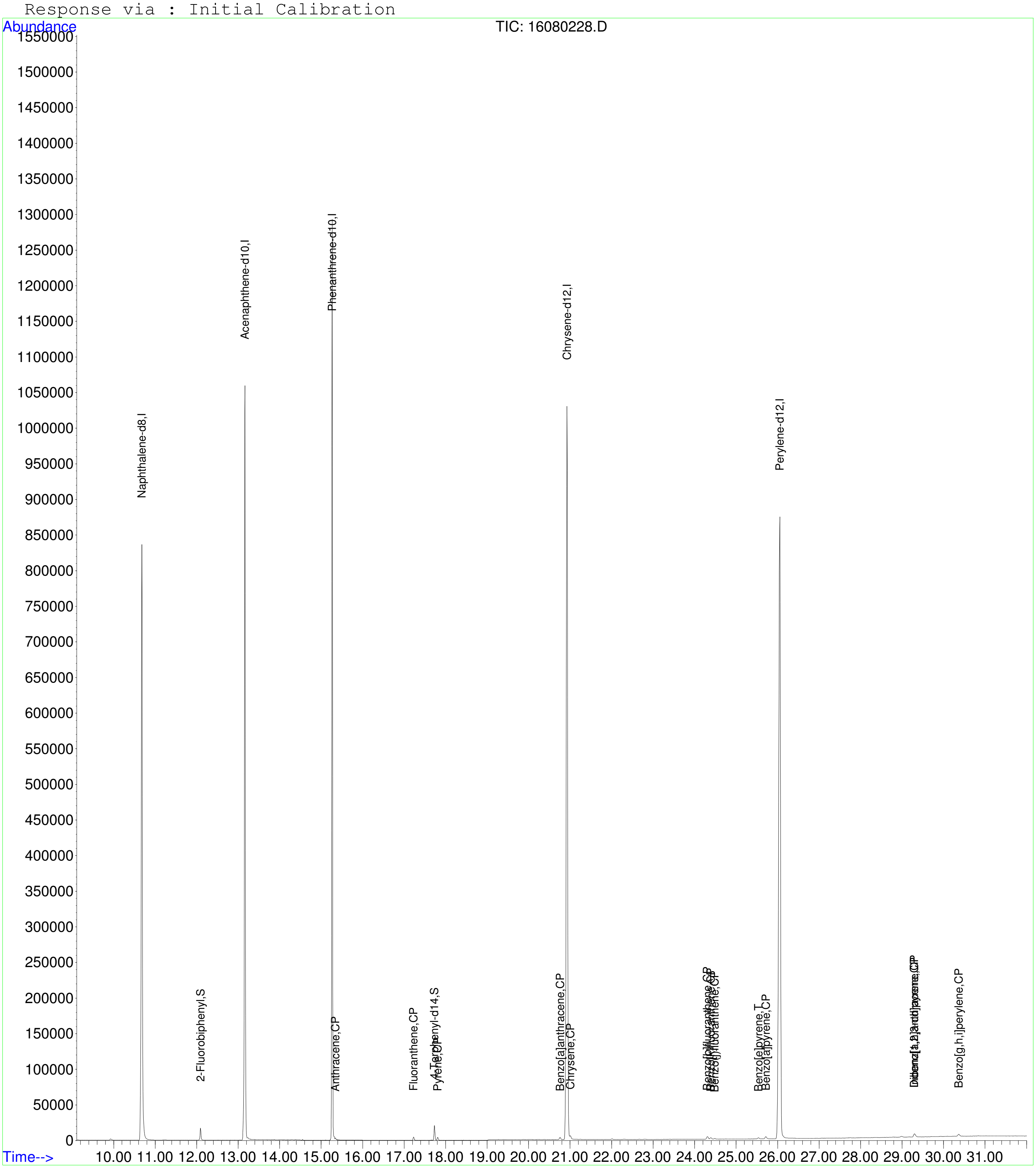
 System Monitoring Compounds
   7) 2-Fluorobiphenyl            12.09  172    18886    80.24 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     2.01%#
  16) 4-Terphenyl-d14             17.73  244    29289    83.36 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     2.08%#

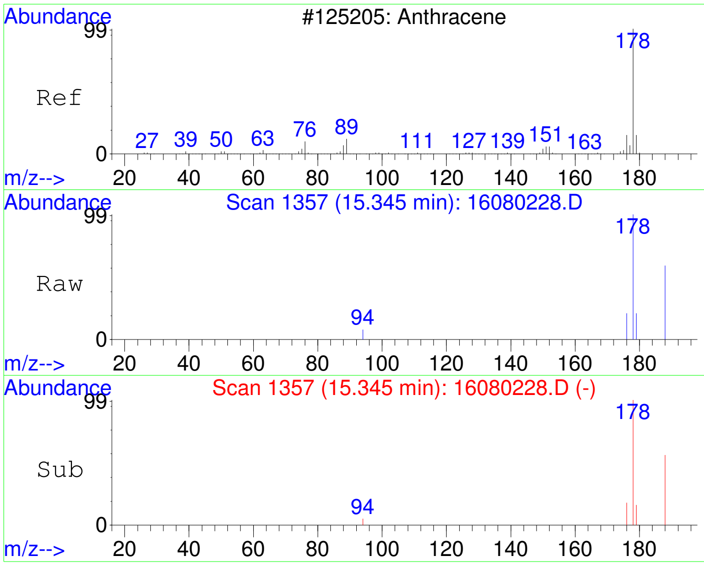
 Target Compounds                                                Qvalue
  13) Anthracene                  15.34  178     2335     6.29 ug/kg     99
  14) Fluoranthene                17.22  202     5146    12.30 ug/kg     97
  15) Pyrene                      17.81  202     5018    11.83 ug/kg     98
  18) Benzo[a]anthracene          20.76  228     5208    12.79 ug/kg     97
  19) Chrysene                    21.01  228     5807    14.83 ug/kg     98
  21) Benzo[b]fluoranthene        24.31  252     7274    17.38 ug/kg     99
  22) Benzo[k]fluoranthene        24.39  252     4309    11.22 ug/kg     91
  23) Benzo(j)fluoranthene        24.48  252     1838     4.98 ug/kg     81
  24) Benzo[e]pyrene              25.54  252     3331     8.20 ug/kg     94
  25) Benzo[a]pyrene              25.72  252     6249    15.45 ug/kg     90
  26) Dibenz[a,h]anthracene       29.29  278     3216     8.22 ug/kg     94
  27) Indeno[1,2,3-cd]pyrene      29.30  276     6929    14.92 ug/kg     94
  28) Benzo[g,h,i]perylene        30.36  276     6027    15.49 ug/kg     93

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

Data File : C:\HPCHEM\1\DATA\160802\16080228.D Vial: 28
Acq On : 3 Aug 2016 2:59 am Operator: DEW
Sample : 1607219-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:01 2016 Quant Results File: PP160801.RES

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

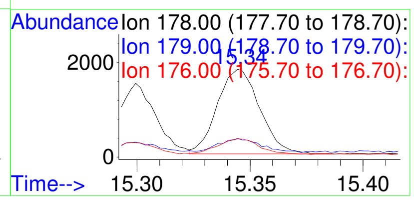


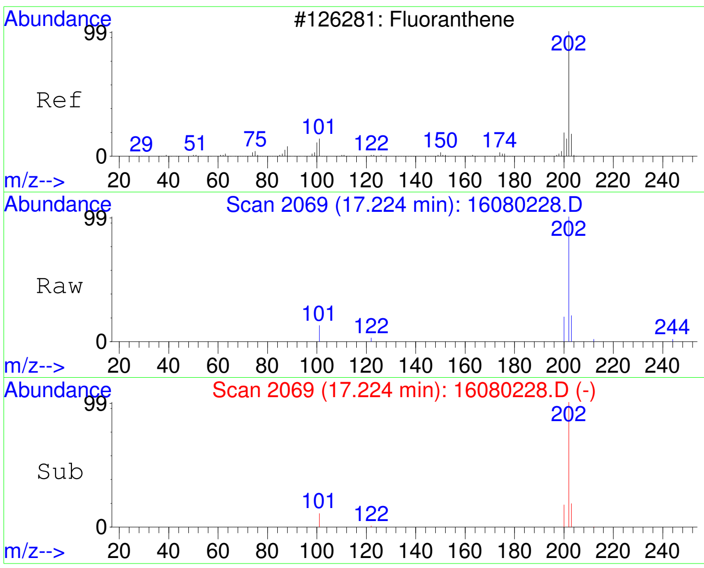


#13
Anthracene
Concen: 6.29 ug/kg
RT: 15.34 min Scan# 1357
Delta R.T. -0.00 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:178 Resp: 2335

Ion	Ratio	Lower	Upper
178	100		
179	16.4	0.0	45.7
176	18.2	0.0	47.9

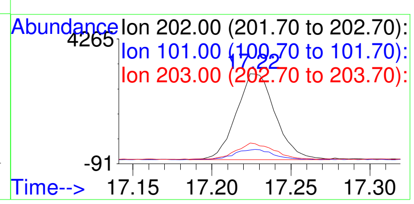


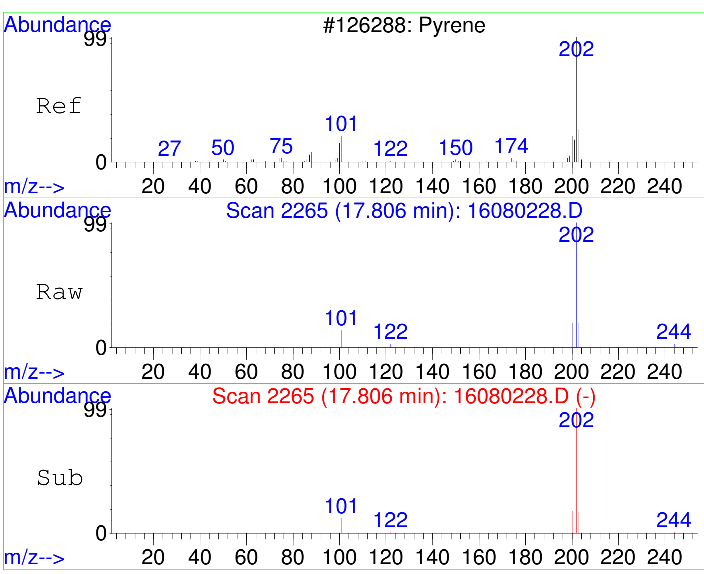


#14
Fluoranthene
Concen: 12.30 ug/kg
RT: 17.22 min Scan# 2069
Delta R.T. -0.01 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:202 Resp: 5146

Ion	Ratio	Lower	Upper
202	100		
101	10.8	0.0	42.1
203	19.1	0.0	47.9

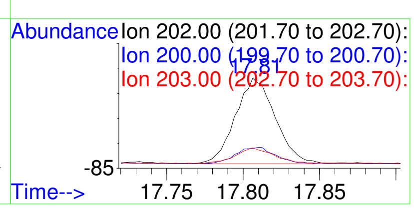


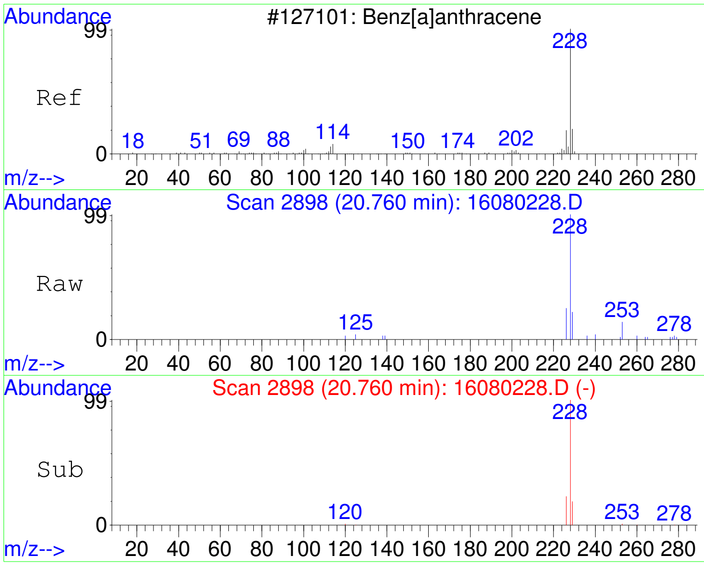


#15
Pyrene
Concen: 11.83 ug/kg
RT: 17.81 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:202 Resp: 5018

Ion	Ratio	Lower	Upper
202	100		
200	17.8	0.0	49.7
203	18.0	0.0	47.8

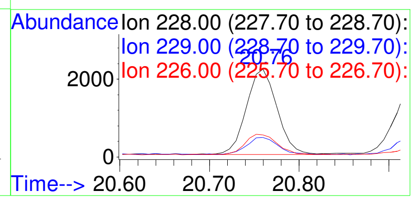


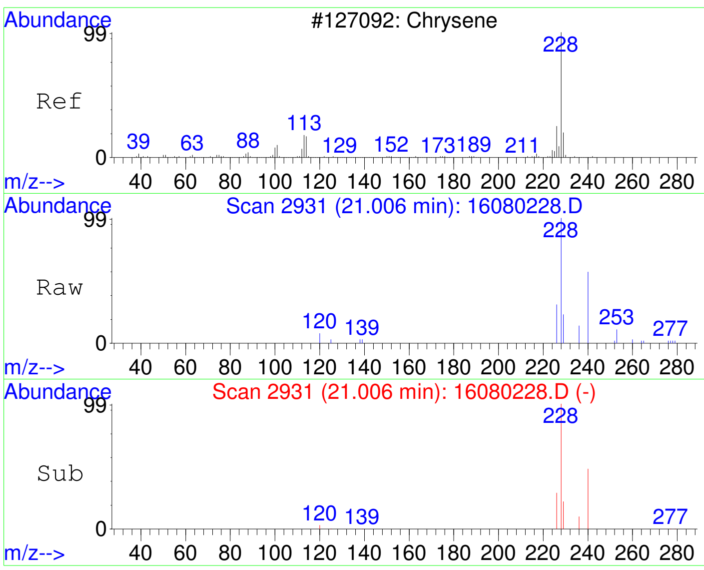


#18
Benzo[a]anthracene
Concen: 12.79 ug/kg
RT: 20.76 min   Scan# 2898
Delta R.T.   -0.01 min
Lab File: 16080228.D
Acq: 3 Aug 2016   2:59 am

Tgt Ion:228 Resp: 5208

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	49.8
226	23.1	0.0	55.8

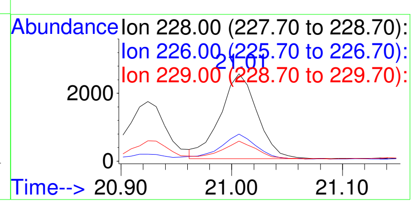


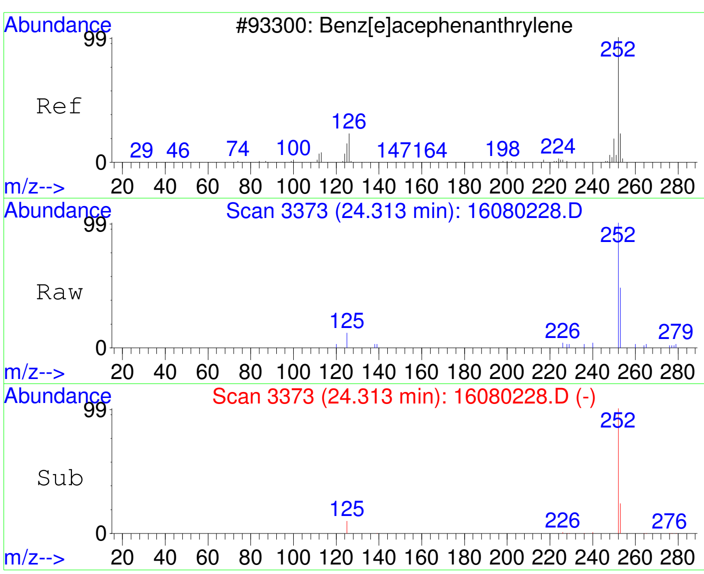


#19
Chrysene
Concen: 14.83 ug/kg
RT: 21.01 min   Scan# 2931
Delta R.T.   -0.02 min
Lab File: 16080228.D
Acq: 3 Aug 2016   2:59 am

Tgt Ion:228 Resp: 5807

Ion	Ratio	Lower	Upper
228	100		
226	29.2	0.0	58.1
229	21.0	0.0	50.0

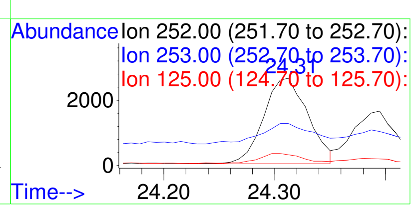


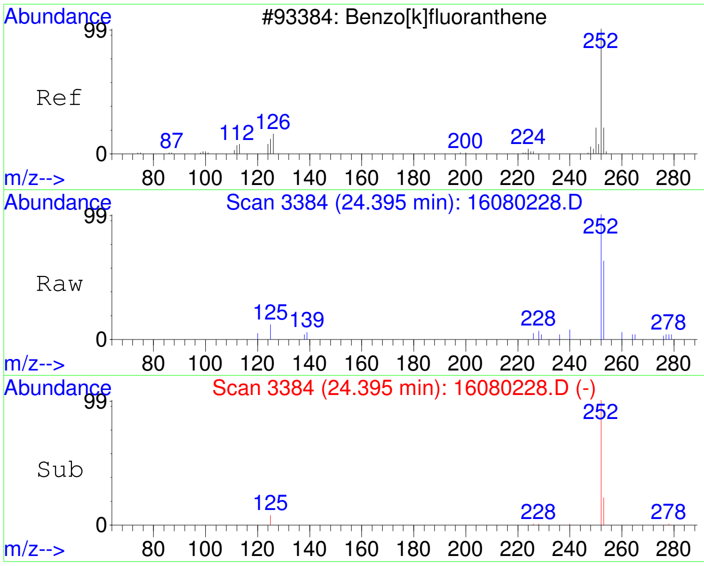


#21
Benzo[b]fluoranthene
Concen: 17.38 ug/kg
RT: 24.31 min   Scan# 3373
Delta R.T.   -0.02 min
Lab File: 16080228.D
Acq: 3 Aug 2016   2:59 am

Tgt Ion:252 Resp: 7274

Ion	Ratio	Lower	Upper
252	100		
253	22.6	0.0	52.0
125	10.2	0.0	40.6

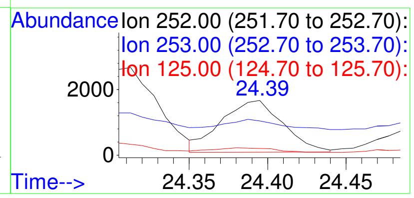


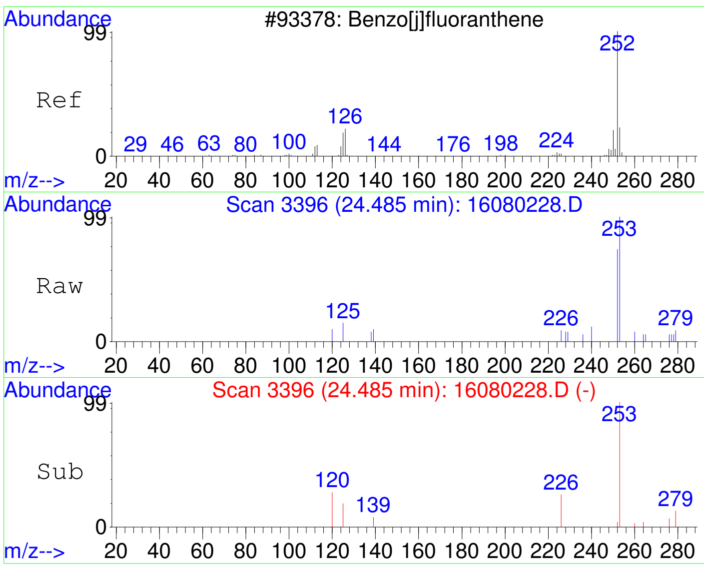


#22
Benzo[k]fluoranthene
Concen: 11.22 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.02 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:252 Resp: 4309

Ion	Ratio	Lower	Upper
252	100		
253	17.4	2.2	42.2
125	7.9	0.0	30.3

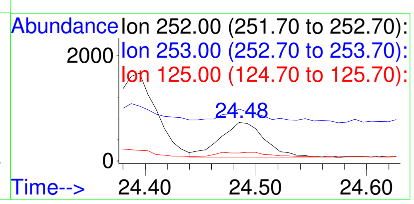


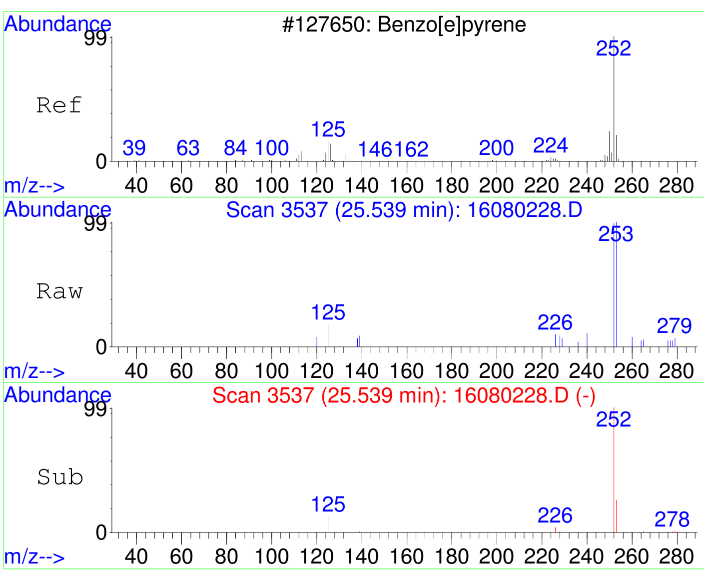


#23
Benzo(j)fluoranthene
Concen: 4.98 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.02 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:252 Resp: 1838

Ion	Ratio	Lower	Upper
252	100		
253	34.0	2.2	42.2
125	10.7	0.0	34.4

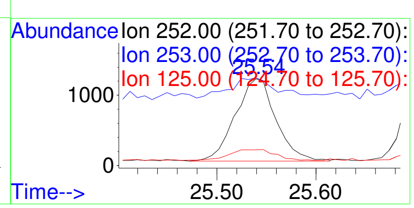


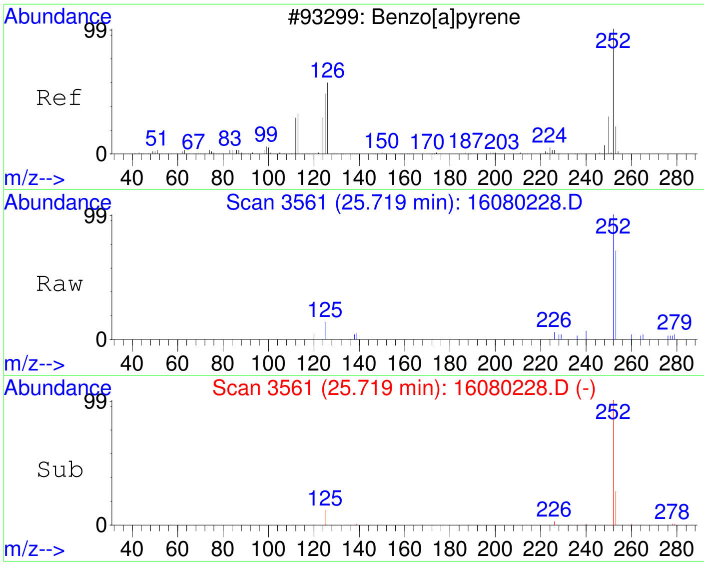


#24
Benzo[e]pyrene
Concen: 8.20 ug/kg
RT: 25.54 min Scan# 3537
Delta R.T. -0.02 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:252 Resp: 3331

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.2	42.2
125	12.7	0.0	35.7

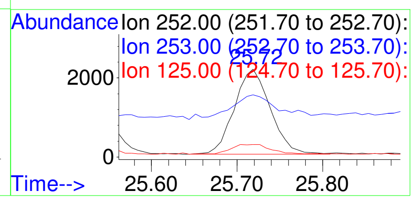


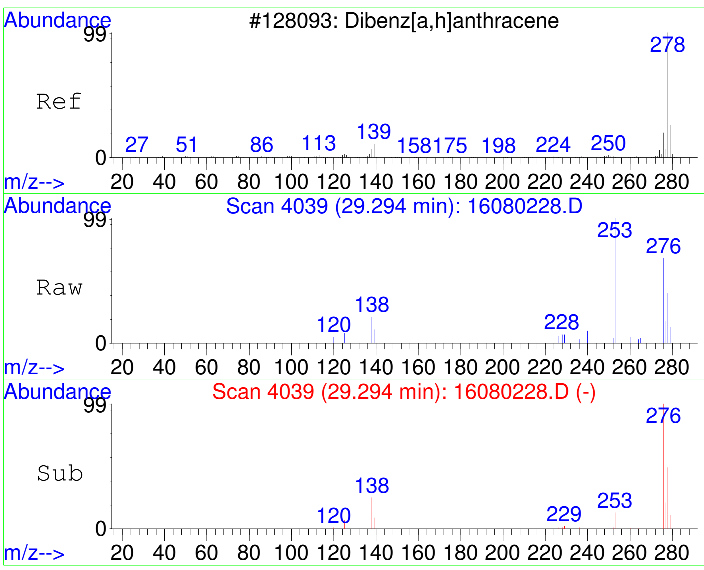


#25
Benzo[a]pyrene
Concen: 15.45 ug/kg
RT: 25.72 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:252 Resp: 6249

Ion	Ratio	Lower	Upper
252	100		
253	29.0	2.0	42.0
125	11.6	0.0	31.6

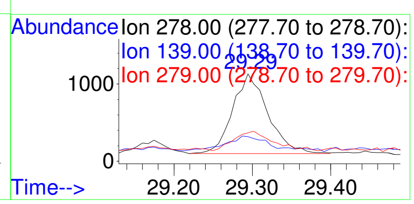


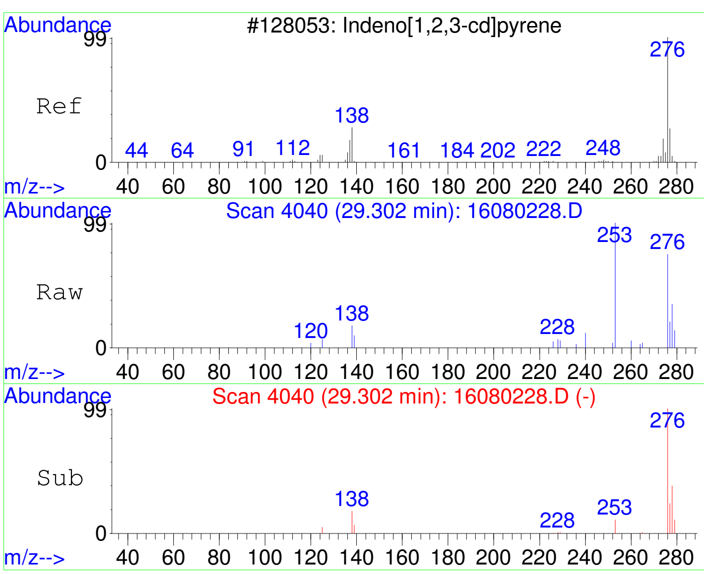


#26
Dibenz[a,h]anthracene
Concen: 8.22 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:278 Resp: 3216

Ion	Ratio	Lower	Upper
278	100		
139	16.7	0.0	33.8
279	21.1	3.9	43.9

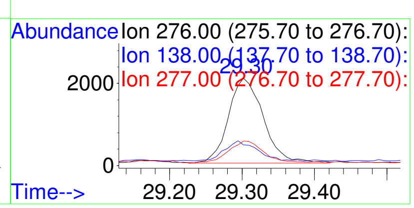


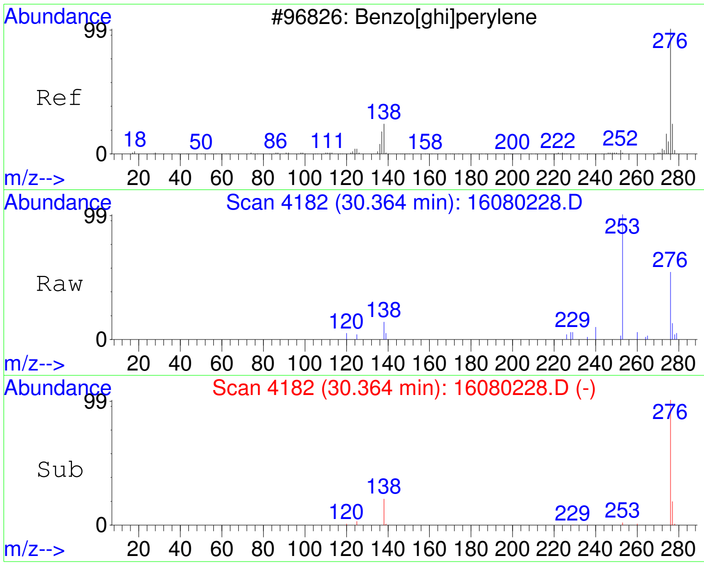


#27
Indeno[1,2,3-cd]pyrene
Concen: 14.92 ug/kg
RT: 29.30 min Scan# 4040
Delta R.T. -0.02 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:276 Resp: 6929

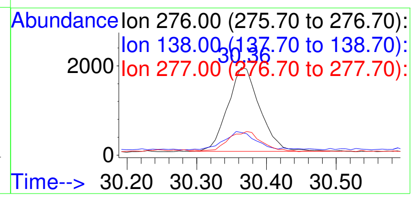
Ion	Ratio	Lower	Upper
276	100		
138	18.9	4.8	44.8
277	25.1	5.6	45.6





#28
Benzo[g,h,i]perylene
Concen: 15.49 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080228.D
Acq: 3 Aug 2016 2:59 am

Tgt Ion:276	Resp:		6027
Ion	Ratio	Lower	Upper
276	100		
138	20.4	0.0	38.1
277	20.1	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080229.D Vial: 29
Acq On : 3 Aug 2016 3:40 am Operator: DEW
Sample : 1607219-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:02 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	10.68	136	1422156	4000.00	ug/kg	101
5) Acenaphthene-d10	13.16	164	657620	4000.00	ug/kg	110
11) Phenanthrene-d10	15.27	188	1503924	4000.00	ug/kg	95
17) Chrysene-d12	20.92	240	1827218	4000.00	ug/kg	100
20) Perylene-d12	26.05	264	1812434	4000.00	ug/kg	94

System Monitoring Compounds

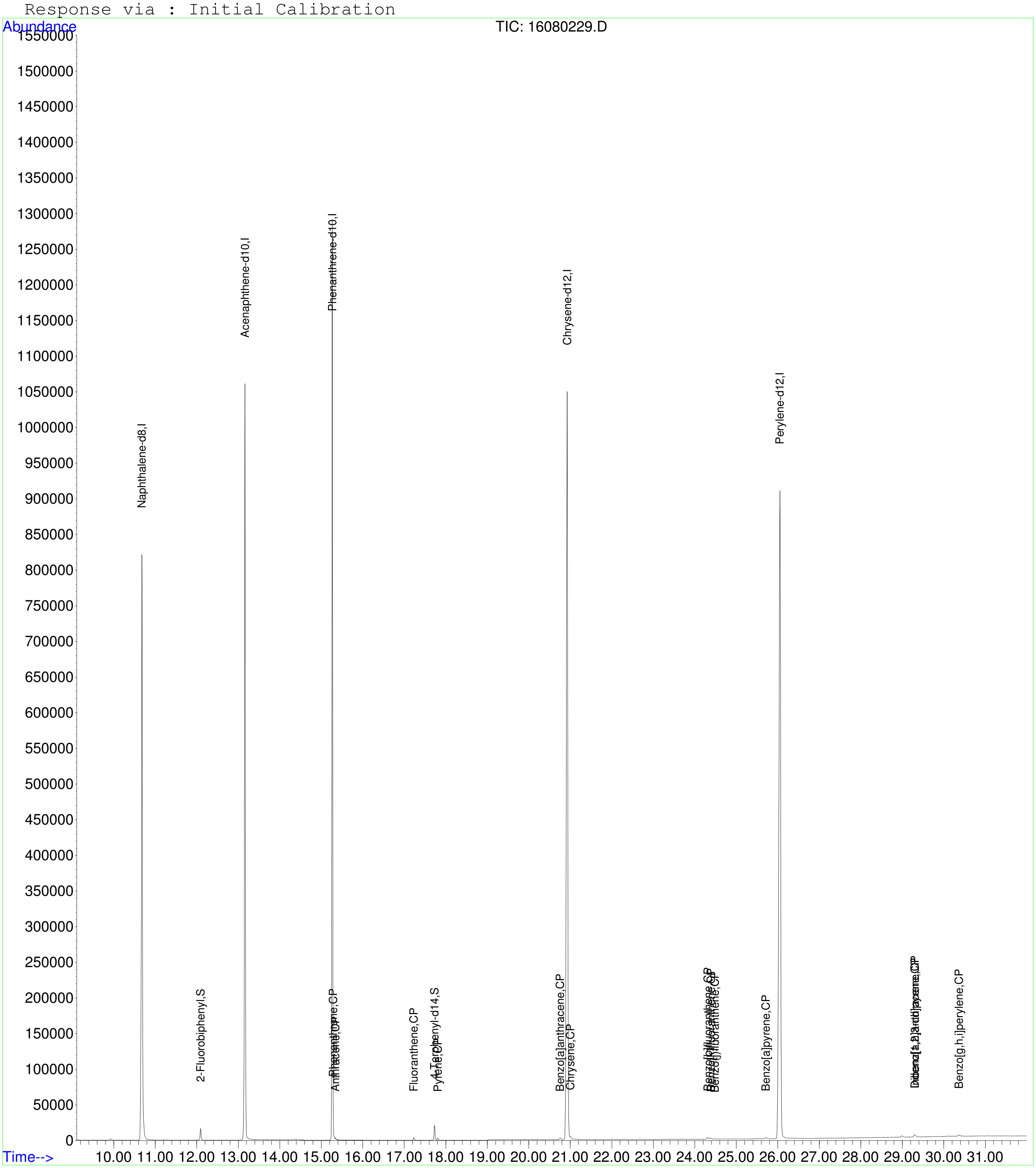
7) 2-Fluorobiphenyl	12.09	172	18118	78.98	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.97%#		
16) 4-Terphenyl-d14	17.73	244	29186	82.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		

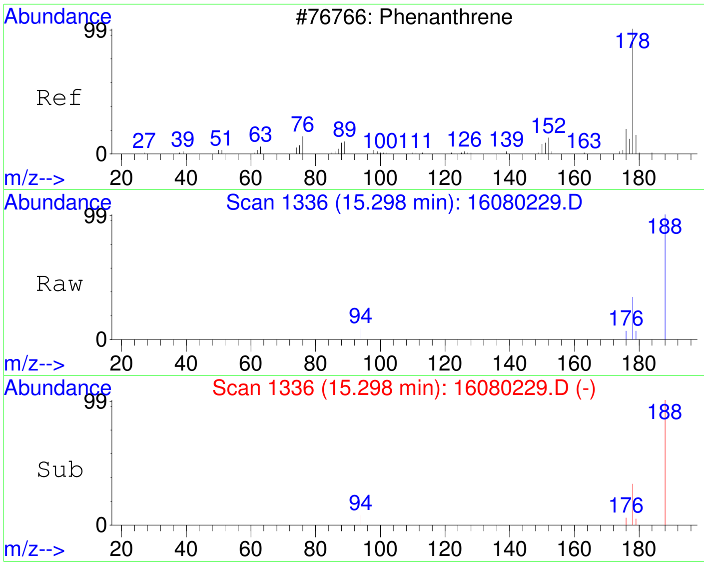
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	2006	5.68	ug/kg	98
13) Anthracene	15.34	178	2413	6.43	ug/kg	100
14) Fluoranthene	17.23	202	4039	9.56	ug/kg	99
15) Pyrene	17.81	202	3594	8.39	ug/kg	99
18) Benzo[a]anthracene	20.75	228	4087	9.92	ug/kg	97
19) Chrysene	21.01	228	4109	10.37	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	5381	12.86	ug/kg	95
22) Benzo[k]fluoranthene	24.39	252	3276	8.53	ug/kg	96
23) Benzo(j)fluoranthene	24.49	252	950	2.58	ug/kg	93
25) Benzo[a]pyrene	25.71	252	4282	10.59	ug/kg	97
26) Dibenz[a,h]anthracene	29.29	278	2997	7.66	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.30	276	4826	10.40	ug/kg	94
28) Benzo[g,h,i]perylene	30.36	276	4120	10.60	ug/kg	96

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

Data File : C:\HPCHEM\1\DATA\160802\16080229.D Vial: 29
Acq On : 3 Aug 2016 3:40 am Operator: DEW
Sample : 1607219-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:02 2016 Quant Results File: PP160801.RES

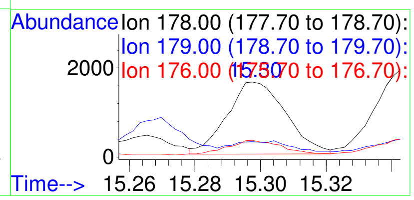
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

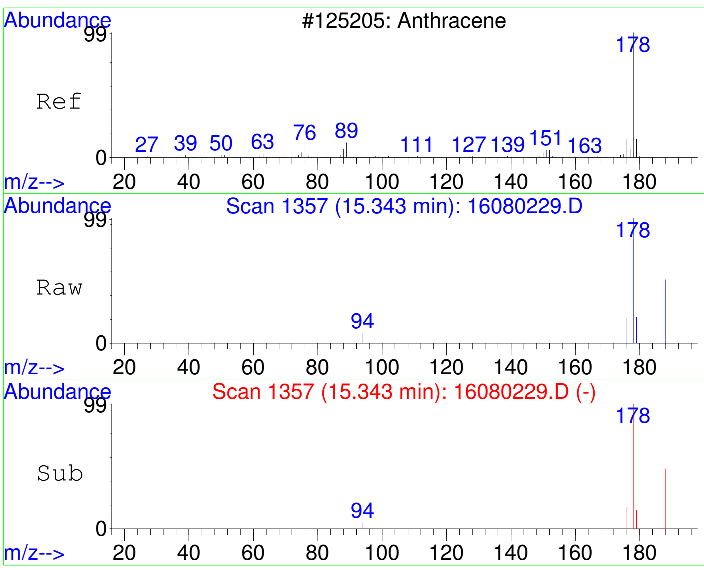




#12
Phenanthrene
Concen: 5.63 ug/kg
RT: 15.30 min   Scan# 1336
Delta R.T.   -0.01 min
Lab File: 16080229.D
Acq: 3 Aug 2016   3:40 am

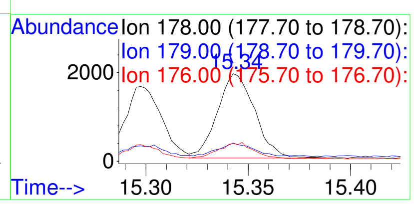
Tgt Ion:178 Resp: 2006
Ion Ratio Lower Upper
178 100
179   14.6   0.0   45.7
176   19.8   0.0   48.7

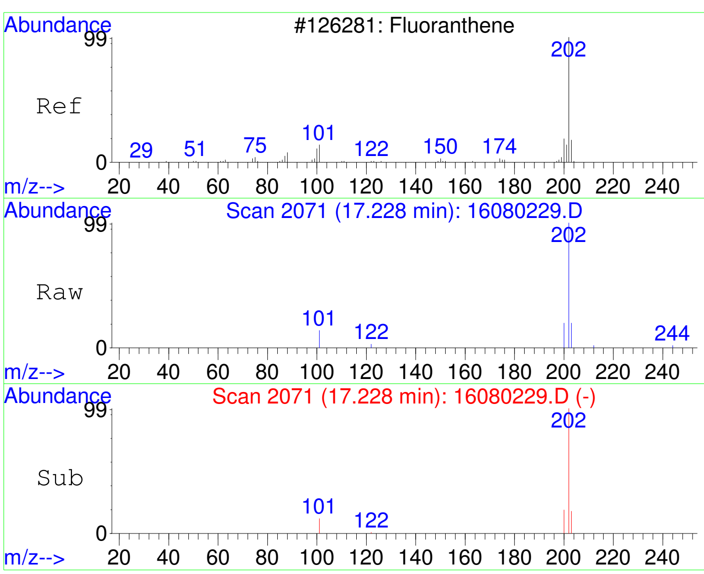




#13
Anthracene
Concen: 6.43 ug/kg
RT: 15.34 min   Scan# 1357
Delta R.T.   -0.01 min
Lab File: 16080229.D
Acq: 3 Aug 2016   3:40 am

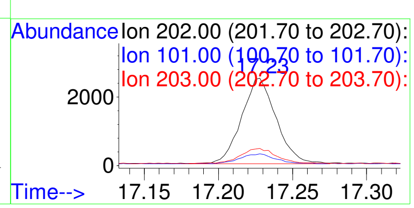
Tgt Ion:178 Resp: 2413
Ion Ratio Lower Upper
178 100
179   15.3   0.0   45.7
176   17.9   0.0   47.9

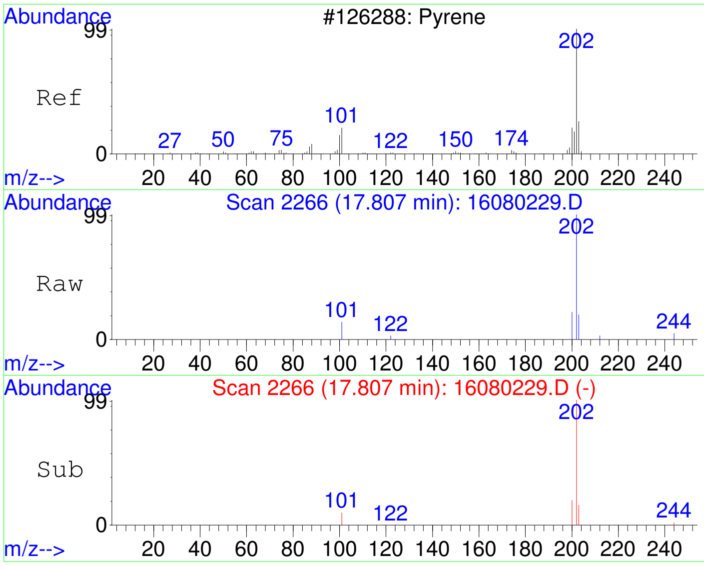


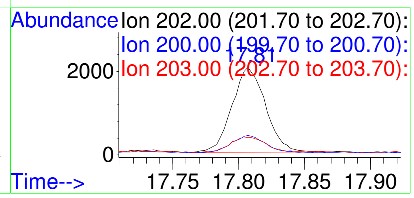


#14
Fluoranthene
Concen: 9.56 ug/kg
RT: 17.23 min   Scan# 2071
Delta R.T.   -0.00 min
Lab File: 16080229.D
Acq: 3 Aug 2016   3:40 am

Tgt Ion:202 Resp: 4039
Ion Ratio Lower Upper
202 100
101   11.5   0.0   42.1
203   17.6   0.0   47.9



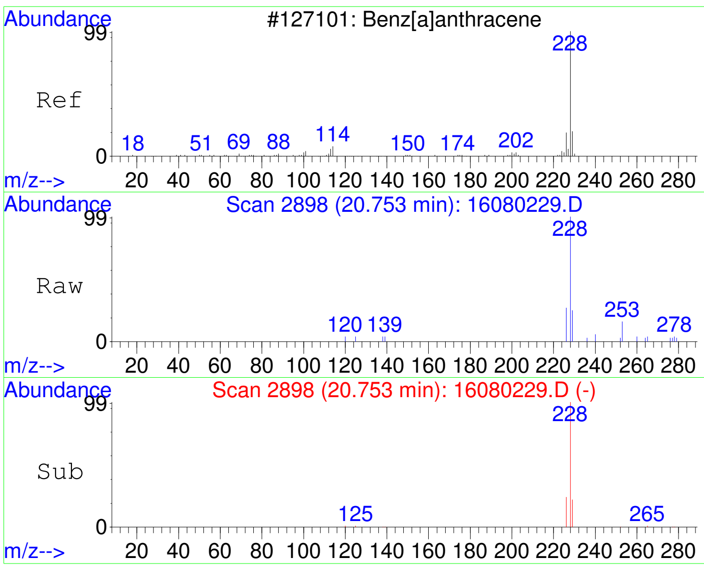


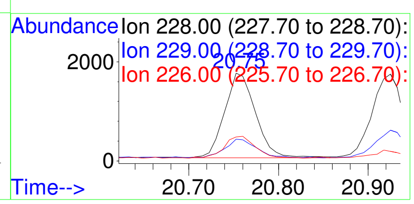


#15
Pyrene
Concen: 8.39 ug/kg
RT: 17.81 min Scan# 2266
Delta R.T. -0.01 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:202 Resp: 3594

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	49.7
203	17.4	0.0	47.8

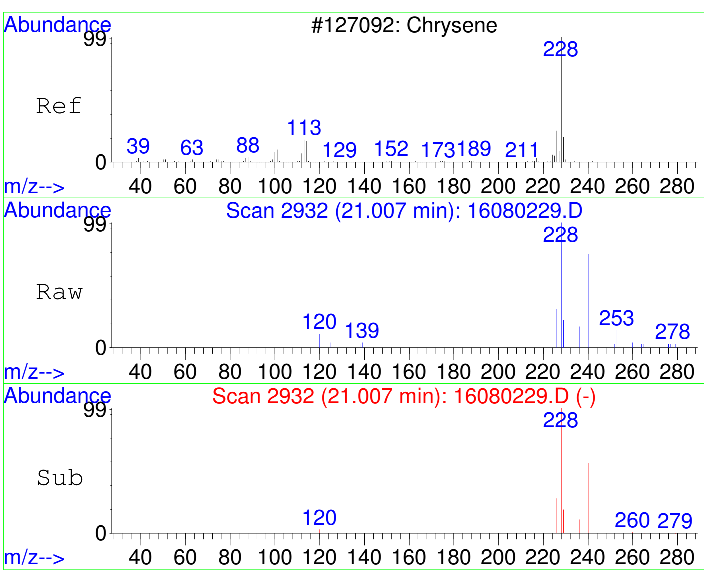


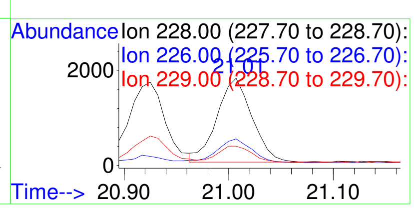


#18
Benzo[a]anthracene
Concen: 9.92 ug/kg
RT: 20.75 min Scan# 2898
Delta R.T. -0.01 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:228 Resp: 4087

Ion	Ratio	Lower	Upper
228	100		
229	21.7	0.0	49.8
226	25.1	0.0	55.8

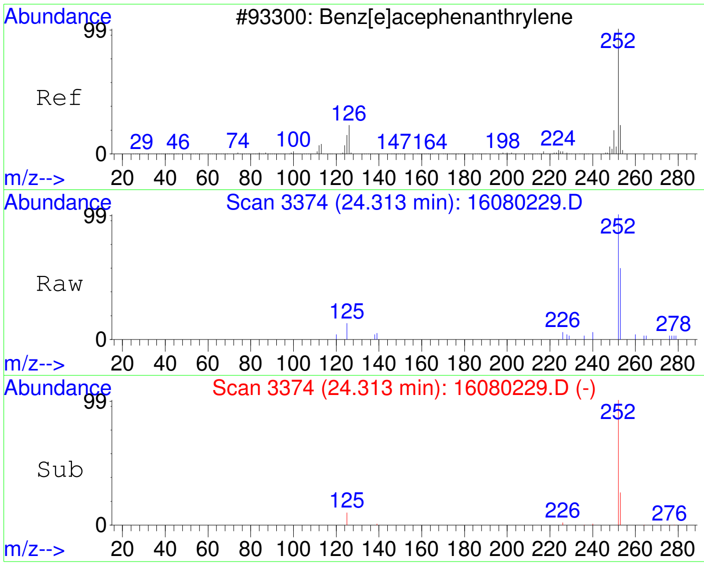




#19
Chrysene
Concen: 10.37 ug/kg
RT: 21.01 min Scan# 2932
Delta R.T. -0.01 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:228 Resp: 4109

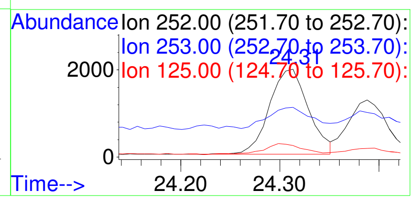
Ion	Ratio	Lower	Upper
228	100		
226	28.0	0.0	58.1
229	19.0	0.0	50.0

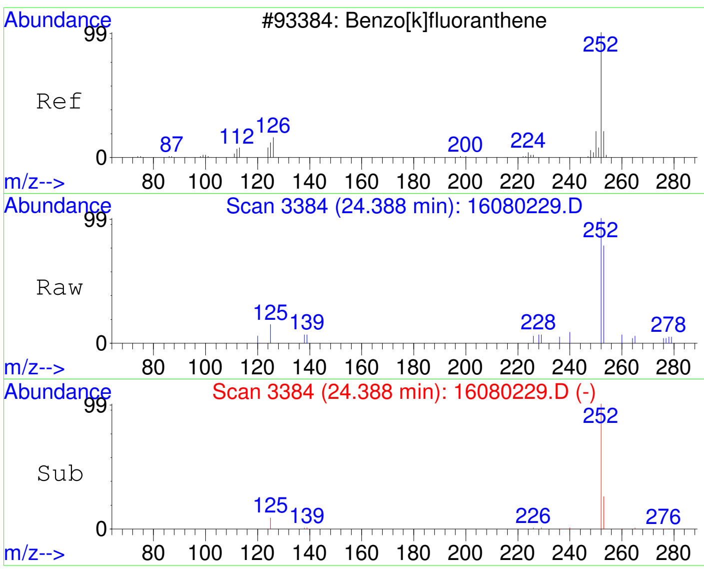


#21
Benzo[b]fluoranthene
Concen: 12.86 ug/kg
RT: 24.31 min Scan# 3374
Delta R.T. -0.01 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:252 Resp: 5381

Ion	Ratio	Lower	Upper
252	100		
253	25.2	0.0	52.0
125	9.9	0.0	40.6

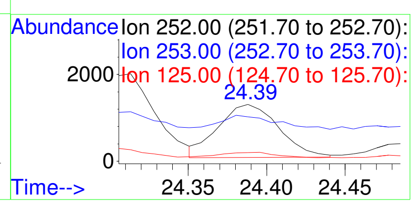


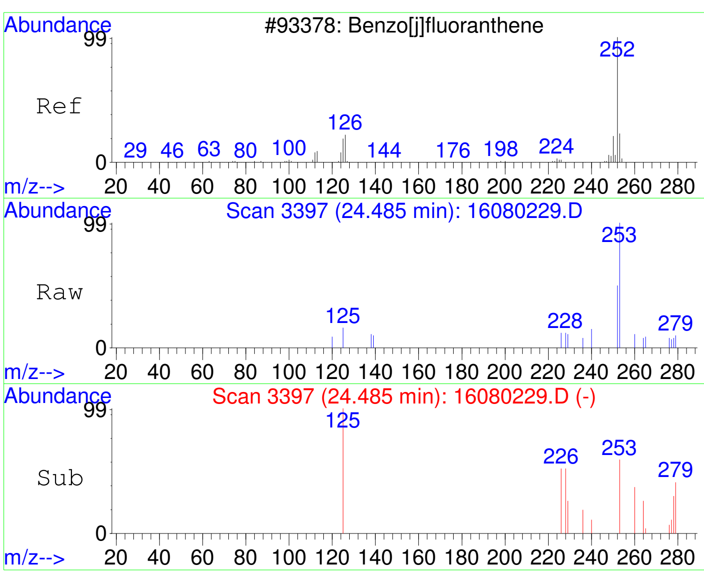


#22
Benzo[k]fluoranthene
Concen: 8.53 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.02 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:252 Resp: 3276

Ion	Ratio	Lower	Upper
252	100		
253	24.2	2.2	42.2
125	9.1	0.0	30.3

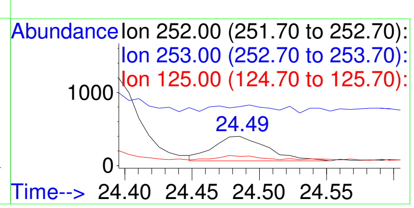


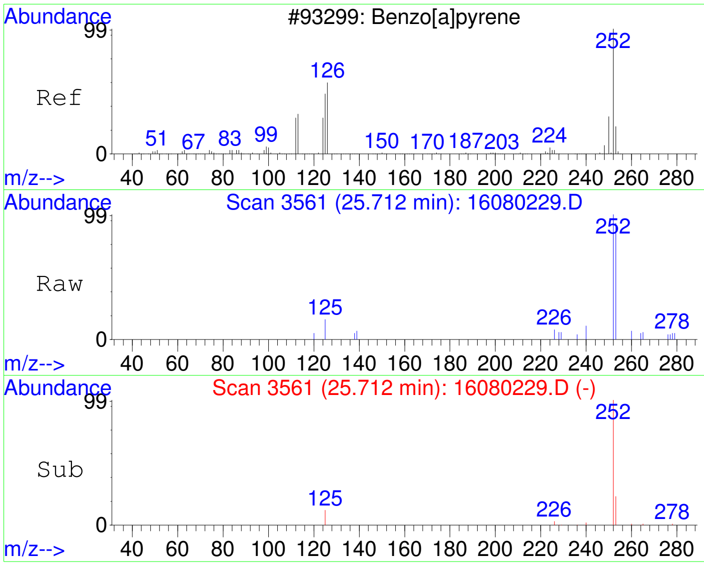


#23
Benzo(j)fluoranthene
Concen: 2.58 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:252 Resp: 950

Ion	Ratio	Lower	Upper
252	100		
253	17.7	2.2	42.2
125	13.6	0.0	34.4

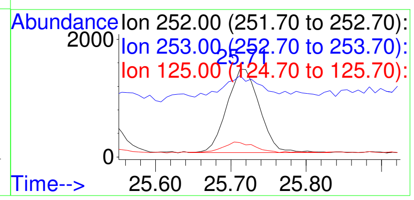


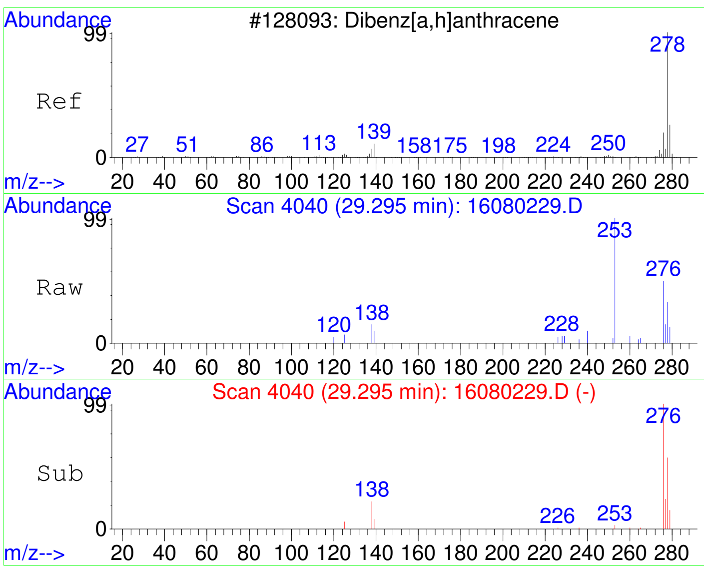


#25
Benzo[a]pyrene
Concen: 10.59 ug/kg
RT: 25.71 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:252 Resp: 4282

Ion	Ratio	Lower	Upper
252	100		
253	24.4	2.0	42.0
125	11.6	0.0	31.6

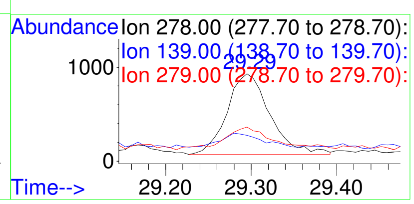


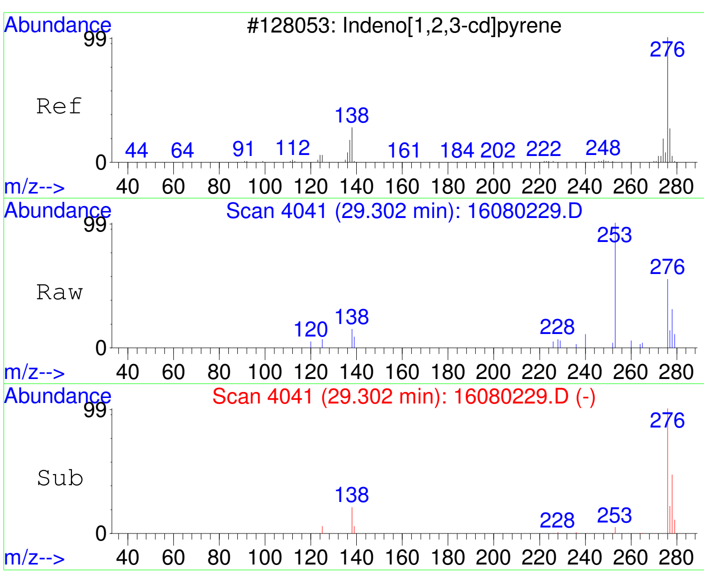


#26
Dibenz[a,h]anthracene
Concen: 7.66 ug/kg
RT: 29.29 min Scan# 4040
Delta R.T. -0.03 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:278 Resp: 2997

Ion	Ratio	Lower	Upper
278	100		
139	14.7	0.0	33.8
279	25.8	3.9	43.9

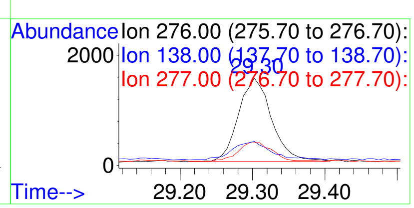


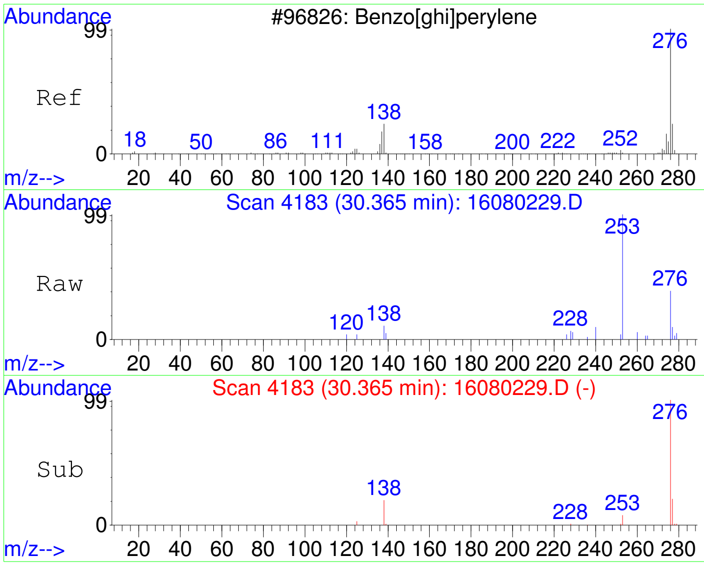


#27
Indeno[1,2,3-cd]pyrene
Concen: 10.40 ug/kg
RT: 29.30 min Scan# 4041
Delta R.T. -0.02 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:276 Resp: 4826

Ion	Ratio	Lower	Upper
276	100		
138	22.0	4.8	44.8
277	22.2	5.6	45.6

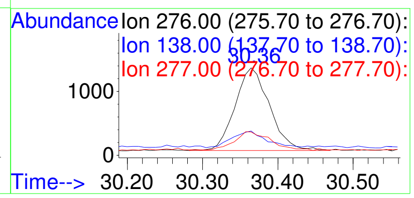




#28
Benzo[g,h,i]perylene
Concen: 10.60 ug/kg
RT: 30.36 min Scan# 4183
Delta R.T. -0.03 min
Lab File: 16080229.D
Acq: 3 Aug 2016 3:40 am

Tgt Ion:276 Resp: 4120

Ion	Ratio	Lower	Upper
276	100		
138	19.5	0.0	38.1
277	21.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080234.D Vial: 34
Acq On : 3 Aug 2016 6:59 am Operator: DEW
Sample : 1607256-07AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

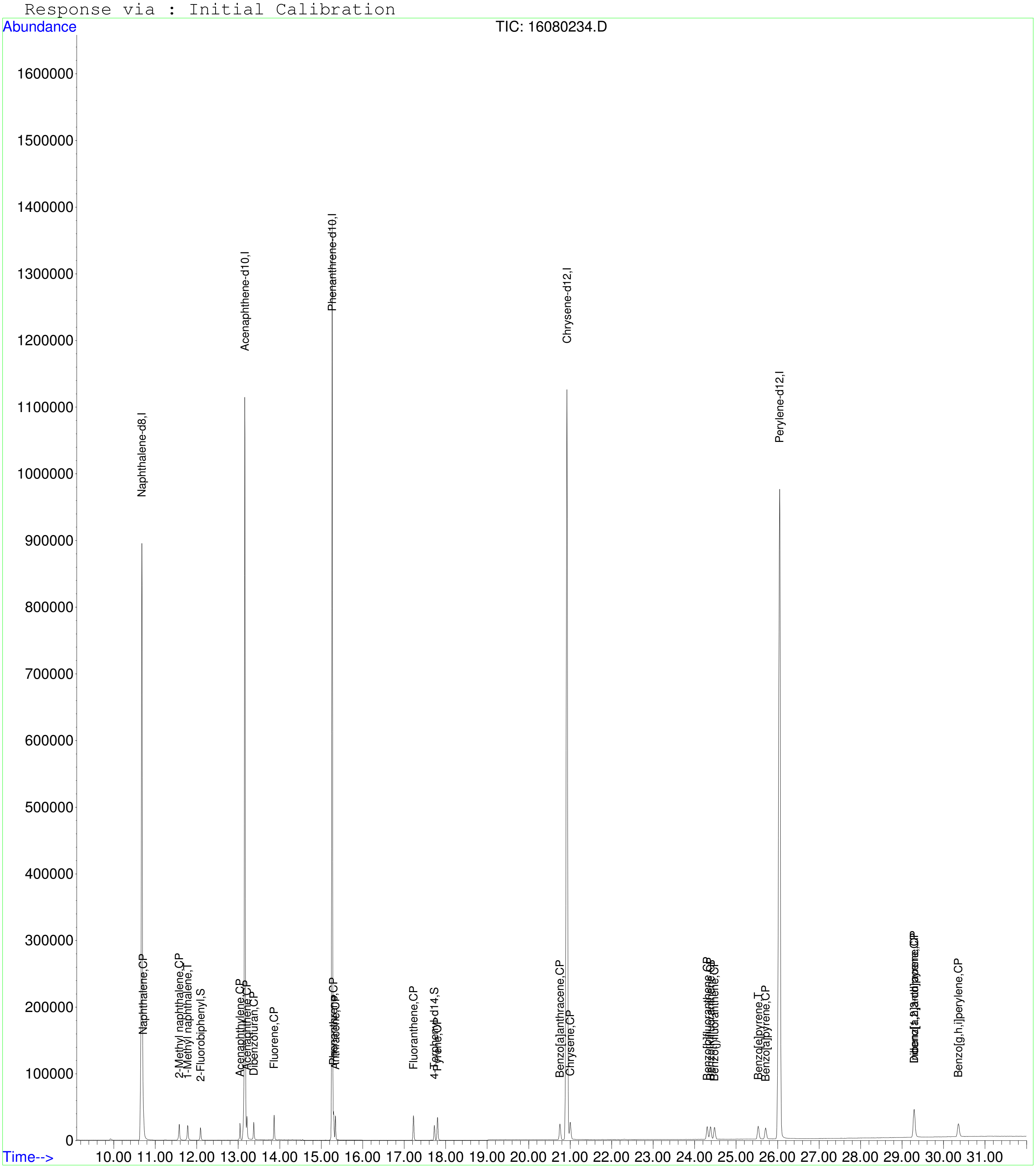
Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1530817	4000.00 ug/kg	109
5) Acenaphthene-d10	13.16	164	718596	4000.00 ug/kg	120
11) Phenanthrene-d10	15.26	188	1601925	4000.00 ug/kg	101
17) Chrysene-d12	20.92	240	2002140	4000.00 ug/kg	109
20) Perylene-d12	26.05	264	1991745	4000.00 ug/kg	103
System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.09	172	21032	83.91 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#	
16) 4-Terphenyl-d14	17.73	244	32637	86.33 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#	
Target Compounds					Qvalue
2) Naphthalene	10.71	128	28868	82.88 ug/kg	99
3) 2-Methyl naphthalene	11.58	142	19914	88.20 ug/kg	99
4) 1-Methyl naphthalene	11.78	142	17732	88.66 ug/kg	96
6) Dibenzofuran	13.37	168	26665	91.69 ug/kg	99
8) Acenaphthylene	13.04	152	26583	83.54 ug/kg	100
9) Acenaphthene	13.21	154	15934	86.46 ug/kg	99
10) Fluorene	13.86	166	21098	91.07 ug/kg	100
12) Phenanthrene	15.30	178	33806	89.01 ug/kg	98
13) Anthracene	15.34	178	32798	82.07 ug/kg	99
14) Fluoranthene	17.22	202	39767	88.35 ug/kg	99
15) Pyrene	17.80	202	40197	88.08 ug/kg	100
18) Benzo[a]anthracene	20.75	228	37087	82.18 ug/kg	100
19) Chrysene	21.01	228	36729	84.60 ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	38262	83.21 ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	37175	88.13 ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	36047	88.92 ug/kg	98
24) Benzo[e]pyrene	25.53	252	39993	89.63 ug/kg	98
25) Benzo[a]pyrene	25.71	252	35377	79.63 ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	41460	96.44 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	49750	97.52 ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	41713	97.62 ug/kg	97

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

```
Data File : C:\HPCHEM\1\DATA\160802\16080234.D          Vial: 34
Acq On    :  3 Aug 2016   6:59 am                    Operator: DEW
Sample    : 1607256-07AMS                            Inst    : GC/MS #6
Misc      : MS                                       Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:57 2016             Quant Results File: PP160801.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080235.D Vial: 35
Acq On : 3 Aug 2016 7:40 am Operator: DEW
Sample : 1607256-07AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1508836	4000.00 ug/kg	108
5) Acenaphthene-d10	13.16	164	709583	4000.00 ug/kg	118
11) Phenanthrene-d10	15.26	188	1524520	4000.00 ug/kg	96
17) Chrysene-d12	20.92	240	1944832	4000.00 ug/kg	106
20) Perylene-d12	26.05	264	1946871	4000.00 ug/kg	101

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	20633	83.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#	
16) 4-Terphenyl-d14	17.73	244	30386	84.46 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#	

Target Compounds					Qvalue
2) Naphthalene	10.71	128	28076	81.78 ug/kg	99
3) 2-Methyl naphthalene	11.57	142	18866	84.77 ug/kg	94
4) 1-Methyl naphthalene	11.78	142	17150	87.00 ug/kg	96
6) Dibenzofuran	13.37	168	25646	89.31 ug/kg	99
8) Acenaphthylene	13.04	152	24854	79.09 ug/kg	100
9) Acenaphthene	13.21	154	15228	83.68 ug/kg	98
10) Fluorene	13.86	166	20176	88.20 ug/kg	98
12) Phenanthrene	15.30	178	31249	86.46 ug/kg	98
13) Anthracene	15.34	178	30358	79.82 ug/kg	99
14) Fluoranthene	17.22	202	36440	85.07 ug/kg	99
15) Pyrene	17.80	202	37187	85.62 ug/kg	99
18) Benzo[a]anthracene	20.75	228	34988	79.82 ug/kg	99
19) Chrysene	21.00	228	34964	82.91 ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	36576	81.38 ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	35419	85.90 ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	34204	86.32 ug/kg	99
24) Benzo[e]pyrene	25.53	252	37703	86.44 ug/kg	99
25) Benzo[a]pyrene	25.71	252	33473	77.08 ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	39371	93.69 ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.30	276	47352	94.95 ug/kg	96
28) Benzo[g,h,i]perylene	30.36	276	40068	95.93 ug/kg	96

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080235.D          Vial: 35
Acq On    :  3 Aug 2016   7:40 am                   Operator: DEW
Sample    : 1607256-07AMSD                          Inst    : GC/MS #6
Misc      : MSD                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:58 2016             Quant Results File: PP160801.RES

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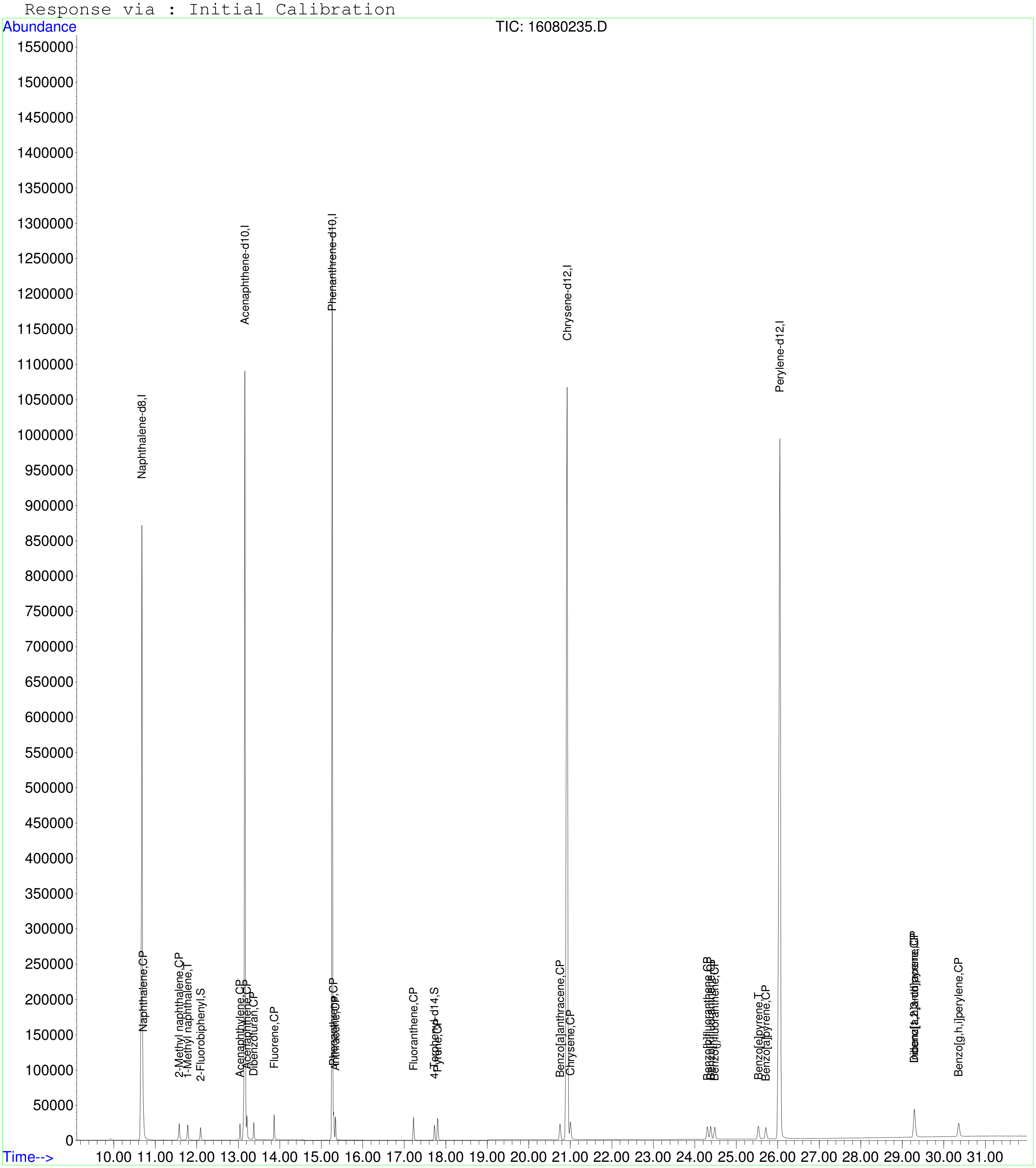


Data File : C:\HPCHEM\1\DATA\160802\16080236.D   Vial: 36
Acq On   : 3 Aug 2016   8:20 am   Operator: DEW
Sample   : CCV1-160802   Inst   : GC/MS #6
Misc   : CCV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016   Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1401297	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	618544	4000.00	ug/kg	103
11) Phenanthrene-d10	15.26	188	1528398	4000.00	ug/kg	96
17) Chrysene-d12	20.92	240	1841607	4000.00	ug/kg	100
20) Perylene-d12	26.05	264	1897432	4000.00	ug/kg	98

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	201852	935.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.39%#		
16) 4-Terphenyl-d14	17.73	244	331877	920.13	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.00%#		

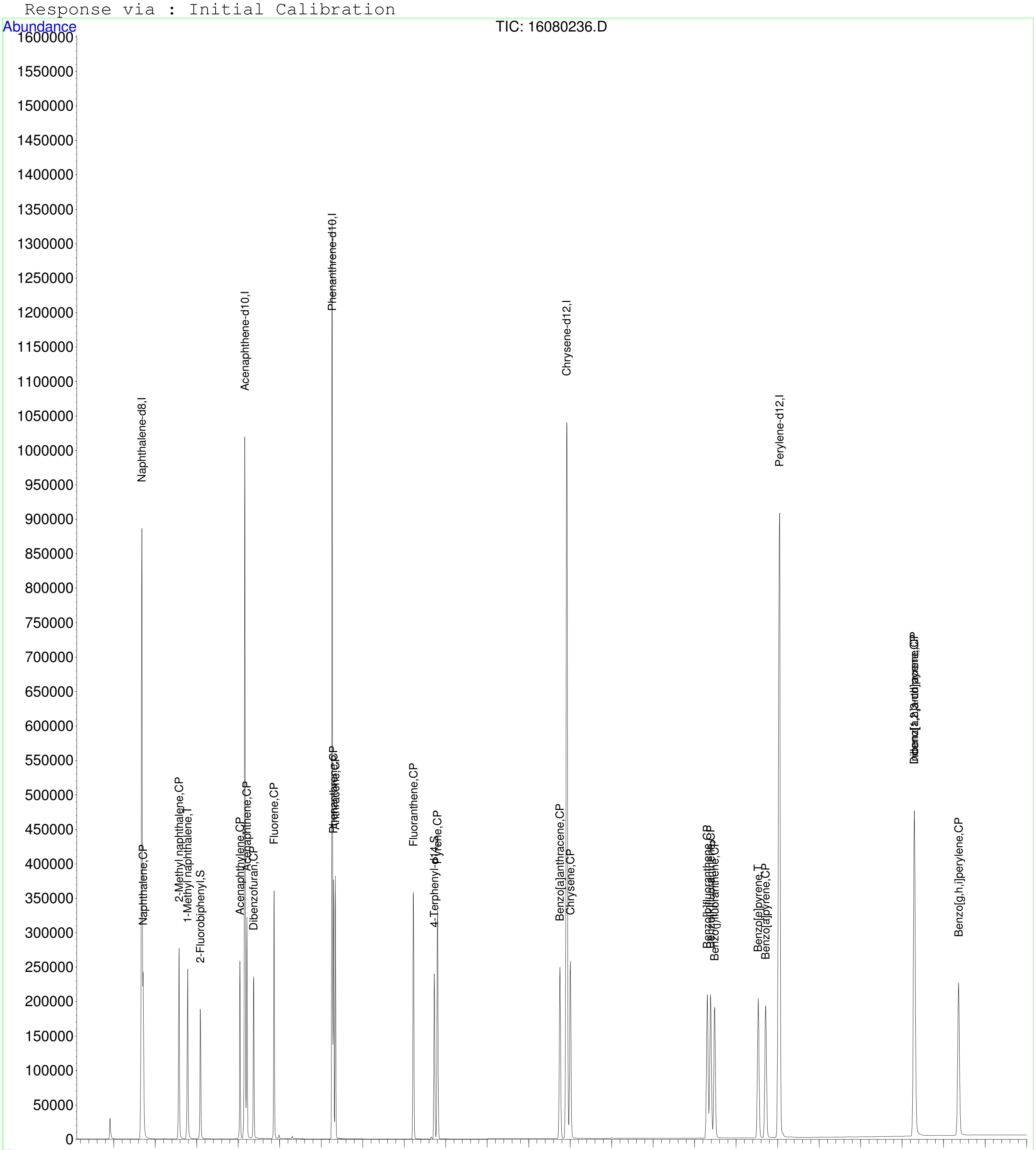
Target Compounds						Qvalue
2) Naphthalene	10.71	128	290712	911.81	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	190576	922.04	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	169868	927.84	ug/kg	99
6) Dibenzofuran	13.37	168	234965	938.67	ug/kg	100
8) Acenaphthylene	13.04	152	257025	938.34	ug/kg	100
9) Acenaphthene	13.21	154	152836	963.41	ug/kg	99
10) Fluorene	13.86	166	198229	994.05	ug/kg	100
12) Phenanthrene	15.30	178	336106	927.55	ug/kg	99
13) Anthracene	15.34	178	349166	915.76	ug/kg	100
14) Fluoranthene	17.22	202	393886	917.24	ug/kg	99
15) Pyrene	17.80	202	391527	899.18	ug/kg	100
18) Benzo[a]anthracene	20.75	228	393265	947.43	ug/kg	100
19) Chrysene	21.01	228	376904	943.84	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	419605	957.93	ug/kg	100
22) Benzo[k]fluoranthene	24.39	252	401760	999.77	ug/kg	100
23) Benzo(j)fluoranthene	24.48	252	369844	957.69	ug/kg	99
24) Benzo[e]pyrene	25.53	252	405871	954.81	ug/kg	100
25) Benzo[a]pyrene	25.71	252	402215	950.34	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	452402	1104.59	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.30	276	533462	1097.61	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	446616	1097.15	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080236.D Vial: 36
Acq On : 3 Aug 2016 8:20 am Operator: DEW
Sample : CCV1-160802 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

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



GCMS6_160803A
For

DHL Work Order
1607219

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	**Run ID: GCMS6_160803A**
Batch Number(s): See Run Log. **Matrix: See Run Log.**	**SOP:** ORGANICS-PAH-01

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

Daily Demonstration of Performance

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

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

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 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	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)	___ Cannot reanalyze (HT out/Lack of Sample)	

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

Analyst: Don Winston Date: 8/4/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:58:14 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: GCMS6_160803A | **Run No.:** 87405

Analytical Run Date: 8/3/2016 | **InstrumentID:** GCMS6

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

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

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160803	1	PAH_LL_SDOD1	TUNE	R87405	8/3/2016 10:22:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160803	1	PAH_LL_SDOD1	ICV	R87405	8/3/2016 11:02:00 AM		
SB-160803	1	PAH_LL_SDOD1	SBLK	76473	8/3/2016 12:23:00 PM		
1607256-33A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:03:00 PM		
1607256-35A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:44:00 PM		
1607219-18A	10	PAH_LL_SDOD1	SAMP	76420	8/3/2016 2:25:00 PM		
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:06:00 PM		
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:47:00 PM		
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 4:28:00 PM		
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:10:00 PM		
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:50:00 PM		
CCV1-160803	1	PAH_LL_SDOD1	CCV	R87405	8/3/2016 6:30:00 PM		

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

Sequence Name: C:\HPCHEM\1\SEQUENCE\160803.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160803\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run	On A Barcode Mismatch
(X) Full Method	(X) Inject Anyway
( ) Reprocessing Only	( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080301	DFTPPPAH	DFTPP-160803
2	Sample	2	16080302	PP160801	ICV-160803
3	Sample	3	16080303	PP160801	SB-160803
4	Sample	4	16080304	PP160801	SB-160803
5	Sample	5	16080305	PP160801	1607256-33A
6	Sample	6	16080306	PP160801	1607256-35A
7	Sample	7	16080307	PP160801	1607219-18A
8	Sample	8	16080308	PP160801	1607219-22A
9	Sample	9	16080309	PP160801	1607239-01A
10	Sample	10	16080310	PP160801	1607239-05A
11	Sample	11	16080311	PP160801	1607239-11A
12	Sample	12	16080312	PP160801	1607239-17A
13	Sample	13	16080313	PP160801	CCV1-160803
14	Sample	14	16080314	DFTPPPAH	DFTPP-160803
15	Sample	15	16080315	PP160801	ICV-160803
16	Sample	16	16080316	PP160801	LCS-76642
17	Sample	17	16080317	PP160801	MB-76642
18	Sample	18	16080318	PP160801	1608019-01A
19	Sample	19	16080319	PP160801	1608019-02A
20	Sample	20	16080320	PP160801	1608019-03A
21	Sample	21	16080321	PP160801	1608019-04A
22	Sample	22	16080322	PP160801	1608019-05A
23	Sample	23	16080323	PP160801	1608019-06A
24	Sample	24	16080324	PP160801	1607254-05C
25	Sample	25	16080325	PP160801	1607260-01C
26	Sample	26	16080326	PP160801	1607260-04C
27	Sample	27	16080327	PP160801	1607254-02C
28	Sample	28	16080328	PP160801	1607260-11C
29	Sample	29	16080329	PP160801	1608019-03AMS
30	Sample	30	16080330	PP160801	1608019-03AMSD
31	Sample	31	16080331	PP160801	CCV1-160803

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 8:50:03 AM**
Digestion:
Prep End Date: **7/25/2016 12:20:00 PM**

Prep Batch **76420** 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
1607219-01A	Soil		10.21	10	0.979	1	of	1	
1607219-02A	Soil		10.04	10	0.996	1	of	1	
1607219-03A	Soil		10.08	10	0.992	1	of	3	
1607219-03AMS	Soil		10.59	10	0.944	1	of		
1607219-03AMSD	Soil		10.23	10	0.978	12	of		
1607219-04A	Soil		10.04	10	0.996	1	of	1	
1607219-05A	Soil		10.07	10	0.993	1	of	1	
1607219-06A	Soil		10.04	10	0.996	1	of	1	
1607219-07A	Soil		10.01	10	0.999	1	of	1	
1607219-08A	Soil		10.1	10	0.990	1	of	1	
1607219-09A	Soil		10.19	10	0.981	1	of	1	
1607219-10A	Soil		10.03	10	0.997	1	of	1	
1607219-11A	Soil		10.04	10	0.996	1	of	1	
1607219-12A	Soil		10.05	10	0.995	1	of	1	
1607219-14A	Soil		10.03	10	0.997	1	of	1	
1607219-15A	Soil		10.21	10	0.979	1	of	1	
1607219-16A	Soil		10.08	10	0.992	1	of	1	
1607219-17A	Soil		10.06	10	0.994	1	of	1	
1607219-18A	Soil		10.33	10	0.968	1	of	1	
1607219-19A	Soil		10.21	10	0.979	1	of	1	
1607219-20A	Soil		10.12	10	0.988	1	of	1	
1607219-21A	Soil		10.02	10	0.998	1	of	1	
LCS-76420	Soil		10	10	1.000		of		
MB-76420	Soil		10	10	1.000		of		

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

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

REVIEWED/APPROVED
By Sherri Herschmann at 8:59:31 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 8:50:03 AM**
Digestion:
Prep End Date: 7/25/16 12:20PM
Prep Batch **76420** 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
1607219-01A	Soil		10.21	10	1.000	1	of	1	
1607219-02A	Soil		10.04	10	1.000	1	of	1	
1607219-03A	Soil		10.08	10	1.000	1	of	3	
1607219-03AMS	Soil		10.59	10	1.000	1	of		
1607219-03AMSD	Soil		10.23	10	1.000	1,2	of		
1607219-04A	Soil		10.04	10	1.000	1	of	1	
1607219-05A	Soil		10.07	10	1.000	1	of	1	
1607219-06A	Soil		10.04	10	1.000	1	of	1	
1607219-07A	Soil		10.01	10	1.000	1	of	1	
1607219-08A	Soil		10.10	10	1.000	1	of	1	
1607219-09A	Soil		10.19	10	1.000	1	of	1	
1607219-10A	Soil		10.03	10	1.000	1	of	1	
1607219-11A	Soil		10.04	10	1.000	1	of	1	
1607219-12A	Soil		10.05	10	1.000	1	of	1	
1607219-14A	Soil		10.03	10	1.000	1	of	1	
1607219-15A	Soil		10.21	10	1.000	1	of	1	
1607219-16A	Soil		10.08	10	1.000	1	of	1	
1607219-17A	Soil		10.06	10	1.000	1	of	1	
1607219-18A	Soil		10.33	10	1.000	1	of	1	
1607219-19A	Soil		10.21	10 AR	1.000	1	of	1	
1607219-20A	Soil		10.~~21~~ 12	10	1.000	1	of	1	
1607219-21A	Soil		10.02	10	1.000	1	of	1	
LCS-76420	Soil		10	10	1.000		of		
MB-76420	Soil		10	10	1.000		of		

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

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

AR 7/25/16

REVIEWED/APPROVED
By Sherri Herschmann at 8:53:28 AM, 8/10/2016

7/25/16

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 1:10:20 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 1:10:22 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: 7/25/16 5:00 Pm
Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	1.000	1	of	1	
1607219-23A	Soil		10.71	10	1.000	1	of	1	
1607219-24A	Soil		10.27	10	1.000	1	of	1	
1607219-25A	Soil		10.46	10	1.000	1	of	1	
1607239-01A	Soil		10.05	10	1.000	1	of	3	
1607239-01AMS	Soil		10.68	10	1.000	1	of	3	
1607239-01AMSD	Soil		10.47	10	1.000	1	of	3	
1607239-02A	Soil		10.13	10	1.000	1	of	1	
1607239-03A	Soil		10.14	10	1.000	1	of	1	
1607239-04A	Soil		10.14	10	1.000	1	of	1	
1607239-05A	Soil		10.42	10	1.000	1	of	1	
1607239-06A	Soil		10.07	10	1.000	1	of	1	
1607239-07A	Soil		10.26	10	1.000	1	of	1	
1607239-08A	Soil		10.33	10	1.000	1	of	1	
1607239-09A	Soil		10.01	10	1.000	1	of	1	
1607239-10A	Soil		10.71	10	1.000	1	of	1	
1607239-11A	Soil		10.22	10	1.000	1	of	1	
1607239-12A	Soil		10.22	10	1.000	1	of	1	
1607239-13A	Soil		10.29	10	1.000	1	of	1	
1607239-14A	Soil		10.83	10	1.000	1	of	1	
1607239-15A	Soil		10.53	10	1.000	1	of	1	
1607239-17A	Soil		10.74	10	1.000	1	of	1	
LCS-76442	Soil		10	10	1.000		of		
MB-76442	Soil		10	10	1.000		of		

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

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

REVIEWED BY
By Janice Whitt at 12:36:50 PM, 8/10/2016

7/25/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: **7/25/2016 5:00:00 PM**

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	0.995	1	of	1	
1607219-23A	Soil		10.71	10	0.934	1	of	1	
1607219-24A	Soil		10.27	10	0.974	1	of	1	
1607219-25A	Soil		10.46	10	0.956	1	of	1	
1607239-01A	Soil		10.05	10	0.995	1	of	3	
1607239-01AMS	Soil		10.68	10	0.936	1	of		
1607239-01AMSD	Soil		10.47	10	0.955	1	of		
1607239-02A	Soil		10.13	10	0.987	1	of	1	
1607239-03A	Soil		10.14	10	0.986	1	of	1	
1607239-04A	Soil		10.14	10	0.986	1	of	1	
1607239-05A	Soil		10.42	10	0.960	1	of	1	
1607239-06A	Soil		10.07	10	0.993	1	of	1	
1607239-07A	Soil		10.26	10	0.975	1	of	1	
1607239-08A	Soil		10.33	10	0.968	1	of	1	
1607239-09A	Soil		10.01	10	0.999	1	of	1	
1607239-10A	Soil		10.71	10	0.934	1	of	1	
1607239-11A	Soil		10.22	10	0.978	1	of	1	
1607239-12A	Soil		10.22	10	0.978	1	of	1	
1607239-13A	Soil		10.29	10	0.972	1	of	1	
1607239-14A	Soil		10.83	10	0.923	1	of	1	
1607239-15A	Soil		10.53	10	0.950	1	of	1	
1607239-17A	Soil		10.74	10	0.931	1	of	1	
LCS-76442	Soil		10	10	1.000		of		
MB-76442	Soil		10	10	1.000		of		

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

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

REVIEWED BY
By Janice Whitt at 12:36:52 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:00 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:05 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:07 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:14 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

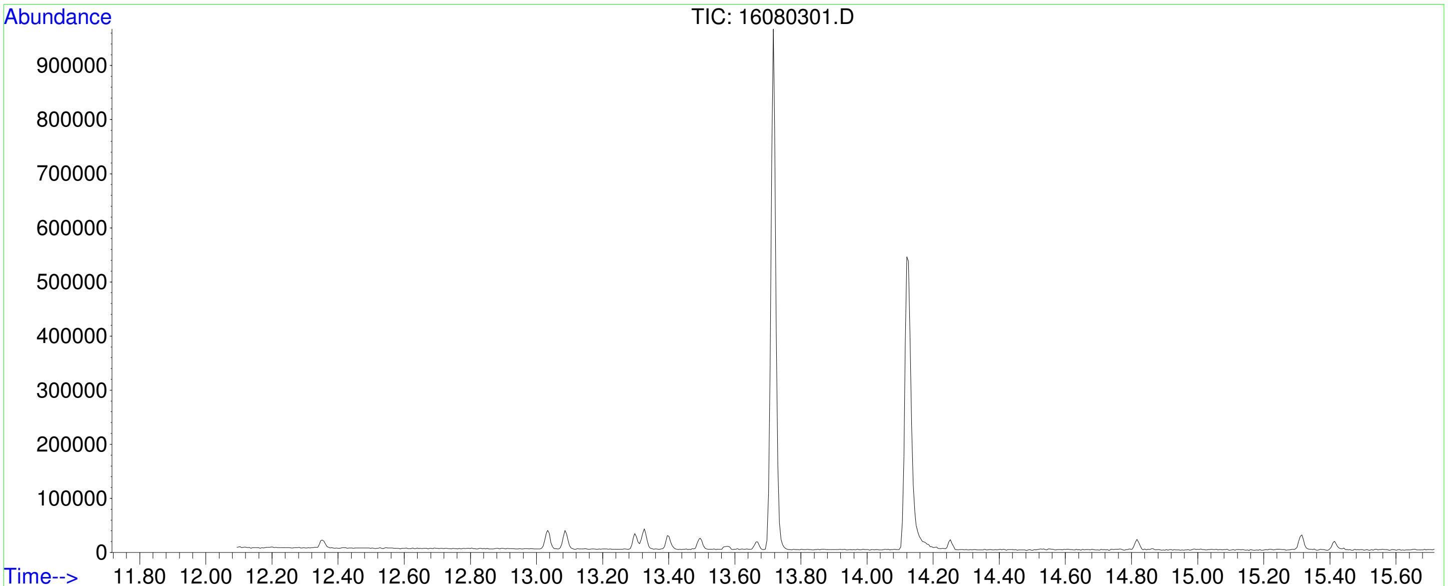
Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

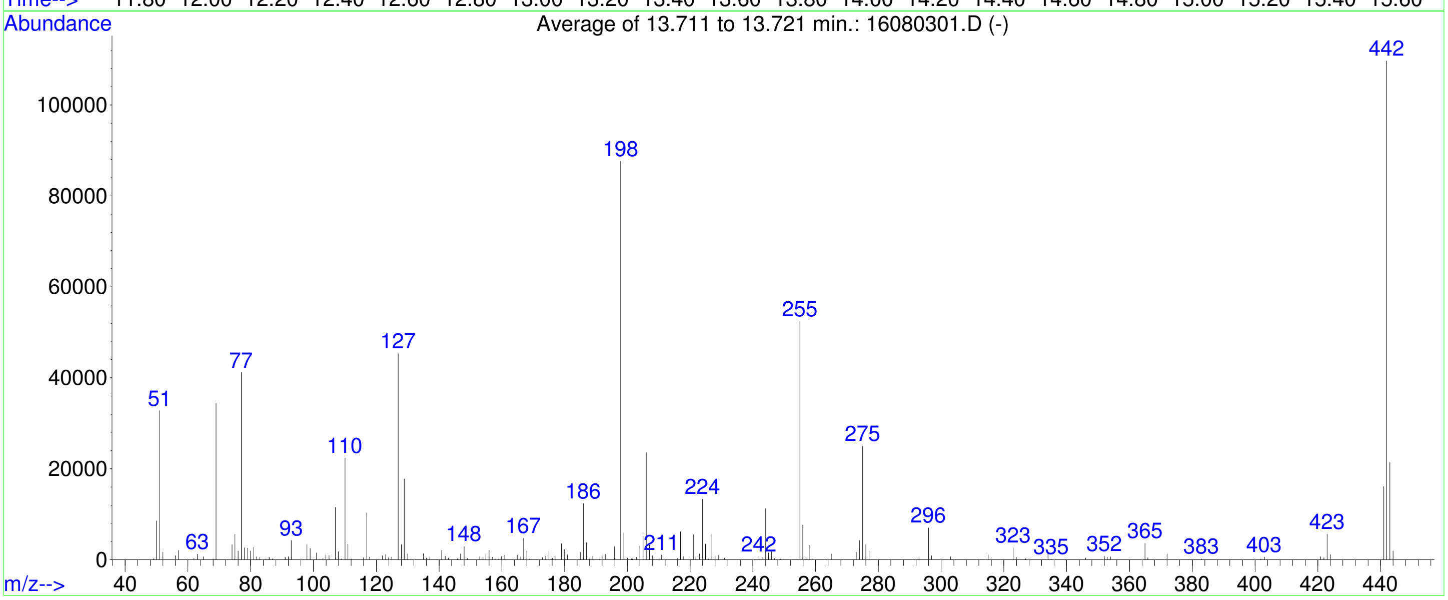
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-15A SS	Soil		0	0	#Num!	1 of 1	
1607219-16A SS	Soil		0	0	#Num!	1 of 1	
1607219-17A SS	Soil		0	0	#Num!	1 of 1	
1607219-18A SS	Soil		0	0	#Num!	1 of 1	
1607219-19A SS	Soil		0	0	#Num!	1 of 1	
1607219-20A SS	Soil		0	0	#Num!	1 of 1	
1607219-21A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

REVIEWED BY
By Janice Whitt at 12:31:16 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160803\16080301.D          Vial: 1
Acq On    :  3 Aug 2016  10:22 am                    Operator: DEW
Sample    : DFTPP-160803                             Inst     : GC/MS #6
Misc      : TUNE                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title     : PAH Calibration
```





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

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	37.4	32792	PASS
68	69	0.00	2	0.6	202	PASS
69	198	0.00	100	39.3	34451	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.8	45389	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	87691	PASS
199	198	5	9	6.8	5986	PASS
275	198	10	60	28.5	25027	PASS
365	198	1	200	4.2	3673	PASS
441	442	0.01	24	14.7	16163	PASS
442	198	50	400	125.1	109723	PASS
443	442	15	24	19.5	21399	PASS

REVIEWED BY
By Janice Whitt at 1:33:22 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080302.D Vial: 2
Acq On : 3 Aug 2016 11:02 am Operator: DEW
Sample : ICV-160803 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1445514	4000.00	ug/kg	103
5) Acenaphthene-d10	13.16	164	632861	4000.00	ug/kg	106
11) Phenanthrene-d10	15.26	188	1466608	4000.00	ug/kg	92
17) Chrysene-d12	20.92	240	1857658	4000.00	ug/kg	101
20) Perylene-d12	26.05	264	1983483	4000.00	ug/kg	103

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	435940	1974.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.37%			
16) 4-Terphenyl-d14	17.73	244	689754	1992.92	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.82%			

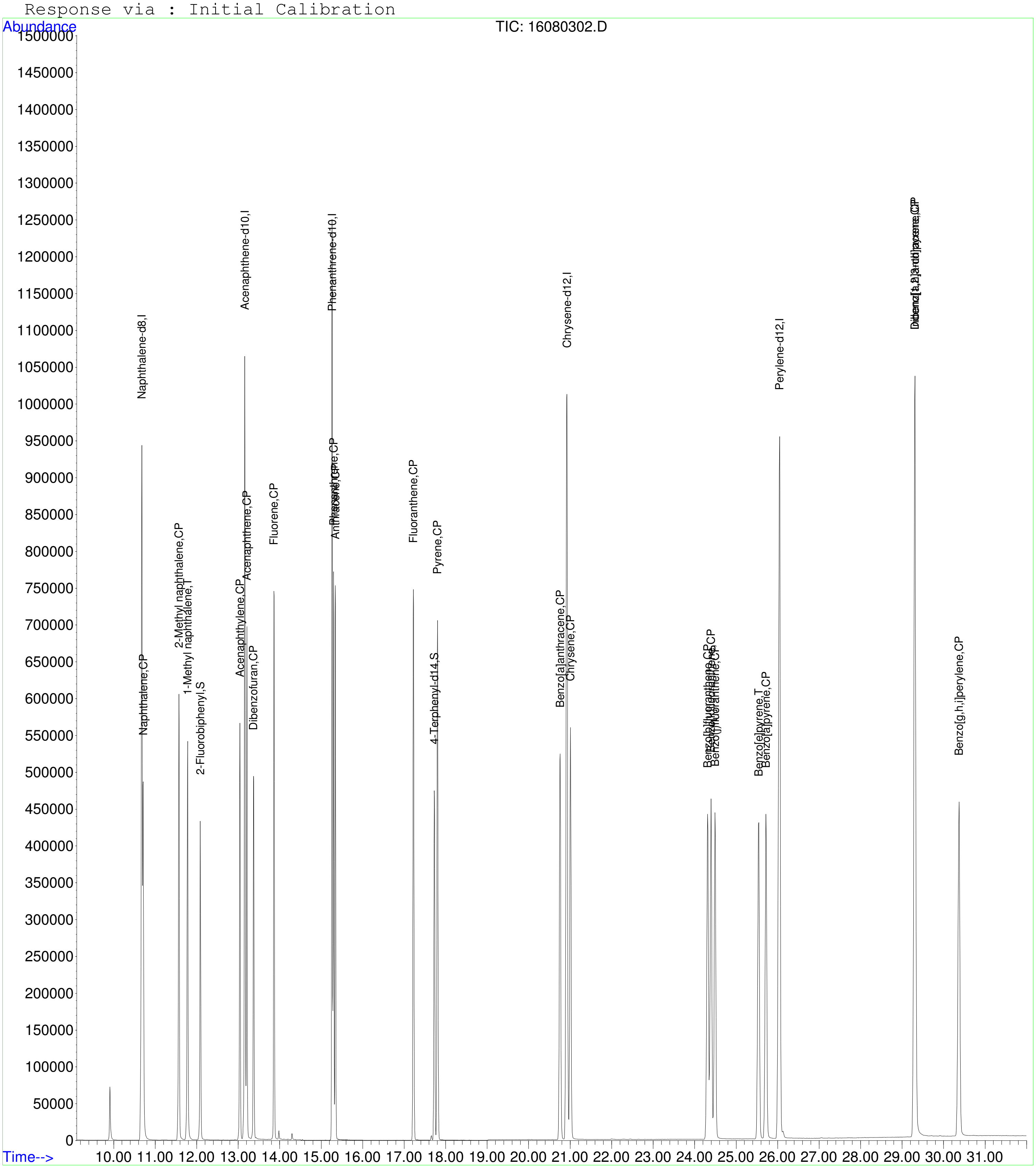
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.71	128	635694	1932.85	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	412884	1936.50	ug/kg	95
4) 1-Methyl naphthalene	11.78	142	370237	1960.42	ug/kg	99
6) Dibenzofuran	13.37	168	494207	1929.66	ug/kg	100
8) Acenaphthylene	13.04	152	563565	2010.90	ug/kg	100
9) Acenaphthene	13.21	154	329208	2028.24	ug/kg	98
10) Fluorene	13.86	166	418017	2048.80	ug/kg	97
12) Phenanthrene	15.30	178	677772	1949.26	ug/kg	100
13) Anthracene	15.34	178	697520	1906.46	ug/kg	100
14) Fluoranthene	17.22	202	803276	1949.40	ug/kg	100
15) Pyrene	17.80	202	805935	1928.89	ug/kg	100
18) Benzo[a]anthracene	20.76	228	849209	2028.17	ug/kg	99
19) Chrysene	21.01	228	805812	2000.48	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	935208	2042.40	ug/kg	100
22) Benzo[k]fluoranthene	24.39	252	850636	2024.96	ug/kg	100
23) Benzo(j)fluoranthene	24.49	252	826789	2048.04	ug/kg	100
24) Benzo[e]pyrene	25.55	252	900755	2027.08	ug/kg	99
25) Benzo[a]pyrene	25.72	252	893943	2020.54	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	988358	2308.50	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.31	276	1163348	2289.78	ug/kg	98
28) Benzo[g,h,i]perylene	30.37	276	975992	2293.60	ug/kg	97

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160803\16080302.D          Vial: 2
Acq On    :  3 Aug 2016  11:02 am                    Operator: DEW
Sample    : ICV-160803                               Inst    : GC/MS #6
Misc      : ICV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:55 2016            Quant Results File: PP160801.RES

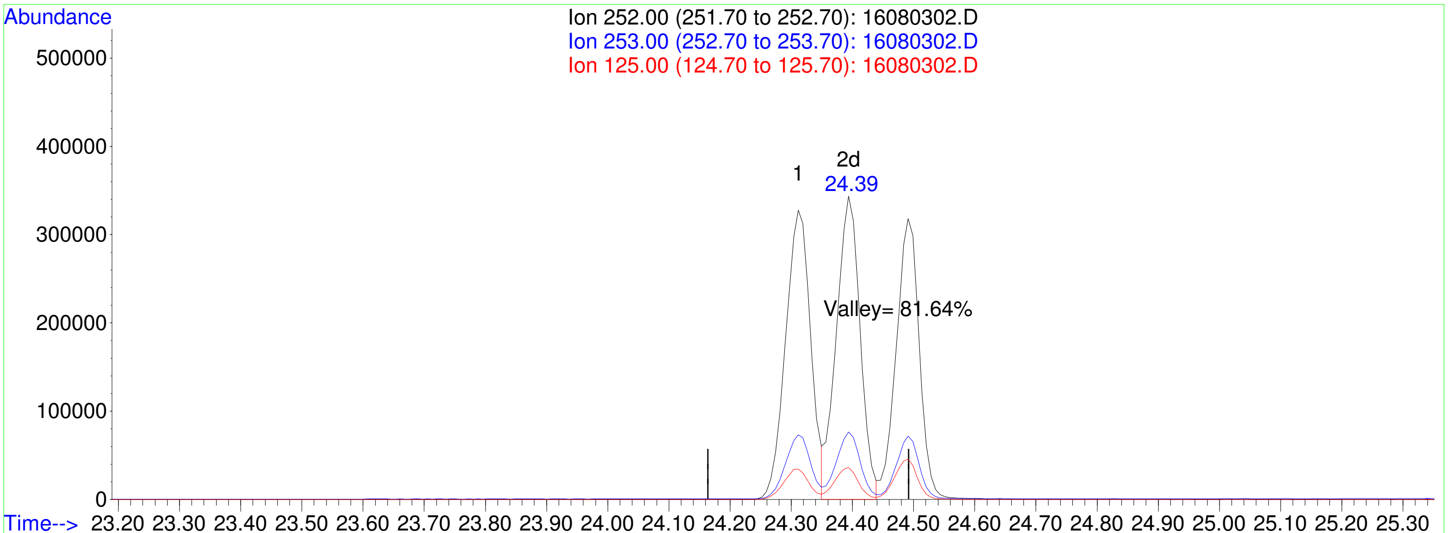
Method       : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
```

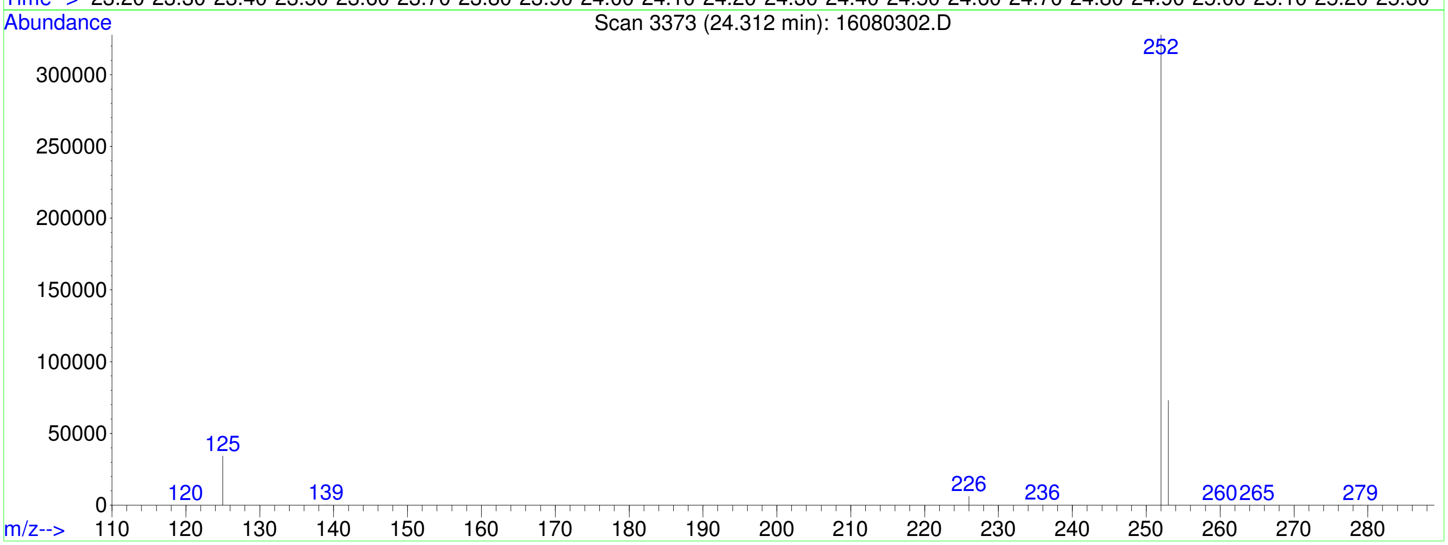


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160803\16080302.D          Vial: 2
Acq On    :  3 Aug 2016  11:02 am                   Operator: DEW
Sample    : ICV-160803                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:53 2016             Quant Results File: temp.res

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





TIC: 16080302.D

(21) Benzo[b]fluoranthene (CP)

24.31min 2042.40ug/kg

response 935208

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.11
125.00	10.60	10.44
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160803\16080304.D          Vial: 4
Acq On    :  3 Aug 2016  12:23 pm                   Operator: DEW
Sample    : SB-160803                               Inst    : GC/MS #6
Misc      : SBLK                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  4  7:55 2016            Quant Results File: PP160801.RES

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

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 ---------------------------------------------------------------------------
   1) Naphthalene-d8              10.67  136  1487401   4000.00 ug/kg  106
   5) Acenaphthene-d10            13.16  164   693897   4000.00 ug/kg  116
  11) Phenanthrene-d10            15.26  188  1578762   4000.00 ug/kg   99
  17) Chrysene-d12                20.92  240  1831134   4000.00 ug/kg  100
  20) Perylene-d12                26.04  264  1840899   4000.00 ug/kg   95

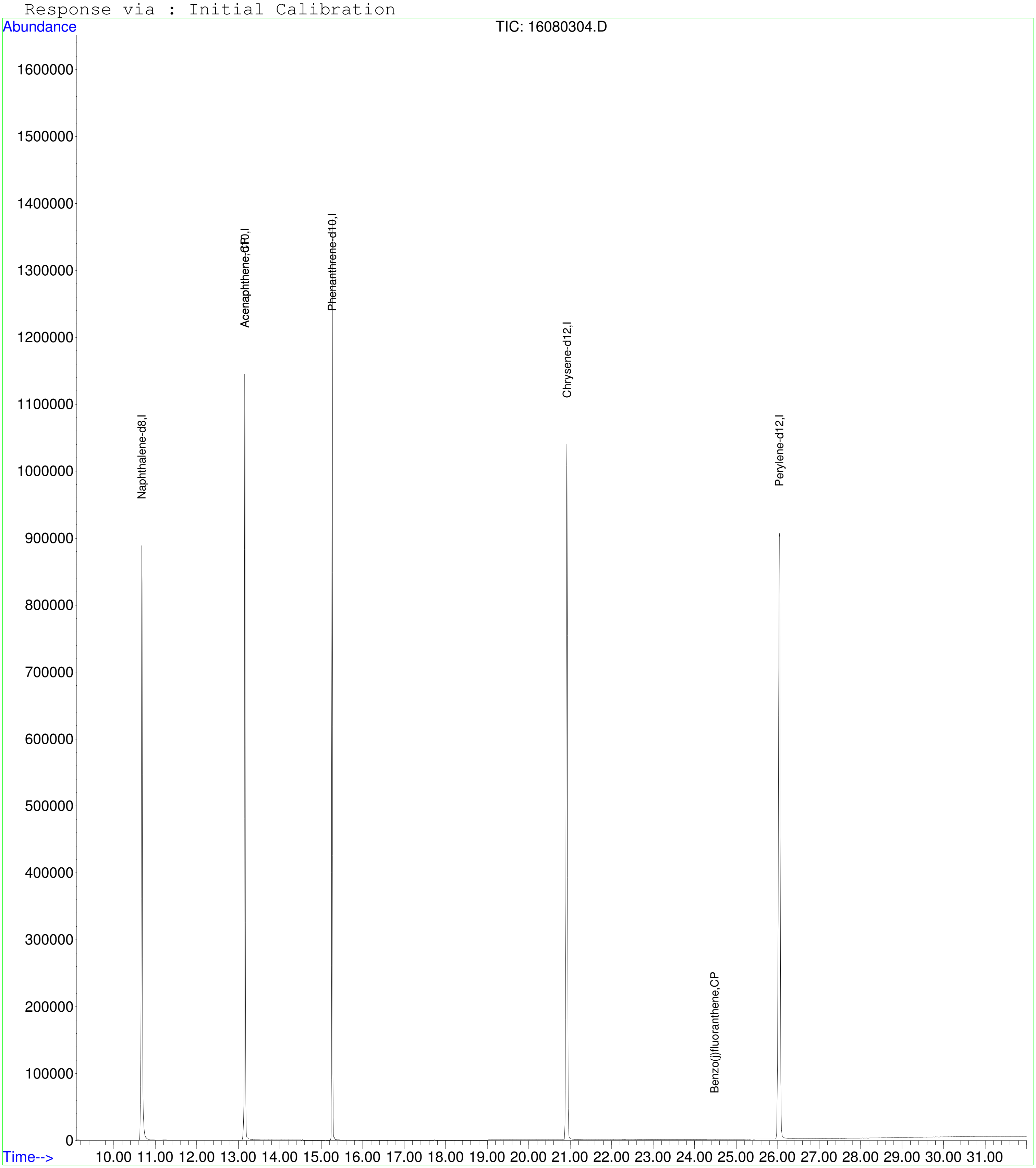
 System Monitoring Compounds
   7) 2-Fluorobiphenyl            12.10  172      153     0.63 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     0.02%#
  16) 4-Terphenyl-d14             17.73  244      778     2.09 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     0.05%#

 Target Compounds                                                  Qvalue
   9) Acenaphthene                13.16  154     2370   ~~13.32 ug/kg#    10~~
  23) Benzo(j)fluoranthene        24.48  252       71     0.19 ug/kg      72

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

```
Data File : C:\HPCHEM\1\DATA\160803\16080304.D          Vial: 4
Acq On    :  3 Aug 2016  12:23 pm                    Operator: DEW
Sample    : SB-160803                                Inst    : GC/MS #6
Misc      : SBLK                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:55 2016            Quant Results File: PP160801.RES

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



```
Data File : C:\HPCHEM\1\DATA\160803\16080307.D          Vial: 7
Acq On    :  3 Aug 2016   2:25 pm                   Operator: DEW
Sample    : 1607219-18A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  4  7:58 2016            Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1530977	4000.00 ug/kg	109
5) Acenaphthene-d10	13.16	164	721829	4000.00 ug/kg	120
11) Phenanthrene-d10	15.27	188	1482614	4000.00 ug/kg	93
17) Chrysene-d12	20.92	240	1812405	4000.00 ug/kg	99
20) Perylene-d12	26.04	264	1836177	4000.00 ug/kg	95

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	20385	80.96 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#	
16) 4-Terphenyl-d14	17.73	244	29022	82.95 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#	

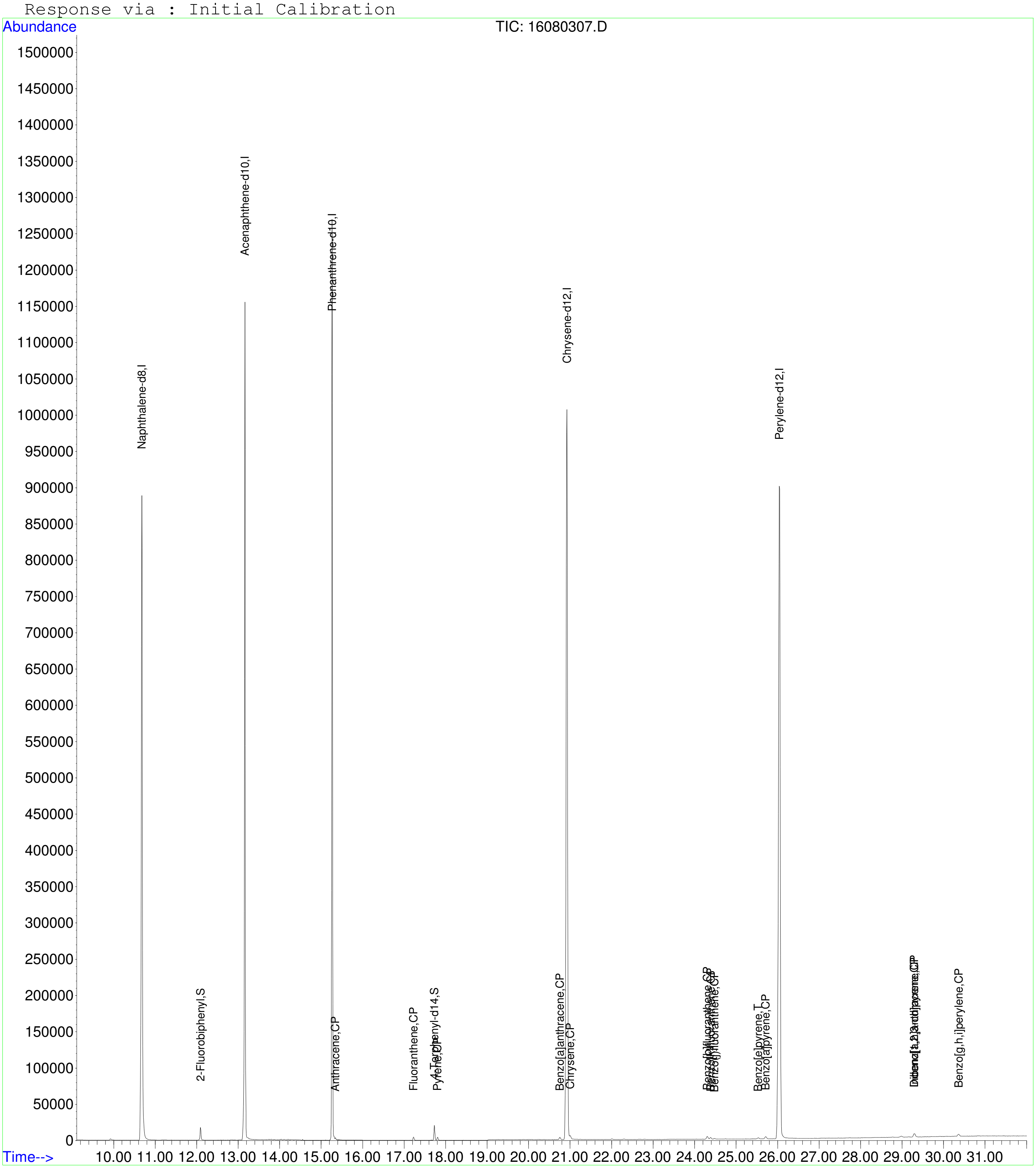
Target Compounds					Qvalue
13) Anthracene	15.34	178	2301	6.22 ug/kg	96
14) Fluoranthene	17.22	202	5045	12.11 ug/kg	98
15) Pyrene	17.80	202	4899	11.60 ug/kg	99
18) Benzo[a]anthracene	20.75	228	5185	12.69 ug/kg	97
19) Chrysene	21.00	228	5845	14.87 ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	7797	18.39 ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	4286	11.02 ug/kg	95
23) Benzo(j)fluoranthene	24.48	252	1930	5.16 ug/kg	91
24) Benzo[e]pyrene	25.53	252	3266	7.94 ug/kg	98
25) Benzo[a]pyrene	25.71	252	6419	15.67 ug/kg	97
26) Dibenz[a,h]anthracene	29.29	278	3332	8.41 ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.29	276	7126	15.15 ug/kg	95
28) Benzo[g,h,i]perylene	30.36	276	6329	16.07 ug/kg	97

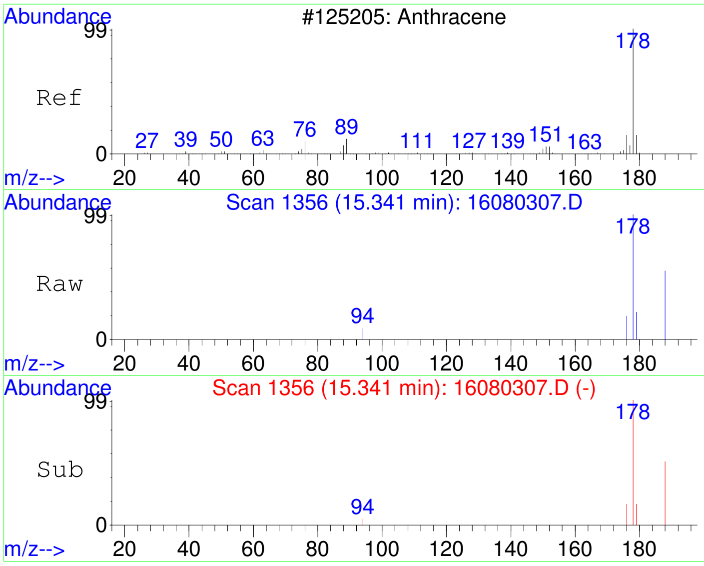
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160803\16080307.D          Vial: 7
Acq On    :  3 Aug 2016   2:25 pm                   Operator: DEW
Sample    : 1607219-18A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:58 2016            Quant Results File: PP160801.RES

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

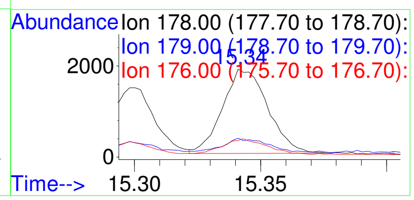


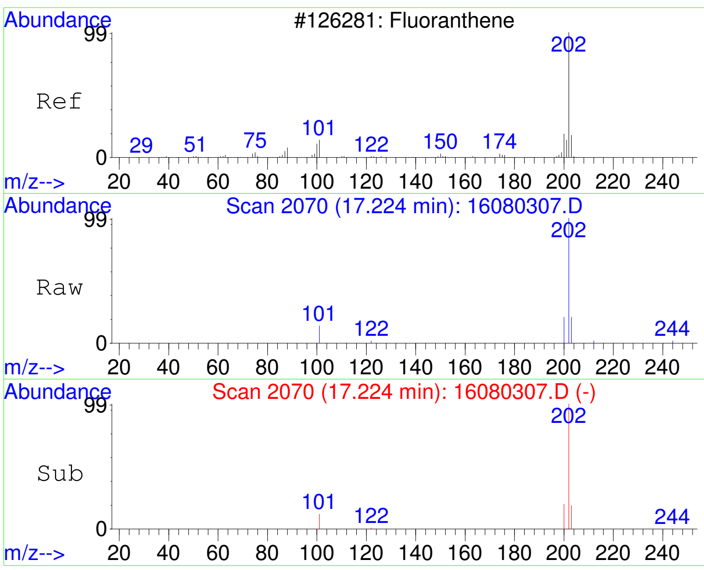


#13
Anthracene
Concen: 6.22 ug/kg
RT: 15.34 min Scan# 1356
Delta R.T. -0.01 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:178 Resp: 2301

Ion	Ratio	Lower	Upper
178	100		
179	17.3	0.0	45.7
176	16.2	0.0	47.9

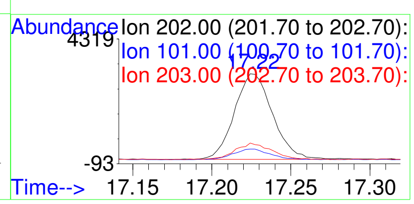


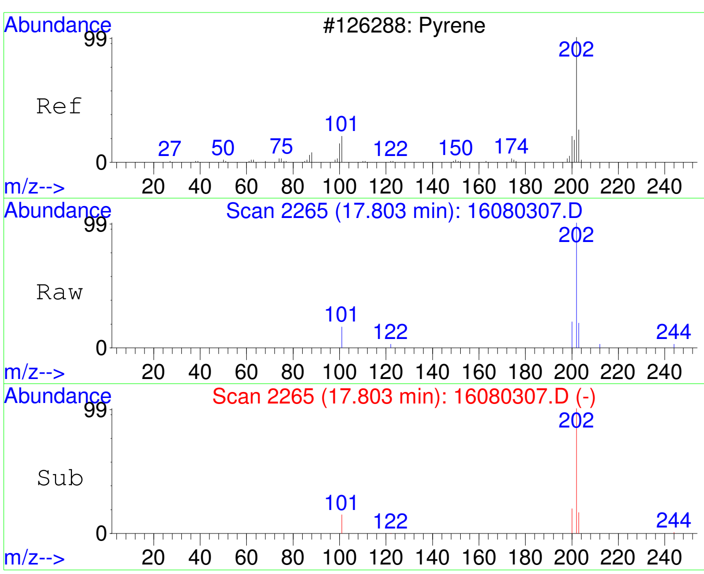


#14
Fluoranthene
Concen: 12.11 ug/kg
RT: 17.22 min Scan# 2070
Delta R.T. -0.01 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:202 Resp: 5045

Ion	Ratio	Lower	Upper
202	100		
101	12.2	0.0	42.1
203	19.3	0.0	47.9

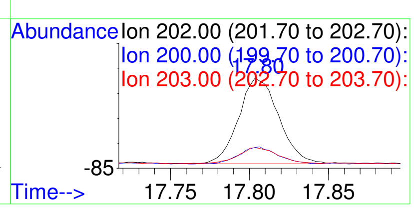


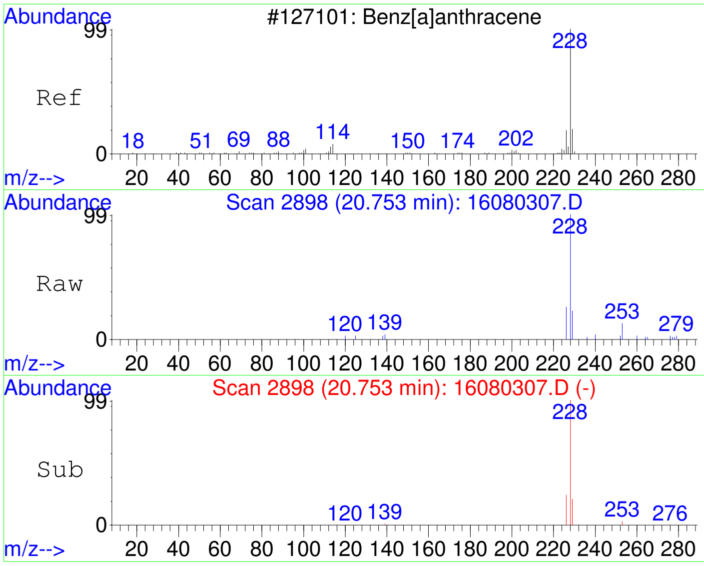


#15
Pyrene
Concen: 11.60 ug/kg
RT: 17.80 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:202 Resp: 4899

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	49.7
203	18.1	0.0	47.8

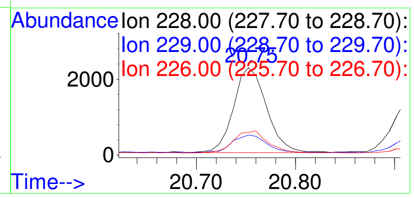


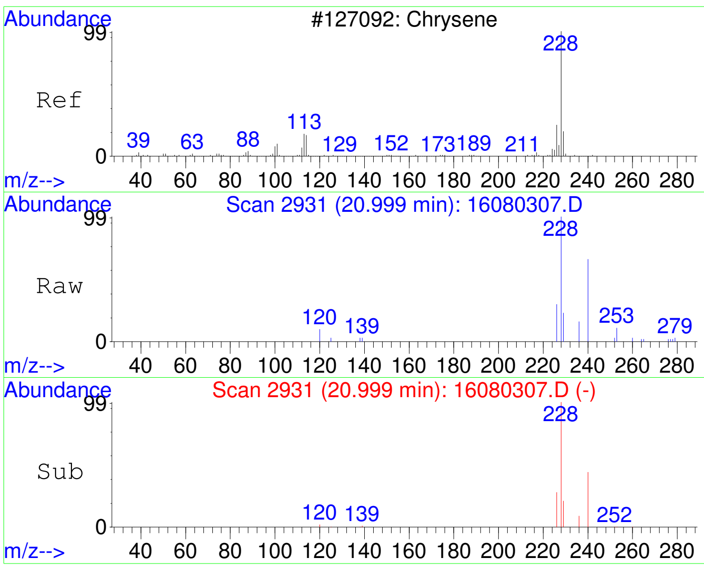


#18
Benzo[a]anthracene
Concen: 12.69 ug/kg
RT: 20.75 min Scan# 2898
Delta R.T. -0.02 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:228 Resp: 5185

Ion	Ratio	Lower	Upper
228	100		
229	20.8	0.0	49.8
226	23.9	0.0	55.8

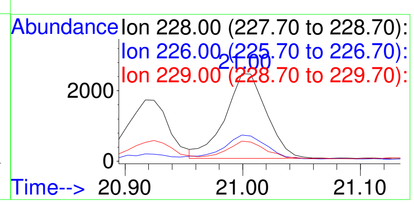


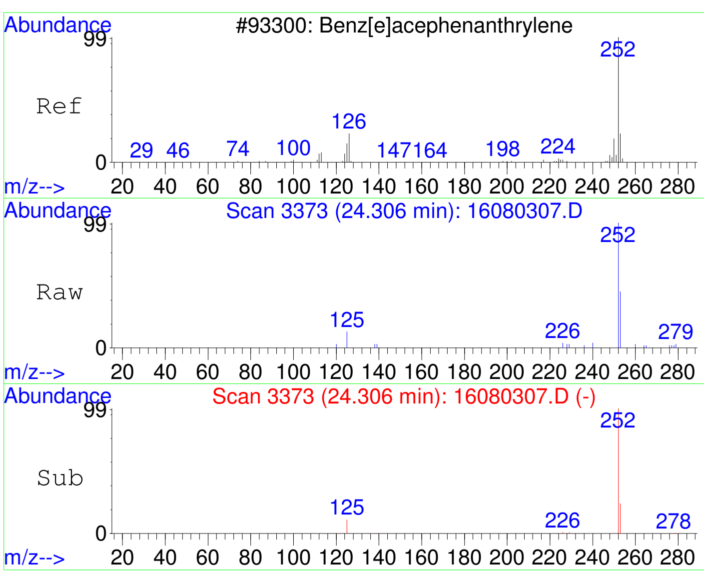


#19
Chrysene
Concen: 14.87 ug/kg
RT: 21.00 min Scan# 2931
Delta R.T. -0.02 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:228 Resp: 5845

Ion	Ratio	Lower	Upper
228	100		
226	27.9	0.0	58.1
229	20.8	0.0	50.0

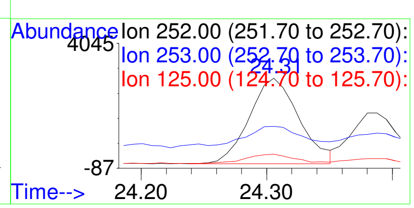


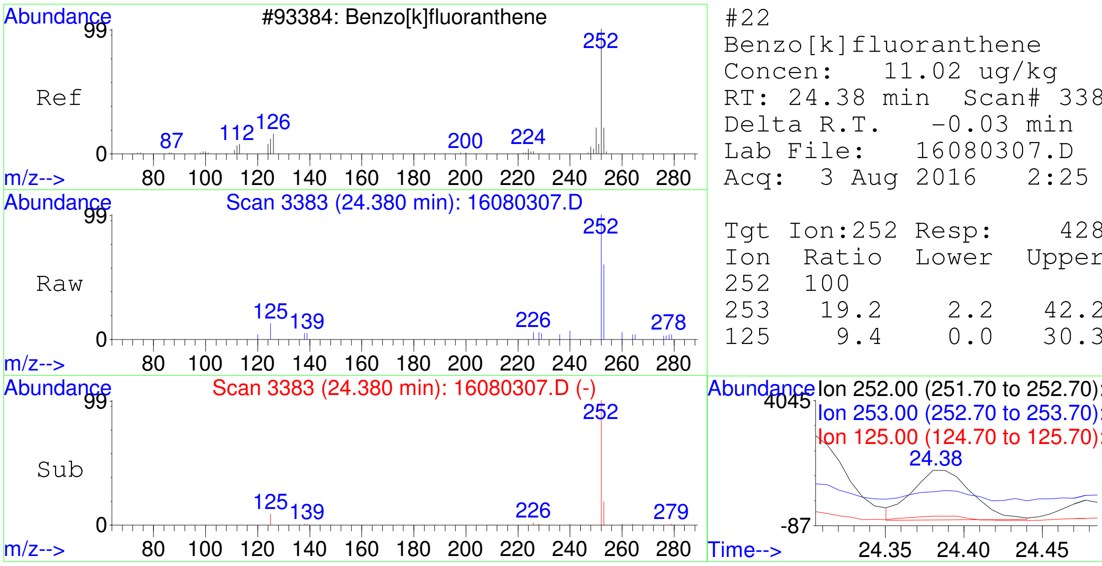


#21
Benzo[b]fluoranthene
Concen: 18.39 ug/kg
RT: 24.31 min Scan# 3373
Delta R.T. -0.02 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:252 Resp: 7797

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.0
125	10.9	0.0	40.6

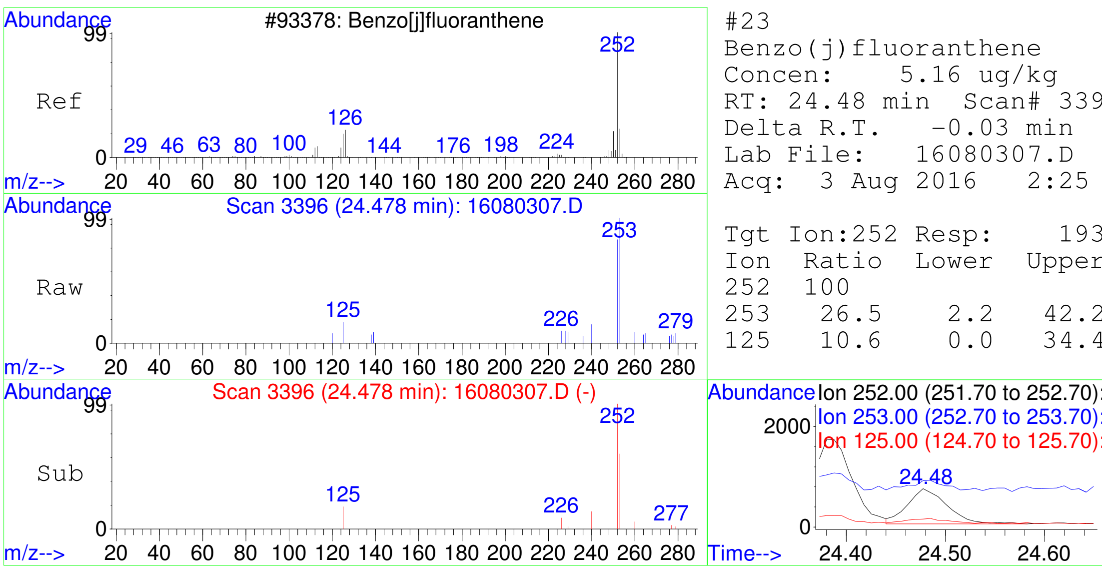




#22
Benzo[k]fluoranthene
Concen: 11.02 ug/kg
RT: 24.38 min   Scan# 3383
Delta R.T.   -0.03 min
Lab File: 16080307.D
Acq: 3 Aug 2016   2:25 pm

Tgt Ion:252 Resp: 4286

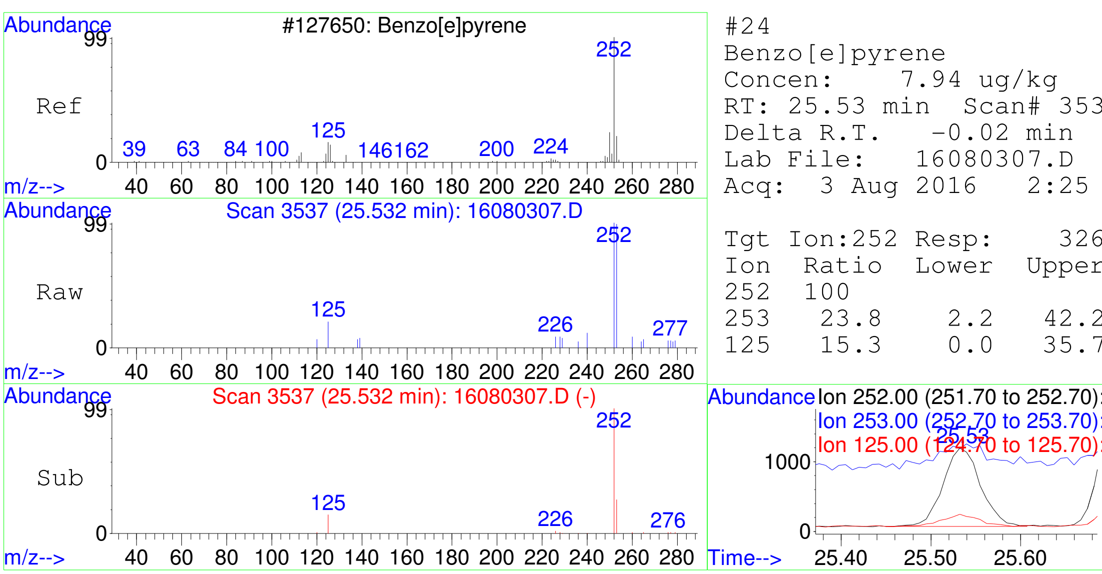
Ion	Ratio	Lower	Upper
252	100		
253	19.2	2.2	42.2
125	9.4	0.0	30.3



#23
Benzo(j)fluoranthene
Concen: 5.16 ug/kg
RT: 24.48 min   Scan# 3396
Delta R.T.   -0.03 min
Lab File: 16080307.D
Acq: 3 Aug 2016   2:25 pm

Tgt Ion:252 Resp: 1930

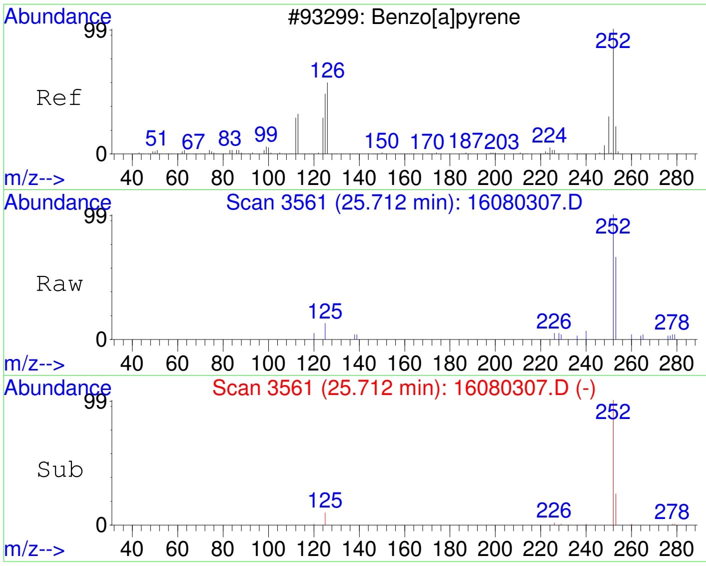
Ion	Ratio	Lower	Upper
252	100		
253	26.5	2.2	42.2
125	10.6	0.0	34.4



#24
Benzo[e]pyrene
Concen: 7.94 ug/kg
RT: 25.53 min   Scan# 3537
Delta R.T.   -0.02 min
Lab File: 16080307.D
Acq: 3 Aug 2016   2:25 pm

Tgt Ion:252 Resp: 3266

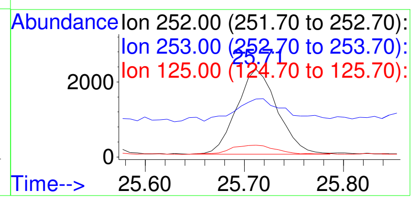
Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.2	42.2
125	15.3	0.0	35.7

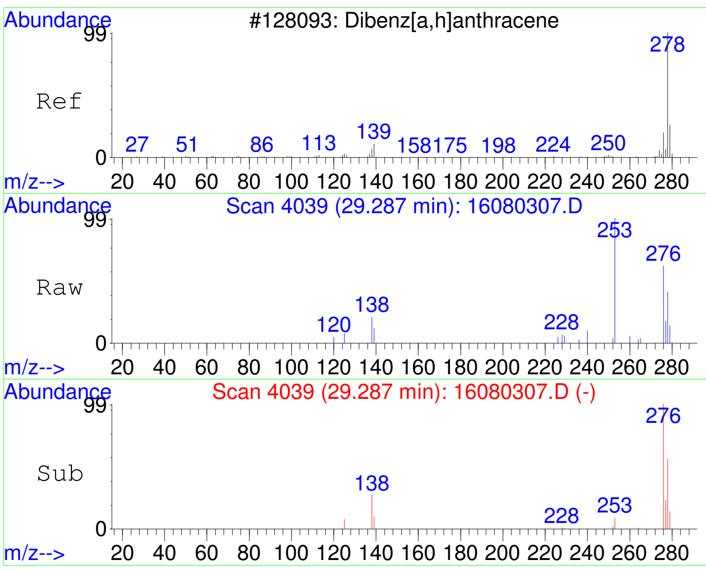


#25
Benzo[a]pyrene
Concen: 15.67 ug/kg
RT: 25.71 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:252 Resp: 6419

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.0	42.0
125	10.3	0.0	31.6

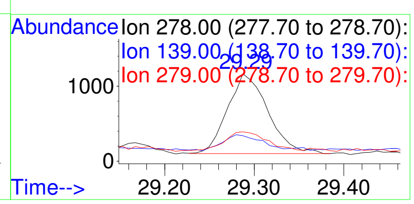


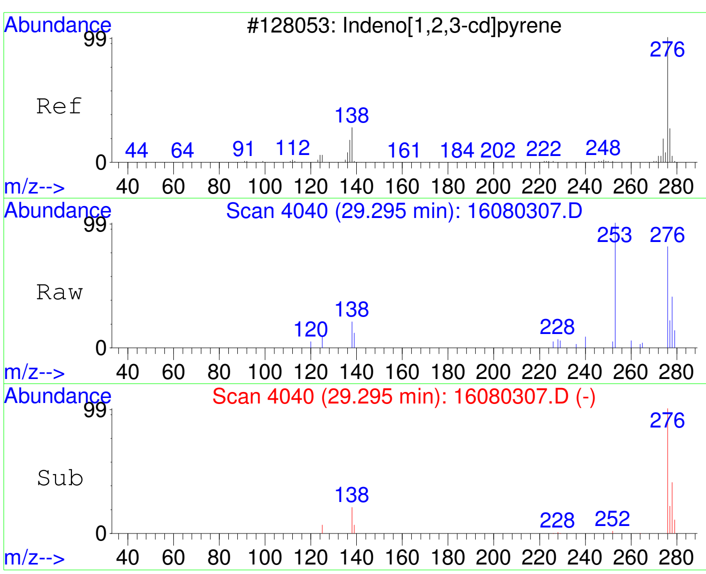


#26
Dibenz[a,h]anthracene
Concen: 8.41 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.04 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:278 Resp: 3332

Ion	Ratio	Lower	Upper
278	100		
139	18.0	0.0	33.8
279	23.6	3.9	43.9

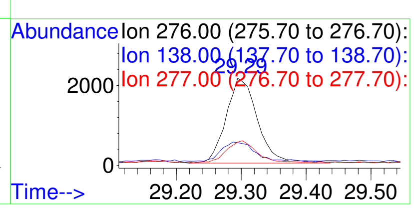




#27
Indeno[1,2,3-cd]pyrene
Concen: 15.15 ug/kg
RT: 29.29 min Scan# 4040
Delta R.T. -0.03 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:276 Resp: 7126

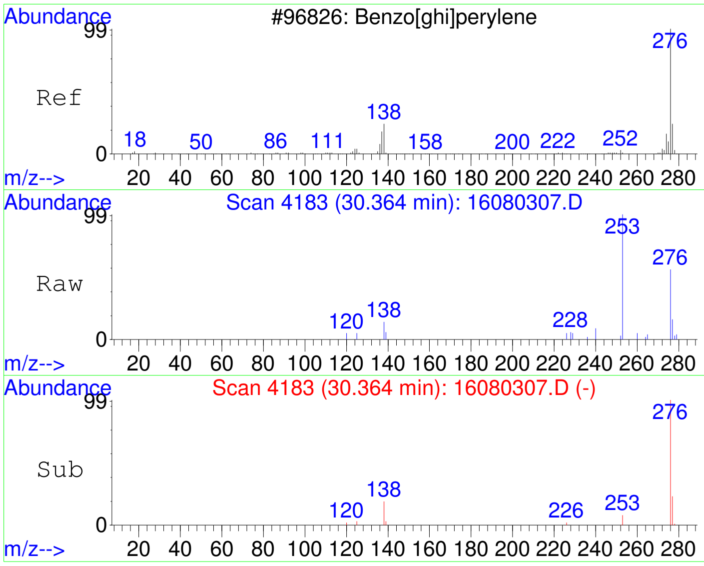
Ion	Ratio	Lower	Upper
276	100		
138	21.9	4.8	44.8
277	23.9	5.6	45.6

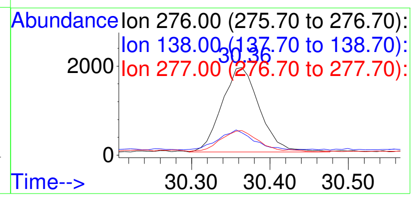


#28
Benzo[g,h,i]perylene
Concen: 16.07 ug/kg
RT: 30.36 min Scan# 4183
Delta R.T. -0.03 min
Lab File: 16080307.D
Acq: 3 Aug 2016 2:25 pm

Tgt Ion:276 Resp: 6329

Ion	Ratio	Lower	Upper
276	100		
138	20.4	0.0	38.1
277	24.4	4.1	44.1





Quantitation Report   (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160803\16080308.D          Vial: 8
Acq On    :  3 Aug 2016   3:06 pm                   Operator: DEW
Sample    : 1607219-22A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  4  7:58 2016            Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1523489	4000.00	ug/kg	109
5) Acenaphthene-d10	13.16	164	711731	4000.00	ug/kg	119
11) Phenanthrene-d10	15.26	188	1517258	4000.00	ug/kg	95
17) Chrysene-d12	20.92	240	1823203	4000.00	ug/kg	99
20) Perylene-d12	26.05	264	1844957	4000.00	ug/kg	96

System Monitoring Compounds

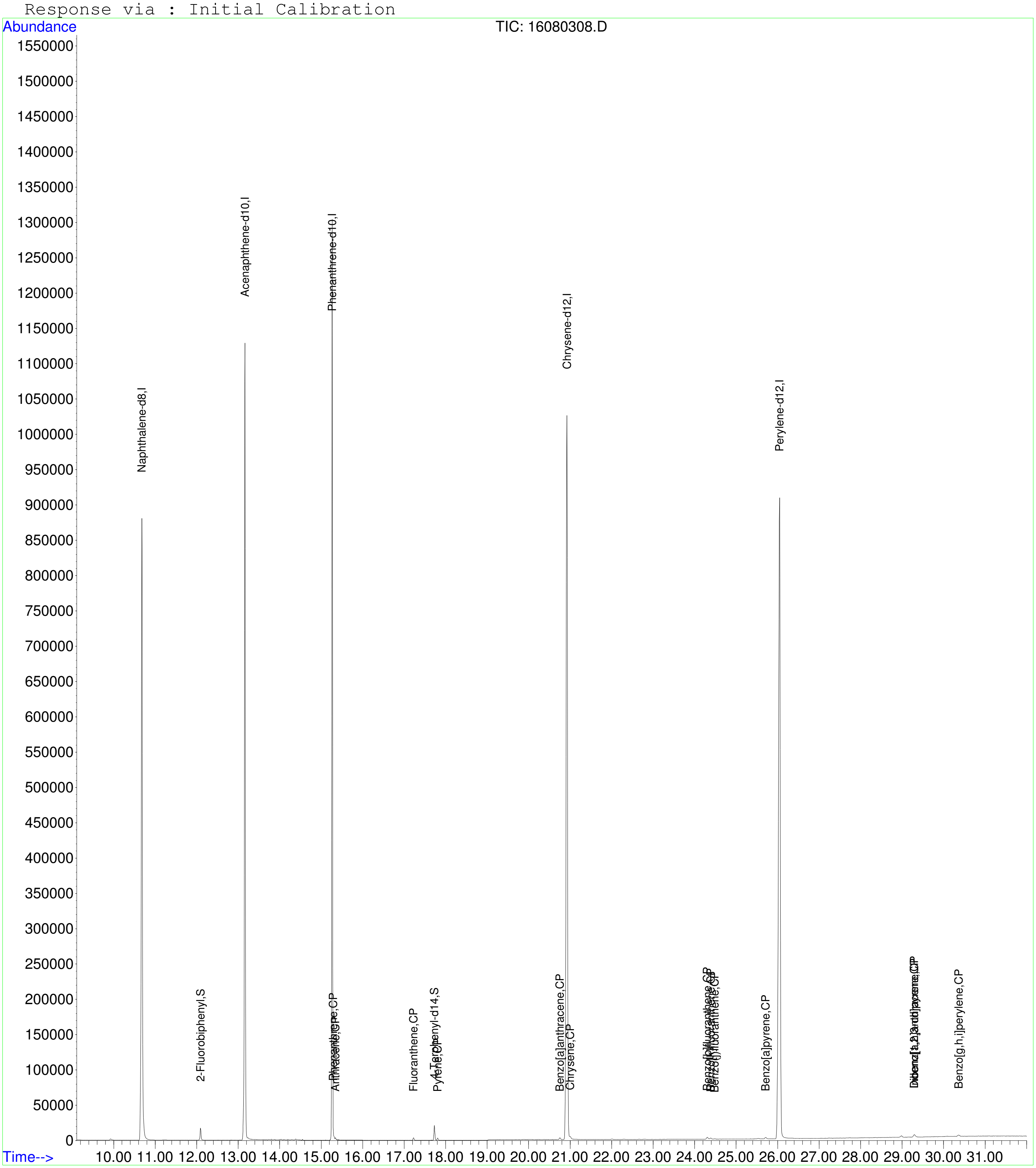
7) 2-Fluorobiphenyl	12.09	172	19479	78.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.73	244	28963	80.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		

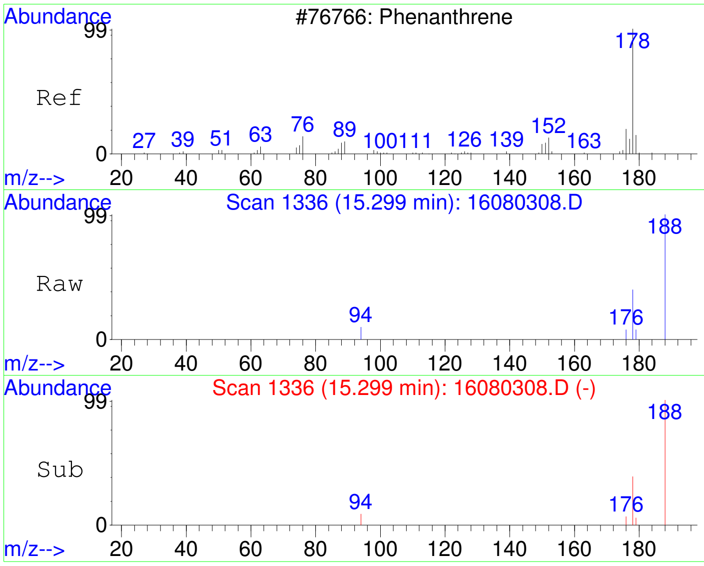
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
12) Phenanthrene	15.30	178	1997	5.55	ug/kg	98
13) Anthracene	15.34	178	2446	6.46	ug/kg	95
14) Fluoranthene	17.22	202	3923	9.20	ug/kg	97
15) Pyrene	17.81	202	3631	8.40	ug/kg	99
18) Benzo[a]anthracene	20.75	228	4052	9.86	ug/kg	97
19) Chrysene	21.01	228	4077	10.31	ug/kg	96
21) Benzo[b]fluoranthene	24.30	252	5606	13.16	ug/kg	98
22) Benzo[k]fluoranthene	24.38	252	3347	8.57	ug/kg	87
23) Benzo(j)fluoranthene	24.48	252	904	2.41	ug/kg	86
25) Benzo[a]pyrene	25.71	252	4248	10.32	ug/kg	97
26) Dibenz[a,h]anthracene	29.29	278	2939	7.38	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.29	276	4984	10.55	ug/kg	94
28) Benzo[g,h,i]perylene	30.36	276	4265	10.78	ug/kg	98

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

```
Data File : C:\HPCHEM\1\DATA\160803\16080308.D          Vial: 8
Acq On    :  3 Aug 2016   3:06 pm                    Operator: DEW
Sample    : 1607219-22A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:58 2016            Quant Results File: PP160801.RES

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

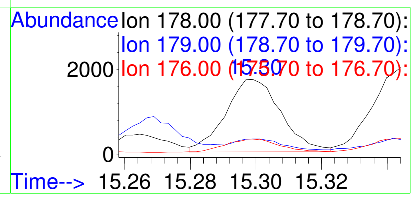


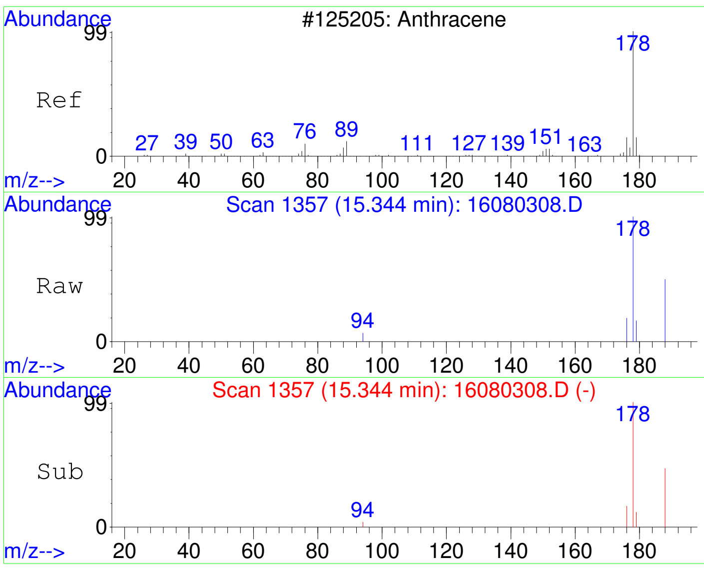


#12
Phenanthrene
Concen: 5.55 ug/kg
RT: 15.30 min Scan# 1336
Delta R.T. -0.01 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:178 Resp: 1997

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.7
176	17.6	0.0	48.7

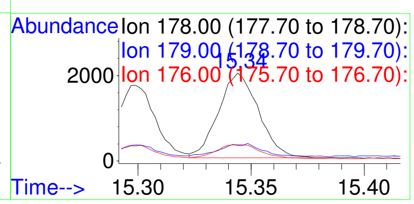


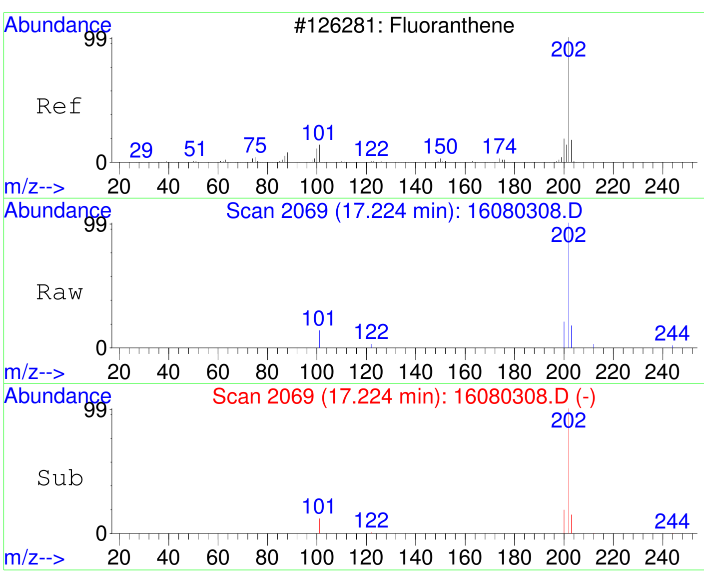


#13
Anthracene
Concen: 6.46 ug/kg
RT: 15.34 min Scan# 1357
Delta R.T. -0.01 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:178 Resp: 2446

Ion	Ratio	Lower	Upper
178	100		
179	13.2	0.0	45.7
176	16.3	0.0	47.9

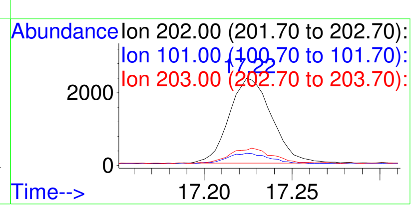


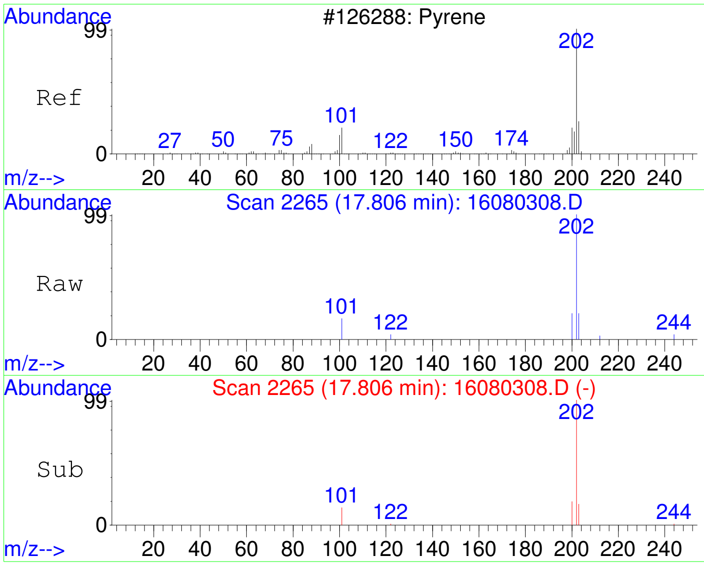


#14
Fluoranthene
Concen: 9.20 ug/kg
RT: 17.22 min Scan# 2069
Delta R.T. -0.01 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:202 Resp: 3923

Ion	Ratio	Lower	Upper
202	100		
101	12.3	0.0	42.1
203	15.5	0.0	47.9

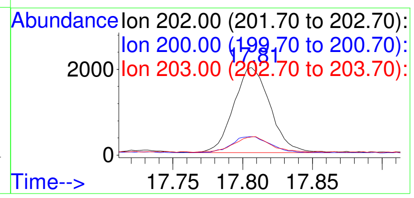


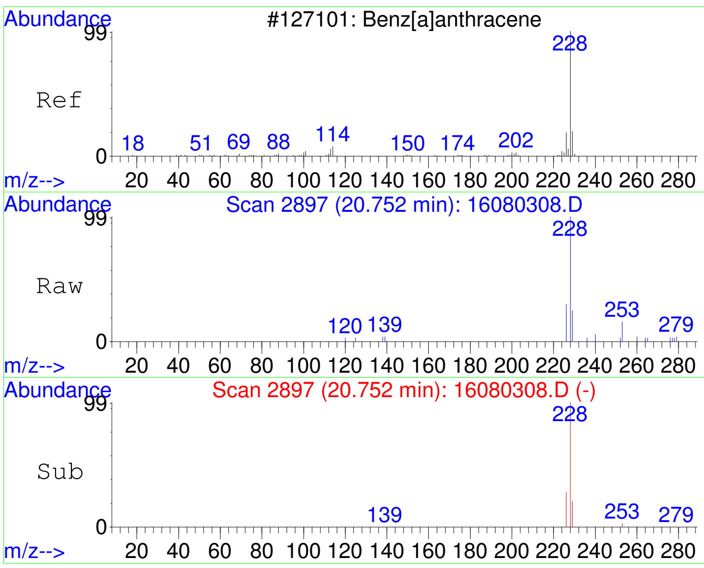


#15
Pyrene
Concen: 8.40 ug/kg
RT: 17.81 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:202 Resp: 3631

Ion	Ratio	Lower	Upper
202	100		
200	18.6	0.0	49.7
203	17.7	0.0	47.8

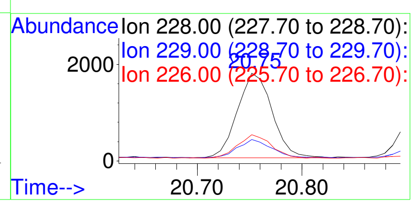


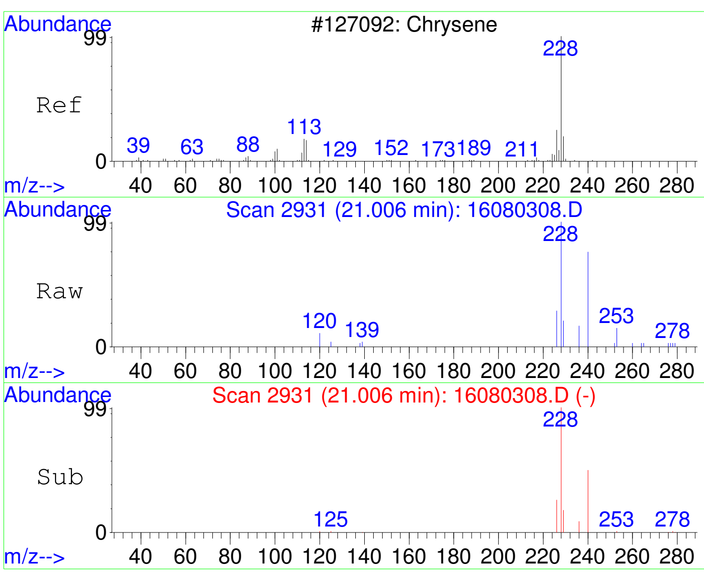


#18
Benzo[a]anthracene
Concen: 9.86 ug/kg
RT: 20.75 min Scan# 2897
Delta R.T. -0.02 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:228 Resp: 4052

Ion	Ratio	Lower	Upper
228	100		
229	21.2	0.0	49.8
226	27.7	0.0	55.8

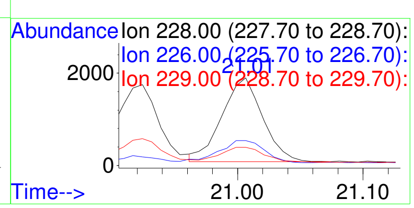


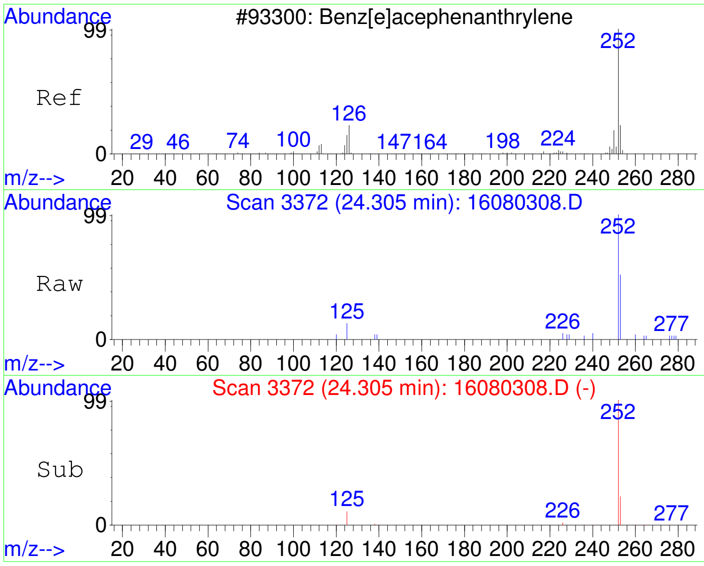


#19
Chrysene
Concen: 10.31 ug/kg
RT: 21.01 min Scan# 2931
Delta R.T. -0.02 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:228 Resp: 4077

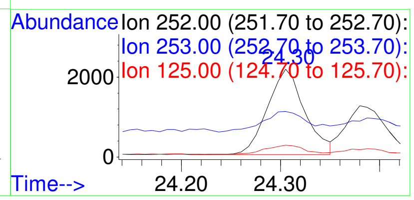
Ion	Ratio	Lower	Upper
228	100		
226	26.3	0.0	58.1
229	17.3	0.0	50.0

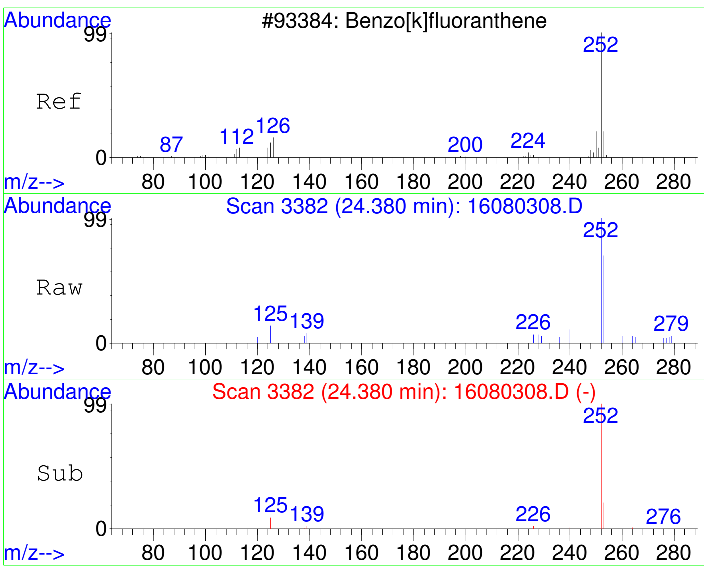





```
#21
Benzo[b]fluoranthene
Concen:   13.16 ug/kg
RT: 24.30 min   Scan# 3372
Delta R.T.   -0.02 min
Lab File:   16080308.D
Acq:  3 Aug 2016   3:06 pm

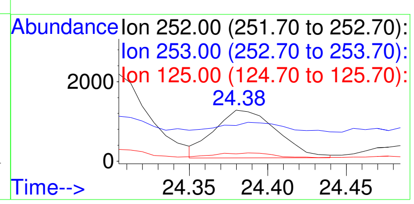
Tgt Ion:252 Resp:    5606
Ion  Ratio  Lower  Upper
252  100
253   20.7    0.0   52.0
125   10.5    0.0   40.6
```

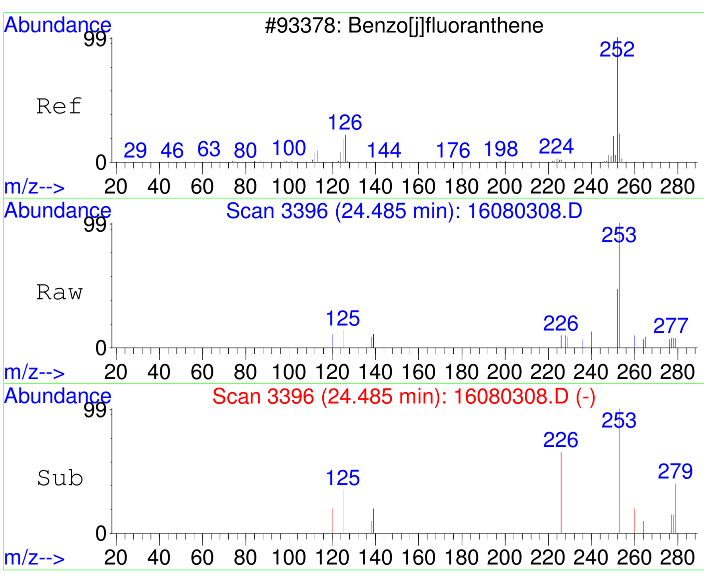





```
#22
Benzo[k]fluoranthene
Concen:    8.57 ug/kg
RT: 24.38 min   Scan# 3382
Delta R.T.   -0.03 min
Lab File:   16080308.D
Acq:  3 Aug 2016   3:06 pm

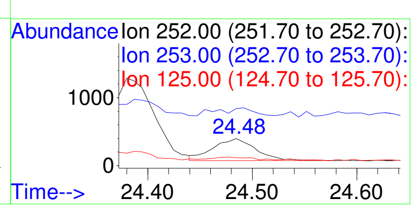
Tgt Ion:252 Resp:    3347
Ion  Ratio  Lower  Upper
252  100
253   14.3    2.2   42.2
125    7.7    0.0   30.3
```

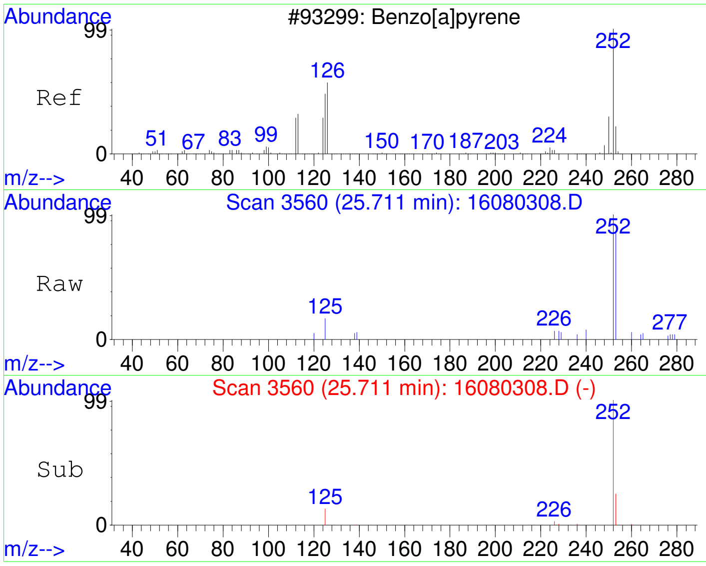





```
#23
Benzo(j)fluoranthene
Concen:    2.41 ug/kg
RT: 24.48 min   Scan# 3396
Delta R.T.   -0.02 min
Lab File:   16080308.D
Acq:  3 Aug 2016   3:06 pm

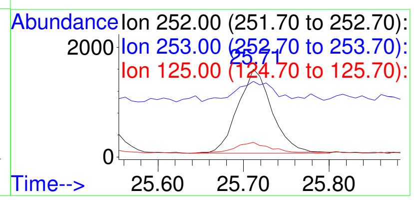
Tgt Ion:252 Resp:     904
Ion  Ratio  Lower  Upper
252  100
253   32.1    2.2   42.2
125   12.8    0.0   34.4
```

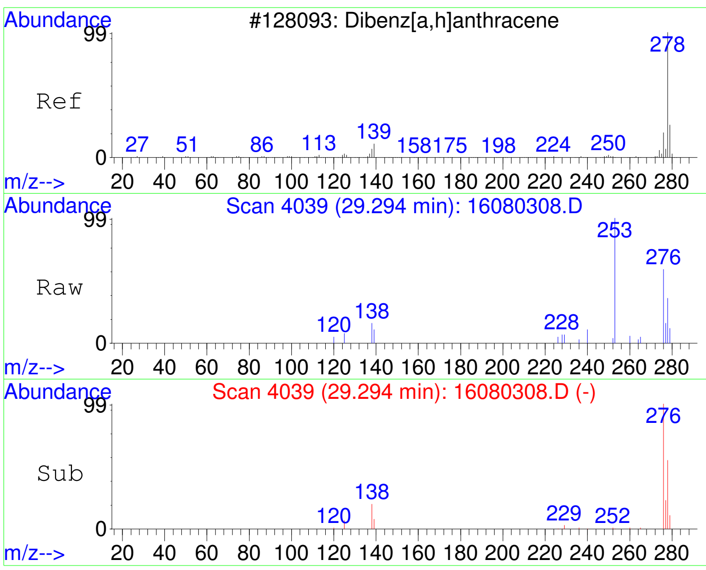




#25
Benzo[a]pyrene
Concen: 10.32 ug/kg
RT: 25.71 min Scan# 3560
Delta R.T. -0.02 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

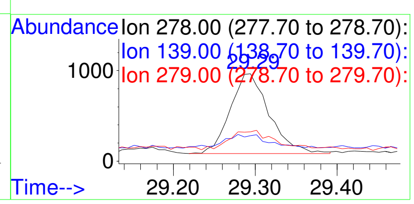
Tgt Ion:252	Resp:		4248
Ion	Ratio	Lower	Upper
252	100		
253	20.5	2.0	42.0
125	13.0	0.0	31.6

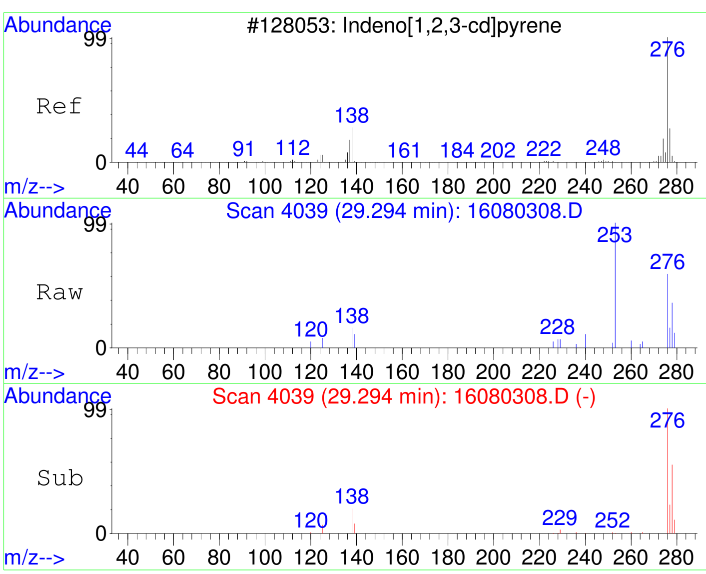




#26
Dibenz[a,h]anthracene
Concen: 7.38 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

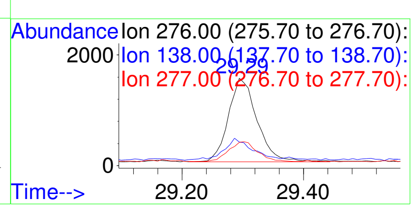
Tgt Ion:278	Resp:		2939
Ion	Ratio	Lower	Upper
278	100		
139	15.0	0.0	33.8
279	19.1	3.9	43.9

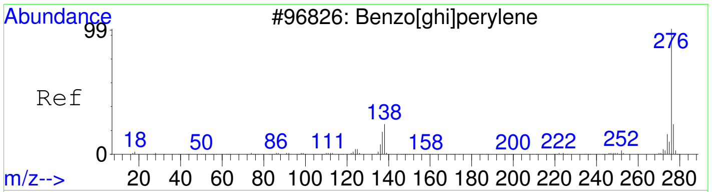


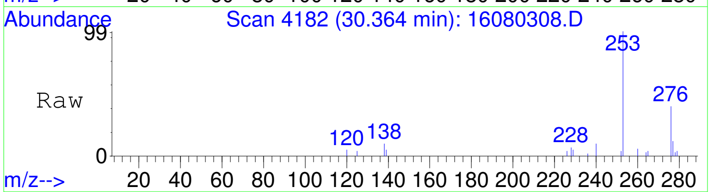


#27
Indeno[1,2,3-cd]pyrene
Concen: 10.55 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:276	Resp:		4984
Ion	Ratio	Lower	Upper
276	100		
138	21.4	4.8	44.8
277	22.6	5.6	45.6



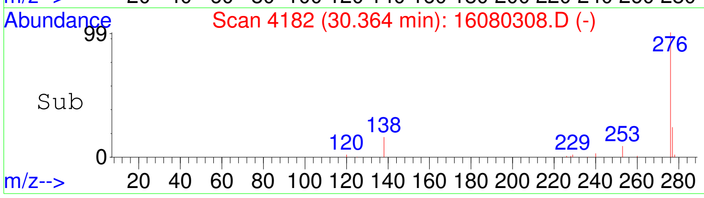


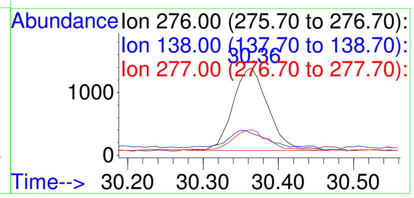


#28
Benzo[g,h,i]perylene
Concen: 10.78 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080308.D
Acq: 3 Aug 2016 3:06 pm

Tgt Ion:276 Resp: 4265

Ion	Ratio	Lower	Upper
276	100		
138	16.9	0.0	38.1
277	24.5	4.1	44.1





Quantitation Report (Not Reviewed)

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

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1414208	4000.00 ug/kg	101
5) Acenaphthene-d10	13.16	164	634071	4000.00 ug/kg	106
11) Phenanthrene-d10	15.27	188	1492298	4000.00 ug/kg	94
17) Chrysene-d12	20.92	240	1815282	4000.00 ug/kg	99
20) Perylene-d12	26.06	264	1898622	4000.00 ug/kg	98

System Monitoring Compounds

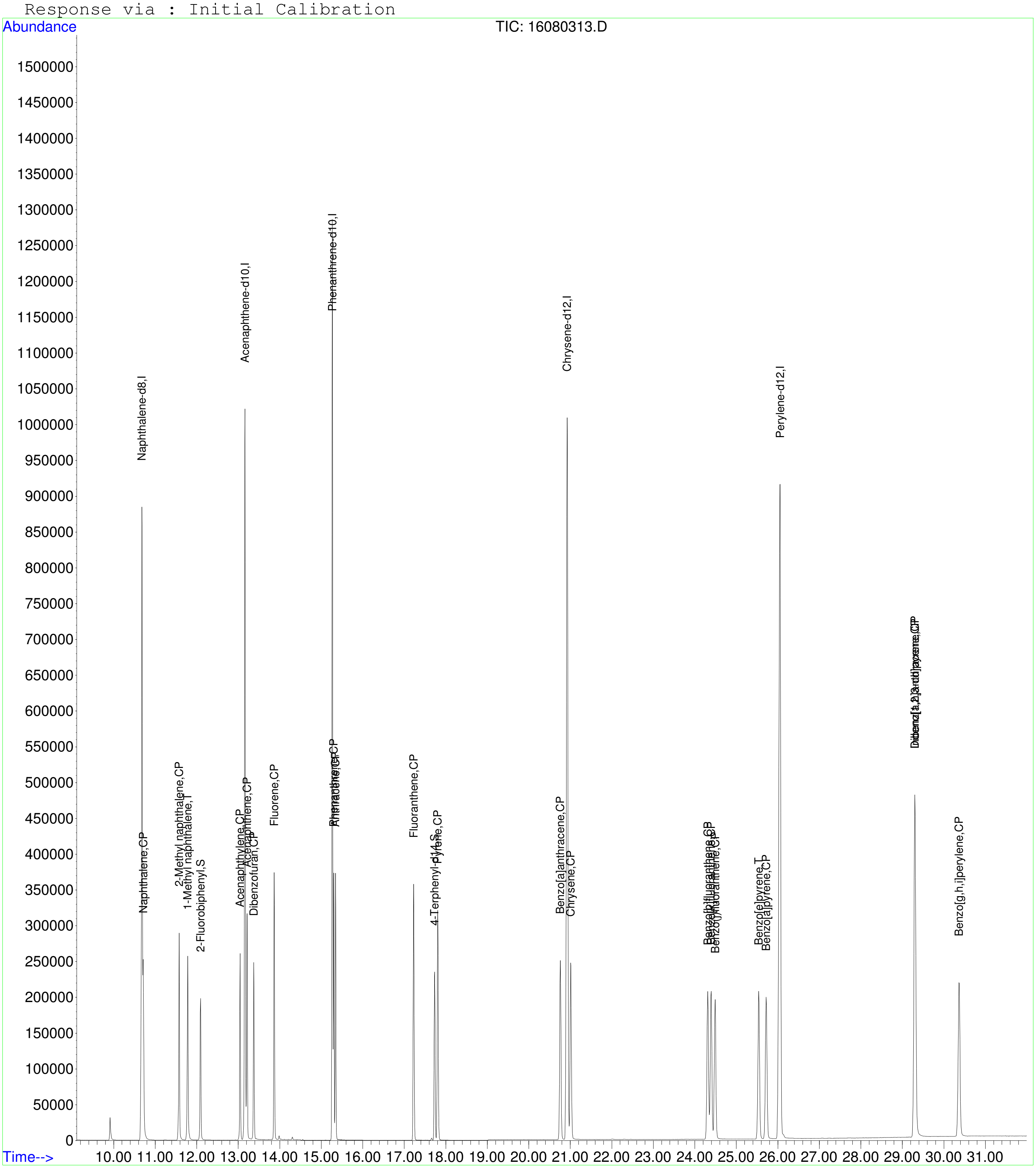
7) 2-Fluorobiphenyl	12.09	172	202961	917.66 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	22.94%#	
16) 4-Terphenyl-d14	17.73	244	325850	925.27 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.13%#	

Target Compounds					Qvalue
2) Naphthalene	10.71	128	292629	909.45 ug/kg	100
3) 2-Methyl naphthalene	11.58	142	191686	918.94 ug/kg	97
4) 1-Methyl naphthalene	11.78	142	170979	925.38 ug/kg	97
6) Dibenzofuran	13.37	168	239911	934.96 ug/kg	99
8) Acenaphthylene	13.04	152	263216	937.41 ug/kg	99
9) Acenaphthene	13.21	154	156008	959.33 ug/kg	98
10) Fluorene	13.87	166	201445	985.44 ug/kg	99
12) Phenanthrene	15.30	178	328312	927.96 ug/kg	99
13) Anthracene	15.34	178	341208	916.53 ug/kg	100
14) Fluoranthene	17.23	202	383678	915.08 ug/kg	99
15) Pyrene	17.81	202	380927	896.00 ug/kg	99
18) Benzo[a]anthracene	20.76	228	387502	947.08 ug/kg	99
19) Chrysene	21.01	228	369642	939.08 ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	419147	956.29 ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	399530	993.60 ug/kg	99
23) Benzo(j)fluoranthene	24.49	252	369060	955.06 ug/kg	98
24) Benzo[e]pyrene	25.54	252	403786	949.31 ug/kg	99
25) Benzo[a]pyrene	25.72	252	397915	939.59 ug/kg	100
26) Dibenz[a,h]anthracene	29.30	278	453164	1105.76 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.31	276	534679	1099.43 ug/kg	98
28) Benzo[g,h,i]perylene	30.37	276	451153	1107.60 ug/kg	99

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

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

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



GCMS6
Calibration Curve
For

DHL Work Order
1607219

CAL ID: 676

Method 8270 PAH Calibration Curve Sheet

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

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

Standards Used for the Calibration Curve

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

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

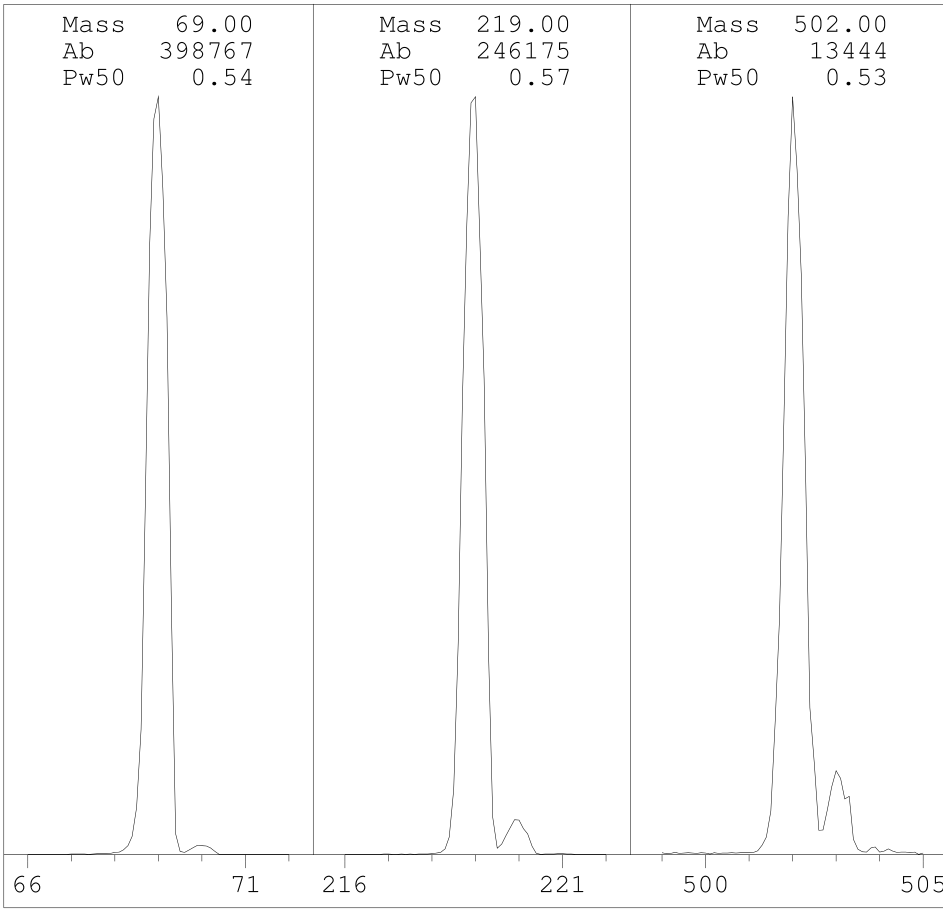
Analyst: Karyn Lane Date: 07/25/2016

Second-Level Review: [signature] Date: 07/29/2016

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

HP5973

Instrument: GC/MS #6
Mon Jul 25 13:16:58 2016 C:\HPCHEM\1\5973\ATUNE.U

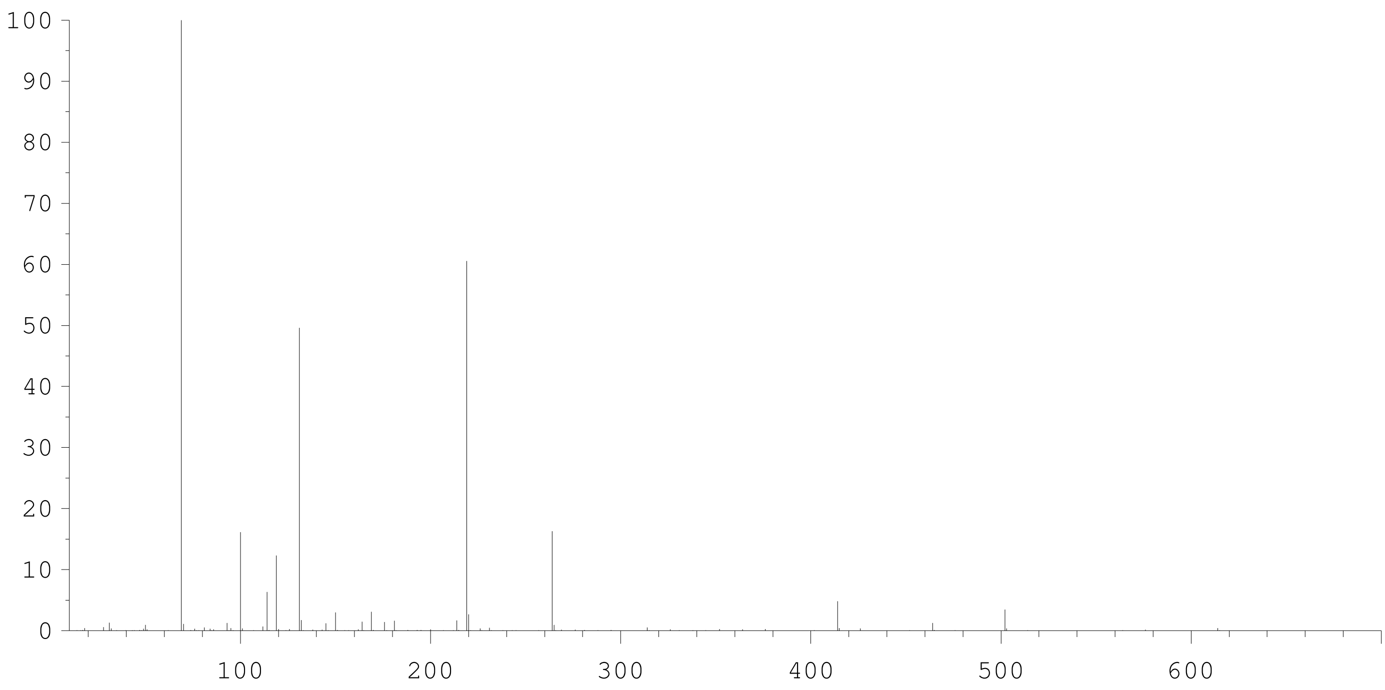


Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2195
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	80.7	HED	ON
EntLens	14.0	EMVolts	1565
EntOffs	16.06		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10

Zones:

MS Source	230	Foreline	82
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100
113 peaks Base: 69.00 Abundance: 355392



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

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	49.6	60.6	4.8	3.5

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

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

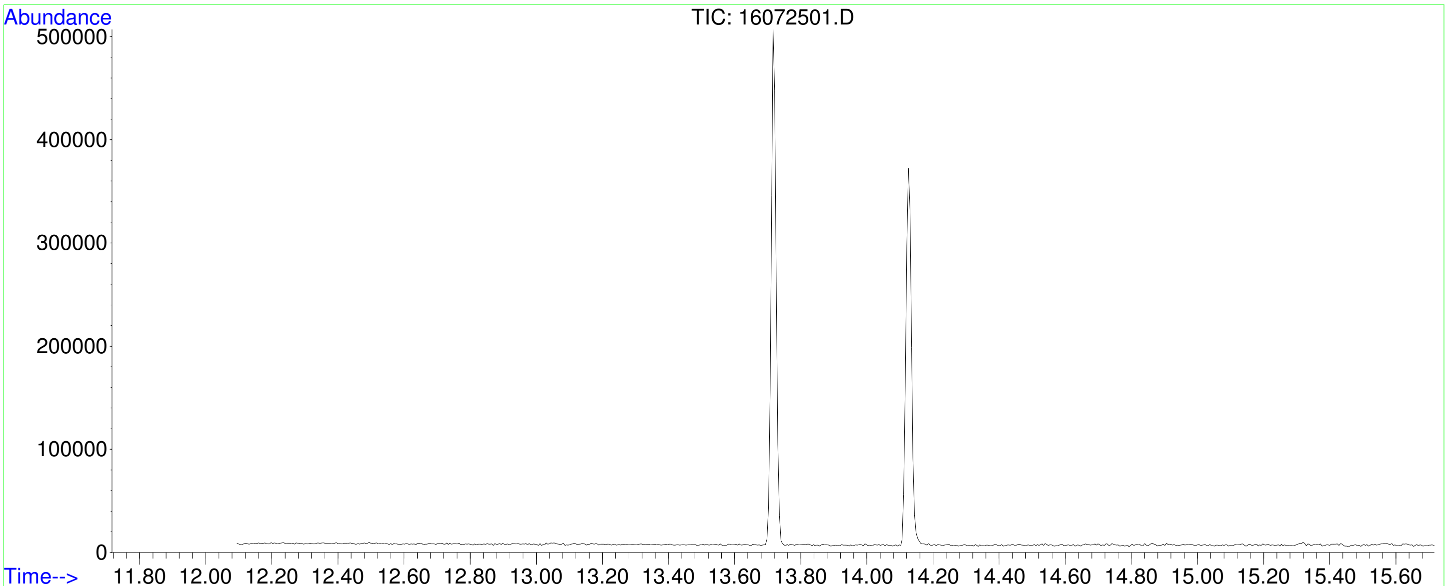
Calibration Files
1 =16072502.D 2 =16072503.D 3 =16072504.D 4 =16072505.D 5 =16072506.D 6 =16072507.D 7 =16072508.D
8 =16072509.D

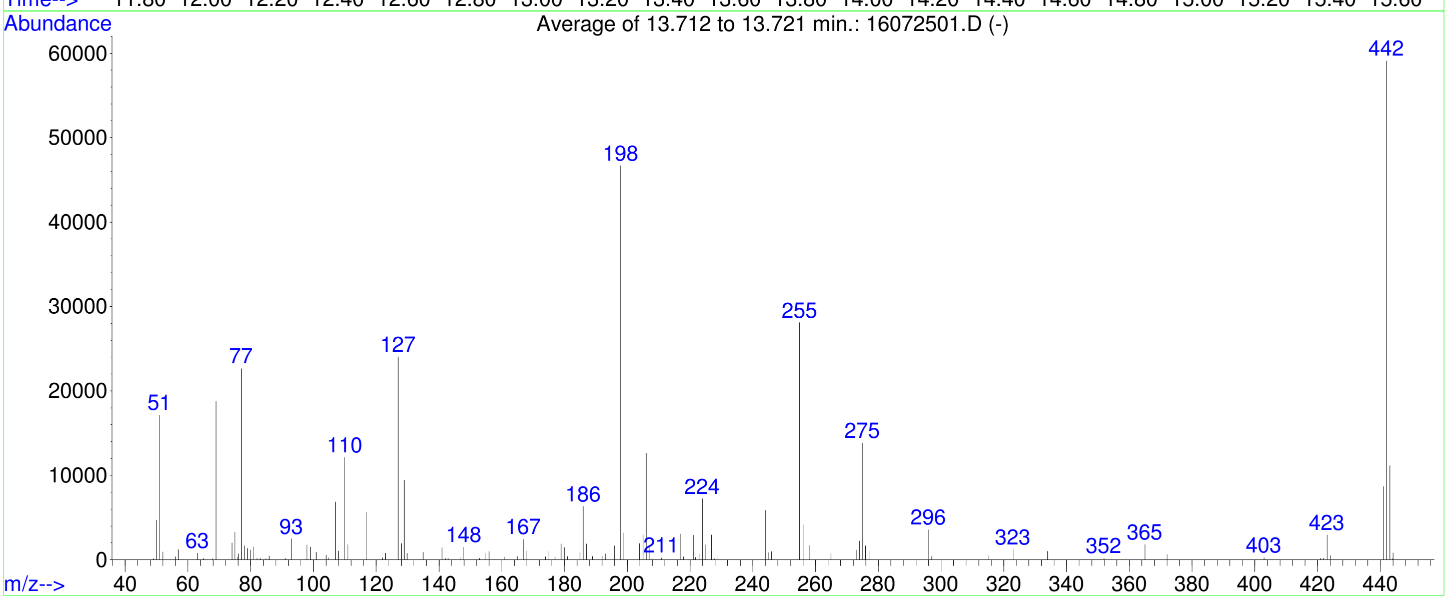
		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8		----------------ISTD--------------------													
2)	CP	Naphthalene	1.190	0.956	0.872	0.883	0.854	0.825	0.857	0.840	0.910	13.19	A	0.1319	0.0000	0.9096	0.0000
3)	CP	2-Methyl napht...	0.690	0.707	0.650	0.677	0.635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

(#) = Out of Range

DFTPP

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





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

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

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

Quantitation Report   (Not Reviewed)

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

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

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.84	136	771810	4000.00 ug/kg	86
5) Acenaphthene-d10	12.45	164	494285	4000.00 ug/kg	87
11) Phenanthrene-d10	14.56	188	1234283	4000.00 ug/kg	82
17) Chrysene-d12	20.24	240	1461357	4000.00 ug/kg	91
20) Perylene-d12	25.37	264	1454753	4000.00 ug/kg	88

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	11.37	172	1495	4.95 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.12%#	
16) 4-Terphenyl-d14	17.04	244	7127	5.35 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#	

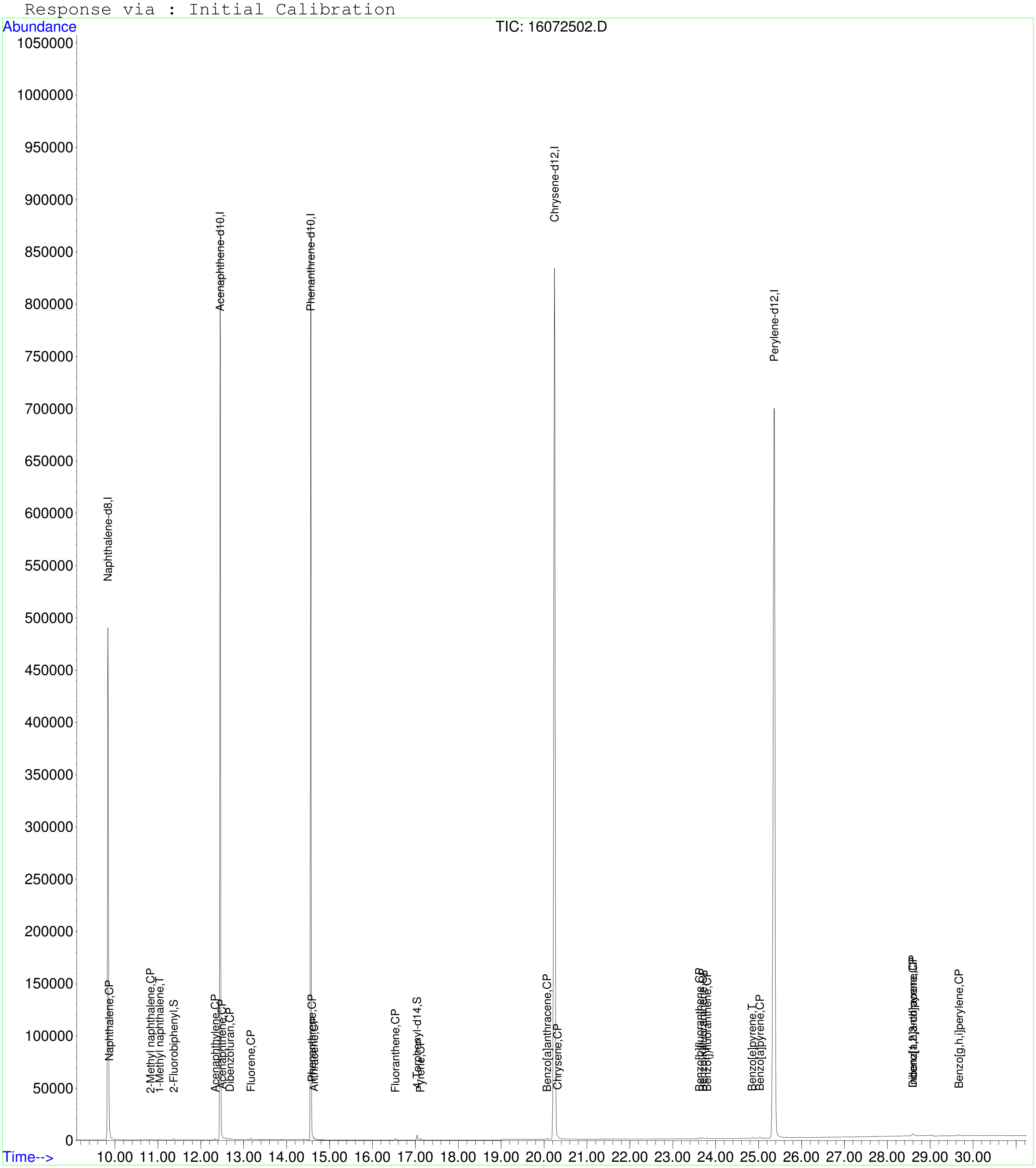
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	9.87	128	1148	6.54 ug/kg	97
3) 2-Methyl naphthalene	10.83	142	666	5.25 ug/kg	95
4) 1-Methyl naphthalene	11.04	142	658	5.64 ug/kg	95
6) Dibenzofuran	12.68	168	1246	6.35 ug/kg	93
8) Acenaphthylene	12.34	152	1242	5.77 ug/kg	97
9) Acenaphthene	12.50	154	722	5.65 ug/kg	99
10) Fluorene	13.17	166	913	5.72 ug/kg	98
12) Phenanthrene	14.60	178	1425	6.10 ug/kg	97
13) Anthracene	14.64	178	1406	5.88 ug/kg	95
14) Fluoranthene	16.54	202	1751	6.10 ug/kg	98
15) Pyrene	17.12	202	1918	6.49 ug/kg	99
18) Benzo[a]anthracene	20.07	228	1768	5.64 ug/kg	93
19) Chrysene	20.33	228	1708	5.79 ug/kg	98
21) Benzo[b]fluoranthene	23.62	252	1981	5.96 ug/kg	97
22) Benzo[k]fluoranthene	23.71	252	1851	6.07 ug/kg	97
23) Benzo(j)fluoranthene	23.80	252	1591	5.51 ug/kg	92
24) Benzo[e]pyrene	24.85	252	1824	5.78 ug/kg	81
25) Benzo[a]pyrene	25.03	252	1921	6.13 ug/kg	84
26) Dibenz[a,h]anthracene	28.60	278	1885	5.80 ug/kg	90
27) Indeno[1,2,3-cd]pyrene	28.61	276	2322	5.95 ug/kg	96
28) Benzo[g,h,i]perylene	29.67	276	1627	5.75 ug/kg	91

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

Quantitation Report

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

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



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

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

Reprocessed low point.

```
 Internal Standards                   R.T. QIon  Response  Conc Units Dev(Min)
------------------------------------------------------------------------------
  1) Naphthalene-d8                   9.84  136    886665   4000.00 ug/kg   99
  5) Acenaphthene-d10                12.45  164    586227   4000.00 ug/kg  103
 11) Phenanthrene-d10                14.56  188   1416475   4000.00 ug/kg   94
 17) Chrysene-d12                    20.24  240   1600505   4000.00 ug/kg   99
 20) Perylene-d12                    25.37  264   1621058   4000.00 ug/kg   98

 System Monitoring Compounds
  7) 2-Fluorobiphenyl                11.37  172      2654      9.61 ug/kg   0.01
  Spiked Amount   4000.000   Range  40 - 140     Recovery    =     0.24%#
 16) 4-Terphenyl-d14                 17.04  244      9173      8.62 ug/kg   0.00
  Spiked Amount   4000.000   Range  40 - 140     Recovery    =     0.22%#

 Target Compounds                                                       Qvalue
  2) Naphthalene                      9.87  128      2120     10.51 ug/kg    99
  3) 2-Methyl naphthalene            10.83  142      1568     10.76 ug/kg    98
  4) 1-Methyl naphthalene            11.05  142      1365     10.18 ug/kg    98
  6) Dibenzofuran                    12.68  168      2493     10.71 ug/kg    99
  8) Acenaphthylene                  12.33  152      2596     10.18 ug/kg    99
  9) Acenaphthene                    12.50  154      1589     10.49 ug/kg    95
 10) Fluorene                        13.16  166      1930     10.19 ug/kg    89
 12) Phenanthrene                    14.60  178      2942     10.98 ug/kg    94
 13) Anthracene                      14.64  178      2942     10.72 ug/kg    99
 14) Fluoranthene                    16.53  202      3470     10.53 ug/kg    99
 15) Pyrene                          17.12  202      3623     10.67 ug/kg    97
 18) Benzo[a]anthracene              20.08  228      3625     10.56 ug/kg    96
 19) Chrysene                        20.33  228      3488     10.79 ug/kg    96
 21) Benzo[b]fluoranthene            23.62  252      3844     10.38 ug/kg    89
 22) Benzo[k]fluoranthene            23.71  252      3682     10.84 ug/kg    99
 23) Benzo(j)fluoranthene            23.80  252      3393     10.55 ug/kg    95
 24) Benzo[e]pyrene                  24.85  252      3757     10.68 ug/kg    98
 25) Benzo[a]pyrene                  25.03  252      3593     10.29 ug/kg    92
 26) Dibenz[a,h]anthracene           28.60  278      3834     10.59 ug/kg    96
 27) Indeno[1,2,3-cd]pyrene          28.60  276      4706     10.83 ug/kg    96
 28) Benzo[g,h,i]perylene            29.67  276      3288     10.42 ug/kg    91
```

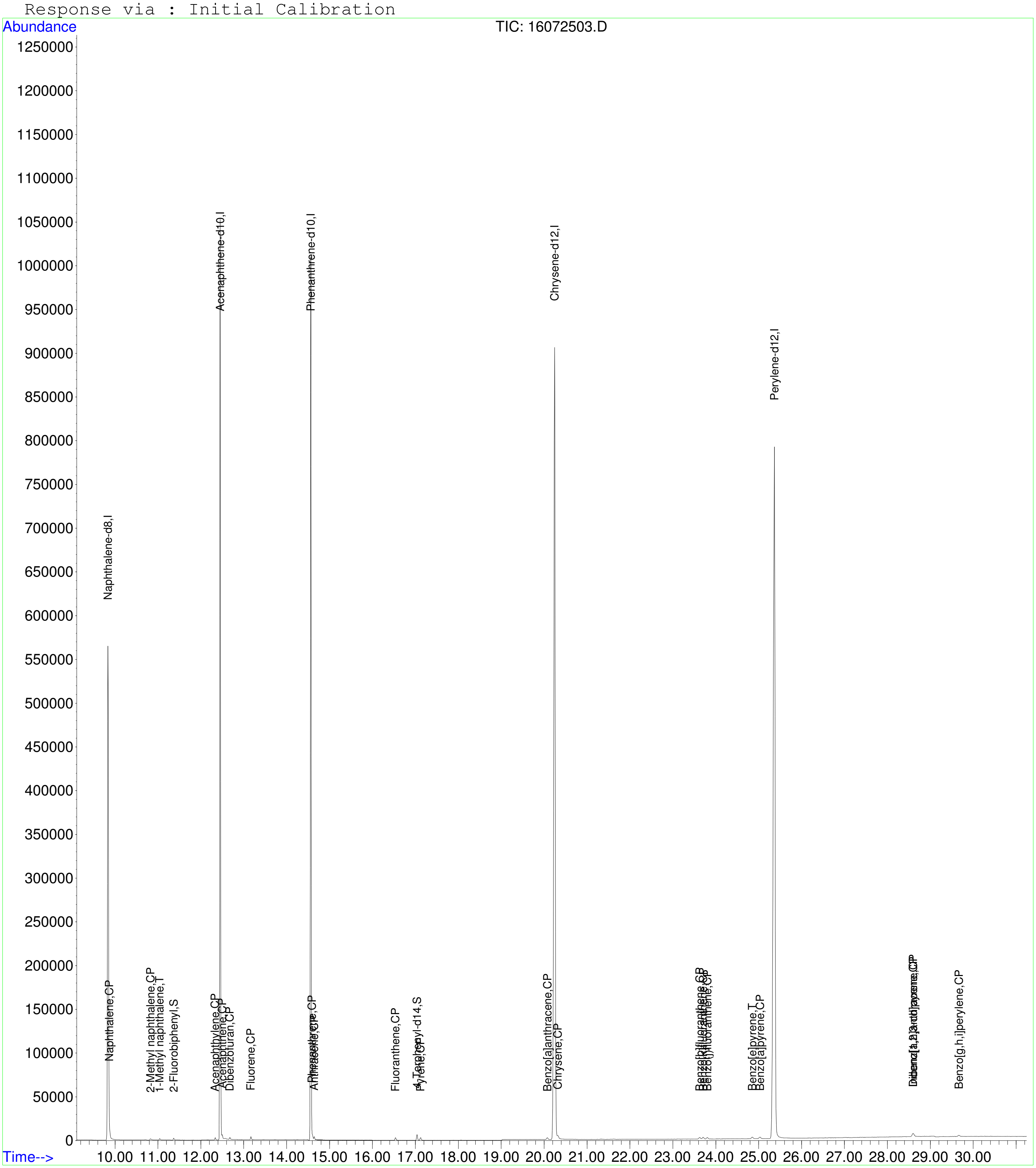
Phenanthrene and Anthracene have the same area response, but the spectra was verified that 2 distinct peaks are observed (RT 14.60 and 14.64) and identified.

