CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160520C

The QC data in batch 75180 applies to the following samples: 1605096-36A, 1605096-37A, 1605096-44A

Sample ID	**MB-75180**	Batch ID:	**75180**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**ICP-MS4_160520C**	Analysis Date:	**5/20/2016 1:22:00 PM**	Prep Date:	**5/19/2016**

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		100	30	120			

Sample ID	**LCS-75180**	Batch ID:	**75180**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**ICP-MS4_160520C**	Analysis Date:	**5/20/2016 1:24:00 PM**	Prep Date:	**5/19/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.197	0.00100	0.200	0	98.4	88	115			
IS: Bismuth	0.200		0.200		95.8	30	120			

Sample ID	**LCSD-75180**	Batch ID:	**75180**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCSD**	Run ID:	**ICP-MS4_160520C**	Analysis Date:	**5/20/2016 1:26:00 PM**	Prep Date:	**5/19/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	100	88	115	1.93	20	
IS: Bismuth	0.200		0.200		94.8	30	120	0	0	

Sample ID	**1605097-27A SD**	Batch ID:	**75180**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**SD**	Run ID:	**ICP-MS4_160520C**	Analysis Date:	**5/20/2016 1:32:00 PM**	Prep Date:	**5/19/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00450	0.00500	0	0				0	10	U
IS: Bismuth	1.00		0.200		96.7	30	120	0	0	

Sample ID	**1605097-27A PDS**	Batch ID:	**75180**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**PDS**	Run ID:	**ICP-MS4_160520C**	Analysis Date:	**5/20/2016 1:52:00 PM**	Prep Date:	**5/19/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	80	120			
IS: Bismuth	0.200		0.200		93.7	30	120			

Sample ID	**1605097-27A MS**	Batch ID:	**75180**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**MS**	Run ID:	**ICP-MS4_160520C**	Analysis Date:	**5/20/2016 1:54:00 PM**	Prep Date:	**5/19/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.162	0.00100	0.200	0	80.9	88	115			S
IS: Bismuth	0.200		0.200		94.8	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160520C

Sample ID **1605097-27A MSD**	Batch ID: **75180**	TestNo: **SW6020A**	Units: **mg/L**		
SampType: **MSD**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 1:56:00 PM**	Prep Date: **5/19/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.196	0.00100	0.200	0	97.9	88	115	19.1	20	
IS: Bismuth	0.200		0.200		96.4	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160520C

Sample ID **ICV-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 11:28:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.102	0.00100	0.100	0	102	90	110			
IS: Bismuth	0.200		0.200		98.5	30	120			

Sample ID **LCVL-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 11:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000967	0.00100	0.00100	0	96.7	80	120			
IS: Bismuth	0.200		0.200		96.1	30	120			

Sample ID **CCV2-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 1:06:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	99.9	90	110			
IS: Bismuth	0.200		0.200		93.7	30	120			

Sample ID **LCVL2-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 1:11:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000963	0.00100	0.00100	0	96.3	80	120			
IS: Bismuth	0.200		0.200		96.0	30	120			

Sample ID **CCV3-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 1:58:00 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		96.1	30	120			

Sample ID **LCVL3-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 2:04:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000977	0.00100	0.00100	0	97.7	80	120			
IS: Bismuth	0.200		0.200		96.8	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160520C

Sample ID **CCV4-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 2:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.197	0.00100	0.200	0	98.4	90	110			
IS: Bismuth	0.200		0.200		96.0	30	120			

Sample ID **LCVL4-160520**	Batch ID: **R85935**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160520C**	Analysis Date: **5/20/2016 2:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000974	0.00100	0.00100	0	97.4	80	120			
IS: Bismuth	0.200		0.200		95.3	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160523F

The QC data in batch 75166 applies to the following samples: 1605096-01A, 1605096-02A, 1605096-03A, 1605096-04A, 1605096-05A, 1605096-06A, 1605096-07A, 1605096-08A, 1605096-09A, 1605096-10A, 1605096-11A, 1605096-12A, 1605096-13A, 1605096-14A, 1605096-15A, 1605096-16A, 1605096-17A, 1605096-18A

Sample ID **MB-75166** Batch ID: **75166** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160523F** Analysis Date: **5/23/2016 3:47:00 PM** Prep Date: **5/17/2016**

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		100	30	120			

Sample ID **LCS-75166** Batch ID: **75166** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160523F** Analysis Date: **5/23/2016 3:49:00 PM** Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.2	0.300	50.00	0	98.4	84	118			
IS: Bismuth	50.0		200.0		96.6	30	120			

Sample ID **LCSD-75166** Batch ID: **75166** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160523F** Analysis Date: **5/23/2016 3:51:00 PM** Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.0	0.300	50.00	0	98.0	84	118	0.443	20	
IS: Bismuth	50.0		200.0		98.5	30	120	0	0	

Sample ID **1605096-14A SD** Batch ID: **75166** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160523F** Analysis Date: **5/23/2016 3:57:00 PM** Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	28.6	1.33	0	29.32				2.45	10	
IS: Bismuth	221		177.0		105	30	120	0	0	

Sample ID **1605096-14A PDS** Batch ID: **75166** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160523F** Analysis Date: **5/23/2016 4:17:00 PM** Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	73.0	0.265	44.25	29.32	98.7	80	120			
IS: Bismuth	44.2		885.0		98.2	30	120			

Sample ID **1605096-14A MS** Batch ID: **75166** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160523F** Analysis Date: **5/23/2016 4:19:00 PM** Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	71.8	0.273	45.45	29.32	93.4	84	118			
IS: Bismuth	45.5		181.8		99.0	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160523F

Sample ID **1605096-14A MSD**	Batch ID: **75166**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 4:21:00 PM**	Prep Date: **5/17/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.8	0.275	45.87	29.32	94.8	84	118	1.46	20	
IS: Bismuth	45.9		183.5		96.9	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160523F

Sample ID **ICV-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 11:13:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0990	0.00100	0.100	0	99.0	90	110			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **LCVL-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 11:22:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000970	0.00100	0.00100	0	97.0	80	120			
IS: Bismuth	0.200		0.200		99.6	30	120			

Sample ID **CCV4-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 3:32:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.189	0.00100	0.200	0	94.6	90	110			
IS: Bismuth	0.200		0.200		99.2	30	120			

Sample ID **LCVL4-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 3:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000958	0.00100	0.00100	0	95.8	80	120			
IS: Bismuth	0.200		0.200		97.6	30	120			

Sample ID **CCV5-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 4:23:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.190	0.00100	0.200	0	95.2	90	110			
IS: Bismuth	0.200		0.200		97.9	30	120			

Sample ID **LCVL5-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 4:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		96.4	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160523F

Sample ID **CCV6-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 4:51:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.190	0.00100	0.200	0	94.8	90	110			
IS: Bismuth	0.200		0.200		96.8	30	120			

Sample ID **LCVL6-160523**	Batch ID: **R85956**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160523F**	Analysis Date: **5/23/2016 4:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000979	0.00100	0.00100	0	97.9	80	120			
IS: Bismuth	0.200		0.200		101	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: 1605096
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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

The QC data in batch 75127 applies to the following samples: 1605096-04A, 1605096-05A, 1605096-06A, 1605096-07A, 1605096-08A, 1605096-09A, 1605096-10A, 1605096-11A, 1605096-12A

Sample ID **LCS-75127** Batch ID: **75127** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160516A** Analysis Date: **5/16/2016 9:35:00 AM** Prep Date: **5/12/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.799	0.0100	1.000	0	79.9	44	111			
Acenaphthylene	0.861	0.0100	1.000	0	86.1	39	116			
Anthracene	0.864	0.0100	1.000	0	86.4	50	114			
Benzo[a]anthracene	0.873	0.0100	1.000	0	87.3	54	122			
Benzo[a]pyrene	0.824	0.0100	1.000	0	82.4	50	125			
Benzo[b]fluoranthene	0.855	0.0100	1.000	0	85.5	53	128			
Benzo[e]pyrene	0.859	0.0100	1.000	0	85.9	43	140			
Benzo[g,h,i]perylene	0.841	0.0100	1.000	0	84.1	49	127			
Benzo[j]fluoranthene	0.855	0.0100	1.000	0	85.5	45	125			N
Benzo[k]fluoranthene	0.856	0.0100	1.000	0	85.6	56	123			
Chrysene	0.843	0.0100	1.000	0	84.3	57	118			
Dibenz[a,h]anthracene	0.816	0.0100	1.000	0	81.6	50	129			
Fluoranthene	0.926	0.0100	1.000	0	92.6	55	119			
Fluorene	0.818	0.0100	1.000	0	81.8	47	114			
Indeno[1,2,3-cd]pyrene	0.793	0.0100	1.000	0	79.3	49	130			
Phenanthrene	0.825	0.0100	1.000	0	82.5	49	113			
Pyrene	0.884	0.0100	1.000	0	88.4	55	117			
IS: Acenaphthene-d10	4.00		4.000		58.0	50	200			
IS: Chrysene-d12	4.00		4.000		66.3	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		70.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		60.5	50	200			
Surr: 2-Fluorobiphenyl	0.919		1.000		91.9	46	115			
Surr: 4-Terphenyl-d14	0.808		1.000		80.8	58	133			

Sample ID **MB-75127** Batch ID: **75127** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160516A** Analysis Date: **5/16/2016 10:15:00 AM** Prep Date: **5/12/2016**

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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **MB-75127**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160516A**	Analysis Date: **5/16/2016 10:15:00 AM**	Prep Date: **5/12/2016**

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		57.6	50	200			
IS: Chrysene-d12	4.00		4.000		63.8	50	200			
IS: Naphthalene-d8	4.00		4.000		106	50	200			
IS: Perylene-d12	4.00		4.000		66.6	50	200			
IS: Phenanthrene-d10	4.00		4.000		58.7	50	200			
Surr: 2-Fluorobiphenyl	0.894		1.000		89.4	46	115			
Surr: 4-Terphenyl-d14	0.796		1.000		79.6	58	133			

Sample ID **1605074-44AMSD**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160516A**	Analysis Date: **5/16/2016 6:50:00 PM**	Prep Date: **5/12/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.766	0.0996	0.9960	0	76.9	44	111	6.69	20	
Acenaphthylene	0.758	0.0996	0.9960	0	76.1	39	116	7.45	20	
Anthracene	0.865	0.0996	0.9960	0.05318	81.5	50	114	7.39	20	
Benzo[a]anthracene	1.55	0.0996	0.9960	0.4244	113	54	122	7.18	20	
Benzo[a]pyrene	1.71	0.0996	0.9960	0.5252	119	50	125	7.98	20	
Benzo[b]fluoranthene	1.69	0.0996	0.9960	0.5127	119	53	128	7.89	20	
Benzo[e]pyrene	1.53	0.0996	0.9960	0.4248	111	43	140	8.62	20	
Benzo[g,h,i]perylene	1.46	0.0996	0.9960	0.4081	106	49	127	7.66	20	
Benzo[j]fluoranthene	1.26	0.0996	0.9960	0.2629	100	45	125	12.9	20	N
Benzo[k]fluoranthene	1.23	0.0996	0.9960	0.2594	97.0	56	123	9.30	20	
Chrysene	1.71	0.0996	0.9960	0.5363	117	57	118	7.37	20	
Dibenz[a,h]anthracene	0.877	0.0996	0.9960	0.08907	79.1	50	129	9.23	20	
Fluoranthene	1.97	0.0996	0.9960	0.7240	125	55	119	5.90	20	S
Fluorene	0.813	0.0996	0.9960	0	81.6	47	114	5.65	20	
Indeno[1,2,3-cd]pyrene	1.29	0.0996	0.9960	0.3240	96.8	49	130	7.39	20	
Phenanthrene	1.14	0.0996	0.9960	0.2851	85.4	49	113	6.98	20	
Pyrene	1.82	0.0996	0.9960	0.6247	120	55	117	6.52	20	S
IS: Acenaphthene-d10	39.8		3.984		73.8	50	200	0	0	
IS: Chrysene-d12	39.8		3.984		72.5	50	200	0	0	
IS: Naphthalene-d8	39.8		3.984		112	50	200	0	0	
IS: Perylene-d12	39.8		3.984		74.7	50	200	0	0	
IS: Phenanthrene-d10	39.8		3.984		77.2	50	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **1605074-44AMSD**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160516A**	Analysis Date: **5/16/2016 6:50:00 PM**	Prep Date: **5/12/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.765		0.9960		76.8	46	115	0	0	
Surr: 4-Terphenyl-d14	0.667		0.9960		67.0	58	133	0	0	

Sample ID **SB-160516**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160516A**	Analysis Date: **5/16/2016 9:26:00 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	0.000170		0							
Surr: 4-Terphenyl-d14	0.000560		0							

Sample ID **1605074-44AMS**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 9:31:00 AM**	Prep Date: **5/12/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.819	0.100	1.000	0	81.9	44	111			
Acenaphthylene	0.816	0.100	1.000	0	81.6	39	116			
Anthracene	0.931	0.100	1.000	0.05318	87.8	50	114			
Benzo[a]anthracene	1.66	0.100	1.000	0.4244	124	54	122			S
Benzo[a]pyrene	1.86	0.100	1.000	0.5252	133	50	125			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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **1605074-44AMS**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 9:31:00 AM**	Prep Date: **5/12/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	1.83	0.100	1.000	0.5127	132	53	128			S
Benzo[e]pyrene	1.67	0.100	1.000	0.4248	125	43	140			
Benzo[g,h,i]perylene	1.58	0.100	1.000	0.4081	117	49	127			
Benzo[j]fluoranthene	1.44	0.100	1.000	0.2629	117	45	125			N
Benzo[k]fluoranthene	1.35	0.100	1.000	0.2594	109	56	123			
Chrysene	1.84	0.100	1.000	0.5363	130	57	118			S
Dibenz[a,h]anthracene	0.962	0.100	1.000	0.08907	87.3	50	129			
Fluoranthene	2.09	0.100	1.000	0.7240	137	55	119			S
Fluorene	0.860	0.100	1.000	0	86.0	47	114			
Indeno[1,2,3-cd]pyrene	1.39	0.100	1.000	0.3240	106	49	130			
Phenanthrene	1.22	0.100	1.000	0.2851	93.3	49	113			
Pyrene	1.95	0.100	1.000	0.6247	132	55	117			S
IS: Acenaphthene-d10	40.0		4.000		71.3	50	200			
IS: Chrysene-d12	40.0		4.000		68.7	50	200			
IS: Naphthalene-d8	40.0		4.000		105	50	200			
IS: Perylene-d12	40.0		4.000		70.8	50	200			
IS: Phenanthrene-d10	40.0		4.000		72.2	50	200			
Surr: 2-Fluorobiphenyl	0.819		1.000		81.9	46	115			
Surr: 4-Terphenyl-d14	0.707		1.000		70.7	58	133			

Sample ID **SB-160517**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 10:11:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U

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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **SB-160517**	Batch ID: **75127**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**		
SampType: **SBLK**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 10:11:00 AM**	Prep Date:		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	0.000310		0							
Surr: 4-Terphenyl-d14	0.000310		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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **ICV-160516**	Batch ID: **R85840**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160516A**	Analysis Date: **5/16/2016 8:54:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0100	2.000	0	99.2	80	120			
Acenaphthylene	2.13	0.0100	2.000	0	106	80	120			
Anthracene	1.90	0.0100	2.000	0	95.1	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.4	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	94.9	80	120			
Benzo[b]fluoranthene	1.95	0.0100	2.000	0	97.5	80	120			
Benzo[e]pyrene	1.87	0.0100	2.000	0	93.3	80	120			
Benzo[g,h,i]perylene	1.84	0.0100	2.000	0	92.0	80	120			
Benzo[j]fluoranthene	1.90	0.0100	2.000	0	95.1	80	120			N
Benzo[k]fluoranthene	1.91	0.0100	2.000	0	95.4	80	120			
Chrysene	1.86	0.0100	2.000	0	93.1	80	120			
Dibenz[a,h]anthracene	1.83	0.0100	2.000	0	91.7	80	120			
Fluoranthene	1.96	0.0100	2.000	0	97.9	80	120			
Fluorene	2.12	0.0100	2.000	0	106	80	120			
Indeno[1,2,3-cd]pyrene	1.79	0.0100	2.000	0	89.5	80	120			
Phenanthrene	1.90	0.0100	2.000	0	95.0	80	120			
Pyrene	1.89	0.0100	2.000	0	94.3	80	120			
IS: Acenaphthene-d10	4.00		4.000		83.3	50	200			
IS: Chrysene-d12	4.00		4.000		91.2	50	200			
IS: Naphthalene-d8	4.00		4.000		142	50	200			
IS: Perylene-d12	4.00		4.000		92.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		93.0	50	200			
Surr: 2-Fluorobiphenyl	2.09		2.000		104	65	120			
Surr: 4-Terphenyl-d14	1.83		2.000		91.5	65	120			

Sample ID **ICV2-160516**	Batch ID: **R85840**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160516A**	Analysis Date: **5/16/2016 8:06:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.01	0.0100	2.000	0	101	80	120			
Acenaphthylene	2.13	0.0100	2.000	0	106	80	120			
Anthracene	1.87	0.0100	2.000	0	93.6	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.4	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	94.9	80	120			
Benzo[b]fluoranthene	1.92	0.0100	2.000	0	95.9	80	120			
Benzo[e]pyrene	1.87	0.0100	2.000	0	93.6	80	120			
Benzo[g,h,i]perylene	1.85	0.0100	2.000	0	92.4	80	120			
Benzo[j]fluoranthene	1.88	0.0100	2.000	0	94.2	80	120			N
Benzo[k]fluoranthene	1.88	0.0100	2.000	0	94.1	80	120			
Chrysene	1.88	0.0100	2.000	0	94.0	80	120			
Dibenz[a,h]anthracene	1.83	0.0100	2.000	0	91.6	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **ICV2-160516**	Batch ID: **R85840**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160516A**	Analysis Date: **5/16/2016 8:06:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.96	0.0100	2.000	0	98.0	80	120			
Fluorene	2.12	0.0100	2.000	0	106	80	120			
Indeno[1,2,3-cd]pyrene	1.79	0.0100	2.000	0	89.3	80	120			
Phenanthrene	1.92	0.0100	2.000	0	95.8	80	120			
Pyrene	1.90	0.0100	2.000	0	94.9	80	120			
IS: Acenaphthene-d10	4.00		4.000		85.6	50	200			
IS: Chrysene-d12	4.00		4.000		93.1	50	200			
IS: Naphthalene-d8	4.00		4.000		137	50	200			
IS: Perylene-d12	4.00		4.000		94.6	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.0	50	200			
Surr: 2-Fluorobiphenyl	2.05		2.000		103	65	120			
Surr: 4-Terphenyl-d14	1.84		2.000		92.2	65	120			

Sample ID **CCV1-160516**	Batch ID: **R85840**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 2:45:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.00	0.0100	1.000	0	100	50	150			
Acenaphthylene	1.08	0.0100	1.000	0	108	50	150			
Anthracene	0.982	0.0100	1.000	0	98.2	50	150			
Benzo[a]anthracene	1.00	0.0100	1.000	0	100	50	150			
Benzo[a]pyrene	0.953	0.0100	1.000	0	95.3	50	150			
Benzo[b]fluoranthene	0.959	0.0100	1.000	0	95.9	50	150			
Benzo[e]pyrene	0.939	0.0100	1.000	0	93.9	50	150			
Benzo[g,h,i]perylene	0.902	0.0100	1.000	0	90.2	50	150			
Benzo[j]fluoranthene	0.957	0.0100	1.000	0	95.7	50	150			N
Benzo[k]fluoranthene	0.979	0.0100	1.000	0	97.9	50	150			
Chrysene	0.949	0.0100	1.000	0	94.9	50	150			
Dibenz[a,h]anthracene	0.890	0.0100	1.000	0	89.0	50	150			
Fluoranthene	1.03	0.0100	1.000	0	103	50	150			
Fluorene	1.04	0.0100	1.000	0	104	50	150			
Indeno[1,2,3-cd]pyrene	0.871	0.0100	1.000	0	87.1	50	150			
Phenanthrene	0.976	0.0100	1.000	0	97.6	50	150			
Pyrene	0.996	0.0100	1.000	0	99.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		75.6	50	200			
IS: Chrysene-d12	4.00		4.000		80.2	50	200			
IS: Naphthalene-d8	4.00		4.000		122	50	200			
IS: Perylene-d12	4.00		4.000		82.3	50	200			
IS: Phenanthrene-d10	4.00		4.000		78.2	50	200			
Surr: 2-Fluorobiphenyl	1.08		1.000		108	50	150			
Surr: 4-Terphenyl-d14	0.974		1.000		97.4	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **ICV-160517**	Batch ID: **R85840**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 8:49:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0100	2.000	0	99.1	80	120			
Acenaphthylene	2.14	0.0100	2.000	0	107	80	120			
Anthracene	1.88	0.0100	2.000	0	93.9	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.7	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	94.9	80	120			
Benzo[b]fluoranthene	1.95	0.0100	2.000	0	97.6	80	120			
Benzo[e]pyrene	1.86	0.0100	2.000	0	93.1	80	120			
Benzo[g,h,i]perylene	1.85	0.0100	2.000	0	92.6	80	120			
Benzo[j]fluoranthene	1.90	0.0100	2.000	0	94.8	80	120			N
Benzo[k]fluoranthene	1.90	0.0100	2.000	0	95.0	80	120			
Chrysene	1.89	0.0100	2.000	0	94.4	80	120			
Dibenz[a,h]anthracene	1.84	0.0100	2.000	0	91.8	80	120			
Fluoranthene	1.96	0.0100	2.000	0	97.9	80	120			
Fluorene	2.12	0.0100	2.000	0	106	80	120			
Indeno[1,2,3-cd]pyrene	1.79	0.0100	2.000	0	89.3	80	120			
Phenanthrene	1.92	0.0100	2.000	0	95.9	80	120			
Pyrene	1.90	0.0100	2.000	0	94.8	80	120			
IS: Acenaphthene-d10	4.00		4.000		85.6	50	200			
IS: Chrysene-d12	4.00		4.000		94.3	50	200			
IS: Naphthalene-d8	4.00		4.000		145	50	200			
IS: Perylene-d12	4.00		4.000		95.5	50	200			
IS: Phenanthrene-d10	4.00		4.000		96.0	50	200			
Surr: 2-Fluorobiphenyl	2.09		2.000		105	65	120			
Surr: 4-Terphenyl-d14	1.83		2.000		91.5	65	120			

Sample ID **CCV1-160517**	Batch ID: **R85840**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 12:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.01	0.0100	2.000	0	100	50	150			
Acenaphthylene	2.11	0.0100	2.000	0	105	50	150			
Anthracene	1.88	0.0100	2.000	0	94.0	50	150			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.7	50	150			
Benzo[a]pyrene	1.91	0.0100	2.000	0	95.3	50	150			
Benzo[b]fluoranthene	1.93	0.0100	2.000	0	96.3	50	150			
Benzo[e]pyrene	1.87	0.0100	2.000	0	93.4	50	150			
Benzo[g,h,i]perylene	1.84	0.0100	2.000	0	92.2	50	150			
Benzo[j]fluoranthene	1.90	0.0100	2.000	0	95.0	50	150			N
Benzo[k]fluoranthene	1.90	0.0100	2.000	0	94.9	50	150			
Chrysene	1.87	0.0100	2.000	0	93.3	50	150			
Dibenz[a,h]anthracene	1.84	0.0100	2.000	0	91.8	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160516A

Sample ID **CCV1-160517**	Batch ID: **R85840**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160516A**	Analysis Date: **5/17/2016 12:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.93	0.0100	2.000	0	96.7	50	150			
Fluorene	2.16	0.0100	2.000	0	108	50	150			
Indeno[1,2,3-cd]pyrene	1.79	0.0100	2.000	0	89.6	50	150			
Phenanthrene	1.90	0.0100	2.000	0	94.8	50	150			
Pyrene	1.87	0.0100	2.000	0	93.5	50	150			
IS: Acenaphthene-d10	4.00		4.000		86.4	50	200			
IS: Chrysene-d12	4.00		4.000		94.4	50	200			
IS: Naphthalene-d8	4.00		4.000		141	50	200			
IS: Perylene-d12	4.00		4.000		96.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		96.3	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	50	150			
Surr: 4-Terphenyl-d14	1.82		2.000		90.8	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160517A

The QC data in batch 75158 applies to the following samples: 1605096-25A, 1605096-26A, 1605096-27A, 1605096-28A, 1605096-29A, 1605096-30A, 1605096-31A, 1605096-32A, 1605096-33A, 1605096-34A, 1605096-35A, 1605096-38A, 1605096-39A, 1605096-40A, 1605096-41A, 1605096-42A, 1605096-43A, 1605096-45A, 1605096-46A, 1605096-47A

Sample ID **LCS-75158** Batch ID: **75158** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160517A** Analysis Date: **5/17/2016 1:07:00 PM** Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.777	0.0100	1.000	0	77.7	44	111			
Acenaphthylene	0.828	0.0100	1.000	0	82.8	39	116			
Anthracene	0.826	0.0100	1.000	0	82.6	50	114			
Benzo[a]anthracene	0.858	0.0100	1.000	0	85.8	54	122			
Benzo[a]pyrene	0.800	0.0100	1.000	0	80.0	50	125			
Benzo[b]fluoranthene	0.821	0.0100	1.000	0	82.1	53	128			
Benzo[e]pyrene	0.838	0.0100	1.000	0	83.8	43	140			
Benzo[g,h,i]perylene	0.818	0.0100	1.000	0	81.8	49	127			
Benzo[j]fluoranthene	0.832	0.0100	1.000	0	83.2	45	125			N
Benzo[k]fluoranthene	0.838	0.0100	1.000	0	83.8	56	123			
Chrysene	0.826	0.0100	1.000	0	82.6	57	118			
Dibenz[a,h]anthracene	0.786	0.0100	1.000	0	78.6	50	129			
Fluoranthene	0.868	0.0100	1.000	0	86.8	55	119			
Fluorene	0.812	0.0100	1.000	0	81.2	47	114			
Indeno[1,2,3-cd]pyrene	0.770	0.0100	1.000	0	77.0	49	130			
Phenanthrene	0.801	0.0100	1.000	0	80.1	49	113			
Pyrene	0.848	0.0100	1.000	0	84.9	55	117			
IS: Acenaphthene-d10	4.00		4.000		56.0	50	200			
IS: Chrysene-d12	4.00		4.000		62.2	50	200			
IS: Naphthalene-d8	4.00		4.000		104	50	200			
IS: Perylene-d12	4.00		4.000		67.8	50	200			
IS: Phenanthrene-d10	4.00		4.000		57.9	50	200			
Surr: 2-Fluorobiphenyl	0.856		1.000		85.6	46	115			
Surr: 4-Terphenyl-d14	0.741		1.000		74.1	58	133			

Sample ID **MB-75158** Batch ID: **75158** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160517A** Analysis Date: **5/17/2016 1:47:00 PM** Prep Date: **5/13/2016**

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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160517A

Sample ID **MB-75158**	Batch ID: **75158**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160517A**	Analysis Date: **5/17/2016 1:47:00 PM**	Prep Date: **5/13/2016**

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		57.4	50	200			
IS: Chrysene-d12	4.00		4.000		59.0	50	200			
IS: Naphthalene-d8	4.00		4.000		96.4	50	200			
IS: Perylene-d12	4.00		4.000		64.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		54.5	50	200			
Surr: 2-Fluorobiphenyl	0.901		1.000		90.1	46	115			
Surr: 4-Terphenyl-d14	0.762		1.000		76.2	58	133			

Sample ID **SB-160517**	Batch ID: **75158**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160517A**	Analysis Date: **5/17/2016 11:40:00 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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160517A

Sample ID **1605096-25AMS**	Batch ID: **75158**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160517A**	Analysis Date: **5/18/2016 6:17:00 AM**	Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.762	0.0987	0.9872	0	77.1	44	111			
Acenaphthylene	0.782	0.0987	0.9872	0	79.2	39	116			
Anthracene	0.809	0.0987	0.9872	0	82.0	50	114			
Benzo[a]anthracene	0.821	0.0987	0.9872	0	83.2	54	122			
Benzo[a]pyrene	0.803	0.0987	0.9872	0	81.3	50	125			
Benzo[b]fluoranthene	0.819	0.0987	0.9872	0	83.0	53	128			
Benzo[e]pyrene	0.838	0.0987	0.9872	0	84.8	43	140			
Benzo[g,h,i]perylene	0.794	0.0987	0.9872	0	80.4	49	127			
Benzo[j]fluoranthene	0.829	0.0987	0.9872	0	84.0	45	125			N
Benzo[k]fluoranthene	0.828	0.0987	0.9872	0	83.8	56	123			
Chrysene	0.814	0.0987	0.9872	0	82.5	57	118			
Dibenz[a,h]anthracene	0.765	0.0987	0.9872	0	77.5	50	129			
Fluoranthene	0.836	0.0987	0.9872	0	84.7	55	119			
Fluorene	0.786	0.0987	0.9872	0	79.6	47	114			
Indeno[1,2,3-cd]pyrene	0.759	0.0987	0.9872	0	76.9	49	130			
Phenanthrene	0.815	0.0987	0.9872	0	82.5	49	113			
Pyrene	0.822	0.0987	0.9872	0	83.3	55	117			
IS: Acenaphthene-d10	39.5		3.949		73.1	50	200			
IS: Chrysene-d12	39.5		3.949		69.2	50	200			
IS: Naphthalene-d8	39.5		3.949		111	50	200			
IS: Perylene-d12	39.5		3.949		72.2	50	200			
IS: Phenanthrene-d10	39.5		3.949		70.1	50	200			
Surr: 2-Fluorobiphenyl	0.796		0.9872		80.6	46	115			
Surr: 4-Terphenyl-d14	0.673		0.9872		68.2	58	133			

Sample ID **1605096-25AMSD**	Batch ID: **75158**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160517A**	Analysis Date: **5/18/2016 6:57:00 AM**	Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.709	0.0977	0.9766	0	72.6	44	111	7.12	20	
Acenaphthylene	0.721	0.0977	0.9766	0	73.8	39	116	8.13	20	
Anthracene	0.753	0.0977	0.9766	0	77.1	50	114	7.15	20	
Benzo[a]anthracene	0.772	0.0977	0.9766	0	79.0	54	122	6.19	20	
Benzo[a]pyrene	0.744	0.0977	0.9766	0	76.2	50	125	7.58	20	
Benzo[b]fluoranthene	0.751	0.0977	0.9766	0	76.9	53	128	8.77	20	
Benzo[e]pyrene	0.773	0.0977	0.9766	0	79.1	43	140	8.07	20	
Benzo[g,h,i]perylene	0.736	0.0977	0.9766	0	75.3	49	127	7.63	20	
Benzo[j]fluoranthene	0.762	0.0977	0.9766	0	78.0	45	125	8.44	20	N
Benzo[k]fluoranthene	0.770	0.0977	0.9766	0	78.8	56	123	7.25	20	
Chrysene	0.763	0.0977	0.9766	0	78.1	57	118	6.58	20	
Dibenz[a,h]anthracene	0.715	0.0977	0.9766	0	73.3	50	129	6.65	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160517A

Sample ID **1605096-25AMSD**	Batch ID: **75158**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160517A**	Analysis Date: **5/18/2016 6:57:00 AM**	Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.767	0.0977	0.9766	0	78.5	55	119	8.70	20	
Fluorene	0.732	0.0977	0.9766	0	74.9	47	114	7.10	20	
Indeno[1,2,3-cd]pyrene	0.704	0.0977	0.9766	0	72.1	49	130	7.46	20	
Phenanthrene	0.757	0.0977	0.9766	0	77.5	49	113	7.34	20	
Pyrene	0.759	0.0977	0.9766	0	77.7	55	117	8.05	20	
IS: Acenaphthene-d10	39.1		3.906		76.7	50	200	0	0	
IS: Chrysene-d12	39.1		3.906		70.7	50	200	0	0	
IS: Naphthalene-d8	39.1		3.906		115	50	200	0	0	
IS: Perylene-d12	39.1		3.906		73.5	50	200	0	0	
IS: Phenanthrene-d10	39.1		3.906		72.7	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.730		0.9766		74.7	46	115	0	0	
Surr: 4-Terphenyl-d14	0.618		0.9766		63.3	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160517A

Sample ID **ICV-160517**	Batch ID: **R85846**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160517A**	Analysis Date: **5/17/2016 12:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.01	0.0100	2.000	0	100	80	120			
Acenaphthylene	2.11	0.0100	2.000	0	105	80	120			
Anthracene	1.88	0.0100	2.000	0	94.0	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.7	80	120			
Benzo[a]pyrene	1.91	0.0100	2.000	0	95.3	80	120			
Benzo[b]fluoranthene	1.93	0.0100	2.000	0	96.3	80	120			
Benzo[e]pyrene	1.87	0.0100	2.000	0	93.4	80	120			
Benzo[g,h,i]perylene	1.84	0.0100	2.000	0	92.2	80	120			
Benzo[j]fluoranthene	1.90	0.0100	2.000	0	95.0	80	120			N
Benzo[k]fluoranthene	1.90	0.0100	2.000	0	94.9	80	120			
Chrysene	1.87	0.0100	2.000	0	93.3	80	120			
Dibenz[a,h]anthracene	1.84	0.0100	2.000	0	91.8	80	120			
Fluoranthene	1.93	0.0100	2.000	0	96.7	80	120			
Fluorene	2.16	0.0100	2.000	0	108	80	120			
Indeno[1,2,3-cd]pyrene	1.79	0.0100	2.000	0	89.6	80	120			
Phenanthrene	1.90	0.0100	2.000	0	94.8	80	120			
Pyrene	1.87	0.0100	2.000	0	93.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		86.4	50	200			
IS: Chrysene-d12	4.00		4.000		94.4	50	200			
IS: Naphthalene-d8	4.00		4.000		141	50	200			
IS: Perylene-d12	4.00		4.000		96.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		96.3	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	65	120			
Surr: 4-Terphenyl-d14	1.82		2.000		90.8	65	120			

Sample ID **ICV2-160517**	Batch ID: **R85846**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160517A**	Analysis Date: **5/17/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.99	0.0100	2.000	0	99.3	80	120			
Acenaphthylene	2.11	0.0100	2.000	0	106	80	120			
Anthracene	1.86	0.0100	2.000	0	93.1	80	120			
Benzo[a]anthracene	1.97	0.0100	2.000	0	98.5	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	94.9	80	120			
Benzo[b]fluoranthene	1.92	0.0100	2.000	0	95.9	80	120			
Benzo[e]pyrene	1.85	0.0100	2.000	0	92.7	80	120			
Benzo[g,h,i]perylene	1.83	0.0100	2.000	0	91.7	80	120			
Benzo[j]fluoranthene	1.89	0.0100	2.000	0	94.7	80	120			N
Benzo[k]fluoranthene	1.91	0.0100	2.000	0	95.4	80	120			
Chrysene	1.87	0.0100	2.000	0	93.7	80	120			
Dibenz[a,h]anthracene	1.82	0.0100	2.000	0	91.0	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160517A

Sample ID **ICV2-160517**	Batch ID: **R85846**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160517A**	Analysis Date: **5/17/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.95	0.0100	2.000	0	97.5	80	120			
Fluorene	2.09	0.0100	2.000	0	105	80	120			
Indeno[1,2,3-cd]pyrene	1.77	0.0100	2.000	0	88.7	80	120			
Phenanthrene	1.90	0.0100	2.000	0	95.2	80	120			
Pyrene	1.87	0.0100	2.000	0	93.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		89.3	50	200			
IS: Chrysene-d12	4.00		4.000		94.3	50	200			
IS: Naphthalene-d8	4.00		4.000		148	50	200			
IS: Perylene-d12	4.00		4.000		96.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		96.4	50	200			
Surr: 2-Fluorobiphenyl	2.08		2.000		104	65	120			
Surr: 4-Terphenyl-d14	1.82		2.000		91.2	65	120			

Sample ID **CCV1-160517**	Batch ID: **R85846**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160517A**	Analysis Date: **5/18/2016 7:37:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.01	0.0100	1.000	0	101	50	150			
Acenaphthylene	1.08	0.0100	1.000	0	108	50	150			
Anthracene	0.965	0.0100	1.000	0	96.5	50	150			
Benzo[a]anthracene	0.989	0.0100	1.000	0	98.9	50	150			
Benzo[a]pyrene	0.954	0.0100	1.000	0	95.4	50	150			
Benzo[b]fluoranthene	0.956	0.0100	1.000	0	95.6	50	150			
Benzo[e]pyrene	0.935	0.0100	1.000	0	93.5	50	150			
Benzo[g,h,i]perylene	0.899	0.0100	1.000	0	89.9	50	150			
Benzo[j]fluoranthene	0.949	0.0100	1.000	0	94.9	50	150			N
Benzo[k]fluoranthene	0.969	0.0100	1.000	0	96.9	50	150			
Chrysene	0.940	0.0100	1.000	0	94.0	50	150			
Dibenz[a,h]anthracene	0.895	0.0100	1.000	0	89.5	50	150			
Fluoranthene	1.03	0.0100	1.000	0	103	50	150			
Fluorene	1.02	0.0100	1.000	0	102	50	150			
Indeno[1,2,3-cd]pyrene	0.877	0.0100	1.000	0	87.7	50	150			
Phenanthrene	0.981	0.0100	1.000	0	98.1	50	150			
Pyrene	0.996	0.0100	1.000	0	99.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		76.8	50	200			
IS: Chrysene-d12	4.00		4.000		80.7	50	200			
IS: Naphthalene-d8	4.00		4.000		126	50	200			
IS: Perylene-d12	4.00		4.000		82.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		79.5	50	200			
Surr: 2-Fluorobiphenyl	1.08		1.000		108	50	150			
Surr: 4-Terphenyl-d14	0.963		1.000		96.3	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160518A

The QC data in batch 75160 applies to the following samples: 1605096-48A, 1605096-49A, 1605096-50A, 1605096-51A, 1605096-52A, 1605096-53A, 1605096-54A, 1605096-55A, 1605096-56A, 1605096-57A, 1605096-58A, 1605096-59A, 1605096-60A, 1605096-61A, 1605096-62A, 1605096-63A, 1605096-64A, 1605096-65A, 1605096-66A, 1605096-67A

Sample ID **LCS-75160** Batch ID: **75160** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160518A** Analysis Date: **5/18/2016 9:51:00 AM** Prep Date: **5/15/2016**

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	0.898	0.0100	1.000	0	89.8	39	116			
Anthracene	0.878	0.0100	1.000	0	87.8	50	114			
Benzo[a]anthracene	0.881	0.0100	1.000	0	88.1	54	122			
Benzo[a]pyrene	0.823	0.0100	1.000	0	82.3	50	125			
Benzo[b]fluoranthene	0.865	0.0100	1.000	0	86.5	53	128			
Benzo[e]pyrene	0.870	0.0100	1.000	0	87.0	43	140			
Benzo[g,h,i]perylene	0.839	0.0100	1.000	0	83.9	49	127			
Benzo[j]fluoranthene	0.867	0.0100	1.000	0	86.7	45	125			N
Benzo[k]fluoranthene	0.864	0.0100	1.000	0	86.4	56	123			
Chrysene	0.850	0.0100	1.000	0	85.0	57	118			
Dibenz[a,h]anthracene	0.820	0.0100	1.000	0	82.0	50	129			
Fluoranthene	0.924	0.0100	1.000	0	92.4	55	119			
Fluorene	0.906	0.0100	1.000	0	90.6	47	114			
Indeno[1,2,3-cd]pyrene	0.799	0.0100	1.000	0	79.9	49	130			
Phenanthrene	0.857	0.0100	1.000	0	85.7	49	113			
Pyrene	0.894	0.0100	1.000	0	89.4	55	117			
IS: Acenaphthene-d10	4.00		4.000		55.3	50	200			
IS: Chrysene-d12	4.00		4.000		64.2	50	200			
IS: Naphthalene-d8	4.00		4.000		94.8	50	200			
IS: Perylene-d12	4.00		4.000		67.5	50	200			
IS: Phenanthrene-d10	4.00		4.000		59.3	50	200			
Surr: 2-Fluorobiphenyl	0.850		1.000		85.0	46	115			
Surr: 4-Terphenyl-d14	0.745		1.000		74.5	58	133			

Sample ID **MB-75160** Batch ID: **75160** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160518A** Analysis Date: **5/18/2016 10:31:00 AM** Prep Date: **5/15/2016**

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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160518A

Sample ID **MB-75160**	Batch ID: **75160**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 10:31:00 AM**	Prep Date: **5/15/2016**

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		63.3	50	200			
IS: Chrysene-d12	4.00		4.000		68.3	50	200			
IS: Naphthalene-d8	4.00		4.000		99.3	50	200			
IS: Perylene-d12	4.00		4.000		71.4	50	200			
IS: Phenanthrene-d10	4.00		4.000		61.7	50	200			
Surr: 2-Fluorobiphenyl	0.814		1.000		81.4	46	115			
Surr: 4-Terphenyl-d14	0.720		1.000		72.0	58	133			

Sample ID **1605096-52AMS**	Batch ID: **75160**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 6:26:00 PM**	Prep Date: **5/15/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.08	0.0933	0.9328	0.3629	77.0	44	111			
Acenaphthylene	0.844	0.0933	0.9328	0	90.4	39	116			
Anthracene	1.91	0.0933	0.9328	1.752	17.5	50	114			S
Benzo[a]anthracene	9.58	0.0933	0.9328	10.82	-133	54	122			S
Benzo[a]pyrene	11.7	0.0933	0.9328	12.42	-72.1	50	125			S
Benzo[b]fluoranthene	11.4	0.0933	0.9328	11.89	-50.2	53	128			S
Benzo[e]pyrene	9.42	0.0933	0.9328	9.619	-21.2	43	140			S
Benzo[g,h,i]perylene	9.08	0.0933	0.9328	9.147	-6.62	49	127			S
Benzo[j]fluoranthene	6.39	0.0933	0.9328	6.354	4.35	45	125			SN
Benzo[k]fluoranthene	6.13	0.0933	0.9328	6.046	9.19	56	123			S
Chrysene	11.5	0.0933	0.9328	12.66	-122	57	118			S
Dibenz[a,h]anthracene	2.66	0.0933	0.9328	2.105	59.8	50	129			
Fluoranthene	14.7	0.0933	0.9328	18.45	-400	55	119			S
Fluorene	0.992	0.0933	0.9328	0.2441	80.2	47	114			
Indeno[1,2,3-cd]pyrene	7.57	0.0933	0.9328	7.529	4.54	49	130			S
Phenanthrene	6.56	0.0933	0.9328	8.456	-203	49	113			S
Pyrene	12.6	0.0933	0.9328	15.40	-295	55	117			S
IS: Acenaphthene-d10	37.3		3.731		72.5	50	200			
IS: Chrysene-d12	37.3		3.731		70.0	50	200			
IS: Naphthalene-d8	37.3		3.731		108	50	200			
IS: Perylene-d12	37.3		3.731		72.1	50	200			
IS: Phenanthrene-d10	37.3		3.731		72.1	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160518A

Sample ID **1605096-52AMS**	Batch ID: **75160**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 6:26:00 PM**	Prep Date: **5/15/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.778		0.9328		83.4	46	115			
Surr: 4-Terphenyl-d14	0.658		0.9328		70.5	58	133			

Sample ID **1605096-52AMSD**	Batch ID: **75160**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 7:06:00 PM**	Prep Date: **5/15/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.10	0.0955	0.9551	0.3629	76.8	44	111	1.36	20	
Acenaphthylene	0.834	0.0955	0.9551	0	87.3	39	116	1.16	20	
Anthracene	2.48	0.0955	0.9551	1.752	76.0	50	114	25.6	20	R
Benzo[a]anthracene	11.9	0.0955	0.9551	10.82	114	54	122	21.7	20	R
Benzo[a]pyrene	13.7	0.0955	0.9551	12.42	130	50	125	15.1	20	S
Benzo[b]fluoranthene	13.4	0.0955	0.9551	11.89	153	53	128	15.6	20	S
Benzo[e]pyrene	10.9	0.0955	0.9551	9.619	133	43	140	14.5	20	
Benzo[g,h,i]perylene	10.5	0.0955	0.9551	9.147	144	49	127	14.6	20	S
Benzo[j]fluoranthene	7.46	0.0955	0.9551	6.354	115	45	125	15.3	20	N
Benzo[k]fluoranthene	7.30	0.0955	0.9551	6.046	131	56	123	17.4	20	S
Chrysene	13.8	0.0955	0.9551	12.66	123	57	118	18.2	20	S
Dibenz[a,h]anthracene	2.96	0.0955	0.9551	2.105	89.9	50	129	10.7	20	
Fluoranthene	20.1	0.0955	0.9551	18.45	175	55	119	31.0	20	SR
Fluorene	0.979	0.0955	0.9551	0.2441	76.9	47	114	1.36	20	
Indeno[1,2,3-cd]pyrene	8.77	0.0955	0.9551	7.529	130	49	130	14.6	20	
Phenanthrene	9.42	0.0955	0.9551	8.456	101	49	113	35.8	20	R
Pyrene	16.7	0.0955	0.9551	15.40	140	55	117	27.9	20	SR
IS: Acenaphthene-d10	38.2		3.820		73.8	50	200	0	0	
IS: Chrysene-d12	38.2		3.820		72.0	50	200	0	0	
IS: Naphthalene-d8	38.2		3.820		114	50	200	0	0	
IS: Perylene-d12	38.2		3.820		74.3	50	200	0	0	
IS: Phenanthrene-d10	38.2		3.820		73.6	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.787		0.9551		82.4	46	115	0	0	
Surr: 4-Terphenyl-d14	0.661		0.9551		69.2	58	133	0	0	

Sample ID **SBLK-160518**	Batch ID: **75160**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 9:02:00 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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160518A

Sample ID **SBLK-160518**	Batch ID: **75160**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 9:02:00 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	0.000370		0							
Surr: 4-Terphenyl-d14	0.000330		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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160518A

Sample ID **ICV-160518**	Batch ID: **R85874**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 9:10:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.97	0.0100	2.000	0	98.5	80	120			
Acenaphthylene	2.09	0.0100	2.000	0	105	80	120			
Anthracene	1.85	0.0100	2.000	0	92.3	80	120			
Benzo[a]anthracene	1.96	0.0100	2.000	0	98.2	80	120			
Benzo[a]pyrene	1.89	0.0100	2.000	0	94.4	80	120			
Benzo[b]fluoranthene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[e]pyrene	1.85	0.0100	2.000	0	92.6	80	120			
Benzo[g,h,i]perylene	1.82	0.0100	2.000	0	91.1	80	120			
Benzo[j]fluoranthene	1.87	0.0100	2.000	0	93.7	80	120			N
Benzo[k]fluoranthene	1.87	0.0100	2.000	0	93.5	80	120			
Chrysene	1.87	0.0100	2.000	0	93.5	80	120			
Dibenz[a,h]anthracene	1.83	0.0100	2.000	0	91.4	80	120			
Fluoranthene	1.91	0.0100	2.000	0	95.5	80	120			
Fluorene	2.10	0.0100	2.000	0	105	80	120			
Indeno[1,2,3-cd]pyrene	1.78	0.0100	2.000	0	89.0	80	120			
Phenanthrene	1.89	0.0100	2.000	0	94.5	80	120			
Pyrene	1.85	0.0100	2.000	0	92.7	80	120			
IS: Acenaphthene-d10	4.00		4.000		89.6	50	200			
IS: Chrysene-d12	4.00		4.000		95.5	50	200			
IS: Naphthalene-d8	4.00		4.000		142	50	200			
IS: Perylene-d12	4.00		4.000		98.7	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.0	50	200			
Surr: 2-Fluorobiphenyl	2.01		2.000		101	65	120			
Surr: 4-Terphenyl-d14	1.79		2.000		89.7	65	120			

Sample ID **ICV2-160518**	Batch ID: **R85874**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 8:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.95	0.0100	2.000	0	97.7	80	120			
Acenaphthylene	2.05	0.0100	2.000	0	102	80	120			
Anthracene	1.85	0.0100	2.000	0	92.3	80	120			
Benzo[a]anthracene	1.96	0.0100	2.000	0	98.0	80	120			
Benzo[a]pyrene	1.88	0.0100	2.000	0	94.2	80	120			
Benzo[b]fluoranthene	1.91	0.0100	2.000	0	95.5	80	120			
Benzo[e]pyrene	1.85	0.0100	2.000	0	92.7	80	120			
Benzo[g,h,i]perylene	1.81	0.0100	2.000	0	90.7	80	120			
Benzo[j]fluoranthene	1.89	0.0100	2.000	0	94.5	80	120			N
Benzo[k]fluoranthene	1.88	0.0100	2.000	0	94.0	80	120			
Chrysene	1.87	0.0100	2.000	0	93.5	80	120			
Dibenz[a,h]anthracene	1.83	0.0100	2.000	0	91.4	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160518A

Sample ID **ICV2-160518**	Batch ID: **R85874**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160518A**	Analysis Date: **5/18/2016 8:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.97	0.0100	2.000	0	98.7	80	120			
Fluorene	2.02	0.0100	2.000	0	101	80	120			
Indeno[1,2,3-cd]pyrene	1.78	0.0100	2.000	0	88.9	80	120			
Phenanthrene	1.88	0.0100	2.000	0	93.9	80	120			
Pyrene	1.90	0.0100	2.000	0	95.1	80	120			
IS: Acenaphthene-d10	4.00		4.000		90.8	50	200			
IS: Chrysene-d12	4.00		4.000		94.8	50	200			
IS: Naphthalene-d8	4.00		4.000		149	50	200			
IS: Perylene-d12	4.00		4.000		95.7	50	200			
IS: Phenanthrene-d10	4.00		4.000		94.7	50	200			
Surr: 2-Fluorobiphenyl	2.07		2.000		103	65	120			
Surr: 4-Terphenyl-d14	1.87		2.000		93.4	65	120			

Sample ID **CCV-160518**	Batch ID: **R85874**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160518A**	Analysis Date: **5/19/2016 3:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.933	0.0100	1.000	0	93.3	50	150			
Acenaphthylene	1.01	0.0100	1.000	0	101	50	150			
Anthracene	0.963	0.0100	1.000	0	96.3	50	150			
Benzo[a]anthracene	0.956	0.0100	1.000	0	95.6	50	150			
Benzo[a]pyrene	0.919	0.0100	1.000	0	91.9	50	150			
Benzo[b]fluoranthene	0.945	0.0100	1.000	0	94.5	50	150			
Benzo[e]pyrene	0.954	0.0100	1.000	0	95.4	50	150			
Benzo[g,h,i]perylene	0.895	0.0100	1.000	0	89.5	50	150			
Benzo[j]fluoranthene	0.961	0.0100	1.000	0	96.1	50	150			N
Benzo[k]fluoranthene	0.939	0.0100	1.000	0	93.9	50	150			
Chrysene	0.901	0.0100	1.000	0	90.1	50	150			
Dibenz[a,h]anthracene	0.880	0.0100	1.000	0	88.0	50	150			
Fluoranthene	0.976	0.0100	1.000	0	97.6	50	150			
Fluorene	0.953	0.0100	1.000	0	95.3	50	150			
Indeno[1,2,3-cd]pyrene	0.854	0.0100	1.000	0	85.4	50	150			
Phenanthrene	0.928	0.0100	1.000	0	92.8	50	150			
Pyrene	0.938	0.0100	1.000	0	93.8	50	150			
IS: Acenaphthene-d10	4.00		4.000		70.9	50	200			
IS: Chrysene-d12	4.00		4.000		71.8	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		72.2	50	200			
IS: Phenanthrene-d10	4.00		4.000		70.7	50	200			
Surr: 2-Fluorobiphenyl	1.09		1.000		109	50	150			
Surr: 4-Terphenyl-d14	0.936		1.000		93.6	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160519A

The QC data in batch 75161 applies to the following samples: 1605096-68A, 1605096-69A, 1605096-70A, 1605096-71A, 1605096-72A, 1605096-73A, 1605096-74A

Sample ID **LCS-75161** Batch ID: **75161** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160519A** Analysis Date: **5/19/2016 9:43:00 AM** Prep Date: **5/15/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.810	0.0100	1.000	0	81.0	44	111			
Acenaphthylene	0.857	0.0100	1.000	0	85.7	39	116			
Anthracene	0.846	0.0100	1.000	0	84.6	50	114			
Benzo[a]anthracene	0.894	0.0100	1.000	0	89.4	54	122			
Benzo[a]pyrene	0.831	0.0100	1.000	0	83.1	50	125			
Benzo[b]fluoranthene	0.868	0.0100	1.000	0	86.8	53	128			
Benzo[e]pyrene	0.876	0.0100	1.000	0	87.6	43	140			
Benzo[g,h,i]perylene	0.839	0.0100	1.000	0	83.9	49	127			
Benzo[j]fluoranthene	0.869	0.0100	1.000	0	86.9	45	125			N
Benzo[k]fluoranthene	0.879	0.0100	1.000	0	87.9	56	123			
Chrysene	0.855	0.0100	1.000	0	85.5	57	118			
Dibenz[a,h]anthracene	0.816	0.0100	1.000	0	81.6	50	129			
Fluoranthene	0.927	0.0100	1.000	0	92.7	55	119			
Fluorene	0.814	0.0100	1.000	0	81.4	47	114			
Indeno[1,2,3-cd]pyrene	0.794	0.0100	1.000	0	79.4	49	130			
Phenanthrene	0.826	0.0100	1.000	0	82.6	49	113			
Pyrene	0.904	0.0100	1.000	0	90.4	55	117			
IS: Acenaphthene-d10	4.00		4.000		58.1	50	200			
IS: Chrysene-d12	4.00		4.000		62.7	50	200			
IS: Naphthalene-d8	4.00		4.000		99.8	50	200			
IS: Perylene-d12	4.00		4.000		67.1	50	200			
IS: Phenanthrene-d10	4.00		4.000		54.9	50	200			
Surr: 2-Fluorobiphenyl	0.817		1.000		81.7	46	115			
Surr: 4-Terphenyl-d14	0.734		1.000		73.4	58	133			

Sample ID **MB-75161** Batch ID: **75161** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160519A** Analysis Date: **5/19/2016 10:27:00 AM** Prep Date: **5/15/2016**

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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160519A

Sample ID **MB-75161**	Batch ID: **75161**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160519A**	Analysis Date: **5/19/2016 10:27:00 AM**	Prep Date: **5/15/2016**

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		57.5	50	200			
IS: Chrysene-d12	4.00		4.000		58.7	50	200			
IS: Naphthalene-d8	4.00		4.000		97.4	50	200			
IS: Perylene-d12	4.00		4.000		60.7	50	200			
IS: Phenanthrene-d10	4.00		4.000		55.4	50	200			
Surr: 2-Fluorobiphenyl	0.813		1.000		81.3	46	115			
Surr: 4-Terphenyl-d14	0.718		1.000		71.8	58	133			

Sample ID **1605097-03AMS**	Batch ID: **75161**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160519A**	Analysis Date: **5/19/2016 5:47:00 PM**	Prep Date: **5/15/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.700	0.0977	0.9766	0	71.7	44	111			
Acenaphthylene	0.729	0.0977	0.9766	0	74.6	39	116			
Anthracene	0.770	0.0977	0.9766	0	78.8	50	114			
Benzo[a]anthracene	0.774	0.0977	0.9766	0	79.3	54	122			
Benzo[a]pyrene	0.745	0.0977	0.9766	0	76.3	50	125			
Benzo[b]fluoranthene	0.784	0.0977	0.9766	0	80.3	53	128			
Benzo[e]pyrene	0.868	0.0977	0.9766	0	88.8	43	140			
Benzo[g,h,i]perylene	0.725	0.0977	0.9766	0	74.3	49	127			
Benzo[j]fluoranthene	0.829	0.0977	0.9766	0	84.9	45	125			N
Benzo[k]fluoranthene	0.782	0.0977	0.9766	0	80.1	56	123			
Chrysene	0.772	0.0977	0.9766	0	79.1	57	118			
Dibenz[a,h]anthracene	0.703	0.0977	0.9766	0	71.9	50	129			
Fluoranthene	0.811	0.0977	0.9766	0	83.0	55	119			
Fluorene	0.708	0.0977	0.9766	0	72.5	47	114			
Indeno[1,2,3-cd]pyrene	0.695	0.0977	0.9766	0	71.2	49	130			
Phenanthrene	0.771	0.0977	0.9766	0	78.9	49	113			
Pyrene	0.808	0.0977	0.9766	0	82.8	55	117			
IS: Acenaphthene-d10	39.1		3.906		68.3	50	200			
IS: Chrysene-d12	39.1		3.906		67.4	50	200			
IS: Naphthalene-d8	39.1		3.906		110	50	200			
IS: Perylene-d12	39.1		3.906		67.6	50	200			
IS: Phenanthrene-d10	39.1		3.906		65.1	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160519A

Sample ID **1605097-03AMS**	Batch ID: **75161**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160519A**	Analysis Date: **5/19/2016 5:47:00 PM**	Prep Date: **5/15/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.830		0.9766		85.0	46	115			
Surr: 4-Terphenyl-d14	0.750		0.9766		76.8	58	133			

Sample ID **1605097-03AMSD**	Batch ID: **75161**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160519A**	Analysis Date: **5/19/2016 6:27:00 PM**	Prep Date: **5/15/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.688	0.0945	0.9452	0	72.8	44	111	1.69	20	
Acenaphthylene	0.717	0.0945	0.9452	0	75.9	39	116	1.53	20	
Anthracene	0.728	0.0945	0.9452	0	77.0	50	114	5.61	20	
Benzo[a]anthracene	0.747	0.0945	0.9452	0	79.1	54	122	3.54	20	
Benzo[a]pyrene	0.713	0.0945	0.9452	0	75.4	50	125	4.40	20	
Benzo[b]fluoranthene	0.740	0.0945	0.9452	0	78.2	53	128	5.84	20	
Benzo[e]pyrene	0.830	0.0945	0.9452	0	87.8	43	140	4.43	20	
Benzo[g,h,i]perylene	0.686	0.0945	0.9452	0	72.6	49	127	5.61	20	
Benzo[j]fluoranthene	0.791	0.0945	0.9452	0	83.7	45	125	4.61	20	N
Benzo[k]fluoranthene	0.747	0.0945	0.9452	0	79.1	56	123	4.52	20	
Chrysene	0.734	0.0945	0.9452	0	77.6	57	118	5.08	20	
Dibenz[a,h]anthracene	0.667	0.0945	0.9452	0	70.6	50	129	5.16	20	
Fluoranthene	0.760	0.0945	0.9452	0	80.4	55	119	6.43	20	
Fluorene	0.682	0.0945	0.9452	0	72.2	47	114	3.72	20	
Indeno[1,2,3-cd]pyrene	0.657	0.0945	0.9452	0	69.5	49	130	5.61	20	
Phenanthrene	0.729	0.0945	0.9452	0	77.2	49	113	5.55	20	
Pyrene	0.749	0.0945	0.9452	0	79.3	55	117	7.59	20	
IS: Acenaphthene-d10	37.8		3.781		69.2	50	200	0	0	
IS: Chrysene-d12	37.8		3.781		67.3	50	200	0	0	
IS: Naphthalene-d8	37.8		3.781		111	50	200	0	0	
IS: Perylene-d12	37.8		3.781		67.9	50	200	0	0	
IS: Phenanthrene-d10	37.8		3.781		66.1	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.832		0.9452		88.1	46	115	0	0	
Surr: 4-Terphenyl-d14	0.699		0.9452		73.9	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160519A

Sample ID **ICV-160519**	Batch ID: **R85896**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160519A**	Analysis Date: **5/19/2016 9:03:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	97.9	80	120			
Acenaphthylene	2.09	0.0100	2.000	0	104	80	120			
Anthracene	1.83	0.0100	2.000	0	91.6	80	120			
Benzo[a]anthracene	1.96	0.0100	2.000	0	97.9	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	94.8	80	120			
Benzo[b]fluoranthene	1.94	0.0100	2.000	0	97.1	80	120			
Benzo[e]pyrene	1.85	0.0100	2.000	0	92.7	80	120			
Benzo[g,h,i]perylene	1.83	0.0100	2.000	0	91.6	80	120			
Benzo[j]fluoranthene	1.90	0.0100	2.000	0	95.1	80	120			N
Benzo[k]fluoranthene	1.92	0.0100	2.000	0	96.2	80	120			
Chrysene	1.84	0.0100	2.000	0	92.0	80	120			
Dibenz[a,h]anthracene	1.83	0.0100	2.000	0	91.6	80	120			
Fluoranthene	1.95	0.0100	2.000	0	97.4	80	120			
Fluorene	2.02	0.0100	2.000	0	101	80	120			
Indeno[1,2,3-cd]pyrene	1.77	0.0100	2.000	0	88.7	80	120			
Phenanthrene	1.88	0.0100	2.000	0	93.9	80	120			
Pyrene	1.89	0.0100	2.000	0	94.6	80	120			
IS: Acenaphthene-d10	4.00		4.000		87.3	50	200			
IS: Chrysene-d12	4.00		4.000		91.7	50	200			
IS: Naphthalene-d8	4.00		4.000		145	50	200			
IS: Perylene-d12	4.00		4.000		91.7	50	200			
IS: Phenanthrene-d10	4.00		4.000		90.9	50	200			
Surr: 2-Fluorobiphenyl	2.07		2.000		104	65	120			
Surr: 4-Terphenyl-d14	1.86		2.000		92.9	65	120			

Sample ID **ICV2-160519**	Batch ID: **R85896**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160519A**	Analysis Date: **5/19/2016 7:44:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.94	0.0100	2.000	0	97.1	80	120			
Acenaphthylene	2.10	0.0100	2.000	0	105	80	120			
Anthracene	1.82	0.0100	2.000	0	91.2	80	120			
Benzo[a]anthracene	1.98	0.0100	2.000	0	98.8	80	120			
Benzo[a]pyrene	1.89	0.0100	2.000	0	94.5	80	120			
Benzo[b]fluoranthene	1.94	0.0100	2.000	0	97.2	80	120			
Benzo[e]pyrene	1.88	0.0100	2.000	0	93.9	80	120			
Benzo[g,h,i]perylene	1.79	0.0100	2.000	0	89.4	80	120			
Benzo[j]fluoranthene	1.90	0.0100	2.000	0	95.1	80	120			N
Benzo[k]fluoranthene	1.92	0.0100	2.000	0	96.0	80	120			
Chrysene	1.86	0.0100	2.000	0	92.9	80	120			
Dibenz[a,h]anthracene	1.79	0.0100	2.000	0	89.5	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160519A

Sample ID **ICV2-160519**	Batch ID: **R85896**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160519A**	Analysis Date: **5/19/2016 7:44:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.94	0.0100	2.000	0	97.2	80	120			
Fluorene	2.01	0.0100	2.000	0	101	80	120			
Indeno[1,2,3-cd]pyrene	1.74	0.0100	2.000	0	87.1	80	120			
Phenanthrene	1.88	0.0100	2.000	0	94.0	80	120			
Pyrene	1.87	0.0100	2.000	0	93.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		90.3	50	200			
IS: Chrysene-d12	4.00		4.000		92.0	50	200			
IS: Naphthalene-d8	4.00		4.000		144	50	200			
IS: Perylene-d12	4.00		4.000		92.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		93.2	50	200			
Surr: 2-Fluorobiphenyl	2.04		2.000		102	65	120			
Surr: 4-Terphenyl-d14	1.84		2.000		92.2	65	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160510B

Sample ID **DCS-74876**	Batch ID: **74876**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS8_160510B**	Analysis Date: **5/11/2016 4:29:00 AM**	Prep Date: **4/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0113	0.0100	0.01000	0	113	20	200	0	0	
Acenaphthylene	0.0116	0.0100	0.01000	0	116	20	200	0	0	
Anthracene	0.0104	0.0100	0.01000	0	104	20	200	0	0	
Benzo[a]anthracene	0.0111	0.0100	0.01000	0	111	20	200	0	0	
Benzo[a]pyrene	0.0100	0.0100	0.01000	0	100	20	200	0	0	
Benzo[b]fluoranthene	0.0105	0.0100	0.01000	0	105	20	200	0	0	
Benzo[e]pyrene	0.0110	0.0100	0.01000	0	110	20	200	0	0	
Benzo[g,h,i]perylene	0.0110	0.0100	0.01000	0	110	20	200	0	0	
Benzo[j]fluoranthene	0.0106	0.0100	0.01000	0	106	20	200	0	0	N
Benzo[k]fluoranthene	0.0104	0.0100	0.01000	0	104	20	200	0	0	
Chrysene	0.0118	0.0100	0.01000	0	118	20	200	0	0	
Dibenz[a,h]anthracene	0.0119	0.0100	0.01000	0	119	20	200	0	0	
Fluoranthene	0.0133	0.0100	0.01000	0	133	20	200	0	0	
Fluorene	0.0102	0.0100	0.01000	0	102	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.0107	0.0100	0.01000	0	107	20	200	0	0	
Phenanthrene	0.0127	0.0100	0.01000	0	127	20	200	0	0	
Pyrene	0.0133	0.0100	0.01000	0	133	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160513A

The QC data in batch 75151 applies to the following samples: 1605096-01A, 1605096-02A, 1605096-03A, 1605096-13A, 1605096-14A, 1605096-15A, 1605096-16A, 1605096-17A, 1605096-18A, 1605096-19A, 1605096-20A, 1605096-21A, 1605096-22A, 1605096-23A, 1605096-24A

Sample ID **LCS-75151** Batch ID: **75151** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160513A** Analysis Date: **5/14/2016 4:22:00 AM** Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.822	0.0100	1.000	0	82.2	44	111			
Acenaphthylene	0.841	0.0100	1.000	0	84.1	39	116			
Anthracene	0.793	0.0100	1.000	0	79.3	50	114			
Benzo[a]anthracene	0.887	0.0100	1.000	0	88.7	54	122			
Benzo[a]pyrene	0.881	0.0100	1.000	0	88.1	50	125			
Benzo[b]fluoranthene	0.911	0.0100	1.000	0	91.1	53	128			
Benzo[e]pyrene	0.880	0.0100	1.000	0	88.0	43	140			
Benzo[g,h,i]perylene	0.964	0.0100	1.000	0	96.4	49	127			
Benzo[j]fluoranthene	0.951	0.0100	1.000	0	95.1	45	125			N
Benzo[k]fluoranthene	1.04	0.0100	1.000	0	104	56	123			
Chrysene	0.900	0.0100	1.000	0	90.0	57	118			
Dibenz[a,h]anthracene	1.01	0.0100	1.000	0	101	50	129			
Fluoranthene	0.851	0.0100	1.000	0	85.1	55	119			
Fluorene	0.738	0.0100	1.000	0	73.8	47	114			
Indeno[1,2,3-cd]pyrene	0.985	0.0100	1.000	0	98.5	49	130			
Phenanthrene	0.857	0.0100	1.000	0	85.7	49	113			
Pyrene	0.844	0.0100	1.000	0	84.4	55	117			
IS: Acenaphthene-d10	4.00		4.000		102	50	200			
IS: Chrysene-d12	4.00		4.000		86.8	50	200			
IS: Naphthalene-d8	4.00		4.000		104	50	200			
IS: Perylene-d12	4.00		4.000		92.0	50	200			
IS: Phenanthrene-d10	4.00		4.000		80.6	50	200			
Surr: 2-Fluorobiphenyl	0.800		1.000		80.0	46	115			
Surr: 4-Terphenyl-d14	0.800		1.000		80.0	58	133			

Sample ID **MB-75151** Batch ID: **75151** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160513A** Analysis Date: **5/14/2016 5:00:00 AM** Prep Date: **5/13/2016**

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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160513A

Sample ID **MB-75151**	Batch ID: **75151**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160513A**	Analysis Date: **5/14/2016 5:00:00 AM**	Prep Date: **5/13/2016**

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		100	50	200			
IS: Chrysene-d12	4.00		4.000		88.8	50	200			
IS: Naphthalene-d8	4.00		4.000		102	50	200			
IS: Perylene-d12	4.00		4.000		98.7	50	200			
IS: Phenanthrene-d10	4.00		4.000		79.0	50	200			
Surr: 2-Fluorobiphenyl	0.777		1.000		77.7	46	115			
Surr: 4-Terphenyl-d14	0.771		1.000		77.1	58	133			

Sample ID **1605096-14AMS**	Batch ID: **75151**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160513A**	Analysis Date: **5/14/2016 10:33:00 AM**	Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.900	0.0978	0.9775	0	92.1	44	111			
Acenaphthylene	0.895	0.0978	0.9775	0	91.5	39	116			
Anthracene	0.911	0.0978	0.9775	0.06435	86.7	50	114			
Benzo[a]anthracene	1.38	0.0978	0.9775	0.4604	94.2	54	122			
Benzo[a]pyrene	1.56	0.0978	0.9775	0.6222	95.9	50	125			
Benzo[b]fluoranthene	1.55	0.0978	0.9775	0.5931	97.4	53	128			
Benzo[e]pyrene	1.35	0.0978	0.9775	0.4568	91.6	43	140			
Benzo[g,h,i]perylene	1.58	0.0978	0.9775	0.5691	104	49	127			
Benzo[j]fluoranthene	1.25	0.0978	0.9775	0.3035	97.0	45	125			N
Benzo[k]fluoranthene	1.34	0.0978	0.9775	0.3441	102	56	123			
Chrysene	1.51	0.0978	0.9775	0.5960	93.4	57	118			
Dibenz[a,h]anthracene	1.15	0.0978	0.9775	0.1572	102	50	129			
Fluoranthene	1.44	0.0978	0.9775	0.6633	79.2	55	119			
Fluorene	0.893	0.0978	0.9775	0	91.3	47	114			
Indeno[1,2,3-cd]pyrene	1.49	0.0978	0.9775	0.4750	104	49	130			
Phenanthrene	1.19	0.0978	0.9775	0.2818	93.0	49	113			
Pyrene	1.32	0.0978	0.9775	0.5727	76.1	55	117			
IS: Acenaphthene-d10	39.1		3.910		113	50	200			
IS: Chrysene-d12	39.1		3.910		79.6	50	200			
IS: Naphthalene-d8	39.1		3.910		96.5	50	200			
IS: Perylene-d12	39.1		3.910		84.7	50	200			
IS: Phenanthrene-d10	39.1		3.910		96.2	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160513A

Sample ID **1605096-14AMS**	Batch ID: **75151**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160513A**	Analysis Date: **5/14/2016 10:33:00 AM**	Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.865		0.9775		88.5	46	115			
Surr: 4-Terphenyl-d14	0.879		0.9775		89.9	58	133			

Sample ID **1605096-14AMSD**	Batch ID: **75151**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160513A**	Analysis Date: **5/14/2016 11:10:00 AM**	Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.889	0.0976	0.9756	0	91.1	44	111	1.25	20	
Acenaphthylene	0.887	0.0976	0.9756	0	90.9	39	116	0.908	20	
Anthracene	0.901	0.0976	0.9756	0.06435	85.8	50	114	1.13	20	
Benzo[a]anthracene	1.37	0.0976	0.9756	0.4604	93.7	54	122	0.486	20	
Benzo[a]pyrene	1.54	0.0976	0.9756	0.6222	94.2	50	125	1.18	20	
Benzo[b]fluoranthene	1.52	0.0976	0.9756	0.5931	95.4	53	128	1.43	20	
Benzo[e]pyrene	1.33	0.0976	0.9756	0.4568	89.7	43	140	1.56	20	
Benzo[g,h,i]perylene	1.54	0.0976	0.9756	0.5691	100	49	127	2.35	20	
Benzo[j]fluoranthene	1.24	0.0976	0.9756	0.3035	96.1	45	125	0.830	20	N
Benzo[k]fluoranthene	1.32	0.0976	0.9756	0.3441	100	56	123	1.26	20	
Chrysene	1.52	0.0976	0.9756	0.5960	94.5	57	118	0.560	20	
Dibenz[a,h]anthracene	1.13	0.0976	0.9756	0.1572	99.7	50	129	2.13	20	
Fluoranthene	1.47	0.0976	0.9756	0.6633	82.6	55	119	2.20	20	
Fluorene	0.874	0.0976	0.9756	0	89.6	47	114	2.12	20	
Indeno[1,2,3-cd]pyrene	1.46	0.0976	0.9756	0.4750	101	49	130	2.18	20	
Phenanthrene	1.20	0.0976	0.9756	0.2818	94.1	49	113	0.736	20	
Pyrene	1.35	0.0976	0.9756	0.5727	79.5	55	117	2.45	20	
IS: Acenaphthene-d10	39.0		3.902		115	50	200	0	0	
IS: Chrysene-d12	39.0		3.902		80.6	50	200	0	0	
IS: Naphthalene-d8	39.0		3.902		97.9	50	200	0	0	
IS: Perylene-d12	39.0		3.902		85.7	50	200	0	0	
IS: Phenanthrene-d10	39.0		3.902		96.3	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.870		0.9756		89.2	46	115	0	0	
Surr: 4-Terphenyl-d14	0.861		0.9756		88.3	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160513A

Sample ID **ICV-160513**	Batch ID: **R85824**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160513A**	Analysis Date: **5/13/2016 2:14:00 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	2.00	0.0100	2.000	0	99.9	80	120			
Anthracene	1.80	0.0100	2.000	0	90.1	80	120			
Benzo[a]anthracene	1.94	0.0100	2.000	0	97.0	80	120			
Benzo[a]pyrene	2.01	0.0100	2.000	0	101	80	120			
Benzo[b]fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Benzo[e]pyrene	1.94	0.0100	2.000	0	96.8	80	120			
Benzo[g,h,i]perylene	2.02	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	2.15	0.0100	2.000	0	107	80	120			N
Benzo[k]fluoranthene	2.30	0.0100	2.000	0	115	80	120			
Chrysene	1.94	0.0100	2.000	0	97.1	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			
Fluoranthene	2.04	0.0100	2.000	0	102	80	120			
Fluorene	1.72	0.0100	2.000	0	85.8	80	120			
Indeno[1,2,3-cd]pyrene	2.07	0.0100	2.000	0	103	80	120			
Phenanthrene	1.88	0.0100	2.000	0	93.8	80	120			
Pyrene	2.07	0.0100	2.000	0	104	80	120			
IS: Acenaphthene-d10	4.00		4.000		87.5	50	200			
IS: Chrysene-d12	4.00		4.000		94.4	50	200			
IS: Naphthalene-d8	4.00		4.000		94.0	50	200			
IS: Perylene-d12	4.00		4.000		95.1	50	200			
IS: Phenanthrene-d10	4.00		4.000		78.6	50	200			
Surr: 2-Fluorobiphenyl	1.94		2.000		97.1	65	120			
Surr: 4-Terphenyl-d14	1.92		2.000		96.2	65	120			

Sample ID **ICV2-160513**	Batch ID: **R85824**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160513A**	Analysis Date: **5/14/2016 1:17:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.99	0.0100	2.000	0	99.6	80	120			
Acenaphthylene	2.02	0.0100	2.000	0	101	80	120			
Anthracene	1.82	0.0100	2.000	0	91.1	80	120			
Benzo[a]anthracene	1.94	0.0100	2.000	0	96.8	80	120			
Benzo[a]pyrene	1.99	0.0100	2.000	0	99.5	80	120			
Benzo[b]fluoranthene	1.99	0.0100	2.000	0	99.5	80	120			
Benzo[e]pyrene	1.93	0.0100	2.000	0	96.3	80	120			
Benzo[g,h,i]perylene	2.11	0.0100	2.000	0	105	80	120			
Benzo[j]fluoranthene	2.12	0.0100	2.000	0	106	80	120			N
Benzo[k]fluoranthene	2.24	0.0100	2.000	0	112	80	120			
Chrysene	1.96	0.0100	2.000	0	97.9	80	120			
Dibenz[a,h]anthracene	2.19	0.0100	2.000	0	110	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160513A

Sample ID **ICV2-160513**	Batch ID: **R85824**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160513A**	Analysis Date: **5/14/2016 1:17:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.75	0.0100	2.000	0	87.7	80	120			
Fluorene	1.90	0.0100	2.000	0	94.8	80	120			
Indeno[1,2,3-cd]pyrene	2.14	0.0100	2.000	0	107	80	120			
Phenanthrene	1.92	0.0100	2.000	0	95.9	80	120			
Pyrene	1.74	0.0100	2.000	0	86.9	80	120			
IS: Acenaphthene-d10	4.00		4.000		93.4	50	200			
IS: Chrysene-d12	4.00		4.000		83.2	50	200			
IS: Naphthalene-d8	4.00		4.000		92.3	50	200			
IS: Perylene-d12	4.00		4.000		86.1	50	200			
IS: Phenanthrene-d10	4.00		4.000		89.4	50	200			
Surr: 2-Fluorobiphenyl	2.01		2.000		101	65	120			
Surr: 4-Terphenyl-d14	2.00		2.000		100	65	120			

Sample ID **ICV3-160513**	Batch ID: **R85824**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160513A**	Analysis Date: **5/14/2016 12:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.01	0.0100	2.000	0	100	50	150			
Acenaphthylene	2.02	0.0100	2.000	0	101	50	150			
Anthracene	1.80	0.0100	2.000	0	90.0	50	150			
Benzo[a]anthracene	1.95	0.0100	2.000	0	97.5	50	150			
Benzo[a]pyrene	2.00	0.0100	2.000	0	100	50	150			
Benzo[b]fluoranthene	2.00	0.0100	2.000	0	99.9	50	150			
Benzo[e]pyrene	1.95	0.0100	2.000	0	97.4	50	150			
Benzo[g,h,i]perylene	2.17	0.0100	2.000	0	108	50	150			
Benzo[j]fluoranthene	2.11	0.0100	2.000	0	106	50	150			N
Benzo[k]fluoranthene	2.23	0.0100	2.000	0	112	50	150			
Chrysene	1.97	0.0100	2.000	0	98.3	50	150			
Dibenz[a,h]anthracene	2.24	0.0100	2.000	0	112	50	150			
Fluoranthene	1.61	0.0100	2.000	0	80.4	50	150			
Fluorene	1.95	0.0100	2.000	0	97.3	50	150			
Indeno[1,2,3-cd]pyrene	2.20	0.0100	2.000	0	110	50	150			
Phenanthrene	1.93	0.0100	2.000	0	96.4	50	150			
Pyrene	1.57	0.0100	2.000	0	78.4	50	150			
IS: Acenaphthene-d10	4.00		4.000		105	50	200			
IS: Chrysene-d12	4.00		4.000		81.0	50	200			
IS: Naphthalene-d8	4.00		4.000		92.8	50	200			
IS: Perylene-d12	4.00		4.000		85.6	50	200			
IS: Phenanthrene-d10	4.00		4.000		95.7	50	200			
Surr: 2-Fluorobiphenyl	2.12		2.000		106	50	150			
Surr: 4-Terphenyl-d14	2.00		2.000		100	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160516A

The QC data in batch 75151 applies to the following samples: 1605096-01A, 1605096-02A, 1605096-03A, 1605096-13A, 1605096-14A, 1605096-15A, 1605096-16A, 1605096-17A, 1605096-18A, 1605096-19A, 1605096-20A, 1605096-21A, 1605096-22A, 1605096-23A, 1605096-24A

Sample ID **SBLK-160516** Batch ID: **75151** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **SBLK** Run ID: **GCMS8_160516A** Analysis Date: **5/16/2016 3:35:00 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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160516A

Sample ID **ICV-160516**	Batch ID: **R85841**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160516A**	Analysis Date: **5/16/2016 1:44:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.89	0.0100	2.000	0	94.4	80	120			
Acenaphthylene	1.93	0.0100	2.000	0	96.4	80	120			
Anthracene	1.72	0.0100	2.000	0	85.9	80	120			
Benzo[a]anthracene	1.89	0.0100	2.000	0	94.7	80	120			
Benzo[a]pyrene	1.93	0.0100	2.000	0	96.3	80	120			
Benzo[b]fluoranthene	1.93	0.0100	2.000	0	96.3	80	120			
Benzo[e]pyrene	1.88	0.0100	2.000	0	93.9	80	120			
Benzo[g,h,i]perylene	1.98	0.0100	2.000	0	98.9	80	120			
Benzo[j]fluoranthene	2.06	0.0100	2.000	0	103	80	120			N
Benzo[k]fluoranthene	2.17	0.0100	2.000	0	108	80	120			
Chrysene	1.89	0.0100	2.000	0	94.4	80	120			
Dibenz[a,h]anthracene	2.08	0.0100	2.000	0	104	80	120			
Fluoranthene	1.63	0.0100	2.000	0	81.6	80	120			
Fluorene	1.76	0.0100	2.000	0	87.8	80	120			
Indeno[1,2,3-cd]pyrene	2.03	0.0100	2.000	0	101	80	120			
Phenanthrene	1.82	0.0100	2.000	0	91.2	80	120			
Pyrene	1.60	0.0100	2.000	0	80.2	80	120			
IS: Acenaphthene-d10	4.00		4.000		110	50	200			
IS: Chrysene-d12	4.00		4.000		89.1	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		93.2	50	200			
IS: Phenanthrene-d10	4.00		4.000		95.5	50	200			
Surr: 2-Fluorobiphenyl	1.96		2.000		97.9	65	120			
Surr: 4-Terphenyl-d14	1.86		2.000		93.2	65	120			

Sample ID **CCV-160516**	Batch ID: **R85841**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160516A**	Analysis Date: **5/16/2016 11:33:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.02	0.0100	1.000	0	102	50	150			
Acenaphthylene	1.04	0.0100	1.000	0	104	50	150			
Anthracene	0.937	0.0100	1.000	0	93.7	50	150			
Benzo[a]anthracene	0.995	0.0100	1.000	0	99.5	50	150			
Benzo[a]pyrene	1.00	0.0100	1.000	0	100	50	150			
Benzo[b]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Benzo[e]pyrene	0.982	0.0100	1.000	0	98.2	50	150			
Benzo[g,h,i]perylene	1.06	0.0100	1.000	0	106	50	150			
Benzo[j]fluoranthene	1.08	0.0100	1.000	0	108	50	150			N
Benzo[k]fluoranthene	1.14	0.0100	1.000	0	114	50	150			
Chrysene	0.996	0.0100	1.000	0	99.6	50	150			
Dibenz[a,h]anthracene	1.12	0.0100	1.000	0	112	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160516A

Sample ID **CCV-160516**	Batch ID: **R85841**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160516A**	Analysis Date: **5/16/2016 11:33:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.862	0.0100	1.000	0	86.2	50	150			
Fluorene	0.967	0.0100	1.000	0	96.7	50	150			
Indeno[1,2,3-cd]pyrene	1.09	0.0100	1.000	0	109	50	150			
Phenanthrene	0.997	0.0100	1.000	0	99.7	50	150			
Pyrene	0.836	0.0100	1.000	0	83.6	50	150			
IS: Acenaphthene-d10	4.00		4.000		118	50	200			
IS: Chrysene-d12	4.00		4.000		85.5	50	200			
IS: Naphthalene-d8	4.00		4.000		108	50	200			
IS: Perylene-d12	4.00		4.000		90.3	50	200			
IS: Phenanthrene-d10	4.00		4.000		96.0	50	200			
Surr: 2-Fluorobiphenyl	1.12		1.000		112	50	150			
Surr: 4-Terphenyl-d14	1.02		1.000		102	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518A

Sample ID **DCS-75209**	Batch ID: **75209**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS8_160518A**	Analysis Date: **5/18/2016 10:22:00 AM**	Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000307	0.0000500	0.0000400	0	76.8	20	170	0	0	
Acenaphthylene	0.0000308	0.0000500	0.0000400	0	77.0	20	170	0	0	
Anthracene	0.0000322	0.0000500	0.0000400	0	80.5	20	170	0	0	
Benzo[a]anthracene	0.0000306	0.0000500	0.0000400	0	76.4	20	170	0	0	
Benzo[a]pyrene	0.0000288	0.0000500	0.0000400	0	72.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000304	0.0000500	0.0000400	0	76.0	20	170	0	0	
Benzo[e]pyrene	0.0000308	0.0000500	0.0000400	0	76.9	20	170	0	0	
Benzo[g,h,i]perylene	0.0000282	0.0000500	0.0000400	0	70.4	20	170	0	0	
Benzo[j]fluoranthene	0.0000254	0.0000500	0.0000400	0	63.6	20	170	0	0	N
Benzo[k]fluoranthene	0.0000283	0.0000500	0.0000400	0	70.8	20	170	0	0	
Chrysene	0.0000293	0.0000500	0.0000400	0	73.4	20	170	0	0	
Dibenz[a,h]anthracene	0.0000221	0.0000500	0.0000400	0	55.2	20	170	0	0	
Fluoranthene	0.0000331	0.0000500	0.0000400	0	82.7	20	170	0	0	
Fluorene	0.0000302	0.0000500	0.0000400	0	75.4	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000275	0.0000500	0.0000400	0	68.8	20	170	0	0	
Phenanthrene	0.0000339	0.0000500	0.0000400	0	84.6	20	170	0	0	
Pyrene	0.0000328	0.0000500	0.0000400	0	81.9	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518B

The QC data in batch 75146 applies to the following samples: 1605096-36B, 1605096-37B, 1605096-44B

Sample ID **LCS-75146** Batch ID: **75146** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS8_160518B** Analysis Date: **5/18/2016 2:03:00 PM** Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00262	0.0000500	0.00400	0	65.5	48	114			
Acenaphthylene	0.00261	0.0000500	0.00400	0	65.4	35	121			
Anthracene	0.00247	0.0000500	0.00400	0	61.7	53	119			
Benzo[a]anthracene	0.00297	0.0000500	0.00400	0	74.3	59	120			
Benzo[a]pyrene	0.00301	0.0000500	0.00400	0	75.2	53	120			
Benzo[b]fluoranthene	0.00309	0.0000500	0.00400	0	77.3	53	126			
Benzo[e]pyrene	0.00295	0.0000500	0.00400	0	73.6	40	140			
Benzo[g,h,i]perylene	0.00300	0.0000500	0.00400	0	74.9	44	128			
Benzo[j]fluoranthene	0.00295	0.0000500	0.00400	0	73.8	45	124			N
Benzo[k]fluoranthene	0.00309	0.0000500	0.00400	0	77.1	54	125			
Chrysene	0.00298	0.0000500	0.00400	0	74.6	57	120			
Dibenz[a,h]anthracene	0.00302	0.0000500	0.00400	0	75.4	44	131			
Fluoranthene	0.00291	0.0000500	0.00400	0	72.7	58	120			
Fluorene	0.00272	0.0000500	0.00400	0	68.0	50	118			
Indeno[1,2,3-cd]pyrene	0.00300	0.0000500	0.00400	0	75.0	48	130			
Phenanthrene	0.00259	0.0000500	0.00400	0	64.8	53	115			
Pyrene	0.00292	0.0000500	0.00400	0	73.0	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		78.1	50	200			
IS: Chrysene-d12	0.00800		0.00800		77.8	50	200			
IS: Naphthalene-d8	0.00800		0.00800		81.0	50	200			
IS: Perylene-d12	0.00800		0.00800		76.7	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		78.1	50	200			
Surr: 2-Fluorobiphenyl	4.48		8.000		56.0	53	106			
Surr: 4-Terphenyl-d14	5.28		8.000		65.9	58	132			

Sample ID **MB-75146** Batch ID: **75146** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS8_160518B** Analysis Date: **5/18/2016 2:40:00 PM** Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518B

Sample ID **MB-75146**	Batch ID: **75146**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS8_160518B**	Analysis Date: **5/18/2016 2:40:00 PM**	Prep Date: **5/13/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		82.7	50	200			
IS: Chrysene-d12	0.00800		0.00800		85.3	50	200			
IS: Naphthalene-d8	0.00800		0.00800		85.3	50	200			
IS: Perylene-d12	0.00800		0.00800		85.3	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		84.3	50	200			
Surr: 2-Fluorobiphenyl	4.61		8.000		57.6	53	106			
Surr: 4-Terphenyl-d14	5.33		8.000		66.7	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518B

Sample ID **ICV-160518**	Batch ID: **R85875**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160518B**	Analysis Date: **5/18/2016 9:35:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.01	0.0000500	2.00	0	101	80	120			
Acenaphthylene	2.01	0.0000500	2.00	0	101	80	120			
Anthracene	1.88	0.0000500	2.00	0	93.9	80	120			
Benzo[a]anthracene	2.12	0.0000500	2.00	0	106	80	120			
Benzo[a]pyrene	2.11	0.0000500	2.00	0	106	80	120			
Benzo[b]fluoranthene	2.13	0.0000500	2.00	0	106	80	120			
Benzo[e]pyrene	2.12	0.0000500	2.00	0	106	80	120			
Benzo[g,h,i]perylene	2.11	0.0000500	2.00	0	105	80	120			
Benzo[j]fluoranthene	2.12	0.0000500	2.00	0	106	80	120			N
Benzo[k]fluoranthene	2.12	0.0000500	2.00	0	106	80	120			
Chrysene	2.11	0.0000500	2.00	0	106	80	120			
Dibenz[a,h]anthracene	2.11	0.0000500	2.00	0	105	80	120			
Fluoranthene	2.14	0.0000500	2.00	0	107	80	120			
Fluorene	2.02	0.0000500	2.00	0	101	80	120			
Indeno[1,2,3-cd]pyrene	2.10	0.0000500	2.00	0	105	80	120			
Phenanthrene	1.88	0.0000500	2.00	0	94.0	80	120			
Pyrene	2.14	0.0000500	2.00	0	107	80	120			
IS: Acenaphthene-d10	4.00		4.00		87.5	50	200			
IS: Chrysene-d12	4.00		4.00		88.7	50	200			
IS: Naphthalene-d8	4.00		4.00		88.3	50	200			
IS: Perylene-d12	4.00		4.00		87.9	50	200			
IS: Phenanthrene-d10	4.00		4.00		86.7	50	200			
Surr: 2-Fluorobiphenyl	1910		2000		95.7	65	120			
Surr: 4-Terphenyl-d14	2040		2000		102	65	120			

Sample ID **ICV2-160518**	Batch ID: **R85875**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160518B**	Analysis Date: **5/18/2016 8:49:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	2.01	0.0000500	2.00	0	100	80	120			
Acenaphthylene	1.99	0.0000500	2.00	0	99.7	80	120			
Anthracene	1.86	0.0000500	2.00	0	93.0	80	120			
Benzo[a]anthracene	2.11	0.0000500	2.00	0	106	80	120			
Benzo[a]pyrene	2.13	0.0000500	2.00	0	107	80	120			
Benzo[b]fluoranthene	2.12	0.0000500	2.00	0	106	80	120			
Benzo[e]pyrene	2.11	0.0000500	2.00	0	106	80	120			
Benzo[g,h,i]perylene	2.14	0.0000500	2.00	0	107	80	120			
Benzo[j]fluoranthene	2.13	0.0000500	2.00	0	106	80	120			N
Benzo[k]fluoranthene	2.19	0.0000500	2.00	0	109	80	120			
Chrysene	2.10	0.0000500	2.00	0	105	80	120			
Dibenz[a,h]anthracene	2.13	0.0000500	2.00	0	107	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: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518B

Sample ID **ICV2-160518**	Batch ID: **R85875**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160518B**	Analysis Date: **5/18/2016 8:49:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	2.07	0.0000500	2.00	0	104	80	120			
Fluorene	2.01	0.0000500	2.00	0	101	80	120			
Indeno[1,2,3-cd]pyrene	2.11	0.0000500	2.00	0	105	80	120			
Phenanthrene	1.86	0.0000500	2.00	0	93.1	80	120			
Pyrene	2.07	0.0000500	2.00	0	104	80	120			
IS: Acenaphthene-d10	4.00		4.00		96.3	50	200			
IS: Chrysene-d12	4.00		4.00		93.5	50	200			
IS: Naphthalene-d8	4.00		4.00		94.6	50	200			
IS: Perylene-d12	4.00		4.00		93.4	50	200			
IS: Phenanthrene-d10	4.00		4.00		93.3	50	200			
Surr: 2-Fluorobiphenyl	1920		2000		96.2	65	120			
Surr: 4-Terphenyl-d14	2030		2000		102	65	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1605096
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: PMOIST_160511B

The QC data in batch 75103 applies to the following samples: 1605096-04A, 1605096-05A, 1605096-06A, 1605096-07A, 1605096-08A, 1605096-09A, 1605096-10A, 1605096-11A, 1605096-12A, 1605096-31A, 1605096-32A, 1605096-33A, 1605096-34A, 1605096-35A

Sample ID	**1605096-08A-DUP**	Batch ID:	**75103**	TestNo:	**D2216**	Units:	**WT%**
SampType:	**DUP**	Run ID:	**PMOIST_160511B**	Analysis Date:	**5/12/2016 9:55:00 AM**	Prep Date:	**5/11/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	4.85	0	0	5.965				20.6	30	

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: 1605096
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
1605096

GCMS6_160516A
For

DHL Work Order
1605096

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_160516A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

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

Daily Demonstration of Performance

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

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

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

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

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

Approved by: Date:

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

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

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

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

Analyst: Don Winston Date: 5/18/2016

Second-Level Review: Janice Whitt Date: 5/26/2016

REVIEWED BY
By Janice Whitt at 3:44:53 PM, 5/26/2016

DHL Analytical, Inc.

Run ID: GCMS6_160516A **Run No.:** 85840

Analytical Run Date: 5/16/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **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-160516	1	PAH_LL_SDOD1	TUNE	R85840	5/16/2016 8:18:00 AM		
ICV-160516	1	PAH_LL_SDOD1	ICV	R85840	5/16/2016 8:54:00 AM		
LCS-75127	1	PAH_LL_SDOD1	LCS	75127	5/16/2016 9:35:00 AM		
MB-75127	1	PAH_LL_SDOD1	MBLK	75127	5/16/2016 10:15:00 AM		
1605074-39A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 10:55:00 AM		
1605074-40A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 11:35:00 AM		
1605074-41A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 12:14:00 PM		
1605074-42A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 12:54:00 PM		
1605074-43A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 1:33:00 PM		
1605074-44A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 2:13:00 PM		
1605074-45A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 2:52:00 PM		DNR-Wrong vial placed in sequence see rerun 5-17-2016.
1605074-46A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 3:32:00 PM		
1605074-47A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 4:12:00 PM		
1605096-04A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 4:52:00 PM		
1605096-05A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 5:31:00 PM		
1605074-44AMS	10	PAH_LL_SDOD1	MS	75127	5/16/2016 6:11:00 PM		DNR-Wrong vial placed in sequence see rerun 5-17-2016.
1605074-44AMSD	10	PAH_LL_SDOD1	MSD	75127	5/16/2016 6:50:00 PM		Slightly high recovery for Fluoranthene and Pyrene. %RPD with MS is acceptable.
DFTPP2-160516	1	PAH_LL_SDOD1	TUNE	R85840	5/16/2016 7:29:00 PM		
ICV2-160516	1	PAH_LL_SDOD1	ICV	R85840	5/16/2016 8:06:00 PM		
SB-160516	1	PAH_LL_SDOD1	SBLK	75127	5/16/2016 9:26:00 PM		
1605096-06A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 10:06:00 PM		
1605096-07A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 10:46:00 PM		
1605096-08A	10	PAH_LL_SDOD1	SAMP	75127	5/16/2016 11:26:00 PM		
1605096-09A	10	PAH_LL_SDOD1	SAMP	75127	5/17/2016 12:05:00 AM		
1605096-10A	10	PAH_LL_SDOD1	SAMP	75127	5/17/2016 12:45:00 AM		
1605096-11A	10	PAH_LL_SDOD1	SAMP	75127	5/17/2016 1:25:00 AM		
1605096-12A	10	PAH_LL_SDOD1	SAMP	75127	5/17/2016 2:06:00 AM		
CCV1-160516	1	PAH_LL_SDOD1	CCV	R85840	5/17/2016 2:45:00 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

DHL Analytical, Inc.

Run ID: GCMS6_160516A **Run No.:** 85840

DFTPP-160517	1	PAH_LL_SDOD1	TUNE	R85840	5/17/2016 8:12:00 AM		
ICV-160517	1	PAH_LL_SDOD1	ICV	R85840	5/17/2016 8:49:00 AM		
1605074-44AMS	10	PAH_LL_SDOD1	MS	75127	5/17/2016 9:31:00 AM		Slightly high recovery for Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Chrysene, Fluoranthene and Pyrene.
SB-160517	1	PAH_LL_SDOD1	SBLK	75127	5/17/2016 10:11:00 AM		
1605074-45A	10	PAH_LL_SDOD1	SAMP	75127	5/17/2016 10:51:00 AM		
CCV1-160517	1	PAH_LL_SDOD1	CCV	R85840	5/17/2016 12:27:00 PM		

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:\HPCHEM\1\SEQUENCE\160516.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160516\
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	16051601	DFTPPPAH	DFTPP-160516
2	Sample	2	16051602	PP160421	ICV-160516
3	Sample	3	16051603	PP160421	LCS-75127
4	Sample	4	16051604	PP160421	MB-75127
5	Sample	5	16051605	PP160421	1605074-39A
6	Sample	6	16051606	PP160421	1605074-40A
7	Sample	7	16051607	PP160421	1605074-41A
8	Sample	8	16051608	PP160421	1605074-42A
9	Sample	9	16051609	PP160421	1605074-43A
10	Sample	10	16051610	PP160421	1605074-44A
11	Sample	11	16051611	PP160421	1605074-45A
12	Sample	12	16051612	PP160421	1605074-46A
13	Sample	13	16051613	PP160421	1605074-47A
14	Sample	14	16051614	PP160421	1605096-04A
15	Sample	15	16051615	PP160421	1605096-05A
16	Sample	16	16051616	PP160421	1605074-44AMS
17	Sample	17	16051617	PP160421	1605074-44AMSD
18	Sample	18	16051618	DFTPPPAH	DFTPP2-160516
19	Sample	19	16051619	PP160421	ICV2-160516
20	Sample	20	16051620	PP160421	SBLK
21	Sample	21	16051621	PP160421	SB-160516
22	Sample	22	16051622	PP160421	1605096-06A
23	Sample	23	16051623	PP160421	1605096-07A
24	Sample	24	16051624	PP160421	1605096-08A
25	Sample	25	16051625	PP160421	1605096-09A
26	Sample	26	16051626	PP160421	1605096-10A
27	Sample	27	16051627	PP160421	1605096-11A
28	Sample	28	16051628	PP160421	1605096-12A
29	Sample	29	16051629	PP160421	CCV1-160516

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/12/2016 9:33:35 AM**
Digestion:
Prep End Date: **5/12/2016 4:00:00 PM**

Prep Batch **75127** 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
1605074-39A	Soil		10.05	10	0.995	1 of 1	
1605074-40A	Soil		10.02	10	0.998	1 of 1	
1605074-41A	Soil		10.22	10	0.978	1 of 1	
1605074-42A	Soil		10.12	10	0.988	1 of 1	
1605074-43A	Soil		10.24	10	0.977	1 of 1	
1605074-44A	Soil		10.06	10	0.994	1 of 3	
1605074-44AMS	Soil		10	10	1.000	1 of	
1605074-44AMSD	Soil		10.04	10	0.996	1 of	
1605074-45A	Soil		10.13	10	0.987	1 of 1	
1605074-46A	Soil		10.07	10	0.993	1 of 1	
1605074-47A	Soil		10.03	10	0.997	1 of 1	
1605096-04A	Soil		10.09	10	0.991	1 of 1	
1605096-05A	Soil		10.09	10	0.991	1 of 1	
1605096-06A	Soil		10.02	10	0.998	1 of 1	
1605096-07A	Soil		10.74	10	0.931	1 of 1	
1605096-08A	Soil		10.32	10	0.969	1 of 1	
1605096-09A	Soil		10.01	10	0.999	1 of 1	
1605096-10A	Soil		10.08	10	0.992	1 of 1	
1605096-11A	Soil		10.04	10	0.996	1 of 1	
1605096-12A	Soil		10.25	10	0.976	1 of 1	
LCS-75127	Soil		10	10	1.000	of	
	Shared with 75137						
MB-75127	Soil		10	10	1.000	of	
	Shared with 75137						

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED BY
By Janice Whitt at 1:44:52 PM, 5/26/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/12/2016 9:33:35 AM**
Digestion:
Prep End Date: 5/12/16 4:00 PM

Prep Batch **75127** 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
1605074-39A	Soil		10	10.05	1.000	1 of 1	
1605074-40A	Soil		10	10.02	1.000	1 of 1	
1605074-41A	Soil		10	10.22	1.000	1 of 1	
1605074-42A	Soil		10	10.12	1.000	1 of 1	
1605074-43A	Soil		10	10.24	1.000	1 of 1	
1605074-44A	Soil		10	10.06	1.000	1 of 3	
1605074-44AMS	Soil		10	10.00	1.000	1 of	
1605074-44AMSD	Soil		10	10.04	1.000	1 of	
1605074-45A	Soil		10	10.13	1.000	1 of 1	
1605074-46A	Soil		10	10.07	1.000	1 of 1	
1605074-47A	Soil		10	10.03	1.000	1 of 1	
1605096-04A	Soil		10	10.09	1.000	1 of 1	
1605096-05A	Soil		10	10.09	1.000	1 of 1	
1605096-06A	Soil		10	10.02	1.000	1 of 1	
1605096-07A	Soil		10	10.74	1.000	1 of 1	
1605096-08A	Soil		10	10.32	1.000	1 of 1	
1605096-09A	Soil		10	10.01	1.000	1 of 1	
1605096-10A	Soil		10	10.08	1.000	1 of 1	
1605096-11A	Soil		10	10.04	1.000	1 of 1	
1605096-12A	Soil		10	10.25	1.000	1 of 1	
LCS-75127	Soil		10	10	1.000	of	
MB-75127	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED BY
By Janice Whitt at 1:44:51 PM, 5/26/2016

5/12/16 5/12/16 5/12/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/9/2016 9:45:00 AM**
Digestion: **Start: 5/9/2016 11:00:00 AM / Stop: 5/10/2016 10:00:00 AM**
Prep End Date: **5/10/2016 7:00:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75016** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605074-01A	Soil		0	0	#Num!	1	of	1	
1605074-02A	Soil		0	0	#Num!	1	of	1	
1605074-03A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subdampling - hard clay								
1605074-04A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subdampling - hard clay								
1605074-05A	Soil		0	0	#Num!	1	of	1	
1605074-06A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-07A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-08A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-09A	Soil		0	0	#Num!	1	of	1	
1605074-10A	Soil		0	0	#Num!	1	of	1	
1605074-11A	Soil		0	0	#Num!	1	of	1	
	Sieved only no sub sampling - hard clay								
1605074-12A	Soil		0	0	#Num!	1	of	1	
	Sieved only no sub sampling - hard clay								
1605074-13A	Soil		0	0	#Num!		of	3	
	Extra subsampled for MS/MSD								
1605074-14A	Soil		0	0	#Num!	1	of	1	
1605074-15A	Soil		0	0	#Num!	1	of	1	
1605074-16A	Soil		0	0	#Num!	1	of	1	
1605074-17A	Soil		0	0	#Num!	1	of	1	
1605074-18A	Soil		0	0	#Num!	1	of	1	
1605074-19A	Soil		0	0	#Num!	1	of	1	

REVIEWED BY
By Janice Whitt at 1:43:46 PM, 5/26/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/9/2016 9:45:00 AM**
Digestion: **Start: 5/9/2016 11:00:00 AM / Stop: 5/10/2016 10:00:00 AM**
Prep End Date: **5/10/2016 7:00:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75016** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605074-20A	Soil		0	0	#Num!	1	of	1	
1605074-21A	Soil		0	0	#Num!	1	of	1	
1605074-22A	Soil		0	0	#Num!	1	of	1	
1605074-23A	Soil		0	0	#Num!	1	of	1	
1605074-24A	Soil		0	0	#Num!	1	of	1	
1605074-25A	Soil		0	0	#Num!	1	of	1	
1605074-26A	Soil		0	0	#Num!		of	3	
	Extra subsampled for MS/MSD								
1605074-27A	Soil		0	0	#Num!	1	of	1	
1605074-36A	Soil		0	0	#Num!	1	of	1	
1605074-37A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-38A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-39A	Soil		0	0	#Num!	1	of	1	
1605074-40A	Soil		0	0	#Num!	1	of	1	
1605074-41A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-42A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-43A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								
1605074-44A	Soil		0	0	#Num!		of	3	
	Extra subsampled for MS/MSD								
1605074-45A	Soil		0	0	#Num!	1	of	1	
	Sieved only no subsampling - hard clay								

REVIEWED BY
By Janice Whitt at 1:43:48 PM, 5/26/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/9/2016 9:45:00 AM**
Digestion: **Start: 5/9/2016 11:00:00 AM / Stop: 5/10/2016 10:00:00 AM**
Prep End Date: **5/10/2016 7:00:00 PM**

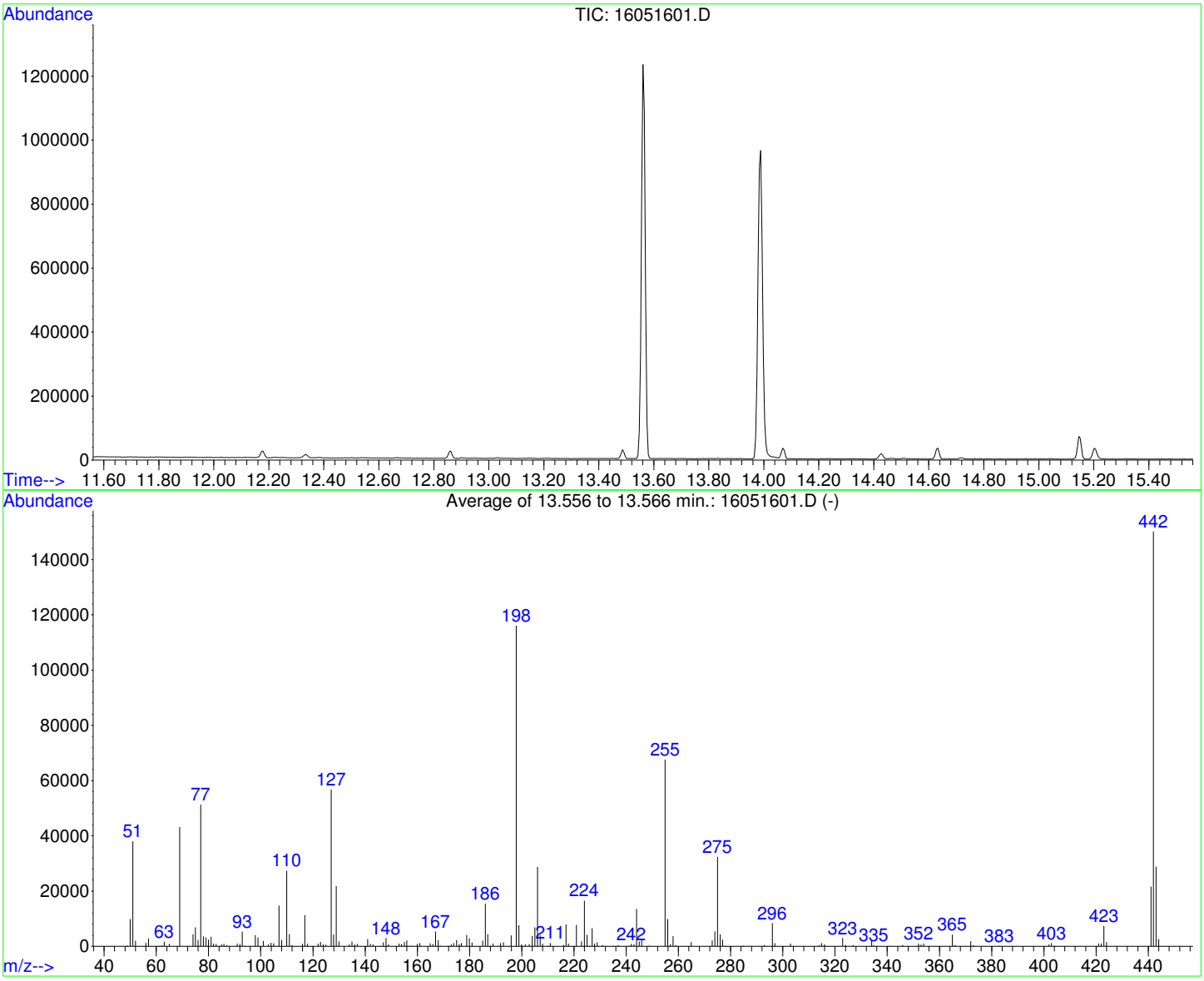
Prep Batch **75016** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605074-46A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-47A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:43:51 PM, 5/26/2016

Data File : C:\HPCHEM\1\DATA\160516\16051601.D Vial: 1
Acq On : 16 May 2016 8:18 am Operator:
Sample : DFTPP-160516 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

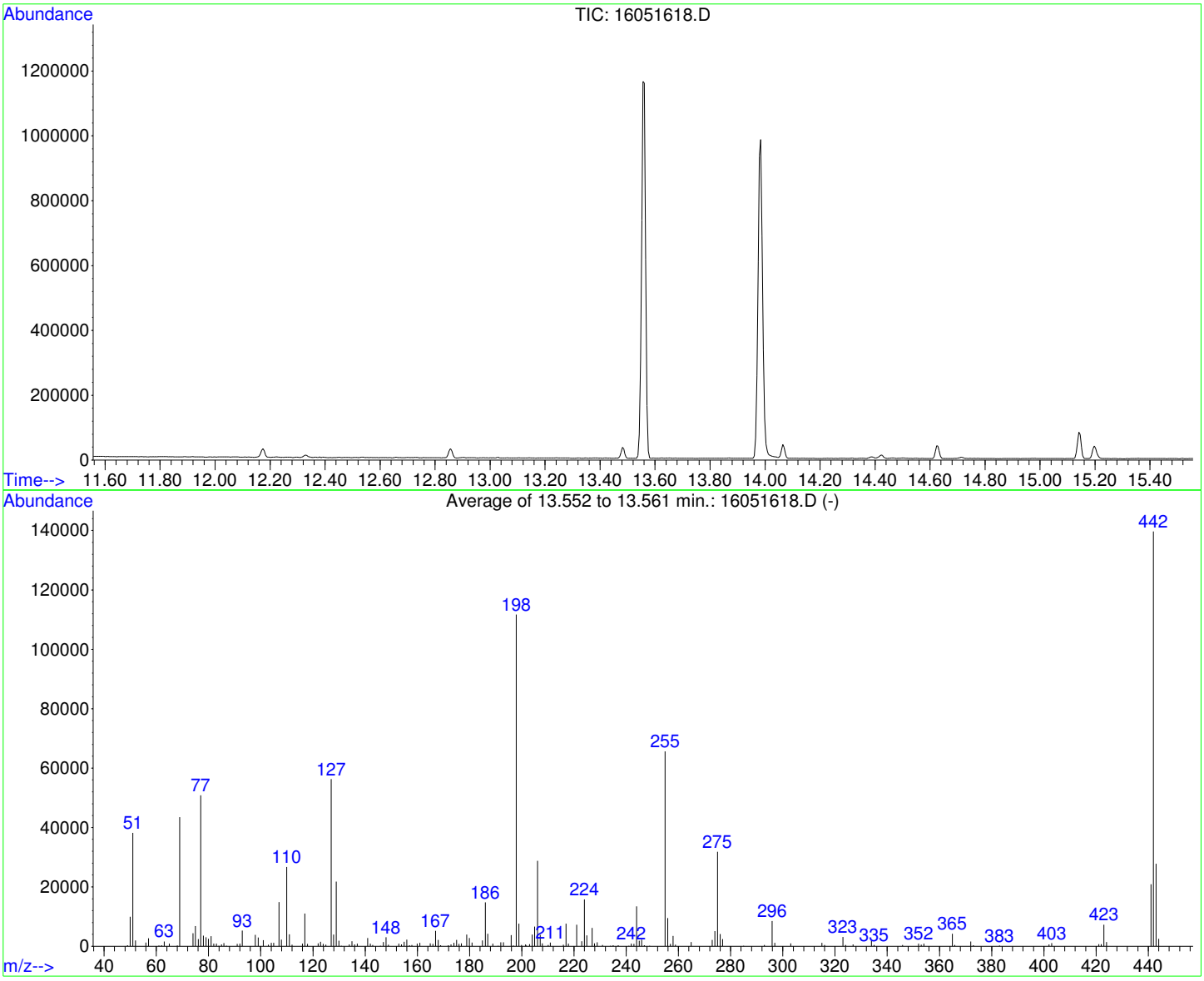


AutoFind: Scans 1588, 1589, 1590; Background Corrected with Scan 1582

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	32.8	38038	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.3	43237	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.0	56829	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	116045	PASS
199	198	5	9	6.6	7627	PASS
275	198	10	60	28.0	32437	PASS
365	198	1	200	3.7	4239	PASS
441	442	0.01	24	14.4	21586	PASS
442	198	50	400	129.4	150211	PASS
443	442	15	24	19.2	28853	PASS

REVIEWED BY
By Janice Whitt at 1:43:55 PM, 5/26/2016

Data File : C:\HPCHEM\1\DATA\160516\16051618.D Vial: 18
Acq On : 16 May 2016 7:29 pm Operator:
Sample : DFTPP2-160516 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

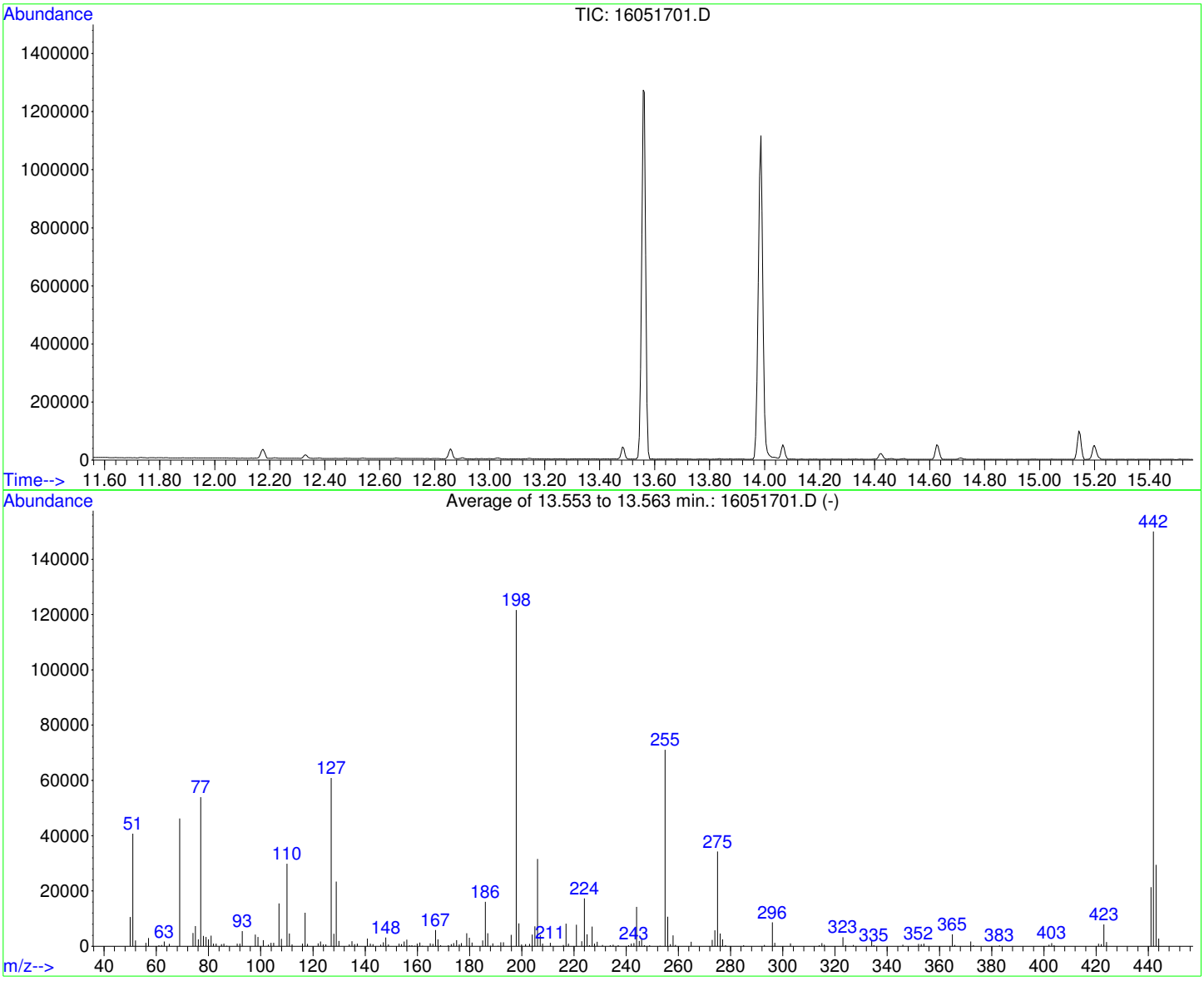


AutoFind: Scans 1587, 1588, 1589; Background Corrected with Scan 1581

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.2	38199	PASS
68	69	0.00	2	0.6	251	PASS
69	198	0.00	100	38.9	43485	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.4	56288	PASS
197	198	0.00	2	0.2	235	PASS
198	198	100	100	100.0	111696	PASS
199	198	5	9	6.8	7628	PASS
275	198	10	60	28.5	31853	PASS
365	198	1	200	3.8	4202	PASS
441	442	0.01	24	15.0	20923	PASS
442	198	50	400	125.1	139693	PASS
443	442	15	24	19.9	27824	PASS

REVIEWED BY
By Janice Whitt at 1:43:57 PM, 5/26/2016

Data File : C:\HPCHEM\1\DATA\160517\16051701.D Vial: 1
Acq On : 17 May 2016 8:12 am Operator:
Sample : DFTPP-160517 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 1587, 1588, 1589; Background Corrected with Scan 1581

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.5	40717	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	38.1	46285	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	60893	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	121632	PASS
199	198	5	9	6.8	8256	PASS
275	198	10	60	28.2	34283	PASS
365	198	1	200	3.6	4385	PASS
441	442	0.01	24	14.2	21348	PASS
442	198	50	400	123.4	150075	PASS
443	442	15	24	19.6	29474	PASS

REVIEWED BY
By Janice Whitt at 1:44:02 PM, 5/26/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051602.D Vial: 2
Acq On : 16 May 2016 8:54 am Operator:
Sample : ICV-160516 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

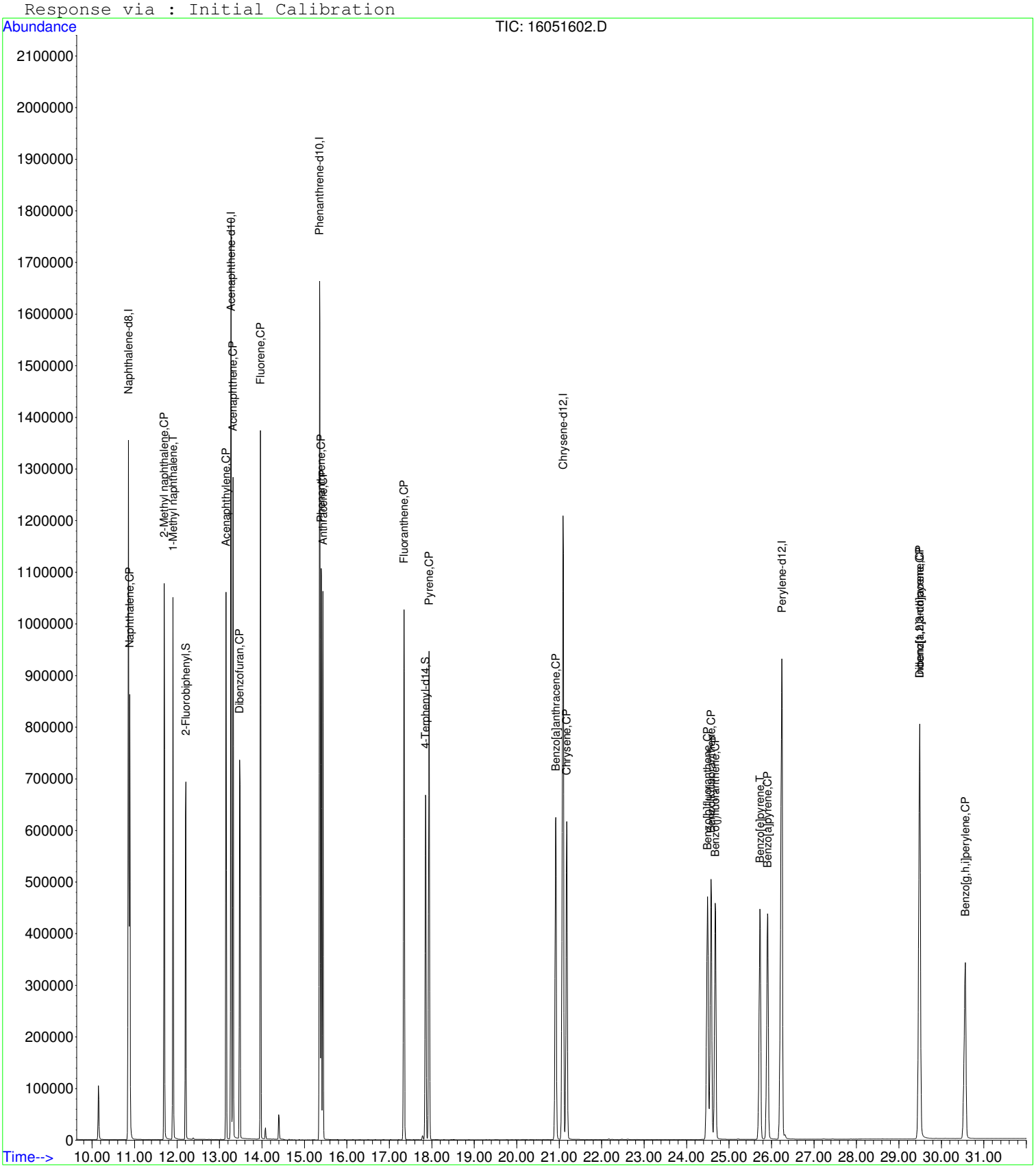
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1647079	4000.00	ug/kg	142
5) Acenaphthene-d10	13.27	164	959117	4000.00	ug/kg	83
11) Phenanthrene-d10	15.36	188	1898781	4000.00	ug/kg	93
17) Chrysene-d12	21.09	240	2070788	4000.00	ug/kg	91
20) Perylene-d12	26.25	264	1894794	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	584296	2088.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 52.21%			
16) 4-Terphenyl-d14	17.86	244	898605	1829.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.73%			
Target Compounds						Qvalue
2) Naphthalene	10.89	128	805898	1956.08	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	562393	1545.35	ug/kg	95
4) 1-Methyl naphthalene	11.91	142	507274	1521.95	ug/kg	98
6) Dibenzofuran	13.48	168	725047	2017.01	ug/kg	99
8) Acenaphthylene	13.15	152	878362	2126.51	ug/kg	100
9) Acenaphthene	13.32	154	508864	1984.83	ug/kg	98
10) Fluorene	13.97	166	661242	2123.73	ug/kg	99
12) Phenanthrene	15.39	178	948663	1899.80	ug/kg	99
13) Anthracene	15.44	178	899236	1902.59	ug/kg	100
14) Fluoranthene	17.35	202	1011719	1957.89	ug/kg	99
15) Pyrene	17.94	202	1011912	1885.15	ug/kg	99
18) Benzo[a]anthracene	20.92	228	954421	1967.33	ug/kg	100
19) Chrysene	21.18	228	873184	1862.84	ug/kg	100
21) Benzo[b]fluoranthene	24.49	252	974075	1950.48	ug/kg	99
22) Benzo[k]fluoranthene	24.58	252	894302	1908.92	ug/kg	100
23) Benzo(j)fluoranthene	24.68	252	793595	1901.63	ug/kg	99
24) Benzo[e]pyrene	25.73	252	834557	1866.00	ug/kg	99
25) Benzo[a]pyrene	25.91	252	867294	1897.68	ug/kg	99
26) Dibenz[a,h]anthracene	29.49	278	762992	1833.11	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.49	276	888830	1790.02	ug/kg	98
28) Benzo[g,h,i]perylene	30.57	276	712132	1839.21	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051602.D Vial: 2
Acq On : 16 May 2016 8:54 am Operator:
Sample : ICV-160516 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

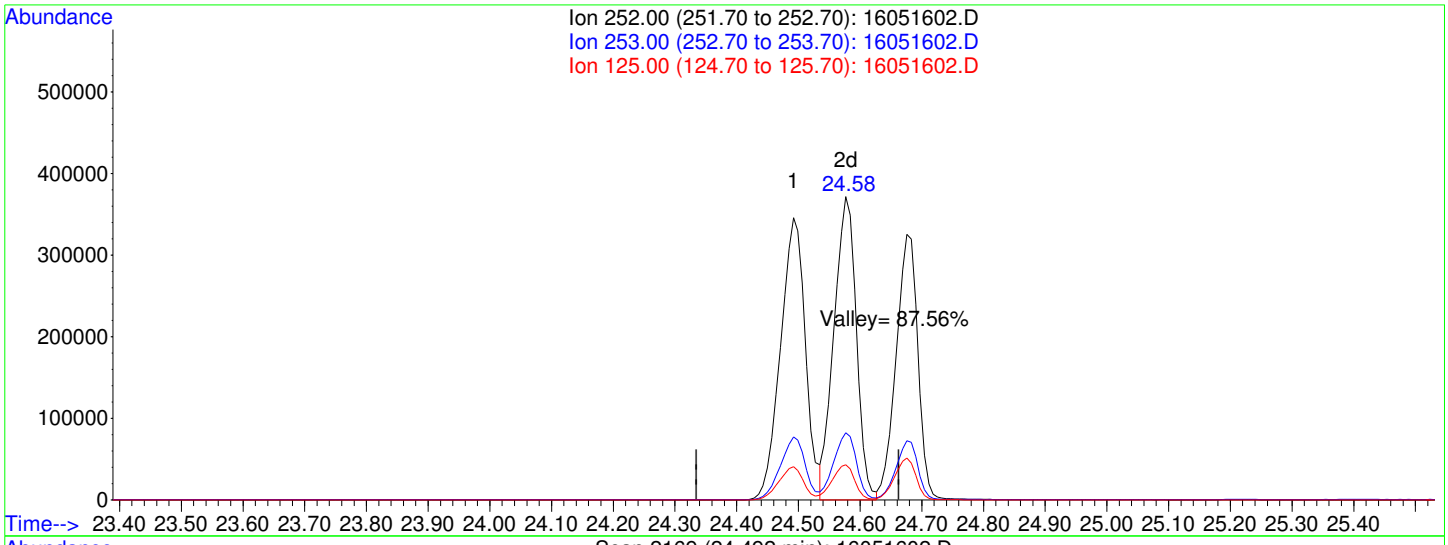
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

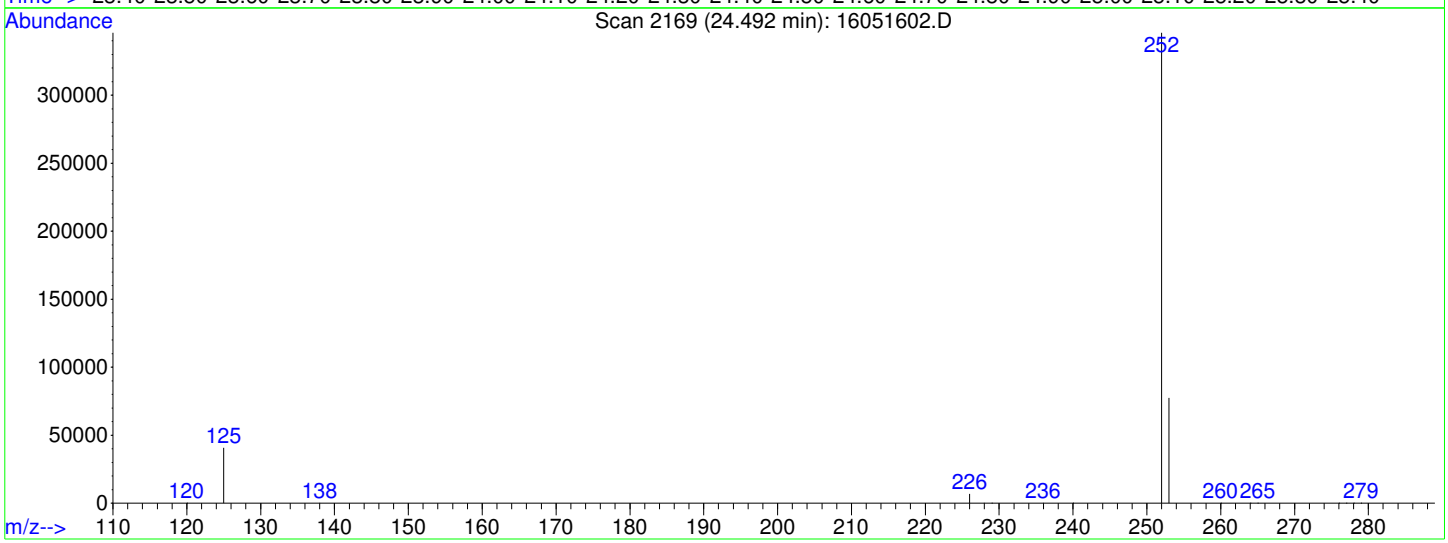


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160516\16051602.D Vial: 2
Acq On : 16 May 2016 8:54 am Operator:
Sample : ICV-160516 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 16 9:26 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051602.D

(21) Benzo[b]fluoranthene (CP)

24.49min 1950.22ug/kg

response 974075

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	22.25
125.00	11.00	11.74
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051603.D Vial: 3
Acq On : 16 May 2016 9:35 am Operator:
Sample : LCS-75127 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

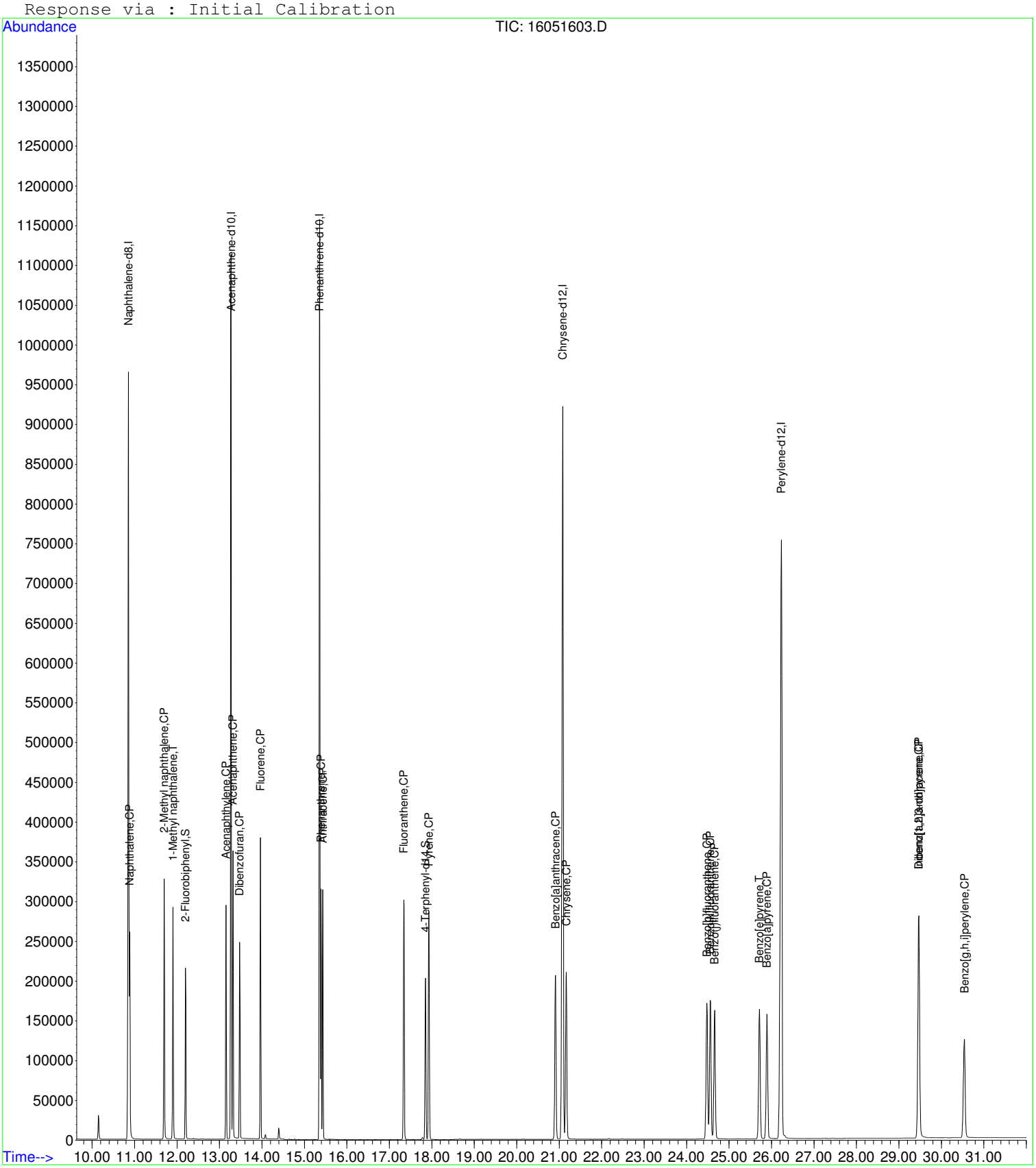
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1291866	4000.00	ug/kg	111
5) Acenaphthene-d10	13.27	164	667152	4000.00	ug/kg	58
11) Phenanthrene-d10	15.36	188	1234725	4000.00	ug/kg	60
17) Chrysene-d12	21.08	240	1505625	4000.00	ug/kg	66
20) Perylene-d12	26.23	264	1442781	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	178929	919.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.99%#			
16) 4-Terphenyl-d14	17.85	244	257972	807.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.19%#			
Target Compounds						Qvalue
2) Naphthalene	10.89	128	248457	768.87	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	169596	594.16	ug/kg	97
4) 1-Methyl naphthalene	11.91	142	152109	581.85	ug/kg	98
6) Dibenzofuran	13.47	168	216760	866.90	ug/kg	100
8) Acenaphthylene	13.15	152	247300	860.73	ug/kg	99
9) Acenaphthene	13.32	154	142414	798.58	ug/kg	99
10) Fluorene	13.97	166	177142	817.91	ug/kg	99
12) Phenanthrene	15.39	178	267990	825.32	ug/kg	99
13) Anthracene	15.43	178	265537	863.97	ug/kg	99
14) Fluoranthene	17.34	202	311188	926.10	ug/kg	99
15) Pyrene	17.93	202	308671	884.31	ug/kg	99
18) Benzo[a]anthracene	20.91	228	307887	872.87	ug/kg	99
19) Chrysene	21.17	228	287188	842.67	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	324964	854.57	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	305459	856.28	ug/kg	99
23) Benzo(j)fluoranthene	24.66	252	271755	855.20	ug/kg	99
24) Benzo[e]pyrene	25.72	252	292480	858.84	ug/kg	99
25) Benzo[a]pyrene	25.89	252	286884	824.37	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	258618	816.00	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.47	276	299937	793.29	ug/kg	95
28) Benzo[g,h,i]perylene	30.54	276	248008	841.20	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051603.D Vial: 3
Acq On : 16 May 2016 9:35 am Operator:
Sample : LCS-75127 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051604.D Vial: 4
Acq On : 16 May 2016 10:15 am Operator:
Sample : MB-75127 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

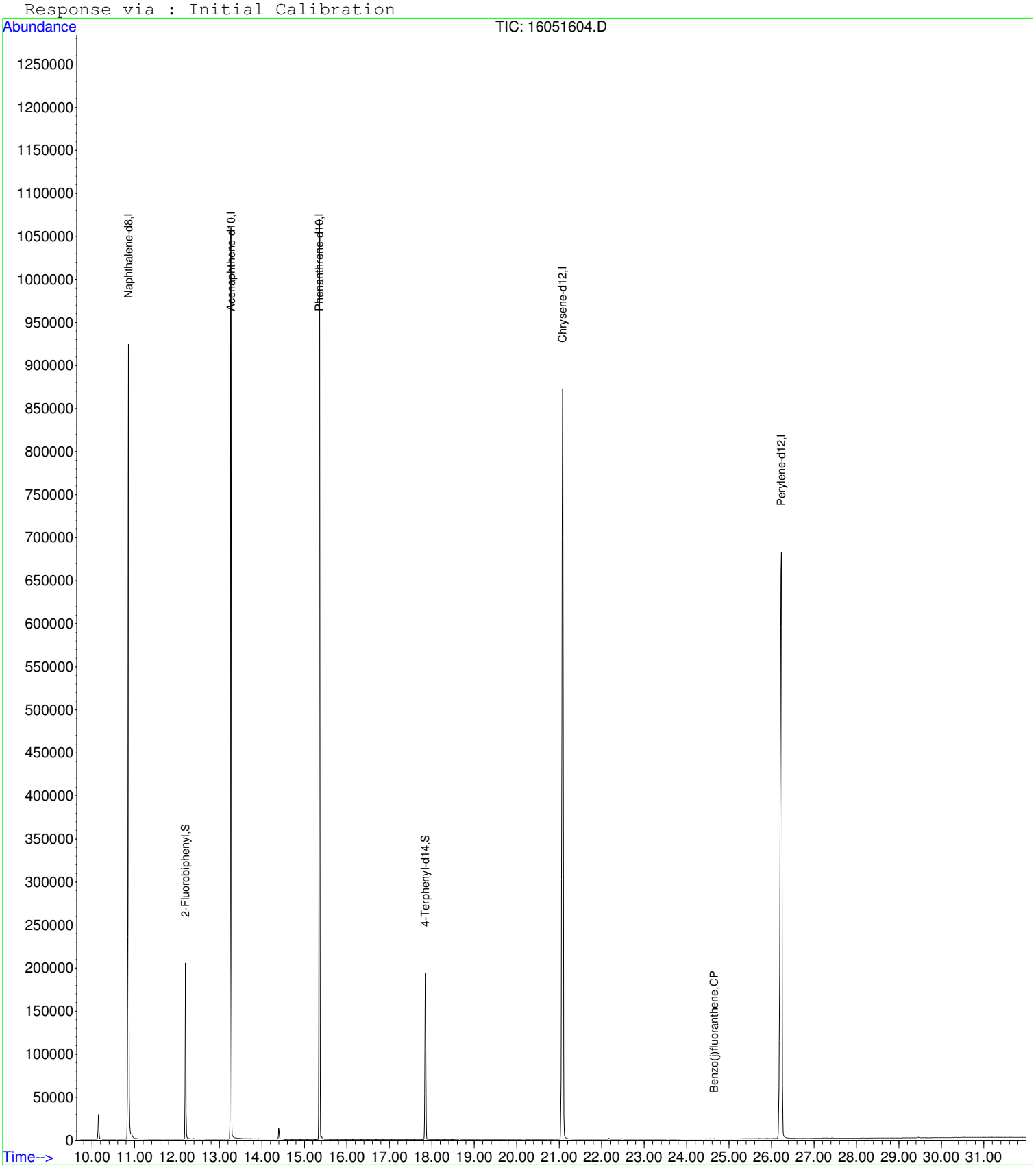
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1227816	4000.00	ug/kg	106
5) Acenaphthene-d10	13.27	164	663254	4000.00	ug/kg	58
11) Phenanthrene-d10	15.36	188	1199325	4000.00	ug/kg	59
17) Chrysene-d12	21.08	240	1449359	4000.00	ug/kg	64
20) Perylene-d12	26.23	264	1371131	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	173049	894.42	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.36%#			
16) 4-Terphenyl-d14	17.85	244	246834	795.50	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.89%#			
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.65	252	375	1.24	ug/kg	95

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051604.D Vial: 4
Acq On : 16 May 2016 10:15 am Operator:
Sample : MB-75127 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051614.D Vial: 14
Acq On : 16 May 2016 4:52 pm Operator:
Sample : 1605096-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:41 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

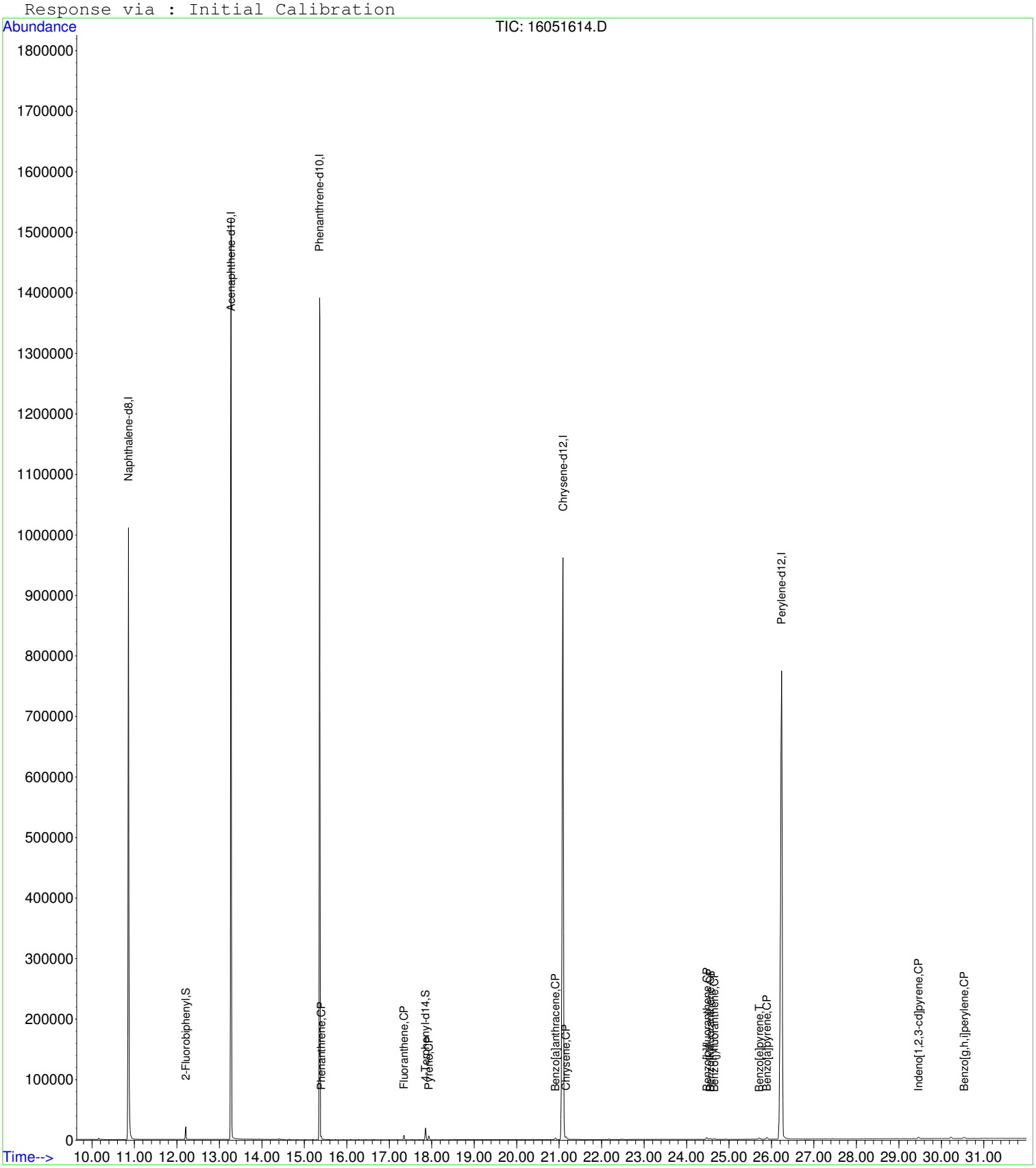
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1285134	4000.00	ug/kg	111
5) Acenaphthene-d10	13.28	164	830924	4000.00	ug/kg	72
11) Phenanthrene-d10	15.36	188	1511712	4000.00	ug/kg	74
17) Chrysene-d12	21.09	240	1595307	4000.00	ug/kg	70
20) Perylene-d12	26.24	264	1488164	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	18120	74.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.87%#		
16) 4-Terphenyl-d14	17.85	244	24902	63.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.59%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	2641	6.64	ug/kg	99
14) Fluoranthene	17.35	202	7506	18.24	ug/kg	98
15) Pyrene	17.93	202	6954	16.27	ug/kg	99
18) Benzo[a]anthracene	20.91	228	4289	11.48	ug/kg	98
19) Chrysene	21.17	228	5227	14.47	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	5692	14.51	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	2792	7.59	ug/kg	99
23) Benzo(j)fluoranthene	24.65	252	2428	7.41	ug/kg	88
24) Benzo[e]pyrene	25.71	252	4152	11.82	ug/kg	99
25) Benzo[a]pyrene	25.89	252	5446	15.17	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.46	276	3786	9.71	ug/kg	91
28) Benzo[g,h,i]perylene	30.54	276	3652	12.01	ug/kg	99

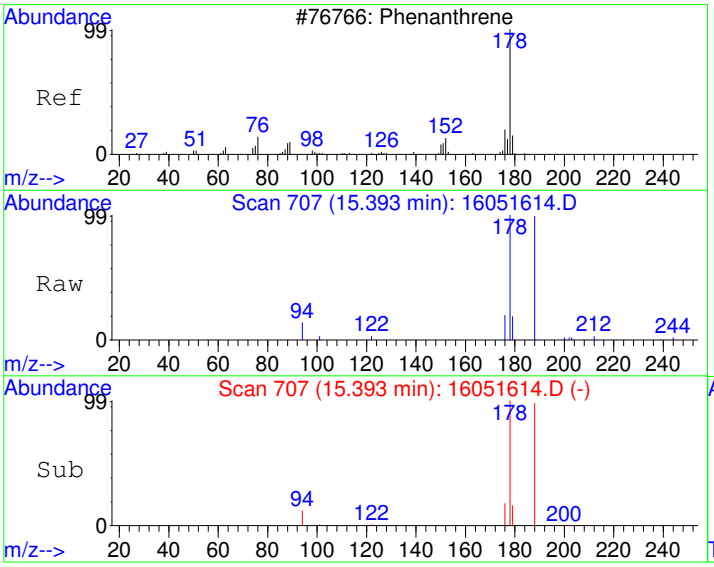
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051614.D Vial: 14
Acq On : 16 May 2016 4:52 pm Operator:
Sample : 1605096-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:41 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

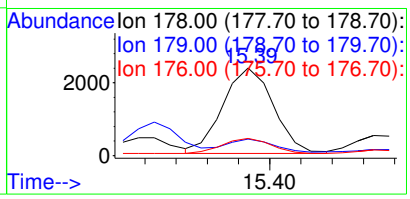


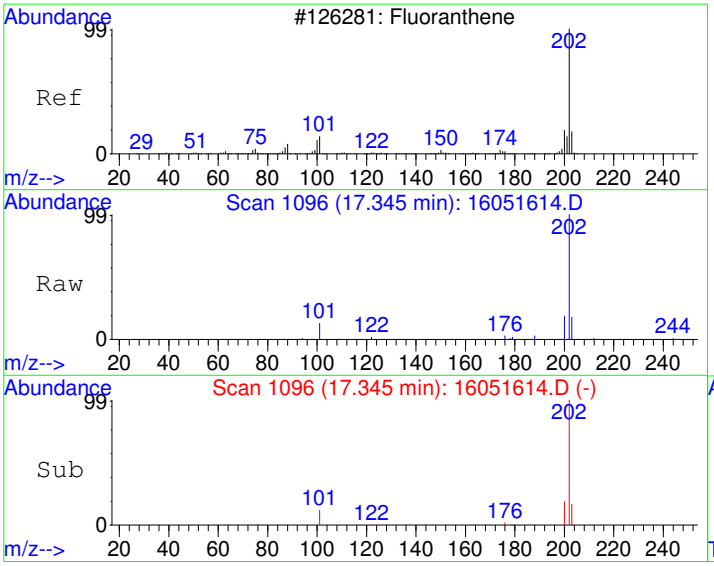


#12
Phenanthrene
Concen: 6.64 ug/kg
RT: 15.39 min Scan# 707
Delta R.T. -0.00 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:178 Resp: 2641

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.9	0.0	48.5

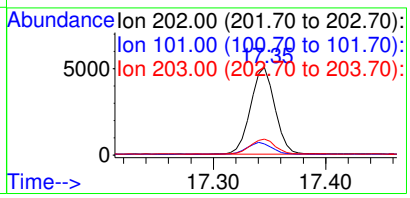


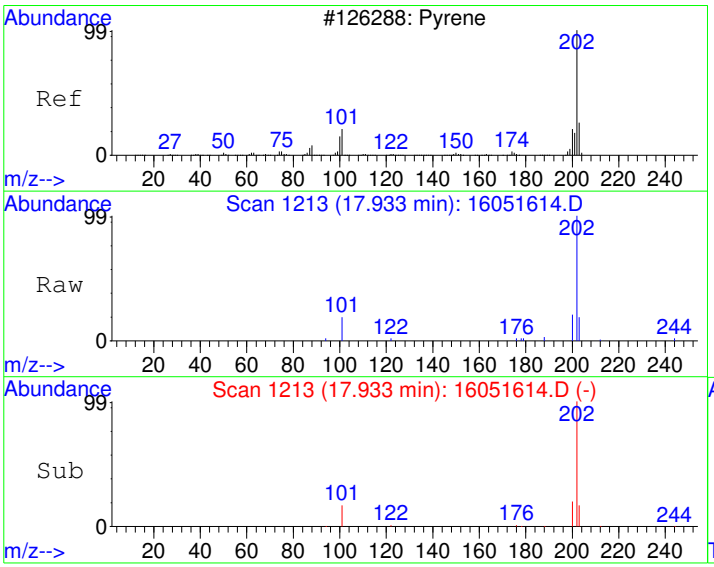


#14
Fluoranthene
Concen: 18.24 ug/kg
RT: 17.35 min Scan# 1096
Delta R.T. 0.00 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:202 Resp: 7506

Ion	Ratio	Lower	Upper
202	100		
101	11.8	0.0	43.0
203	17.1	0.0	47.9

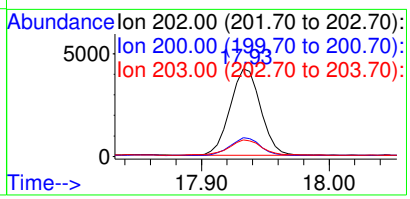


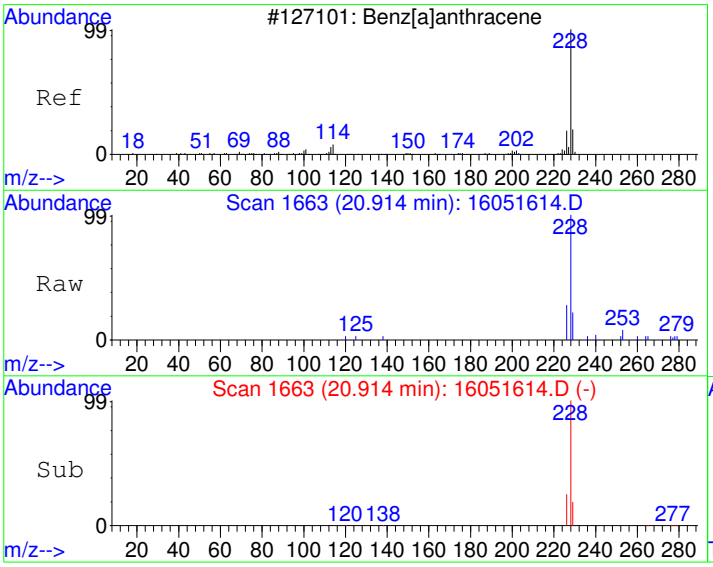


#15
Pyrene
Concen: 16.27 ug/kg
RT: 17.93 min Scan# 1213
Delta R.T. -0.00 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:202 Resp: 6954

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	17.7	0.0	48.0

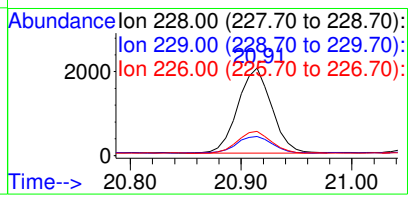


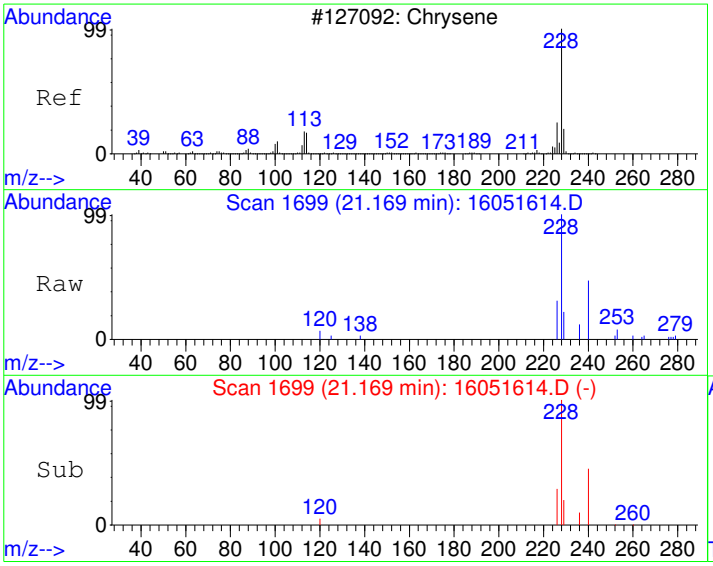


#18
Benzo[a]anthracene
Concen: 11.48 ug/kg
RT: 20.91 min Scan# 1663
Delta R.T. -0.00 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:228 Resp: 4289

Ion	Ratio	Lower	Upper
228	100		
229	19.2	0.0	50.1
226	25.8	0.0	55.2

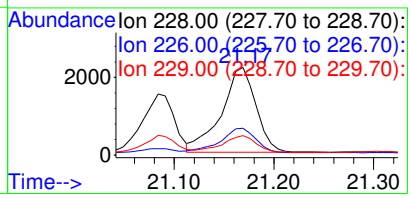


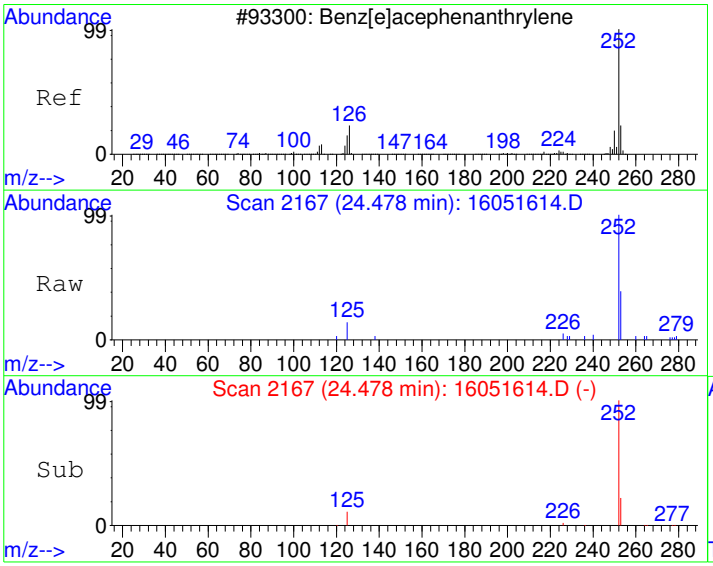


#19
Chrysene
Concen: 14.47 ug/kg
RT: 21.17 min Scan# 1699
Delta R.T. -0.00 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:228 Resp: 5227

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	20.3	0.0	50.1

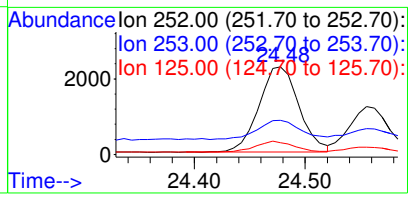


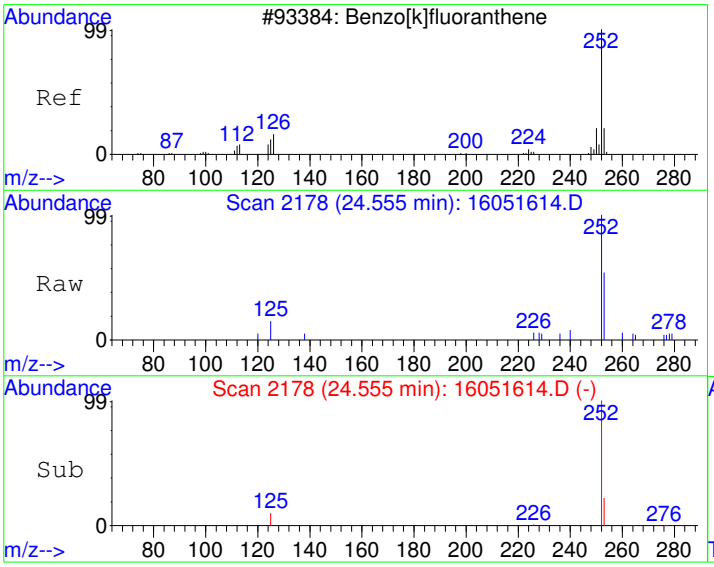


#21
Benzo[b]fluoranthene
Concen: 14.51 ug/kg
RT: 24.48 min Scan# 2167
Delta R.T. -0.01 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:252 Resp: 5692

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.2
125	11.1	0.0	41.0

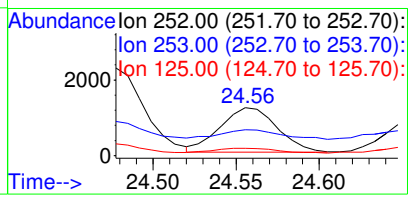


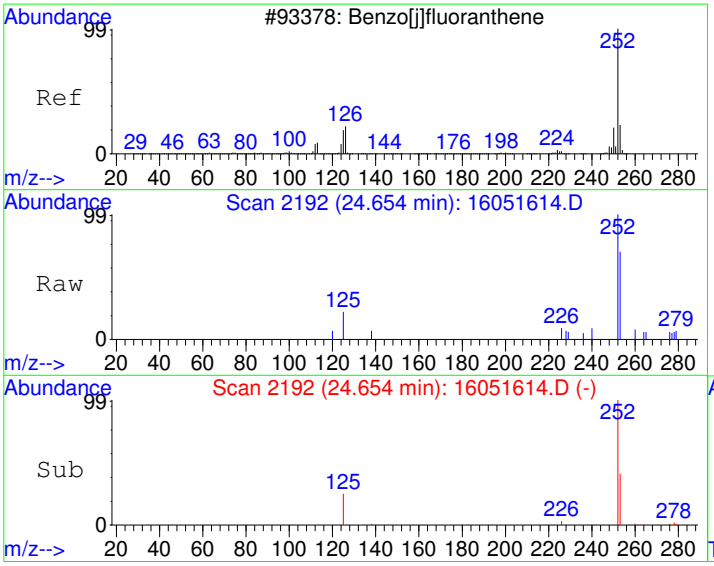


#22
Benzo[k]fluoranthene
Concen: 7.59 ug/kg
RT: 24.56 min Scan# 2178
Delta R.T. -0.01 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:252 Resp: 2792

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.1	42.1
125	10.6	0.0	31.3

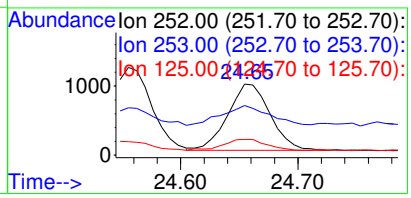


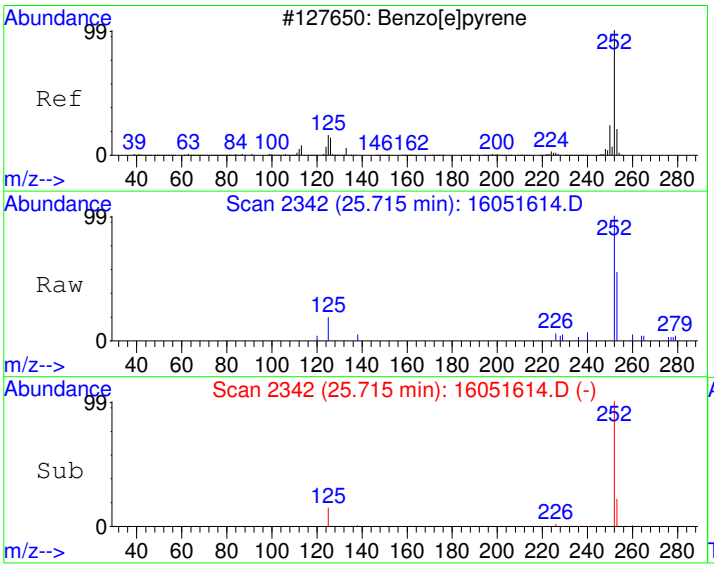


#23
Benzo(j)fluoranthene
Concen: 7.41 ug/kg
RT: 24.65 min Scan# 2192
Delta R.T. -0.01 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:252 Resp: 2428

Ion	Ratio	Lower	Upper
252	100		
253	29.9	2.1	42.1
125	16.5	0.0	34.4

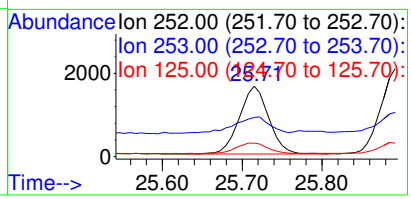


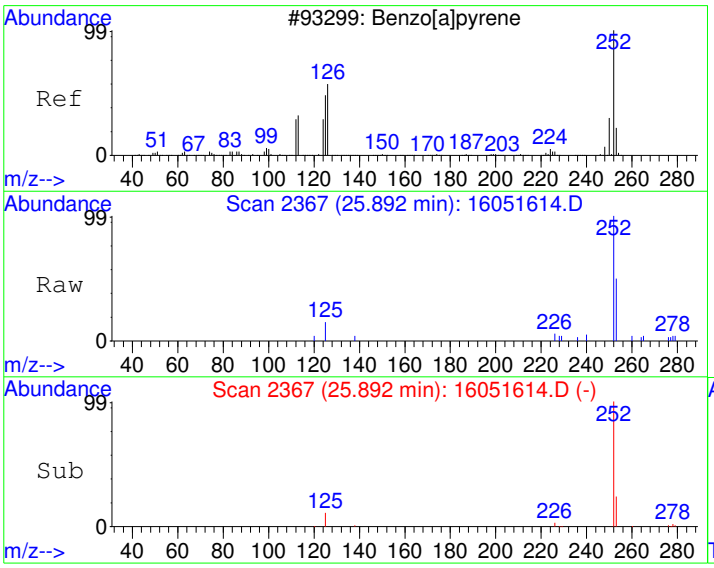


#24
Benzo[e]pyrene
Concen: 11.82 ug/kg
RT: 25.71 min Scan# 2342
Delta R.T. -0.01 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:252 Resp: 4152

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	15.0	0.0	36.1

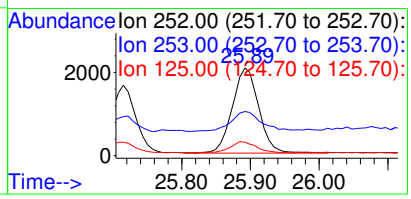


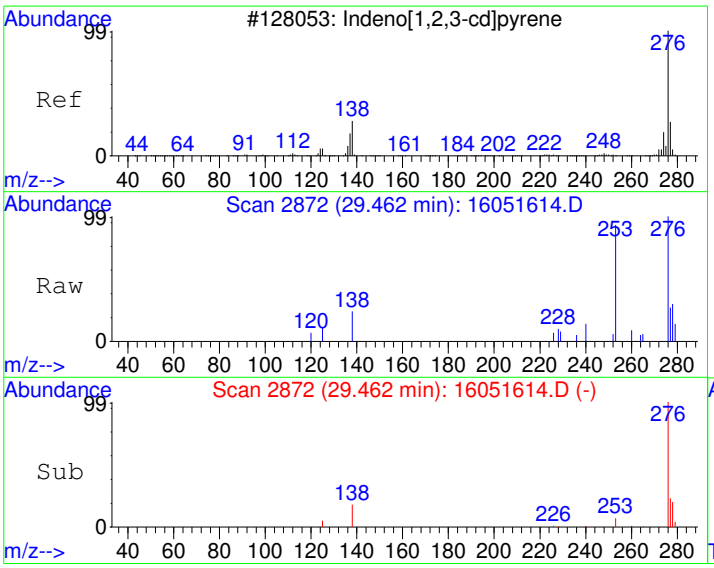


#25
Benzo[a]pyrene
Concen: 15.17 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:252 Resp: 5446

Ion	Ratio	Lower	Upper
252	100		
253	23.2	1.9	41.9
125	11.9	0.0	31.7

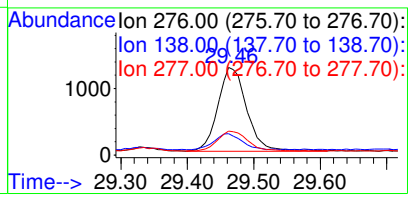


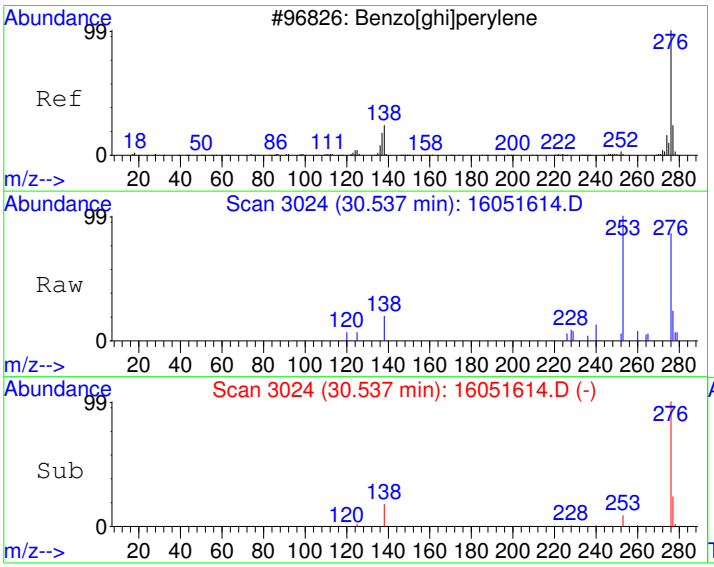


#27
Indeno[1,2,3-cd]pyrene
Concen: 9.71 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:276 Resp: 3786

Ion	Ratio	Lower	Upper
276	100		
138	19.1	6.7	46.7
277	23.9	5.8	45.8

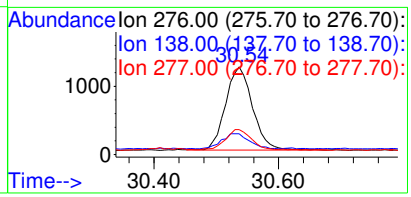




#28
Benzo[g,h,i]perylene
Concen: 12.01 ug/kg
RT: 30.54 min Scan# 3024
Delta R.T. -0.01 min
Lab File: 16051614.D
Acq: 16 May 2016 4:52 pm

Tgt Ion:276 Resp: 3652

Ion	Ratio	Lower	Upper
276	100		
138	18.3	0.0	39.1
277	24.7	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051615.D Vial: 15
Acq On : 16 May 2016 5:31 pm Operator:
Sample : 1605096-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:41 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

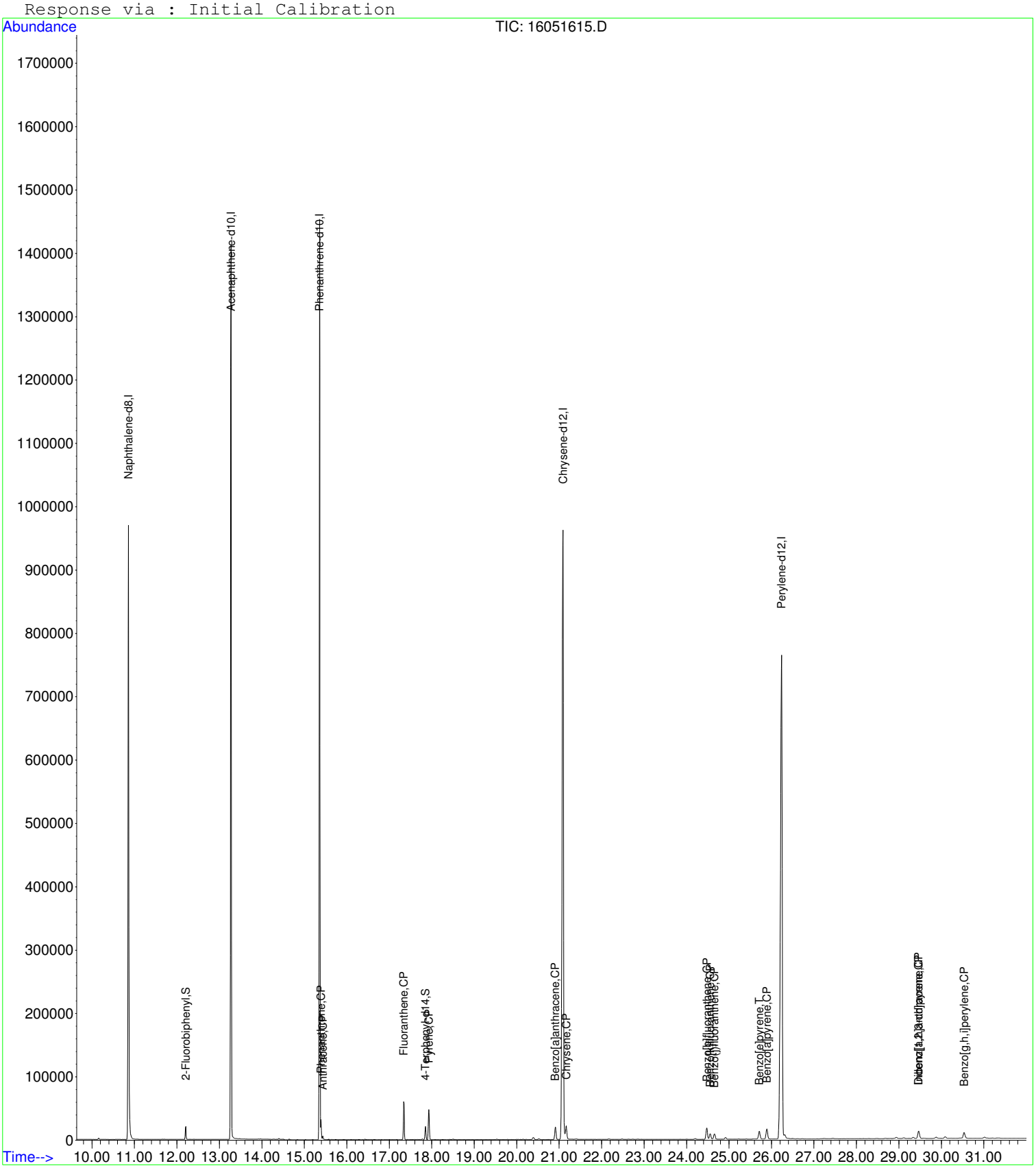
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1269425	4000.00	ug/kg	110
5) Acenaphthene-d10	13.28	164	817639	4000.00	ug/kg	71
11) Phenanthrene-d10	15.36	188	1530300	4000.00	ug/kg	75
17) Chrysene-d12	21.09	240	1608173	4000.00	ug/kg	71
20) Perylene-d12	26.24	264	1524037	4000.00	ug/kg	74
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	18619	78.06	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#		
16) 4-Terphenyl-d14	17.85	244	27100	68.45	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.71%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	23863	59.30	ug/kg	99
13) Anthracene	15.43	178	4460	11.71	ug/kg	98
14) Fluoranthene	17.34	202	58931	141.50	ug/kg	99
15) Pyrene	17.93	202	50971	117.82	ug/kg	99
18) Benzo[a]anthracene	20.91	228	29009	77.00	ug/kg	99
19) Chrysene	21.17	228	33372	91.68	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	32244	80.27	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	15631	41.48	ug/kg	98
23) Benzo(j)fluoranthene	24.66	252	14925	44.46	ug/kg	95
24) Benzo[e]pyrene	25.72	252	23345	64.90	ug/kg	99
25) Benzo[a]pyrene	25.89	252	30584	83.20	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	4570	13.65	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.47	276	19626	49.14	ug/kg	90
28) Benzo[g,h,i]perylene	30.54	276	18639	59.85	ug/kg	98

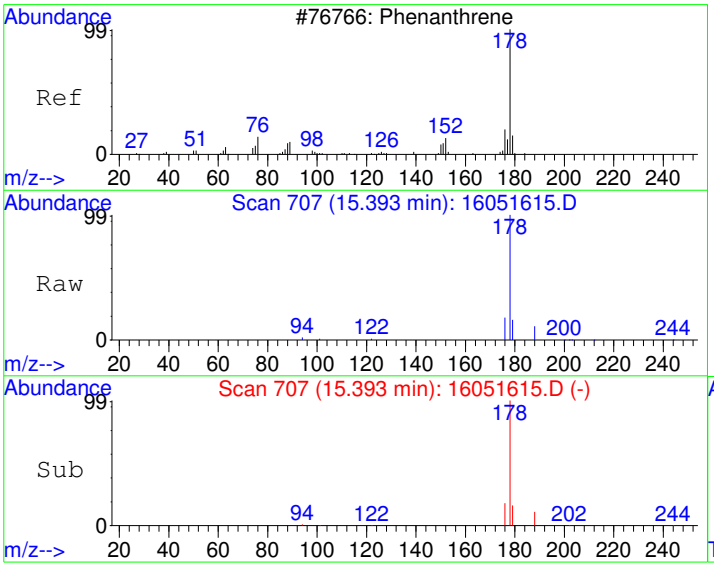
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051615.D Vial: 15
Acq On : 16 May 2016 5:31 pm Operator:
Sample : 1605096-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:41 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

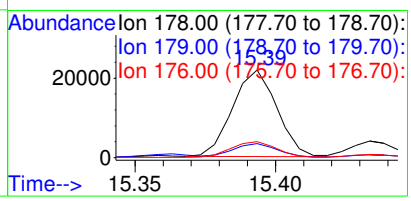


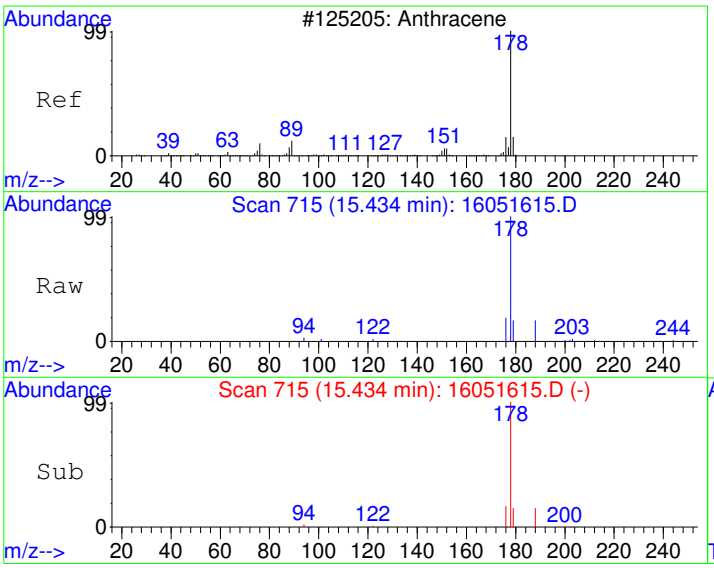


#12
Phenanthrene
Concen: 59.30 ug/kg
RT: 15.39 min Scan# 707
Delta R.T. 0.00 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:178 Resp: 23863

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	18.2	0.0	48.5

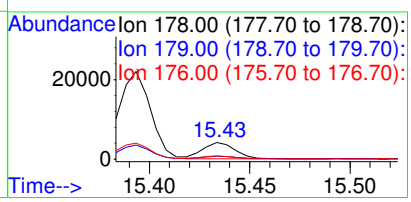


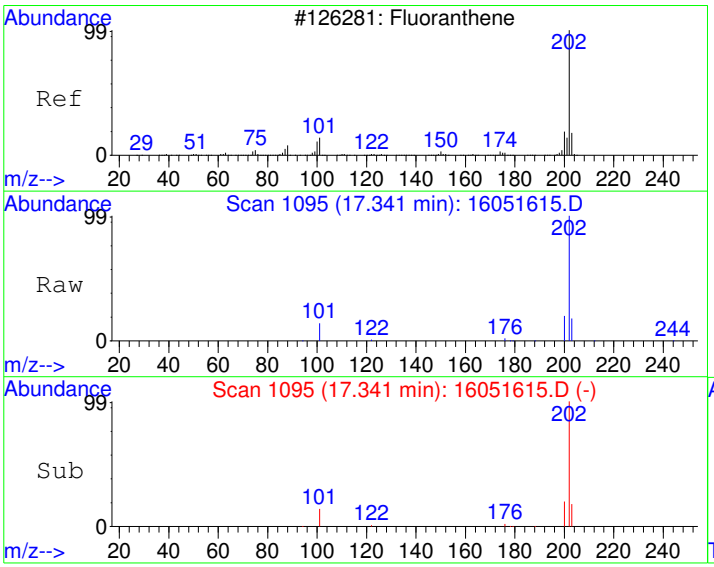


#13
Anthracene
Concen: 11.71 ug/kg
RT: 15.43 min Scan# 715
Delta R.T. 0.00 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:178 Resp: 4460

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	45.9
176	17.5	0.0	48.2

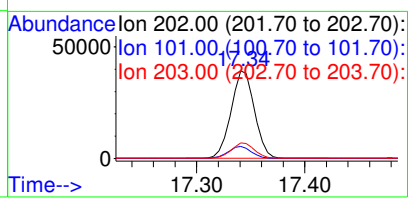


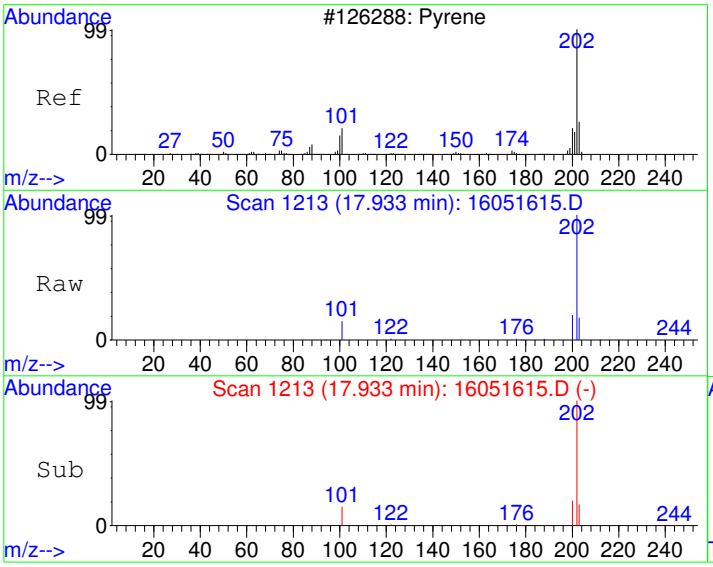


#14
Fluoranthene
Concen: 141.50 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. 0.00 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:202 Resp: 58931

Ion	Ratio	Lower	Upper
202	100		
101	13.8	0.0	43.0
203	17.6	0.0	47.9

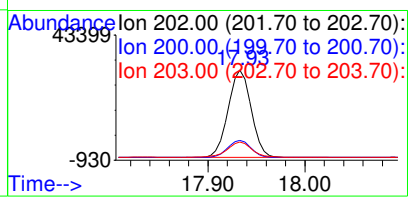


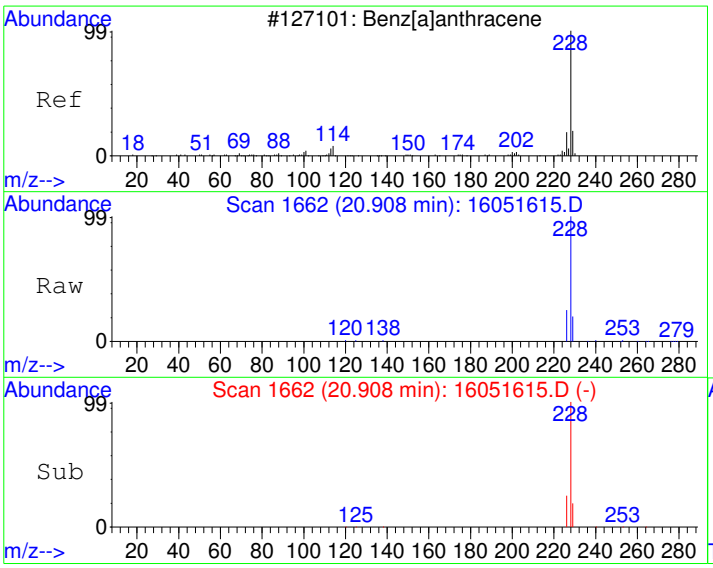


#15
Pyrene
Concen: 117.82 ug/kg
RT: 17.93 min Scan# 1213
Delta R.T. 0.00 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:202 Resp: 50971

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	50.0
203	17.6	0.0	48.0

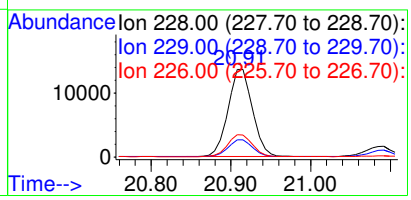


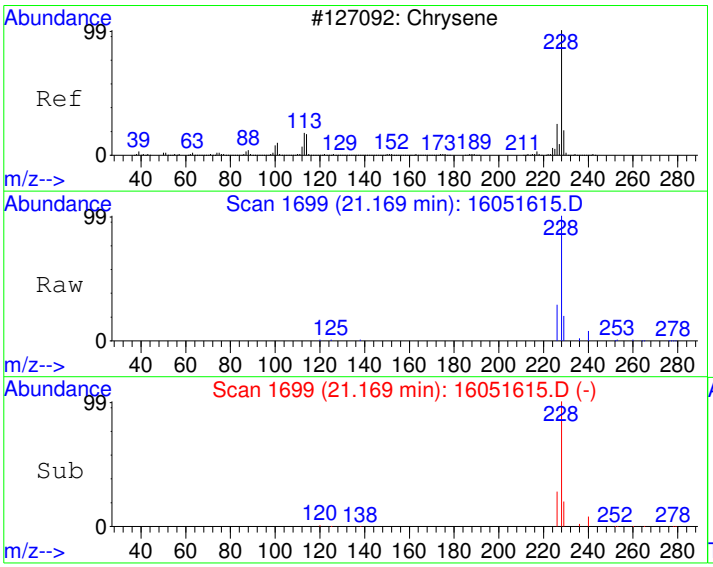


#18
Benzo[a]anthracene
Concen: 77.00 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:228 Resp: 29009

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	50.1
226	25.1	0.0	55.2

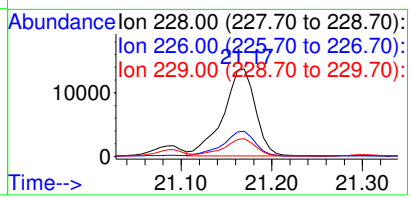


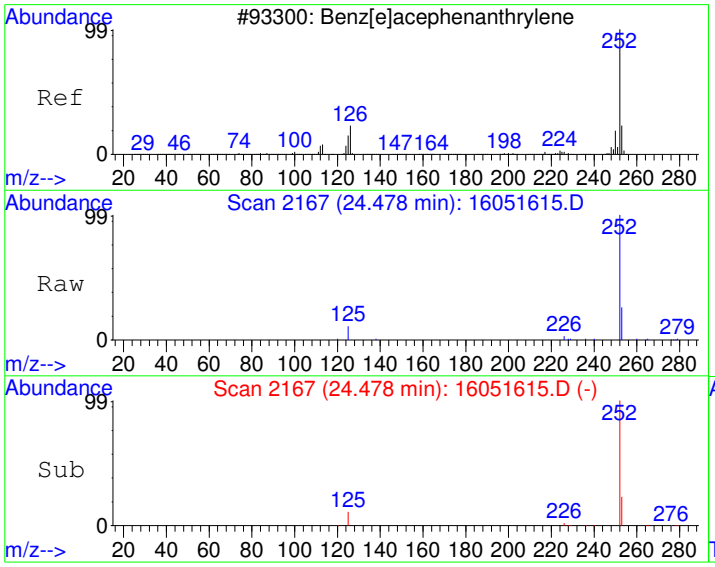


#19
Chrysene
Concen: 91.68 ug/kg
RT: 21.17 min Scan# 1699
Delta R.T. 0.00 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:228 Resp: 33372

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	19.8	0.0	50.1

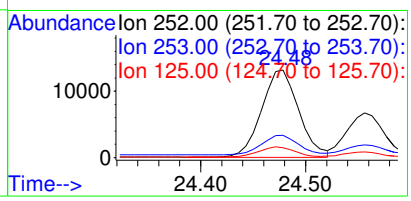


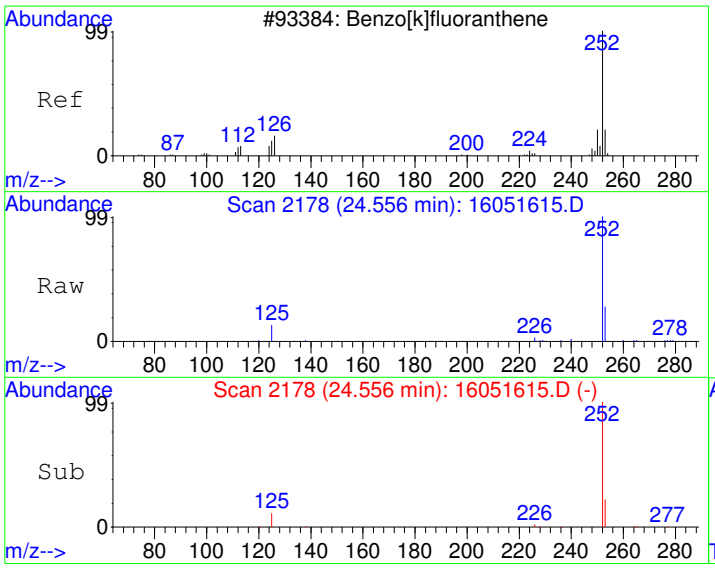


#21
Benzo[b]fluoranthene
Concen: 80.27 ug/kg
RT: 24.48 min Scan# 2167
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:252 Resp: 32244

Ion	Ratio	Lower	Upper
252	100		
253	22.5	0.0	52.2
125	10.9	0.0	41.0

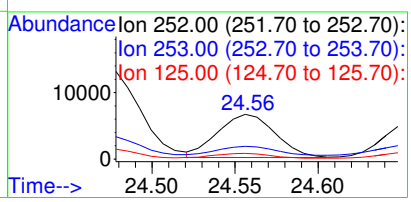


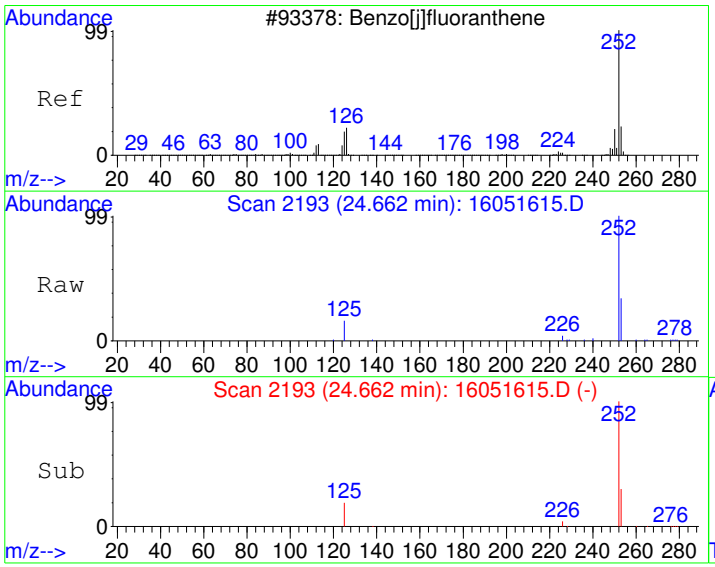


#22
Benzo[k]fluoranthene
Concen: 41.48 ug/kg
RT: 24.56 min Scan# 2178
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:252 Resp: 15631

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.1	42.1
125	11.2	0.0	31.3

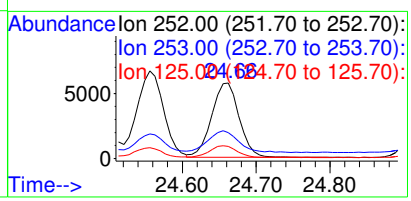


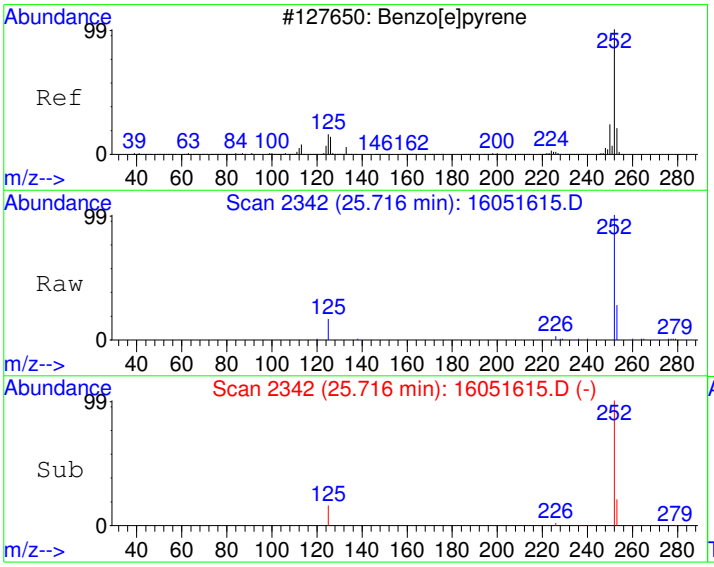


#23
Benzo(j)fluoranthene
Concen: 44.46 ug/kg
RT: 24.66 min Scan# 2193
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:252 Resp: 14925

Ion	Ratio	Lower	Upper
252	100		
253	26.1	2.1	42.1
125	14.7	0.0	34.4

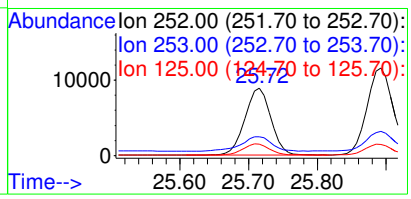


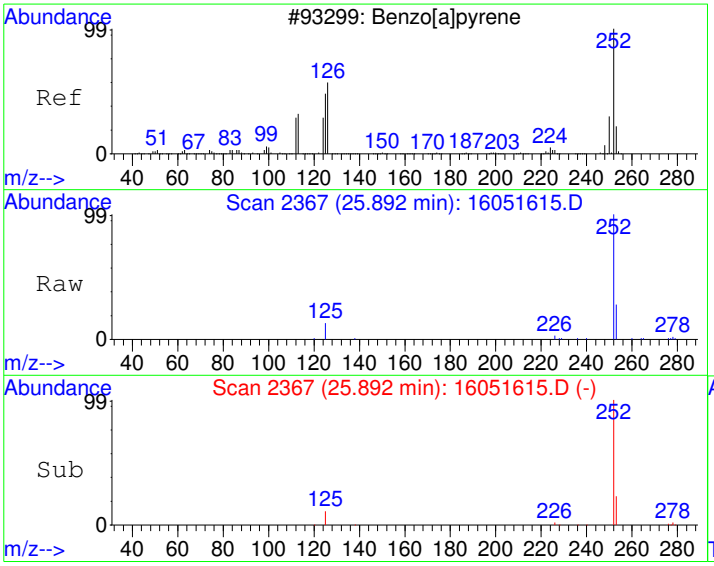


#24
Benzo[e]pyrene
Concen: 64.90 ug/kg
RT: 25.72 min Scan# 2342
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:252 Resp: 23345

Ion	Ratio	Lower	Upper
252	100		
253	21.3	2.2	42.2
125	16.0	0.0	36.1

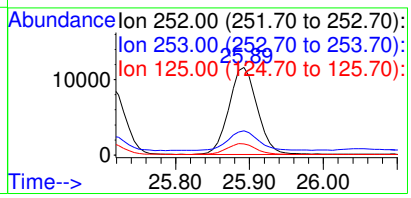


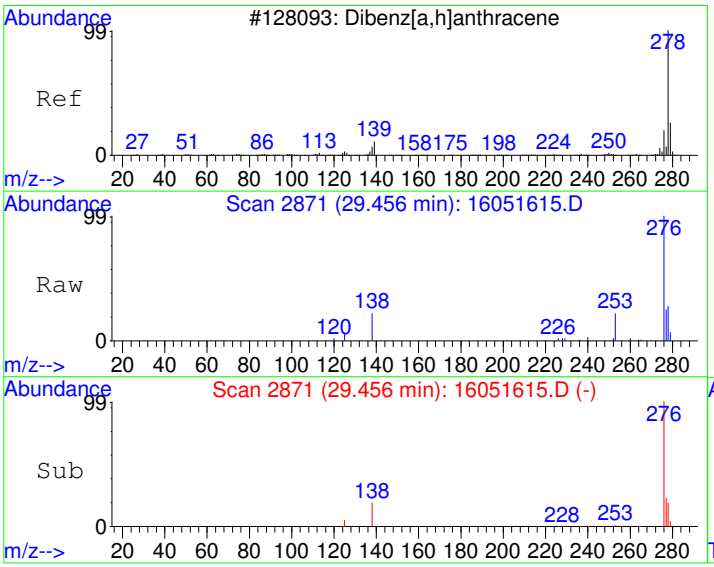


#25
Benzo[a]pyrene
Concen: 83.20 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:252 Resp: 30584

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	12.2	0.0	31.7

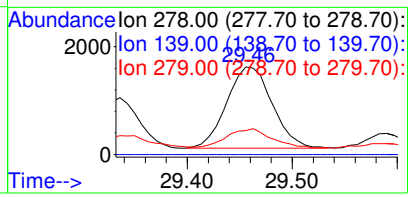


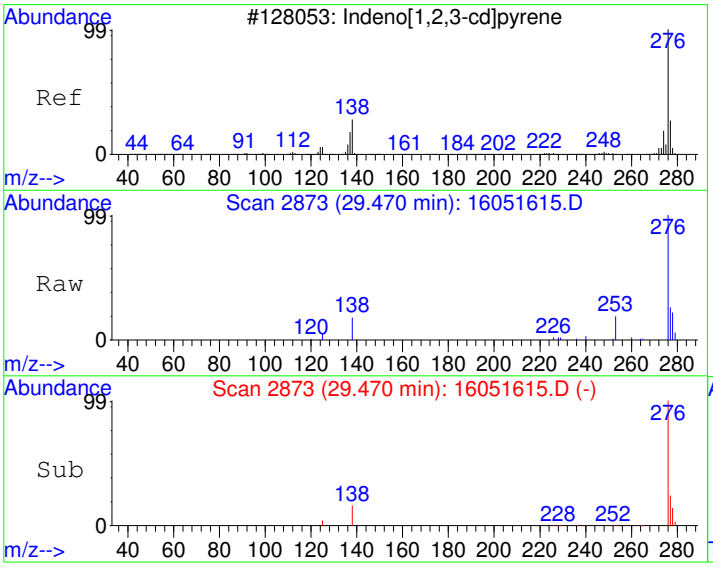


#26
Dibenz[a,h]anthracene
Concen: 13.65 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:278 Resp: 4570

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	20.8	4.2	44.2

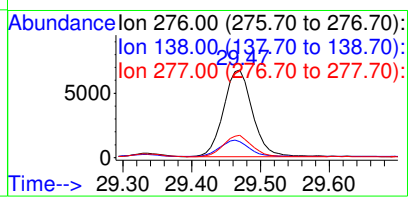


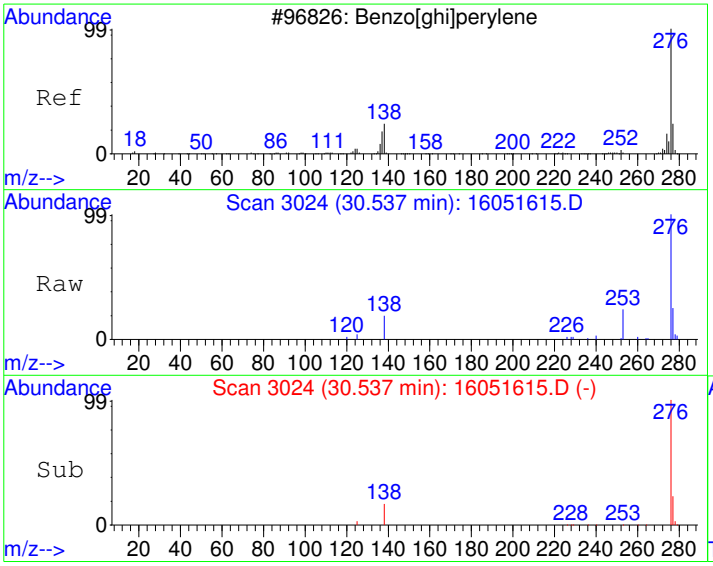


#27
Indeno[1,2,3-cd]pyrene
Concen: 49.14 ug/kg
RT: 29.47 min Scan# 2873
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:276 Resp: 19626

Ion	Ratio	Lower	Upper
276	100		
138	17.4	6.7	46.7
277	24.9	5.8	45.8

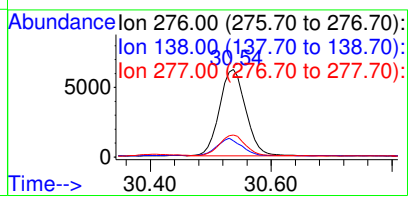




#28
Benzo[g,h,i]perylene
Concen: 59.85 ug/kg
RT: 30.54 min Scan# 3024
Delta R.T. -0.01 min
Lab File: 16051615.D
Acq: 16 May 2016 5:31 pm

Tgt Ion:276 Resp: 18639

Ion	Ratio	Lower	Upper
276	100		
138	17.2	0.0	39.1
277	24.2	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051616.D Vial: 16
Acq On : 16 May 2016 6:11 pm Operator:
Sample : 1605074-44AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

DNR- Wrong vail in sequence tray. See rerun 5-17-2016

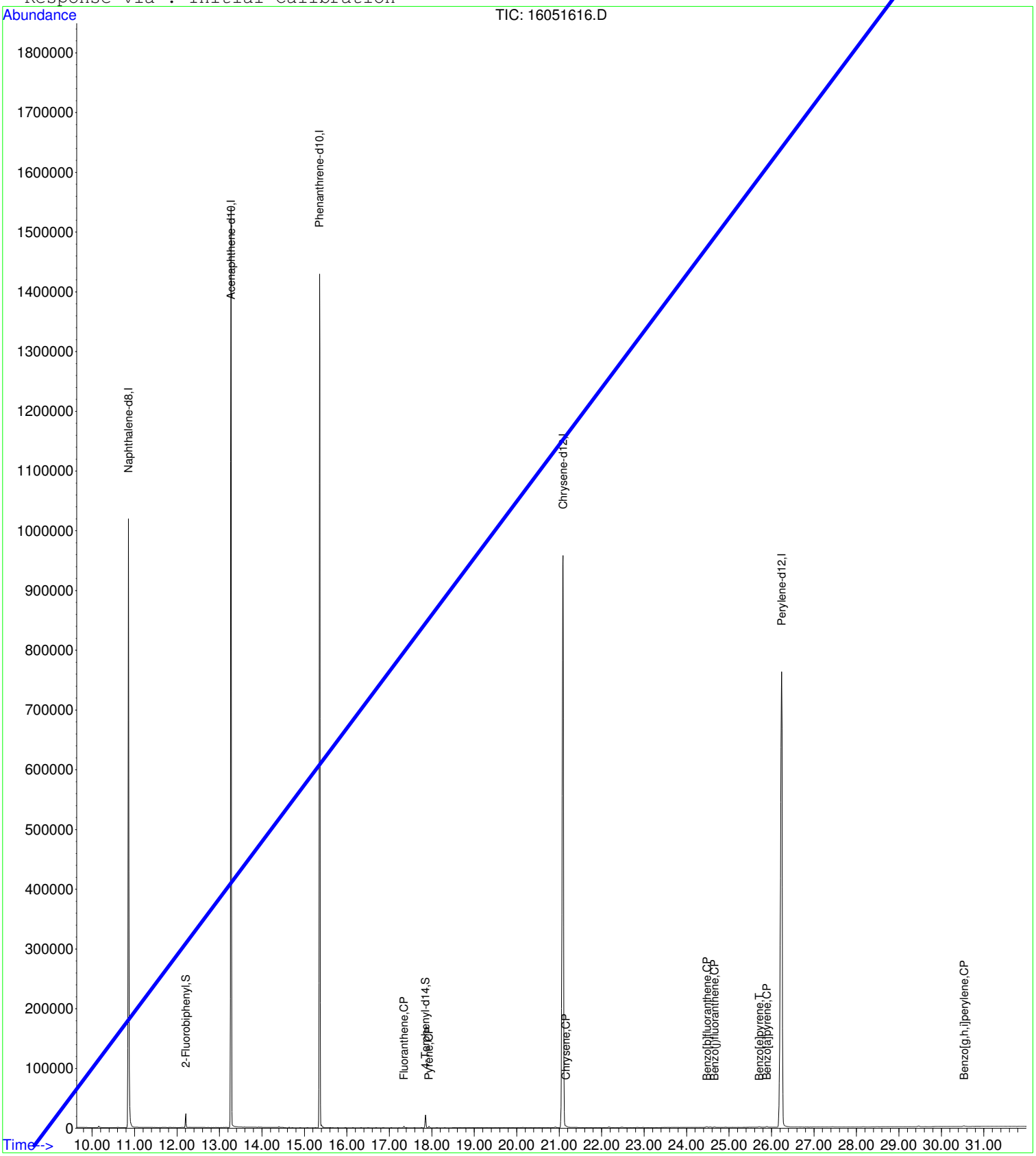
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1256325	4000.00	ug/kg	108
5) Acenaphthene-d10	13.27	164	833040	4000.00	ug/kg	72
11) Phenanthrene-d10	15.36	188	1541705	4000.00	ug/kg	75
17) Chrysene-d12	21.09	240	1601983	4000.00	ug/kg	71
20) Perylene-d12	26.24	264	1508715	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	19077	78.50	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.85	244	26405	66.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.66%#		
Target Compounds						Qvalue
14) Fluoranthene	17.34	202	2530	6.03	ug/kg	96
15) Pyrene	17.93	202	2557	5.87	ug/kg	98
19) Chrysene	21.17	228	2066	5.70	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	2575	6.48	ug/kg	100
23) Benzo(j)fluoranthene	24.66	252	1023	3.08	ug/kg	88
24) Benzo[e]pyrene	25.72	252	1818	5.11	ug/kg	92
25) Benzo[a]pyrene	25.89	252	2438	6.70	ug/kg	96
28) Benzo[g,h,i]perylene	30.53	276	1876	6.08	ug/kg	95

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051616.D Vial: 16
Acq On : 16 May 2016 6:11 pm Operator:
Sample : 1605074-44AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051617.D Vial: 17
Acq On : 16 May 2016 6:50 pm Operator:
Sample : 1605074-44AMSD Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

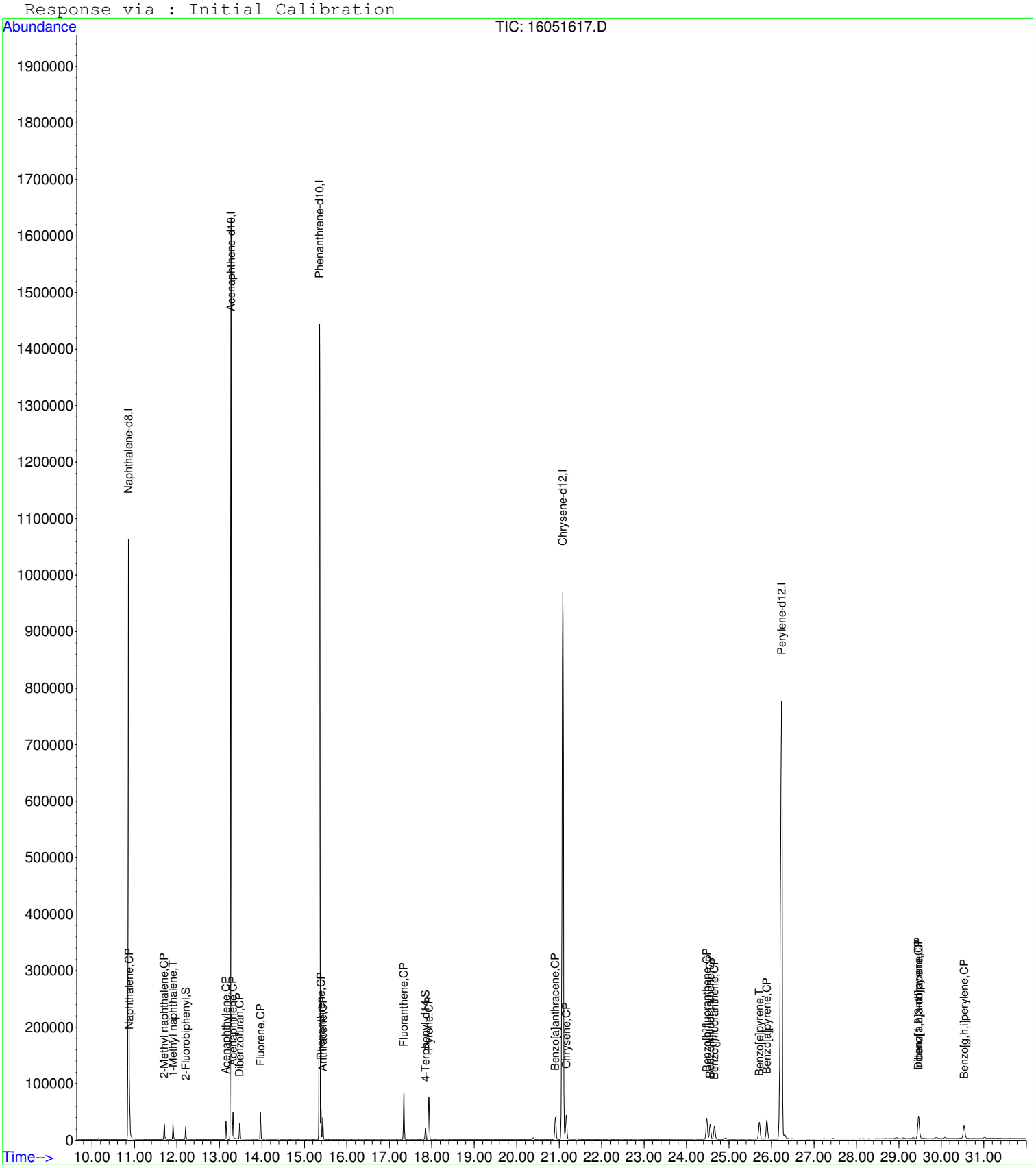
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1300062	4000.00	ug/kg	112
5) Acenaphthene-d10	13.27	164	849606	4000.00	ug/kg	74
11) Phenanthrene-d10	15.36	188	1577199	4000.00	ug/kg	77
17) Chrysene-d12	21.08	240	1646082	4000.00	ug/kg	72
20) Perylene-d12	26.24	264	1537974	4000.00	ug/kg	75
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	19041	76.83	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
16) 4-Terphenyl-d14	17.85	244	27327	66.97	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#		
Target Compounds						Qvalue
2) Naphthalene	10.89	128	23619	72.63	ug/kg	99
3) 2-Methyl naphthalene	11.71	142	16876	58.75	ug/kg	98
4) 1-Methyl naphthalene	11.91	142	15290	58.12	ug/kg	96
6) Dibenzofuran	13.48	168	26528	83.31	ug/kg	99
8) Acenaphthylene	13.16	152	27838	76.08	ug/kg	99
9) Acenaphthene	13.32	154	17459	76.88	ug/kg	100
10) Fluorene	13.97	166	22504	81.59	ug/kg	99
12) Phenanthrene	15.39	178	47283	114.00	ug/kg	99
13) Anthracene	15.43	178	34094	86.84	ug/kg	99
14) Fluoranthene	17.34	202	84898	197.79	ug/kg	98
15) Pyrene	17.93	202	81675	183.18	ug/kg	99
18) Benzo[a]anthracene	20.91	228	59987	155.55	ug/kg	99
19) Chrysene	21.17	228	63838	171.33	ug/kg	100
21) Benzo[b]fluoranthene	24.48	252	68905	169.99	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	46798	123.07	ug/kg	99
23) Benzo(j)fluoranthene	24.65	252	42931	126.74	ug/kg	95
24) Benzo[e]pyrene	25.72	252	55828	153.79	ug/kg	99
25) Benzo[a]pyrene	25.89	252	63809	172.01	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	29739	88.03	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.47	276	52119	129.32	ug/kg	92
28) Benzo[g,h,i]perylene	30.54	276	46121	146.75	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051617.D Vial: 17
Acq On : 16 May 2016 6:50 pm Operator:
Sample : 1605074-44AMSD Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051619.D Vial: 19
Acq On : 16 May 2016 8:06 pm Operator:
Sample : ICV2-160516 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

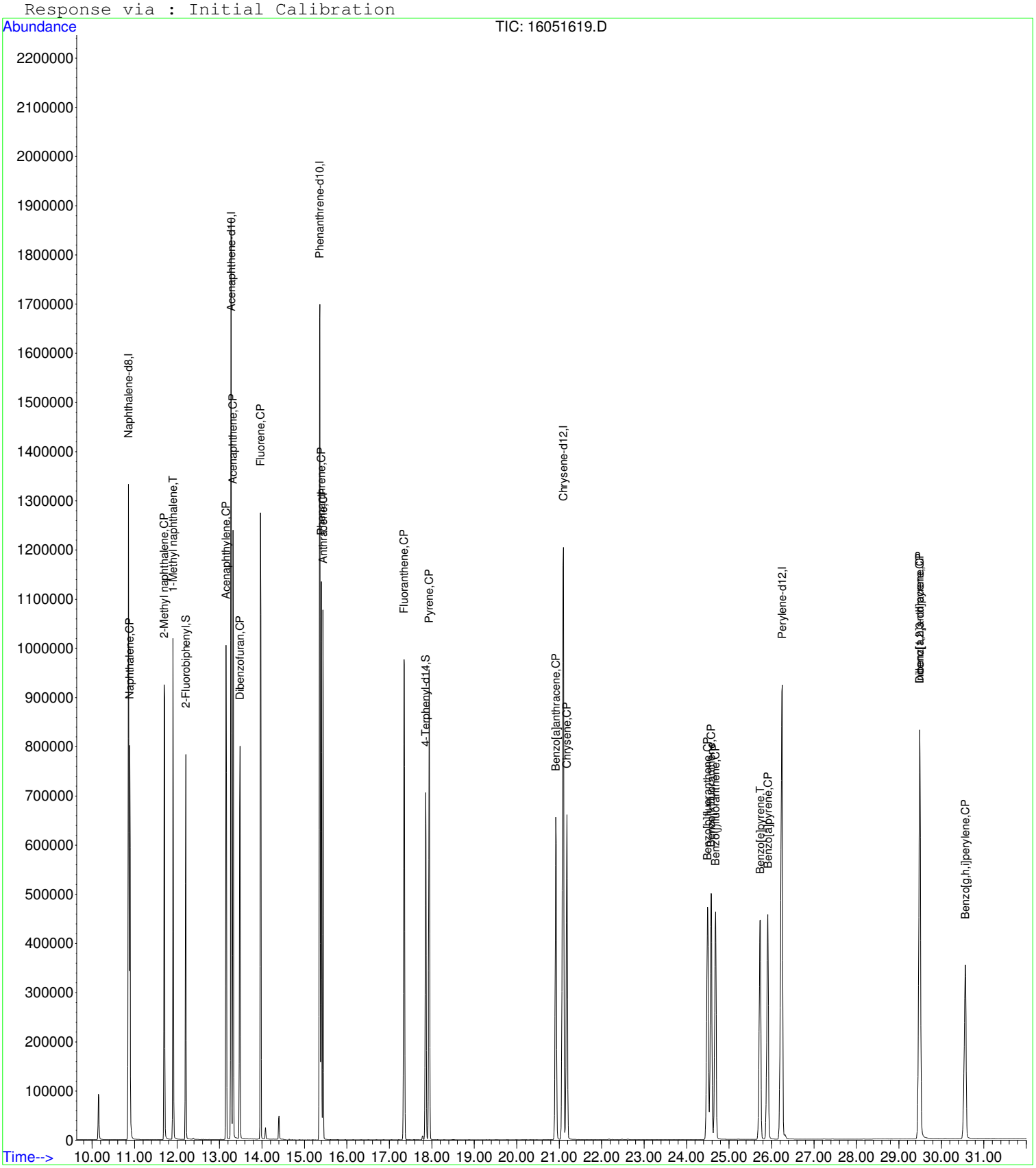
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1587027	4000.00	ug/kg	137
5) Acenaphthene-d10	13.27	164	985302	4000.00	ug/kg	86
11) Phenanthrene-d10	15.36	188	1919244	4000.00	ug/kg	94
17) Chrysene-d12	21.10	240	2113926	4000.00	ug/kg	93
20) Perylene-d12	26.25	264	1947601	4000.00	ug/kg	95
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	590358	2053.99	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.35%		
16) 4-Terphenyl-d14	17.86	244	915584	1843.92	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	46.10%		
Target Compounds						Qvalue
2) Naphthalene	10.89	128	785463	1978.62	ug/kg	99
3) 2-Methyl naphthalene	11.71	142	553632	1578.84	ug/kg	96
4) 1-Methyl naphthalene	11.91	142	499740	1556.08	ug/kg	95
6) Dibenzofuran	13.48	168	746091	2020.39	ug/kg	98
8) Acenaphthylene	13.15	152	903313	2128.80	ug/kg	100
9) Acenaphthene	13.32	154	530365	2013.71	ug/kg	97
10) Fluorene	13.97	166	676538	2115.11	ug/kg	98
12) Phenanthrene	15.40	178	967210	1916.29	ug/kg	100
13) Anthracene	15.44	178	894004	1871.35	ug/kg	100
14) Fluoranthene	17.35	202	1023358	1959.30	ug/kg	99
15) Pyrene	17.94	202	1030046	1898.47	ug/kg	99
18) Benzo[a]anthracene	20.92	228	974515	1967.76	ug/kg	99
19) Chrysene	21.18	228	899329	1879.47	ug/kg	100
21) Benzo[b]fluoranthene	24.49	252	984442	1917.79	ug/kg	99
22) Benzo[k]fluoranthene	24.58	252	906607	1882.71	ug/kg	100
23) Benzo(j)fluoranthene	24.68	252	807967	1883.58	ug/kg	99
24) Benzo[e]pyrene	25.74	252	860252	1871.30	ug/kg	99
25) Benzo[a]pyrene	25.91	252	891221	1897.16	ug/kg	99
26) Dibenz[a,h]anthracene	29.49	278	784134	1832.82	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.50	276	911156	1785.23	ug/kg	96
28) Benzo[g,h,i]perylene	30.57	276	735205	1847.32	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051619.D Vial: 19
Acq On : 16 May 2016 8:06 pm Operator:
Sample : ICV2-160516 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:33 2016 Quant Results File: PP160421.RES

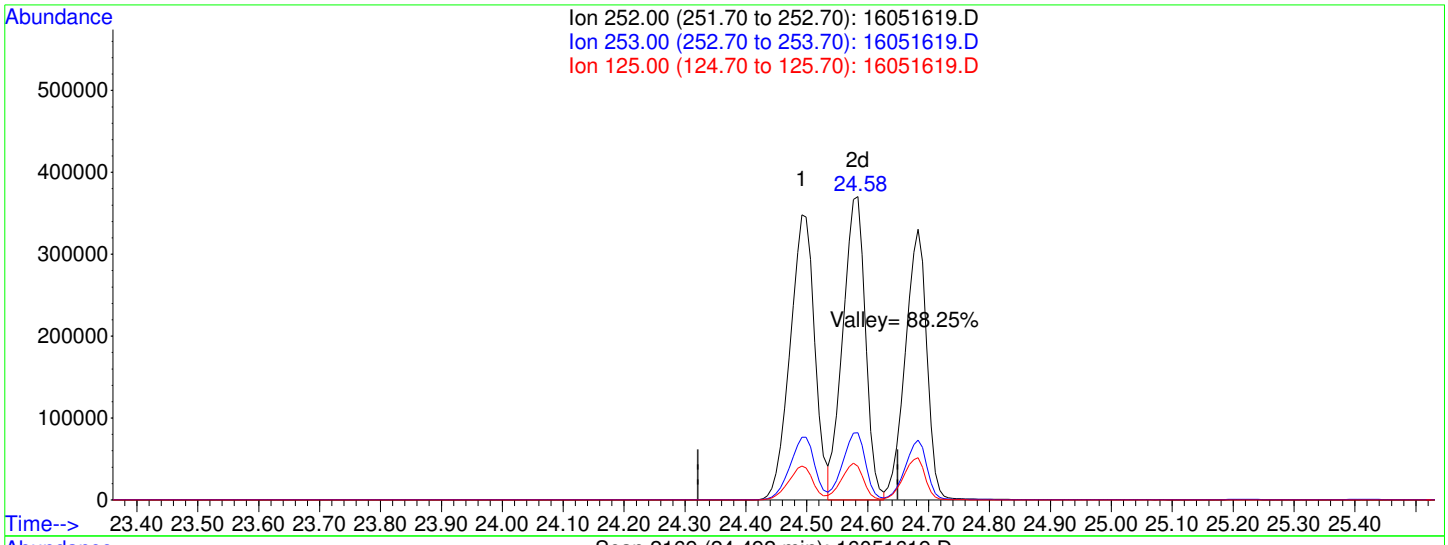
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

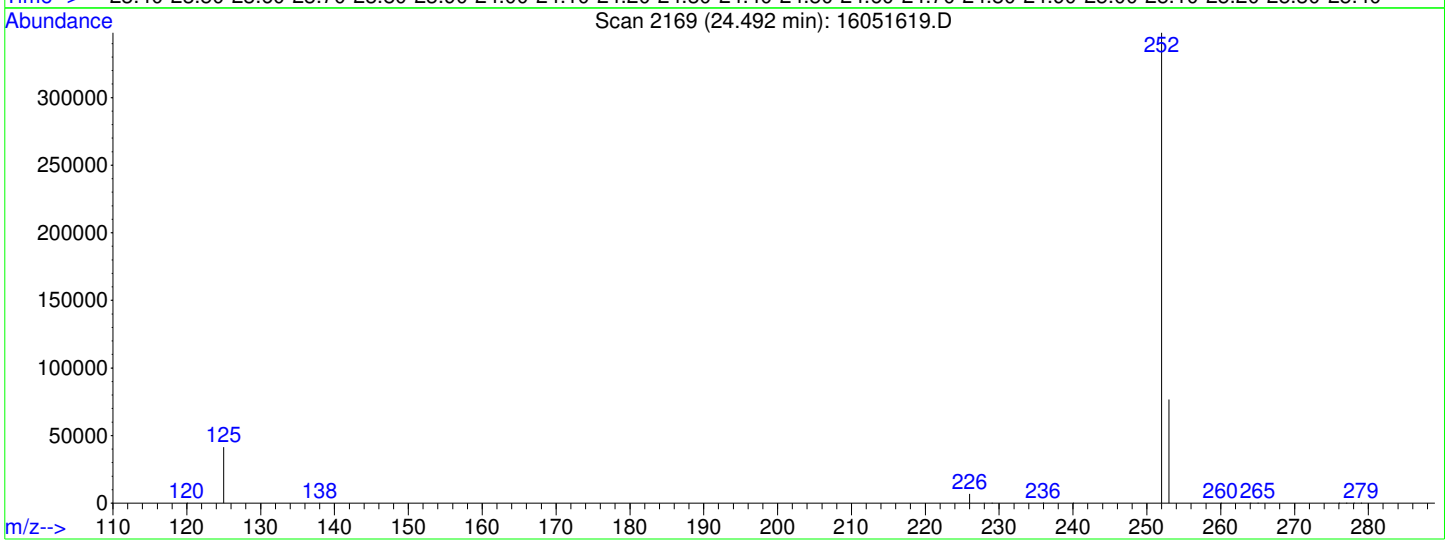


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160516\16051619.D Vial: 19
Acq On : 16 May 2016 8:06 pm Operator:
Sample : ICV2-160516 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 16 20:38 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051619.D

(21) Benzo[b]fluoranthene (CP)

24.49min 1917.79ug/kg

response 984442

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	21.95
125.00	11.00	11.88
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051621.D Vial: 21
Acq On : 16 May 2016 9:26 pm Operator:
Sample : SB-160516 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:34 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

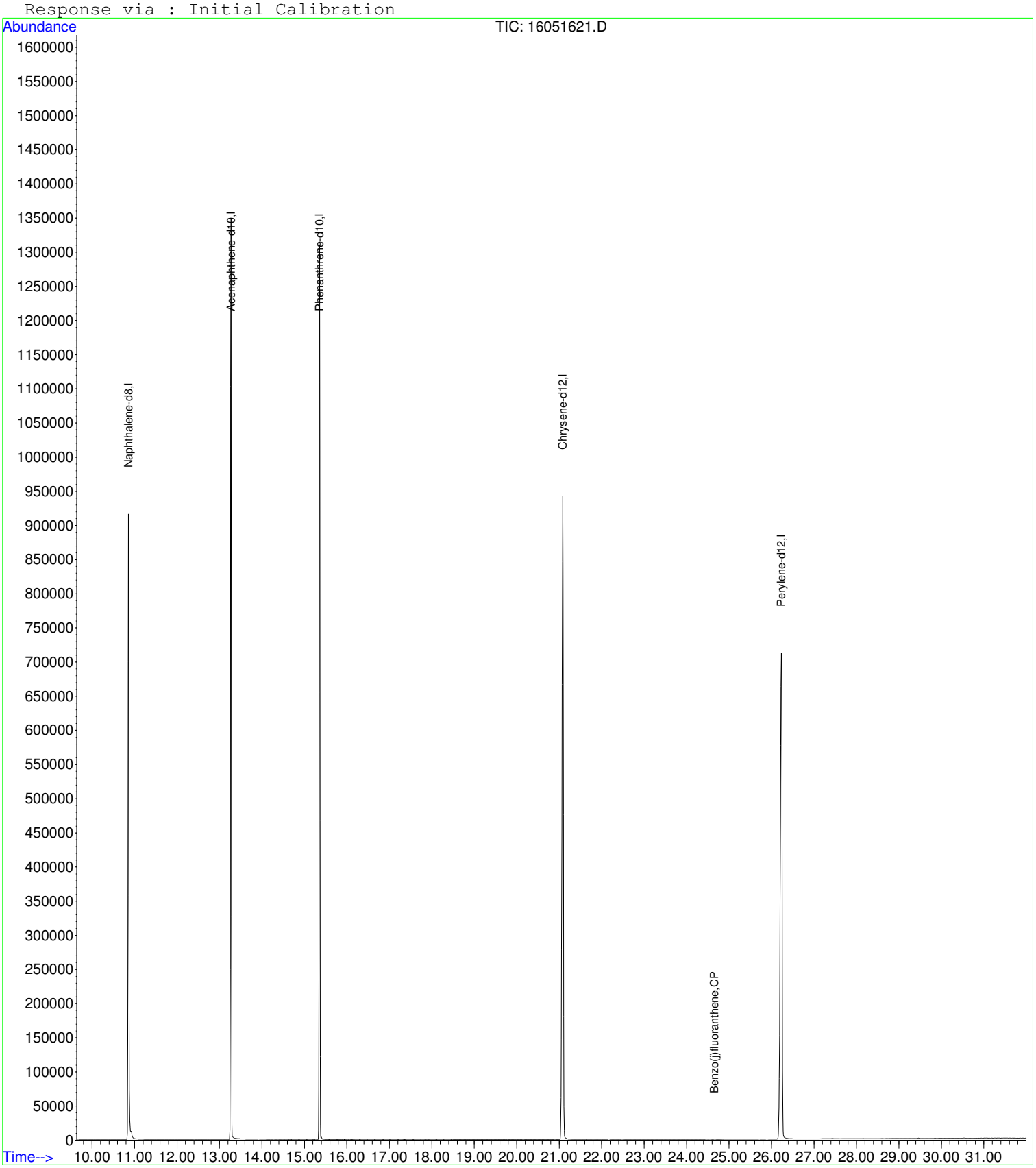
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1188173	4000.00	ug/kg	103
5) Acenaphthene-d10	13.27	164	766722	4000.00	ug/kg	67
11) Phenanthrene-d10	15.36	188	1376151	4000.00	ug/kg	67
17) Chrysene-d12	21.08	240	1565686	4000.00	ug/kg	69
20) Perylene-d12	26.23	264	1434351	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	37	0.17	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.85	244	201	0.56	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.65	252	214	0.68	ug/kg	81

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051621.D Vial: 21
Acq On : 16 May 2016 9:26 pm Operator:
Sample : SB-160516 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:34 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051622.D Vial: 22
Acq On : 16 May 2016 10:06 pm Operator:
Sample : 1605096-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:42 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

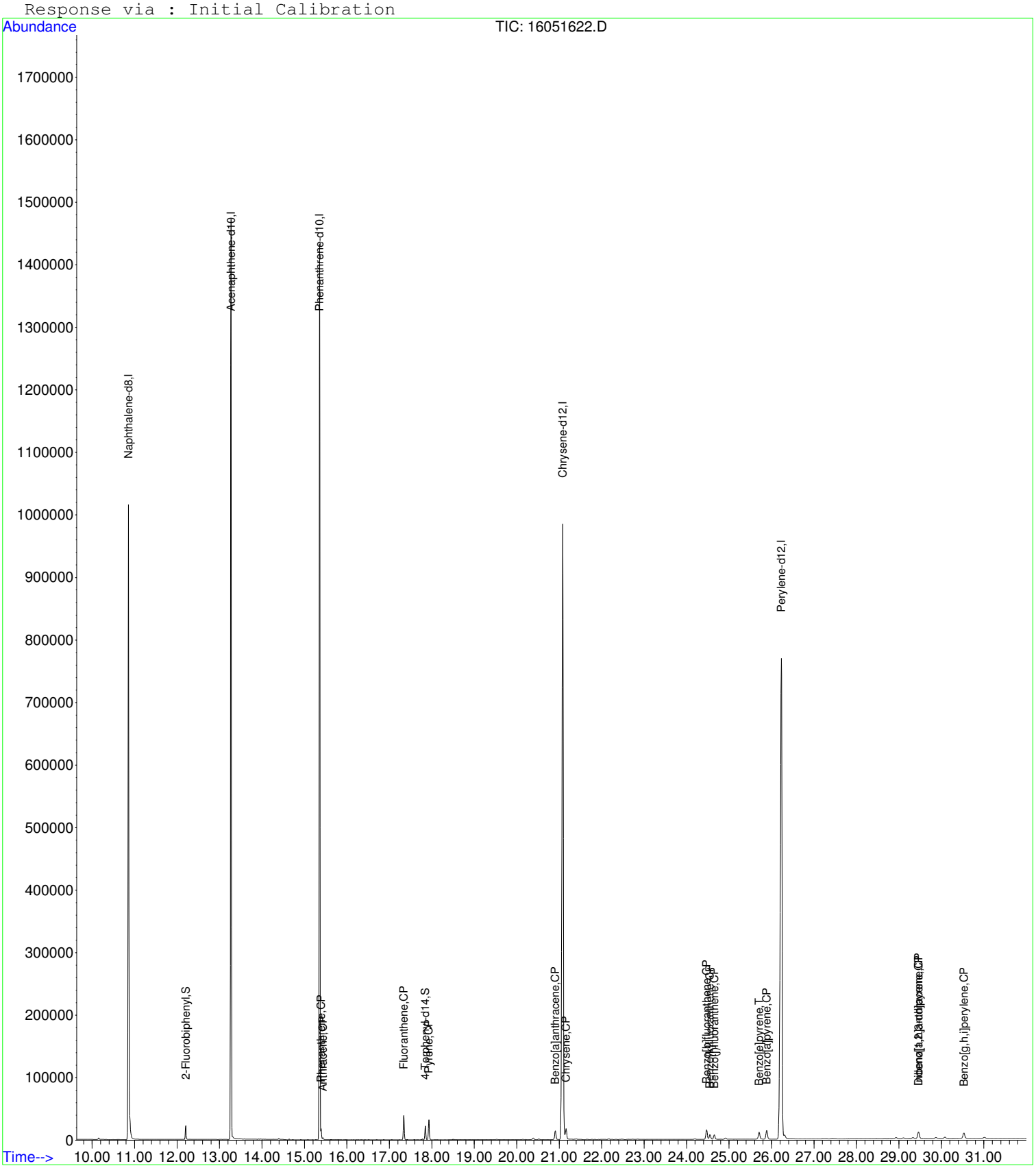
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1303172	4000.00	ug/kg	112
5) Acenaphthene-d10	13.27	164	842255	4000.00	ug/kg	73
11) Phenanthrene-d10	15.36	188	1535288	4000.00	ug/kg	75
17) Chrysene-d12	21.08	240	1638750	4000.00	ug/kg	72
20) Perylene-d12	26.23	264	1540565	4000.00	ug/kg	75
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	19872	80.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
16) 4-Terphenyl-d14	17.85	244	27977	70.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	12748	31.57	ug/kg	99
13) Anthracene	15.43	178	2296	6.01	ug/kg	98
14) Fluoranthene	17.34	202	38265	91.58	ug/kg	99
15) Pyrene	17.93	202	34926	80.47	ug/kg	99
18) Benzo[a]anthracene	20.91	228	21137	55.06	ug/kg	99
19) Chrysene	21.16	228	25847	69.68	ug/kg	100
21) Benzo[b]fluoranthene	24.47	252	27660	68.12	ug/kg	98
22) Benzo[k]fluoranthene	24.55	252	13363	35.08	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	12343	36.38	ug/kg	94
24) Benzo[e]pyrene	25.71	252	20473	56.30	ug/kg	99
25) Benzo[a]pyrene	25.88	252	26279	70.72	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	4274	12.63	ug/kg	94
27) Indeno[1,2,3-cd]pyrene	29.46	276	18034	44.67	ug/kg	91
28) Benzo[g,h,i]perylene	30.53	276	17326	55.04	ug/kg	98

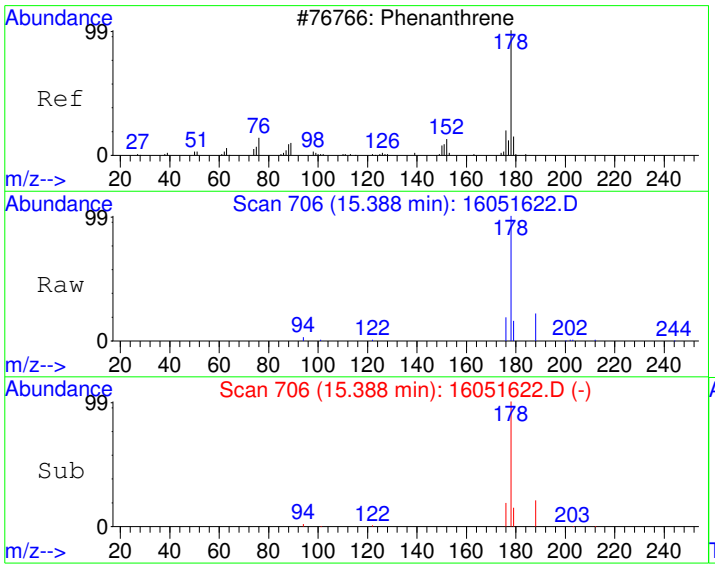
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051622.D Vial: 22
Acq On : 16 May 2016 10:06 pm Operator:
Sample : 1605096-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:42 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

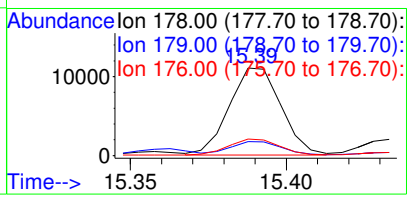


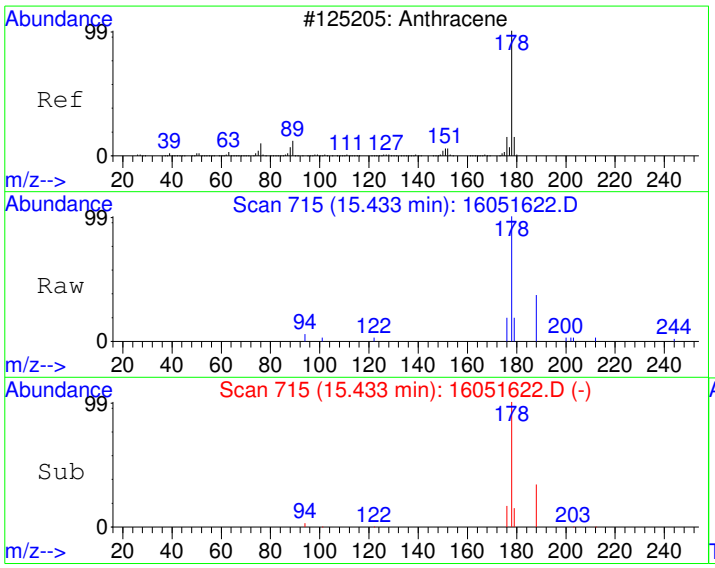


#12
Phenanthrene
Concen: 31.57 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:178 Resp: 12748

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.9
176	18.8	0.0	48.5

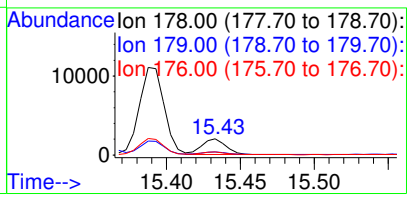


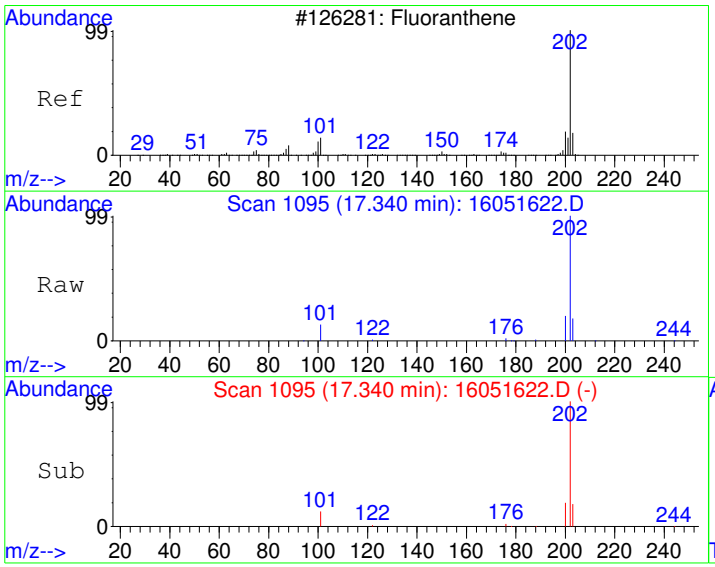


#13
Anthracene
Concen: 6.01 ug/kg
RT: 15.43 min Scan# 715
Delta R.T. -0.00 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:178 Resp: 2296

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

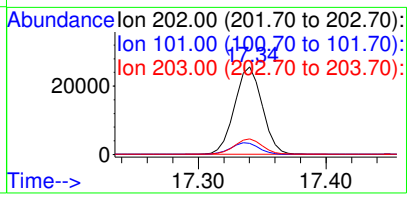


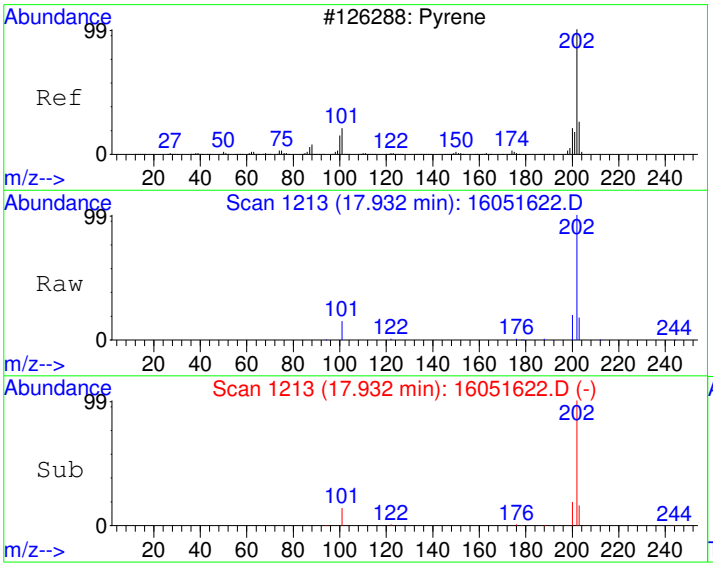


#14
Fluoranthene
Concen: 91.58 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:202 Resp: 38265

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	43.0
203	17.7	0.0	47.9

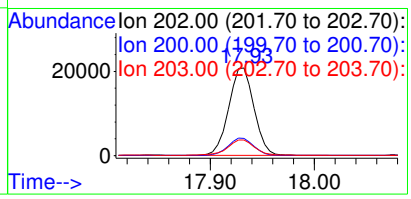


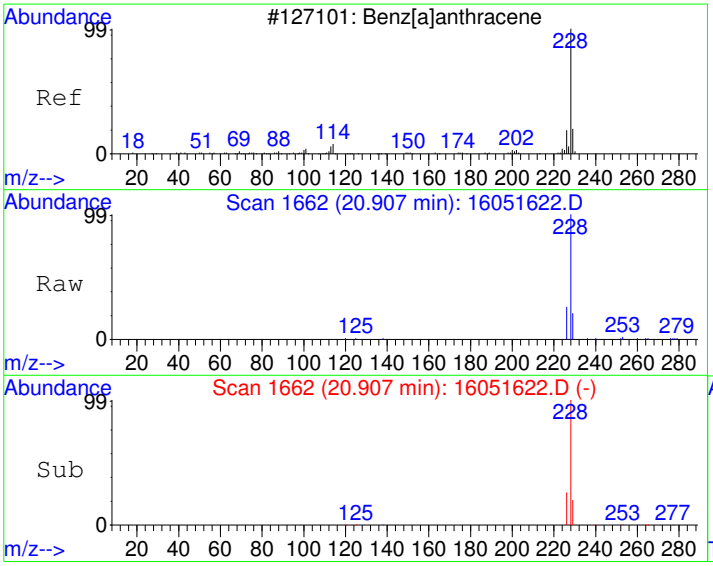


#15
Pyrene
Concen: 80.47 ug/kg
RT: 17.93 min Scan# 1213
Delta R.T. -0.00 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:202 Resp: 34926

Ion	Ratio	Lower	Upper
202	100		
200	19.3	0.0	50.0
203	17.6	0.0	48.0

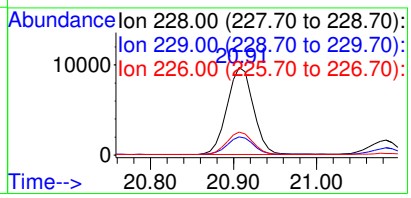


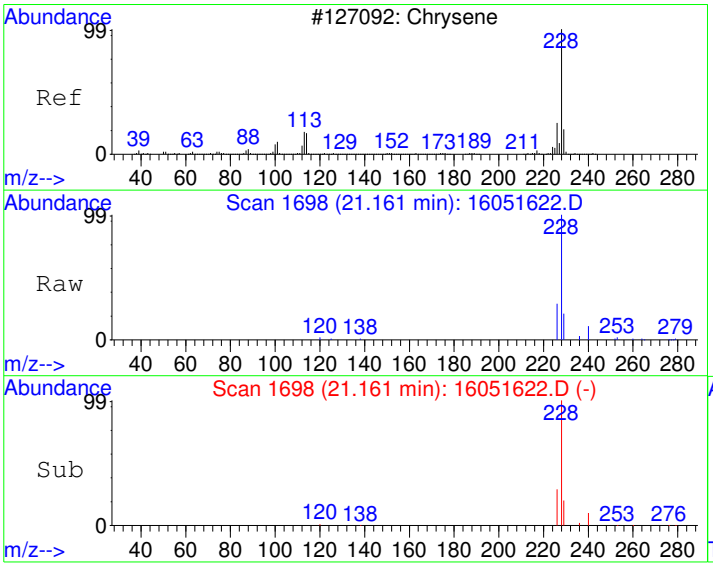


#18
Benzo[a]anthracene
Concen: 55.06 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:228 Resp: 21137

Ion	Ratio	Lower	Upper
228	100		
229	20.4	0.0	50.1
226	26.0	0.0	55.2

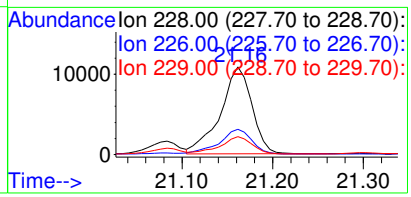


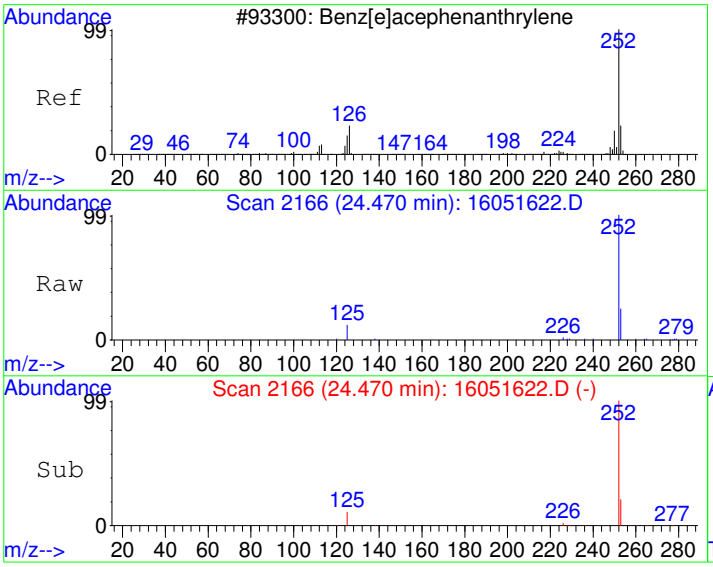


#19
Chrysene
Concen: 69.68 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:228 Resp: 25847

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	20.0	0.0	50.1

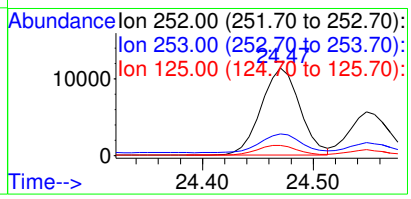


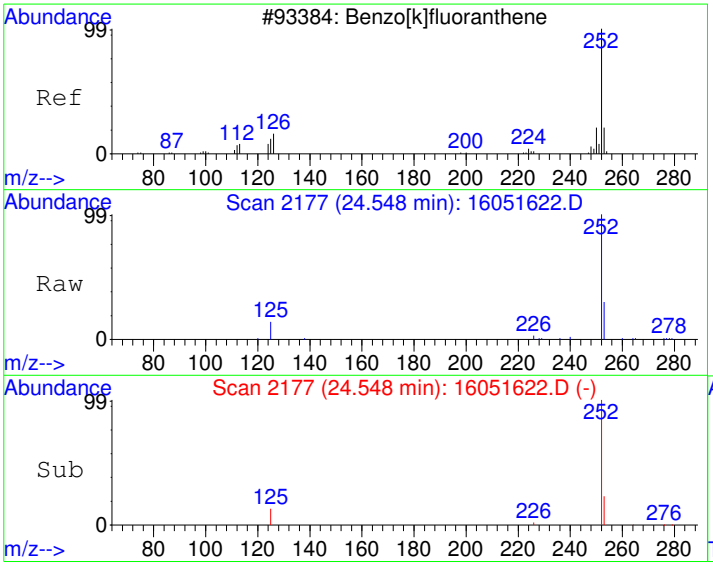


#21
Benzo[b]fluoranthene
Concen: 68.12 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:252 Resp: 27660

Ion	Ratio	Lower	Upper
252	100		
253	21.1	0.0	52.2
125	11.3	0.0	41.0

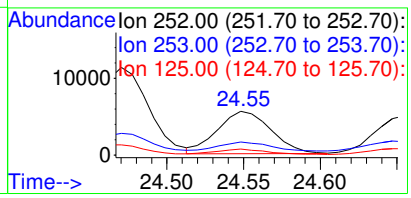


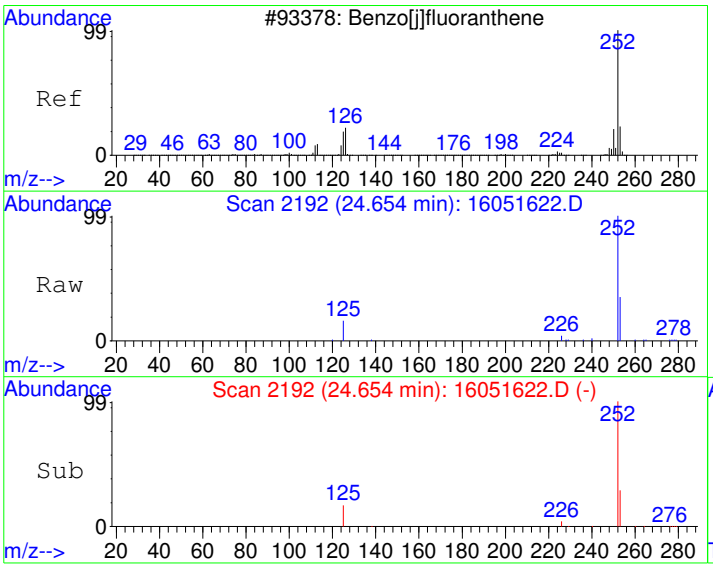


#22
Benzo[k]fluoranthene
Concen: 35.08 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:252 Resp: 13363

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.1	42.1
125	12.5	0.0	31.3

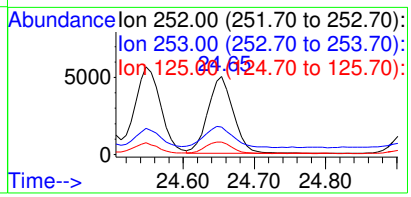


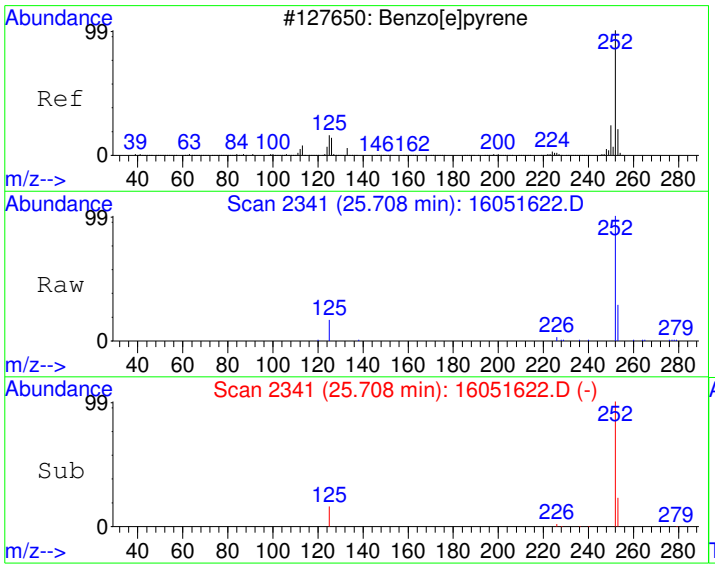


#23
Benzo(j)fluoranthene
Concen: 36.38 ug/kg
RT: 24.65 min Scan# 2192
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:252 Resp: 12343

Ion	Ratio	Lower	Upper
252	100		
253	26.9	2.1	42.1
125	14.7	0.0	34.4

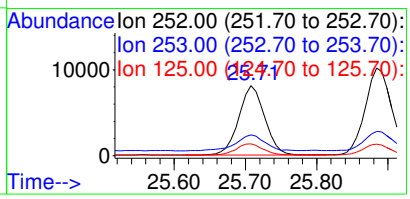


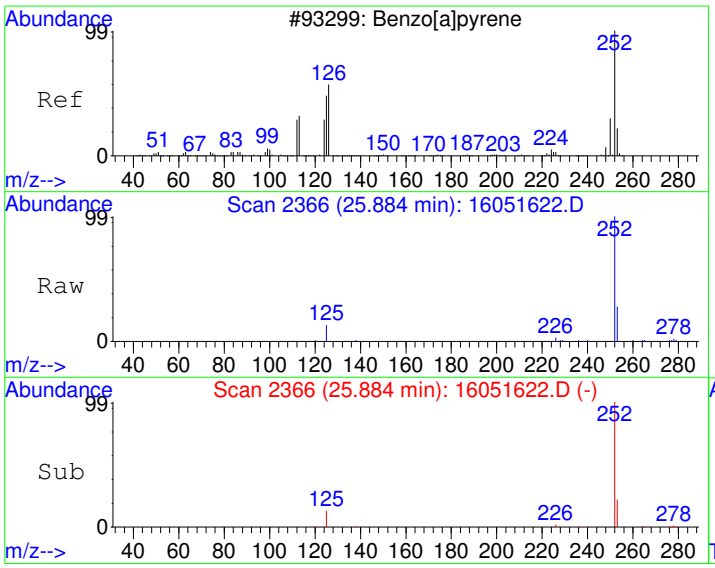


#24
Benzo[e]pyrene
Concen: 56.30 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:252 Resp: 20473

Ion	Ratio	Lower	Upper
252	100		
253	23.0	2.2	42.2
125	16.2	0.0	36.1

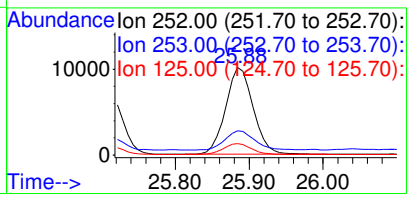


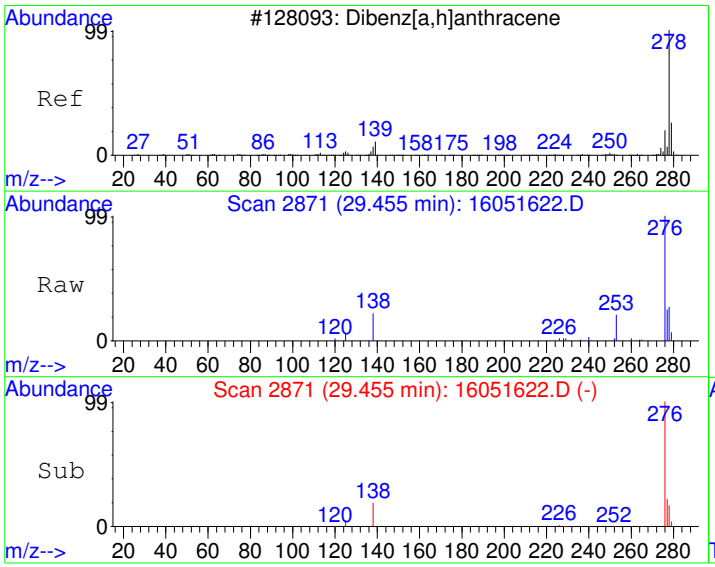


#25
Benzo[a]pyrene
Concen: 70.72 ug/kg
RT: 25.88 min Scan# 2366
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:252 Resp: 26279

Ion	Ratio	Lower	Upper
252	100		
253	22.2	1.9	41.9
125	12.6	0.0	31.7

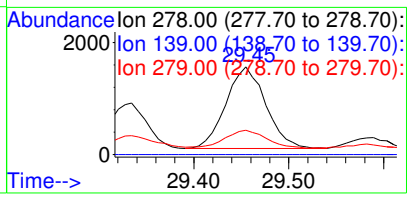


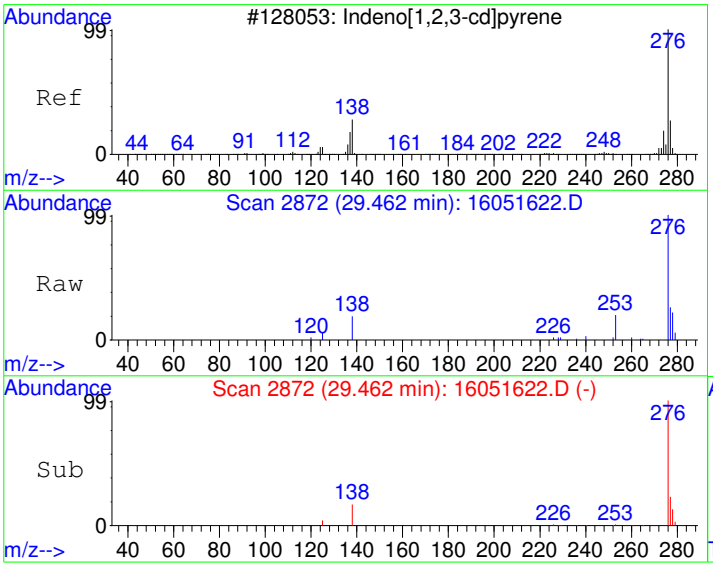


#26
Dibenz[a,h]anthracene
Concen: 12.63 ug/kg
RT: 29.45 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:278 Resp: 4274

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.3	4.2	44.2

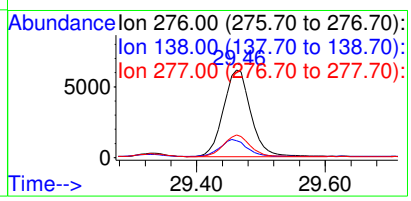


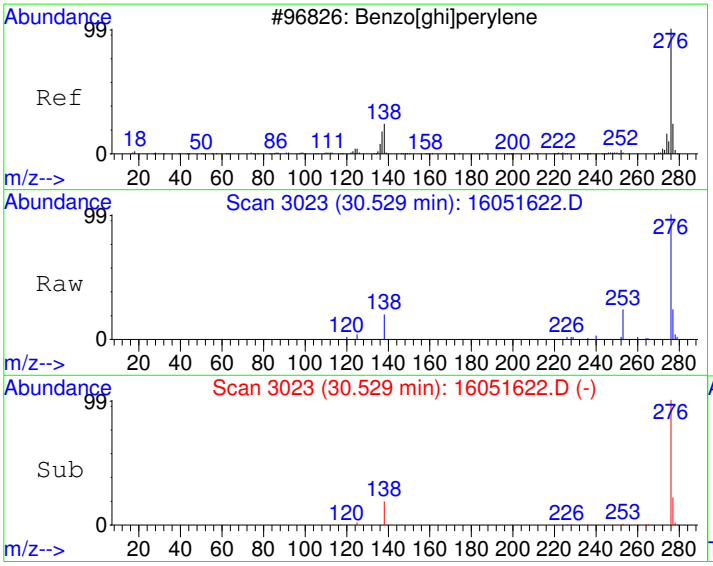


#27
Indeno[1,2,3-cd]pyrene
Concen: 44.67 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:276 Resp: 18034

Ion	Ratio	Lower	Upper
276	100		
138	18.3	6.7	46.7
277	25.0	5.8	45.8

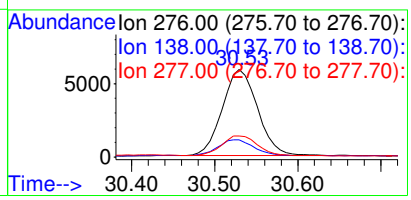




#28
Benzo[g,h,i]perylene
Concen: 55.04 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051622.D
Acq: 16 May 2016 10:06 pm

Tgt Ion:276 Resp: 17326

Ion	Ratio	Lower	Upper
276	100		
138	18.4	0.0	39.1
277	22.8	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051623.D Vial: 23
Acq On : 16 May 2016 10:46 pm Operator:
Sample : 1605096-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:42 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

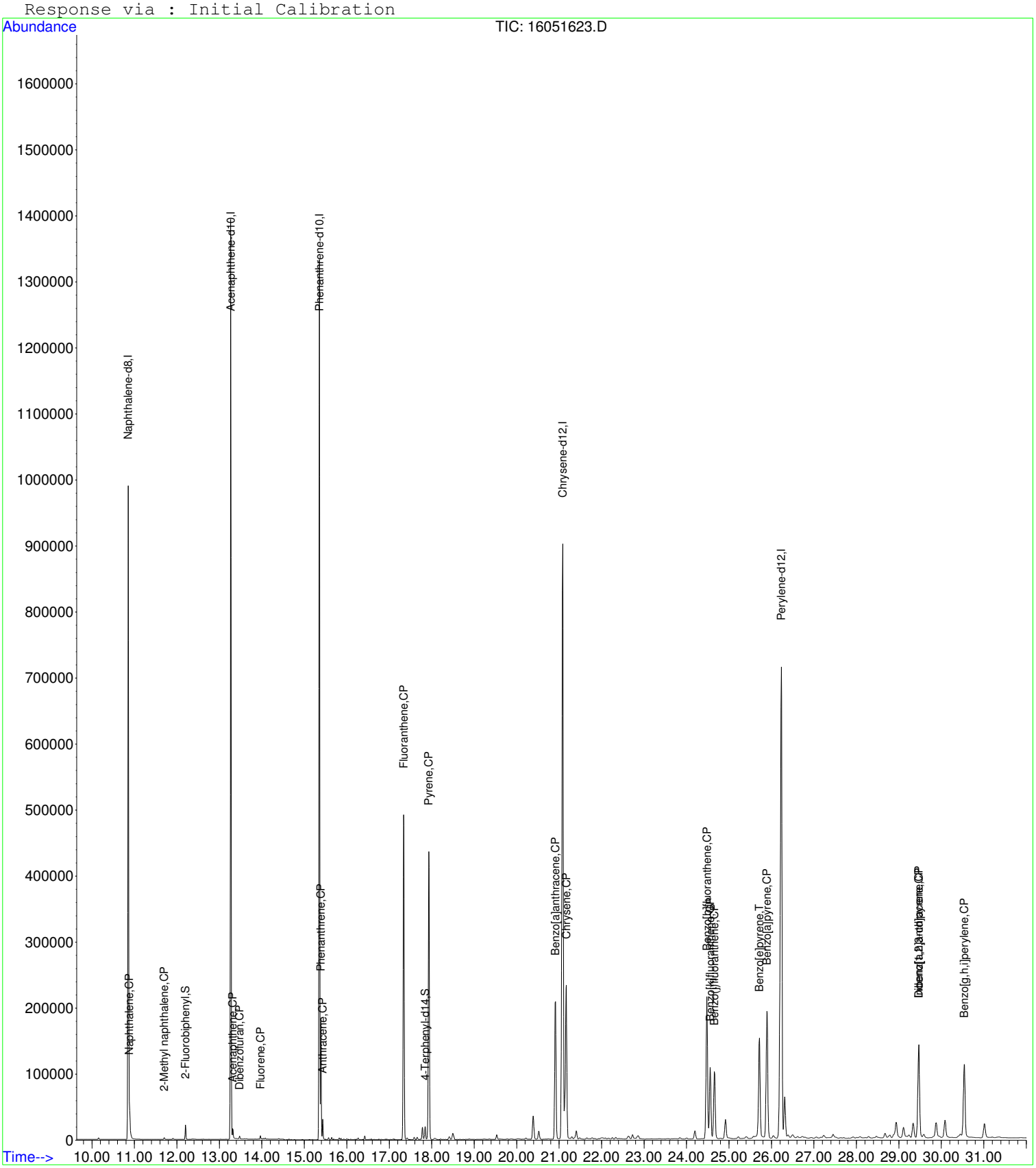
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1255403	4000.00	ug/kg	108
5) Acenaphthene-d10	13.27	164	741536	4000.00	ug/kg	64
11) Phenanthrene-d10	15.36	188	1396080	4000.00	ug/kg	68
17) Chrysene-d12	21.08	240	1486782	4000.00	ug/kg	65
20) Perylene-d12	26.23	264	1386172	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	17731	81.97	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.85	244	24976	69.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#		
Target Compounds						Qvalue
2) Naphthalene	10.89	128	9817	31.26	ug/kg	100
3) 2-Methyl naphthalene	11.70	142	1596	5.75	ug/kg	95
6) Dibenzofuran	13.48	168	3772	13.57	ug/kg	97
9) Acenaphthene	13.32	154	6176	31.16	ug/kg	97
10) Fluorene	13.97	166	2711	11.26	ug/kg	96
12) Phenanthrene	15.39	178	151697	413.18	ug/kg	99
13) Anthracene	15.43	178	25357	72.97	ug/kg	99
14) Fluoranthene	17.34	202	502902	1323.66	ug/kg	99
15) Pyrene	17.93	202	462908	1172.90	ug/kg	99
18) Benzo[a]anthracene	20.91	228	312677	897.68	ug/kg	100
19) Chrysene	21.17	228	378026	1123.26	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	384647	1052.83	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	186382	543.82	ug/kg	99
23) Benzo(j)fluoranthene	24.66	252	171741	562.53	ug/kg	90
24) Benzo[e]pyrene	25.72	252	278070	849.88	ug/kg	99
25) Benzo[a]pyrene	25.90	252	363576	1087.42	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	53527	175.79	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.47	276	230305	634.00	ug/kg	91
28) Benzo[g,h,i]perylene	30.54	276	214023	755.57	ug/kg	98

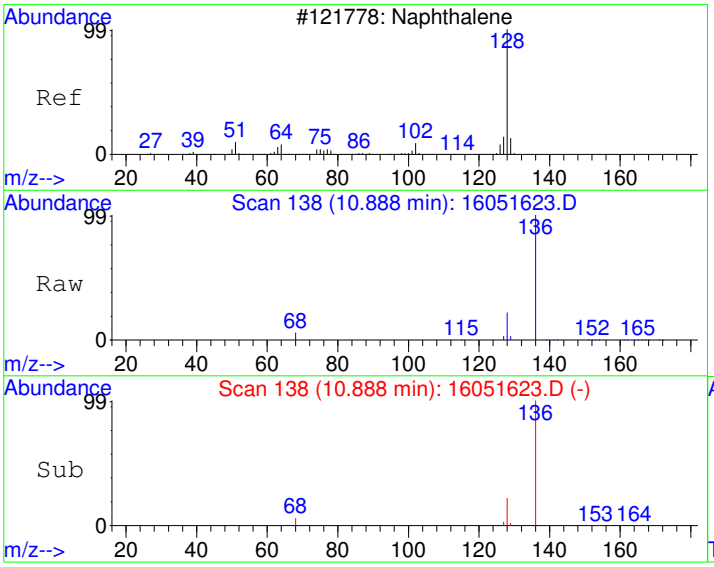
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051623.D Vial: 23
Acq On : 16 May 2016 10:46 pm Operator:
Sample : 1605096-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:42 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

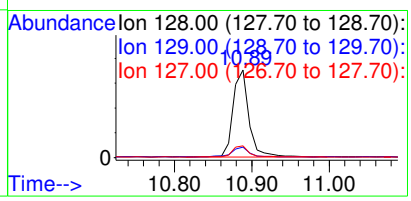


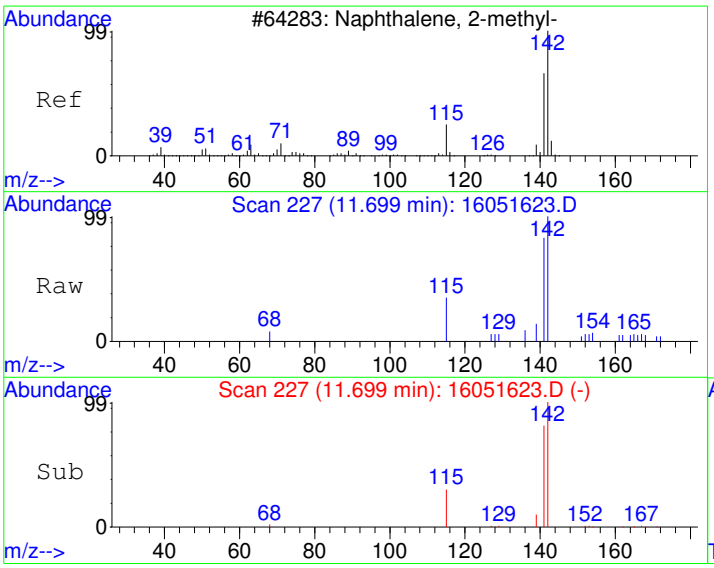


#2
Naphthalene
Concen: 31.26 ug/kg
RT: 10.89 min Scan# 138
Delta R.T. 0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:128 Resp: 9817

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	41.1
127	12.7	0.0	42.4

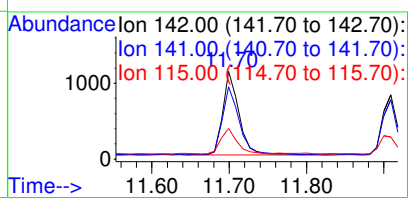


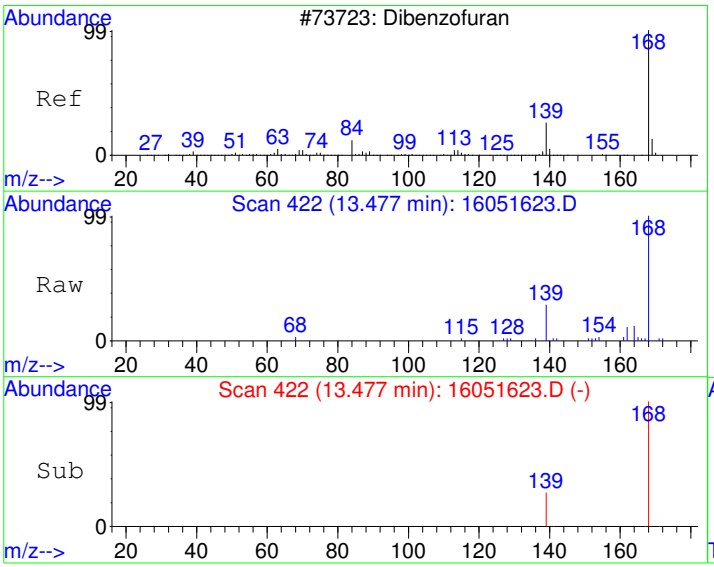


#3
2-Methyl naphthalene
Concen: 5.75 ug/kg
RT: 11.70 min Scan# 227
Delta R.T. 0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:142 Resp: 1596

Ion	Ratio	Lower	Upper
142	100		
141	81.0	54.4	114.4
115	30.4	0.0	56.0

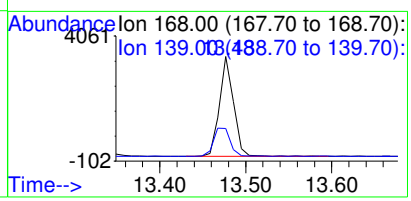


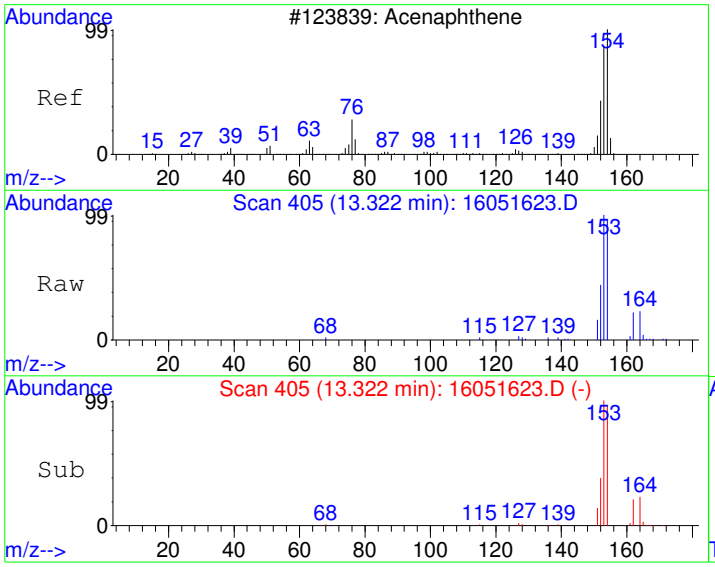


#6
Dibenzofuran
Concen: 13.57 ug/kg
RT: 13.48 min Scan# 422
Delta R.T. 0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:168 Resp: 3772

Ion	Ratio	Lower	Upper
168	100		
139	35.2	27.0	40.4

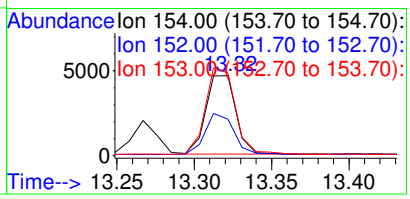


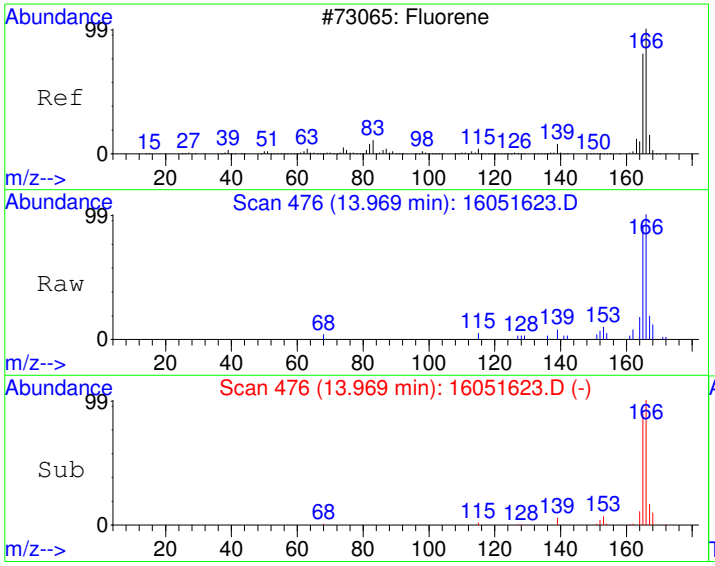


#9
Acenaphthene
Concen: 31.16 ug/kg
RT: 13.32 min Scan# 405
Delta R.T. 0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:154 Resp: 6176

Ion	Ratio	Lower	Upper
154	100		
152	44.8	18.9	78.9
153	104.2	75.2	135.2

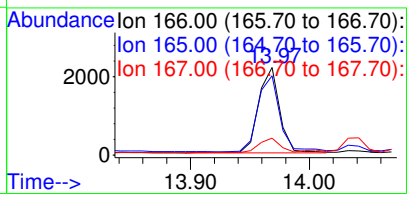


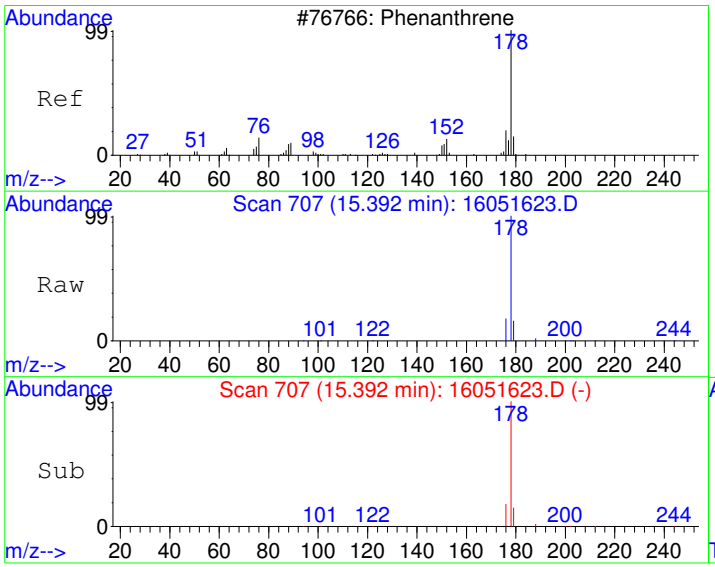


#10
Fluorene
Concen: 11.26 ug/kg
RT: 13.97 min Scan# 476
Delta R.T. 0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:166 Resp: 2711

Ion	Ratio	Lower	Upper
166	100		
165	88.8	61.8	121.8
167	17.2	0.0	43.6

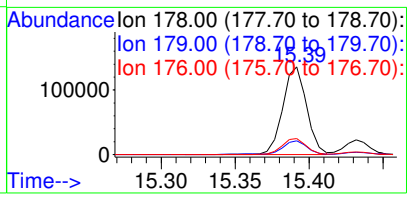


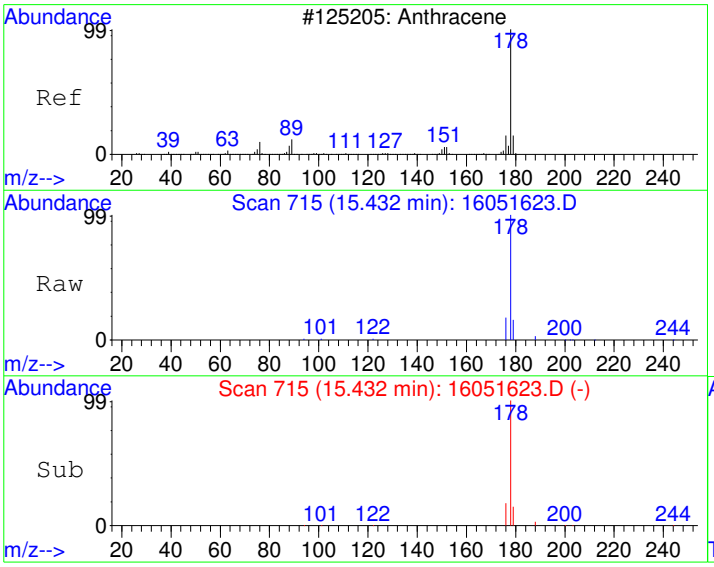


#12
Phenanthrene
Concen: 413.18 ug/kg
RT: 15.39 min Scan# 707
Delta R.T. -0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:178 Resp: 151697

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	18.2	0.0	48.5

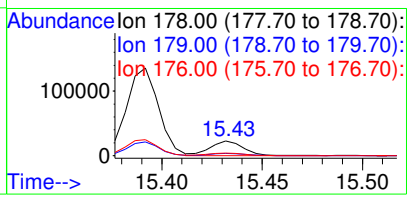


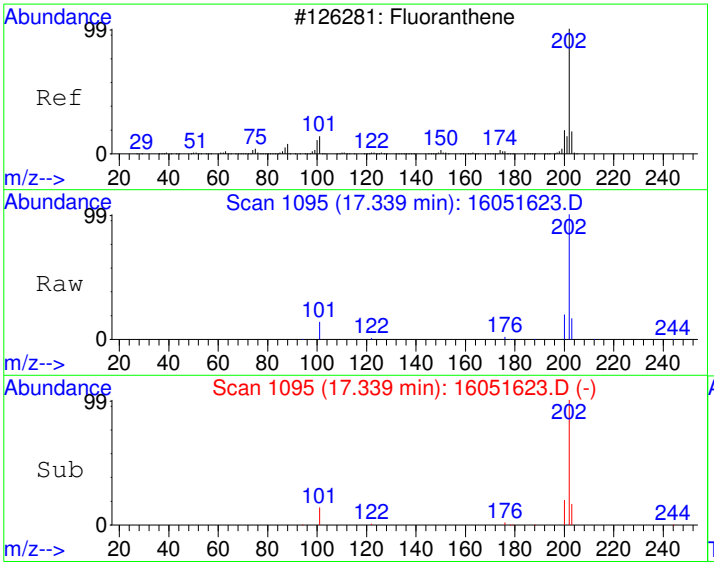


#13
Anthracene
Concen: 72.97 ug/kg
RT: 15.43 min Scan# 715
Delta R.T. -0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:178 Resp: 25357

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.8	0.0	48.2

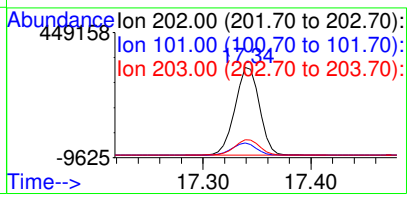


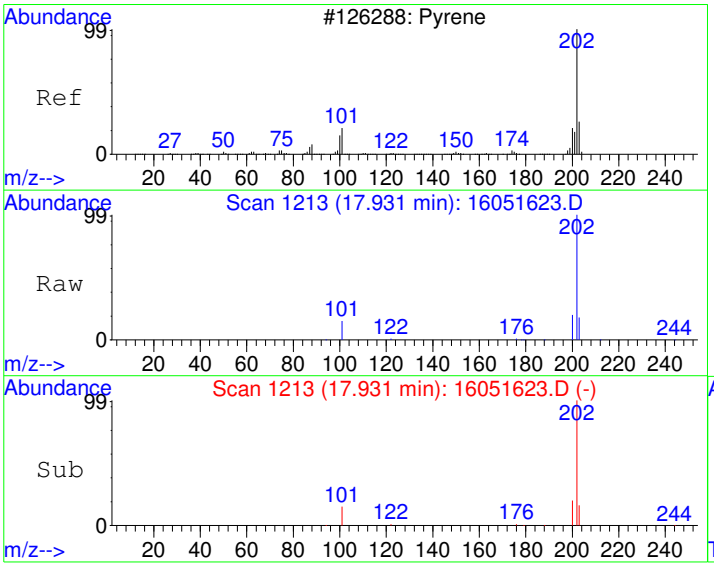


#14
Fluoranthene
Concen: 1323.66 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:202 Resp: 502902

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	43.0
203	17.4	0.0	47.9

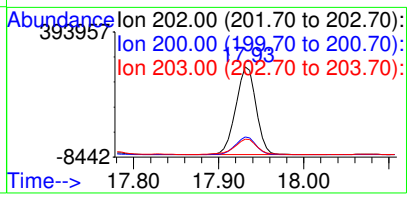


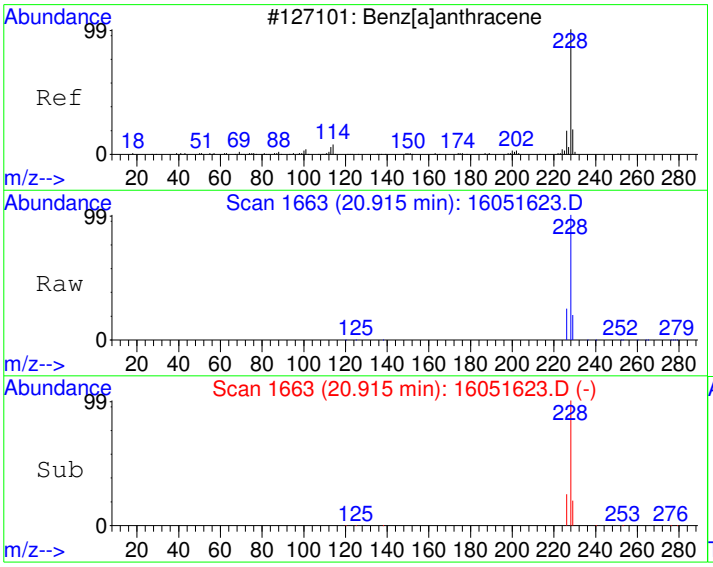


#15
Pyrene
Concen: 1172.90 ug/kg
RT: 17.93 min Scan# 1213
Delta R.T. -0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:202 Resp: 462908

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	50.0
203	17.5	0.0	48.0

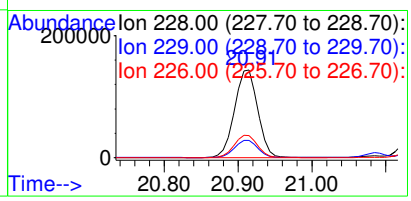


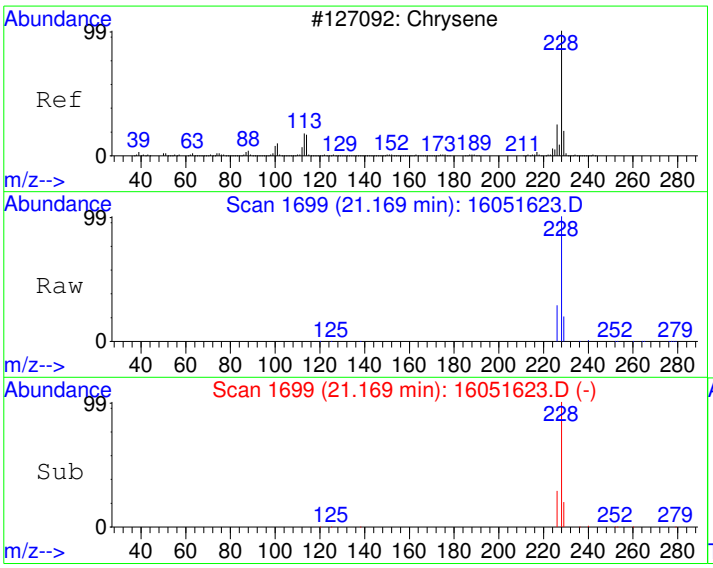


#18
Benzo[a]anthracene
Concen: 897.68 ug/kg
RT: 20.91 min Scan# 1663
Delta R.T. 0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:228 Resp: 312677

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.1
226	25.3	0.0	55.2

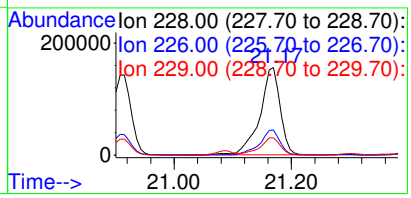


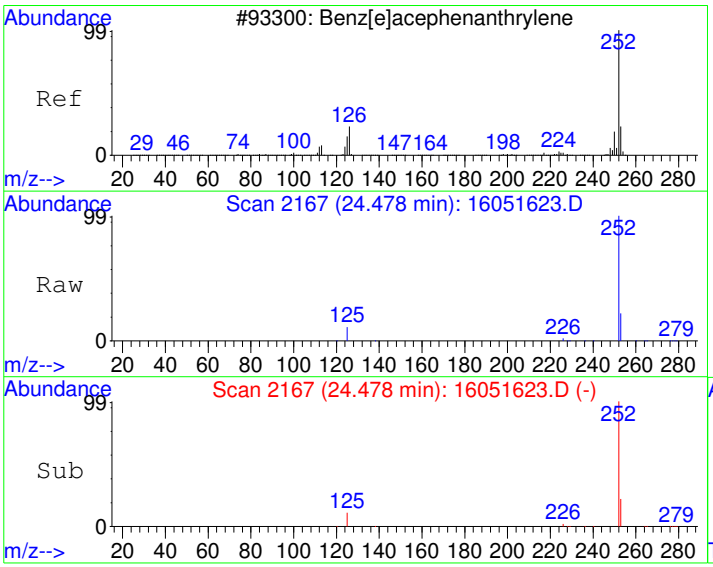


#19
Chrysene
Concen: 1123.26 ug/kg
RT: 21.17 min Scan# 1699
Delta R.T. 0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:228 Resp: 378026

Ion	Ratio	Lower	Upper
228	100		
226	28.6	0.0	58.1
229	19.7	0.0	50.1

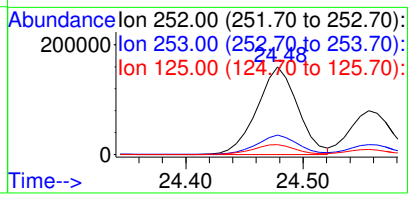


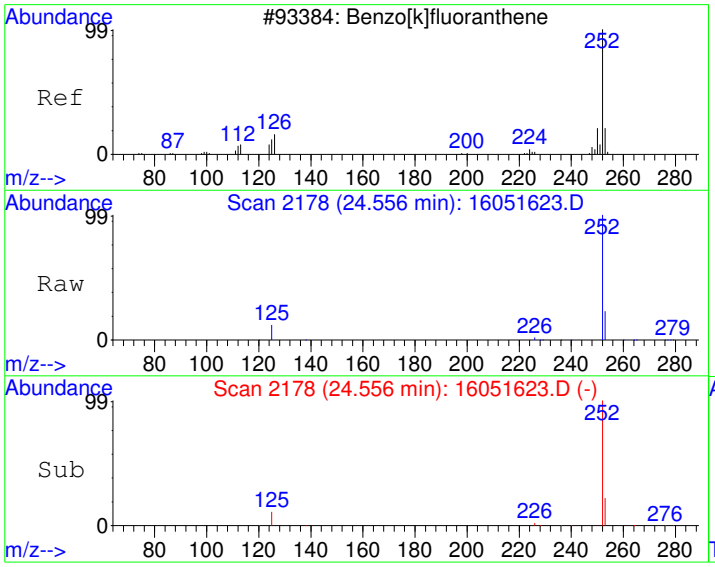


#21
Benzo[b]fluoranthene
Concen: 1052.83 ug/kg
RT: 24.48 min Scan# 2167
Delta R.T. -0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:252 Resp: 384647

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	11.1	0.0	41.0

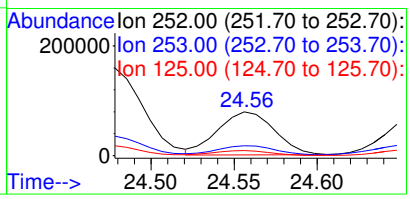


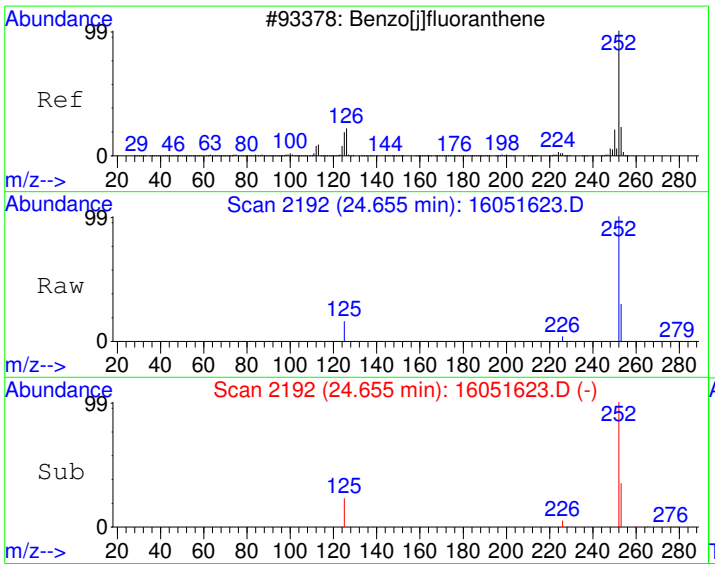


#22
Benzo[k]fluoranthene
Concen: 543.82 ug/kg
RT: 24.56 min Scan# 2178
Delta R.T. -0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:252 Resp: 186382

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.1	42.1
125	11.4	0.0	31.3

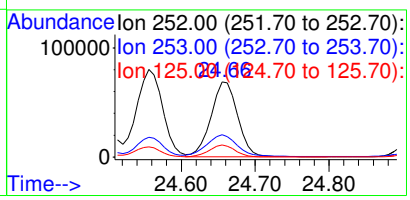


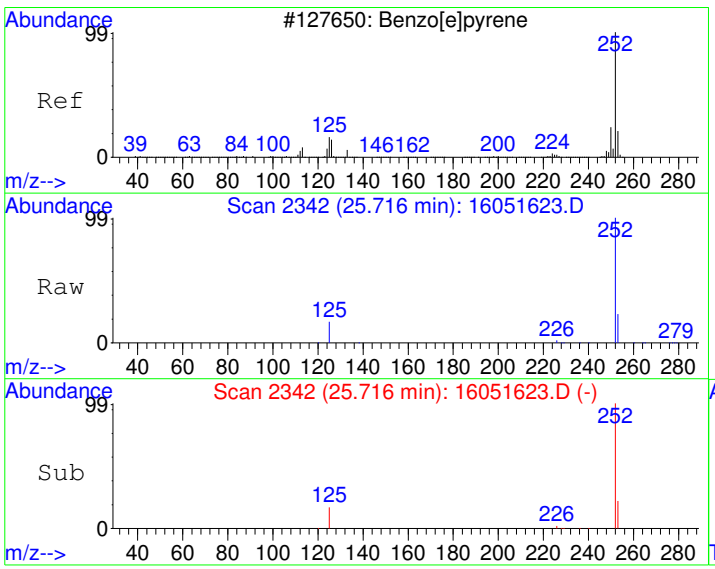


#23
Benzo(j)fluoranthene
Concen: 562.53 ug/kg
RT: 24.66 min Scan# 2192
Delta R.T. -0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:252 Resp: 171741

Ion	Ratio	Lower	Upper
252	100		
253	29.0	2.1	42.1
125	15.8	0.0	34.4

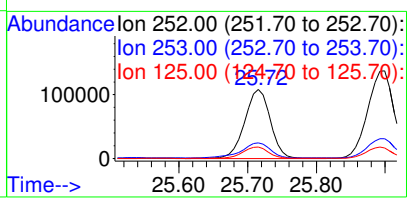


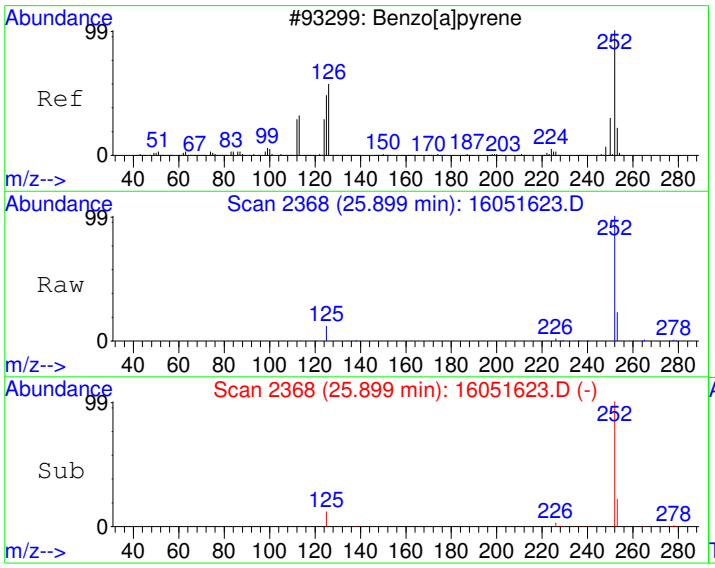


#24
Benzo[e]pyrene
Concen: 849.88 ug/kg
RT: 25.72 min Scan# 2342
Delta R.T. -0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:252 Resp: 278070

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.2	42.2
125	16.5	0.0	36.1

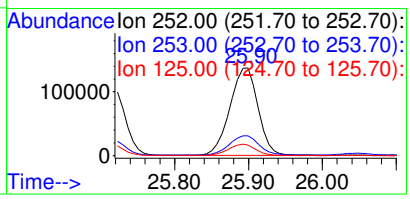


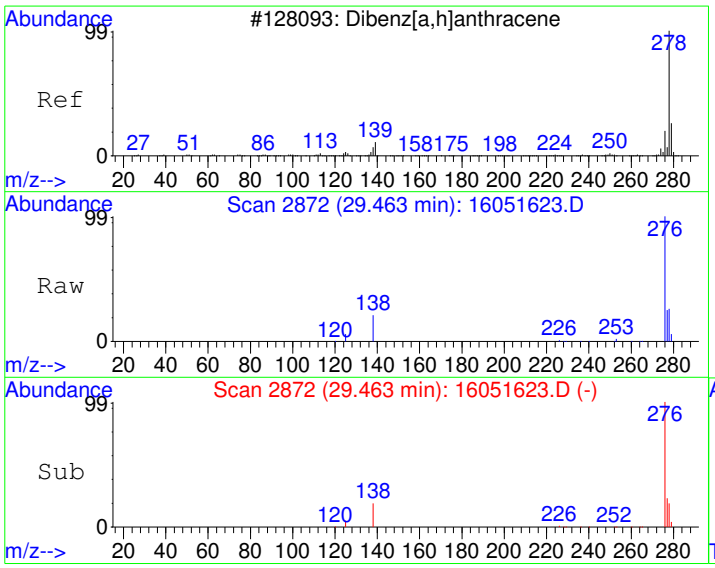


#25
Benzo[a]pyrene
Concen: 1087.42 ug/kg
RT: 25.90 min Scan# 2368
Delta R.T. 0.00 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:252 Resp: 363576

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	11.9	0.0	31.7

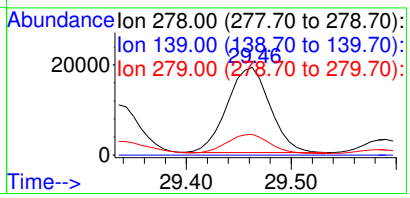


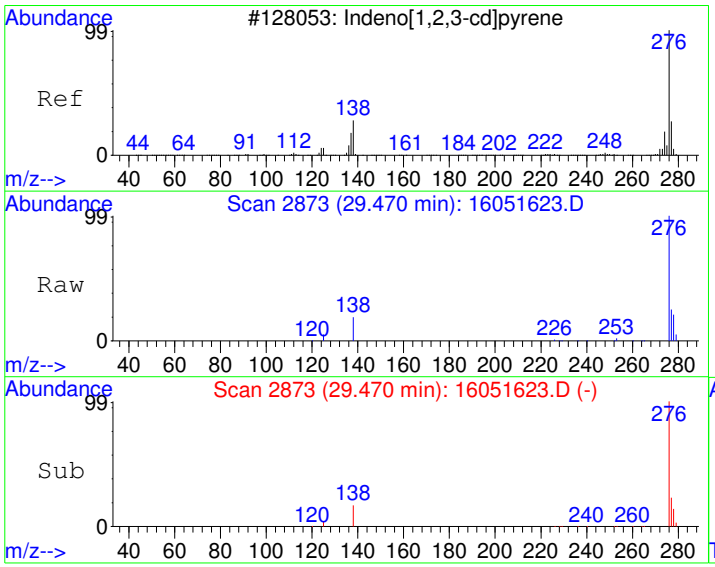


#26
Dibenz[a,h]anthracene
Concen: 175.79 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:278 Resp: 53527

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

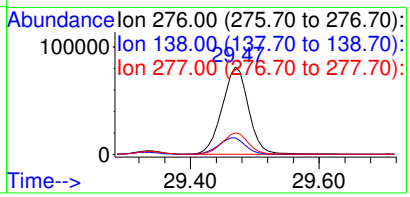


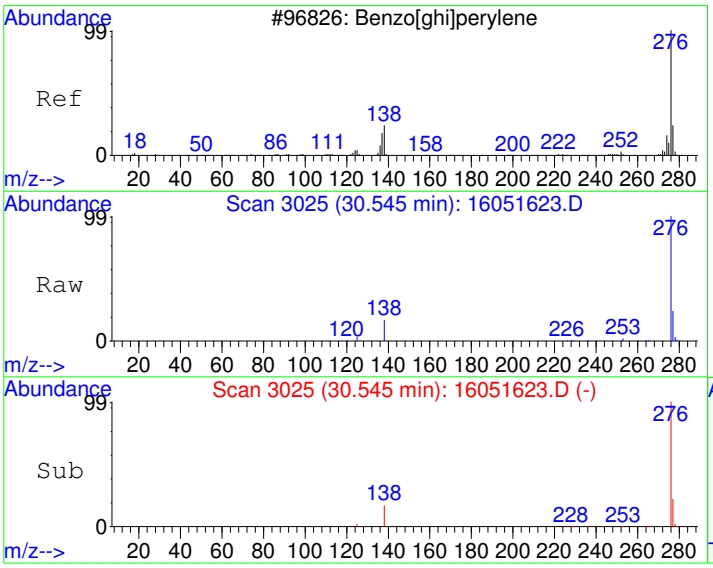


#27
Indeno[1,2,3-cd]pyrene
Concen: 634.00 ug/kg
RT: 29.47 min Scan# 2873
Delta R.T. -0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:276 Resp: 230305

Ion	Ratio	Lower	Upper
276	100		
138	18.7	6.7	46.7
277	24.5	5.8	45.8

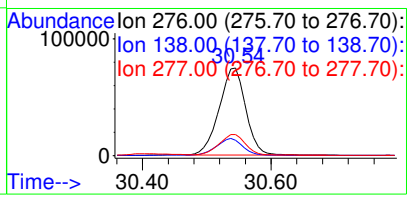




#28
Benzo[g,h,i]perylene
Concen: 755.57 ug/kg
RT: 30.54 min Scan# 3025
Delta R.T. -0.01 min
Lab File: 16051623.D
Acq: 16 May 2016 10:46 pm

Tgt Ion:276 Resp: 214023

Ion	Ratio	Lower	Upper
276	100		
138	17.2	0.0	39.1
277	23.9	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051624.D Vial: 24
Acq On : 16 May 2016 11:26 pm Operator:
Sample : 1605096-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:42 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

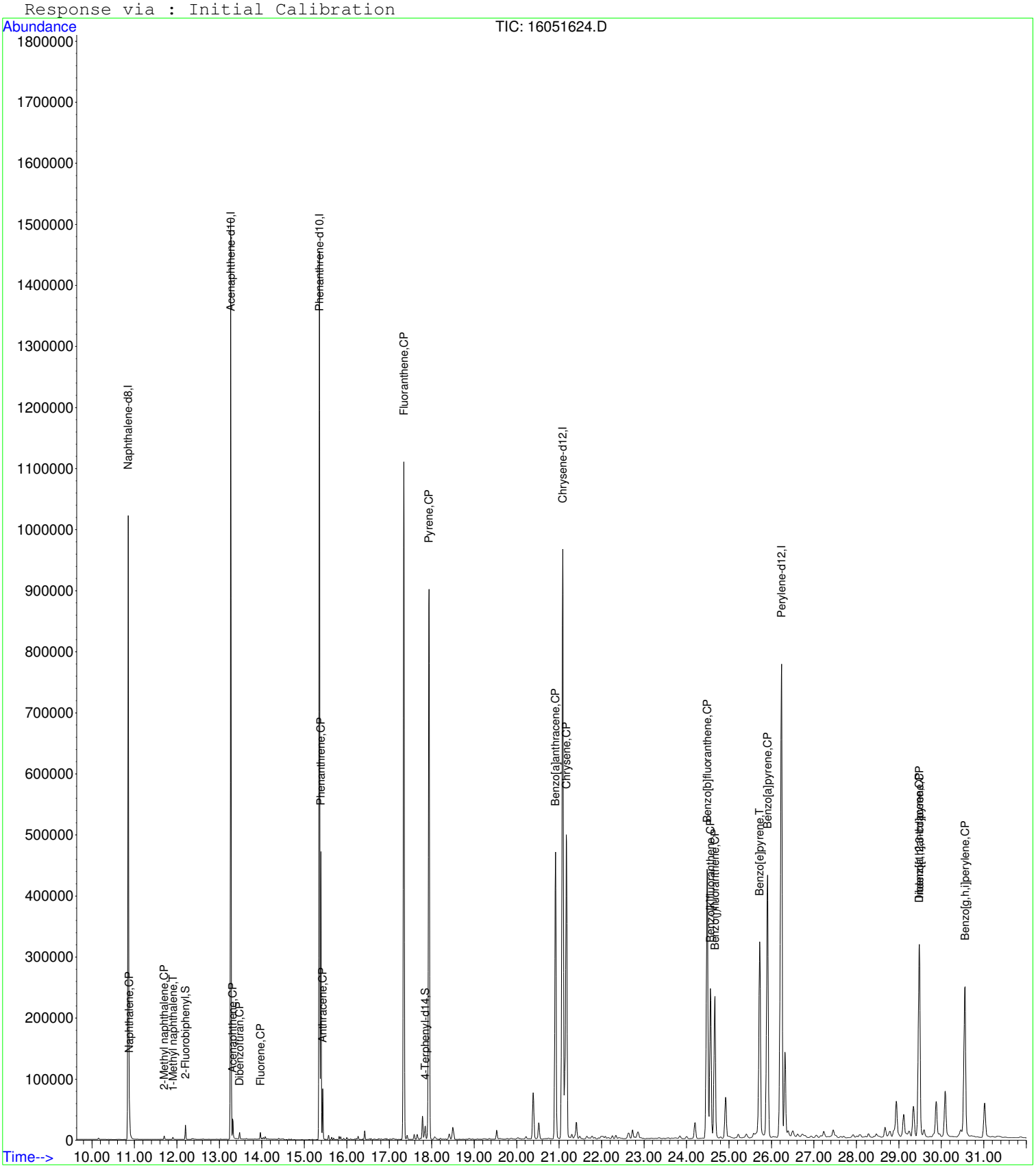
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1283863	4000.00	ug/kg	111
5) Acenaphthene-d10	13.27	164	785107	4000.00	ug/kg	68
11) Phenanthrene-d10	15.36	188	1549065	4000.00	ug/kg	76
17) Chrysene-d12	21.08	240	1617640	4000.00	ug/kg	71
20) Perylene-d12	26.24	264	1521202	4000.00	ug/kg	74
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18189	79.42	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
16) 4-Terphenyl-d14	17.85	244	27535	68.71	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.72%#		
Target Compounds						Qvalue
2) Naphthalene	10.89	128	18838	58.66	ug/kg	100
3) 2-Methyl naphthalene	11.70	142	3468	12.23	ug/kg	98
4) 1-Methyl naphthalene	11.91	142	2279	8.77	ug/kg	99
6) Dibenzofuran	13.48	168	9383	31.89	ug/kg	99
9) Acenaphthene	13.31	154	13903	66.25	ug/kg	95
10) Fluorene	13.97	166	5669	22.24	ug/kg	98
12) Phenanthrene	15.39	178	387159	950.37	ug/kg	99
13) Anthracene	15.43	178	69173	179.40	ug/kg	99
14) Fluoranthene	17.34	202	1103214	2616.94	ug/kg	100
15) Pyrene	17.94	202	990447	2261.72	ug/kg	100
18) Benzo[a]anthracene	20.91	228	681769	1798.99	ug/kg	99
19) Chrysene	21.17	228	817083	2231.47	ug/kg	99
21) Benzo[b]fluoranthene	24.49	252	873449	2178.52	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	417571	1110.22	ug/kg	99
23) Benzo(j)fluoranthene	24.67	252	387122	1155.45	ug/kg	94
24) Benzo[e]pyrene	25.72	252	613865	1709.64	ug/kg	99
25) Benzo[a]pyrene	25.91	252	827550	2255.41	ug/kg	99
26) Dibenz[a,h]anthracene	29.47	278	130954	391.89	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.48	276	546481	1370.85	ug/kg	91
28) Benzo[g,h,i]perylene	30.56	276	507050	1631.16	ug/kg	99

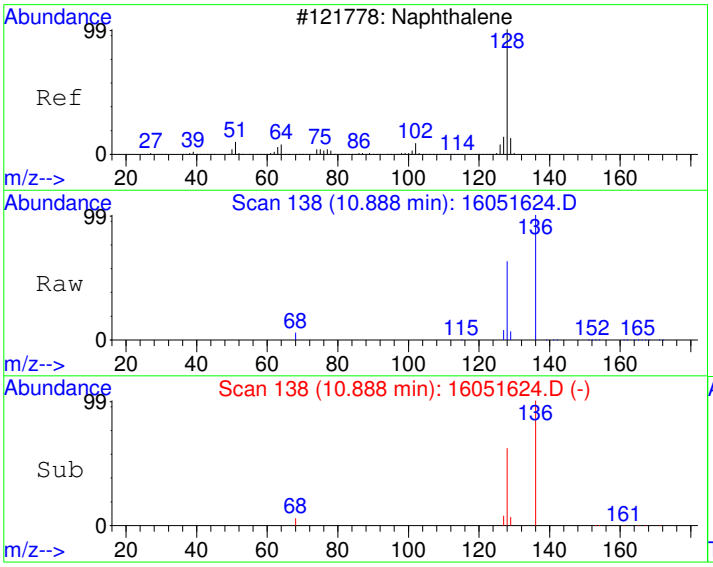
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051624.D Vial: 24
Acq On : 16 May 2016 11:26 pm Operator:
Sample : 1605096-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:42 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

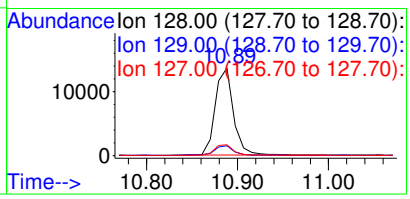


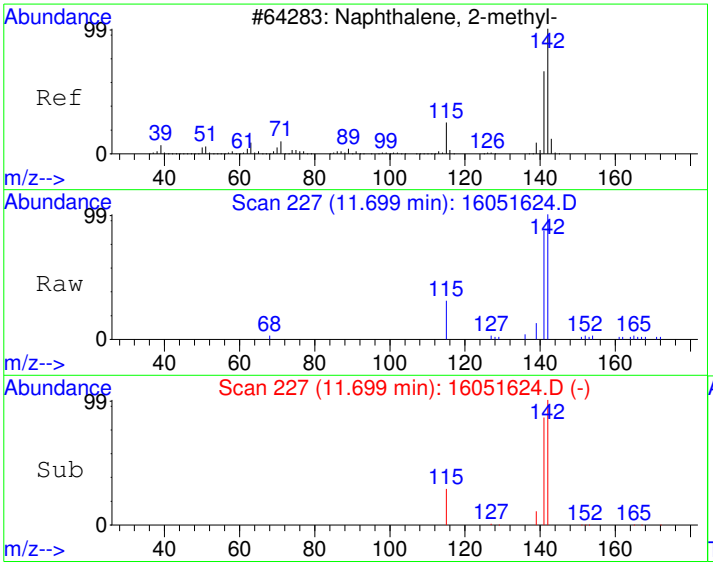


#2
Naphthalene
Concen: 58.66 ug/kg
RT: 10.89 min Scan# 138
Delta R.T. 0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:128 Resp: 18838

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	41.1
127	12.2	0.0	42.4

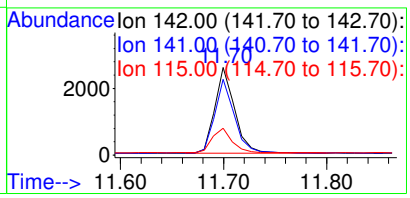


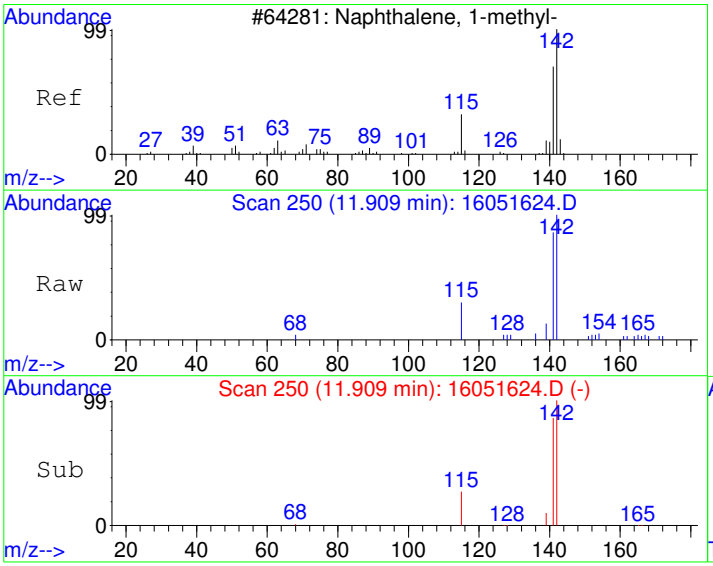


#3
2-Methyl naphthalene
Concen: 12.23 ug/kg
RT: 11.70 min Scan# 227
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:142 Resp: 3468

Ion	Ratio	Lower	Upper
142	100		
141	85.9	54.4	114.4
115	28.6	0.0	56.0

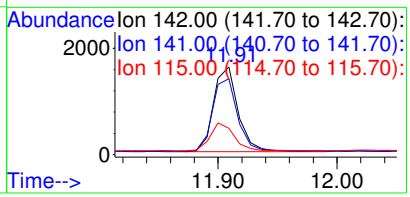


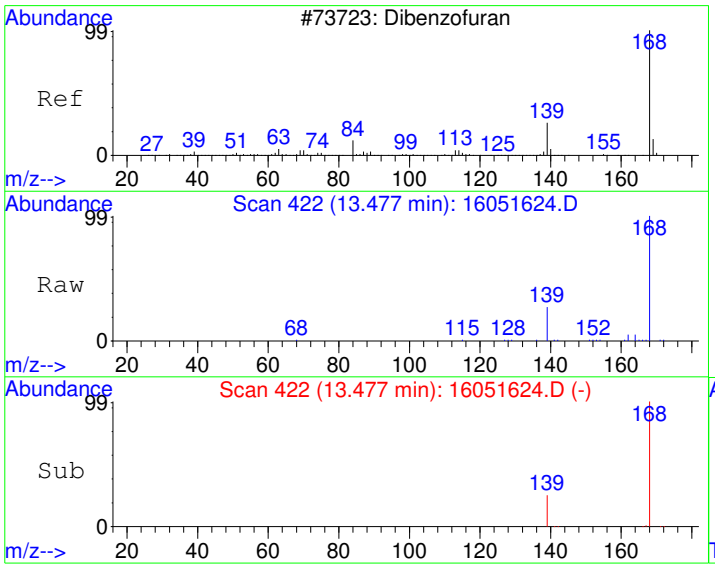


#4
1-Methyl naphthalene
Concen: 8.77 ug/kg
RT: 11.91 min Scan# 250
Delta R.T. 0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:142 Resp: 2279

Ion	Ratio	Lower	Upper
142	100		
141	85.8	56.5	116.5
115	26.7	0.0	55.0

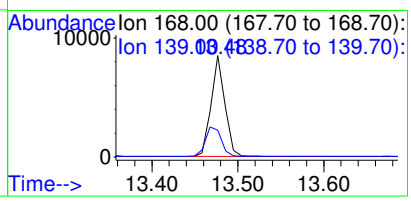


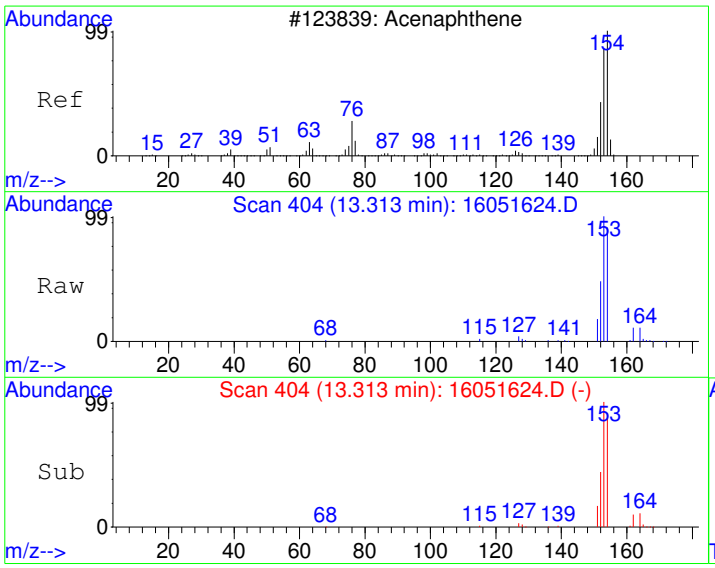


#6
Dibenzofuran
Concen: 31.89 ug/kg
RT: 13.48 min Scan# 422
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:168 Resp: 9383

Ion	Ratio	Lower	Upper
168	100		
139	34.4	27.0	40.4

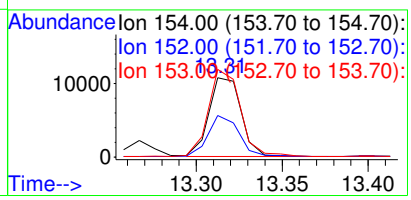


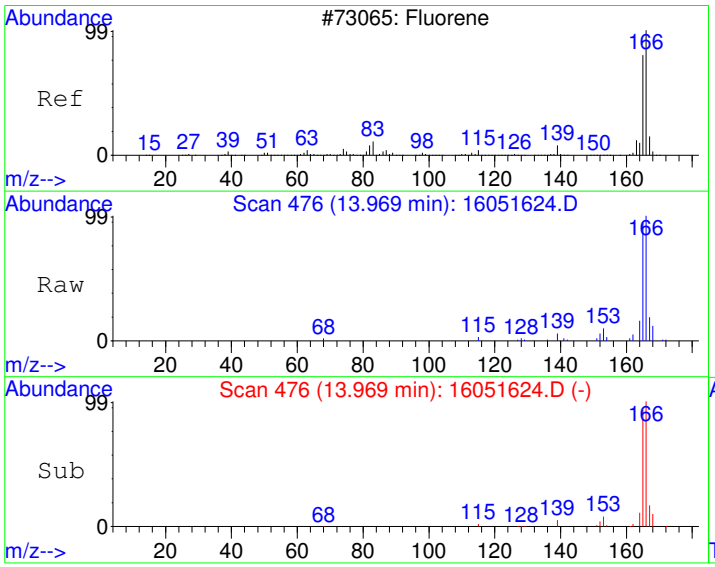


#9
Acenaphthene
Concen: 66.25 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:154 Resp: 13903

Ion	Ratio	Lower	Upper
154	100		
152	52.1	18.9	78.9
153	110.3	75.2	135.2

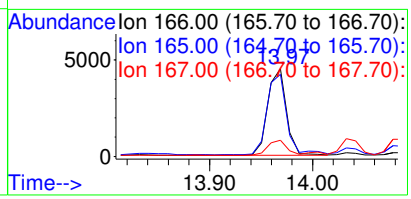


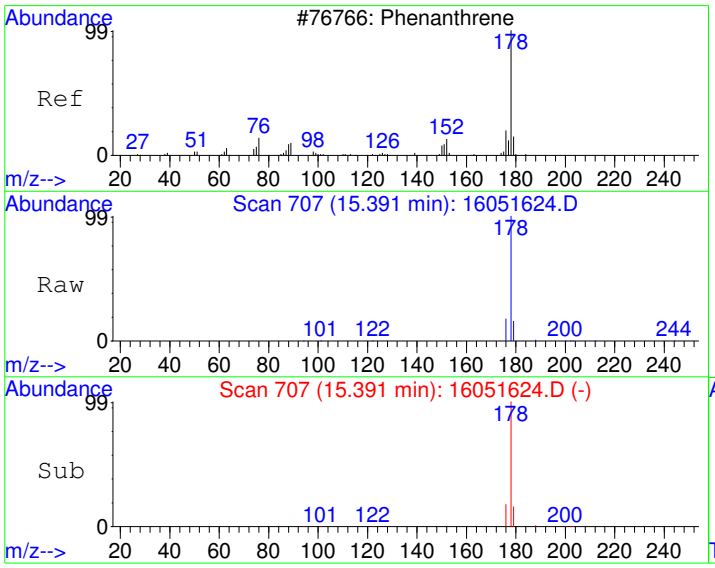


#10
Fluorene
Concen: 22.24 ug/kg
RT: 13.97 min Scan# 476
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:166 Resp: 5669

Ion	Ratio	Lower	Upper
166	100		
165	93.0	61.8	121.8
167	17.4	0.0	43.6

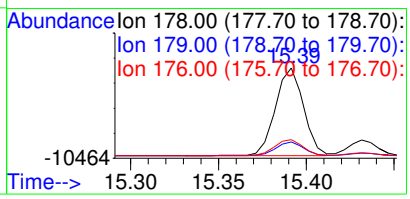


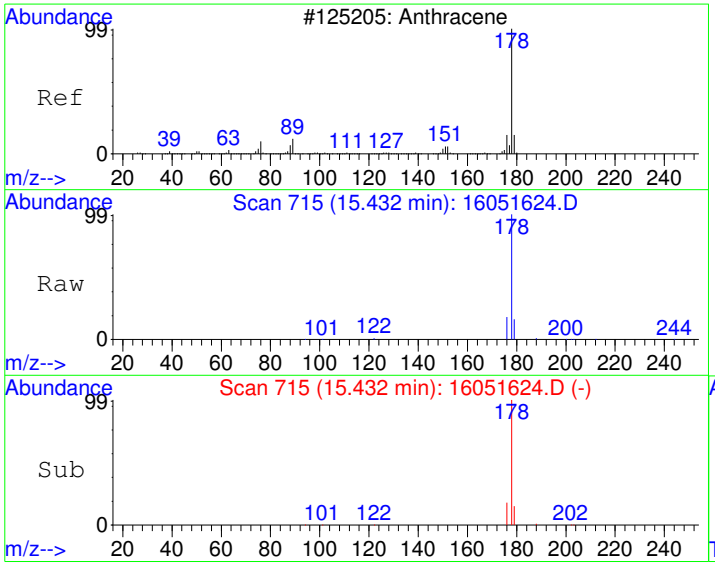


#12
Phenanthrene
Concen: 950.37 ug/kg
RT: 15.39 min Scan# 707
Delta R.T. -0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:178 Resp: 387159

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.9
176	18.3	0.0	48.5

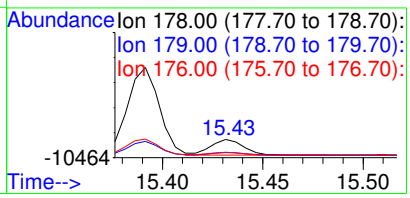


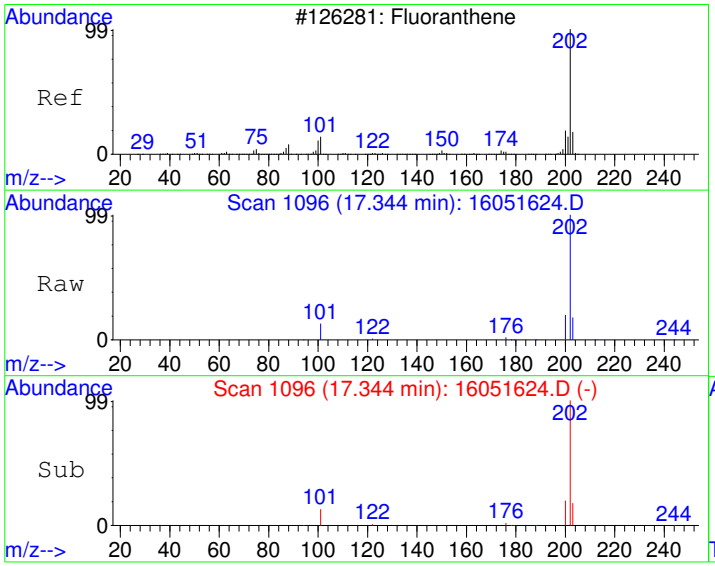


#13
Anthracene
Concen: 179.40 ug/kg
RT: 15.43 min Scan# 715
Delta R.T. -0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:178 Resp: 69173

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.8	0.0	48.2

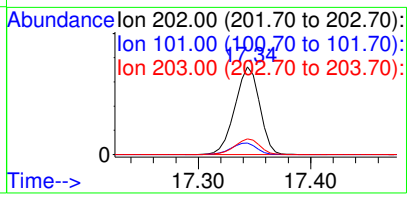


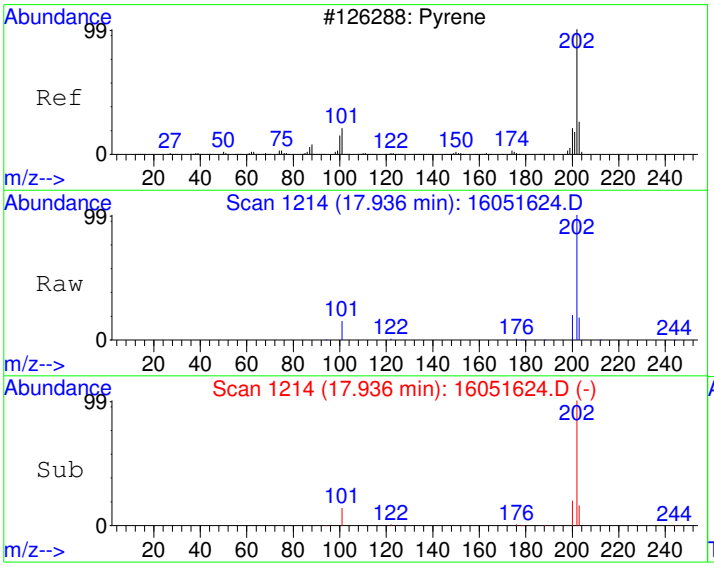


#14
Fluoranthene
Concen: 2616.94 ug/kg
RT: 17.34 min Scan# 1096
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:202 Resp: 1103214

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	43.0
203	17.8	0.0	47.9

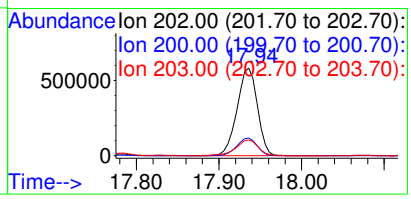


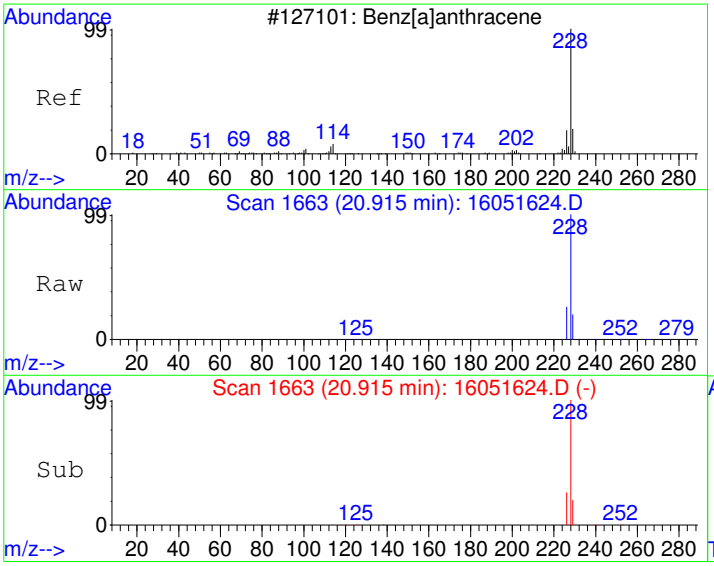


#15
Pyrene
Concen: 2261.72 ug/kg
RT: 17.94 min Scan# 1214
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:202 Resp: 990447

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.8	0.0	48.0

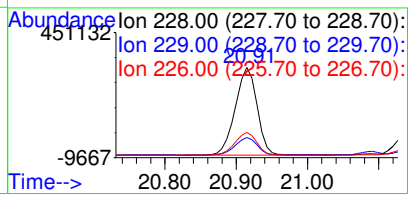


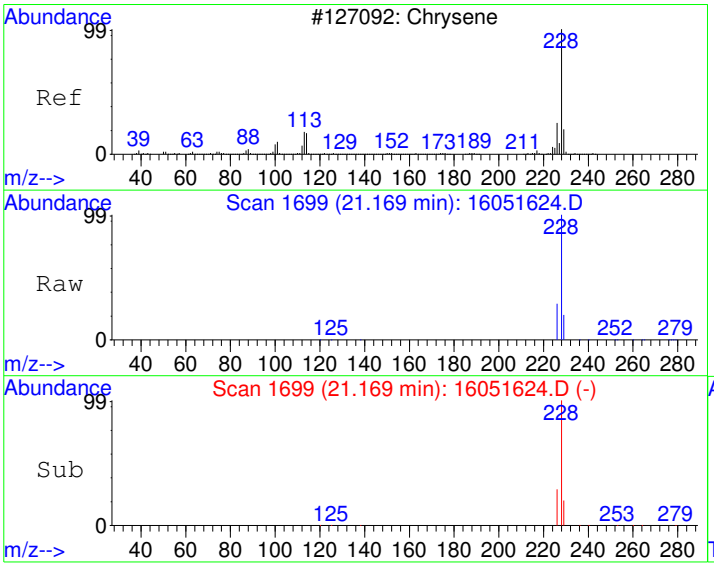


#18
Benzo[a]anthracene
Concen: 1798.99 ug/kg
RT: 20.91 min Scan# 1663
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:228 Resp: 681769

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

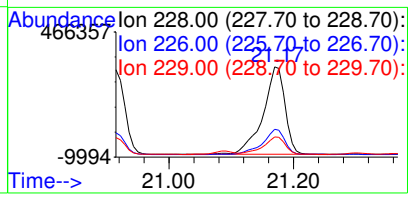


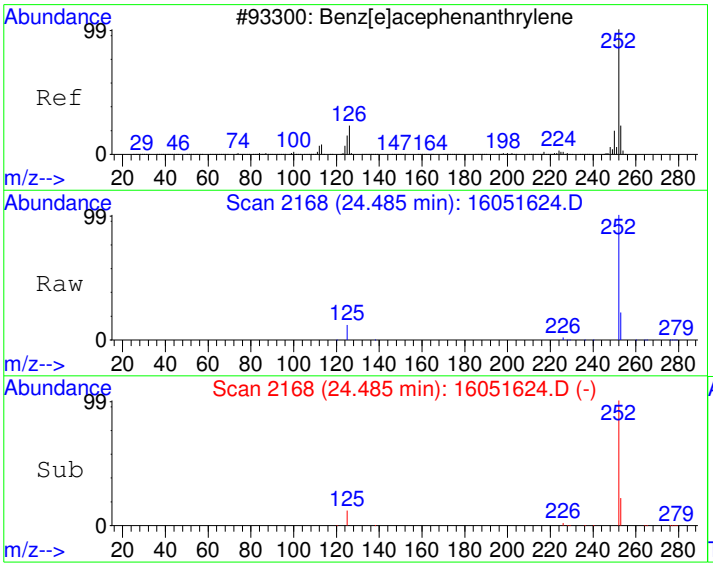


#19
Chrysene
Concen: 2231.47 ug/kg
RT: 21.17 min Scan# 1699
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:228 Resp: 817083

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.1
229	20.1	0.0	50.1

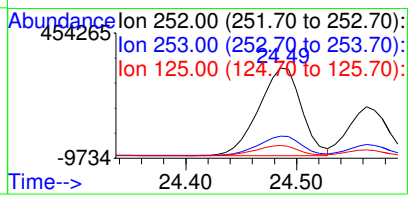


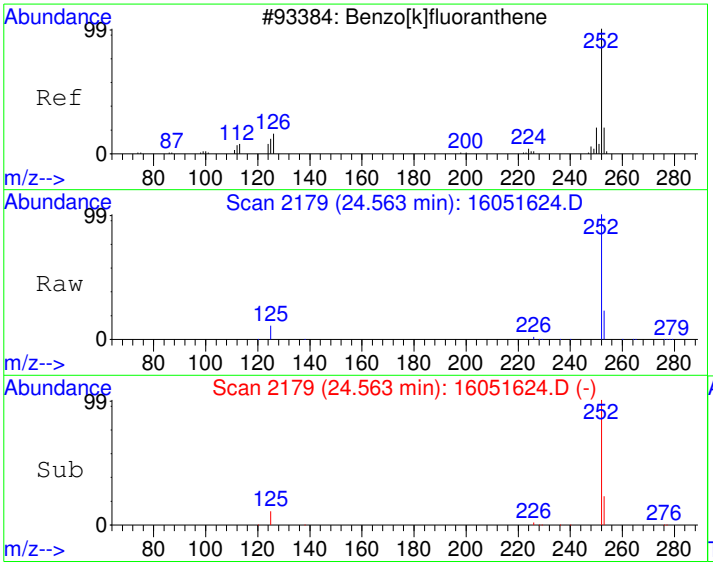


#21
Benzo[b]fluoranthene
Concen: 2178.52 ug/kg
RT: 24.49 min Scan# 2168
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:252 Resp: 873449

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.7	0.0	41.0

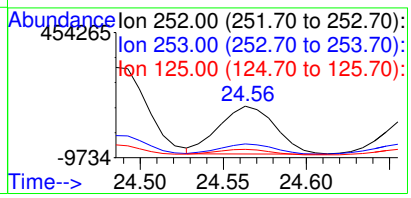


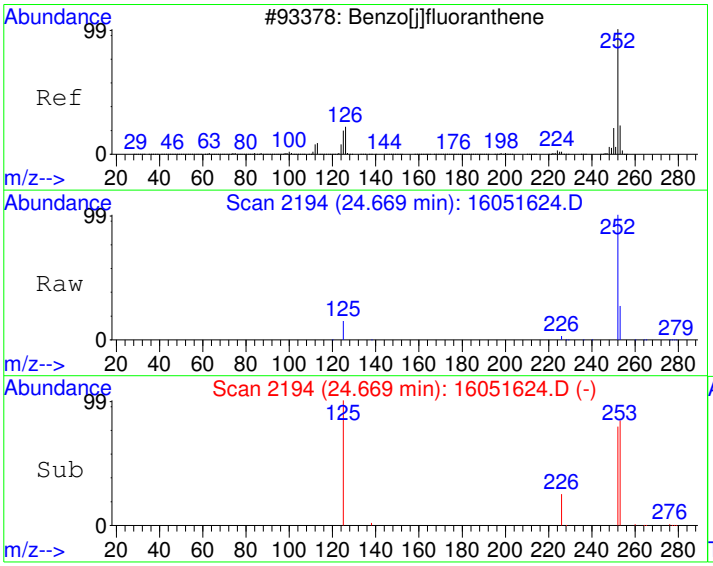


#22
Benzo[k]fluoranthene
Concen: 1110.22 ug/kg
RT: 24.56 min Scan# 2179
Delta R.T. -0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:252 Resp: 417571

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.1	42.1
125	11.3	0.0	31.3

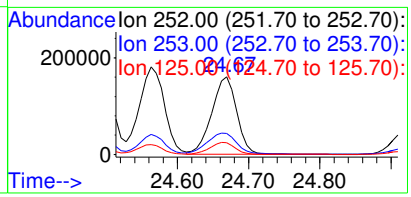


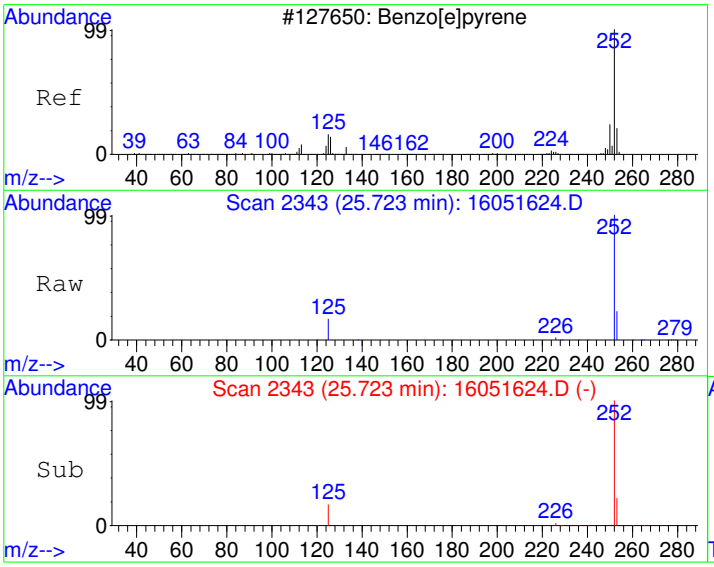


#23
Benzo(j)fluoranthene
Concen: 1155.45 ug/kg
RT: 24.67 min Scan# 2194
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:252 Resp: 387122

Ion	Ratio	Lower	Upper
252	100		
253	26.6	2.1	42.1
125	14.9	0.0	34.4

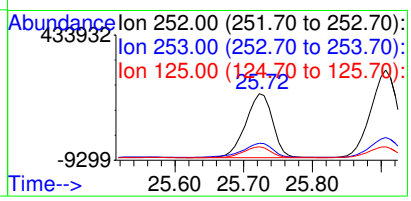


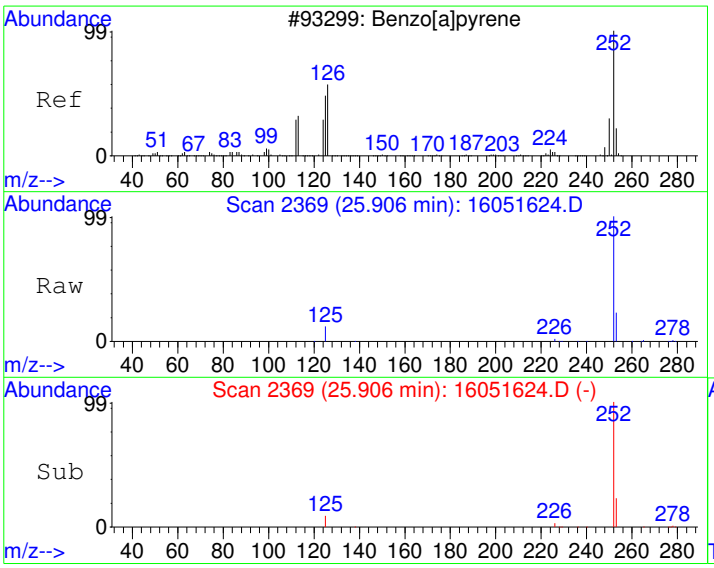


#24
Benzo[e]pyrene
Concen: 1709.64 ug/kg
RT: 25.72 min Scan# 2343
Delta R.T. 0.00 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:252 Resp: 613865

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	16.6	0.0	36.1

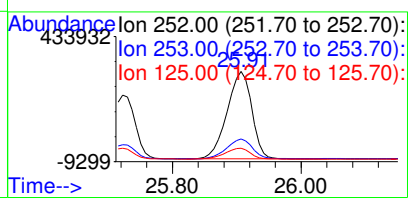


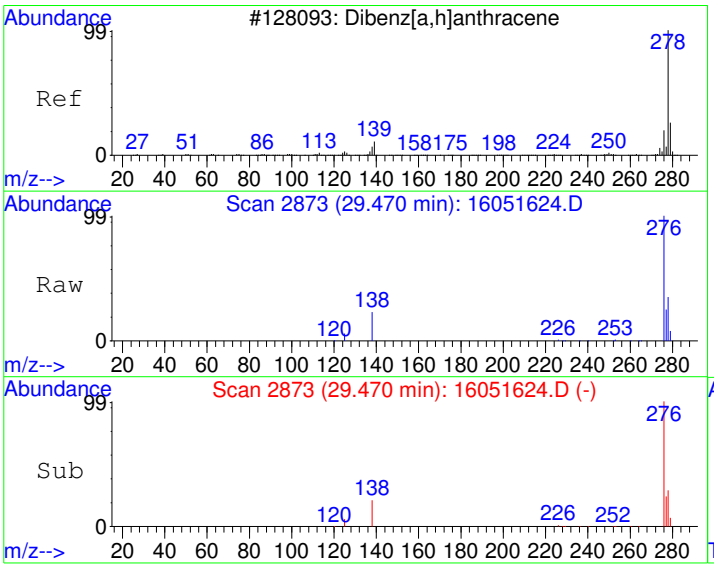


#25
Benzo[a]pyrene
Concen: 2255.41 ug/kg
RT: 25.91 min Scan# 2369
Delta R.T. 0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:252 Resp: 827550

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	12.2	0.0	31.7

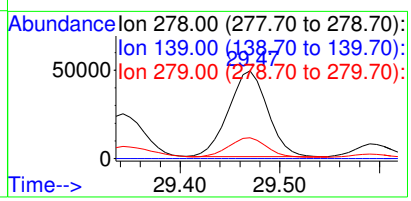


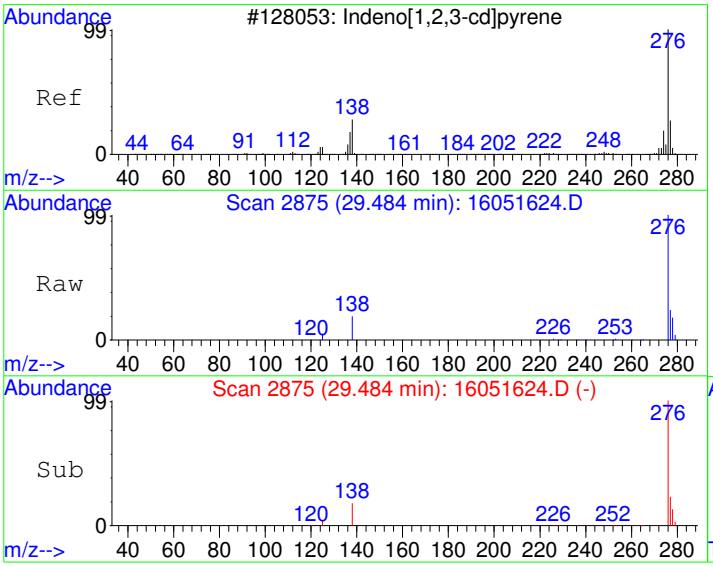


#26
Dibenz[a,h]anthracene
Concen: 391.89 ug/kg
RT: 29.47 min Scan# 2873
Delta R.T. -0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:278 Resp: 130954

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.9	4.2	44.2

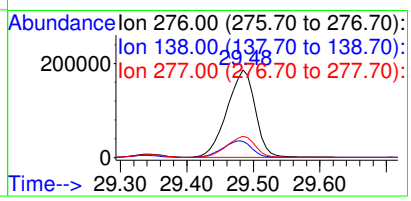


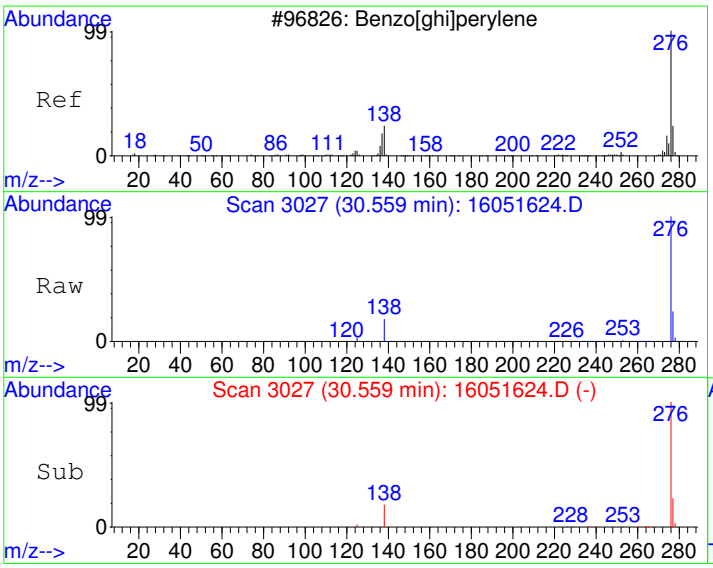


#27
Indeno[1,2,3-cd]pyrene
Concen: 1370.85 ug/kg
RT: 29.48 min Scan# 2875
Delta R.T. 0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:276 Resp: 546481

Ion	Ratio	Lower	Upper
276	100		
138	18.6	6.7	46.7
277	24.2	5.8	45.8

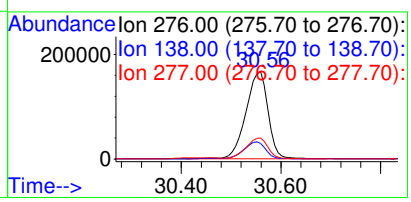




#28
Benzo[g,h,i]perylene
Concen: 1631.16 ug/kg
RT: 30.56 min Scan# 3027
Delta R.T. 0.01 min
Lab File: 16051624.D
Acq: 16 May 2016 11:26 pm

Tgt Ion:276 Resp: 507050

Ion	Ratio	Lower	Upper
276	100		
138	17.8	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051625.D Vial: 25
Acq On : 17 May 2016 12:05 am Operator:
Sample : 1605096-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:43 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

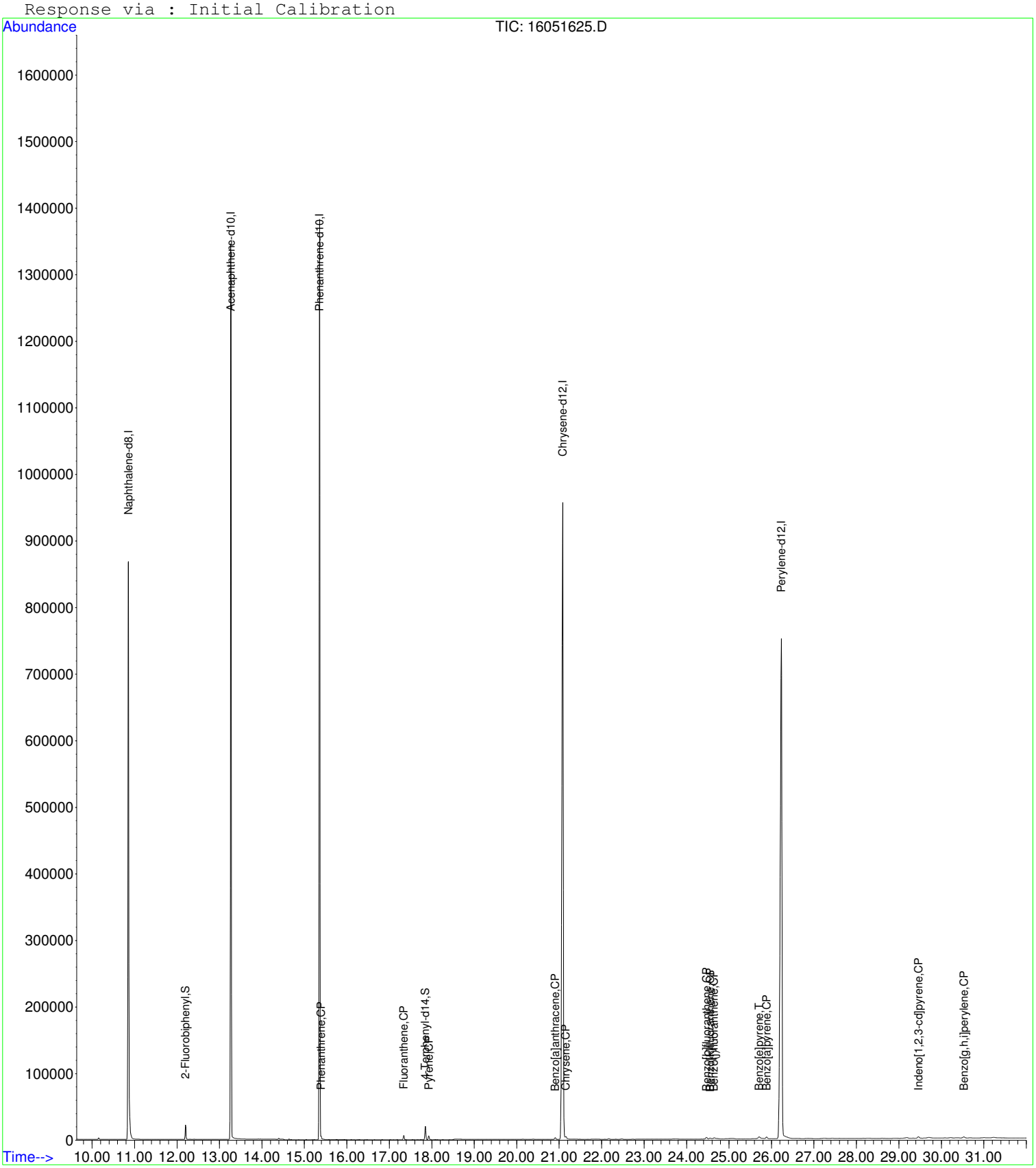
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1237121	4000.00	ug/kg	107
5) Acenaphthene-d10	13.27	164	822191	4000.00	ug/kg	71
11) Phenanthrene-d10	15.36	188	1496704	4000.00	ug/kg	73
17) Chrysene-d12	21.08	240	1581791	4000.00	ug/kg	70
20) Perylene-d12	26.23	264	1486077	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18992	79.19	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		
16) 4-Terphenyl-d14	17.85	244	26430	68.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.71%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	2277	5.78	ug/kg	98
14) Fluoranthene	17.34	202	6537	16.05	ug/kg	99
15) Pyrene	17.93	202	6176	14.60	ug/kg	98
18) Benzo[a]anthracene	20.91	228	3723	10.05	ug/kg	98
19) Chrysene	21.16	228	4577	12.78	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	5127	13.09	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	2536	6.90	ug/kg	95
23) Benzo(j)fluoranthene	24.65	252	2279	6.96	ug/kg	88
24) Benzo[e]pyrene	25.71	252	3867	11.02	ug/kg	82
25) Benzo[a]pyrene	25.89	252	4859	13.56	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.46	276	3599	9.24	ug/kg	90
28) Benzo[g,h,i]perylene	30.53	276	3363	11.07	ug/kg	98

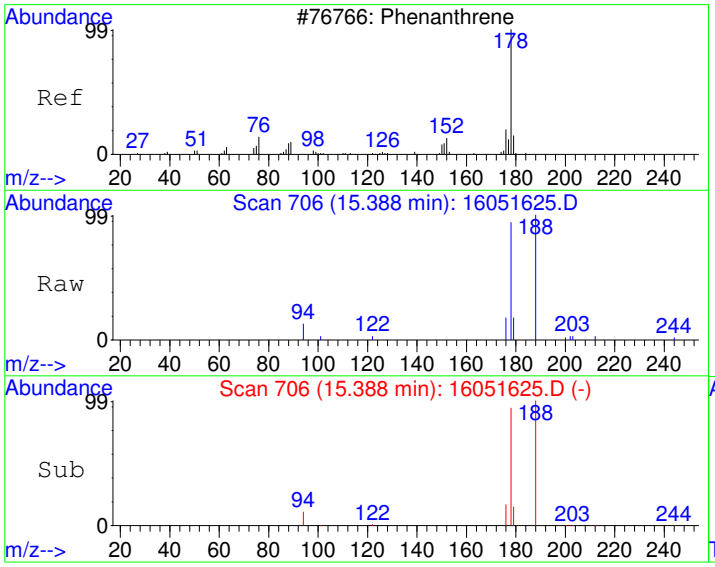
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051625.D Vial: 25
Acq On : 17 May 2016 12:05 am Operator:
Sample : 1605096-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:43 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

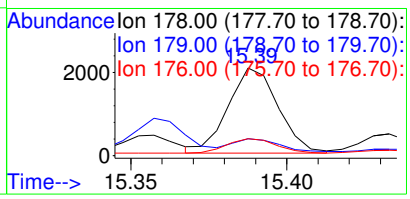


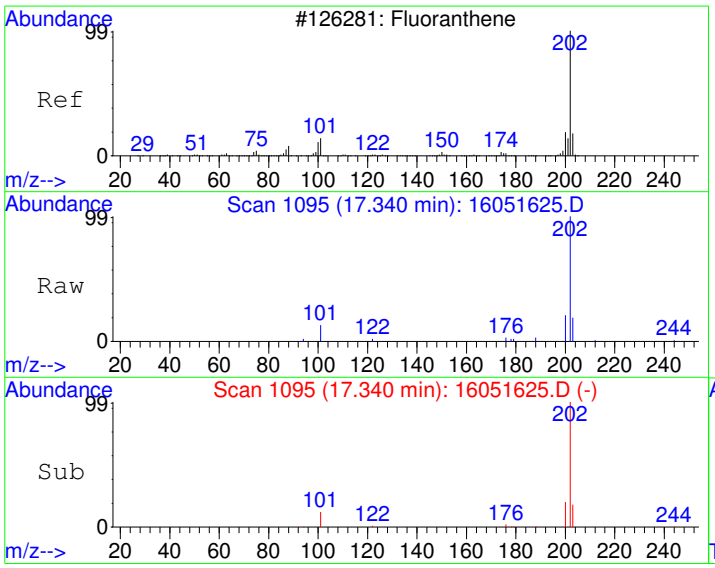


#12
Phenanthrene
Concen: 5.78 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:178 Resp: 2277

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.7	0.0	48.5

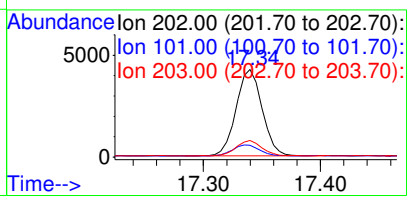


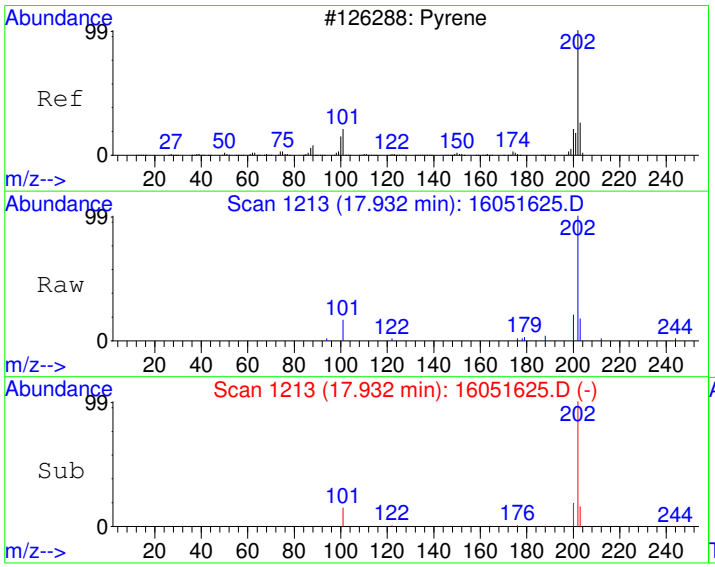


#14
Fluoranthene
Concen: 16.05 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:202 Resp: 6537

Ion	Ratio	Lower	Upper
202	100		
101	12.2	0.0	43.0
203	17.9	0.0	47.9

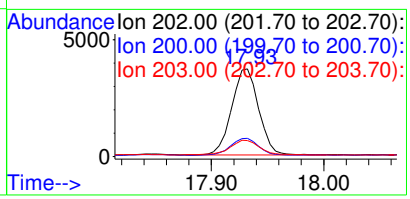


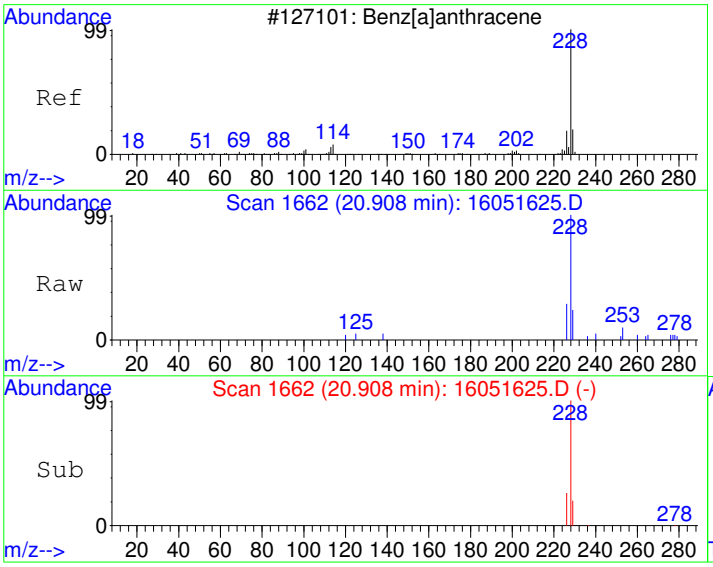


#15
Pyrene
Concen: 14.60 ug/kg
RT: 17.93 min Scan# 1213
Delta R.T. -0.00 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:202 Resp: 6176

Ion	Ratio	Lower	Upper
202	100		
200	19.3	0.0	50.0
203	17.0	0.0	48.0

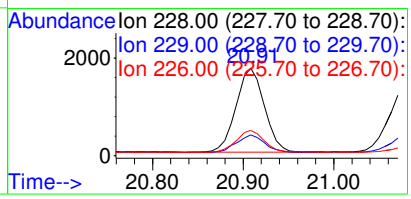


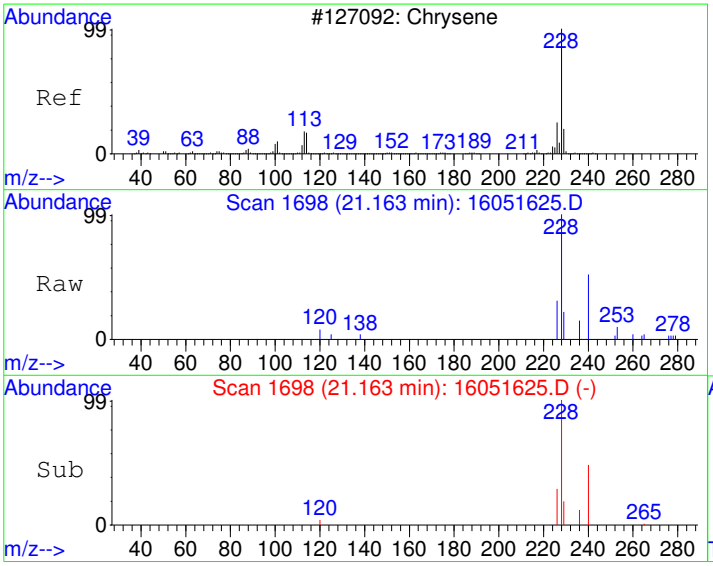


#18
Benzo[a]anthracene
Concen: 10.05 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:228 Resp: 3723

Ion	Ratio	Lower	Upper
228	100		
229	21.2	0.0	50.1
226	26.3	0.0	55.2

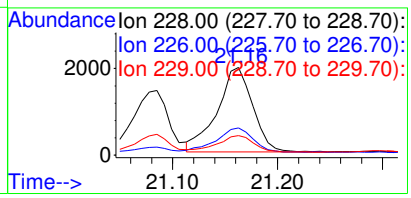


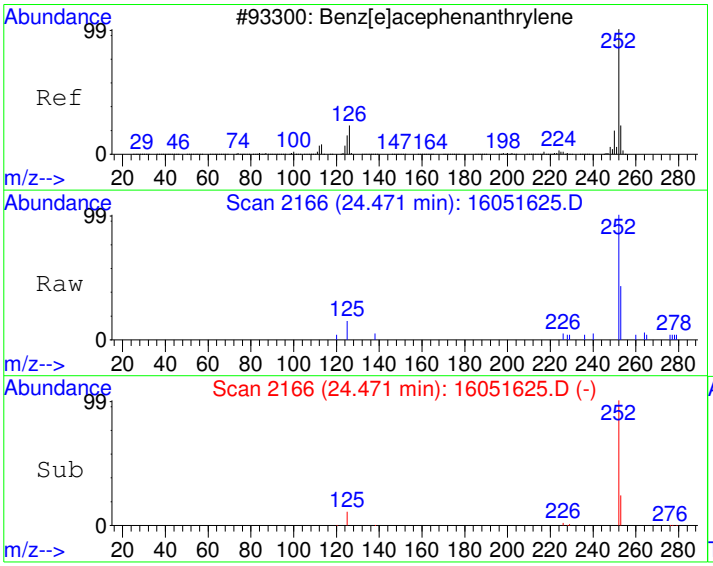


#19
Chrysene
Concen: 12.78 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:228 Resp: 4577

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	19.3	0.0	50.1

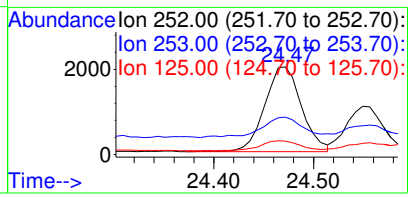


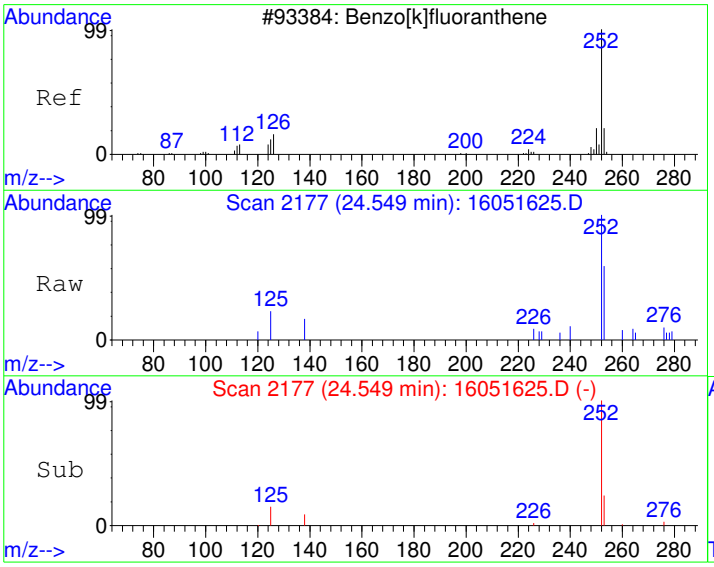


#21
Benzo[b]fluoranthene
Concen: 13.09 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:252 Resp: 5127

Ion	Ratio	Lower	Upper
252	100		
253	23.0	0.0	52.2
125	11.2	0.0	41.0

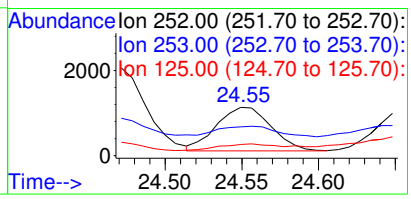


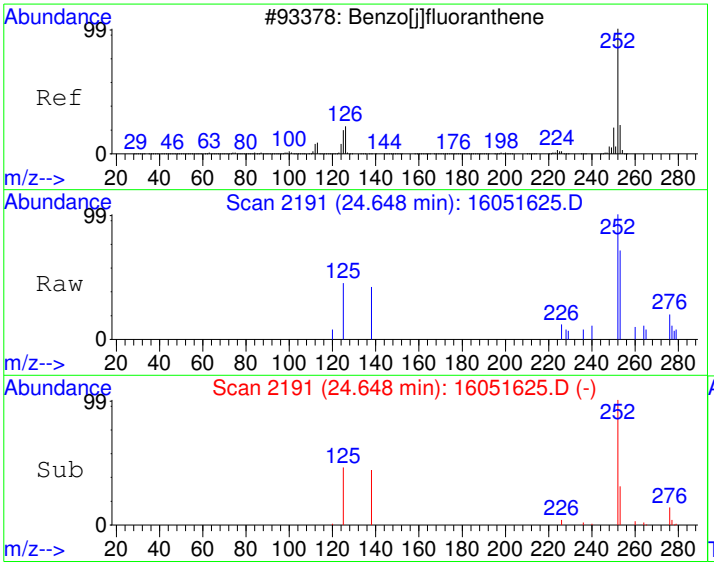


#22
Benzo[k]fluoranthene
Concen: 6.90 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:252 Resp: 2536

Ion	Ratio	Lower	Upper
252	100		
253	19.9	2.1	42.1
125	13.7	0.0	31.3

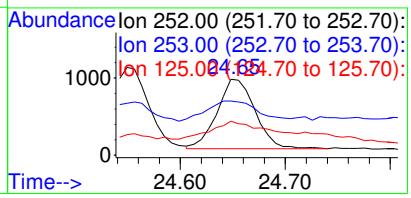


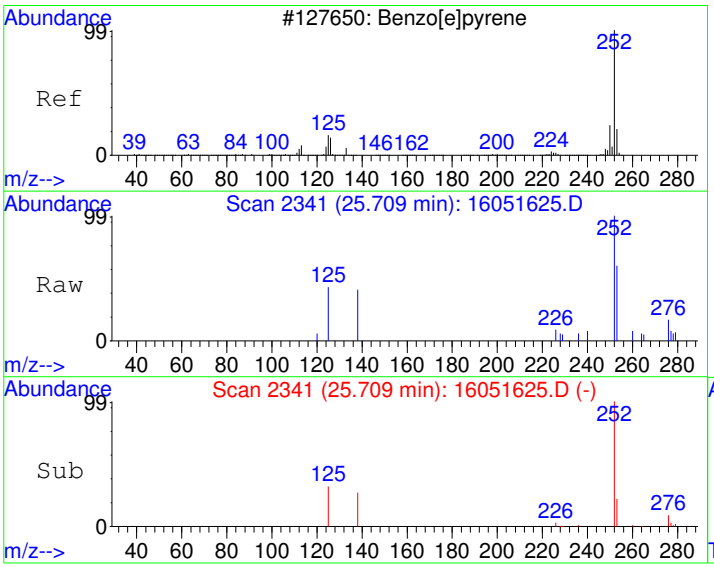


#23
Benzo(j)fluoranthene
Concen: 6.96 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:252 Resp: 2279

Ion	Ratio	Lower	Upper
252	100		
253	25.6	2.1	42.1
125	22.3	0.0	34.4

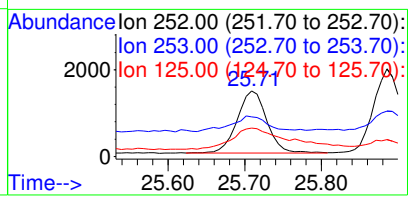


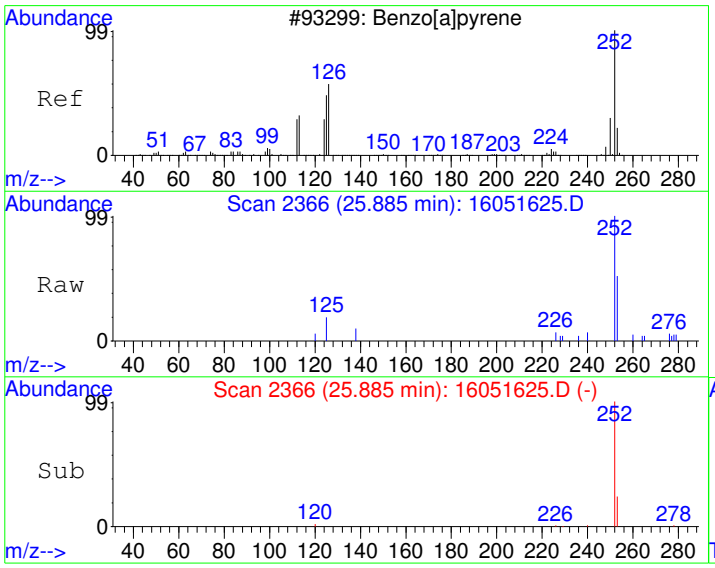


#24
Benzo[e]pyrene
Concen: 11.02 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:252 Resp: 3867

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.2	42.2
125	33.8	0.0	36.1

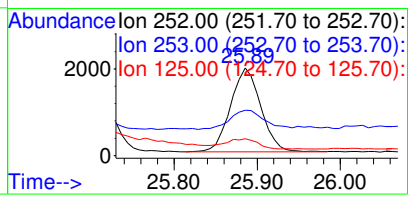


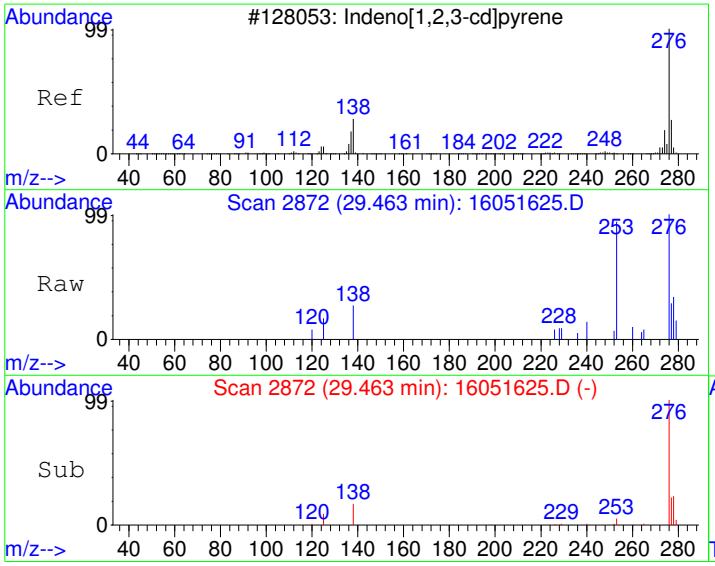


#25
Benzo[a]pyrene
Concen: 13.56 ug/kg
RT: 25.89 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:252 Resp: 4859

Ion	Ratio	Lower	Upper
252	100		
253	22.2	1.9	41.9
125	12.1	0.0	31.7

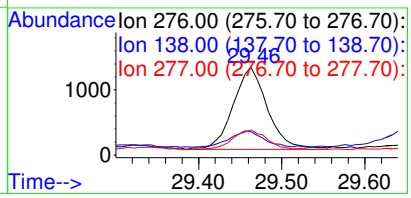


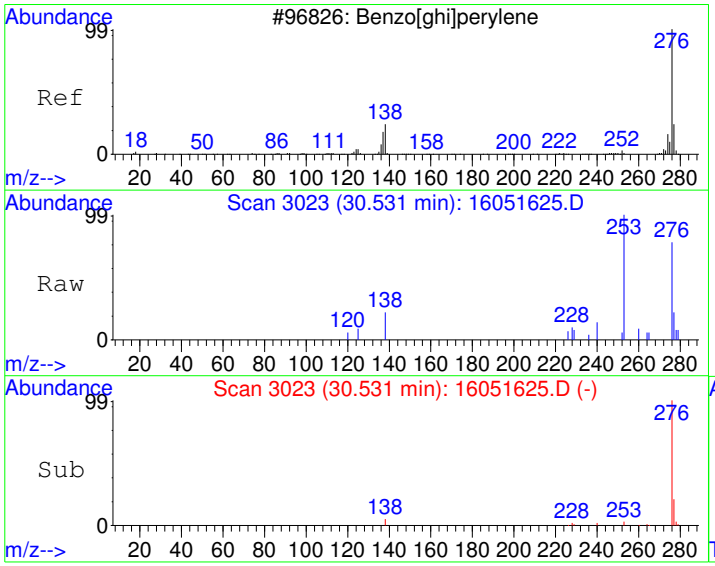


#27
Indeno[1,2,3-cd]pyrene
Concen: 9.24 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:276 Resp: 3599

Ion	Ratio	Lower	Upper
276	100		
138	18.6	6.7	46.7
277	23.9	5.8	45.8

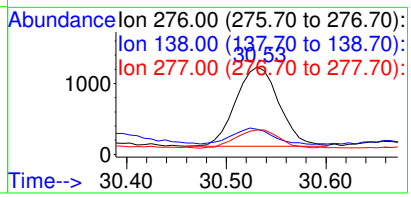




#28
Benzo[g,h,i]perylene
Concen: 11.07 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051625.D
Acq: 17 May 2016 12:05 am

Tgt Ion:276 Resp: 3363

Ion	Ratio	Lower	Upper
276	100		
138	18.5	0.0	39.1
277	22.8	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051626.D Vial: 26
Acq On : 17 May 2016 12:45 am Operator:
Sample : 1605096-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:43 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

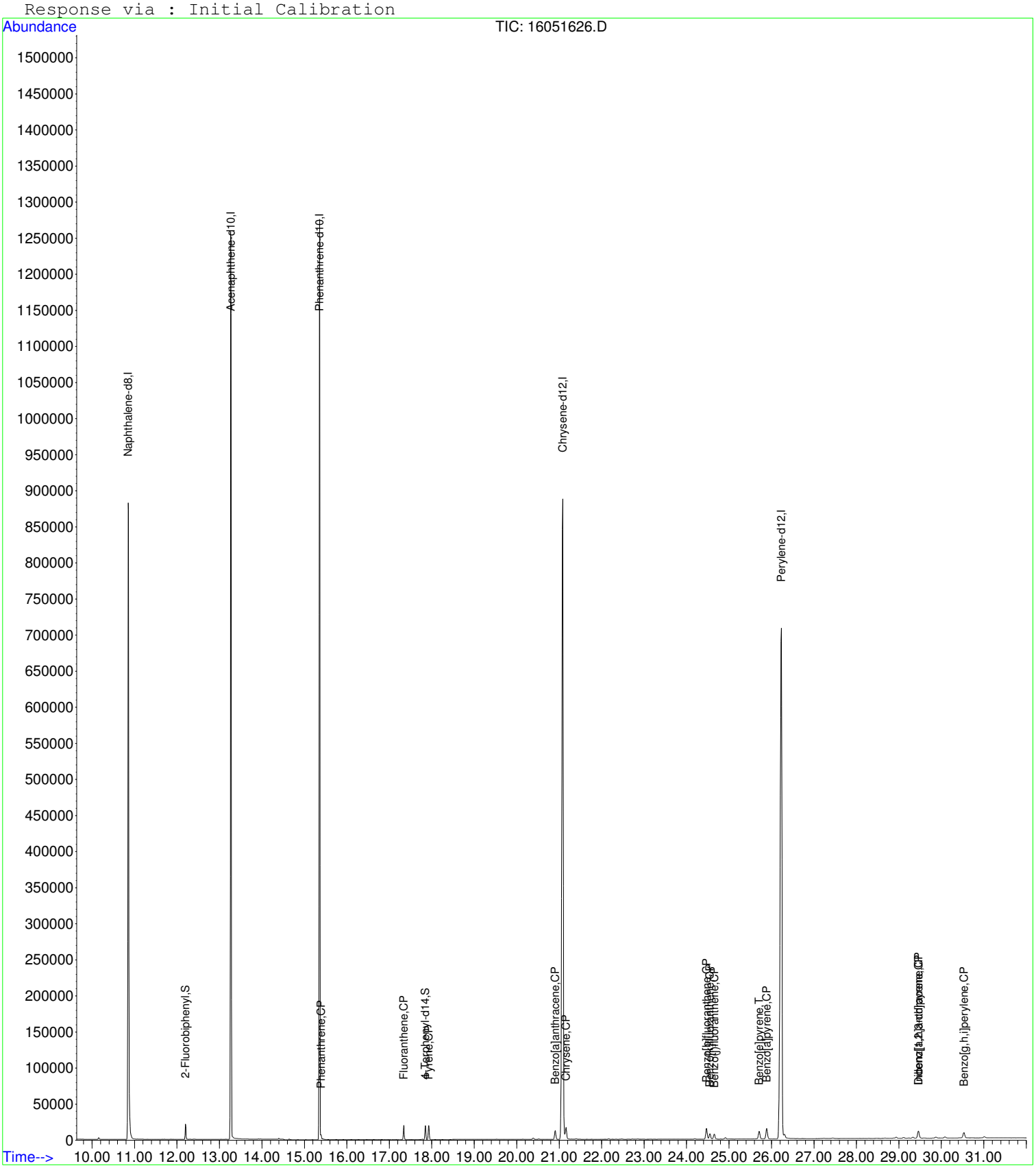
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1260552	4000.00	ug/kg	109
5) Acenaphthene-d10	13.26	164	752404	4000.00	ug/kg	65
11) Phenanthrene-d10	15.36	188	1361883	4000.00	ug/kg	67
17) Chrysene-d12	21.08	240	1496059	4000.00	ug/kg	66
20) Perylene-d12	26.23	264	1372658	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18367	83.68	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#		
16) 4-Terphenyl-d14	17.85	244	25563	72.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.81%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	4110	11.48	ug/kg	97
14) Fluoranthene	17.34	202	19779	53.37	ug/kg	98
15) Pyrene	17.93	202	21490	55.82	ug/kg	99
18) Benzo[a]anthracene	20.91	228	17990	51.33	ug/kg	99
19) Chrysene	21.16	228	24160	71.34	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	27694	76.55	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	13046	38.44	ug/kg	99
23) Benzo(j)fluoranthene	24.65	252	11645	38.52	ug/kg	95
24) Benzo[e]pyrene	25.71	252	19456	60.05	ug/kg	99
25) Benzo[a]pyrene	25.89	252	26783	80.89	ug/kg	98
26) Dibenz[a,h]anthracene	29.46	278	3851	12.77	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.46	276	16533	45.96	ug/kg	89
28) Benzo[g,h,i]perylene	30.53	276	14864	52.99	ug/kg	98

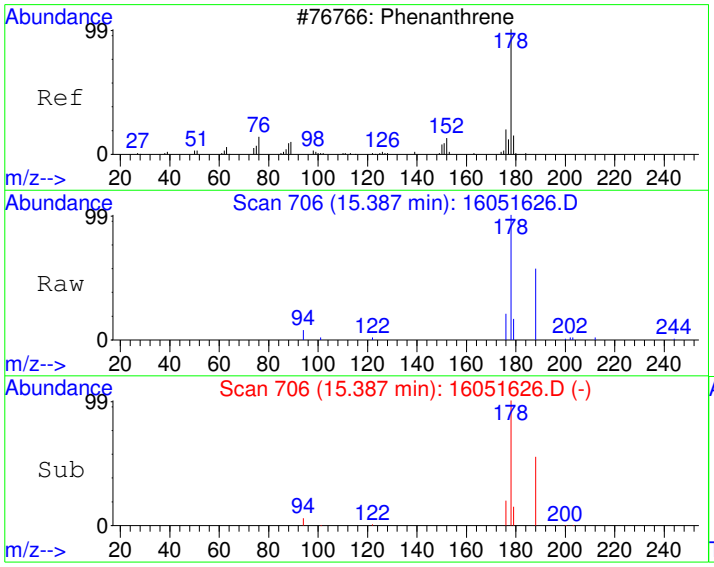
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051626.D Vial: 26
Acq On : 17 May 2016 12:45 am Operator:
Sample : 1605096-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:43 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

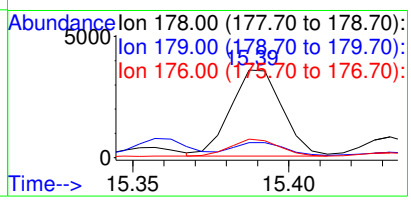


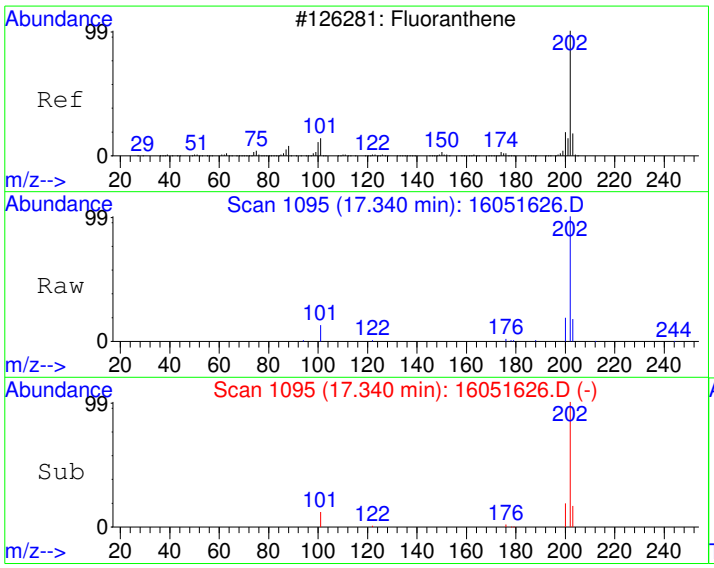


#12
Phenanthrene
Concen: 11.48 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:178 Resp: 4110

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	45.9
176	20.2	0.0	48.5

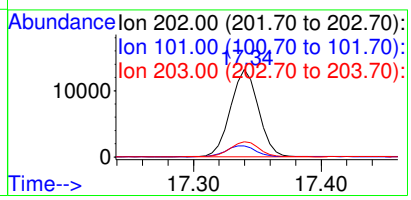


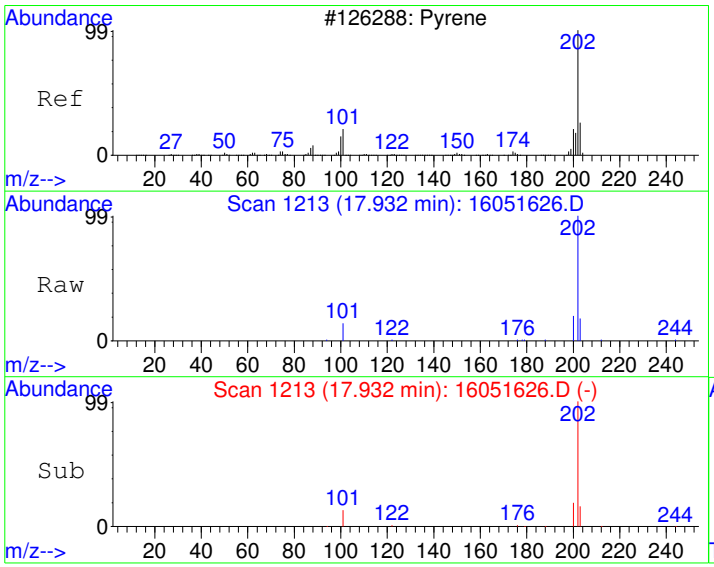


#14
Fluoranthene
Concen: 53.37 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:202 Resp: 19779

Ion	Ratio	Lower	Upper
202	100		
101	12.4	0.0	43.0
203	17.1	0.0	47.9

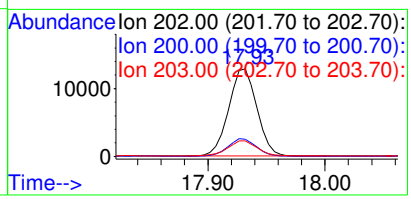


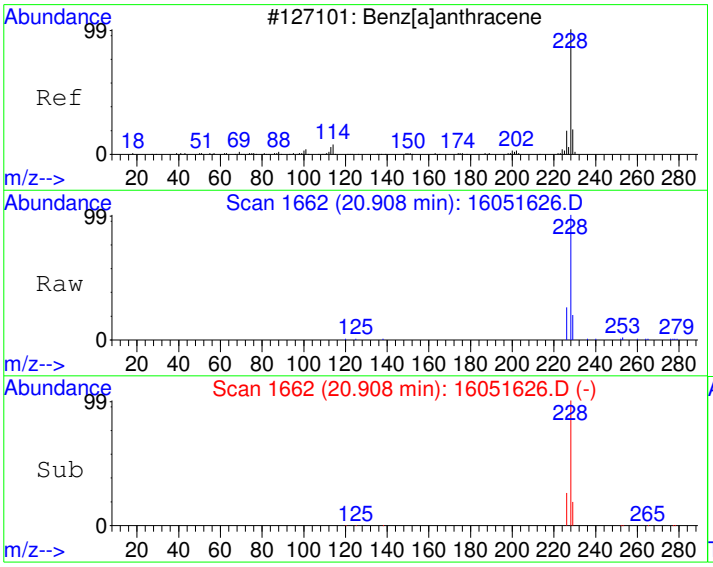


#15
Pyrene
Concen: 55.82 ug/kg
RT: 17.93 min Scan# 1213
Delta R.T. -0.00 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:202 Resp: 21490

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	50.0
203	17.5	0.0	48.0

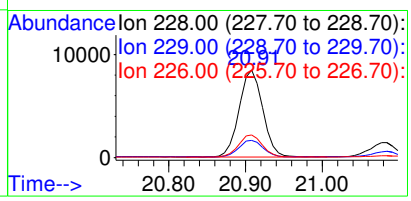


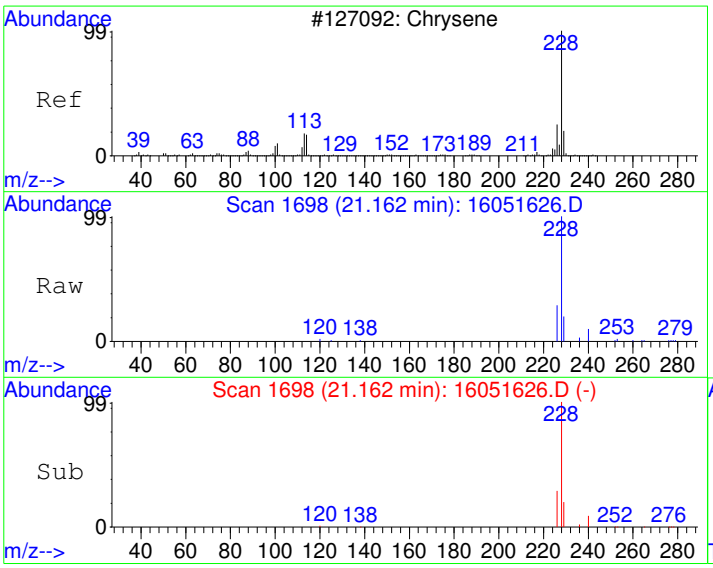


#18
Benzo[a]anthracene
Concen: 51.33 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:228 Resp: 17990

Ion	Ratio	Lower	Upper
228	100		
229	19.1	0.0	50.1
226	25.5	0.0	55.2

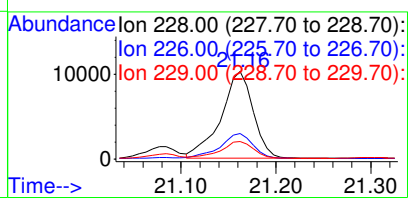


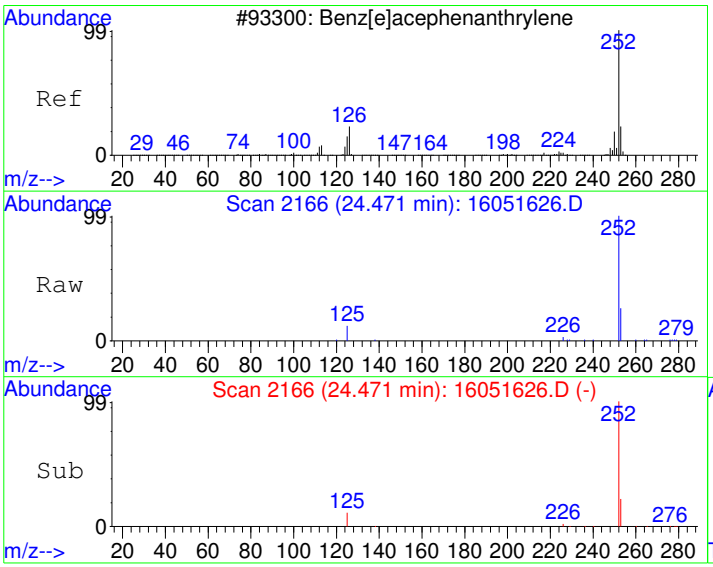


#19
Chrysene
Concen: 71.34 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:228 Resp: 24160

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.1
229	19.7	0.0	50.1

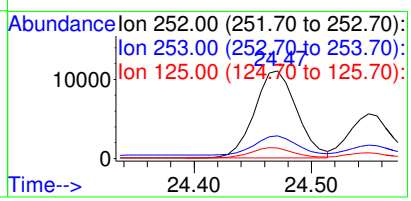


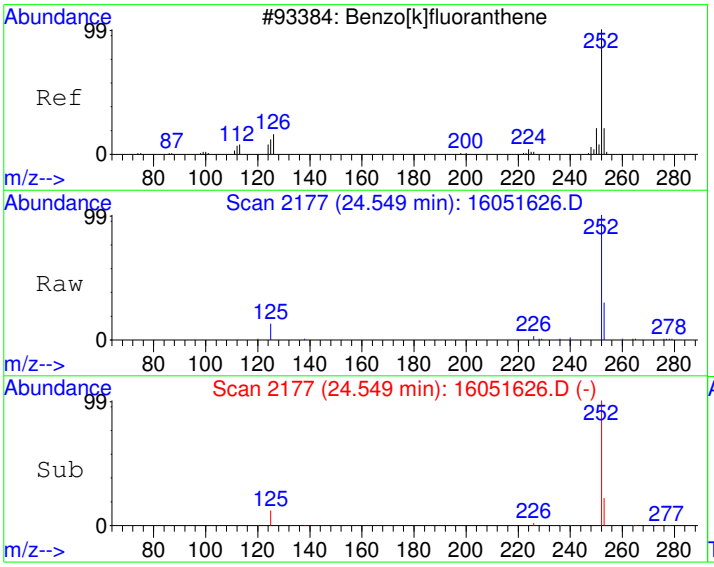


#21
Benzo[b]fluoranthene
Concen: 76.55 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:252 Resp: 27694

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.2	0.0	41.0

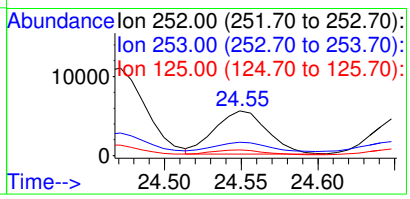


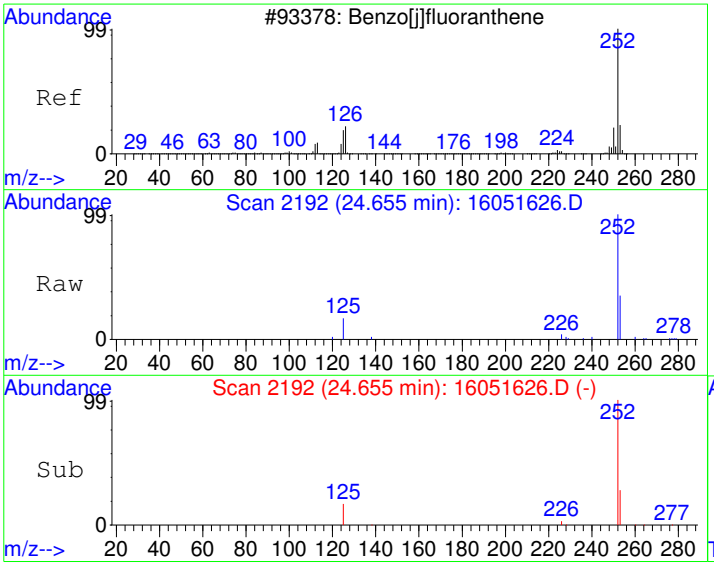


#22
Benzo[k]fluoranthene
Concen: 38.44 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:252 Resp: 13046

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.1	42.1
125	11.4	0.0	31.3

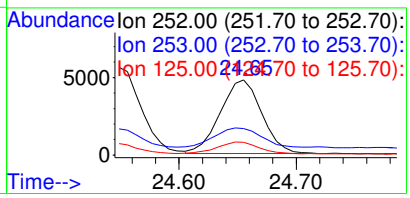


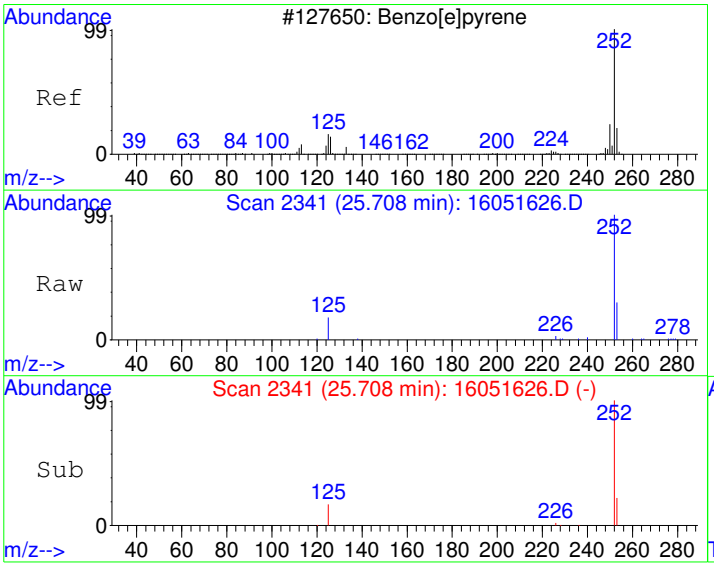


#23
Benzo(j)fluoranthene
Concen: 38.52 ug/kg
RT: 24.65 min Scan# 2192
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:252 Resp: 11645

Ion	Ratio	Lower	Upper
252	100		
253	25.1	2.1	42.1
125	15.6	0.0	34.4

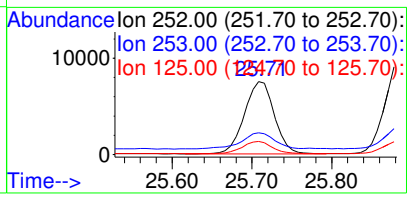


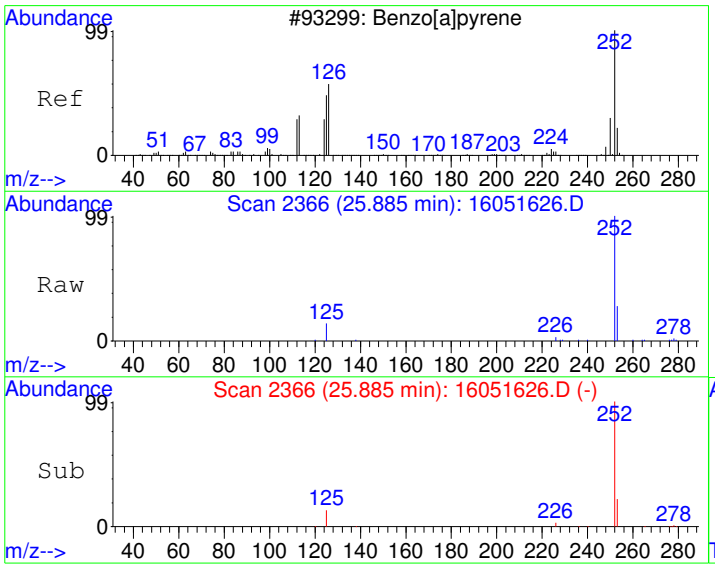


#24
Benzo[e]pyrene
Concen: 60.05 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:252 Resp: 19456

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.2	42.2
125	17.0	0.0	36.1

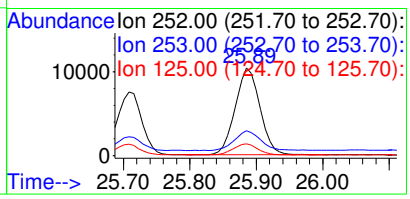


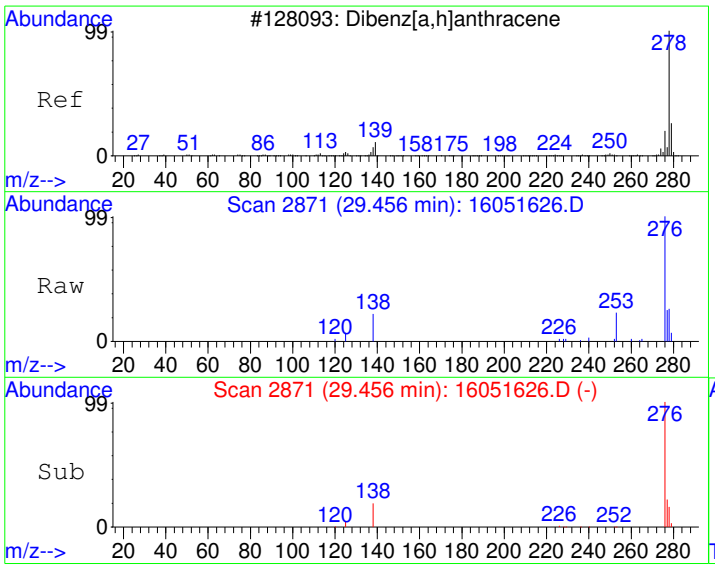


#25
Benzo[a]pyrene
Concen: 80.89 ug/kg
RT: 25.89 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:252 Resp: 26783

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	12.8	0.0	31.7

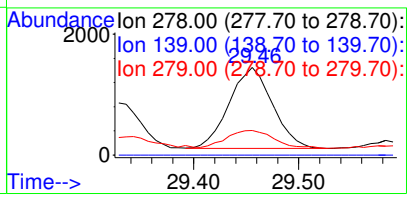


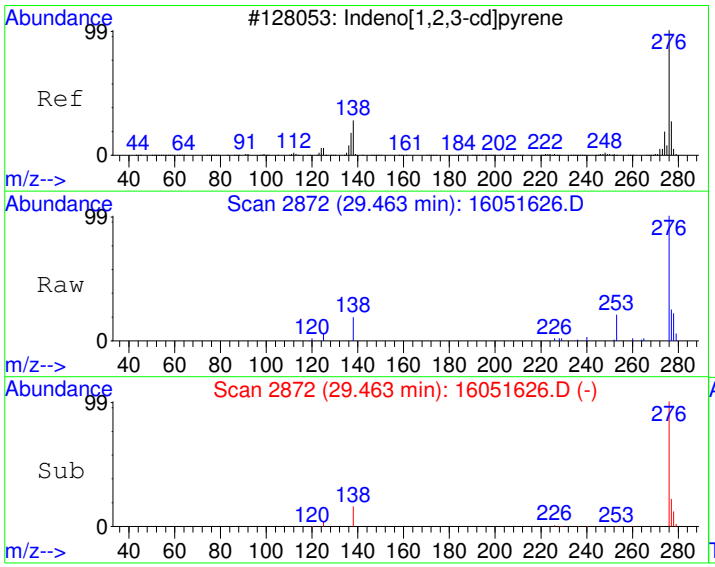


#26
Dibenz[a,h]anthracene
Concen: 12.77 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:278 Resp: 3851

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.3	4.2	44.2

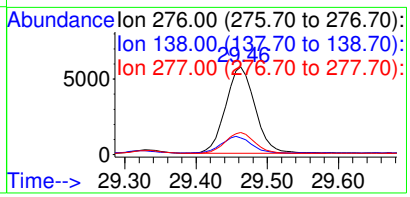


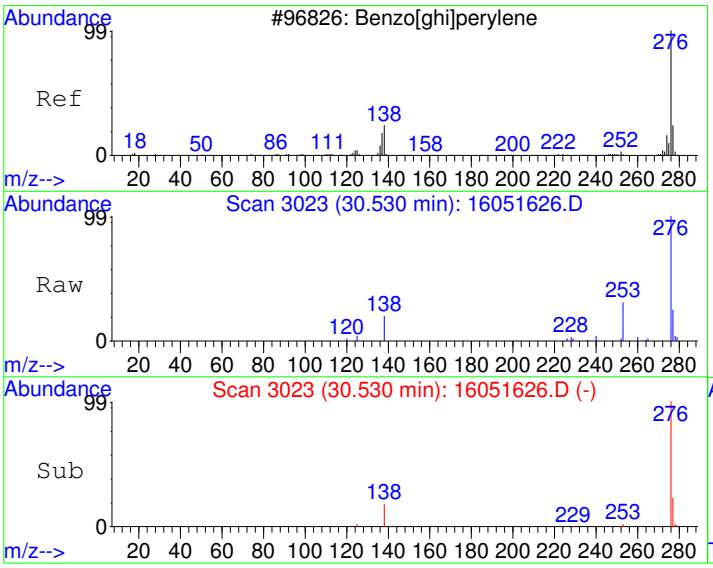


#27
Indeno[1,2,3-cd]pyrene
Concen: 45.96 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:276 Resp: 16533

Ion	Ratio	Lower	Upper
276	100		
138	17.5	6.7	46.7
277	24.1	5.8	45.8

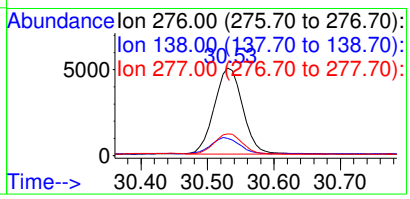




#28
Benzo[g,h,i]perylene
Concen: 52.99 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051626.D
Acq: 17 May 2016 12:45 am

Tgt Ion:276 Resp: 14864

Ion	Ratio	Lower	Upper
276	100		
138	17.9	0.0	39.1
277	23.7	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051627.D Vial: 27
Acq On : 17 May 2016 1:25 am Operator:
Sample : 1605096-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:44 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

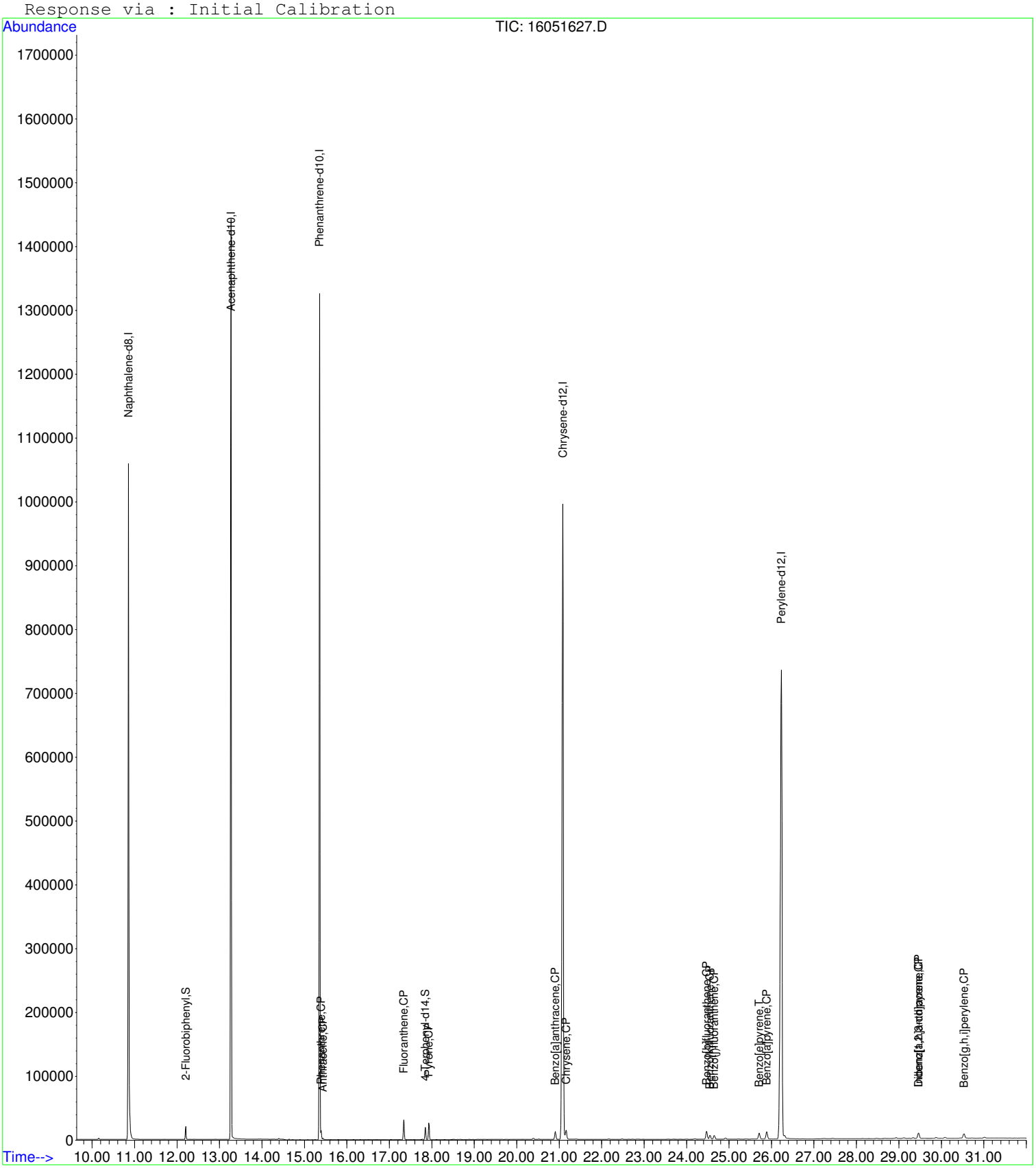
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1299905	4000.00	ug/kg	112
5) Acenaphthene-d10	13.27	164	788824	4000.00	ug/kg	69
11) Phenanthrene-d10	15.36	188	1420374	4000.00	ug/kg	70
17) Chrysene-d12	21.09	240	1577406	4000.00	ug/kg	69
20) Perylene-d12	26.23	264	1435436	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	17530	76.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#		
16) 4-Terphenyl-d14	17.85	244	24754	67.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.68%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	10312	27.61	ug/kg	99
13) Anthracene	15.43	178	1867	5.28	ug/kg	99
14) Fluoranthene	17.34	202	30924	80.00	ug/kg	99
15) Pyrene	17.93	202	28486	70.94	ug/kg	99
18) Benzo[a]anthracene	20.91	228	17520	47.41	ug/kg	98
19) Chrysene	21.16	228	21147	59.23	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	22953	60.67	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	10999	30.99	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	9850	31.16	ug/kg	88
24) Benzo[e]pyrene	25.71	252	16833	49.68	ug/kg	100
25) Benzo[a]pyrene	25.89	252	21483	62.05	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	3273	10.38	ug/kg	94
27) Indeno[1,2,3-cd]pyrene	29.46	276	14004	37.23	ug/kg	89
28) Benzo[g,h,i]perylene	30.53	276	14027	47.82	ug/kg	98

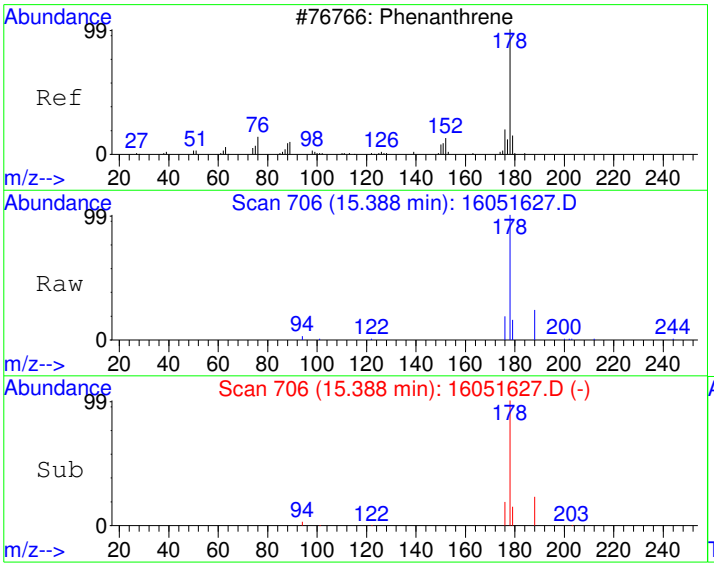
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051627.D Vial: 27
Acq On : 17 May 2016 1:25 am Operator:
Sample : 1605096-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:44 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

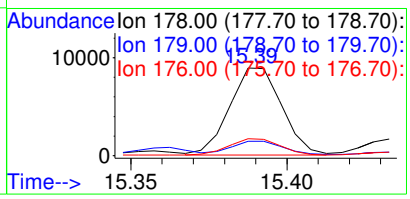


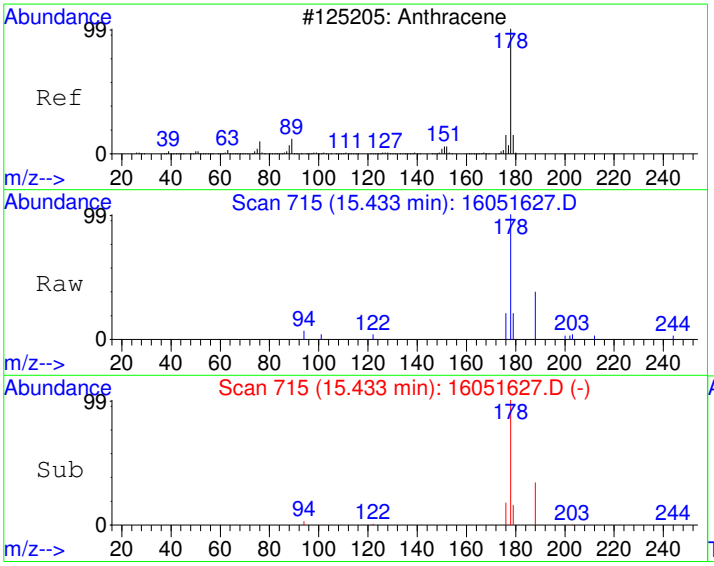


#12
Phenanthrene
Concen: 27.61 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:178 Resp: 10312

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	19.0	0.0	48.5

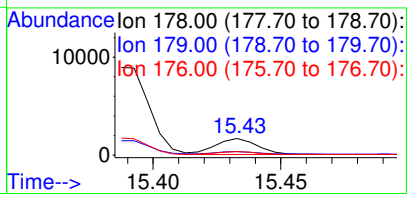


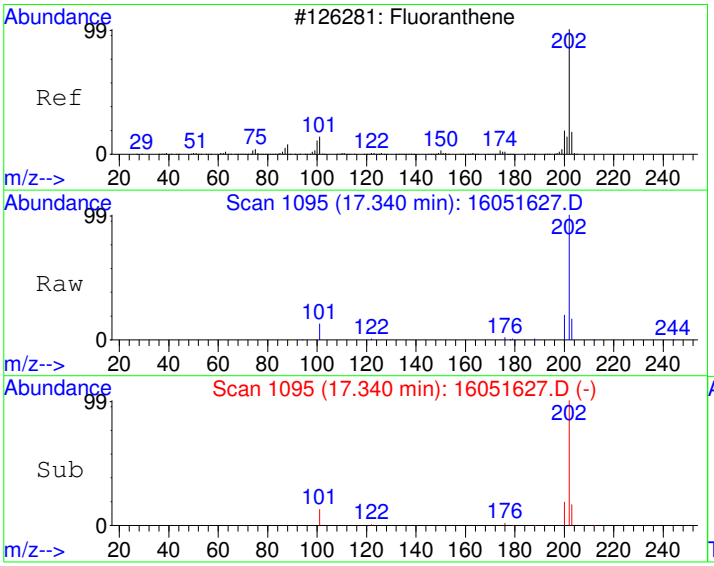


#13
Anthracene
Concen: 5.28 ug/kg
RT: 15.43 min Scan# 715
Delta R.T. -0.00 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:178 Resp: 1867

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.9	0.0	48.2

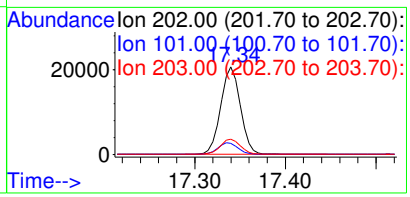


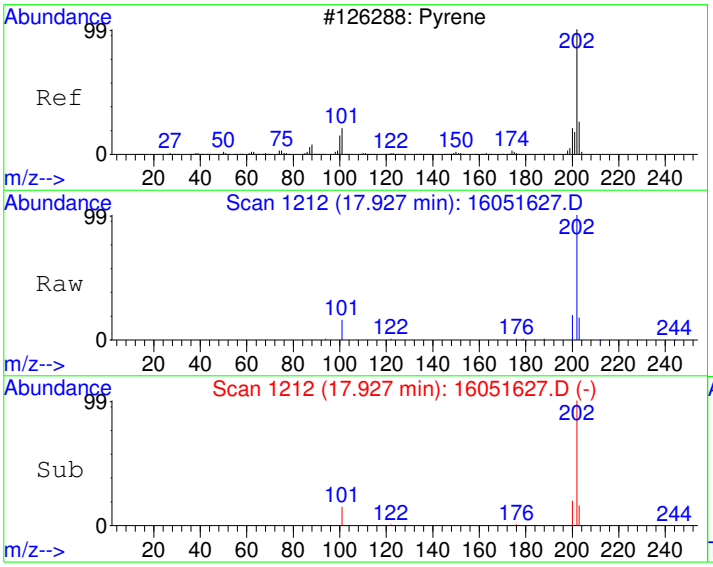


#14
Fluoranthene
Concen: 80.00 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:202 Resp: 30924

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	43.0
203	17.2	0.0	47.9

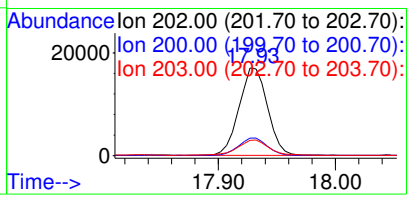


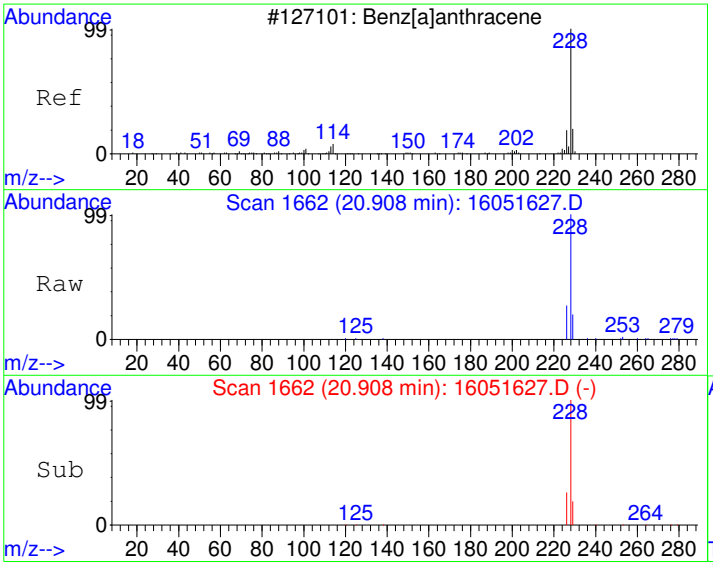


#15
Pyrene
Concen: 70.94 ug/kg
RT: 17.93 min Scan# 1212
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:202 Resp: 28486

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.2	0.0	48.0

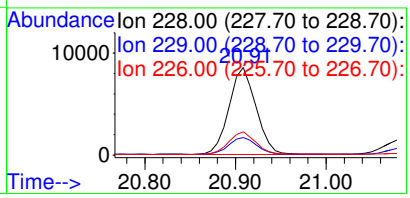


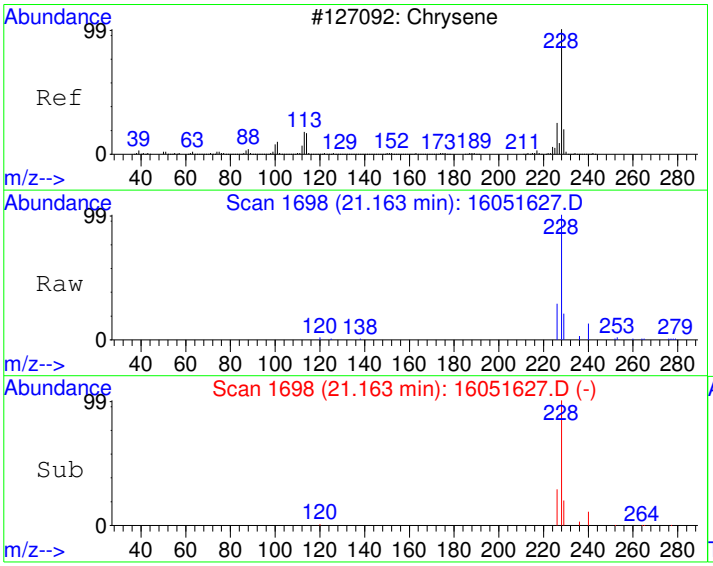


#18
Benzo[a]anthracene
Concen: 47.41 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:228 Resp: 17520

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	50.1
226	26.1	0.0	55.2

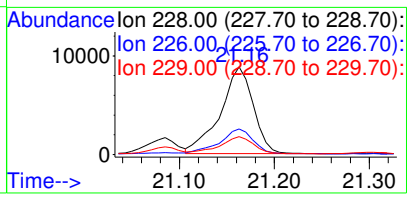


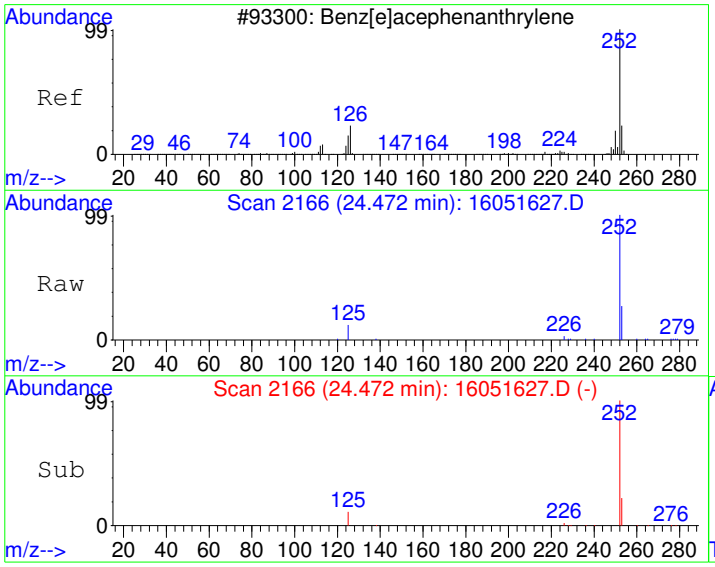


#19
Chrysene
Concen: 59.23 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:228 Resp: 21147

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	19.9	0.0	50.1

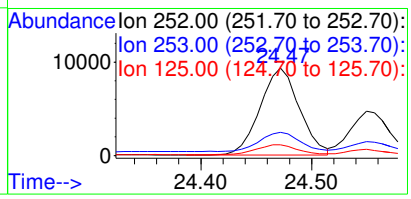


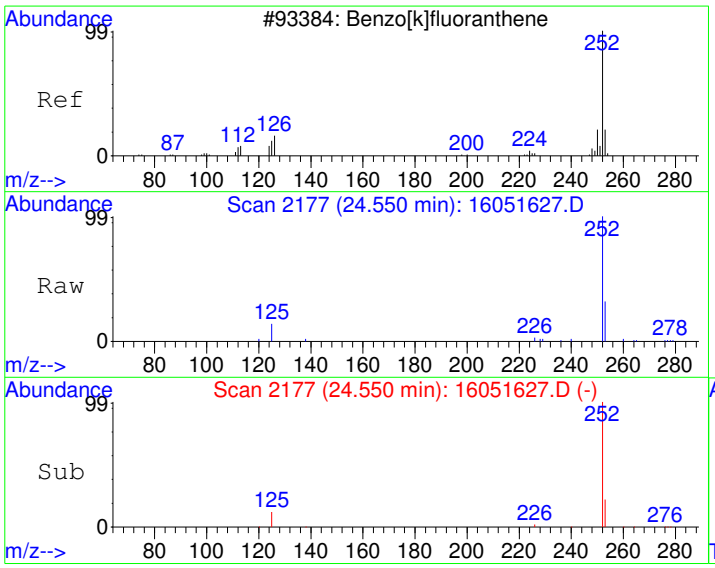


#21
Benzo[b]fluoranthene
Concen: 60.67 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:252 Resp: 22953

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.1	0.0	41.0

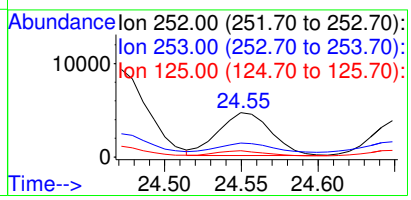


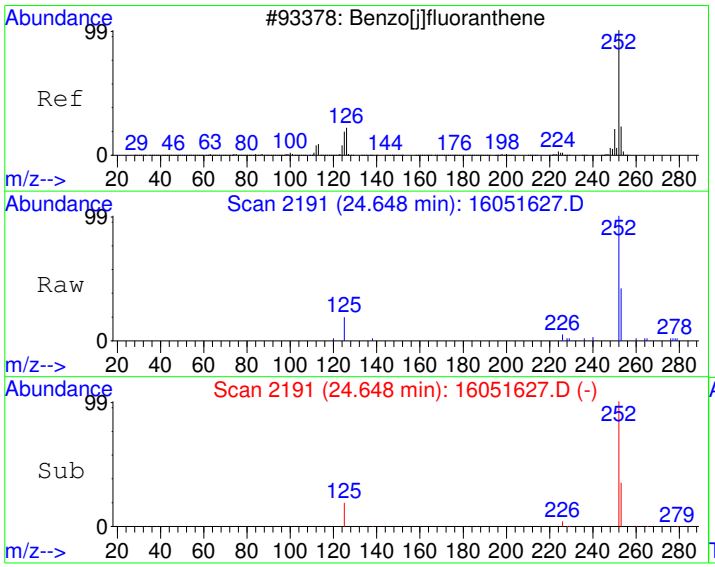


#22
Benzo[k]fluoranthene
Concen: 30.99 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:252 Resp: 10999

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.1	42.1
125	11.6	0.0	31.3

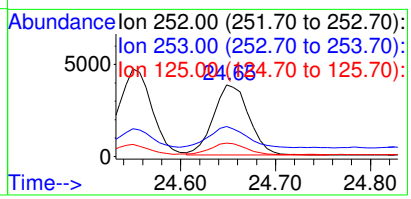


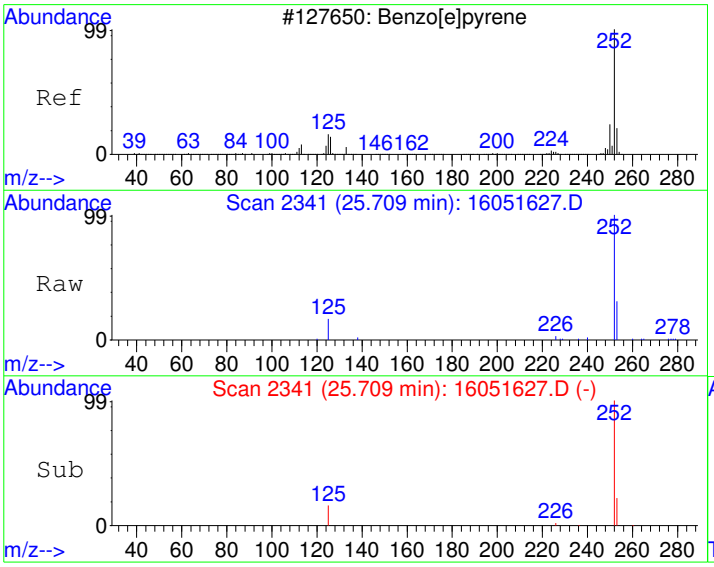


#23
Benzo(j)fluoranthene
Concen: 31.16 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:252 Resp: 9850

Ion	Ratio	Lower	Upper
252	100		
253	30.0	2.1	42.1
125	16.2	0.0	34.4

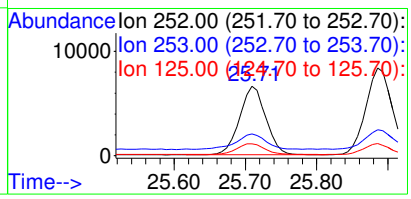


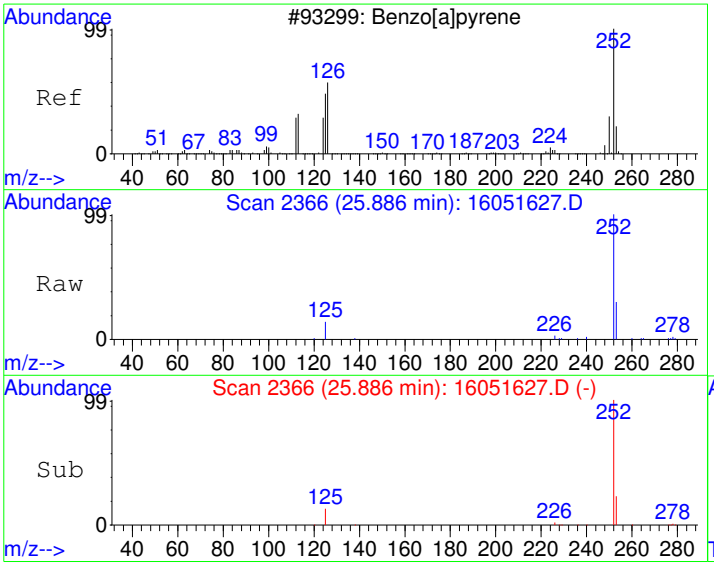


#24
Benzo[e]pyrene
Concen: 49.68 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:252 Resp: 16833

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	15.7	0.0	36.1

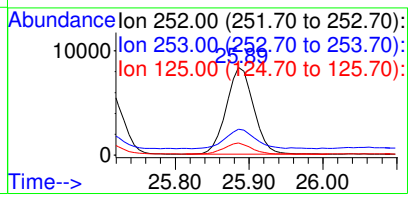


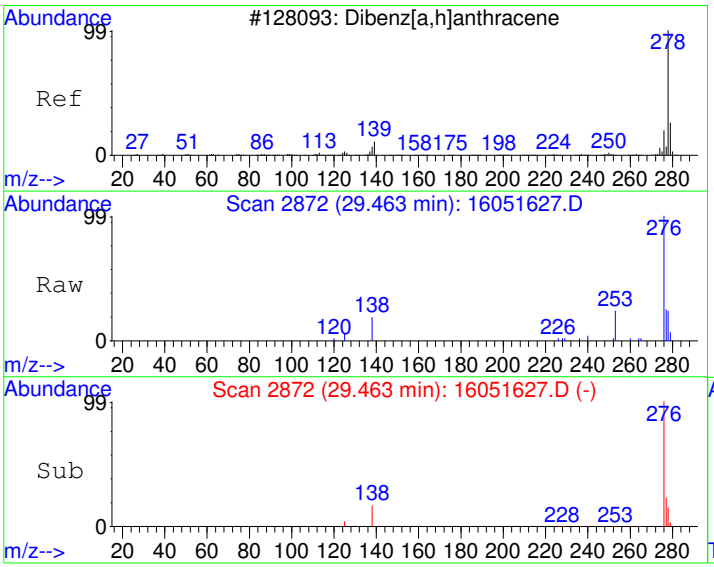


#25
Benzo[a]pyrene
Concen: 62.05 ug/kg
RT: 25.89 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:252 Resp: 21483

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	12.6	0.0	31.7

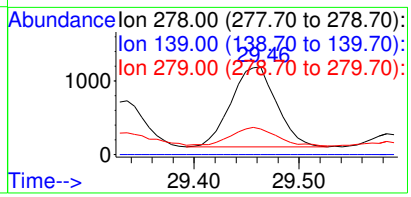


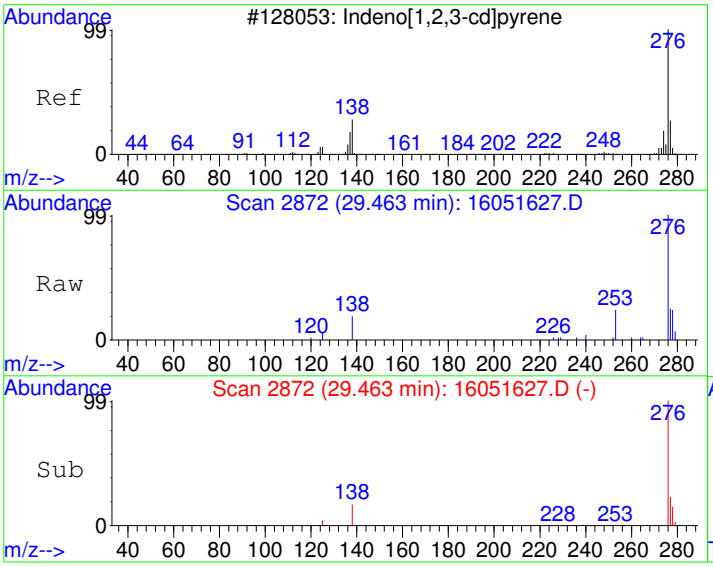


#26
Dibenz[a,h]anthracene
Concen: 10.38 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:278 Resp: 3273

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.2	4.2	44.2

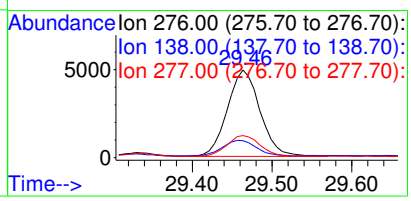


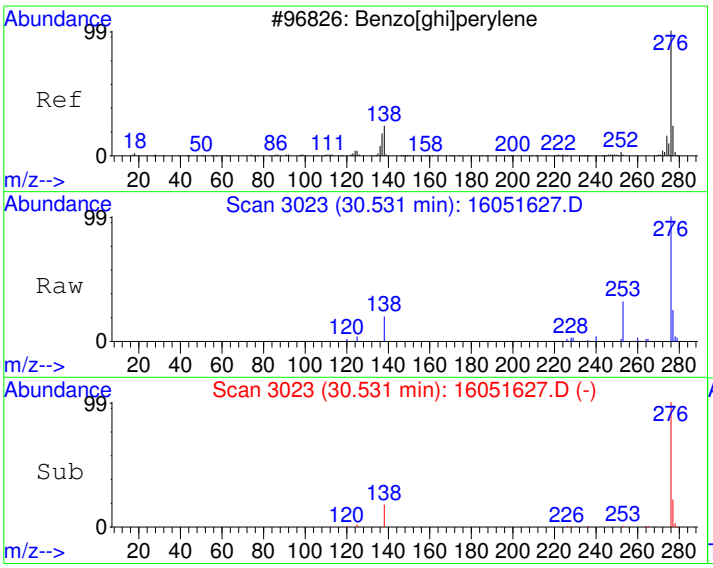


#27
Indeno[1,2,3-cd]pyrene
Concen: 37.23 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:276 Resp: 14004

Ion	Ratio	Lower	Upper
276	100		
138	17.6	6.7	46.7
277	24.0	5.8	45.8

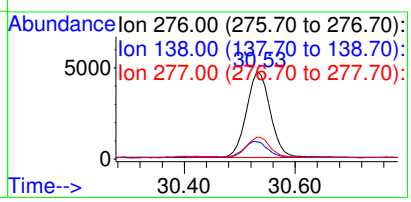




#28
Benzo[g,h,i]perylene
Concen: 47.82 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051627.D
Acq: 17 May 2016 1:25 am

Tgt Ion:276 Resp: 14027

Ion	Ratio	Lower	Upper
276	100		
138	17.7	0.0	39.1
277	23.7	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051628.D Vial: 28
Acq On : 17 May 2016 2:06 am Operator:
Sample : 1605096-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:44 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

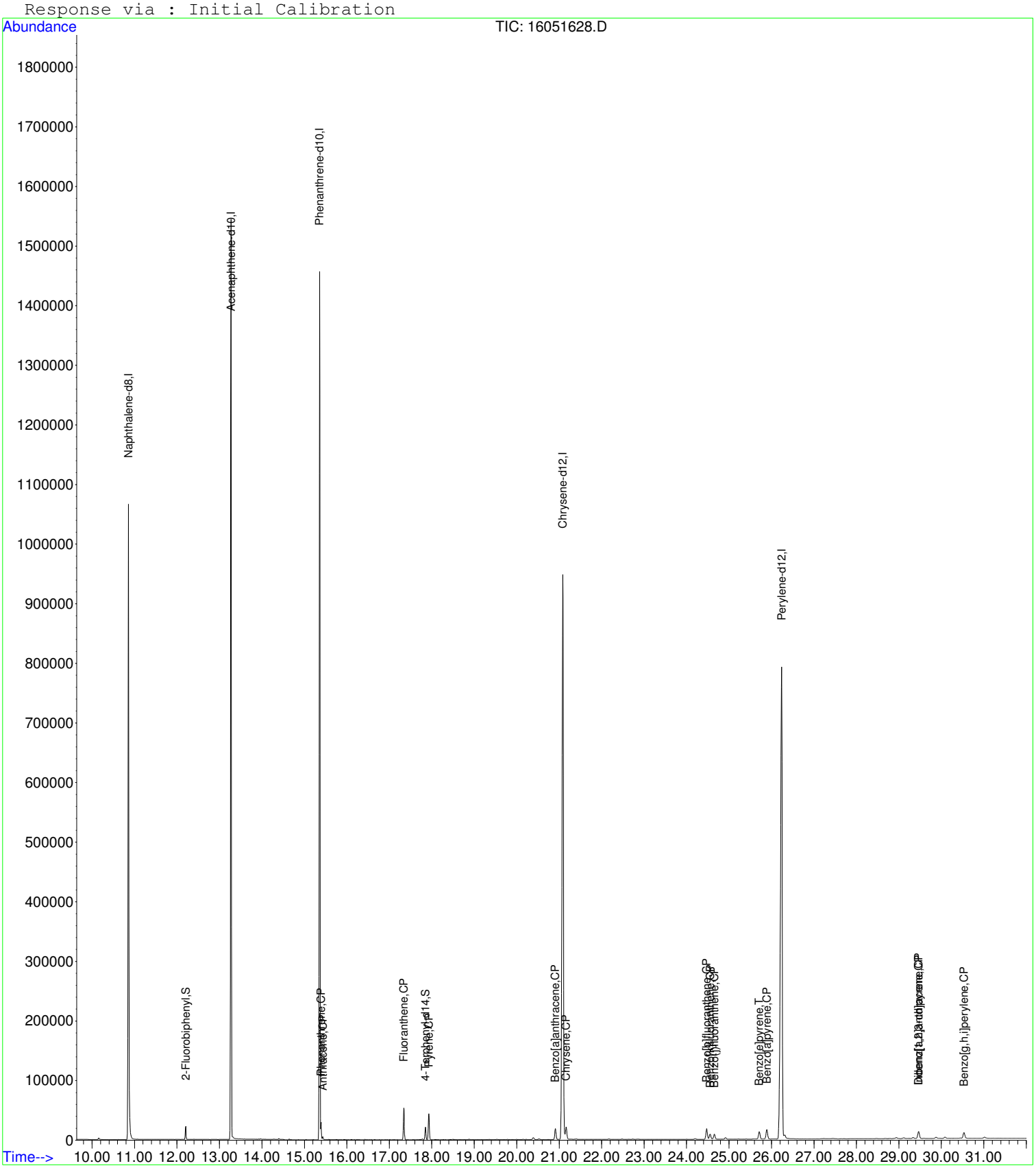
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1346561	4000.00	ug/kg	116
5) Acenaphthene-d10	13.27	164	856566	4000.00	ug/kg	74
11) Phenanthrene-d10	15.36	188	1549815	4000.00	ug/kg	76
17) Chrysene-d12	21.08	240	1626986	4000.00	ug/kg	72
20) Perylene-d12	26.24	264	1509627	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.21	172	19494	78.02	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#		
16) 4-Terphenyl-d14	17.85	244	27880	69.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.74%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	22431	55.04	ug/kg	99
13) Anthracene	15.43	178	4130	10.71	ug/kg	98
14) Fluoranthene	17.34	202	54799	129.93	ug/kg	99
15) Pyrene	17.93	202	47767	109.02	ug/kg	99
18) Benzo[a]anthracene	20.91	228	27147	71.22	ug/kg	100
19) Chrysene	21.16	228	31680	86.02	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	32218	80.97	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	15522	41.59	ug/kg	97
23) Benzo(j)fluoranthene	24.66	252	14616	43.96	ug/kg	92
24) Benzo[e]pyrene	25.71	252	23120	64.88	ug/kg	100
25) Benzo[a]pyrene	25.89	252	30180	82.88	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	4570	13.78	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.46	276	19242	48.64	ug/kg	91
28) Benzo[g,h,i]perylene	30.53	276	18648	60.45	ug/kg	99

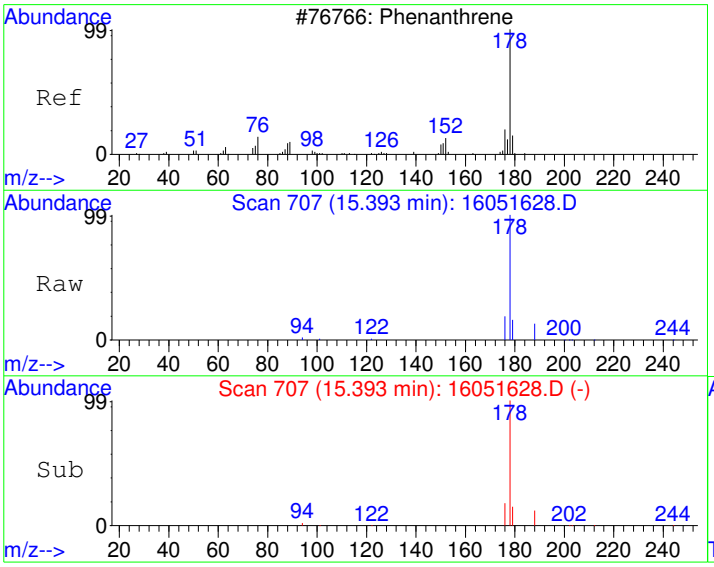
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051628.D Vial: 28
Acq On : 17 May 2016 2:06 am Operator:
Sample : 1605096-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:44 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

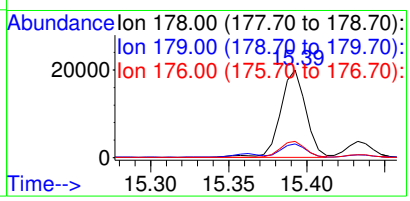


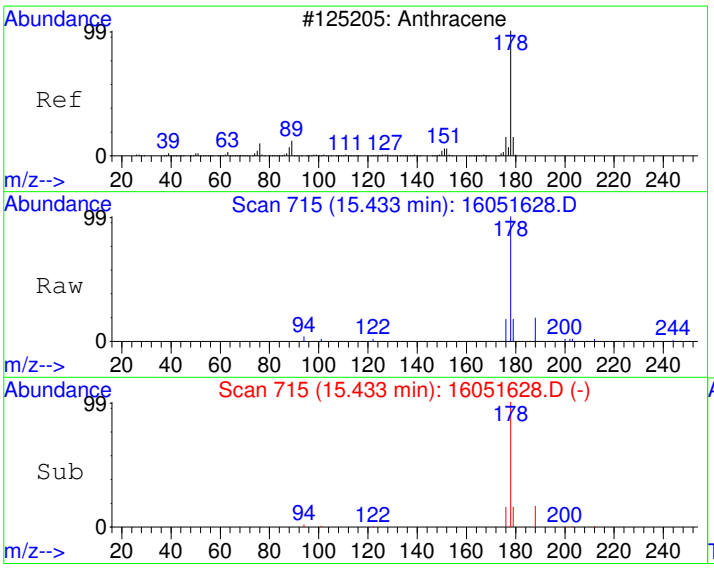


#12
Phenanthrene
Concen: 55.04 ug/kg
RT: 15.39 min Scan# 707
Delta R.T. -0.00 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:178 Resp: 22431

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	18.3	0.0	48.5

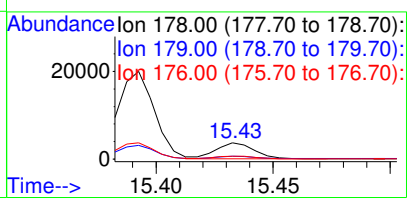


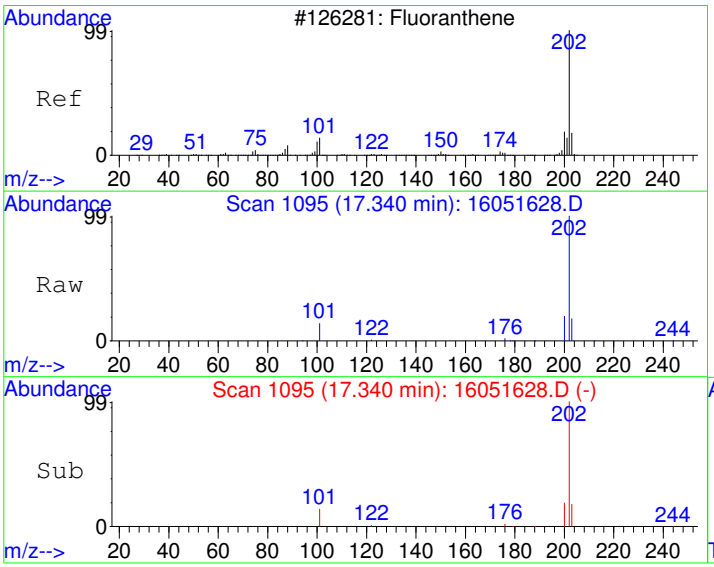


#13
Anthracene
Concen: 10.71 ug/kg
RT: 15.43 min Scan# 715
Delta R.T. -0.00 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:178 Resp: 4130

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.9
176	16.6	0.0	48.2

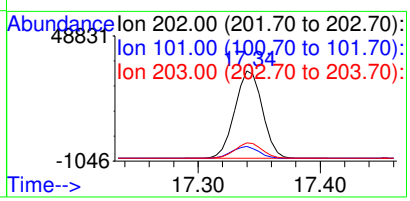


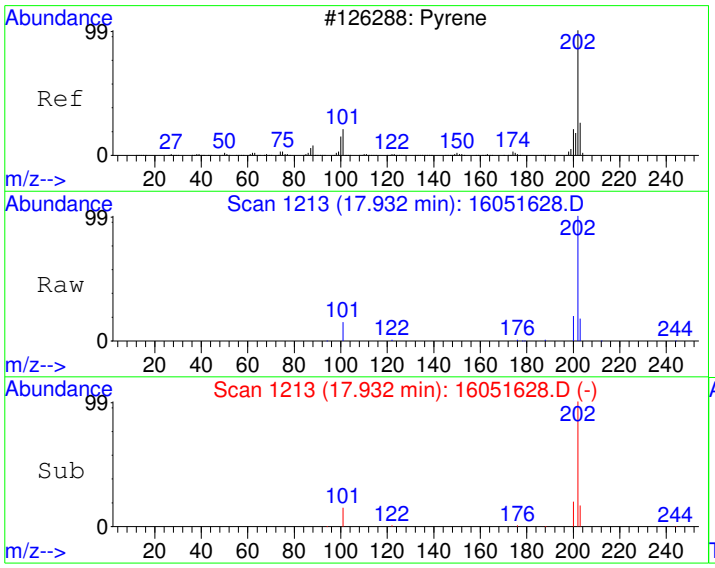


#14
Fluoranthene
Concen: 129.93 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:202 Resp: 54799

Ion	Ratio	Lower	Upper
202	100		
101	13.6	0.0	43.0
203	17.6	0.0	47.9

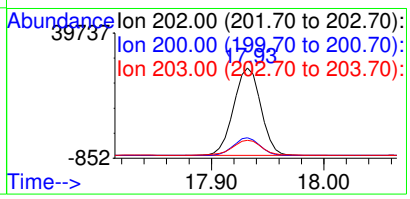


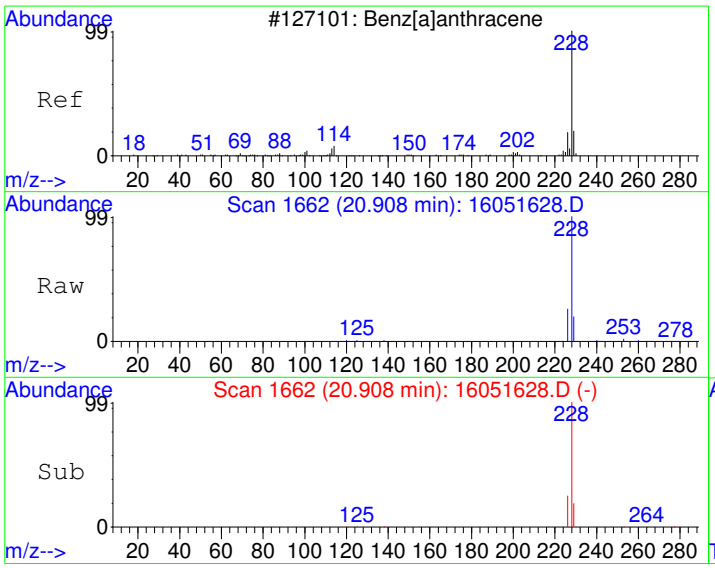


#15
Pyrene
Concen: 109.02 ug/kg
RT: 17.93 min Scan# 1213
Delta R.T. -0.00 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:202 Resp: 47767

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	50.0
203	17.4	0.0	48.0

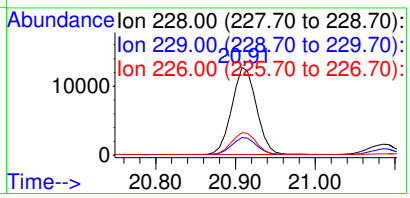


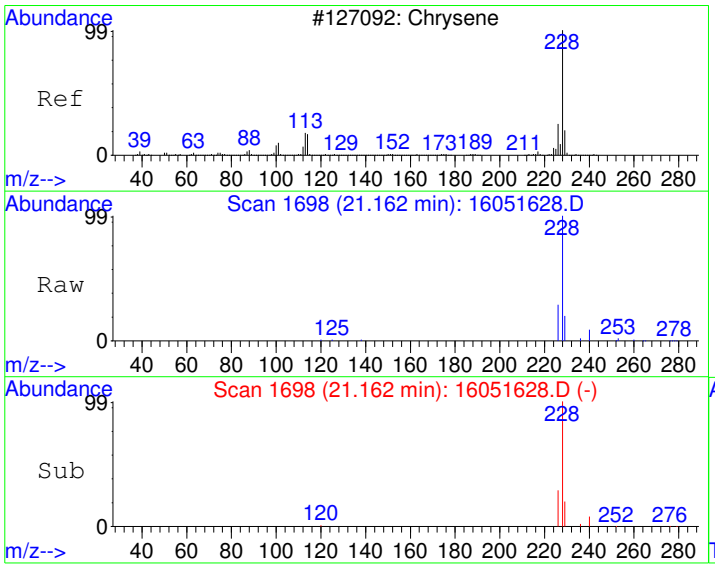


#18
Benzo[a]anthracene
Concen: 71.22 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:228 Resp: 27147

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.1
226	25.2	0.0	55.2

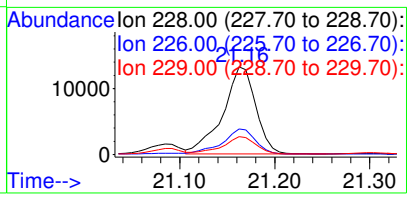


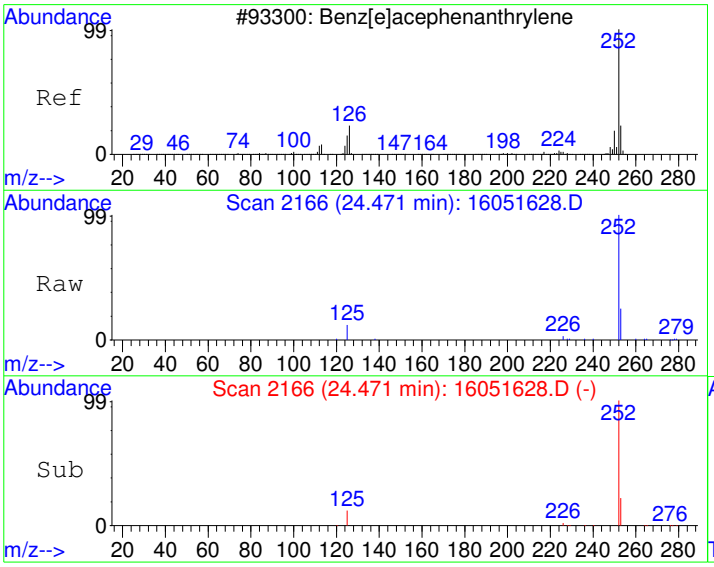


#19
Chrysene
Concen: 86.02 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:228 Resp: 31680