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

Quantitation Report

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

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



Quantitation Report (Not Reviewed)

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

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.84	136	813295	4000.00 ug/kg	91
5) Acenaphthene-d10	12.45	164	521014	4000.00 ug/kg	92
11) Phenanthrene-d10	14.56	188	1285991	4000.00 ug/kg	86
17) Chrysene-d12	20.24	240	1522749	4000.00 ug/kg	94
20) Perylene-d12	25.37	264	1548606	4000.00 ug/kg	93

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.37	172	9280	50.79 ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#	
16) 4-Terphenyl-d14	17.04	244	21093	54.95 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.37%#	

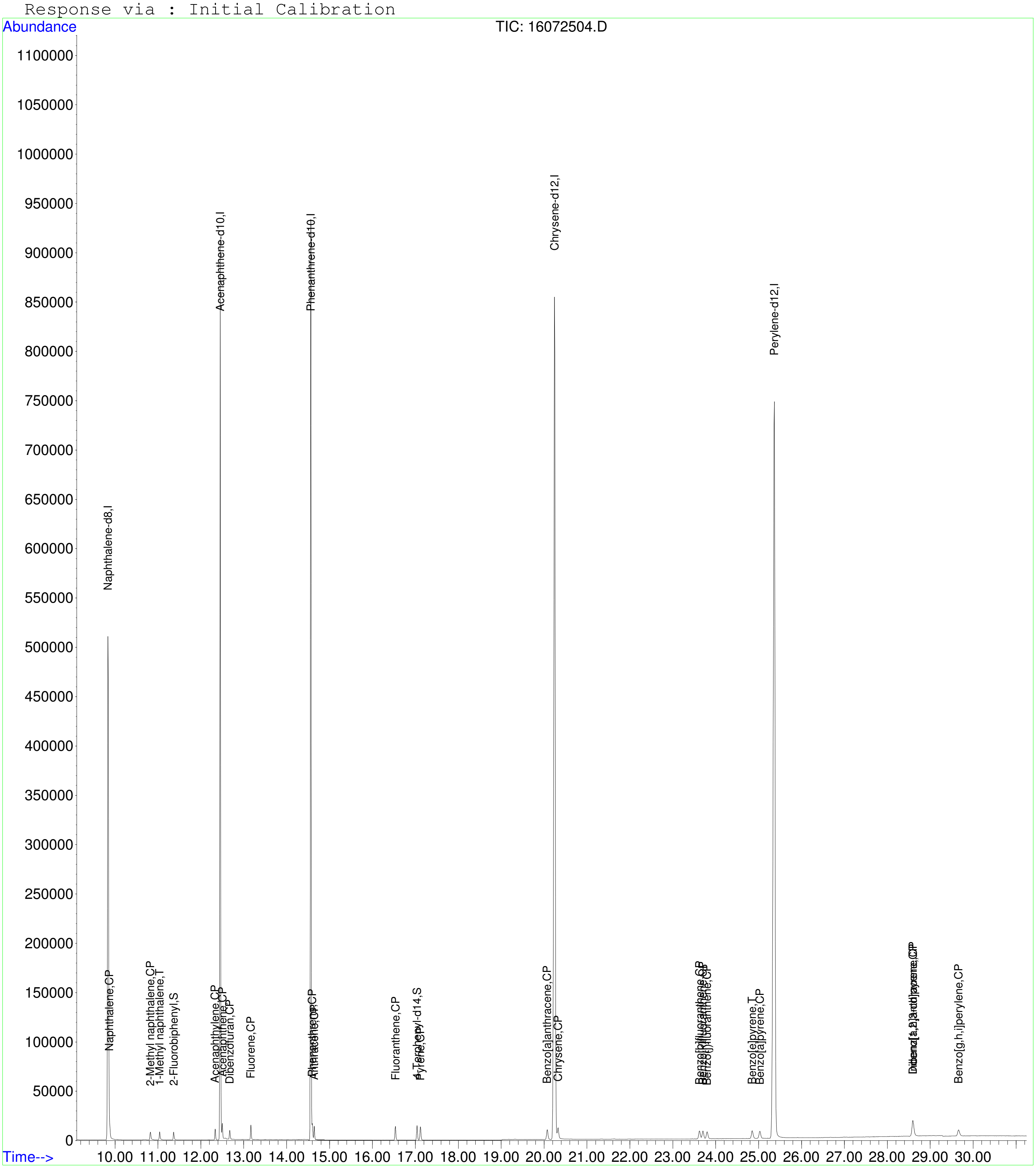
Target Compounds					Qvalue
2) Naphthalene	9.87	128	8869	47.96 ug/kg	99
3) 2-Methyl naphthalene	10.82	142	6605	49.41 ug/kg	98
4) 1-Methyl naphthalene	11.04	142	6047	49.18 ug/kg	95
6) Dibenzofuran	12.67	168	9854	47.63 ug/kg	99
8) Acenaphthylene	12.33	152	10775	47.53 ug/kg	99
9) Acenaphthene	12.50	154	6596	48.98 ug/kg	97
10) Fluorene	13.16	166	8249	49.03 ug/kg	98
12) Phenanthrene	14.60	178	12182	50.06 ug/kg	97
13) Anthracene	14.64	178	12477	50.09 ug/kg	100
14) Fluoranthene	16.54	202	15526	51.89 ug/kg	98
15) Pyrene	17.12	202	15993	51.90 ug/kg	100
18) Benzo[a]anthracene	20.07	228	15434	47.27 ug/kg	99
19) Chrysene	20.33	228	14821	48.20 ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	16689	47.16 ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	15714	48.44 ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	14610	47.57 ug/kg	99
24) Benzo[e]pyrene	24.85	252	16134	48.00 ug/kg	99
25) Benzo[a]pyrene	25.03	252	15723	47.13 ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	16914	48.92 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	20076	48.35 ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	13977	46.39 ug/kg	93

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

Quantitation Report

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

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



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

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	837791	4000.00	ug/kg	94
5) Acenaphthene-d10	12.45	164	557652	4000.00	ug/kg	98
11) Phenanthrene-d10	14.56	188	1391417	4000.00	ug/kg	93
17) Chrysene-d12	20.24	240	1514650	4000.00	ug/kg	94
20) Perylene-d12	25.37	264	1532166	4000.00	ug/kg	92

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	19410	103.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.59%#		
16) 4-Terphenyl-d14	17.04	244	36336	100.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.51%#		

Target Compounds						Qvalue
2) Naphthalene	9.87	128	18486	97.03	ug/kg	99
3) 2-Methyl naphthalene	10.82	142	14170	102.91	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	13038	102.94	ug/kg	99
6) Dibenzofuran	12.67	168	22026	99.48	ug/kg	100
8) Acenaphthylene	12.33	152	23958	98.73	ug/kg	100
9) Acenaphthene	12.50	154	14426	100.10	ug/kg	99
10) Fluorene	13.16	166	18210	101.12	ug/kg	97
12) Phenanthrene	14.60	178	25671	97.50	ug/kg	99
13) Anthracene	14.64	178	26632	98.81	ug/kg	98
14) Fluoranthene	16.53	202	31136	96.18	ug/kg	99
15) Pyrene	17.12	202	31891	95.66	ug/kg	99
18) Benzo[a]anthracene	20.07	228	31231	96.17	ug/kg	99
19) Chrysene	20.33	228	29877	97.68	ug/kg	99
21) Benzo[b]fluoranthene	23.62	252	33778	96.48	ug/kg	100
22) Benzo[k]fluoranthene	23.70	252	32004	99.71	ug/kg	99
23) Benzo(j)fluoranthene	23.80	252	30131	99.16	ug/kg	97
24) Benzo[e]pyrene	24.85	252	32705	98.34	ug/kg	100
25) Benzo[a]pyrene	25.03	252	31797	96.34	ug/kg	97
26) Dibenz[a,h]anthracene	28.59	278	33456	97.81	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.60	276	40036	97.46	ug/kg	95
28) Benzo[g,h,i]perylene	29.66	276	28208	94.62	ug/kg	95

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

Quantitation Report

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

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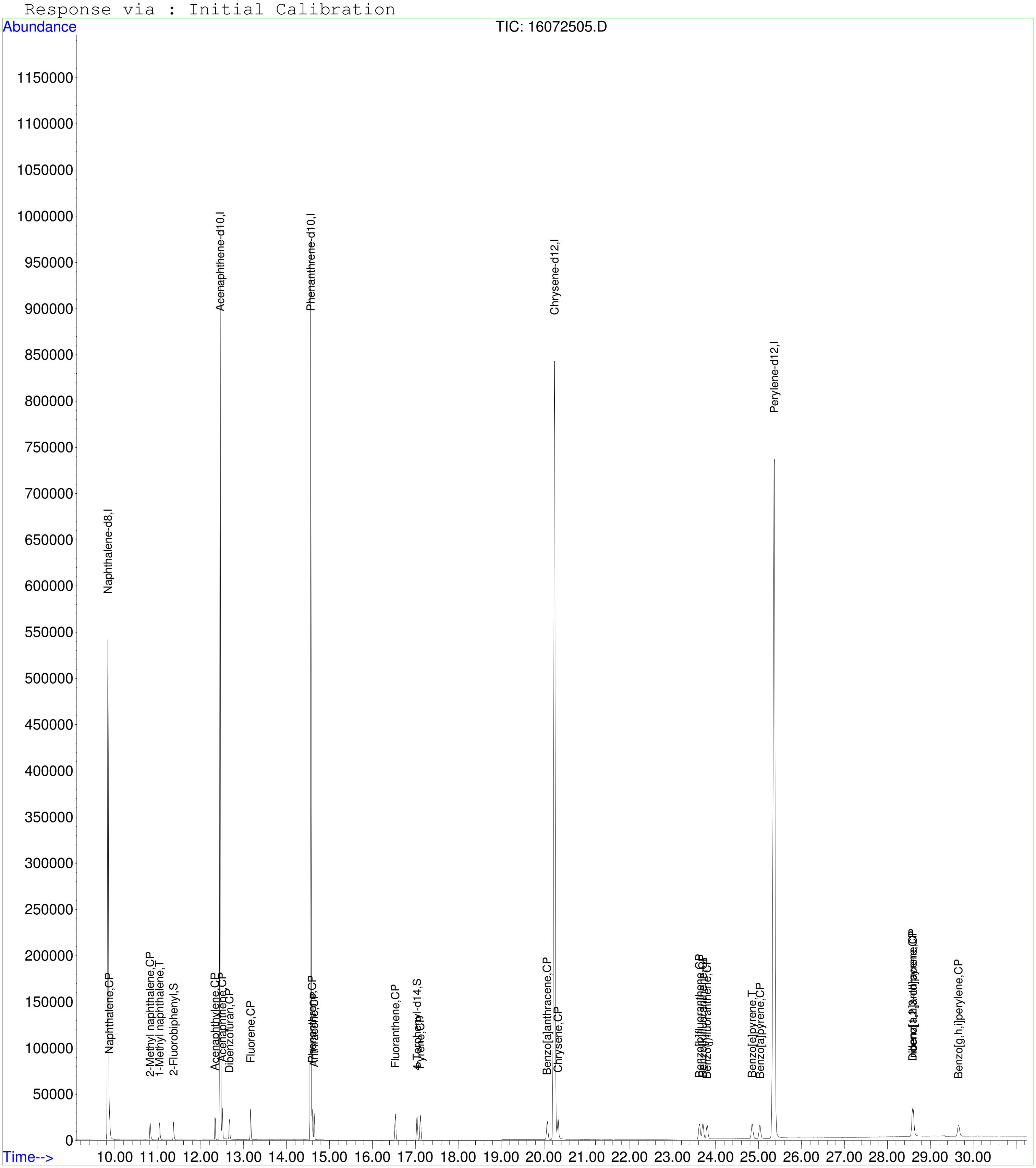


Data File : C:\HPCHEM\1\DATA\160725\16072506.D Vial: 6
Acq On : 25 Jul 2016 4:29 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 26 9:35 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	846228	4000.00	ug/kg	95
5) Acenaphthene-d10	12.45	164	526478	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1360044	4000.00	ug/kg	91
17) Chrysene-d12	20.24	240	1546839	4000.00	ug/kg	96
20) Perylene-d12	25.36	264	1587092	4000.00	ug/kg	96

System Monitoring Compounds

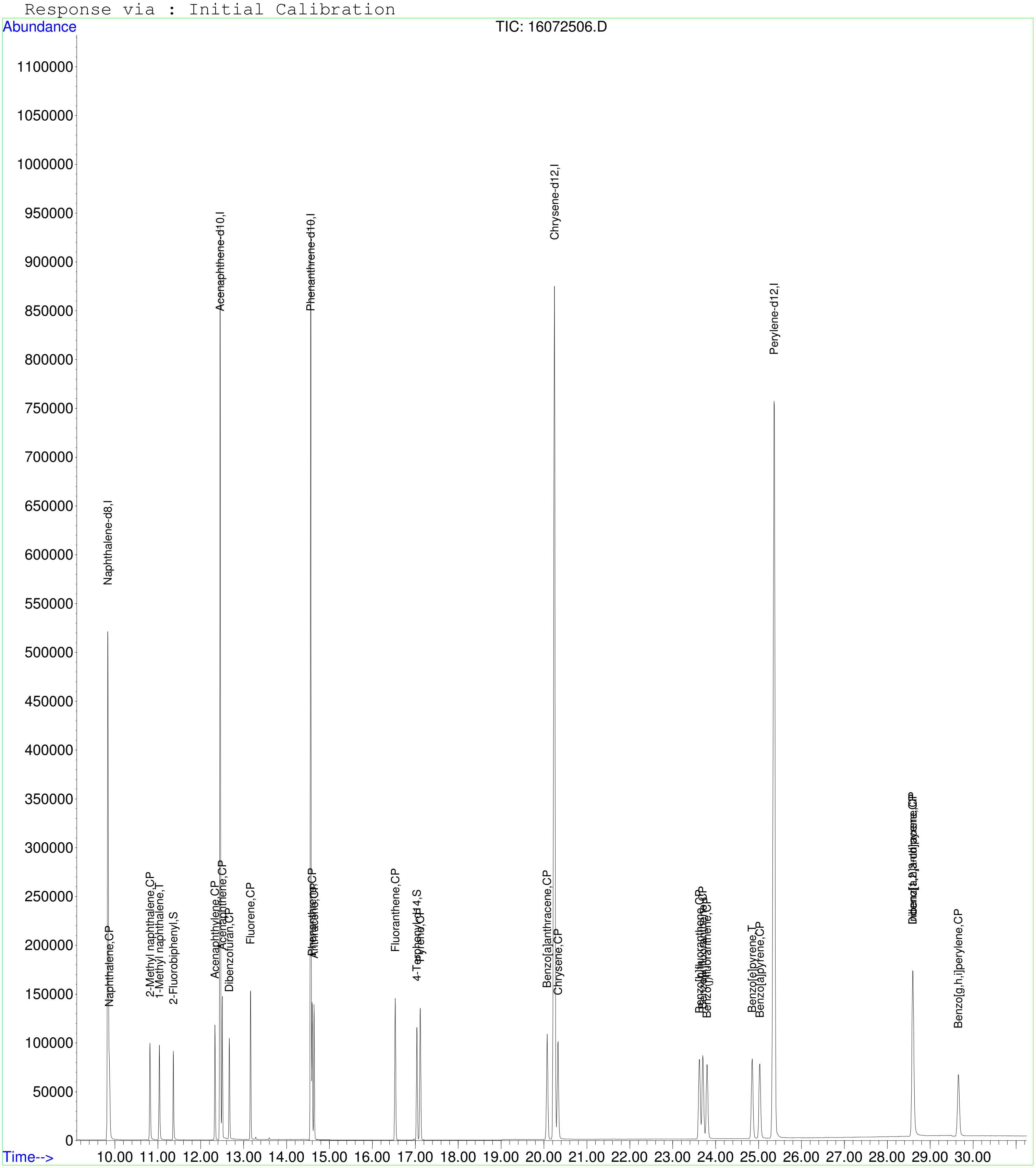
7) 2-Fluorobiphenyl	11.36	172	86694	505.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.64%#			
16) 4-Terphenyl-d14	17.04	244	159353	527.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 13.19%#			

Target Compounds						Qvalue
2) Naphthalene	9.87	128	90292	469.22	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	67178	483.01	ug/kg	96
4) 1-Methyl naphthalene	11.04	142	61741	482.62	ug/kg	99
6) Dibenzofuran	12.67	168	99559	476.28	ug/kg	100
8) Acenaphthylene	12.33	152	111171	485.28	ug/kg	99
9) Acenaphthene	12.50	154	66191	486.46	ug/kg	98
10) Fluorene	13.16	166	83296	489.92	ug/kg	100
12) Phenanthrene	14.60	178	121487	472.04	ug/kg	99
13) Anthracene	14.64	178	127861	485.32	ug/kg	100
14) Fluoranthene	16.53	202	156088	493.27	ug/kg	99
15) Pyrene	17.11	202	156852	481.33	ug/kg	100
18) Benzo[a]anthracene	20.07	228	162167	488.96	ug/kg	98
19) Chrysene	20.33	228	150562	482.02	ug/kg	99
21) Benzo[b]fluoranthene	23.63	252	173263	477.76	ug/kg	99
22) Benzo[k]fluoranthene	23.70	252	156303	470.13	ug/kg	100
23) Benzo(j)fluoranthene	23.81	252	153717	488.36	ug/kg	98
24) Benzo[e]pyrene	24.85	252	165850	481.41	ug/kg	100
25) Benzo[a]pyrene	25.03	252	162319	474.78	ug/kg	99
26) Dibenz[a,h]anthracene	28.59	278	170041	479.91	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.60	276	203279	477.71	ug/kg	96
28) Benzo[g,h,i]perylene	29.66	276	140559	455.16	ug/kg	96

Quantitation Report

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

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



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

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

 Internal Standards                  R.T. QIon  Response  Conc Units Dev(Min)
 ---------------------------------------------------------------------------
   1) Naphthalene-d8                 9.84  136   892069   4000.00 ug/kg  100
   5) Acenaphthene-d10              12.45  164   554192   4000.00 ug/kg   97
  11) Phenanthrene-d10              14.57  188  1448014   4000.00 ug/kg   96
  17) Chrysene-d12                  20.24  240  1606432   4000.00 ug/kg  100
  20) Perylene-d12                  25.37  264  1651631   4000.00 ug/kg   99

 System Monitoring Compounds
   7) 2-Fluorobiphenyl              11.36  172   176645   982.66 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =   24.57%#
  16) 4-Terphenyl-d14               17.04  244   314932  1003.15 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =   25.08%#

 Target Compounds                                                   Qvalue
   2) Naphthalene                    9.87  128   183994   907.02 ug/kg    100
   3) 2-Methyl naphthalene          10.82  142   138321   943.43 ug/kg     95
   4) 1-Methyl naphthalene          11.04  142   126440   937.57 ug/kg     98
   6) Dibenzofuran                  12.67  168   200090   909.34 ug/kg    100
   8) Acenaphthylene                12.33  152   229782   952.88 ug/kg    100
   9) Acenaphthene                  12.50  154   133955   935.25 ug/kg     99
  10) Fluorene                      13.16  166   166733   931.62 ug/kg    100
  12) Phenanthrene                  14.60  178   249124   909.18 ug/kg     99
  13) Anthracene                    14.64  178   258111   920.19 ug/kg     99
  14) Fluoranthene                  16.53  202   314797   934.39 ug/kg     99
  15) Pyrene                        17.12  202   316235   911.46 ug/kg    100
  18) Benzo[a]anthracene            20.08  228   329954   957.97 ug/kg     99
  19) Chrysene                      20.33  228   306140   943.74 ug/kg    100
  21) Benzo[b]fluoranthene          23.62  252   352025   932.76 ug/kg     99
  22) Benzo[k]fluoranthene          23.71  252   334806   967.68 ug/kg     99
  23) Benzo(j)fluoranthene          23.80  252   314090   958.87 ug/kg     99
  24) Benzo[e]pyrene                24.85  252   336290   938.00 ug/kg     99
  25) Benzo[a]pyrene                25.03  252   336097   944.67 ug/kg     99
  26) Dibenz[a,h]anthracene         28.60  278   347573   942.63 ug/kg     99
  27) Indeno[1,2,3-cd]pyrene        28.60  276   412755   932.07 ug/kg     98
  28) Benzo[g,h,i]perylene          29.66  276   285458   888.26 ug/kg     96
```

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

Quantitation Report

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

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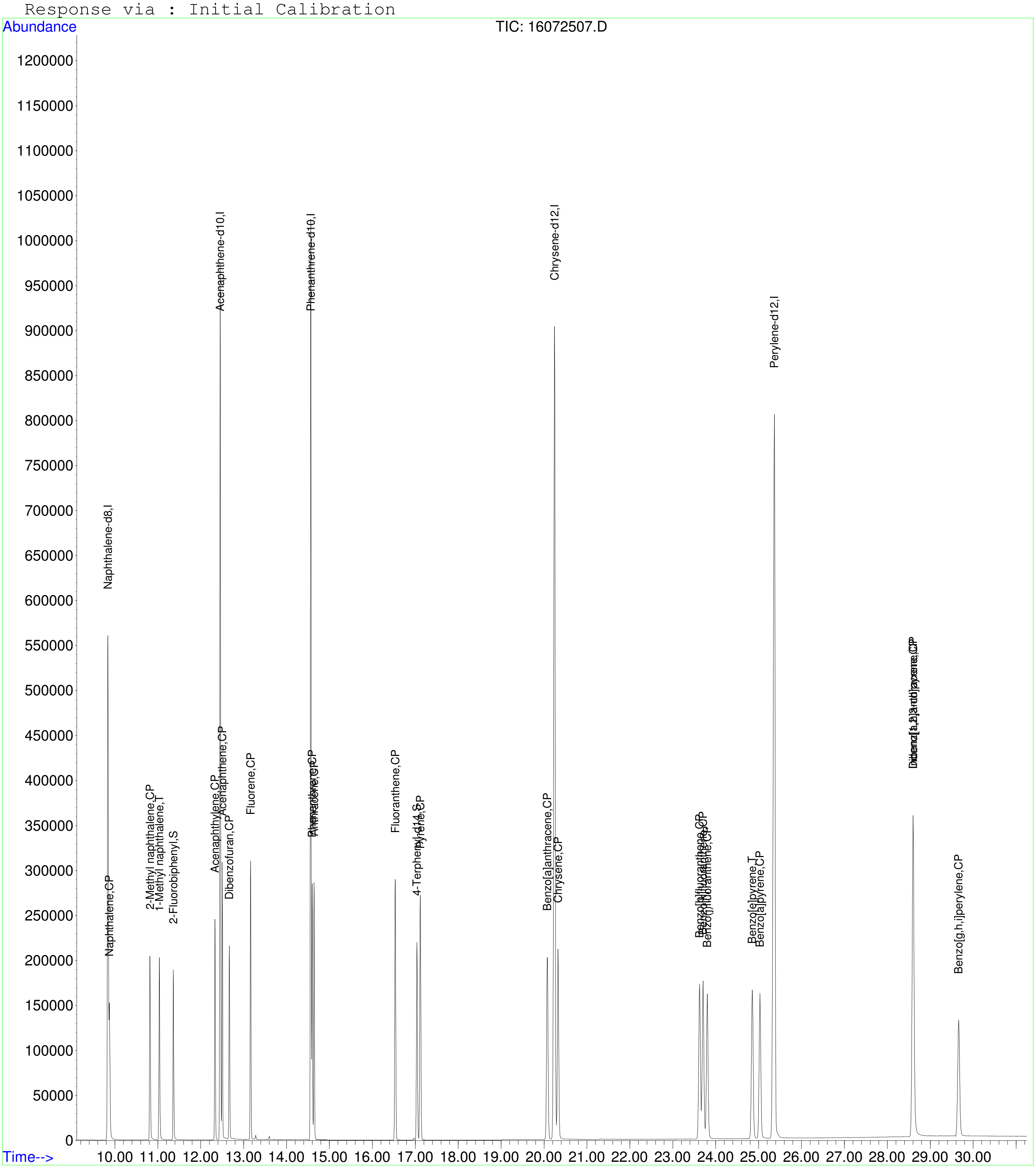

Quantitation Report (Not Reviewed)

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

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	893544	4000.00	ug/kg	100
5) Acenaphthene-d10	12.45	164	569368	4000.00	ug/kg	100
11) Phenanthrene-d10	14.56	188	1501720	4000.00	ug/kg	100
17) Chrysene-d12	20.24	240	1612205	4000.00	ug/kg	100
20) Perylene-d12	25.36	264	1660133	4000.00	ug/kg	100

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	370433	2008.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.21%		
16) 4-Terphenyl-d14	17.04	244	621041	1946.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	48.65%		

Target Compounds						Qvalue
2) Naphthalene	9.87	128	382786	1883.87	ug/kg	100
3) 2-Methyl naphthalene	10.81	142	289201	1969.26	ug/kg	100
4) 1-Methyl naphthalene	11.04	142	264551	1958.45	ug/kg	100
6) Dibenzofuran	12.66	168	423892	1875.10	ug/kg	100
8) Acenaphthylene	12.33	152	488021	1969.83	ug/kg	100
9) Acenaphthene	12.50	154	284372	1932.52	ug/kg	100
10) Fluorene	13.16	166	357547	1944.55	ug/kg	100
12) Phenanthrene	14.60	178	527567	1856.50	ug/kg	100
13) Anthracene	14.64	178	543808	1869.39	ug/kg	100
14) Fluoranthene	16.53	202	637819	1825.48	ug/kg	100
15) Pyrene	17.12	202	636934	1770.14	ug/kg	100
18) Benzo[a]anthracene	20.07	228	680755	1969.38	ug/kg	100
19) Chrysene	20.33	228	623920	1916.47	ug/kg	100
21) Benzo[b]fluoranthene	23.63	252	749017	1974.51	ug/kg	100
22) Benzo[k]fluoranthene	23.71	252	647006	1860.45	ug/kg	100
23) Benzo(j)fluoranthene	23.80	252	646202	1962.65	ug/kg	100
24) Benzo[e]pyrene	24.86	252	699821	1941.99	ug/kg	100
25) Benzo[a]pyrene	25.03	252	692886	1937.52	ug/kg	100
26) Dibenz[a,h]anthracene	28.61	278	712622	1922.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.61	276	843959	1896.04	ug/kg	100
28) Benzo[g,h,i]perylene	29.67	276	689230	2133.68	ug/kg	100

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

Quantitation Report

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

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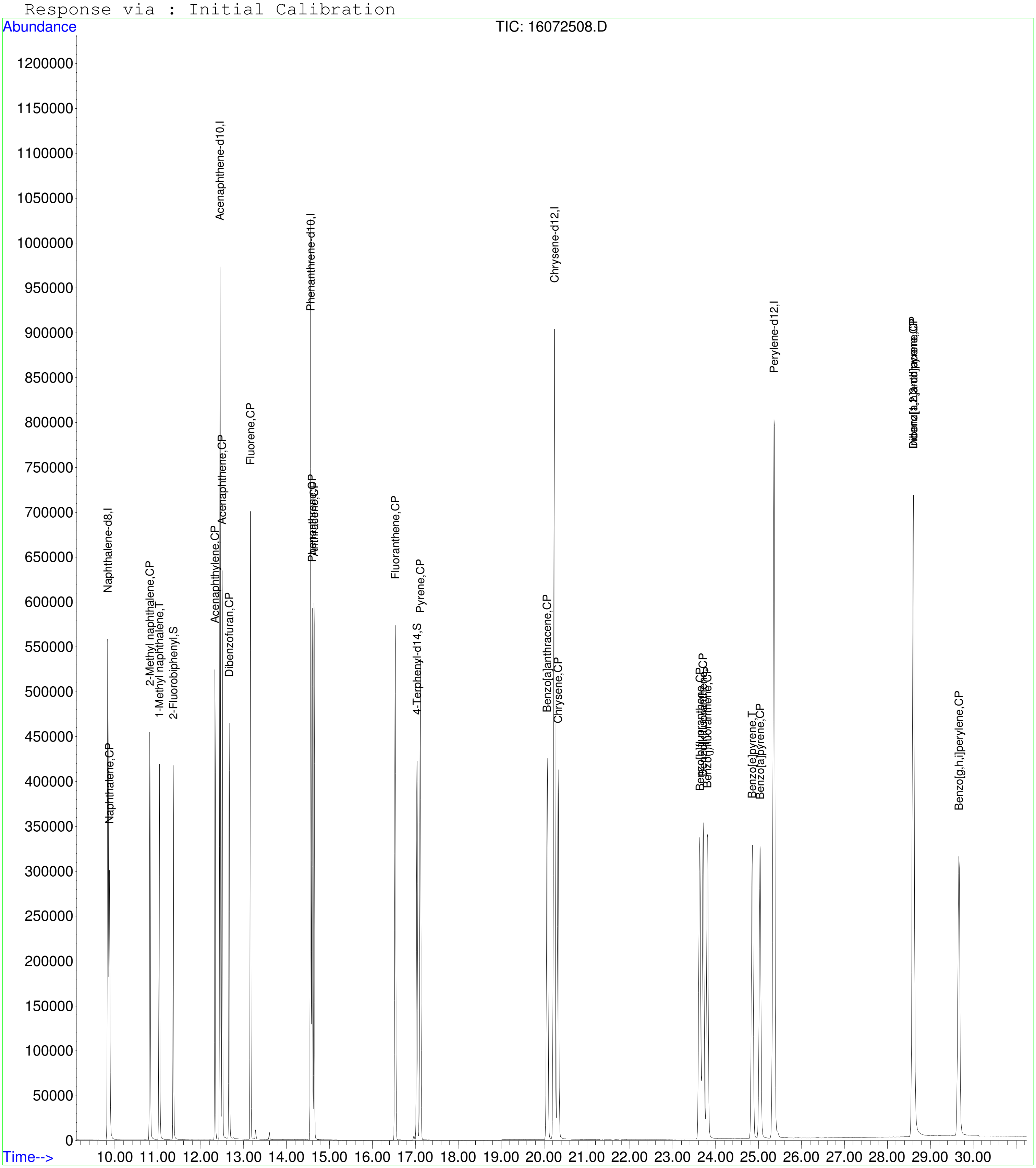
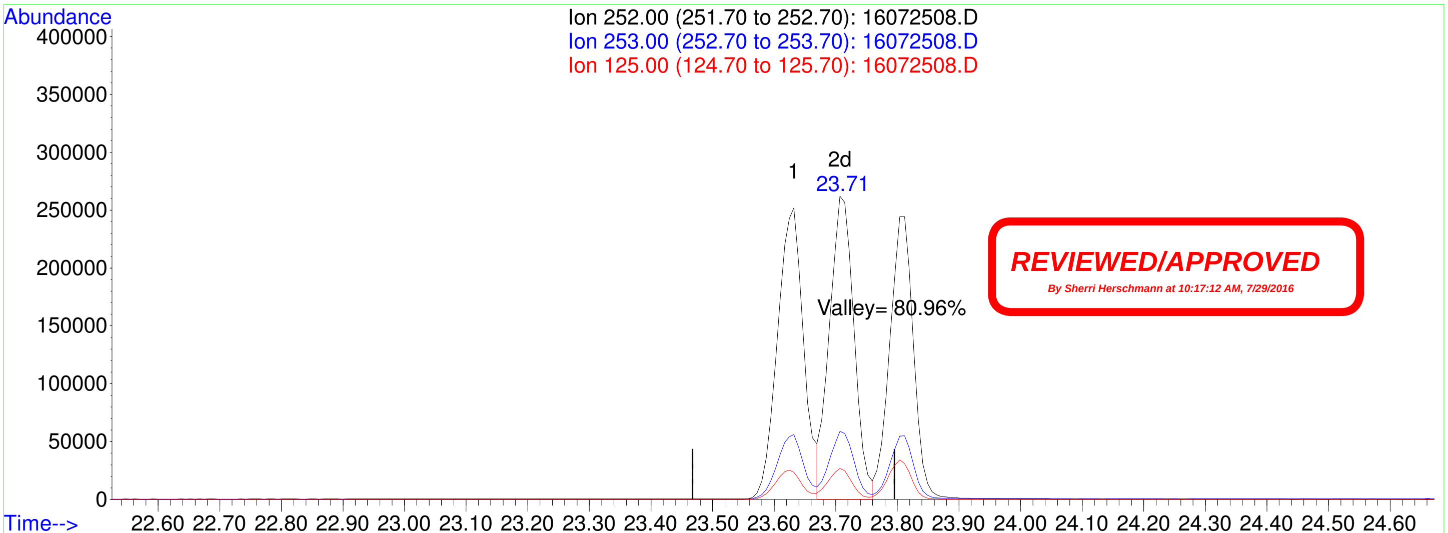
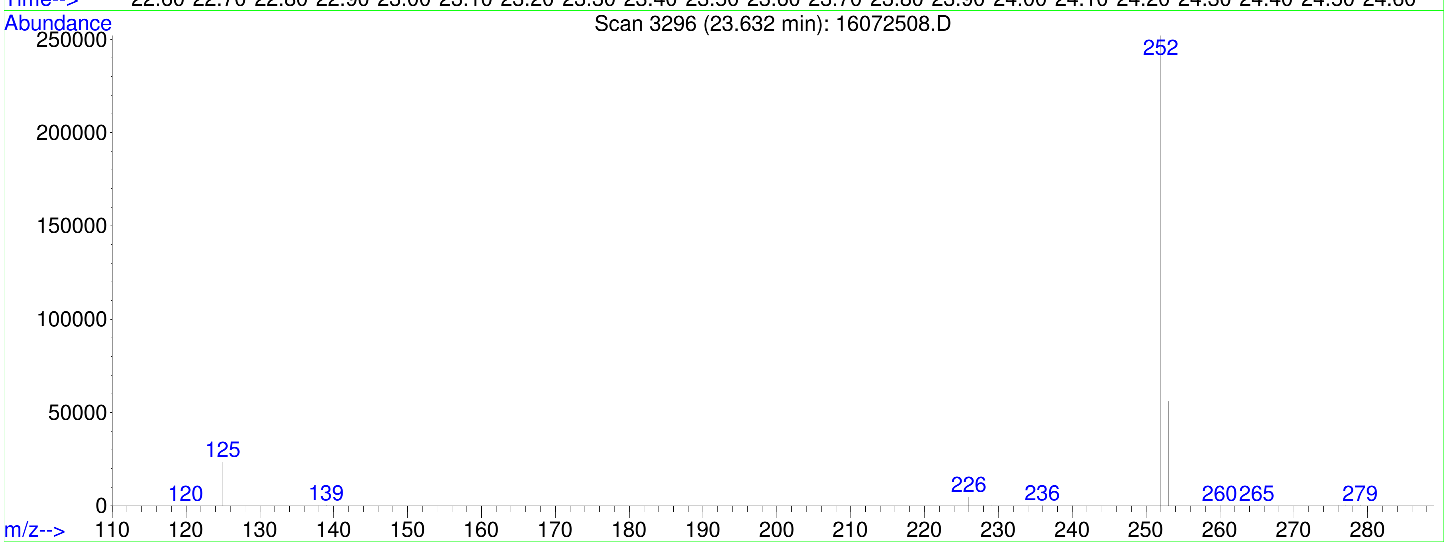


Quantitation Report (Qedit)

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

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





TIC: 16072508.D

(21) Benzo[b]fluoranthene (CP)

23.63min 1974.51ug/kg

response 749017

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

Quantitation Report (Not Reviewed)

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

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	900189	4000.00	ug/kg	101
5) Acenaphthene-d10	12.45	164	554329	4000.00	ug/kg	97
11) Phenanthrene-d10	14.56	188	1477514	4000.00	ug/kg	98
17) Chrysene-d12	20.24	240	1621785	4000.00	ug/kg	101
20) Perylene-d12	25.37	264	1683225	4000.00	ug/kg	101

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	899373	4999.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 124.99%			
16) 4-Terphenyl-d14	17.04	244	1515060	5019.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 125.48%			

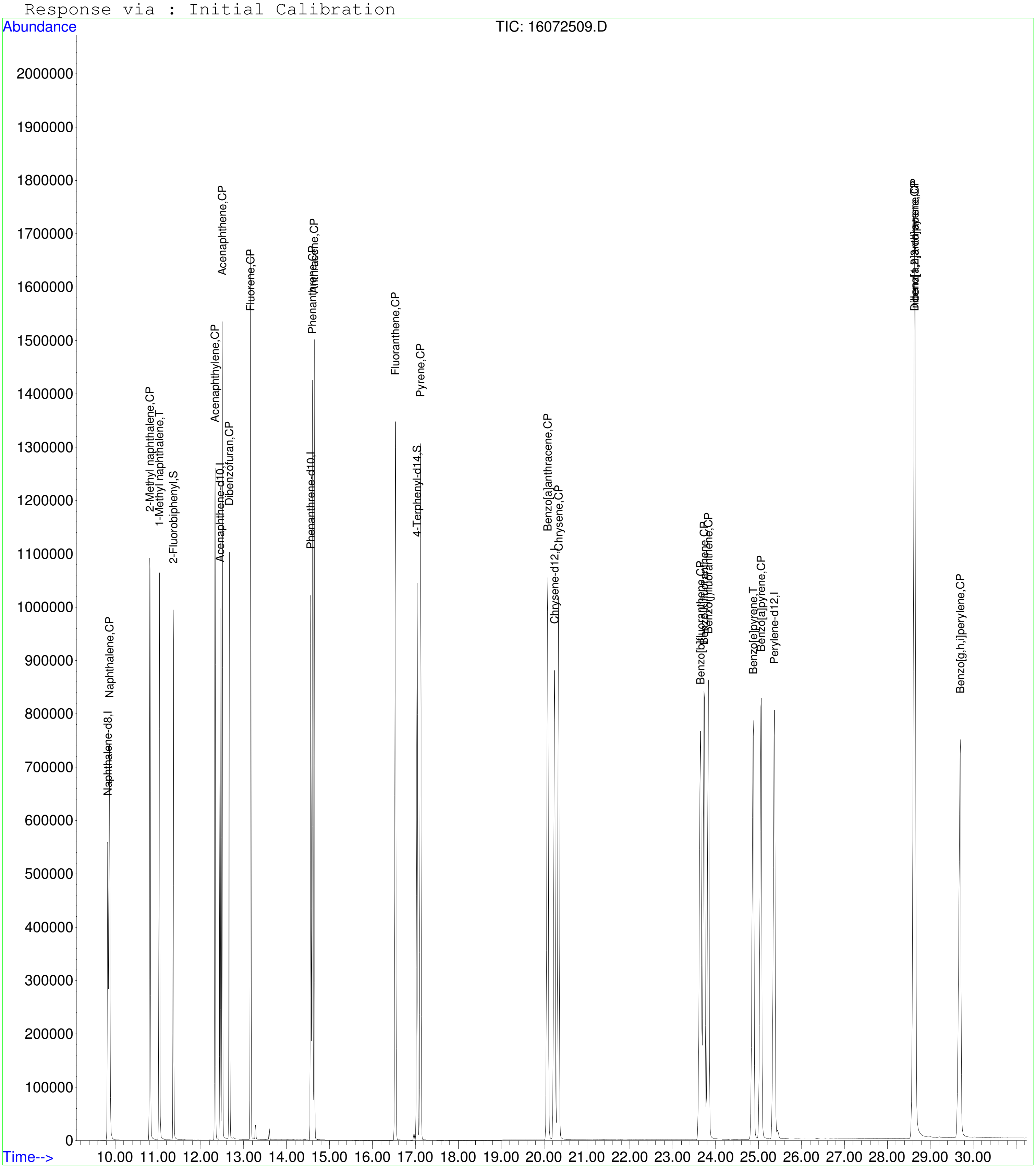
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.87	128	945249	4617.68	ug/kg	100
3) 2-Methyl naphthalene	10.82	142	712021	4812.58	ug/kg	94
4) 1-Methyl naphthalene	11.03	142	652309	4793.34	ug/kg	99
6) Dibenzofuran	12.66	168	1003833	4560.96	ug/kg	99
8) Acenaphthylene	12.33	152	1183229	4905.50	ug/kg	100
9) Acenaphthene	12.50	154	691782	4828.73	ug/kg	99
10) Fluorene	13.16	166	860301	4805.77	ug/kg	99
12) Phenanthrene	14.60	178	1292431	4622.56	ug/kg	99
13) Anthracene	14.64	178	1339990	4681.82	ug/kg	99
14) Fluoranthene	16.54	202	1537244	4471.78	ug/kg	99
15) Pyrene	17.12	202	1560586	4408.17	ug/kg	99
18) Benzo[a]anthracene	20.09	228	1716692	4936.94	ug/kg	99
19) Chrysene	20.34	228	1566005	4781.82	ug/kg	100
21) Benzo[b]fluoranthene	23.65	252	1897650	4933.82	ug/kg	99
22) Benzo[k]fluoranthene	23.73	252	1581216	4484.36	ug/kg	99
23) Benzo(j)fluoranthene	23.83	252	1638939	4909.50	ug/kg	99
24) Benzo[e]pyrene	24.87	252	1757456	4809.99	ug/kg	98
25) Benzo[a]pyrene	25.06	252	1769480	4880.11	ug/kg	99
26) Dibenz[a,h]anthracene	28.64	278	1802648	4797.08	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.64	276	2142679	4747.72	ug/kg	98
28) Benzo[g,h,i]perylene	29.70	276	1750074	5343.47	ug/kg	99

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

Quantitation Report

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

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



Quantitation Report   (Not Reviewed)

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

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

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.84	136	979604	4000.00	ug/kg	110
5) Acenaphthene-d10	12.45	164	521111	4000.00	ug/kg	92
11) Phenanthrene-d10	14.56	188	1257978	4000.00	ug/kg	84
17) Chrysene-d12	20.24	240	1491548	4000.00	ug/kg	93
20) Perylene-d12	25.36	264	1509342	4000.00	ug/kg	91

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	908651	5371.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 134.28%			
16) 4-Terphenyl-d14	17.04	244	1494054	5871.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 146.78%#			

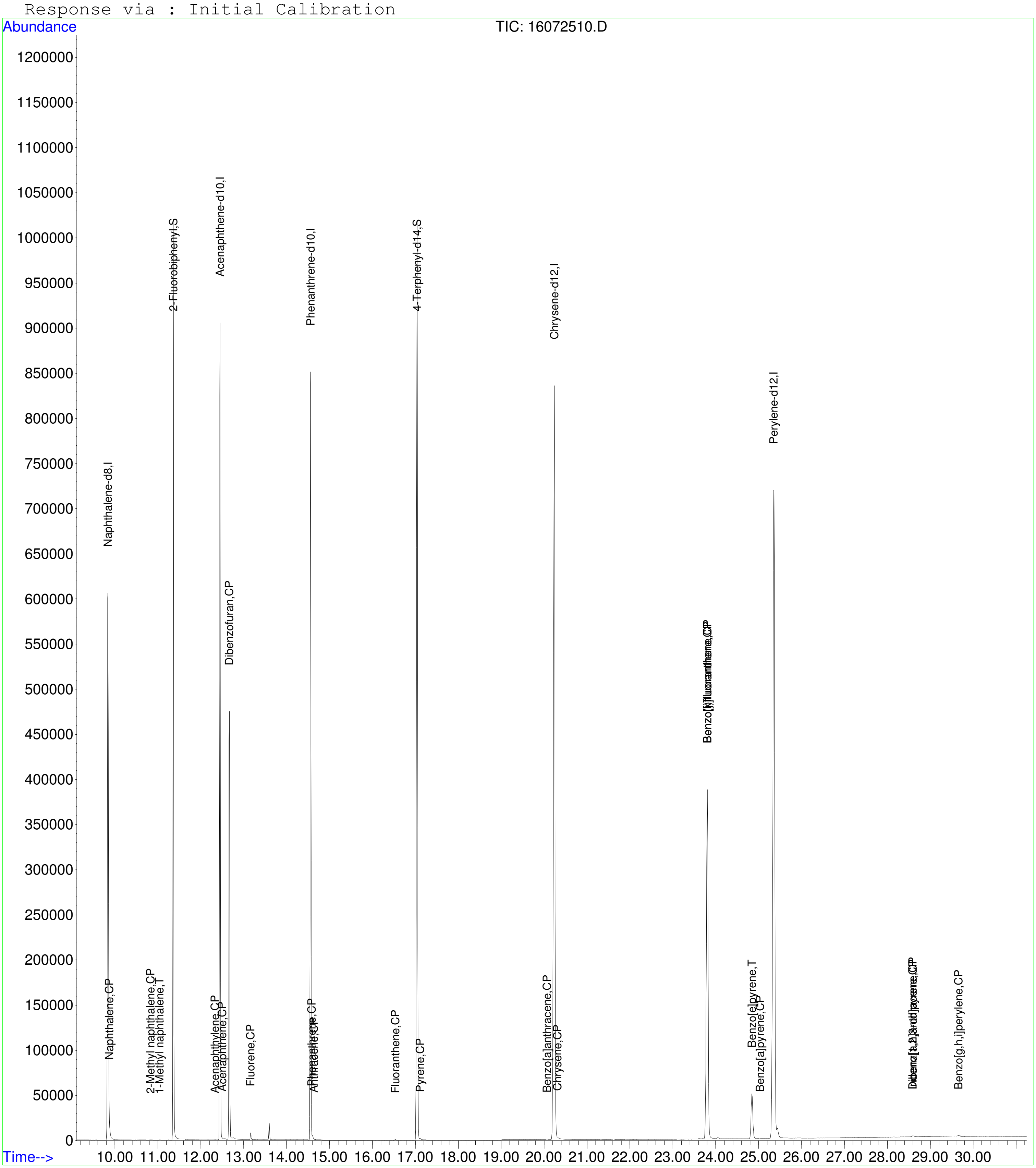
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue	
2) Naphthalene	9.87	128	610	2.74	ug/kg	61	
3) 2-Methyl naphthalene	10.82	142	196	1.22	ug/kg	78	
4) 1-Methyl naphthalene	11.03	142	107	0.72	ug/kg	75	
6) Dibenzofuran	12.66	168	452411	2186.58	ug/kg	100	87.46%
8) Acenaphthylene	12.33	152	390	1.72	ug/kg	98	
9) Acenaphthene	12.50	154	287	2.13	ug/kg#	72	
10) Fluorene	13.16	166	4126	24.52	ug/kg	97	
12) Phenanthrene	14.59	178	776	3.26	ug/kg	93	
13) Anthracene	14.64	178	730	3.00	ug/kg	92	
14) Fluoranthene	16.53	202	863	2.95	ug/kg	98	
15) Pyrene	17.11	202	955	3.17	ug/kg	91	
18) Benzo[a]anthracene	20.07	228	1073	3.36	ug/kg	93	
19) Chrysene	20.32	228	950	3.15	ug/kg	94	
21) Benzo[b]fluoranthene	0.00	252	0	N.D.			
22) Benzo[k]fluoranthene	~~23.80~~	~~252~~	~~749242~~	~~2369.66~~	~~ug/kg~~	~~97~~	
23) Benzo(j)fluoranthene	23.80	252	759467	2537.10	ug/kg	99	101.48%
24) Benzo[e]pyrene	24.84	252	100312	306.17	ug/kg	99	
25) Benzo[a]pyrene	25.03	252	1314	4.04	ug/kg	79	
26) Dibenz[a,h]anthracene	28.59	278	1199	3.56	ug/kg	86	
27) Indeno[1,2,3-cd]pyrene	28.60	276	1458	3.60	ug/kg	99	
28) Benzo[g,h,i]perylene	29.66	276	1157	3.94	ug/kg	95	

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

Quantitation Report

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

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



Quantitation Report (Not Reviewed)

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

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	905392	4000.00 ug/kg	101
5) Acenaphthene-d10	12.45	164	590244	4000.00 ug/kg	104
11) Phenanthrene-d10	14.56	188	1554090	4000.00 ug/kg	103
17) Chrysene-d12	20.24	240	1627985	4000.00 ug/kg	101
20) Perylene-d12	25.36	264	1634563	4000.00 ug/kg	98

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	458904	2399.80 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	60.00%	
16) 4-Terphenyl-d14	17.03	244	776605	2366.57 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	59.16%	

All analytes %R within ±20%

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

Target Compounds					Qvalue
2) Naphthalene	9.87	128	452244	2196.58 ug/kg	99
3) 2-Methyl naphthalene	10.81	142	413442	2778.42 ug/kg	97
4) 1-Methyl naphthalene	11.03	142	372594	2722.19 ug/kg	96
6) Dibenzofuran	12.67	168	1589	~~6.78 ug/kg~~	~~97~~
8) Acenaphthylene	12.33	152	586057	2281.87 ug/kg	99
9) Acenaphthene	12.50	154	361494	2369.74 ug/kg	97
10) Fluorene	13.16	166	452940	2376.23 ug/kg	100
12) Phenanthrene	14.60	178	639751	2175.41 ug/kg	100
13) Anthracene	14.64	178	634391	2107.29 ug/kg	100
14) Fluoranthene	16.53	202	770651	2131.33 ug/kg	100
15) Pyrene	17.12	202	780634	2096.39 ug/kg	100
18) Benzo[a]anthracene	20.07	228	813076	2329.38 ug/kg	100
19) Chrysene	20.32	228	675322	2054.25 ug/kg	100
21) Benzo[b]fluoranthene	23.62	252	873661	2339.11 ug/kg	99
22) Benzo[k]fluoranthene	23.71	252	873137	2549.96 ug/kg	100
23) Benzo(j)fluoranthene	~~23.71~~	~~252~~	~~877969~~	~~2708.28 ug/kg~~	~~96~~
24) Benzo[e]pyrene	24.86	252	872011	2457.66 ug/kg	100
25) Benzo[a]pyrene	25.04	252	836568	2375.89 ug/kg	99
26) Dibenz[a,h]anthracene	28.60	278	847494	2322.43 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.61	276	998578	2278.51 ug/kg	98
28) Benzo[g,h,i]perylene	29.67	276	832538	2617.65 ug/kg	99

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

Quantitation Report

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

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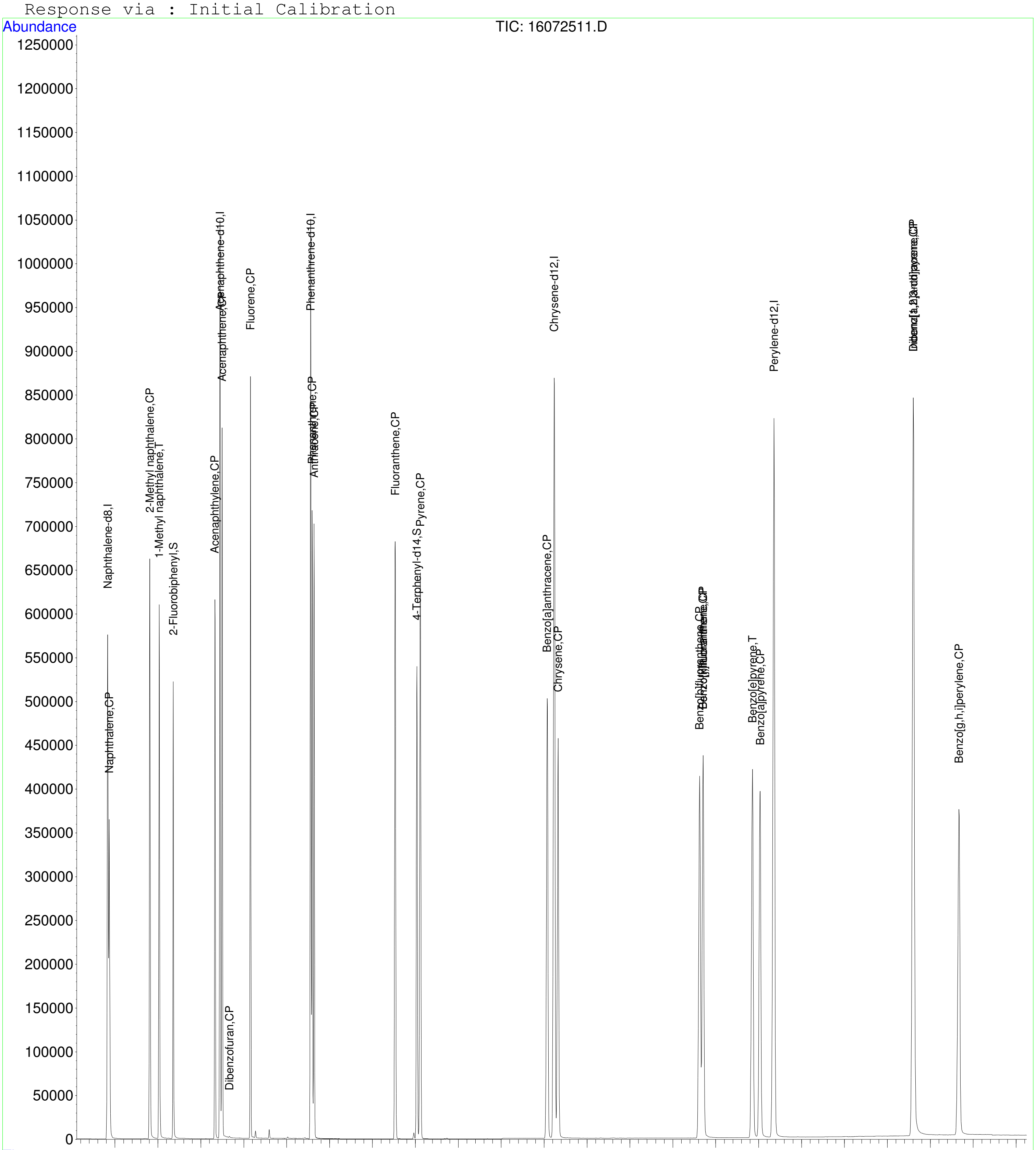


CAL ID: 680

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			

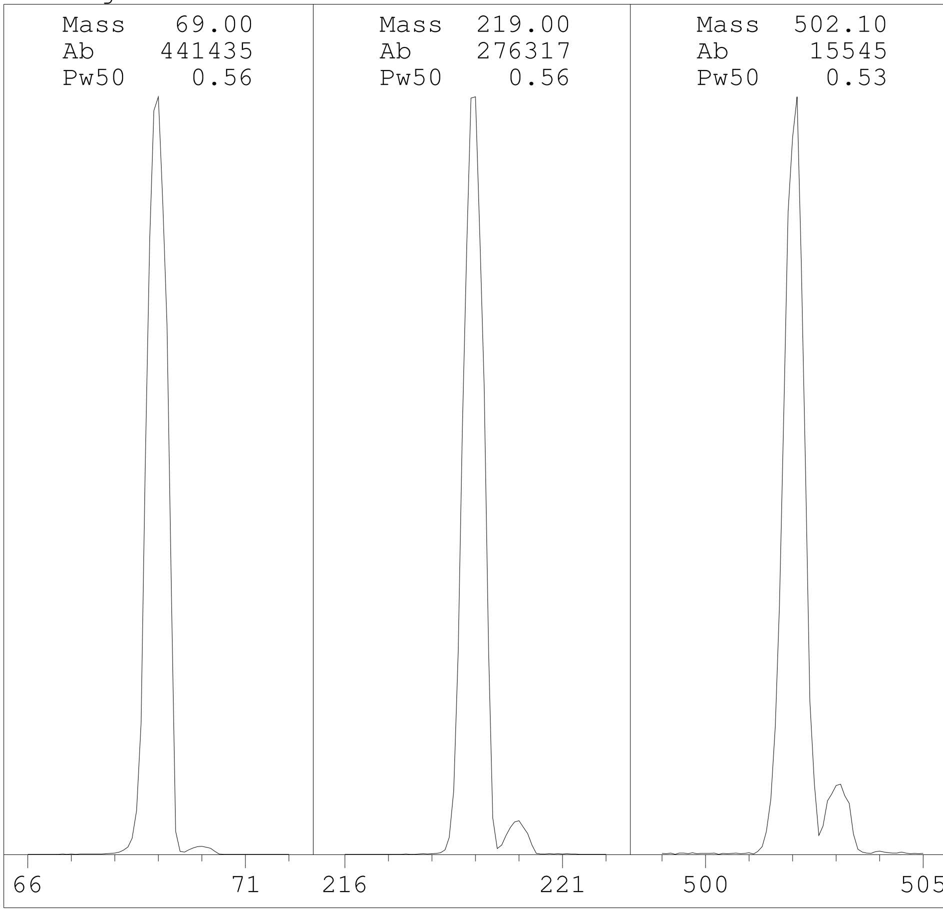
Analyst: Karyn Lane Date: 08/2/2016

Second-Level Review: [signature] Date: 08/02/2016

HP5973

Instrument: GC/MS #6
Mon Aug 01 17:03:27 2016

C:\HPCHEM\1\5973\ATUNE.U

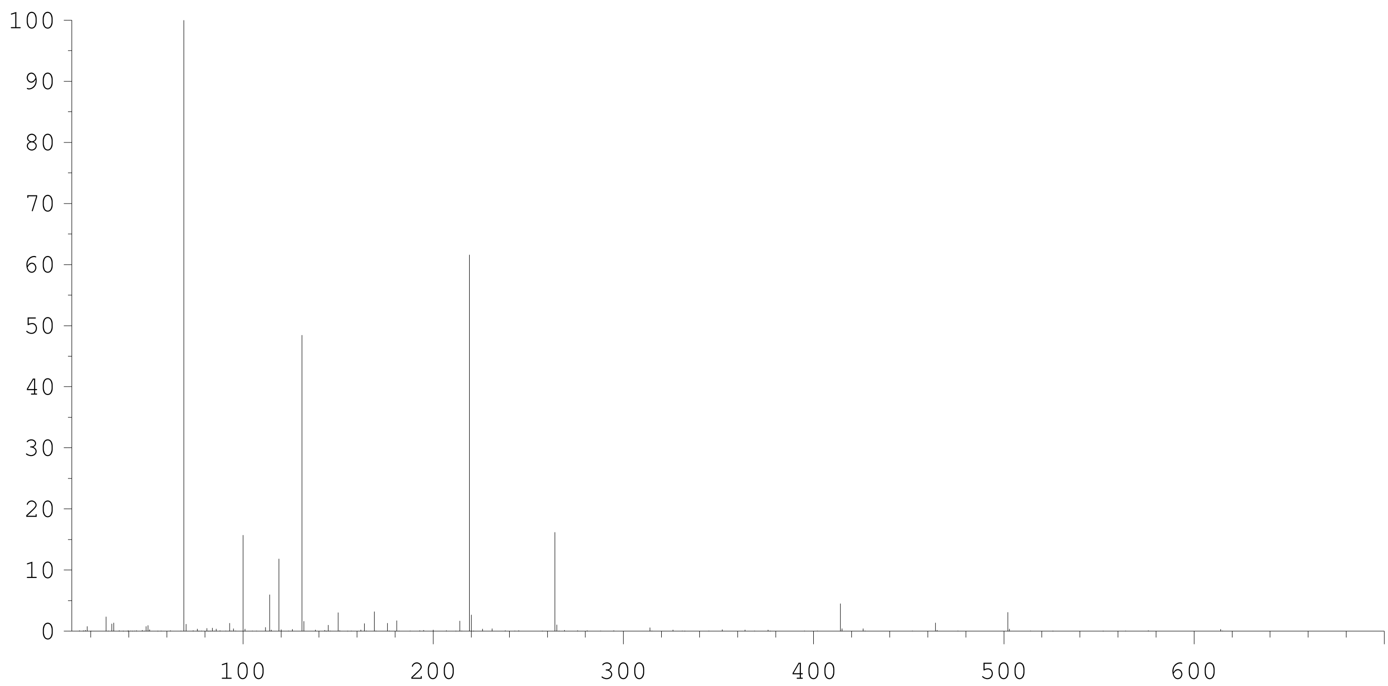


Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2205
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	79.7	HED	ON
EntLens	11.5	EMVolts	1635
EntOffs	17.32		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10

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

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

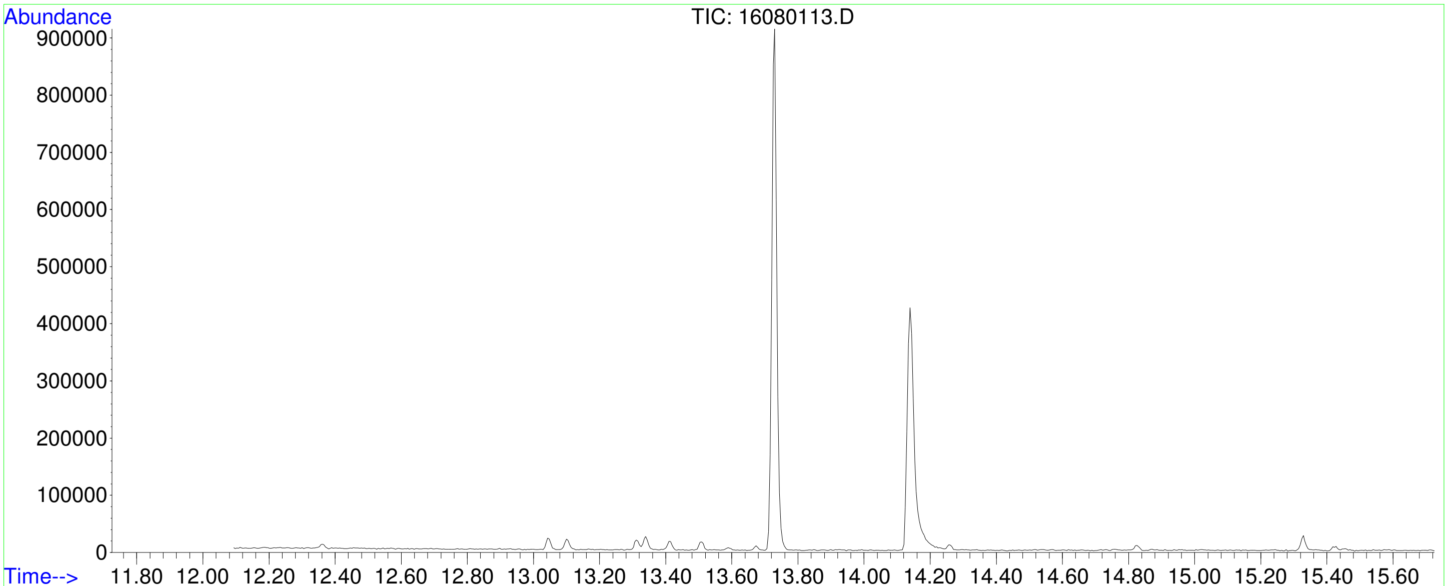
```
Sequence Name: C:\HPCHEM\1\SEQUENCE\160801.S
      Comment:
     Operator: DEW
    Data Path: C:\HPCHEM\1\DATA\160801\
  Pre-Seq Cmd:
 Post-Seq Cmd:

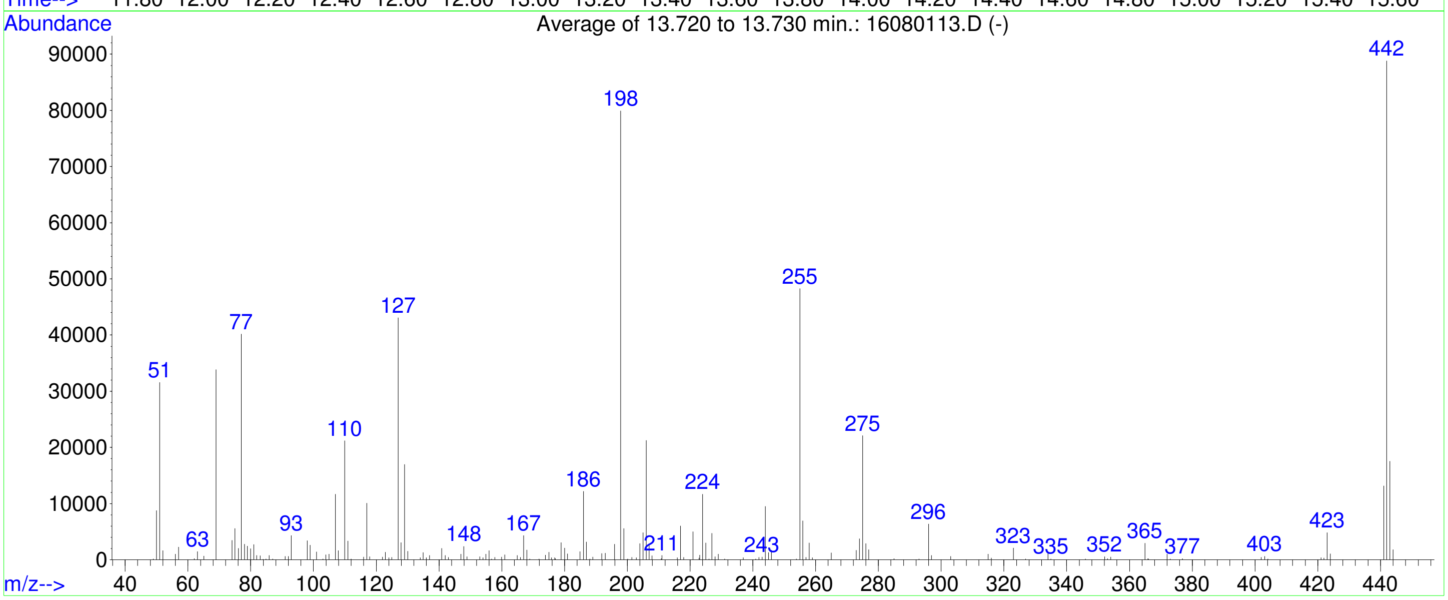
Method Sections To Run     On A Barcode Mismatch
 (X) Full Method             (X) Inject Anyway
 ( ) Reprocessing Only       ( ) Don't Inject


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
```

DFTPP

```
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

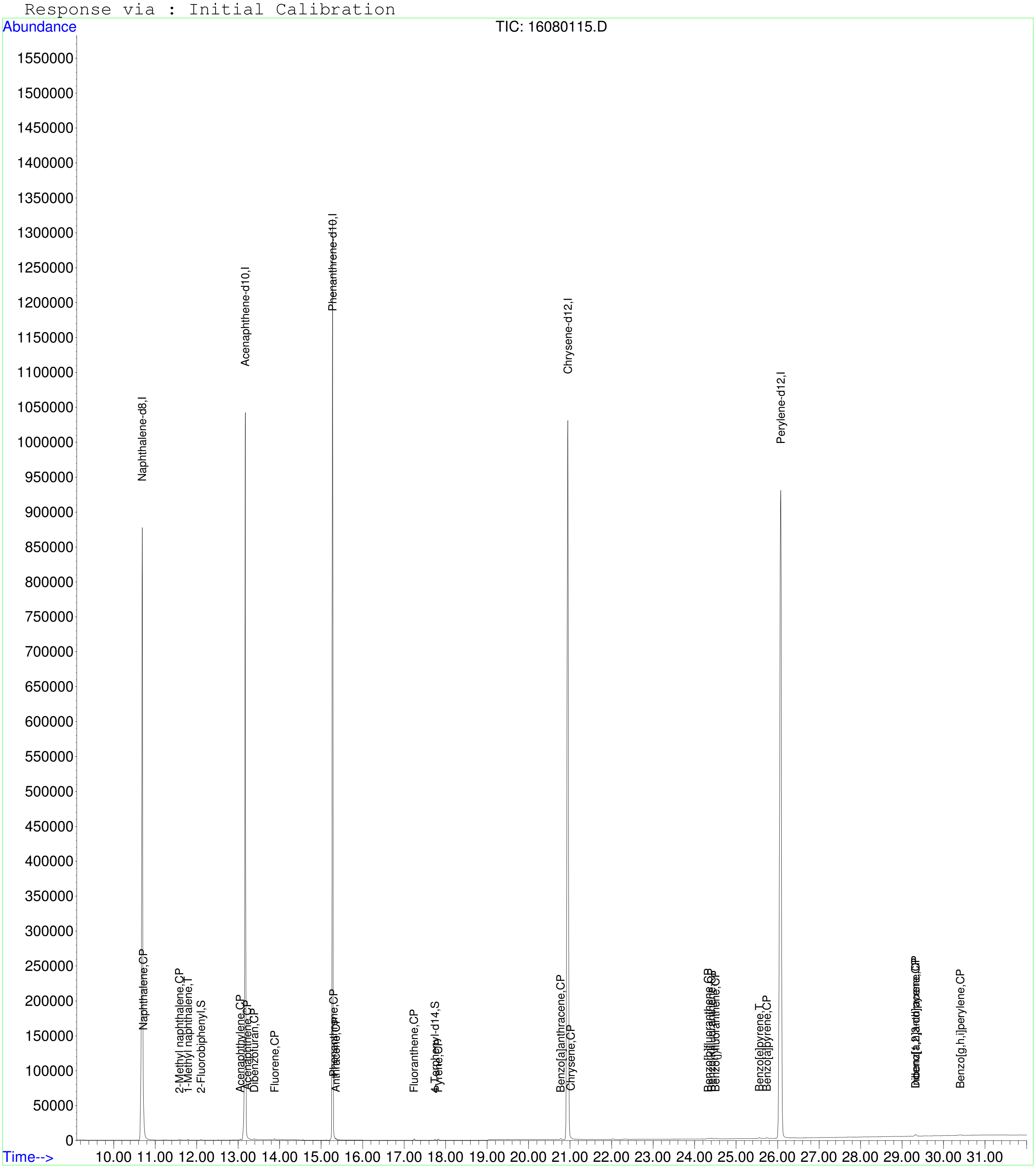
7) 2-Fluorobiphenyl	12.10	172	1280	5.39	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery	=	0.13%#	
16) 4-Terphenyl-d14	17.74	244	1935	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery	=	0.13%#	

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

```
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
```



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

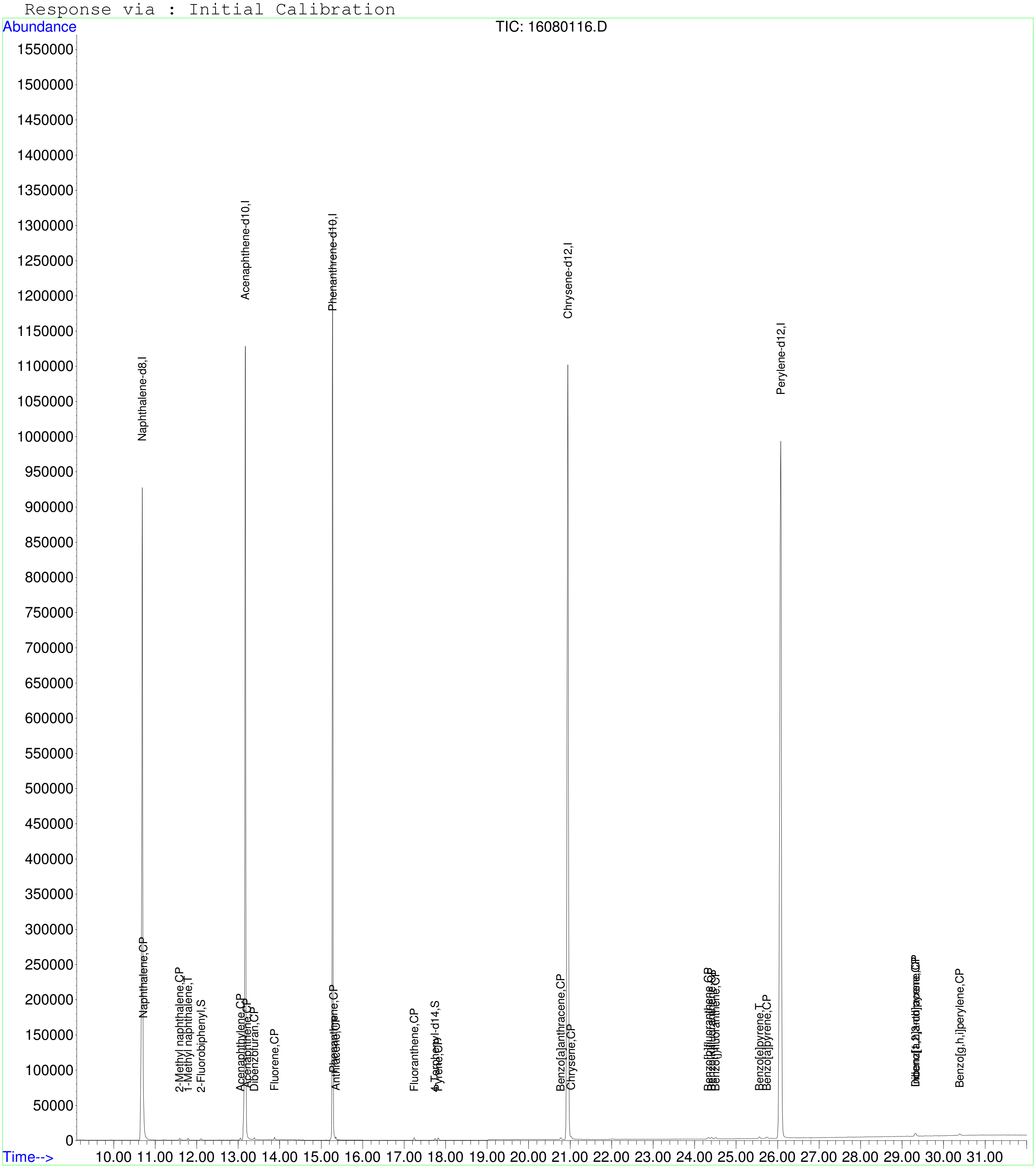
System Monitoring Compounds
7) 2-Fluorobiphenyl 12.10 172 2618 10.17 ug/kg 0.01
Spiked Amount 4000.000 Range 40 - 140 Recovery = 0.25%#
16) 4-Terphenyl-d14 17.74 244 3587 10.11 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 0.25%#

Target Compounds	R.T.	QIon	Response	Conc	Units	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

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	R.T.	QIon	Response	Conc Units	Dev(Min)
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%#	

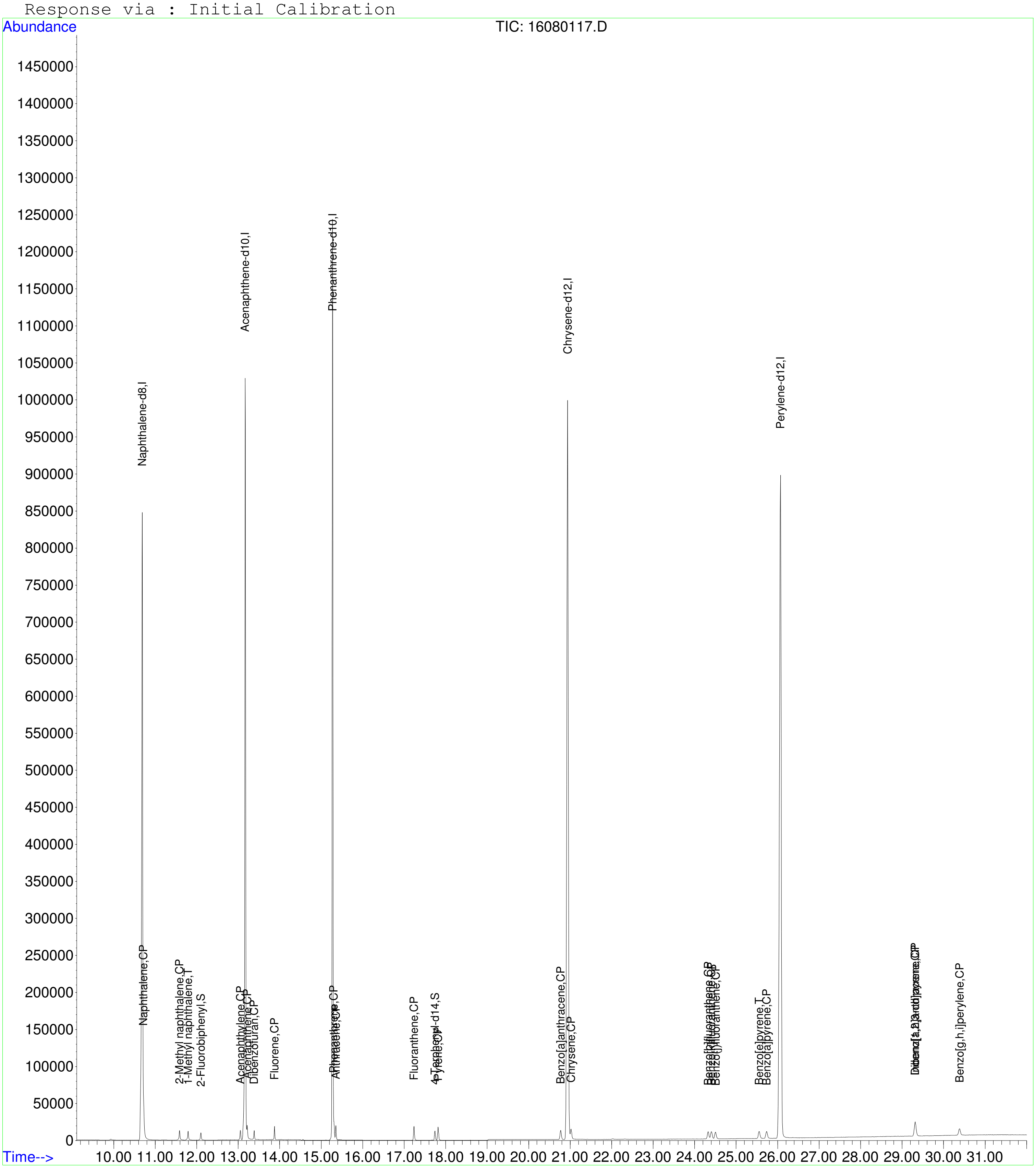
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.72	128	16729	49.56 ug/kg	99
3) 2-Methyl naphthalene	11.59	142	11175	51.07 ug/kg	98
4) 1-Methyl naphthalene	11.79	142	9975	51.46 ug/kg	99
6) Dibenzofuran	13.38	168	13386	49.26 ug/kg	99
8) Acenaphthylene	13.05	152	14476	48.68 ug/kg	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
```



```
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%#	

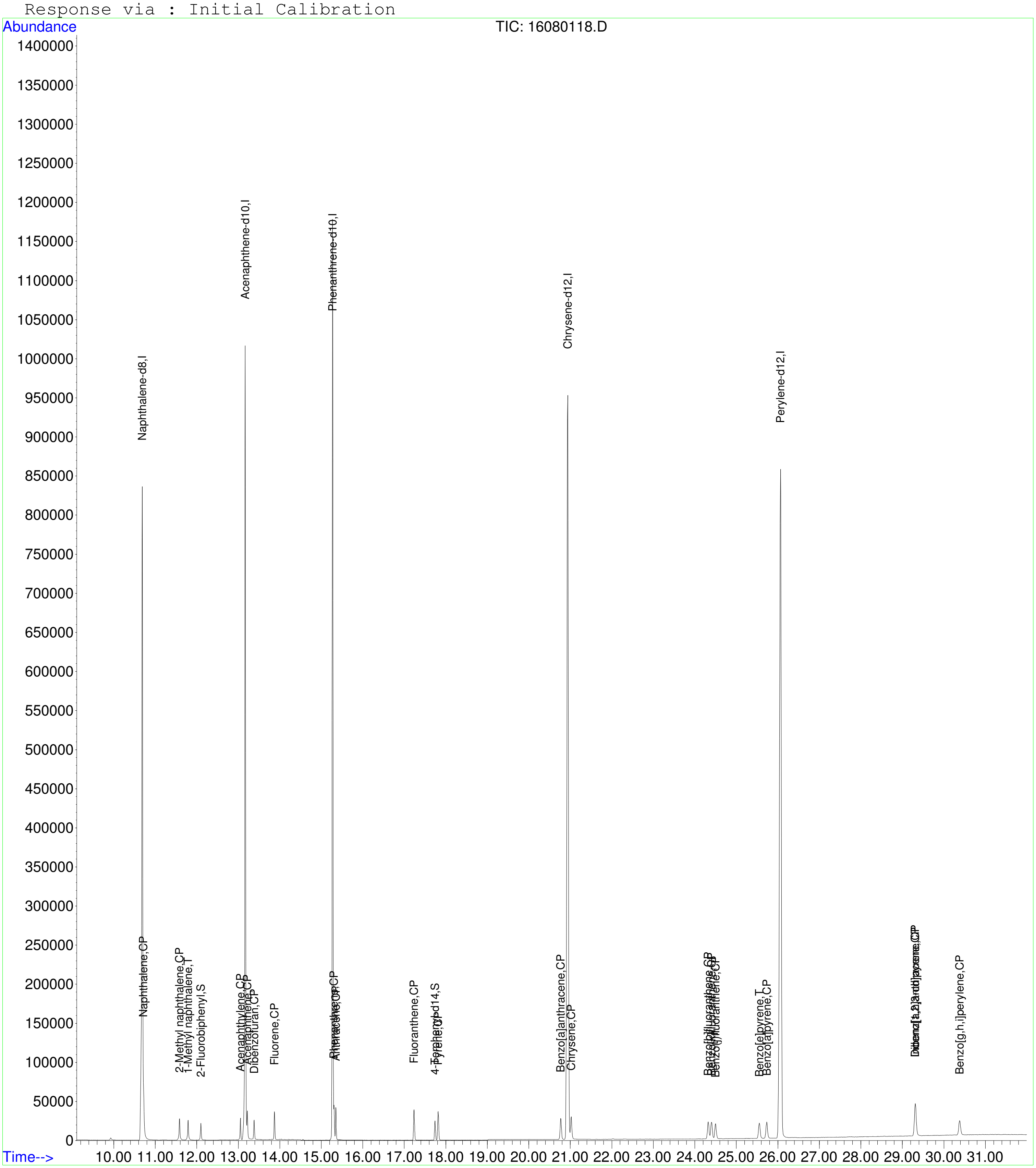
Target Compounds					Qvalue
2) Naphthalene	10.72	128	33760	104.68 ug/kg	99
3) 2-Methyl naphthalene	11.59	142	22472	107.49 ug/kg	99
4) 1-Methyl naphthalene	11.79	142	19870	107.30 ug/kg	99
6) Dibenzofuran	13.38	168	26743	103.44 ug/kg	100
8) Acenaphthylene	13.05	152	29673	104.89 ug/kg	98
9) Acenaphthene	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
```



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

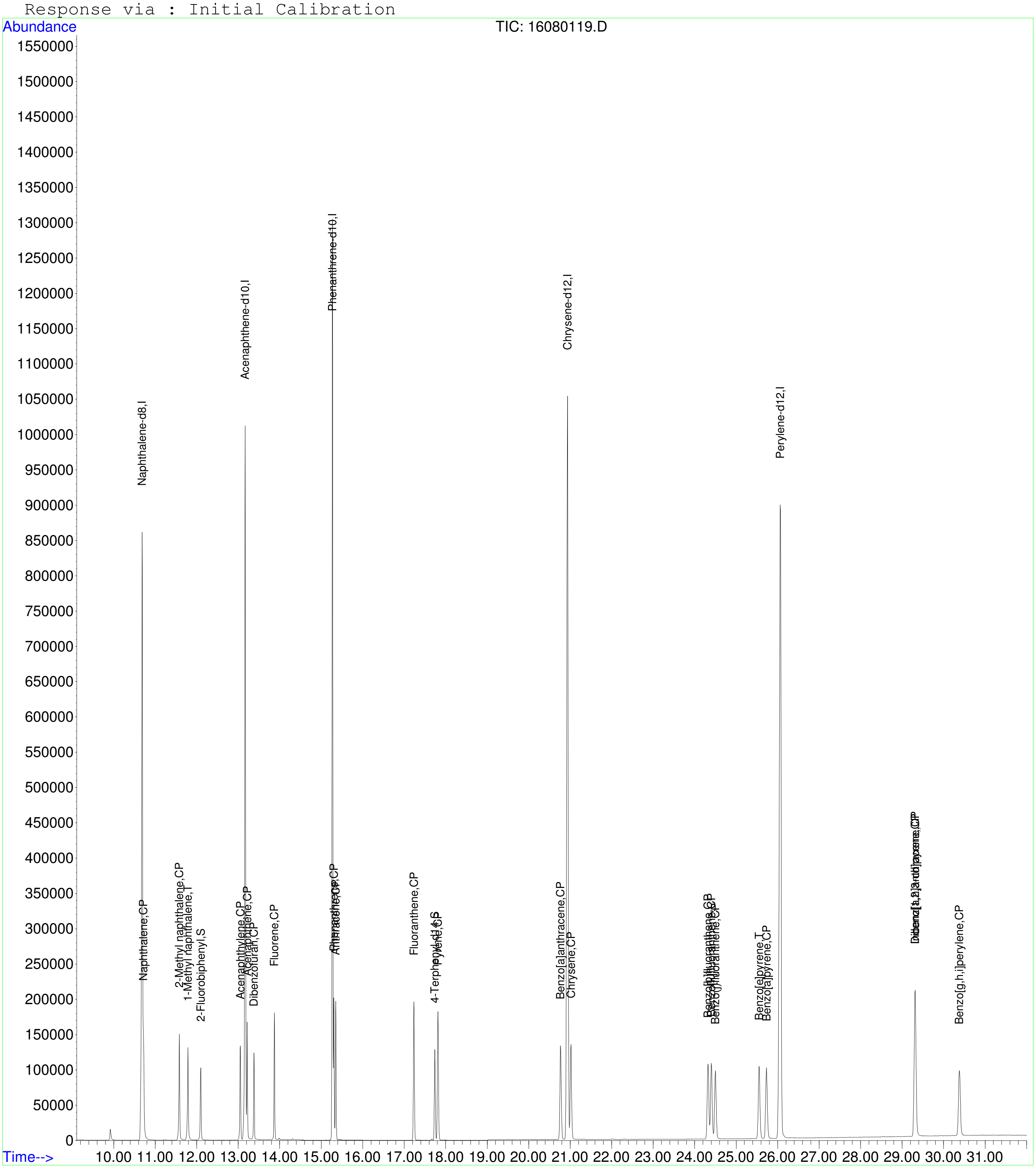
Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

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

```
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
```



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

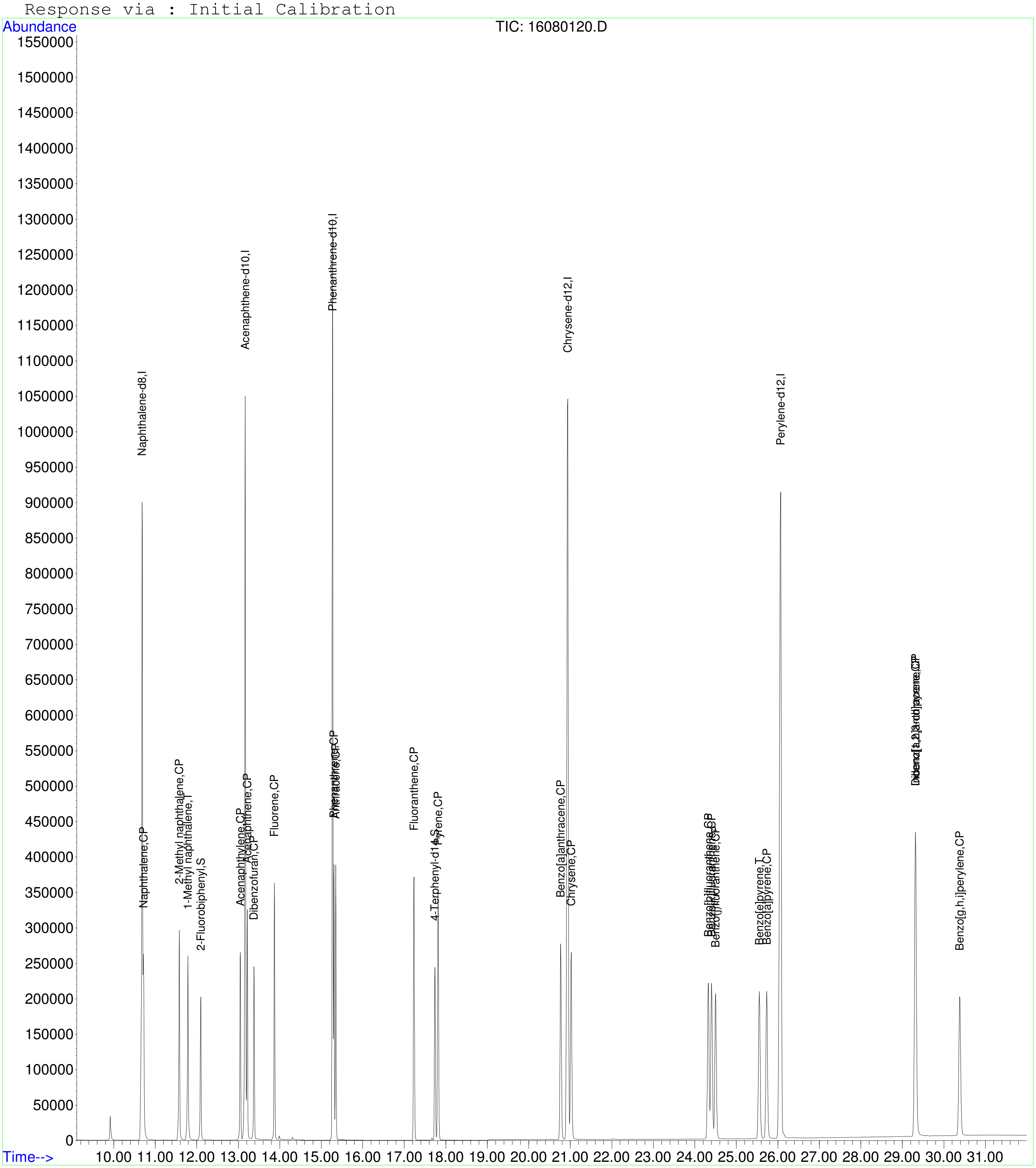
7) 2-Fluorobiphenyl	12.10	172	218820	953.83 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.85%#	
16) 4-Terphenyl-d14	17.74	244	347243	956.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.91%#	

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