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.1
229	19.8	0.0	50.1

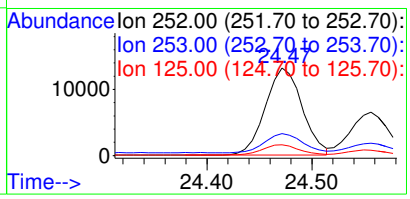


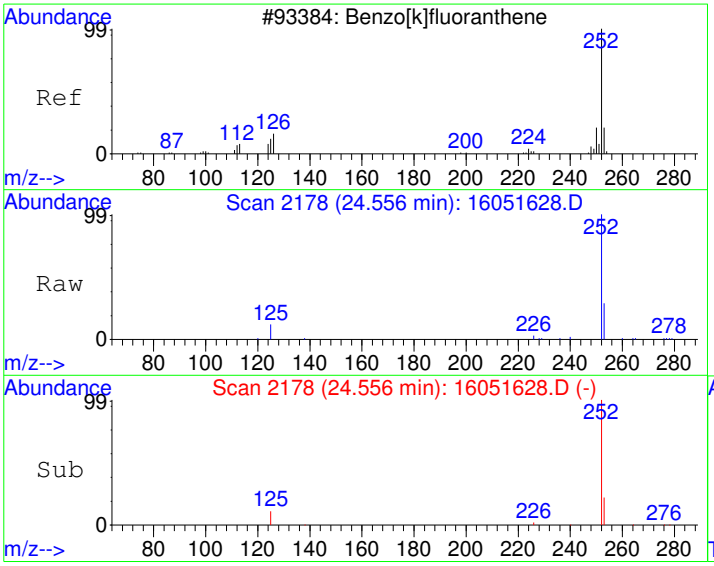


#21
Benzo[b]fluoranthene
Concen: 80.97 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:252 Resp: 32218

Ion	Ratio	Lower	Upper
252	100		
253	21.8	0.0	52.2
125	11.5	0.0	41.0

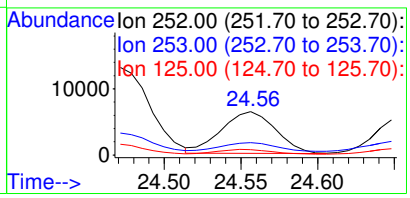


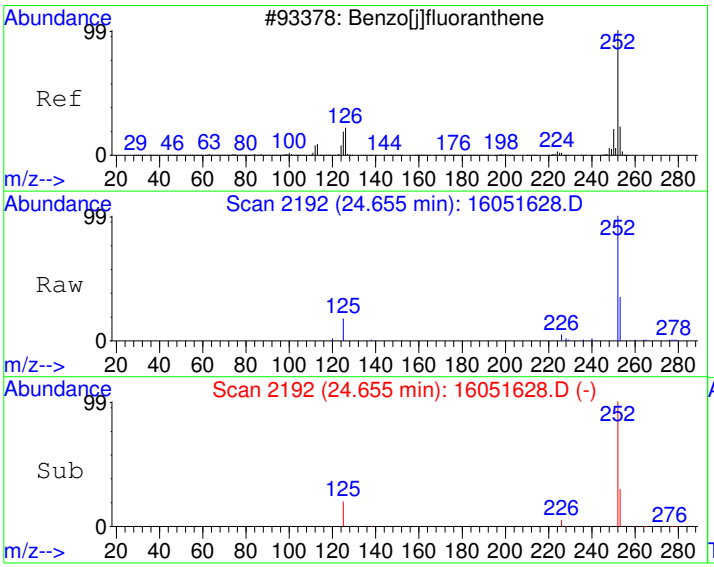


#22
Benzo[k]fluoranthene
Concen: 41.59 ug/kg
RT: 24.56 min Scan# 2178
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:252 Resp: 15522

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.1	42.1
125	10.5	0.0	31.3

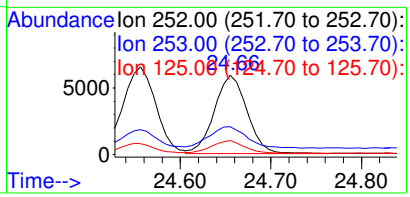


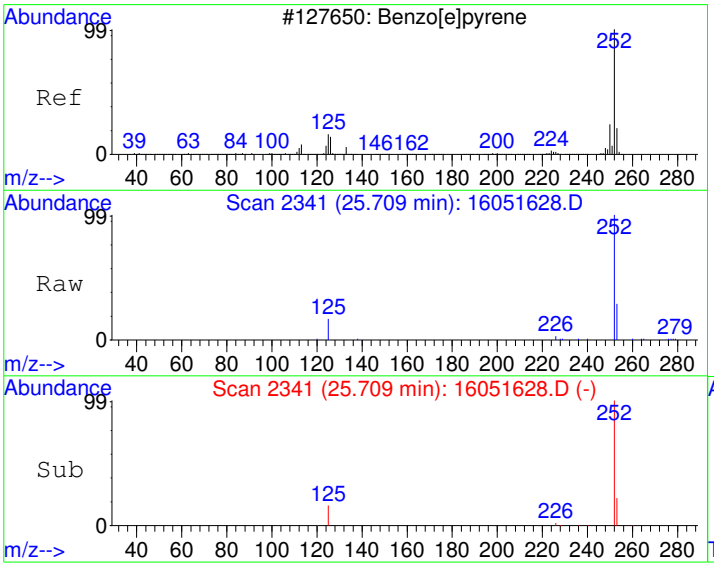


#23
Benzo(j)fluoranthene
Concen: 43.96 ug/kg
RT: 24.66 min Scan# 2192
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:252 Resp: 14616

Ion	Ratio	Lower	Upper
252	100		
253	26.9	2.1	42.1
125	16.3	0.0	34.4

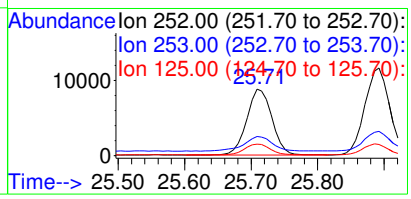


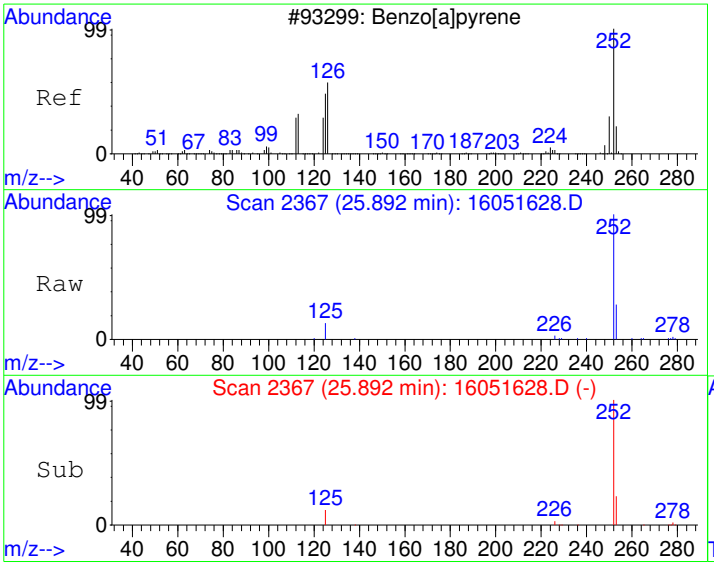


#24
Benzo[e]pyrene
Concen: 64.88 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:252 Resp: 23120

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	16.4	0.0	36.1

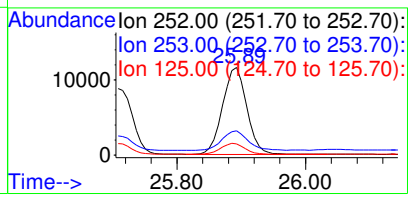


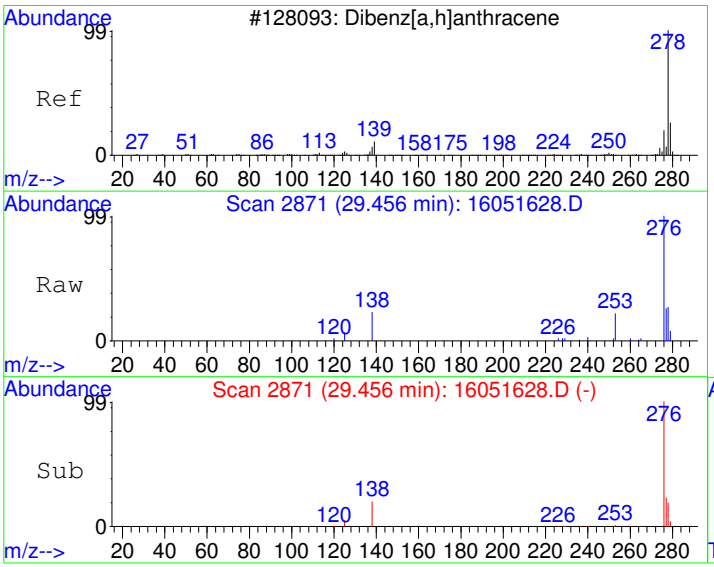


#25
Benzo[a]pyrene
Concen: 82.88 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:252 Resp: 30180

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	11.8	0.0	31.7

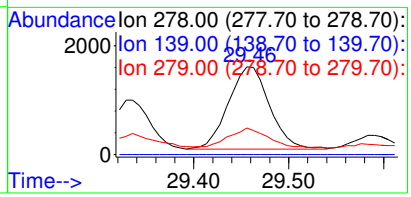


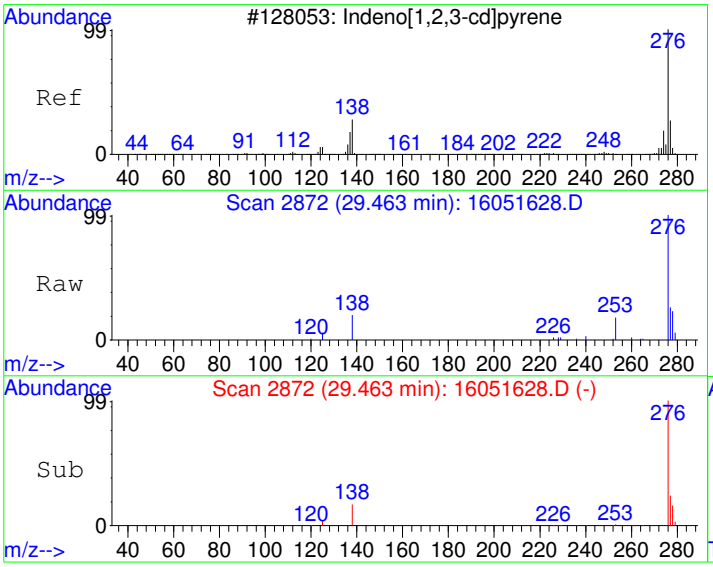


#26
Dibenz[a,h]anthracene
Concen: 13.78 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:278 Resp: 4570

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.8	4.2	44.2

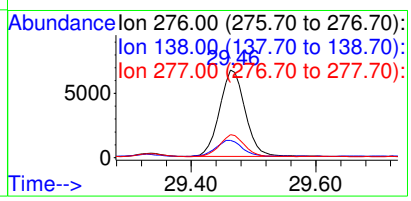


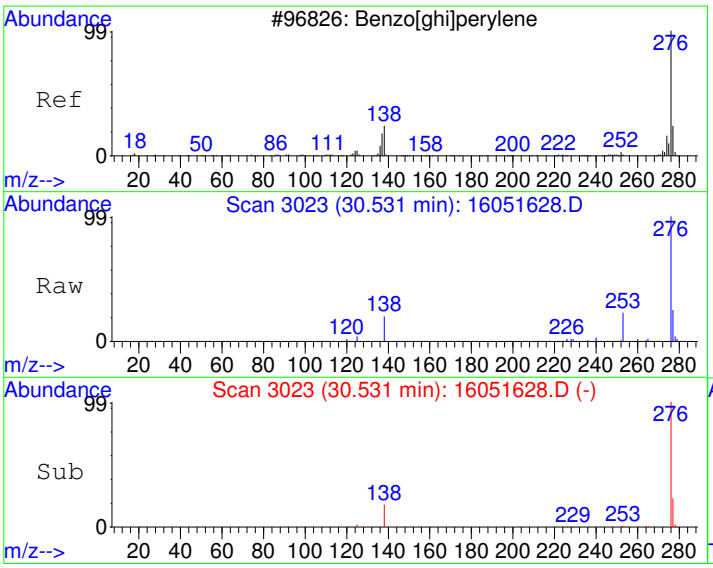


#27
Indeno[1,2,3-cd]pyrene
Concen: 48.64 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:276 Resp: 19242

Ion	Ratio	Lower	Upper
276	100		
138	18.4	6.7	46.7
277	25.3	5.8	45.8

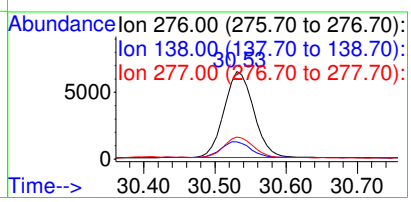




#28
Benzo[g,h,i]perylene
Concen: 60.45 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051628.D
Acq: 17 May 2016 2:06 am

Tgt Ion:276 Resp: 18648

Ion	Ratio	Lower	Upper
276	100		
138	18.2	0.0	39.1
277	24.2	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160516\16051629.D Vial: 29
Acq On : 17 May 2016 2:45 am Operator:
Sample : CCV1-160516 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:34 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

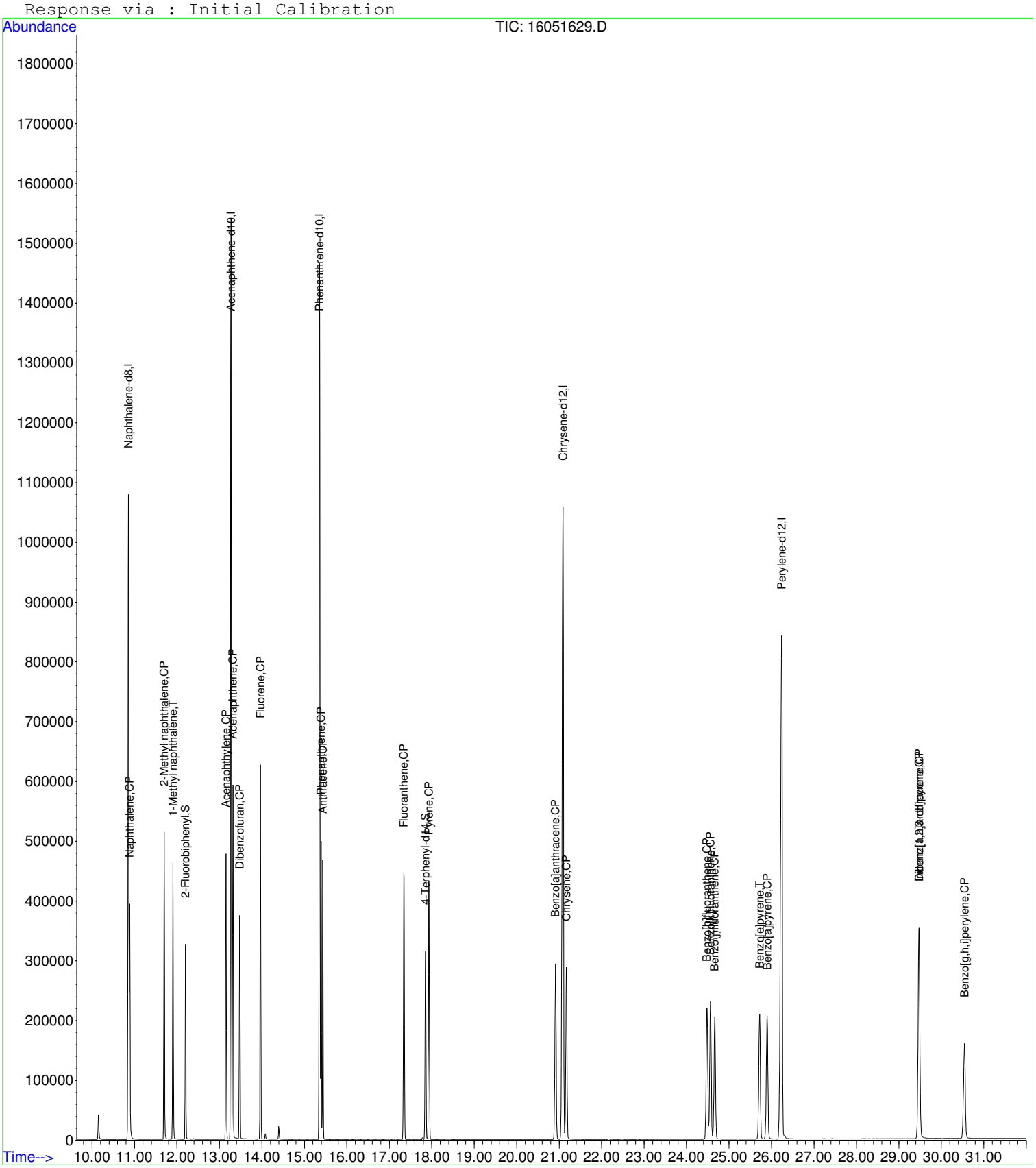
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.86	136	1416766	4000.00	ug/kg	122
5) Acenaphthene-d10	13.27	164	870789	4000.00	ug/kg	76
11) Phenanthrene-d10	15.36	188	1596898	4000.00	ug/kg	78
17) Chrysene-d12	21.09	240	1822219	4000.00	ug/kg	80
20) Perylene-d12	26.24	264	1694586	4000.00	ug/kg	82
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	274152	1079.27	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	26.98%#		
16) 4-Terphenyl-d14	17.85	244	402356	973.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.35%#		
Target Compounds						Qvalue
2) Naphthalene	10.89	128	360759	1017.98	ug/kg	100
3) 2-Methyl naphthalene	11.70	142	257780	823.48	ug/kg	97
4) 1-Methyl naphthalene	11.91	142	232004	809.22	ug/kg	99
6) Dibenzofuran	13.47	168	329031	1008.18	ug/kg	100
8) Acenaphthylene	13.16	152	404545	1078.75	ug/kg	99
9) Acenaphthene	13.32	154	233797	1004.43	ug/kg	99
10) Fluorene	13.97	166	293261	1037.41	ug/kg	100
12) Phenanthrene	15.39	178	409680	975.53	ug/kg	99
13) Anthracene	15.43	178	390297	981.89	ug/kg	100
14) Fluoranthene	17.35	202	447991	1030.85	ug/kg	99
15) Pyrene	17.93	202	449690	996.12	ug/kg	99
18) Benzo[a]anthracene	20.91	228	426733	999.61	ug/kg	99
19) Chrysene	21.17	228	391638	949.49	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	428409	959.19	ug/kg	100
22) Benzo[k]fluoranthene	24.56	252	410169	978.96	ug/kg	100
23) Benzo(j)fluoranthene	24.67	252	357126	956.86	ug/kg	100
24) Benzo[e]pyrene	25.72	252	375670	939.21	ug/kg	99
25) Benzo[a]pyrene	25.90	252	389706	953.44	ug/kg	99
26) Dibenz[a,h]anthracene	29.47	278	331475	890.46	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.48	276	386681	870.75	ug/kg	96
28) Benzo[g,h,i]perylene	30.54	276	312491	902.42	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160516\16051629.D Vial: 29
Acq On : 17 May 2016 2:45 am Operator:
Sample : CCV1-160516 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 8:34 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051702.D Vial: 2
Acq On : 17 May 2016 8:49 am Operator:
Sample : ICV-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:08 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

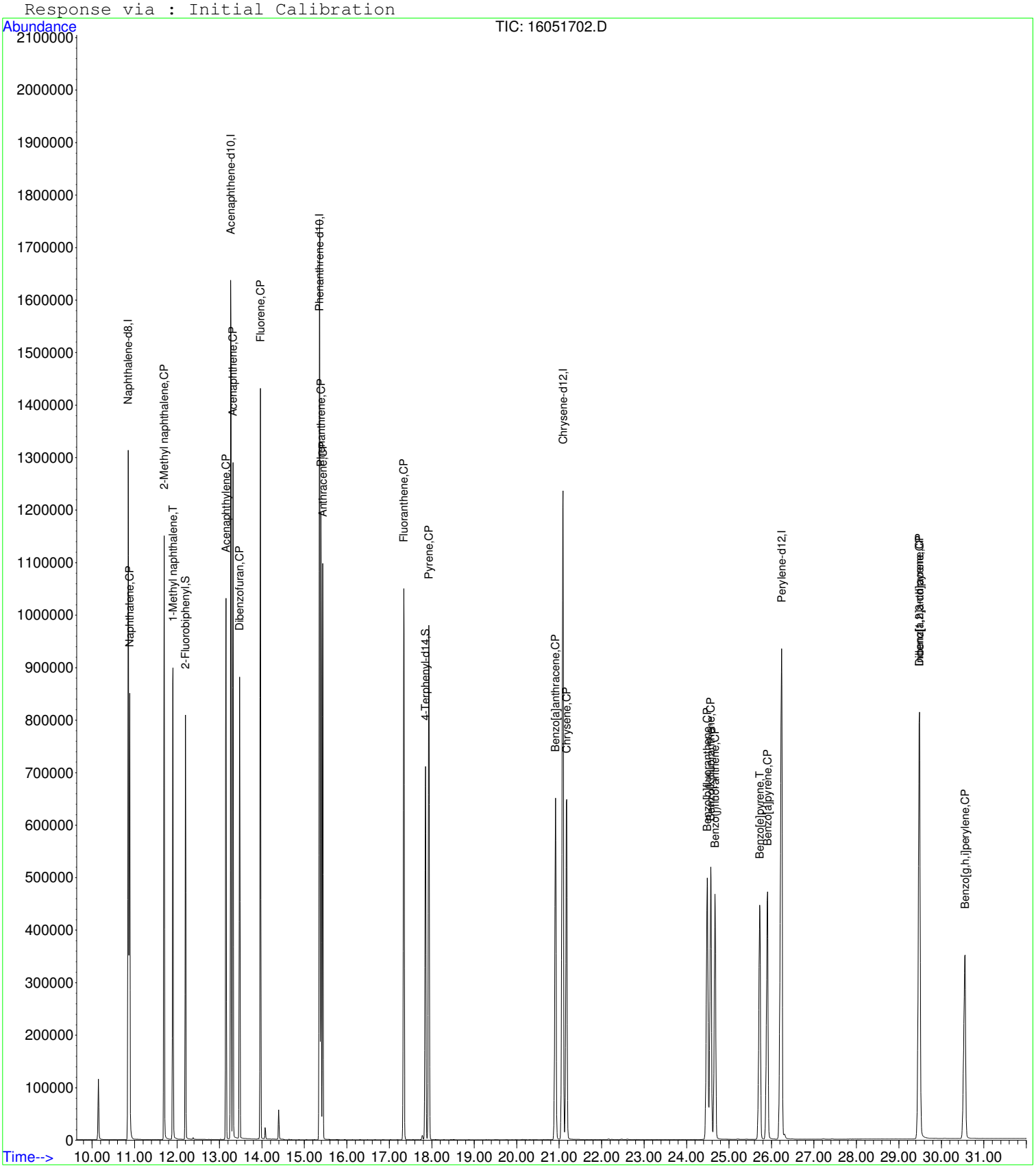
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1678774	4000.00	ug/kg	145
5) Acenaphthene-d10	13.26	164	985168	4000.00	ug/kg	86
11) Phenanthrene-d10	15.36	188	1960793	4000.00	ug/kg	96
17) Chrysene-d12	21.09	240	2141303	4000.00	ug/kg	94
20) Perylene-d12	26.24	264	1968036	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	600786	2090.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 52.26%			
16) 4-Terphenyl-d14	17.85	244	928743	1830.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.77%			
Target Compounds						Qvalue
2) Naphthalene	10.89	128	823757	1961.68	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	575231	1550.79	ug/kg	99
4) 1-Methyl naphthalene	11.91	142	517475	1523.24	ug/kg	98
6) Dibenzofuran	13.47	168	745027	2017.78	ug/kg	99
8) Acenaphthylene	13.15	152	908292	2140.82	ug/kg	99
9) Acenaphthene	13.32	154	521733	1981.21	ug/kg	99
10) Fluorene	13.97	166	677871	2119.57	ug/kg	99
12) Phenanthrene	15.39	178	988688	1917.34	ug/kg	100
13) Anthracene	15.43	178	916500	1877.79	ug/kg	100
14) Fluoranthene	17.34	202	1044897	1958.14	ug/kg	99
15) Pyrene	17.93	202	1051090	1896.21	ug/kg	100
18) Benzo[a]anthracene	20.91	228	990726	1974.92	ug/kg	99
19) Chrysene	21.18	228	914861	1887.48	ug/kg	99
21) Benzo[b]fluoranthene	24.49	252	1012881	1952.71	ug/kg	99
22) Benzo[k]fluoranthene	24.57	252	924908	1900.78	ug/kg	100
23) Benzo(j)fluoranthene	24.67	252	822151	1896.74	ug/kg	99
24) Benzo[e]pyrene	25.72	252	864681	1861.41	ug/kg	99
25) Benzo[a]pyrene	25.91	252	901121	1898.31	ug/kg	100
26) Dibenz[a,h]anthracene	29.48	278	793821	1836.20	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.48	276	921475	1786.71	ug/kg	98
28) Benzo[g,h,i]perylene	30.56	276	744827	1852.06	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051702.D Vial: 2
Acq On : 17 May 2016 8:49 am Operator:
Sample : ICV-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:08 2016 Quant Results File: PP160421.RES

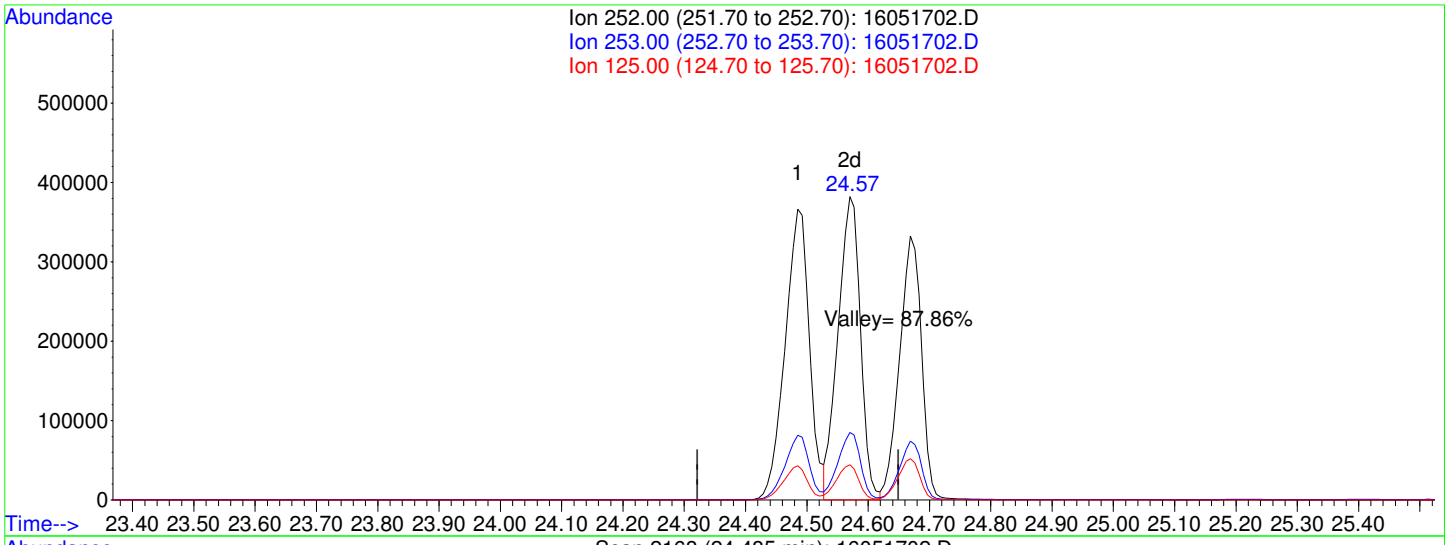
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

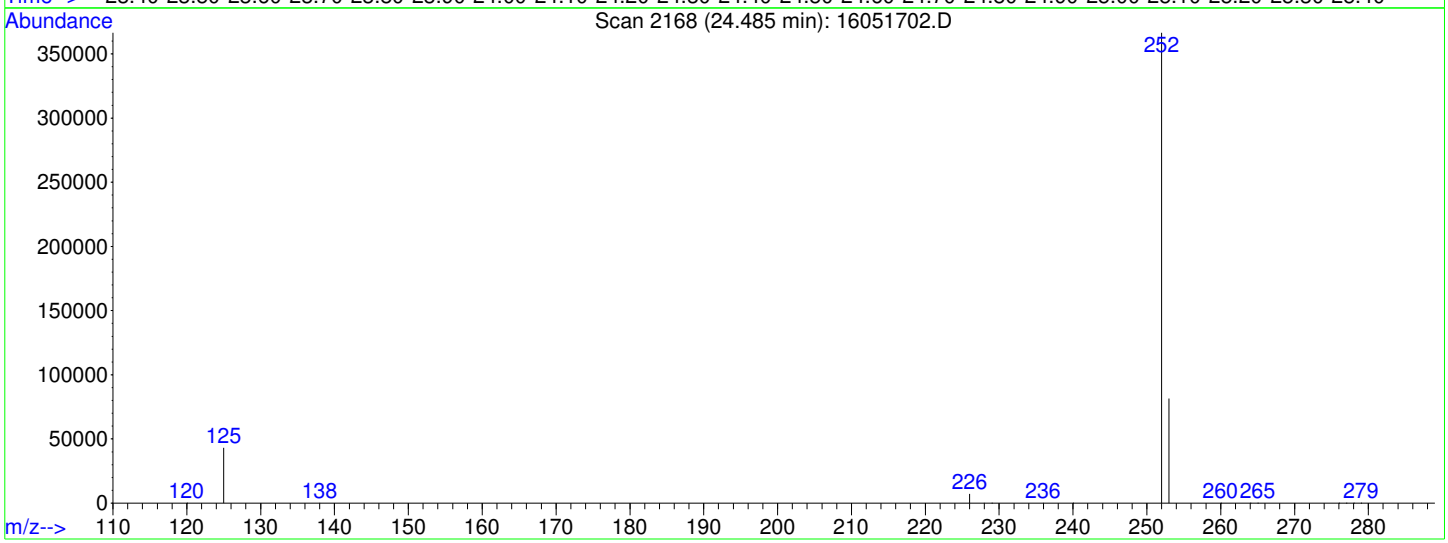


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160517\16051702.D Vial: 2
Acq On : 17 May 2016 8:49 am Operator:
Sample : ICV-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 9:21 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051702.D

(21) Benzo[b]fluoranthene (CP)

24.49min 1952.71ug/kg

response 1012881

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	22.10
125.00	11.00	11.74
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051703.D Vial: 3
Acq On : 17 May 2016 9:31 am Operator:
Sample : 1605074-44AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:08 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

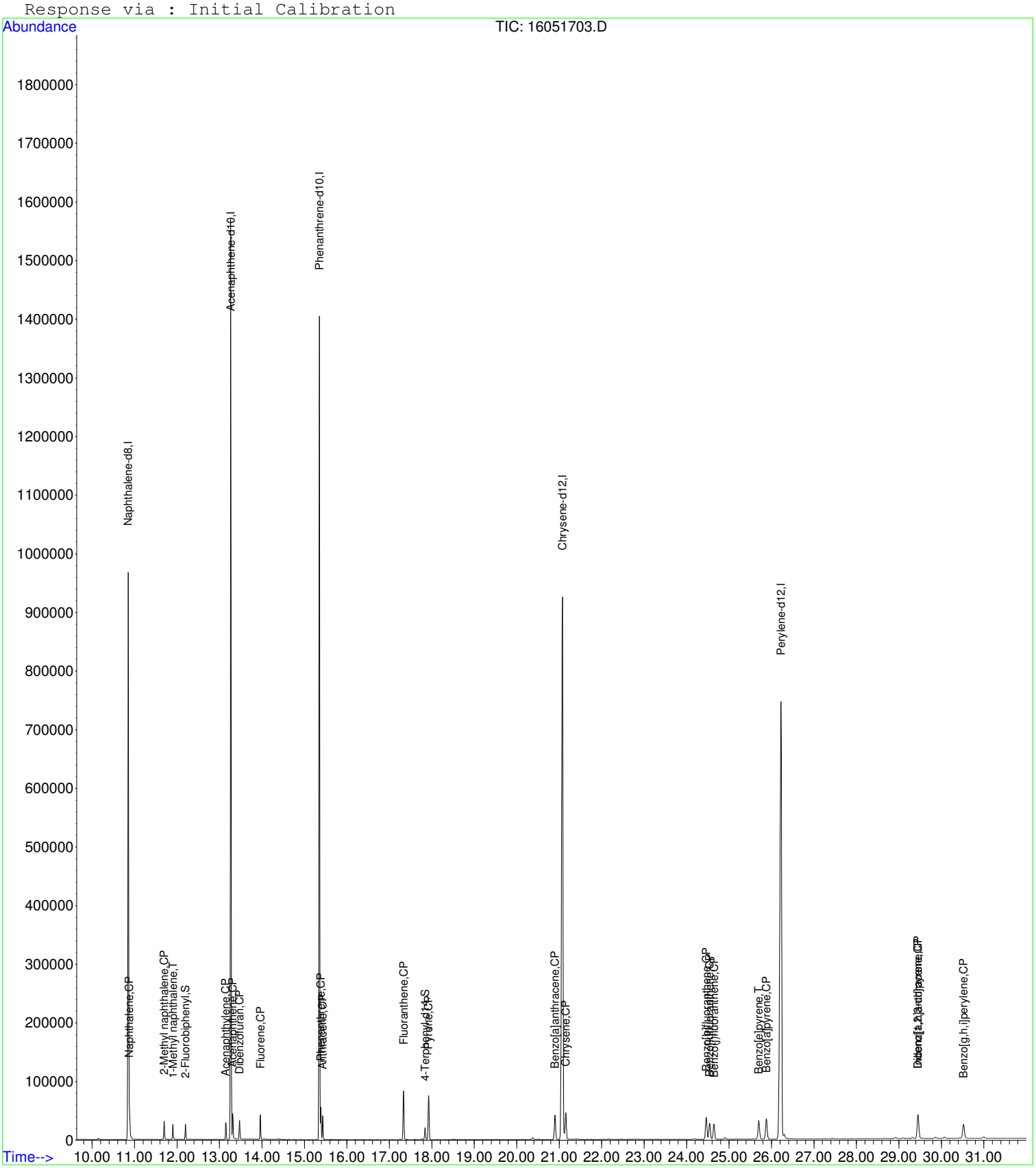
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1220181	4000.00	ug/kg	105
5) Acenaphthene-d10	13.26	164	820384	4000.00	ug/kg	71
11) Phenanthrene-d10	15.35	188	1474371	4000.00	ug/kg	72
17) Chrysene-d12	21.08	240	1561272	4000.00	ug/kg	69
20) Perylene-d12	26.22	264	1457615	4000.00	ug/kg	71
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19609	81.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.84	244	26963	70.69	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	23499	76.99	ug/kg	100
3) 2-Methyl naphthalene	11.70	142	17260	64.02	ug/kg	98
4) 1-Methyl naphthalene	11.91	142	15744	63.76	ug/kg	100
6) Dibenzofuran	13.47	168	27244	88.61	ug/kg	99
8) Acenaphthylene	13.14	152	28843	81.64	ug/kg	99
9) Acenaphthene	13.31	154	17954	81.87	ug/kg	96
10) Fluorene	13.97	166	22900	85.99	ug/kg	98
12) Phenanthrene	15.39	178	47210	121.76	ug/kg	98
13) Anthracene	15.43	178	34180	93.13	ug/kg	99
14) Fluoranthene	17.34	202	83853	208.98	ug/kg	99
15) Pyrene	17.92	202	81167	194.74	ug/kg	99
18) Benzo[a]anthracene	20.90	228	60889	166.47	ug/kg	98
19) Chrysene	21.15	228	64919	183.70	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	70388	183.22	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	48485	134.53	ug/kg	100
23) Benzo(j)fluoranthene	24.65	252	46093	143.58	ug/kg	97
24) Benzo[e]pyrene	25.70	252	57449	166.98	ug/kg	99
25) Benzo[a]pyrene	25.88	252	65241	185.56	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	30791	96.16	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.46	276	52976	138.69	ug/kg	91
28) Benzo[g,h,i]perylene	30.52	276	47005	157.81	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051703.D Vial: 3
Acq On : 17 May 2016 9:31 am Operator:
Sample : 1605074-44AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:08 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051704.D Vial: 4
Acq On : 17 May 2016 10:11 am Operator:
Sample : SB-160517 Inst : GC/MS #6
Misc : SBLK Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:08 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

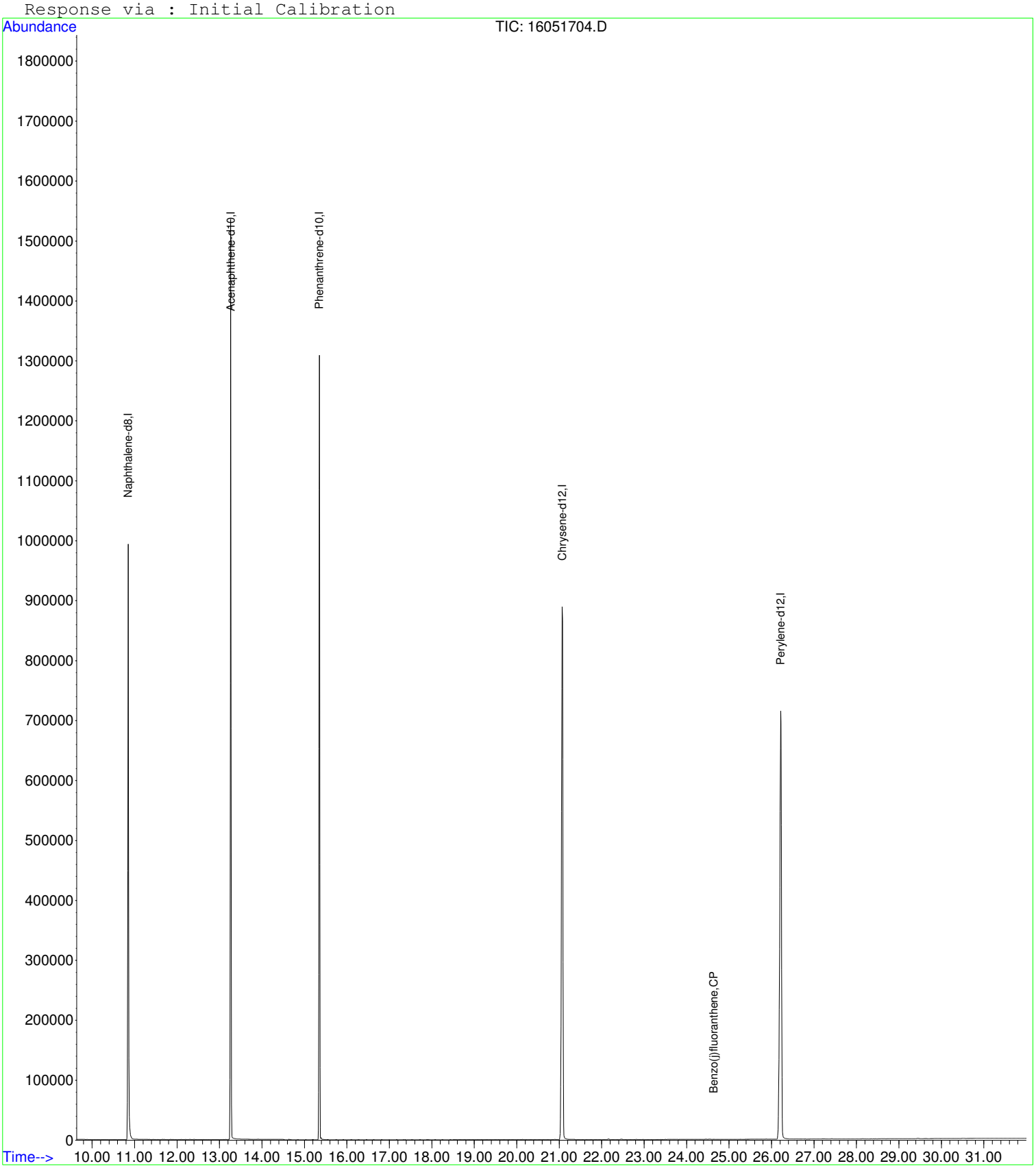
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1208387	4000.00	ug/kg	104
5) Acenaphthene-d10	13.26	164	785820	4000.00	ug/kg	68
11) Phenanthrene-d10	15.35	188	1367078	4000.00	ug/kg	67
17) Chrysene-d12	21.07	240	1507667	4000.00	ug/kg	66
20) Perylene-d12	26.22	264	1392131	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	71	0.31	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
16) 4-Terphenyl-d14	17.84	244	110	0.31	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.64	252	234	0.76	ug/kg#	40

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051704.D Vial: 4
Acq On : 17 May 2016 10:11 am Operator:
Sample : SB-160517 Inst : GC/MS #6
Misc : SBLK Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:08 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051707.D Vial: 2
Acq On : 17 May 2016 12:27 pm Operator:
Sample : CCV1-160517 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:58 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

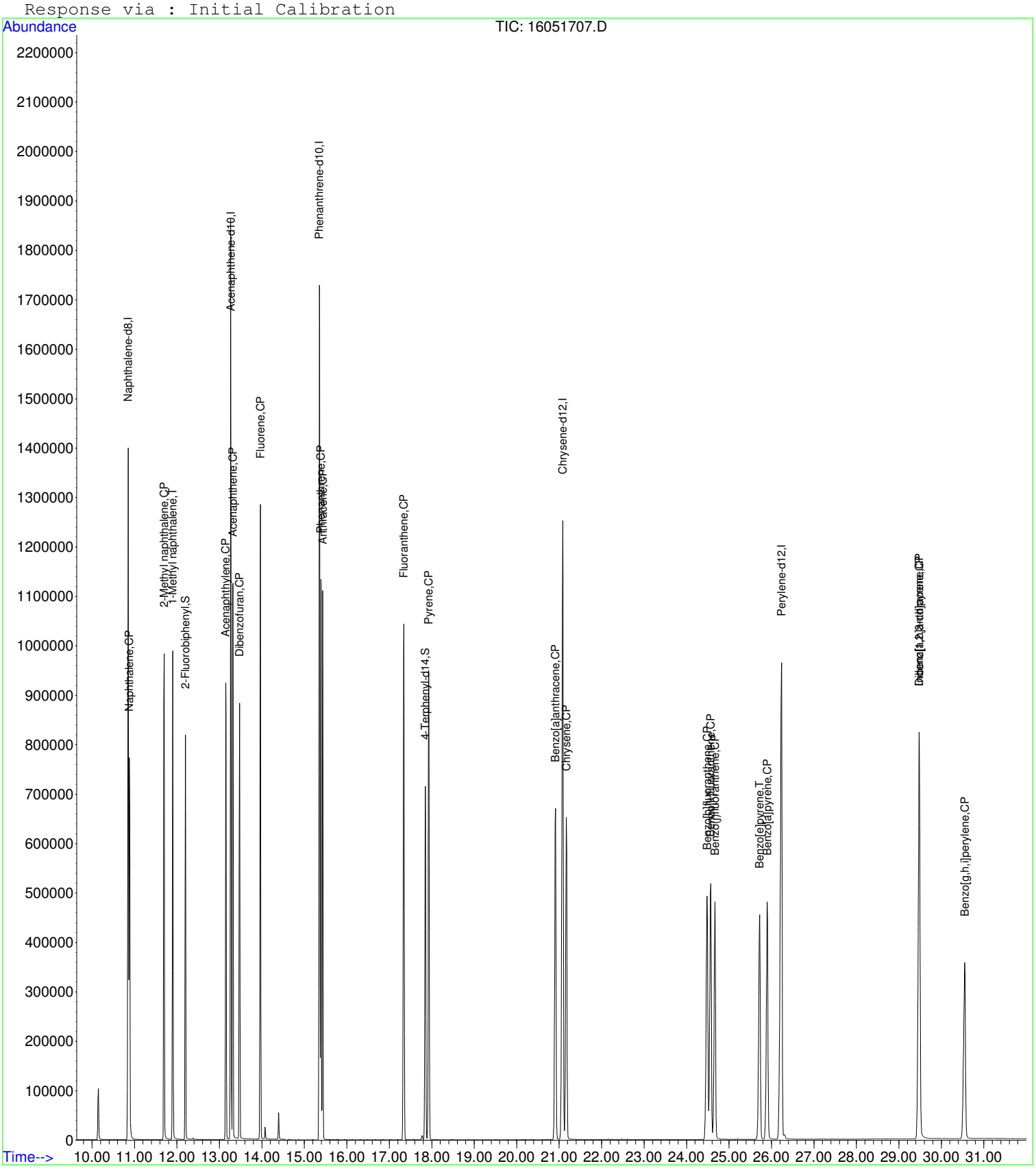
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1639164	4000.00	ug/kg	141
5) Acenaphthene-d10	13.27	164	994074	4000.00	ug/kg	86
11) Phenanthrene-d10	15.35	188	1966569	4000.00	ug/kg	96
17) Chrysene-d12	21.08	240	2143396	4000.00	ug/kg	94
20) Perylene-d12	26.24	264	1977137	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	592084	2041.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.05%		
16) 4-Terphenyl-d14	17.85	244	924369	1816.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	45.42%		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	796557	1942.75	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	562682	1553.61	ug/kg	97
4) 1-Methyl naphthalene	11.90	142	503920	1519.18	ug/kg	94
6) Dibenzofuran	13.47	168	755720	2028.40	ug/kg	98
8) Acenaphthylene	13.15	152	902960	2109.19	ug/kg	99
9) Acenaphthene	13.32	154	532916	2005.54	ug/kg	96
10) Fluorene	13.97	166	696139	2157.19	ug/kg	97
12) Phenanthrene	15.39	178	980066	1895.04	ug/kg	99
13) Anthracene	15.43	178	920634	1880.72	ug/kg	100
14) Fluoranthene	17.34	202	1034926	1933.76	ug/kg	99
15) Pyrene	17.93	202	1040113	1870.89	ug/kg	100
18) Benzo[a]anthracene	20.91	228	990910	1973.35	ug/kg	100
19) Chrysene	21.17	228	905661	1866.68	ug/kg	100
21) Benzo[b]fluoranthene	24.48	252	1003192	1925.12	ug/kg	99
22) Benzo[k]fluoranthene	24.57	252	927387	1897.10	ug/kg	99
23) Benzo(j)fluoranthene	24.67	252	827278	1899.78	ug/kg	99
24) Benzo[e]pyrene	25.72	252	871661	1867.80	ug/kg	99
25) Benzo[a]pyrene	25.90	252	909337	1906.80	ug/kg	99
26) Dibenz[a,h]anthracene	29.48	278	797559	1836.35	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.48	276	928320	1791.69	ug/kg	96
28) Benzo[g,h,i]perylene	30.55	276	745016	1844.00	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051707.D Vial: 2
Acq On : 17 May 2016 12:27 pm Operator:
Sample : CCV1-160517 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:58 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



GCMS6_160517A
For

DHL Work Order
1605096

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

Project Number(s): SEE RUN LOG.	**Run ID: GCMS6_160517A**
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	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard	X			
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

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

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

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

General Comments and Impact on Data:

Analyst: Karyn Lane Date: 5/18/2016 15:40

Second-Level Review: Janice Whitt Date: 5/27/2016

REVIEWED BY
By Janice Whitt at 2:19:32 PM, 5/27/2016

DHL Analytical, Inc.

Run ID: GCMS6_160517A **Run No.:** 85846

Analytical Run Date: 5/17/2016 **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-160517	1	PAH_LL_SDOD1	TUNE	R85846	5/17/2016 11:50:00 AM		
ICV-160517	1	PAH_LL_SDOD1	ICV	R85846	5/17/2016 12:27:00 PM		
LCS-75158	1	PAH_LL_SDOD1	LCS	75158	5/17/2016 1:07:00 PM		
MB-75158	1	PAH_LL_SDOD1	MBLK	75158	5/17/2016 1:47:00 PM		
1605096-25A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 2:27:00 PM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
1605096-26A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 3:07:00 PM		
1605096-27A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 3:47:00 PM		
1605096-28A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 4:26:00 PM		
1605096-29A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 5:06:00 PM		
1605096-30A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 5:46:00 PM		
1605096-31A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 6:26:00 PM		
1605096-32A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 7:05:00 PM		
1605096-33A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 7:45:00 PM		
1605096-34A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 8:25:00 PM		
1605096-35A	10	PAH_LL_SDOD1	SAMP	75158	5/17/2016 9:04:00 PM		
DFTPP2-160517	1	PAH_LL_SDOD1	TUNE	R85846	5/17/2016 9:43:00 PM		
ICV2-160517	1	PAH_LL_SDOD1	ICV	R85846	5/17/2016 10:19:00 PM		
SB-160517	1	PAH_LL_SDOD1	SBLK	75158	5/17/2016 11:40:00 PM		
1605096-38A	10	PAH_LL_SDOD1	SAMP	75158	5/18/2016 12:20:00 AM		
1605096-39A	10	PAH_LL_SDOD1	SAMP	75158	5/18/2016 1:00:00 AM		
1605096-40A	10	PAH_LL_SDOD1	SAMP	75158	5/18/2016 1:40:00 AM		
1605096-41A	10	PAH_LL_SDOD1	SAMP	75158	5/18/2016 2:20:00 AM		
1605096-42A	10	PAH_LL_SDOD1	SAMP	75158	5/18/2016 2:59:00 AM		
1605096-43A	10	PAH_LL_SDOD1	SAMP	75158	5/18/2016 3:39:00 AM		
1605096-45A	50	PAH_LL_SDOD1	SAMP	75158	5/18/2016 4:18:00 AM		
1605096-46A	50	PAH_LL_SDOD1	SAMP	75158	5/18/2016 4:58:00 AM		
1605096-47A	10	PAH_LL_SDOD1	SAMP	75158	5/18/2016 5:37:00 AM		
1605096-25AMS	10	PAH_LL_SDOD1	MS	75158	5/18/2016 6:17:00 AM		
1605096-25AMSD	10	PAH_LL_SDOD1	MSD	75158	5/18/2016 6:57:00 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

DHL Analytical, Inc.

Run ID: GCMS6_160517A **Run No.:** 85846

CCV1-160517	1	PAH_LL_SDOD1	CCV	R85846	5/18/2016 7:37:00 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:\HPCHEM\1\SEQUENCE\160517.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160517\
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	16051701	DFTPPPAH	DFTPP-160517
2	Sample	2	16051702	PP160421	ICV-160517
3	Sample	3	16051703	PP160421	1605074-44AMS
4	Sample	4	16051704	PP160421	SB-160517
5	Sample	5	16051705	PP160421	1605074-45A
6	Sample	1	16051706	DFTPPPAH	DFTPP-160517
7	Sample	2	16051707	PP160421	ICV-160517
8	Sample	3	16051708	PP160421	LCS-75158
9	Sample	4	16051709	PP160421	MB-75158
10	Sample	5	16051710	PP160421	1605096-25A
11	Sample	6	16051711	PP160421	1605096-26A
12	Sample	7	16051712	PP160421	1605096-27A
13	Sample	8	16051713	PP160421	1605096-28A
14	Sample	9	16051714	PP160421	1605096-29A
15	Sample	10	16051715	PP160421	1605096-30A
16	Sample	11	16051716	PP160421	1605096-31A
17	Sample	12	16051717	PP160421	1605096-32A
18	Sample	13	16051718	PP160421	1605096-33A
19	Sample	14	16051719	PP160421	1605096-34A
20	Sample	15	16051720	PP160421	1605096-35A
21	Sample	16	16051721	DFTPPPAH	DFTPP2-160517
22	Sample	17	16051722	PP160421	ICV2-160517
23	Sample	18	16051723	PP160421	SBLK
24	Sample	19	16051724	PP160421	SB-160517
25	Sample	20	16051725	PP160421	1605096-38A
26	Sample	21	16051726	PP160421	1605096-39A
27	Sample	22	16051727	PP160421	1605096-40A
28	Sample	23	16051728	PP160421	1605096-41A
29	Sample	24	16051729	PP160421	1605096-42A
30	Sample	25	16051730	PP160421	1605096-43A
31	Sample	26	16051731	PP160421	1605096-45A
32	Sample	27	16051732	PP160421	1605096-46A
33	Sample	28	16051733	PP160421	1605096-47A
34	Sample	29	16051734	PP160421	1605096-25AMS
35	Sample	30	16051735	PP160421	1605096-25AMSD
36	Sample	31	16051736	PP160421	CCV1-160517

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 2:32:11 PM**
Digestion:
Prep End Date: **5/13/2016 4:50:00 PM**

Prep Batch **75158** 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
1605096-25A	Soil		10.34	10	0.967	1 of 1	
1605096-25AMS	Soil		10.13	10	0.987	of	
1605096-25AMSD	Soil		10.24	10	0.977	of	
1605096-26A	Soil		10.24	10	0.977	1 of 1	
1605096-27A	Soil		10.08	10	0.992	1 of 1	
1605096-28A	Soil		10.17	10	0.983	1 of 1	
1605096-29A	Soil		10.14	10	0.986	1 of 1	
1605096-30A	Soil		10.18	10	0.982	1 of 1	
1605096-31A	Soil		10.27	10	0.974	1 of 1	
1605096-32A	Soil		10.24	10	0.977	1 of 1	
1605096-33A	Soil		10.78	10	0.928	1 of 1	
1605096-34A	Soil		10.52	10	0.951	1 of 1	
1605096-35A	Soil		10.11	10	0.989	1 of 1	
1605096-38A	Soil		10.04	10	0.996	1 of 1	
1605096-39A	Soil		10.19	10	0.981	1 of 1	
1605096-40A	Soil		10.03	10	0.997	1 of 1	
1605096-41A	Soil		10.1	10	0.990	1 of 1	
1605096-42A	Soil		10.4	10	0.962	1 of 1	
1605096-43A	Soil		10.06	10	0.994	1 of 1	
1605096-45A	Soil		10.23	10	0.978	1 of 1	
1605096-46A	Soil		10.1	10	0.990	1 of 1	
1605096-47A	Soil		10.37	10	0.964	1 of 1	
LCS-75158	Soil		10	10	1.000	of	
MB-75158	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED BY
By Janice Whitt at 1:51:12 PM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 2:32:11 PM**
Digestion:
Prep End Date: 5/13/16 4:50PM

Prep Batch **75158** 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
1605096-25A	Soil		10.34	10	1.000	1 of 1	
1605096-25AMS	Soil		10.13	10	1.000	of	
1605096-25AMSD	Soil		10.24	10	1.000	of	
1605096-26A	Soil		10.24	10	1.000	1 of 1	
1605096-27A	Soil		10.08	10	1.000	1 of 1	
1605096-28A	Soil		10.17	10	1.000	1 of 1	
1605096-29A	Soil		10.14	10	1.000	1 of 1	
1605096-30A	Soil		10.18	10	1.000	1 of 1	
1605096-31A	Soil		10.27	10	1.000	1 of 1	
1605096-32A	Soil		10.24	10	1.000	1 of 1	
1605096-33A	Soil		10.78	10	1.000	1 of 1	
1605096-34A	Soil		10.52	10	1.000	1 of 1	
1605096-35A	Soil		10.11	10	1.000	1 of 1	
1605096-38A	Soil		10.04	10	1.000	1 of 1	
1605096-39A	Soil		10.19	10	1.000	1 of 1	
1605096-40A	Soil		10.03	10	1.000	1 of 1	
1605096-41A	Soil		10.10	10	1.000	1 of 1	
1605096-42A	Soil		10.40	10	1.000	1 of 1	
1605096-43A	Soil		10.06	10	1.000	1 of 1	
1605096-45A	Soil		10.23	10	1.000	1 of 1	
1605096-46A	Soil		10.10	10	1.000	1 of 1	
1605096-47A	Soil		10.37	10	1.000	1 of 1	
LCS-75158	Soil		10	10	1.000	of	
MB-75158	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. D:
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

5/13/16 AK 5/13/16

REVIEWED BY
By Janice Whitt at 1:51:09 PM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-16A	Soil		0	0	#Num!	1	of	1	
1605096-17A	Soil		0	0	#Num!	1	of	1	
1605096-18A	Soil		0	0	#Num!	1	of	1	
1605096-19A	Soil		0	0	#Num!	1	of	1	
1605096-20A	Soil		0	0	#Num!	1	of	1	
1605096-21A	Soil		0	0	#Num!	1	of	1	
1605096-22A	Soil		0	0	#Num!	1	of	1	
1605096-23A	Soil		0	0	#Num!	1	of	1	
1605096-24A	Soil		0	0	#Num!	1	of	1	
1605096-25A	Soil		0	0	#Num!	1	of	1	
1605096-26A	Soil		0	0	#Num!	1	of	1	
1605096-27A	Soil		0	0	#Num!	1	of	1	
1605096-28A	Soil		0	0	#Num!	1	of	1	
1605096-29A	Soil		0	0	#Num!	1	of	1	
1605096-30A	Soil		0	0	#Num!	1	of	1	
1605096-45A	Soil		0	0	#Num!	1	of	1	
1605096-46A	Soil		0	0	#Num!	1	of	1	
1605096-47A	Soil		0	0	#Num!	1	of	1	
1605096-48A	Soil		0	0	#Num!	1	of	1	
1605096-49A	Soil		0	0	#Num!	1	of	1	
1605096-50A	Soil		0	0	#Num!	1	of	1	
1605096-51A	Soil		0	0	#Num!	1	of	1	
1605096-52A	Soil		0	0	#Num!		of	3	
1605096-53A	Soil		0	0	#Num!	1	of	1	
1605096-54A	Soil		0	0	#Num!	1	of	1	
1605096-55A	Soil		0	0	#Num!	1	of	1	
1605096-56A	Soil		0	0	#Num!	1	of	1	

REVIEWED BY
By Janice Whitt at 1:50:06 PM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

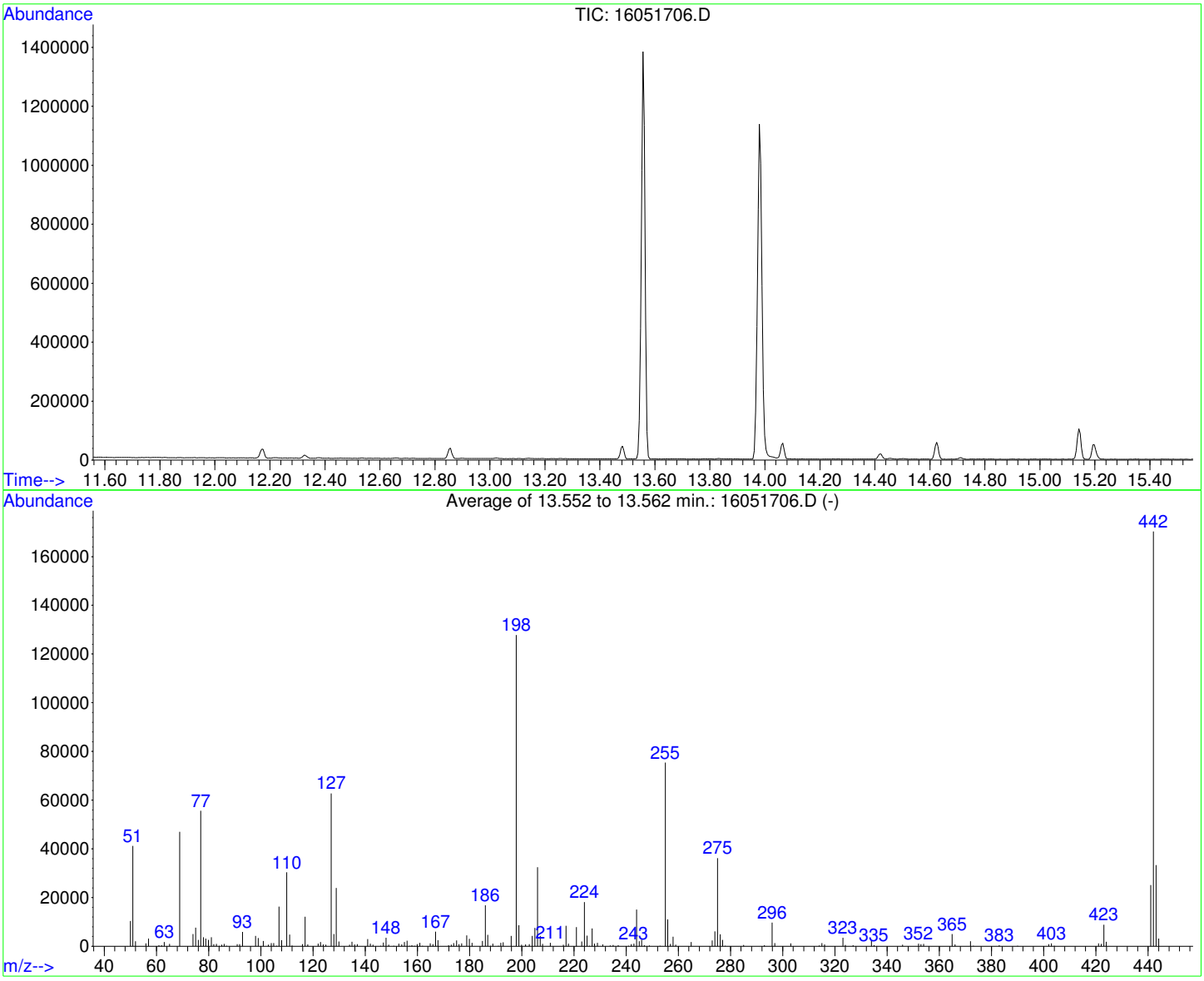
Prep Factor Units: **mL/**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 1:50:08 PM, 5/27/2016

Data File : C:\HPCHEM\1\DATA\160517\16051706.D Vial: 1
Acq On : 17 May 2016 11:50 am Operator:
Sample : DFTPP-160517 Inst : GC/MS #6
Misc : TUNE Multiplr: 10.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

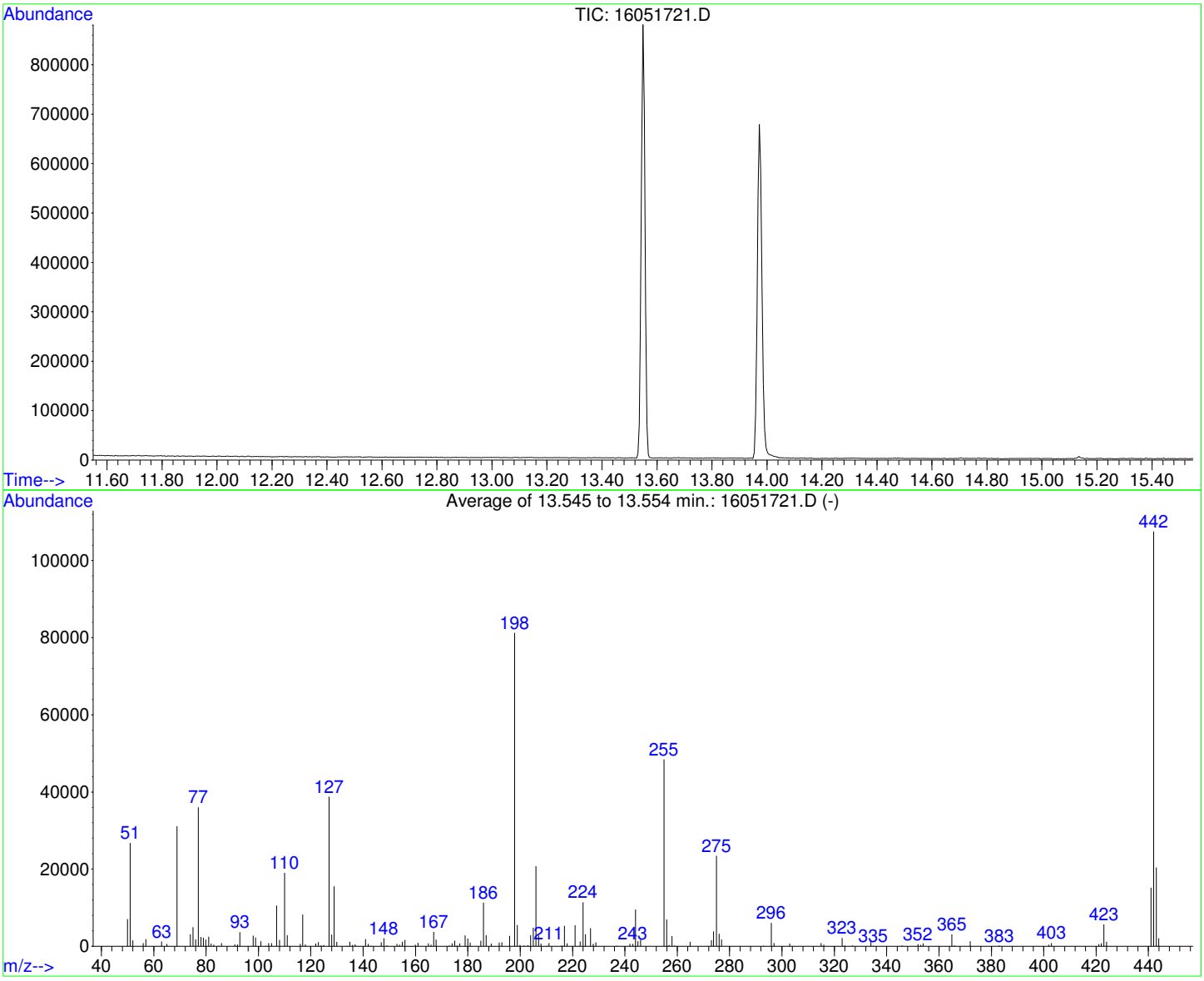


AutoFind: Scans 1587, 1588, 1589; Background Corrected with Scan 1581

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	32.3	41265	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	36.8	46984	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.1	62789	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	127835	PASS
199	198	5	9	6.8	8629	PASS
275	198	10	60	28.3	36227	PASS
365	198	1	200	3.9	5019	PASS
441	442	0.01	24	14.8	25141	PASS
442	198	50	400	133.2	170339	PASS
443	442	15	24	19.6	33328	PASS

REVIEWED BY
By Janice Whitt at 1:50:10 PM, 5/27/2016

Data File : C:\HPCHEM\1\DATA\160517\16051721.D Vial: 16
Acq On : 17 May 2016 9:43 pm Operator:
Sample : DFTPP2-160517 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 1585, 1586, 1587; Background Corrected with Scan 1579

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	32.9	26758	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	38.3	31152	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	47.7	38784	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	81277	PASS
199	198	5	9	6.8	5511	PASS
275	198	10	60	28.8	23445	PASS
365	198	1	200	3.8	3107	PASS
441	442	0.01	24	14.2	15226	PASS
442	198	50	400	132.3	107563	PASS
443	442	15	24	19.0	20405	PASS

REVIEWED BY
By Janice Whitt at 1:50:14 PM, 5/27/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051707.D Vial: 2
Acq On : 17 May 2016 12:27 pm Operator:
Sample : ICV-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

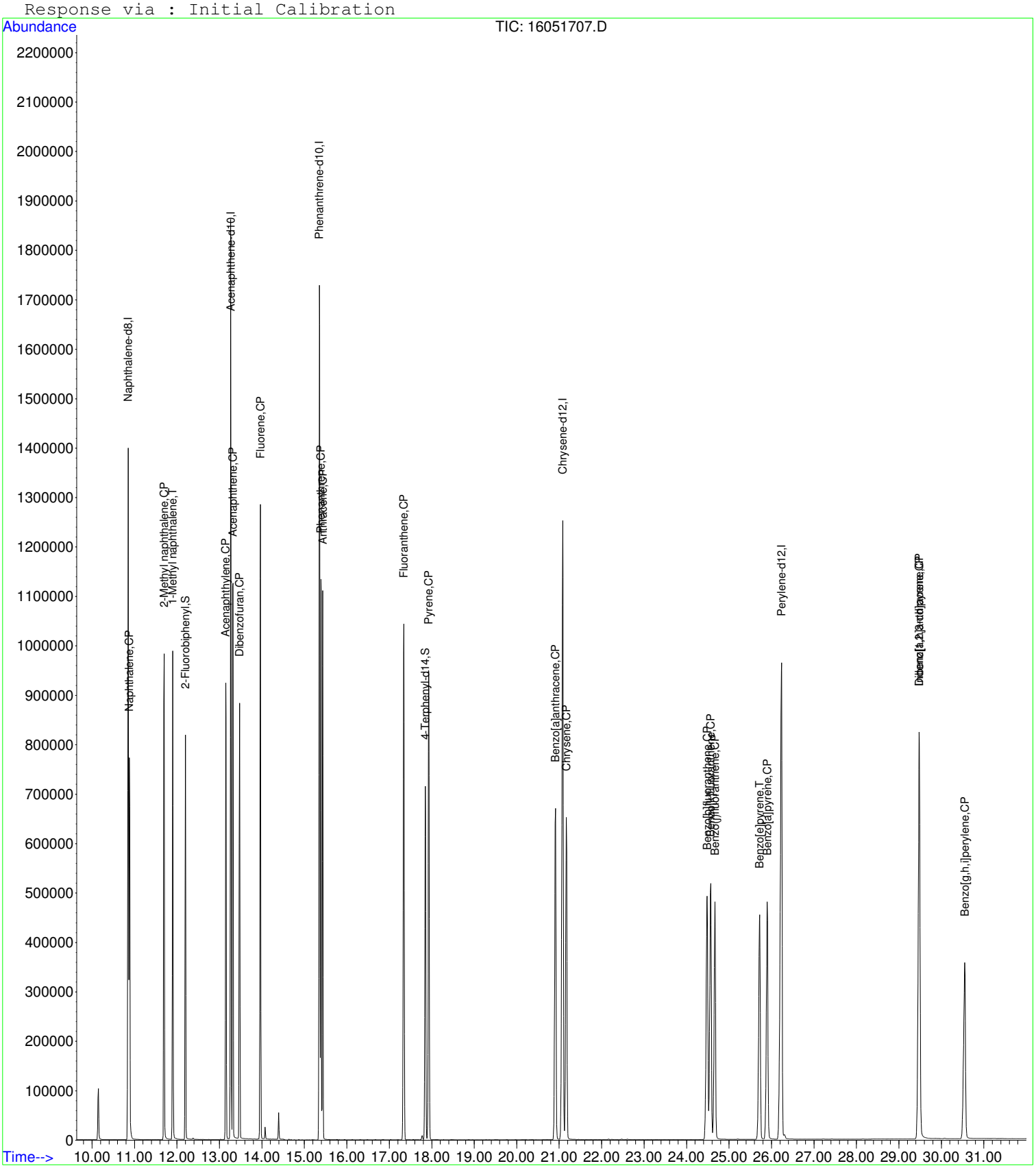
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1639164	4000.00	ug/kg	141
5) Acenaphthene-d10	13.27	164	994074	4000.00	ug/kg	86
11) Phenanthrene-d10	15.35	188	1966569	4000.00	ug/kg	96
17) Chrysene-d12	21.08	240	2143396	4000.00	ug/kg	94
20) Perylene-d12	26.24	264	1977137	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	592084	2041.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.05%		
16) 4-Terphenyl-d14	17.85	244	924369	1816.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	45.42%		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	796557	1942.75	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	562682	1553.61	ug/kg	97
4) 1-Methyl naphthalene	11.90	142	503920	1519.18	ug/kg	94
6) Dibenzofuran	13.47	168	755720	2028.40	ug/kg	98
8) Acenaphthylene	13.15	152	902960	2109.19	ug/kg	99
9) Acenaphthene	13.32	154	532916	2005.54	ug/kg	96
10) Fluorene	13.97	166	696139	2157.19	ug/kg	97
12) Phenanthrene	15.39	178	980066	1895.04	ug/kg	99
13) Anthracene	15.43	178	920634	1880.72	ug/kg	100
14) Fluoranthene	17.34	202	1034926	1933.76	ug/kg	99
15) Pyrene	17.93	202	1040113	1870.89	ug/kg	100
18) Benzo[a]anthracene	20.91	228	990910	1973.35	ug/kg	100
19) Chrysene	21.17	228	905661	1866.68	ug/kg	100
21) Benzo[b]fluoranthene	24.48	252	1003192	1925.12	ug/kg	99
22) Benzo[k]fluoranthene	24.57	252	927387	1897.10	ug/kg	99
23) Benzo(j)fluoranthene	24.67	252	827278	1899.78	ug/kg	99
24) Benzo[e]pyrene	25.72	252	871661	1867.80	ug/kg	99
25) Benzo[a]pyrene	25.90	252	909337	1906.80	ug/kg	99
26) Dibenz[a,h]anthracene	29.48	278	797559	1836.35	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.48	276	928320	1791.69	ug/kg	96
28) Benzo[g,h,i]perylene	30.55	276	745016	1844.00	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051707.D Vial: 2
Acq On : 17 May 2016 12:27 pm Operator:
Sample : ICV-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

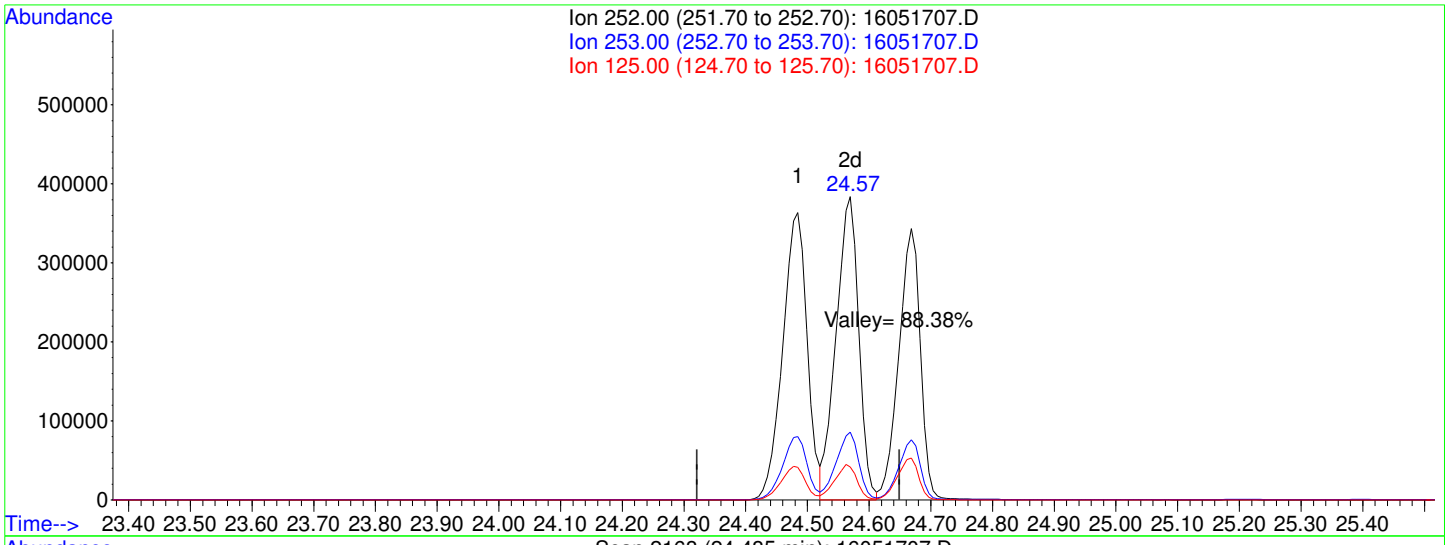
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

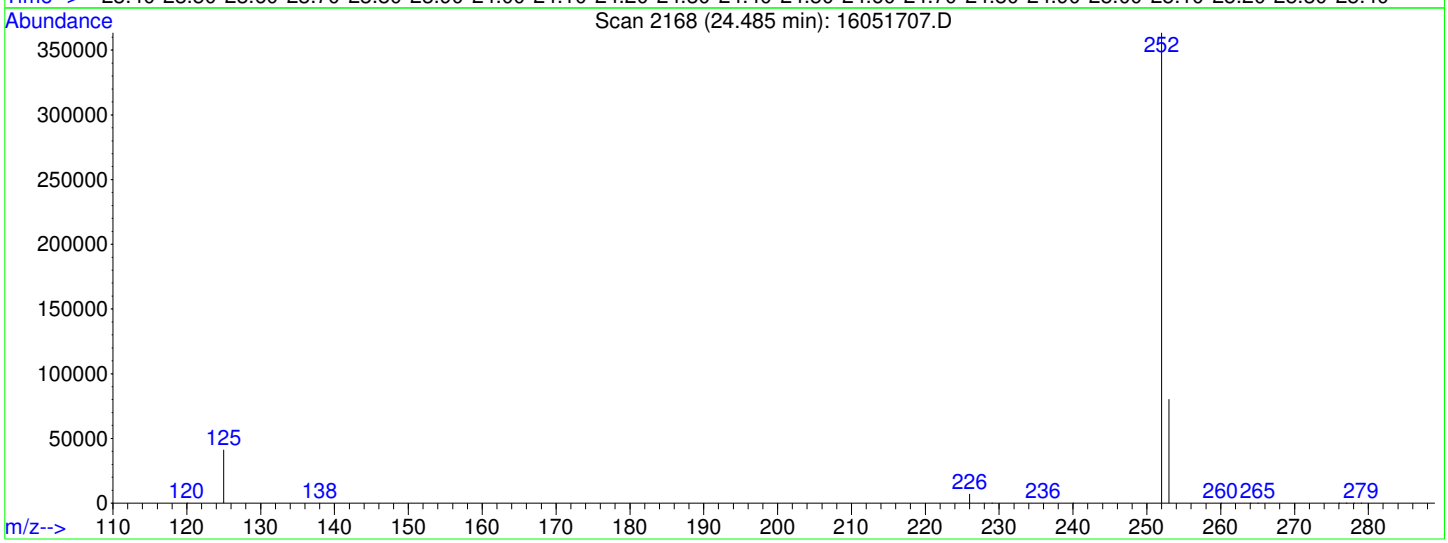


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160517\16051707.D Vial: 2
Acq On : 17 May 2016 12:27 pm Operator:
Sample : ICV-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 13:58 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051707.D

(21) Benzo[b]fluoranthene (CP)

24.48min 1925.12ug/kg

response 1003192

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	21.99
125.00	11.00	11.37
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051708.D Vial: 3
Acq On : 17 May 2016 1:07 pm Operator:
Sample : LCS-75158 Inst : GC/MS #6
Misc : LCS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

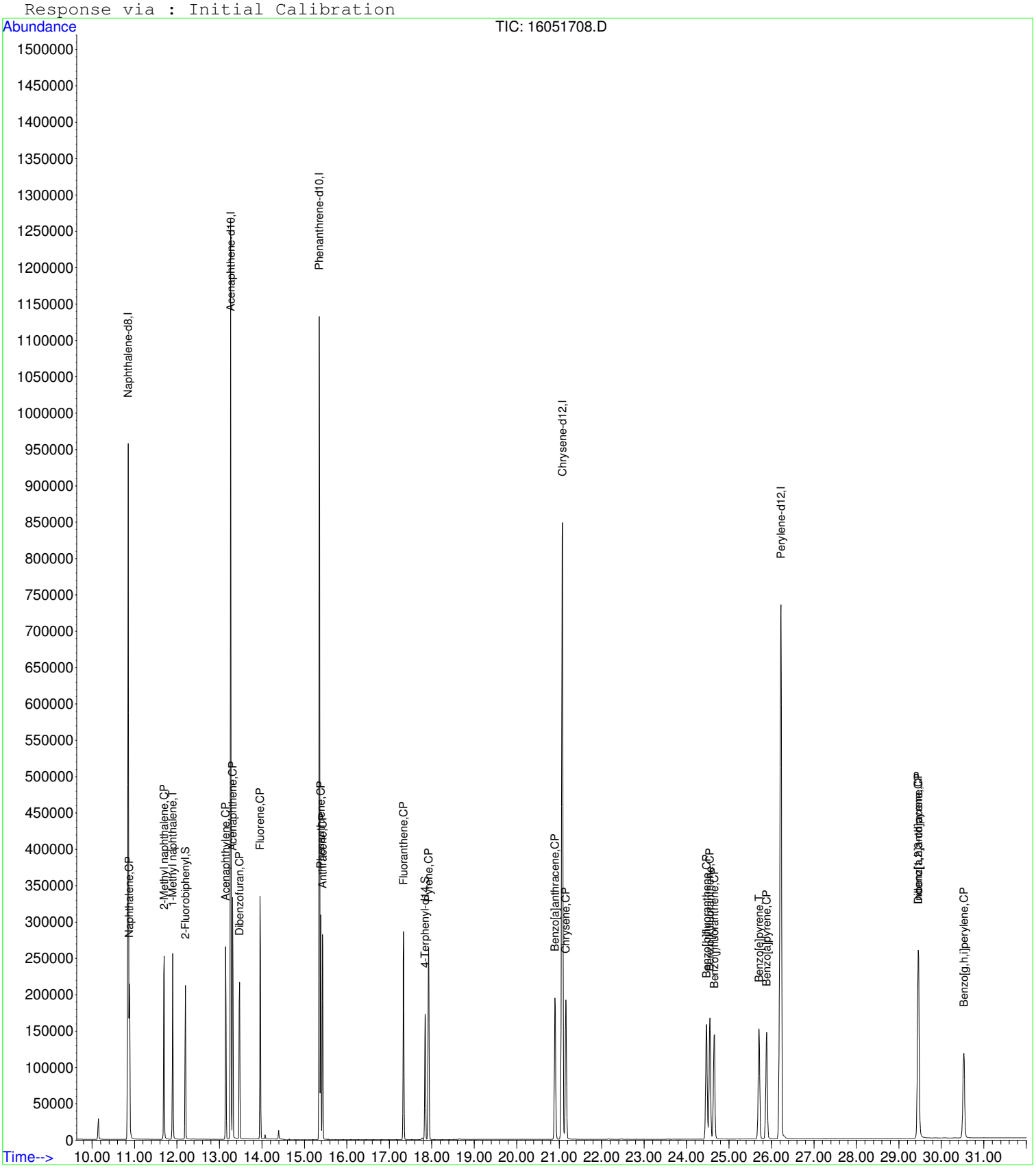
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1204011	4000.00	ug/kg	104
5) Acenaphthene-d10	13.26	164	645144	4000.00	ug/kg	56
11) Phenanthrene-d10	15.35	188	1182086	4000.00	ug/kg	58
17) Chrysene-d12	21.08	240	1413123	4000.00	ug/kg	62
20) Perylene-d12	26.22	264	1396683	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	161111	856.09	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 21.40%#			
16) 4-Terphenyl-d14	17.84	244	226561	740.82	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.52%#			
Target Compounds						Qvalue
2) Naphthalene	10.88	128	216867	720.09	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	151755	570.45	ug/kg	98
4) 1-Methyl naphthalene	11.90	142	135445	555.91	ug/kg	94
6) Dibenzofuran	13.47	168	204058	843.94	ug/kg	99
8) Acenaphthylene	13.15	152	230046	827.99	ug/kg	99
9) Acenaphthene	13.31	154	133991	776.98	ug/kg	98
10) Fluorene	13.96	166	169980	811.62	ug/kg	98
12) Phenanthrene	15.39	178	249077	801.23	ug/kg	99
13) Anthracene	15.43	178	242925	825.60	ug/kg	99
14) Fluoranthene	17.33	202	279283	868.16	ug/kg	99
15) Pyrene	17.93	202	283547	848.50	ug/kg	99
18) Benzo[a]anthracene	20.90	228	283937	857.66	ug/kg	99
19) Chrysene	21.16	228	264234	826.07	ug/kg	100
21) Benzo[b]fluoranthene	24.47	252	302167	820.84	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	289349	837.89	ug/kg	99
23) Benzo(j)fluoranthene	24.66	252	255843	831.70	ug/kg	99
24) Benzo[e]pyrene	25.71	252	276186	837.77	ug/kg	100
25) Benzo[a]pyrene	25.89	252	269611	800.31	ug/kg	100
26) Dibenz[a,h]anthracene	29.46	278	241019	785.57	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.46	276	281878	770.13	ug/kg	94
28) Benzo[g,h,i]perylene	30.53	276	233461	817.99	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051708.D Vial: 3
Acq On : 17 May 2016 1:07 pm Operator:
Sample : LCS-75158 Inst : GC/MS #6
Misc : LCS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051709.D Vial: 4
Acq On : 17 May 2016 1:47 pm Operator:
Sample : MB-75158 Inst : GC/MS #6
Misc : MBLK Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

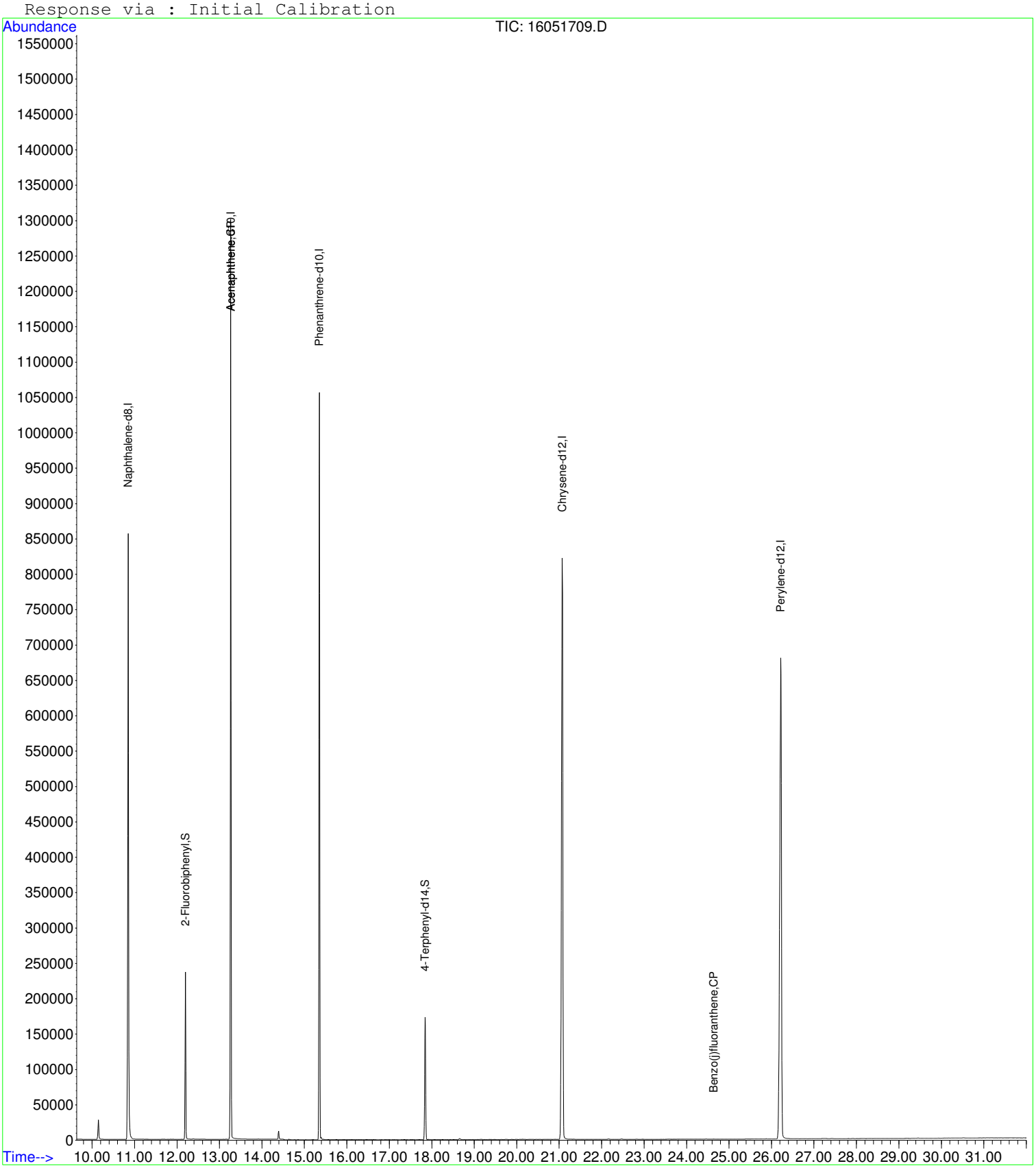
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1117131	4000.00	ug/kg	96
5) Acenaphthene-d10	13.26	164	660345	4000.00	ug/kg	57
11) Phenanthrene-d10	15.35	188	1112470	4000.00	ug/kg	54
17) Chrysene-d12	21.07	240	1340586	4000.00	ug/kg	59
20) Perylene-d12	26.22	264	1317779	4000.00	ug/kg	64
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	173482	900.61	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.52%#			
16) 4-Terphenyl-d14	17.84	244	219179	761.53	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.04%#			
Target Compounds						Qvalue
9) Acenaphthene	13.26	154	2017	11.43	ug/kg#	9
23) Benzo(j)fluoranthene	24.65	252	317	1.09	ug/kg#	65

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051709.D Vial: 4
Acq On : 17 May 2016 1:47 pm Operator:
Sample : MB-75158 Inst : GC/MS #6
Misc : MBLK Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051710.D Vial: 5
Acq On : 17 May 2016 2:27 pm Operator:
Sample : 1605096-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

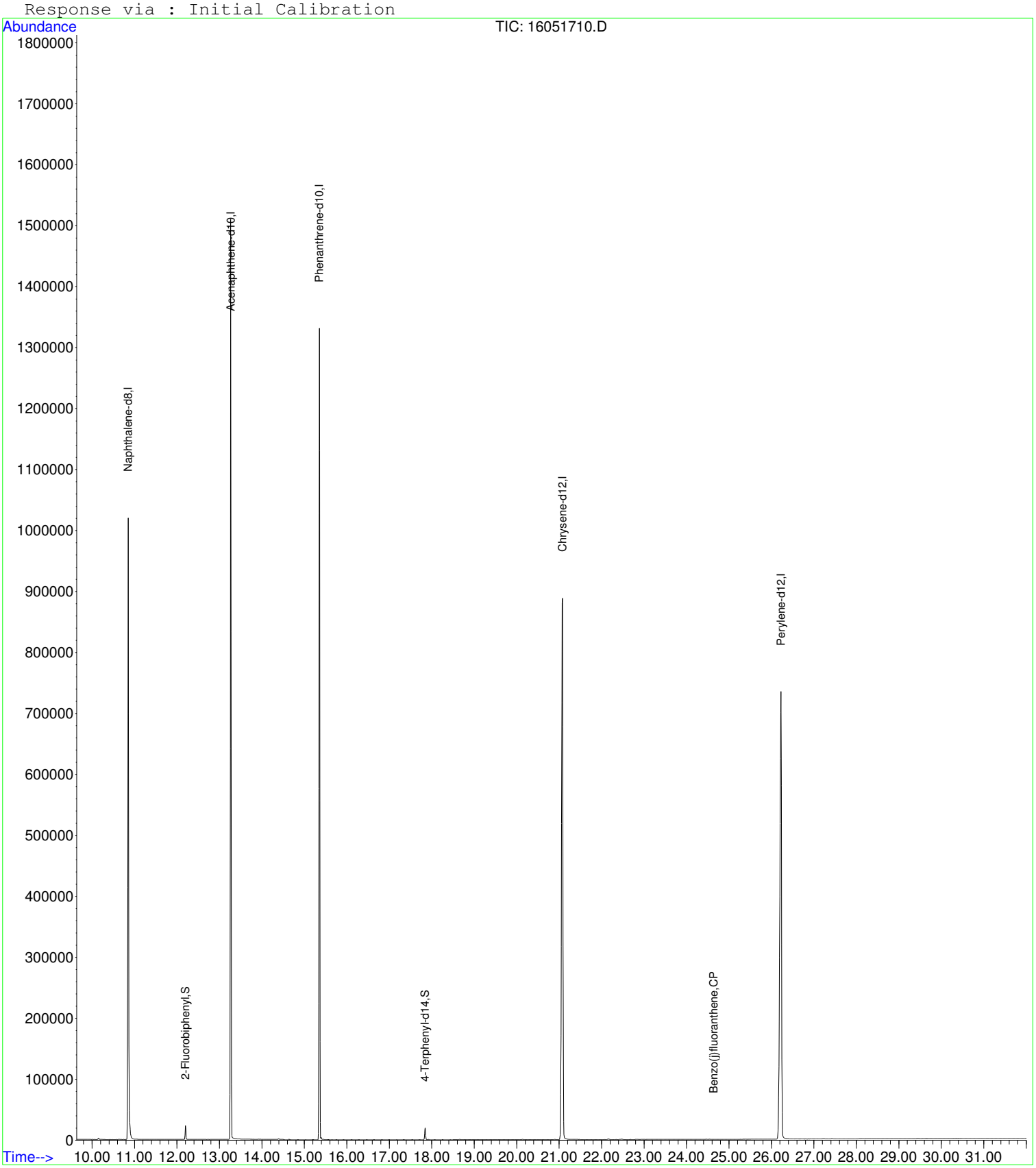
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1260152	4000.00	ug/kg	109
5) Acenaphthene-d10	13.26	164	789290	4000.00	ug/kg	69
11) Phenanthrene-d10	15.35	188	1388694	4000.00	ug/kg	68
17) Chrysene-d12	21.08	240	1500225	4000.00	ug/kg	66
20) Perylene-d12	26.23	264	1396089	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18597	80.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
16) 4-Terphenyl-d14	17.84	244	25069	69.78	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.74%#		
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.65	252	114	0.37	ug/kg	97

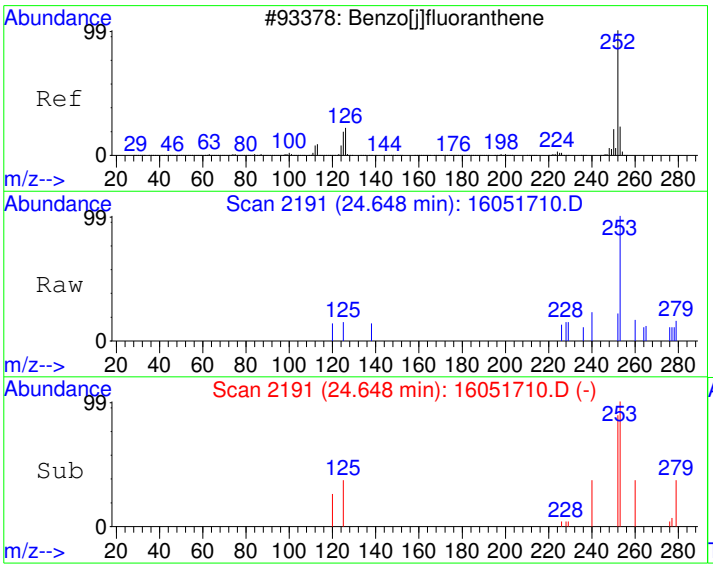
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051710.D Vial: 5
Acq On : 17 May 2016 2:27 pm Operator:
Sample : 1605096-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

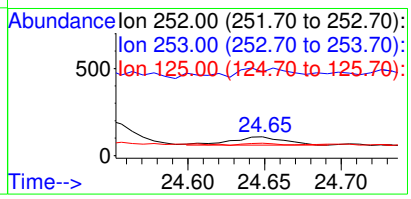




#23
Benzo(j)fluoranthene
Concen: 0.37 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051710.D
Acq: 17 May 2016 2:27 pm

Tgt Ion:252 Resp: 114

Ion	Ratio	Lower	Upper
252	100		
253	23.4	2.1	42.1
125	12.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051711.D Vial: 6
Acq On : 17 May 2016 3:07 pm Operator:
Sample : 1605096-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

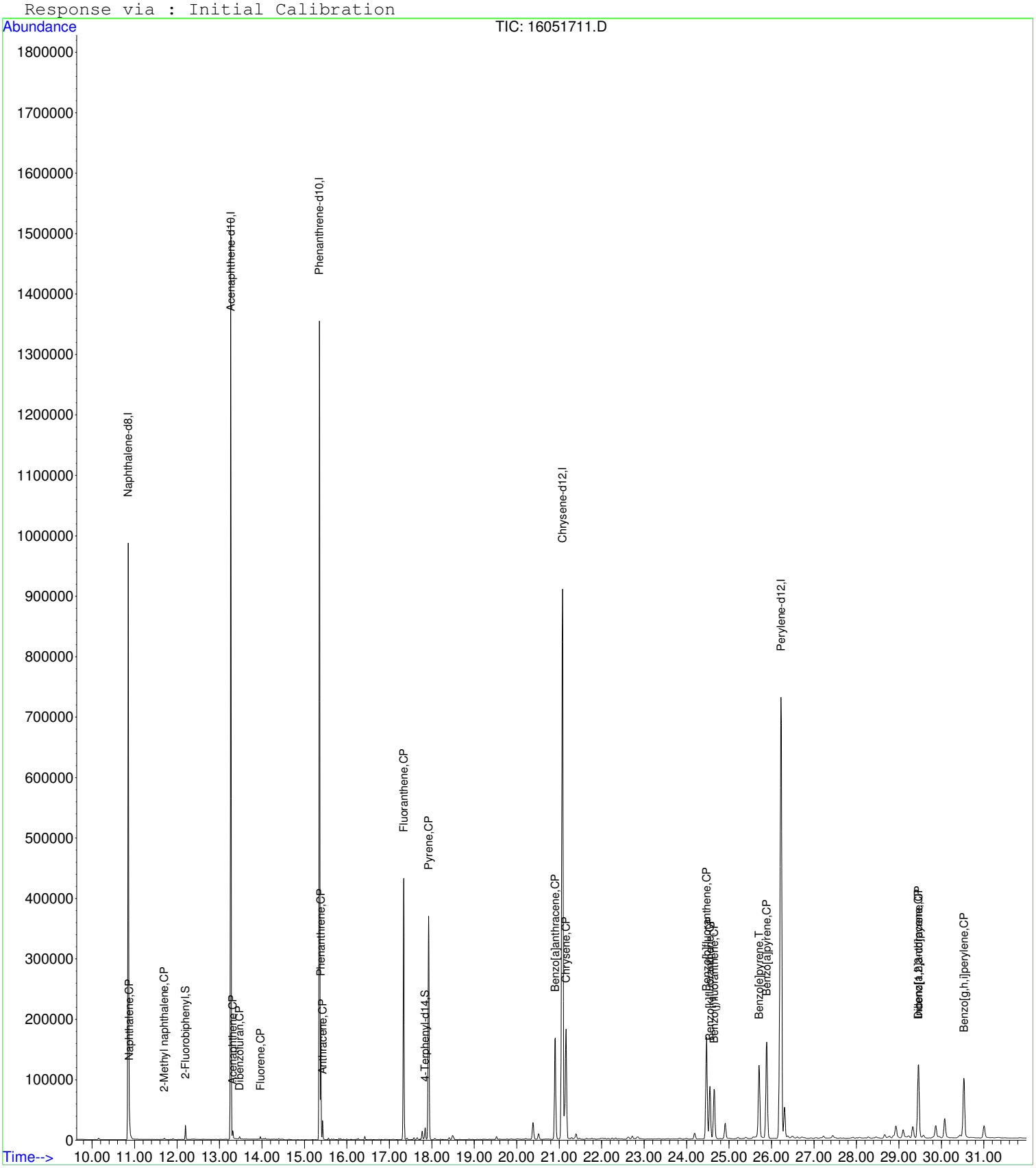
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1246143	4000.00	ug/kg	108
5) Acenaphthene-d10	13.26	164	800336	4000.00	ug/kg	70
11) Phenanthrene-d10	15.35	188	1464862	4000.00	ug/kg	72
17) Chrysene-d12	21.08	240	1540872	4000.00	ug/kg	68
20) Perylene-d12	26.22	264	1450454	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18356	78.62	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.97%#		
16) 4-Terphenyl-d14	17.84	244	25078	66.17	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.65%#		
Target Compounds						Qvalue
2) Naphthalene	10.89	128	6302	20.22	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	1414	5.14	ug/kg	97
6) Dibenzofuran	13.47	168	3715	12.39	ug/kg	99
9) Acenaphthene	13.32	154	5398	25.23	ug/kg	97
10) Fluorene	13.97	166	2191	8.43	ug/kg	99
12) Phenanthrene	15.39	178	154180	400.22	ug/kg	99
13) Anthracene	15.43	178	26560	72.84	ug/kg	99
14) Fluoranthene	17.34	202	433330	1086.99	ug/kg	99
15) Pyrene	17.93	202	390789	943.68	ug/kg	99
18) Benzo[a]anthracene	20.91	228	250031	692.63	ug/kg	100
19) Chrysene	21.16	228	299073	857.47	ug/kg	100
21) Benzo[b]fluoranthene	24.47	252	310476	812.15	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	149988	418.23	ug/kg	99
23) Benzo(j)fluoranthene	24.65	252	139385	436.32	ug/kg	90
24) Benzo[e]pyrene	25.71	252	228069	666.16	ug/kg	100
25) Benzo[a]pyrene	25.88	252	302681	865.17	ug/kg	98
26) Dibenz[a,h]anthracene	29.45	278	45266	142.07	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	197222	518.86	ug/kg	89
28) Benzo[g,h,i]perylene	30.53	276	190414	642.43	ug/kg	99

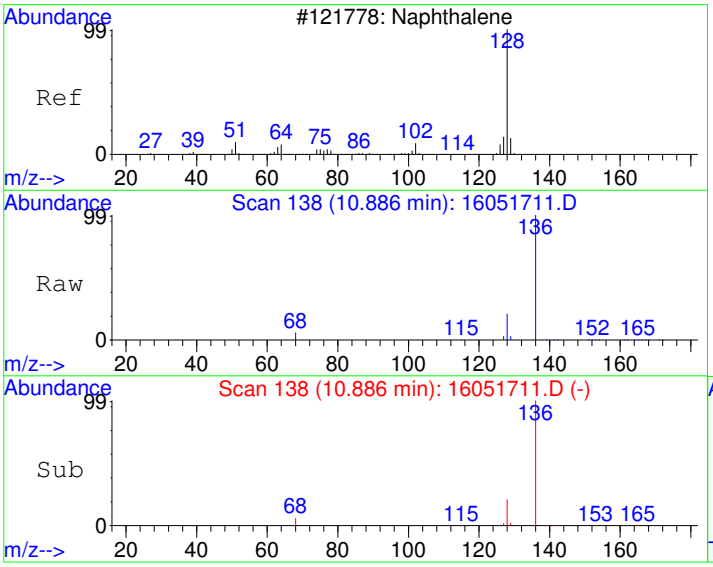
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051711.D Vial: 6
Acq On : 17 May 2016 3:07 pm Operator:
Sample : 1605096-26A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

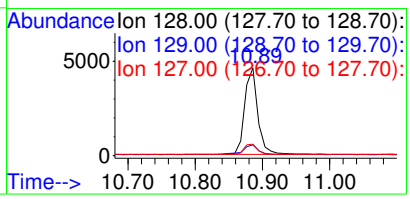


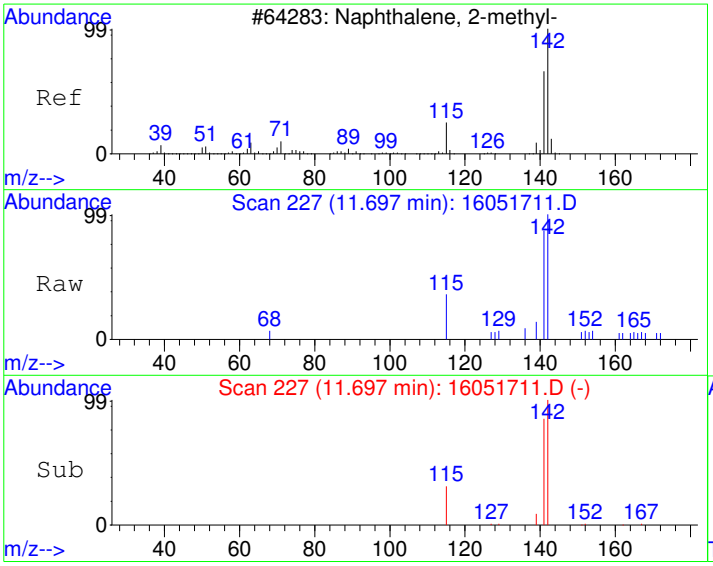


#2
Naphthalene
Concen: 20.22 ug/kg
RT: 10.89 min Scan# 138
Delta R.T. 0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:128 Resp: 6302

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	41.1
127	12.0	0.0	42.4

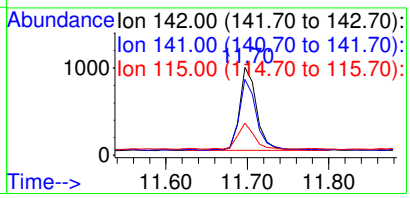


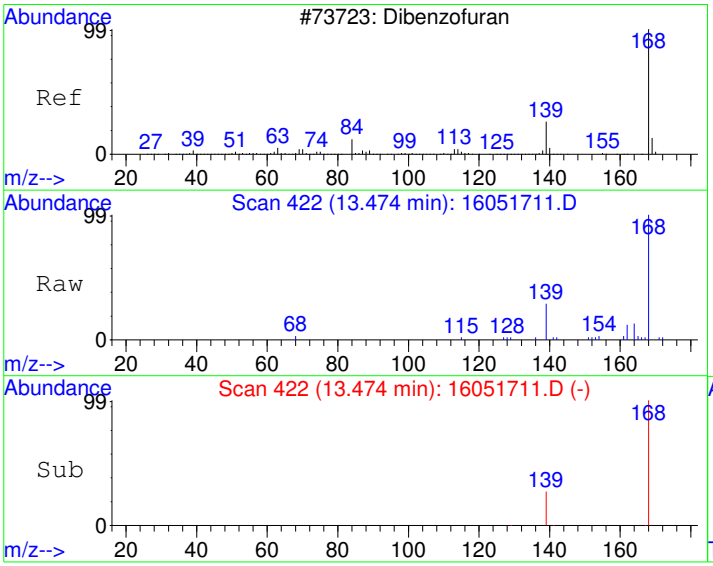


#3
2-Methyl naphthalene
Concen: 5.14 ug/kg
RT: 11.70 min Scan# 227
Delta R.T. -0.00 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:142 Resp: 1414

Ion	Ratio	Lower	Upper
142	100		
141	85.0	54.4	114.4
115	31.3	0.0	56.0

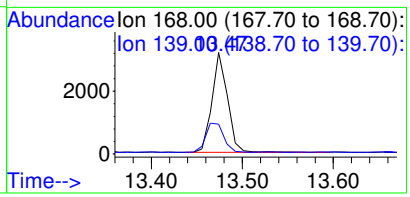


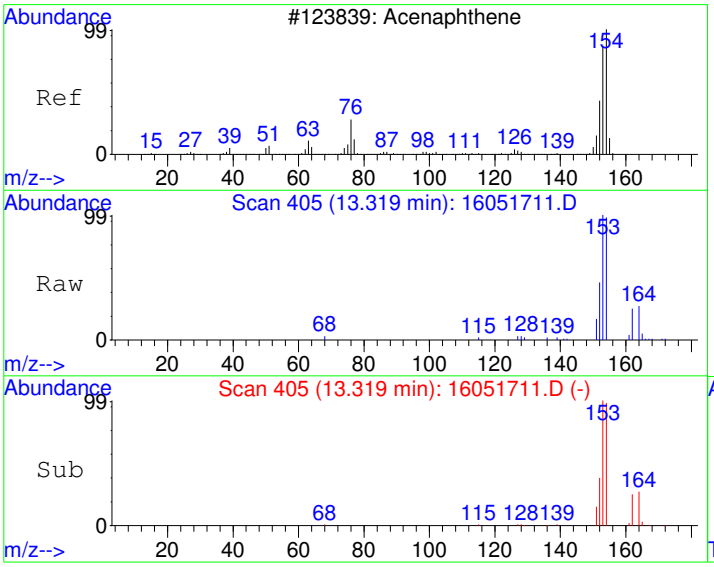


#6
Dibenzofuran
Concen: 12.39 ug/kg
RT: 13.47 min Scan# 422
Delta R.T. -0.00 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:168 Resp: 3715

Ion	Ratio	Lower	Upper
168	100		
139	34.4	27.0	40.4

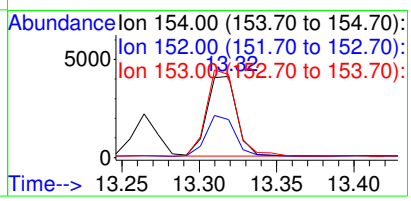


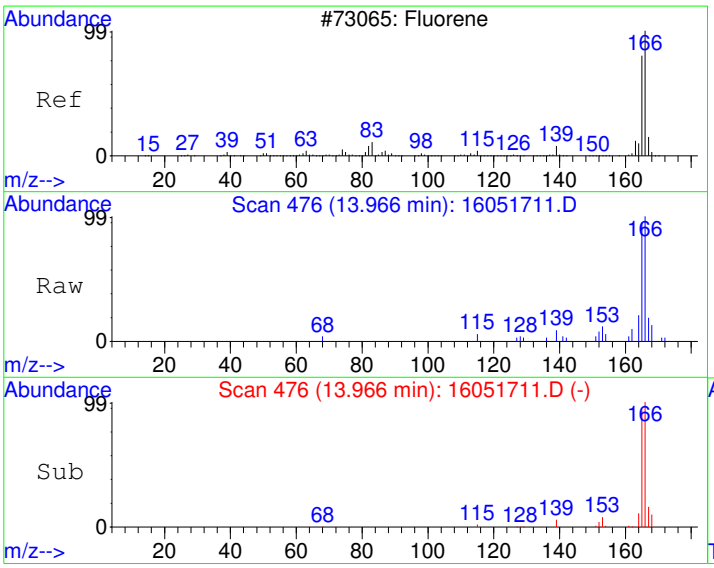


#9
Acenaphthene
Concen: 25.23 ug/kg
RT: 13.32 min Scan# 405
Delta R.T. -0.00 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:154 Resp: 5398

Ion	Ratio	Lower	Upper
154	100		
152	45.8	18.9	78.9
153	102.8	75.2	135.2

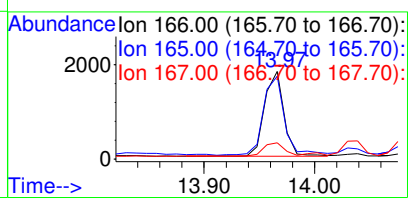


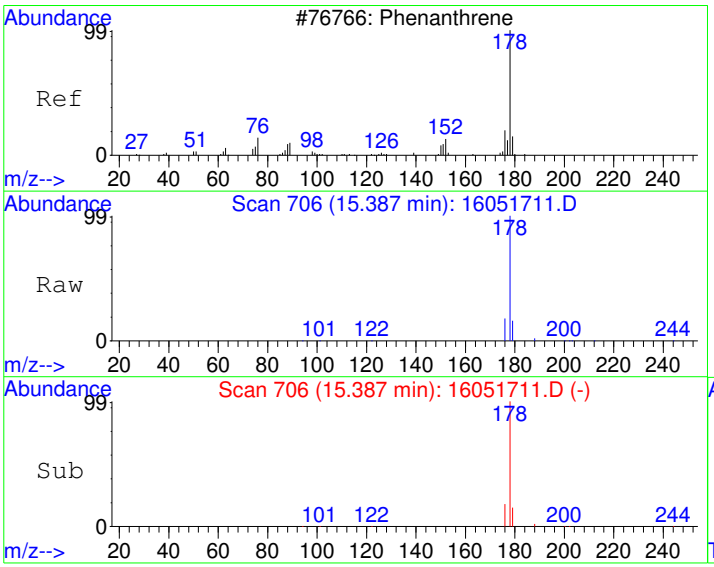


#10
Fluorene
Concen: 8.43 ug/kg
RT: 13.97 min Scan# 476
Delta R.T. -0.00 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:166 Resp: 2191

Ion	Ratio	Lower	Upper
166	100		
165	92.4	61.8	121.8
167	15.6	0.0	43.6

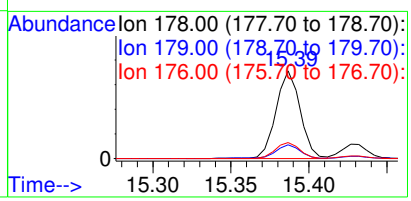


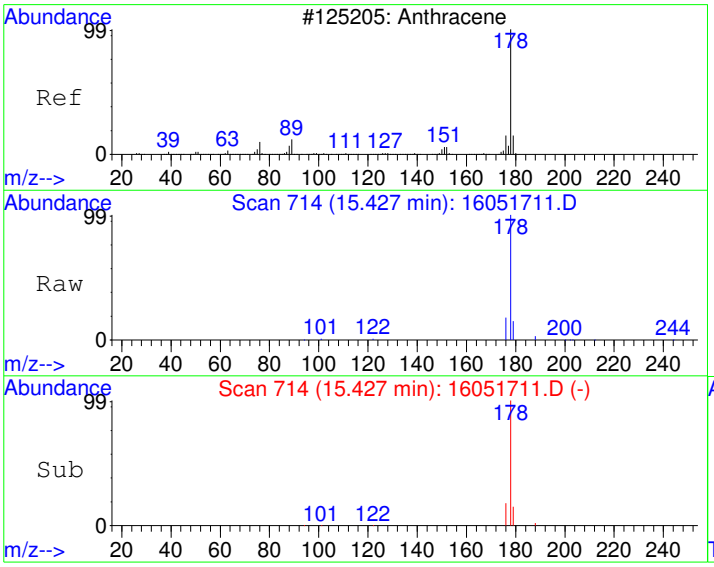


#12
Phenanthrene
Concen: 400.22 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:178 Resp: 154180

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	18.4	0.0	48.5

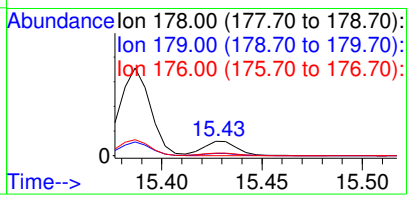


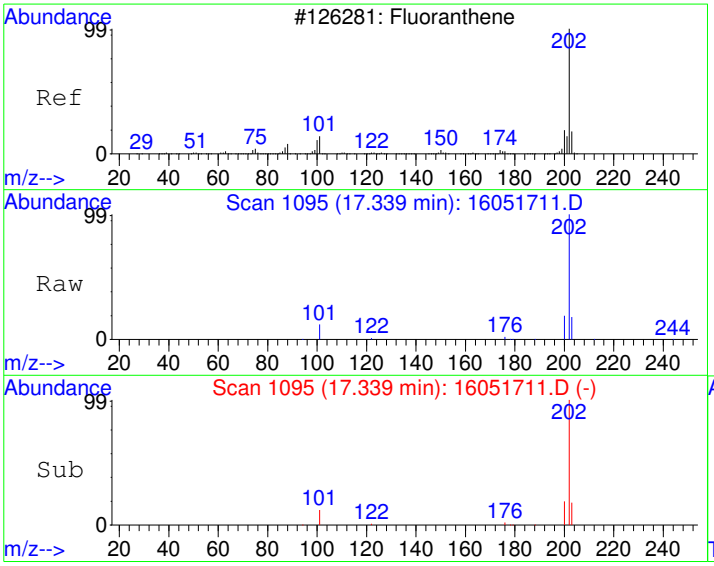


#13
Anthracene
Concen: 72.84 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:178 Resp: 26560

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	45.9
176	18.0	0.0	48.2

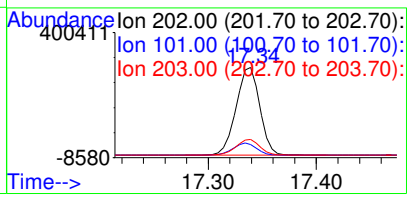


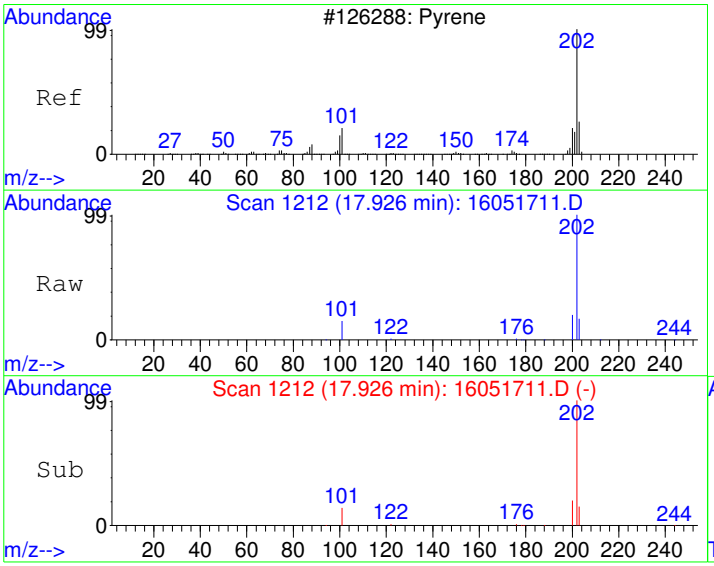


#14
Fluoranthene
Concen: 1086.99 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:202 Resp: 433330

Ion	Ratio	Lower	Upper
202	100		
101	11.8	0.0	43.0
203	17.7	0.0	47.9

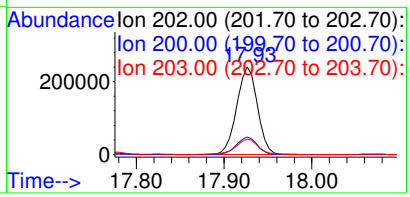


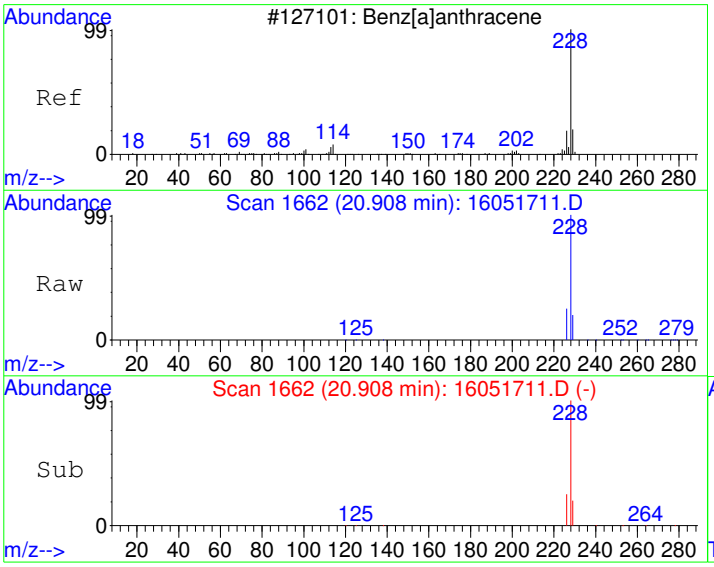


#15
Pyrene
Concen: 943.68 ug/kg
RT: 17.93 min Scan# 1212
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:202 Resp: 390789

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.0
203	17.4	0.0	48.0

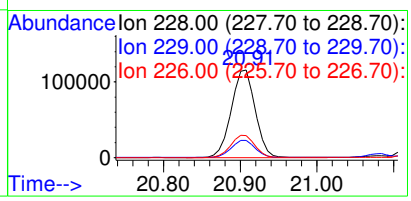


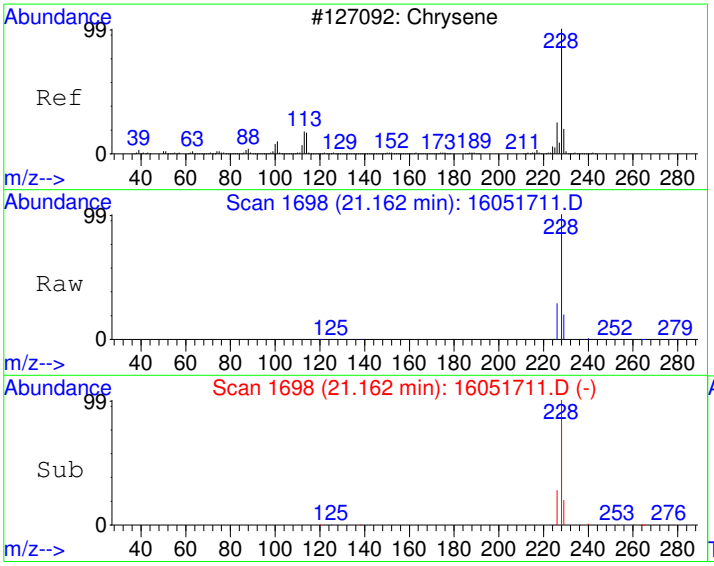


#18
Benzo[a]anthracene
Concen: 692.63 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:228 Resp: 250031

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.1
226	25.3	0.0	55.2

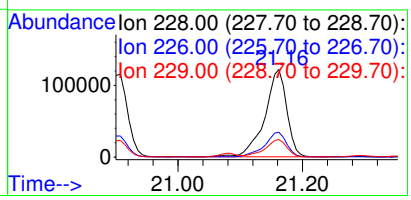


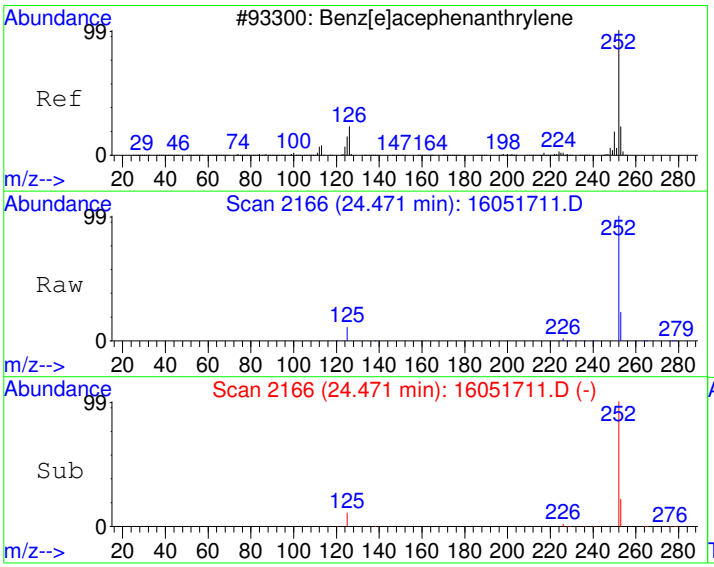


#19
Chrysene
Concen: 857.47 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:228 Resp: 299073

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.1
229	20.0	0.0	50.1

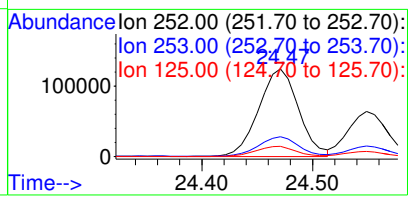


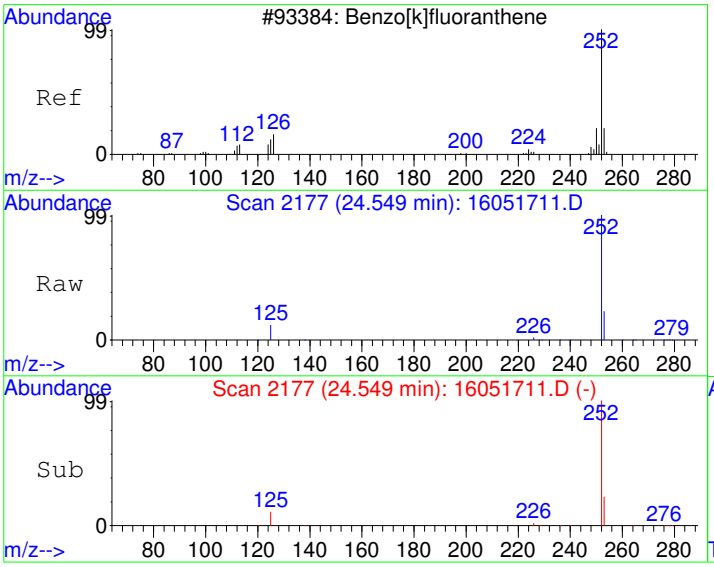


#21
Benzo[b]fluoranthene
Concen: 812.15 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:252 Resp: 310476

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.4	0.0	41.0

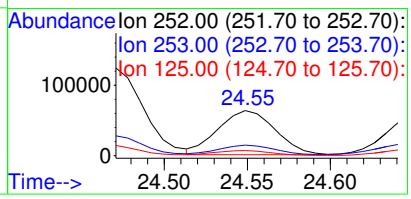


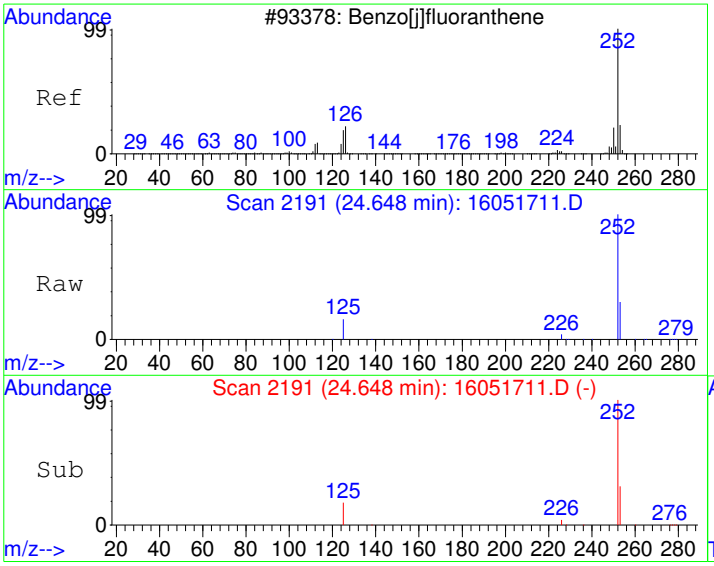


#22
Benzo[k]fluoranthene
Concen: 418.23 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:252 Resp: 149988

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.1	42.1
125	11.4	0.0	31.3

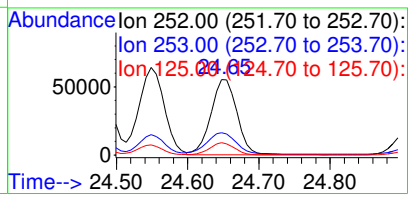


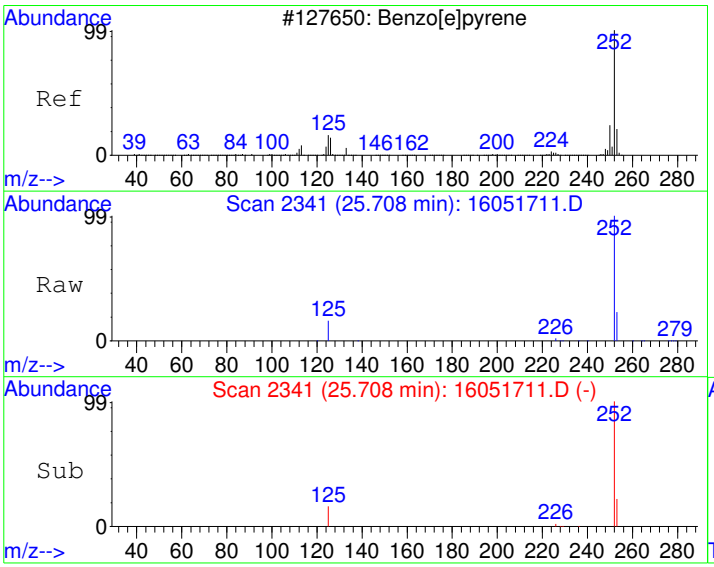


#23
Benzo(j)fluoranthene
Concen: 436.32 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:252 Resp: 139385

Ion	Ratio	Lower	Upper
252	100		
253	28.7	2.1	42.1
125	16.3	0.0	34.4

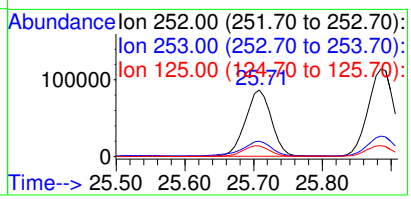


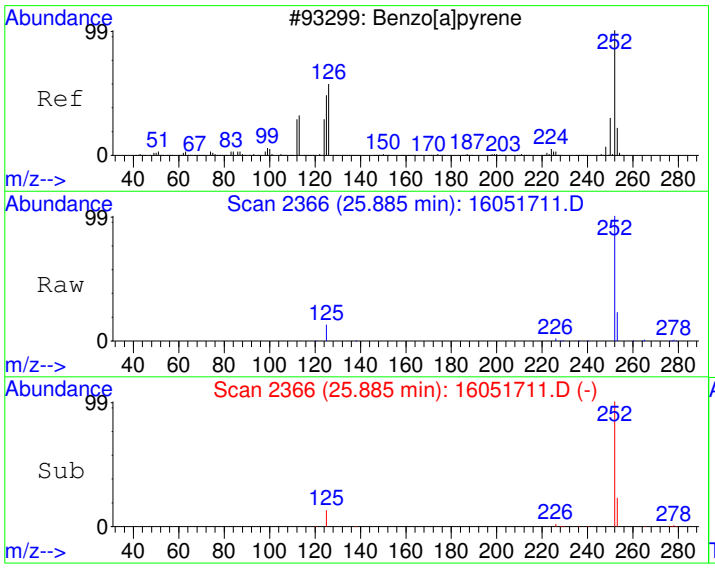


#24
Benzo[e]pyrene
Concen: 666.16 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:252 Resp: 228069

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	15.9	0.0	36.1

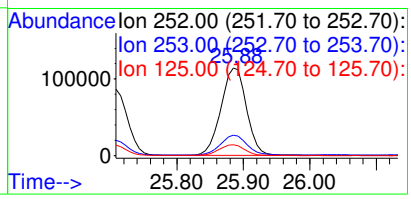


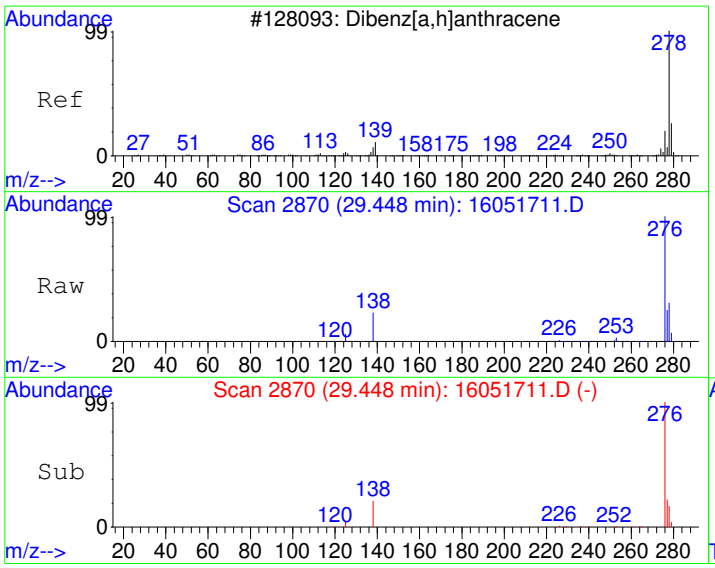


#25
Benzo[a]pyrene
Concen: 865.17 ug/kg
RT: 25.88 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:252 Resp: 302681

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	12.4	0.0	31.7

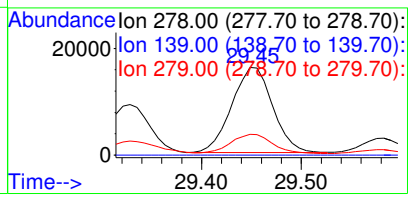


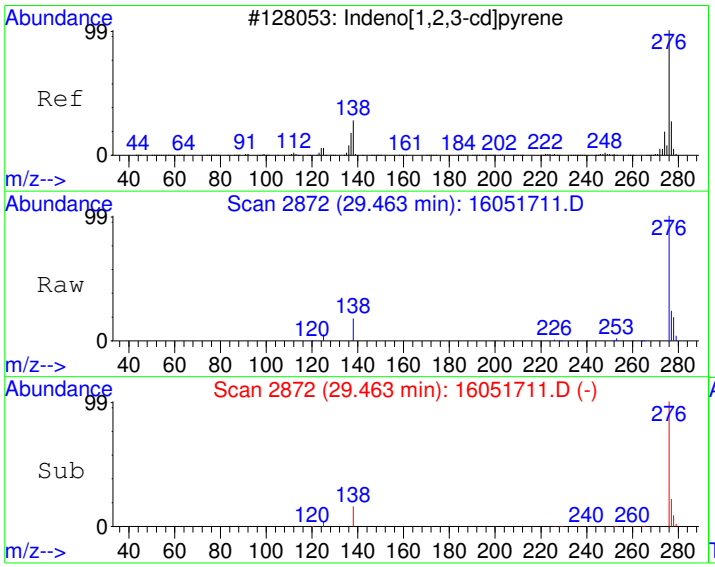


#26
Dibenz[a,h]anthracene
Concen: 142.07 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:278 Resp: 45266

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.6	4.2	44.2

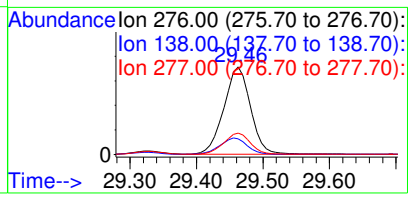


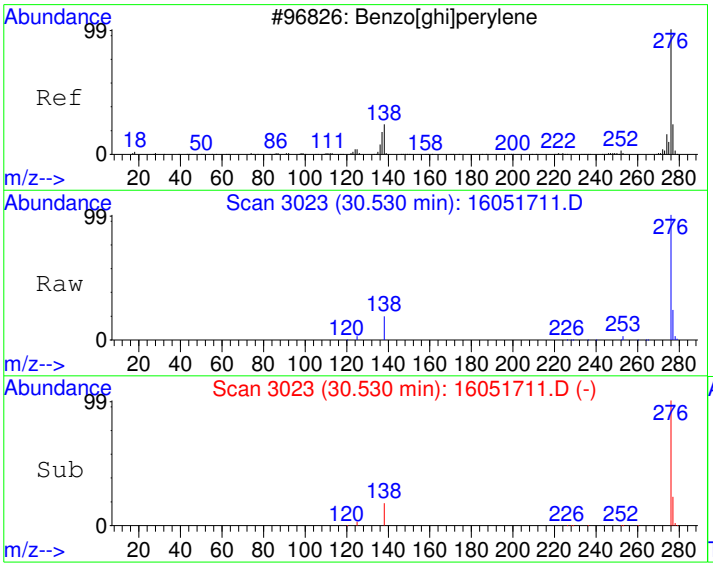


#27
Indeno[1,2,3-cd]pyrene
Concen: 518.86 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:276 Resp: 197222

Ion	Ratio	Lower	Upper
276	100		
138	17.6	6.7	46.7
277	24.1	5.8	45.8

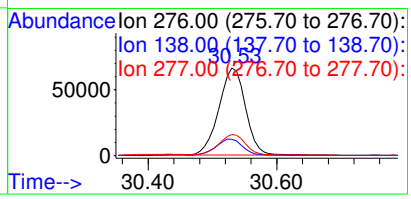




#28
Benzo[g,h,i]perylene
Concen: 642.43 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051711.D
Acq: 17 May 2016 3:07 pm

Tgt Ion:276 Resp: 190414

Ion	Ratio	Lower	Upper
276	100		
138	18.5	0.0	39.1
277	24.1	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051712.D Vial: 7
Acq On : 17 May 2016 3:47 pm Operator:
Sample : 1605096-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

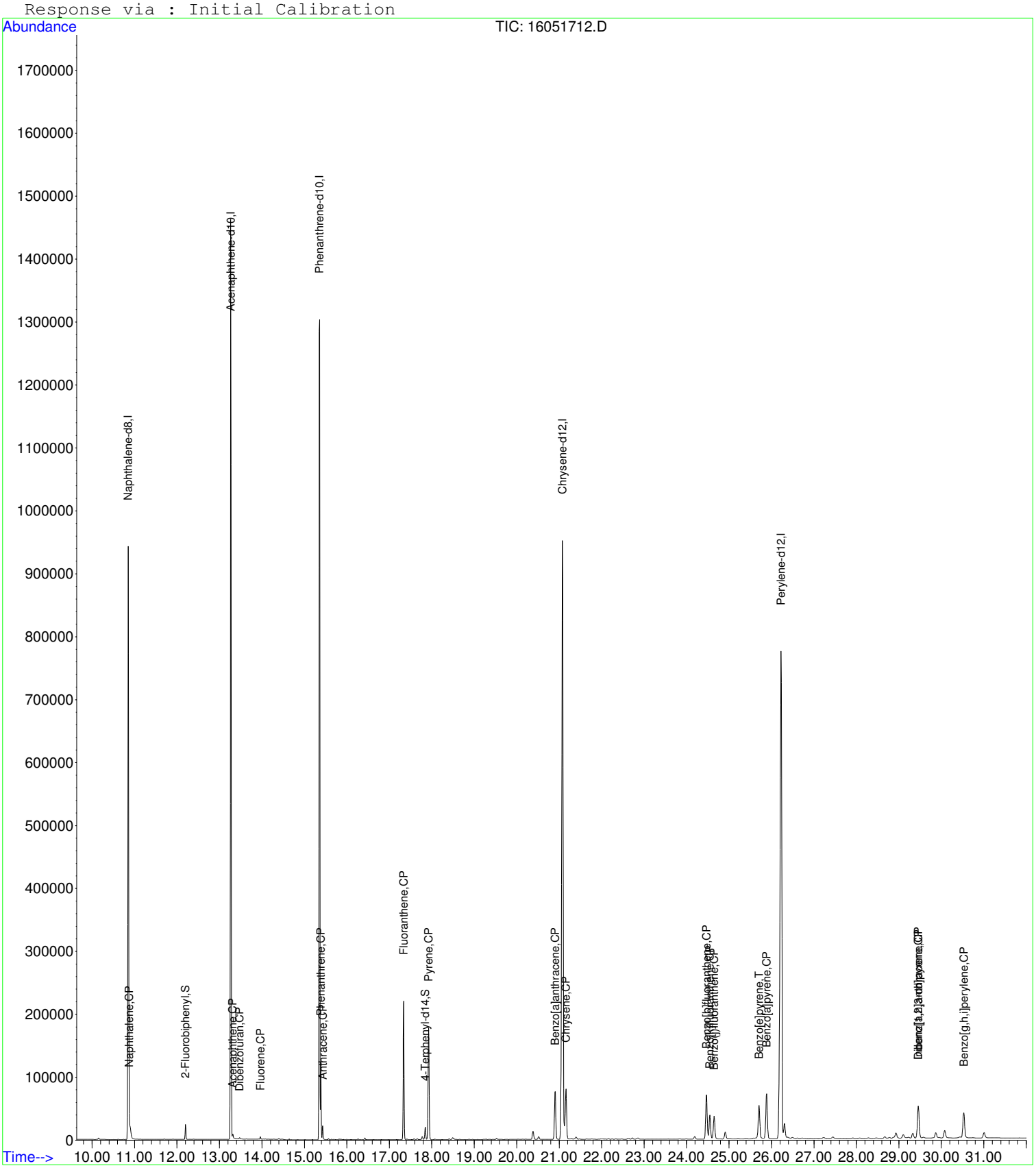
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1236291	4000.00	ug/kg	107
5) Acenaphthene-d10	13.26	164	817756	4000.00	ug/kg	71
11) Phenanthrene-d10	15.36	188	1469182	4000.00	ug/kg	72
17) Chrysene-d12	21.08	240	1582453	4000.00	ug/kg	70
20) Perylene-d12	26.22	264	1502264	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19408	81.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
16) 4-Terphenyl-d14	17.85	244	25959	68.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.71%#		
Target Compounds						Qvalue
2) Naphthalene	10.89	128	2057	6.65	ug/kg	99
6) Dibenzofuran	13.47	168	1886	6.15	ug/kg	100
9) Acenaphthene	13.32	154	2603	11.91	ug/kg	96
10) Fluorene	13.97	166	1995	7.52	ug/kg	99
12) Phenanthrene	15.39	178	97664	252.77	ug/kg	99
13) Anthracene	15.43	178	19042	52.07	ug/kg	98
14) Fluoranthene	17.34	202	220224	550.80	ug/kg	98
15) Pyrene	17.93	202	189172	455.47	ug/kg	99
18) Benzo[a]anthracene	20.91	228	112057	302.26	ug/kg	99
19) Chrysene	21.16	228	128486	358.70	ug/kg	100
21) Benzo[b]fluoranthene	24.47	252	133679	337.62	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	64621	173.98	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	60560	183.03	ug/kg	90
24) Benzo[e]pyrene	25.71	252	97067	273.74	ug/kg	100
25) Benzo[a]pyrene	25.88	252	132277	365.05	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	19515	59.14	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	84497	214.63	ug/kg	91
28) Benzo[g,h,i]perylene	30.53	276	79181	257.93	ug/kg	99

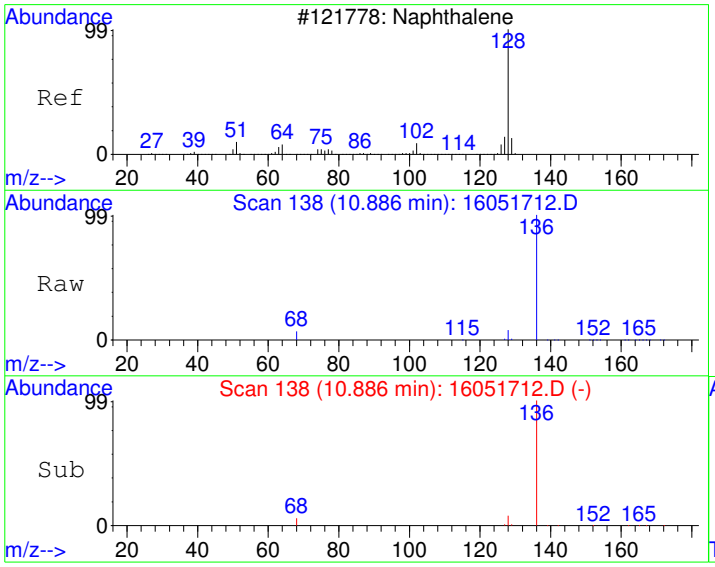
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051712.D Vial: 7
Acq On : 17 May 2016 3:47 pm Operator:
Sample : 1605096-27A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

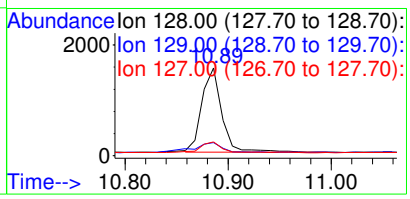


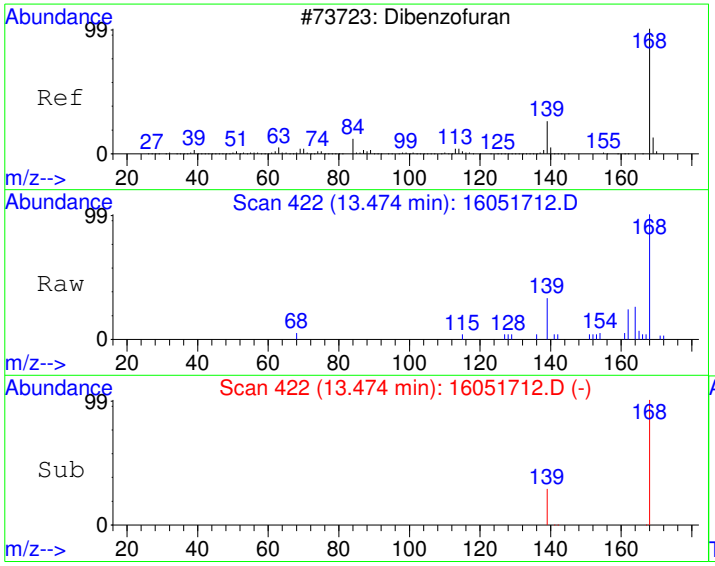


#2
Naphthalene
Concen: 6.65 ug/kg
RT: 10.89 min Scan# 138
Delta R.T. 0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:128 Resp: 2057

Ion	Ratio	Lower	Upper
128	100		
129	11.6	0.0	41.1
127	12.4	0.0	42.4

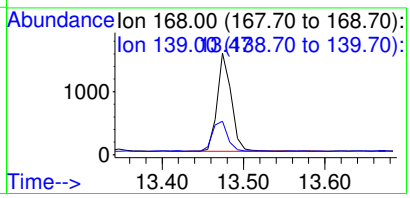


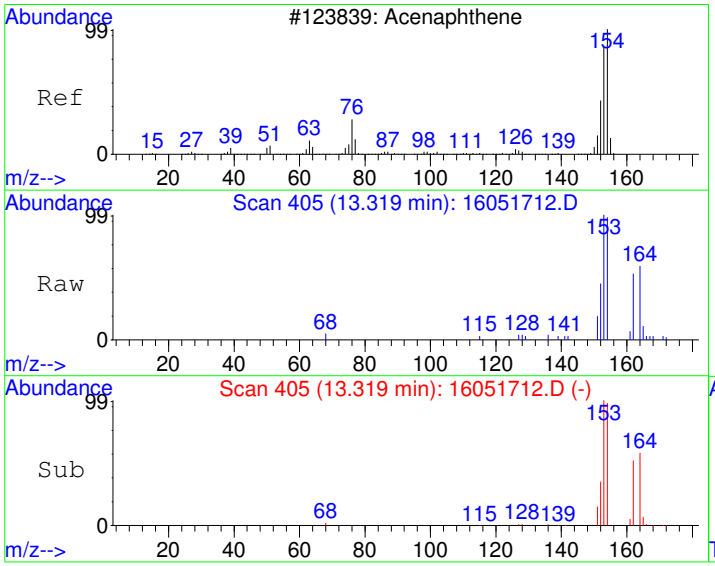


#6
Dibenzofuran
Concen: 6.15 ug/kg
RT: 13.47 min Scan# 422
Delta R.T. -0.00 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:168 Resp: 1886

Ion	Ratio	Lower	Upper
168	100		
139	33.9	27.0	40.4

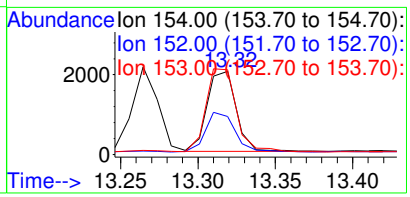


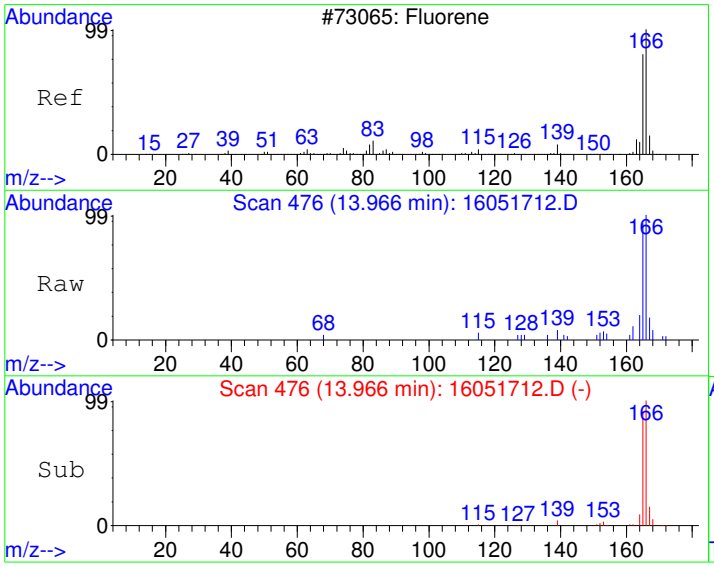


#9
Acenaphthene
Concen: 11.91 ug/kg
RT: 13.32 min Scan# 405
Delta R.T. -0.00 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:154 Resp: 2603

Ion	Ratio	Lower	Upper
154	100		
152	44.1	18.9	78.9
153	102.9	75.2	135.2

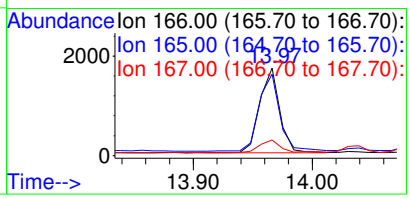


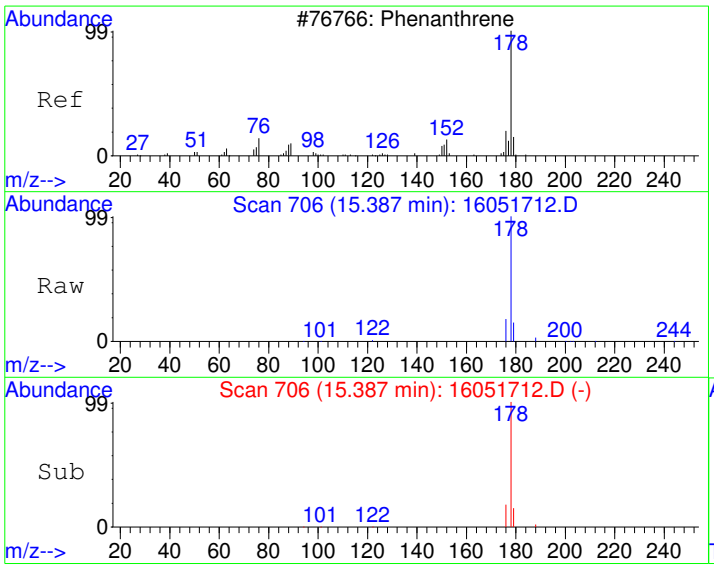


#10
Fluorene
Concen: 7.52 ug/kg
RT: 13.97 min Scan# 476
Delta R.T. -0.00 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:166 Resp: 1995

Ion	Ratio	Lower	Upper
166	100		
165	91.2	61.8	121.8
167	15.1	0.0	43.6

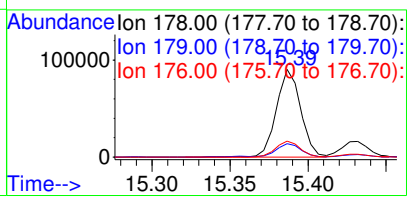


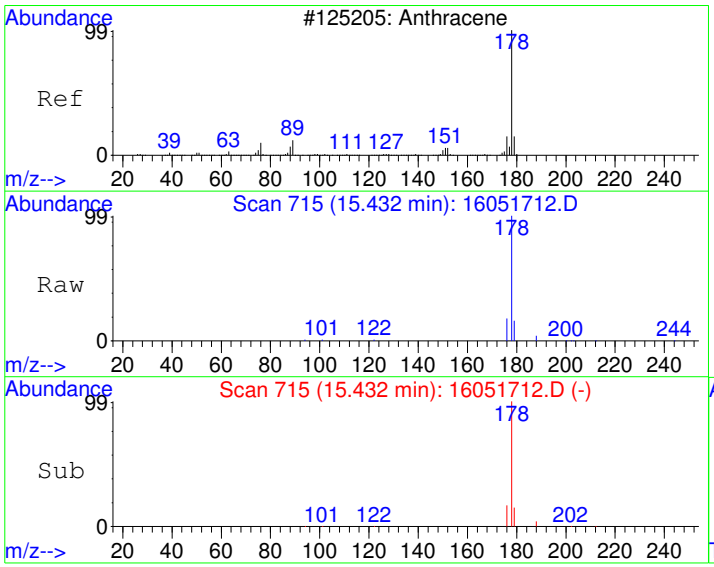


#12
Phenanthrene
Concen: 252.77 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:178 Resp: 97664

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.9
176	18.2	0.0	48.5

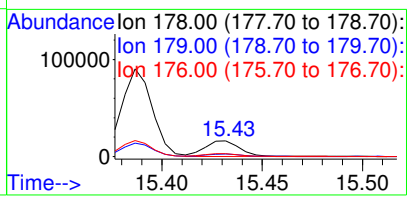


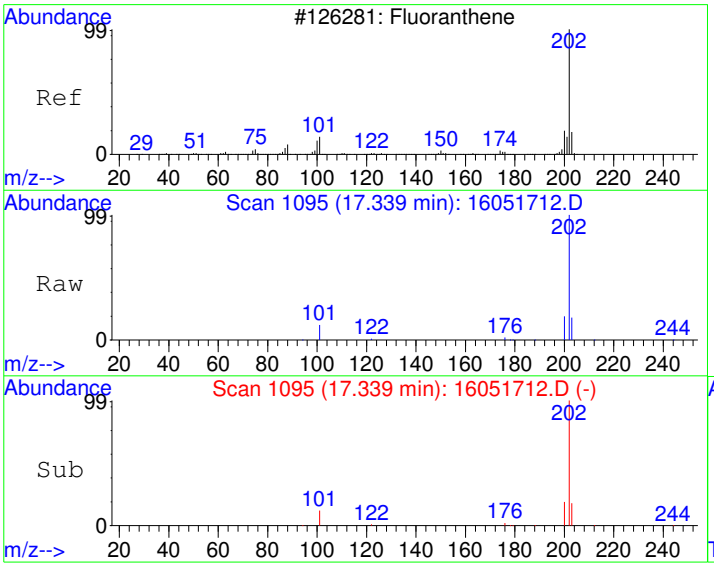


#13
Anthracene
Concen: 52.07 ug/kg
RT: 15.43 min Scan# 715
Delta R.T. -0.00 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:178 Resp: 19042

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.3	0.0	48.2

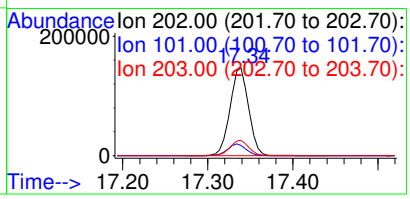


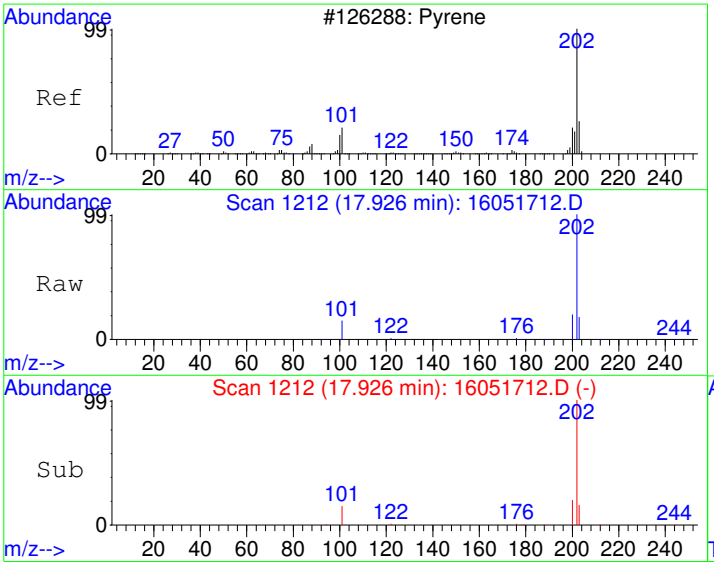


#14
Fluoranthene
Concen: 550.80 ug/kg
RT: 17.34 min Scan# 1095
Delta R.T. -0.00 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:202 Resp: 220224

Ion	Ratio	Lower	Upper
202	100		
101	11.7	0.0	43.0
203	17.5	0.0	47.9

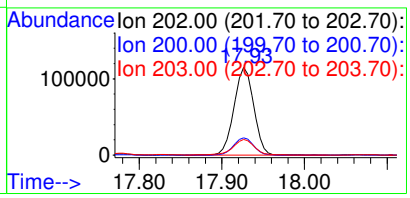


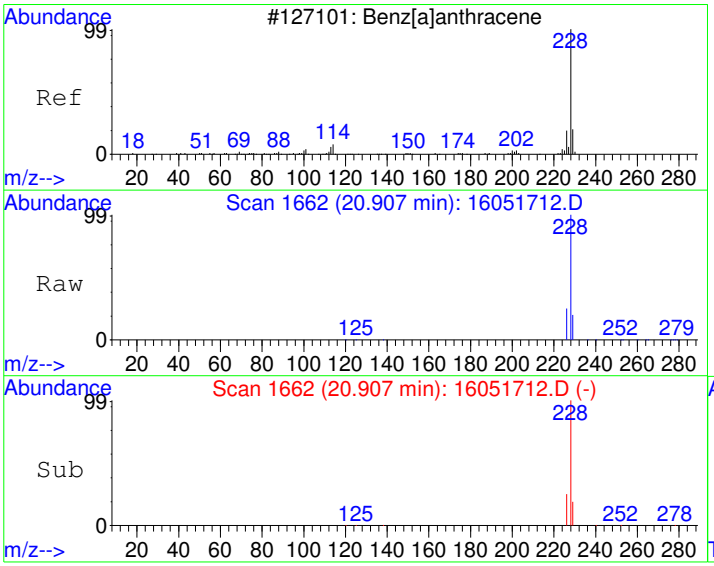


#15
Pyrene
Concen: 455.47 ug/kg
RT: 17.93 min Scan# 1212
Delta R.T. -0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:202 Resp: 189172

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.7	0.0	48.0

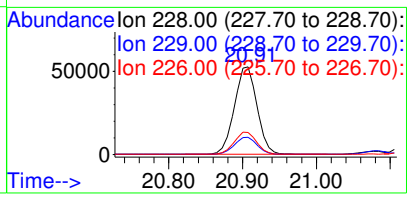


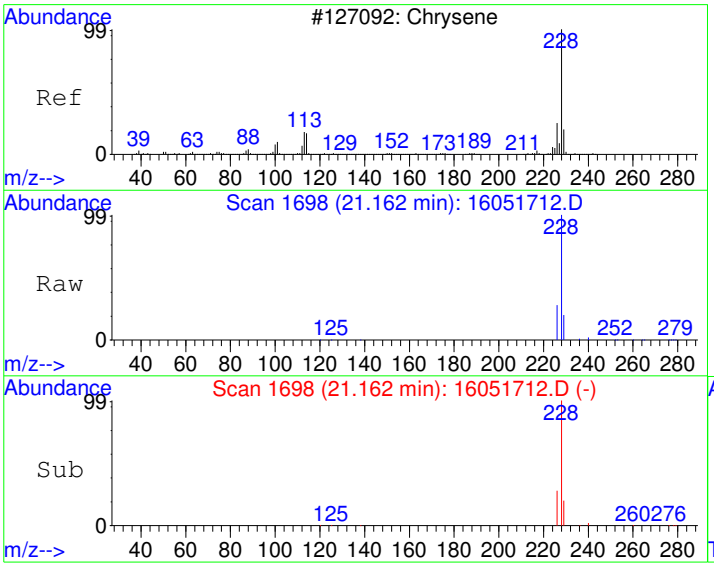


#18
Benzo[a]anthracene
Concen: 302.26 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:228 Resp: 112057

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.1
226	25.2	0.0	55.2

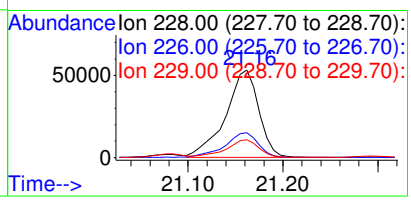


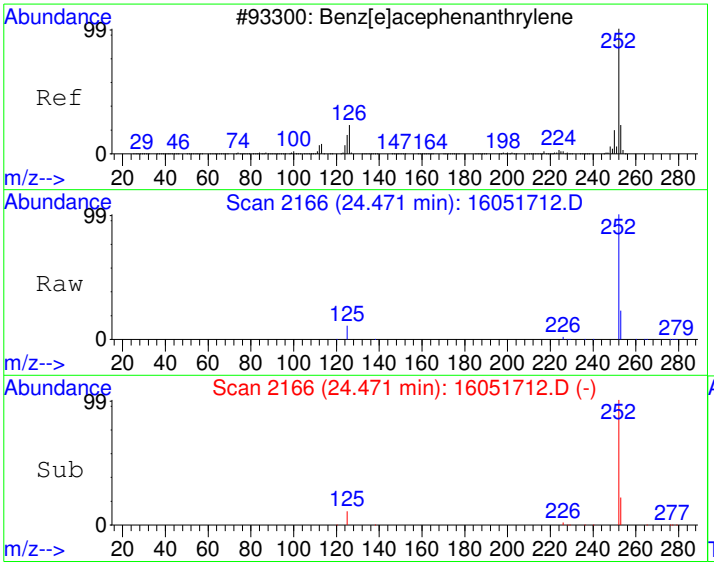


#19
Chrysene
Concen: 358.70 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:228 Resp: 128486

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.1
229	20.1	0.0	50.1

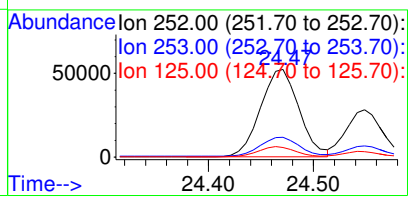


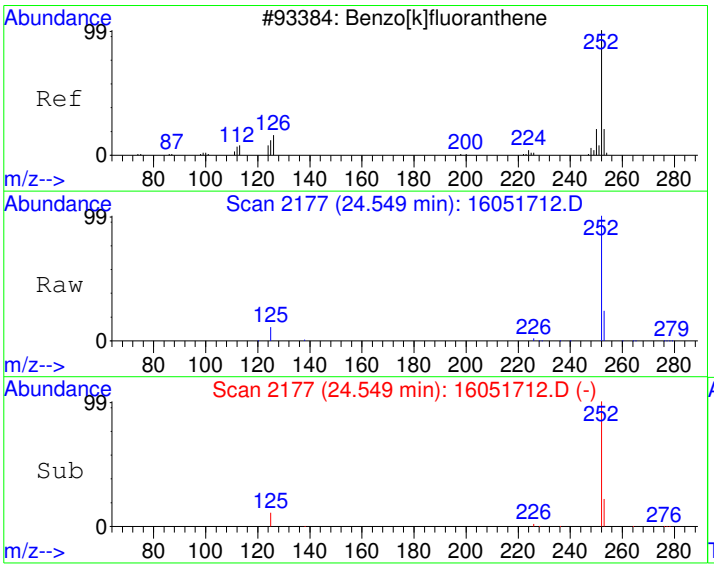


#21
Benzo[b]fluoranthene
Concen: 337.62 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:252 Resp: 133679

Ion	Ratio	Lower	Upper
252	100		
253	21.7	0.0	52.2
125	10.8	0.0	41.0

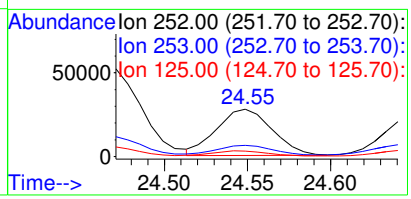


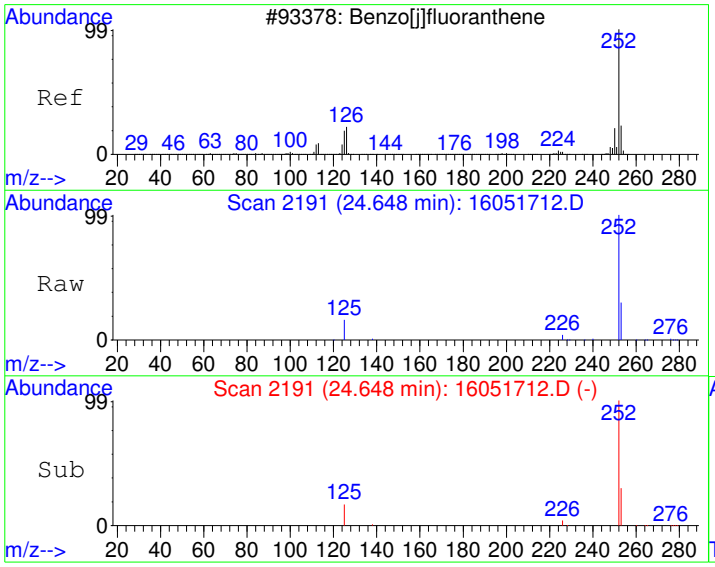


#22
Benzo[k]fluoranthene
Concen: 173.98 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:252 Resp: 64621

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.1	42.1
125	10.8	0.0	31.3

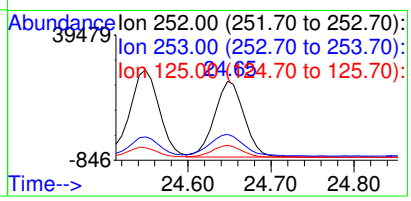


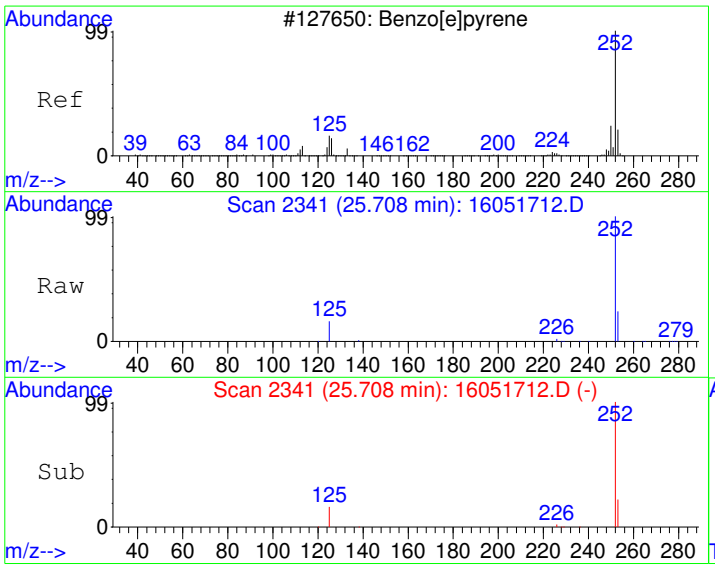


#23
Benzo(j)fluoranthene
Concen: 183.03 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:252 Resp: 60560

Ion	Ratio	Lower	Upper
252	100		
253	28.5	2.1	42.1
125	15.9	0.0	34.4

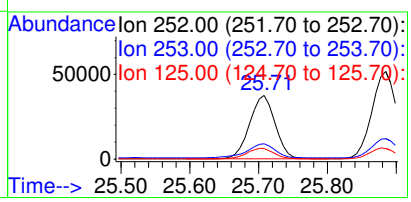


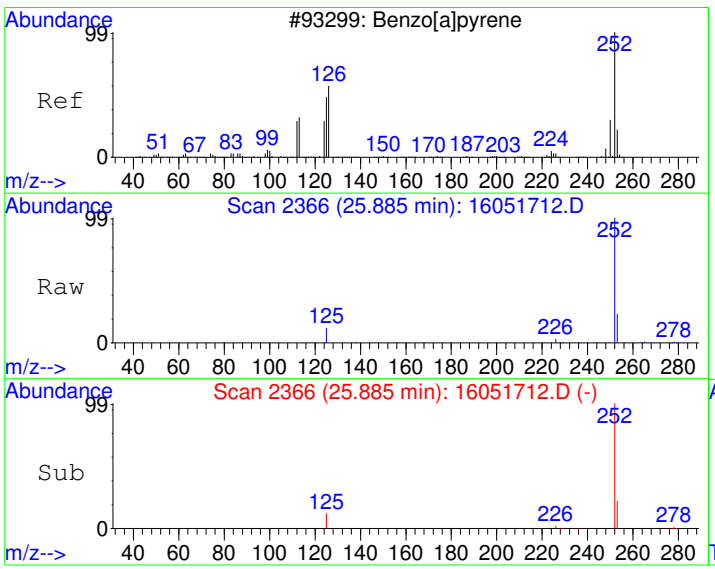


#24
Benzo[e]pyrene
Concen: 273.74 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:252 Resp: 97067

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	16.1	0.0	36.1

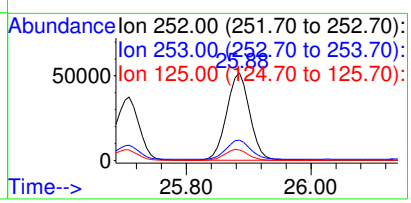


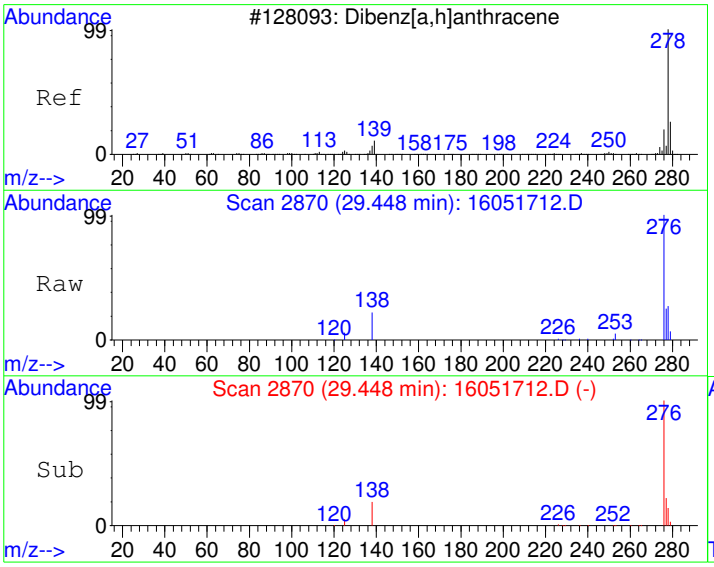


#25
Benzo[a]pyrene
Concen: 365.05 ug/kg
RT: 25.88 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:252 Resp: 132277

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	11.7	0.0	31.7

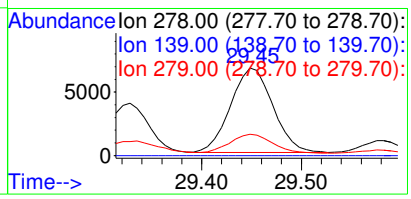


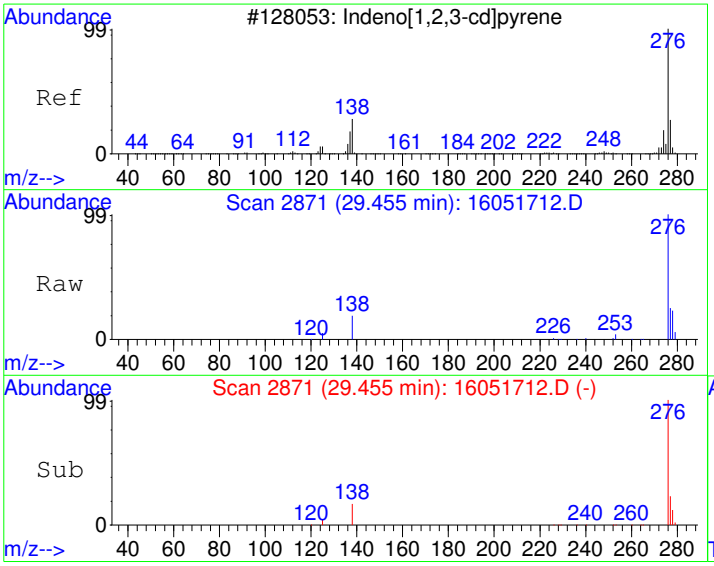


#26
Dibenz[a,h]anthracene
Concen: 59.14 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:278 Resp: 19515

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

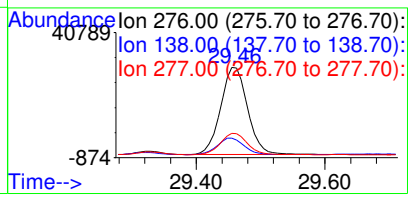


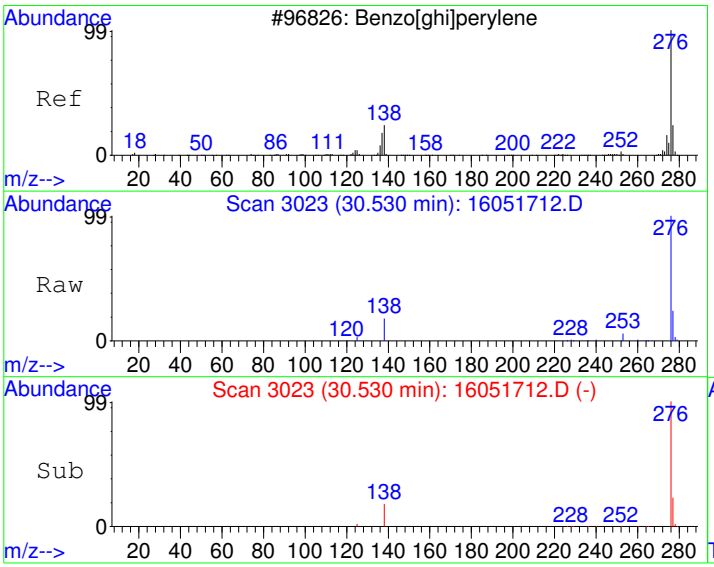


#27
Indeno[1,2,3-cd]pyrene
Concen: 214.63 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:276 Resp: 84497

Ion	Ratio	Lower	Upper
276	100		
138	19.0	6.7	46.7
277	24.4	5.8	45.8

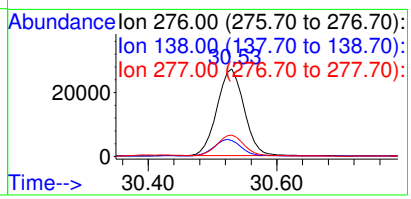




#28
Benzo[g,h,i]perylene
Concen: 257.93 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051712.D
Acq: 17 May 2016 3:47 pm

Tgt Ion:276 Resp: 79181

Ion	Ratio	Lower	Upper
276	100		
138	17.8	0.0	39.1
277	24.1	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051713.D Vial: 8
Acq On : 17 May 2016 4:26 pm Operator:
Sample : 1605096-28A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

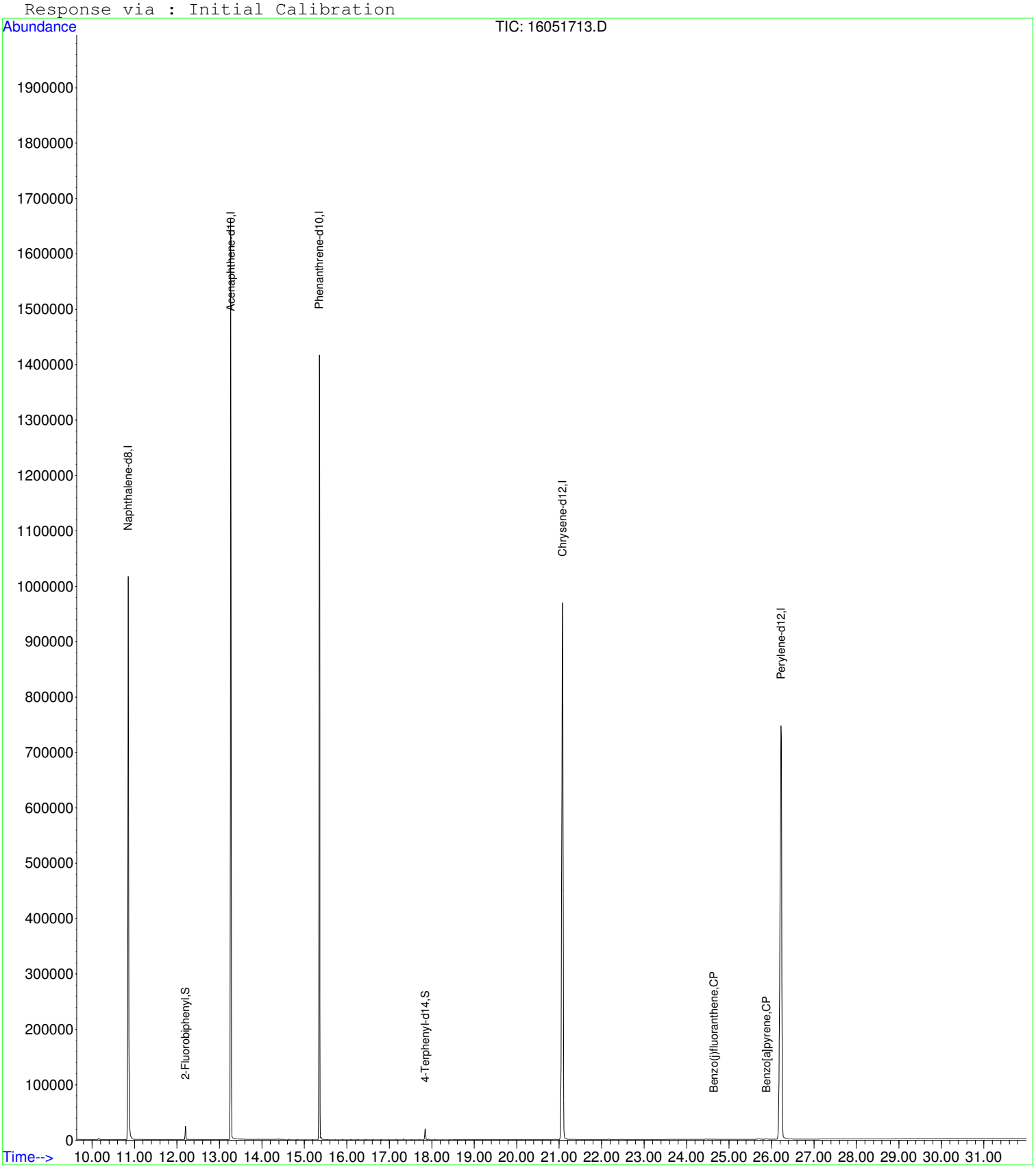
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1276306	4000.00	ug/kg	110
5) Acenaphthene-d10	13.27	164	888293	4000.00	ug/kg	77
11) Phenanthrene-d10	15.35	188	1544754	4000.00	ug/kg	76
17) Chrysene-d12	21.08	240	1638523	4000.00	ug/kg	72
20) Perylene-d12	26.22	264	1524437	4000.00	ug/kg	74
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19445	75.04	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.85	244	26329	65.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.65%#		
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.65	252	767	2.28	ug/kg	82
25) Benzo[a]pyrene	25.88	252	1930	5.25	ug/kg	98

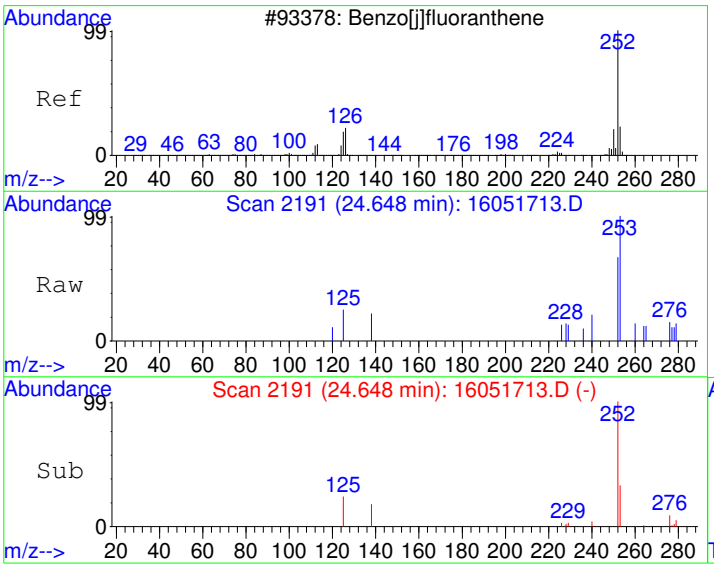
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051713.D Vial: 8
Acq On : 17 May 2016 4:26 pm Operator:
Sample : 1605096-28A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

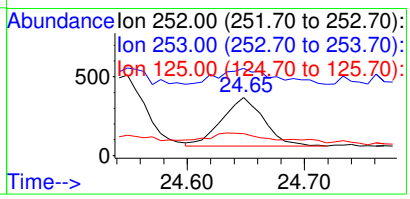


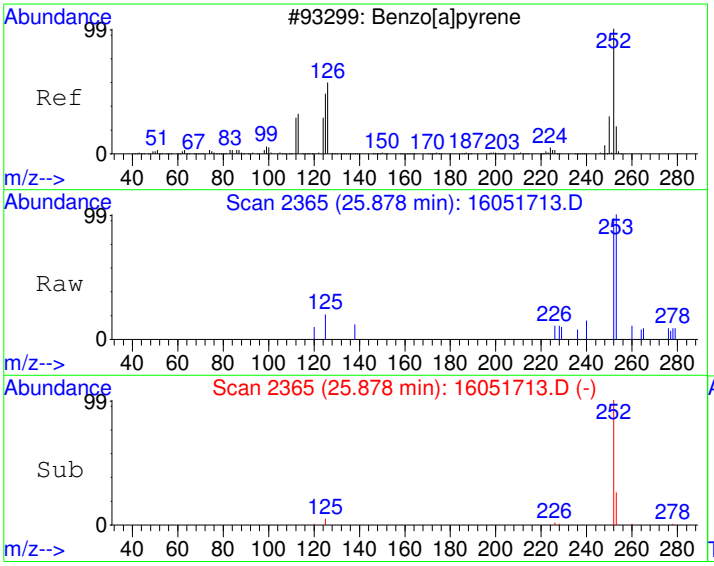


#23
Benzo(j)fluoranthene
Concen: 2.28 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051713.D
Acq: 17 May 2016 4:26 pm

Tgt Ion:252 Resp: 767

Ion	Ratio	Lower	Upper
252	100		
253	32.8	2.1	42.1
125	19.2	0.0	34.4

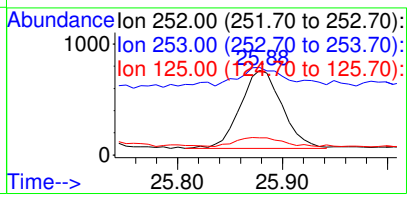




#25
Benzo[a]pyrene
Concen: 5.25 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051713.D
Acq: 17 May 2016 4:26 pm

Tgt Ion:252 Resp: 1930

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	10.0	0.0	31.7



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051714.D Vial: 9
Acq On : 17 May 2016 5:06 pm Operator:
Sample : 1605096-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

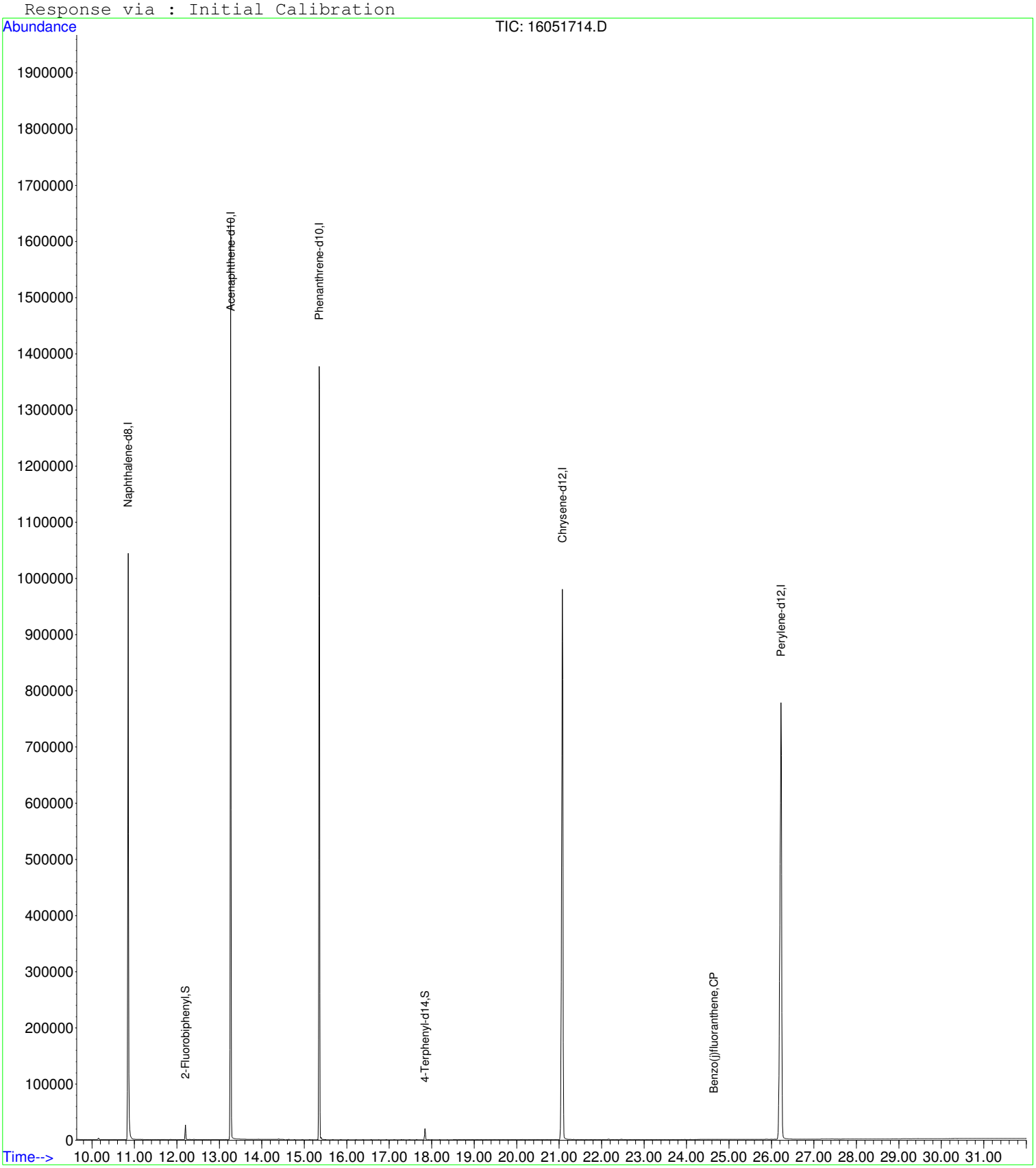
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1252996	4000.00	ug/kg	108
5) Acenaphthene-d10	13.27	164	856242	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1500049	4000.00	ug/kg	73
17) Chrysene-d12	21.08	240	1595751	4000.00	ug/kg	70
20) Perylene-d12	26.23	264	1483491	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	20011	80.12	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.85	244	26161	67.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.69%#		
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.65	252	84	0.26	ug/kg	87

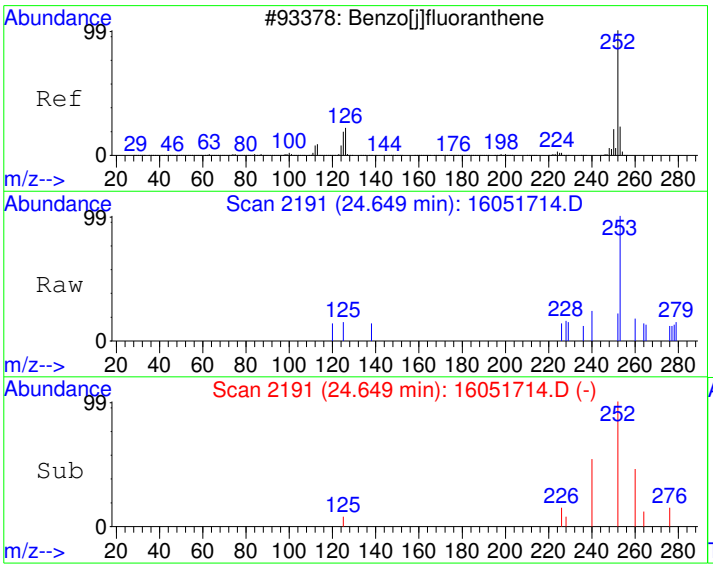
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051714.D Vial: 9
Acq On : 17 May 2016 5:06 pm Operator:
Sample : 1605096-29A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

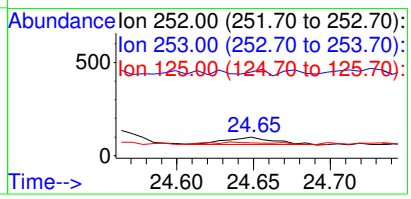




#23
Benzo(j)fluoranthene
Concen: 0.26 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051714.D
Acq: 17 May 2016 5:06 pm

Tgt Ion:252 Resp: 84

Ion	Ratio	Lower	Upper
252	100		
253	30.0	2.1	42.1
125	17.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051715.D Vial: 10
Acq On : 17 May 2016 5:46 pm Operator:
Sample : 1605096-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

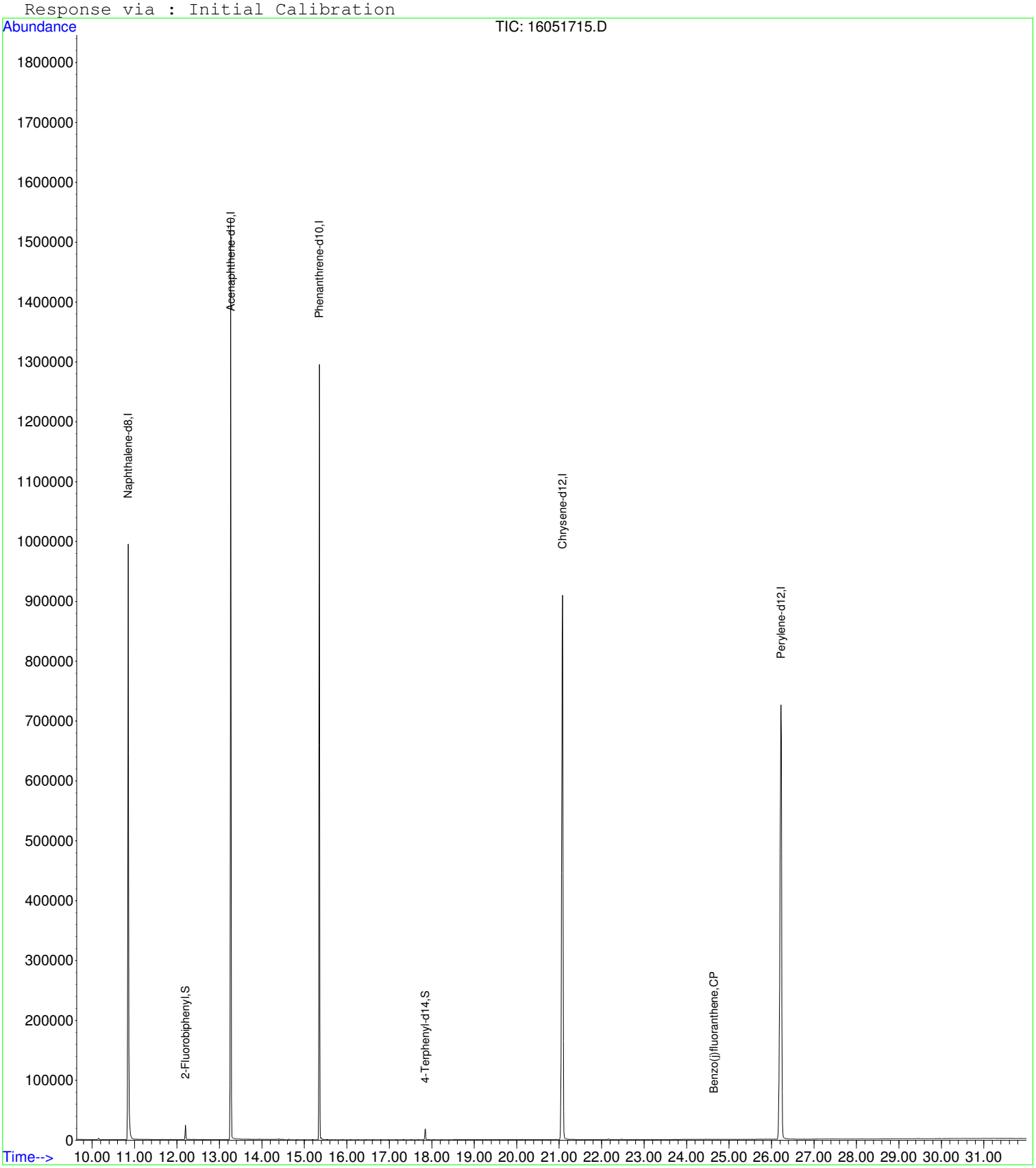
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1229841	4000.00	ug/kg	106
5) Acenaphthene-d10	13.27	164	790548	4000.00	ug/kg	69
11) Phenanthrene-d10	15.35	188	1379428	4000.00	ug/kg	68
17) Chrysene-d12	21.08	240	1505879	4000.00	ug/kg	66
20) Perylene-d12	26.22	264	1432584	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18630	80.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
16) 4-Terphenyl-d14	17.85	244	23866	66.87	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#		
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.65	252	264	0.84	ug/kg	82

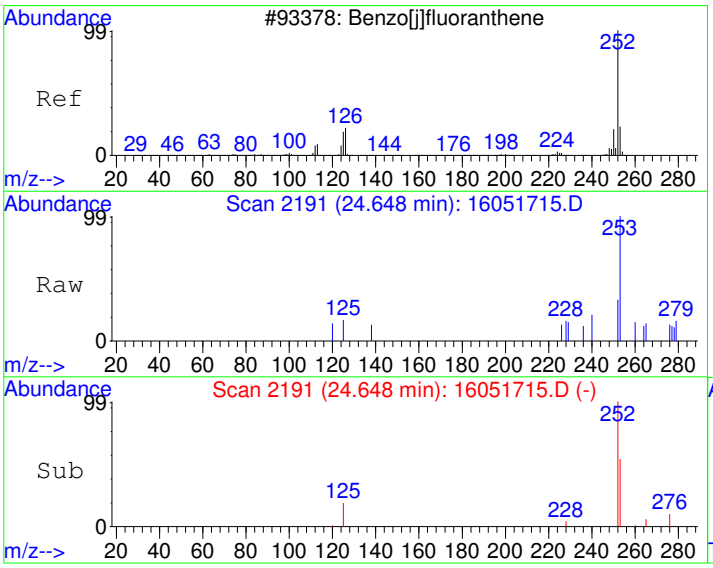
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051715.D Vial: 10
Acq On : 17 May 2016 5:46 pm Operator:
Sample : 1605096-30A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:30 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

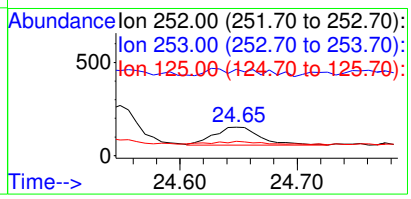




#23
Benzo(j)fluoranthene
Concen: 0.84 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051715.D
Acq: 17 May 2016 5:46 pm

Tgt Ion:252 Resp: 264

Ion	Ratio	Lower	Upper
252	100		
253	32.3	2.1	42.1
125	19.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051716.D Vial: 11
Acq On : 17 May 2016 6:26 pm Operator:
Sample : 1605096-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

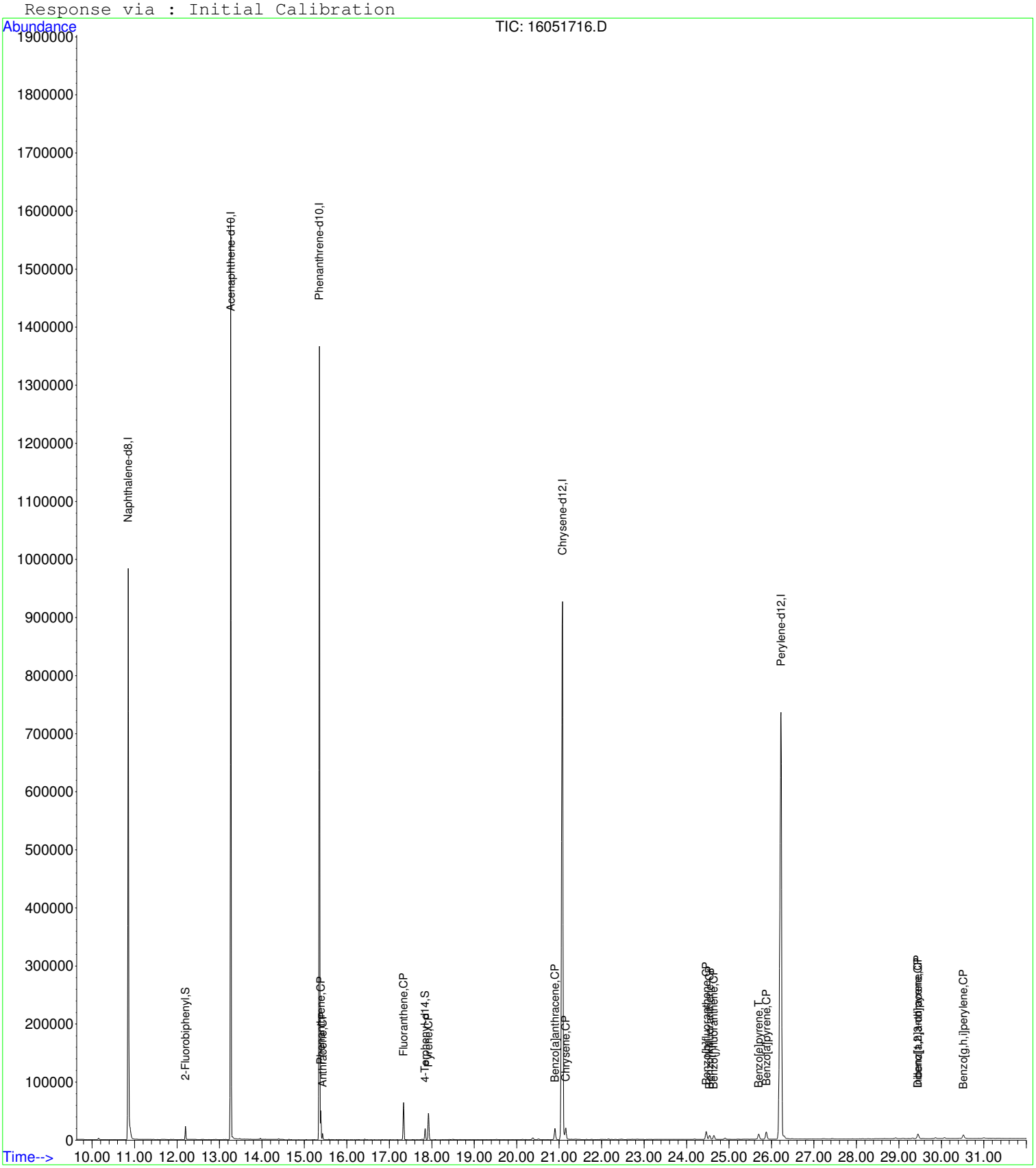
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1248412	4000.00	ug/kg	108
5) Acenaphthene-d10	13.26	164	825079	4000.00	ug/kg	72
11) Phenanthrene-d10	15.35	188	1429234	4000.00	ug/kg	70
17) Chrysene-d12	21.08	240	1553181	4000.00	ug/kg	68
20) Perylene-d12	26.22	264	1476827	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18724	77.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
16) 4-Terphenyl-d14	17.84	244	24774	67.00	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.68%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	39885	106.12	ug/kg	99
13) Anthracene	15.43	178	8758	24.62	ug/kg	98
14) Fluoranthene	17.33	202	62876	161.65	ug/kg	98
15) Pyrene	17.92	202	49366	122.18	ug/kg	99
18) Benzo[a]anthracene	20.90	228	28264	77.68	ug/kg	99
19) Chrysene	21.16	228	29350	83.48	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	24925	64.03	ug/kg	100
22) Benzo[k]fluoranthene	24.54	252	12369	33.87	ug/kg	99
23) Benzo(j)fluoranthene	24.64	252	11508	35.38	ug/kg	91
24) Benzo[e]pyrene	25.70	252	16812	48.23	ug/kg	99
25) Benzo[a]pyrene	25.88	252	23360	65.58	ug/kg	98
26) Dibenz[a,h]anthracene	29.44	278	3560	10.97	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	13258	34.26	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	11727	38.86	ug/kg	99

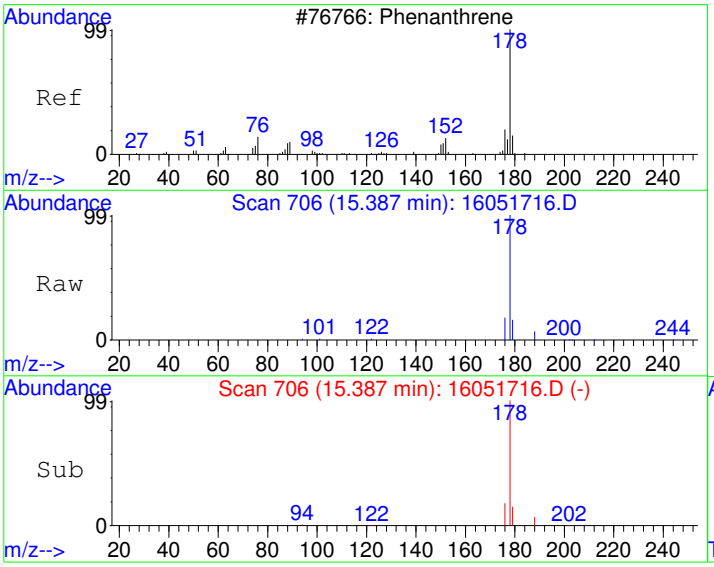
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051716.D Vial: 11
Acq On : 17 May 2016 6:26 pm Operator:
Sample : 1605096-31A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

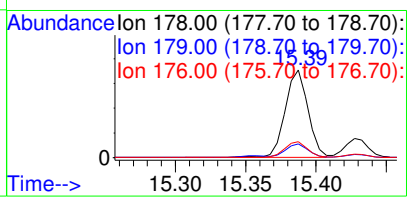


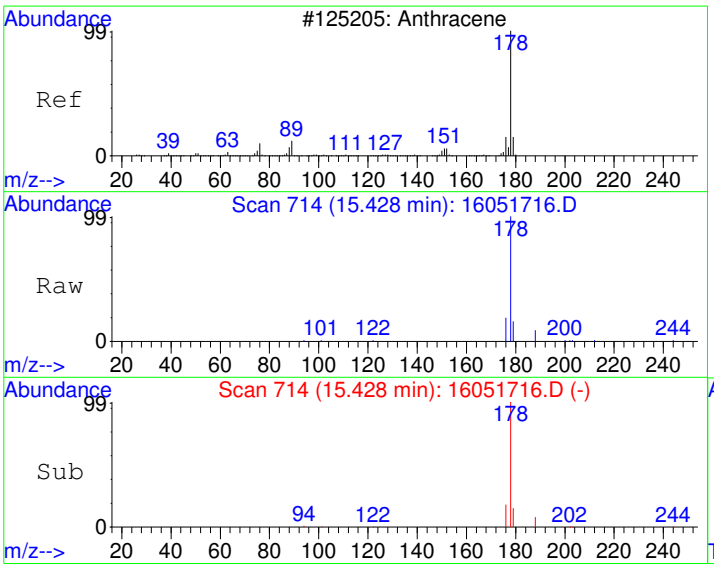


#12
Phenanthrene
Concen: 106.12 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:178 Resp: 39885

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.1	0.0	48.5

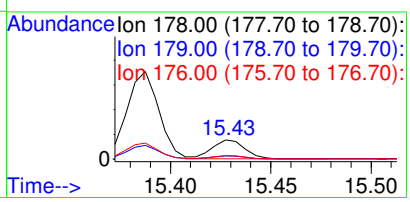


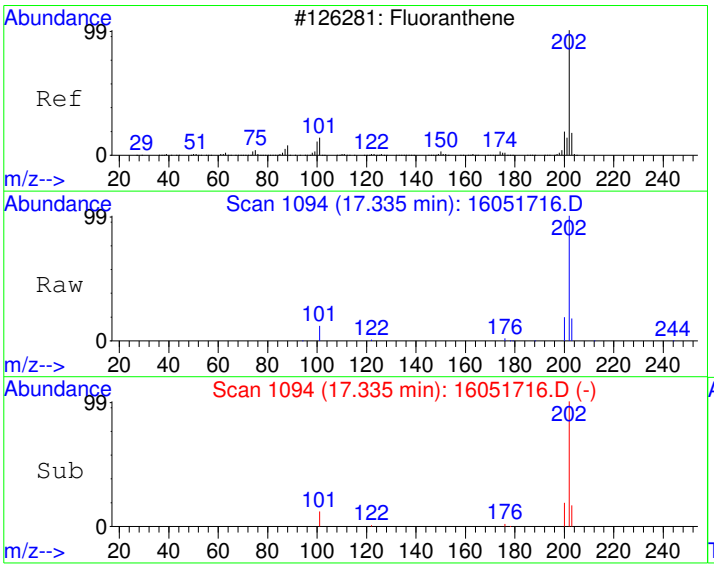


#13
Anthracene
Concen: 24.62 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.01 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:178 Resp: 8758

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.9
176	17.9	0.0	48.2

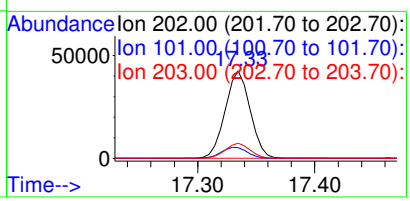


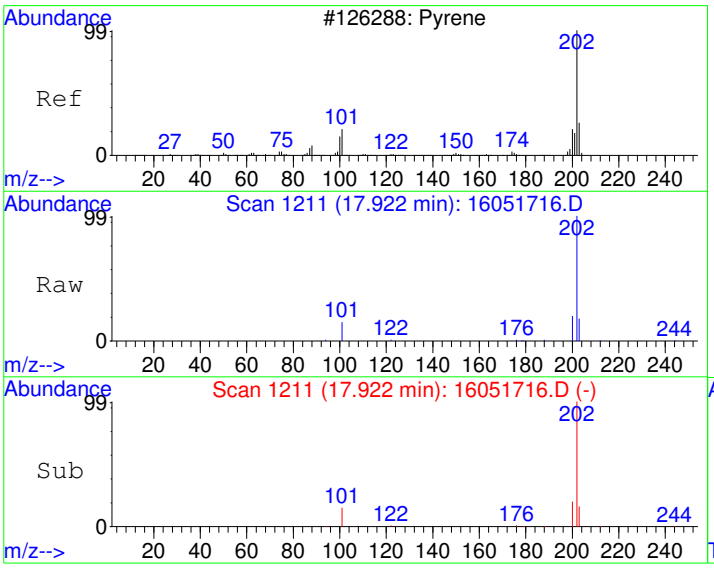


#14
Fluoranthene
Concen: 161.65 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:202 Resp: 62876

Ion	Ratio	Lower	Upper
202	100		
101	12.1	0.0	43.0
203	17.4	0.0	47.9

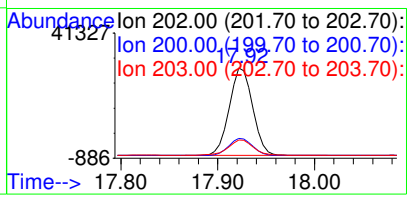


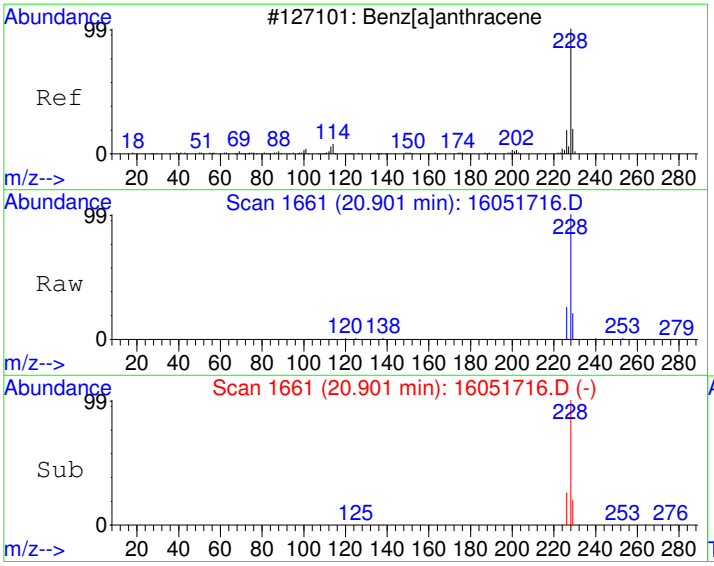


#15
Pyrene
Concen: 122.18 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:202 Resp: 49366

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

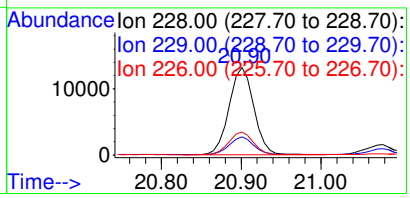


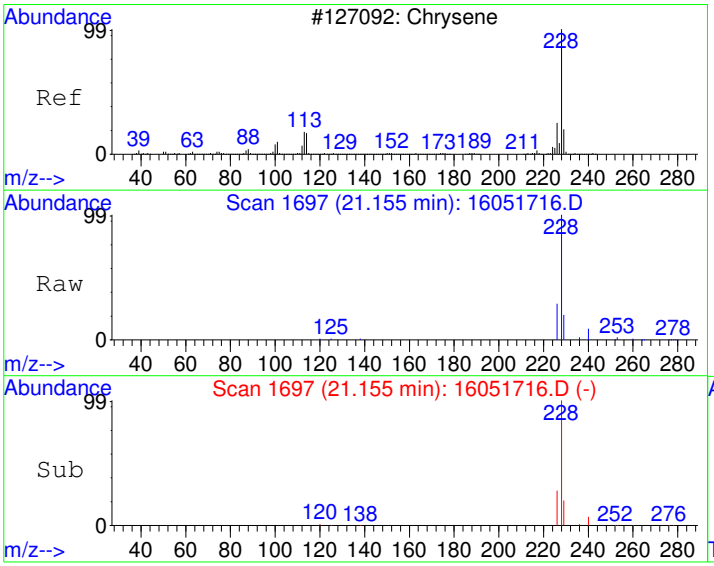


#18
Benzo[a]anthracene
Concen: 77.68 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:228 Resp: 28264

Ion	Ratio	Lower	Upper
228	100		
229	20.3	0.0	50.1
226	26.0	0.0	55.2

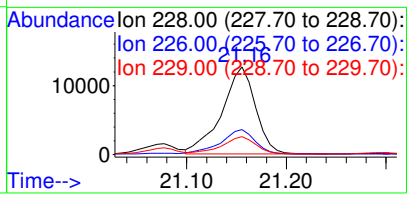


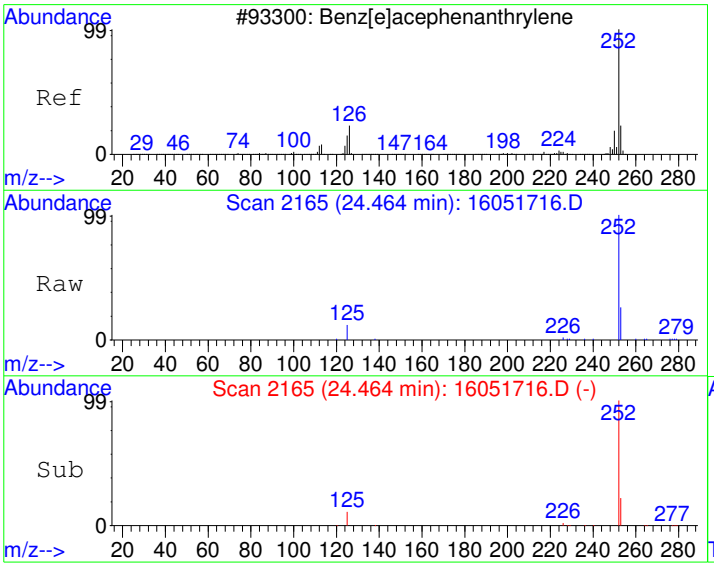


#19
Chrysene
Concen: 83.48 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:228 Resp: 29350

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	58.1
229	19.8	0.0	50.1

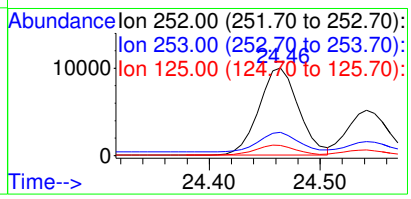


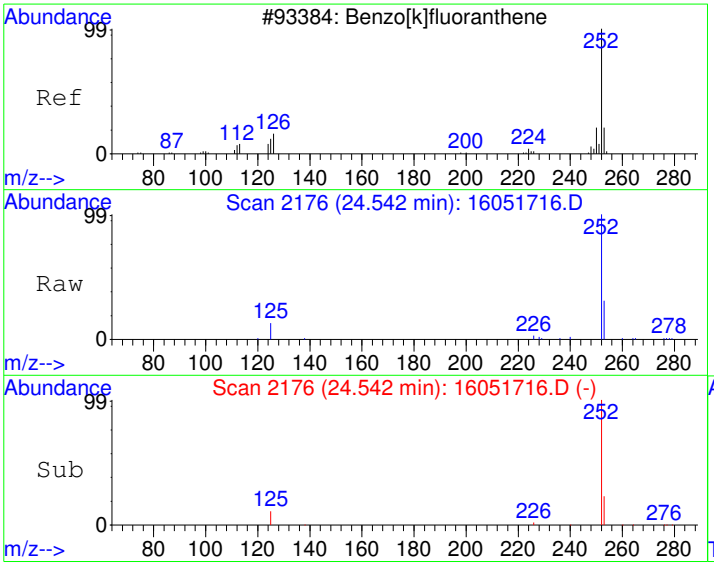


#21
Benzo[b]fluoranthene
Concen: 64.03 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:252 Resp: 24925

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	52.2
125	11.1	0.0	41.0

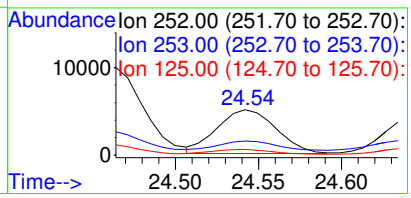


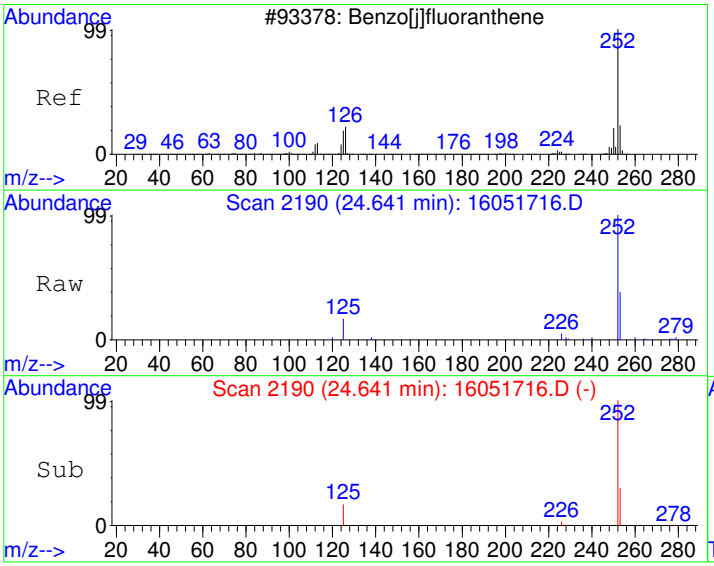


#22
Benzo[k]fluoranthene
Concen: 33.87 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:252 Resp: 12369

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.1	42.1
125	11.4	0.0	31.3

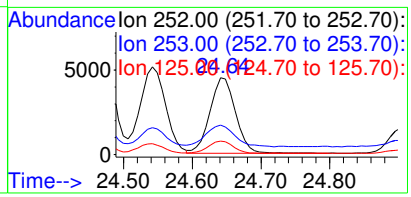


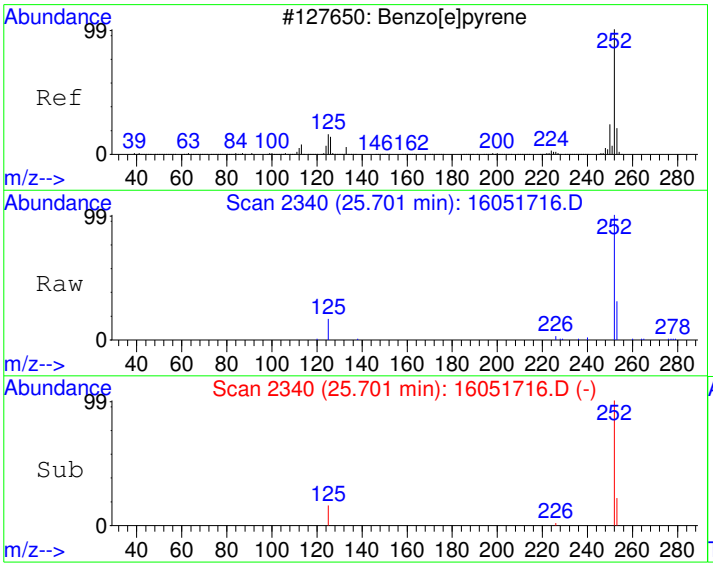


#23
Benzo(j)fluoranthene
Concen: 35.38 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:252 Resp: 11508

Ion	Ratio	Lower	Upper
252	100		
253	28.1	2.1	42.1
125	16.2	0.0	34.4

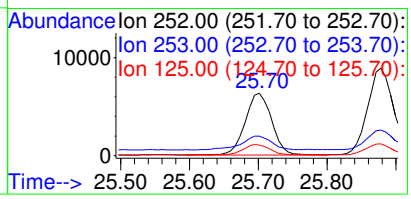


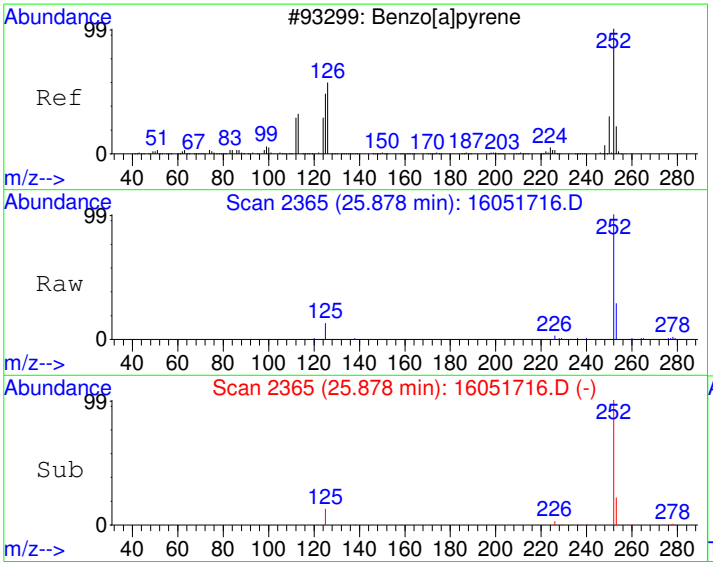


#24
Benzo[e]pyrene
Concen: 48.23 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:252 Resp: 16812

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.2	42.2
125	15.8	0.0	36.1

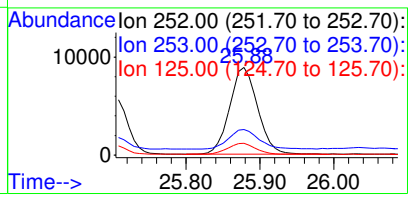


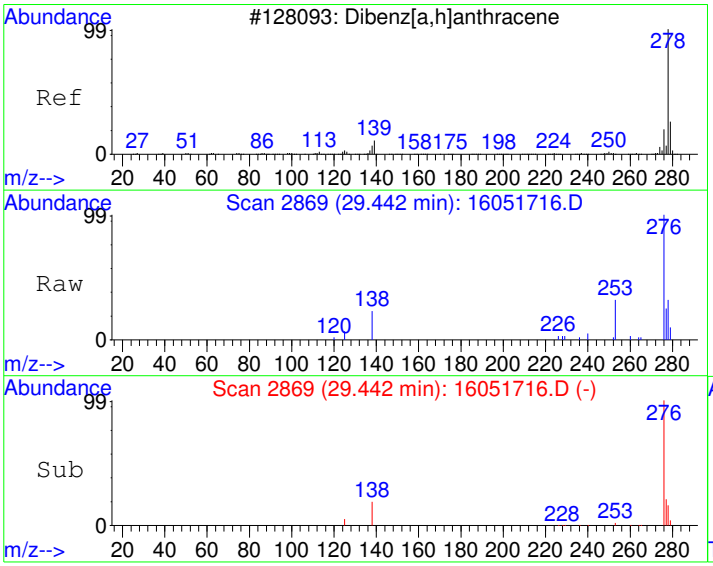


#25
Benzo[a]pyrene
Concen: 65.58 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:252 Resp: 23360