```
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
```



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%

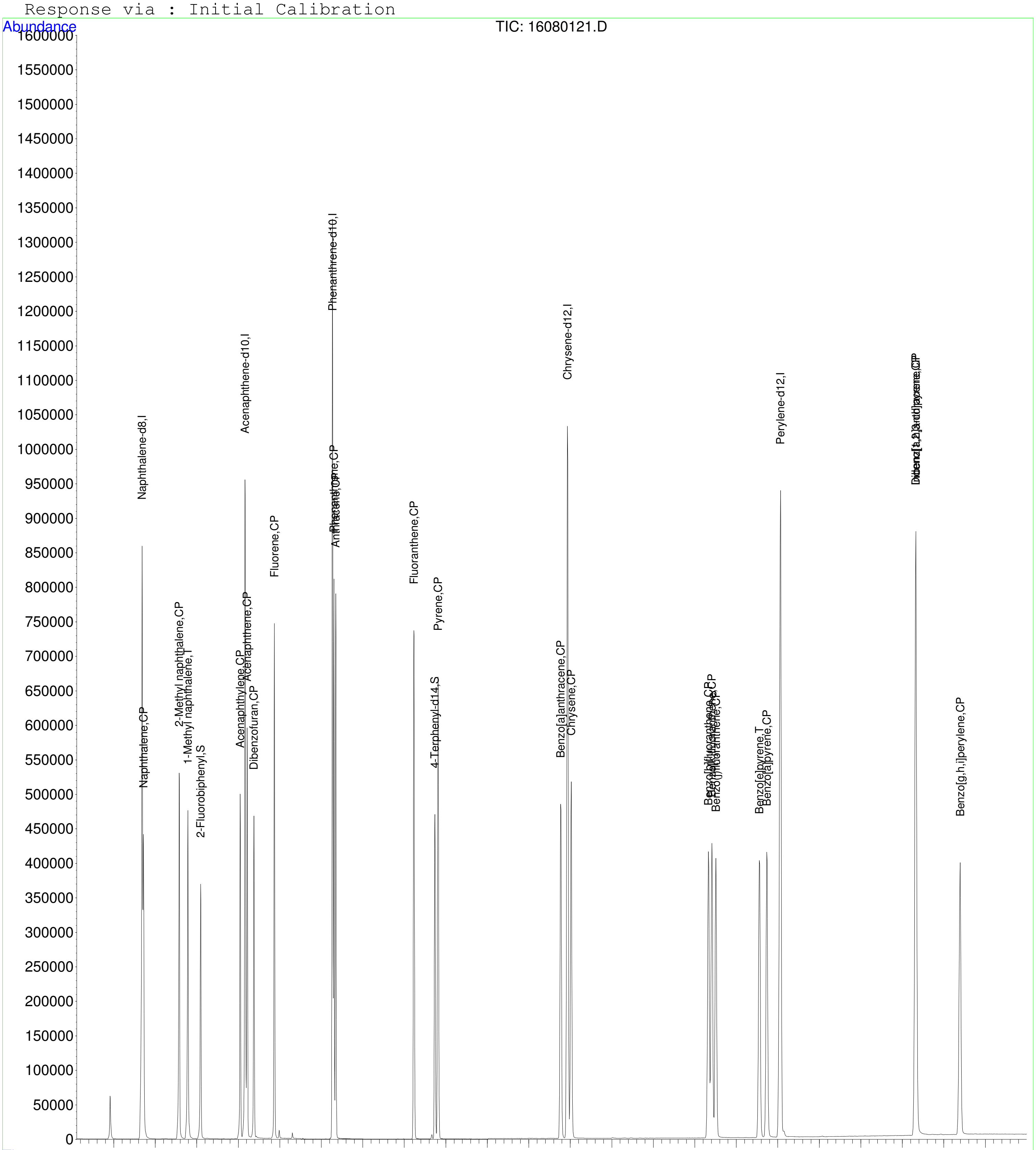
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.72	128	591164	1851.64	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	381572	1843.59	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	343340	1872.80	ug/kg	100
6) Dibenzofuran	13.38	168	463067	1908.71	ug/kg	100
8) Acenaphthylene	13.05	152	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
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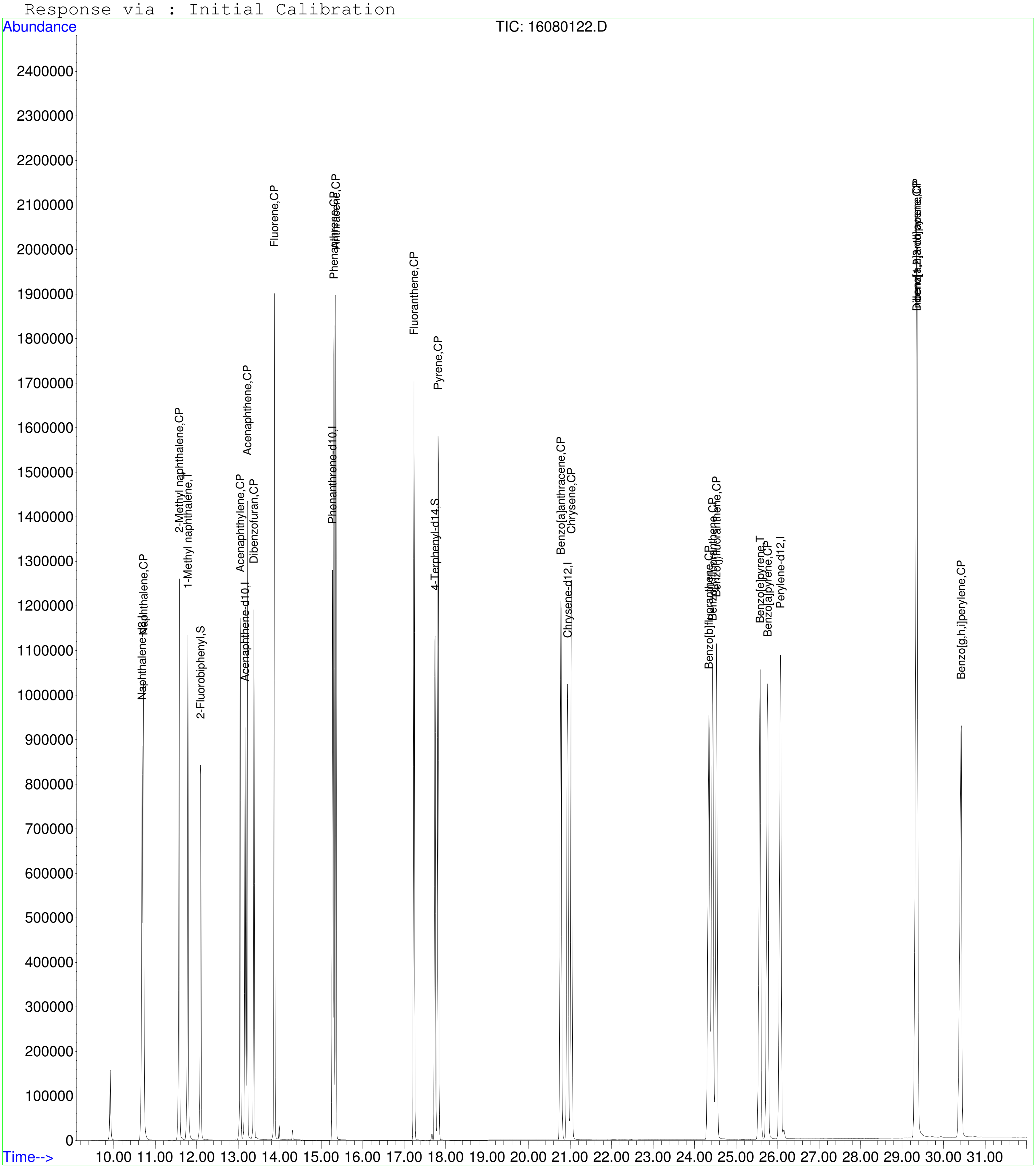


420

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

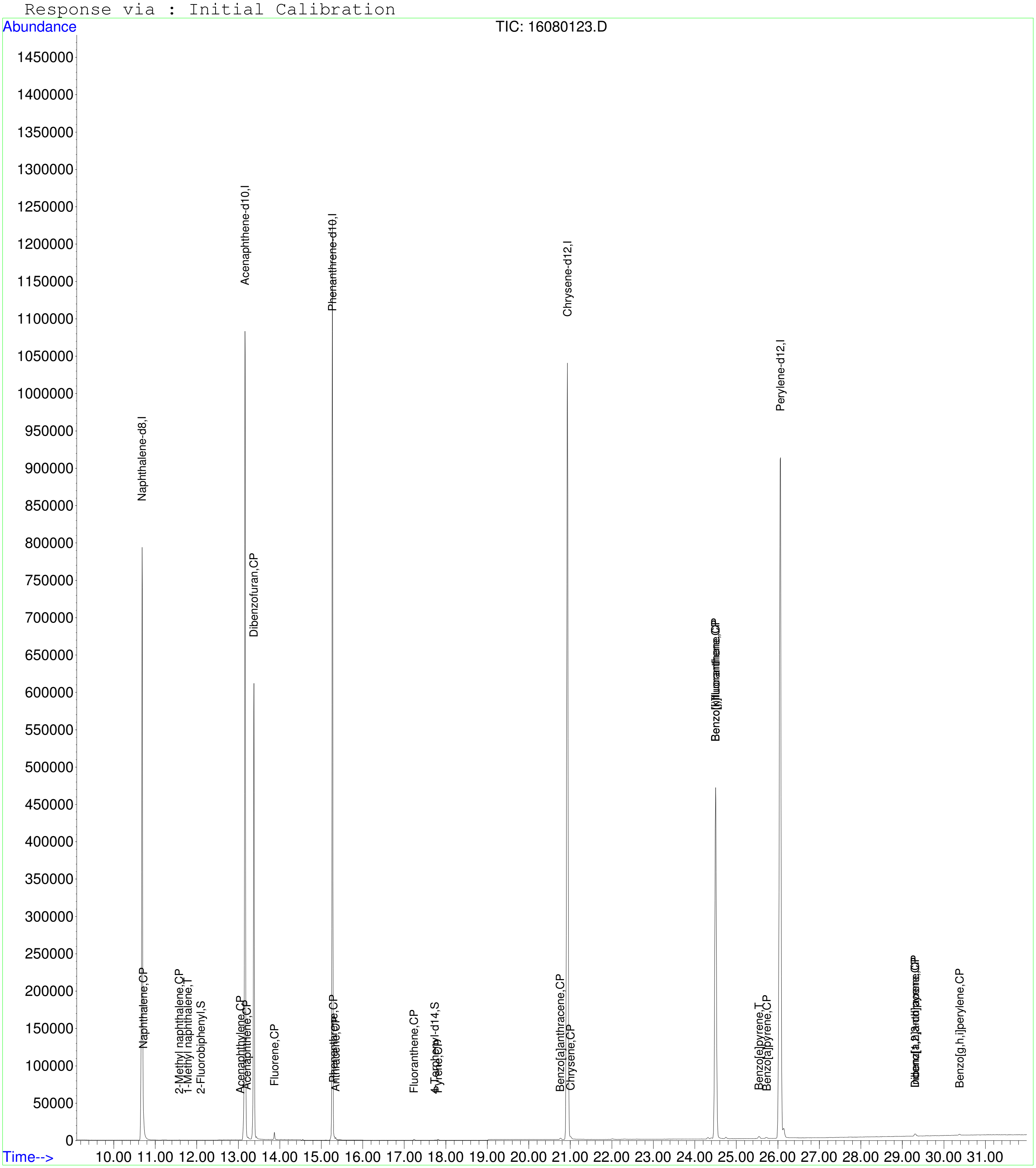
REVIEWED/APPROVED
By Sherri Herschmann at 9:39:32 AM, 8/10/2016

(#) = 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

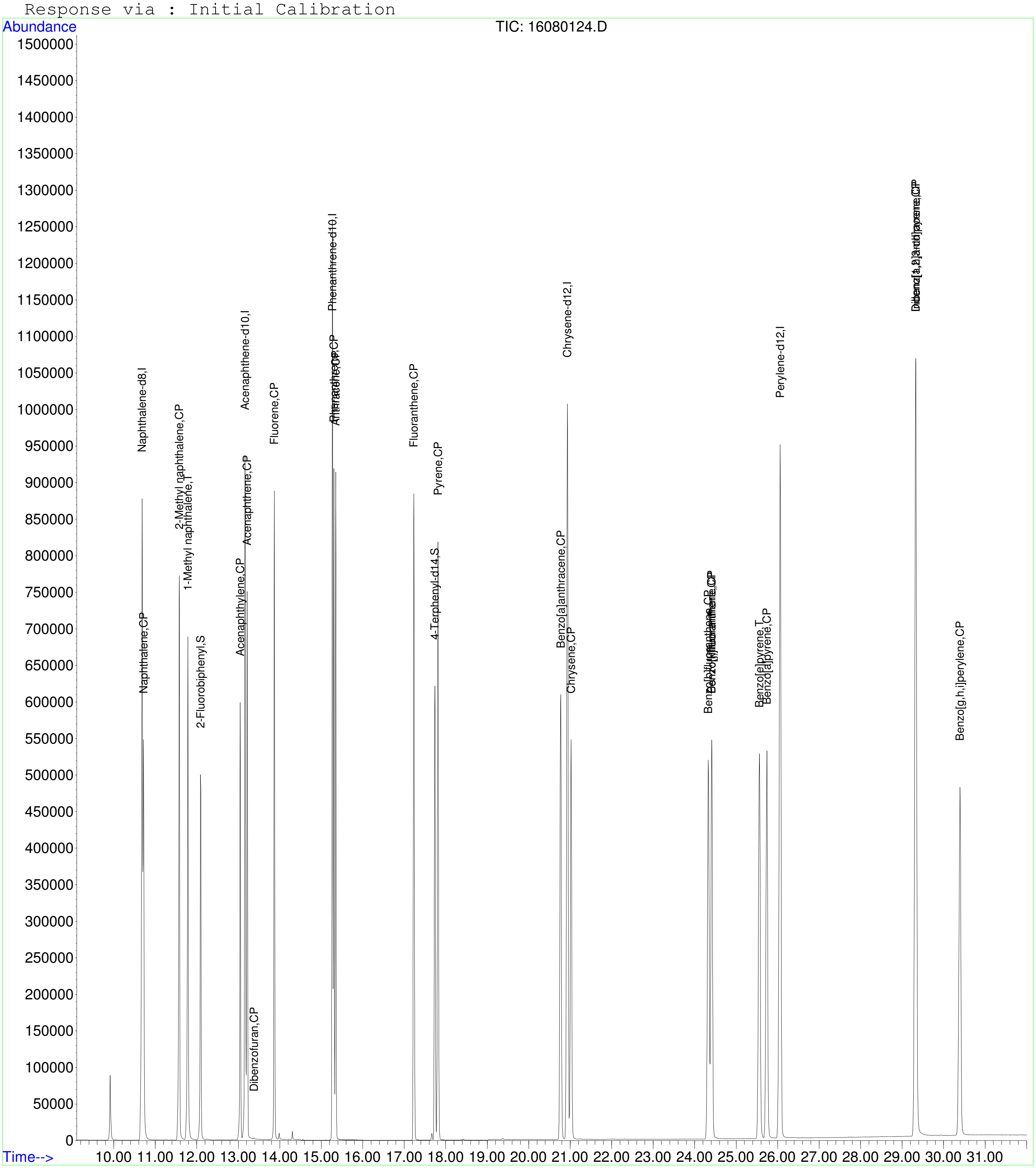
7) 2-Fluorobiphenyl	12.09	172	535064	2625.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 65.64%			
16) 4-Terphenyl-d14	17.74	244	917932	2579.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 64.48%			

Target Compounds	R.T.	QIon	Response	Conc	Units	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

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

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



ICP-MS3
For

DHL Work Order
1607219

ICP-MS3_160804C
For

DHL Work Order
1607219

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_160804C**
	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: Karyn Lane Date of Completion: 08/05/2016

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

REVIEWED BY
By Janice Whitt at 3:16:22 PM, 8/9/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	KL	**BALANCE #:**	26
TEST DATE:	08/04/2016	**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**	3.9895	3.9815	**99.54**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		3.9641	3.9562	**98.90**		
3		3.9740	3.9661	**99.15**		
AVERAGE (MEAN)		**3.976**	**3.968**	**99.20**		**0.322**
						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	**0.50**	0.4980	0.4970	**99.40**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.4957	0.4947	**98.94**		
3		0.4973	0.4963	**99.26**		
AVERAGE (MEAN)		**0.497**	**0.496**	**99.20**		**0.237**
						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	**0.200**	0.2023	0.2019	**100.95**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2020	0.2016	**100.80**		
3		0.2030	0.2026	**101.30**		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.01**		**0.253**
						PASS

Karyn Lane 8-5-16

Analyst / Date

REVIEWED BY
By Janice Whitt at 1:59:45 PM, 8/9/2016

Review and Approved / Date

:\Users\METALS\Desktop\Pipetter Accuracy Check- RO 3-29-2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160804C** **Run No.:** 87438

Analytical Run Date: 8/4/2016 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 1:21:00 PM		
L2-160804	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 1:27:00 PM		
L-160804	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 1:33:00 PM		
10X-160804	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 1:39:00 PM		
5X-160804	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 1:45:00 PM		
2X-160804	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 1:51:00 PM		
H-160804	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 1:57:00 PM		
H2-160804	1	ICPMS_TWDOD	CAL	R87438	8/4/2016 2:03:00 PM		
ICSA-160804	1	ICPMS_TWDOD	ICSA	R87438	8/4/2016 2:21:00 PM		
ICSAB-160804	1	ICPMS_TWDOD	ICSB	R87438	8/4/2016 2:27:00 PM		
ICV1-160804	1	ICPMS_TWDOD	ICV	R87438	8/4/2016 2:45:00 PM		
ICB1-160804	1	ICPMS_TWDOD	ICB	R87438	8/4/2016 2:51:00 PM		
ILCVL-160804	1	ICPMS_TWDOD	LCVL	R87438	8/4/2016 2:57:00 PM		
CCV1-160804	1	ICPMS_TWDOD	CCV	R87438	8/4/2016 4:15:00 PM		
CCB1-160804	1	ICPMS_TWDOD	CCB	R87438	8/4/2016 4:21:00 PM		
LCVL1-160804	1	ICPMS_TWDOD	LCVL	R87438	8/4/2016 4:27:00 PM		
MB-76548	5	ICPMS_TSDOD1	MBLK	76548	8/4/2016 5:16:00 PM		
LCS-76548	5	ICPMS_TSDOD1	LCS	76548	8/4/2016 5:22:00 PM		
LCSD-76548	5	ICPMS_TSDOD1	LCSD	76548	8/4/2016 5:28:00 PM		
1607219-03A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 5:40:00 PM		
1607219-03A SD	25	ICPMS_TSDOD1	SD	76548	8/4/2016 5:46:00 PM		
1607219-01A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 5:52:00 PM		
1607219-02A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 5:58:00 PM		
1607219-04A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 6:04:00 PM		
1607219-05A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 6:10:00 PM		
1607219-06A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 6:22:00 PM		
1607219-07A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 6:28:00 PM		
1607219-08A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 6:34:00 PM		
1607219-09A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 6:40:00 PM		
1607219-10A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 6:46:00 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_160804C** **Run No.:** 87438

1607219-03A PDS	5	ICPMS_TSDOD1	PDS	76548	8/4/2016 6:52:00 PM		
1607219-03A MS	5	ICPMS_TSDOD1	MS	76548	8/4/2016 6:58:00 PM		
1607219-03A MSD	5	ICPMS_TSDOD1	MSD	76548	8/4/2016 7:04:00 PM		
CCV2-160804	1	ICPMS_TWDOD	CCV	R87438	8/4/2016 7:16:00 PM		
LCVL2-160804	1	ICPMS_TWDOD	LCVL	R87438	8/4/2016 7:28:00 PM		
CCB2-160804	1	ICPMS_TWDOD	CCB	R87438	8/4/2016 7:34:00 PM		
1607219-11A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 7:40:00 PM		
1607219-12A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 7:46:00 PM		
1607219-14A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 7:52:00 PM		
1607219-15A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 7:58:00 PM		
1607219-16A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 8:04:00 PM		
1607219-17A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 8:16:00 PM		
1607219-18A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 8:22:00 PM		
1607219-19A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 8:28:00 PM		
1607219-20A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 8:34:00 PM		
1607219-21A	5	ICPMS_TSDOD1	SAMP	76548	8/4/2016 8:40:00 PM		
CCV3-160804	1	ICPMS_TWDOD	CCV	R87438	8/4/2016 8:52:00 PM		
LCVL3-160804	1	ICPMS_TWDOD	LCVL	R87438	8/4/2016 9:04:00 PM		
CCB3-160804	1	ICPMS_TWDOD	CCB	R87438	8/4/2016 9:10:00 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	ICS-A	2109		A	ICSAICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		AB	ICSBICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160804	CAL ICPMS_TW	Level 2				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160804	CAL ICPMS_TW	Level 3				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160804	CAL ICPMS_TW	Level 2				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160804	CAL ICPMS_TW	Level 3				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160804	CAL ICPMS_TW	Level 4				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160804	CAL ICPMS_TW	Level 5				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160804	CAL ICPMS_TW	Level 6				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160804	CAL ICPMS_TW	Level 7				
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160804	CAL ICPMS_TW	Level 8				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
22		Keyword		CALEND	End of CALIB						
23		Keyword		ICSBEG	Start of ICS						
24	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160804	ICSAICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160804	ICSBICPMS_TW	1.000				
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
28		Keyword		ICSEND	End of ICS						
29		Keyword		SMPLBEG	Start of SMPL						
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160804	ICV ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160804	ICB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160804	LCVLICPMS_TW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-76624	MBLKSPLP_MET	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2202		MB-76596-SPLP	MBLKSPLP_MET	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2203		LCS-76624	LCS SPLP_MET	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2204		LCSD-76624	LCSDSPLP_MET	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2205		1607207-06A	SAMPSPLP_MET	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2206		1607207-06A SD	SD SPLP_MET	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1607207-11A	SAMPSPLP_MET	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607287-30A	SAMPICPMS_TS	100.0				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2208		1607207-06A PDS	PDS SPLP_MET	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2209		1607207-06A MS	MS SPLP_MET	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2210		1607207-06A MSD	MSD SPLP_MET	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160804	CCV ICPMS_TW	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160804	CCB ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160804	LCVLICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	2501		DI	CCB 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	CCB	2501		DI	CCB ICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	2501		DI	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	2502		AIR	CCB ICPMS_TW	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2301		MB-76576	MBLK6020A_W	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2302		FB-76576	MBLK6020A_W	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2303		LCS-76576	LCS 6020A_W	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76548	MBLKICPMS_TSDOD	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76548	LCS ICPMS_TSDOD	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76548	LCSDICPMS_TSDOD	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607219-03A	SAMPICPMS_TSDOD	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607219-03A SD	SD ICPMS_TSDOD	25.00				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607219-01A	SAMPICPMS_TSDOD	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607219-02A	SAMPICPMS_TSDOD	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607219-04A	SAMPICPMS_TSDOD	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607219-05A	SAMPICPMS_TSDOD	5.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607219-06A	SAMPICPMS_TSDOD	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607219-07A	SAMPICPMS_TSDOD	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607219-08A	SAMPICPMS_TSDOD	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607219-09A	SAMPICPMS_TSDOD	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607219-10A	SAMPICPMS_TSDOD	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607219-03A PDS	PDS ICPMS_TSDOD	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	MS_S	3204		1607219-03A MS	MS ICPMS_TSDOD	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607219-03A MSD	MSD ICPMS_TSDOD	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160804	CCV ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160804	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160804	LCVLICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160804	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607219-11A	SAMPICPMS_TSDOD	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607219-12A	SAMPICPMS_TSDOD	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607219-14A	SAMPICPMS_TSDOD	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3304		1607219-15A	SAMPICPMS_TSDOD	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1607219-16A	SAMPICPMS_TSDOD	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1607219-17A	SAMPICPMS_TSDOD	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3307		1607219-18A	SAMPICPMS_TSDOD	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1607219-19A	SAMPICPMS_TSDOD	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1607219-20A	SAMPICPMS_TSDOD	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1607219-21A	SAMPICPMS_TSDOD	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160804	CCV ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160804	CCB ICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160804	LCVLICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160804	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
103		Keyword		StandBy							
104		Keyword		SMPLEND	End of SMPL						
105		Keyword		End	End of Sequence						
106		Keyword		CCVBEG	Start of CCV						
107		Keyword		CCVEND	End of CCV						
108		Keyword		BLKBEG	Start of BLANK						
109		Keyword		BLKEND	End of BLANK						
110		Keyword		ERRBEG	Start of ERRTERM						
111		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 8:30:00 AM**
Digestion: **Start: 8/3/2016 8:54:00 AM / Stop: 8/3/2016 2:12:00 PM**
Prep End Date: **8/3/2016 5:54:35 PM**

Prep Batch **76548** 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
1607219-01A	Soil		1.12	50	44.643	1	of	1	
1607219-02A	Soil		1.19	50	42.017	1	of	1	
1607219-03A	Soil		1.04	50	48.077	2	of	3	
1607219-03A MS	Soil		1.2	50	41.667	2	of		
1607219-03A MSD	Soil		1.13	50	44.248	2	of		
1607219-03A PDS	Soil		1.04	50	48.077	2	of		
1607219-03A SD	Soil		1.04	50	48.077	2	of		
1607219-04A	Soil		1.17	50	42.735	1	of	1	
1607219-05A	Soil		1.14	50	43.860	1	of	1	
1607219-06A	Soil		1.13	50	44.248	1	of	1	
1607219-07A	Soil		1.06	50	47.170	1	of	1	
1607219-08A	Soil		1	50	50.000	1	of	1	
1607219-09A	Soil		1.07	50	46.729	1	of	1	
1607219-10A	Soil		1.1	50	45.455	1	of	1	
1607219-11A	Soil		1.07	50	46.729	1	of	1	
1607219-12A	Soil		1.03	50	48.544	1	of	1	
1607219-14A	Soil		1.15	50	43.478	1	of	1	
1607219-15A	Soil		1.03	50	48.544	1	of	1	
1607219-16A	Soil		1.06	50	47.170	1	of	1	
1607219-17A	Soil		1.06	50	47.170	1	of	1	
1607219-18A	Soil		1.14	50	43.860	1	of	1	
1607219-19A	Soil		1.02	50	49.020	1	of	1	
1607219-20A	Soil		1.02	50	49.020	1	of	1	
1607219-21A	Soil		1.1	50	45.455	1	of	1	
LCS-76548	Soil		1	50	50.000		of		
LCSD-76548	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 2:06:41 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 8:30:00 AM**
Digestion: **Start: 8/3/2016 8:54:00 AM / Stop: 8/3/2016 2:12:00 PM**
Prep End Date: **8/3/2016 5:54:35 PM**

Prep Factor Units: **mL/g**

Prep Batch **76548** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

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
MB-76548	Soil		1	50	50.000	of	

Weighed out by CVD

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 2:06:43 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 2:52:56 PM**
Digestion:
Prep End Date:

Prep Batch **76548** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke** Prep Factor Units: mL/g

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-01A	Soil		1.12	50	50.000	1 of 1	
1607219-02A	Soil		1.19	50	50.000	1 of 1	
1607219-03A	Soil		1.04	50	50.000	2 of 3	
1607219-03A MS	Soil		1.20	50	50.000	2 of 3	
1607219-03A MSD	Soil		1.13	50	50.000	2 of 3	
1607219-04A	Soil		1.17	50	50.000	1 of 1	
1607219-05A	Soil		1.14	50	50.000	1 of 1	
1607219-06A	Soil		1.13	50	50.000	1 of 1	
1607219-07A	Soil		1.06	50	50.000	1 of 1	
1607219-08A	Soil		1.00	50	50.000	1 of 1	
1607219-09A	Soil		1.07	50	50.000	1 of 1	
1607219-10A	Soil		1.10	50	50.000	1 of 1	
1607219-11A	Soil		1.07	50	50.000	1 of 1	
1607219-12A	Soil		1.03	50	50.000	1 of 1	
1607219-14A	Soil		1.15	50	50.000	1 of 1	
1607219-15A	Soil		1.03	50	50.000	1 of 1	
1607219-16A	Soil		1.06	50	50.000	1 of 1	
1607219-17A	Soil		1.06	50	50.000	1 of 1	
1607219-18A	Soil		1.14	50	50.000	1 of 1	
1607219-19A	Soil		1.02	50	50.000	1 of 1	
1607219-20A	Soil		1.02	50	50.000	1 of 1	
1607219-21A	Soil		1.10	50	50.000	1 of 1	
LCS-76548	Soil		1	50	50.000	of	
LCSD-76548	Soil		1	50	50.000	of	
MB-76548	Soil		1	50	50.000	of	

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

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

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

REVIEWED BY
By Janice Whitt at 2:06:38 PM, 8/9/2016

[illegible]
8/3/16

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

REVIEWED BY
By Janice Whitt at 2:05:10 PM, 8/9/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 2:05:15 PM, 8/9/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

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

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

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

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

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

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

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

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

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

SP 8/3/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:05:03 PM, 8/9/2016

Review and Approved / Date

X:\LOGS\Syringe and Pipetter Cal Logbook\MET-HG PREP\Pipetter Accuracy Check-SP-08.03.16

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 04 2016 02:27 pm
Cal Type: Y=aX+[blank]

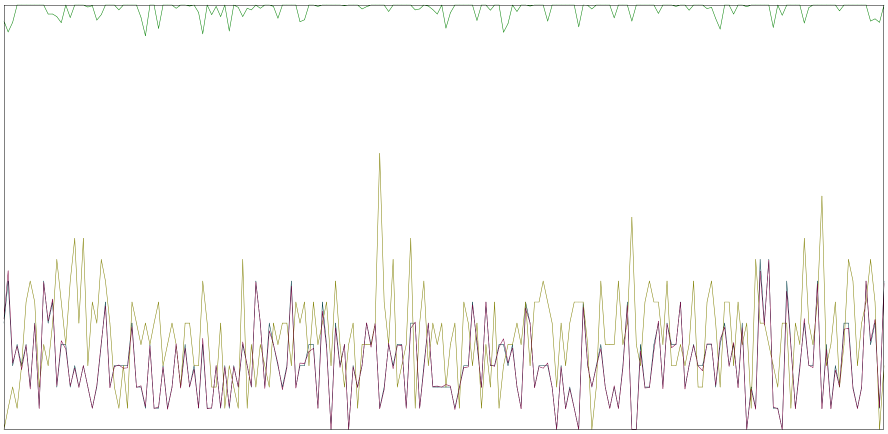
Standard	Date Acquired	File
BLANK STD 1	Aug 4 2016 01:21 pm	c:\icpchem\1\data\16h04m02.b\011calb.d\
L2-160804	Aug 4 2016 01:27 pm	c:\icpchem\1\data\16h04m02.b\012cals.d\
L-160804	Aug 4 2016 01:33 pm	c:\icpchem\1\data\16h04m02.b\013cals.d\
10X-160804	Aug 4 2016 01:39 pm	c:\icpchem\1\data\16h04m02.b\014cals.d\
5X-160804	Aug 4 2016 01:45 pm	c:\icpchem\1\data\16h04m02.b\015cals.d\
2X-160804	Aug 4 2016 01:51 pm	c:\icpchem\1\data\16h04m02.b\016cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.2707	0.01416	1.03	250	501		2000	
Be	0.9999	0.07826	0.00121	0.99	255	496	99%	--------	######
B	1.0000	0.06702	0.05538	0.89	239	500	100%	2,002	100%
Na	0.9998	0.3402	12.42	13.82	5,142	10,390	104%	24,820	99%
Mg	0.9998	0.1557	0.4455	19.53	4,914	10,420	104%	24,850	99%
Al	1.0000	0.03823	0.1549	19.93	4,956	10,030	100%	--------	######
K	0.9999	0.07733	3.583	15.43	4,754	9,709	97%	25,180	101%
Ca	0.9999	0.008827	0.185	13.15	5,059	10,210	102%	24,910	100%
Ti	1.0000	0.02948	0.002733	0.73	244	491	98%	2,003	100%
V	1.0000	1.267	0.1372	1.00	240	487	97%	2,005	100%
Cr	1.0000	1.627	0.146	0.98	248	499	100%	2,001	100%
Mn	1.0000	0.6087	0.3665	0.66	253	513	103%	1,996	100%
Fe	1.0000	2.138	6.444	19.29	4,994	9,995	100%	--------	######
Co	0.9999	5.328	0.1126	1.05	249	519	104%	1,995	100%
Ni	1.0000	1.571	0.2203	0.95	249	495	99%	2,002	100%
Cu	1.0000	4.235	0.9517	0.99	253	507	101%	1,998	100%
Zn	1.0000	0.3942	0.2311	0.79	259	515	103%	1,995	100%
As	1.0000	0.2294	0.1252	1.08	252	502	100%	1,999	100%
Se	1.0000	0.01203	0.01018	0.91	255	506	101%	1,998	100%
Sr	1.0000	0.3643	0.02739	0.97	245	491	98%	2,003	100%
Mo	0.9999	0.06139	0.006121	0.96	244	503	101%	--------	######
Ag	1.0000	0.155	0.001372	1.02	248	501	100%	--------	######
Cd	1.0000	0.03307	0.0009398	1.04	242	486	97%	2,005	100%
Sn	1.0000	0.09027	0.02204	0.84	240	508	102%	1,999	100%
Sb	0.9997	0.108	0.003084	0.97	239	506	101%	--------	######
Ba	0.9999	0.04383	0.001844	0.97	234	477	95%	2,008	100%
Tl	1.0000	0.3308	0.008828	0.97	250	508	102%	1,998	100%
Pb	1.0000	0.4467	0.02028	0.95	244	507	101%	1,999	100%

REVIEWED/APPROVED
By Sherri Herschmann at 12:14:38 PM, 8/5/2016

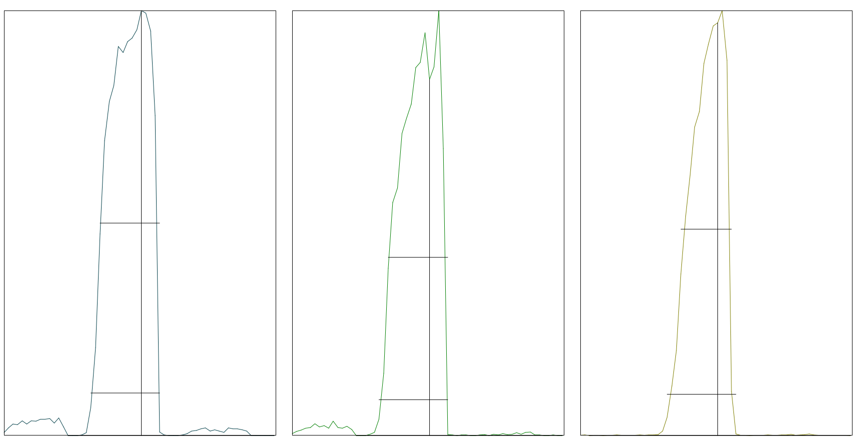
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.3100 sec
n: 200
Oxide: 156/140 0.339%
Doubly Charged: 70/140 2.419%

m/z	Range	Count	Mean	RSD%	Background
51	20	7.0	3.1	56.17	0.70
59	2,000	2038.0	2021.8	3.40	0.50
75	20	3.0	4.5	47.83	1.80
51/59	1	0.344%	0.154%	55.90	



m/z:	59	89	205
Height:	2,110	830	3,250
Axis:	59.05	89.05	205.05
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.7500

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : Aug 04, 2016 11:55:22
Printed : Aug 04, 2016 11:55:24

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

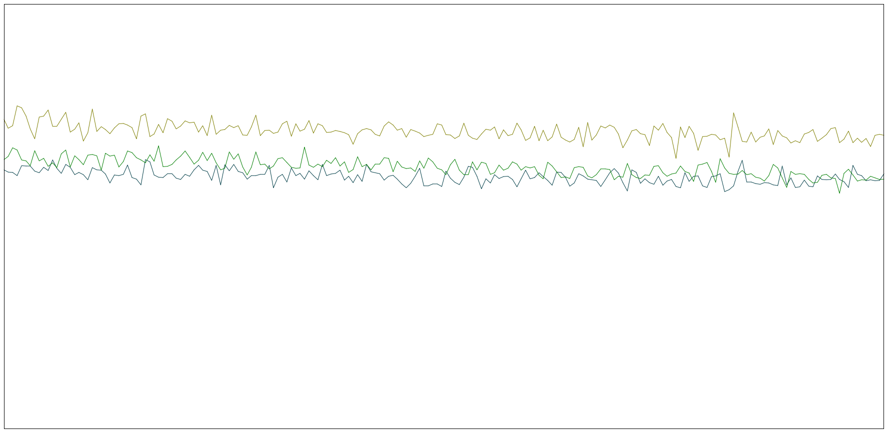
===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1600 W	Extract 1	:	0 V	AMU Gain	:	124
RF Matching	:	1.6 V	Extract 2	:	-130 V	AMU Offset	:	120
Smpl Depth	:	9 mm	Omega Bias-ce	:	-20 V	Axis Gain	:	0.9993
Torch-H	:	-0.2 mm	Omega Lens-ce	:	0 V	Axis Offset	:	-0.03
Torch-V	:	1 mm	Cell Entrance	:	-40 V	QP Bias	:	-12.5 V
Carrier Gas	:	1.2 L/min	QP Focus	:	-10 V			
Makeup Gas	:	0 L/min	Cell Exit	:	-40 V	===Detector Parameters===		
Optional Gas	:	--- %				Discriminator	:	8 mV
Nebulizer Pump	:	0.1 rps	===Octopole Parameters===			Analog HV	:	1750 V
Sample Pump	:	--- rps	OctP RF	:	170 V	Pulse HV	:	1520 V
S/C Temp	:	2 degC	OctP Bias	:	-16 V			

===Reaction Cell===

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

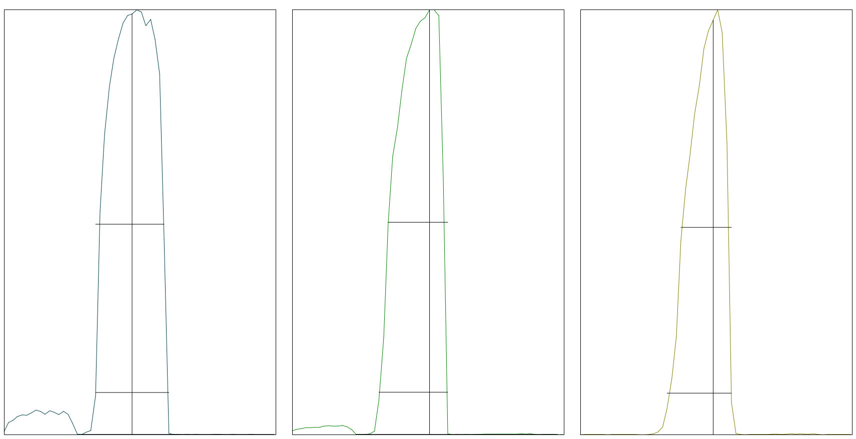
Tune Report

Tune File : nogas.u
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.8200 sec
n: 200
Oxide: 156/140 1.034%
Doubly Charged: 70/140 2.316%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	6008.0	5934.2	2.67	3.10
89	20,000	11755.0	12322.9	3.27	7.70
205	10,000	6911.0	7001.7	2.80	18.20
156/140	2	1.170%	1.044%	11.61	
70/140	5	1.916%	2.016%	10.08	
63	10,000	8471.0	8869.1	3.51	3.90
23	50,000	18796.0	19841.7	4.37	2.80



m/z:	7	89	205
Height:	5,791	11,824	6,826
Axis:	6.95	89.05	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

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===

RF Power	:	1600 W
RF Matching	:	1.6 V
Smpl Depth	:	9 mm
Torch-H	:	-0.2 mm
Torch-V	:	1 mm
Carrier Gas	:	1.2 L/min
Makeup Gas	:	0 L/min
Optional Gas	:	--- %
Nebulizer Pump	:	0.1 rps
Sample Pump	:	--- rps
S/C Temp	:	2 degC

===Ion Lenses===

Extract 1	:	0 V
Extract 2	:	-130 V
Omega Bias-ce	:	-22 V
Omega Lens-ce	:	-1 V
Cell Entrance	:	-30 V
QP Focus	:	0 V
Cell Exit	:	-40 V

===Octopole Parameters===

OctP RF	:	170 V
OctP Bias	:	-6 V

===Q-Pole Parameters===

AMU Gain	:	124
AMU Offset	:	120
Axis Gain	:	0.9993
Axis Offset	:	-0.03
QP Bias	:	-1 V

===Detector Parameters===

Discriminator	:	8 mV
Analog HV	:	1750 V
Pulse HV	:	1520 V

===Reaction Cell===

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

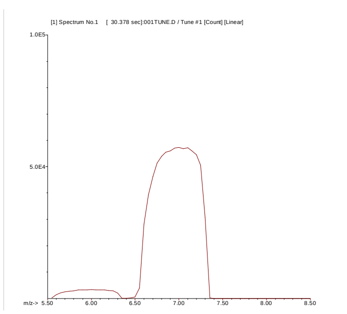
Generated : Aug 04, 2016 11:51:10
Printed : Aug 04, 2016 11:51:15

6020 QC Tune Report

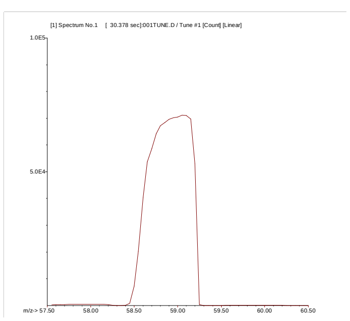
Data File:	C:\ICPCHEM\1\DATA\16H04m01.B\001TUNE.D
Date Acquired:	Aug 4 2016 12:11 pm
Acq. Method:	TN6020.M
Operator:	KL
Sample Name:	TUNE CHECK
Misc Info:	
Vial Number:	1301
Current Method:	C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	1.92	5.00	
59 Co	4.43	5.00	
115 In	4.42	5.00	
205 Tl	0.49	5.00	

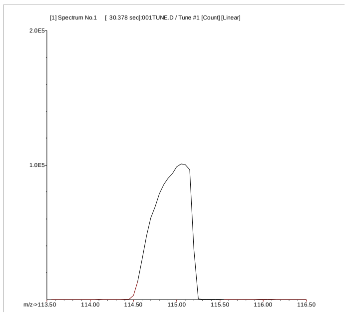


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:

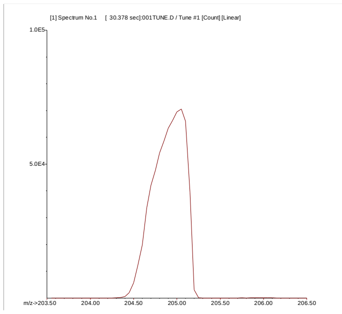


59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:

REVIEWED BY
By Janice Whitt at 2:07:17 PM, 8/9/2016



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: 0.55
Required: 0.90
Flag:

REVIEWED BY
By Janice Whitt at 2:07:21 PM, 8/9/2016

P/A Factor Tuning Report

Acquired:Aug 4 2016 11:58 am

Mass[amu]	Element	P/A Factor
6	Li	0.064607
23	Na	0.078718
24	Mg	0.082258
27	Al	0.085026
39	K	0.085475
44	Ca	Sensitivity too low
45	Sc	0.086441
47	Ti	Sensitivity too low
51	V	0.088662
52	Cr	0.090874
55	Mn	0.092268
59	Co	0.095270
60	Ni	0.097053
63	Cu	0.098562
66	Zn	0.098357
72	Ge	0.097323
75	As	0.096532
78	Se	Sensitivity too low
88	Sr	0.097677
95	Mo	0.096674
106	(Cd)	0.102172
107	Ag	Sensitivity too low
108	(Cd)	0.102401
111	Cd	0.103456
115	In	0.103021
118	Sn	0.102816
121	Sb	0.102675
137	Ba	Sensitivity too low
205	Tl	0.110427
206	(Pb)	0.110484
207	(Pb)	0.110631
208	Pb	0.110624
209	Bi	0.110374
238		0.109963

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

REVIEWED BY
By Janice Whitt at 2:07:29 PM, 8/9/2016

Calibration Blank QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	BLANK STD 1
Operator:	KL	Instrument:	ICPMS3
Last Cal. Update:	Aug 04 2016 01:12 pm		
Date Acquired:	Aug 4 2016 01:21 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	15.51	P	11.60	74.79
7	Li	2	45	312.24	P	39.77	12.74
9	Be	2	45	26.67	P	6.67	25.00
11	B	2	45	1219.00	P	73.83	6.06
23	Na	1	45	8090.72	P	133.70	1.65
24	Mg	1	45	290.02	P	53.65	18.50
27	Al	1	45	100.89	P	13.09	12.97
39	K	1	45	2333.65	P	102.70	4.40
44	Ca	2	45	4074.17	P	114.70	2.82
45	Sc	1	---	130265.90	P	608.20	0.47
45	Sc	2	---	4403868.00	A	98970.00	2.25
47	Ti	1	45	1.78	P	1.54	86.62
51	V	1	45	89.34	P	15.38	17.22
51	V	2	---		P		
52	Cr	1	45	95.11	P	16.56	17.41
55	Mn	1	45	238.67	P	4.62	1.94
56	Fe	1	72	2392.72	P	4.30	0.18
59	Co	1	72	41.78	P	9.08	21.72
60	Ni	1	72	81.78	P	12.10	14.80
60	Ni	2	---		P		
63	Cu	1	72	353.34	P	18.52	5.24
63	Cu	2	---		P		
66	Zn	1	72	85.78	P	8.04	9.37
66	Zn	2	---		P		
72	Ge	1	---	74257.90	P	299.80	0.40
72	Ge	2	---		P		
75	As	1	72	46.48	P	2.28	4.90
78	Se	1	72	3.78	P	1.17	31.00
88	Sr	2	###	710.05	P	62.46	8.80
95	Mo	2	###	158.90	P	50.15	31.56
107	Ag	2	###	35.56	P	5.09	14.32
111	Cd	2	###	24.35	P	1.77	7.26
115	In	2	---	5182029.00	A	53460.00	1.03
118	Sn	2	###	571.15	P	17.11	3.00
121	Sb	2	###	80.00	P	15.28	19.10
137	Ba	2	###	47.78	P	3.85	8.06
205	Tl	2	###	183.34	P	32.83	17.91
208	Pb	2	###	421.13	P	11.71	2.78
209	Bi	2	---	4152797.00	A	29310.00	0.71

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	L2-160804
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	Aug 4 2016 01:27 pm		
Last Cal. Update:	Aug 04 2016 01:24 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-231.19	P	58.87	25.46	ISFail
7	Li	2	45	6505.27	P	72.23	1.11	
9	Be	2	45	1742.41	P	133.80	7.68	
11	B	2	45	2545.92	P	98.58	3.87	
23	Na	1	45	11279.93	P	78.40	0.70	
24	Mg	1	45	2296.97	P	105.00	4.57	
27	Al	1	45	604.03	P	27.23	4.51	
39	K	1	45	3146.09	P	16.79	0.53	
44	Ca	2	45	6678.73	P	192.30	2.88	
45	Sc	1	---	131757.80	P	1293.00	0.98	
45	Sc	2	---	4435802.00	A	68220.00	1.54	
47	Ti	1	45	16.00	P	4.81	30.05	
51	V	1	45	927.16	P	24.60	2.65	
51	V	2	---		P			
52	Cr	1	45	1145.41	P	36.10	3.15	
55	Mn	1	45	506.69	P	27.23	5.37	
56	Fe	1	72	17802.36	P	192.10	1.08	
59	Co	1	72	2126.89	P	68.61	3.23	
60	Ni	1	72	640.03	P	58.29	9.11	
60	Ni	2	---		P			
63	Cu	1	72	1917.07	P	47.60	2.48	
63	Cu	2	---		P			
66	Zn	1	72	202.23	P	17.61	8.71	
66	Zn	2	---		P			
72	Ge	1	---	74664.99	P	367.60	0.49	
72	Ge	2	---		P			
75	As	1	72	138.78	P	1.50	1.08	
78	Se	1	72	7.89	P	0.97	12.28	
88	Sr	2	115	9885.52	P	227.80	2.30	
95	Mo	2	115	1700.19	P	92.93	5.47	
107	Ag	2	115	4136.44	P	85.81	2.07	
111	Cd	2	115	920.13	P	120.00	13.04	
115	In	2	---	5211376.00	A	32770.00	0.63	
118	Sn	2	115	2547.04	P	157.20	6.17	
121	Sb	2	115	2812.68	P	87.60	3.11	
137	Ba	2	115	1153.44	P	75.73	6.57	
205	Tl	2	209	6852.35	P	55.50	0.81	
208	Pb	2	209	9278.57	P	236.00	2.54	
209	Bi	2	---	4174479.00	A	27700.00	0.66	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-231.19	25.46	15.51	-1490.7	70 - 120	ISFail
45	Sc	1	131757.81	0.98	130265.95	101.1	70 - 120	
45	Sc	2	4435802.50	1.54	4403867.50	100.7	70 - 120	
72	Ge	1	74664.99	0.49	74257.90	100.5	70 - 120	
115	In	2	5211376.00	0.63	5182029.50	100.6	70 - 120	
209	Bi	2	4174478.80	0.66	4152796.50	100.5	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	L-160804
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	Aug 4 2016 01:33 pm		
Last Cal. Update:	Aug 04 2016 01:30 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-2602.12	P	219.00	8.42	ISFail
7	Li	2	45	61506.92	P	1955.00	3.18	
9	Be	2	45	17592.82	P	297.80	1.69	
11	B	2	45	15592.41	P	308.50	1.98	
23	Na	1	45	52887.20	P	761.30	1.44	
24	Mg	1	45	21220.89	P	505.60	2.38	
27	Al	1	45	5162.03	P	28.98	0.56	
39	K	1	45	12325.44	P	401.30	3.26	
44	Ca	2	45	41123.48	P	392.50	0.95	
45	Sc	1	---	131800.30	P	636.40	0.48	
45	Sc	2	---	4391229.00	A	93180.00	2.12	
47	Ti	1	45	188.89	P	7.58	4.01	
51	V	1	45	8329.14	P	121.60	1.46	
51	V	2	---		P			
52	Cr	1	45	11052.21	P	309.70	2.80	
55	Mn	1	45	4370.18	P	51.45	1.18	
56	Fe	1	72	161409.20	P	2059.00	1.28	
59	Co	1	72	20198.08	P	195.60	0.97	
60	Ni	1	72	6010.45	P	121.60	2.02	
60	Ni	2	---		P			
63	Cu	1	72	16686.58	P	220.50	1.32	
63	Cu	2	---		P			
66	Zn	1	72	1597.02	P	31.82	1.99	
66	Zn	2	---		P			
72	Ge	1	---	74501.00	P	521.30	0.70	
72	Ge	2	---		P			
75	As	1	72	935.96	P	12.04	1.29	
78	Se	1	72	51.07	P	2.07	4.05	
88	Sr	2	115	89294.03	P	1631.00	1.83	
95	Mo	2	115	15731.95	P	669.60	4.26	
107	Ag	2	115	40150.42	P	774.20	1.93	
111	Cd	2	115	8689.77	P	256.30	2.95	
115	In	2	---	5163421.00	A	51930.00	1.01	
118	Sn	2	115	23020.80	P	614.30	2.67	
121	Sb	2	115	27551.60	P	405.10	1.47	
137	Ba	2	115	10805.37	P	51.82	0.48	
205	Tl	2	209	64063.58	P	1175.00	1.83	
208	Pb	2	209	89046.09	P	670.50	0.75	
209	Bi	2	---	4112730.00	A	7882.00	0.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-2602.12	8.42	15.51	-16777.8	70 - 120	ISFail
45	Sc	1	131800.34	0.48	130265.95	101.2	70 - 120	
45	Sc	2	4391228.50	2.12	4403867.50	99.7	70 - 120	
72	Ge	1	74501.01	0.70	74257.90	100.3	70 - 120	
115	In	2	5163421.00	1.01	5182029.50	99.6	70 - 120	
209	Bi	2	4112730.30	0.19	4152796.50	99.0	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	10X-160804
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	Aug 4 2016 01:39 pm		
Last Cal. Update:	Aug 04 2016 01:37 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-13028.89	P	71.21	0.55	ISFail
7	Li	2	45	305427.31	P	4433.00	1.45	
9	Be	2	45	89208.66	P	1124.00	1.26	
11	B	2	45	71607.44	P	1081.00	1.51	
23	Na	1	45	233998.91	P	2316.00	0.99	
24	Mg	1	45	105039.20	P	300.90	0.29	
27	Al	1	45	25435.73	P	141.90	0.56	
39	K	1	45	51906.88	P	313.30	0.60	
44	Ca	2	45	189486.09	P	4576.00	2.42	
45	Sc	1	---	133248.00	P	660.00	0.50	
45	Sc	2	---	4381613.00	A	58950.00	1.35	
47	Ti	1	45	933.38	P	43.60	4.67	
51	V	1	45	40817.11	P	421.90	1.03	
51	V	2	---		P			
52	Cr	1	45	54258.20	P	345.80	0.64	
55	Mn	1	45	20721.51	P	394.80	1.91	
56	Fe	1	72	797778.31	P	7659.00	0.96	
59	Co	1	72	100354.50	P	1189.00	1.18	
60	Ni	1	72	29203.68	P	317.90	1.09	
60	Ni	2	---		P			
63	Cu	1	72	81075.65	P	842.30	1.04	
63	Cu	2	---		P			
66	Zn	1	72	7892.87	P	38.72	0.49	
66	Zn	2	---		P			
72	Ge	1	---	74222.63	P	356.00	0.48	
72	Ge	2	---		P			
75	As	1	72	4386.23	P	44.61	1.02	
78	Se	1	72	238.48	P	3.57	1.49	
88	Sr	2	115	441313.41	P	8193.00	1.86	
95	Mo	2	115	77074.32	P	1819.00	2.36	
107	Ag	2	115	196757.59	P	4287.00	2.18	
111	Cd	2	115	41832.25	P	389.70	0.93	
115	In	2	---	5117552.00	A	61410.00	1.20	
118	Sn	2	115	111109.50	P	1811.00	1.63	
121	Sb	2	115	132975.80	P	1814.00	1.36	
137	Ba	2	115	52670.82	P	1135.00	2.15	
205	Tl	2	209	316359.91	P	3599.00	1.14	
208	Pb	2	209	434290.31	P	892.50	0.21	
209	Bi	2	---	4055024.00	A	24840.00	0.61	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13028.90	0.55	15.51	-84007.3	70 - 120	ISFail
45	Sc	1	133247.98	0.50	130265.95	102.3	70 - 120	
45	Sc	2	4381612.50	1.35	4403867.50	99.5	70 - 120	
72	Ge	1	74222.63	0.48	74257.90	100.0	70 - 120	
115	In	2	5117552.50	1.20	5182029.50	98.8	70 - 120	
209	Bi	2	4055023.80	0.61	4152796.50	97.6	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	5X-160804
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	Aug 4 2016 01:45 pm		
Last Cal. Update:	Aug 04 2016 01:43 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-26142.17	P	352.90	1.35	ISFail
7	Li	2	45	617548.31	A	1620.00	0.26	
9	Be	2	45	182860.00	P	1878.00	1.03	
11	B	2	45	143609.00	P	1492.00	1.04	
23	Na	1	45	472470.91	P	2441.00	0.52	
24	Mg	1	45	211559.80	P	3488.00	1.65	
27	Al	1	45	52271.24	P	432.90	0.83	
39	K	1	45	104096.80	P	938.20	0.90	
44	Ca	2	45	386875.69	P	7450.00	1.93	
45	Sc	1	---	138315.30	P	327.40	0.24	
45	Sc	2	---	4475631.00	A	127000.00	2.84	
47	Ti	1	45	1978.41	P	78.72	3.98	
51	V	1	45	84371.75	P	402.20	0.48	
51	V	2	---		P			
52	Cr	1	45	111673.60	P	796.70	0.71	
55	Mn	1	45	42745.55	P	123.40	0.29	
56	Fe	1	72	1678712.00	A	8789.00	0.52	
59	Co	1	72	203738.00	P	1026.00	0.50	
60	Ni	1	72	59753.76	P	553.60	0.93	
60	Ni	2	---		P			
63	Cu	1	72	166549.59	P	369.60	0.22	
63	Cu	2	---		P			
66	Zn	1	72	16147.68	P	132.70	0.82	
66	Zn	2	---		P			
72	Ge	1	---	76950.52	P	297.10	0.39	
72	Ge	2	---		M			
75	As	1	72	8969.72	P	16.79	0.19	
78	Se	1	72	485.49	P	10.93	2.25	
88	Sr	2	115	939378.63	M	33730.00	3.59	
95	Mo	2	115	158528.50	P	1311.00	0.83	
107	Ag	2	115	404682.41	P	5060.00	1.25	
111	Cd	2	115	86195.56	P	567.70	0.66	
115	In	2	---	5236277.00	A	72340.00	1.38	
118	Sn	2	115	231167.00	P	2118.00	0.92	
121	Sb	2	115	275828.09	P	2453.00	0.89	
137	Ba	2	115	108584.60	P	1061.00	0.98	
205	Tl	2	209	651708.38	P	1827.00	0.28	
208	Pb	2	209	888901.19	P	4250.00	0.48	
209	Bi	2	---	4098309.00	A	28050.00	0.68	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-26142.17	1.35	15.51	-168558.6	70 - 120	ISFail
45	Sc	1	138315.33	0.24	130265.95	106.2	70 - 120	
45	Sc	2	4475631.00	2.84	4403867.50	101.6	70 - 120	
72	Ge	1	76950.52	0.39	74257.90	103.6	70 - 120	
115	In	2	5236277.50	1.38	5182029.50	101.0	70 - 120	
209	Bi	2	4098308.80	0.68	4152796.50	98.7	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	2X-160804
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	Aug 4 2016 01:51 pm		
Last Cal. Update:	Aug 04 2016 01:49 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-64609.84	P	316.00	0.49	ISFail
7	Li	2	45	1508892.00	A	10660.00	0.71	
9	Be	2	45	445545.91	P	5641.00	1.27	
11	B	2	45	358461.19	P	8813.00	2.46	
23	Na	1	45	1197002.00	A	3913.00	0.33	
24	Mg	1	45	520128.31	P	2195.00	0.42	
27	Al	1	45	128808.20	P	272.10	0.21	
39	K	1	45	252222.09	P	1794.00	0.71	
44	Ca	2	45	1000133.00	A	19850.00	1.98	
45	Sc	1	---	135883.59	P	243.80	0.18	
45	Sc	2	---	4460105.00	A	59030.00	1.32	
47	Ti	1	45	4885.48	P	99.01	2.03	
51	V	1	45	206922.30	P	980.70	0.47	
51	V	2	---		A			
52	Cr	1	45	274363.09	P	3168.00	1.15	
55	Mn	1	45	105008.20	P	1032.00	0.98	
56	Fe	1	72	4013627.00	A	36560.00	0.91	
59	Co	1	72	498374.41	P	2022.00	0.41	
60	Ni	1	72	146731.09	P	757.80	0.52	
60	Ni	2	---		P			
63	Cu	1	72	402803.59	P	3705.00	0.92	
63	Cu	2	---		P			
66	Zn	1	72	38388.59	P	462.70	1.21	
66	Zn	2	---		P			
72	Ge	1	---	75133.67	P	590.40	0.79	
72	Ge	2	---		P			
75	As	1	72	21715.42	P	167.10	0.77	
78	Se	1	72	1154.57	P	17.29	1.50	
88	Sr	2	115	2300556.00	A	41460.00	1.80	
95	Mo	2	115	387134.41	P	5687.00	1.47	
107	Ag	2	115	989806.50	M	25630.00	2.59	
111	Cd	2	115	206806.59	P	2697.00	1.30	
115	In	2	---	5158893.00	A	29670.00	0.58	
118	Sn	2	115	559247.88	P	7772.00	1.39	
121	Sb	2	115	667243.19	P	8938.00	1.34	
137	Ba	2	115	264726.69	P	3695.00	1.40	
205	Tl	2	209	1668814.00	A	21170.00	1.27	
208	Pb	2	209	2201751.00	A	2392.00	0.11	
209	Bi	2	---	4039360.00	A	23830.00	0.59	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-64609.84	0.49	15.51	-416589.2	70 - 120	ISFail
45	Sc	1	135883.58	0.18	130265.95	104.3	70 - 120	
45	Sc	2	4460105.00	1.32	4403867.50	101.3	70 - 120	
72	Ge	1	75133.67	0.79	74257.90	101.2	70 - 120	
115	In	2	5158893.00	0.58	5182029.50	99.6	70 - 120	
209	Bi	2	4039360.30	0.59	4152796.50	97.3	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	H-160804
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	Aug 4 2016 01:57 pm		
Last Cal. Update:	Aug 04 2016 01:55 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-124559.70	P	3038.00	2.44	ISFail
7	Li	2	45	2968719.00	A	40720.00	1.37	
9	Be	2	45	849595.31	A	11570.00	1.36	
11	B	2	45	734376.63	A	4828.00	0.66	
23	Na	1	45	2340680.00	A	34000.00	1.45	
24	Mg	1	45	1070624.00	A	12050.00	1.13	
27	Al	1	45	252983.00	P	2494.00	0.99	
39	K	1	45	497692.81	P	2626.00	0.53	
44	Ca	2	45	1976011.00	A	30640.00	1.55	
45	Sc	1	---	131938.91	P	534.30	0.40	
45	Sc	2	---	4374767.00	A	61170.00	1.40	
47	Ti	1	45	9544.69	P	32.61	0.34	
51	V	1	45	407552.69	P	762.40	0.19	
51	V	2	---		A			
52	Cr	1	45	535480.38	P	2772.00	0.52	
55	Mn	1	45	206366.80	P	1836.00	0.89	
56	Fe	1	72	7730803.00	A	103400.00	1.34	
59	Co	1	72	1000102.00	A	3646.00	0.36	
60	Ni	1	72	281140.50	P	769.60	0.27	
60	Ni	2	---		P			
63	Cu	1	72	776443.13	P	4197.00	0.54	
63	Cu	2	---		A			
66	Zn	1	72	73478.02	P	541.70	0.74	
66	Zn	2	---		P			
72	Ge	1	---	72335.65	P	178.50	0.25	
72	Ge	2	---		P			
75	As	1	72	41646.64	P	154.30	0.37	
78	Se	1	72	2206.98	P	4.12	0.19	
88	Sr	2	115	4500647.00	A	54280.00	1.21	
95	Mo	2	115	777508.50	P	9720.00	1.25	
107	Ag	2	115	1955132.00	A	25800.00	1.32	
111	Cd	2	115	404153.69	P	4938.00	1.22	
115	In	2	---	5032962.00	A	83110.00	1.65	
118	Sn	2	115	1155041.00	A	10870.00	0.94	
121	Sb	2	115	1375353.00	A	15710.00	1.14	
137	Ba	2	115	525803.63	P	5249.00	1.00	
205	Tl	2	209	3256090.00	A	5719.00	0.18	
208	Pb	2	209	4385915.00	A	18080.00	0.41	
209	Bi	2	---	3875149.00	A	1472.00	0.04	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-124559.73	2.44	15.51	-803132.1	70 - 120	ISFail
45	Sc	1	131938.92	0.40	130265.95	101.3	70 - 120	
45	Sc	2	4374766.50	1.40	4403867.50	99.3	70 - 120	
72	Ge	1	72335.65	0.25	74257.90	97.4	70 - 120	
115	In	2	5032962.00	1.65	5182029.50	97.1	70 - 120	
209	Bi	2	3875148.80	0.04	4152796.50	93.3	70 - 120	

Calibration Standard QC Report

Acq. Method:	DHL_3Fe.M	Sample Name:	H2-160804
Operator:	KL	Instrument:	ICPMS3
Date Acquired:	Aug 4 2016 02:03 pm		
Last Cal. Update:	Aug 04 2016 02:00 pm		

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-474479.41	P	3841.00	0.81	ISFail
7	Li	2	45	11416600.00	A	73120.00	0.64	
9	Be	2	45	3150301.00	A	25520.00	0.81	
11	B	2	45	2830700.00	A	28750.00	1.02	
23	Na	1	45	5510748.00	A	34670.00	0.63	
24	Mg	1	45	2522532.00	A	19310.00	0.77	
27	Al	1	45	475.57	P	24.60	5.17	
39	K	1	45	1271249.00	A	1945.00	0.15	
44	Ca	2	45	4642158.00	A	66390.00	1.43	
45	Sc	1	---	130357.70	P	792.20	0.61	
45	Sc	2	---	4218875.00	A	57190.00	1.36	
47	Ti	1	45	38497.08	P	422.30	1.10	
51	V	1	45	1655766.00	A	18570.00	1.12	
51	V	2	---		A			
52	Cr	1	45	2121561.00	A	10780.00	0.51	
55	Mn	1	45	792262.81	P	4592.00	0.58	
56	Fe	1	72	9253.74	P	844.00	9.12	
59	Co	1	72	3739445.00	A	17690.00	0.47	
60	Ni	1	72	1106114.00	A	13100.00	1.18	
60	Ni	2	---		A			
63	Cu	1	72	2976315.00	A	4531.00	0.15	
63	Cu	2	---		A			
66	Zn	1	72	276714.09	P	511.90	0.18	
66	Zn	2	---		A			
72	Ge	1	---	70354.60	P	425.00	0.60	
72	Ge	2	---		P			
75	As	1	72	161349.00	P	416.20	0.26	
78	Se	1	72	8460.47	P	24.54	0.29	
88	Sr	2	115	17719320.00	A	205900.00	1.16	
95	Mo	2	115	3129205.00	A	41310.00	1.32	
107	Ag	2	115	1599.13	P	656.50	41.05	
111	Cd	2	115	1609807.00	A	17440.00	1.08	
115	In	2	---	4856111.00	A	63000.00	1.30	
118	Sn	2	115	4382360.00	A	37180.00	0.85	
121	Sb	2	115	1924.72	P	489.60	25.44	
137	Ba	2	115	2137181.00	A	26420.00	1.24	
205	Tl	2	209	12341250.00	A	48700.00	0.39	
208	Pb	2	209	16675200.00	A	69710.00	0.42	
209	Bi	2	---	3733942.00	A	28130.00	0.75	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-474479.47	0.81	15.51	#########	70 - 120	ISFail
45	Sc	1	130357.74	0.61	130265.95	100.1	70 - 120	
45	Sc	2	4218875.00	1.36	4403867.50	95.8	70 - 120	
72	Ge	1	70354.60	0.60	74257.90	94.7	70 - 120	
115	In	2	4856111.00	1.30	5182029.50	93.7	70 - 120	
209	Bi	2	3733941.50	0.75	4152796.50	89.9	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\021ICSA.D\021ICSA.D#

Date Acquired:	Aug 4 2016 02:21 pm	Sample Name:	ICSA-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.287	ppb	12.11	8.00	5.00	
9	Be	2	45	0.144	ppb	32.69	0.32	0.80	
11	B	2	45	7.730	ppb	6.09	30.00	30.00	
23	Na	1	45	110300.000	ppb	2.04	#######	#######	
24	Mg	1	45	97030.000	ppb	1.07	#######	#######	
27	Al	1	45	108100.000	ppb	1.30	#######	#######	
39	K	1	45	101600.000	ppb	1.31	#######	#######	
44	Ca	2	45	96350.000	ppb	3.58	#######	#######	
47	Ti	1	45	2134.000	ppb	1.17	10.00	10.00	
51	V	1	45	0.225	ppb	5.10	10.00	10.00	
52	Cr	1	45	1.076	ppb	4.75	8.00	5.00	
55	Mn	1	45	0.541	ppb	4.12	8.00	10.00	
56	Fe	1	72	102800.000	ppb	1.30	#######	#######	
59	Co	1	72	1.583	ppb	2.52	8.00	10.00	
60	Ni	1	72	0.564	ppb	4.27	8.00	10.00	
63	Cu	1	72	2.293	ppb	4.33	8.00	10.00	
66	Zn	1	72	1.683	ppb	8.31	10.00	5.00	
75	As	1	72	0.792	ppb	0.59	4.00	5.00	
78	Se	1	72	0.696	ppb	14.69	2.00	5.00	
88	Sr	2	115	1.273	ppb	8.80	10.00	10.00	
95	Mo	2	115	2070.000	ppb	3.21	8.00	5.00	
107	Ag	2	115	0.114	ppb	7.39	0.80	2.00	
111	Cd	2	115	0.333	ppb	50.42	1.20	1.00	
118	Sn	2	115	0.363	ppb	17.09	10.00	10.00	
121	Sb	2	115	0.173	ppb	4.03	4.00	2.50	
137	Ba	2	115	0.602	ppb	7.74	8.00	10.00	
205	Tl	2	209	0.265	ppb	7.08	4.00	1.50	
208	Pb	2	209	0.511	ppb	12.36	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-42.87	42.41	15.51	-276.4	70 -	120	ISFail
45	Sc	1	126592.57	0.55	130265.95	97.2	70 -	120	
45	Sc	2	4263160.50	2.31	4403867.50	96.8	70 -	120	
72	Ge	1	67862.73	0.01	74257.90	91.4	70 -	120	
115	In	2	5069039.00	2.22	5182029.50	97.8	70 -	120	
209	Bi	2	3672057.80	0.23	4152796.50	88.4	70 -	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\022ICSB.D\022ICSB.D#

Date Acquired:	Aug 4 2016 02:27 pm	Sample Name:	ICSAB-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.19	ppb	2.14	---	80	-	120	
9	Be	2	45	0.06	ppb	10.25	---	80	-	120	
11	B	2	45	5.42	ppb	7.44	---	80	-	120	
23	Na	1	45	103900.00	ppb	1.60	100000.00	80	-	120	
24	Mg	1	45	97770.00	ppb	1.77	100000.00	80	-	120	
27	Al	1	45	106700.00	ppb	1.33	100000.00	80	-	120	
39	K	1	45	100600.00	ppb	2.19	100000.00	80	-	120	
44	Ca	2	45	93720.00	ppb	4.54	100000.00	80	-	120	
47	Ti	1	45	2109.00	ppb	1.54	---	80	-	120	
51	V	1	45	41.33	ppb	1.61	40.00	80	-	120	
52	Cr	1	45	21.75	ppb	3.22	20.00	80	-	120	
55	Mn	1	45	20.55	ppb	1.75	20.00	80	-	120	
56	Fe	1	72	100600.00	ppb	1.52	100000.00	80	-	120	
59	Co	1	72	42.01	ppb	1.86	40.00	80	-	120	
60	Ni	1	72	38.20	ppb	2.25	40.00	80	-	120	
63	Cu	1	72	20.84	ppb	2.19	20.00	80	-	120	
66	Zn	1	72	20.28	ppb	3.35	20.00	80	-	120	
75	As	1	72	21.40	ppb	2.57	20.00	80	-	120	
78	Se	1	72	22.00	ppb	1.82	20.00	80	-	120	
88	Sr	2	115	1.09	ppb	2.50	---	80	-	120	
95	Mo	2	115	2033.00	ppb	3.58	---	80	-	120	
107	Ag	2	115	18.06	ppb	4.44	20.00	80	-	120	
111	Cd	2	115	9.44	ppb	2.96	10.00	80	-	120	
118	Sn	2	115	0.34	ppb	6.63	---	80	-	120	
121	Sb	2	115	0.06	ppb	12.76	---	80	-	120	
137	Ba	2	115	0.52	ppb	8.43	---	80	-	120	
205	Tl	2	209	0.15	ppb	6.53	---	80	-	120	
208	Pb	2	209	0.30	ppb	2.63	---	80	-	120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-37.88	68.66	15.51	-244.3	70	-	120	ISFail
45	Sc	1	121442.75	0.45	130265.95	93.2	70	-	120	
45	Sc	2	4154219.30	3.73	4403867.50	94.3	70	-	120	
72	Ge	1	65369.25	0.18	74257.90	88.0	70	-	120	
115	In	2	4911830.00	1.97	5182029.50	94.8	70	-	120	
209	Bi	2	3616175.00	0.69	4152796.50	87.1	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\025ICV.D\025ICV.D#

Date Acquired:	Aug 4 2016 02:45 pm	Sample Name:	ICV1-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	108.60	ppb	1.47	100.00	90 - 110	108.6	
9	Be	2	45	106.70	ppb	1.42	100.00	90 - 110	106.7	
11	B	2	45	100.60	ppb	0.98	100.00	90 - 110	100.6	
23	Na	1	45	2694.00	ppb	0.84	2500.00	90 - 110	107.8	
24	Mg	1	45	2670.00	ppb	0.80	2500.00	90 - 110	106.8	
27	Al	1	45	2559.00	ppb	0.40	2500.00	90 - 110	102.4	
39	K	1	45	2516.00	ppb	0.55	2500.00	90 - 110	100.6	
44	Ca	2	45	2441.00	ppb	1.94	2500.00	90 - 110	97.6	
47	Ti	1	45	98.26	ppb	1.36	100.00	90 - 110	98.3	
51	V	1	45	98.25	ppb	0.91	100.00	90 - 110	98.3	
52	Cr	1	45	103.90	ppb	0.62	100.00	90 - 110	103.9	
55	Mn	1	45	101.80	ppb	1.28	100.00	90 - 110	101.8	
56	Fe	1	72	2610.00	ppb	1.32	2500.00	90 - 110	104.4	
59	Co	1	72	101.80	ppb	0.52	100.00	90 - 110	101.8	
60	Ni	1	72	100.30	ppb	0.64	100.00	90 - 110	100.3	
63	Cu	1	72	101.50	ppb	0.89	100.00	90 - 110	101.5	
66	Zn	1	72	105.10	ppb	0.94	100.00	90 - 110	105.1	
75	As	1	72	100.00	ppb	0.48	100.00	90 - 110	100.0	
78	Se	1	72	101.30	ppb	1.88	100.00	90 - 110	101.3	
88	Sr	2	115	97.16	ppb	1.83	100.00	90 - 110	97.2	
95	Mo	2	115	97.39	ppb	2.27	100.00	90 - 110	97.4	
107	Ag	2	115	99.13	ppb	1.72	100.00	90 - 110	99.1	
111	Cd	2	115	97.62	ppb	1.06	100.00	90 - 110	97.6	
118	Sn	2	115	97.96	ppb	1.75	100.00	90 - 110	98.0	
121	Sb	2	115	97.73	ppb	0.94	100.00	90 - 110	97.7	
137	Ba	2	115	95.79	ppb	2.05	100.00	90 - 110	95.8	
205	Tl	2	209	95.08	ppb	0.12	100.00	90 - 110	95.1	
208	Pb	2	209	96.53	ppb	0.49	100.00	90 - 110	96.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12769.08	2.13	15.51	-82332.0	70 - 120	ISFail
45	Sc	1	116870.07	0.96	130265.95	89.7	70 - 120	
45	Sc	2	3836311.00	1.66	4403867.50	87.1	70 - 120	
72	Ge	1	64334.12	0.22	74257.90	86.6	70 - 120	
115	In	2	4366265.00	0.39	5182029.50	84.3	70 - 120	
209	Bi	2	3409112.30	1.01	4152796.50	82.1	70 - 120	

ICB QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\026_ICB.D\026_ICB.D#

Date Acquired:	Aug 4 2016 02:51 pm	Sample Name:	ICB1-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.18	ppb	7.82	2.00	
9	Be	2	45	0.08	ppb	18.65	0.40	
11	B	2	45	2.20	ppb	4.57	10.00	
23	Na	1	45	11.70	ppb	3.45	50.00	
24	Mg	1	45	9.32	ppb	9.11	50.00	
27	Al	1	45	8.63	ppb	4.09	50.00	
39	K	1	45	16.74	ppb	7.57	50.00	
44	Ca	2	45	12.17	ppb	5.26	50.00	
47	Ti	1	45	0.22	ppb	43.29	4.00	
51	V	1	45	0.11	ppb	7.87	4.00	
52	Cr	1	45	0.10	ppb	7.56	2.00	
55	Mn	1	45	0.25	ppb	3.10	2.00	
56	Fe	1	72	10.50	ppb	4.37	50.00	
59	Co	1	72	0.10	ppb	9.94	2.00	
60	Ni	1	72	0.14	ppb	6.80	2.00	
63	Cu	1	72	0.14	ppb	5.09	2.00	
66	Zn	1	72	0.32	ppb	10.96	4.00	
75	As	1	72	0.13	ppb	2.91	2.00	
78	Se	1	72	0.05	ppb	21.50	0.60	
88	Sr	2	115	0.08	ppb	10.06	4.00	
95	Mo	2	115	0.25	ppb	17.89	2.00	
107	Ag	2	115	0.06	ppb	33.21	0.40	
111	Cd	2	115	0.04	ppb	55.10	0.40	
118	Sn	2	115	0.10	ppb	19.86	20.00	
121	Sb	2	115	0.08	ppb	21.79	2.00	
137	Ba	2	115	0.07	ppb	8.02	2.00	
205	Tl	2	209	0.18	ppb	7.76	2.00	
208	Pb	2	209	0.11	ppb	7.98	0.40	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-21.16	61.59	15.51	-136.4	70 - 120	ISFail
45	Sc	1		117503.20	0.29	130265.95	90.2	70 - 120	
45	Sc	2		3845415.30	2.01	4403867.50	87.3	70 - 120	
72	Ge	1		65346.12	1.03	74257.90	88.0	70 - 120	
115	In	2		4371526.00	0.73	5182029.50	84.4	70 - 120	
209	Bi	2		3416477.80	1.19	4152796.50	82.3	70 - 120	

CCV QC Report C:\ICPCHEM\1\DATA\16H04m02.B\027LCVL.D\027LCVL.D#

Date Acquired:	Aug 4 2016 02:57 pm	Sample Name:	ILCVL-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.88	ppb	1.24	10.00	70 -	130	108.8	
9	Be	2	45	1.13	ppb	2.75	1.00	70 -	130	112.6	
11	B	2	45	21.26	ppb	1.72	20.00	70 -	130	106.3	
23	Na	1	45	97.34	ppb	0.64	100.00	70 -	130	97.3	
24	Mg	1	45	106.90	ppb	1.03	100.00	70 -	130	106.9	
27	Al	1	45	111.30	ppb	2.09	100.00	70 -	130	111.3	
39	K	1	45	100.40	ppb	1.76	100.00	70 -	130	100.4	
44	Ca	2	45	95.51	ppb	1.89	100.00	70 -	130	95.5	
47	Ti	1	45	5.00	ppb	2.99	5.00	70 -	130	100.0	
51	V	1	45	1.02	ppb	0.41	1.00	70 -	130	102.2	
52	Cr	1	45	5.23	ppb	1.53	5.00	70 -	130	104.6	
55	Mn	1	45	4.99	ppb	2.04	5.00	70 -	130	99.7	
56	Fe	1	72	112.20	ppb	1.67	100.00	70 -	130	112.2	
59	Co	1	72	5.12	ppb	0.62	5.00	70 -	130	102.4	
60	Ni	1	72	5.00	ppb	1.68	5.00	70 -	130	100.0	
63	Cu	1	72	5.13	ppb	1.99	5.00	70 -	130	102.6	
66	Zn	1	72	5.41	ppb	3.33	5.00	70 -	130	108.2	
75	As	1	72	5.36	ppb	0.32	5.00	70 -	130	107.2	
78	Se	1	72	5.73	ppb	5.66	5.00	70 -	130	114.7	
88	Sr	2	115	4.97	ppb	1.20	5.00	70 -	130	99.3	
95	Mo	2	115	4.91	ppb	2.88	5.00	70 -	130	98.2	
107	Ag	2	115	2.04	ppb	2.92	2.00	70 -	130	101.9	
111	Cd	2	115	1.01	ppb	4.98	1.00	70 -	130	101.0	
118	Sn	2	115	5.03	ppb	4.29	5.00	70 -	130	100.6	
121	Sb	2	115	1.98	ppb	0.78	2.00	70 -	130	98.9	
137	Ba	2	115	4.96	ppb	5.55	5.00	70 -	130	99.1	
205	Tl	2	209	1.06	ppb	2.32	1.00	70 -	130	105.8	
208	Pb	2	209	0.99	ppb	1.07	1.00	70 -	130	99.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-1462.01	10.49	15.51	-9426.7	70 -	120	ISFail
45	Sc	1		119012.47	0.48	130265.95	91.4	70 -	120	
45	Sc	2		3914407.80	1.21	4403867.50	88.9	70 -	120	
72	Ge	1		66053.25	0.49	74257.90	89.0	70 -	120	
115	In	2		4446153.50	0.55	5182029.50	85.8	70 -	120	
209	Bi	2		3456709.00	1.06	4152796.50	83.2	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\040CCV1.D\040CCV1.D#

Date Acquired:	Aug 4 2016 04:15 pm	Sample Name:	CCV1-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	212.20	ppb	0.86	200.00	90 - 110	106.1	
9	Be	2	45	205.00	ppb	0.78	200.00	90 - 110	102.5	
11	B	2	45	196.40	ppb	1.43	200.00	90 - 110	98.2	
23	Na	1	45	5497.00	ppb	0.87	5000.00	90 - 110	109.9	
24	Mg	1	45	5250.00	ppb	0.67	5000.00	90 - 110	105.0	
27	Al	1	45	5320.00	ppb	1.24	5000.00	90 - 110	106.4	
39	K	1	45	5138.00	ppb	0.60	5000.00	90 - 110	102.8	
44	Ca	2	45	5173.00	ppb	4.16	5000.00	90 - 110	103.5	
47	Ti	1	45	199.60	ppb	2.60	200.00	90 - 110	99.8	
51	V	1	45	192.00	ppb	0.74	200.00	90 - 110	96.0	
52	Cr	1	45	197.90	ppb	0.84	200.00	90 - 110	99.0	
55	Mn	1	45	207.30	ppb	1.01	200.00	90 - 110	103.7	
56	Fe	1	72	5211.00	ppb	1.16	5000.00	90 - 110	104.2	
59	Co	1	72	203.30	ppb	0.64	200.00	90 - 110	101.7	
60	Ni	1	72	198.50	ppb	0.35	200.00	90 - 110	99.3	
63	Cu	1	72	203.50	ppb	0.67	200.00	90 - 110	101.8	
66	Zn	1	72	208.80	ppb	0.44	200.00	90 - 110	104.4	
75	As	1	72	204.20	ppb	0.35	200.00	90 - 110	102.1	
78	Se	1	72	211.40	ppb	0.76	200.00	90 - 110	105.7	
88	Sr	2	115	207.20	ppb	0.96	200.00	90 - 110	103.6	
95	Mo	2	115	205.80	ppb	1.36	200.00	90 - 110	102.9	
107	Ag	2	115	205.40	ppb	1.34	200.00	90 - 110	102.7	
111	Cd	2	115	200.20	ppb	1.80	200.00	90 - 110	100.1	
118	Sn	2	115	199.80	ppb	1.58	200.00	90 - 110	99.9	
121	Sb	2	115	198.40	ppb	1.49	200.00	90 - 110	99.2	
137	Ba	2	115	197.80	ppb	1.06	200.00	90 - 110	98.9	
205	Tl	2	209	199.20	ppb	0.42	200.00	90 - 110	99.6	
208	Pb	2	209	198.80	ppb	0.41	200.00	90 - 110	99.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-42908.27	0.94	15.51	-276662.5	70 - 120	ISFail
45	Sc	1	107263.54	0.21	130265.95	82.3	70 - 120	
45	Sc	2	3560241.00	1.45	4403867.50	80.8	70 - 120	
72	Ge	1	57573.00	0.47	74257.90	77.5	70 - 120	
115	In	2	3813227.80	0.81	5182029.50	73.6	70 - 120	
209	Bi	2	2833379.00	0.22	4152796.50	68.2	70 - 120	ISFail

CCB QC Report   C:\ICPCHEM\1\DATA\16H04m02.B\041_CCB.D\041_CCB.D#

Date Acquired:	Aug 4 2016 04:21 pm	Sample Name:	CCB1-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.271	ppb	15.84	2.00	2.00	
9	Be	2	45	0.168	ppb	22.59	0.40	0.30	
11	B	2	45	3.739	ppb	9.47	10.00	10.00	
23	Na	1	45	8.533	ppb	1.72	50.00	#####	
24	Mg	1	45	9.653	ppb	17.97	50.00	#####	
27	Al	1	45	9.093	ppb	7.42	50.00	10.00	
39	K	1	45	14.840	ppb	5.73	50.00	#####	
44	Ca	2	45	14.590	ppb	5.10	50.00	#####	
47	Ti	1	45	0.302	ppb	68.88	4.00	3.00	
51	V	1	45	0.227	ppb	10.39	4.00	3.00	
52	Cr	1	45	0.224	ppb	14.45	2.00	2.00	
55	Mn	1	45	0.232	ppb	2.51	2.00	3.00	
56	Fe	1	72	10.020	ppb	9.82	50.00	30.00	
59	Co	1	72	0.245	ppb	17.95	2.00	3.00	
60	Ni	1	72	0.262	ppb	14.13	2.00	3.00	
63	Cu	1	72	0.262	ppb	10.59	2.00	2.00	
66	Zn	1	72	0.488	ppb	15.80	4.00	2.00	
75	As	1	72	0.309	ppb	1.95	2.00	2.00	
78	Se	1	72	0.303	ppb	10.42	0.60	2.00	
88	Sr	2	115	0.199	ppb	13.13	4.00	3.00	
95	Mo	2	115	0.259	ppb	12.32	2.00	2.00	
107	Ag	2	115	0.191	ppb	14.90	0.40	1.00	
111	Cd	2	115	0.199	ppb	42.25	0.40	0.30	
118	Sn	2	115	0.141	ppb	7.03	20.00	3.00	
121	Sb	2	115	0.333	ppb	15.87	2.00	0.80	
137	Ba	2	115	0.182	ppb	36.82	2.00	3.00	
205	Tl	2	209	0.338	ppb	10.96	2.00	0.50	
208	Pb	2	209	0.226	ppb	18.96	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-51.19	58.12	15.51	-330.1	70 - 120	ISFail
45	Sc	1		107371.91	0.87	130265.95	82.4	70 - 120	
45	Sc	2		3530787.80	1.82	4403867.50	80.2	70 - 120	
72	Ge	1		58358.53	0.51	74257.90	78.6	70 - 120	
115	In	2		3821599.00	0.99	5182029.50	73.7	70 - 120	
209	Bi	2		2887441.50	0.64	4152796.50	69.5	70 - 120	~~ISFail~~ ROUNDS

CCV QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\042LCVL.D\042LCVL.D#

Date Acquired:	Aug 4 2016 04:27 pm	Sample Name:	LCVL1-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.20	ppb	1.63	10.00	70 -	130	102.0	
9	Be	2	45	1.04	ppb	3.91	1.00	70 -	130	104.4	
11	B	2	45	20.93	ppb	2.17	20.00	70 -	130	104.7	
23	Na	1	45	93.01	ppb	0.35	100.00	70 -	130	93.0	
24	Mg	1	45	106.80	ppb	2.11	100.00	70 -	130	106.8	
27	Al	1	45	111.20	ppb	1.85	100.00	70 -	130	111.2	
39	K	1	45	108.50	ppb	1.03	100.00	70 -	130	108.5	
44	Ca	2	45	97.12	ppb	0.52	100.00	70 -	130	97.1	
47	Ti	1	45	5.25	ppb	18.46	5.00	70 -	130	105.0	
51	V	1	45	1.07	ppb	1.90	1.00	70 -	130	107.4	
52	Cr	1	45	5.11	ppb	1.68	5.00	70 -	130	102.2	
55	Mn	1	45	4.95	ppb	1.89	5.00	70 -	130	98.9	
56	Fe	1	72	108.80	ppb	0.64	100.00	70 -	130	108.8	
59	Co	1	72	5.01	ppb	1.48	5.00	70 -	130	100.2	
60	Ni	1	72	4.83	ppb	0.94	5.00	70 -	130	96.6	
63	Cu	1	72	5.02	ppb	1.48	5.00	70 -	130	100.5	
66	Zn	1	72	5.60	ppb	5.59	5.00	70 -	130	112.0	
75	As	1	72	5.31	ppb	0.55	5.00	70 -	130	106.2	
78	Se	1	72	6.00	ppb	19.35	5.00	70 -	130	120.0	
88	Sr	2	115	5.11	ppb	1.42	5.00	70 -	130	102.2	
95	Mo	2	115	5.19	ppb	3.02	5.00	70 -	130	103.8	
107	Ag	2	115	2.06	ppb	1.48	2.00	70 -	130	102.8	
111	Cd	2	115	1.13	ppb	5.57	1.00	70 -	130	112.7	
118	Sn	2	115	4.94	ppb	2.16	5.00	70 -	130	98.7	
121	Sb	2	115	2.17	ppb	1.40	2.00	70 -	130	108.6	
137	Ba	2	115	5.15	ppb	4.58	5.00	70 -	130	103.0	
205	Tl	2	209	1.09	ppb	1.55	1.00	70 -	130	109.1	
208	Pb	2	209	1.08	ppb	0.51	1.00	70 -	130	107.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-1159.63	10.61	15.51	-7477.1	70 -	120	ISFail
45	Sc	1		105544.57	0.53	130265.95	81.0	70 -	120	
45	Sc	2		3502934.30	1.14	4403867.50	79.5	70 -	120	
72	Ge	1		58237.72	0.46	74257.90	78.4	70 -	120	
115	In	2		3809995.30	0.43	5182029.50	73.5	70 -	120	
209	Bi	2		2881237.80	1.88	4152796.50	69.4	70 -	120	ISFail

PB QC Report C:\ICPCHEM\1\DATA\16H04m02.B\050__PB.D\050__PB.D#

Date Acquired:	Aug 4 2016 05:16 pm	Sample Name:	MB-76548
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 04 2016 02:06 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.168	ppb	6.07	2.0	8.00	
9	Be	2	45	0.135	ppb	7.47	0.4	1.20	
11	B	2	45	2.272	ppb	3.52	10.0	30.00	
23	Na	1	45	11.130	ppb	2.53	50.0	#####	
24	Mg	1	45	5.562	ppb	6.07	50.0	#####	
27	Al	1	45	7.969	ppb	16.32	50.0	#####	
39	K	1	45	11.470	ppb	3.46	50.0	#####	
44	Ca	2	45	15.880	ppb	0.60	50.0	#####	
47	Ti	1	45	0.248	ppb	24.99	4.0	10.00	
51	V	1	45	0.152	ppb	4.59	4.0	10.00	
52	Cr	1	45	0.229	ppb	7.03	2.0	8.00	
55	Mn	1	45	0.300	ppb	6.71	2.0	8.00	
56	Fe	1	72	7.769	ppb	28.36	50.0	#####	
59	Co	1	72	0.127	ppb	14.82	2.0	8.00	
60	Ni	1	72	0.135	ppb	14.69	2.0	8.00	
63	Cu	1	72	0.091	ppb	4.88	2.0	8.00	
66	Zn	1	72	0.809	ppb	3.06	4.0	10.00	
75	As	1	72	0.129	ppb	1.45	2.0	4.00	
78	Se	1	72	-0.028	ppb	14.95	0.6	2.00	
88	Sr	2	115	0.129	ppb	5.46	4.0	10.00	
95	Mo	2	115	0.165	ppb	8.89	2.0	8.00	
107	Ag	2	115	0.127	ppb	7.39	0.4	0.80	
111	Cd	2	115	0.138	ppb	36.63	0.4	1.20	
118	Sn	2	115	4.665	ppb	2.55	20.0	40.00	
121	Sb	2	115	0.171	ppb	4.60	2.0	4.00	
137	Ba	2	115	0.131	ppb	10.38	2.0	8.00	
205	Tl	2	209	0.252	ppb	5.99	2.0	4.00	
208	Pb	2	209	0.142	ppb	3.39	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-30.04	60.82	15.51	-193.7	70 - 120	ISFail
45	Sc	1		106098.91	1.11	130265.95	81.4	70 - 120	
45	Sc	2		3406576.30	0.67	4403867.50	77.4	70 - 120	
72	Ge	1		57214.52	0.88	74257.90	77.0	70 - 120	
115	In	2		3695842.00	0.30	5182029.50	71.3	70 - 120	
209	Bi	2		2779941.00	0.96	4152796.50	66.9	70 - 120	ISFail

DOD ISTD limits are 30-120%. Fail flags from here to end of folder do not apply.

LCS QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\051_LCS.D\051_LCS.D#

Date Acquired:	Aug 4 2016 05:22 pm	Sample Name:	LCS-76548
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 04 2016 02:06 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	198.10	ppb	0.34	200.00	80 -	120	99.1	
9	Be	2	45	187.70	ppb	1.13	200.00	80 -	120	93.9	
11	B	2	45	184.30	ppb	1.91	200.00	80 -	120	92.2	
23	Na	1	45	5419.00	ppb	0.16	5000.00	80 -	120	108.4	
24	Mg	1	45	5192.00	ppb	0.57	5000.00	80 -	120	103.8	
27	Al	1	45	1084.00	ppb	1.19	1000.00	80 -	120	108.4	
39	K	1	45	5200.00	ppb	0.24	5000.00	80 -	120	104.0	
44	Ca	2	45	4988.00	ppb	2.75	5000.00	80 -	120	99.8	
47	Ti	1	45	199.00	ppb	1.36	200.00	80 -	120	99.5	
51	V	1	45	191.60	ppb	0.23	200.00	80 -	120	95.8	
52	Cr	1	45	195.80	ppb	0.50	200.00	80 -	120	97.9	
55	Mn	1	45	215.10	ppb	0.63	200.00	80 -	120	107.6	
56	Fe	1	72	1032.00	ppb	0.58	1000.00	80 -	120	103.2	
59	Co	1	72	201.40	ppb	0.33	200.00	80 -	120	100.7	
60	Ni	1	72	196.20	ppb	0.53	200.00	80 -	120	98.1	
63	Cu	1	72	200.00	ppb	0.25	200.00	80 -	120	100.0	
66	Zn	1	72	202.00	ppb	0.39	200.00	80 -	120	101.0	
75	As	1	72	197.70	ppb	0.14	200.00	80 -	120	98.9	
78	Se	1	72	200.70	ppb	0.99	200.00	80 -	120	100.4	
88	Sr	2	115	208.40	ppb	1.27	200.00	80 -	120	104.2	
95	Mo	2	115	205.60	ppb	2.00	200.00	80 -	120	102.8	
107	Ag	2	115	197.60	ppb	1.52	200.00	80 -	120	98.8	
111	Cd	2	115	192.10	ppb	1.16	200.00	80 -	120	96.1	
118	Sn	2	115	204.60	ppb	1.51	200.00	80 -	120	102.3	
121	Sb	2	115	188.00	ppb	1.67	200.00	80 -	120	94.0	
137	Ba	2	115	197.40	ppb	1.53	200.00	80 -	120	98.7	
205	Tl	2	209	199.20	ppb	0.27	200.00	80 -	120	99.6	
208	Pb	2	209	198.60	ppb	0.36	200.00	80 -	120	99.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-38925.14	0.98	15.51	-250980.2	70 -	120	ISFail
45	Sc	1	105202.74	0.41	130265.95	80.8	70 -	120	
45	Sc	2	3382055.00	1.66	4403867.50	76.8	70 -	120	
72	Ge	1	55919.03	0.47	74257.90	75.3	70 -	120	
115	In	2	3602843.80	0.32	5182029.50	69.5	70 -	120	ISFail
209	Bi	2	2665478.30	0.49	4152796.50	64.2	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\052_LCS.D\052_LCS.D#

Date Acquired:	Aug 4 2016 05:28 pm	Sample Name:	LCSD-76548
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 04 2016 02:06 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	201.40	ppb	0.44	200.00	80 -	120	100.7	
9	Be	2	45	191.00	ppb	1.21	200.00	80 -	120	95.5	
11	B	2	45	189.00	ppb	0.91	200.00	80 -	120	94.5	
23	Na	1	45	5476.00	ppb	0.77	5000.00	80 -	120	109.5	
24	Mg	1	45	5284.00	ppb	0.99	5000.00	80 -	120	105.7	
27	Al	1	45	1099.00	ppb	0.27	1000.00	80 -	120	109.9	
39	K	1	45	5279.00	ppb	0.46	5000.00	80 -	120	105.6	
44	Ca	2	45	5068.00	ppb	1.58	5000.00	80 -	120	101.4	
47	Ti	1	45	200.90	ppb	1.91	200.00	80 -	120	100.5	
51	V	1	45	193.30	ppb	0.83	200.00	80 -	120	96.7	
52	Cr	1	45	197.50	ppb	0.76	200.00	80 -	120	98.8	
55	Mn	1	45	217.70	ppb	1.00	200.00	80 -	120	108.9	
56	Fe	1	72	1038.00	ppb	0.11	1000.00	80 -	120	103.8	
59	Co	1	72	202.00	ppb	0.44	200.00	80 -	120	101.0	
60	Ni	1	72	197.50	ppb	0.53	200.00	80 -	120	98.8	
63	Cu	1	72	201.20	ppb	0.49	200.00	80 -	120	100.6	
66	Zn	1	72	202.20	ppb	0.88	200.00	80 -	120	101.1	
75	As	1	72	199.00	ppb	0.22	200.00	80 -	120	99.5	
78	Se	1	72	201.20	ppb	1.20	200.00	80 -	120	100.6	
88	Sr	2	115	209.90	ppb	1.30	200.00	80 -	120	105.0	
95	Mo	2	115	207.50	ppb	1.69	200.00	80 -	120	103.8	
107	Ag	2	115	200.20	ppb	1.39	200.00	80 -	120	100.1	
111	Cd	2	115	193.80	ppb	0.56	200.00	80 -	120	96.9	
118	Sn	2	115	206.30	ppb	1.00	200.00	80 -	120	103.2	
121	Sb	2	115	189.10	ppb	0.99	200.00	80 -	120	94.6	
137	Ba	2	115	201.10	ppb	0.95	200.00	80 -	120	100.6	
205	Tl	2	209	200.30	ppb	0.44	200.00	80 -	120	100.2	
208	Pb	2	209	199.60	ppb	0.34	200.00	80 -	120	99.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-39374.96	1.59	15.51	-253880.5	70 -	120	ISFail
45	Sc	1	104821.66	0.46	130265.95	80.5	70 -	120	
45	Sc	2	3336174.30	0.69	4403867.50	75.8	70 -	120	
72	Ge	1	55930.17	0.28	74257.90	75.3	70 -	120	
115	In	2	3547336.30	0.70	5182029.50	68.5	70 -	120	ISFail
209	Bi	2	2646502.50	1.35	4152796.50	63.7	70 -	120	ISFail

Sample QC Report C:\ICPCHEM\1\DATA\16H04m02.B\054AREF.D\054AREF.D#

Date Acquired:	Aug 4 2016 05:40 pm	Sample Name:	1607219-03A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	107.900	ppb	#REF!	1.09	2000.00	>RL
9	Be	2	45	3.668	ppb	#REF!	2.96	2000.00	>RL
11	B	2	45	129.600	ppb	#REF!	1.77	2000.00	>RL
23	Na	1	45	7996.000	ppb	#REF!	0.73	25000.00	>RL
24	Mg	1	45	25670.000	ppb	#REF!	0.26	25000.00	OUTCAL
27	Al	1	45	78270.000	ppb	#REF!	0.36	10000.00	OUTCAL
39	K	1	45	16690.000	ppb	#REF!	0.68	25000.00	>RL
44	Ca	2	45	72620.000	ppb	#REF!	2.68	25000.00	OUTCAL
47	Ti	1	45	173.900	ppb	#REF!	2.93	2000.00	>RL
51	V	1	45	114.100	ppb	#REF!	0.66	2000.00	>RL
52	Cr	1	45	76.230	ppb	#REF!	0.26	2000.00	>RL
55	Mn	1	45	3085.000	ppb	#REF!	1.61	2000.00	OUTCAL
56	Fe	1	72	152500.000	ppb	#REF!	1.10	10000.00	OUTCAL
59	Co	1	72	43.470	ppb	#REF!	0.40	2000.00	>RL
60	Ni	1	72	58.530	ppb	#REF!	0.64	2000.00	>RL
63	Cu	1	72	12.870	ppb	#REF!	0.96	2000.00	>RL
66	Zn	1	72	311.200	ppb	#REF!	0.56	2000.00	>RL
75	As	1	72	28.190	ppb	#REF!	1.14	2000.00	>RL
78	Se	1	72	27.550	ppb	#REF!	3.38	2000.00	>RL
88	Sr	2	115	265.100	ppb	#REF!	1.56	2000.00	>RL
95	Mo	2	115	1.464	ppb	#REF!	6.74	2000.00	ND
107	Ag	2	115	0.186	ppb	#REF!	9.50	500.00	ND
111	Cd	2	115	1.424	ppb	#REF!	13.87	2000.00	>RL
118	Sn	2	115	6.821	ppb	#REF!	1.27	2000.00	J
121	Sb	2	115	0.353	ppb	#REF!	11.49	500.00	ND
137	Ba	2	115	86.870	ppb	#REF!	1.63	2000.00	>RL
205	Tl	2	209	1.572	ppb	#REF!	2.62	2000.00	ND
208	Pb	2	209	41.870	ppb	#REF!	0.50	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9824.67	4.34	15.51	-63347.2	70 - 120	ISFail
45	Sc	1	105536.59	0.76	130265.95	81.0	70 - 120	
45	Sc	2	3388426.00	1.61	4403867.50	76.9	70 - 120	
72	Ge	1	55803.98	0.38	74257.90	75.1	70 - 120	
115	In	2	3836413.80	1.08	5182029.50	74.0	70 - 120	
209	Bi	2	2743521.30	0.85	4152796.50	66.1	70 - 120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\055DT1.D\055DT1.D#

Date Acquired:	Aug 4 2016 05:46 pm	Sample Name:	1607219-03A SD
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 04 2016 02:06 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	22.08	ppb	0.98	-1956.64	90 - 110	-5.6	
9	Be	2	45	0.79	ppb	8.21	3.67	90 - 110	108.2	GOOD
11	B	2	45	28.94	ppb	1.78	129.60	90 - 110	111.7	
23	Na	1	45	1584.00	ppb	1.18	7996.00	90 - 110	99.0	GOOD
24	Mg	1	45	5182.00	ppb	1.39	25670.00	90 - 110	100.9	GOOD
27	Al	1	45	15470.00	ppb	1.79	78270.00	90 - 110	98.8	GOOD
39	K	1	45	3390.00	ppb	1.39	16690.00	90 - 110	101.6	GOOD
44	Ca	2	45	15260.00	ppb	2.24	72620.00	90 - 110	105.1	GOOD
47	Ti	1	45	35.16	ppb	2.20	173.90	90 - 110	101.1	GOOD
51	V	1	45	22.99	ppb	0.46	114.10	90 - 110	100.7	GOOD
52	Cr	1	45	15.41	ppb	1.49	76.23	90 - 110	101.1	GOOD
55	Mn	1	45	604.00	ppb	0.64	3085.00	90 - 110	97.9	GOOD
56	Fe	1	72	30890.00	ppb	1.53	152500.00	90 - 110	101.3	GOOD
59	Co	1	72	9.07	ppb	1.92	43.47	90 - 110	104.3	GOOD
60	Ni	1	72	12.33	ppb	2.09	58.53	90 - 110	105.3	GOOD
63	Cu	1	72	2.74	ppb	1.66	12.87	90 - 110	106.3	GOOD
66	Zn	1	72	71.80	ppb	0.74	311.20	90 - 110	115.4	
75	As	1	72	6.03	ppb	2.45	28.19	90 - 110	107.0	GOOD
78	Se	1	72	5.65	ppb	7.60	27.55	90 - 110	102.6	GOOD
88	Sr	2	115	50.12	ppb	2.27	265.10	90 - 110	94.5	GOOD
95	Mo	2	115	0.24	ppb	7.03	1.46	90 - 110	83.2	
107	Ag	2	115	0.05	ppb	14.36	0.19	90 - 110	133.5	
111	Cd	2	115	0.22	ppb	23.55	1.42	90 - 110	79.0	
118	Sn	2	115	1.26	ppb	1.93	6.82	90 - 110	92.6	GOOD
121	Sb	2	115	0.07	ppb	23.70	0.35	90 - 110	105.6	GOOD
137	Ba	2	115	17.25	ppb	1.79	86.87	90 - 110	99.3	GOOD
205	Tl	2	209	0.32	ppb	5.92	1.57	90 - 110	102.9	GOOD
208	Pb	2	209	8.20	ppb	0.30	41.87	90 - 110	97.9	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1956.64	5.57	15.51	-12616.0	70 -	120	ISFail
45	Sc	1		105135.15	1.07	130265.95	80.7	70 -	120	
45	Sc	2		3420703.00	1.73	4403867.50	77.7	70 -	120	
72	Ge	1		56542.73	0.28	74257.90	76.1	70 -	120	
115	In	2		3776070.00	0.61	5182029.50	72.9	70 -	120	
209	Bi	2		2823883.50	0.83	4152796.50	68.0	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\056SMPL.D\056SMPL.D#

Date Acquired:	Aug 4 2016 05:52 pm	Sample Name:	**1607219-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	82.470	ppb	#REF!	1.74	2000.00	>RL
9	Be	2	45	3.052	ppb	#REF!	1.63	2000.00	>RL
11	B	2	45	94.610	ppb	#REF!	1.51	2000.00	>RL
23	Na	1	45	3262.000	ppb	#REF!	0.43	25000.00	>RL
24	Mg	1	45	18800.000	ppb	#REF!	0.37	25000.00	>RL
27	Al	1	45	87490.000	ppb	#REF!	0.73	10000.00	OUTCAL
39	K	1	45	16630.000	ppb	#REF!	0.33	25000.00	>RL
44	Ca	2	45	222000.000	ppb	#REF!	2.59	25000.00	OUTCAL
47	Ti	1	45	248.300	ppb	#REF!	1.75	2000.00	>RL
51	V	1	45	128.500	ppb	#REF!	0.65	2000.00	>RL
52	Cr	1	45	71.150	ppb	#REF!	0.74	2000.00	>RL
55	Mn	1	45	635.600	ppb	#REF!	0.96	2000.00	>RL
56	Fe	1	72	96570.000	ppb	#REF!	1.04	10000.00	OUTCAL
59	Co	1	72	29.000	ppb	#REF!	0.33	2000.00	>RL
60	Ni	1	72	48.260	ppb	#REF!	0.69	2000.00	>RL
63	Cu	1	72	27.730	ppb	#REF!	1.15	2000.00	>RL
66	Zn	1	72	279.600	ppb	#REF!	0.74	2000.00	>RL
75	As	1	72	42.370	ppb	#REF!	1.40	2000.00	>RL
78	Se	1	72	20.710	ppb	#REF!	3.13	2000.00	>RL
88	Sr	2	115	720.600	ppb	#REF!	1.96	2000.00	>RL
95	Mo	2	115	3.707	ppb	#REF!	1.28	2000.00	J
107	Ag	2	115	0.259	ppb	#REF!	4.63	500.00	ND
111	Cd	2	115	1.309	ppb	#REF!	9.02	2000.00	>RL
118	Sn	2	115	6.878	ppb	#REF!	4.16	2000.00	ND
121	Sb	2	115	10.670	ppb	#REF!	1.55	500.00	>RL
137	Ba	2	115	710.800	ppb	#REF!	1.91	2000.00	>RL
205	Tl	2	209	0.748	ppb	#REF!	7.27	2000.00	ND
208	Pb	2	209	493.100	ppb	#REF!	0.75	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7442.94	4.41	15.51	-47990.3	70 - 120	ISFail
45	Sc	1	103354.95	0.56	130265.95	79.3	70 - 120	
45	Sc	2	3437055.00	1.24	4403867.50	78.0	70 - 120	
72	Ge	1	54094.23	0.71	74257.90	72.8	70 - 120	
115	In	2	4004139.00	1.36	5182029.50	77.3	70 - 120	
209	Bi	2	2806007.80	0.33	4152796.50	67.6	70 - 120	ISFail

Sample QC Report C:\ICPCHEM\1\DATA\16H04m02.B\057SMPL.D\057SMPL.D#

Date Acquired:	Aug 4 2016 05:58 pm	Sample Name:	1607219-02A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	143.800	ppb	#REF!	2.05	2000.00	>RL
9	Be	2	45	5.789	ppb	#REF!	0.46	2000.00	>RL
11	B	2	45	142.500	ppb	#REF!	1.61	2000.00	>RL
23	Na	1	45	7951.000	ppb	#REF!	0.30	25000.00	>RL
24	Mg	1	45	20780.000	ppb	#REF!	0.81	25000.00	>RL
27	Al	1	45	87670.000	ppb	#REF!	1.02	10000.00	OUTCAL
39	K	1	45	21400.000	ppb	#REF!	0.49	25000.00	>RL
44	Ca	2	45	138900.000	ppb	#REF!	2.70	25000.00	OUTCAL
47	Ti	1	45	178.500	ppb	#REF!	2.80	2000.00	>RL
51	V	1	45	127.100	ppb	#REF!	0.13	2000.00	>RL
52	Cr	1	45	82.420	ppb	#REF!	0.39	2000.00	>RL
55	Mn	1	45	1573.000	ppb	#REF!	0.63	2000.00	>RL
56	Fe	1	72	136800.000	ppb	#REF!	0.78	10000.00	OUTCAL
59	Co	1	72	137.000	ppb	#REF!	1.01	2000.00	>RL
60	Ni	1	72	118.300	ppb	#REF!	0.49	2000.00	>RL
63	Cu	1	72	15.070	ppb	#REF!	0.62	2000.00	>RL
66	Zn	1	72	466.100	ppb	#REF!	0.40	2000.00	>RL
75	As	1	72	44.060	ppb	#REF!	1.13	2000.00	>RL
78	Se	1	72	63.050	ppb	#REF!	2.49	2000.00	>RL
88	Sr	2	115	598.100	ppb	#REF!	1.29	2000.00	>RL
95	Mo	2	115	3.271	ppb	#REF!	2.95	2000.00	J
107	Ag	2	115	0.131	ppb	#REF!	2.53	500.00	ND
111	Cd	2	115	1.573	ppb	#REF!	10.96	2000.00	>RL
118	Sn	2	115	6.556	ppb	#REF!	1.67	2000.00	ND
121	Sb	2	115	1.257	ppb	#REF!	0.44	500.00	ND
137	Ba	2	115	191.900	ppb	#REF!	1.79	2000.00	>RL
205	Tl	2	209	0.785	ppb	#REF!	2.42	2000.00	ND
208	Pb	2	209	90.870	ppb	#REF!	0.98	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12550.44	4.05	15.51	-80922.3	70 - 120	ISFail
45	Sc	1	102390.77	0.18	130265.95	78.6	70 - 120	
45	Sc	2	3416265.80	1.77	4403867.50	77.6	70 - 120	
72	Ge	1	54669.65	0.43	74257.90	73.6	70 - 120	
115	In	2	3909144.00	0.92	5182029.50	75.4	70 - 120	
209	Bi	2	2775360.50	1.43	4152796.50	66.8	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\058SMPL.D\058SMPL.D#

Date Acquired:	Aug 4 2016 06:04 pm	Sample Name:	1607219-04A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	145.600	ppb	#REF!	3.32	2000.00	>RL
9	Be	2	45	3.787	ppb	#REF!	4.42	2000.00	>RL
11	B	2	45	135.500	ppb	#REF!	2.91	2000.00	>RL
23	Na	1	45	10950.000	ppb	#REF!	0.23	25000.00	>RL
24	Mg	1	45	30030.000	ppb	#REF!	0.75	25000.00	OUTCAL
27	Al	1	45	83060.000	ppb	#REF!	0.57	10000.00	OUTCAL
39	K	1	45	17260.000	ppb	#REF!	0.25	25000.00	>RL
44	Ca	2	45	60140.000	ppb	#REF!	2.58	25000.00	OUTCAL
47	Ti	1	45	183.600	ppb	#REF!	4.61	2000.00	>RL
51	V	1	45	124.400	ppb	#REF!	0.83	2000.00	>RL
52	Cr	1	45	84.430	ppb	#REF!	0.93	2000.00	>RL
55	Mn	1	45	2873.000	ppb	#REF!	1.18	2000.00	OUTCAL
56	Fe	1	72	147200.000	ppb	#REF!	0.10	10000.00	OUTCAL
59	Co	1	72	38.320	ppb	#REF!	0.06	2000.00	>RL
60	Ni	1	72	66.910	ppb	#REF!	0.53	2000.00	>RL
63	Cu	1	72	13.580	ppb	#REF!	0.83	2000.00	>RL
66	Zn	1	72	359.300	ppb	#REF!	0.69	2000.00	>RL
75	As	1	72	29.310	ppb	#REF!	0.95	2000.00	>RL
78	Se	1	72	32.110	ppb	#REF!	1.34	2000.00	>RL
88	Sr	2	115	184.100	ppb	#REF!	1.49	2000.00	>RL
95	Mo	2	115	0.760	ppb	#REF!	5.04	2000.00	ND
107	Ag	2	115	0.130	ppb	#REF!	4.28	500.00	ND
111	Cd	2	115	1.273	ppb	#REF!	10.82	2000.00	>RL
118	Sn	2	115	7.151	ppb	#REF!	2.39	2000.00	ND
121	Sb	2	115	0.166	ppb	#REF!	6.23	500.00	ND
137	Ba	2	115	64.290	ppb	#REF!	0.84	2000.00	>RL
205	Tl	2	209	0.953	ppb	#REF!	5.32	2000.00	ND
208	Pb	2	209	39.910	ppb	#REF!	0.40	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12144.97	7.88	RHigh	15.51	-78307.9	70 - 120	ISFail
45	Sc	1	100260.57	0.35		130265.95	77.0	70 - 120	
45	Sc	2	3225742.00	1.13		4403867.50	73.2	70 - 120	
72	Ge	1	52458.34	0.68		74257.90	70.6	70 - 120	
115	In	2	3567015.80	0.87		5182029.50	68.8	70 - 120	ISFail
209	Bi	2	2594835.30	0.49		4152796.50	62.5	70 - 120	ISFail

Sample QC Report C:\ICPCHEM\1\DATA\16H04m02.B\059SMPL.D\059SMPL.D#

Date Acquired:	Aug 4 2016 06:10 pm	Sample Name:	1607219-05A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	78.910	ppb	#REF!	0.94	2000.00	>RL
9	Be	2	45	2.848	ppb	#REF!	1.49	2000.00	>RL
11	B	2	45	86.990	ppb	#REF!	2.06	2000.00	>RL
23	Na	1	45	2056.000	ppb	#REF!	0.86	25000.00	>RL
24	Mg	1	45	16920.000	ppb	#REF!	0.44	25000.00	>RL
27	Al	1	45	82890.000	ppb	#REF!	0.40	10000.00	OUTCAL
39	K	1	45	14960.000	ppb	#REF!	0.81	25000.00	>RL
44	Ca	2	45	272300.000	ppb	#REF!	2.47	25000.00	OUTCAL
47	Ti	1	45	311.100	ppb	#REF!	3.05	2000.00	>RL
51	V	1	45	121.900	ppb	#REF!	0.34	2000.00	>RL
52	Cr	1	45	66.730	ppb	#REF!	1.14	2000.00	>RL
55	Mn	1	45	742.800	ppb	#REF!	1.09	2000.00	>RL
56	Fe	1	72	78850.000	ppb	#REF!	0.63	10000.00	OUTCAL
59	Co	1	72	33.970	ppb	#REF!	0.47	2000.00	>RL
60	Ni	1	72	47.540	ppb	#REF!	1.38	2000.00	>RL
63	Cu	1	72	24.880	ppb	#REF!	0.72	2000.00	>RL
66	Zn	1	72	247.100	ppb	#REF!	0.23	2000.00	>RL
75	As	1	72	32.910	ppb	#REF!	0.78	2000.00	>RL
78	Se	1	72	19.580	ppb	#REF!	4.52	2000.00	>RL
88	Sr	2	115	778.900	ppb	#REF!	2.74	2000.00	>RL
95	Mo	2	115	4.118	ppb	#REF!	5.74	2000.00	J
107	Ag	2	115	0.272	ppb	#REF!	3.26	500.00	ND
111	Cd	2	115	1.258	ppb	#REF!	7.81	2000.00	>RL
118	Sn	2	115	6.540	ppb	#REF!	2.71	2000.00	ND
121	Sb	2	115	6.260	ppb	#REF!	1.60	500.00	>RL
137	Ba	2	115	660.000	ppb	#REF!	1.55	2000.00	>RL
205	Tl	2	209	0.665	ppb	#REF!	1.13	2000.00	ND
208	Pb	2	209	430.100	ppb	#REF!	0.53	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6427.01	0.44	15.51	-41439.8	70 - 120	ISFail
45	Sc	1	97344.98	0.12	130265.95	74.7	70 - 120	
45	Sc	2	3311483.80	1.70	4403867.50	75.2	70 - 120	
72	Ge	1	51006.17	0.79	74257.90	68.7	70 - 120	ISFail
115	In	2	3797902.80	0.71	5182029.50	73.3	70 - 120	
209	Bi	2	2687712.80	0.44	4152796.50	64.7	70 - 120	ISFail

Sample QC Report C:\ICPCHEM\1\DATA\16H04m02.B\061SMPL.D\061SMPL.D#

Date Acquired:	Aug 4 2016 06:22 pm	Sample Name:	1607219-06A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	158.300	ppb	#REF!	1.55	2000.00	>RL
9	Be	2	45	5.704	ppb	#REF!	3.40	2000.00	>RL
11	B	2	45	148.000	ppb	#REF!	2.83	2000.00	>RL
23	Na	1	45	7748.000	ppb	#REF!	0.42	25000.00	>RL
24	Mg	1	45	25260.000	ppb	#REF!	0.94	25000.00	OUTCAL
27	Al	1	45	95120.000	ppb	#REF!	1.33	10000.00	OUTCAL
39	K	1	45	23410.000	ppb	#REF!	0.54	25000.00	>RL
44	Ca	2	45	135200.000	ppb	#REF!	2.81	25000.00	OUTCAL
47	Ti	1	45	166.300	ppb	#REF!	0.18	2000.00	>RL
51	V	1	45	129.400	ppb	#REF!	0.19	2000.00	>RL
52	Cr	1	45	86.010	ppb	#REF!	0.98	2000.00	>RL
55	Mn	1	45	1433.000	ppb	#REF!	0.27	2000.00	>RL
56	Fe	1	72	132500.000	ppb	#REF!	0.53	10000.00	OUTCAL
59	Co	1	72	77.690	ppb	#REF!	0.58	2000.00	>RL
60	Ni	1	72	107.200	ppb	#REF!	0.85	2000.00	>RL
63	Cu	1	72	15.460	ppb	#REF!	0.87	2000.00	>RL
66	Zn	1	72	470.400	ppb	#REF!	0.40	2000.00	>RL
75	As	1	72	41.280	ppb	#REF!	0.88	2000.00	>RL
78	Se	1	72	58.350	ppb	#REF!	1.57	2000.00	>RL
88	Sr	2	115	666.300	ppb	#REF!	1.91	2000.00	>RL
95	Mo	2	115	2.355	ppb	#REF!	4.95	2000.00	J
107	Ag	2	115	0.149	ppb	#REF!	14.29	500.00	ND
111	Cd	2	115	1.756	ppb	#REF!	3.42	2000.00	>RL
118	Sn	2	115	6.809	ppb	#REF!	1.17	2000.00	ND
121	Sb	2	115	1.953	ppb	#REF!	4.28	500.00	ND
137	Ba	2	115	172.900	ppb	#REF!	1.71	2000.00	>RL
205	Tl	2	209	0.951	ppb	#REF!	1.00	2000.00	ND
208	Pb	2	209	140.000	ppb	#REF!	0.57	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12773.19	4.73	15.51	-82358.5	70 - 120	ISFail
45	Sc	1	98782.51	0.95	130265.95	75.8	70 - 120	
45	Sc	2	3317532.80	1.89	4403867.50	75.3	70 - 120	
72	Ge	1	52649.34	0.64	74257.90	70.9	70 - 120	
115	In	2	3742927.80	1.20	5182029.50	72.2	70 - 120	
209	Bi	2	2656395.80	0.33	4152796.50	64.0	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\062SMPL.D\062SMPL.D#

Date Acquired:	Aug 4 2016 06:28 pm	Sample Name:	1607219-07A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	123.800	ppb	#REF!	1.49	2000.00	>RL
9	Be	2	45	3.505	ppb	#REF!	2.42	2000.00	>RL
11	B	2	45	122.000	ppb	#REF!	3.50	2000.00	>RL
23	Na	1	45	8138.000	ppb	#REF!	0.48	25000.00	>RL
24	Mg	1	45	27910.000	ppb	#REF!	0.72	25000.00	OUTCAL
27	Al	1	45	82310.000	ppb	#REF!	0.78	10000.00	OUTCAL
39	K	1	45	17170.000	ppb	#REF!	0.59	25000.00	>RL
44	Ca	2	45	53070.000	ppb	#REF!	2.57	25000.00	OUTCAL
47	Ti	1	45	167.800	ppb	#REF!	1.91	2000.00	>RL
51	V	1	45	120.000	ppb	#REF!	0.29	2000.00	>RL
52	Cr	1	45	83.130	ppb	#REF!	0.50	2000.00	>RL
55	Mn	1	45	1328.000	ppb	#REF!	0.37	2000.00	>RL
56	Fe	1	72	115500.000	ppb	#REF!	0.42	10000.00	OUTCAL
59	Co	1	72	32.510	ppb	#REF!	0.29	2000.00	>RL
60	Ni	1	72	48.200	ppb	#REF!	0.36	2000.00	>RL
63	Cu	1	72	13.470	ppb	#REF!	0.29	2000.00	>RL
66	Zn	1	72	274.800	ppb	#REF!	1.33	2000.00	>RL
75	As	1	72	26.300	ppb	#REF!	0.40	2000.00	>RL
78	Se	1	72	19.920	ppb	#REF!	1.35	2000.00	>RL
88	Sr	2	115	207.100	ppb	#REF!	2.60	2000.00	>RL
95	Mo	2	115	0.726	ppb	#REF!	6.65	2000.00	ND
107	Ag	2	115	0.114	ppb	#REF!	9.97	500.00	ND
111	Cd	2	115	1.182	ppb	#REF!	13.41	2000.00	J
118	Sn	2	115	6.768	ppb	#REF!	4.22	2000.00	ND
121	Sb	2	115	0.172	ppb	#REF!	2.43	500.00	ND
137	Ba	2	115	68.030	ppb	#REF!	1.39	2000.00	>RL
205	Tl	2	209	0.792	ppb	#REF!	3.61	2000.00	ND
208	Pb	2	209	35.940	ppb	#REF!	1.33	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9690.11	5.95	RHigh	15.51	-62479.6	70 - 120	ISFail
45	Sc	1	94573.69	0.27		130265.95	72.6	70 - 120	
45	Sc	2	3117617.80	2.21		4403867.50	70.8	70 - 120	
72	Ge	1	50042.45	0.48		74257.90	67.4	70 - 120	ISFail
115	In	2	3363341.50	1.00		5182029.50	64.9	70 - 120	ISFail
209	Bi	2	2458685.30	0.28		4152796.50	59.2	70 - 120	ISFail

Sample QC Report **C:\ICPCHEM\1\DATA\16H04m02.B\063SMPL.D\063SMPL.D#**

Date Acquired:	Aug 4 2016 06:34 pm	Sample Name:	**1607219-08A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	131.300	ppb	#REF!	1.15	2000.00	>RL
9	Be	2	45	3.271	ppb	#REF!	1.28	2000.00	>RL
11	B	2	45	116.500	ppb	#REF!	2.72	2000.00	>RL
23	Na	1	45	8340.000	ppb	#REF!	0.79	25000.00	>RL
24	Mg	1	45	23770.000	ppb	#REF!	0.29	25000.00	>RL
27	Al	1	45	74010.000	ppb	#REF!	0.35	10000.00	OUTCAL
39	K	1	45	14940.000	ppb	#REF!	0.19	25000.00	>RL
44	Ca	2	45	64110.000	ppb	#REF!	3.49	25000.00	OUTCAL
47	Ti	1	45	174.300	ppb	#REF!	1.64	2000.00	>RL
51	V	1	45	110.300	ppb	#REF!	0.75	2000.00	>RL
52	Cr	1	45	72.930	ppb	#REF!	0.72	2000.00	>RL
55	Mn	1	45	3400.000	ppb	#REF!	0.20	2000.00	OUTCAL
56	Fe	1	72	122200.000	ppb	#REF!	0.85	10000.00	OUTCAL
59	Co	1	72	47.040	ppb	#REF!	0.35	2000.00	>RL
60	Ni	1	72	84.150	ppb	#REF!	0.21	2000.00	>RL
63	Cu	1	72	12.060	ppb	#REF!	0.93	2000.00	>RL
66	Zn	1	72	344.200	ppb	#REF!	0.25	2000.00	>RL
75	As	1	72	24.270	ppb	#REF!	0.58	2000.00	>RL
78	Se	1	72	27.890	ppb	#REF!	2.70	2000.00	>RL
88	Sr	2	115	446.800	ppb	#REF!	2.40	2000.00	>RL
95	Mo	2	115	0.836	ppb	#REF!	3.16	2000.00	ND
107	Ag	2	115	0.124	ppb	#REF!	22.29	500.00	ND
111	Cd	2	115	1.242	ppb	#REF!	12.90	2000.00	>RL
118	Sn	2	115	7.330	ppb	#REF!	1.31	2000.00	ND
121	Sb	2	115	0.184	ppb	#REF!	3.82	500.00	ND
137	Ba	2	115	70.420	ppb	#REF!	2.36	2000.00	>RL
205	Tl	2	209	1.158	ppb	#REF!	0.70	2000.00	ND
208	Pb	2	209	34.920	ppb	#REF!	1.29	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10305.08	2.37	15.51	-66444.7	70 - 120	ISFail
45	Sc	1	91971.49	0.61	130265.95	70.6	70 - 120	
45	Sc	2	3058104.80	2.31	4403867.50	69.4	70 - 120	ISFail
72	Ge	1	48986.02	0.30	74257.90	66.0	70 - 120	ISFail
115	In	2	3317107.80	0.89	5182029.50	64.0	70 - 120	ISFail
209	Bi	2	2465677.00	0.85	4152796.50	59.4	70 - 120	ISFail

Sample QC Report **C:\ICPCHEM\1\DATA\16H04m02.B\064SMPL.D\064SMPL.D#**

Date Acquired:	Aug 4 2016 06:40 pm	Sample Name:	**1607219-09A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	81.500	ppb	#REF!	1.65	2000.00	>RL
9	Be	2	45	2.915	ppb	#REF!	2.53	2000.00	>RL
11	B	2	45	100.300	ppb	#REF!	3.82	2000.00	>RL
23	Na	1	45	3312.000	ppb	#REF!	0.73	25000.00	>RL
24	Mg	1	45	18730.000	ppb	#REF!	0.40	25000.00	>RL
27	Al	1	45	87560.000	ppb	#REF!	0.77	10000.00	OUTCAL
39	K	1	45	16130.000	ppb	#REF!	0.22	25000.00	>RL
44	Ca	2	45	271300.000	ppb	#REF!	2.96	25000.00	OUTCAL
47	Ti	1	45	320.100	ppb	#REF!	1.36	2000.00	>RL
51	V	1	45	133.900	ppb	#REF!	0.48	2000.00	>RL
52	Cr	1	45	70.820	ppb	#REF!	0.61	2000.00	>RL
55	Mn	1	45	707.300	ppb	#REF!	0.43	2000.00	>RL
56	Fe	1	72	90710.000	ppb	#REF!	0.34	10000.00	OUTCAL
59	Co	1	72	27.350	ppb	#REF!	0.28	2000.00	>RL
60	Ni	1	72	46.620	ppb	#REF!	0.92	2000.00	>RL
63	Cu	1	72	26.600	ppb	#REF!	0.52	2000.00	>RL
66	Zn	1	72	229.800	ppb	#REF!	1.01	2000.00	>RL
75	As	1	72	35.090	ppb	#REF!	0.33	2000.00	>RL
78	Se	1	72	19.180	ppb	#REF!	5.00	2000.00	>RL
88	Sr	2	115	986.900	ppb	#REF!	2.11	2000.00	>RL
95	Mo	2	115	3.456	ppb	#REF!	3.48	2000.00	J
107	Ag	2	115	0.212	ppb	#REF!	4.73	500.00	ND
111	Cd	2	115	1.134	ppb	#REF!	13.19	2000.00	J
118	Sn	2	115	6.624	ppb	#REF!	1.13	2000.00	ND
121	Sb	2	115	4.359	ppb	#REF!	2.80	500.00	>RL
137	Ba	2	115	589.900	ppb	#REF!	2.11	2000.00	>RL
205	Tl	2	209	0.648	ppb	#REF!	1.28	2000.00	ND
208	Pb	2	209	196.600	ppb	#REF!	0.93	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5731.56	7.87	RHigh	15.51	-36955.8	70 - 120	ISFail
45	Sc	1	87838.49	0.26		130265.95	67.4	70 - 120	ISFail
45	Sc	2	3087072.30	1.55		4403867.50	70.1	70 - 120	
72	Ge	1	46564.84	0.28		74257.90	62.7	70 - 120	ISFail
115	In	2	3497277.00	0.81		5182029.50	67.5	70 - 120	ISFail
209	Bi	2	2489716.30	0.86		4152796.50	60.0	70 - 120	ISFail

Sample QC Report **C:\ICPCHEM\1\DATA\16H04m02.B\065SMPL.D\065SMPL.D#**

Date Acquired:	Aug 4 2016 06:46 pm	Sample Name:	1607219-10A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	142.300	ppb	#REF!	1.55	2000.00	>RL
9	Be	2	45	5.657	ppb	#REF!	3.19	2000.00	>RL
11	B	2	45	170.500	ppb	#REF!	3.03	2000.00	>RL
23	Na	1	45	11880.000	ppb	#REF!	0.20	25000.00	>RL
24	Mg	1	45	23650.000	ppb	#REF!	1.60	25000.00	>RL
27	Al	1	45	99060.000	ppb	#REF!	1.07	10000.00	OUTCAL
39	K	1	45	23340.000	ppb	#REF!	3.07	25000.00	>RL
44	Ca	2	45	146800.000	ppb	#REF!	2.85	25000.00	OUTCAL
47	Ti	1	45	195.600	ppb	#REF!	0.26	2000.00	>RL
51	V	1	45	136.200	ppb	#REF!	0.30	2000.00	>RL
52	Cr	1	45	84.370	ppb	#REF!	0.74	2000.00	>RL
55	Mn	1	45	1214.000	ppb	#REF!	0.27	2000.00	>RL
56	Fe	1	72	134100.000	ppb	#REF!	0.68	10000.00	OUTCAL
59	Co	1	72	71.020	ppb	#REF!	0.42	2000.00	>RL
60	Ni	1	72	130.800	ppb	#REF!	0.95	2000.00	>RL
63	Cu	1	72	14.870	ppb	#REF!	0.62	2000.00	>RL
66	Zn	1	72	558.300	ppb	#REF!	0.16	2000.00	>RL
75	As	1	72	43.320	ppb	#REF!	0.05	2000.00	>RL
78	Se	1	72	54.800	ppb	#REF!	3.00	2000.00	>RL
88	Sr	2	115	1312.000	ppb	#REF!	2.44	2000.00	>RL
95	Mo	2	115	2.869	ppb	#REF!	0.99	2000.00	J
107	Ag	2	115	0.151	ppb	#REF!	7.12	500.00	ND
111	Cd	2	115	1.451	ppb	#REF!	5.09	2000.00	>RL
118	Sn	2	115	6.579	ppb	#REF!	2.35	2000.00	ND
121	Sb	2	115	3.344	ppb	#REF!	2.83	500.00	J
137	Ba	2	115	259.600	ppb	#REF!	2.05	2000.00	>RL
205	Tl	2	209	0.726	ppb	#REF!	2.90	2000.00	ND
208	Pb	2	209	163.300	ppb	#REF!	0.82	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10309.81	6.43	RHigh	15.51	-66475.2	70 - 120	ISFail
45	Sc	1	87262.17	0.27		130265.95	67.0	70 - 120	ISFail
45	Sc	2	3030019.30	2.13		4403867.50	68.8	70 - 120	ISFail
72	Ge	1	47670.20	0.45		74257.90	64.2	70 - 120	ISFail
115	In	2	3402650.00	1.19		5182029.50	65.7	70 - 120	ISFail
209	Bi	2	2460695.50	0.88		4152796.50	59.3	70 - 120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\066_PDS.D\066_PDS.D#

Date Acquired:	Aug 4 2016 06:52 pm	Sample Name:	1607219-03A PDS
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 04 2016 02:06 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	310.00	ppb	1.43	-25412.98	200	75-125	######	Fail
9	Be	2	45	181.10	ppb	1.18	3.67	200	75-125	88.7	
11	B	2	45	295.30	ppb	2.00	129.60	200	75-125	82.8	
23	Na	1	45	13750.00	ppb	1.17	7996.00	5000	75-125	115.1	
24	Mg	1	45	31600.00	ppb	0.38	25670.00	5000	75-125	118.6	
27	Al	1	45	82720.00	ppb	0.25	78270.00	5000	75-125	89.0	
39	K	1	45	21450.00	ppb	0.51	16690.00	5000	75-125	95.2	
44	Ca	2	45	77210.00	ppb	1.00	72620.00	5000	75-125	91.8	
47	Ti	1	45	372.20	ppb	2.93	173.90	200	75-125	99.2	
51	V	1	45	313.30	ppb	0.26	114.10	200	75-125	99.6	
52	Cr	1	45	280.10	ppb	0.25	76.23	200	75-125	101.9	
55	Mn	1	45	3188.00	ppb	0.10	3085.00	200	75-125	51.5	Fail
56	Fe	1	72	160000.00	ppb	0.15	152500.00	5000	75-125	150.0	Fail
59	Co	1	72	243.90	ppb	0.09	43.47	200	75-125	100.2	
60	Ni	1	72	251.00	ppb	0.88	58.53	200	75-125	96.2	
63	Cu	1	72	202.50	ppb	0.79	12.87	200	75-125	94.8	
66	Zn	1	72	504.90	ppb	0.67	311.20	200	75-125	96.8	
75	As	1	72	222.60	ppb	0.40	28.19	200	75-125	97.2	
78	Se	1	72	218.70	ppb	1.03	27.55	200	75-125	95.6	
88	Sr	2	115	468.20	ppb	0.97	265.10	200	75-125	101.5	
95	Mo	2	115	201.00	ppb	1.15	1.46	200	75-125	99.8	
107	Ag	2	115	171.20	ppb	1.51	0.19	200	75-125	85.5	
111	Cd	2	115	186.30	ppb	1.04	1.42	200	75-125	92.4	
118	Sn	2	115	213.60	ppb	1.46	6.82	200	75-125	103.4	
121	Sb	2	115	197.80	ppb	0.28	0.35	200	75-125	98.7	
137	Ba	2	115	289.00	ppb	0.79	86.87	200	75-125	101.1	
205	Tl	2	209	202.20	ppb	0.94	1.57	200	75-125	100.3	
208	Pb	2	209	241.00	ppb	0.67	41.87	200	75-125	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-25412.98	4.21	15.51	-163857.0	70 -	120	ISFail
45	Sc	1	84217.83	0.33	130265.95	64.7	70 -	120	ISFail
45	Sc	2	2892939.30	1.35	4403867.50	65.7	70 -	120	ISFail
72	Ge	1	44974.55	0.29	74257.90	60.6	70 -	120	ISFail
115	In	2	3153602.30	0.82	5182029.50	60.9	70 -	120	ISFail
209	Bi	2	2314852.00	0.94	4152796.50	55.7	70 -	120	ISFail

MS/MSD QC Report C:\ICPCHEM\1\DATA\16H04m02.B\067_MS.D\067_MS.D#

Date Acquired:	Aug 4 2016 06:58 pm	Sample Name:	**1607219-03A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 04 2016 02:06 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	317.60	ppb	0.65	########	200	80-120	######	Fail
9	Be	2	45	175.60	ppb	1.45	3.67	200	80-120	86.0	
11	B	2	45	280.10	ppb	2.51	129.60	200	80-120	75.2	Fail
23	Na	1	45	14570.00	ppb	0.73	7996.00	5000	80-120	131.5	Fail
24	Mg	1	45	35660.00	ppb	0.49	25670.00	5000	80-120	199.8	Fail
27	Al	1	45	92550.00	ppb	0.99	78270.00	1000	80-120	1428.0	Fail
39	K	1	45	23500.00	ppb	0.14	16690.00	5000	80-120	136.2	Fail
44	Ca	2	45	79630.00	ppb	2.18	72620.00	5000	80-120	140.2	Fail
47	Ti	1	45	292.90	ppb	0.92	173.90	200	80-120	59.5	Fail
51	V	1	45	316.20	ppb	0.07	114.10	200	80-120	101.1	
52	Cr	1	45	282.20	ppb	0.21	76.23	200	80-120	103.0	
55	Mn	1	45	3433.00	ppb	2.05	3085.00	200	80-120	174.0	Fail
56	Fe	1	72	168400.00	ppb	0.82	########	1000	80-120	1590.0	Fail
59	Co	1	72	256.60	ppb	0.38	43.47	200	80-120	106.6	
60	Ni	1	72	259.60	ppb	0.91	58.53	200	80-120	100.5	
63	Cu	1	72	201.60	ppb	0.83	12.87	200	80-120	94.4	
66	Zn	1	72	548.70	ppb	0.15	311.20	200	80-120	118.7	
75	As	1	72	219.30	ppb	0.29	28.19	200	80-120	95.6	
78	Se	1	72	213.50	ppb	1.78	27.55	200	80-120	93.0	
88	Sr	2	115	465.90	ppb	1.44	265.10	200	80-120	100.4	
95	Mo	2	115	182.90	ppb	1.63	1.46	200	80-120	90.7	
107	Ag	2	115	183.30	ppb	1.67	0.19	200	80-120	91.6	
111	Cd	2	115	183.70	ppb	1.24	1.42	200	80-120	91.1	
118	Sn	2	115	200.10	ppb	0.80	6.82	200	80-120	96.6	
121	Sb	2	115	59.48	ppb	1.39	0.35	200	80-120	29.6	Fail
137	Ba	2	115	286.80	ppb	1.24	86.87	200	80-120	100.0	
205	Tl	2	209	201.80	ppb	0.39	1.57	200	80-120	100.1	
208	Pb	2	209	244.30	ppb	0.39	41.87	200	80-120	101.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-39929.75	1.57	15.51	########	70 -	120	ISFail
45	Sc	1	85308.31	0.37	130265.95	65.5	70 -	120	ISFail
45	Sc	2	2896198.30	1.31	4403867.50	65.8	70 -	120	ISFail
72	Ge	1	45003.73	0.07	74257.90	60.6	70 -	120	ISFail
115	In	2	3143625.50	1.08	5182029.50	60.7	70 -	120	ISFail
209	Bi	2	2287570.30	1.14	4152796.50	55.1	70 -	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\068_MS.D\068_MS.D#

Date Acquired:	Aug 4 2016 07:04 pm	Sample Name:	1607219-03A MSD
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 04 2016 02:06 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	1.19	########	200	80-120	######	Fail
9	Be	2	45	174.80	ppb	1.26	3.67	200	80-120	85.6	
11	B	2	45	273.80	ppb	2.24	129.60	200	80-120	72.1	Fail
23	Na	1	45	14360.00	ppb	0.98	7996.00	5000	80-120	127.3	Fail
24	Mg	1	45	33010.00	ppb	0.12	25670.00	5000	80-120	146.8	Fail
27	Al	1	45	89580.00	ppb	0.54	78270.00	1000	80-120	1131.0	Fail
39	K	1	45	22980.00	ppb	0.43	16690.00	5000	80-120	125.8	Fail
44	Ca	2	45	84790.00	ppb	2.25	72620.00	5000	80-120	243.4	Fail
47	Ti	1	45	299.00	ppb	3.15	173.90	200	80-120	62.6	Fail
51	V	1	45	315.50	ppb	0.20	114.10	200	80-120	100.7	
52	Cr	1	45	280.20	ppb	0.51	76.23	200	80-120	102.0	
55	Mn	1	45	2897.00	ppb	0.22	3085.00	200	80-120	-94.0	Fail
56	Fe	1	72	157900.00	ppb	0.76	########	1000	80-120	540.0	Fail
59	Co	1	72	249.30	ppb	0.22	43.47	200	80-120	102.9	
60	Ni	1	72	259.20	ppb	0.21	58.53	200	80-120	100.3	
63	Cu	1	72	202.60	ppb	0.69	12.87	200	80-120	94.9	
66	Zn	1	72	534.10	ppb	0.56	311.20	200	80-120	111.4	
75	As	1	72	219.80	ppb	0.16	28.19	200	80-120	95.8	
78	Se	1	72	214.80	ppb	0.61	27.55	200	80-120	93.6	
88	Sr	2	115	472.00	ppb	1.31	265.10	200	80-120	103.4	
95	Mo	2	115	185.30	ppb	1.77	1.46	200	80-120	91.9	
107	Ag	2	115	177.10	ppb	2.44	0.19	200	80-120	88.5	
111	Cd	2	115	184.90	ppb	2.61	1.42	200	80-120	91.7	
118	Sn	2	115	201.20	ppb	2.12	6.82	200	80-120	97.2	
121	Sb	2	115	56.45	ppb	2.38	0.35	200	80-120	28.0	Fail
137	Ba	2	115	323.80	ppb	1.54	86.87	200	80-120	118.5	
205	Tl	2	209	200.90	ppb	1.15	1.57	200	80-120	99.7	
208	Pb	2	209	242.90	ppb	0.81	41.87	200	80-120	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-39360.59	2.98	15.51	########	70 -	120	ISFail
45	Sc	1	82703.51	0.24	130265.95	63.5	70 -	120	ISFail
45	Sc	2	2815041.80	1.57	4403867.50	63.9	70 -	120	ISFail
72	Ge	1	43933.44	0.44	74257.90	59.2	70 -	120	ISFail
115	In	2	3048984.00	1.43	5182029.50	58.8	70 -	120	ISFail
209	Bi	2	2233006.00	0.21	4152796.50	53.8	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\070CCV1.D\070CCV1.D#

Date Acquired:	Aug 4 2016 07:16 pm	Sample Name:	CCV2-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	206.90	ppb	1.23	200.00	90 - 110	103.5	
9	Be	2	45	195.70	ppb	0.98	200.00	90 - 110	97.9	
11	B	2	45	183.50	ppb	0.55	200.00	90 - 110	91.8	
23	Na	1	45	5599.00	ppb	1.26	5000.00	90 - 110	112.0	Fail
24	Mg	1	45	5412.00	ppb	0.91	5000.00	90 - 110	108.2	
27	Al	1	45	5375.00	ppb	0.96	5000.00	90 - 110	107.5	
39	K	1	45	5246.00	ppb	0.57	5000.00	90 - 110	104.9	
44	Ca	2	45	5185.00	ppb	1.14	5000.00	90 - 110	103.7	
47	Ti	1	45	202.00	ppb	4.30	200.00	90 - 110	101.0	
51	V	1	45	199.80	ppb	0.81	200.00	90 - 110	99.9	
52	Cr	1	45	204.40	ppb	0.84	200.00	90 - 110	102.2	
55	Mn	1	45	216.70	ppb	1.78	200.00	90 - 110	108.4	
56	Fe	1	72	5380.00	ppb	0.72	5000.00	90 - 110	107.6	
59	Co	1	72	205.00	ppb	0.84	200.00	90 - 110	102.5	
60	Ni	1	72	201.40	ppb	0.87	200.00	90 - 110	100.7	
63	Cu	1	72	206.70	ppb	0.23	200.00	90 - 110	103.4	
66	Zn	1	72	214.20	ppb	0.21	200.00	90 - 110	107.1	
75	As	1	72	210.50	ppb	0.69	200.00	90 - 110	105.3	
78	Se	1	72	216.80	ppb	1.29	200.00	90 - 110	108.4	
88	Sr	2	115	208.80	ppb	0.60	200.00	90 - 110	104.4	
95	Mo	2	115	208.40	ppb	1.21	200.00	90 - 110	104.2	
107	Ag	2	115	207.20	ppb	1.08	200.00	90 - 110	103.6	
111	Cd	2	115	200.20	ppb	1.16	200.00	90 - 110	100.1	
118	Sn	2	115	200.90	ppb	0.81	200.00	90 - 110	100.5	
121	Sb	2	115	198.20	ppb	0.64	200.00	90 - 110	99.1	
137	Ba	2	115	203.00	ppb	0.85	200.00	90 - 110	101.5	
205	Tl	2	209	199.90	ppb	0.64	200.00	90 - 110	100.0	
208	Pb	2	209	200.00	ppb	0.40	200.00	90 - 110	100.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-32524.06	2.62	15.51	-209707.5	70 - 120	ISFail
45	Sc	1	79392.09	0.79	130265.95	60.9	70 - 120	ISFail
45	Sc	2	2722584.30	0.07	4403867.50	61.8	70 - 120	ISFail
72	Ge	1	43528.94	0.34	74257.90	58.6	70 - 120	ISFail
115	In	2	2837843.30	0.45	5182029.50	54.8	70 - 120	ISFail
209	Bi	2	2141758.80	1.02	4152796.50	51.6	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\072LCVL.D\072LCVL.D#

Date Acquired:	Aug 4 2016 07:28 pm	Sample Name:	LCVL2-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	10.00	ppb	1.80	10.00	70	-	130	100.0	
9	Be	2	45	1.08	ppb	2.51	1.00	70	-	130	108.1	
11	B	2	45	19.64	ppb	1.05	20.00	70	-	130	98.2	
23	Na	1	45	94.85	ppb	0.40	100.00	70	-	130	94.9	
24	Mg	1	45	108.30	ppb	2.10	100.00	70	-	130	108.3	
27	Al	1	45	116.10	ppb	1.50	100.00	70	-	130	116.1	
39	K	1	45	109.30	ppb	1.75	100.00	70	-	130	109.3	
44	Ca	2	45	106.10	ppb	2.44	100.00	70	-	130	106.1	
47	Ti	1	45	5.57	ppb	18.00	5.00	70	-	130	111.3	
51	V	1	45	1.01	ppb	2.35	1.00	70	-	130	100.8	
52	Cr	1	45	5.00	ppb	2.83	5.00	70	-	130	100.0	
55	Mn	1	45	5.21	ppb	1.76	5.00	70	-	130	104.2	
56	Fe	1	72	119.80	ppb	1.74	100.00	70	-	130	119.8	
59	Co	1	72	5.08	ppb	2.15	5.00	70	-	130	101.6	
60	Ni	1	72	4.95	ppb	3.78	5.00	70	-	130	99.0	
63	Cu	1	72	4.96	ppb	1.48	5.00	70	-	130	99.1	
66	Zn	1	72	5.47	ppb	7.66	5.00	70	-	130	109.3	
75	As	1	72	5.33	ppb	2.08	5.00	70	-	130	106.6	
78	Se	1	72	5.65	ppb	9.19	5.00	70	-	130	113.0	
88	Sr	2	115	5.09	ppb	1.89	5.00	70	-	130	101.8	
95	Mo	2	115	4.97	ppb	1.13	5.00	70	-	130	99.3	
107	Ag	2	115	2.09	ppb	3.52	2.00	70	-	130	104.6	
111	Cd	2	115	0.97	ppb	10.34	1.00	70	-	130	96.9	
118	Sn	2	115	5.00	ppb	1.13	5.00	70	-	130	99.9	
121	Sb	2	115	1.97	ppb	1.45	2.00	70	-	130	98.3	
137	Ba	2	115	5.09	ppb	1.62	5.00	70	-	130	101.8	
205	Tl	2	209	1.07	ppb	3.91	1.00	70	-	130	107.3	
208	Pb	2	209	1.05	ppb	0.98	1.00	70	-	130	104.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-911.90	2.53	15.51	-5879.7	70	-	120	ISFail
45	Sc	1	81962.29	0.83	130265.95	62.9	70	-	120	ISFail
45	Sc	2	2770719.80	1.47	4403867.50	62.9	70	-	120	ISFail
72	Ge	1	45752.09	1.19	74257.90	61.6	70	-	120	ISFail
115	In	2	2908533.80	1.04	5182029.50	56.1	70	-	120	ISFail
209	Bi	2	2233570.50	1.17	4152796.50	53.8	70	-	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\073_CCB.D\073_CCB.D#

Date Acquired:	Aug 4 2016 07:34 pm	Sample Name:	CCB2-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.	RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.143 ppb	7.74	2.00	2.00	
9	Be	2	45	0.035 ppb	46.76	0.40	0.30	
11	B	2	45	1.286 ppb	1.67	10.00	10.00	
23	Na	1	45	-6.650 ppb	1.59	50.00	#####	
24	Mg	1	45	0.802 ppb	18.54	50.00	#####	
27	Al	1	45	3.131 ppb	15.66	50.00	10.00	
39	K	1	45	6.786 ppb	3.92	50.00	#####	
44	Ca	2	45	0.490 ppb	5.09	50.00	#####	
47	Ti	1	45	0.056 ppb	43.30	4.00	3.00	
51	V	1	45	0.016 ppb	35.75	4.00	3.00	
52	Cr	1	45	-0.001 ppb	18.65	2.00	2.00	
55	Mn	1	45	-0.135 ppb	16.96	2.00	3.00	
56	Fe	1	72	6.675 ppb	7.09	50.00	30.00	
59	Co	1	72	0.037 ppb	29.62	2.00	3.00	
60	Ni	1	72	-0.011 ppb	4.41	2.00	3.00	
63	Cu	1	72	-0.066 ppb	2.02	2.00	2.00	
66	Zn	1	72	-0.055 ppb	9.85	4.00	2.00	
75	As	1	72	0.020 ppb	6.08	2.00	2.00	
78	Se	1	72	-0.061 ppb	20.90	0.60	2.00	
88	Sr	2	115	0.021 ppb	14.75	4.00	3.00	
95	Mo	2	115	-0.015 ppb	12.74	2.00	2.00	
107	Ag	2	115	0.040 ppb	39.48	0.40	1.00	
111	Cd	2	115	0.010 ppb	40.28	0.40	0.30	
118	Sn	2	115	-0.083 ppb	7.29	20.00	3.00	
121	Sb	2	115	0.036 ppb	29.92	2.00	0.80	
137	Ba	2	115	0.021 ppb	22.05	2.00	3.00	
205	Tl	2	209	0.060 ppb	9.97	2.00	0.50	
208	Pb	2	209	0.044 ppb	2.88	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-15.60	151.09	15.51	-100.6	70 - 120	ISFail
45	Sc	1		80962.35	0.89	130265.95	62.2	70 - 120	ISFail
45	Sc	2		2768788.00	0.32	4403867.50	62.9	70 - 120	ISFail
72	Ge	1		45441.16	0.62	74257.90	61.2	70 - 120	ISFail
115	In	2		2894910.30	0.93	5182029.50	55.9	70 - 120	ISFail
209	Bi	2		2209774.50	0.56	4152796.50	53.2	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\074SMPL.D\074SMPL.D#

Date Acquired:	Aug 4 2016 07:40 pm	Sample Name:	1607219-11A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	126.000	ppb	#REF!	1.51	2000.00	>RL
9	Be	2	45	3.522	ppb	#REF!	1.99	2000.00	>RL
11	B	2	45	125.300	ppb	#REF!	1.47	2000.00	>RL
23	Na	1	45	9037.000	ppb	#REF!	0.77	25000.00	>RL
24	Mg	1	45	24460.000	ppb	#REF!	1.67	25000.00	>RL
27	Al	1	45	86850.000	ppb	#REF!	1.54	10000.00	OUTCAL
39	K	1	45	17690.000	ppb	#REF!	0.99	25000.00	>RL
44	Ca	2	45	44990.000	ppb	#REF!	2.70	25000.00	OUTCAL
47	Ti	1	45	194.300	ppb	#REF!	2.69	2000.00	>RL
51	V	1	45	127.400	ppb	#REF!	1.19	2000.00	>RL
52	Cr	1	45	86.600	ppb	#REF!	0.44	2000.00	>RL
55	Mn	1	45	2075.000	ppb	#REF!	1.34	2000.00	OUTCAL
56	Fe	1	72	139200.000	ppb	#REF!	0.89	10000.00	OUTCAL
59	Co	1	72	47.010	ppb	#REF!	0.97	2000.00	>RL
60	Ni	1	72	63.660	ppb	#REF!	0.77	2000.00	>RL
63	Cu	1	72	14.640	ppb	#REF!	1.49	2000.00	>RL
66	Zn	1	72	313.900	ppb	#REF!	0.34	2000.00	>RL
75	As	1	72	28.420	ppb	#REF!	0.89	2000.00	>RL
78	Se	1	72	26.030	ppb	#REF!	1.67	2000.00	>RL
88	Sr	2	115	340.200	ppb	#REF!	2.24	2000.00	>RL
95	Mo	2	115	0.980	ppb	#REF!	9.29	2000.00	ND
107	Ag	2	115	0.136	ppb	#REF!	15.41	500.00	ND
111	Cd	2	115	1.205	ppb	#REF!	11.17	2000.00	>RL
118	Sn	2	115	6.762	ppb	#REF!	0.77	2000.00	ND
121	Sb	2	115	0.236	ppb	#REF!	4.11	500.00	ND
137	Ba	2	115	108.600	ppb	#REF!	1.67	2000.00	>RL
205	Tl	2	209	1.046	ppb	#REF!	4.24	2000.00	ND
208	Pb	2	209	42.050	ppb	#REF!	0.79	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8829.10	3.90	15.51	-56928.0	70 - 120	ISFail
45	Sc	1	80584.62	0.77	130265.95	61.9	70 - 120	ISFail
45	Sc	2	2709150.30	1.56	4403867.50	61.5	70 - 120	ISFail
72	Ge	1	43608.98	0.87	74257.90	58.7	70 - 120	ISFail
115	In	2	2852702.80	1.54	5182029.50	55.0	70 - 120	ISFail
209	Bi	2	2110795.00	1.07	4152796.50	50.8	70 - 120	ISFail

Sample QC Report **C:\ICPCHEM\1\DATA\16H04m02.B\075SMPL.D\075SMPL.D#**

Date Acquired:	Aug 4 2016 07:46 pm	Sample Name:	1607219-12A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	124.600	ppb	#REF!	1.34	2000.00	>RL
9	Be	2	45	3.233	ppb	#REF!	5.31	2000.00	>RL
11	B	2	45	114.400	ppb	#REF!	1.77	2000.00	>RL
23	Na	1	45	9061.000	ppb	#REF!	1.04	25000.00	>RL
24	Mg	1	45	18310.000	ppb	#REF!	1.71	25000.00	>RL
27	Al	1	45	80580.000	ppb	#REF!	0.39	10000.00	OUTCAL
39	K	1	45	16860.000	ppb	#REF!	0.66	25000.00	>RL
44	Ca	2	45	53380.000	ppb	#REF!	2.61	25000.00	OUTCAL
47	Ti	1	45	194.200	ppb	#REF!	3.29	2000.00	>RL
51	V	1	45	120.400	ppb	#REF!	0.58	2000.00	>RL
52	Cr	1	45	81.240	ppb	#REF!	0.54	2000.00	>RL
55	Mn	1	45	611.500	ppb	#REF!	0.75	2000.00	>RL
56	Fe	1	72	112500.000	ppb	#REF!	0.50	10000.00	OUTCAL
59	Co	1	72	35.040	ppb	#REF!	1.13	2000.00	>RL
60	Ni	1	72	51.120	ppb	#REF!	0.37	2000.00	>RL
63	Cu	1	72	12.700	ppb	#REF!	1.29	2000.00	>RL
66	Zn	1	72	293.600	ppb	#REF!	0.50	2000.00	>RL
75	As	1	72	26.680	ppb	#REF!	0.46	2000.00	>RL
78	Se	1	72	21.620	ppb	#REF!	4.44	2000.00	>RL
88	Sr	2	115	167.900	ppb	#REF!	1.27	2000.00	>RL
95	Mo	2	115	0.588	ppb	#REF!	9.91	2000.00	ND
107	Ag	2	115	0.113	ppb	#REF!	24.04	500.00	ND
111	Cd	2	115	0.941	ppb	#REF!	9.39	2000.00	J
118	Sn	2	115	6.566	ppb	#REF!	3.70	2000.00	ND
121	Sb	2	115	0.166	ppb	#REF!	6.19	500.00	ND
137	Ba	2	115	125.200	ppb	#REF!	0.78	2000.00	>RL
205	Tl	2	209	0.526	ppb	#REF!	3.62	2000.00	ND
208	Pb	2	209	35.100	ppb	#REF!	0.65	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8718.92	5.40	RHigh	15.51	-56217.6	70 - 120	ISFail
45	Sc	1	80094.40	1.30		130265.95	61.5	70 - 120	ISFail
45	Sc	2	2731147.80	0.51		4403867.50	62.0	70 - 120	ISFail
72	Ge	1	43377.00	0.93		74257.90	58.4	70 - 120	ISFail
115	In	2	2855103.00	0.15		5182029.50	55.1	70 - 120	ISFail
209	Bi	2	2128202.50	1.70		4152796.50	51.2	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\076SMPL.D\076SMPL.D#

Date Acquired:	Aug 4 2016 07:52 pm	Sample Name:	1607219-14A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	87.070	ppb	#REF!	1.55	2000.00	>RL
9	Be	2	45	2.574	ppb	#REF!	4.39	2000.00	>RL
11	B	2	45	84.430	ppb	#REF!	2.59	2000.00	>RL
23	Na	1	45	1895.000	ppb	#REF!	0.53	25000.00	>RL
24	Mg	1	45	16780.000	ppb	#REF!	1.40	25000.00	>RL
27	Al	1	45	83060.000	ppb	#REF!	0.97	10000.00	OUTCAL
39	K	1	45	15380.000	ppb	#REF!	0.96	25000.00	>RL
44	Ca	2	45	247900.000	ppb	#REF!	2.88	25000.00	OUTCAL
47	Ti	1	45	226.100	ppb	#REF!	0.20	2000.00	>RL
51	V	1	45	124.700	ppb	#REF!	1.28	2000.00	>RL
52	Cr	1	45	70.390	ppb	#REF!	0.27	2000.00	>RL
55	Mn	1	45	622.100	ppb	#REF!	0.55	2000.00	>RL
56	Fe	1	72	82730.000	ppb	#REF!	1.27	10000.00	OUTCAL
59	Co	1	72	30.620	ppb	#REF!	0.35	2000.00	>RL
60	Ni	1	72	41.400	ppb	#REF!	0.67	2000.00	>RL
63	Cu	1	72	19.190	ppb	#REF!	1.48	2000.00	>RL
66	Zn	1	72	188.700	ppb	#REF!	0.34	2000.00	>RL
75	As	1	72	26.920	ppb	#REF!	1.07	2000.00	>RL
78	Se	1	72	18.010	ppb	#REF!	3.35	2000.00	>RL
88	Sr	2	115	688.600	ppb	#REF!	2.09	2000.00	>RL
95	Mo	2	115	2.172	ppb	#REF!	7.15	2000.00	J
107	Ag	2	115	0.156	ppb	#REF!	6.54	500.00	ND
111	Cd	2	115	1.021	ppb	#REF!	5.38	2000.00	J
118	Sn	2	115	6.394	ppb	#REF!	2.68	2000.00	ND
121	Sb	2	115	2.245	ppb	#REF!	1.63	500.00	J
137	Ba	2	115	705.300	ppb	#REF!	1.13	2000.00	>RL
205	Tl	2	209	0.558	ppb	#REF!	2.85	2000.00	ND
208	Pb	2	209	82.830	ppb	#REF!	0.49	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6040.07	4.02	15.51	-38945.0	70 - 120	ISFail
45	Sc	1	82477.88	0.78	130265.95	63.3	70 - 120	ISFail
45	Sc	2	2828158.00	1.19	4403867.50	64.2	70 - 120	ISFail
72	Ge	1	44327.28	0.40	74257.90	59.7	70 - 120	ISFail
115	In	2	3100081.00	0.64	5182029.50	59.8	70 - 120	ISFail
209	Bi	2	2256474.00	1.06	4152796.50	54.3	70 - 120	ISFail

Sample QC Report   C:\ICPCHEM\1\DATA\16H04m02.B\077SMPL.D\077SMPL.D#

Date Acquired:	Aug 4 2016 07:58 pm	Sample Name:	1607219-15A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	93.980	ppb	#REF!	1.56	2000.00	>RL
9	Be	2	45	2.271	ppb	#REF!	3.74	2000.00	>RL
11	B	2	45	81.020	ppb	#REF!	3.53	2000.00	>RL
23	Na	1	45	3108.000	ppb	#REF!	0.77	25000.00	>RL
24	Mg	1	45	13260.000	ppb	#REF!	0.42	25000.00	>RL
27	Al	1	45	64540.000	ppb	#REF!	0.82	10000.00	OUTCAL
39	K	1	45	11930.000	ppb	#REF!	0.57	25000.00	>RL
44	Ca	2	45	267100.000	ppb	#REF!	2.95	25000.00	OUTCAL
47	Ti	1	45	162.100	ppb	#REF!	2.38	2000.00	>RL
51	V	1	45	103.100	ppb	#REF!	0.79	2000.00	>RL
52	Cr	1	45	62.640	ppb	#REF!	0.67	2000.00	>RL
55	Mn	1	45	287.400	ppb	#REF!	0.23	2000.00	>RL
56	Fe	1	72	91260.000	ppb	#REF!	0.72	10000.00	OUTCAL
59	Co	1	72	25.520	ppb	#REF!	0.71	2000.00	>RL
60	Ni	1	72	35.780	ppb	#REF!	1.65	2000.00	>RL
63	Cu	1	72	13.530	ppb	#REF!	1.56	2000.00	>RL
66	Zn	1	72	211.200	ppb	#REF!	1.02	2000.00	>RL
75	As	1	72	26.100	ppb	#REF!	0.47	2000.00	>RL
78	Se	1	72	13.720	ppb	#REF!	10.07	2000.00	>RL
88	Sr	2	115	816.300	ppb	#REF!	2.19	2000.00	>RL
95	Mo	2	115	2.312	ppb	#REF!	2.70	2000.00	J
107	Ag	2	115	0.088	ppb	#REF!	13.02	500.00	ND
111	Cd	2	115	0.709	ppb	#REF!	15.53	2000.00	J
118	Sn	2	115	6.085	ppb	#REF!	1.07	2000.00	ND
121	Sb	2	115	0.202	ppb	#REF!	6.00	500.00	ND
137	Ba	2	115	134.900	ppb	#REF!	1.82	2000.00	>RL
205	Tl	2	209	0.392	ppb	#REF!	3.17	2000.00	ND
208	Pb	2	209	28.790	ppb	#REF!	0.98	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5997.42	3.70	15.51	-38670.0	70 - 120	ISFail
45	Sc	1	83755.24	0.57	130265.95	64.3	70 - 120	ISFail
45	Sc	2	2907535.80	1.79	4403867.50	66.0	70 - 120	ISFail
72	Ge	1	44160.73	0.32	74257.90	59.5	70 - 120	ISFail
115	In	2	3175211.00	0.86	5182029.50	61.3	70 - 120	ISFail
209	Bi	2	2287909.50	0.64	4152796.50	55.1	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\078SMPL.D\078SMPL.D#

Date Acquired:	Aug 4 2016 08:04 pm	Sample Name:	1607219-16A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	122.600	ppb	#REF!	1.47	2000.00	>RL
9	Be	2	45	2.542	ppb	#REF!	1.90	2000.00	>RL
11	B	2	45	98.450	ppb	#REF!	2.96	2000.00	>RL
23	Na	1	45	3343.000	ppb	#REF!	0.37	25000.00	>RL
24	Mg	1	45	15330.000	ppb	#REF!	1.13	25000.00	>RL
27	Al	1	45	72680.000	ppb	#REF!	0.34	10000.00	OUTCAL
39	K	1	45	12280.000	ppb	#REF!	0.32	25000.00	>RL
44	Ca	2	45	256900.000	ppb	#REF!	2.91	25000.00	OUTCAL
47	Ti	1	45	178.600	ppb	#REF!	3.13	2000.00	>RL
51	V	1	45	108.100	ppb	#REF!	0.18	2000.00	>RL
52	Cr	1	45	67.820	ppb	#REF!	1.18	2000.00	>RL
55	Mn	1	45	565.500	ppb	#REF!	0.84	2000.00	>RL
56	Fe	1	72	84700.000	ppb	#REF!	0.58	10000.00	OUTCAL
59	Co	1	72	34.590	ppb	#REF!	0.50	2000.00	>RL
60	Ni	1	72	47.640	ppb	#REF!	0.47	2000.00	>RL
63	Cu	1	72	12.740	ppb	#REF!	1.53	2000.00	>RL
66	Zn	1	72	215.100	ppb	#REF!	0.61	2000.00	>RL
75	As	1	72	22.890	ppb	#REF!	0.56	2000.00	>RL
78	Se	1	72	21.170	ppb	#REF!	2.86	2000.00	>RL
88	Sr	2	115	1179.000	ppb	#REF!	1.39	2000.00	>RL
95	Mo	2	115	3.015	ppb	#REF!	3.30	2000.00	J
107	Ag	2	115	0.100	ppb	#REF!	5.29	500.00	ND
111	Cd	2	115	0.783	ppb	#REF!	6.61	2000.00	J
118	Sn	2	115	6.552	ppb	#REF!	0.96	2000.00	ND
121	Sb	2	115	0.154	ppb	#REF!	12.25	500.00	ND
137	Ba	2	115	77.180	ppb	#REF!	2.49	2000.00	>RL
205	Tl	2	209	0.418	ppb	#REF!	6.48	2000.00	ND
208	Pb	2	209	31.640	ppb	#REF!	1.13	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8351.87	4.96	15.51	-53850.9	70 - 120	ISFail
45	Sc	1	80800.35	0.43	130265.95	62.0	70 - 120	ISFail
45	Sc	2	2856823.30	1.00	4403867.50	64.9	70 - 120	ISFail
72	Ge	1	42789.65	0.54	74257.90	57.6	70 - 120	ISFail
115	In	2	3110845.50	0.29	5182029.50	60.0	70 - 120	ISFail
209	Bi	2	2252375.50	0.72	4152796.50	54.2	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\080SMPL.D\080SMPL.D#

Date Acquired:	Aug 4 2016 08:16 pm	Sample Name:	1607219-17A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	117.000	ppb	#REF!	1.67	2000.00	>RL
9	Be	2	45	2.755	ppb	#REF!	2.40	2000.00	>RL
11	B	2	45	131.100	ppb	#REF!	1.81	2000.00	>RL
23	Na	1	45	6007.000	ppb	#REF!	0.42	25000.00	>RL
24	Mg	1	45	17310.000	ppb	#REF!	0.62	25000.00	>RL
27	Al	1	45	80410.000	ppb	#REF!	1.46	10000.00	OUTCAL
39	K	1	45	13480.000	ppb	#REF!	0.19	25000.00	>RL
44	Ca	2	45	164900.000	ppb	#REF!	2.13	25000.00	OUTCAL
47	Ti	1	45	135.700	ppb	#REF!	1.00	2000.00	>RL
51	V	1	45	120.100	ppb	#REF!	0.88	2000.00	>RL
52	Cr	1	45	76.770	ppb	#REF!	0.28	2000.00	>RL
55	Mn	1	45	741.500	ppb	#REF!	0.84	2000.00	>RL
56	Fe	1	72	128400.000	ppb	#REF!	1.02	10000.00	OUTCAL
59	Co	1	72	26.940	ppb	#REF!	0.38	2000.00	>RL
60	Ni	1	72	40.600	ppb	#REF!	1.77	2000.00	>RL
63	Cu	1	72	17.270	ppb	#REF!	0.92	2000.00	>RL
66	Zn	1	72	225.100	ppb	#REF!	0.90	2000.00	>RL
75	As	1	72	32.860	ppb	#REF!	1.28	2000.00	>RL
78	Se	1	72	21.350	ppb	#REF!	5.67	2000.00	>RL
88	Sr	2	115	1892.000	ppb	#REF!	1.93	2000.00	>RL
95	Mo	2	115	2.448	ppb	#REF!	4.95	2000.00	J
107	Ag	2	115	0.092	ppb	#REF!	16.24	500.00	ND
111	Cd	2	115	0.813	ppb	#REF!	7.88	2000.00	J
118	Sn	2	115	6.879	ppb	#REF!	4.34	2000.00	ND
121	Sb	2	115	0.267	ppb	#REF!	5.59	500.00	ND
137	Ba	2	115	98.900	ppb	#REF!	1.41	2000.00	>RL
205	Tl	2	209	0.492	ppb	#REF!	4.29	2000.00	ND
208	Pb	2	209	41.300	ppb	#REF!	0.51	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7639.28	0.95	15.51	-49256.3	70 - 120	ISFail
45	Sc	1	80459.54	0.85	130265.95	61.8	70 - 120	ISFail
45	Sc	2	2763364.30	1.29	4403867.50	62.7	70 - 120	ISFail
72	Ge	1	43654.24	0.50	74257.90	58.8	70 - 120	ISFail
115	In	2	3021168.30	0.39	5182029.50	58.3	70 - 120	ISFail
209	Bi	2	2220092.50	0.89	4152796.50	53.5	70 - 120	ISFail

Sample QC Report C:\ICPCHEM\1\DATA\16H04m02.B\081SMPL.D\081SMPL.D#

Date Acquired:	Aug 4 2016 08:22 pm	Sample Name:	1607219-18A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	97.940	ppb	#REF!	1.40	2000.00	>RL
9	Be	2	45	3.113	ppb	#REF!	1.67	2000.00	>RL
11	B	2	45	87.680	ppb	#REF!	3.57	2000.00	>RL
23	Na	1	45	2192.000	ppb	#REF!	0.26	25000.00	>RL
24	Mg	1	45	19210.000	ppb	#REF!	0.48	25000.00	>RL
27	Al	1	45	94270.000	ppb	#REF!	0.36	10000.00	OUTCAL
39	K	1	45	17120.000	ppb	#REF!	0.26	25000.00	>RL
44	Ca	2	45	154800.000	ppb	#REF!	2.88	25000.00	OUTCAL
47	Ti	1	45	227.200	ppb	#REF!	1.71	2000.00	>RL
51	V	1	45	146.000	ppb	#REF!	0.92	2000.00	>RL
52	Cr	1	45	78.700	ppb	#REF!	0.61	2000.00	>RL
55	Mn	1	45	670.200	ppb	#REF!	0.97	2000.00	>RL
56	Fe	1	72	96290.000	ppb	#REF!	0.73	10000.00	OUTCAL
59	Co	1	72	31.070	ppb	#REF!	0.89	2000.00	>RL
60	Ni	1	72	50.340	ppb	#REF!	1.62	2000.00	>RL
63	Cu	1	72	29.450	ppb	#REF!	0.90	2000.00	>RL
66	Zn	1	72	257.200	ppb	#REF!	0.69	2000.00	>RL
75	As	1	72	31.140	ppb	#REF!	0.55	2000.00	>RL
78	Se	1	72	21.440	ppb	#REF!	0.63	2000.00	>RL
88	Sr	2	115	585.000	ppb	#REF!	1.74	2000.00	>RL
95	Mo	2	115	2.459	ppb	#REF!	3.27	2000.00	J
107	Ag	2	115	0.174	ppb	#REF!	15.70	500.00	ND
111	Cd	2	115	1.269	ppb	#REF!	8.32	2000.00	>RL
118	Sn	2	115	6.648	ppb	#REF!	2.62	2000.00	ND
121	Sb	2	115	2.776	ppb	#REF!	0.69	500.00	J
137	Ba	2	115	825.200	ppb	#REF!	1.06	2000.00	>RL
205	Tl	2	209	0.607	ppb	#REF!	4.81	2000.00	ND
208	Pb	2	209	117.700	ppb	#REF!	0.74	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5924.25	3.16	15.51	-38198.2	70 - 120	ISFail
45	Sc	1	77912.95	0.37	130265.95	59.8	70 - 120	ISFail
45	Sc	2	2619753.30	1.22	4403867.50	59.5	70 - 120	ISFail
72	Ge	1	42112.93	0.22	74257.90	56.7	70 - 120	ISFail
115	In	2	2795073.00	0.89	5182029.50	53.9	70 - 120	ISFail
209	Bi	2	2051179.50	0.53	4152796.50	49.4	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\082SMPL.D\082SMPL.D#

Date Acquired:	Aug 4 2016 08:28 pm	Sample Name:	1607219-19A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	105.900	ppb	#REF!	1.63	2000.00	>RL
9	Be	2	45	2.262	ppb	#REF!	3.72	2000.00	>RL
11	B	2	45	81.170	ppb	#REF!	2.90	2000.00	>RL
23	Na	1	45	3679.000	ppb	#REF!	0.23	25000.00	>RL
24	Mg	1	45	14570.000	ppb	#REF!	0.56	25000.00	>RL
27	Al	1	45	70890.000	ppb	#REF!	0.79	10000.00	OUTCAL
39	K	1	45	12890.000	ppb	#REF!	0.44	25000.00	>RL
44	Ca	2	45	262100.000	ppb	#REF!	3.17	25000.00	OUTCAL
47	Ti	1	45	180.600	ppb	#REF!	1.92	2000.00	>RL
51	V	1	45	107.000	ppb	#REF!	0.61	2000.00	>RL
52	Cr	1	45	67.300	ppb	#REF!	1.02	2000.00	>RL
55	Mn	1	45	279.000	ppb	#REF!	0.14	2000.00	>RL
56	Fe	1	72	78920.000	ppb	#REF!	0.82	10000.00	OUTCAL
59	Co	1	72	18.620	ppb	#REF!	0.40	2000.00	>RL
60	Ni	1	72	27.550	ppb	#REF!	0.17	2000.00	>RL
63	Cu	1	72	11.550	ppb	#REF!	1.62	2000.00	>RL
66	Zn	1	72	157.300	ppb	#REF!	1.28	2000.00	>RL
75	As	1	72	20.910	ppb	#REF!	0.43	2000.00	>RL
78	Se	1	72	12.110	ppb	#REF!	7.60	2000.00	>RL
88	Sr	2	115	680.800	ppb	#REF!	2.12	2000.00	>RL
95	Mo	2	115	1.523	ppb	#REF!	6.12	2000.00	ND
107	Ag	2	115	0.100	ppb	#REF!	16.31	500.00	ND
111	Cd	2	115	0.657	ppb	#REF!	21.51	2000.00	J
118	Sn	2	115	6.540	ppb	#REF!	2.77	2000.00	ND
121	Sb	2	115	0.119	ppb	#REF!	20.21	500.00	ND
137	Ba	2	115	127.600	ppb	#REF!	1.34	2000.00	>RL
205	Tl	2	209	0.330	ppb	#REF!	3.25	2000.00	ND
208	Pb	2	209	31.410	ppb	#REF!	0.52	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6769.59	5.53	RHigh	15.51	-43648.7	70 - 120	ISFail
45	Sc	1	76790.74	0.57		130265.95	58.9	70 - 120	ISFail
45	Sc	2	2700548.30	1.55		4403867.50	61.3	70 - 120	ISFail
72	Ge	1	40957.66	0.10		74257.90	55.2	70 - 120	ISFail
115	In	2	2901402.80	0.70		5182029.50	56.0	70 - 120	ISFail
209	Bi	2	2105686.00	0.81		4152796.50	50.7	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\083SMPL.D\083SMPL.D#

Date Acquired:	Aug 4 2016 08:34 pm	Sample Name:	1607219-20A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	109.400	ppb	#REF!	1.75	2000.00	>RL
9	Be	2	45	2.559	ppb	#REF!	1.97	2000.00	>RL
11	B	2	45	85.570	ppb	#REF!	3.44	2000.00	>RL
23	Na	1	45	3393.000	ppb	#REF!	1.21	25000.00	>RL
24	Mg	1	45	14160.000	ppb	#REF!	0.95	25000.00	>RL
27	Al	1	45	66140.000	ppb	#REF!	0.44	10000.00	OUTCAL
39	K	1	45	12690.000	ppb	#REF!	0.64	25000.00	>RL
44	Ca	2	45	214300.000	ppb	#REF!	2.25	25000.00	OUTCAL
47	Ti	1	45	164.300	ppb	#REF!	4.49	2000.00	>RL
51	V	1	45	99.730	ppb	#REF!	0.98	2000.00	>RL
52	Cr	1	45	67.580	ppb	#REF!	1.58	2000.00	>RL
55	Mn	1	45	444.700	ppb	#REF!	0.83	2000.00	>RL
56	Fe	1	72	84160.000	ppb	#REF!	1.49	10000.00	OUTCAL
59	Co	1	72	36.520	ppb	#REF!	0.77	2000.00	>RL
60	Ni	1	72	41.380	ppb	#REF!	1.18	2000.00	>RL
63	Cu	1	72	12.070	ppb	#REF!	1.42	2000.00	>RL
66	Zn	1	72	208.200	ppb	#REF!	0.67	2000.00	>RL
75	As	1	72	23.340	ppb	#REF!	1.74	2000.00	>RL
78	Se	1	72	16.200	ppb	#REF!	2.01	2000.00	>RL
88	Sr	2	115	895.600	ppb	#REF!	2.41	2000.00	>RL
95	Mo	2	115	2.840	ppb	#REF!	4.21	2000.00	J
107	Ag	2	115	0.098	ppb	#REF!	0.79	500.00	ND
111	Cd	2	115	0.662	ppb	#REF!	8.20	2000.00	J
118	Sn	2	115	6.396	ppb	#REF!	1.53	2000.00	ND
121	Sb	2	115	0.232	ppb	#REF!	6.35	500.00	ND
137	Ba	2	115	93.110	ppb	#REF!	1.72	2000.00	>RL
205	Tl	2	209	0.369	ppb	#REF!	7.17	2000.00	ND
208	Pb	2	209	34.140	ppb	#REF!	0.24	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6795.07	4.21	15.51	-43813.0	70 - 120	ISFail
45	Sc	1	75417.87	1.67	130265.95	57.9	70 - 120	ISFail
45	Sc	2	2698923.50	2.03	4403867.50	61.3	70 - 120	ISFail
72	Ge	1	40812.98	1.33	74257.90	55.0	70 - 120	ISFail
115	In	2	2916694.30	1.37	5182029.50	56.3	70 - 120	ISFail
209	Bi	2	2120952.00	0.26	4152796.50	51.1	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\084SMPL.D\084SMPL.D#

Date Acquired:	Aug 4 2016 08:40 pm	Sample Name:	1607219-21A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	123.200	ppb	#REF!	2.16	2000.00	>RL
9	Be	2	45	2.688	ppb	#REF!	8.04	2000.00	>RL
11	B	2	45	121.900	ppb	#REF!	3.18	2000.00	>RL
23	Na	1	45	4707.000	ppb	#REF!	0.33	25000.00	>RL
24	Mg	1	45	16580.000	ppb	#REF!	0.33	25000.00	>RL
27	Al	1	45	75570.000	ppb	#REF!	0.70	10000.00	OUTCAL
39	K	1	45	13130.000	ppb	#REF!	0.16	25000.00	>RL
44	Ca	2	45	205700.000	ppb	#REF!	2.92	25000.00	OUTCAL
47	Ti	1	45	141.900	ppb	#REF!	4.69	2000.00	>RL
51	V	1	45	116.100	ppb	#REF!	1.12	2000.00	>RL
52	Cr	1	45	71.880	ppb	#REF!	1.26	2000.00	>RL
55	Mn	1	45	1047.000	ppb	#REF!	0.86	2000.00	>RL
56	Fe	1	72	123600.000	ppb	#REF!	0.78	10000.00	OUTCAL
59	Co	1	72	20.930	ppb	#REF!	1.22	2000.00	>RL
60	Ni	1	72	40.300	ppb	#REF!	1.09	2000.00	>RL
63	Cu	1	72	15.870	ppb	#REF!	0.61	2000.00	>RL
66	Zn	1	72	231.300	ppb	#REF!	1.22	2000.00	>RL
75	As	1	72	30.820	ppb	#REF!	1.46	2000.00	>RL
78	Se	1	72	20.870	ppb	#REF!	1.41	2000.00	>RL
88	Sr	2	115	1921.000	ppb	#REF!	2.54	2000.00	>RL
95	Mo	2	115	2.128	ppb	#REF!	7.30	2000.00	J
107	Ag	2	115	0.095	ppb	#REF!	12.63	500.00	ND
111	Cd	2	115	0.785	ppb	#REF!	9.66	2000.00	J
118	Sn	2	115	6.574	ppb	#REF!	3.05	2000.00	ND
121	Sb	2	115	0.194	ppb	#REF!	10.00	500.00	ND
137	Ba	2	115	107.500	ppb	#REF!	1.86	2000.00	>RL
205	Tl	2	209	0.530	ppb	#REF!	2.11	2000.00	ND
208	Pb	2	209	45.390	ppb	#REF!	1.24	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7344.50	7.14	RHigh	15.51	-47355.6	70 - 120	ISFail
45	Sc	1	78066.17	0.50		130265.95	59.9	70 - 120	ISFail
45	Sc	2	2600838.80	1.87		4403867.50	59.1	70 - 120	ISFail
72	Ge	1	42093.72	0.18		74257.90	56.7	70 - 120	ISFail
115	In	2	2843104.00	1.56		5182029.50	54.9	70 - 120	ISFail
209	Bi	2	2081202.50	1.25		4152796.50	50.1	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\086CCV1.D\086CCV1.D#

Date Acquired:	Aug 4 2016 08:52 pm	Sample Name:	CCV3-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	204.60	ppb	0.88	200.00	90 - 110	102.3	
9	Be	2	45	186.50	ppb	0.94	200.00	90 - 110	93.3	
11	B	2	45	172.80	ppb	1.00	200.00	90 - 110	86.4	Fail
23	Na	1	45	5395.00	ppb	0.63	5000.00	90 - 110	107.9	
24	Mg	1	45	5343.00	ppb	1.08	5000.00	90 - 110	106.9	
27	Al	1	45	5354.00	ppb	1.91	5000.00	90 - 110	107.1	
39	K	1	45	5236.00	ppb	1.01	5000.00	90 - 110	104.7	
44	Ca	2	45	5192.00	ppb	1.58	5000.00	90 - 110	103.8	
47	Ti	1	45	212.30	ppb	3.49	200.00	90 - 110	106.2	
51	V	1	45	201.10	ppb	1.04	200.00	90 - 110	100.6	
52	Cr	1	45	206.20	ppb	1.00	200.00	90 - 110	103.1	
55	Mn	1	45	217.00	ppb	0.78	200.00	90 - 110	108.5	
56	Fe	1	72	5325.00	ppb	0.72	5000.00	90 - 110	106.5	
59	Co	1	72	204.00	ppb	1.09	200.00	90 - 110	102.0	
60	Ni	1	72	200.10	ppb	1.47	200.00	90 - 110	100.1	
63	Cu	1	72	206.10	ppb	0.71	200.00	90 - 110	103.1	
66	Zn	1	72	215.90	ppb	1.17	200.00	90 - 110	108.0	
75	As	1	72	210.00	ppb	0.84	200.00	90 - 110	105.0	
78	Se	1	72	215.50	ppb	1.71	200.00	90 - 110	107.8	
88	Sr	2	115	208.60	ppb	3.36	200.00	90 - 110	104.3	
95	Mo	2	115	209.30	ppb	0.99	200.00	90 - 110	104.7	
107	Ag	2	115	207.90	ppb	1.11	200.00	90 - 110	104.0	
111	Cd	2	115	199.40	ppb	1.62	200.00	90 - 110	99.7	
118	Sn	2	115	200.80	ppb	0.32	200.00	90 - 110	100.4	
121	Sb	2	115	197.60	ppb	0.93	200.00	90 - 110	98.8	
137	Ba	2	115	201.90	ppb	0.54	200.00	90 - 110	101.0	
205	Tl	2	209	198.70	ppb	1.08	200.00	90 - 110	99.4	
208	Pb	2	209	198.70	ppb	0.86	200.00	90 - 110	99.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-28498.40	0.73	15.51	-183751.0	70 - 120	ISFail
45	Sc	1	71158.26	0.22	130265.95	54.6	70 - 120	ISFail
45	Sc	2	2430697.80	0.70	4403867.50	55.2	70 - 120	ISFail
72	Ge	1	39797.45	0.83	74257.90	53.6	70 - 120	ISFail
115	In	2	2500909.30	1.17	5182029.50	48.3	70 - 120	ISFail
209	Bi	2	1872994.10	1.56	4152796.50	45.1	70 - 120	ISFail

CCV QC Report C:\ICPCHEM\1\DATA\16H04m02.B\088LCVL.D\088LCVL.D#

Date Acquired:	Aug 4 2016 09:04 pm	Sample Name:	LCVL3-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	9.96	ppb	1.74	10.00	70	-	130	99.6	
9	Be	2	45	0.96	ppb	4.71	1.00	70	-	130	96.5	
11	B	2	45	17.93	ppb	2.26	20.00	70	-	130	89.7	
23	Na	1	45	93.05	ppb	1.77	100.00	70	-	130	93.1	
24	Mg	1	45	104.40	ppb	2.10	100.00	70	-	130	104.4	
27	Al	1	45	117.90	ppb	1.91	100.00	70	-	130	117.9	
39	K	1	45	109.50	ppb	1.50	100.00	70	-	130	109.5	
44	Ca	2	45	107.00	ppb	2.29	100.00	70	-	130	107.0	
47	Ti	1	45	5.33	ppb	12.15	5.00	70	-	130	106.6	
51	V	1	45	1.04	ppb	3.61	1.00	70	-	130	104.3	
52	Cr	1	45	5.14	ppb	1.28	5.00	70	-	130	102.8	
55	Mn	1	45	5.11	ppb	3.00	5.00	70	-	130	102.1	
56	Fe	1	72	112.40	ppb	1.03	100.00	70	-	130	112.4	
59	Co	1	72	4.87	ppb	0.40	5.00	70	-	130	97.5	
60	Ni	1	72	4.75	ppb	4.96	5.00	70	-	130	95.1	
63	Cu	1	72	4.88	ppb	2.07	5.00	70	-	130	97.6	
66	Zn	1	72	5.17	ppb	3.88	5.00	70	-	130	103.5	
75	As	1	72	5.29	ppb	1.34	5.00	70	-	130	105.7	
78	Se	1	72	6.03	ppb	11.81	5.00	70	-	130	120.5	
88	Sr	2	115	5.23	ppb	2.10	5.00	70	-	130	104.5	
95	Mo	2	115	5.11	ppb	3.19	5.00	70	-	130	102.2	
107	Ag	2	115	2.06	ppb	4.51	2.00	70	-	130	103.1	
111	Cd	2	115	1.02	ppb	11.53	1.00	70	-	130	101.9	
118	Sn	2	115	4.97	ppb	1.59	5.00	70	-	130	99.3	
121	Sb	2	115	1.99	ppb	1.48	2.00	70	-	130	99.3	
137	Ba	2	115	5.11	ppb	1.05	5.00	70	-	130	102.3	
205	Tl	2	209	1.04	ppb	1.31	1.00	70	-	130	104.1	
208	Pb	2	209	1.04	ppb	3.19	1.00	70	-	130	103.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHigl	-884.15	10.64	15.51	-5700.8	70	-	120	ISFail
45	Sc	1		75644.15	0.87	130265.95	58.1	70	-	120	ISFail
45	Sc	2		2443284.00	1.21	4403867.50	55.5	70	-	120	ISFail
72	Ge	1		42790.35	0.44	74257.90	57.6	70	-	120	ISFail
115	In	2		2498806.80	0.84	5182029.50	48.2	70	-	120	ISFail
209	Bi	2		1913609.40	1.15	4152796.50	46.1	70	-	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H04m02.B\089_CCB.D\089_CCB.D#

Date Acquired:	Aug 4 2016 09:10 pm	Sample Name:	CCB3-160804
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2016 02:06 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.	RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.116 ppb	11.78	2.00	2.00	
9	Be	2	45	0.018 ppb	33.24	0.40	0.30	
11	B	2	45	0.826 ppb	1.63	10.00	10.00	
23	Na	1	45	-7.511 ppb	3.71	50.00	#####	
24	Mg	1	45	-0.114 ppb	14.28	50.00	#####	
27	Al	1	45	2.334 ppb	6.41	50.00	10.00	
39	K	1	45	6.495 ppb	7.05	50.00	#####	
44	Ca	2	45	-0.256 ppb	3.67	50.00	#####	
47	Ti	1	45	0.029 ppb	99.97	4.00	3.00	
51	V	1	45	-0.001 ppb	24.12	4.00	3.00	
52	Cr	1	45	-0.010 ppb	8.41	2.00	2.00	
55	Mn	1	45	-0.309 ppb	2.33	2.00	3.00	
56	Fe	1	72	2.918 ppb	8.09	50.00	30.00	
59	Co	1	72	0.019 ppb	17.06	2.00	3.00	
60	Ni	1	72	-0.006 ppb	8.66	2.00	3.00	
63	Cu	1	72	-0.070 ppb	10.88	2.00	2.00	
66	Zn	1	72	-0.152 ppb	24.29	4.00	2.00	
75	As	1	72	-0.020 ppb	4.62	2.00	2.00	
78	Se	1	72	0.019 ppb	22.93	0.60	2.00	
88	Sr	2	115	0.039 ppb	1.47	4.00	3.00	
95	Mo	2	115	-0.025 ppb	17.62	2.00	2.00	
107	Ag	2	115	0.021 ppb	11.78	0.40	1.00	
111	Cd	2	115	0.024 ppb	56.03	0.40	0.30	
118	Sn	2	115	-0.107 ppb	6.19	20.00	3.00	
121	Sb	2	115	0.012 ppb	18.32	2.00	0.80	
137	Ba	2	115	0.016 ppb	15.80	2.00	3.00	
205	Tl	2	209	0.022 ppb	14.91	2.00	0.50	
208	Pb	2	209	0.016 ppb	8.50	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-6.94	95.62	15.51	-44.8	70 - 120	ISFail
45	Sc	1		74283.18	0.44	130265.95	57.0	70 - 120	ISFail
45	Sc	2		2454511.50	0.93	4403867.50	55.7	70 - 120	ISFail
72	Ge	1		42048.43	0.77	74257.90	56.6	70 - 120	ISFail
115	In	2		2514349.00	0.75	5182029.50	48.5	70 - 120	ISFail
209	Bi	2		1904530.40	1.60	4152796.50	45.9	70 - 120	ISFail

ICP-MS3_160805A
For

DHL Work Order
1607219

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID:	ICP-MS3_160805A
	SOP:	Metals-ICP-MS-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

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

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

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

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

VARIANCE REPORT

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

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

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

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

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

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

General Comments and Impact on Data:

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

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

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

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

DHL Analytical, Inc.

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

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

Analyst: Karyn Lane

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

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

DHL Analytical, Inc.

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

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

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

DHL Analytical, Inc.

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

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

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

DHL Analytical, Inc.

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

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

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

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

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

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

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

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

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

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

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-22A	Soil		1.14	50	50.000	1 of 1	
1607219-23A	Soil		1.06	50	50.000	1 of 1	
1607219-24A	Soil		1.13	50	50.000	1 of 1	
1607219-25A	Soil		1.04	50	50.000	1 of 1	
1607239-01A	Soil		1.03	50	50.000	of 3	
1607239-01A MS	Soil		1.06	50	50.000	of	
1607239-01A MSD	Soil		1.02	50	50.000	of	
1607239-02A	Soil		1.05	50	50.000	1 of 1	
1607239-03A	Soil		1.06	50	50.000	1 of 1	
1607239-04A	Soil		1.06	50	50.000	1 of 1	
1607239-05A	Soil		1.09	50	50.000	1 of 1	
1607239-06A	Soil		1.15	50	50.000	1 of 1	
1607239-07A	Soil		1.06	50	50.000	1 of 1	
1607239-08A	Soil		1.07	50	50.000	1 of 1	
1607239-09A	Soil		1.06	50	50.000	1 of 1	
1607239-10A	Soil		1.06	50	50.000	1 of 1	
1607239-11A	Soil		1.07	50	50.000	1 of 1	
1607239-12A	Soil		1.02	50	50.000	1 of 1	
1607239-13A	Soil		1.08	50	50.000	1 of 1	
1607239-14A	Soil		1.04	50	50.000	1 of 1	
1607239-15A	Soil		1.16	50	50.000	1 of 1	
1607239-17A	Soil		1.10	50	50.000	1 of 1	
LCS-76602	Soil		1	50	50.000	of	
LCSD-76602	Soil		1	50	50.000	of	
MB-76602	Soil		1	50	50.000	of	

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

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

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

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

8/3/16

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: mL/

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

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

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

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

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

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: mL/

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

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

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

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

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

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

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

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

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

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

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

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

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

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

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

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

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

SP 8/3/16
Analyst / Date

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

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 8:30:00 AM**

Digestion: **Start: 8/3/2016 8:54:00 AM / Stop: 8/3/2016 2:12:00 PM**

Prep End Date: **8/3/2016 5:57:22 PM**

Prep Factor Units: **mL/g**

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

Equipment List

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

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

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

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

REVIEWED BY

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

Calibration Summary Report

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

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

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

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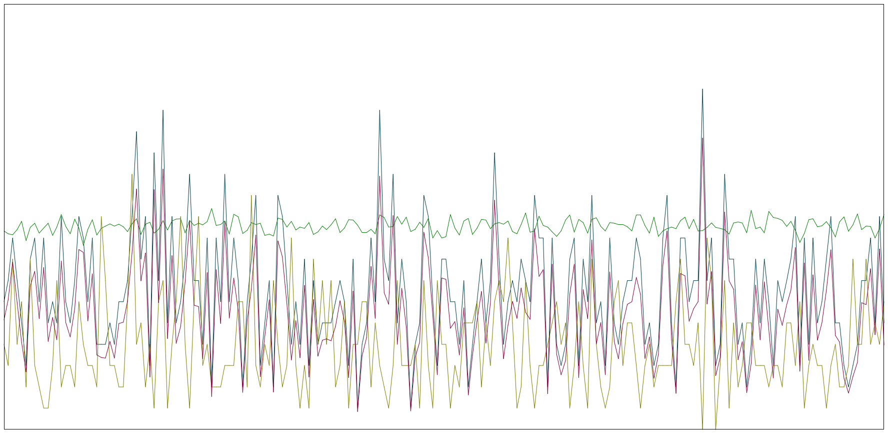
By Janice Whitt at 3:32:15 PM, 8/9/2016

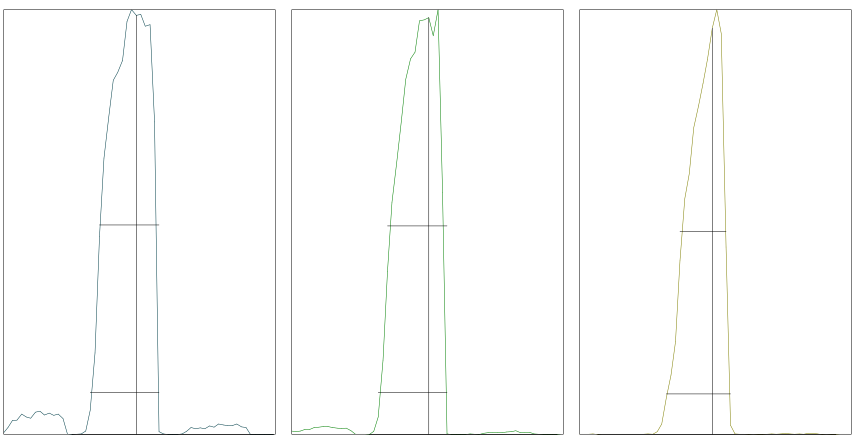
Tune Report

Tune File : He.U
Comment :



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

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



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

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

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

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

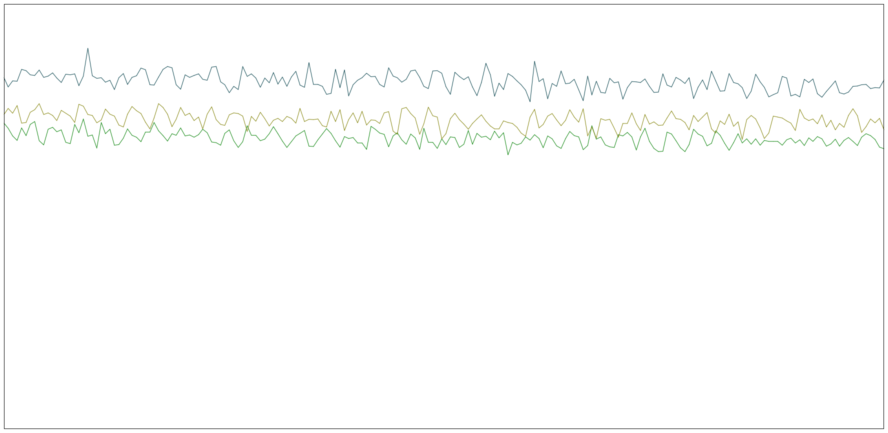
===Plasma Condition===		===Ion Lenses===		===Q-Pole Parameters===	
RF Power	1600 W	Extract 1	0 V	AMU Gain	124
RF Matching	1.6 V	Extract 2	-130 V	AMU Offset	120
Smpl Depth	9 mm	Omega Bias-ce	-20 V	Axis Gain	0.9993
Torch-H	0 mm	Omega Lens-ce	0 V	Axis Offset	-0.03
Torch-V	0.8 mm	Cell Entrance	-40 V	QP Bias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

===Reaction Cell===

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

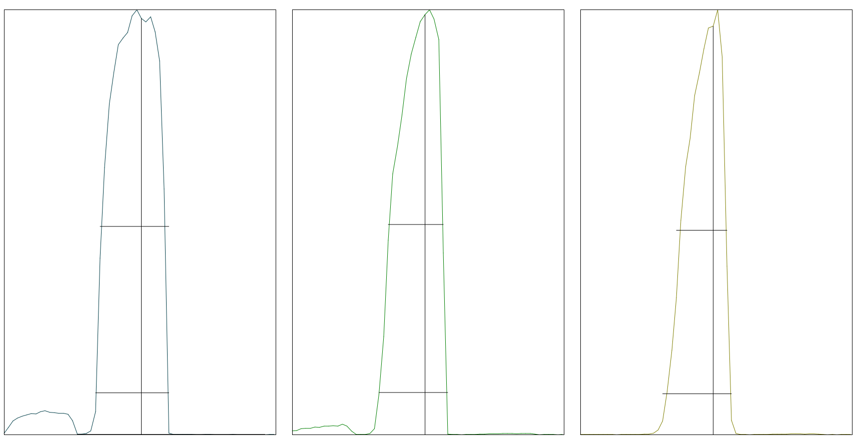
Tune Report

Tune File : nogas.u
Comment :



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

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



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

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

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

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===

RF Power	:	1600 W
RF Matching	:	1.6 V
Smpl Depth	:	9 mm
Torch-H	:	0 mm
Torch-V	:	0.8 mm
Carrier Gas	:	1.2 L/min
Makeup Gas	:	0 L/min
Optional Gas	:	--- %
Nebulizer Pump	:	0.1 rps
Sample Pump	:	--- rps
S/C Temp	:	2 degC

===Ion Lenses===

Extract 1	:	0 V
Extract 2	:	-130 V
Omega Bias-ce	:	-22 V
Omega Lens-ce	:	-0.6 V
Cell Entrance	:	-30 V
QP Focus	:	0 V
Cell Exit	:	-40 V

===Octopole Parameters===

OctP RF	:	170 V
OctP Bias	:	-6 V

===Q-Pole Parameters===

AMU Gain	:	124
AMU Offset	:	120
Axis Gain	:	0.9993
Axis Offset	:	-0.03
QP Bias	:	-3 V

===Detector Parameters===

Discriminator	:	8 mV
Analog HV	:	1750 V
Pulse HV	:	1520 V

===Reaction Cell===

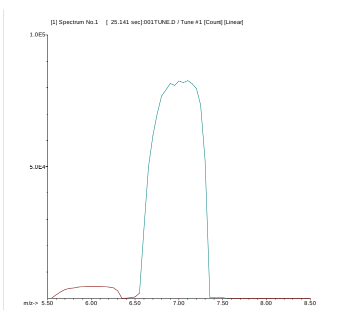
Reaction Mode	:	OFF
H2 Gas	:	0 mL/min
He Gas	:	0 mL/min
Optional Gas	:	--- %

6020 QC Tune Report

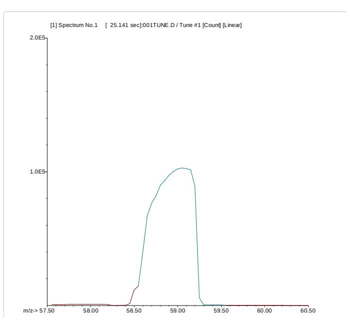
Data File:	C:\ICPCHEM\1\DATA\16H05k00.B\001TUNE.D
Date Acquired:	Aug 5 2016 10:58 am
Acq. Method:	TN6020.M
Operator:	KL
Sample Name:	TUNE CHECK
Misc Info:	
Vial Number:	1301
Current Method:	C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

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



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



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

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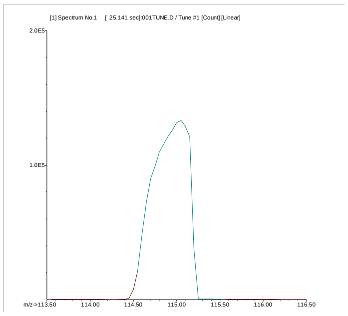
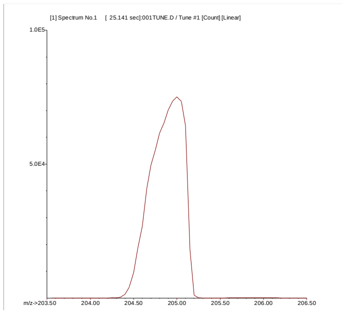


115 In
Mass Calib.
Actual: 115.00
Required: 114.90 - 115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 204.95
Required: 204.90 - 205.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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

P/A Factor Tuning Report

Acquired:Aug 5 2016 10:55 am

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

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

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

Calibration Blank QC Report

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

QC&ISTD Elements

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

Calibration Standard QC Report

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

QC&ISTD Elements

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

ISTD Elements

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

Calibration Standard QC Report

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

QC&ISTD Elements

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

ISTD Elements

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

Calibration Standard QC Report

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

QC&ISTD Elements

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

ISTD Elements

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

Calibration Standard QC Report

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

QC&ISTD Elements

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

ISTD Elements

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

Calibration Standard QC Report

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

QC&ISTD Elements

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

ISTD Elements

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

Calibration Standard QC Report

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

QC&ISTD Elements

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

ISTD Elements

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

Calibration Standard QC Report

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

QC&ISTD Elements

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

ISTD Elements

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

ICSA QC Report

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

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

QC Elements

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

ISTD Elements

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

ICS-AB QC Report

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

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

QC Elements

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

ISTD Elements

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

CCV QC Report

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

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

QC Elements

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

ISTD Elements

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

ICB QC Report

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

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

QC Elements

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

ISTD Elements

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

CCV QC Report

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

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

QC Elements

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

ISTD Elements

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

PB QC Report

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

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

QC Elements

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

ISTD Elements

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

LCS QC Report

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

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

QC Elements

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

ISTD Elements

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

LCS QC Report

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

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

QC Elements

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

ISTD Elements

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

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

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

QC Elements

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

ISTD Elements

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

Sample QC Report C:\ICPCHEM\1\DATA\16H05l00.B\029SMPL.D\029SMPL.D#

Date Acquired:	Aug 5 2016 02:02 pm	Sample Name:	1607219-22A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	102.700	ppb	#REF!	1.45	2000.00	>RL
9	Be	2	45	3.363	ppb	#REF!	1.32	2000.00	>RL
11	B	2	45	100.100	ppb	#REF!	1.41	2000.00	>RL
23	Na	1	45	2034.000	ppb	#REF!	1.14	25000.00	>RL
24	Mg	1	45	17130.000	ppb	#REF!	0.89	25000.00	>RL
27	Al	1	45	81770.000	ppb	#REF!	0.78	10000.00	OUTCAL
39	K	1	45	15630.000	ppb	#REF!	1.99	25000.00	>RL
44	Ca	2	45	175400.000	ppb	#REF!	2.38	25000.00	OUTCAL
47	Ti	1	45	221.100	ppb	#REF!	2.22	2000.00	>RL
51	V	1	45	144.200	ppb	#REF!	1.27	2000.00	>RL
52	Cr	1	45	71.650	ppb	#REF!	0.84	2000.00	>RL
55	Mn	1	45	648.900	ppb	#REF!	0.46	2000.00	>RL
56	Fe	1	72	89240.000	ppb	#REF!	0.58	10000.00	OUTCAL
59	Co	1	72	30.430	ppb	#REF!	0.72	2000.00	>RL
60	Ni	1	72	47.040	ppb	#REF!	2.17	2000.00	>RL
63	Cu	1	72	24.930	ppb	#REF!	1.38	2000.00	>RL
66	Zn	1	72	198.100	ppb	#REF!	0.51	2000.00	>RL
75	As	1	72	30.140	ppb	#REF!	0.68	2000.00	>RL
78	Se	1	72	12.730	ppb	#REF!	4.17	2000.00	>RL
88	Sr	2	115	530.200	ppb	#REF!	0.99	2000.00	>RL
95	Mo	2	115	2.505	ppb	#REF!	2.96	2000.00	J
107	Ag	2	115	0.182	ppb	#REF!	14.54	500.00	ND
111	Cd	2	115	1.237	ppb	#REF!	5.55	2000.00	>RL
118	Sn	2	115	6.456	ppb	#REF!	2.54	2000.00	ND
121	Sb	2	115	2.642	ppb	#REF!	0.39	500.00	J
137	Ba	2	115	921.900	ppb	#REF!	1.81	2000.00	>RL
205	Tl	2	209	0.667	ppb	#REF!	2.61	2000.00	ND
208	Pb	2	209	111.100	ppb	#REF!	0.96	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18678.66	3.64	15.28	########	70 - 120	ISFail
45	Sc	1	185233.95	0.74	182515.06	101.5	70 - 120	
45	Sc	2	6409008.50	1.32	6126960.50	104.6	70 - 120	
72	Ge	1	94353.41	0.78	97742.99	96.5	70 - 120	
115	In	2	6708778.00	1.39	6508670.50	103.1	70 - 120	
209	Bi	2	4110136.30	0.66	4337985.50	94.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\030SMPL.D\030SMPL.D#

Date Acquired:	Aug 5 2016 02:08 pm	Sample Name:	1607219-23A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	124.900	ppb	#REF!	1.18	2000.00	>RL
9	Be	2	45	2.773	ppb	#REF!	1.54	2000.00	>RL
11	B	2	45	98.290	ppb	#REF!	2.00	2000.00	>RL
23	Na	1	45	3662.000	ppb	#REF!	2.62	25000.00	>RL
24	Mg	1	45	14240.000	ppb	#REF!	2.67	25000.00	>RL
27	Al	1	45	66470.000	ppb	#REF!	1.53	10000.00	OUTCAL
39	K	1	45	13440.000	ppb	#REF!	0.63	25000.00	>RL
44	Ca	2	45	253000.000	ppb	#REF!	1.75	25000.00	OUTCAL
47	Ti	1	45	163.400	ppb	#REF!	2.47	2000.00	>RL
51	V	1	45	110.500	ppb	#REF!	2.23	2000.00	>RL
52	Cr	1	45	67.970	ppb	#REF!	2.99	2000.00	>RL
55	Mn	1	45	687.100	ppb	#REF!	1.44	2000.00	>RL
56	Fe	1	72	96620.000	ppb	#REF!	2.32	10000.00	OUTCAL
59	Co	1	72	24.090	ppb	#REF!	2.57	2000.00	>RL
60	Ni	1	72	39.880	ppb	#REF!	2.07	2000.00	>RL
63	Cu	1	72	12.750	ppb	#REF!	2.89	2000.00	>RL
66	Zn	1	72	189.300	ppb	#REF!	0.89	2000.00	>RL
75	As	1	72	23.170	ppb	#REF!	1.76	2000.00	>RL
78	Se	1	72	9.699	ppb	#REF!	7.38	2000.00	>RL
88	Sr	2	115	684.800	ppb	#REF!	1.98	2000.00	>RL
95	Mo	2	115	2.943	ppb	#REF!	1.46	2000.00	J
107	Ag	2	115	0.126	ppb	#REF!	6.54	500.00	ND
111	Cd	2	115	0.921	ppb	#REF!	5.86	2000.00	J
118	Sn	2	115	6.772	ppb	#REF!	2.97	2000.00	ND
121	Sb	2	115	0.419	ppb	#REF!	2.89	500.00	ND
137	Ba	2	115	219.200	ppb	#REF!	1.48	2000.00	>RL
205	Tl	2	209	0.443	ppb	#REF!	2.67	2000.00	ND
208	Pb	2	209	29.980	ppb	#REF!	1.43	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-22383.09	2.04	15.28	########	70 - 120	ISFail
45	Sc	1	189611.44	1.53	182515.06	103.9	70 - 120	
45	Sc	2	6920206.00	1.61	6126960.50	112.9	70 - 120	
72	Ge	1	95543.31	1.80	97742.99	97.7	70 - 120	
115	In	2	7141300.50	2.21	6508670.50	109.7	70 - 120	
209	Bi	2	4364606.00	1.44	4337985.50	100.6	70 - 120	

Sample QC Report   C:\ICPCHEM\1\DATA\16H05l00.B\031SMPL.D\031SMPL.D#

Date Acquired:	Aug 5 2016 02:14 pm	Sample Name:	1607219-24A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	160.000	ppb	#REF!	1.90	2000.00	>RL
9	Be	2	45	3.269	ppb	#REF!	1.09	2000.00	>RL
11	B	2	45	126.800	ppb	#REF!	1.56	2000.00	>RL
23	Na	1	45	4611.000	ppb	#REF!	1.22	25000.00	>RL
24	Mg	1	45	16400.000	ppb	#REF!	1.25	25000.00	>RL
27	Al	1	45	74860.000	ppb	#REF!	1.91	10000.00	OUTCAL
39	K	1	45	13630.000	ppb	#REF!	1.30	25000.00	>RL
44	Ca	2	45	224700.000	ppb	#REF!	2.14	25000.00	OUTCAL
47	Ti	1	45	151.800	ppb	#REF!	2.12	2000.00	>RL
51	V	1	45	118.600	ppb	#REF!	1.23	2000.00	>RL
52	Cr	1	45	74.500	ppb	#REF!	1.78	2000.00	>RL
55	Mn	1	45	388.500	ppb	#REF!	1.93	2000.00	>RL
56	Fe	1	72	91880.000	ppb	#REF!	1.57	10000.00	OUTCAL
59	Co	1	72	50.370	ppb	#REF!	0.63	2000.00	>RL
60	Ni	1	72	47.490	ppb	#REF!	1.61	2000.00	>RL
63	Cu	1	72	14.920	ppb	#REF!	1.24	2000.00	>RL
66	Zn	1	72	215.500	ppb	#REF!	1.01	2000.00	>RL
75	As	1	72	24.800	ppb	#REF!	1.04	2000.00	>RL
78	Se	1	72	12.040	ppb	#REF!	1.65	2000.00	>RL
88	Sr	2	115	1022.000	ppb	#REF!	1.58	2000.00	>RL
95	Mo	2	115	2.164	ppb	#REF!	5.00	2000.00	J
107	Ag	2	115	0.119	ppb	#REF!	0.98	500.00	ND
111	Cd	2	115	0.820	ppb	#REF!	4.55	2000.00	J
118	Sn	2	115	6.708	ppb	#REF!	2.53	2000.00	ND
121	Sb	2	115	0.150	ppb	#REF!	9.97	500.00	ND
137	Ba	2	115	61.700	ppb	#REF!	2.52	2000.00	>RL
205	Tl	2	209	0.416	ppb	#REF!	4.77	2000.00	ND
208	Pb	2	209	40.150	ppb	#REF!	1.24	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-29228.86	2.32	15.28	########	70 - 120	ISFail
45	Sc	1	193023.50	1.09	182515.06	105.8	70 - 120	
45	Sc	2	7047204.50	1.95	6126960.50	115.0	70 - 120	
72	Ge	1	97509.54	0.49	97742.99	99.8	70 - 120	
115	In	2	7212090.50	1.19	6508670.50	110.8	70 - 120	
209	Bi	2	4370623.00	0.75	4337985.50	100.8	70 - 120	

Sample QC Report **C:\ICPCHEM\1\DATA\16H05l00.B\032SMPL.D\032SMPL.D#**

Date Acquired:	Aug 5 2016 02:20 pm	Sample Name:	1607219-25A
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	133.000	ppb	#REF!	1.51	2000.00	>RL
9	Be	2	45	2.724	ppb	#REF!	1.50	2000.00	>RL
11	B	2	45	109.200	ppb	#REF!	2.22	2000.00	>RL
23	Na	1	45	3503.000	ppb	#REF!	0.95	25000.00	>RL
24	Mg	1	45	13830.000	ppb	#REF!	1.38	25000.00	>RL
27	Al	1	45	62580.000	ppb	#REF!	1.70	10000.00	OUTCAL
39	K	1	45	11970.000	ppb	#REF!	0.78	25000.00	>RL
44	Ca	2	45	255700.000	ppb	#REF!	2.26	25000.00	OUTCAL
47	Ti	1	45	164.200	ppb	#REF!	1.34	2000.00	>RL
51	V	1	45	103.200	ppb	#REF!	1.45	2000.00	>RL
52	Cr	1	45	64.110	ppb	#REF!	1.44	2000.00	>RL
55	Mn	1	45	427.100	ppb	#REF!	1.30	2000.00	>RL
56	Fe	1	72	83830.000	ppb	#REF!	1.56	10000.00	OUTCAL
59	Co	1	72	43.510	ppb	#REF!	1.30	2000.00	>RL
60	Ni	1	72	48.670	ppb	#REF!	2.18	2000.00	>RL
63	Cu	1	72	14.000	ppb	#REF!	1.31	2000.00	>RL
66	Zn	1	72	200.700	ppb	#REF!	0.82	2000.00	>RL
75	As	1	72	23.360	ppb	#REF!	0.87	2000.00	>RL
78	Se	1	72	9.895	ppb	#REF!	1.78	2000.00	>RL
88	Sr	2	115	4279.000	ppb	#REF!	2.47	2000.00	OUTCAL
95	Mo	2	115	2.932	ppb	#REF!	3.19	2000.00	J
107	Ag	2	115	0.101	ppb	#REF!	7.71	500.00	ND
111	Cd	2	115	0.836	ppb	#REF!	14.82	2000.00	J
118	Sn	2	115	6.418	ppb	#REF!	1.47	2000.00	ND
121	Sb	2	115	0.198	ppb	#REF!	2.39	500.00	ND
137	Ba	2	115	124.400	ppb	#REF!	2.21	2000.00	>RL
205	Tl	2	209	0.397	ppb	#REF!	0.62	2000.00	ND
208	Pb	2	209	34.660	ppb	#REF!	1.46	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-23447.47	7.46	RHigh	15.28	########	70 - 120	ISFail
45	Sc	1	192449.11	1.50		182515.06	105.4	70 - 120	
45	Sc	2	7096878.50	2.07		6126960.50	115.8	70 - 120	
72	Ge	1	96320.56	0.95		97742.99	98.5	70 - 120	
115	In	2	7215585.00	1.97		6508670.50	110.9	70 - 120	
209	Bi	2	4384350.50	1.08		4337985.50	101.1	70 - 120	

PDS QC Report

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

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

QC Elements

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

ISTD Elements

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

MS/MSD QC Report

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

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

QC Elements

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

ISTD Elements

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

MS/MSD QC Report

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

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

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	262.30	ppb	0.70	########	200	80-120	######	Fail
9	Be	2	45	183.10	ppb	1.57	3.19	200	80-120	90.0	
11	B	2	45	265.40	ppb	0.83	98.71	200	80-120	83.3	
23	Na	1	45	6775.00	ppb	0.24	1817.00	5000	80-120	99.2	
24	Mg	1	45	21690.00	ppb	0.56	17690.00	5000	80-120	80.0	
27	Al	1	45	87150.00	ppb	0.77	86410.00	1000	80-120	74.0	Fail
39	K	1	45	23520.00	ppb	0.57	19300.00	5000	80-120	84.4	
44	Ca	2	45	115000.00	ppb	2.12	########	5000	80-120	-90.0	Fail
47	Ti	1	45	464.80	ppb	0.64	256.00	200	80-120	104.4	
51	V	1	45	326.90	ppb	0.50	124.20	200	80-120	101.4	
52	Cr	1	45	266.80	ppb	0.95	74.54	200	80-120	96.1	
55	Mn	1	45	873.20	ppb	0.45	666.90	200	80-120	103.1	
56	Fe	1	72	86200.00	ppb	0.26	83390.00	1000	80-120	281.0	Fail
59	Co	1	72	224.40	ppb	0.33	28.88	200	80-120	97.8	
60	Ni	1	72	233.30	ppb	0.13	43.97	200	80-120	94.7	
63	Cu	1	72	218.70	ppb	0.26	26.38	200	80-120	96.2	
66	Zn	1	72	377.30	ppb	0.18	200.60	200	80-120	88.3	
75	As	1	72	217.40	ppb	0.54	28.38	200	80-120	94.5	
78	Se	1	72	194.30	ppb	1.13	13.22	200	80-120	90.5	
88	Sr	2	115	596.30	ppb	1.86	408.50	200	80-120	93.9	
95	Mo	2	115	184.10	ppb	1.80	2.57	200	80-120	90.8	
107	Ag	2	115	183.80	ppb	2.00	0.22	200	80-120	91.8	
111	Cd	2	115	187.10	ppb	0.55	1.17	200	80-120	93.0	
118	Sn	2	115	204.20	ppb	1.29	6.40	200	80-120	98.9	
121	Sb	2	115	69.12	ppb	1.46	3.42	200	80-120	32.9	Fail
137	Ba	2	115	626.80	ppb	1.38	438.10	200	80-120	94.3	
205	Tl	2	209	211.80	ppb	1.82	0.76	200	80-120	105.5	
208	Pb	2	209	388.00	ppb	1.39	191.90	200	80-120	98.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-70571.80	3.11	15.28	########	70 -	120	ISFail
45	Sc	1	165132.59	0.30	182515.06	90.5	70 -	120	
45	Sc	2	5408150.00	1.66	6126960.50	88.3	70 -	120	
72	Ge	1	83602.56	0.15	97742.99	85.5	70 -	120	
115	In	2	5509372.00	1.08	6508670.50	84.6	70 -	120	
209	Bi	2	3436368.30	0.83	4337985.50	79.2	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\041CCV1.D\041CCV1.D#

Date Acquired:	Aug 5 2016 03:12 pm	Sample Name:	CCV1-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	203.90	ppb	0.69	200.00	90 - 110	102.0	
9	Be	2	45	199.40	ppb	1.02	200.00	90 - 110	99.7	
11	B	2	45	196.20	ppb	1.62	200.00	90 - 110	98.1	
23	Na	1	45	5300.00	ppb	1.10	5000.00	90 - 110	106.0	
24	Mg	1	45	5048.00	ppb	0.82	5000.00	90 - 110	101.0	
27	Al	1	45	5233.00	ppb	1.07	5000.00	90 - 110	104.7	
39	K	1	45	5149.00	ppb	1.01	5000.00	90 - 110	103.0	
44	Ca	2	45	5390.00	ppb	1.69	5000.00	90 - 110	107.8	
47	Ti	1	45	198.50	ppb	3.52	200.00	90 - 110	99.3	
51	V	1	45	197.90	ppb	0.58	200.00	90 - 110	99.0	
52	Cr	1	45	201.50	ppb	0.56	200.00	90 - 110	100.8	
55	Mn	1	45	203.80	ppb	0.91	200.00	90 - 110	101.9	
56	Fe	1	72	5243.00	ppb	1.03	5000.00	90 - 110	104.9	
59	Co	1	72	207.10	ppb	0.69	200.00	90 - 110	103.6	
60	Ni	1	72	204.30	ppb	0.85	200.00	90 - 110	102.2	
63	Cu	1	72	208.80	ppb	0.85	200.00	90 - 110	104.4	
66	Zn	1	72	197.60	ppb	1.20	200.00	90 - 110	98.8	
75	As	1	72	205.00	ppb	0.65	200.00	90 - 110	102.5	
78	Se	1	72	209.90	ppb	2.54	200.00	90 - 110	105.0	
88	Sr	2	115	209.80	ppb	1.51	200.00	90 - 110	104.9	
95	Mo	2	115	198.60	ppb	1.81	200.00	90 - 110	99.3	
107	Ag	2	115	205.70	ppb	1.43	200.00	90 - 110	102.9	
111	Cd	2	115	201.20	ppb	1.59	200.00	90 - 110	100.6	
118	Sn	2	115	200.00	ppb	1.25	200.00	90 - 110	100.0	
121	Sb	2	115	198.90	ppb	1.33	200.00	90 - 110	99.5	
137	Ba	2	115	199.70	ppb	1.13	200.00	90 - 110	99.9	
205	Tl	2	209	210.00	ppb	0.78	200.00	90 - 110	105.0	
208	Pb	2	209	199.10	ppb	1.15	200.00	90 - 110	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-62773.12	0.33	15.28	-410837.4	70 - 120	ISFail
45	Sc	1	161949.66	0.37	182515.06	88.7	70 - 120	
45	Sc	2	5385562.50	1.41	6126960.50	87.9	70 - 120	
72	Ge	1	84350.12	0.31	97742.99	86.3	70 - 120	
115	In	2	5374916.00	0.94	6508670.50	82.6	70 - 120	
209	Bi	2	3479269.00	1.17	4337985.50	80.2	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\043LCVL.D\043LCVL.D#

Date Acquired:	Aug 5 2016 03:24 pm	Sample Name:	LCVL1-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.52	ppb	2.04	10.00	70 -	130	105.2	
9	Be	2	45	1.03	ppb	5.32	1.00	70 -	130	103.3	
11	B	2	45	22.36	ppb	0.53	20.00	70 -	130	111.8	
23	Na	1	45	89.51	ppb	0.92	100.00	70 -	130	89.5	
24	Mg	1	45	104.30	ppb	1.74	100.00	70 -	130	104.3	
27	Al	1	45	118.70	ppb	4.84	100.00	70 -	130	118.7	
39	K	1	45	100.50	ppb	1.04	100.00	70 -	130	100.5	
44	Ca	2	45	105.10	ppb	1.46	100.00	70 -	130	105.1	
47	Ti	1	45	5.16	ppb	6.72	5.00	70 -	130	103.1	
51	V	1	45	1.11	ppb	1.46	1.00	70 -	130	110.5	
52	Cr	1	45	5.15	ppb	1.58	5.00	70 -	130	103.0	
55	Mn	1	45	4.90	ppb	3.30	5.00	70 -	130	98.0	
56	Fe	1	72	120.20	ppb	2.43	100.00	70 -	130	120.2	
59	Co	1	72	5.11	ppb	1.46	5.00	70 -	130	102.2	
60	Ni	1	72	5.10	ppb	0.38	5.00	70 -	130	101.9	
63	Cu	1	72	5.06	ppb	1.10	5.00	70 -	130	101.2	
66	Zn	1	72	-8.83	ppb	1.43	5.00	70 -	130	-176.6	Fail
75	As	1	72	5.26	ppb	1.15	5.00	70 -	130	105.2	
78	Se	1	72	5.69	ppb	6.20	5.00	70 -	130	113.7	
88	Sr	2	115	5.18	ppb	2.95	5.00	70 -	130	103.5	
95	Mo	2	115	4.93	ppb	2.60	5.00	70 -	130	98.7	
107	Ag	2	115	2.11	ppb	2.58	2.00	70 -	130	105.5	
111	Cd	2	115	1.12	ppb	9.81	1.00	70 -	130	111.8	
118	Sn	2	115	4.96	ppb	0.89	5.00	70 -	130	99.2	
121	Sb	2	115	2.06	ppb	0.96	2.00	70 -	130	103.1	
137	Ba	2	115	5.10	ppb	1.51	5.00	70 -	130	102.0	
205	Tl	2	209	1.12	ppb	2.59	1.00	70 -	130	112.4	
208	Pb	2	209	1.08	ppb	3.53	1.00	70 -	130	107.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1883.23	4.70	15.28	-12325.4	70 -	120	ISFail
45	Sc	1	163221.86	1.06	182515.06	89.4	70 -	120	
45	Sc	2	5221868.50	1.40	6126960.50	85.2	70 -	120	
72	Ge	1	86139.48	0.87	97742.99	88.1	70 -	120	
115	In	2	5310410.00	0.90	6508670.50	81.6	70 -	120	
209	Bi	2	3526863.80	0.11	4337985.50	81.3	70 -	120	

CCB QC Report C:\ICPCHEM\1\DATA\16H05l00.B\044_CCB.D\044_CCB.D#

Date Acquired:	Aug 5 2016 03:31 pm	Sample Name:	CCB1-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.	RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.145 ppb	7.84	2.00	2.00	
9	Be	2	45	0.030 ppb	26.71	0.40	0.30	
11	B	2	45	2.047 ppb	1.75	10.00	10.00	
23	Na	1	45	-8.384 ppb	1.48	50.00	#####	
24	Mg	1	45	0.280 ppb	21.27	50.00	#####	
27	Al	1	45	3.829 ppb	1.12	50.00	10.00	
39	K	1	45	-2.470 ppb	3.99	50.00	#####	
44	Ca	2	45	-0.881 ppb	5.31	50.00	#####	
47	Ti	1	45	0.099 ppb	24.74	4.00	3.00	
51	V	1	45	0.066 ppb	5.58	4.00	3.00	
52	Cr	1	45	0.011 ppb	16.35	2.00	2.00	
55	Mn	1	45	-0.113 ppb	13.79	2.00	3.00	
56	Fe	1	72	4.660 ppb	14.35	50.00	30.00	
59	Co	1	72	0.050 ppb	16.06	2.00	3.00	
60	Ni	1	72	-0.016 ppb	0.00	2.00	3.00	
63	Cu	1	72	0.763 ppb	141.30	2.00	2.00	
66	Zn	1	72	-14.010 ppb	11.86	4.00	2.00	
75	As	1	72	-0.019 ppb	8.89	2.00	2.00	
78	Se	1	72	0.131 ppb	9.25	0.60	2.00	
88	Sr	2	115	0.045 ppb	1.40	4.00	3.00	
95	Mo	2	115	0.057 ppb	14.43	2.00	2.00	
107	Ag	2	115	0.037 ppb	14.52	0.40	1.00	
111	Cd	2	115	0.048 ppb	21.16	0.40	0.30	
118	Sn	2	115	-0.061 ppb	13.14	20.00	3.00	
121	Sb	2	115	0.053 ppb	8.33	2.00	0.80	
137	Ba	2	115	0.032 ppb	25.95	2.00	3.00	
205	Tl	2	209	0.078 ppb	13.68	2.00	0.50	
208	Pb	2	209	0.073 ppb	4.30	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-15.34	106.79	15.28	-100.4	70 - 120	ISFail
45	Sc	1		160342.11	0.69	182515.06	87.9	70 - 120	
45	Sc	2		5110273.50	1.49	6126960.50	83.4	70 - 120	
72	Ge	1		85578.78	0.58	97742.99	87.6	70 - 120	
115	In	2		5184991.00	0.47	6508670.50	79.7	70 - 120	
209	Bi	2		3446338.50	0.32	4337985.50	79.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\057CCV1.D\057CCV1.D#

Date Acquired:	Aug 5 2016 04:48 pm	Sample Name:	CCV2-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	204.50	ppb	0.21	200.00	90	-	110	102.3	
9	Be	2	45	193.50	ppb	1.27	200.00	90	-	110	96.8	
11	B	2	45	184.10	ppb	2.02	200.00	90	-	110	92.1	
23	Na	1	45	5213.00	ppb	0.14	5000.00	90	-	110	104.3	
24	Mg	1	45	4990.00	ppb	0.70	5000.00	90	-	110	99.8	
27	Al	1	45	5154.00	ppb	1.19	5000.00	90	-	110	103.1	
39	K	1	45	5181.00	ppb	0.51	5000.00	90	-	110	103.6	
44	Ca	2	45	5413.00	ppb	1.44	5000.00	90	-	110	108.3	
47	Ti	1	45	199.20	ppb	0.97	200.00	90	-	110	99.6	
51	V	1	45	197.20	ppb	0.41	200.00	90	-	110	98.6	
52	Cr	1	45	201.00	ppb	0.57	200.00	90	-	110	100.5	
55	Mn	1	45	203.50	ppb	0.82	200.00	90	-	110	101.8	
56	Fe	1	72	5181.00	ppb	0.81	5000.00	90	-	110	103.6	
59	Co	1	72	204.40	ppb	0.39	200.00	90	-	110	102.2	
60	Ni	1	72	201.00	ppb	0.46	200.00	90	-	110	100.5	
63	Cu	1	72	206.70	ppb	0.30	200.00	90	-	110	103.4	
66	Zn	1	72	194.20	ppb	1.44	200.00	90	-	110	97.1	
75	As	1	72	204.80	ppb	0.25	200.00	90	-	110	102.4	
78	Se	1	72	213.90	ppb	1.15	200.00	90	-	110	107.0	
88	Sr	2	115	211.20	ppb	1.48	200.00	90	-	110	105.6	
95	Mo	2	115	199.00	ppb	1.47	200.00	90	-	110	99.5	
107	Ag	2	115	204.70	ppb	1.12	200.00	90	-	110	102.4	
111	Cd	2	115	200.40	ppb	1.17	200.00	90	-	110	100.2	
118	Sn	2	115	198.60	ppb	0.72	200.00	90	-	110	99.3	
121	Sb	2	115	195.90	ppb	1.15	200.00	90	-	110	98.0	
137	Ba	2	115	199.40	ppb	0.68	200.00	90	-	110	99.7	
205	Tl	2	209	197.40	ppb	0.97	200.00	90	-	110	98.7	
208	Pb	2	209	197.80	ppb	0.49	200.00	90	-	110	98.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-52587.95	0.47	15.28	-344177.6	70	-	120	ISFail
45	Sc	1	135803.44	0.37	182515.06	74.4	70	-	120	
45	Sc	2	4400504.00	0.62	6126960.50	71.8	70	-	120	
72	Ge	1	71211.27	0.70	97742.99	72.9	70	-	120	
115	In	2	4310293.50	1.03	6508670.50	66.2	70	-	120	ISFail
209	Bi	2	2819500.30	0.44	4337985.50	65.0	70	-	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\058_CCB.D\058_CCB.D#

Date Acquired:	Aug 5 2016 04:54 pm	Sample Name:	CCB2-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.274	ppb	6.50	2.00	2.00	
9	Be	2	45	0.158	ppb	13.85	0.40	0.30	
11	B	2	45	2.775	ppb	4.36	10.00	10.00	
23	Na	1	45	1.341	ppb	2.43	50.00	#####	
24	Mg	1	45	7.112	ppb	6.68	50.00	#####	
27	Al	1	45	14.080	ppb	12.02	50.00	10.00	FailAq
39	K	1	45	7.231	ppb	3.62	50.00	#####	
44	Ca	2	45	24.060	ppb	4.55	50.00	#####	
47	Ti	1	45	0.332	ppb	10.83	4.00	3.00	
51	V	1	45	0.221	ppb	7.31	4.00	3.00	
52	Cr	1	45	0.196	ppb	11.89	2.00	2.00	
55	Mn	1	45	0.290	ppb	8.37	2.00	3.00	
56	Fe	1	72	19.940	ppb	7.78	50.00	30.00	
59	Co	1	72	0.187	ppb	10.53	2.00	3.00	
60	Ni	1	72	0.162	ppb	8.45	2.00	3.00	
63	Cu	1	72	0.128	ppb	4.18	2.00	2.00	
66	Zn	1	72	-13.680	ppb	6.05	4.00	2.00	
75	As	1	72	0.121	ppb	2.53	2.00	2.00	
78	Se	1	72	0.437	ppb	4.97	0.60	2.00	
88	Sr	2	115	0.307	ppb	6.15	4.00	3.00	
95	Mo	2	115	0.261	ppb	9.52	2.00	2.00	
107	Ag	2	115	0.148	ppb	8.16	0.40	1.00	
111	Cd	2	115	0.164	ppb	21.11	0.40	0.30	
118	Sn	2	115	0.096	ppb	2.61	20.00	3.00	
121	Sb	2	115	0.229	ppb	1.41	2.00	0.80	
137	Ba	2	115	0.183	ppb	13.09	2.00	3.00	
205	Tl	2	209	0.314	ppb	2.03	2.00	0.50	
208	Pb	2	209	0.250	ppb	5.15	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-45.90	51.24	15.28	-300.4	70 - 120	ISFail
45	Sc	1		132871.17	0.60	182515.06	72.8	70 - 120	
45	Sc	2		4152631.00	1.21	6126960.50	67.8	70 - 120	ISFail
72	Ge	1		70954.86	0.48	97742.99	72.6	70 - 120	
115	In	2		4094570.80	0.32	6508670.50	62.9	70 - 120	ISFail
209	Bi	2		2736779.80	0.45	4337985.50	63.1	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\059LCVL.D\059LCVL.D#

Date Acquired:	Aug 5 2016 05:00 pm	Sample Name:	LCVL2-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Rec(%)	Flag
7	Li	2	45	10.12	ppb	2.17	10.00	70	-	130	101.2	
9	Be	2	45	0.99	ppb	6.49	1.00	70	-	130	98.5	
11	B	2	45	20.14	ppb	1.65	20.00	70	-	130	100.7	
23	Na	1	45	90.03	ppb	2.08	100.00	70	-	130	90.0	
24	Mg	1	45	101.20	ppb	0.35	100.00	70	-	130	101.2	
27	Al	1	45	107.20	ppb	0.95	100.00	70	-	130	107.2	
39	K	1	45	105.10	ppb	1.16	100.00	70	-	130	105.1	
44	Ca	2	45	99.98	ppb	2.49	100.00	70	-	130	100.0	
47	Ti	1	45	4.97	ppb	20.74	5.00	70	-	130	99.5	
51	V	1	45	1.06	ppb	2.89	1.00	70	-	130	105.7	
52	Cr	1	45	5.13	ppb	2.69	5.00	70	-	130	102.5	
55	Mn	1	45	4.80	ppb	1.15	5.00	70	-	130	96.0	
56	Fe	1	72	112.70	ppb	1.17	100.00	70	-	130	112.7	
59	Co	1	72	5.09	ppb	0.56	5.00	70	-	130	101.8	
60	Ni	1	72	5.05	ppb	3.32	5.00	70	-	130	101.0	
63	Cu	1	72	5.11	ppb	1.76	5.00	70	-	130	102.1	
66	Zn	1	72	-8.61	ppb	2.41	5.00	70	-	130	-172.2	Fail
75	As	1	72	5.19	ppb	0.30	5.00	70	-	130	103.9	
78	Se	1	72	5.86	ppb	2.84	5.00	70	-	130	117.1	
88	Sr	2	115	5.21	ppb	2.80	5.00	70	-	130	104.2	
95	Mo	2	115	4.90	ppb	3.68	5.00	70	-	130	98.1	
107	Ag	2	115	2.08	ppb	3.82	2.00	70	-	130	104.2	
111	Cd	2	115	1.03	ppb	6.47	1.00	70	-	130	102.5	
118	Sn	2	115	4.91	ppb	1.54	5.00	70	-	130	98.2	
121	Sb	2	115	2.01	ppb	1.59	2.00	70	-	130	100.5	
137	Ba	2	115	4.99	ppb	2.48	5.00	70	-	130	99.9	
205	Tl	2	209	1.08	ppb	3.17	1.00	70	-	130	108.2	
208	Pb	2	209	1.05	ppb	3.45	1.00	70	-	130	105.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1463.73	4.20	15.28	-9579.8	70	-	120	ISFail
45	Sc	1	130949.37	0.17	182515.06	71.7	70	-	120	
45	Sc	2	4105053.00	1.51	6126960.50	67.0	70	-	120	ISFail
72	Ge	1	70216.88	0.73	97742.99	71.8	70	-	120	
115	In	2	4011011.30	0.84	6508670.50	61.6	70	-	120	ISFail
209	Bi	2	2712062.00	0.32	4337985.50	62.5	70	-	120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\060__PB.D\060__PB.D#

Date Acquired:	Aug 5 2016 05:06 pm	Sample Name:	MB-76623
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD:
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.090	ppb	9.79	2.0	8.00	
9	Be	2	45	-0.005	ppb	79.57	0.4	1.20	
11	B	2	45	1.574	ppb	8.91	10.0	30.00	
23	Na	1	45	-8.816	ppb	0.90	50.0	#####	
24	Mg	1	45	1.309	ppb	14.04	50.0	#####	
27	Al	1	45	3.201	ppb	6.96	50.0	#####	
39	K	1	45	0.178	ppb	2.58	50.0	#####	
44	Ca	2	45	3.723	ppb	7.66	50.0	#####	
47	Ti	1	45	0.200	ppb	91.64	4.0	10.00	
51	V	1	45	0.038	ppb	1.90	4.0	10.00	
52	Cr	1	45	0.125	ppb	3.73	2.0	8.00	
55	Mn	1	45	-0.187	ppb	7.66	2.0	8.00	
56	Fe	1	72	5.277	ppb	6.71	50.0	#####	
59	Co	1	72	0.018	ppb	26.85	2.0	8.00	
60	Ni	1	72	-0.013	ppb	2.50	2.0	8.00	
63	Cu	1	72	-0.146	ppb	10.18	2.0	8.00	
66	Zn	1	72	-13.840	ppb	25.14	4.0	10.00	
75	As	1	72	-0.075	ppb	2.58	2.0	4.00	
78	Se	1	72	0.294	ppb	8.94	0.6	2.00	
88	Sr	2	115	0.059	ppb	19.63	4.0	10.00	
95	Mo	2	115	0.046	ppb	36.45	2.0	8.00	
107	Ag	2	115	0.018	ppb	30.20	0.4	0.80	
111	Cd	2	115	0.016	ppb	45.28	0.4	1.20	
118	Sn	2	115	4.429	ppb	3.71	20.0	40.00	
121	Sb	2	115	0.020	ppb	2.34	2.0	4.00	
137	Ba	2	115	0.036	ppb	37.24	2.0	8.00	
205	Tl	2	209	0.052	ppb	16.89	2.0	4.00	
208	Pb	2	209	0.068	ppb	13.57	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-17.25	72.02	15.28	-112.9	70 - 120	ISFail
45	Sc	1		130078.78	0.39	182515.06	71.3	70 - 120	
45	Sc	2		4057646.00	1.07	6126960.50	66.2	70 - 120	ISFail
72	Ge	1		68394.40	0.51	97742.99	70.0	70 - 120	ISFail
115	In	2		3917343.80	0.37	6508670.50	60.2	70 - 120	ISFail
209	Bi	2		2660415.00	0.69	4337985.50	61.3	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\061_LCS.D\061_LCS.D#

Date Acquired:	Aug 5 2016 05:12 pm	Sample Name:	LCS-76623
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	194.70	ppb	1.97	200.00	80 -	120	97.4	
9	Be	2	45	179.00	ppb	1.06	200.00	80 -	120	89.5	
11	B	2	45	172.10	ppb	1.44	200.00	80 -	120	86.1	
23	Na	1	45	5044.00	ppb	0.30	5000.00	80 -	120	100.9	
24	Mg	1	45	4834.00	ppb	0.62	5000.00	80 -	120	96.7	
27	Al	1	45	1016.00	ppb	1.74	1000.00	80 -	120	101.6	
39	K	1	45	5079.00	ppb	0.74	5000.00	80 -	120	101.6	
44	Ca	2	45	5194.00	ppb	1.59	5000.00	80 -	120	103.9	
47	Ti	1	45	189.50	ppb	2.35	200.00	80 -	120	94.8	
51	V	1	45	191.50	ppb	0.44	200.00	80 -	120	95.8	
52	Cr	1	45	194.50	ppb	0.81	200.00	80 -	120	97.3	
55	Mn	1	45	199.70	ppb	0.76	200.00	80 -	120	99.9	
56	Fe	1	72	997.60	ppb	0.58	1000.00	80 -	120	99.8	
59	Co	1	72	196.60	ppb	0.57	200.00	80 -	120	98.3	
60	Ni	1	72	193.00	ppb	0.23	200.00	80 -	120	96.5	
63	Cu	1	72	197.20	ppb	0.25	200.00	80 -	120	98.6	
66	Zn	1	72	181.70	ppb	0.83	200.00	80 -	120	90.9	
75	As	1	72	192.20	ppb	0.72	200.00	80 -	120	96.1	
78	Se	1	72	194.10	ppb	0.89	200.00	80 -	120	97.1	
88	Sr	2	115	203.40	ppb	1.91	200.00	80 -	120	101.7	
95	Mo	2	115	192.90	ppb	1.74	200.00	80 -	120	96.5	
107	Ag	2	115	193.80	ppb	1.56	200.00	80 -	120	96.9	
111	Cd	2	115	188.00	ppb	1.83	200.00	80 -	120	94.0	
118	Sn	2	115	197.70	ppb	1.00	200.00	80 -	120	98.9	
121	Sb	2	115	183.80	ppb	0.82	200.00	80 -	120	91.9	
137	Ba	2	115	194.20	ppb	1.24	200.00	80 -	120	97.1	
205	Tl	2	209	192.30	ppb	1.19	200.00	80 -	120	96.2	
208	Pb	2	209	192.20	ppb	1.16	200.00	80 -	120	96.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-45472.61	2.83	15.28	-297609.1	70 -	120	ISFail
45	Sc	1	127024.15	0.63	182515.06	69.6	70 -	120	ISFail
45	Sc	2	3955222.80	1.13	6126960.50	64.6	70 -	120	ISFail
72	Ge	1	66741.87	0.70	97742.99	68.3	70 -	120	ISFail
115	In	2	3786410.30	0.88	6508670.50	58.2	70 -	120	ISFail
209	Bi	2	2512484.50	0.66	4337985.50	57.9	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\062_LCS.D\062_LCS.D#

Date Acquired:	Aug 5 2016 05:18 pm	Sample Name:	LCSD-76623
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	192.80	ppb	2.08	200.00	80 -	120	96.4	
9	Be	2	45	177.30	ppb	1.65	200.00	80 -	120	88.7	
11	B	2	45	173.30	ppb	1.19	200.00	80 -	120	86.7	
23	Na	1	45	4993.00	ppb	1.66	5000.00	80 -	120	99.9	
24	Mg	1	45	4787.00	ppb	0.49	5000.00	80 -	120	95.7	
27	Al	1	45	1015.00	ppb	1.34	1000.00	80 -	120	101.5	
39	K	1	45	5040.00	ppb	0.30	5000.00	80 -	120	100.8	
44	Ca	2	45	5176.00	ppb	2.10	5000.00	80 -	120	103.5	
47	Ti	1	45	191.60	ppb	2.48	200.00	80 -	120	95.8	
51	V	1	45	189.90	ppb	1.06	200.00	80 -	120	95.0	
52	Cr	1	45	192.50	ppb	0.30	200.00	80 -	120	96.3	
55	Mn	1	45	198.80	ppb	0.54	200.00	80 -	120	99.4	
56	Fe	1	72	993.30	ppb	0.64	1000.00	80 -	120	99.3	
59	Co	1	72	195.00	ppb	0.36	200.00	80 -	120	97.5	
60	Ni	1	72	191.30	ppb	0.45	200.00	80 -	120	95.7	
63	Cu	1	72	195.70	ppb	0.28	200.00	80 -	120	97.9	
66	Zn	1	72	181.30	ppb	1.38	200.00	80 -	120	90.7	
75	As	1	72	191.20	ppb	0.41	200.00	80 -	120	95.6	
78	Se	1	72	196.20	ppb	1.38	200.00	80 -	120	98.1	
88	Sr	2	115	204.10	ppb	1.89	200.00	80 -	120	102.1	
95	Mo	2	115	193.20	ppb	1.14	200.00	80 -	120	96.6	
107	Ag	2	115	197.30	ppb	1.71	200.00	80 -	120	98.7	
111	Cd	2	115	187.50	ppb	1.31	200.00	80 -	120	93.8	
118	Sn	2	115	198.50	ppb	1.48	200.00	80 -	120	99.3	
121	Sb	2	115	186.70	ppb	0.82	200.00	80 -	120	93.4	
137	Ba	2	115	195.00	ppb	1.45	200.00	80 -	120	97.5	
205	Tl	2	209	191.50	ppb	1.00	200.00	80 -	120	95.8	
208	Pb	2	209	191.70	ppb	1.00	200.00	80 -	120	95.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-44084.74	3.33	15.28	-288525.7	70 -	120	ISFail
45	Sc	1	127009.59	0.52	182515.06	69.6	70 -	120	ISFail
45	Sc	2	3891415.00	1.35	6126960.50	63.5	70 -	120	ISFail
72	Ge	1	66390.02	0.77	97742.99	67.9	70 -	120	ISFail
115	In	2	3699871.50	0.39	6508670.50	56.8	70 -	120	ISFail
209	Bi	2	2481514.80	0.64	4337985.50	57.2	70 -	120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\065DT1.D\065DT1.D#

Date Acquired:	Aug 5 2016 05:36 pm	Sample Name:	1607239-21A SD
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	23.43	ppb	0.80	-2664.87	90 - 110	-4.4	
9	Be	2	45	0.69	ppb	6.82	3.35	90 - 110	102.5	GOOD
11	B	2	45	27.91	ppb	1.00	130.30	90 - 110	107.1	GOOD
23	Na	1	45	1934.00	ppb	0.86	9974.00	90 - 110	97.0	GOOD
24	Mg	1	45	4931.00	ppb	0.61	24950.00	90 - 110	98.8	GOOD
27	Al	1	45	14010.00	ppb	0.58	71080.00	90 - 110	98.6	GOOD
39	K	1	45	3577.00	ppb	0.43	18280.00	90 - 110	97.8	GOOD
44	Ca	2	45	8810.00	ppb	1.11	41800.00	90 - 110	105.4	GOOD
47	Ti	1	45	32.59	ppb	6.52	167.00	90 - 110	97.6	GOOD
51	V	1	45	22.34	ppb	1.19	110.90	90 - 110	100.7	GOOD
52	Cr	1	45	14.91	ppb	0.96	73.81	90 - 110	101.0	GOOD
55	Mn	1	45	396.40	ppb	0.65	1935.00	90 - 110	102.4	GOOD
56	Fe	1	72	26740.00	ppb	0.48	134600.00	90 - 110	99.3	GOOD
59	Co	1	72	7.37	ppb	1.17	36.91	90 - 110	99.8	GOOD
60	Ni	1	72	10.33	ppb	2.52	51.04	90 - 110	101.2	GOOD
63	Cu	1	72	2.05	ppb	1.29	10.68	90 - 110	96.1	GOOD
66	Zn	1	72	42.44	ppb	1.46	244.90	90 - 110	86.6	
75	As	1	72	5.51	ppb	1.66	26.49	90 - 110	103.9	GOOD
78	Se	1	72	3.48	ppb	8.19	17.01	90 - 110	102.3	GOOD
88	Sr	2	115	26.41	ppb	1.32	135.60	90 - 110	97.4	GOOD
95	Mo	2	115	0.25	ppb	10.20	1.05	90 - 110	118.3	
107	Ag	2	115	0.05	ppb	22.38	0.18	90 - 110	124.3	
111	Cd	2	115	0.29	ppb	26.44	1.47	90 - 110	98.6	GOOD
118	Sn	2	115	1.04	ppb	0.33	6.48	90 - 110	79.9	
121	Sb	2	115	0.06	ppb	10.12	0.22	90 - 110	144.4	
137	Ba	2	115	16.80	ppb	2.18	85.75	90 - 110	98.0	GOOD
205	Tl	2	209	0.26	ppb	2.20	1.22	90 - 110	105.2	GOOD
208	Pb	2	209	6.84	ppb	0.52	35.26	90 - 110	97.0	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-2664.87	5.66	15.28	-17441.0	70 -	120	ISFail
45	Sc	1		123962.26	0.27	182515.06	67.9	70 -	120	ISFail
45	Sc	2		3672007.80	0.42	6126960.50	59.9	70 -	120	ISFail
72	Ge	1		65678.38	0.39	97742.99	67.2	70 -	120	ISFail
115	In	2		3498058.30	0.47	6508670.50	53.7	70 -	120	ISFail
209	Bi	2		2384464.50	0.67	4337985.50	55.0	70 -	120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\076_PDS.D\076_PDS.D#

Date Acquired:	Aug 5 2016 06:42 pm	Sample Name:	1607239-21A PDS
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	282.90	ppb	0.94	-33362.23	200	75-125	######	Fail
9	Be	2	45	160.50	ppb	1.22	3.35	200	75-125	78.6	
11	B	2	45	275.40	ppb	1.32	130.30	200	75-125	72.6	Fail
23	Na	1	45	14720.00	ppb	1.35	9974.00	5000	75-125	94.9	
24	Mg	1	45	29920.00	ppb	1.99	24950.00	5000	75-125	99.4	
27	Al	1	45	76870.00	ppb	1.52	71080.00	5000	75-125	115.8	
39	K	1	45	23200.00	ppb	1.47	18280.00	5000	75-125	98.4	
44	Ca	2	45	47290.00	ppb	1.65	41800.00	5000	75-125	109.8	
47	Ti	1	45	362.60	ppb	2.44	167.00	200	75-125	97.8	
51	V	1	45	302.40	ppb	1.80	110.90	200	75-125	95.8	
52	Cr	1	45	267.40	ppb	1.41	73.81	200	75-125	96.8	
55	Mn	1	45	2174.00	ppb	1.29	1935.00	200	75-125	119.5	
56	Fe	1	72	140600.00	ppb	1.29	134600.00	5000	75-125	120.0	
59	Co	1	72	223.30	ppb	1.59	36.91	200	75-125	93.2	
60	Ni	1	72	231.00	ppb	1.58	51.04	200	75-125	90.0	
63	Cu	1	72	188.30	ppb	1.71	10.68	200	75-125	88.8	
66	Zn	1	72	426.50	ppb	1.47	244.90	200	75-125	90.8	
75	As	1	72	209.00	ppb	1.42	26.49	200	75-125	91.3	
78	Se	1	72	195.20	ppb	2.77	17.01	200	75-125	89.1	
88	Sr	2	115	350.90	ppb	1.85	135.60	200	75-125	107.6	
95	Mo	2	115	190.00	ppb	1.40	1.05	200	75-125	94.5	
107	Ag	2	115	187.70	ppb	1.26	0.18	200	75-125	93.8	
111	Cd	2	115	180.20	ppb	1.45	1.47	200	75-125	89.4	
118	Sn	2	115	199.70	ppb	0.70	6.48	200	75-125	96.6	
121	Sb	2	115	184.30	ppb	1.01	0.22	200	75-125	92.0	
137	Ba	2	115	284.10	ppb	0.95	85.75	200	75-125	99.2	
205	Tl	2	209	189.90	ppb	1.09	1.22	200	75-125	94.3	
208	Pb	2	209	226.50	ppb	0.62	35.26	200	75-125	95.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-33362.23	0.64	15.28	-218349.1	70 -	120	ISFail
45	Sc	1	112181.99	1.83	182515.06	61.5	70 -	120	ISFail
45	Sc	2	3349373.30	1.71	6126960.50	54.7	70 -	120	ISFail
72	Ge	1	58752.98	1.44	97742.99	60.1	70 -	120	ISFail
115	In	2	3089465.80	0.49	6508670.50	47.5	70 -	120	ISFail
209	Bi	2	2076188.50	0.60	4337985.50	47.9	70 -	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\077_MS.D\077_MS.D#

Date Acquired:	Aug 5 2016 06:47 pm	Sample Name:	1607239-21A MS
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	274.80	ppb	0.42	########	200	80-120	######	Fail
9	Be	2	45	156.20	ppb	1.52	3.35	200	80-120	76.4	Fail
11	B	2	45	246.00	ppb	1.56	130.30	200	80-120	57.9	Fail
23	Na	1	45	14750.00	ppb	0.58	9974.00	5000	80-120	95.5	
24	Mg	1	45	30440.00	ppb	0.34	24950.00	5000	80-120	109.8	
27	Al	1	45	74490.00	ppb	0.59	71080.00	1000	80-120	341.0	Fail
39	K	1	45	21970.00	ppb	1.27	18280.00	5000	80-120	73.8	Fail
44	Ca	2	45	59250.00	ppb	2.16	41800.00	5000	80-120	349.0	Fail
47	Ti	1	45	266.90	ppb	2.25	167.00	200	80-120	50.0	Fail
51	V	1	45	288.60	ppb	0.19	110.90	200	80-120	88.9	
52	Cr	1	45	257.30	ppb	0.34	73.81	200	80-120	91.7	
55	Mn	1	45	1820.00	ppb	0.21	1935.00	200	80-120	-57.5	Fail
56	Fe	1	72	127100.00	ppb	0.21	########	1000	80-120	-750.0	Fail
59	Co	1	72	221.20	ppb	0.47	36.91	200	80-120	92.1	
60	Ni	1	72	221.40	ppb	0.37	51.04	200	80-120	85.2	
63	Cu	1	72	187.50	ppb	0.13	10.68	200	80-120	88.4	
66	Zn	1	72	413.60	ppb	0.08	244.90	200	80-120	84.4	
75	As	1	72	205.00	ppb	0.42	26.49	200	80-120	89.3	
78	Se	1	72	194.40	ppb	0.65	17.01	200	80-120	88.7	
88	Sr	2	115	361.60	ppb	1.19	135.60	200	80-120	113.0	
95	Mo	2	115	173.20	ppb	0.82	1.05	200	80-120	86.1	
107	Ag	2	115	185.30	ppb	1.05	0.18	200	80-120	92.6	
111	Cd	2	115	181.40	ppb	1.48	1.47	200	80-120	90.0	
118	Sn	2	115	192.20	ppb	1.01	6.48	200	80-120	92.9	
121	Sb	2	115	51.36	ppb	0.80	0.22	200	80-120	25.6	Fail
137	Ba	2	115	257.70	ppb	1.51	85.75	200	80-120	86.0	
205	Tl	2	209	190.60	ppb	0.85	1.22	200	80-120	94.7	
208	Pb	2	209	225.20	ppb	0.94	35.26	200	80-120	95.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-41034.40	0.80	15.28	########	70 -	120	ISFail
45	Sc	1	104713.27	0.58	182515.06	57.4	70 -	120	ISFail
45	Sc	2	3128943.30	1.35	6126960.50	51.1	70 -	120	ISFail
72	Ge	1	54708.18	0.40	97742.99	56.0	70 -	120	ISFail
115	In	2	2847770.80	0.47	6508670.50	43.8	70 -	120	ISFail
209	Bi	2	1934376.40	0.58	4337985.50	44.6	70 -	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\078_MS.D\078_MS.D#

Date Acquired:	Aug 5 2016 06:53 pm	Sample Name:	**1607239-21A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	277.10	ppb	1.31	########	200	80-120	######	Fail
9	Be	2	45	153.50	ppb	1.61	3.35	200	80-120	75.1	Fail
11	B	2	45	246.10	ppb	1.25	130.30	200	80-120	57.9	Fail
23	Na	1	45	15140.00	ppb	0.75	9974.00	5000	80-120	103.3	
24	Mg	1	45	30110.00	ppb	0.28	24950.00	5000	80-120	103.2	
27	Al	1	45	76570.00	ppb	0.57	71080.00	1000	80-120	549.0	Fail
39	K	1	45	22540.00	ppb	1.10	18280.00	5000	80-120	85.2	
44	Ca	2	45	65580.00	ppb	1.87	41800.00	5000	80-120	475.6	Fail
47	Ti	1	45	270.30	ppb	0.06	167.00	200	80-120	51.7	Fail
51	V	1	45	292.40	ppb	0.32	110.90	200	80-120	90.8	
52	Cr	1	45	259.90	ppb	0.46	73.81	200	80-120	93.0	
55	Mn	1	45	1856.00	ppb	0.51	1935.00	200	80-120	-39.5	Fail
56	Fe	1	72	133100.00	ppb	0.79	########	1000	80-120	-150.0	Fail
59	Co	1	72	228.30	ppb	0.55	36.91	200	80-120	95.7	
60	Ni	1	72	227.70	ppb	0.55	51.04	200	80-120	88.3	
63	Cu	1	72	187.50	ppb	0.97	10.68	200	80-120	88.4	
66	Zn	1	72	429.70	ppb	0.56	244.90	200	80-120	92.4	
75	As	1	72	206.40	ppb	0.46	26.49	200	80-120	90.0	
78	Se	1	72	194.80	ppb	2.00	17.01	200	80-120	88.9	
88	Sr	2	115	357.60	ppb	1.80	135.60	200	80-120	111.0	
95	Mo	2	115	172.00	ppb	1.82	1.05	200	80-120	85.5	
107	Ag	2	115	185.50	ppb	1.27	0.18	200	80-120	92.7	
111	Cd	2	115	177.30	ppb	1.33	1.47	200	80-120	87.9	
118	Sn	2	115	188.90	ppb	1.53	6.48	200	80-120	91.2	
121	Sb	2	115	50.91	ppb	1.22	0.22	200	80-120	25.3	Fail
137	Ba	2	115	250.00	ppb	0.51	85.75	200	80-120	82.1	
205	Tl	2	209	191.10	ppb	0.67	1.22	200	80-120	94.9	
208	Pb	2	209	224.40	ppb	0.96	35.26	200	80-120	94.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-40581.45	1.25	15.28	########	70 -	120	ISFail
45	Sc	1	102277.23	0.39	182515.06	56.0	70 -	120	ISFail
45	Sc	2	3048852.30	1.61	6126960.50	49.8	70 -	120	ISFail
72	Ge	1	53478.42	0.81	97742.99	54.7	70 -	120	ISFail
115	In	2	2781264.00	1.48	6508670.50	42.7	70 -	120	ISFail
209	Bi	2	1867216.30	0.31	4337985.50	43.0	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\080CCV1.D\080CCV1.D#

Date Acquired:	Aug 5 2016 07:05 pm	Sample Name:	CCV3-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	178.00	ppb	0.92	200.00	90 - 110	89.0	Fail
9	Be	2	45	171.50	ppb	0.63	200.00	90 - 110	85.8	Fail
11	B	2	45	164.60	ppb	1.02	200.00	90 - 110	82.3	Fail
23	Na	1	45	4841.00	ppb	0.59	5000.00	90 - 110	96.8	
24	Mg	1	45	4864.00	ppb	0.62	5000.00	90 - 110	97.3	
27	Al	1	45	5073.00	ppb	1.16	5000.00	90 - 110	101.5	
39	K	1	45	5128.00	ppb	1.05	5000.00	90 - 110	102.6	
44	Ca	2	45	5067.00	ppb	0.93	5000.00	90 - 110	101.3	
47	Ti	1	45	199.30	ppb	2.85	200.00	90 - 110	99.7	
51	V	1	45	194.80	ppb	1.14	200.00	90 - 110	97.4	
52	Cr	1	45	198.10	ppb	1.32	200.00	90 - 110	99.1	
55	Mn	1	45	206.10	ppb	1.14	200.00	90 - 110	103.1	
56	Fe	1	72	5056.00	ppb	1.21	5000.00	90 - 110	101.1	
59	Co	1	72	194.60	ppb	0.60	200.00	90 - 110	97.3	
60	Ni	1	72	191.40	ppb	0.99	200.00	90 - 110	95.7	
63	Cu	1	72	196.80	ppb	0.51	200.00	90 - 110	98.4	
66	Zn	1	72	193.20	ppb	1.34	200.00	90 - 110	96.6	
75	As	1	72	201.60	ppb	0.71	200.00	90 - 110	100.8	
78	Se	1	72	213.20	ppb	1.64	200.00	90 - 110	106.6	
88	Sr	2	115	208.50	ppb	1.05	200.00	90 - 110	104.3	
95	Mo	2	115	197.80	ppb	0.51	200.00	90 - 110	98.9	
107	Ag	2	115	202.90	ppb	0.78	200.00	90 - 110	101.5	
111	Cd	2	115	195.00	ppb	0.80	200.00	90 - 110	97.5	
118	Sn	2	115	194.40	ppb	0.09	200.00	90 - 110	97.2	
121	Sb	2	115	191.80	ppb	0.51	200.00	90 - 110	95.9	
137	Ba	2	115	198.40	ppb	0.89	200.00	90 - 110	99.2	
205	Tl	2	209	194.20	ppb	0.70	200.00	90 - 110	97.1	
208	Pb	2	209	193.70	ppb	0.11	200.00	90 - 110	96.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-31974.19	0.63	15.28	-209264.7	70 - 120	ISFail
45	Sc	1	96559.91	0.96	182515.06	52.9	70 - 120	ISFail
45	Sc	2	2984361.30	0.59	6126960.50	48.7	70 - 120	ISFail
72	Ge	1	52381.95	0.12	97742.99	53.6	70 - 120	ISFail
115	In	2	2714493.00	0.58	6508670.50	41.7	70 - 120	ISFail
209	Bi	2	1860731.40	0.88	4337985.50	42.9	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\082LCVL.D\082LCVL.D#

Date Acquired:	Aug 5 2016 07:17 pm	Sample Name:	LCVL3-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.87	ppb	0.44	10.00	70 -	130	88.7	
9	Be	2	45	0.87	ppb	4.06	1.00	70 -	130	87.2	
11	B	2	45	17.87	ppb	0.66	20.00	70 -	130	89.4	
23	Na	1	45	83.77	ppb	1.54	100.00	70 -	130	83.8	
24	Mg	1	45	99.55	ppb	1.16	100.00	70 -	130	99.6	
27	Al	1	45	108.60	ppb	1.08	100.00	70 -	130	108.6	
39	K	1	45	104.70	ppb	0.82	100.00	70 -	130	104.7	
44	Ca	2	45	95.44	ppb	2.38	100.00	70 -	130	95.4	
47	Ti	1	45	5.64	ppb	15.47	5.00	70 -	130	112.7	
51	V	1	45	1.06	ppb	7.41	1.00	70 -	130	106.4	
52	Cr	1	45	5.09	ppb	3.97	5.00	70 -	130	101.9	
55	Mn	1	45	4.86	ppb	3.27	5.00	70 -	130	97.2	
56	Fe	1	72	112.80	ppb	2.51	100.00	70 -	130	112.8	
59	Co	1	72	4.98	ppb	1.57	5.00	70 -	130	99.6	
60	Ni	1	72	4.82	ppb	2.55	5.00	70 -	130	96.4	
63	Cu	1	72	4.90	ppb	1.48	5.00	70 -	130	98.1	
66	Zn	1	72	-9.13	ppb	1.75	5.00	70 -	130	-182.5	Fail
75	As	1	72	5.09	ppb	2.94	5.00	70 -	130	101.8	
78	Se	1	72	5.81	ppb	7.56	5.00	70 -	130	116.2	
88	Sr	2	115	5.06	ppb	1.40	5.00	70 -	130	101.2	
95	Mo	2	115	5.03	ppb	1.95	5.00	70 -	130	100.5	
107	Ag	2	115	2.02	ppb	1.64	2.00	70 -	130	101.1	
111	Cd	2	115	1.00	ppb	0.74	1.00	70 -	130	99.6	
118	Sn	2	115	4.86	ppb	1.33	5.00	70 -	130	97.1	
121	Sb	2	115	2.02	ppb	6.93	2.00	70 -	130	101.0	
137	Ba	2	115	5.08	ppb	0.76	5.00	70 -	130	101.5	
205	Tl	2	209	1.10	ppb	1.13	1.00	70 -	130	109.5	
208	Pb	2	209	1.04	ppb	5.11	1.00	70 -	130	104.4	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-880.69	9.26	15.28	-5764.0	70 -	120	ISFail
45	Sc	1		94270.70	0.39	182515.06	51.7	70 -	120	ISFail
45	Sc	2		2849036.00	0.71	6126960.50	46.5	70 -	120	ISFail
72	Ge	1		51779.20	0.65	97742.99	53.0	70 -	120	ISFail
115	In	2		2628129.50	0.41	6508670.50	40.4	70 -	120	ISFail
209	Bi	2		1840413.50	0.30	4337985.50	42.4	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\083_CCB.D\083_CCB.D#

Date Acquired:	Aug 5 2016 07:24 pm	Sample Name:	**CCB3-160805**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.147	ppb	5.69	2.00	2.00	
9	Be	2	45	0.014	ppb	43.59	0.40	0.30	
11	B	2	45	1.391	ppb	1.03	10.00	10.00	
23	Na	1	45	-12.210	ppb	2.26	50.00	#####	
24	Mg	1	45	0.448	ppb	8.56	50.00	#####	
27	Al	1	45	1.930	ppb	9.54	50.00	10.00	
39	K	1	45	-0.926	ppb	1.57	50.00	#####	
44	Ca	2	45	-4.102	ppb	5.15	50.00	#####	
47	Ti	1	45	0.031	ppb	86.60	4.00	3.00	
51	V	1	45	0.055	ppb	12.86	4.00	3.00	
52	Cr	1	45	0.018	ppb	19.42	2.00	2.00	
55	Mn	1	45	-0.094	ppb	22.32	2.00	3.00	
56	Fe	1	72	4.447	ppb	8.36	50.00	30.00	
59	Co	1	72	0.044	ppb	2.65	2.00	3.00	
60	Ni	1	72	-0.031	ppb	27.74	2.00	3.00	
63	Cu	1	72	-0.111	ppb	15.28	2.00	2.00	
66	Zn	1	72	-13.820	ppb	4.64	4.00	2.00	
75	As	1	72	-0.063	ppb	7.87	2.00	2.00	
78	Se	1	72	0.317	ppb	18.45	0.60	2.00	
88	Sr	2	115	0.034	ppb	8.32	4.00	3.00	
95	Mo	2	115	0.056	ppb	33.33	2.00	2.00	
107	Ag	2	115	0.038	ppb	10.65	0.40	1.00	
111	Cd	2	115	0.043	ppb	51.04	0.40	0.30	
118	Sn	2	115	-0.075	ppb	21.89	20.00	3.00	
121	Sb	2	115	0.065	ppb	17.38	2.00	0.80	
137	Ba	2	115	0.033	ppb	30.76	2.00	3.00	
205	Tl	2	209	0.086	ppb	13.22	2.00	0.50	
208	Pb	2	209	0.041	ppb	11.32	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-22.51	81.75	15.28	-147.3	70 - 120	ISFail
45	Sc	1		93899.19	0.25	182515.06	51.4	70 - 120	ISFail
45	Sc	2		2837484.80	0.80	6126960.50	46.3	70 - 120	ISFail
72	Ge	1		51527.91	0.16	97742.99	52.7	70 - 120	ISFail
115	In	2		2606092.50	0.81	6508670.50	40.0	70 - 120	ISFail
209	Bi	2		1824827.00	1.07	4337985.50	42.1	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\096CCV1.D\096CCV1.D#

Date Acquired:	Aug 5 2016 08:42 pm	Sample Name:	CCV4-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	184.50	ppb	1.59	200.00	90 -	110	92.3	
9	Be	2	45	175.80	ppb	1.17	200.00	90 -	110	87.9	Fail
11	B	2	45	166.80	ppb	0.99	200.00	90 -	110	83.4	Fail
23	Na	1	45	4933.00	ppb	1.04	5000.00	90 -	110	98.7	
24	Mg	1	45	4930.00	ppb	1.51	5000.00	90 -	110	98.6	
27	Al	1	45	5093.00	ppb	1.44	5000.00	90 -	110	101.9	
39	K	1	45	5189.00	ppb	1.13	5000.00	90 -	110	103.8	
44	Ca	2	45	5165.00	ppb	1.90	5000.00	90 -	110	103.3	
47	Ti	1	45	199.00	ppb	2.23	200.00	90 -	110	99.5	
51	V	1	45	198.50	ppb	0.94	200.00	90 -	110	99.3	
52	Cr	1	45	201.70	ppb	1.49	200.00	90 -	110	100.9	
55	Mn	1	45	208.10	ppb	0.96	200.00	90 -	110	104.1	
56	Fe	1	72	5157.00	ppb	1.10	5000.00	90 -	110	103.1	
59	Co	1	72	198.80	ppb	1.44	200.00	90 -	110	99.4	
60	Ni	1	72	194.80	ppb	1.05	200.00	90 -	110	97.4	
63	Cu	1	72	202.30	ppb	1.68	200.00	90 -	110	101.2	
66	Zn	1	72	194.60	ppb	1.52	200.00	90 -	110	97.3	
75	As	1	72	205.10	ppb	1.16	200.00	90 -	110	102.6	
78	Se	1	72	214.70	ppb	1.34	200.00	90 -	110	107.4	
88	Sr	2	115	213.60	ppb	1.25	200.00	90 -	110	106.8	
95	Mo	2	115	201.80	ppb	0.71	200.00	90 -	110	100.9	
107	Ag	2	115	206.30	ppb	0.72	200.00	90 -	110	103.2	
111	Cd	2	115	198.90	ppb	1.29	200.00	90 -	110	99.5	
118	Sn	2	115	196.30	ppb	1.05	200.00	90 -	110	98.2	
121	Sb	2	115	193.20	ppb	0.73	200.00	90 -	110	96.6	
137	Ba	2	115	200.50	ppb	1.52	200.00	90 -	110	100.3	
205	Tl	2	209	196.00	ppb	0.36	200.00	90 -	110	98.0	
208	Pb	2	209	195.70	ppb	0.18	200.00	90 -	110	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-32735.49	1.63	15.28	-214247.2	70 -	120	ISFail
45	Sc	1	92563.81	0.62	182515.06	50.7	70 -	120	ISFail
45	Sc	2	2991547.80	0.75	6126960.50	48.8	70 -	120	ISFail
72	Ge	1	50220.67	1.03	97742.99	51.4	70 -	120	ISFail
115	In	2	2688048.50	0.07	6508670.50	41.3	70 -	120	ISFail
209	Bi	2	1822637.50	0.68	4337985.50	42.0	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\098LCVL.D\098LCVL.D#

Date Acquired:	Aug 5 2016 08:54 pm	Sample Name:	LCVL4-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.17	ppb	1.32	10.00	70 -	130	91.7	
9	Be	2	45	0.86	ppb	1.39	1.00	70 -	130	85.6	
11	B	2	45	17.66	ppb	1.43	20.00	70 -	130	88.3	
23	Na	1	45	83.84	ppb	2.90	100.00	70 -	130	83.8	
24	Mg	1	45	99.10	ppb	5.39	100.00	70 -	130	99.1	
27	Al	1	45	107.70	ppb	2.21	100.00	70 -	130	107.7	
39	K	1	45	106.60	ppb	1.37	100.00	70 -	130	106.6	
44	Ca	2	45	99.59	ppb	1.41	100.00	70 -	130	99.6	
47	Ti	1	45	5.90	ppb	8.15	5.00	70 -	130	118.0	
51	V	1	45	1.07	ppb	0.72	1.00	70 -	130	107.0	
52	Cr	1	45	5.24	ppb	3.59	5.00	70 -	130	104.8	
55	Mn	1	45	4.94	ppb	2.36	5.00	70 -	130	98.9	
56	Fe	1	72	109.00	ppb	1.77	100.00	70 -	130	109.0	
59	Co	1	72	4.95	ppb	1.29	5.00	70 -	130	99.0	
60	Ni	1	72	4.96	ppb	2.07	5.00	70 -	130	99.2	
63	Cu	1	72	4.92	ppb	3.09	5.00	70 -	130	98.5	
66	Zn	1	72	-8.97	ppb	3.65	5.00	70 -	130	-179.3	Fail
75	As	1	72	5.15	ppb	0.72	5.00	70 -	130	103.0	
78	Se	1	72	5.80	ppb	12.75	5.00	70 -	130	116.1	
88	Sr	2	115	5.22	ppb	0.29	5.00	70 -	130	104.3	
95	Mo	2	115	4.98	ppb	2.22	5.00	70 -	130	99.7	
107	Ag	2	115	2.05	ppb	0.37	2.00	70 -	130	102.3	
111	Cd	2	115	0.97	ppb	17.95	1.00	70 -	130	96.7	
118	Sn	2	115	4.78	ppb	2.99	5.00	70 -	130	95.5	
121	Sb	2	115	1.94	ppb	3.70	2.00	70 -	130	96.8	
137	Ba	2	115	4.83	ppb	1.38	5.00	70 -	130	96.7	
205	Tl	2	209	1.06	ppb	2.61	1.00	70 -	130	105.5	
208	Pb	2	209	1.01	ppb	1.93	1.00	70 -	130	101.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-888.00	6.73	15.28	-5811.8	70 -	120	ISFail
45	Sc	1		84989.77	1.45	182515.06	46.6	70 -	120	ISFail
45	Sc	2		2764992.00	0.86	6126960.50	45.1	70 -	120	ISFail
72	Ge	1		47371.27	1.00	97742.99	48.5	70 -	120	ISFail
115	In	2		2513358.80	0.73	6508670.50	38.6	70 -	120	ISFail
209	Bi	2		1725185.90	1.54	4337985.50	39.8	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\099_CCB.D\099_CCB.D#

Date Acquired:	Aug 5 2016 09:00 pm	Sample Name:	CCB4-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.124	ppb	9.85	2.00	2.00	
9	Be	2	45	0.011	ppb	52.03	0.40	0.30	
11	B	2	45	1.199	ppb	6.10	10.00	10.00	
23	Na	1	45	-12.490	ppb	2.42	50.00	#####	
24	Mg	1	45	0.118	ppb	3.81	50.00	#####	
27	Al	1	45	1.106	ppb	6.35	50.00	10.00	
39	K	1	45	-1.638	ppb	4.25	50.00	#####	
44	Ca	2	45	-4.524	ppb	7.90	50.00	#####	
47	Ti	1	45	0.069	ppb	0.00	4.00	3.00	
51	V	1	45	0.016	ppb	1.49	4.00	3.00	
52	Cr	1	45	0.021	ppb	18.65	2.00	2.00	
55	Mn	1	45	-0.115	ppb	33.30	2.00	3.00	
56	Fe	1	72	2.639	ppb	2.27	50.00	30.00	
59	Co	1	72	0.037	ppb	5.56	2.00	3.00	
60	Ni	1	72	0.001	ppb	24.11	2.00	3.00	
63	Cu	1	72	-0.106	ppb	12.15	2.00	2.00	
66	Zn	1	72	-14.020	ppb	23.67	4.00	2.00	
75	As	1	72	-0.061	ppb	9.71	2.00	2.00	
78	Se	1	72	0.221	ppb	7.14	0.60	2.00	
88	Sr	2	115	0.027	ppb	17.88	4.00	3.00	
95	Mo	2	115	0.067	ppb	21.79	2.00	2.00	
107	Ag	2	115	0.030	ppb	7.53	0.40	1.00	
111	Cd	2	115	0.022	ppb	22.88	0.40	0.30	
118	Sn	2	115	-0.095	ppb	11.70	20.00	3.00	
121	Sb	2	115	0.029	ppb	25.51	2.00	0.80	
137	Ba	2	115	0.029	ppb	30.05	2.00	3.00	
205	Tl	2	209	0.083	ppb	6.79	2.00	0.50	
208	Pb	2	209	0.039	ppb	20.35	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-13.65	179.47	15.28	-89.3	70 - 120	ISFail
45	Sc	1		88485.43	0.80	182515.06	48.5	70 - 120	ISFail
45	Sc	2		2787292.30	0.43	6126960.50	45.5	70 - 120	ISFail
72	Ge	1		49089.09	1.47	97742.99	50.2	70 - 120	ISFail
115	In	2		2540619.80	0.85	6508670.50	39.0	70 - 120	ISFail
209	Bi	2		1759292.30	0.71	4337985.50	40.6	70 - 120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\100__PB.D\100__PB.D#

Date Acquired:	Aug 5 2016 09:06 pm	Sample Name:	MB-76649
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD:
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.084	ppb	3.00	2.0	8.00	
9	Be	2	45	-0.009	ppb	49.49	0.4	1.20	
11	B	2	45	0.908	ppb	6.93	10.0	30.00	
23	Na	1	45	-10.130	ppb	0.75	50.0	#####	
24	Mg	1	45	7.119	ppb	3.84	50.0	#####	
27	Al	1	45	4.991	ppb	12.46	50.0	#####	
39	K	1	45	-2.276	ppb	0.79	50.0	#####	
44	Ca	2	45	17.120	ppb	3.15	50.0	#####	
47	Ti	1	45	0.037	ppb	86.60	4.0	10.00	
51	V	1	45	0.041	ppb	14.00	4.0	10.00	
52	Cr	1	45	0.133	ppb	3.75	2.0	8.00	
55	Mn	1	45	-0.119	ppb	10.39	2.0	8.00	
56	Fe	1	72	3.418	ppb	3.44	50.0	#####	
59	Co	1	72	0.009	ppb	22.43	2.0	8.00	
60	Ni	1	72	-0.025	ppb	18.33	2.0	8.00	
63	Cu	1	72	-0.108	ppb	9.83	2.0	8.00	
66	Zn	1	72	-9.136	ppb	5.66	4.0	10.00	
75	As	1	72	-0.110	ppb	8.05	2.0	4.00	
78	Se	1	72	0.067	ppb	12.03	0.6	2.00	
88	Sr	2	115	0.062	ppb	9.23	4.0	10.00	
95	Mo	2	115	0.029	ppb	5.59	2.0	8.00	
107	Ag	2	115	0.008	ppb	47.79	0.4	0.80	
111	Cd	2	115	-0.023	ppb	261.24	0.4	1.20	
118	Sn	2	115	4.271	ppb	2.38	20.0	40.00	
121	Sb	2	115	0.002	ppb	37.50	2.0	4.00	
137	Ba	2	115	0.036	ppb	4.68	2.0	8.00	
205	Tl	2	209	0.029	ppb	14.00	2.0	4.00	
208	Pb	2	209	0.040	ppb	16.11	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-16.94	45.23	15.28	-110.9	70 - 120	ISFail
45	Sc	1		86661.85	0.19	182515.06	47.5	70 - 120	ISFail
45	Sc	2		2642436.80	0.75	6126960.50	43.1	70 - 120	ISFail
72	Ge	1		47058.06	0.20	97742.99	48.1	70 - 120	ISFail
115	In	2		2364656.80	0.56	6508670.50	36.3	70 - 120	ISFail
209	Bi	2		1636654.40	0.62	4337985.50	37.7	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\101_LCS.D\101_LCS.D#

Date Acquired:	Aug 5 2016 09:12 pm	Sample Name:	LCS-76649
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	170.10	ppb	0.73	200.00	80 -	120	85.1	
9	Be	2	45	160.90	ppb	0.95	200.00	80 -	120	80.5	
11	B	2	45	153.00	ppb	0.98	200.00	80 -	120	76.5	Fail
23	Na	1	45	4689.00	ppb	0.75	5000.00	80 -	120	93.8	
24	Mg	1	45	4702.00	ppb	1.34	5000.00	80 -	120	94.0	
27	Al	1	45	1025.00	ppb	1.28	1000.00	80 -	120	102.5	
39	K	1	45	5017.00	ppb	0.26	5000.00	80 -	120	100.3	
44	Ca	2	45	4909.00	ppb	1.52	5000.00	80 -	120	98.2	
47	Ti	1	45	199.30	ppb	3.81	200.00	80 -	120	99.7	
51	V	1	45	192.60	ppb	1.38	200.00	80 -	120	96.3	
52	Cr	1	45	196.00	ppb	1.21	200.00	80 -	120	98.0	
55	Mn	1	45	203.30	ppb	0.70	200.00	80 -	120	101.7	
56	Fe	1	72	969.80	ppb	1.13	1000.00	80 -	120	97.0	
59	Co	1	72	191.30	ppb	1.44	200.00	80 -	120	95.7	
60	Ni	1	72	187.60	ppb	1.14	200.00	80 -	120	93.8	
63	Cu	1	72	192.50	ppb	0.78	200.00	80 -	120	96.3	
66	Zn	1	72	183.10	ppb	0.80	200.00	80 -	120	91.6	
75	As	1	72	191.20	ppb	1.32	200.00	80 -	120	95.6	
78	Se	1	72	199.60	ppb	1.45	200.00	80 -	120	99.8	
88	Sr	2	115	196.60	ppb	1.00	200.00	80 -	120	98.3	
95	Mo	2	115	194.40	ppb	0.55	200.00	80 -	120	97.2	
107	Ag	2	115	196.00	ppb	0.65	200.00	80 -	120	98.0	
111	Cd	2	115	185.20	ppb	0.94	200.00	80 -	120	92.6	
118	Sn	2	115	194.30	ppb	0.47	200.00	80 -	120	97.2	
121	Sb	2	115	182.80	ppb	0.77	200.00	80 -	120	91.4	
137	Ba	2	115	192.40	ppb	0.92	200.00	80 -	120	96.2	
205	Tl	2	209	192.00	ppb	1.02	200.00	80 -	120	96.0	
208	Pb	2	209	191.00	ppb	0.47	200.00	80 -	120	95.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-26300.06	0.42	15.28	-172128.6	70 -	120	ISFail
45	Sc	1	83368.56	0.39	182515.06	45.7	70 -	120	ISFail
45	Sc	2	2629841.00	0.30	6126960.50	42.9	70 -	120	ISFail
72	Ge	1	45584.79	1.04	97742.99	46.6	70 -	120	ISFail
115	In	2	2327440.00	0.31	6508670.50	35.8	70 -	120	ISFail
209	Bi	2	1577762.40	0.63	4337985.50	36.4	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\102_LCS.D\102_LCS.D#

Date Acquired:	Aug 5 2016 09:18 pm	Sample Name:	LCSD-76649
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	169.60	ppb	0.63	200.00	80 -	120	84.8	
9	Be	2	45	159.20	ppb	1.02	200.00	80 -	120	79.6	Fail
11	B	2	45	151.30	ppb	0.44	200.00	80 -	120	75.7	Fail
23	Na	1	45	4760.00	ppb	0.48	5000.00	80 -	120	95.2	
24	Mg	1	45	4758.00	ppb	0.70	5000.00	80 -	120	95.2	
27	Al	1	45	994.80	ppb	0.70	1000.00	80 -	120	99.5	
39	K	1	45	5078.00	ppb	1.07	5000.00	80 -	120	101.6	
44	Ca	2	45	4892.00	ppb	1.47	5000.00	80 -	120	97.8	
47	Ti	1	45	199.40	ppb	3.58	200.00	80 -	120	99.7	
51	V	1	45	195.20	ppb	0.12	200.00	80 -	120	97.6	
52	Cr	1	45	199.30	ppb	0.67	200.00	80 -	120	99.7	
55	Mn	1	45	205.00	ppb	0.68	200.00	80 -	120	102.5	
56	Fe	1	72	987.00	ppb	0.65	1000.00	80 -	120	98.7	
59	Co	1	72	195.20	ppb	1.14	200.00	80 -	120	97.6	
60	Ni	1	72	191.60	ppb	1.08	200.00	80 -	120	95.8	
63	Cu	1	72	196.50	ppb	0.66	200.00	80 -	120	98.3	
66	Zn	1	72	185.50	ppb	0.40	200.00	80 -	120	92.8	
75	As	1	72	194.10	ppb	0.49	200.00	80 -	120	97.1	
78	Se	1	72	195.50	ppb	1.04	200.00	80 -	120	97.8	
88	Sr	2	115	195.70	ppb	1.54	200.00	80 -	120	97.9	
95	Mo	2	115	194.20	ppb	1.12	200.00	80 -	120	97.1	
107	Ag	2	115	194.30	ppb	1.18	200.00	80 -	120	97.2	
111	Cd	2	115	185.50	ppb	1.60	200.00	80 -	120	92.8	
118	Sn	2	115	193.20	ppb	0.53	200.00	80 -	120	96.6	
121	Sb	2	115	180.90	ppb	0.20	200.00	80 -	120	90.5	
137	Ba	2	115	192.00	ppb	0.62	200.00	80 -	120	96.0	
205	Tl	2	209	190.70	ppb	0.91	200.00	80 -	120	95.4	
208	Pb	2	209	189.60	ppb	0.15	200.00	80 -	120	94.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-27132.64	0.65	15.28	-177577.7	70 -	120	ISFail
45	Sc	1	83751.98	0.59	182515.06	45.9	70 -	120	ISFail
45	Sc	2	2676861.50	0.58	6126960.50	43.7	70 -	120	ISFail
72	Ge	1	45557.34	0.85	97742.99	46.6	70 -	120	ISFail
115	In	2	2372739.30	0.72	6508670.50	36.5	70 -	120	ISFail
209	Bi	2	1618426.60	1.06	4337985.50	37.3	70 -	120	ISFail

DT QC Report C:\ICPCHEM\1\DATA\16H05l00.B\105DT1.D\105DT1.D#

Date Acquired:	Aug 5 2016 09:36 pm	Sample Name:	1607256-07A SD
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	16.79	ppb	0.74	-1494.53	90 - 110	-5.6	
9	Be	2	45	0.58	ppb	6.40	2.70	90 - 110	106.5	GOOD
11	B	2	45	16.50	ppb	0.88	76.60	90 - 110	107.7	GOOD
23	Na	1	45	807.10	ppb	0.32	4140.00	90 - 110	97.5	GOOD
24	Mg	1	45	2665.00	ppb	1.30	13840.00	90 - 110	96.3	GOOD
27	Al	1	45	10410.00	ppb	1.68	54980.00	90 - 110	94.7	GOOD
39	K	1	45	2956.00	ppb	0.79	14760.00	90 - 110	100.1	GOOD
44	Ca	2	45	37990.00	ppb	0.20	186900.00	90 - 110	101.6	GOOD
47	Ti	1	45	29.87	ppb	10.67	153.30	90 - 110	97.4	GOOD
51	V	1	45	18.67	ppb	1.26	93.41	90 - 110	99.9	GOOD
52	Cr	1	45	12.60	ppb	2.85	62.28	90 - 110	101.2	GOOD
55	Mn	1	45	109.30	ppb	0.91	539.70	90 - 110	101.3	GOOD
56	Fe	1	72	14330.00	ppb	1.67	71720.00	90 - 110	99.9	GOOD
59	Co	1	72	7.28	ppb	1.23	36.34	90 - 110	100.1	GOOD
60	Ni	1	72	9.10	ppb	1.30	44.71	90 - 110	101.8	GOOD
63	Cu	1	72	1.28	ppb	3.32	6.89	90 - 110	92.7	GOOD
66	Zn	1	72	22.55	ppb	1.22	149.70	90 - 110	75.3	
75	As	1	72	3.80	ppb	2.09	18.49	90 - 110	102.8	GOOD
78	Se	1	72	3.26	ppb	14.37	14.93	90 - 110	109.3	GOOD
88	Sr	2	115	65.43	ppb	0.73	344.30	90 - 110	95.0	GOOD
95	Mo	2	115	0.42	ppb	3.56	1.98	90 - 110	105.8	GOOD
107	Ag	2	115	0.03	ppb	12.00	0.15	90 - 110	102.6	GOOD
111	Cd	2	115	0.21	ppb	15.52	0.95	90 - 110	111.5	
118	Sn	2	115	0.84	ppb	4.42	5.42	90 - 110	77.8	
121	Sb	2	115	0.05	ppb	24.36	0.23	90 - 110	116.4	
137	Ba	2	115	86.69	ppb	1.12	439.90	90 - 110	98.5	GOOD
205	Tl	2	209	0.13	ppb	9.87	0.47	90 - 110	134.2	
208	Pb	2	209	4.80	ppb	1.97	24.45	90 - 110	98.2	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-1494.53	10.93	15.28	-9781.4	70 - 120	ISFail
45	Sc	1		92809.38	0.50	182515.06	50.9	70 - 120	ISFail
45	Sc	2		2964303.80	0.77	6126960.50	48.4	70 - 120	ISFail
72	Ge	1		50575.75	1.20	97742.99	51.7	70 - 120	ISFail
115	In	2		2656894.30	0.63	6508670.50	40.8	70 - 120	ISFail
209	Bi	2		1819994.40	0.93	4337985.50	42.0	70 - 120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\116_PDS.D\116_PDS.D#

Date Acquired:	Aug 5 2016 10:42 pm	Sample Name:	1607256-07A PDS
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	234.00	ppb	0.56	-22201.41	200	75-125	######	Fail
9	Be	2	45	146.60	ppb	0.13	2.70	200	75-125	71.9	Fail
11	B	2	45	203.70	ppb	0.90	76.60	200	75-125	63.6	Fail
23	Na	1	45	8875.00	ppb	2.02	4140.00	5000	75-125	94.7	
24	Mg	1	45	18100.00	ppb	0.87	13840.00	5000	75-125	85.2	
27	Al	1	45	58370.00	ppb	2.40	54980.00	5000	75-125	67.8	Fail
39	K	1	45	19290.00	ppb	1.03	14760.00	5000	75-125	90.6	
44	Ca	2	45	189600.00	ppb	1.78	186900.00	5000	75-125	54.0	Fail
47	Ti	1	45	341.00	ppb	2.58	153.30	200	75-125	93.9	
51	V	1	45	282.30	ppb	1.84	93.41	200	75-125	94.4	
52	Cr	1	45	252.20	ppb	1.54	62.28	200	75-125	95.0	
55	Mn	1	45	729.40	ppb	1.59	539.70	200	75-125	94.8	
56	Fe	1	72	75930.00	ppb	1.45	71720.00	5000	75-125	84.2	
59	Co	1	72	216.20	ppb	0.80	36.34	200	75-125	89.9	
60	Ni	1	72	216.30	ppb	1.35	44.71	200	75-125	85.8	
63	Cu	1	72	178.60	ppb	0.83	6.89	200	75-125	85.9	
66	Zn	1	72	319.40	ppb	2.08	149.70	200	75-125	84.9	
75	As	1	72	201.10	ppb	0.81	18.49	200	75-125	91.3	
78	Se	1	72	190.40	ppb	1.86	14.93	200	75-125	87.7	
88	Sr	2	115	548.20	ppb	0.95	344.30	200	75-125	102.0	
95	Mo	2	115	189.20	ppb	0.34	1.98	200	75-125	93.6	
107	Ag	2	115	180.80	ppb	1.20	0.15	200	75-125	90.3	
111	Cd	2	115	173.90	ppb	0.62	0.95	200	75-125	86.5	
118	Sn	2	115	190.20	ppb	0.68	5.42	200	75-125	92.4	
121	Sb	2	115	176.00	ppb	0.27	0.23	200	75-125	87.9	
137	Ba	2	115	625.10	ppb	0.30	439.90	200	75-125	92.6	
205	Tl	2	209	187.30	ppb	0.85	0.47	200	75-125	93.4	
208	Pb	2	209	209.70	ppb	0.22	24.45	200	75-125	92.6	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-22201.41	5.77	15.28	-145303.8	70 -	120	ISFail
45	Sc	1		83310.10	1.50	182515.06	45.6	70 -	120	ISFail
45	Sc	2		2696177.00	1.40	6126960.50	44.0	70 -	120	ISFail
72	Ge	1		44510.19	0.76	97742.99	45.5	70 -	120	ISFail
115	In	2		2348260.80	0.40	6508670.50	36.1	70 -	120	ISFail
209	Bi	2		1531520.80	0.15	4337985.50	35.3	70 -	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\117_MS.D\117_MS.D#

Date Acquired:	Aug 5 2016 10:48 pm	Sample Name:	1607256-07A MS
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	247.50	ppb	1.04	########	200	80-120	######	Fail
9	Be	2	45	151.40	ppb	1.66	2.70	200	80-120	74.3	Fail
11	B	2	45	212.00	ppb	2.66	76.60	200	80-120	67.7	Fail
23	Na	1	45	8943.00	ppb	0.30	4140.00	5000	80-120	96.1	
24	Mg	1	45	18670.00	ppb	0.57	13840.00	5000	80-120	96.6	
27	Al	1	45	60850.00	ppb	1.40	54980.00	1000	80-120	587.0	Fail
39	K	1	45	20350.00	ppb	0.39	14760.00	5000	80-120	111.8	
44	Ca	2	45	164700.00	ppb	2.36	########	5000	80-120	-444.0	Fail
47	Ti	1	45	315.10	ppb	1.59	153.30	200	80-120	80.9	
51	V	1	45	295.60	ppb	0.43	93.41	200	80-120	101.1	
52	Cr	1	45	256.90	ppb	1.24	62.28	200	80-120	97.3	
55	Mn	1	45	813.30	ppb	1.11	539.70	200	80-120	136.8	Fail
56	Fe	1	72	75610.00	ppb	1.09	71720.00	1000	80-120	389.0	Fail
59	Co	1	72	230.20	ppb	0.84	36.34	200	80-120	96.9	
60	Ni	1	72	229.30	ppb	0.90	44.71	200	80-120	92.3	
63	Cu	1	72	190.30	ppb	0.88	6.89	200	80-120	91.7	
66	Zn	1	72	332.50	ppb	2.01	149.70	200	80-120	91.4	
75	As	1	72	207.50	ppb	0.79	18.49	200	80-120	94.5	
78	Se	1	72	203.00	ppb	1.42	14.93	200	80-120	94.0	
88	Sr	2	115	541.50	ppb	1.70	344.30	200	80-120	98.6	
95	Mo	2	115	188.60	ppb	2.23	1.98	200	80-120	93.3	
107	Ag	2	115	186.70	ppb	1.44	0.15	200	80-120	93.3	
111	Cd	2	115	180.50	ppb	1.60	0.95	200	80-120	89.8	
118	Sn	2	115	195.40	ppb	2.23	5.42	200	80-120	95.0	
121	Sb	2	115	58.91	ppb	1.40	0.23	200	80-120	29.3	Fail
137	Ba	2	115	750.70	ppb	1.61	439.90	200	80-120	155.4	Fail
205	Tl	2	209	197.60	ppb	1.29	0.47	200	80-120	98.6	
208	Pb	2	209	219.90	ppb	0.77	24.45	200	80-120	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-31687.79	0.89	15.28	########	70 -	120	ISFail
45	Sc	1	83056.76	0.13	182515.06	45.5	70 -	120	ISFail
45	Sc	2	2575829.50	1.40	6126960.50	42.0	70 -	120	ISFail
72	Ge	1	44040.97	0.37	97742.99	45.1	70 -	120	ISFail
115	In	2	2213409.00	0.51	6508670.50	34.0	70 -	120	ISFail
209	Bi	2	1443563.60	0.81	4337985.50	33.3	70 -	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\118_MS.D\118_MS.D#

Date Acquired:	Aug 5 2016 10:54 pm	Sample Name:	**1607256-07A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 05 2016 12:30 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	250.10	ppb	1.39	########	200	80-120	######	Fail
9	Be	2	45	153.30	ppb	1.81	2.70	200	80-120	75.3	Fail
11	B	2	45	213.20	ppb	2.00	76.60	200	80-120	68.3	Fail
23	Na	1	45	8849.00	ppb	1.42	4140.00	5000	80-120	94.2	
24	Mg	1	45	18220.00	ppb	1.13	13840.00	5000	80-120	87.6	
27	Al	1	45	57440.00	ppb	1.76	54980.00	1000	80-120	246.0	Fail
39	K	1	45	19780.00	ppb	0.73	14760.00	5000	80-120	100.4	
44	Ca	2	45	141900.00	ppb	1.33	########	5000	80-120	-900.0	Fail
47	Ti	1	45	313.60	ppb	2.31	153.30	200	80-120	80.2	
51	V	1	45	287.10	ppb	0.99	93.41	200	80-120	96.8	
52	Cr	1	45	255.60	ppb	1.11	62.28	200	80-120	96.7	
55	Mn	1	45	619.90	ppb	1.03	539.70	200	80-120	40.1	Fail
56	Fe	1	72	73440.00	ppb	1.39	71720.00	1000	80-120	172.0	Fail
59	Co	1	72	221.90	ppb	0.83	36.34	200	80-120	92.8	
60	Ni	1	72	223.60	ppb	1.25	44.71	200	80-120	89.4	
63	Cu	1	72	189.00	ppb	0.86	6.89	200	80-120	91.1	
66	Zn	1	72	329.90	ppb	1.29	149.70	200	80-120	90.1	
75	As	1	72	205.00	ppb	1.07	18.49	200	80-120	93.3	
78	Se	1	72	197.60	ppb	1.37	14.93	200	80-120	91.3	
88	Sr	2	115	557.80	ppb	0.37	344.30	200	80-120	106.8	
95	Mo	2	115	187.80	ppb	1.02	1.98	200	80-120	92.9	
107	Ag	2	115	184.10	ppb	1.11	0.15	200	80-120	92.0	
111	Cd	2	115	180.30	ppb	0.96	0.95	200	80-120	89.7	
118	Sn	2	115	194.60	ppb	1.11	5.42	200	80-120	94.6	
121	Sb	2	115	57.93	ppb	1.02	0.23	200	80-120	28.8	Fail
137	Ba	2	115	1605.00	ppb	0.59	439.90	200	80-120	582.6	Fail
205	Tl	2	209	196.00	ppb	0.76	0.47	200	80-120	97.8	
208	Pb	2	209	216.20	ppb	0.25	24.45	200	80-120	95.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-34362.36	0.68	15.28	########	70 -	120	ISFail
45	Sc	1	84385.21	0.58	182515.06	46.2	70 -	120	ISFail
45	Sc	2	2744121.30	1.47	6126960.50	44.8	70 -	120	ISFail
72	Ge	1	44600.30	0.57	97742.99	45.6	70 -	120	ISFail
115	In	2	2366144.50	1.34	6508670.50	36.4	70 -	120	ISFail
209	Bi	2	1535965.80	0.26	4337985.50	35.4	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\120CCV1.D\120CCV1.D#

Date Acquired:	Aug 5 2016 11:06 pm	Sample Name:	CCV5-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	173.30	ppb	0.61	200.00	90 - 110	86.7	Fail
9	Be	2	45	166.90	ppb	0.38	200.00	90 - 110	83.5	Fail
11	B	2	45	155.80	ppb	1.38	200.00	90 - 110	77.9	Fail
23	Na	1	45	4787.00	ppb	0.49	5000.00	90 - 110	95.7	
24	Mg	1	45	4780.00	ppb	1.40	5000.00	90 - 110	95.6	
27	Al	1	45	4983.00	ppb	1.25	5000.00	90 - 110	99.7	
39	K	1	45	5223.00	ppb	0.69	5000.00	90 - 110	104.5	
44	Ca	2	45	5107.00	ppb	1.73	5000.00	90 - 110	102.1	
47	Ti	1	45	196.70	ppb	2.09	200.00	90 - 110	98.4	
51	V	1	45	196.00	ppb	0.87	200.00	90 - 110	98.0	
52	Cr	1	45	197.50	ppb	1.11	200.00	90 - 110	98.8	
55	Mn	1	45	207.00	ppb	1.26	200.00	90 - 110	103.5	
56	Fe	1	72	5073.00	ppb	0.51	5000.00	90 - 110	101.5	
59	Co	1	72	193.10	ppb	0.65	200.00	90 - 110	96.6	
60	Ni	1	72	190.40	ppb	0.47	200.00	90 - 110	95.2	
63	Cu	1	72	195.60	ppb	0.81	200.00	90 - 110	97.8	
66	Zn	1	72	191.20	ppb	1.38	200.00	90 - 110	95.6	
75	As	1	72	203.50	ppb	0.79	200.00	90 - 110	101.8	
78	Se	1	72	215.00	ppb	0.82	200.00	90 - 110	107.5	
88	Sr	2	115	204.60	ppb	1.34	200.00	90 - 110	102.3	
95	Mo	2	115	200.70	ppb	1.17	200.00	90 - 110	100.4	
107	Ag	2	115	202.50	ppb	1.00	200.00	90 - 110	101.3	
111	Cd	2	115	194.10	ppb	0.87	200.00	90 - 110	97.1	
118	Sn	2	115	193.40	ppb	0.18	200.00	90 - 110	96.7	
121	Sb	2	115	190.40	ppb	0.38	200.00	90 - 110	95.2	
137	Ba	2	115	197.10	ppb	0.91	200.00	90 - 110	98.6	
205	Tl	2	209	195.60	ppb	0.42	200.00	90 - 110	97.8	
208	Pb	2	209	195.20	ppb	0.39	200.00	90 - 110	97.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-24609.43	0.35	15.28	-161063.8	70 - 120	ISFail
45	Sc	1	77280.65	0.25	182515.06	42.3	70 - 120	ISFail
45	Sc	2	2412794.80	1.74	6126960.50	39.4	70 - 120	ISFail
72	Ge	1	42262.75	0.57	97742.99	43.2	70 - 120	ISFail
115	In	2	2103436.50	1.21	6508670.50	32.3	70 - 120	ISFail
209	Bi	2	1407540.30	0.18	4337985.50	32.4	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\122LCVL.D\122LCVL.D#

Date Acquired:	Aug 5 2016 11:18 pm	Sample Name:	LCVL5-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.50	ppb	0.84	10.00	70 -	130	85.0	
9	Be	2	45	0.76	ppb	3.98	1.00	70 -	130	76.0	
11	B	2	45	16.61	ppb	2.18	20.00	70 -	130	83.1	
23	Na	1	45	78.33	ppb	0.94	100.00	70 -	130	78.3	
24	Mg	1	45	95.82	ppb	2.74	100.00	70 -	130	95.8	
27	Al	1	45	100.40	ppb	1.77	100.00	70 -	130	100.4	
39	K	1	45	104.80	ppb	2.88	100.00	70 -	130	104.8	
44	Ca	2	45	93.46	ppb	0.09	100.00	70 -	130	93.5	
47	Ti	1	45	5.41	ppb	2.77	5.00	70 -	130	108.2	
51	V	1	45	1.02	ppb	8.68	1.00	70 -	130	101.7	
52	Cr	1	45	5.13	ppb	1.12	5.00	70 -	130	102.7	
55	Mn	1	45	5.11	ppb	0.74	5.00	70 -	130	102.1	
56	Fe	1	72	106.30	ppb	1.14	100.00	70 -	130	106.3	
59	Co	1	72	4.84	ppb	2.79	5.00	70 -	130	96.8	
60	Ni	1	72	4.75	ppb	3.09	5.00	70 -	130	95.0	
63	Cu	1	72	4.73	ppb	3.55	5.00	70 -	130	94.5	
66	Zn	1	72	-8.93	ppb	0.78	5.00	70 -	130	-178.5	Fail
75	As	1	72	5.20	ppb	4.35	5.00	70 -	130	104.0	
78	Se	1	72	5.74	ppb	7.07	5.00	70 -	130	114.8	
88	Sr	2	115	5.10	ppb	0.60	5.00	70 -	130	101.9	
95	Mo	2	115	4.89	ppb	2.14	5.00	70 -	130	97.9	
107	Ag	2	115	2.00	ppb	0.79	2.00	70 -	130	100.2	
111	Cd	2	115	0.98	ppb	6.06	1.00	70 -	130	98.2	
118	Sn	2	115	4.60	ppb	2.89	5.00	70 -	130	91.9	
121	Sb	2	115	1.90	ppb	7.65	2.00	70 -	130	95.1	
137	Ba	2	115	4.90	ppb	3.89	5.00	70 -	130	98.1	
205	Tl	2	209	1.14	ppb	6.37	1.00	70 -	130	113.9	
208	Pb	2	209	1.00	ppb	4.21	1.00	70 -	130	100.3	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-703.29	9.58	15.28	-4602.9	70 -	120	ISFail
45	Sc	1		69681.74	0.85	182515.06	38.2	70 -	120	ISFail
45	Sc	2		2229149.50	0.61	6126960.50	36.4	70 -	120	ISFail
72	Ge	1		39006.03	0.79	97742.99	39.9	70 -	120	ISFail
115	In	2		1944748.50	0.90	6508670.50	29.9	70 -	120	ISFail
209	Bi	2		1347427.80	1.17	4337985.50	31.1	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\123_CCB.D\123_CCB.D#

Date Acquired:	Aug 5 2016 11:24 pm	Sample Name:	CCB5-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.129	ppb	2.58	2.00	2.00	
9	Be	2	45	0.023	ppb	26.46	0.40	0.30	
11	B	2	45	1.410	ppb	4.39	10.00	10.00	
23	Na	1	45	-11.800	ppb	4.46	50.00	#####	
24	Mg	1	45	-0.496	ppb	11.44	50.00	#####	
27	Al	1	45	0.270	ppb	10.14	50.00	10.00	
39	K	1	45	1.477	ppb	5.60	50.00	#####	
44	Ca	2	45	-6.566	ppb	0.25	50.00	#####	
47	Ti	1	45	0.051	ppb	86.60	4.00	3.00	
51	V	1	45	0.055	ppb	4.68	4.00	3.00	
52	Cr	1	45	0.009	ppb	15.35	2.00	2.00	
55	Mn	1	45	-0.169	ppb	8.02	2.00	3.00	
56	Fe	1	72	2.195	ppb	2.63	50.00	30.00	
59	Co	1	72	0.044	ppb	19.10	2.00	3.00	
60	Ni	1	72	0.000	ppb	29.75	2.00	3.00	
63	Cu	1	72	-0.117	ppb	9.70	2.00	2.00	
66	Zn	1	72	-13.930	ppb	38.91	4.00	2.00	
75	As	1	72	-0.030	ppb	9.96	2.00	2.00	
78	Se	1	72	0.416	ppb	6.19	0.60	2.00	
88	Sr	2	115	0.012	ppb	12.78	4.00	3.00	
95	Mo	2	115	0.051	ppb	12.39	2.00	2.00	
107	Ag	2	115	0.029	ppb	18.55	0.40	1.00	
111	Cd	2	115	0.030	ppb	43.11	0.40	0.30	
118	Sn	2	115	-0.071	ppb	9.48	20.00	3.00	
121	Sb	2	115	0.065	ppb	31.48	2.00	0.80	
137	Ba	2	115	0.025	ppb	17.63	2.00	3.00	
205	Tl	2	209	0.142	ppb	10.31	2.00	0.50	
208	Pb	2	209	0.041	ppb	2.82	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-7.91	53.35	15.28	-51.8	70 - 120	ISFail
45	Sc	1		71690.66	1.05	182515.06	39.3	70 - 120	ISFail
45	Sc	2		2218592.30	0.81	6126960.50	36.2	70 - 120	ISFail
72	Ge	1		40033.76	0.91	97742.99	41.0	70 - 120	ISFail
115	In	2		1935095.00	0.51	6508670.50	29.7	70 - 120	ISFail