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	12.6	0.0	31.7

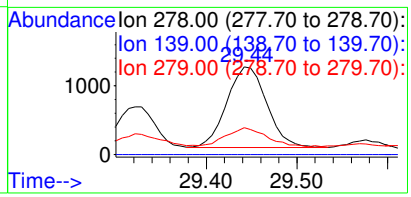


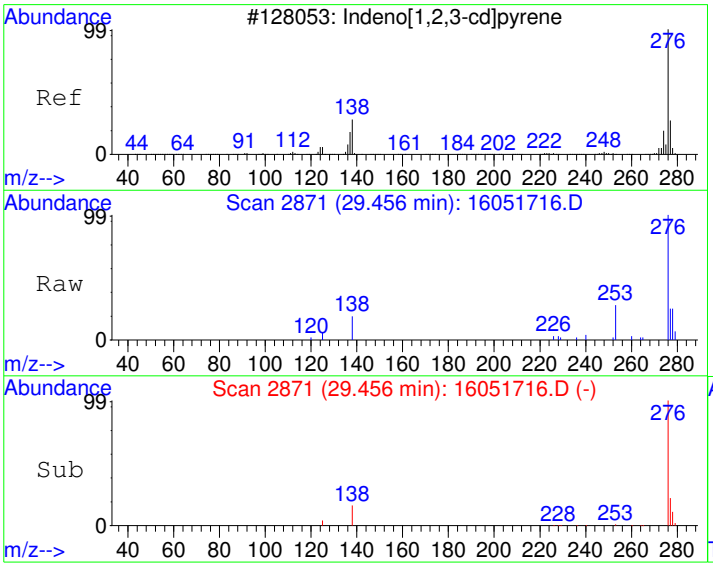


#26
Dibenz[a,h]anthracene
Concen: 10.97 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:278 Resp: 3560

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	4.2	44.2

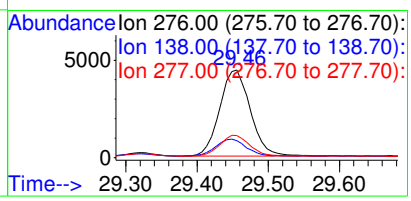


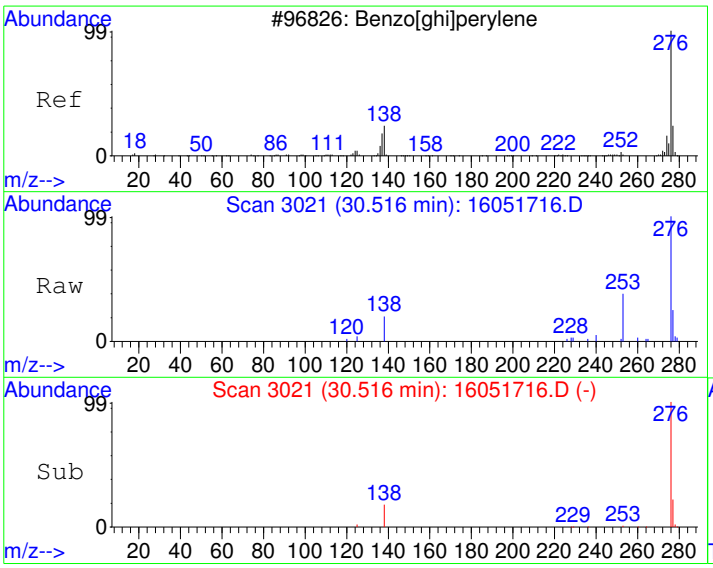


#27
Indeno[1,2,3-cd]pyrene
Concen: 34.26 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:276 Resp: 13258

Ion	Ratio	Lower	Upper
276	100		
138	17.8	6.7	46.7
277	23.9	5.8	45.8

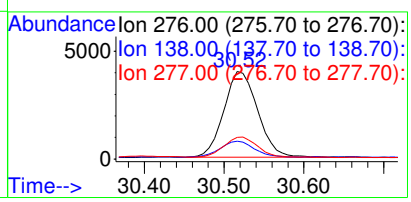




#28
Benzo[g,h,i]perylene
Concen: 38.86 ug/kg
RT: 30.52 min Scan# 3021
Delta R.T. -0.04 min
Lab File: 16051716.D
Acq: 17 May 2016 6:26 pm

Tgt Ion:276 Resp: 11727

Ion	Ratio	Lower	Upper
276	100		
138	18.6	0.0	39.1
277	23.3	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051717.D Vial: 12
Acq On : 17 May 2016 7:05 pm Operator:
Sample : 1605096-32A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

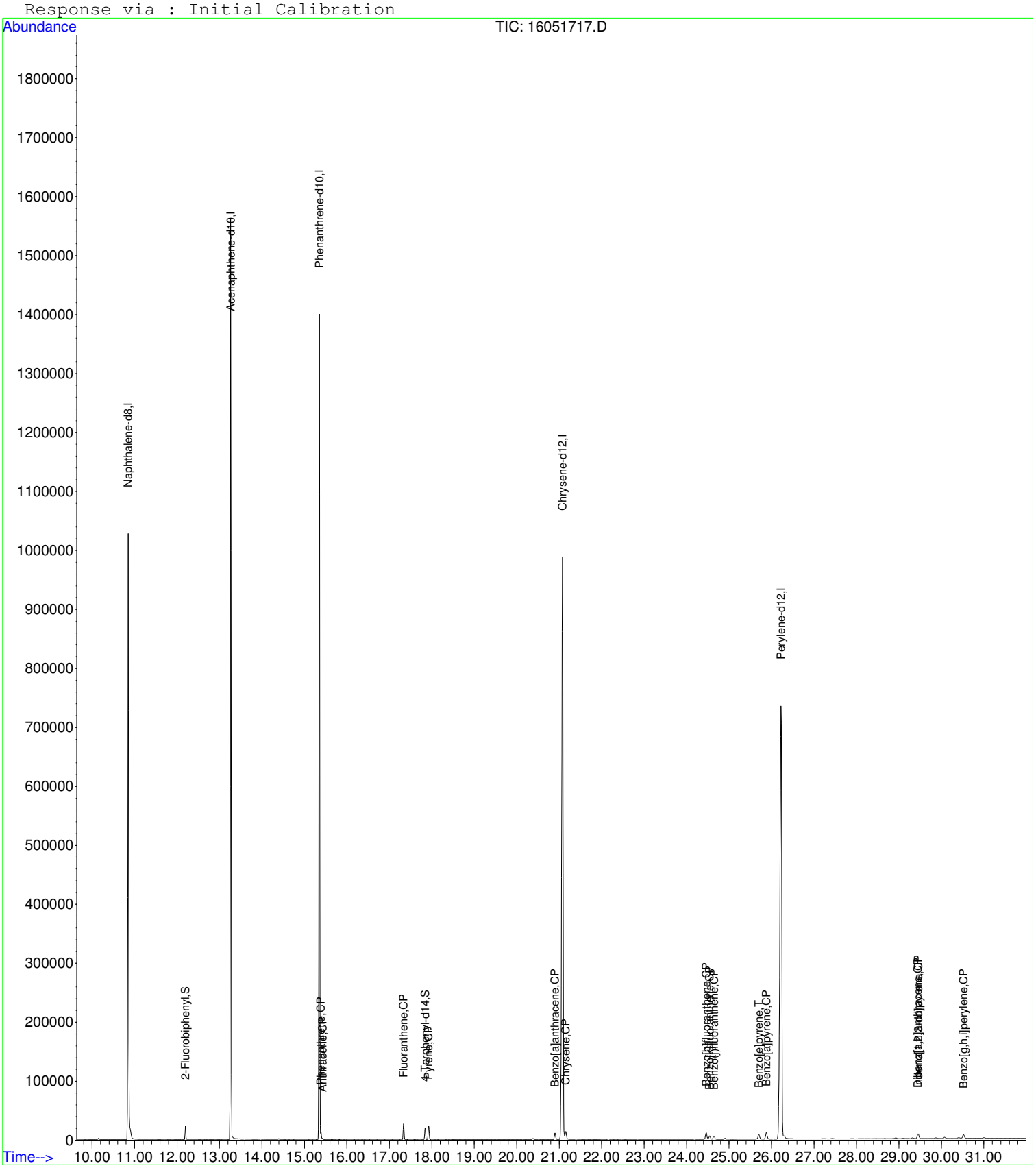
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1286498	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	835960	4000.00	ug/kg	73
11) Phenanthrene-d10	15.35	188	1490701	4000.00	ug/kg	73
17) Chrysene-d12	21.08	240	1615738	4000.00	ug/kg	71
20) Perylene-d12	26.22	264	1487402	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18658	76.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
16) 4-Terphenyl-d14	17.84	244	25004	64.83	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.62%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	9850	25.13	ug/kg	99
13) Anthracene	15.43	178	1959	5.28	ug/kg	98
14) Fluoranthene	17.34	202	26827	66.13	ug/kg	99
15) Pyrene	17.92	202	25620	60.79	ug/kg	99
18) Benzo[a]anthracene	20.90	228	16374	43.26	ug/kg	99
19) Chrysene	21.15	228	19950	54.55	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	20613	52.58	ug/kg	98
22) Benzo[k]fluoranthene	24.54	252	10256	27.89	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	9516	29.05	ug/kg	93
24) Benzo[e]pyrene	25.70	252	15578	44.37	ug/kg	99
25) Benzo[a]pyrene	25.88	252	20711	57.73	ug/kg	98
26) Dibenz[a,h]anthracene	29.44	278	3181	9.74	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.45	276	13479	34.58	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	12911	42.48	ug/kg	98

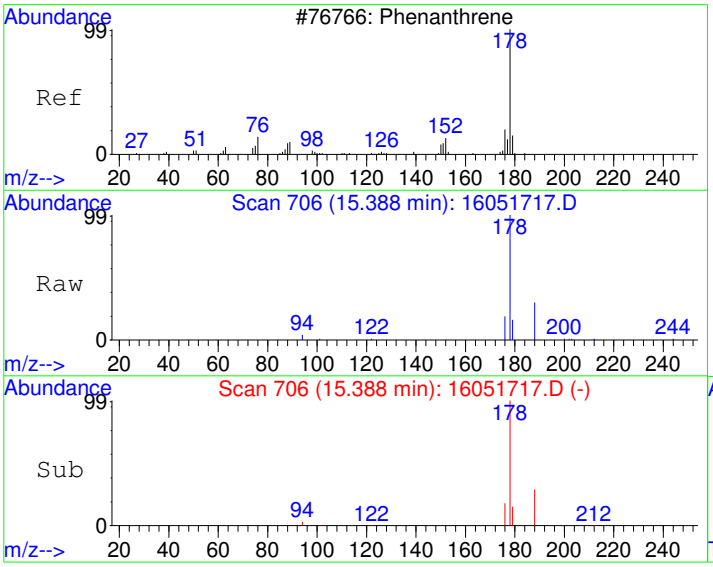
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051717.D Vial: 12
Acq On : 17 May 2016 7:05 pm Operator:
Sample : 1605096-32A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

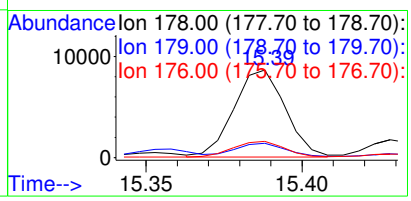


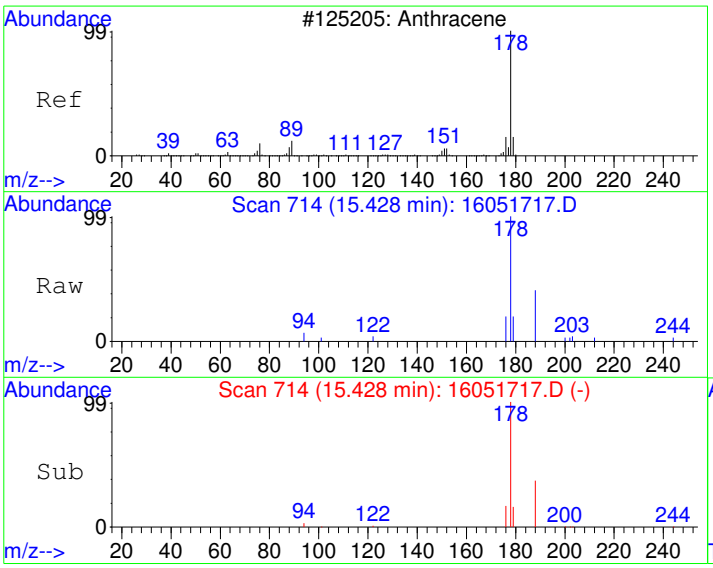


#12
Phenanthrene
Concen: 25.13 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:178 Resp: 9850

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	18.4	0.0	48.5

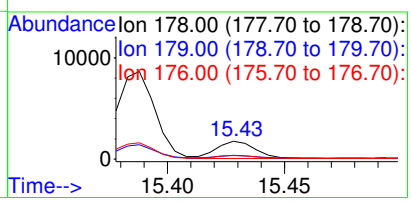


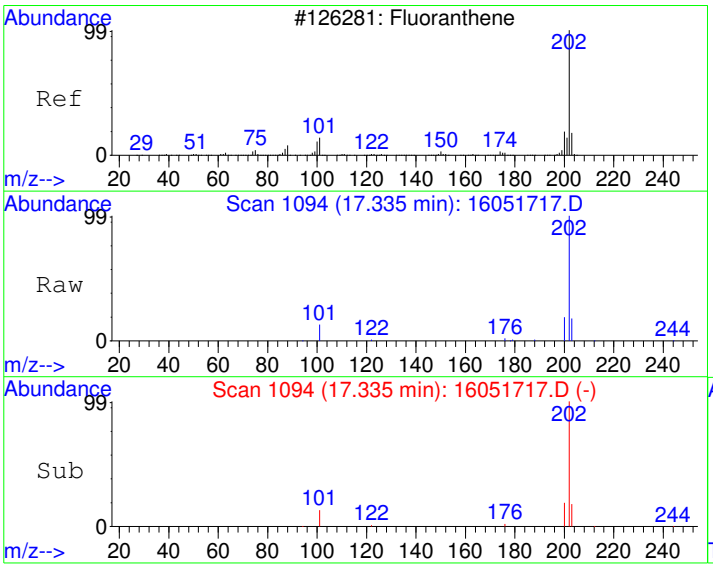


#13
Anthracene
Concen: 5.28 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.01 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:178 Resp: 1959

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.9
176	16.9	0.0	48.2

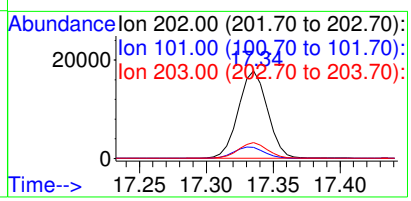


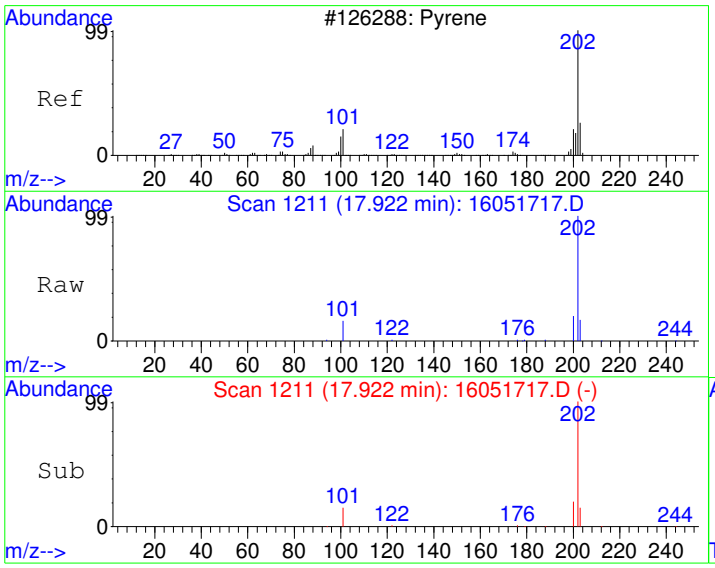


#14
Fluoranthene
Concen: 66.13 ug/kg
RT: 17.34 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:202 Resp: 26827

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	43.0
203	17.9	0.0	47.9

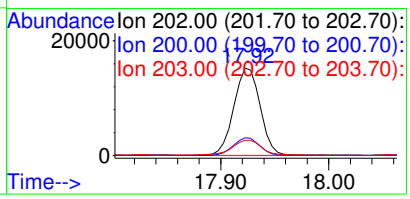


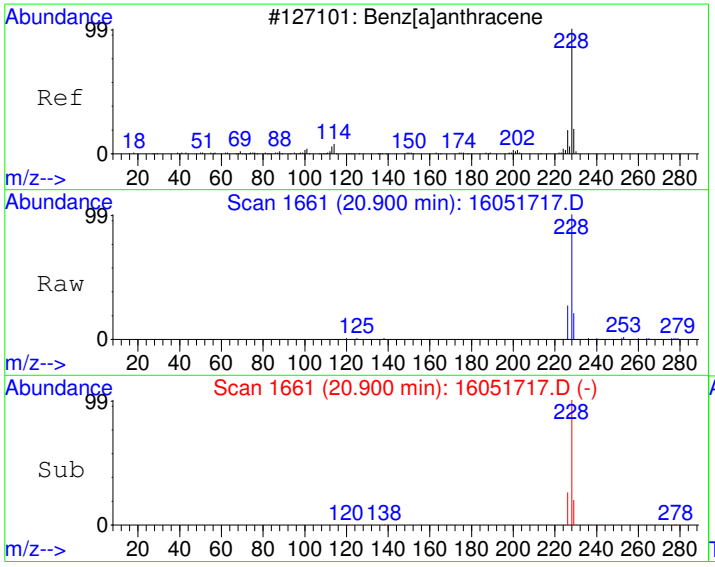


#15
Pyrene
Concen: 60.79 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:202 Resp: 25620

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	50.0
203	17.1	0.0	48.0

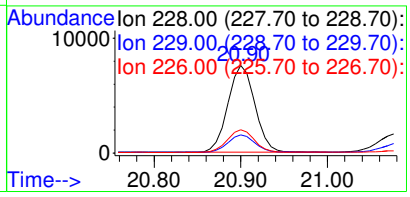


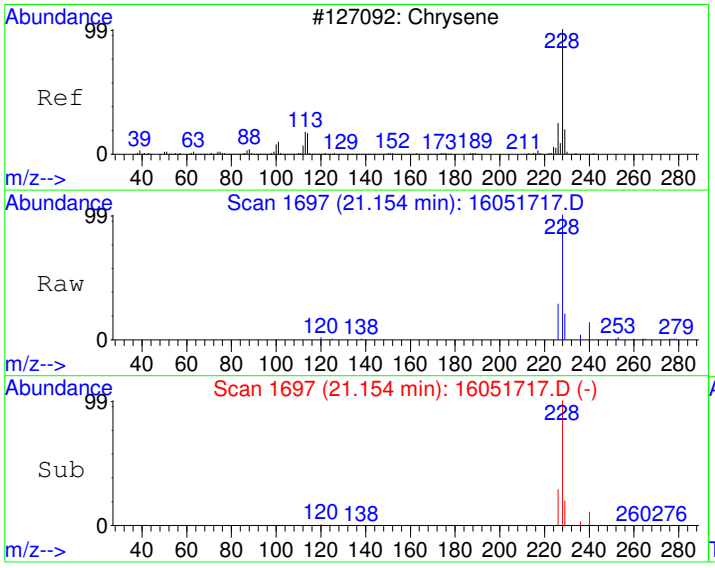


#18
Benzo[a]anthracene
Concen: 43.26 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.02 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:228 Resp: 16374

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	50.1
226	26.2	0.0	55.2

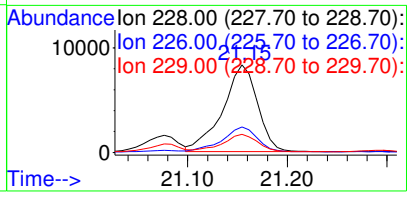


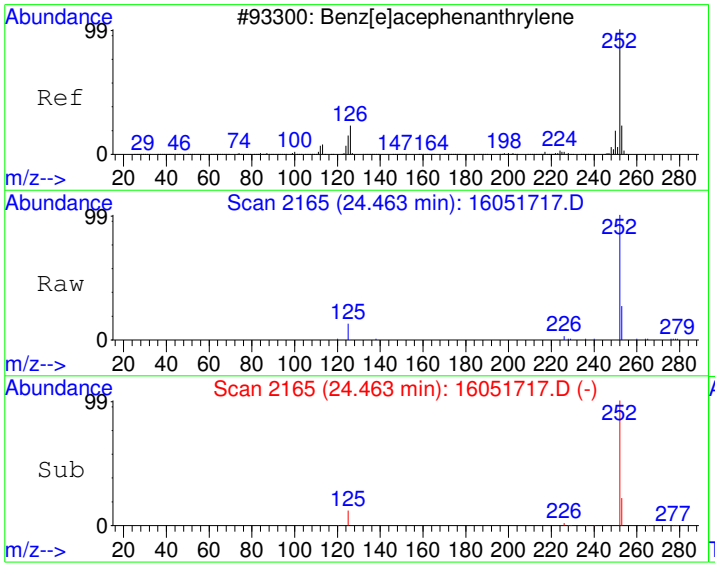


#19
Chrysene
Concen: 54.55 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.02 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:228 Resp: 19950

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	20.0	0.0	50.1

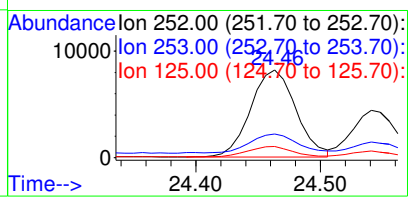


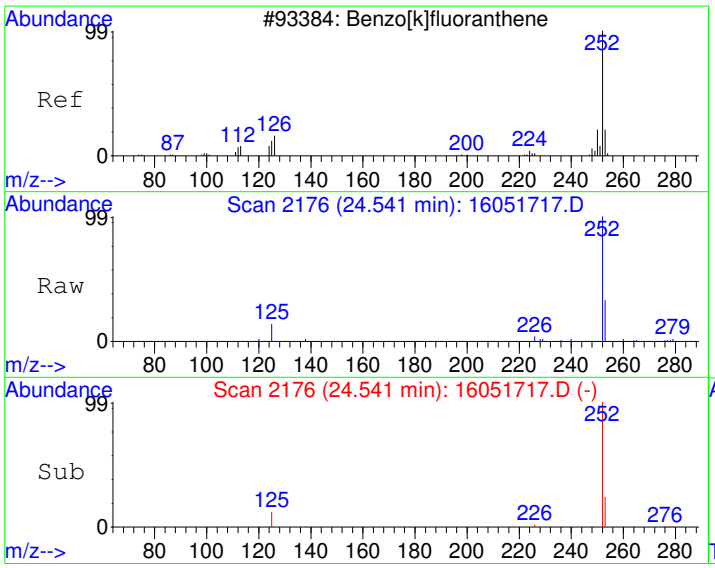


#21
Benzo[b]fluoranthene
Concen: 52.58 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:252 Resp: 20613

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.2
125	11.8	0.0	41.0

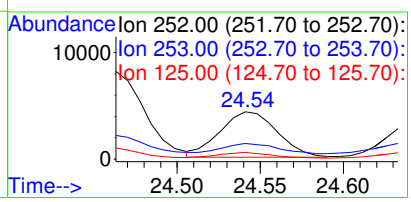


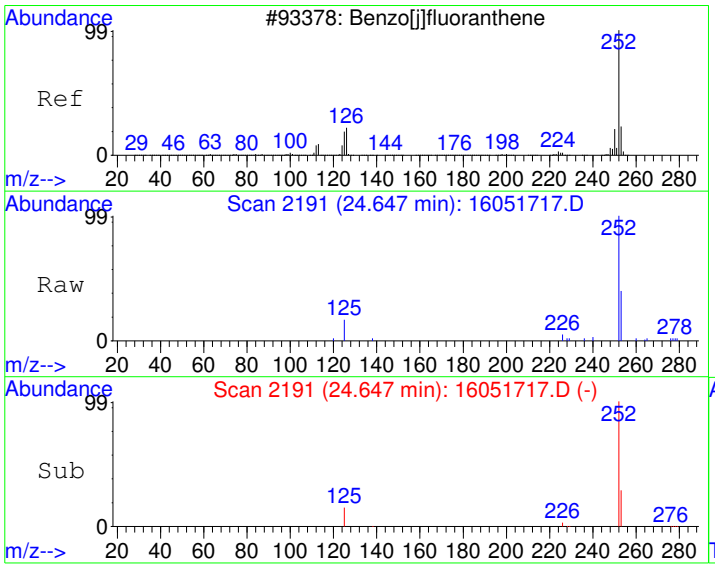


#22
Benzo[k]fluoranthene
Concen: 27.89 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:252 Resp: 10256

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.1	42.1
125	12.4	0.0	31.3

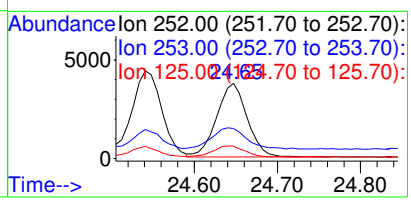


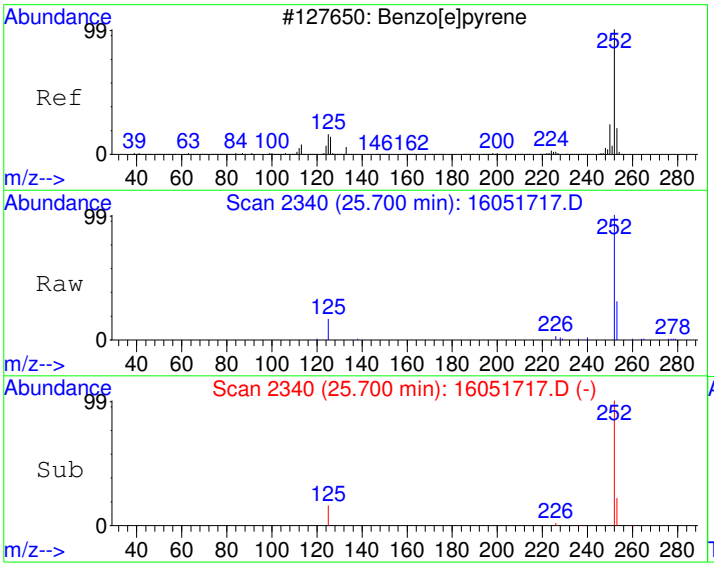


#23
Benzo(j)fluoranthene
Concen: 29.05 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:252 Resp: 9516

Ion	Ratio	Lower	Upper
252	100		
253	27.6	2.1	42.1
125	14.6	0.0	34.4

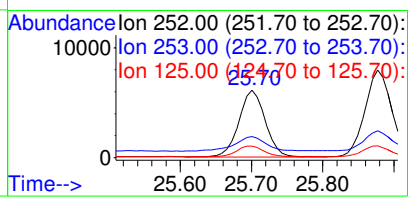


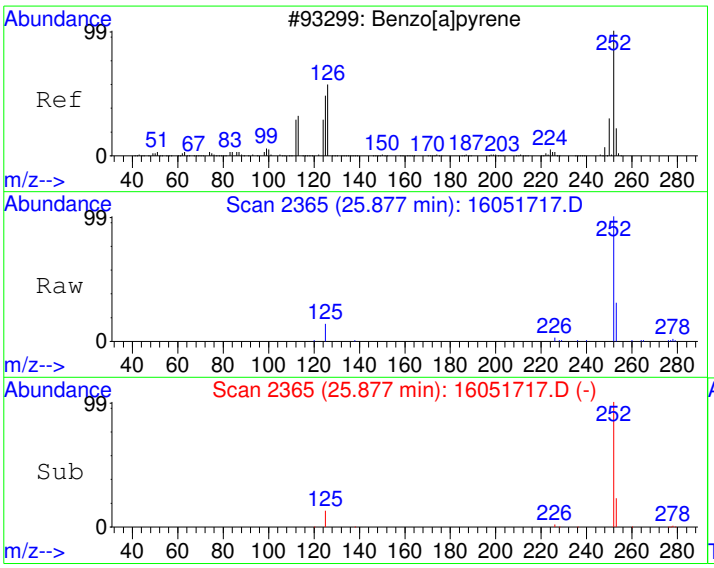


#24
Benzo[e]pyrene
Concen: 44.37 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:252 Resp: 15578

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.2	42.2
125	15.8	0.0	36.1

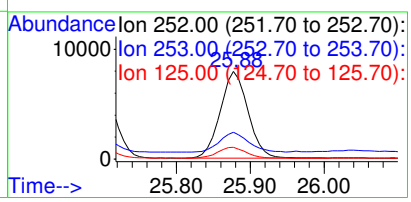


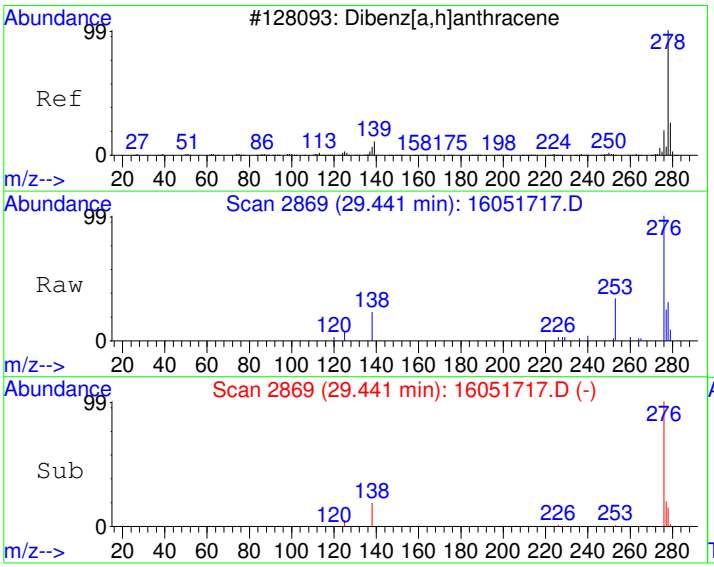


#25
Benzo[a]pyrene
Concen: 57.73 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:252 Resp: 20711

Ion	Ratio	Lower	Upper
252	100		
253	23.0	1.9	41.9
125	12.6	0.0	31.7

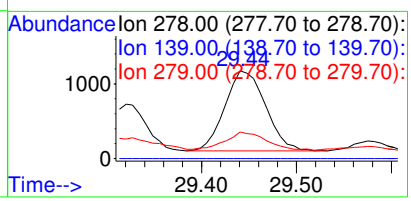


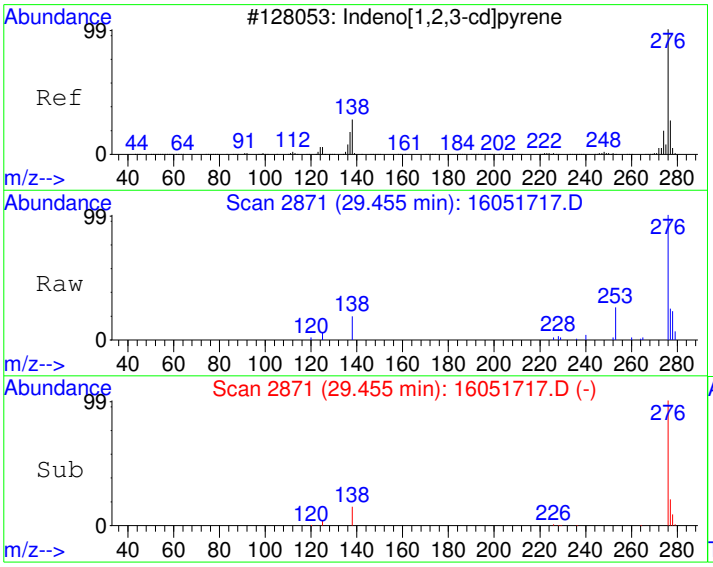


#26
Dibenz[a,h]anthracene
Concen: 9.74 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:278 Resp: 3181

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.8	4.2	44.2

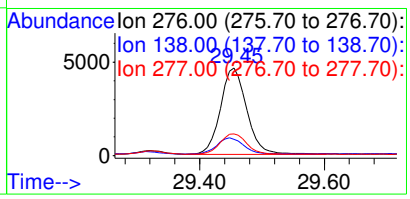


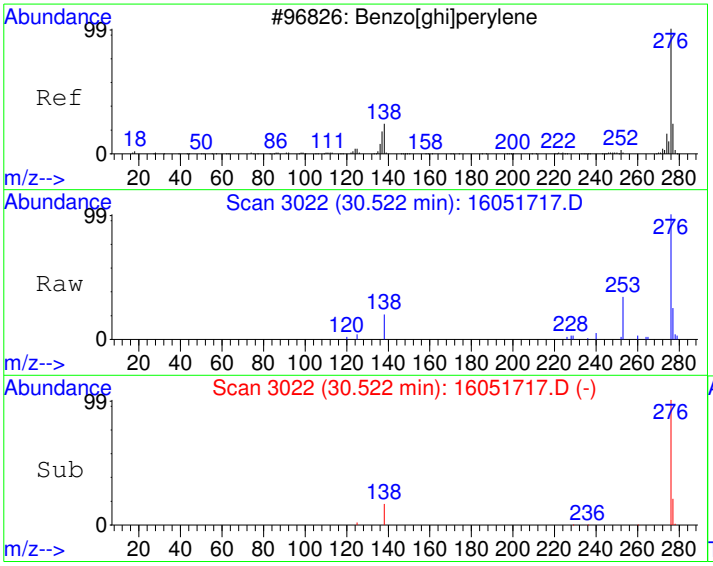


#27
Indeno[1,2,3-cd]pyrene
Concen: 34.58 ug/kg
RT: 29.45 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:276 Resp: 13479

Ion	Ratio	Lower	Upper
276	100		
138	17.1	6.7	46.7
277	23.7	5.8	45.8

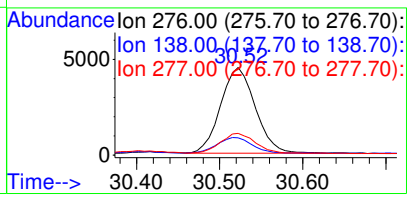




#28
Benzo[g,h,i]perylene
Concen: 42.48 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051717.D
Acq: 17 May 2016 7:05 pm

Tgt Ion:276 Resp: 12911

Ion	Ratio	Lower	Upper
276	100		
138	17.8	0.0	39.1
277	23.5	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051718.D Vial: 13
Acq On : 17 May 2016 7:45 pm Operator:
Sample : 1605096-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

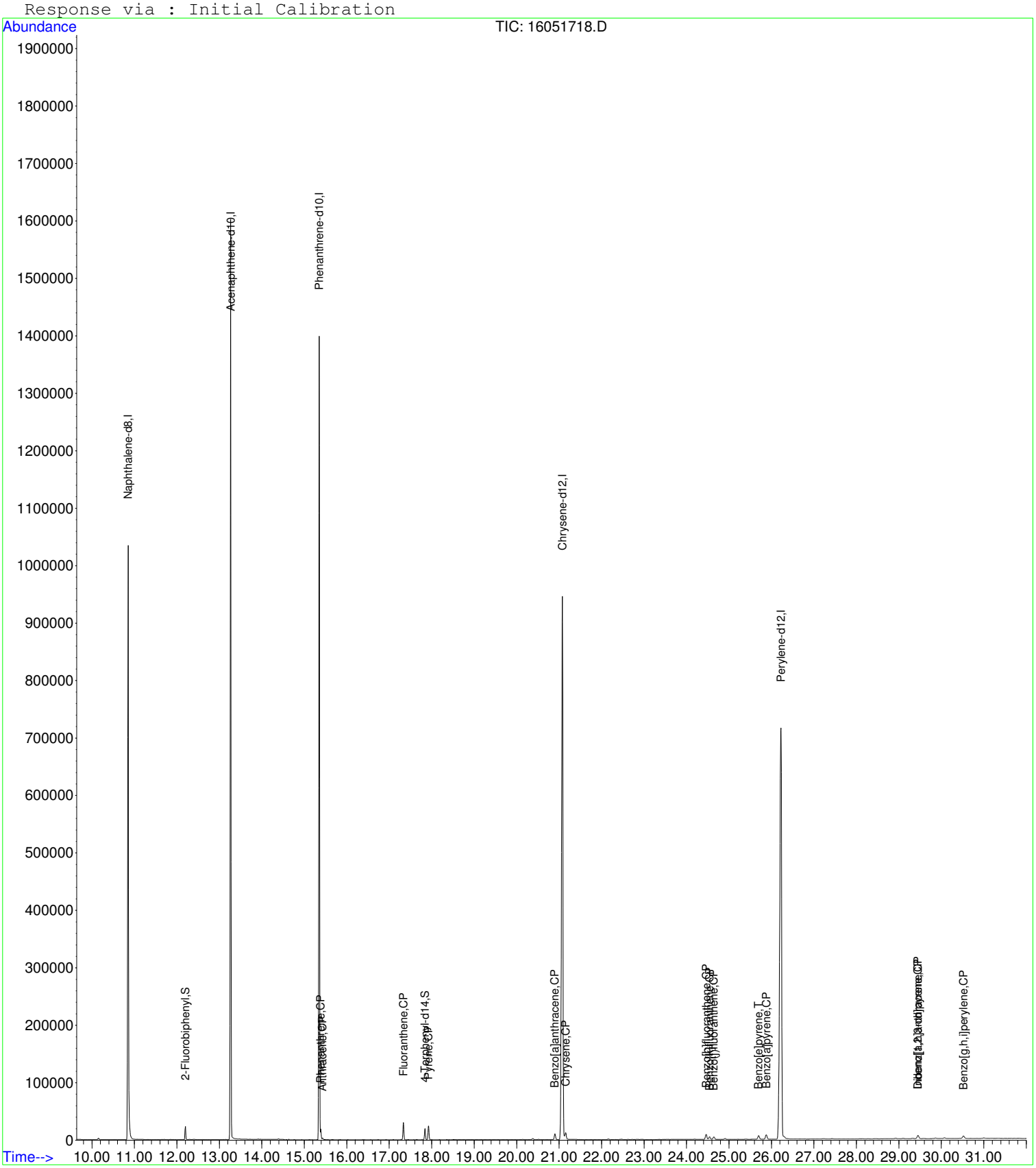
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1276881	4000.00	ug/kg	110
5) Acenaphthene-d10	13.27	164	853727	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1494624	4000.00	ug/kg	73
17) Chrysene-d12	21.08	240	1585011	4000.00	ug/kg	70
20) Perylene-d12	26.23	264	1489622	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19088	76.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
16) 4-Terphenyl-d14	17.85	244	25173	65.10	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.63%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	13202	33.59	ug/kg	99
13) Anthracene	15.43	178	2400	6.45	ug/kg	98
14) Fluoranthene	17.33	202	29598	72.77	ug/kg	99
15) Pyrene	17.93	202	25961	61.44	ug/kg	99
18) Benzo[a]anthracene	20.90	228	14743	39.70	ug/kg	99
19) Chrysene	21.16	228	17158	47.82	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	16319	41.57	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	8013	21.76	ug/kg	100
23) Benzo(j)fluoranthene	24.64	252	7561	23.05	ug/kg	92
24) Benzo[e]pyrene	25.70	252	11549	32.85	ug/kg	99
25) Benzo[a]pyrene	25.88	252	15384	42.82	ug/kg	98
26) Dibenz[a,h]anthracene	29.44	278	2423	7.40	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.46	276	9483	24.29	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	8884	29.19	ug/kg	99

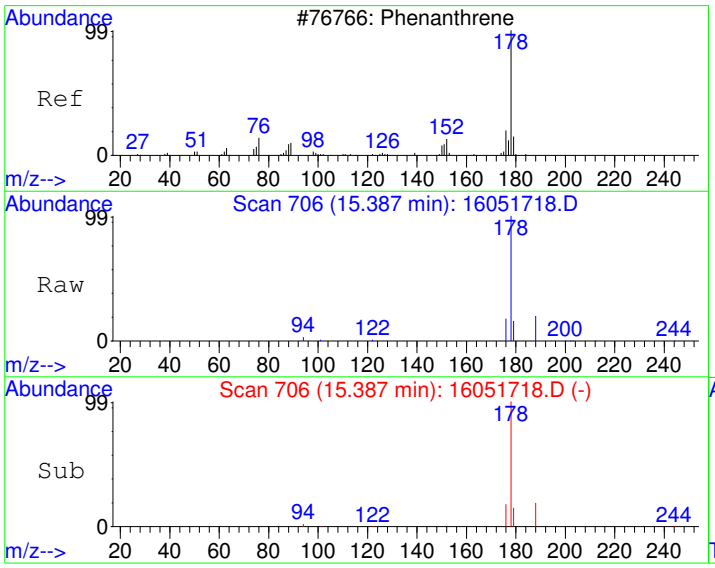
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051718.D Vial: 13
Acq On : 17 May 2016 7:45 pm Operator:
Sample : 1605096-33A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

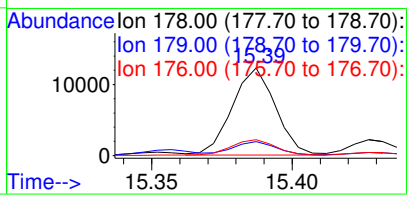


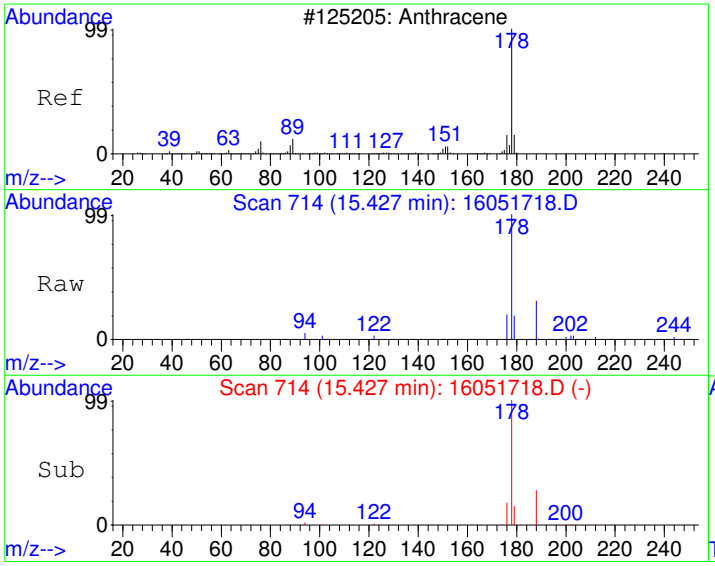


#12
Phenanthrene
Concen: 33.59 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:178 Resp: 13202

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	18.0	0.0	48.5

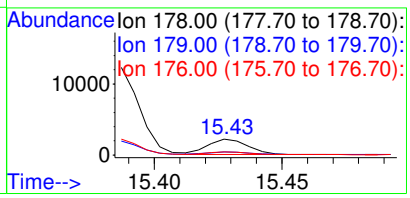


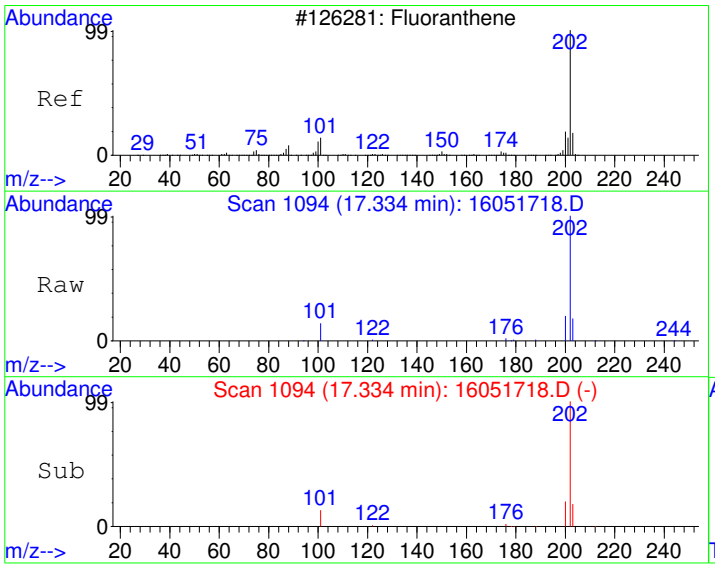


#13
Anthracene
Concen: 6.45 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.01 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:178 Resp: 2400

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.9
176	17.4	0.0	48.2

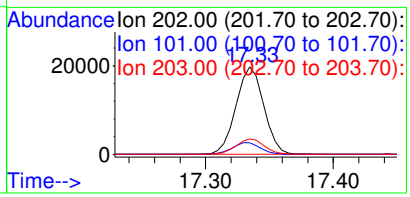


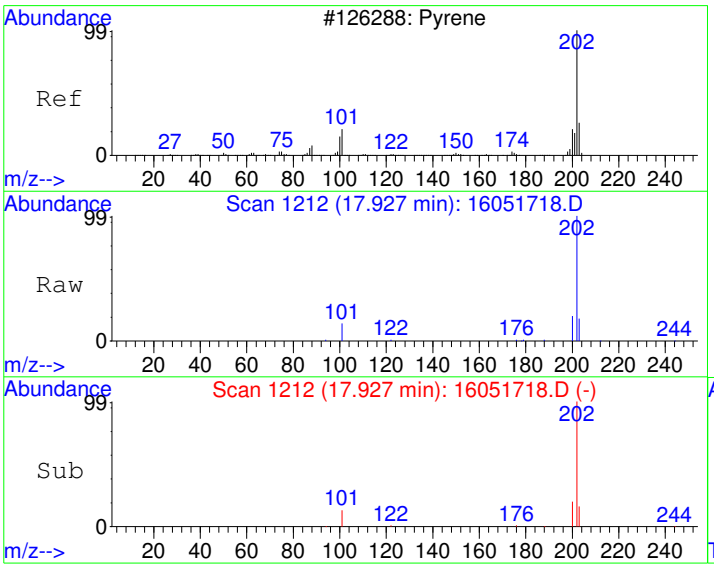


#14
Fluoranthene
Concen: 72.77 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:202 Resp: 29598

Ion	Ratio	Lower	Upper
202	100		
101	13.4	0.0	43.0
203	17.5	0.0	47.9

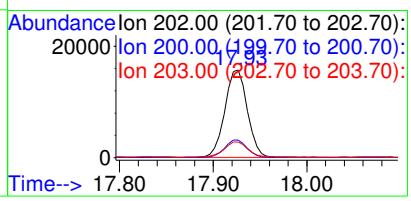


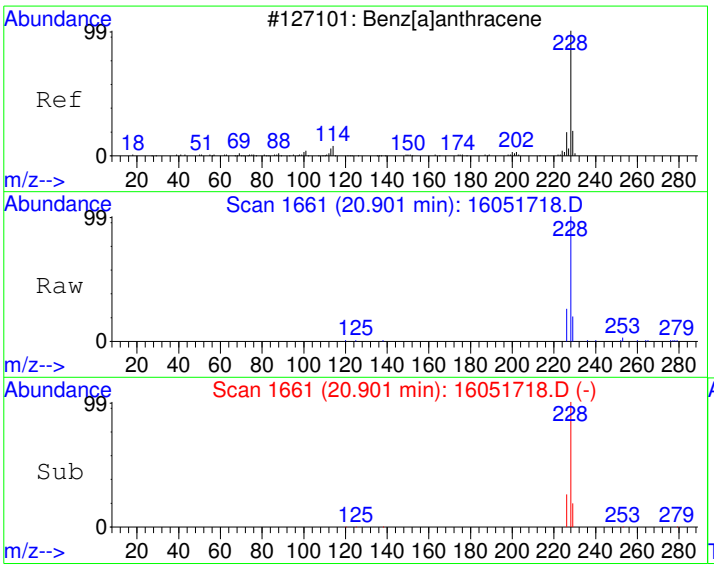


#15
Pyrene
Concen: 61.44 ug/kg
RT: 17.93 min Scan# 1212
Delta R.T. -0.01 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:202 Resp: 25961

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.5	0.0	48.0

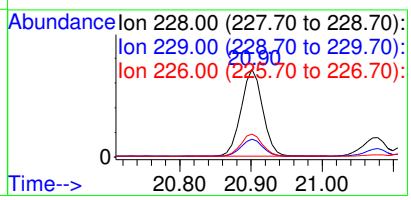


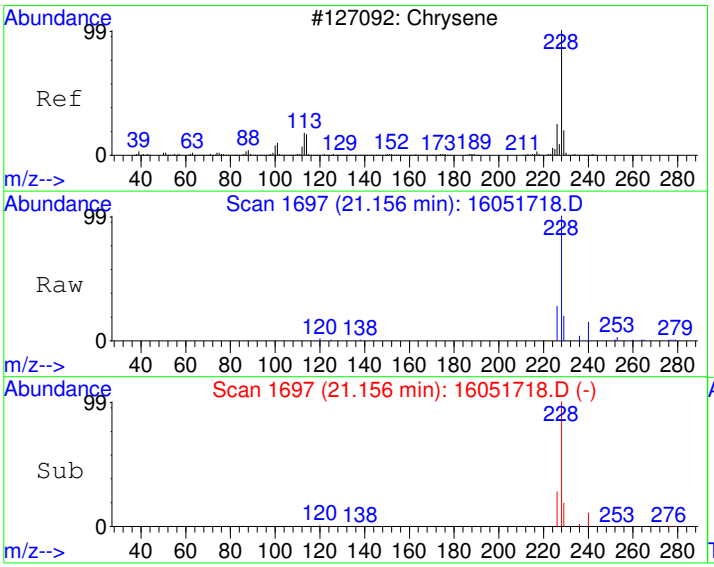


#18
Benzo[a]anthracene
Concen: 39.70 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:228 Resp: 14743

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	50.1
226	25.6	0.0	55.2

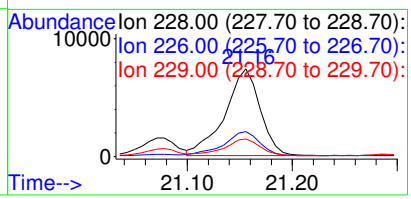


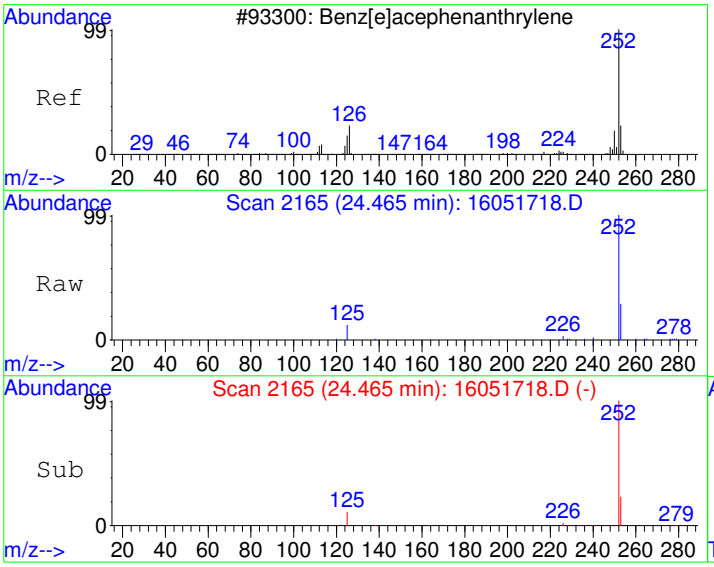


#19
Chrysene
Concen: 47.82 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:228 Resp: 17158

Ion	Ratio	Lower	Upper
228	100		
226	27.9	0.0	58.1
229	19.2	0.0	50.1

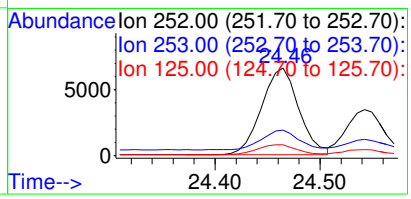


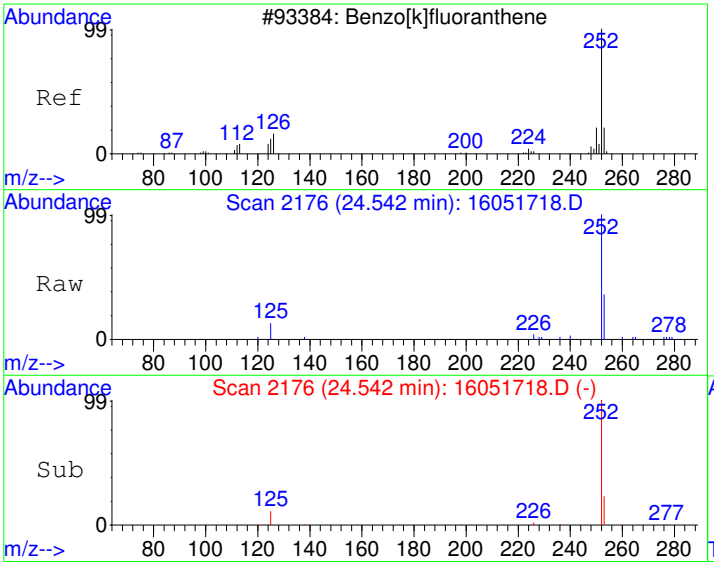


#21
Benzo[b]fluoranthene
Concen: 41.57 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:252 Resp: 16319

Ion	Ratio	Lower	Upper
252	100		
253	22.6	0.0	52.2
125	11.4	0.0	41.0

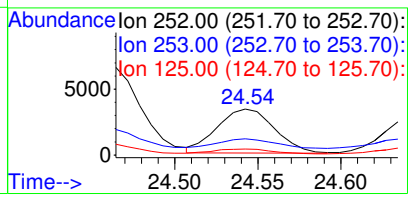


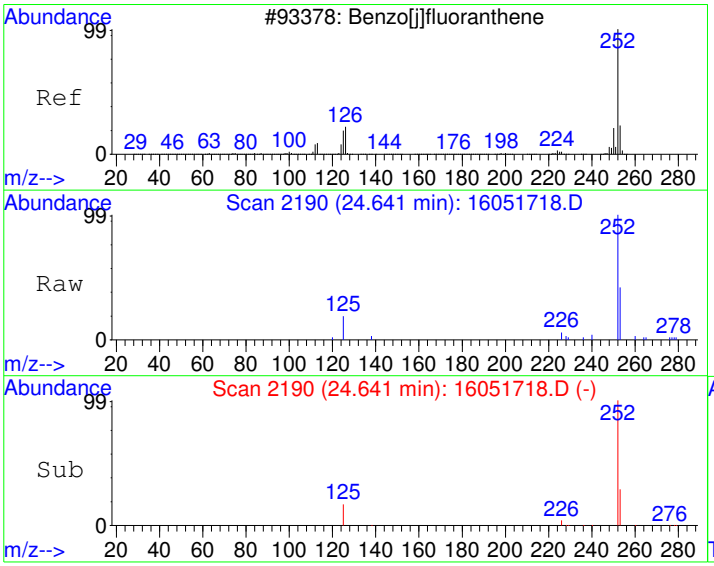


#22
Benzo[k]fluoranthene
Concen: 21.76 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:252 Resp: 8013

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.1	42.1
125	11.5	0.0	31.3

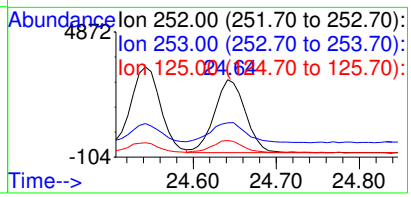


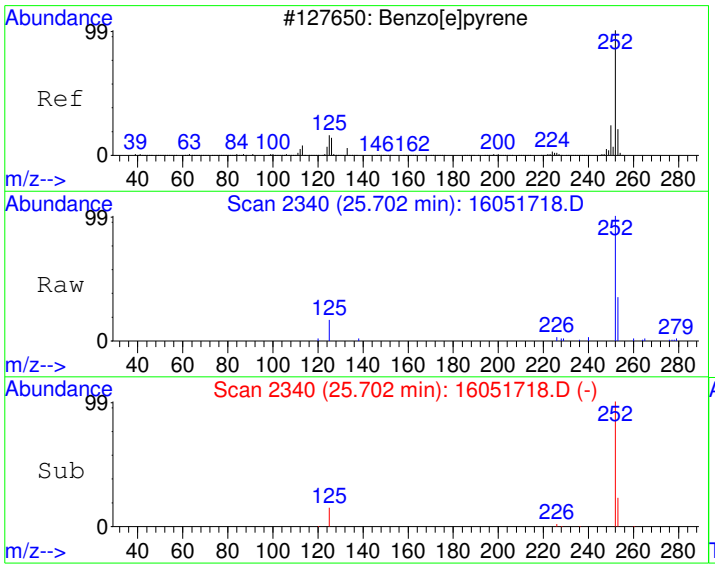


#23
Benzo(j)fluoranthene
Concen: 23.05 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:252 Resp: 7561

Ion	Ratio	Lower	Upper
252	100		
253	27.0	2.1	42.1
125	16.4	0.0	34.4

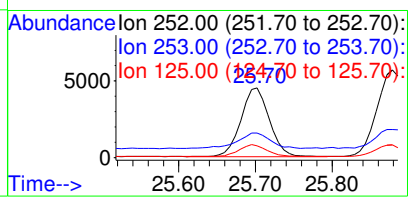


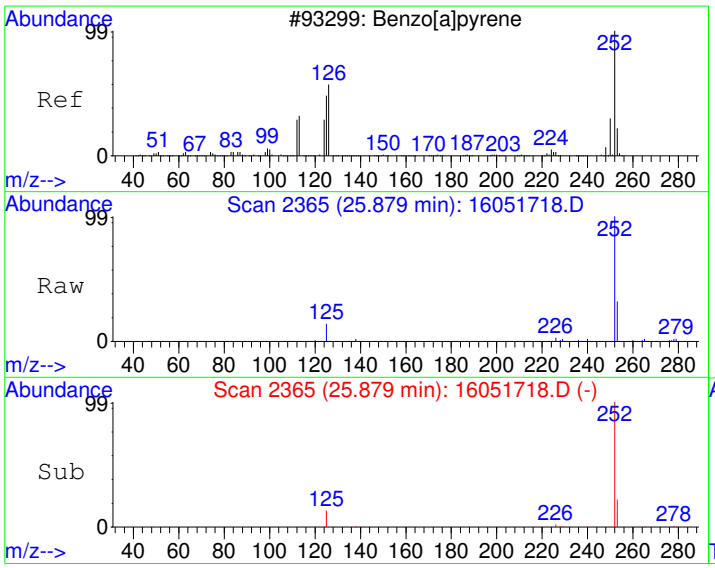


#24
Benzo[e]pyrene
Concen: 32.85 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:252 Resp: 11549

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	15.5	0.0	36.1

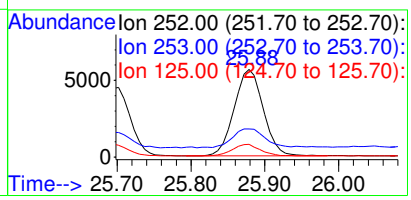


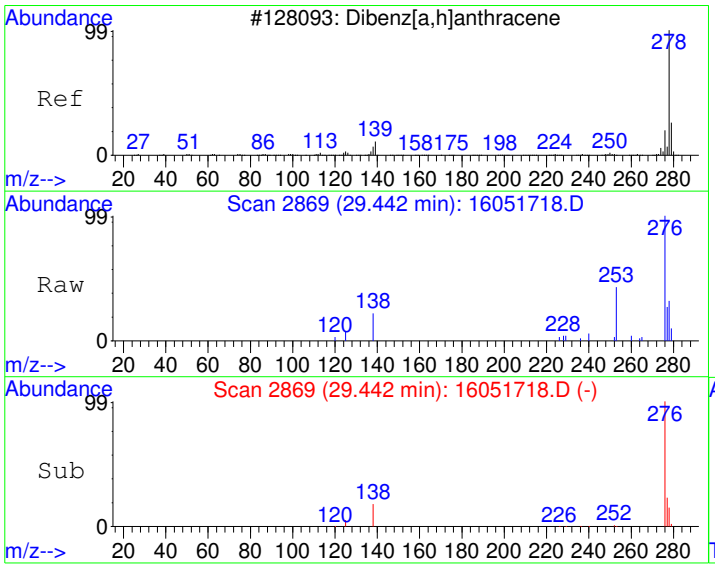


#25
Benzo[a]pyrene
Concen: 42.82 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:252 Resp: 15384

Ion	Ratio	Lower	Upper
252	100		
253	21.3	1.9	41.9
125	13.3	0.0	31.7

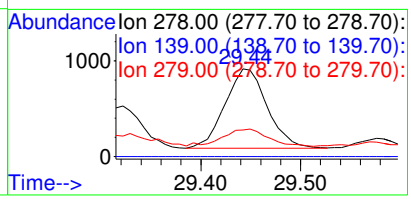


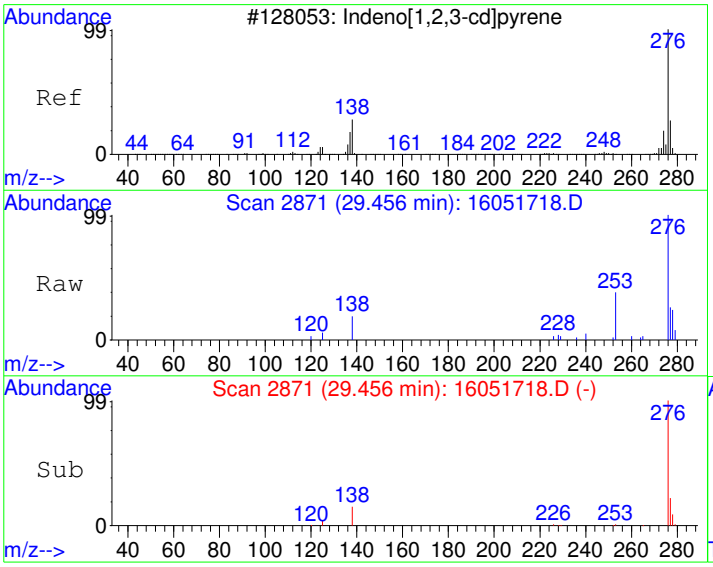


#26
Dibenz[a,h]anthracene
Concen: 7.40 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.03 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:278 Resp: 2423

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	20.5	4.2	44.2

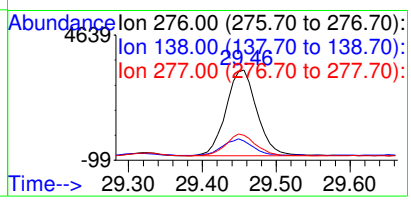


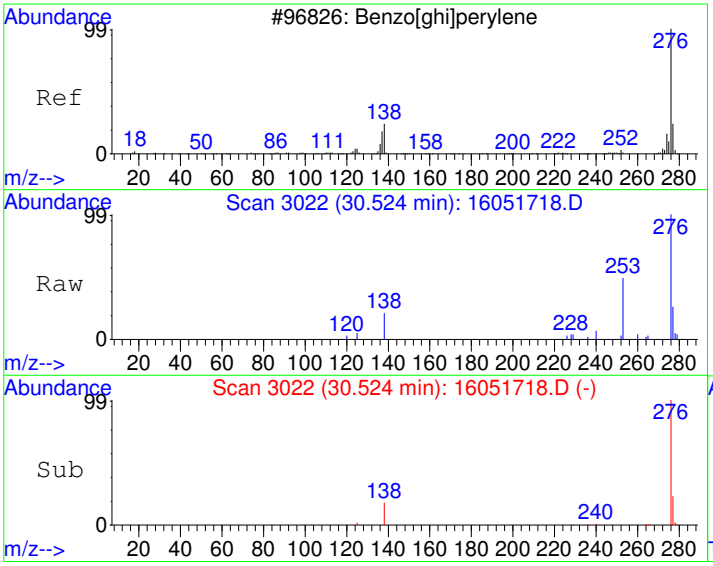


#27
Indeno[1,2,3-cd]pyrene
Concen: 24.29 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:276 Resp: 9483

Ion	Ratio	Lower	Upper
276	100		
138	16.8	6.7	46.7
277	24.1	5.8	45.8

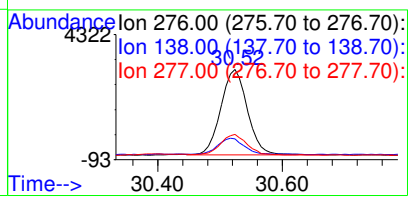




#28
Benzo[g,h,i]perylene
Concen: 29.19 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051718.D
Acq: 17 May 2016 7:45 pm

Tgt Ion:276 Resp: 8884

Ion	Ratio	Lower	Upper
276	100		
138	18.5	0.0	39.1
277	23.8	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051719.D Vial: 14
Acq On : 17 May 2016 8:25 pm Operator:
Sample : 1605096-34A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

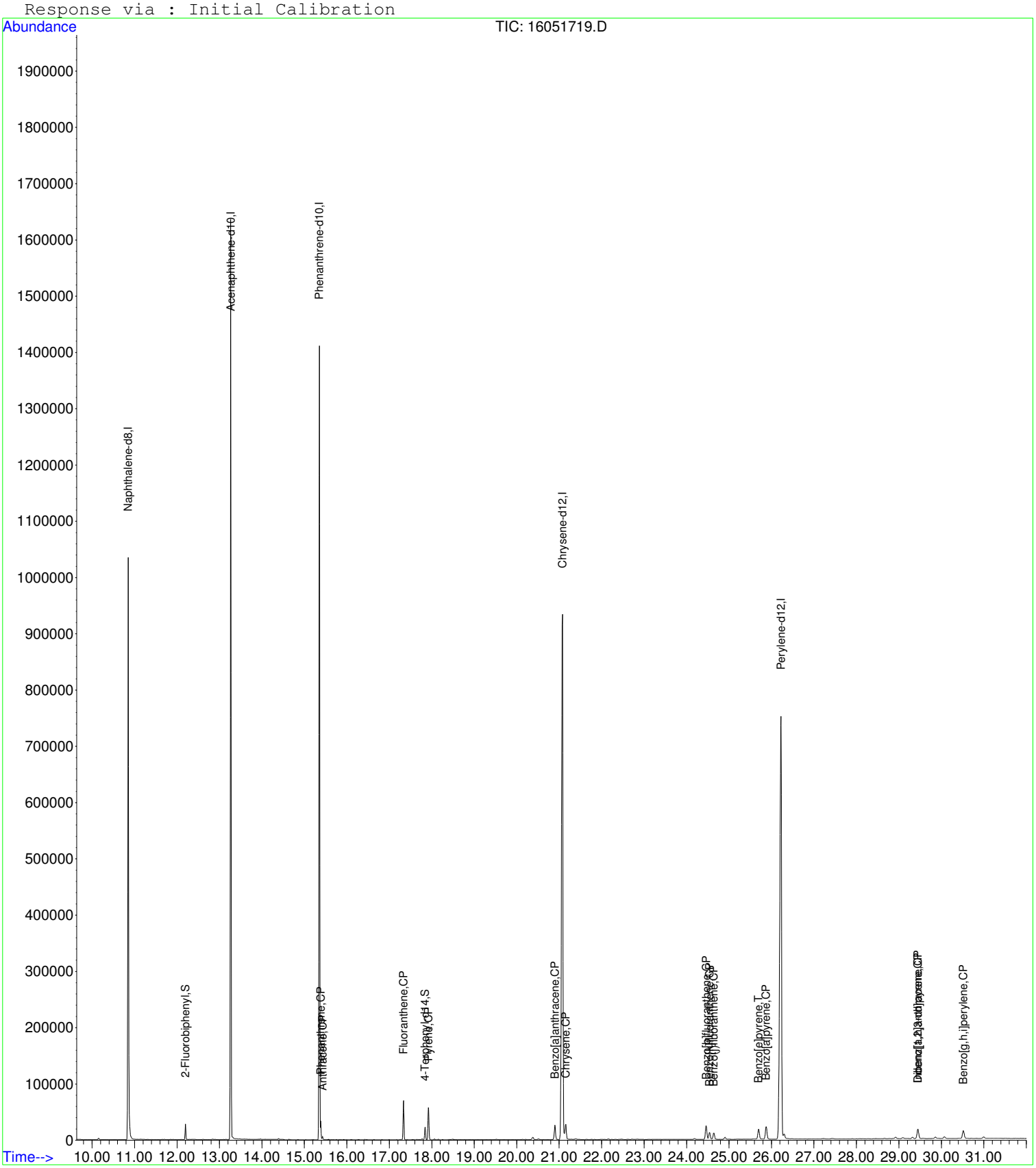
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1254652	4000.00	ug/kg	108
5) Acenaphthene-d10	13.26	164	848402	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1486184	4000.00	ug/kg	73
17) Chrysene-d12	21.08	240	1564177	4000.00	ug/kg	69
20) Perylene-d12	26.22	264	1479940	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	21169	85.54	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#		
16) 4-Terphenyl-d14	17.84	244	28631	74.46	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
Target Compounds						Qvalue
12) Phenanthrene	15.39	178	26243	67.14	ug/kg	99
13) Anthracene	15.43	178	4706	12.72	ug/kg	98
14) Fluoranthene	17.33	202	68629	169.68	ug/kg	99
15) Pyrene	17.92	202	60601	144.24	ug/kg	100
18) Benzo[a]anthracene	20.90	228	36388	99.30	ug/kg	100
19) Chrysene	21.16	228	42367	119.66	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	45347	116.26	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	21183	57.89	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	19954	61.22	ug/kg	91
24) Benzo[e]pyrene	25.69	252	33235	95.14	ug/kg	99
25) Benzo[a]pyrene	25.88	252	42620	119.40	ug/kg	100
26) Dibenz[a,h]anthracene	29.44	278	6462	19.88	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.45	276	28061	72.35	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	27392	90.58	ug/kg	99

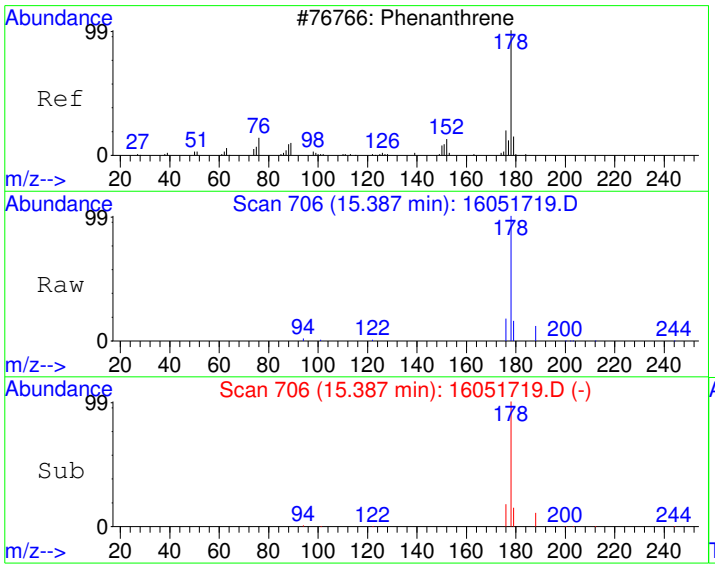
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051719.D Vial: 14
Acq On : 17 May 2016 8:25 pm Operator:
Sample : 1605096-34A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

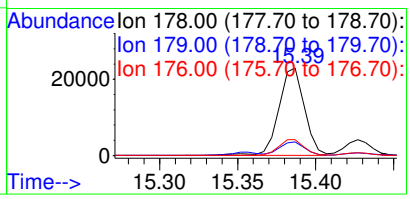


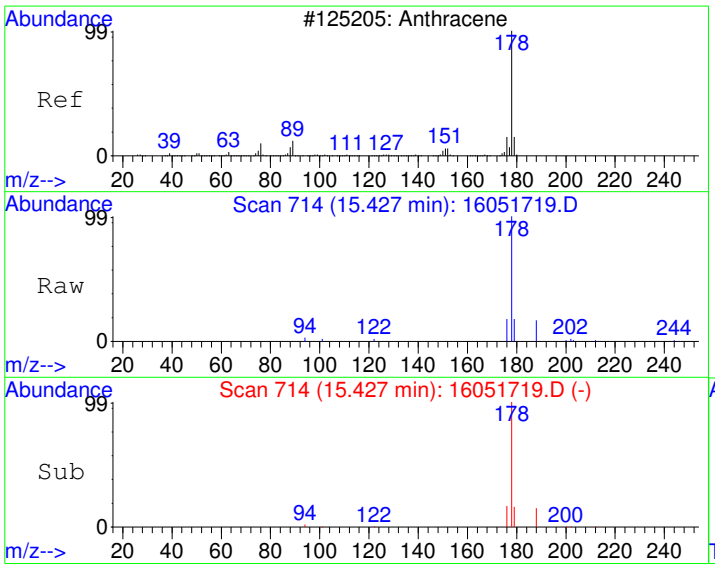


#12
Phenanthrene
Concen: 67.14 ug/kg
RT: 15.39 min Scan# 706
Delta R.T. -0.01 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:178 Resp: 26243

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	17.9	0.0	48.5

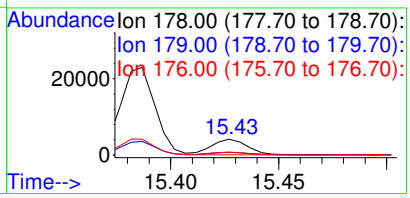


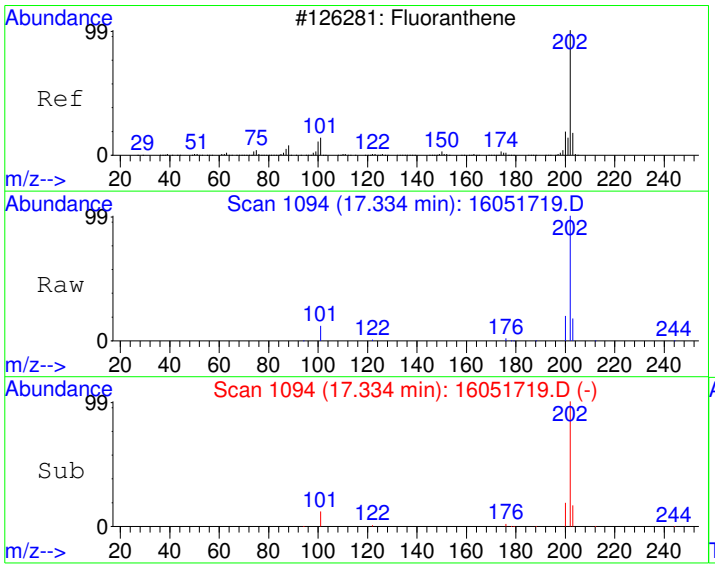


#13
Anthracene
Concen: 12.72 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.01 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:178 Resp: 4706

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	45.9
176	17.1	0.0	48.2

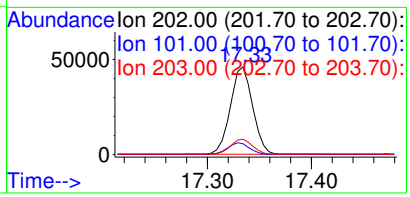


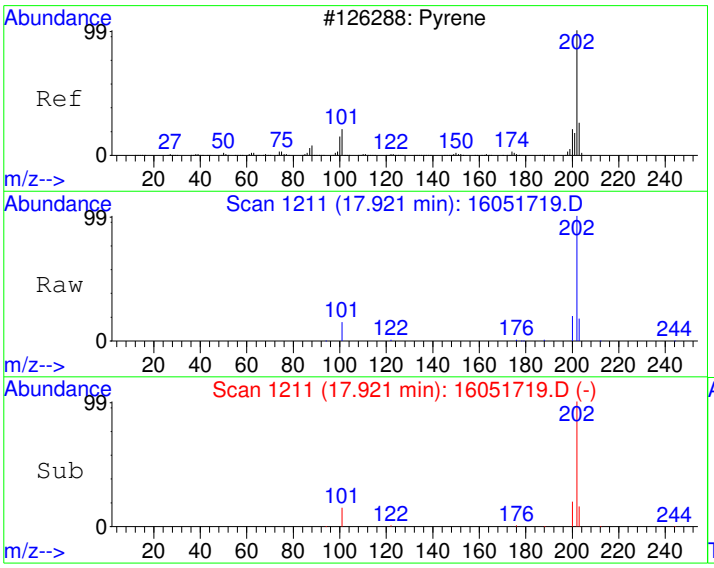


#14
Fluoranthene
Concen: 169.68 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:202 Resp: 68629

Ion	Ratio	Lower	Upper
202	100		
101	12.3	0.0	43.0
203	17.4	0.0	47.9

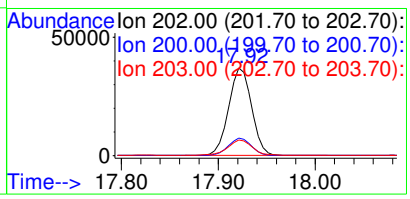


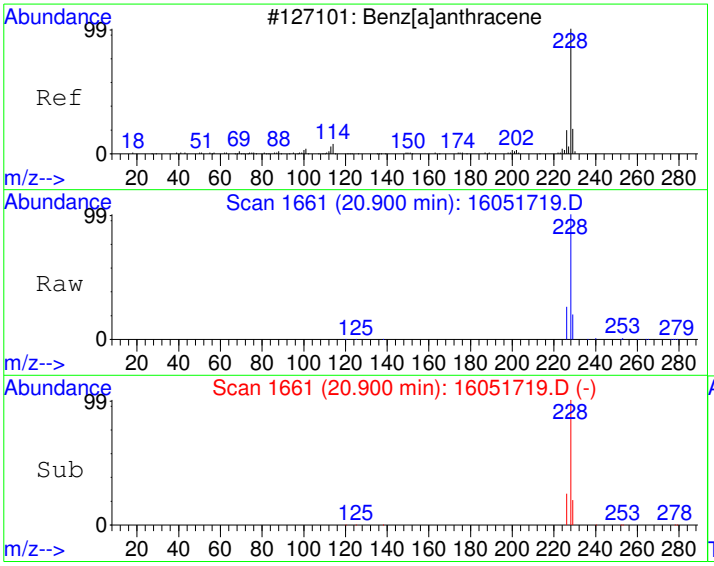


#15
Pyrene
Concen: 144.24 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:202 Resp: 60601

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.8	0.0	48.0

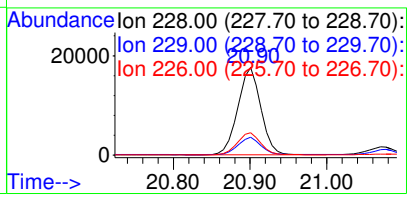


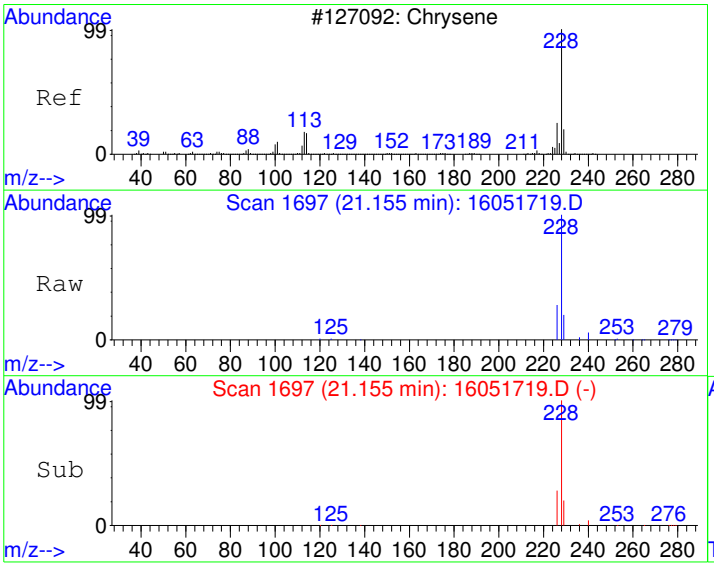


#18
Benzo[a]anthracene
Concen: 99.30 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:228 Resp: 36388

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.1
226	25.3	0.0	55.2

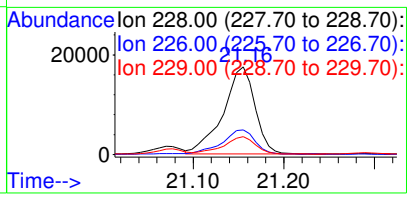


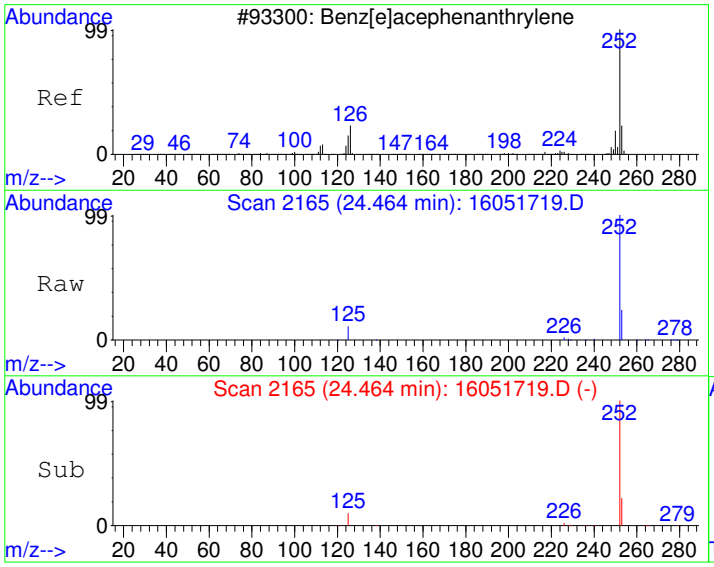


#19
Chrysene
Concen: 119.66 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:228 Resp: 42367

Ion	Ratio	Lower	Upper
228	100		
226	28.0	0.0	58.1
229	19.9	0.0	50.1

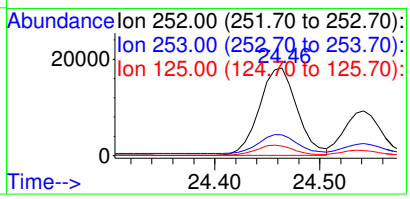


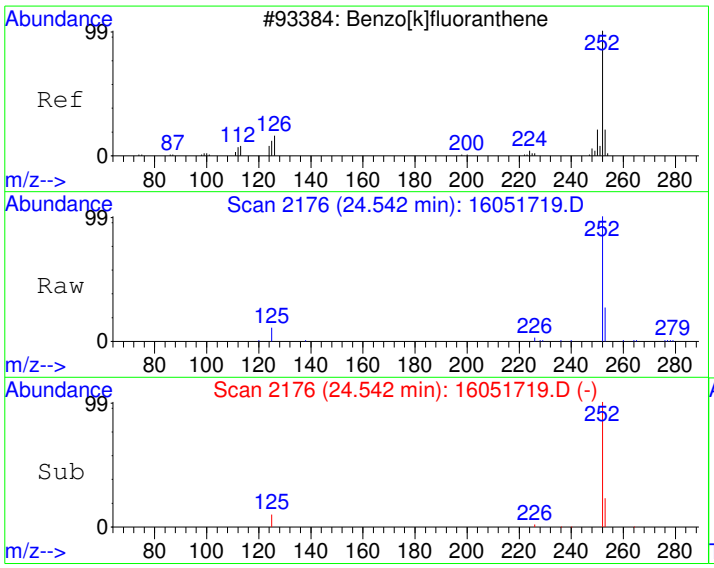


#21
Benzo[b]fluoranthene
Concen: 116.26 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:252 Resp: 45347

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	52.2
125	10.5	0.0	41.0

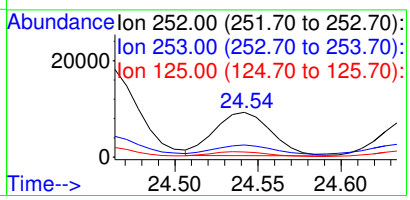


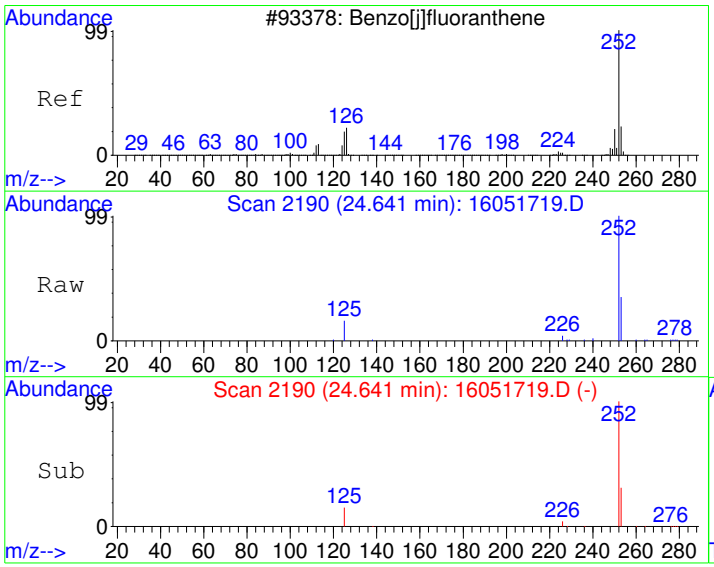


#22
Benzo[k]fluoranthene
Concen: 57.89 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:252 Resp: 21183

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.1	42.1
125	10.2	0.0	31.3

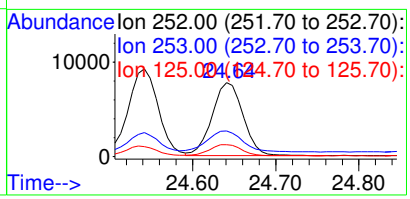


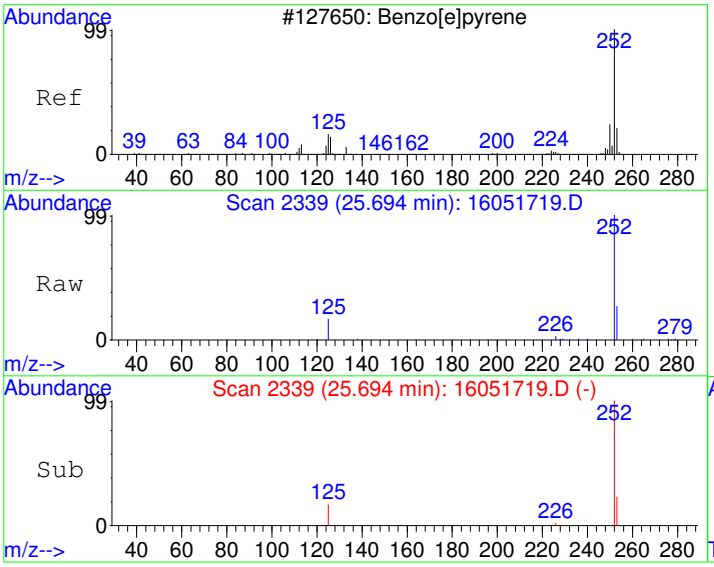


#23
Benzo(j)fluoranthene
Concen: 61.22 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:252 Resp: 19954

Ion	Ratio	Lower	Upper
252	100		
253	28.6	2.1	42.1
125	15.1	0.0	34.4

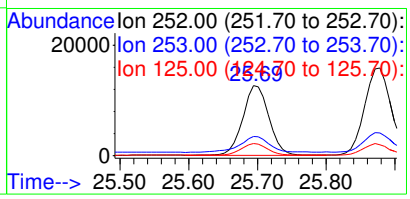


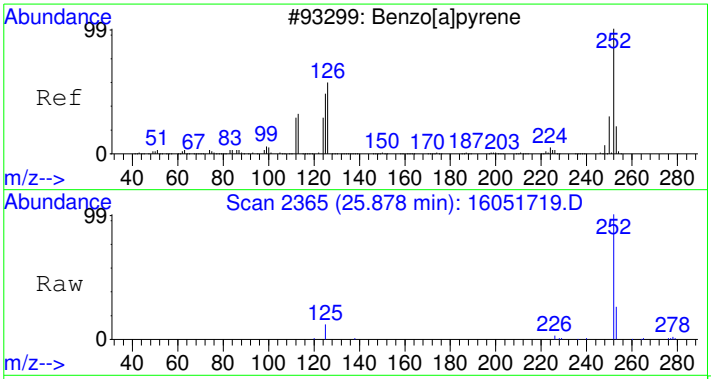


#24
Benzo[e]pyrene
Concen: 95.14 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:252 Resp: 33235

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.2	42.2
125	16.7	0.0	36.1

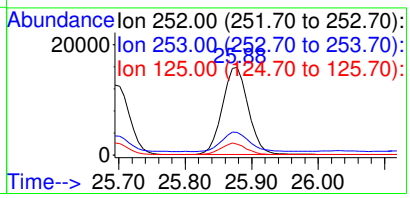


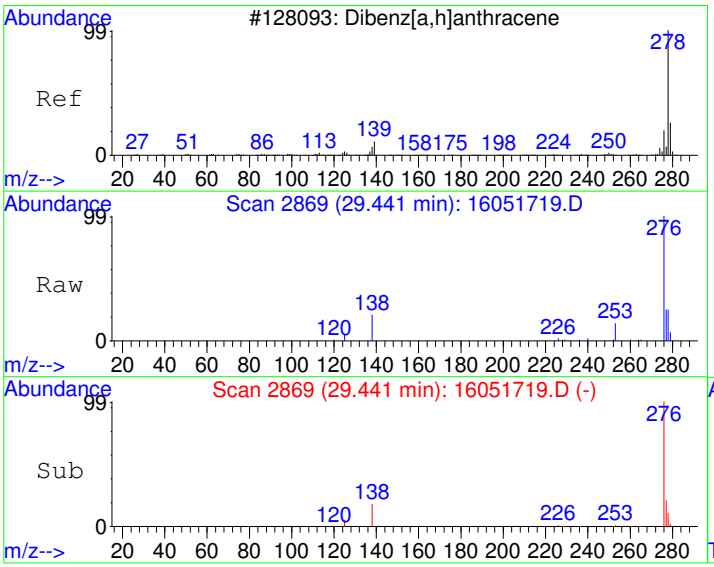


#25
Benzo[a]pyrene
Concen: 119.40 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:252 Resp: 42620

Ion	Ratio	Lower	Upper
252	100		
253	21.8	1.9	41.9
125	12.0	0.0	31.7

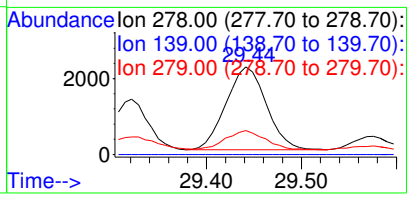


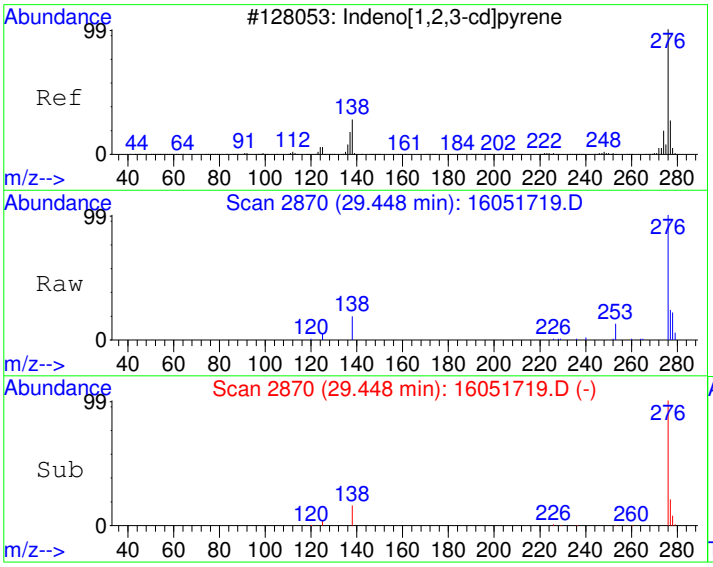


#26
Dibenz[a,h]anthracene
Concen: 19.88 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:278 Resp: 6462

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.2	4.2	44.2

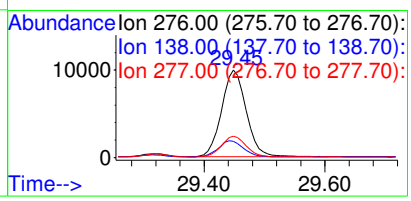


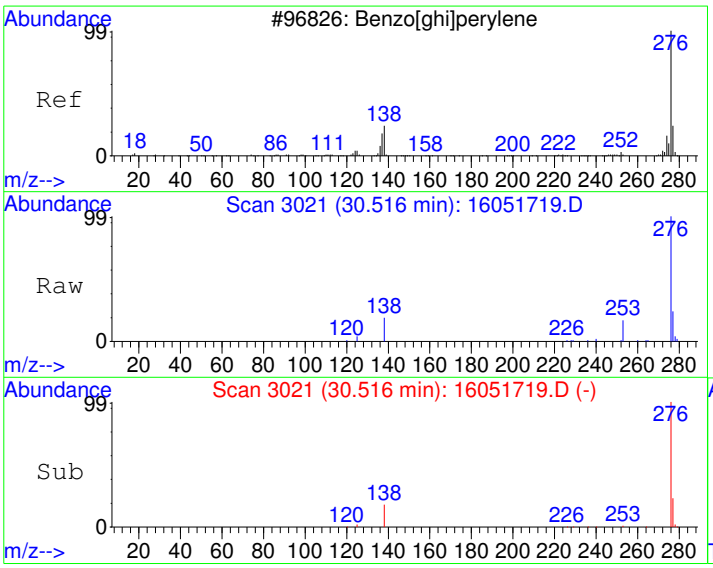


#27
Indeno[1,2,3-cd]pyrene
Concen: 72.35 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:276 Resp: 28061

Ion	Ratio	Lower	Upper
276	100		
138	17.9	6.7	46.7
277	23.6	5.8	45.8

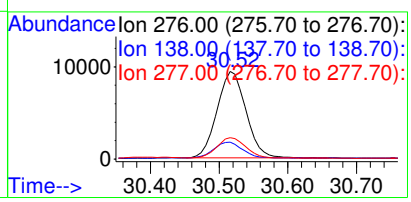




#28
Benzo[g,h,i]perylene
Concen: 90.58 ug/kg
RT: 30.52 min Scan# 3021
Delta R.T. -0.04 min
Lab File: 16051719.D
Acq: 17 May 2016 8:25 pm

Tgt Ion:276 Resp: 27392

Ion	Ratio	Lower	Upper
276	100		
138	18.4	0.0	39.1
277	23.7	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051720.D Vial: 15
Acq On : 17 May 2016 9:04 pm Operator:
Sample : 1605096-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

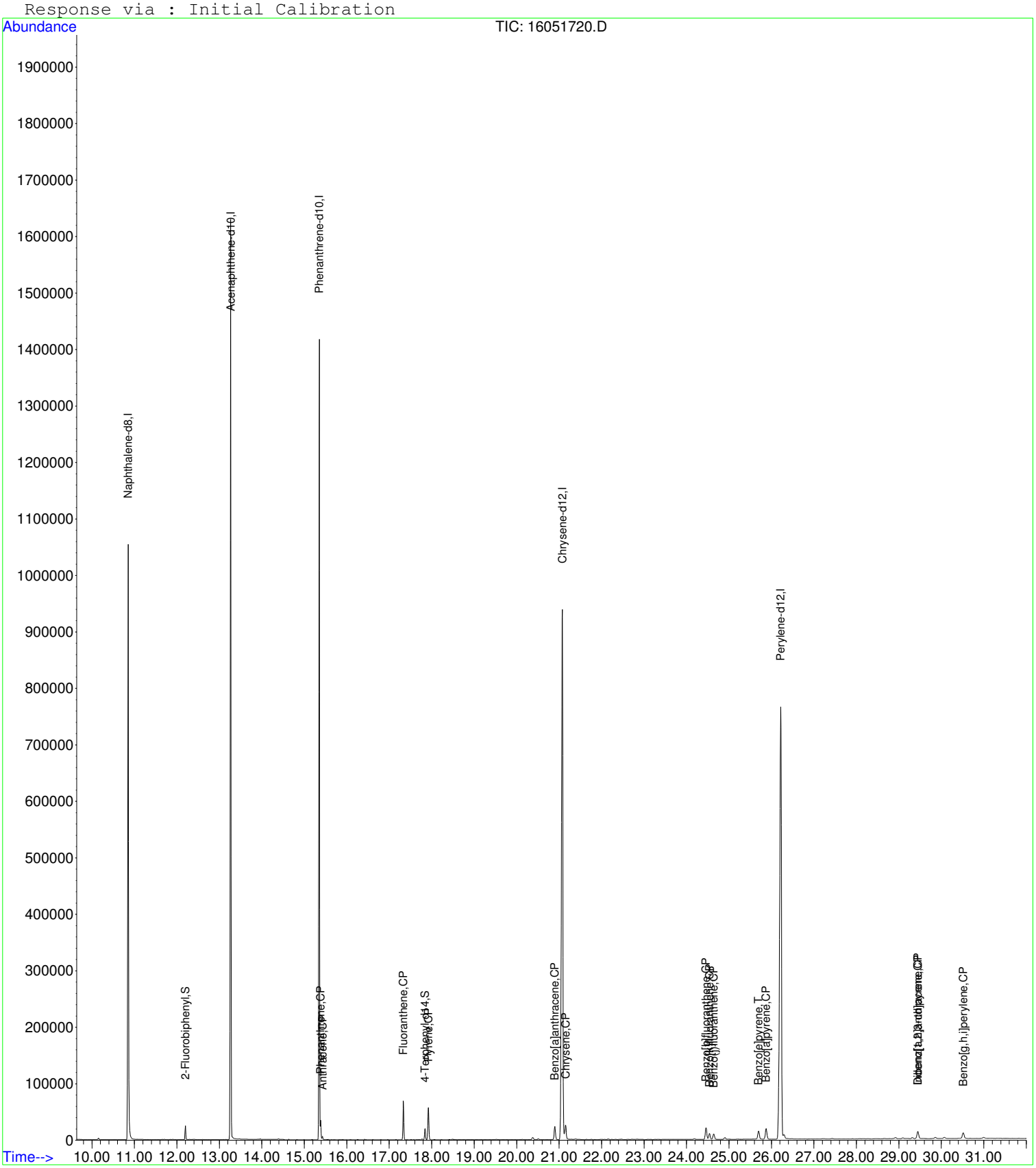
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1268221	4000.00	ug/kg	109
5) Acenaphthene-d10	13.27	164	858468	4000.00	ug/kg	75
11) Phenanthrene-d10	15.35	188	1504519	4000.00	ug/kg	74
17) Chrysene-d12	21.08	240	1598678	4000.00	ug/kg	70
20) Perylene-d12	26.22	264	1501343	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19139	76.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
16) 4-Terphenyl-d14	17.84	244	25421	65.31	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.63%#		
Target Compounds						Qvalue
12) Phenanthrene	15.38	178	28039	70.87	ug/kg	99
13) Anthracene	15.43	178	5067	13.53	ug/kg	99
14) Fluoranthene	17.34	202	70111	171.23	ug/kg	98
15) Pyrene	17.92	202	60684	142.68	ug/kg	99
18) Benzo[a]anthracene	20.90	228	34753	92.79	ug/kg	99
19) Chrysene	21.16	228	39966	110.44	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	38185	96.50	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	18637	50.21	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	16610	50.23	ug/kg	91
24) Benzo[e]pyrene	25.69	252	27149	76.61	ug/kg	98
25) Benzo[a]pyrene	25.87	252	35831	98.95	ug/kg	97
26) Dibenz[a,h]anthracene	29.44	278	5081	15.41	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.45	276	21423	54.45	ug/kg	90
28) Benzo[g,h,i]perylene	30.52	276	20522	66.89	ug/kg	99

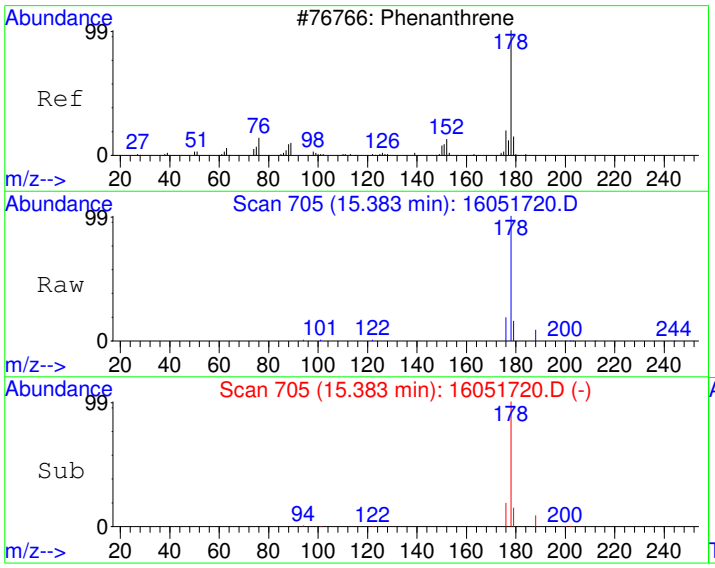
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051720.D Vial: 15
Acq On : 17 May 2016 9:04 pm Operator:
Sample : 1605096-35A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:31 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

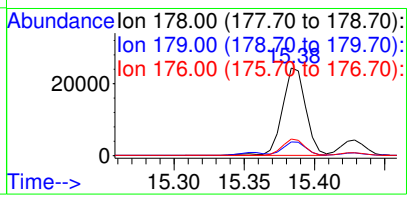


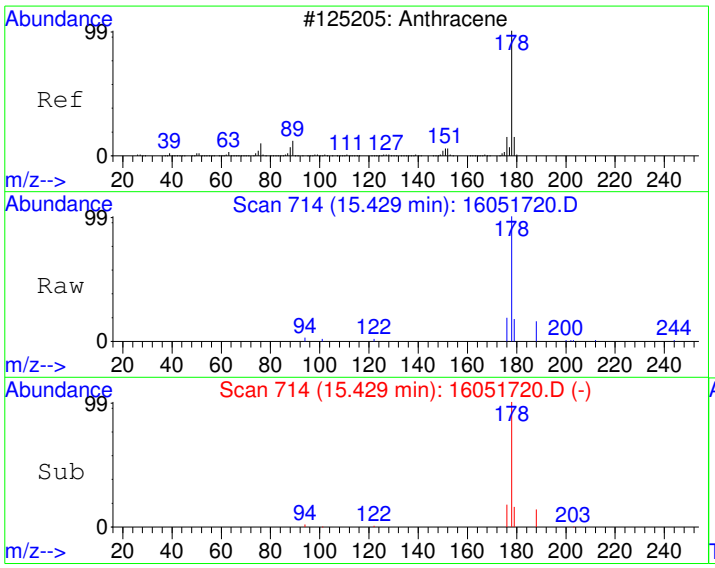


#12
Phenanthrene
Concen: 70.87 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:178 Resp: 28039

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.7	0.0	48.5

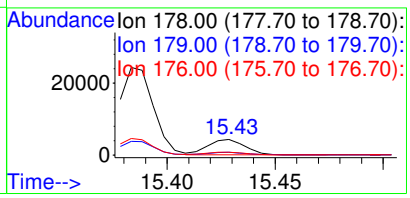


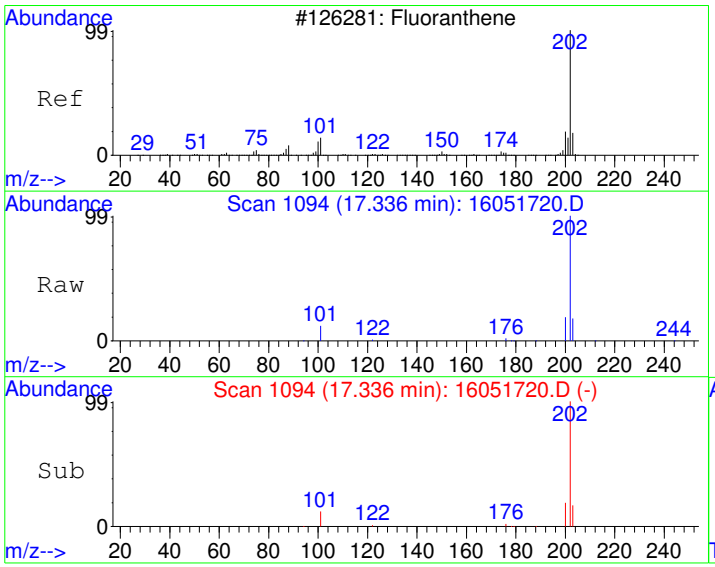


#13
Anthracene
Concen: 13.53 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.00 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:178 Resp: 5067

Ion	Ratio	Lower	Upper
178	100		
179	16.0	0.0	45.9
176	17.5	0.0	48.2

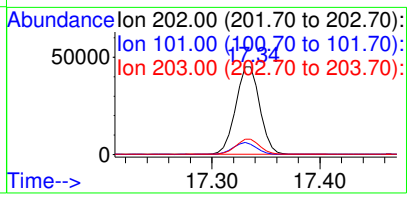


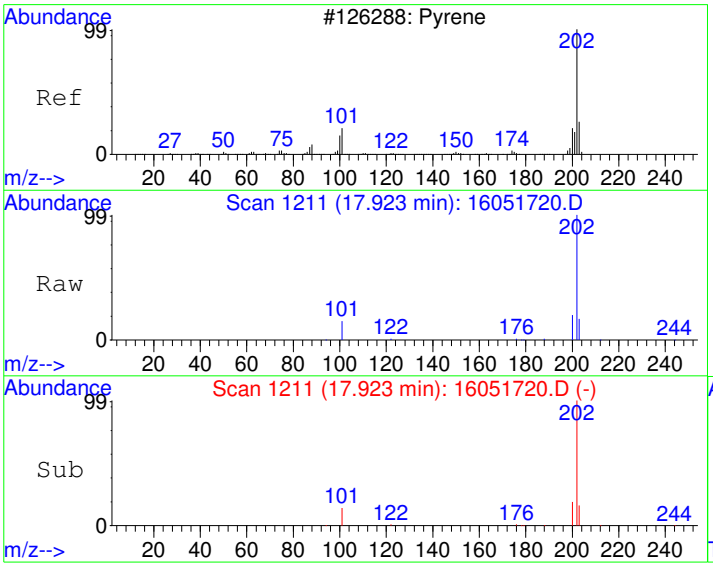


#14
Fluoranthene
Concen: 171.23 ug/kg
RT: 17.34 min Scan# 1094
Delta R.T. -0.00 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:202 Resp: 70111

Ion	Ratio	Lower	Upper
202	100		
101	11.7	0.0	43.0
203	17.4	0.0	47.9

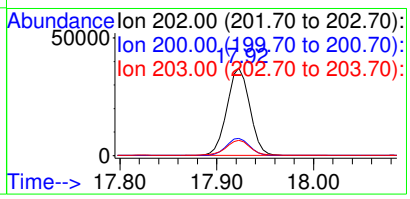


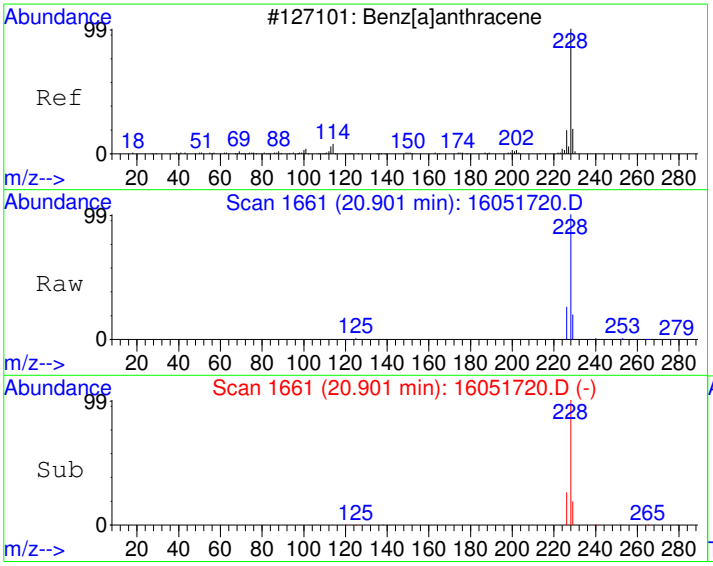


#15
Pyrene
Concen: 142.68 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:202 Resp: 60684

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	50.0
203	17.3	0.0	48.0

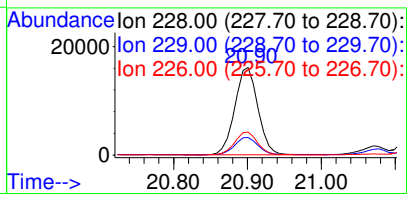


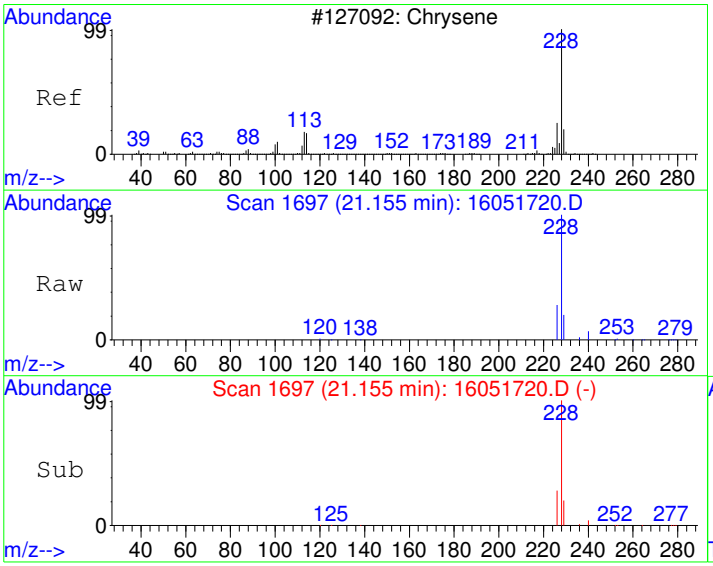


#18
Benzo[a]anthracene
Concen: 92.79 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:228 Resp: 34753

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.1
226	25.9	0.0	55.2

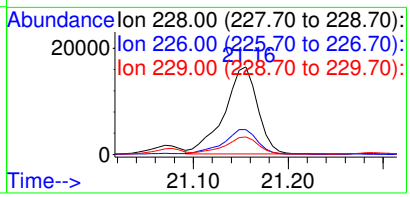


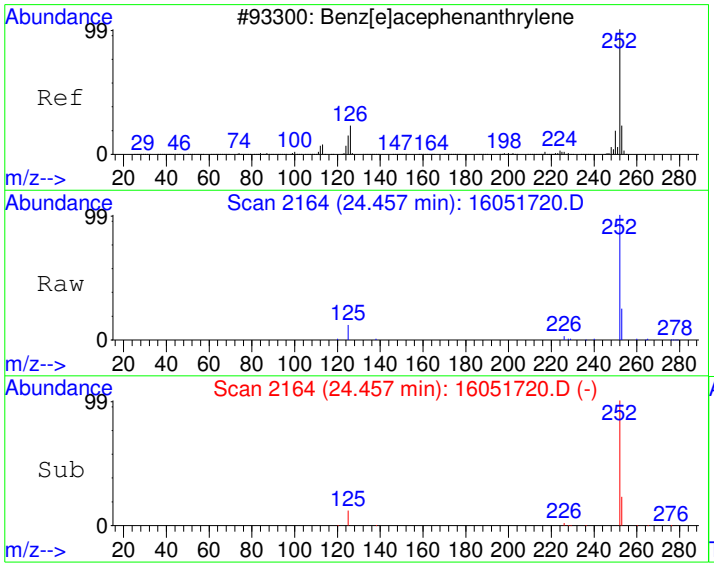


#19
Chrysene
Concen: 110.44 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:228 Resp: 39966

Ion	Ratio	Lower	Upper
228	100		
226	28.1	0.0	58.1
229	19.6	0.0	50.1

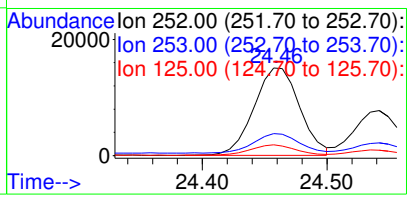


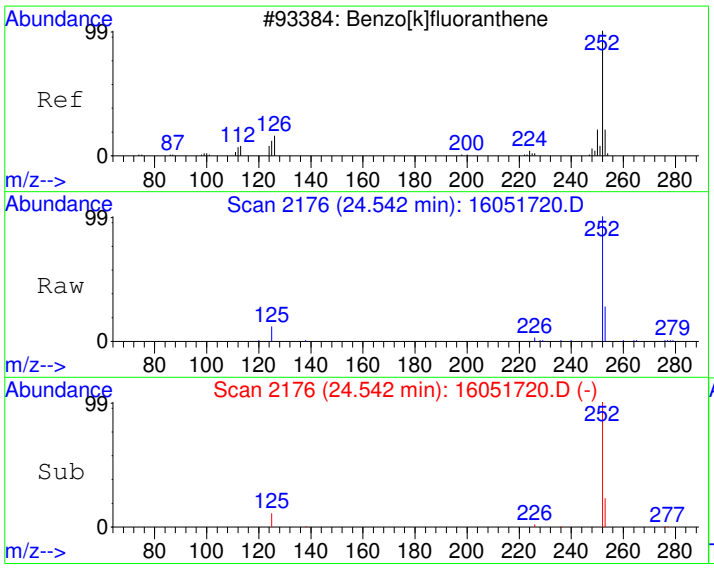


#21
Benzo[b]fluoranthene
Concen: 96.50 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:252 Resp: 38185

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	52.2
125	11.9	0.0	41.0

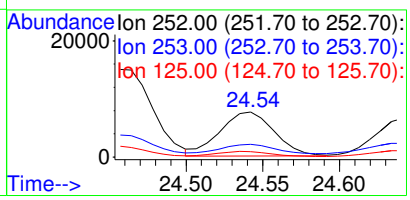


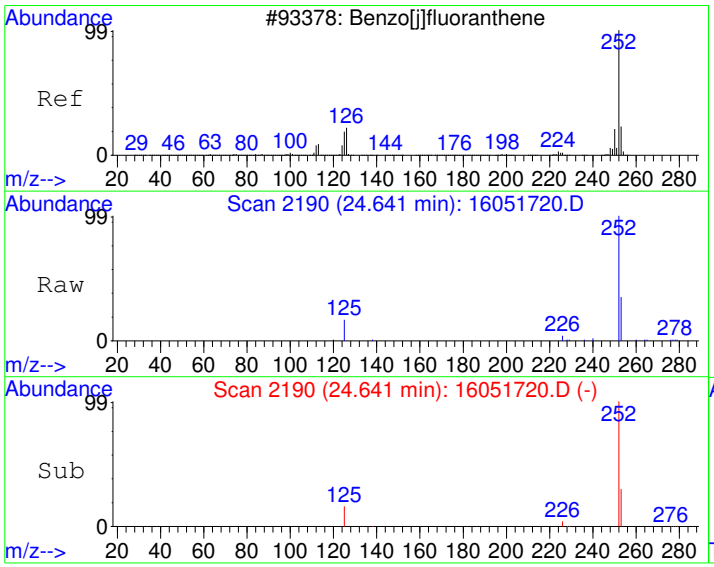


#22
Benzo[k]fluoranthene
Concen: 50.21 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:252 Resp: 18637

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.1	42.1
125	10.8	0.0	31.3

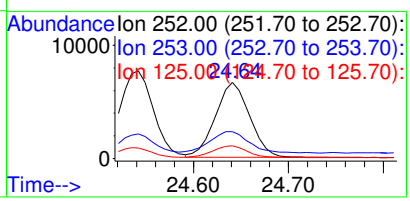


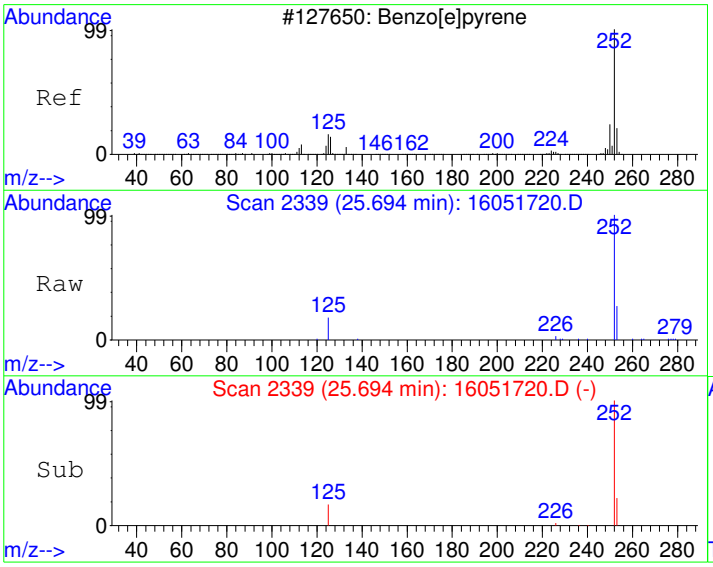


#23
Benzo(j)fluoranthene
Concen: 50.23 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:252 Resp: 16610

Ion	Ratio	Lower	Upper
252	100		
253	28.0	2.1	42.1
125	15.9	0.0	34.4

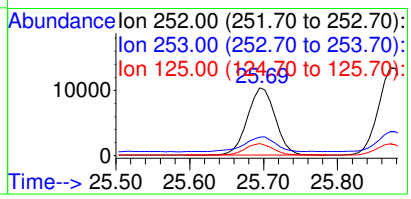


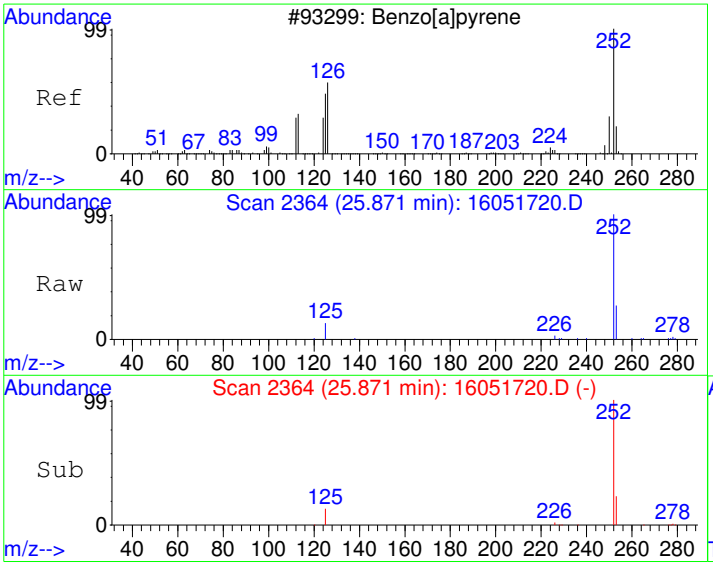


#24
Benzo[e]pyrene
Concen: 76.61 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:252 Resp: 27149

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.2	42.2
125	17.0	0.0	36.1

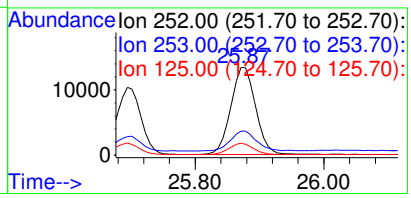


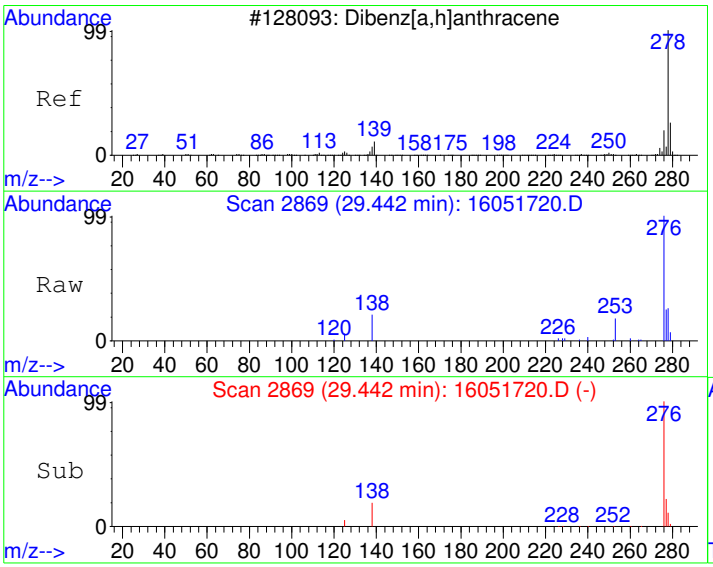


#25
Benzo[a]pyrene
Concen: 98.95 ug/kg
RT: 25.87 min Scan# 2364
Delta R.T. -0.03 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:252 Resp: 35831

Ion	Ratio	Lower	Upper
252	100		
253	23.0	1.9	41.9
125	12.9	0.0	31.7

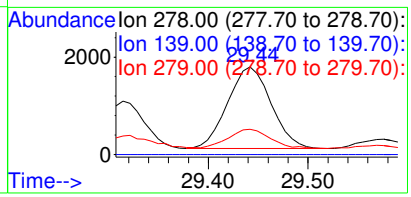


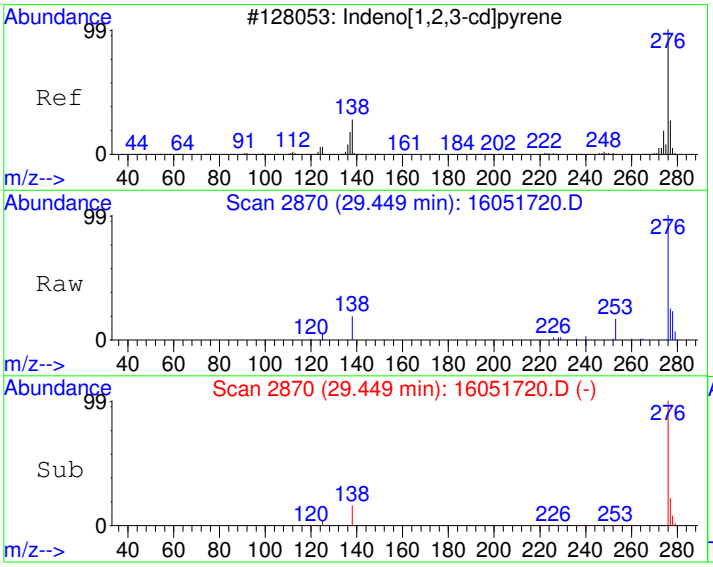


#26
Dibenz[a,h]anthracene
Concen: 15.41 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:278 Resp: 5081

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.9	4.2	44.2

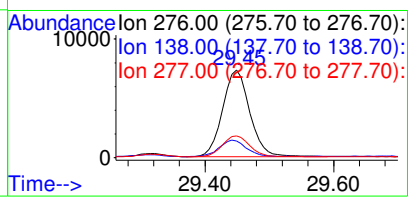


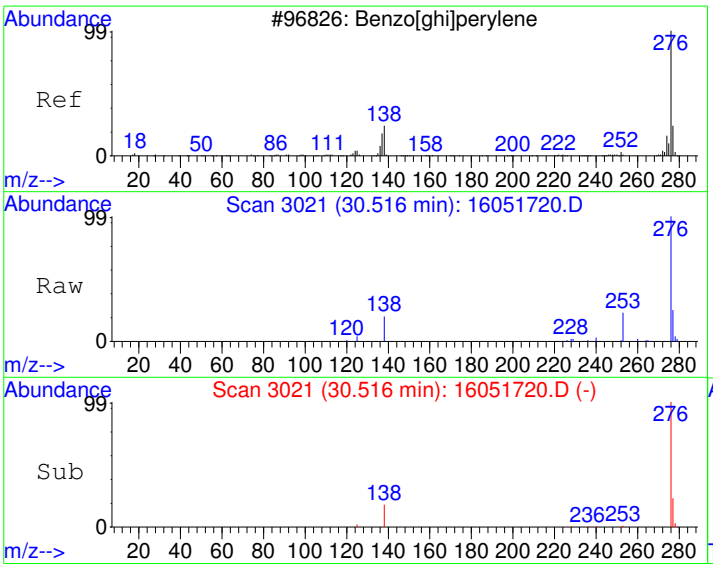


#27
Indeno[1,2,3-cd]pyrene
Concen: 54.45 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:276 Resp: 21423

Ion	Ratio	Lower	Upper
276	100		
138	17.9	6.7	46.7
277	24.1	5.8	45.8

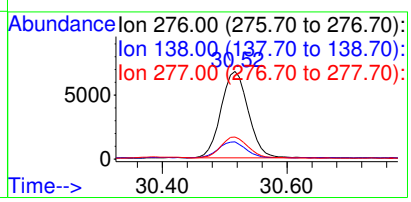




#28
Benzo[g,h,i]perylene
Concen: 66.89 ug/kg
RT: 30.52 min Scan# 3021
Delta R.T. -0.04 min
Lab File: 16051720.D
Acq: 17 May 2016 9:04 pm

Tgt Ion:276 Resp: 20522

Ion	Ratio	Lower	Upper
276	100		
138	18.6	0.0	39.1
277	24.1	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051722.D Vial: 17
Acq On : 17 May 2016 10:19 pm Operator:
Sample : ICV2-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

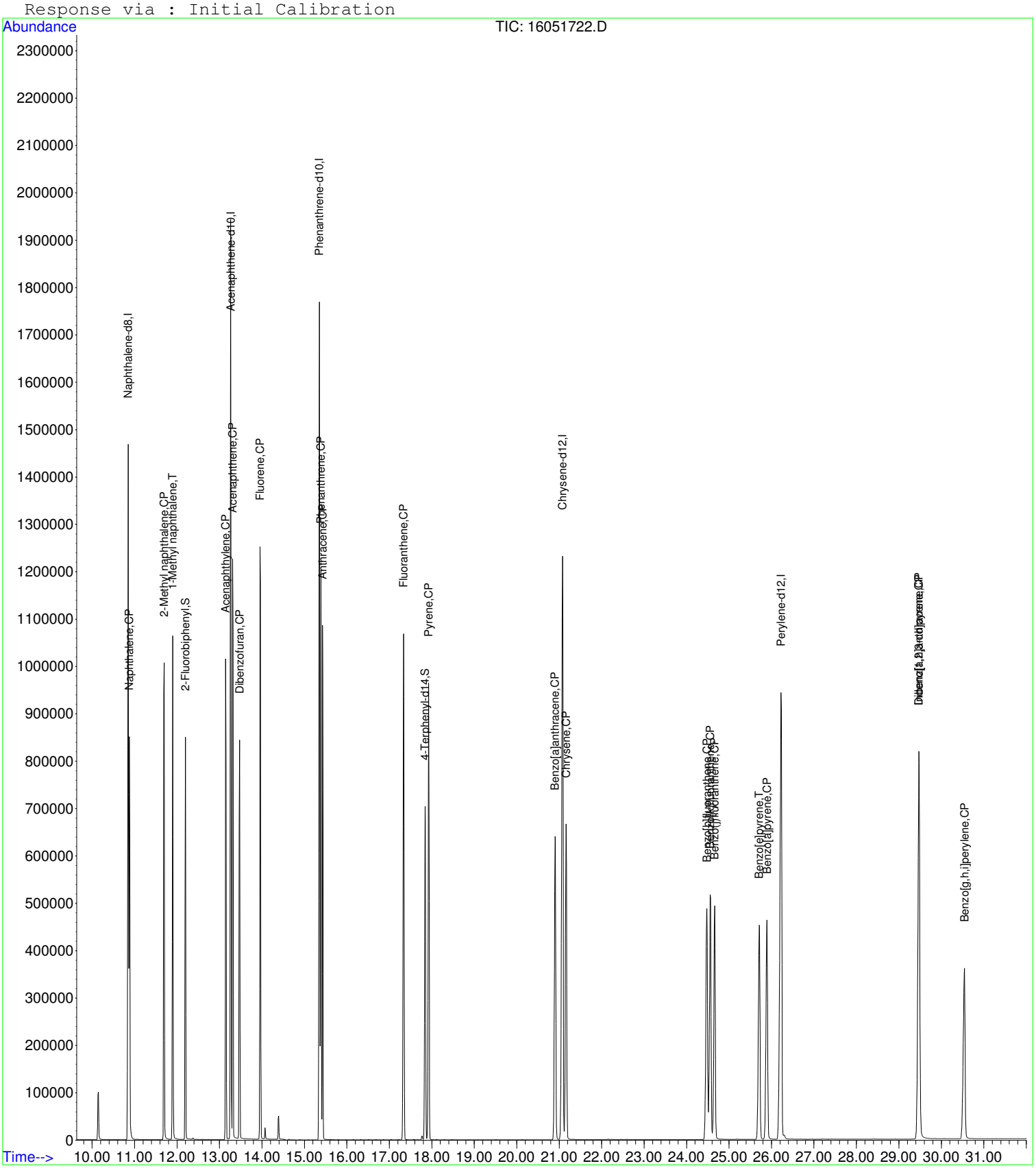
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1716127	4000.00	ug/kg	148
5) Acenaphthene-d10	13.26	164	1027987	4000.00	ug/kg	89
11) Phenanthrene-d10	15.35	188	1969746	4000.00	ug/kg	96
17) Chrysene-d12	21.08	240	2142247	4000.00	ug/kg	94
20) Perylene-d12	26.23	264	1976449	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	622401	2075.55	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 51.89%			
16) 4-Terphenyl-d14	17.84	244	929583	1824.11	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.60%			
Target Compounds						Qvalue
2) Naphthalene	10.88	128	838174	1952.57	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	590855	1558.24	ug/kg	96
4) 1-Methyl naphthalene	11.90	142	532685	1533.88	ug/kg	94
6) Dibenzofuran	13.47	168	767204	1991.30	ug/kg	99
8) Acenaphthylene	13.14	152	935474	2113.05	ug/kg	99
9) Acenaphthene	13.31	154	545698	1985.90	ug/kg	96
10) Fluorene	13.96	166	698024	2091.67	ug/kg	96
12) Phenanthrene	15.39	178	986109	1903.65	ug/kg	100
13) Anthracene	15.43	178	913200	1862.52	ug/kg	99
14) Fluoranthene	17.33	202	1045514	1950.40	ug/kg	100
15) Pyrene	17.93	202	1040206	1868.04	ug/kg	100
18) Benzo[a]anthracene	20.90	228	989079	1970.76	ug/kg	100
19) Chrysene	21.16	228	909041	1874.65	ug/kg	100
21) Benzo[b]fluoranthene	24.48	252	999580	1918.86	ug/kg	100
22) Benzo[k]fluoranthene	24.56	252	932677	1908.58	ug/kg	100
23) Benzo(j)fluoranthene	24.66	252	824903	1894.99	ug/kg	99
24) Benzo[e]pyrene	25.72	252	864638	1853.39	ug/kg	100
25) Benzo[a]pyrene	25.89	252	904791	1897.93	ug/kg	99
26) Dibenz[a,h]anthracene	29.47	278	790289	1820.24	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.48	276	918925	1774.18	ug/kg	96
28) Benzo[g,h,i]perylene	30.55	276	740416	1833.26	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051722.D Vial: 17
Acq On : 17 May 2016 10:19 pm Operator:
Sample : ICV2-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

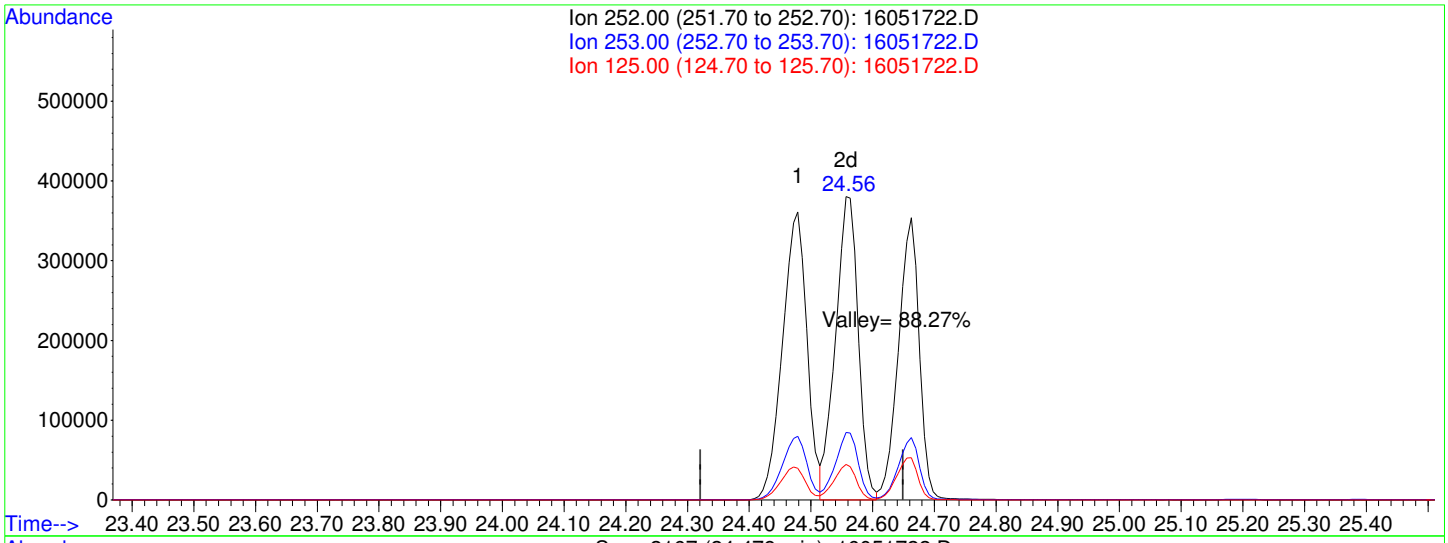
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

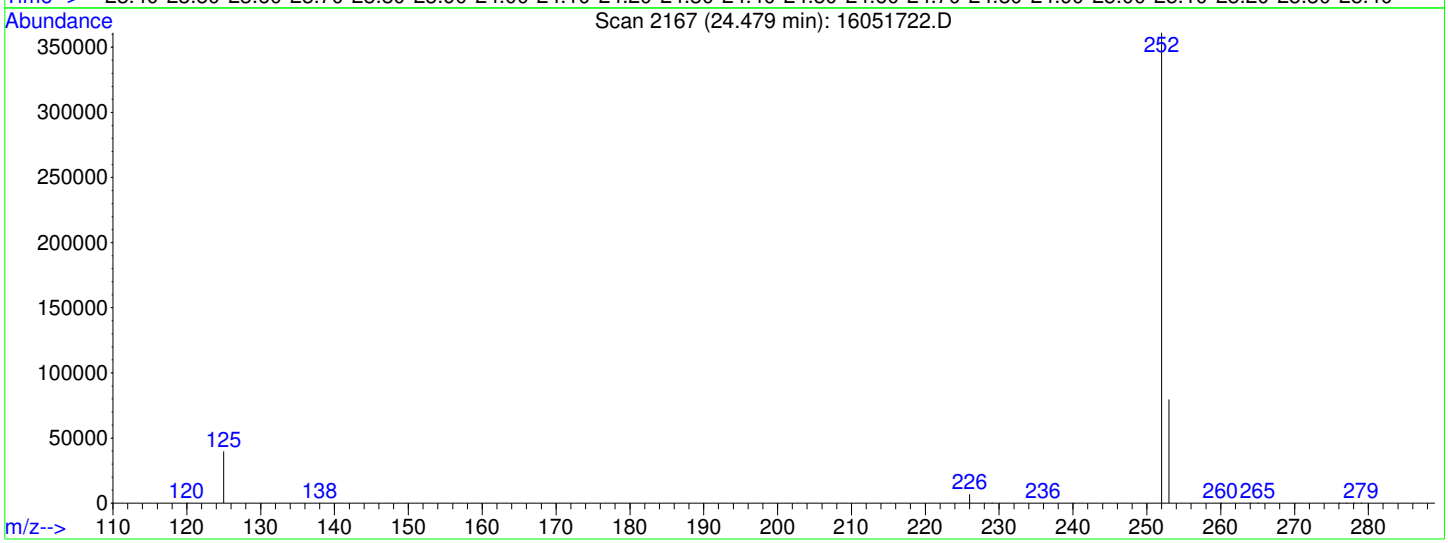


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160517\16051722.D Vial: 17
Acq On : 17 May 2016 10:19 pm Operator:
Sample : ICV2-160517 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 17 22:52 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051722.D

(21) Benzo[b]fluoranthene (CP)

24.48min 1918.86ug/kg

response 999580

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	21.96
125.00	11.00	10.99
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051724.D Vial: 19
Acq On : 17 May 2016 11:40 pm Operator:
Sample : SB-160517 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

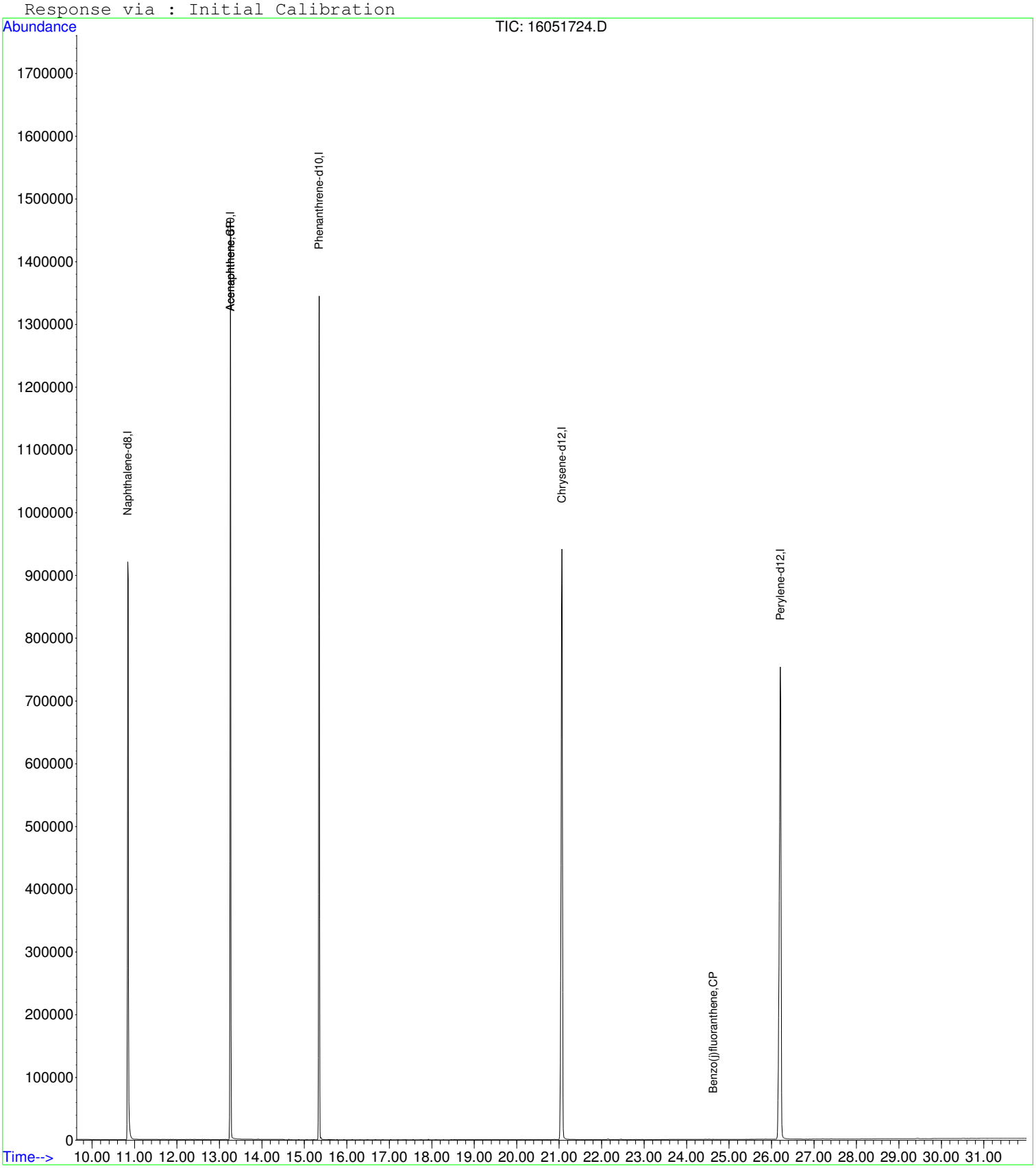
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1289561	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	837038	4000.00	ug/kg	73
11) Phenanthrene-d10	15.35	188	1455395	4000.00	ug/kg	71
17) Chrysene-d12	21.06	240	1612561	4000.00	ug/kg	71
20) Perylene-d12	26.21	264	1494014	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	40	0.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.83	244	124	0.33	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.26	154	2537	11.34	ug/kg#	9
23) Benzo(j)fluoranthene	24.63	252	303	0.92	ug/kg	82

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051724.D Vial: 19
Acq On : 17 May 2016 11:40 pm Operator:
Sample : SB-160517 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051725.D Vial: 20
Acq On : 18 May 2016 12:20 am Operator:
Sample : 1605096-38A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:32 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

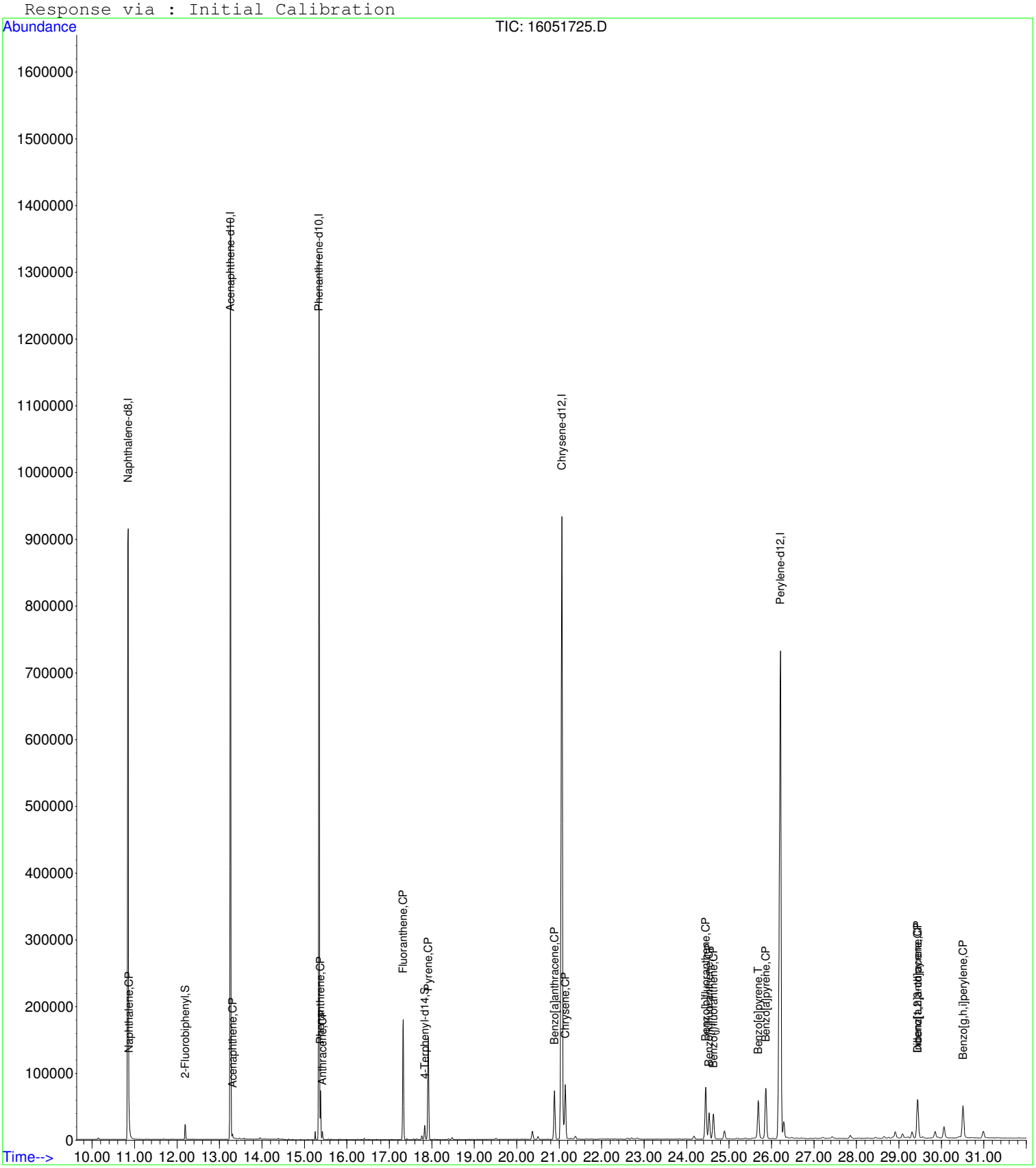
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1283237	4000.00	ug/kg	111
5) Acenaphthene-d10	13.25	164	810139	4000.00	ug/kg	70
11) Phenanthrene-d10	15.34	188	1449855	4000.00	ug/kg	71
17) Chrysene-d12	21.06	240	1552731	4000.00	ug/kg	68
20) Perylene-d12	26.21	264	1459548	4000.00	ug/kg	71
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19736	83.51	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#		
16) 4-Terphenyl-d14	17.83	244	26817	71.49	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	1762	5.49	ug/kg	99
9) Acenaphthene	13.31	154	2564	11.84	ug/kg	96
12) Phenanthrene	15.38	178	58371	153.09	ug/kg	99
13) Anthracene	15.42	178	10329	28.62	ug/kg	98
14) Fluoranthene	17.33	202	178414	452.18	ug/kg	99
15) Pyrene	17.91	202	163792	399.62	ug/kg	100
18) Benzo[a]anthracene	20.89	228	107004	294.16	ug/kg	99
19) Chrysene	21.14	228	127292	362.17	ug/kg	99
21) Benzo[b]fluoranthene	24.45	252	141104	366.80	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	69675	193.07	ug/kg	98
23) Benzo(j)fluoranthene	24.63	252	64433	200.44	ug/kg	92
24) Benzo[e]pyrene	25.69	252	105870	307.31	ug/kg	99
25) Benzo[a]pyrene	25.86	252	141613	402.26	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	21850	68.15	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.44	276	97241	254.23	ug/kg	90
28) Benzo[g,h,i]perylene	30.51	276	94457	316.70	ug/kg	99

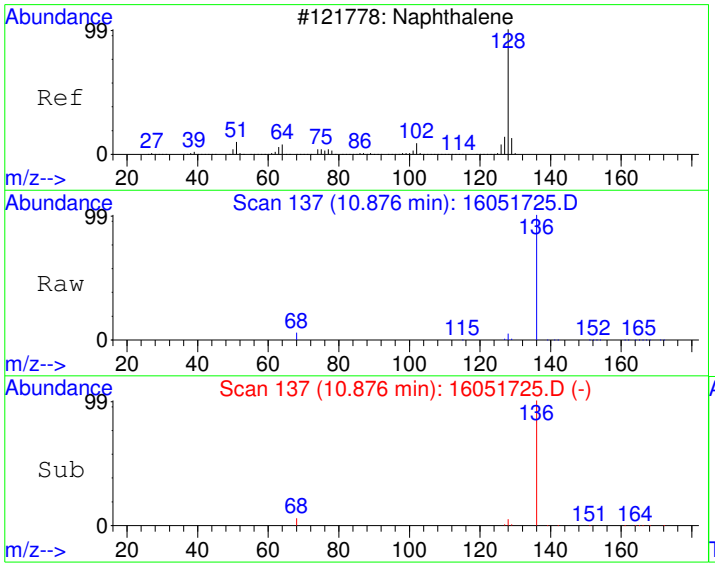
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051725.D Vial: 20
Acq On : 18 May 2016 12:20 am Operator:
Sample : 1605096-38A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:32 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

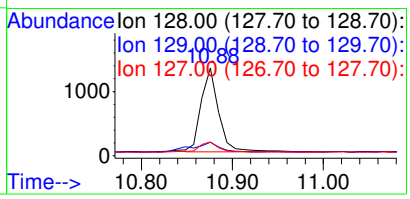


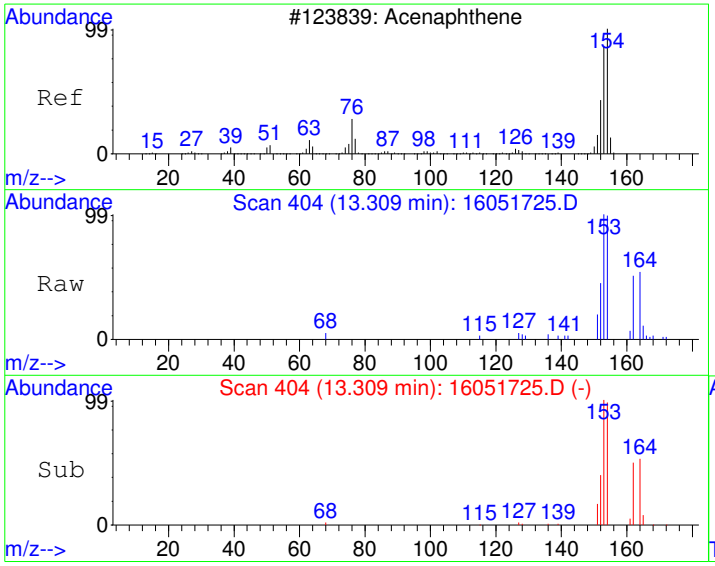


#2
Naphthalene
Concen: 5.49 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:128 Resp: 1762

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	41.1
127	12.2	0.0	42.4

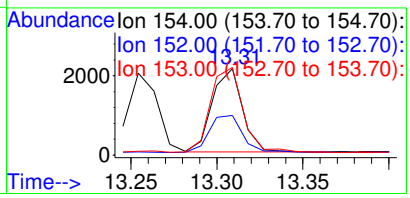


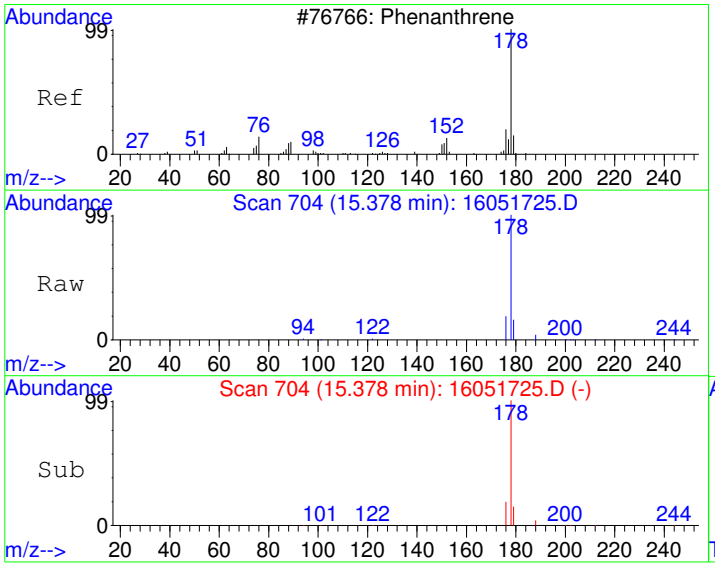


#9
Acenaphthene
Concen: 11.84 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:154 Resp: 2564

Ion	Ratio	Lower	Upper
154	100		
152	44.5	18.9	78.9
153	102.0	75.2	135.2

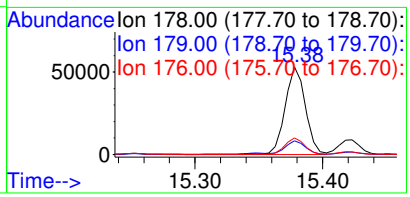


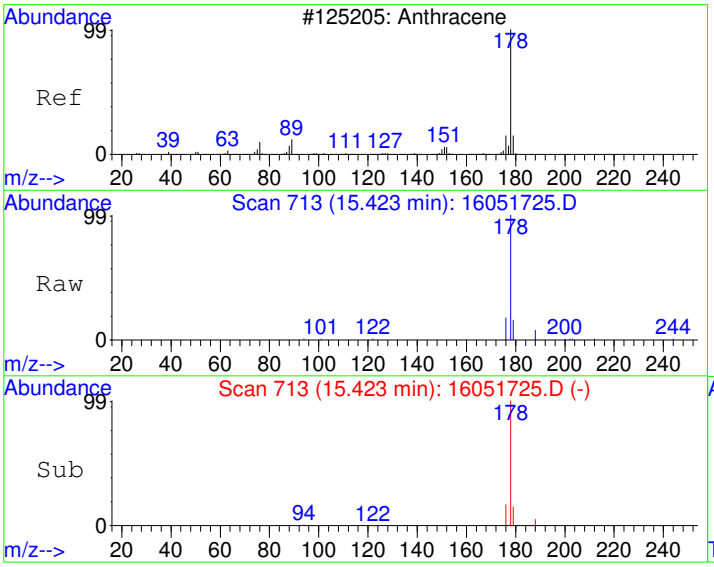


#12
Phenanthrene
Concen: 153.09 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:178 Resp: 58371

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

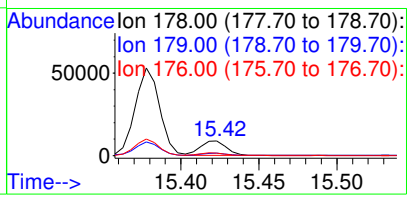


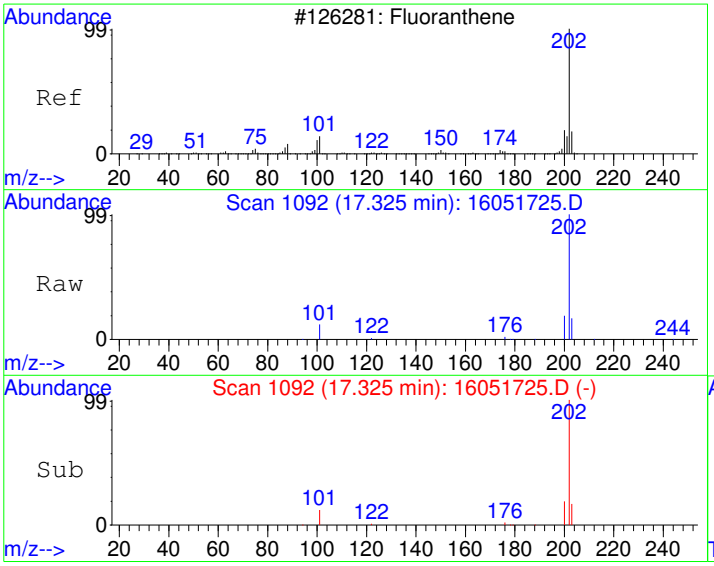


#13
Anthracene
Concen: 28.62 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:178 Resp: 10329

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.3	0.0	48.2

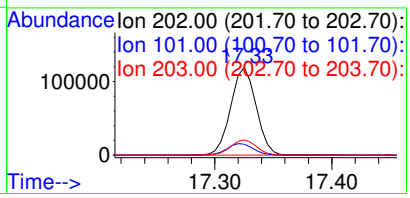


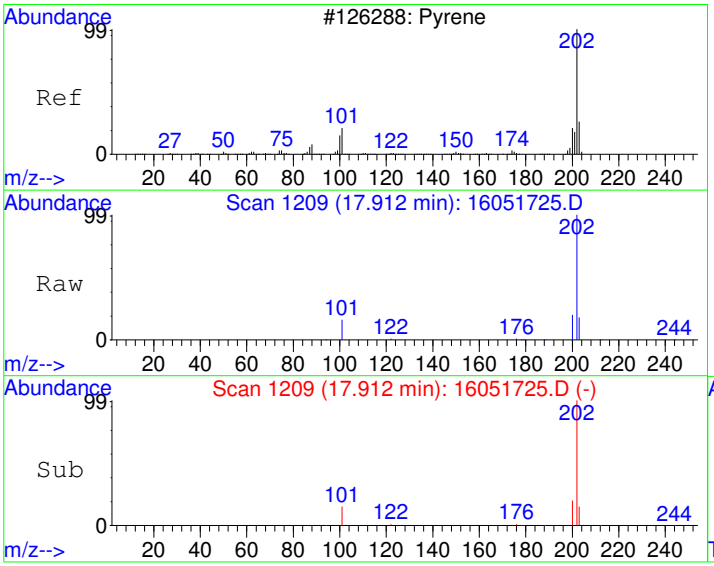


#14
Fluoranthene
Concen: 452.18 ug/kg
RT: 17.33 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:202 Resp: 178414

Ion	Ratio	Lower	Upper
202	100		
101	12.3	0.0	43.0
203	17.4	0.0	47.9

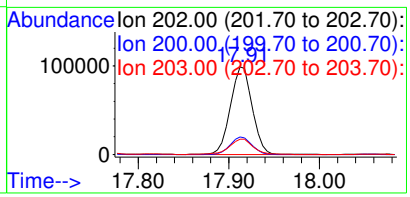


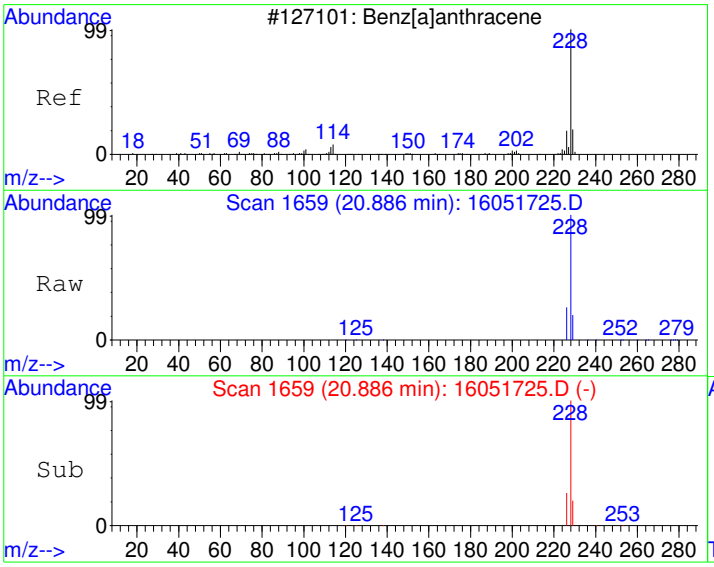


#15
Pyrene
Concen: 399.62 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:202 Resp: 163792

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.6	0.0	48.0

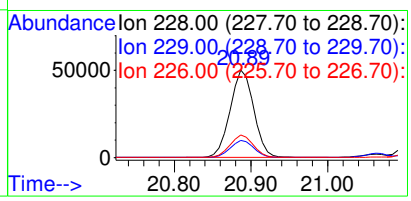


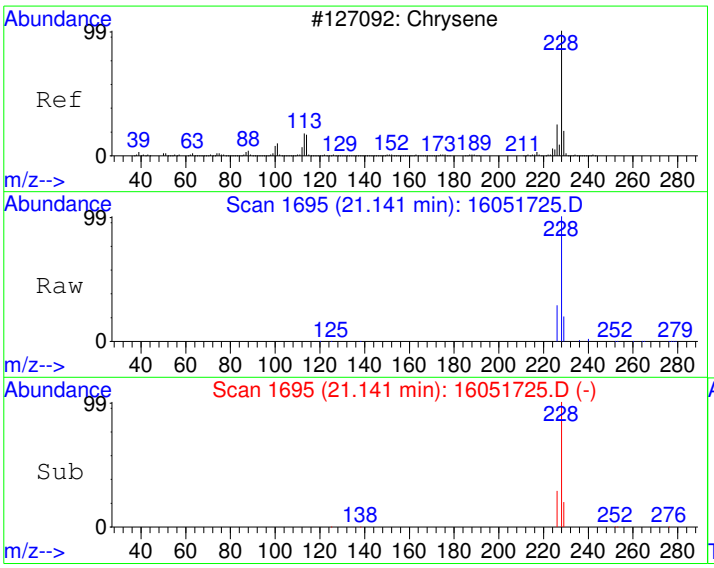


#18
Benzo[a]anthracene
Concen: 294.16 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:228 Resp: 107004

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.1
226	25.7	0.0	55.2

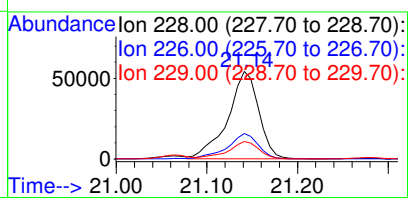


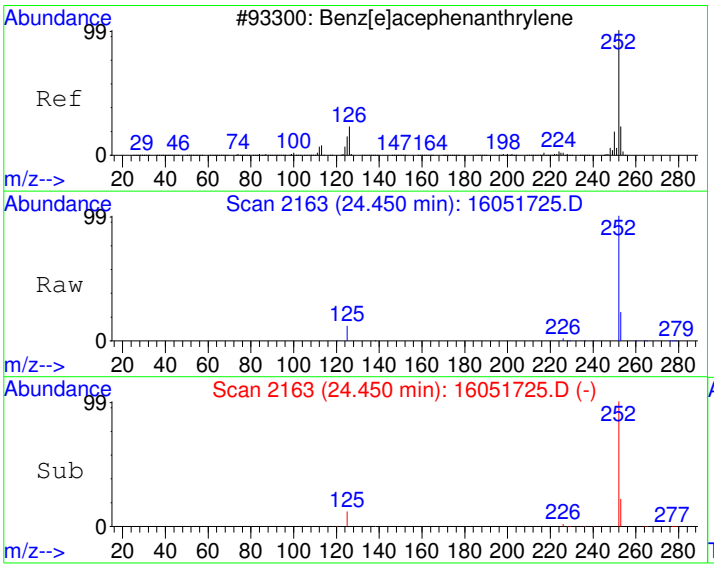


#19
Chrysene
Concen: 362.17 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:228 Resp: 127292

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.1
229	20.0	0.0	50.1

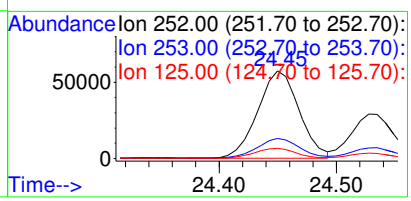


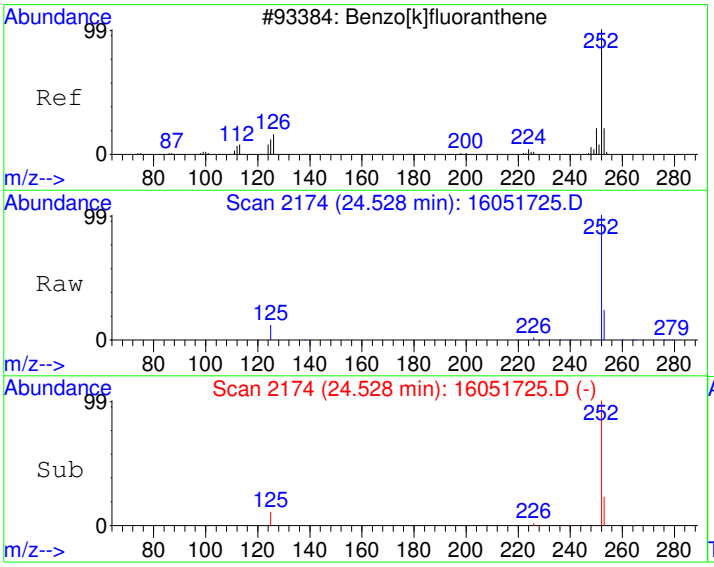


#21
Benzo[b]fluoranthene
Concen: 366.80 ug/kg
RT: 24.45 min Scan# 2163
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:252 Resp: 141104

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.5	0.0	41.0

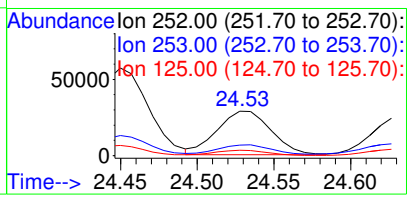


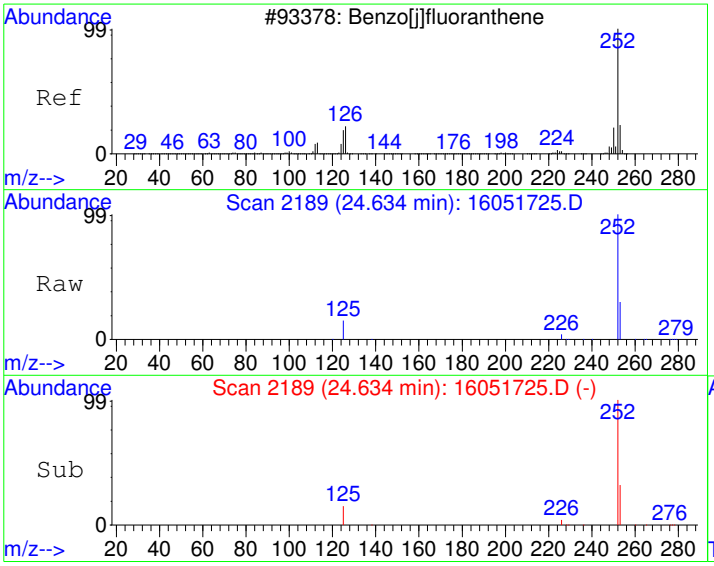


#22
Benzo[k]fluoranthene
Concen: 193.07 ug/kg
RT: 24.53 min Scan# 2174
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:252 Resp: 69675

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.1	42.1
125	11.7	0.0	31.3

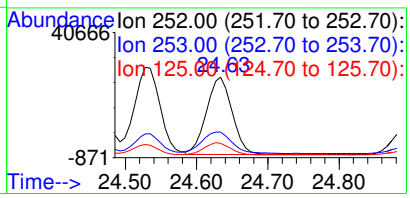


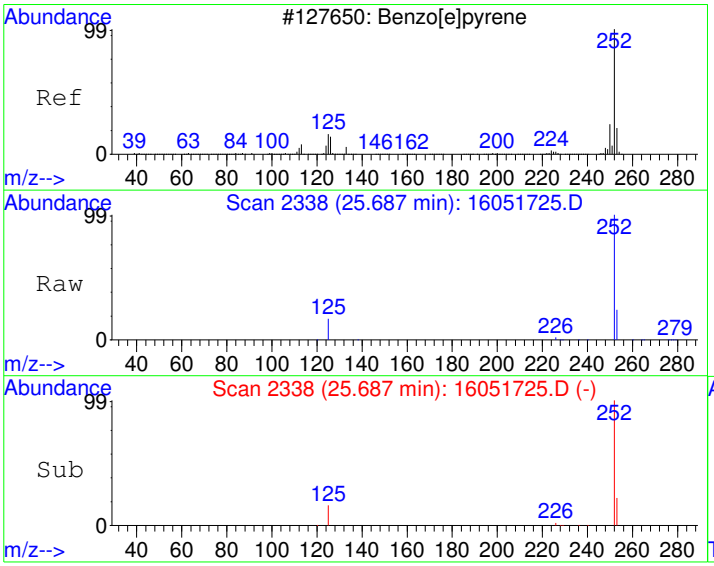


#23
Benzo(j)fluoranthene
Concen: 200.44 ug/kg
RT: 24.63 min Scan# 2189
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:252 Resp: 64433

Ion	Ratio	Lower	Upper
252	100		
253	27.9	2.1	42.1
125	15.0	0.0	34.4

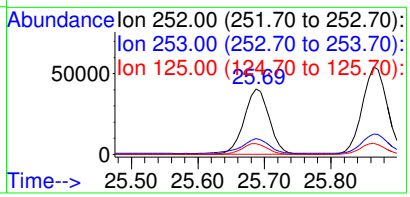


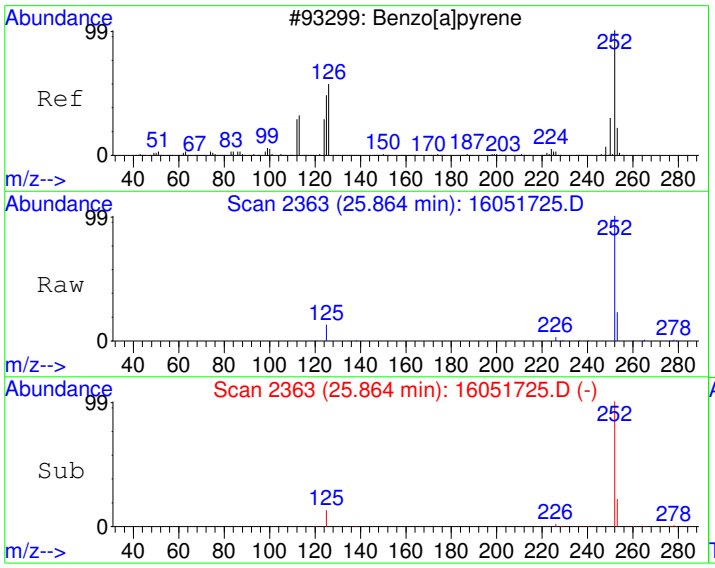


#24
Benzo[e]pyrene
Concen: 307.31 ug/kg
RT: 25.69 min Scan# 2338
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:252 Resp: 105870

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	16.5	0.0	36.1

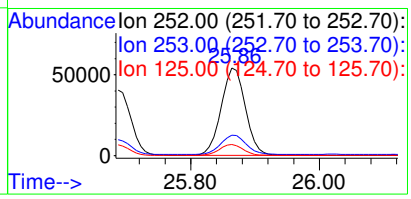


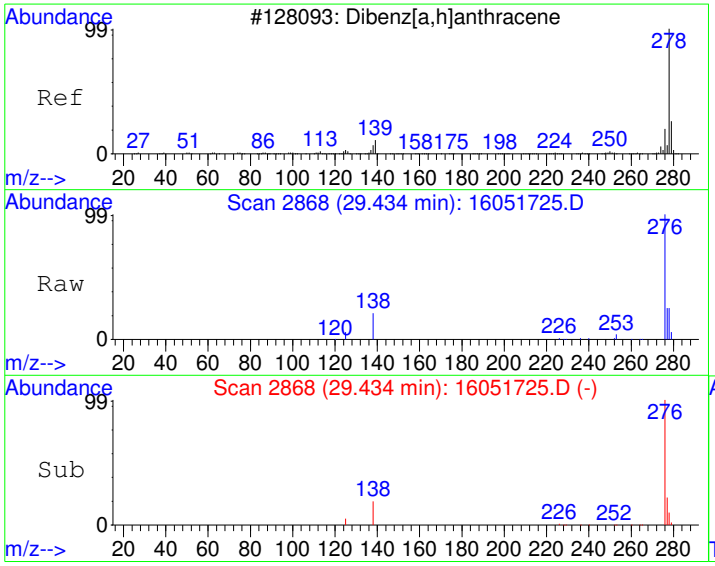


#25
Benzo[a]pyrene
Concen: 402.26 ug/kg
RT: 25.86 min Scan# 2363
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:252 Resp: 141613

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	12.5	0.0	31.7

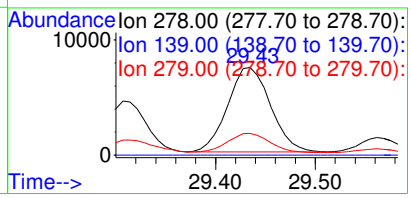


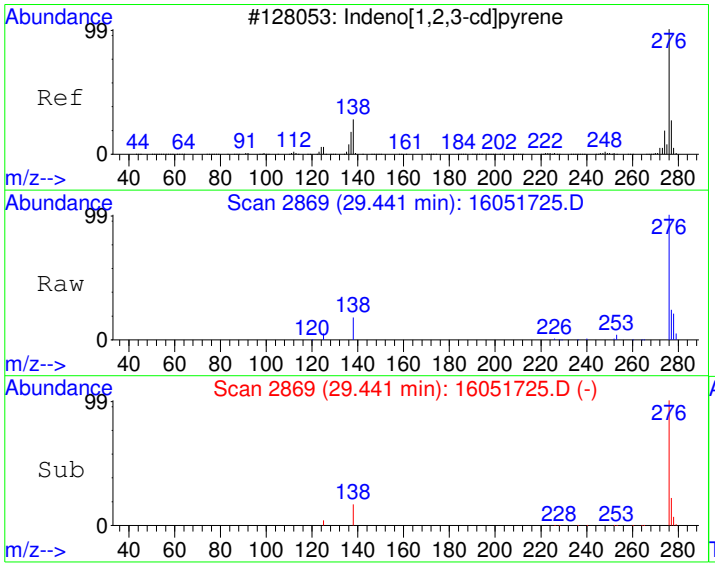


#26
Dibenz[a,h]anthracene
Concen: 68.15 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:278 Resp: 21850

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	4.2	44.2

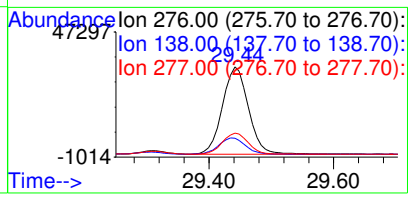


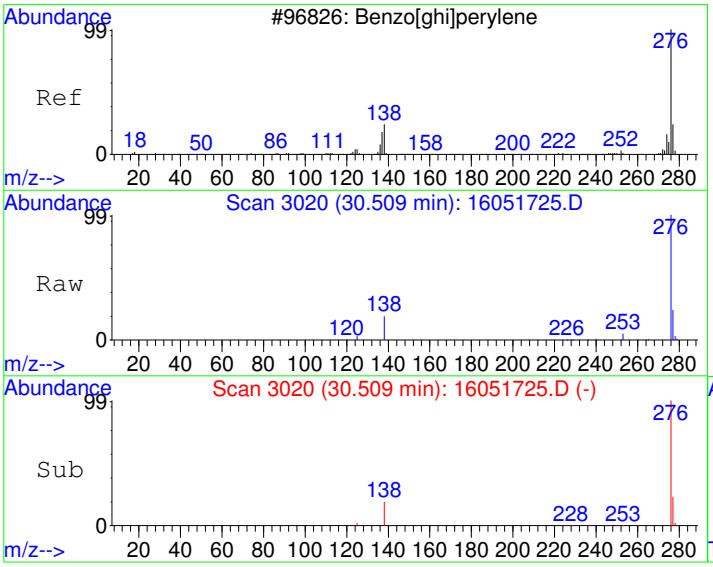


#27
Indeno[1,2,3-cd]pyrene
Concen: 254.23 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:276 Resp: 97241

Ion	Ratio	Lower	Upper
276	100		
138	18.1	6.7	46.7
277	24.0	5.8	45.8

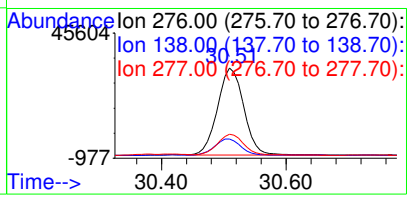




#28
Benzo[g,h,i]perylene
Concen: 316.70 ug/kg
RT: 30.51 min Scan# 3020
Delta R.T. -0.04 min
Lab File: 16051725.D
Acq: 18 May 2016 12:20 am

Tgt Ion:276 Resp: 94457

Ion	Ratio	Lower	Upper
276	100		
138	18.8	0.0	39.1
277	24.2	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051726.D Vial: 21
Acq On : 18 May 2016 1:00 am Operator:
Sample : 1605096-39A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:32 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

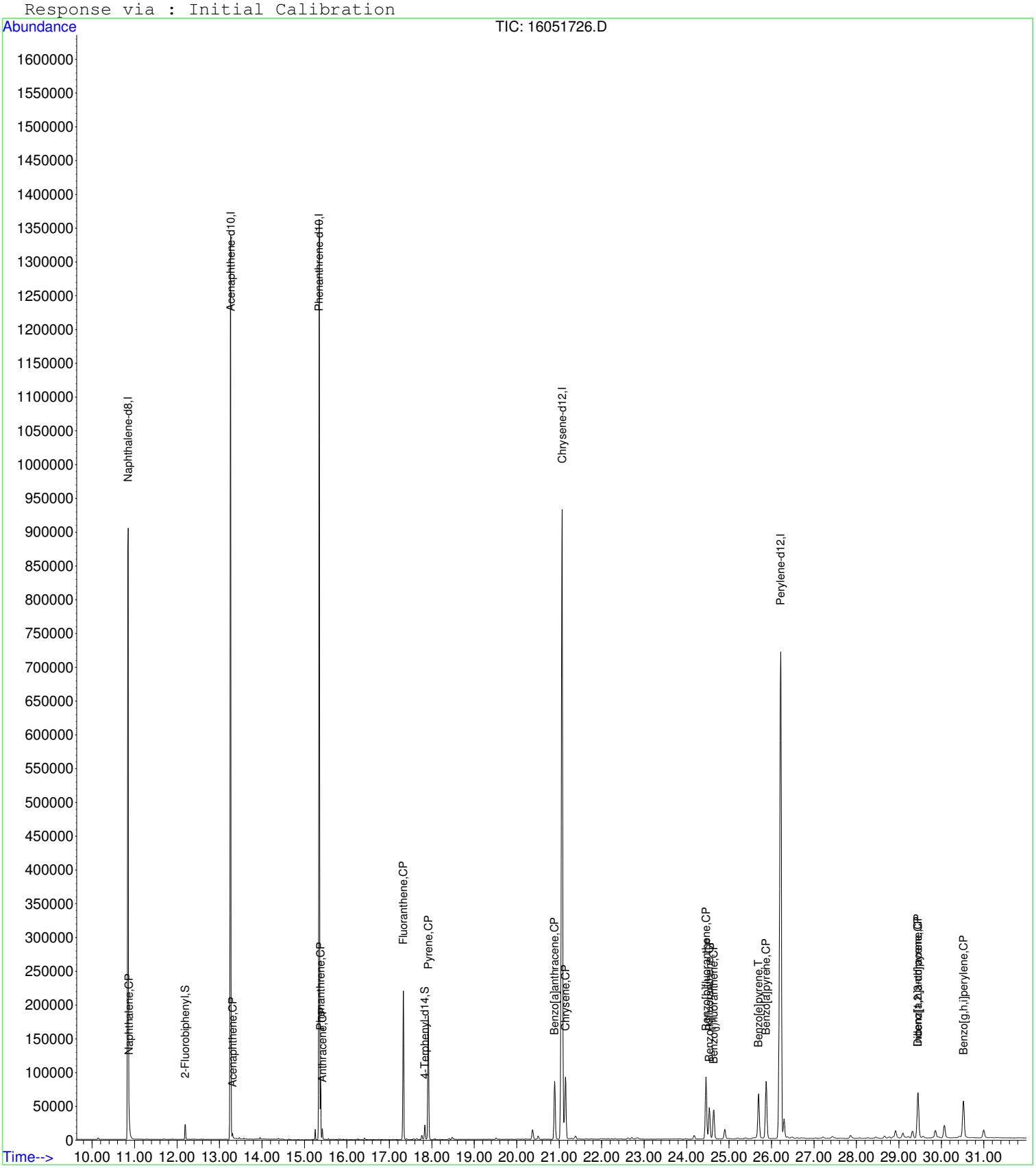
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1251301	4000.00	ug/kg	108
5) Acenaphthene-d10	13.26	164	816750	4000.00	ug/kg	71
11) Phenanthrene-d10	15.35	188	1445546	4000.00	ug/kg	71
17) Chrysene-d12	21.07	240	1541211	4000.00	ug/kg	68
20) Perylene-d12	26.22	264	1427403	4000.00	ug/kg	69
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19717	82.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
16) 4-Terphenyl-d14	17.84	244	27181	72.68	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.82%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	1885	6.02	ug/kg	98
9) Acenaphthene	13.31	154	2778	12.72	ug/kg	99
12) Phenanthrene	15.38	178	74887	196.99	ug/kg	99
13) Anthracene	15.42	178	13175	36.62	ug/kg	99
14) Fluoranthene	17.33	202	216737	550.94	ug/kg	99
15) Pyrene	17.92	202	194226	475.28	ug/kg	99
18) Benzo[a]anthracene	20.89	228	124760	345.53	ug/kg	99
19) Chrysene	21.15	228	144932	415.44	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	162202	431.14	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	80004	226.69	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	73584	234.06	ug/kg	92
24) Benzo[e]pyrene	25.69	252	121106	359.45	ug/kg	100
25) Benzo[a]pyrene	25.87	252	160330	465.68	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	25320	80.75	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.45	276	111563	298.25	ug/kg	90
28) Benzo[g,h,i]perylene	30.52	276	107591	368.86	ug/kg	98

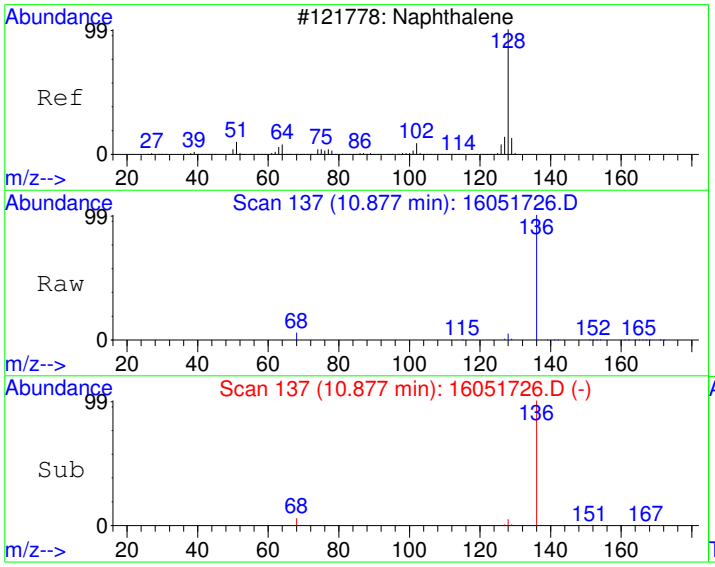
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051726.D Vial: 21
Acq On : 18 May 2016 1:00 am Operator:
Sample : 1605096-39A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:32 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

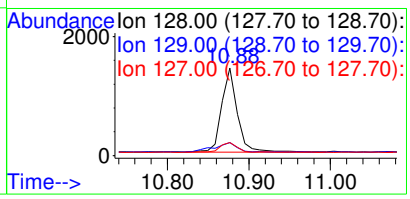


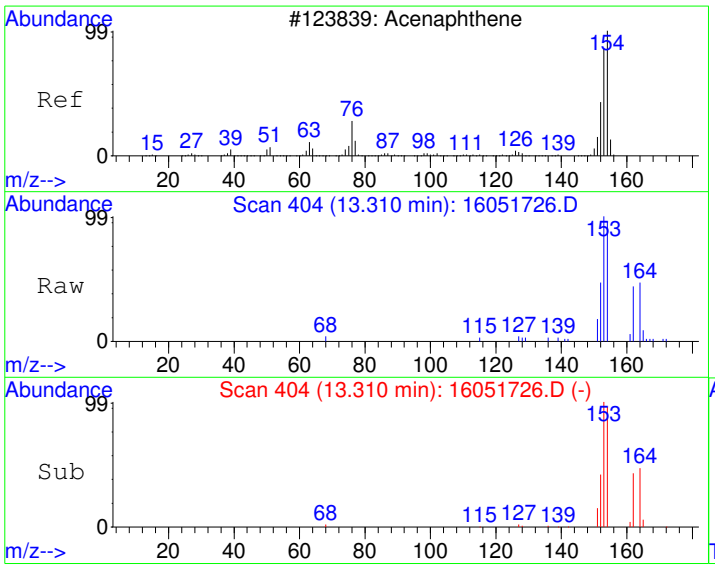


#2
Naphthalene
Concen: 6.02 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:128 Resp: 1885

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	41.1
127	11.5	0.0	42.4

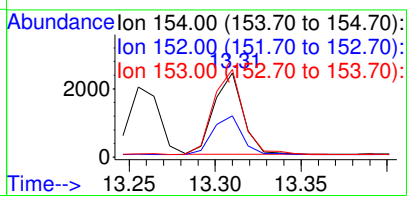


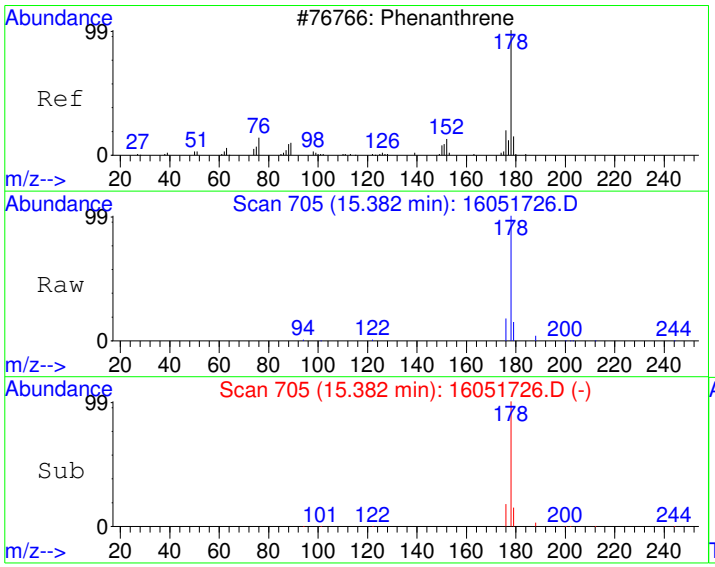


#9
Acenaphthene
Concen: 12.72 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:154 Resp: 2778

Ion	Ratio	Lower	Upper
154	100		
152	47.9	18.9	78.9
153	105.0	75.2	135.2

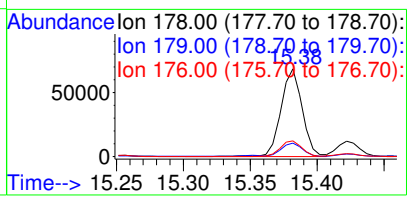


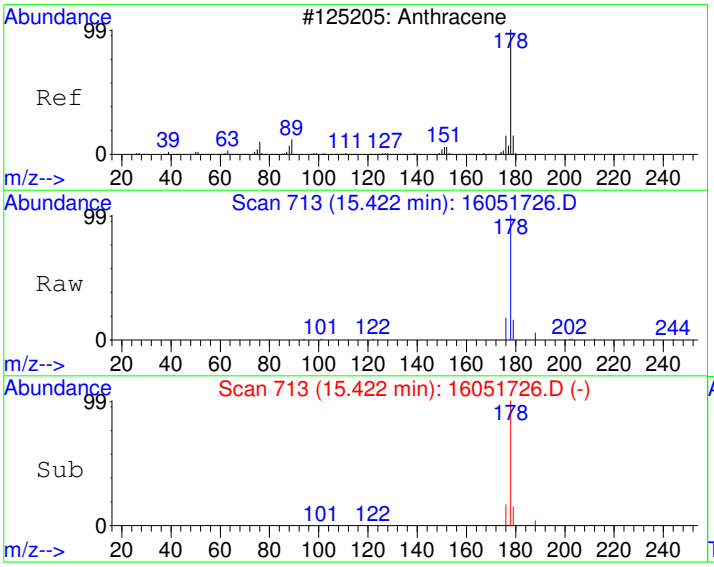


#12
Phenanthrene
Concen: 196.99 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:178 Resp: 74887

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.8	0.0	48.5

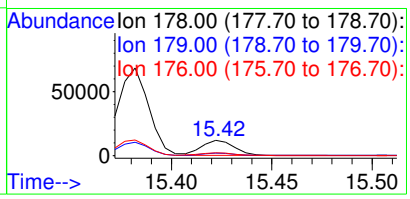


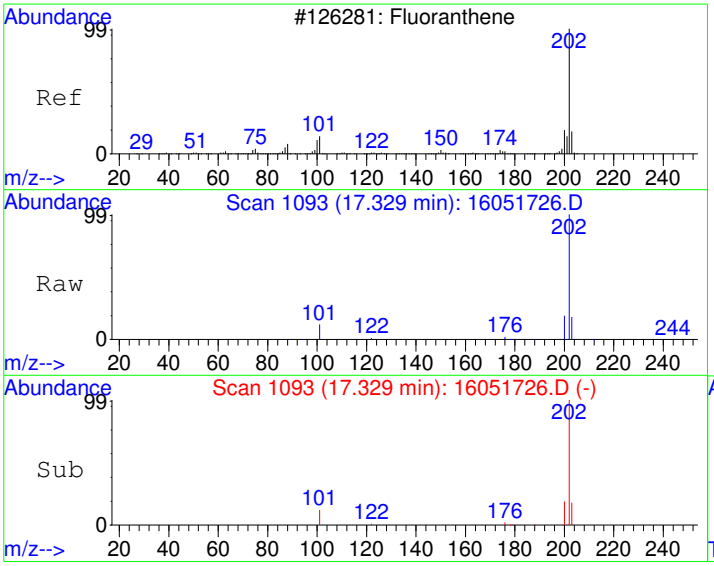


#13
Anthracene
Concen: 36.62 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:178 Resp: 13175

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.6	0.0	48.2

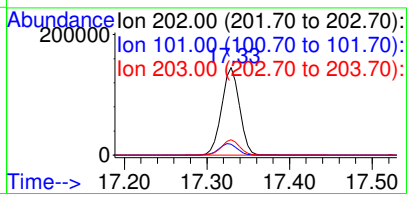


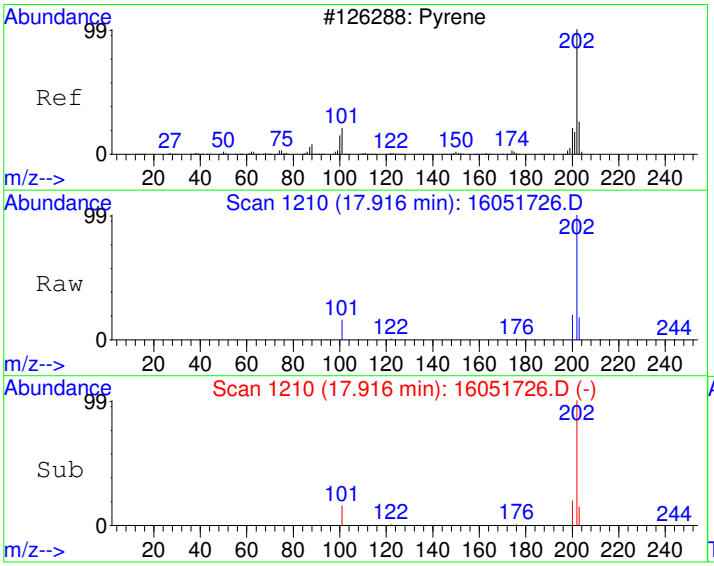


#14
Fluoranthene
Concen: 550.94 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:202 Resp: 216737

Ion	Ratio	Lower	Upper
202	100		
101	12.2	0.0	43.0
203	17.5	0.0	47.9

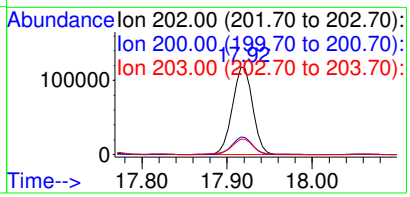


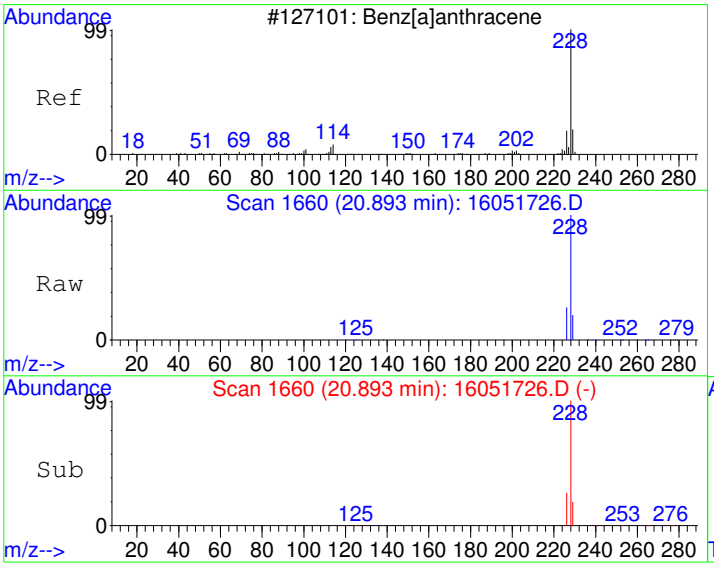


#15
Pyrene
Concen: 475.28 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:202 Resp: 194226

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.4	0.0	48.0

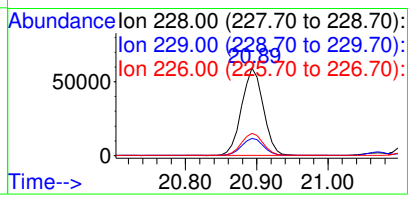


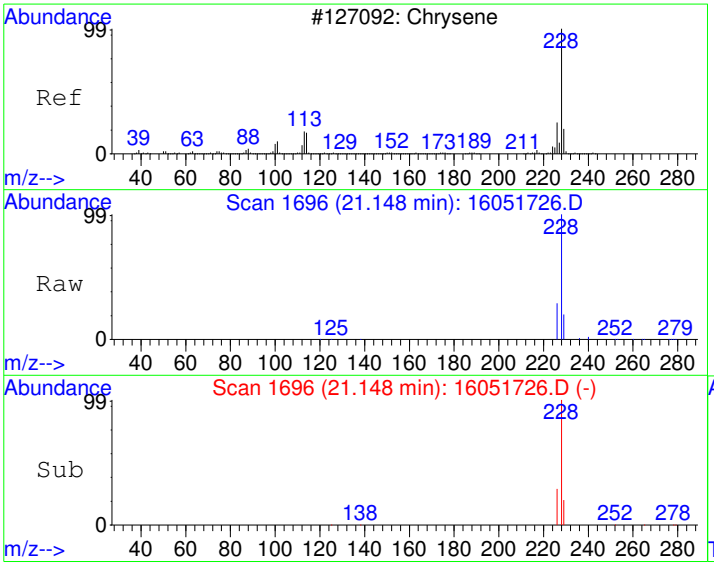


#18
Benzo[a]anthracene
Concen: 345.53 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:228 Resp: 124760

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.1
226	25.6	0.0	55.2

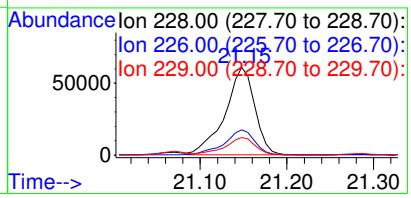


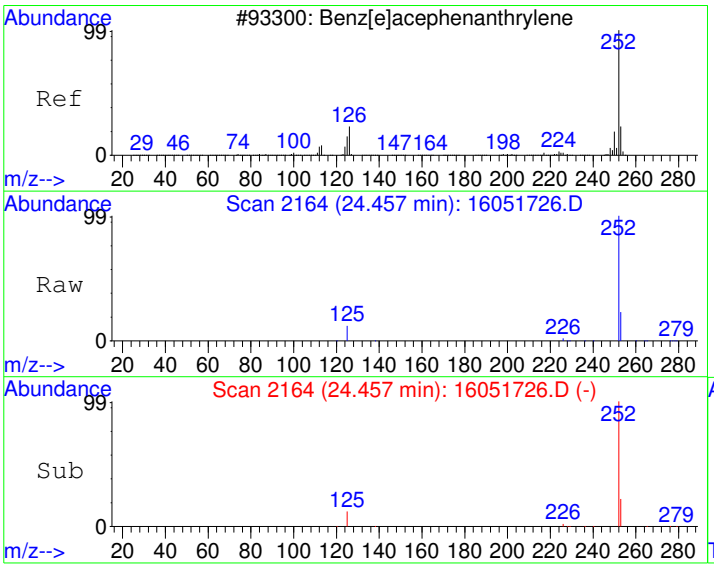


#19
Chrysene
Concen: 415.44 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:228 Resp: 144932

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	19.8	0.0	50.1

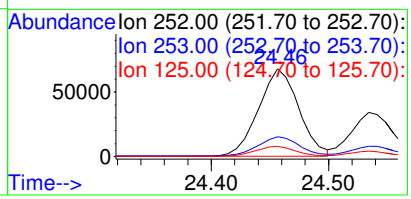


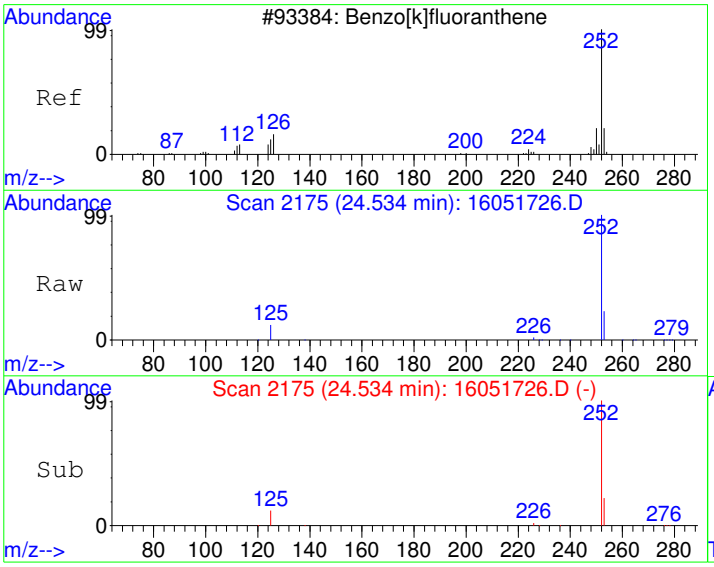


#21
Benzo[b]fluoranthene
Concen: 431.14 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:252 Resp: 162202

Ion	Ratio	Lower	Upper
252	100		
253	21.8	0.0	52.2
125	11.5	0.0	41.0

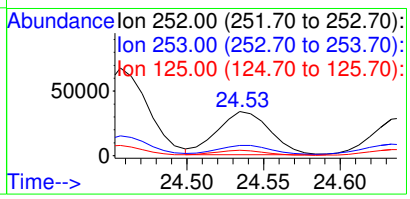


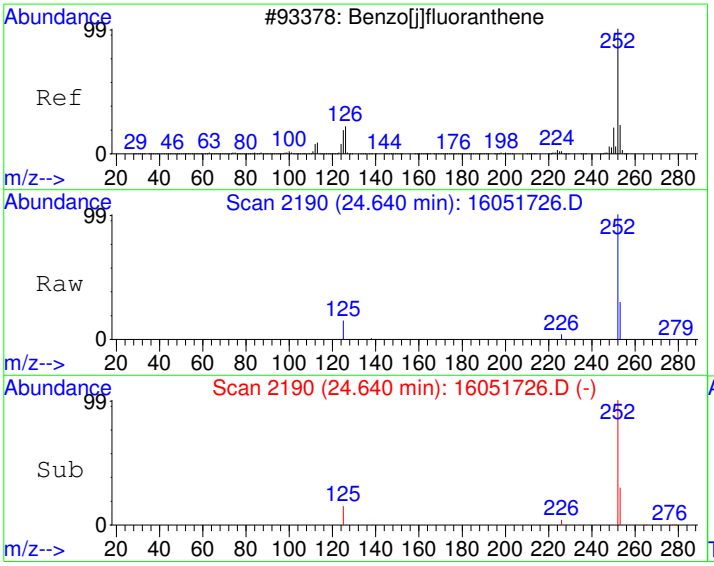


#22
Benzo[k]fluoranthene
Concen: 226.69 ug/kg
RT: 24.53 min Scan# 2175
Delta R.T. -0.04 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:252 Resp: 80004

Ion	Ratio	Lower	Upper
252	100		
253	20.5	2.1	42.1
125	11.5	0.0	31.3

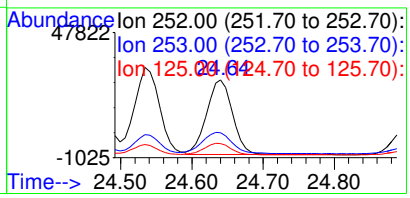


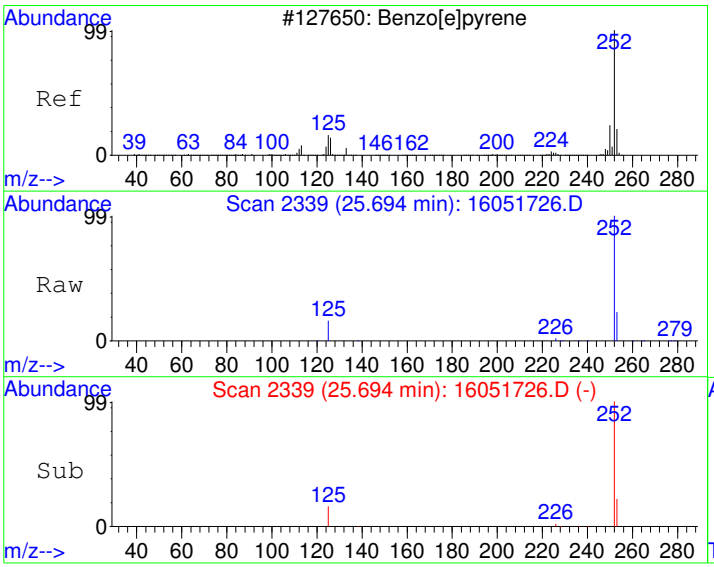


#23
Benzo(j)fluoranthene
Concen: 234.06 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:252 Resp: 73584

Ion	Ratio	Lower	Upper
252	100		
253	27.9	2.1	42.1
125	15.0	0.0	34.4

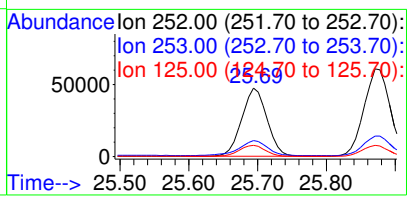


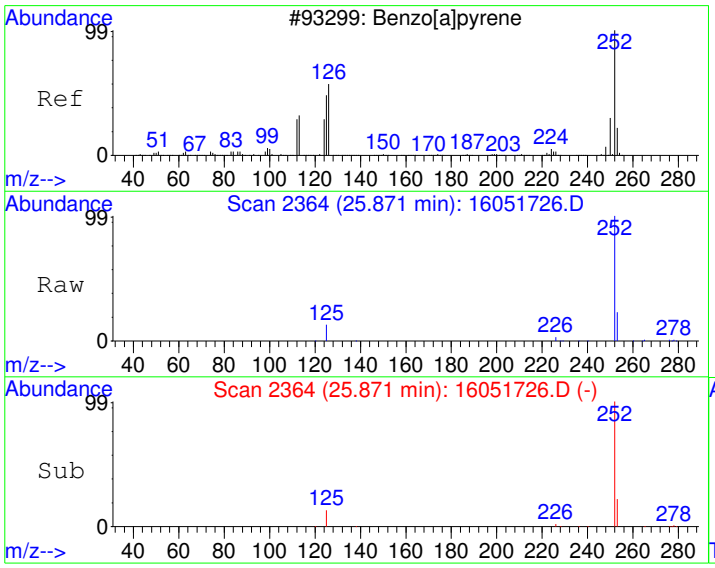


#24
Benzo[e]pyrene
Concen: 359.45 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:252 Resp: 121106

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.2	42.2
125	16.2	0.0	36.1

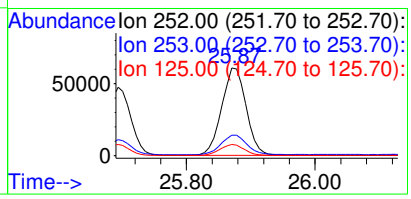


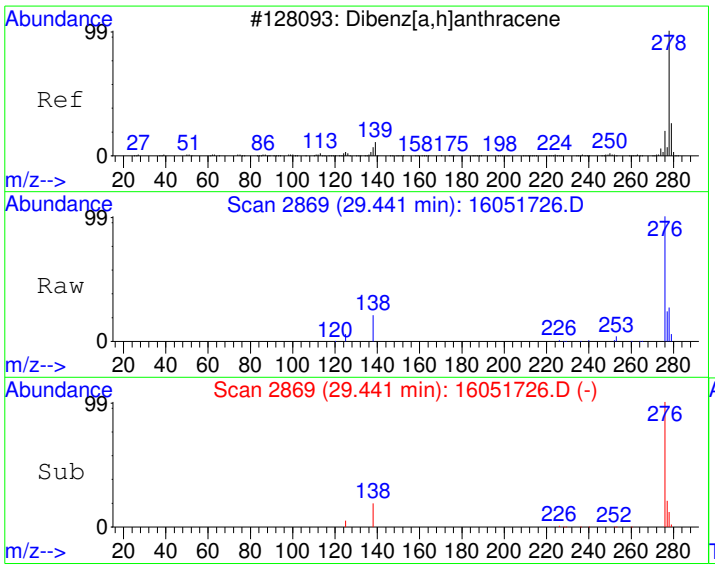


#25
Benzo[a]pyrene
Concen: 465.68 ug/kg
RT: 25.87 min Scan# 2364
Delta R.T. -0.03 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:252 Resp: 160330

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	12.7	0.0	31.7

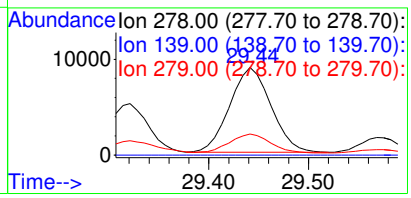


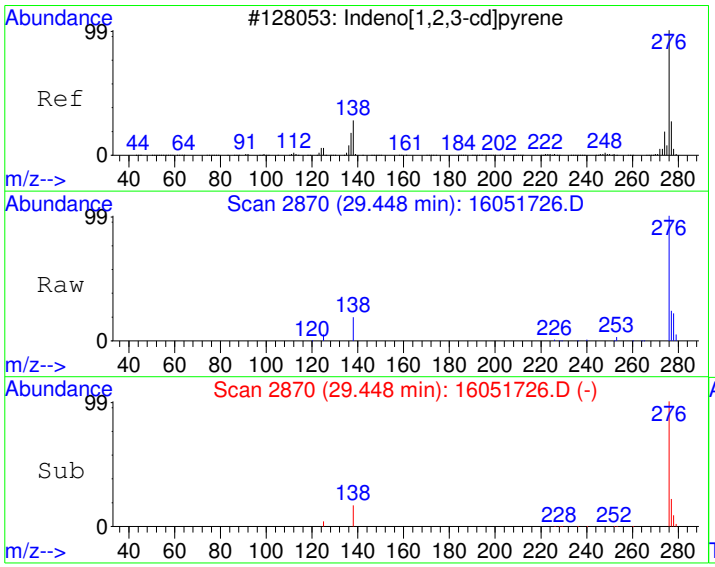


#26
Dibenz[a,h]anthracene
Concen: 80.75 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:278 Resp: 25320

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

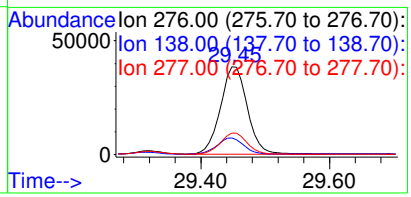


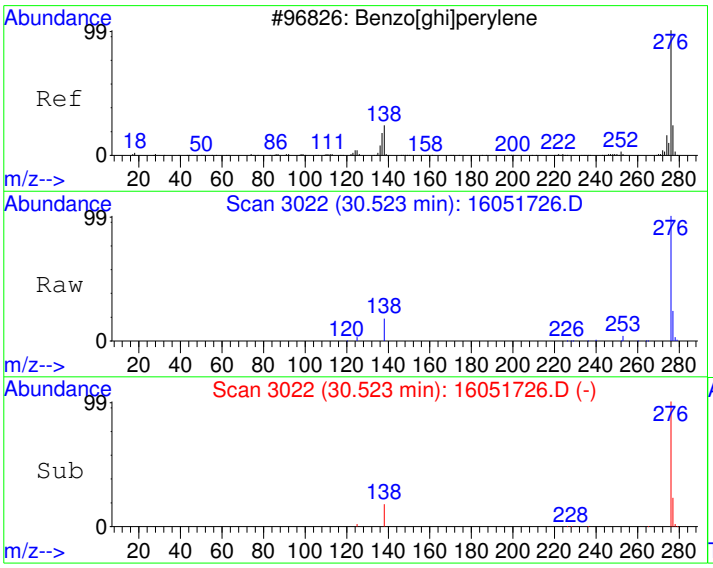


#27
Indeno[1,2,3-cd]pyrene
Concen: 298.25 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:276 Resp: 111563

Ion	Ratio	Lower	Upper
276	100		
138	18.6	6.7	46.7
277	24.0	5.8	45.8

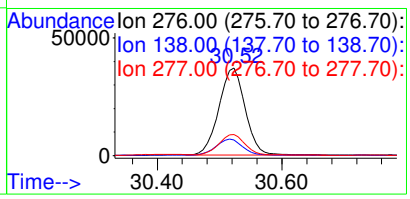




#28
Benzo[g,h,i]perylene
Concen: 368.86 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051726.D
Acq: 18 May 2016 1:00 am

Tgt Ion:276 Resp: 107591

Ion	Ratio	Lower	Upper
276	100		
138	17.7	0.0	39.1
277	23.9	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051727.D Vial: 22
Acq On : 18 May 2016 1:40 am Operator:
Sample : 1605096-40A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:32 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

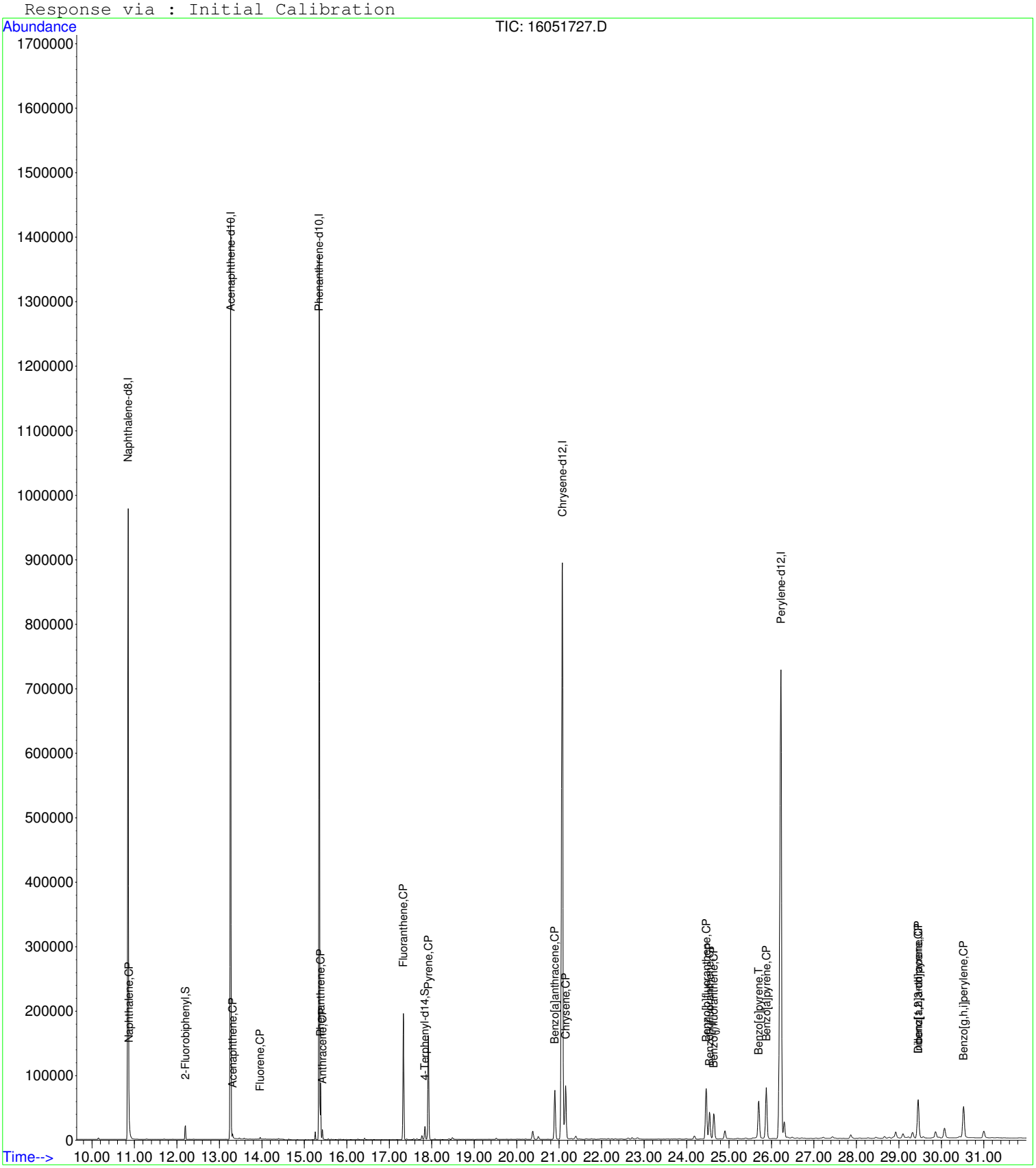
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1238957	4000.00	ug/kg	107
5) Acenaphthene-d10	13.27	164	814352	4000.00	ug/kg	71
11) Phenanthrene-d10	15.35	188	1468467	4000.00	ug/kg	72
17) Chrysene-d12	21.08	240	1547314	4000.00	ug/kg	68
20) Perylene-d12	26.22	264	1427320	4000.00	ug/kg	69
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18920	79.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.99%#			
16) 4-Terphenyl-d14	17.84	244	26434	69.58	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.74%#			
Target Compounds						Qvalue
2) Naphthalene	10.88	128	1588	5.12	ug/kg	98
9) Acenaphthene	13.31	154	2470	11.35	ug/kg	98
10) Fluorene	13.96	166	1358	5.14	ug/kg	92
12) Phenanthrene	15.38	178	69261	179.35	ug/kg	99
13) Anthracene	15.42	178	13182	36.06	ug/kg	99
14) Fluoranthene	17.33	202	192418	481.49	ug/kg	99
15) Pyrene	17.92	202	173115	417.01	ug/kg	99
18) Benzo[a]anthracene	20.90	228	111859	308.58	ug/kg	99
19) Chrysene	21.15	228	130187	371.70	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	145864	387.74	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	70079	198.58	ug/kg	99
23) Benzo(j)fluoranthene	24.64	252	65839	209.44	ug/kg	90
24) Benzo[e]pyrene	25.70	252	108013	320.61	ug/kg	99
25) Benzo[a]pyrene	25.88	252	142850	414.93	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	22452	71.61	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.46	276	98363	262.97	ug/kg	90
28) Benzo[g,h,i]perylene	30.52	276	94495	323.98	ug/kg	99

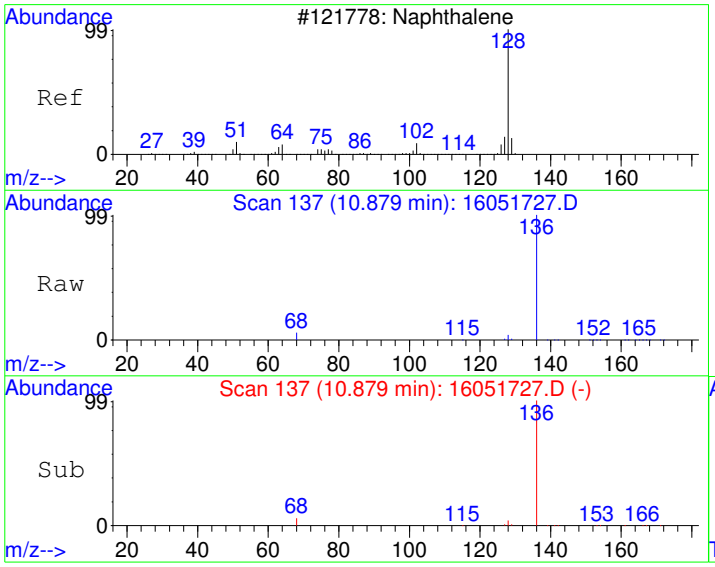
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051727.D Vial: 22
Acq On : 18 May 2016 1:40 am Operator:
Sample : 1605096-40A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:32 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

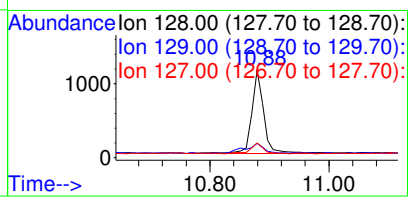


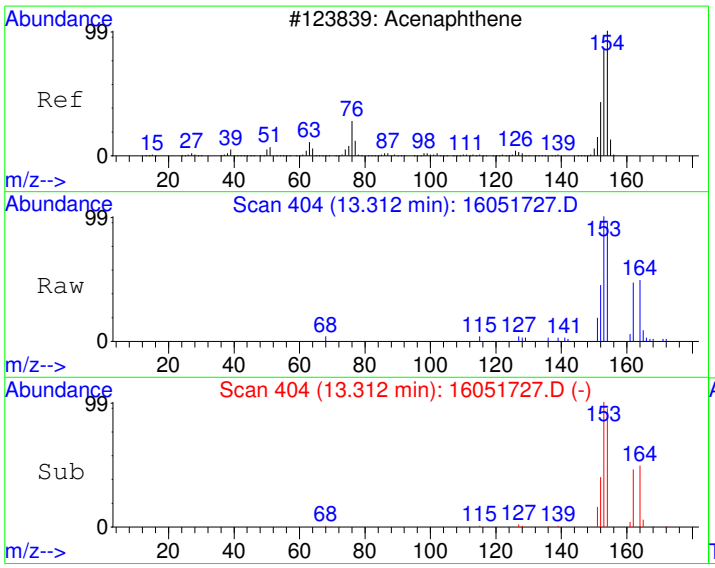


#2
Naphthalene
Concen: 5.12 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:128 Resp: 1588

Ion	Ratio	Lower	Upper
128	100		
129	12.4	0.0	41.1
127	12.9	0.0	42.4

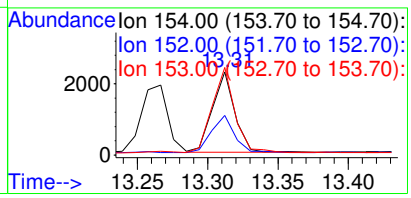


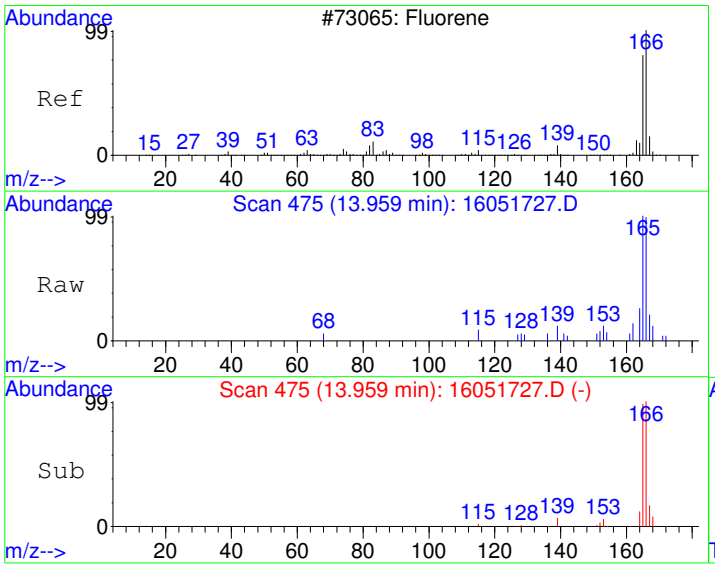


#9
Acenaphthene
Concen: 11.35 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:154 Resp: 2470

Ion	Ratio	Lower	Upper
154	100		
152	46.1	18.9	78.9
153	106.0	75.2	135.2

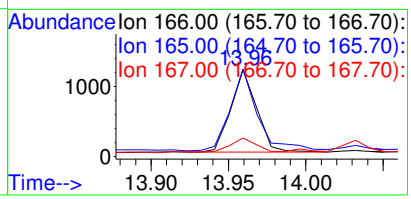


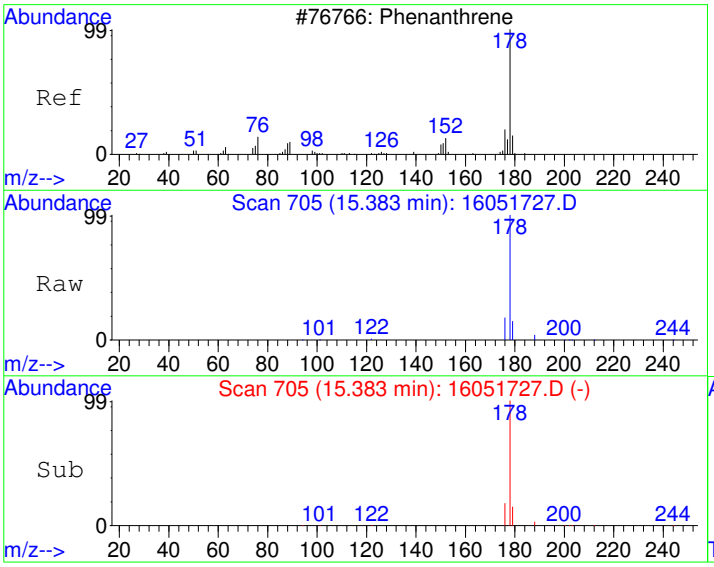


#10
Fluorene
Concen: 5.14 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:166 Resp: 1358