209	Bi	2		1332826.10	1.34	4337985.50	30.7	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\136CCV1.D\136CCV1.D#

Date Acquired:	Aug 6 2016 12:43 am	Sample Name:	CCV6-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	165.50	ppb	0.86	200.00	90 -	110	82.8	Fail
9	Be	2	45	161.20	ppb	0.72	200.00	90 -	110	80.6	Fail
11	B	2	45	146.60	ppb	1.05	200.00	90 -	110	73.3	Fail
23	Na	1	45	4733.00	ppb	0.64	5000.00	90 -	110	94.7	
24	Mg	1	45	4731.00	ppb	0.34	5000.00	90 -	110	94.6	
27	Al	1	45	4983.00	ppb	1.45	5000.00	90 -	110	99.7	
39	K	1	45	5264.00	ppb	0.47	5000.00	90 -	110	105.3	
44	Ca	2	45	5124.00	ppb	1.15	5000.00	90 -	110	102.5	
47	Ti	1	45	197.20	ppb	6.87	200.00	90 -	110	98.6	
51	V	1	45	199.40	ppb	0.94	200.00	90 -	110	99.7	
52	Cr	1	45	200.70	ppb	1.12	200.00	90 -	110	100.4	
55	Mn	1	45	209.20	ppb	0.80	200.00	90 -	110	104.6	
56	Fe	1	72	5112.00	ppb	0.62	5000.00	90 -	110	102.2	
59	Co	1	72	193.50	ppb	0.59	200.00	90 -	110	96.8	
60	Ni	1	72	189.40	ppb	0.75	200.00	90 -	110	94.7	
63	Cu	1	72	196.40	ppb	0.20	200.00	90 -	110	98.2	
66	Zn	1	72	191.80	ppb	1.00	200.00	90 -	110	95.9	
75	As	1	72	205.20	ppb	1.00	200.00	90 -	110	102.6	
78	Se	1	72	216.80	ppb	1.34	200.00	90 -	110	108.4	
88	Sr	2	115	205.30	ppb	0.90	200.00	90 -	110	102.7	
95	Mo	2	115	199.70	ppb	0.86	200.00	90 -	110	99.9	
107	Ag	2	115	202.30	ppb	1.44	200.00	90 -	110	101.2	
111	Cd	2	115	192.80	ppb	0.78	200.00	90 -	110	96.4	
118	Sn	2	115	192.40	ppb	0.75	200.00	90 -	110	96.2	
121	Sb	2	115	189.90	ppb	0.56	200.00	90 -	110	95.0	
137	Ba	2	115	197.60	ppb	0.61	200.00	90 -	110	98.8	
205	Tl	2	209	196.70	ppb	0.28	200.00	90 -	110	98.4	
208	Pb	2	209	195.80	ppb	0.30	200.00	90 -	110	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-18611.64	0.68	15.28	-121809.4	70 -	120	ISFail
45	Sc	1	60857.29	0.29	182515.06	33.3	70 -	120	ISFail
45	Sc	2	1913185.50	1.01	6126960.50	31.2	70 -	120	ISFail
72	Ge	1	34028.88	0.67	97742.99	34.8	70 -	120	ISFail
115	In	2	1646933.90	0.50	6508670.50	25.3	70 -	120	ISFail
209	Bi	2	1100965.30	0.73	4337985.50	25.4	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\142LCVL.D\142LCVL.D#

Date Acquired:	Aug 6 2016 01:19 am	Sample Name:	LCVL6-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.40	ppb	1.45	10.00	70 -	130	84.0	
9	Be	2	45	0.77	ppb	19.60	1.00	70 -	130	77.2	
11	B	2	45	15.26	ppb	0.42	20.00	70 -	130	76.3	
23	Na	1	45	87.32	ppb	3.23	100.00	70 -	130	87.3	
24	Mg	1	45	100.80	ppb	2.86	100.00	70 -	130	100.8	
27	Al	1	45	105.00	ppb	1.16	100.00	70 -	130	105.0	
39	K	1	45	116.60	ppb	4.52	100.00	70 -	130	116.6	
44	Ca	2	45	95.82	ppb	4.35	100.00	70 -	130	95.8	
47	Ti	1	45	5.73	ppb	32.09	5.00	70 -	130	114.5	
51	V	1	45	1.06	ppb	8.25	1.00	70 -	130	105.7	
52	Cr	1	45	5.14	ppb	3.37	5.00	70 -	130	102.9	
55	Mn	1	45	5.08	ppb	1.60	5.00	70 -	130	101.5	
56	Fe	1	72	108.90	ppb	1.98	100.00	70 -	130	108.9	
59	Co	1	72	4.69	ppb	0.89	5.00	70 -	130	93.9	
60	Ni	1	72	4.70	ppb	2.46	5.00	70 -	130	93.9	
63	Cu	1	72	4.76	ppb	2.98	5.00	70 -	130	95.3	
66	Zn	1	72	-8.66	ppb	10.26	5.00	70 -	130	-173.1	Fail
75	As	1	72	5.00	ppb	1.58	5.00	70 -	130	100.0	
78	Se	1	72	6.16	ppb	8.18	5.00	70 -	130	123.3	
88	Sr	2	115	5.16	ppb	1.37	5.00	70 -	130	103.1	
95	Mo	2	115	5.23	ppb	3.82	5.00	70 -	130	104.7	
107	Ag	2	115	1.98	ppb	0.73	2.00	70 -	130	99.2	
111	Cd	2	115	1.08	ppb	9.18	1.00	70 -	130	107.8	
118	Sn	2	115	4.51	ppb	1.51	5.00	70 -	130	90.3	
121	Sb	2	115	1.84	ppb	3.73	2.00	70 -	130	92.1	
137	Ba	2	115	4.53	ppb	4.72	5.00	70 -	130	90.5	
205	Tl	2	209	1.04	ppb	6.23	1.00	70 -	130	104.2	
208	Pb	2	209	1.04	ppb	3.05	1.00	70 -	130	104.2	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-507.37	16.88	15.28	-3320.6	70 -	120	ISFail
45	Sc	1		54313.11	0.36	182515.06	29.8	70 -	120	ISFail
45	Sc	2		1720754.60	0.92	6126960.50	28.1	70 -	120	ISFail
72	Ge	1		31293.64	0.75	97742.99	32.0	70 -	120	ISFail
115	In	2		1521615.90	1.36	6508670.50	23.4	70 -	120	ISFail
209	Bi	2		1001806.00	2.69	4337985.50	23.1	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H05l00.B\143_CCB.D\143_CCB.D#

Date Acquired:	Aug 6 2016 01:25 am	Sample Name:	CCB6-160805
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 05 2016 12:30 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.104	ppb	8.85	2.00	2.00	
9	Be	2	45	0.003	ppb	15.75	0.40	0.30	
11	B	2	45	0.436	ppb	9.83	10.00	10.00	
23	Na	1	45	-7.964	ppb	4.13	50.00	#####	
24	Mg	1	45	1.868	ppb	18.24	50.00	#####	
27	Al	1	45	1.168	ppb	12.23	50.00	10.00	
39	K	1	45	5.184	ppb	1.63	50.00	#####	
44	Ca	2	45	-5.871	ppb	3.19	50.00	#####	
47	Ti	1	45	0.021	ppb	173.20	4.00	3.00	
51	V	1	45	0.097	ppb	0.97	4.00	3.00	
52	Cr	1	45	0.015	ppb	12.03	2.00	2.00	
55	Mn	1	45	-0.126	ppb	3.22	2.00	3.00	
56	Fe	1	72	3.260	ppb	8.22	50.00	30.00	
59	Co	1	72	0.023	ppb	14.14	2.00	3.00	
60	Ni	1	72	0.014	ppb	16.39	2.00	3.00	
63	Cu	1	72	-0.097	ppb	4.34	2.00	2.00	
66	Zn	1	72	-14.150	ppb	12.60	4.00	2.00	
75	As	1	72	-0.082	ppb	18.38	2.00	2.00	
78	Se	1	72	0.165	ppb	34.12	0.60	2.00	
88	Sr	2	115	0.006	ppb	6.11	4.00	3.00	
95	Mo	2	115	0.186	ppb	19.91	2.00	2.00	
107	Ag	2	115	0.023	ppb	18.18	0.40	1.00	
111	Cd	2	115	0.013	ppb	57.51	0.40	0.30	
118	Sn	2	115	-0.117	ppb	32.86	20.00	3.00	
121	Sb	2	115	0.015	ppb	69.60	2.00	0.80	
137	Ba	2	115	0.043	ppb	27.71	2.00	3.00	
205	Tl	2	209	0.042	ppb	17.08	2.00	0.50	
208	Pb	2	209	0.035	ppb	12.02	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-2.44	580.49	15.28	-15.9	70 - 120	ISFail
45	Sc	1		55367.06	0.40	182515.06	30.3	70 - 120	ISFail
45	Sc	2		1669667.50	0.81	6126960.50	27.3	70 - 120	ISFail
72	Ge	1		31319.03	0.52	97742.99	32.0	70 - 120	ISFail
115	In	2		1477070.90	0.57	6508670.50	22.7	70 - 120	ISFail
209	Bi	2		968656.63	1.31	4337985.50	22.3	70 - 120	ISFail

ICP-MS3_160809B
For

DHL Work Order
1607219

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			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: Date of Completion: 08/10/2016

Second-Level Review: 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

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-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~~ CVD 8-5-16
12:32 - 18:16

REVIEWED BY
By Janice Whitt at 2:24:16 PM, 8/10/2016

C V-D 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

PIPETTE ID: P-01	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS: MEAN CRITERIA (± 2%)	PRECISION: % 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)						

Goff 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

PIPETTE ID: P-31	TEST VOLUME (mL)	TOTAL WT (g)	Volume of H_2O at °C	% TEST VOL (98-102%)	BIAS MEAN CRITERIA (± 2%)	PRECISION % 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

 C:\Users\METALS\Desktop\Pipetter Accuracy Check- RO 3-29-2016

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 09 2016 01:04 pm
Cal Type: Y=aX+[blank]

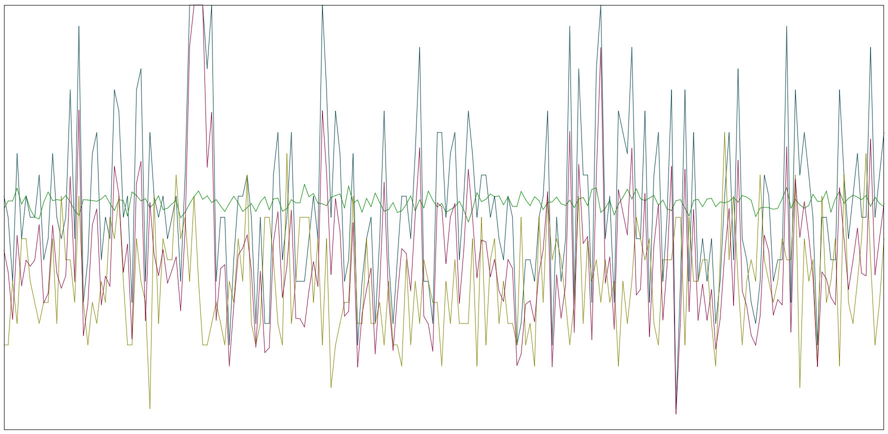
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\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

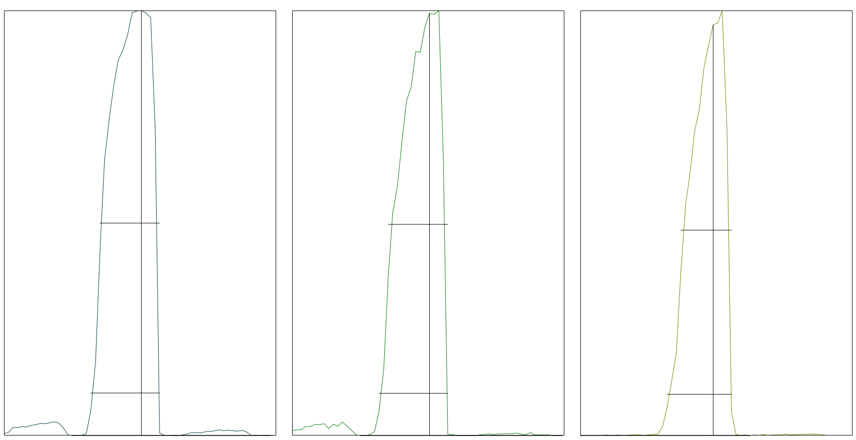
Tune File : He.U
Comment :



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===

RF Power	:	1600 W
RF Matching	:	1.6 V
Smpl Depth	:	9 mm
Torch-H	:	0 mm
Torch-V	:	0.8 mm
Carrier Gas	:	1.2 L/min
Makeup Gas	:	0 L/min
Optional Gas	:	--- %
Nebulizer Pump	:	0.1 rps
Sample Pump	:	--- rps
S/C Temp	:	2 degC

===Ion Lenses===

Extract 1	:	0 V
Extract 2	:	-150 V
Omega Bias-ce	:	-20 V
Omega Lens-ce	:	0 V
Cell Entrance	:	-40 V
QP Focus	:	-10 V
Cell Exit	:	-40 V

===Octopole Parameters===

OctP RF	:	170 V
OctP Bias	:	-16 V

===Q-Pole Parameters===

AMU Gain	:	124
AMU Offset	:	120
Axis Gain	:	0.9993
Axis Offset	:	-0.03
QP Bias	:	-14 V

===Detector Parameters===

Discriminator	:	8 mV
Analog HV	:	1750 V
Pulse HV	:	1520 V

===Reaction Cell===

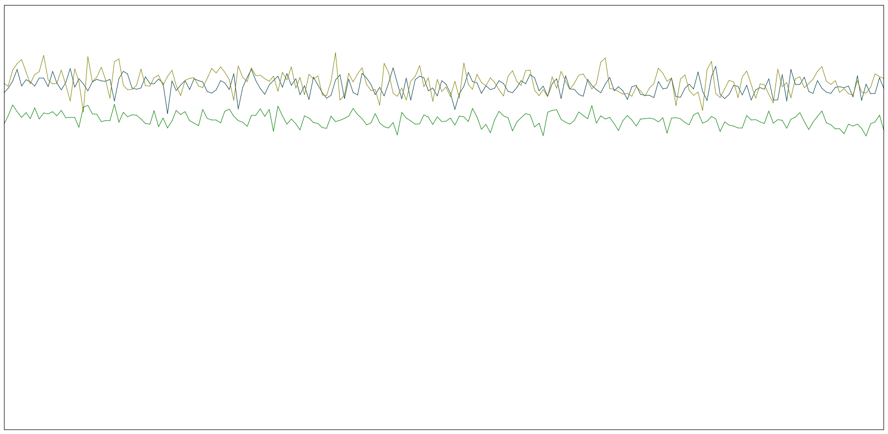
Reaction Mode : ON

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

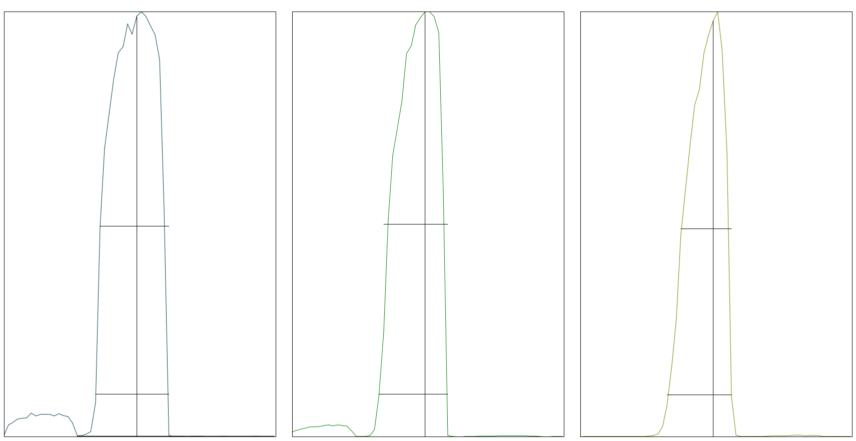
Tune Report

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 :	--- %

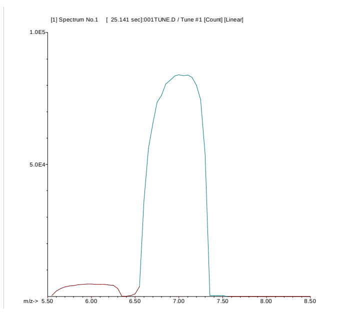
Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:05

6020 QC Tune Report

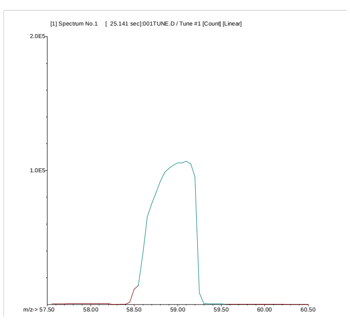
Data File:	C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired:	Aug 9 2016 11:24 am
Acq. Method:	TN6020.M
Operator:	KL
Sample Name:	TUNE CHECK
Misc Info:	
Vial Number:	1301
Current Method:	C:\ICPCHEM\1\METHODS\TN6020.M

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	

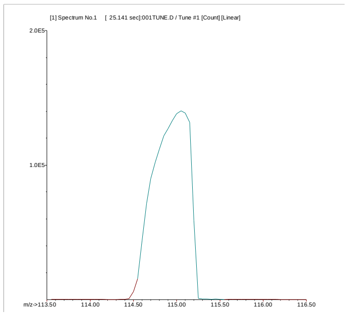


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:

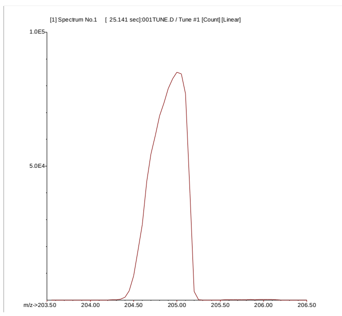


59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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	RHigl	-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\120SMPL.D\120SMPL.D#

Date Acquired:	Aug 9 2016 11:33 pm	Sample Name:	1607219-13A
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	0.120	ppb	#REF!	7.11	2000.00	ND
9	Be	2	45	-0.006	ppb	#REF!	7.53	2000.00	ND
11	B	2	45	15.460	ppb	#REF!	2.67	2000.00	J
23	Na	1	45	107.000	ppb	#REF!	0.43	25000.00	J
24	Mg	1	45	7.069	ppb	#REF!	6.62	25000.00	ND
27	Al	1	45	15.910	ppb	#REF!	5.72	10000.00	J
39	K	1	45	-1.249	ppb	#REF!	3.43	25000.00	ND
44	Ca	2	45	39.660	ppb	#REF!	2.65	25000.00	ND
47	Ti	1	45	0.197	ppb	#REF!	24.99	2000.00	ND
51	V	1	45	0.035	ppb	#REF!	5.70	2000.00	ND
52	Cr	1	45	-0.012	ppb	#REF!	11.05	2000.00	ND
55	Mn	1	45	0.092	ppb	#REF!	6.80	2000.00	ND
56	Fe	1	72	7.216	ppb	#REF!	9.12	10000.00	ND
59	Co	1	72	0.007	ppb	#REF!	27.16	2000.00	ND
60	Ni	1	72	-0.010	ppb	#REF!	19.11	2000.00	ND
63	Cu	1	72	0.062	ppb	#REF!	0.70	2000.00	ND
66	Zn	1	72	0.345	ppb	#REF!	14.76	2000.00	ND
75	As	1	72	-0.103	ppb	#REF!	3.52	2000.00	ND
78	Se	1	72	0.051	ppb	#REF!	8.02	2000.00	ND
88	Sr	2	115	0.369	ppb	#REF!	5.46	2000.00	ND
95	Mo	2	115	0.085	ppb	#REF!	9.09	2000.00	ND
107	Ag	2	115	0.008	ppb	#REF!	14.65	500.00	ND
111	Cd	2	115	0.007	ppb	#REF!	57.40	2000.00	ND
118	Sn	2	115	0.036	ppb	#REF!	2.76	2000.00	ND
121	Sb	2	115	0.029	ppb	#REF!	16.34	500.00	ND
137	Ba	2	115	0.243	ppb	#REF!	1.44	2000.00	ND
205	Tl	2	209	0.055	ppb	#REF!	2.31	2000.00	ND
208	Pb	2	209	0.016	ppb	#REF!	5.58	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39.84	40.61	RHigh	76.78	-51.9	70 - 120	ISFail
45	Sc	1	130005.16	0.88		158070.19	82.2	70 - 120	
45	Sc	2	5835333.50	1.52		6406944.50	91.1	70 - 120	
72	Ge	1	70402.77	0.69		88651.82	79.4	70 - 120	
115	In	2	6173363.50	0.59		7384352.50	83.6	70 - 120	
209	Bi	2	4573623.50	0.41		5202967.00	87.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\121SMPL.D\121SMPL.D#

Date Acquired:	Aug 9 2016 11:39 pm	Sample Name:	1607219-26A
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	0.102	ppb	#REF!	4.41	2000.00	ND
9	Be	2	45	-0.007	ppb	#REF!	33.34	2000.00	ND
11	B	2	45	14.800	ppb	#REF!	2.72	2000.00	J
23	Na	1	45	52.310	ppb	#REF!	1.10	25000.00	ND
24	Mg	1	45	7.468	ppb	#REF!	5.41	25000.00	ND
27	Al	1	45	10.990	ppb	#REF!	3.83	10000.00	J
39	K	1	45	4.688	ppb	#REF!	2.67	25000.00	ND
44	Ca	2	45	30.840	ppb	#REF!	2.17	25000.00	ND
47	Ti	1	45	0.019	ppb	#REF!	86.62	2000.00	ND
51	V	1	45	0.005	ppb	#REF!	8.91	2000.00	ND
52	Cr	1	45	-0.023	ppb	#REF!	5.04	2000.00	ND
55	Mn	1	45	0.064	ppb	#REF!	11.71	2000.00	ND
56	Fe	1	72	2.188	ppb	#REF!	13.66	10000.00	ND
59	Co	1	72	-0.007	ppb	#REF!	33.95	2000.00	ND
60	Ni	1	72	-0.005	ppb	#REF!	19.01	2000.00	ND
63	Cu	1	72	0.098	ppb	#REF!	1.35	2000.00	ND
66	Zn	1	72	0.519	ppb	#REF!	12.89	2000.00	ND
75	As	1	72	-0.078	ppb	#REF!	1.65	2000.00	ND
78	Se	1	72	0.072	ppb	#REF!	7.55	2000.00	ND
88	Sr	2	115	0.289	ppb	#REF!	2.91	2000.00	ND
95	Mo	2	115	0.004	ppb	#REF!	17.07	2000.00	ND
107	Ag	2	115	0.005	ppb	#REF!	16.26	500.00	ND
111	Cd	2	115	-0.005	ppb	#REF!	37.32	2000.00	ND
118	Sn	2	115	0.044	ppb	#REF!	7.97	2000.00	ND
121	Sb	2	115	0.024	ppb	#REF!	12.94	500.00	ND
137	Ba	2	115	0.088	ppb	#REF!	18.08	2000.00	ND
205	Tl	2	209	0.048	ppb	#REF!	7.05	2000.00	ND
208	Pb	2	209	0.023	ppb	#REF!	9.85	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-34.66	18.92	RHigh	76.78	-45.1	70 - 120	ISFail
45	Sc	1	126266.38	1.38		158070.19	79.9	70 - 120	
45	Sc	2	5811479.50	2.01		6406944.50	90.7	70 - 120	
72	Ge	1	69375.63	1.36		88651.82	78.3	70 - 120	
115	In	2	6250134.50	0.40		7384352.50	84.6	70 - 120	
209	Bi	2	4559333.50	1.11		5202967.00	87.6	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

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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	

ARCADIS Design & Consultancy for natural and built assets

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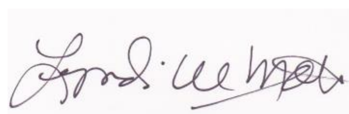

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DHL ANALYTICAL

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

nelap ACCREDITING AUTHORITY

№ 72215

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: 7-20-16 PAGE 1 OF 3
PO #: 04285081.0000.00049 DHL WORK ORDER #: 1607239
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00049 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESERVED

ANALYSES:
BTEX ☐ MTBE ☐ [METHOD 8021]
TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐
GRO [METHOD 8015] ☐ DRO [METHOD 8015] ☐
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	SVOC 8270 / PAH 8270	RCRA / TX11 / Lead	FIELD NOTES
SGR-DU066(0-2)-A	01	7-20-16	1012	S	Bag	1				X		X	X	
SGR-DU066(2-4)-A	02	7-20-16	1015	S	Bag	1				X		X	X	
SGR-DU066(4-6)-A	03	7-20-16	1017	S	Bag	1				X		X	X	
SGR-DU066(6-8)-A	04	7-20-16	1018	S	Bag	1				X		X	X	
SGR-DU066(8-10)A	05	7-20-16	1019	S	Bag	1				X		X	X	
SGR-DU066(0-2)-B	06	7-20-16	1026	S	Bag	1				X		X	X	
SGR-DU066(2-4)-B	07	7-20-16	1028	S	Bag	1				X		X	X	
SGR-DU066(4-6)-B	08	7-20-16	1030	S	Bag	1				X		X	X	
SGR-DU066(6-8)-B	09	7-20-16	1032	S	Bag	1				X		X	X	
SGR-DU066(8-10)-B	10	7-20-16	1033	S	Bag	1				X		X	X	
SGR-DU066(0-2)-C	11	7-20-16	1039	S	Bag	1				X		X	X	
SGR-DU066(2-4)-C	12	7-20-16	1040	S	Bag	1				X		X	X	
SGR-DU066(4-6)-C	13	7-20-16	1041	S	Bag	1				X		X	X	
SGR-DU066(6-8)-C	14	7-20-16	1042	S	Bag	1				X		X	X	
SGR-DU066(8-10)-C	15	7-20-16	1043	S	Bag	1				X		X	X	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	07/20/16 17:15	FedEx
FedEx	7/21/16 9:30	[signature]

☐ *DHL DISPOSAL @ $5.00 each* ☐ *Return* 3

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.6 / 1.7 / 1.9 (0.9 / 0.8) THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
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Web: *www.dhlanalytical.com*
E-Mail: *login@dhlanalytical.com*

№ 72216

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: 7-20-16 PAGE 2 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607239
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

ANALYSES: BTEX☐ MTBE☐ [METHOD 8021] | TPH 1005☐ TPH 1006☐ HOLD 1006☐ | GRO [METHOD 8015]☐ DRO [METHOD 8105]☐ | VOC 8260☐ VOC 624☐ VOC 8260/5035☐ | SVOC8270☐ PAH 8270 ☒ HOLD PAH☐ SVOC625☐ | 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	SVOC8270 / PAH 8270	RCRA / TX11 / Lead	FIELD NOTES
EB01(20160720)	16	7-20-16	1050	W	Glass/Poly	2		X		X		X	X	
SGR-DU058(02)-A	17	7-20-16	1619	S	Bag	1				X		X	X	
SGR-DU058(2-4)-A	18	7-20-16	1620	S	Bag	1				X		X	X	
SGR-DU058(4-6)-A	19	7-20-16	1623	S	Bag	1				X		X	X	
SGR-DU058(6-8)-A	20	7-20-16	1626	S	Bag	1				X		X	X	
SGR-DU058(8-10)-A	21	7-20-16	1628	S	Bag	1				X		X	X	
SGR-DU058(0-2)-B	22	7-20-16	1630	S	Bag	1				X		X	X	
SGR-DU058(2-4)-B	23	7-20-16	1632	S	Bag	1				X		X	X	
SGR-DU058(4-6)-~~B~~	24	7-20-16	1634	S	Bag	1				X		X	X	
SGR-DU058(6-8)-B	25	7-20-16	1636	S	Bag	1				X		X	X	
SGR-DU058(8-10)-B	26	7-20-16	1639	S	Bag	1				X		X	X	
SGR-DU058(02)-C	27	7-20-16	1643	S	Bag	1				X		X	X	
SGR-DU058(2-4)-C	28	7-20-16	1644	S	Bag	1				X		X	X	
SGR-DU058(4-6)-C	29	7-20-16	1649	S	Bag	1				X		X	X	
SGR-DU058(6-8)-C	30	7-20-16	1650	S	Bag	1				X		X	X	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	07/20/16 17:15	Fedex
Fedex	7/21/16 9:30	[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: 2.0/1.7/1.9 0.9/0.8 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

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E-Mail: *login@dhlanalytical.com*

nelap ACCREDITED AUTHORITY · DEPARTMENT OF DEFENSE UNITED STATES OF AMERICA

№ 72217

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: 7-20-16 PAGE 3 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607239
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Boom

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

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8015] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH8270 ☒ 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	SVOC 8270 / PAH8270 / HOLD PAH / SVOC 625	RCRA / TX11 / lead	FIELD NOTES
SGR-DU058(8-10)-C	31	7-20-16	1651	S	Bag	1	~~X~~			X		X	X	
EB02(20160720)	32	7-20-16	1655	W	Poly/Glass	2	~~X~~	X		X		X	X	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	07/20/16 17:15	Fedex
Fedex	7/21/16 9:30	[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: 2.6/1.7/1.9 0.8 0.9 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-01
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:12 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	46.6	0.0971	0.291	0.146		mg/Kg-dry	5	08/05/16 01:50 PM
IS: Bismuth	91.9	0	30-120	0		%REC	5	08/05/16 01:50 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:47 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:47 PM
Anthracene	0.0991	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[a]anthracene	0.410	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[a]pyrene	0.538	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[b]fluoranthene	0.553	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[e]pyrene	0.372	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[g,h,i]perylene	0.493	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[j]fluoranthene	0.235	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[k]fluoranthene	0.303	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Chrysene	0.514	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Dibenz[a,h]anthracene	0.161	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Fluoranthene	0.603	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:47 PM
Indeno[1,2,3-cd]pyrene	0.448	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Phenanthrene	0.253	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Pyrene	0.532	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Chrysene-d12	98.4	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Perylene-d12	95.7	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Phenanthrene-d10	93.5	0	50-200	0		%REC	10	08/03/16 03:47 PM
Surr: 2-Fluorobiphenyl	78.4	0	46-115	0		%REC	10	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-DU066(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-01
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:12 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.0	0	58-133	0		%REC	10	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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-02
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:15 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.2	0.0952	0.286	0.143		mg/Kg-dry	5	08/05/16 02:26 PM
IS: Bismuth	97.6	0	30-120	0		%REC	5	08/05/16 02:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
IS: Acenaphthene-d10	98.6	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Phenanthrene-d10	98.7	0	50-200	0		%REC	10	07/27/16 02:59 PM
Surr: 2-Fluorobiphenyl	71.3	0	46-115	0		%REC	10	07/27/16 02:59 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-02
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:15 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.5	0	58-133	0		%REC	10	07/27/16 02:59 PM

Qualifiers:				
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-03
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:17 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.11	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 02:31 PM
IS: Bismuth	96.5	0	30-120	0		%REC	5	08/05/16 02:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Fluoranthene	0.0728	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	07/27/16 03:37 PM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Pyrene	0.0610	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	07/27/16 03:37 PM
IS: Acenaphthene-d10	89.8	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Naphthalene-d8	97.9	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Phenanthrene-d10	89.8	0	50-200	0		%REC	10	07/27/16 03:37 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	07/27/16 03:37 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-03
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:17 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.1	0	58-133	0		%REC	10	07/27/16 03:37 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-04
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:18 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	4.98	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 02:37 PM
IS: Bismuth	94.8	0	30-120	0		%REC	5	08/05/16 02:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
IS: Acenaphthene-d10	98.2	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Perylene-d12	112	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	10	07/27/16 04:15 PM
Surr: 2-Fluorobiphenyl	70.0	0	46-115	0		%REC	10	07/27/16 04:15 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-DU066(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-04
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:18 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	61.8	0	58-133	0		%REC	10	07/27/16 04:15 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-05
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:19 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.03	0.0917	0.275	0.138		mg/Kg-dry	5	08/05/16 02:43 PM
IS: Bismuth	95.2	0	30-120	0		%REC	5	08/05/16 02:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Acenaphthylene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Anthracene	0.0571	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[a]anthracene	0.0583	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[a]pyrene	0.0582	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[b]fluoranthene	0.0791	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[e]pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[g,h,i]perylene	0.0609	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[j]fluoranthene	0.0720	0.0480	0.0960	0.0720	NU	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[k]fluoranthene	0.0600	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Chrysene	0.0587	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Dibenz[a,h]anthracene	0.0628	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Fluoranthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Fluorene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Indeno[1,2,3-cd]pyrene	0.0687	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Phenanthrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Perylene-d12	98.3	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Phenanthrene-d10	95.2	0	50-200	0		%REC	10	08/03/16 04:28 PM
Surr: 2-Fluorobiphenyl	71.8	0	46-115	0		%REC	10	08/03/16 04:28 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-DU066(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-05
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:19 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.6	0	58-133	0		%REC	10	08/03/16 04:28 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-06
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:26 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	35.4	0.0870	0.261	0.130		mg/Kg-dry	5	08/05/16 02:49 PM
IS: Bismuth	89.5	0	30-120	0		%REC	5	08/05/16 02:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[a]anthracene	0.505	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[a]pyrene	0.680	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[b]fluoranthene	0.673	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[e]pyrene	0.537	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[g,h,i]perylene	0.615	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[j]fluoranthene	0.334	0.0497	0.0993	0.0745	N	mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[k]fluoranthene	0.336	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Chrysene	0.680	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Dibenz[a,h]anthracene	0.111	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Fluoranthene	0.894	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Indeno[1,2,3-cd]pyrene	0.452	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Phenanthrene	0.266	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Pyrene	0.806	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 05:29 PM
Surr: 2-Fluorobiphenyl	70.3	0	46-115	0		%REC	10	07/27/16 05:29 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-06
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:26 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.4	0	58-133	0		%REC	10	07/27/16 05:29 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-07
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:28 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.57	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 03:37 PM
IS: Bismuth	82.5	0	30-120	0		%REC	5	08/05/16 03:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Acenaphthylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[a]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[a]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[b]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[e]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[g,h,i]perylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[j]fluoranthene	0.0731	0.0487	0.0975	0.0731	NU	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[k]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Chrysene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Dibenz[a,h]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Fluoranthene	0.0497	0.0487	0.0975	0.0731	J	mg/Kg-dry	10	07/27/16 06:07 PM
Fluorene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Indeno[1,2,3-cd]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Phenanthrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
IS: Acenaphthene-d10	102	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	07/27/16 06:07 PM
Surr: 2-Fluorobiphenyl	70.0	0	46-115	0		%REC	10	07/27/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-07
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:28 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.0	0	58-133	0		%REC	10	07/27/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-08
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:30 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.44	0.0935	0.280	0.140		mg/Kg-dry	5	08/05/16 03:42 PM
IS: Bismuth	84.8	0	30-120	0		%REC	5	08/05/16 03:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[a]anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[a]pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[b]fluoranthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[e]pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[g,h,i]perylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[j]fluoranthene	0.0726	0.0484	0.0968	0.0726	NU	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[k]fluoranthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Chrysene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Dibenz[a,h]anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Fluoranthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Indeno[1,2,3-cd]pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Phenanthrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 06:44 PM
Surr: 2-Fluorobiphenyl	70.9	0	46-115	0		%REC	10	07/27/16 06:44 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-08
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:30 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	60.0	0	58-133	0		%REC	10	07/27/16 06:44 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-09
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:32 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	4.92	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 03:48 PM
IS: Bismuth	84.1	0	30-120	0		%REC	5	08/05/16 03:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
IS: Acenaphthene-d10	98.5	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Phenanthrene-d10	96.8	0	50-200	0		%REC	10	07/27/16 07:20 PM
Surr: 2-Fluorobiphenyl	71.0	0	46-115	0		%REC	10	07/27/16 07:20 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-09
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:32 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.8	0	58-133	0		%REC	10	07/27/16 07:20 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607239-10
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:33 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.65	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 03:54 PM
IS: Bismuth	82.5	0	30-120	0		%REC	5	08/05/16 03:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Acenaphthylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[a]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[a]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[b]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[e]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[g,h,i]perylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[j]fluoranthene	0.0700	0.0467	0.0934	0.0700	NU	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[k]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Chrysene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Dibenz[a,h]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Fluorene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Indeno[1,2,3-cd]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Phenanthrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Perylene-d12	112	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	07/27/16 10:26 PM
Surr: 2-Fluorobiphenyl	71.8	0	46-115	0		%REC	10	07/27/16 10:26 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: *12-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Project No: 04285081.0000.00044
Lab Order: 1607239

Client Sample ID: SGR-DU066(8-10)-B
Lab ID: 1607239-10
Collection Date: 07/20/16 10:33 AM
Matrix: SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	58.5	0	58-133	0		%REC	10	07/27/16 10:26 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-DU066(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-11
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:39 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	136	0.0935	0.280	0.140		mg/Kg-dry	5	08/05/16 04:00 PM
IS: Bismuth	78.6	0	30-120	0		%REC	5	08/05/16 04:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/03/16 05:10 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/03/16 05:10 PM
Anthracene	0.144	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[a]anthracene	0.577	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[a]pyrene	0.676	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[b]fluoranthene	0.680	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[e]pyrene	0.476	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[g,h,i]perylene	0.596	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[j]fluoranthene	0.309	0.0489	0.0978	0.0734	N	mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[k]fluoranthene	0.375	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Chrysene	0.711	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Dibenz[a,h]anthracene	0.181	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Fluoranthene	1.02	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/03/16 05:10 PM
Indeno[1,2,3-cd]pyrene	0.537	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Phenanthrene	0.517	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Pyrene	0.858	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Perylene-d12	95.1	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Phenanthrene-d10	92.0	0	50-200	0		%REC	10	08/03/16 05:10 PM
Surr: 2-Fluorobiphenyl	83.6	0	46-115	0		%REC	10	08/03/16 05:10 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-11
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:39 AM
Lab Order:	1607239	**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	08/03/16 05:10 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607239-12
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:40 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	12.9	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 04:12 PM
IS: Bismuth	76.8	0	30-120	0		%REC	5	08/05/16 04:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[a]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[a]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[b]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[e]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[g,h,i]perylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[j]fluoranthene	0.0734	0.0489	0.0978	0.0734	NU	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[k]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Chrysene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Indeno[1,2,3-cd]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Phenanthrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
IS: Acenaphthene-d10	98.5	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	10	07/27/16 11:40 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	07/27/16 11:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607239-12
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:40 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	62.9	0	58-133	0		%REC	10	07/27/16 11:40 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-13
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:41 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.75	0.0926	0.278	0.139		mg/Kg-dry	5	08/05/16 04:18 PM
IS: Bismuth	76.7	0	30-120	0		%REC	5	08/05/16 04:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Phenanthrene-d10	111	0	50-200	0		%REC	10	07/28/16 12:17 AM
Surr: 2-Fluorobiphenyl	71.0	0	46-115	0		%REC	10	07/28/16 12:17 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-DU066(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-13
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:41 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	57.8	0	58-133	0		%REC	10	07/28/16 12:17 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-DU066(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-14
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:42 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID		**SW6020A**						Analyst: **KL**
Lead	5.81	0.0962	0.288	0.144		mg/Kg-dry	5	08/05/16 04:24 PM
IS: Bismuth	74.5	0	30-120	0		%REC	5	08/05/16 04:24 PM
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Acenaphthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Acenaphthylene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Anthracene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[a]anthracene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[a]pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[b]fluoranthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[e]pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[g,h,i]perylene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[j]fluoranthene	0.0693	0.0462	0.0923	0.0693	NU	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[k]fluoranthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Chrysene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Dibenz[a,h]anthracene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Fluoranthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Fluorene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Indeno[1,2,3-cd]pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Phenanthrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
IS: Acenaphthene-d10	101	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Perylene-d12	110	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	07/28/16 12:54 AM
Surr: 2-Fluorobiphenyl	69.0	0	46-115	0		%REC	10	07/28/16 12:54 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-14
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:42 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.0	0	58-133	0		%REC	10	07/28/16 12:54 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU66(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-15
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:43 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.0	0.0862	0.259	0.129		mg/Kg-dry	5	08/05/16 04:30 PM
IS: Bismuth	74.3	0	30-120	0		%REC	5	08/05/16 04:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Acenaphthylene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Anthracene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[a]anthracene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[a]pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[b]fluoranthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[e]pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[g,h,i]perylene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[j]fluoranthene	0.0712	0.0475	0.0950	0.0712	NU	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[k]fluoranthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Chrysene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Dibenz[a,h]anthracene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Fluoranthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Fluorene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Indeno[1,2,3-cd]pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Phenanthrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/28/16 01:31 AM
Surr: 2-Fluorobiphenyl	70.3	0	46-115	0		%REC	10	07/28/16 01:31 AM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU66(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-15
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:43 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	58.5	0	58-133	0		%REC	10	07/28/16 01:31 AM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-16
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:50 AM
Lab Order:	1607239	**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	08/09/16 11:45 PM
IS: Bismuth	87.2	0	30-120	0		%REC	1	08/09/16 11:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000780	0.0000488	0.0000975	0.0000780	U JL	mg/L	1	07/28/16 12:31 PM
Acenaphthylene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Anthracene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[a]anthracene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[a]pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[b]fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[e]pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[g,h,i]perylene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[j]fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	NU	mg/L	1	07/28/16 12:31 PM
Benzo[k]fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Chrysene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Dibenz[a,h]anthracene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Fluorene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Indeno[1,2,3-cd]pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Phenanthrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
IS: Acenaphthene-d10	96.3	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Naphthalene-d8	99.2	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Perylene-d12	97.4	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	1	07/28/16 12:31 PM
Surr: 2-Fluorobiphenyl	57.4	0	53-106	0		%REC	1	07/28/16 12:31 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected 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(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-16
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:50 AM
Lab Order:	1607239	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	50.3	0	58-132	0	S	%REC	1	07/28/16 12:31 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-17
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:19 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	120	0.0909	0.273	0.136		mg/Kg-dry	5	08/05/16 04:36 PM
IS: Bismuth	69.6	0	30-120	0		%REC	5	08/05/16 04:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0698	0.0466	0.0931	0.0698	U	mg/Kg-dry	10	08/03/16 05:50 PM
Acenaphthylene	0.0698	0.0466	0.0931	0.0698	U	mg/Kg-dry	10	08/03/16 05:50 PM
Anthracene	0.0618	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[a]anthracene	0.124	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[a]pyrene	0.139	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[b]fluoranthene	0.161	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[e]pyrene	0.0664	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[g,h,i]perylene	0.133	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[j]fluoranthene	0.0698	0.0466	0.0931	0.0698	NU	mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[k]fluoranthene	0.103	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Chrysene	0.133	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Dibenz[a,h]anthracene	0.0792	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Fluoranthene	0.124	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Fluorene	0.0698	0.0466	0.0931	0.0698	U	mg/Kg-dry	10	08/03/16 05:50 PM
Indeno[1,2,3-cd]pyrene	0.132	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Phenanthrene	0.0603	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Pyrene	0.112	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Chrysene-d12	95.9	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Perylene-d12	92.9	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Phenanthrene-d10	93.4	0	50-200	0		%REC	10	08/03/16 05:50 PM
Surr: 2-Fluorobiphenyl	81.4	0	46-115	0		%REC	10	08/03/16 05:50 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-17
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:19 PM
Lab Order:	1607239	**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	08/03/16 05:50 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-18
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:20 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.6	0.0870	0.261	0.130		mg/Kg-dry	5	08/05/16 05:42 PM
IS: Bismuth	54.0	0	30-120	0		%REC	5	08/05/16 05:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[a]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[a]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[b]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[e]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[g,h,i]perylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[j]fluoranthene	0.0734	0.0489	0.0978	0.0734	NU	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[k]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Chrysene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Indeno[1,2,3-cd]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Phenanthrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Chrysene-d12	98.9	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Perylene-d12	97.7	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Phenanthrene-d10	95.8	0	50-200	0		%REC	10	08/04/16 10:24 AM
Surr: 2-Fluorobiphenyl	85.5	0	46-115	0		%REC	10	08/04/16 10:24 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-DU058(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-18
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:20 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	94.7	0	58-133	0		%REC	10	08/04/16 10:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-19
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:23 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	11.3	0.0917	0.275	0.138		mg/Kg-dry	5	08/05/16 05:48 PM
IS: Bismuth	57.6	0	30-120	0		%REC	5	08/05/16 05:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Phenanthrene-d10	98.5	0	50-200	0		%REC	10	08/04/16 11:04 AM
Surr: 2-Fluorobiphenyl	83.0	0	46-115	0		%REC	10	08/04/16 11:04 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-DU058(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-19
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:23 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	92.0	0	58-133	0		%REC	10	08/04/16 11:04 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-20
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:26 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.04	0.0952	0.286	0.143		mg/Kg-dry	5	08/05/16 05:54 PM
IS: Bismuth	55.9	0	30-120	0		%REC	5	08/05/16 05:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
IS: Acenaphthene-d10	156	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/04/16 11:44 AM
Surr: 2-Fluorobiphenyl	81.6	0	46-115	0		%REC	10	08/04/16 11:44 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-DU058(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-20
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:26 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.4	0	58-133	0		%REC	10	08/04/16 11:44 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-21
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:28 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.16	0.0926	0.278	0.139		mg/Kg-dry	5	08/05/16 05:30 PM
IS: Bismuth	53.7	0	30-120	0		%REC	5	08/05/16 05:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
IS: Acenaphthene-d10	152	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Chrysene-d12	104	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/04/16 12:25 PM
Surr: 2-Fluorobiphenyl	83.1	0	46-115	0		%REC	10	08/04/16 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-DU058(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-21
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:28 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	91.9	0	58-133	0		%REC	10	08/04/16 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-22
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:30 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	88.6	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 06:00 PM
IS: Bismuth	58.7	0	30-120	0		%REC	5	08/05/16 06:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[a]anthracene	0.136	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[a]pyrene	0.168	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[b]fluoranthene	0.177	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[e]pyrene	0.117	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[g,h,i]perylene	0.163	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[j]fluoranthene	0.0724	0.0484	0.0968	0.0726	JN	mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[k]fluoranthene	0.106	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Chrysene	0.167	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Dibenz[a,h]anthracene	0.0630	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/04/16 01:06 PM
Fluoranthene	0.202	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Indeno[1,2,3-cd]pyrene	0.151	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Phenanthrene	0.0916	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/04/16 01:06 PM
Pyrene	0.179	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
IS: Acenaphthene-d10	149	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Phenanthrene-d10	98.9	0	50-200	0		%REC	10	08/04/16 01:06 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	08/04/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-22
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:30 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	91.8	0	58-133	0		%REC	10	08/04/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-23
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:32 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	28.8	0.0847	0.254	0.127		mg/Kg-dry	5	08/05/16 06:12 PM
IS: Bismuth	58.4	0	30-120	0		%REC	5	08/05/16 06:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Anthracene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[a]anthracene	0.0524	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[a]pyrene	0.0572	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[b]fluoranthene	0.0657	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[e]pyrene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[g,h,i]perylene	0.0571	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[j]fluoranthene	0.0723	0.0482	0.0964	0.0723	NU	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[k]fluoranthene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Chrysene	0.0575	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Dibenz[a,h]anthracene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Fluoranthene	0.0486	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Indeno[1,2,3-cd]pyrene	0.0564	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Phenanthrene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Pyrene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
IS: Acenaphthene-d10	148	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Phenanthrene-d10	99.2	0	50-200	0		%REC	10	08/04/16 01:47 PM
Surr: 2-Fluorobiphenyl	82.1	0	46-115	0		%REC	10	08/04/16 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-DU058(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-23
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:32 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	93.7	0	58-133	0		%REC	10	08/04/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-24
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:34 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.51	0.0855	0.256	0.128		mg/Kg-dry	5	08/05/16 06:18 PM
IS: Bismuth	58.5	0	30-120	0		%REC	5	08/05/16 06:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Phenanthrene-d10	93.8	0	50-200	0		%REC	10	08/04/16 02:29 PM
Surr: 2-Fluorobiphenyl	88.4	0	46-115	0		%REC	10	08/04/16 02:29 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-24
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:34 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	100	0	58-133	0		%REC	10	08/04/16 02:29 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-25
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:36 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	11.8	0.0917	0.275	0.138		mg/Kg-dry	5	08/05/16 06:24 PM
IS: Bismuth	54.4	0	30-120	0		%REC	5	08/05/16 06:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Phenanthrene-d10	95.2	0	50-200	0		%REC	10	08/04/16 03:10 PM
Surr: 2-Fluorobiphenyl	86.5	0	46-115	0		%REC	10	08/04/16 03:10 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-25
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:36 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	97.2	0	58-133	0		%REC	10	08/04/16 03:10 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607239-26
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:39 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.2	0.0971	0.291	0.146		mg/Kg-dry	5	08/05/16 06:30 PM
IS: Bismuth	48.7	0	30-120	0		%REC	5	08/05/16 06:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
IS: Acenaphthene-d10	150	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/04/16 03:52 PM
Surr: 2-Fluorobiphenyl	82.1	0	46-115	0		%REC	10	08/04/16 03:52 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607239-26
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:39 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	93.7	0	58-133	0		%REC	10	08/04/16 03:52 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-27
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:43 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	55.1	0.0990	0.297	0.149		mg/Kg-dry	5	08/05/16 06:36 PM
IS: Bismuth	52.9	0	30-120	0		%REC	5	08/05/16 06:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[a]anthracene	0.146	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[a]pyrene	0.183	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[b]fluoranthene	0.195	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[e]pyrene	0.126	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[g,h,i]perylene	0.180	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[j]fluoranthene	0.0751	0.0492	0.0983	0.0737	JN	mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[k]fluoranthene	0.107	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Chrysene	0.172	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Dibenz[a,h]anthracene	0.0683	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	08/04/16 04:33 PM
Fluoranthene	0.190	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Indeno[1,2,3-cd]pyrene	0.164	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Phenanthrene	0.0833	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	08/04/16 04:33 PM
Pyrene	0.174	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Chrysene-d12	98.4	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Perylene-d12	97.9	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Phenanthrene-d10	94.2	0	50-200	0		%REC	10	08/04/16 04:33 PM
Surr: 2-Fluorobiphenyl	91.2	0	46-115	0		%REC	10	08/04/16 04:33 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-27
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:43 PM
Lab Order:	1607239	**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	10	08/04/16 04:33 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607239-28
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:44 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	56.6	0.0893	0.268	0.134		mg/Kg-dry	5	08/05/16 07:30 PM
IS: Bismuth	41.0	0	30-120	0		%REC	5	08/05/16 07:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[a]anthracene	0.151	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[a]pyrene	0.179	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[b]fluoranthene	0.175	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[e]pyrene	0.110	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[g,h,i]perylene	0.162	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[j]fluoranthene	0.0784	0.0492	0.0984	0.0738	JN	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[k]fluoranthene	0.106	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Chrysene	0.185	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Dibenz[a,h]anthracene	0.0627	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	08/04/16 05:14 PM
Fluoranthene	0.224	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Indeno[1,2,3-cd]pyrene	0.143	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Phenanthrene	0.113	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Pyrene	0.203	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
IS: Acenaphthene-d10	149	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	10	08/04/16 05:14 PM
Surr: 2-Fluorobiphenyl	82.4	0	46-115	0		%REC	10	08/04/16 05:14 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607239-28
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:44 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	93.7	0	58-133	0		%REC	10	08/04/16 05:14 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-29
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:49 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.80	0.0952	0.286	0.143		mg/Kg-dry	5	08/05/16 07:36 PM
IS: Bismuth	43.6	0	30-120	0		%REC	5	08/05/16 07:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[a]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[b]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[e]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[g,h,i]perylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Chrysene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Chrysene-d12	94.7	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Perylene-d12	94.9	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Phenanthrene-d10	91.5	0	50-200	0		%REC	10	08/04/16 09:59 PM
Surr: 2-Fluorobiphenyl	88.4	0	46-115	0		%REC	10	08/04/16 09:59 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-DU058(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-29
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:49 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	94.1	0	58-133	0		%REC	10	08/04/16 09:59 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-30
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:50 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.2	0.0935	0.280	0.140		mg/Kg-dry	5	08/05/16 07:42 PM
IS: Bismuth	41.5	0	30-120	0		%REC	5	08/05/16 07:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Acenaphthylene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[a]anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[a]pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[b]fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[e]pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[g,h,i]perylene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[j]fluoranthene	0.0708	0.0472	0.0944	0.0708	NU	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[k]fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Chrysene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Dibenz[a,h]anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Fluorene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Indeno[1,2,3-cd]pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Phenanthrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Chrysene-d12	96.8	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Perylene-d12	97.7	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Phenanthrene-d10	93.0	0	50-200	0		%REC	10	08/04/16 10:38 PM
Surr: 2-Fluorobiphenyl	87.0	0	46-115	0		%REC	10	08/04/16 10:38 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-30
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:50 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	95.0	0	58-133	0		%REC	10	08/04/16 10:38 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-31
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:51 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.11	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 07:48 PM
IS: Bismuth	39.0	0	30-120	0		%REC	5	08/05/16 07:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[a]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[a]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[b]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[e]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[g,h,i]perylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[j]fluoranthene	0.0716	0.0478	0.0955	0.0716	NU	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[k]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Chrysene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Indeno[1,2,3-cd]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Phenanthrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
IS: Acenaphthene-d10	152	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	10	08/04/16 11:19 PM
Surr: 2-Fluorobiphenyl	81.6	0	46-115	0		%REC	10	08/04/16 11:19 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-31
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:51 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	89.9	0	58-133	0		%REC	10	08/04/16 11:19 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-32
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:55 PM
Lab Order:	1607239	**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	08/09/16 11:51 PM
IS: Bismuth	87.9	0	30-120	0		%REC	1	08/09/16 11:51 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000793	0.0000496	0.0000991	0.0000793	U JL	mg/L	1	07/28/16 01:08 PM
Acenaphthylene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Anthracene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[a]anthracene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[a]pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[b]fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[e]pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[g,h,i]perylene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[j]fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	NU	mg/L	1	07/28/16 01:08 PM
Benzo[k]fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Chrysene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Dibenz[a,h]anthracene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Fluorene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Indeno[1,2,3-cd]pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Phenanthrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Perylene-d12	107	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Phenanthrene-d10	120	0	50-200	0		%REC	1	07/28/16 01:08 PM
Surr: 2-Fluorobiphenyl	55.7	0	53-106	0		%REC	1	07/28/16 01:08 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-32
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:55 PM
Lab Order:	1607239	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	48.0	0	58-132	0	S	%REC	1	07/28/16 01:08 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		

August 12, 2016

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

Order No.: 1607239

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 32 sample(s) on 7/21/2016 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

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

DHL ANALYTICAL

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nelap ACCREDITING AUTHORITY

DEPARTMENT OF DEFENSE UNITED STATES OF AMERICA

№ 72215

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: 7-20-16 PAGE 1 OF 3
PO #: 04285081.0000.00049 DHL WORK ORDER #: 1107239
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00049 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ❑ Yes ❑ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

PRESERVATION: HCl | HNO_3 | H_2SO_4 ❑ NaOH ❑ | ICE | UNPRESERVED

ANALYSES: BTEX ❑ MTBE ❑ [METHOD 8021] | TPH 1005 ❑ TPH 1006 ❑ HOLD 1006 ❑ | GRO [METHOD 8015] ❑ DRO [METHOD 8105] ❑ | VOC 8260 ❑ VOC 624 ❑ VOC 8260/5035 ❑ | SVOC 8270 ❑ PAH 8270 ✓ HOLD PAH ❑ SVOC 625 ❑ | 8270 PEST ❑ 625 PEST/PCB ❑ 608 PCB ❑ | 8270 O-P PEST ❑ 8082 PCB ❑ 8270 PCB ❑ | 8321 HERB ❑ T PHOS, AMMONIA ❑ | METALS 6020 ❑ METALS 200.8 ❑ DISS. METALS ❑ ✓ 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

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	ICE	PAH 8270	Metals (Lead)	FIELD NOTES
SGR-DU066(0-2)-A	01	7-20-16	1012	S	Bag	1	X	X	X	
SGR-DU066(2-4)-A	02	7-20-16	1015	S	Bag	1	X	X	X	
SGR-DU066(4-6)-A	03	7-20-16	1017	S	Bag	1	X	X	X	
SGR-DU066(6-8)-A	04	7-20-16	1018	S	Bag	1	X	X	X	
SGR-DU066(8-10)A	05	7-20-16	1019	S	Bag	1	X	X	X	
SGR-DU066(0-2)-B	06	7-20-16	1026	S	Bag	1	X	X	X	
SGR-DU066(2-4)-B	07	7-20-16	1028	S	Bag	1	X	X	X	
SGR-DU066(4-6)-B	08	7-20-16	1030	S	Bag	1	X	X	X	
SGR-DU066(6-8)-B	09	7-20-16	1032	S	Bag	1	X	X	X	
SGR-DU066(8-10)-B	10	7-20-16	1033	S	Bag	1	X	X	X	
SGR-DU066(0-2)-C	11	7-20-16	1039	S	Bag	1	X	X	X	
SGR-DU066(2-4)-C	12	7-20-16	1040	S	Bag	1	X	X	X	
SGR-DU066(4-6)-C	13	7-20-16	1041	S	Bag	1	X	X	X	
SGR-DU066(6-8)-C	14	7-20-16	1042	S	Bag	1	X	X	X	
SGR-DU066(8-10)-C	15	7-20-16	1043	S	Bag	1	X	X	X	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	07/20/16 17:15	FedEx
FedEx	7/21/16 9:30	[signature]

❑ DHL DISPOSAL @ $5.00 each ❑ Return 3

TURN AROUND TIME
RUSH ❑ CALL FIRST
1 DAY ❑ CALL FIRST
2 DAY ❑
NORMAL ☒
OTHER ❑ ______

LABORATORY USE ONLY:
RECEIVING TEMP: 2.6 / 1.7 / 1.9 (0.9 / 0.8) THERM #: 78
CUSTODY SEALS: ❑ BROKEN ☒ INTACT ❑ NOT USED
CARRIER: ❑ LONE STAR ☒ FEDEX ❑ UPS ❑ OTHER
❑ COURIER DELIVERY
❑ HAND DELIVERED

DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72216

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: 7-20-16 PAGE 2 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607239
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

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	SVOC 8270/PAH 8270	RCRA/TX11 (Lead)	FIELD NOTES
EB01(20160720)	16	7-20-16	1050	W	Glass/Poly	2		X		X		X	X	
SGR-DU058(0-2)-A	17	7-20-16	1619	S	Bag	1				X		X	X	
SGR-DU058(2-4)-A	18	7-20-16	1620	S	Bag	1				X		X	X	
SGR-DU058(4-6)-A	19	7-20-16	1623	S	Bag	1				X		X	X	
SGR-DU058(6-8)-A	20	7-20-16	1626	S	Bag	1				X		X	X	
SGR-DU058(8-10)-A	21	7-20-16	1628	S	Bag	1				X		X	X	
SGR-DU058(0-2)-B	22	7-20-16	1630	S	Bag	1				X		X	X	
SGR-DU058(2-4)-B	23	7-20-16	1632	S	Bag	1				X		X	X	
SGR-DU058(4-6)-B	24	7-20-16	1634	S	Bag	1				X		X	X	
SGR-DU058(6-8)-B	25	7-20-16	1636	S	Bag	1				X		X	X	
SGR-DU058(8-10)-B	26	7-20-16	1639	S	Bag	1				X		X	X	
SGR-DU058(0-2)-C	27	7-20-16	1643	S	Bag	1				X		X	X	
SGR-DU058(2-4)-C	28	7-20-16	1644	S	Bag	1				X		X	X	
SGR-DU058(4-6)-C	29	7-20-16	1649	S	Bag	1				X		X	X	
SGR-DU058(6-8)-C	30	7-20-16	1650	S	Bag	1				X		X	X	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	07/20/16 17:15	Fedex
Fedex	7/21/16 9:30	[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: 2.0/1.7/1.9 0.9/0.8 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

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nelap ACCREDITING AUTHORITY
DEPARTMENT OF DEFENSE UNITED STATES OF AMERICA

№ 72217

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa KS 66215
PHONE: 913-492-6900 FAX/E-MAIL: ALEX.WALTER@ARCADIS.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-20-16 PAGE 3 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607239
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Baum

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	BTEX ☐ MTBE ☐ [METHOD 8021]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☒ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ Lead ☒	PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	CHLORIDE ☐ ANIONS ☐ ___ ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ FLASHPOINT ☐ DGAS ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
SGR-DU058(8-10)-C	31	7-20-16	1651	S	Bag	1	~~X~~			X						X					X							
EB02(20160720)	32	7-20-16	1655	W	Poly/Glass	2	~~X~~	X		X						X					X							

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	07/20/16 17:15	Fedex
Fedex	7/21/16 9:30	[signature]

☐ DHL DISPOSAL @ $5.00 each ☐ Return 5

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.6/1.7/1.9 0.8 0.9 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

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

SHIP DATE: 20JUL16
ACTWGT: 69.60 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO SAMPLE PROCESSING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222
INV:
PO:
REF:
DEPT:

FedEx Express

E

1 of 5
TRK# [0201] 7836 2819 5604
MASTER

THU - 21 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

CUSTODY S...
DATE 7-...-16
SIGNATURE Jordan Beem

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

SHIP DATE: 20JUL16
ACTWGT: 75.20 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO SAMPLE PROCESSING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222
INV:
PO:
REF:
DEPT:

FedEx Express

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2 of 5
MPS# [0263] 7836 2819 5615
Mstr# 7836 2819 5604 [0201]

THU - 21 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 7-20-16
SIGNATURE Jordan Beem

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

ACTWGT: 65.80 LB
CAD: 006984464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO SAMPLE PROCESSING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

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3 of 5

MPS# 7836 2819 5626
0263

THU - 21 JUL 10:30A
PRIORITY OVERNIGHT

Mstr# 7836 2819 5604 0201

44 BSMA

78664
TX-US AUS

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 7-20-16
SIGNATURE Jordan Beem

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

SHIP DATE: 20JUL16
ACTWGT: 80.80 LB
CAD: 006984464/SSFE1704
DIMS: 24x14x14 IN

TO SAMPLE PROCESSING
DHL ANALYTICAL
2300 DOUBLE CREEK

RT 512 1 C
10:30 563
FZ 07.2

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

E

4 of 5

MPS# 7836 2819 5637
0263

THU - 21 JUL 10:30A
PRIORITY OVERNIGHT

Mstr# 7836 2819 5604 0201

44 BSMA

78664
TX-US AUS

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 7-20-16
SIGNATURE Jordan Beem

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

SHIP DATE: 20JUL16
ACTWGT: 76.60 LB
CAD: 006994464/SSFE1704
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO SAMPLE PROCESSING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx
Express
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J162016070501uv

5 of 5
MPS# 0263 7836 2819 5648
Mstr# 7836 2819 5604 0201

THU - 21 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

QEC Quality Environmental Containers
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 7-20-16
SIGNATURE Jordan Be

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** | Date Received: **7/21/2016**

Work Order Number **1607239** | Received by **JT**

Checklist completed by: Jtran (Signature) 7/21/2016 (Date) | Reviewed by: (Initials) 7/21/2016 (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 ☐	2.6 °C, 1.7, 1.9, 0.9, 0.8
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:** 8/12/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607239
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**				
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			**X**		
		2) Were analytical duplicates analyzed at the appropriate frequency?			**X**		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			**X**		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo SGR	**Date:** 8/12/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607239

#[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).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager		08/12/16
Scott Schroeder – Technical Director	Signature	Date

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607239

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 7/21/2016. A total of 32 samples were received and analyzed. The sample arrived in good condition and were properly packaged.

Exception Report R4-02

For PAH Analysis, for water Batch 76453, the recovery of surrogate 4-Terphenyl-d14 for equipment blank Sample EB02(20160720) and the Laboratory Control Spike Duplicate (LCSD-76453) was below the method control limits. Additionally, for soil Batch 76442, the recovery of surrogate 4-Terphenyl-d14 for the Matrix Spike Duplicate (1607239-01 MSD) was below the method control limits. These are flagged accordingly in the Analytical Data Report and the QC Summary Report. The remaining surrogate for these samples was within method control limits. No further corrective action was taken.

Exception Report R7-02

For PAH Analysis, for Batch 76453, an MS/SMD is not required for Equipment Blank matrices. An LCS/LCSD was performed as Batch QC.

Exception Report R10-01

For PAH Analysis, the soil samples were diluted due to observed color of extract; dilution meets project specifications.

For Metals Analysis, for Batch 76687, the Serial Dilution was mis-prepared which yielded unusable data and will not be reported. The associated samples were Equipment Blanks and were nondetect for the target analyte, Lead. The associated Post Digestion Spike was within method control limits and will be reported as Batch QC. Client was informed and no further corrective action was taken.

For all of the samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. All of the soil samples in this workorder consist of the following sample types: subsurface soil samples processed to pass a #10 sieve (2mm).

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 a Sample Summary was sent on 7/21/2016. 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.

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607239

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607239-01	SGR-DU066(0-2)-A		07/20/16 10:12 AM	7/21/2016
1607239-02	SGR-DU066(2-4)-A		07/20/16 10:15 AM	7/21/2016
1607239-03	SGR-DU066(4-6)-A		07/20/16 10:17 AM	7/21/2016
1607239-04	SGR-DU066(6-8)-A		07/20/16 10:18 AM	7/21/2016
1607239-05	SGR-DU066(8-10)-A		07/20/16 10:19 AM	7/21/2016
1607239-06	SGR-DU066(0-2)-B		07/20/16 10:26 AM	7/21/2016
1607239-07	SGR-DU066(2-4)-B		07/20/16 10:28 AM	7/21/2016
1607239-08	SGR-DU066(4-6)-B		07/20/16 10:30 AM	7/21/2016
1607239-09	SGR-DU066(6-8)-B		07/20/16 10:32 AM	7/21/2016
1607239-10	SGR-DU066(8-10)-B		07/20/16 10:33 AM	7/21/2016
1607239-11	SGR-DU066(0-2)-C		07/20/16 10:39 AM	7/21/2016
1607239-12	SGR-DU066(2-4)-C		07/20/16 10:40 AM	7/21/2016
1607239-13	SGR-DU066(4-6)-C		07/20/16 10:41 AM	7/21/2016
1607239-14	SGR-DU066(6-8)-C		07/20/16 10:42 AM	7/21/2016
1607239-15	SGR-DU66(8-10)-C		07/20/16 10:43 AM	7/21/2016
1607239-16	EB01(20160720)		07/20/16 10:50 AM	7/21/2016
1607239-17	SGR-DU058(0-2)-A		07/20/16 04:19 PM	7/21/2016
1607239-18	SGR-DU058(2-4)-A		07/20/16 04:20 PM	7/21/2016
1607239-19	SGR-DU058(4-6)-A		07/20/16 04:23 PM	7/21/2016
1607239-20	SGR-DU058(6-8)-A		07/20/16 04:26 PM	7/21/2016
1607239-21	SGR-DU058(8-10)-A		07/20/16 04:28 PM	7/21/2016
1607239-22	SGR-DU058(0-2)-B		07/20/16 04:30 PM	7/21/2016
1607239-23	SGR-DU058(2-4)-B		07/20/16 04:32 PM	7/21/2016
1607239-24	SGR-DU058(4-6)-B		07/20/16 04:34 PM	7/21/2016
1607239-25	SGR-DU058(6-8)-B		07/20/16 04:36 PM	7/21/2016
1607239-26	SGR-DU058(8-10)-B		07/20/16 04:39 PM	7/21/2016
1607239-27	SGR-DU058(0-2)-C		07/20/16 04:43 PM	7/21/2016
1607239-28	SGR-DU058(2-4)-C		07/20/16 04:44 PM	7/21/2016
1607239-29	SGR-DU058(4-6)-C		07/20/16 04:49 PM	7/21/2016
1607239-30	SGR-DU058(6-8)-C		07/20/16 04:50 PM	7/21/2016
1607239-31	SGR-DU058(8-10)-C		07/20/16 04:51 PM	7/21/2016
1607239-32	EB02(20160720)		07/20/16 04:55 PM	7/21/2016

Lab Order: 1607239
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607239-01A	SGR-DU066(0-2)-A	07/20/16 10:12 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(0-2)-A	07/20/16 10:12 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(0-2)-A	07/20/16 10:12 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(0-2)-A	07/20/16 10:12 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-02A	SGR-DU066(2-4)-A	07/20/16 10:15 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(2-4)-A	07/20/16 10:15 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-03A	SGR-DU066(4-6)-A	07/20/16 10:17 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(4-6)-A	07/20/16 10:17 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-04A	SGR-DU066(6-8)-A	07/20/16 10:18 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(6-8)-A	07/20/16 10:18 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-05A	SGR-DU066(8-10)-A	07/20/16 10:19 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(8-10)-A	07/20/16 10:19 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(8-10)-A	07/20/16 10:19 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(8-10)-A	07/20/16 10:19 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-06A	SGR-DU066(0-2)-B	07/20/16 10:26 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(0-2)-B	07/20/16 10:26 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-07A	SGR-DU066(2-4)-B	07/20/16 10:28 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(2-4)-B	07/20/16 10:28 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-08A	SGR-DU066(4-6)-B	07/20/16 10:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(4-6)-B	07/20/16 10:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-09A	SGR-DU066(6-8)-B	07/20/16 10:32 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(6-8)-B	07/20/16 10:32 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-10A	SGR-DU066(8-10)-B	07/20/16 10:33 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(8-10)-B	07/20/16 10:33 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-11A	SGR-DU066(0-2)-C	07/20/16 10:39 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(0-2)-C	07/20/16 10:39 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(0-2)-C	07/20/16 10:39 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(0-2)-C	07/20/16 10:39 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602

Lab Order: 1607239
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607239-12A	SGR-DU066(2-4)-C	07/20/16 10:40 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(2-4)-C	07/20/16 10:40 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-13A	SGR-DU066(4-6)-C	07/20/16 10:41 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(4-6)-C	07/20/16 10:41 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-14A	SGR-DU066(6-8)-C	07/20/16 10:42 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU066(6-8)-C	07/20/16 10:42 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-15A	SGR-DU66(8-10)-C	07/20/16 10:43 AM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU66(8-10)-C	07/20/16 10:43 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-16A	EB01(20160720)	07/20/16 10:50 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607239-16B	EB01(20160720)	07/20/16 10:50 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453
1607239-17A	SGR-DU058(0-2)-A	07/20/16 04:19 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU058(0-2)-A	07/20/16 04:19 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU058(0-2)-A	07/20/16 04:19 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/25/16 01:21 PM	76442
	SGR-DU058(0-2)-A	07/20/16 04:19 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 08:30 AM	76602
1607239-18A	SGR-DU058(2-4)-A	07/20/16 04:20 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(2-4)-A	07/20/16 04:20 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-19A	SGR-DU058(4-6)-A	07/20/16 04:23 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(4-6)-A	07/20/16 04:23 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-20A	SGR-DU058(6-8)-A	07/20/16 04:26 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(6-8)-A	07/20/16 04:26 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-21A	SGR-DU058(8-10)-A	07/20/16 04:28 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(8-10)-A	07/20/16 04:28 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-22A	SGR-DU058(0-2)-B	07/20/16 04:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(0-2)-B	07/20/16 04:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-23A	SGR-DU058(2-4)-B	07/20/16 04:32 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(2-4)-B	07/20/16 04:32 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-24A	SGR-DU058(4-6)-B	07/20/16 04:34 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(4-6)-B	07/20/16 04:34 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623

Lab Order: 1607239
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607239-25A	SGR-DU058(6-8)-B	07/20/16 04:36 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(6-8)-B	07/20/16 04:36 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-26A	SGR-DU058(8-10)-B	07/20/16 04:39 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(8-10)-B	07/20/16 04:39 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-27A	SGR-DU058(0-2)-C	07/20/16 04:43 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(0-2)-C	07/20/16 04:43 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-28A	SGR-DU058(2-4)-C	07/20/16 04:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(2-4)-C	07/20/16 04:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-29A	SGR-DU058(4-6)-C	07/20/16 04:49 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(4-6)-C	07/20/16 04:49 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-30A	SGR-DU058(6-8)-C	07/20/16 04:50 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(6-8)-C	07/20/16 04:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-31A	SGR-DU058(8-10)-C	07/20/16 04:51 PM	Soil	SW3550C	Soil Prep Sonication: PAH	07/26/16 09:30 AM	76457
	SGR-DU058(8-10)-C	07/20/16 04:51 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/03/16 07:22 AM	76623
1607239-32A	EB02(20160720)	07/20/16 04:55 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607239-32B	EB02(20160720)	07/20/16 04:55 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/26/16 08:42 AM	76453

Lab Order: 1607239
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
1607239-01A	SGR-DU066(0-2)-A	7/20/2016 10:12:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-02A	SGR-DU066(2-4)-A	7/20/2016 10:15:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-03A	SGR-DU066(4-6)-A	7/20/2016 10:17:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-04A	SGR-DU066(6-8)-A	7/20/2016 10:18:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-05A	SGR-DU066(8-10)-A	7/20/2016 10:19:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-06A	SGR-DU066(0-2)-B	7/20/2016 10:26:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-07A	SGR-DU066(2-4)-B	7/20/2016 10:28:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-08A	SGR-DU066(4-6)-B	7/20/2016 10:30:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-09A	SGR-DU066(6-8)-B	7/20/2016 10:32:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-10A	SGR-DU066(8-10)-B	7/20/2016 10:33:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-11A	SGR-DU066(0-2)-C	7/20/2016 10:39:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-12A	SGR-DU066(2-4)-C	7/20/2016 10:40:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-13A	SGR-DU066(4-6)-C	7/20/2016 10:41:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-14A	SGR-DU066(6-8)-C	7/20/2016 10:42:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-15A	SGR-DU66(8-10)-C	7/20/2016 10:43:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-17A	SGR-DU058(0-2)-A	7/20/2016 4:19:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-18A	SGR-DU058(2-4)-A	7/20/2016 4:20:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-19A	SGR-DU058(4-6)-A	7/20/2016 4:23:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-20A	SGR-DU058(6-8)-A	7/20/2016 4:26:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-21A	SGR-DU058(8-10)-A	7/20/2016 4:28:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-22A	SGR-DU058(0-2)-B	7/20/2016 4:30:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-23A	SGR-DU058(2-4)-B	7/20/2016 4:32:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-24A	SGR-DU058(4-6)-B	7/20/2016 4:34:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-25A	SGR-DU058(6-8)-B	7/20/2016 4:36:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-26A	SGR-DU058(8-10)-B	7/20/2016 4:39:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-27A	SGR-DU058(0-2)-C	7/20/2016 4:43:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-28A	SGR-DU058(2-4)-C	7/20/2016 4:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-29A	SGR-DU058(4-6)-C	7/20/2016 4:49:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383

Lab Order: 1607239
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
1607239-30A	SGR-DU058(6-8)-C	7/20/2016 4:50:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383
1607239-31A	SGR-DU058(8-10)-C	7/20/2016 4:51:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/21/2016 1:41:17 PM	76383

DHL Analytical, Inc.

12-Aug-16

Lab Order: 1607239
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
1607239-01A	SGR-DU066(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 04:20 AM	GCMS6_160802B
	SGR-DU066(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 03:47 PM	GCMS6_160803A
	SGR-DU066(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 02:22 PM	GCMS6_160727A
	SGR-DU066(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 01:50 PM	ICP-MS3_160805A
1607239-02A	SGR-DU066(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 02:59 PM	GCMS6_160727A
	SGR-DU066(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:26 PM	ICP-MS3_160805A
1607239-03A	SGR-DU066(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 03:37 PM	GCMS6_160727A
	SGR-DU066(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:31 PM	ICP-MS3_160805A
1607239-04A	SGR-DU066(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 04:15 PM	GCMS6_160727A
	SGR-DU066(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:37 PM	ICP-MS3_160805A
1607239-05A	SGR-DU066(8-10)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 05:00 AM	GCMS6_160802B
	SGR-DU066(8-10)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 04:28 PM	GCMS6_160803A
	SGR-DU066(8-10)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 04:52 PM	GCMS6_160727A
	SGR-DU066(8-10)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:43 PM	ICP-MS3_160805A
1607239-06A	SGR-DU066(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 05:29 PM	GCMS6_160727A
	SGR-DU066(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 02:49 PM	ICP-MS3_160805A
1607239-07A	SGR-DU066(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 06:07 PM	GCMS6_160727A
	SGR-DU066(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 03:37 PM	ICP-MS3_160805A
1607239-08A	SGR-DU066(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 06:44 PM	GCMS6_160727A
	SGR-DU066(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 03:42 PM	ICP-MS3_160805A
1607239-09A	SGR-DU066(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 07:20 PM	GCMS6_160727A
	SGR-DU066(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 03:48 PM	ICP-MS3_160805A
1607239-10A	SGR-DU066(8-10)-B	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 10:26 PM	GCMS6_160727A
	SGR-DU066(8-10)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 03:54 PM	ICP-MS3_160805A
1607239-11A	SGR-DU066(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 05:10 PM	GCMS6_160803A
	SGR-DU066(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 11:03 PM	GCMS6_160727A
	SGR-DU066(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 05:40 AM	GCMS6_160802B
	SGR-DU066(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 04:00 PM	ICP-MS3_160805A

Lab Order: 1607239
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
1607239-12A	SGR-DU066(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/27/16 11:40 PM	GCMS6_160727A
	SGR-DU066(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 04:12 PM	ICP-MS3_160805A
1607239-13A	SGR-DU066(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/28/16 12:17 AM	GCMS6_160727A
	SGR-DU066(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 04:18 PM	ICP-MS3_160805A
1607239-14A	SGR-DU066(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/28/16 12:54 AM	GCMS6_160727A
	SGR-DU066(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 04:24 PM	ICP-MS3_160805A
1607239-15A	SGR-DU66(8-10)-C	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/28/16 01:31 AM	GCMS6_160727A
	SGR-DU66(8-10)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 04:30 PM	ICP-MS3_160805A
1607239-16A	EB01(20160720)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/09/16 11:45 PM	ICP-MS3_160809B
1607239-16B	EB01(20160720)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 12:31 PM	GCMS6_160728A
1607239-17A	SGR-DU058(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	07/28/16 02:08 AM	GCMS6_160727A
	SGR-DU058(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 06:19 AM	GCMS6_160802B
	SGR-DU058(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76442	10	08/03/16 05:50 PM	GCMS6_160803A
	SGR-DU058(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76602	5	08/05/16 04:36 PM	ICP-MS3_160805A
1607239-18A	SGR-DU058(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 10:24 AM	GCMS6_160804A
	SGR-DU058(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 05:42 PM	ICP-MS3_160805A
1607239-19A	SGR-DU058(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 11:04 AM	GCMS6_160804A
	SGR-DU058(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 05:48 PM	ICP-MS3_160805A
1607239-20A	SGR-DU058(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 11:44 AM	GCMS6_160804A
	SGR-DU058(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 05:54 PM	ICP-MS3_160805A
1607239-21A	SGR-DU058(8-10)-A	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 12:25 PM	GCMS6_160804A
	SGR-DU058(8-10)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 05:30 PM	ICP-MS3_160805A
1607239-22A	SGR-DU058(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 01:06 PM	GCMS6_160804A
	SGR-DU058(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 06:00 PM	ICP-MS3_160805A
1607239-23A	SGR-DU058(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 01:47 PM	GCMS6_160804A
	SGR-DU058(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 06:12 PM	ICP-MS3_160805A
1607239-24A	SGR-DU058(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 02:29 PM	GCMS6_160804A
	SGR-DU058(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 06:18 PM	ICP-MS3_160805A

Lab Order: 1607239
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
1607239-25A	SGR-DU058(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 03:10 PM	GCMS6_160804A
	SGR-DU058(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 06:24 PM	ICP-MS3_160805A
1607239-26A	SGR-DU058(8-10)-B	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 03:52 PM	GCMS6_160804A
	SGR-DU058(8-10)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 06:30 PM	ICP-MS3_160805A
1607239-27A	SGR-DU058(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 04:33 PM	GCMS6_160804A
	SGR-DU058(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 06:36 PM	ICP-MS3_160805A
1607239-28A	SGR-DU058(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 05:14 PM	GCMS6_160804A
	SGR-DU058(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 07:30 PM	ICP-MS3_160805A
1607239-29A	SGR-DU058(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 09:59 PM	GCMS6_160804A
	SGR-DU058(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 07:36 PM	ICP-MS3_160805A
1607239-30A	SGR-DU058(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 10:38 PM	GCMS6_160804A
	SGR-DU058(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 07:42 PM	ICP-MS3_160805A
1607239-31A	SGR-DU058(8-10)-C	Soil	SW8270D-LL	PAHs: GC/MS	76457	10	08/04/16 11:19 PM	GCMS6_160804A
	SGR-DU058(8-10)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76623	5	08/05/16 07:48 PM	ICP-MS3_160805A
1607239-32A	EB02(20160720)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/09/16 11:51 PM	ICP-MS3_160809B
1607239-32B	EB02(20160720)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76453	1	07/28/16 01:08 PM	GCMS6_160728A

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-01
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:12 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	46.6	0.0971	0.291	0.146		mg/Kg-dry	5	08/05/16 01:50 PM
IS: Bismuth	91.9	0	30-120	0		%REC	5	08/05/16 01:50 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:47 PM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:47 PM
Anthracene	0.0991	0.0498	0.0995	0.0746	J	mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[a]anthracene	0.410	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[a]pyrene	0.538	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[b]fluoranthene	0.553	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[e]pyrene	0.372	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[g,h,i]perylene	0.493	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[j]fluoranthene	0.235	0.0498	0.0995	0.0746	N	mg/Kg-dry	10	08/03/16 03:47 PM
Benzo[k]fluoranthene	0.303	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Chrysene	0.514	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Dibenz[a,h]anthracene	0.161	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Fluoranthene	0.603	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/03/16 03:47 PM
Indeno[1,2,3-cd]pyrene	0.448	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Phenanthrene	0.253	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
Pyrene	0.532	0.0498	0.0995	0.0746		mg/Kg-dry	10	08/03/16 03:47 PM
IS: Acenaphthene-d10	118	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Chrysene-d12	98.4	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Perylene-d12	95.7	0	50-200	0		%REC	10	08/03/16 03:47 PM
IS: Phenanthrene-d10	93.5	0	50-200	0		%REC	10	08/03/16 03:47 PM
Surr: 2-Fluorobiphenyl	78.4	0	46-115	0		%REC	10	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-DU066(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-01
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:12 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.0	0	58-133	0		%REC	10	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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-02
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:15 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.2	0.0952	0.286	0.143		mg/Kg-dry	5	08/05/16 02:26 PM
IS: Bismuth	97.6	0	30-120	0		%REC	5	08/05/16 02:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	07/27/16 02:59 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
Pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	07/27/16 02:59 PM
IS: Acenaphthene-d10	98.6	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 02:59 PM
IS: Phenanthrene-d10	98.7	0	50-200	0		%REC	10	07/27/16 02:59 PM
Surr: 2-Fluorobiphenyl	71.3	0	46-115	0		%REC	10	07/27/16 02:59 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-DU066(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-02
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:15 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.5	0	58-133	0		%REC	10	07/27/16 02:59 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-03
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:17 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.11	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 02:31 PM
IS: Bismuth	96.5	0	30-120	0		%REC	5	08/05/16 02:31 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	07/27/16 03:37 PM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Fluoranthene	0.0728	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	07/27/16 03:37 PM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 03:37 PM
Pyrene	0.0610	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	07/27/16 03:37 PM
IS: Acenaphthene-d10	89.8	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Naphthalene-d8	97.9	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	07/27/16 03:37 PM
IS: Phenanthrene-d10	89.8	0	50-200	0		%REC	10	07/27/16 03:37 PM
Surr: 2-Fluorobiphenyl	75.5	0	46-115	0		%REC	10	07/27/16 03:37 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-03
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:17 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.1	0	58-133	0		%REC	10	07/27/16 03:37 PM

Qualifiers:				
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-04
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:18 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	4.98	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 02:37 PM
IS: Bismuth	94.8	0	30-120	0		%REC	5	08/05/16 02:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	07/27/16 04:15 PM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
Pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	07/27/16 04:15 PM
IS: Acenaphthene-d10	98.2	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Perylene-d12	112	0	50-200	0		%REC	10	07/27/16 04:15 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	10	07/27/16 04:15 PM
Surr: 2-Fluorobiphenyl	70.0	0	46-115	0		%REC	10	07/27/16 04:15 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-04
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:18 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	61.8	0	58-133	0		%REC	10	07/27/16 04:15 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-05
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:19 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.03	0.0917	0.275	0.138		mg/Kg-dry	5	08/05/16 02:43 PM
IS: Bismuth	95.2	0	30-120	0		%REC	5	08/05/16 02:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Acenaphthylene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Anthracene	0.0571	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[a]anthracene	0.0583	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[a]pyrene	0.0582	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[b]fluoranthene	0.0791	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[e]pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[g,h,i]perylene	0.0609	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[j]fluoranthene	0.0720	0.0480	0.0960	0.0720	NU	mg/Kg-dry	10	08/03/16 04:28 PM
Benzo[k]fluoranthene	0.0600	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Chrysene	0.0587	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Dibenz[a,h]anthracene	0.0628	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Fluoranthene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Fluorene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Indeno[1,2,3-cd]pyrene	0.0687	0.0480	0.0960	0.0720	J	mg/Kg-dry	10	08/03/16 04:28 PM
Phenanthrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
Pyrene	0.0720	0.0480	0.0960	0.0720	U	mg/Kg-dry	10	08/03/16 04:28 PM
IS: Acenaphthene-d10	126	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Perylene-d12	98.3	0	50-200	0		%REC	10	08/03/16 04:28 PM
IS: Phenanthrene-d10	95.2	0	50-200	0		%REC	10	08/03/16 04:28 PM
Surr: 2-Fluorobiphenyl	71.8	0	46-115	0		%REC	10	08/03/16 04:28 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-05
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:19 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.6	0	58-133	0		%REC	10	08/03/16 04:28 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-06
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:26 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	35.4	0.0870	0.261	0.130		mg/Kg-dry	5	08/05/16 02:49 PM
IS: Bismuth	89.5	0	30-120	0		%REC	5	08/05/16 02:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[a]anthracene	0.505	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[a]pyrene	0.680	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[b]fluoranthene	0.673	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[e]pyrene	0.537	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[g,h,i]perylene	0.615	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[j]fluoranthene	0.334	0.0497	0.0993	0.0745	N	mg/Kg-dry	10	07/27/16 05:29 PM
Benzo[k]fluoranthene	0.336	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Chrysene	0.680	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Dibenz[a,h]anthracene	0.111	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Fluoranthene	0.894	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	07/27/16 05:29 PM
Indeno[1,2,3-cd]pyrene	0.452	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Phenanthrene	0.266	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
Pyrene	0.806	0.0497	0.0993	0.0745		mg/Kg-dry	10	07/27/16 05:29 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	07/27/16 05:29 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 05:29 PM
Surr: 2-Fluorobiphenyl	70.3	0	46-115	0		%REC	10	07/27/16 05:29 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-DU066(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-06
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:26 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.4	0	58-133	0		%REC	10	07/27/16 05:29 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-07
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:28 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.57	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 03:37 PM
IS: Bismuth	82.5	0	30-120	0		%REC	5	08/05/16 03:37 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Acenaphthylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[a]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[a]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[b]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[e]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[g,h,i]perylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[j]fluoranthene	0.0731	0.0487	0.0975	0.0731	NU	mg/Kg-dry	10	07/27/16 06:07 PM
Benzo[k]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Chrysene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Dibenz[a,h]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Fluoranthene	0.0497	0.0487	0.0975	0.0731	J	mg/Kg-dry	10	07/27/16 06:07 PM
Fluorene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Indeno[1,2,3-cd]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Phenanthrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
Pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	07/27/16 06:07 PM
IS: Acenaphthene-d10	102	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	07/27/16 06:07 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	10	07/27/16 06:07 PM
Surr: 2-Fluorobiphenyl	70.0	0	46-115	0		%REC	10	07/27/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-07
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:28 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.0	0	58-133	0		%REC	10	07/27/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-08
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:30 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.44	0.0935	0.280	0.140		mg/Kg-dry	5	08/05/16 03:42 PM
IS: Bismuth	84.8	0	30-120	0		%REC	5	08/05/16 03:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[a]anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[a]pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[b]fluoranthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[e]pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[g,h,i]perylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[j]fluoranthene	0.0726	0.0484	0.0968	0.0726	NU	mg/Kg-dry	10	07/27/16 06:44 PM
Benzo[k]fluoranthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Chrysene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Dibenz[a,h]anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Fluoranthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Indeno[1,2,3-cd]pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Phenanthrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
Pyrene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	07/27/16 06:44 PM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	07/27/16 06:44 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/27/16 06:44 PM
Surr: 2-Fluorobiphenyl	70.9	0	46-115	0		%REC	10	07/27/16 06:44 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-08
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:30 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	60.0	0	58-133	0		%REC	10	07/27/16 06:44 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-09
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:32 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	4.92	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 03:48 PM
IS: Bismuth	84.1	0	30-120	0		%REC	5	08/05/16 03:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	07/27/16 07:20 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	07/27/16 07:20 PM
IS: Acenaphthene-d10	98.5	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 07:20 PM
IS: Phenanthrene-d10	96.8	0	50-200	0		%REC	10	07/27/16 07:20 PM
Surr: 2-Fluorobiphenyl	71.0	0	46-115	0		%REC	10	07/27/16 07:20 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-09
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:32 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	65.8	0	58-133	0		%REC	10	07/27/16 07:20 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607239-10
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:33 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.65	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 03:54 PM
IS: Bismuth	82.5	0	30-120	0		%REC	5	08/05/16 03:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Acenaphthylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[a]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[a]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[b]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[e]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[g,h,i]perylene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[j]fluoranthene	0.0700	0.0467	0.0934	0.0700	NU	mg/Kg-dry	10	07/27/16 10:26 PM
Benzo[k]fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Chrysene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Dibenz[a,h]anthracene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Fluoranthene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Fluorene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Indeno[1,2,3-cd]pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Phenanthrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
Pyrene	0.0700	0.0467	0.0934	0.0700	U	mg/Kg-dry	10	07/27/16 10:26 PM
IS: Acenaphthene-d10	106	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Perylene-d12	112	0	50-200	0		%REC	10	07/27/16 10:26 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	07/27/16 10:26 PM
Surr: 2-Fluorobiphenyl	71.8	0	46-115	0		%REC	10	07/27/16 10:26 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-DU066(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607239-10
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:33 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	58.5	0	58-133	0		%REC	10	07/27/16 10:26 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-11
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:39 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	136	0.0935	0.280	0.140		mg/Kg-dry	5	08/05/16 04:00 PM
IS: Bismuth	78.6	0	30-120	0		%REC	5	08/05/16 04:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/03/16 05:10 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/03/16 05:10 PM
Anthracene	0.144	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[a]anthracene	0.577	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[a]pyrene	0.676	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[b]fluoranthene	0.680	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[e]pyrene	0.476	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[g,h,i]perylene	0.596	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[j]fluoranthene	0.309	0.0489	0.0978	0.0734	N	mg/Kg-dry	10	08/03/16 05:10 PM
Benzo[k]fluoranthene	0.375	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Chrysene	0.711	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Dibenz[a,h]anthracene	0.181	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Fluoranthene	1.02	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/03/16 05:10 PM
Indeno[1,2,3-cd]pyrene	0.537	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Phenanthrene	0.517	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
Pyrene	0.858	0.0489	0.0978	0.0734		mg/Kg-dry	10	08/03/16 05:10 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Perylene-d12	95.1	0	50-200	0		%REC	10	08/03/16 05:10 PM
IS: Phenanthrene-d10	92.0	0	50-200	0		%REC	10	08/03/16 05:10 PM
Surr: 2-Fluorobiphenyl	83.6	0	46-115	0		%REC	10	08/03/16 05:10 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-11
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:39 AM
Lab Order:	1607239	**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	08/03/16 05:10 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607239-12
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:40 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	12.9	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 04:12 PM
IS: Bismuth	76.8	0	30-120	0		%REC	5	08/05/16 04:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[a]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[a]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[b]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[e]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[g,h,i]perylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[j]fluoranthene	0.0734	0.0489	0.0978	0.0734	NU	mg/Kg-dry	10	07/27/16 11:40 PM
Benzo[k]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Chrysene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Indeno[1,2,3-cd]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Phenanthrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
Pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	07/27/16 11:40 PM
IS: Acenaphthene-d10	98.5	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Chrysene-d12	111	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	07/27/16 11:40 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	10	07/27/16 11:40 PM
Surr: 2-Fluorobiphenyl	74.5	0	46-115	0		%REC	10	07/27/16 11:40 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607239-12
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:40 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	62.9	0	58-133	0		%REC	10	07/27/16 11:40 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-13
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:41 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.75	0.0926	0.278	0.139		mg/Kg-dry	5	08/05/16 04:18 PM
IS: Bismuth	76.7	0	30-120	0		%REC	5	08/05/16 04:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	07/28/16 12:17 AM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	07/28/16 12:17 AM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	07/28/16 12:17 AM
IS: Phenanthrene-d10	111	0	50-200	0		%REC	10	07/28/16 12:17 AM
Surr: 2-Fluorobiphenyl	71.0	0	46-115	0		%REC	10	07/28/16 12:17 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-13
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:41 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	57.8	0	58-133	0		%REC	10	07/28/16 12:17 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-14
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:42 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	5.81	0.0962	0.288	0.144		mg/Kg-dry	5	08/05/16 04:24 PM
IS: Bismuth	74.5	0	30-120	0		%REC	5	08/05/16 04:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Acenaphthylene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Anthracene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[a]anthracene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[a]pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[b]fluoranthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[e]pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[g,h,i]perylene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[j]fluoranthene	0.0693	0.0462	0.0923	0.0693	NU	mg/Kg-dry	10	07/28/16 12:54 AM
Benzo[k]fluoranthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Chrysene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Dibenz[a,h]anthracene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Fluoranthene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Fluorene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Indeno[1,2,3-cd]pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Phenanthrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
Pyrene	0.0693	0.0462	0.0923	0.0693	U	mg/Kg-dry	10	07/28/16 12:54 AM
IS: Acenaphthene-d10	101	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Perylene-d12	110	0	50-200	0		%REC	10	07/28/16 12:54 AM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	07/28/16 12:54 AM
Surr: 2-Fluorobiphenyl	69.0	0	46-115	0		%REC	10	07/28/16 12:54 AM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU066(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-14
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:42 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	59.0	0	58-133	0		%REC	10	07/28/16 12:54 AM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU66(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-15
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:43 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.0	0.0862	0.259	0.129		mg/Kg-dry	5	08/05/16 04:30 PM
IS: Bismuth	74.3	0	30-120	0		%REC	5	08/05/16 04:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Acenaphthylene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Anthracene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[a]anthracene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[a]pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[b]fluoranthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[e]pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[g,h,i]perylene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[j]fluoranthene	0.0712	0.0475	0.0950	0.0712	NU	mg/Kg-dry	10	07/28/16 01:31 AM
Benzo[k]fluoranthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Chrysene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Dibenz[a,h]anthracene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Fluoranthene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Fluorene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Indeno[1,2,3-cd]pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Phenanthrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
Pyrene	0.0712	0.0475	0.0950	0.0712	U	mg/Kg-dry	10	07/28/16 01:31 AM
IS: Acenaphthene-d10	105	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	07/28/16 01:31 AM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	10	07/28/16 01:31 AM
Surr: 2-Fluorobiphenyl	70.3	0	46-115	0		%REC	10	07/28/16 01:31 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU66(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-15
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:43 AM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	58.5	0	58-133	0		%REC	10	07/28/16 01:31 AM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-16
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:50 AM
Lab Order:	1607239	**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	08/09/16 11:45 PM
IS: Bismuth	87.2	0	30-120	0		%REC	1	08/09/16 11:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Acenaphthylene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Anthracene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[a]anthracene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[a]pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[b]fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[e]pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[g,h,i]perylene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Benzo[j]fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	NU	mg/L	1	07/28/16 12:31 PM
Benzo[k]fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Chrysene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Dibenz[a,h]anthracene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Fluoranthene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Fluorene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Indeno[1,2,3-cd]pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Phenanthrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
Pyrene	0.0000780	0.0000488	0.0000975	0.0000780	U	mg/L	1	07/28/16 12:31 PM
IS: Acenaphthene-d10	96.3	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Naphthalene-d8	99.2	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Perylene-d12	97.4	0	50-200	0		%REC	1	07/28/16 12:31 PM
IS: Phenanthrene-d10	104	0	50-200	0		%REC	1	07/28/16 12:31 PM
Surr: 2-Fluorobiphenyl	57.4	0	53-106	0		%REC	1	07/28/16 12:31 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-16
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 10:50 AM
Lab Order:	1607239	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	50.3	0	58-132	0	S	%REC	1	07/28/16 12:31 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-17
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:19 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	120	0.0909	0.273	0.136		mg/Kg-dry	5	08/05/16 04:36 PM
IS: Bismuth	69.6	0	30-120	0		%REC	5	08/05/16 04:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0698	0.0466	0.0931	0.0698	U	mg/Kg-dry	10	08/03/16 05:50 PM
Acenaphthylene	0.0698	0.0466	0.0931	0.0698	U	mg/Kg-dry	10	08/03/16 05:50 PM
Anthracene	0.0618	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[a]anthracene	0.124	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[a]pyrene	0.139	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[b]fluoranthene	0.161	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[e]pyrene	0.0664	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[g,h,i]perylene	0.133	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[j]fluoranthene	0.0698	0.0466	0.0931	0.0698	NU	mg/Kg-dry	10	08/03/16 05:50 PM
Benzo[k]fluoranthene	0.103	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Chrysene	0.133	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Dibenz[a,h]anthracene	0.0792	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Fluoranthene	0.124	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Fluorene	0.0698	0.0466	0.0931	0.0698	U	mg/Kg-dry	10	08/03/16 05:50 PM
Indeno[1,2,3-cd]pyrene	0.132	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
Phenanthrene	0.0603	0.0466	0.0931	0.0698	J	mg/Kg-dry	10	08/03/16 05:50 PM
Pyrene	0.112	0.0466	0.0931	0.0698		mg/Kg-dry	10	08/03/16 05:50 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Chrysene-d12	95.9	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Perylene-d12	92.9	0	50-200	0		%REC	10	08/03/16 05:50 PM
IS: Phenanthrene-d10	93.4	0	50-200	0		%REC	10	08/03/16 05:50 PM
Surr: 2-Fluorobiphenyl	81.4	0	46-115	0		%REC	10	08/03/16 05:50 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607239-17
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:19 PM
Lab Order:	1607239	**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	08/03/16 05:50 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-18
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:20 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.6	0.0870	0.261	0.130		mg/Kg-dry	5	08/05/16 05:42 PM
IS: Bismuth	54.0	0	30-120	0		%REC	5	08/05/16 05:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[a]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[a]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[b]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[e]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[g,h,i]perylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[j]fluoranthene	0.0734	0.0489	0.0978	0.0734	NU	mg/Kg-dry	10	08/04/16 10:24 AM
Benzo[k]fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Chrysene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Dibenz[a,h]anthracene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Fluoranthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Indeno[1,2,3-cd]pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Phenanthrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
Pyrene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	08/04/16 10:24 AM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Chrysene-d12	98.9	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Perylene-d12	97.7	0	50-200	0		%REC	10	08/04/16 10:24 AM
IS: Phenanthrene-d10	95.8	0	50-200	0		%REC	10	08/04/16 10:24 AM
Surr: 2-Fluorobiphenyl	85.5	0	46-115	0		%REC	10	08/04/16 10:24 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-DU058(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607239-18
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:20 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	94.7	0	58-133	0		%REC	10	08/04/16 10:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-19
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:23 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	11.3	0.0917	0.275	0.138		mg/Kg-dry	5	08/05/16 05:48 PM
IS: Bismuth	57.6	0	30-120	0		%REC	5	08/05/16 05:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/04/16 11:04 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:04 AM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/04/16 11:04 AM
IS: Phenanthrene-d10	98.5	0	50-200	0		%REC	10	08/04/16 11:04 AM
Surr: 2-Fluorobiphenyl	83.0	0	46-115	0		%REC	10	08/04/16 11:04 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-DU058(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607239-19
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:23 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	92.0	0	58-133	0		%REC	10	08/04/16 11:04 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-20
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:26 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.04	0.0952	0.286	0.143		mg/Kg-dry	5	08/05/16 05:54 PM
IS: Bismuth	55.9	0	30-120	0		%REC	5	08/05/16 05:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/04/16 11:44 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/04/16 11:44 AM
IS: Acenaphthene-d10	156	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/04/16 11:44 AM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/04/16 11:44 AM
Surr: 2-Fluorobiphenyl	81.6	0	46-115	0		%REC	10	08/04/16 11:44 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-DU058(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607239-20
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:26 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.4	0	58-133	0		%REC	10	08/04/16 11:44 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-21
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:28 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.16	0.0926	0.278	0.139		mg/Kg-dry	5	08/05/16 05:30 PM
IS: Bismuth	53.7	0	30-120	0		%REC	5	08/05/16 05:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/04/16 12:25 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/04/16 12:25 PM
IS: Acenaphthene-d10	152	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Chrysene-d12	104	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/04/16 12:25 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/04/16 12:25 PM
Surr: 2-Fluorobiphenyl	83.1	0	46-115	0		%REC	10	08/04/16 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-DU058(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1607239-21
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:28 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	91.9	0	58-133	0		%REC	10	08/04/16 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-22
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:30 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	88.6	0.0980	0.294	0.147		mg/Kg-dry	5	08/05/16 06:00 PM
IS: Bismuth	58.7	0	30-120	0		%REC	5	08/05/16 06:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Acenaphthylene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Anthracene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[a]anthracene	0.136	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[a]pyrene	0.168	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[b]fluoranthene	0.177	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[e]pyrene	0.117	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[g,h,i]perylene	0.163	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[j]fluoranthene	0.0724	0.0484	0.0968	0.0726	JN	mg/Kg-dry	10	08/04/16 01:06 PM
Benzo[k]fluoranthene	0.106	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Chrysene	0.167	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Dibenz[a,h]anthracene	0.0630	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/04/16 01:06 PM
Fluoranthene	0.202	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Fluorene	0.0726	0.0484	0.0968	0.0726	U	mg/Kg-dry	10	08/04/16 01:06 PM
Indeno[1,2,3-cd]pyrene	0.151	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
Phenanthrene	0.0916	0.0484	0.0968	0.0726	J	mg/Kg-dry	10	08/04/16 01:06 PM
Pyrene	0.179	0.0484	0.0968	0.0726		mg/Kg-dry	10	08/04/16 01:06 PM
IS: Acenaphthene-d10	149	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/04/16 01:06 PM
IS: Phenanthrene-d10	98.9	0	50-200	0		%REC	10	08/04/16 01:06 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	08/04/16 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-DU058(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607239-22
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:30 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	91.8	0	58-133	0		%REC	10	08/04/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-23
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:32 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	28.8	0.0847	0.254	0.127		mg/Kg-dry	5	08/05/16 06:12 PM
IS: Bismuth	58.4	0	30-120	0		%REC	5	08/05/16 06:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Acenaphthylene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Anthracene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[a]anthracene	0.0524	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[a]pyrene	0.0572	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[b]fluoranthene	0.0657	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[e]pyrene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[g,h,i]perylene	0.0571	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[j]fluoranthene	0.0723	0.0482	0.0964	0.0723	NU	mg/Kg-dry	10	08/04/16 01:47 PM
Benzo[k]fluoranthene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Chrysene	0.0575	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Dibenz[a,h]anthracene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Fluoranthene	0.0486	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Fluorene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Indeno[1,2,3-cd]pyrene	0.0564	0.0482	0.0964	0.0723	J	mg/Kg-dry	10	08/04/16 01:47 PM
Phenanthrene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
Pyrene	0.0723	0.0482	0.0964	0.0723	U	mg/Kg-dry	10	08/04/16 01:47 PM
IS: Acenaphthene-d10	148	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Naphthalene-d8	114	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/04/16 01:47 PM
IS: Phenanthrene-d10	99.2	0	50-200	0		%REC	10	08/04/16 01:47 PM
Surr: 2-Fluorobiphenyl	82.1	0	46-115	0		%REC	10	08/04/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607239-23
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:32 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	93.7	0	58-133	0		%REC	10	08/04/16 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-24
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:34 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.51	0.0855	0.256	0.128		mg/Kg-dry	5	08/05/16 06:18 PM
IS: Bismuth	58.5	0	30-120	0		%REC	5	08/05/16 06:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/04/16 02:29 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 02:29 PM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Perylene-d12	100	0	50-200	0		%REC	10	08/04/16 02:29 PM
IS: Phenanthrene-d10	93.8	0	50-200	0		%REC	10	08/04/16 02:29 PM
Surr: 2-Fluorobiphenyl	88.4	0	46-115	0		%REC	10	08/04/16 02:29 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607239-24
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:34 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	100	0	58-133	0		%REC	10	08/04/16 02:29 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-25
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:36 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	11.8	0.0917	0.275	0.138		mg/Kg-dry	5	08/05/16 06:24 PM
IS: Bismuth	54.4	0	30-120	0		%REC	5	08/05/16 06:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/04/16 03:10 PM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/04/16 03:10 PM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Perylene-d12	102	0	50-200	0		%REC	10	08/04/16 03:10 PM
IS: Phenanthrene-d10	95.2	0	50-200	0		%REC	10	08/04/16 03:10 PM
Surr: 2-Fluorobiphenyl	86.5	0	46-115	0		%REC	10	08/04/16 03:10 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607239-25
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:36 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	97.2	0	58-133	0		%REC	10	08/04/16 03:10 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607239-26
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:39 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.2	0.0971	0.291	0.146		mg/Kg-dry	5	08/05/16 06:30 PM
IS: Bismuth	48.7	0	30-120	0		%REC	5	08/05/16 06:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	08/04/16 03:52 PM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
Pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/04/16 03:52 PM
IS: Acenaphthene-d10	150	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Chrysene-d12	108	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Naphthalene-d8	115	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/04/16 03:52 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/04/16 03:52 PM
Surr: 2-Fluorobiphenyl	82.1	0	46-115	0		%REC	10	08/04/16 03:52 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1607239-26
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:39 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	93.7	0	58-133	0		%REC	10	08/04/16 03:52 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-27
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:43 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	55.1	0.0990	0.297	0.149		mg/Kg-dry	5	08/05/16 06:36 PM
IS: Bismuth	52.9	0	30-120	0		%REC	5	08/05/16 06:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[a]anthracene	0.146	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[a]pyrene	0.183	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[b]fluoranthene	0.195	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[e]pyrene	0.126	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[g,h,i]perylene	0.180	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[j]fluoranthene	0.0751	0.0492	0.0983	0.0737	JN	mg/Kg-dry	10	08/04/16 04:33 PM
Benzo[k]fluoranthene	0.107	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Chrysene	0.172	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Dibenz[a,h]anthracene	0.0683	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	08/04/16 04:33 PM
Fluoranthene	0.190	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/04/16 04:33 PM
Indeno[1,2,3-cd]pyrene	0.164	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
Phenanthrene	0.0833	0.0492	0.0983	0.0737	J	mg/Kg-dry	10	08/04/16 04:33 PM
Pyrene	0.174	0.0492	0.0983	0.0737		mg/Kg-dry	10	08/04/16 04:33 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Chrysene-d12	98.4	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Perylene-d12	97.9	0	50-200	0		%REC	10	08/04/16 04:33 PM
IS: Phenanthrene-d10	94.2	0	50-200	0		%REC	10	08/04/16 04:33 PM
Surr: 2-Fluorobiphenyl	91.2	0	46-115	0		%REC	10	08/04/16 04:33 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607239-27
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:43 PM
Lab Order:	1607239	**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	10	08/04/16 04:33 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Project No: 04285081.0000.00044
Lab Order: 1607239

Client Sample ID: SGR-DU058(2-4)-C
Lab ID: 1607239-28
Collection Date: 07/20/16 04:44 PM
Matrix: SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	56.6	0.0893	0.268	0.134		mg/Kg-dry	5	08/05/16 07:30 PM
IS: Bismuth	41.0	0	30-120	0		%REC	5	08/05/16 07:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Anthracene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[a]anthracene	0.151	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[a]pyrene	0.179	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[b]fluoranthene	0.175	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[e]pyrene	0.110	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[g,h,i]perylene	0.162	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[j]fluoranthene	0.0784	0.0492	0.0984	0.0738	JN	mg/Kg-dry	10	08/04/16 05:14 PM
Benzo[k]fluoranthene	0.106	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Chrysene	0.185	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Dibenz[a,h]anthracene	0.0627	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	08/04/16 05:14 PM
Fluoranthene	0.224	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/04/16 05:14 PM
Indeno[1,2,3-cd]pyrene	0.143	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Phenanthrene	0.113	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
Pyrene	0.203	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/04/16 05:14 PM
IS: Acenaphthene-d10	149	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/04/16 05:14 PM
IS: Phenanthrene-d10	99.0	0	50-200	0		%REC	10	08/04/16 05:14 PM
Surr: 2-Fluorobiphenyl	82.4	0	46-115	0		%REC	10	08/04/16 05:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607239-28
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:44 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	93.7	0	58-133	0		%REC	10	08/04/16 05:14 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-29
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:49 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.80	0.0952	0.286	0.143		mg/Kg-dry	5	08/05/16 07:36 PM
IS: Bismuth	43.6	0	30-120	0		%REC	5	08/05/16 07:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[a]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[b]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[e]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[g,h,i]perylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	08/04/16 09:59 PM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Chrysene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
Pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/04/16 09:59 PM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Chrysene-d12	94.7	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Perylene-d12	94.9	0	50-200	0		%REC	10	08/04/16 09:59 PM
IS: Phenanthrene-d10	91.5	0	50-200	0		%REC	10	08/04/16 09:59 PM
Surr: 2-Fluorobiphenyl	88.4	0	46-115	0		%REC	10	08/04/16 09:59 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-DU058(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607239-29
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:49 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	94.1	0	58-133	0		%REC	10	08/04/16 09:59 PM

Qualifiers:			
*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-30
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:50 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.2	0.0935	0.280	0.140		mg/Kg-dry	5	08/05/16 07:42 PM
IS: Bismuth	41.5	0	30-120	0		%REC	5	08/05/16 07:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Acenaphthylene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[a]anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[a]pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[b]fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[e]pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[g,h,i]perylene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[j]fluoranthene	0.0708	0.0472	0.0944	0.0708	NU	mg/Kg-dry	10	08/04/16 10:38 PM
Benzo[k]fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Chrysene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Dibenz[a,h]anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Fluorene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Indeno[1,2,3-cd]pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Phenanthrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
Pyrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/04/16 10:38 PM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Chrysene-d12	96.8	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Perylene-d12	97.7	0	50-200	0		%REC	10	08/04/16 10:38 PM
IS: Phenanthrene-d10	93.0	0	50-200	0		%REC	10	08/04/16 10:38 PM
Surr: 2-Fluorobiphenyl	87.0	0	46-115	0		%REC	10	08/04/16 10:38 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607239-30
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:50 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	95.0	0	58-133	0		%REC	10	08/04/16 10:38 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		

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU058(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-31
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:51 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.11	0.0943	0.283	0.142		mg/Kg-dry	5	08/05/16 07:48 PM
IS: Bismuth	39.0	0	30-120	0		%REC	5	08/05/16 07:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Acenaphthylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[a]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[a]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[b]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[e]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[g,h,i]perylene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[j]fluoranthene	0.0716	0.0478	0.0955	0.0716	NU	mg/Kg-dry	10	08/04/16 11:19 PM
Benzo[k]fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Chrysene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Dibenz[a,h]anthracene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Fluoranthene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Fluorene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Indeno[1,2,3-cd]pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Phenanthrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
Pyrene	0.0716	0.0478	0.0955	0.0716	U	mg/Kg-dry	10	08/04/16 11:19 PM
IS: Acenaphthene-d10	152	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Perylene-d12	101	0	50-200	0		%REC	10	08/04/16 11:19 PM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	10	08/04/16 11:19 PM
Surr: 2-Fluorobiphenyl	81.6	0	46-115	0		%REC	10	08/04/16 11:19 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-DU058(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1607239-31
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:51 PM
Lab Order:	1607239	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **DEW**
Surr: 4-Terphenyl-d14	89.9	0	58-133	0		%REC	10	08/04/16 11:19 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-32
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:55 PM
Lab Order:	1607239	**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	08/09/16 11:51 PM
IS: Bismuth	87.9	0	30-120	0		%REC	1	08/09/16 11:51 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Acenaphthylene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Anthracene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[a]anthracene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[a]pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[b]fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[e]pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[g,h,i]perylene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Benzo[j]fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	NU	mg/L	1	07/28/16 01:08 PM
Benzo[k]fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Chrysene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Dibenz[a,h]anthracene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Fluoranthene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Fluorene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Indeno[1,2,3-cd]pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Phenanthrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
Pyrene	0.0000793	0.0000496	0.0000991	0.0000793	U	mg/L	1	07/28/16 01:08 PM
IS: Acenaphthene-d10	115	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Perylene-d12	107	0	50-200	0		%REC	1	07/28/16 01:08 PM
IS: Phenanthrene-d10	120	0	50-200	0		%REC	1	07/28/16 01:08 PM
Surr: 2-Fluorobiphenyl	55.7	0	53-106	0		%REC	1	07/28/16 01:08 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: *12-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160720)
Project:	Laredo SGR	**Lab ID:**	1607239-32
Project No:	04285081.0000.00044	**Collection Date:**	07/20/16 04:55 PM
Lab Order:	1607239	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS		**SW8270D-LL**						Analyst: **KL**
Surr: 4-Terphenyl-d14	48.0	0	58-132	0	S	%REC	1	07/28/16 01:08 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
Work Order: 1607239
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: 1607239
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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

The QC data in batch 76602 applies to the following samples: 1607239-01A, 1607239-02A, 1607239-03A, 1607239-04A, 1607239-05A, 1607239-06A, 1607239-07A, 1607239-08A, 1607239-09A, 1607239-10A, 1607239-11A, 1607239-12A, 1607239-13A, 1607239-14A, 1607239-15A, 1607239-17A

Sample ID **MB-76602** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:27:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		94.4	30	120			

Sample ID **LCS-76602** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:33:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.2	0.300	50.00	0	98.3	84	118			
IS: Bismuth	50.0		200.0		92.7	30	120			

Sample ID **LCSD-76602** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:39:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	48.6	0.300	50.00	0	97.2	84	118	1.07	20	
IS: Bismuth	50.0		200.0		92.3	30	120	0	0	

Sample ID **1607239-01A SD** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:56:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	43.7	1.46	0	46.58				6.43	10	
IS: Bismuth	243		194.2		95.5	30	120	0	0	

Sample ID **1607239-01A PDS** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 2:55:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	103	0.291	48.54	46.58	116	80	120			
IS: Bismuth	48.5		970.9		83.7	30	120			

Sample ID **1607239-01A MS** Batch ID: **76602** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 3:01:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	101	0.283	47.17	46.58	115	84	118			
IS: Bismuth	47.2		188.7		81.1	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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

Sample ID **1607239-01A MSD**	Batch ID: **76602**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 3:06:00 PM**	Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	95.1	0.294	49.02	46.58	99.0	84	118	5.85	20	
IS: Bismuth	49.0		196.1		79.2	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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

The QC data in batch 76623 applies to the following samples: 1607239-18A, 1607239-19A, 1607239-20A, 1607239-21A, 1607239-22A, 1607239-23A, 1607239-24A, 1607239-25A, 1607239-26A, 1607239-27A, 1607239-28A, 1607239-29A, 1607239-30A, 1607239-31A

Sample ID **MB-76623** Batch ID: **76623** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 5:06:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		61.3	30	120			

Sample ID **LCS-76623** Batch ID: **76623** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 5:12:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	48.1	0.300	50.00	0	96.1	84	118			
IS: Bismuth	50.0		200.0		57.9	30	120			

Sample ID **LCSD-76623** Batch ID: **76623** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 5:18:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	47.9	0.300	50.00	0	95.9	84	118	0.260	20	
IS: Bismuth	50.0		200.0		57.2	30	120	0	0	

Sample ID **1607239-21A SD** Batch ID: **76623** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 5:36:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	7.92	1.39	0	8.162				3.01	10	
IS: Bismuth	231		185.2		55.0	30	120	0	0	

Sample ID **1607239-21A PDS** Batch ID: **76623** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 6:42:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.4	0.278	46.30	8.162	95.6	80	120			
IS: Bismuth	46.3		925.9		47.9	30	120			

Sample ID **1607239-21A MS** Batch ID: **76623** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 6:47:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	53.6	0.286	47.62	8.162	95.5	84	118			
IS: Bismuth	47.6		190.5		44.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

Sample ID **1607239-21A MSD**	Batch ID: **76623**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **ICP-MS3_160805A**	Analysis Date: **8/5/2016 6:53:00 PM**	Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	52.9	0.283	47.17	8.162	94.9	84	118	1.30	20	
IS: Bismuth	47.2		188.7		43.0	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

Sample ID **ICV1-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:09:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0967	0.00100	0.100	0	96.7	90	110			
IS: Bismuth	0.200		0.200		93.9	30	120			

Sample ID **ILCVL-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 1:21:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	80	120			
IS: Bismuth	0.200		0.200		94.6	30	120			

Sample ID **CCV1-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 3:12:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.6	90	110			
IS: Bismuth	0.200		0.200		80.2	30	120			

Sample ID **LCVL1-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 3:24:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00108	0.00100	0.00100	0	108	80	120			
IS: Bismuth	0.200		0.200		81.3	30	120			

Sample ID **CCV2-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 4:48:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.198	0.00100	0.200	0	98.9	90	110			
IS: Bismuth	0.200		0.200		65.0	30	120			

Sample ID **LCVL2-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 5:00:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00105	0.00100	0.00100	0	105	80	120			
IS: Bismuth	0.200		0.200		62.5	30	120			

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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160805A**

Sample ID **CCV3-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 7:05:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.194	0.00100	0.200	0	96.8	90	110			
IS: Bismuth	0.200		0.200		42.9	30	120			

Sample ID **LCVL3-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 7:17:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		42.4	30	120			

Sample ID **CCV4-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 8:42:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.196	0.00100	0.200	0	97.8	90	110			
IS: Bismuth	0.200		0.200		42.0	30	120			

Sample ID **LCVL4-160805** Batch ID: **R87466** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160805A** Analysis Date: **8/5/2016 8:54:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	80	120			
IS: Bismuth	0.200		0.200		39.8	30	120			

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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160809B**

The QC data in batch 76687 applies to the following samples: 1607239-16A, 1607239-32A

Sample ID **MB-76687** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 10:57:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		89.9	30	120			

Sample ID **LCS-76687** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 11:03:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	88	115			
IS: Bismuth	0.200		0.200		83.5	30	120			

Sample ID **LCSD-76687** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 11:09:00 PM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115	0.498	20	
IS: Bismuth	0.200		0.200		82.3	30	120	0	0	

Sample ID **1607337-26A PDS** Batch ID: **76687** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS3_160809B** Analysis Date: **8/10/2016 12:34:00 AM** Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.193	0.00100	0.200	0	96.6	80	120			
IS: Bismuth	0.200		0.200		84.0	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS3_160809B**

Sample ID **ICV1-160809** Batch ID: **R87530** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 1:42:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809** Batch ID: **R87530** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 1:54:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV5-160809** Batch ID: **R87530** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 10:34:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		83.9	30	120			

Sample ID **LCVL5-160809** Batch ID: **R87530** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160809B** Analysis Date: **8/9/2016 10:45:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		86.9	30	120			

Sample ID **CCV6-160809** Batch ID: **R87530** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_160809B** Analysis Date: **8/10/2016 12:40:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL6-160809** Batch ID: **R87530** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_160809B** Analysis Date: **8/10/2016 12:52:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		86.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160502D**

Sample ID **DCS-74876**	Batch ID: **74876**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS6_160502D**	Analysis Date: **5/2/2016 1:24:00 PM**	Prep Date: **4/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00921	0.0100	0.01000	0	92.1	20	200	0	0	
Acenaphthylene	0.00964	0.0100	0.01000	0	96.4	20	200	0	0	
Anthracene	0.00923	0.0100	0.01000	0	92.3	20	200	0	0	
Benzo[a]anthracene	0.00934	0.0100	0.01000	0	93.4	20	200	0	0	
Benzo[a]pyrene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	
Benzo[b]fluoranthene	0.00923	0.0100	0.01000	0	92.3	20	200	0	0	
Benzo[e]pyrene	0.00939	0.0100	0.01000	0	93.9	20	200	0	0	
Benzo[g,h,i]perylene	0.0109	0.0100	0.01000	0	109	20	200	0	0	
Benzo[j]fluoranthene	0.00874	0.0100	0.01000	0	87.4	20	200	0	0	N
Benzo[k]fluoranthene	0.00895	0.0100	0.01000	0	89.5	20	200	0	0	
Chrysene	0.00935	0.0100	0.01000	0	93.5	20	200	0	0	
Dibenz[a,h]anthracene	0.0102	0.0100	0.01000	0	102	20	200	0	0	
Fluoranthene	0.0109	0.0100	0.01000	0	109	20	200	0	0	
Fluorene	0.00957	0.0100	0.01000	0	95.7	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.0102	0.0100	0.01000	0	102	20	200	0	0	
Phenanthrene	0.0100	0.0100	0.01000	0	100	20	200	0	0	
Pyrene	0.0107	0.0100	0.01000	0	107	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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160509B**

Sample ID **DCS-74985**	Batch ID: **74985**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS6_160509B**	Analysis Date: **5/9/2016 7:07:00 PM**	Prep Date: **5/6/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Acenaphthylene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Anthracene	0.0000402	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[a]anthracene	0.0000413	0.0000500	0.0000400	0	103	20	170	0	0	
Benzo[a]pyrene	0.0000380	0.0000500	0.0000400	0	95.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000400	0.0000500	0.0000400	0	100	20	170	0	0	
Benzo[e]pyrene	0.0000386	0.0000500	0.0000400	0	96.6	20	170	0	0	
Benzo[g,h,i]perylene	0.0000354	0.0000500	0.0000400	0	88.5	20	170	0	0	
Benzo[j]fluoranthene	0.0000389	0.0000500	0.0000400	0	97.2	20	170	0	0	N
Benzo[k]fluoranthene	0.0000393	0.0000500	0.0000400	0	98.3	20	170	0	0	
Chrysene	0.0000398	0.0000500	0.0000400	0	99.5	20	170	0	0	
Dibenz[a,h]anthracene	0.0000333	0.0000500	0.0000400	0	83.2	20	170	0	0	
Fluoranthene	0.0000453	0.0000500	0.0000400	0	113	20	170	0	0	
Fluorene	0.0000429	0.0000500	0.0000400	0	107	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000336	0.0000500	0.0000400	0	84.1	20	170	0	0	
Phenanthrene	0.0000397	0.0000500	0.0000400	0	99.2	20	170	0	0	
Pyrene	0.0000403	0.0000500	0.0000400	0	101	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

The QC data in batch 76442 applies to the following samples: 1607239-01A, 1607239-02A, 1607239-03A, 1607239-04A, 1607239-05A, 1607239-06A, 1607239-07A, 1607239-08A, 1607239-09A, 1607239-10A, 1607239-11A, 1607239-12A, 1607239-13A, 1607239-14A, 1607239-15A, 1607239-17A

Sample ID **LCS-76442** Batch ID: **76442** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160727A** Analysis Date: **7/27/2016 10:40:00 AM** Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.754	0.0100	1.000	0	75.4	44	111			
Acenaphthylene	0.754	0.0100	1.000	0	75.4	39	116			
Anthracene	0.730	0.0100	1.000	0	73.0	50	114			
Benzo[a]anthracene	0.768	0.0100	1.000	0	76.8	54	122			
Benzo[a]pyrene	0.744	0.0100	1.000	0	74.4	50	125			
Benzo[b]fluoranthene	0.746	0.0100	1.000	0	74.6	53	128			
Benzo[e]pyrene	0.801	0.0100	1.000	0	80.1	43	140			
Benzo[g,h,i]perylene	0.979	0.0100	1.000	0	97.9	49	127			
Benzo[j]fluoranthene	0.780	0.0100	1.000	0	78.0	45	125			N
Benzo[k]fluoranthene	0.739	0.0100	1.000	0	73.9	56	123			
Chrysene	0.771	0.0100	1.000	0	77.1	57	118			
Dibenz[a,h]anthracene	0.861	0.0100	1.000	0	86.1	50	129			
Fluoranthene	0.728	0.0100	1.000	0	72.8	55	119			
Fluorene	0.648	0.0100	1.000	0	64.8	47	114			
Indeno[1,2,3-cd]pyrene	0.844	0.0100	1.000	0	84.4	49	130			
Phenanthrene	0.916	0.0100	1.000	0	91.6	49	113			
Pyrene	0.725	0.0100	1.000	0	72.5	55	117			
IS: Acenaphthene-d10	4.00		4.000		90.6	50	200			
IS: Chrysene-d12	4.00		4.000		70.0	50	200			
IS: Naphthalene-d8	4.00		4.000		121	50	200			
IS: Perylene-d12	4.00		4.000		76.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		62.7	50	200			
Surr: 2-Fluorobiphenyl	0.744		1.000		74.4	46	115			
Surr: 4-Terphenyl-d14	0.690		1.000		69.0	58	133			

Sample ID **MB-76442** Batch ID: **76442** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160727A** Analysis Date: **7/27/2016 11:17:00 AM** Prep Date: **7/25/2016**

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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

Sample ID **MB-76442**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 11:17:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		89.4	50	200			
IS: Chrysene-d12	4.00		4.000		70.6	50	200			
IS: Naphthalene-d8	4.00		4.000		113	50	200			
IS: Perylene-d12	4.00		4.000		78.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		58.3	50	200			
Surr: 2-Fluorobiphenyl	0.786		1.000		78.6	46	115			
Surr: 4-Terphenyl-d14	0.820		1.000		82.0	58	133			

Sample ID **SB-160727**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 9:49:00 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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

Sample ID **1607239-01AMS**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 2:46:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.750	0.0936	0.9363	0	80.1	44	111			
Acenaphthylene	0.708	0.0936	0.9363	0	75.6	39	116			
Anthracene	0.790	0.0936	0.9363	0	84.4	50	114			
Benzo[a]anthracene	1.20	0.0936	0.9363	0.3377	91.6	54	122			
Benzo[a]pyrene	1.25	0.0936	0.9363	0.4660	83.3	50	125			
Benzo[b]fluoranthene	1.27	0.0936	0.9363	0.4549	86.9	53	128			
Benzo[e]pyrene	1.19	0.0936	0.9363	0.3698	87.5	43	140			
Benzo[g,h,i]perylene	1.29	0.0936	0.9363	0.4246	92.4	49	127			
Benzo[j]fluoranthene	1.05	0.0936	0.9363	0.2338	87.4	45	125			N
Benzo[k]fluoranthene	1.04	0.0936	0.9363	0.2321	86.7	56	123			
Chrysene	1.32	0.0936	0.9363	0.4545	92.5	57	118			
Dibenz[a,h]anthracene	0.833	0.0936	0.9363	0.08338	80.1	50	129			
Fluoranthene	1.63	0.0936	0.9363	0.5681	113	55	119			
Fluorene	0.753	0.0936	0.9363	0	80.4	47	114			
Indeno[1,2,3-cd]pyrene	1.07	0.0936	0.9363	0.3109	81.5	49	130			
Phenanthrene	1.12	0.0936	0.9363	0.2155	96.2	49	113			
Pyrene	1.48	0.0936	0.9363	0.4982	105	55	117			
IS: Acenaphthene-d10	37.5		3.745		98.4	50	200			
IS: Chrysene-d12	37.5		3.745		115	50	200			
IS: Naphthalene-d8	37.5		3.745		105	50	200			
IS: Perylene-d12	37.5		3.745		111	50	200			
IS: Phenanthrene-d10	37.5		3.745		104	50	200			
Surr: 2-Fluorobiphenyl	0.660		0.9363		70.5	46	115			
Surr: 4-Terphenyl-d14	0.553		0.9363		59.1	58	133			

Sample ID **1607239-01AMSD**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 3:23:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.789	0.0955	0.9551	0	82.6	44	111	5.07	20	
Acenaphthylene	0.737	0.0955	0.9551	0	77.1	39	116	3.95	20	
Anthracene	0.767	0.0955	0.9551	0	80.4	50	114	2.88	20	
Benzo[a]anthracene	1.29	0.0955	0.9551	0.3377	99.5	54	122	7.40	20	
Benzo[a]pyrene	1.47	0.0955	0.9551	0.4660	105	50	125	16.3	20	
Benzo[b]fluoranthene	1.45	0.0955	0.9551	0.4549	104	53	128	13.1	20	
Benzo[e]pyrene	1.35	0.0955	0.9551	0.3698	102	43	140	12.5	20	
Benzo[g,h,i]perylene	1.49	0.0955	0.9551	0.4246	112	49	127	14.5	20	
Benzo[j]fluoranthene	1.17	0.0955	0.9551	0.2338	98.2	45	125	10.8	20	N
Benzo[k]fluoranthene	1.16	0.0955	0.9551	0.2321	97.0	56	123	10.4	20	
Chrysene	1.45	0.0955	0.9551	0.4545	105	57	118	9.65	20	
Dibenz[a,h]anthracene	0.877	0.0955	0.9551	0.08338	83.1	50	129	5.17	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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

Sample ID **1607239-01AMSD**	Batch ID: **76442**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 3:23:00 AM**	Prep Date: **7/25/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.66	0.0955	0.9551	0.5681	114	55	119	2.11	20	
Fluorene	0.763	0.0955	0.9551	0	79.9	47	114	1.34	20	
Indeno[1,2,3-cd]pyrene	1.22	0.0955	0.9551	0.3109	95.6	49	130	13.0	20	
Phenanthrene	1.03	0.0955	0.9551	0.2155	85.5	49	113	7.85	20	
Pyrene	1.55	0.0955	0.9551	0.4982	110	55	117	4.60	20	
IS: Acenaphthene-d10	38.2		3.820		104	50	200	0	0	
IS: Chrysene-d12	38.2		3.820		115	50	200	0	0	
IS: Naphthalene-d8	38.2		3.820		110	50	200	0	0	
IS: Perylene-d12	38.2		3.820		111	50	200	0	0	
IS: Phenanthrene-d10	38.2		3.820		108	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.675		0.9551		70.7	46	115	0	0	
Surr: 4-Terphenyl-d14	0.538		0.9551		56.3	58	133	0	0	S

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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160727A**

Sample ID **ICV-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 10:00:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.93	0.0100	2.000	0	96.6	80	120			
Acenaphthylene	1.95	0.0100	2.000	0	97.6	80	120			
Anthracene	1.80	0.0100	2.000	0	90.2	80	120			
Benzo[a]anthracene	1.96	0.0100	2.000	0	98.1	80	120			
Benzo[a]pyrene	1.93	0.0100	2.000	0	96.7	80	120			
Benzo[b]fluoranthene	1.95	0.0100	2.000	0	97.3	80	120			
Benzo[e]pyrene	1.92	0.0100	2.000	0	95.8	80	120			
Benzo[g,h,i]perylene	2.17	0.0100	2.000	0	109	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	98.1	80	120			N
Benzo[k]fluoranthene	1.93	0.0100	2.000	0	96.3	80	120			
Chrysene	1.91	0.0100	2.000	0	95.3	80	120			
Dibenz[a,h]anthracene	1.93	0.0100	2.000	0	96.4	80	120			
Fluoranthene	1.76	0.0100	2.000	0	87.9	80	120			
Fluorene	1.97	0.0100	2.000	0	98.7	80	120			
Indeno[1,2,3-cd]pyrene	1.90	0.0100	2.000	0	95.1	80	120			
Phenanthrene	2.22	0.0100	2.000	0	111	80	120			
Pyrene	1.72	0.0100	2.000	0	86.2	80	120			
IS: Acenaphthene-d10	4.00		4.000		103	50	200			
IS: Chrysene-d12	4.00		4.000		108	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		108	50	200			
IS: Phenanthrene-d10	4.00		4.000		112	50	200			
Surr: 2-Fluorobiphenyl	2.00		2.000		100	65	120			
Surr: 4-Terphenyl-d14	1.90		2.000		95.1	65	120			

Sample ID **ICV2-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 8:35:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	96.9	80	120			
Acenaphthylene	1.96	0.0100	2.000	0	98.0	80	120			
Anthracene	1.84	0.0100	2.000	0	92.0	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.7	80	120			
Benzo[a]pyrene	1.92	0.0100	2.000	0	96.0	80	120			
Benzo[b]fluoranthene	1.93	0.0100	2.000	0	96.4	80	120			
Benzo[e]pyrene	1.93	0.0100	2.000	0	96.5	80	120			
Benzo[g,h,i]perylene	2.19	0.0100	2.000	0	109	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	97.8	80	120			N
Benzo[k]fluoranthene	1.90	0.0100	2.000	0	95.0	80	120			
Chrysene	1.91	0.0100	2.000	0	95.6	80	120			
Dibenz[a,h]anthracene	1.95	0.0100	2.000	0	97.3	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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160727A

Sample ID **ICV2-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/27/2016 8:35:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.83	0.0100	2.000	0	91.6	80	120			
Fluorene	1.97	0.0100	2.000	0	98.5	80	120			
Indeno[1,2,3-cd]pyrene	1.92	0.0100	2.000	0	95.9	80	120			
Phenanthrene	1.82	0.0100	2.000	0	90.9	80	120			
Pyrene	1.79	0.0100	2.000	0	89.6	80	120			
IS: Acenaphthene-d10	4.00		4.000		102	50	200			
IS: Chrysene-d12	4.00		4.000		109	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		109	50	200			
IS: Phenanthrene-d10	4.00		4.000		108	50	200			
Surr: 2-Fluorobiphenyl	2.00		2.000		100	65	120			
Surr: 4-Terphenyl-d14	1.98		2.000		99.1	65	120			

Sample ID **CCV1-160727**	Batch ID: **R87264**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160727A**	Analysis Date: **7/28/2016 4:00:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.932	0.0100	1.000	0	93.2	50	150			
Acenaphthylene	0.942	0.0100	1.000	0	94.2	50	150			
Anthracene	0.903	0.0100	1.000	0	90.3	50	150			
Benzo[a]anthracene	0.962	0.0100	1.000	0	96.2	50	150			
Benzo[a]pyrene	0.946	0.0100	1.000	0	94.6	50	150			
Benzo[b]fluoranthene	0.968	0.0100	1.000	0	96.8	50	150			
Benzo[e]pyrene	0.953	0.0100	1.000	0	95.3	50	150			
Benzo[g,h,i]perylene	1.06	0.0100	1.000	0	106	50	150			
Benzo[j]fluoranthene	0.963	0.0100	1.000	0	96.3	50	150			N
Benzo[k]fluoranthene	0.963	0.0100	1.000	0	96.3	50	150			
Chrysene	0.940	0.0100	1.000	0	94.0	50	150			
Dibenz[a,h]anthracene	0.948	0.0100	1.000	0	94.8	50	150			
Fluoranthene	0.914	0.0100	1.000	0	91.4	50	150			
Fluorene	0.930	0.0100	1.000	0	93.0	50	150			
Indeno[1,2,3-cd]pyrene	0.937	0.0100	1.000	0	93.7	50	150			
Phenanthrene	1.09	0.0100	1.000	0	109	50	150			
Pyrene	0.894	0.0100	1.000	0	89.4	50	150			
IS: Acenaphthene-d10	4.00		4.000		116	50	200			
IS: Chrysene-d12	4.00		4.000		122	50	200			
IS: Naphthalene-d8	4.00		4.000		122	50	200			
IS: Perylene-d12	4.00		4.000		120	50	200			
IS: Phenanthrene-d10	4.00		4.000		118	50	200			
Surr: 2-Fluorobiphenyl	0.988		1.000		98.8	50	150			
Surr: 4-Terphenyl-d14	0.984		1.000		98.4	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

The QC data in batch 76453 applies to the following samples: 1607239-16B, 1607239-32B

Sample ID **LCS-76453** Batch ID: **76453** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS6_160728A** Analysis Date: **7/28/2016 9:24:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00232	0.0000500	0.00400	0	57.9	48	114			
Acenaphthylene	0.00238	0.0000500	0.00400	0	59.4	35	121			
Anthracene	0.00242	0.0000500	0.00400	0	60.5	53	119			
Benzo[a]anthracene	0.00281	0.0000500	0.00400	0	70.1	59	120			
Benzo[a]pyrene	0.00274	0.0000500	0.00400	0	68.5	53	120			
Benzo[b]fluoranthene	0.00281	0.0000500	0.00400	0	70.2	53	126			
Benzo[e]pyrene	0.00286	0.0000500	0.00400	0	71.5	40	140			
Benzo[g,h,i]perylene	0.00292	0.0000500	0.00400	0	73.1	44	128			
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124			N
Benzo[k]fluoranthene	0.00264	0.0000500	0.00400	0	66.1	54	125			
Chrysene	0.00274	0.0000500	0.00400	0	68.4	57	120			
Dibenz[a,h]anthracene	0.00268	0.0000500	0.00400	0	67.0	44	131			
Fluoranthene	0.00259	0.0000500	0.00400	0	64.7	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.2	50	118			
Indeno[1,2,3-cd]pyrene	0.00261	0.0000500	0.00400	0	65.2	48	130			
Phenanthrene	0.00298	0.0000500	0.00400	0	74.4	53	115			
Pyrene	0.00251	0.0000500	0.00400	0	62.8	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		95.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		108	50	200			
IS: Naphthalene-d8	0.00800		0.00800		101	50	200			
IS: Perylene-d12	0.00800		0.00800		106	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	4.56		8.000		57.0	53	106			
Surr: 4-Terphenyl-d14	4.75		8.000		59.3	58	132			

Sample ID **LCSD-76453** Batch ID: **76453** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCSD** Run ID: **GCMS6_160728A** Analysis Date: **7/28/2016 10:01:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00239	0.0000500	0.00400	0	59.6	48	114	2.91	20	
Acenaphthylene	0.00244	0.0000500	0.00400	0	61.0	35	121	2.59	20	
Anthracene	0.00227	0.0000500	0.00400	0	56.6	53	119	6.66	20	
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.8	59	120	1.91	20	
Benzo[a]pyrene	0.00270	0.0000500	0.00400	0	67.4	53	120	1.56	20	
Benzo[b]fluoranthene	0.00275	0.0000500	0.00400	0	68.7	53	126	2.09	20	
Benzo[e]pyrene	0.00283	0.0000500	0.00400	0	70.8	40	140	1.01	20	
Benzo[g,h,i]perylene	0.00267	0.0000500	0.00400	0	66.8	44	128	8.96	20	
Benzo[j]fluoranthene	0.00283	0.0000500	0.00400	0	70.9	45	124	0.002	2	N
Benzo[k]fluoranthene	0.00268	0.0000500	0.00400	0	66.9	54	125	1.22	20	
Chrysene	0.00268	0.0000500	0.00400	0	67.0	57	120	2.01	20	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID **LCSD-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **LCSD**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:01:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00252	0.0000500	0.00400	0	63.1	44	131	5.98	20	
Fluoranthene	0.00249	0.0000500	0.00400	0	62.3	58	120	3.76	20	
Fluorene	0.00252	0.0000500	0.00400	0	63.1	50	118	1.67	20	
Indeno[1,2,3-cd]pyrene	0.00246	0.0000500	0.00400	0	61.5	48	130	5.77	20	
Phenanthrene	0.00291	0.0000500	0.00400	0	72.7	53	115	2.35	20	
Pyrene	0.00241	0.0000500	0.00400	0	60.2	53	121	4.29	20	
IS: Acenaphthene-d10	0.00800		0.00800		91.4	50	200	0	0	
IS: Chrysene-d12	0.00800		0.00800		104	50	200	0	0	
IS: Naphthalene-d8	0.00800		0.00800		97.4	50	200	0	0	
IS: Perylene-d12	0.00800		0.00800		99.9	50	200	0	0	
IS: Phenanthrene-d10	0.00800		0.00800		101	50	200	0	0	
Surr: 2-Fluorobiphenyl	4.37		8.000		54.7	53	106	0	0	
Surr: 4-Terphenyl-d14	4.49		8.000		56.1	58	132	0	0	S

Sample ID **MB-76453**	Batch ID: **76453**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 10:39:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		88.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		102	50	200			
IS: Naphthalene-d8	0.00800		0.00800		93.3	50	200			
IS: Perylene-d12	0.00800		0.00800		97.0	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		94.1	50	200			
Surr: 2-Fluorobiphenyl	4.65		8.000		58.1	53	106			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID	**MB-76453**	Batch ID:	**76453**	TestNo:	**SW8270D-LL**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**GCMS6_160728A**	Analysis Date:	**7/28/2016 10:39:00 AM**	Prep Date:	**7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	5.02		8.000		62.7	58	132			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID **ICV-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 8:46:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0000500	2.00	0	96.8	80	120			
Acenaphthylene	1.96	0.0000500	2.00	0	97.8	80	120			
Anthracene	1.80	0.0000500	2.00	0	89.9	80	120			
Benzo[a]anthracene	1.96	0.0000500	2.00	0	98.0	80	120			
Benzo[a]pyrene	1.95	0.0000500	2.00	0	97.3	80	120			
Benzo[b]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Benzo[e]pyrene	1.94	0.0000500	2.00	0	97.0	80	120			
Benzo[g,h,i]perylene	2.18	0.0000500	2.00	0	109	80	120			
Benzo[j]fluoranthene	1.98	0.0000500	2.00	0	99.2	80	120			N
Benzo[k]fluoranthene	1.95	0.0000500	2.00	0	97.5	80	120			
Chrysene	1.91	0.0000500	2.00	0	95.5	80	120			
Dibenz[a,h]anthracene	1.93	0.0000500	2.00	0	96.6	80	120			
Fluoranthene	1.82	0.0000500	2.00	0	91.2	80	120			
Fluorene	1.96	0.0000500	2.00	0	97.9	80	120			
Indeno[1,2,3-cd]pyrene	1.90	0.0000500	2.00	0	95.2	80	120			
Phenanthrene	2.21	0.0000500	2.00	0	111	80	120			
Pyrene	1.79	0.0000500	2.00	0	89.4	80	120			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		117	50	200			
IS: Naphthalene-d8	4.00		4.00		111	50	200			
IS: Perylene-d12	4.00		4.00		115	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	2010		2000		101	65	120			
Surr: 4-Terphenyl-d14	2000		2000		99.9	65	120			

Sample ID **ICV2-160728**	Batch ID: **R87529**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS6_160728A**	Analysis Date: **7/28/2016 5:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.82	0.0000500	2.00	0	91.1	50	150			
Acenaphthylene	1.86	0.0000500	2.00	0	92.9	50	150			
Anthracene	1.73	0.0000500	2.00	0	86.4	50	150			
Benzo[a]anthracene	1.84	0.0000500	2.00	0	92.1	50	150			
Benzo[a]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[b]fluoranthene	1.85	0.0000500	2.00	0	92.7	50	150			
Benzo[e]pyrene	1.84	0.0000500	2.00	0	92.0	50	150			
Benzo[g,h,i]perylene	1.49	0.0000500	2.00	0	74.5	50	150			
Benzo[j]fluoranthene	1.88	0.0000500	2.00	0	94.1	50	150			N
Benzo[k]fluoranthene	1.85	0.0000500	2.00	0	92.5	50	150			
Chrysene	1.80	0.0000500	2.00	0	89.8	50	150			
Dibenz[a,h]anthracene	1.42	0.0000500	2.00	0	71.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160728A**

Sample ID	**ICV2-160728**	Batch ID:	**R87529**	TestNo:	**SW8270D-LL**	Units:	**mg/L**
SampType:	**CCV**	Run ID:	**GCMS6_160728A**	Analysis Date:	**7/28/2016 5:31:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	86.2	50	150			
Fluorene	1.86	0.0000500	2.00	0	93.0	50	150			
Indeno[1,2,3-cd]pyrene	1.39	0.0000500	2.00	0	69.3	50	150			
Phenanthrene	2.09	0.0000500	2.00	0	104	50	150			
Pyrene	1.69	0.0000500	2.00	0	84.4	50	150			
IS: Acenaphthene-d10	4.00		4.00		105	50	200			
IS: Chrysene-d12	4.00		4.00		116	50	200			
IS: Naphthalene-d8	4.00		4.00		109	50	200			
IS: Perylene-d12	4.00		4.00		114	50	200			
IS: Phenanthrene-d10	4.00		4.00		113	50	200			
Surr: 2-Fluorobiphenyl	1900		2000		95.2	50	150			
Surr: 4-Terphenyl-d14	1880		2000		93.9	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160803A**

The QC data in batch 76442 applies to the following samples: 1607239-01A, 1607239-02A, 1607239-03A, 1607239-04A, 1607239-05A, 1607239-06A, 1607239-07A, 1607239-08A, 1607239-09A, 1607239-10A, 1607239-11A, 1607239-12A, 1607239-13A, 1607239-14A, 1607239-15A, 1607239-17A

Sample ID **SB-160803** Batch ID: **76442** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **SBLK** Run ID: **GCMS6_160803A** Analysis Date: **8/3/2016 12:23:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000630		0							
Surr: 4-Terphenyl-d14	0.00209		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160803A**

Sample ID **ICV-160803**	Batch ID: **R87405**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160803A**	Analysis Date: **8/3/2016 11:02:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.03	0.0100	2.000	0	101	80	120			
Acenaphthylene	2.01	0.0100	2.000	0	101	80	120			
Anthracene	1.91	0.0100	2.000	0	95.3	80	120			
Benzo[a]anthracene	2.03	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Benzo[e]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.29	0.0100	2.000	0	115	80	120			
Benzo[j]fluoranthene	2.05	0.0100	2.000	0	102	80	120			N
Benzo[k]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.31	0.0100	2.000	0	115	80	120			
Fluoranthene	1.95	0.0100	2.000	0	97.5	80	120			
Fluorene	2.05	0.0100	2.000	0	102	80	120			
Indeno[1,2,3-cd]pyrene	2.29	0.0100	2.000	0	114	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.5	80	120			
Pyrene	1.93	0.0100	2.000	0	96.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		103	50	200			
IS: Perylene-d12	4.00		4.000		103	50	200			
IS: Phenanthrene-d10	4.00		4.000		92.2	50	200			
Surr: 2-Fluorobiphenyl	1.97		2.000		98.7	65	120			
Surr: 4-Terphenyl-d14	1.99		2.000		99.6	65	120			

Sample ID **CCV1-160803**	Batch ID: **R87405**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160803A**	Analysis Date: **8/3/2016 6:30:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.959	0.0100	1.000	0	95.9	50	150			
Acenaphthylene	0.937	0.0100	1.000	0	93.7	50	150			
Anthracene	0.917	0.0100	1.000	0	91.7	50	150			
Benzo[a]anthracene	0.947	0.0100	1.000	0	94.7	50	150			
Benzo[a]pyrene	0.940	0.0100	1.000	0	94.0	50	150			
Benzo[b]fluoranthene	0.956	0.0100	1.000	0	95.6	50	150			
Benzo[e]pyrene	0.949	0.0100	1.000	0	94.9	50	150			
Benzo[g,h,i]perylene	1.11	0.0100	1.000	0	111	50	150			
Benzo[j]fluoranthene	0.955	0.0100	1.000	0	95.5	50	150			N
Benzo[k]fluoranthene	0.994	0.0100	1.000	0	99.4	50	150			
Chrysene	0.939	0.0100	1.000	0	93.9	50	150			
Dibenz[a,h]anthracene	1.11	0.0100	1.000	0	111	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160803A**

Sample ID **CCV1-160803**	Batch ID: **R87405**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160803A**	Analysis Date: **8/3/2016 6:30:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.915	0.0100	1.000	0	91.5	50	150			
Fluorene	0.985	0.0100	1.000	0	98.5	50	150			
Indeno[1,2,3-cd]pyrene	1.10	0.0100	1.000	0	110	50	150			
Phenanthrene	0.928	0.0100	1.000	0	92.8	50	150			
Pyrene	0.896	0.0100	1.000	0	89.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		99.0	50	200			
IS: Naphthalene-d8	4.00		4.000		101	50	200			
IS: Perylene-d12	4.00		4.000		98.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		93.8	50	200			
Surr: 2-Fluorobiphenyl	0.918		1.000		91.8	50	150			
Surr: 4-Terphenyl-d14	0.925		1.000		92.5	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160804A

The QC data in batch 76457 applies to the following samples: 1607239-18A, 1607239-19A, 1607239-20A, 1607239-21A, 1607239-22A, 1607239-23A, 1607239-24A, 1607239-25A, 1607239-26A, 1607239-27A, 1607239-28A, 1607239-29A, 1607239-30A, 1607239-31A

Sample ID **LCS-76457** Batch ID: **76457** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160804A** Analysis Date: **8/4/2016 9:03:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.843	0.0100	1.000	0	84.3	44	111			
Acenaphthylene	0.817	0.0100	1.000	0	81.7	39	116			
Anthracene	0.772	0.0100	1.000	0	77.2	50	114			
Benzo[a]anthracene	0.863	0.0100	1.000	0	86.3	54	122			
Benzo[a]pyrene	0.822	0.0100	1.000	0	82.2	50	125			
Benzo[b]fluoranthene	0.884	0.0100	1.000	0	88.4	53	128			
Benzo[e]pyrene	0.900	0.0100	1.000	0	90.0	43	140			
Benzo[g,h,i]perylene	0.888	0.0100	1.000	0	88.8	49	127			
Benzo[j]fluoranthene	0.896	0.0100	1.000	0	89.6	45	125			N
Benzo[k]fluoranthene	0.918	0.0100	1.000	0	91.8	56	123			
Chrysene	0.846	0.0100	1.000	0	84.6	57	118			
Dibenz[a,h]anthracene	0.895	0.0100	1.000	0	89.5	50	129			
Fluoranthene	0.785	0.0100	1.000	0	78.5	55	119			
Fluorene	0.815	0.0100	1.000	0	81.5	47	114			
Indeno[1,2,3-cd]pyrene	0.897	0.0100	1.000	0	89.7	49	130			
Phenanthrene	0.843	0.0100	1.000	0	84.3	49	113			
Pyrene	0.782	0.0100	1.000	0	78.2	55	117			
IS: Acenaphthene-d10	4.00		4.000		157	50	200			
IS: Chrysene-d12	4.00		4.000		109	50	200			
IS: Naphthalene-d8	4.00		4.000		127	50	200			
IS: Perylene-d12	4.00		4.000		108	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	0.767		1.000		76.7	46	115			
Surr: 4-Terphenyl-d14	0.820		1.000		82.0	58	133			

Sample ID **MB-76457** Batch ID: **76457** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160804A** Analysis Date: **8/4/2016 9:44:00 AM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

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:	1607239		
Project:	Laredo SGR	**RunID:**	**GCMS6_160804A**

ANALYTICAL QC SUMMARY REPORT

Sample ID **MB-76457**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 9:44:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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		153	50	200			
IS: Chrysene-d12	4.00		4.000		103	50	200			
IS: Naphthalene-d8	4.00		4.000		119	50	200			
IS: Perylene-d12	4.00		4.000		99.6	50	200			
IS: Phenanthrene-d10	4.00		4.000		93.2	50	200			
Surr: 2-Fluorobiphenyl	0.822		1.000		82.2	46	115			
Surr: 4-Terphenyl-d14	0.895		1.000		89.5	58	133			

Sample ID **1607239-21AMS**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 5:55:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.860	0.0999	0.9990	0	86.1	44	111			
Acenaphthylene	0.844	0.0999	0.9990	0	84.5	39	116			
Anthracene	0.826	0.0999	0.9990	0	82.7	50	114			
Benzo[a]anthracene	0.863	0.0999	0.9990	0	86.4	54	122			
Benzo[a]pyrene	0.839	0.0999	0.9990	0	84.0	50	125			
Benzo[b]fluoranthene	0.904	0.0999	0.9990	0	90.4	53	128			
Benzo[e]pyrene	0.913	0.0999	0.9990	0	91.4	43	140			
Benzo[g,h,i]perylene	1.08	0.0999	0.9990	0	108	49	127			
Benzo[j]fluoranthene	0.875	0.0999	0.9990	0	87.6	45	125			N
Benzo[k]fluoranthene	0.885	0.0999	0.9990	0	88.6	56	123			
Chrysene	0.868	0.0999	0.9990	0	86.9	57	118			
Dibenz[a,h]anthracene	1.09	0.0999	0.9990	0	109	50	129			
Fluoranthene	0.837	0.0999	0.9990	0	83.7	55	119			
Fluorene	0.866	0.0999	0.9990	0	86.7	47	114			
Indeno[1,2,3-cd]pyrene	1.09	0.0999	0.9990	0	109	49	130			
Phenanthrene	0.886	0.0999	0.9990	0	88.7	49	113			
Pyrene	0.843	0.0999	0.9990	0	84.4	55	117			
IS: Acenaphthene-d10	40.0		3.996		139	50	200			
IS: Chrysene-d12	40.0		3.996		99.5	50	200			
IS: Naphthalene-d8	40.0		3.996		107	50	200			
IS: Perylene-d12	40.0		3.996		99.4	50	200			
IS: Phenanthrene-d10	40.0		3.996		92.7	50	200			

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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160804A**

Sample ID **1607239-21AMS** Batch ID: **76457** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **GCMS6_160804A** Analysis Date: **8/4/2016 5:55:00 PM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.876		0.9990		87.6	46	115			
Surr: 4-Terphenyl-d14	0.984		0.9990		98.5	58	133			

Sample ID **1607239-21AMSD** Batch ID: **76457** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160804A** Analysis Date: **8/4/2016 6:37:00 PM** Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.817	0.0998	0.9980	0	81.9	44	111	5.15	20	
Acenaphthylene	0.818	0.0998	0.9980	0	81.9	39	116	3.22	20	
Anthracene	0.789	0.0998	0.9980	0	79.1	50	114	4.62	20	
Benzo[a]anthracene	0.827	0.0998	0.9980	0	82.9	54	122	4.22	20	
Benzo[a]pyrene	0.812	0.0998	0.9980	0	81.4	50	125	3.17	20	
Benzo[b]fluoranthene	0.876	0.0998	0.9980	0	87.8	53	128	3.10	20	
Benzo[e]pyrene	0.887	0.0998	0.9980	0	88.9	43	140	2.89	20	
Benzo[g,h,i]perylene	1.08	0.0998	0.9980	0	108	49	127	0.692	20	
Benzo[j]fluoranthene	0.873	0.0998	0.9980	0	87.4	45	125	0.248	20	N
Benzo[k]fluoranthene	0.899	0.0998	0.9980	0	90.1	56	123	1.62	20	
Chrysene	0.847	0.0998	0.9980	0	84.9	57	118	2.42	20	
Dibenz[a,h]anthracene	1.05	0.0998	0.9980	0	106	50	129	3.33	20	
Fluoranthene	0.785	0.0998	0.9980	0	78.6	55	119	6.37	20	
Fluorene	0.829	0.0998	0.9980	0	83.1	47	114	4.40	20	
Indeno[1,2,3-cd]pyrene	1.06	0.0998	0.9980	0	106	49	130	2.65	20	
Phenanthrene	0.851	0.0998	0.9980	0	85.3	49	113	3.97	20	
Pyrene	0.791	0.0998	0.9980	0	79.3	55	117	6.32	20	
IS: Acenaphthene-d10	39.9		3.992		149	50	200	0	0	
IS: Chrysene-d12	39.9		3.992		102	50	200	0	0	
IS: Naphthalene-d8	39.9		3.992		113	50	200	0	0	
IS: Perylene-d12	39.9		3.992		100	50	200	0	0	
IS: Phenanthrene-d10	39.9		3.992		97.6	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.844		0.9980		84.6	46	115	0	0	
Surr: 4-Terphenyl-d14	0.931		0.9980		93.3	58	133	0	0	

Sample ID **SB-160804** Batch ID: **76457** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **SBLK** Run ID: **GCMS6_160804A** Analysis Date: **8/4/2016 9:19:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U

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: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160804A**

Sample ID **SB-160804**	Batch ID: **76457**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 9:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000610		0							
Surr: 4-Terphenyl-d14	0.00237		0							

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607239
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: **GCMS6_160804A**

Sample ID **ICV-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 8:23:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.06	0.0100	2.000	0	103	80	120			
Acenaphthylene	2.02	0.0100	2.000	0	101	80	120			
Anthracene	1.91	0.0100	2.000	0	95.5	80	120			
Benzo[a]anthracene	2.03	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Benzo[e]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.13	0.0100	2.000	0	107	80	120			
Benzo[j]fluoranthene	2.02	0.0100	2.000	0	101	80	120			N
Benzo[k]fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Chrysene	1.98	0.0100	2.000	0	99.2	80	120			
Dibenz[a,h]anthracene	2.16	0.0100	2.000	0	108	80	120			
Fluoranthene	1.79	0.0100	2.000	0	89.5	80	120			
Fluorene	2.21	0.0100	2.000	0	110	80	120			
Indeno[1,2,3-cd]pyrene	2.14	0.0100	2.000	0	107	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.4	80	120			
Pyrene	1.76	0.0100	2.000	0	88.1	80	120			
IS: Acenaphthene-d10	4.00		4.000		127	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		107	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		105	50	200			
Surr: 2-Fluorobiphenyl	1.81		2.000		90.4	65	120			
Surr: 4-Terphenyl-d14	1.80		2.000		90.2	65	120			

Sample ID **ICV2-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 7:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.05	0.0100	2.000	0	102	80	120			
Acenaphthylene	1.98	0.0100	2.000	0	99.2	80	120			
Anthracene	1.89	0.0100	2.000	0	94.7	80	120			
Benzo[a]anthracene	2.05	0.0100	2.000	0	102	80	120			
Benzo[a]pyrene	2.02	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Benzo[e]pyrene	2.03	0.0100	2.000	0	101	80	120			
Benzo[g,h,i]perylene	2.44	0.0100	2.000	0	122	80	120			S
Benzo[j]fluoranthene	2.03	0.0100	2.000	0	102	80	120			N
Benzo[k]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Chrysene	2.00	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.38	0.0100	2.000	0	119	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

Sample ID **ICV2-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/4/2016 7:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.79	0.0100	2.000	0	89.4	80	120			
Fluorene	2.15	0.0100	2.000	0	108	80	120			
Indeno[1,2,3-cd]pyrene	2.35	0.0100	2.000	0	118	80	120			
Phenanthrene	1.95	0.0100	2.000	0	97.4	80	120			
Pyrene	1.76	0.0100	2.000	0	87.9	80	120			
IS: Acenaphthene-d10	4.00		4.000		130	50	200			
IS: Chrysene-d12	4.00		4.000		104	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		104	50	200			
Surr: 2-Fluorobiphenyl	1.81		2.000		90.7	65	120			
Surr: 4-Terphenyl-d14	1.79		2.000		89.4	65	120			

Sample ID **CCV1-160804**	Batch ID: **R87447**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160804A**	Analysis Date: **8/5/2016 3:58:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.989	0.0100	1.000	0	98.9	50	150			
Acenaphthylene	0.956	0.0100	1.000	0	95.6	50	150			
Anthracene	0.877	0.0100	1.000	0	87.7	50	150			
Benzo[a]anthracene	0.912	0.0100	1.000	0	91.2	50	150			
Benzo[a]pyrene	0.925	0.0100	1.000	0	92.5	50	150			
Benzo[b]fluoranthene	0.941	0.0100	1.000	0	94.1	50	150			
Benzo[e]pyrene	0.940	0.0100	1.000	0	94.0	50	150			
Benzo[g,h,i]perylene	1.15	0.0100	1.000	0	115	50	150			
Benzo[j]fluoranthene	0.927	0.0100	1.000	0	92.7	50	150			N
Benzo[k]fluoranthene	0.956	0.0100	1.000	0	95.6	50	150			
Chrysene	0.890	0.0100	1.000	0	89.0	50	150			
Dibenz[a,h]anthracene	1.10	0.0100	1.000	0	110	50	150			
Fluoranthene	0.821	0.0100	1.000	0	82.1	50	150			
Fluorene	1.00	0.0100	1.000	0	100	50	150			
Indeno[1,2,3-cd]pyrene	1.11	0.0100	1.000	0	111	50	150			
Phenanthrene	0.931	0.0100	1.000	0	93.1	50	150			
Pyrene	0.806	0.0100	1.000	0	80.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		139	50	200			
IS: Chrysene-d12	4.00		4.000		101	50	200			
IS: Naphthalene-d8	4.00		4.000		103	50	200			
IS: Perylene-d12	4.00		4.000		101	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	0.988		1.000		98.8	50	150			
Surr: 4-Terphenyl-d14	0.944		1.000		94.4	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *12-Aug-16*

CLIENT: Arcadis
Work Order: 1607239
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
1607239

GCMS6_160727A
For

DHL Work Order
1607239

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

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	**Run ID: GCMS6_160727A**
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			
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			
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		
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		x
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction			X	x
	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		

VARIANCE REPORT

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

NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

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: 7/28/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:01:14 PM, 8/10/2016

DHL Analytical, Inc.

Run ID:	**GCMS6_160727A**	**Run No.:**	87264
Analytical Run Date:	7/27/2016	**InstrumentID:**	GCMS6
Analyst:	Don Winston	**Column:**	Agilent (J&W) DB-EUPAH (20m x 0.18mmI
Calibration ID:	676	**Column ID:**	0.18mm
		Column Length:	20m

Cal Comments: PP160725.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160727	1	PAH_LL_SDOD1	TUNE	R87264	7/27/2016 9:23:00 AM		
ICV-160727	1	PAH_LL_SDOD1	ICV	R87264	7/27/2016 10:00:00 AM		
LCS-76442	1	PAH_LL_SDOD1	LCS	76442	7/27/2016 10:40:00 AM		
MB-76442	1	PAH_LL_SDOD1	MBLK	76442	7/27/2016 11:17:00 AM		
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 11:54:00 AM		Low recovery for surrogate 4-Terphenyl-d14.
1607219-23A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 12:31:00 PM		
1607219-24A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 1:08:00 PM		
1607219-25A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 1:45:00 PM		
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 2:22:00 PM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-02A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 2:59:00 PM		
1607239-03A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 3:37:00 PM		
1607239-04A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 4:15:00 PM		
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 4:52:00 PM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-06A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 5:29:00 PM		
1607239-07A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 6:07:00 PM		
1607239-08A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 6:44:00 PM		
1607239-09A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 7:20:00 PM		
DFTPP2-160727	1	PAH_LL_SDOD1	TUNE	R87264	7/27/2016 7:57:00 PM		
ICV2-160727	1	PAH_LL_SDOD1	ICV	R87264	7/27/2016 8:35:00 PM		
SB-160727	1	PAH_LL_SDOD1	SBLK	76442	7/27/2016 9:49:00 PM		
1607239-10A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 10:26:00 PM		
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 11:03:00 PM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-12A	10	PAH_LL_SDOD1	SAMP	76442	7/27/2016 11:40:00 PM		
1607239-13A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 12:17:00 AM		
1607239-14A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 12:54:00 AM		
1607239-15A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 1:31:00 AM		
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	7/28/2016 2:08:00 AM		Low recovery for surrogate 4-Terphenyl-d14.
1607239-01AMS	10	PAH_LL_SDOD1	MS	76442	7/28/2016 2:46:00 AM		
1607239-01AMSD	10	PAH_LL_SDOD1	MSD	76442	7/28/2016 3:23:00 AM		Low recovery for surrogate 4-Terphenyl-d14.

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

DHL Analytical, Inc.

Run ID: **GCMS6_160727A** **Run No.:** 87264

CCV1-160727	1	PAH_LL_SDOD1	CCV	R87264	7/28/2016 4:00:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160727.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160727\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run	On A Barcode Mismatch
(X) Full Method	(X) Inject Anyway
( ) Reprocessing Only	( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16072703	DFTPPPAH	DFTPP-160727
2	Sample	2	16072704	PP160725	ICV-160727
3	Sample	3	16072705	PP160725	LCS-76442
4	Sample	4	16072706	PP160725	MB-76442
5	Sample	5	16072707	PP160725	1607219-22A
6	Sample	6	16072708	PP160725	1607219-23A
7	Sample	7	16072709	PP160725	1607219-24A
8	Sample	8	16072710	PP160725	1607219-25A
9	Sample	9	16072711	PP160725	1607239-01A
10	Sample	10	16072712	PP160725	1607239-02A
11	Sample	11	16072713	PP160725	1607239-03A
12	Sample	12	16072714	PP160725	1607239-04A
13	Sample	13	16072715	PP160725	1607239-05A
14	Sample	14	16072716	PP160725	1607239-06A
15	Sample	15	16072717	PP160725	1607239-07A
16	Sample	16	16072718	PP160725	1607239-08A
17	Sample	17	16072719	PP160725	1607239-09A
18	Sample	18	16072720	DFTPPPAH	DFTPP2-160727
19	Sample	19	16072721	PP160725	ICV2-160727
20	Sample	20	16072722	PP160725	SBLK
21	Sample	21	16072723	PP160725	SB-160727
22	Sample	22	16072724	PP160725	1607239-10A
23	Sample	23	16072725	PP160725	1607239-11A
24	Sample	24	16072726	PP160725	1607239-12A
25	Sample	25	16072727	PP160725	1607239-13A
26	Sample	26	16072728	PP160725	1607239-14A
27	Sample	27	16072729	PP160725	1607239-15A
28	Sample	28	16072730	PP160725	1607239-17A
29	Sample	29	16072731	PP160725	1607239-01AMS
30	Sample	30	16072732	PP160725	1607239-01AMSD
31	Sample	31	16072733	PP160725	CCV1-160727

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: 7/25/16 5:00 Pm

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	1.000	1 of 1	
1607219-23A	Soil		10.71	10	1.000	1 of 1	
1607219-24A	Soil		10.27	10	1.000	1 of 1	
1607219-25A	Soil		10.46	10	1.000	1 of 1	
1607239-01A	Soil		10.05	10	1.000	1 of 3	
1607239-01AMS	Soil		10.68	10	1.000	1 of 3	
1607239-01AMSD	Soil		10.47	10	1.000	1 of 3	
1607239-02A	Soil		10.13	10	1.000	1 of 1	
1607239-03A	Soil		10.14	10	1.000	1 of 1	
1607239-04A	Soil		10.14	10	1.000	1 of 1	
1607239-05A	Soil		10.42	10	1.000	1 of 1	
1607239-06A	Soil		10.07	10	1.000	1 of 1	
1607239-07A	Soil		10.26	10	1.000	1 of 1	
1607239-08A	Soil		10.33	10	1.000	1 of 1	
1607239-09A	Soil		10.01	10	1.000	1 of 1	
1607239-10A	Soil		10.71	10	1.000	1 of 1	
1607239-11A	Soil		10.22	10	1.000	1 of 1	
1607239-12A	Soil		10.22	10	1.000	1 of 1	
1607239-13A	Soil		10.29	10	1.000	1 of 1	
1607239-14A	Soil		10.83	10	1.000	1 of 1	
1607239-15A	Soil		10.53	10	1.000	1 of 1	
1607239-17A	Soil		10.74	10	1.000	1 of 1	
LCS-76442	Soil		10	10	1.000	of	
MB-76442	Soil		10	10	1.000	of	

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

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

REVIEWED BY
By Janice Whitt at 12:36:50 PM, 8/10/2016

DB 7/25/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: **7/25/2016 5:00:00 PM**

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	0.995	1	of	1	
1607219-23A	Soil		10.71	10	0.934	1	of	1	
1607219-24A	Soil		10.27	10	0.974	1	of	1	
1607219-25A	Soil		10.46	10	0.956	1	of	1	
1607239-01A	Soil		10.05	10	0.995	1	of	3	
1607239-01AMS	Soil		10.68	10	0.936	1	of		
1607239-01AMSD	Soil		10.47	10	0.955	1	of		
1607239-02A	Soil		10.13	10	0.987	1	of	1	
1607239-03A	Soil		10.14	10	0.986	1	of	1	
1607239-04A	Soil		10.14	10	0.986	1	of	1	
1607239-05A	Soil		10.42	10	0.960	1	of	1	
1607239-06A	Soil		10.07	10	0.993	1	of	1	
1607239-07A	Soil		10.26	10	0.975	1	of	1	
1607239-08A	Soil		10.33	10	0.968	1	of	1	
1607239-09A	Soil		10.01	10	0.999	1	of	1	
1607239-10A	Soil		10.71	10	0.934	1	of	1	
1607239-11A	Soil		10.22	10	0.978	1	of	1	
1607239-12A	Soil		10.22	10	0.978	1	of	1	
1607239-13A	Soil		10.29	10	0.972	1	of	1	
1607239-14A	Soil		10.83	10	0.923	1	of	1	
1607239-15A	Soil		10.53	10	0.950	1	of	1	
1607239-17A	Soil		10.74	10	0.931	1	of	1	
LCS-76442	Soil		10	10	1.000		of		
MB-76442	Soil		10	10	1.000		of		

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

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

REVIEWED BY
By Janice Whitt at 12:36:52 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:00 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:05 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:07 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**

Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**

Prep End Date: **7/22/2016 6:00:00 PM**

Prep Factor Units: **mL/**

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

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

REVIEWED BY

By Janice Whitt at 12:31:14 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

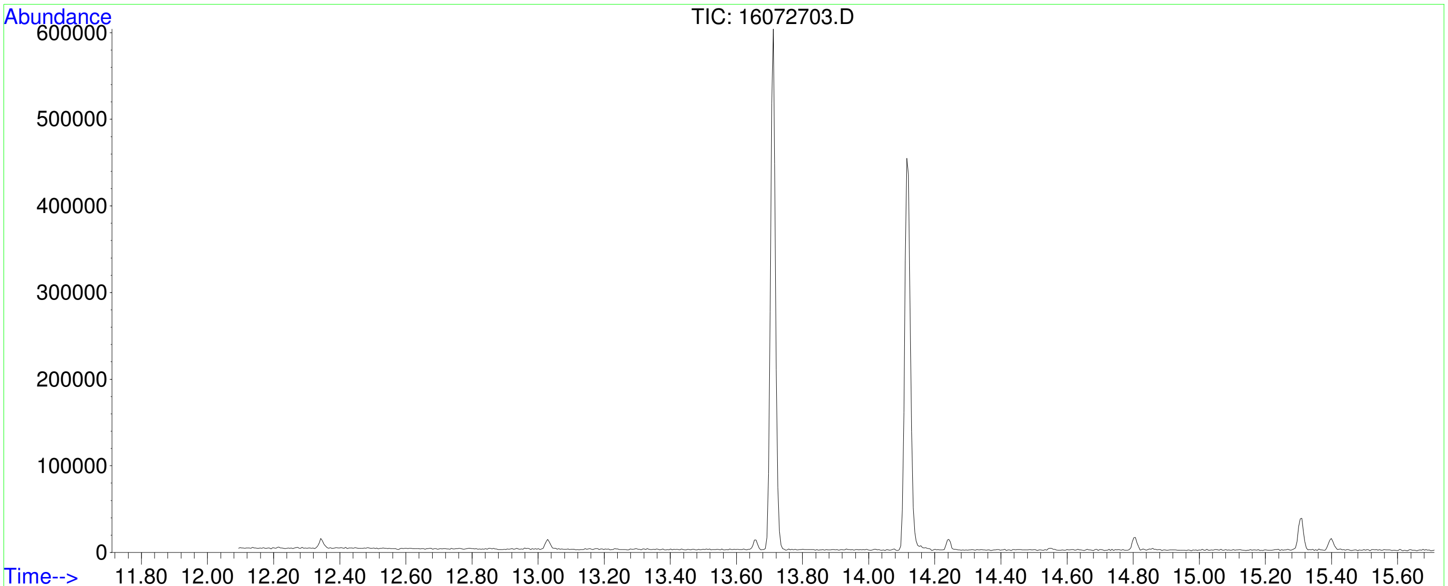
Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

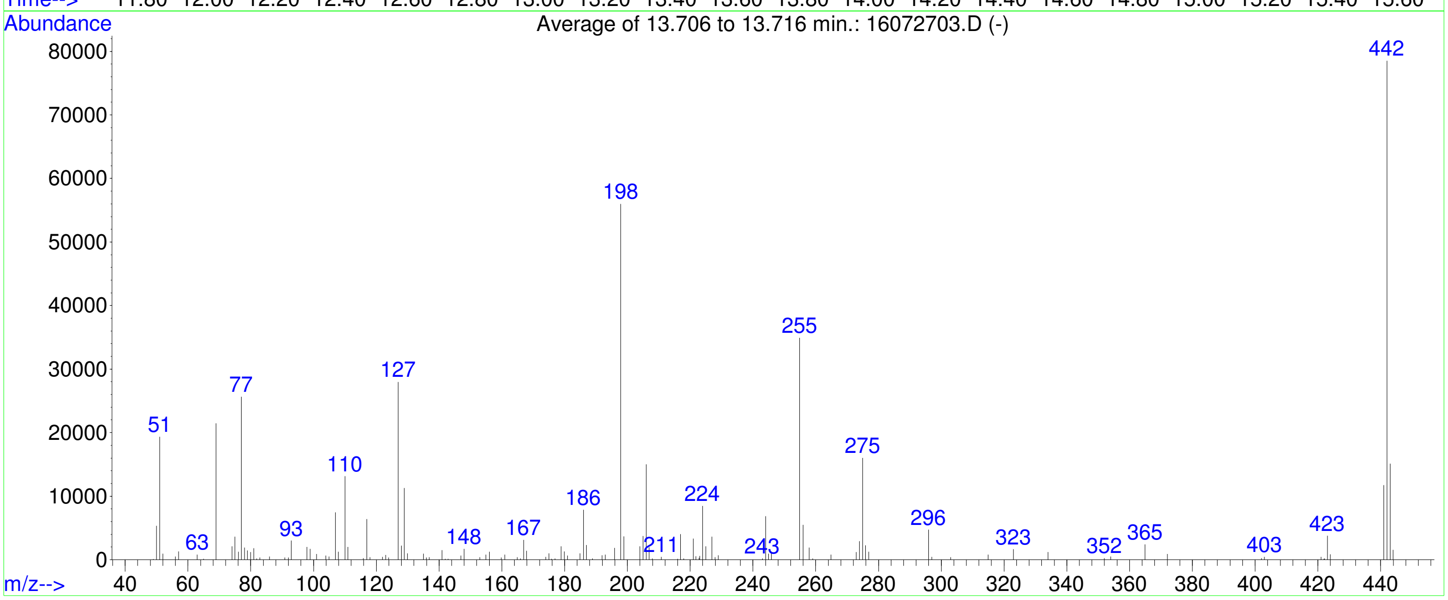
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-15A SS	Soil		0	0	#Num!	1 of 1	
1607219-16A SS	Soil		0	0	#Num!	1 of 1	
1607219-17A SS	Soil		0	0	#Num!	1 of 1	
1607219-18A SS	Soil		0	0	#Num!	1 of 1	
1607219-19A SS	Soil		0	0	#Num!	1 of 1	
1607219-20A SS	Soil		0	0	#Num!	1 of 1	
1607219-21A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

REVIEWED BY
By Janice Whitt at 12:31:16 PM, 8/10/2016

DFTPP

Data File : C:\HPCHEM\1\DATA\160727\16072703.D   Vial: 1
Acq On   : 27 Jul 2016   9:23 am   Operator: DEW
Sample   : DFTPP-160727   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





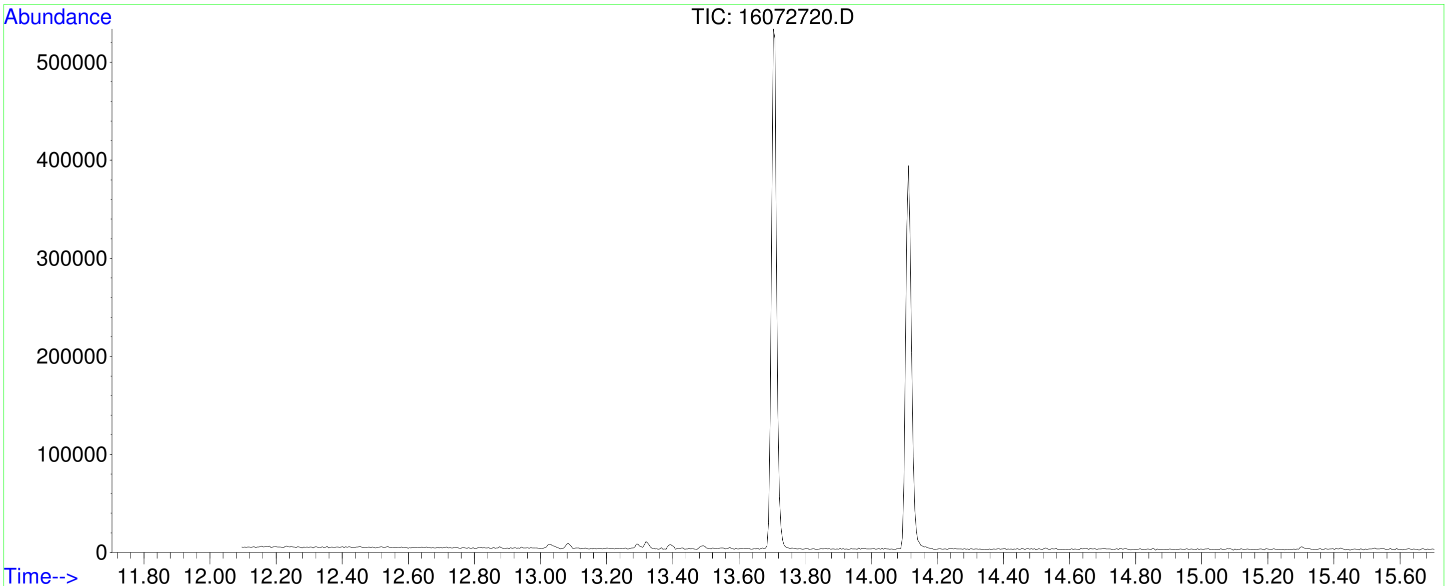
AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

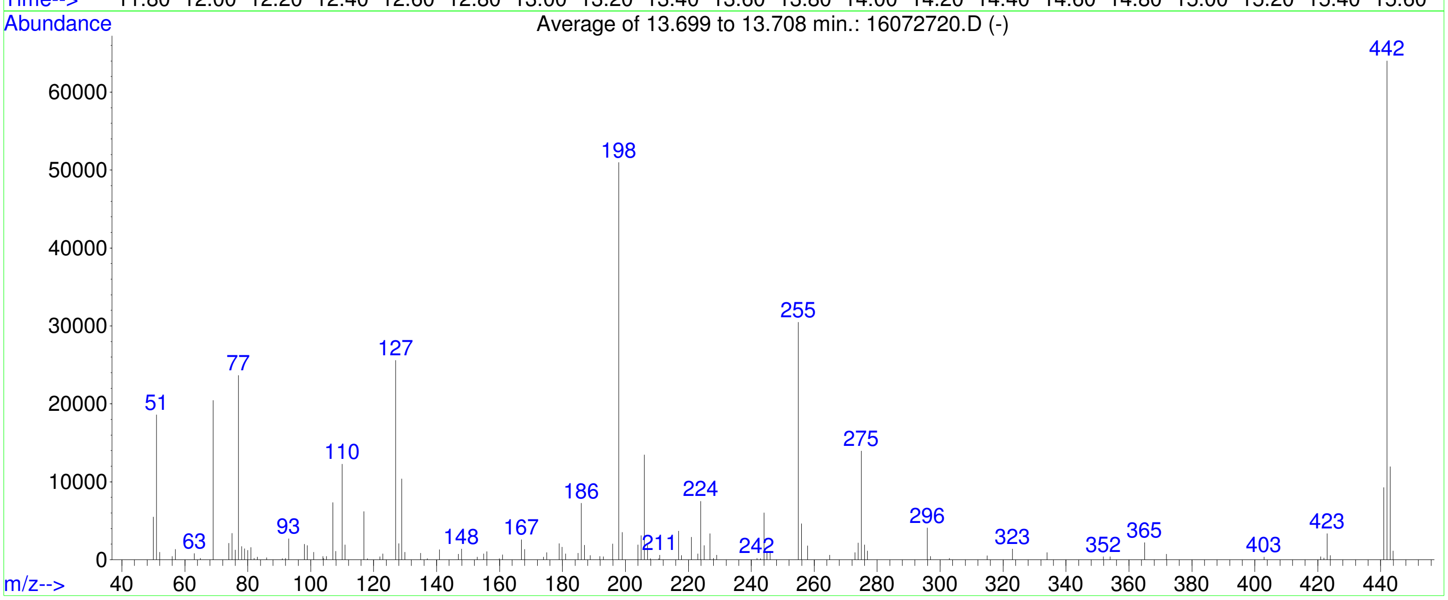
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.6	19352	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	38.4	21479	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.0	27984	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	56005	PASS
199	198	5	9	6.5	3663	PASS
275	198	10	60	28.6	16037	PASS
365	198	1	200	4.3	2400	PASS
441	442	0.01	24	15.0	11743	PASS
442	198	50	400	140.2	78523	PASS
443	442	15	24	19.2	15115	PASS

REVIEWED BY
By Janice Whitt at 12:34:39 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160727\16072720.D          Vial: 18
Acq On    : 27 Jul 2016   7:57 pm                   Operator: DEW
Sample    : DFTPP2-160727                           Inst    : GC/MS #6
Misc      : TUNE                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title     : PAH Calibration
```