Ion	Ratio	Lower	Upper
166	100		
165	99.3	61.8	121.8
167	16.7	0.0	43.6

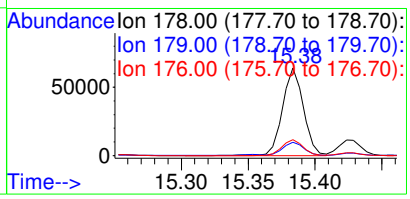


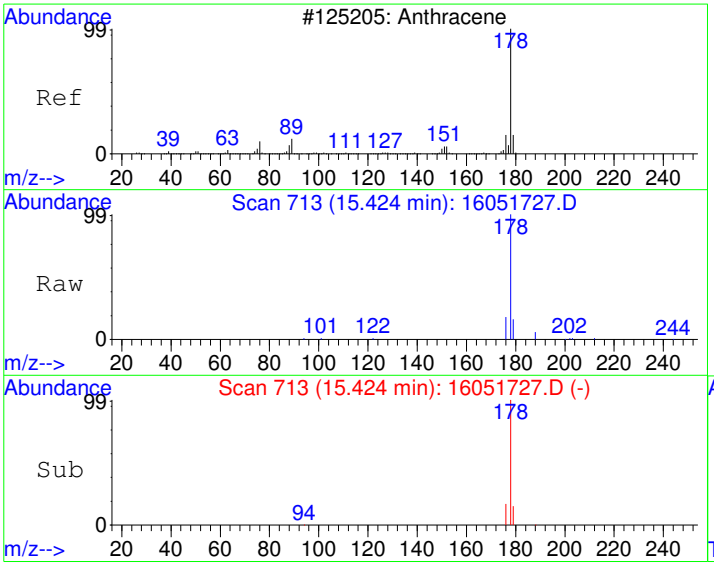


#12
Phenanthrene
Concen: 179.35 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:178 Resp: 69261

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.9
176	18.2	0.0	48.5

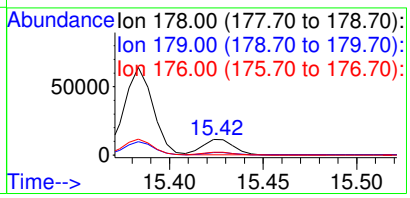


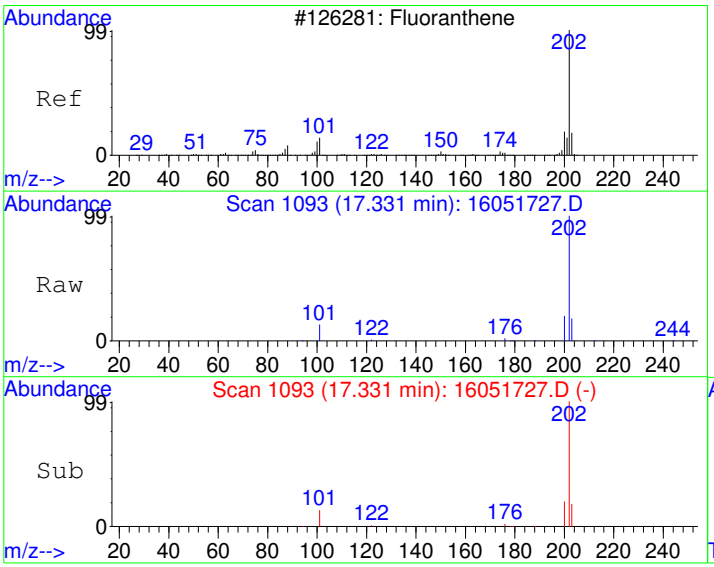


#13
Anthracene
Concen: 36.06 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:178 Resp: 13182

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.9	0.0	48.2

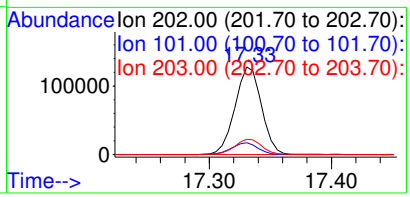


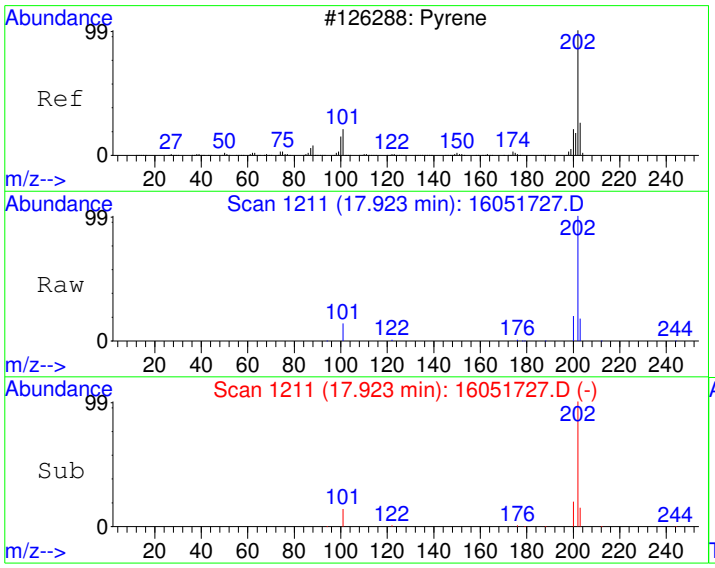


#14
Fluoranthene
Concen: 481.49 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:202 Resp: 192418

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	43.0
203	17.5	0.0	47.9

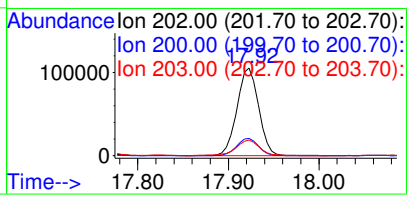


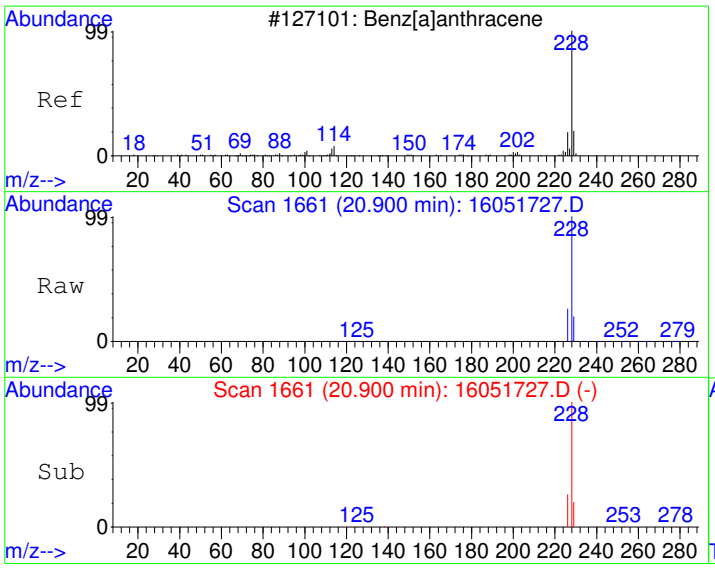


#15
Pyrene
Concen: 417.01 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:202 Resp: 173115

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	50.0
203	17.7	0.0	48.0

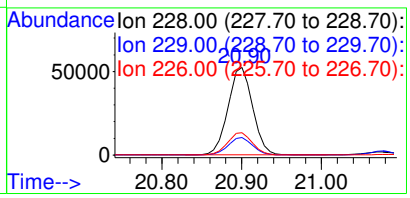


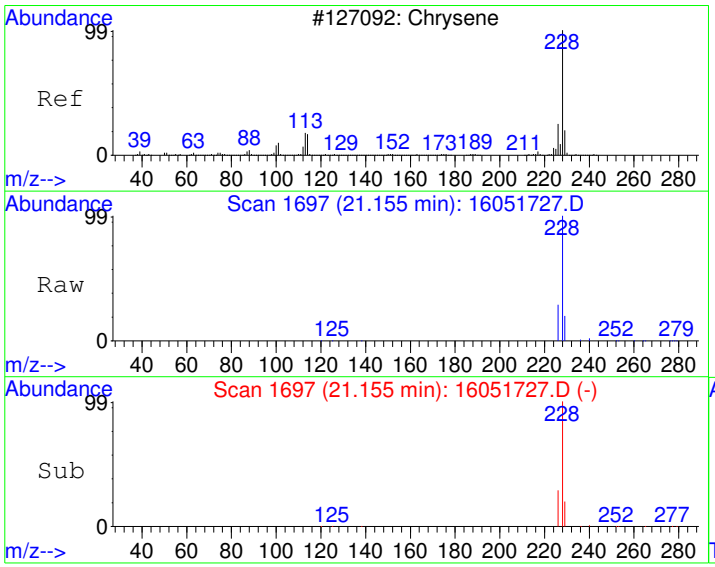


#18
Benzo[a]anthracene
Concen: 308.58 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:228 Resp: 111859

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.5	0.0	55.2

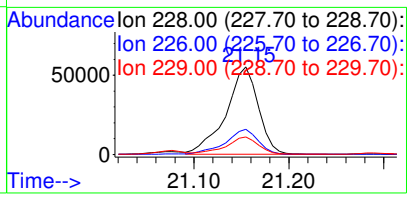


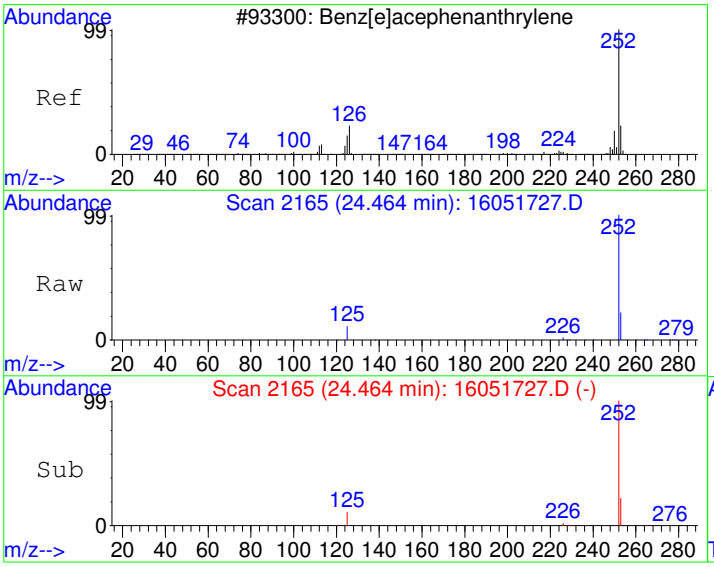


#19
Chrysene
Concen: 371.70 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:228 Resp: 130187

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	19.8	0.0	50.1

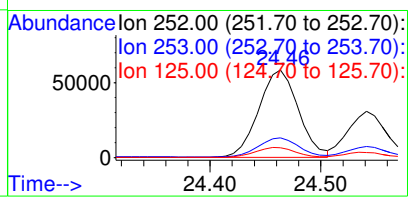


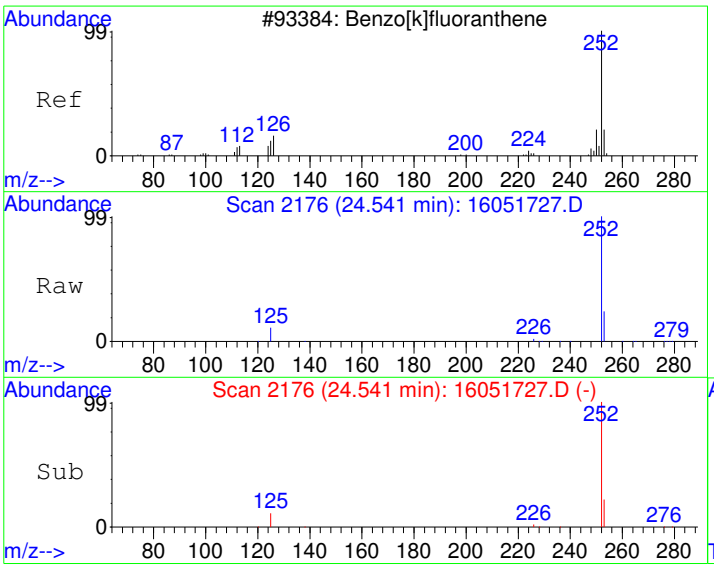


#21
Benzo[b]fluoranthene
Concen: 387.74 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:252 Resp: 145864

Ion	Ratio	Lower	Upper
252	100		
253	21.7	0.0	52.2
125	11.0	0.0	41.0

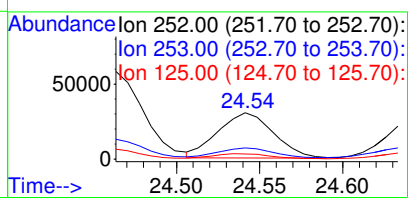


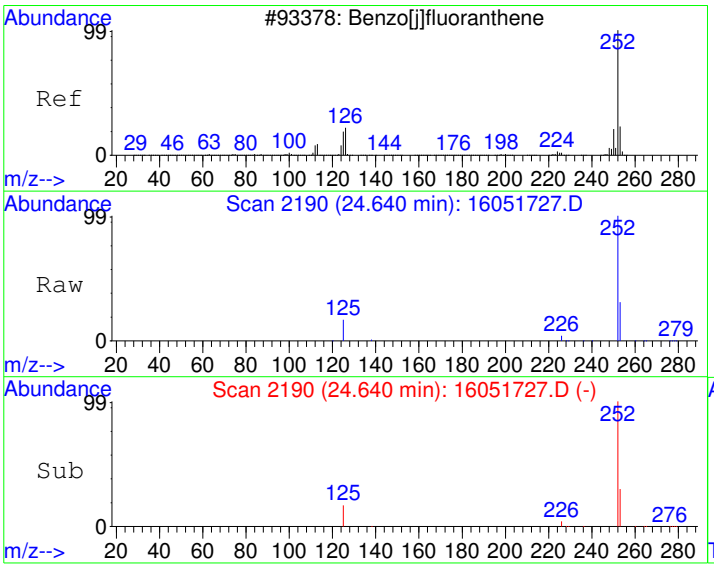


#22
Benzo[k]fluoranthene
Concen: 198.58 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:252 Resp: 70079

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.1	42.1
125	10.7	0.0	31.3

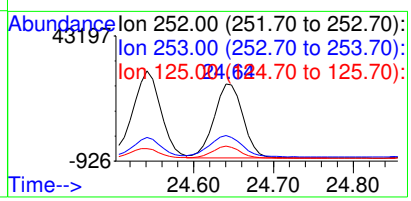


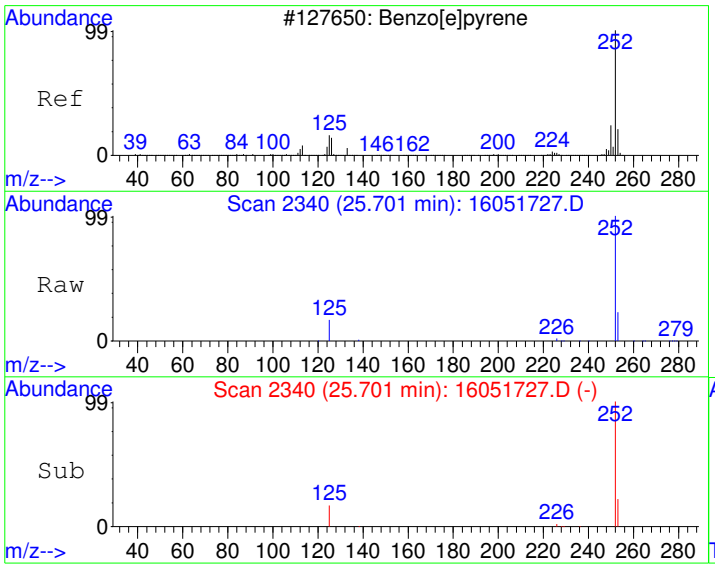


#23
Benzo(j)fluoranthene
Concen: 209.44 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:252 Resp: 65839

Ion	Ratio	Lower	Upper
252	100		
253	28.8	2.1	42.1
125	16.2	0.0	34.4

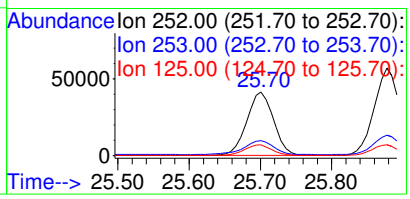


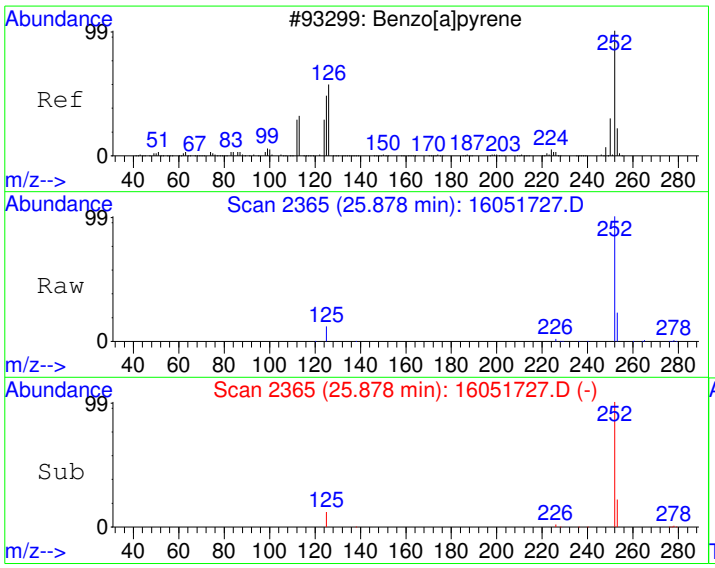


#24
Benzo[e]pyrene
Concen: 320.61 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:252 Resp: 108013

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.2	42.2
125	16.7	0.0	36.1

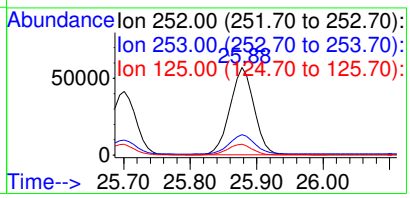


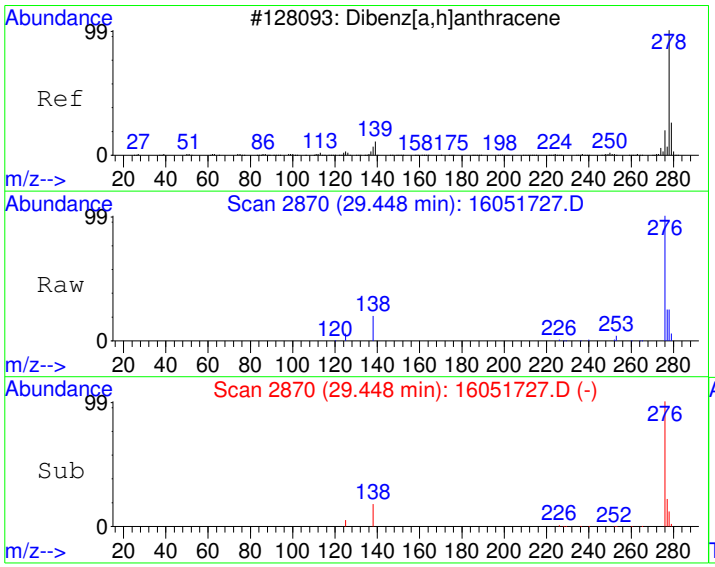


#25
Benzo[a]pyrene
Concen: 414.93 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:252 Resp: 142850

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	12.2	0.0	31.7

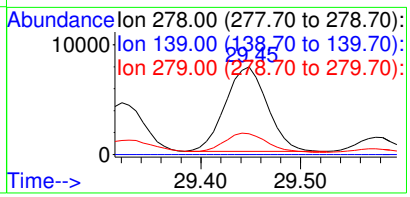


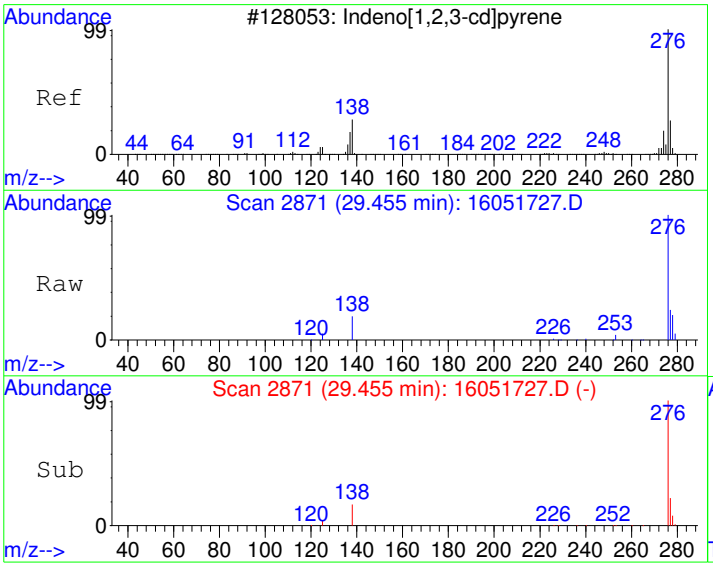


#26
Dibenz[a,h]anthracene
Concen: 71.61 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:278 Resp: 22452

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.8	4.2	44.2

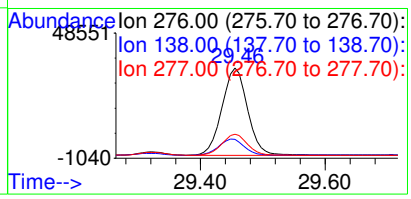


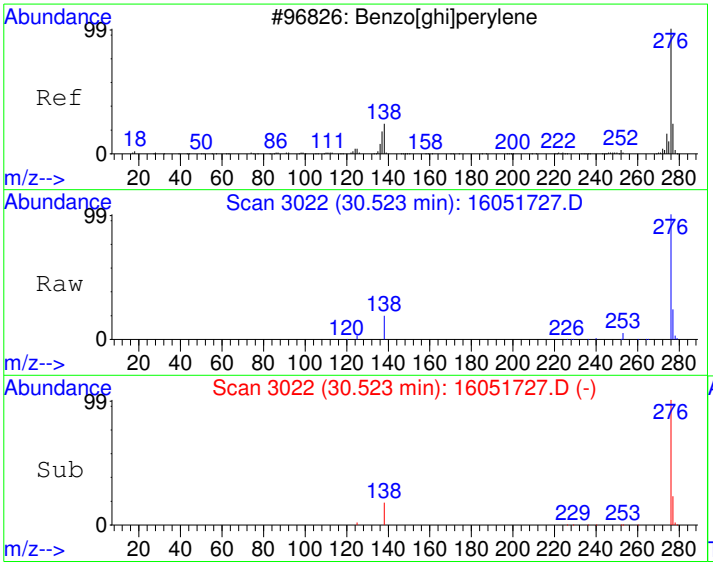


#27
Indeno[1,2,3-cd]pyrene
Concen: 262.97 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:276 Resp: 98363

Ion	Ratio	Lower	Upper
276	100		
138	18.4	6.7	46.7
277	24.1	5.8	45.8

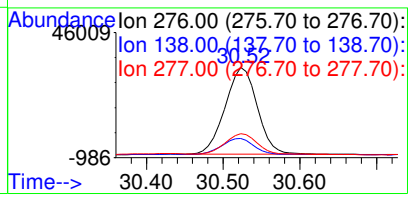




#28
Benzo[g,h,i]perylene
Concen: 323.98 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051727.D
Acq: 18 May 2016 1:40 am

Tgt Ion:276 Resp: 94495

Ion	Ratio	Lower	Upper
276	100		
138	18.5	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051728.D Vial: 23
Acq On : 18 May 2016 2:20 am Operator:
Sample : 1605096-41A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

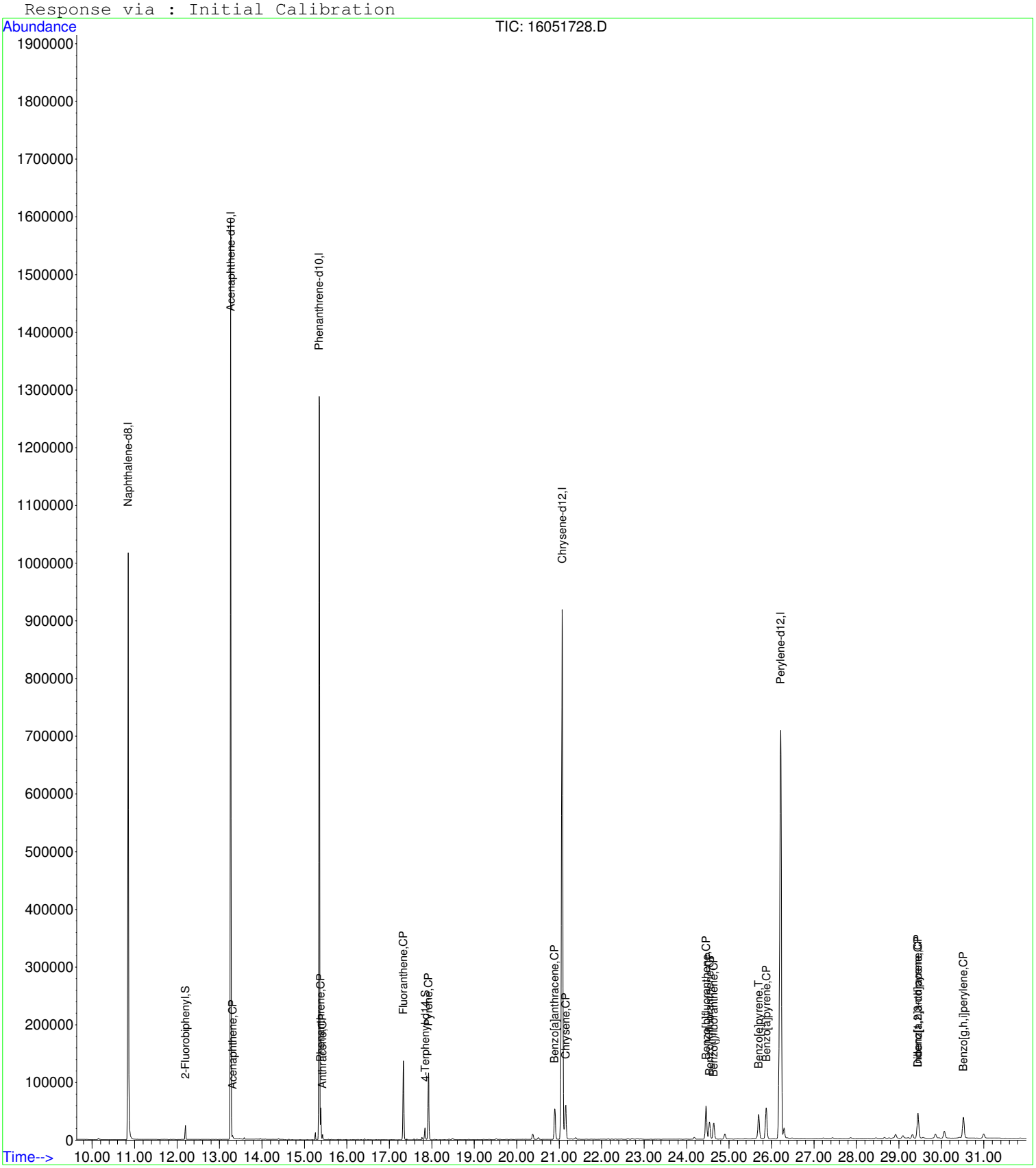
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1208885	4000.00	ug/kg	104
5) Acenaphthene-d10	13.26	164	814134	4000.00	ug/kg	71
11) Phenanthrene-d10	15.35	188	1445884	4000.00	ug/kg	71
17) Chrysene-d12	21.07	240	1514798	4000.00	ug/kg	67
20) Perylene-d12	26.22	264	1388340	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19325	81.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
16) 4-Terphenyl-d14	17.84	244	27019	72.23	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.81%#		
Target Compounds						Qvalue
9) Acenaphthene	13.31	154	1701	7.82	ug/kg	98
12) Phenanthrene	15.38	178	43238	113.71	ug/kg	99
13) Anthracene	15.43	178	7499	20.84	ug/kg	98
14) Fluoranthene	17.33	202	135043	343.20	ug/kg	99
15) Pyrene	17.92	202	122508	299.71	ug/kg	99
18) Benzo[a]anthracene	20.89	228	78661	221.66	ug/kg	99
19) Chrysene	21.15	228	93134	271.62	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	105158	287.38	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	52229	152.15	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	47534	155.45	ug/kg	91
24) Benzo[e]pyrene	25.70	252	78800	240.46	ug/kg	99
25) Benzo[a]pyrene	25.88	252	102854	307.14	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	16155	52.97	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.45	276	71502	196.53	ug/kg	91
28) Benzo[g,h,i]perylene	30.52	276	70157	247.29	ug/kg	98

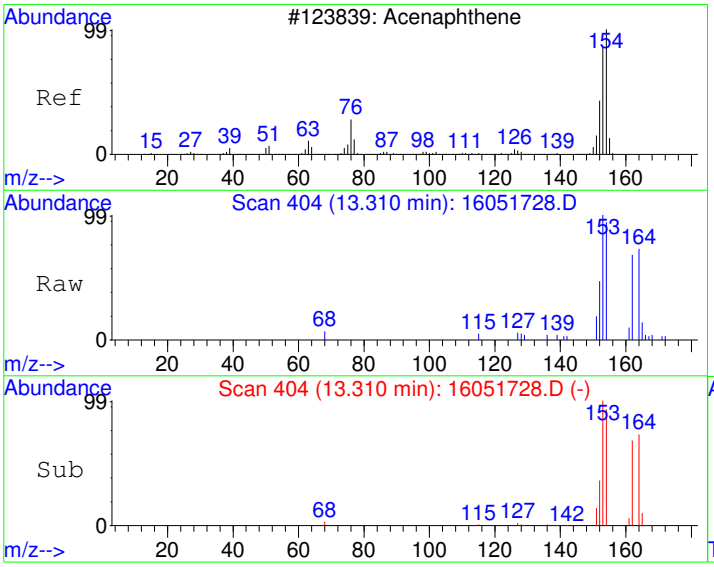
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051728.D Vial: 23
Acq On : 18 May 2016 2:20 am Operator:
Sample : 1605096-41A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

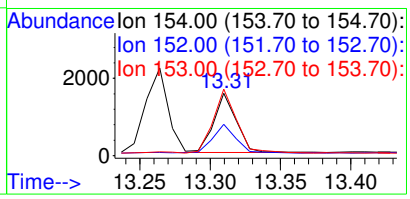


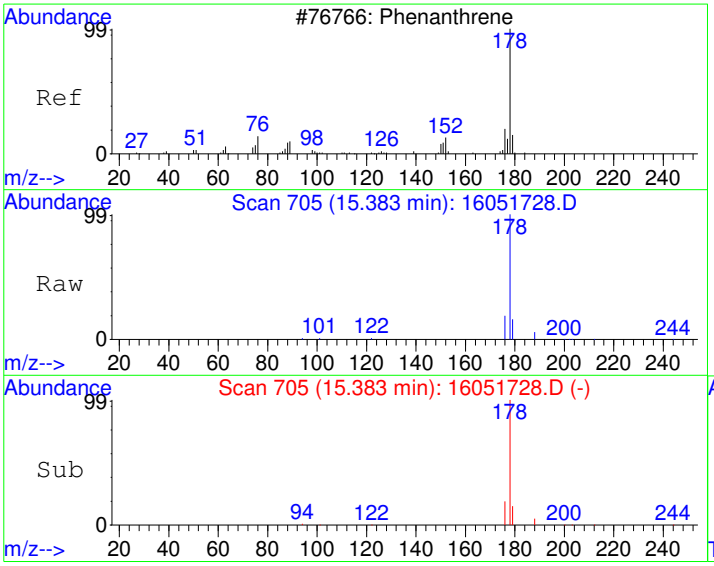


#9
Acenaphthene
Concen: 7.82 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:154 Resp: 1701

Ion	Ratio	Lower	Upper
154	100		
152	48.6	18.9	78.9
153	108.1	75.2	135.2

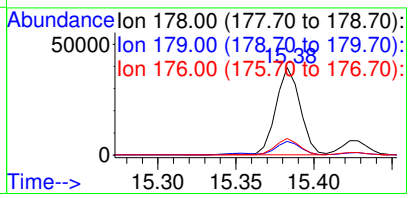


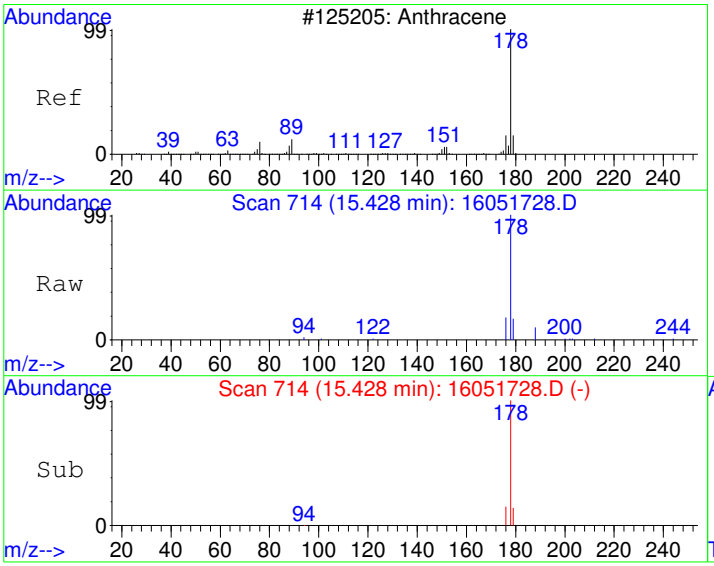


#12
Phenanthrene
Concen: 113.71 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:178 Resp: 43238

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.8	0.0	48.5

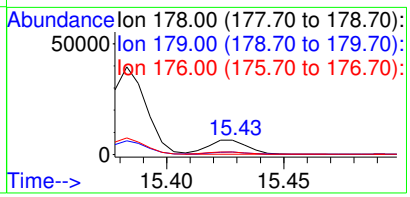


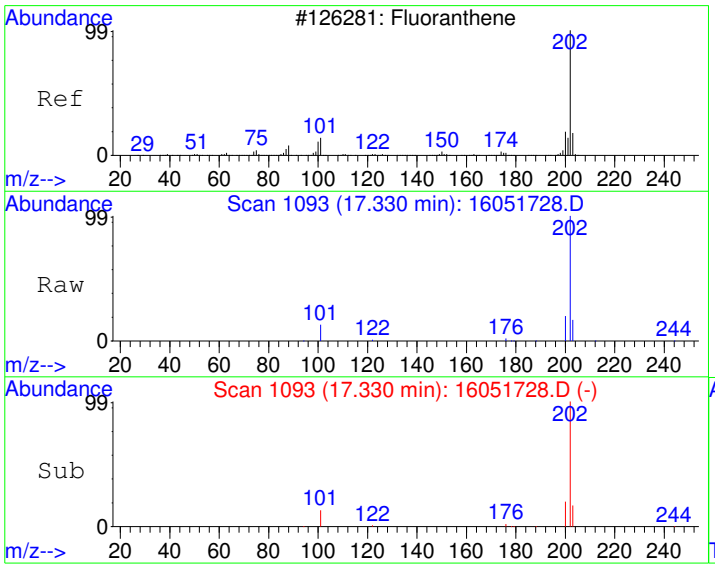


#13
Anthracene
Concen: 20.84 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.01 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:178 Resp: 7499

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

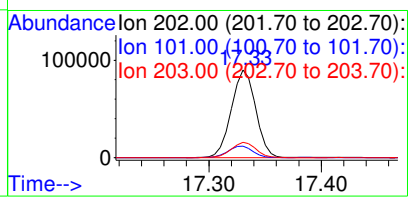


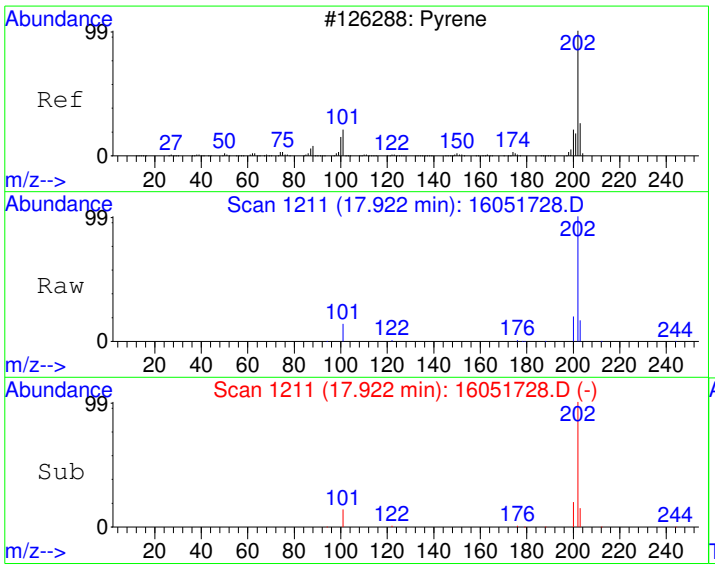


#14
Fluoranthene
Concen: 343.20 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:202 Resp: 135043

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	43.0
203	17.3	0.0	47.9

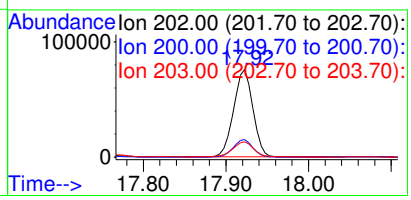


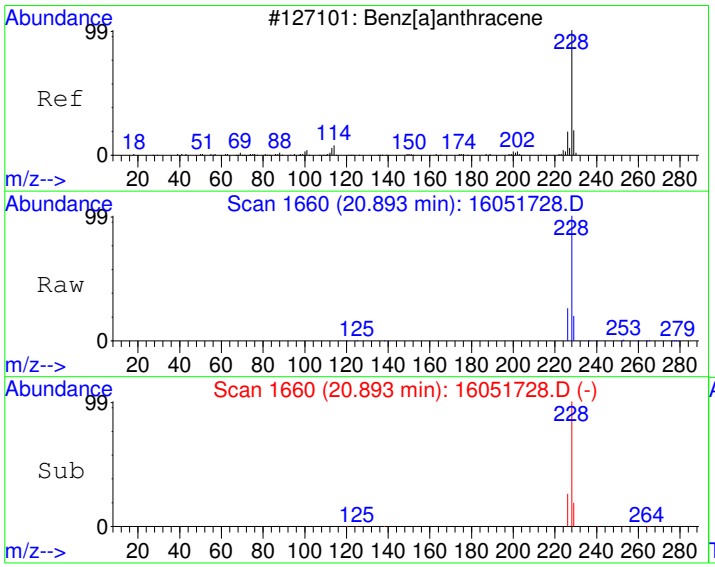


#15
Pyrene
Concen: 299.71 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:202 Resp: 122508

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.0
203	17.4	0.0	48.0

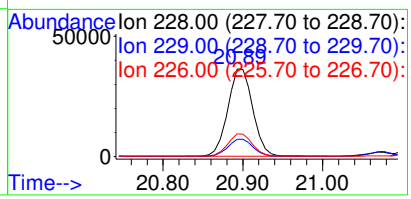


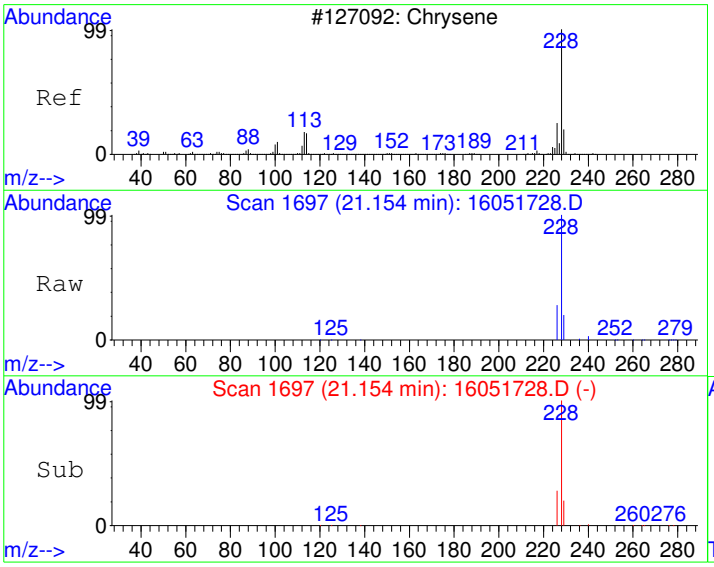


#18
Benzo[a]anthracene
Concen: 221.66 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:228 Resp: 78661

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.1
226	25.8	0.0	55.2

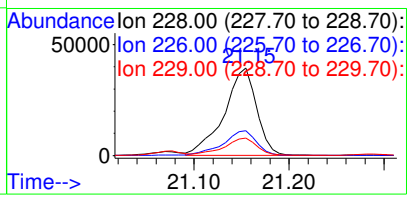


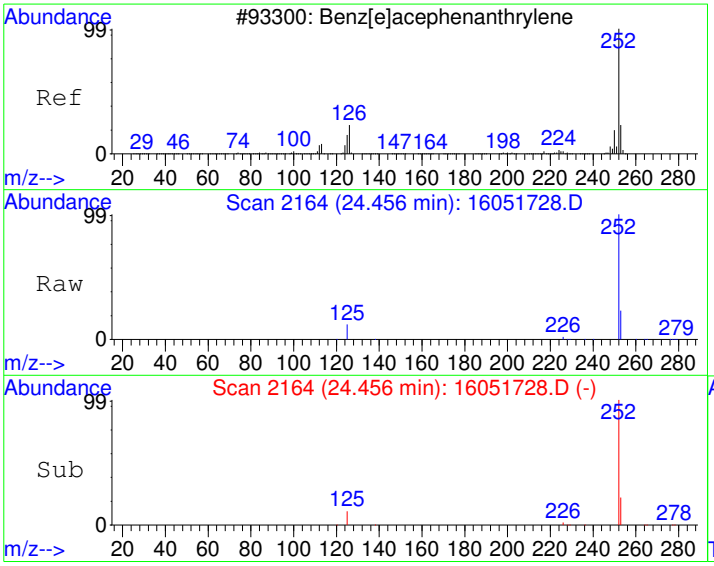


#19
Chrysene
Concen: 271.62 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:228 Resp: 93134

Ion	Ratio	Lower	Upper
228	100		
226	28.3	0.0	58.1
229	19.8	0.0	50.1

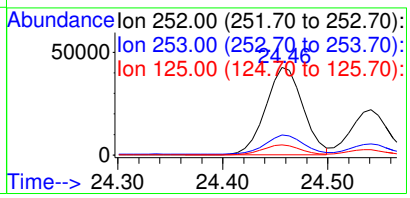


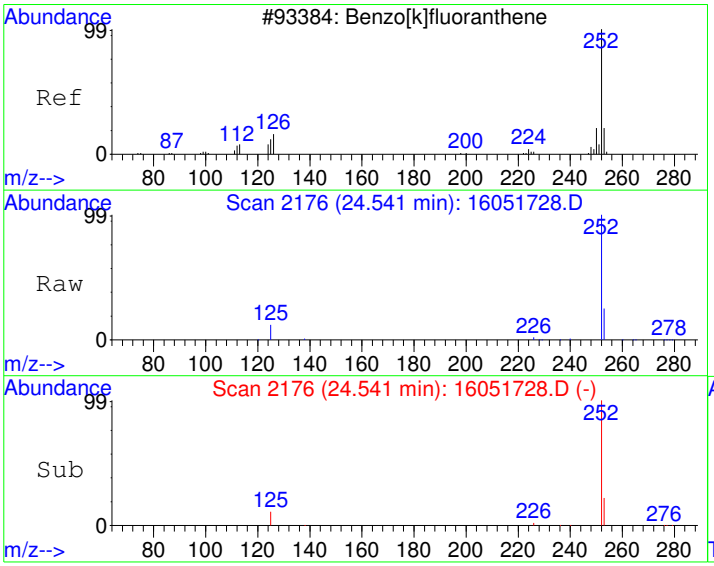


#21
Benzo[b]fluoranthene
Concen: 287.38 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:252 Resp: 105158

Ion	Ratio	Lower	Upper
252	100		
253	21.8	0.0	52.2
125	11.3	0.0	41.0

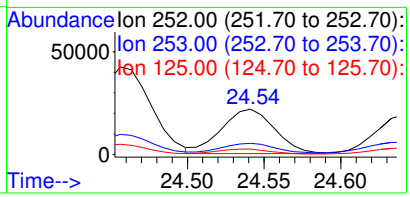


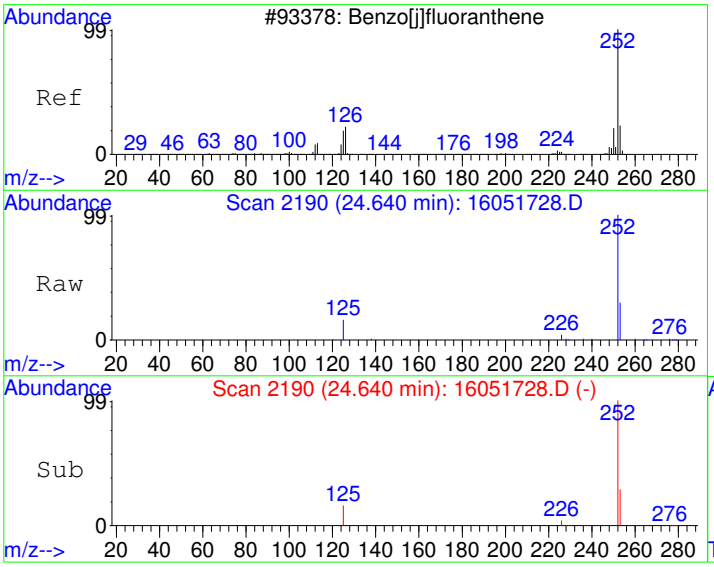


#22
Benzo[k]fluoranthene
Concen: 152.15 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:252 Resp: 52229

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.1	42.1
125	10.8	0.0	31.3

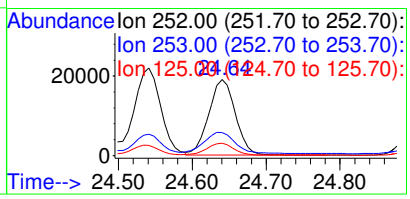


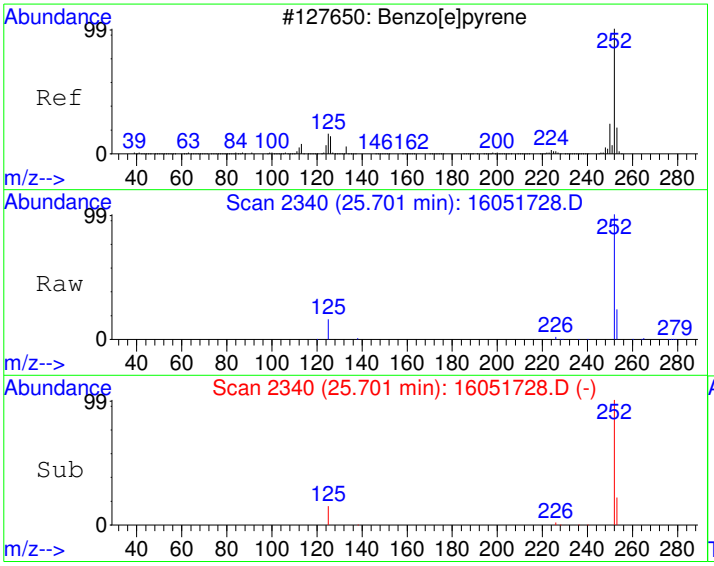


#23
Benzo(j)fluoranthene
Concen: 155.45 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:252 Resp: 47534

Ion	Ratio	Lower	Upper
252	100		
253	28.0	2.1	42.1
125	15.9	0.0	34.4

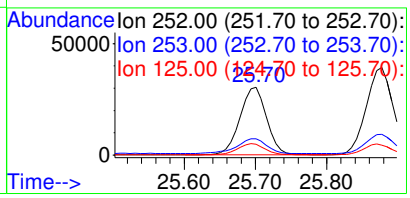


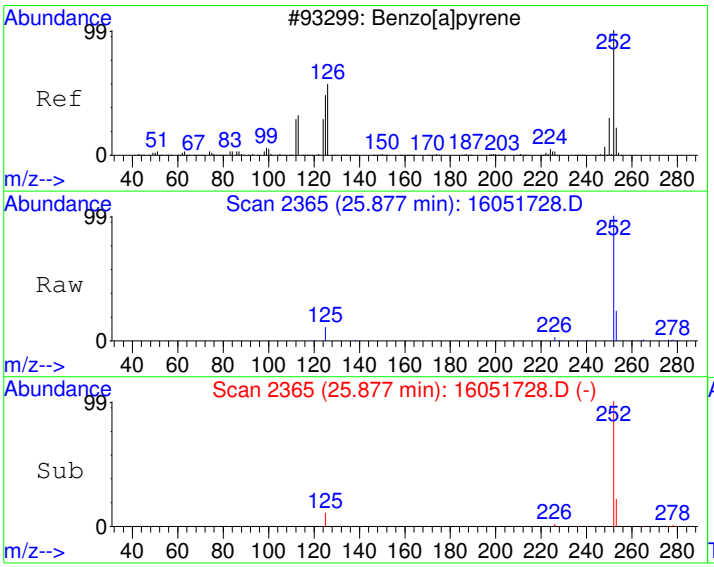


#24
Benzo[e]pyrene
Concen: 240.46 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:252 Resp: 78800

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.2	42.2
125	15.5	0.0	36.1

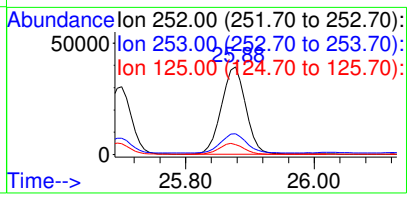


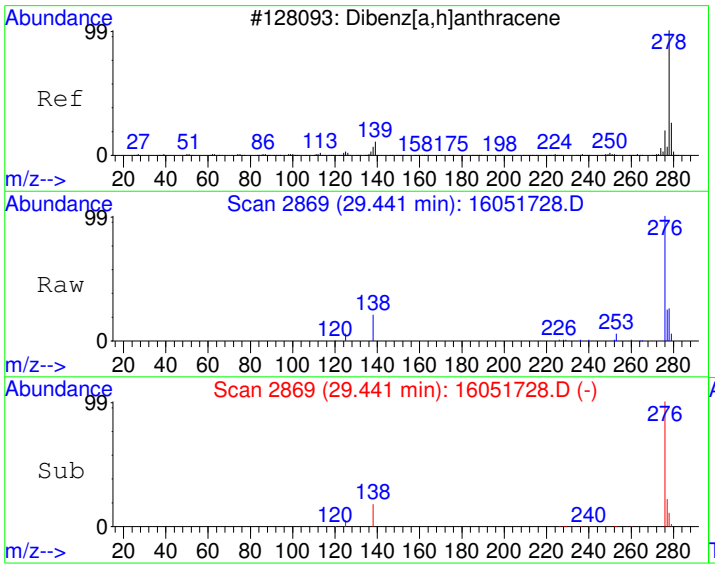


#25
Benzo[a]pyrene
Concen: 307.14 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:252 Resp: 102854

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	11.2	0.0	31.7

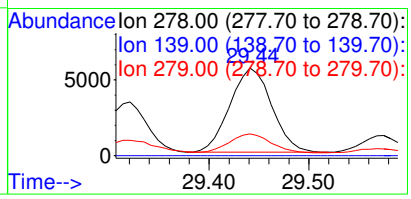


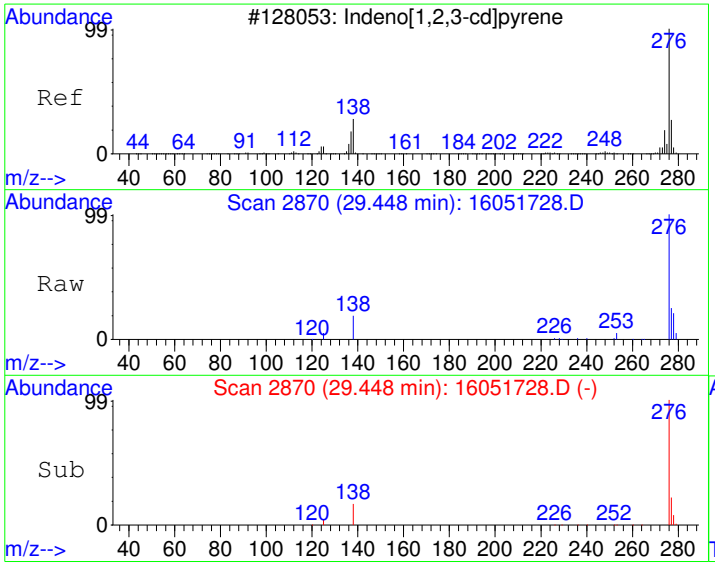


#26
Dibenz[a,h]anthracene
Concen: 52.97 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:278 Resp: 16155

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.4	4.2	44.2

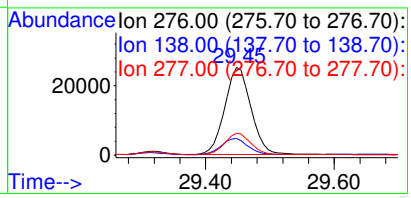


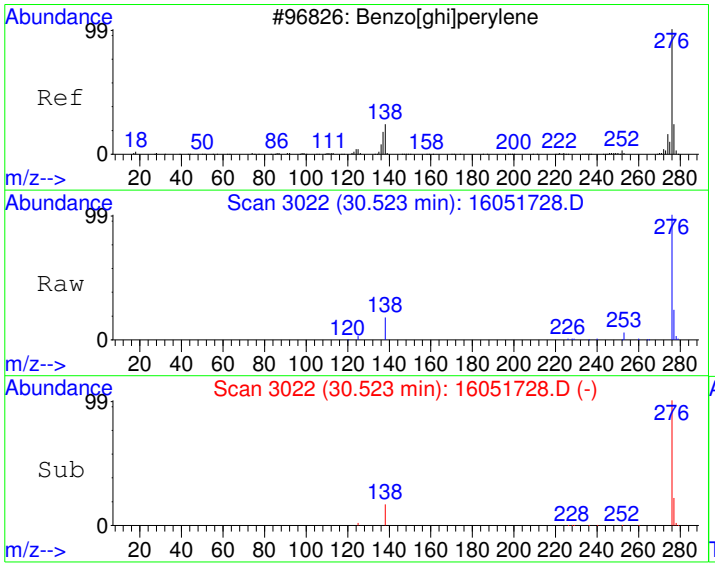


#27
Indeno[1,2,3-cd]pyrene
Concen: 196.53 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:276 Resp: 71502

Ion	Ratio	Lower	Upper
276	100		
138	18.6	6.7	46.7
277	24.3	5.8	45.8

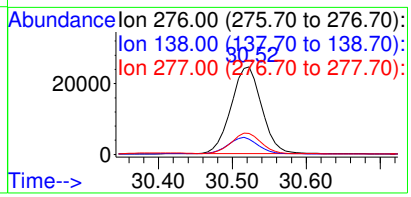




#28
Benzo[g,h,i]perylene
Concen: 247.29 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051728.D
Acq: 18 May 2016 2:20 am

Tgt Ion:276 Resp: 70157

Ion	Ratio	Lower	Upper
276	100		
138	17.2	0.0	39.1
277	23.6	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051729.D Vial: 24
Acq On : 18 May 2016 2:59 am Operator:
Sample : 1605096-42A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

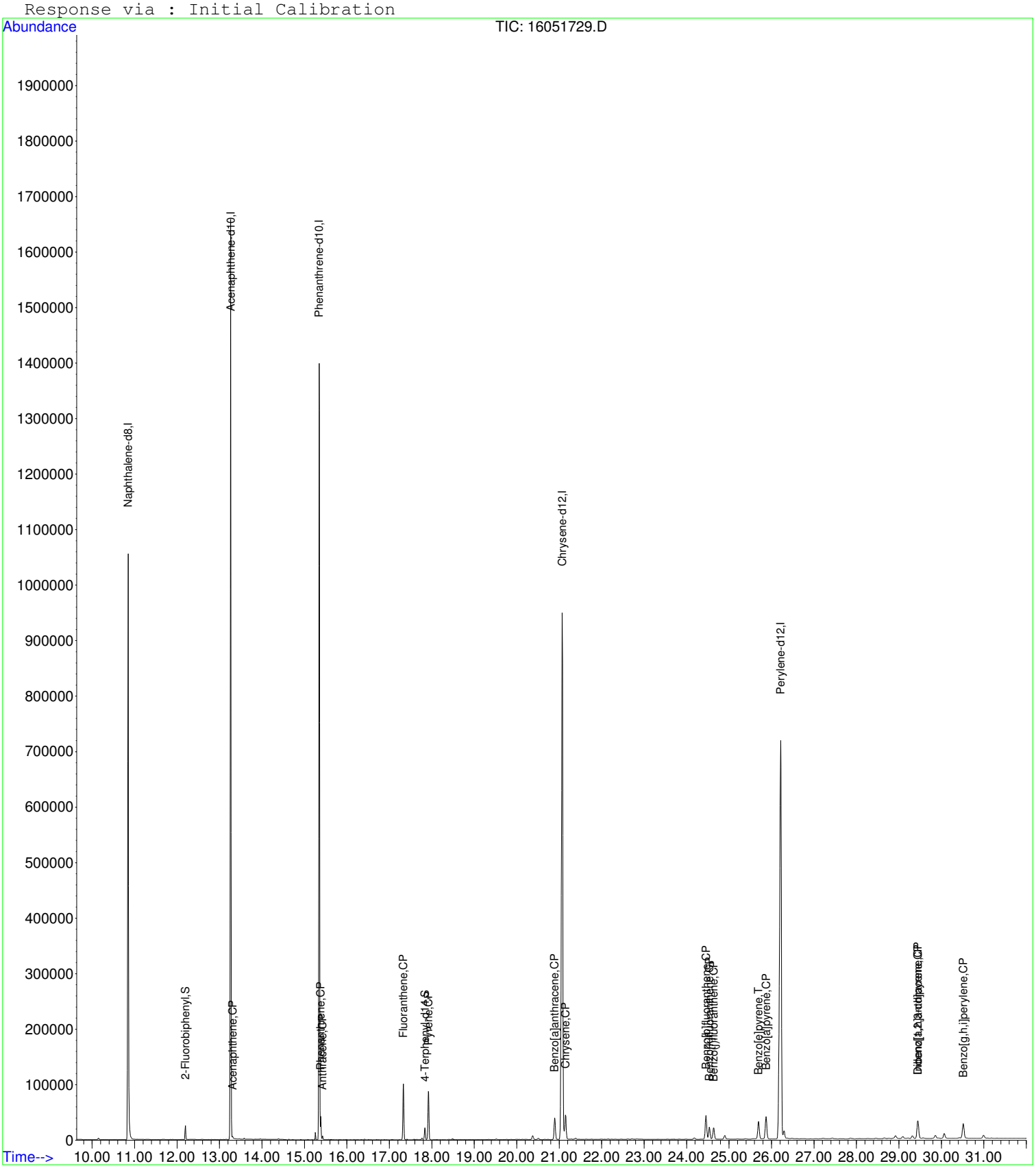
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1282866	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	855055	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1522067	4000.00	ug/kg	75
17) Chrysene-d12	21.07	240	1583570	4000.00	ug/kg	70
20) Perylene-d12	26.22	264	1443680	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19867	79.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
16) 4-Terphenyl-d14	17.84	244	27735	70.43	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
9) Acenaphthene	13.31	154	1276	5.58	ug/kg	99
12) Phenanthrene	15.38	178	32817	81.99	ug/kg	99
13) Anthracene	15.42	178	5729	15.12	ug/kg	99
14) Fluoranthene	17.33	202	100808	243.37	ug/kg	99
15) Pyrene	17.92	202	92325	214.57	ug/kg	99
18) Benzo[a]anthracene	20.89	228	58740	158.33	ug/kg	99
19) Chrysene	21.15	228	69922	195.07	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	78309	205.80	ug/kg	100
22) Benzo[k]fluoranthene	24.53	252	38199	107.02	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	35176	110.63	ug/kg	93
24) Benzo[e]pyrene	25.69	252	58282	171.03	ug/kg	99
25) Benzo[a]pyrene	25.87	252	75868	217.87	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	12105	38.17	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.45	276	52988	140.06	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	51405	174.25	ug/kg	99

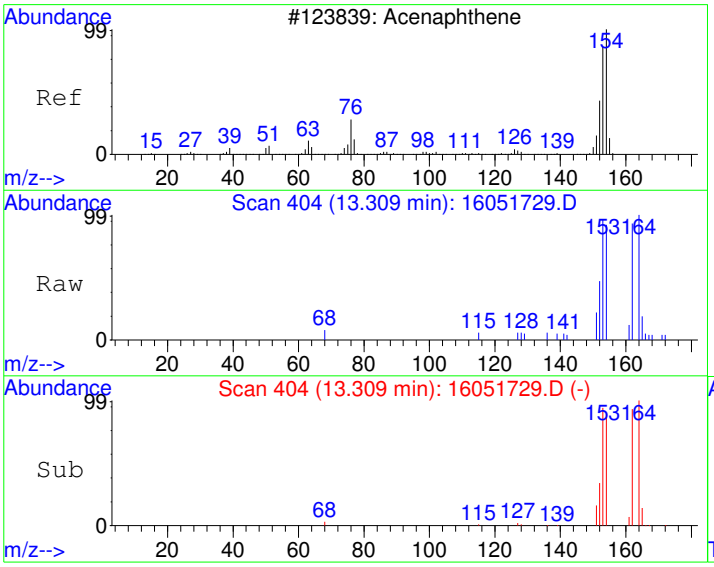
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051729.D Vial: 24
Acq On : 18 May 2016 2:59 am Operator:
Sample : 1605096-42A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

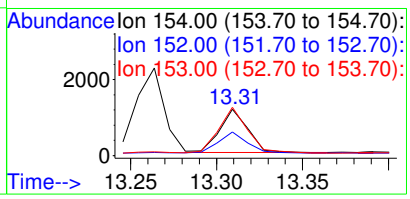


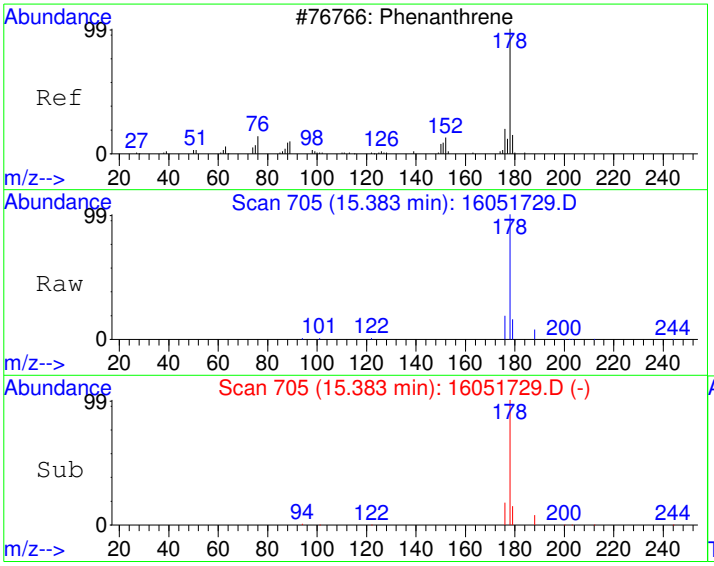


#9
Acenaphthene
Concen: 5.58 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:154 Resp: 1276

Ion	Ratio	Lower	Upper
154	100		
152	49.4	18.9	78.9
153	106.6	75.2	135.2

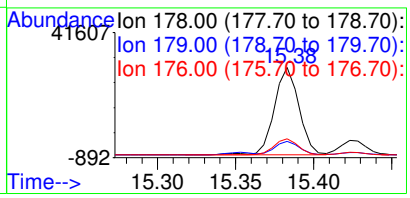


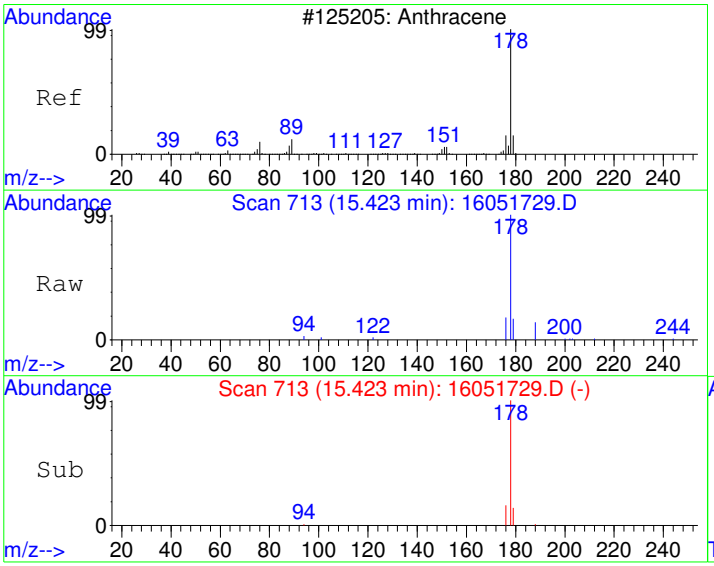


#12
Phenanthrene
Concen: 81.99 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:178 Resp: 32817

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

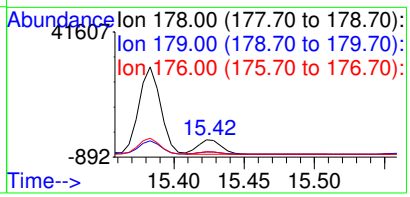


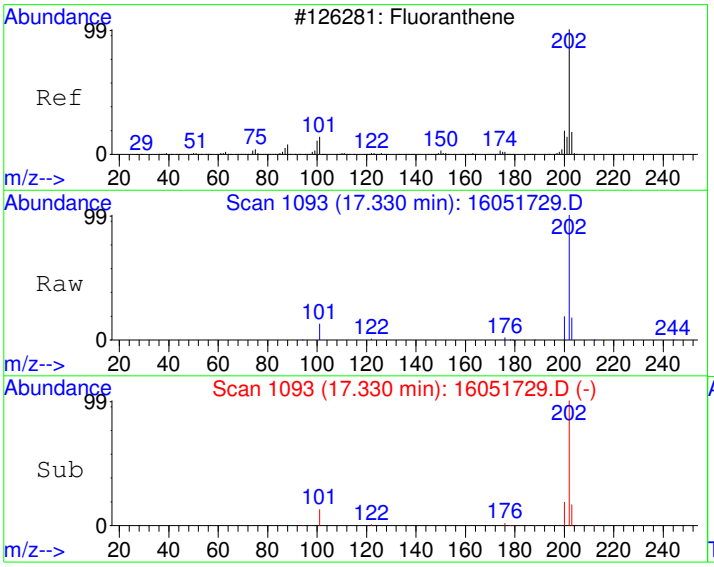


#13
Anthracene
Concen: 15.12 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:178 Resp: 5729

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.5	0.0	48.2

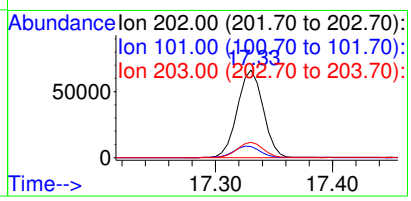


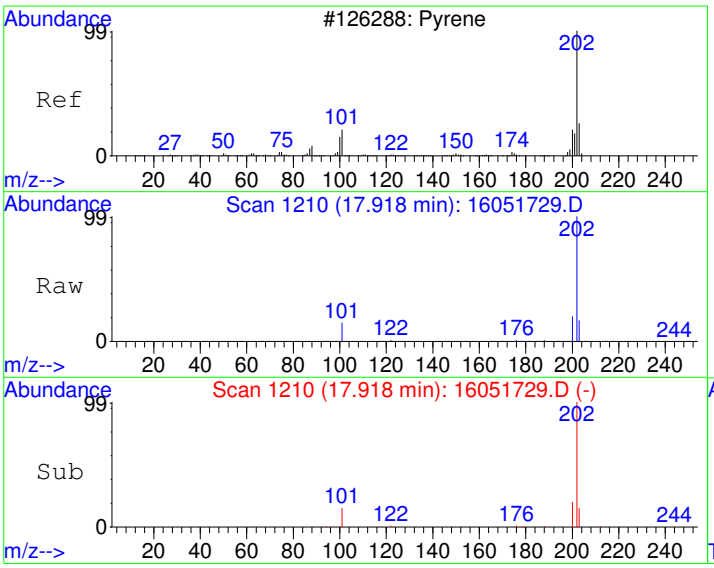


#14
Fluoranthene
Concen: 243.37 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:202 Resp: 100808

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	43.0
203	17.5	0.0	47.9

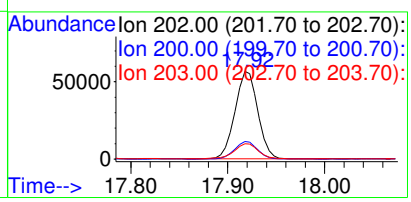


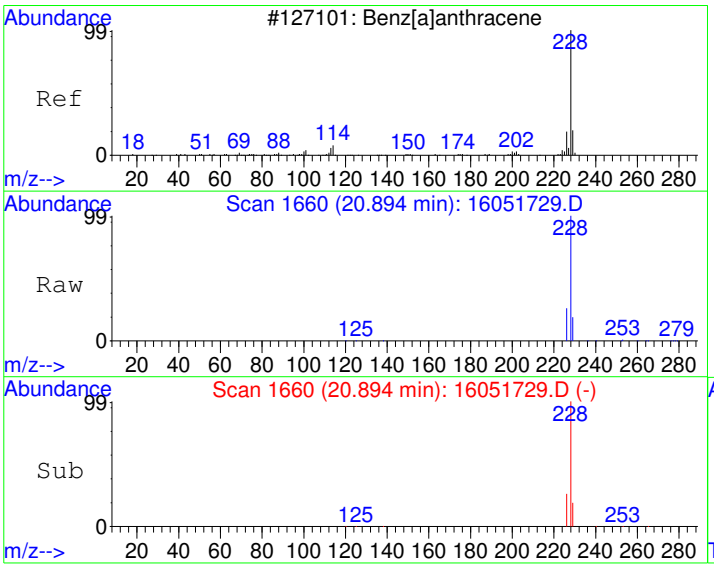


#15
Pyrene
Concen: 214.57 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:202 Resp: 92325

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.0
203	17.4	0.0	48.0

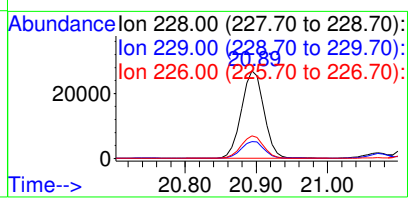


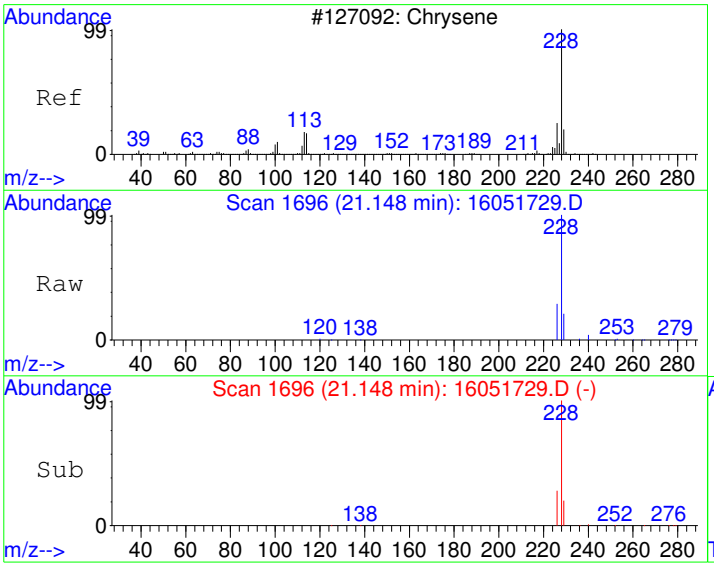


#18
Benzo[a]anthracene
Concen: 158.33 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:228 Resp: 58740

Ion	Ratio	Lower	Upper
228	100		
229	19.1	0.0	50.1
226	25.6	0.0	55.2

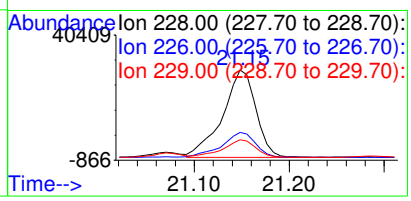


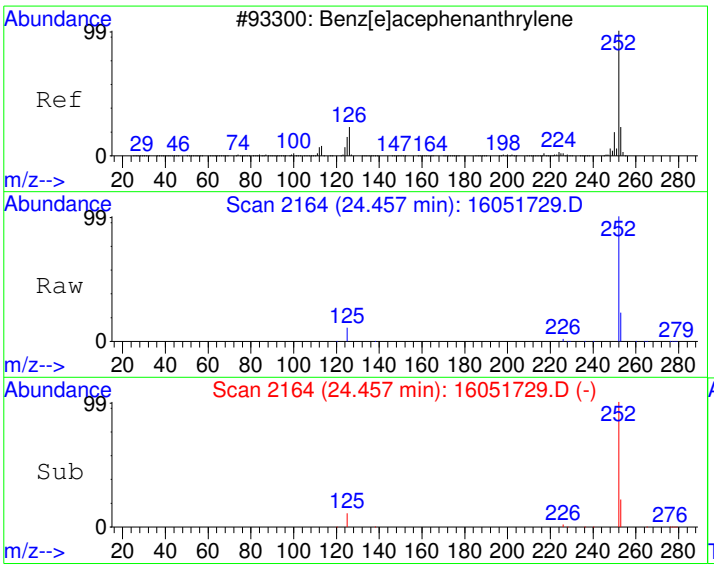


#19
Chrysene
Concen: 195.07 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:228 Resp: 69922

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.1
229	20.3	0.0	50.1

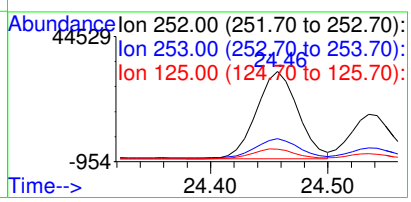


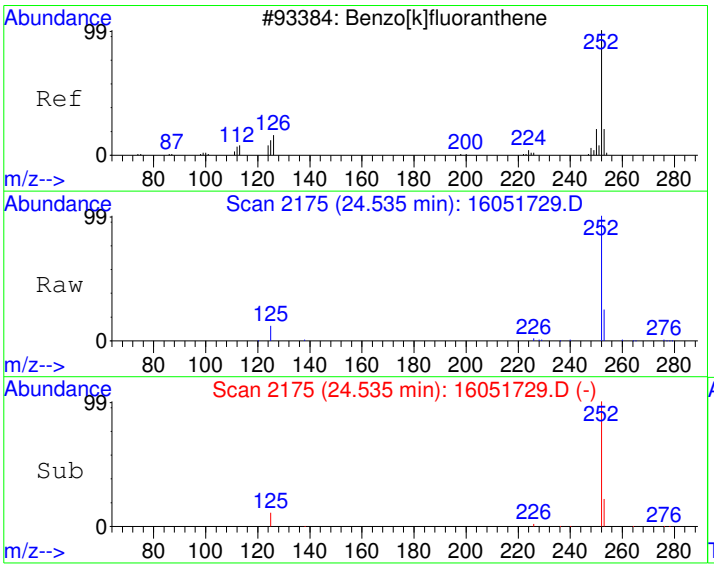


#21
Benzo[b]fluoranthene
Concen: 205.80 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:252 Resp: 78309

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.2
125	11.0	0.0	41.0

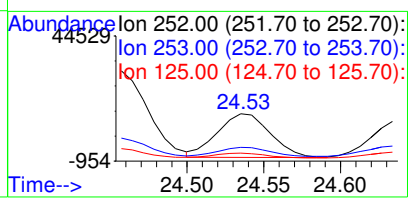


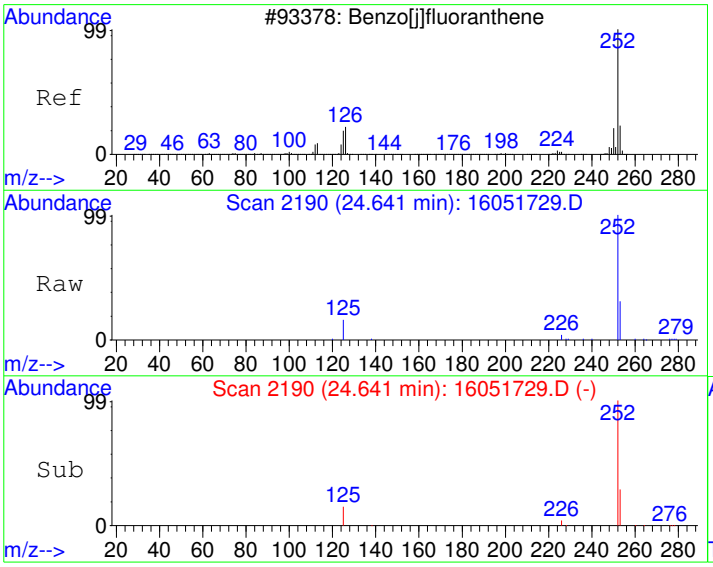


#22
Benzo[k]fluoranthene
Concen: 107.02 ug/kg
RT: 24.53 min Scan# 2175
Delta R.T. -0.04 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:252 Resp: 38199

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.1	42.1
125	11.2	0.0	31.3

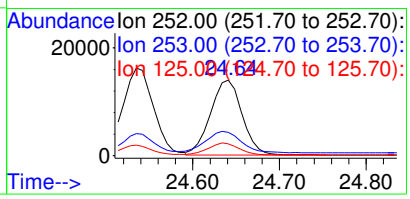


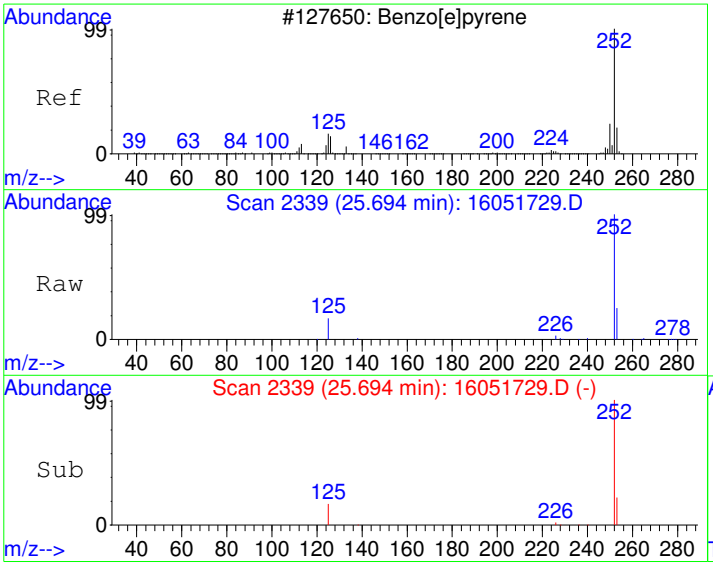


#23
Benzo(j)fluoranthene
Concen: 110.63 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:252 Resp: 35176

Ion	Ratio	Lower	Upper
252	100		
253	27.2	2.1	42.1
125	15.0	0.0	34.4

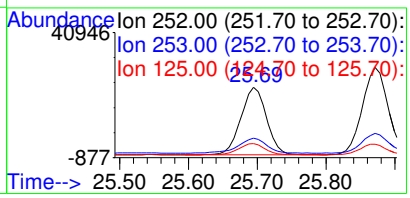


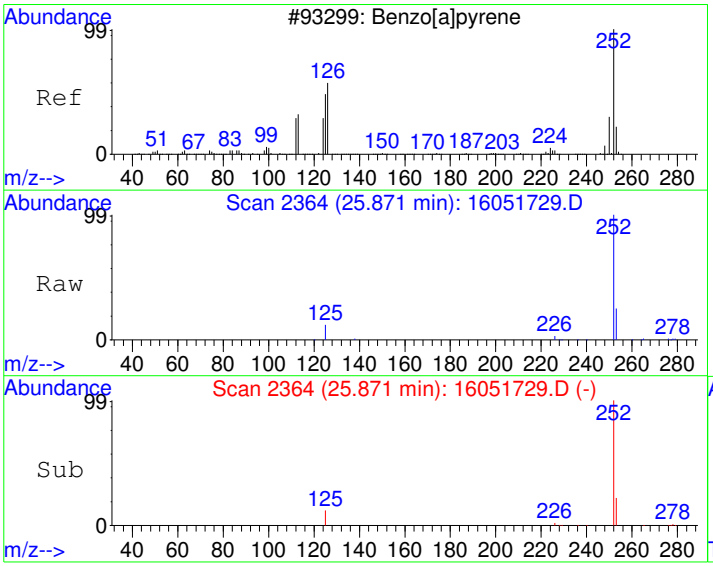


#24
Benzo[e]pyrene
Concen: 171.03 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:252 Resp: 58282

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	16.6	0.0	36.1

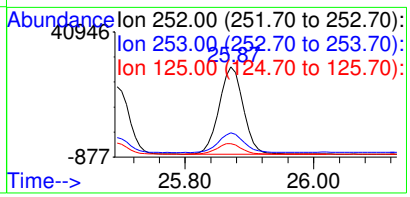


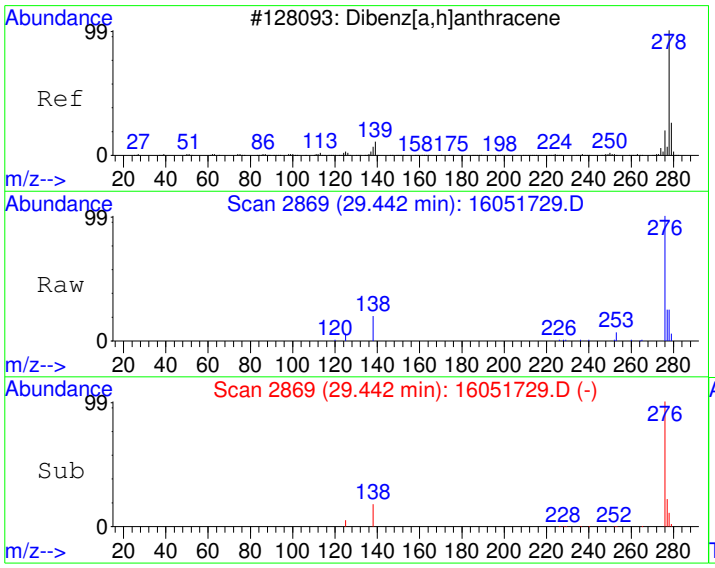


#25
Benzo[a]pyrene
Concen: 217.87 ug/kg
RT: 25.87 min Scan# 2364
Delta R.T. -0.03 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:252 Resp: 75868

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.9	0.0	31.7

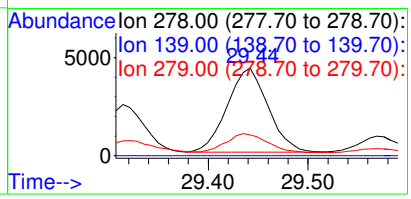


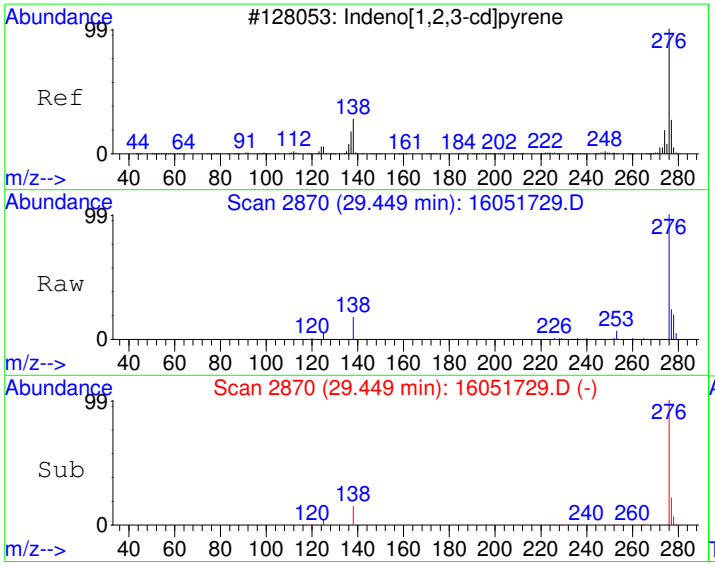


#26
Dibenz[a,h]anthracene
Concen: 38.17 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:278 Resp: 12105

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	20.9	4.2	44.2

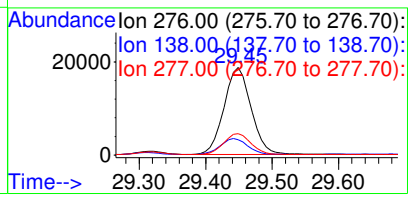


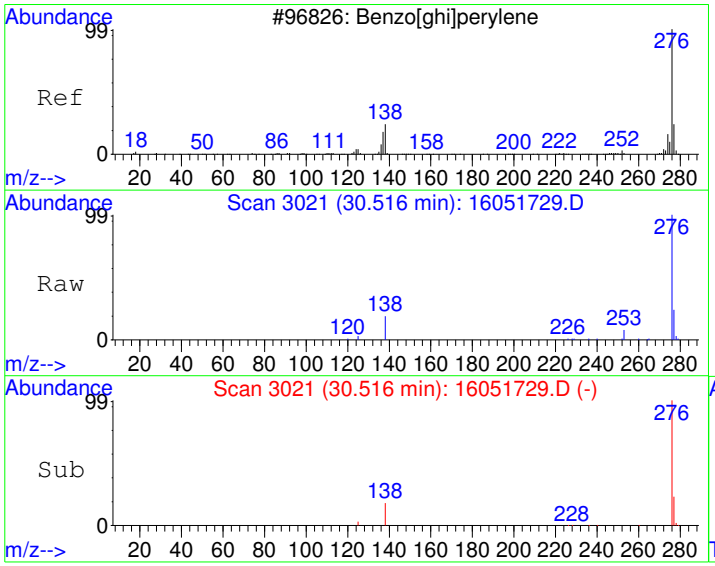


#27
Indeno[1,2,3-cd]pyrene
Concen: 140.06 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:276 Resp: 52988

Ion	Ratio	Lower	Upper
276	100		
138	17.0	6.7	46.7
277	24.1	5.8	45.8

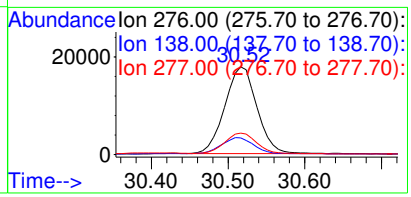




#28
Benzo[g,h,i]perylene
Concen: 174.25 ug/kg
RT: 30.52 min Scan# 3021
Delta R.T. -0.04 min
Lab File: 16051729.D
Acq: 18 May 2016 2:59 am

Tgt Ion:276 Resp: 51405

Ion	Ratio	Lower	Upper
276	100		
138	18.3	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051730.D Vial: 25
Acq On : 18 May 2016 3:39 am Operator:
Sample : 1605096-43A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

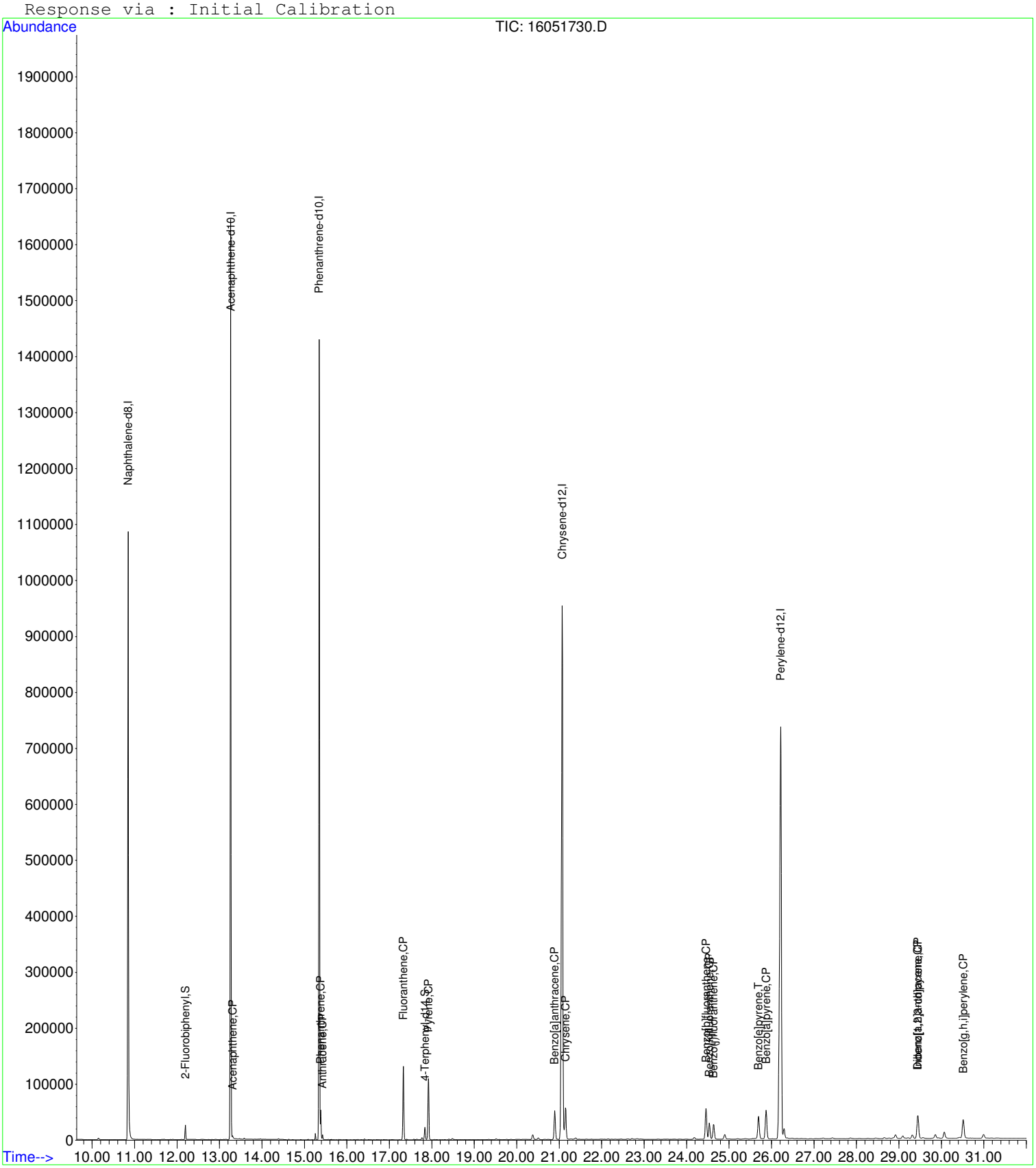
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1301555	4000.00	ug/kg	112
5) Acenaphthene-d10	13.26	164	859186	4000.00	ug/kg	75
11) Phenanthrene-d10	15.35	188	1527776	4000.00	ug/kg	75
17) Chrysene-d12	21.07	240	1600661	4000.00	ug/kg	70
20) Perylene-d12	26.22	264	1470185	4000.00	ug/kg	71
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	20073	80.09	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.84	244	28166	71.26	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#		
Target Compounds						Qvalue
9) Acenaphthene	13.31	154	1560	6.79	ug/kg	100
12) Phenanthrene	15.38	178	41535	103.38	ug/kg	99
13) Anthracene	15.42	178	6977	18.35	ug/kg	98
14) Fluoranthene	17.33	202	128680	309.50	ug/kg	98
15) Pyrene	17.92	202	118179	273.63	ug/kg	99
18) Benzo[a]anthracene	20.89	228	74783	199.42	ug/kg	99
19) Chrysene	21.15	228	88604	244.55	ug/kg	98
21) Benzo[b]fluoranthene	24.46	252	100554	259.50	ug/kg	100
22) Benzo[k]fluoranthene	24.53	252	49365	135.80	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	44915	138.71	ug/kg	93
24) Benzo[e]pyrene	25.69	252	74587	214.94	ug/kg	99
25) Benzo[a]pyrene	25.87	252	96048	270.85	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	15429	47.77	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.45	276	68007	176.52	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	66736	222.14	ug/kg	99

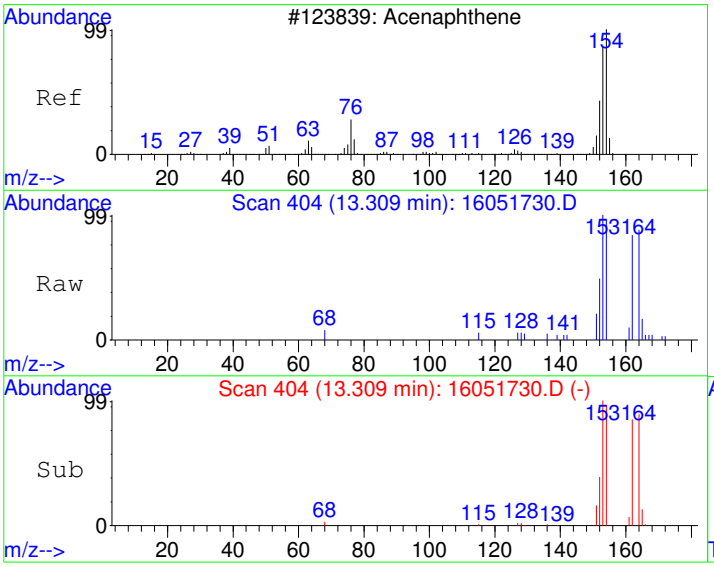
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051730.D Vial: 25
Acq On : 18 May 2016 3:39 am Operator:
Sample : 1605096-43A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

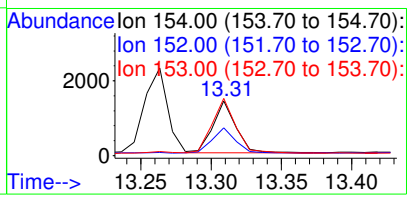


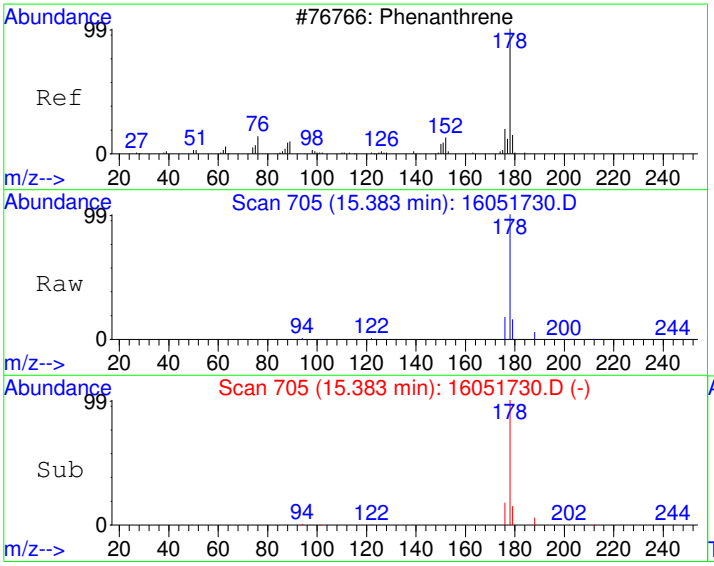


#9
Acenaphthene
Concen: 6.79 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:154 Resp: 1560

Ion	Ratio	Lower	Upper
154	100		
152	48.6	18.9	78.9
153	105.5	75.2	135.2

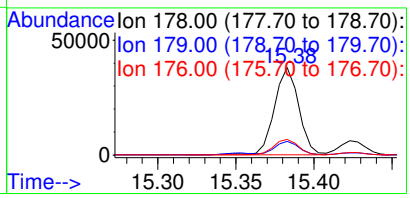


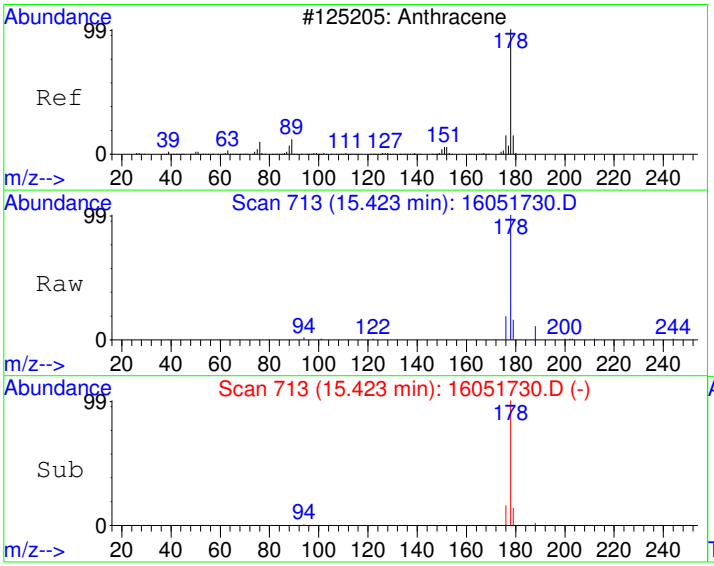


#12
Phenanthrene
Concen: 103.38 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:178 Resp: 41535

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.9	0.0	48.5

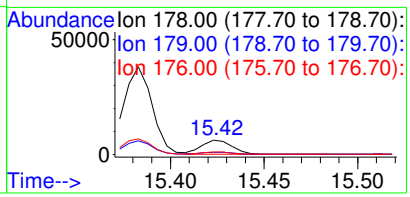


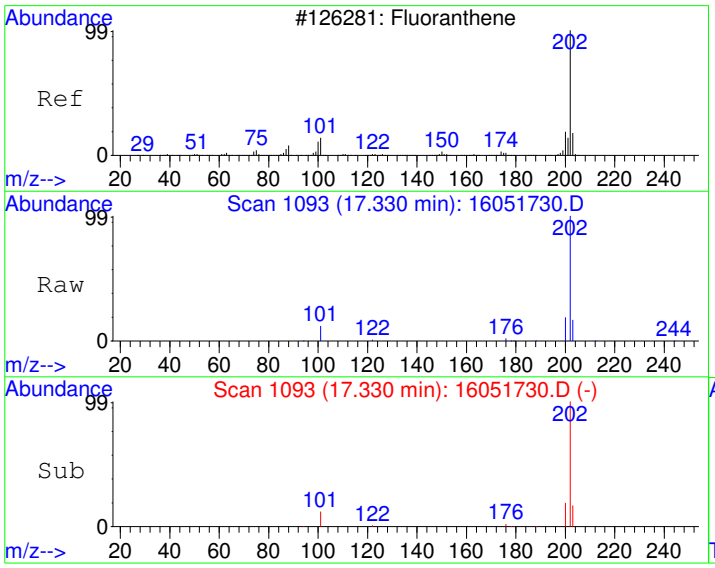


#13
Anthracene
Concen: 18.35 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:178 Resp: 6977

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.9
176	17.8	0.0	48.2

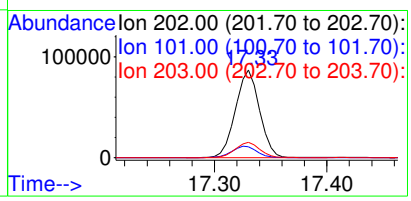


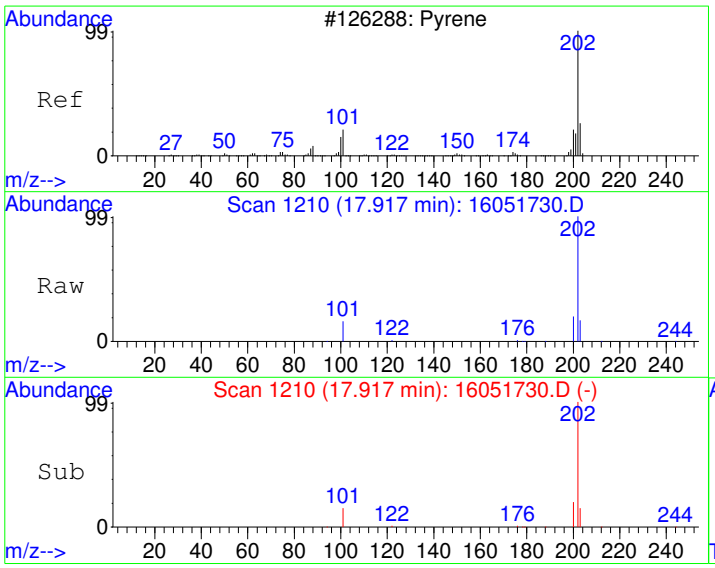


#14
Fluoranthene
Concen: 309.50 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:202 Resp: 128680

Ion	Ratio	Lower	Upper
202	100		
101	12.3	0.0	43.0
203	17.3	0.0	47.9

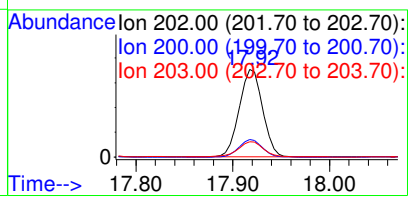


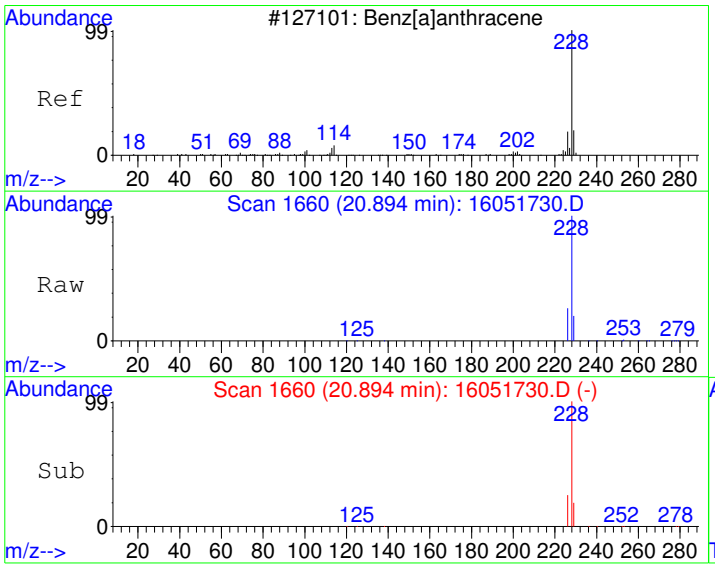


#15
Pyrene
Concen: 273.63 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:202 Resp: 118179

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.4	0.0	48.0

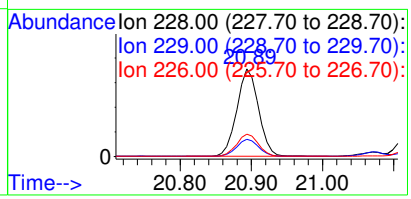


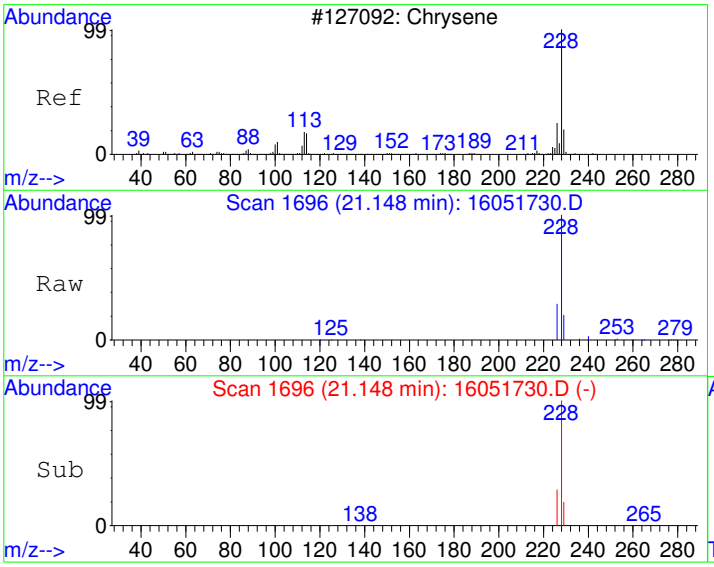


#18
Benzo[a]anthracene
Concen: 199.42 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:228 Resp: 74783

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.1
226	25.5	0.0	55.2

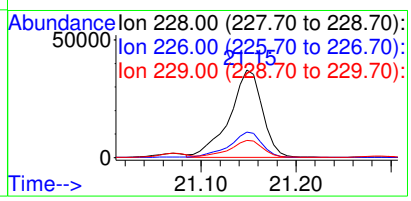


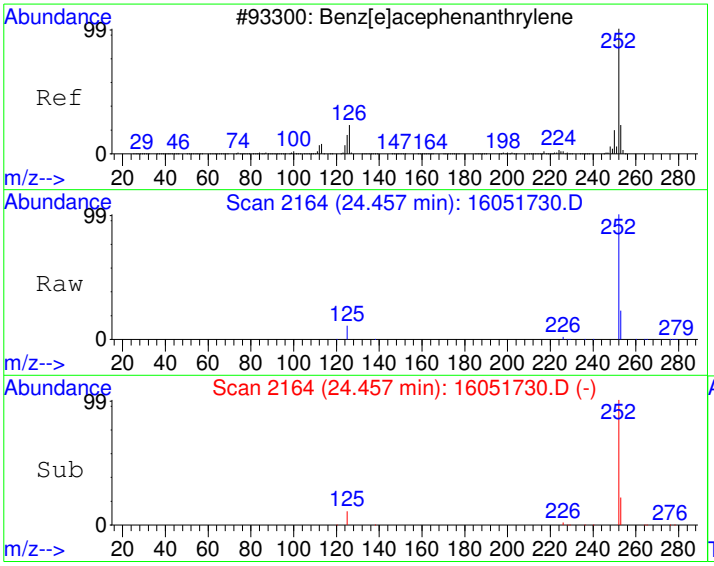


#19
Chrysene
Concen: 244.55 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:228 Resp: 88604

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.1
229	19.4	0.0	50.1

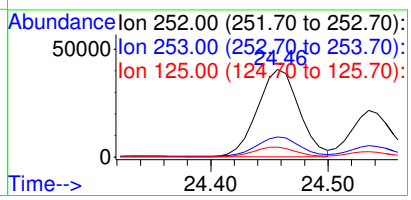


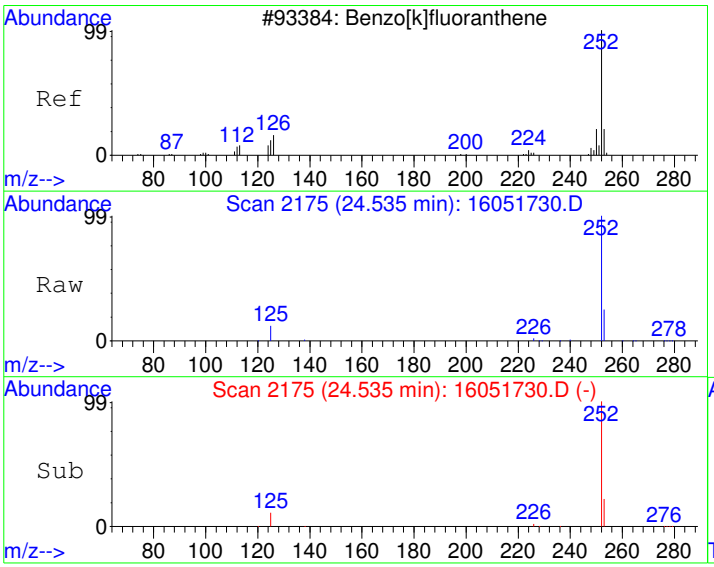


#21
Benzo[b]fluoranthene
Concen: 259.50 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:252 Resp: 100554

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.2
125	11.2	0.0	41.0

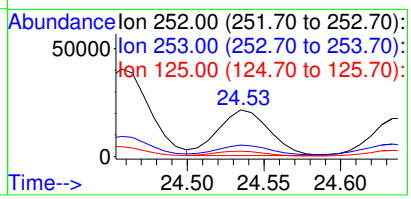


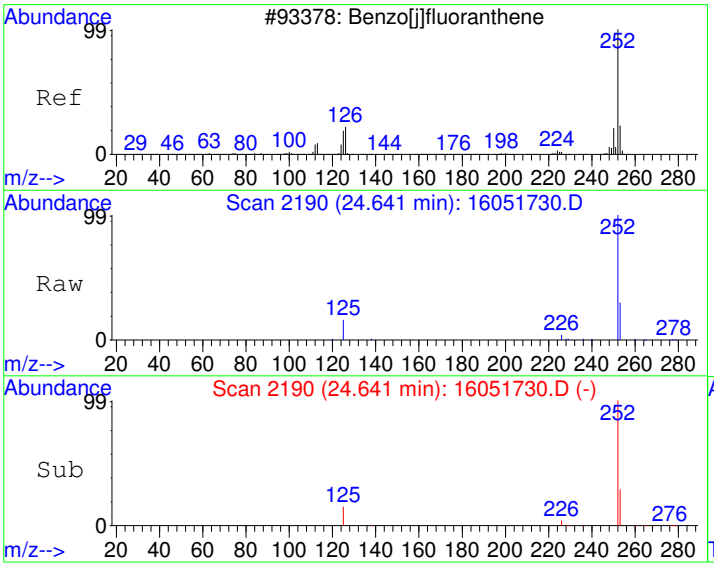


#22
Benzo[k]fluoranthene
Concen: 135.80 ug/kg
RT: 24.53 min Scan# 2175
Delta R.T. -0.04 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:252 Resp: 49365

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.1	42.1
125	11.0	0.0	31.3

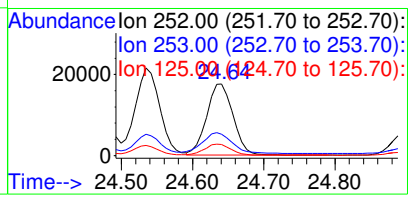


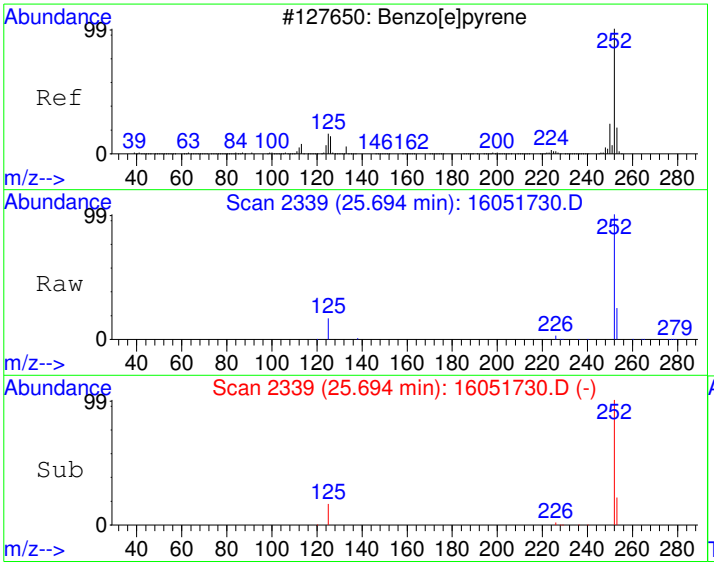


#23
Benzo(j)fluoranthene
Concen: 138.71 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:252 Resp: 44915

Ion	Ratio	Lower	Upper
252	100		
253	27.3	2.1	42.1
125	15.1	0.0	34.4

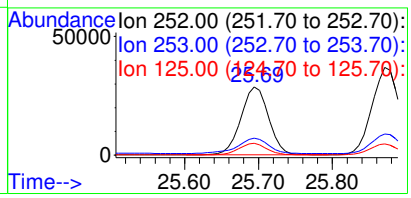


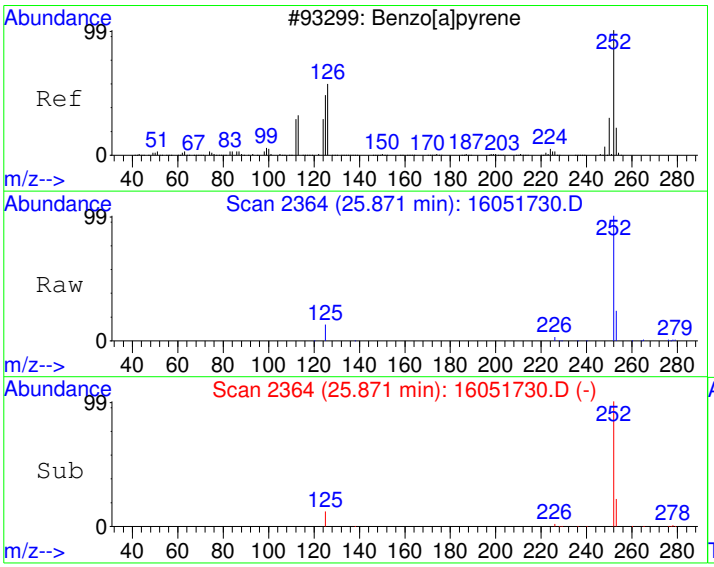


#24
Benzo[e]pyrene
Concen: 214.94 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:252 Resp: 74587

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	16.7	0.0	36.1

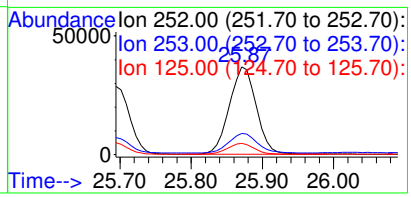


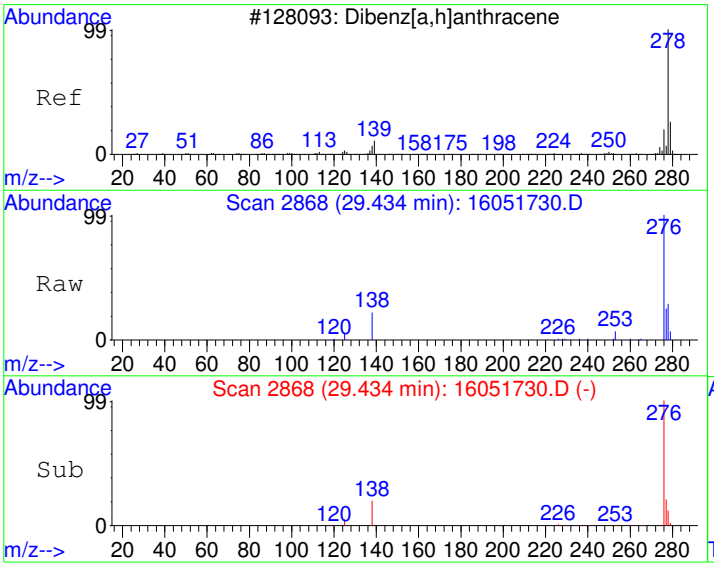


#25
Benzo[a]pyrene
Concen: 270.85 ug/kg
RT: 25.87 min Scan# 2364
Delta R.T. -0.03 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:252 Resp: 96048

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	12.4	0.0	31.7

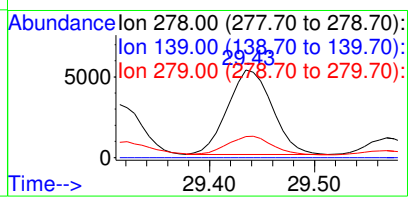


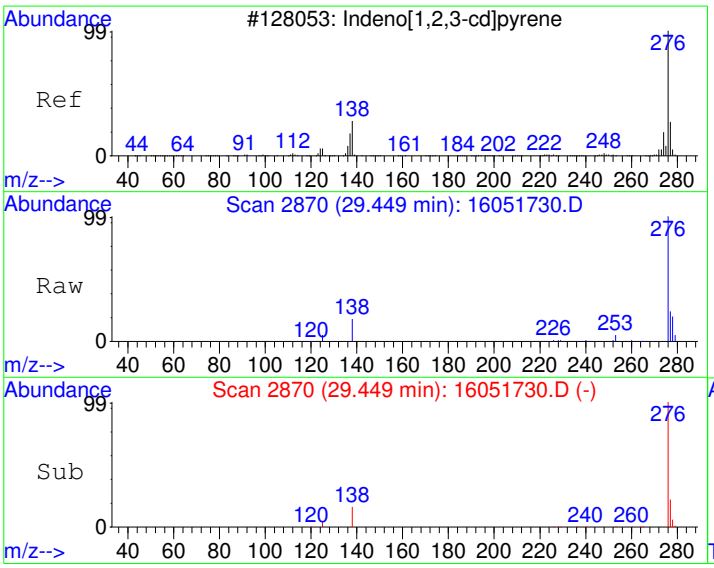


#26
Dibenz[a,h]anthracene
Concen: 47.77 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:278 Resp: 15429

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.8	4.2	44.2

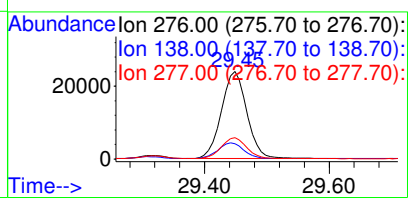


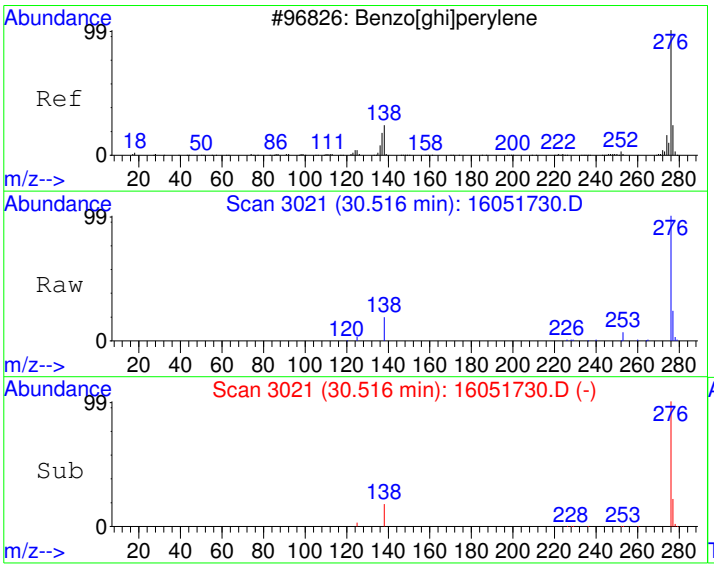


#27
Indeno[1,2,3-cd]pyrene
Concen: 176.52 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:276 Resp: 68007

Ion	Ratio	Lower	Upper
276	100		
138	17.2	6.7	46.7
277	24.1	5.8	45.8

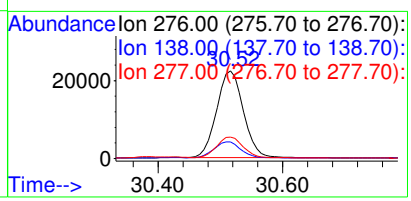




#28
Benzo[g,h,i]perylene
Concen: 222.14 ug/kg
RT: 30.52 min Scan# 3021
Delta R.T. -0.04 min
Lab File: 16051730.D
Acq: 18 May 2016 3:39 am

Tgt Ion:276 Resp: 66736

Ion	Ratio	Lower	Upper
276	100		
138	18.6	0.0	39.1
277	24.2	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051731.D Vial: 26
Acq On : 18 May 2016 4:18 am Operator:
Sample : 1605096-45A Inst : GC/MS #6
Misc : SAMP Multiplr: 50.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:34 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

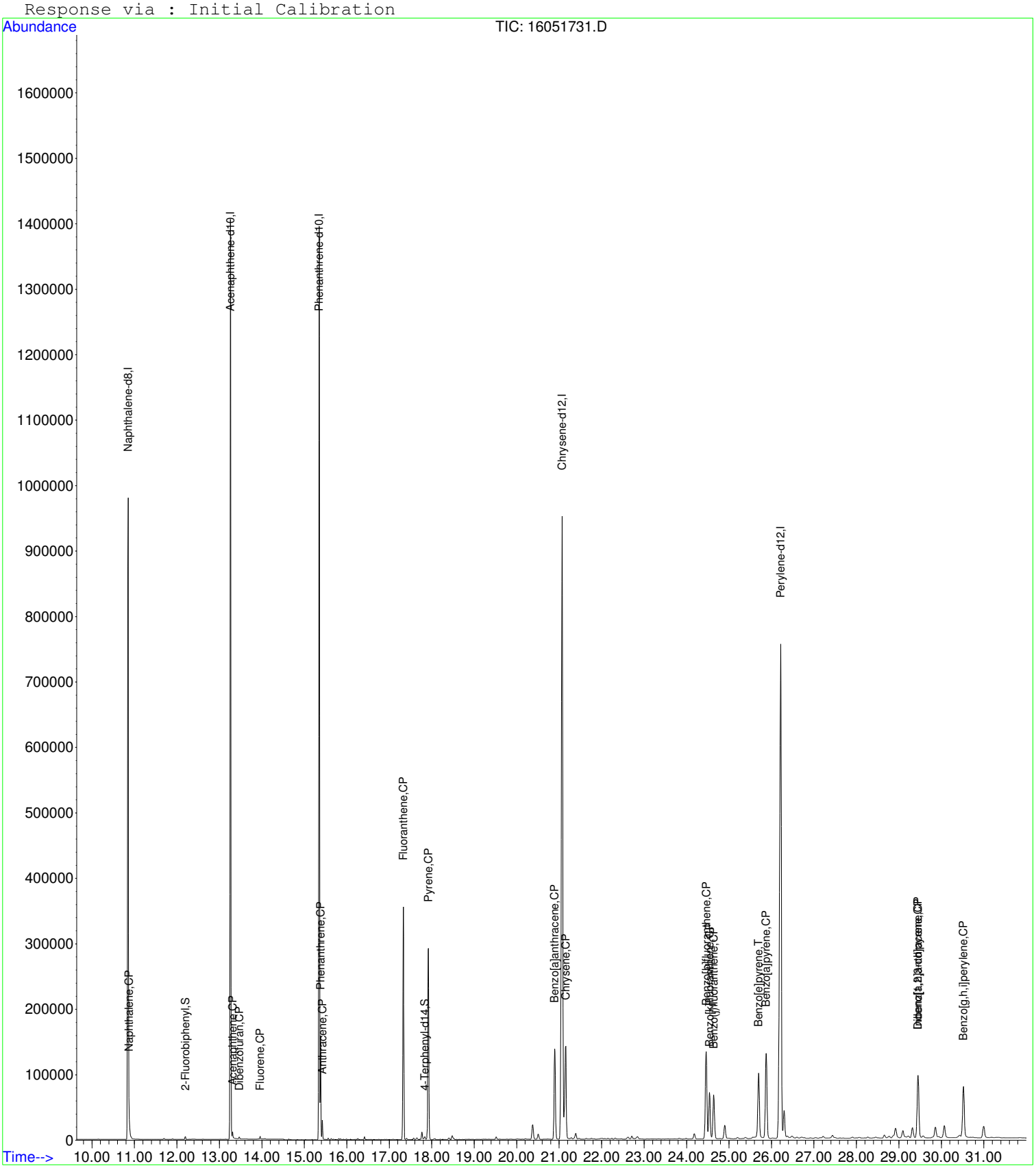
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1306764	4000.00	ug/kg	113
5) Acenaphthene-d10	13.27	164	852032	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1502562	4000.00	ug/kg	74
17) Chrysene-d12	21.07	240	1586343	4000.00	ug/kg	70
20) Perylene-d12	26.22	264	1477672	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	3879	15.61	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.39%#		
16) 4-Terphenyl-d14	17.84	244	5293	13.62	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.34%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	4495	13.75	ug/kg	99
6) Dibenzofuran	13.47	168	2723	8.53	ug/kg	99
9) Acenaphthene	13.31	154	4017	17.64	ug/kg	99
10) Fluorene	13.96	166	2022	7.31	ug/kg	99
12) Phenanthrene	15.38	178	129532	327.81	ug/kg	99
13) Anthracene	15.42	178	23756	63.52	ug/kg	99
14) Fluoranthene	17.33	202	352138	861.16	ug/kg	99
15) Pyrene	17.92	202	316536	745.19	ug/kg	99
18) Benzo[a]anthracene	20.89	228	204328	549.80	ug/kg	98
19) Chrysene	21.16	228	235115	654.77	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	255207	655.28	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	120834	330.73	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	111738	343.33	ug/kg	91
24) Benzo[e]pyrene	25.69	252	186163	533.75	ug/kg	99
25) Benzo[a]pyrene	25.88	252	246067	690.39	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	35896	110.59	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.45	276	157462	406.63	ug/kg	91
28) Benzo[g,h,i]perylene	30.52	276	153445	508.17	ug/kg	99

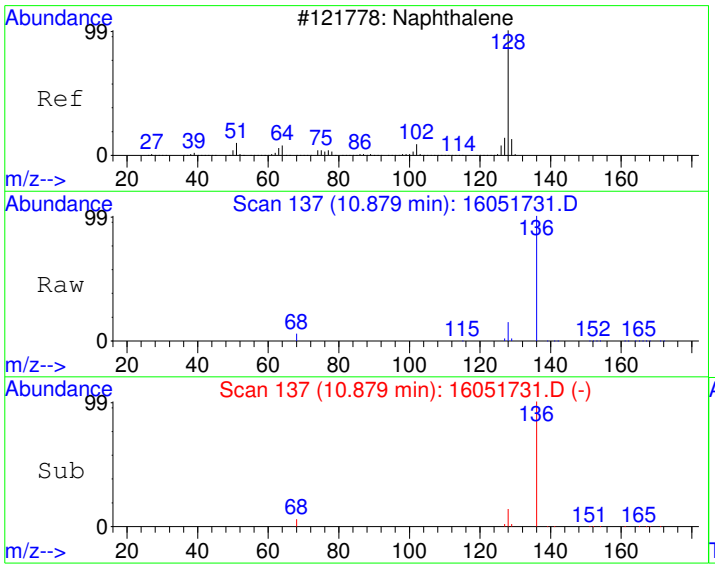
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051731.D Vial: 26
Acq On : 18 May 2016 4:18 am Operator:
Sample : 1605096-45A Inst : GC/MS #6
Misc : SAMP Multiplr: 50.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:34 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

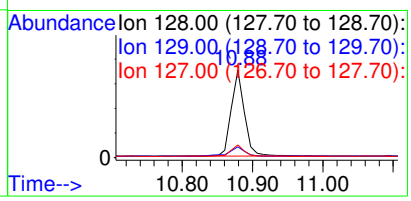


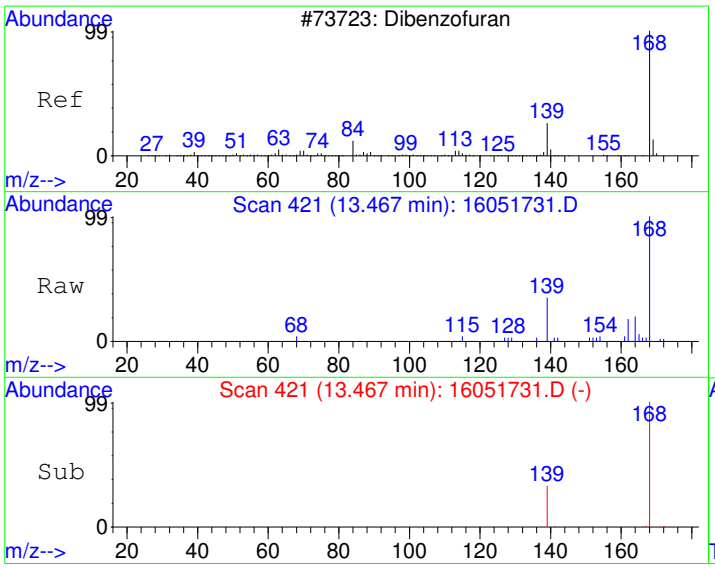


#2
Naphthalene
Concen: 13.75 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:128 Resp: 4495

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	41.1
127	13.4	0.0	42.4

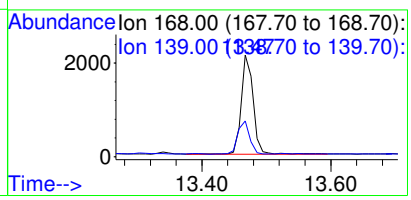


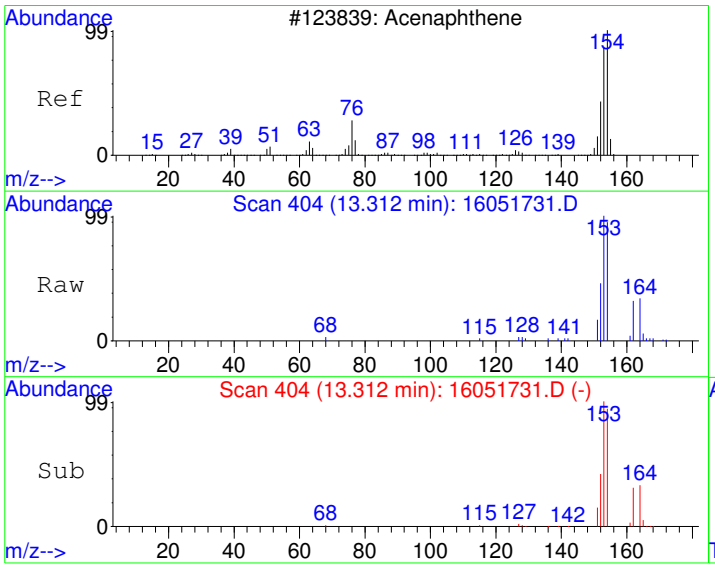


#6
Dibenzofuran
Concen: 8.53 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:168 Resp: 2723

Ion	Ratio	Lower	Upper
168	100		
139	34.3	27.0	40.4

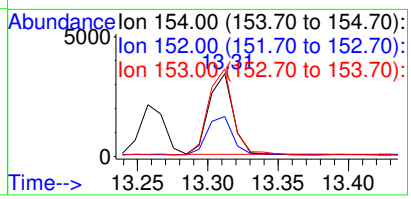


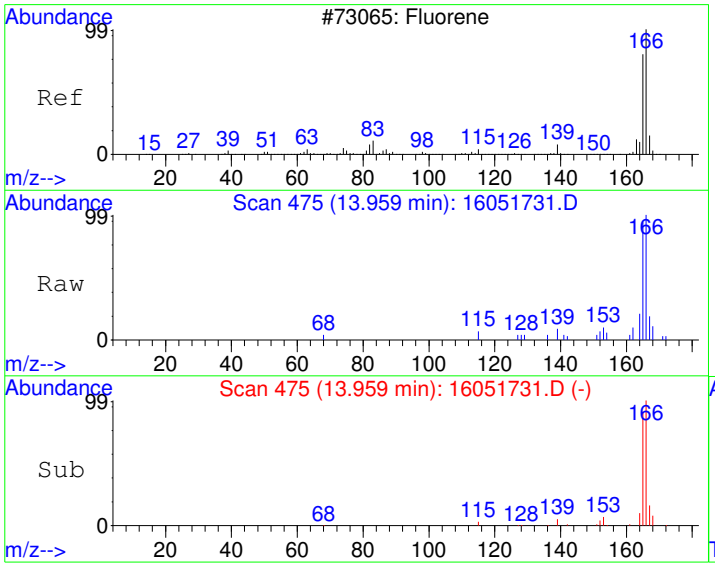


#9
Acenaphthene
Concen: 17.64 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:154 Resp: 4017

Ion	Ratio	Lower	Upper
154	100		
152	47.3	18.9	78.9
153	106.1	75.2	135.2

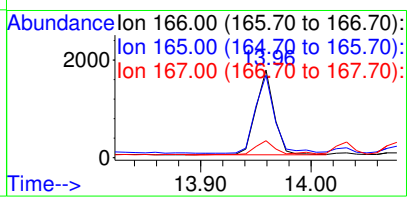


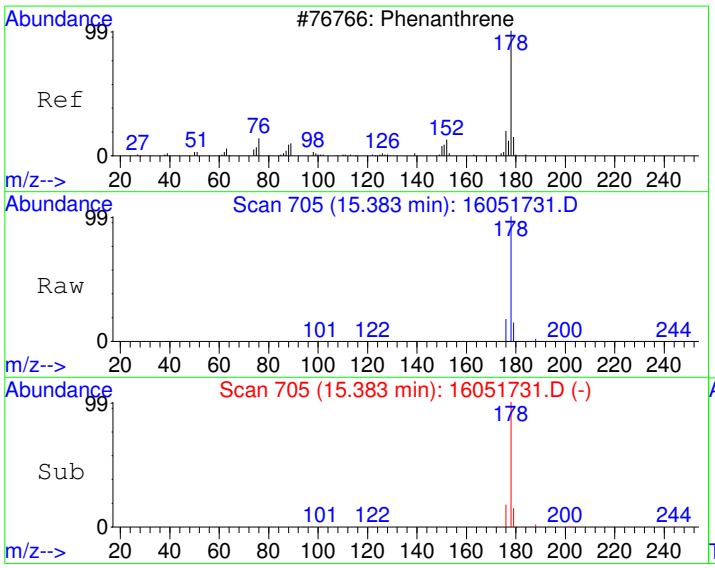


#10
Fluorene
Concen: 7.31 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:166 Resp: 2022

Ion	Ratio	Lower	Upper
166	100		
165	91.8	61.8	121.8
167	16.3	0.0	43.6

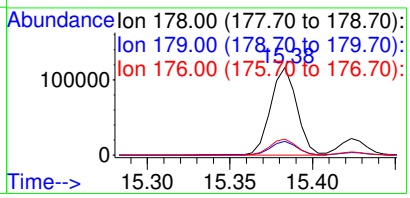


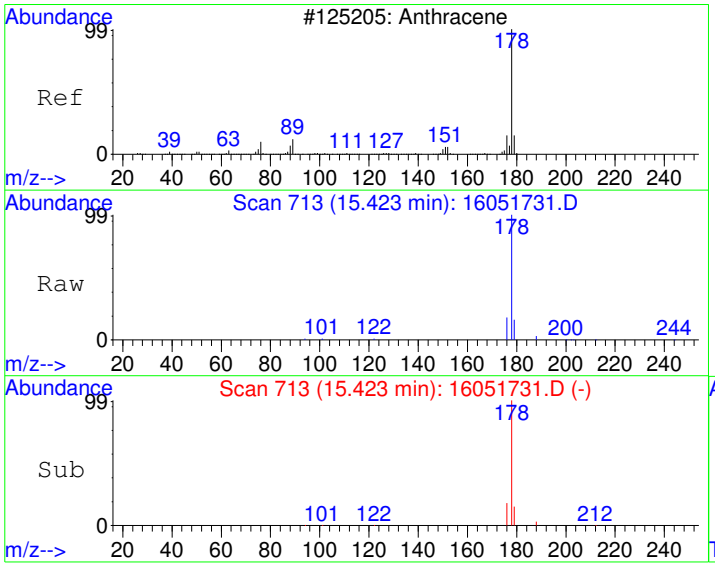


#12
Phenanthrene
Concen: 327.81 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:178 Resp: 129532

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	18.2	0.0	48.5

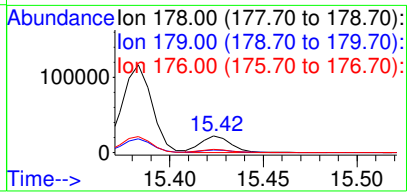


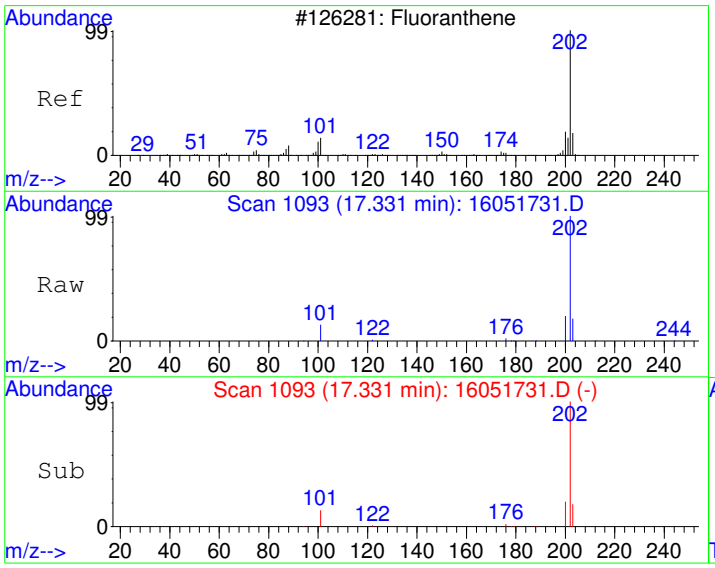


#13
Anthracene
Concen: 63.52 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:178 Resp: 23756

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.9	0.0	48.2

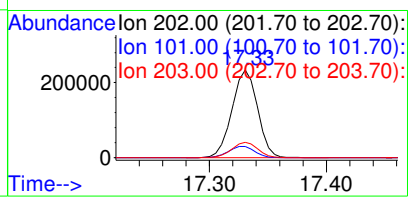


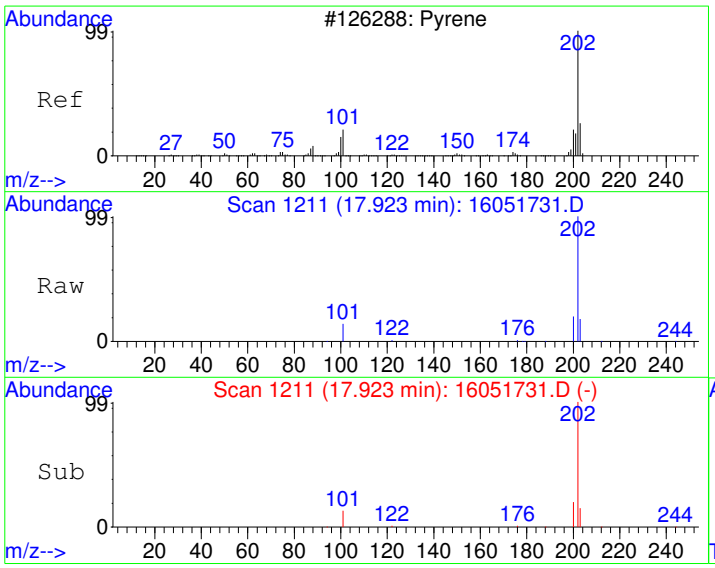


#14
Fluoranthene
Concen: 861.16 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:202 Resp: 352138

Ion	Ratio	Lower	Upper
202	100		
101	12.8	0.0	43.0
203	17.6	0.0	47.9

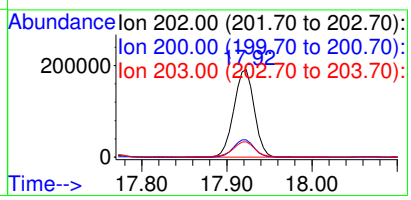


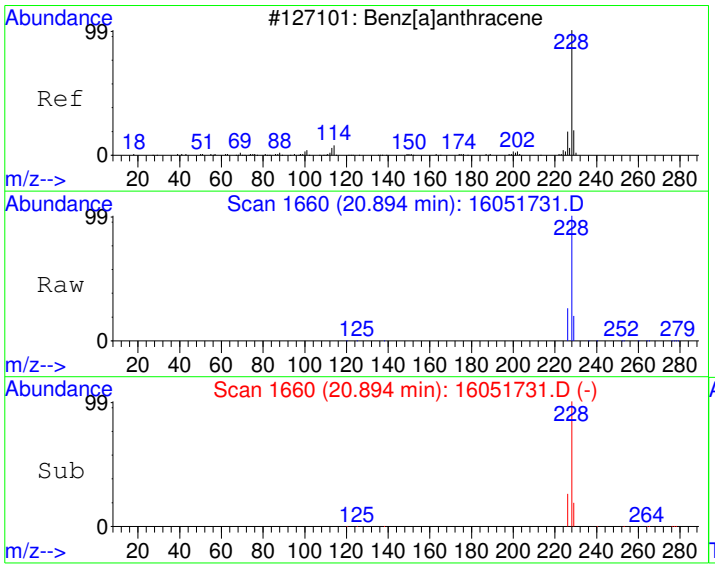


#15
Pyrene
Concen: 745.19 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:202 Resp: 316536

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.5	0.0	48.0

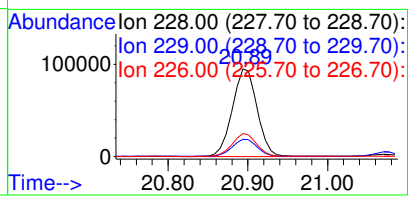


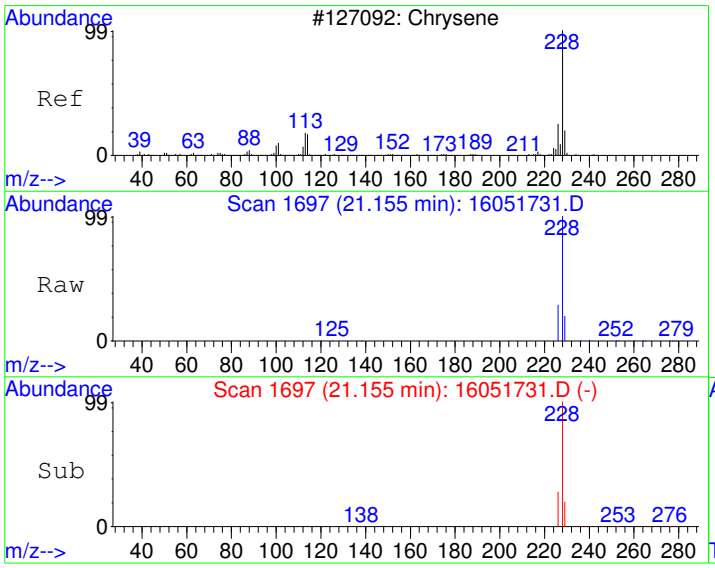


#18
Benzo[a]anthracene
Concen: 549.80 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:228 Resp: 204328

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.1
226	26.3	0.0	55.2

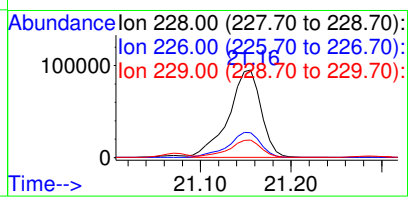


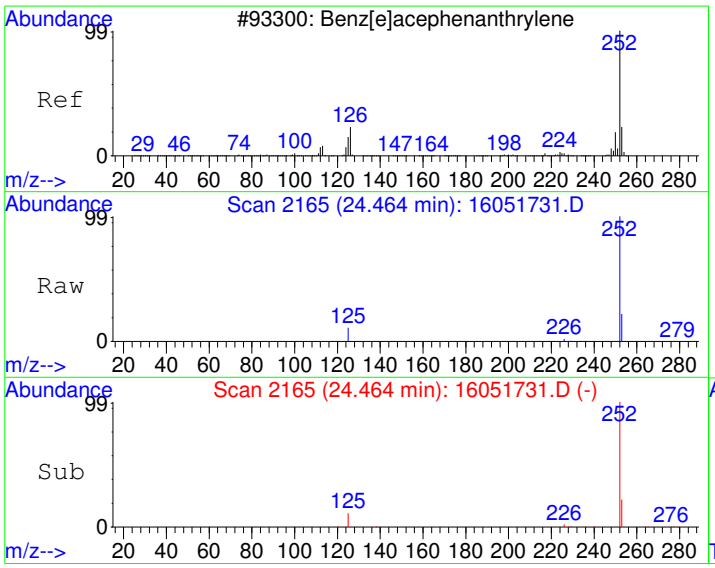


#19
Chrysene
Concen: 654.77 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:228 Resp: 235115

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	19.9	0.0	50.1

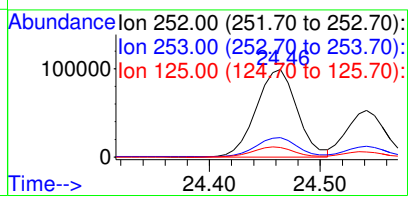


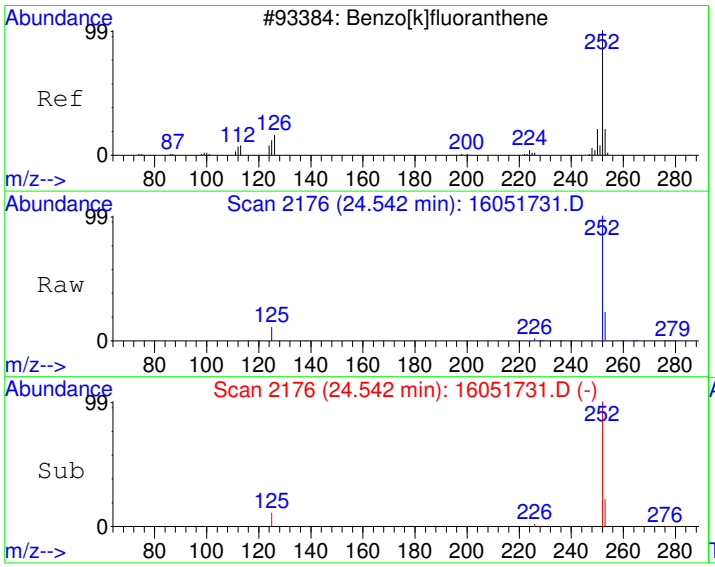


#21
Benzo[b]fluoranthene
Concen: 655.28 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:252 Resp: 255207

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	10.9	0.0	41.0

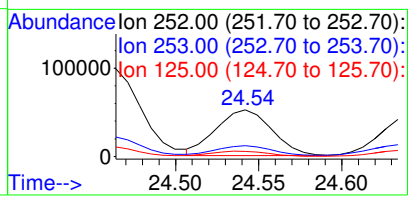


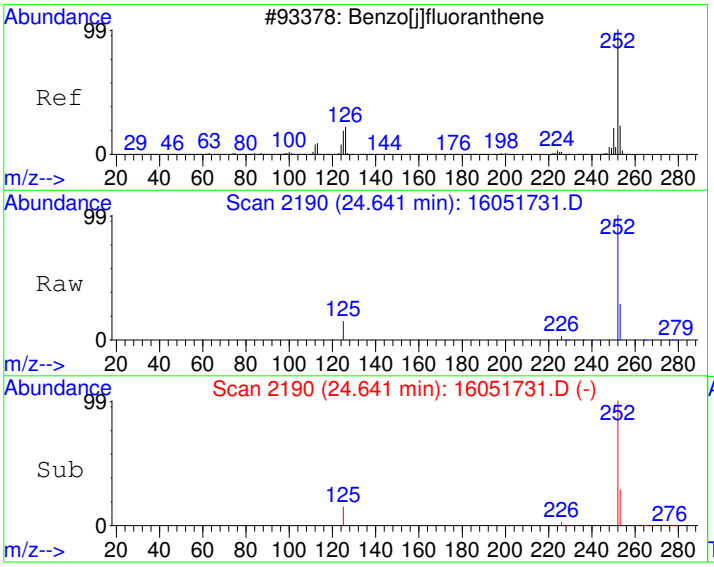


#22
Benzo[k]fluoranthene
Concen: 330.73 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:252 Resp: 120834

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.1	42.1
125	10.8	0.0	31.3

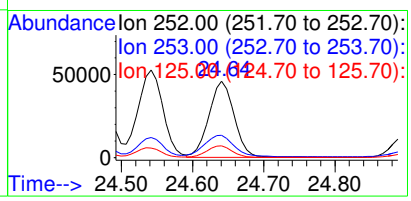


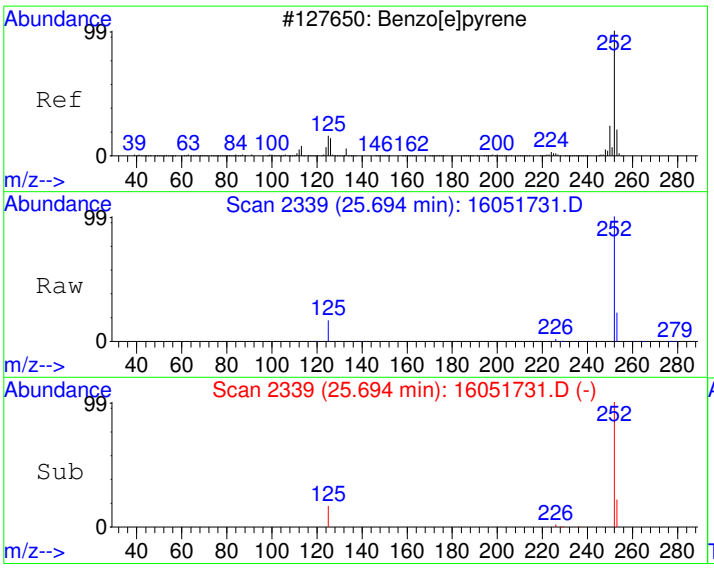


#23
Benzo(j)fluoranthene
Concen: 343.33 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:252 Resp: 111738

Ion	Ratio	Lower	Upper
252	100		
253	28.3	2.1	42.1
125	15.2	0.0	34.4

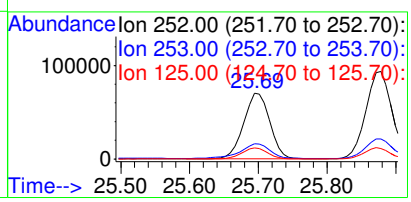


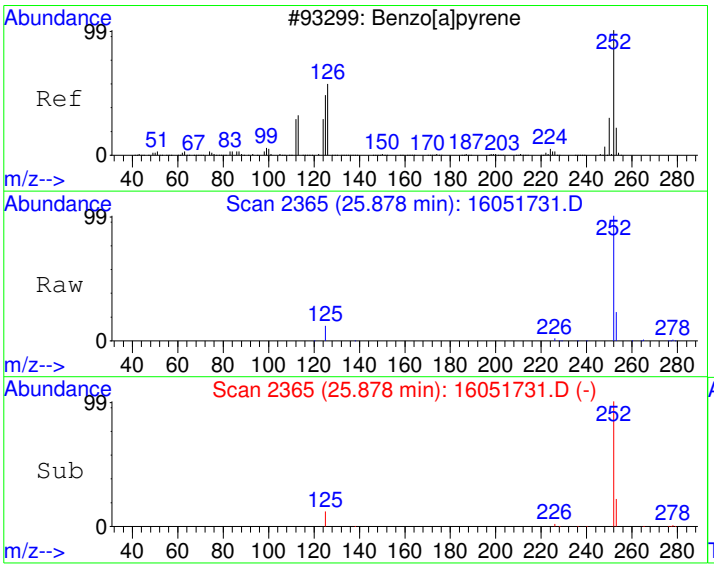


#24
Benzo[e]pyrene
Concen: 533.75 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:252 Resp: 186163

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	16.9	0.0	36.1

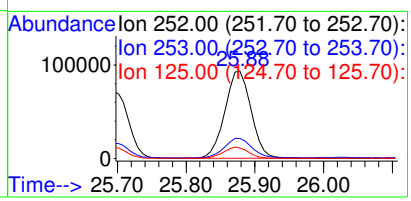


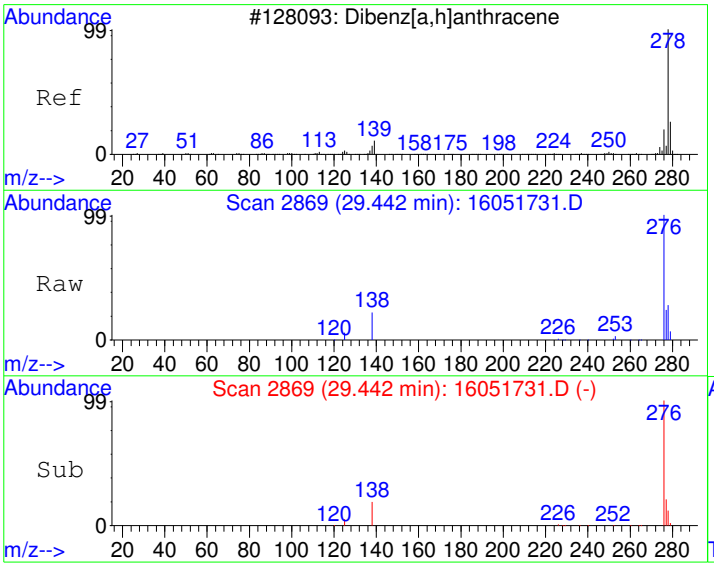


#25
Benzo[a]pyrene
Concen: 690.39 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:252 Resp: 246067

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.9	0.0	31.7

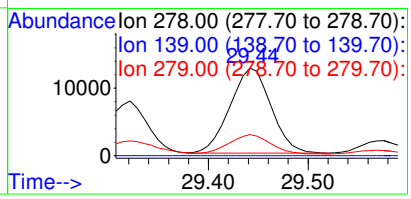


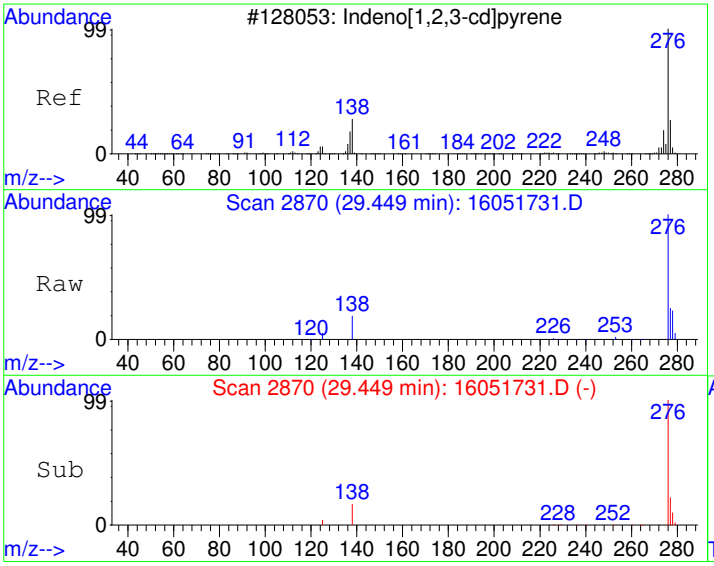


#26
Dibenz[a,h]anthracene
Concen: 110.59 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:278 Resp: 35896

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	4.2	44.2

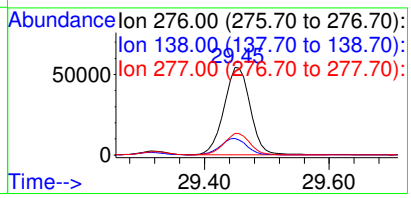


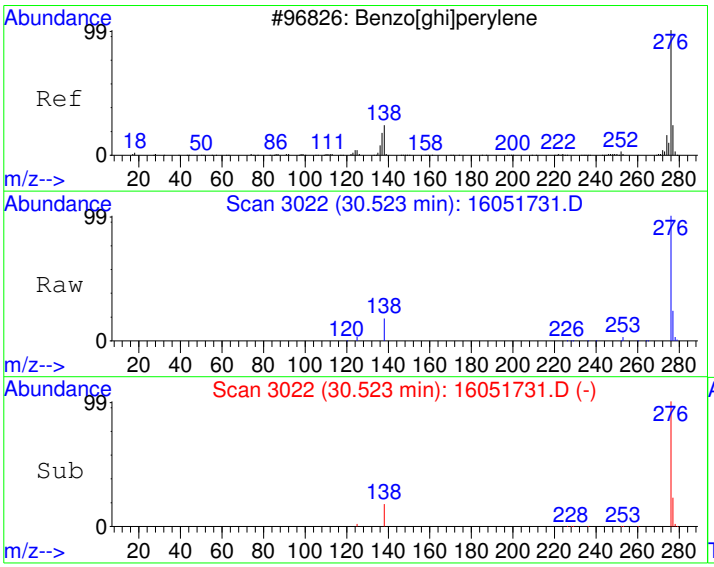


#27
Indeno[1,2,3-cd]pyrene
Concen: 406.63 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:276 Resp: 157462

Ion	Ratio	Lower	Upper
276	100		
138	18.8	6.7	46.7
277	24.4	5.8	45.8

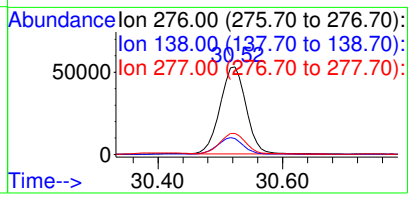




#28
Benzo[g,h,i]perylene
Concen: 508.17 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051731.D
Acq: 18 May 2016 4:18 am

Tgt Ion:276 Resp: 153445

Ion	Ratio	Lower	Upper
276	100		
138	17.9	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051732.D Vial: 27
Acq On : 18 May 2016 4:58 am Operator:
Sample : 1605096-46A Inst : GC/MS #6
Misc : SAMP Multiplr: 50.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:34 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

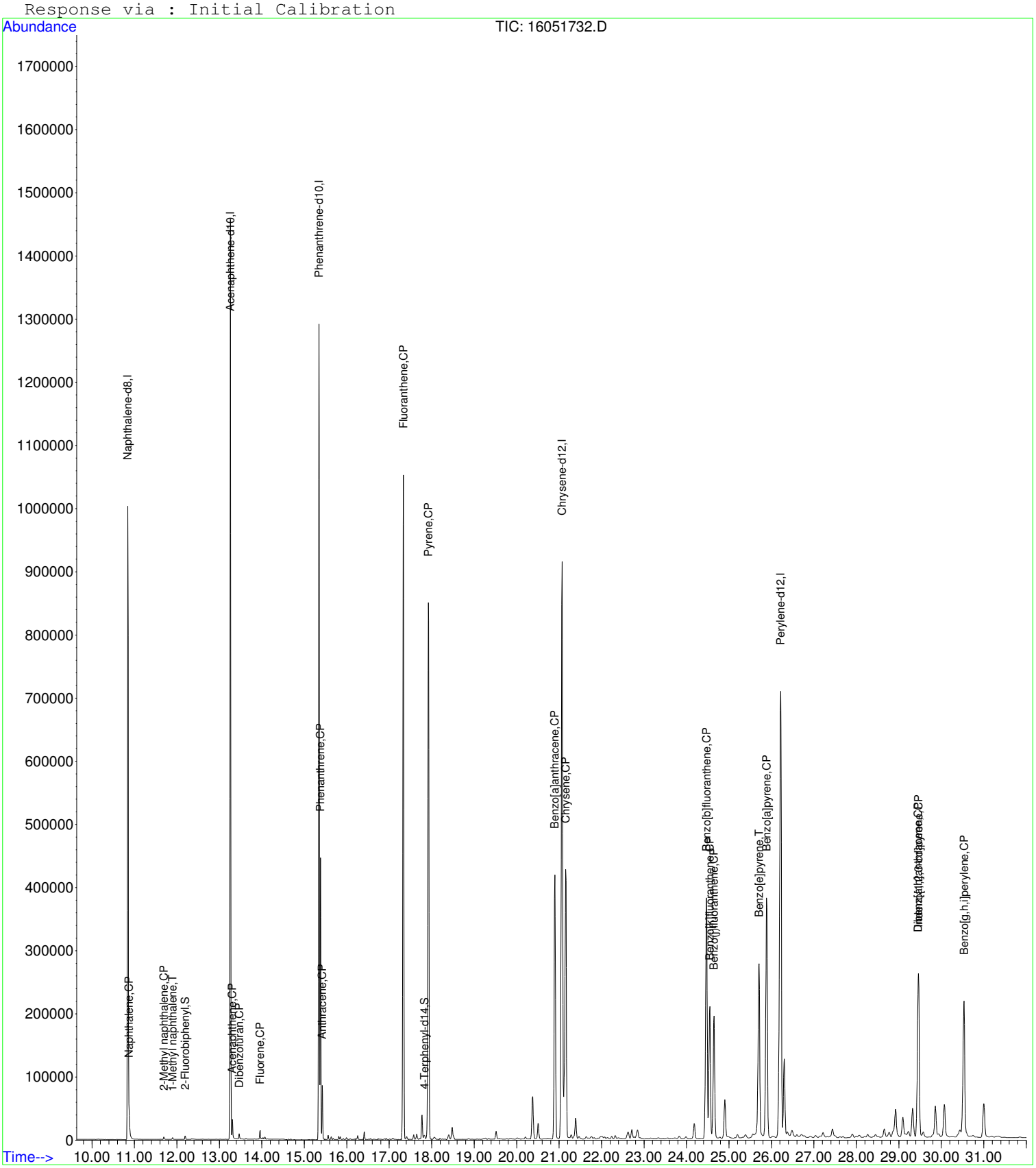
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1283961	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	783824	4000.00	ug/kg	68
11) Phenanthrene-d10	15.35	188	1412786	4000.00	ug/kg	69
17) Chrysene-d12	21.07	240	1520308	4000.00	ug/kg	67
20) Perylene-d12	26.22	264	1396709	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	4891	21.39	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.53%#		
16) 4-Terphenyl-d14	17.84	244	6819	18.66	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.47%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	14060	43.78	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	2566	9.04	ug/kg	96
4) 1-Methyl naphthalene	11.90	142	1839	7.08	ug/kg	98
6) Dibenzofuran	13.47	168	7244	24.66	ug/kg	100
9) Acenaphthene	13.30	154	13168	62.85	ug/kg	97
10) Fluorene	13.96	166	7007	27.54	ug/kg	98
12) Phenanthrene	15.38	178	363894	979.42	ug/kg	100
13) Anthracene	15.42	178	69297	197.05	ug/kg	99
14) Fluoranthene	17.33	202	1034713	2691.20	ug/kg	99
15) Pyrene	17.92	202	928976	2325.98	ug/kg	100
18) Benzo[a]anthracene	20.90	228	611455	1716.75	ug/kg	99
19) Chrysene	21.15	228	702181	2040.44	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	728722	1979.55	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	357674	1035.73	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	321079	1043.75	ug/kg	92
24) Benzo[e]pyrene	25.71	252	525244	1593.21	ug/kg	100
25) Benzo[a]pyrene	25.88	252	716743	2127.53	ug/kg	98
26) Dibenz[a,h]anthracene	29.45	278	104178	339.55	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	456276	1246.59	ug/kg	91
28) Benzo[g,h,i]perylene	30.54	276	438687	1537.03	ug/kg	98

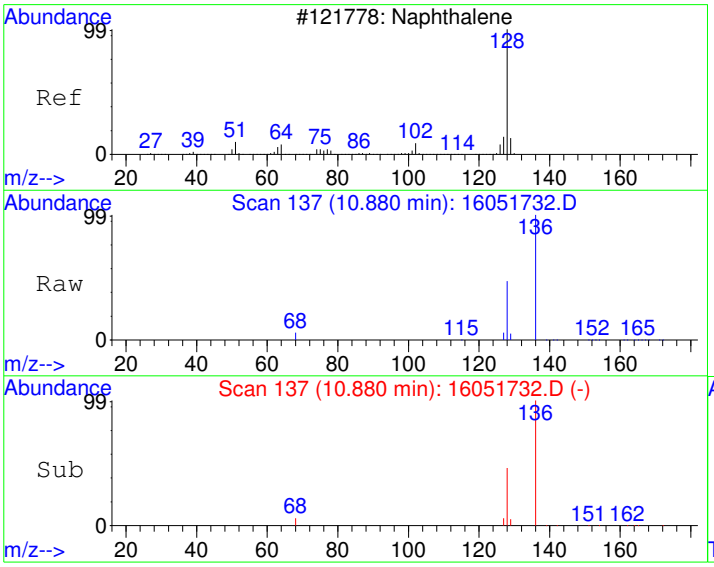
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051732.D Vial: 27
Acq On : 18 May 2016 4:58 am Operator:
Sample : 1605096-46A Inst : GC/MS #6
Misc : SAMP Multiplr: 50.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:34 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

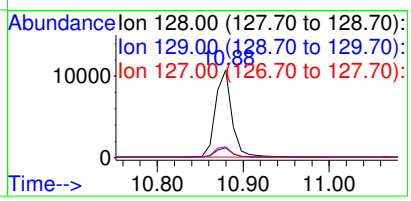


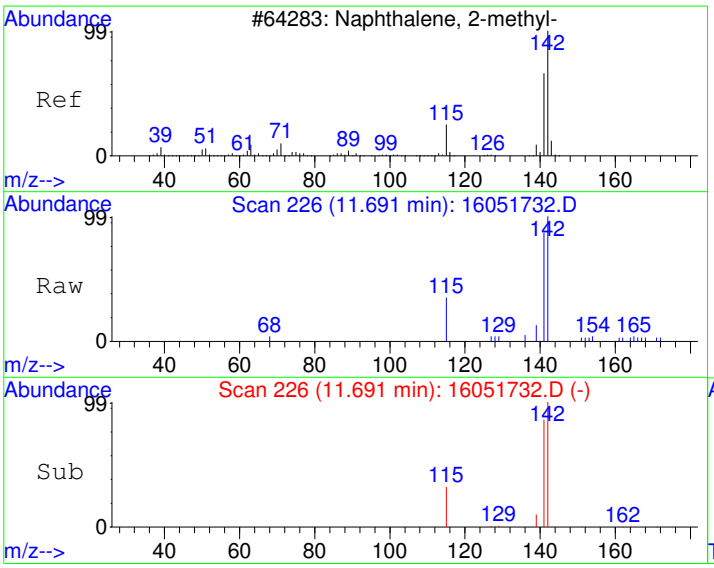


#2
Naphthalene
Concen: 43.78 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. 0.00 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:128 Resp: 14060

Ion	Ratio	Lower	Upper
128	100		
129	10.8	0.0	41.1
127	12.0	0.0	42.4

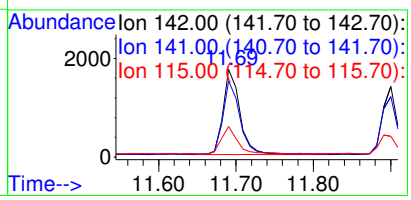


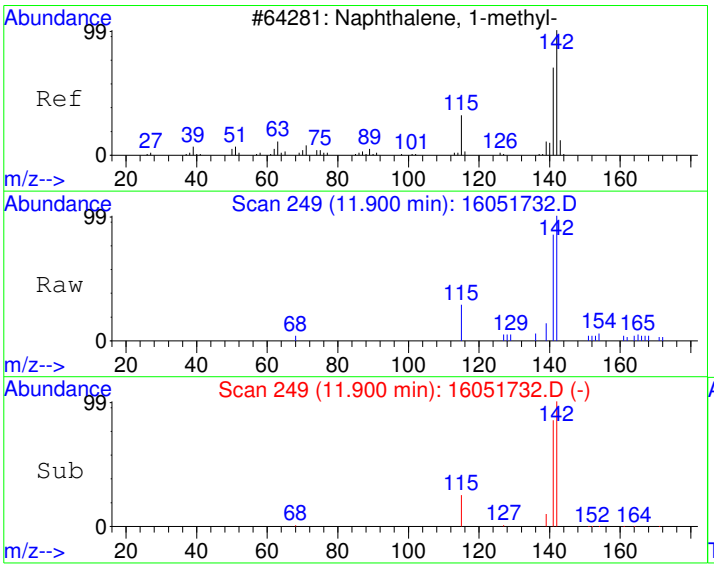


#3
2-Methyl naphthalene
Concen: 9.04 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:142 Resp: 2566

Ion	Ratio	Lower	Upper
142	100		
141	86.0	54.4	114.4
115	32.1	0.0	56.0

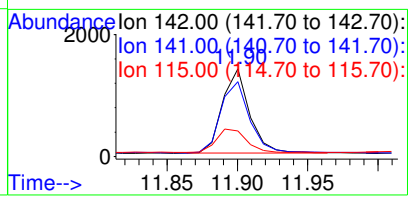


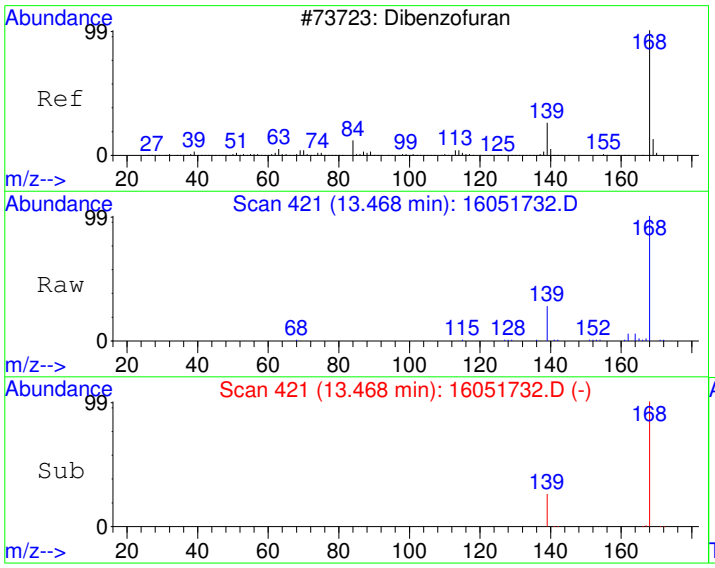


#4
1-Methyl naphthalene
Concen: 7.08 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. 0.00 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:142 Resp: 1839

Ion	Ratio	Lower	Upper
142	100		
141	84.8	56.5	116.5
115	25.7	0.0	55.0

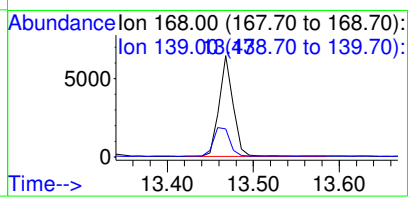


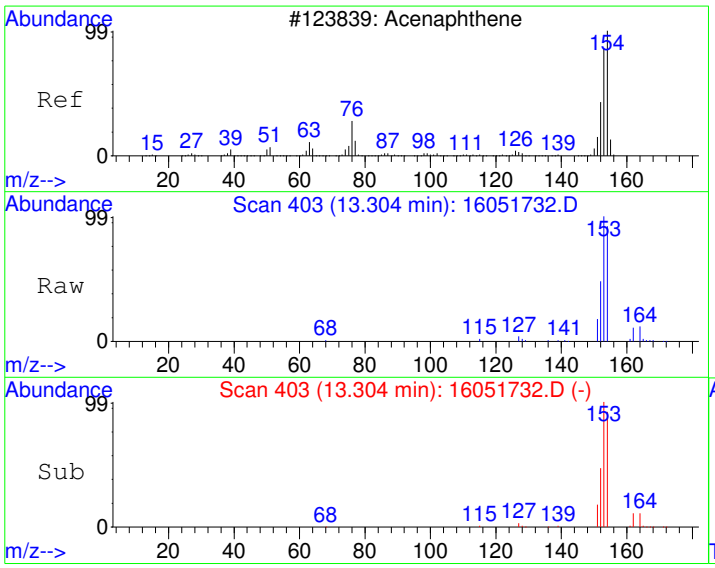


#6
Dibenzofuran
Concen: 24.66 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:168 Resp: 7244

Ion	Ratio	Lower	Upper
168	100		
139	33.8	27.0	40.4

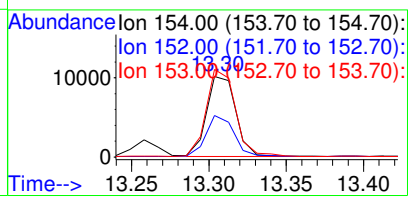


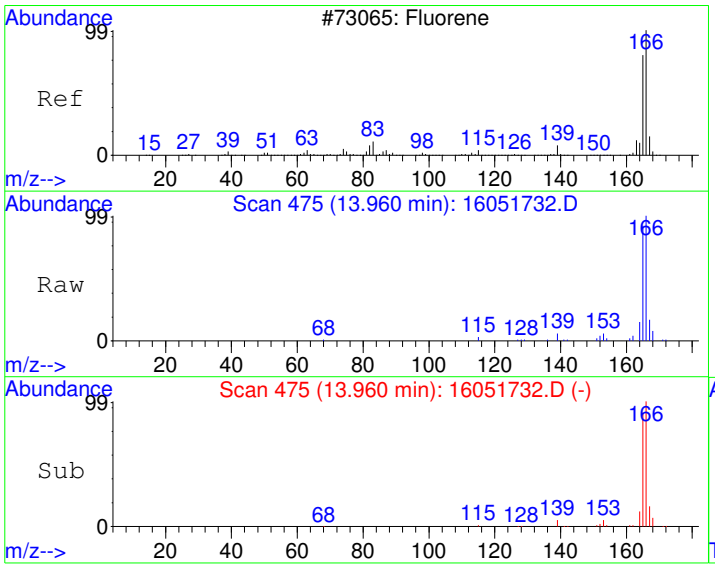


#9
Acenaphthene
Concen: 62.85 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:154 Resp: 13168

Ion	Ratio	Lower	Upper
154	100		
152	51.4	18.9	78.9
153	108.5	75.2	135.2

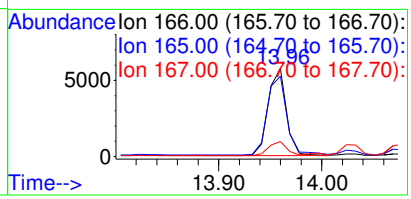


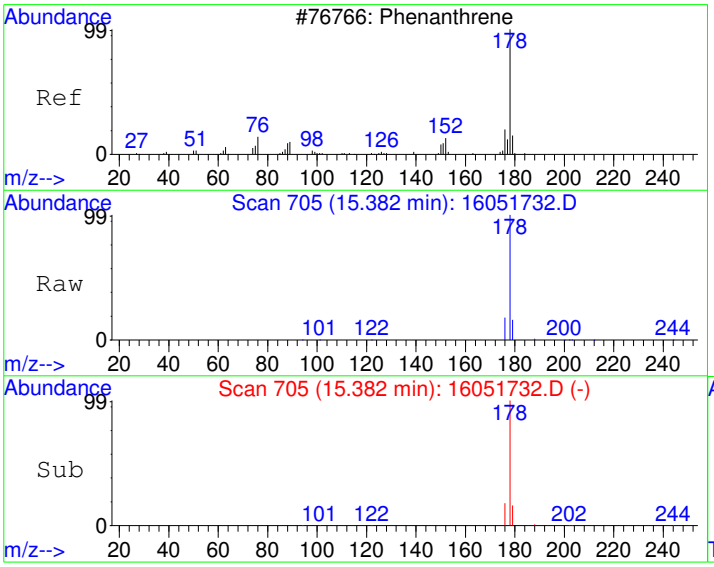


#10
Fluorene
Concen: 27.54 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:166 Resp: 7007

Ion	Ratio	Lower	Upper
166	100		
165	90.8	61.8	121.8
167	16.1	0.0	43.6

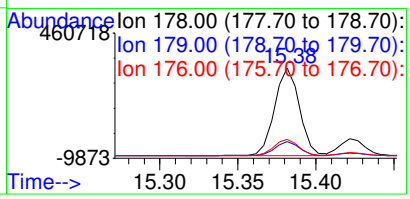


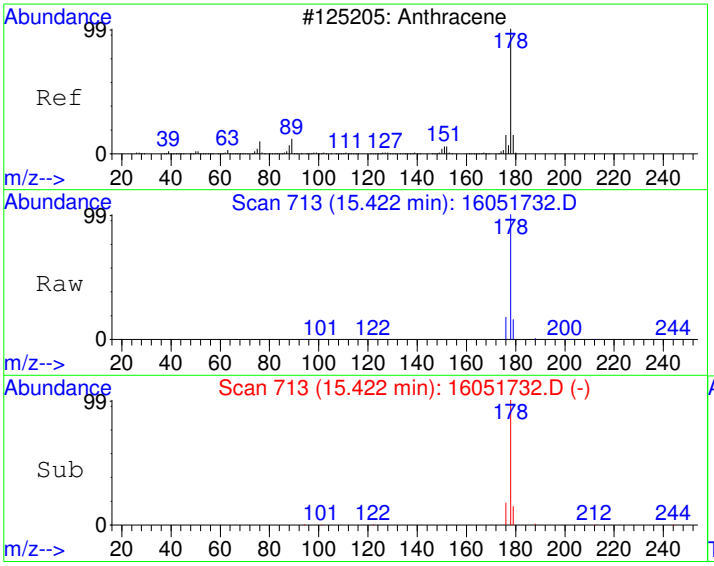


#12
Phenanthrene
Concen: 979.42 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:178 Resp: 363894

Ion	Ratio	Lower	Upper
178	100		
179	15.9	0.0	45.9
176	18.4	0.0	48.5

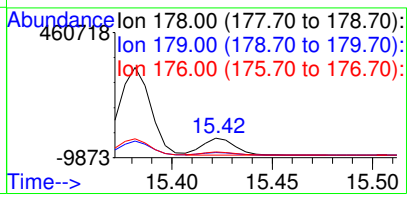


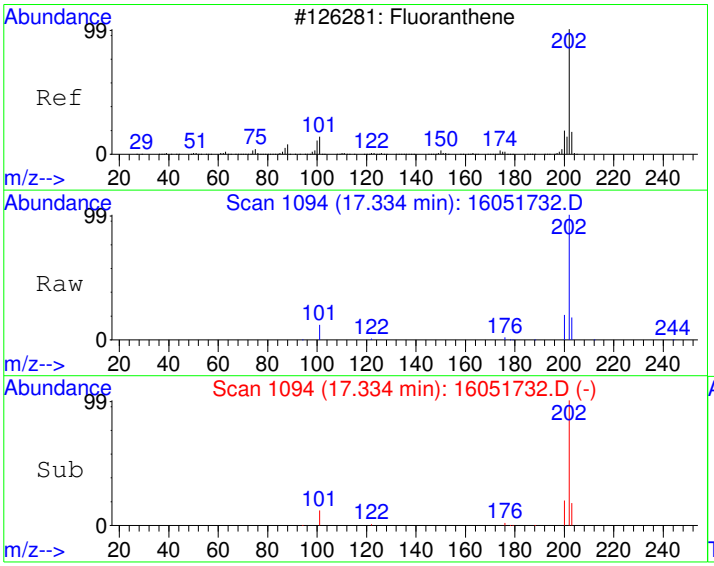


#13
Anthracene
Concen: 197.05 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:178 Resp: 69297

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.8	0.0	48.2

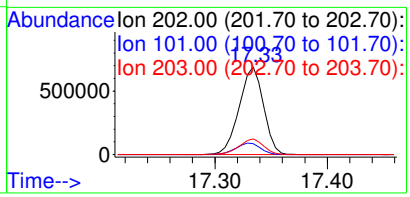


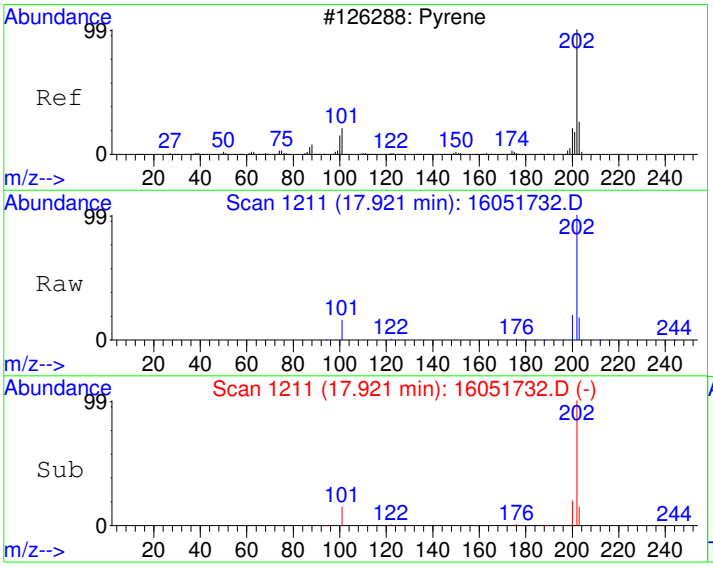


#14
Fluoranthene
Concen: 2691.20 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:202 Resp: 1034713

Ion	Ratio	Lower	Upper
202	100		
101	12.3	0.0	43.0
203	17.9	0.0	47.9

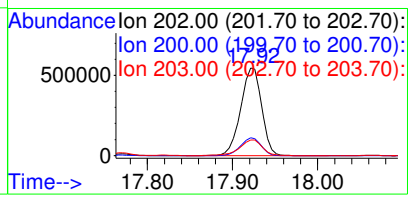


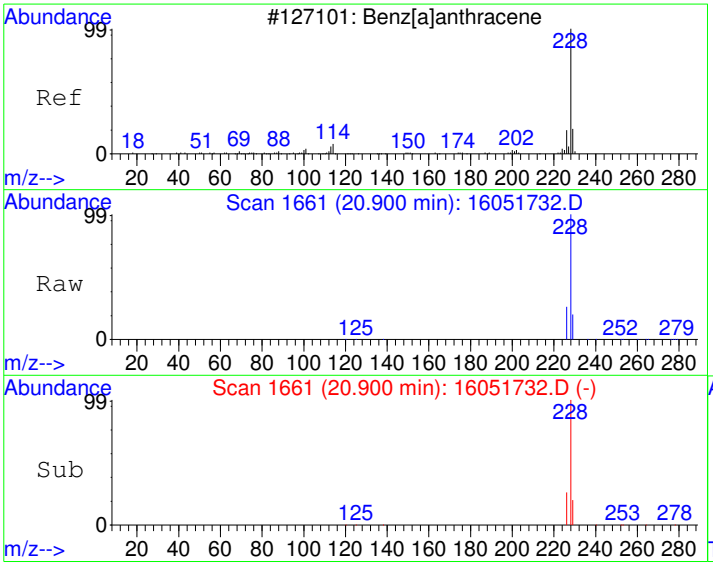


#15
Pyrene
Concen: 2325.98 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:202 Resp: 928976

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	18.0	0.0	48.0

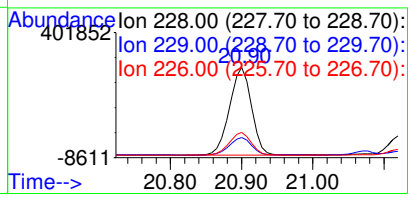


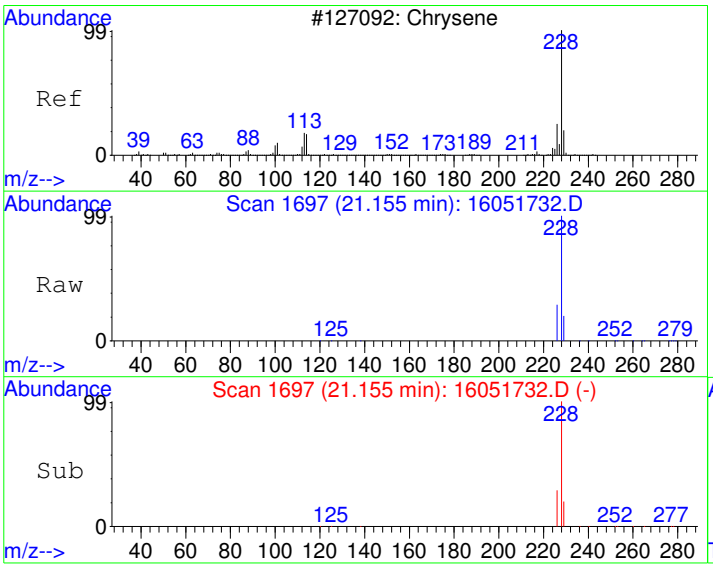


#18
Benzo[a]anthracene
Concen: 1716.75 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:228 Resp: 611455

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.8	0.0	55.2

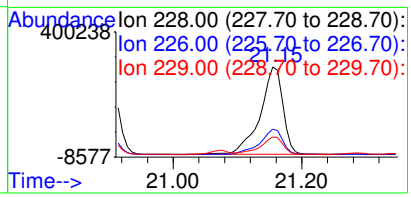


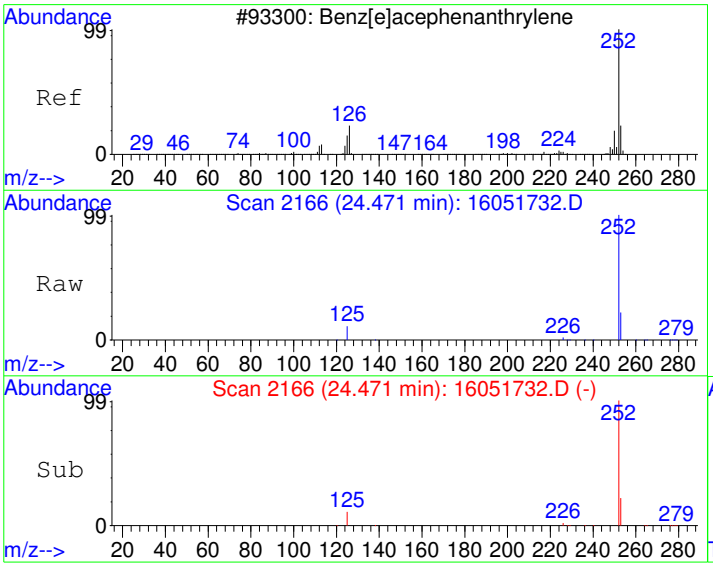


#19
Chrysene
Concen: 2040.44 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:228 Resp: 702181

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	20.0	0.0	50.1

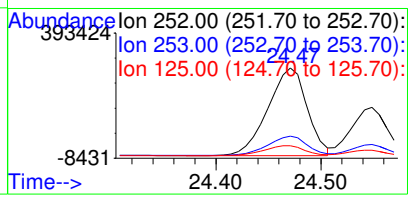


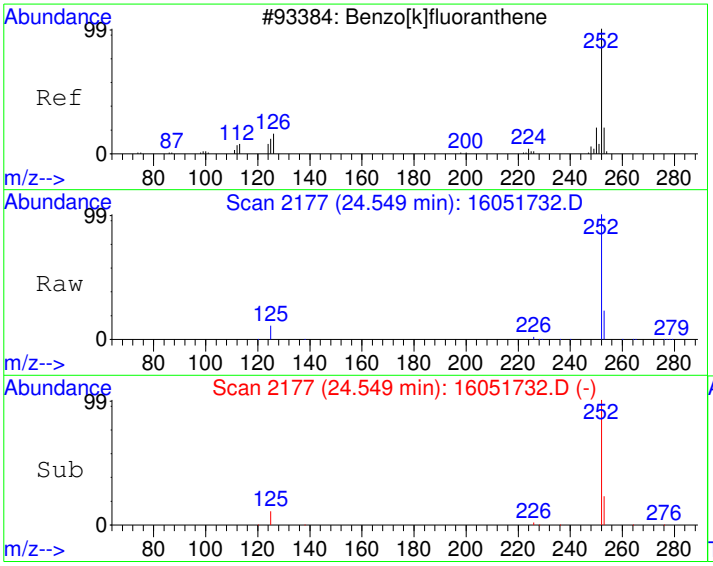


#21
Benzo[b]fluoranthene
Concen: 1979.55 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:252 Resp: 728722

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.4	0.0	41.0

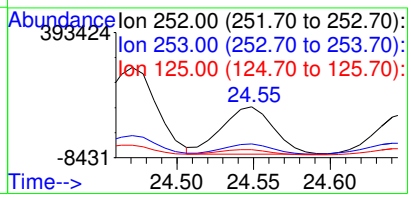


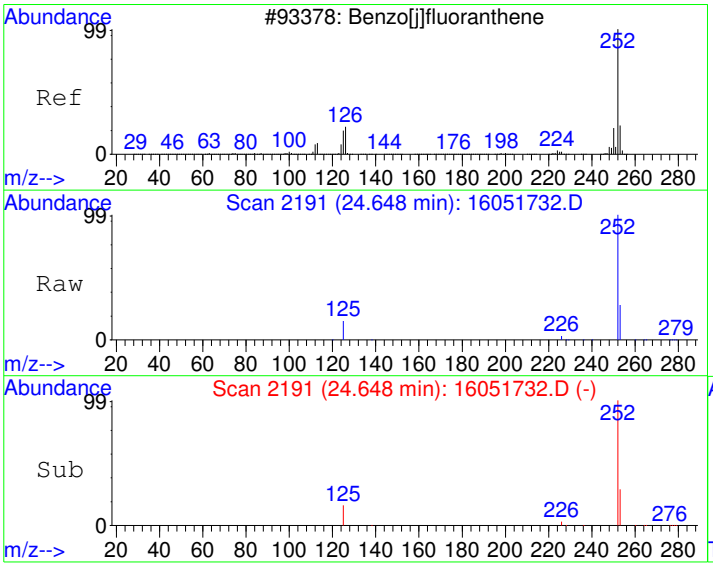


#22
Benzo[k]fluoranthene
Concen: 1035.73 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:252 Resp: 357674

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.1	42.1
125	10.6	0.0	31.3

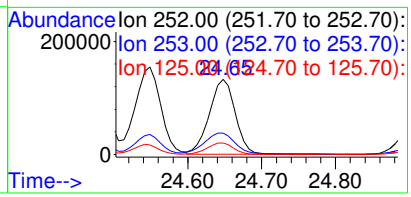


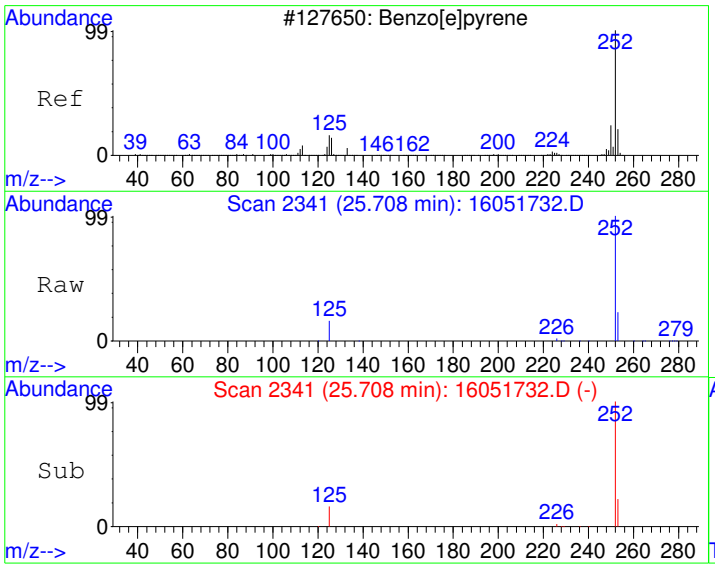


#23
Benzo(j)fluoranthene
Concen: 1043.75 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:252 Resp: 321079

Ion	Ratio	Lower	Upper
252	100		
253	28.0	2.1	42.1
125	15.1	0.0	34.4

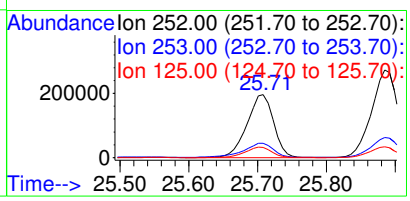


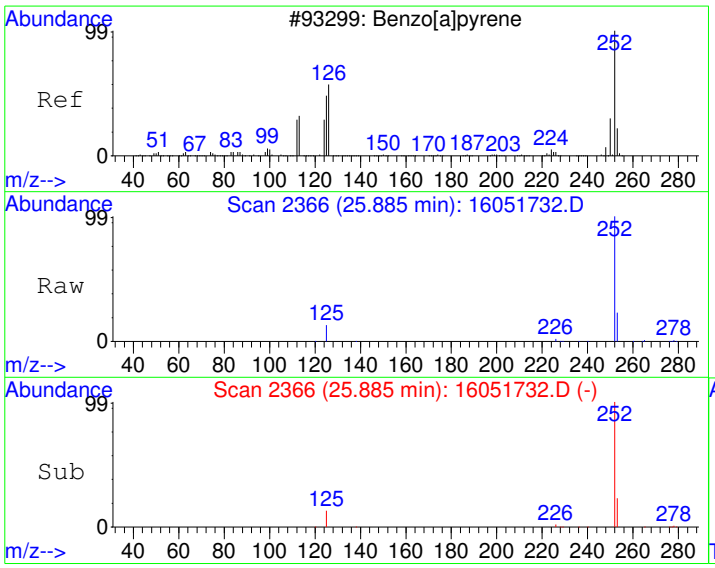


#24
Benzo[e]pyrene
Concen: 1593.21 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:252 Resp: 525244

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	16.1	0.0	36.1

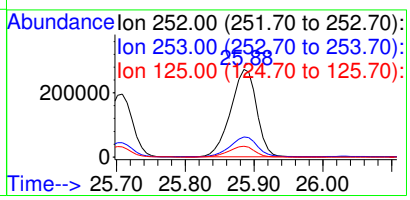


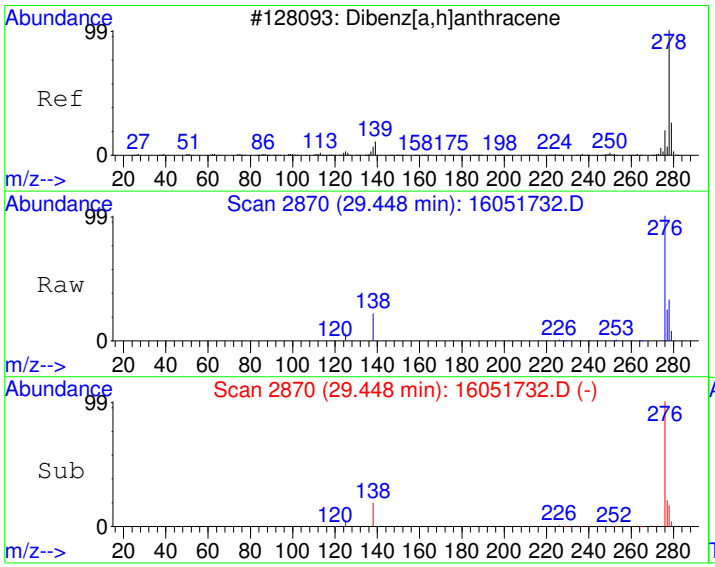


#25
Benzo[a]pyrene
Concen: 2127.53 ug/kg
RT: 25.88 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:252 Resp: 716743

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	12.5	0.0	31.7

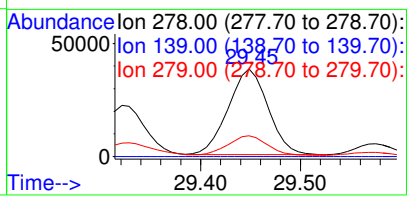


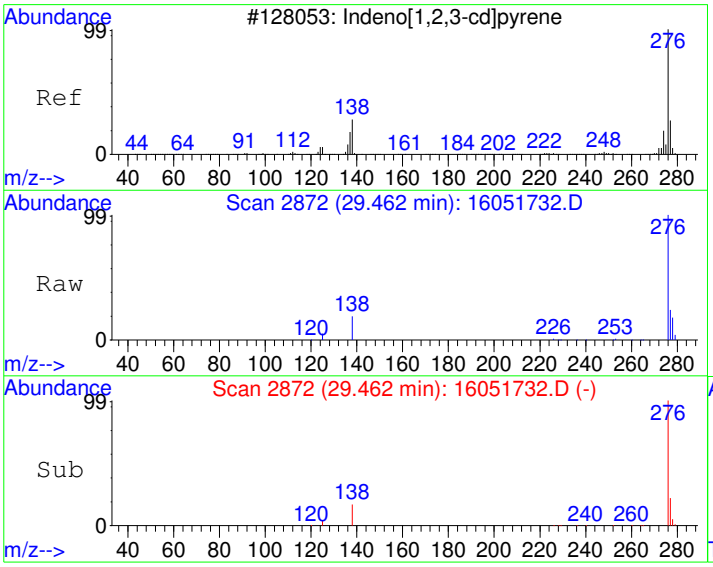


#26
Dibenz[a,h]anthracene
Concen: 339.55 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:278 Resp: 104178

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.8	4.2	44.2

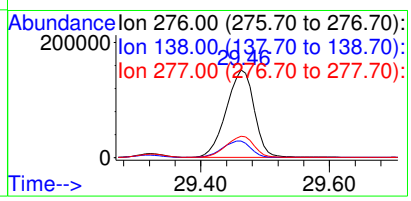


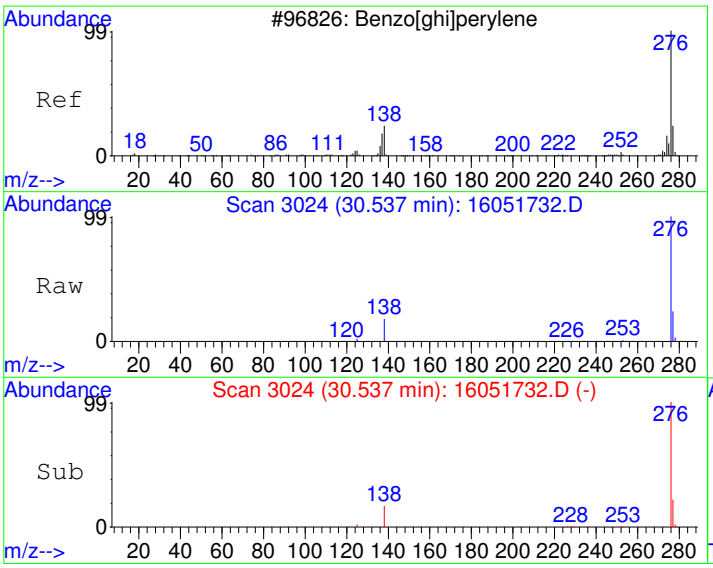


#27
Indeno[1,2,3-cd]pyrene
Concen: 1246.59 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:276 Resp: 456276

Ion	Ratio	Lower	Upper
276	100		
138	18.9	6.7	46.7
277	24.3	5.8	45.8

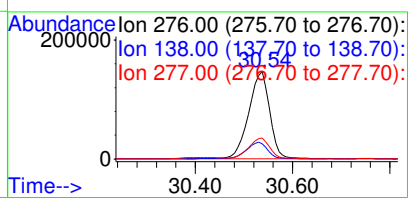




#28
Benzo[g,h,i]perylene
Concen: 1537.03 ug/kg
RT: 30.54 min Scan# 3024
Delta R.T. -0.01 min
Lab File: 16051732.D
Acq: 18 May 2016 4:58 am

Tgt Ion:276 Resp: 438687

Ion	Ratio	Lower	Upper
276	100		
138	17.4	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051733.D Vial: 28
Acq On : 18 May 2016 5:37 am Operator:
Sample : 1605096-47A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:35 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

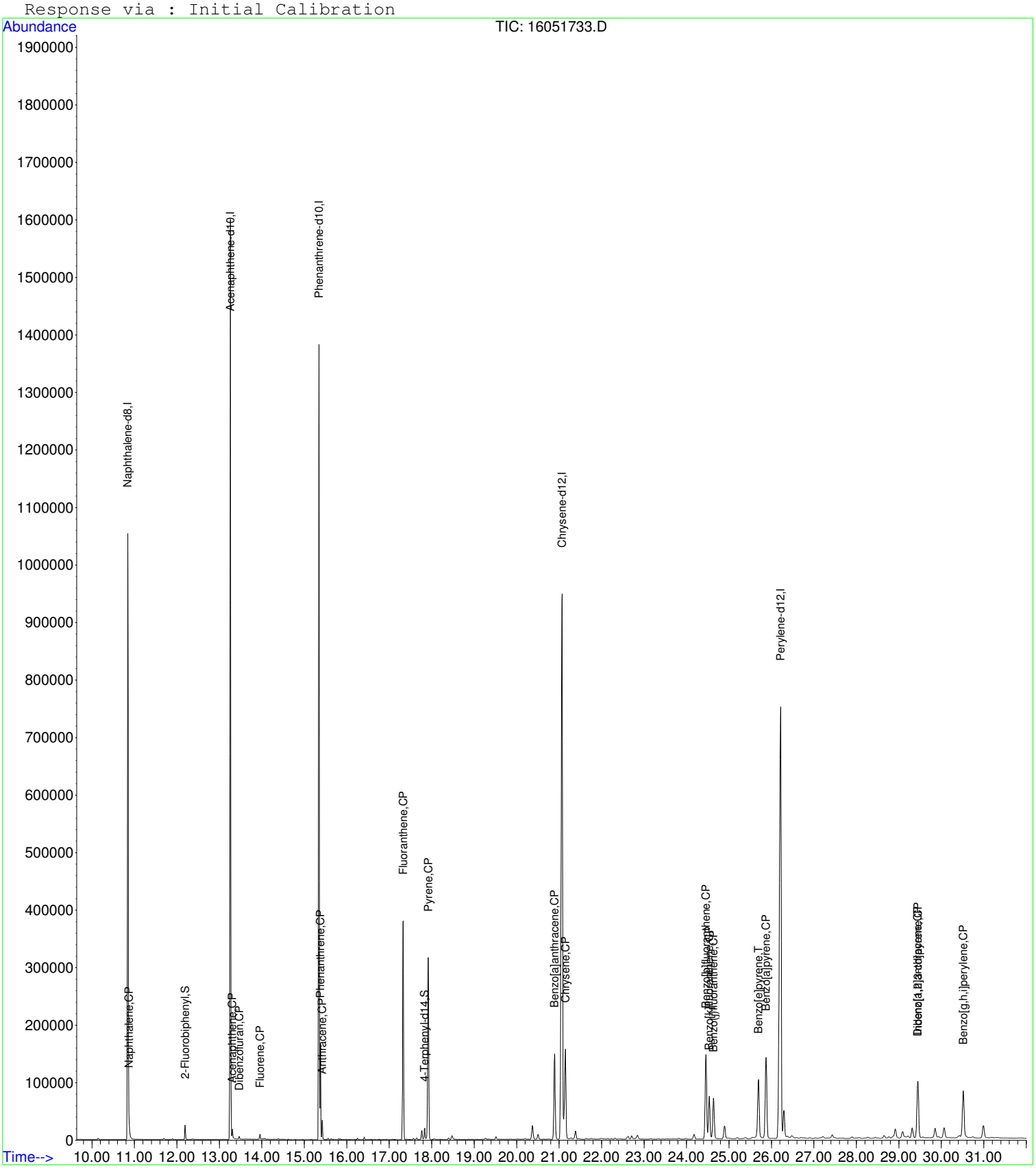
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1288709	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	848298	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1485230	4000.00	ug/kg	73
17) Chrysene-d12	21.07	240	1600322	4000.00	ug/kg	70
20) Perylene-d12	26.22	264	1508963	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19510	78.84	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.97%#		
16) 4-Terphenyl-d14	17.84	244	25715	66.92	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	6375	19.78	ug/kg	100
6) Dibenzofuran	13.47	168	4078	12.83	ug/kg	100
9) Acenaphthene	13.30	154	6263	27.62	ug/kg	96
10) Fluorene	13.96	166	4846	17.60	ug/kg	97
12) Phenanthrene	15.38	178	138824	355.42	ug/kg	99
13) Anthracene	15.42	178	29368	79.44	ug/kg	99
14) Fluoranthene	17.33	202	381633	944.18	ug/kg	98
15) Pyrene	17.92	202	339073	807.56	ug/kg	99
18) Benzo[a]anthracene	20.89	228	218617	583.11	ug/kg	100
19) Chrysene	21.15	228	252426	696.84	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	263622	662.85	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	125026	335.11	ug/kg	98
23) Benzo(j)fluoranthene	24.63	252	117068	352.25	ug/kg	90
24) Benzo[e]pyrene	25.69	252	189387	531.73	ug/kg	99
25) Benzo[a]pyrene	25.87	252	266127	731.19	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	37275	112.45	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.45	276	165384	418.23	ug/kg	90
28) Benzo[g,h,i]perylene	30.52	276	158836	515.11	ug/kg	100

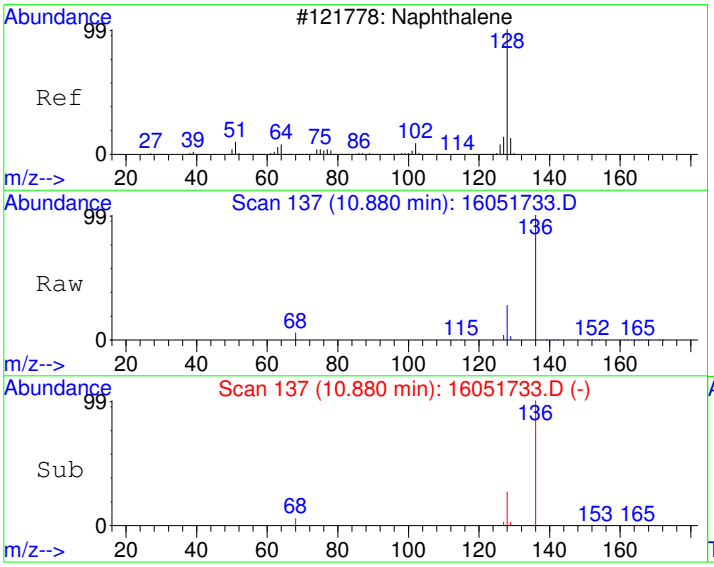
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051733.D Vial: 28
Acq On : 18 May 2016 5:37 am Operator:
Sample : 1605096-47A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:35 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

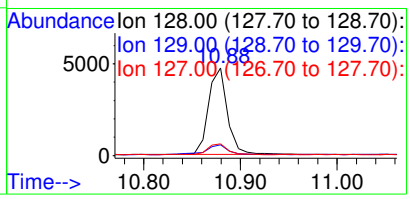


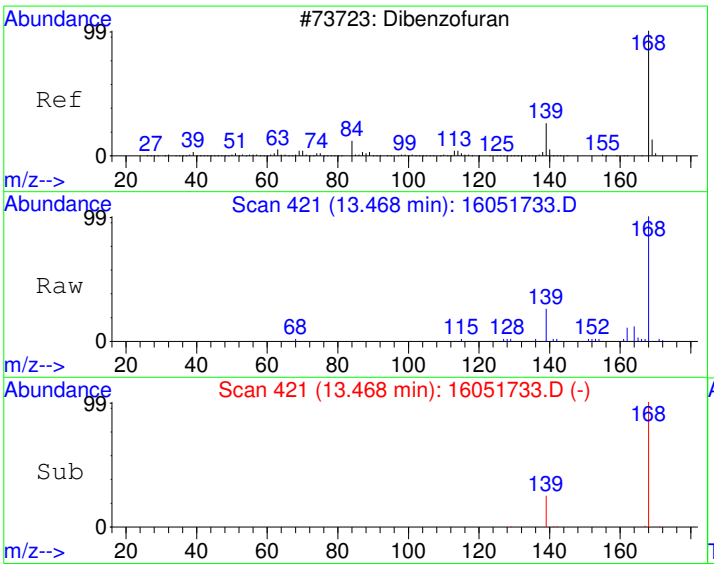


#2
Naphthalene
Concen: 19.78 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. 0.00 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:128 Resp: 6375

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	41.1
127	12.7	0.0	42.4

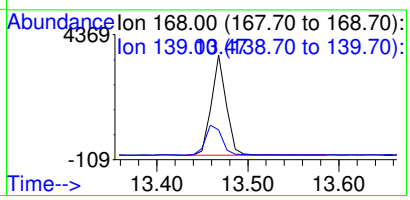


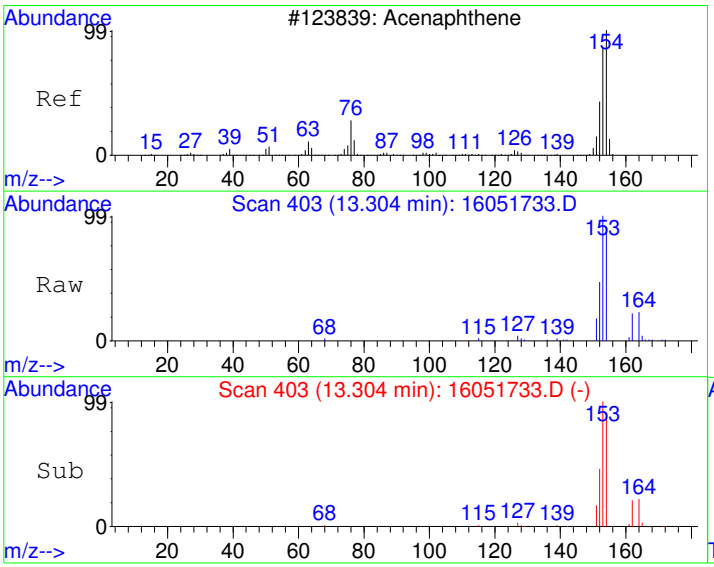


#6
Dibenzofuran
Concen: 12.83 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:168 Resp: 4078

Ion	Ratio	Lower	Upper
168	100		
139	33.9	27.0	40.4

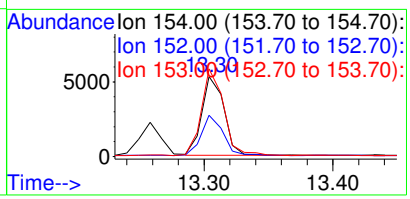


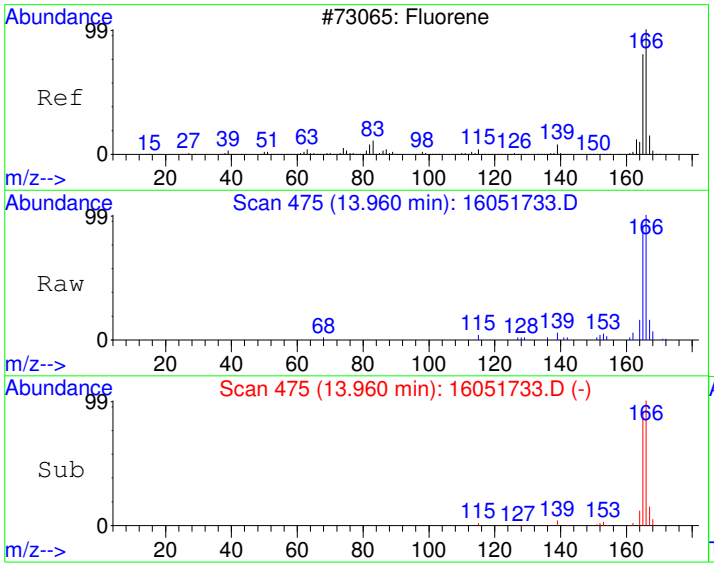


#9
Acenaphthene
Concen: 27.62 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:154 Resp: 6263

Ion	Ratio	Lower	Upper
154	100		
152	51.1	18.9	78.9
153	109.7	75.2	135.2

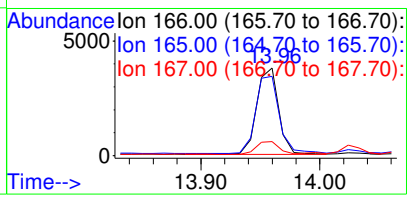


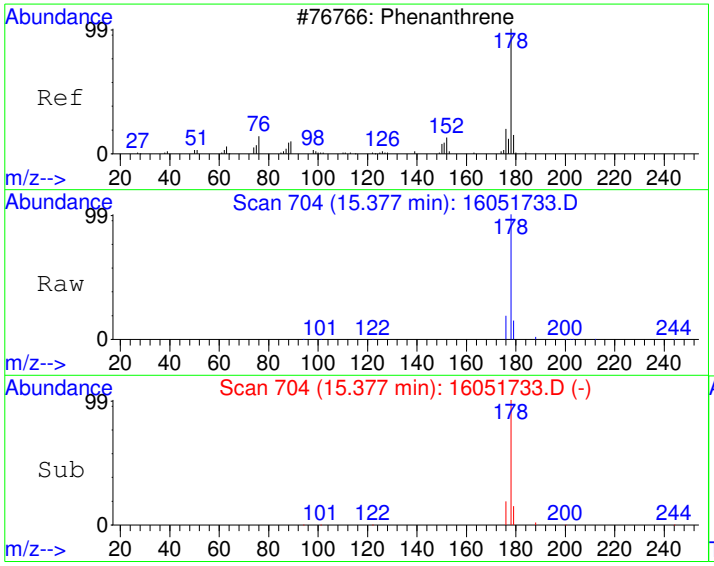


#10
Fluorene
Concen: 17.60 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:166 Resp: 4846

Ion	Ratio	Lower	Upper
166	100		
165	89.4	61.8	121.8
167	14.5	0.0	43.6

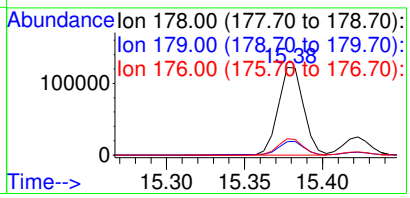


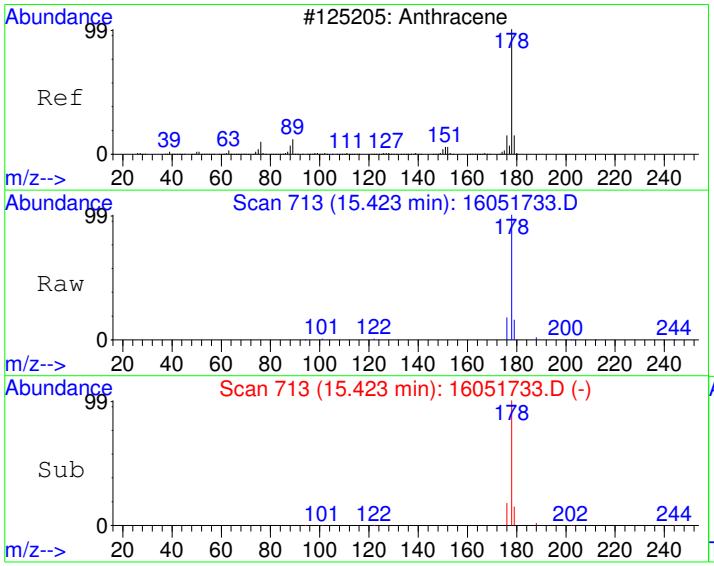


#12
Phenanthrene
Concen: 355.42 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:178 Resp: 138824

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.9
176	18.6	0.0	48.5

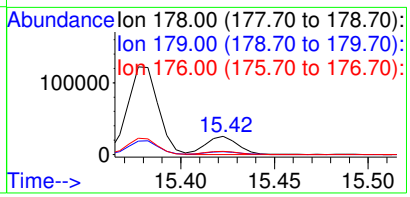


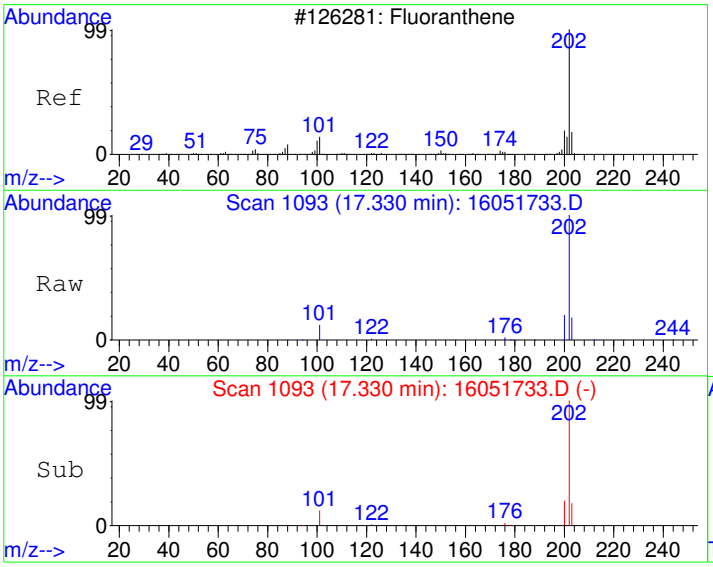


#13
Anthracene
Concen: 79.44 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:178 Resp: 29368

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.5	0.0	48.2

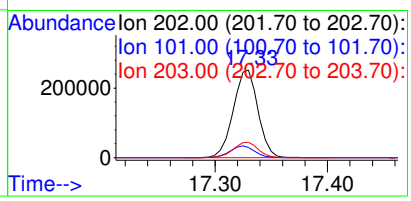


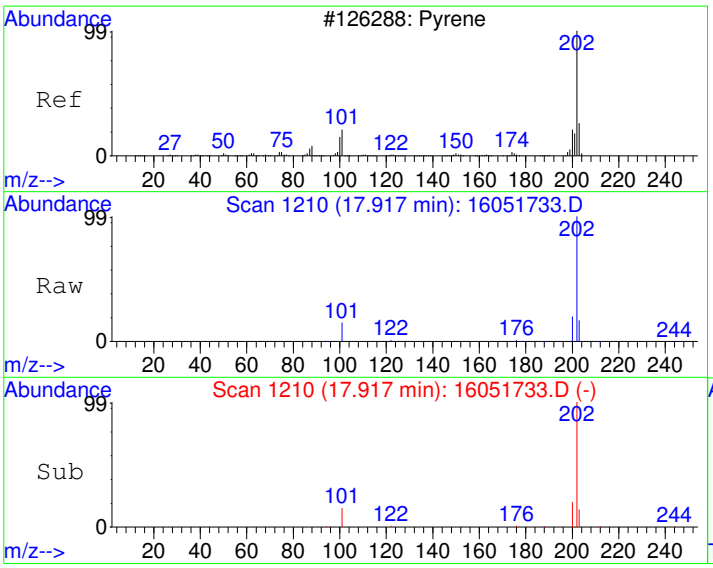


#14
Fluoranthene
Concen: 944.18 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:202 Resp: 381633

Ion	Ratio	Lower	Upper
202	100		
101	11.8	0.0	43.0
203	17.6	0.0	47.9

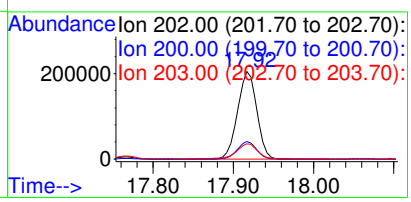


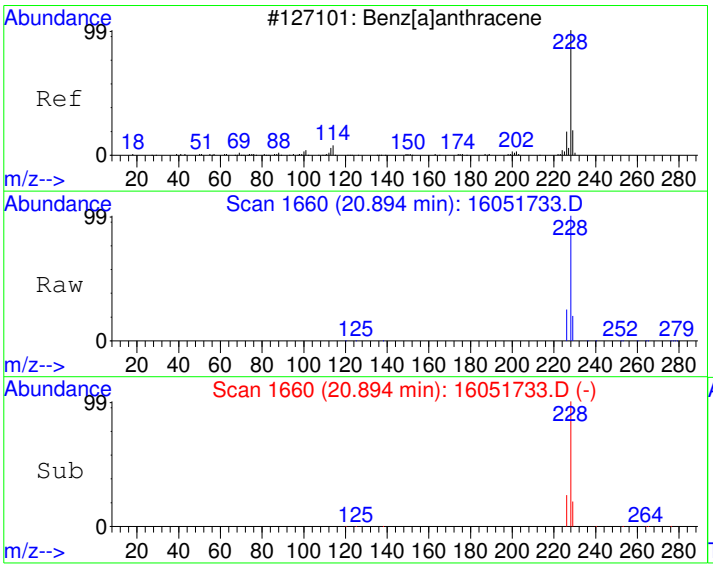


#15
Pyrene
Concen: 807.56 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:202 Resp: 339073

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.0
203	17.4	0.0	48.0

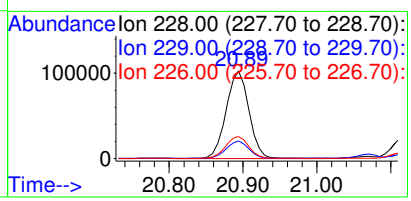


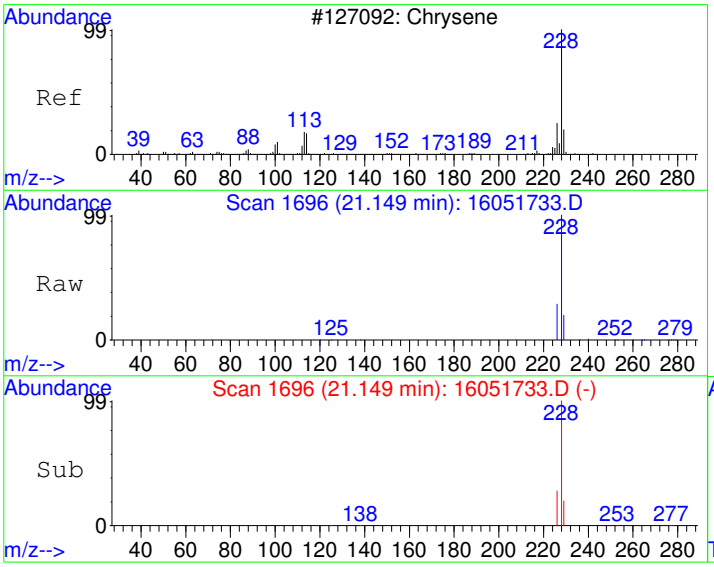


#18
Benzo[a]anthracene
Concen: 583.11 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:228 Resp: 218617