AutoFind: Scans 342, 343, 344; Background Corrected with Scan 336

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.5	18610	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.1	20451	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.2	25608	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	50981	PASS
199	198	5	9	7.0	3555	PASS
275	198	10	60	27.4	13980	PASS
365	198	1	200	4.3	2216	PASS
441	442	0.01	24	14.5	9282	PASS
442	198	50	400	125.6	64029	PASS
443	442	15	24	18.7	11946	PASS

REVIEWED BY
By Janice Whitt at 12:34:44 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160727\16072704.D Vial: 2
Acq On : 27 Jul 2016 10:00 am Operator: DEW
Sample : ICV-160727 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	951136	4000.00	ug/kg	106
5) Acenaphthene-d10	12.44	164	588176	4000.00	ug/kg	103
11) Phenanthrene-d10	14.55	188	1678493	4000.00	ug/kg	112
17) Chrysene-d12	20.23	240	1748134	4000.00	ug/kg	108
20) Perylene-d12	25.34	264	1795174	4000.00	ug/kg	108

System Monitoring Compounds

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
7) 2-Fluorobiphenyl	11.35	172	381342	2001.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.03%			
16) 4-Terphenyl-d14	17.03	244	678853	1901.87	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.55%			

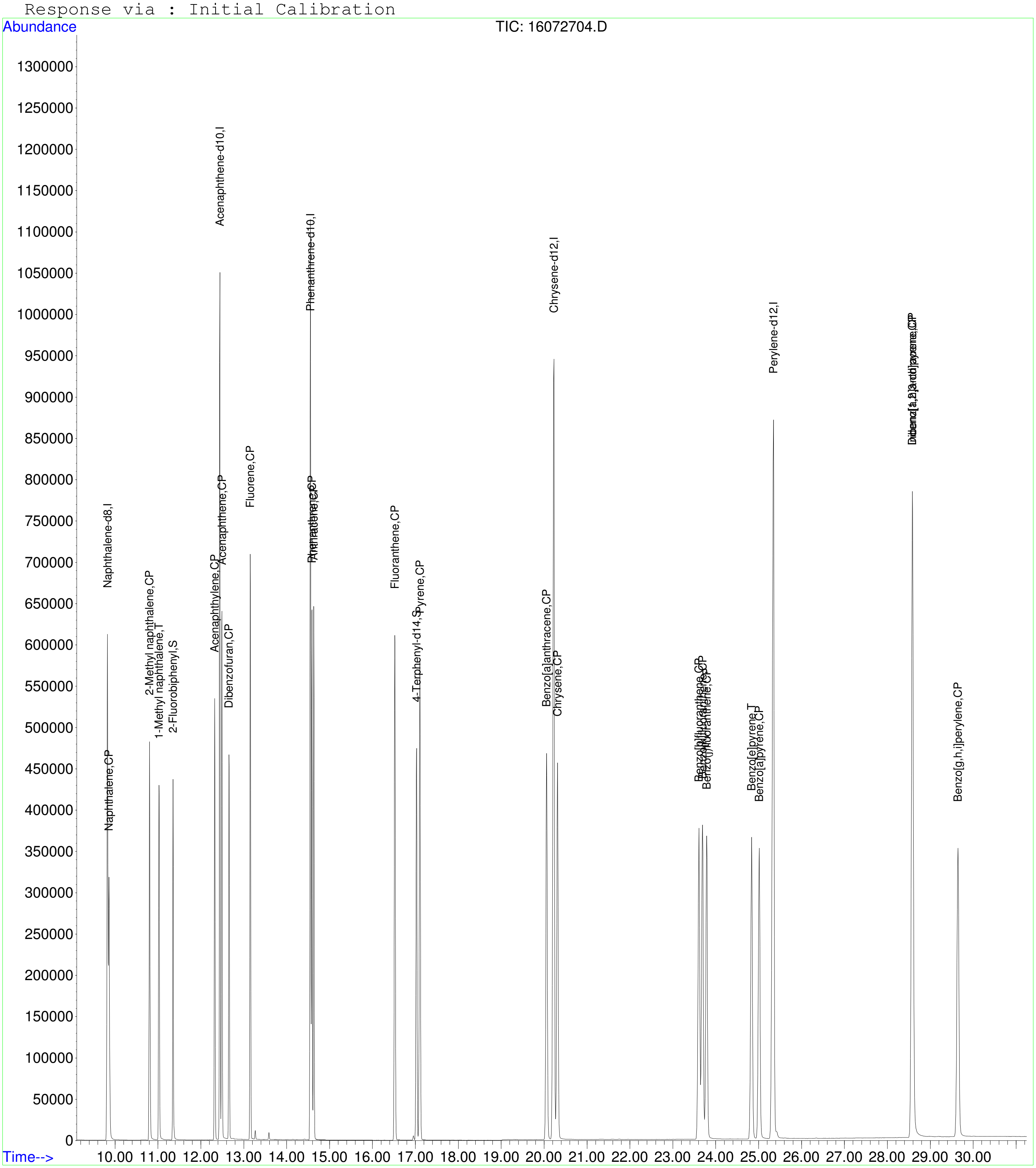
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.86	128	405541	1875.01	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	301725	1930.14	ug/kg	98
4) 1-Methyl naphthalene	11.03	142	274093	1906.22	ug/kg	98
6) Dibenzofuran	12.66	168	439142	1880.44	ug/kg	100
8) Acenaphthylene	12.32	152	499719	1952.54	ug/kg	100
9) Acenaphthene	12.49	154	293637	1931.68	ug/kg	97
10) Fluorene	13.15	166	374858	1973.51	ug/kg	99
12) Phenanthrene	14.59	178	705989	2222.72	ug/kg	100
13) Anthracene	14.63	178	586405	1803.53	ug/kg	100
14) Fluoranthene	16.52	202	686324	1757.43	ug/kg	100
15) Pyrene	17.11	202	693712	1724.89	ug/kg	100
18) Benzo[a]anthracene	20.06	228	735312	1961.81	ug/kg	100
19) Chrysene	20.31	228	672725	1905.71	ug/kg	100
21) Benzo[b]fluoranthene	23.61	252	798351	1946.24	ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	724048	1925.36	ug/kg	100
23) Benzo(j)fluoranthene	23.79	252	698866	1962.93	ug/kg	100
24) Benzo[e]pyrene	24.84	252	746446	1915.55	ug/kg	99
25) Benzo[a]pyrene	25.02	252	747923	1934.09	ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	772981	1928.73	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.59	276	915300	1901.63	ug/kg	97
28) Benzo[g,h,i]perylene	29.65	276	758273	2170.84	ug/kg	99

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072704.D          Vial: 2
Acq On    : 27 Jul 2016  10:00 am                    Operator: DEW
Sample    : ICV-160727                               Inst    : GC/MS #6
Misc      : ICV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016            Quant Results File: PP160725.RES

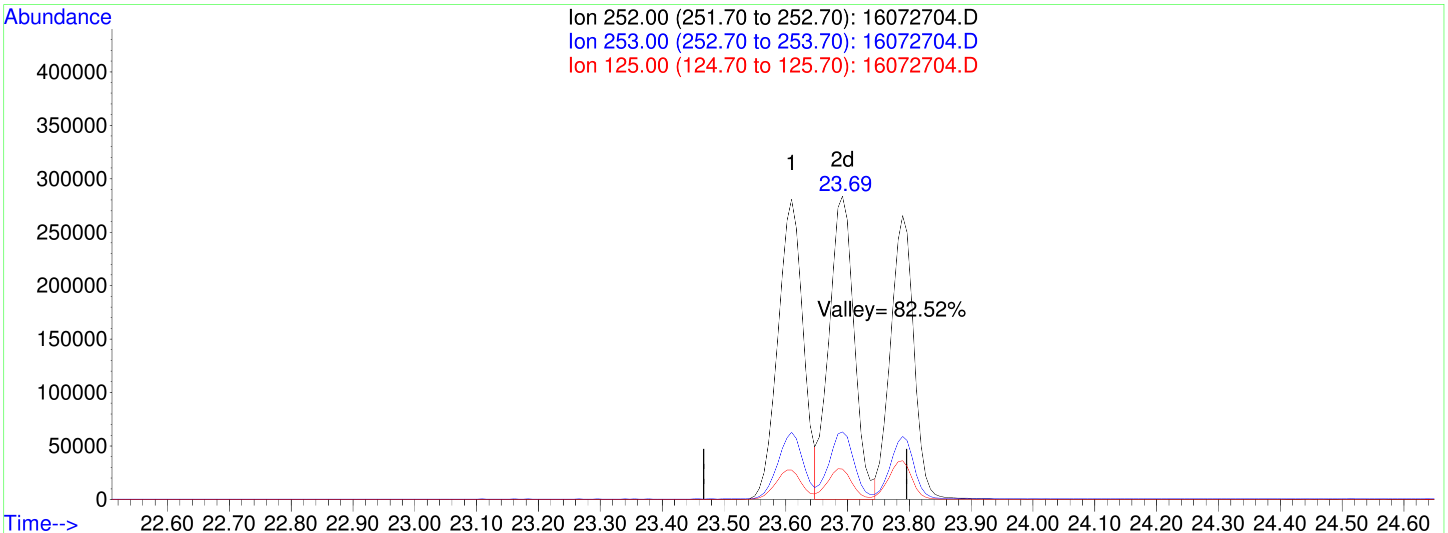
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

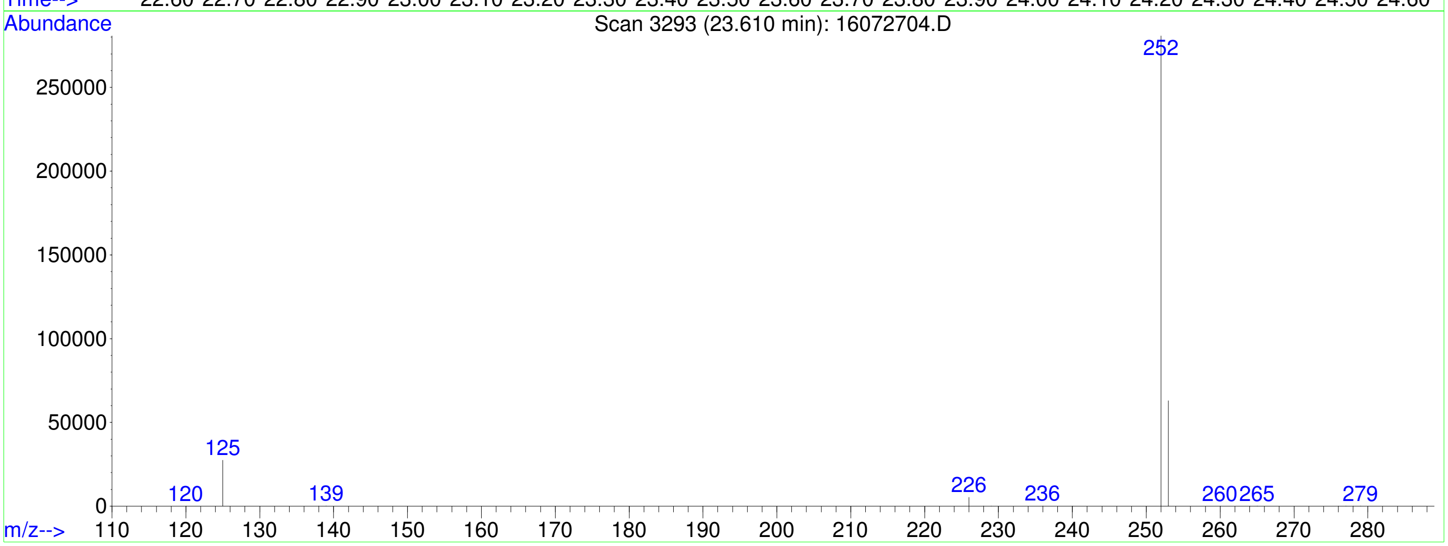


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160727\16072704.D Vial: 2
Acq On : 27 Jul 2016 10:00 am Operator: DEW
Sample : ICV-160727 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: temp.res

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





TIC: 16072704.D

(21) Benzo[b]fluoranthene (CP)

23.61min 1946.24ug/kg

response 798351

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.26
125.00	9.30	9.80
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072705.D Vial: 3
Acq On : 27 Jul 2016 10:40 am Operator: DEW
Sample : LCS-76442 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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

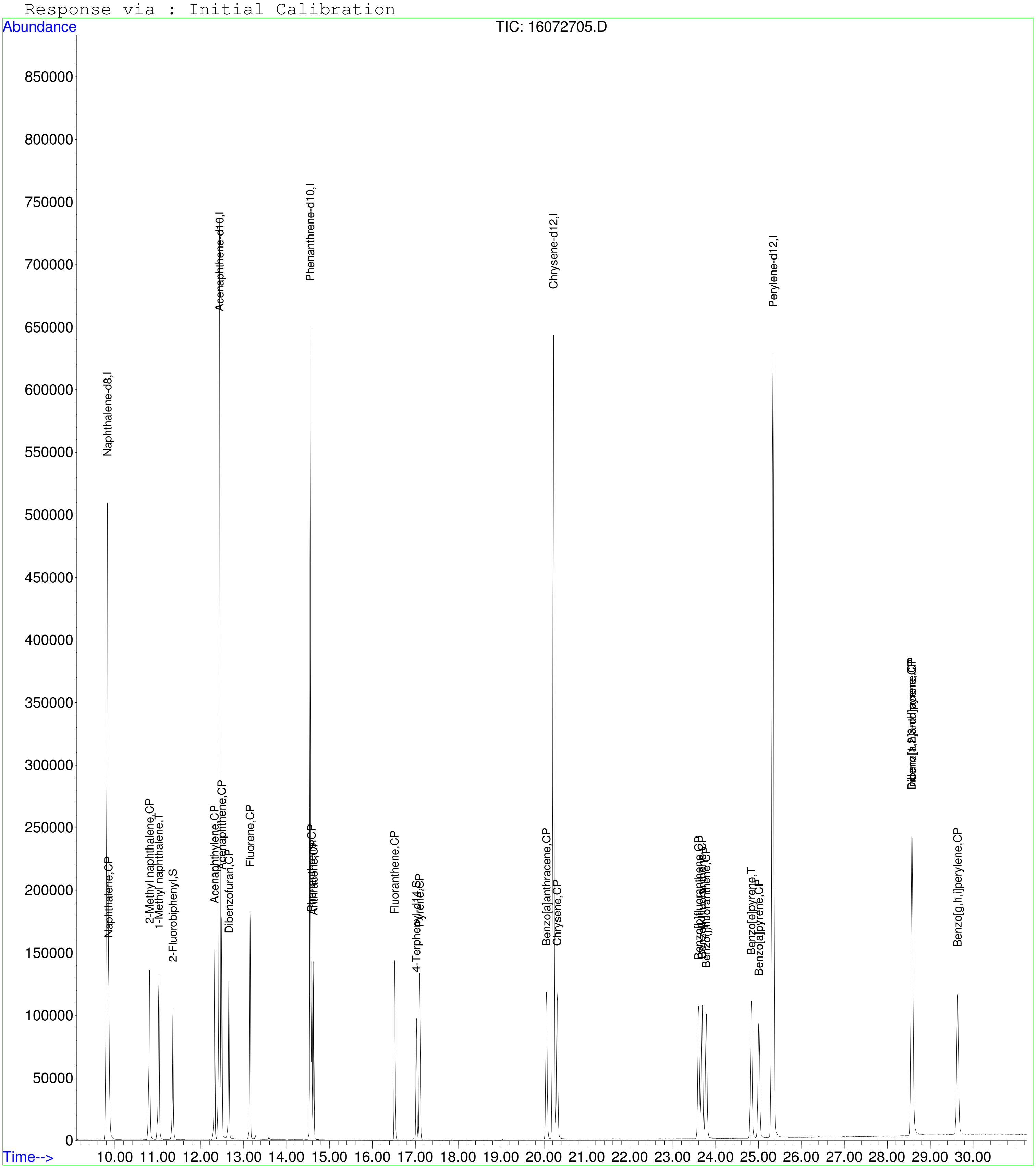
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.83	136	1084250	4000.00	ug/kg	121
5) Acenaphthene-d10	12.44	164	515635	4000.00	ug/kg	91
11) Phenanthrene-d10	14.55	188	941072	4000.00	ug/kg	63
17) Chrysene-d12	20.22	240	1128854	4000.00	ug/kg	70
20) Perylene-d12	25.34	264	1268338	4000.00	ug/kg	76
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	124566	743.87	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	18.60%#		
16) 4-Terphenyl-d14	17.03	244	142531	689.71	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	17.24%#		
Target Compounds						Qvalue
2) Naphthalene	9.86	128	172030	697.73	ug/kg	100
3) 2-Methyl naphthalene	10.81	142	120017	673.49	ug/kg	97
4) 1-Methyl naphthalene	11.02	142	108826	663.93	ug/kg	99
6) Dibenzofuran	12.66	168	143787	702.33	ug/kg	99
8) Acenaphthylene	12.32	152	169225	754.23	ug/kg	100
9) Acenaphthene	12.49	154	100515	754.26	ug/kg	97
10) Fluorene	13.15	166	107843	647.63	ug/kg	98
12) Phenanthrene	14.59	178	163122	916.00	ug/kg	100
13) Anthracene	14.63	178	133085	730.05	ug/kg	99
14) Fluoranthene	16.52	202	159426	728.12	ug/kg	100
15) Pyrene	17.10	202	163376	724.55	ug/kg	100
18) Benzo[a]anthracene	20.06	228	185974	768.38	ug/kg	99
19) Chrysene	20.30	228	175787	771.16	ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	216166	745.87	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	196239	738.59	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	196210	780.01	ug/kg	99
24) Benzo[e]pyrene	24.83	252	220489	800.86	ug/kg	98
25) Benzo[a]pyrene	25.01	252	203222	743.81	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	243666	860.53	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.58	276	287168	844.44	ug/kg	98
28) Benzo[g,h,i]perylene	29.64	276	241719	979.46	ug/kg	99

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072705.D          Vial: 3
Acq On    : 27 Jul 2016  10:40 am                   Operator: DEW
Sample    : LCS-76442                               Inst    : GC/MS #6
Misc      : LCS                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016            Quant Results File: PP160725.RES

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



Data File : C:\HPCHEM\1\DATA\160727\16072706.D Vial: 4
Acq On : 27 Jul 2016 11:17 am Operator: DEW
Sample : MB-76442 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	1011969	4000.00 ug/kg	113
5) Acenaphthene-d10	12.44	164	509062	4000.00 ug/kg	89
11) Phenanthrene-d10	14.55	188	876006	4000.00 ug/kg	58
17) Chrysene-d12	20.21	240	1138254	4000.00 ug/kg	71
20) Perylene-d12	25.33	264	1294077	4000.00 ug/kg	78

System Monitoring Compounds
7) 2-Fluorobiphenyl 11.35 172 129962 786.33 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 19.66%#
16) 4-Terphenyl-d14 17.02 244 156793 820.13 ug/kg -0.02
Spiked Amount 4000.000 Range 40 - 140 Recovery = 20.50%#

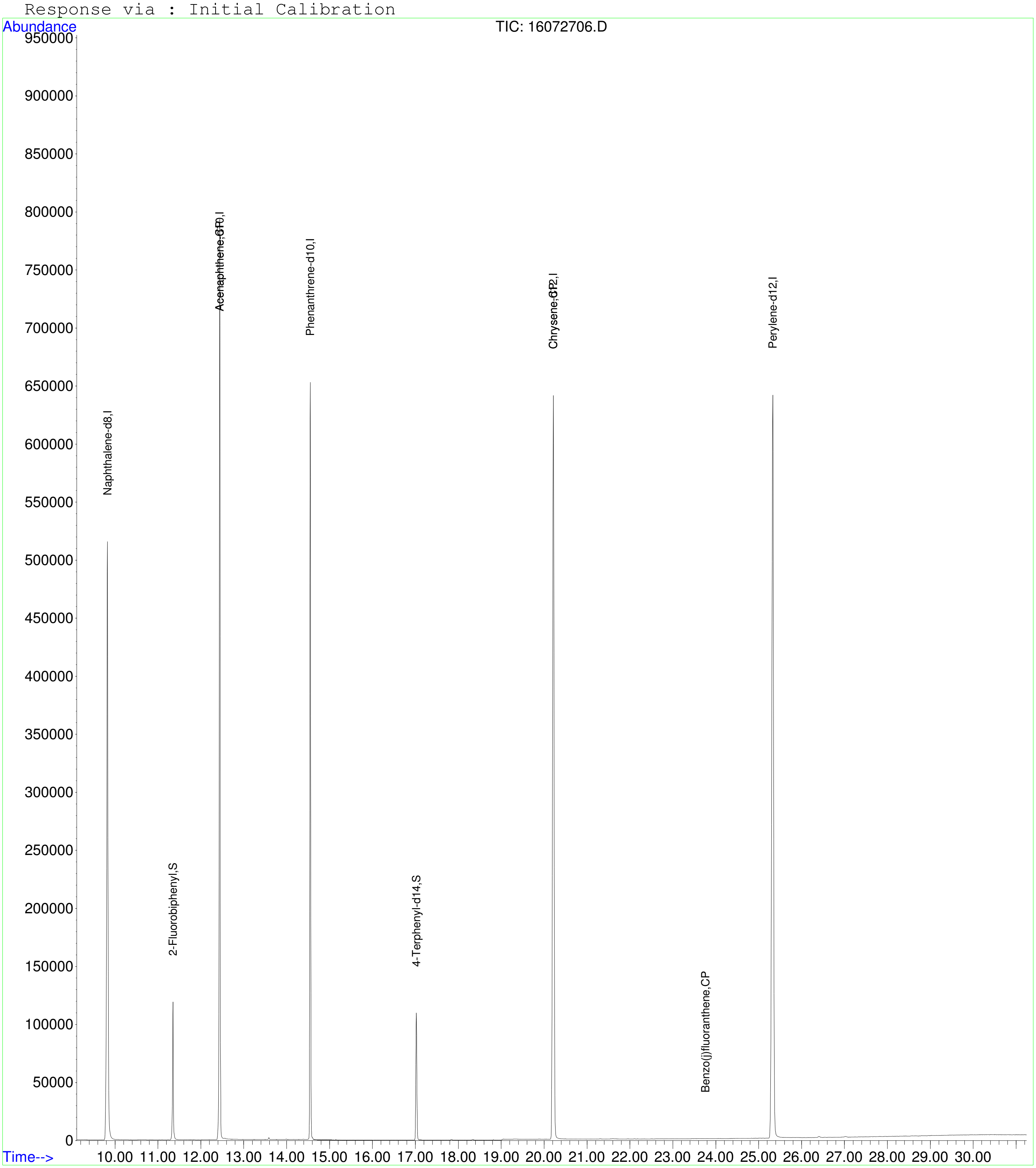
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
9) Acenaphthene	12.44	154	1698	~~12.91 ug/kg#~~	11
19) Chrysene	20.21	228	2428	~~10.56 ug/kg~~	67
23) Benzo(j)fluoranthene	23.77	252	40	0.16 ug/kg#	44

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160727\16072706.D Vial: 4
Acq On : 27 Jul 2016 11:17 am Operator: DEW
Sample : MB-76442 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:21 2016 Quant Results File: PP160725.RES

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



Data File : C:\HPCHEM\1\DATA\160727\16072711.D Vial: 9
Acq On : 27 Jul 2016 2:22 pm Operator: DEW
Sample : 1607239-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	954971	4000.00 ug/kg	107
5) Acenaphthene-d10	12.44	164	585911	4000.00 ug/kg	103
11) Phenanthrene-d10	14.55	188	1599026	4000.00 ug/kg	106
17) Chrysene-d12	20.22	240	1773681	4000.00 ug/kg	110
20) Perylene-d12	25.34	264	1775109	4000.00 ug/kg	107

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	14159	70.48 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#	
16) 4-Terphenyl-d14	17.02	244	25869	53.90 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.35%#	

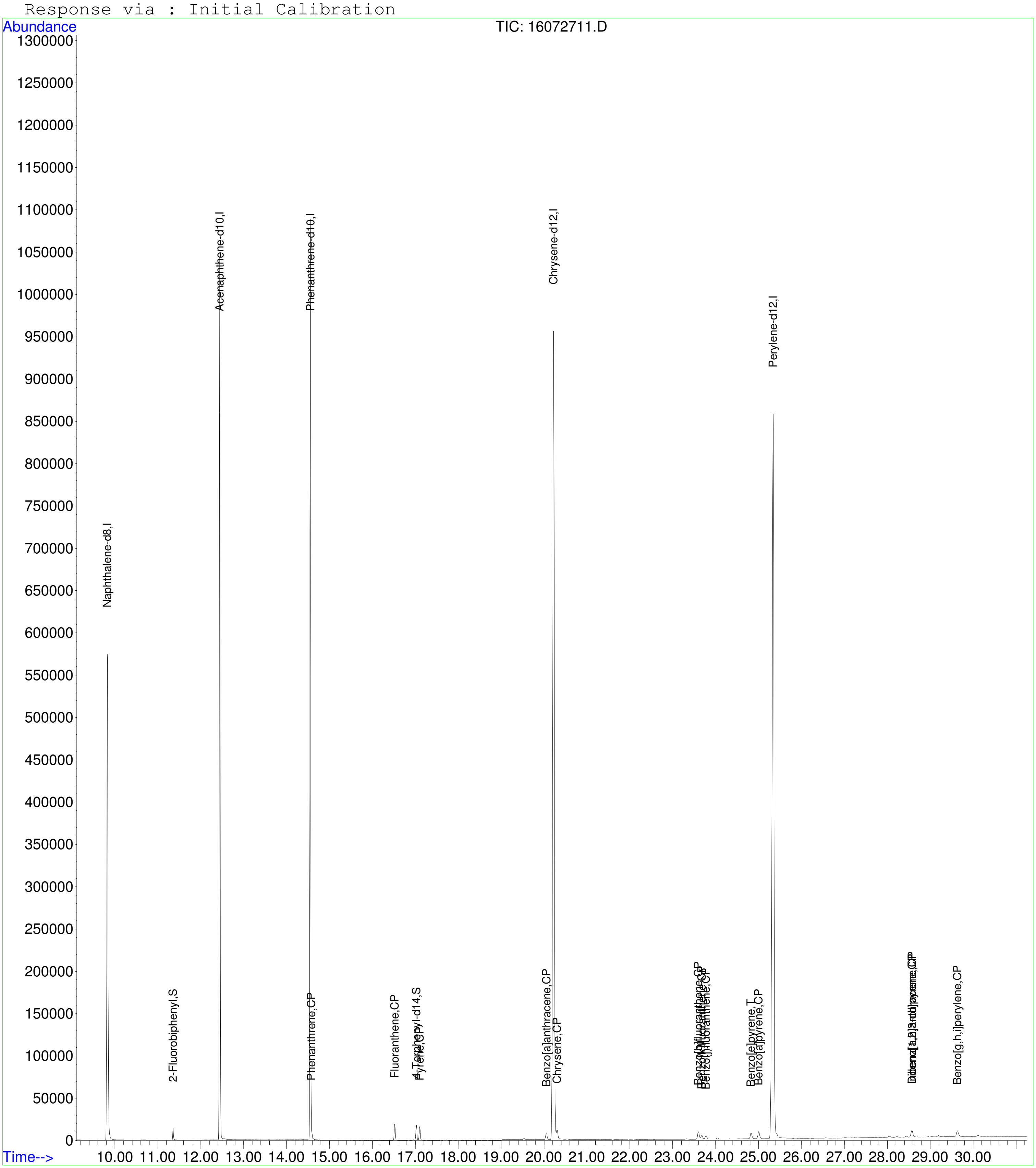
Target Compounds					Qvalue
12) Phenanthrene	14.59	178	6555	21.66 ug/kg	98
14) Fluoranthene	16.52	202	21239	57.09 ug/kg	98
15) Pyrene	17.10	202	19182	50.07 ug/kg	100
18) Benzo[a]anthracene	20.06	228	12907	33.94 ug/kg	100
19) Chrysene	20.30	228	16361	45.68 ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	18545	45.72 ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	8674	23.33 ug/kg	97
23) Benzo(j)fluoranthene	23.78	252	8275	23.50 ug/kg	95
24) Benzo[e]pyrene	24.82	252	14320	37.16 ug/kg	99
25) Benzo[a]pyrene	25.00	252	17906	46.83 ug/kg	96
26) Dibenz[a,h]anthracene	28.57	278	3321	8.38 ug/kg	91
27) Indeno[1,2,3-cd]pyrene	28.58	276	14872	31.25 ug/kg	91
28) Benzo[g,h,i]perylene	29.64	276	14737	42.67 ug/kg	98

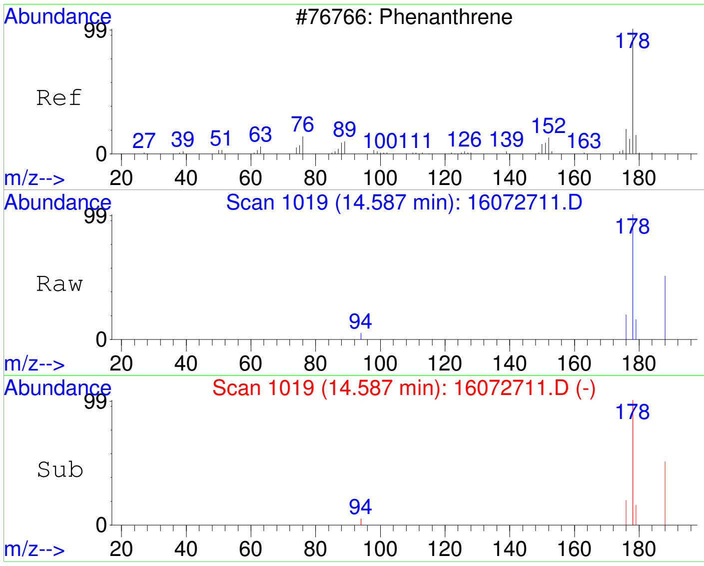
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072711.D          Vial: 9
Acq On    : 27 Jul 2016   2:22 pm                    Operator: DEW
Sample    : 1607239-01A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016              Quant Results File: PP160725.RES

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

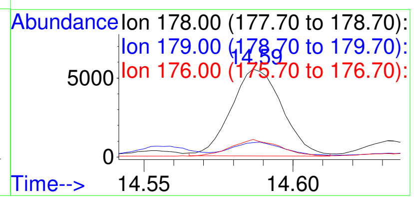


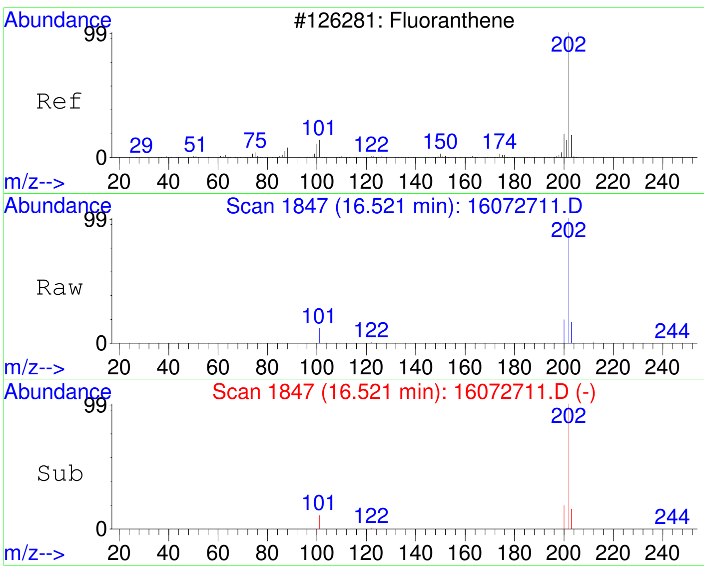


#12
Phenanthrene
Concen: 21.66 ug/kg
RT: 14.59 min   Scan# 1019
Delta R.T.   -0.01 min
Lab File: 16072711.D
Acq: 27 Jul 2016   2:22 pm

Tgt Ion:178 Resp: 6555

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.7
176	19.6	0.0	48.4

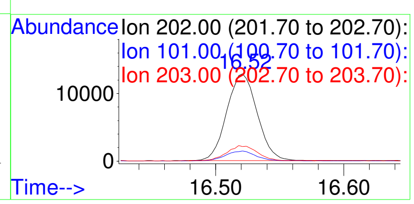


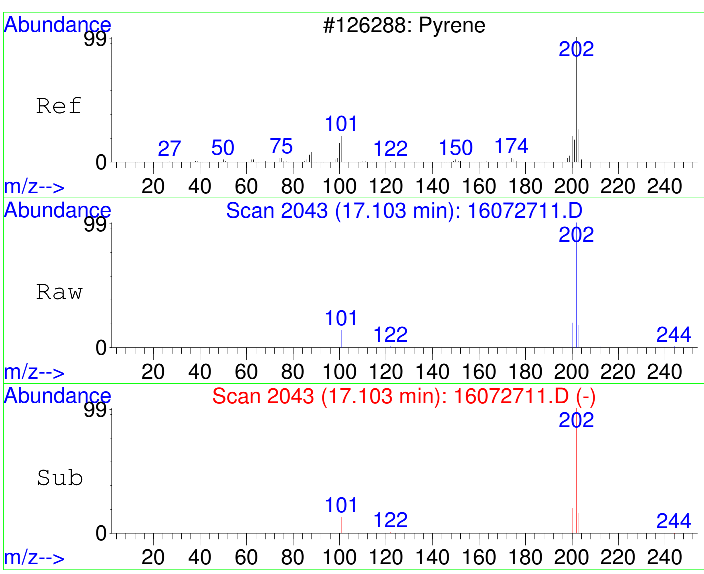


#14
Fluoranthene
Concen: 57.09 ug/kg
RT: 16.52 min   Scan# 1847
Delta R.T.   -0.01 min
Lab File: 16072711.D
Acq: 27 Jul 2016   2:22 pm

Tgt Ion:202 Resp: 21239

Ion	Ratio	Lower	Upper
202	100		
101	11.4	0.0	41.4
203	16.3	0.0	47.7

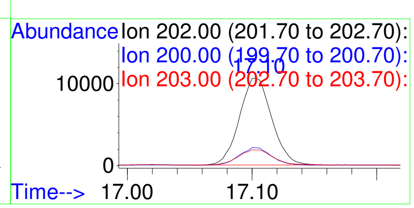


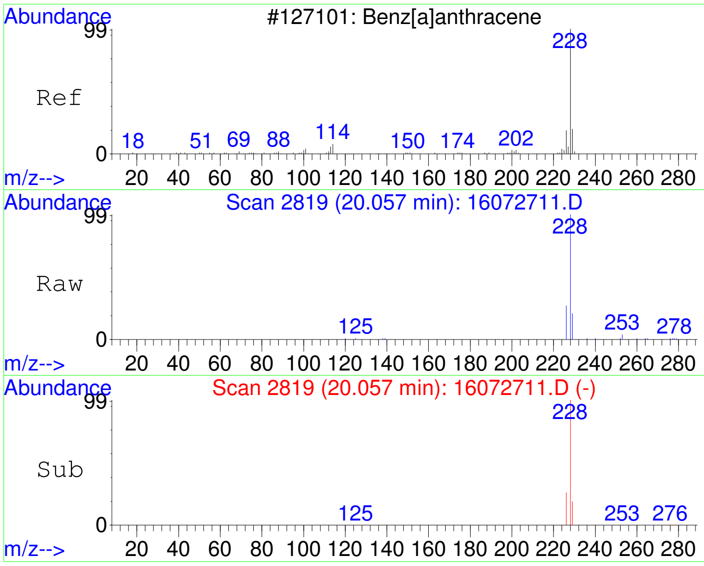


#15
Pyrene
Concen: 50.07 ug/kg
RT: 17.10 min   Scan# 2043
Delta R.T.   -0.01 min
Lab File: 16072711.D
Acq: 27 Jul 2016   2:22 pm

Tgt Ion:202 Resp: 19182

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	49.7
203	17.4	0.0	47.6

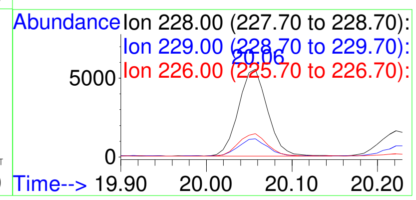


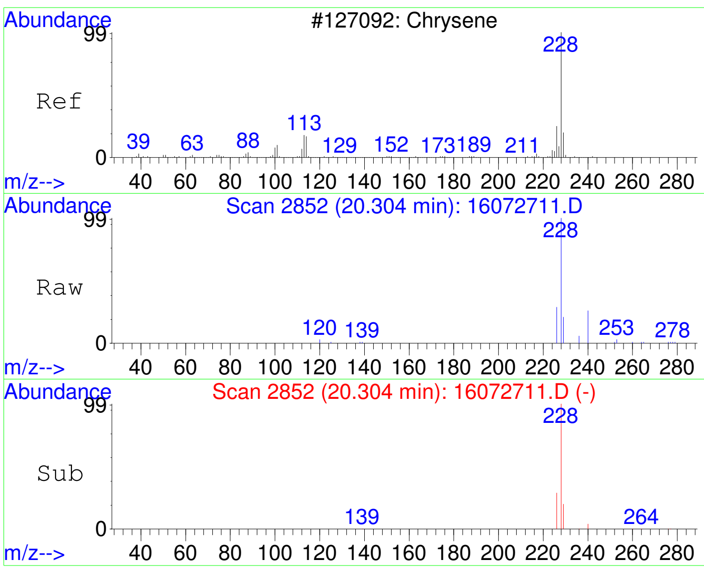


#18
Benzo[a]anthracene
Concen: 33.94 ug/kg
RT: 20.06 min Scan# 2819
Delta R.T. -0.01 min
Lab File: 16072711.D
Acq: 27 Jul 2016 2:22 pm

Tgt Ion:228 Resp: 12907

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	49.9
226	25.8	0.0	55.9

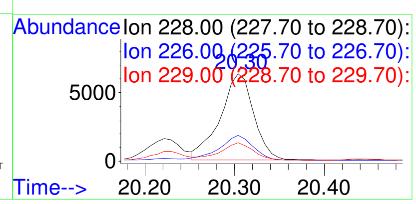


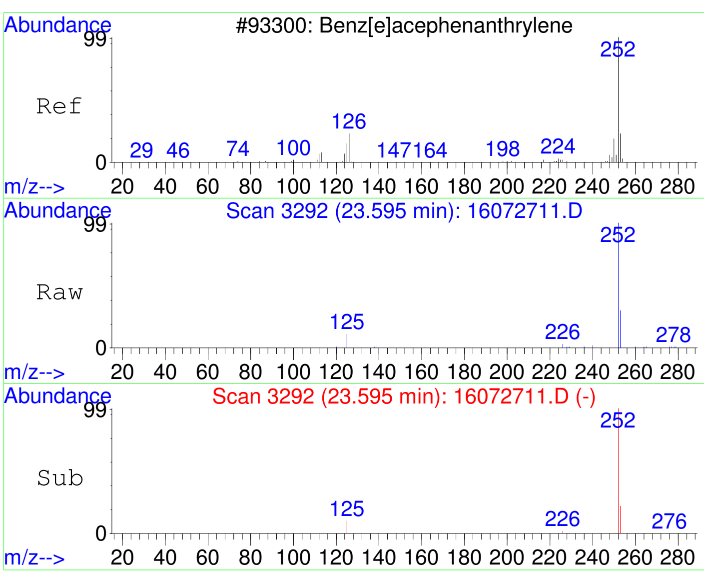


#19
Chrysene
Concen: 45.68 ug/kg
RT: 20.30 min Scan# 2852
Delta R.T. -0.02 min
Lab File: 16072711.D
Acq: 27 Jul 2016 2:22 pm

Tgt Ion:228 Resp: 16361

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	20.2	0.0	49.9

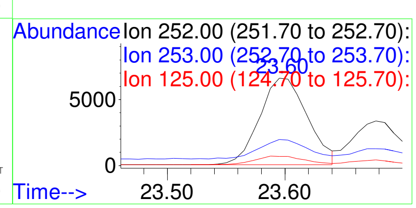


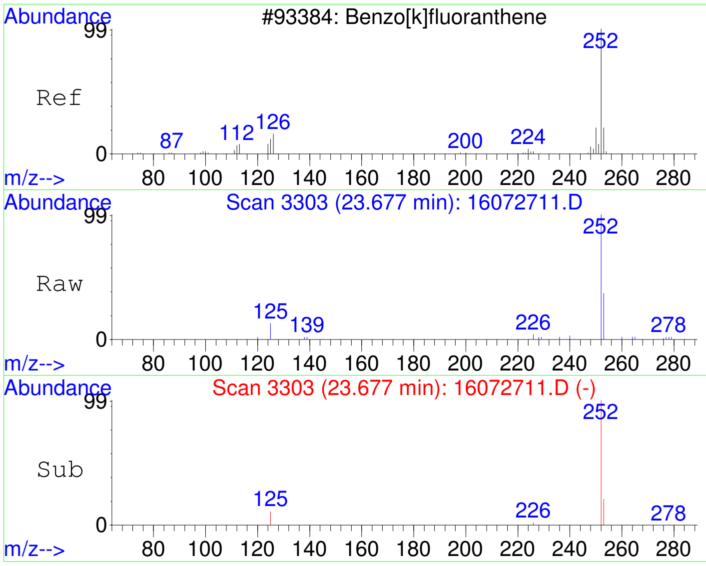


#21
Benzo[b]fluoranthene
Concen: 45.72 ug/kg
RT: 23.60 min Scan# 3292
Delta R.T. -0.04 min
Lab File: 16072711.D
Acq: 27 Jul 2016 2:22 pm

Tgt Ion:252 Resp: 18545

Ion	Ratio	Lower	Upper
252	100		
253	22.5	0.0	52.1
125	9.6	0.0	39.3

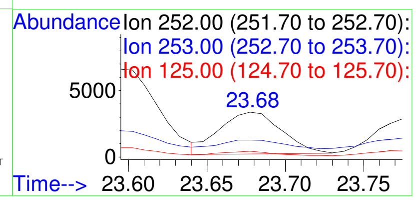


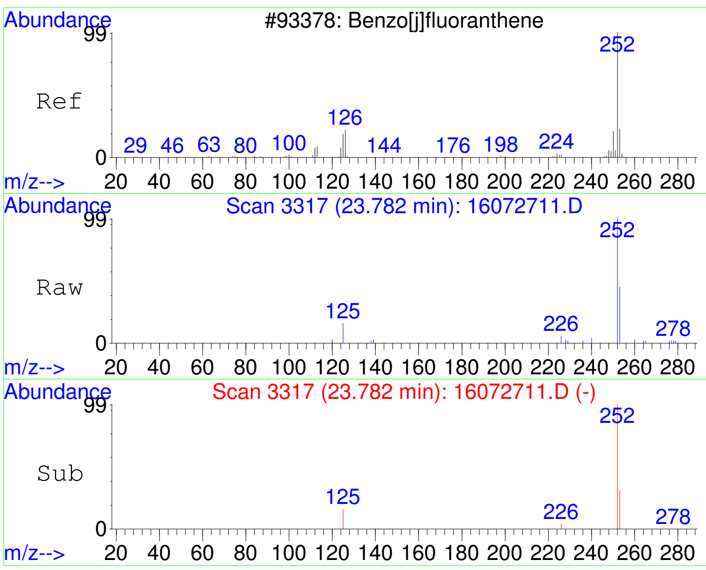


#22
Benzo[k]fluoranthene
Concen: 23.33 ug/kg
RT: 23.68 min Scan# 3303
Delta R.T. -0.03 min
Lab File: 16072711.D
Acq: 27 Jul 2016 2:22 pm

Tgt Ion:252 Resp: 8674

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.2	42.2
125	10.7	0.0	30.0

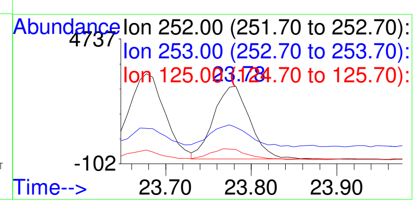


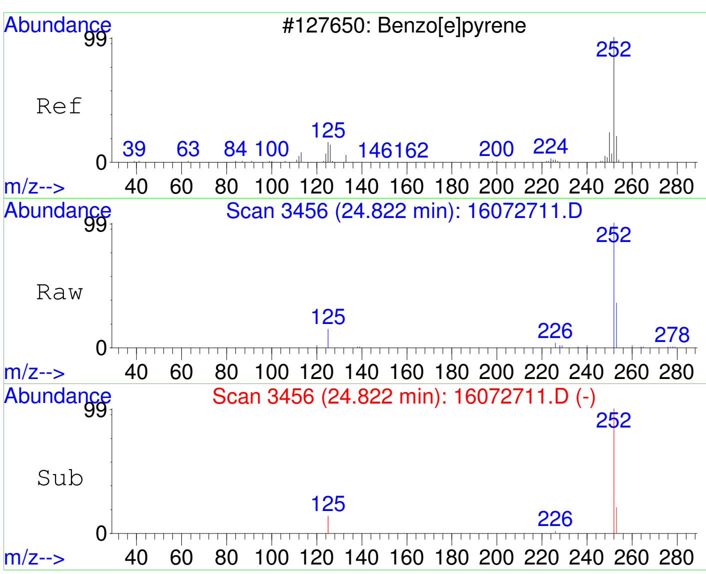


#23
Benzo(j)fluoranthene
Concen: 23.50 ug/kg
RT: 23.78 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072711.D
Acq: 27 Jul 2016 2:22 pm

Tgt Ion:252 Resp: 8275

Ion	Ratio	Lower	Upper
252	100		
253	25.9	2.1	42.1
125	13.7	0.0	34.0

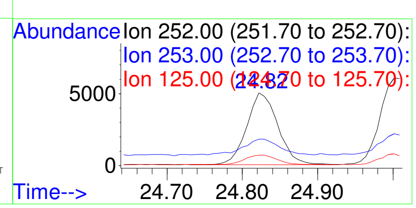


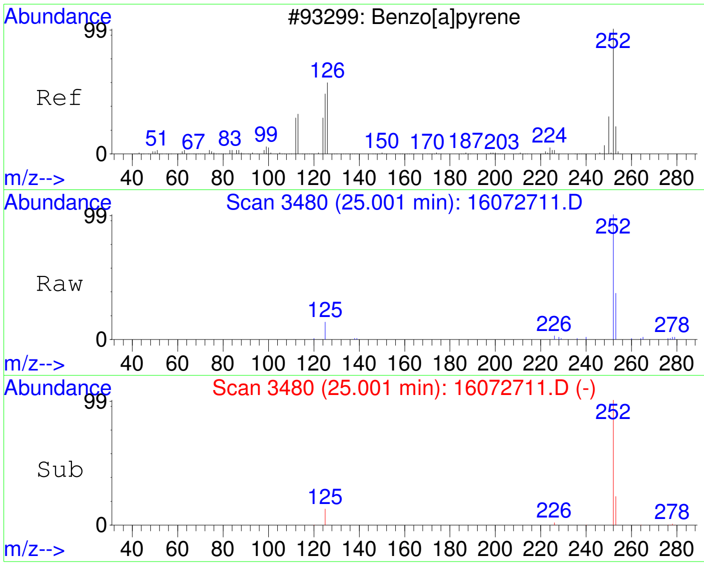


#24
Benzo[e]pyrene
Concen: 37.16 ug/kg
RT: 24.82 min Scan# 3456
Delta R.T. -0.04 min
Lab File: 16072711.D
Acq: 27 Jul 2016 2:22 pm

Tgt Ion:252 Resp: 14320

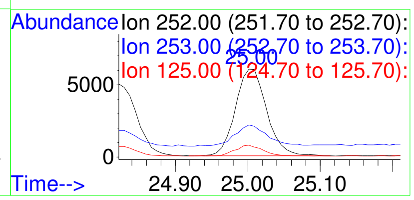
Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.1	42.1
125	13.4	0.0	33.9

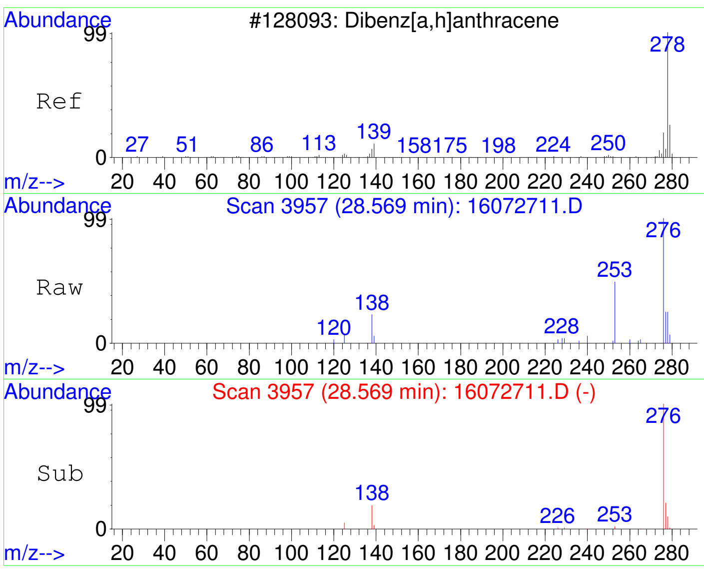





```
#25
Benzo[a]pyrene
Concen:   46.83 ug/kg
RT: 25.00 min   Scan# 3480
Delta R.T.    -0.03 min
Lab File:    16072711.D
Acq: 27 Jul 2016    2:22 pm

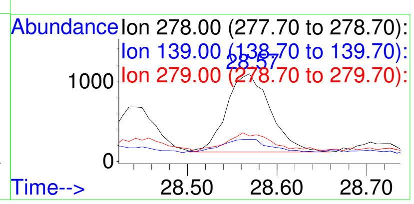
Tgt Ion:252 Resp:   17906
Ion  Ratio  Lower  Upper
252  100
253   24.3    1.8   41.8
125   12.6    0.0   31.6
```

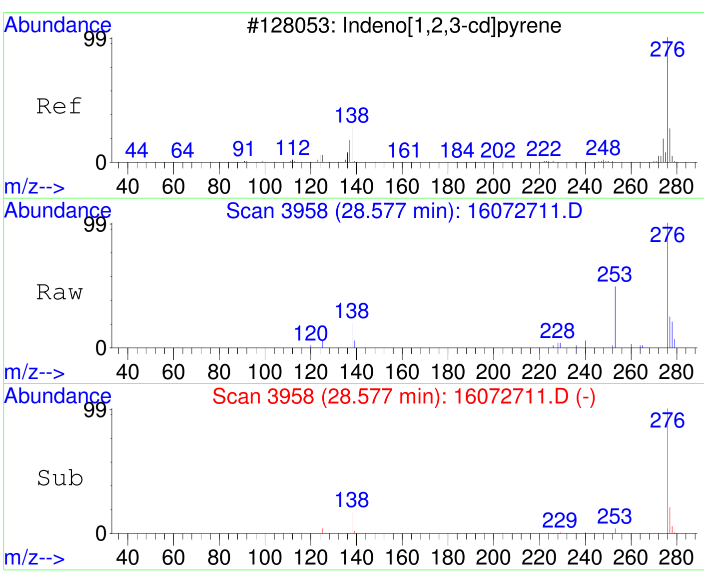





```
#26
Dibenz[a,h]anthracene
Concen:    8.38 ug/kg
RT: 28.57 min   Scan# 3957
Delta R.T.    -0.04 min
Lab File:    16072711.D
Acq: 27 Jul 2016    2:22 pm

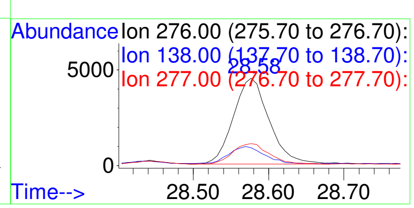
Tgt Ion:278 Resp:    3321
Ion  Ratio  Lower  Upper
278  100
139   15.3    0.0   34.3
279   17.1    3.9   43.9
```

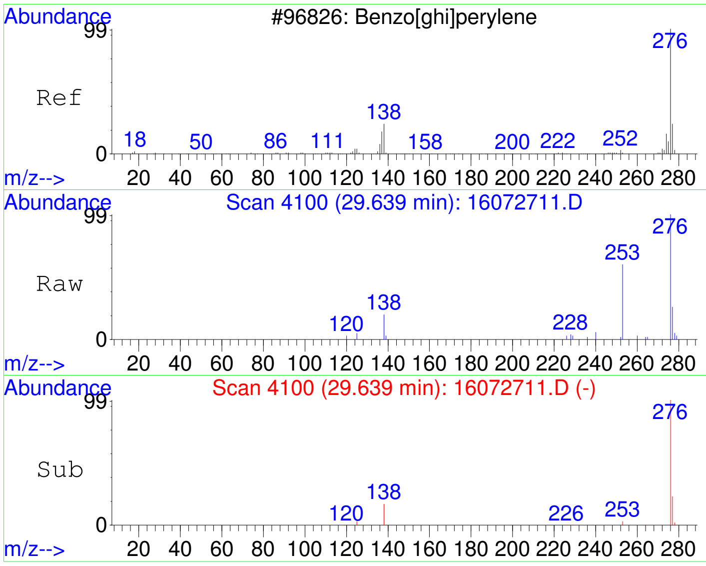





```
#27
Indeno[1,2,3-cd]pyrene
Concen:   31.25 ug/kg
RT: 28.58 min   Scan# 3958
Delta R.T.    -0.03 min
Lab File:    16072711.D
Acq: 27 Jul 2016    2:22 pm

Tgt Ion:276 Resp:   14872
Ion  Ratio  Lower  Upper
276  100
138   18.3    5.3   45.3
277   23.8    5.8   45.8
```

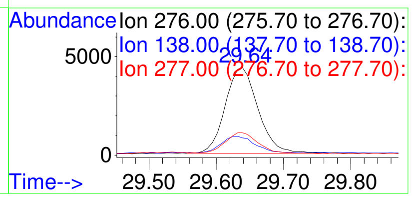




#28
Benzo[g,h,i]perylene
Concen: 42.67 ug/kg
RT: 29.64 min Scan# 4100
Delta R.T. -0.03 min
Lab File: 16072711.D
Acq: 27 Jul 2016 2:22 pm

Tgt Ion:276 Resp: 14737

Ion	Ratio	Lower	Upper
276	100		
138	17.3	0.0	39.4
277	24.3	3.9	43.9



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072712.D Vial: 10
Acq On : 27 Jul 2016 2:59 pm Operator: DEW
Sample : 1607239-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016 Quant Results File: PP160725.RES

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

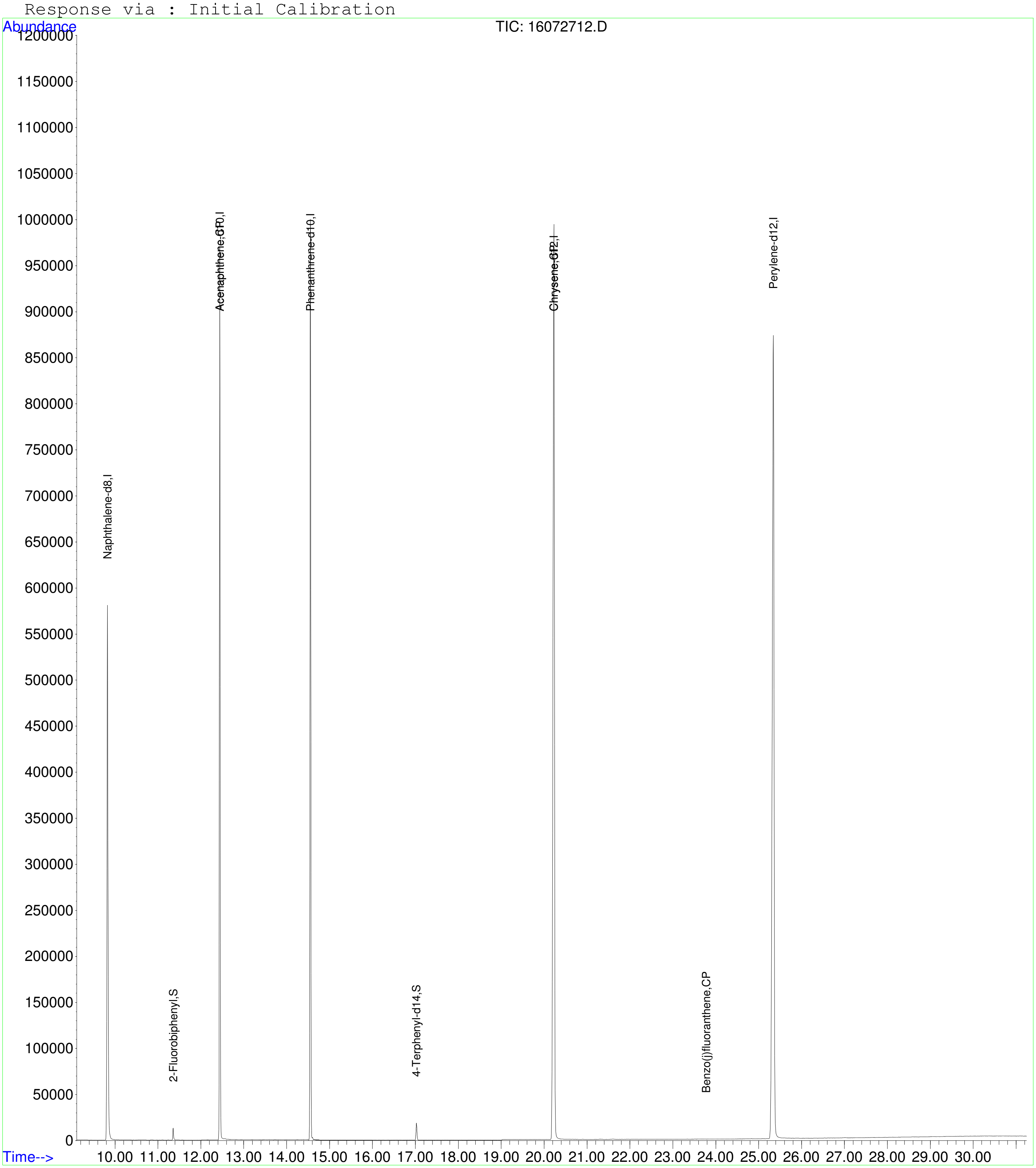
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	931110	4000.00 ug/kg	104
5) Acenaphthene-d10	12.44	164	561606	4000.00 ug/kg	99
11) Phenanthrene-d10	14.55	188	1481646	4000.00 ug/kg	99
17) Chrysene-d12	20.23	240	1781562	4000.00 ug/kg	111
20) Perylene-d12	25.34	264	1804963	4000.00 ug/kg	109
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.36	172	13713	71.26 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#	
16) 4-Terphenyl-d14	17.02	244	25739	59.48 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.49%#	
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1892	~~13.04 ug/kg#~~	10
19) Chrysene	20.23	228	3755	~~10.44 ug/kg~~	69
23) Benzo(j)fluoranthene	23.79	252	23	0.06 ug/kg#	53

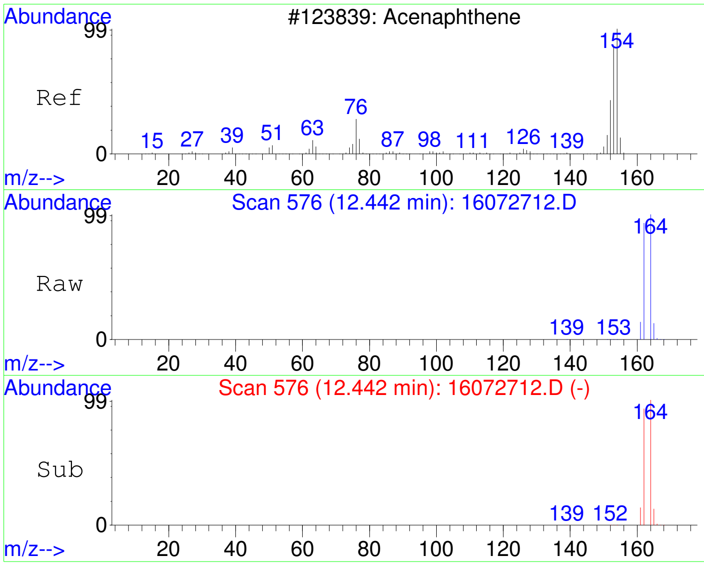
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160727\16072712.D Vial: 10
Acq On : 27 Jul 2016 2:59 pm Operator: DEW
Sample : 1607239-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016 Quant Results File: PP160725.RES

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

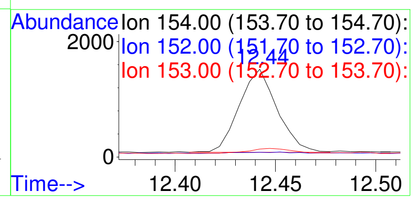


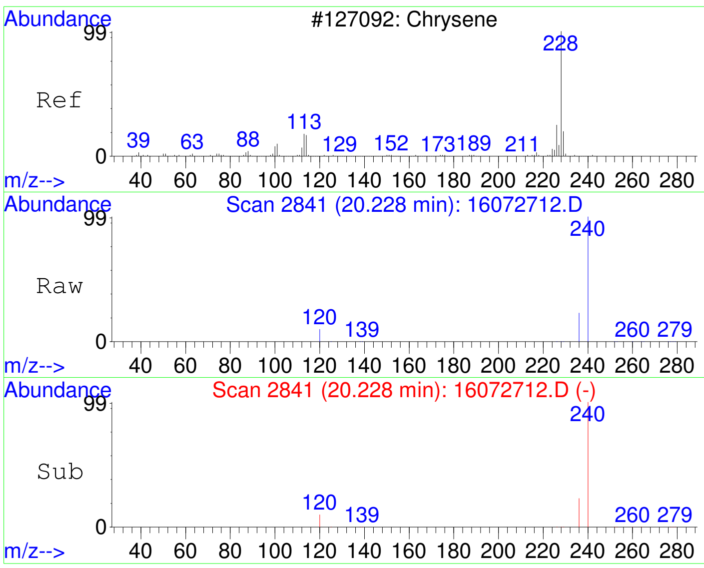


#9
Acenaphthene
Concen: 13.04 ug/kg
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072712.D
Acq: 27 Jul 2016 2:59 pm

Tgt Ion:154 Resp: 1892

Ion	Ratio	Lower	Upper
154	100		
152	1.1	20.4	80.4#
153	5.6	78.2	138.2#

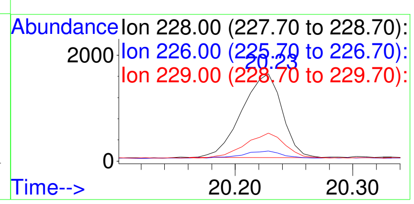


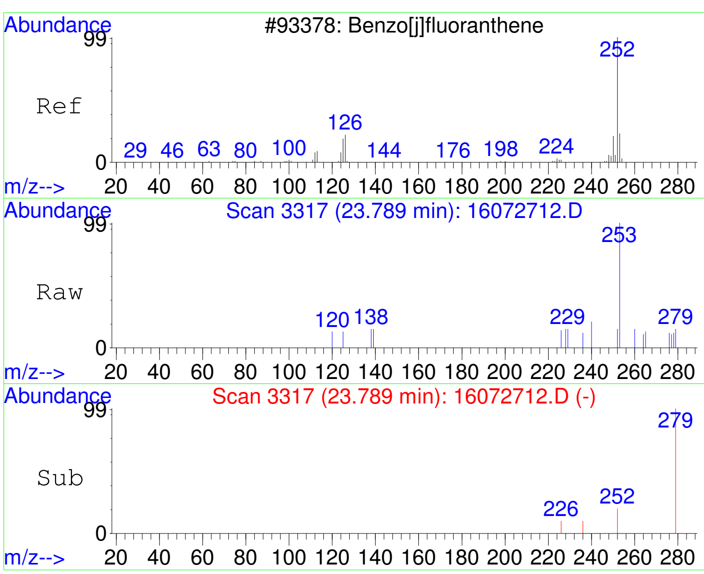


#19
Chrysene
Concen: 10.44 ug/kg
RT: 20.23 min Scan# 2841
Delta R.T. -0.10 min
Lab File: 16072712.D
Acq: 27 Jul 2016 2:59 pm

Tgt Ion:228 Resp: 3755

Ion	Ratio	Lower	Upper
228	100		
226	8.3	0.0	58.1
229	29.8	0.0	49.9

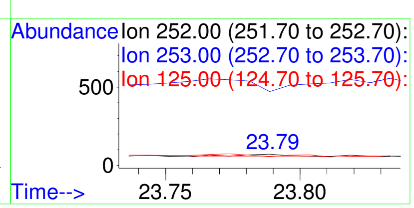




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 23.79 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072712.D
Acq: 27 Jul 2016 2:59 pm

Tgt Ion:252 Resp: 23

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	33.3	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160727\16072713.D          Vial: 11
Acq On    : 27 Jul 2016   3:37 pm                    Operator: DEW
Sample    : 1607239-03A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:26 2016             Quant Results File: PP160725.RES

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

 Internal Standards                R.T. QIon  Response  Conc Units Dev(Min)
 --------------------------------------------------------------------------
   1) Naphthalene-d8                9.83  136   874817   4000.00 ug/kg   98
   5) Acenaphthene-d10             12.44  164   511274   4000.00 ug/kg   90
  11) Phenanthrene-d10             14.55  188  1348823   4000.00 ug/kg   90
  17) Chrysene-d12                 20.23  240  1705646   4000.00 ug/kg  106
  20) Perylene-d12                 25.35  264  1709775   4000.00 ug/kg  103

 System Monitoring Compounds
   7) 2-Fluorobiphenyl             11.35  172    13186    75.52 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.89%#
  16) 4-Terphenyl-d14              17.02  244    26493    70.08 ug/kg  -0.01
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.75%#

 Target Compounds                                                  Qvalue
   9) Acenaphthene                 12.44  154     1783    13.49 ug/kg#      9
  14) Fluoranthene                 16.53  202     2317     7.38 ug/kg      96
  15) Pyrene                       17.11  202     2001     6.19 ug/kg      99
  23) Benzo(j)fluoranthene         23.78  252      572     1.69 ug/kg      91
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072713.D          Vial: 11
Acq On    : 27 Jul 2016   3:37 pm                   Operator: DEW
Sample    : 1607239-03A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016           Quant Results File: PP160725.RES

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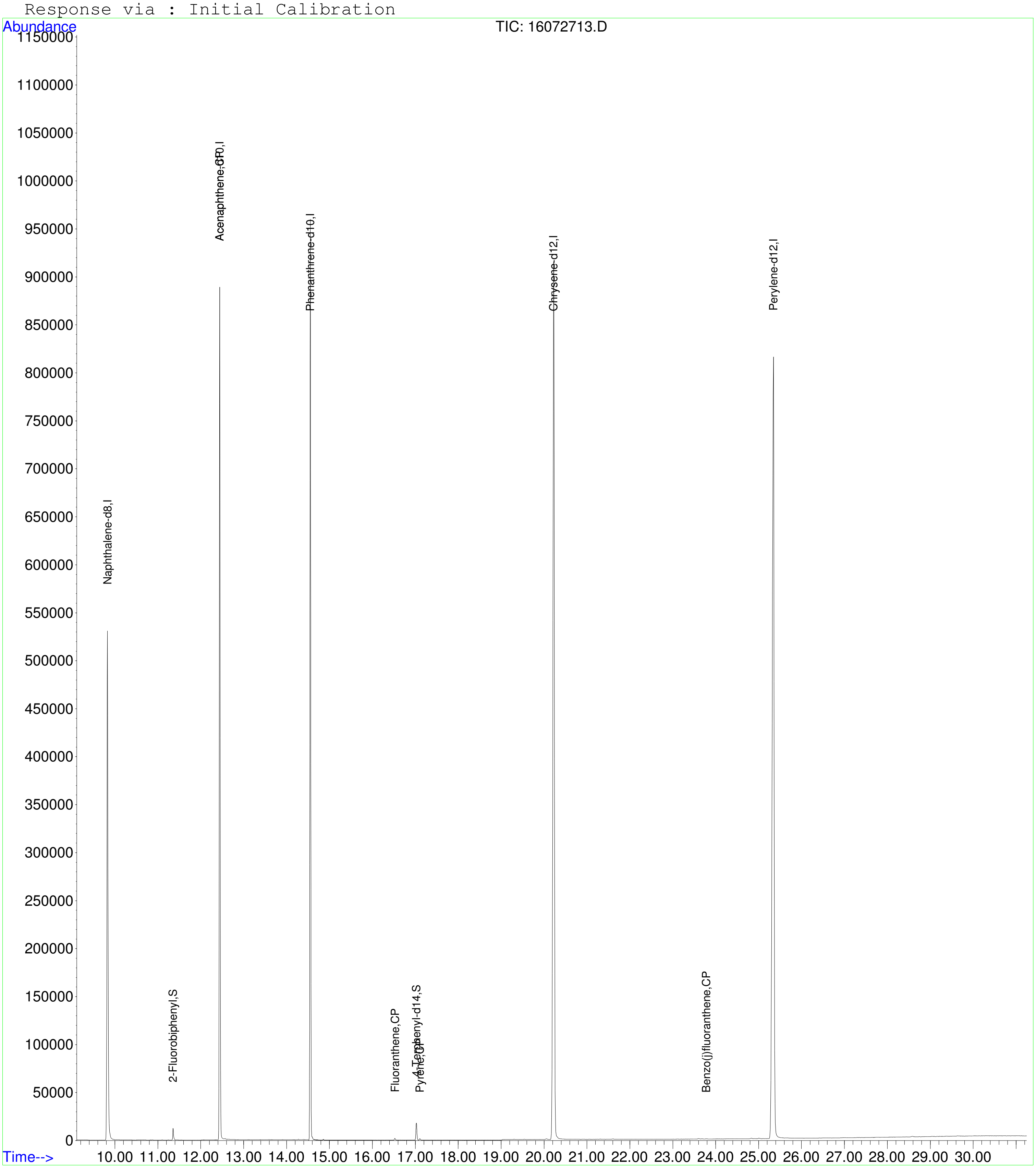
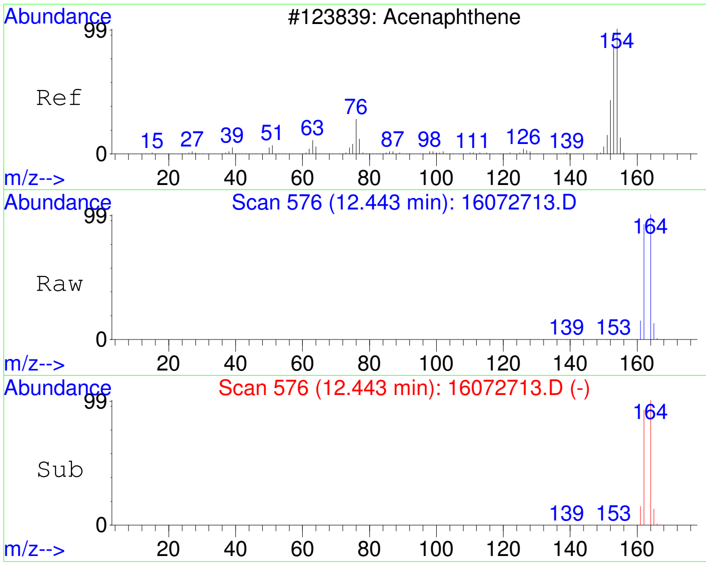
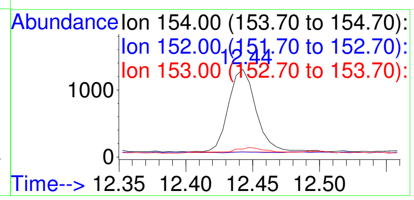


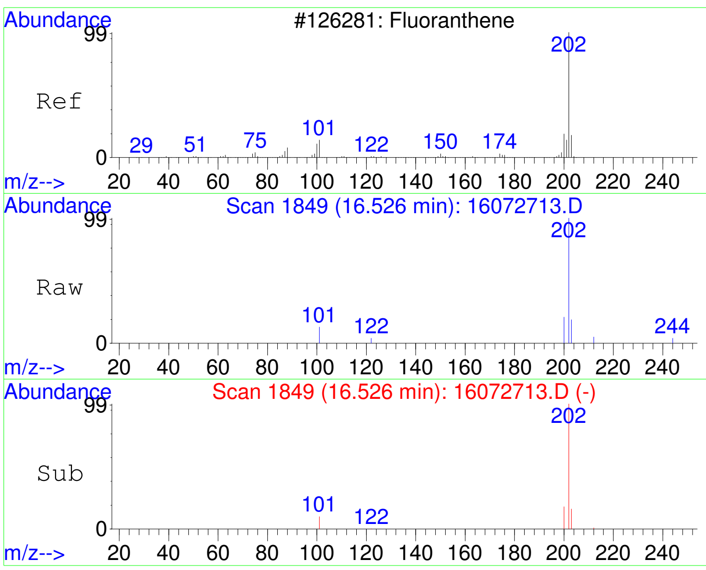


#9
Acenaphthene
Concen: 13.49 ug/kg
RT: 12.44 min Scan# 576
Delta R.T. -0.05 min
Lab File: 16072713.D
Acq: 27 Jul 2016 3:37 pm

Tgt Ion:154 Resp: 1783

Ion	Ratio	Lower	Upper
154	100		
152	0.4	20.4	80.4#
153	4.1	78.2	138.2#

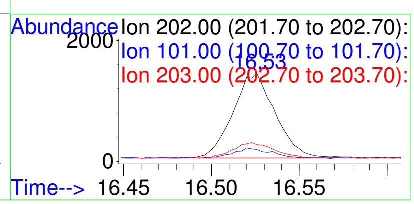


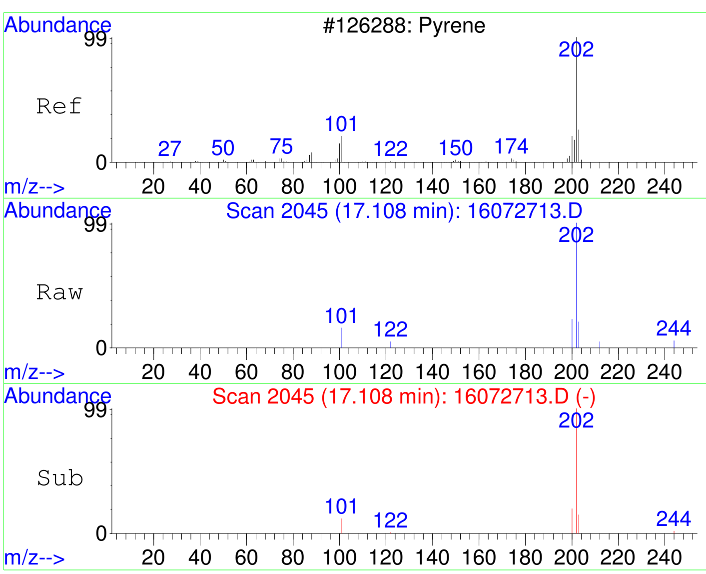


#14
Fluoranthene
Concen: 7.38 ug/kg
RT: 16.53 min Scan# 1849
Delta R.T. -0.01 min
Lab File: 16072713.D
Acq: 27 Jul 2016 3:37 pm

Tgt Ion:202 Resp: 2317

Ion	Ratio	Lower	Upper
202	100		
101	10.5	0.0	41.4
203	15.3	0.0	47.7

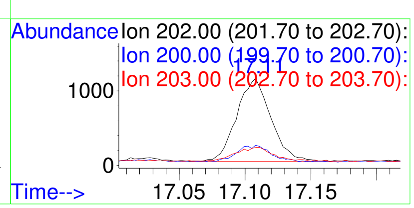


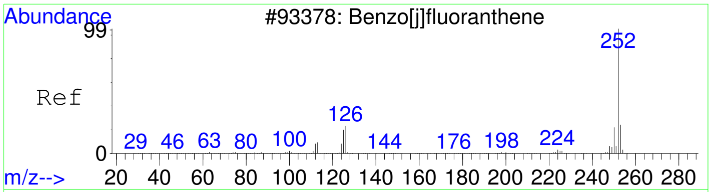


#15
Pyrene
Concen: 6.19 ug/kg
RT: 17.11 min Scan# 2045
Delta R.T. -0.01 min
Lab File: 16072713.D
Acq: 27 Jul 2016 3:37 pm

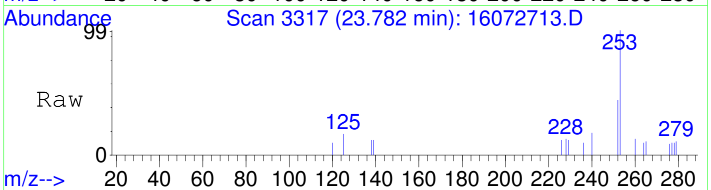
Tgt Ion:202 Resp: 2001

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	49.7
203	16.7	0.0	47.6



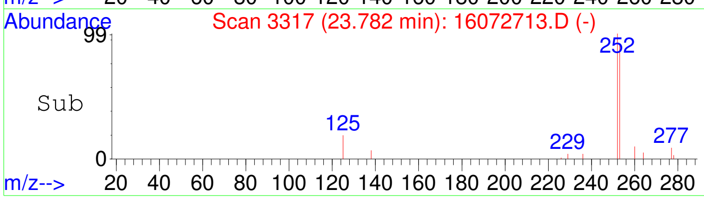


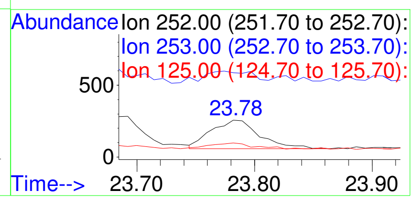
#23
Benzo(j)fluoranthene
Concen: 1.69 ug/kg
RT: 23.78 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072713.D
Acq: 27 Jul 2016 3:37 pm



Tgt Ion:252 Resp: 572

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.1	42.1
125	21.2	0.0	34.0





Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072714.D Vial: 12
Acq On : 27 Jul 2016 4:15 pm Operator: DEW
Sample : 1607239-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	941375	4000.00 ug/kg	105
5) Acenaphthene-d10	12.44	164	559366	4000.00 ug/kg	98
11) Phenanthrene-d10	14.55	188	1487129	4000.00 ug/kg	99
17) Chrysene-d12	20.23	240	1846321	4000.00 ug/kg	115
20) Perylene-d12	25.35	264	1860175	4000.00 ug/kg	112

System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.36	172	13427	69.98 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.75%#	
16) 4-Terphenyl-d14	17.03	244	26575	61.80 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.54%#	

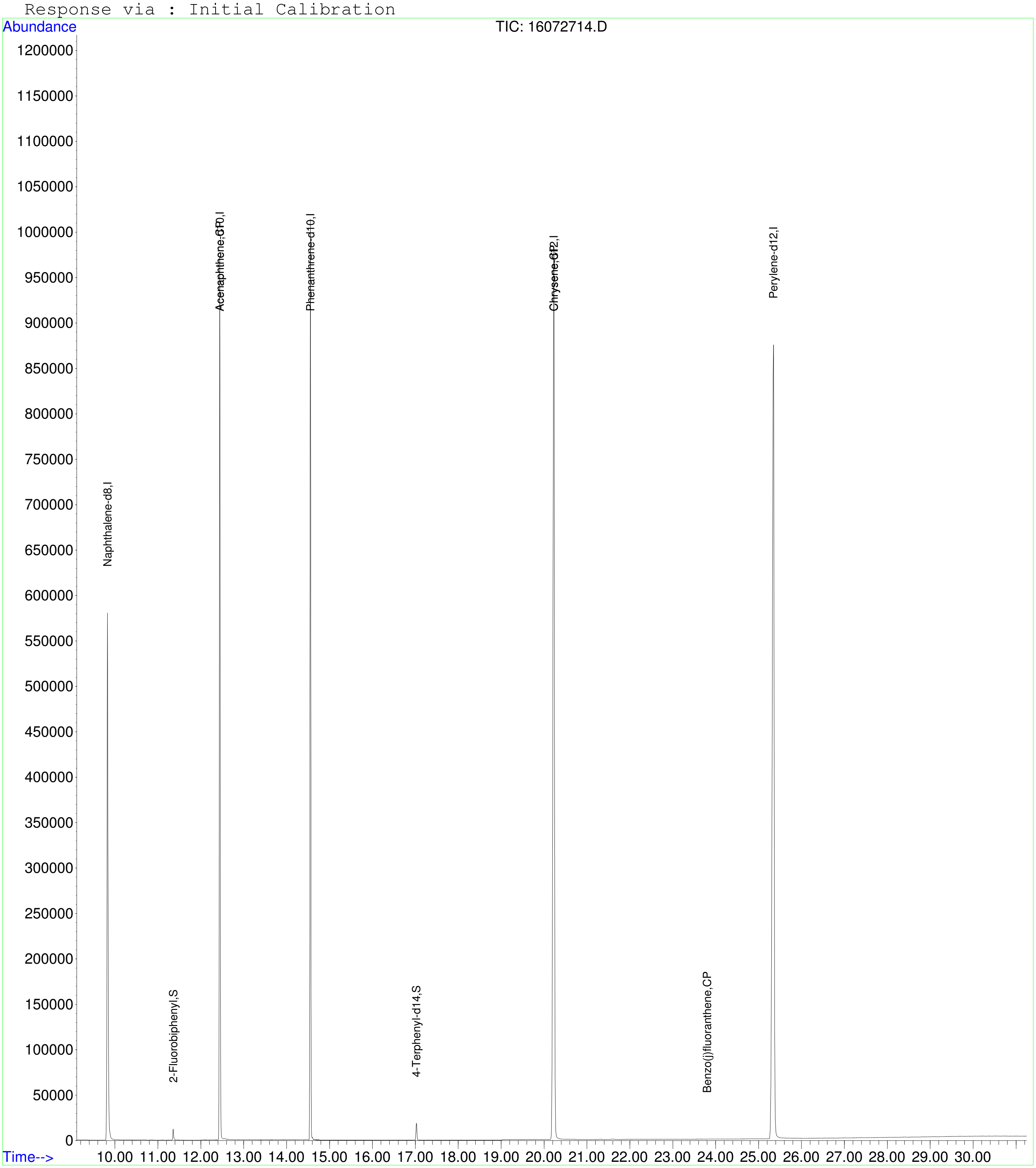
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1881	~~13.01 ug/kg#~~	~~9~~
19) Chrysene	20.23	228	4006	~~10.74 ug/kg~~	~~70~~
23) Benzo(j)fluoranthene	23.80	252	14	0.04 ug/kg#	1

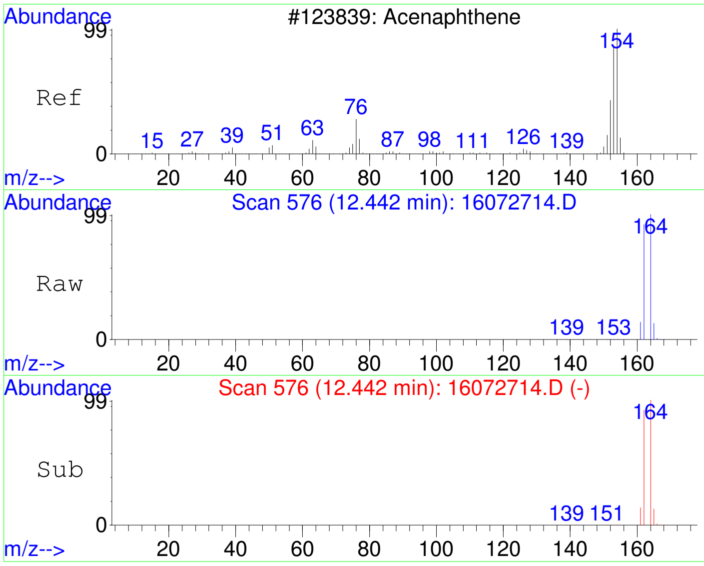
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072714.D          Vial: 12
Acq On    : 27 Jul 2016   4:15 pm                   Operator: DEW
Sample    : 1607239-04A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016            Quant Results File: PP160725.RES

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

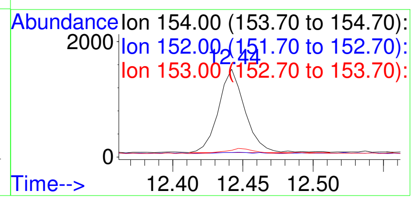


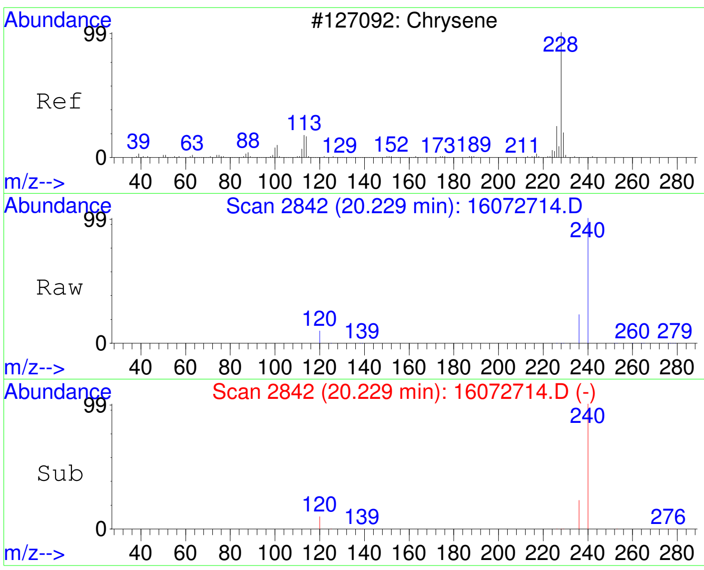


#9
Acenaphthene
Concen: 13.01 ug/kg
RT: 12.44 min   Scan# 576
Delta R.T.   -0.06 min
Lab File: 16072714.D
Acq: 27 Jul 2016   4:15 pm

Tgt Ion:154 Resp: 1881

Ion	Ratio	Lower	Upper
154	100		
152	1.0	20.4	80.4#
153	4.0	78.2	138.2#

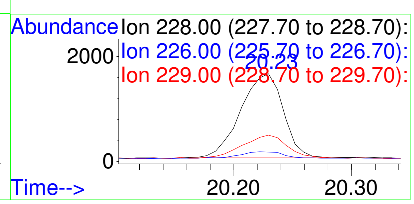


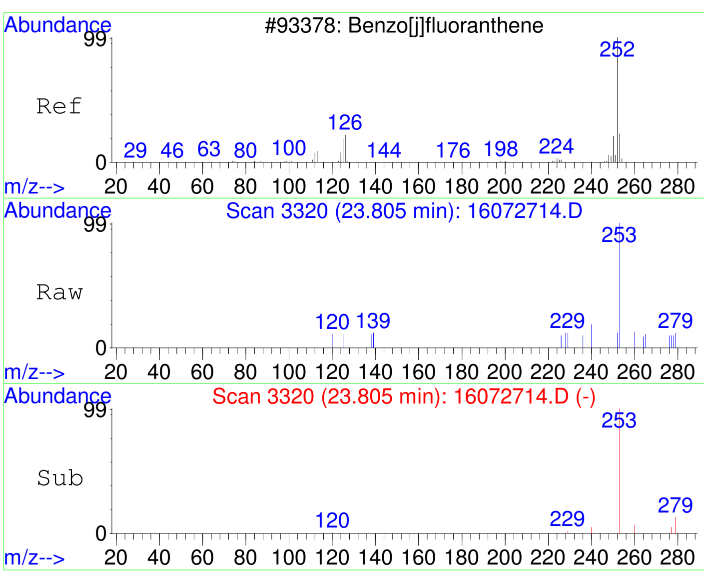


#19
Chrysene
Concen: 10.74 ug/kg
RT: 20.23 min   Scan# 2842
Delta R.T.   -0.10 min
Lab File: 16072714.D
Acq: 27 Jul 2016   4:15 pm

Tgt Ion:228 Resp: 4006

Ion	Ratio	Lower	Upper
228	100		
226	7.2	0.0	58.1
229	27.7	0.0	49.9

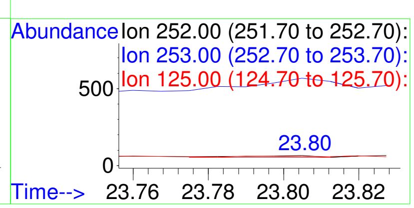




#23
Benzo(j)fluoranthene
Concen: 0.04 ug/kg
RT: 23.80 min   Scan# 3320
Delta R.T.   0.00 min
Lab File: 16072714.D
Acq: 27 Jul 2016   4:15 pm

Tgt Ion:252 Resp: 14

Ion	Ratio	Lower	Upper
252	100		
253	666.7	2.1	42.1#
125	25.0	0.0	34.0



```
Data File : C:\HPCHEM\1\DATA\160727\16072715.D          Vial: 13
Acq On    : 27 Jul 2016   4:52 pm                   Operator: DEW
Sample    : 1607239-05A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:26 2016             Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	958418	4000.00 ug/kg	107
5) Acenaphthene-d10	12.44	164	577095	4000.00 ug/kg	101
11) Phenanthrene-d10	14.56	188	1481564	4000.00 ug/kg	99
17) Chrysene-d12	20.23	240	1874889	4000.00 ug/kg	116
20) Perylene-d12	25.35	264	1891874	4000.00 ug/kg	114

System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.35	172	12823	64.45 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.61%#	
16) 4-Terphenyl-d14	17.03	244	24632	55.99 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.40%#	

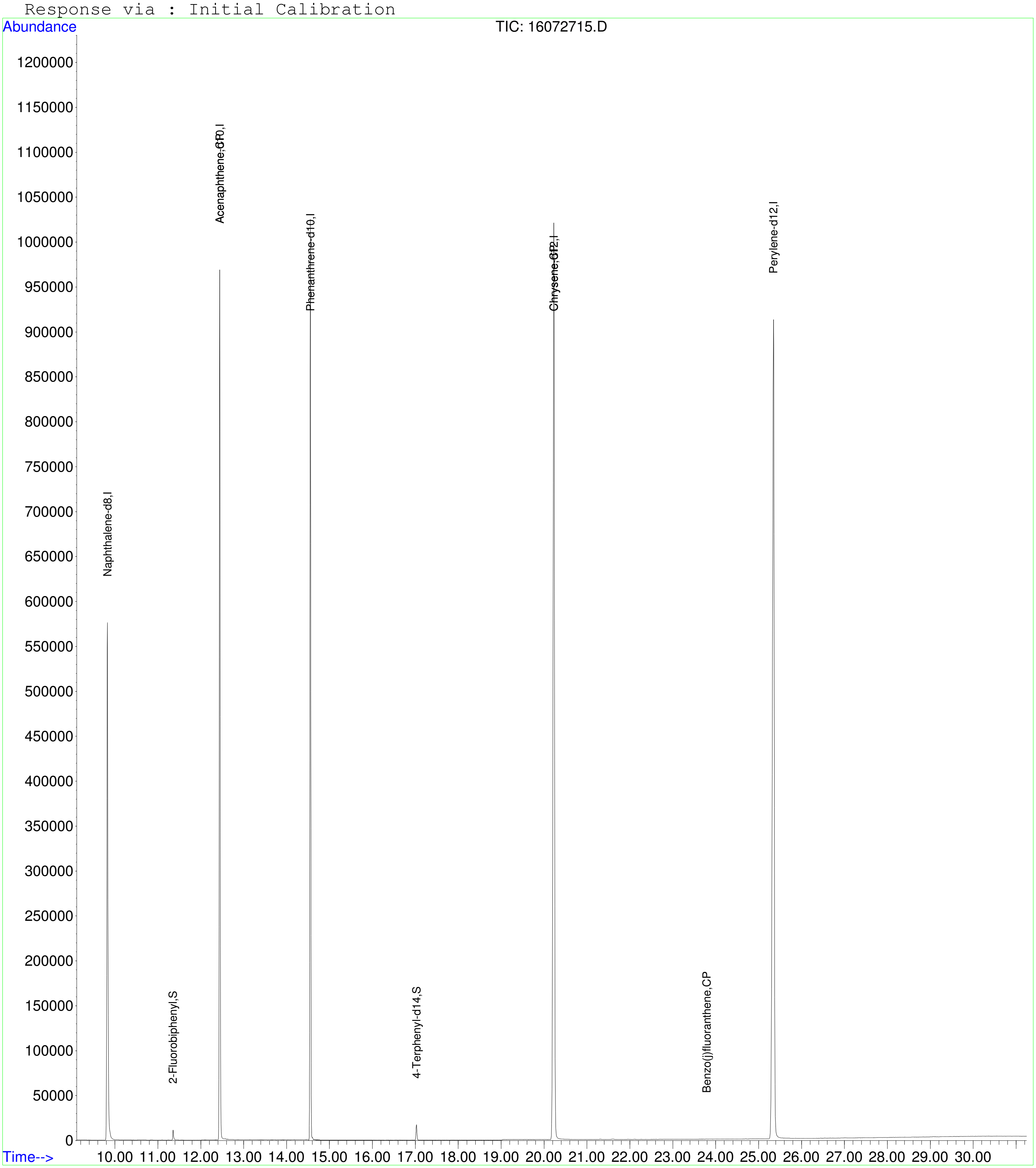
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1952	~~13.09 ug/kg#~~	9
19) Chrysene	20.23	228	4062	~~10.73 ug/kg~~	73
23) Benzo(j)fluoranthene	23.79	252	13	0.03 ug/kg#	1

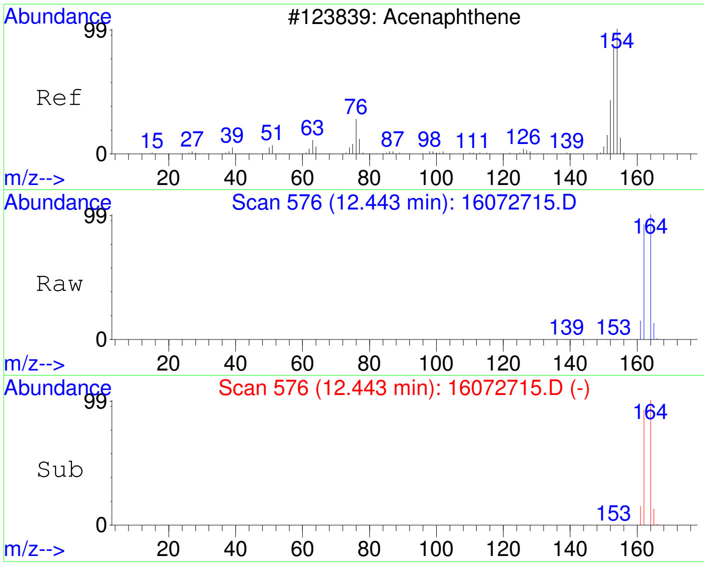
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072715.D          Vial: 13
Acq On    : 27 Jul 2016   4:52 pm                   Operator: DEW
Sample    : 1607239-05A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:26 2016           Quant Results File: PP160725.RES

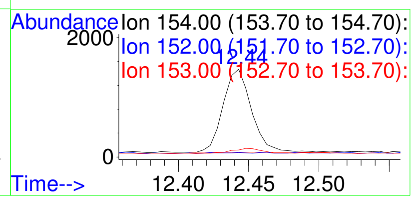
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

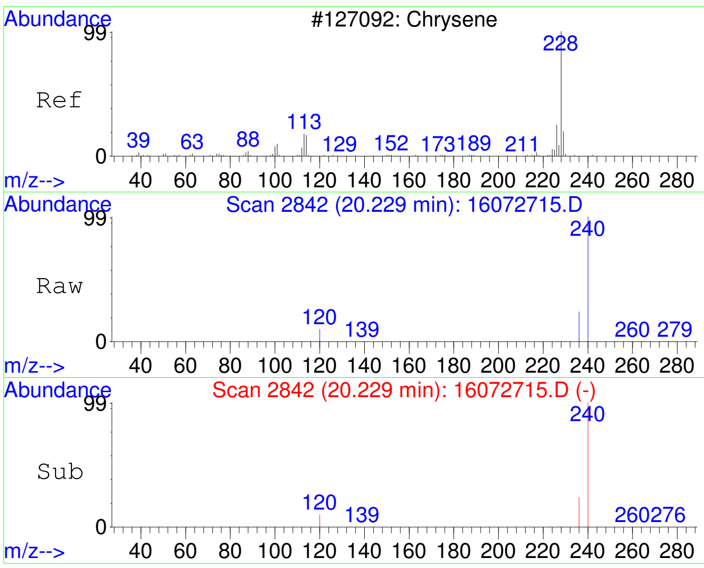




#9
Acenaphthene
Concen: 13.09 ug/kg
RT: 12.44 min Scan# 576
Delta R.T. -0.05 min
Lab File: 16072715.D
Acq: 27 Jul 2016 4:52 pm

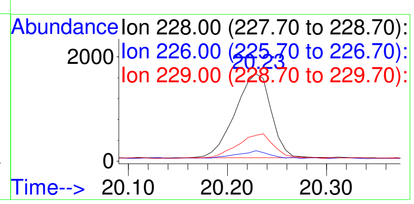
Tgt Ion:154	Resp:	1952	
Ion	Ratio	Lower	Upper
154	100		
152	1.2	20.4	80.4#
153	3.9	78.2	138.2#

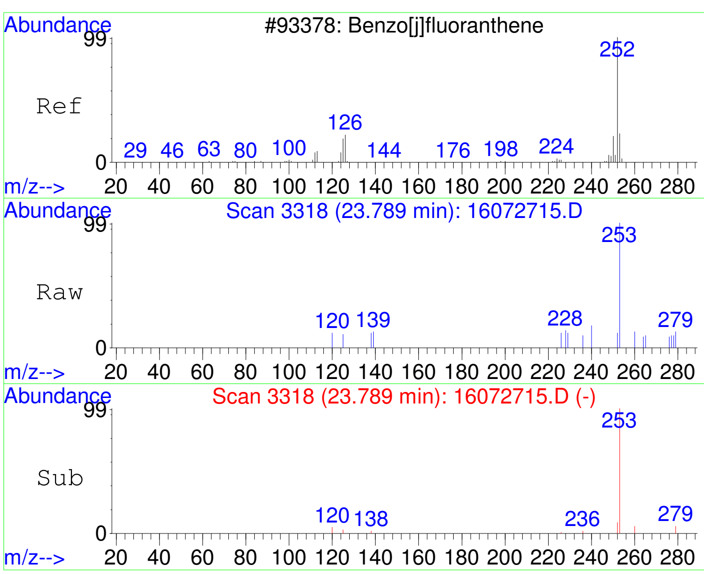




#19
Chrysene
Concen: 10.73 ug/kg
RT: 20.23 min Scan# 2842
Delta R.T. -0.10 min
Lab File: 16072715.D
Acq: 27 Jul 2016 4:52 pm

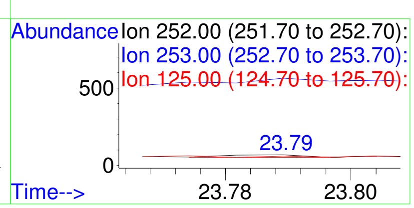
Tgt Ion:228	Resp:	4062	
Ion	Ratio	Lower	Upper
228	100		
226	9.1	0.0	58.1
229	26.8	0.0	49.9





#23
Benzo(j)fluoranthene
Concen: 0.03 ug/kg
RT: 23.79 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072715.D
Acq: 27 Jul 2016 4:52 pm

Tgt Ion:252	Resp:	13	
Ion	Ratio	Lower	Upper
252	100		
253	160.0	2.1	42.1#
125	46.7	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072716.D Vial: 14
Acq On : 27 Jul 2016 5:29 pm Operator: DEW
Sample : 1607239-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	961905	4000.00	ug/kg	108
5) Acenaphthene-d10	12.44	164	583743	4000.00	ug/kg	103
11) Phenanthrene-d10	14.55	188	1558622	4000.00	ug/kg	104
17) Chrysene-d12	20.23	240	1863145	4000.00	ug/kg	116
20) Perylene-d12	25.34	264	1871784	4000.00	ug/kg	113

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.36	172	14067	70.27	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery =	1.76%#	
16) 4-Terphenyl-d14	17.03	244	27043	59.38	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140			Recovery =	1.48%#	

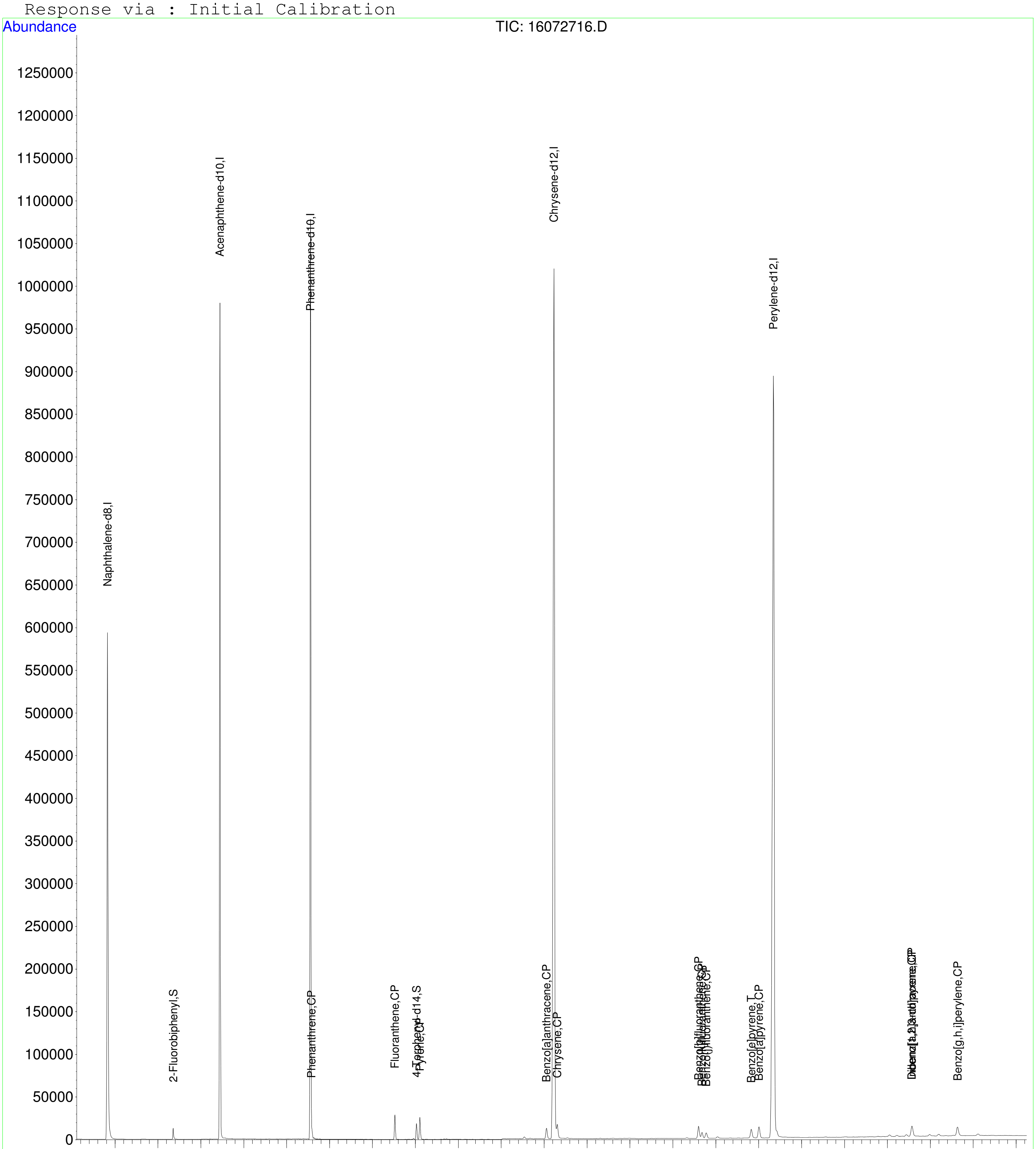
Target Compounds						Qvalue
12) Phenanthrene	14.59	178	7887	26.74	ug/kg	99
14) Fluoranthene	16.52	202	32638	90.00	ug/kg	99
15) Pyrene	17.11	202	30321	81.19	ug/kg	99
18) Benzo[a]anthracene	20.06	228	20317	50.86	ug/kg	98
19) Chrysene	20.31	228	25753	68.45	ug/kg	100
21) Benzo[b]fluoranthene	23.60	252	28974	67.74	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	13276	33.86	ug/kg	94
23) Benzo(j)fluoranthene	23.78	252	12496	33.66	ug/kg	89
24) Benzo[e]pyrene	24.83	252	21990	54.12	ug/kg	99
25) Benzo[a]pyrene	25.01	252	27621	68.50	ug/kg	98
26) Dibenz[a,h]anthracene	28.57	278	4685	11.21	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.57	276	22853	45.54	ug/kg	94
28) Benzo[g,h,i]perylene	29.64	276	22560	61.94	ug/kg	98

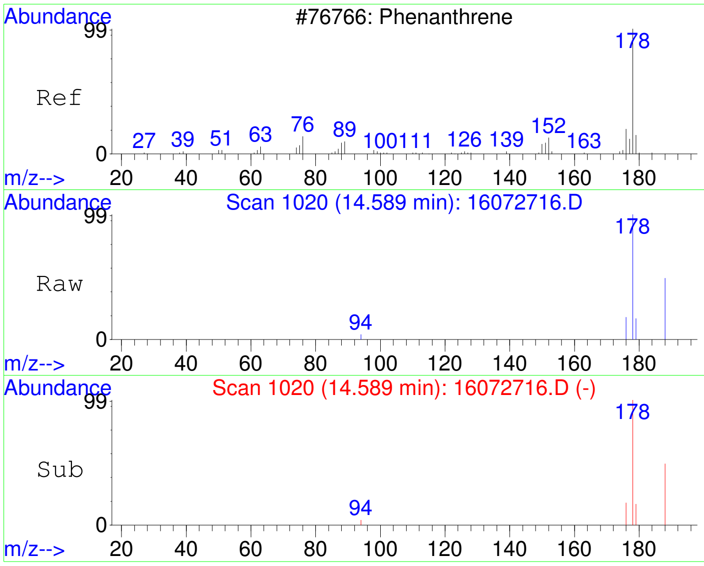
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072716.D          Vial: 14
Acq On    : 27 Jul 2016   5:29 pm                   Operator: DEW
Sample    : 1607239-06A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016              Quant Results File: PP160725.RES

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

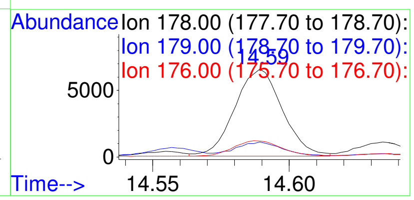


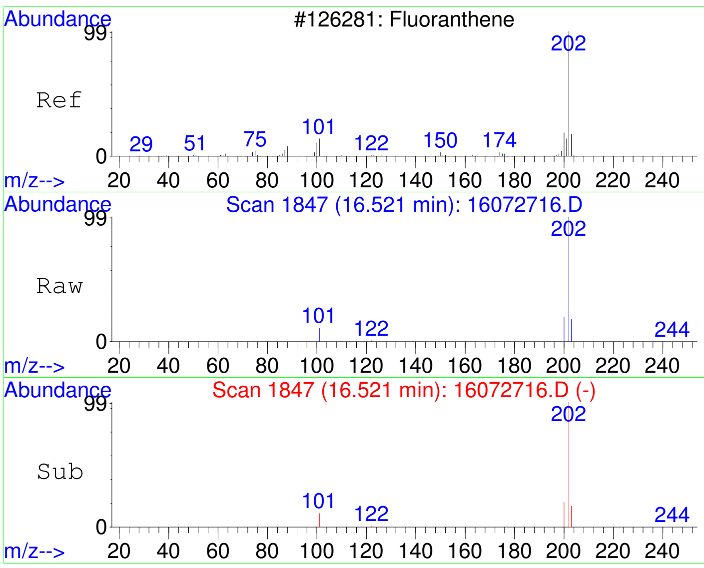


#12
Phenanthrene
Concen: 26.74 ug/kg
RT: 14.59 min Scan# 1020
Delta R.T. -0.01 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:178 Resp: 7887

Ion	Ratio	Lower	Upper
178	100		
179	16.1	0.0	45.7
176	18.1	0.0	48.4

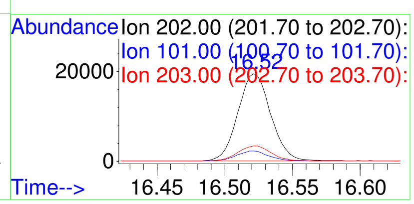


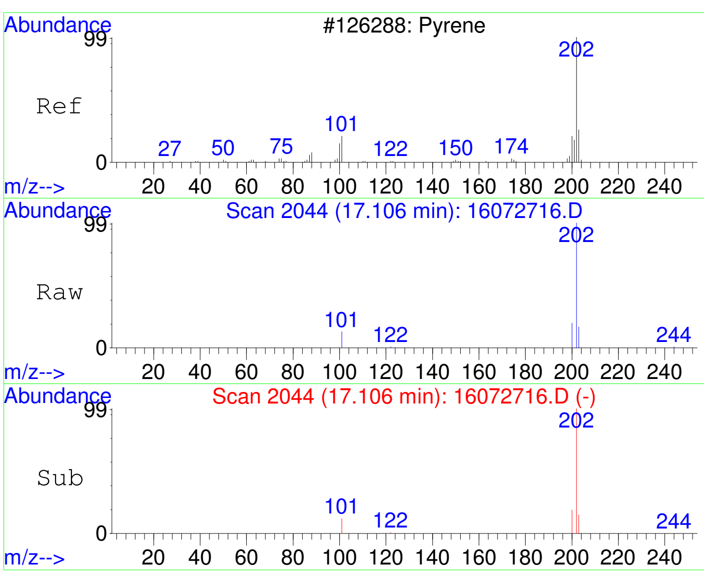


#14
Fluoranthene
Concen: 90.00 ug/kg
RT: 16.52 min Scan# 1847
Delta R.T. -0.01 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:202 Resp: 32638

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	41.4
203	17.2	0.0	47.7

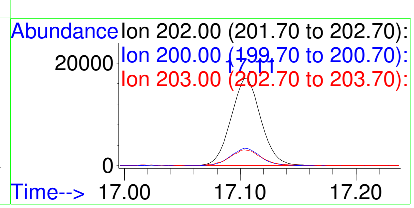


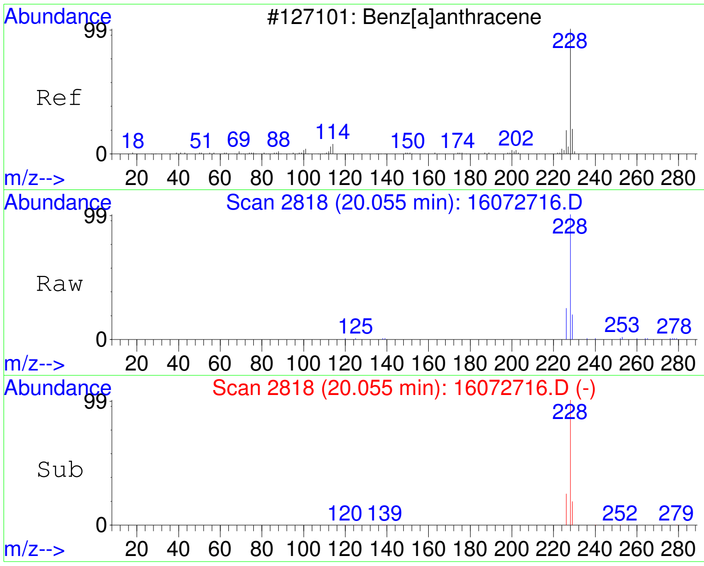


#15
Pyrene
Concen: 81.19 ug/kg
RT: 17.11 min Scan# 2044
Delta R.T. -0.01 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:202 Resp: 30321

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	49.7
203	17.2	0.0	47.6

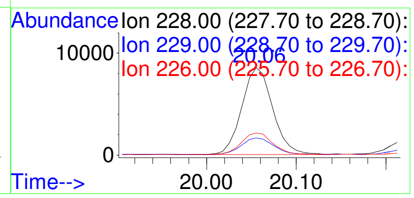


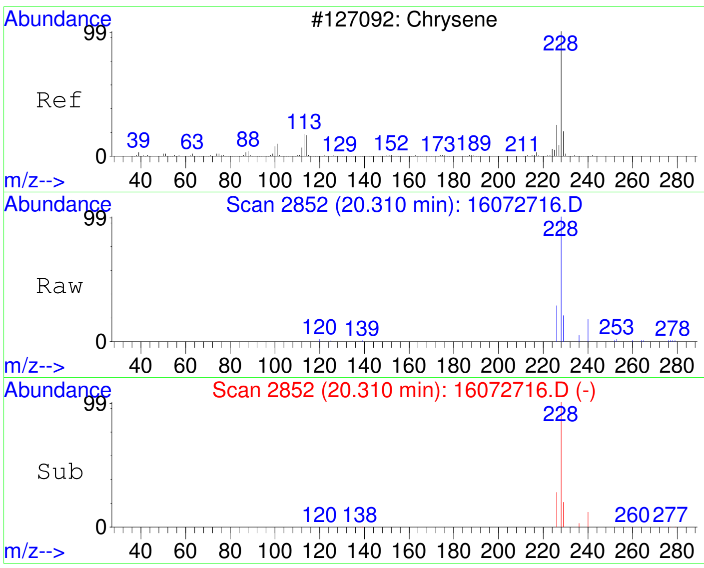


#18
Benzo[a]anthracene
Concen: 50.86 ug/kg
RT: 20.06 min Scan# 2818
Delta R.T. -0.02 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:228 Resp: 20317

Ion	Ratio	Lower	Upper
228	100		
229	19.1	0.0	49.9
226	24.8	0.0	55.9

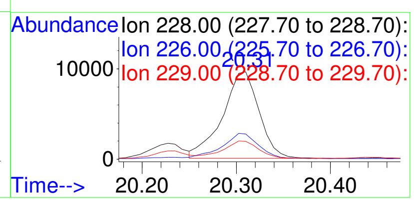


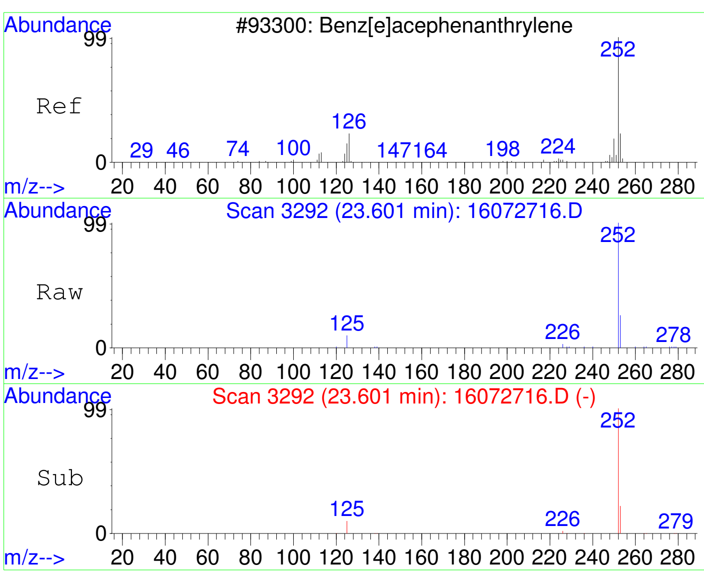


#19
Chrysene
Concen: 68.45 ug/kg
RT: 20.31 min Scan# 2852
Delta R.T. -0.02 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:228 Resp: 25753

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	58.1
229	20.0	0.0	49.9

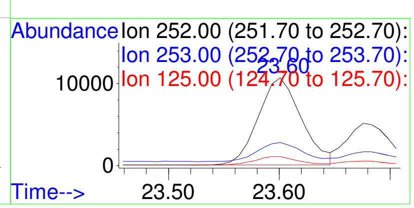


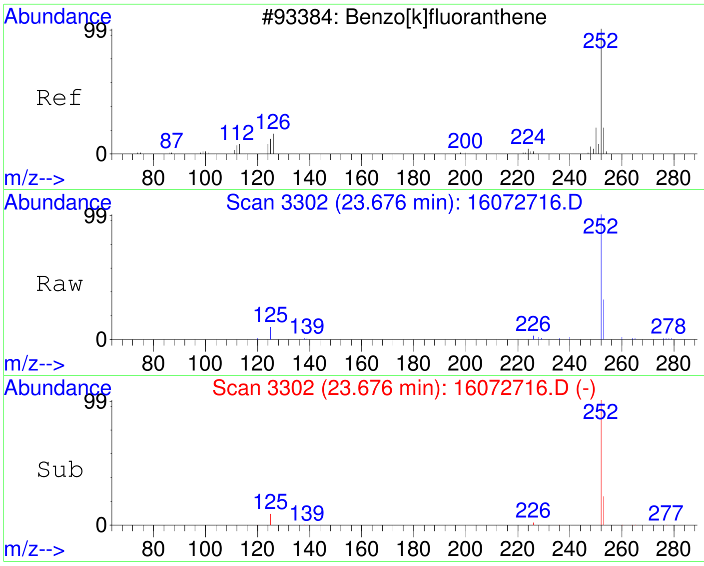


#21
Benzo[b]fluoranthene
Concen: 67.74 ug/kg
RT: 23.60 min Scan# 3292
Delta R.T. -0.03 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:252 Resp: 28974

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.1
125	9.7	0.0	39.3

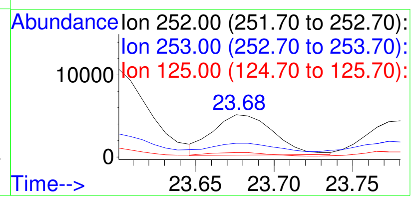


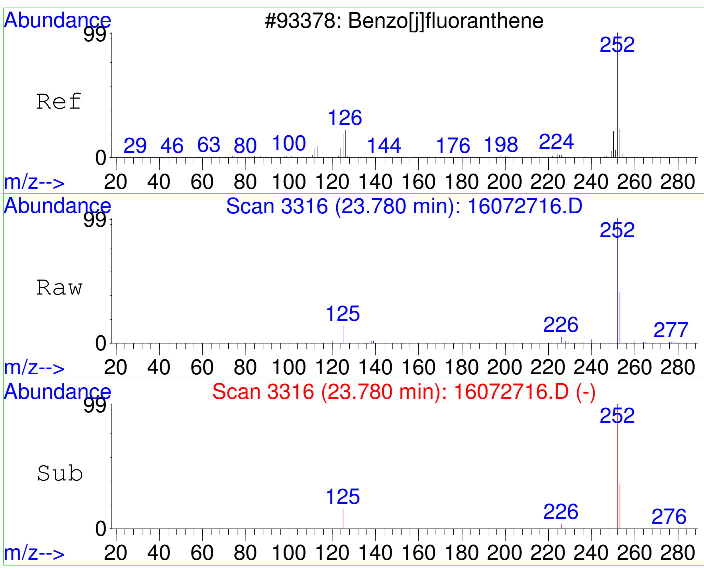


#22
Benzo[k]fluoranthene
Concen: 33.86 ug/kg
RT: 23.68 min Scan# 3302
Delta R.T. -0.03 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:252 Resp: 13276

Ion	Ratio	Lower	Upper
252	100		
253	18.9	2.2	42.2
125	8.5	0.0	30.0

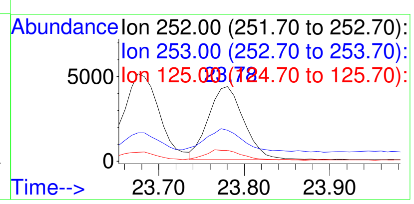


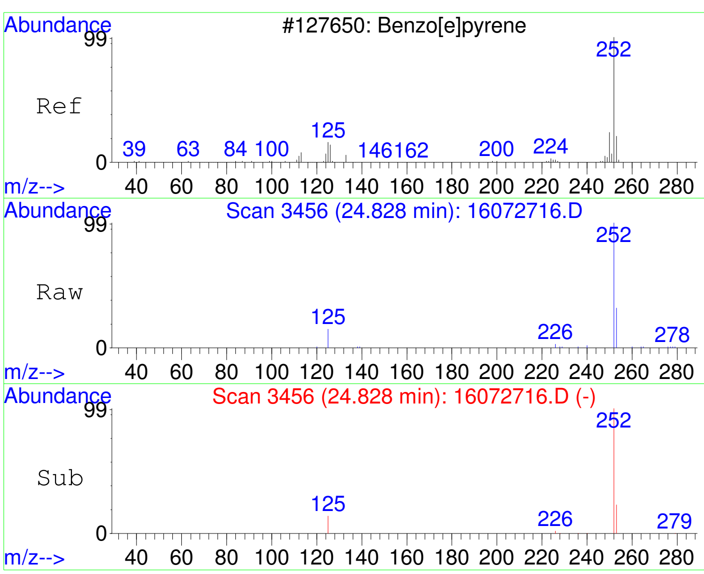


#23
Benzo(j)fluoranthene
Concen: 33.66 ug/kg
RT: 23.78 min Scan# 3316
Delta R.T. -0.02 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:252 Resp: 12496

Ion	Ratio	Lower	Upper
252	100		
253	29.8	2.1	42.1
125	12.9	0.0	34.0

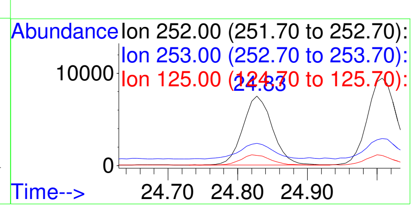


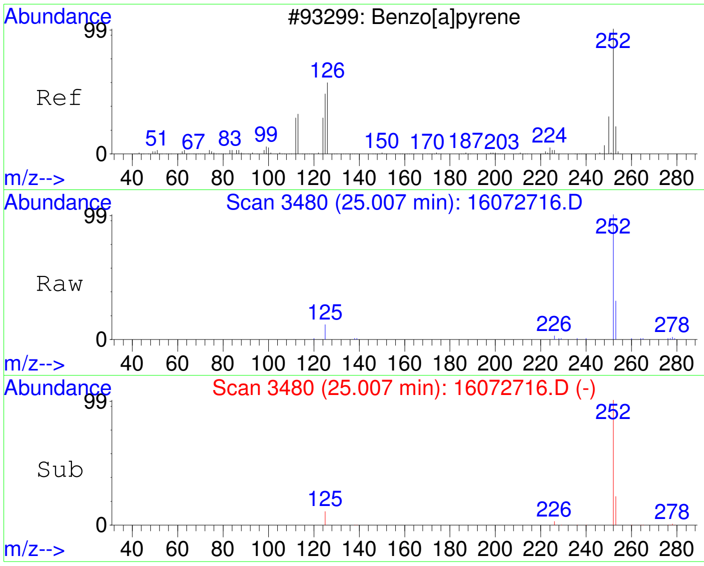


#24
Benzo[e]pyrene
Concen: 54.12 ug/kg
RT: 24.83 min Scan# 3456
Delta R.T. -0.03 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:252 Resp: 21990

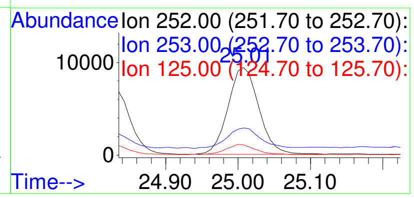
Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.1	42.1
125	14.0	0.0	33.9

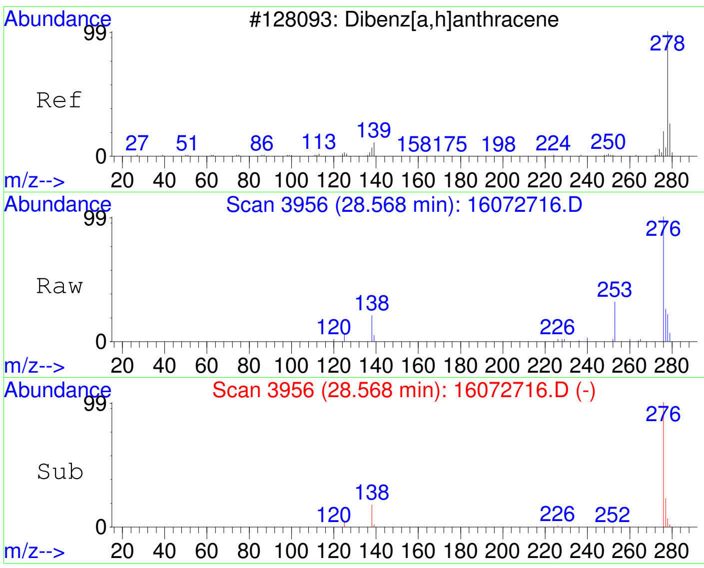




#25
Benzo[a]pyrene
Concen: 68.50 ug/kg
RT: 25.01 min Scan# 3480
Delta R.T. -0.02 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

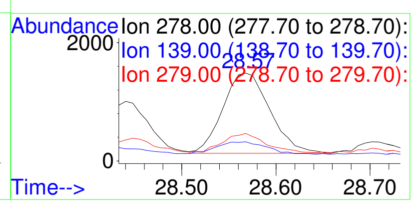
Tgt	Ion:252	Resp:	27621
Ion	Ratio	Lower	Upper
252	100		
253	22.8	1.8	41.8
125	11.0	0.0	31.6

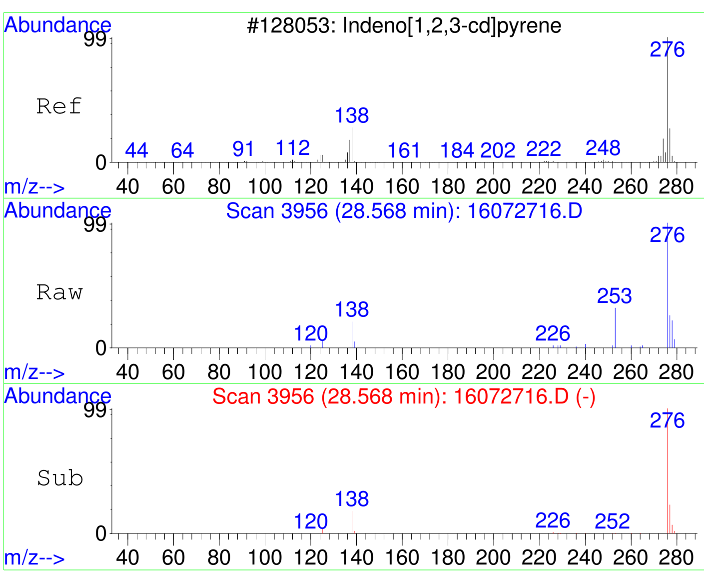




#26
Dibenz[a,h]anthracene
Concen: 11.21 ug/kg
RT: 28.57 min Scan# 3956
Delta R.T. -0.04 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

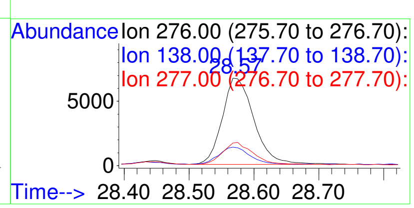
Tgt	Ion:278	Resp:	4685
Ion	Ratio	Lower	Upper
278	100		
139	15.7	0.0	34.3
279	24.0	3.9	43.9

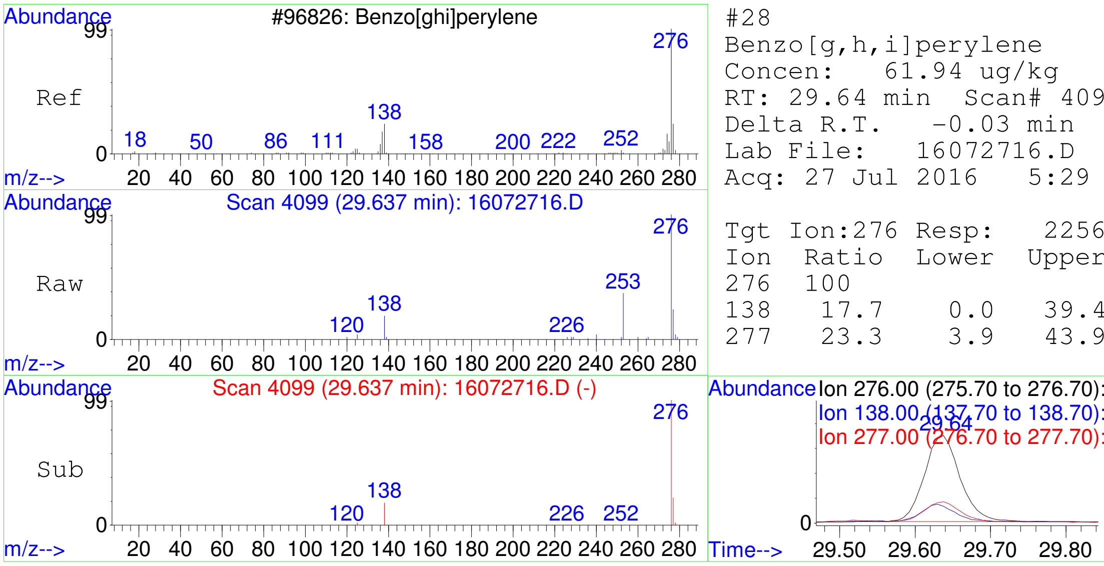




#27
Indeno[1,2,3-cd]pyrene
Concen: 45.54 ug/kg
RT: 28.57 min Scan# 3956
Delta R.T. -0.04 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt	Ion:276	Resp:	22853
Ion	Ratio	Lower	Upper
276	100		
138	19.8	5.3	45.3
277	25.0	5.8	45.8





#28
Benzo[g,h,i]perylene
Concen: 61.94 ug/kg
RT: 29.64 min Scan# 4099
Delta R.T. -0.03 min
Lab File: 16072716.D
Acq: 27 Jul 2016 5:29 pm

Tgt Ion:276 Resp: 22560

Ion	Ratio	Lower	Upper
276	100		
138	17.7	0.0	39.4
277	23.3	3.9	43.9

Quantitation Report (Not Reviewed)

Data File	: C:\HPCHEM\1\DATA\160727\16072717.D	Vial:	15
Acq On	: 27 Jul 2016 6:07 pm	Operator:	DEW
Sample	: 1607239-07A	Inst :	GC/MS #6
Misc	: SAMP	Multiplr:	10.00

MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016 Quant Results File: PP160725.RES

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

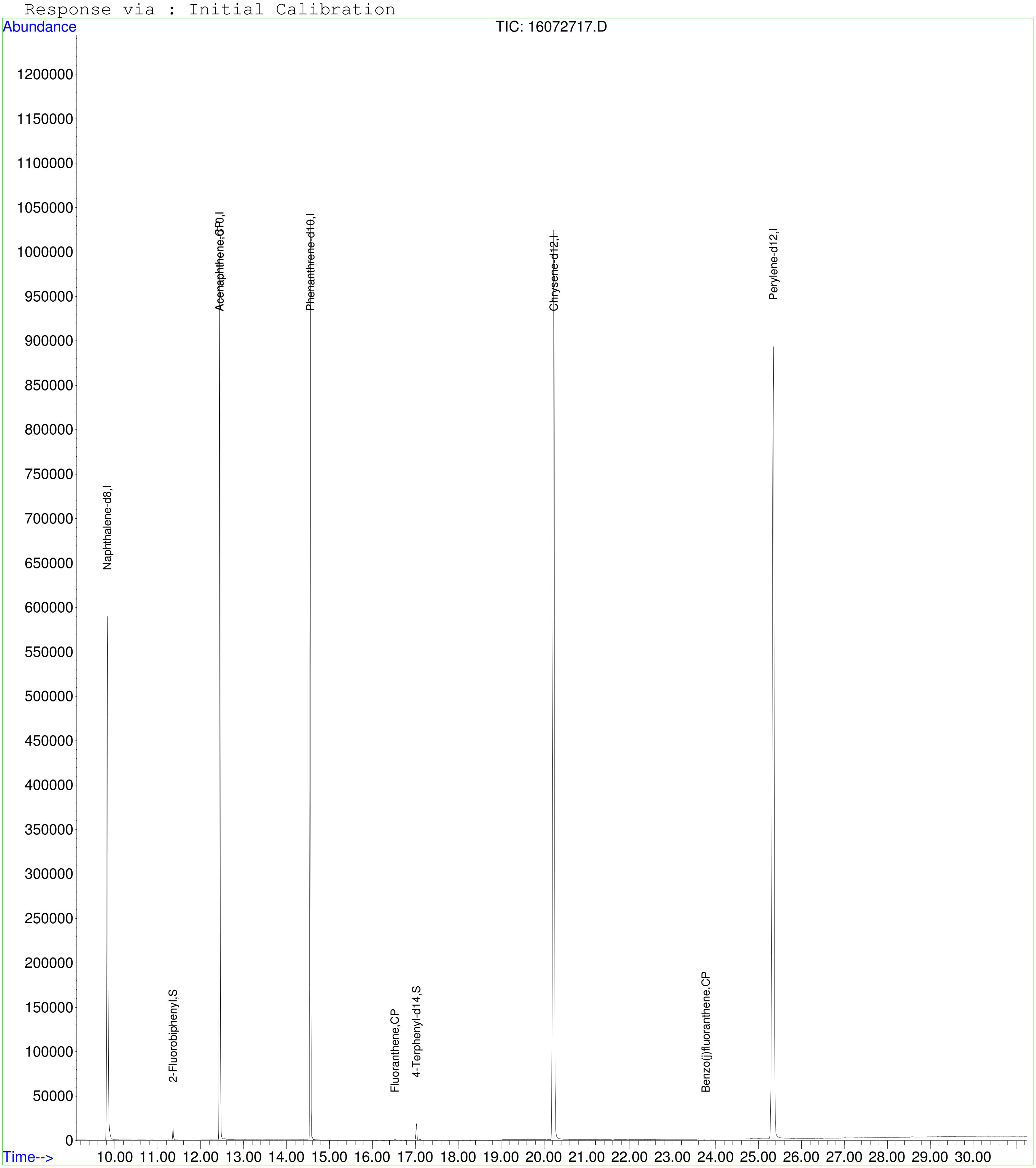
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	969828	4000.00 ug/kg	109
5) Acenaphthene-d10	12.44	164	579053	4000.00 ug/kg	102
11) Phenanthrene-d10	14.55	188	1539943	4000.00 ug/kg	103
17) Chrysene-d12	20.23	240	1868325	4000.00 ug/kg	116
20) Perylene-d12	25.34	264	1879853	4000.00 ug/kg	113
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.35	172	13908	70.03 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.75%#	
16) 4-Terphenyl-d14	17.02	244	26579	58.95 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.47%#	
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1946	~~13.00 ug/kg#~~	10
14) Fluoranthene	16.52	202	1826	5.10 ug/kg	99
23) Benzo(j)fluoranthene	23.78	252	405	1.09 ug/kg	91

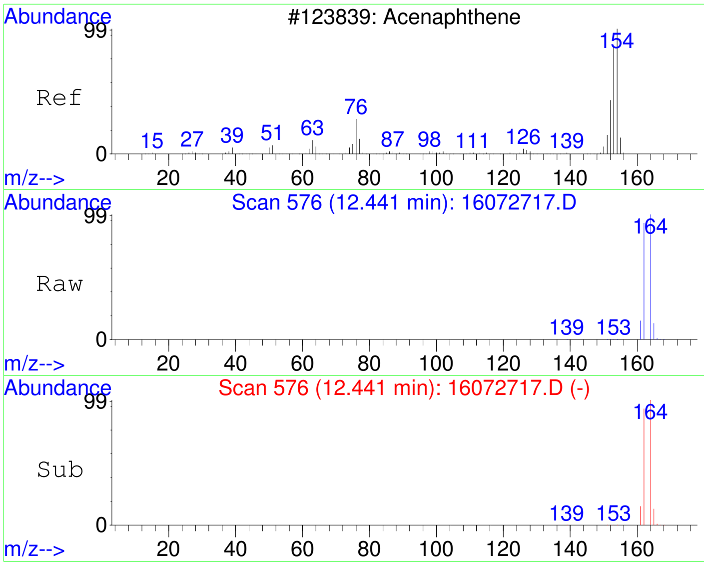
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072717.D          Vial: 15
Acq On    : 27 Jul 2016   6:07 pm                   Operator: DEW
Sample    : 1607239-07A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016            Quant Results File: PP160725.RES

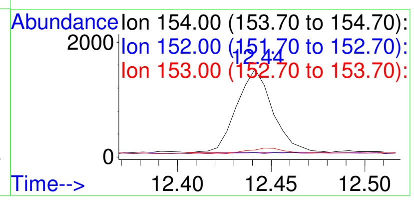
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

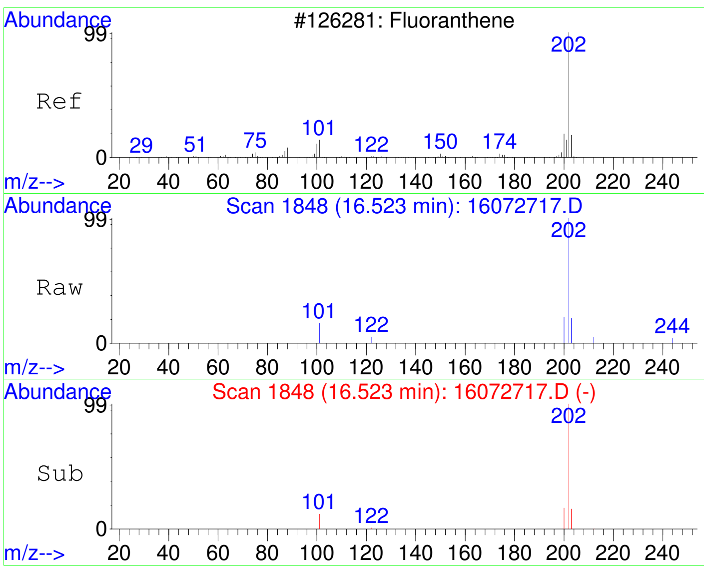




#9
Acenaphthene
Concen: 13.00 ug/kg
RT: 12.44 min Scan# 576
Delta R.T. -0.06 min
Lab File: 16072717.D
Acq: 27 Jul 2016 6:07 pm

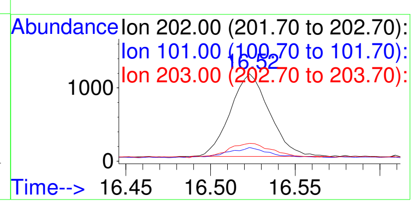
Tgt	Ion:154	Resp:	1946
Ion	Ratio	Lower	Upper
154	100		
152	1.2	20.4	80.4#
153	4.1	78.2	138.2#

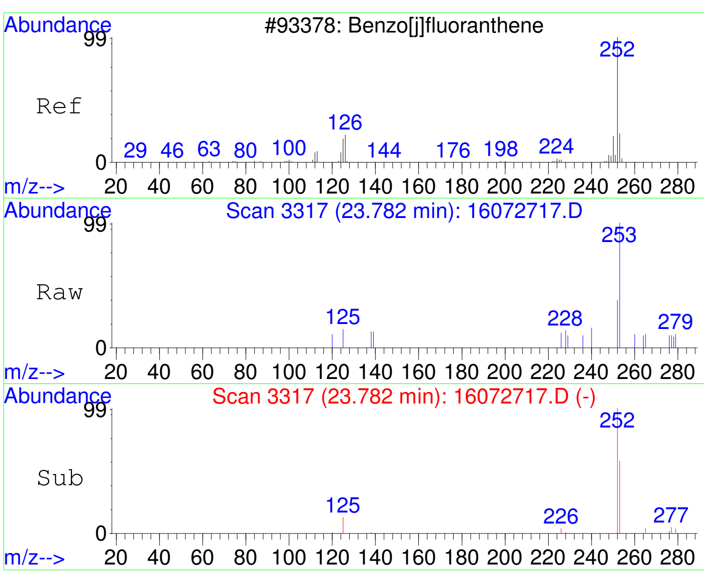




#14
Fluoranthene
Concen: 5.10 ug/kg
RT: 16.52 min Scan# 1848
Delta R.T. -0.01 min
Lab File: 16072717.D
Acq: 27 Jul 2016 6:07 pm

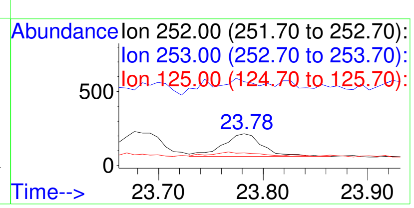
Tgt	Ion:202	Resp:	1826
Ion	Ratio	Lower	Upper
202	100		
101	11.9	0.0	41.4
203	17.3	0.0	47.7





#23
Benzo(j)fluoranthene
Concen: 1.09 ug/kg
RT: 23.78 min Scan# 3317
Delta R.T. -0.02 min
Lab File: 16072717.D
Acq: 27 Jul 2016 6:07 pm

Tgt	Ion:252	Resp:	405
Ion	Ratio	Lower	Upper
252	100		
253	28.9	2.1	42.1
125	14.5	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072718.D Vial: 16
Acq On : 27 Jul 2016 6:44 pm Operator: DEW
Sample : 1607239-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.83	136	981581	4000.00 ug/kg	110
5) Acenaphthene-d10	12.44	164	595619	4000.00 ug/kg	105
11) Phenanthrene-d10	14.55	188	1564027	4000.00 ug/kg	104
17) Chrysene-d12	20.23	240	1872992	4000.00 ug/kg	116
20) Perylene-d12	25.34	264	1868709	4000.00 ug/kg	113

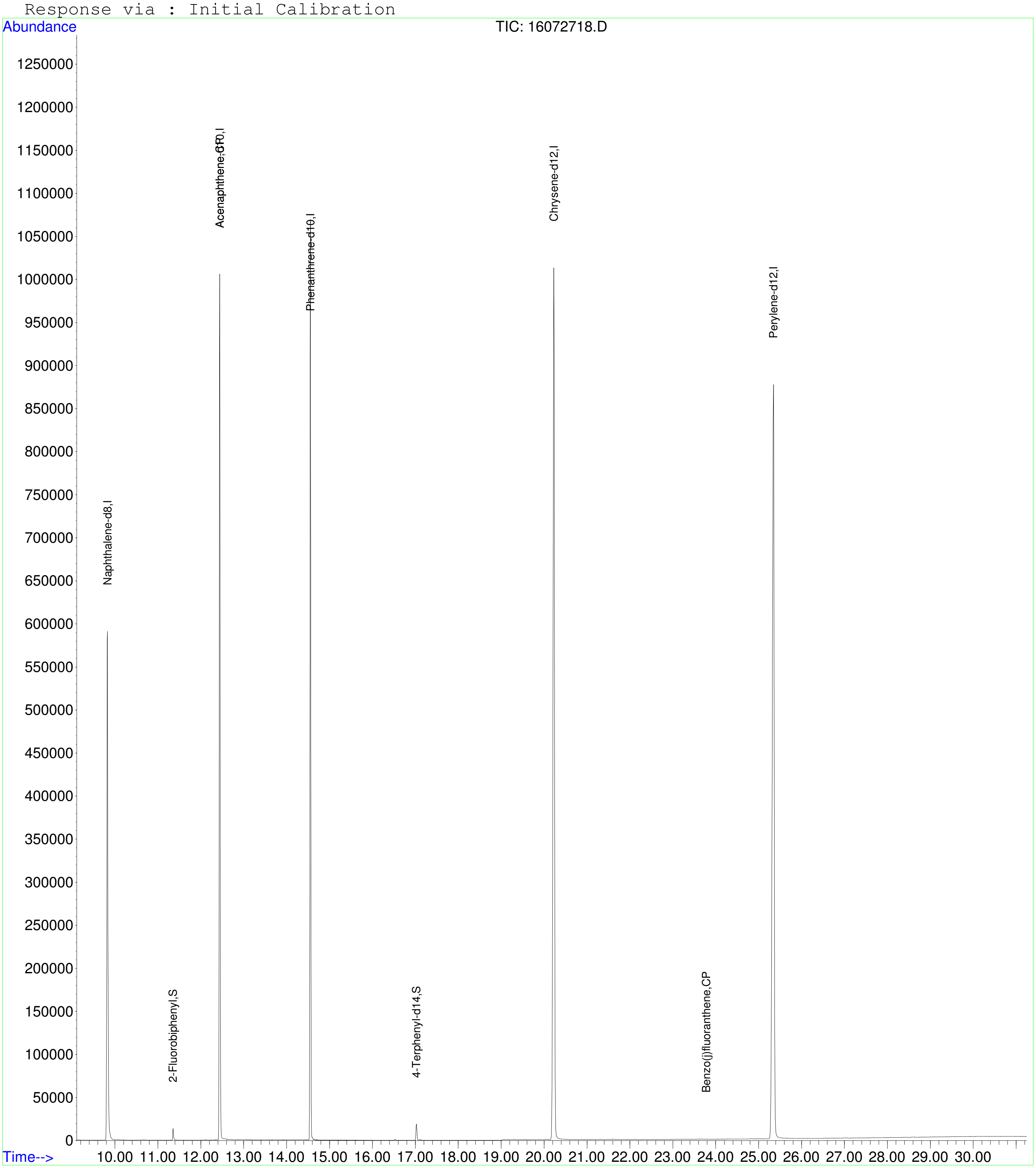
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.35	172	14480	70.93 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#	
16) 4-Terphenyl-d14	17.03	244	27328	59.95 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.50%#	

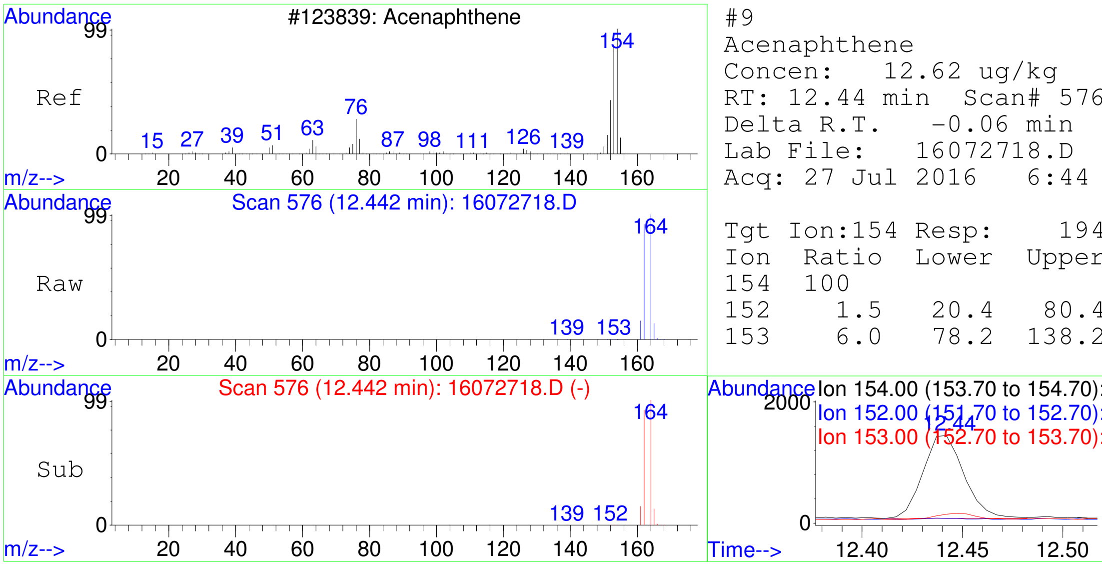
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1942	~~12.62 ug/kg#~~	11
23) Benzo(j)fluoranthene	23.78	252	337	0.91 ug/kg#	36

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

Data File : C:\HPCHEM\1\DATA\160727\16072718.D Vial: 16
Acq On : 27 Jul 2016 6:44 pm Operator: DEW
Sample : 1607239-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016 Quant Results File: PP160725.RES

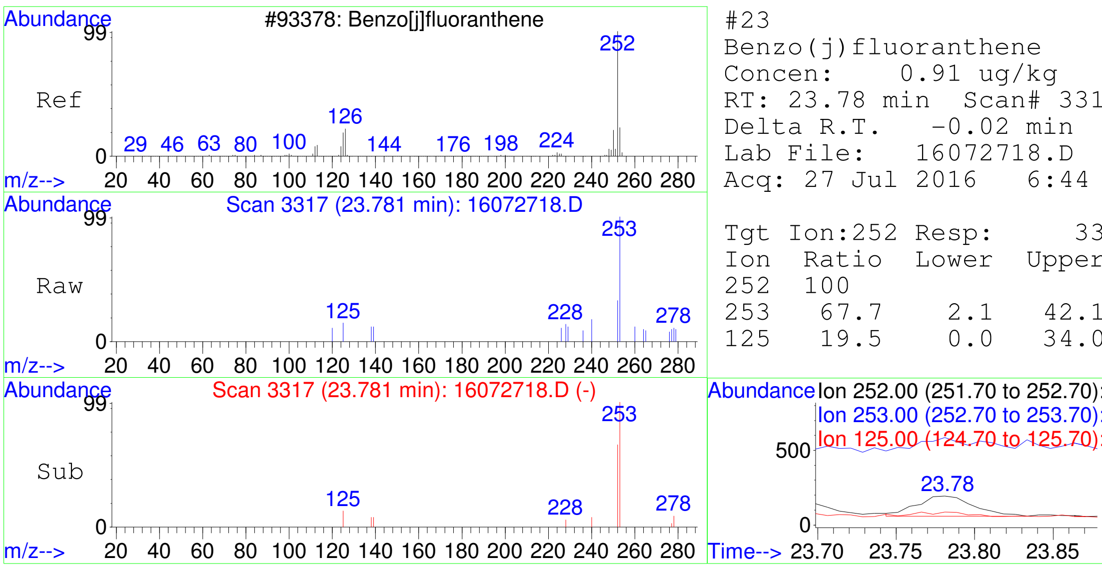
Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration






```
#9
Acenaphthene
Concen:    12.62 ug/kg
RT: 12.44 min   Scan# 576
Delta R.T.    -0.06 min
Lab File:    16072718.D
Acq: 27 Jul 2016    6:44 pm

Tgt Ion:154 Resp:     1942
Ion   Ratio   Lower   Upper
154   100
152     1.5    20.4    80.4#
153     6.0    78.2   138.2#
```




```
#23
Benzo(j)fluoranthene
Concen:     0.91 ug/kg
RT: 23.78 min   Scan# 3317
Delta R.T.    -0.02 min
Lab File:    16072718.D
Acq: 27 Jul 2016    6:44 pm

Tgt Ion:252 Resp:      337
Ion   Ratio   Lower   Upper
252   100
253    67.7     2.1    42.1#
125    19.5     0.0    34.0
```

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072719.D Vial: 17
Acq On : 27 Jul 2016 7:20 pm Operator: DEW
Sample : 1607239-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016 Quant Results File: PP160725.RES

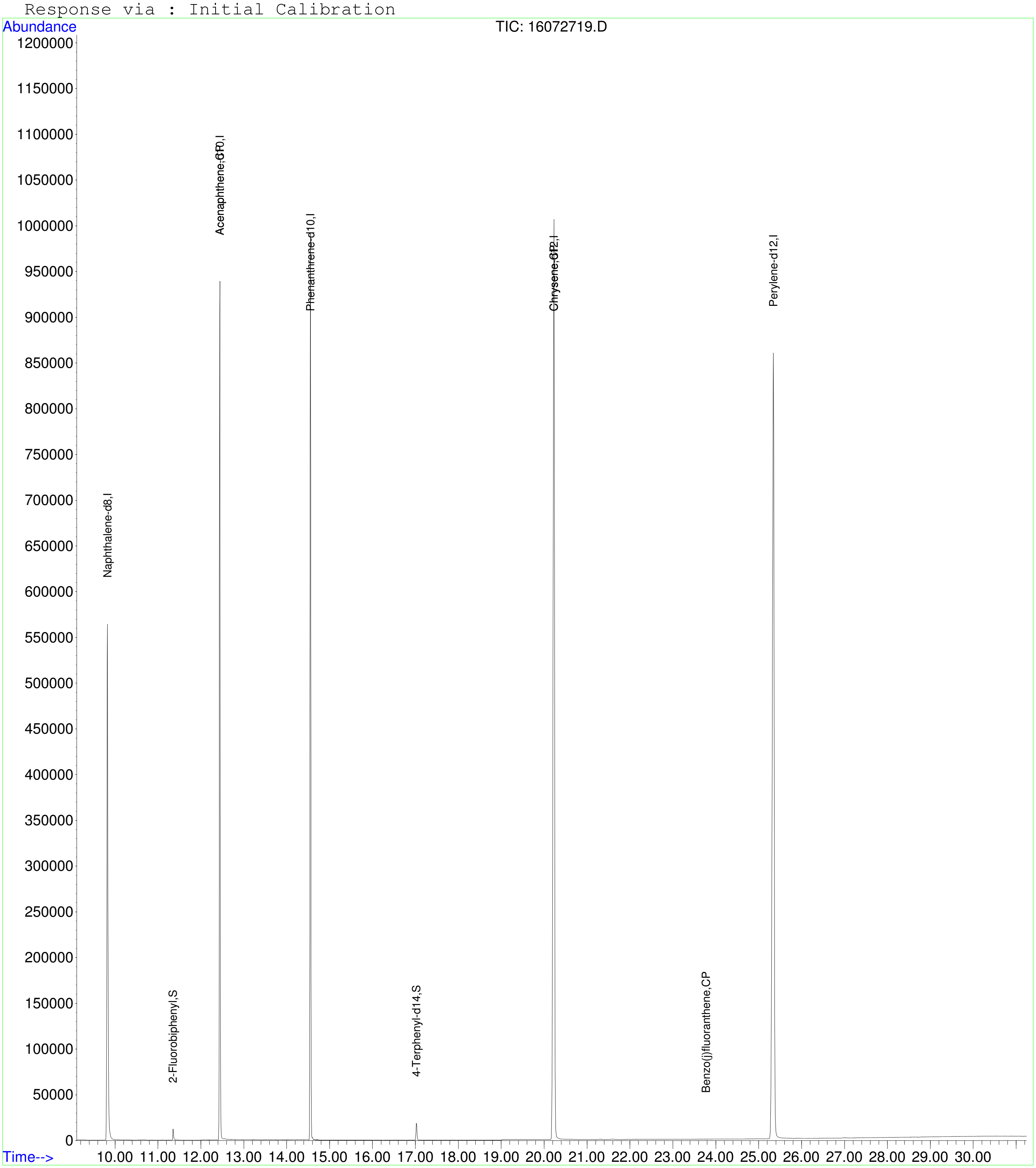
Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

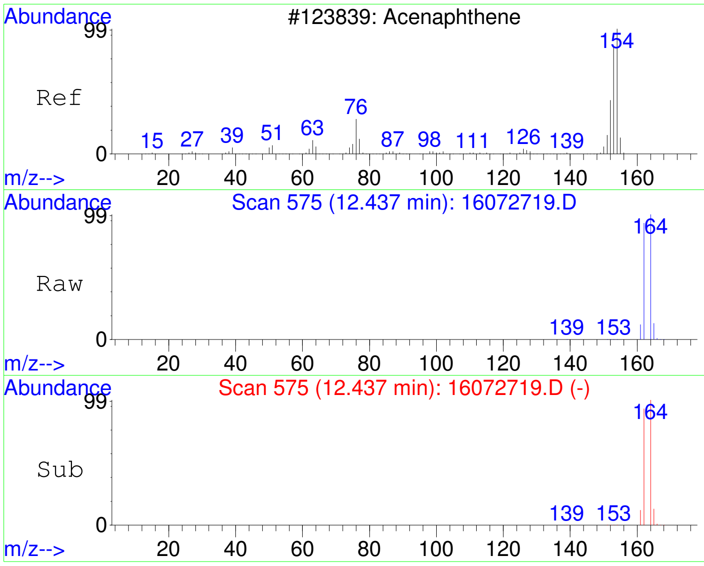
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	919777	4000.00 ug/kg	103
5) Acenaphthene-d10	12.44	164	560750	4000.00 ug/kg	98
11) Phenanthrene-d10	14.55	188	1453966	4000.00 ug/kg	97
17) Chrysene-d12	20.23	240	1815261	4000.00 ug/kg	113
20) Perylene-d12	25.34	264	1803474	4000.00 ug/kg	109
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.36	172	13644	71.00 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#	
16) 4-Terphenyl-d14	17.02	244	27230	65.81 ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.65%#	
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1885	~~13.01 ug/kg#~~	9
19) Chrysene	20.23	228	3932	~~10.73 ug/kg~~	71
23) Benzo(j)fluoranthene	23.77	252	26	0.07 ug/kg#	1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160727\16072719.D Vial: 17
Acq On : 27 Jul 2016 7:20 pm Operator: DEW
Sample : 1607239-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016 Quant Results File: PP160725.RES

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

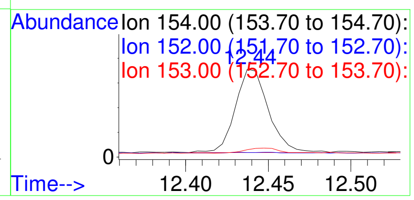


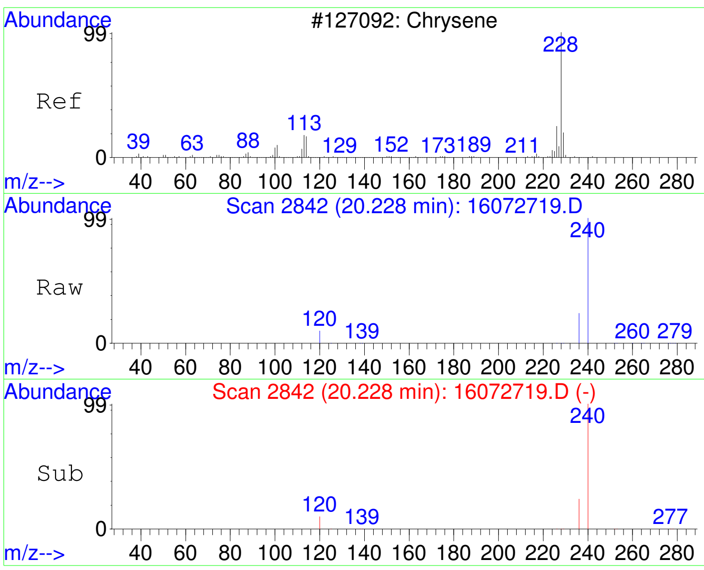


#9
Acenaphthene
Concen: 13.01 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072719.D
Acq: 27 Jul 2016 7:20 pm

Tgt Ion:154 Resp: 1885

Ion	Ratio	Lower	Upper
154	100		
152	0.7	20.4	80.4#
153	3.9	78.2	138.2#

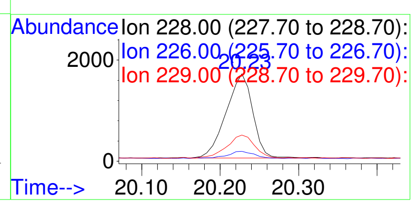


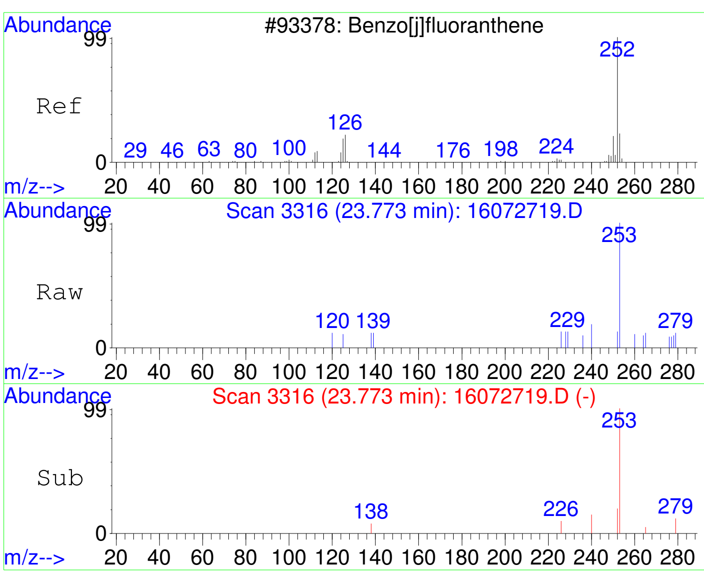


#19
Chrysene
Concen: 10.73 ug/kg
RT: 20.23 min Scan# 2842
Delta R.T. -0.10 min
Lab File: 16072719.D
Acq: 27 Jul 2016 7:20 pm

Tgt Ion:228 Resp: 3932

Ion	Ratio	Lower	Upper
228	100		
226	8.2	0.0	58.1
229	27.3	0.0	49.9

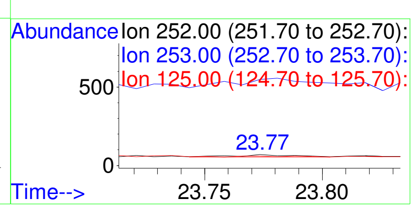




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 23.77 min Scan# 3316
Delta R.T. -0.03 min
Lab File: 16072719.D
Acq: 27 Jul 2016 7:20 pm

Tgt Ion:252 Resp: 26

Ion	Ratio	Lower	Upper
252	100		
253	407.7	2.1	42.1#
125	53.8	0.0	34.0#



Data File : C:\HPCHEM\1\DATA\160727\16072721.D Vial: 19
Acq On : 27 Jul 2016 8:35 pm Operator: DEW
Sample : ICV2-160727 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	950042	4000.00	ug/kg	106
5) Acenaphthene-d10	12.44	164	578049	4000.00	ug/kg	102
11) Phenanthrene-d10	14.55	188	1621258	4000.00	ug/kg	108
17) Chrysene-d12	20.23	240	1765173	4000.00	ug/kg	109
20) Perylene-d12	25.35	264	1807414	4000.00	ug/kg	109

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	375025	2002.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.07%		
16) 4-Terphenyl-d14	17.03	244	682502	1982.16	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	49.55%		

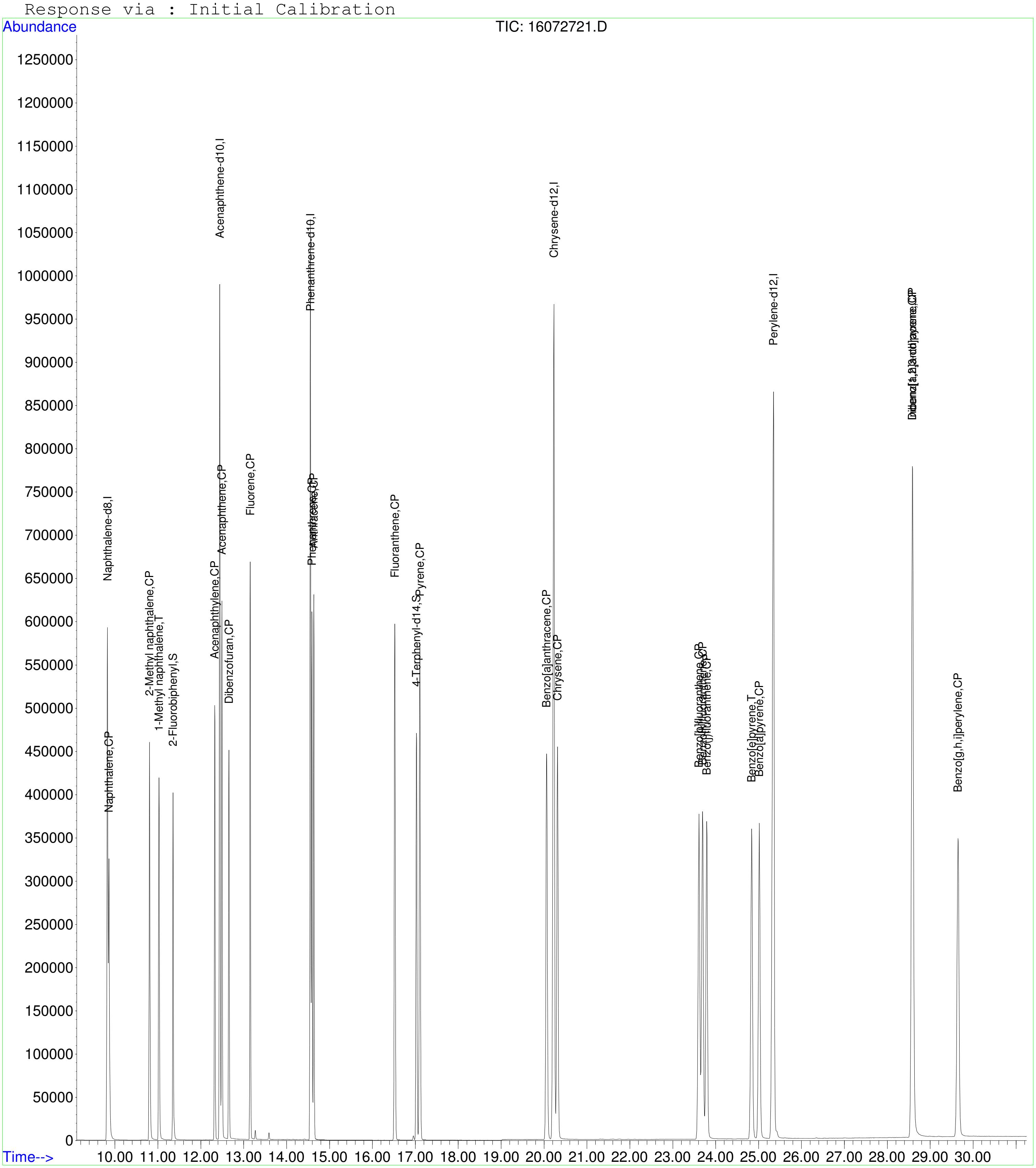
Target Compounds						Qvalue
2) Naphthalene	9.86	128	404149	1870.72	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	298636	1912.58	ug/kg	98
4) 1-Methyl naphthalene	11.02	142	272482	1897.20	ug/kg	96
6) Dibenzofuran	12.66	168	431185	1878.72	ug/kg	100
8) Acenaphthylene	12.32	152	492848	1959.43	ug/kg	99
9) Acenaphthene	12.49	154	289556	1938.20	ug/kg	97
10) Fluorene	13.15	166	367873	1970.67	ug/kg	99
12) Phenanthrene	14.59	178	557577	1817.44	ug/kg	100
13) Anthracene	14.63	178	578062	1840.63	ug/kg	100
14) Fluoranthene	16.52	202	691054	1832.02	ug/kg	100
15) Pyrene	17.10	202	695948	1791.54	ug/kg	100
18) Benzo[a]anthracene	20.06	228	747314	1974.58	ug/kg	100
19) Chrysene	20.31	228	681277	1911.30	ug/kg	99
21) Benzo[b]fluoranthene	23.61	252	796143	1927.72	ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	719006	1899.01	ug/kg	100
23) Benzo(j)fluoranthene	23.79	252	701421	1956.76	ug/kg	100
24) Benzo[e]pyrene	24.84	252	757408	1930.52	ug/kg	99
25) Benzo[a]pyrene	25.02	252	747904	1920.94	ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	785212	1945.98	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.59	276	929856	1918.79	ug/kg	99
28) Benzo[g,h,i]perylene	29.65	276	768681	2185.73	ug/kg	99

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072721.D          Vial: 19
Acq On    : 27 Jul 2016   8:35 pm                    Operator: DEW
Sample    : ICV2-160727                              Inst    : GC/MS #6
Misc      : ICV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016            Quant Results File: PP160725.RES

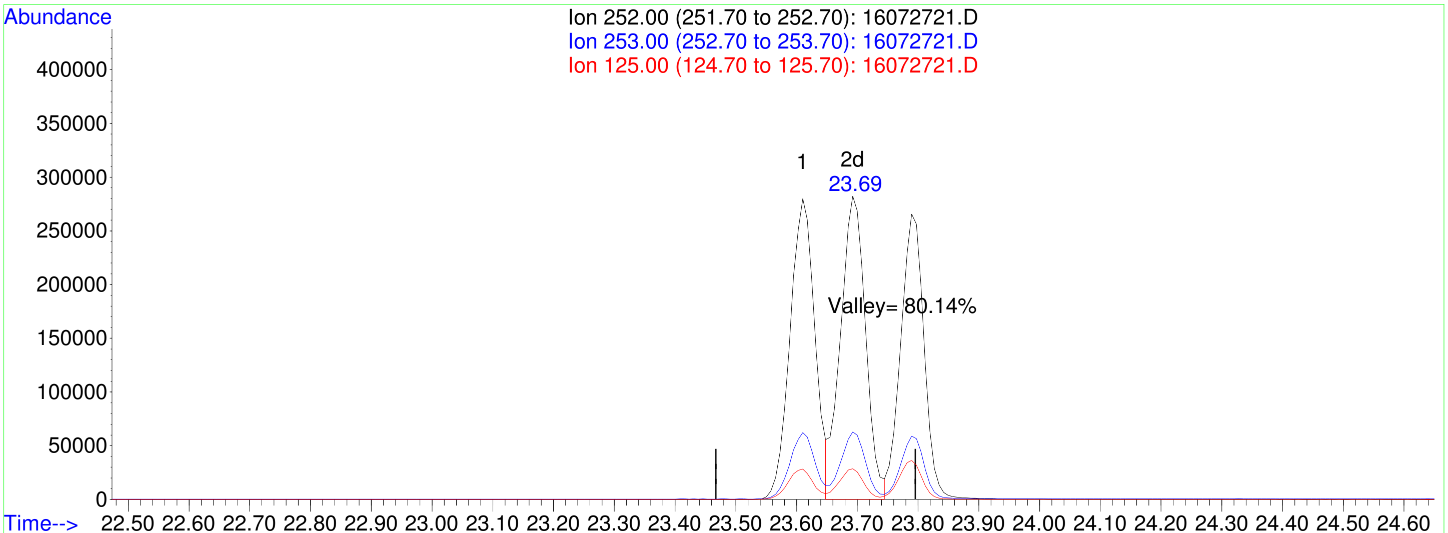
Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
```

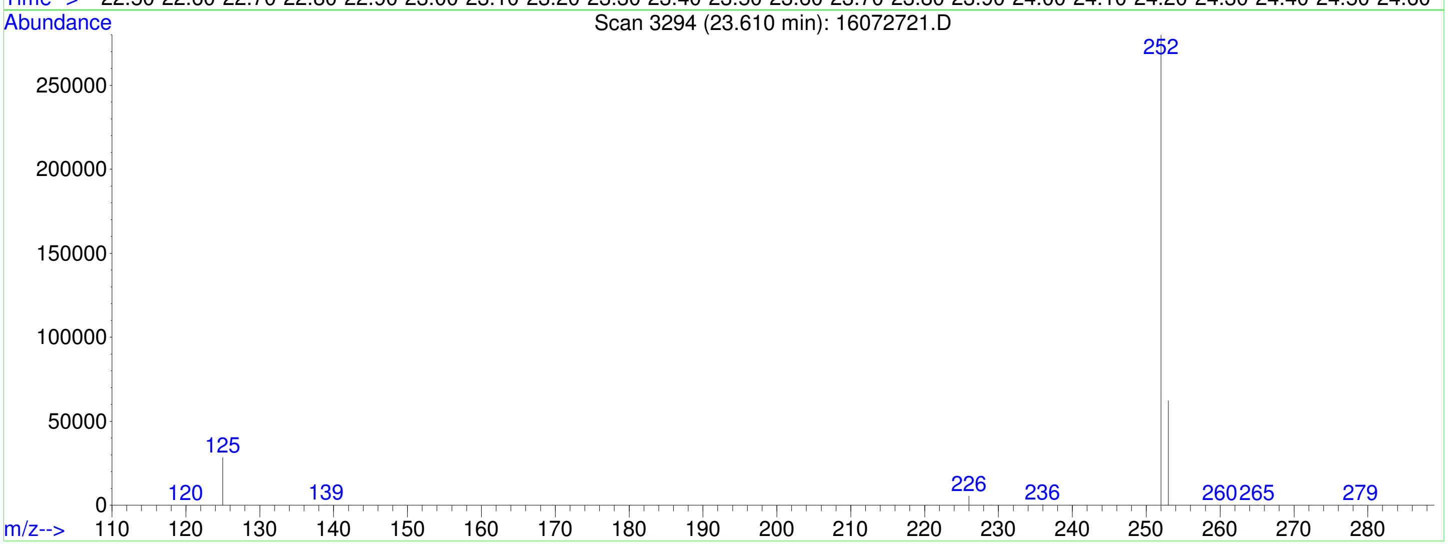


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160727\16072721.D          Vial: 19
Acq On    : 27 Jul 2016   8:35 pm                  Operator: DEW
Sample    : ICV2-160727                            Inst    : GC/MS #6
Misc      : ICV                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016               Quant Results File: temp.res

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





TIC: 16072721.D

(21) Benzo[b]fluoranthene (CP)

23.61min 1927.72ug/kg

response 796143

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.09
125.00	9.30	10.14
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072723.D Vial: 21
Acq On : 27 Jul 2016 9:49 pm Operator: DEW
Sample : SB-160727 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

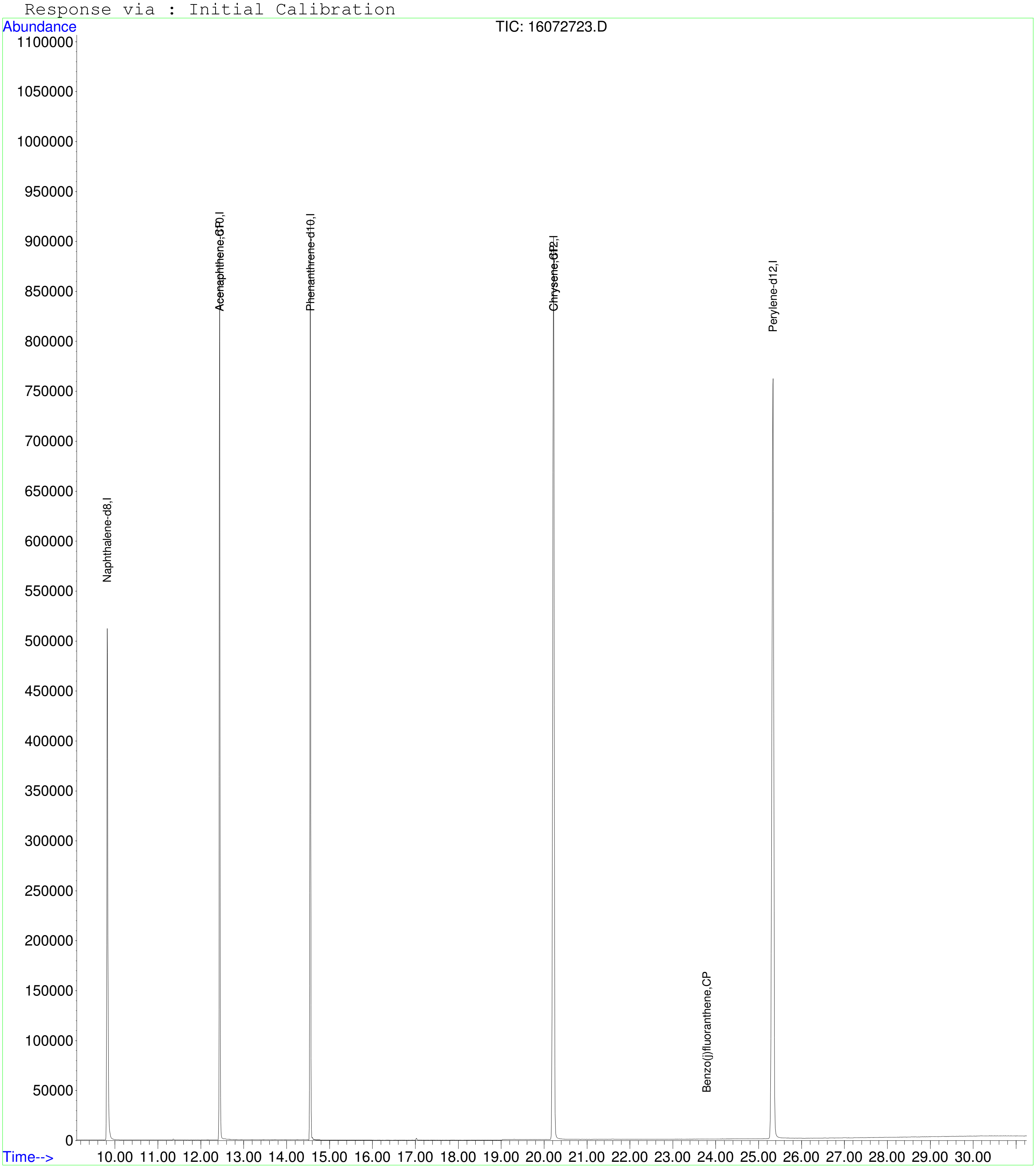
Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	846331	4000.00 ug/kg	95
5) Acenaphthene-d10	12.44	164	512805	4000.00 ug/kg	90
11) Phenanthrene-d10	14.55	188	1353012	4000.00 ug/kg	90
17) Chrysene-d12	20.22	240	1608750	4000.00 ug/kg	100
20) Perylene-d12	25.34	264	1607925	4000.00 ug/kg	97
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.36	172	1483	4.54 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.11%#	
16) 4-Terphenyl-d14	17.02	244	2880	-1.00 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	-0.03%#	
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1759	~~13.27 ug/kg#~~	9
19) Chrysene	20.22	228	3487	10.73 ug/kg	67
23) Benzo(j)fluoranthene	23.79	252	20	0.06 ug/kg#	1

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072723.D          Vial: 21
Acq On    : 27 Jul 2016   9:49 pm                   Operator: DEW
Sample    : SB-160727                               Inst    : GC/MS #6
Misc      : SBLK                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016             Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160727\16072724.D          Vial: 22
Acq On    : 27 Jul 2016  10:26 pm                   Operator: DEW
Sample    : 1607239-10A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:27 2016             Quant Results File: PP160725.RES

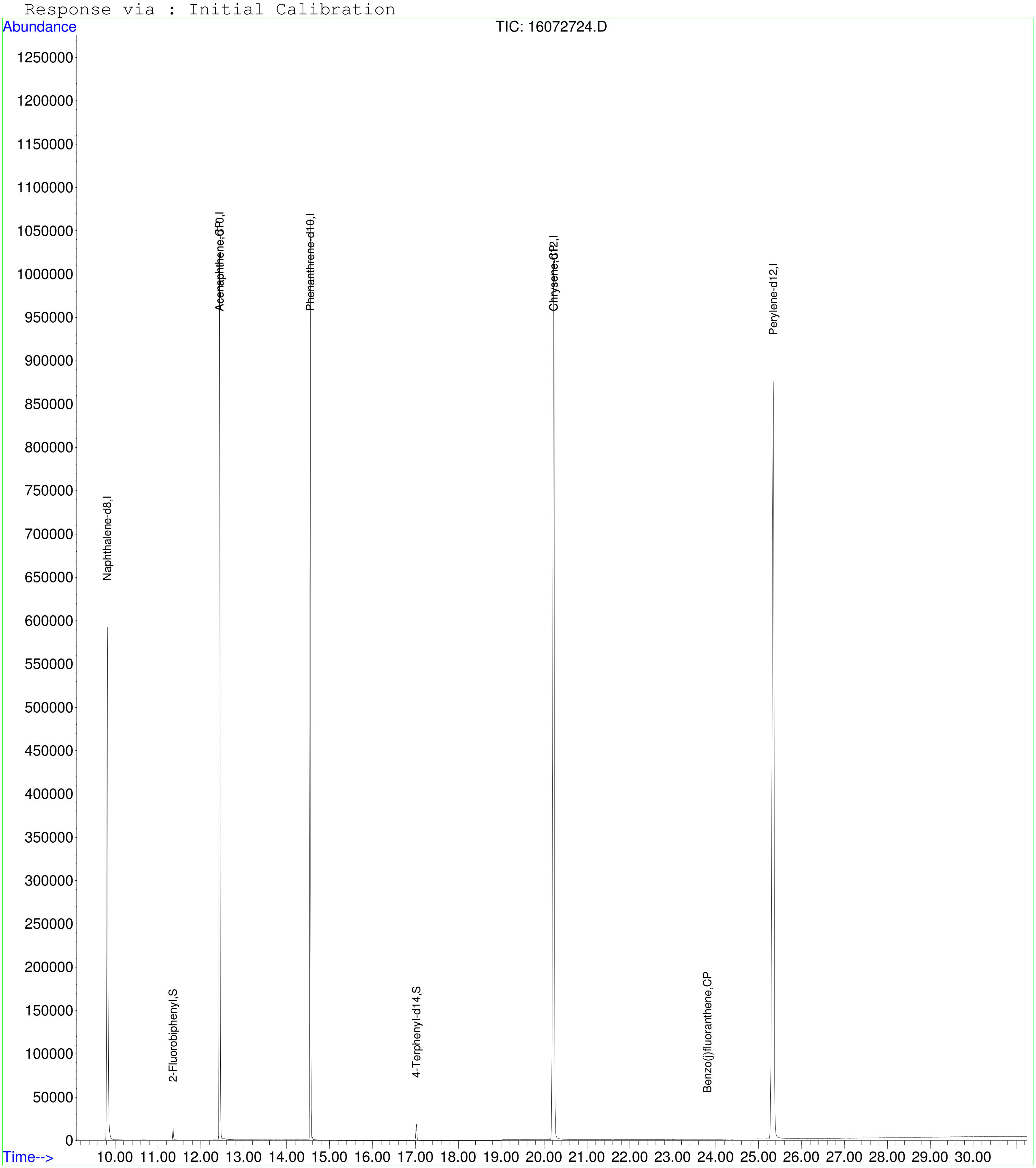
Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160725
```

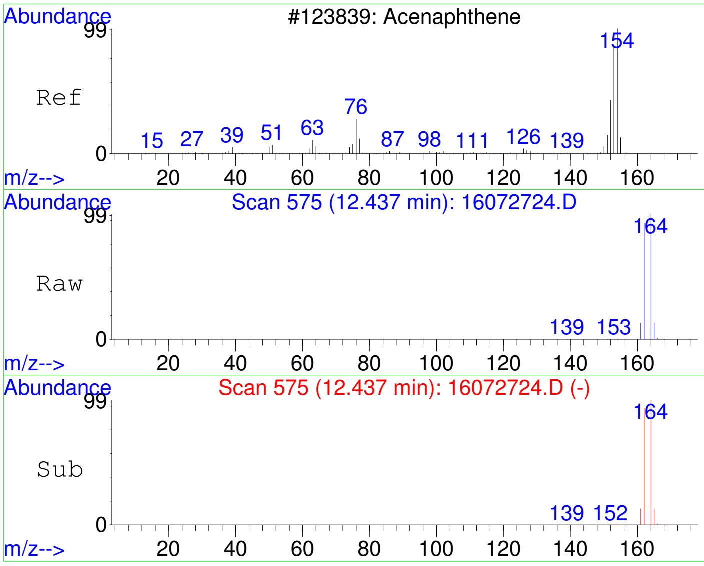
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	978948	4000.00 ug/kg	110
5) Acenaphthene-d10	12.44	164	603063	4000.00 ug/kg	106
11) Phenanthrene-d10	14.55	188	1578302	4000.00 ug/kg	105
17) Chrysene-d12	20.22	240	1858937	4000.00 ug/kg	115
20) Perylene-d12	25.34	264	1867571	4000.00 ug/kg	112
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.35	172	14824	71.77 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#	
16) 4-Terphenyl-d14	17.02	244	27080	58.48 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.46%#	
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	2087	~~13.39 ug/kg#~~	11
19) Chrysene	20.22	228	3918	~~10.44 ug/kg~~	71
23) Benzo(j)fluoranthene	23.80	252	50	0.13 ug/kg#	1

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

Data File : C:\HPCHEM\1\DATA\160727\16072724.D Vial: 22
Acq On : 27 Jul 2016 10:26 pm Operator: DEW
Sample : 1607239-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:27 2016 Quant Results File: PP160725.RES

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

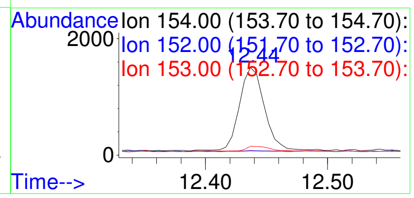


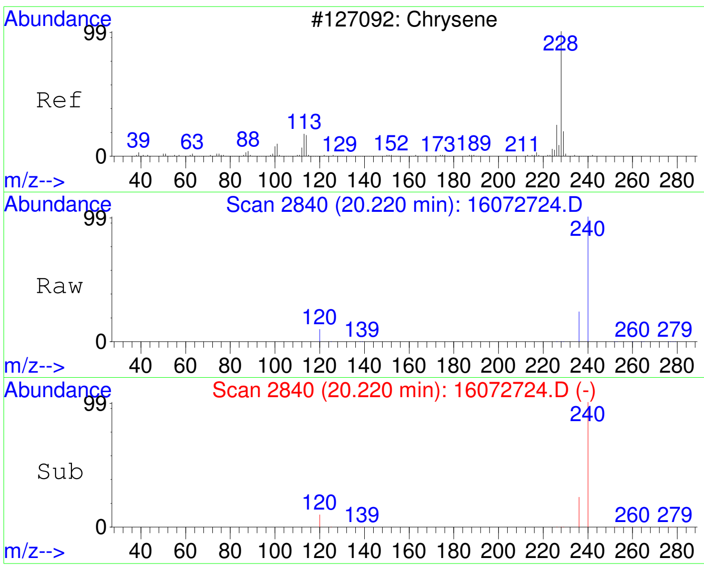


#9
Acenaphthene
Concen: 13.39 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072724.D
Acq: 27 Jul 2016 10:26 pm

Tgt Ion:154 Resp: 2087

Ion	Ratio	Lower	Upper
154	100		
152	1.1	20.4	80.4#
153	6.6	78.2	138.2#

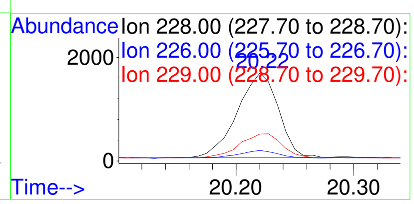


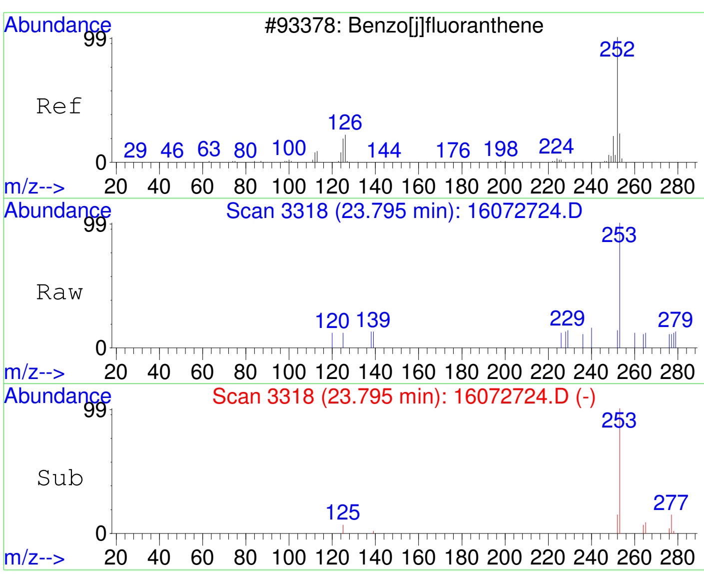


#19
Chrysene
Concen: 10.44 ug/kg
RT: 20.22 min Scan# 2840
Delta R.T. -0.11 min
Lab File: 16072724.D
Acq: 27 Jul 2016 10:26 pm

Tgt Ion:228 Resp: 3918

Ion	Ratio	Lower	Upper
228	100		
226	8.9	0.0	58.1
229	28.1	0.0	49.9

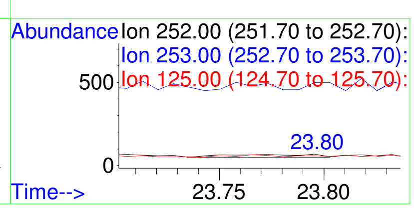




#23
Benzo(j)fluoranthene
Concen: 0.13 ug/kg
RT: 23.80 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072724.D
Acq: 27 Jul 2016 10:26 pm

Tgt Ion:252 Resp: 50

Ion	Ratio	Lower	Upper
252	100		
253	150.0	2.1	42.1#
125	27.8	0.0	34.0



Data File : C:\HPCHEM\1\DATA\160727\16072725.D Vial: 23
Acq On : 27 Jul 2016 11:03 pm Operator: DEW
Sample : 1607239-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:28 2016 Quant Results File: PP160725.RES

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

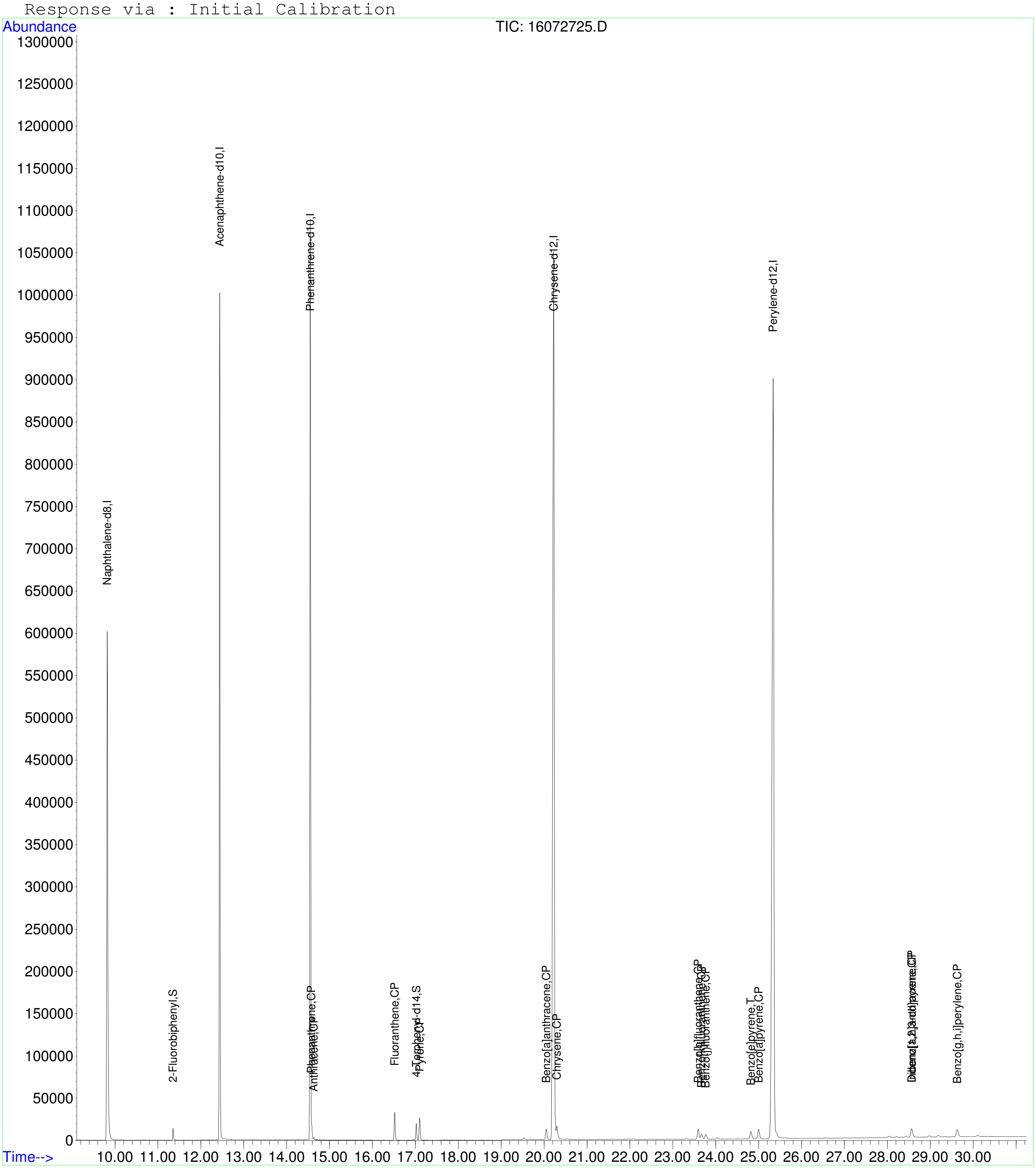
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	974368	4000.00	ug/kg	109
5) Acenaphthene-d10	12.44	164	588095	4000.00	ug/kg	103
11) Phenanthrene-d10	14.55	188	1628224	4000.00	ug/kg	108
17) Chrysene-d12	20.22	240	1882548	4000.00	ug/kg	117
20) Perylene-d12	25.34	264	1869451	4000.00	ug/kg	113
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	14406	71.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.02	244	27546	57.36	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.43%#		
Target Compounds						Qvalue
12) Phenanthrene	14.58	178	13802	44.80	ug/kg	98
13) Anthracene	14.63	178	2507	7.95	ug/kg	99
14) Fluoranthene	16.52	202	36607	96.63	ug/kg	99
15) Pyrene	17.10	202	32022	82.08	ug/kg	100
18) Benzo[a]anthracene	20.05	228	19619	48.61	ug/kg	99
19) Chrysene	20.30	228	24142	63.51	ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	25179	58.94	ug/kg	99
22) Benzo[k]fluoranthene	23.67	252	11483	29.32	ug/kg	96
23) Benzo(j)fluoranthene	23.77	252	11326	30.55	ug/kg	93
24) Benzo[e]pyrene	24.82	252	18720	46.13	ug/kg	99
25) Benzo[a]pyrene	25.00	252	24008	59.62	ug/kg	100
26) Dibenz[a,h]anthracene	28.56	278	4000	9.58	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.57	276	19338	38.58	ug/kg	93
28) Benzo[g,h,i]perylene	29.63	276	18734	51.50	ug/kg	97

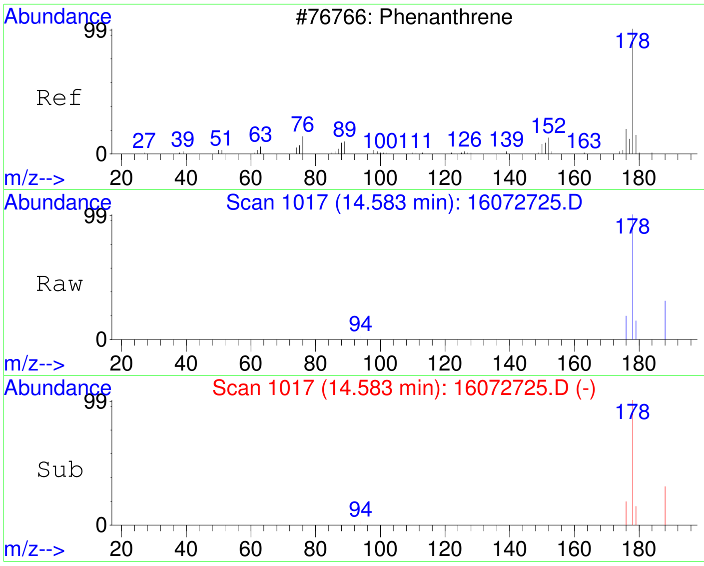
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072725.D          Vial: 23
Acq On    : 27 Jul 2016  11:03 pm                    Operator: DEW
Sample    : 1607239-11A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:28 2016             Quant Results File: PP160725.RES

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

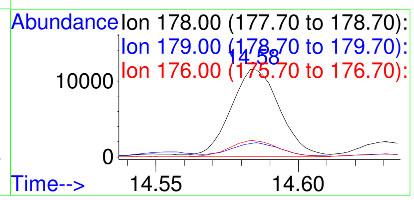


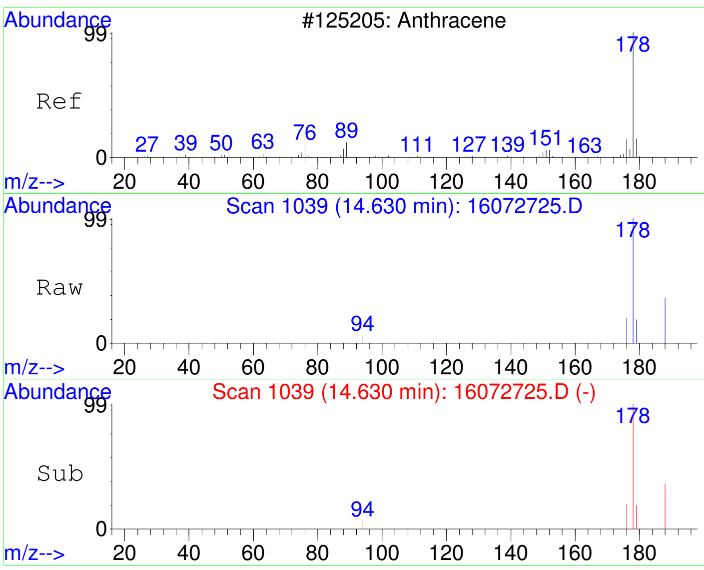


#12
Phenanthrene
Concen: 44.80 ug/kg
RT: 14.58 min Scan# 1017
Delta R.T. -0.01 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:178 Resp: 13802

Ion	Ratio	Lower	Upper
178	100		
179	14.4	0.0	45.7
176	18.7	0.0	48.4

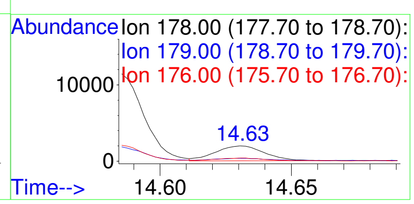


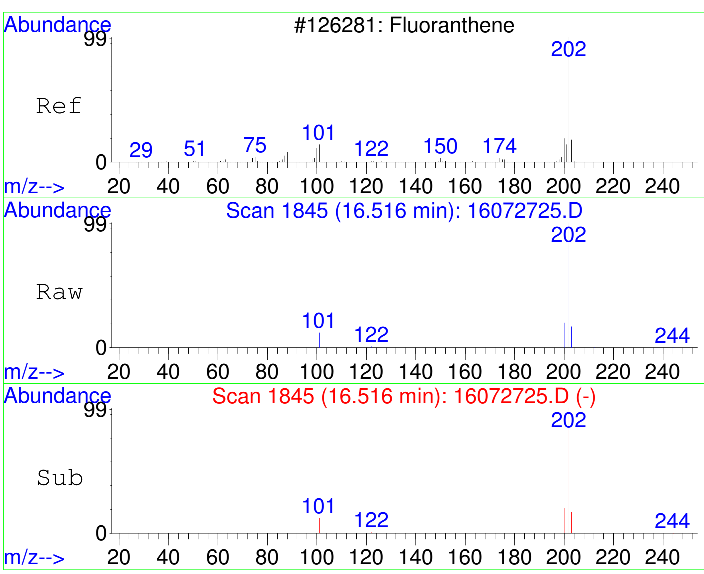


#13
Anthracene
Concen: 7.95 ug/kg
RT: 14.63 min Scan# 1039
Delta R.T. -0.01 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:178 Resp: 2507

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.8
176	17.9	0.0	48.0

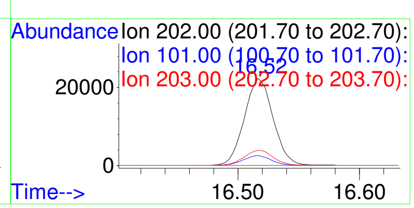


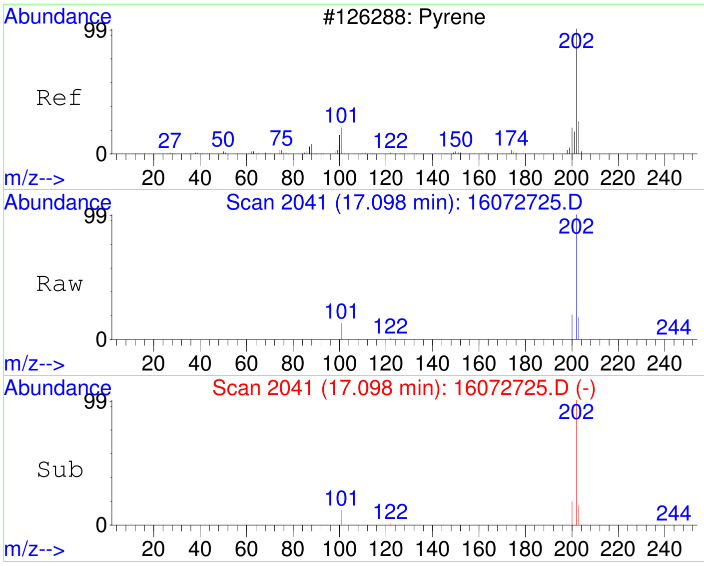


#14
Fluoranthene
Concen: 96.63 ug/kg
RT: 16.52 min Scan# 1845
Delta R.T. -0.01 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:202 Resp: 36607

Ion	Ratio	Lower	Upper
202	100		
101	11.6	0.0	41.4
203	17.1	0.0	47.7

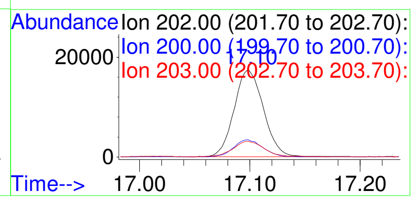


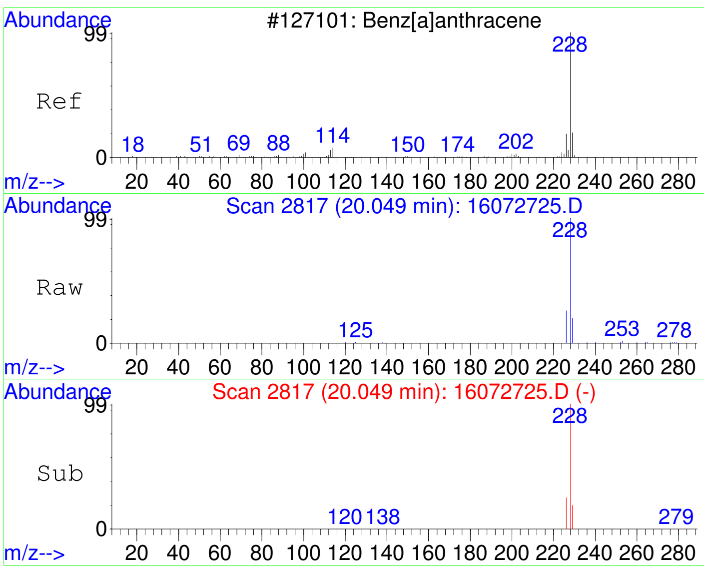


#15
Pyrene
Concen: 82.08 ug/kg
RT: 17.10 min Scan# 2041
Delta R.T. -0.02 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:202 Resp: 32022

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	49.7
203	17.6	0.0	47.6

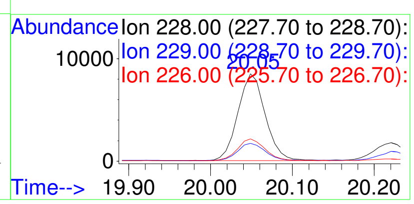


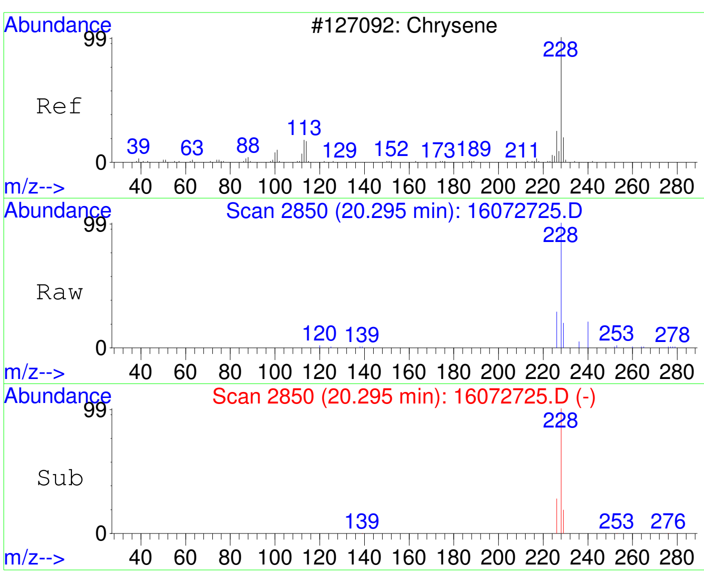


#18
Benzo[a]anthracene
Concen: 48.61 ug/kg
RT: 20.05 min Scan# 2817
Delta R.T. -0.02 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:228 Resp: 19619

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	49.9
226	25.2	0.0	55.9

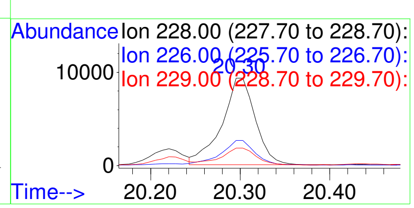


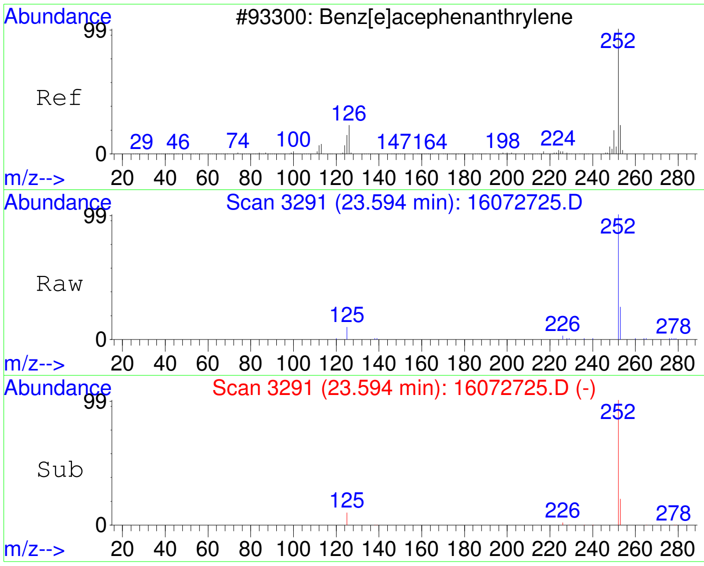


#19
Chrysene
Concen: 63.51 ug/kg
RT: 20.30 min Scan# 2850
Delta R.T. -0.03 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:228 Resp: 24142

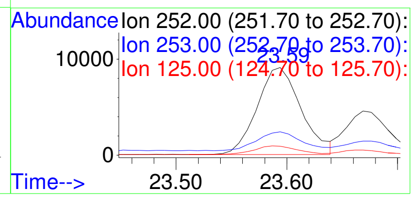
Ion	Ratio	Lower	Upper
228	100		
226	28.1	0.0	58.1
229	19.5	0.0	49.9

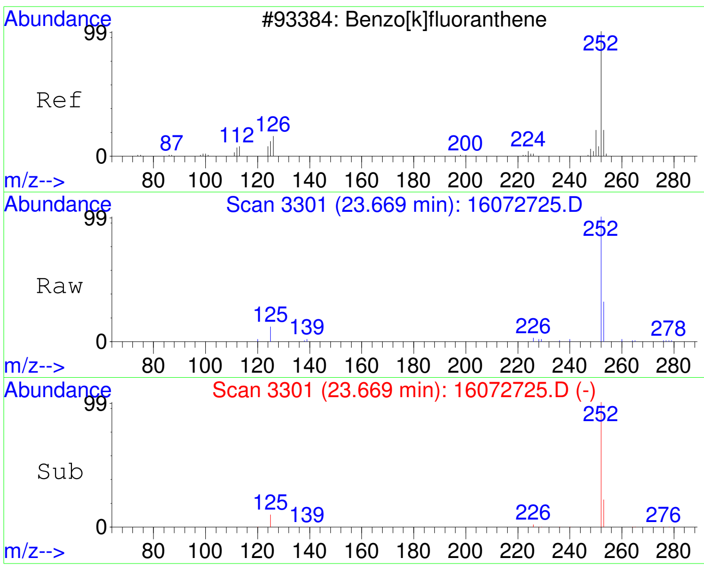




#21
Benzo[b]fluoranthene
Concen: 58.94 ug/kg
RT: 23.59 min Scan# 3291
Delta R.T. -0.04 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

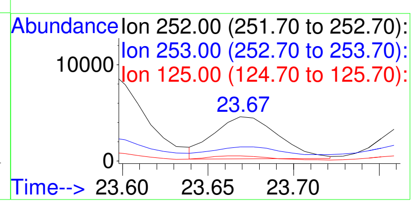
Tgt	Ion:252	Resp:	25179
Ion	Ratio	Lower	Upper
252	100		
253	21.3	0.0	52.1
125	9.5	0.0	39.3

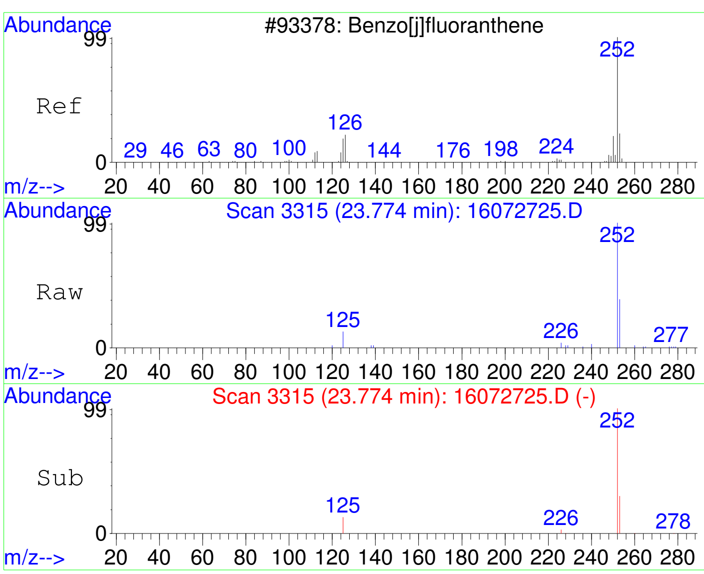




#22
Benzo[k]fluoranthene
Concen: 29.32 ug/kg
RT: 23.67 min Scan# 3301
Delta R.T. -0.04 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

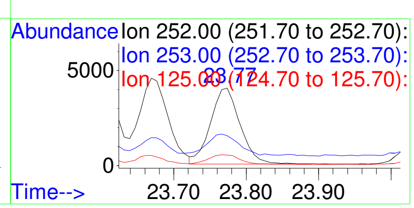
Tgt	Ion:252	Resp:	11483
Ion	Ratio	Lower	Upper
252	100		
253	19.6	2.2	42.2
125	10.4	0.0	30.0

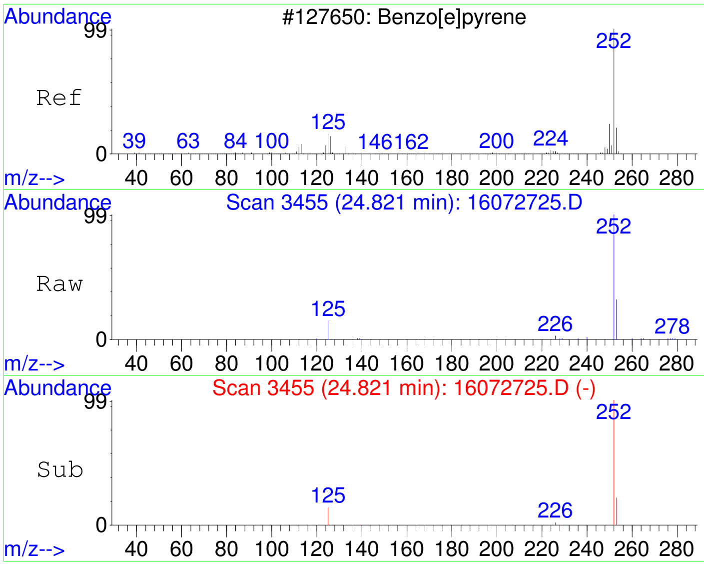




#23
Benzo(j)fluoranthene
Concen: 30.55 ug/kg
RT: 23.77 min Scan# 3315
Delta R.T. -0.03 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt	Ion:252	Resp:	11326
Ion	Ratio	Lower	Upper
252	100		
253	26.0	2.1	42.1
125	12.0	0.0	34.0

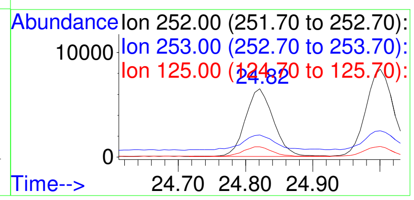


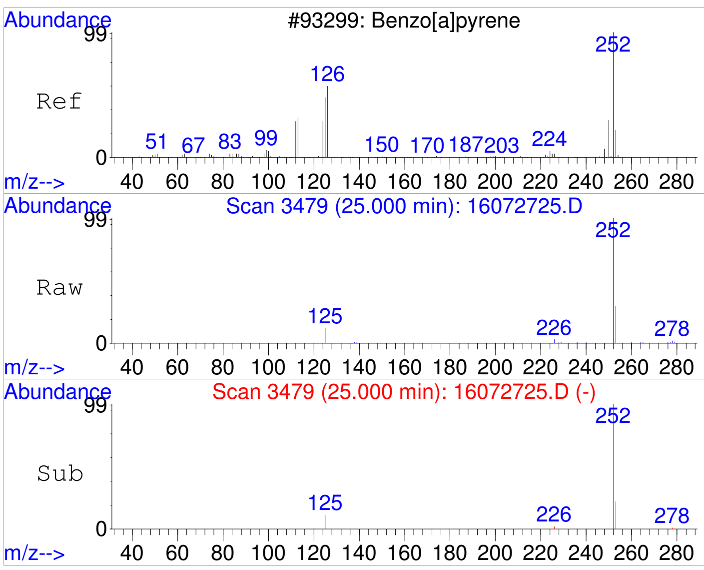


#24
Benzo[e]pyrene
Concen: 46.13 ug/kg
RT: 24.82 min Scan# 3455
Delta R.T. -0.04 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:252 Resp: 18720

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.1	42.1
125	14.1	0.0	33.9

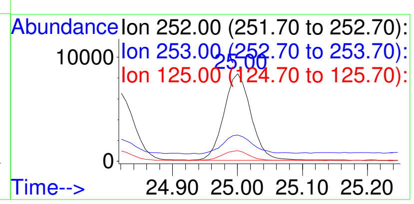


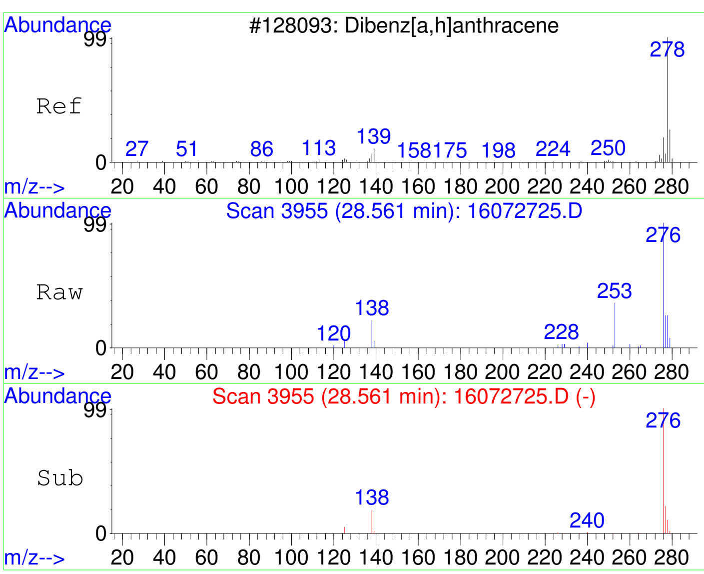


#25
Benzo[a]pyrene
Concen: 59.62 ug/kg
RT: 25.00 min Scan# 3479
Delta R.T. -0.03 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:252 Resp: 24008

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.8	41.8
125	11.4	0.0	31.6

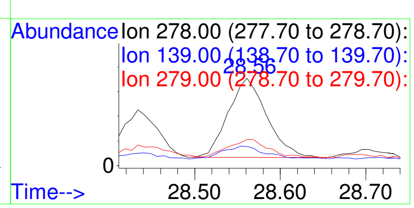


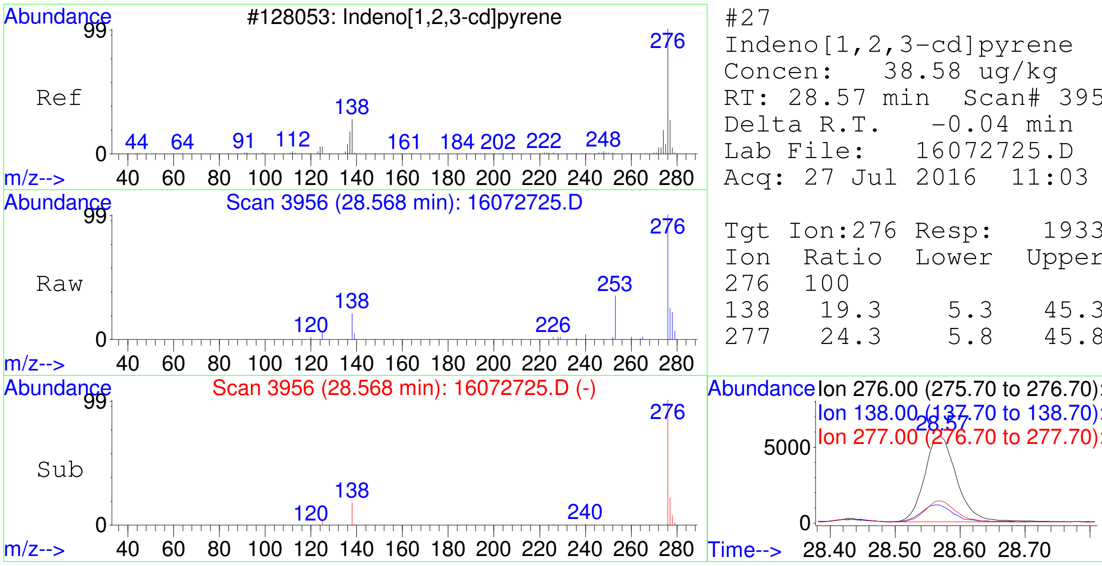


#26
Dibenz[a,h]anthracene
Concen: 9.58 ug/kg
RT: 28.56 min Scan# 3955
Delta R.T. -0.05 min
Lab File: 16072725.D
Acq: 27 Jul 2016 11:03 pm

Tgt Ion:278 Resp: 4000

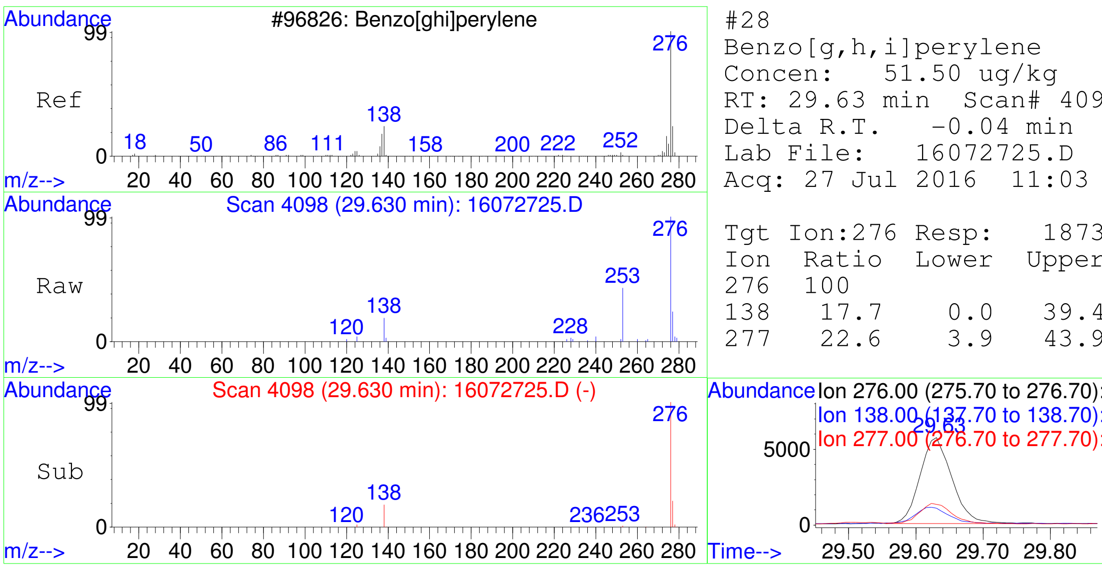
Ion	Ratio	Lower	Upper
278	100		
139	15.7	0.0	34.3
279	21.8	3.9	43.9






```
#27
Indeno[1,2,3-cd]pyrene
Concen:    38.58 ug/kg
RT: 28.57 min   Scan# 3956
Delta R.T.    -0.04 min
Lab File:    16072725.D
Acq: 27 Jul 2016   11:03 pm

Tgt Ion:276 Resp:   19338
Ion  Ratio  Lower  Upper
276  100
138   19.3    5.3   45.3
277   24.3    5.8   45.8
```




```
#28
Benzo[g,h,i]perylene
Concen:    51.50 ug/kg
RT: 29.63 min   Scan# 4098
Delta R.T.    -0.04 min
Lab File:    16072725.D
Acq: 27 Jul 2016   11:03 pm

Tgt Ion:276 Resp:   18734
Ion  Ratio  Lower  Upper
276  100
138   17.7    0.0   39.4
277   22.6    3.9   43.9
```

Quantitation Report   (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160727\16072726.D          Vial: 24
Acq On    : 27 Jul 2016  11:40 pm                    Operator: DEW
Sample    : 1607239-12A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:28 2016           Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	938359	4000.00	ug/kg	105
5) Acenaphthene-d10	12.44	164	560592	4000.00	ug/kg	98
11) Phenanthrene-d10	14.55	188	1487051	4000.00	ug/kg	99
17) Chrysene-d12	20.22	240	1786994	4000.00	ug/kg	111
20) Perylene-d12	25.34	264	1801928	4000.00	ug/kg	109

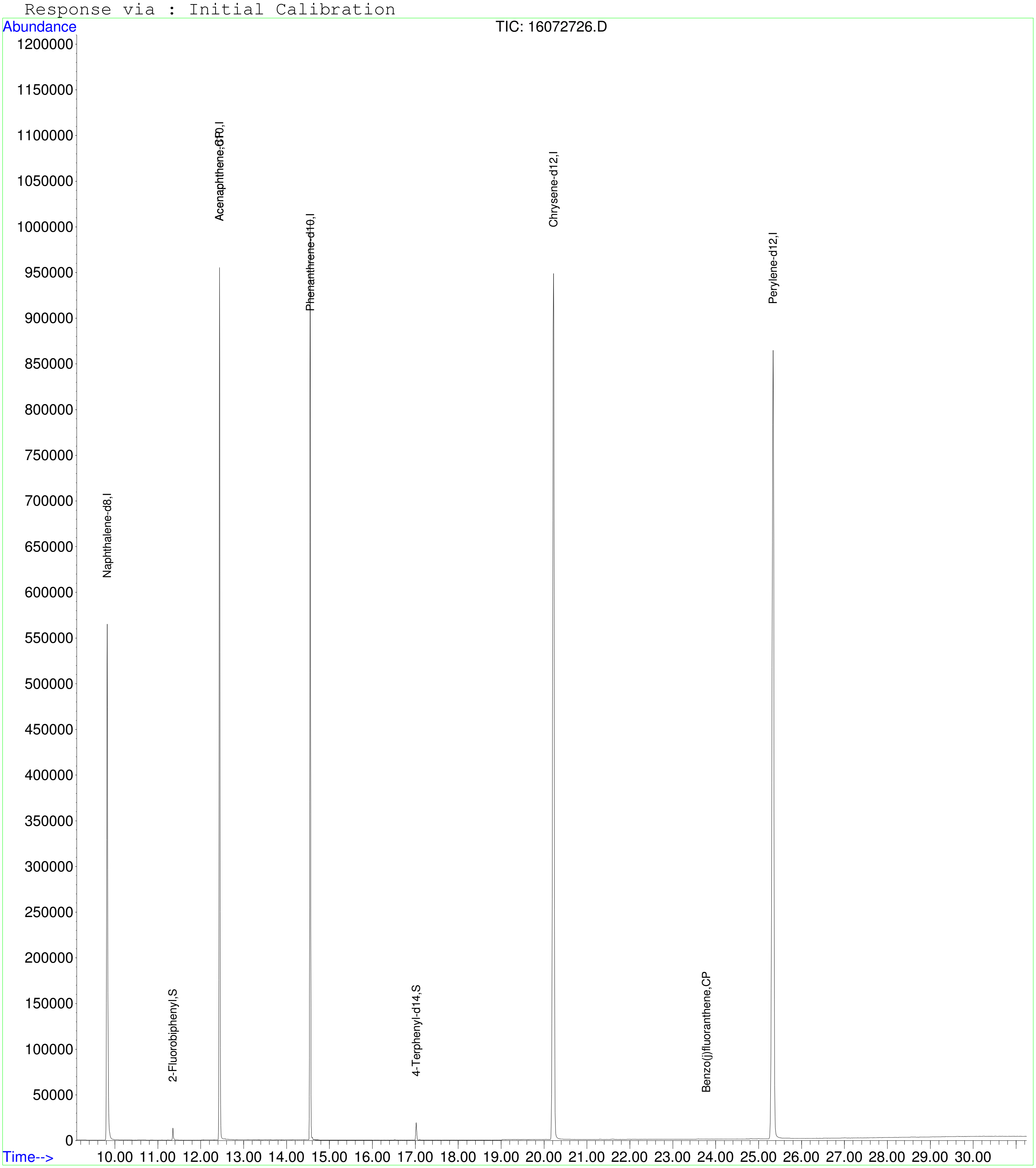
System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
7) 2-Fluorobiphenyl	11.35	172	14275	74.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
16) 4-Terphenyl-d14	17.02	244	26935	62.94	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.57%#		

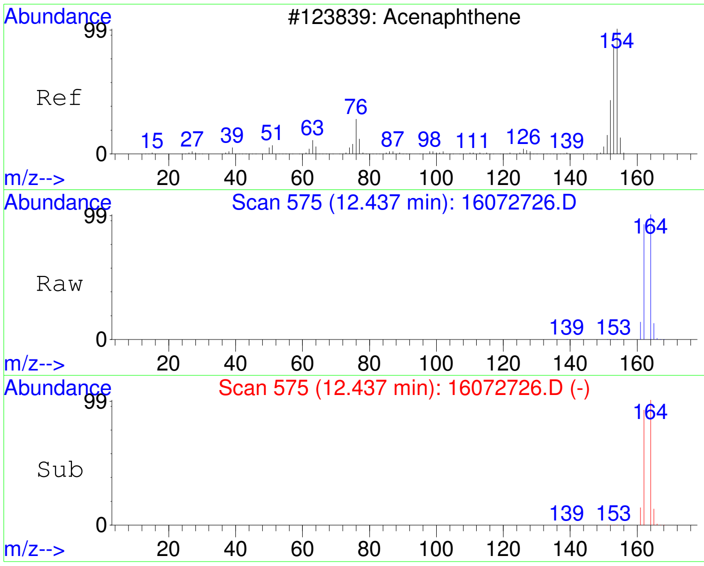
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
9) Acenaphthene	12.44	154	1918	~~13.24~~	~~ug/kg#~~	10
23) Benzo(j)fluoranthene	23.77	252	304	0.85	ug/kg#	64

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072726.D          Vial: 24
Acq On    : 27 Jul 2016  11:40 pm                   Operator: DEW
Sample    : 1607239-12A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:28 2016            Quant Results File: PP160725.RES

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

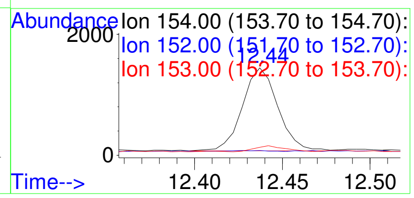


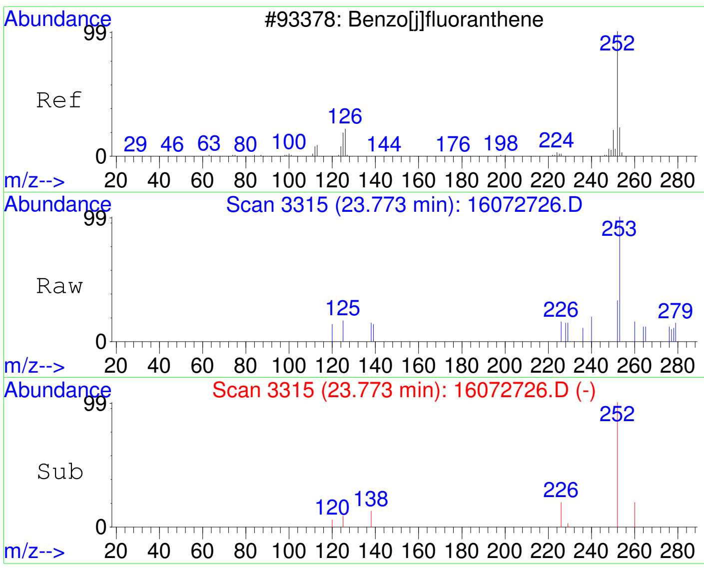


#9
Acenaphthene
Concen: 13.24 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072726.D
Acq: 27 Jul 2016 11:40 pm

Tgt Ion:154 Resp: 1918

Ion	Ratio	Lower	Upper
154	100		
152	0.9	20.4	80.4#
153	5.7	78.2	138.2#

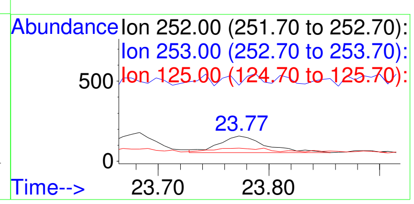




#23
Benzo(j)fluoranthene
Concen: 0.85 ug/kg
RT: 23.77 min Scan# 3315
Delta R.T. -0.03 min
Lab File: 16072726.D
Acq: 27 Jul 2016 11:40 pm

Tgt Ion:252 Resp: 304

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	22.1	0.0	34.0



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160727\16072727.D          Vial: 25
Acq On    : 28 Jul 2016  12:17 am                    Operator: DEW
Sample    : 1607239-13A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:28 2016            Quant Results File: PP160725.RES

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

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
 ---------------------------------------------------------------------------
   1) Naphthalene-d8                 9.82  136  1000676   4000.00 ug/kg  112
   5) Acenaphthene-d10              12.44  164   643420   4000.00 ug/kg  113
  11) Phenanthrene-d10              14.55  188  1672003   4000.00 ug/kg  111
  17) Chrysene-d12                  20.22  240  1930378   4000.00 ug/kg  120
  20) Perylene-d12                  25.34  264  1902321   4000.00 ug/kg  115

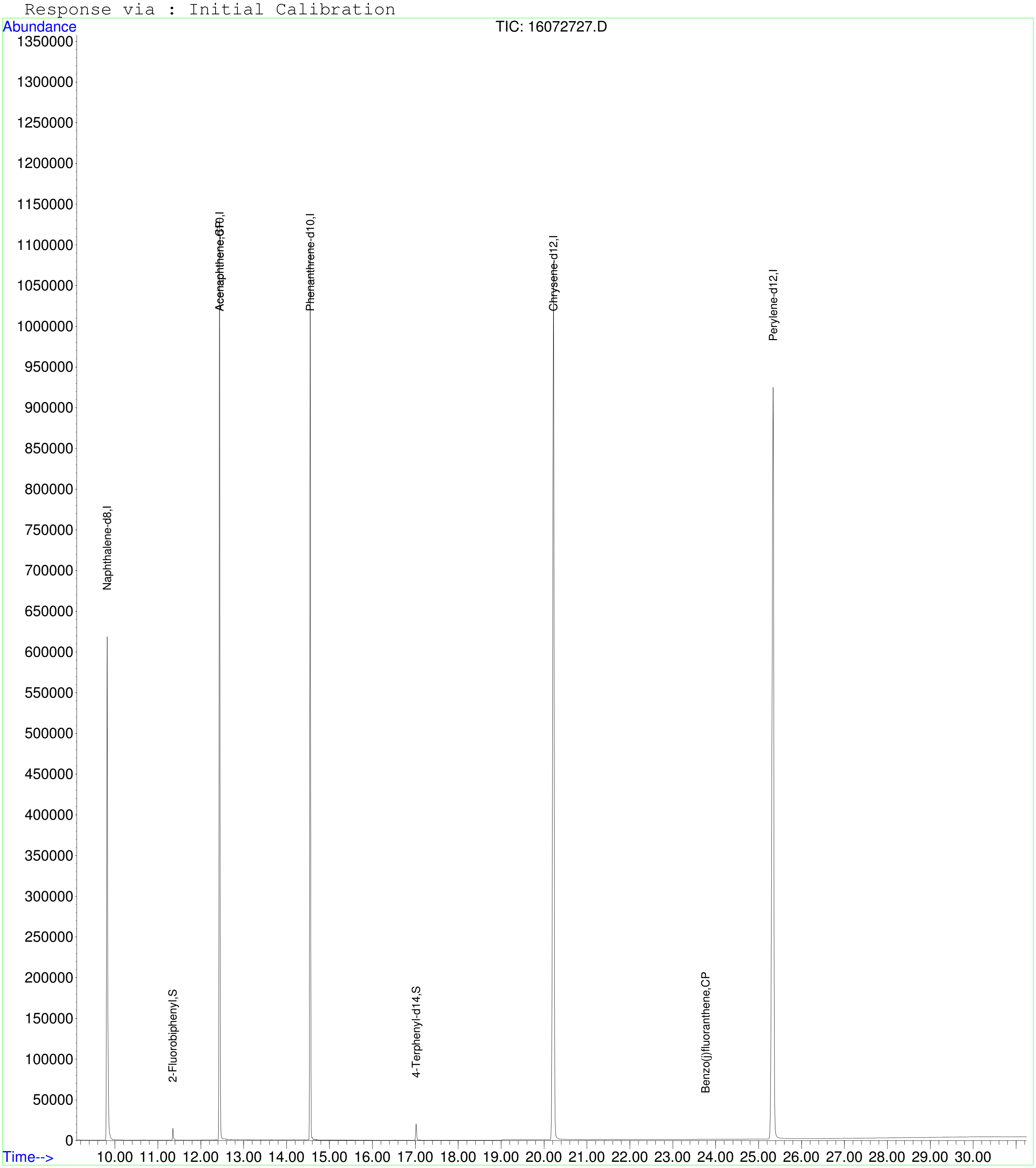
 System Monitoring Compounds
   7) 2-Fluorobiphenyl              11.35  172    15646    70.95 ug/kg  -0.01
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.77%#
  16) 4-Terphenyl-d14               17.02  244    28449    57.81 ug/kg  -0.02
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.45%#

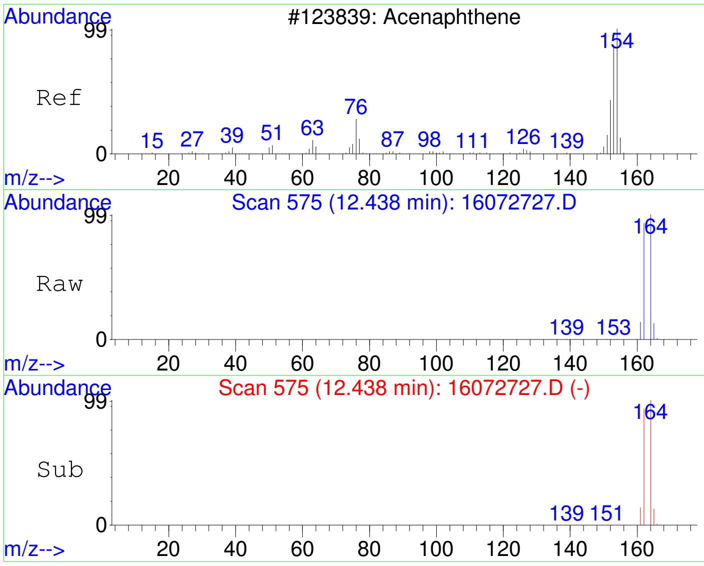
 Target Compounds                                                   Qvalue
   9) Acenaphthene                  12.44  154     2192    13.18 ug/kg#     9
  23) Benzo(j)fluoranthene          23.77  252      109     0.29 ug/kg#    68
```

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072727.D          Vial: 25
Acq On    : 28 Jul 2016  12:17 am                   Operator: DEW
Sample    : 1607239-13A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:28 2016             Quant Results File: PP160725.RES

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

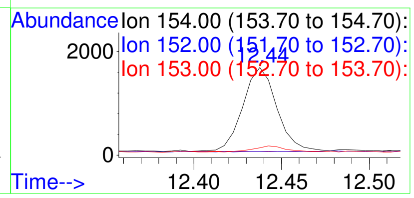


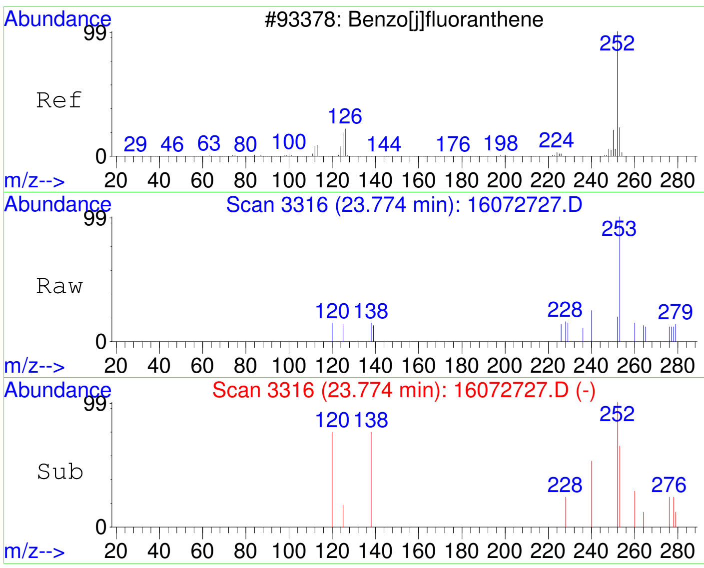


#9
Acenaphthene
Concen: 13.18 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072727.D
Acq: 28 Jul 2016 12:17 am

Tgt Ion:154 Resp: 2192

Ion	Ratio	Lower	Upper
154	100		
152	0.2	20.4	80.4#
153	4.0	78.2	138.2#

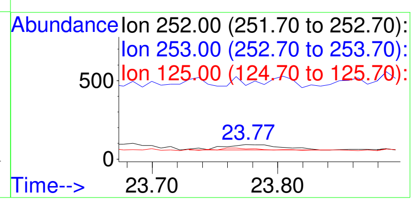




#23
Benzo(j)fluoranthene
Concen: 0.29 ug/kg
RT: 23.77 min Scan# 3316
Delta R.T. -0.03 min
Lab File: 16072727.D
Acq: 28 Jul 2016 12:17 am

Tgt Ion:252 Resp: 109

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	18.2	0.0	34.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072728.D Vial: 26
Acq On : 28 Jul 2016 12:54 am Operator: DEW
Sample : 1607239-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:28 2016 Quant Results File: PP160725.RES

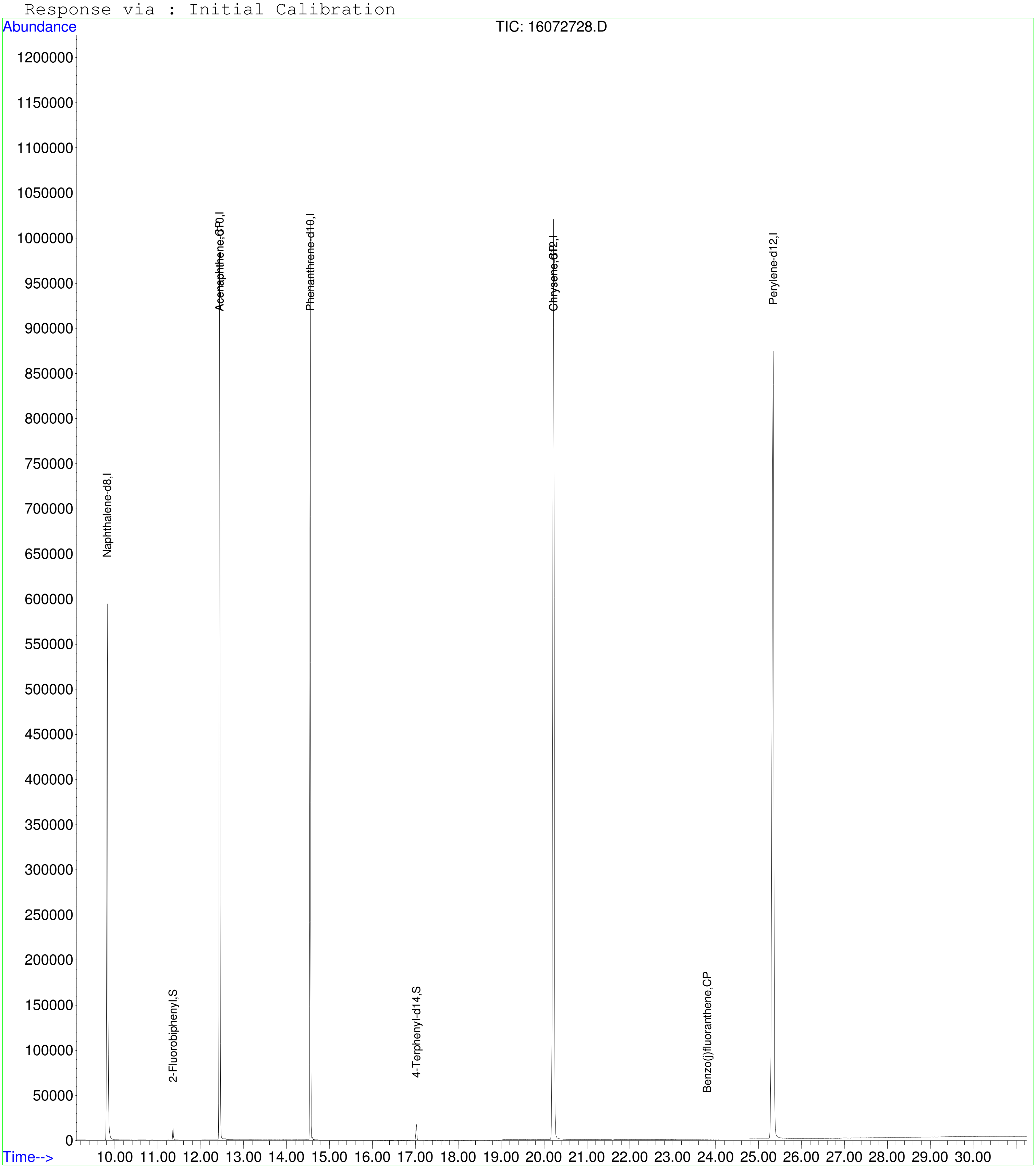
Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jul 26 08:46:04 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

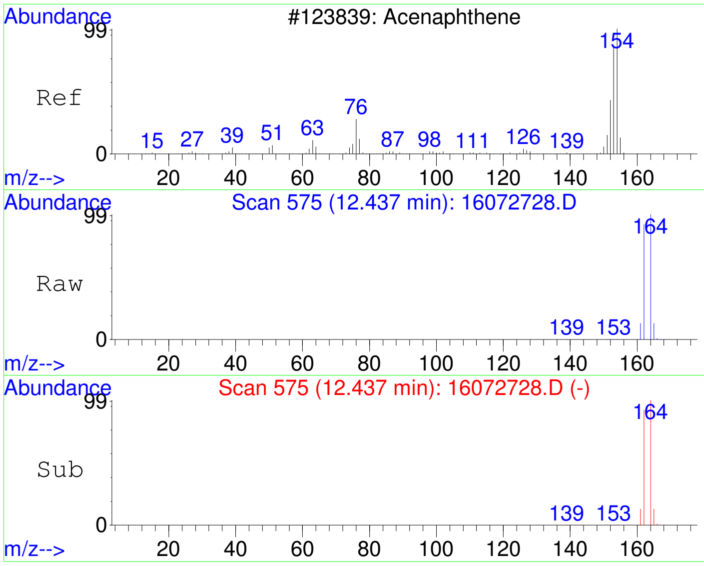
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	951989	4000.00 ug/kg	107
5) Acenaphthene-d10	12.44	164	573669	4000.00 ug/kg	101
11) Phenanthrene-d10	14.55	188	1504098	4000.00 ug/kg	100
17) Chrysene-d12	20.22	240	1837450	4000.00 ug/kg	114
20) Perylene-d12	25.34	264	1828723	4000.00 ug/kg	110
System Monitoring Compounds					
7) 2-Fluorobiphenyl	11.35	172	13589	69.00 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#	
16) 4-Terphenyl-d14	17.02	244	25978	59.01 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.48%#	
Target Compounds					Qvalue
9) Acenaphthene	12.44	154	1924	~~12.98 ug/kg#~~	11
19) Chrysene	20.22	228	3986	~~10.74 ug/kg~~	74
23) Benzo(j)fluoranthene	23.81	252	20	0.06 ug/kg#	1

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

Data File : C:\HPCHEM\1\DATA\160727\16072728.D Vial: 26
Acq On : 28 Jul 2016 12:54 am Operator: DEW
Sample : 1607239-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:28 2016 Quant Results File: PP160725.RES

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

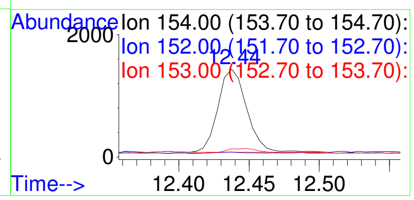


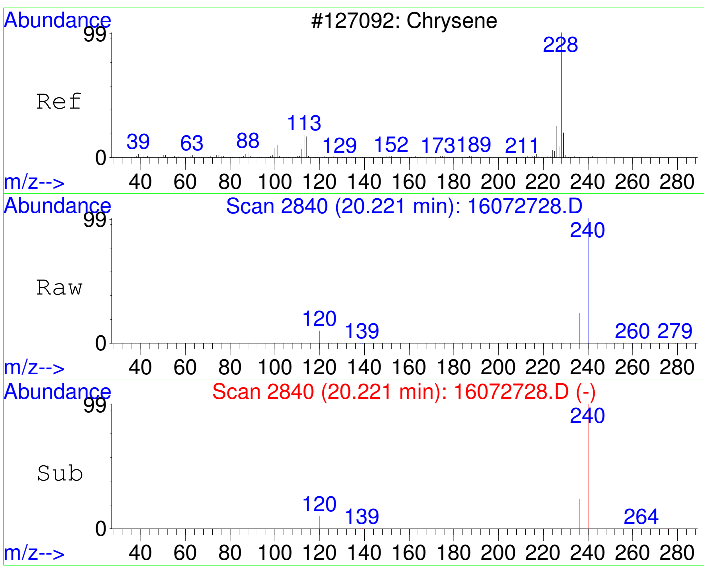


#9
Acenaphthene
Concen: 12.98 ug/kg
RT: 12.44 min   Scan# 575
Delta R.T.   -0.06 min
Lab File: 16072728.D
Acq: 28 Jul 2016   12:54 am

Tgt Ion:154 Resp: 1924

Ion	Ratio	Lower	Upper
154	100		
152	1.7	20.4	80.4#
153	5.7	78.2	138.2#

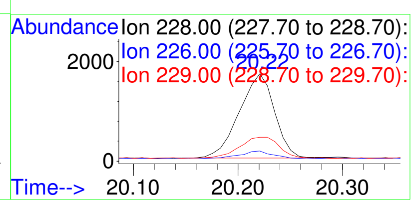


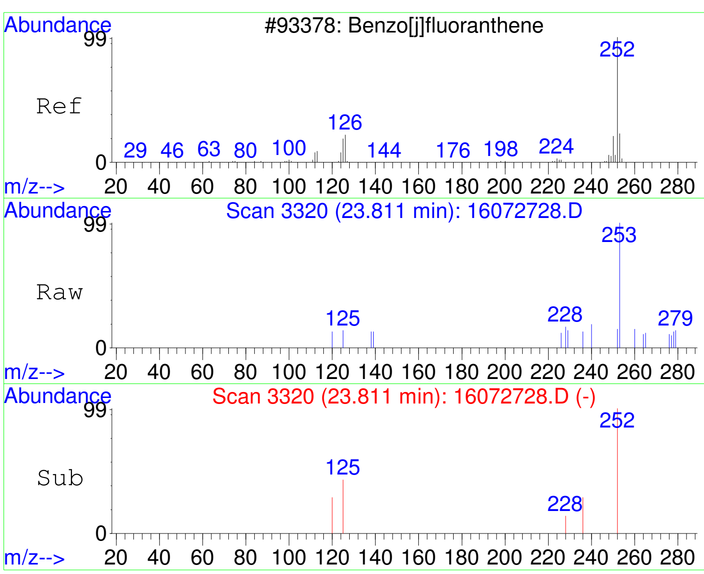


#19
Chrysene
Concen: 10.74 ug/kg
RT: 20.22 min   Scan# 2840
Delta R.T.   -0.11 min
Lab File: 16072728.D
Acq: 28 Jul 2016   12:54 am

Tgt Ion:228 Resp: 3986

Ion	Ratio	Lower	Upper
228	100		
226	8.6	0.0	58.1
229	24.8	0.0	49.9

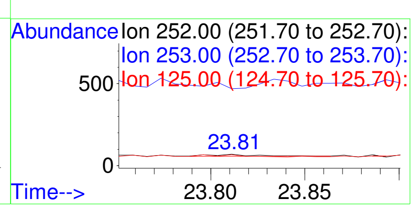




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 23.81 min   Scan# 3320
Delta R.T.   0.01 min
Lab File: 16072728.D
Acq: 28 Jul 2016   12:54 am

Tgt Ion:252 Resp: 20

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	90.9	0.0	34.0#



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160727\16072729.D          Vial: 27
Acq On    : 28 Jul 2016   1:31 am                   Operator: DEW
Sample    : 1607239-15A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:29 2016            Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	982939	4000.00 ug/kg	110
5) Acenaphthene-d10	12.44	164	597789	4000.00 ug/kg	105
11) Phenanthrene-d10	14.55	188	1556170	4000.00 ug/kg	104
17) Chrysene-d12	20.22	240	1840646	4000.00 ug/kg	114
20) Perylene-d12	25.34	264	1844272	4000.00 ug/kg	111

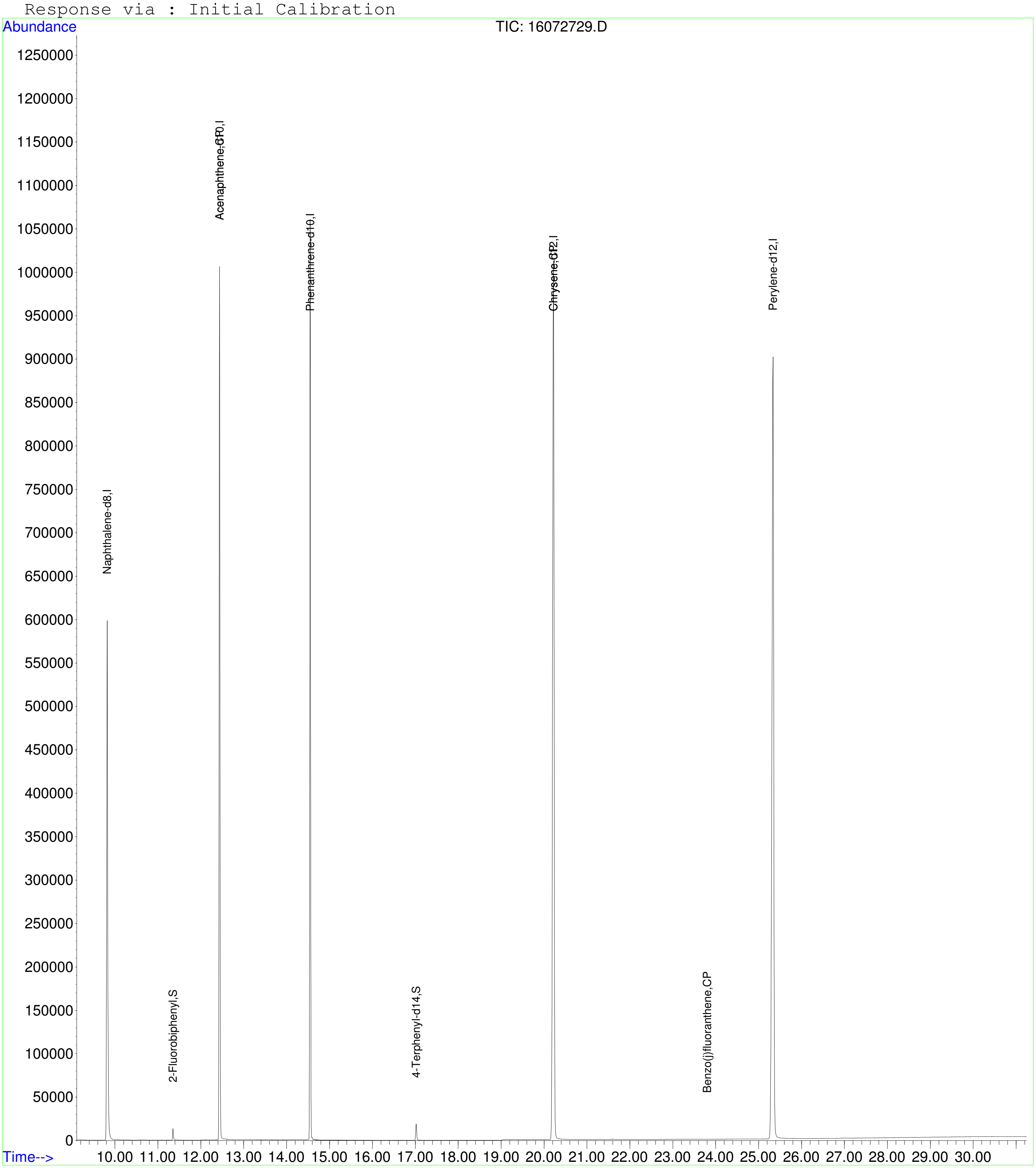
System Monitoring Compounds

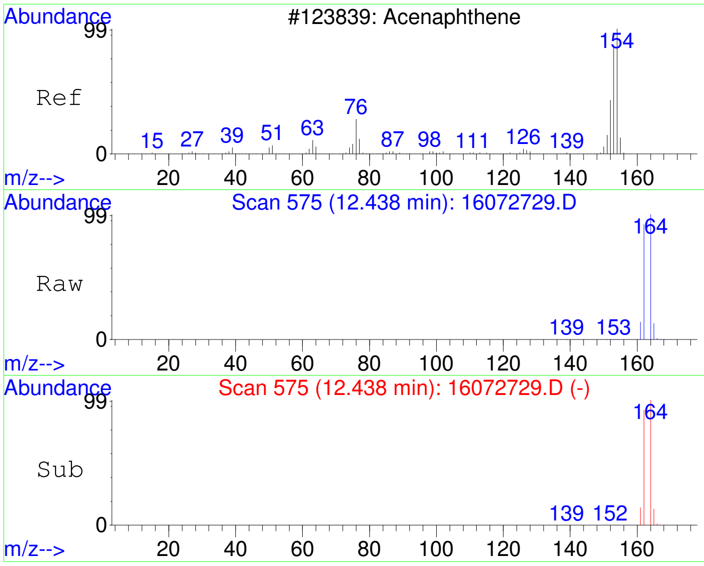
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	11.35	172	14418	70.34 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.76%#		
16) 4-Terphenyl-d14	17.02	244	26703	58.49 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.46%#		

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
9) Acenaphthene	12.44	154	1990	~~12.88 ug/kg#~~	9
19) Chrysene	20.22	228	3978	~~10.70 ug/kg~~	72
23) Benzo(j)fluoranthene	23.80	252	15	0.04 ug/kg#	66

Data File : C:\HPCHEM\1\DATA\160727\16072729.D Vial: 27
Acq On : 28 Jul 2016 1:31 am Operator: DEW
Sample : 1607239-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:29 2016 Quant Results File: PP160725.RES

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

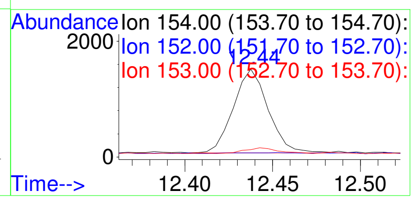


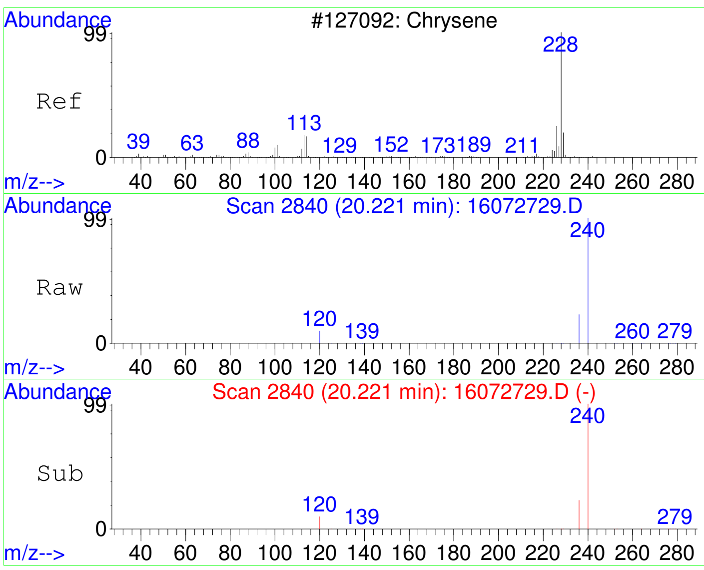


#9
Acenaphthene
Concen: 12.88 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072729.D
Acq: 28 Jul 2016 1:31 am

Tgt Ion:154 Resp: 1990

Ion	Ratio	Lower	Upper
154	100		
152	0.5	20.4	80.4#
153	4.4	78.2	138.2#

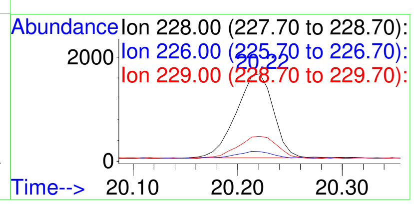


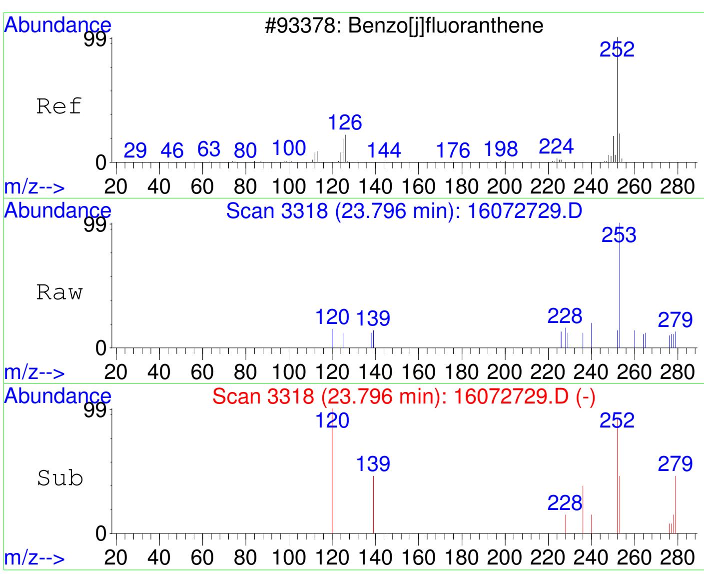


#19
Chrysene
Concen: 10.70 ug/kg
RT: 20.22 min Scan# 2840
Delta R.T. -0.11 min
Lab File: 16072729.D
Acq: 28 Jul 2016 1:31 am

Tgt Ion:228 Resp: 3978

Ion	Ratio	Lower	Upper
228	100		
226	7.7	0.0	58.1
229	26.4	0.0	49.9

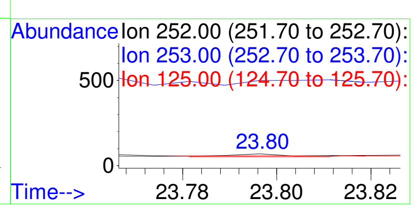




#23
Benzo(j)fluoranthene
Concen: 0.04 ug/kg
RT: 23.80 min Scan# 3318
Delta R.T. -0.01 min
Lab File: 16072729.D
Acq: 28 Jul 2016 1:31 am

Tgt Ion:252 Resp: 15

Ion	Ratio	Lower	Upper
252	100		
253	42.9	2.1	42.1#
125	21.4	0.0	34.0



```
Data File : C:\HPCHEM\1\DATA\160727\16072730.D          Vial: 28
Acq On    : 28 Jul 2016   2:08 am                   Operator: DEW
Sample    : 1607239-17A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:29 2016           Quant Results File: PP160725.RES

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

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
------------------------------------------------------------------------------
  1) Naphthalene-d8                 9.82  136   997369   4000.00 ug/kg  112
  5) Acenaphthene-d10              12.44  164   610390   4000.00 ug/kg  107
 11) Phenanthrene-d10              14.55  188  1575031   4000.00 ug/kg  105
 17) Chrysene-d12                  20.22  240  1890558   4000.00 ug/kg  117
 20) Perylene-d12                  25.34  264  1907699   4000.00 ug/kg  115

 System Monitoring Compounds
  7) 2-Fluorobiphenyl              11.35  172    14447    68.94 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.72%#
 16) 4-Terphenyl-d14               17.02  244    26444    56.76 ug/kg  -0.02
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =    1.42%#

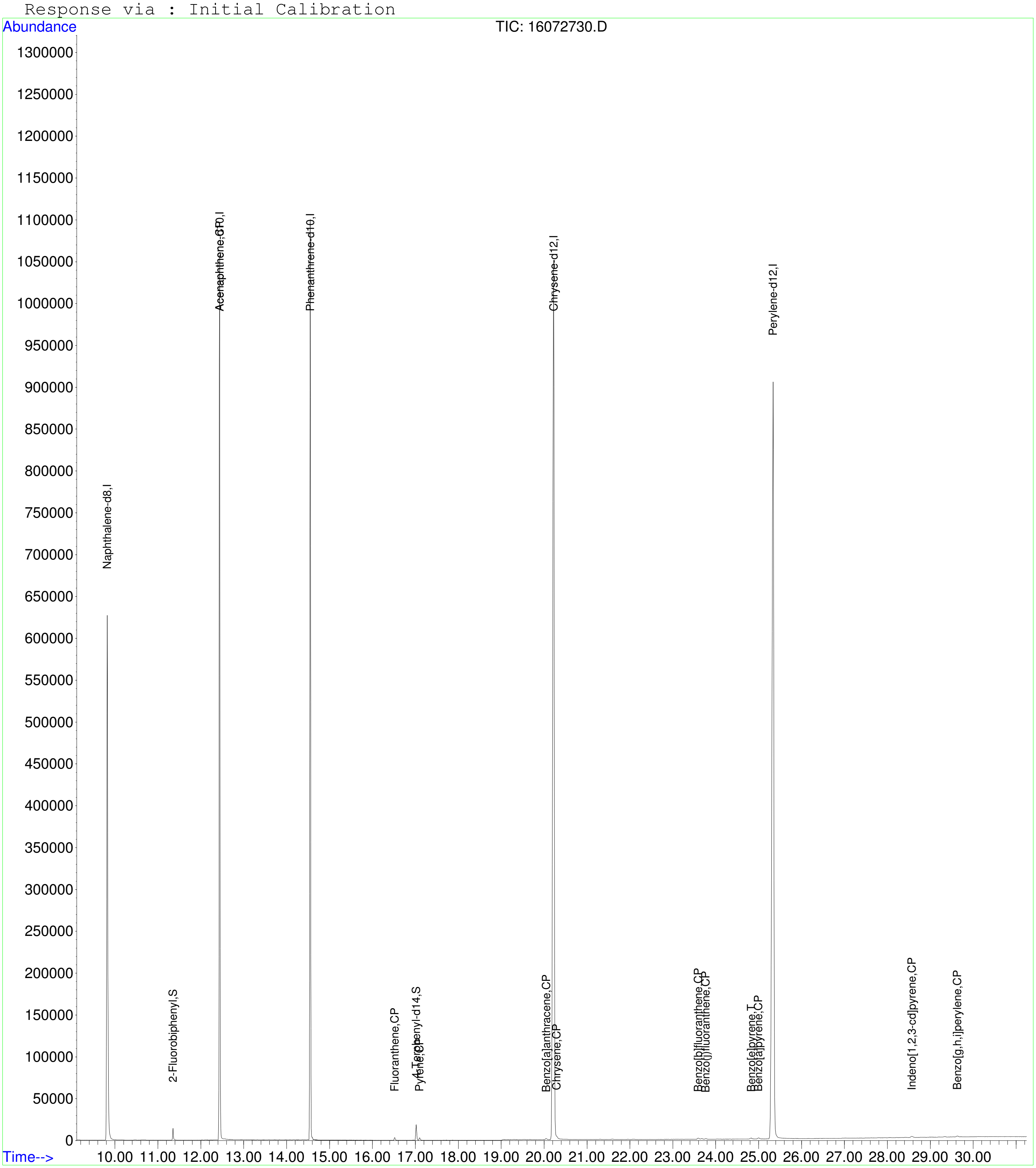
 Target Compounds                                                 Qvalue
  9) Acenaphthene                  12.44  154     2025    12.84 ug/kg#    10
 14) Fluoranthene                  16.52  202     3682    10.05 ug/kg     98
 15) Pyrene                        17.10  202     3448     9.14 ug/kg     95
 18) Benzo[a]anthracene            20.05  228     2259     5.57 ug/kg     98
 19) Chrysene                      20.30  228     2837     7.43 ug/kg     98
 21) Benzo[b]fluoranthene          23.59  252     3195     7.33 ug/kg     97
 23) Benzo(j)fluoranthene          23.77  252     1437     3.80 ug/kg     86
 24) Benzo[e]pyrene                24.82  252     2657     6.42 ug/kg     95
 25) Benzo[a]pyrene                25.00  252     2983     7.26 ug/kg     92
 27) Indeno[1,2,3-cd]pyrene        28.57  276     2572     5.03 ug/kg     96
 28) Benzo[g,h,i]perylene          29.63  276     2567     6.92 ug/kg     96
```

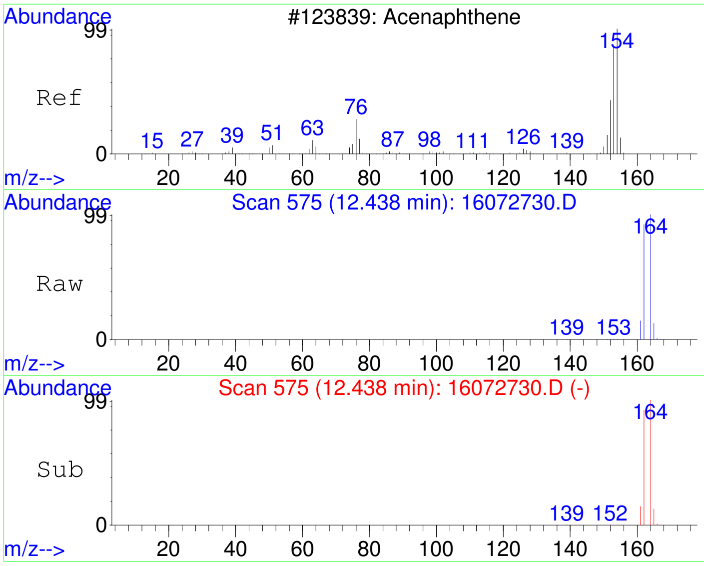
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072730.D          Vial: 28
Acq On    : 28 Jul 2016   2:08 am                   Operator: DEW
Sample    : 1607239-17A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:29 2016             Quant Results File: PP160725.RES

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

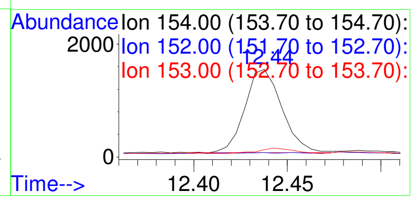


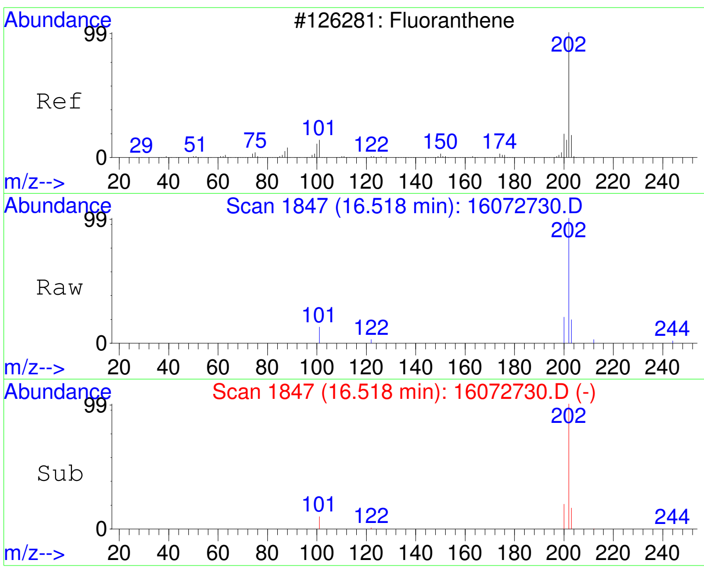


#9
Acenaphthene
Concen: 12.84 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.06 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:154 Resp: 2025

Ion	Ratio	Lower	Upper
154	100		
152	1.1	20.4	80.4#
153	4.7	78.2	138.2#

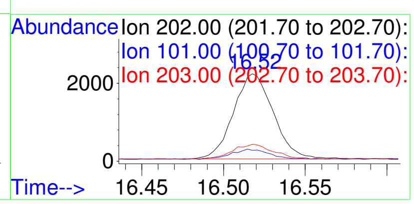


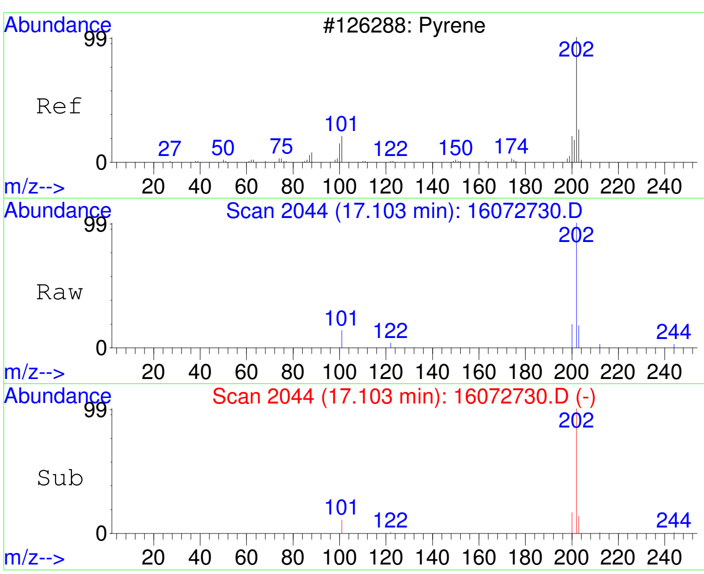


#14
Fluoranthene
Concen: 10.05 ug/kg
RT: 16.52 min Scan# 1847
Delta R.T. -0.01 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:202 Resp: 3682

Ion	Ratio	Lower	Upper
202	100		
101	10.4	0.0	41.4
203	17.0	0.0	47.7

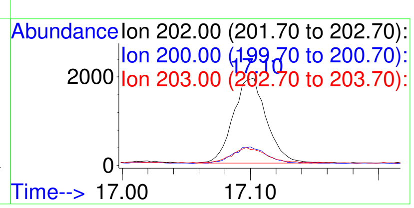


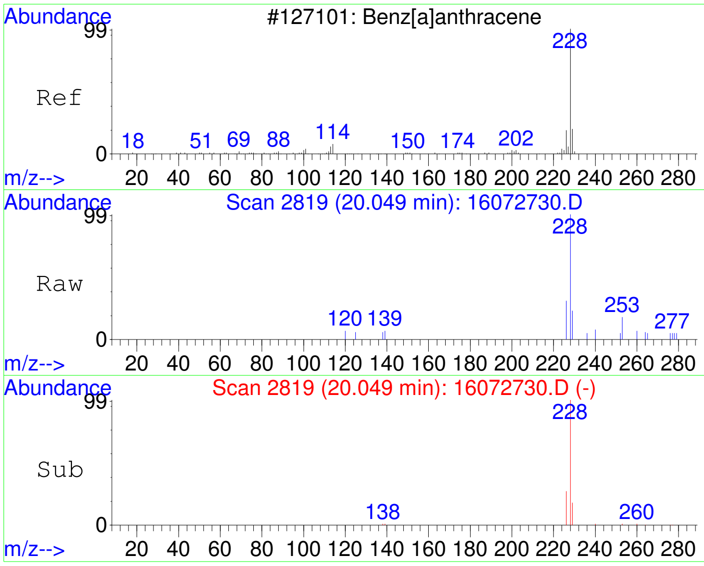


#15
Pyrene
Concen: 9.14 ug/kg
RT: 17.10 min Scan# 2044
Delta R.T. -0.01 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:202 Resp: 3448

Ion	Ratio	Lower	Upper
202	100		
200	17.2	0.0	49.7
203	15.6	0.0	47.6

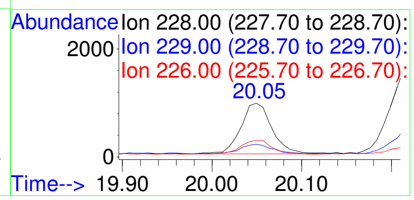


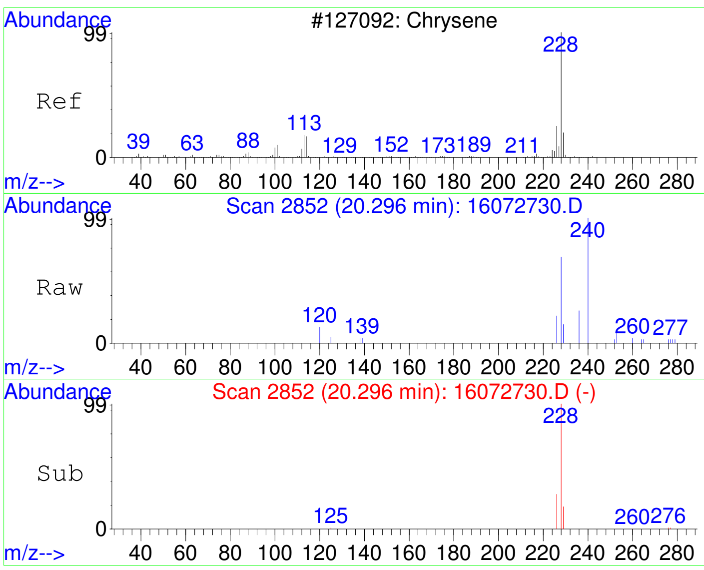


#18
Benzo[a]anthracene
Concen: 5.57 ug/kg
RT: 20.05 min Scan# 2819
Delta R.T. -0.02 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:228 Resp: 2259

Ion	Ratio	Lower	Upper
228	100		
229	18.8	0.0	49.9
226	26.5	0.0	55.9

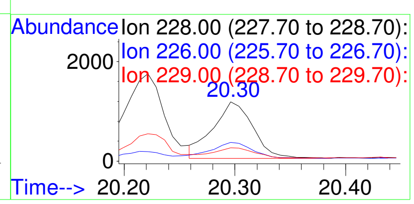


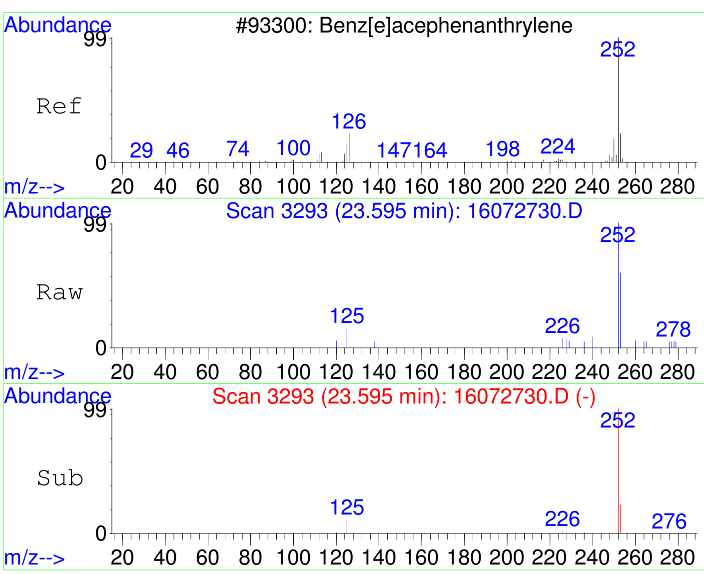


#19
Chrysene
Concen: 7.43 ug/kg
RT: 20.30 min Scan# 2852
Delta R.T. -0.03 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:228 Resp: 2837

Ion	Ratio	Lower	Upper
228	100		
226	27.9	0.0	58.1
229	17.7	0.0	49.9

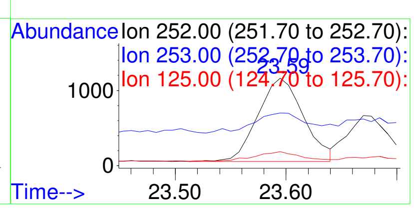


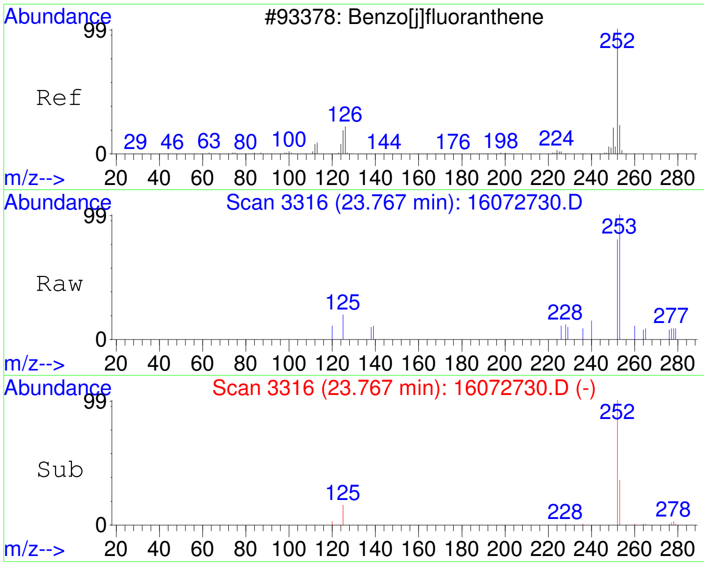


#21
Benzo[b]fluoranthene
Concen: 7.33 ug/kg
RT: 23.59 min Scan# 3293
Delta R.T. -0.04 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:252 Resp: 3195

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	52.1
125	11.5	0.0	39.3

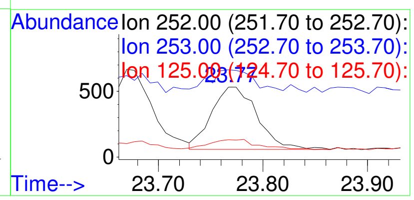


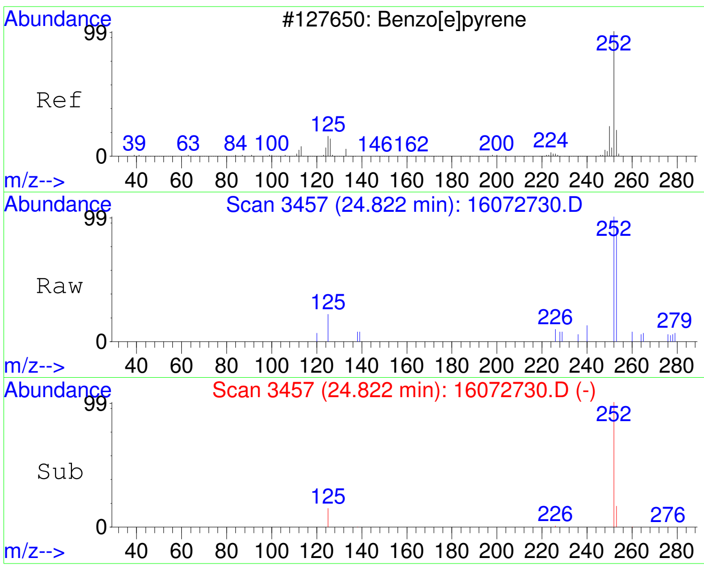


#23
Benzo(j)fluoranthene
Concen: 3.80 ug/kg
RT: 23.77 min Scan# 3316
Delta R.T. -0.04 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:252 Resp: 1437

Ion	Ratio	Lower	Upper
252	100		
253	31.1	2.1	42.1
125	16.3	0.0	34.0

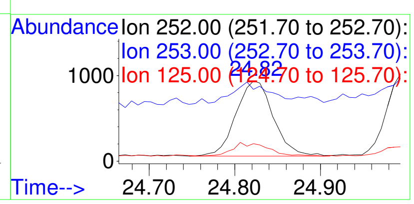


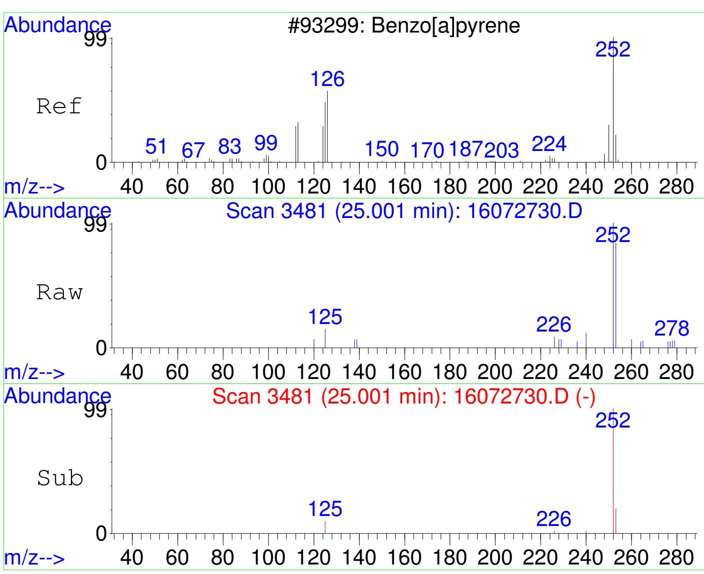


#24
Benzo[e]pyrene
Concen: 6.42 ug/kg
RT: 24.82 min Scan# 3457
Delta R.T. -0.04 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:252 Resp: 2657

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.1	42.1
125	15.9	0.0	33.9

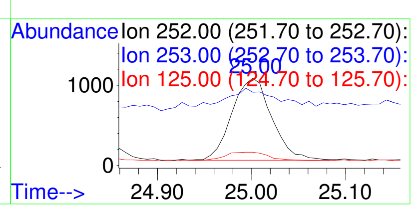


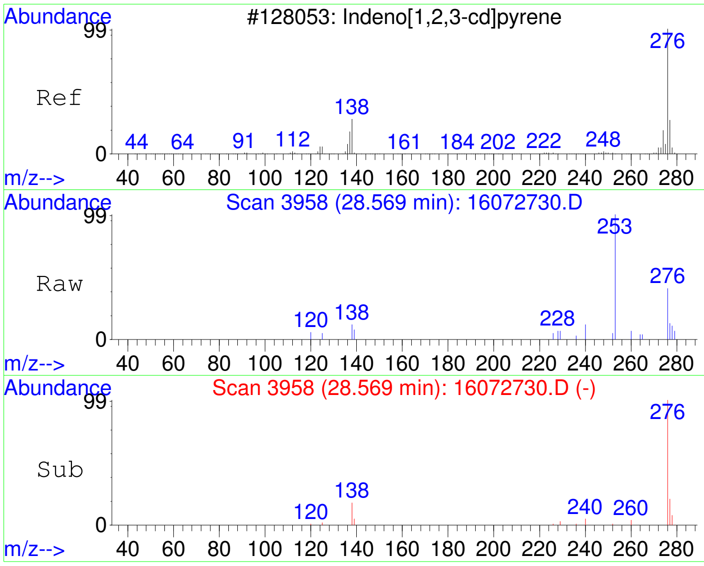


#25
Benzo[a]pyrene
Concen: 7.26 ug/kg
RT: 25.00 min Scan# 3481
Delta R.T. -0.03 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:252 Resp: 2983

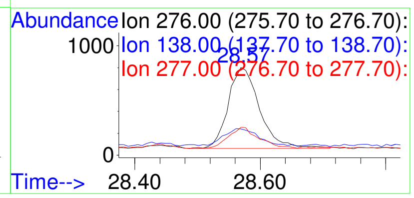
Ion	Ratio	Lower	Upper
252	100		
253	16.8	1.8	41.8
125	10.2	0.0	31.6

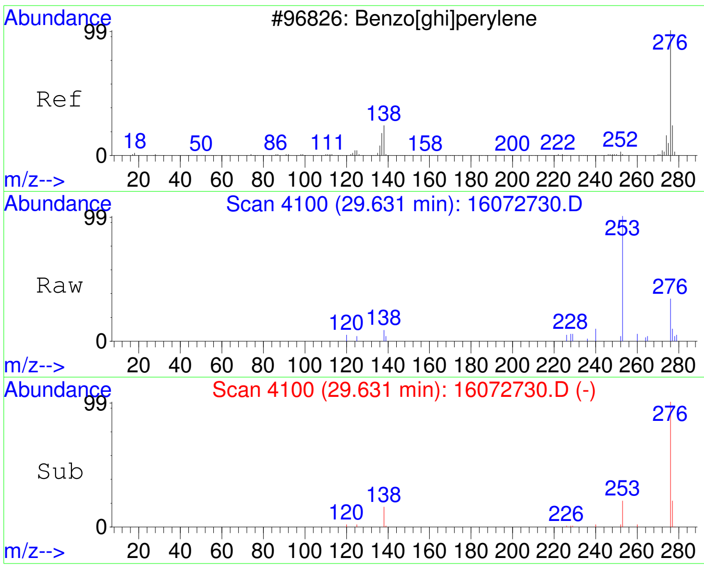




#27
Indeno[1,2,3-cd]pyrene
Concen: 5.03 ug/kg
RT: 28.57 min Scan# 3958
Delta R.T. -0.04 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

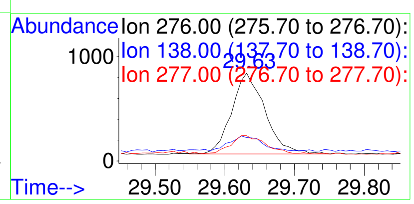
Tgt Ion:276	Resp:		2572
Ion	Ratio	Lower	Upper
276	100		
138	21.7	5.3	45.3
277	26.4	5.8	45.8





#28
Benzo[g,h,i]perylene
Concen: 6.92 ug/kg
RT: 29.63 min Scan# 4100
Delta R.T. -0.04 min
Lab File: 16072730.D
Acq: 28 Jul 2016 2:08 am

Tgt Ion:276	Resp:		2567
Ion	Ratio	Lower	Upper
276	100		
138	15.9	0.0	39.4
277	23.0	3.9	43.9



Data File : C:\HPCHEM\1\DATA\160727\16072731.D Vial: 29
Acq On : 28 Jul 2016 2:46 am Operator: DEW
Sample : 1607239-01AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	9.82	136	940796	4000.00 ug/kg	105
5) Acenaphthene-d10	12.44	164	559990	4000.00 ug/kg	98
11) Phenanthrene-d10	14.55	188	1563447	4000.00 ug/kg	104
17) Chrysene-d12	20.22	240	1846983	4000.00 ug/kg	115
20) Perylene-d12	25.34	264	1847579	4000.00 ug/kg	111

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	13530	70.47 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#	
16) 4-Terphenyl-d14	17.02	244	27021	59.06 ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.48%#	

Target Compounds					Qvalue
2) Naphthalene	9.85	128	16412	76.71 ug/kg	99
3) 2-Methyl naphthalene	10.81	142	11734	75.89 ug/kg	95
4) 1-Methyl naphthalene	11.02	142	10855	76.32 ug/kg	98
6) Dibenzofuran	12.66	168	18090	81.36 ug/kg	98
8) Acenaphthylene	12.32	152	18427	75.62 ug/kg	99
9) Acenaphthene	12.49	154	11596	80.12 ug/kg	98
10) Fluorene	13.15	166	14542	80.41 ug/kg	98
12) Phenanthrene	14.58	178	35273	119.22 ug/kg	99
13) Anthracene	14.63	178	25550	84.36 ug/kg	99
14) Fluoranthene	16.52	202	63130	173.55 ug/kg	99
15) Pyrene	17.10	202	59171	157.95 ug/kg	99
18) Benzo[a]anthracene	20.05	228	50569	127.70 ug/kg	98
19) Chrysene	20.30	228	52591	141.01 ug/kg	99
21) Benzo[b]fluoranthene	23.59	252	57188	135.46 ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	43156	111.50 ug/kg	98
23) Benzo(j)fluoranthene	23.77	252	41178	112.38 ug/kg	98
24) Benzo[e]pyrene	24.82	252	50909	126.94 ug/kg	100
25) Benzo[a]pyrene	25.00	252	52946	133.03 ug/kg	98
26) Dibenz[a,h]anthracene	28.56	278	36700	88.98 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.57	276	56830	114.72 ug/kg	95
28) Benzo[g,h,i]perylene	29.63	276	49525	137.76 ug/kg	100

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160727\16072731.D          Vial: 29
Acq On    : 28 Jul 2016   2:46 am                   Operator: DEW
Sample    : 1607239-01AMS                           Inst    : GC/MS #6
Misc      : MS                                      Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016            Quant Results File: PP160725.RES

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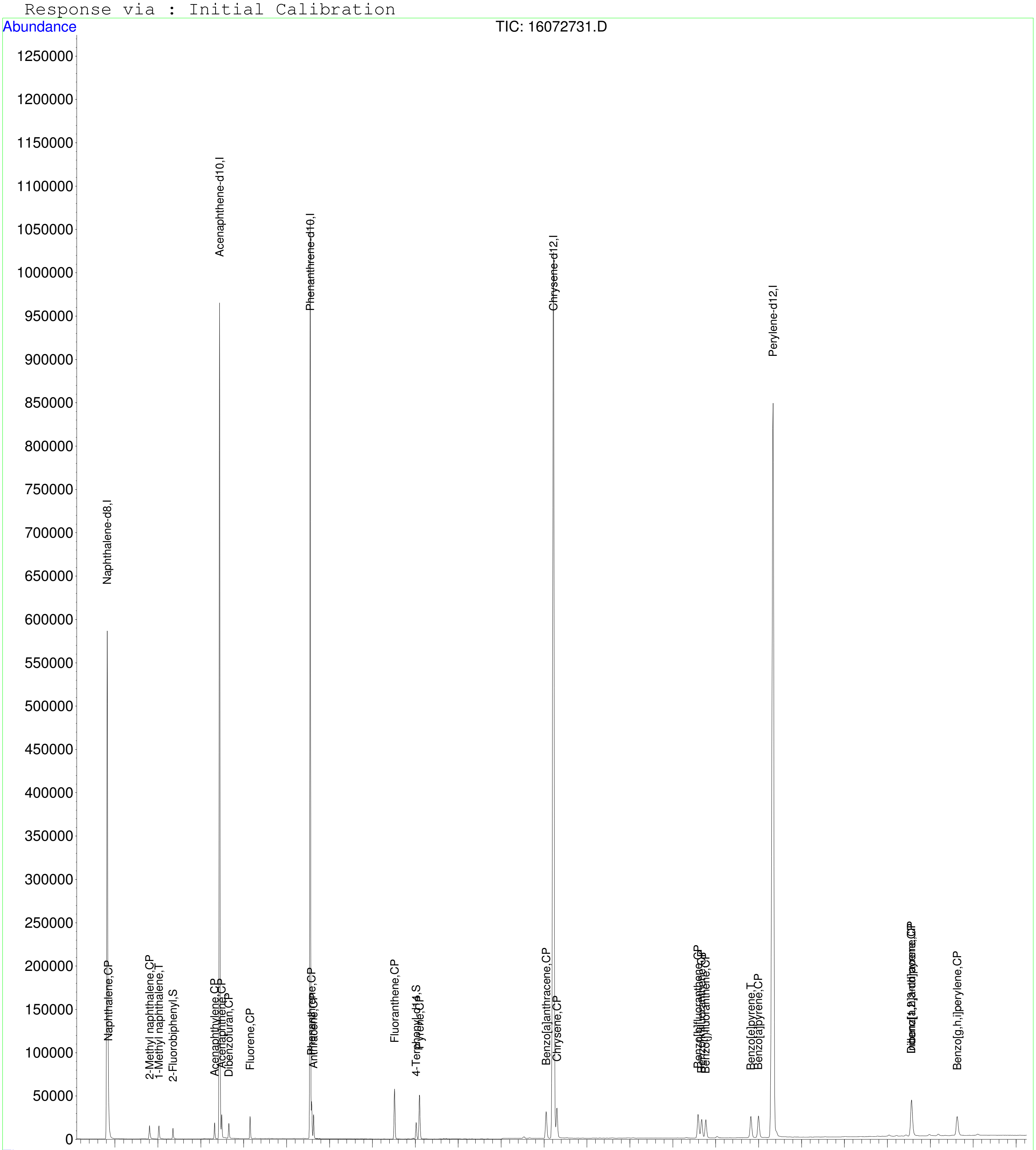

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Data File : C:\HPCHEM\1\DATA\160727\16072732.D          Vial: 30
Acq On    : 28 Jul 2016   3:23 am                    Operator: DEW
Sample    : 1607239-01AMSD                           Inst    : GC/MS #6
Misc      : MSD                                      Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Jul 28 12:23 2016            Quant Results File: PP160725.RES

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

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
---------------------------------------------------------------------------
   1) Naphthalene-d8                 9.82  136   980876   4000.00 ug/kg  110
   5) Acenaphthene-d10              12.44  164   593915   4000.00 ug/kg  104
  11) Phenanthrene-d10              14.55  188  1619806   4000.00 ug/kg  108
  17) Chrysene-d12                  20.22  240  1860764   4000.00 ug/kg  115
  20) Perylene-d12                  25.34  264  1849935   4000.00 ug/kg  111

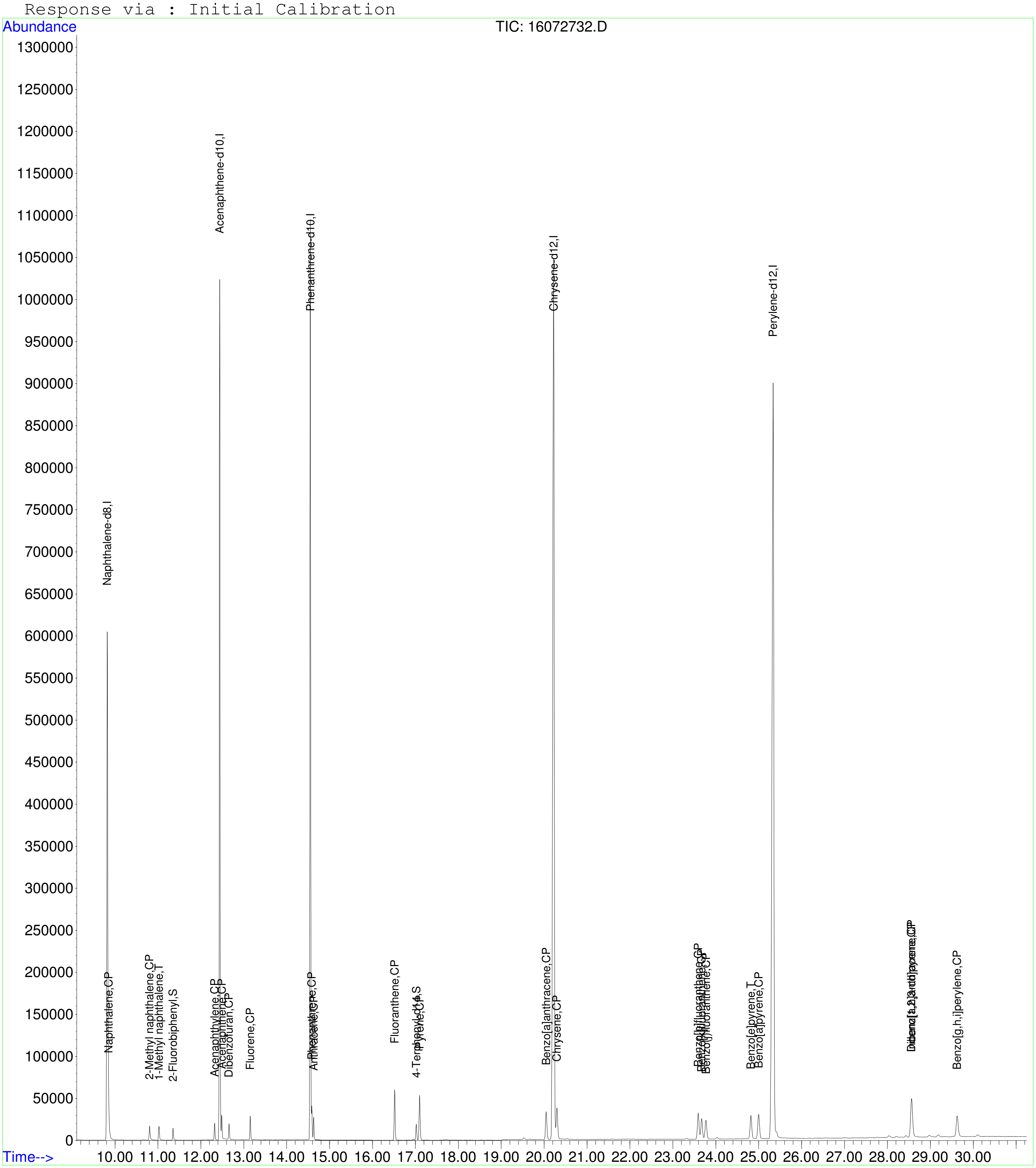
 System Monitoring Compounds
   7) 2-Fluorobiphenyl              11.35  172    14384    70.65 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.77%#
  16) 4-Terphenyl-d14               17.02  244    27044    56.32 ug/kg  -0.02
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     1.41%#

 Target Compounds                                                    Qvalue
   2) Naphthalene                    9.86  128    17585    78.84 ug/kg    100
   3) 2-Methyl naphthalene          10.80  142    12448    77.22 ug/kg     98
   4) 1-Methyl naphthalene          11.02  142    11415    76.98 ug/kg     96
   6) Dibenzofuran                  12.66  168    19236    81.57 ug/kg     98
   8) Acenaphthylene                12.32  152    19930    77.12 ug/kg     99
   9) Acenaphthene                  12.49  154    12683    82.63 ug/kg     96
  10) Fluorene                      13.15  166    15323    79.89 ug/kg     97
  12) Phenanthrene                  14.58  178    33118   108.05 ug/kg     98
  13) Anthracene                    14.63  178    25211    80.35 ug/kg     99
  14) Fluoranthene                  16.52  202    65486   173.76 ug/kg     99
  15) Pyrene                        17.10  202    62928   162.14 ug/kg    100
  18) Benzo[a]anthracene            20.05  228    53786   134.81 ug/kg     99
  19) Chrysene                      20.29  228    57209   152.25 ug/kg    100
  21) Benzo[b]fluoranthene          23.59  252    64010   151.43 ug/kg     99
  22) Benzo[k]fluoranthene          23.67  252    46990   121.26 ug/kg     99
  23) Benzo(j)fluoranthene          23.77  252    45019   122.70 ug/kg     96
  24) Benzo[e]pyrene                24.82  252    56623   141.01 ug/kg    100
  25) Benzo[a]pyrene                25.00  252    61171   153.50 ug/kg     98
  26) Dibenz[a,h]anthracene         28.56  278    37940    91.86 ug/kg    100
  27) Indeno[1,2,3-cd]pyrene        28.57  276    63568   128.16 ug/kg     95
  28) Benzo[g,h,i]perylene          29.63  276    56211   156.16 ug/kg     98
```

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

Data File : C:\HPCHEM\1\DATA\160727\16072732.D Vial: 30
Acq On : 28 Jul 2016 3:23 am Operator: DEW
Sample : 1607239-01AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160727\16072733.D Vial: 31
Acq On : 28 Jul 2016 4:00 am Operator: DEW
Sample : CCV1-160727 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016 Quant Results File: PP160725.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	1088109	4000.00	ug/kg	122
5) Acenaphthene-d10	12.44	164	662305	4000.00	ug/kg	116
11) Phenanthrene-d10	14.55	188	1776130	4000.00	ug/kg	118
17) Chrysene-d12	20.22	240	1961779	4000.00	ug/kg	122
20) Perylene-d12	25.34	264	1989590	4000.00	ug/kg	120

System Monitoring Compounds

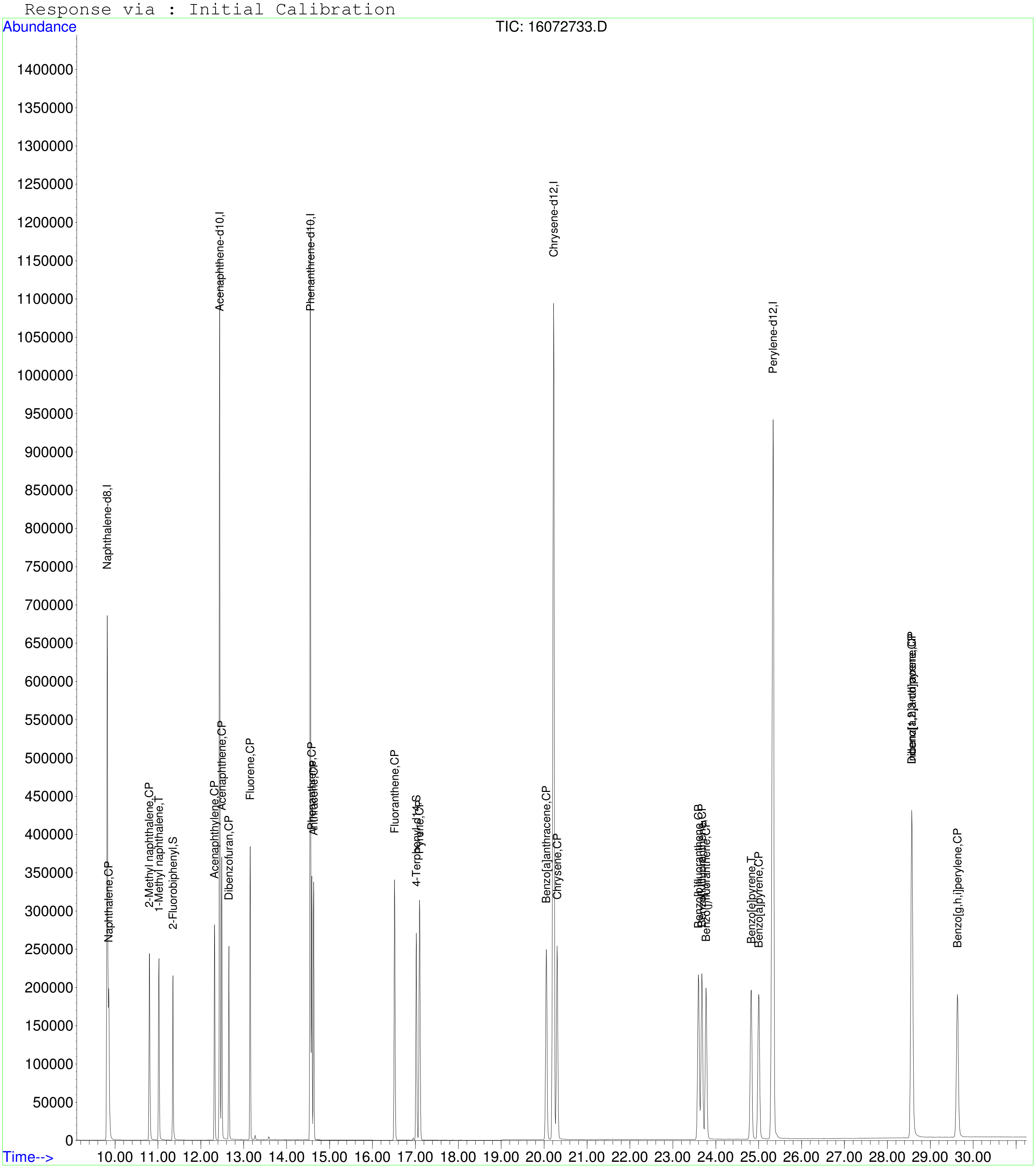
7) 2-Fluorobiphenyl	11.35	172	212348	988.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.71%#		
16) 4-Terphenyl-d14	17.02	244	379234	984.22	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.61%#		

Target Compounds						Qvalue
2) Naphthalene	9.85	128	224890	908.88	ug/kg	99
3) 2-Methyl naphthalene	10.80	142	167720	937.85	ug/kg	95
4) 1-Methyl naphthalene	11.02	142	152505	927.11	ug/kg	99
6) Dibenzofuran	12.65	168	236694	900.10	ug/kg	99
8) Acenaphthylene	12.32	152	271467	941.98	ug/kg	99
9) Acenaphthene	12.49	154	159605	932.44	ug/kg	99
10) Fluorene	13.15	166	198821	929.57	ug/kg	100
12) Phenanthrene	14.59	178	366220	1089.62	ug/kg	99
13) Anthracene	14.63	178	310698	903.04	ug/kg	99
14) Fluoranthene	16.51	202	377787	914.20	ug/kg	100
15) Pyrene	17.10	202	380363	893.77	ug/kg	100
18) Benzo[a]anthracene	20.05	228	404583	961.87	ug/kg	99
19) Chrysene	20.30	228	372391	940.03	ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	439876	967.56	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	401361	962.99	ug/kg	99
23) Benzo(j)fluoranthene	23.77	252	379906	962.78	ug/kg	100
24) Benzo[e]pyrene	24.83	252	411668	953.20	ug/kg	100
25) Benzo[a]pyrene	25.00	252	405288	945.64	ug/kg	100
26) Dibenz[a,h]anthracene	28.57	278	421089	948.02	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.58	276	500046	937.38	ug/kg	97
28) Benzo[g,h,i]perylene	29.63	276	410962	1061.57	ug/kg	100

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

```
Data File : C:\HPCHEM\1\DATA\160727\16072733.D          Vial: 31
Acq On    : 28 Jul 2016   4:00 am                   Operator: DEW
Sample    : CCV1-160727                             Inst    : GC/MS #6
Misc      : CCV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 28 12:23 2016             Quant Results File: PP160725.RES

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



GCMS6_160728A
For

DHL Work Order
1607239

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

Project Number(s): SEE RUN LOG.	**Run ID:** GCMS6_160728A			
Batch Number(s): SEE RUN LOG.	**SOP:** ORGANICS-PAH-01			
Matrix: SEE RUN LOG.				
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

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

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

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

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

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction	X			x
	14 days (Soil) - extraction			X	
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		

VARIANCE REPORT

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

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level Review
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: **QA APPROVED** By John DuPont at 3:55:50 PM, 8/10/2016 Date:

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

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

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___ LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
X Multiple Surrogates out of control	___ Prep Error	X Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		

___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data:

SEE RUN LOG - ONE SURROGATE OUT OF CONTROL LIMITS ON MANY RUNS. TWO SURROGATES FAIL FOR SAMPLE 1607256-13B. NO CORRECTIVE ACTION POSSIBLE DUE TO LACK OF HOLDING TIME AND ACCIDENTAL DISPOSAL OF 1 ML SAMPLE EXTRACT. CLIENT NOTIFIED AND APPROVED.

Analyst: Karyn Lane Date: 8/10/2016 15:05

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY By Janice Whitt at 3:52:17 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: GCMS6_160728A **Run No.:** 87529

Analytical Run Date: 7/28/2016 **InstrumentID:** GCMS6

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

Calibration ID: 676 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160725.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 8:09:00 AM		
ICV-160728	1	PAH_LL_WDOD1	ICV	R87529	7/28/2016 8:46:00 AM		
LCS-76453	1	PAH_LL_WDOD1	LCS	76453	7/28/2016 9:24:00 AM		
LCSD-76453	1	PAH_LL_WDOD1	LCSD	76453	7/28/2016 10:01:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
MB-76453	1	PAH_LL_WDOD1	MBLK	76453	7/28/2016 10:39:00 AM		
1607219-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:16:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607219-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 11:54:00 AM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-16B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 12:31:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607239-32B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:08:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 1:46:00 PM		Both surrogates outside control limits (low). Sample past hold time and cannot be reanalyzed (extract accidentally disposed of) - see variance.
1607256-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 2:24:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607256-27B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:02:00 PM		
1607265-13B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 3:40:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
1607265-26B	1	PAH_LL_WDOD1	SAMP	76453	7/28/2016 4:17:00 PM		Surrogate 4-Terphenyl-d14 outside control limits (low).
DFTPP2-160728	1	PAH_LL_WDOD1	TUNE	R87529	7/28/2016 4:55:00 PM		
ICV2-160728	1	PAH_LL_WDOD1	CCV	R87529	7/28/2016 5:31:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160725	2 PPM PAH ICV	ICV	10/23/2016
SVI160510-2	4000 PPM INTERNAL STANDAR	ALL	07/15/2017

```
Sequence Name: C:\HPCHEM\1\SEQUENCE\160728.S
      Comment:
     Operator: DEW
    Data Path: C:\HPCHEM\1\DATA\160728\
  Pre-Seq Cmd:
 Post-Seq Cmd:

Method Sections To Run     On A Barcode Mismatch
 (X) Full Method             (X) Inject Anyway
 ( ) Reprocessing Only       ( ) Don't Inject
```

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16072801	DFTPPPAH	DFTPP-160728
2	Sample	2	16072802	PP160725	ICV-160728
3	Sample	3	16072803	PP160725	LCS-76453
4	Sample	4	16072804	PP160725	LCSD-76453
5	Sample	5	16072805	PP160725	MB-76453
6	Sample	6	16072806	PP160725	1607219-13B
7	Sample	7	16072807	PP160725	1607219-26B
8	Sample	8	16072808	PP160725	1607239-16B
9	Sample	9	16072809	PP160725	1607239-32B
10	Sample	10	16072810	PP160725	1607256-13B
11	Sample	11	16072811	PP160725	1607256-26B
12	Sample	12	16072812	PP160725	1607256-27B
13	Sample	13	16072813	PP160725	1607265-13B
14	Sample	14	16072814	PP160725	1607265-26B
15	Sample	15	16072815	DFTPPPAH	DFTPP-160728
16	Sample	16	16072816	PP160725	ICV2-160728

DHL Analytical, Inc. | **PREP BATCH REPORT** |

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: 7/26/16 2:10PM

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: mL/mL

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1607219-13B	Equip Blank	6	250	1	0.004	1	of	1	780.8 - 522.6 = 258.2
wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction									
1607219-26B	Equip Blank	6	250	1	0.004	1	of	1	800.1 - 548.2 = 251.9
1607239-16B	Equip Blank	6	250	1	0.004	1	of	1	764.3 - 507.9 = 256.4
1607239-32B	Equip Blank	6	250	1	0.004	1	of	1	771.6 - 519.4 = 252.2
1607256-13B	Equip Blank	6	250	1	0.004	1	of	1	781.9 - 526.7 = 255.2
1607256-26B	Equip Blank	6	250	1	0.004	1	of	1	760.3 - 507.0 = 253.3
1607256-27B	Equip Blank	6	250	1	0.004	1	of	1	792.4 - 539.7 = 252.7
1607265-13B	Equip Blank	6	250	1	0.004	1	of	1	776.4 - 519.8 = 256.6
1607265-26B	Equip Blank	6	250	1	0.004	1	of	1	777.7 - 522.3 = 255.4
LCS-76453	Aqueous	6	500	1	0.002		of		777.1 - 277.1 = 500.0
LCSD-76453	Aqueous	6	500	1	0.002		of		776.9 - 276.9 = 500.0
Insufficient volume for MS/MSD									
MB-76453	Aqueous	6	500	1	0.002		of		780.1 - 280.1 = 500.0

~~1607294-13B~~ AR 7/27/16

~~Added @ 8:30AM 7/27/16~~ DB 7/27/16 7/27/16

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/~~MS/MSD~~ LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

DB 7/27/16

REVIEWED BY
By Janice Whitt at 3:41:08 PM, 8/10/2016

DB 7/26/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 8:42:45 AM**
Digestion:
Prep End Date: **7/26/2016 2:10:00 PM**

Prep Batch **76453** Prep Code: **3510_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1607219-13B	Equip Blank	6	258.2	1	0.004	1	of	1	
	wait til more project EQ BLANKS arrive to start this batch. Only 250 ml needed for extraction								
1607219-26B	Equip Blank	6	251.9	1	0.004	1	of	1	
1607239-16B	Equip Blank	6	256.4	1	0.004	1	of	1	
1607239-32B	Equip Blank	6	252.2	1	0.004	1	of	1	
1607256-13B	Equip Blank	6	255.2	1	0.004	1	of	1	
1607256-26B	Equip Blank	6	253.3	1	0.004	1	of	1	
1607256-27B	Equip Blank	6	252.7	1	0.004	1	of	1	
1607265-13B	Equip Blank	6	256.6	1	0.004	1	of	1	
1607265-26B	Equip Blank	6	255.4	1	0.004	1	of	1	
LCS-76453	Aqueous	6	500	1	0.002		of		
LCSD-76453	Aqueous	6	500	1	0.002		of		
	Insufficient volume for MS/MSD								
MB-76453	Aqueous	6	500	1	0.002		of		

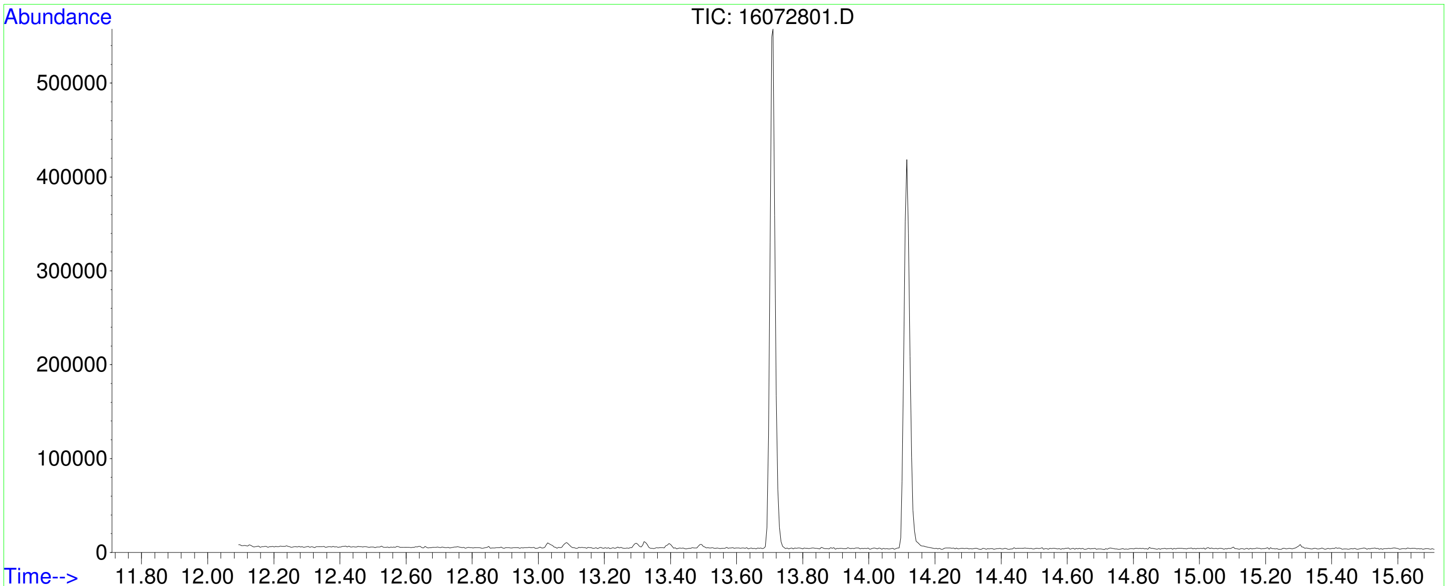
Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

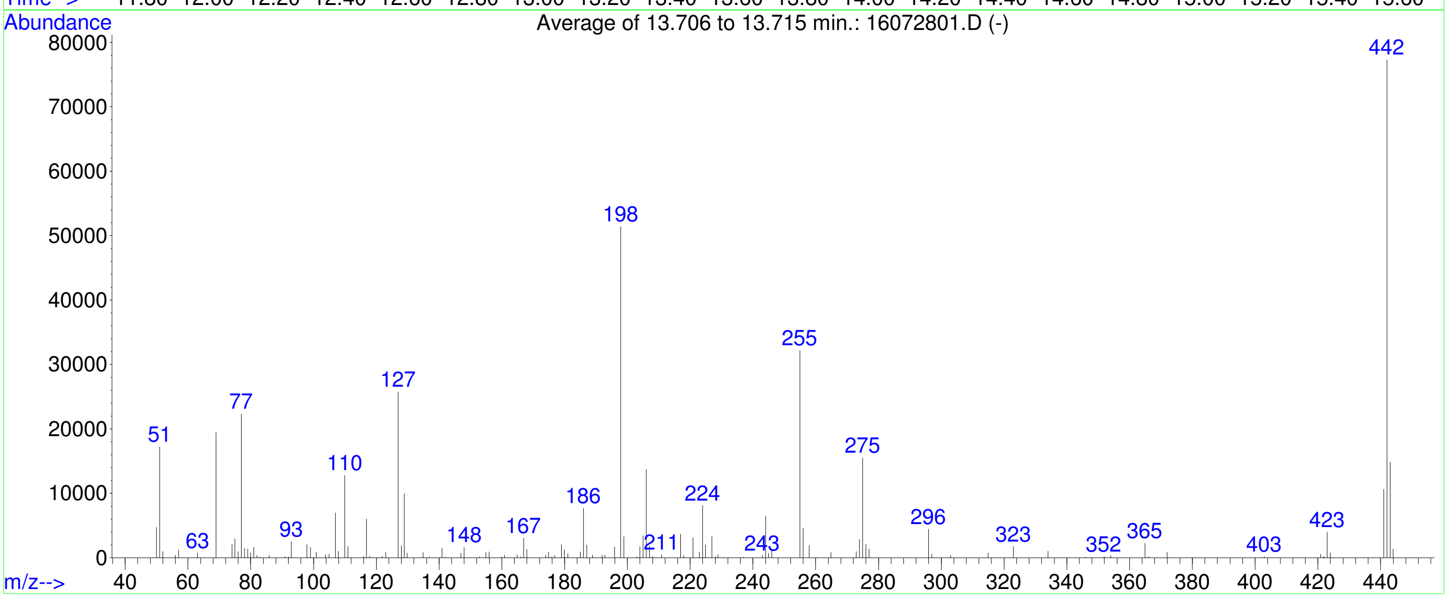
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/LCSD	0.01	09/07/2016
SVPREP160709	40 PPM Surrogate Standard	ALL	0.1	10/07/2016

REVIEWED BY
By Janice Whitt at 3:41:09 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160728\16072801.D          Vial: 1
Acq On    : 28 Jul 2016   8:09 am                   Operator: DEW
Sample    : DFTPP-160728                            Inst     : GC/MS #6
Misc      : TUNE                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title     : PAH Calibration
```





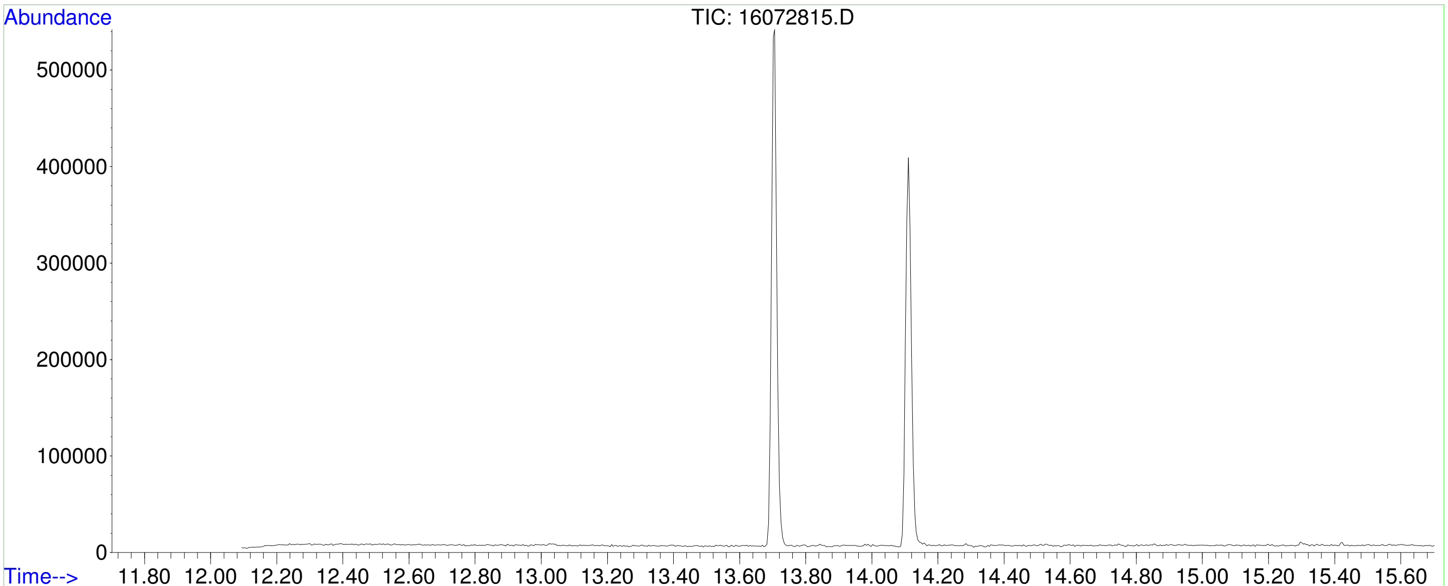
AutoFind: Scans 344, 345, 346; Background Corrected with Scan 337

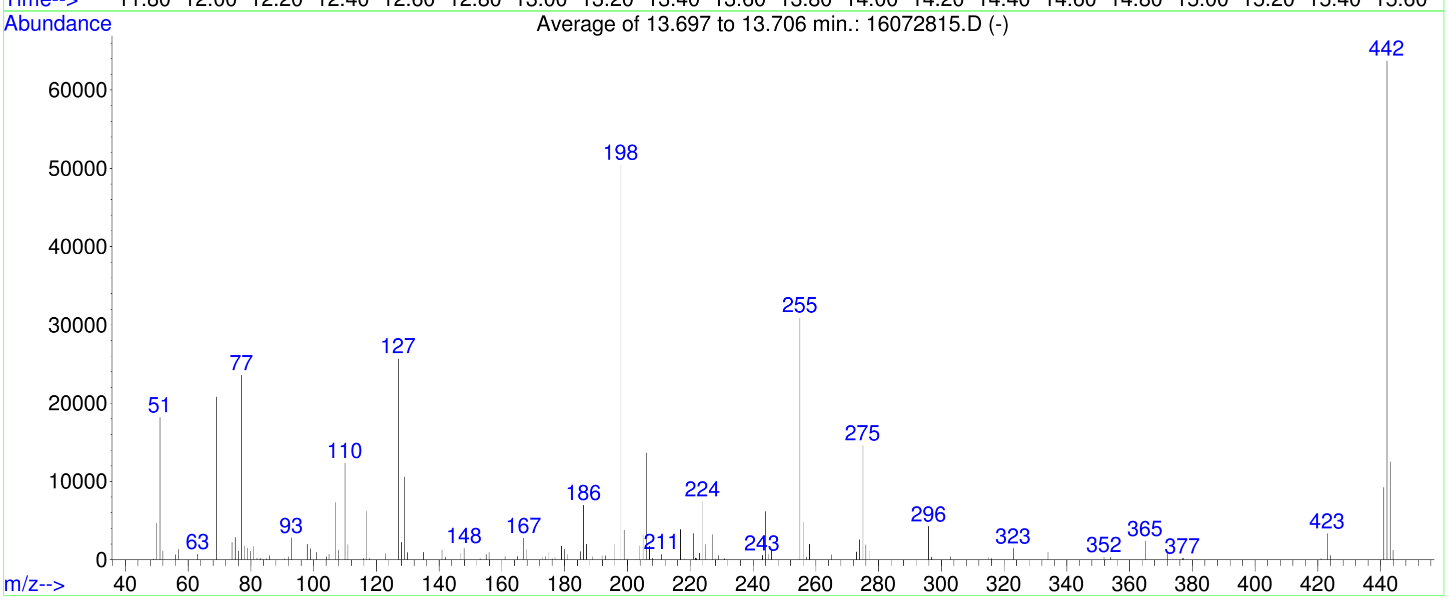
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.5	17249	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.9	19492	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	25761	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	51429	PASS
199	198	5	9	6.5	3348	PASS
275	198	10	60	30.2	15554	PASS
365	198	1	200	4.5	2293	PASS
441	442	0.01	24	13.8	10659	PASS
442	198	50	400	150.3	77312	PASS
443	442	15	24	19.3	14910	PASS

REVIEWED BY
By Janice Whitt at 3:41:15 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160728\16072815.D          Vial: 15
Acq On    : 28 Jul 2016   4:55 pm                   Operator: DEW
Sample    : ~~DFTPP-160728~~ DFTPP2-160728          Inst     : GC/MS #6
Misc      : TUNE                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title     : PAH Calibration
```





AutoFind: Scans 342, 343, 344; Background Corrected with Scan 336

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.1	18208	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	41.3	20835	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.9	25701	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	50491	PASS
199	198	5	9	7.5	3798	PASS
275	198	10	60	29.0	14622	PASS
365	198	1	200	4.8	2403	PASS
441	442	0.01	24	14.5	9239	PASS
442	198	50	400	126.2	63736	PASS
443	442	15	24	19.6	12502	PASS

REVIEWED BY
By Janice Whitt at 3:41:17 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	993161	4000.00	ug/kg	111
5) Acenaphthene-d10	12.44	164	595036	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1704067	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1889673	4000.00	ug/kg	117
20) Perylene-d12	25.34	264	1906547	4000.00	ug/kg	115

System Monitoring Compounds

	R.T.	QIon	Response	Conc	Units	Dev(Min)
7) 2-Fluorobiphenyl	11.34	172	388316	2014.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.36%		
16) 4-Terphenyl-d14	17.02	244	722939	1998.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	49.95%		

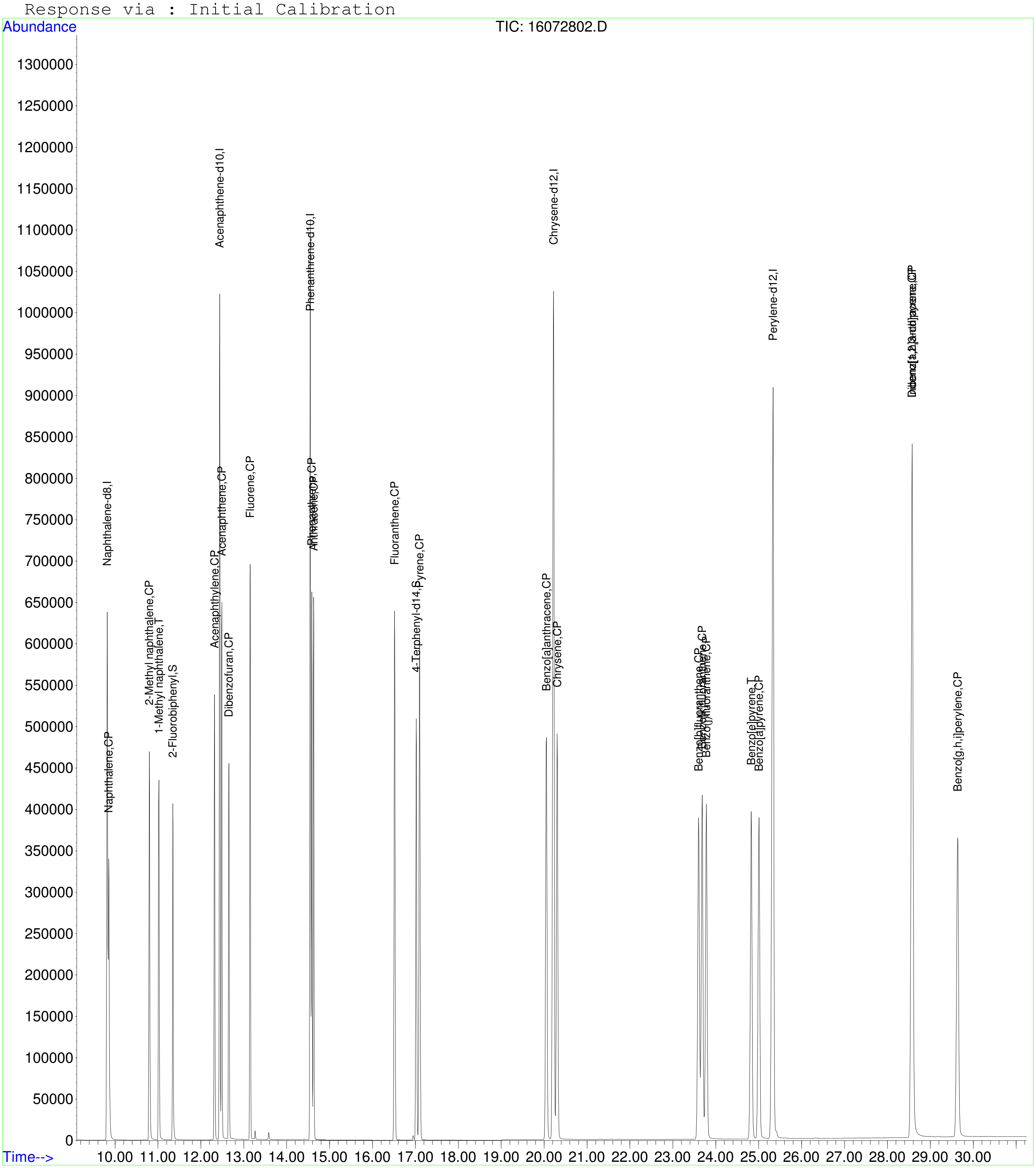
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.85	128	423506	1875.21	ug/kg	99
3) 2-Methyl naphthalene	10.80	142	308279	1888.62	ug/kg	100
4) 1-Methyl naphthalene	11.02	142	281900	1877.56	ug/kg	100
6) Dibenzofuran	12.65	168	443140	1875.68	ug/kg	100
8) Acenaphthylene	12.32	152	506453	1956.04	ug/kg	100
9) Acenaphthene	12.49	154	297830	1936.67	ug/kg	97
10) Fluorene	13.15	166	376267	1958.09	ug/kg	98
12) Phenanthrene	14.59	178	714088	2214.48	ug/kg	100
13) Anthracene	14.63	178	593513	1797.99	ug/kg	99
14) Fluoranthene	16.52	202	723353	1824.45	ug/kg	100
15) Pyrene	17.10	202	730341	1788.71	ug/kg	100
18) Benzo[a]anthracene	20.06	228	794030	1959.79	ug/kg	99
19) Chrysene	20.30	228	728842	1910.03	ug/kg	99
21) Benzo[b]fluoranthene	23.60	252	849690	1950.39	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	778475	1949.17	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	750461	1984.71	ug/kg	99
24) Benzo[e]pyrene	24.83	252	802759	1939.72	ug/kg	99
25) Benzo[a]pyrene	25.01	252	799379	1946.40	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	822523	1932.45	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	28.58	276	973504	1904.41	ug/kg	97
28) Benzo[g,h,i]perylene	29.64	276	807352	2176.33	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072802.D Vial: 2
Acq On : 28 Jul 2016 8:46 am Operator: DEW
Sample : ICV-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

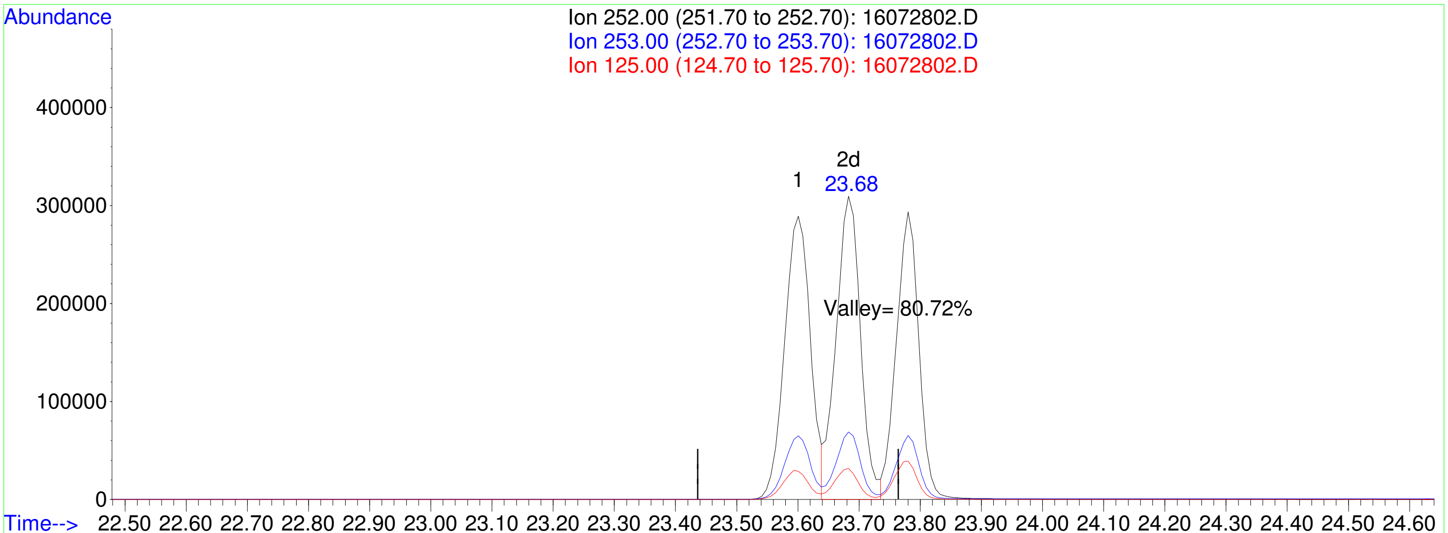
Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration

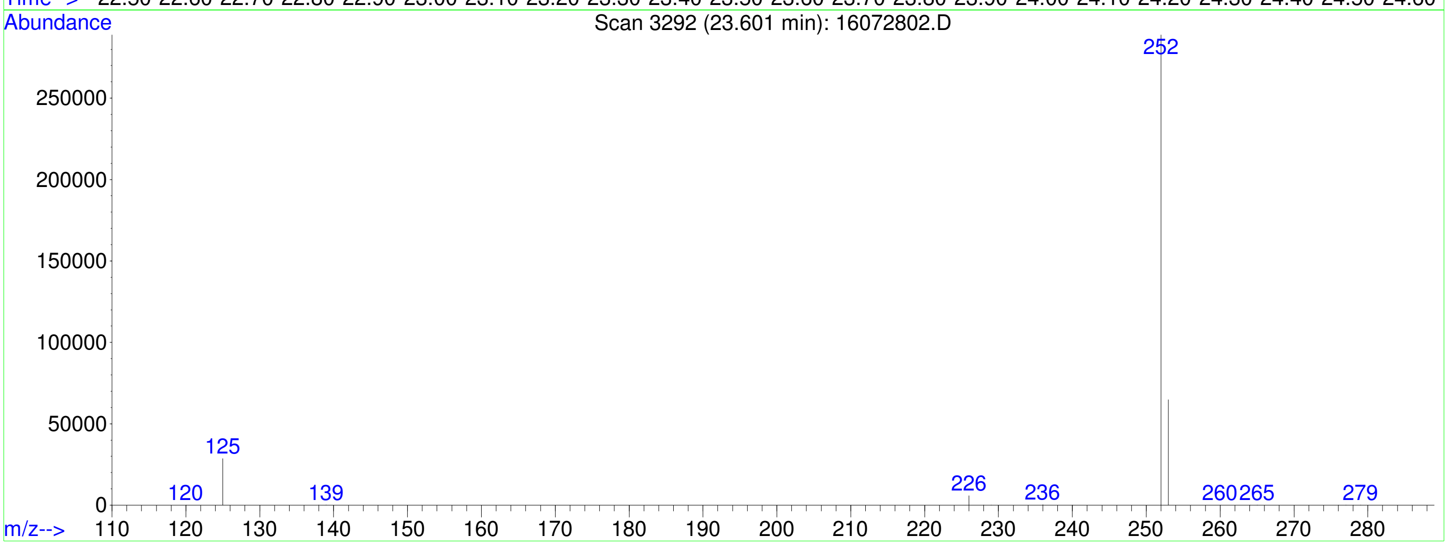


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160728\16072802.D          Vial: 2
Acq On    : 28 Jul 2016   8:46 am                   Operator: DEW
Sample    : ICV-160728                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016              Quant Results File: temp.res