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.1	0.0	55.2

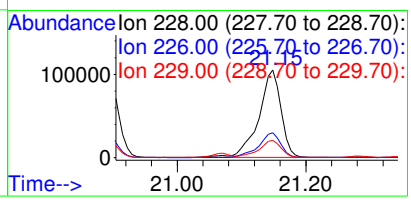


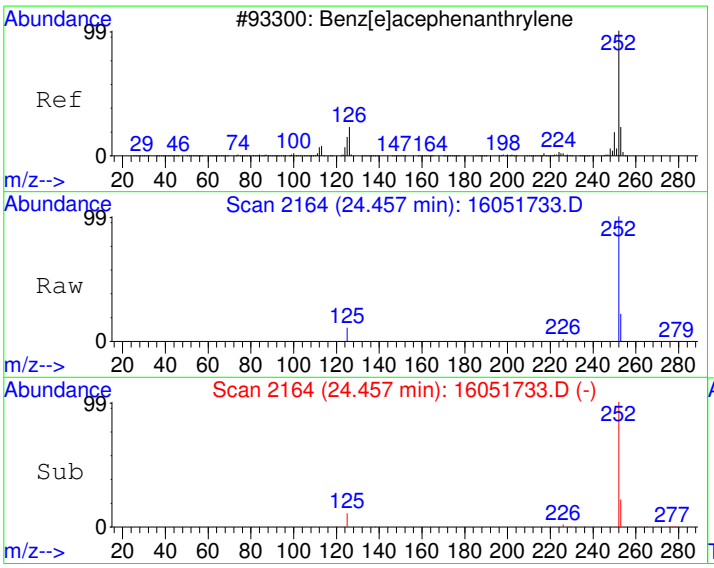


#19
Chrysene
Concen: 696.84 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:228 Resp: 252426

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	19.6	0.0	50.1

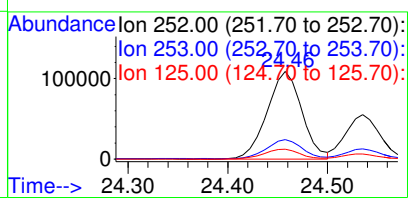


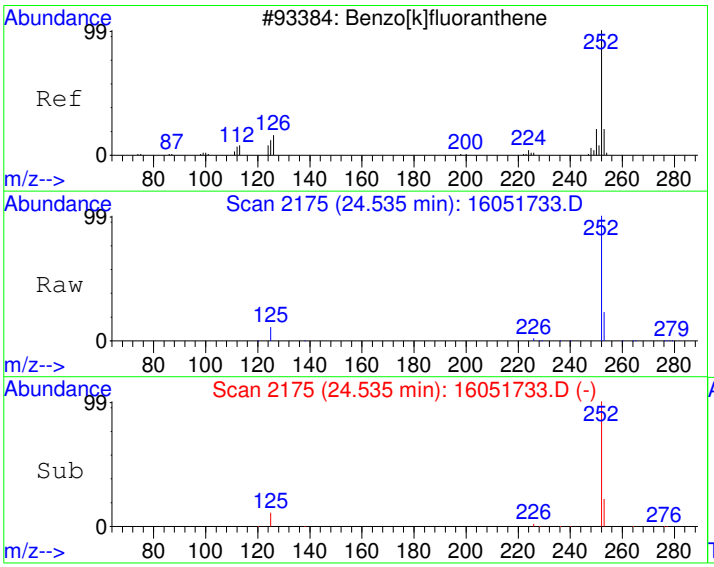


#21
Benzo[b]fluoranthene
Concen: 662.85 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:252 Resp: 263622

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	11.3	0.0	41.0

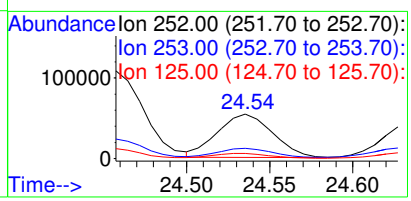


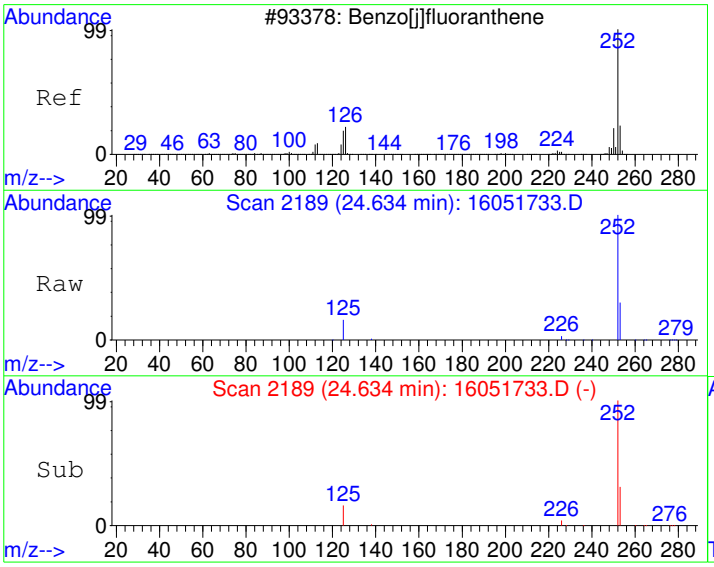


#22
Benzo[k]fluoranthene
Concen: 335.11 ug/kg
RT: 24.54 min Scan# 2175
Delta R.T. -0.03 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:252 Resp: 125026

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.1	42.1
125	10.7	0.0	31.3

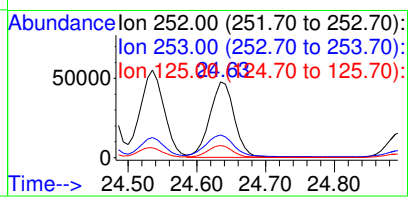


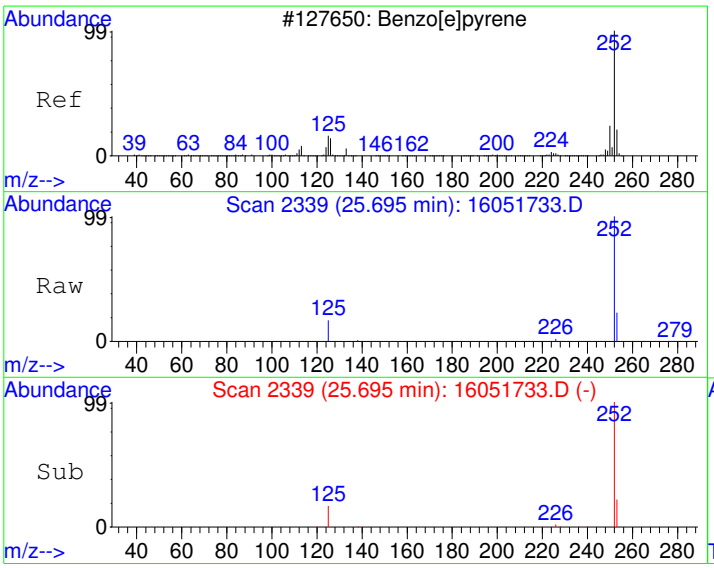


#23
Benzo(j)fluoranthene
Concen: 352.25 ug/kg
RT: 24.63 min Scan# 2189
Delta R.T. -0.03 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:252 Resp: 117068

Ion	Ratio	Lower	Upper
252	100		
253	28.9	2.1	42.1
125	15.8	0.0	34.4

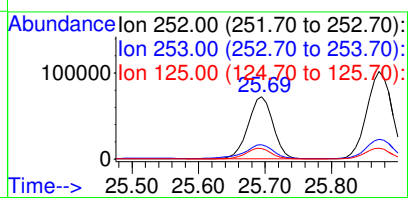


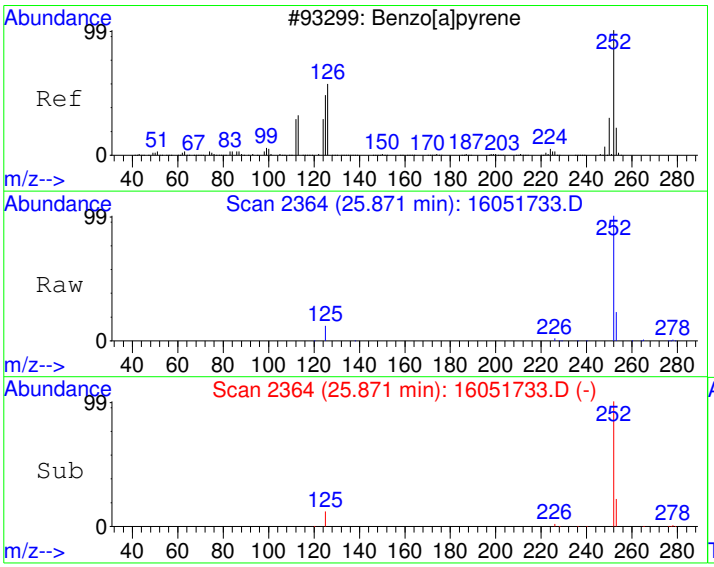


#24
Benzo[e]pyrene
Concen: 531.73 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:252 Resp: 189387

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.2	42.2
125	16.5	0.0	36.1

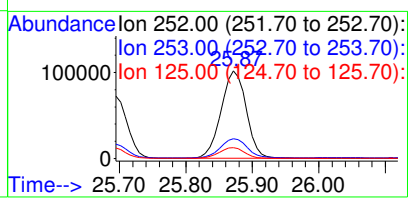


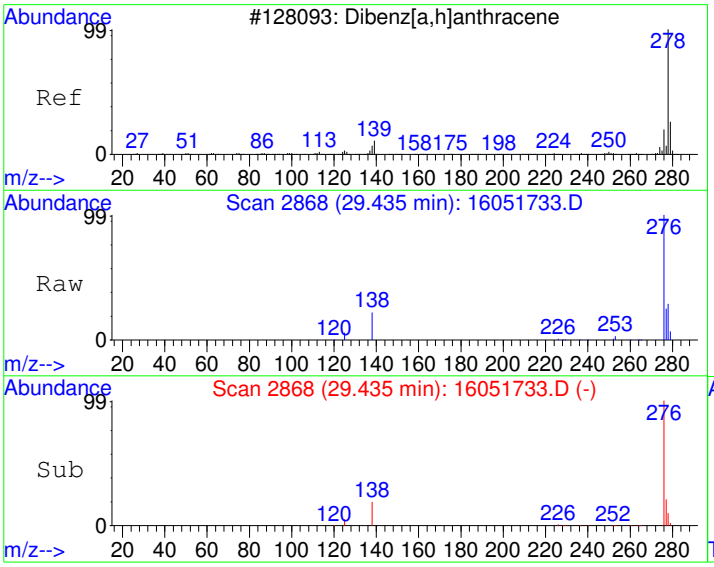


#25
Benzo[a]pyrene
Concen: 731.19 ug/kg
RT: 25.87 min Scan# 2364
Delta R.T. -0.03 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:252 Resp: 266127

Ion	Ratio	Lower	Upper
252	100		
253	22.0	1.9	41.9
125	12.2	0.0	31.7

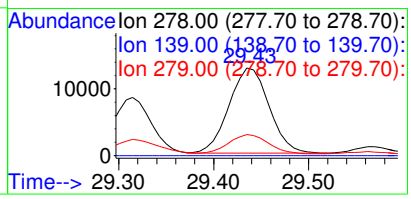


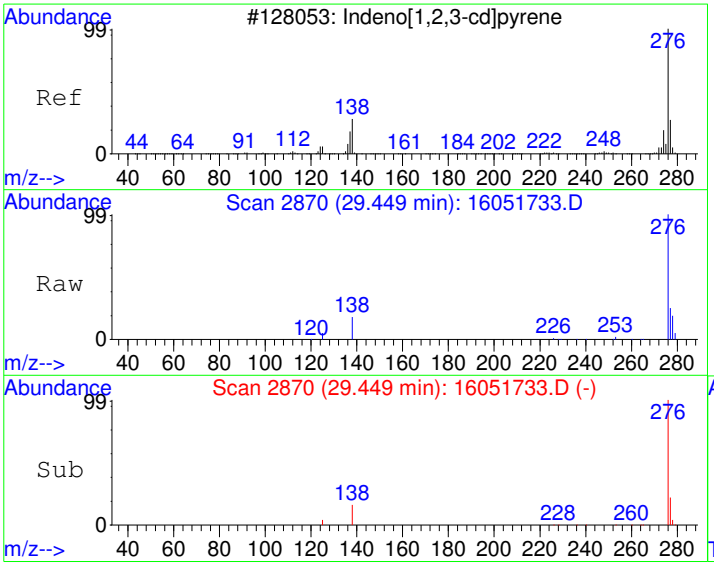


#26
Dibenz[a,h]anthracene
Concen: 112.45 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:278 Resp: 37275

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	4.2	44.2

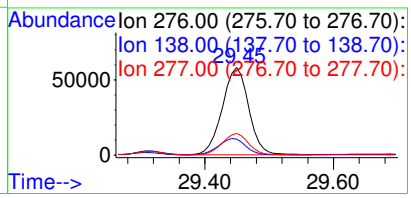


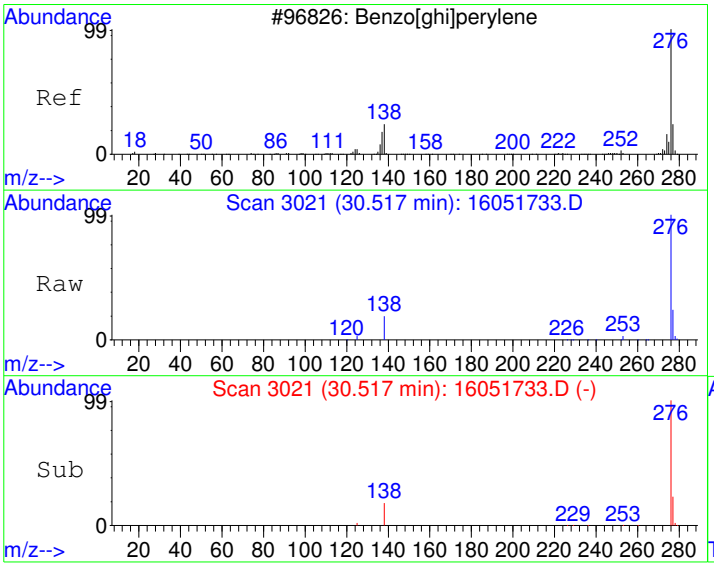


#27
Indeno[1,2,3-cd]pyrene
Concen: 418.23 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:276 Resp: 165384

Ion	Ratio	Lower	Upper
276	100		
138	18.0	6.7	46.7
277	24.4	5.8	45.8

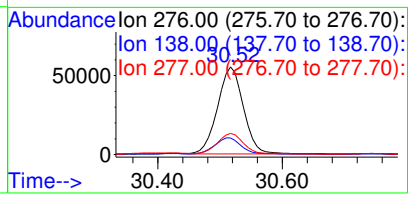




#28
Benzo[g,h,i]perylene
Concen: 515.11 ug/kg
RT: 30.52 min Scan# 3021
Delta R.T. -0.03 min
Lab File: 16051733.D
Acq: 18 May 2016 5:37 am

Tgt Ion:276 Resp: 158836

Ion	Ratio	Lower	Upper
276	100		
138	18.9	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051734.D Vial: 29
Acq On : 18 May 2016 6:17 am Operator:
Sample : 1605096-25AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:28 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

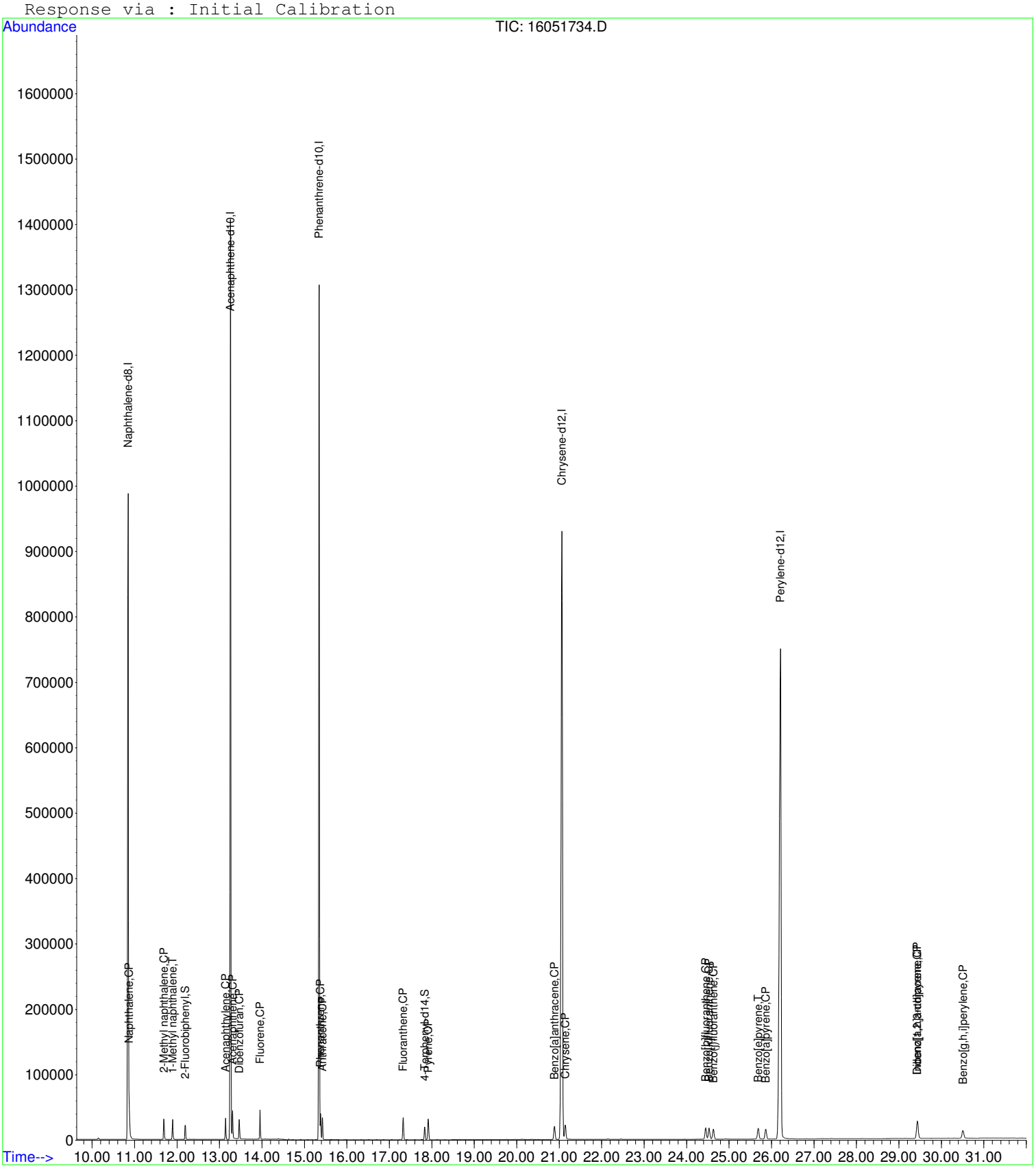
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1286229	4000.00	ug/kg	111
5) Acenaphthene-d10	13.25	164	841742	4000.00	ug/kg	73
11) Phenanthrene-d10	15.35	188	1432595	4000.00	ug/kg	70
17) Chrysene-d12	21.06	240	1572268	4000.00	ug/kg	69
20) Perylene-d12	26.21	264	1486248	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19790	80.60	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
16) 4-Terphenyl-d14	17.83	244	25271	68.18	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.70%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	23761	73.85	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	17860	62.84	ug/kg	94
4) 1-Methyl naphthalene	11.90	142	16338	62.77	ug/kg	98
6) Dibenzofuran	13.46	168	25767	81.68	ug/kg	99
8) Acenaphthylene	13.15	152	28702	79.18	ug/kg	98
9) Acenaphthene	13.31	154	17356	77.14	ug/kg	99
10) Fluorene	13.96	166	21746	79.58	ug/kg	100
12) Phenanthrene	15.38	178	31086	82.51	ug/kg	99
13) Anthracene	15.42	178	29232	81.97	ug/kg	99
14) Fluoranthene	17.33	202	33035	84.73	ug/kg	98
15) Pyrene	17.91	202	33731	83.29	ug/kg	99
18) Benzo[a]anthracene	20.89	228	30646	83.20	ug/kg	99
19) Chrysene	21.14	228	29362	82.50	ug/kg	99
21) Benzo[b]fluoranthene	24.45	252	32518	83.01	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	30808	83.84	ug/kg	99
23) Benzo(j)fluoranthene	24.63	252	27480	83.95	ug/kg	99
24) Benzo[e]pyrene	25.69	252	29765	84.85	ug/kg	99
25) Benzo[a]pyrene	25.86	252	29158	81.34	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	25291	77.46	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.44	276	29939	76.87	ug/kg	93
28) Benzo[g,h,i]perylene	30.51	276	24425	80.42	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051734.D Vial: 29
Acq On : 18 May 2016 6:17 am Operator:
Sample : 1605096-25AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:28 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051735.D Vial: 30
Acq On : 18 May 2016 6:57 am Operator:
Sample : 1605096-25AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:28 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

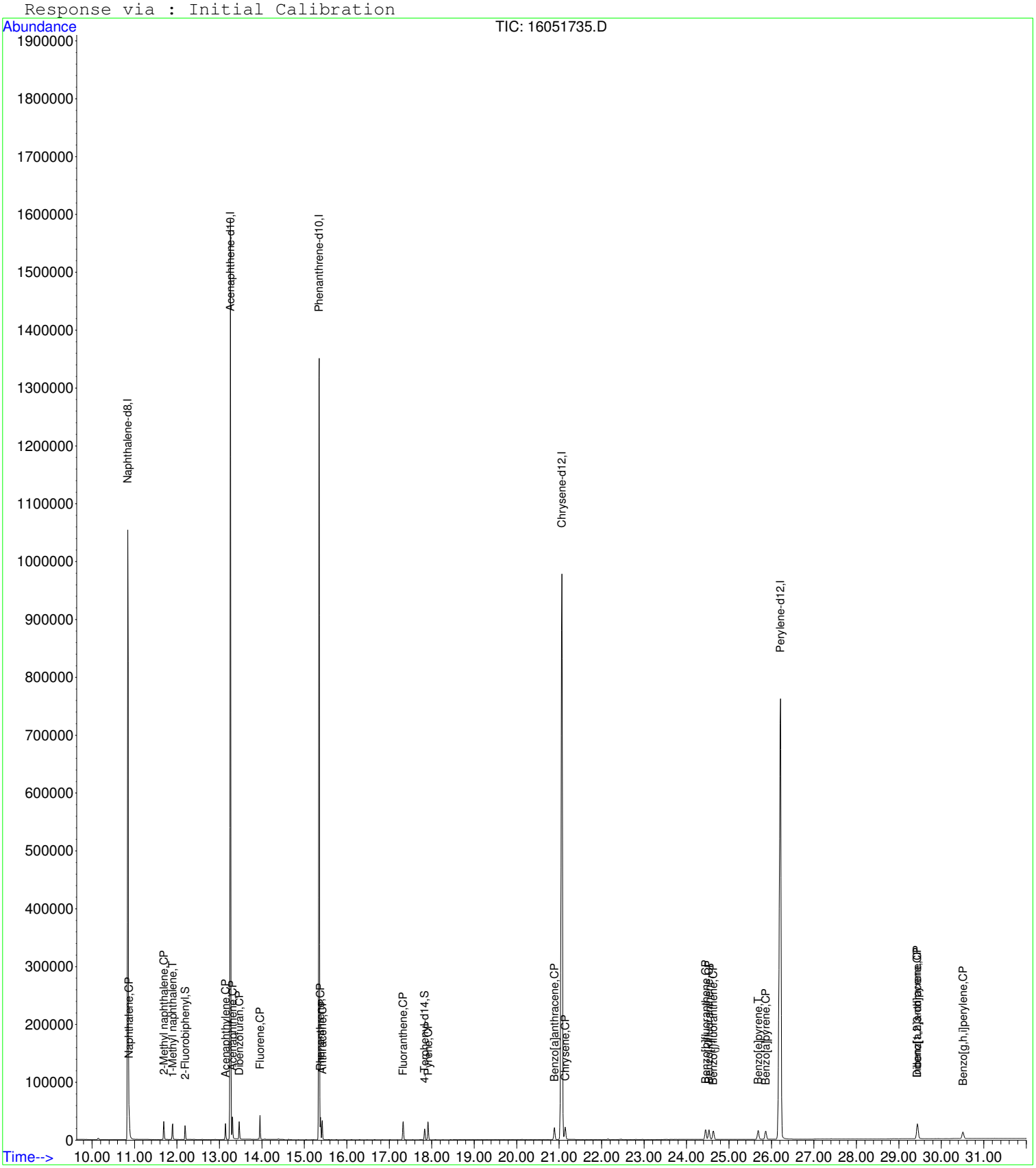
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1331115	4000.00	ug/kg	115
5) Acenaphthene-d10	13.26	164	882941	4000.00	ug/kg	77
11) Phenanthrene-d10	15.35	188	1485746	4000.00	ug/kg	73
17) Chrysene-d12	21.06	240	1606093	4000.00	ug/kg	71
20) Perylene-d12	26.21	264	1514394	4000.00	ug/kg	74
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19244	74.72	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.87%#		
16) 4-Terphenyl-d14	17.83	244	24339	63.32	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.58%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	23210	69.71	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	17504	59.51	ug/kg	98
4) 1-Methyl naphthalene	11.90	142	16041	59.55	ug/kg	100
6) Dibenzofuran	13.47	168	25510	77.09	ug/kg	99
8) Acenaphthylene	13.15	152	28060	73.79	ug/kg	98
9) Acenaphthene	13.31	154	17139	72.62	ug/kg	97
10) Fluorene	13.96	166	21478	74.93	ug/kg	97
12) Phenanthrene	15.38	178	30282	77.50	ug/kg	99
13) Anthracene	15.42	178	28529	77.14	ug/kg	99
14) Fluoranthene	17.33	202	31746	78.51	ug/kg	98
15) Pyrene	17.91	202	32628	77.68	ug/kg	99
18) Benzo[a]anthracene	20.89	228	29744	79.05	ug/kg	99
19) Chrysene	21.14	228	28387	78.08	ug/kg	100
21) Benzo[b]fluoranthene	24.45	252	30678	76.86	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	29514	78.82	ug/kg	100
23) Benzo(j)fluoranthene	24.63	252	26014	77.99	ug/kg	99
24) Benzo[e]pyrene	25.69	252	28282	79.12	ug/kg	100
25) Benzo[a]pyrene	25.86	252	27842	76.22	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	24372	73.26	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.43	276	28622	72.12	ug/kg	96
28) Benzo[g,h,i]perylene	30.51	276	23309	75.32	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051735.D Vial: 30
Acq On : 18 May 2016 6:57 am Operator:
Sample : 1605096-25AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:28 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160517\16051736.D Vial: 31
Acq On : 18 May 2016 7:37 am Operator:
Sample : CCV1-160517 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:28 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

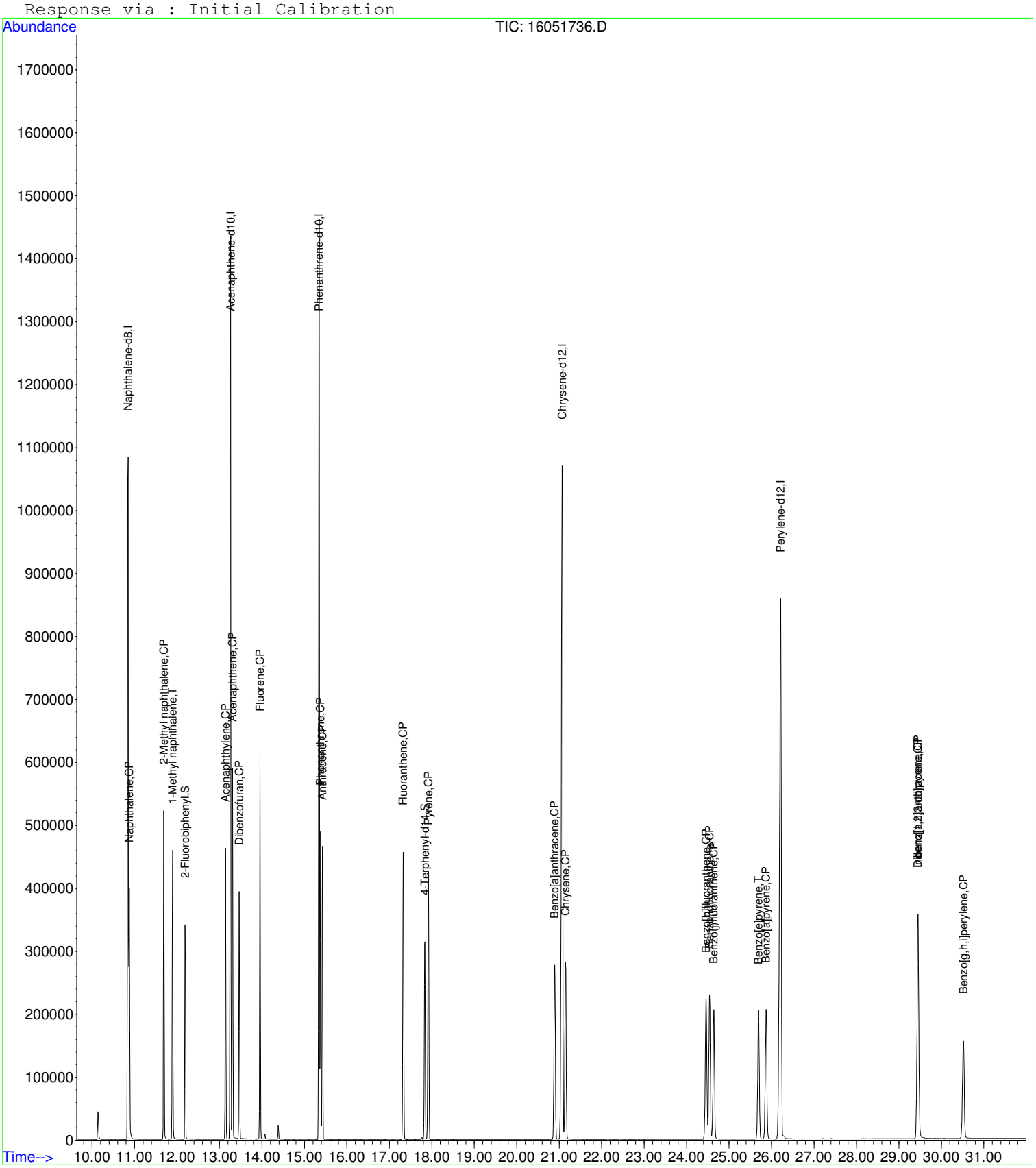
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1462924	4000.00	ug/kg	126
5) Acenaphthene-d10	13.26	164	883831	4000.00	ug/kg	77
11) Phenanthrene-d10	15.35	188	1623350	4000.00	ug/kg	79
17) Chrysene-d12	21.07	240	1832938	4000.00	ug/kg	81
20) Perylene-d12	26.22	264	1689186	4000.00	ug/kg	82
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	278115	1078.71	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	26.97%#		
16) 4-Terphenyl-d14	17.84	244	404577	963.30	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	24.08%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	371480	1015.16	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	261906	810.26	ug/kg	96
4) 1-Methyl naphthalene	11.90	142	239119	807.72	ug/kg	99
6) Dibenzofuran	13.46	168	329093	993.49	ug/kg	98
8) Acenaphthylene	13.14	152	412199	1082.94	ug/kg	99
9) Acenaphthene	13.31	154	237652	1005.92	ug/kg	99
10) Fluorene	13.96	166	292714	1020.20	ug/kg	99
12) Phenanthrene	15.38	178	418635	980.61	ug/kg	99
13) Anthracene	15.42	178	389876	964.85	ug/kg	99
14) Fluoranthene	17.33	202	453065	1025.54	ug/kg	99
15) Pyrene	17.92	202	457288	996.45	ug/kg	99
18) Benzo[a]anthracene	20.89	228	424745	989.13	ug/kg	100
19) Chrysene	21.15	228	390074	940.17	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	425651	956.07	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	404714	969.03	ug/kg	100
23) Benzo(j)fluoranthene	24.64	252	352909	948.58	ug/kg	99
24) Benzo[e]pyrene	25.69	252	372773	934.94	ug/kg	99
25) Benzo[a]pyrene	25.88	252	388602	953.77	ug/kg	100
26) Dibenz[a,h]anthracene	29.45	278	332267	895.45	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.46	276	388389	877.39	ug/kg	95
28) Benzo[g,h,i]perylene	30.52	276	310246	898.80	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160517\16051736.D Vial: 31
Acq On : 18 May 2016 7:37 am Operator:
Sample : CCV1-160517 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:28 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



GCMS6_160518A
For

DHL Work Order
1605096

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_160518A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

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

Daily Demonstration of Performance

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

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

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

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

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

Approved by: Date:

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

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

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

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

Analyst: Don Winston Date: 5/19/2016

Second-Level Review: Janice Whitt Date: 5/27/2016

REVIEWED BY
By Janice Whitt at 3:40:23 PM, 5/27/2016

DHL Analytical, Inc.

Run ID: GCMS6_160518A **Run No.:** 85874

Analytical Run Date: 5/18/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **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-160518	1	PAH_LL_SDOD1	TUNE	R85874	5/18/2016 8:33:00 AM		
ICV-160518	1	PAH_LL_SDOD1	ICV	R85874	5/18/2016 9:10:00 AM		
LCS-75160	1	PAH_LL_SDOD1	LCS	75160	5/18/2016 9:51:00 AM		
MB-75160	1	PAH_LL_SDOD1	MBLK	75160	5/18/2016 10:31:00 AM		
1605096-48A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 11:11:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
1605096-49A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 11:50:00 AM		
1605096-53A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 12:30:00 PM		
1605096-54A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 1:10:00 PM		
1605096-57A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 1:50:00 PM		
1605096-58A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 2:29:00 PM		
1605096-63A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 3:09:00 PM		
1605096-64A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 3:48:00 PM		
1605096-67A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 4:28:00 PM		
1605096-50A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 5:07:00 PM		
1605096-52A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 5:46:00 PM		
1605096-52AMS	10	PAH_LL_SDOD1	MS	75160	5/18/2016 6:26:00 PM		14 analytes low.
1605096-52AMSD	10	PAH_LL_SDOD1	MSD	75160	5/18/2016 7:06:00 PM		7 analyte high. RPD out for 5 analytes. This sample contains very high concentration of target analytes.
DFTPP2-160518	1	PAH_LL_SDOD1	TUNE	R85874	5/18/2016 7:45:00 PM		
ICV2-160518	1	PAH_LL_SDOD1	ICV	R85874	5/18/2016 8:21:00 PM		
SBLK-160518	1	PAH_LL_SDOD1	SBLK	75160	5/18/2016 9:02:00 PM		
1605096-51A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 9:42:00 PM		
1605096-55A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 10:22:00 PM		
1605096-56A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 11:01:00 PM		
1605096-59A	10	PAH_LL_SDOD1	SAMP	75160	5/18/2016 11:40:00 PM		
1605096-60A	10	PAH_LL_SDOD1	SAMP	75160	5/19/2016 12:20:00 AM		
1605096-61A	10	PAH_LL_SDOD1	SAMP	75160	5/19/2016 1:01:00 AM		
1605096-62A	10	PAH_LL_SDOD1	SAMP	75160	5/19/2016 1:41:00 AM		
1605096-65A	10	PAH_LL_SDOD1	SAMP	75160	5/19/2016 2:21:00 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

DHL Analytical, Inc.

Run ID: GCMS6_160518A **Run No.:** 85874

1605096-66A	10	PAH_LL_SDOD1	SAMP	75160	5/19/2016 3:00:00 AM		
CCV-160518	1	PAH_LL_SDOD1	CCV	R85874	5/19/2016 3:40:00 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:\HPCHEM\1\SEQUENCE\160518.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160518\
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	16051801	DFTPPPAH	DFTPP-160518
2	Sample	2	16051802	PP160421	ICV-160518
3	Sample	3	16051803	PP160421	LCS-75160
4	Sample	4	16051804	PP160421	MB-75160
5	Sample	5	16051805	PP160421	1605096-48A
6	Sample	6	16051806	PP160421	1605096-49A
7	Sample	7	16051807	PP160421	1605096-53A
8	Sample	8	16051808	PP160421	1605096-54A
9	Sample	9	16051809	PP160421	1605096-57A
10	Sample	10	16051810	PP160421	1605096-58A
11	Sample	11	16051811	PP160421	1605096-63A
12	Sample	12	16051812	PP160421	1605096-64A
13	Sample	13	16051813	PP160421	1605096-67A
14	Sample	14	16051814	PP160421	1605096-50A
15	Sample	15	16051815	PP160421	1605096-52A
16	Sample	16	16051816	PP160421	1605096-52AMS
17	Sample	17	16051817	PP160421	1605096-52AMSD
18	Sample	18	16051818	DFTPPPAH	DFTPP2-160518
19	Sample	19	16051819	PP160421	ICV2-160518
20	Sample	20	16051820	PP160421	SBLK-160518
21	Sample	21	16051821	PP160421	1605096-51A
22	Sample	22	16051822	PP160421	1605096-55A
23	Sample	23	16051823	PP160421	1605096-56A
24	Sample	24	16051824	PP160421	1605096-59A
25	Sample	25	16051825	PP160421	1605096-60A
26	Sample	26	16051826	PP160421	1605096-61A
27	Sample	27	16051827	PP160421	1605096-62A
28	Sample	28	16051828	PP160421	1605096-65A
29	Sample	29	16051829	PP160421	1605096-66A
30	Sample	30	16051830	PP160421	CCV-160518

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/15/2016 11:30:54 AM**
Digestion:
Prep End Date: **5/15/2016 6:44:00 PM**

Prep Batch **75160** 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
1605096-48A	Soil		10.45	10	0.957	1 of 1	
1605096-49A	Soil		10.28	10	0.973	1 of 1	
1605096-50A	Soil		10.37	10	0.964	1 of 1	
1605096-51A	Soil		10.31	10	0.970	1 of 1	
1605096-52A	Soil		10.23	10	0.978	1 of 3	
1605096-52AMS	Soil		10.72	10	0.933	1 of	
1605096-52AMSD	Soil		10.47	10	0.955	1 of	
1605096-53A	Soil		10.33	10	0.968	1 of 1	
1605096-54A	Soil		10.81	10	0.925	1 of 1	
1605096-55A	Soil		10.17	10	0.983	1 of 1	
1605096-56A	Soil		10.46	10	0.956	1 of 1	
1605096-57A	Soil		10.05	10	0.995	1 of 1	
1605096-58A	Soil		10.33	10	0.968	1 of 1	
1605096-59A	Soil		10.21	10	0.979	1 of 1	
1605096-60A	Soil		10.35	10	0.966	1 of 1	
1605096-61A	Soil		10.54	10	0.949	1 of 1	
1605096-62A	Soil		10.61	10	0.943	1 of 1	
1605096-63A	Soil		10.17	10	0.983	1 of 1	
1605096-64A	Soil		10.5	10	0.952	1 of 1	
1605096-65A	Soil		10.11	10	0.989	1 of 1	
1605096-66A	Soil		10.06	10	0.994	1 of 1	
1605096-67A	Soil		10.2	10	0.980	1 of 1	
LCS-75160	Soil		10	10	1.000	of	
MB-75160	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED BY
By Janice Whitt at 2:27:51 PM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/15/2016 11:30:54 AM**
Digestion:
Prep End Date: 5/15/2016 6:44 PM

Prep Batch **75160** 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
1605096-48A	Soil		10.45	10	1.000	1 of 1	
1605096-49A	Soil		10.28	10	1.000	1 of 1	
1605096-50A	Soil		10.37	10	1.000	1 of 1	
1605096-51A	Soil		10.31	10	1.000	1 of 1	
1605096-52A	Soil		10.23	10	1.000	1 of 3	
1605096-52AMS	Soil		10.72	10	1.000	1 of 3	
1605096-52AMSD	Soil		10.47	10	1.000	1 of 3	
1605096-53A	Soil		10.33	10	1.000	1 of 1	
1605096-54A	Soil		10.81	10	1.000	1 of 1	
1605096-55A	Soil		10.17	10	1.000	1 of 1	
1605096-56A	Soil		10.46	10	1.000	1 of 1	
1605096-57A	Soil		10.05	10	1.000	1 of 1	
1605096-58A	Soil		10.33	10	1.000	1 of 1	
1605096-59A	Soil		10.21	10	1.000	1 of 1	
1605096-60A	Soil		10.35	10	1.000	1 of 1	
1605096-61A	Soil		10.54	10	1.000	1 of 1	
1605096-62A	Soil		10.61	10	1.000	1 of 1	
1605096-63A	Soil		10.17	10	1.000	1 of 1	
1605096-64A	Soil		10.50	10	1.000	1 of 1	
1605096-65A	Soil		10.11+1g	10 5/6/16	1.000	1 of 1	
1605096-66A	Soil		10.06	10	1.000	1 of 1	
1605096-67A	Soil		10.20	10	1.000	1 of 1	
LCS-75160	Soil		10	10	1.000	of	
MB-75160	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED BY
By Janice Whitt at 2:27:47 PM, 5/27/2016

5/15/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-16A	Soil		0	0	#Num!	1	of	1	
1605096-17A	Soil		0	0	#Num!	1	of	1	
1605096-18A	Soil		0	0	#Num!	1	of	1	
1605096-19A	Soil		0	0	#Num!	1	of	1	
	Sieved only - no subsampling hard clay								
1605096-20A	Soil		0	0	#Num!	1	of	1	
1605096-21A	Soil		0	0	#Num!	1	of	1	
1605096-22A	Soil		0	0	#Num!	1	of	1	
1605096-23A	Soil		0	0	#Num!	1	of	1	
1605096-24A	Soil		0	0	#Num!	1	of	1	
1605096-25A	Soil		0	0	#Num!	1	of	1	
1605096-26A	Soil		0	0	#Num!	1	of	1	
1605096-27A	Soil		0	0	#Num!	1	of	1	
1605096-28A	Soil		0	0	#Num!	1	of	1	
1605096-29A	Soil		0	0	#Num!	1	of	1	
1605096-30A	Soil		0	0	#Num!	1	of	1	
1605096-45A	Soil		0	0	#Num!	1	of	1	
1605096-46A	Soil		0	0	#Num!	1	of	1	
1605096-47A	Soil		0	0	#Num!	1	of	1	
1605096-48A	Soil		0	0	#Num!	1	of	1	
1605096-49A	Soil		0	0	#Num!	1	of	1	
1605096-50A	Soil		0	0	#Num!	1	of	1	
1605096-51A	Soil		0	0	#Num!	1	of	1	
1605096-52A	Soil		0	0	#Num!		of	3	
1605096-53A	Soil		0	0	#Num!	1	of	1	
1605096-54A	Soil		0	0	#Num!	1	of	1	
1605096-55A	Soil		0	0	#Num!	1	of	1	

REVIEWED BY
By Janice Whitt at 2:27:56 PM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

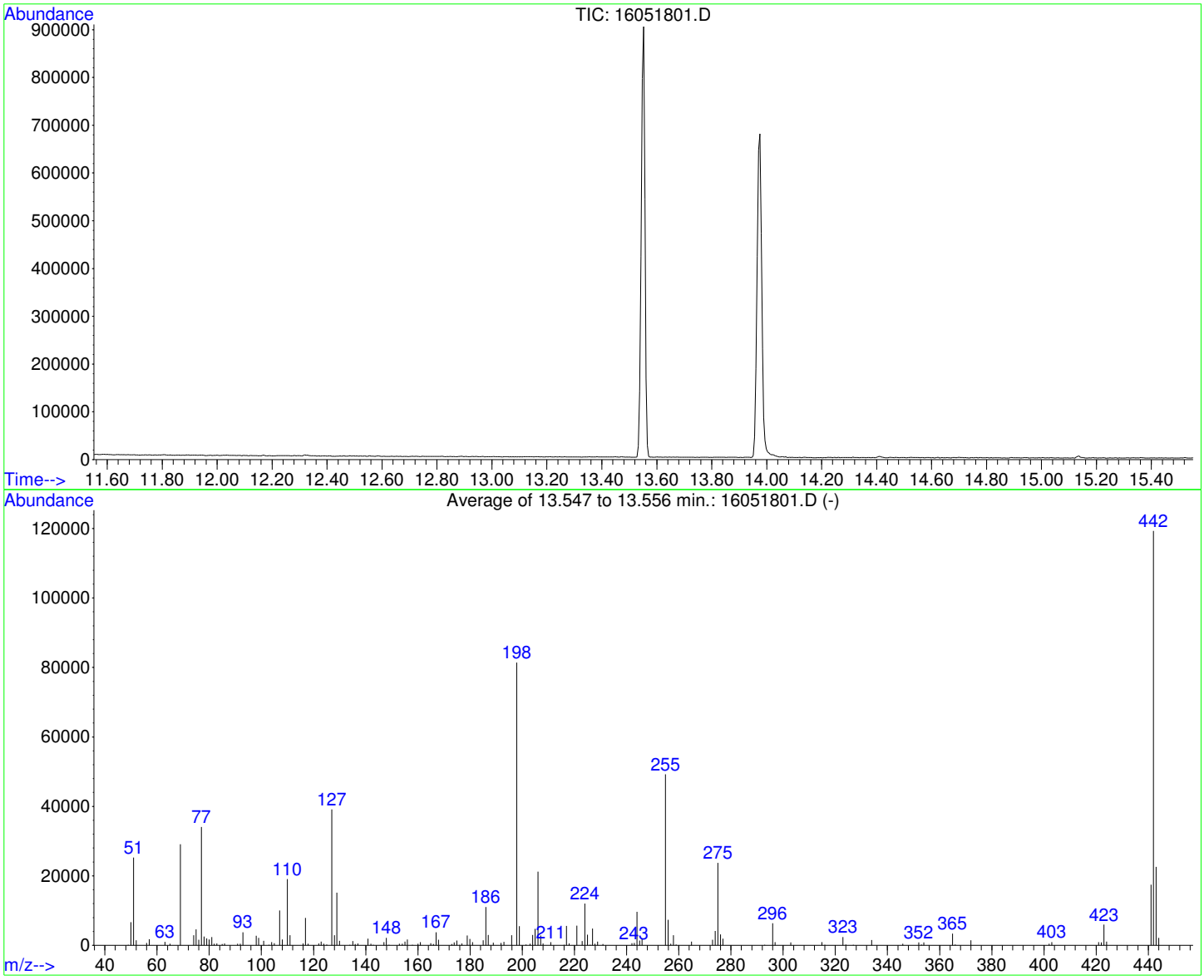
Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-56A	Soil		0	0	#Num!	1 of 1	
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 2:27:58 PM, 5/27/2016

Data File : C:\HPCHEM\1\DATA\160518\16051801.D Vial: 1
Acq On : 18 May 2016 8:33 am Operator:
Sample : DFTPP-160518 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

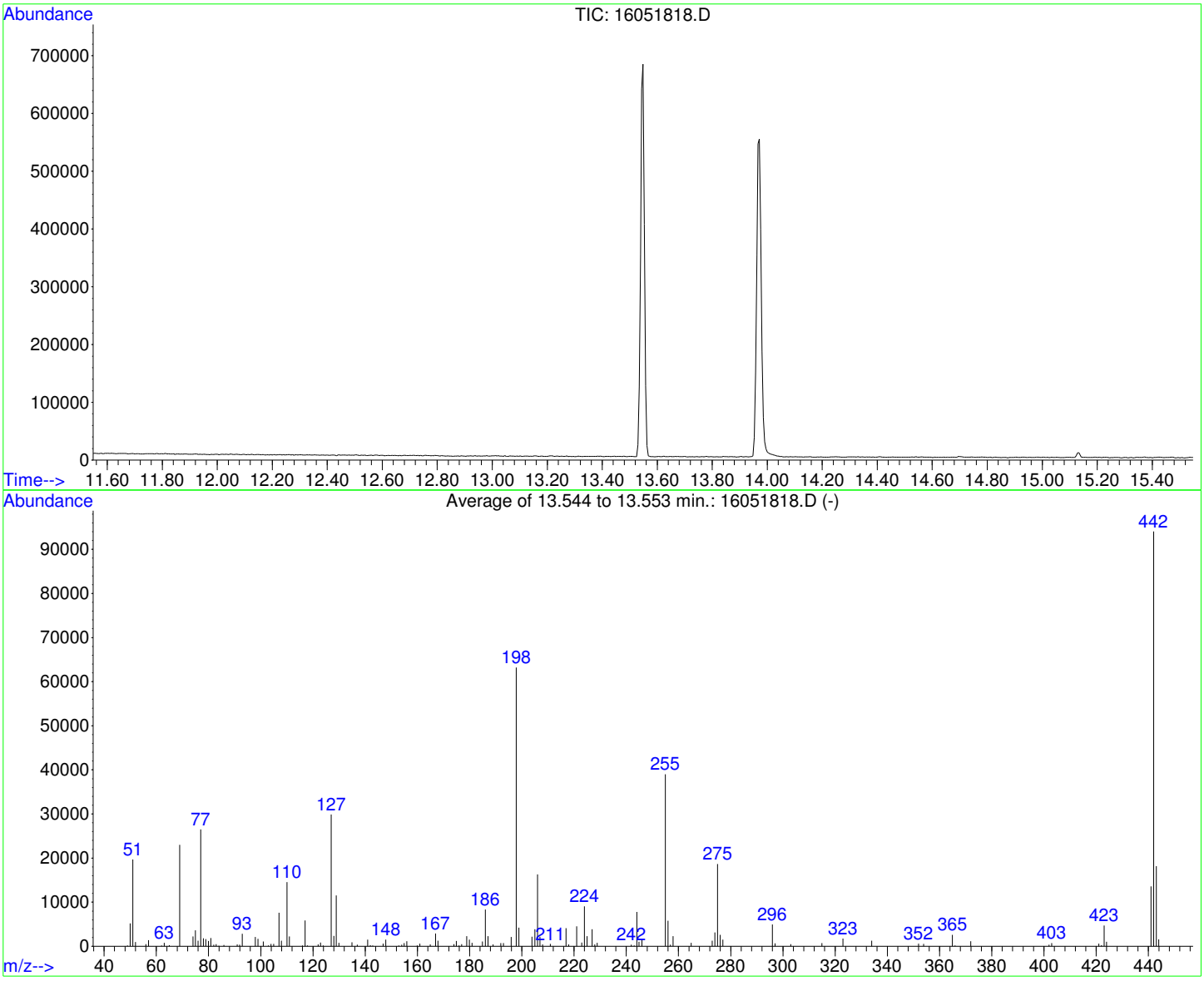


AutoFind: Scans 1586, 1587, 1588; Background Corrected with Scan 1580

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	31.0	25237	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	35.8	29123	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	48.1	39123	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	81395	PASS
199	198	5	9	6.8	5499	PASS
275	198	10	60	29.2	23760	PASS
365	198	1	200	4.1	3354	PASS
441	442	0.01	24	14.7	17499	PASS
442	198	50	400	146.6	119320	PASS
443	442	15	24	18.9	22603	PASS

REVIEWED BY
By Janice Whitt at 2:28:03 PM, 5/27/2016

Data File : C:\HPCHEM\1\DATA\160518\16051818.D Vial: 18
Acq On : 18 May 2016 7:45 pm Operator:
Sample : DFTPP2-160518 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 1585, 1586, 1587; Background Corrected with Scan 1579

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	31.2	19700	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	36.4	22982	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	47.3	29880	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	63200	PASS
199	198	5	9	6.7	4218	PASS
275	198	10	60	29.5	18667	PASS
365	198	1	200	4.1	2605	PASS
441	442	0.01	24	14.5	13611	PASS
442	198	50	400	148.8	94067	PASS
443	442	15	24	19.3	18144	PASS

REVIEWED BY
By Janice Whitt at 2:28:05 PM, 5/27/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051802.D Vial: 2
Acq On : 18 May 2016 9:10 am Operator:
Sample : ICV-160518 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

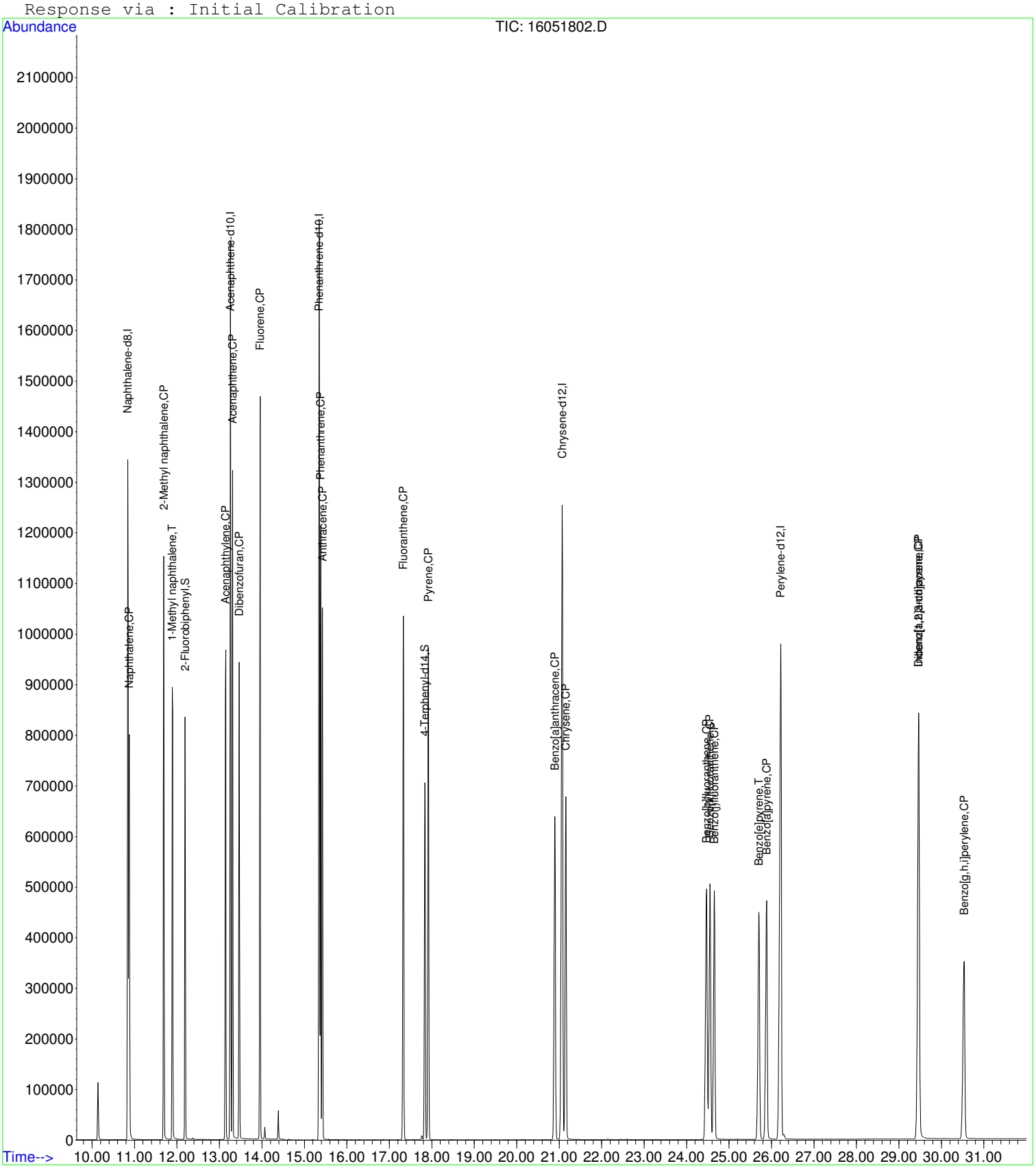
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1647396	4000.00	ug/kg	142
5) Acenaphthene-d10	13.26	164	1031152	4000.00	ug/kg	90
11) Phenanthrene-d10	15.35	188	2001876	4000.00	ug/kg	98
17) Chrysene-d12	21.07	240	2168863	4000.00	ug/kg	95
20) Perylene-d12	26.22	264	2033457	4000.00	ug/kg	99
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	606049	2014.82	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.37%			
16) 4-Terphenyl-d14	17.84	244	929013	1793.74	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.84%			
Target Compounds						Qvalue
2) Naphthalene	10.88	128	802507	1947.48	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	570725	1567.94	ug/kg	99
4) 1-Methyl naphthalene	11.90	142	511625	1534.70	ug/kg	99
6) Dibenzofuran	13.47	168	775476	2006.59	ug/kg	98
8) Acenaphthylene	13.15	152	928723	2091.36	ug/kg	99
9) Acenaphthene	13.31	154	543261	1970.96	ug/kg	98
10) Fluorene	13.96	166	704285	2103.95	ug/kg	98
12) Phenanthrene	15.38	178	995160	1890.29	ug/kg	100
13) Anthracene	15.43	178	920125	1846.53	ug/kg	99
14) Fluoranthene	17.33	202	1040346	1909.61	ug/kg	100
15) Pyrene	17.92	202	1048869	1853.37	ug/kg	100
18) Benzo[a]anthracene	20.90	228	998322	1964.77	ug/kg	100
19) Chrysene	21.15	228	917982	1869.86	ug/kg	100
21) Benzo[b]fluoranthene	24.47	252	1020167	1903.48	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	940299	1870.24	ug/kg	99
23) Benzo(j)fluoranthene	24.65	252	839663	1874.82	ug/kg	99
24) Benzo[e]pyrene	25.70	252	888603	1851.36	ug/kg	99
25) Benzo[a]pyrene	25.88	252	926386	1888.75	ug/kg	100
26) Dibenz[a,h]anthracene	29.46	278	816257	1827.35	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.47	276	948752	1780.41	ug/kg	96
28) Benzo[g,h,i]perylene	30.54	276	756903	1821.54	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051802.D Vial: 2
Acq On : 18 May 2016 9:10 am Operator:
Sample : ICV-160518 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

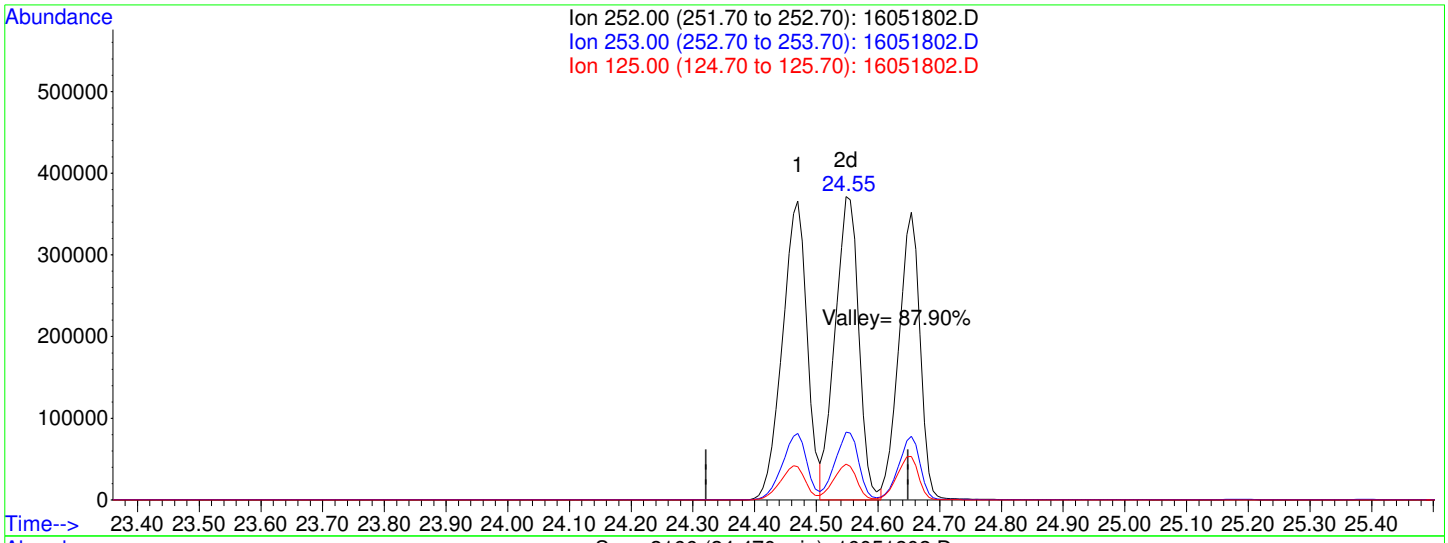
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

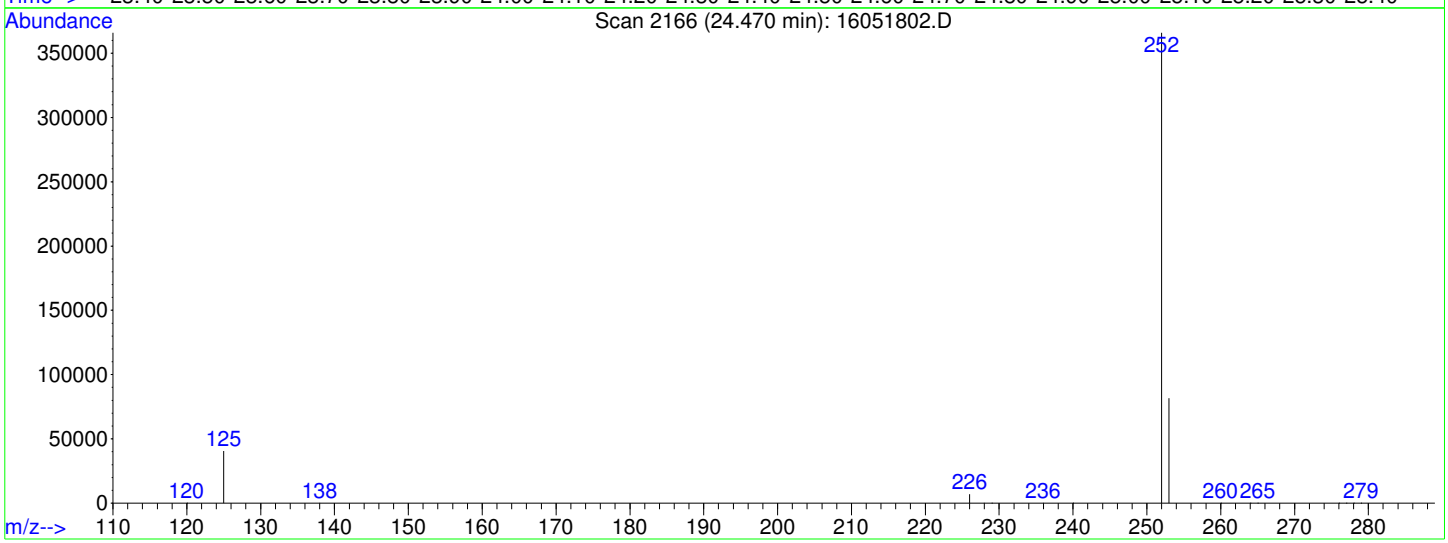


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160518\16051802.D Vial: 2
Acq On : 18 May 2016 9:10 am Operator:
Sample : ICV-160518 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 9:42 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051802.D

(21) Benzo[b]fluoranthene (CP)

24.47min 1903.48ug/kg

response 1020167

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	22.20
125.00	11.00	11.08
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051803.D Vial: 3
Acq On : 18 May 2016 9:51 am Operator:
Sample : LCS-75160 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

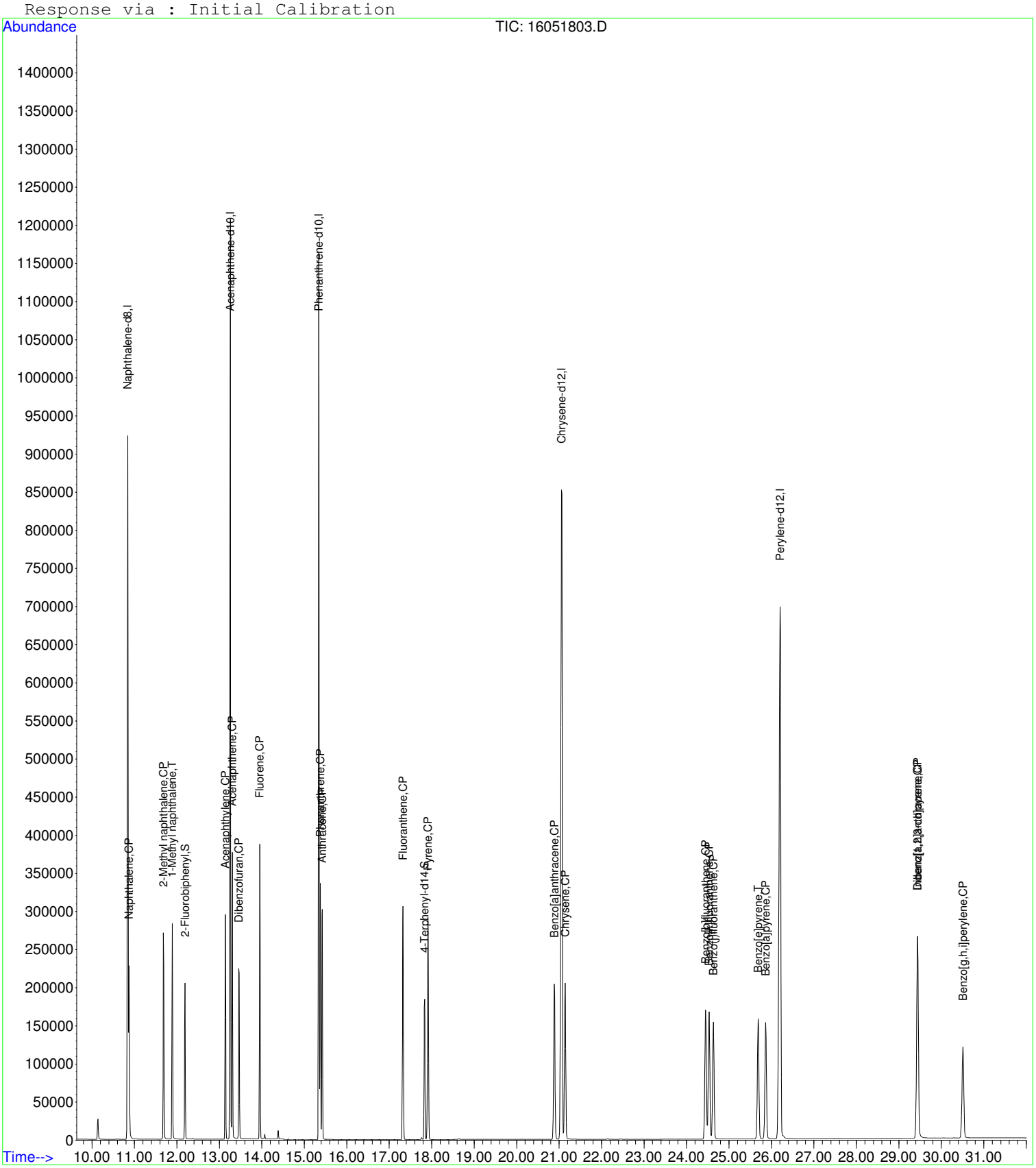
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1099413	4000.00	ug/kg	95
5) Acenaphthene-d10	13.26	164	636491	4000.00	ug/kg	55
11) Phenanthrene-d10	15.34	188	1210578	4000.00	ug/kg	59
17) Chrysene-d12	21.06	240	1458960	4000.00	ug/kg	64
20) Perylene-d12	26.20	264	1391074	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	157754	849.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 21.24%#			
16) 4-Terphenyl-d14	17.83	244	233485	745.49	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.64%#			
Target Compounds						Qvalue
2) Naphthalene	10.87	128	214908	781.47	ug/kg	99
3) 2-Methyl naphthalene	11.68	142	154182	634.71	ug/kg	92
4) 1-Methyl naphthalene	11.89	142	139984	629.20	ug/kg	96
6) Dibenzofuran	13.47	168	220971	926.31	ug/kg	100
8) Acenaphthylene	13.14	152	246034	897.57	ug/kg	99
9) Acenaphthene	13.30	154	143444	843.11	ug/kg	99
10) Fluorene	13.95	166	187215	906.06	ug/kg	99
12) Phenanthrene	15.38	178	272900	857.20	ug/kg	99
13) Anthracene	15.42	178	264570	878.00	ug/kg	99
14) Fluoranthene	17.32	202	304482	924.21	ug/kg	98
15) Pyrene	17.91	202	305794	893.54	ug/kg	99
18) Benzo[a]anthracene	20.89	228	301160	881.10	ug/kg	100
19) Chrysene	21.14	228	280655	849.84	ug/kg	99
21) Benzo[b]fluoranthene	24.45	252	317220	865.21	ug/kg	100
22) Benzo[k]fluoranthene	24.54	252	297197	864.09	ug/kg	99
23) Benzo(j)fluoranthene	24.63	252	265666	867.11	ug/kg	99
24) Benzo[e]pyrene	25.69	252	285776	870.35	ug/kg	99
25) Benzo[a]pyrene	25.86	252	276195	823.16	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	250598	820.08	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.44	276	291223	798.87	ug/kg	96
28) Benzo[g,h,i]perylene	30.51	276	238518	839.08	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051803.D Vial: 3
Acq On : 18 May 2016 9:51 am Operator:
Sample : LCS-75160 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051804.D Vial: 4
Acq On : 18 May 2016 10:31 am Operator:
Sample : MB-75160 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

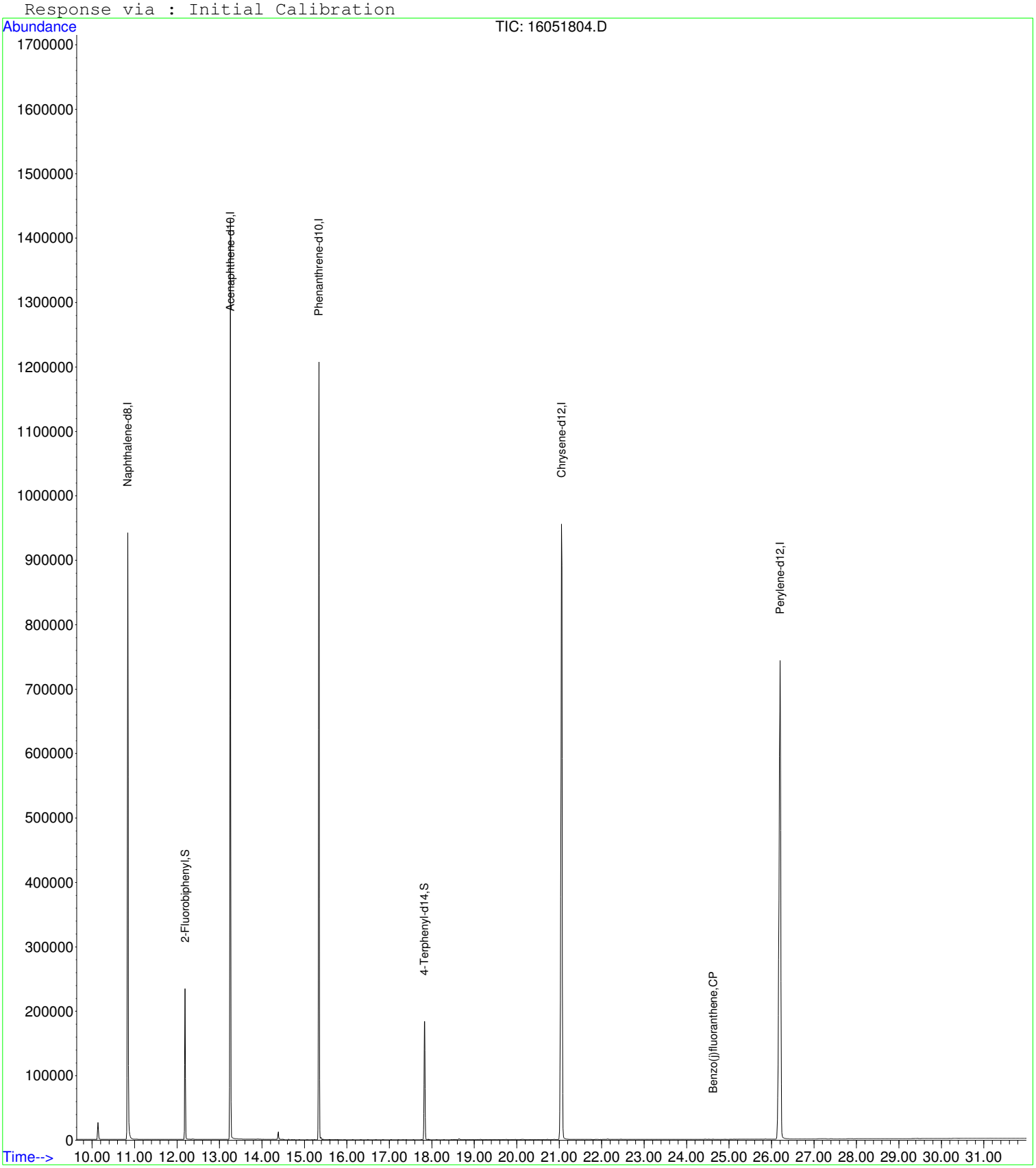
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1150713	4000.00	ug/kg	99
5) Acenaphthene-d10	13.26	164	728814	4000.00	ug/kg	63
11) Phenanthrene-d10	15.34	188	1260903	4000.00	ug/kg	62
17) Chrysene-d12	21.06	240	1552258	4000.00	ug/kg	68
20) Perylene-d12	26.20	264	1470418	4000.00	ug/kg	71
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	173059	814.01	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.35%#			
16) 4-Terphenyl-d14	17.83	244	234924	720.14	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.00%#			
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.63	252	279	0.86	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051804.D Vial: 4
Acq On : 18 May 2016 10:31 am Operator:
Sample : MB-75160 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051805.D Vial: 5
Acq On : 18 May 2016 11:11 am Operator:
Sample : 1605096-48A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

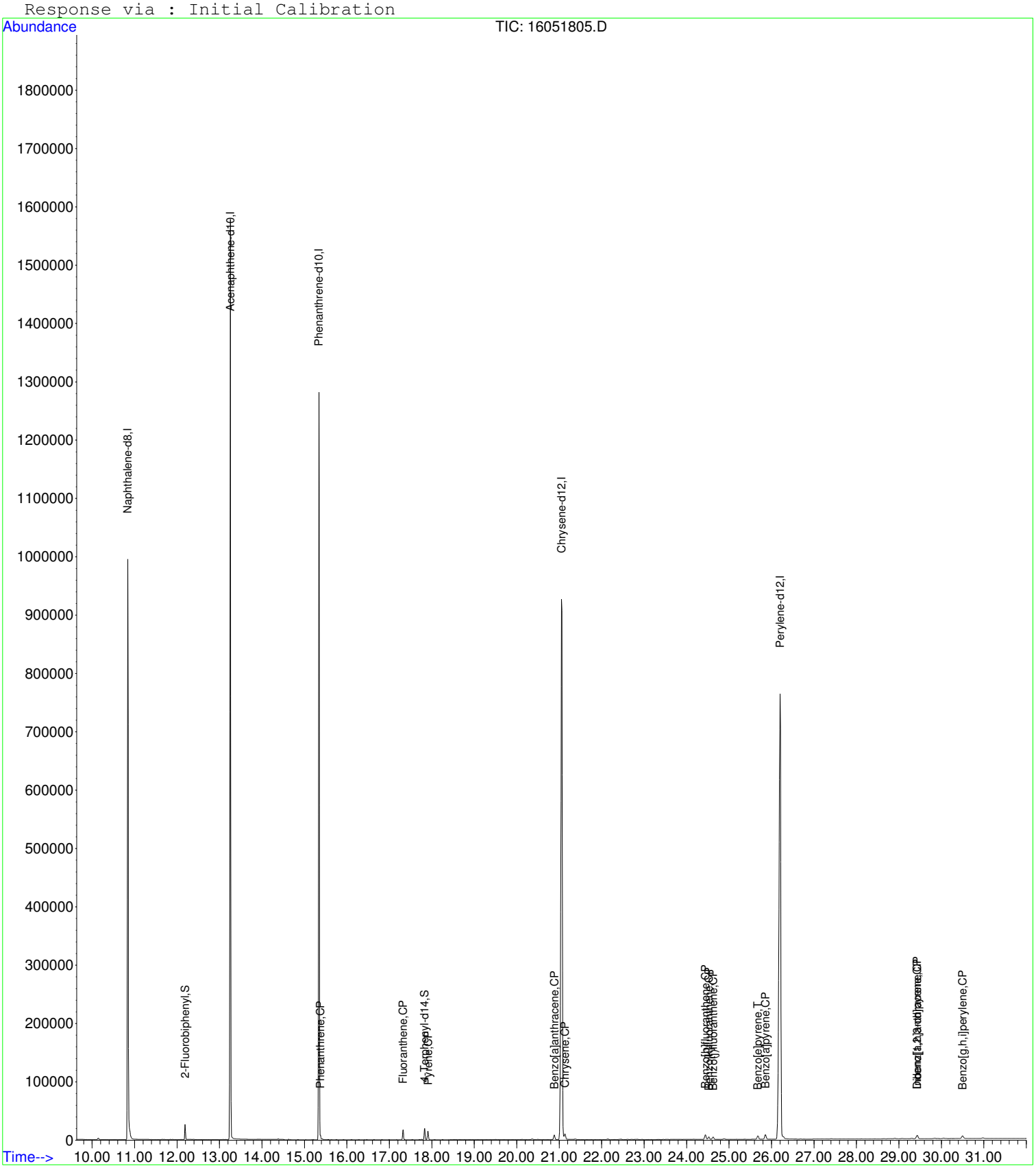
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1247536	4000.00	ug/kg	108
5) Acenaphthene-d10	13.25	164	809932	4000.00	ug/kg	70
11) Phenanthrene-d10	15.34	188	1363600	4000.00	ug/kg	67
17) Chrysene-d12	21.06	240	1577784	4000.00	ug/kg	69
20) Perylene-d12	26.20	264	1500154	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20143	85.26	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.13%#			
16) 4-Terphenyl-d14	17.83	244	24994	70.85	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.77%#			
Target Compounds						Qvalue
12) Phenanthrene	15.38	178	5053	14.09	ug/kg	99
14) Fluoranthene	17.32	202	17384	46.85	ug/kg	98
15) Pyrene	17.91	202	16481	42.75	ug/kg	98
18) Benzo[a]anthracene	20.89	228	11433	30.93	ug/kg	98
19) Chrysene	21.13	228	13522	37.86	ug/kg	99
21) Benzo[b]fluoranthene	24.44	252	14668	37.10	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	7519	20.27	ug/kg	96
23) Benzo(j)fluoranthene	24.63	252	6997	21.18	ug/kg	92
24) Benzo[e]pyrene	25.68	252	11112	31.38	ug/kg	99
25) Benzo[a]pyrene	25.86	252	14806	40.92	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	2532	7.68	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.43	276	9661	24.57	ug/kg	89
28) Benzo[g,h,i]perylene	30.50	276	9364	30.55	ug/kg	97

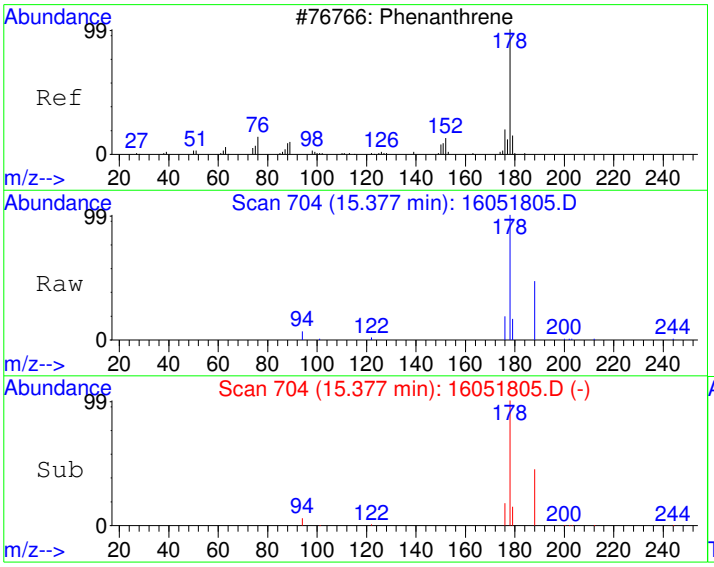
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051805.D Vial: 5
Acq On : 18 May 2016 11:11 am Operator:
Sample : 1605096-48A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

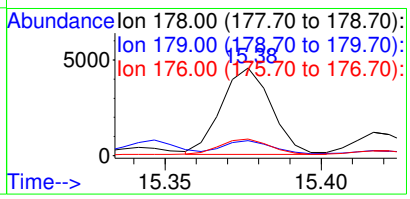


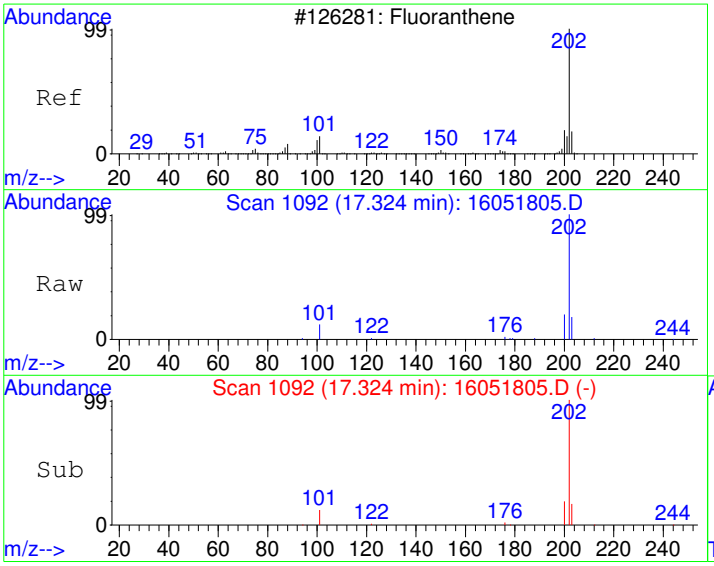


#12
Phenanthrene
Concen: 14.09 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:178 Resp: 5053

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.9	0.0	48.5

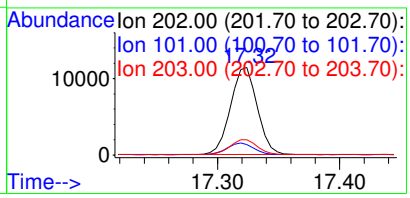


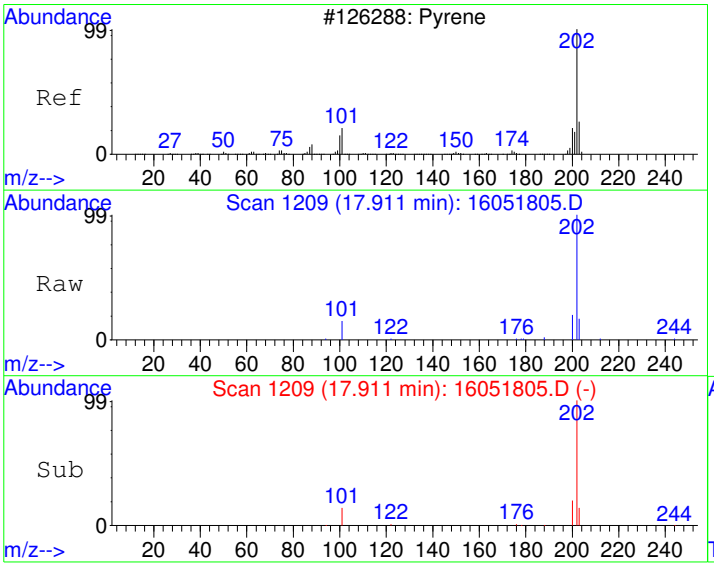


#14
Fluoranthene
Concen: 46.85 ug/kg
RT: 17.32 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:202 Resp: 17384

Ion	Ratio	Lower	Upper
202	100		
101	11.6	0.0	43.0
203	17.2	0.0	47.9

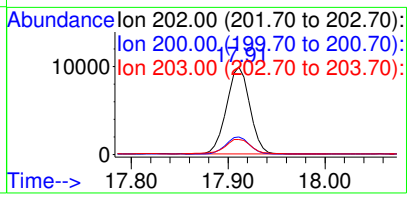


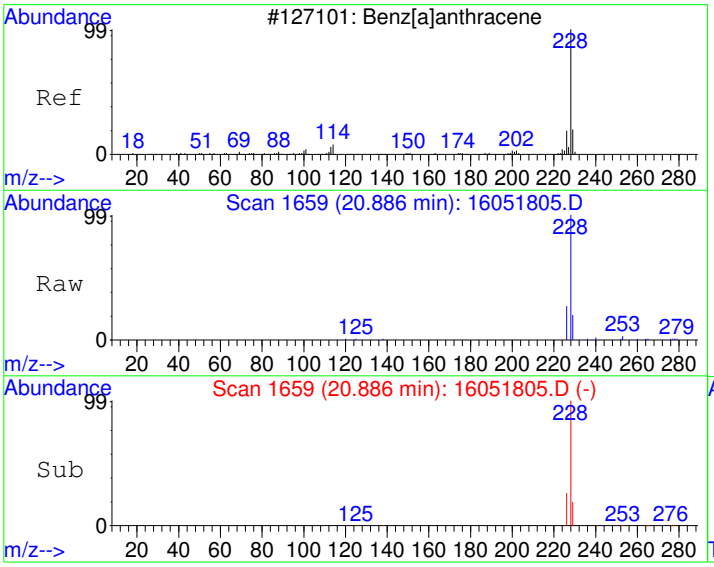


#15
Pyrene
Concen: 42.75 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:202 Resp: 16481

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	50.0
203	16.6	0.0	48.0

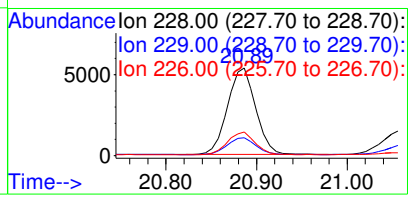


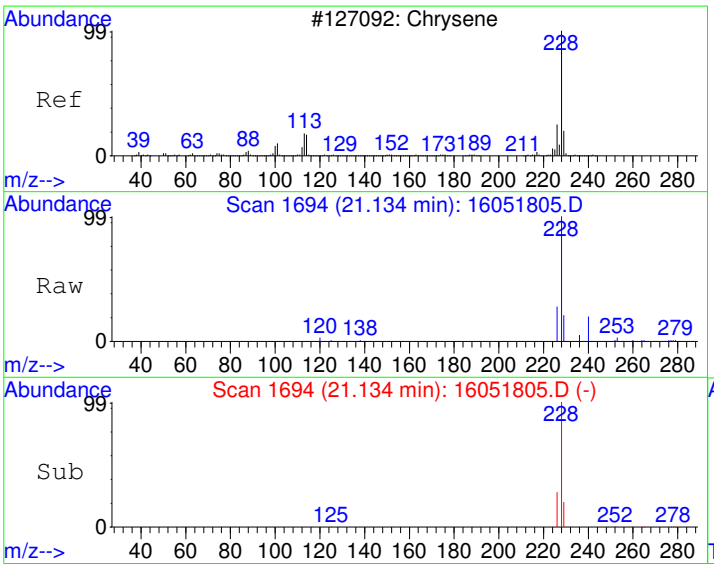


#18
Benzo[a]anthracene
Concen: 30.93 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:228 Resp: 11433

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.1
226	26.1	0.0	55.2

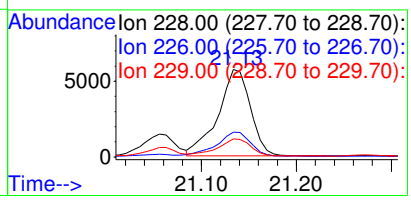


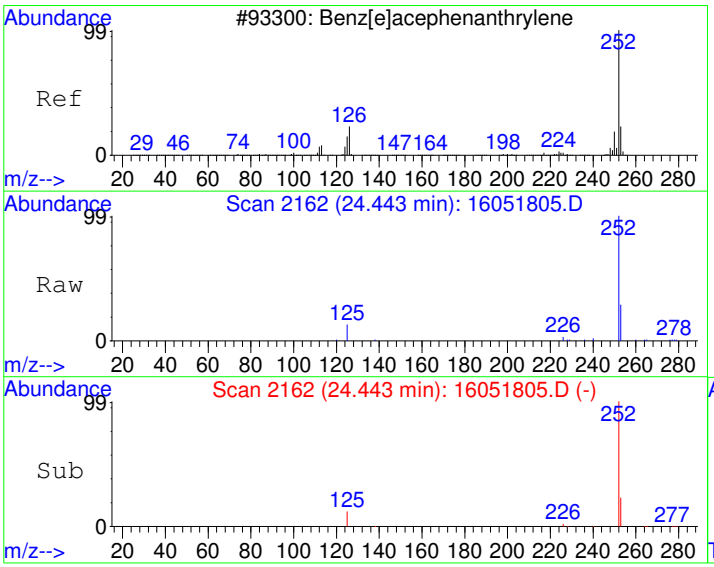


#19
Chrysene
Concen: 37.86 ug/kg
RT: 21.13 min Scan# 1694
Delta R.T. -0.04 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:228 Resp: 13522

Ion	Ratio	Lower	Upper
228	100		
226	27.7	0.0	58.1
229	20.0	0.0	50.1

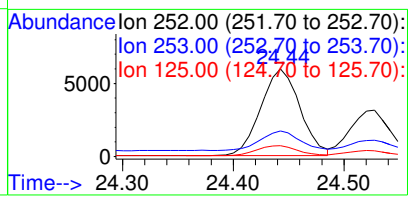


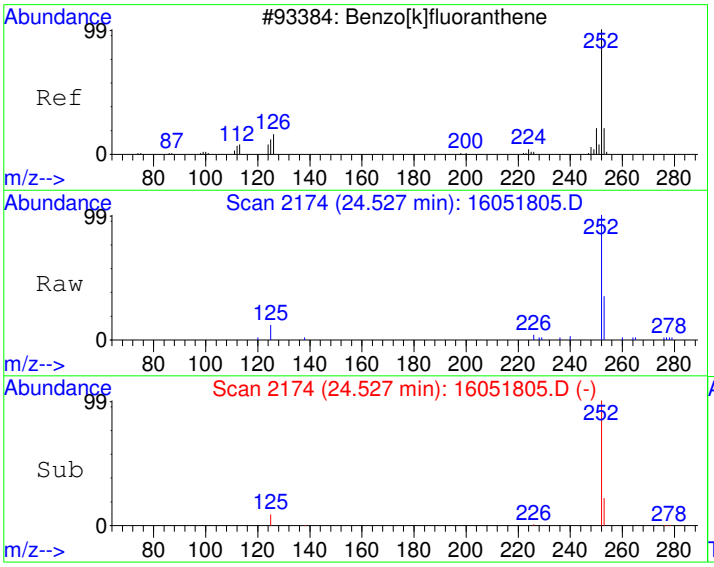


#21
Benzo[b]fluoranthene
Concen: 37.10 ug/kg
RT: 24.44 min Scan# 2162
Delta R.T. -0.04 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:252 Resp: 14668

Ion	Ratio	Lower	Upper
252	100		
253	22.5	0.0	52.2
125	11.6	0.0	41.0

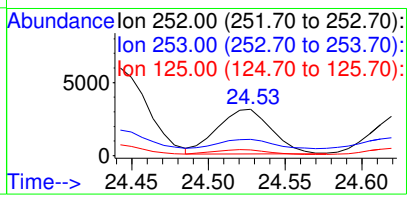


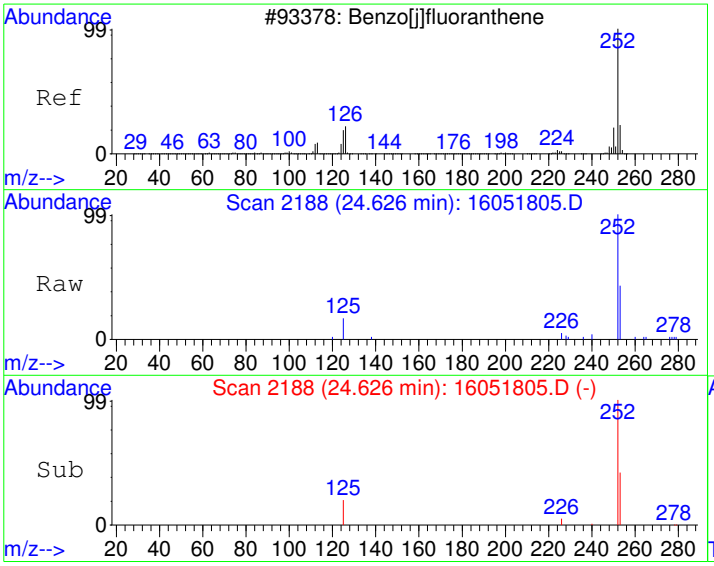


#22
Benzo[k]fluoranthene
Concen: 20.27 ug/kg
RT: 24.53 min Scan# 2174
Delta R.T. -0.04 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:252 Resp: 7519

Ion	Ratio	Lower	Upper
252	100		
253	20.1	2.1	42.1
125	10.3	0.0	31.3

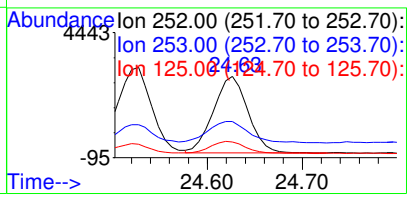


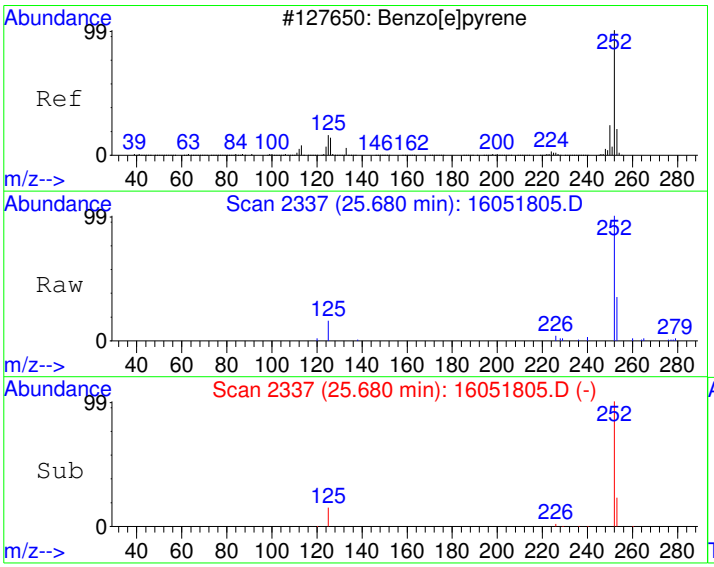


#23
Benzo(j)fluoranthene
Concen: 21.18 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:252 Resp: 6997

Ion	Ratio	Lower	Upper
252	100		
253	28.0	2.1	42.1
125	15.0	0.0	34.4

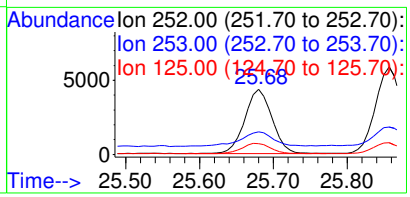


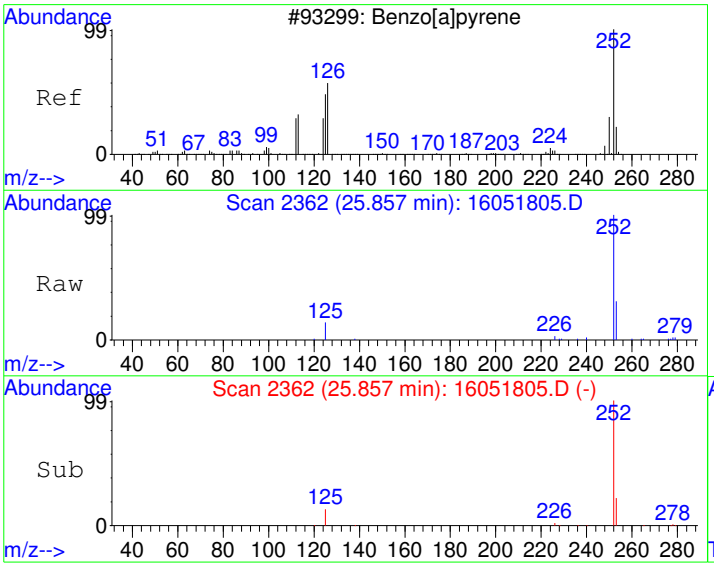


#24
Benzo[e]pyrene
Concen: 31.38 ug/kg
RT: 25.68 min Scan# 2337
Delta R.T. -0.04 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:252 Resp: 11112

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	15.2	0.0	36.1

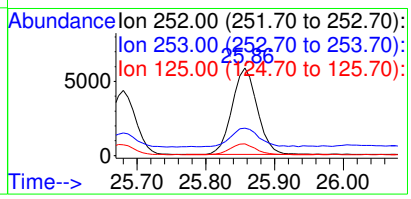


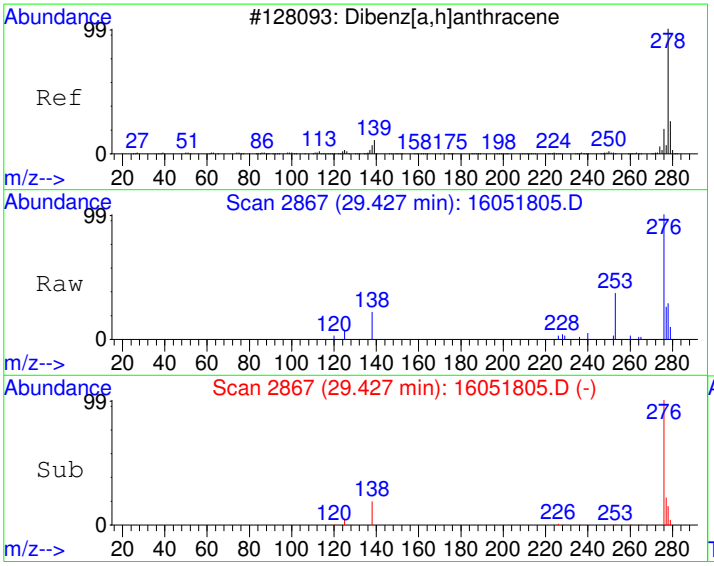


#25
Benzo[a]pyrene
Concen: 40.92 ug/kg
RT: 25.86 min Scan# 2362
Delta R.T. -0.04 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:252 Resp: 14806

Ion	Ratio	Lower	Upper
252	100		
253	21.5	1.9	41.9
125	12.7	0.0	31.7

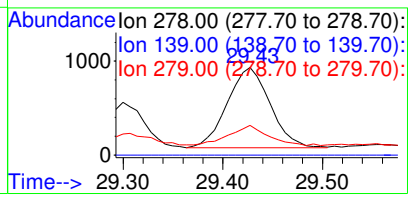


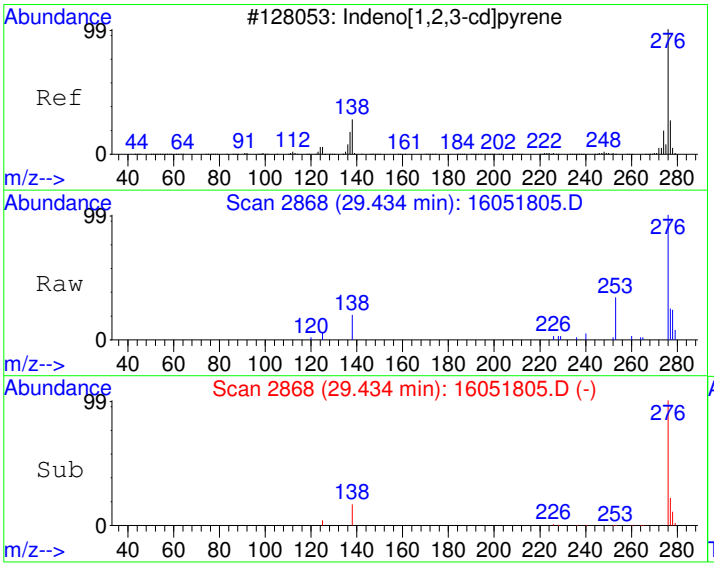


#26
Dibenz[a,h]anthracene
Concen: 7.68 ug/kg
RT: 29.43 min Scan# 2867
Delta R.T. -0.05 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:278 Resp: 2532

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	24.5	4.2	44.2

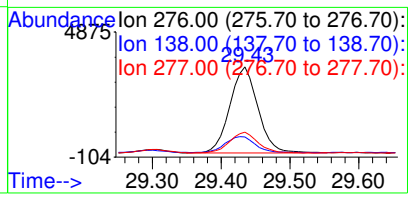


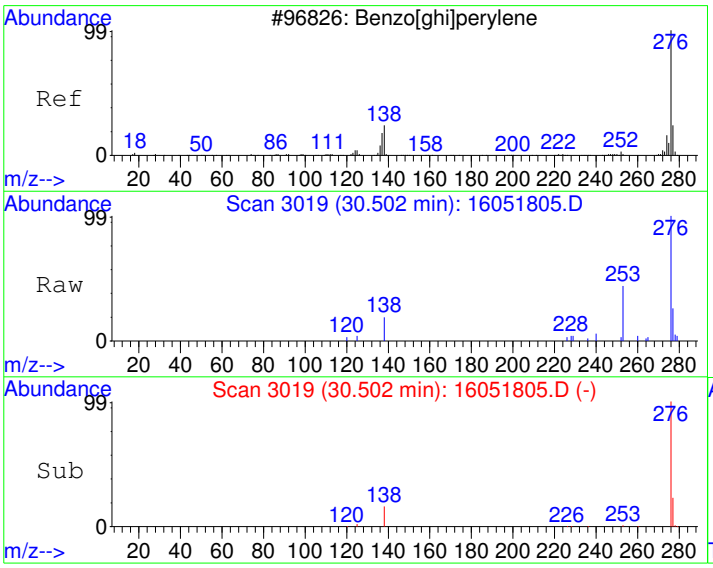


#27
Indeno[1,2,3-cd]pyrene
Concen: 24.57 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:276 Resp: 9661

Ion	Ratio	Lower	Upper
276	100		
138	18.0	6.7	46.7
277	23.9	5.8	45.8

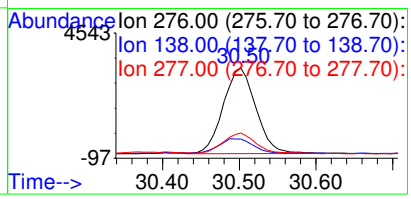




#28
Benzo[g,h,i]perylene
Concen: 30.55 ug/kg
RT: 30.50 min Scan# 3019
Delta R.T. -0.05 min
Lab File: 16051805.D
Acq: 18 May 2016 11:11 am

Tgt Ion:276 Resp: 9364

Ion	Ratio	Lower	Upper
276	100		
138	16.7	0.0	39.1
277	23.8	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051806.D Vial: 6
Acq On : 18 May 2016 11:50 am Operator:
Sample : 1605096-49A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

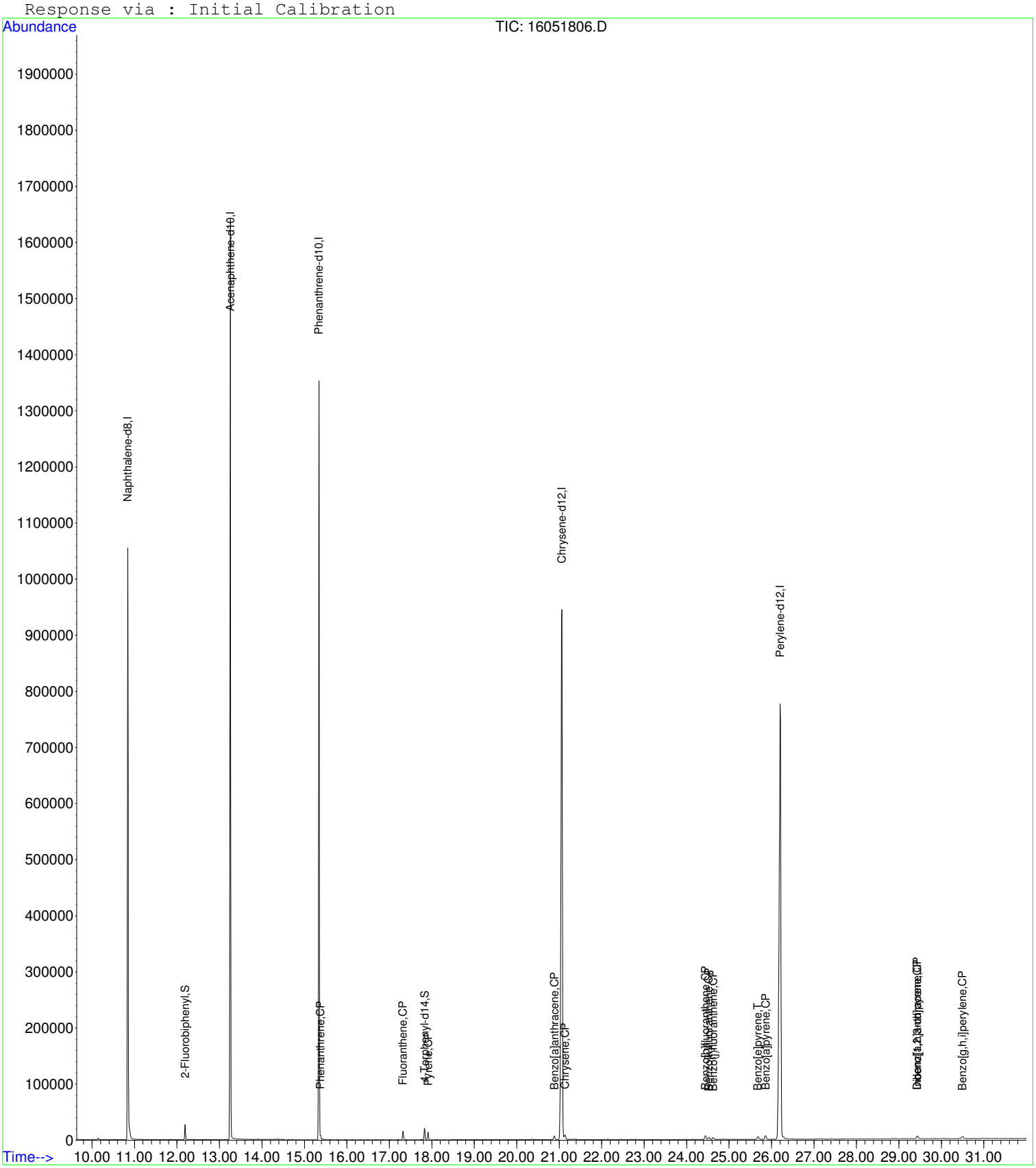
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1255517	4000.00	ug/kg	108
5) Acenaphthene-d10	13.26	164	840995	4000.00	ug/kg	73
11) Phenanthrene-d10	15.34	188	1432254	4000.00	ug/kg	70
17) Chrysene-d12	21.06	240	1610683	4000.00	ug/kg	71
20) Perylene-d12	26.20	264	1522790	4000.00	ug/kg	74
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20880	85.11	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#		
16) 4-Terphenyl-d14	17.83	244	26049	70.30	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
12) Phenanthrene	15.38	178	4705	12.49	ug/kg	99
14) Fluoranthene	17.32	202	15496	39.76	ug/kg	99
15) Pyrene	17.91	202	14368	35.49	ug/kg	99
18) Benzo[a]anthracene	20.89	228	9838	26.07	ug/kg	99
19) Chrysene	21.14	228	11490	31.51	ug/kg	99
21) Benzo[b]fluoranthene	24.44	252	12403	30.90	ug/kg	98
22) Benzo[k]fluoranthene	24.52	252	6265	16.64	ug/kg	97
23) Benzo(j)fluoranthene	24.63	252	5914	17.63	ug/kg	92
24) Benzo[e]pyrene	25.68	252	9426	26.22	ug/kg	99
25) Benzo[a]pyrene	25.86	252	12533	34.12	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	2187	6.54	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.43	276	8276	20.74	ug/kg	90
28) Benzo[g,h,i]perylene	30.49	276	7857	25.25	ug/kg	98

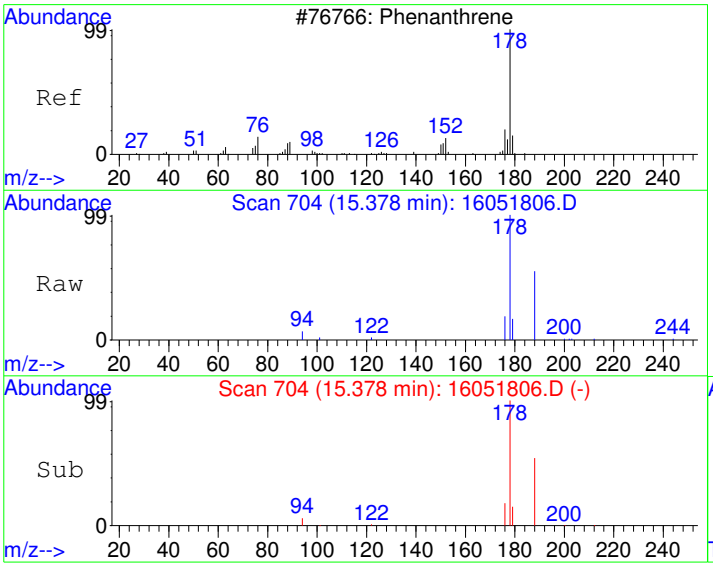
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051806.D Vial: 6
Acq On : 18 May 2016 11:50 am Operator:
Sample : 1605096-49A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

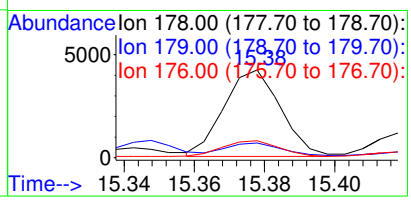


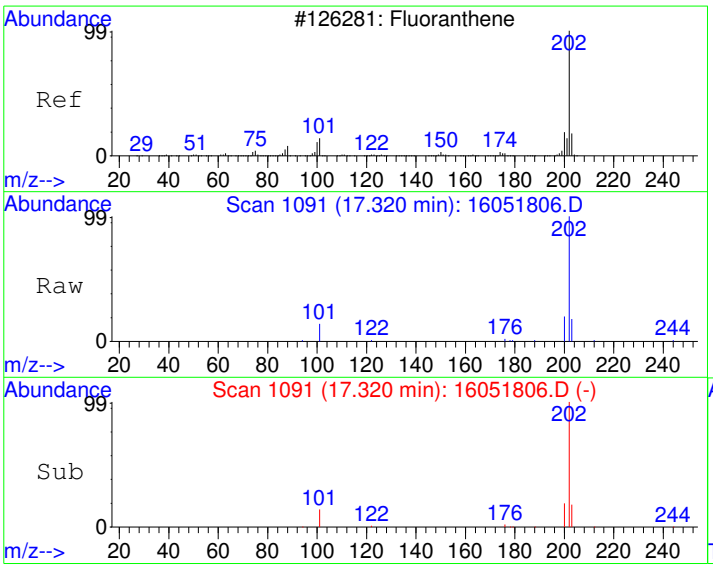


#12
Phenanthrene
Concen: 12.49 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:178 Resp: 4705

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.9
176	18.5	0.0	48.5

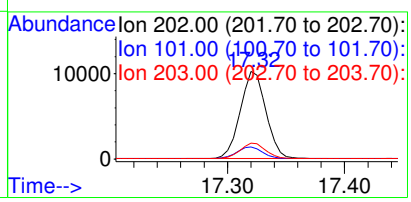


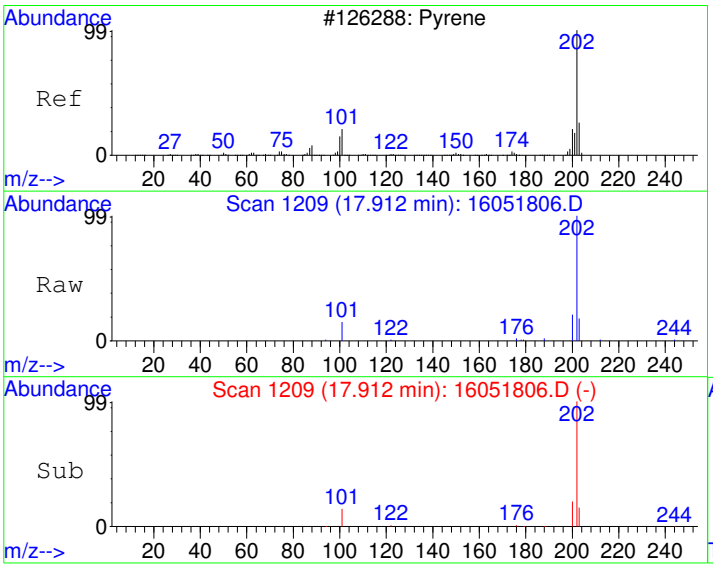


#14
Fluoranthene
Concen: 39.76 ug/kg
RT: 17.32 min Scan# 1091
Delta R.T. -0.02 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:202 Resp: 15496

Ion	Ratio	Lower	Upper
202	100		
101	13.5	0.0	43.0
203	17.8	0.0	47.9

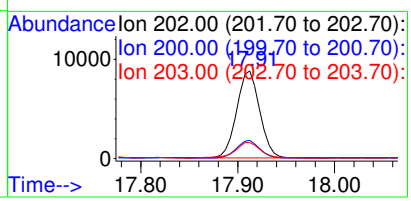


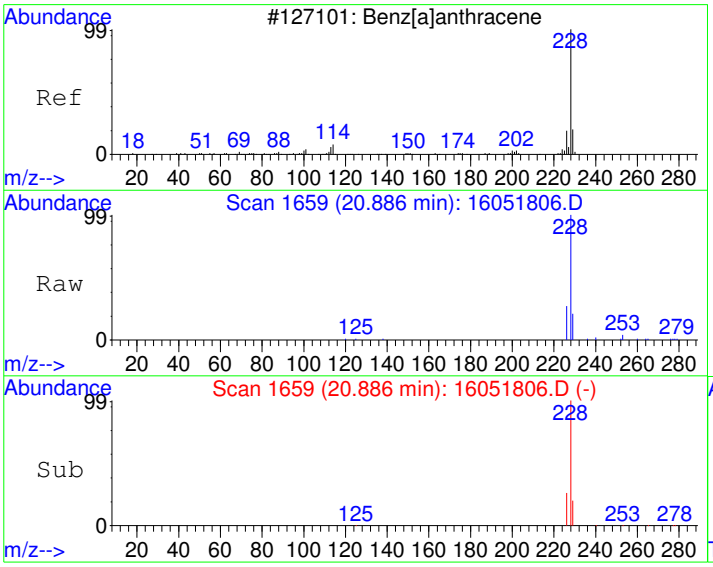


#15
Pyrene
Concen: 35.49 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:202 Resp: 14368

Ion	Ratio	Lower	Upper
202	100		
200	20.4	0.0	50.0
203	17.6	0.0	48.0

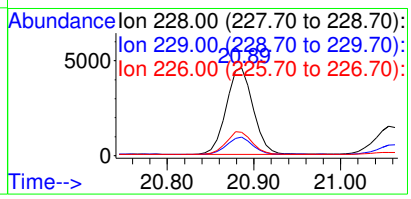


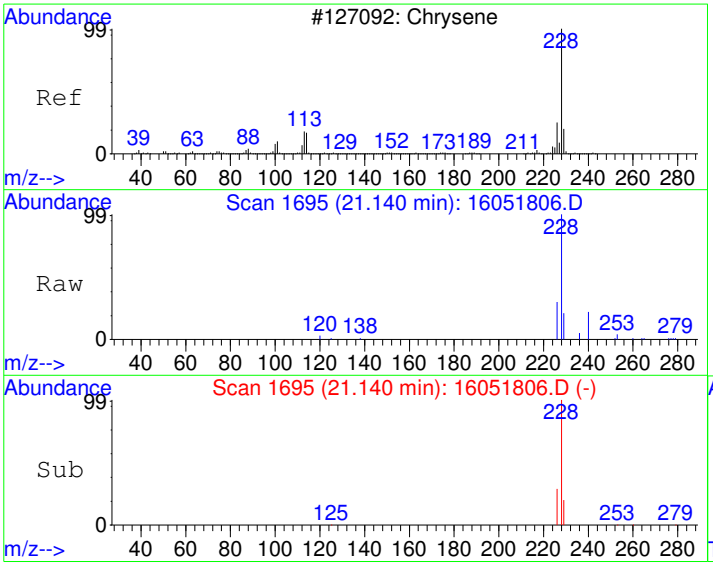


#18
Benzo[a]anthracene
Concen: 26.07 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:228 Resp: 9838

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	50.1
226	25.8	0.0	55.2

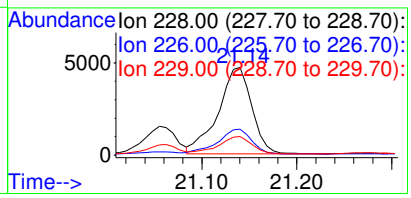


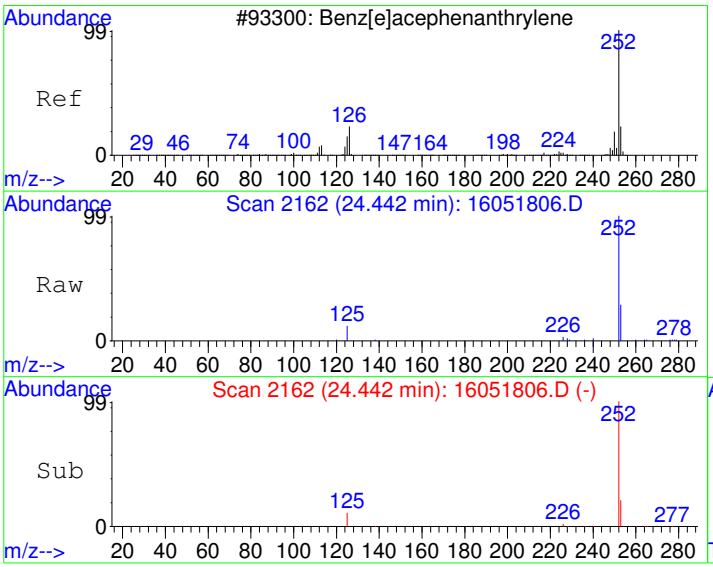


#19
Chrysene
Concen: 31.51 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:228 Resp: 11490

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	20.0	0.0	50.1

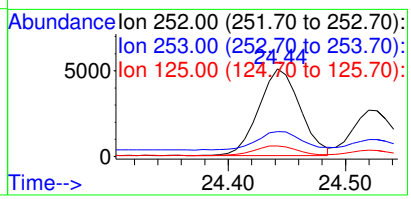


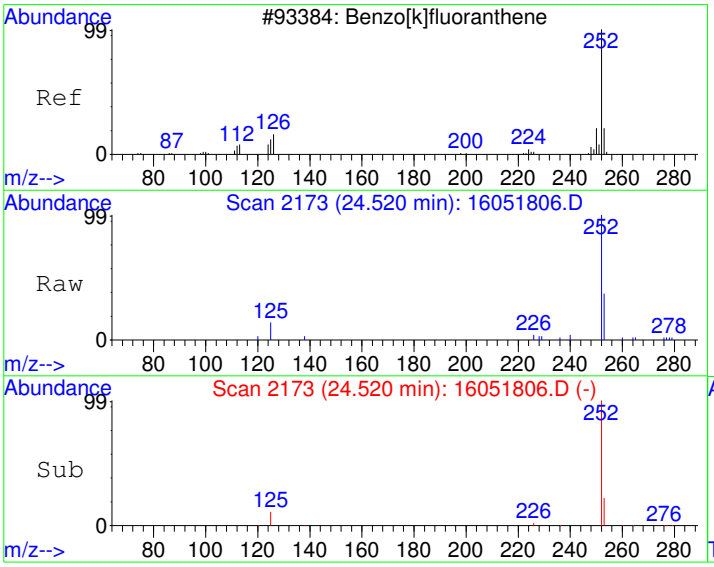


#21
Benzo[b]fluoranthene
Concen: 30.90 ug/kg
RT: 24.44 min Scan# 2162
Delta R.T. -0.04 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:252 Resp: 12403

Ion	Ratio	Lower	Upper
252	100		
253	21.1	0.0	52.2
125	10.9	0.0	41.0

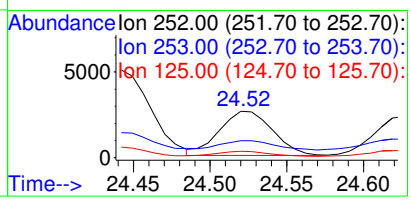


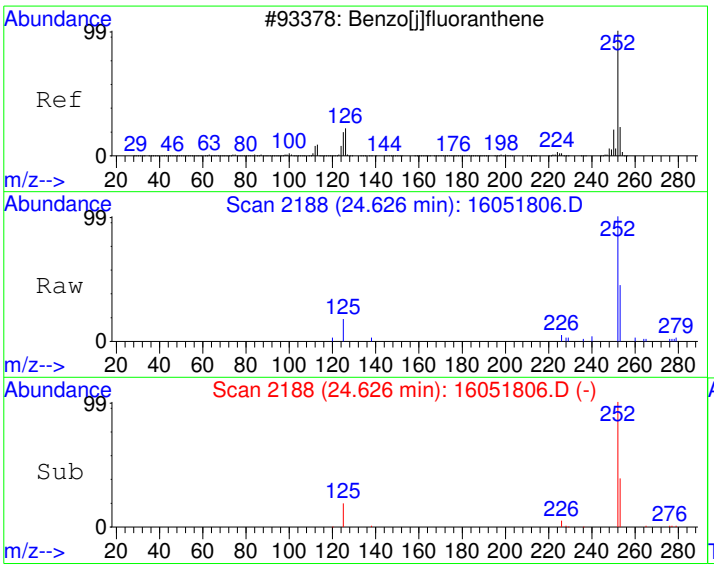


#22
Benzo[k]fluoranthene
Concen: 16.64 ug/kg
RT: 24.52 min Scan# 2173
Delta R.T. -0.05 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:252 Resp: 6265

Ion	Ratio	Lower	Upper
252	100		
253	20.1	2.1	42.1
125	11.1	0.0	31.3

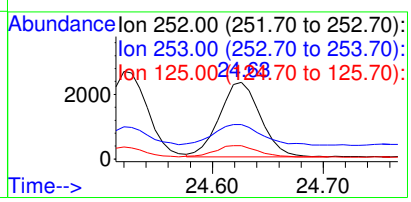


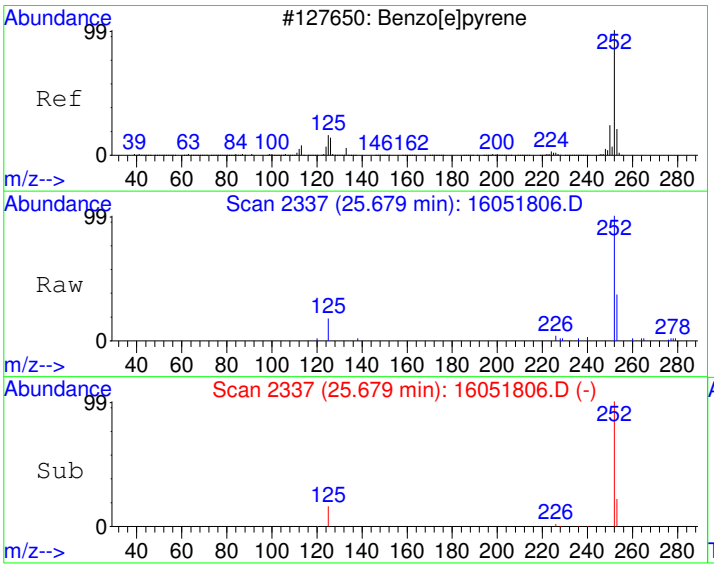


#23
Benzo(j)fluoranthene
Concen: 17.63 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:252 Resp: 5914

Ion	Ratio	Lower	Upper
252	100		
253	27.7	2.1	42.1
125	15.4	0.0	34.4

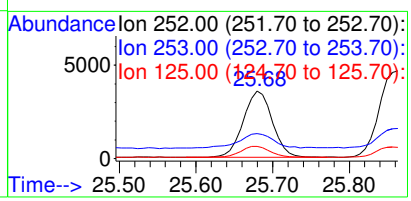


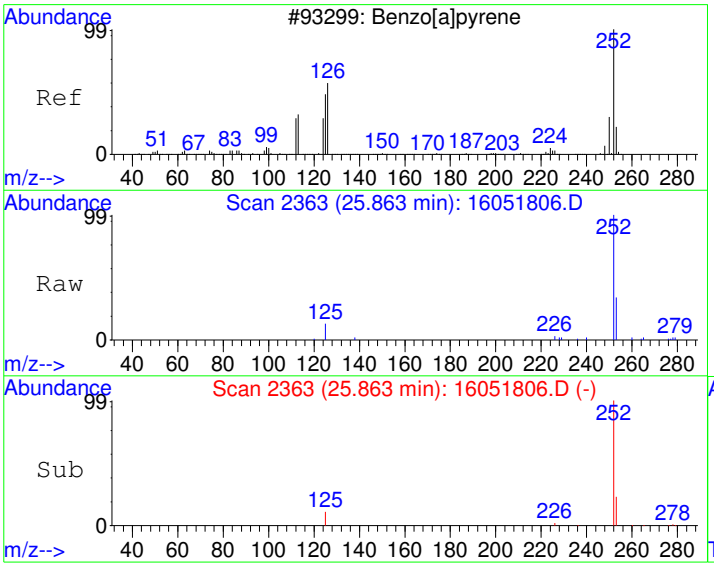


#24
Benzo[e]pyrene
Concen: 26.22 ug/kg
RT: 25.68 min Scan# 2337
Delta R.T. -0.04 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:252 Resp: 9426

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.2	42.2
125	16.2	0.0	36.1

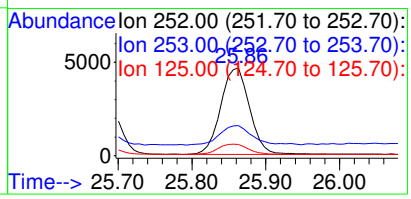


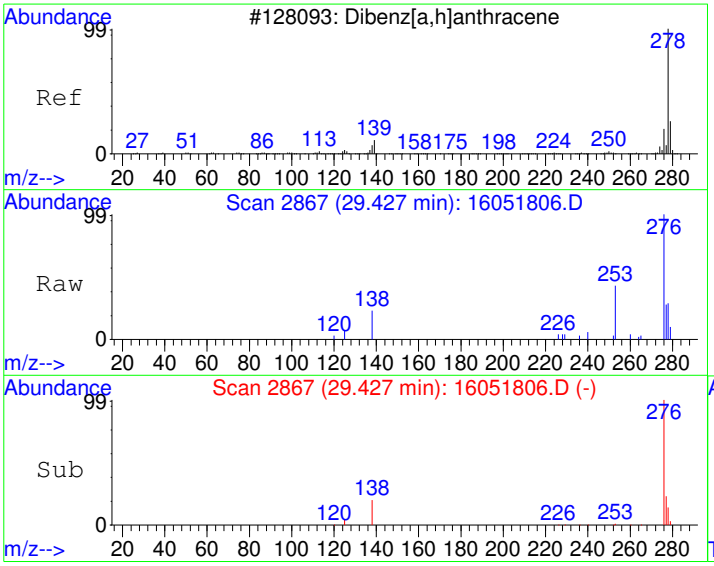


#25
Benzo[a]pyrene
Concen: 34.12 ug/kg
RT: 25.86 min Scan# 2363
Delta R.T. -0.04 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:252 Resp: 12533

Ion	Ratio	Lower	Upper
252	100		
253	22.7	1.9	41.9
125	11.5	0.0	31.7

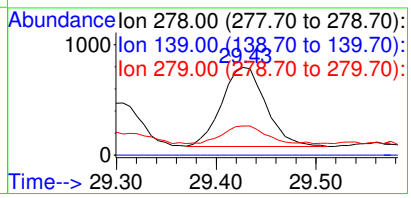


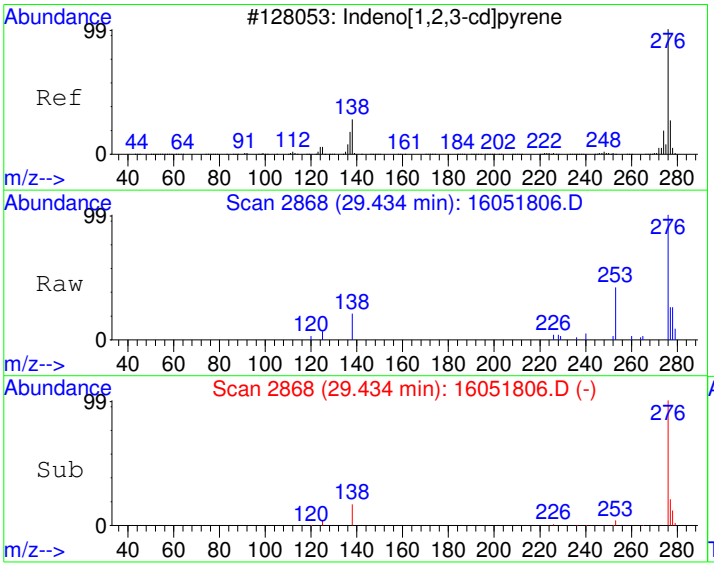


#26
Dibenz[a,h]anthracene
Concen: 6.54 ug/kg
RT: 29.43 min Scan# 2867
Delta R.T. -0.05 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:278 Resp: 2187

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.3	4.2	44.2

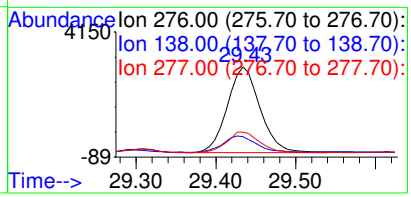


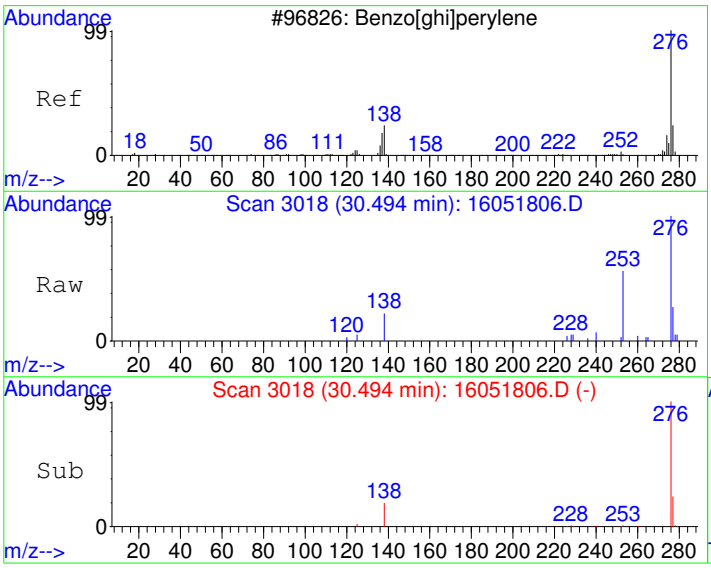


#27
Indeno[1,2,3-cd]pyrene
Concen: 20.74 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:276 Resp: 8276

Ion	Ratio	Lower	Upper
276	100		
138	18.4	6.7	46.7
277	23.9	5.8	45.8

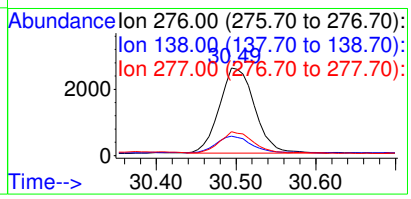




#28
Benzo[g,h,i]perylene
Concen: 25.25 ug/kg
RT: 30.49 min Scan# 3018
Delta R.T. -0.06 min
Lab File: 16051806.D
Acq: 18 May 2016 11:50 am

Tgt Ion:276 Resp: 7857

Ion	Ratio	Lower	Upper
276	100		
138	19.6	0.0	39.1
277	25.4	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051807.D Vial: 7
Acq On : 18 May 2016 12:30 pm Operator:
Sample : 1605096-53A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

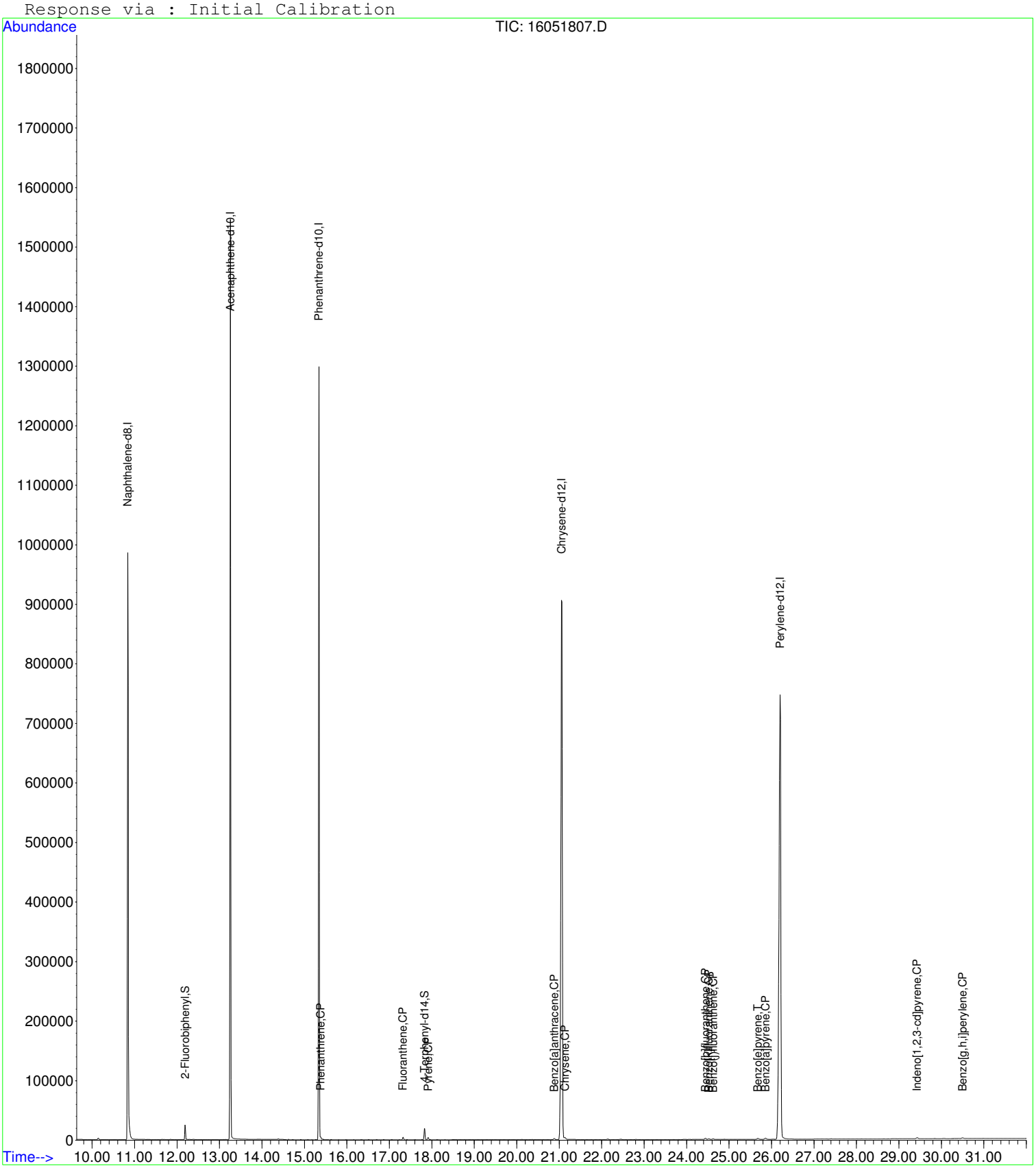
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1255557	4000.00	ug/kg	108
5) Acenaphthene-d10	13.25	164	828321	4000.00	ug/kg	72
11) Phenanthrene-d10	15.34	188	1376672	4000.00	ug/kg	67
17) Chrysene-d12	21.06	240	1559750	4000.00	ug/kg	69
20) Perylene-d12	26.20	264	1491210	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20043	82.95	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
16) 4-Terphenyl-d14	17.83	244	25025	70.26	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
12) Phenanthrene	15.38	178	2049	5.66	ug/kg	98
14) Fluoranthene	17.32	202	4571	12.20	ug/kg	99
15) Pyrene	17.91	202	4390	11.28	ug/kg	97
18) Benzo[a]anthracene	20.89	228	3020	8.26	ug/kg	99
19) Chrysene	21.14	228	3510	9.94	ug/kg	99
21) Benzo[b]fluoranthene	24.44	252	3695	9.40	ug/kg	99
22) Benzo[k]fluoranthene	24.52	252	2186	5.93	ug/kg	95
23) Benzo(j)fluoranthene	24.63	252	1899	5.78	ug/kg	88
24) Benzo[e]pyrene	25.68	252	3047	8.66	ug/kg	93
25) Benzo[a]pyrene	25.86	252	3722	10.35	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.43	276	2752	7.04	ug/kg	89
28) Benzo[g,h,i]perylene	30.50	276	2676	8.78	ug/kg	100

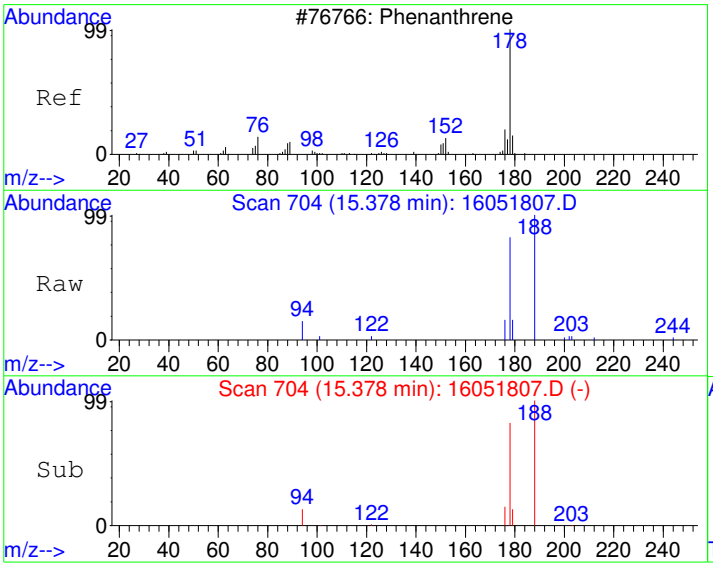
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051807.D Vial: 7
Acq On : 18 May 2016 12:30 pm Operator:
Sample : 1605096-53A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

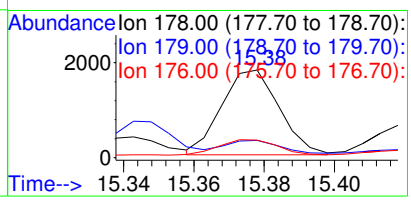


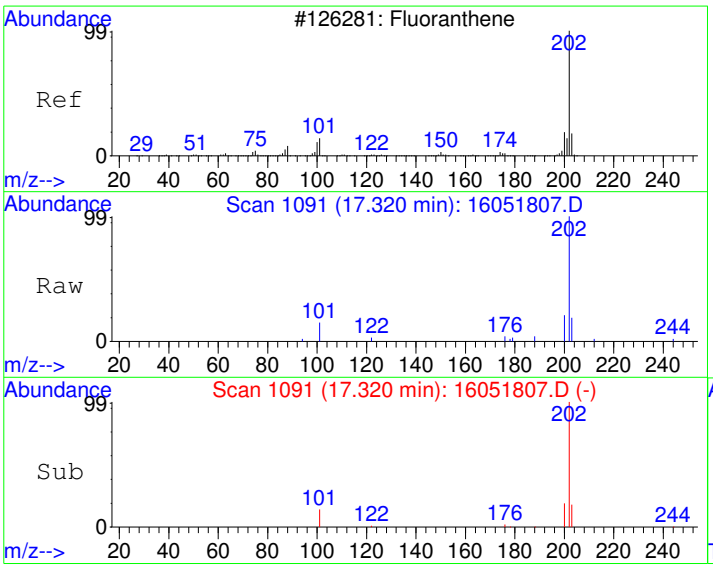


#12
Phenanthrene
Concen: 5.66 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:178 Resp: 2049

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.6	0.0	48.5

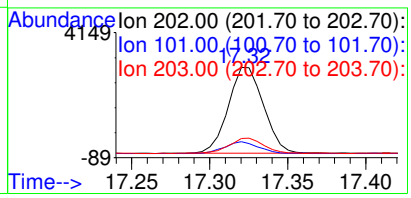


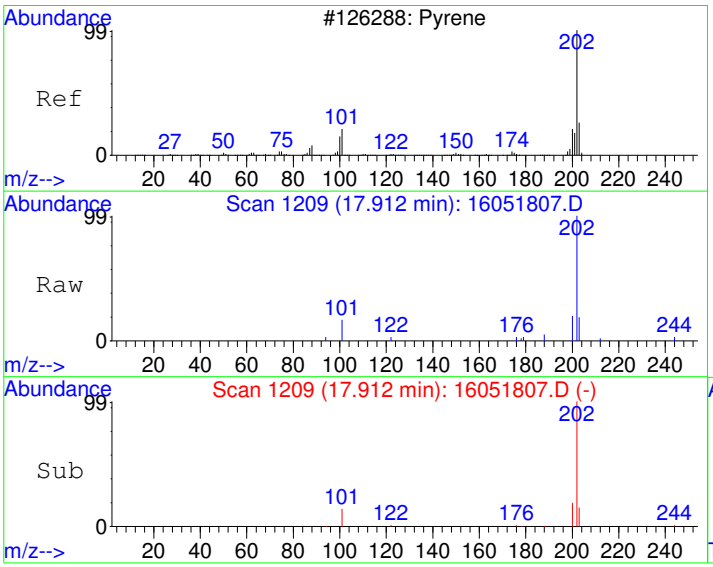


#14
Fluoranthene
Concen: 12.20 ug/kg
RT: 17.32 min Scan# 1091
Delta R.T. -0.02 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:202 Resp: 4571

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	43.0
203	17.5	0.0	47.9

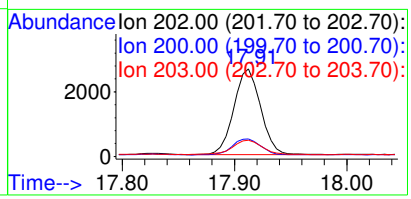


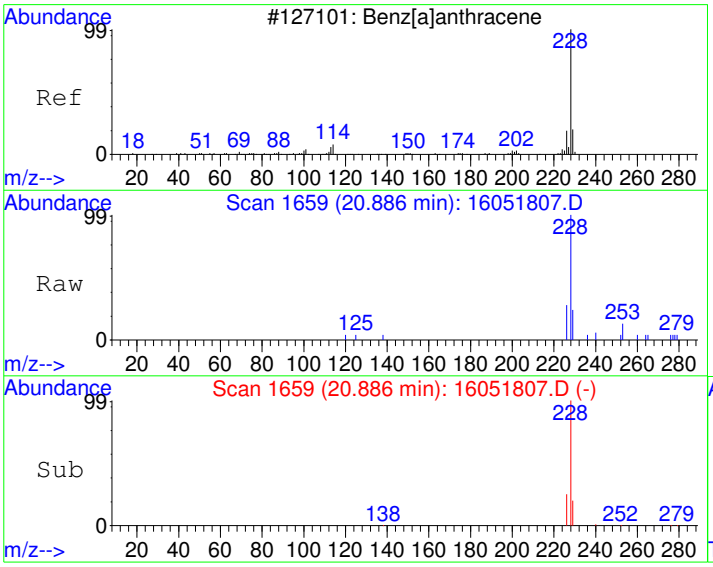


#15
Pyrene
Concen: 11.28 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:202 Resp: 4390

Ion	Ratio	Lower	Upper
202	100		
200	18.6	0.0	50.0
203	16.8	0.0	48.0

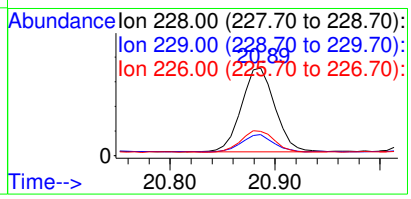


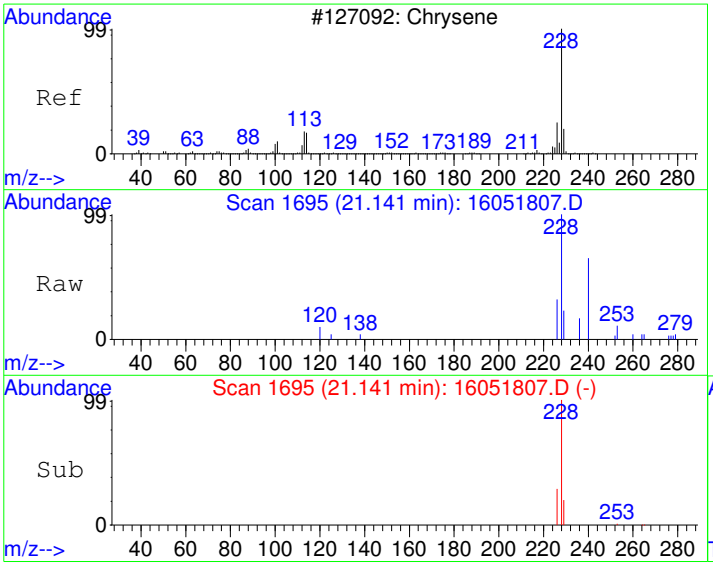


#18
Benzo[a]anthracene
Concen: 8.26 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:228 Resp: 3020

Ion	Ratio	Lower	Upper
228	100		
229	20.2	0.0	50.1
226	24.6	0.0	55.2

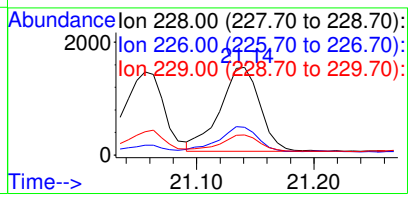


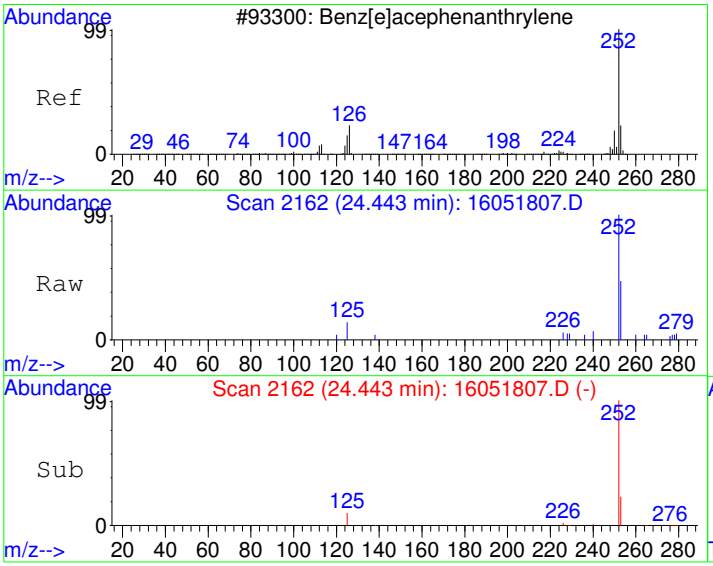


#19
Chrysene
Concen: 9.94 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:228 Resp: 3510

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	19.7	0.0	50.1

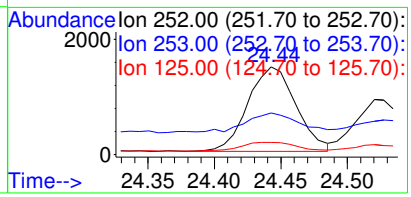


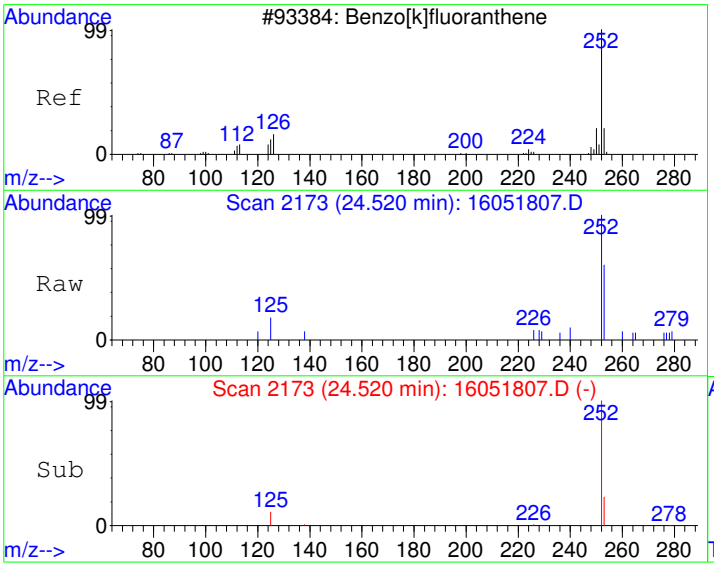


#21
Benzo[b]fluoranthene
Concen: 9.40 ug/kg
RT: 24.44 min Scan# 2162
Delta R.T. -0.04 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:252 Resp: 3695

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	10.5	0.0	41.0

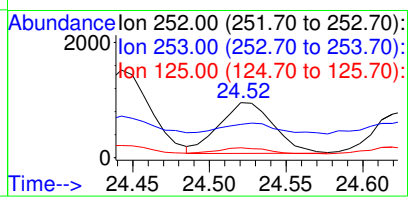


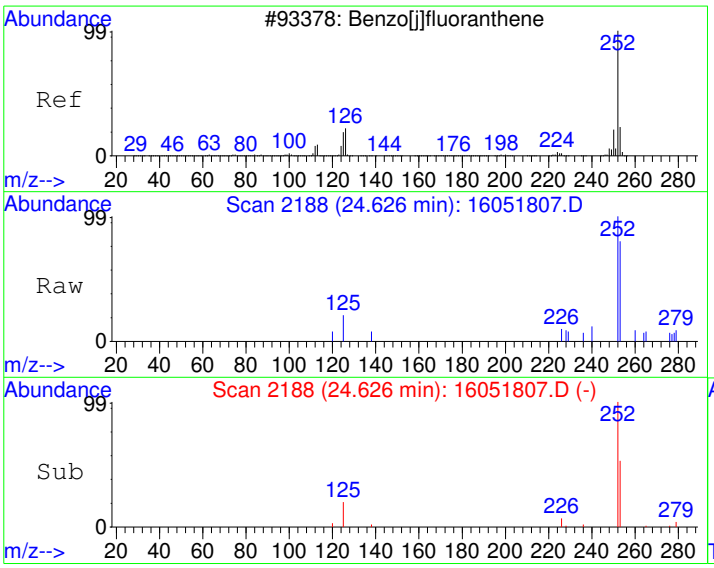


#22
Benzo[k]fluoranthene
Concen: 5.93 ug/kg
RT: 24.52 min Scan# 2173
Delta R.T. -0.05 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:252 Resp: 2186

Ion	Ratio	Lower	Upper
252	100		
253	18.9	2.1	42.1
125	12.1	0.0	31.3

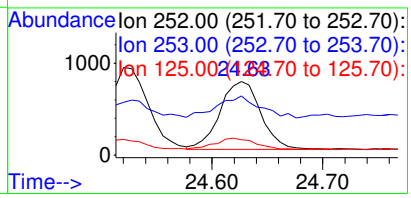


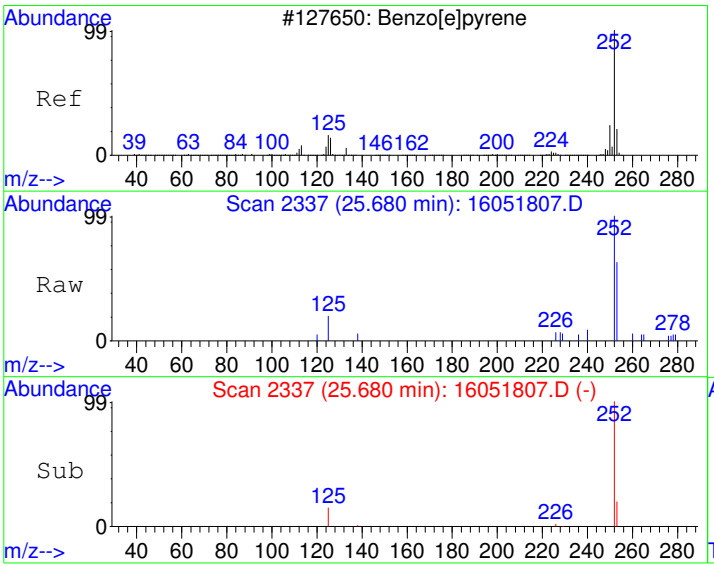


#23
Benzo(j)fluoranthene
Concen: 5.78 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:252 Resp: 1899

Ion	Ratio	Lower	Upper
252	100		
253	31.2	2.1	42.1
125	13.5	0.0	34.4

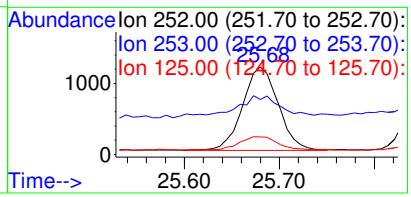


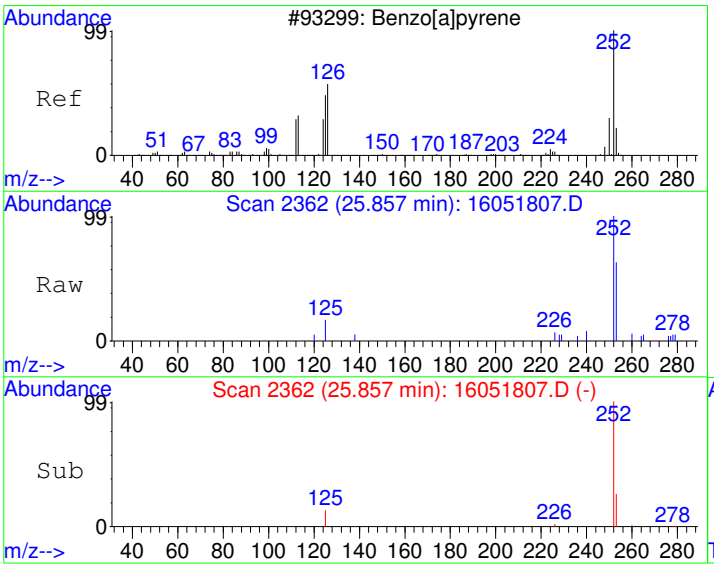


#24
Benzo[e]pyrene
Concen: 8.66 ug/kg
RT: 25.68 min Scan# 2337
Delta R.T. -0.04 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:252 Resp: 3047

Ion	Ratio	Lower	Upper
252	100		
253	17.4	2.2	42.2
125	15.3	0.0	36.1

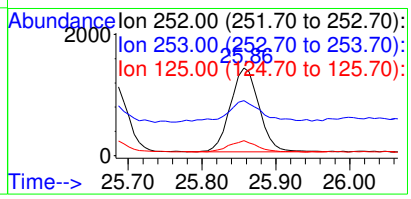


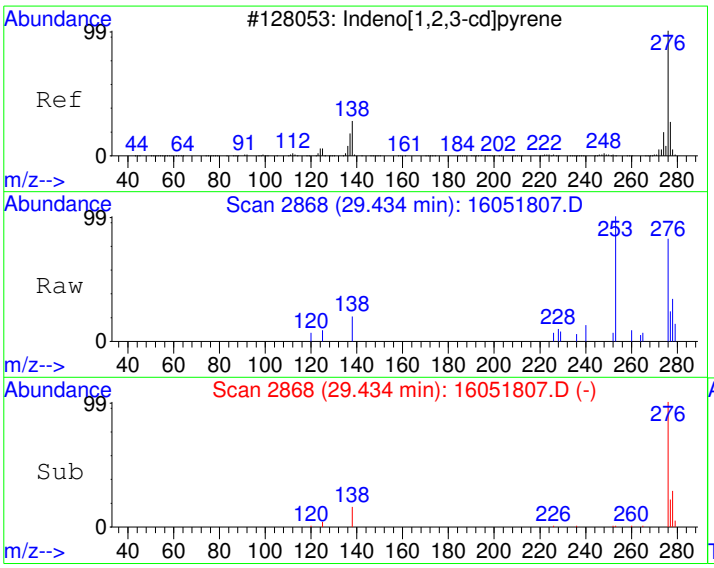


#25
Benzo[a]pyrene
Concen: 10.35 ug/kg
RT: 25.86 min Scan# 2362
Delta R.T. -0.04 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:252 Resp: 3722

Ion	Ratio	Lower	Upper
252	100		
253	23.3	1.9	41.9
125	13.1	0.0	31.7

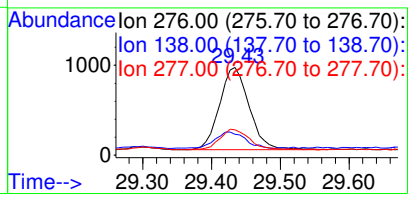


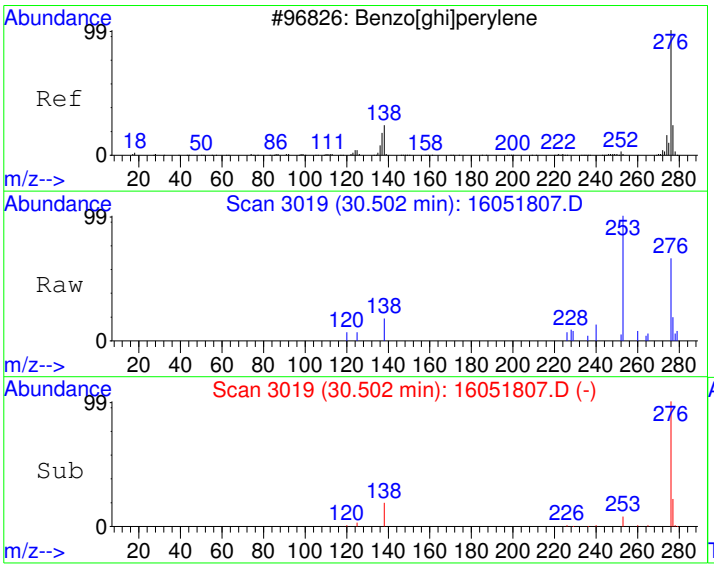


#27
Indeno[1,2,3-cd]pyrene
Concen: 7.04 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:276 Resp: 2752

Ion	Ratio	Lower	Upper
276	100		
138	16.9	6.7	46.7
277	24.2	5.8	45.8

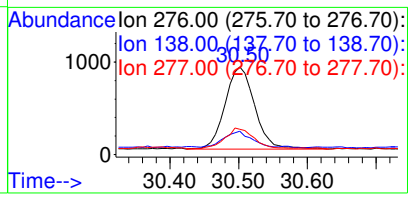




#28
Benzo[g,h,i]perylene
Concen: 8.78 ug/kg
RT: 30.50 min Scan# 3019
Delta R.T. -0.05 min
Lab File: 16051807.D
Acq: 18 May 2016 12:30 pm

Tgt Ion:276 Resp: 2676

Ion	Ratio	Lower	Upper
276	100		
138	19.3	0.0	39.1
277	23.8	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051808.D Vial: 8
Acq On : 18 May 2016 1:10 pm Operator:
Sample : 1605096-54A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

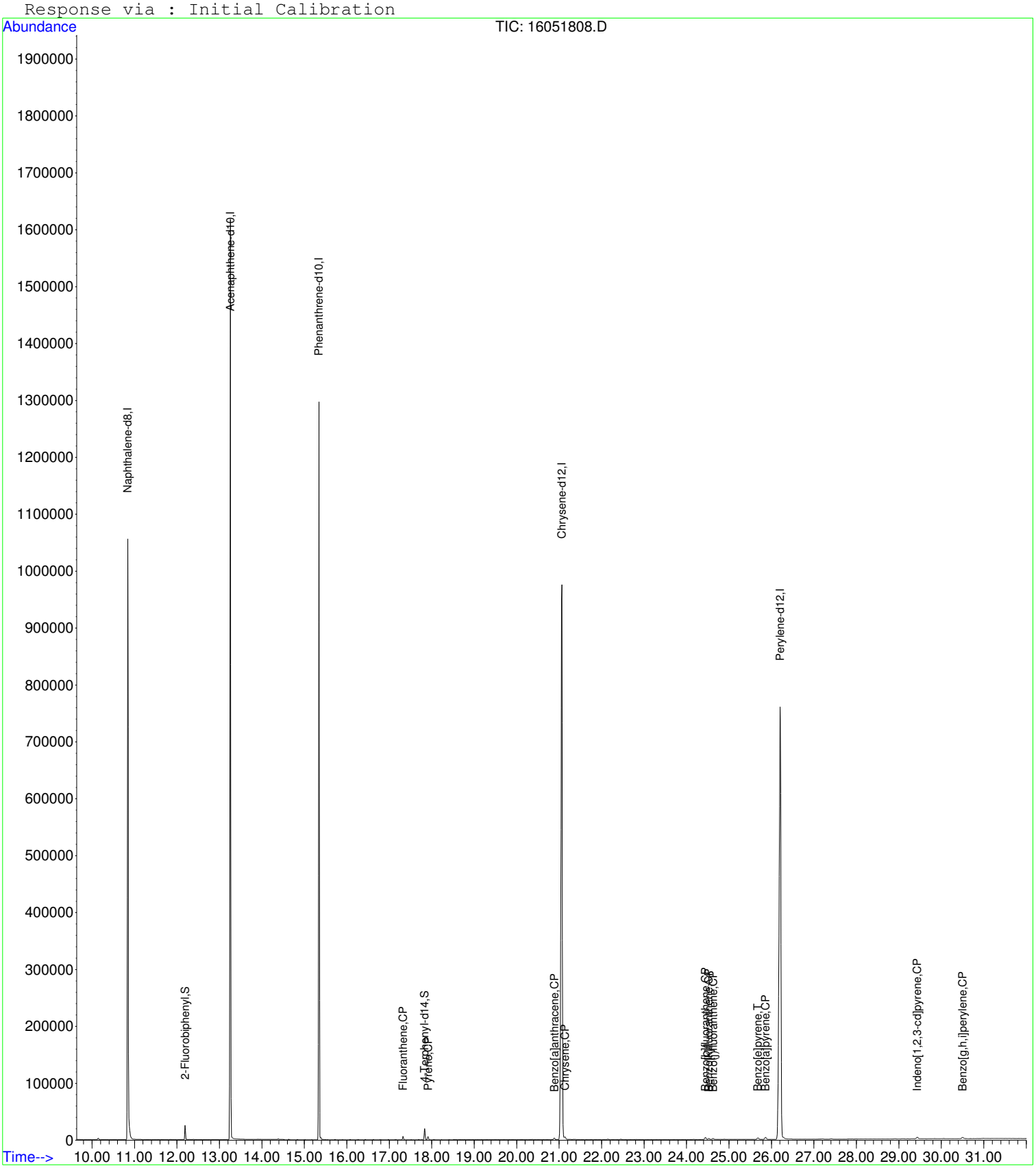
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1290865	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	845453	4000.00	ug/kg	73
11) Phenanthrene-d10	15.34	188	1411669	4000.00	ug/kg	69
17) Chrysene-d12	21.06	240	1614740	4000.00	ug/kg	71
20) Perylene-d12	26.20	264	1547826	4000.00	ug/kg	75
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19783	80.21	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
16) 4-Terphenyl-d14	17.83	244	24760	67.79	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.69%#		
Target Compounds						Qvalue
14) Fluoranthene	17.32	202	6100	15.88	ug/kg	98
15) Pyrene	17.91	202	6273	15.72	ug/kg	98
18) Benzo[a]anthracene	20.89	228	4379	11.58	ug/kg	99
19) Chrysene	21.14	228	5627	15.40	ug/kg	99
21) Benzo[b]fluoranthene	24.44	252	6489	15.91	ug/kg	99
22) Benzo[k]fluoranthene	24.52	252	3370	8.81	ug/kg	97
23) Benzo(j)fluoranthene	24.63	252	2957	8.67	ug/kg	96
24) Benzo[e]pyrene	25.68	252	5072	13.88	ug/kg	98
25) Benzo[a]pyrene	25.86	252	6471	17.33	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.43	276	4750	11.71	ug/kg	91
28) Benzo[g,h,i]perylene	30.50	276	4581	14.48	ug/kg	99

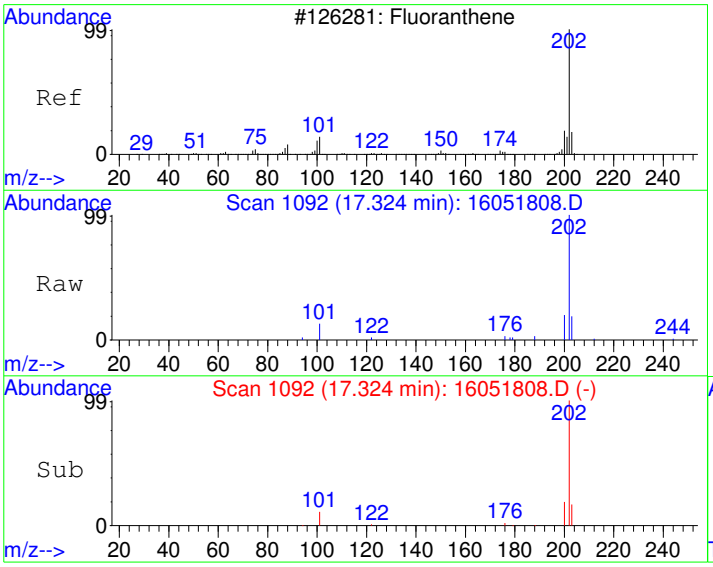
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051808.D Vial: 8
Acq On : 18 May 2016 1:10 pm Operator:
Sample : 1605096-54A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:12 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

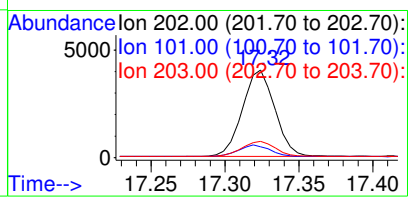


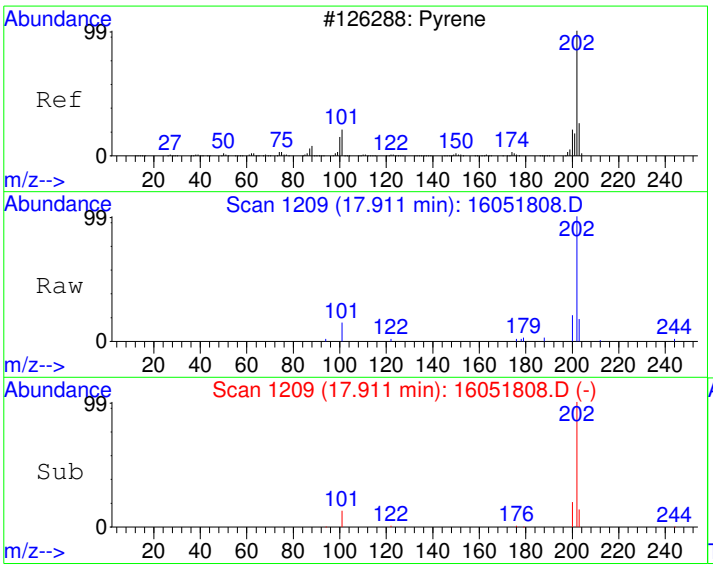


#14
Fluoranthene
Concen: 15.88 ug/kg
RT: 17.32 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:202 Resp: 6100

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

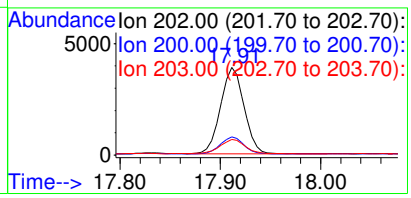


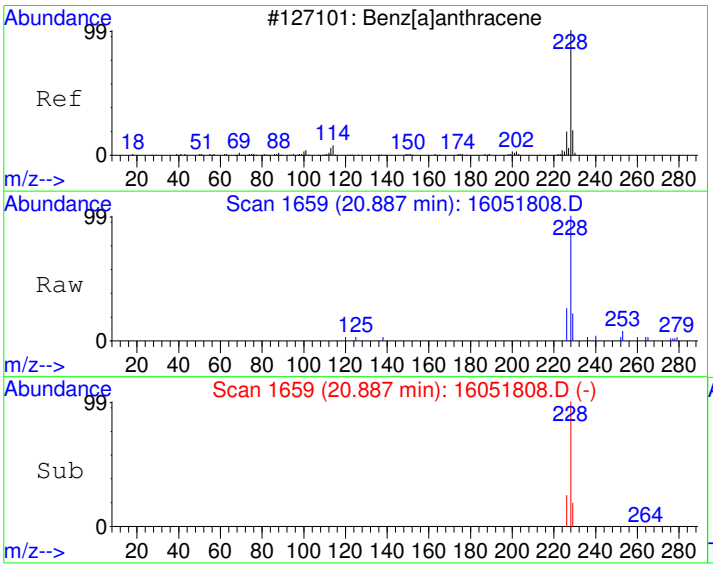


#15
Pyrene
Concen: 15.72 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:202 Resp: 6273

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	50.0
203	16.5	0.0	48.0

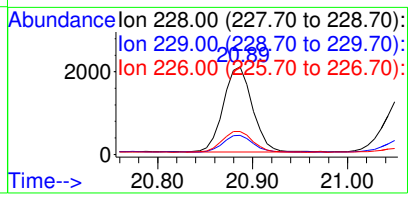


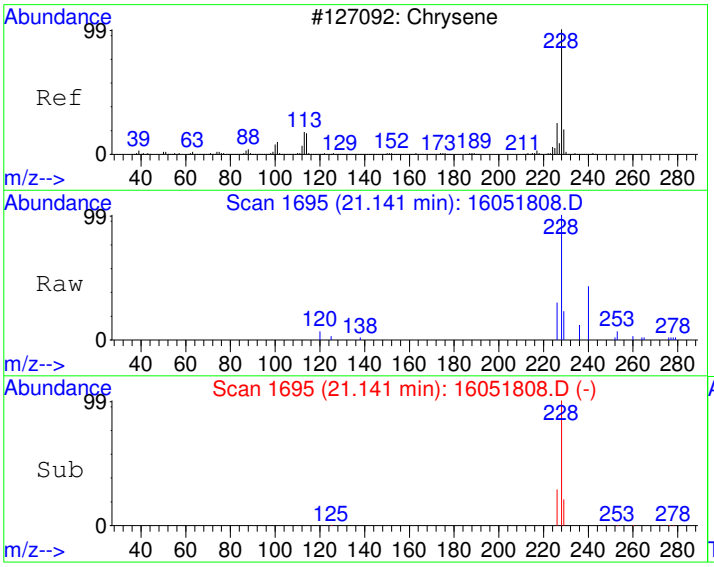


#18
Benzo[a]anthracene
Concen: 11.58 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:228 Resp: 4379

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	50.1
226	24.5	0.0	55.2

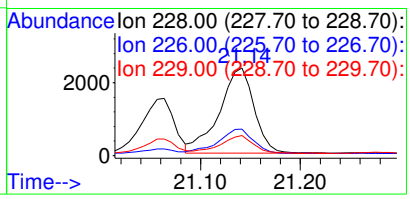


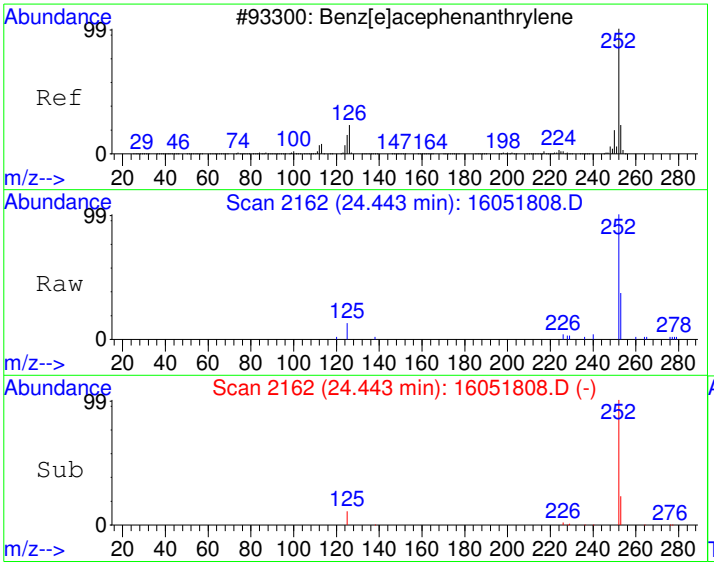


#19
Chrysene
Concen: 15.40 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:228 Resp: 5627

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	20.8	0.0	50.1

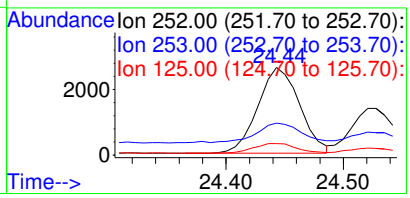


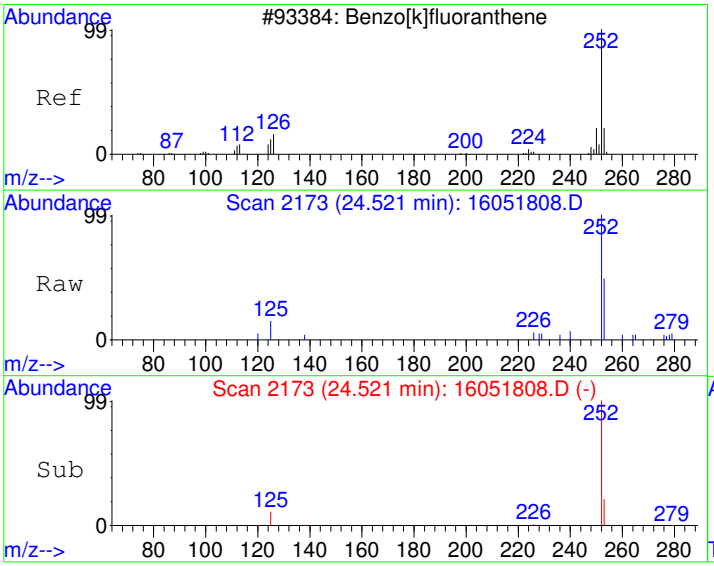


#21
Benzo[b]fluoranthene
Concen: 15.91 ug/kg
RT: 24.44 min Scan# 2162
Delta R.T. -0.04 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:252 Resp: 6489

Ion	Ratio	Lower	Upper
252	100		
253	22.9	0.0	52.2
125	11.0	0.0	41.0

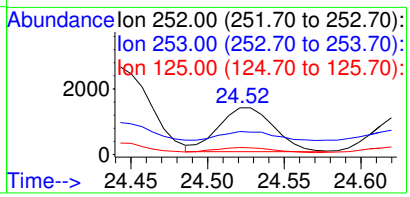


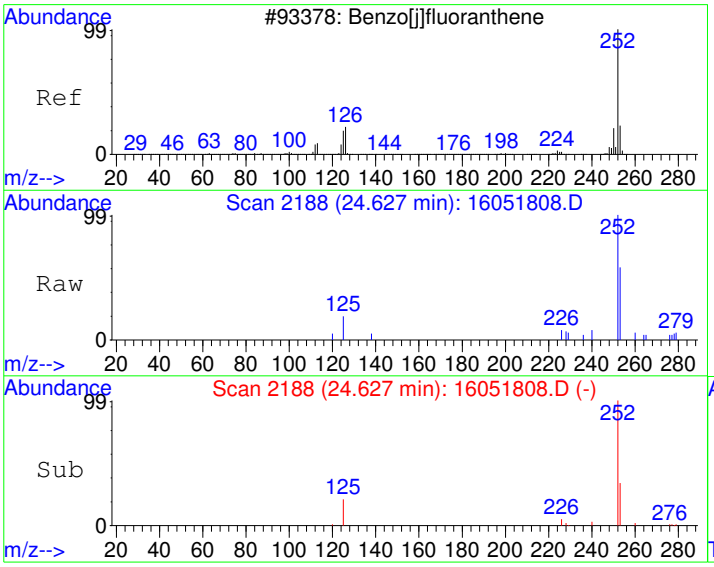


#22
Benzo[k]fluoranthene
Concen: 8.81 ug/kg
RT: 24.52 min Scan# 2173
Delta R.T. -0.05 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:252 Resp: 3370

Ion	Ratio	Lower	Upper
252	100		
253	20.2	2.1	42.1
125	10.9	0.0	31.3

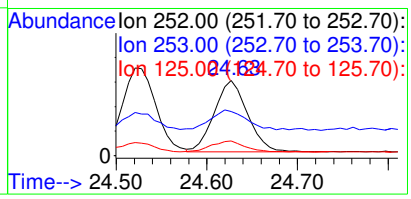


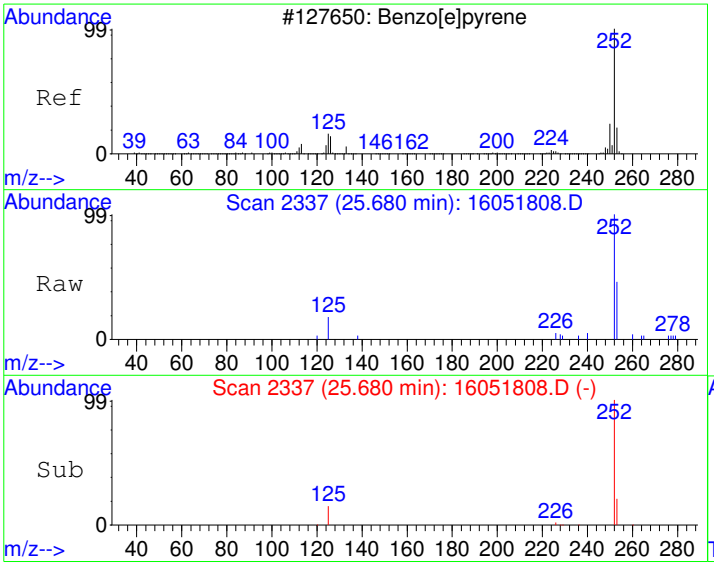


#23
Benzo(j)fluoranthene
Concen: 8.67 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:252 Resp: 2957

Ion	Ratio	Lower	Upper
252	100		
253	25.1	2.1	42.1
125	14.7	0.0	34.4

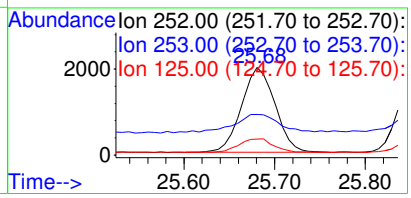


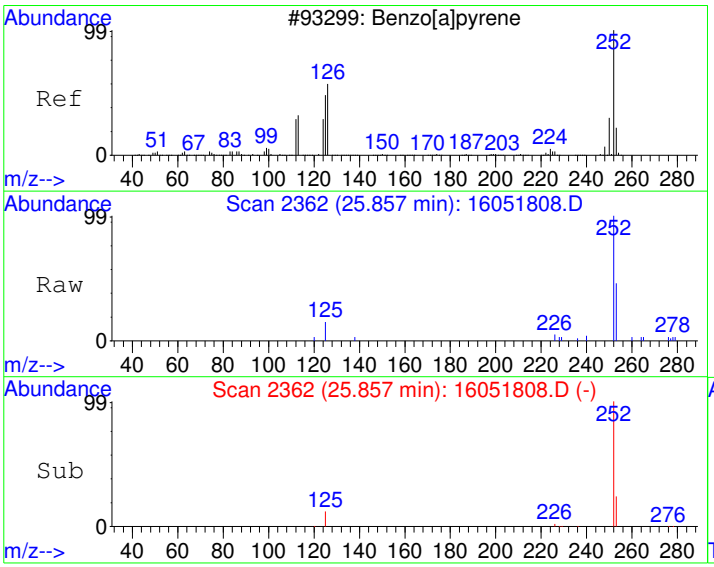


#24
Benzo[e]pyrene
Concen: 13.88 ug/kg
RT: 25.68 min Scan# 2337
Delta R.T. -0.04 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:252 Resp: 5072

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.2	42.2
125	15.6	0.0	36.1

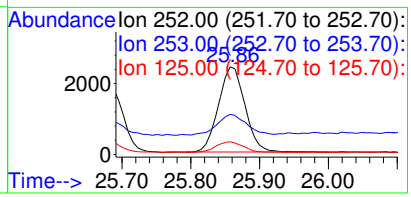


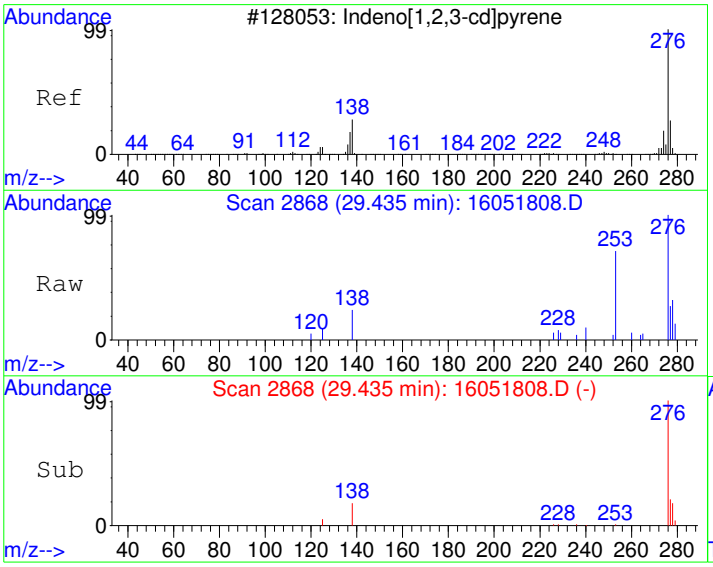


#25
Benzo[a]pyrene
Concen: 17.33 ug/kg
RT: 25.86 min Scan# 2362
Delta R.T. -0.04 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:252 Resp: 6471

Ion	Ratio	Lower	Upper
252	100		
253	24.1	1.9	41.9
125	12.5	0.0	31.7

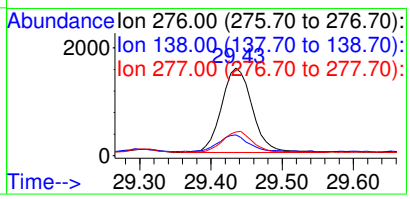


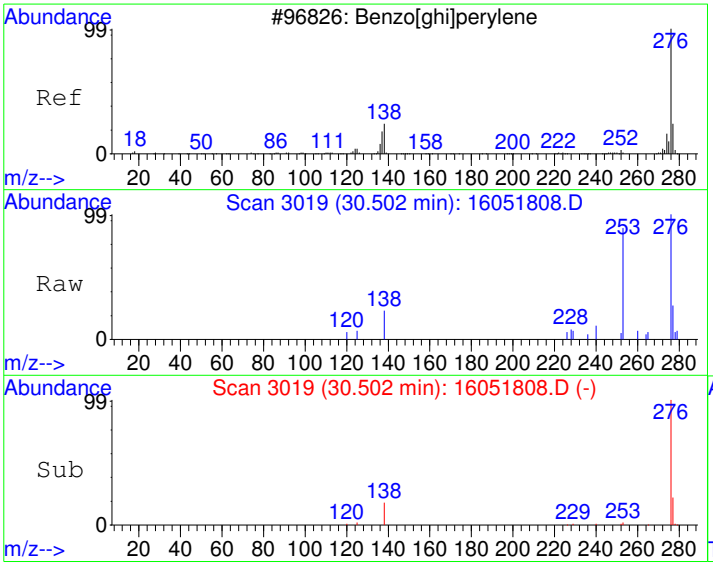


#27
Indeno[1,2,3-cd]pyrene
Concen: 11.71 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:276 Resp: 4750

Ion	Ratio	Lower	Upper
276	100		
138	19.5	6.7	46.7
277	23.9	5.8	45.8

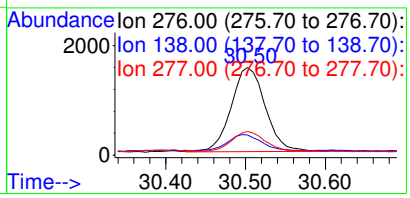




#28
Benzo[g,h,i]perylene
Concen: 14.48 ug/kg
RT: 30.50 min Scan# 3019
Delta R.T. -0.05 min
Lab File: 16051808.D
Acq: 18 May 2016 1:10 pm

Tgt Ion:276 Resp: 4581

Ion	Ratio	Lower	Upper
276	100		
138	18.6	0.0	39.1
277	23.5	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051809.D Vial: 9
Acq On : 18 May 2016 1:50 pm Operator:
Sample : 1605096-57A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:13 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

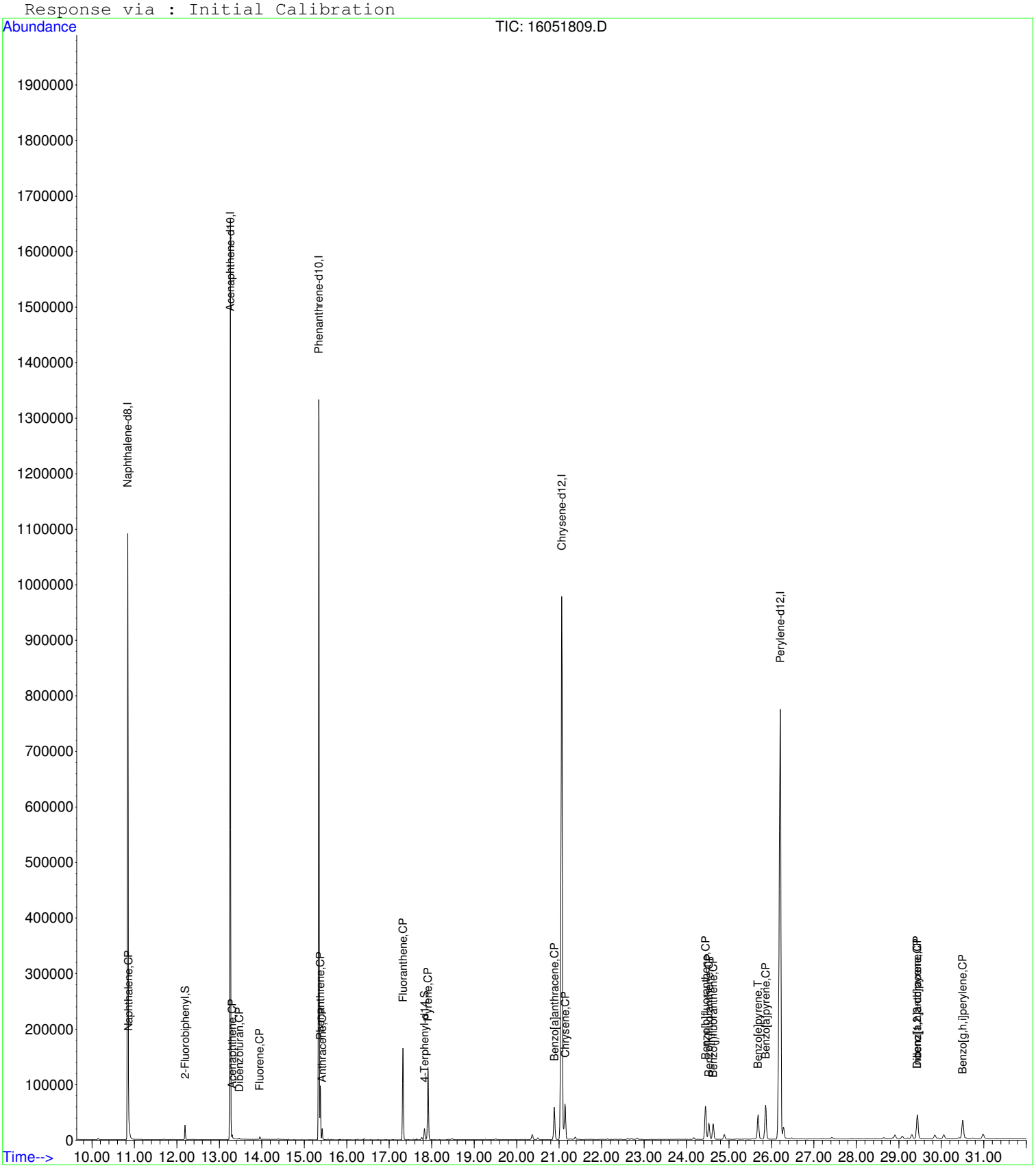
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1305244	4000.00	ug/kg	113
5) Acenaphthene-d10	13.26	164	854949	4000.00	ug/kg	74
11) Phenanthrene-d10	15.34	188	1453309	4000.00	ug/kg	71
17) Chrysene-d12	21.06	240	1607484	4000.00	ug/kg	71
20) Perylene-d12	26.21	264	1539556	4000.00	ug/kg	75
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20254	81.21	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
16) 4-Terphenyl-d14	17.83	244	25465	67.73	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.69%#		
Target Compounds						Qvalue
2) Naphthalene	10.87	128	1997	6.12	ug/kg	99
6) Dibenzofuran	13.47	168	1816	5.67	ug/kg	99
9) Acenaphthene	13.30	154	2282	9.99	ug/kg	98
10) Fluorene	13.95	166	2546	9.17	ug/kg	96
12) Phenanthrene	15.38	178	77892	203.80	ug/kg	99
13) Anthracene	15.42	178	17174	47.47	ug/kg	98
14) Fluoranthene	17.32	202	159182	402.48	ug/kg	99
15) Pyrene	17.91	202	137009	333.48	ug/kg	99
18) Benzo[a]anthracene	20.89	228	85674	227.50	ug/kg	99
19) Chrysene	21.14	228	99682	273.95	ug/kg	99
21) Benzo[b]fluoranthene	24.45	252	109557	270.00	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	50463	132.57	ug/kg	99
23) Benzo(j)fluoranthene	24.63	252	47560	140.26	ug/kg	91
24) Benzo[e]pyrene	25.69	252	79763	219.50	ug/kg	100
25) Benzo[a]pyrene	25.86	252	110822	298.43	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	15927	47.09	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.43	276	70394	174.48	ug/kg	92
28) Benzo[g,h,i]perylene	30.50	276	65528	208.29	ug/kg	99

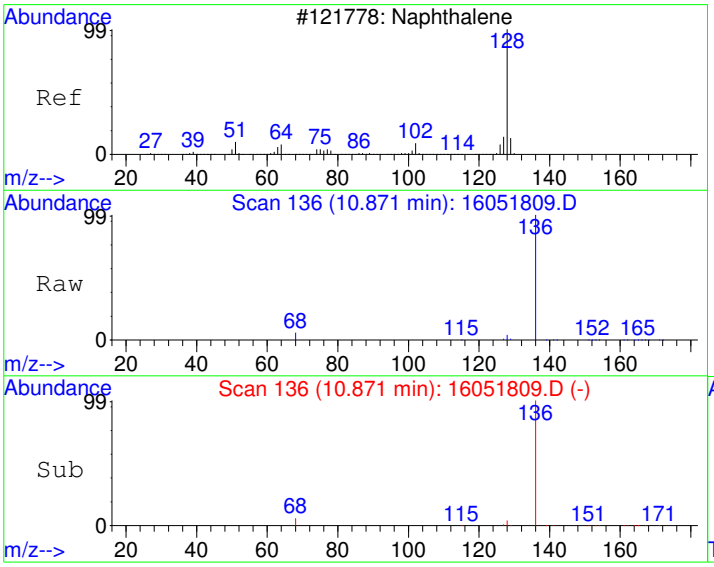
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051809.D Vial: 9
Acq On : 18 May 2016 1:50 pm Operator:
Sample : 1605096-57A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:13 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

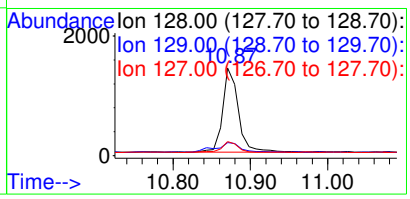


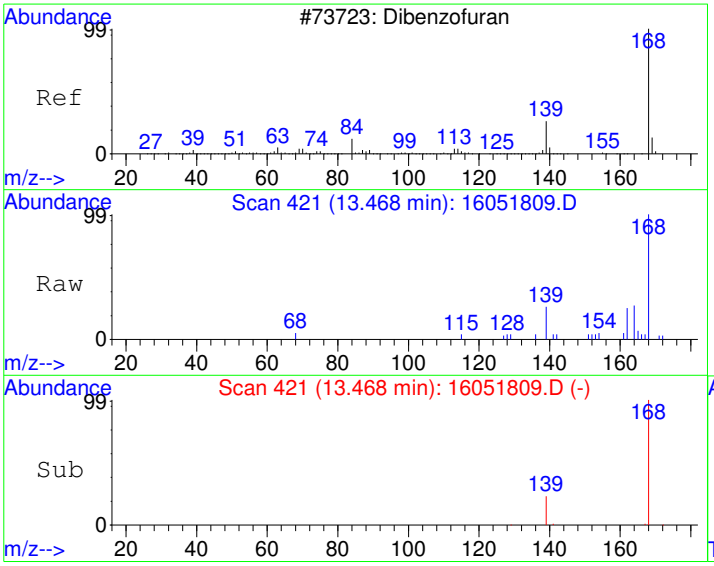


#2
Naphthalene
Concen: 6.12 ug/kg
RT: 10.87 min Scan# 136
Delta R.T. -0.01 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:128 Resp: 1997

Ion	Ratio	Lower	Upper
128	100		
129	11.6	0.0	41.1
127	12.9	0.0	42.4

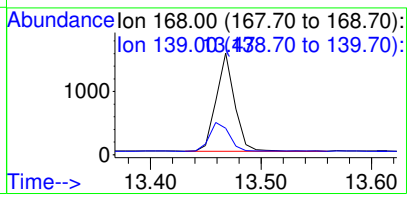


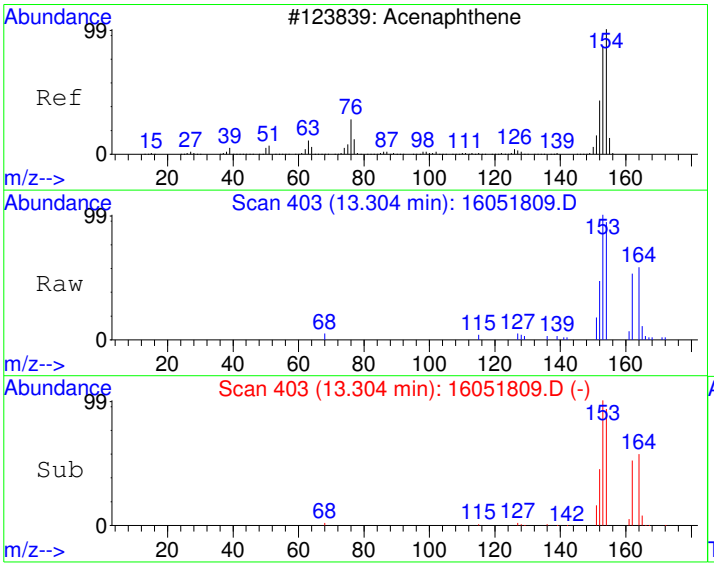


#6
Dibenzofuran
Concen: 5.67 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:168 Resp: 1816

Ion	Ratio	Lower	Upper
168	100		
139	33.1	27.0	40.4

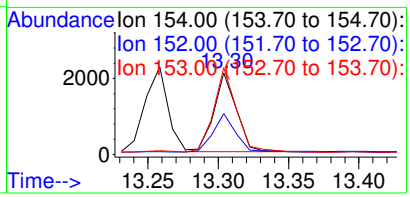


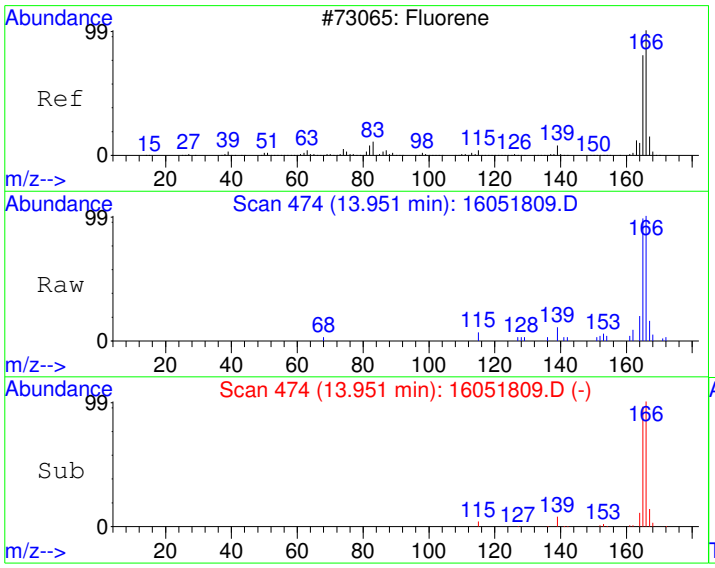


#9
Acenaphthene
Concen: 9.99 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:154 Resp: 2282

Ion	Ratio	Lower	Upper
154	100		
152	48.9	18.9	78.9
153	107.8	75.2	135.2

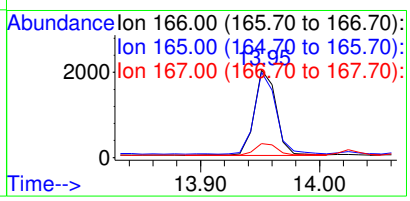


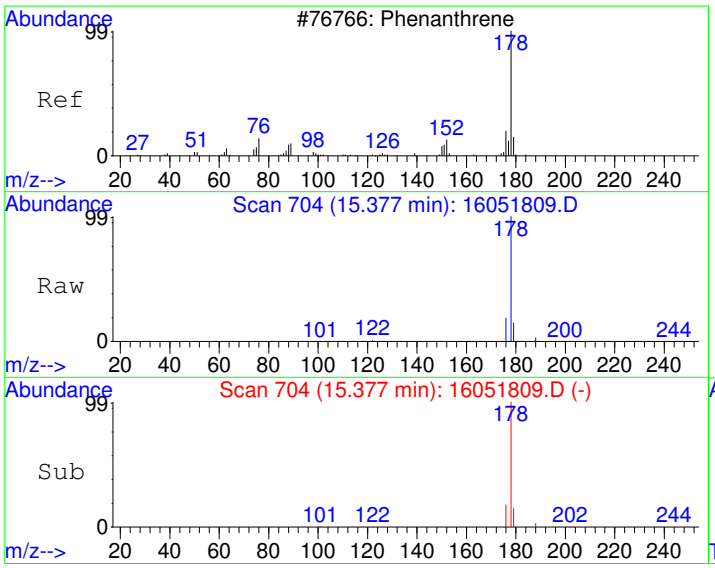


#10
Fluorene
Concen: 9.17 ug/kg
RT: 13.95 min Scan# 474
Delta R.T. -0.02 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:166 Resp: 2546

Ion	Ratio	Lower	Upper
166	100		
165	96.0	61.8	121.8
167	13.6	0.0	43.6

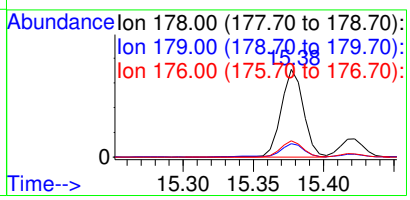


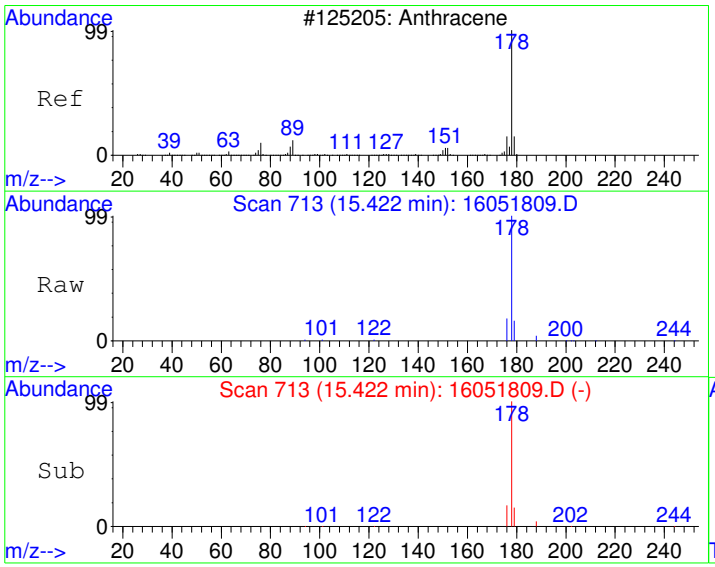


#12
Phenanthrene
Concen: 203.80 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:178 Resp: 77892

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

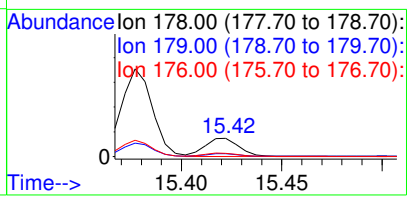


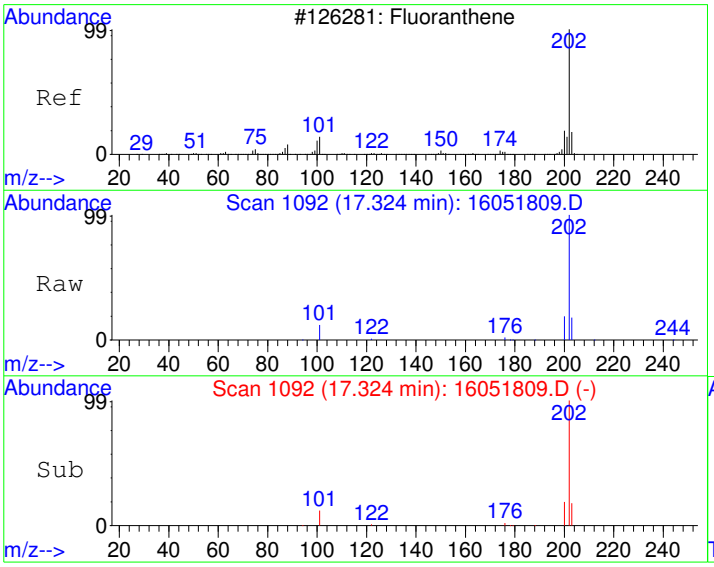


#13
Anthracene
Concen: 47.47 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:178 Resp: 17174

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.4	0.0	48.2

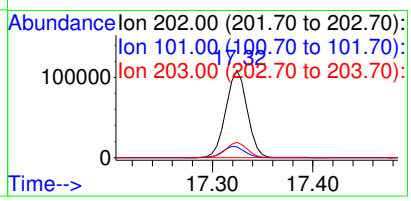


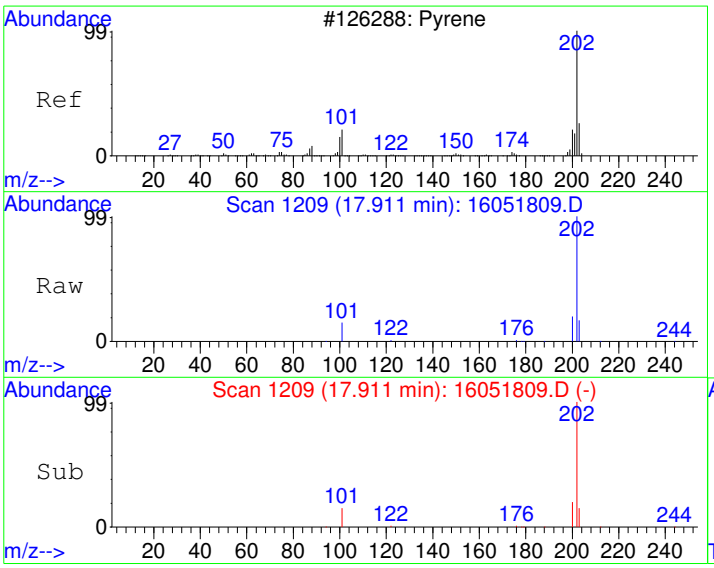


#14
Fluoranthene
Concen: 402.48 ug/kg
RT: 17.32 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:202 Resp: 159182

Ion	Ratio	Lower	Upper
202	100		
101	12.4	0.0	43.0
203	17.6	0.0	47.9

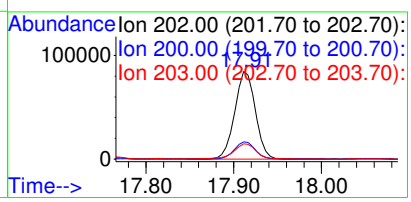


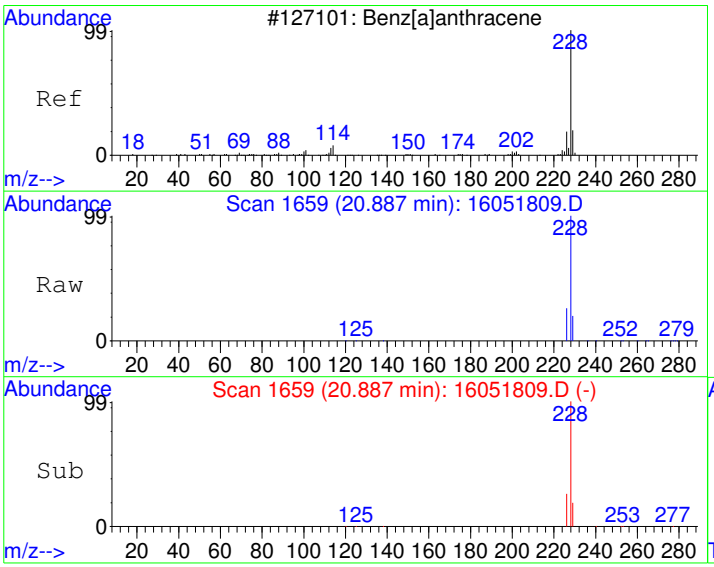


#15
Pyrene
Concen: 333.48 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:202 Resp: 137009

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.2	0.0	48.0

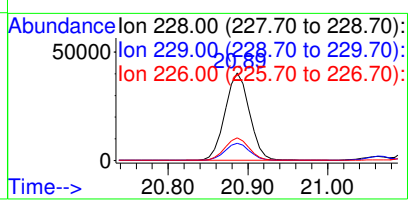


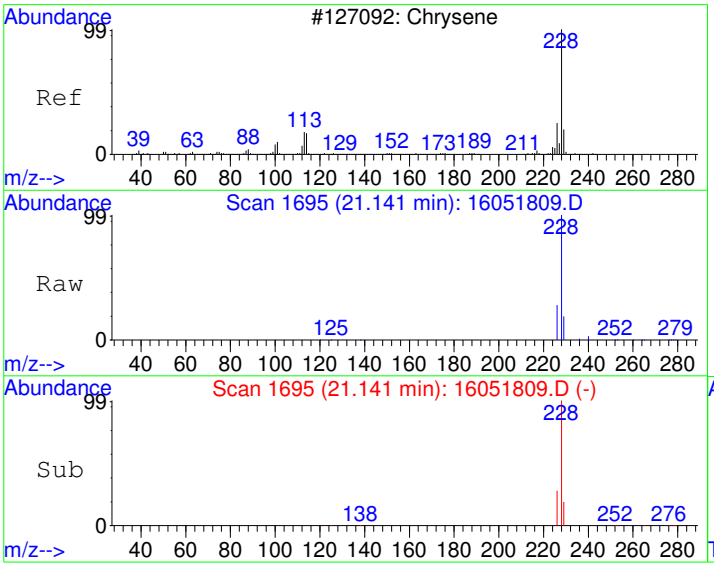


#18
Benzo[a]anthracene
Concen: 227.50 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:228 Resp: 85674

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.1
226	25.7	0.0	55.2

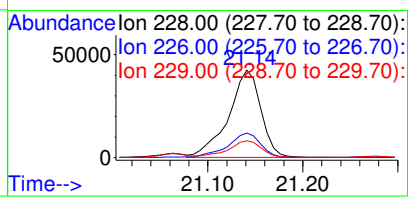


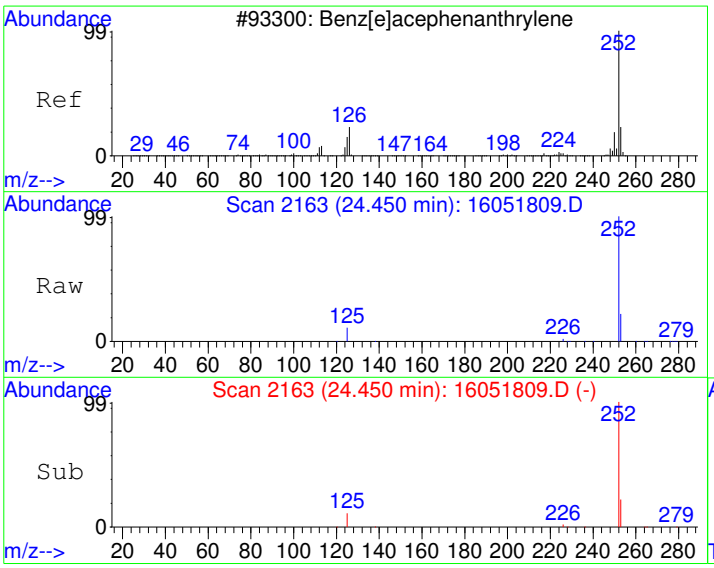


#19
Chrysene
Concen: 273.95 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:228 Resp: 99682

Ion	Ratio	Lower	Upper
228	100		
226	28.0	0.0	58.1
229	19.3	0.0	50.1

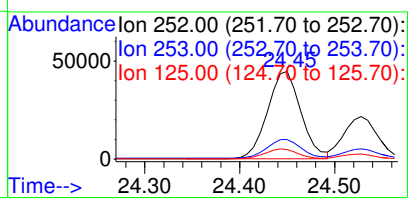


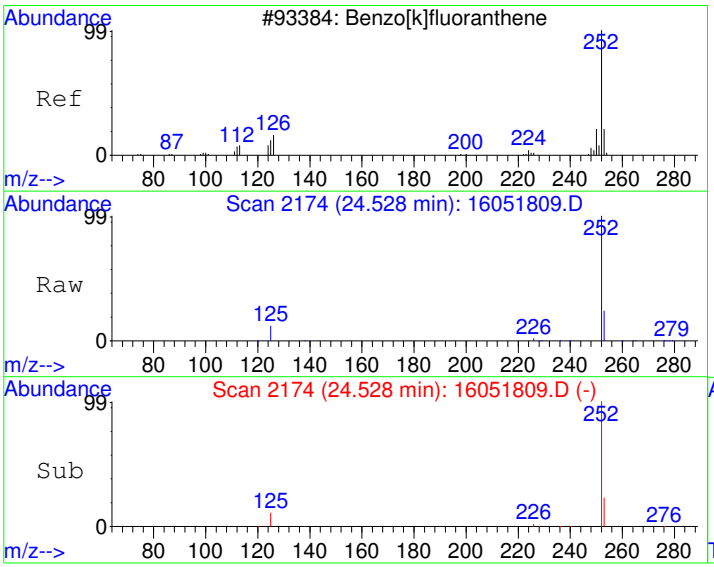


#21
Benzo[b]fluoranthene
Concen: 270.00 ug/kg
RT: 24.45 min Scan# 2163
Delta R.T. -0.04 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:252 Resp: 109557

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	52.2
125	10.6	0.0	41.0

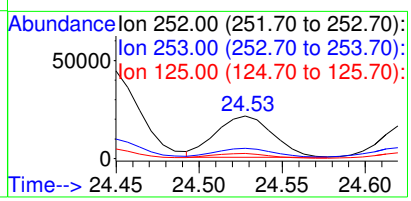


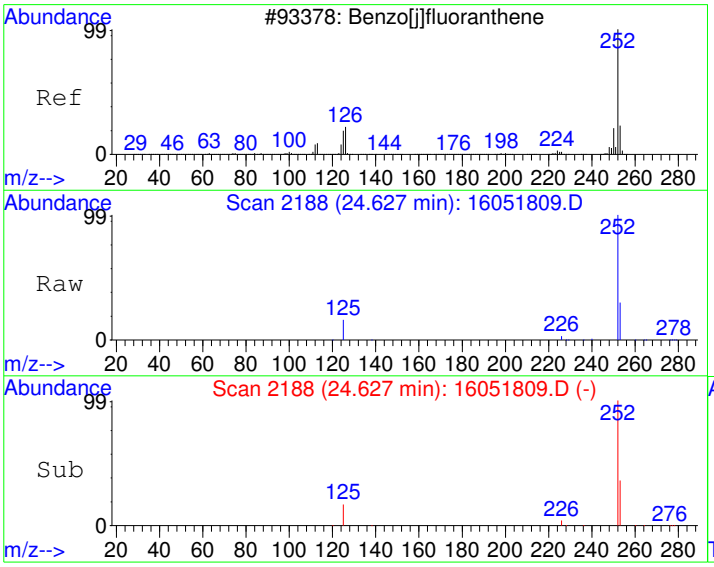


#22
Benzo[k]fluoranthene
Concen: 132.57 ug/kg
RT: 24.53 min Scan# 2174
Delta R.T. -0.04 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:252 Resp: 50463

Ion	Ratio	Lower	Upper
252	100		
253	21.3	2.1	42.1
125	11.4	0.0	31.3

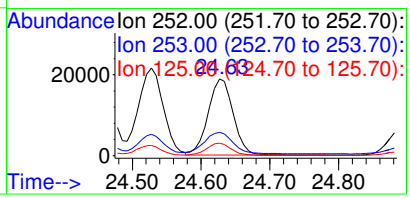


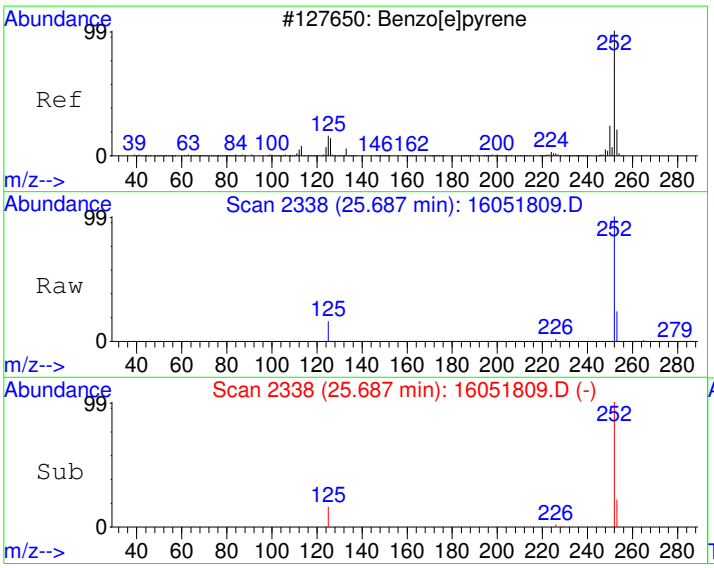


#23
Benzo(j)fluoranthene
Concen: 140.26 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:252 Resp: 47560

Ion	Ratio	Lower	Upper
252	100		
253	28.3	2.1	42.1
125	15.7	0.0	34.4

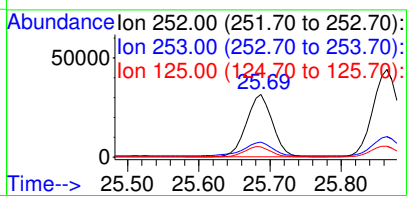


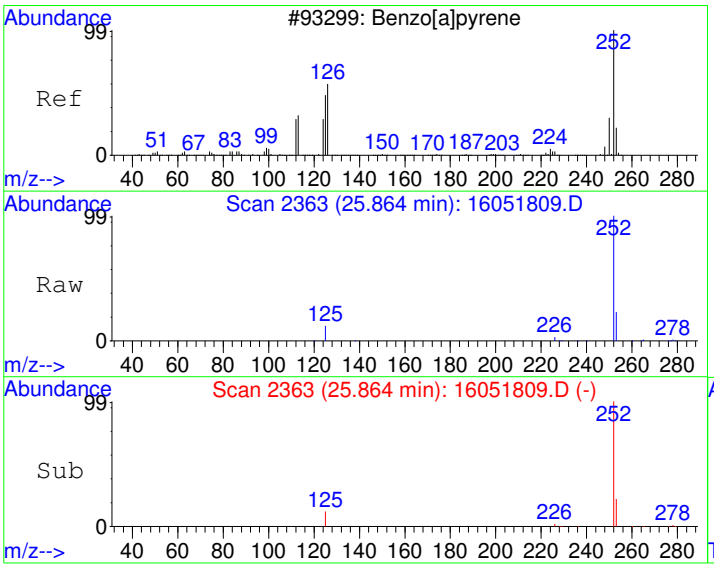


#24
Benzo[e]pyrene
Concen: 219.50 ug/kg
RT: 25.69 min Scan# 2338
Delta R.T. -0.04 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:252 Resp: 79763

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	16.2	0.0	36.1

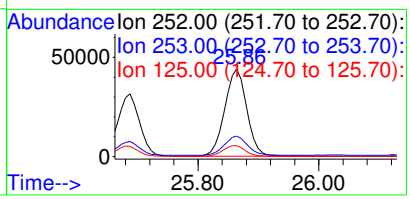


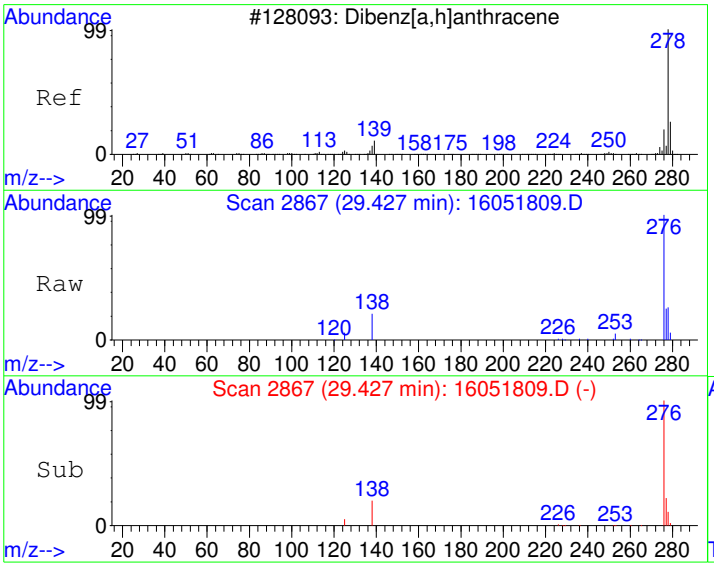


#25
Benzo[a]pyrene
Concen: 298.43 ug/kg
RT: 25.86 min Scan# 2363
Delta R.T. -0.04 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:252 Resp: 110822

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	12.3	0.0	31.7

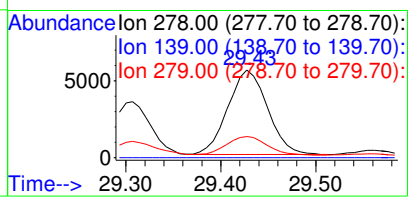


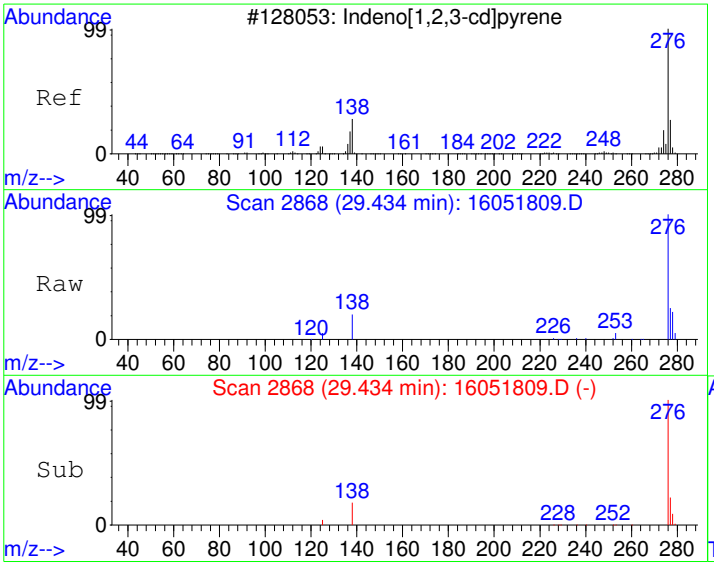


#26
Dibenz[a,h]anthracene
Concen: 47.09 ug/kg
RT: 29.43 min Scan# 2867
Delta R.T. -0.05 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:278 Resp: 15927