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Multiple Level Calibration
```





TIC: 16072802.D

(21) Benzo[b]fluoranthene (CP)

23.60min 1950.39ug/kg

response 849690

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.31
125.00	9.30	9.88
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072803.D Vial: 3
Acq On : 28 Jul 2016 9:24 am Operator: DEW
Sample : LCS-76453 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	901224	4000.00	ug/kg	101
5) Acenaphthene-d10	12.44	164	544856	4000.00	ug/kg	96
11) Phenanthrene-d10	14.55	188	1553455	4000.00	ug/kg	103
17) Chrysene-d12	20.22	240	1740242	4000.00	ug/kg	108
20) Perylene-d12	25.33	264	1767452	4000.00	ug/kg	106

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	402444	2279.92	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.00%			
16) 4-Terphenyl-d14	17.02	244	778310	2372.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 59.32%			

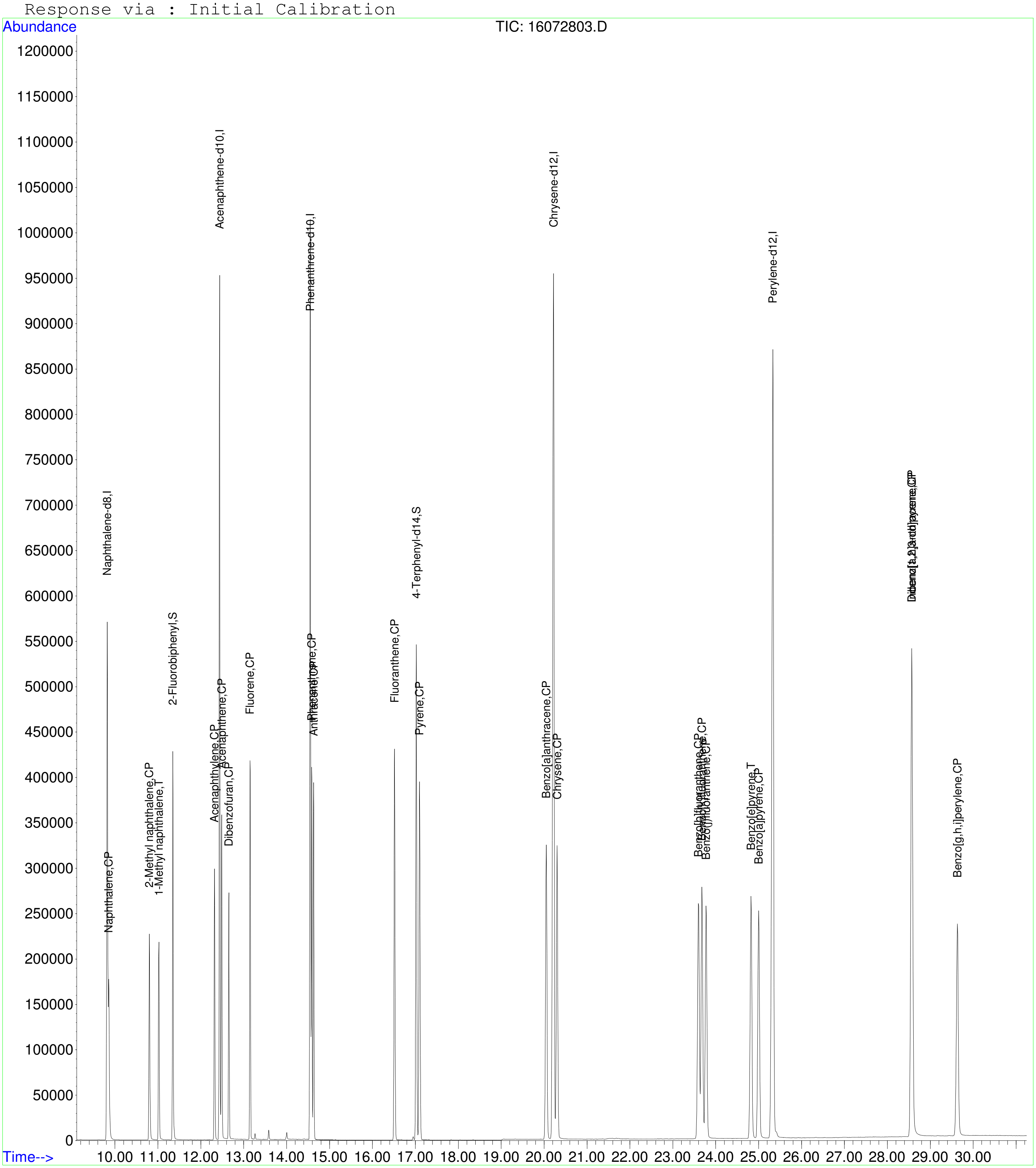
Target Compounds						Qvalue
2) Naphthalene	9.85	128	208183	1015.84	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	149322	1008.12	ug/kg	99
4) 1-Methyl naphthalene	11.02	142	139286	1022.34	ug/kg	100
6) Dibenzofuran	12.65	168	260519	1204.26	ug/kg	99
8) Acenaphthylene	12.32	152	281773	1188.50	ug/kg	100
9) Acenaphthene	12.49	154	163129	1158.46	ug/kg	97
10) Fluorene	13.14	166	225833	1283.47	ug/kg	98
12) Phenanthrene	14.58	178	437488	1488.24	ug/kg	100
13) Anthracene	14.63	178	364335	1210.73	ug/kg	99
14) Fluoranthene	16.51	202	467864	1294.47	ug/kg	100
15) Pyrene	17.10	202	467518	1256.03	ug/kg	100
18) Benzo[a]anthracene	20.05	228	523420	1402.81	ug/kg	100
19) Chrysene	20.30	228	480633	1367.72	ug/kg	100
21) Benzo[b]fluoranthene	23.59	252	566646	1403.05	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	489447	1321.93	ug/kg	100
23) Benzo(j)fluoranthene	23.77	252	496835	1417.36	ug/kg	100
24) Benzo[e]pyrene	24.82	252	548539	1429.76	ug/kg	99
25) Benzo[a]pyrene	25.00	252	521378	1369.40	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	528608	1339.66	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	28.57	276	617831	1303.74	ug/kg	98
28) Benzo[g,h,i]perylene	29.63	276	502776	1461.96	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160728\16072803.D Vial: 3
Acq On : 28 Jul 2016 9:24 am Operator: DEW
Sample : LCS-76453 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072804.D Vial: 4
Acq On : 28 Jul 2016 10:01 am Operator: DEW
Sample : LCSD-76453 Inst : GC/MS #6
Misc : LCSD Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	870249	4000.00	ug/kg	97
5) Acenaphthene-d10	12.44	164	520278	4000.00	ug/kg	91
11) Phenanthrene-d10	14.55	188	1521930	4000.00	ug/kg	101
17) Chrysene-d12	20.21	240	1670962	4000.00	ug/kg	104
20) Perylene-d12	25.33	264	1659219	4000.00	ug/kg	100

System Monitoring Compounds

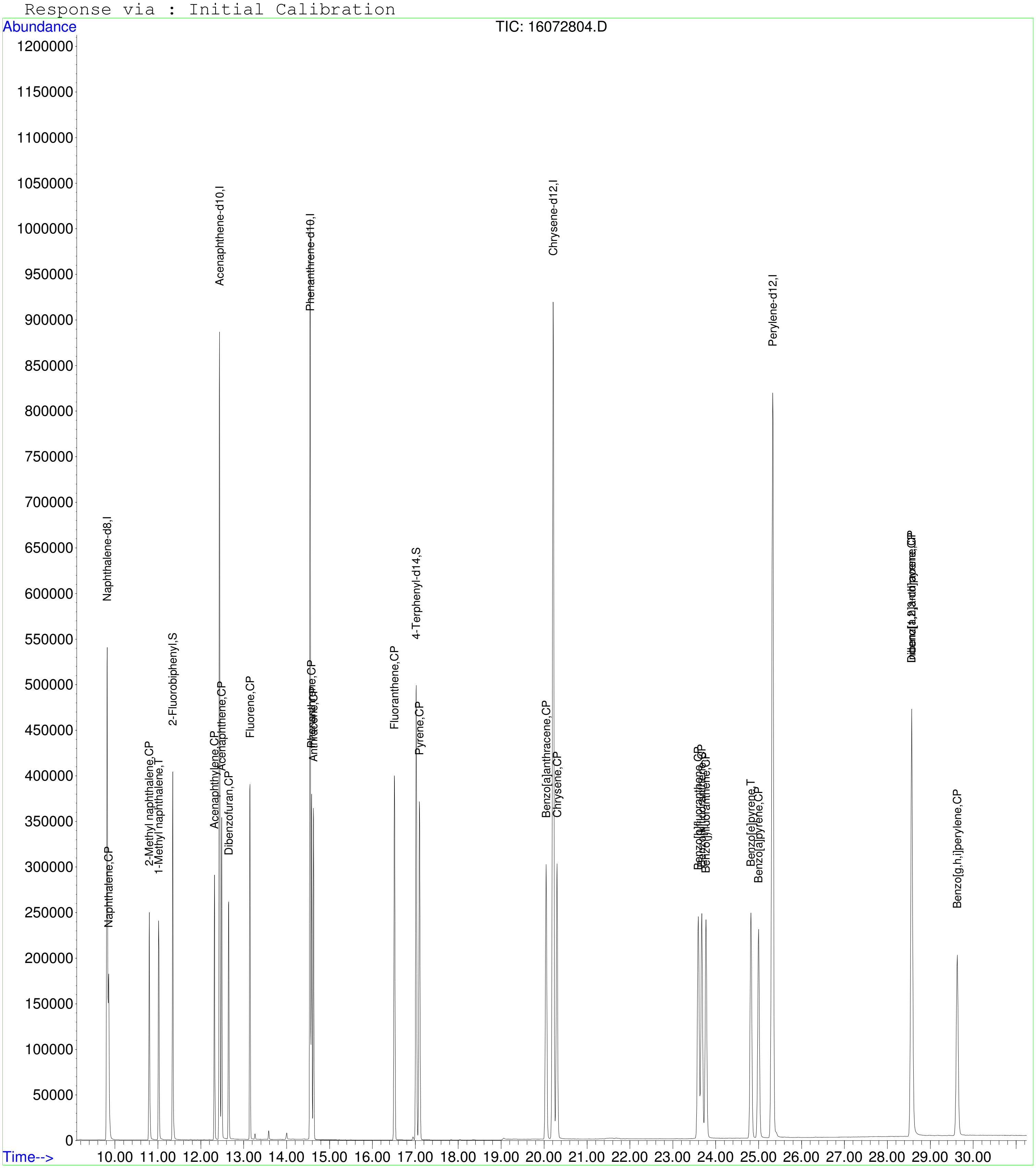
7) 2-Fluorobiphenyl	11.35	172	368693	2187.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 54.69%			
16) 4-Terphenyl-d14	17.02	244	722203	2243.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 56.08%			

Target Compounds						Qvalue
2) Naphthalene	9.85	128	217995	1101.58	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	160448	1121.79	ug/kg	96
4) 1-Methyl naphthalene	11.02	142	147487	1121.06	ug/kg	96
6) Dibenzofuran	12.65	168	251400	1217.00	ug/kg	99
8) Acenaphthylene	12.32	152	276116	1219.66	ug/kg	100
9) Acenaphthene	12.49	154	160377	1192.72	ug/kg	96
10) Fluorene	13.15	166	212077	1262.23	ug/kg	100
12) Phenanthrene	14.58	178	418635	1453.61	ug/kg	100
13) Anthracene	14.63	178	333925	1132.66	ug/kg	99
14) Fluoranthene	16.51	202	441449	1246.68	ug/kg	100
15) Pyrene	17.09	202	438777	1203.24	ug/kg	99
18) Benzo[a]anthracene	20.05	228	493082	1376.30	ug/kg	100
19) Chrysene	20.30	228	452335	1340.56	ug/kg	99
21) Benzo[b]fluoranthene	23.59	252	520939	1374.02	ug/kg	99
22) Benzo[k]fluoranthene	23.68	252	465129	1338.20	ug/kg	99
23) Benzo(j)fluoranthene	23.77	252	466418	1417.39	ug/kg	99
24) Benzo[e]pyrene	24.82	252	509772	1415.38	ug/kg	99
25) Benzo[a]pyrene	25.00	252	481849	1348.14	ug/kg	99
26) Dibenz[a,h]anthracene	28.57	278	467447	1261.93	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	28.57	276	547461	1230.61	ug/kg	96
28) Benzo[g,h,i]perylene	29.63	276	431526	1336.63	ug/kg	96

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

```
Data File : C:\HPCHEM\1\DATA\160728\16072804.D          Vial: 4
Acq On    : 28 Jul 2016  10:01 am                   Operator: DEW
Sample    : LCSD-76453                              Inst    : GC/MS #6
Misc      : LCSD                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:17 2016             Quant Results File: PP160725.RES

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072805.D Vial: 5
Acq On : 28 Jul 2016 10:39 am Operator: DEW
Sample : MB-76453 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	833741	4000.00	ug/kg	93
5) Acenaphthene-d10	12.44	164	505050	4000.00	ug/kg	89
11) Phenanthrene-d10	14.55	188	1412855	4000.00	ug/kg	94
17) Chrysene-d12	20.21	240	1642082	4000.00	ug/kg	102
20) Perylene-d12	25.33	264	1610987	4000.00	ug/kg	97

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	380396	2324.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	58.12%		
16) 4-Terphenyl-d14	17.02	244	746608	2507.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	62.69%		

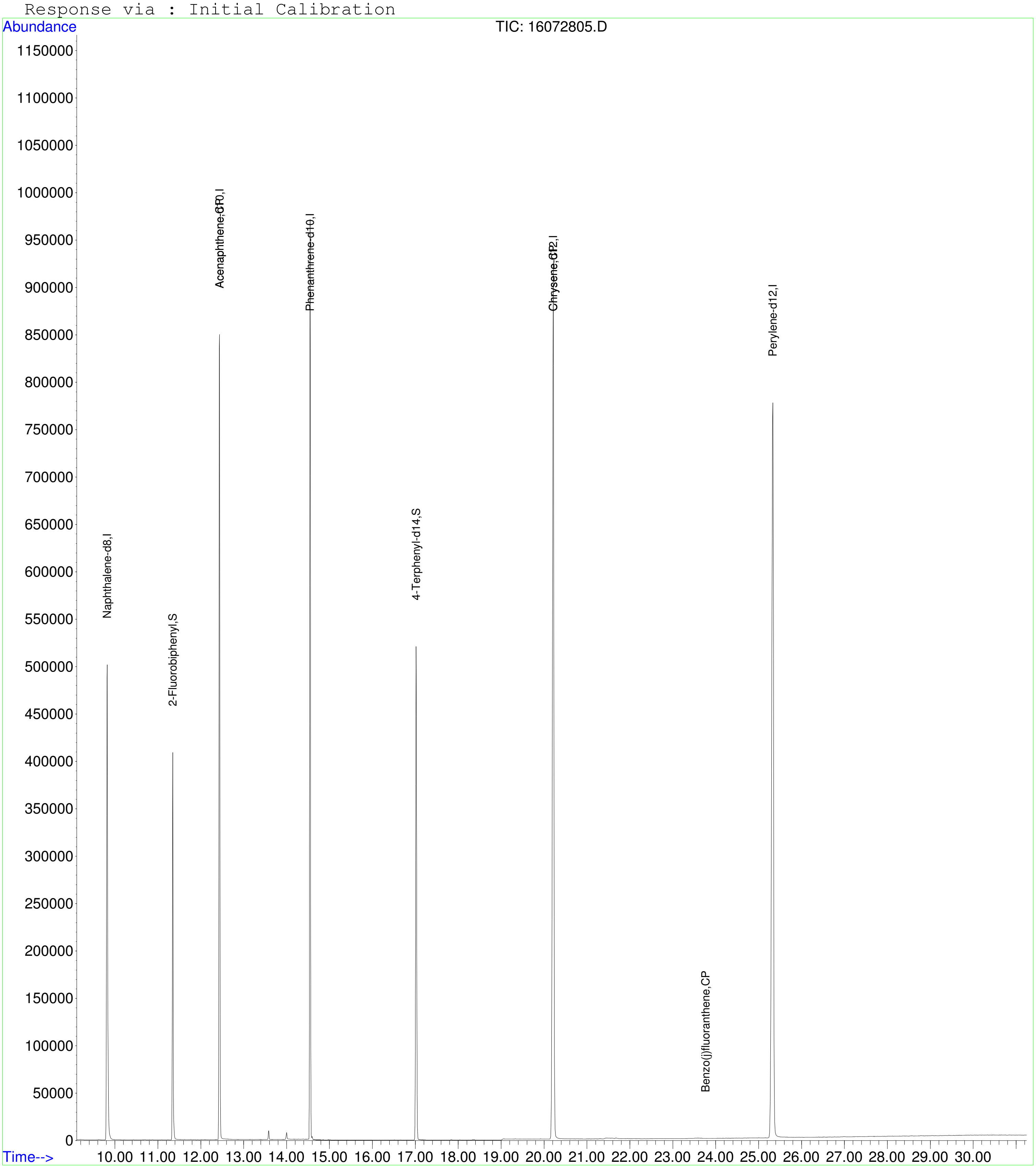
Target Compounds						Qvalue
9) Acenaphthene	12.43	154	1740	13.33	ug/kg#	9
19) Chrysene	20.21	228	3450	10.40	ug/kg	69
23) Benzo(j)fluoranthene	23.77	252	103	0.32	ug/kg#	37

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160728\16072805.D          Vial: 5
Acq On    : 28 Jul 2016  10:39 am                    Operator: DEW
Sample    : MB-76453                                 Inst    : GC/MS #6
Misc      : MBLK                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:18 2016             Quant Results File: PP160725.RES

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
```



Data File : C:\HPCHEM\1\DATA\160728\16072808.D Vial: 8
Acq On : 28 Jul 2016 12:31 pm Operator: DEW
Sample : 1607239-16B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

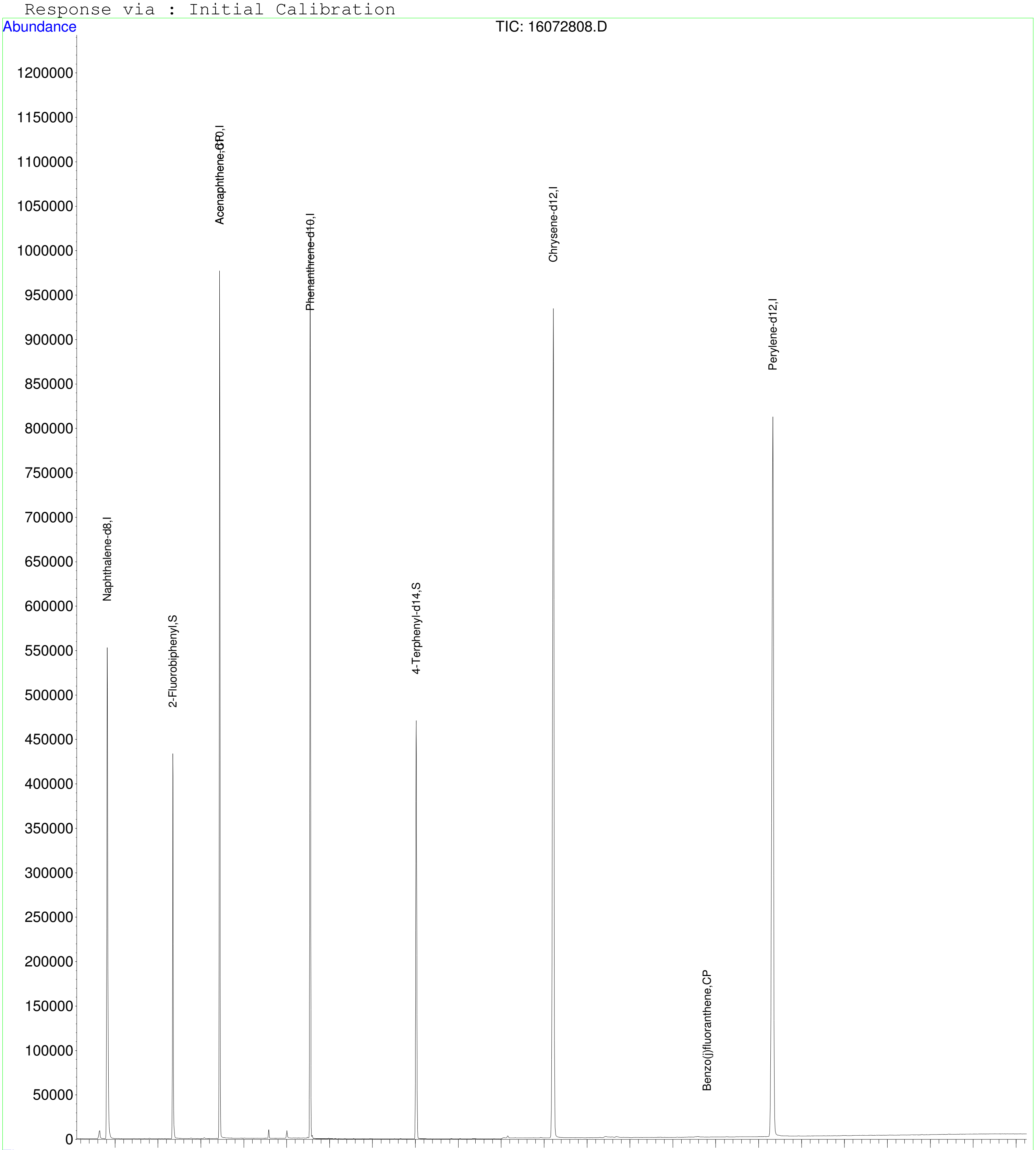
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	886192	4000.00	ug/kg	99
5) Acenaphthene-d10	12.44	164	548411	4000.00	ug/kg	96
11) Phenanthrene-d10	14.55	188	1561912	4000.00	ug/kg	104
17) Chrysene-d12	20.21	240	1651376	4000.00	ug/kg	102
20) Perylene-d12	25.33	264	1616617	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.34	172	407872	2295.69	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	57.39%		
16) 4-Terphenyl-d14	17.02	244	667390	2012.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.32%		
Target Compounds						Qvalue
9) Acenaphthene	12.44	154	1884	13.29	ug/kg#	10
23) Benzo(j)fluoranthene	23.79	252	50	0.16	ug/kg#	1

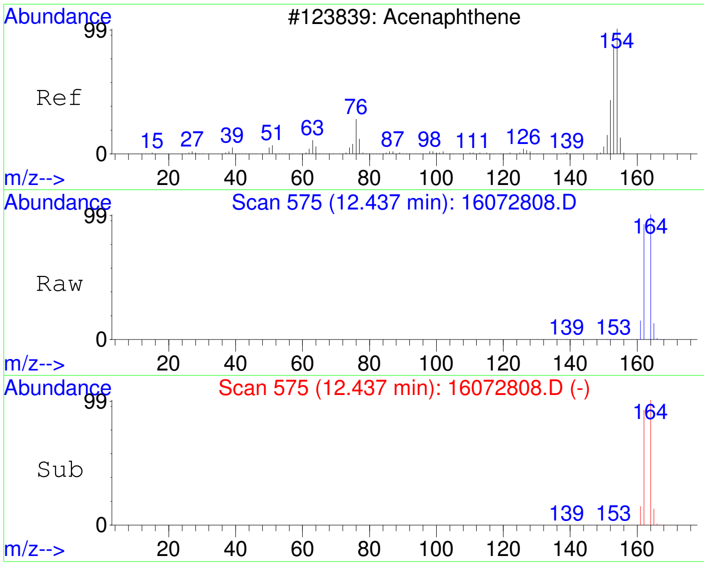
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160728\16072808.D          Vial: 8
Acq On    : 28 Jul 2016  12:31 pm                   Operator: DEW
Sample    : 1607239-16B                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016            Quant Results File: PP160725.RES

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
```

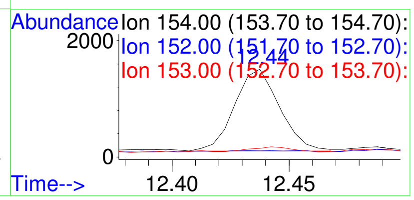


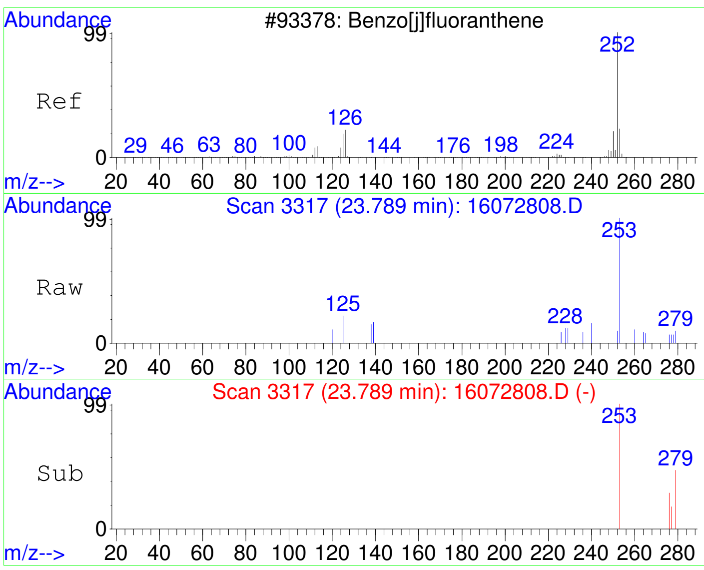


#9
Acenaphthene
Concen: 13.29 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.05 min
Lab File: 16072808.D
Acq: 28 Jul 2016 12:31 pm

Tgt Ion:154 Resp: 1884

Ion	Ratio	Lower	Upper
154	100		
152	1.7	20.4	80.4#
153	4.1	78.2	138.2#

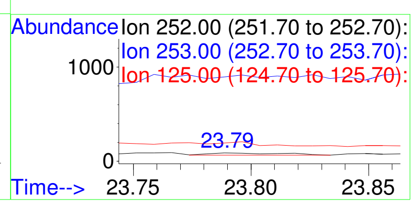




#23
Benzo(j)fluoranthene
Concen: 0.16 ug/kg
RT: 23.79 min Scan# 3317
Delta R.T. 0.01 min
Lab File: 16072808.D
Acq: 28 Jul 2016 12:31 pm

Tgt Ion:252 Resp: 50

Ion	Ratio	Lower	Upper
252	100		
253	75.0	2.1	42.1#
125	112.5	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072809.D Vial: 9
Acq On : 28 Jul 2016 1:08 pm Operator: DEW
Sample : 1607239-32B Inst : GC/MS #6
Misc : SAMP Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

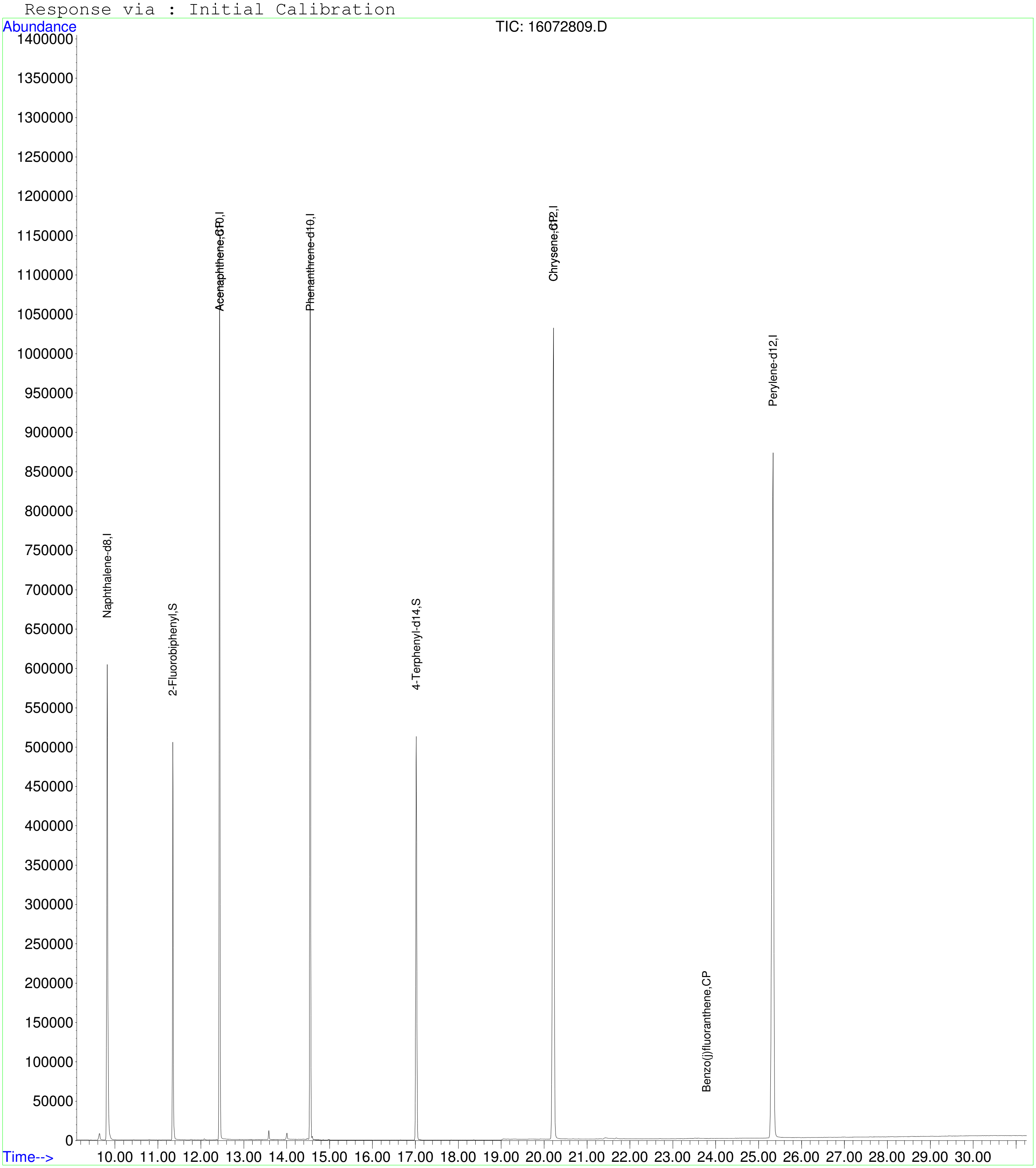
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	956790	4000.00	ug/kg	107
5) Acenaphthene-d10	12.44	164	657073	4000.00	ug/kg	115
11) Phenanthrene-d10	14.55	188	1799768	4000.00	ug/kg	120
17) Chrysene-d12	20.22	240	1848361	4000.00	ug/kg	115
20) Perylene-d12	25.34	264	1775531	4000.00	ug/kg	107
System Monitoring Compounds						
7) 2-Fluorobiphenyl	11.35	172	474167	2227.50	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 55.69%			
16) 4-Terphenyl-d14	17.02	244	734918	1920.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.02%			
Target Compounds						Qvalue
9) Acenaphthene	12.44	154	2283	13.44	ug/kg#	11
19) Chrysene	20.22	228	3955	10.60	ug/kg	70
23) Benzo(j)fluoranthene	23.78	252	35	0.10	ug/kg#	1

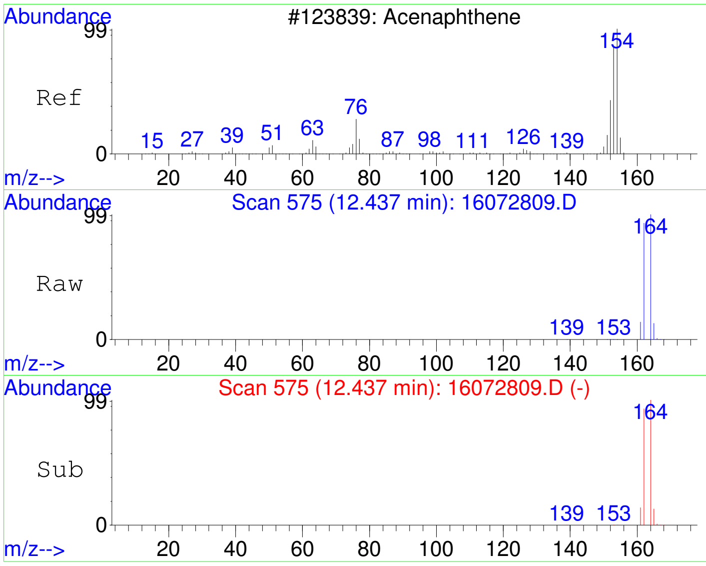
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160728\16072809.D          Vial: 9
Acq On    : 28 Jul 2016   1:08 pm                   Operator: DEW
Sample    : 1607239-32B                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:21 2016             Quant Results File: PP160725.RES

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
```

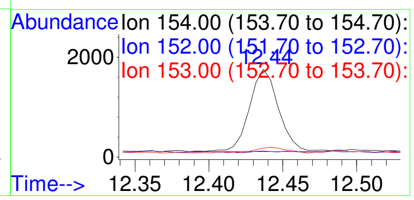


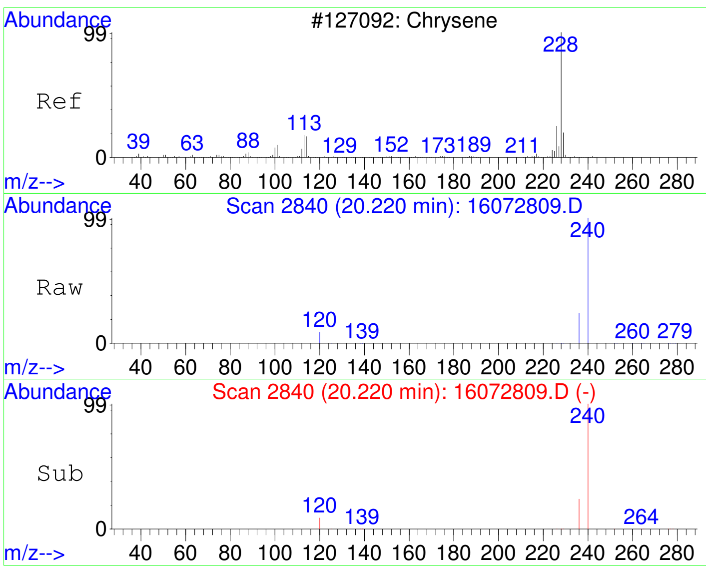


#9
Acenaphthene
Concen: 13.44 ug/kg
RT: 12.44 min Scan# 575
Delta R.T. -0.05 min
Lab File: 16072809.D
Acq: 28 Jul 2016 1:08 pm

Tgt Ion:154 Resp: 2283

Ion	Ratio	Lower	Upper
154	100		
152	1.2	20.4	80.4#
153	6.0	78.2	138.2#

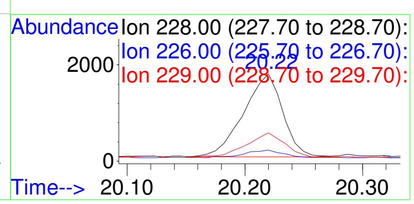


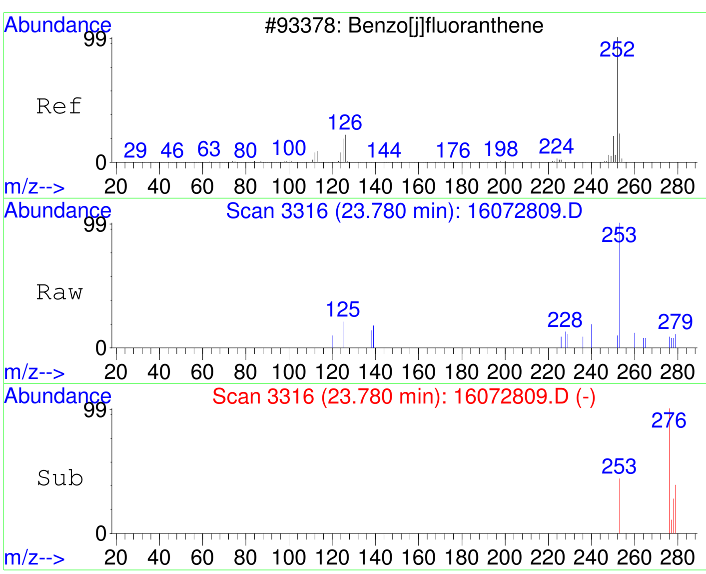


#19
Chrysene
Concen: 10.60 ug/kg
RT: 20.22 min Scan# 2840
Delta R.T. -0.08 min
Lab File: 16072809.D
Acq: 28 Jul 2016 1:08 pm

Tgt Ion:228 Resp: 3955

Ion	Ratio	Lower	Upper
228	100		
226	8.9	0.0	58.1
229	29.0	0.0	49.9

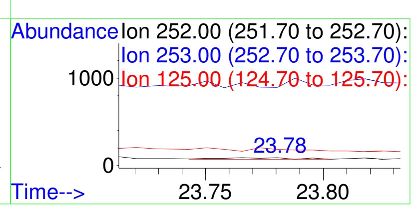




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 23.78 min Scan# 3316
Delta R.T. 0.00 min
Lab File: 16072809.D
Acq: 28 Jul 2016 1:08 pm

Tgt Ion:252 Resp: 35

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.1	42.1#
125	105.6	0.0	34.0#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160728\16072816.D Vial: 16
Acq On : 28 Jul 2016 5:31 pm Operator: DEW
Sample : ICV2-160728 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016 Quant Results File: PP160725.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title : PAH Calibration
Last Update : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	9.82	136	971538	4000.00	ug/kg	109
5) Acenaphthene-d10	12.44	164	596586	4000.00	ug/kg	105
11) Phenanthrene-d10	14.55	188	1699263	4000.00	ug/kg	113
17) Chrysene-d12	20.22	240	1873252	4000.00	ug/kg	116
20) Perylene-d12	25.34	264	1888346	4000.00	ug/kg	114

System Monitoring Compounds

7) 2-Fluorobiphenyl	11.35	172	367882	1903.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.59%			
16) 4-Terphenyl-d14	17.02	244	678598	1877.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.93%			

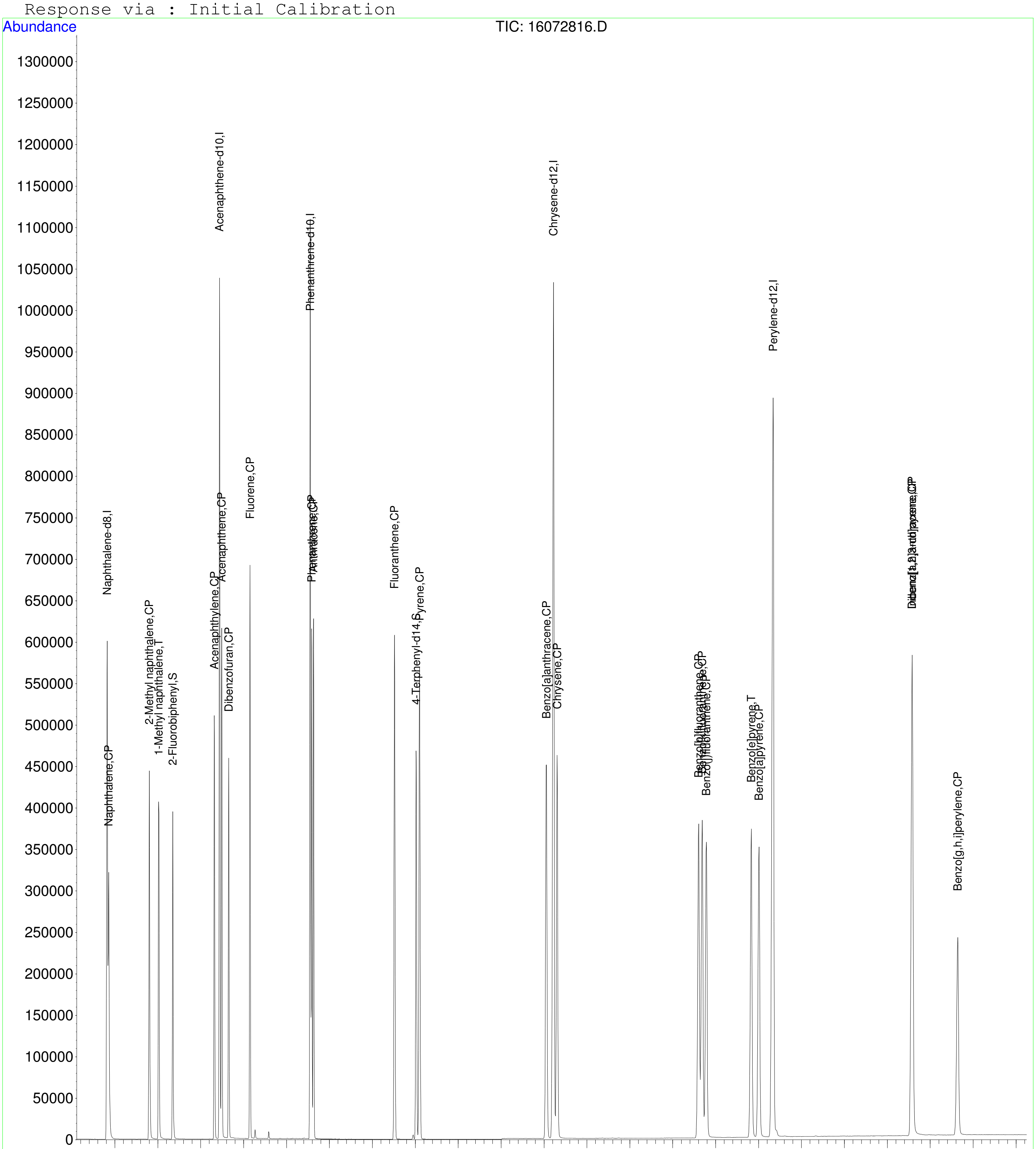
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	9.86	128	392628	1777.18	ug/kg	100
3) 2-Methyl naphthalene	10.80	142	291499	1825.56	ug/kg	97
4) 1-Methyl naphthalene	11.02	142	266041	1811.37	ug/kg	98
6) Dibenzofuran	12.65	168	420847	1776.70	ug/kg	99
8) Acenaphthylene	12.32	152	482469	1858.57	ug/kg	99
9) Acenaphthene	12.49	154	280864	1821.60	ug/kg	97
10) Fluorene	13.15	166	358158	1859.01	ug/kg	100
12) Phenanthrene	14.59	178	671597	2088.60	ug/kg	100
13) Anthracene	14.63	178	568837	1728.11	ug/kg	100
14) Fluoranthene	16.52	202	681788	1724.48	ug/kg	100
15) Pyrene	17.10	202	686885	1687.04	ug/kg	100
18) Benzo[a]anthracene	20.06	228	740083	1842.65	ug/kg	99
19) Chrysene	20.30	228	679574	1796.53	ug/kg	100
21) Benzo[b]fluoranthene	23.60	252	799836	1853.65	ug/kg	99
22) Benzo[k]fluoranthene	23.69	252	731652	1849.59	ug/kg	100
23) Benzo(j)fluoranthene	23.78	252	704600	1881.39	ug/kg	99
24) Benzo[e]pyrene	24.83	252	754358	1840.34	ug/kg	100
25) Benzo[a]pyrene	25.01	252	748553	1840.21	ug/kg	99
26) Dibenz[a,h]anthracene	28.58	278	598827	1420.46	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	28.58	276	701633	1385.79	ug/kg	94
28) Benzo[g,h,i]perylene	29.64	276	547403	1489.82	ug/kg	94

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160728\16072816.D          Vial: 16
Acq On    : 28 Jul 2016   5:31 pm                    Operator: DEW
Sample    : ICV2-160728                              Inst    : GC/MS #6
Misc      : ICV                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 10:19 2016             Quant Results File: PP160725.RES

Method       : C:\HPCHEM\1\METHODS\PP160725.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Wed Aug 10 10:17:02 2016
Response via : Initial Calibration
```



GCMS6_160802B
For

DHL Work Order
1607239

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	**Run ID: GCMS6_160802B**			
Batch Number(s): See Run Log. **Matrix: See Run Log.**	**SOP:** ORGANICS-PAH-01			

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

Daily Demonstration of Performance

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

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

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

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

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

QA APPROVED
By John DuPont at 2:33:23 PM, 8/10/2016

Approved by: Date:

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

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

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

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

All samples with detections will be reanalyzed. Only non-detect samples reported.

Analyst: Don Winston Date: 8/3/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:26:46 PM, 8/10/2016

8270-PAH-SOIL-GCMS6

DHL Analytical, Inc.

Run ID: GCMS6_160802B | **Run No.:** 87388

Analytical Run Date: 8/2/2016 | **InstrumentID:** GCMS6

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

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

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160802	1	PAH_LL_SDOD1	TUNE	R87388	8/2/2016 8:47:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160802	1	PAH_LL_SDOD1	ICV	R87388	8/2/2016 9:27:00 AM		
LCS-76473	1	PAH_LL_SDOD1	LCS	76473	8/2/2016 10:08:00 AM		
MB-76473	1	PAH_LL_SDOD1	MBLK	76473	8/2/2016 10:47:00 AM		
1607256-07A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 11:28:00 AM		
1607256-08A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 12:08:00 PM		
1607256-09A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 12:49:00 PM		
1607256-10A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 1:30:00 PM		
1607256-11A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 2:11:00 PM		
1607256-12A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 2:52:00 PM		
1607256-14A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 3:33:00 PM		
1607256-15A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 4:13:00 PM		
1607256-16A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 4:54:00 PM		
1607256-17A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 5:35:00 PM		
1607256-18A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 6:15:00 PM		
1607256-19A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 6:55:00 PM		
1607256-29A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 7:35:00 PM		
1607256-30A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 8:16:00 PM		
DFTPP2-160802	1	PAH_LL_SDOD1	TUNE	R87388	8/2/2016 8:56:00 PM		
ICV2-160802	1	PAH_LL_SDOD1	ICV	R87388	8/2/2016 9:36:00 PM		
SB-160802	1	PAH_LL_SDOD1	SBLK	76473	8/2/2016 10:17:00 PM		J value hits present in System Blank. Only non-detect samples reported.
1607256-31A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 10:57:00 PM		
1607256-32A	10	PAH_LL_SDOD1	SAMP	76473	8/2/2016 11:37:00 PM		
1607256-33A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 12:17:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607256-34A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 12:58:00 AM		
1607256-35A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:38:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.

DHL Analytical, Inc.

Run ID: **GCMS6_160802B** **Run No.:** 87388

1607256-36A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 2:19:00 AM		
1607219-18A	10	PAH_LL_SDOD1	SAMP	76420	8/3/2016 2:59:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:40:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 4:20:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:00:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:40:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 6:19:00 AM		DNR-J value hits present in System Blank associated with this sample. See rerun.
1607256-07AMS	10	PAH_LL_SDOD1	MS	76473	8/3/2016 6:59:00 AM		
1607256-07AMSD	10	PAH_LL_SDOD1	MSD	76473	8/3/2016 7:40:00 AM		
CCV1-160802	1	PAH_LL_SDOD1	CCV	R87388	8/3/2016 8:20:00 AM		

```
Sequence Name: C:\HPCHEM\1\SEQUENCE\160802.S
      Comment:
     Operator: DEW
    Data Path: C:\HPCHEM\1\DATA\160802\
  Pre-Seq Cmd:
 Post-Seq Cmd:

Method Sections To Run     On A Barcode Mismatch
 (X) Full Method             (X) Inject Anyway
 ( ) Reprocessing Only       ( ) Don't Inject
```

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080201	DFTPPPAH	DFTPP-160802
2	Sample	2	16080202	PP160801	ICV-160802
3	Sample	3	16080203	PP160801	LCS-76473
4	Sample	4	16080204	PP160801	MB-76473
5	Sample	5	16080205	PP160801	1607256-07A
6	Sample	6	16080206	PP160801	1607256-08A
7	Sample	7	16080207	PP160801	1607256-09A
8	Sample	8	16080208	PP160801	1607256-10A
9	Sample	9	16080209	PP160801	1607256-11A
10	Sample	10	16080210	PP160801	1607256-12A
11	Sample	11	16080211	PP160801	1607256-14A
12	Sample	12	16080212	PP160801	1607256-15A
13	Sample	13	16080213	PP160801	1607256-16A
14	Sample	14	16080214	PP160801	1607256-17A
15	Sample	15	16080215	PP160801	1607256-18A
16	Sample	16	16080216	PP160801	1607256-19A
17	Sample	17	16080217	PP160801	1607256-29A
18	Sample	18	16080218	PP160801	1607256-30A
19	Sample	19	16080219	DFTPPPAH	DFTPP2-160802
20	Sample	20	16080220	PP160801	ICV2-160802
21	Sample	21	16080221	PP160801	SB-160802
22	Sample	22	16080222	PP160801	1607256-31A
23	Sample	23	16080223	PP160801	1607256-32A
24	Sample	24	16080224	PP160801	1607256-33A
25	Sample	25	16080225	PP160801	1607256-34A
26	Sample	26	16080226	PP160801	1607256-35A
27	Sample	27	16080227	PP160801	1607256-36A
28	Sample	28	16080228	PP160801	1607219-18A
29	Sample	29	16080229	PP160801	1607219-22A
30	Sample	30	16080230	PP160801	1607239-01A
31	Sample	31	16080231	PP160801	1607239-05A
32	Sample	32	16080232	PP160801	1607239-11A
33	Sample	33	16080233	PP160801	1607239-17A
34	Sample	34	16080234	PP160801	1607256-07AMS
35	Sample	35	16080235	PP160801	1607256-07AMSD
36	Sample	36	16080236	PP160801	CCV1-160802
37	Sample	37	16080237	PP160801	DCS-~~73288~~ **76288**
38	Sample	38	16080238	PP160801	LQV1-~~73288~~**76288**

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: 7/25/16 5:00 Pm
Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	1.000	1 of 1	
1607219-23A	Soil		10.71	10	1.000	1 of 1	
1607219-24A	Soil		10.27	10	1.000	1 of 1	
1607219-25A	Soil		10.46	10	1.000	1 of 1	
1607239-01A	Soil		10.05	10	1.000	1 of 3	
1607239-01AMS	Soil		10.68	10	1.000	1 of 3	
1607239-01AMSD	Soil		10.47	10	1.000	1 of 3	
1607239-02A	Soil		10.13	10	1.000	1 of 1	
1607239-03A	Soil		10.14	10	1.000	1 of 1	
1607239-04A	Soil		10.14	10	1.000	1 of 1	
1607239-05A	Soil		10.42	10	1.000	1 of 1	
1607239-06A	Soil		10.07	10	1.000	1 of 1	
1607239-07A	Soil		10.26	10	1.000	1 of 1	
1607239-08A	Soil		10.33	10	1.000	1 of 1	
1607239-09A	Soil		10.01	10	1.000	1 of 1	
1607239-10A	Soil		10.71	10	1.000	1 of 1	
1607239-11A	Soil		10.22	10	1.000	1 of 1	
1607239-12A	Soil		10.22	10	1.000	1 of 1	
1607239-13A	Soil		10.29	10	1.000	1 of 1	
1607239-14A	Soil		10.83	10	1.000	1 of 1	
1607239-15A	Soil		10.53	10	1.000	1 of 1	
1607239-17A	Soil		10.74	10	1.000	1 of 1	
LCS-76442	Soil		10	10	1.000	of	
MB-76442	Soil		10	10	1.000	of	

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

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

REVIEWED BY
By Janice Whitt at 12:36:50 PM, 8/10/2016

7/25/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: **7/25/2016 5:00:00 PM**

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	0.995	1	of	1	
1607219-23A	Soil		10.71	10	0.934	1	of	1	
1607219-24A	Soil		10.27	10	0.974	1	of	1	
1607219-25A	Soil		10.46	10	0.956	1	of	1	
1607239-01A	Soil		10.05	10	0.995	1	of	3	
1607239-01AMS	Soil		10.68	10	0.936	1	of		
1607239-01AMSD	Soil		10.47	10	0.955	1	of		
1607239-02A	Soil		10.13	10	0.987	1	of	1	
1607239-03A	Soil		10.14	10	0.986	1	of	1	
1607239-04A	Soil		10.14	10	0.986	1	of	1	
1607239-05A	Soil		10.42	10	0.960	1	of	1	
1607239-06A	Soil		10.07	10	0.993	1	of	1	
1607239-07A	Soil		10.26	10	0.975	1	of	1	
1607239-08A	Soil		10.33	10	0.968	1	of	1	
1607239-09A	Soil		10.01	10	0.999	1	of	1	
1607239-10A	Soil		10.71	10	0.934	1	of	1	
1607239-11A	Soil		10.22	10	0.978	1	of	1	
1607239-12A	Soil		10.22	10	0.978	1	of	1	
1607239-13A	Soil		10.29	10	0.972	1	of	1	
1607239-14A	Soil		10.83	10	0.923	1	of	1	
1607239-15A	Soil		10.53	10	0.950	1	of	1	
1607239-17A	Soil		10.74	10	0.931	1	of	1	
LCS-76442	Soil		10	10	1.000		of		
MB-76442	Soil		10	10	1.000		of		

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

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

REVIEWED BY
By Janice Whitt at 12:36:52 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:00 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

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

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

REVIEWED BY
By Janice Whitt at 12:31:05 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:07 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

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

Prep Factor Units: **mL/**

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

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

REVIEWED BY
By Janice Whitt at 12:31:14 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**

Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**

Prep End Date: **7/22/2016 6:00:00 PM**

Prep Factor Units: **mL/**

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

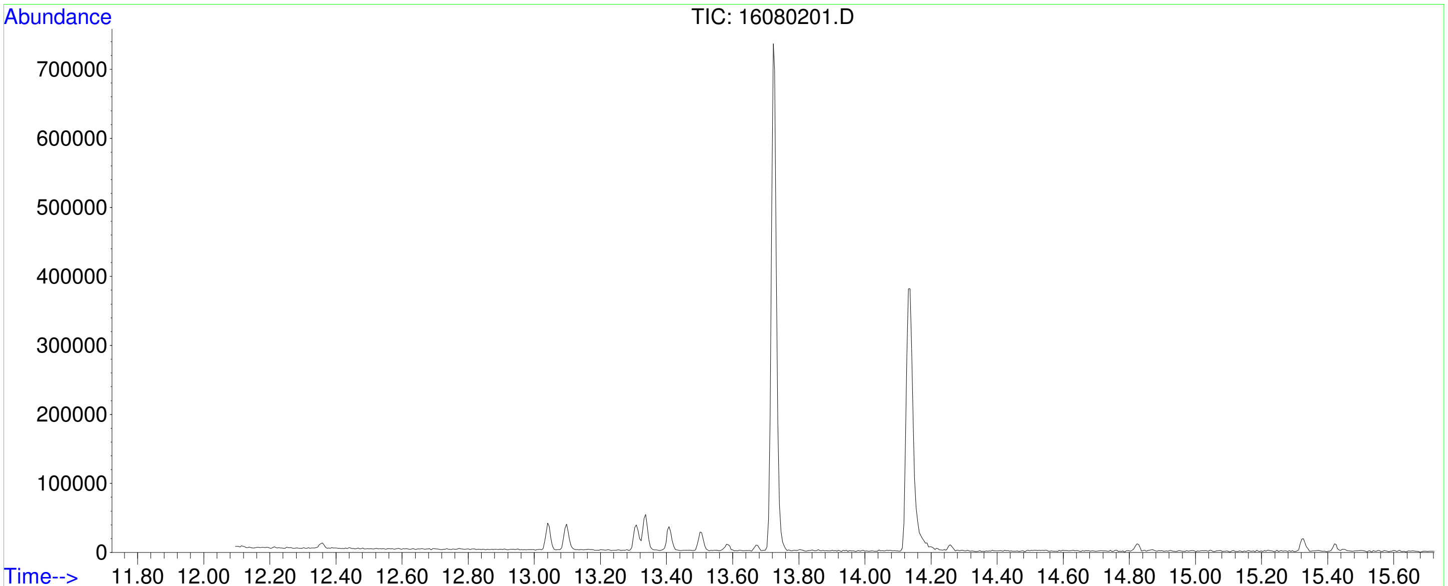
Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-15A SS	Soil		0	0	#Num!	1 of 1	
1607219-16A SS	Soil		0	0	#Num!	1 of 1	
1607219-17A SS	Soil		0	0	#Num!	1 of 1	
1607219-18A SS	Soil		0	0	#Num!	1 of 1	
1607219-19A SS	Soil		0	0	#Num!	1 of 1	
1607219-20A SS	Soil		0	0	#Num!	1 of 1	
1607219-21A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

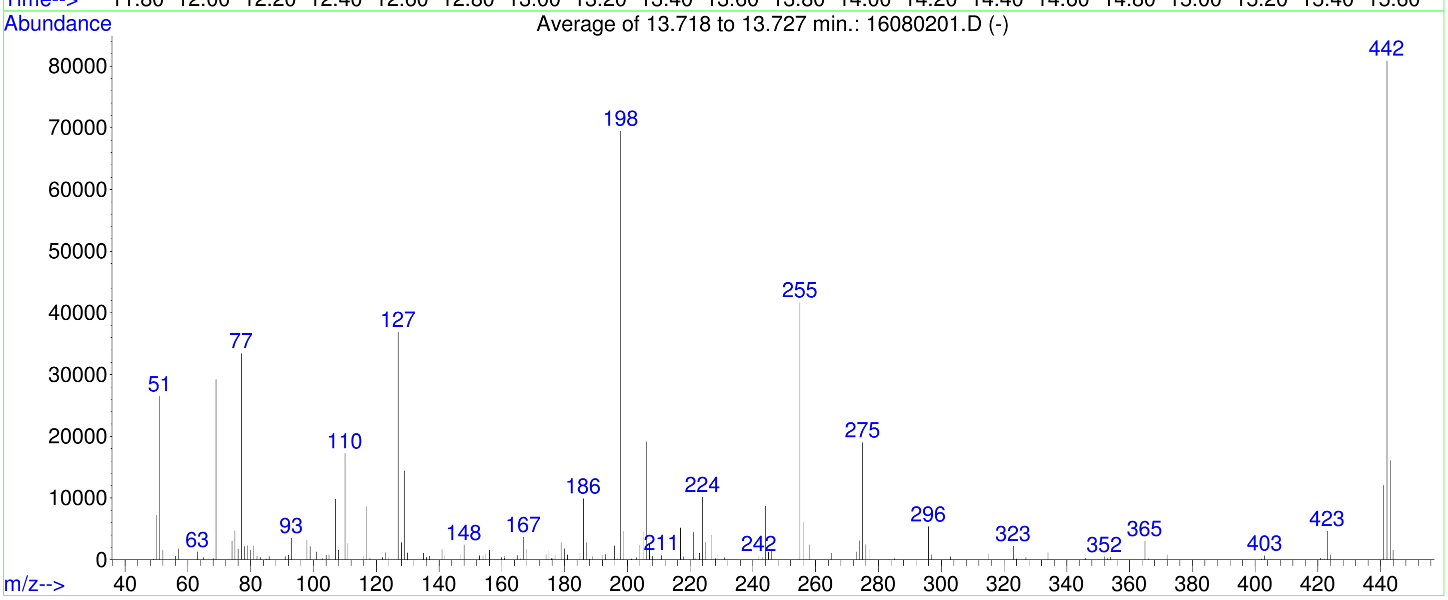
REVIEWED BY

By Janice Whitt at 12:31:16 PM, 8/10/2016

DFTPP

```
Data File : C:\HPCHEM\1\DATA\160802\16080201.D          Vial: 1
Acq On    :  2 Aug 2016   8:47 am                    Operator: DEW
Sample    : DFTPP-160802                             Inst    : GC/MS #6
Misc      : TUNE                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Method   : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title    : PAH Calibration
```



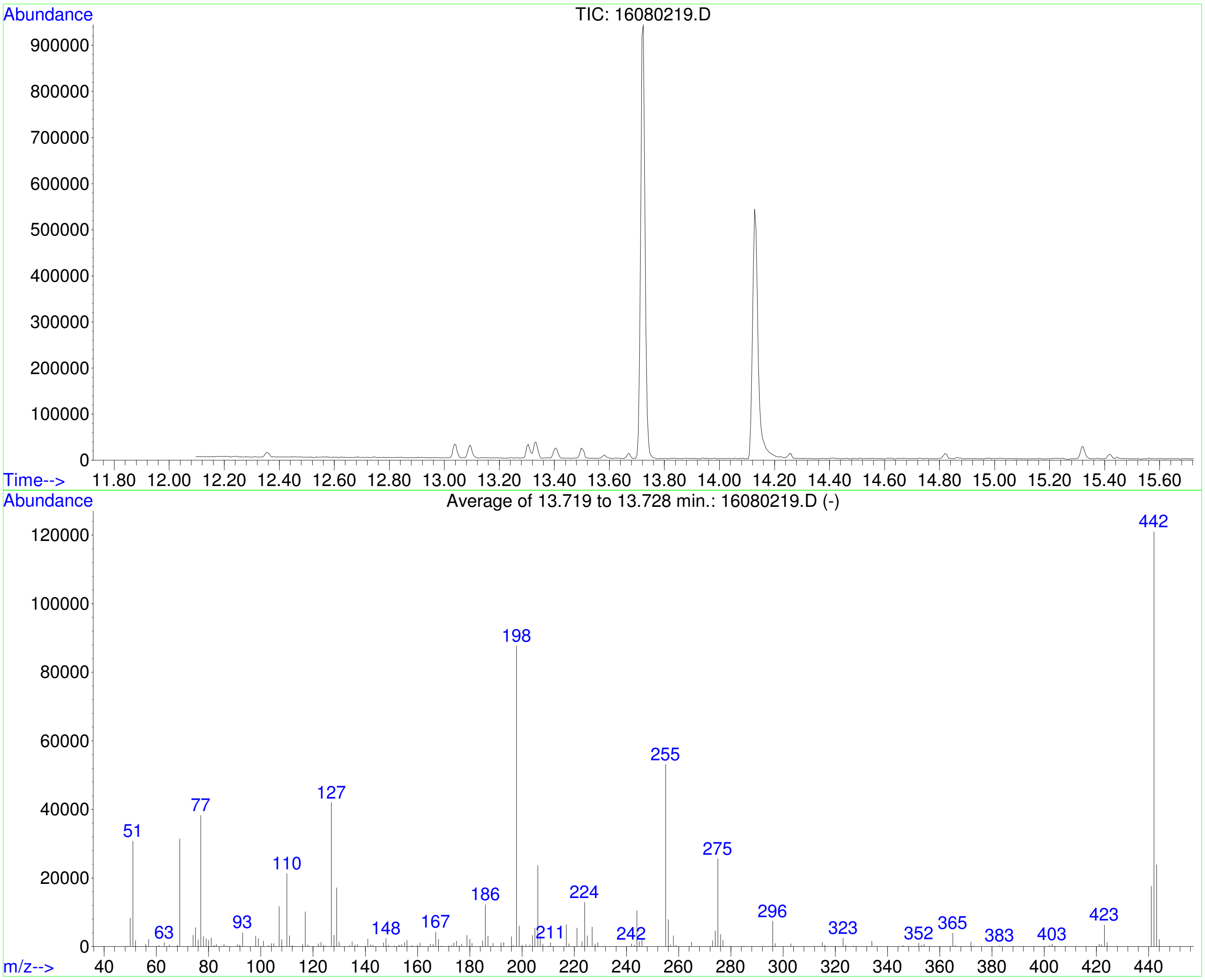


AutoFind: Scans 346, 347, 348; Background Corrected with Scan 340

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.2	26520	PASS
68	69	0.00	2	0.8	237	PASS
69	198	0.00	100	42.1	29245	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.2	36949	PASS
197	198	0.00	2	0.3	226	PASS
198	198	100	100	100.0	69507	PASS
199	198	5	9	6.7	4643	PASS
275	198	10	60	27.4	19018	PASS
365	198	1	200	4.4	3070	PASS
441	442	0.01	24	15.0	12104	PASS
442	198	50	400	116.4	80875	PASS
443	442	15	24	19.9	16087	PASS

REVIEWED BY
By Janice Whitt at 1:11:40 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160802\16080219.D   Vial: 19
Acq On   : 2 Aug 2016   8:56 pm   Operator: DEW
Sample   : DFTPP2-160802   Inst   : GC/MS #6
Misc   : TUNE   Multiplr: 1.00
MS Integration Params: RTEINT.P
Method   : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title   : PAH Calibration



AutoFind: Scans 346, 347, 348; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.1	30792	PASS
68	69	0.00	2	1.6	491	PASS
69	198	0.00	100	35.8	31435	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	47.9	42021	PASS
197	198	0.00	2	0.6	485	PASS
198	198	100	100	100.0	87760	PASS
199	198	5	9	6.9	6078	PASS
275	198	10	60	29.2	25605	PASS
365	198	1	200	4.5	3955	PASS
441	442	0.01	24	14.6	17673	PASS
442	198	50	400	137.9	121053	PASS
443	442	15	24	19.8	23925	PASS

REVIEWED BY
By Janice Whitt at 1:11:46 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160802\16080202.D   Vial: 2
Acq On : 2 Aug 2016 9:27 am   Operator: DEW
Sample : ICV-160802   Inst : GC/MS #6
Misc : ICV   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016   Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1473446	4000.00	ug/kg	105
5) Acenaphthene-d10	13.16	164	614716	4000.00	ug/kg	103
11) Phenanthrene-d10	15.27	188	1514689	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	1883018	4000.00	ug/kg	103
20) Perylene-d12	26.06	264	1991822	4000.00	ug/kg	103

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	413910	1930.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.26%			
16) 4-Terphenyl-d14	17.73	244	672951	1882.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.07%			

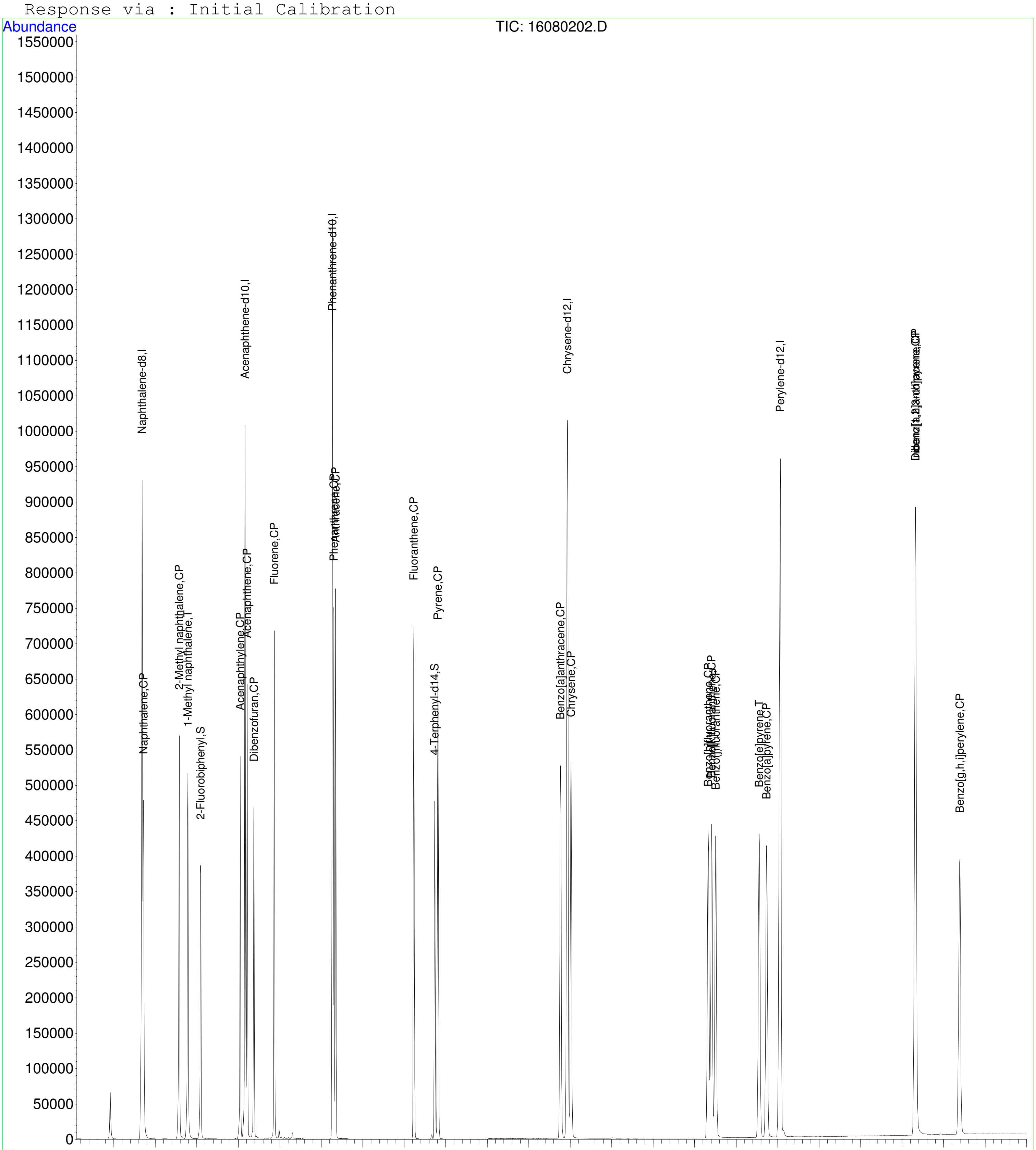
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.72	128	621794	1854.75	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	402999	1854.31	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	358716	1863.40	ug/kg	100
6) Dibenzofuran	13.38	168	462775	1860.27	ug/kg	100
8) Acenaphthylene	13.05	152	530337	1948.19	ug/kg	100
9) Acenaphthene	13.21	154	308432	1956.33	ug/kg	99
10) Fluorene	13.87	166	397172	2004.09	ug/kg	98
12) Phenanthrene	15.30	178	677652	1887.05	ug/kg	100
13) Anthracene	15.35	178	705762	1867.75	ug/kg	100
14) Fluoranthene	17.23	202	800055	1879.95	ug/kg	100
15) Pyrene	17.81	202	799778	1853.39	ug/kg	100
18) Benzo[a]anthracene	20.77	228	835938	1969.59	ug/kg	99
19) Chrysene	21.02	228	790987	1937.23	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	913080	1985.72	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	827924	1962.64	ug/kg	99
23) Benzo(j)fluoranthene	24.51	252	806179	1988.63	ug/kg	100
24) Benzo[e]pyrene	25.55	252	890597	1995.83	ug/kg	100
25) Benzo[a]pyrene	25.74	252	886141	1994.52	ug/kg	99
26) Dibenz[a,h]anthracene	29.32	278	874633	2034.32	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	1030665	2020.13	ug/kg	100
28) Benzo[g,h,i]perylene	30.39	276	860197	2013.01	ug/kg	99

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080202.D          Vial: 2
Acq On    :  2 Aug 2016   9:27 am                   Operator: DEW
Sample    : ICV-160802                              Inst    : GC/MS #6
Misc      : ICV                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:57 2016            Quant Results File: PP160801.RES

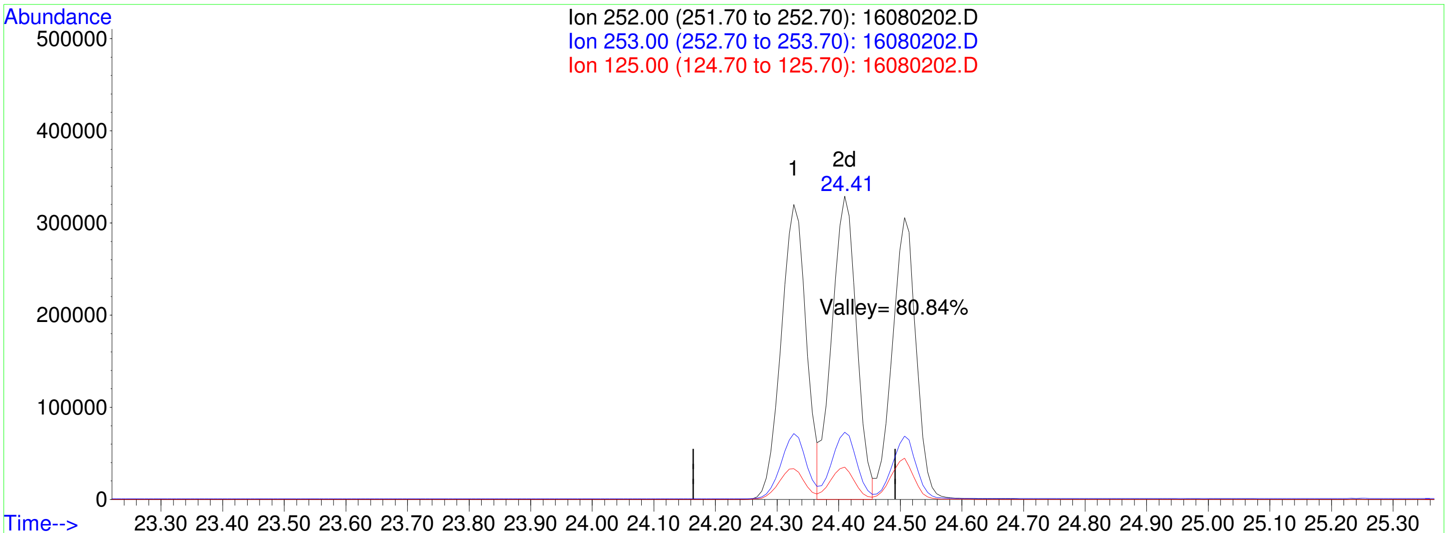
Method       : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
```

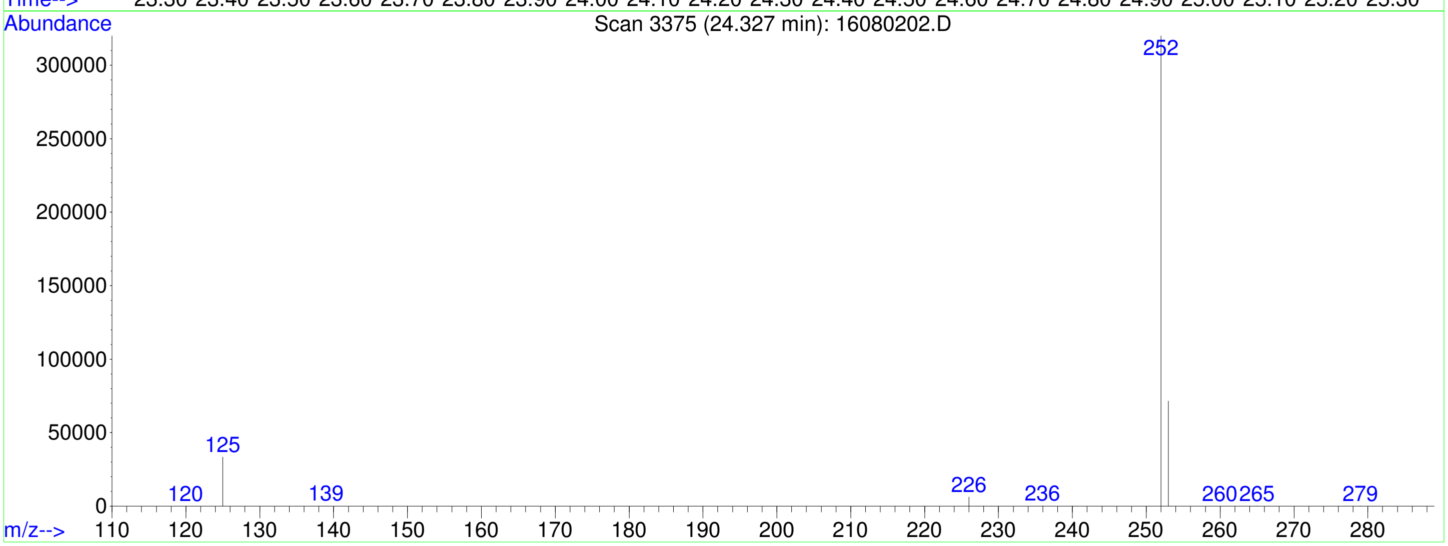


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160802\16080202.D Vial: 2
Acq On : 2 Aug 2016 9:27 am Operator: DEW
Sample : ICV-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:59 2016 Quant Results File: temp.res

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





TIC: 16080202.D

(21) Benzo[b]fluoranthene (CP)

24.33min 1985.72ug/kg

response 913080

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.12
125.00	10.60	10.44
0.00	0.00	0.00

```
Data File : C:\HPCHEM\1\DATA\160802\16080203.D          Vial: 3
Acq On    :  2 Aug 2016  10:08 am                   Operator: DEW
Sample    : LCS-76473                               Inst    : GC/MS #6
Misc      : LCS                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  3 10:57 2016             Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1893675	4000.00 ug/kg	135
5) Acenaphthene-d10	13.16	164	946238	4000.00 ug/kg	158
11) Phenanthrene-d10	15.27	188	1778578	4000.00 ug/kg	112
17) Chrysene-d12	20.93	240	2163815	4000.00 ug/kg	118
20) Perylene-d12	26.06	264	2201421	4000.00 ug/kg	114

System Monitoring Compounds

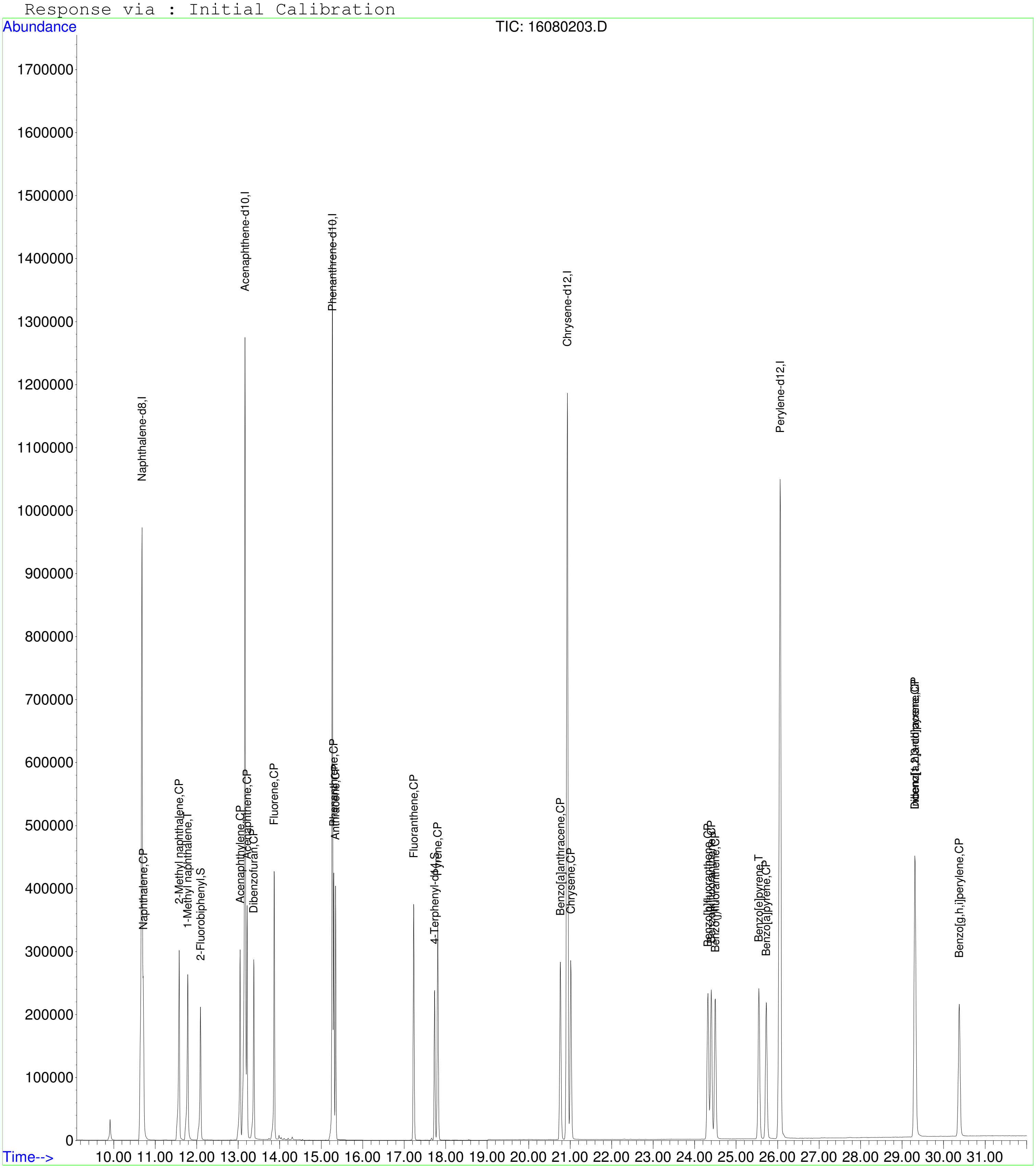
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.09	172	273729	829.33 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.73%#	
16) 4-Terphenyl-d14	17.73	244	336376	801.42 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	20.04%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Naphthalene	10.71	128	358934	833.07 ug/kg	99
3) 2-Methyl naphthalene	11.58	142	257188	920.78 ug/kg	97
4) 1-Methyl naphthalene	11.78	142	231617	936.17 ug/kg	96
6) Dibenzofuran	13.38	168	340284	888.63 ug/kg	99
8) Acenaphthylene	13.05	152	380315	907.61 ug/kg	100
9) Acenaphthene	13.21	154	223671	921.65 ug/kg	99
10) Fluorene	13.87	166	273934	897.96 ug/kg	98
12) Phenanthrene	15.30	178	402095	953.58 ug/kg	99
13) Anthracene	15.35	178	374145	843.24 ug/kg	100
14) Fluoranthene	17.23	202	423176	846.83 ug/kg	99
15) Pyrene	17.81	202	422896	834.61 ug/kg	100
18) Benzo[a]anthracene	20.77	228	449840	922.35 ug/kg	99
19) Chrysene	21.01	228	424924	905.64 ug/kg	100
21) Benzo[b]fluoranthene	24.32	252	486371	957.03 ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	463309	993.73 ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	447763	999.35 ug/kg	99
24) Benzo[e]pyrene	25.55	252	487702	988.88 ug/kg	99
25) Benzo[a]pyrene	25.73	252	446962	910.24 ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	443518	933.37 ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	524150	929.53 ug/kg	98
28) Benzo[g,h,i]perylene	30.38	276	434176	919.31 ug/kg	100

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

```
Data File : C:\HPCHEM\1\DATA\160802\16080203.D          Vial: 3
Acq On    :  2 Aug 2016  10:08 am                   Operator: DEW
Sample    : LCS-76473                               Inst    : GC/MS #6
Misc      : LCS                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:57 2016            Quant Results File: PP160801.RES

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



```
Data File : C:\HPCHEM\1\DATA\160802\16080204.D          Vial: 4
Acq On    :  2 Aug 2016  10:47 am                   Operator: DEW
Sample    : MB-76473                                Inst    : GC/MS #6
Misc      : MBLK                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  3 10:57 2016              Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1786404	4000.00 ug/kg	127
5) Acenaphthene-d10	13.16	164	921564	4000.00 ug/kg	154
11) Phenanthrene-d10	15.27	188	1729778	4000.00 ug/kg	109
17) Chrysene-d12	20.93	240	2066622	4000.00 ug/kg	113
20) Perylene-d12	26.06	264	2089664	4000.00 ug/kg	108

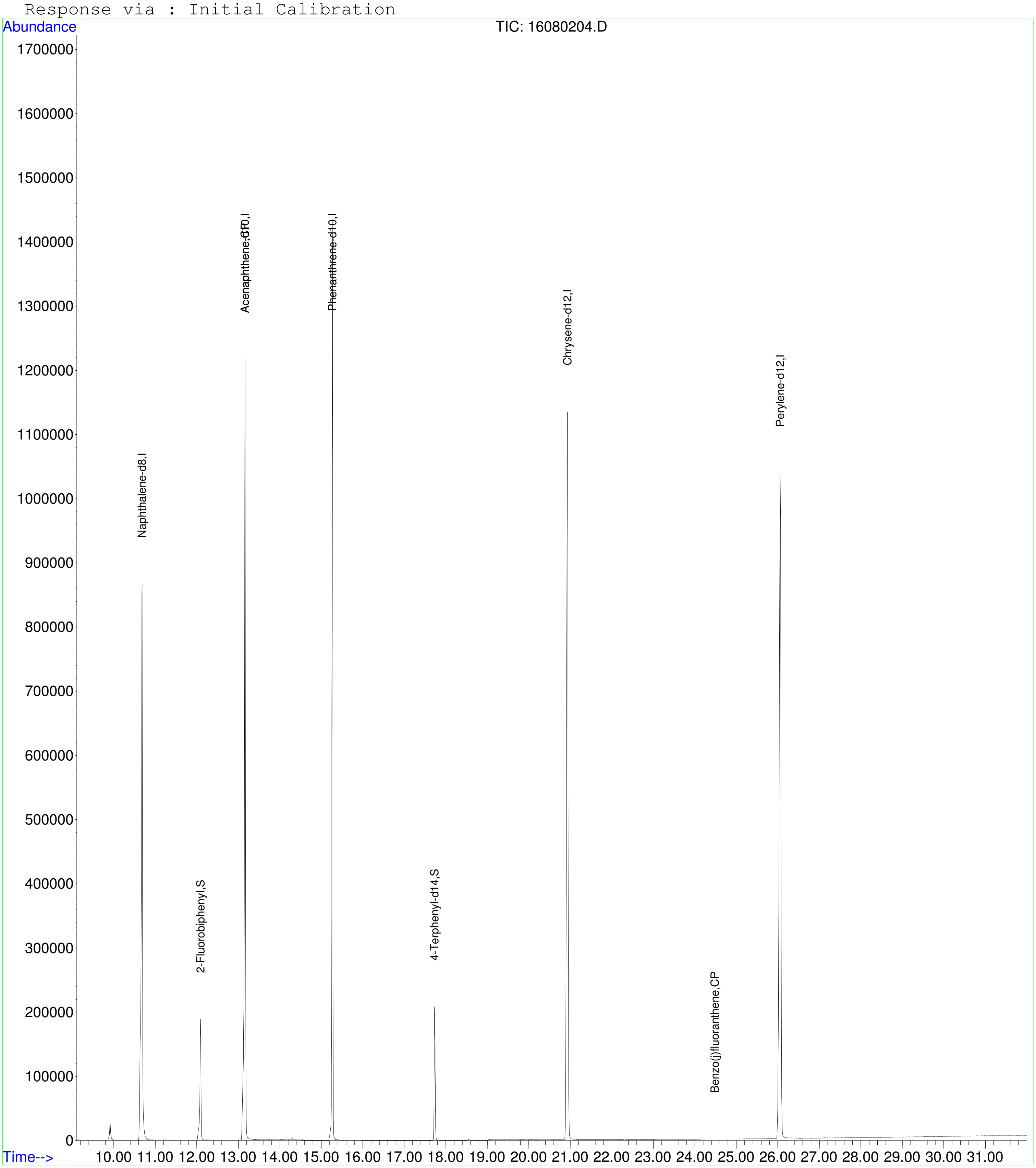
System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.09	172	243964	758.94 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	18.97%#	
16) 4-Terphenyl-d14	17.73	244	294201	720.71 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	18.02%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
9) Acenaphthene	13.16	154	3214	~~13.60 ug/kg#~~	~~12~~
23) Benzo(j)fluoranthene	24.49	252	125	0.29 ug/kg#	64

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

Data File : C:\HPCHEM\1\DATA\160802\16080204.D Vial: 4
Acq On : 2 Aug 2016 10:47 am Operator: DEW
Sample : MB-76473 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080220.D Vial: 20
Acq On : 2 Aug 2016 9:36 pm Operator: DEW
Sample : ICV2-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1428404	4000.00	ug/kg	102
5) Acenaphthene-d10	13.16	164	616048	4000.00	ug/kg	103
11) Phenanthrene-d10	15.27	188	1455983	4000.00	ug/kg	92
17) Chrysene-d12	20.93	240	1819892	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1940069	4000.00	ug/kg	101

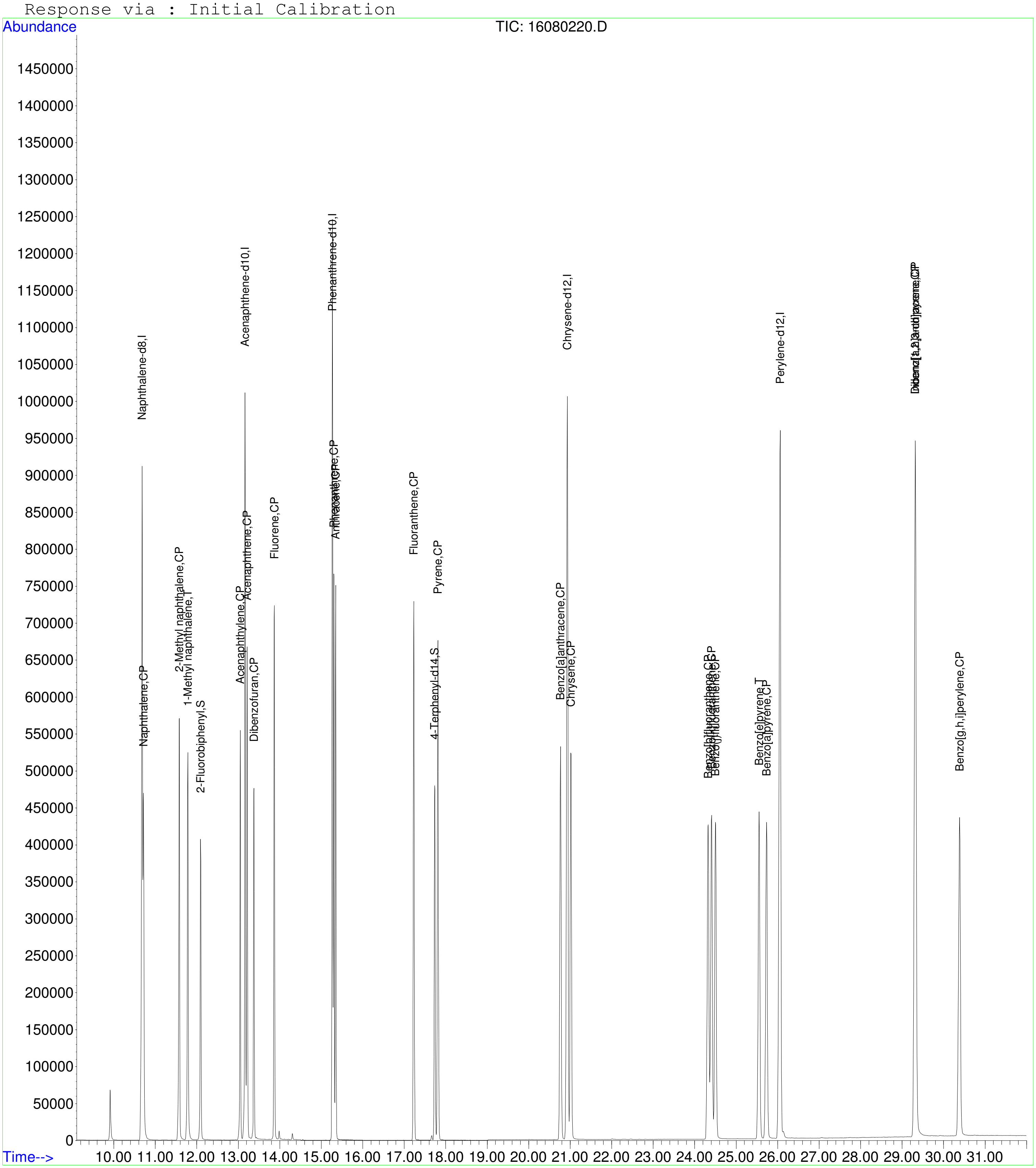
System Monitoring Compounds
7) 2-Fluorobiphenyl 12.09 172 426849 1986.40 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 49.66%
16) 4-Terphenyl-d14 17.73 244 680429 1980.32 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 49.51%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.72	128	625047	1923.24	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	405157	1923.02	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	363270	1946.57	ug/kg	100
6) Dibenzofuran	13.38	168	478316	1918.58	ug/kg	100
8) Acenaphthylene	13.05	152	546460	2003.08	ug/kg	100
9) Acenaphthene	13.21	154	320643	2029.39	ug/kg	99
10) Fluorene	13.87	166	408037	2054.46	ug/kg	98
12) Phenanthrene	15.30	178	672376	1947.85	ug/kg	100
13) Anthracene	15.35	178	696883	1918.62	ug/kg	100
14) Fluoranthene	17.23	202	798801	1952.68	ug/kg	99
15) Pyrene	17.81	202	798579	1925.23	ug/kg	100
18) Benzo[a]anthracene	20.77	228	833842	2032.80	ug/kg	99
19) Chrysene	21.02	228	791179	2004.91	ug/kg	99
21) Benzo[b]fluoranthene	24.33	252	929251	2074.80	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	847369	2062.32	ug/kg	99
23) Benzo(j)fluoranthene	24.51	252	811958	2056.31	ug/kg	98
24) Benzo[e]pyrene	25.55	252	890278	2048.34	ug/kg	99
25) Benzo[a]pyrene	25.73	252	881247	2036.42	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	939847	2244.32	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	1103464	2220.51	ug/kg	99
28) Benzo[g,h,i]perylene	30.39	276	926459	2225.91	ug/kg	98

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080220.D Vial: 20
Acq On : 2 Aug 2016 9:36 pm Operator: DEW
Sample : ICV2-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

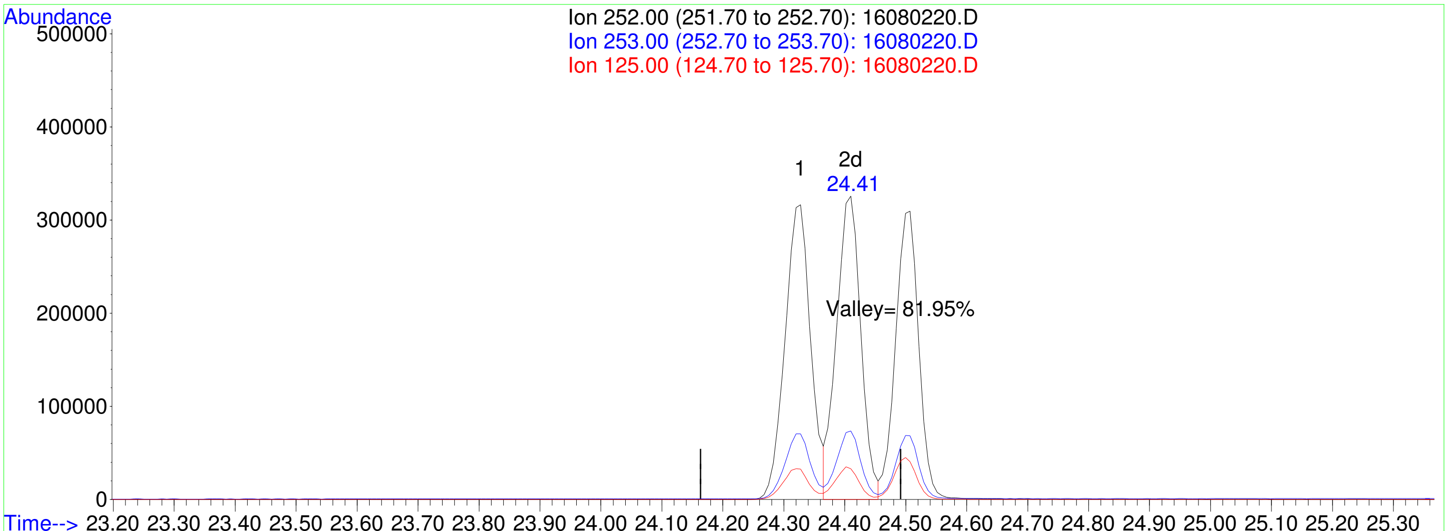
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

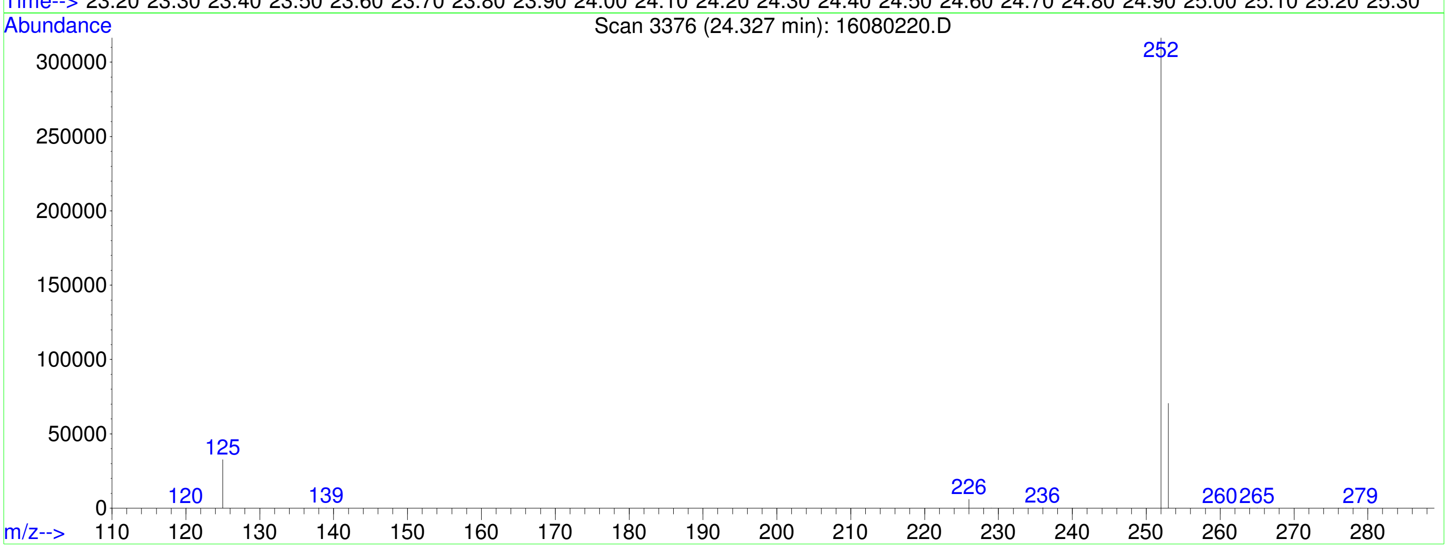


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160802\16080220.D Vial: 20
Acq On : 2 Aug 2016 9:36 pm Operator: DEW
Sample : ICV2-160802 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 22:08 2016 Quant Results File: temp.res

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





TIC: 16080220.D

(21) Benzo[b]fluoranthene (CP)

24.33min 2074.80ug/kg

response 929251

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.07
125.00	10.60	10.35
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080221.D Vial: 21
Acq On : 2 Aug 2016 10:17 pm Operator: DEW
Sample : SB-160802 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 8:07 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1402621	4000.00 ug/kg	100
5) Acenaphthene-d10	13.16	164	638620	4000.00 ug/kg	107
11) Phenanthrene-d10	15.26	188	1500540	4000.00 ug/kg	94
17) Chrysene-d12	20.92	240	1787462	4000.00 ug/kg	97
20) Perylene-d12	26.06	264	1781699	4000.00 ug/kg	92

System Monitoring Compounds

7) 2-Fluorobiphenyl 12.10 172 18 0.08 ug/kg 0.01
Spiked Amount 4000.000 Range 40 - 140 Recovery = 0.00%#
16) 4-Terphenyl-d14 17.74 244 100 0.28 ug/kg 0.00
Spiked Amount 4000.000 Range 40 - 140 Recovery = 0.01%#

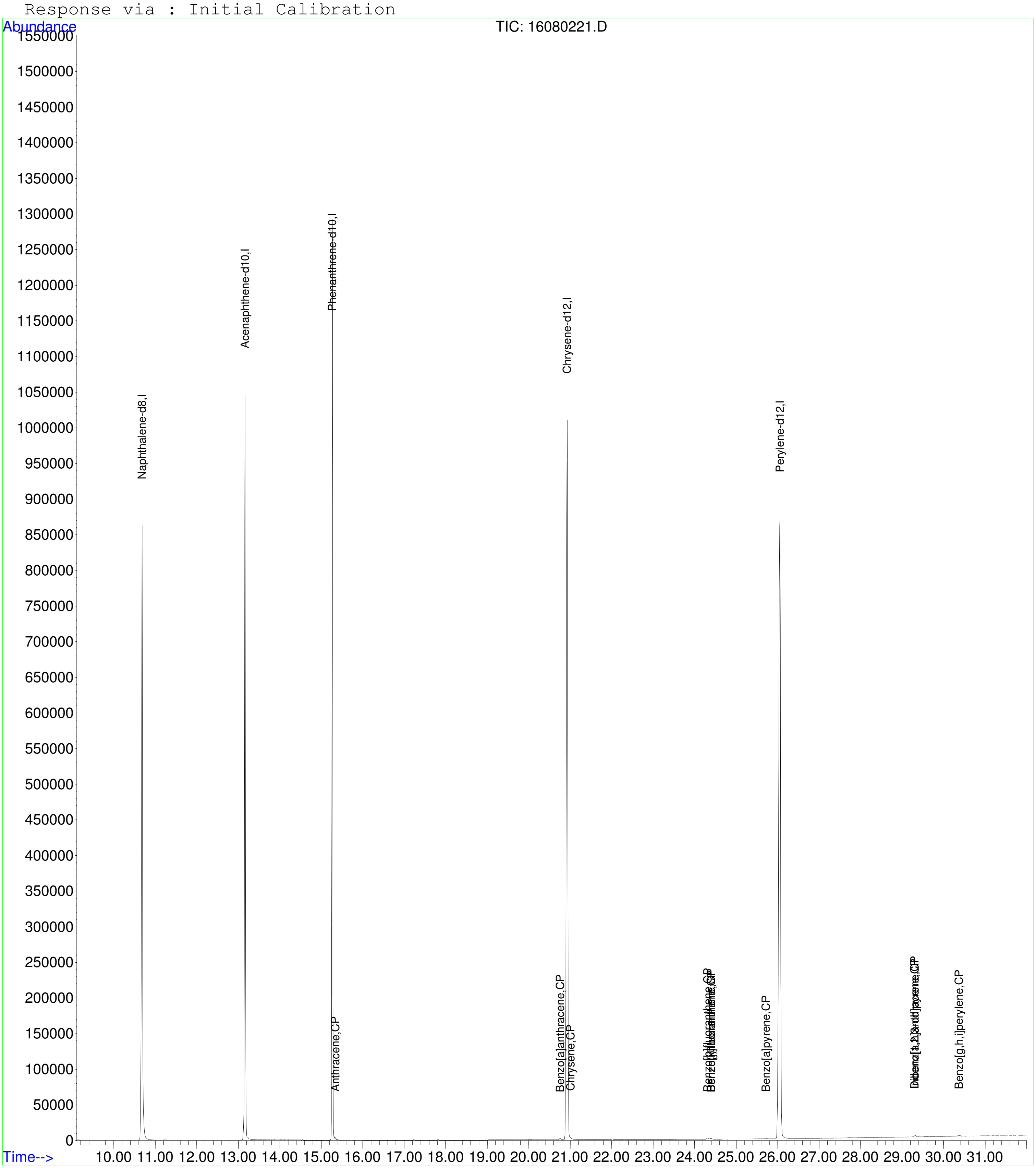
Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
13) Anthracene	15.35	178	2460	6.57 ug/kg	98
18) Benzo[a]anthracene	20.76	228	2783	6.91 ug/kg	95
19) Chrysene	21.01	228	2500	6.45 ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	3744	9.10 ug/kg	95
22) Benzo[k]fluoranthene	24.39	252	2396	6.35 ug/kg	96
23) Benzo(j)fluoranthene	24.39	252	2346	6.47 ug/kg	93
25) Benzo[a]pyrene	25.72	252	2541	6.39 ug/kg	98
26) Dibenz[a,h]anthracene	29.30	278	2765	7.19 ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.31	276	3424	7.50 ug/kg	96
28) Benzo[g,h,i]perylene	30.37	276	2576	6.74 ug/kg	91

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080221.D          Vial: 21
Acq On    :  2 Aug 2016  10:17 pm                    Operator: DEW
Sample    : SB-160802                                Inst    : GC/MS #6
Misc      : SBLK                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3  8:07 2016            Quant Results File: PP160801.RES

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



Quantitation Report (Not Reviewed)

```
Data File : C:\HPCHEM\1\DATA\160802\16080230.D          Vial: 30
Acq On    :  3 Aug 2016   4:20 am                    Operator: DEW
Sample    : 1607239-01A                              Inst     : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  3 11:02 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	10.68	136	1435979	4000.00	ug/kg	102
5) Acenaphthene-d10	13.16	164	663705	4000.00	ug/kg	111
11) Phenanthrene-d10	15.27	188	1496757	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1795111	4000.00	ug/kg	98
20) Perylene-d12	26.05	264	1803543	4000.00	ug/kg	94

System Monitoring Compounds

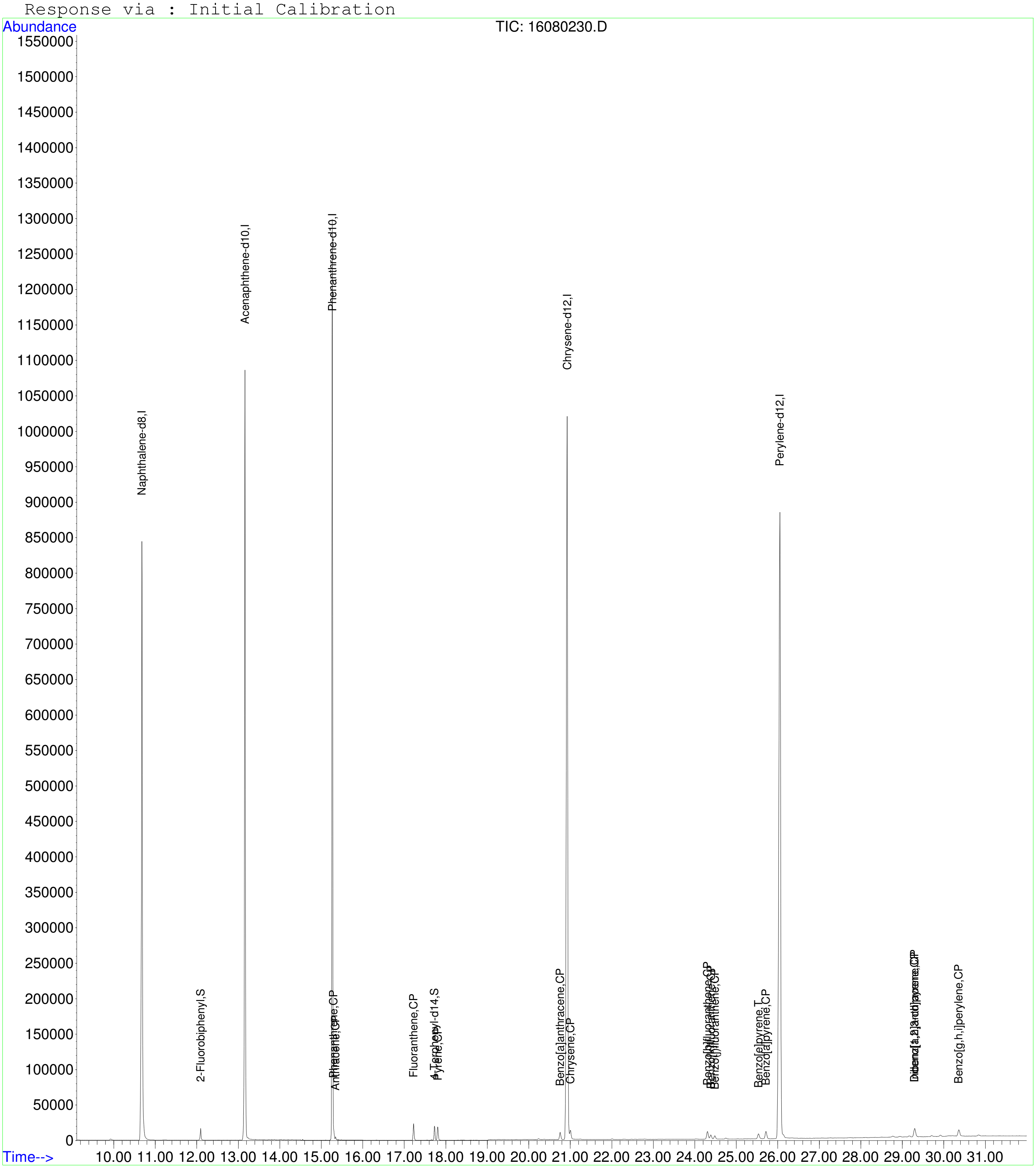
7) 2-Fluorobiphenyl	12.09	172	18102	78.19	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#		
16) 4-Terphenyl-d14	17.73	244	27987	79.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		

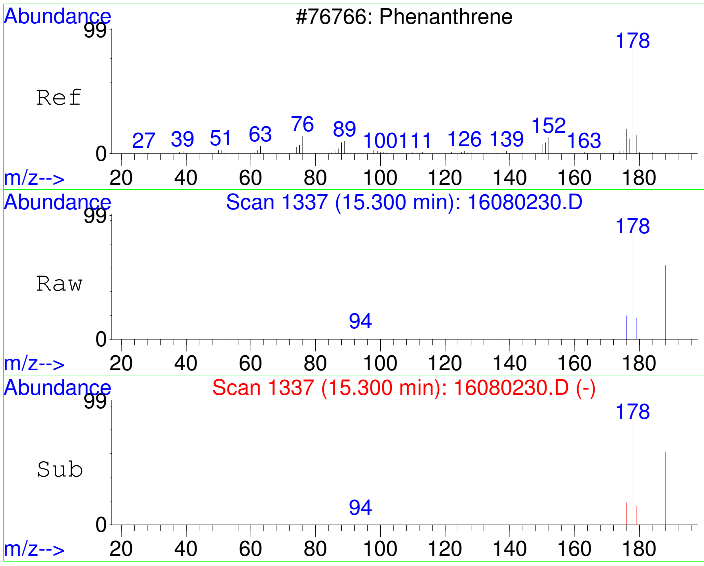
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	9040	25.48	ug/kg	100
13) Anthracene	15.34	178	3678	9.85	ug/kg	98
14) Fluoranthene	17.22	202	25611	60.90	ug/kg	99
15) Pyrene	17.80	202	23020	53.99	ug/kg	99
18) Benzo[a]anthracene	20.75	228	16410	40.56	ug/kg	98
19) Chrysene	21.01	228	19760	50.79	ug/kg	98
21) Benzo[b]fluoranthene	24.31	252	22735	54.60	ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	11401	29.85	ug/kg	98
23) Benzo(j)fluoranthene	24.49	252	8622	23.49	ug/kg	91
24) Benzo[e]pyrene	25.53	252	14683	36.34	ug/kg	98
25) Benzo[a]pyrene	25.71	252	21569	53.62	ug/kg	98
26) Dibenz[a,h]anthracene	29.29	278	6090	15.64	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.30	276	20218	43.76	ug/kg	93
28) Benzo[g,h,i]perylene	30.36	276	18976	49.04	ug/kg	99

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

```
Data File : C:\HPCHEM\1\DATA\160802\16080230.D          Vial: 30
Acq On    :  3 Aug 2016   4:20 am                   Operator: DEW
Sample    : 1607239-01A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 11:02 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
```

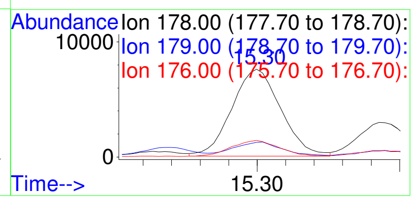


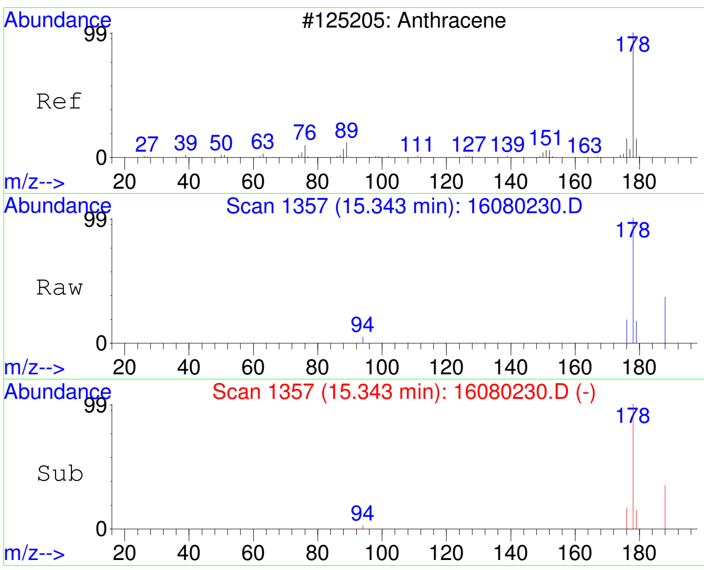


#12
Phenanthrene
Concen: 25.48 ug/kg
RT: 15.30 min   Scan# 1337
Delta R.T.   -0.00 min
Lab File: 16080230.D
Acq: 3 Aug 2016   4:20 am

Tgt Ion:178 Resp: 9040

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.7
176	18.6	0.0	48.7

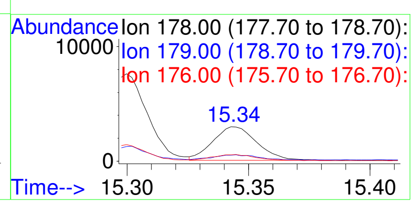


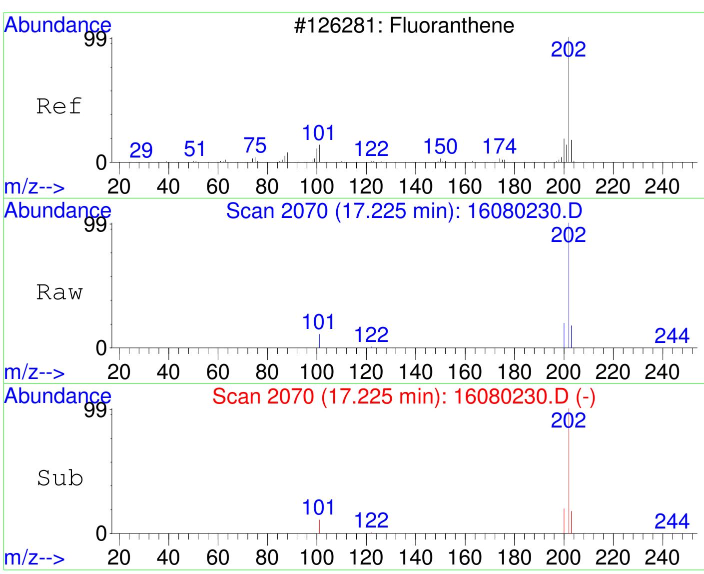


#13
Anthracene
Concen: 9.85 ug/kg
RT: 15.34 min   Scan# 1357
Delta R.T.   -0.01 min
Lab File: 16080230.D
Acq: 3 Aug 2016   4:20 am

Tgt Ion:178 Resp: 3678

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.7
176	17.1	0.0	47.9

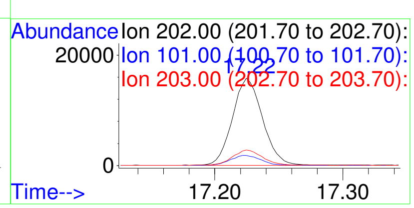


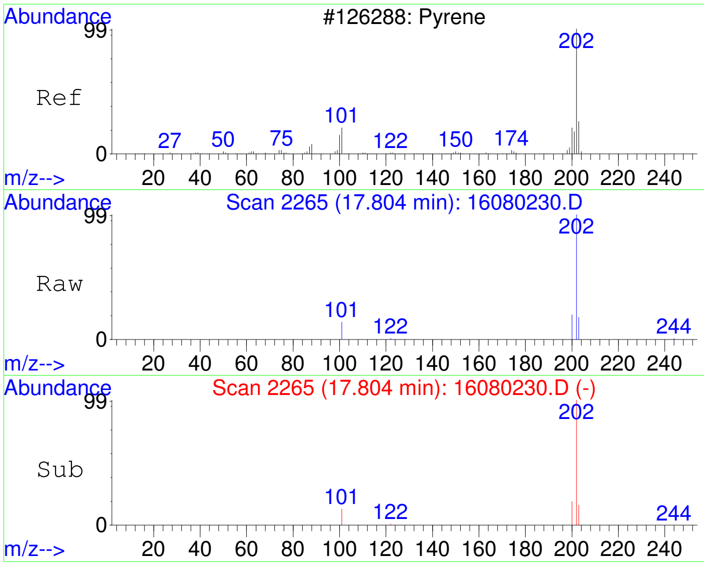


#14
Fluoranthene
Concen: 60.90 ug/kg
RT: 17.22 min   Scan# 2070
Delta R.T.   -0.01 min
Lab File: 16080230.D
Acq: 3 Aug 2016   4:20 am

Tgt Ion:202 Resp: 25611

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	42.1
203	17.5	0.0	47.9

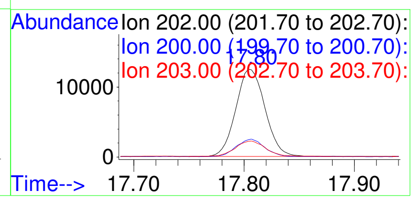


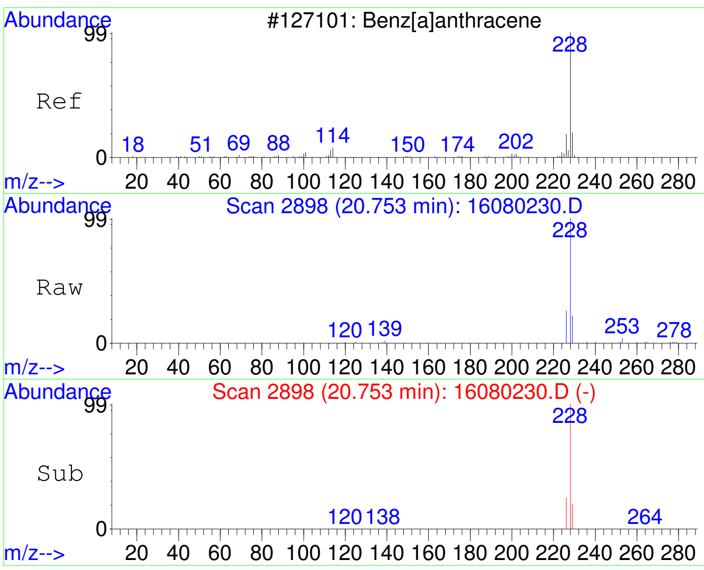


#15
Pyrene
Concen: 53.99 ug/kg
RT: 17.80 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:202 Resp: 23020

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	49.7
203	17.2	0.0	47.8

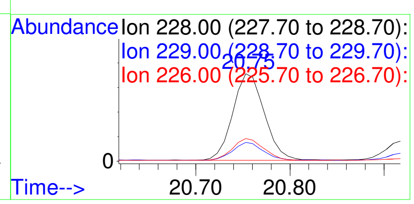


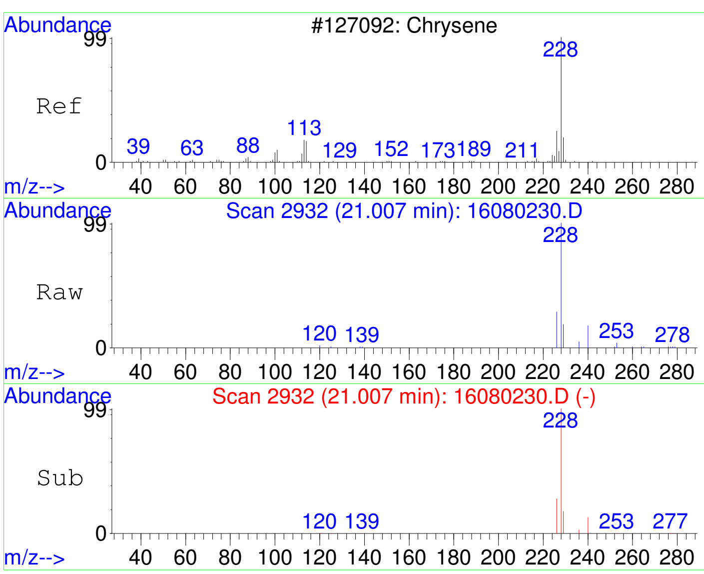


#18
Benzo[a]anthracene
Concen: 40.56 ug/kg
RT: 20.75 min Scan# 2898
Delta R.T. -0.01 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:228 Resp: 16410

Ion	Ratio	Lower	Upper
228	100		
229	20.8	0.0	49.8
226	25.2	0.0	55.8

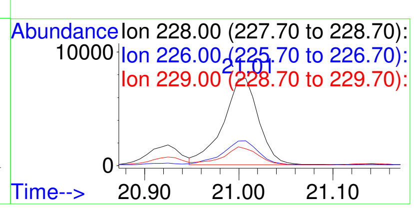


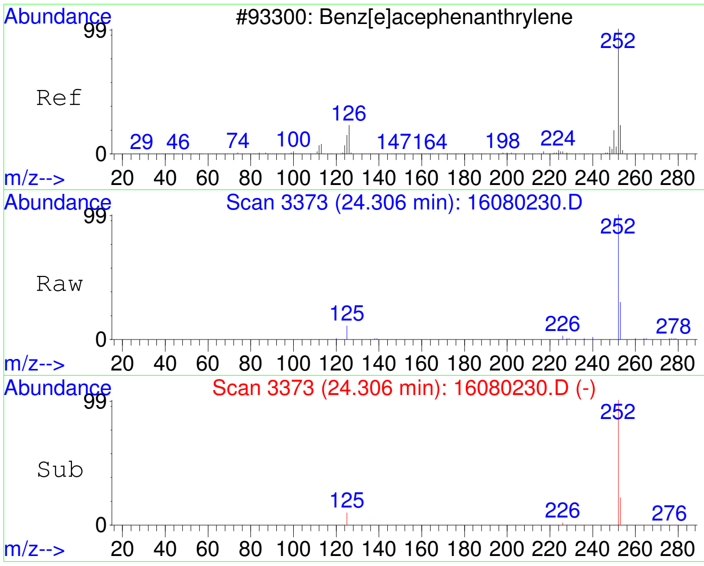


#19
Chrysene
Concen: 50.79 ug/kg
RT: 21.01 min Scan# 2932
Delta R.T. -0.01 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:228 Resp: 19769

Ion	Ratio	Lower	Upper
228	100		
226	27.9	0.0	58.1
229	18.4	0.0	50.0

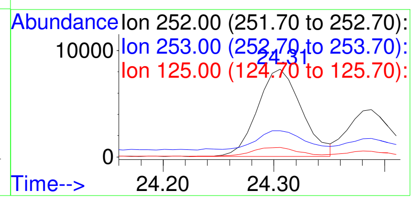


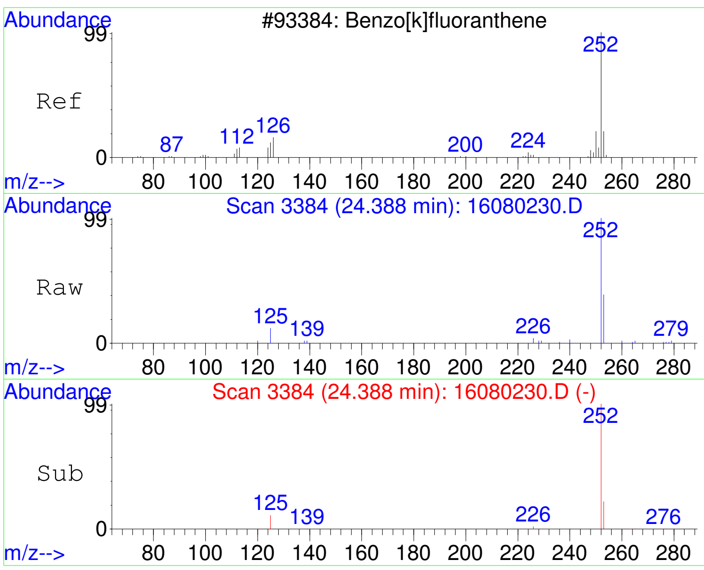


#21
Benzo[b]fluoranthene
Concen: 54.60 ug/kg
RT: 24.31 min Scan# 3373
Delta R.T. -0.02 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:252 Resp: 22735

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.0
125	10.0	0.0	40.6

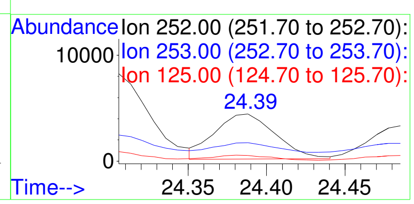


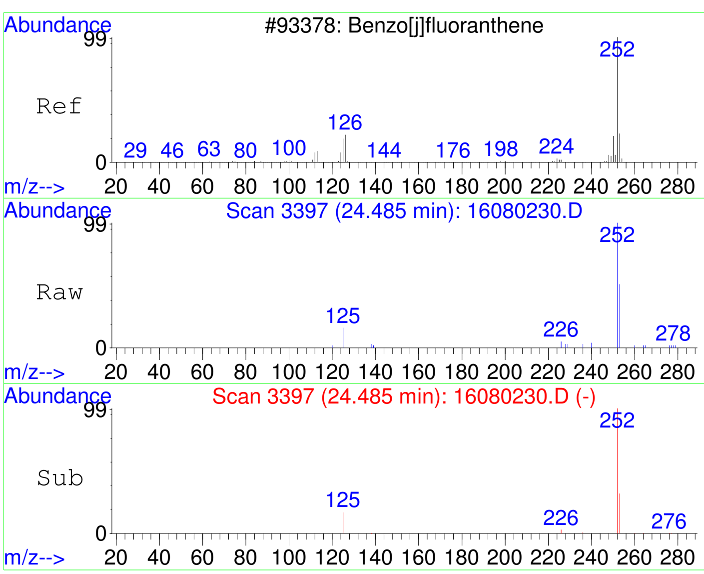


#22
Benzo[k]fluoranthene
Concen: 29.85 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.02 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:252 Resp: 11401

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.2	42.2
125	10.4	0.0	30.3

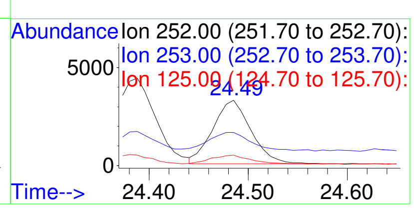


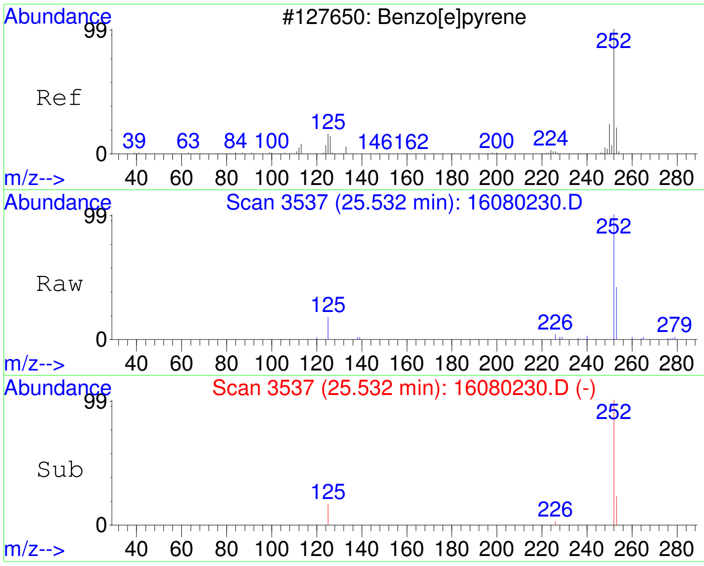


#23
Benzo(j)fluoranthene
Concen: 23.49 ug/kg
RT: 24.49 min Scan# 3397
Delta R.T. -0.02 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:252 Resp: 8622

Ion	Ratio	Lower	Upper
252	100		
253	28.5	2.2	42.2
125	13.4	0.0	34.4

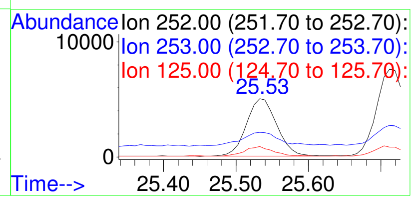


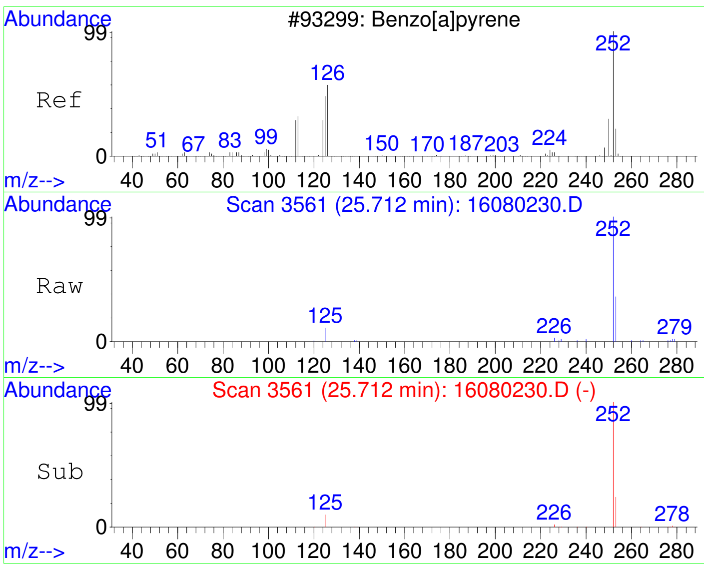


#24
Benzo[e]pyrene
Concen: 36.34 ug/kg
RT: 25.53 min Scan# 3537
Delta R.T. -0.02 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:252 Resp: 14683

Ion	Ratio	Lower	Upper
252	100		
253	23.5	2.2	42.2
125	16.2	0.0	35.7

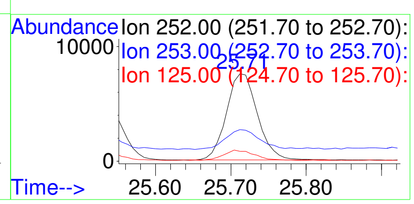


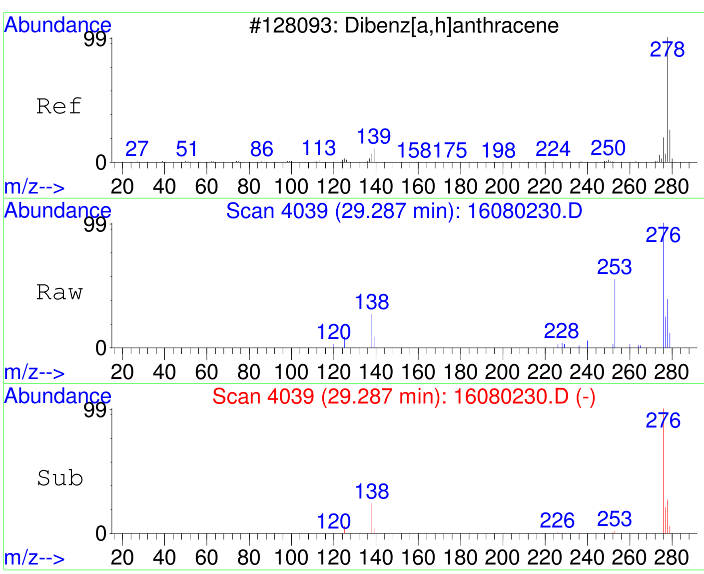


#25
Benzo[a]pyrene
Concen: 53.62 ug/kg
RT: 25.71 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:252 Resp: 21569

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.0	42.0
125	10.4	0.0	31.6

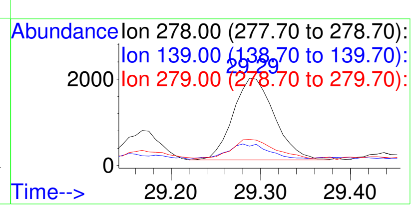


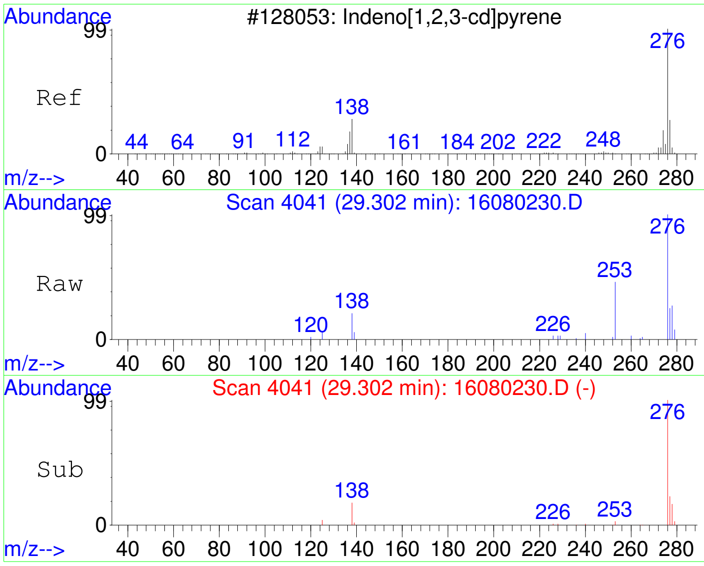


#26
Dibenz[a,h]anthracene
Concen: 15.64 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.04 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:278 Resp: 6090

Ion	Ratio	Lower	Upper
278	100		
139	15.9	0.0	33.8
279	22.2	3.9	43.9

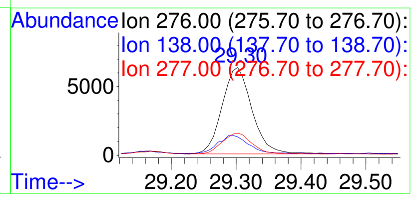


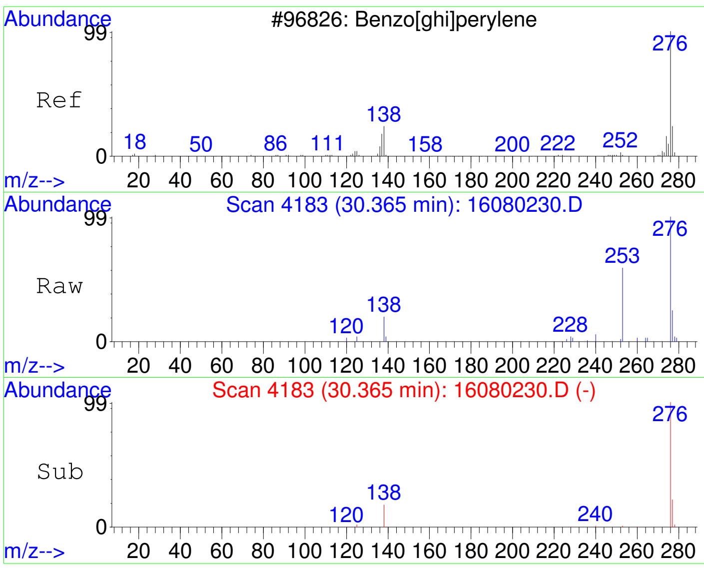


#27
Indeno[1,2,3-cd]pyrene
Concen: 43.76 ug/kg
RT: 29.30 min Scan# 4041
Delta R.T. -0.02 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:276 Resp: 20218

Ion	Ratio	Lower	Upper
276	100		
138	19.2	4.8	44.8
277	24.3	5.6	45.6

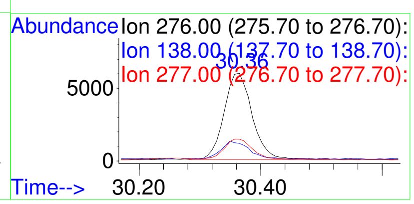




#28
Benzo[g,h,i]perylene
Concen: 49.04 ug/kg
RT: 30.36 min Scan# 4183
Delta R.T. -0.03 min
Lab File: 16080230.D
Acq: 3 Aug 2016 4:20 am

Tgt Ion:276 Resp: 18976

Ion	Ratio	Lower	Upper
276	100		
138	18.1	0.0	38.1
277	23.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080231.D Vial: 31
Acq On : 3 Aug 2016 5:00 am Operator: DEW
Sample : 1607239-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:02 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	10.68	136	1473062	4000.00	ug/kg	105
5) Acenaphthene-d10	13.16	164	703359	4000.00	ug/kg	117
11) Phenanthrene-d10	15.27	188	1525215	4000.00	ug/kg	96
17) Chrysene-d12	20.92	240	1828473	4000.00	ug/kg	100
20) Perylene-d12	26.05	264	1833430	4000.00	ug/kg	95

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	17706	72.17	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.73	244	26736	74.28	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		

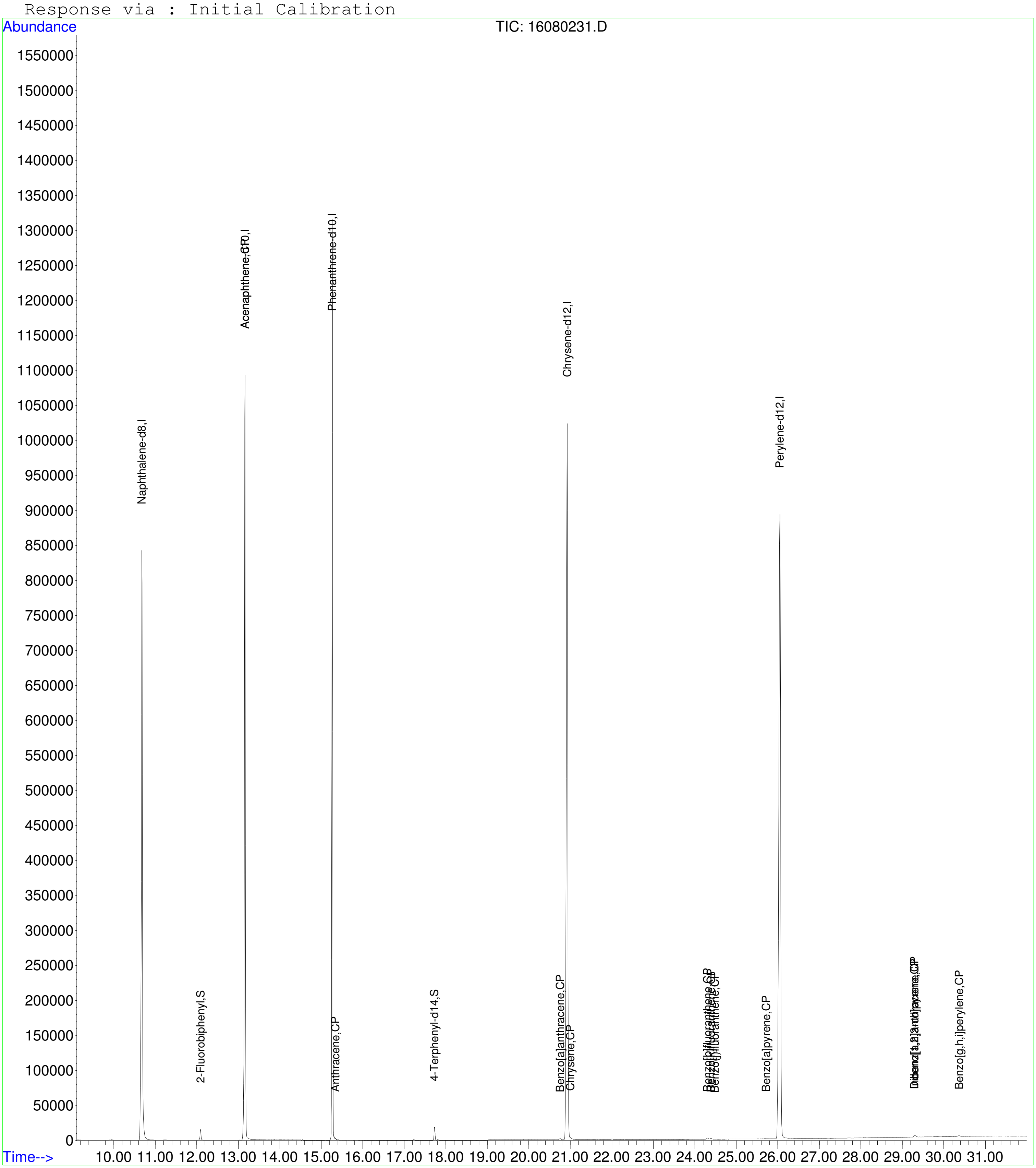
Target Compounds						Qvalue
9) Acenaphthene	13.16	154	2496	13.84	ug/kg#	12
13) Anthracene	15.34	178	2225	5.85	ug/kg	98
18) Benzo[a]anthracene	20.76	228	2529	6.14	ug/kg	97
19) Chrysene	21.01	228	2287	5.77	ug/kg	96
21) Benzo[b]fluoranthene	24.31	252	3582	8.46	ug/kg	95
22) Benzo[k]fluoranthene	24.39	252	2470	6.36	ug/kg	92
23) Benzo(j)fluoranthene	24.49	252	78	0.21	ug/kg#	68
25) Benzo[a]pyrene	25.71	252	2419	5.92	ug/kg	90
26) Dibenz[a,h]anthracene	29.29	278	2701	6.83	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.30	276	3320	7.07	ug/kg	97
28) Benzo[g,h,i]perylene	30.37	276	2419	6.15	ug/kg	94

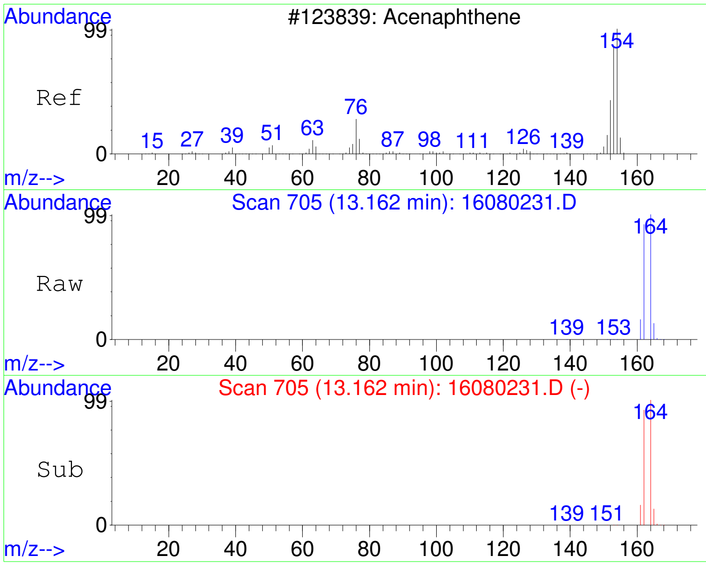
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080231.D   Vial: 31
Acq On : 3 Aug 2016 5:00 am   Operator: DEW
Sample : 1607239-05A   Inst : GC/MS #6
Misc : SAMP   Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:02 2016   Quant Results File: PP160801.RES

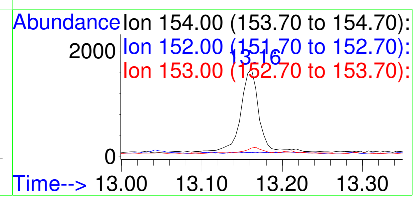
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

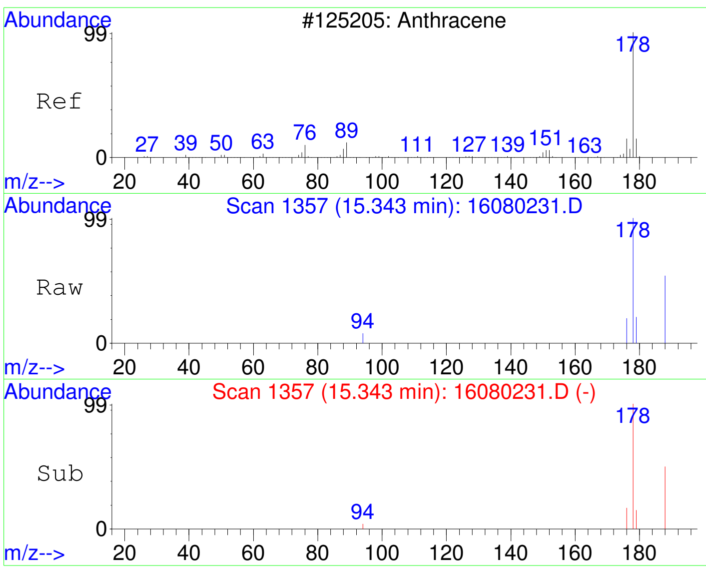




#9
Acenaphthene
Concen: 13.84 ug/kg
RT: 13.16 min Scan# 705
Delta R.T. -0.05 min
Lab File: 16080231.D
Acq: 3 Aug 2016 5:00 am

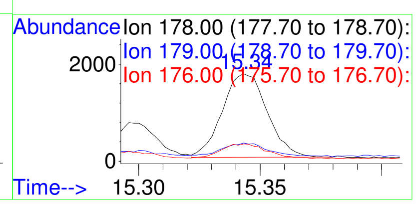
Tgt Ion:154	Resp:		2496
Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	6.7	76.2	136.2#

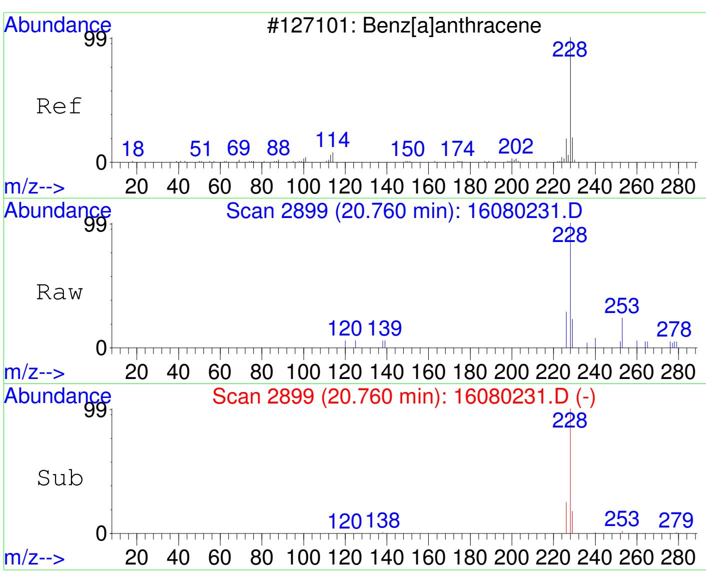




#13
Anthracene
Concen: 5.85 ug/kg
RT: 15.34 min Scan# 1357
Delta R.T. -0.01 min
Lab File: 16080231.D
Acq: 3 Aug 2016 5:00 am

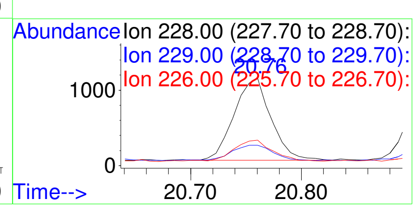
Tgt Ion:178	Resp:		2225
Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	45.7
176	16.9	0.0	47.9

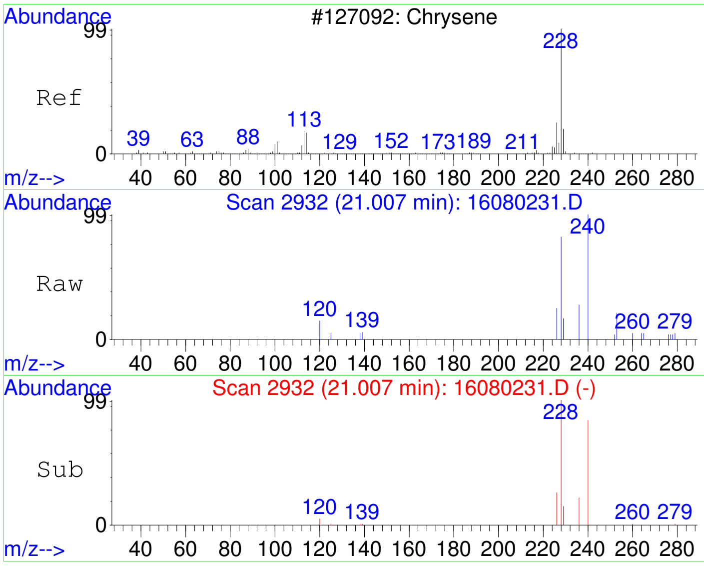




#18
Benzo[a]anthracene
Concen: 6.14 ug/kg
RT: 20.76 min Scan# 2899
Delta R.T. -0.01 min
Lab File: 16080231.D
Acq: 3 Aug 2016 5:00 am

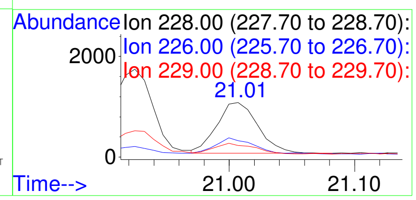
Tgt Ion:228	Resp:		2529
Ion	Ratio	Lower	Upper
228	100		
229	18.2	0.0	49.8
226	24.9	0.0	55.8

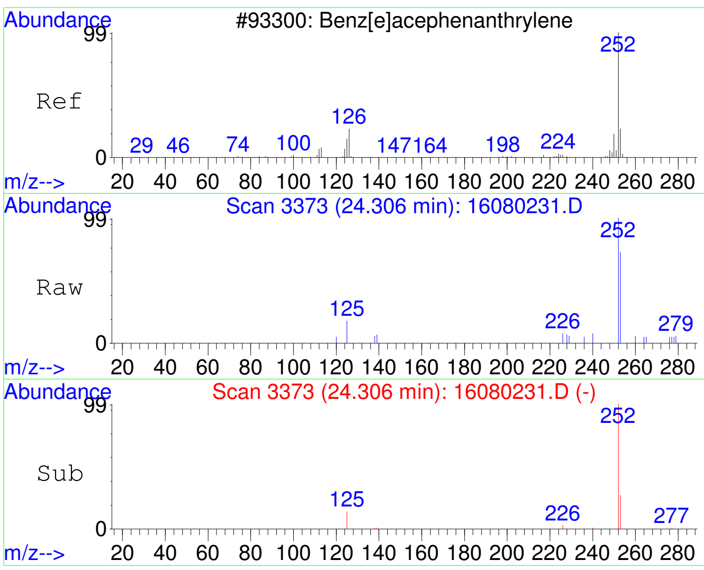




#19
Chrysene
Concen: 5.77 ug/kg
RT: 21.01 min   Scan# 2932
Delta R.T.   -0.01 min
Lab File: 16080231.D
Acq: 3 Aug 2016   5:00 am

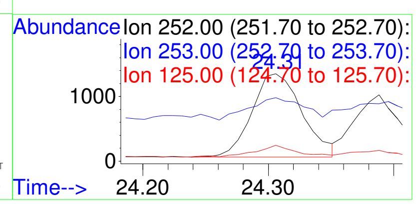
Tgt	Ion:228	Resp:	2287
Ion	Ratio	Lower	Upper
228	100		
226	26.3	0.0	58.1
229	17.4	0.0	50.0

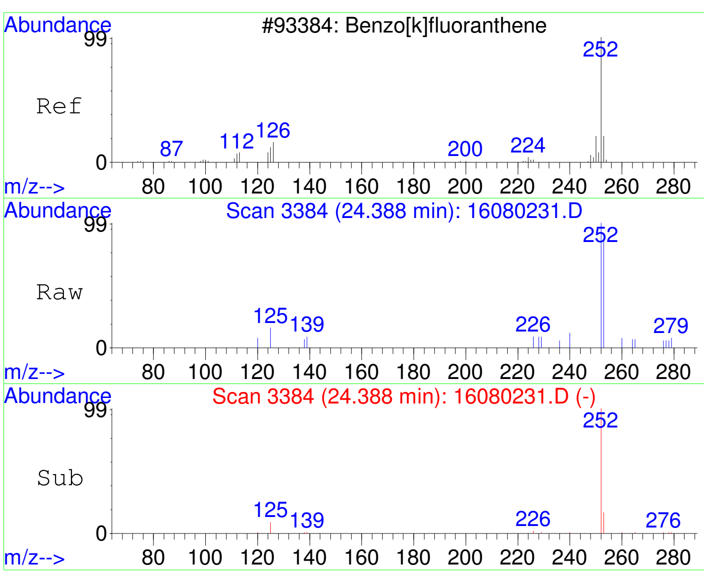




#21
Benzo[b]fluoranthene
Concen: 8.46 ug/kg
RT: 24.31 min   Scan# 3373
Delta R.T.   -0.02 min
Lab File: 16080231.D
Acq: 3 Aug 2016   5:00 am

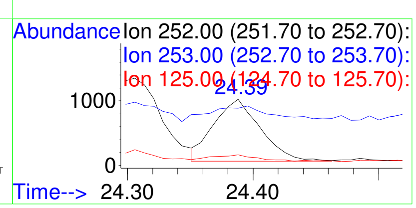
Tgt	Ion:252	Resp:	3582
Ion	Ratio	Lower	Upper
252	100		
253	23.3	0.0	52.0
125	13.9	0.0	40.6

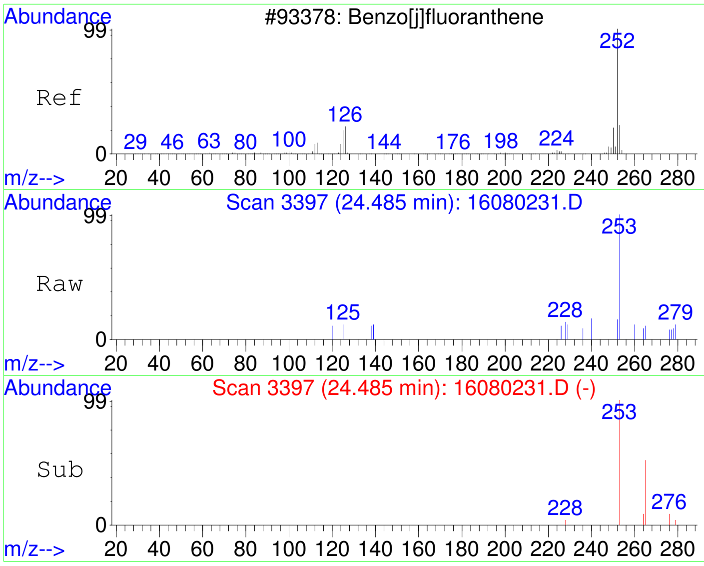




#22
Benzo[k]fluoranthene
Concen: 6.36 ug/kg
RT: 24.39 min   Scan# 3384
Delta R.T.   -0.02 min
Lab File: 16080231.D
Acq: 3 Aug 2016   5:00 am

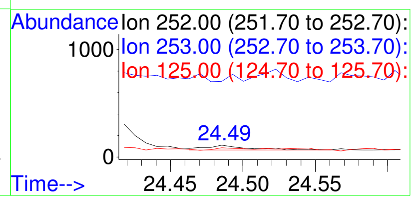
Tgt	Ion:252	Resp:	2470
Ion	Ratio	Lower	Upper
252	100		
253	16.7	2.2	42.2
125	9.9	0.0	30.3

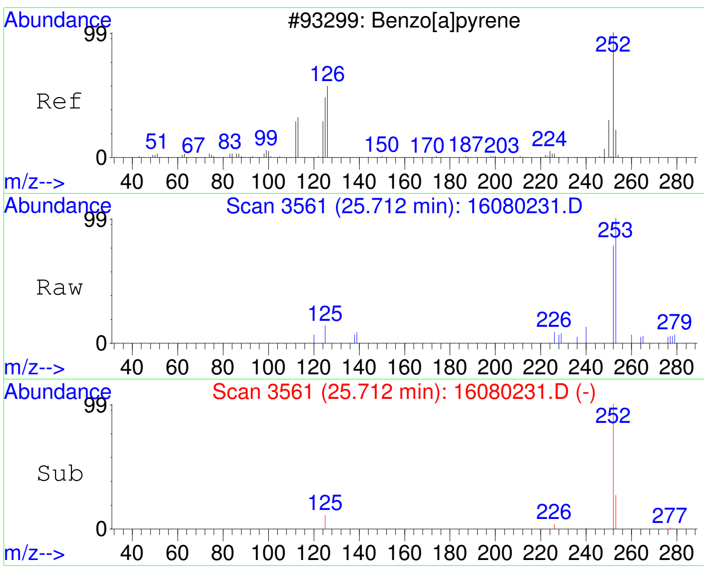





```
#23
Benzo(j)fluoranthene
Concen:     0.21 ug/kg
RT: 24.49 min   Scan# 3397
Delta R.T.    -0.02 min
Lab File:    16080231.D
Acq:  3 Aug 2016    5:00 am

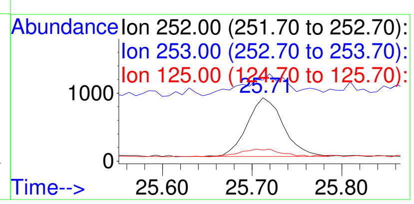
Tgt Ion:252 Resp:      78
Ion   Ratio  Lower   Upper
252   100
253   16.3     2.2    42.2
125   39.5     0.0    34.4#
```

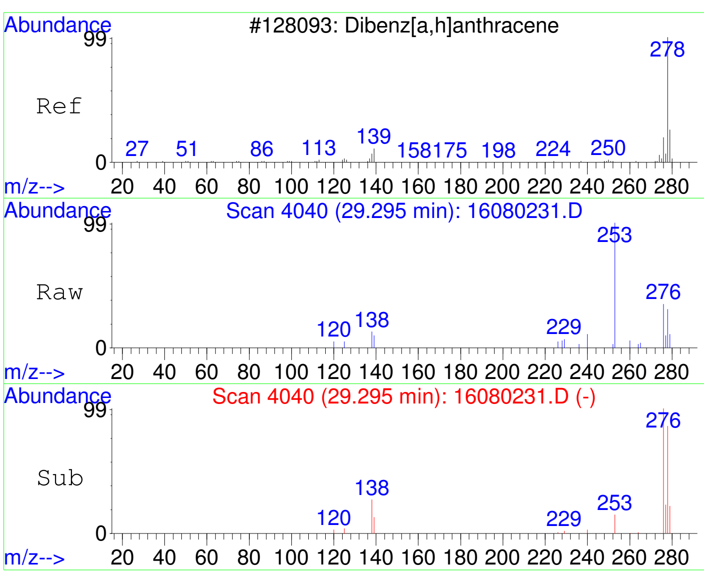





```
#25
Benzo[a]pyrene
Concen:     5.92 ug/kg
RT: 25.71 min   Scan# 3561
Delta R.T.    -0.02 min
Lab File:    16080231.D
Acq:  3 Aug 2016    5:00 am

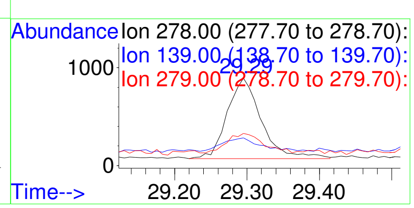
Tgt Ion:252 Resp:    2419
Ion   Ratio  Lower   Upper
252   100
253   15.2     2.0    42.0
125   10.7     0.0    31.6
```

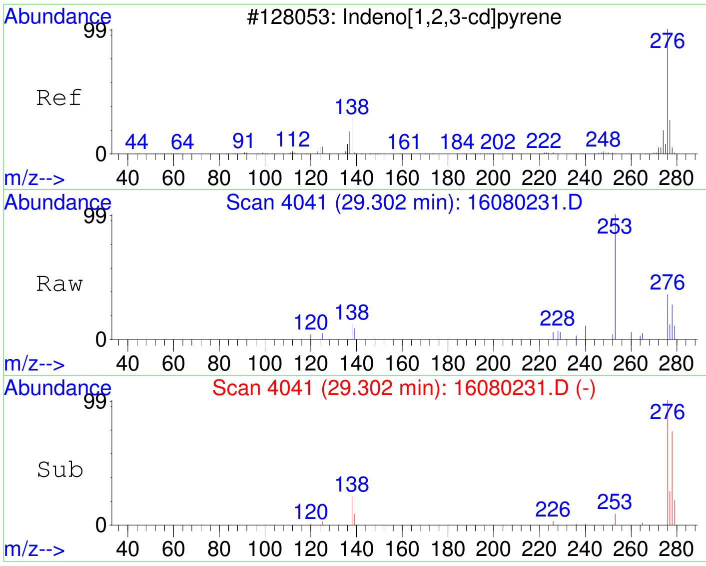


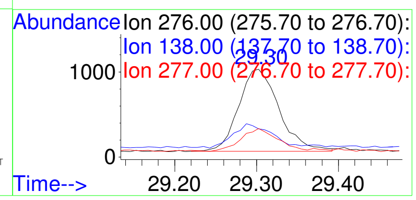



```
#26
Dibenz[a,h]anthracene
Concen:     6.83 ug/kg
RT: 29.29 min   Scan# 4040
Delta R.T.    -0.03 min
Lab File:    16080231.D
Acq:  3 Aug 2016    5:00 am

Tgt Ion:278 Resp:    2701
Ion   Ratio  Lower   Upper
278   100
139   15.3     0.0    33.8
279   21.9     3.9    43.9
```

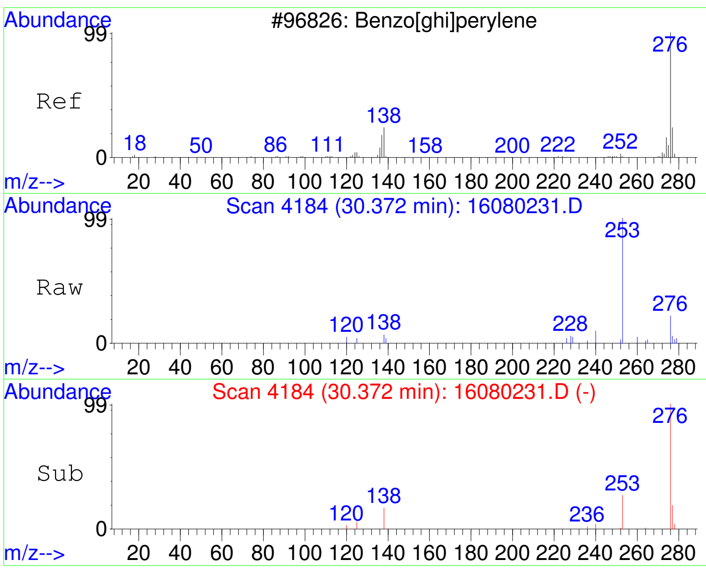


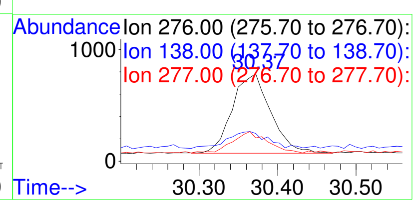





```
#27
Indeno[1,2,3-cd]pyrene
Concen:      7.07 ug/kg
RT: 29.30 min   Scan# 4041
Delta R.T.    -0.02 min
Lab File:    16080231.D
Acq:  3 Aug 2016    5:00 am

Tgt Ion:276 Resp:     3320
Ion  Ratio  Lower  Upper
276  100
138   22.6    4.8   44.8
277   26.5    5.6   45.6
```






```
#28
Benzo[g,h,i]perylene
Concen:     6.15 ug/kg
RT: 30.37 min   Scan# 4184
Delta R.T.    -0.02 min
Lab File:    16080231.D
Acq:  3 Aug 2016    5:00 am

Tgt Ion:276 Resp:     2419
Ion  Ratio  Lower  Upper
276  100
138   18.7    0.0   38.1
277   19.2    4.1   44.1
```

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080232.D Vial: 32
Acq On : 3 Aug 2016 5:40 am Operator: DEW
Sample : 1607239-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:02 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

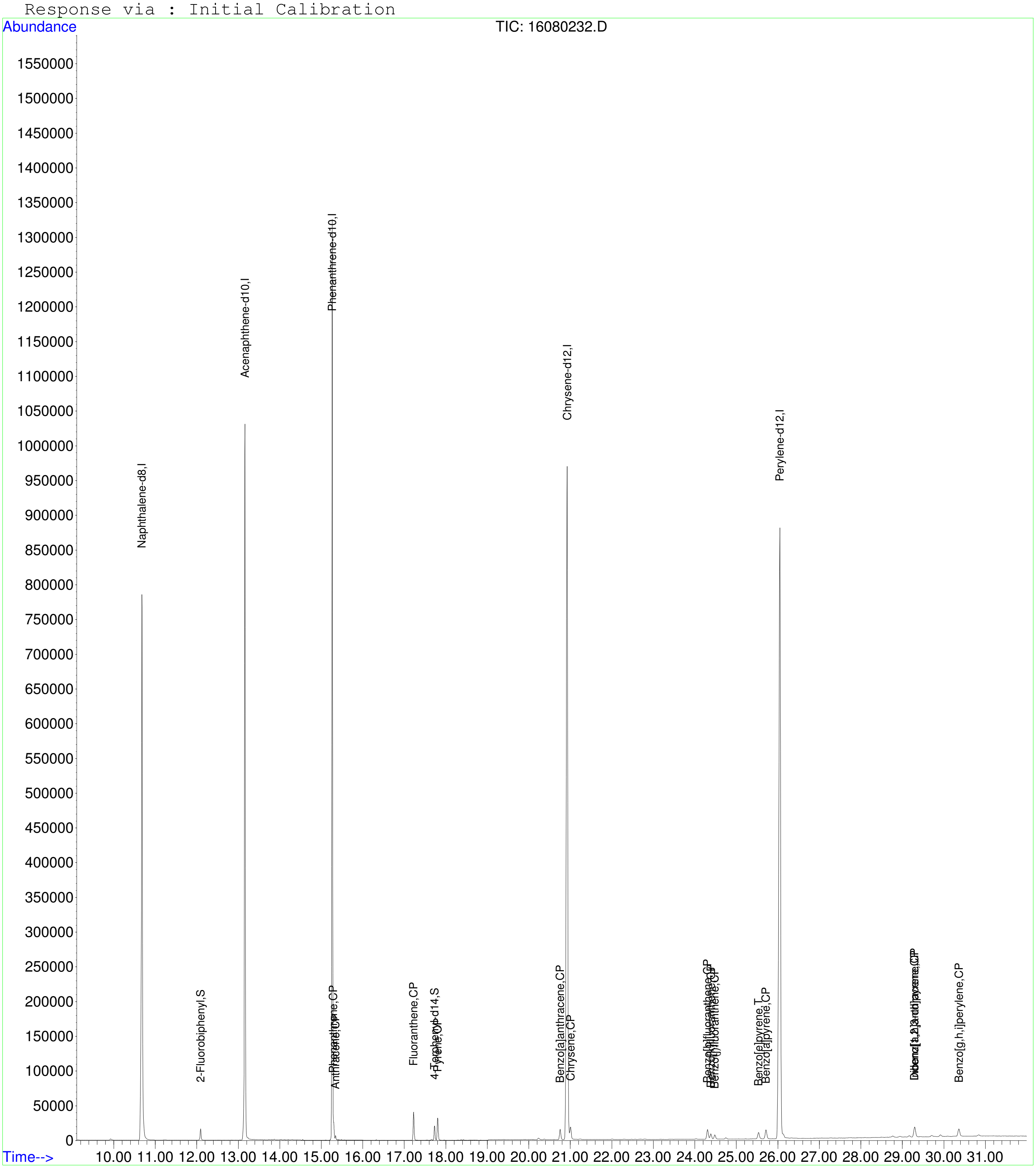
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1404173	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	654502	4000.00	ug/kg	109
11) Phenanthrene-d10	15.26	188	1497213	4000.00	ug/kg	94
17) Chrysene-d12	20.92	240	1772355	4000.00	ug/kg	97
20) Perylene-d12	26.05	264	1737083	4000.00	ug/kg	90
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	19124	83.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#		
16) 4-Terphenyl-d14	17.73	244	29863	84.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	18753	52.83	ug/kg	99
13) Anthracene	15.34	178	5527	14.80	ug/kg	98
14) Fluoranthene	17.22	202	44329	105.38	ug/kg	98
15) Pyrene	17.80	202	37776	88.56	ug/kg	99
18) Benzo[a]anthracene	20.75	228	23408	58.60	ug/kg	99
19) Chrysene	21.01	228	28080	73.07	ug/kg	98
21) Benzo[b]fluoranthene	24.31	252	28624	71.38	ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	14388	39.11	ug/kg	94
23) Benzo(j)fluoranthene	24.48	252	11323	32.03	ug/kg	91
24) Benzo[e]pyrene	25.53	252	19069	49.00	ug/kg	96
25) Benzo[a]pyrene	25.71	252	27061	69.84	ug/kg	98
26) Dibenz[a,h]anthracene	29.29	278	7113	18.97	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.30	276	24350	54.73	ug/kg	92
28) Benzo[g,h,i]perylene	30.36	276	23047	61.84	ug/kg	98

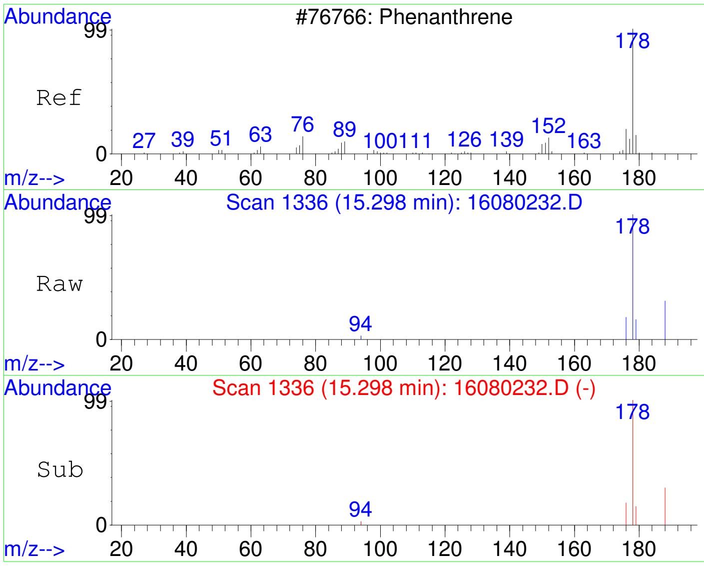
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080232.D          Vial: 32
Acq On    :  3 Aug 2016   5:40 am                   Operator: DEW
Sample    : 1607239-11A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 11:02 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
```

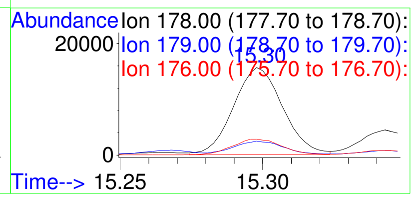


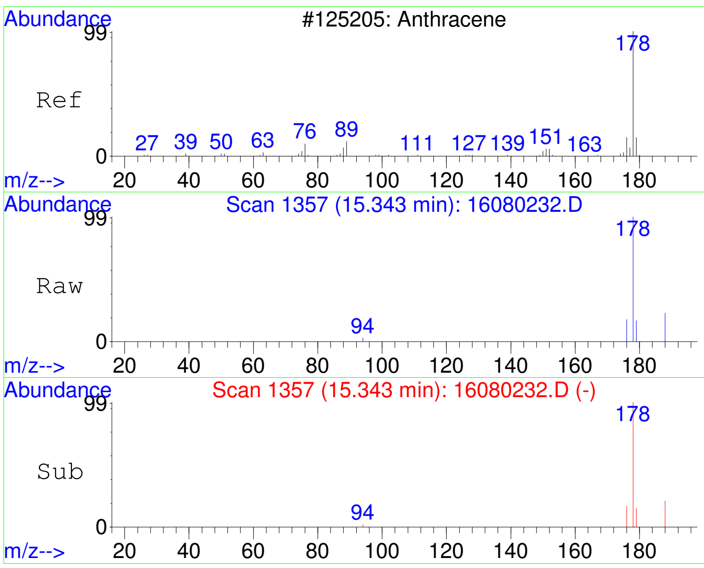


#12
Phenanthrene
Concen: 52.83 ug/kg
RT: 15.30 min Scan# 1336
Delta R.T. -0.01 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:178 Resp: 18753

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.7
176	18.1	0.0	48.7

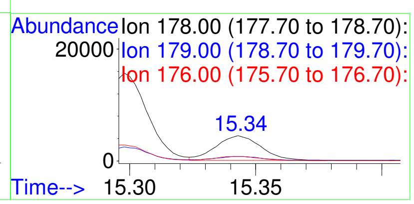


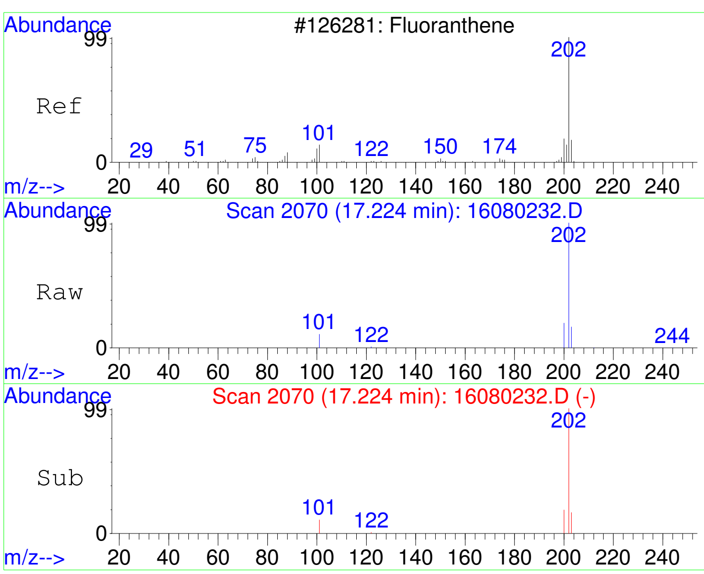


#13
Anthracene
Concen: 14.80 ug/kg
RT: 15.34 min Scan# 1357
Delta R.T. -0.01 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:178 Resp: 5527

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.7
176	16.7	0.0	47.9

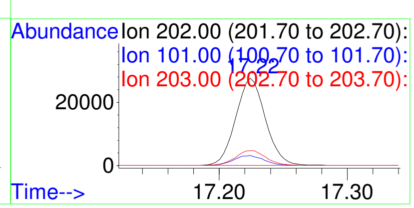


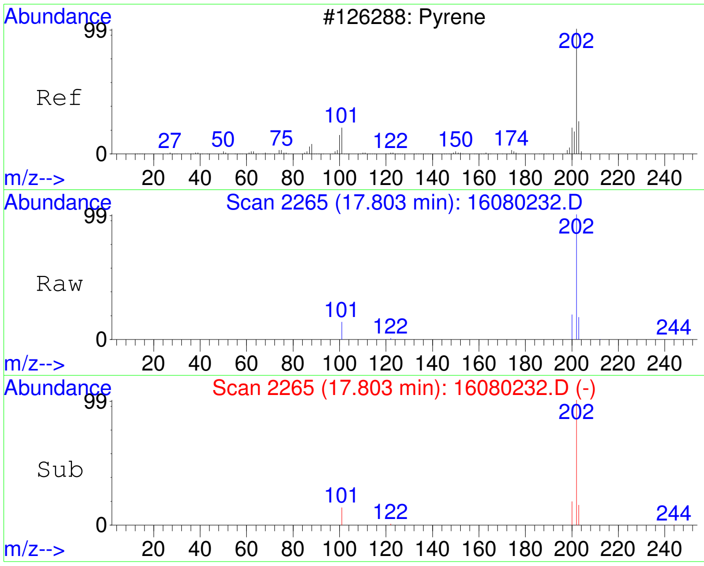


#14
Fluoranthene
Concen: 105.38 ug/kg
RT: 17.22 min Scan# 2070
Delta R.T. -0.01 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:202 Resp: 44329

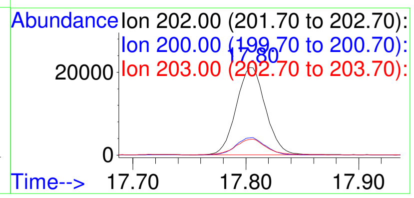
Ion	Ratio	Lower	Upper
202	100		
101	11.3	0.0	42.1
203	17.0	0.0	47.9

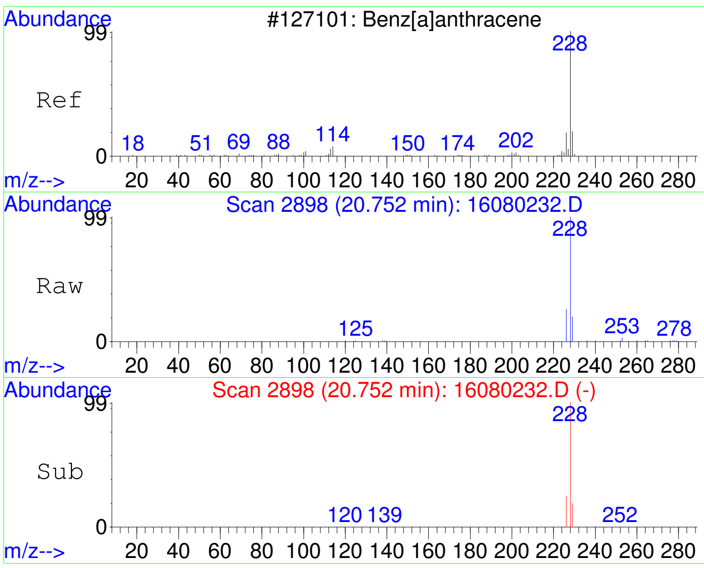




#15
Pyrene
Concen: 88.56 ug/kg
RT: 17.80 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

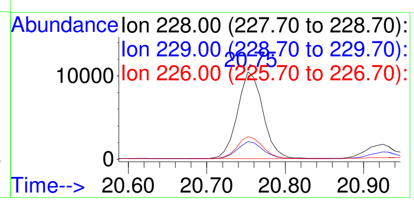
Tgt Ion:202	Resp:		37776
Ion	Ratio	Lower	Upper
202	100		
200	19.3	0.0	49.7
203	17.5	0.0	47.8

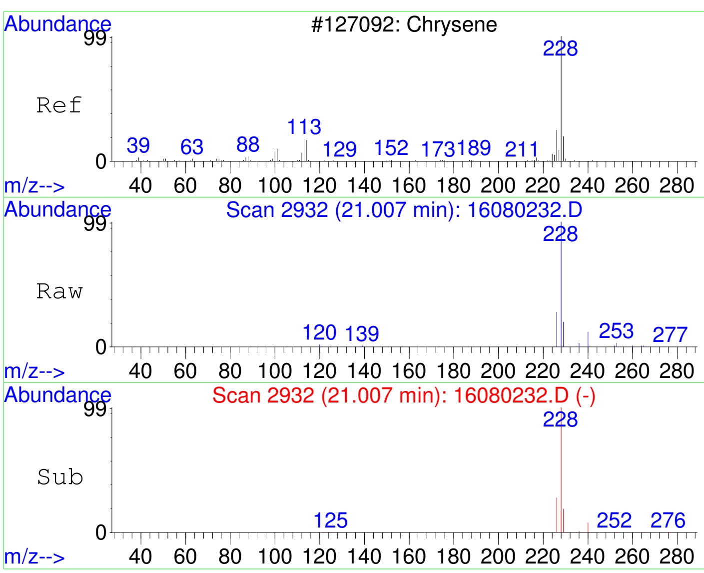




#18
Benzo[a]anthracene
Concen: 58.60 ug/kg
RT: 20.75 min Scan# 2898
Delta R.T. -0.02 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

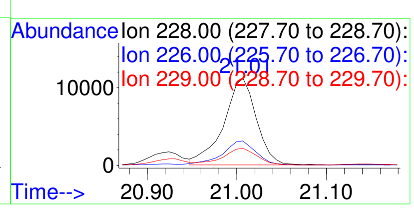
Tgt Ion:228	Resp:		23408
Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	49.8
226	25.3	0.0	55.8

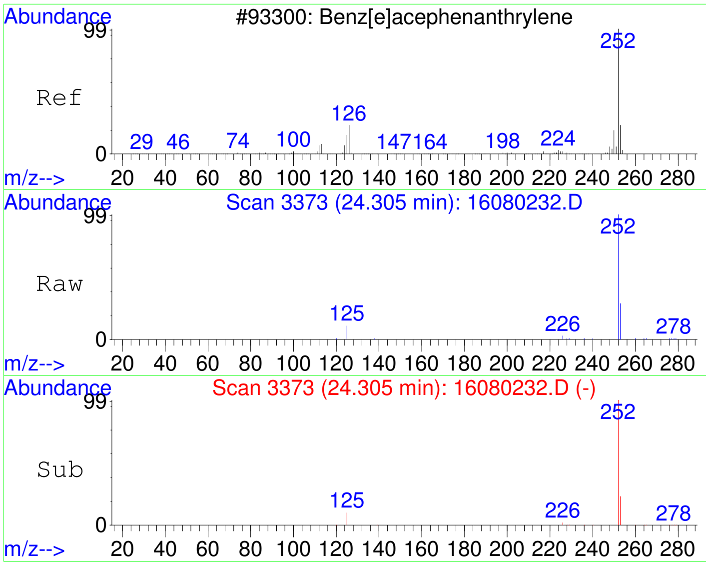




#19
Chrysene
Concen: 73.07 ug/kg
RT: 21.01 min Scan# 2932
Delta R.T. -0.02 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:228	Resp:		28080
Ion	Ratio	Lower	Upper
228	100		
226	27.6	0.0	58.1
229	18.9	0.0	50.0

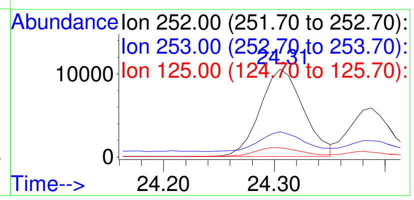


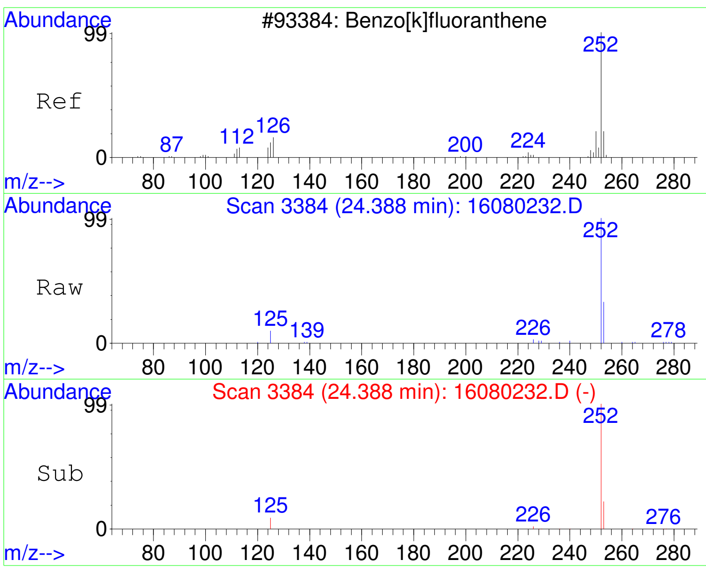


#21
Benzo[b]fluoranthene
Concen: 71.38 ug/kg
RT: 24.31 min Scan# 3373
Delta R.T. -0.02 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:252 Resp: 28624

Ion	Ratio	Lower	Upper
252	100		
253	22.7	0.0	52.0
125	10.1	0.0	40.6

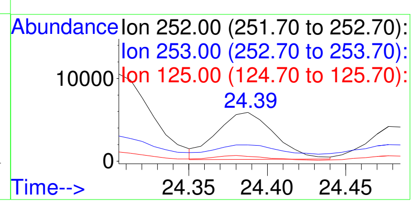


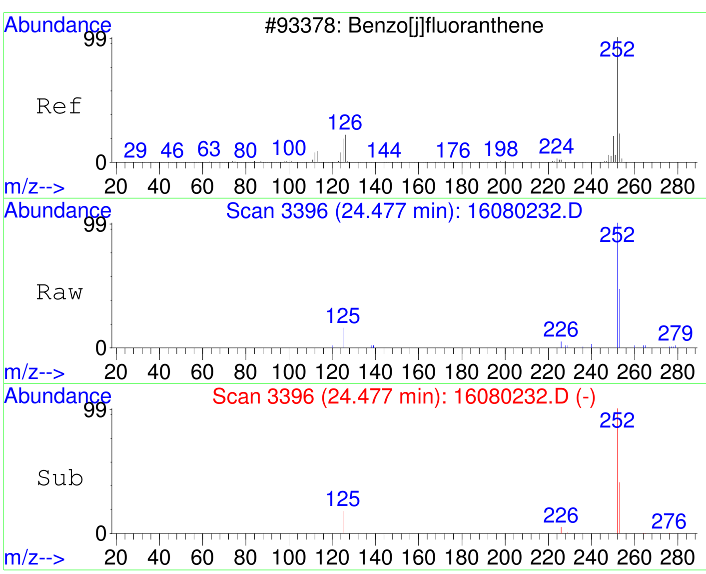


#22
Benzo[k]fluoranthene
Concen: 39.11 ug/kg
RT: 24.39 min Scan# 3384
Delta R.T. -0.02 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:252 Resp: 14388