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.8	4.2	44.2

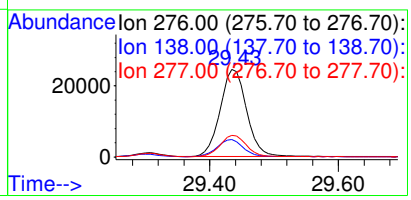


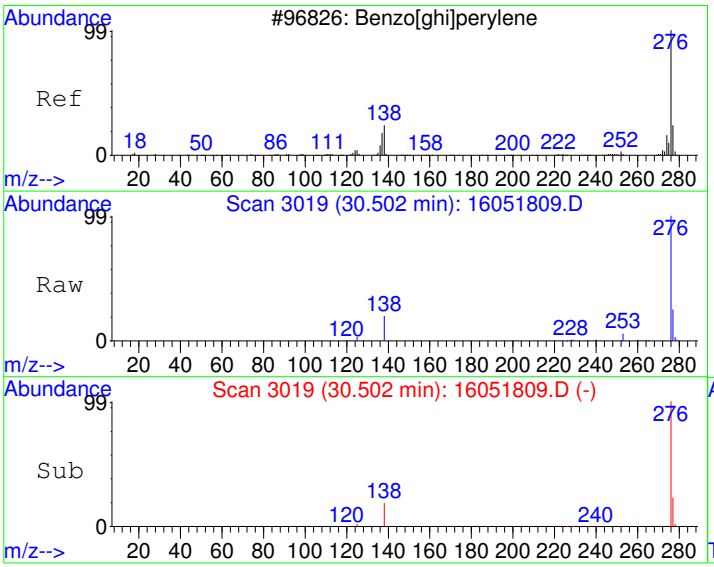


#27
Indeno[1,2,3-cd]pyrene
Concen: 174.48 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:276 Resp: 70394

Ion	Ratio	Lower	Upper
276	100		
138	19.6	6.7	46.7
277	24.4	5.8	45.8

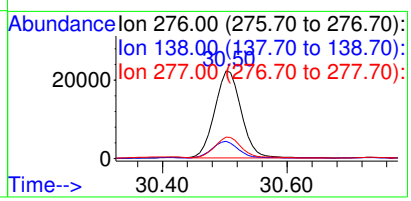




#28
Benzo[g,h,i]perylene
Concen: 208.29 ug/kg
RT: 30.50 min Scan# 3019
Delta R.T. -0.05 min
Lab File: 16051809.D
Acq: 18 May 2016 1:50 pm

Tgt Ion:276 Resp: 65528

Ion	Ratio	Lower	Upper
276	100		
138	19.3	0.0	39.1
277	24.3	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051810.D Vial: 10
Acq On : 18 May 2016 2:29 pm Operator:
Sample : 1605096-58A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:13 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

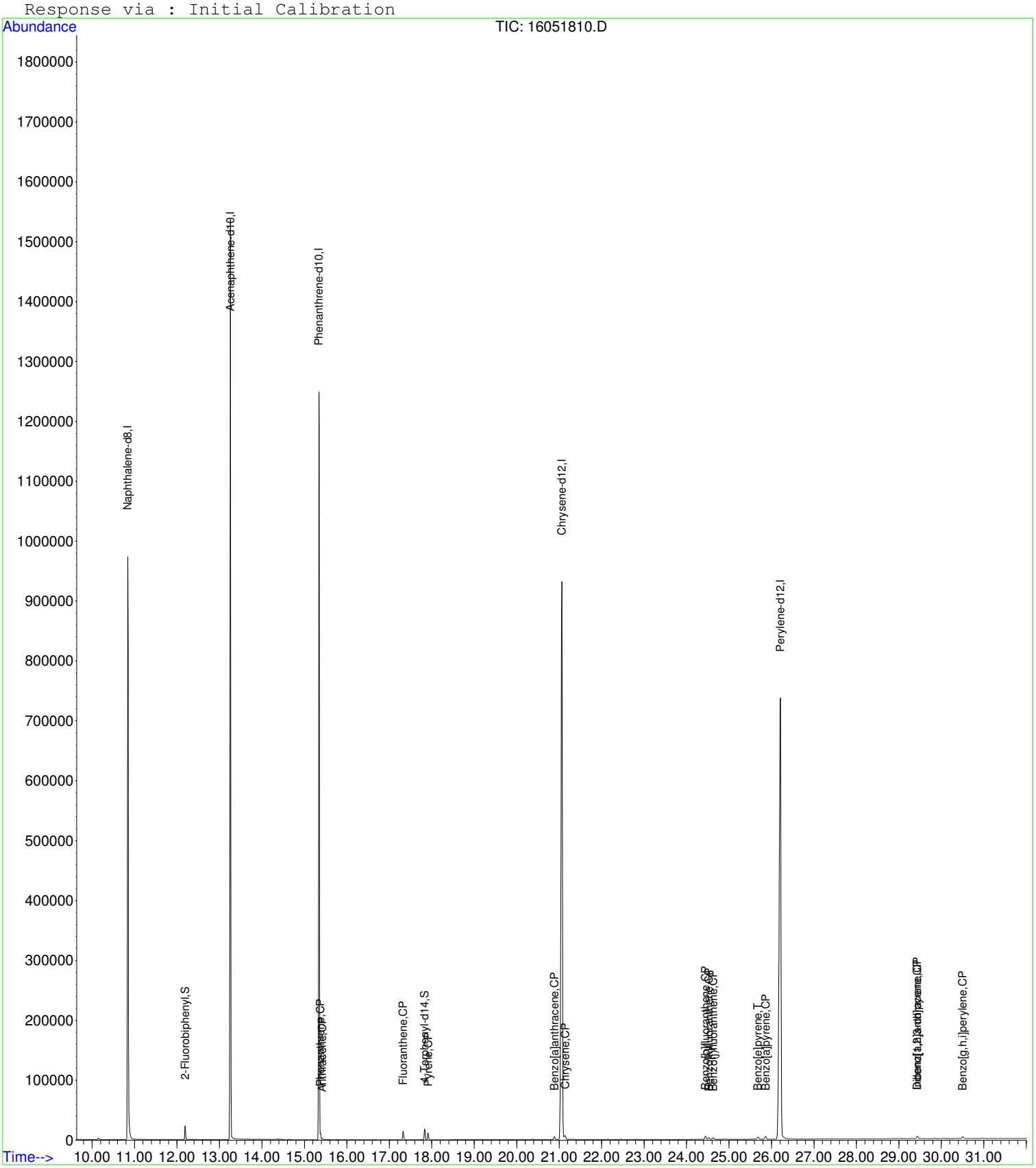
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1271981	4000.00	ug/kg	110
5) Acenaphthene-d10	13.26	164	815362	4000.00	ug/kg	71
11) Phenanthrene-d10	15.34	188	1361870	4000.00	ug/kg	67
17) Chrysene-d12	21.06	240	1546163	4000.00	ug/kg	68
20) Perylene-d12	26.21	264	1480928	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19038	80.04	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.83	244	23721	67.32	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.68%#		
Target Compounds						Qvalue
12) Phenanthrene	15.38	178	7278	20.32	ug/kg	99
13) Anthracene	15.42	178	1761	5.19	ug/kg	97
14) Fluoranthene	17.32	202	14552	39.26	ug/kg	98
15) Pyrene	17.91	202	12596	32.72	ug/kg	99
18) Benzo[a]anthracene	20.89	228	7839	21.64	ug/kg	98
19) Chrysene	21.14	228	9244	26.41	ug/kg	99
21) Benzo[b]fluoranthene	24.44	252	9645	24.71	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	4937	13.48	ug/kg	97
23) Benzo(j)fluoranthene	24.63	252	4548	13.94	ug/kg	93
24) Benzo[e]pyrene	25.69	252	7286	20.84	ug/kg	98
25) Benzo[a]pyrene	25.86	252	9406	26.33	ug/kg	100
26) Dibenz[a,h]anthracene	29.43	278	1886	5.80	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.43	276	6656	17.15	ug/kg	91
28) Benzo[g,h,i]perylene	30.50	276	5998	19.82	ug/kg	99

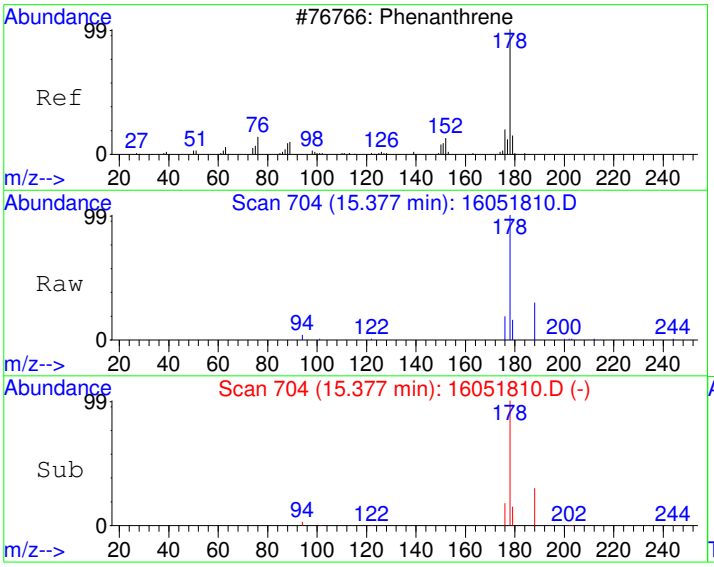
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051810.D Vial: 10
Acq On : 18 May 2016 2:29 pm Operator:
Sample : 1605096-58A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:13 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

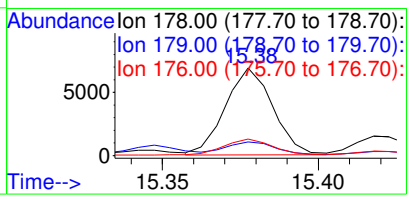


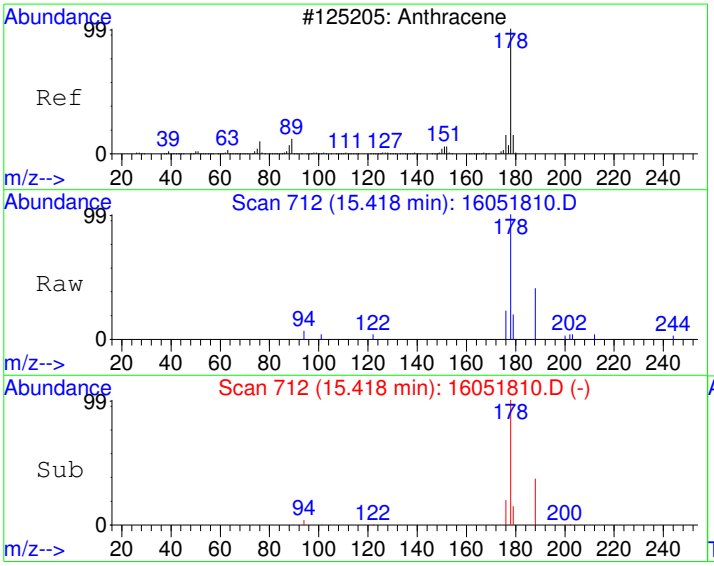


#12
Phenanthrene
Concen: 20.32 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:178 Resp: 7278

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.9
176	18.3	0.0	48.5

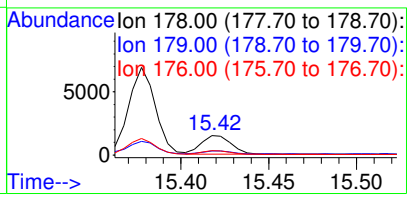


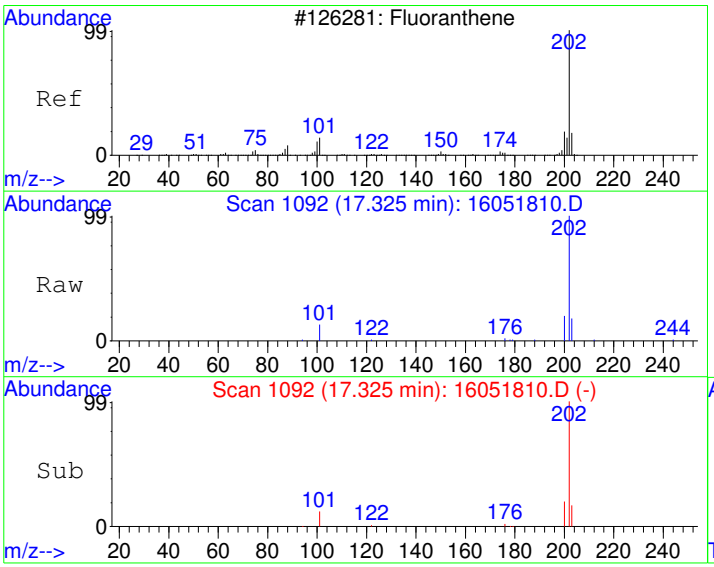


#13
Anthracene
Concen: 5.19 ug/kg
RT: 15.42 min Scan# 712
Delta R.T. -0.02 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:178 Resp: 1761

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	20.6	0.0	48.2

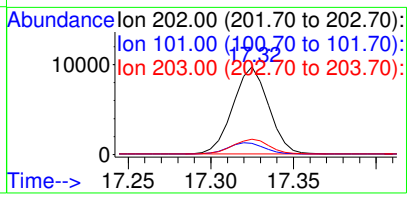


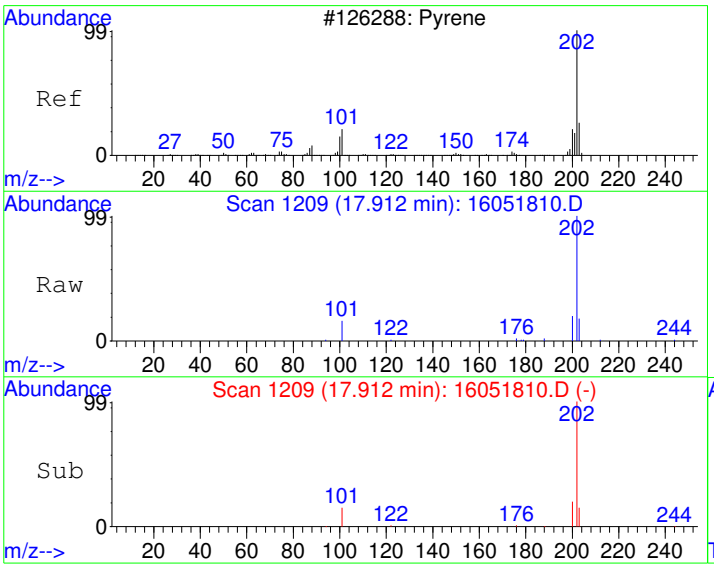


#14
Fluoranthene
Concen: 39.26 ug/kg
RT: 17.32 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:202 Resp: 14552

Ion	Ratio	Lower	Upper
202	100		
101	12.1	0.0	43.0
203	17.0	0.0	47.9

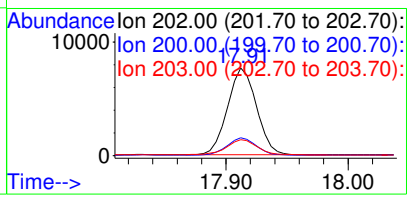


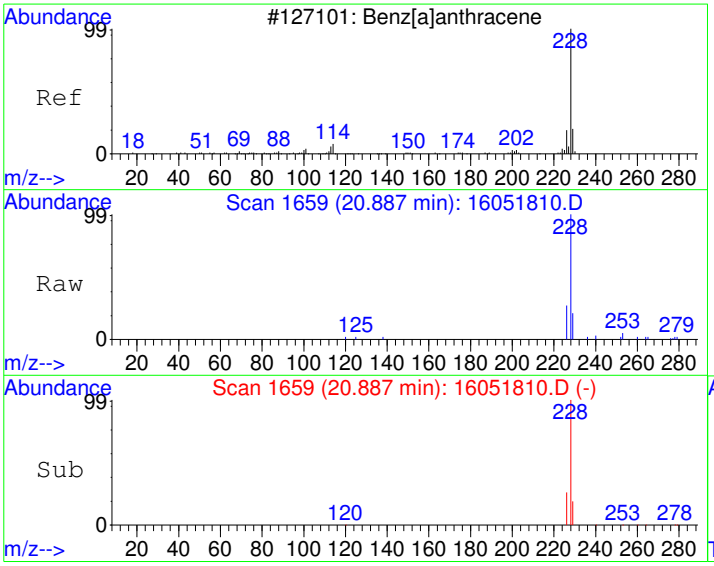


#15
Pyrene
Concen: 32.72 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:202 Resp: 12596

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.5	0.0	48.0

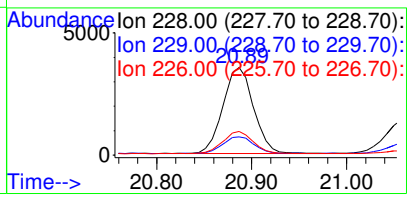


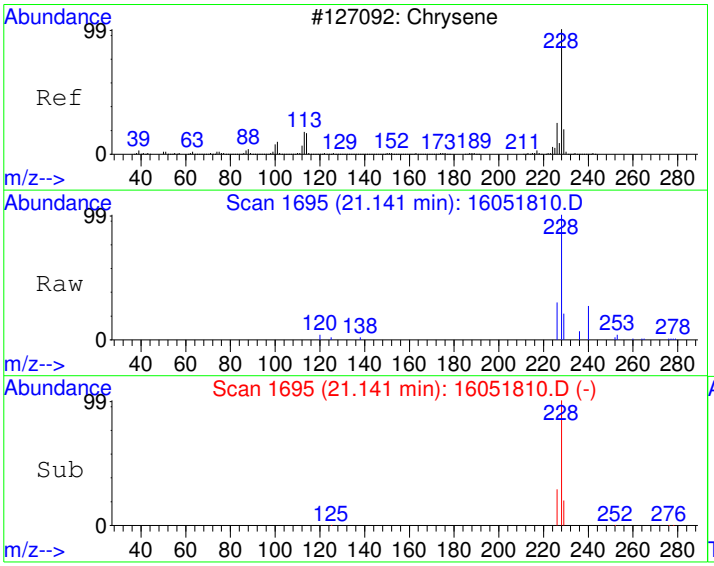


#18
Benzo[a]anthracene
Concen: 21.64 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:228 Resp: 7839

Ion	Ratio	Lower	Upper
228	100		
229	19.2	0.0	50.1
226	25.8	0.0	55.2

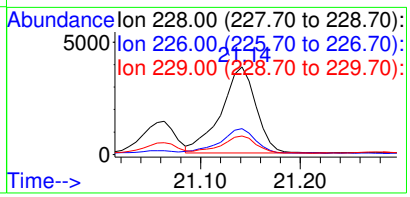


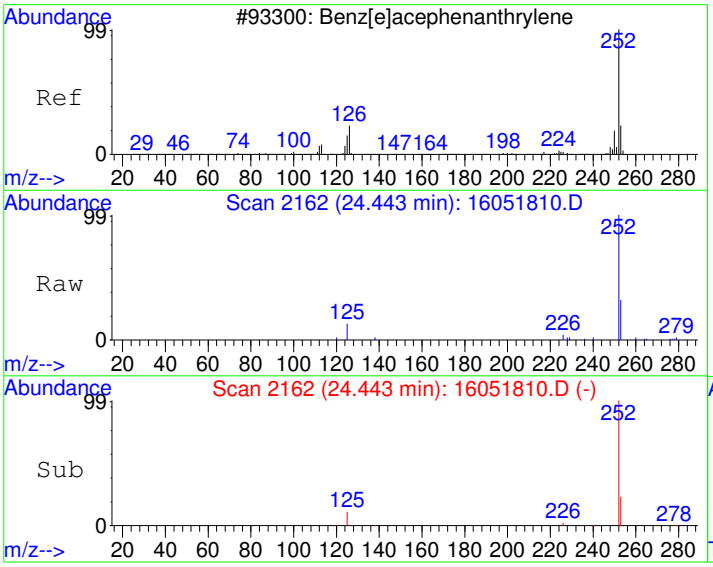


#19
Chrysene
Concen: 26.41 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:228 Resp: 9244

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	19.6	0.0	50.1

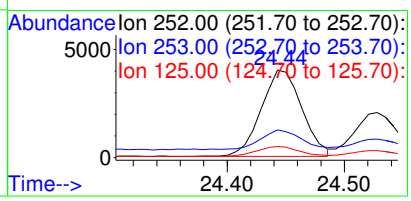


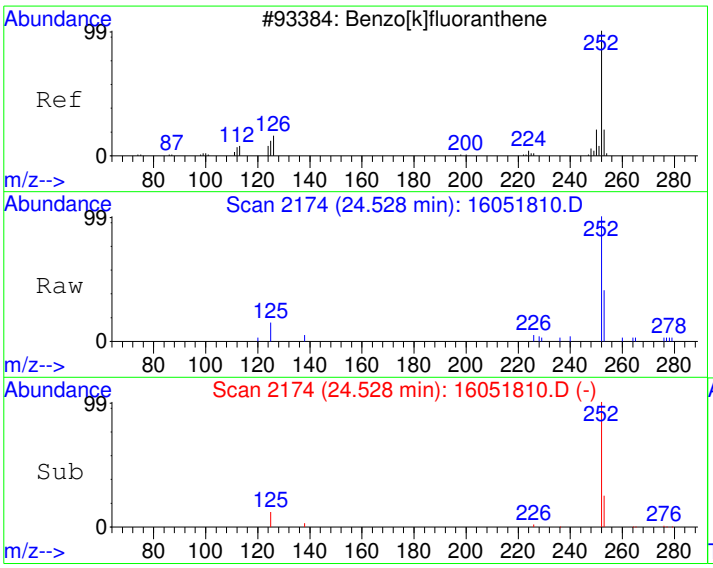


#21
Benzo[b]fluoranthene
Concen: 24.71 ug/kg
RT: 24.44 min Scan# 2162
Delta R.T. -0.04 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:252 Resp: 9645

Ion	Ratio	Lower	Upper
252	100		
253	22.6	0.0	52.2
125	11.3	0.0	41.0

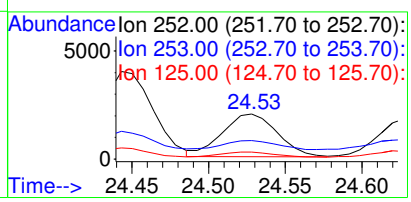


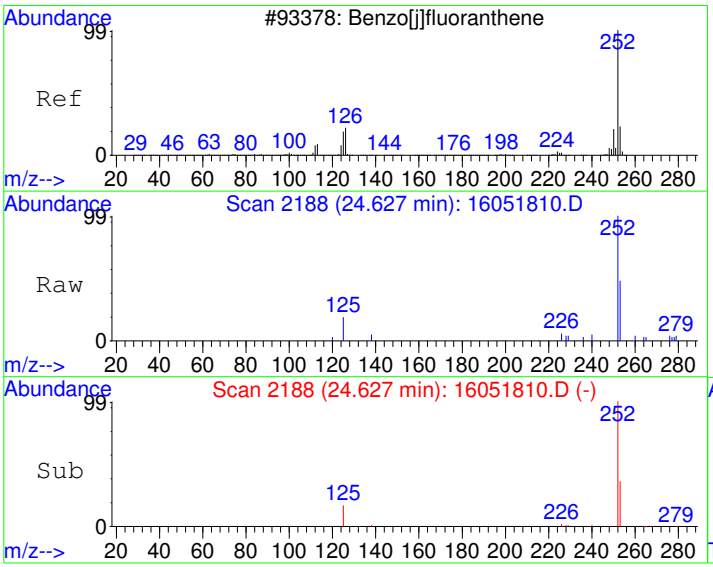


#22
Benzo[k]fluoranthene
Concen: 13.48 ug/kg
RT: 24.53 min Scan# 2174
Delta R.T. -0.04 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:252 Resp: 4937

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.1	42.1
125	11.7	0.0	31.3

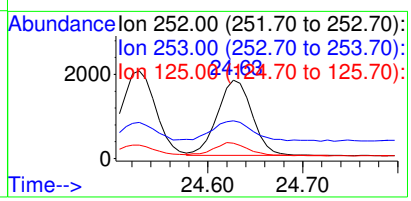


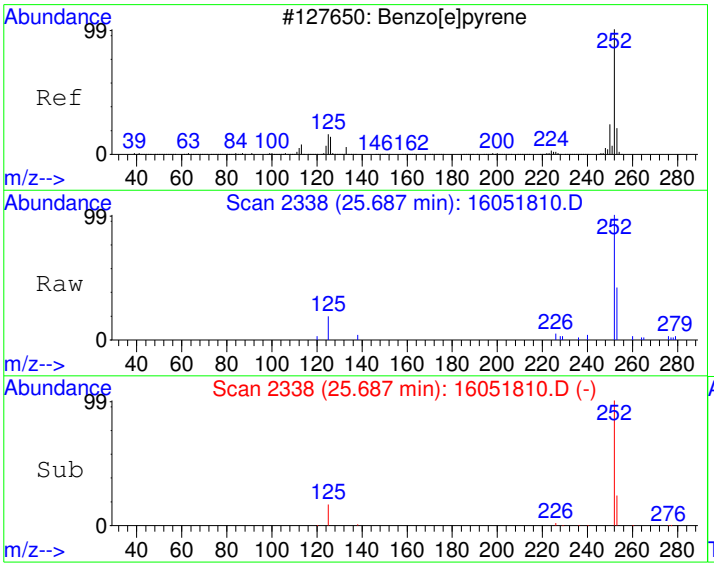


#23
Benzo(j)fluoranthene
Concen: 13.94 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:252 Resp: 4548

Ion	Ratio	Lower	Upper
252	100		
253	25.8	2.1	42.1
125	16.8	0.0	34.4

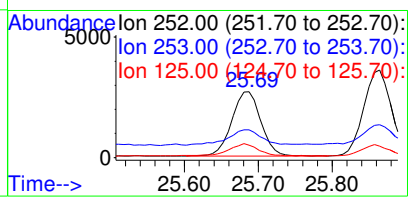


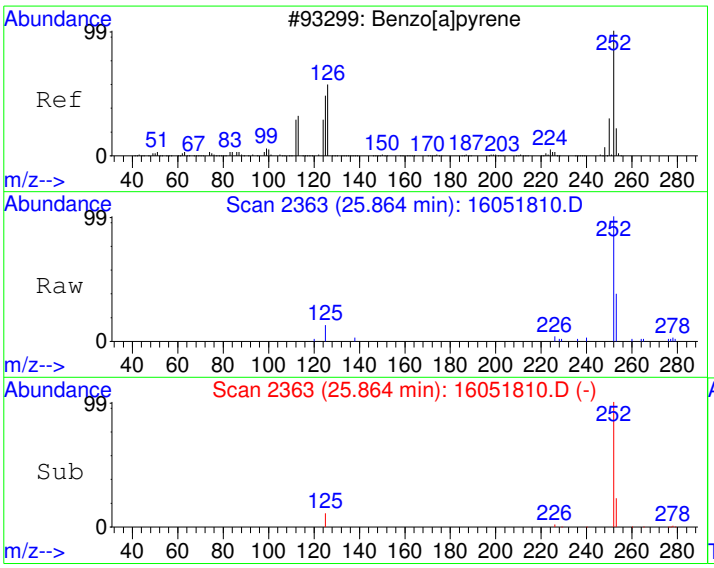


#24
Benzo[e]pyrene
Concen: 20.84 ug/kg
RT: 25.69 min Scan# 2338
Delta R.T. -0.04 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:252 Resp: 7286

Ion	Ratio	Lower	Upper
252	100		
253	23.5	2.2	42.2
125	16.5	0.0	36.1

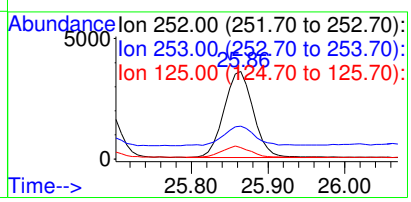


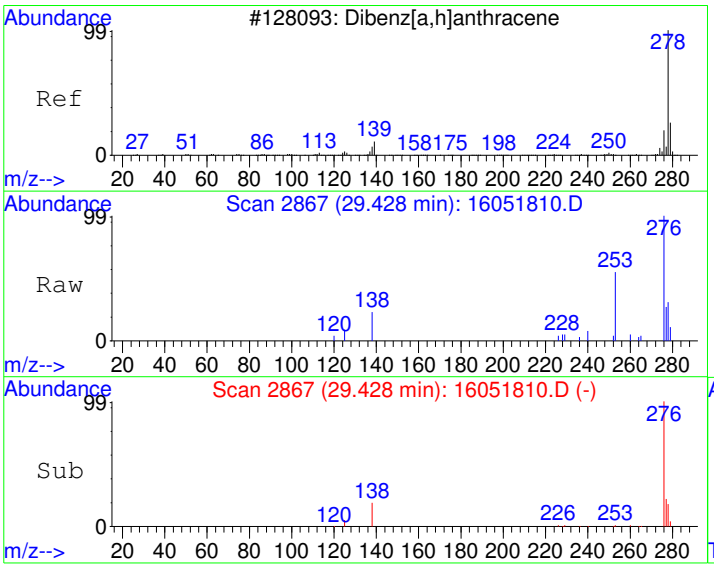


#25
Benzo[a]pyrene
Concen: 26.33 ug/kg
RT: 25.86 min Scan# 2363
Delta R.T. -0.04 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:252 Resp: 9406

Ion	Ratio	Lower	Upper
252	100		
253	22.0	1.9	41.9
125	11.3	0.0	31.7

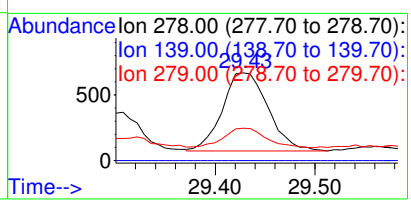


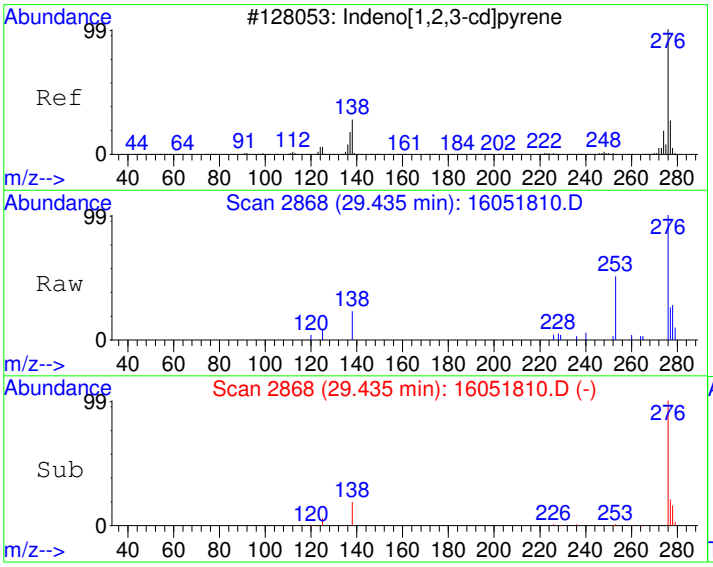


#26
Dibenz[a,h]anthracene
Concen: 5.80 ug/kg
RT: 29.43 min Scan# 2867
Delta R.T. -0.05 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:278 Resp: 1886

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	25.0	4.2	44.2

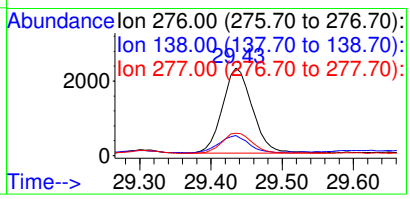


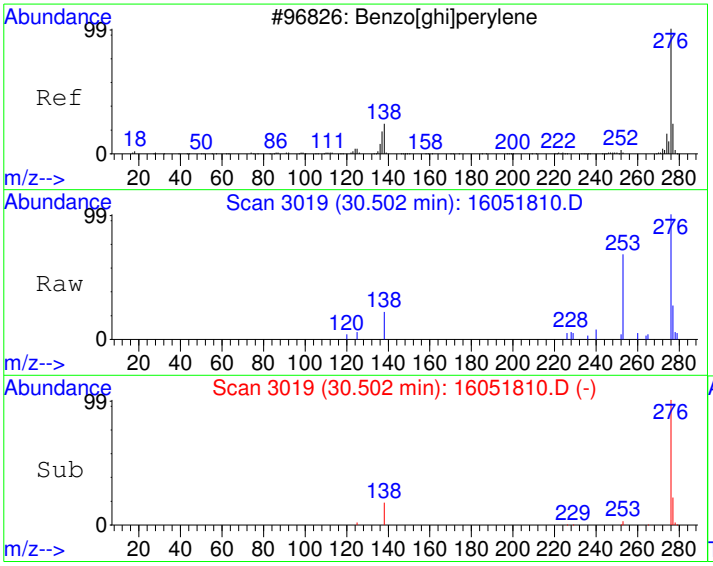


#27
Indeno[1,2,3-cd]pyrene
Concen: 17.15 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:276 Resp: 6656

Ion	Ratio	Lower	Upper
276	100		
138	20.0	6.7	46.7
277	23.3	5.8	45.8

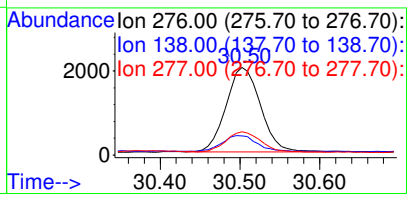




#28
Benzo[g,h,i]perylene
Concen: 19.82 ug/kg
RT: 30.50 min Scan# 3019
Delta R.T. -0.05 min
Lab File: 16051810.D
Acq: 18 May 2016 2:29 pm

Tgt Ion:276 Resp: 5998

Ion	Ratio	Lower	Upper
276	100		
138	18.3	0.0	39.1
277	24.1	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051811.D Vial: 11
Acq On : 18 May 2016 3:09 pm Operator:
Sample : 1605096-63A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:13 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

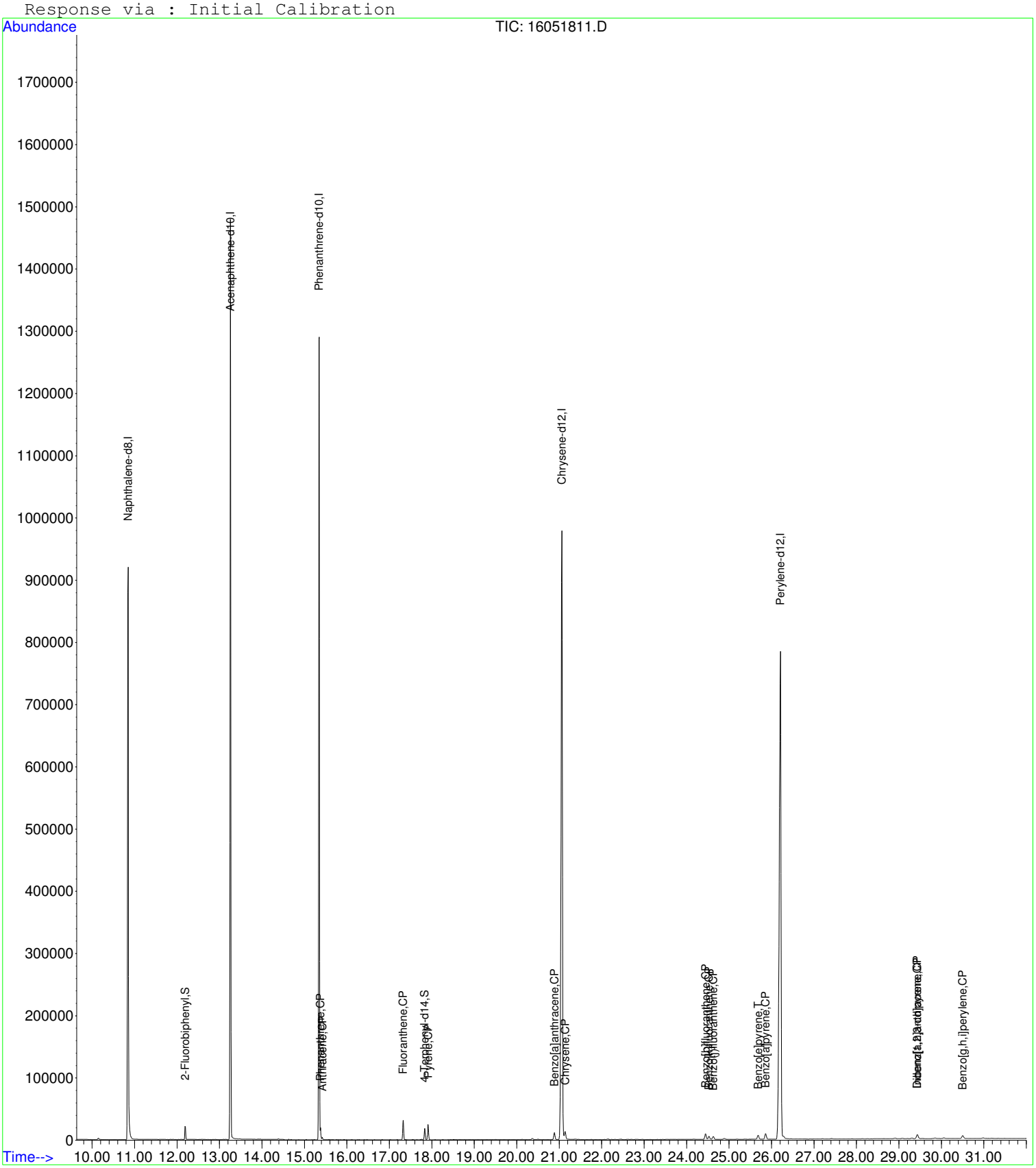
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1264767	4000.00	ug/kg	109
5) Acenaphthene-d10	13.25	164	846613	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1410634	4000.00	ug/kg	69
17) Chrysene-d12	21.06	240	1590452	4000.00	ug/kg	70
20) Perylene-d12	26.21	264	1525250	4000.00	ug/kg	74
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19390	78.51	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.96%#		
16) 4-Terphenyl-d14	17.83	244	23475	64.32	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.61%#		
Target Compounds						Qvalue
12) Phenanthrene	15.38	178	14635	39.45	ug/kg	99
13) Anthracene	15.42	178	3072	8.75	ug/kg	99
14) Fluoranthene	17.32	202	31026	80.82	ug/kg	99
15) Pyrene	17.91	202	26581	66.66	ug/kg	100
18) Benzo[a]anthracene	20.89	228	16225	43.54	ug/kg	98
19) Chrysene	21.14	228	18167	50.46	ug/kg	99
21) Benzo[b]fluoranthene	24.45	252	16745	41.65	ug/kg	98
22) Benzo[k]fluoranthene	24.53	252	8797	23.33	ug/kg	97
23) Benzo(j)fluoranthene	24.63	252	8145	24.25	ug/kg	90
24) Benzo[e]pyrene	25.69	252	12139	33.72	ug/kg	99
25) Benzo[a]pyrene	25.86	252	16583	45.08	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	2918	8.71	ug/kg	94
27) Indeno[1,2,3-cd]pyrene	29.43	276	10648	26.64	ug/kg	92
28) Benzo[g,h,i]perylene	30.50	276	9411	30.19	ug/kg	99

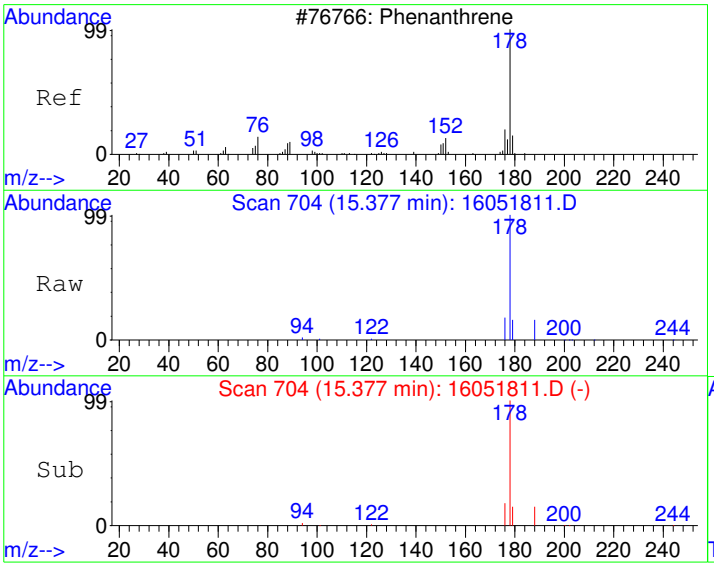
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051811.D Vial: 11
Acq On : 18 May 2016 3:09 pm Operator:
Sample : 1605096-63A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:13 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

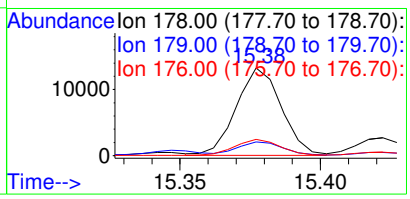


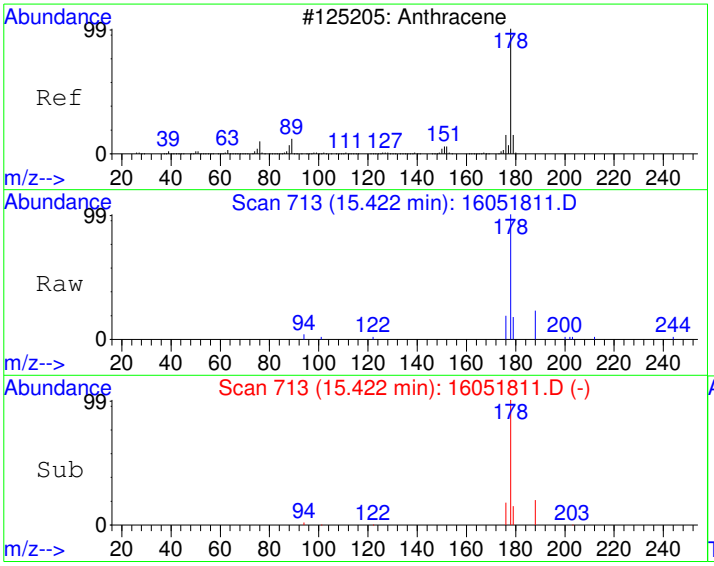


#12
Phenanthrene
Concen: 39.45 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:178 Resp: 14635

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.3	0.0	48.5

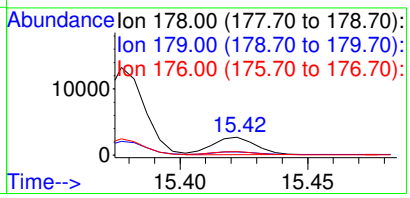


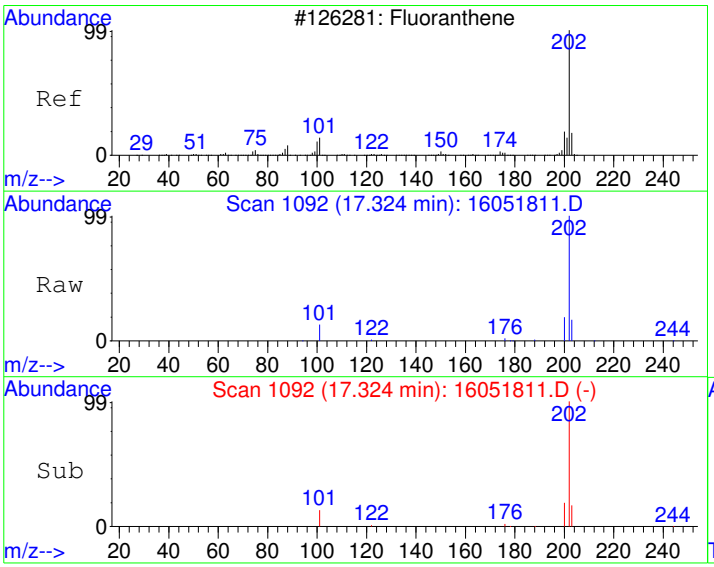


#13
Anthracene
Concen: 8.75 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:178 Resp: 3072

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	45.9
176	17.8	0.0	48.2

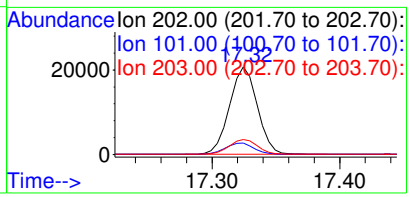


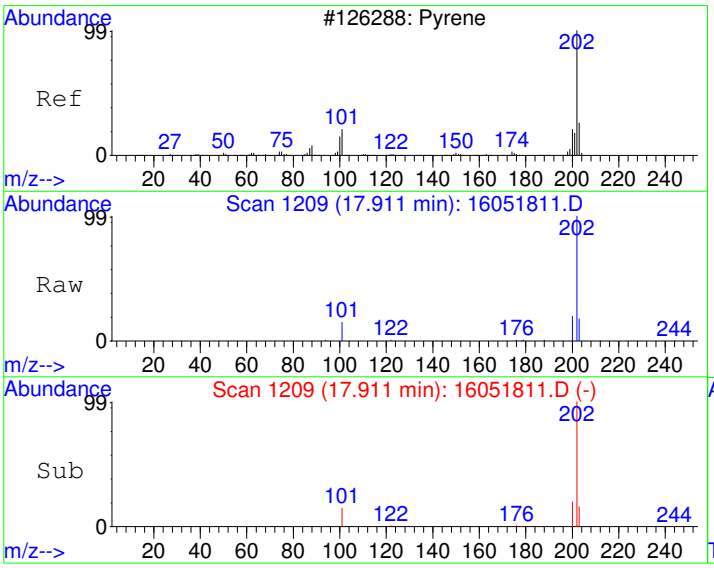


#14
Fluoranthene
Concen: 80.82 ug/kg
RT: 17.32 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:202 Resp: 31026

Ion	Ratio	Lower	Upper
202	100		
101	12.8	0.0	43.0
203	17.0	0.0	47.9

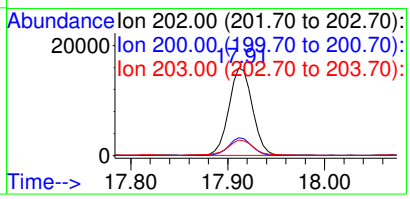


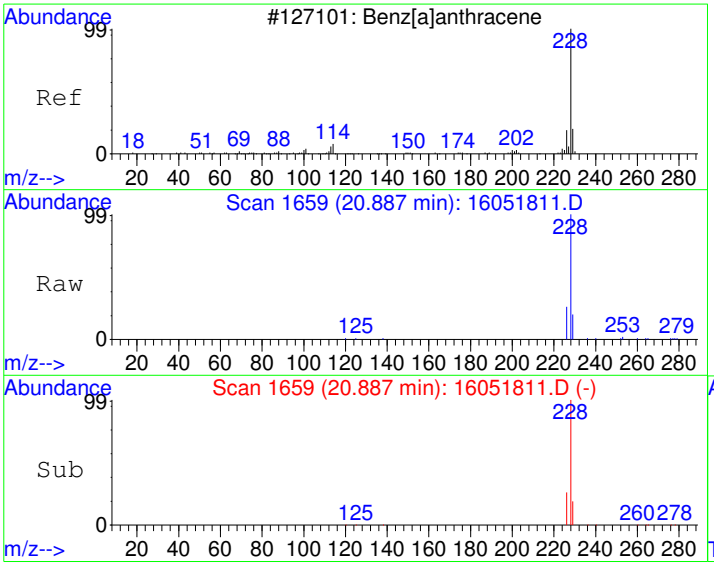


#15
Pyrene
Concen: 66.66 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:202 Resp: 26581

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.6	0.0	48.0

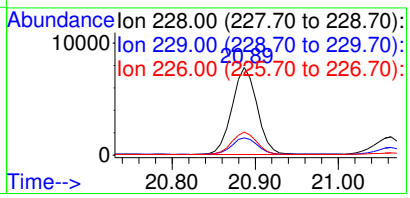


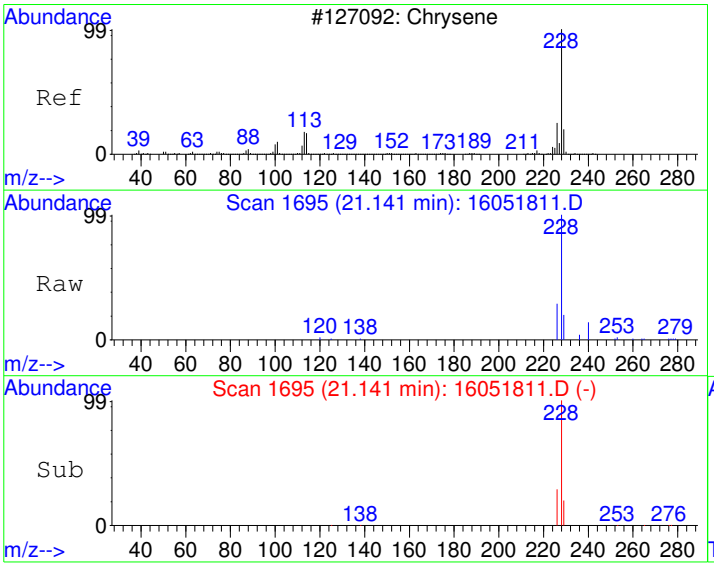


#18
Benzo[a]anthracene
Concen: 43.54 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:228 Resp: 16225

Ion	Ratio	Lower	Upper
228	100		
229	19.0	0.0	50.1
226	25.8	0.0	55.2

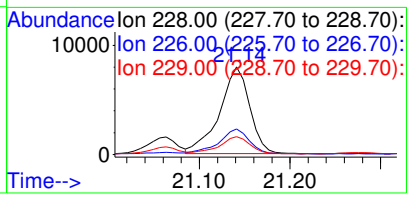


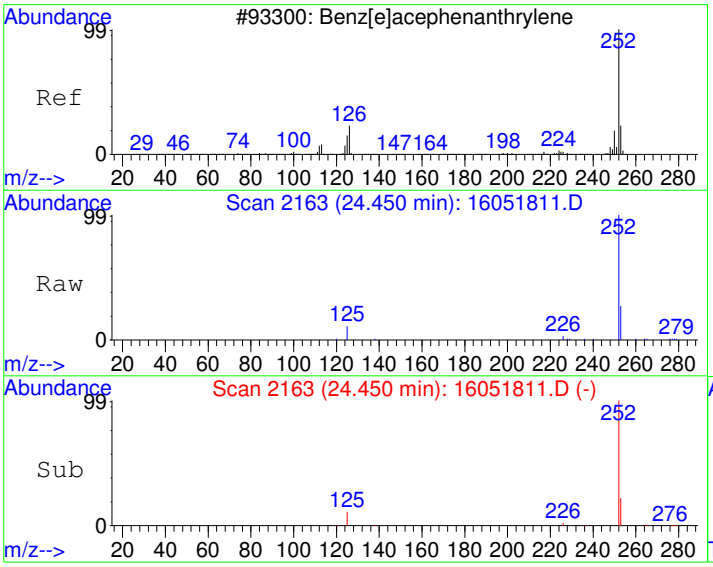


#19
Chrysene
Concen: 50.46 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:228 Resp: 18167

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	19.6	0.0	50.1

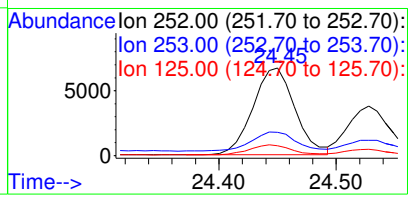


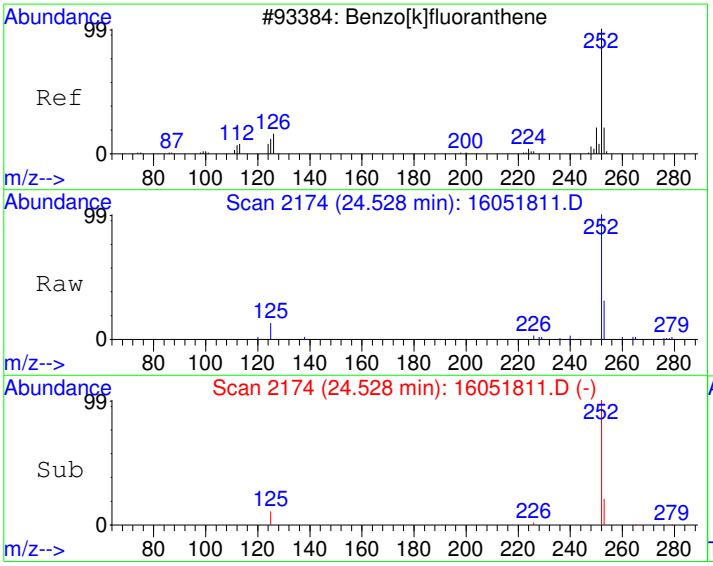


#21
Benzo[b]fluoranthene
Concen: 41.65 ug/kg
RT: 24.45 min Scan# 2163
Delta R.T. -0.04 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:252 Resp: 16745

Ion	Ratio	Lower	Upper
252	100		
253	21.3	0.0	52.2
125	10.6	0.0	41.0

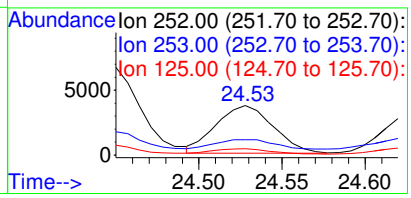


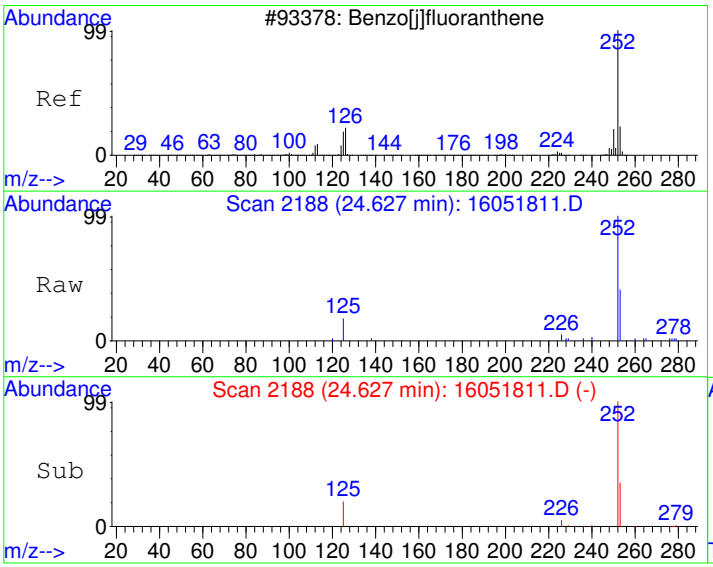


#22
Benzo[k]fluoranthene
Concen: 23.33 ug/kg
RT: 24.53 min Scan# 2174
Delta R.T. -0.04 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:252 Resp: 8797

Ion	Ratio	Lower	Upper
252	100		
253	20.0	2.1	42.1
125	11.4	0.0	31.3

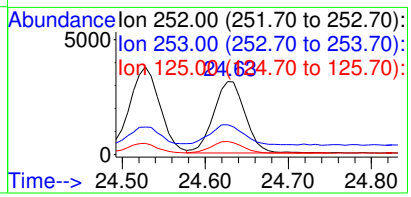


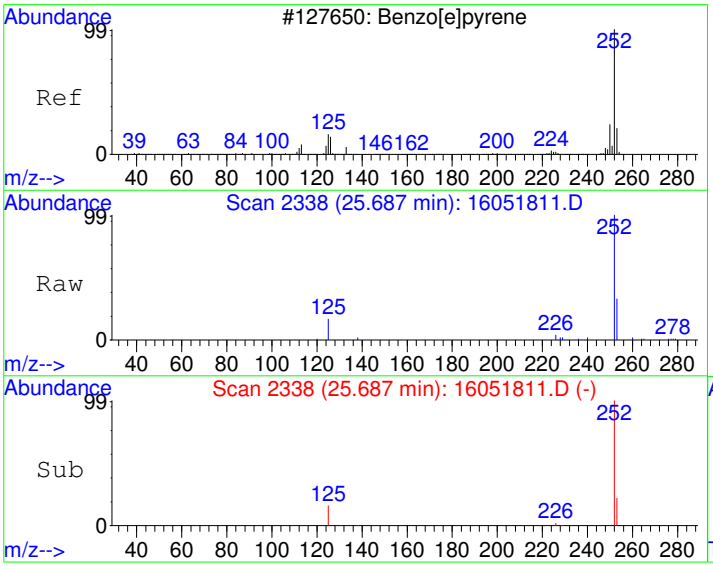


#23
Benzo(j)fluoranthene
Concen: 24.25 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:252 Resp: 8145

Ion	Ratio	Lower	Upper
252	100		
253	28.1	2.1	42.1
125	16.5	0.0	34.4

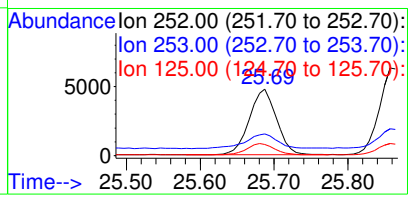


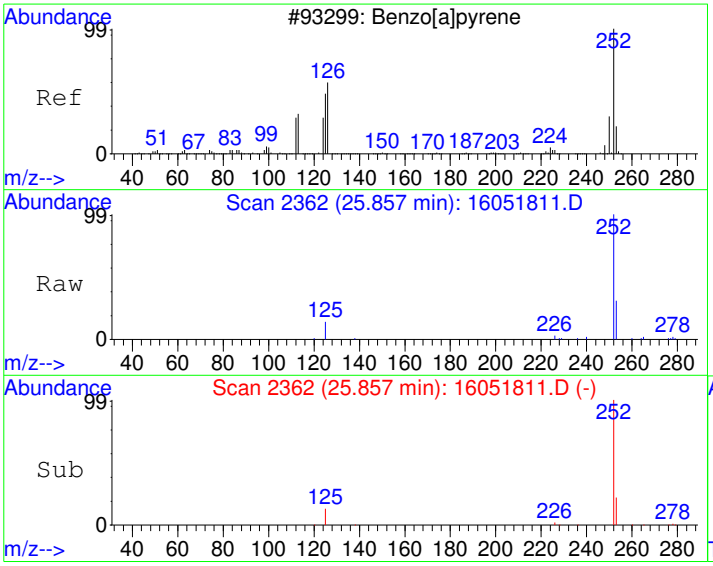


#24
Benzo[e]pyrene
Concen: 33.72 ug/kg
RT: 25.69 min Scan# 2338
Delta R.T. -0.04 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:252 Resp: 12139

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.2	42.2
125	15.6	0.0	36.1

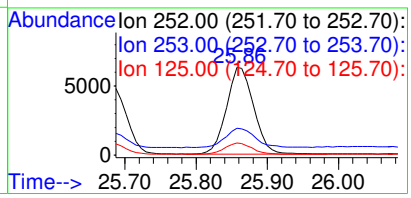


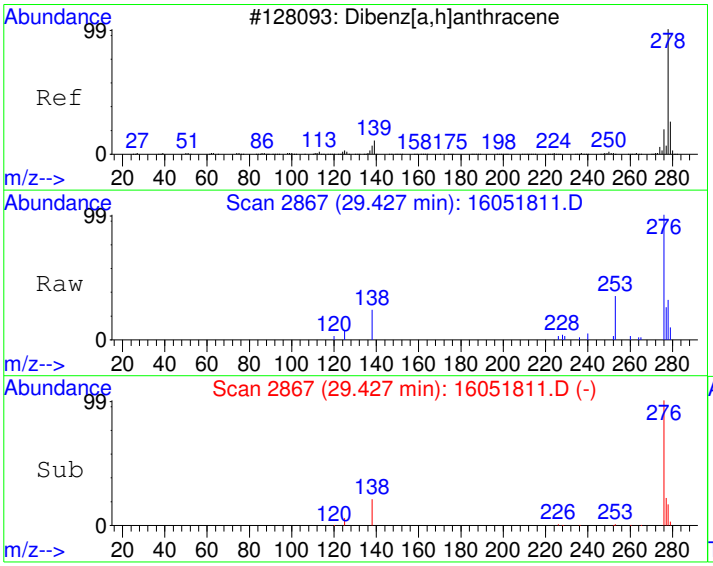


#25
Benzo[a]pyrene
Concen: 45.08 ug/kg
RT: 25.86 min Scan# 2362
Delta R.T. -0.04 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:252 Resp: 16583

Ion	Ratio	Lower	Upper
252	100		
253	21.8	1.9	41.9
125	12.9	0.0	31.7

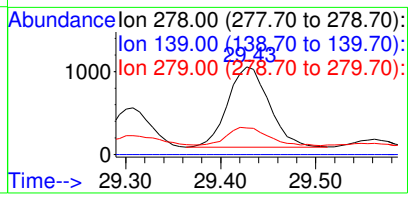


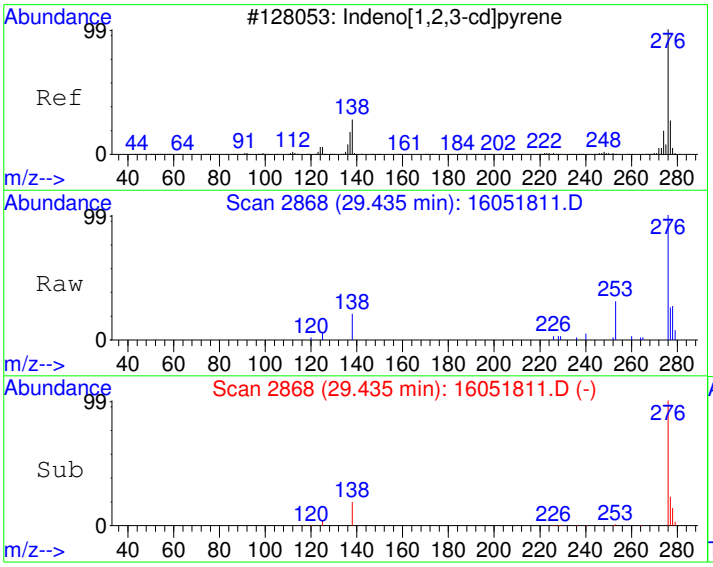


#26
Dibenz[a,h]anthracene
Concen: 8.71 ug/kg
RT: 29.43 min Scan# 2867
Delta R.T. -0.05 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:278 Resp: 2918

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	21.2	4.2	44.2

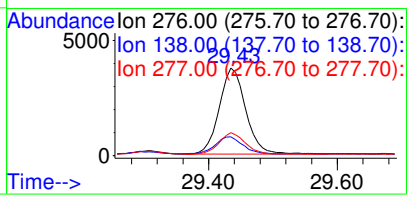


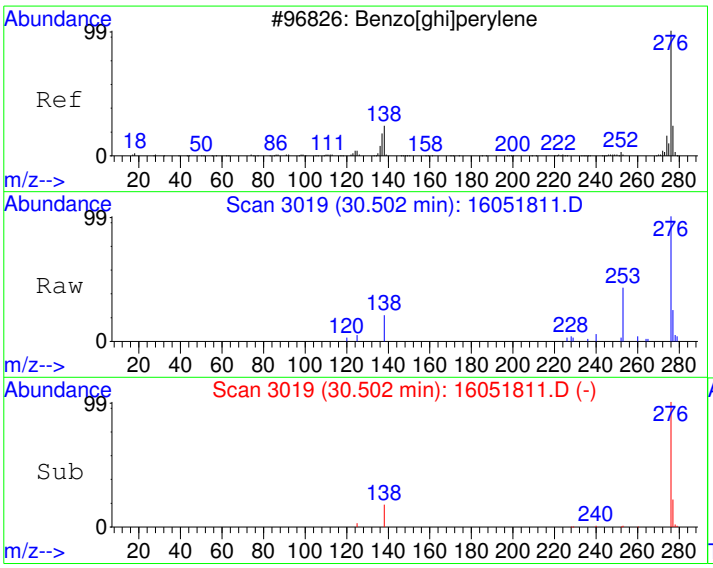


#27
Indeno[1,2,3-cd]pyrene
Concen: 26.64 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:276 Resp: 10648

Ion	Ratio	Lower	Upper
276	100		
138	19.7	6.7	46.7
277	24.9	5.8	45.8

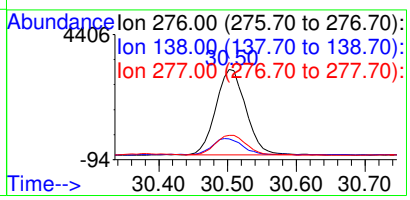




#28
Benzo[g,h,i]perylene
Concen: 30.19 ug/kg
RT: 30.50 min Scan# 3019
Delta R.T. -0.05 min
Lab File: 16051811.D
Acq: 18 May 2016 3:09 pm

Tgt Ion:276 Resp: 9411

Ion	Ratio	Lower	Upper
276	100		
138	18.7	0.0	39.1
277	23.2	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051812.D Vial: 12
Acq On : 18 May 2016 3:48 pm Operator:
Sample : 1605096-64A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

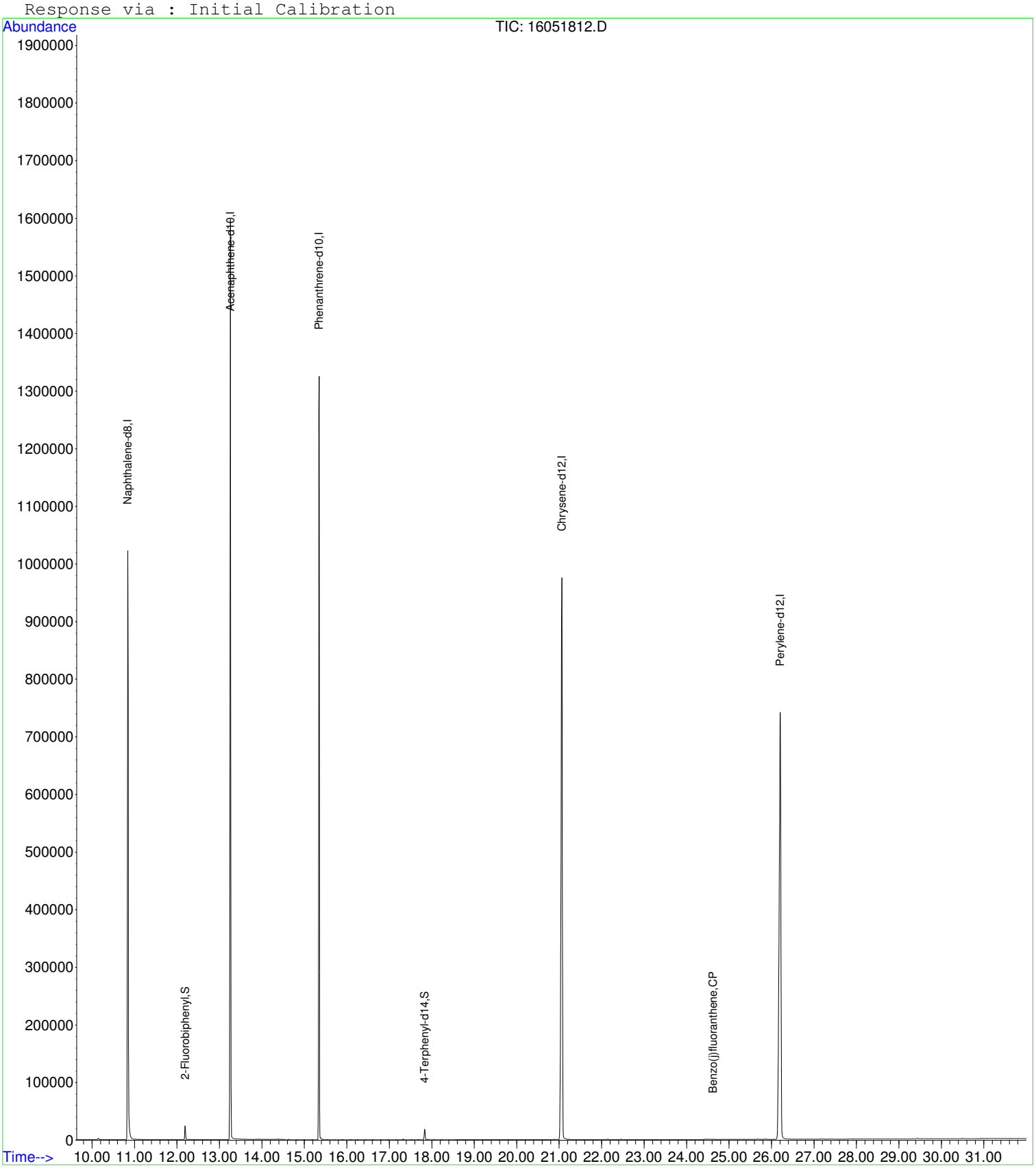
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1298226	4000.00	ug/kg	112
5) Acenaphthene-d10	13.26	164	836466	4000.00	ug/kg	73
11) Phenanthrene-d10	15.35	188	1412342	4000.00	ug/kg	69
17) Chrysene-d12	21.06	240	1579550	4000.00	ug/kg	70
20) Perylene-d12	26.20	264	1494757	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19493	79.89	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.83	244	23881	65.36	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.63%#		
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.63	252	687	2.09	ug/kg	98

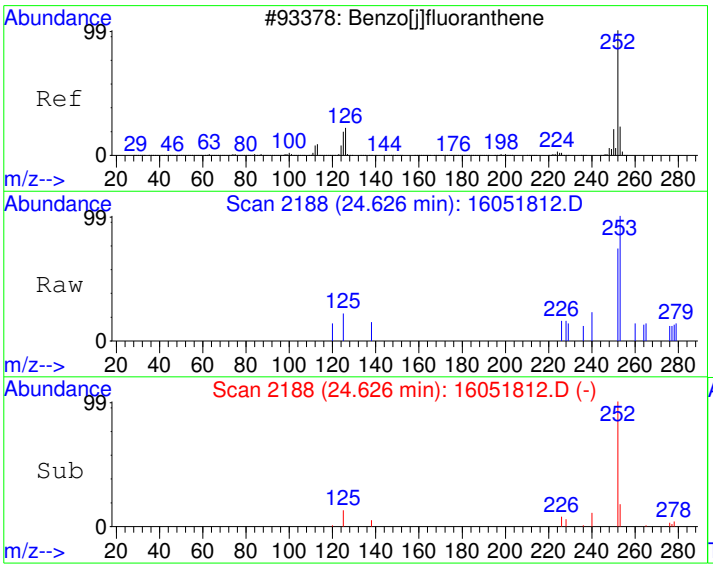
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051812.D Vial: 12
Acq On : 18 May 2016 3:48 pm Operator:
Sample : 1605096-64A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

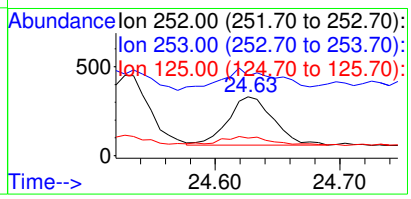




#23
Benzo(j)fluoranthene
Concen: 2.09 ug/kg
RT: 24.63 min Scan# 2188
Delta R.T. -0.04 min
Lab File: 16051812.D
Acq: 18 May 2016 3:48 pm

Tgt Ion:252 Resp: 687

Ion	Ratio	Lower	Upper
252	100		
253	23.2	2.1	42.1
125	14.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051813.D Vial: 13
Acq On : 18 May 2016 4:28 pm Operator:
Sample : 1605096-67A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

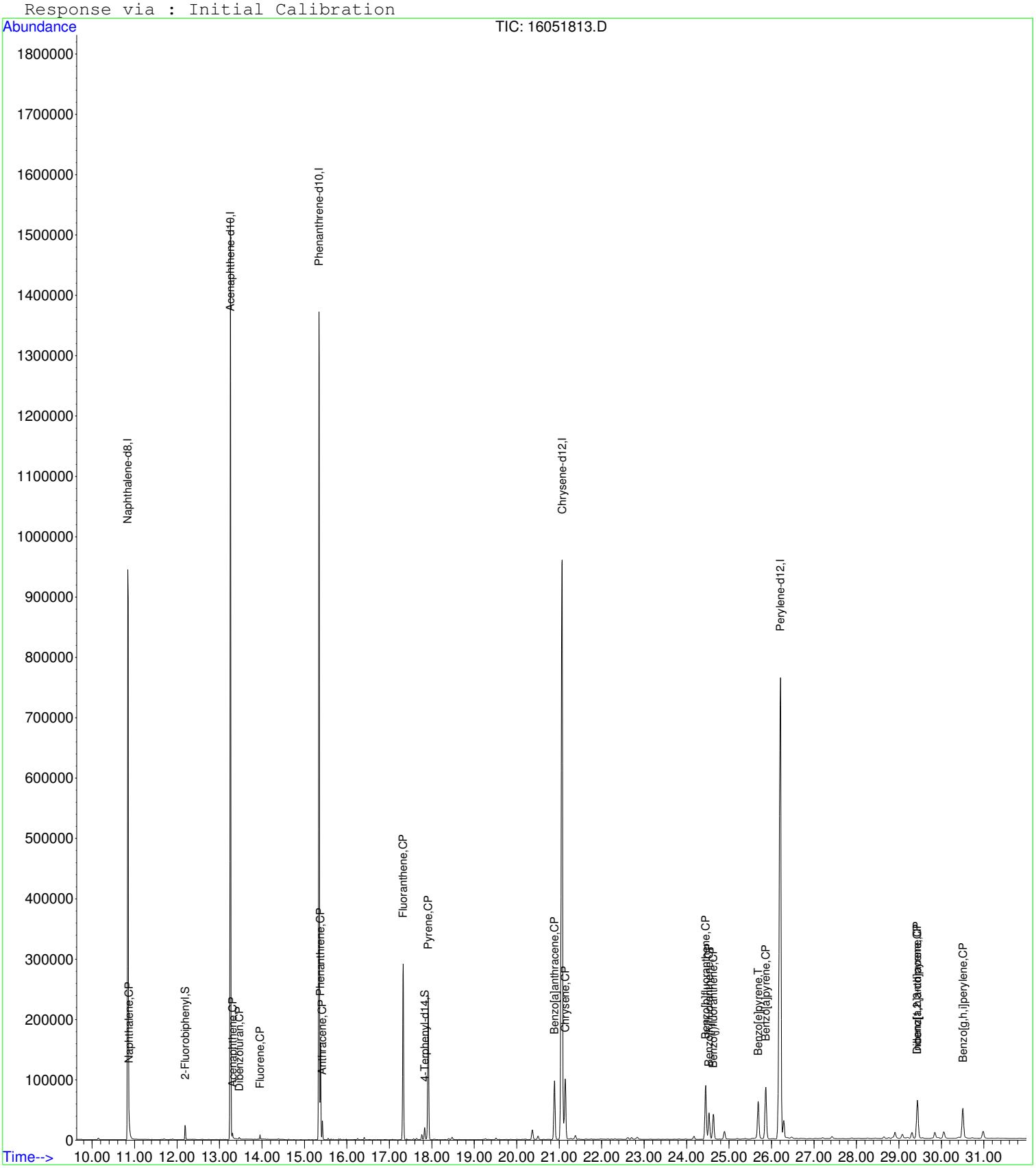
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1293570	4000.00	ug/kg	112
5) Acenaphthene-d10	13.25	164	869091	4000.00	ug/kg	75
11) Phenanthrene-d10	15.34	188	1492794	4000.00	ug/kg	73
17) Chrysene-d12	21.07	240	1621324	4000.00	ug/kg	71
20) Perylene-d12	26.21	264	1540543	4000.00	ug/kg	75
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20146	79.46	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
16) 4-Terphenyl-d14	17.83	244	25613	66.32	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.66%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	3336	10.31	ug/kg	98
6) Dibenzofuran	13.46	168	2500	7.68	ug/kg	97
9) Acenaphthene	13.31	154	3641	15.67	ug/kg	98
10) Fluorene	13.96	166	3684	13.06	ug/kg	98
12) Phenanthrene	15.38	178	128282	326.77	ug/kg	99
13) Anthracene	15.42	178	26847	72.25	ug/kg	99
14) Fluoranthene	17.33	202	287205	706.96	ug/kg	99
15) Pyrene	17.91	202	246876	585.00	ug/kg	99
18) Benzo[a]anthracene	20.89	228	143152	376.88	ug/kg	99
19) Chrysene	21.14	228	159336	434.16	ug/kg	99
21) Benzo[b]fluoranthene	24.45	252	159578	393.02	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	76572	201.03	ug/kg	97
23) Benzo(j)fluoranthene	24.63	252	71110	209.58	ug/kg	94
24) Benzo[e]pyrene	25.69	252	116335	319.93	ug/kg	100
25) Benzo[a]pyrene	25.86	252	161819	435.49	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	23213	68.59	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.43	276	102939	254.98	ug/kg	92
28) Benzo[g,h,i]perylene	30.51	276	96053	305.12	ug/kg	98

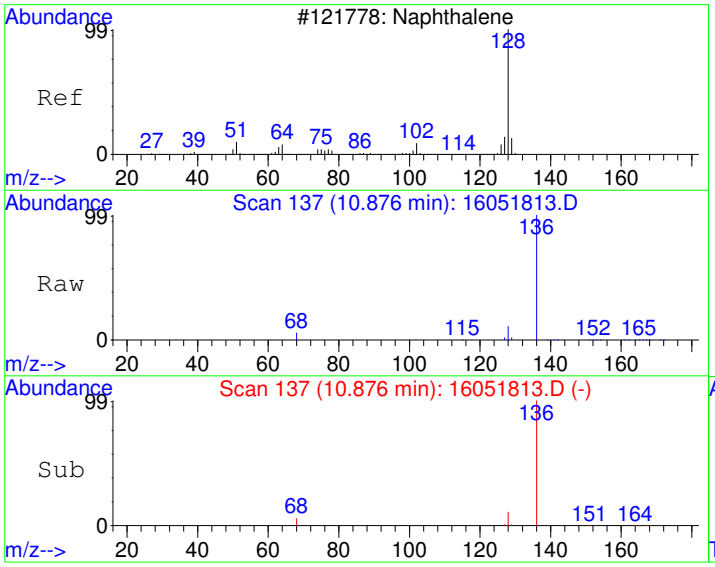
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051813.D Vial: 13
Acq On : 18 May 2016 4:28 pm Operator:
Sample : 1605096-67A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

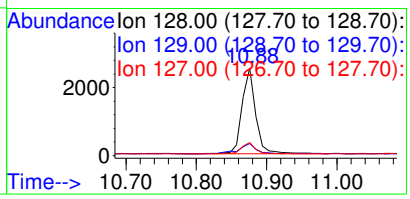


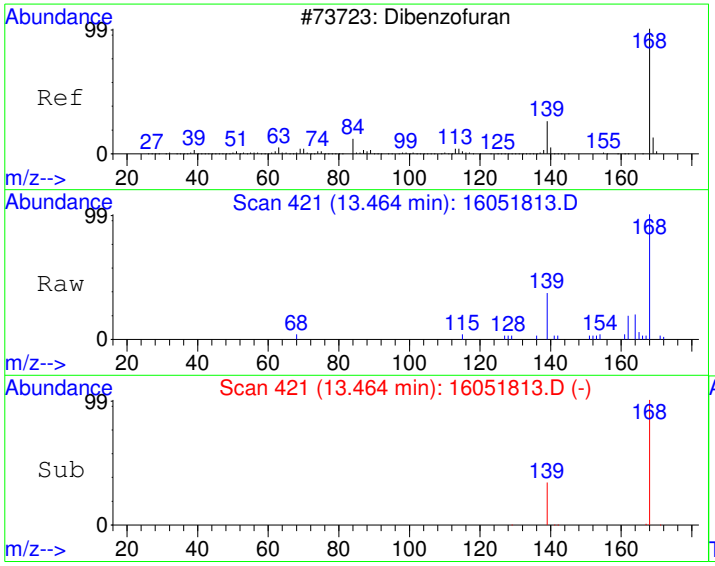


#2
Naphthalene
Concen: 10.31 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:128 Resp: 3336

Ion	Ratio	Lower	Upper
128	100		
129	12.0	0.0	41.1
127	13.3	0.0	42.4

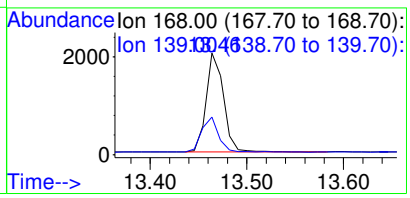


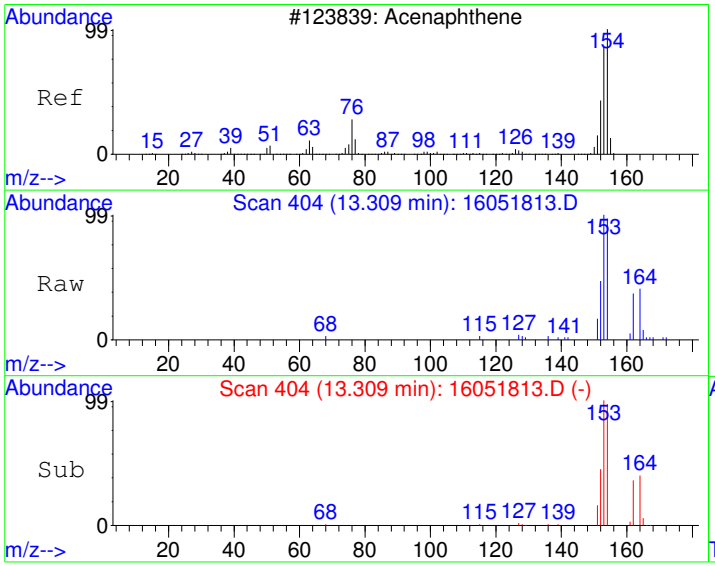


#6
Dibenzofuran
Concen: 7.68 ug/kg
RT: 13.46 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:168 Resp: 2500

Ion	Ratio	Lower	Upper
168	100		
139	35.6	27.0	40.4

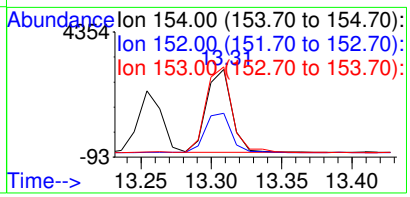


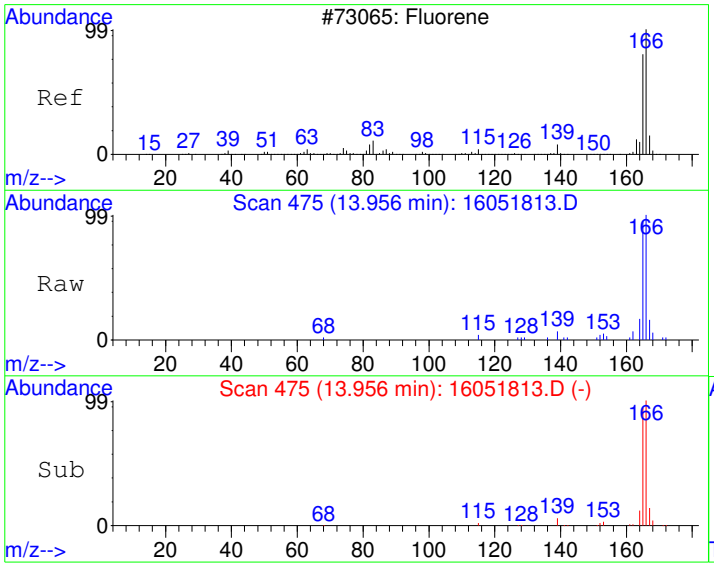


#9
Acenaphthene
Concen: 15.67 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:154 Resp: 3641

Ion	Ratio	Lower	Upper
154	100		
152	47.6	18.9	78.9
153	103.3	75.2	135.2

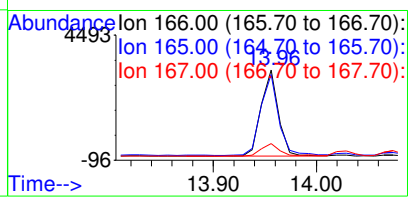


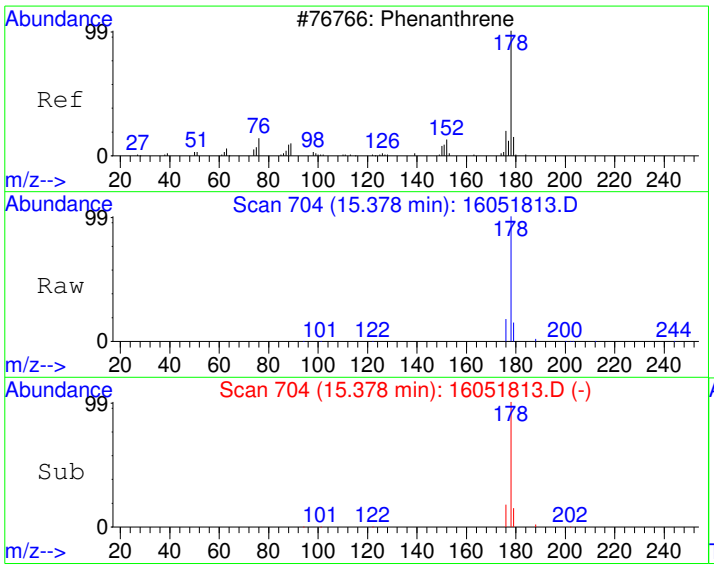


#10
Fluorene
Concen: 13.06 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:166 Resp: 3684

Ion	Ratio	Lower	Upper
166	100		
165	94.0	61.8	121.8
167	14.3	0.0	43.6

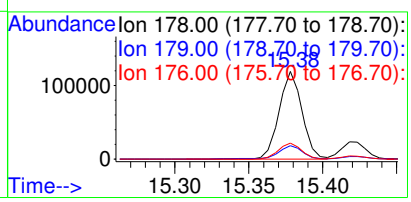


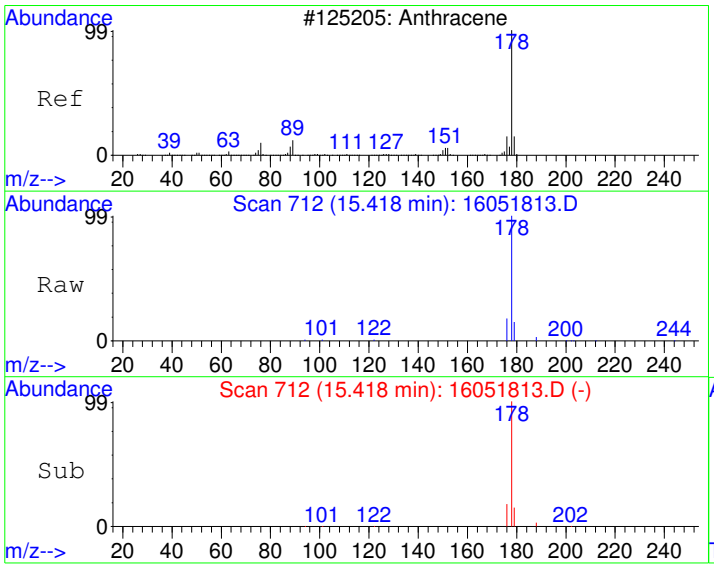


#12
Phenanthrene
Concen: 326.77 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:178 Resp: 128282

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	18.2	0.0	48.5

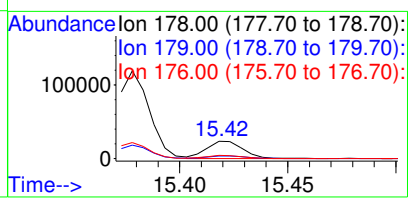


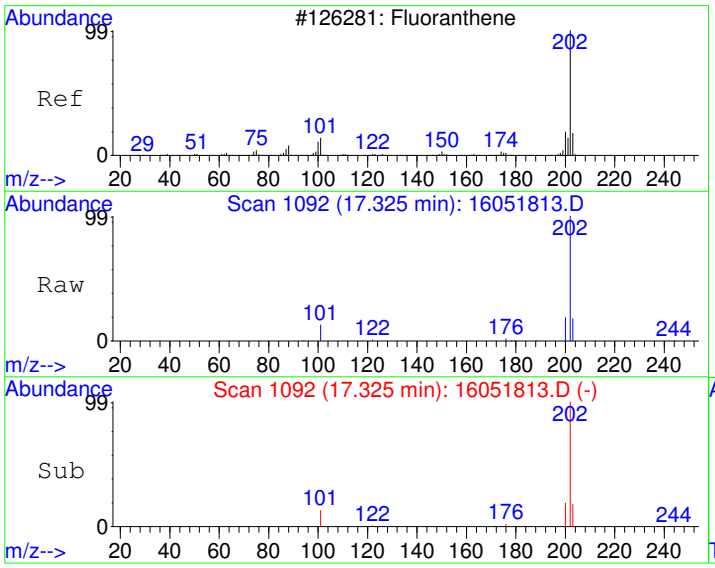


#13
Anthracene
Concen: 72.25 ug/kg
RT: 15.42 min Scan# 712
Delta R.T. -0.02 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:178 Resp: 26847

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.9
176	17.8	0.0	48.2

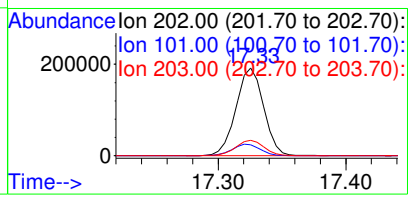


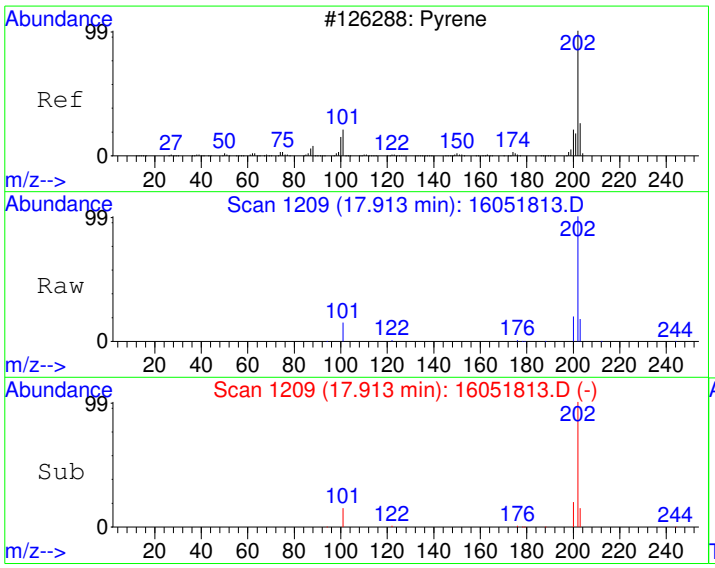


#14
Fluoranthene
Concen: 706.96 ug/kg
RT: 17.33 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:202 Resp: 287205

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	43.0
203	17.6	0.0	47.9

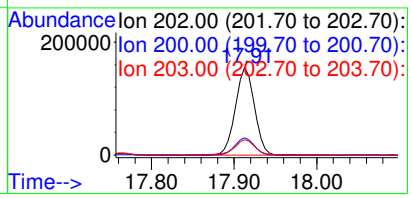


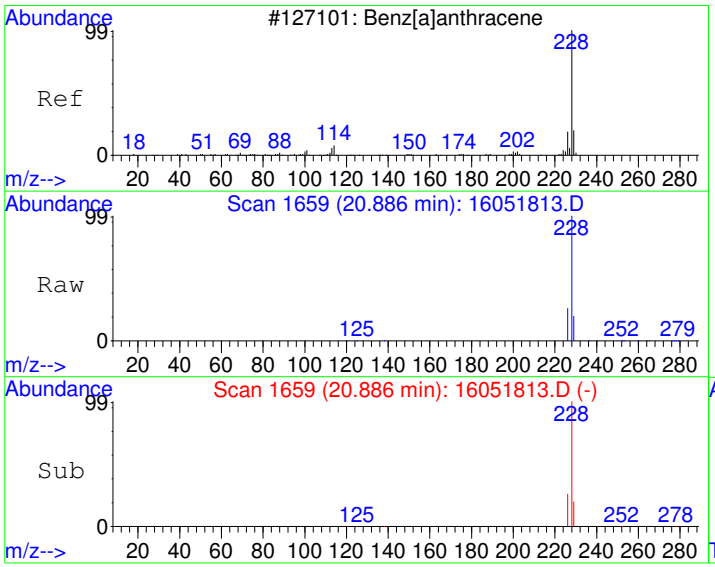


#15
Pyrene
Concen: 585.00 ug/kg
RT: 17.91 min Scan# 1209
Delta R.T. -0.02 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:202 Resp: 246876

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.5	0.0	48.0

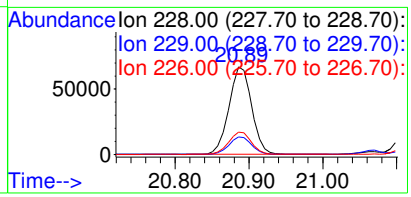


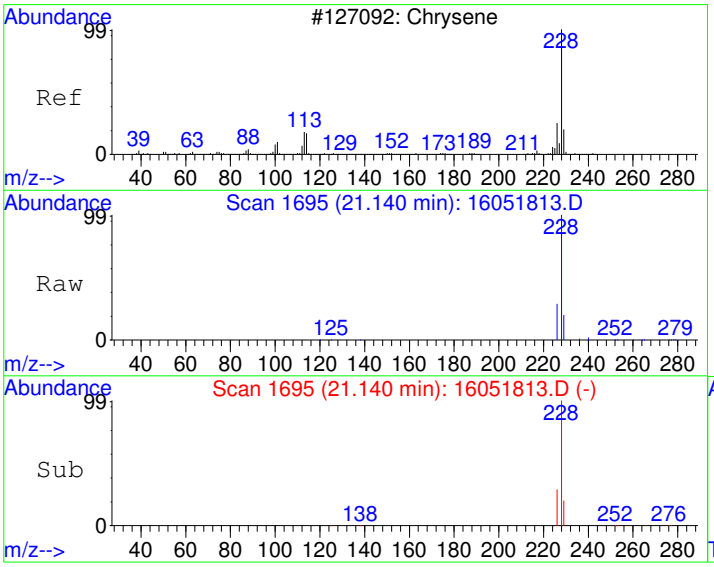


#18
Benzo[a]anthracene
Concen: 376.88 ug/kg
RT: 20.89 min Scan# 1659
Delta R.T. -0.03 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:228 Resp: 143152

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

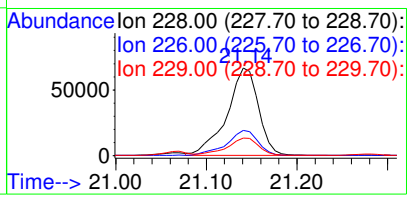


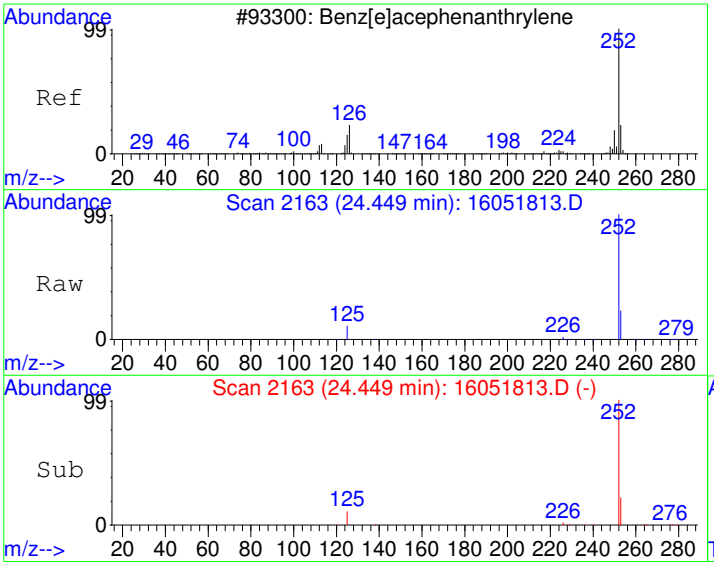


#19
Chrysene
Concen: 434.16 ug/kg
RT: 21.14 min Scan# 1695
Delta R.T. -0.03 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:228 Resp: 159336

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	19.9	0.0	50.1

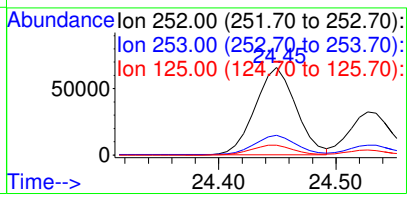


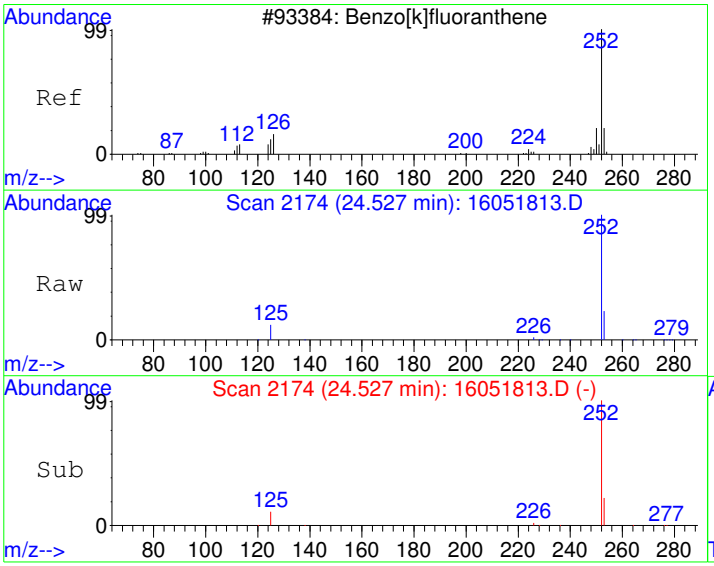


#21
Benzo[b]fluoranthene
Concen: 393.02 ug/kg
RT: 24.45 min Scan# 2163
Delta R.T. -0.04 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:252 Resp: 159578

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.2
125	11.3	0.0	41.0

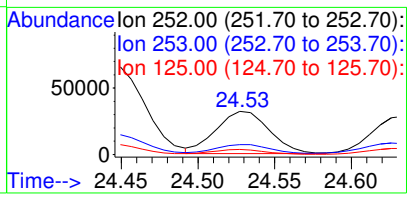


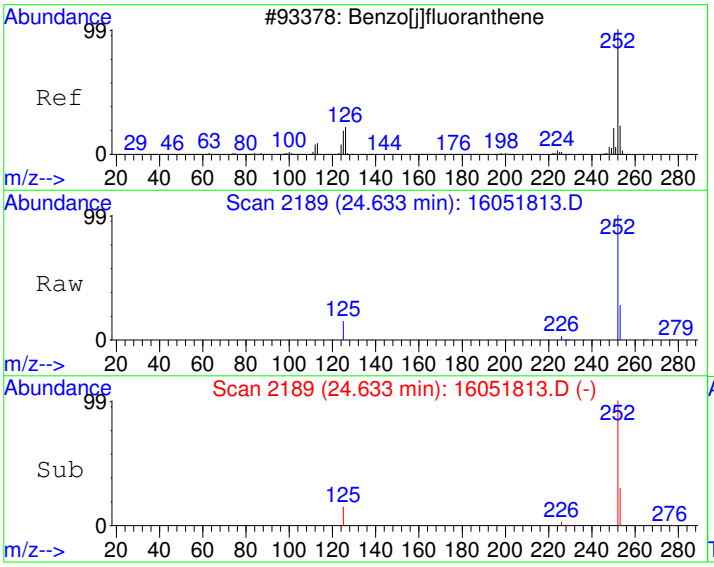


#22
Benzo[k]fluoranthene
Concen: 201.03 ug/kg
RT: 24.53 min Scan# 2174
Delta R.T. -0.04 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:252 Resp: 76572

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.1	42.1
125	11.3	0.0	31.3

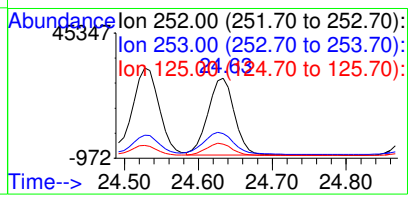


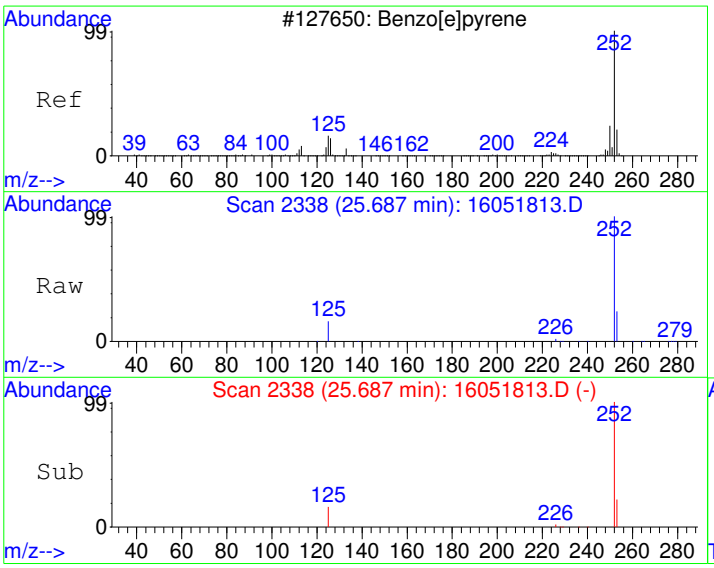


#23
Benzo(j)fluoranthene
Concen: 209.58 ug/kg
RT: 24.63 min Scan# 2189
Delta R.T. -0.04 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:252 Resp: 71110

Ion	Ratio	Lower	Upper
252	100		
253	26.7	2.1	42.1
125	14.8	0.0	34.4

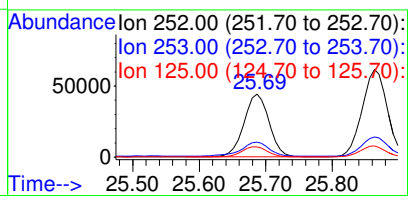


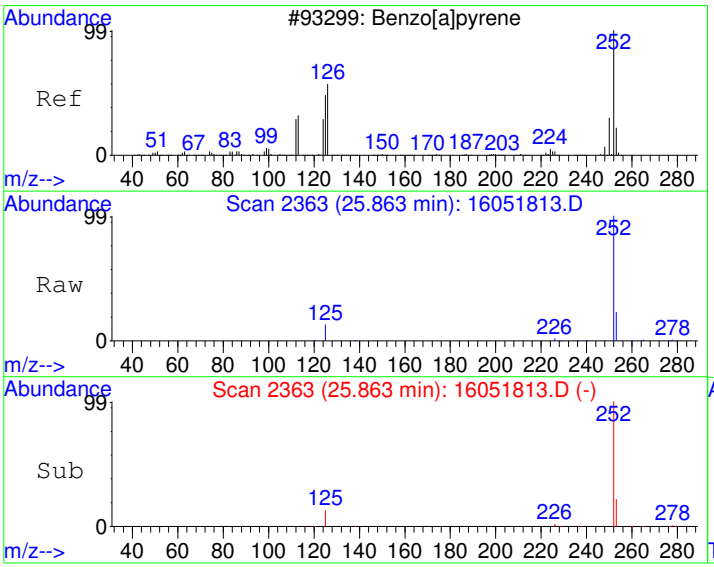


#24
Benzo[e]pyrene
Concen: 319.93 ug/kg
RT: 25.69 min Scan# 2338
Delta R.T. -0.04 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:252 Resp: 116335

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	16.3	0.0	36.1

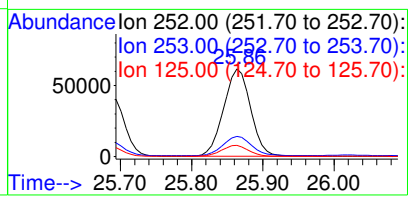


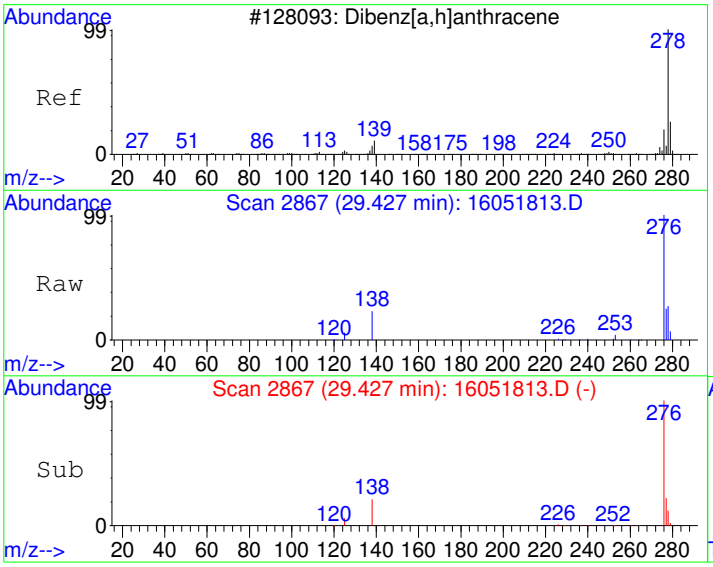


#25
Benzo[a]pyrene
Concen: 435.49 ug/kg
RT: 25.86 min Scan# 2363
Delta R.T. -0.04 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:252 Resp: 161819

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	12.5	0.0	31.7

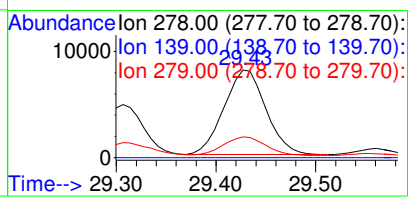


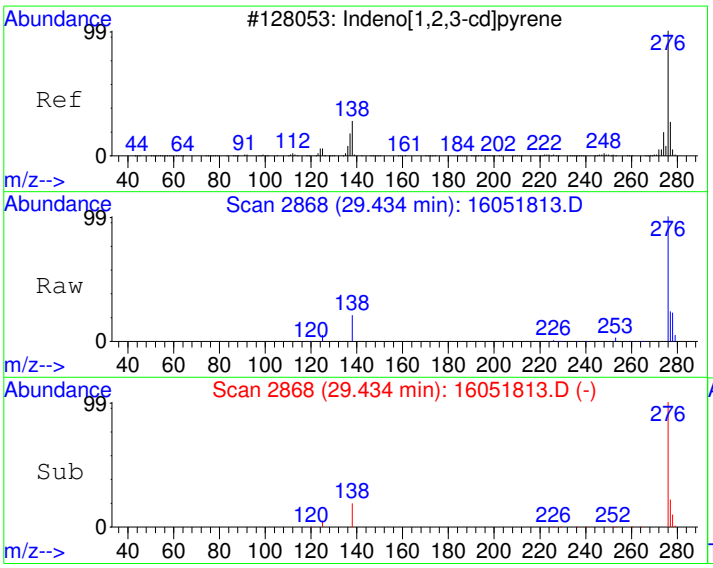


#26
Dibenz[a,h]anthracene
Concen: 68.59 ug/kg
RT: 29.43 min Scan# 2867
Delta R.T. -0.05 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:278 Resp: 23213

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.0	4.2	44.2

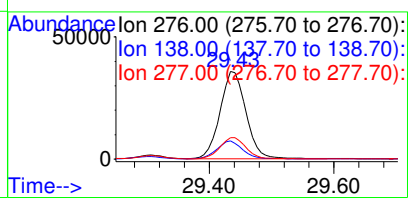


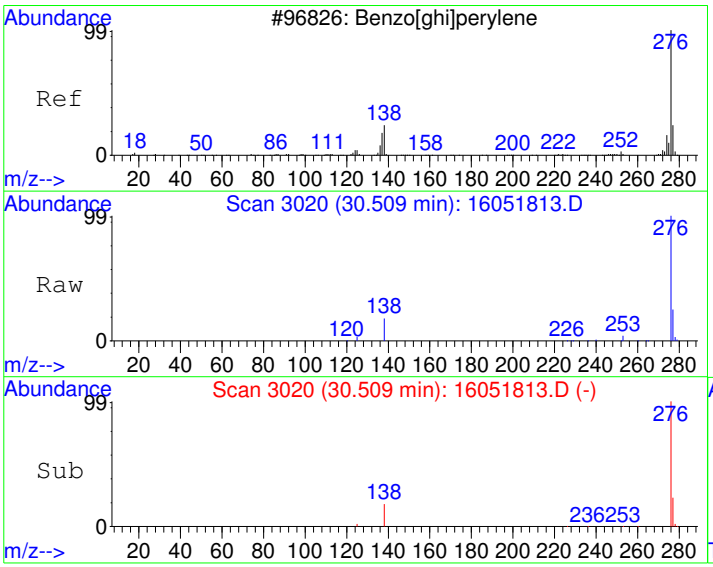


#27
Indeno[1,2,3-cd]pyrene
Concen: 254.98 ug/kg
RT: 29.43 min Scan# 2868
Delta R.T. -0.04 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:276 Resp: 102939

Ion	Ratio	Lower	Upper
276	100		
138	20.4	6.7	46.7
277	24.1	5.8	45.8

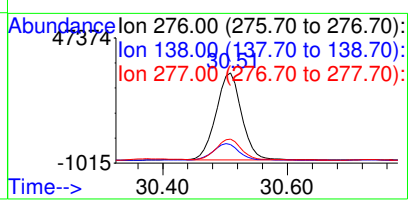




#28
Benzo[g,h,i]perylene
Concen: 305.12 ug/kg
RT: 30.51 min Scan# 3020
Delta R.T. -0.04 min
Lab File: 16051813.D
Acq: 18 May 2016 4:28 pm

Tgt Ion:276 Resp: 96053

Ion	Ratio	Lower	Upper
276	100		
138	17.9	0.0	39.1
277	24.3	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051814.D Vial: 14
Acq On : 18 May 2016 5:07 pm Operator:
Sample : 1605096-50A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

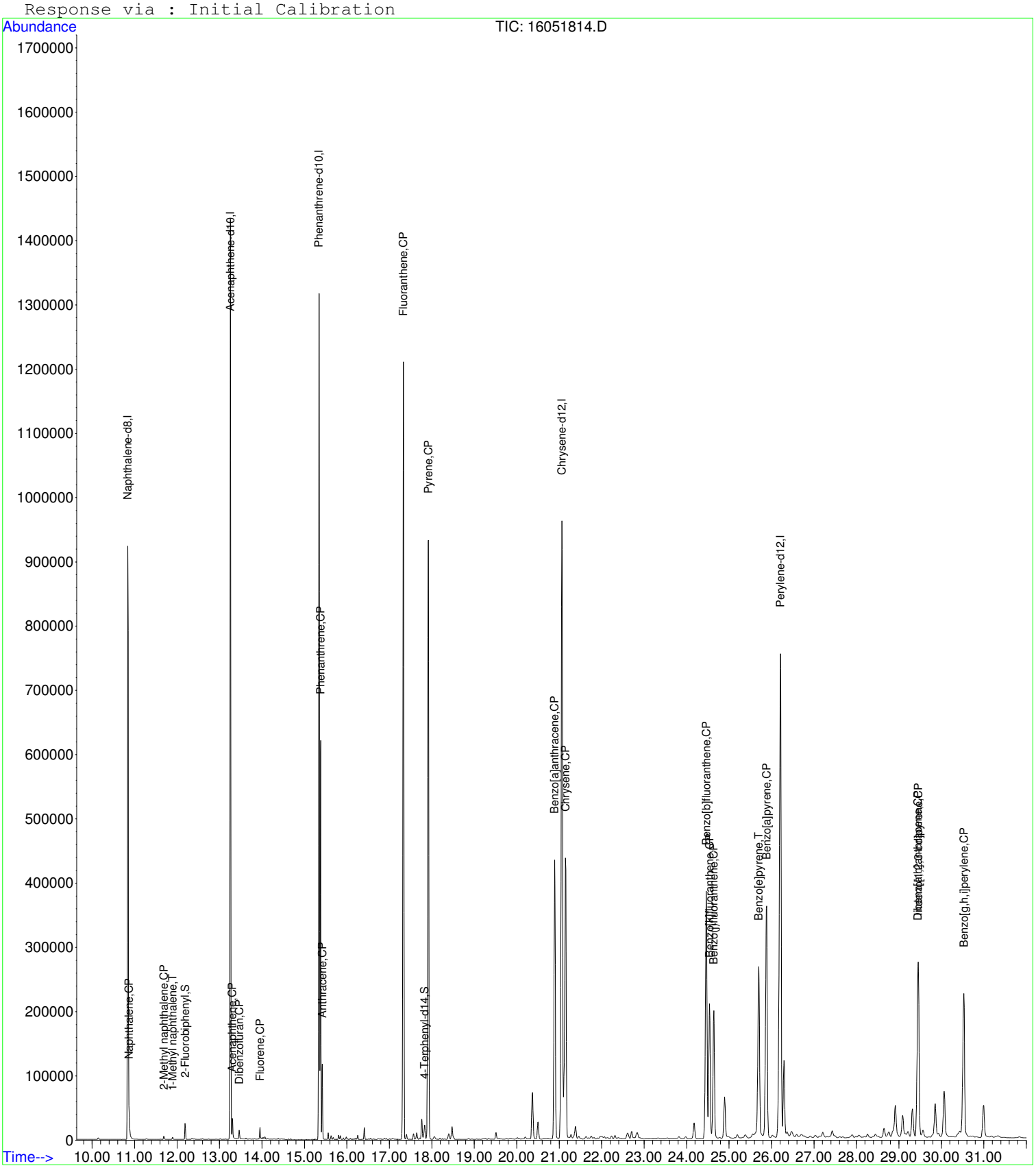
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1213013	4000.00	ug/kg	105
5) Acenaphthene-d10	13.25	164	795484	4000.00	ug/kg	69
11) Phenanthrene-d10	15.35	188	1482589	4000.00	ug/kg	73
17) Chrysene-d12	21.06	240	1592258	4000.00	ug/kg	70
20) Perylene-d12	26.21	264	1489051	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19589	84.42	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
16) 4-Terphenyl-d14	17.83	244	27591	71.93	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	13904	45.82	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	3113	11.61	ug/kg	96
4) 1-Methyl naphthalene	11.90	142	2053	8.36	ug/kg	96
6) Dibenzofuran	13.46	168	11380	38.17	ug/kg	99
9) Acenaphthene	13.31	154	13944	65.58	ug/kg	98
10) Fluorene	13.96	166	9019	34.93	ug/kg	99
12) Phenanthrene	15.38	178	528156	1354.61	ug/kg	99
13) Anthracene	15.42	178	98416	266.68	ug/kg	99
14) Fluoranthene	17.33	202	1200798	2976.13	ug/kg	100
15) Pyrene	17.92	202	1032669	2463.87	ug/kg	100
18) Benzo[a]anthracene	20.89	228	634734	1701.58	ug/kg	99
19) Chrysene	21.15	228	712475	1976.80	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	729042	1857.61	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	347784	944.64	ug/kg	99
23) Benzo(j)fluoranthene	24.64	252	328247	1000.88	ug/kg	92
24) Benzo[e]pyrene	25.70	252	519816	1478.97	ug/kg	100
25) Benzo[a]pyrene	25.89	252	706764	1967.81	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	111251	340.11	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	472764	1211.54	ug/kg	89
28) Benzo[g,h,i]perylene	30.53	276	447945	1472.14	ug/kg	100

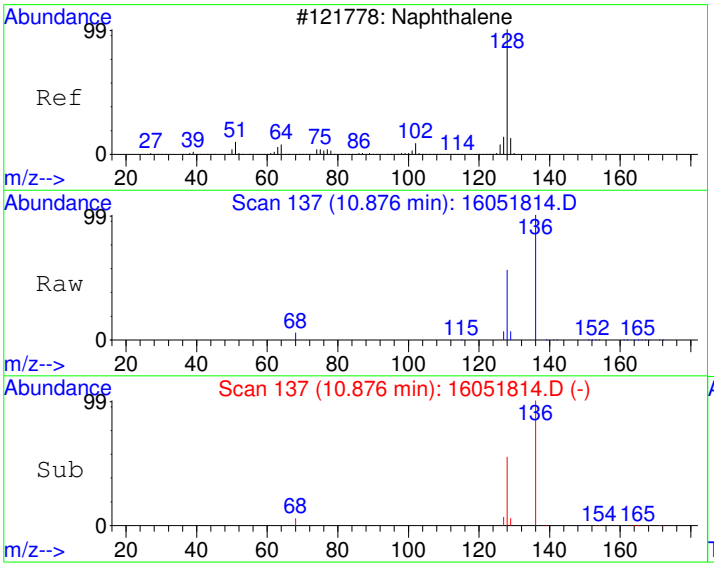
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051814.D Vial: 14
Acq On : 18 May 2016 5:07 pm Operator:
Sample : 1605096-50A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

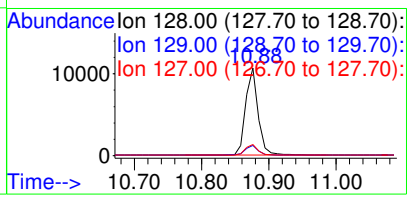


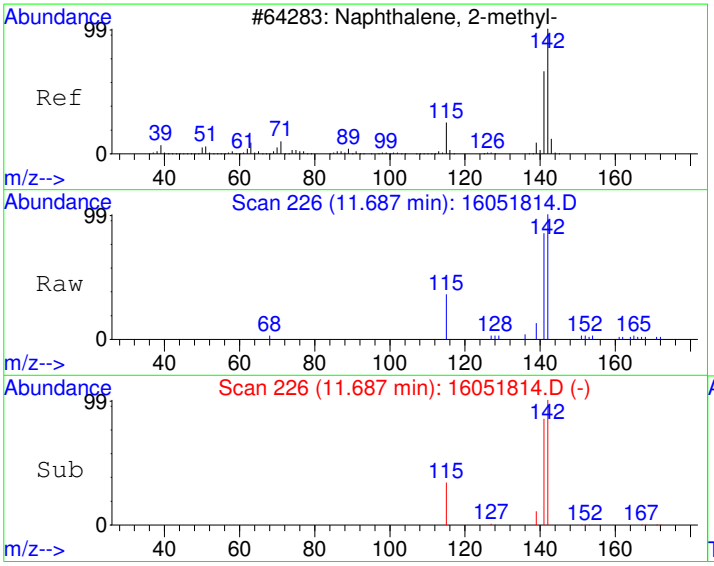


#2
Naphthalene
Concen: 45.82 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:128 Resp: 13904

Ion	Ratio	Lower	Upper
128	100		
129	11.3	0.0	41.1
127	12.4	0.0	42.4

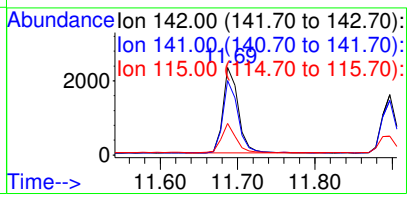


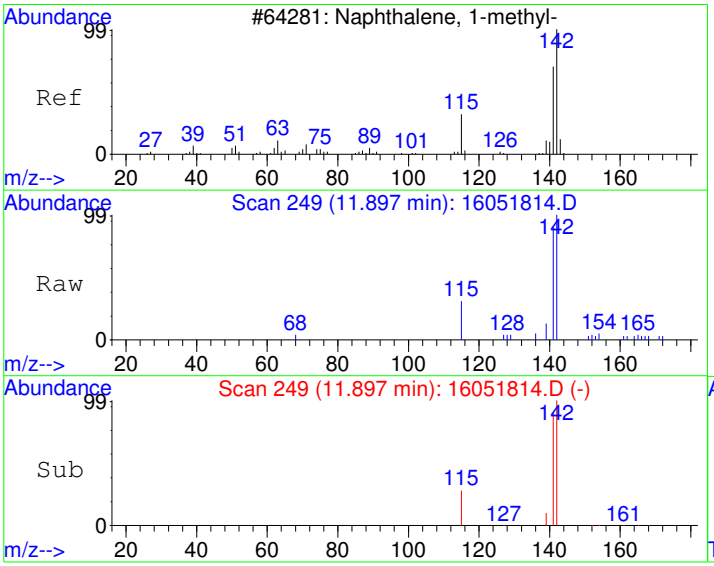


#3
2-Methyl naphthalene
Concen: 11.61 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:142 Resp: 3113

Ion	Ratio	Lower	Upper
142	100		
141	84.7	54.4	114.4
115	34.1	0.0	56.0

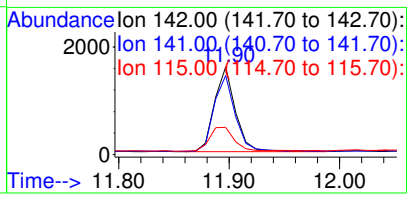


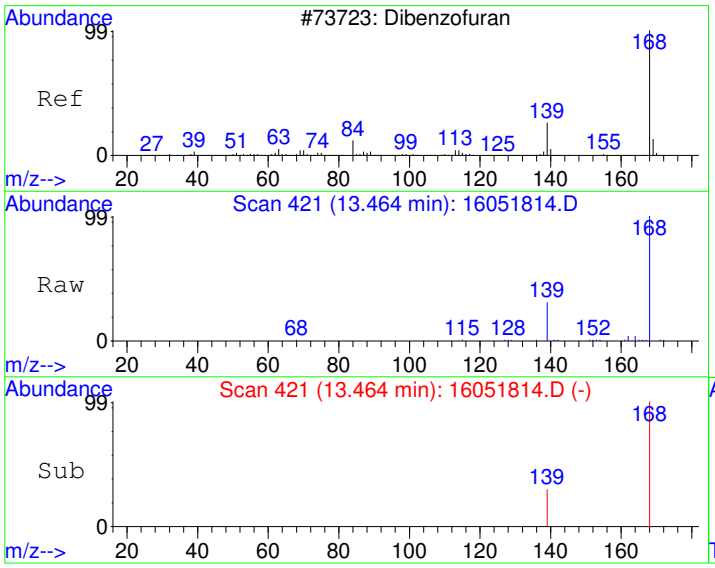


#4
1-Methyl naphthalene
Concen: 8.36 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. -0.00 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:142 Resp: 2053

Ion	Ratio	Lower	Upper
142	100		
141	89.7	56.5	116.5
115	28.0	0.0	55.0

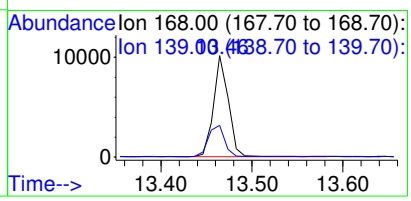


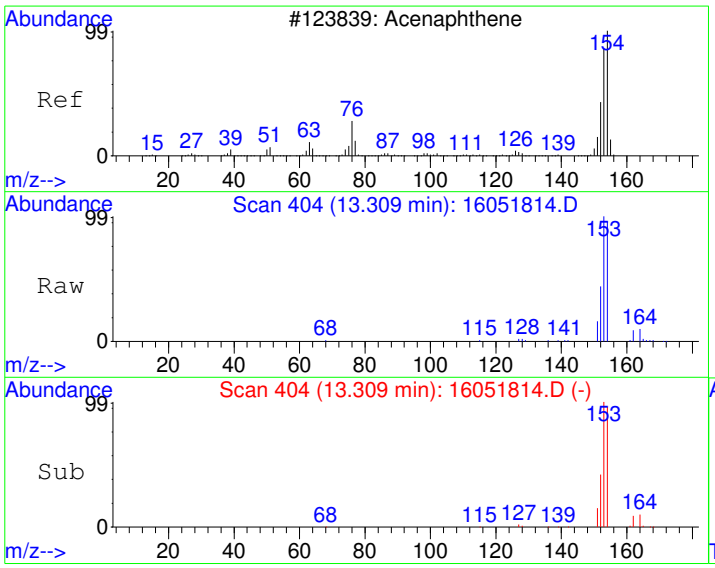


#6
Dibenzofuran
Concen: 38.17 ug/kg
RT: 13.46 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:168 Resp: 11380

Ion	Ratio	Lower	Upper
168	100		
139	34.4	27.0	40.4

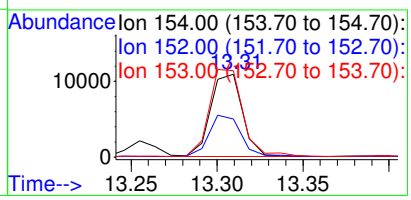


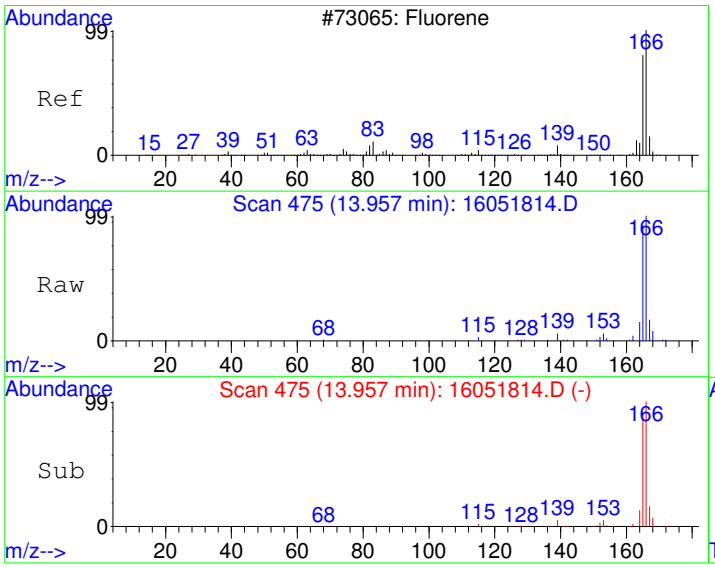


#9
Acenaphthene
Concen: 65.58 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:154 Resp: 13944

Ion	Ratio	Lower	Upper
154	100		
152	45.8	18.9	78.9
153	104.6	75.2	135.2

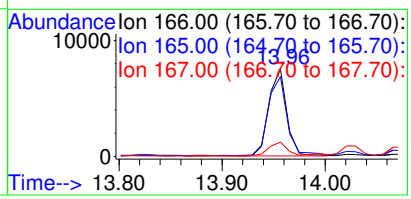


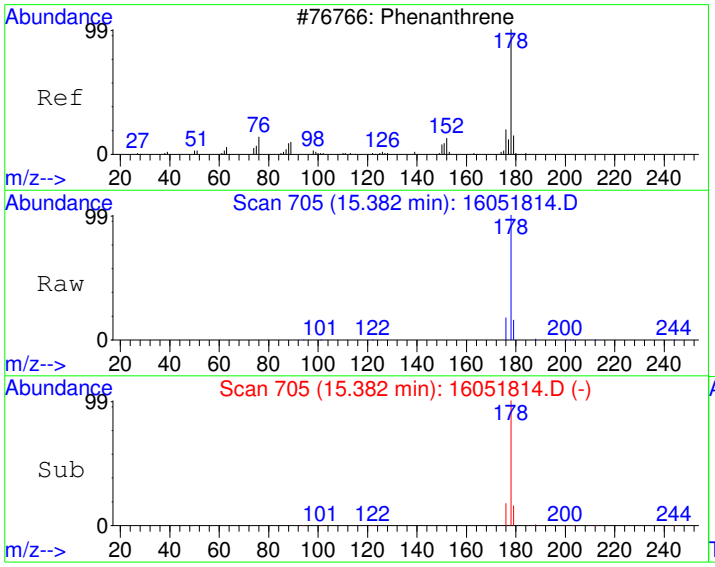


#10
Fluorene
Concen: 34.93 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:166 Resp: 9019

Ion	Ratio	Lower	Upper
166	100		
165	91.0	61.8	121.8
167	15.8	0.0	43.6

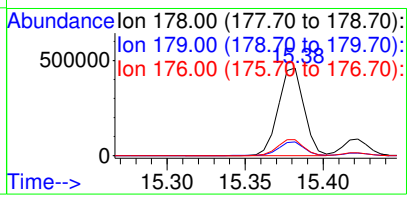


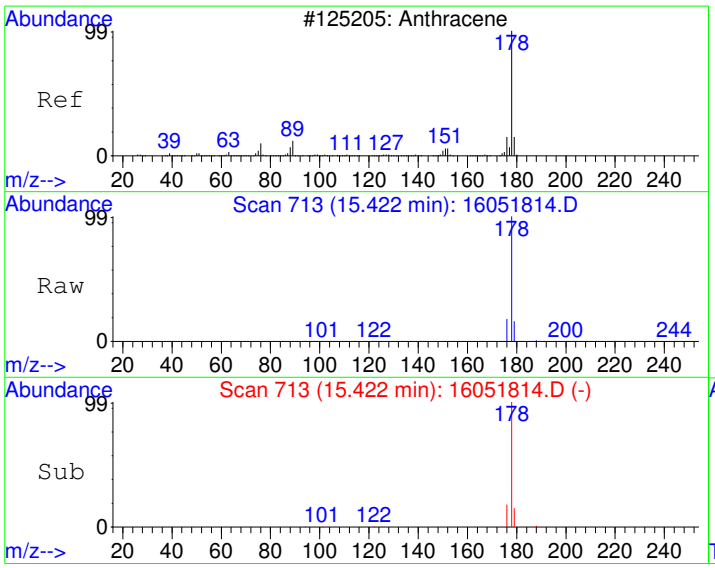


#12
Phenanthrene
Concen: 1354.61 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:178 Resp: 528156

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	45.9
176	18.1	0.0	48.5

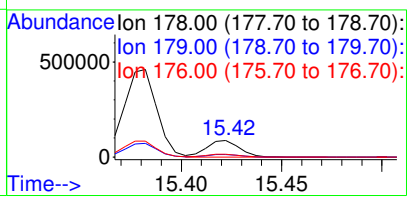


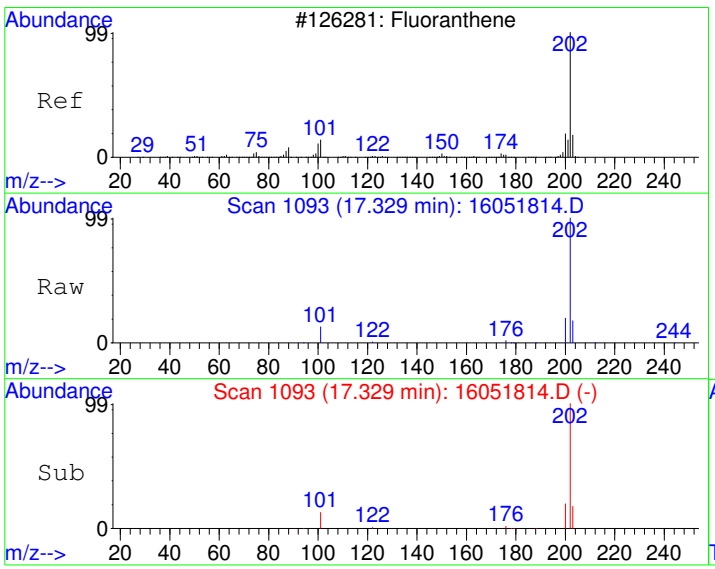


#13
Anthracene
Concen: 266.68 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:178 Resp: 98416

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.6	0.0	48.2

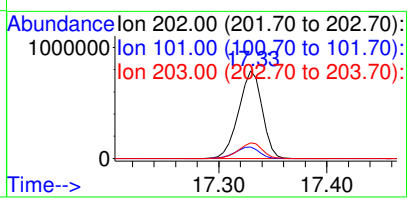


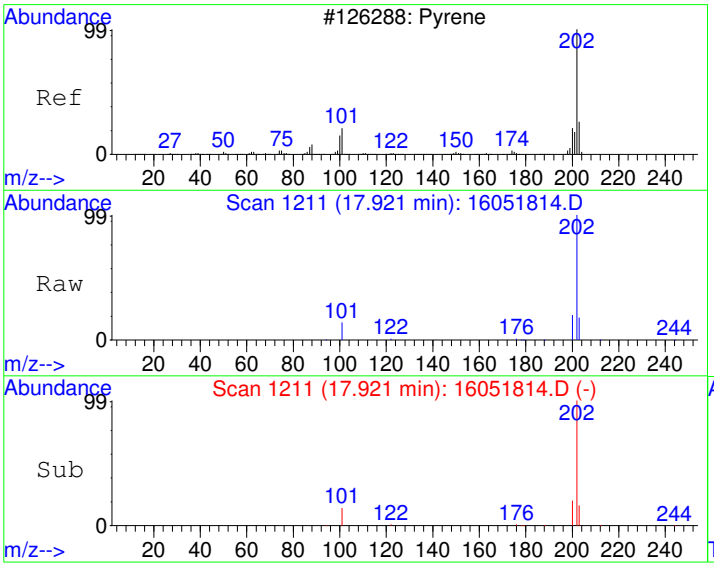


#14
Fluoranthene
Concen: 2976.13 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:202 Resp: 1200798

Ion	Ratio	Lower	Upper
202	100		
101	13.2	0.0	43.0
203	17.9	0.0	47.9

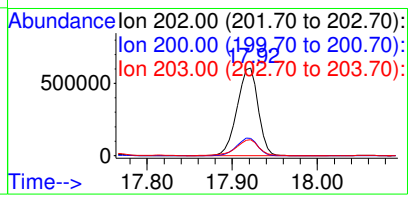


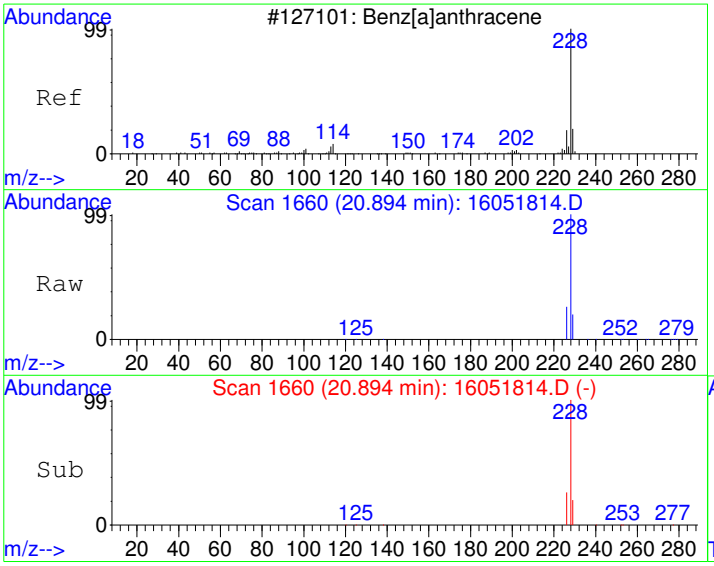


#15
Pyrene
Concen: 2463.87 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:202 Resp: 1032669

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	18.2	0.0	48.0

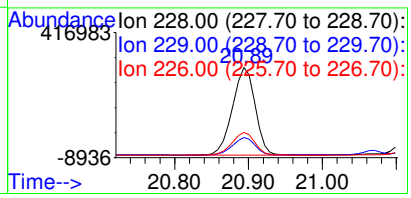


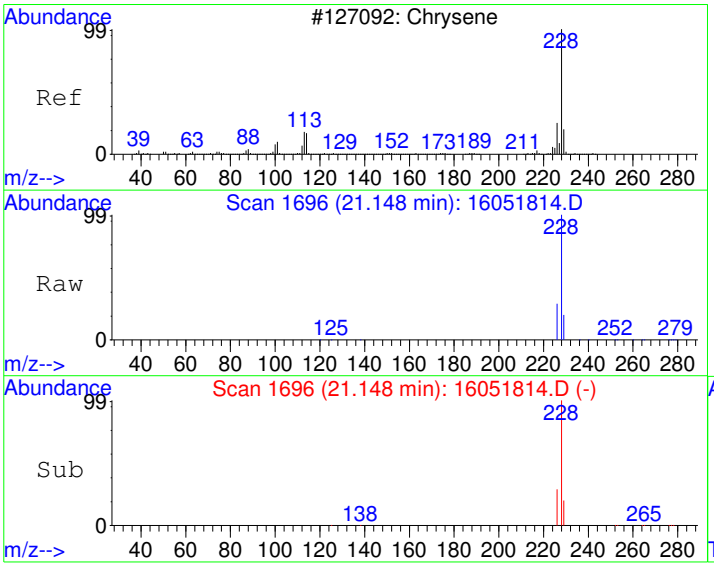


#18
Benzo[a]anthracene
Concen: 1701.58 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:228 Resp: 634734

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

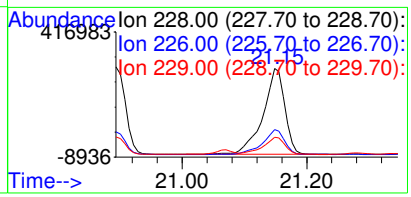


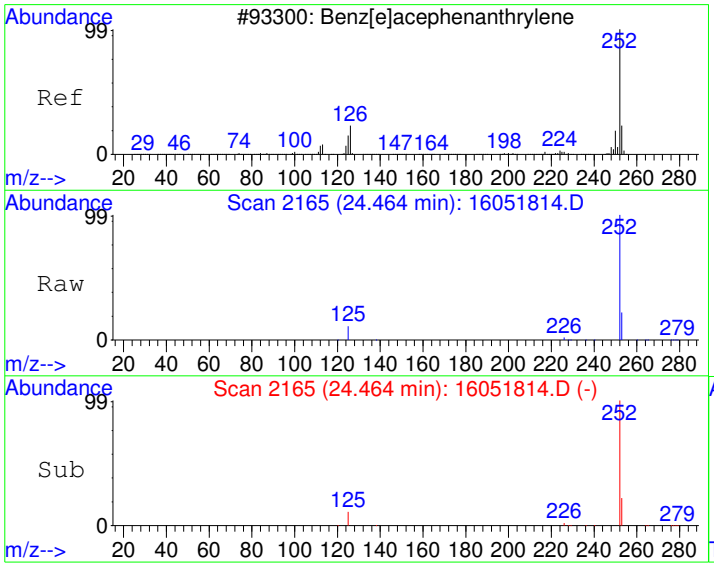


#19
Chrysene
Concen: 1976.80 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:228 Resp: 712475

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	20.1	0.0	50.1

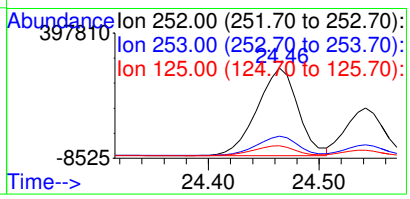


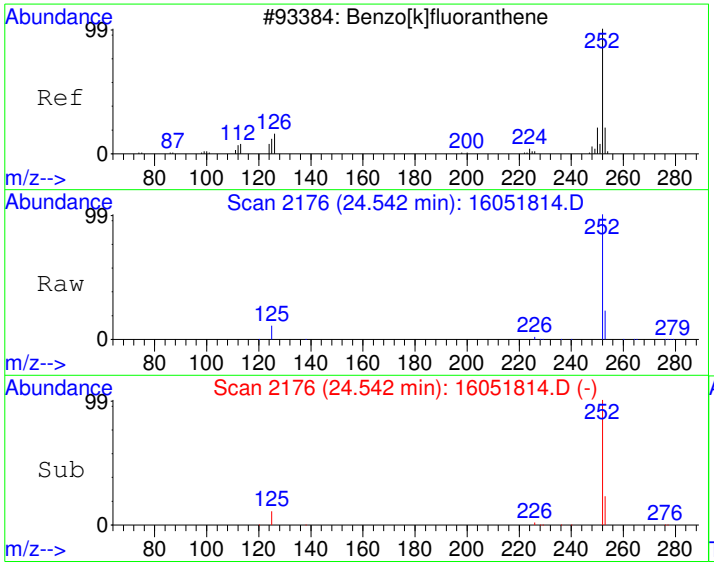


#21
Benzo[b]fluoranthene
Concen: 1857.61 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:252 Resp: 729042

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.2
125	11.3	0.0	41.0

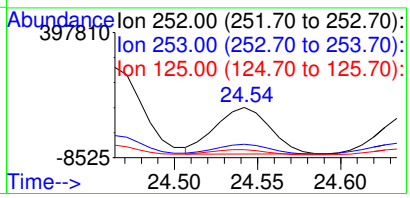


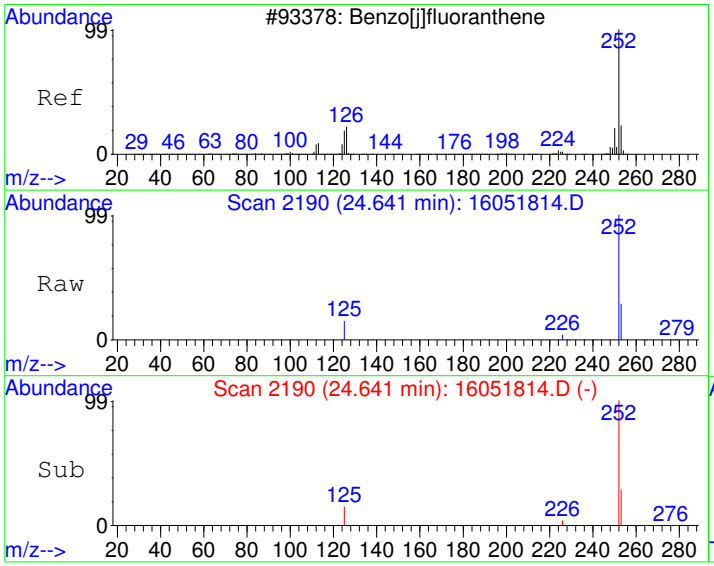


#22
Benzo[k]fluoranthene
Concen: 944.64 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:252 Resp: 347784

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.1	42.1
125	11.1	0.0	31.3

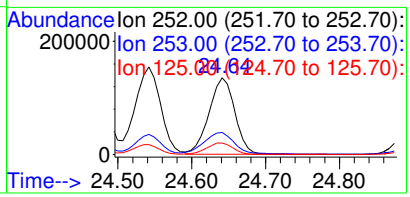


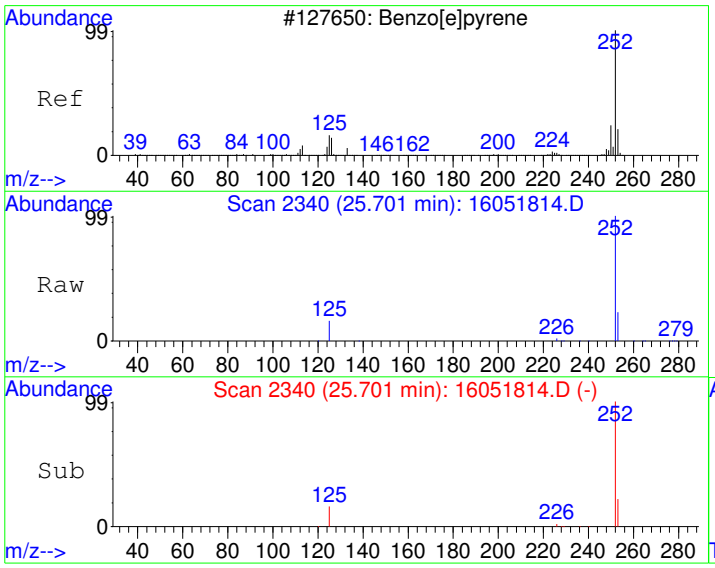


#23
Benzo(j)fluoranthene
Concen: 1000.88 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:252 Resp: 328247

Ion	Ratio	Lower	Upper
252	100		
253	28.2	2.1	42.1
125	15.1	0.0	34.4

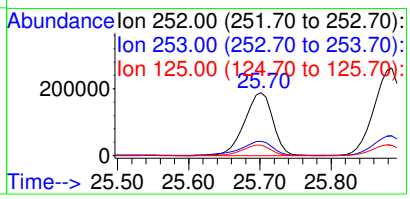


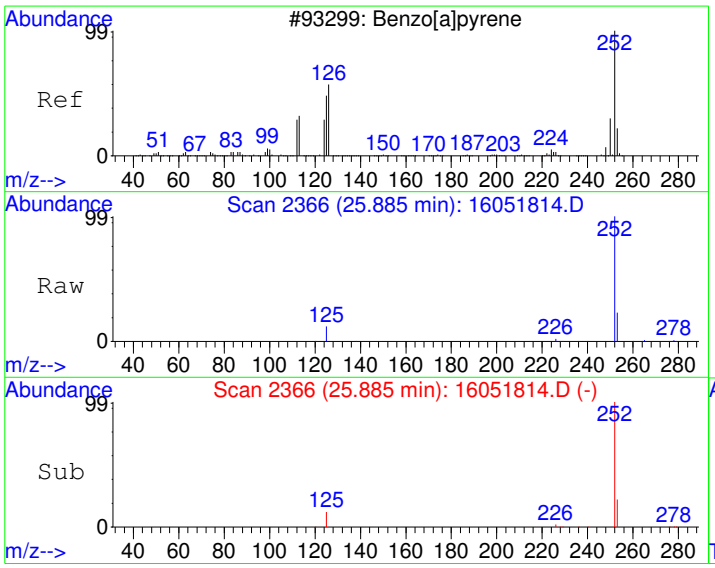


#24
Benzo[e]pyrene
Concen: 1478.97 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:252 Resp: 519816

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	16.3	0.0	36.1

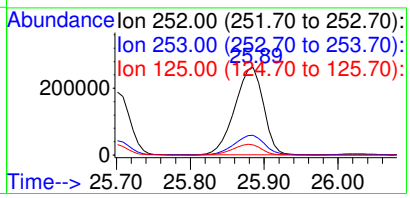


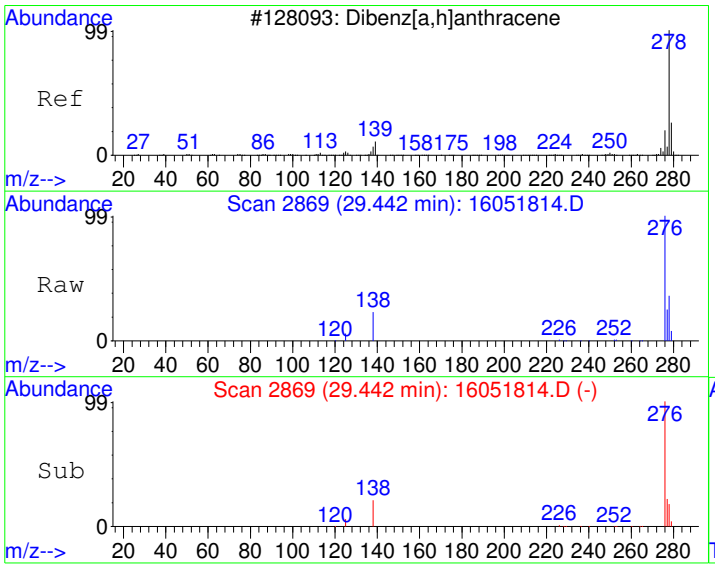


#25
Benzo[a]pyrene
Concen: 1967.81 ug/kg
RT: 25.89 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:252 Resp: 706764

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	11.6	0.0	31.7

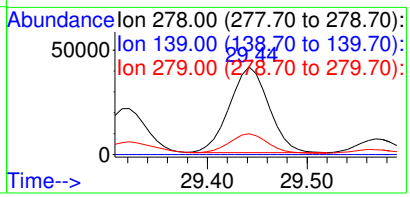


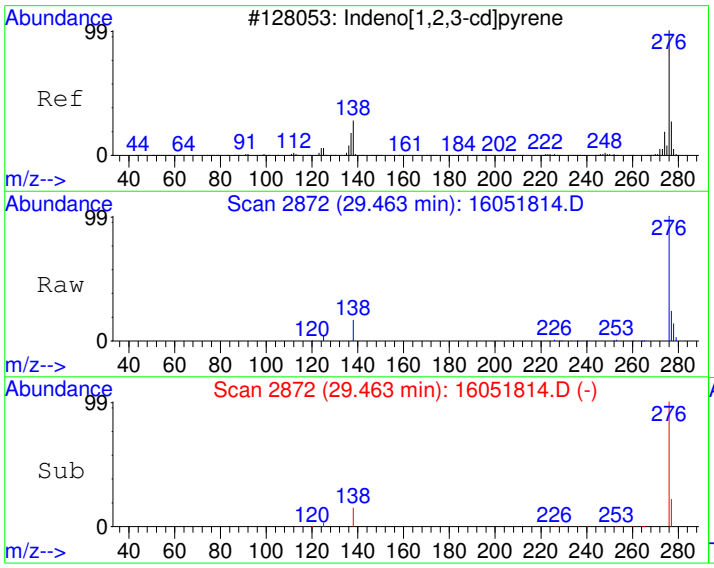


#26
Dibenz[a,h]anthracene
Concen: 340.11 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:278 Resp: 111251

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	4.2	44.2

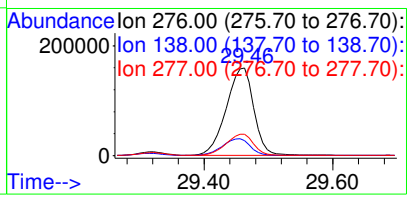


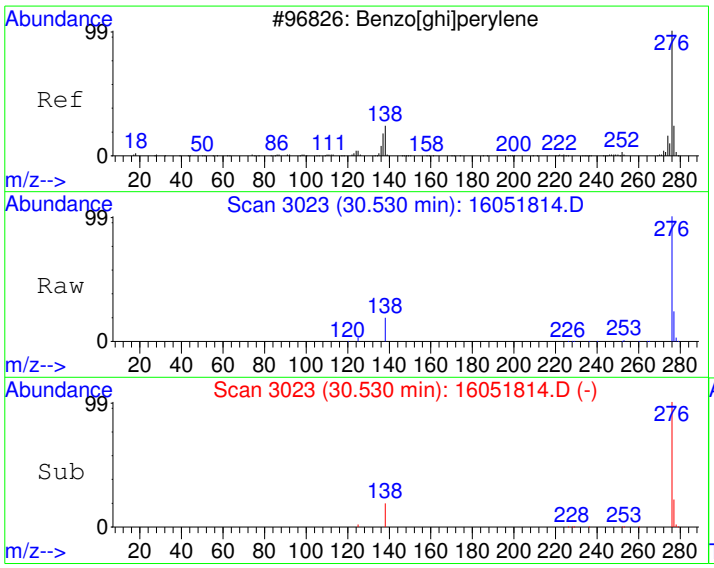


#27
Indeno[1,2,3-cd]pyrene
Concen: 1211.54 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:276 Resp: 472764

Ion	Ratio	Lower	Upper
276	100		
138	17.0	6.7	46.7
277	24.3	5.8	45.8

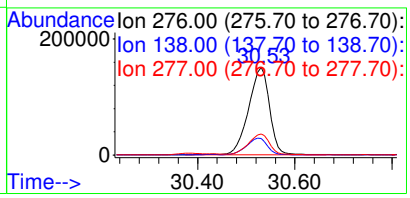




#28
Benzo[g,h,i]perylene
Concen: 1472.14 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:276 Resp: 447945

Ion	Ratio	Lower	Upper
276	100		
138	18.7	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051815.D Vial: 15
Acq On : 18 May 2016 5:46 pm Operator:
Sample : 1605096-52A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

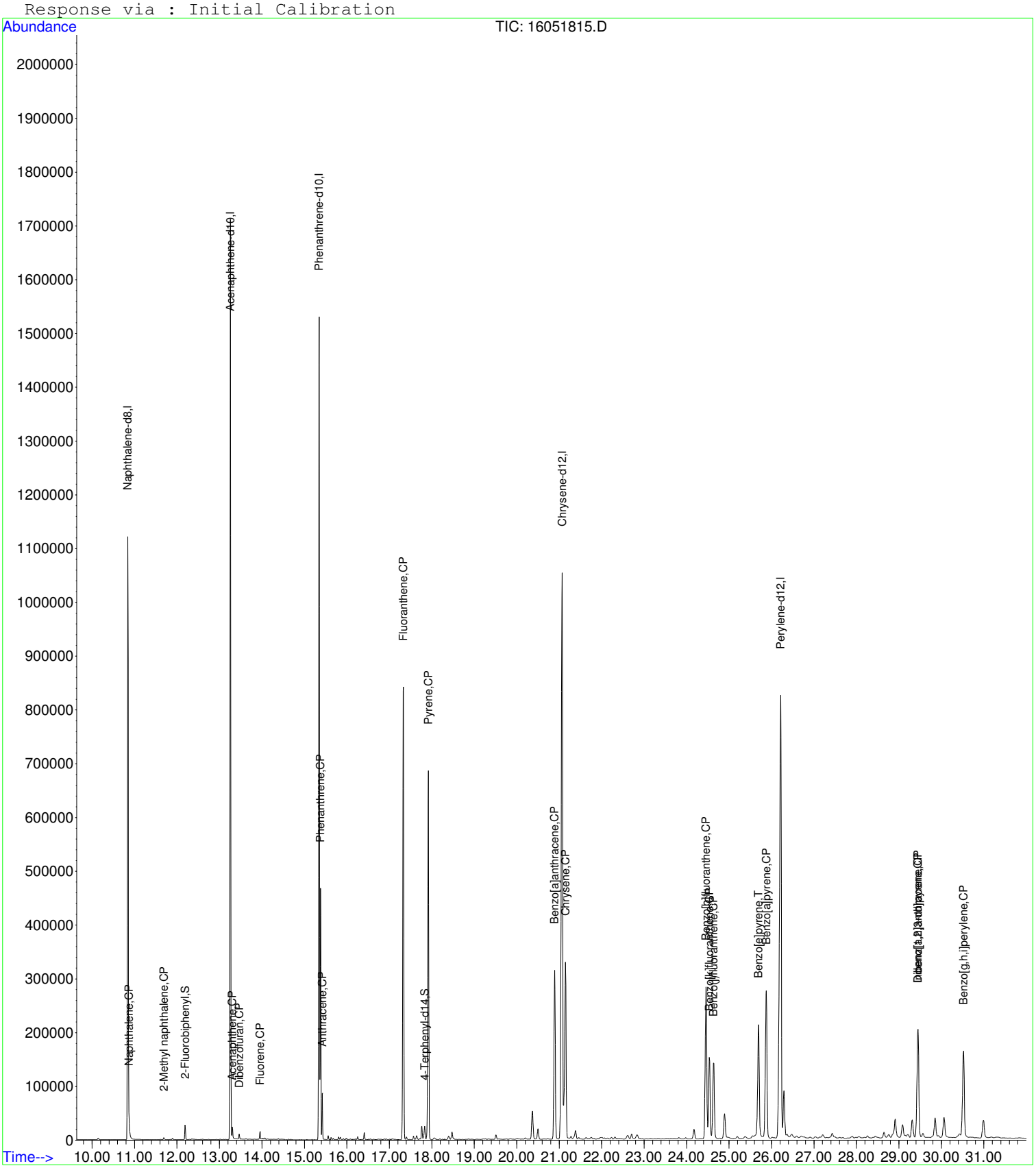
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1415264	4000.00	ug/kg	122
5) Acenaphthene-d10	13.26	164	922307	4000.00	ug/kg	80
11) Phenanthrene-d10	15.35	188	1660668	4000.00	ug/kg	81
17) Chrysene-d12	21.07	240	1790902	4000.00	ug/kg	79
20) Perylene-d12	26.22	264	1684571	4000.00	ug/kg	82
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	21767	80.90	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
16) 4-Terphenyl-d14	17.83	244	29905	69.60	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.74%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	10340	29.21	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	2243	7.17	ug/kg	97
6) Dibenzofuran	13.47	168	8226	23.80	ug/kg	97
9) Acenaphthene	13.30	154	9152	37.12	ug/kg	95
10) Fluorene	13.96	166	7477	24.97	ug/kg	98
12) Phenanthrene	15.38	178	377808	865.09	ug/kg	99
13) Anthracene	15.42	178	74093	179.24	ug/kg	99
14) Fluoranthene	17.33	202	852820	1887.02	ug/kg	99
15) Pyrene	17.92	202	739577	1575.35	ug/kg	100
18) Benzo[a]anthracene	20.89	228	464419	1106.91	ug/kg	99
19) Chrysene	21.15	228	524965	1294.99	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	540262	1216.82	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	257628	618.54	ug/kg	99
23) Benzo(j)fluoranthene	24.64	252	241174	650.03	ug/kg	93
24) Benzo[e]pyrene	25.69	252	391267	984.02	ug/kg	99
25) Benzo[a]pyrene	25.88	252	516094	1270.16	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	79673	215.30	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.45	276	340017	770.22	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	322100	935.70	ug/kg	100

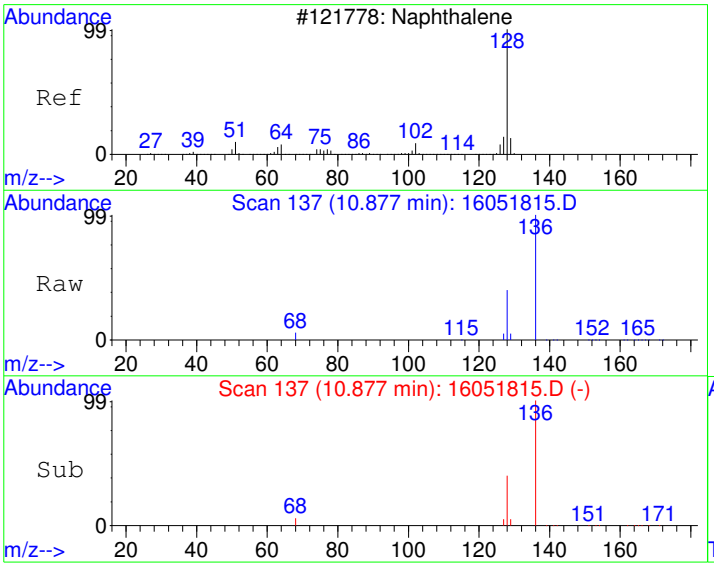
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051815.D Vial: 15
Acq On : 18 May 2016 5:46 pm Operator:
Sample : 1605096-52A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:14 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

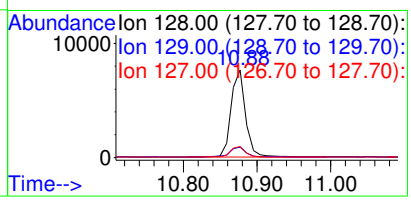


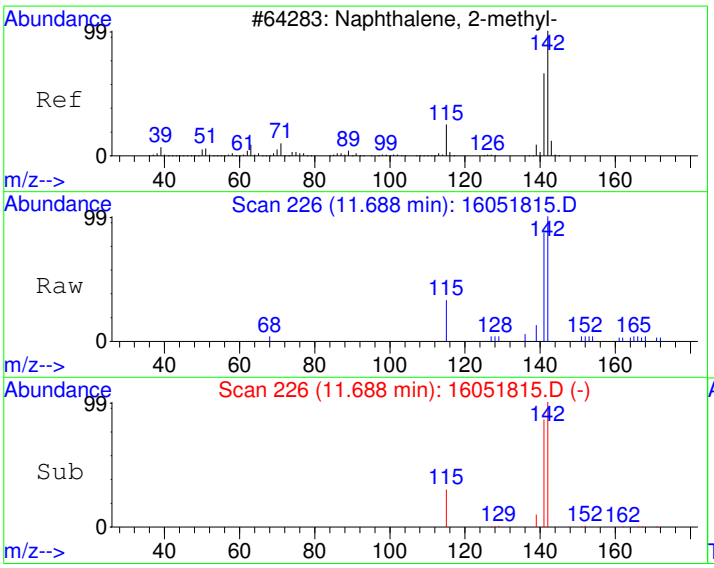


#2
Naphthalene
Concen: 29.21 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:128 Resp: 10340

Ion	Ratio	Lower	Upper
128	100		
129	11.5	0.0	41.1
127	11.9	0.0	42.4

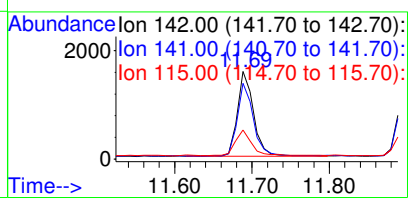


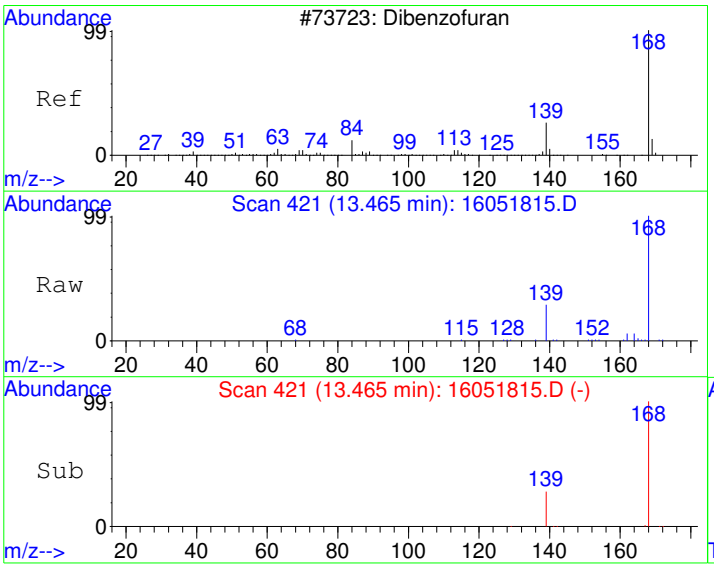


#3
2-Methyl naphthalene
Concen: 7.17 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:142 Resp: 2243

Ion	Ratio	Lower	Upper
142	100		
141	85.6	54.4	114.4
115	30.1	0.0	56.0

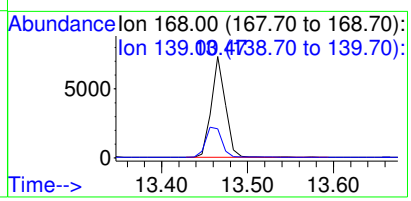


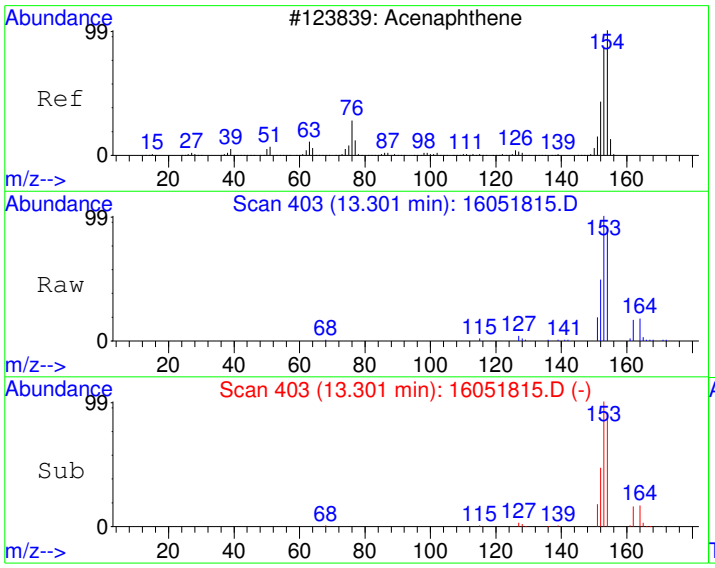


#6
Dibenzofuran
Concen: 23.80 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:168 Resp: 8226

Ion	Ratio	Lower	Upper
168	100		
139	35.4	27.0	40.4

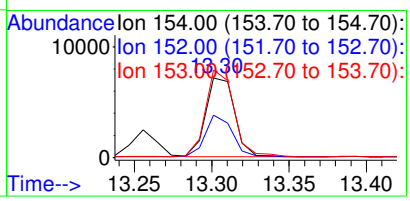


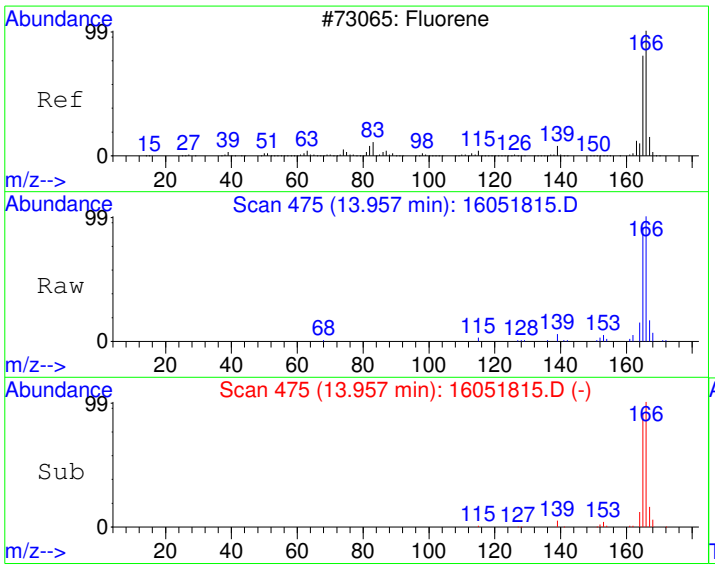


#9
Acenaphthene
Concen: 37.12 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:154 Resp: 9152

Ion	Ratio	Lower	Upper
154	100		
152	52.8	18.9	78.9
153	110.0	75.2	135.2

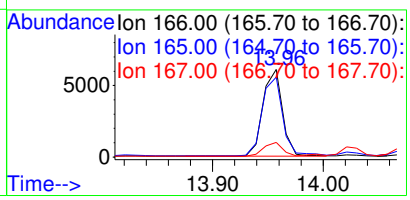


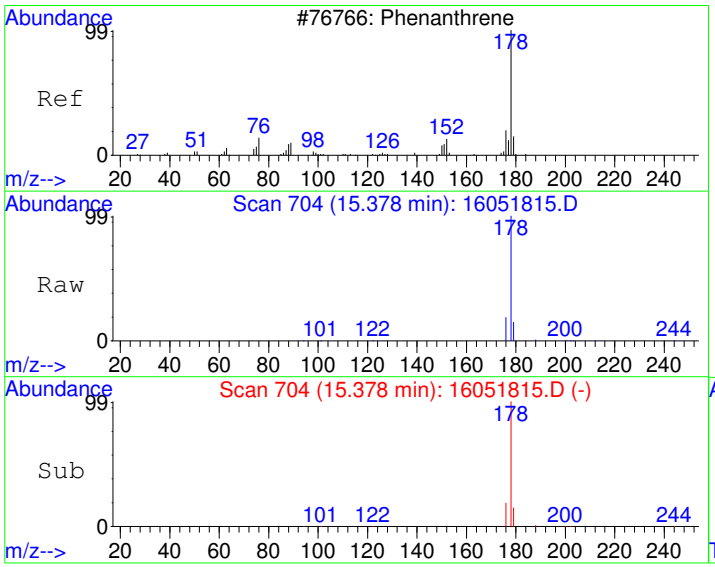


#10
Fluorene
Concen: 24.97 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:166 Resp: 7477

Ion	Ratio	Lower	Upper
166	100		
165	90.6	61.8	121.8
167	15.9	0.0	43.6

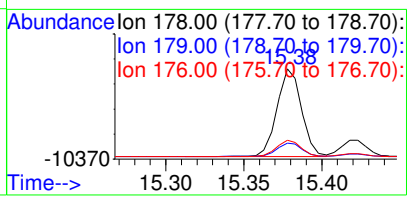


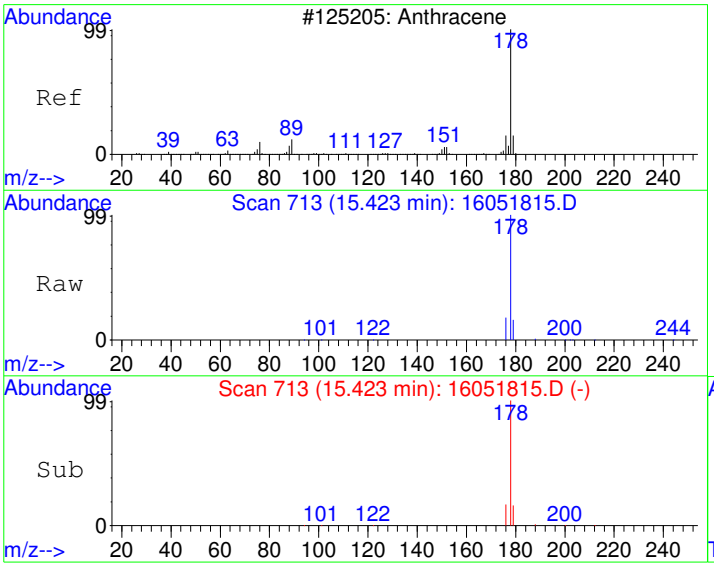


#12
Phenanthrene
Concen: 865.09 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:178 Resp: 377808

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.6	0.0	48.5

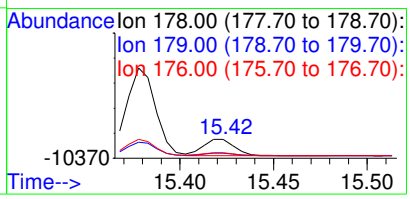


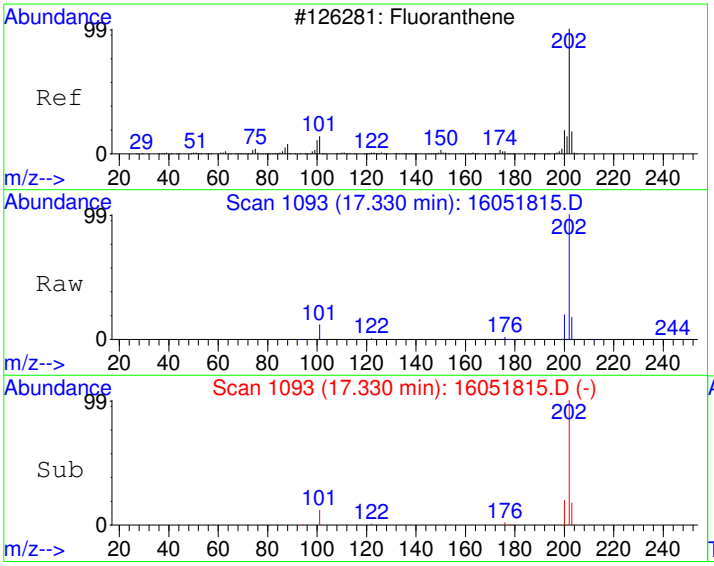


#13
Anthracene
Concen: 179.24 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:178 Resp: 74093

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.4	0.0	48.2

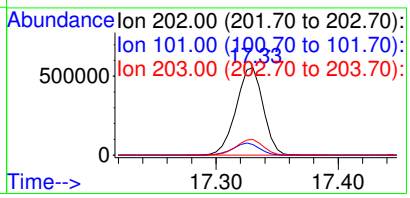


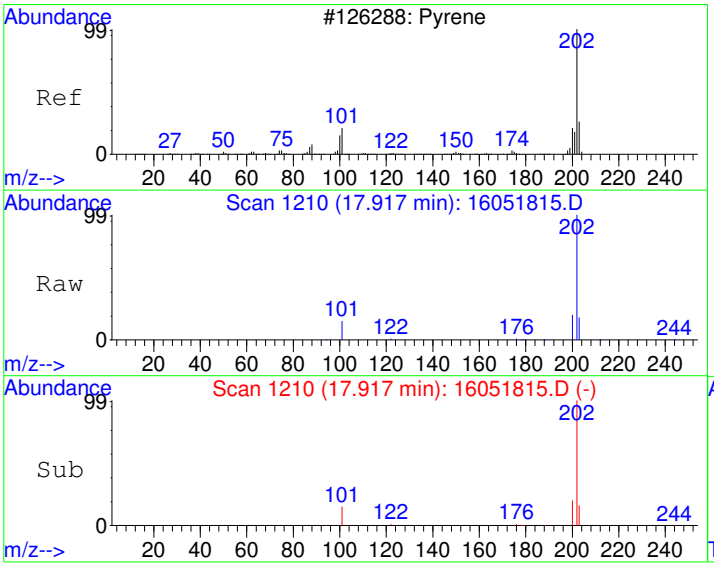


#14
Fluoranthene
Concen: 1887.02 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:202 Resp: 852820

Ion	Ratio	Lower	Upper
202	100		
101	11.9	0.0	43.0
203	17.8	0.0	47.9

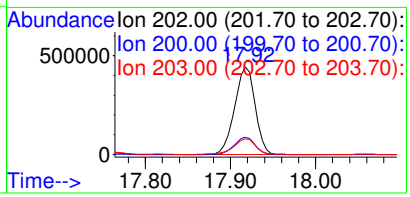


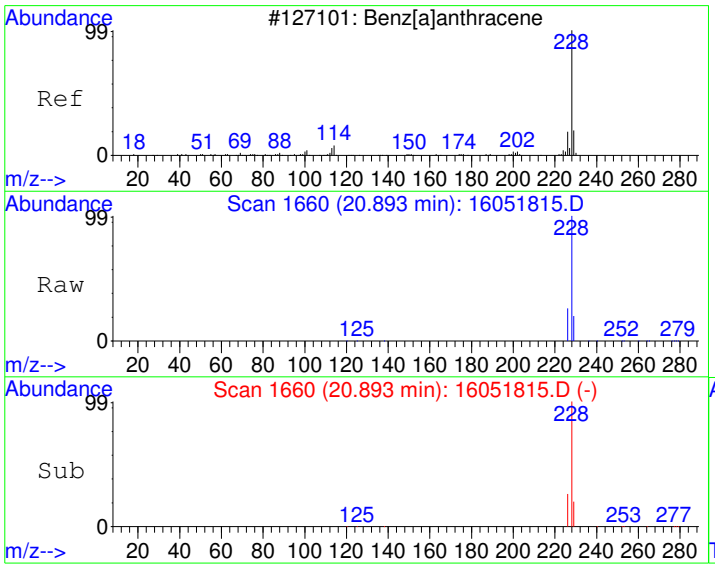


#15
Pyrene
Concen: 1575.35 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:202 Resp: 739577

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.0
203	17.9	0.0	48.0

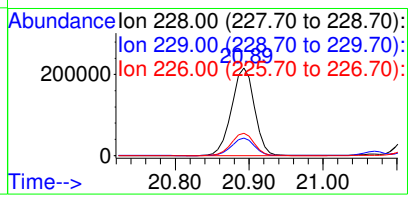


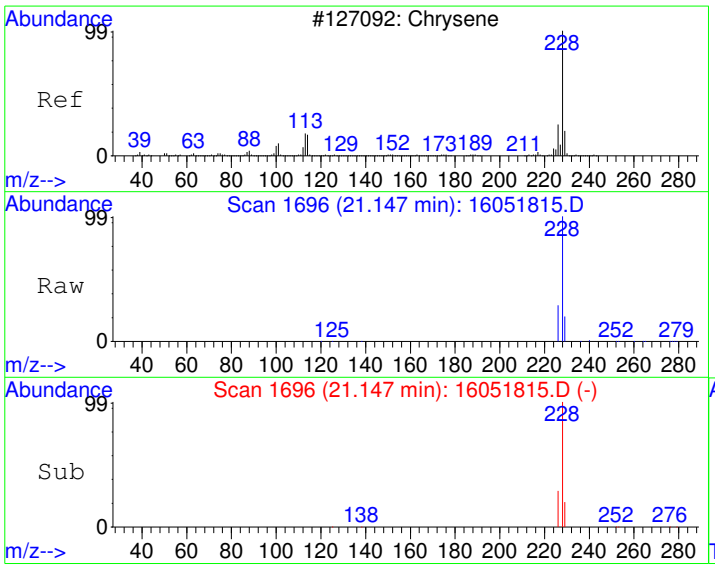


#18
Benzo[a]anthracene
Concen: 1106.91 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:228 Resp: 464419

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.7	0.0	55.2

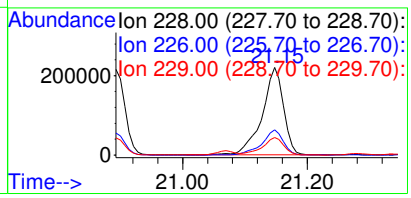


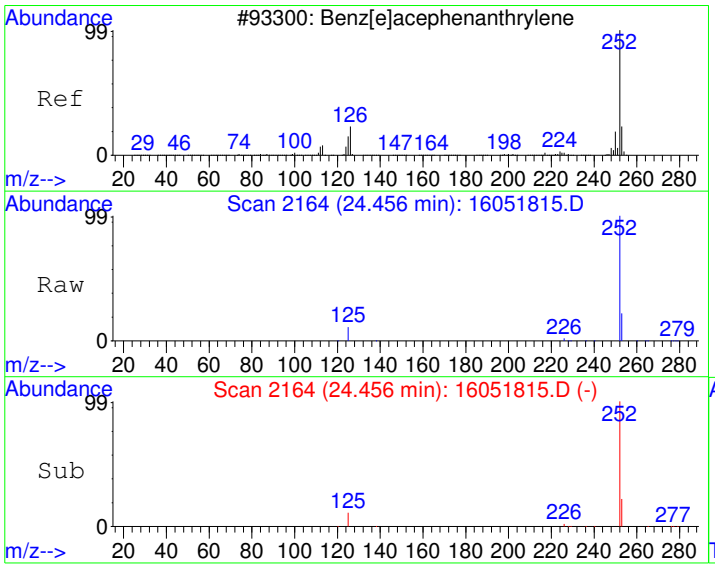


#19
Chrysene
Concen: 1294.99 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:228 Resp: 524965

Ion	Ratio	Lower	Upper
228	100		
226	28.6	0.0	58.1
229	19.8	0.0	50.1

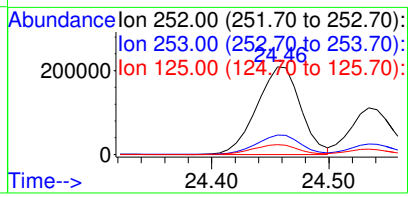


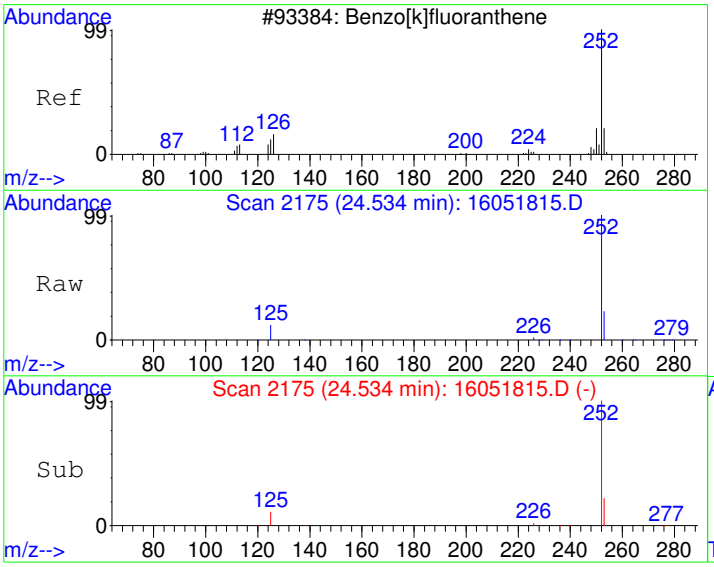


#21
Benzo[b]fluoranthene
Concen: 1216.82 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:252 Resp: 540262

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	11.4	0.0	41.0

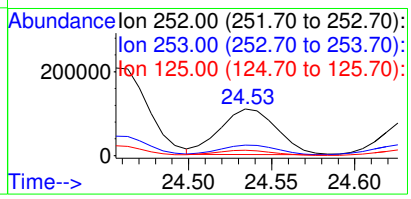


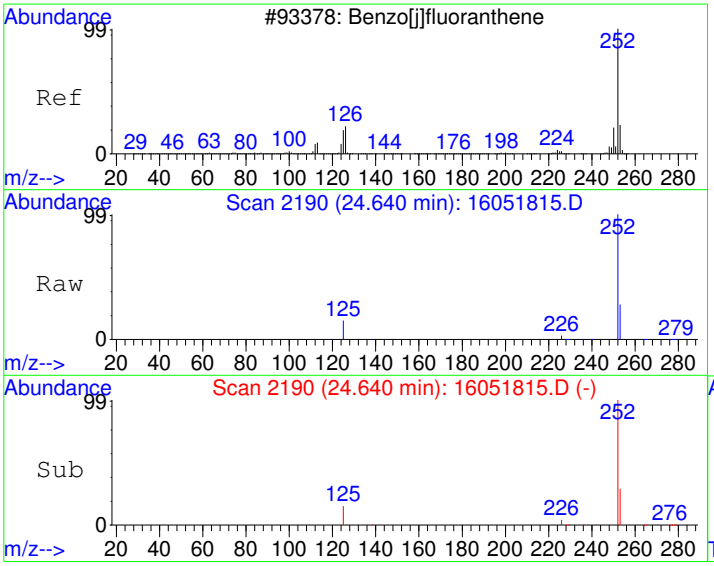


#22
Benzo[k]fluoranthene
Concen: 618.54 ug/kg
RT: 24.53 min Scan# 2175
Delta R.T. -0.04 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:252 Resp: 257628

Ion	Ratio	Lower	Upper
252	100		
253	21.3	2.1	42.1
125	11.5	0.0	31.3

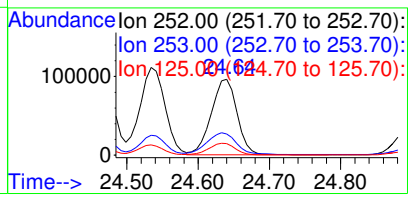


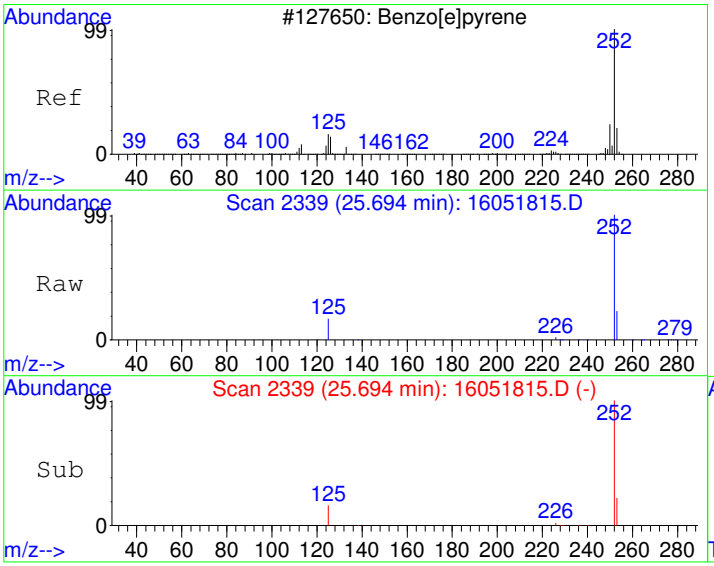


#23
Benzo(j)fluoranthene
Concen: 650.03 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:252 Resp: 241174

Ion	Ratio	Lower	Upper
252	100		
253	27.0	2.1	42.1
125	14.7	0.0	34.4

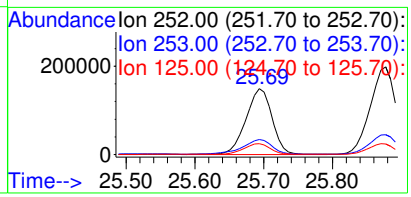


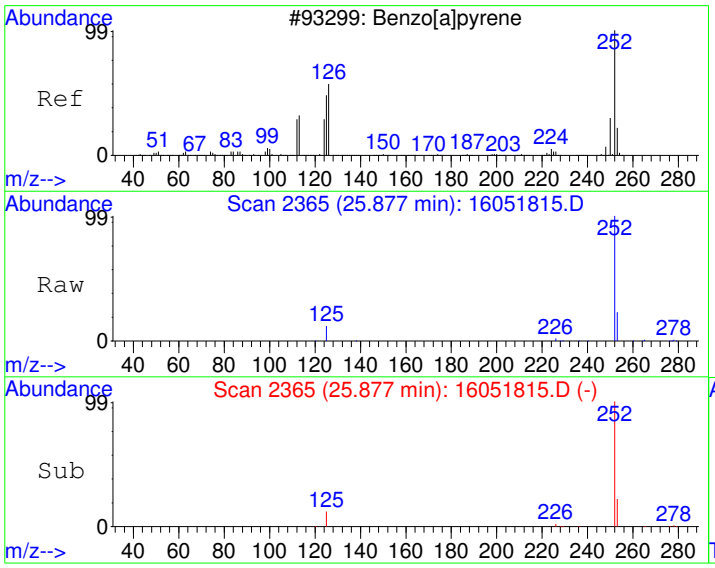


#24
Benzo[e]pyrene
Concen: 984.02 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:252 Resp: 391267

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	16.4	0.0	36.1

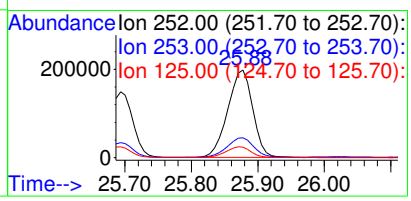


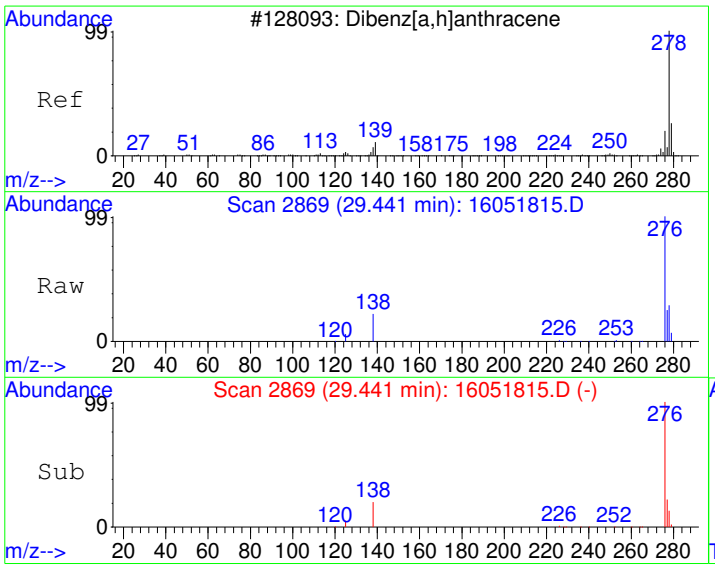


#25
Benzo[a]pyrene
Concen: 1270.16 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:252 Resp: 516094

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.8	0.0	31.7

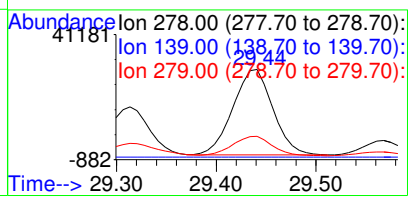


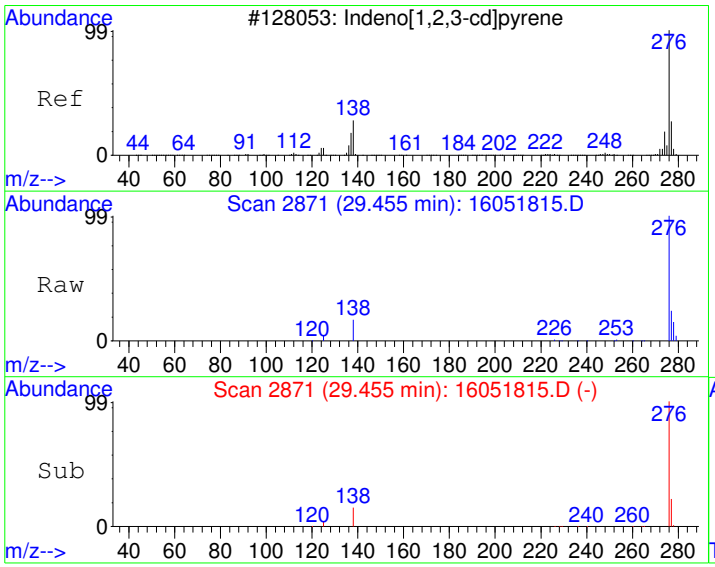


#26
Dibenz[a,h]anthracene
Concen: 215.30 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:278 Resp: 79673

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.6	4.2	44.2

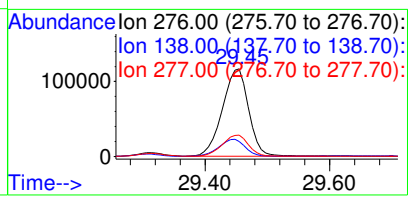


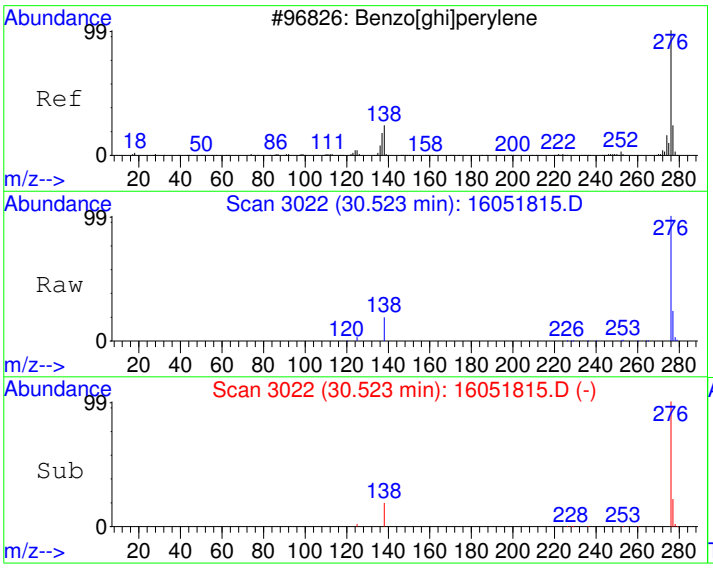


#27
Indeno[1,2,3-cd]pyrene
Concen: 770.22 ug/kg
RT: 29.45 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:276 Resp: 340017

Ion	Ratio	Lower	Upper
276	100		
138	16.8	6.7	46.7
277	24.3	5.8	45.8

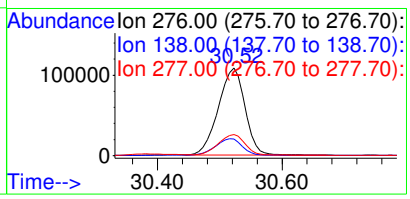




#28
Benzo[g,h,i]perylene
Concen: 935.70 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051815.D
Acq: 18 May 2016 5:46 pm

Tgt Ion:276 Resp: 322100

Ion	Ratio	Lower	Upper
276	100		
138	18.7	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051816.D Vial: 16
Acq On : 18 May 2016 6:26 pm Operator:
Sample : 1605096-52AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

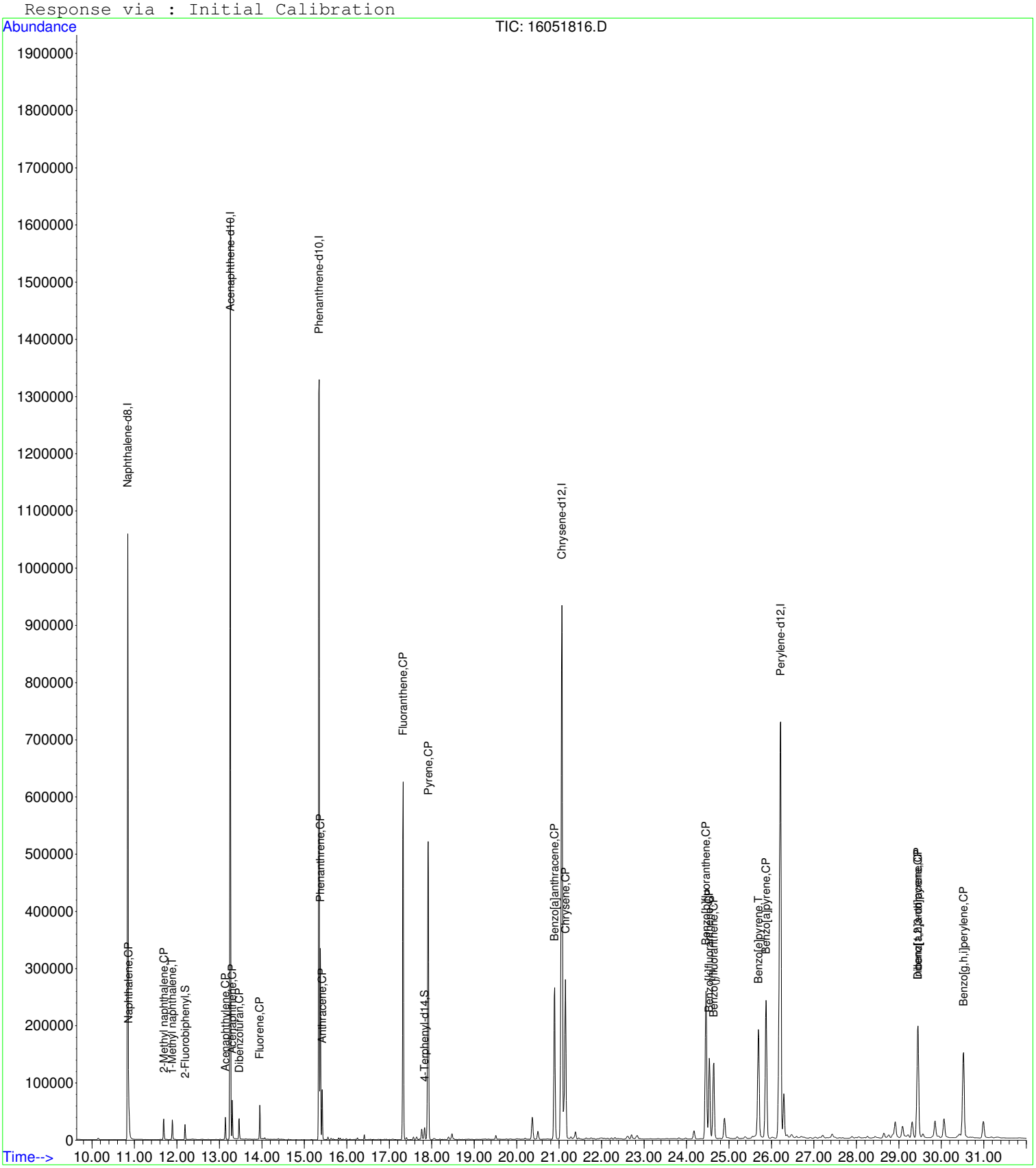
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1251675	4000.00	ug/kg	108
5) Acenaphthene-d10	13.26	164	834831	4000.00	ug/kg	73
11) Phenanthrene-d10	15.35	188	1472823	4000.00	ug/kg	72
17) Chrysene-d12	21.06	240	1589111	4000.00	ug/kg	70
20) Perylene-d12	26.22	264	1485995	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20310	83.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#		
16) 4-Terphenyl-d14	17.83	244	26875	70.53	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
2) Naphthalene	10.87	128	33045	105.54	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	21032	76.05	ug/kg	99
4) 1-Methyl naphthalene	11.89	142	18746	74.01	ug/kg	93
6) Dibenzofuran	13.47	168	34822	111.29	ug/kg	100
8) Acenaphthylene	13.14	152	32513	90.43	ug/kg	99
9) Acenaphthene	13.30	154	25868	115.92	ug/kg	98
10) Fluorene	13.95	166	28827	106.37	ug/kg	97
12) Phenanthrene	15.38	178	272361	703.18	ug/kg	99
13) Anthracene	15.42	178	75256	205.28	ug/kg	99
14) Fluoranthene	17.32	202	632390	1577.75	ug/kg	99
15) Pyrene	17.92	202	564373	1355.48	ug/kg	100
18) Benzo[a]anthracene	20.89	228	382246	1026.74	ug/kg	99
19) Chrysene	21.15	228	444328	1235.25	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	479751	1224.93	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	241520	657.36	ug/kg	99
23) Benzo(j)fluoranthene	24.64	252	224360	685.52	ug/kg	94
24) Benzo[e]pyrene	25.69	252	354260	1010.00	ug/kg	100
25) Benzo[a]pyrene	25.87	252	451208	1258.86	ug/kg	98
26) Dibenz[a,h]anthracene	29.44	278	93177	285.44	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	316071	811.65	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	295731	973.90	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051816.D Vial: 16
Acq On : 18 May 2016 6:26 pm Operator:
Sample : 1605096-52AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051817.D Vial: 17
Acq On : 18 May 2016 7:06 pm Operator:
Sample : 1605096-52AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

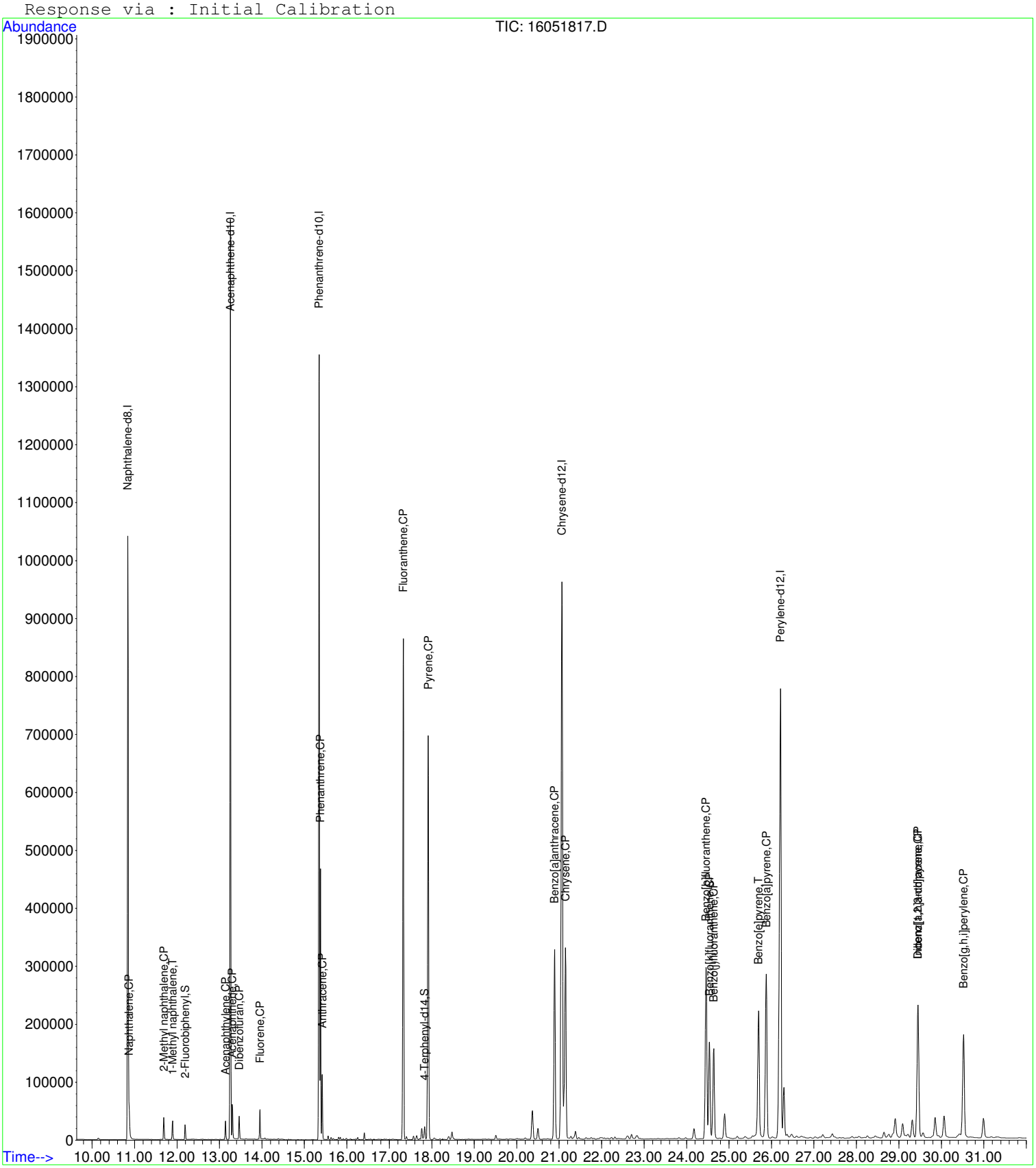
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1322183	4000.00	ug/kg	114
5) Acenaphthene-d10	13.26	164	849891	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1502953	4000.00	ug/kg	74
17) Chrysene-d12	21.06	240	1635609	4000.00	ug/kg	72
20) Perylene-d12	26.21	264	1529829	4000.00	ug/kg	74
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20425	82.39	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
16) 4-Terphenyl-d14	17.83	244	26903	69.19	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	32536	98.38	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	20686	70.81	ug/kg	98
4) 1-Methyl naphthalene	11.90	142	18820	70.34	ug/kg	99
6) Dibenzofuran	13.46	168	34408	108.02	ug/kg	99
8) Acenaphthylene	13.15	152	31952	87.30	ug/kg	98
9) Acenaphthene	13.30	154	26074	114.77	ug/kg	95
10) Fluorene	13.96	166	28277	102.49	ug/kg	98
12) Phenanthrene	15.38	178	389681	985.91	ug/kg	99
13) Anthracene	15.42	178	97047	259.41	ug/kg	99
14) Fluoranthene	17.33	202	861441	2106.12	ug/kg	99
15) Pyrene	17.92	202	744734	1752.80	ug/kg	100
18) Benzo[a]anthracene	20.89	228	477965	1247.35	ug/kg	99
19) Chrysene	21.15	228	536087	1447.98	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	563836	1398.37	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	289026	764.12	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	263065	780.75	ug/kg	94
24) Benzo[e]pyrene	25.69	252	411766	1140.32	ug/kg	99
25) Benzo[a]pyrene	25.88	252	527563	1429.71	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	104261	310.25	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	367954	917.81	ug/kg	90
28) Benzo[g,h,i]perylene	30.52	276	344247	1101.19	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051817.D Vial: 17
Acq On : 18 May 2016 7:06 pm Operator:
Sample : 1605096-52AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051819.D Vial: 19
Acq On : 18 May 2016 8:21 pm Operator:
Sample : ICV2-160518 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

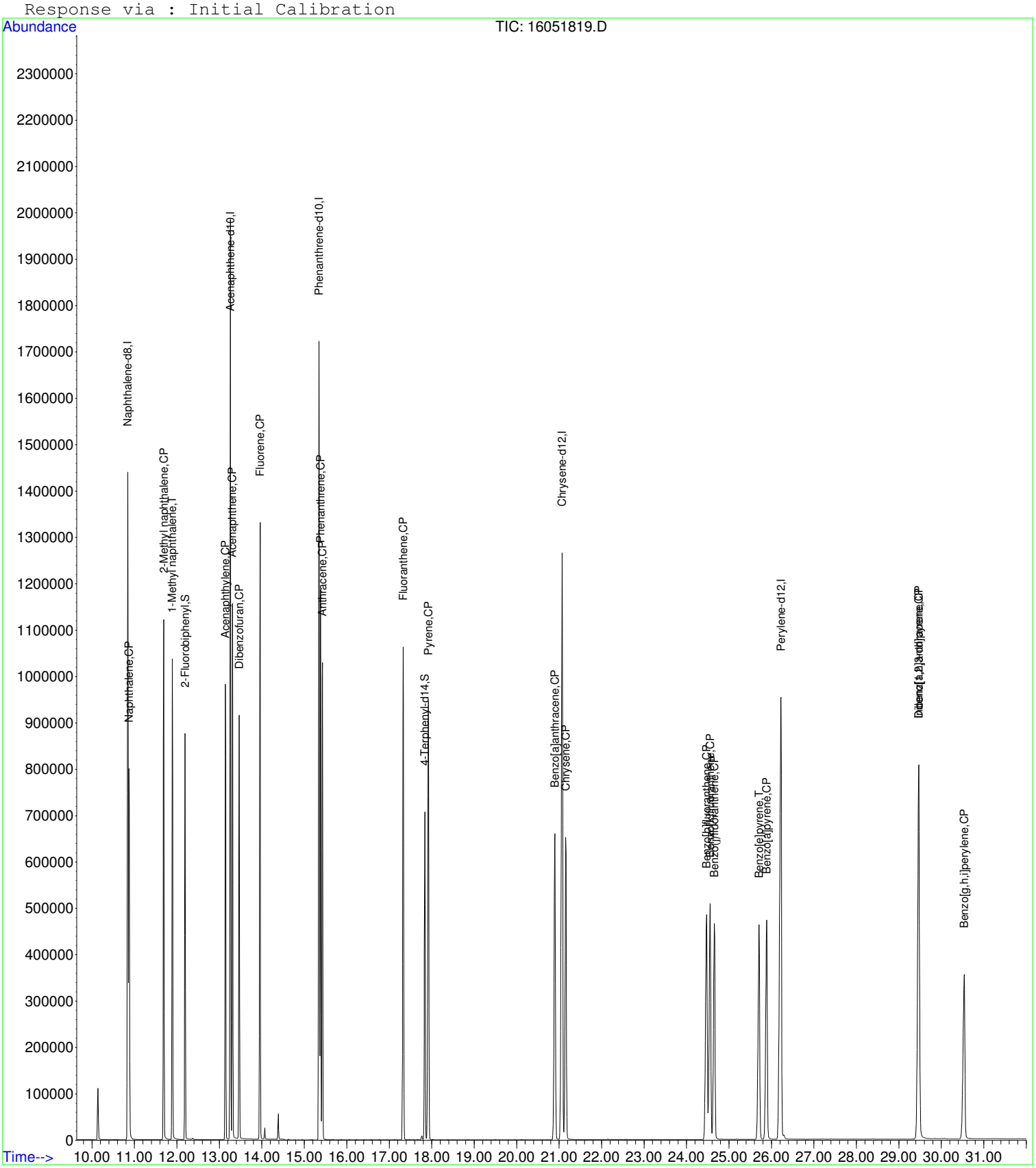
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1725301	4000.00	ug/kg	149
5) Acenaphthene-d10	13.26	164	1045829	4000.00	ug/kg	91
11) Phenanthrene-d10	15.35	188	1933762	4000.00	ug/kg	95
17) Chrysene-d12	21.07	240	2154482	4000.00	ug/kg	95
20) Perylene-d12	26.22	264	1970290	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	631058	2068.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 51.71%			
16) 4-Terphenyl-d14	17.84	244	934188	1867.26	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 46.68%			
Target Compounds						Qvalue
2) Naphthalene	10.87	128	837014	1939.50	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	597875	1568.37	ug/kg	98
4) 1-Methyl naphthalene	11.89	142	537924	1540.73	ug/kg	93
6) Dibenzofuran	13.47	168	760642	1940.58	ug/kg	99
8) Acenaphthylene	13.14	152	922955	2049.21	ug/kg	99
9) Acenaphthene	13.31	154	546224	1953.90	ug/kg	96
10) Fluorene	13.96	166	684620	2016.51	ug/kg	97
12) Phenanthrene	15.38	178	955385	1878.65	ug/kg	100
13) Anthracene	15.43	178	888160	1845.16	ug/kg	99
14) Fluoranthene	17.33	202	1038931	1974.18	ug/kg	100
15) Pyrene	17.92	202	1039265	1901.08	ug/kg	100
18) Benzo[a]anthracene	20.90	228	989137	1959.69	ug/kg	99
19) Chrysene	21.16	228	911821	1869.70	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	992183	1910.61	ug/kg	100
22) Benzo[k]fluoranthene	24.56	252	916324	1880.98	ug/kg	100
23) Benzo(j)fluoranthene	24.65	252	820379	1890.49	ug/kg	99
24) Benzo[e]pyrene	25.71	252	862180	1853.90	ug/kg	100
25) Benzo[a]pyrene	25.89	252	895524	1884.36	ug/kg	99
26) Dibenz[a,h]anthracene	29.47	278	791404	1828.51	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.47	276	918100	1778.12	ug/kg	97
28) Benzo[g,h,i]perylene	30.54	276	730193	1813.60	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051819.D Vial: 19
Acq On : 18 May 2016 8:21 pm Operator:
Sample : ICV2-160518 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

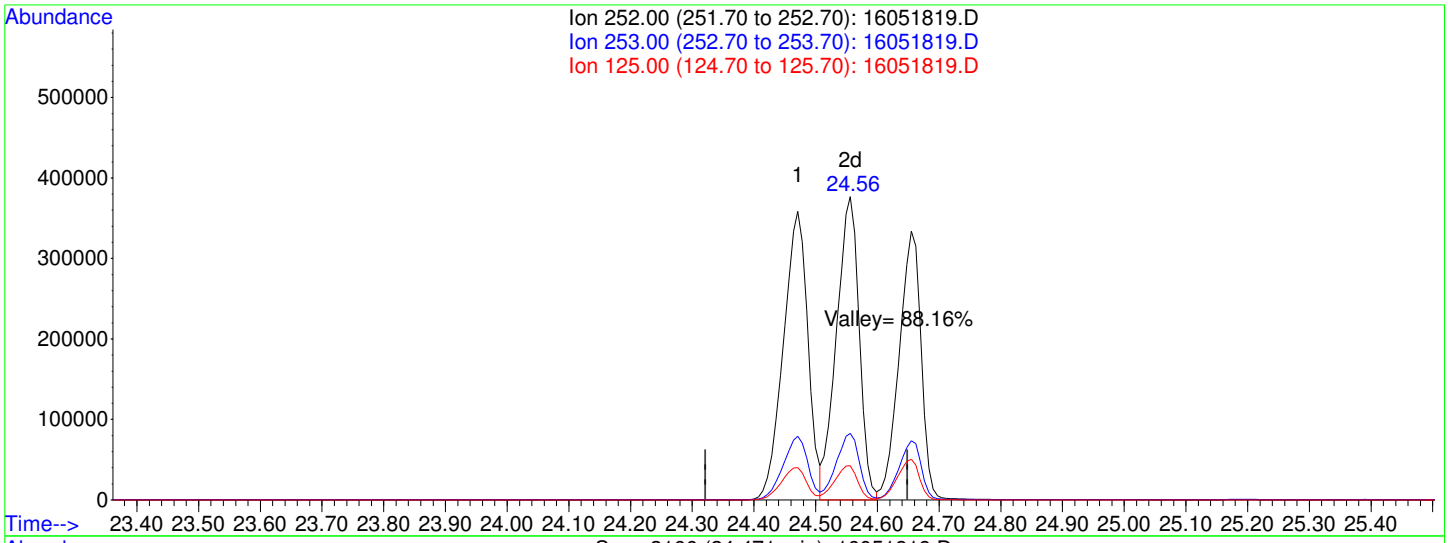
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

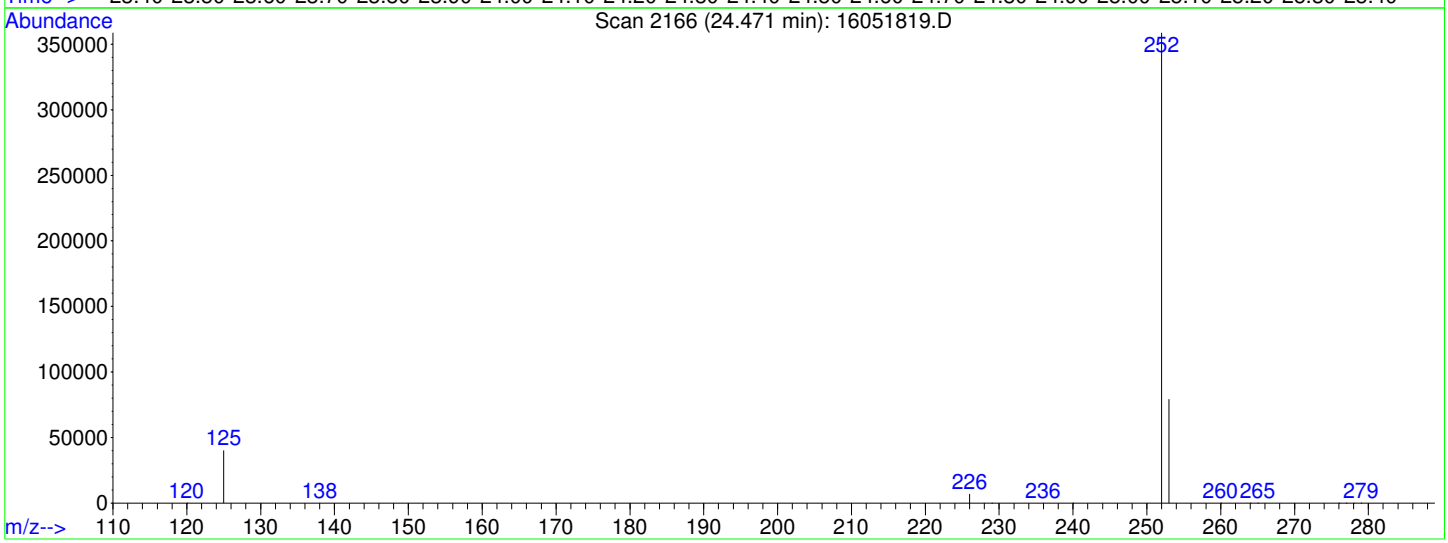


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160518\16051819.D Vial: 19
Acq On : 18 May 2016 8:21 pm Operator:
Sample : ICV2-160518 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 18 20:54 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051819.D

(21) Benzo[b]fluoranthene (CP)

24.47min 1910.61ug/kg

response 992183

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	21.99
125.00	11.00	11.22
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051820.D Vial: 20
Acq On : 18 May 2016 9:02 pm Operator:
Sample : SBLK-160518 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

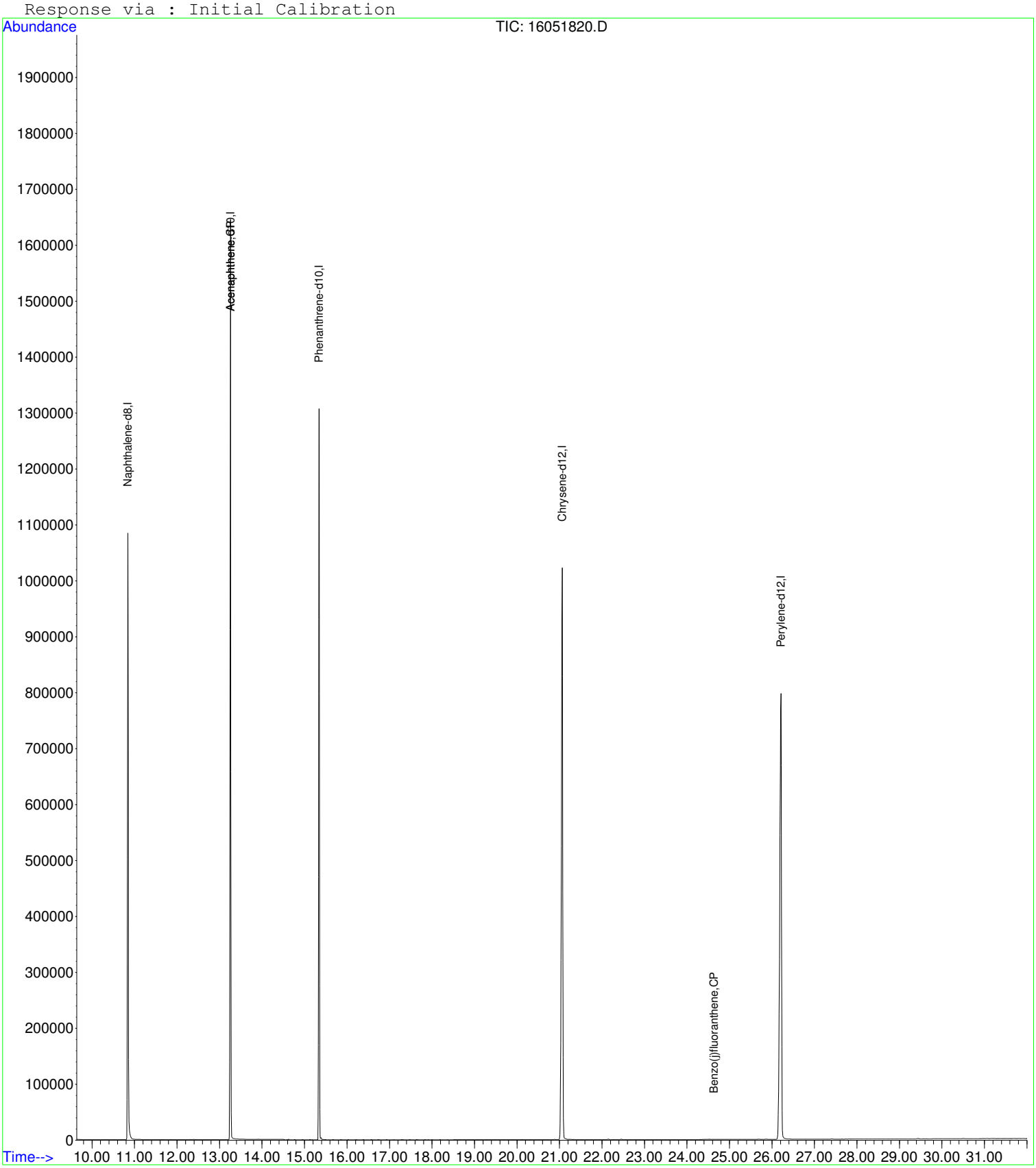
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1328758	4000.00	ug/kg	115
5) Acenaphthene-d10	13.26	164	854243	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1461568	4000.00	ug/kg	72
17) Chrysene-d12	21.06	240	1668732	4000.00	ug/kg	73
20) Perylene-d12	26.21	264	1556719	4000.00	ug/kg	76
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	91	0.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
16) 4-Terphenyl-d14	17.84	244	123	0.33	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.26	154	2594	11.36	ug/kg#	9
23) Benzo(j)fluoranthene	24.63	252	317	0.92	ug/kg	91

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051820.D Vial: 20
Acq On : 18 May 2016 9:02 pm Operator:
Sample : SBLK-160518 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051821.D Vial: 21
Acq On : 18 May 2016 9:42 pm Operator:
Sample : 1605096-51A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:15 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