Ion	Ratio	Lower	Upper
252	100		
253	18.9	2.2	42.2
125	8.4	0.0	30.3

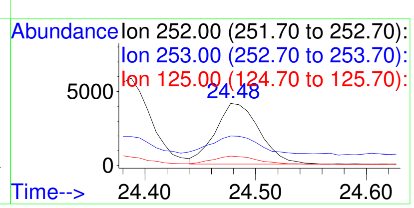


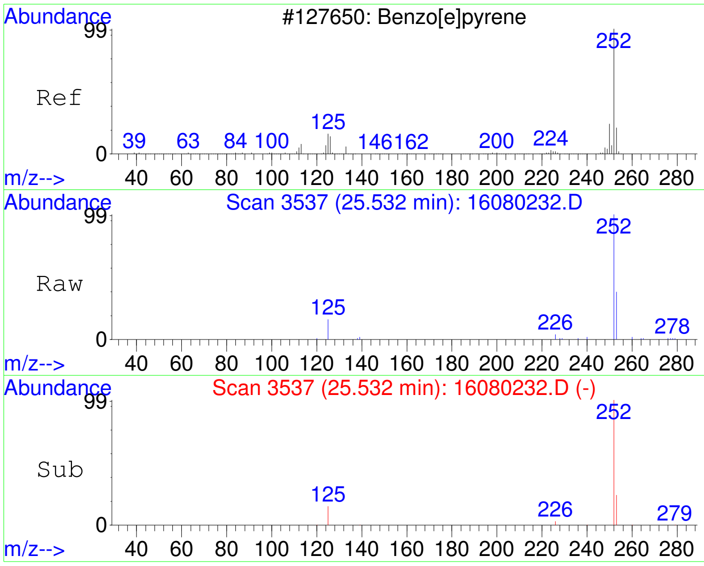


#23
Benzo(j)fluoranthene
Concen: 32.03 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.03 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:252 Resp: 11323

Ion	Ratio	Lower	Upper
252	100		
253	28.4	2.2	42.2
125	13.5	0.0	34.4

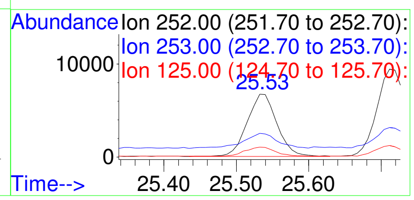


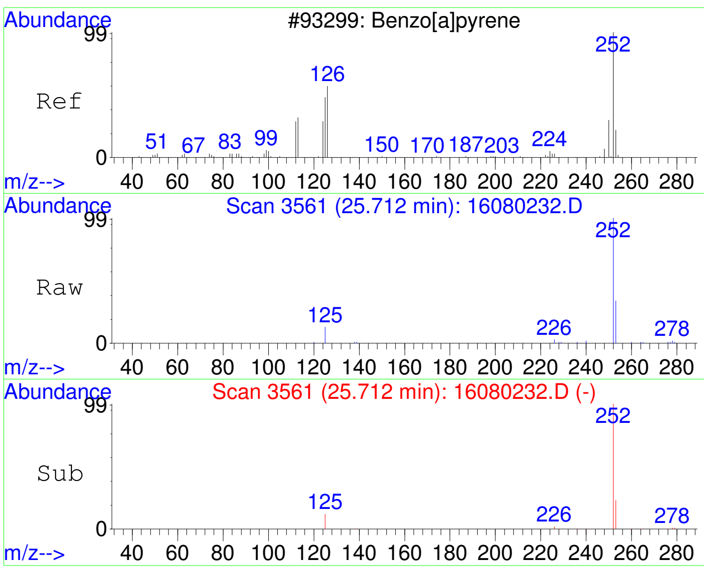


#24
Benzo[e]pyrene
Concen: 49.00 ug/kg
RT: 25.53 min Scan# 3537
Delta R.T. -0.02 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:252 Resp: 19069

Ion	Ratio	Lower	Upper
252	100		
253	24.3	2.2	42.2
125	14.5	0.0	35.7

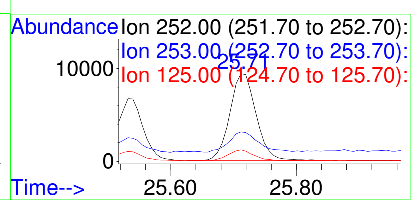


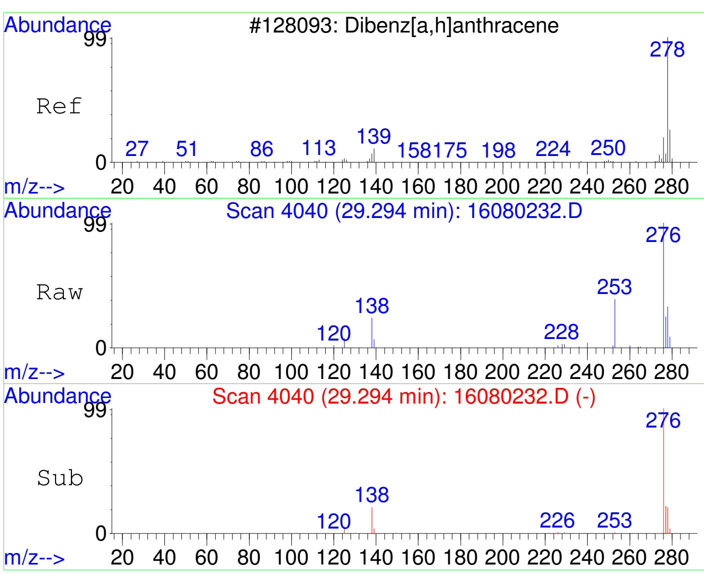


#25
Benzo[a]pyrene
Concen: 69.84 ug/kg
RT: 25.71 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:252 Resp: 27061

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.0	42.0
125	12.5	0.0	31.6

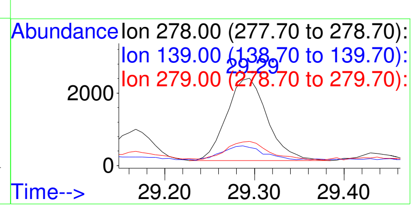


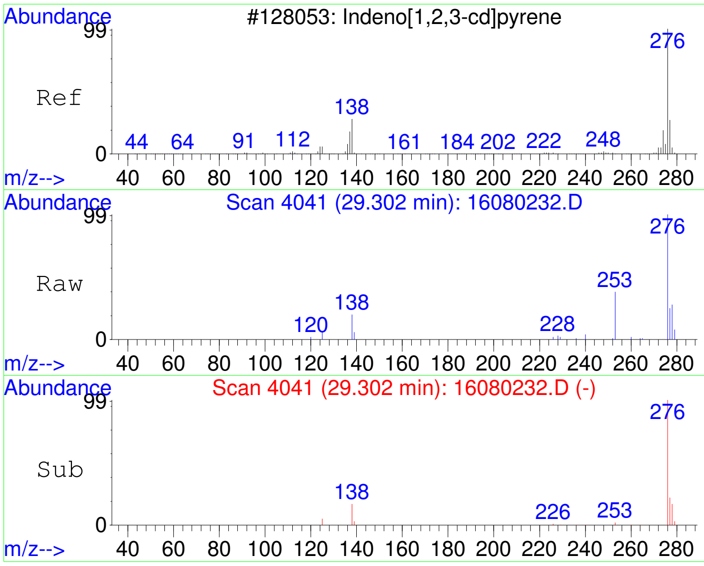


#26
Dibenz[a,h]anthracene
Concen: 18.97 ug/kg
RT: 29.29 min Scan# 4040
Delta R.T. -0.03 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:278 Resp: 7113

Ion	Ratio	Lower	Upper
278	100		
139	14.6	0.0	33.8
279	21.6	3.9	43.9

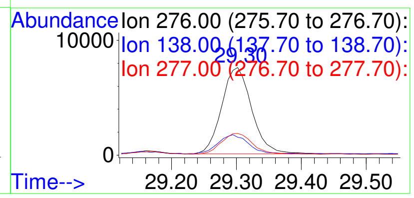


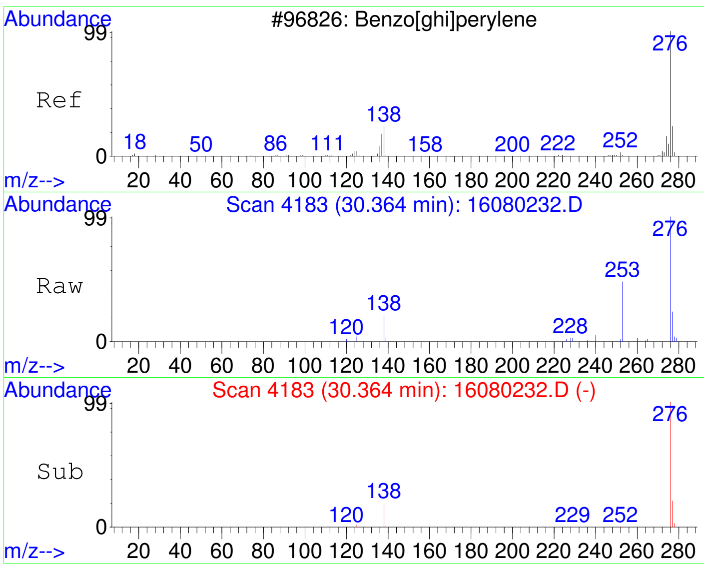


#27
Indeno[1,2,3-cd]pyrene
Concen: 54.73 ug/kg
RT: 29.30 min Scan# 4041
Delta R.T. -0.02 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:276 Resp: 24350

Ion	Ratio	Lower	Upper
276	100		
138	18.9	4.8	44.8
277	23.8	5.6	45.6

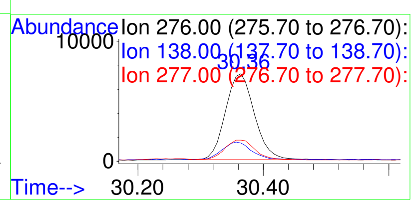




#28
Benzo[g,h,i]perylene
Concen: 61.84 ug/kg
RT: 30.36 min Scan# 4183
Delta R.T. -0.03 min
Lab File: 16080232.D
Acq: 3 Aug 2016 5:40 am

Tgt Ion:276 Resp: 23047

Ion	Ratio	Lower	Upper
276	100		
138	19.2	0.0	38.1
277	22.9	4.1	44.1



Data File : C:\HPCHEM\1\DATA\160802\16080233.D   Vial: 33
Acq On : 3 Aug 2016 6:19 am   Operator: DEW
Sample : 1607239-17A   Inst : GC/MS #6
Misc : SAMP   Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 11:03 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	10.68	136	1415388	4000.00 ug/kg	101
5) Acenaphthene-d10	13.16	164	657502	4000.00 ug/kg	110
11) Phenanthrene-d10	15.26	188	1508360	4000.00 ug/kg	95
17) Chrysene-d12	20.92	240	1760918	4000.00 ug/kg	96
20) Perylene-d12	26.04	264	1732480	4000.00 ug/kg	90

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
7) 2-Fluorobiphenyl	12.09	172	18785	81.91 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#	
16) 4-Terphenyl-d14	17.73	244	29206	82.05 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
12) Phenanthrene	15.30	178	2331	6.52 ug/kg	98
13) Anthracene	15.34	178	2613	6.94 ug/kg	98
14) Fluoranthene	17.22	202	5716	13.49 ug/kg	99
15) Pyrene	17.80	202	5271	12.27 ug/kg	98
18) Benzo[a]anthracene	20.75	228	5153	12.98 ug/kg	98
19) Chrysene	21.00	228	5540	14.51 ug/kg	98
21) Benzo[b]fluoranthene	24.31	252	7179	17.95 ug/kg	97
22) Benzo[k]fluoranthene	24.39	252	3956	10.78 ug/kg	95
23) Benzo(j)fluoranthene	24.48	252	1687	4.78 ug/kg	88
24) Benzo[e]pyrene	25.53	252	2742	7.06 ug/kg	84
25) Benzo[a]pyrene	25.71	252	5744	14.86 ug/kg	96
26) Dibenz[a,h]anthracene	29.29	278	3098	8.28 ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.29	276	6200	13.97 ug/kg	95
28) Benzo[g,h,i]perylene	30.36	276	5327	14.33 ug/kg	98

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

```
Data File : C:\HPCHEM\1\DATA\160802\16080233.D          Vial: 33
Acq On    :  3 Aug 2016   6:19 am                   Operator: DEW
Sample    : 1607239-17A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 11:03 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
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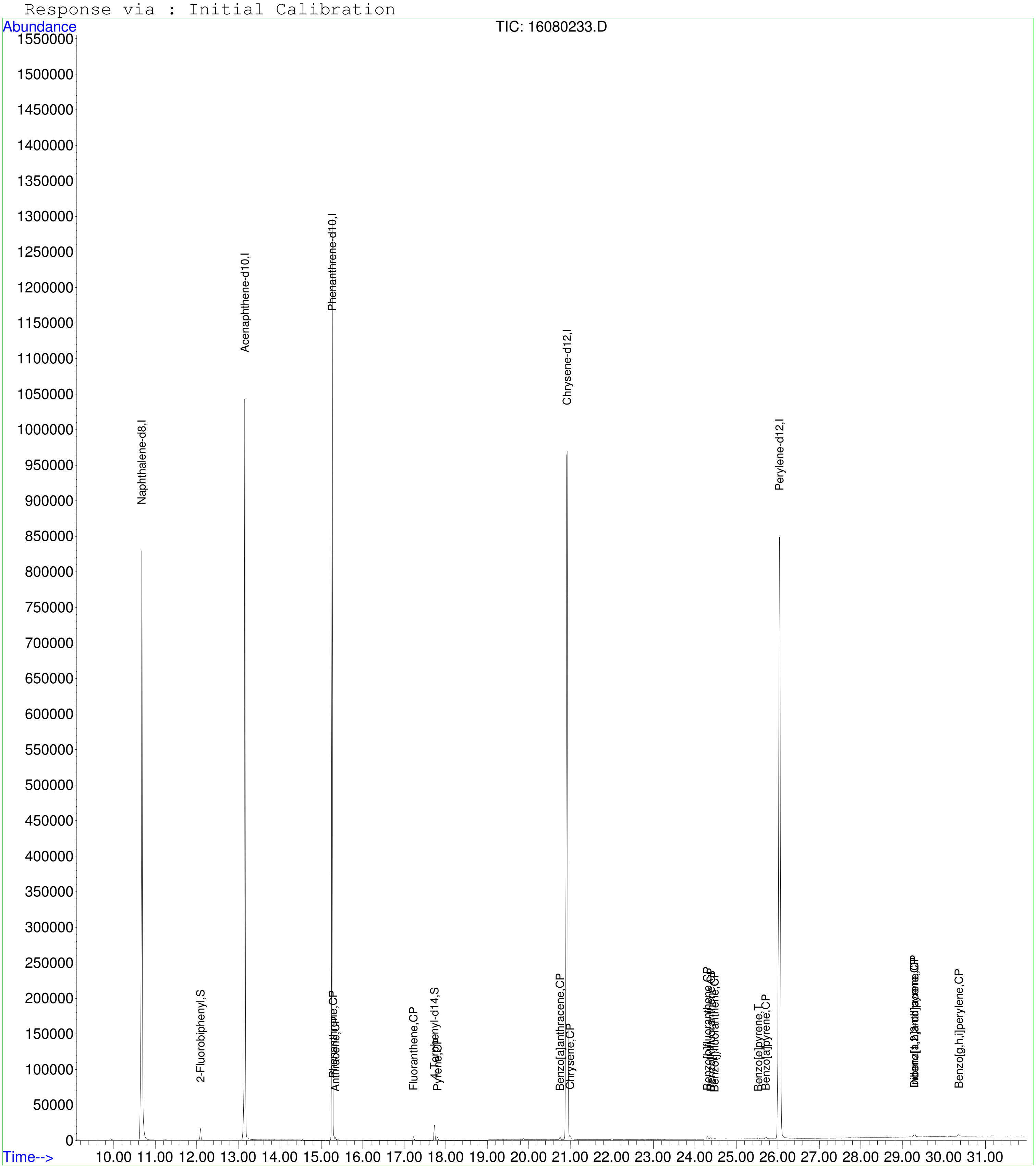
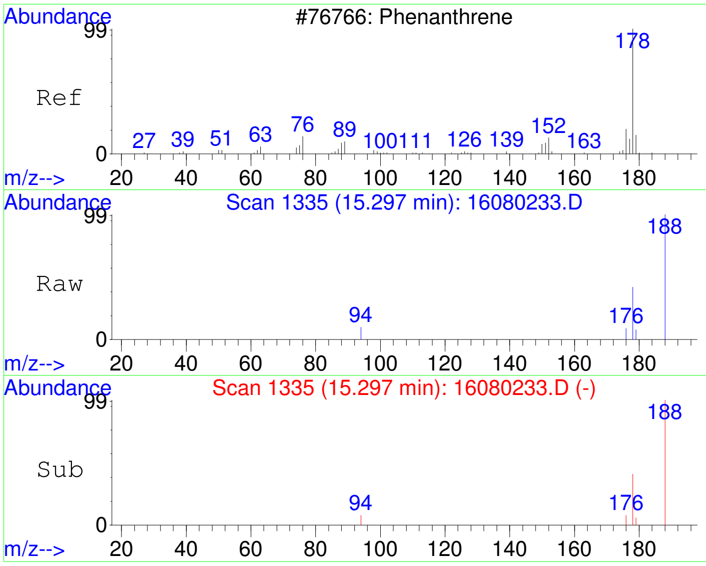
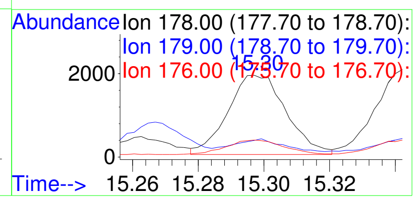


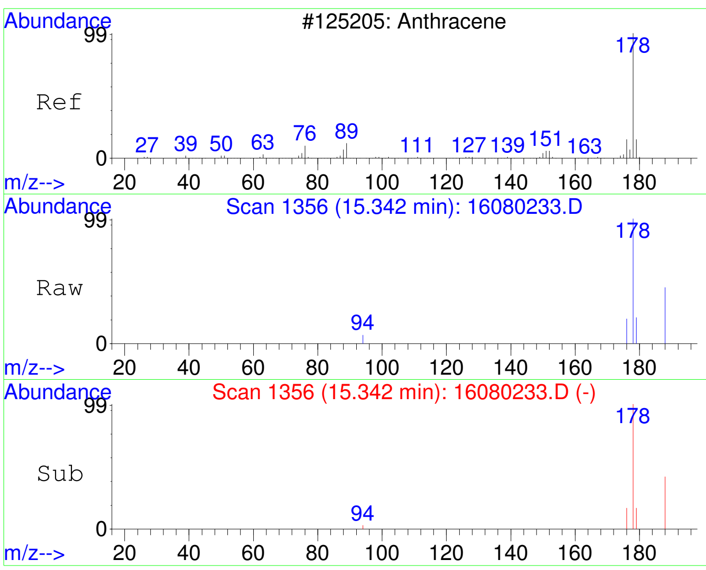


#12
Phenanthrene
Concen: 6.52 ug/kg
RT: 15.30 min Scan# 1335
Delta R.T. -0.01 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:178 Resp: 2331

Ion	Ratio	Lower	Upper
178	100		
179	14.4	0.0	45.7
176	18.9	0.0	48.7

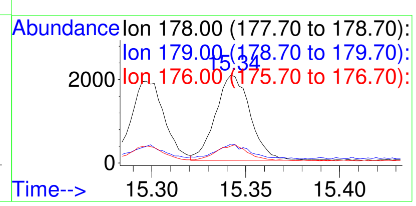


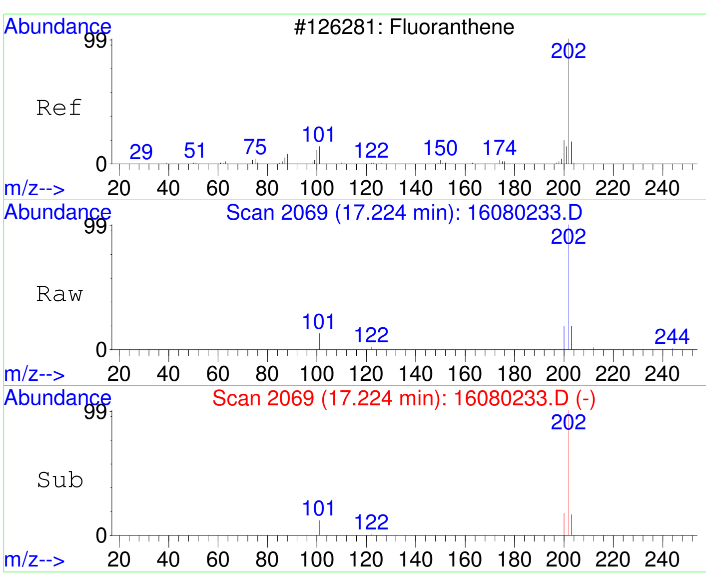


#13
Anthracene
Concen: 6.94 ug/kg
RT: 15.34 min Scan# 1356
Delta R.T. -0.01 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:178 Resp: 2613

Ion	Ratio	Lower	Upper
178	100		
179	17.3	0.0	45.7
176	17.3	0.0	47.9

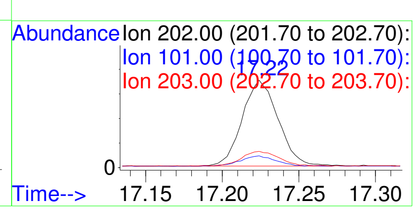


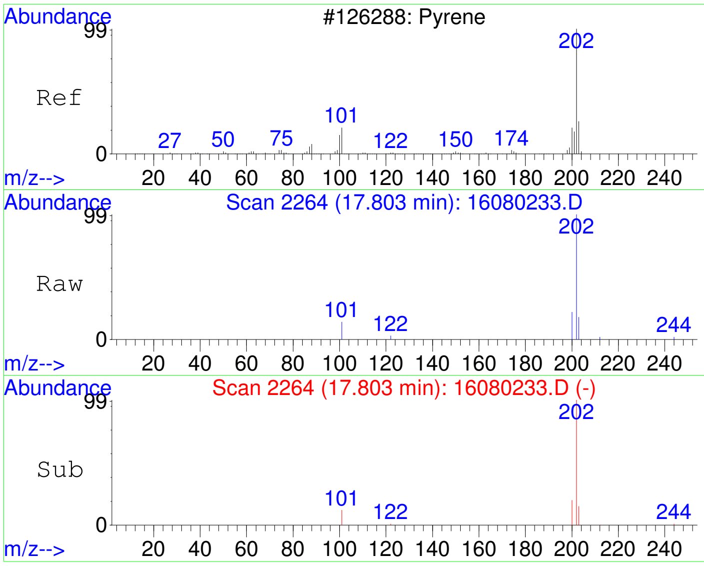


#14
Fluoranthene
Concen: 13.49 ug/kg
RT: 17.22 min Scan# 2069
Delta R.T. -0.01 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:202 Resp: 5716

Ion	Ratio	Lower	Upper
202	100		
101	11.9	0.0	42.1
203	17.1	0.0	47.9

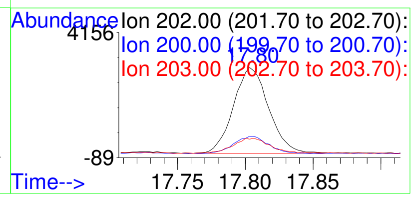


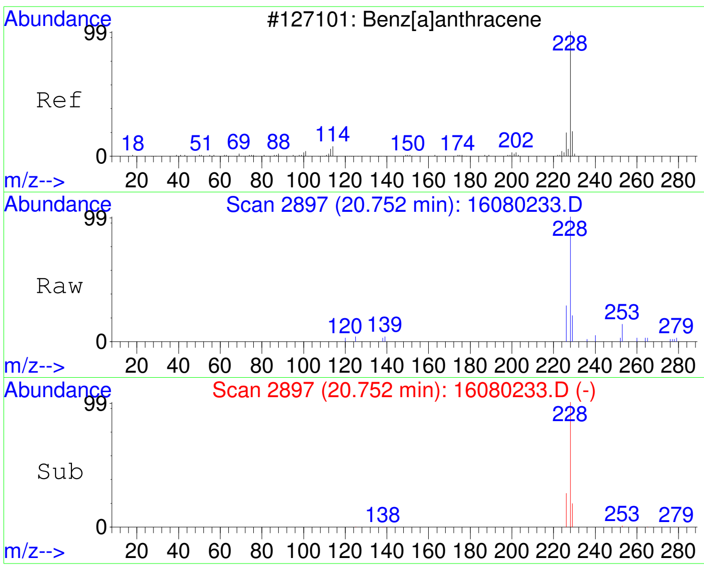


#15
Pyrene
Concen: 12.27 ug/kg
RT: 17.80 min Scan# 2264
Delta R.T. -0.01 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:202 Resp: 5271

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	49.7
203	16.3	0.0	47.8

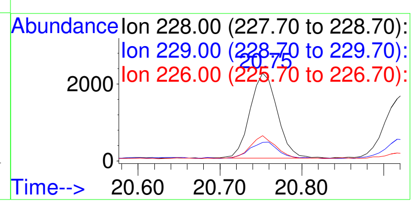


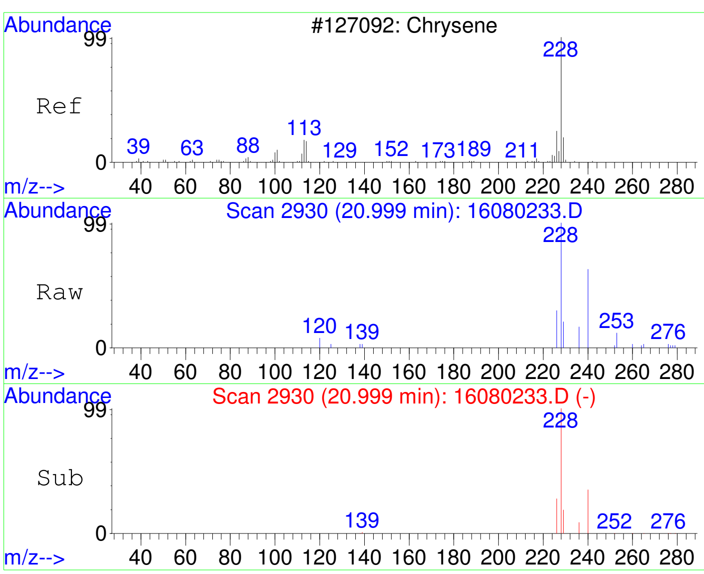


#18
Benzo[a]anthracene
Concen: 12.98 ug/kg
RT: 20.75 min Scan# 2897
Delta R.T. -0.02 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:228 Resp: 5153

Ion	Ratio	Lower	Upper
228	100		
229	18.8	0.0	49.8
226	26.7	0.0	55.8

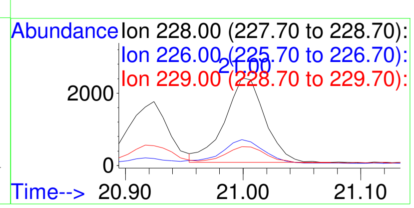


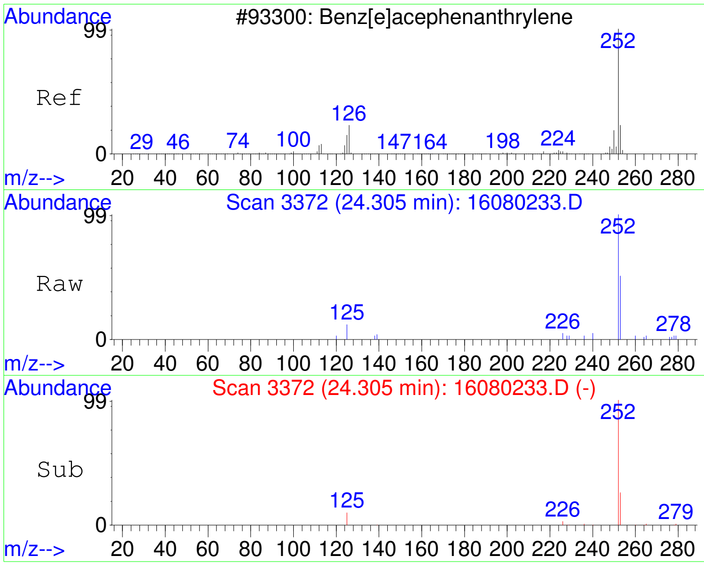


#19
Chrysene
Concen: 14.51 ug/kg
RT: 21.00 min Scan# 2930
Delta R.T. -0.02 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:228 Resp: 5540

Ion	Ratio	Lower	Upper
228	100		
226	27.5	0.0	58.1
229	18.8	0.0	50.0

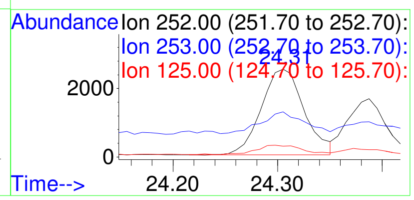


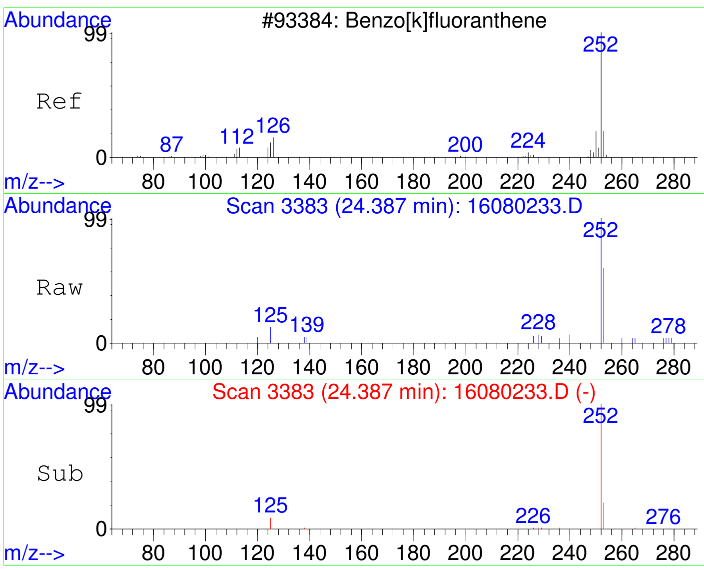


#21
Benzo[b]fluoranthene
Concen: 17.95 ug/kg
RT: 24.31 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:252 Resp: 7179

Ion	Ratio	Lower	Upper
252	100		
253	23.3	0.0	52.0
125	9.8	0.0	40.6

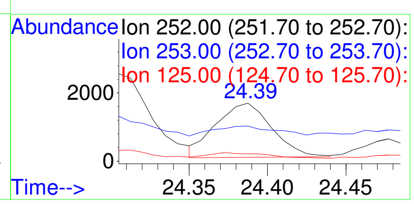


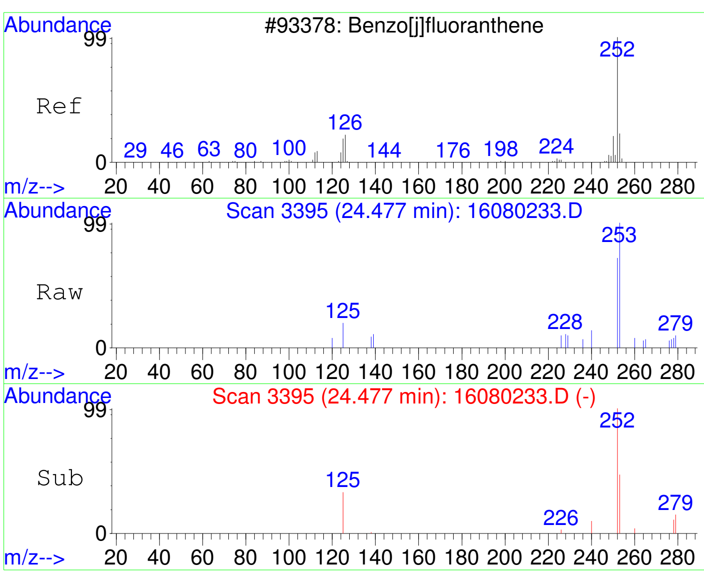


#22
Benzo[k]fluoranthene
Concen: 10.78 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.02 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:252 Resp: 3956

Ion	Ratio	Lower	Upper
252	100		
253	19.2	2.2	42.2
125	9.0	0.0	30.3

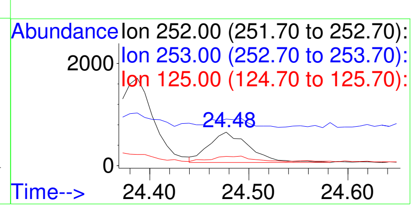


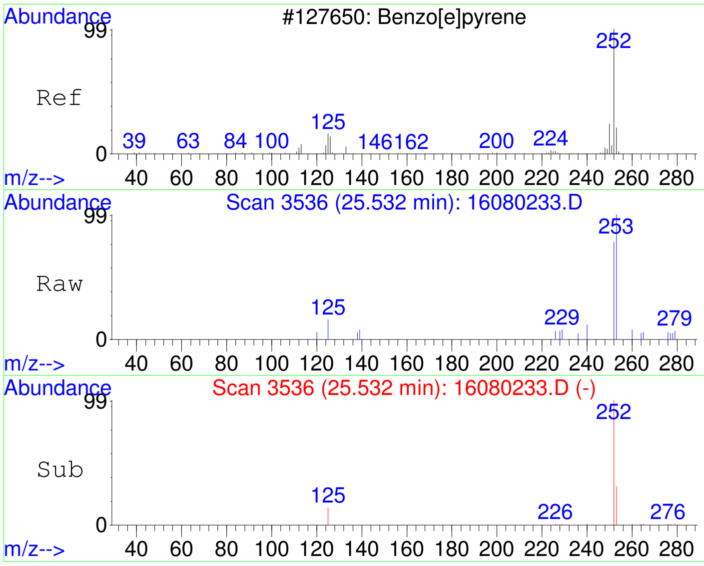


#23
Benzo(j)fluoranthene
Concen: 4.78 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:252 Resp: 1687

Ion	Ratio	Lower	Upper
252	100		
253	14.4	2.2	42.2
125	17.1	0.0	34.4

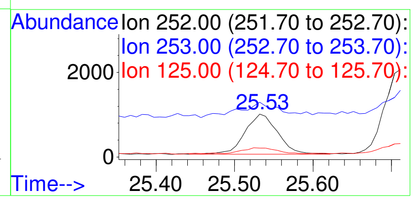


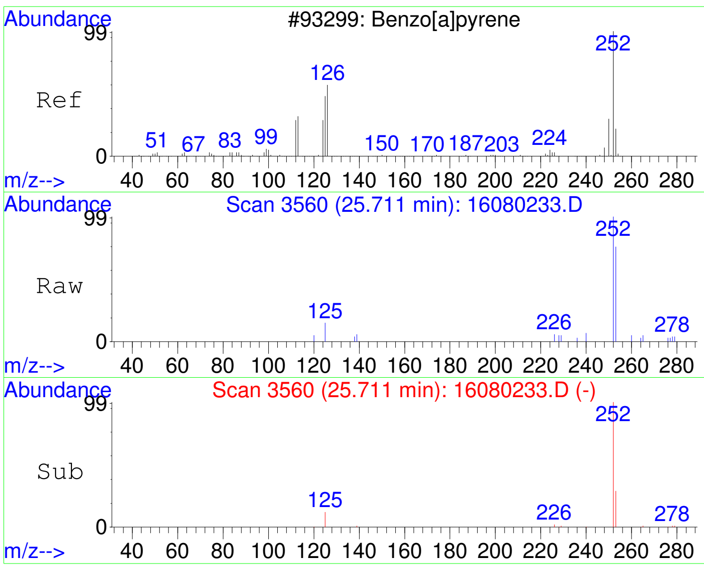


#24
Benzo[e]pyrene
Concen: 7.06 ug/kg
RT: 25.53 min Scan# 3536
Delta R.T. -0.02 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:252 Resp: 2742

Ion	Ratio	Lower	Upper
252	100		
253	33.8	2.2	42.2
125	13.8	0.0	35.7

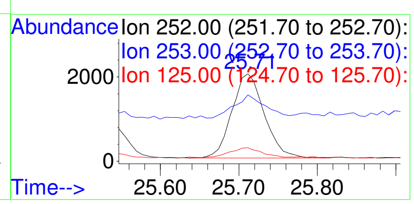


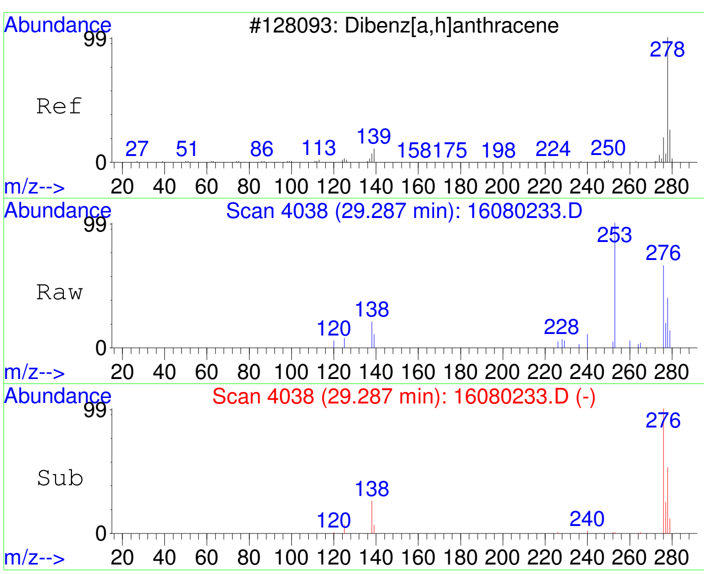


#25
Benzo[a]pyrene
Concen: 14.86 ug/kg
RT: 25.71 min Scan# 3560
Delta R.T. -0.02 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:252 Resp: 5744

Ion	Ratio	Lower	Upper
252	100		
253	25.0	2.0	42.0
125	11.4	0.0	31.6

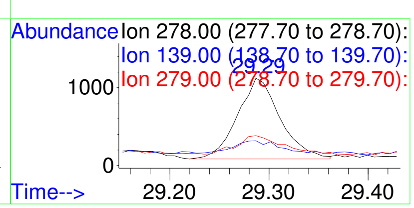


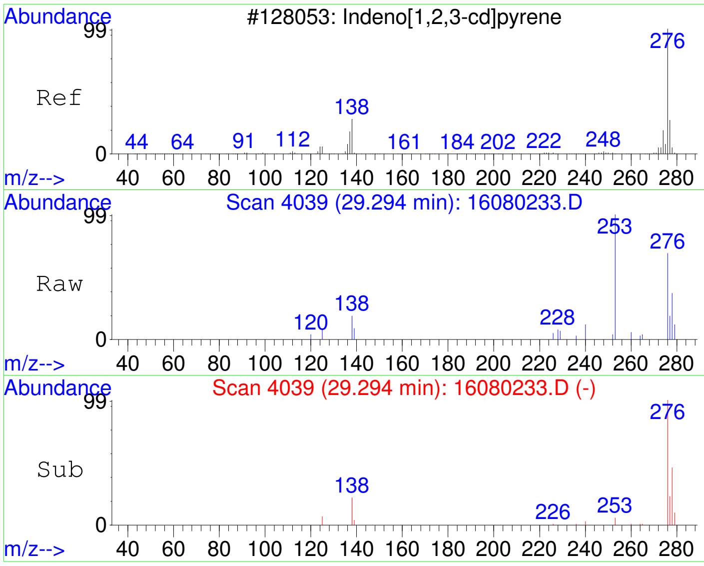


#26
Dibenz[a,h]anthracene
Concen: 8.28 ug/kg
RT: 29.29 min Scan# 4038
Delta R.T. -0.04 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:278 Resp: 3098

Ion	Ratio	Lower	Upper
278	100		
139	15.3	0.0	33.8
279	22.2	3.9	43.9

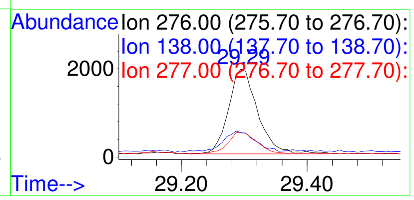


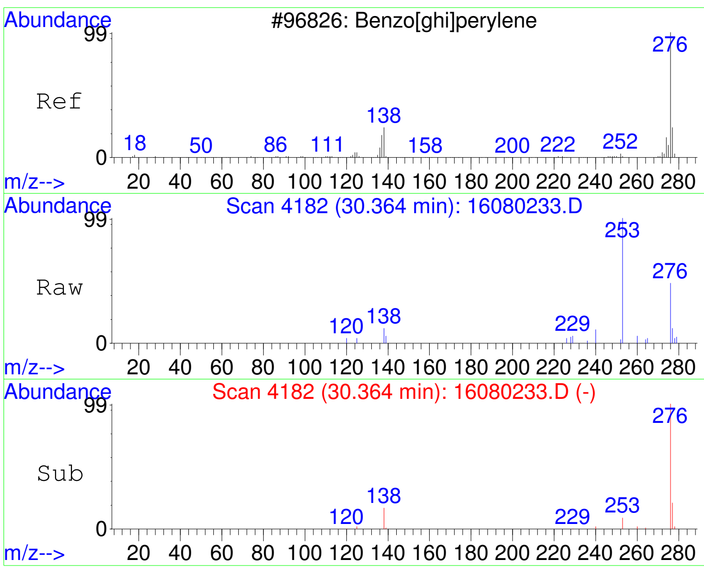


#27
Indeno[1,2,3-cd]pyrene
Concen: 13.97 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:276 Resp: 6200

Ion	Ratio	Lower	Upper
276	100		
138	21.7	4.8	44.8
277	24.0	5.6	45.6

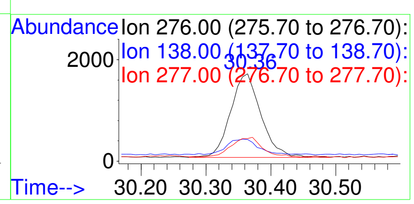




#28
Benzo[g,h,i]perylene
Concen: 14.33 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080233.D
Acq: 3 Aug 2016 6:19 am

Tgt Ion:276 Resp: 5327

Ion	Ratio	Lower	Upper
276	100		
138	17.6	0.0	38.1
277	22.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160802\16080234.D Vial: 34
Acq On : 3 Aug 2016 6:59 am Operator: DEW
Sample : 1607256-07AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:57 2016 Quant Results File: PP160801.RES

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

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1530817	4000.00	ug/kg	109
5) Acenaphthene-d10	13.16	164	718596	4000.00	ug/kg	120
11) Phenanthrene-d10	15.26	188	1601925	4000.00	ug/kg	101
17) Chrysene-d12	20.92	240	2002140	4000.00	ug/kg	109
20) Perylene-d12	26.05	264	1991745	4000.00	ug/kg	103

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	21032	83.91	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#		
16) 4-Terphenyl-d14	17.73	244	32637	86.33	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.16%#		

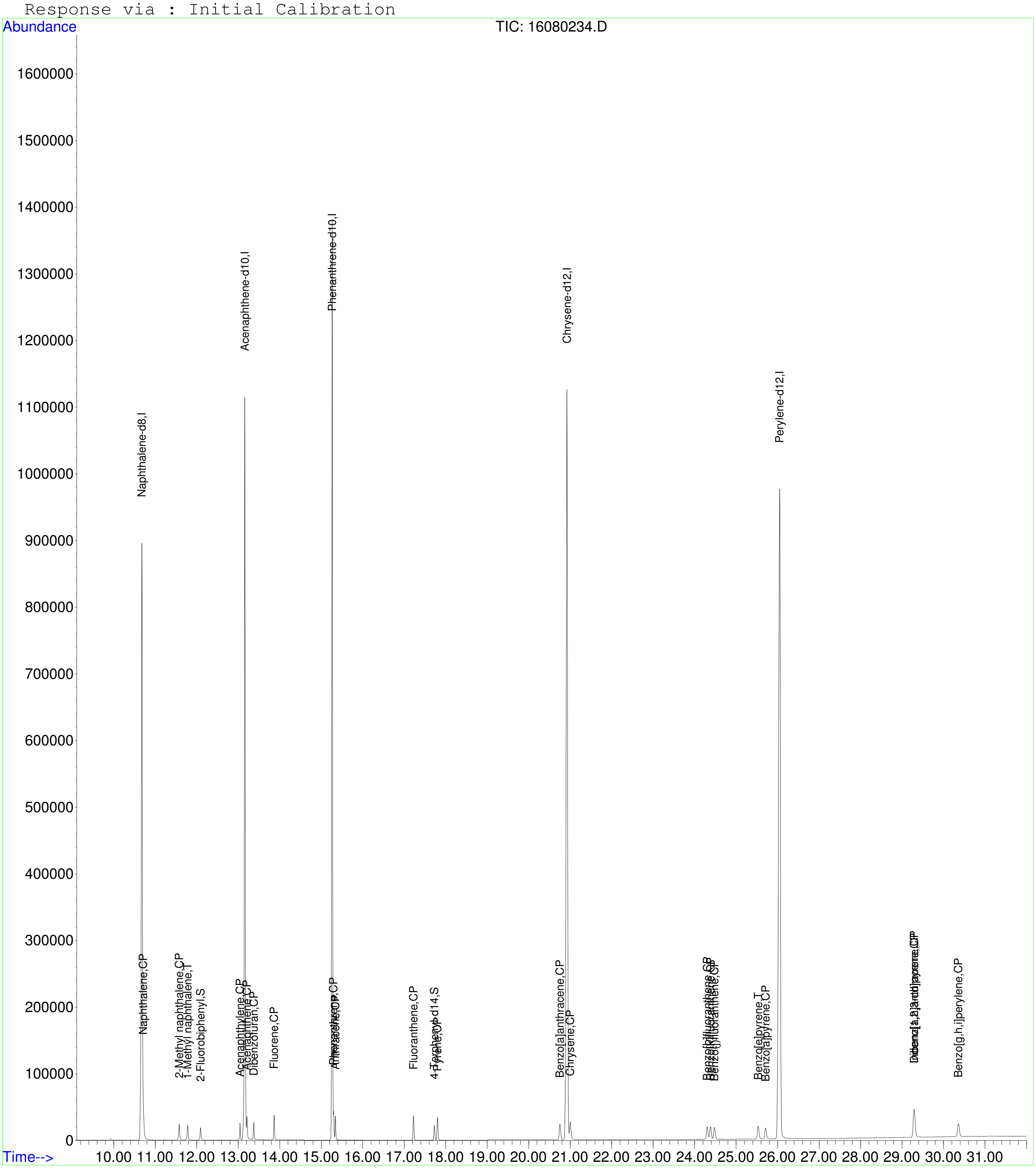
Target Compounds						Qvalue
2) Naphthalene	10.71	128	28868	82.88	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	19914	88.20	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	17732	88.66	ug/kg	96
6) Dibenzofuran	13.37	168	26665	91.69	ug/kg	99
8) Acenaphthylene	13.04	152	26583	83.54	ug/kg	100
9) Acenaphthene	13.21	154	15934	86.46	ug/kg	99
10) Fluorene	13.86	166	21098	91.07	ug/kg	100
12) Phenanthrene	15.30	178	33806	89.01	ug/kg	98
13) Anthracene	15.34	178	32798	82.07	ug/kg	99
14) Fluoranthene	17.22	202	39767	88.35	ug/kg	99
15) Pyrene	17.80	202	40197	88.08	ug/kg	100
18) Benzo[a]anthracene	20.75	228	37087	82.18	ug/kg	100
19) Chrysene	21.01	228	36729	84.60	ug/kg	99
21) Benzo[b]fluoranthene	24.31	252	38262	83.21	ug/kg	99
22) Benzo[k]fluoranthene	24.38	252	37175	88.13	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	36047	88.92	ug/kg	98
24) Benzo[e]pyrene	25.53	252	39993	89.63	ug/kg	98
25) Benzo[a]pyrene	25.71	252	35377	79.63	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	41460	96.44	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	49750	97.52	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	41713	97.62	ug/kg	97

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080234.D          Vial: 34
Acq On    :  3 Aug 2016   6:59 am                   Operator: DEW
Sample    : 1607256-07AMS                           Inst    : GC/MS #6
Misc      : MS                                      Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:57 2016            Quant Results File: PP160801.RES

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



```
Data File : C:\HPCHEM\1\DATA\160802\16080235.D          Vial: 35
Acq On    :  3 Aug 2016   7:40 am                      Operator: DEW
Sample    : 1607256-07AMSD                             Inst    : GC/MS #6
Misc      : MSD                                        Multiplr: 10.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  3 10:58 2016            Quant Results File: PP160801.RES

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

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
-----------------------------------------------------------------------------
  1) Naphthalene-d8                10.68  136  1508836   4000.00 ug/kg  108
  5) Acenaphthene-d10              13.16  164   709583   4000.00 ug/kg  118
 11) Phenanthrene-d10              15.26  188  1524520   4000.00 ug/kg   96
 17) Chrysene-d12                  20.92  240  1944832   4000.00 ug/kg  106
 20) Perylene-d12                  26.05  264  1946871   4000.00 ug/kg  101

 System Monitoring Compounds
  7) 2-Fluorobiphenyl              12.09  172    20633    83.36 ug/kg   0.00
  Spiked Amount   4000.000   Range  40 - 140    Recovery   =    2.08%#
 16) 4-Terphenyl-d14               17.73  244    30386    84.46 ug/kg  -0.01
  Spiked Amount   4000.000   Range  40 - 140    Recovery   =    2.11%#

 Target Compounds                                                    Qvalue
  2) Naphthalene                   10.71  128    28076    81.78 ug/kg     99
  3) 2-Methyl naphthalene          11.57  142    18866    84.77 ug/kg     94
  4) 1-Methyl naphthalene          11.78  142    17150    87.00 ug/kg     96
  6) Dibenzofuran                  13.37  168    25646    89.31 ug/kg     99
  8) Acenaphthylene                13.04  152    24854    79.09 ug/kg    100
  9) Acenaphthene                  13.21  154    15228    83.68 ug/kg     98
 10) Fluorene                      13.86  166    20176    88.20 ug/kg     98
 12) Phenanthrene                  15.30  178    31249    86.46 ug/kg     98
 13) Anthracene                    15.34  178    30358    79.82 ug/kg     99
 14) Fluoranthene                  17.22  202    36440    85.07 ug/kg     99
 15) Pyrene                        17.80  202    37187    85.62 ug/kg     99
 18) Benzo[a]anthracene            20.75  228    34988    79.82 ug/kg     99
 19) Chrysene                      21.00  228    34964    82.91 ug/kg     99
 21) Benzo[b]fluoranthene          24.31  252    36576    81.38 ug/kg     99
 22) Benzo[k]fluoranthene          24.38  252    35419    85.90 ug/kg     99
 23) Benzo(j)fluoranthene          24.48  252    34204    86.32 ug/kg     99
 24) Benzo[e]pyrene                25.53  252    37703    86.44 ug/kg     99
 25) Benzo[a]pyrene                25.71  252    33473    77.08 ug/kg     99
 26) Dibenz[a,h]anthracene         29.29  278    39371    93.69 ug/kg     98
 27) Indeno[1,2,3-cd]pyrene        29.30  276    47352    94.95 ug/kg     96
 28) Benzo[g,h,i]perylene          30.36  276    40068    95.93 ug/kg     96

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

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160802\16080235.D          Vial: 35
Acq On    :  3 Aug 2016   7:40 am                    Operator: DEW
Sample    : 1607256-07AMSD                           Inst    : GC/MS #6
Misc      : MSD                                      Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  3 10:58 2016           Quant Results File: PP160801.RES

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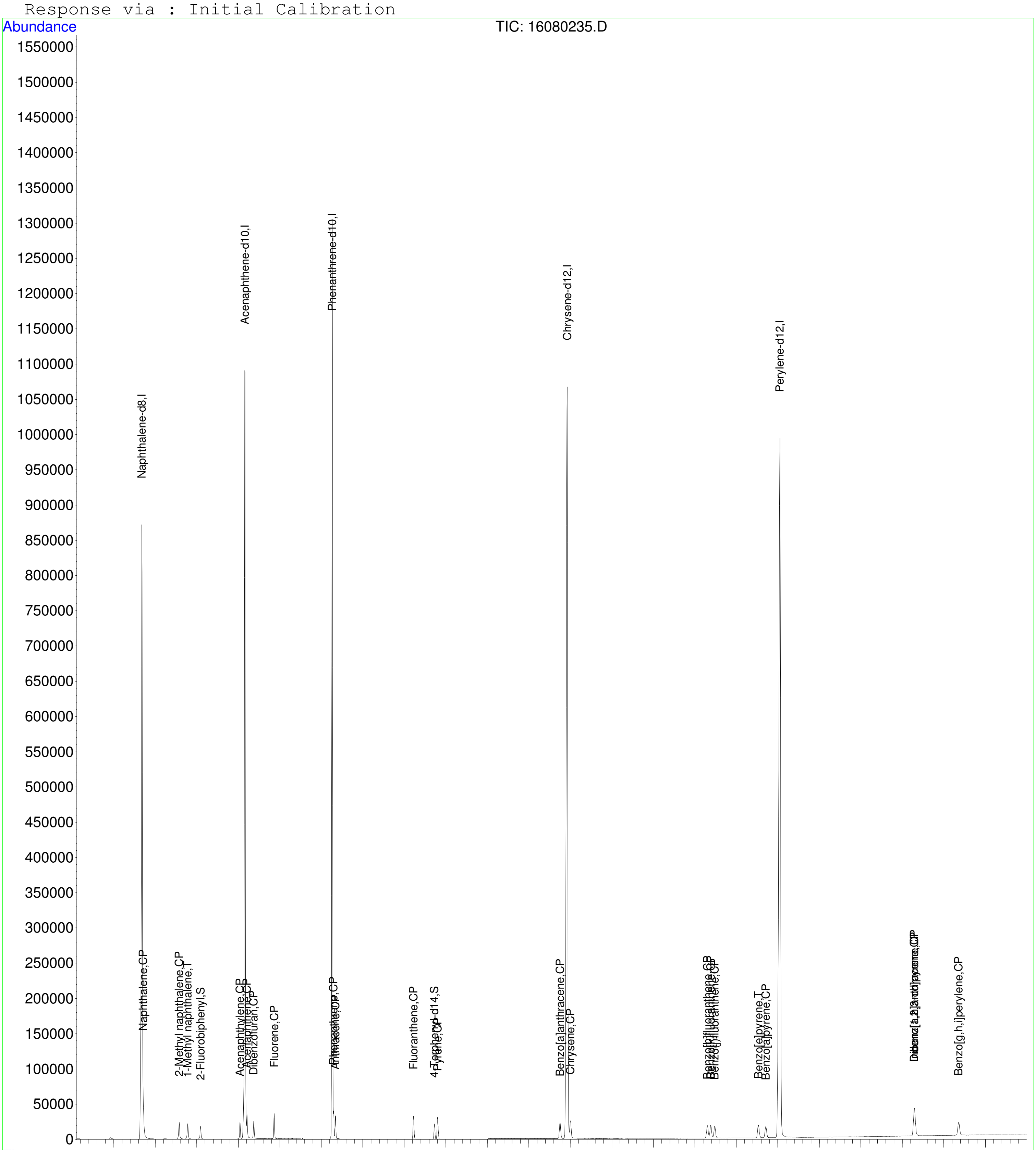


Data File : C:\HPCHEM\1\DATA\160802\16080236.D Vial: 36
Acq On : 3 Aug 2016 8:20 am Operator: DEW
Sample : CCV1-160802 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1401297	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	618544	4000.00	ug/kg	103
11) Phenanthrene-d10	15.26	188	1528398	4000.00	ug/kg	96
17) Chrysene-d12	20.92	240	1841607	4000.00	ug/kg	100
20) Perylene-d12	26.05	264	1897432	4000.00	ug/kg	98

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	201852	935.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.39%#			
16) 4-Terphenyl-d14	17.73	244	331877	920.13	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.00%#			

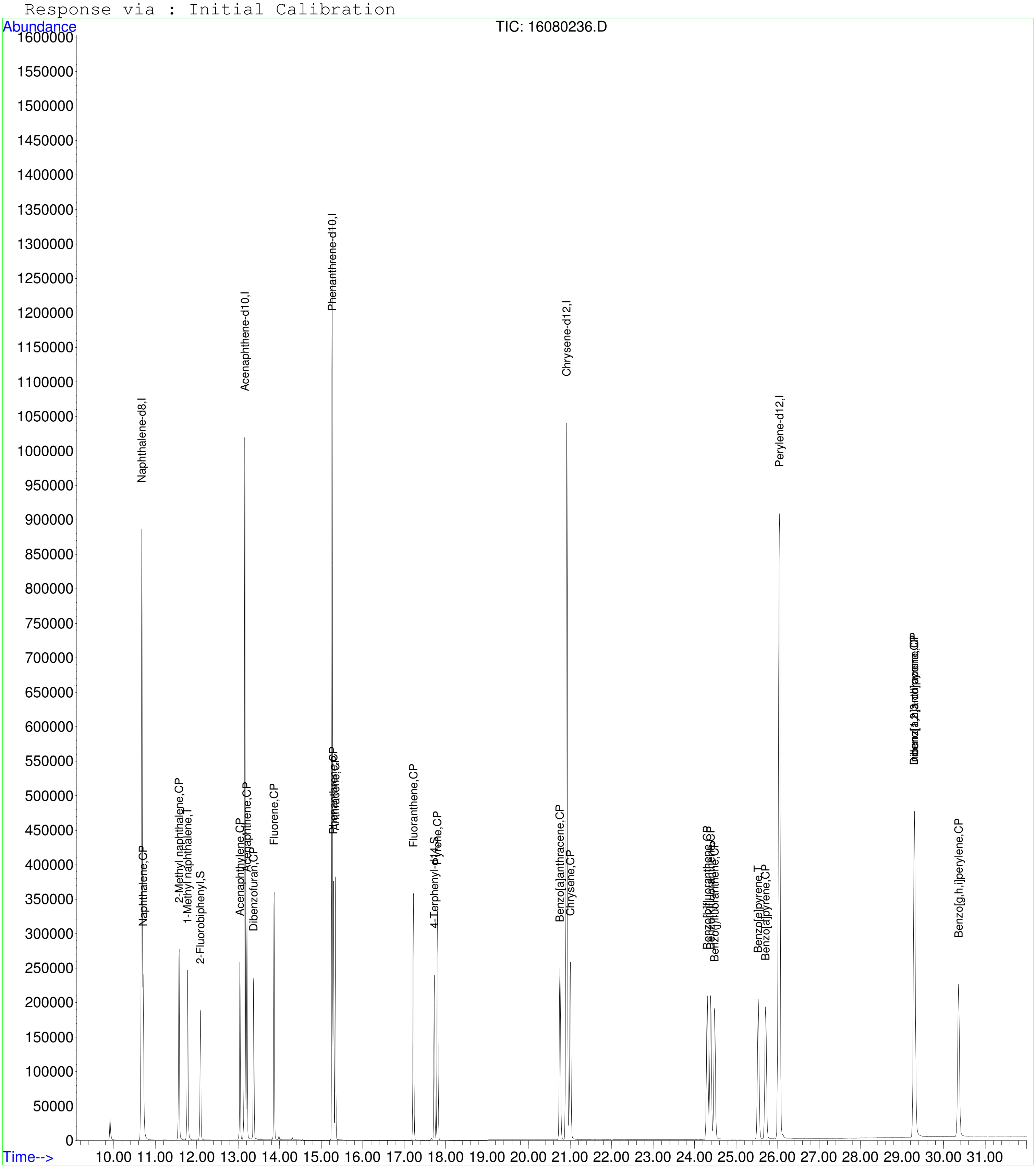
Target Compounds						Qvalue
2) Naphthalene	10.71	128	290712	911.81	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	190576	922.04	ug/kg	99
4) 1-Methyl naphthalene	11.78	142	169868	927.84	ug/kg	99
6) Dibenzofuran	13.37	168	234965	938.67	ug/kg	100
8) Acenaphthylene	13.04	152	257025	938.34	ug/kg	100
9) Acenaphthene	13.21	154	152836	963.41	ug/kg	99
10) Fluorene	13.86	166	198229	994.05	ug/kg	100
12) Phenanthrene	15.30	178	336106	927.55	ug/kg	99
13) Anthracene	15.34	178	349166	915.76	ug/kg	100
14) Fluoranthene	17.22	202	393886	917.24	ug/kg	99
15) Pyrene	17.80	202	391527	899.18	ug/kg	100
18) Benzo[a]anthracene	20.75	228	393265	947.43	ug/kg	100
19) Chrysene	21.01	228	376904	943.84	ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	419605	957.93	ug/kg	100
22) Benzo[k]fluoranthene	24.39	252	401760	999.77	ug/kg	100
23) Benzo(j)fluoranthene	24.48	252	369844	957.69	ug/kg	99
24) Benzo[e]pyrene	25.53	252	405871	954.81	ug/kg	100
25) Benzo[a]pyrene	25.71	252	402215	950.34	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	452402	1104.59	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.30	276	533462	1097.61	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	446616	1097.15	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160802\16080236.D Vial: 36
Acq On : 3 Aug 2016 8:20 am Operator: DEW
Sample : CCV1-160802 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 10:58 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6_160803A
For

DHL Work Order
1607239

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160803A			
Batch Number(s): See Run Log.	**SOP:** ORGANICS-PAH-01			
Matrix: See Run Log.				
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
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			
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		
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		x
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Lab Control Sample (LCS)	Every Batch	See LIMS			X	
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			x
Matrix Spike (MS)	Every Batch/20 samples	See LIMS			X	
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS			X	
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)			X	

Lab Data Review Check List

EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction			X	x
	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

Review Item	Criteria	Yes	No	N/A	2nd Level Review
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	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)	___ Cannot reanalyze (HT out/Lack of Sample)	

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/4/2016

Second-Level Review: Janice Whitt Date: 8/10/2016

REVIEWED BY
By Janice Whitt at 1:58:14 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: GCMS6_160803A

Run No.: 87405

Analytical Run Date: 8/3/2016

InstrumentID: GCMS6

Analyst: Don Winston

Column: Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680

Column ID: 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160803	1	PAH_LL_SDOD1	TUNE	R87405	8/3/2016 10:22:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160803	1	PAH_LL_SDOD1	ICV	R87405	8/3/2016 11:02:00 AM		
SB-160803	1	PAH_LL_SDOD1	SBLK	76473	8/3/2016 12:23:00 PM		
1607256-33A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:03:00 PM		
1607256-35A	10	PAH_LL_SDOD1	SAMP	76473	8/3/2016 1:44:00 PM		
1607219-18A	10	PAH_LL_SDOD1	SAMP	76420	8/3/2016 2:25:00 PM		
1607219-22A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:06:00 PM		
1607239-01A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 3:47:00 PM		
1607239-05A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 4:28:00 PM		
1607239-11A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:10:00 PM		
1607239-17A	10	PAH_LL_SDOD1	SAMP	76442	8/3/2016 5:50:00 PM		
CCV1-160803	1	PAH_LL_SDOD1	CCV	R87405	8/3/2016 6:30:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160803.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160803\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080301	DFTPPPAH	DFTPP-160803
2	Sample	2	16080302	PP160801	ICV-160803
3	Sample	3	16080303	PP160801	SB-160803
4	Sample	4	16080304	PP160801	SB-160803
5	Sample	5	16080305	PP160801	1607256-33A
6	Sample	6	16080306	PP160801	1607256-35A
7	Sample	7	16080307	PP160801	1607219-18A
8	Sample	8	16080308	PP160801	1607219-22A
9	Sample	9	16080309	PP160801	1607239-01A
10	Sample	10	16080310	PP160801	1607239-05A
11	Sample	11	16080311	PP160801	1607239-11A
12	Sample	12	16080312	PP160801	1607239-17A
13	Sample	13	16080313	PP160801	CCV1-160803
14	Sample	14	16080314	DFTPPPAH	DFTPP-160803
15	Sample	15	16080315	PP160801	ICV-160803
16	Sample	16	16080316	PP160801	LCS-76642
17	Sample	17	16080317	PP160801	MB-76642
18	Sample	18	16080318	PP160801	1608019-01A
19	Sample	19	16080319	PP160801	1608019-02A
20	Sample	20	16080320	PP160801	1608019-03A
21	Sample	21	16080321	PP160801	1608019-04A
22	Sample	22	16080322	PP160801	1608019-05A
23	Sample	23	16080323	PP160801	1608019-06A
24	Sample	24	16080324	PP160801	1607254-05C
25	Sample	25	16080325	PP160801	1607260-01C
26	Sample	26	16080326	PP160801	1607260-04C
27	Sample	27	16080327	PP160801	1607254-02C
28	Sample	28	16080328	PP160801	1607260-11C
29	Sample	29	16080329	PP160801	1608019-03AMS
30	Sample	30	16080330	PP160801	1608019-03AMSD
31	Sample	31	16080331	PP160801	CCV1-160803

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: 7/25/16 5:00 Pm

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	1.000	1 of 1	
1607219-23A	Soil		10.71	10	1.000	1 of 1	
1607219-24A	Soil		10.27	10	1.000	1 of 1	
1607219-25A	Soil		10.46	10	1.000	1 of 1	
1607239-01A	Soil		10.05	10	1.000	1 of 3	
1607239-01AMS	Soil		10.68	10	1.000	1 of 3	
1607239-01AMSD	Soil		10.47	10	1.000	1 of 3	
1607239-02A	Soil		10.13	10	1.000	1 of 1	
1607239-03A	Soil		10.14	10	1.000	1 of 1	
1607239-04A	Soil		10.14	10	1.000	1 of 1	
1607239-05A	Soil		10.42	10	1.000	1 of 1	
1607239-06A	Soil		10.07	10	1.000	1 of 1	
1607239-07A	Soil		10.26	10	1.000	1 of 1	
1607239-08A	Soil		10.33	10	1.000	1 of 1	
1607239-09A	Soil		10.01	10	1.000	1 of 1	
1607239-10A	Soil		10.71	10	1.000	1 of 1	
1607239-11A	Soil		10.22	10	1.000	1 of 1	
1607239-12A	Soil		10.22	10	1.000	1 of 1	
1607239-13A	Soil		10.29	10	1.000	1 of 1	
1607239-14A	Soil		10.83	10	1.000	1 of 1	
1607239-15A	Soil		10.53	10	1.000	1 of 1	
1607239-17A	Soil		10.74	10	1.000	1 of 1	
LCS-76442	Soil		10	10	1.000	of	
MB-76442	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED BY
By Janice Whitt at 12:36:50 PM, 8/10/2016

DB 7/25/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/25/2016 1:21:12 PM**
Digestion:
Prep End Date: **7/25/2016 5:00:00 PM**

Prep Batch **76442** 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
1607219-22A	Soil		10.05	10	0.995	1	of	1	
1607219-23A	Soil		10.71	10	0.934	1	of	1	
1607219-24A	Soil		10.27	10	0.974	1	of	1	
1607219-25A	Soil		10.46	10	0.956	1	of	1	
1607239-01A	Soil		10.05	10	0.995	1	of	3	
1607239-01AMS	Soil		10.68	10	0.936	1	of		
1607239-01AMSD	Soil		10.47	10	0.955	1	of		
1607239-02A	Soil		10.13	10	0.987	1	of	1	
1607239-03A	Soil		10.14	10	0.986	1	of	1	
1607239-04A	Soil		10.14	10	0.986	1	of	1	
1607239-05A	Soil		10.42	10	0.960	1	of	1	
1607239-06A	Soil		10.07	10	0.993	1	of	1	
1607239-07A	Soil		10.26	10	0.975	1	of	1	
1607239-08A	Soil		10.33	10	0.968	1	of	1	
1607239-09A	Soil		10.01	10	0.999	1	of	1	
1607239-10A	Soil		10.71	10	0.934	1	of	1	
1607239-11A	Soil		10.22	10	0.978	1	of	1	
1607239-12A	Soil		10.22	10	0.978	1	of	1	
1607239-13A	Soil		10.29	10	0.972	1	of	1	
1607239-14A	Soil		10.83	10	0.923	1	of	1	
1607239-15A	Soil		10.53	10	0.950	1	of	1	
1607239-17A	Soil		10.74	10	0.931	1	of	1	
LCS-76442	Soil		10	10	1.000		of		
MB-76442	Soil		10	10	1.000		of		

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10490	1:1 MeCl2/Acetone	120	ml	06/27/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160609	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	09/07/2016
SVPREP160714	40 PPM Surrogate Standard	ALL	0.25	10/12/2016

REVIEWED BY
By Janice Whitt at 12:36:52 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Factor Units: **mL/**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1607239-01A	Soil		0	0	#Num!		of	3	
SS MS/MSD									
1607239-02A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-03A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-04A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-05A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-06A	Soil		0	0	#Num!	1	of	1	
Sieve only hard clay									
1607239-07A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-08A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-09A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-10A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-11A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-12A	Soil		0	0	#Num!	1	of	1	
SS									
1607239-13A	Soil		0	0	#Num!	1	of	1	
SS									

REVIEWED BY
By Janice Whitt at 12:31:00 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Factor Units: **mL/**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-14A	Soil		0	0	#Num!	1 of 1	
	SS						
1607239-15A	Soil		0	0	#Num!	1 of 1	
	SS						
1607239-17A	Soil		0	0	#Num!	1 of 1	
	SS						
1607239-18A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607239-19A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607239-20A	Soil		0	0	#Num!	1 of 1	
	SS						
1607239-21A	Soil		0	0	#Num!	of 3	
	SS MS/MSD						
1607239-22A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607239-23A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607239-24A	Soil		0	0	#Num!	1 of 1	
	SS						
1607239-25A	Soil		0	0	#Num!	1 of 1	
	SS						
1607239-26A	Soil		0	0	#Num!	1 of 1	
	SS						
1607239-27A	Soil		0	0	#Num!	1 of 1	
	SS						

REVIEWED BY
By Janice Whitt at 12:31:05 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/21/2016 1:41:17 PM**
Digestion: **Start: 7/21/2016 2:00:00 PM / Stop: 7/23/2016 9:00:00 AM**
Prep End Date: **7/23/2016 2:10:00 PM**

Prep Factor Units: **mL/**

Prep Batch **76383** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607239-28A SS	Soil		0	0	#Num!	1 of 1	
1607239-29A SS	Soil		0	0	#Num!	1 of 1	
1607239-30A SS	Soil		0	0	#Num!	1 of 1	
1607239-31A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:31:07 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**
Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**
Prep End Date: **7/22/2016 6:00:00 PM**

Prep Factor Units: **mL/**

Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-01A	Soil		0	0	#Num!	1 of 1	
SS - All samples were subsampled							
1607219-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-03A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607219-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607219-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 12:31:14 PM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/20/2016 2:15:00 PM**
Digestion: **Start: 7/20/2016 2:45:00 PM / Stop: 7/22/2016 1:45:00 PM**
Prep End Date: **7/22/2016 6:00:00 PM**

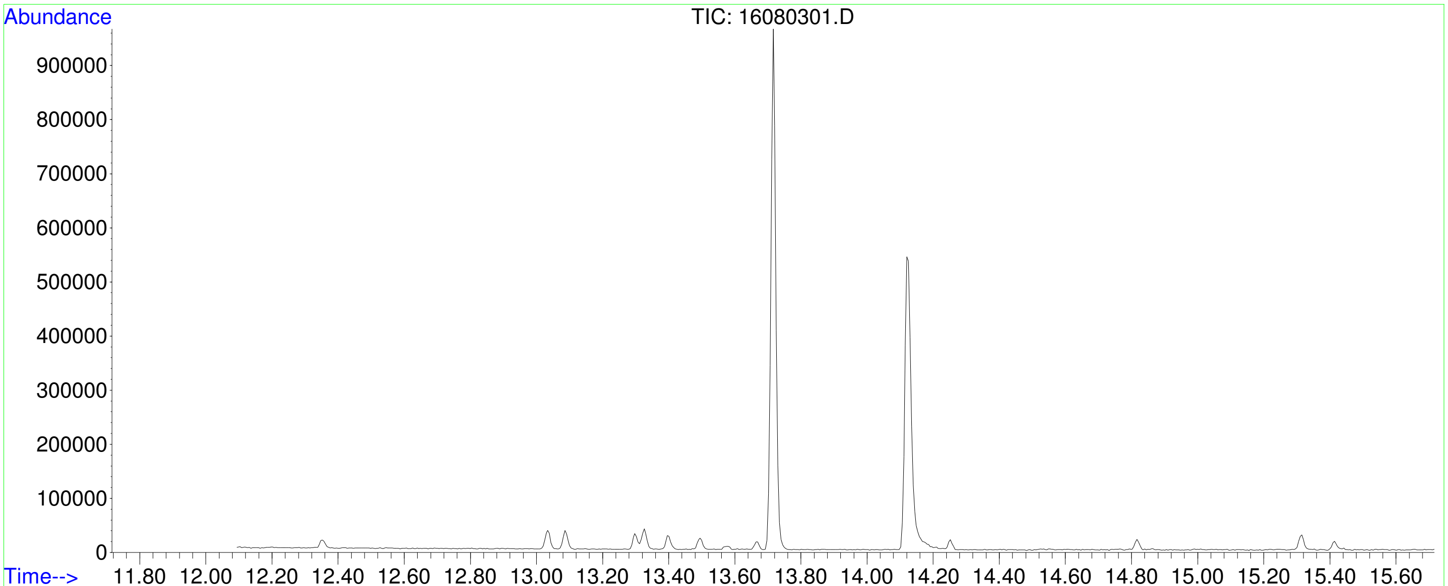
Prep Factor Units: **mL/**

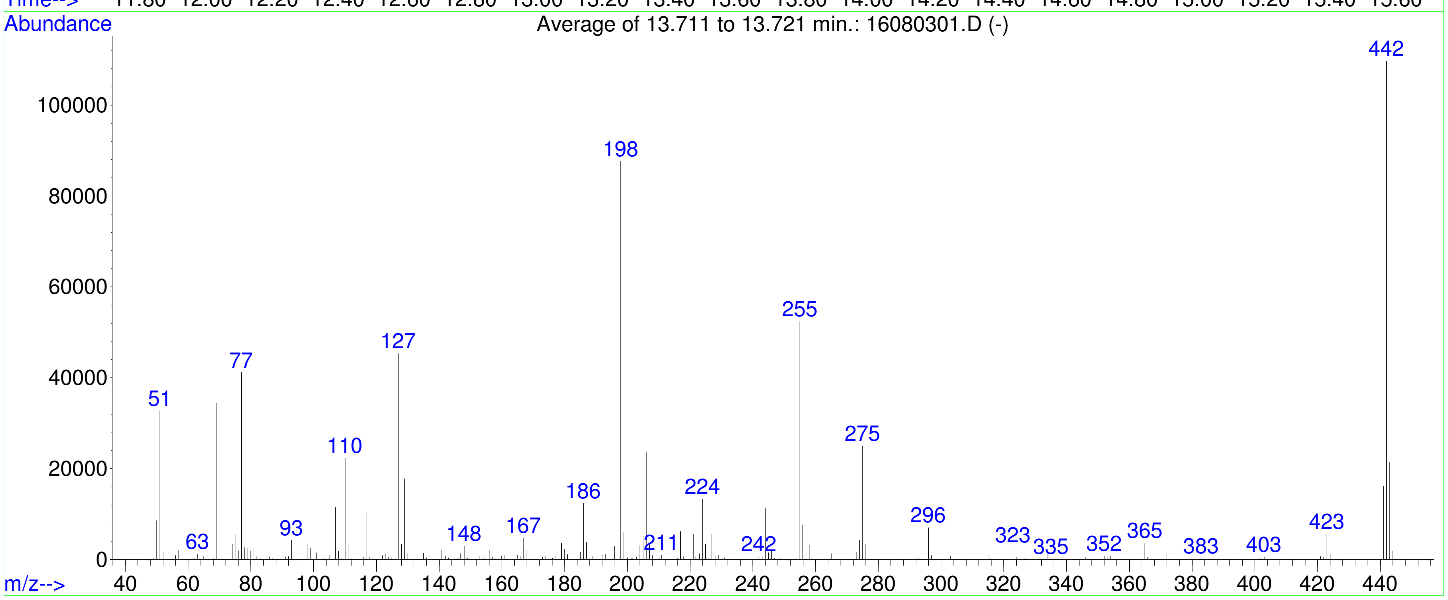
Prep Batch **76357** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-15A SS	Soil		0	0	#Num!	1 of 1	
1607219-16A SS	Soil		0	0	#Num!	1 of 1	
1607219-17A SS	Soil		0	0	#Num!	1 of 1	
1607219-18A SS	Soil		0	0	#Num!	1 of 1	
1607219-19A SS	Soil		0	0	#Num!	1 of 1	
1607219-20A SS	Soil		0	0	#Num!	1 of 1	
1607219-21A SS	Soil		0	0	#Num!	1 of 1	
1607219-22A SS	Soil		0	0	#Num!	1 of 1	
1607219-23A SS	Soil		0	0	#Num!	1 of 1	
1607219-24A SS	Soil		0	0	#Num!	1 of 1	
1607219-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:31:16 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160803\16080301.D   Vial: 1
Acq On : 3 Aug 2016 10:22 am   Operator: DEW
Sample : DFTPP-160803   Inst : GC/MS #6
Misc : TUNE   Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration





AutoFind: Scans 345, 346, 347; Background Corrected with Scan 339

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	37.4	32792	PASS
68	69	0.00	2	0.6	202	PASS
69	198	0.00	100	39.3	34451	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.8	45389	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	87691	PASS
199	198	5	9	6.8	5986	PASS
275	198	10	60	28.5	25027	PASS
365	198	1	200	4.2	3673	PASS
441	442	0.01	24	14.7	16163	PASS
442	198	50	400	125.1	109723	PASS
443	442	15	24	19.5	21399	PASS

REVIEWED BY
By Janice Whitt at 1:33:22 PM, 8/10/2016

Data File : C:\HPCHEM\1\DATA\160803\16080302.D Vial: 2
Acq On : 3 Aug 2016 11:02 am Operator: DEW
Sample : ICV-160803 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1445514	4000.00	ug/kg	103
5) Acenaphthene-d10	13.16	164	632861	4000.00	ug/kg	106
11) Phenanthrene-d10	15.26	188	1466608	4000.00	ug/kg	92
17) Chrysene-d12	20.92	240	1857658	4000.00	ug/kg	101
20) Perylene-d12	26.05	264	1983483	4000.00	ug/kg	103

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	435940	1974.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.37%			
16) 4-Terphenyl-d14	17.73	244	689754	1992.92	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.82%			

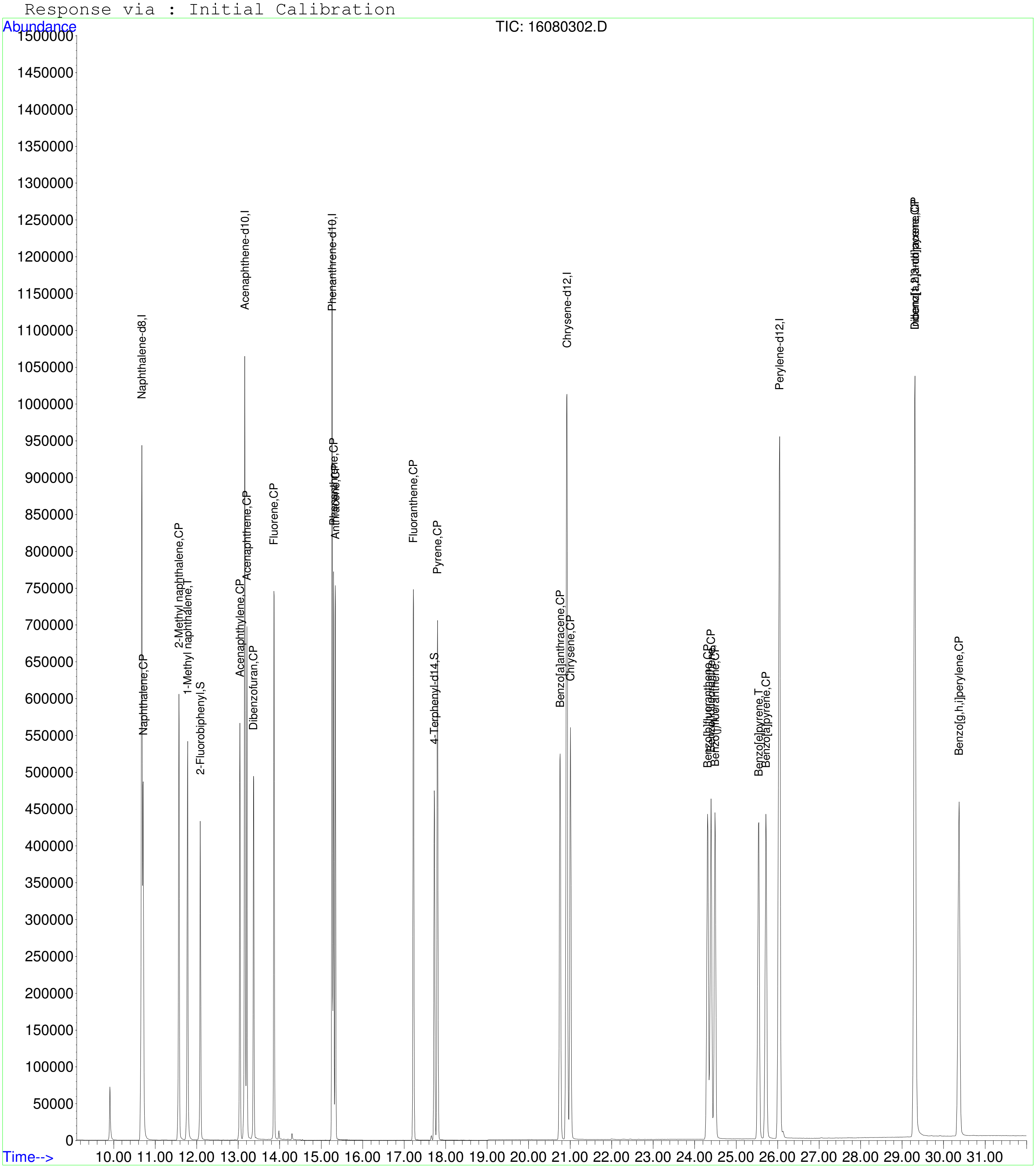
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Naphthalene	10.71	128	635694	1932.85	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	412884	1936.50	ug/kg	95
4) 1-Methyl naphthalene	11.78	142	370237	1960.42	ug/kg	99
6) Dibenzofuran	13.37	168	494207	1929.66	ug/kg	100
8) Acenaphthylene	13.04	152	563565	2010.90	ug/kg	100
9) Acenaphthene	13.21	154	329208	2028.24	ug/kg	98
10) Fluorene	13.86	166	418017	2048.80	ug/kg	97
12) Phenanthrene	15.30	178	677772	1949.26	ug/kg	100
13) Anthracene	15.34	178	697520	1906.46	ug/kg	100
14) Fluoranthene	17.22	202	803276	1949.40	ug/kg	100
15) Pyrene	17.80	202	805935	1928.89	ug/kg	100
18) Benzo[a]anthracene	20.76	228	849209	2028.17	ug/kg	99
19) Chrysene	21.01	228	805812	2000.48	ug/kg	100
21) Benzo[b]fluoranthene	24.31	252	935208	2042.40	ug/kg	100
22) Benzo[k]fluoranthene	24.39	252	850636	2024.96	ug/kg	100
23) Benzo(j)fluoranthene	24.49	252	826789	2048.04	ug/kg	100
24) Benzo[e]pyrene	25.55	252	900755	2027.08	ug/kg	99
25) Benzo[a]pyrene	25.72	252	893943	2020.54	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	988358	2308.50	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.31	276	1163348	2289.78	ug/kg	98
28) Benzo[g,h,i]perylene	30.37	276	975992	2293.60	ug/kg	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160803\16080302.D Vial: 2
Acq On : 3 Aug 2016 11:02 am Operator: DEW
Sample : ICV-160803 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:55 2016 Quant Results File: PP160801.RES

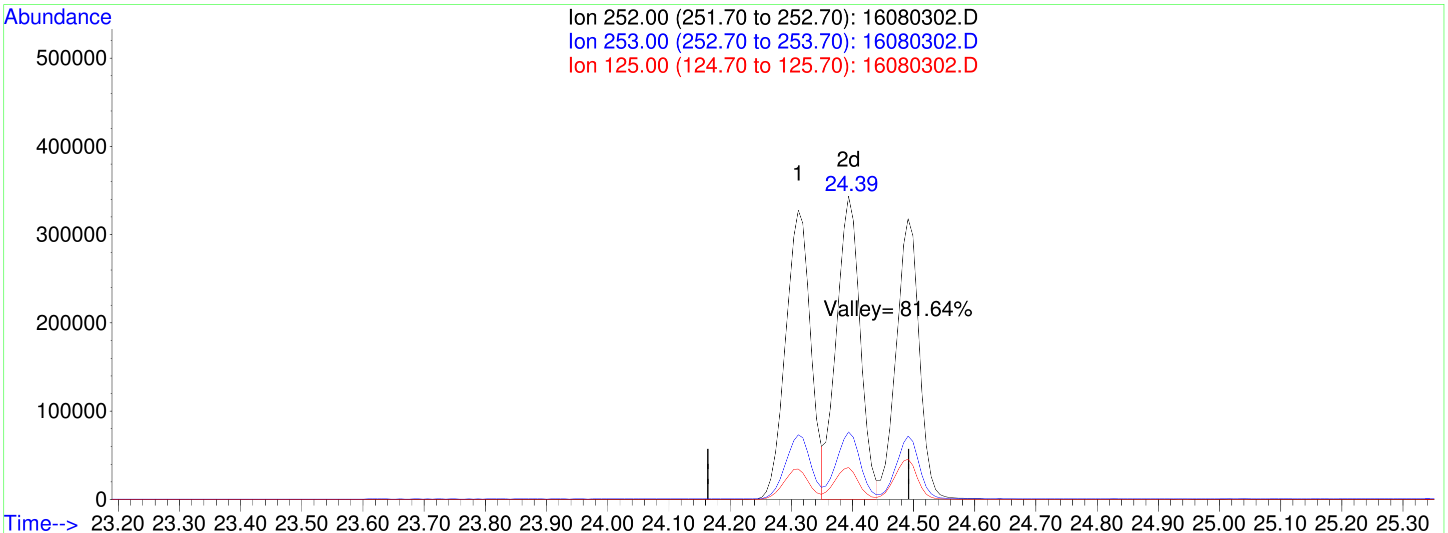
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

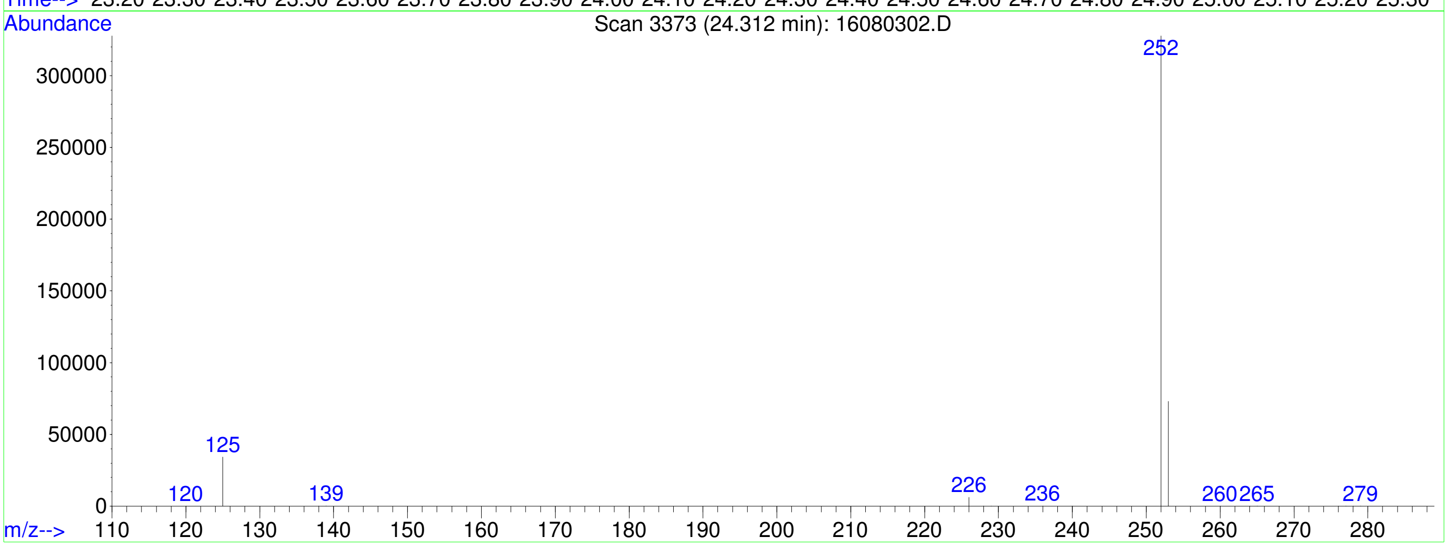


Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\160803\16080302.D          Vial: 2
Acq On    :  3 Aug 2016  11:02 am                     Operator: DEW
Sample    : ICV-160803                                Inst    : GC/MS #6
Misc      : ICV                                       Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:53 2016             Quant Results File: temp.res

Method        : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title         : PAH Calibration
Last Update   : Tue Aug 02 08:43:32 2016
Response via  : Multiple Level Calibration
```





TIC: 16080302.D

(21) Benzo[b]fluoranthene (CP)

24.31min 2042.40ug/kg

response 935208

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.11
125.00	10.60	10.44
0.00	0.00	0.00

```
Data File : C:\HPCHEM\1\DATA\160803\16080304.D          Vial: 4
Acq On    :  3 Aug 2016  12:23 pm                   Operator: DEW
Sample    : SB-160803                               Inst    : GC/MS #6
Misc      : SBLK                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  4  7:55 2016            Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
-----------------------------------------------------------------------------
   1) Naphthalene-d8               10.67  136  1487401   4000.00 ug/kg  106
   5) Acenaphthene-d10             13.16  164   693897   4000.00 ug/kg  116
  11) Phenanthrene-d10             15.26  188  1578762   4000.00 ug/kg   99
  17) Chrysene-d12                 20.92  240  1831134   4000.00 ug/kg  100
  20) Perylene-d12                 26.04  264  1840899   4000.00 ug/kg   95

 System Monitoring Compounds
   7) 2-Fluorobiphenyl             12.10  172      153     0.63 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     0.02%#
  16) 4-Terphenyl-d14              17.73  244      778     2.09 ug/kg   0.00
   Spiked Amount   4000.000   Range  40 - 140    Recovery   =     0.05%#

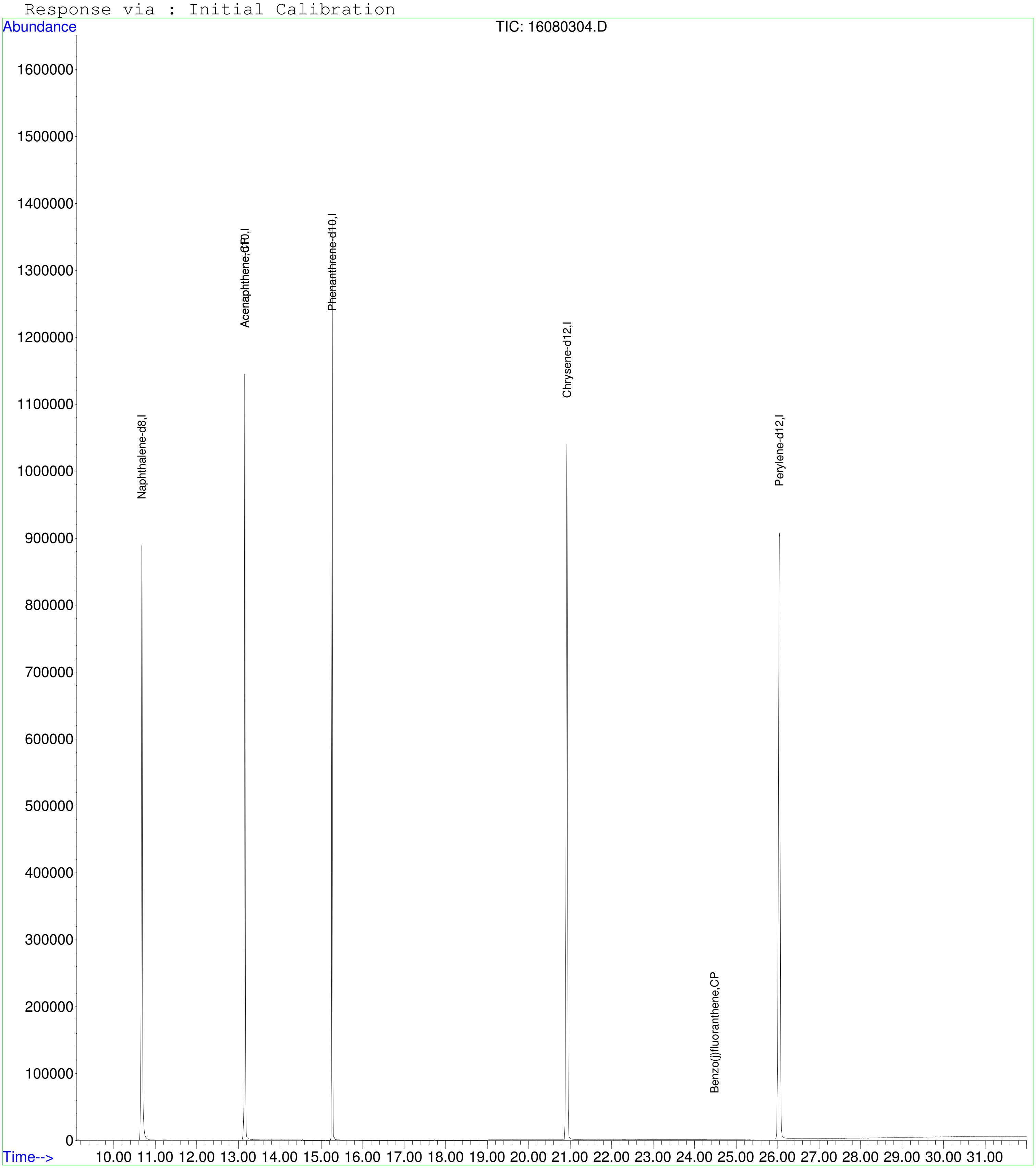
 Target Compounds                                                 Qvalue
   9) Acenaphthene                 13.16  154     2370   ~~13.32 ug/kg#     10~~
  23) Benzo(j)fluoranthene         24.48  252       71     0.19 ug/kg      72
```

(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160803\16080304.D          Vial: 4
Acq On    :  3 Aug 2016  12:23 pm                    Operator: DEW
Sample    : SB-160803                                Inst    : GC/MS #6
Misc      : SBLK                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:55 2016            Quant Results File: PP160801.RES

Method       : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
```



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080309.D Vial: 9
Acq On : 3 Aug 2016 3:47 pm Operator: DEW
Sample : 1607239-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

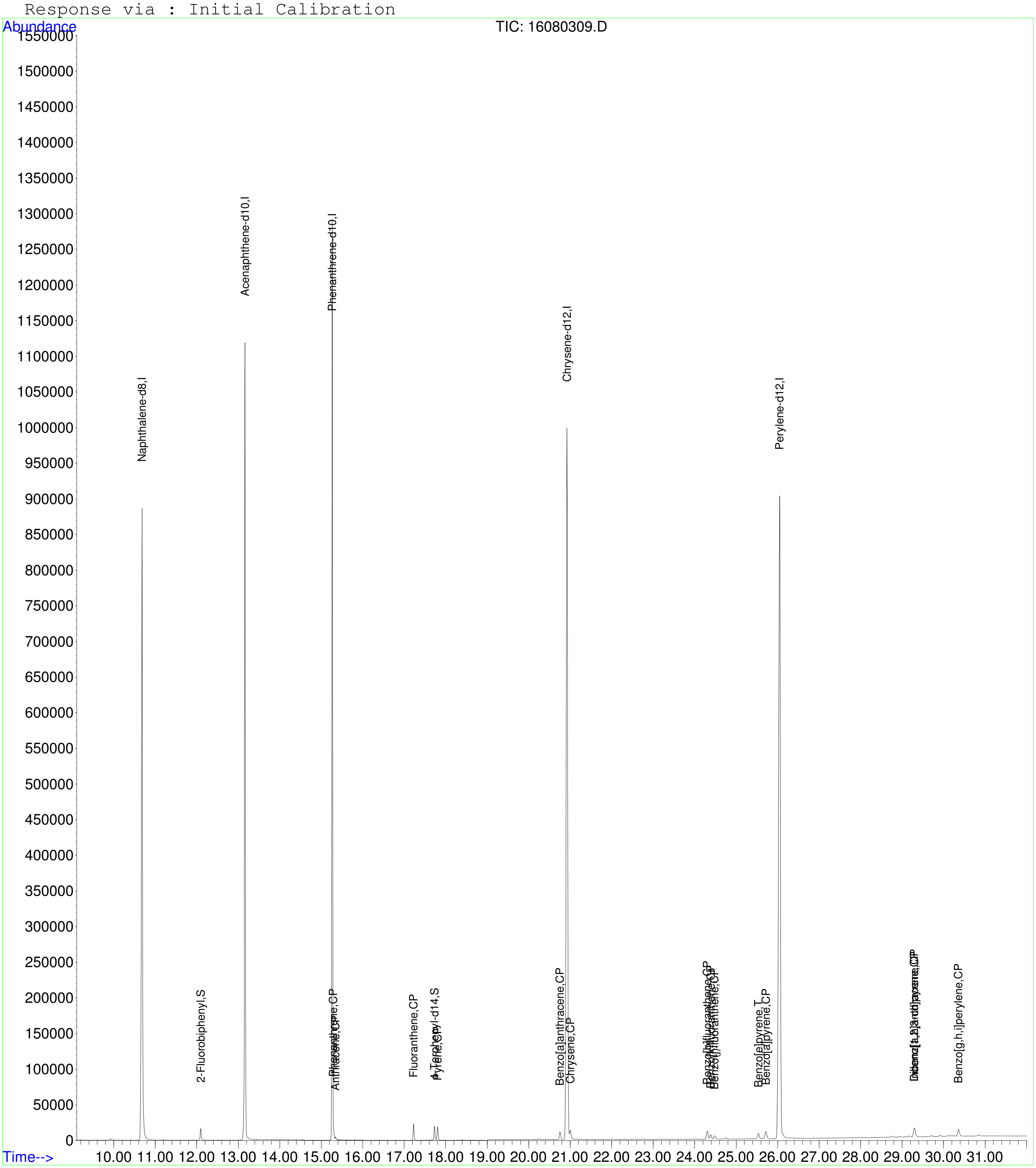
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1503075	4000.00 ug/kg	107
5) Acenaphthene-d10	13.16	164	706777	4000.00 ug/kg	118
11) Phenanthrene-d10	15.26	188	1486905	4000.00 ug/kg	93
17) Chrysene-d12	20.92	240	1804189	4000.00 ug/kg	98
20) Perylene-d12	26.05	264	1844970	4000.00 ug/kg	96
System Monitoring Compounds					
7) 2-Fluorobiphenyl	12.10	172	19319	78.36 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery = 1.96%#	
16) 4-Terphenyl-d14	17.73	244	28070	80.00 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140			Recovery = 2.00%#	
Target Compounds					Qvalue
12) Phenanthrene	15.30	178	8956	25.41 ug/kg	97
13) Anthracene	15.34	178	3695	9.96 ug/kg	98
14) Fluoranthene	17.22	202	25333	60.64 ug/kg	99
15) Pyrene	17.80	202	22665	53.50 ug/kg	100
18) Benzo[a]anthracene	20.75	228	16762	41.22 ug/kg	99
19) Chrysene	21.01	228	20200	51.63 ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	23671	55.58 ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	11882	30.41 ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	8854	23.58 ug/kg	90
24) Benzo[e]pyrene	25.54	252	15437	37.35 ug/kg	99
25) Benzo[a]pyrene	25.72	252	22260	54.09 ug/kg	98
26) Dibenz[a,h]anthracene	29.29	278	6429	16.14 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.29	276	21286	45.04 ug/kg	95
28) Benzo[g,h,i]perylene	30.36	276	19617	49.56 ug/kg	99

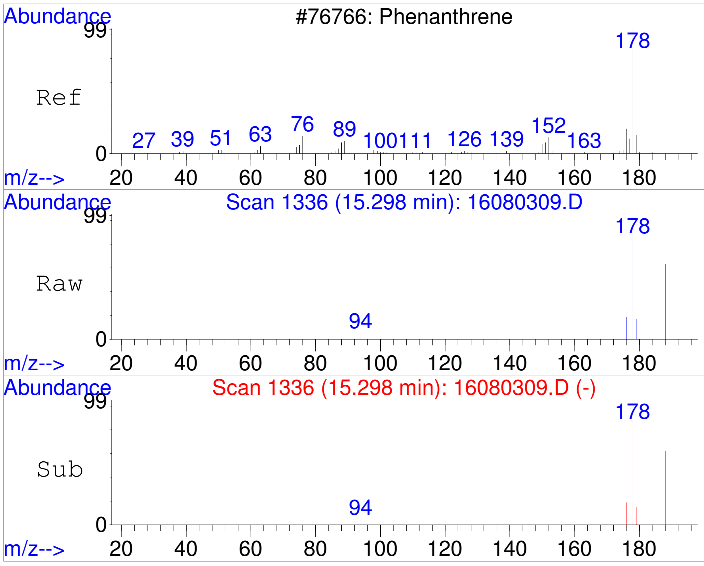
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160803\16080309.D          Vial: 9
Acq On    :  3 Aug 2016   3:47 pm                    Operator: DEW
Sample    : 1607239-01A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:59 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
```

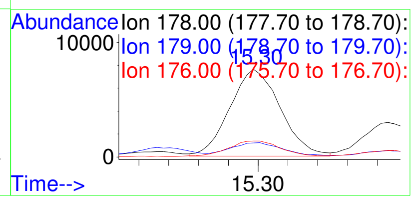


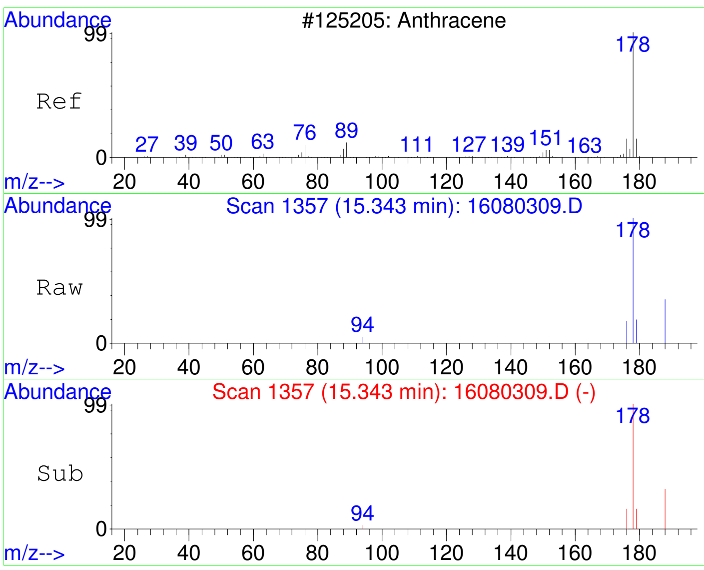


#12
Phenanthrene
Concen: 25.41 ug/kg
RT: 15.30 min   Scan# 1336
Delta R.T.   -0.01 min
Lab File: 16080309.D
Acq: 3 Aug 2016   3:47 pm

Tgt Ion:178 Resp: 8956

Ion	Ratio	Lower	Upper
178	100		
179	14.3	0.0	45.7
176	17.5	0.0	48.7

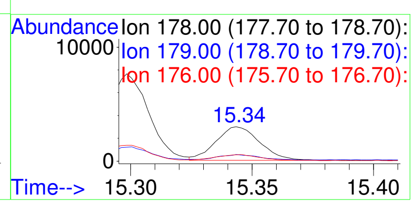


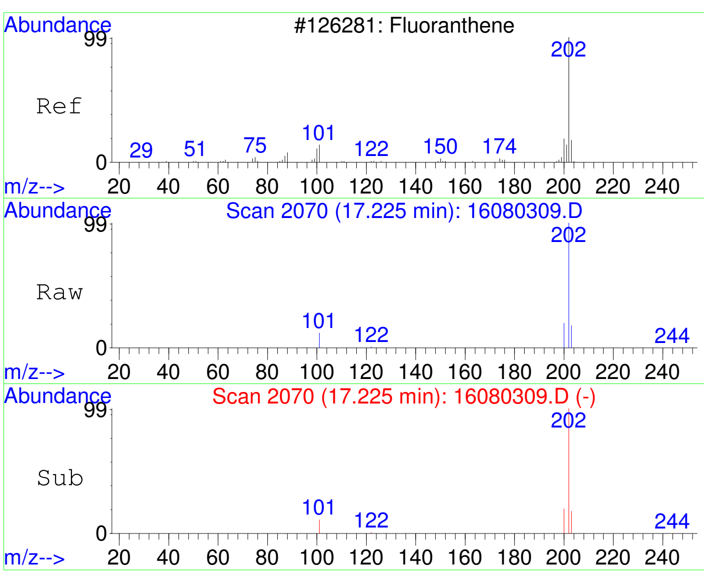


#13
Anthracene
Concen: 9.96 ug/kg
RT: 15.34 min   Scan# 1357
Delta R.T.   -0.01 min
Lab File: 16080309.D
Acq: 3 Aug 2016   3:47 pm

Tgt Ion:178 Resp: 3695

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.7
176	16.5	0.0	47.9

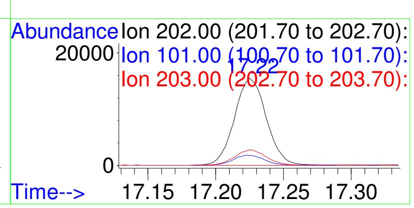


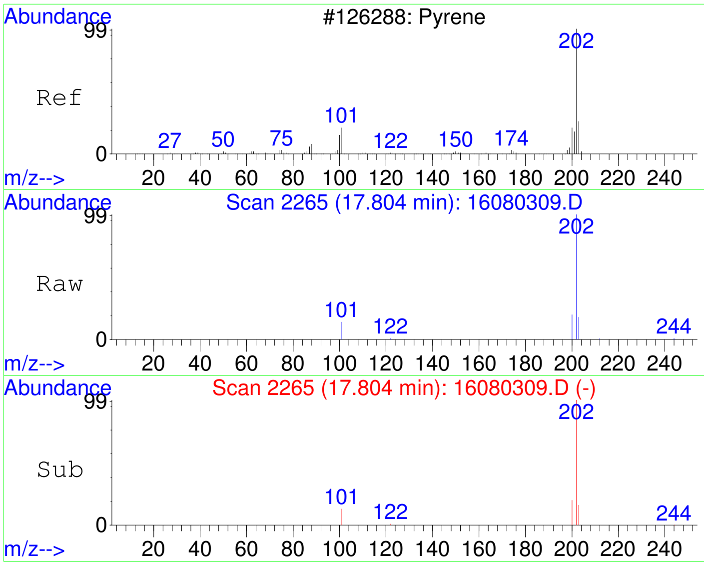


#14
Fluoranthene
Concen: 60.64 ug/kg
RT: 17.22 min   Scan# 2070
Delta R.T.   -0.01 min
Lab File: 16080309.D
Acq: 3 Aug 2016   3:47 pm

Tgt Ion:202 Resp: 25333

Ion	Ratio	Lower	Upper
202	100		
101	11.3	0.0	42.1
203	17.7	0.0	47.9

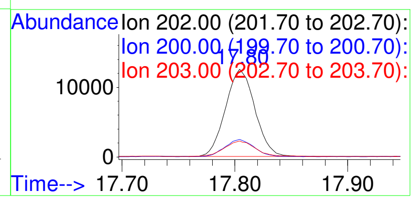


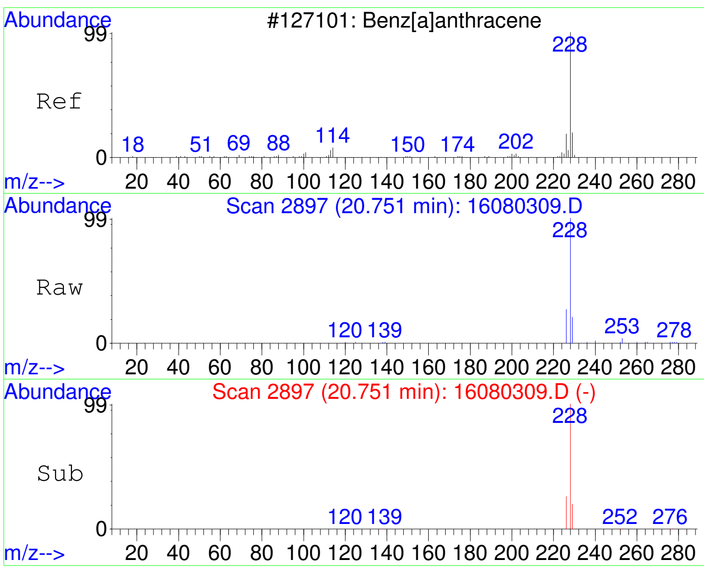


#15
Pyrene
Concen: 53.50 ug/kg
RT: 17.80 min Scan# 2265
Delta R.T. -0.01 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:202 Resp: 22665

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	49.7
203	17.8	0.0	47.8

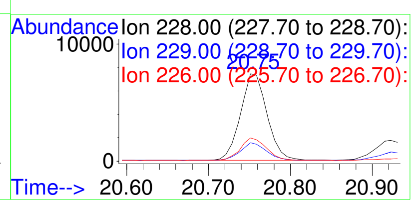


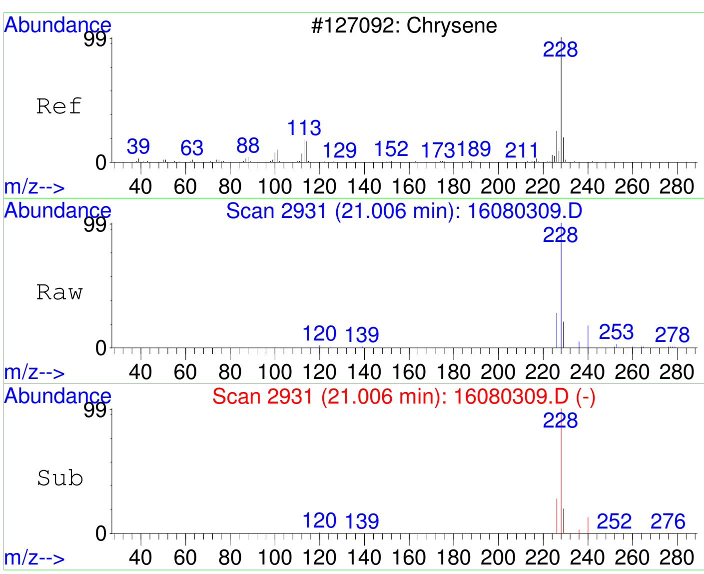


#18
Benzo[a]anthracene
Concen: 41.22 ug/kg
RT: 20.75 min Scan# 2897
Delta R.T. -0.02 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:228 Resp: 16762

Ion	Ratio	Lower	Upper
228	100		
229	20.3	0.0	49.8
226	26.0	0.0	55.8

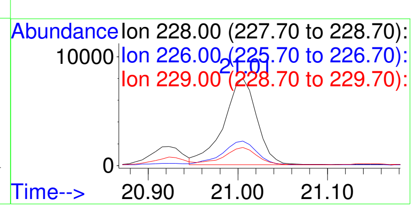


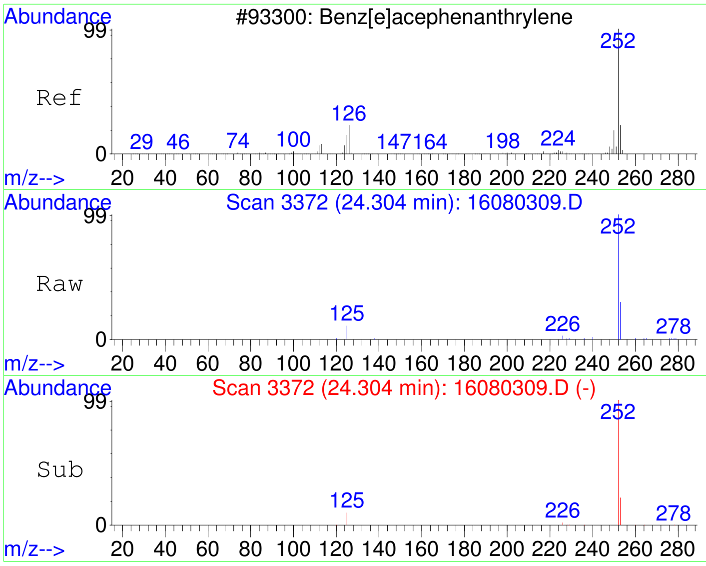


#19
Chrysene
Concen: 51.63 ug/kg
RT: 21.01 min Scan# 2931
Delta R.T. -0.02 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:228 Resp: 20200

Ion	Ratio	Lower	Upper
228	100		
226	27.5	0.0	58.1
229	20.0	0.0	50.0

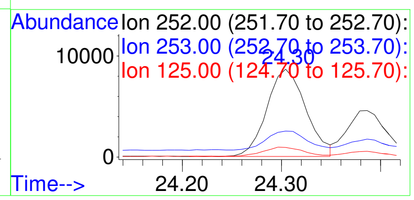


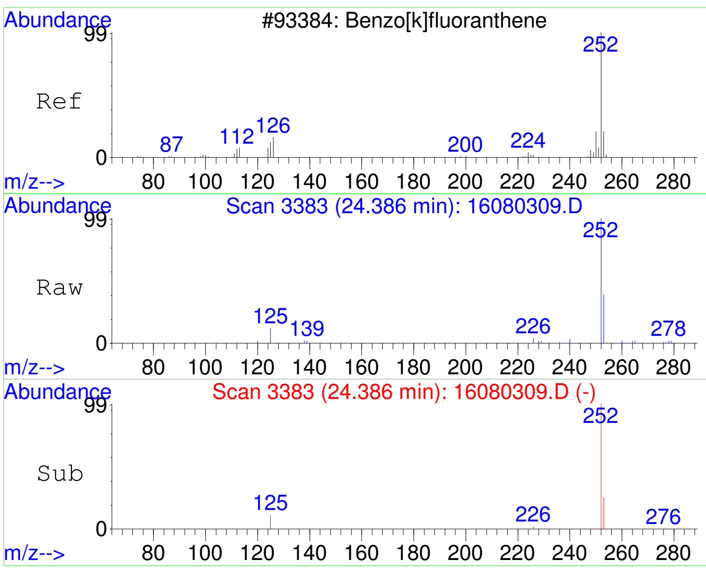


#21
Benzo[b]fluoranthene
Concen: 55.58 ug/kg
RT: 24.30 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:252 Resp: 23671

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	10.0	0.0	40.6

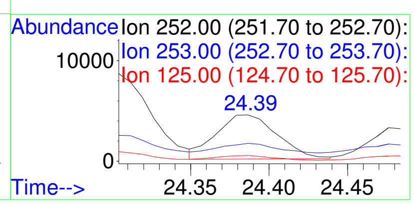


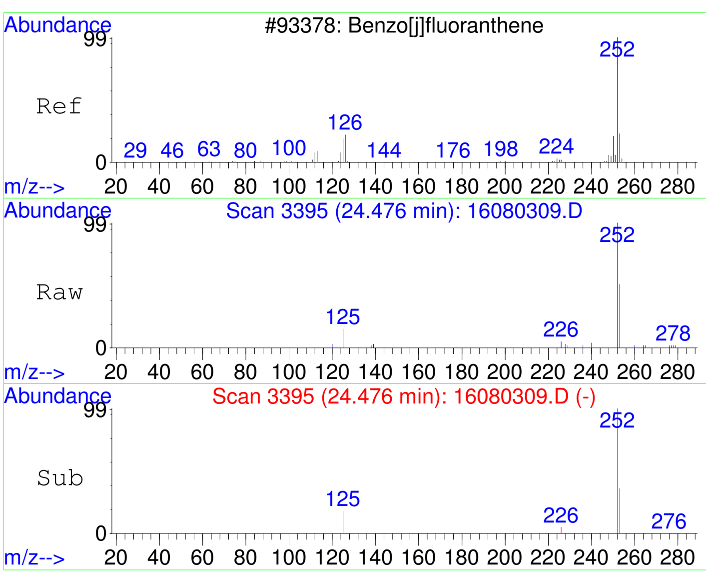


#22
Benzo[k]fluoranthene
Concen: 30.41 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.02 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:252 Resp: 11882

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.2	42.2
125	10.3	0.0	30.3

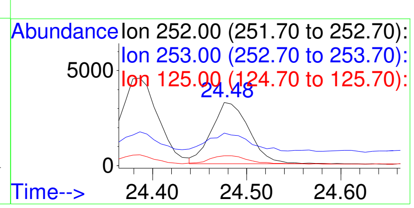


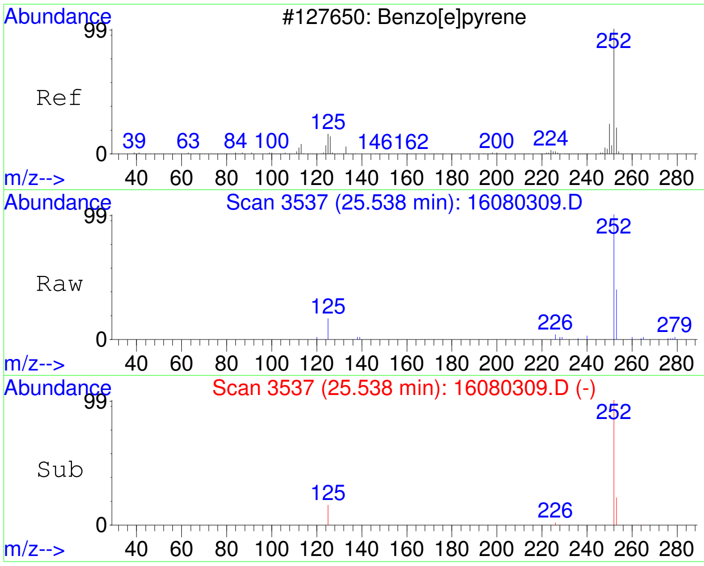


#23
Benzo(j)fluoranthene
Concen: 23.58 ug/kg
RT: 24.48 min Scan# 3395
Delta R.T. -0.03 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:252 Resp: 8854

Ion	Ratio	Lower	Upper
252	100		
253	29.3	2.2	42.2
125	13.3	0.0	34.4

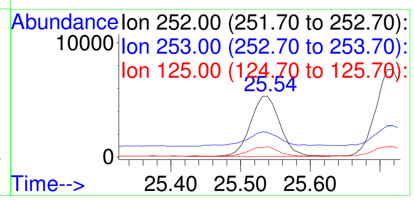


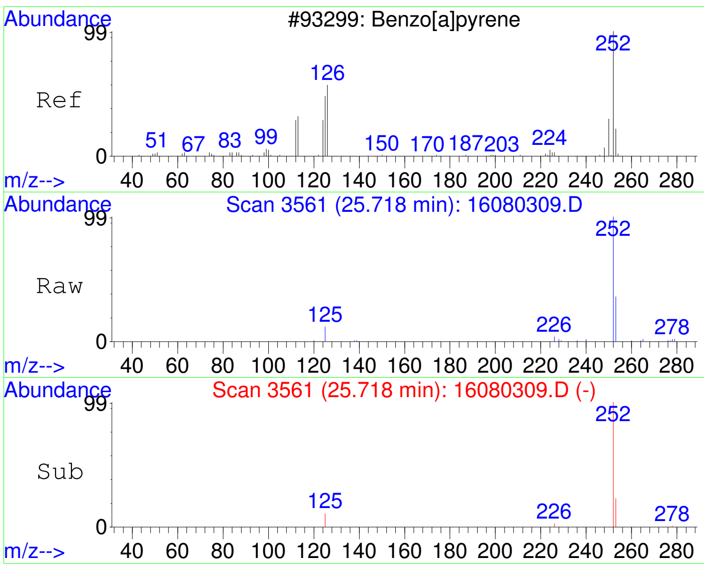


#24
Benzo[e]pyrene
Concen: 37.35 ug/kg
RT: 25.54 min Scan# 3537
Delta R.T. -0.02 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:252 Resp: 15437

Ion	Ratio	Lower	Upper
252	100		
253	22.9	2.2	42.2
125	16.0	0.0	35.7

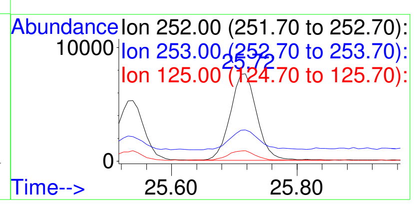


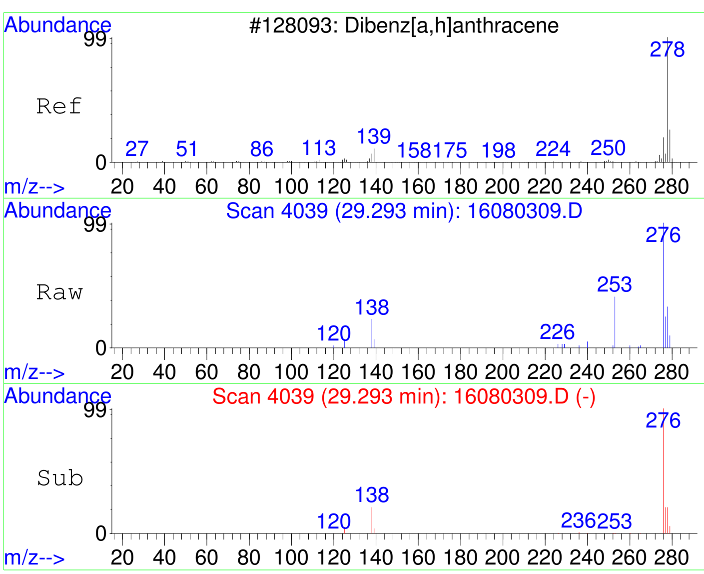


#25
Benzo[a]pyrene
Concen: 54.09 ug/kg
RT: 25.72 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:252 Resp: 22260

Ion	Ratio	Lower	Upper
252	100		
253	22.9	2.0	42.0
125	11.1	0.0	31.6

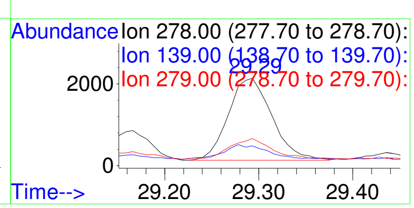


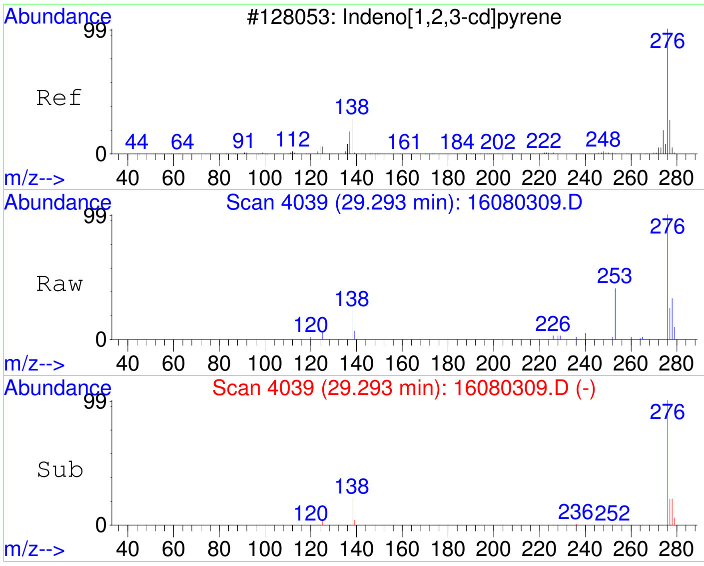


#26
Dibenz[a,h]anthracene
Concen: 16.14 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:278 Resp: 6429

Ion	Ratio	Lower	Upper
278	100		
139	15.6	0.0	33.8
279	25.1	3.9	43.9

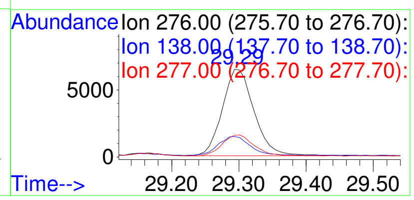


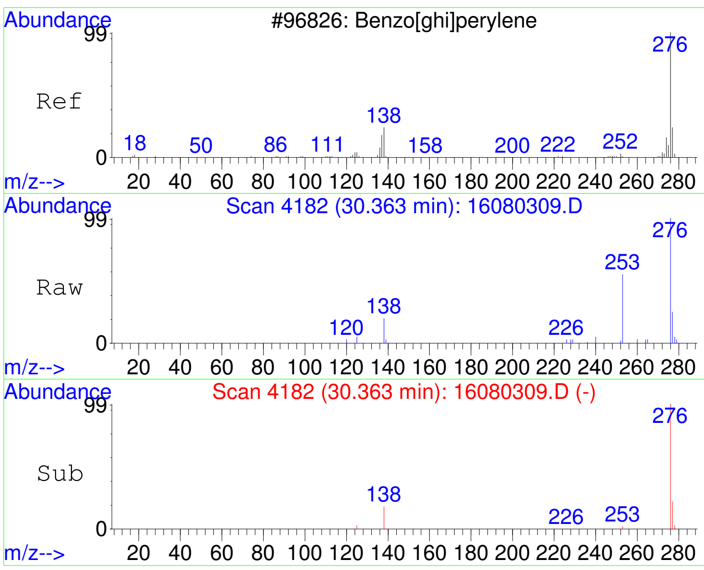


#27
Indeno[1,2,3-cd]pyrene
Concen: 45.04 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:276 Resp: 21286

Ion	Ratio	Lower	Upper
276	100		
138	21.5	4.8	44.8
277	23.8	5.6	45.6

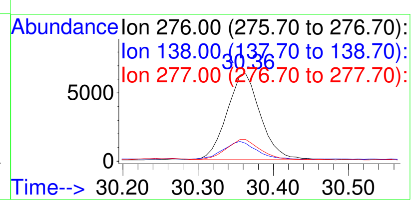




#28
Benzo[g,h,i]perylene
Concen: 49.56 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080309.D
Acq: 3 Aug 2016 3:47 pm

Tgt Ion:276 Resp: 19617

Ion	Ratio	Lower	Upper
276	100		
138	18.5	0.0	38.1
277	23.3	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080310.D Vial: 10
Acq On : 3 Aug 2016 4:28 pm Operator: DEW
Sample : 1607239-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:59 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1564029	4000.00	ug/kg	111
5) Acenaphthene-d10	13.16	164	757280	4000.00	ug/kg	126
11) Phenanthrene-d10	15.27	188	1513688	4000.00	ug/kg	95
17) Chrysene-d12	20.92	240	1858724	4000.00	ug/kg	101
20) Perylene-d12	26.05	264	1895674	4000.00	ug/kg	98
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	18965	71.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.73	244	26278	73.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
Target Compounds						Qvalue
13) Anthracene	15.34	178	2246	5.95	ug/kg	100
18) Benzo[a]anthracene	20.75	228	2541	6.07	ug/kg	99
19) Chrysene	21.01	228	2466	6.12	ug/kg	97
21) Benzo[b]fluoranthene	24.31	252	3606	8.24	ug/kg	97
22) Benzo[k]fluoranthene	24.39	252	2508	6.25	ug/kg	99
23) Benzo(j)fluoranthene	24.39	252	2496	~~6.47~~	~~ug/kg~~	~~96~~
25) Benzo[a]pyrene	25.72	252	2561	6.06	ug/kg	95
26) Dibenz[a,h]anthracene	29.30	278	2677	6.54	ug/kg	91
27) Indeno[1,2,3-cd]pyrene	29.30	276	3477	7.16	ug/kg	97
28) Benzo[g,h,i]perylene	30.36	276	2583	6.35	ug/kg	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160803\16080310.D          Vial: 10
Acq On    :  3 Aug 2016   4:28 pm                    Operator: DEW
Sample    : 1607239-05A                              Inst    : GC/MS #6
Misc      : SAMP                                     Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:59 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
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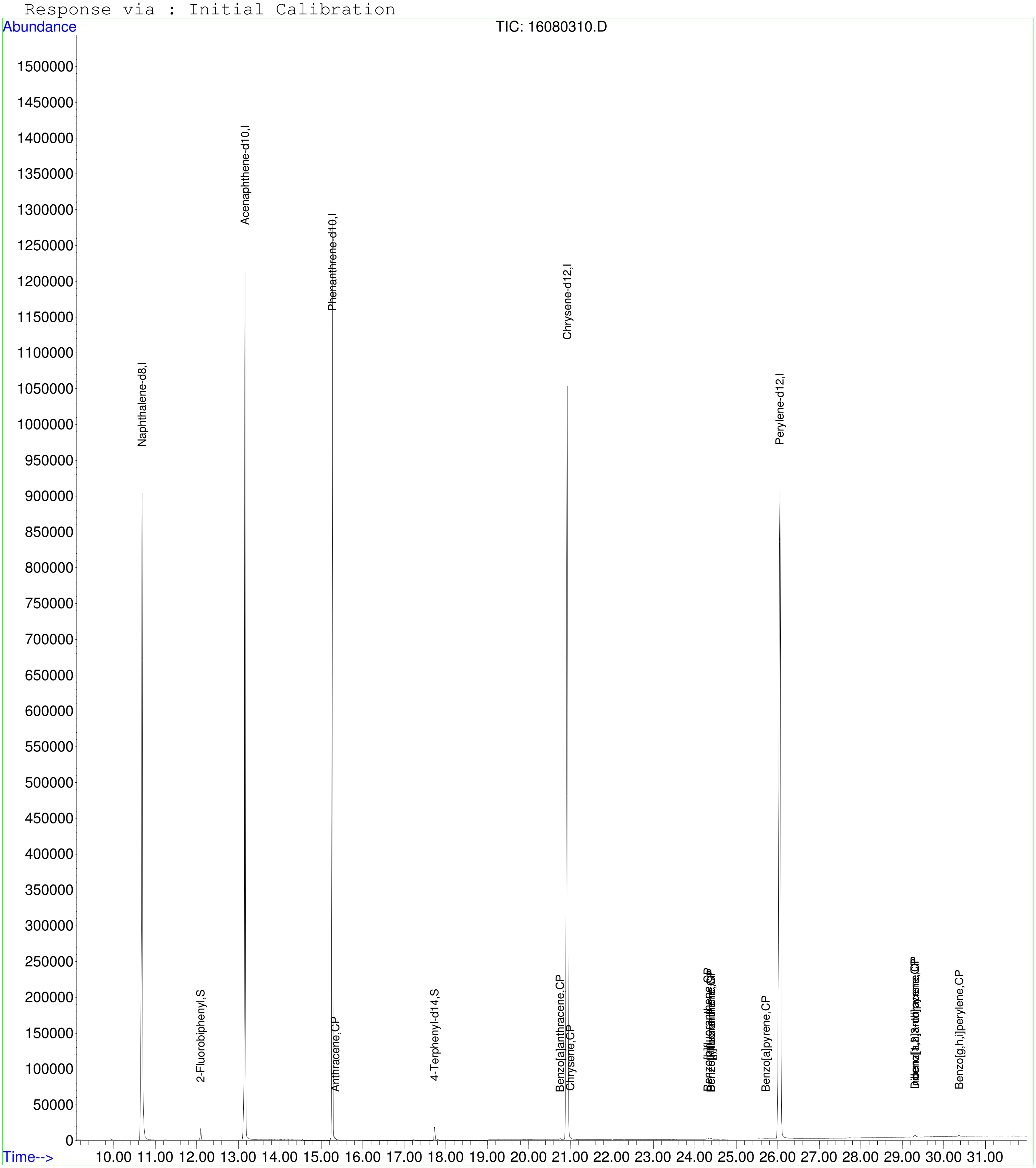
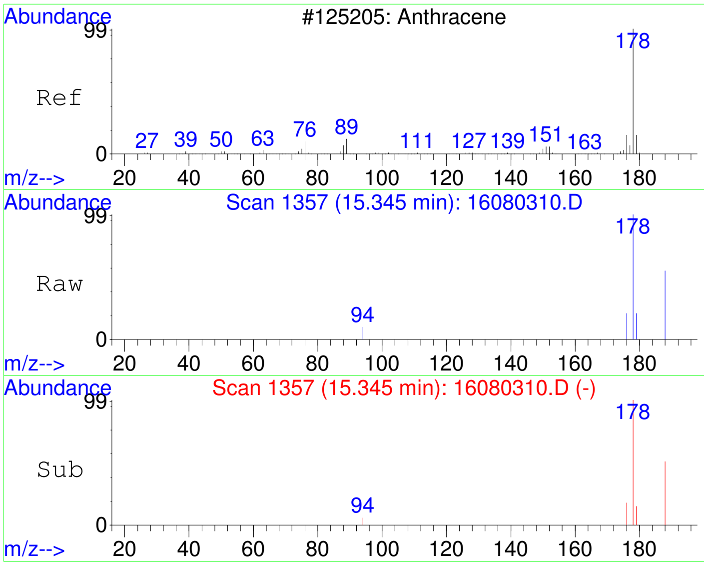
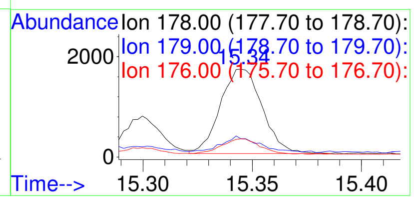
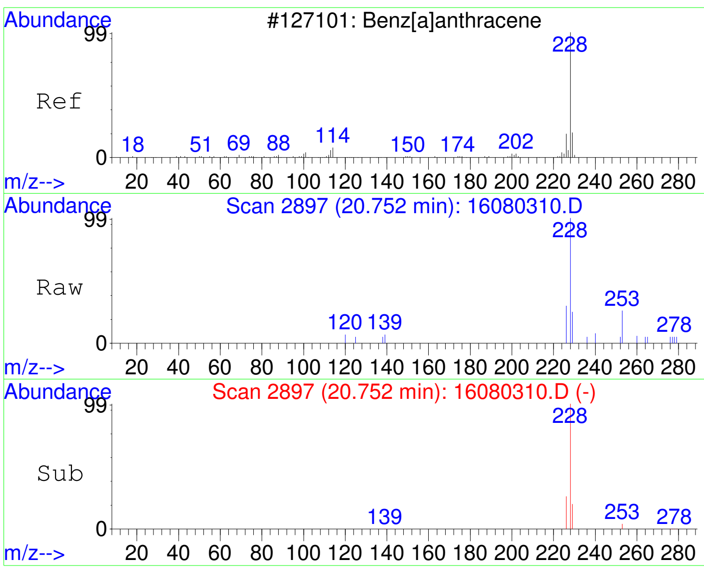




#13
Anthracene
Concen: 5.95 ug/kg
RT: 15.34 min   Scan# 1357
Delta R.T.   -0.00 min
Lab File: 16080310.D
Acq: 3 Aug 2016   4:28 pm

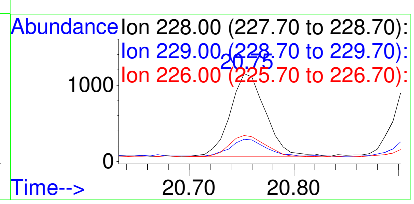
Tgt Ion:178	Resp:		2246
Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.7
176	17.9	0.0	47.9

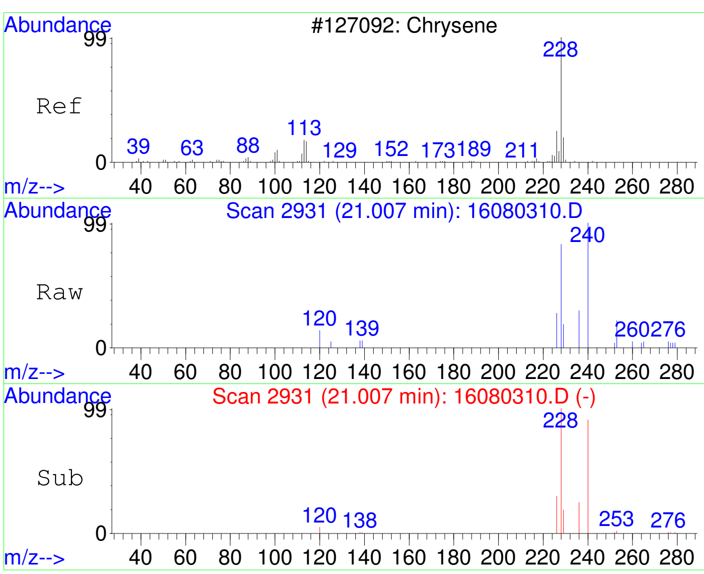




#18
Benzo[a]anthracene
Concen: 6.07 ug/kg
RT: 20.75 min   Scan# 2897
Delta R.T.   -0.02 min
Lab File: 16080310.D
Acq: 3 Aug 2016   4:28 pm

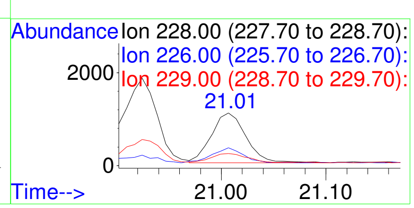
Tgt Ion:228	Resp:		2541
Ion	Ratio	Lower	Upper
228	100		
229	20.3	0.0	49.8
226	26.2	0.0	55.8

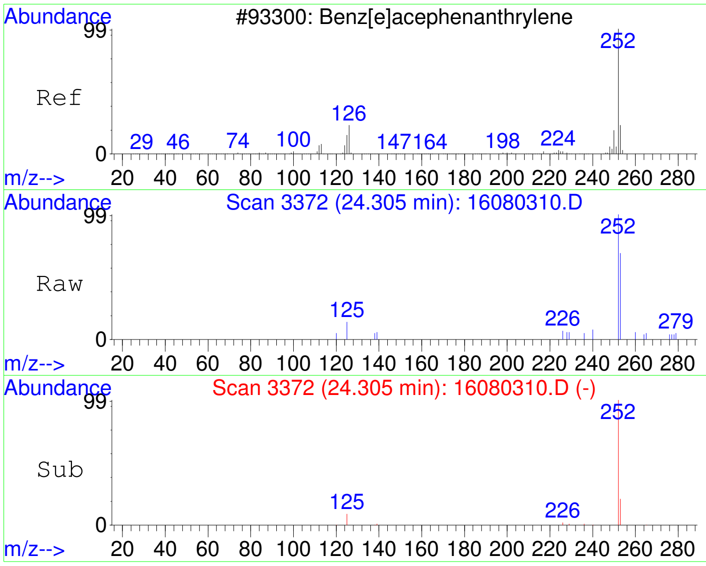




#19
Chrysene
Concen: 6.12 ug/kg
RT: 21.01 min   Scan# 2931
Delta R.T.   -0.02 min
Lab File: 16080310.D
Acq: 3 Aug 2016   4:28 pm

Tgt Ion:228	Resp:		2466
Ion	Ratio	Lower	Upper
228	100		
226	30.2	0.0	58.1
229	18.8	0.0	50.0

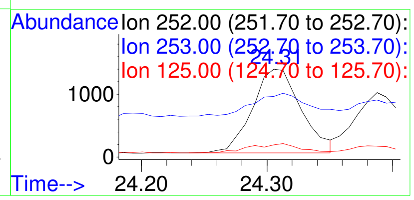


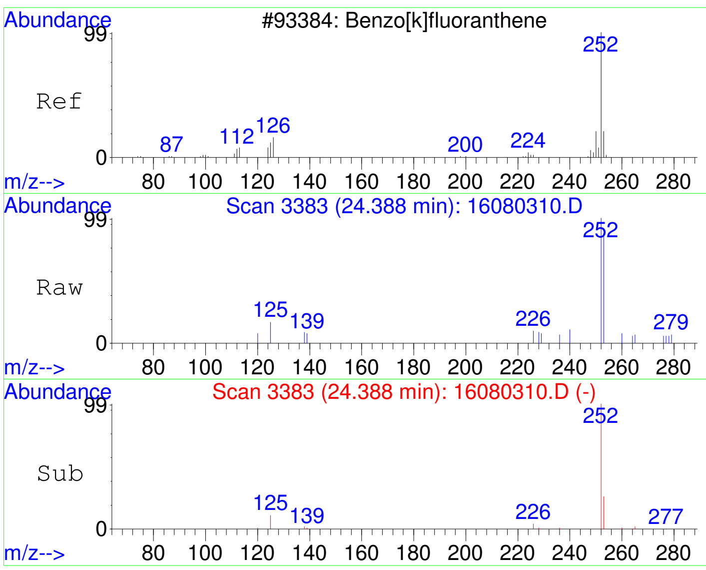


#21
Benzo[b]fluoranthene
Concen: 8.24 ug/kg
RT: 24.31 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080310.D
Acq: 3 Aug 2016 4:28 pm

Tgt Ion:252 Resp: 3606

Ion	Ratio	Lower	Upper
252	100		
253	23.3	0.0	52.0
125	9.5	0.0	40.6

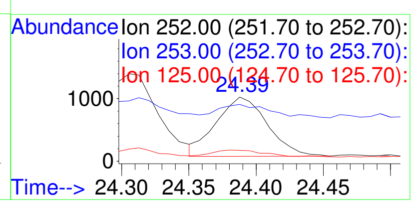


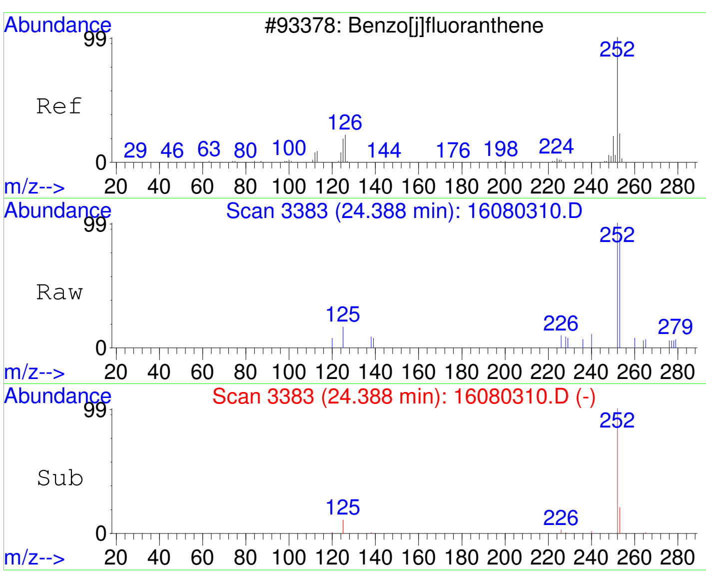


#22
Benzo[k]fluoranthene
Concen: 6.25 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.02 min
Lab File: 16080310.D
Acq: 3 Aug 2016 4:28 pm

Tgt Ion:252 Resp: 2508

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	11.0	0.0	30.3

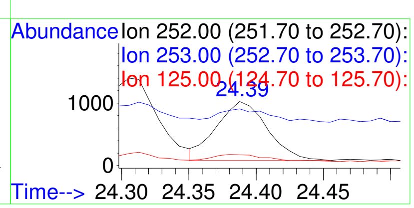


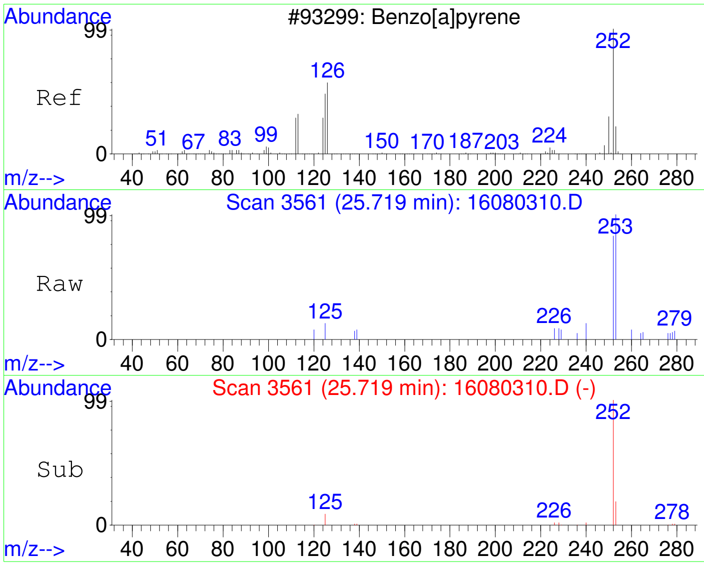


#23
Benzo(j)fluoranthene
Concen: 6.47 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.12 min
Lab File: 16080310.D
Acq: 3 Aug 2016 4:28 pm

Tgt Ion:252 Resp: 2496

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	11.0	0.0	34.4

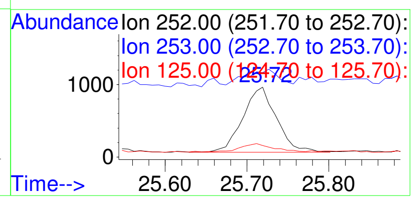


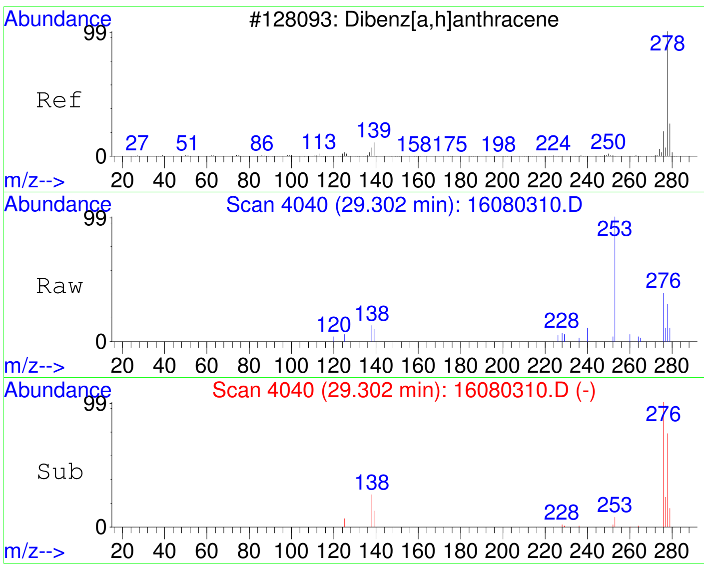


#25
Benzo[a]pyrene
Concen: 6.06 ug/kg
RT: 25.72 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080310.D
Acq: 3 Aug 2016 4:28 pm

Tgt Ion:252 Resp: 2561

Ion	Ratio	Lower	Upper
252	100		
253	19.8	2.0	42.0
125	9.8	0.0	31.6

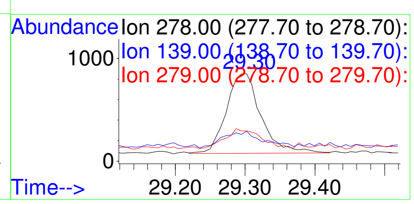


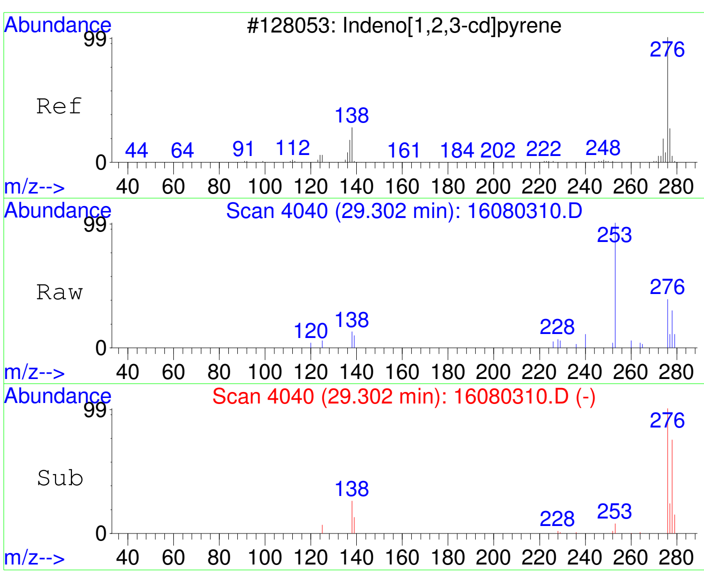


#26
Dibenz[a,h]anthracene
Concen: 6.54 ug/kg
RT: 29.30 min Scan# 4040
Delta R.T. -0.02 min
Lab File: 16080310.D
Acq: 3 Aug 2016 4:28 pm

Tgt Ion:278 Resp: 2677

Ion	Ratio	Lower	Upper
278	100		
139	19.3	0.0	33.8
279	20.9	3.9	43.9

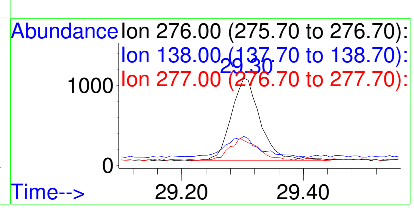


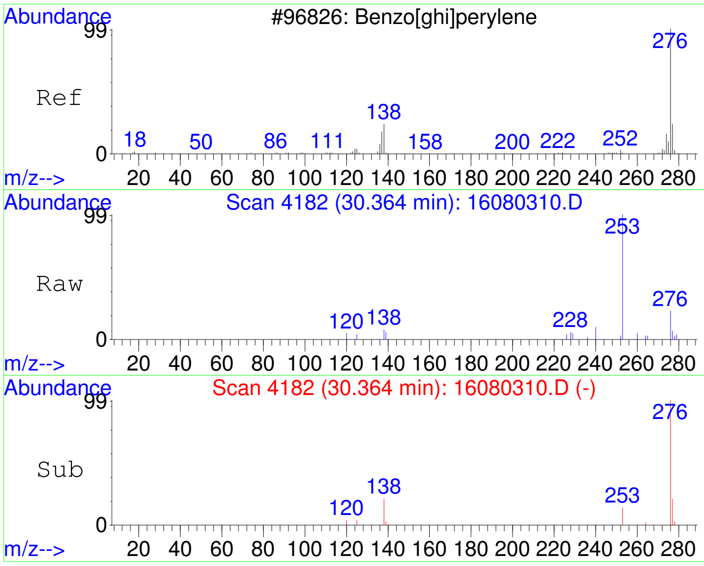


#27
Indeno[1,2,3-cd]pyrene
Concen: 7.16 ug/kg
RT: 29.30 min Scan# 4040
Delta R.T. -0.02 min
Lab File: 16080310.D
Acq: 3 Aug 2016 4:28 pm

Tgt Ion:276 Resp: 3477

Ion	Ratio	Lower	Upper
276	100		
138	25.1	4.8	44.8
277	22.8	5.6	45.6

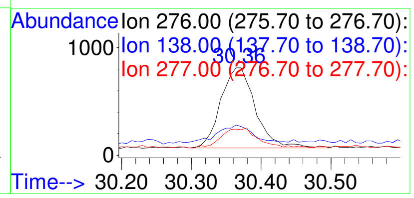




#28
Benzo[g,h,i]perylene
Concen: 6.35 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080310.D
Acq: 3 Aug 2016 4:28 pm

Tgt Ion:276 Resp: 2583

Ion	Ratio	Lower	Upper
276	100		
138	21.5	0.0	38.1
277	23.7	4.1	44.1



Data File : C:\HPCHEM\1\DATA\160803\16080311.D   Vial: 11
Acq On   : 3 Aug 2016   5:10 pm   Operator: DEW
Sample   : 1607239-11A   Inst   : GC/MS #6
Misc   : SAMP   Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:59 2016   Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title   : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1528944	4000.00 ug/kg	109
5) Acenaphthene-d10	13.16	164	729176	4000.00 ug/kg	122
11) Phenanthrene-d10	15.27	188	1464127	4000.00 ug/kg	92
17) Chrysene-d12	20.92	240	1791482	4000.00 ug/kg	98
20) Perylene-d12	26.05	264	1833787	4000.00 ug/kg	95

System Monitoring Compounds

7) 2-Fluorobiphenyl	12.09	172	21253	83.56 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#	
16) 4-Terphenyl-d14	17.73	244	28898	83.64 ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#	

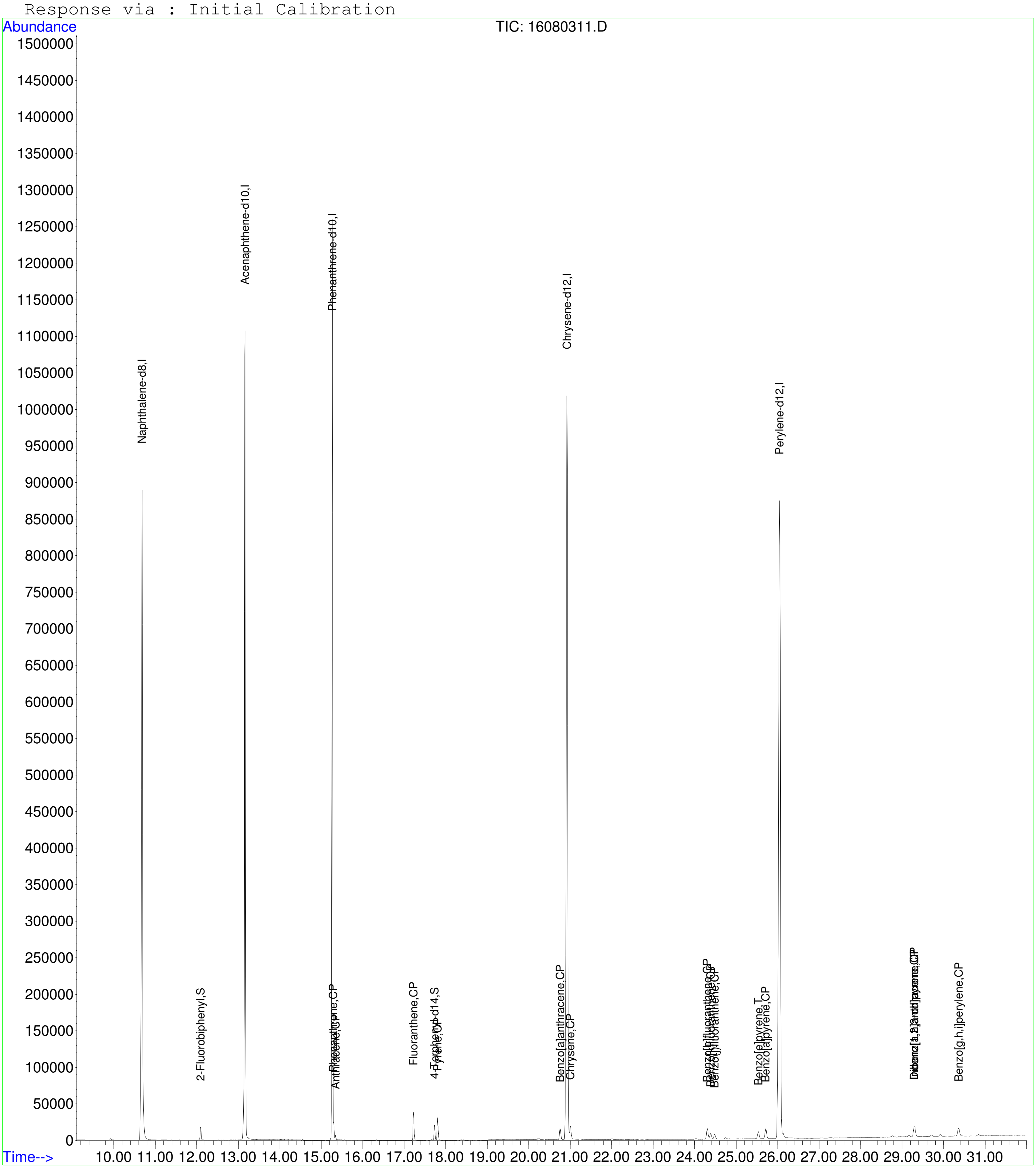
Target Compounds					Qvalue
12) Phenanthrene	15.30	178	18335	52.82 ug/kg	99
13) Anthracene	15.35	178	5361	14.68 ug/kg	98
14) Fluoranthene	17.23	202	42878	104.23 ug/kg	98
15) Pyrene	17.81	202	36580	87.70 ug/kg	100
18) Benzo[a]anthracene	20.76	228	23808	58.96 ug/kg	98
19) Chrysene	21.01	228	28208	72.62 ug/kg	99
21) Benzo[b]fluoranthene	24.30	252	29419	69.49 ug/kg	99
22) Benzo[k]fluoranthene	24.39	252	14897	38.36 ug/kg	97
23) Benzo(j)fluoranthene	24.48	252	11774	31.55 ug/kg	93
24) Benzo[e]pyrene	25.54	252	19985	48.65 ug/kg	99
25) Benzo[a]pyrene	25.72	252	28255	69.08 ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	7337	18.54 ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.30	276	25798	54.92 ug/kg	94
28) Benzo[g,h,i]perylene	30.36	276	23950	60.88 ug/kg	98

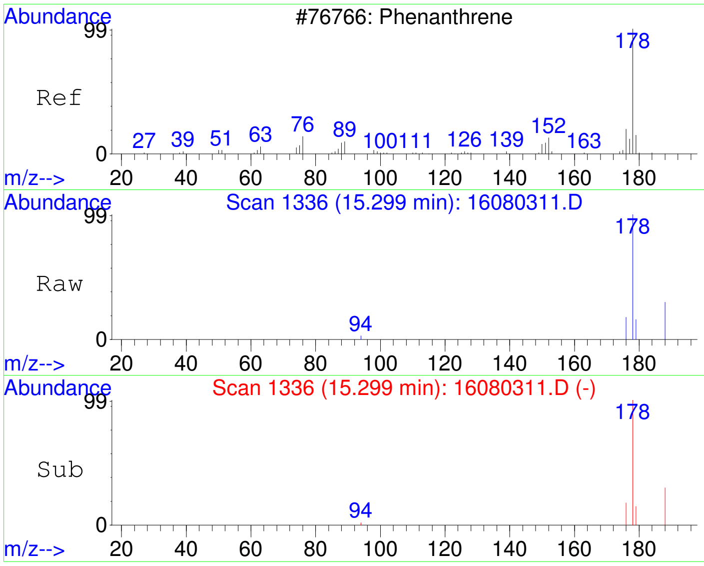
(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : C:\HPCHEM\1\DATA\160803\16080311.D          Vial: 11
Acq On    :  3 Aug 2016   5:10 pm                   Operator: DEW
Sample    : 1607239-11A                             Inst    : GC/MS #6
Misc      : SAMP                                    Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug  4  7:59 2016            Quant Results File: PP160801.RES

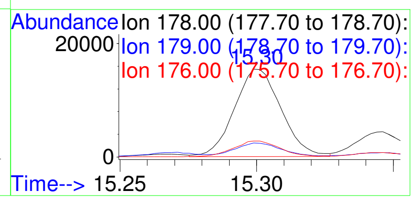
Method       : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title        : PAH Calibration
Last Update  : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
```

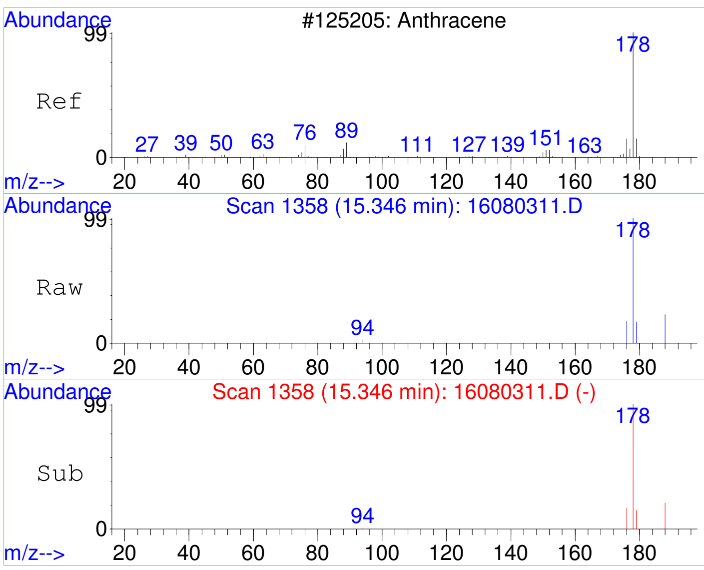





```
#12
Phenanthrene
Concen:   52.82 ug/kg
RT: 15.30 min   Scan# 1336
Delta R.T.    -0.01 min
Lab File:    16080311.D
Acq:  3 Aug 2016   5:10 pm

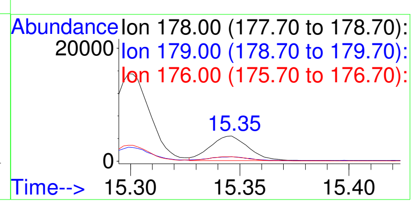
Tgt Ion:178 Resp:   18335
Ion  Ratio  Lower  Upper
178  100
179   15.3    0.0   45.7
176   18.0    0.0   48.7
```

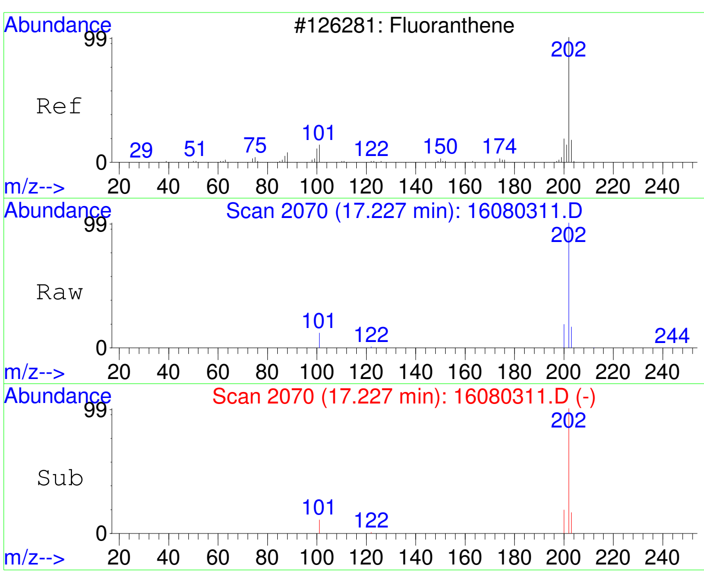





```
#13
Anthracene
Concen:   14.68 ug/kg
RT: 15.35 min   Scan# 1358
Delta R.T.    -0.00 min
Lab File:    16080311.D
Acq:  3 Aug 2016   5:10 pm

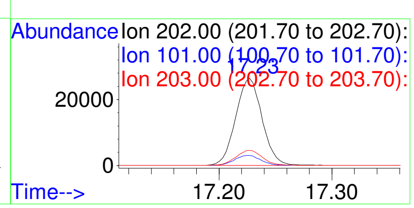
Tgt Ion:178 Resp:    5361
Ion  Ratio  Lower  Upper
178  100
179   15.2    0.0   45.7
176   17.0    0.0   47.9
```

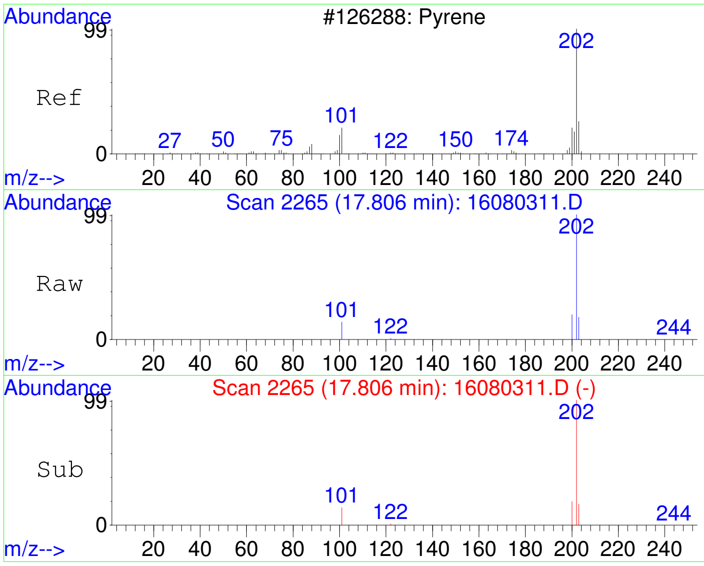





```
#14
Fluoranthene
Concen:  104.23 ug/kg
RT: 17.23 min   Scan# 2070
Delta R.T.    -0.00 min
Lab File:    16080311.D
Acq:  3 Aug 2016   5:10 pm

Tgt Ion:202 Resp:   42878
Ion  Ratio  Lower  Upper
202  100
101   11.3    0.0   42.1
203   17.1    0.0   47.9
```

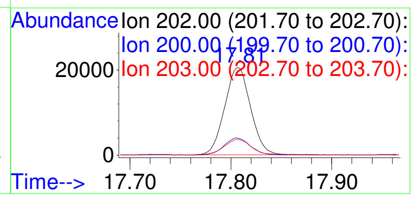


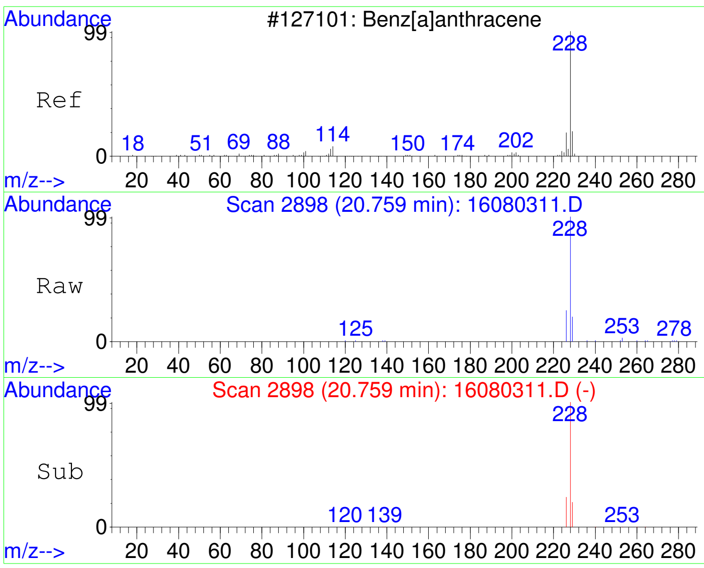


#15
Pyrene
Concen: 87.70 ug/kg
RT: 17.81 min   Scan# 2265
Delta R.T.   -0.01 min
Lab File: 16080311.D
Acq: 3 Aug 2016   5:10 pm

Tgt Ion:202 Resp: 36580

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	49.7
203	17.8	0.0	47.8

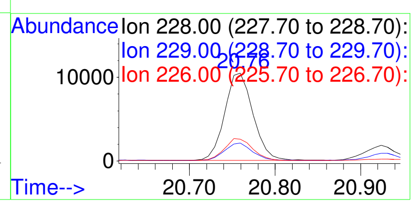


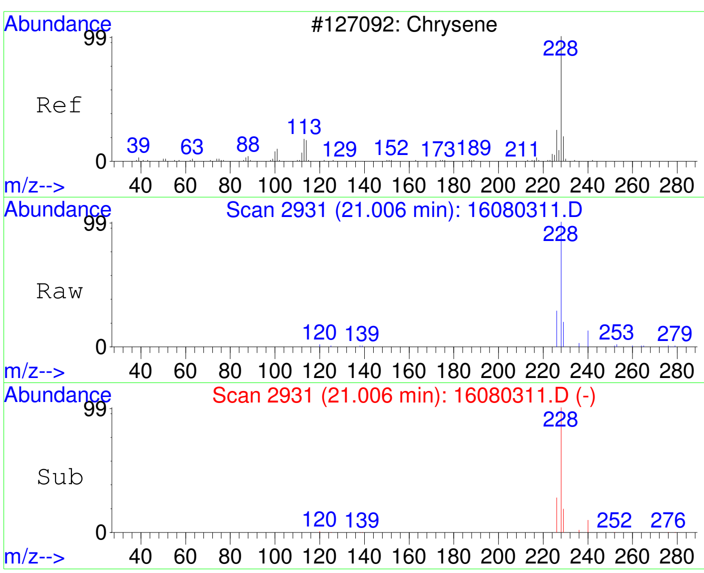


#18
Benzo[a]anthracene
Concen: 58.96 ug/kg
RT: 20.76 min   Scan# 2898
Delta R.T.   -0.01 min
Lab File: 16080311.D
Acq: 3 Aug 2016   5:10 pm

Tgt Ion:228 Resp: 23808

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	49.8
226	24.4	0.0	55.8

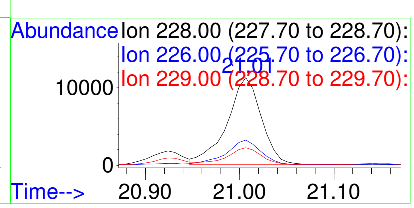


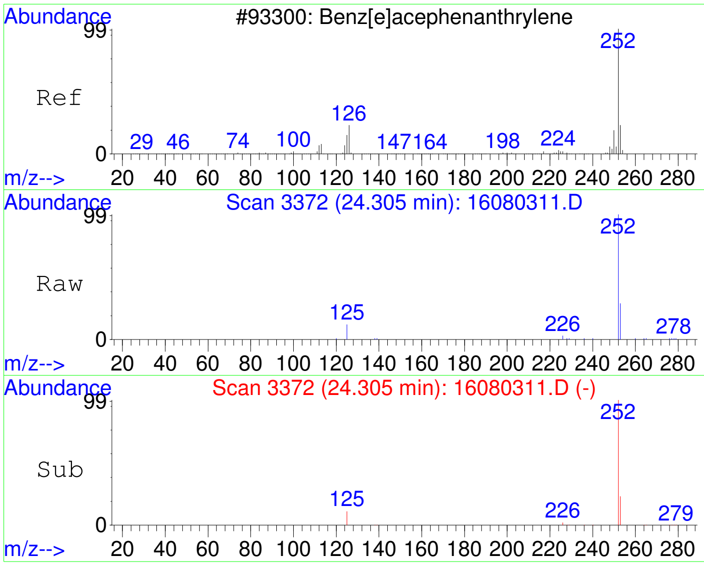


#19
Chrysene
Concen: 72.62 ug/kg
RT: 21.01 min   Scan# 2931
Delta R.T.   -0.02 min
Lab File: 16080311.D
Acq: 3 Aug 2016   5:10 pm

Tgt Ion:228 Resp: 28208

Ion	Ratio	Lower	Upper
228	100		
226	28.3	0.0	58.1
229	19.5	0.0	50.0

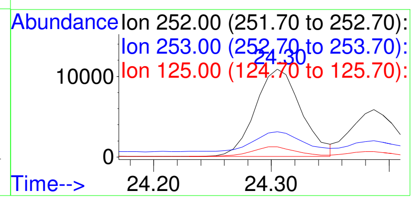


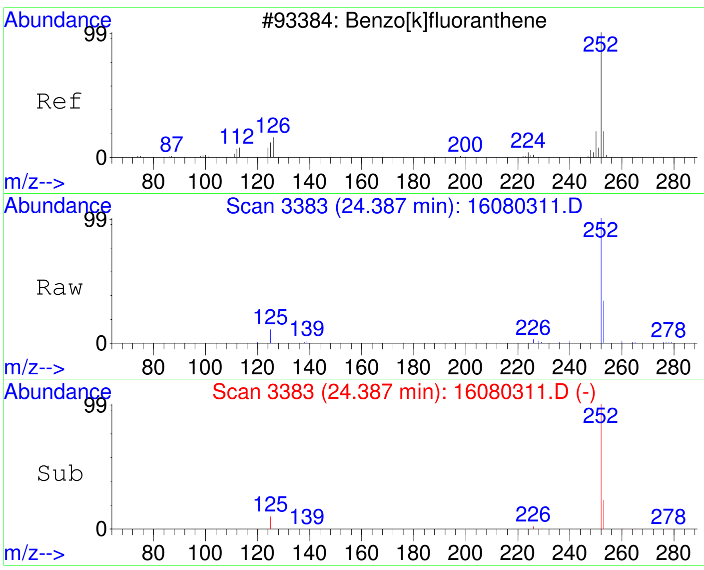


#21
Benzo[b]fluoranthene
Concen: 69.49 ug/kg
RT: 24.30 min Scan# 3372
Delta R.T. -0.02 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:252 Resp: 29419

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	52.0
125	11.1	0.0	40.6

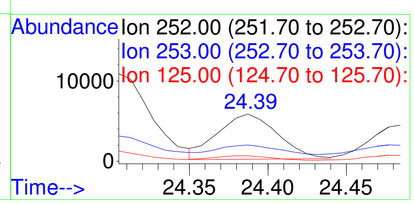


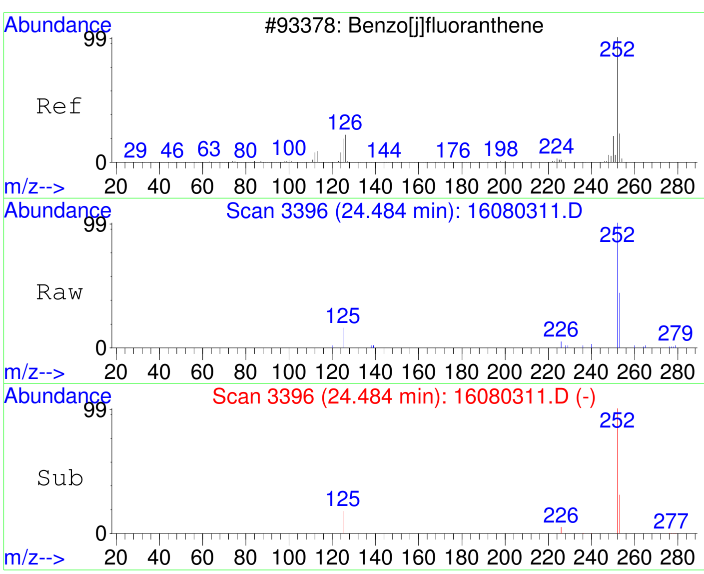


#22
Benzo[k]fluoranthene
Concen: 38.36 ug/kg
RT: 24.39 min Scan# 3383
Delta R.T. -0.02 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:252 Resp: 14897

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.2	42.2
125	9.6	0.0	30.3

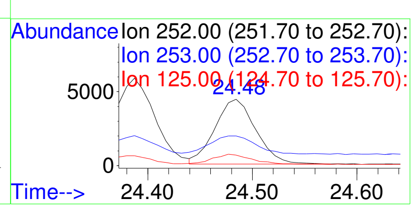


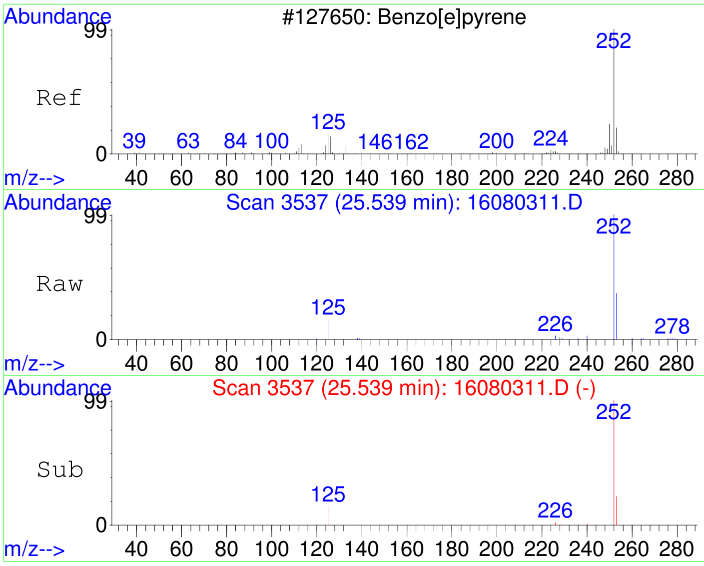


#23
Benzo(j)fluoranthene
Concen: 31.55 ug/kg
RT: 24.48 min Scan# 3396
Delta R.T. -0.02 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:252 Resp: 11774

Ion	Ratio	Lower	Upper
252	100		
253	27.7	2.2	42.2
125	14.4	0.0	34.4

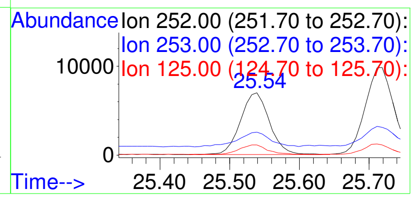


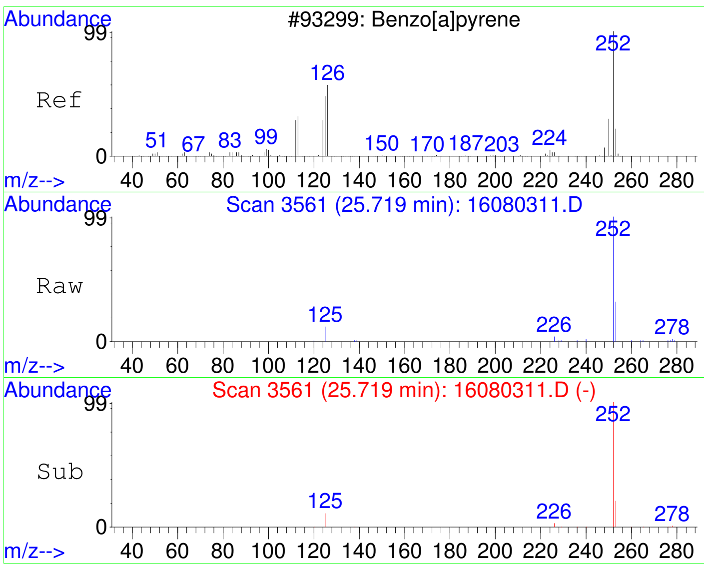


#24
Benzo[e]pyrene
Concen: 48.65 ug/kg
RT: 25.54 min Scan# 3537
Delta R.T. -0.02 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:252 Resp: 19985

Ion	Ratio	Lower	Upper
252	100		
253	22.9	2.2	42.2
125	15.5	0.0	35.7

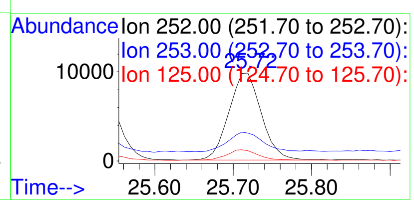


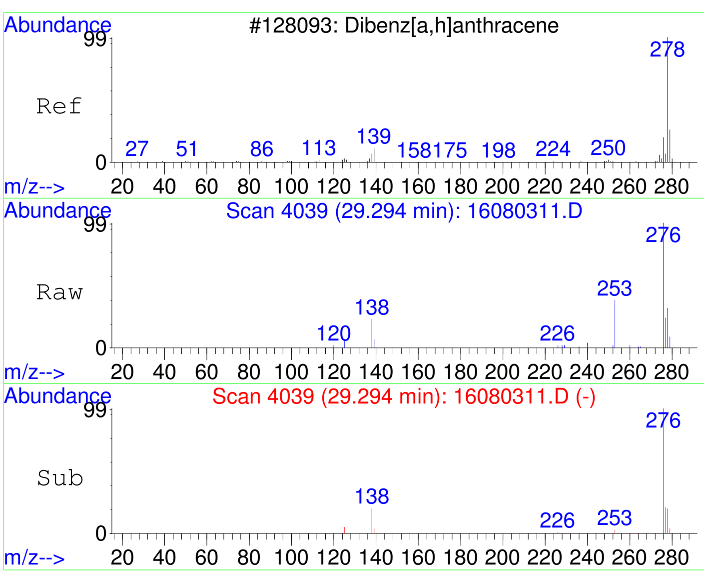


#25
Benzo[a]pyrene
Concen: 69.08 ug/kg
RT: 25.72 min Scan# 3561
Delta R.T. -0.02 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:252 Resp: 28255

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.0	42.0
125	10.8	0.0	31.6

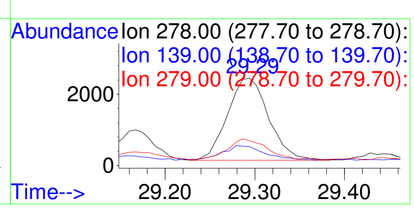


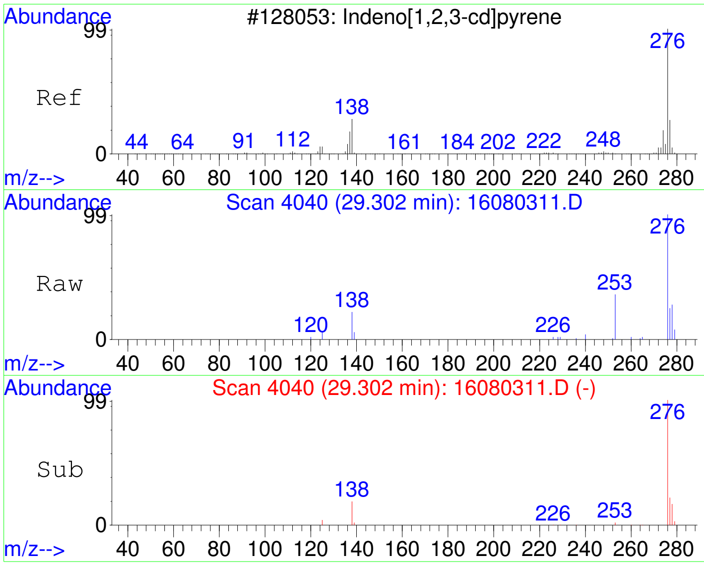


#26
Dibenz[a,h]anthracene
Concen: 18.54 ug/kg
RT: 29.29 min Scan# 4039
Delta R.T. -0.03 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:278 Resp: 7337

Ion	Ratio	Lower	Upper
278	100		
139	15.7	0.0	33.8
279	22.9	3.9	43.9

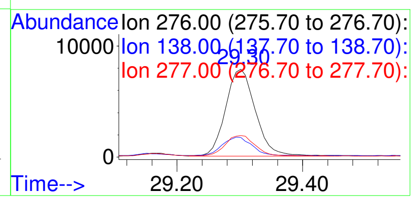


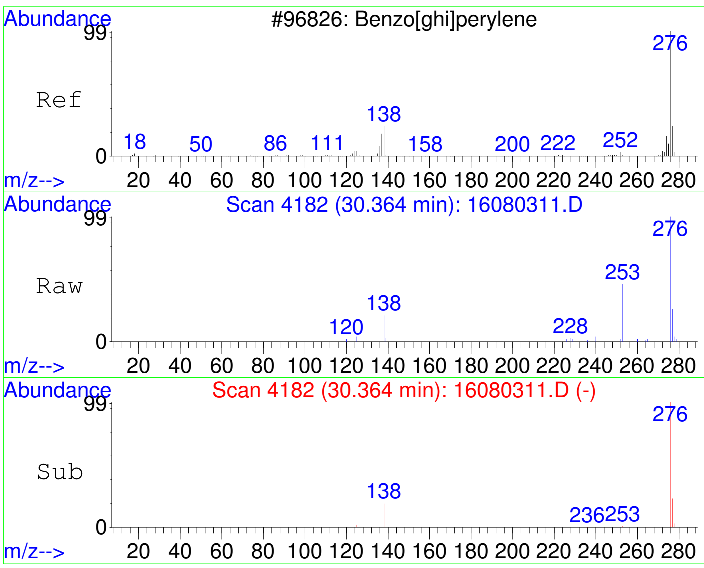


#27
Indeno[1,2,3-cd]pyrene
Concen: 54.92 ug/kg
RT: 29.30 min Scan# 4040
Delta R.T. -0.02 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:276 Resp: 25798

Ion	Ratio	Lower	Upper
276	100		
138	20.7	4.8	44.8
277	23.7	5.6	45.6

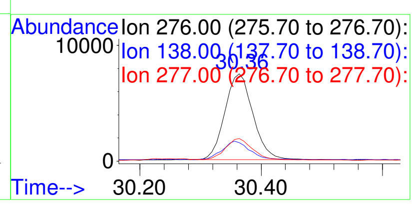




#28
Benzo[g,h,i]perylene
Concen: 60.88 ug/kg
RT: 30.36 min Scan# 4182
Delta R.T. -0.03 min
Lab File: 16080311.D
Acq: 3 Aug 2016 5:10 pm

Tgt Ion:276 Resp: 23950

Ion	Ratio	Lower	Upper
276	100		
138	19.5	0.0	38.1
277	24.6	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160803\16080312.D Vial: 12
Acq On : 3 Aug 2016 5:50 pm Operator: DEW
Sample : 1607239-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 8:00 2016 Quant Results File: PP160801.RES

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	1460563	4000.00	ug/kg	104
5) Acenaphthene-d10	13.16	164	687590	4000.00	ug/kg	115
11) Phenanthrene-d10	15.27	188	1485126	4000.00	ug/kg	93
17) Chrysene-d12	20.92	240	1758354	4000.00	ug/kg	96
20) Perylene-d12	26.05	264	1792101	4000.00	ug/kg	93
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	19523	81.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.04%#		
16) 4-Terphenyl-d14	17.73	244	28846	82.31	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
Target Compounds						Qvalue
12) Phenanthrene	15.30	178	2282	6.48	ug/kg	97
13) Anthracene	15.35	178	2460	6.64	ug/kg	97
14) Fluoranthene	17.23	202	5563	13.33	ug/kg	98
15) Pyrene	17.81	202	5088	12.03	ug/kg	100
18) Benzo[a]anthracene	20.76	228	5259	13.27	ug/kg	98
19) Chrysene	21.01	228	5446	14.28	ug/kg	98
21) Benzo[b]fluoranthene	24.30	252	7161	17.31	ug/kg	97
22) Benzo[k]fluoranthene	24.39	252	4177	11.01	ug/kg	96
23) Benzo(j)fluoranthene	24.48	252	1666	4.57	ug/kg	93
24) Benzo[e]pyrene	25.53	252	2864	7.13	ug/kg	90
25) Benzo[a]pyrene	25.71	252	5954	14.89	ug/kg	96
26) Dibenz[a,h]anthracene	29.29	278	3291	8.51	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.30	276	6511	14.18	ug/kg	96
28) Benzo[g,h,i]perylene	30.36	276	5505	14.32	ug/kg	97

(#) = qualifier out of range (m) = manual integration