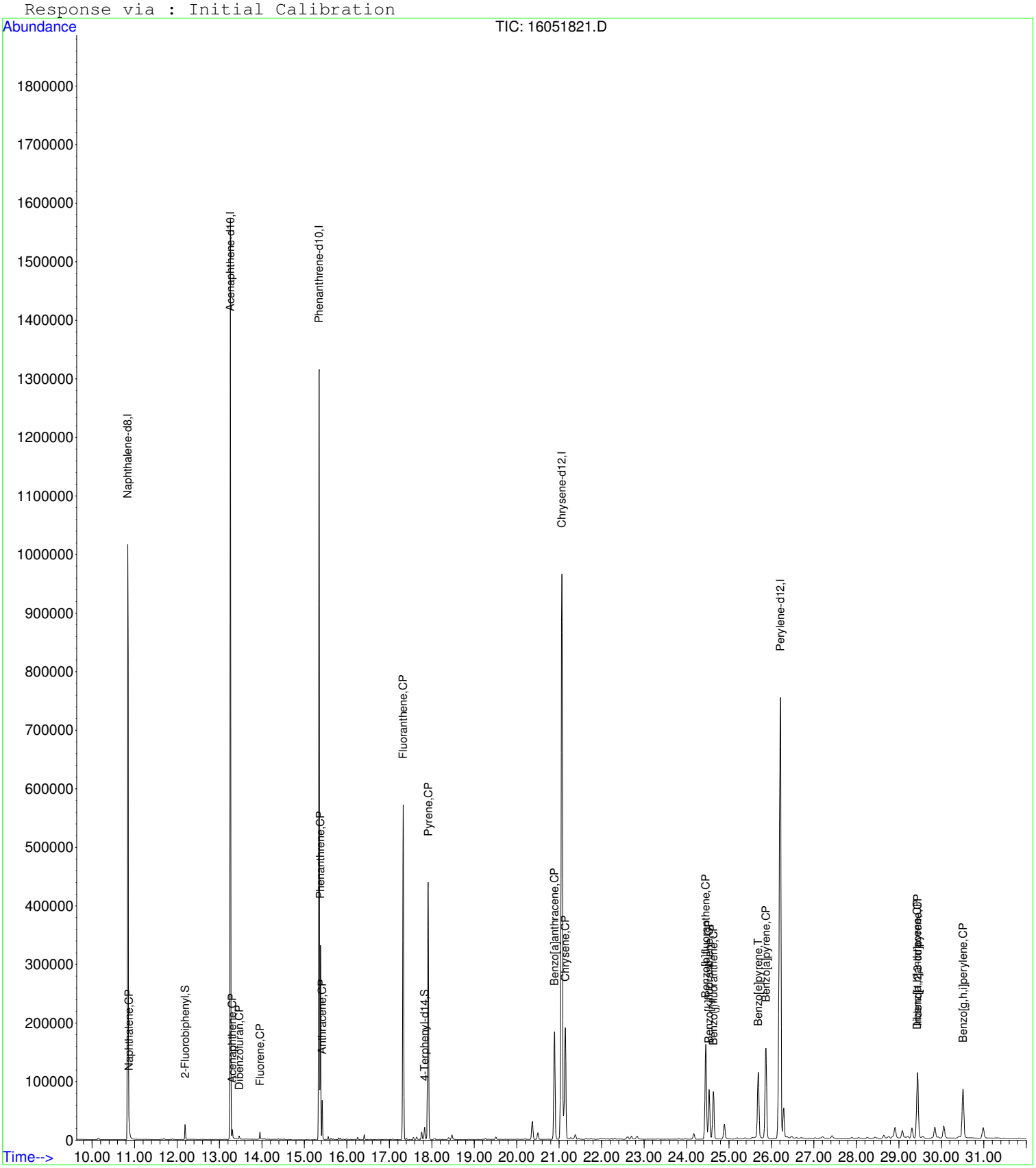
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1292871	4000.00	ug/kg	112
5) Acenaphthene-d10	13.26	164	848494	4000.00	ug/kg	74
11) Phenanthrene-d10	15.35	188	1471044	4000.00	ug/kg	72
17) Chrysene-d12	21.06	240	1608481	4000.00	ug/kg	71
20) Perylene-d12	26.21	264	1511451	4000.00	ug/kg	73
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20277	81.92	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.83	244	26754	70.30	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	5267	16.29	ug/kg	99
6) Dibenzofuran	13.46	168	4812	15.13	ug/kg	98
9) Acenaphthene	13.30	154	6273	27.66	ug/kg	96
10) Fluorene	13.96	166	6770	24.58	ug/kg	99
12) Phenanthrene	15.38	178	272469	704.31	ug/kg	99
13) Anthracene	15.42	178	57529	157.11	ug/kg	98
14) Fluoranthene	17.32	202	569412	1422.34	ug/kg	99
15) Pyrene	17.92	202	479838	1153.84	ug/kg	99
18) Benzo[a]anthracene	20.89	228	274585	728.67	ug/kg	99
19) Chrysene	21.15	228	310438	852.64	ug/kg	100
21) Benzo[b]fluoranthene	24.45	252	298266	748.72	ug/kg	99
22) Benzo[k]fluoranthene	24.53	252	147355	394.31	ug/kg	98
23) Benzo(j)fluoranthene	24.63	252	135599	407.34	ug/kg	94
24) Benzo[e]pyrene	25.69	252	213495	598.43	ug/kg	100
25) Benzo[a]pyrene	25.87	252	293381	804.74	ug/kg	99
26) Dibenz[a,h]anthracene	29.43	278	42189	127.07	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.44	276	181717	458.78	ug/kg	90
28) Benzo[g,h,i]perylene	30.52	276	166819	540.11	ug/kg	98

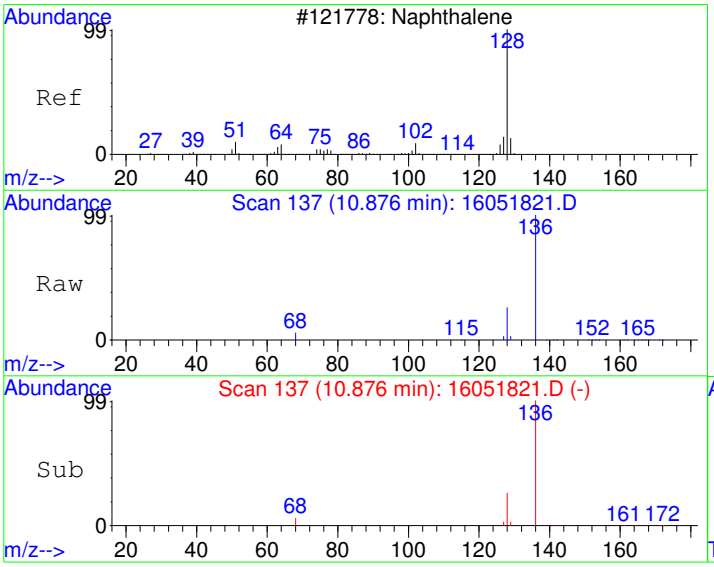
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051821.D Vial: 21
Acq On : 18 May 2016 9:42 pm Operator:
Sample : 1605096-51A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:15 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

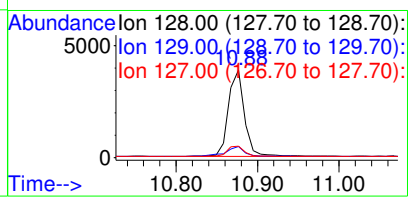


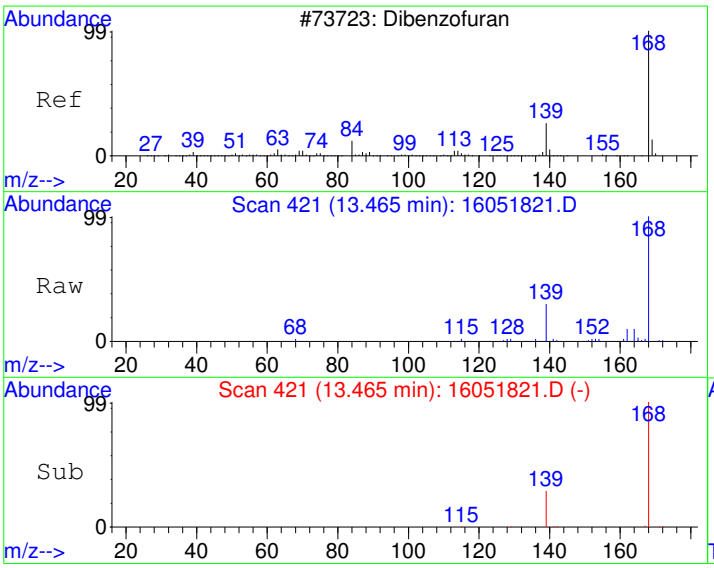


#2
Naphthalene
Concen: 16.29 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:128 Resp: 5267

Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	41.1
127	12.0	0.0	42.4

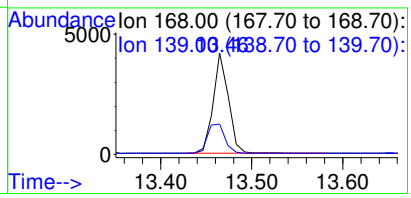


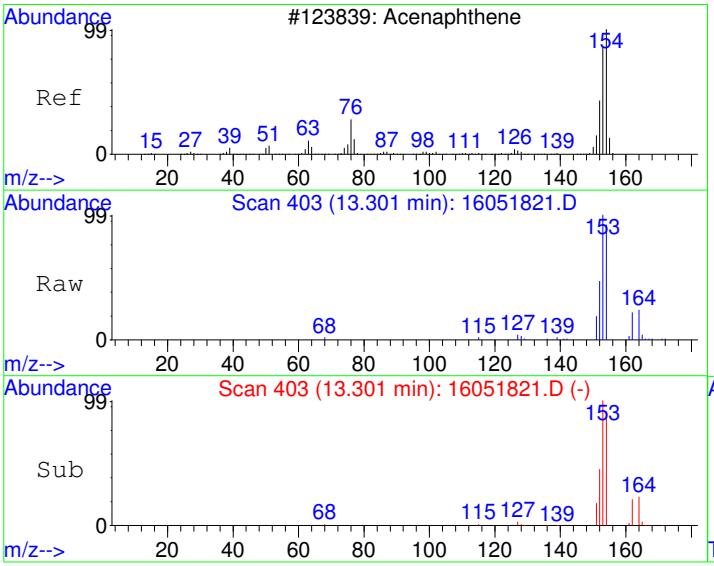


#6
Dibenzofuran
Concen: 15.13 ug/kg
RT: 13.46 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:168 Resp: 4812

Ion	Ratio	Lower	Upper
168	100		
139	34.7	27.0	40.4

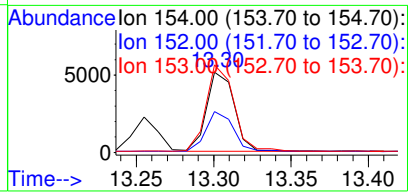


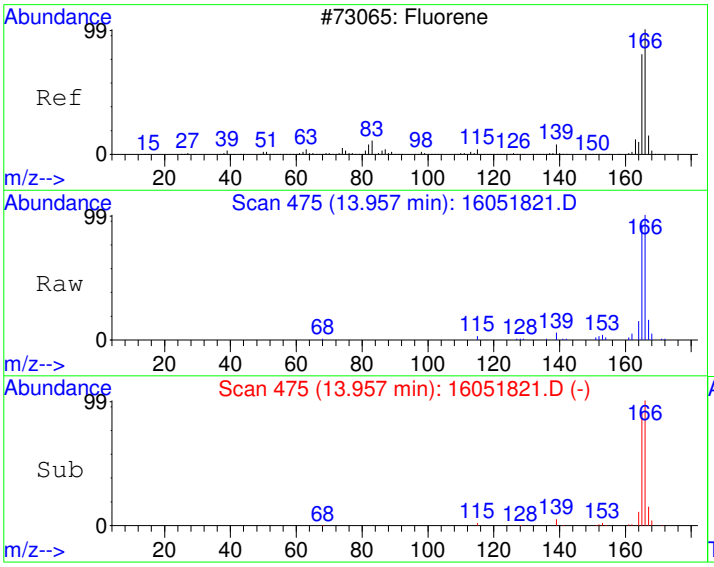


#9
Acenaphthene
Concen: 27.66 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:154 Resp: 6273

Ion	Ratio	Lower	Upper
154	100		
152	50.6	18.9	78.9
153	109.7	75.2	135.2

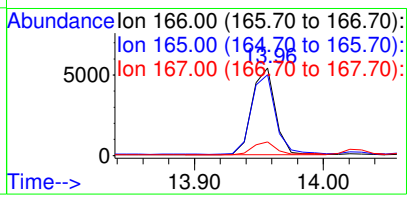


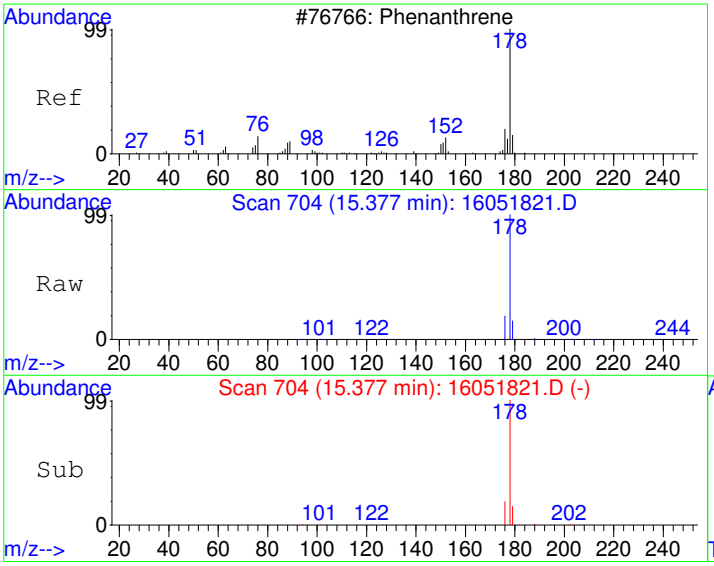


#10
Fluorene
Concen: 24.58 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:166 Resp: 6770

Ion	Ratio	Lower	Upper
166	100		
165	91.7	61.8	121.8
167	14.8	0.0	43.6

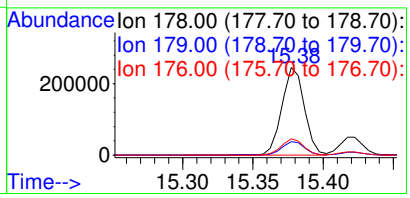


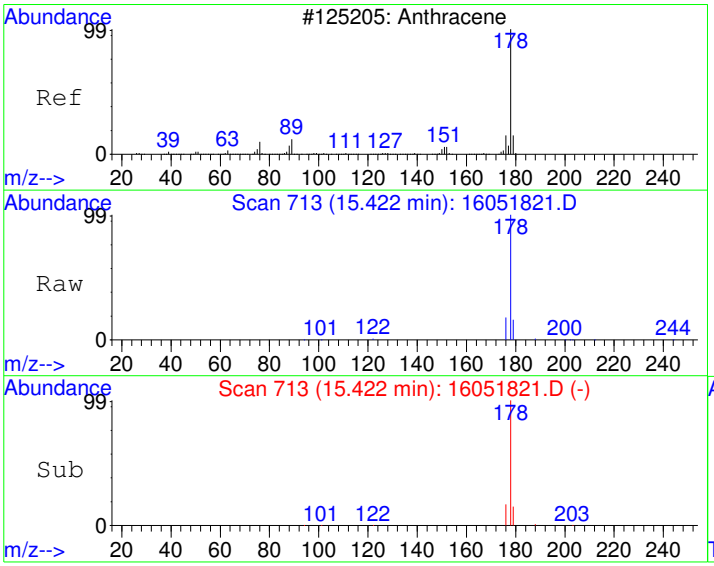


#12
Phenanthrene
Concen: 704.31 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:178 Resp: 272469

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	18.6	0.0	48.5

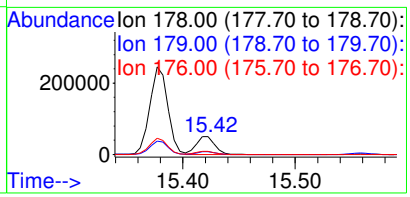


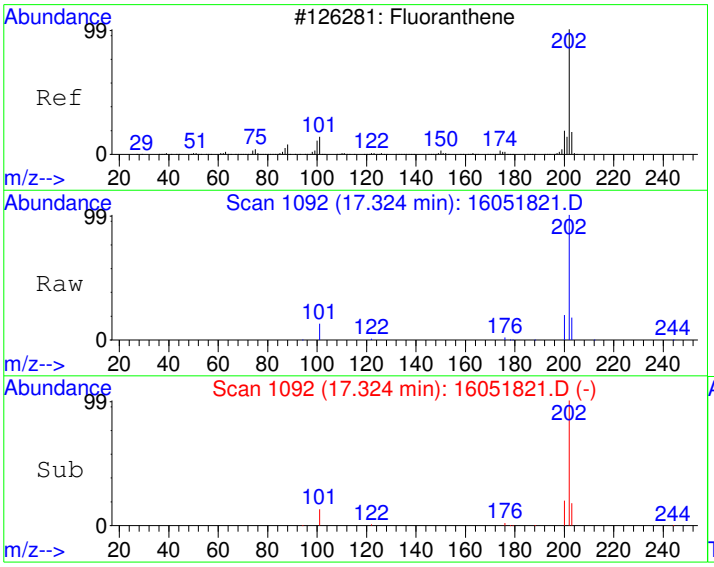


#13
Anthracene
Concen: 157.11 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:178 Resp: 57529

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	17.4	0.0	48.2

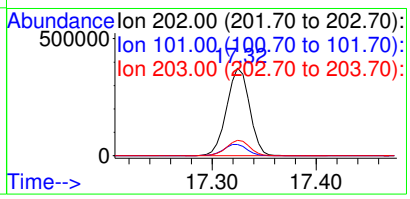


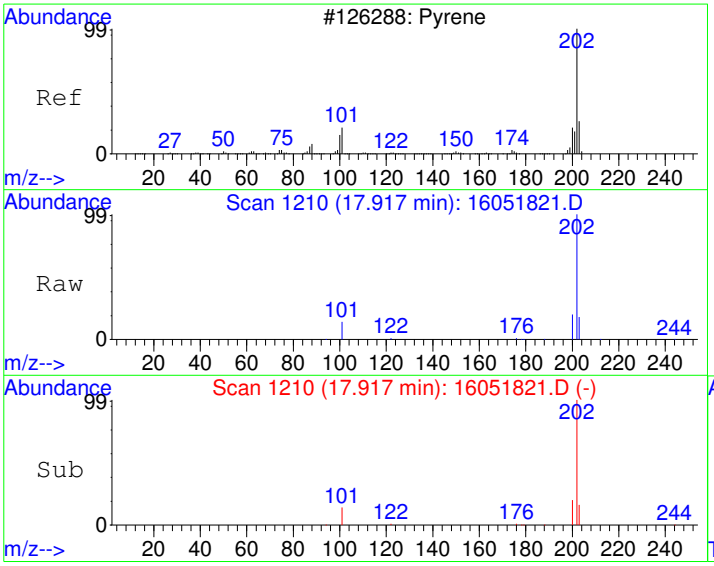


#14
Fluoranthene
Concen: 1422.34 ug/kg
RT: 17.32 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:202 Resp: 569412

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	43.0
203	17.6	0.0	47.9

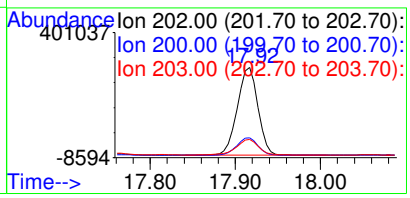


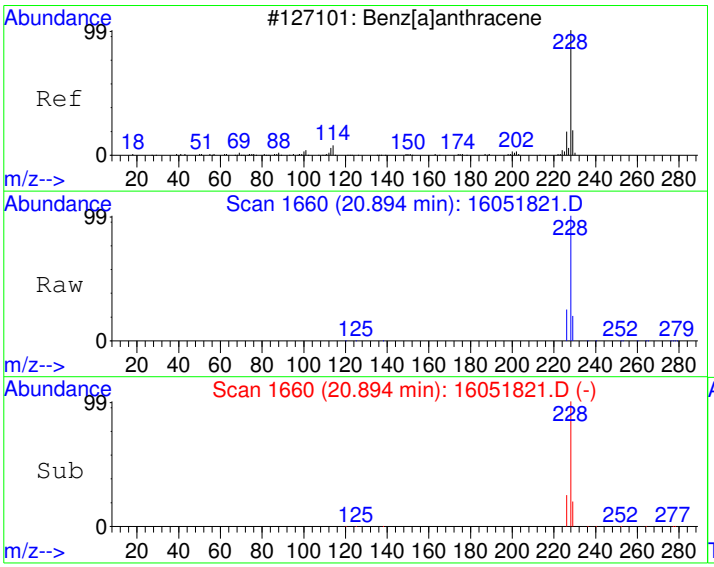


#15
Pyrene
Concen: 1153.84 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:202 Resp: 479838

Ion	Ratio	Lower	Upper
202	100		
200	19.7	0.0	50.0
203	17.7	0.0	48.0

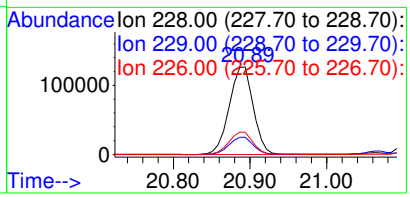


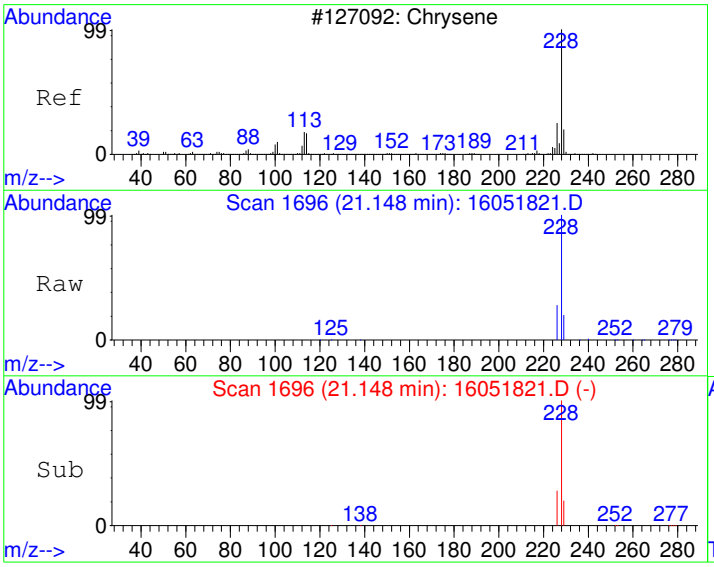


#18
Benzo[a]anthracene
Concen: 728.67 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:228 Resp: 274585

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	50.1
226	25.4	0.0	55.2

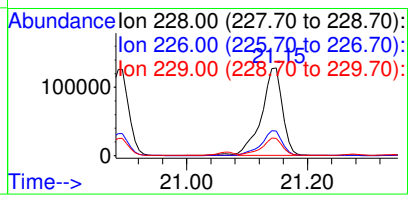


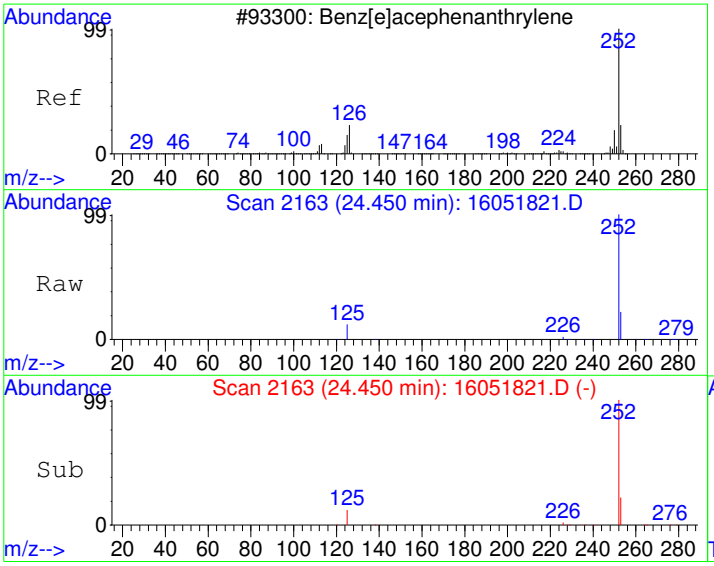


#19
Chrysene
Concen: 852.64 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:228 Resp: 310438

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	58.1
229	19.7	0.0	50.1

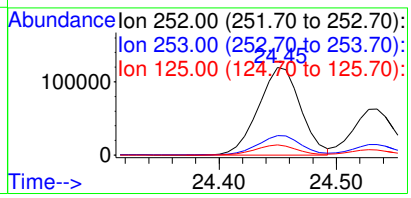


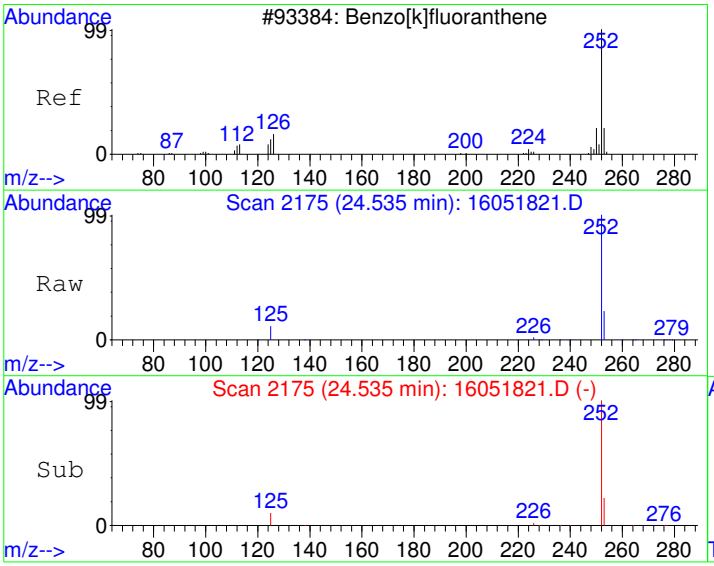


#21
Benzo[b]fluoranthene
Concen: 748.72 ug/kg
RT: 24.45 min Scan# 2163
Delta R.T. -0.04 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:252 Resp: 298266

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	11.7	0.0	41.0

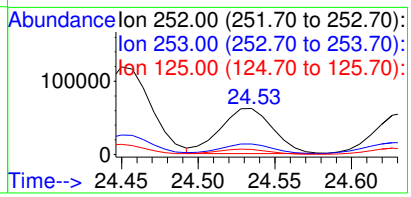


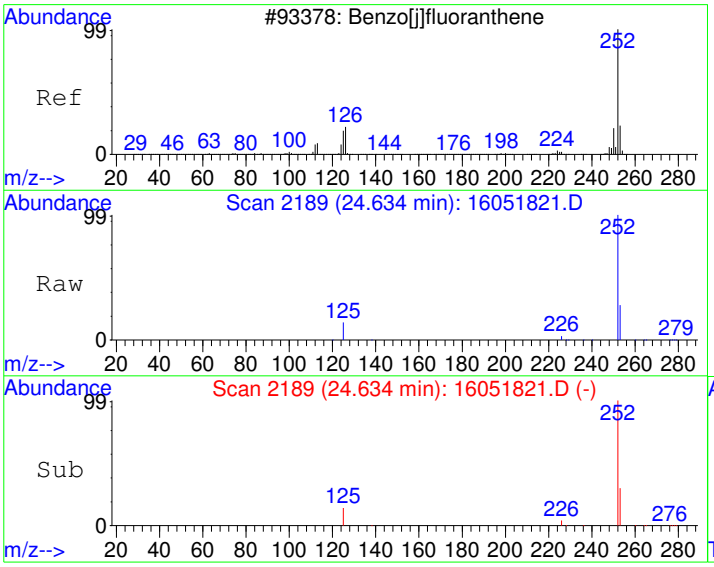


#22
Benzo[k]fluoranthene
Concen: 394.31 ug/kg
RT: 24.53 min Scan# 2175
Delta R.T. -0.04 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:252 Resp: 147355

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.1	42.1
125	10.6	0.0	31.3

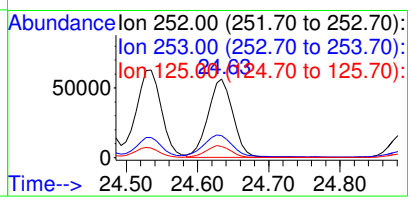


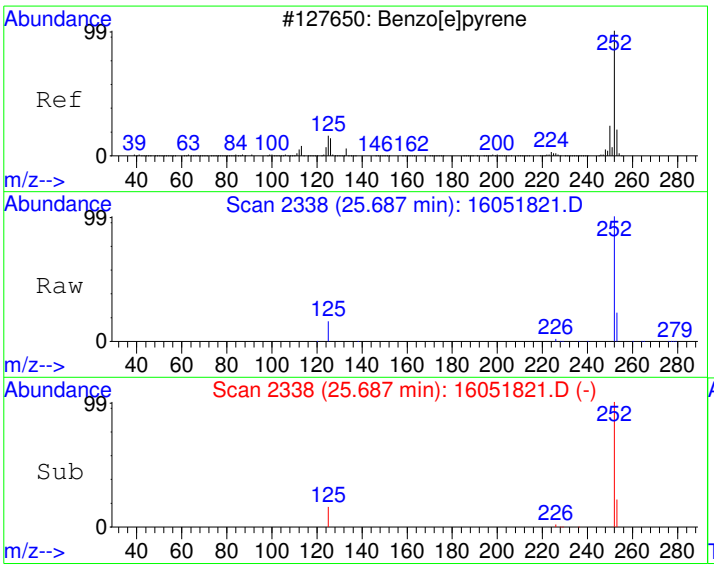


#23
Benzo(j)fluoranthene
Concen: 407.34 ug/kg
RT: 24.63 min Scan# 2189
Delta R.T. -0.04 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:252 Resp: 135599

Ion	Ratio	Lower	Upper
252	100		
253	27.1	2.1	42.1
125	14.2	0.0	34.4

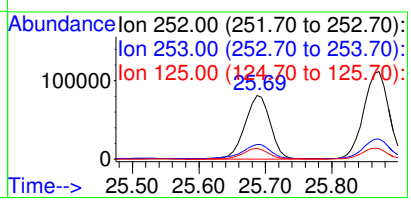


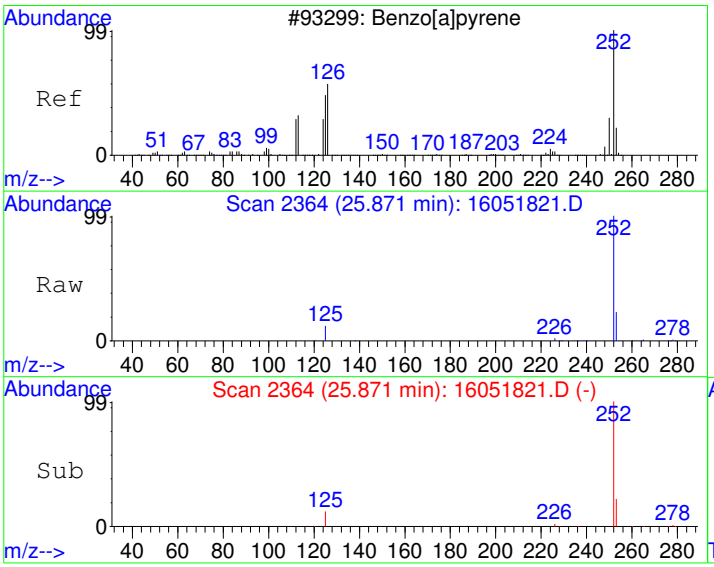


#24
Benzo[e]pyrene
Concen: 598.43 ug/kg
RT: 25.69 min Scan# 2338
Delta R.T. -0.04 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:252 Resp: 213495

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.2	42.2
125	16.3	0.0	36.1

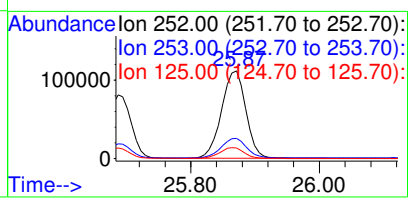


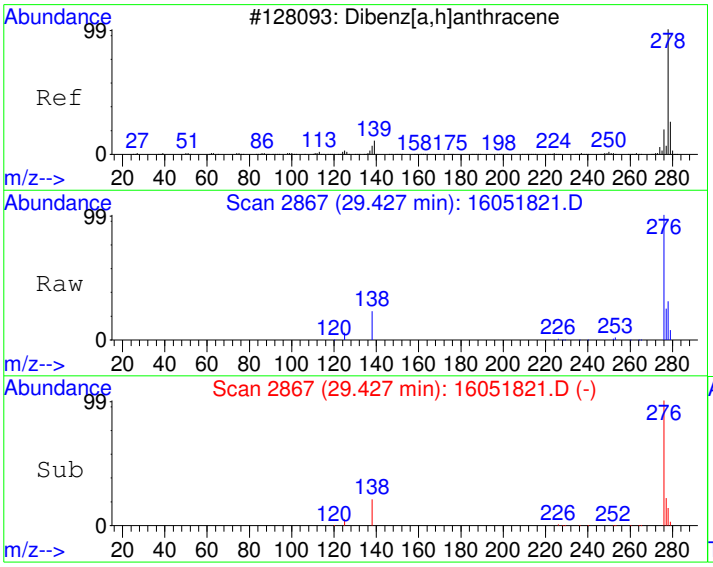


#25
Benzo[a]pyrene
Concen: 804.74 ug/kg
RT: 25.87 min Scan# 2364
Delta R.T. -0.03 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:252 Resp: 293381

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.9	0.0	31.7

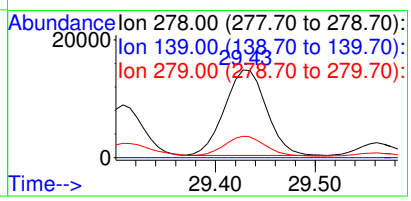


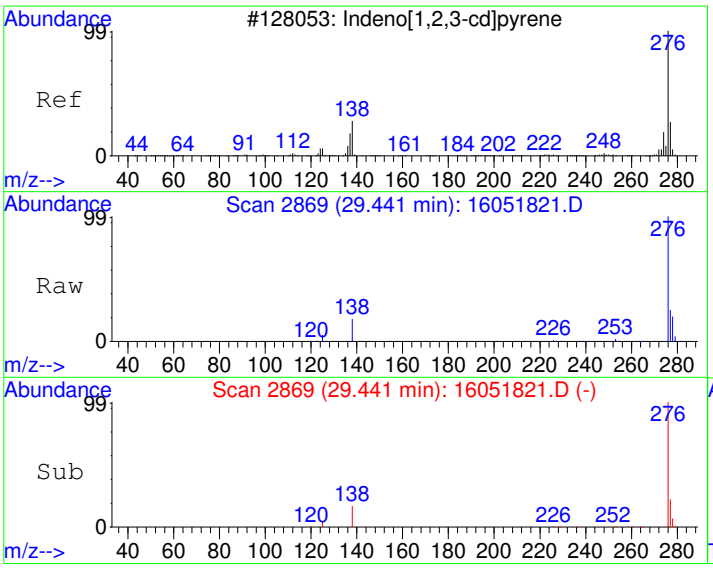


#26
Dibenz[a,h]anthracene
Concen: 127.07 ug/kg
RT: 29.43 min Scan# 2867
Delta R.T. -0.05 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:278 Resp: 42189

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.1	4.2	44.2

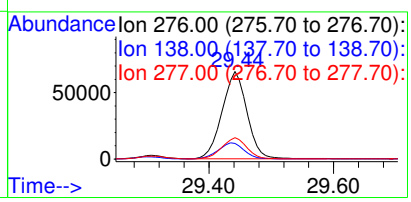


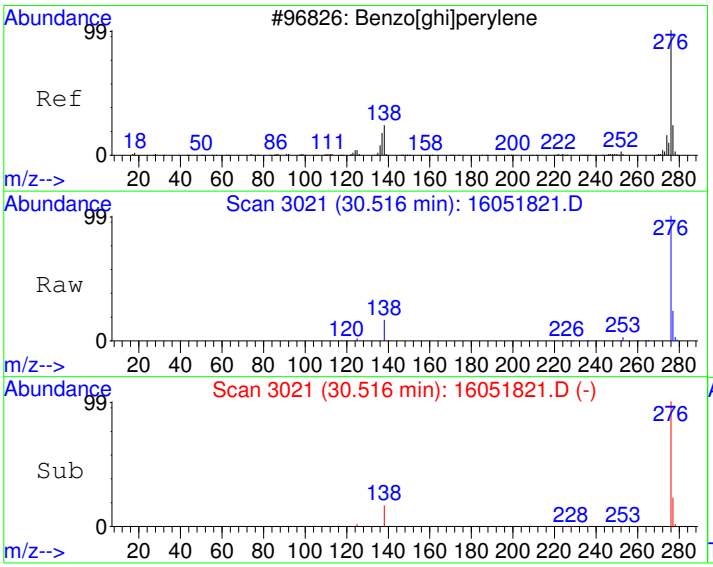


#27
Indeno[1,2,3-cd]pyrene
Concen: 458.78 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.04 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:276 Resp: 181717

Ion	Ratio	Lower	Upper
276	100		
138	17.8	6.7	46.7
277	24.3	5.8	45.8

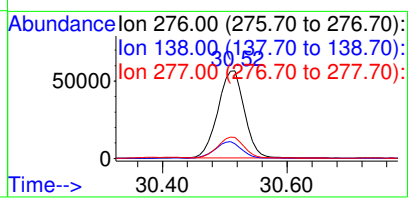




#28
Benzo[g,h,i]perylene
Concen: 540.11 ug/kg
RT: 30.52 min Scan# 3021
Delta R.T. -0.04 min
Lab File: 16051821.D
Acq: 18 May 2016 9:42 pm

Tgt Ion:276 Resp: 166819

Ion	Ratio	Lower	Upper
276	100		
138	16.7	0.0	39.1
277	23.9	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051822.D Vial: 22
Acq On : 18 May 2016 10:22 pm Operator:
Sample : 1605096-55A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:15 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

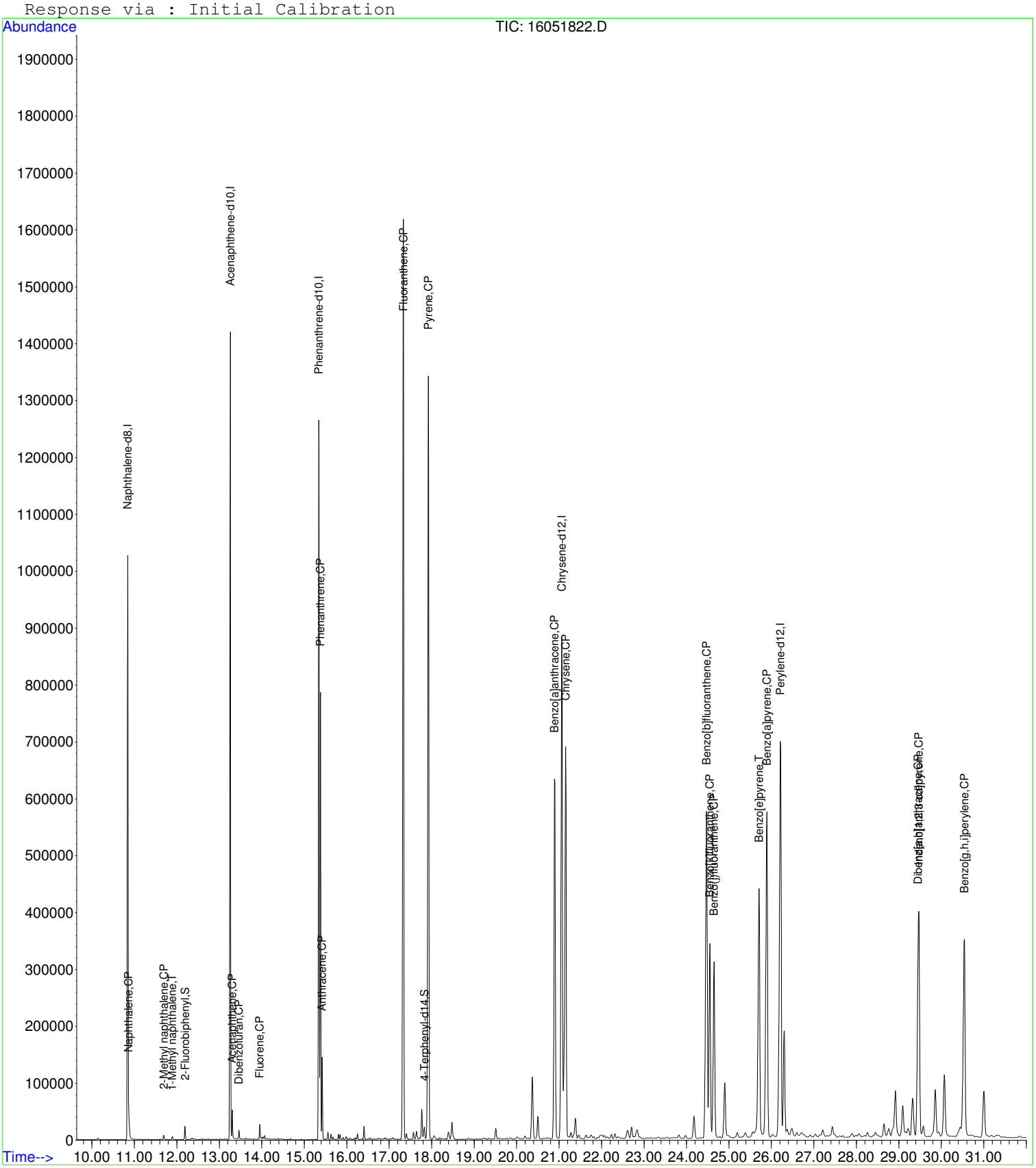
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1221982	4000.00	ug/kg	105
5) Acenaphthene-d10	13.26	164	753979	4000.00	ug/kg	65
11) Phenanthrene-d10	15.34	188	1391349	4000.00	ug/kg	68
17) Chrysene-d12	21.06	240	1467247	4000.00	ug/kg	65
20) Perylene-d12	26.21	264	1376855	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	18257	83.01	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
16) 4-Terphenyl-d14	17.83	244	24902	69.18	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.73%#		
Target Compounds						Qvalue
2) Naphthalene	10.87	128	23222	75.97	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	4851	17.97	ug/kg	97
4) 1-Methyl naphthalene	11.89	142	3154	12.75	ug/kg	93
6) Dibenzofuran	13.47	168	15118	53.50	ug/kg	99
9) Acenaphthene	13.30	154	19305	95.79	ug/kg	99
10) Fluorene	13.95	166	11635	47.54	ug/kg	96
12) Phenanthrene	15.38	178	668132	1825.99	ug/kg	99
13) Anthracene	15.42	178	122143	352.68	ug/kg	99
14) Fluoranthene	17.33	202	1645765	4346.45	ug/kg	99
15) Pyrene	17.92	202	1471278	3740.55	ug/kg	99
18) Benzo[a]anthracene	20.89	228	951507	2768.10	ug/kg	99
19) Chrysene	21.16	228	1111660	3347.15	ug/kg	100
21) Benzo[b]fluoranthene	24.47	252	1160484	3197.88	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	555267	1631.09	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	514569	1696.86	ug/kg	91
24) Benzo[e]pyrene	25.71	252	836058	2572.57	ug/kg	100
25) Benzo[a]pyrene	25.89	252	1114984	3357.36	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	176328	582.99	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.48	276	754476	2091.03	ug/kg	89
28) Benzo[g,h,i]perylene	30.55	276	736592	2618.01	ug/kg	99

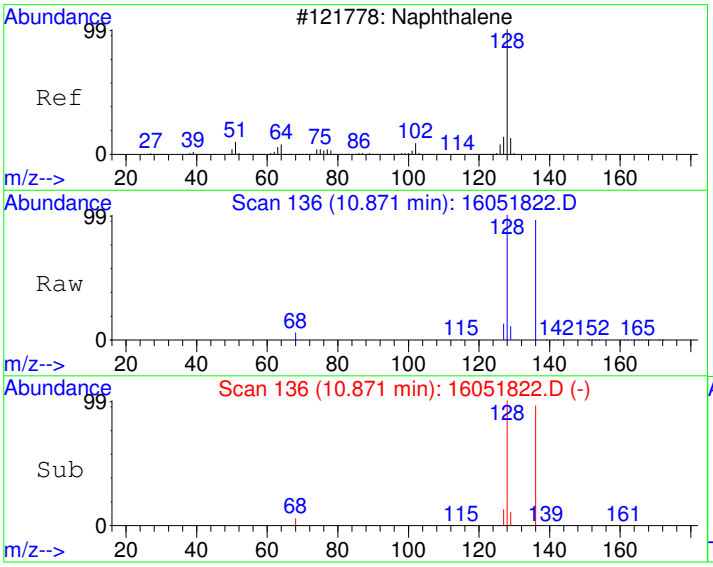
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051822.D Vial: 22
Acq On : 18 May 2016 10:22 pm Operator:
Sample : 1605096-55A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:15 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

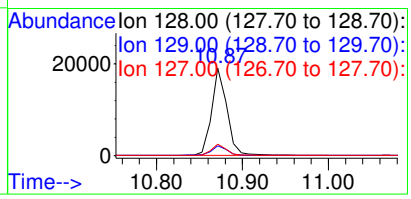


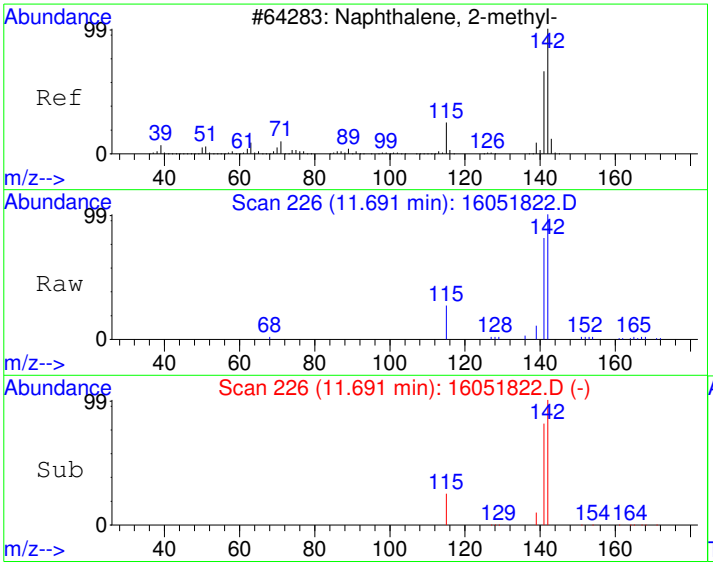


#2
Naphthalene
Concen: 75.97 ug/kg
RT: 10.87 min Scan# 136
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:128 Resp: 23222

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	41.1
127	13.0	0.0	42.4

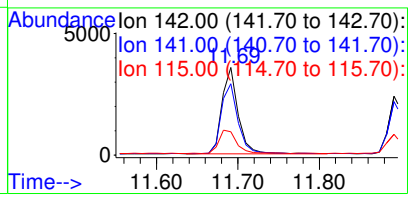


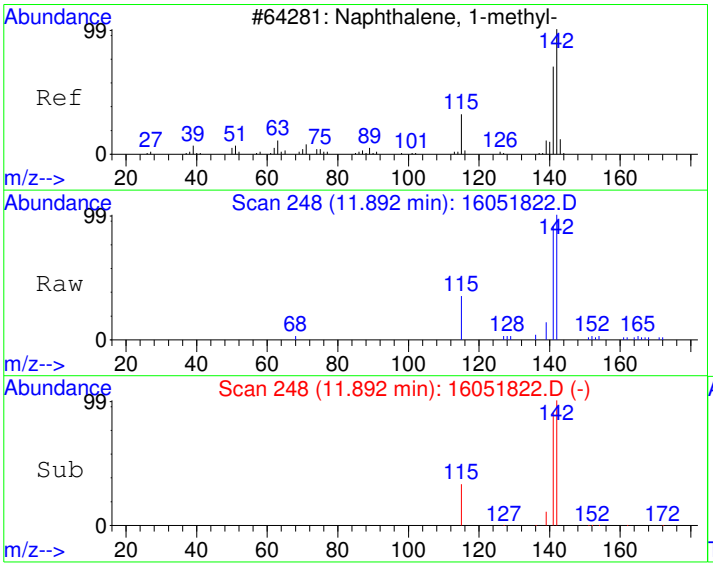


#3
2-Methyl naphthalene
Concen: 17.97 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:142 Resp: 4851

Ion	Ratio	Lower	Upper
142	100		
141	81.1	54.4	114.4
115	25.3	0.0	56.0

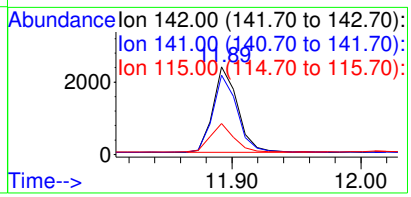


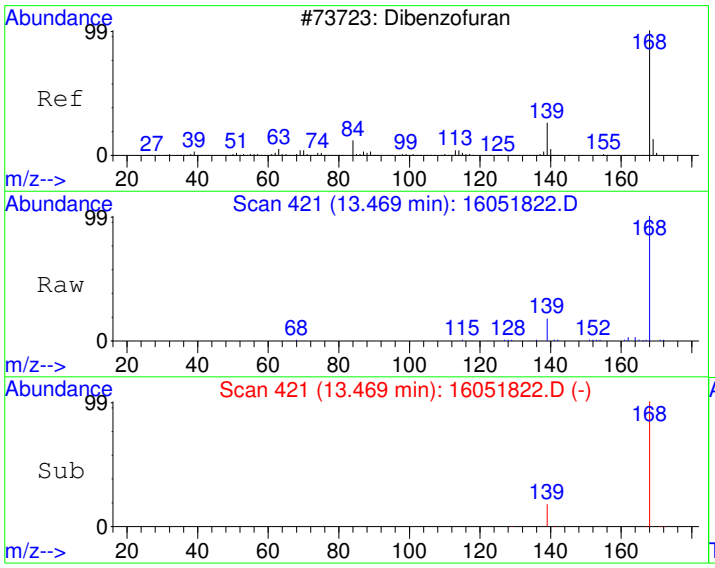


#4
1-Methyl naphthalene
Concen: 12.75 ug/kg
RT: 11.89 min Scan# 248
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:142 Resp: 3154

Ion	Ratio	Lower	Upper
142	100		
141	90.1	56.5	116.5
115	33.0	0.0	55.0

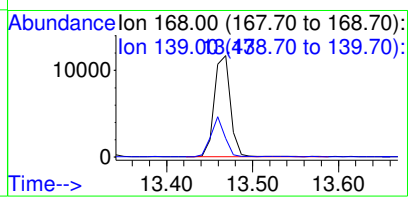


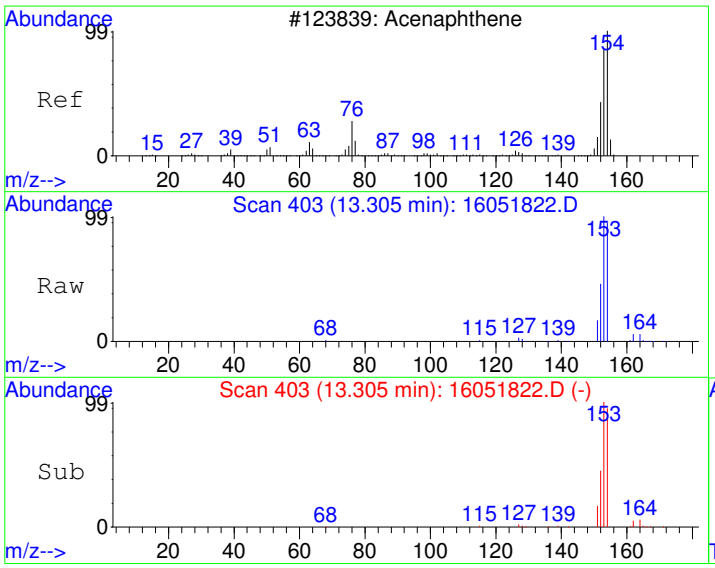


#6
Dibenzofuran
Concen: 53.50 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:168 Resp: 15118

Ion	Ratio	Lower	Upper
168	100		
139	34.4	27.0	40.4

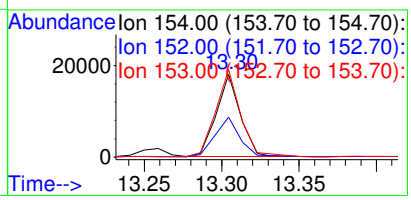


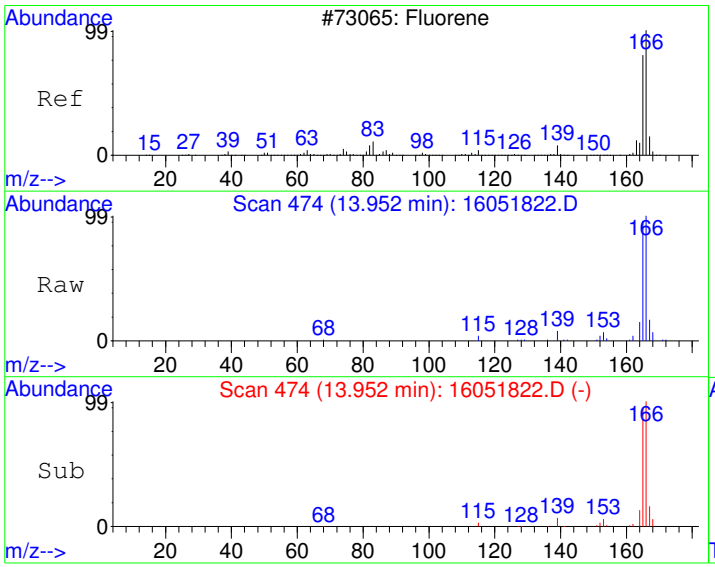


#9
Acenaphthene
Concen: 95.79 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:154 Resp: 19305

Ion	Ratio	Lower	Upper
154	100		
152	48.2	18.9	78.9
153	105.6	75.2	135.2

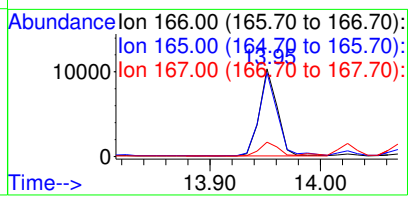


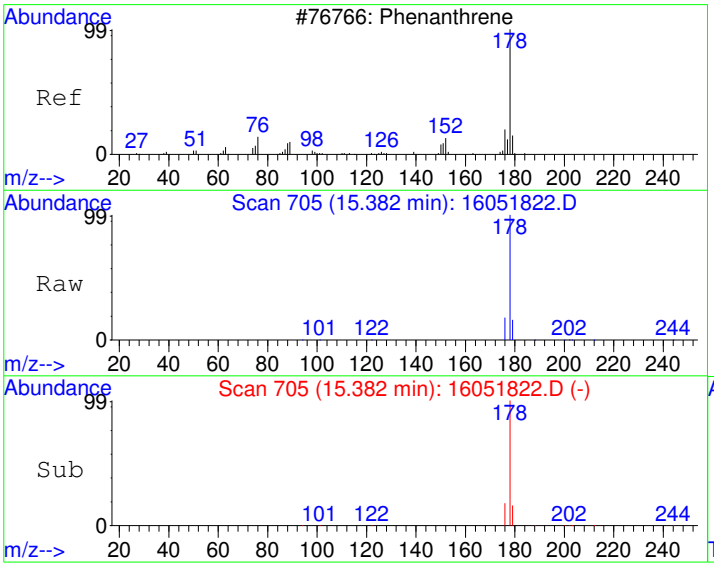


#10
Fluorene
Concen: 47.54 ug/kg
RT: 13.95 min Scan# 474
Delta R.T. -0.02 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:166 Resp: 11635

Ion	Ratio	Lower	Upper
166	100		
165	95.3	61.8	121.8
167	16.0	0.0	43.6

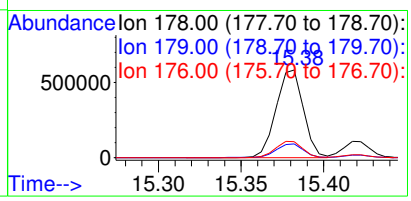


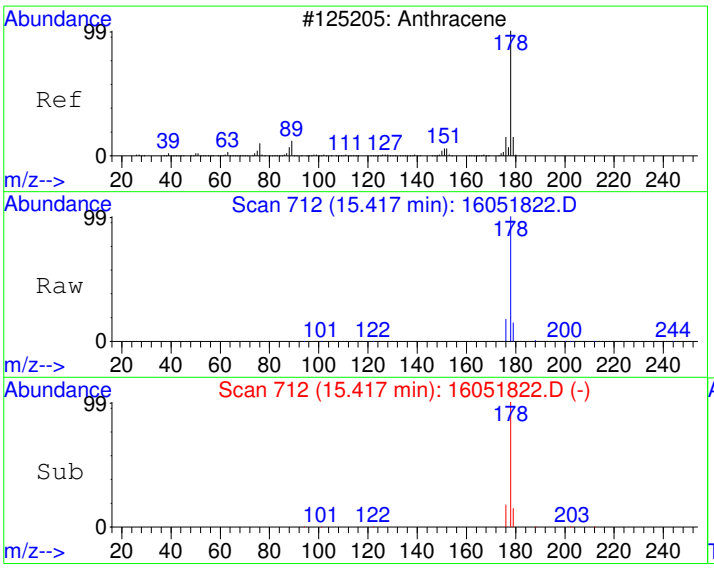


#12
Phenanthrene
Concen: 1825.99 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:178 Resp: 668132

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.9
176	18.2	0.0	48.5

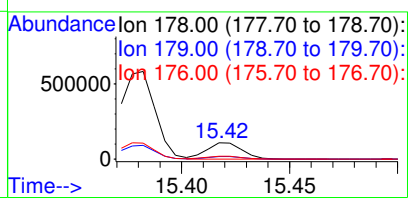


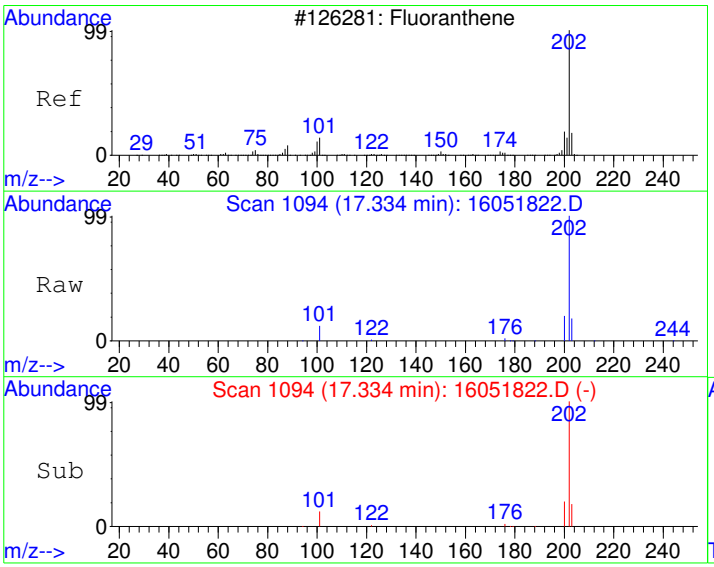


#13
Anthracene
Concen: 352.68 ug/kg
RT: 15.42 min Scan# 712
Delta R.T. -0.02 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:178 Resp: 122143

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	18.2	0.0	48.2

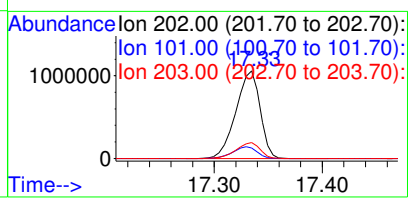


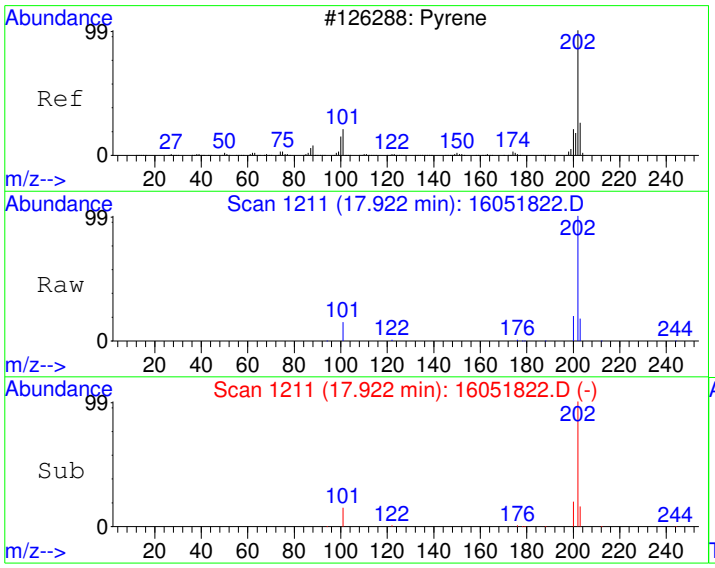


#14
Fluoranthene
Concen: 4346.45 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:202 Resp: 1645765

Ion	Ratio	Lower	Upper
202	100		
101	12.1	0.0	43.0
203	18.3	0.0	47.9

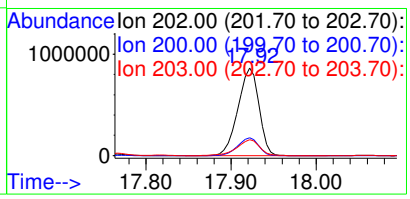


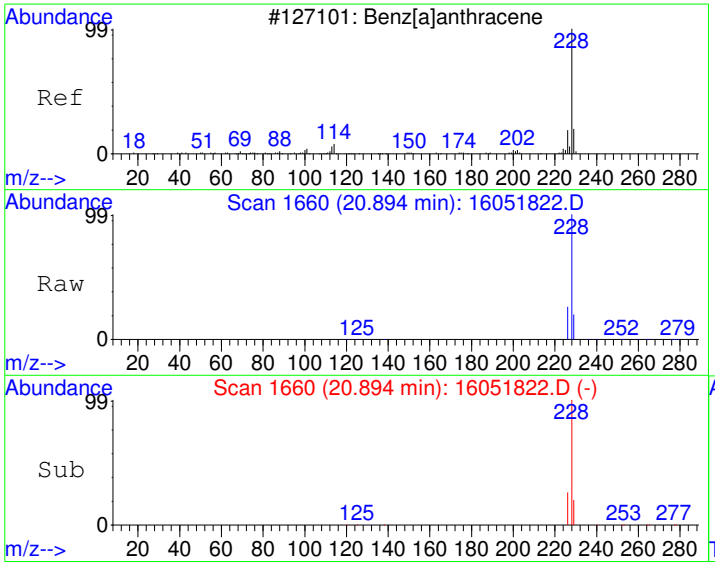


#15
Pyrene
Concen: 3740.55 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:202 Resp: 1471278

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	18.2	0.0	48.0

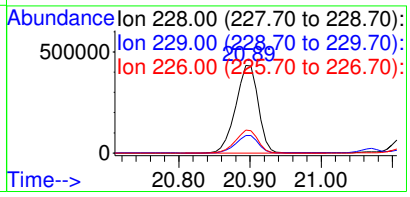


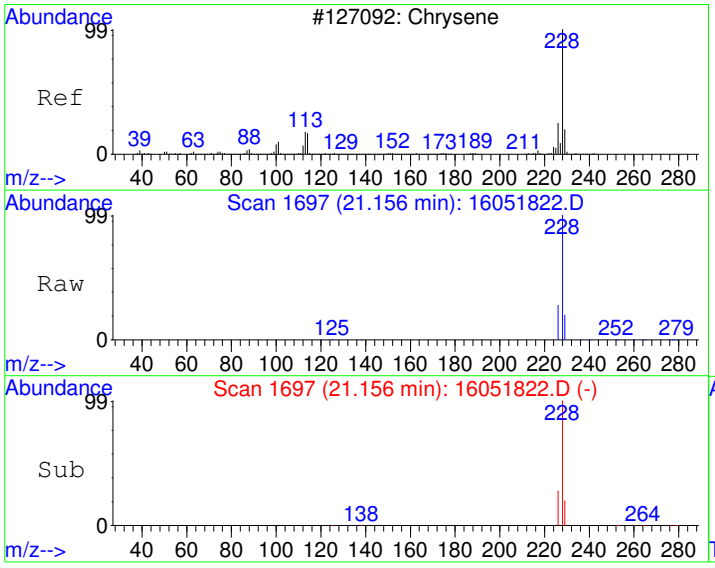


#18
Benzo[a]anthracene
Concen: 2768.10 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:228 Resp: 951507

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.1
226	26.1	0.0	55.2

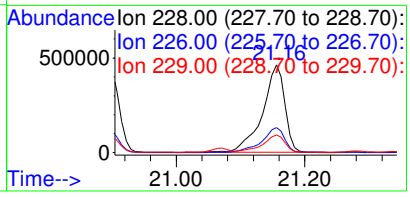


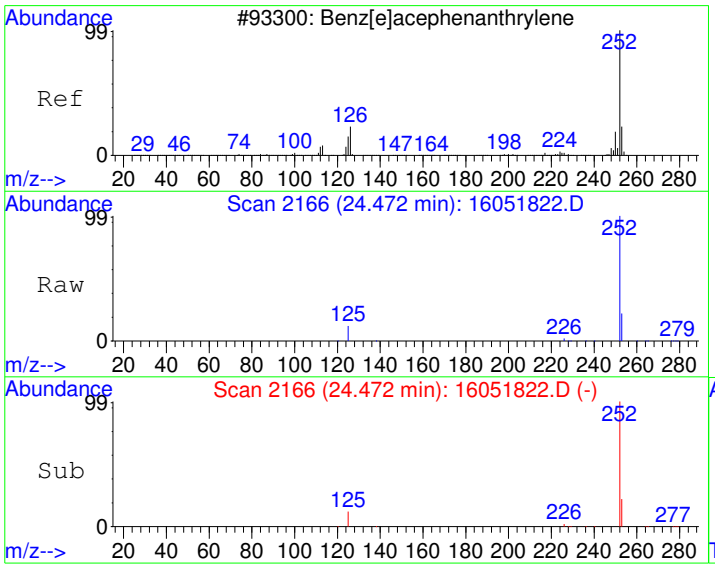


#19
Chrysene
Concen: 3347.15 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:228 Resp: 1111660

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.1
229	20.2	0.0	50.1

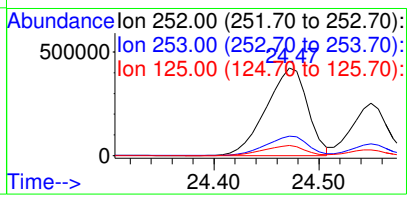


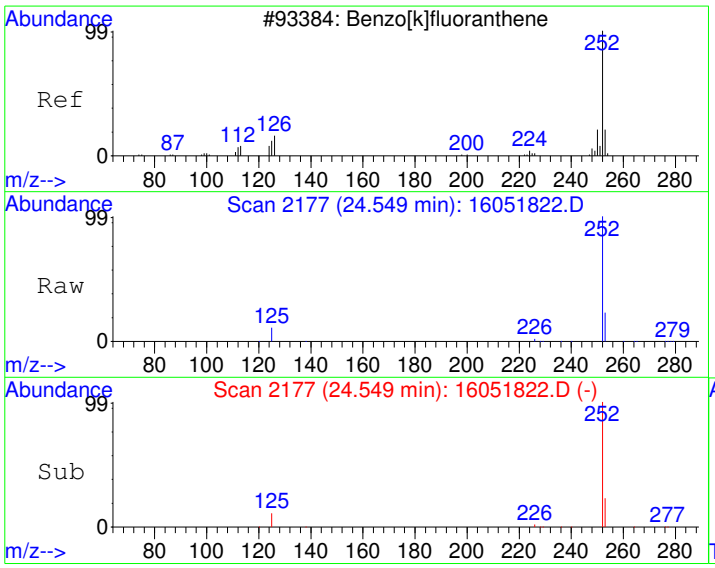


#21
Benzo[b]fluoranthene
Concen: 3197.88 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:252 Resp: 1160484

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.6	0.0	41.0

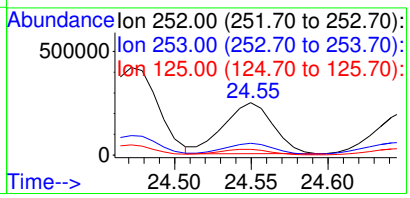


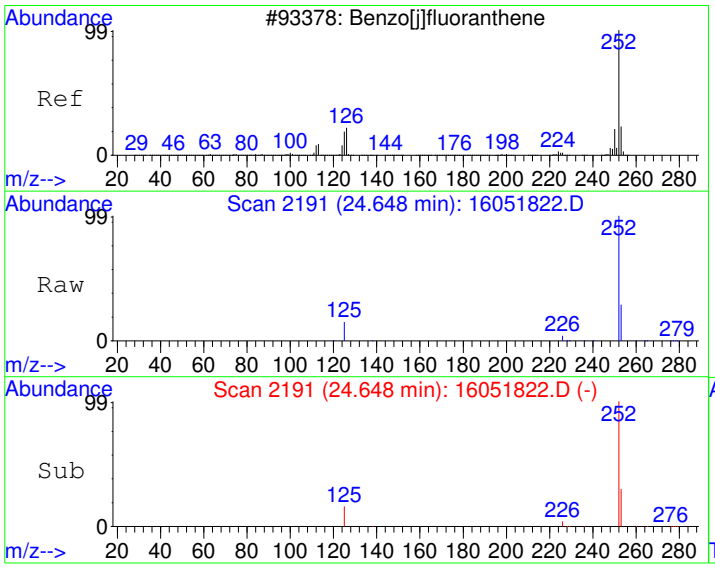


#22
Benzo[k]fluoranthene
Concen: 1631.09 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:252 Resp: 555267

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.1	42.1
125	10.9	0.0	31.3

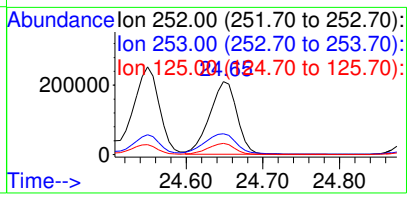


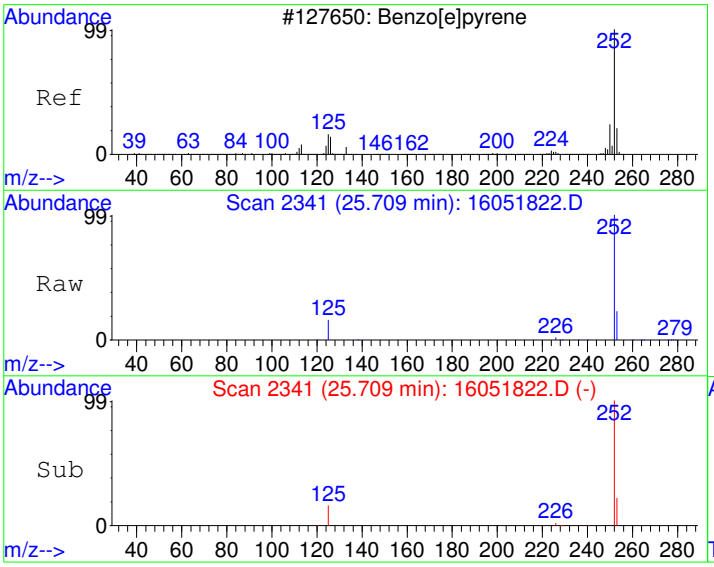


#23
Benzo(j)fluoranthene
Concen: 1696.86 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:252 Resp: 514569

Ion	Ratio	Lower	Upper
252	100		
253	28.3	2.1	42.1
125	15.2	0.0	34.4

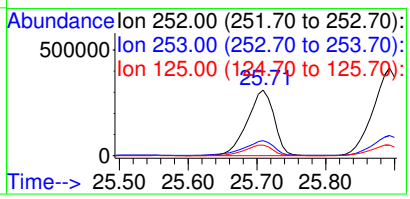


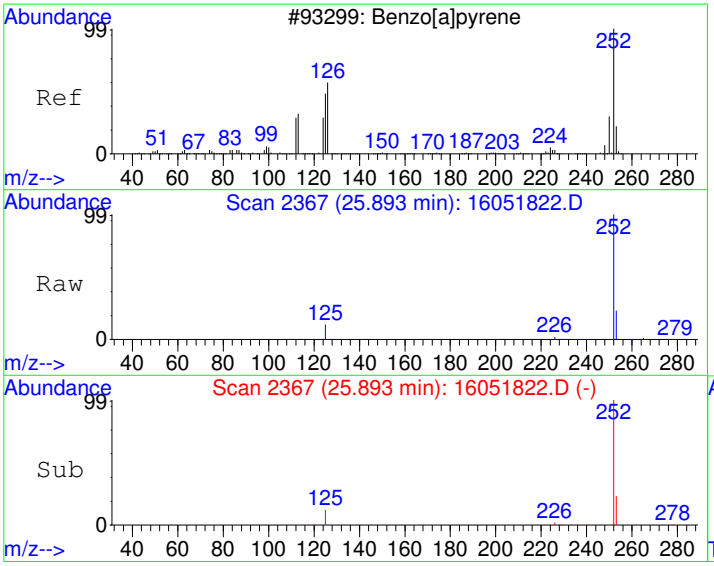


#24
Benzo[e]pyrene
Concen: 2572.57 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:252 Resp: 836058

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	15.7	0.0	36.1

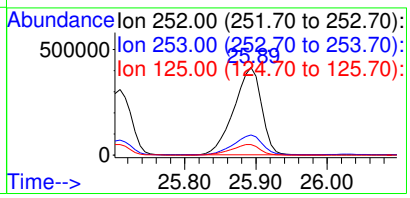


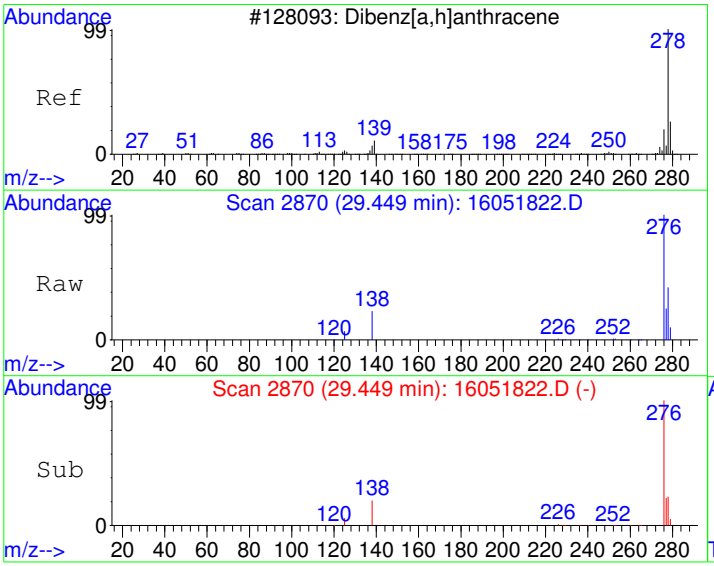


#25
Benzo[a]pyrene
Concen: 3357.36 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:252 Resp: 1114984

Ion	Ratio	Lower	Upper
252	100		
253	22.7	1.9	41.9
125	11.8	0.0	31.7

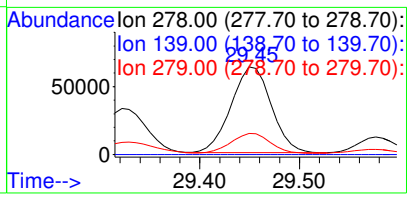


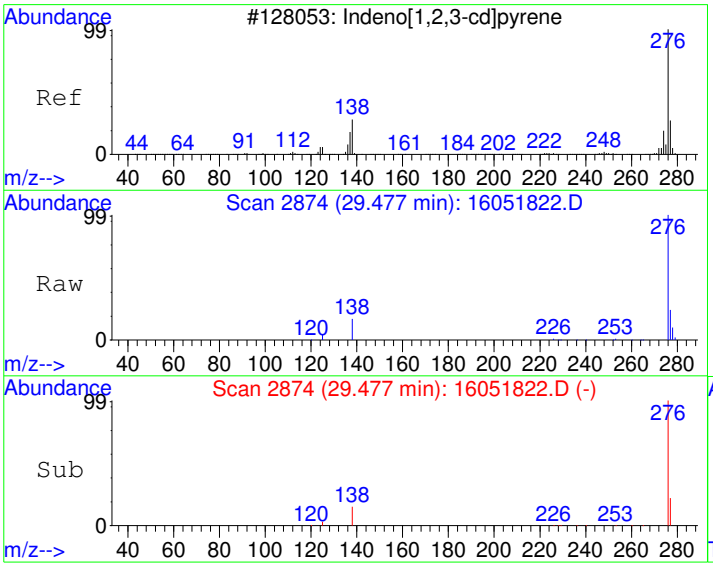


#26
Dibenz[a,h]anthracene
Concen: 582.99 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:278 Resp: 176328

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.9	4.2	44.2

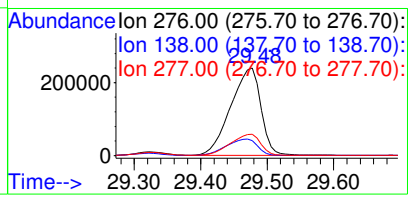


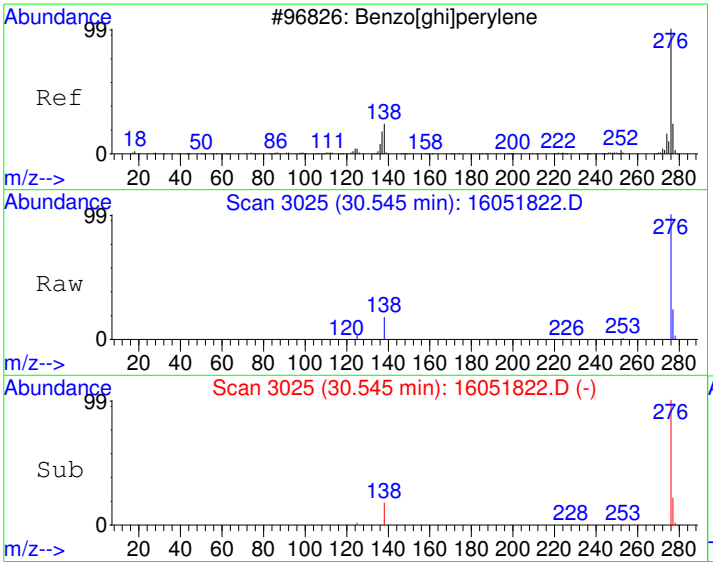


#27
Indeno[1,2,3-cd]pyrene
Concen: 2091.03 ug/kg
RT: 29.48 min Scan# 2874
Delta R.T. 0.00 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:276 Resp: 754476

Ion	Ratio	Lower	Upper
276	100		
138	17.0	6.7	46.7
277	24.2	5.8	45.8

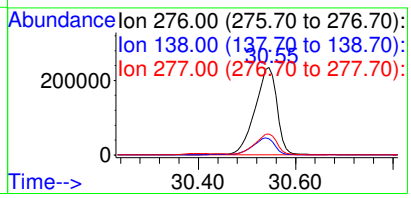




#28
Benzo[g,h,i]perylene
Concen: 2618.01 ug/kg
RT: 30.55 min Scan# 3025
Delta R.T. -0.01 min
Lab File: 16051822.D
Acq: 18 May 2016 10:22 pm

Tgt Ion:276 Resp: 736592

Ion	Ratio	Lower	Upper
276	100		
138	18.2	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051823.D Vial: 23
Acq On : 18 May 2016 11:01 pm Operator:
Sample : 1605096-56A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:15 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

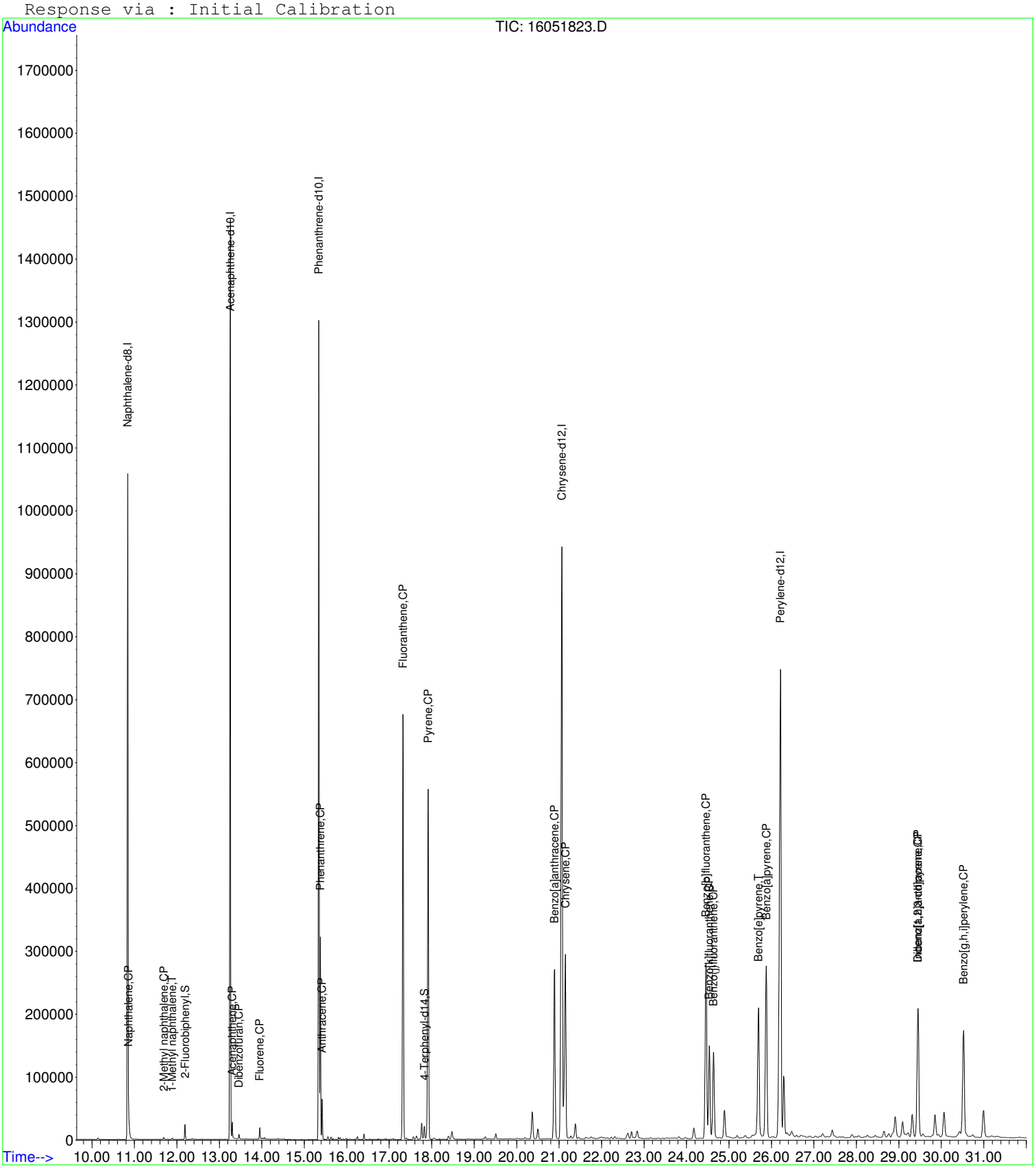
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1276344	4000.00	ug/kg	110
5) Acenaphthene-d10	13.26	164	804318	4000.00	ug/kg	70
11) Phenanthrene-d10	15.34	188	1425648	4000.00	ug/kg	70
17) Chrysene-d12	21.06	240	1549291	4000.00	ug/kg	68
20) Perylene-d12	26.21	264	1443512	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20033	85.38	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#		
16) 4-Terphenyl-d14	17.83	244	26390	71.55	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
Target Compounds						Qvalue
2) Naphthalene	10.87	128	11591	36.31	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	2213	7.85	ug/kg	99
4) 1-Methyl naphthalene	11.89	142	1386	5.37	ug/kg	95
6) Dibenzofuran	13.47	168	7375	24.47	ug/kg	100
9) Acenaphthene	13.30	154	10061	46.80	ug/kg	98
10) Fluorene	13.95	166	8481	32.48	ug/kg	98
12) Phenanthrene	15.38	178	263001	701.48	ug/kg	99
13) Anthracene	15.42	178	52512	147.98	ug/kg	99
14) Fluoranthene	17.32	202	670162	1727.31	ug/kg	99
15) Pyrene	17.92	202	592061	1469.03	ug/kg	99
18) Benzo[a]anthracene	20.89	228	404452	1114.31	ug/kg	100
19) Chrysene	21.15	228	474933	1354.27	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	528947	1390.28	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	251248	703.96	ug/kg	99
23) Benzo(j)fluoranthene	24.64	252	228401	718.40	ug/kg	93
24) Benzo[e]pyrene	25.70	252	382500	1122.61	ug/kg	99
25) Benzo[a]pyrene	25.88	252	516266	1482.76	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	78440	247.37	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	343310	907.55	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	331378	1123.40	ug/kg	100

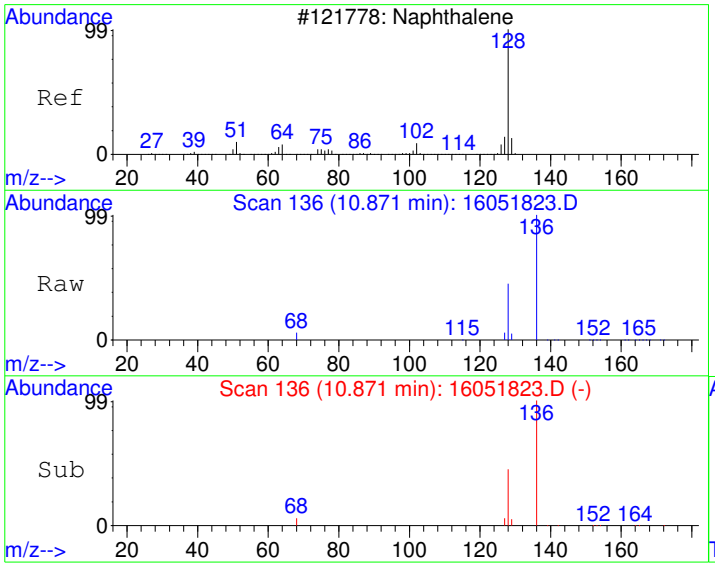
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051823.D Vial: 23
Acq On : 18 May 2016 11:01 pm Operator:
Sample : 1605096-56A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:15 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

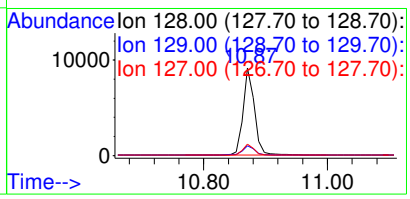


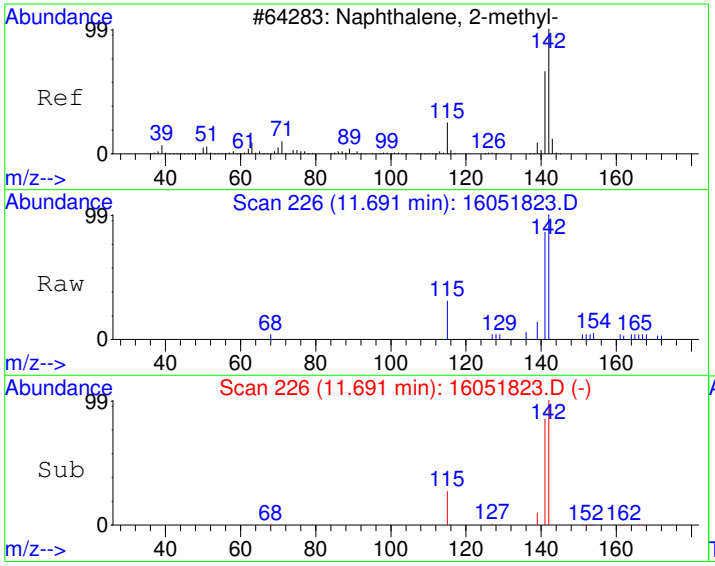


#2
Naphthalene
Concen: 36.31 ug/kg
RT: 10.87 min Scan# 136
Delta R.T. -0.01 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:128 Resp: 11591

Ion	Ratio	Lower	Upper
128	100		
129	10.7	0.0	41.1
127	12.4	0.0	42.4

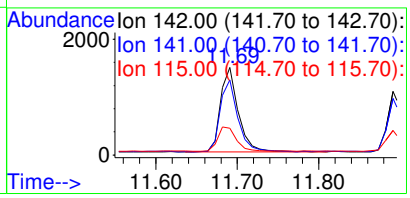


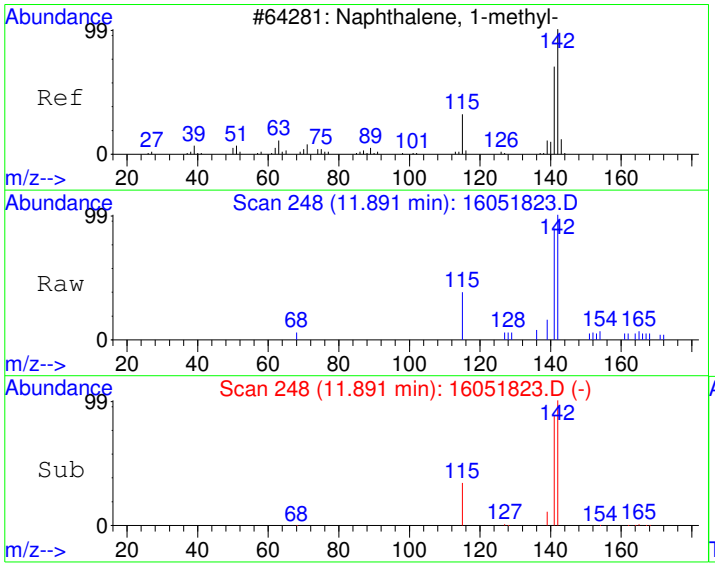


#3
2-Methyl naphthalene
Concen: 7.85 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:142 Resp: 2213

Ion	Ratio	Lower	Upper
142	100		
141	84.8	54.4	114.4
115	27.0	0.0	56.0

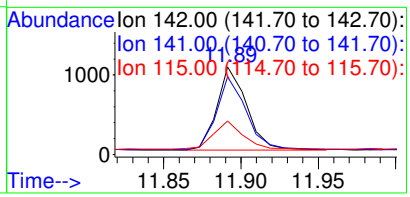


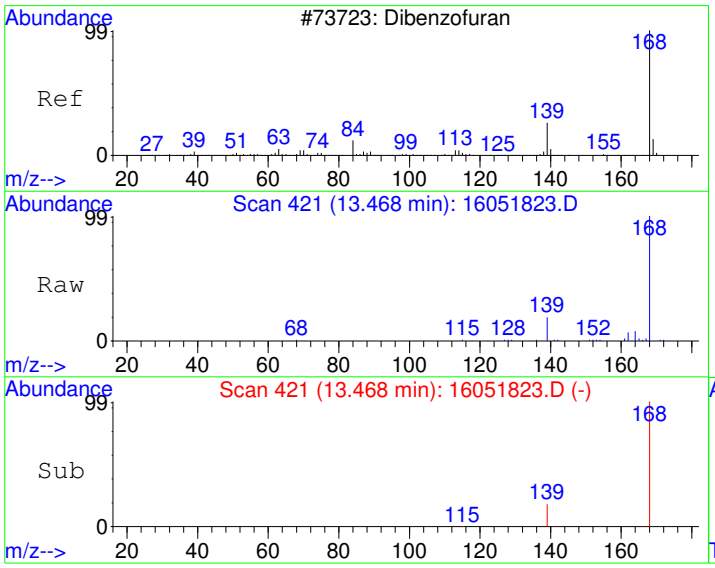


#4
1-Methyl naphthalene
Concen: 5.37 ug/kg
RT: 11.89 min Scan# 248
Delta R.T. -0.01 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:142 Resp: 1386

Ion	Ratio	Lower	Upper
142	100		
141	87.7	56.5	116.5
115	34.2	0.0	55.0

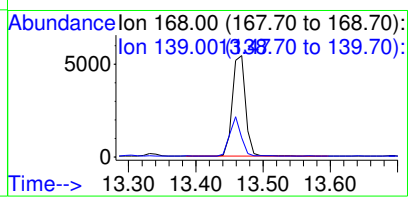


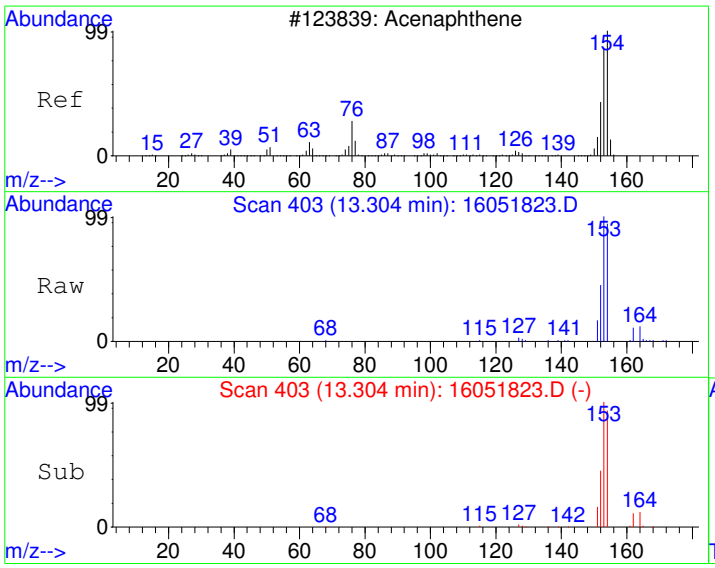


#6
Dibenzofuran
Concen: 24.47 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:168 Resp: 7375

Ion	Ratio	Lower	Upper
168	100		
139	33.7	27.0	40.4

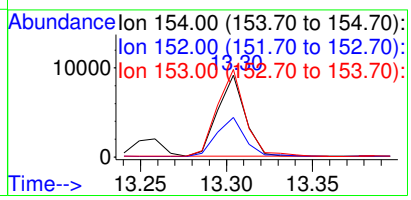


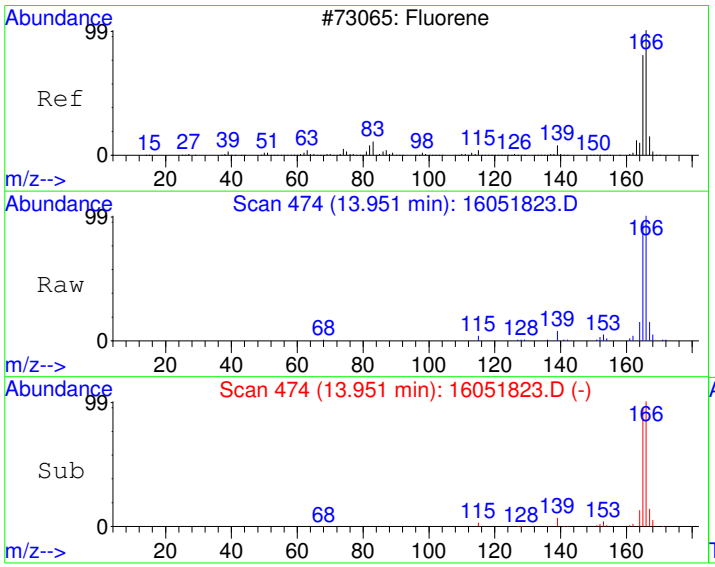


#9
Acenaphthene
Concen: 46.80 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:154 Resp: 10061

Ion	Ratio	Lower	Upper
154	100		
152	48.2	18.9	78.9
153	107.2	75.2	135.2

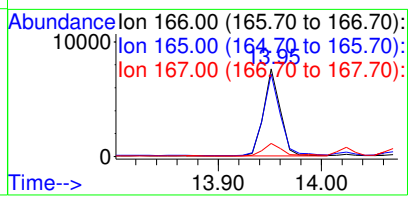


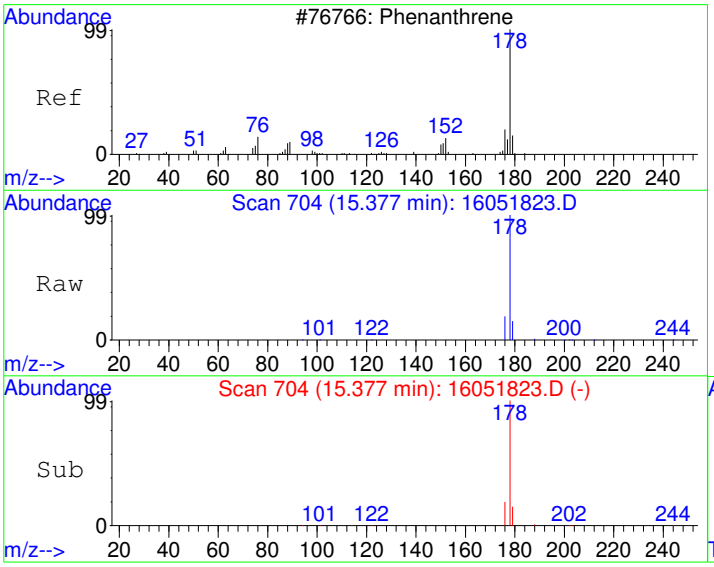


#10
Fluorene
Concen: 32.48 ug/kg
RT: 13.95 min Scan# 474
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:166 Resp: 8481

Ion	Ratio	Lower	Upper
166	100		
165	93.4	61.8	121.8
167	14.1	0.0	43.6

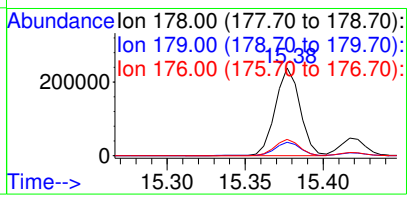


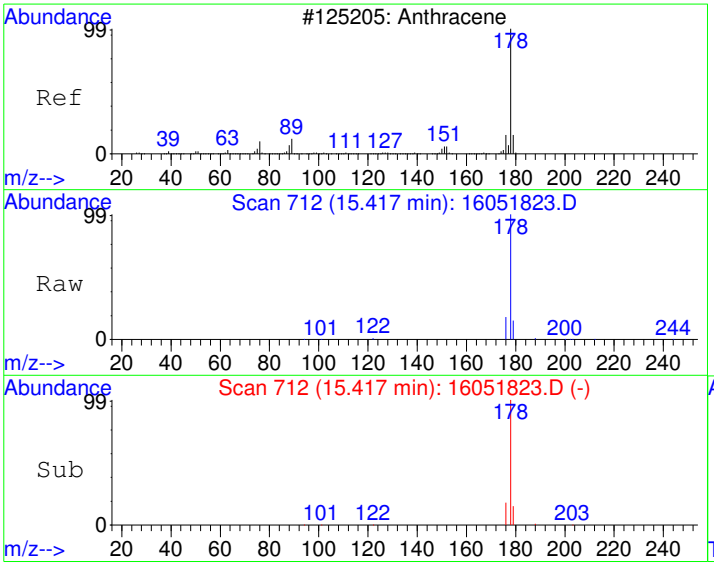


#12
Phenanthrene
Concen: 701.48 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:178 Resp: 263001

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	18.6	0.0	48.5

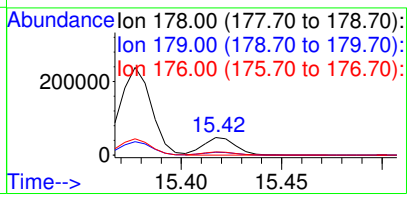


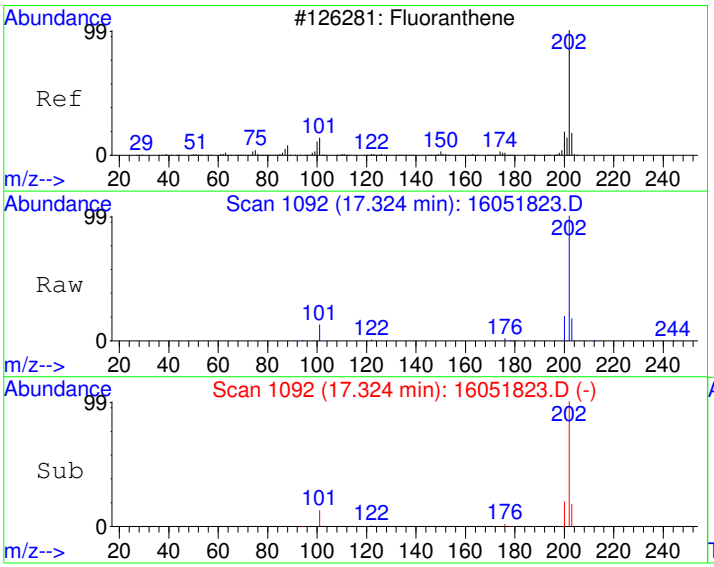


#13
Anthracene
Concen: 147.98 ug/kg
RT: 15.42 min Scan# 712
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:178 Resp: 52512

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	18.0	0.0	48.2

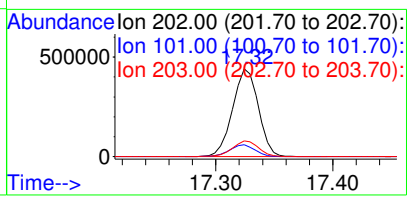


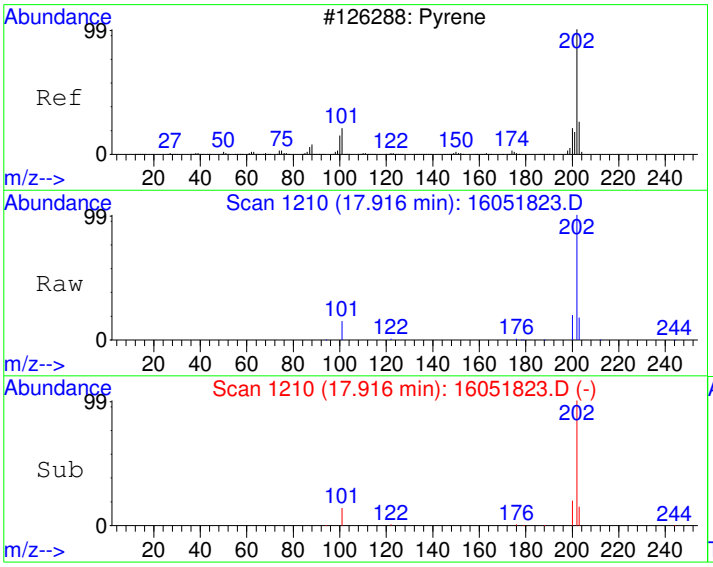


#14
Fluoranthene
Concen: 1727.31 ug/kg
RT: 17.32 min Scan# 1092
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:202 Resp: 670162

Ion	Ratio	Lower	Upper
202	100		
101	13.4	0.0	43.0
203	17.7	0.0	47.9

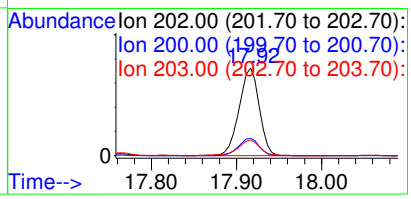


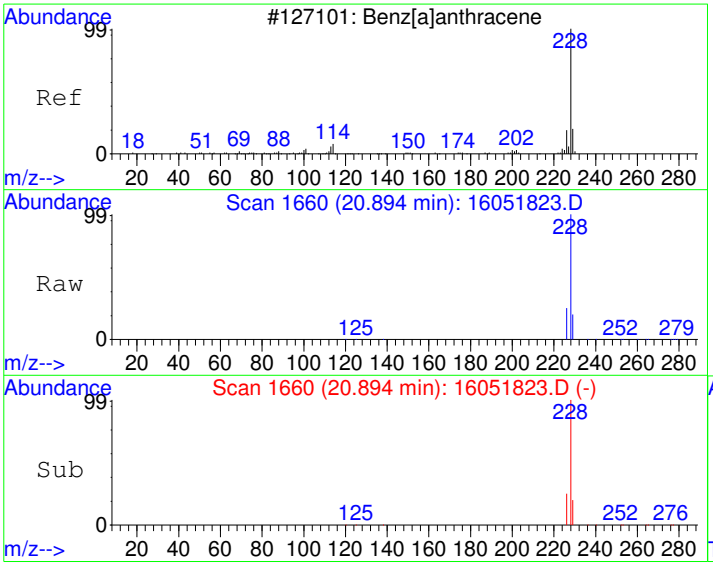


#15
Pyrene
Concen: 1469.03 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:202 Resp: 592061

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.7	0.0	48.0

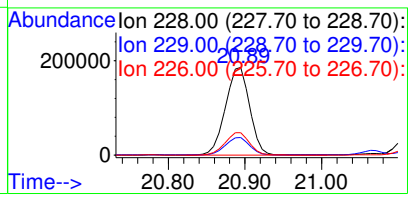


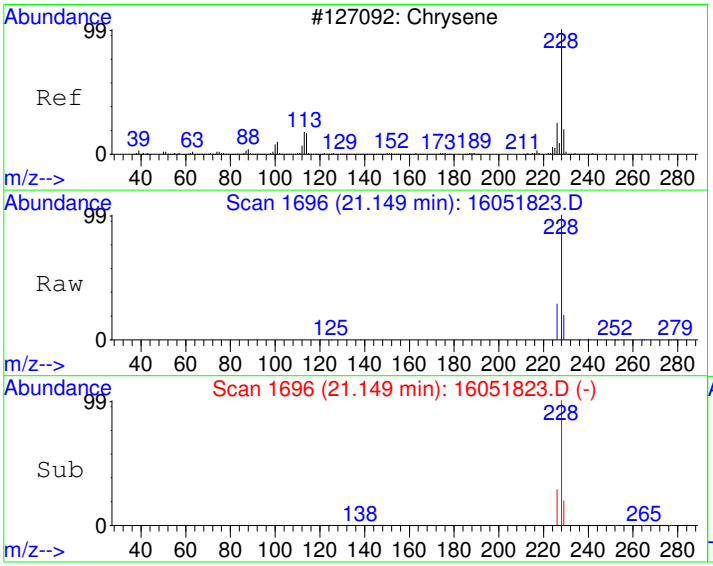


#18
Benzo[a]anthracene
Concen: 1114.31 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:228 Resp: 404452

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.4	0.0	55.2

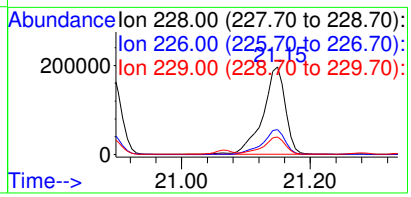


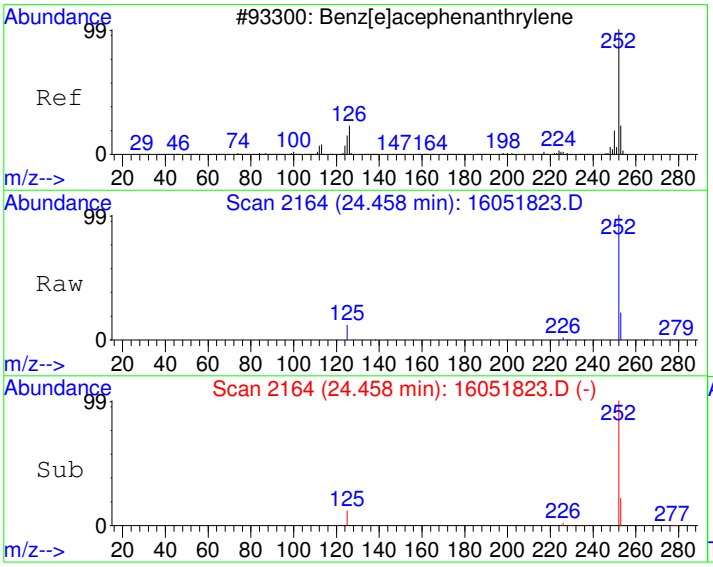


#19
Chrysene
Concen: 1354.27 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:228 Resp: 474933

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	20.0	0.0	50.1

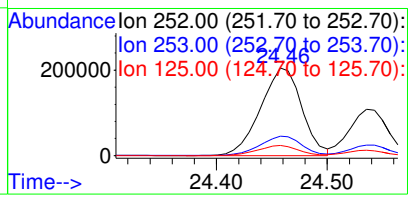


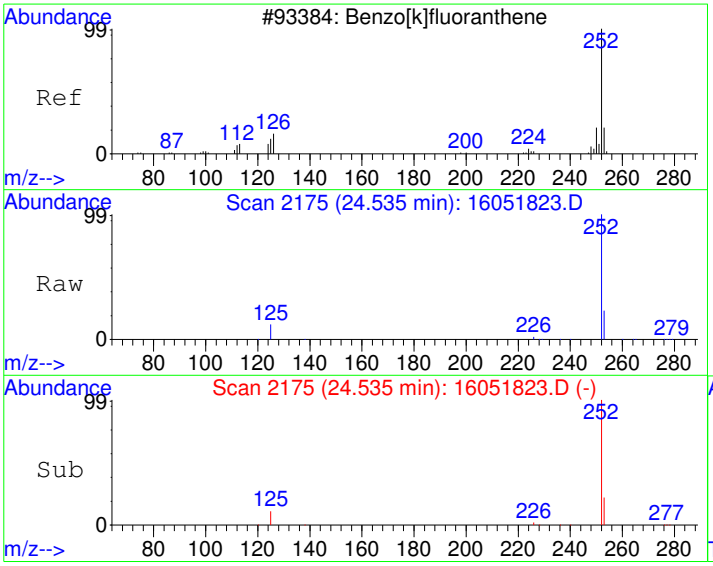


#21
Benzo[b]fluoranthene
Concen: 1390.28 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:252 Resp: 528947

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	11.6	0.0	41.0

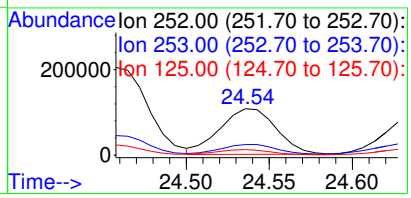


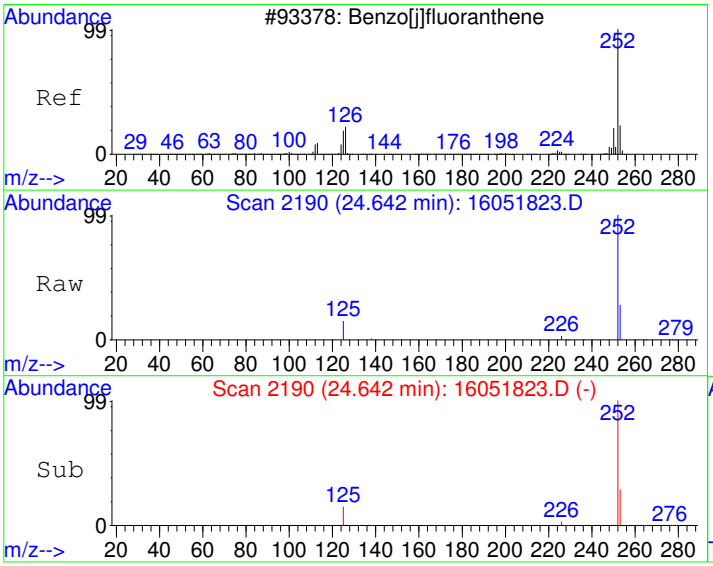


#22
Benzo[k]fluoranthene
Concen: 703.96 ug/kg
RT: 24.54 min Scan# 2175
Delta R.T. -0.03 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:252 Resp: 251248

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.1	42.1
125	11.2	0.0	31.3

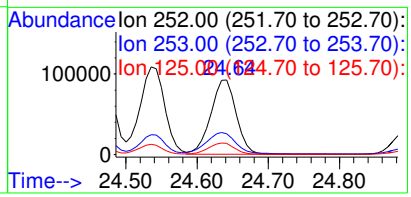


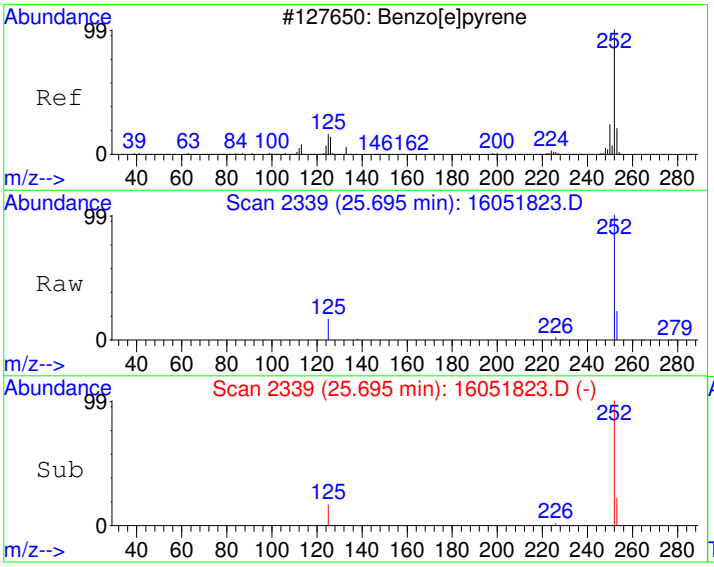


#23
Benzo(j)fluoranthene
Concen: 718.40 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:252 Resp: 228401

Ion	Ratio	Lower	Upper
252	100		
253	27.1	2.1	42.1
125	14.6	0.0	34.4

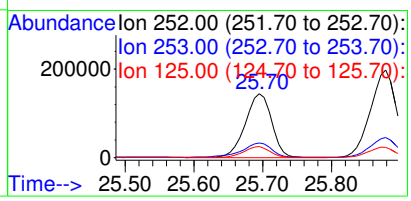


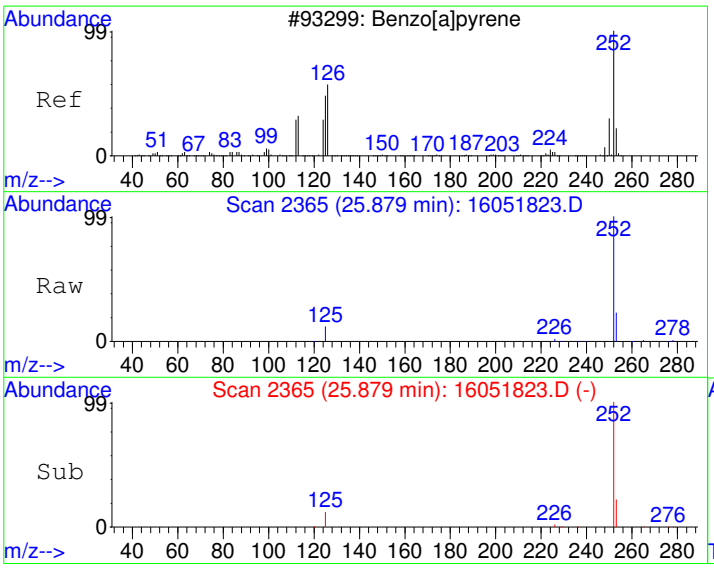


#24
Benzo[e]pyrene
Concen: 1122.61 ug/kg
RT: 25.70 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:252 Resp: 382500

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

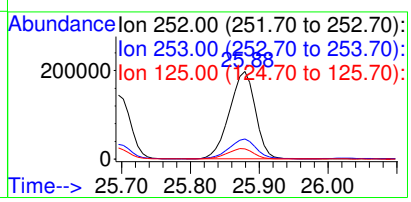


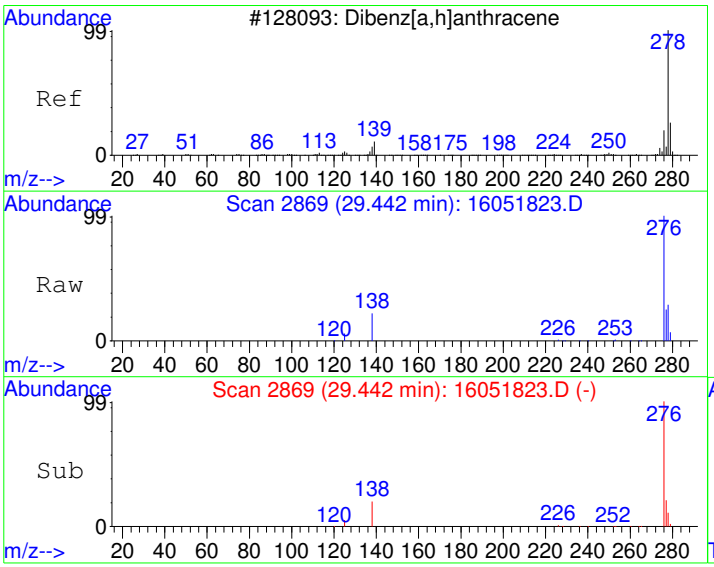


#25
Benzo[a]pyrene
Concen: 1482.76 ug/kg
RT: 25.88 min Scan# 2365
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:252 Resp: 516266

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.6	0.0	31.7

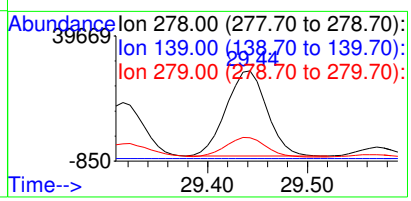


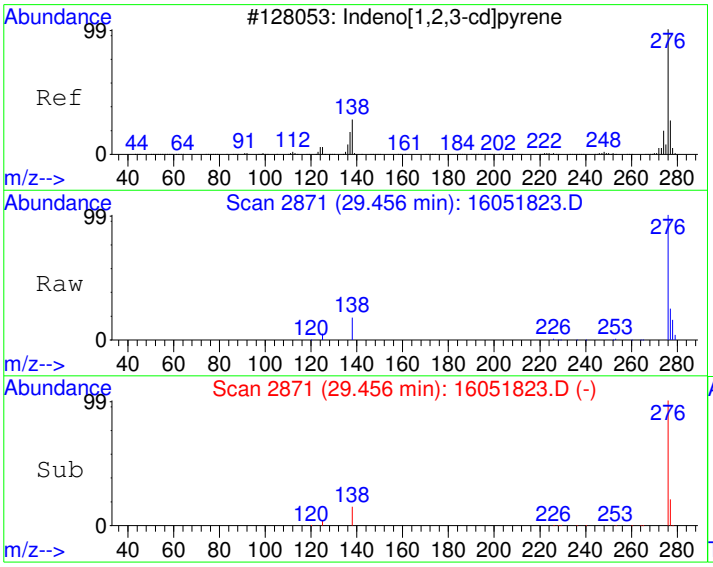


#26
Dibenz[a,h]anthracene
Concen: 247.37 ug/kg
RT: 29.44 min Scan# 2869
Delta R.T. -0.03 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:278 Resp: 78440

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	4.2	44.2

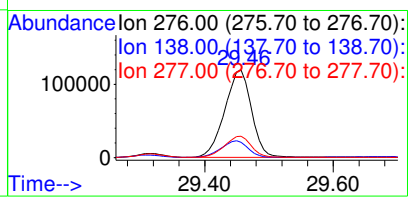


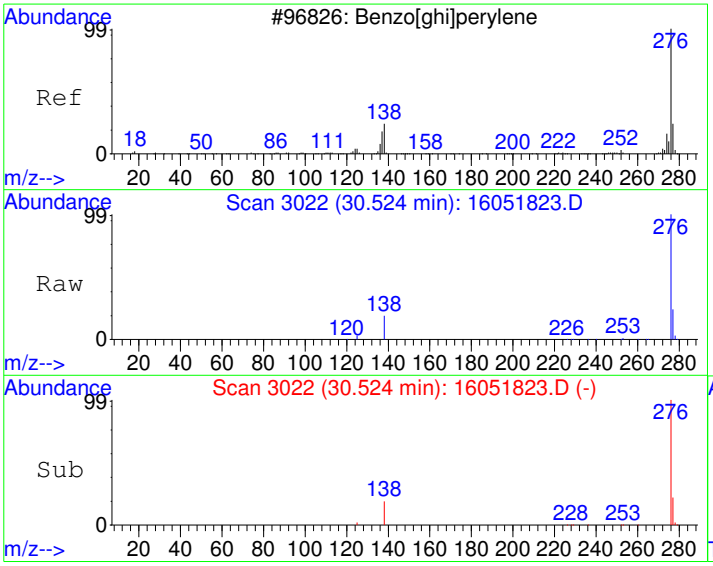


#27
Indeno[1,2,3-cd]pyrene
Concen: 907.55 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:276 Resp: 343310

Ion	Ratio	Lower	Upper
276	100		
138	17.4	6.7	46.7
277	24.3	5.8	45.8

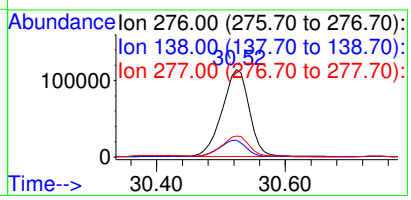




#28
Benzo[g,h,i]perylene
Concen: 1123.40 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051823.D
Acq: 18 May 2016 11:01 pm

Tgt Ion:276 Resp: 331378

Ion	Ratio	Lower	Upper
276	100		
138	19.1	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051824.D Vial: 24
Acq On : 18 May 2016 11:40 pm Operator:
Sample : 1605096-59A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:16 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

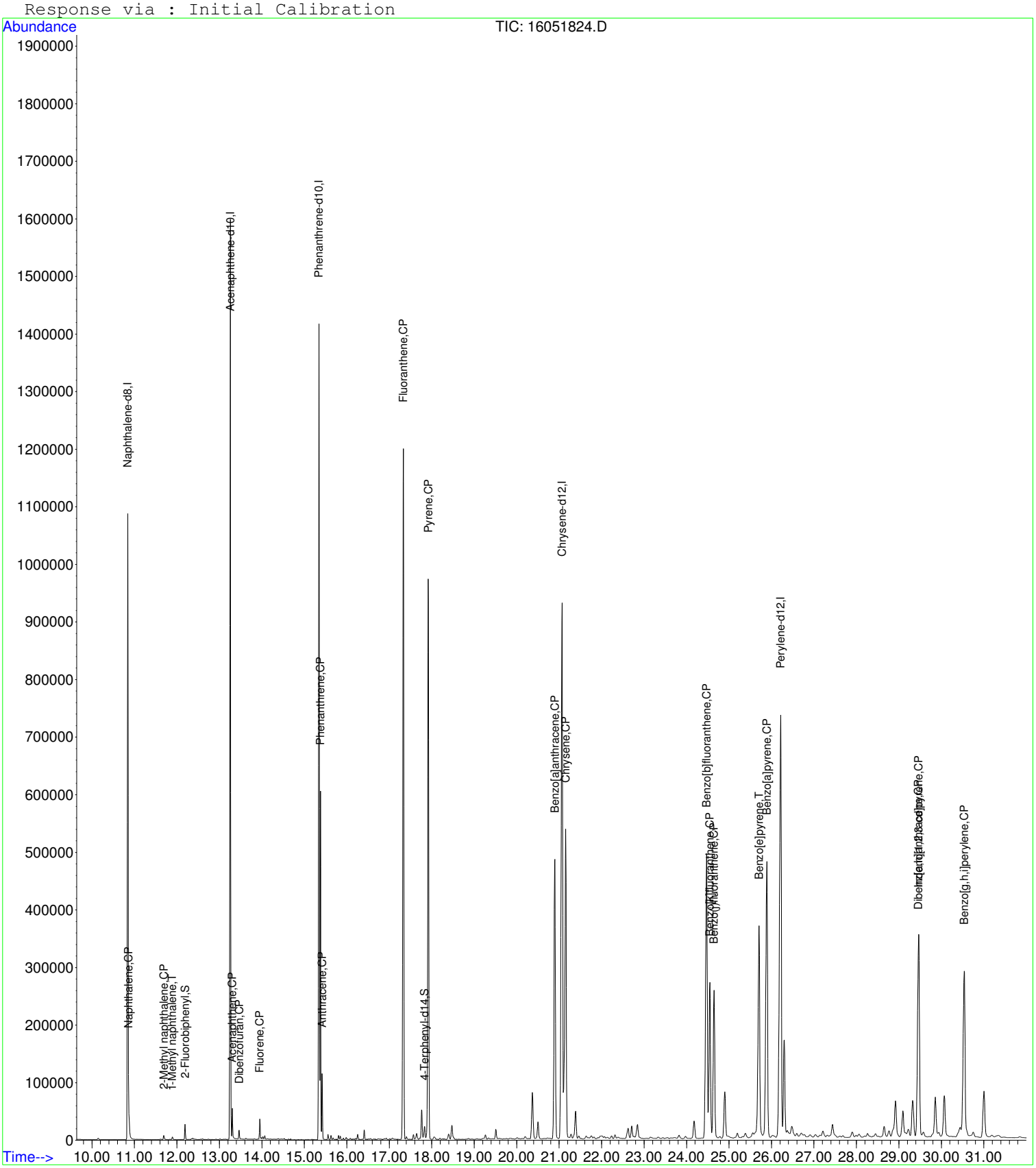
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1281700	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	820148	4000.00	ug/kg	71
11) Phenanthrene-d10	15.34	188	1481220	4000.00	ug/kg	73
17) Chrysene-d12	21.07	240	1575168	4000.00	ug/kg	69
20) Perylene-d12	26.22	264	1478703	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19761	82.60	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
16) 4-Terphenyl-d14	17.83	244	27271	71.16	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#		
Target Compounds						Qvalue
2) Naphthalene	10.87	128	22428	69.96	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	4263	15.05	ug/kg	98
4) 1-Methyl naphthalene	11.89	142	2661	10.26	ug/kg	90
6) Dibenzofuran	13.47	168	14993	48.78	ug/kg	99
9) Acenaphthene	13.30	154	20041	91.42	ug/kg	100
10) Fluorene	13.95	166	16606	62.37	ug/kg	98
12) Phenanthrene	15.38	178	483170	1240.37	ug/kg	100
13) Anthracene	15.42	178	98498	267.15	ug/kg	99
14) Fluoranthene	17.33	202	1212936	3008.99	ug/kg	100
15) Pyrene	17.92	202	1069347	2553.74	ug/kg	100
18) Benzo[a]anthracene	20.90	228	743882	2015.81	ug/kg	99
19) Chrysene	21.15	228	871278	2443.63	ug/kg	100
21) Benzo[b]fluoranthene	24.47	252	972310	2494.80	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	464470	1270.40	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	420291	1290.50	ug/kg	92
24) Benzo[e]pyrene	25.71	252	697558	1998.56	ug/kg	100
25) Benzo[a]pyrene	25.89	252	955951	2680.23	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	147104	452.87	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.47	276	633532	1634.90	ug/kg	90
28) Benzo[g,h,i]perylene	30.54	276	619563	2050.40	ug/kg	99

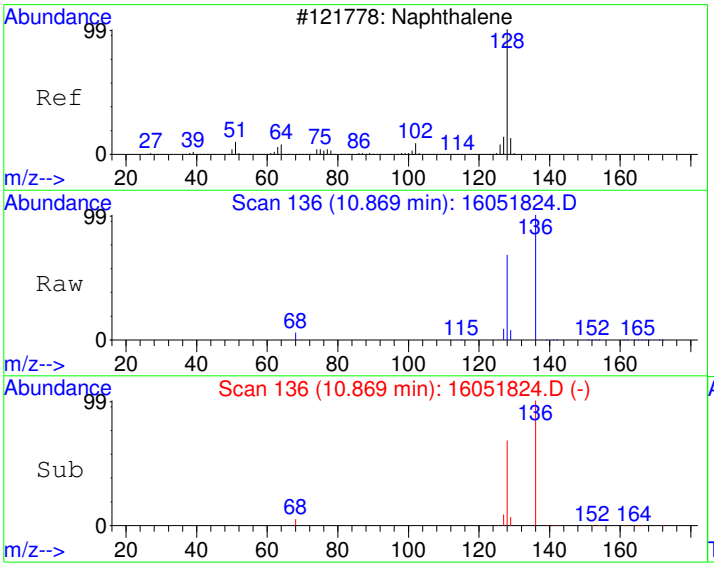
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051824.D Vial: 24
Acq On : 18 May 2016 11:40 pm Operator:
Sample : 1605096-59A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:16 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

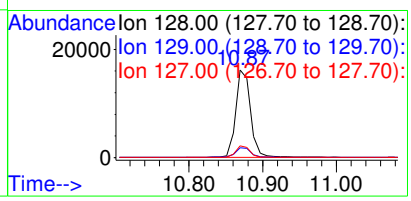


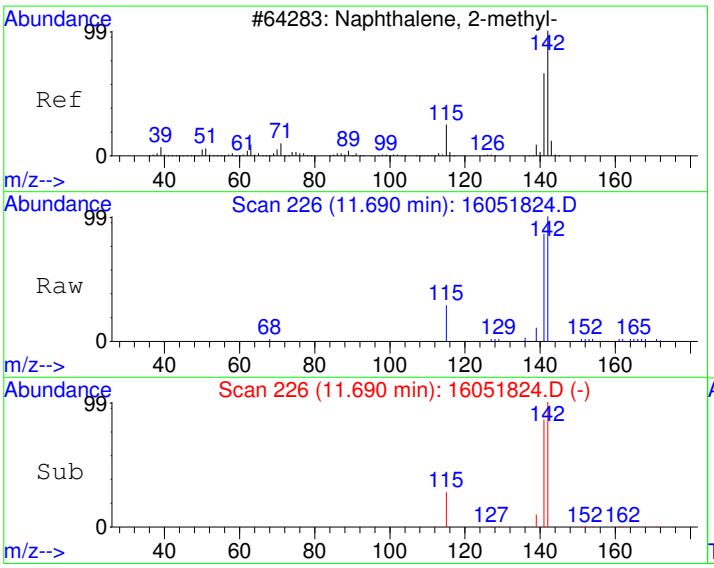


#2
Naphthalene
Concen: 69.96 ug/kg
RT: 10.87 min Scan# 136
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:128 Resp: 22428

Ion	Ratio	Lower	Upper
128	100		
129	10.9	0.0	41.1
127	13.1	0.0	42.4

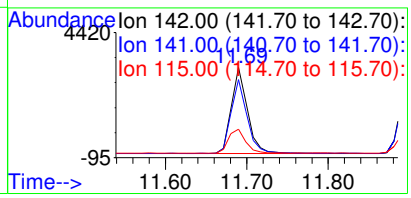


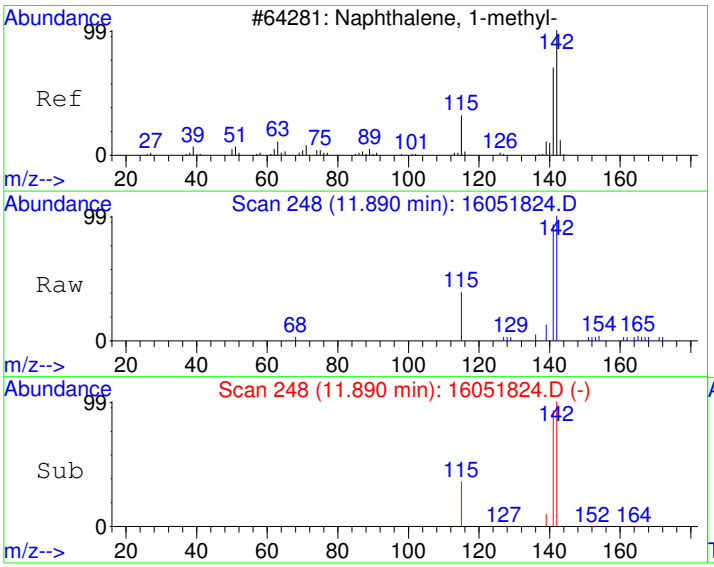


#3
2-Methyl naphthalene
Concen: 15.05 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:142 Resp: 4263

Ion	Ratio	Lower	Upper
142	100		
141	85.8	54.4	114.4
115	27.7	0.0	56.0

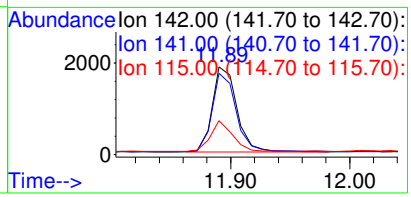


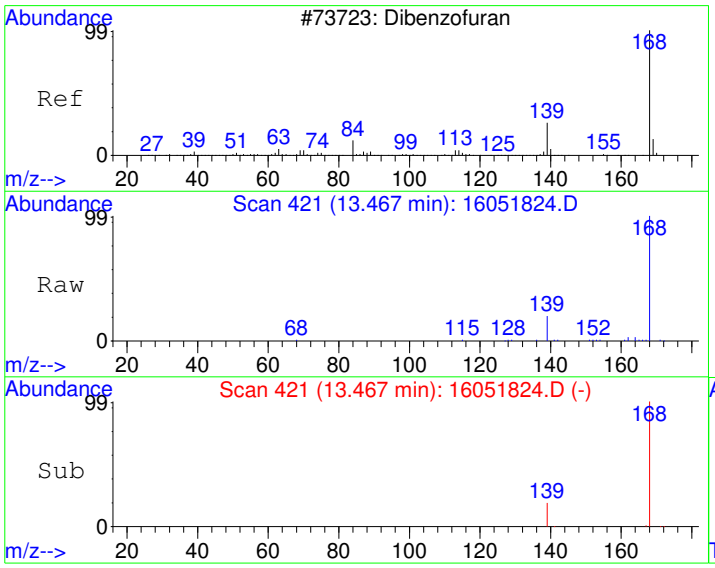


#4
1-Methyl naphthalene
Concen: 10.26 ug/kg
RT: 11.89 min Scan# 248
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:142 Resp: 2661

Ion	Ratio	Lower	Upper
142	100		
141	92.5	56.5	116.5
115	36.3	0.0	55.0

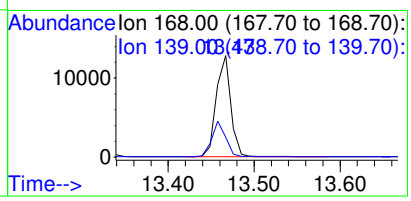


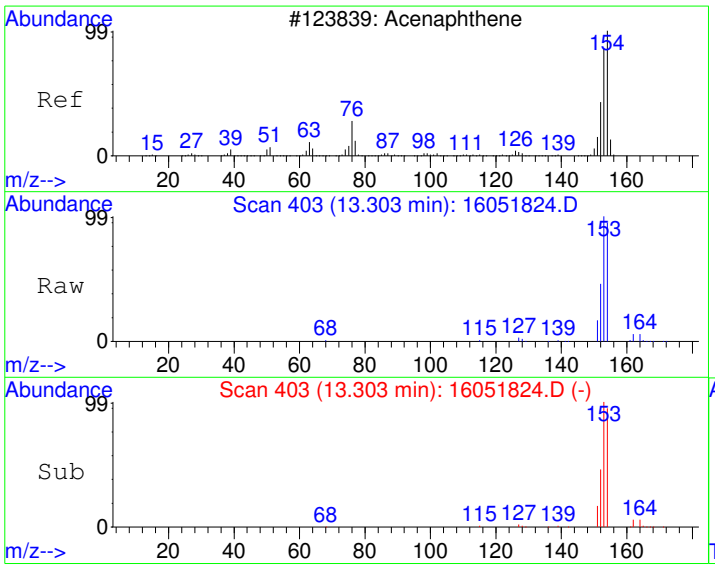


#6
Dibenzofuran
Concen: 48.78 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:168 Resp: 14993

Ion	Ratio	Lower	Upper
168	100		
139	34.0	27.0	40.4

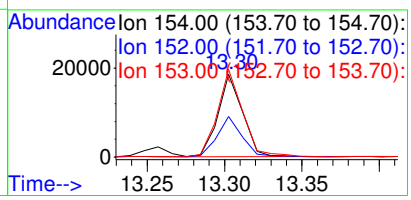


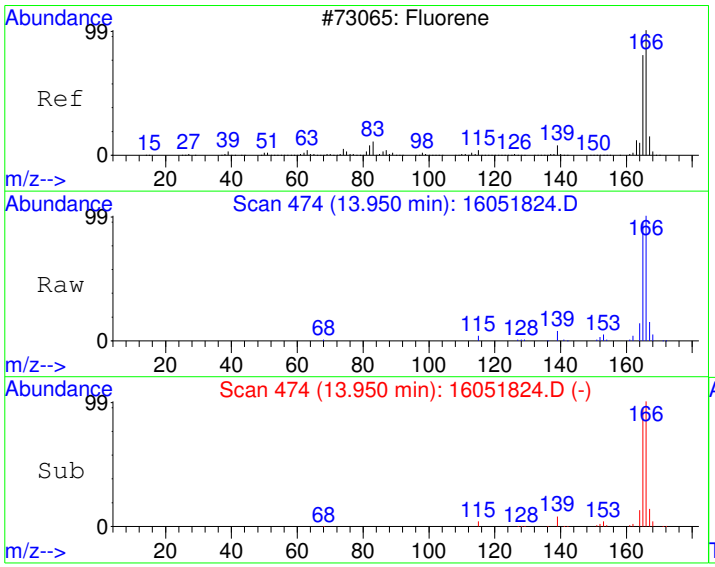


#9
Acenaphthene
Concen: 91.42 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:154 Resp: 20041

Ion	Ratio	Lower	Upper
154	100		
152	48.8	18.9	78.9
153	105.7	75.2	135.2

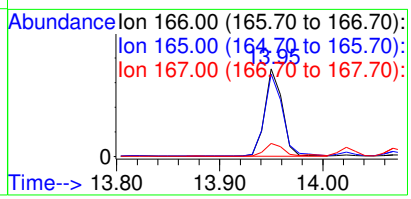


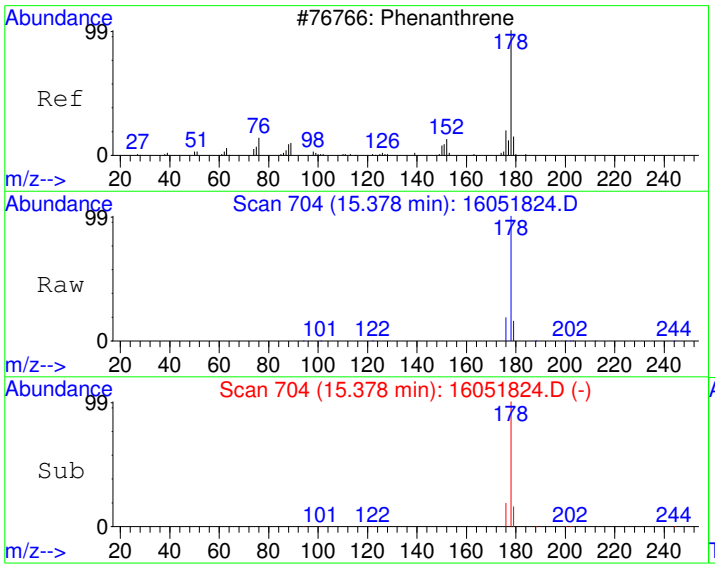


#10
Fluorene
Concen: 62.37 ug/kg
RT: 13.95 min Scan# 474
Delta R.T. -0.02 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:166 Resp: 16606

Ion	Ratio	Lower	Upper
166	100		
165	94.1	61.8	121.8
167	14.4	0.0	43.6

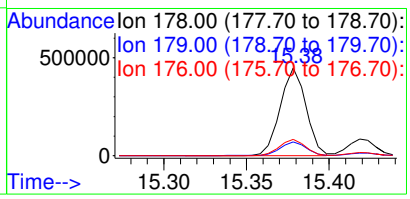


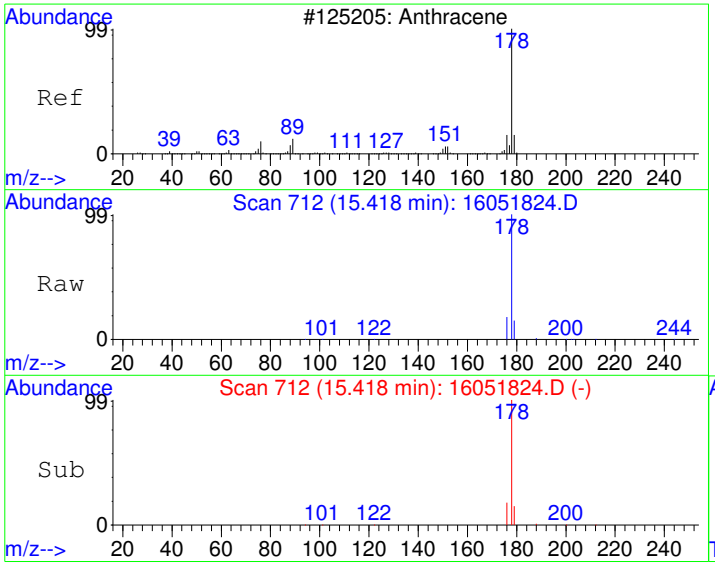


#12
Phenanthrene
Concen: 1240.37 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:178 Resp: 483170

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.9
176	18.6	0.0	48.5

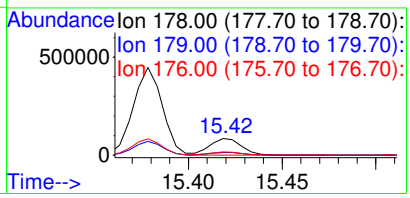


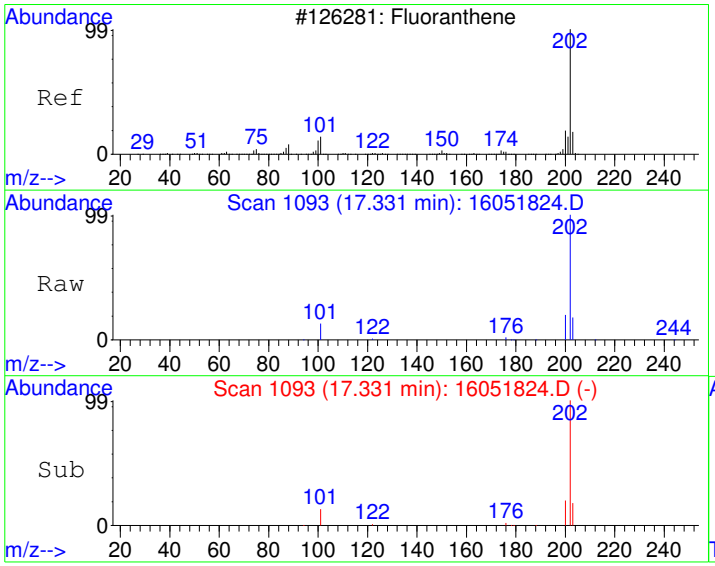


#13
Anthracene
Concen: 267.15 ug/kg
RT: 15.42 min Scan# 712
Delta R.T. -0.02 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:178 Resp: 98498

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.0	0.0	48.2

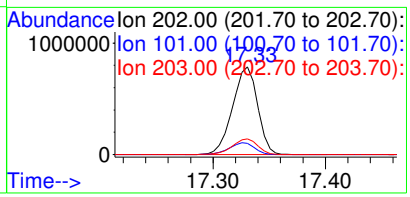


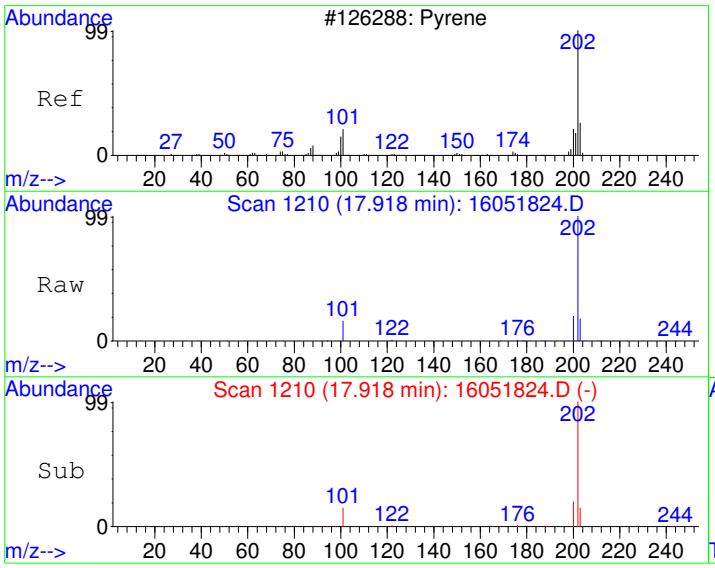


#14
Fluoranthene
Concen: 3008.99 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:202 Resp: 1212936

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	43.0
203	17.9	0.0	47.9

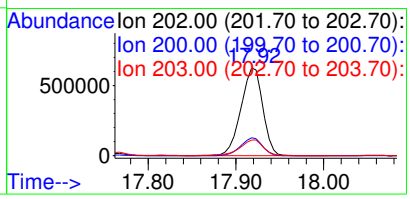


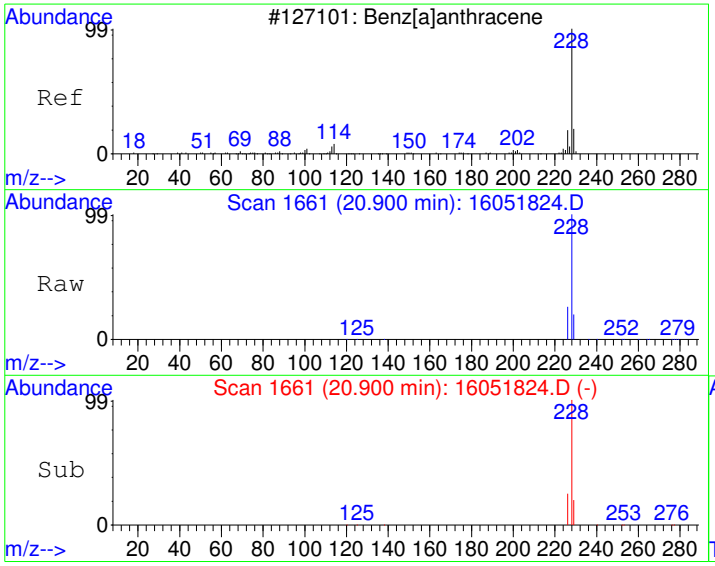


#15
Pyrene
Concen: 2553.74 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:202 Resp: 1069347

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	18.0	0.0	48.0

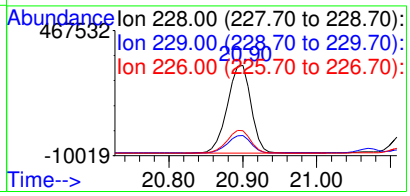


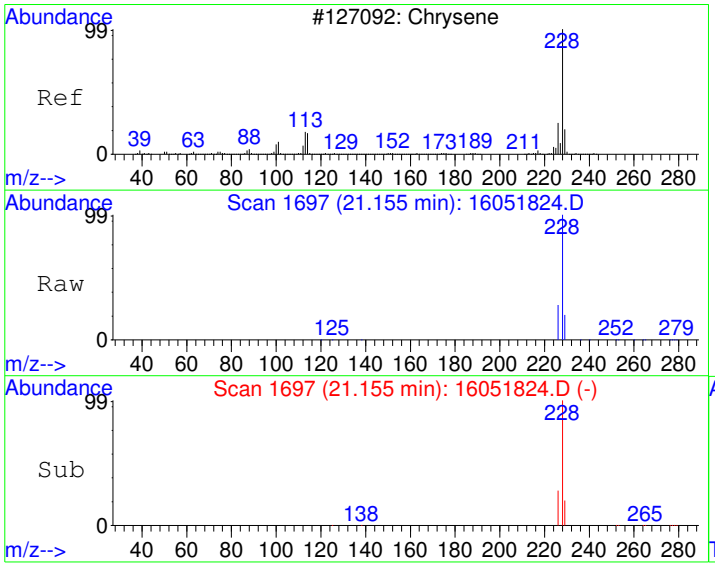


#18
Benzo[a]anthracene
Concen: 2015.81 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:228 Resp: 743882

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.5	0.0	55.2

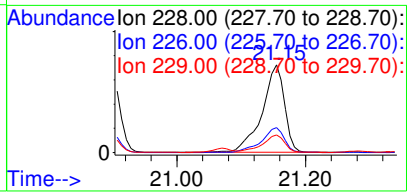


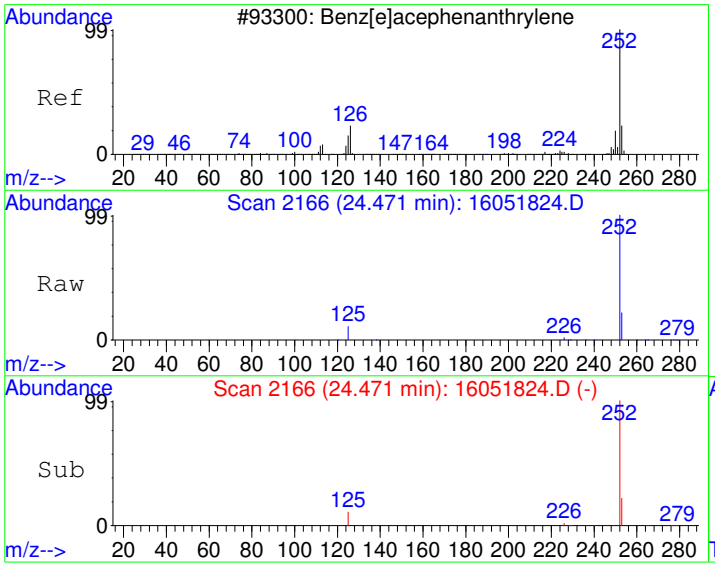


#19
Chrysene
Concen: 2443.63 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:228 Resp: 871278

Ion	Ratio	Lower	Upper
228	100		
226	28.4	0.0	58.1
229	20.0	0.0	50.1

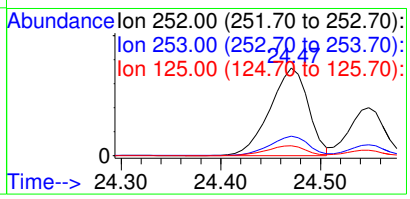


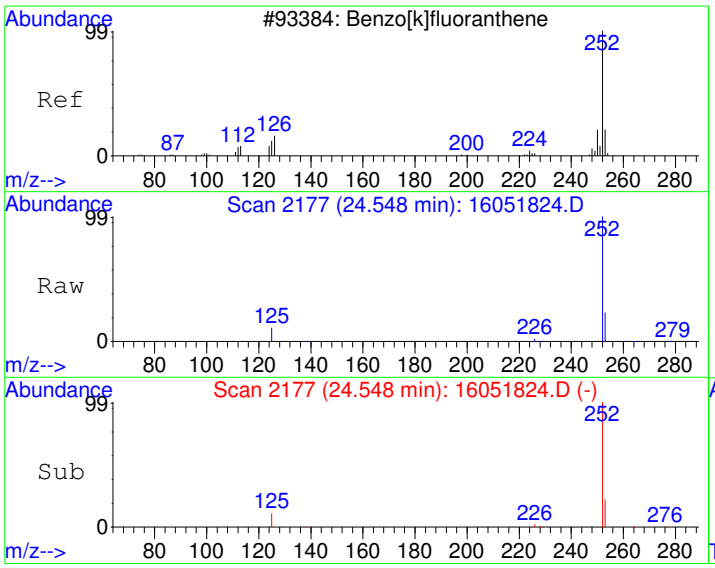


#21
Benzo[b]fluoranthene
Concen: 2494.80 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:252 Resp: 972310

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.2
125	11.4	0.0	41.0

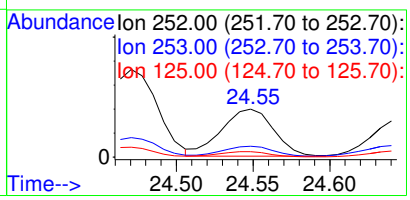


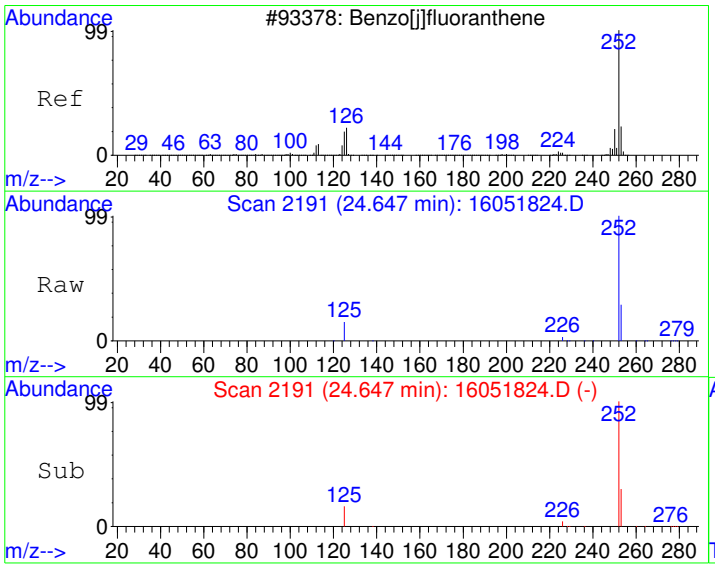


#22
Benzo[k]fluoranthene
Concen: 1270.40 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:252 Resp: 464470

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.1	42.1
125	10.9	0.0	31.3

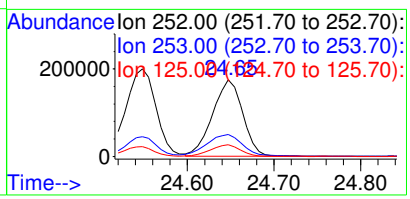


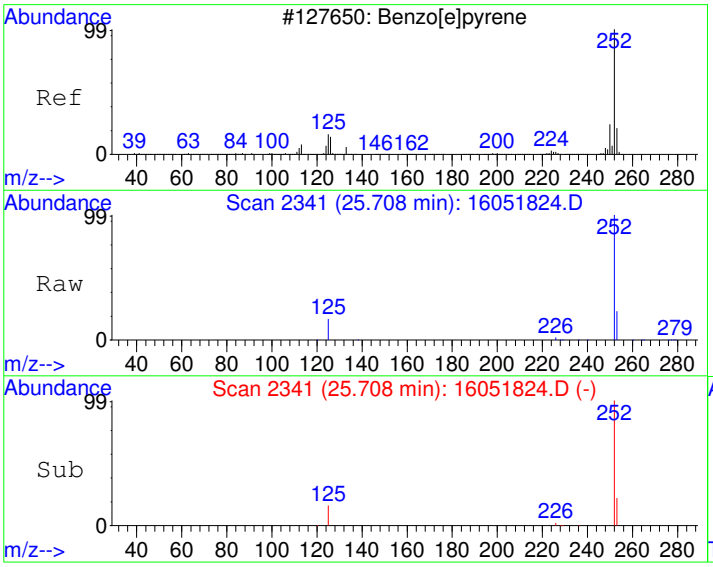


#23
Benzo(j)fluoranthene
Concen: 1290.50 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:252 Resp: 420291

Ion	Ratio	Lower	Upper
252	100		
253	28.2	2.1	42.1
125	15.2	0.0	34.4

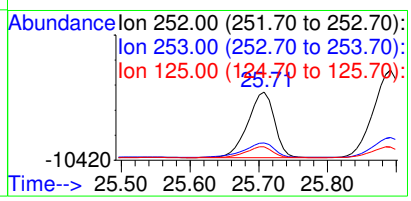


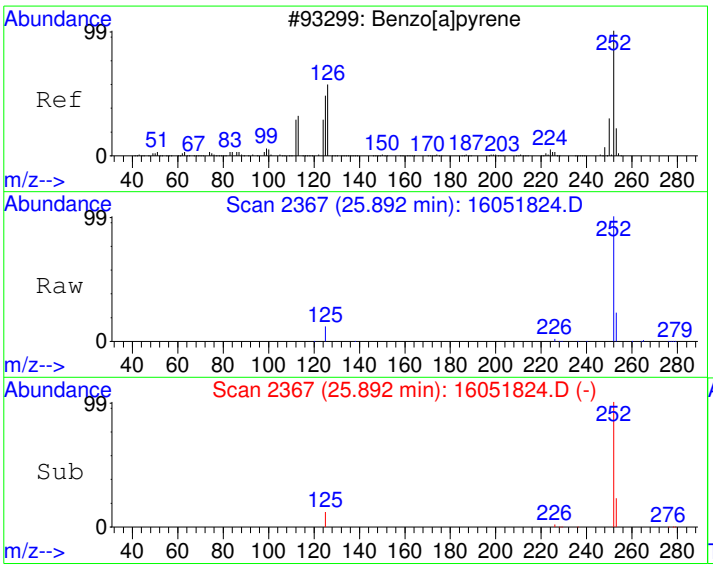


#24
Benzo[e]pyrene
Concen: 1998.56 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:252 Resp: 697558

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	16.4	0.0	36.1

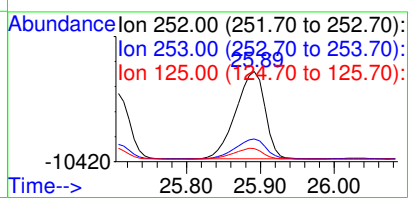


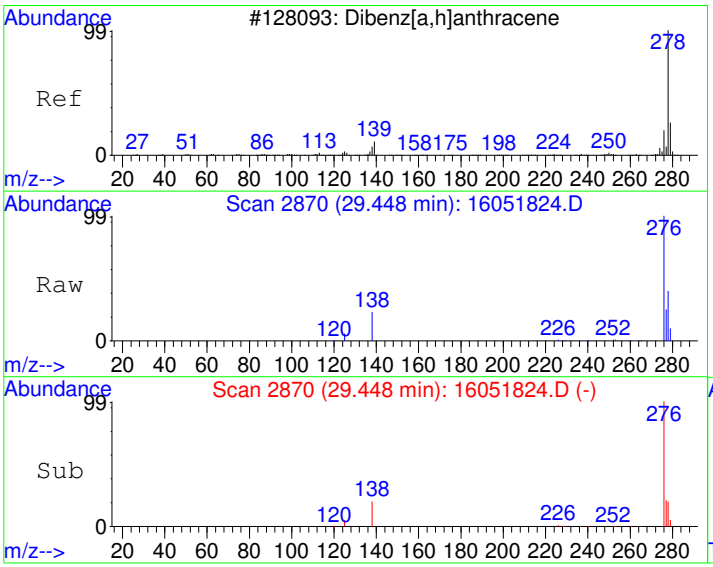


#25
Benzo[a]pyrene
Concen: 2680.23 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:252 Resp: 955951

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	11.9	0.0	31.7

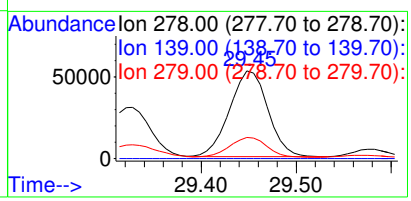


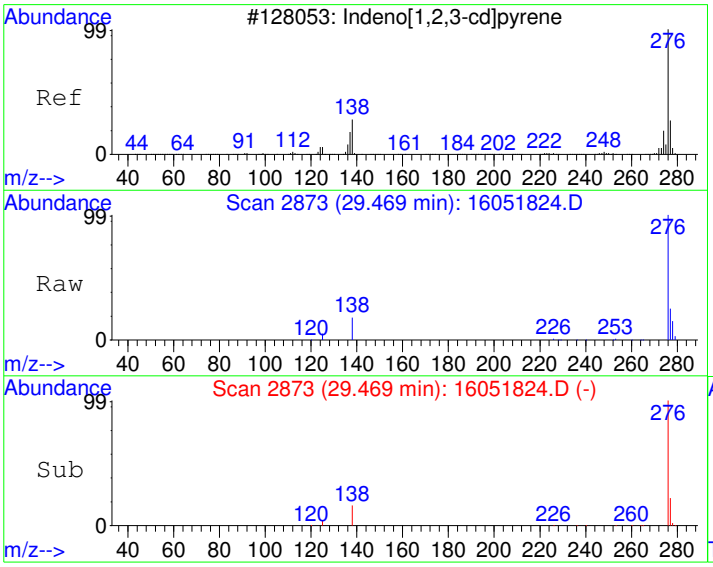


#26
Dibenz[a,h]anthracene
Concen: 452.87 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:278 Resp: 147104

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.9	4.2	44.2

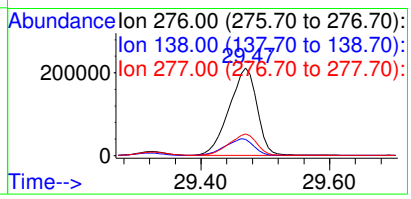


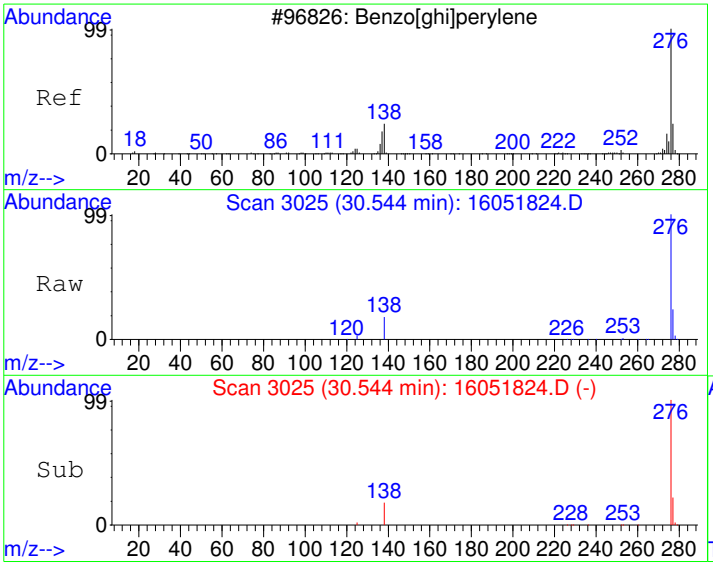


#27
Indeno[1,2,3-cd]pyrene
Concen: 1634.90 ug/kg
RT: 29.47 min Scan# 2873
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:276 Resp: 633532

Ion	Ratio	Lower	Upper
276	100		
138	18.3	6.7	46.7
277	24.5	5.8	45.8

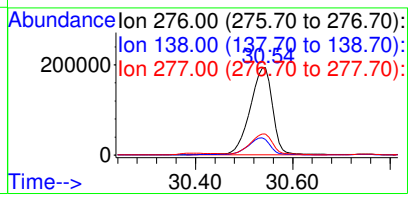




#28
Benzo[g,h,i]perylene
Concen: 2050.40 ug/kg
RT: 30.54 min Scan# 3025
Delta R.T. -0.01 min
Lab File: 16051824.D
Acq: 18 May 2016 11:40 pm

Tgt Ion:276 Resp: 619563

Ion	Ratio	Lower	Upper
276	100		
138	17.7	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051825.D Vial: 25
Acq On : 19 May 2016 12:20 am Operator:
Sample : 1605096-60A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:16 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

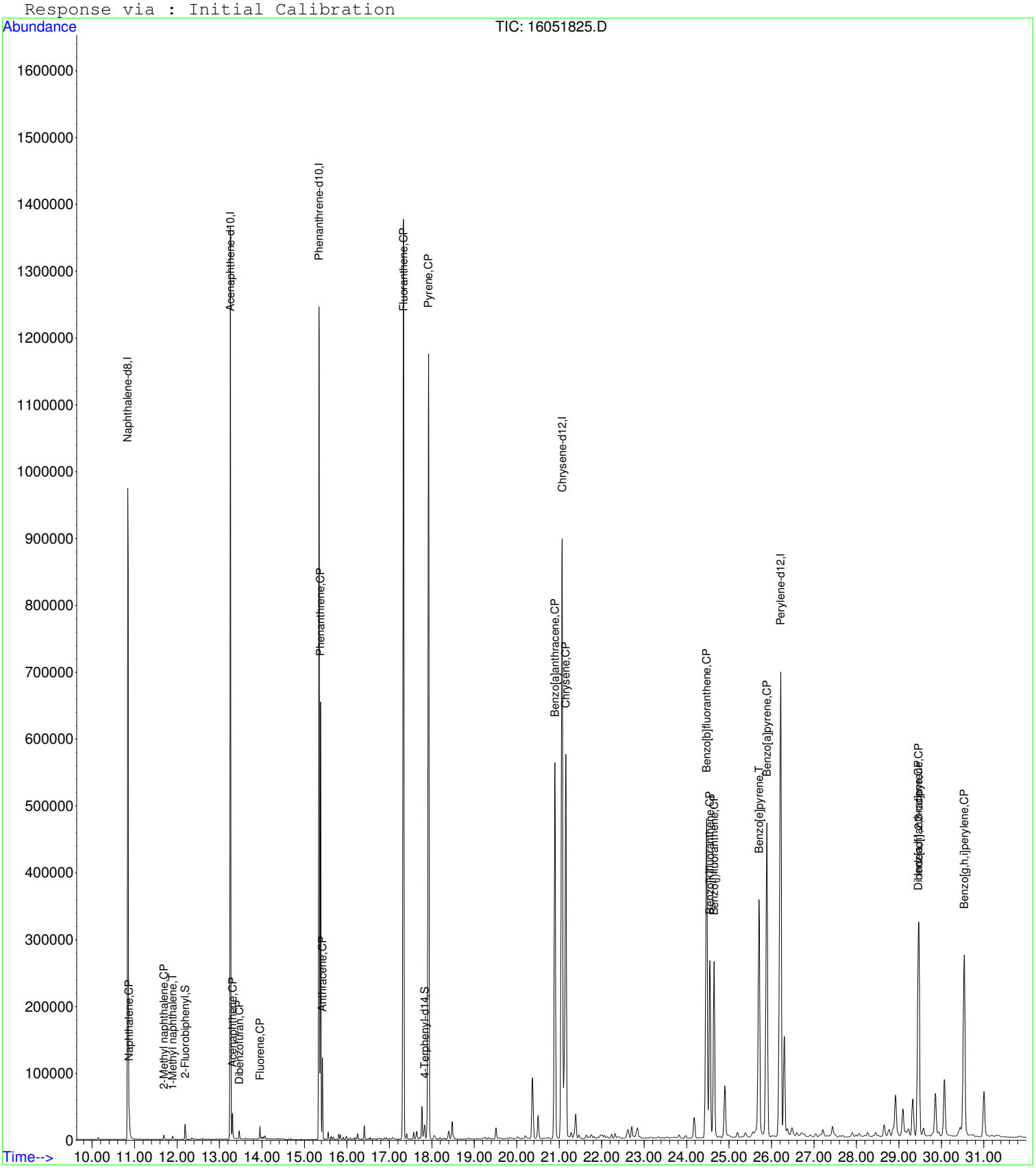
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1276458	4000.00	ug/kg	110
5) Acenaphthene-d10	13.25	164	761528	4000.00	ug/kg	66
11) Phenanthrene-d10	15.34	188	1371686	4000.00	ug/kg	67
17) Chrysene-d12	21.07	240	1498810	4000.00	ug/kg	66
20) Perylene-d12	26.22	264	1375569	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	18465	83.12	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.08%#		
16) 4-Terphenyl-d14	17.83	244	25600	72.14	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	20334	63.69	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	4061	14.40	ug/kg	93
4) 1-Methyl naphthalene	11.90	142	2831	10.96	ug/kg	99
6) Dibenzofuran	13.46	168	10395	36.42	ug/kg	99
9) Acenaphthene	13.31	154	17132	84.16	ug/kg	96
10) Fluorene	13.96	166	9107	36.84	ug/kg	99
12) Phenanthrene	15.38	178	552397	1531.33	ug/kg	99
13) Anthracene	15.42	178	103682	303.67	ug/kg	99
14) Fluoranthene	17.34	202	1424608	3816.31	ug/kg	99
15) Pyrene	17.92	202	1269030	3272.61	ug/kg	99
18) Benzo[a]anthracene	20.90	228	815374	2322.11	ug/kg	99
19) Chrysene	21.15	228	929899	2740.91	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	926203	2554.67	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	459503	1351.05	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	416663	1375.28	ug/kg	92
24) Benzo[e]pyrene	25.71	252	663440	2043.33	ug/kg	99
25) Benzo[a]pyrene	25.89	252	899736	2711.76	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	139038	460.13	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.47	276	587511	1629.81	ug/kg	91
28) Benzo[g,h,i]perylene	30.54	276	565955	2013.41	ug/kg	99

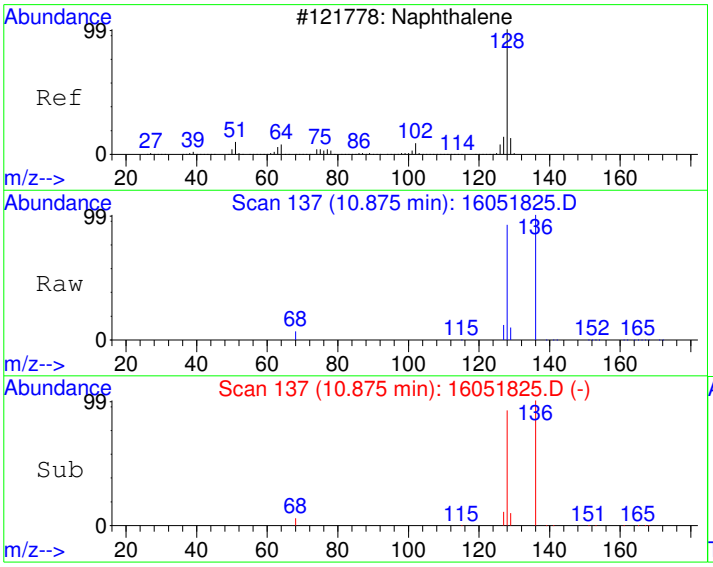
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051825.D Vial: 25
Acq On : 19 May 2016 12:20 am Operator:
Sample : 1605096-60A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:16 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

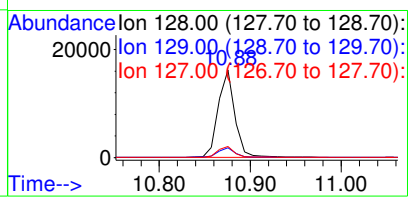


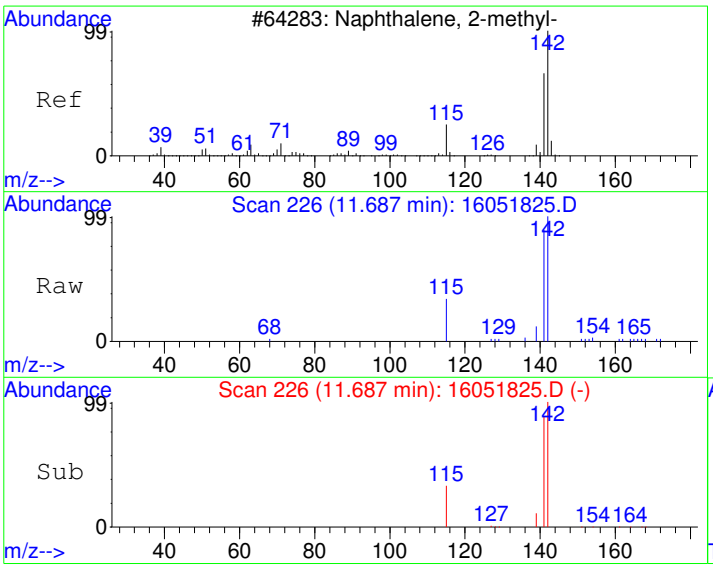


#2
Naphthalene
Concen: 63.69 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:128 Resp: 20334

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	41.1
127	12.4	0.0	42.4

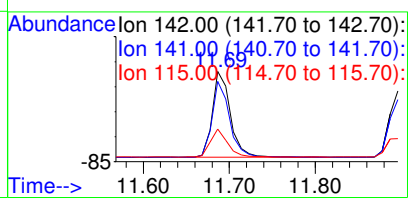


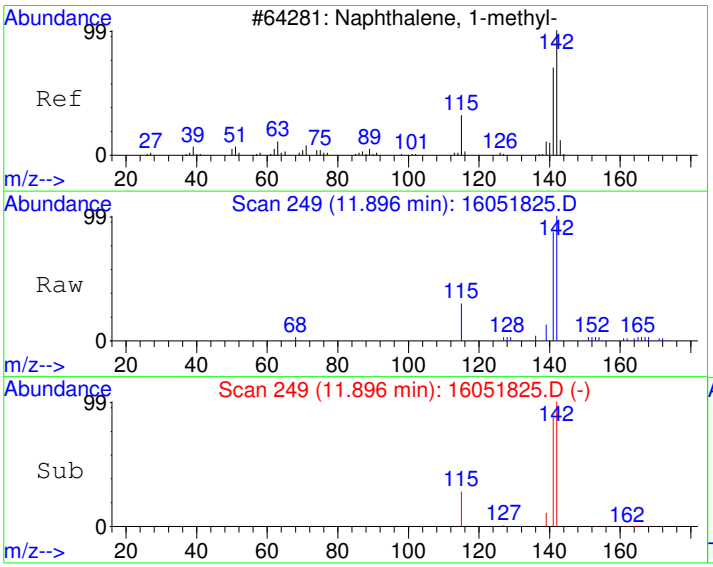


#3
2-Methyl naphthalene
Concen: 14.40 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:142 Resp: 4061

Ion	Ratio	Lower	Upper
142	100		
141	88.6	54.4	114.4
115	32.7	0.0	56.0

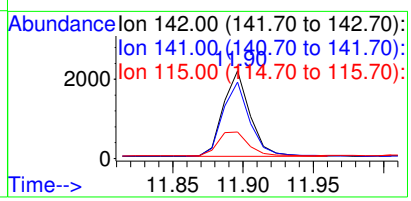


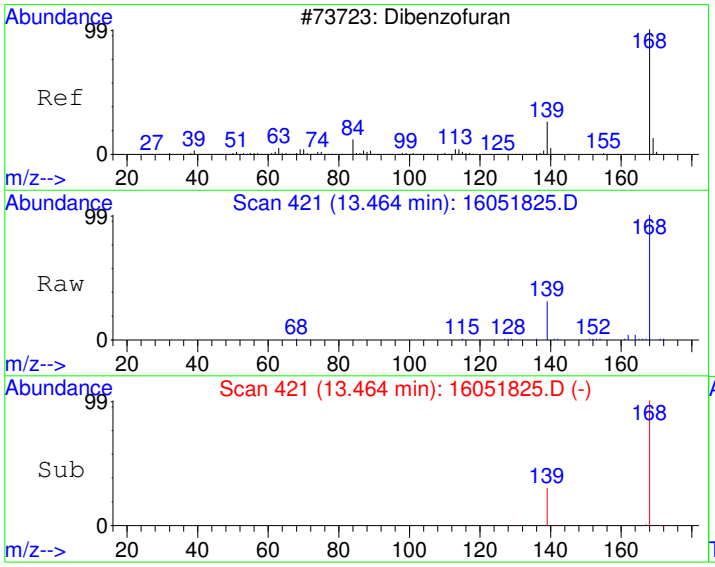


#4
1-Methyl naphthalene
Concen: 10.96 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. -0.00 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:142 Resp: 2831

Ion	Ratio	Lower	Upper
142	100		
141	86.8	56.5	116.5
115	27.7	0.0	55.0

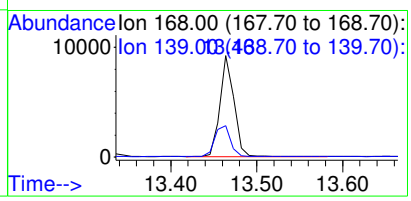


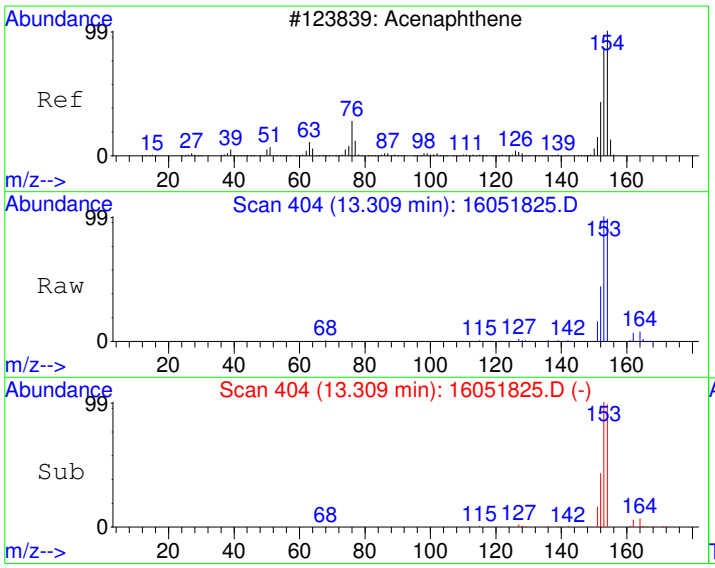


#6
Dibenzofuran
Concen: 36.42 ug/kg
RT: 13.46 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:168 Resp: 10395

Ion	Ratio	Lower	Upper
168	100		
139	34.5	27.0	40.4

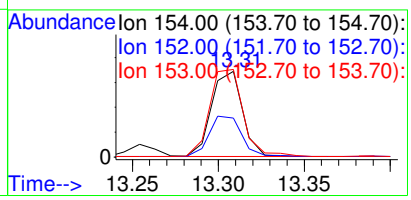


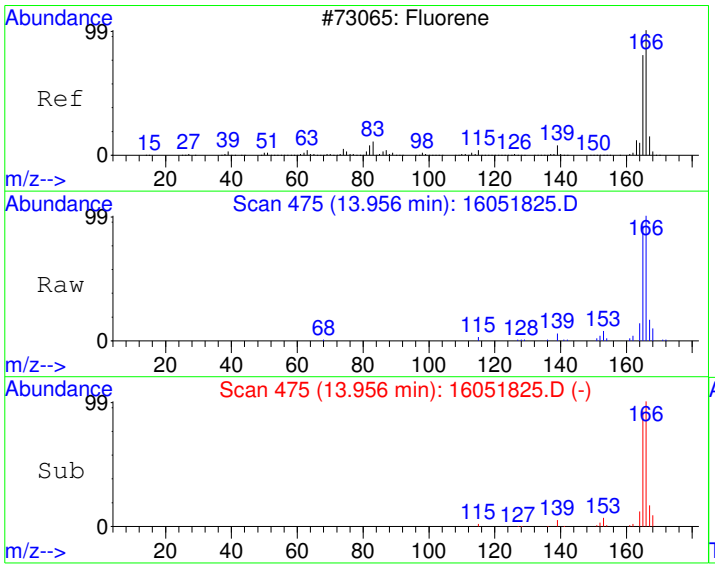


#9
Acenaphthene
Concen: 84.16 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:154 Resp: 17132

Ion	Ratio	Lower	Upper
154	100		
152	45.1	18.9	78.9
153	102.2	75.2	135.2

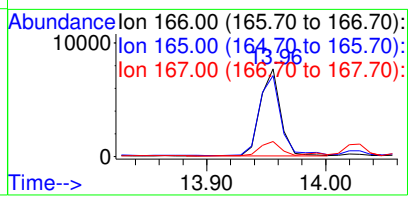


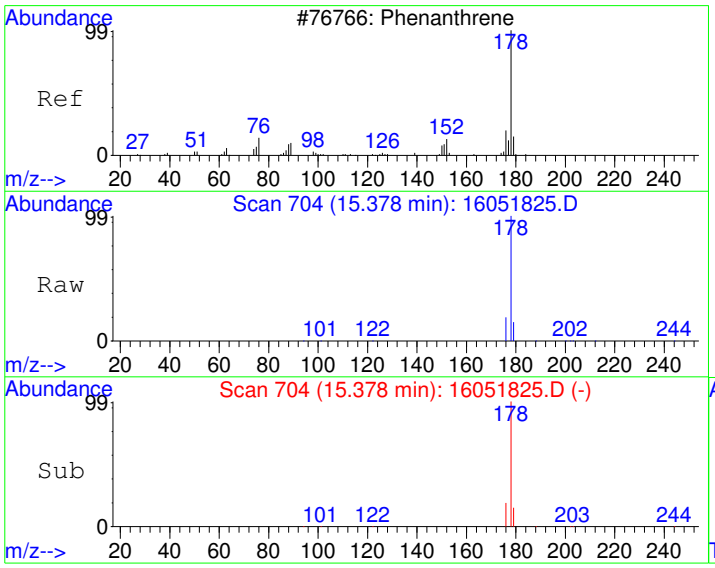


#10
Fluorene
Concen: 36.84 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:166 Resp: 9107

Ion	Ratio	Lower	Upper
166	100		
165	91.9	61.8	121.8
167	16.4	0.0	43.6

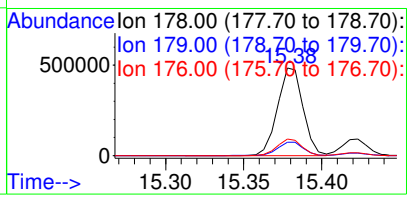


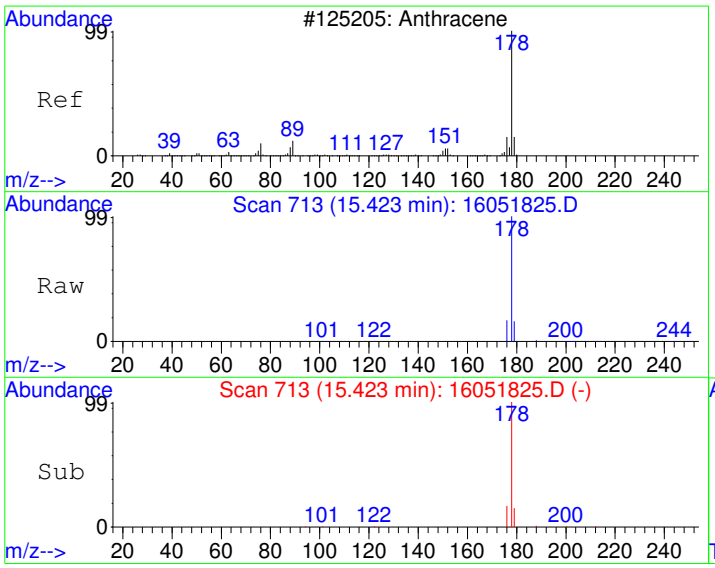


#12
Phenanthrene
Concen: 1531.33 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:178 Resp: 552397

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

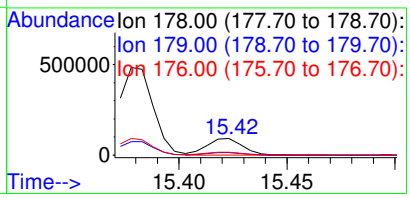


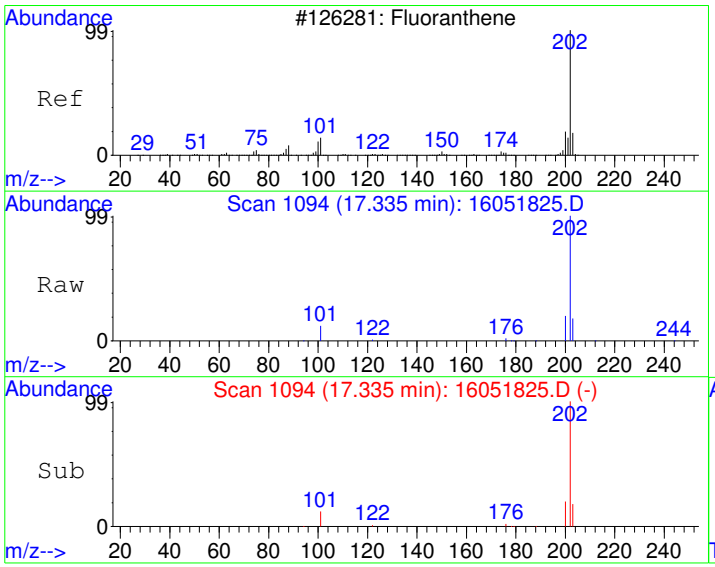


#13
Anthracene
Concen: 303.67 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:178 Resp: 103682

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.4	0.0	48.2

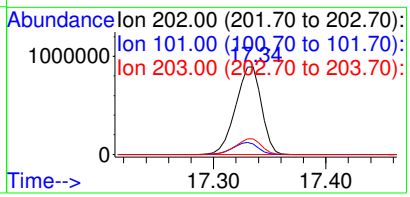


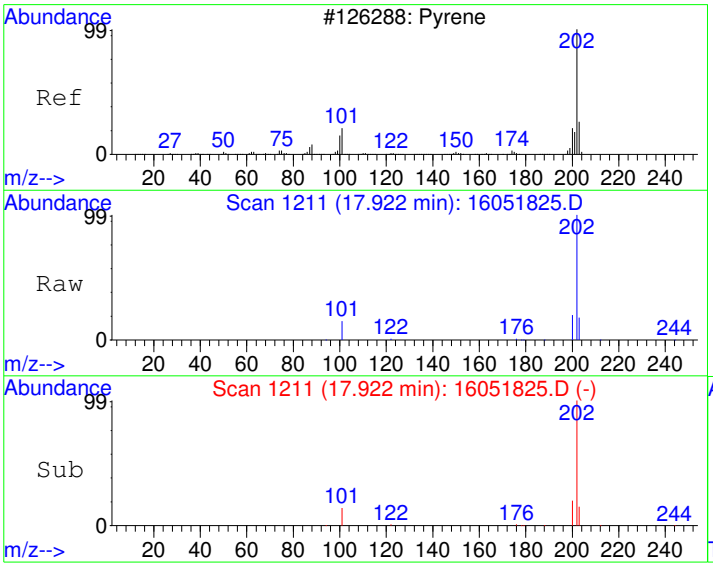


#14
Fluoranthene
Concen: 3816.31 ug/kg
RT: 17.34 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:202 Resp: 1424608

Ion	Ratio	Lower	Upper
202	100		
101	11.9	0.0	43.0
203	18.0	0.0	47.9

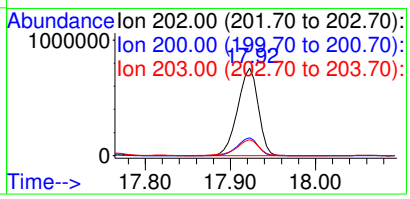


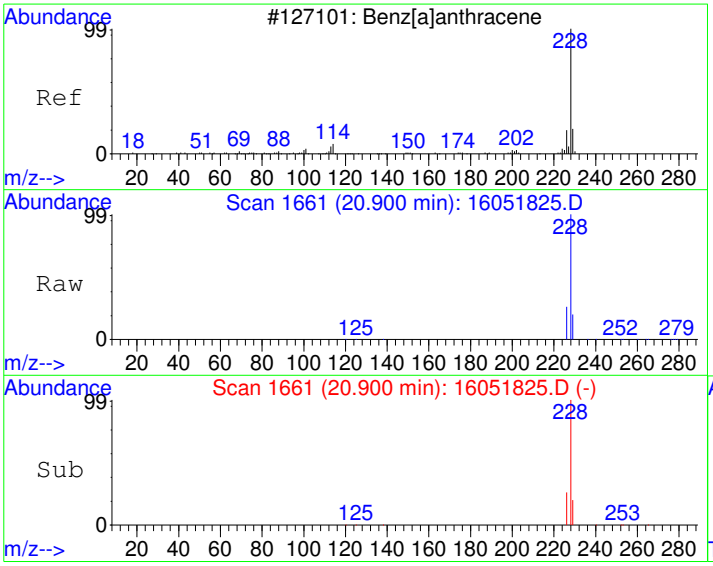


#15
Pyrene
Concen: 3272.61 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:202 Resp: 1269030

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.0
203	18.1	0.0	48.0

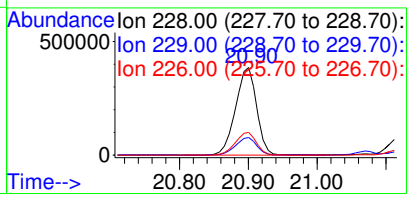


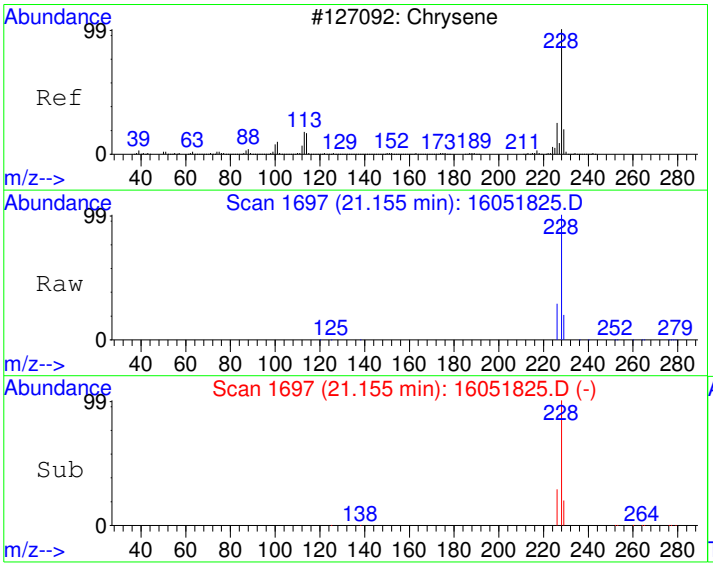


#18
Benzo[a]anthracene
Concen: 2322.11 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:228 Resp: 815374

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

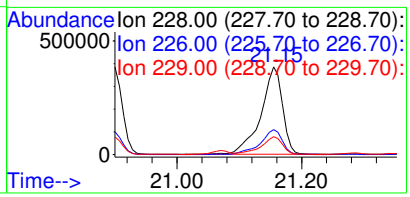


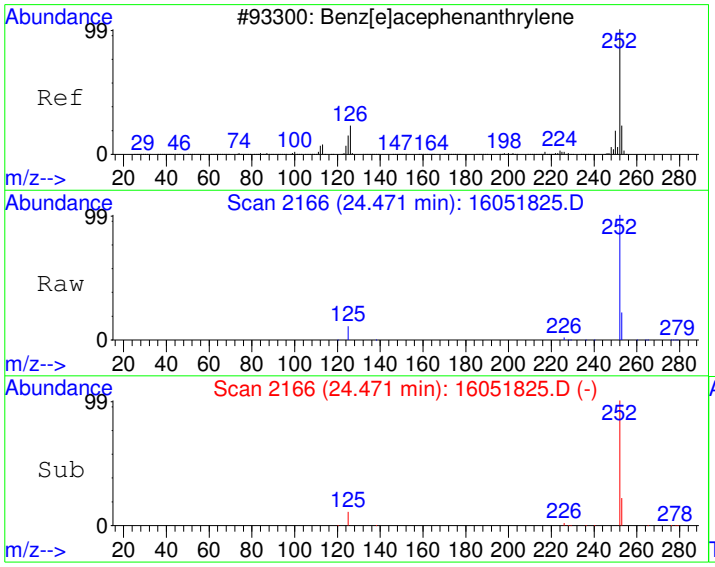


#19
Chrysene
Concen: 2740.91 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:228 Resp: 929899

Ion	Ratio	Lower	Upper
228	100		
226	28.6	0.0	58.1
229	20.2	0.0	50.1

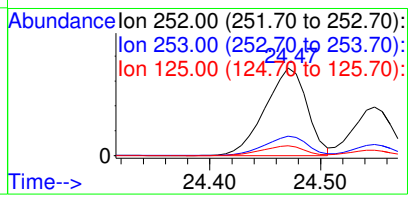


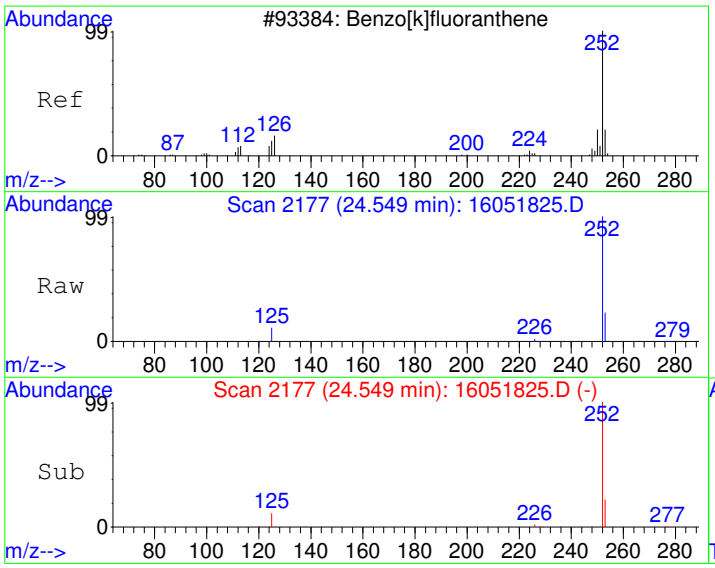


#21
Benzo[b]fluoranthene
Concen: 2554.67 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:252 Resp: 926203

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.3	0.0	41.0

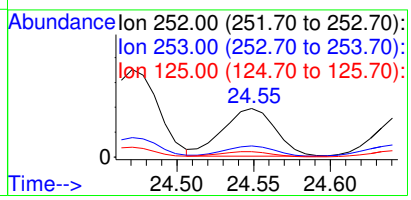


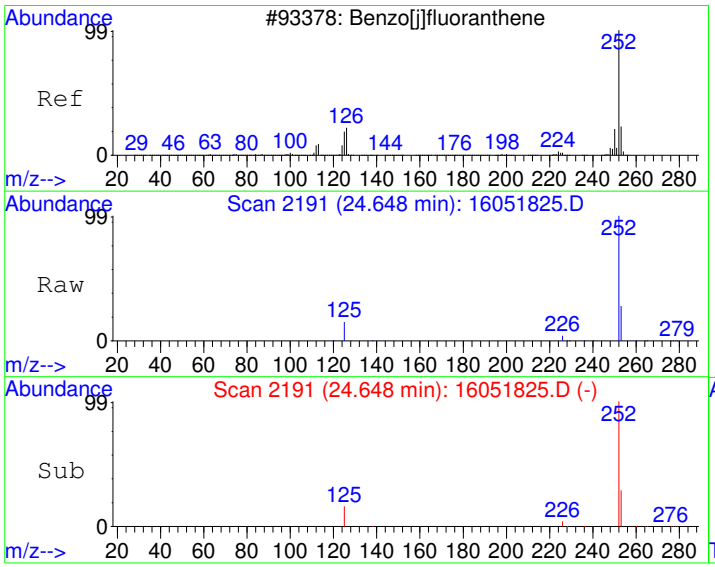


#22
Benzo[k]fluoranthene
Concen: 1351.05 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:252 Resp: 459503

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.1	42.1
125	10.6	0.0	31.3

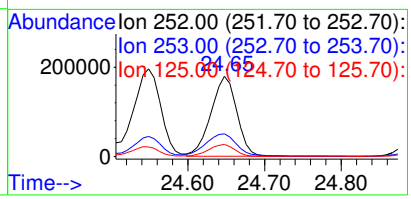


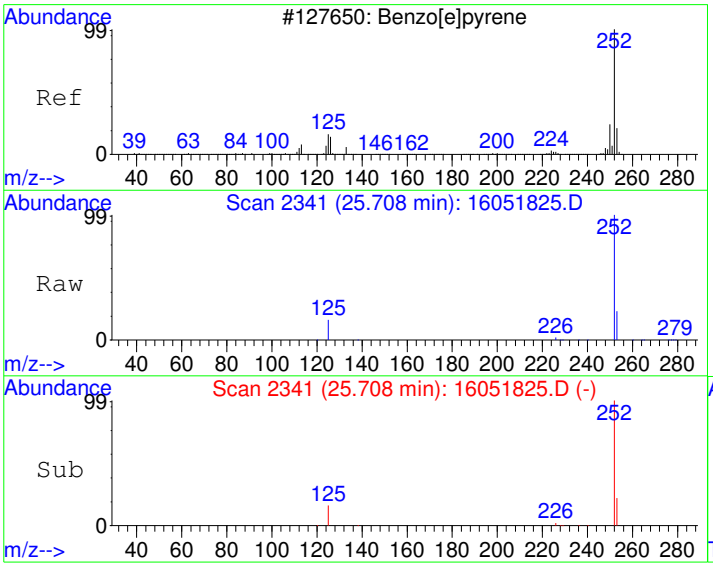


#23
Benzo(j)fluoranthene
Concen: 1375.28 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:252 Resp: 416663

Ion	Ratio	Lower	Upper
252	100		
253	28.0	2.1	42.1
125	15.0	0.0	34.4

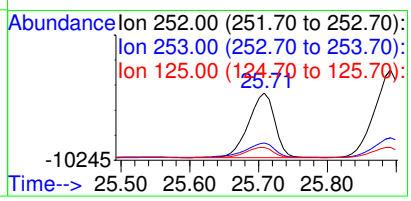


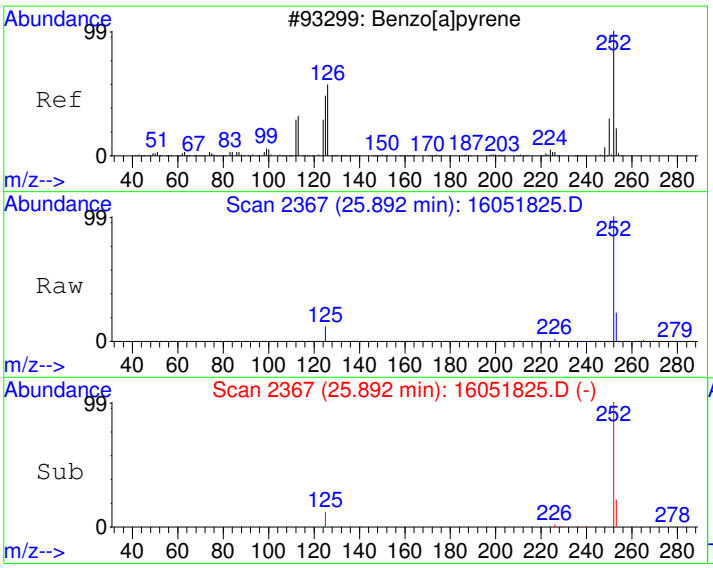


#24
Benzo[e]pyrene
Concen: 2043.33 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:252 Resp: 663440

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	15.7	0.0	36.1

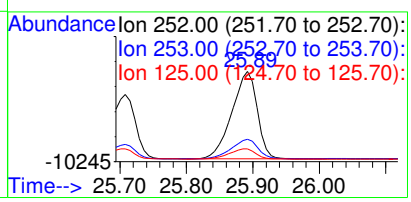


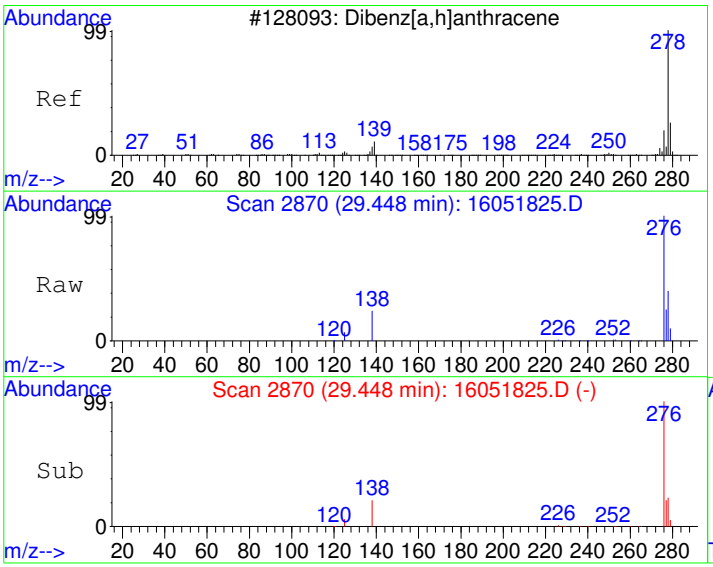


#25
Benzo[a]pyrene
Concen: 2711.76 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:252 Resp: 899736

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	11.7	0.0	31.7

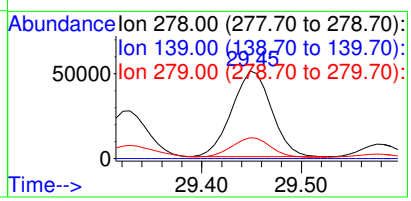


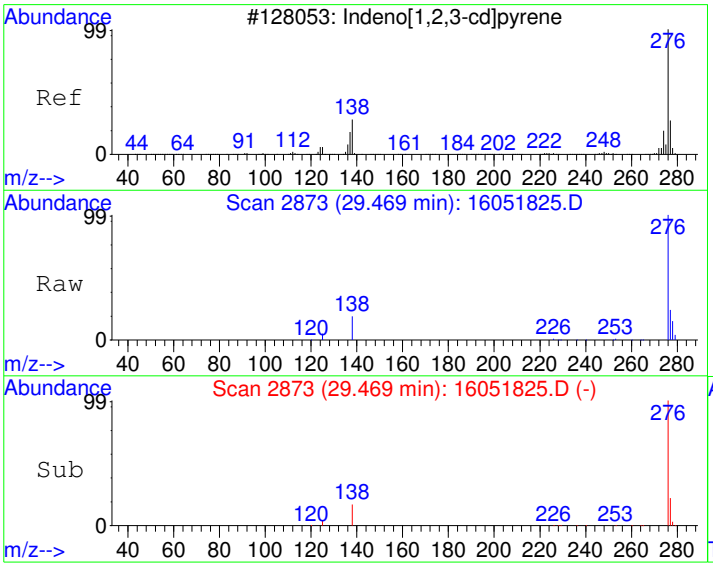


#26
Dibenz[a,h]anthracene
Concen: 460.13 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:278 Resp: 139038

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.8	4.2	44.2

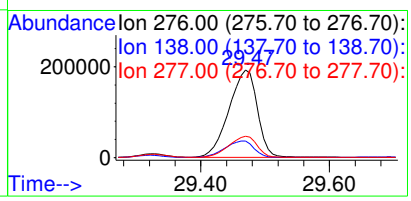


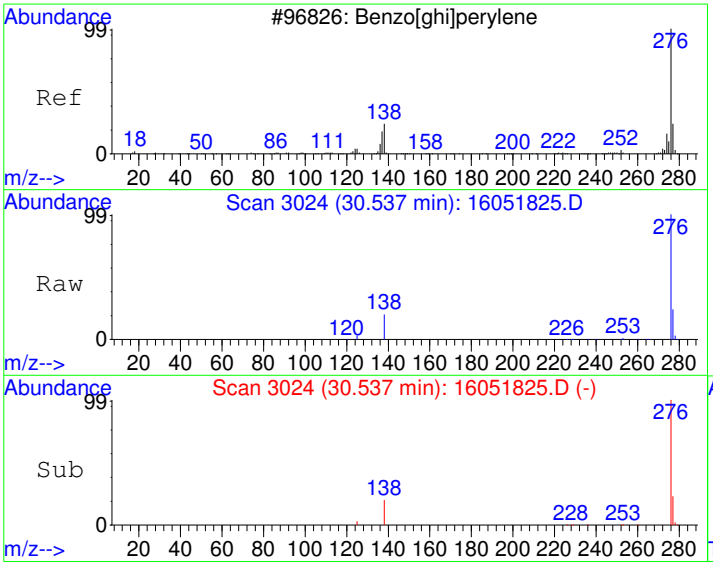


#27
Indeno[1,2,3-cd]pyrene
Concen: 1629.81 ug/kg
RT: 29.47 min Scan# 2873
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:276 Resp: 587511

Ion	Ratio	Lower	Upper
276	100		
138	18.7	6.7	46.7
277	24.3	5.8	45.8

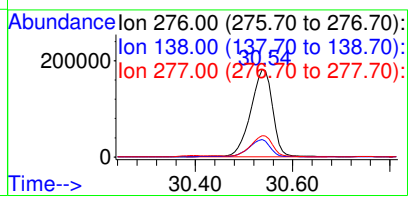




#28
Benzo[g,h,i]perylene
Concen: 2013.41 ug/kg
RT: 30.54 min Scan# 3024
Delta R.T. -0.01 min
Lab File: 16051825.D
Acq: 19 May 2016 12:20 am

Tgt Ion:276 Resp: 565955

Ion	Ratio	Lower	Upper
276	100		
138	19.7	0.0	39.1
277	24.1	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051826.D Vial: 26
Acq On : 19 May 2016 1:01 am Operator:
Sample : 1605096-61A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:17 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

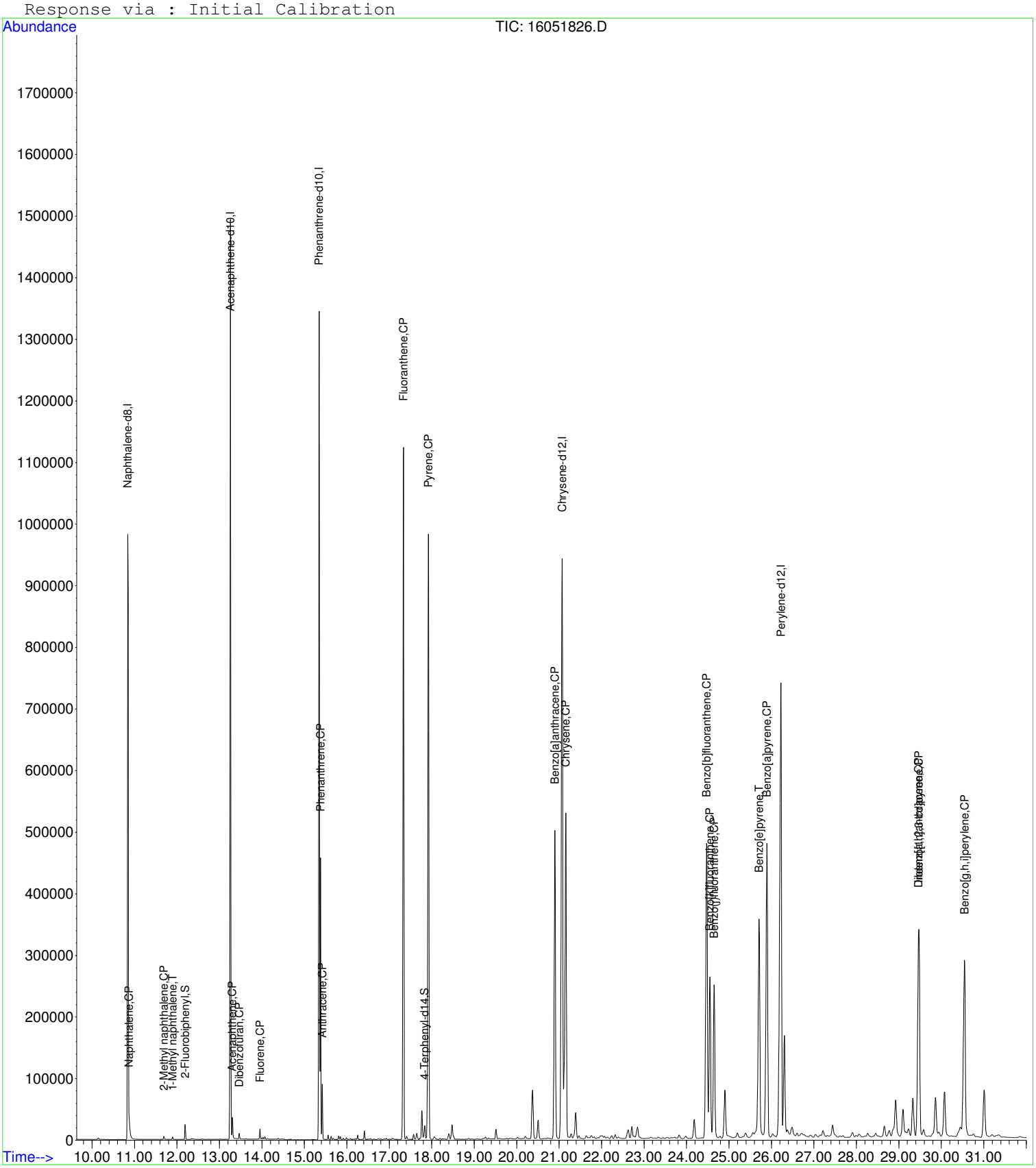
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1293300	4000.00	ug/kg	112
5) Acenaphthene-d10	13.26	164	809688	4000.00	ug/kg	70
11) Phenanthrene-d10	15.35	188	1451442	4000.00	ug/kg	71
17) Chrysene-d12	21.07	240	1576070	4000.00	ug/kg	69
20) Perylene-d12	26.23	264	1448778	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19460	82.39	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
16) 4-Terphenyl-d14	17.84	244	26655	70.98	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	17532	54.19	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	3137	10.98	ug/kg	95
4) 1-Methyl naphthalene	11.90	142	2374	9.07	ug/kg	99
6) Dibenzofuran	13.47	168	8184	26.97	ug/kg	100
9) Acenaphthene	13.31	154	15407	71.19	ug/kg	96
10) Fluorene	13.96	166	8361	31.81	ug/kg	98
12) Phenanthrene	15.38	178	381575	999.66	ug/kg	99
13) Anthracene	15.42	178	74418	205.98	ug/kg	99
14) Fluoranthene	17.33	202	1157441	2930.23	ug/kg	99
15) Pyrene	17.92	202	1059957	2583.25	ug/kg	100
18) Benzo[a]anthracene	20.90	228	733898	1987.62	ug/kg	99
19) Chrysene	21.16	228	854650	2395.63	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	955338	2501.88	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	438732	1224.79	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	409722	1284.04	ug/kg	90
24) Benzo[e]pyrene	25.71	252	681305	1992.32	ug/kg	99
25) Benzo[a]pyrene	25.89	252	916555	2622.86	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	141140	443.48	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.48	276	621003	1635.66	ug/kg	89
28) Benzo[g,h,i]perylene	30.55	276	609694	2059.41	ug/kg	100

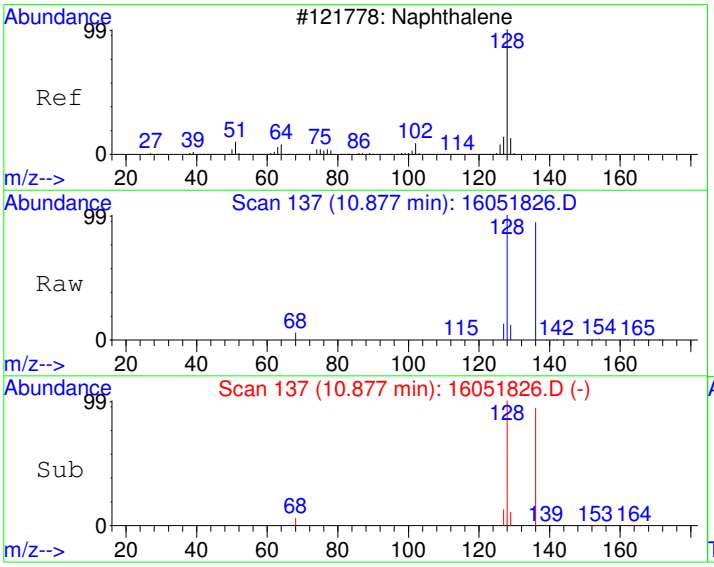
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051826.D Vial: 26
Acq On : 19 May 2016 1:01 am Operator:
Sample : 1605096-61A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:17 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

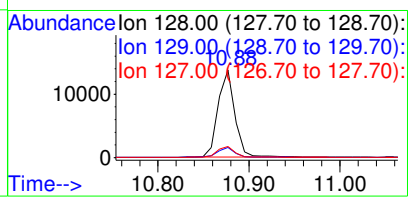


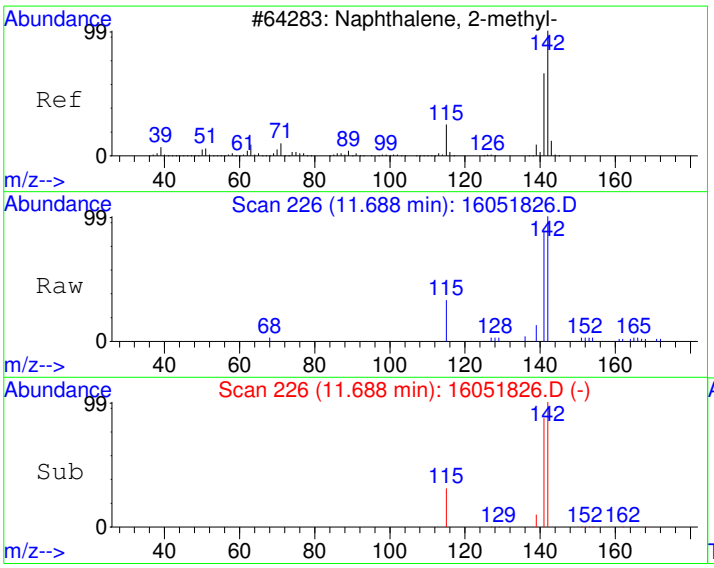


#2
Naphthalene
Concen: 54.19 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:128 Resp: 17532

Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	41.1
127	12.5	0.0	42.4

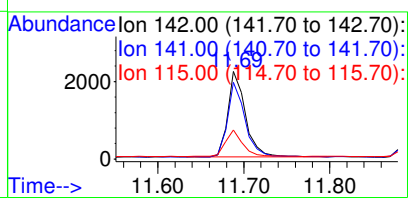


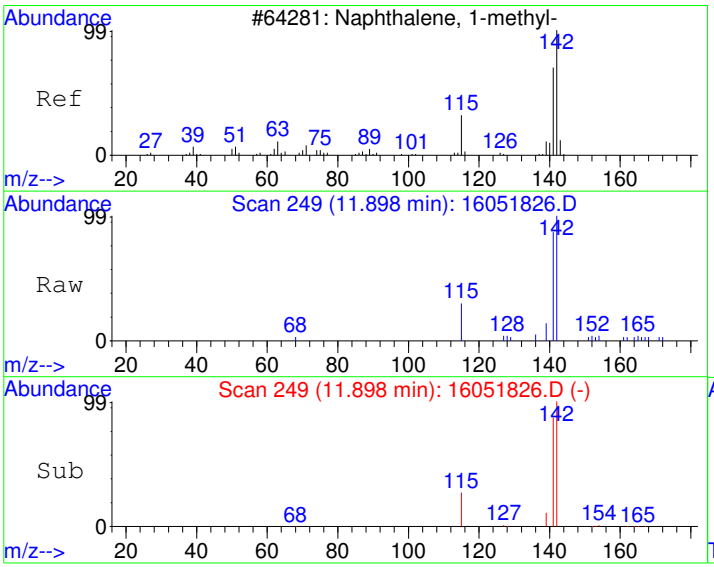


#3
2-Methyl naphthalene
Concen: 10.98 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:142 Resp: 3137

Ion	Ratio	Lower	Upper
142	100		
141	87.1	54.4	114.4
115	31.1	0.0	56.0

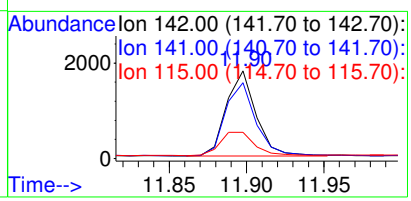


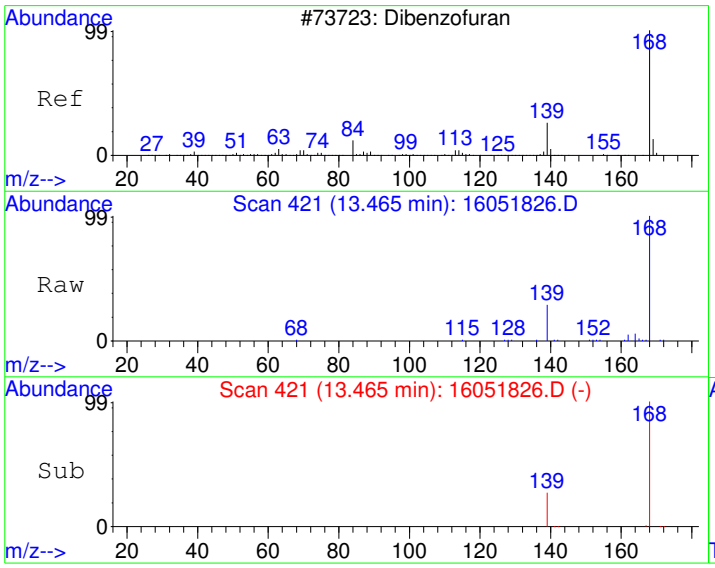


#4
1-Methyl naphthalene
Concen: 9.07 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. -0.00 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:142 Resp: 2374

Ion	Ratio	Lower	Upper
142	100		
141	86.0	56.5	116.5
115	27.2	0.0	55.0

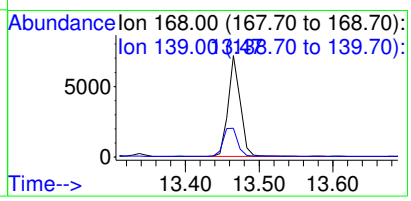


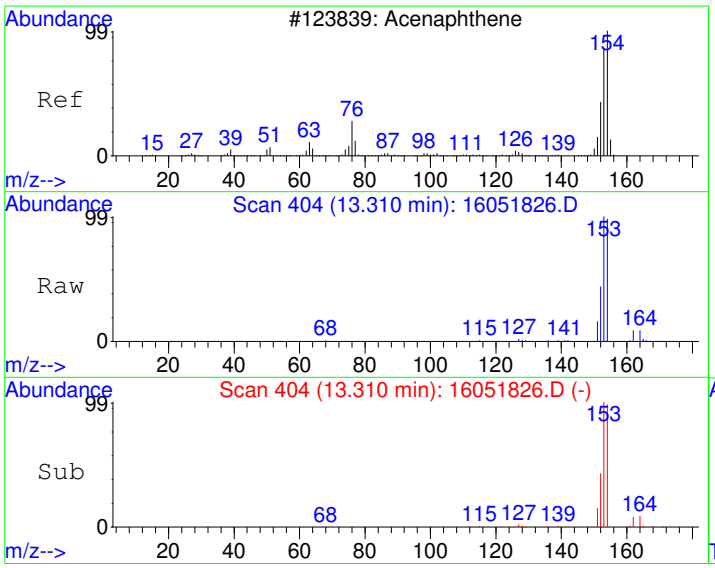


#6
Dibenzofuran
Concen: 26.97 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:168 Resp: 8184

Ion	Ratio	Lower	Upper
168	100		
139	33.6	27.0	40.4

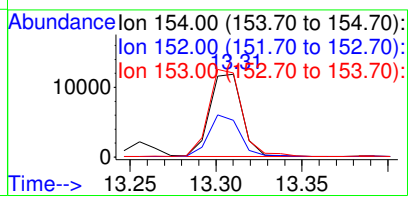


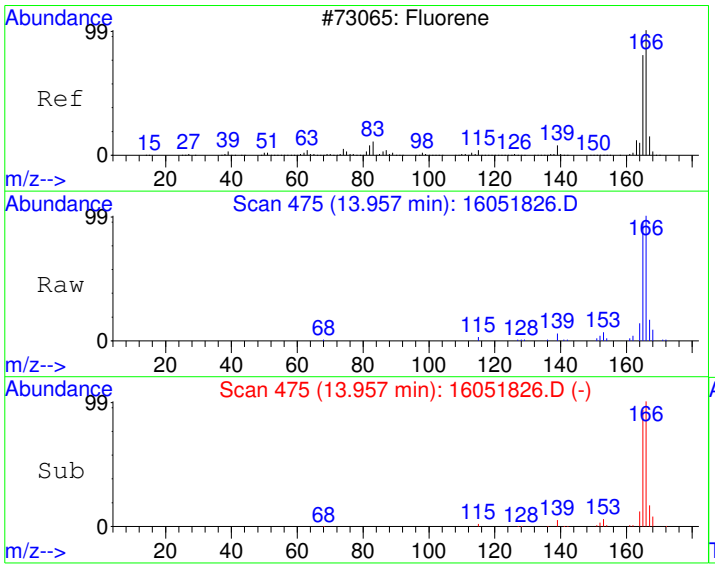


#9
Acenaphthene
Concen: 71.19 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:154 Resp: 15407

Ion	Ratio	Lower	Upper
154	100		
152	44.2	18.9	78.9
153	101.9	75.2	135.2

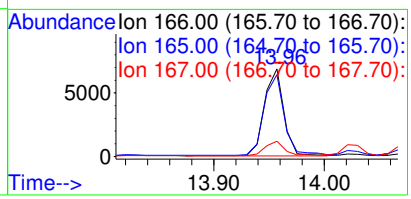


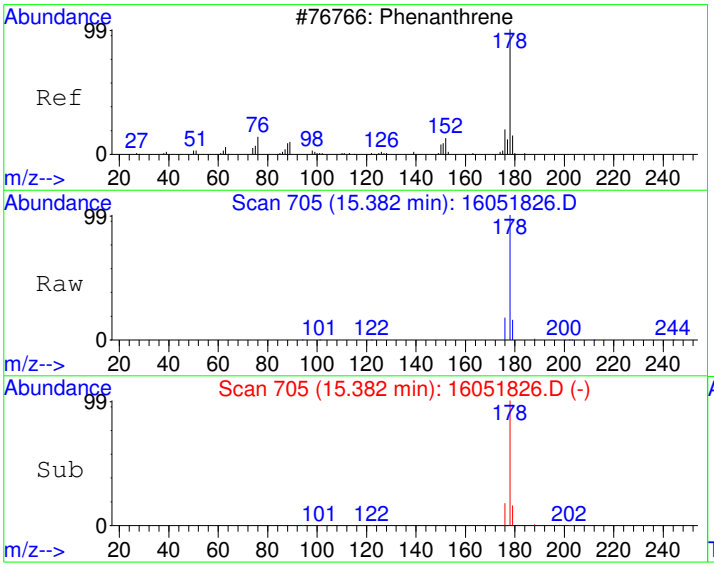


#10
Fluorene
Concen: 31.81 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:166 Resp: 8361

Ion	Ratio	Lower	Upper
166	100		
165	93.0	61.8	121.8
167	16.5	0.0	43.6

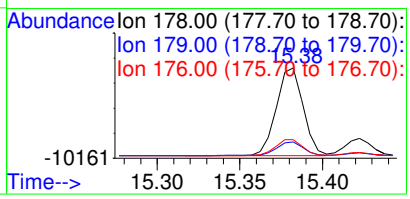


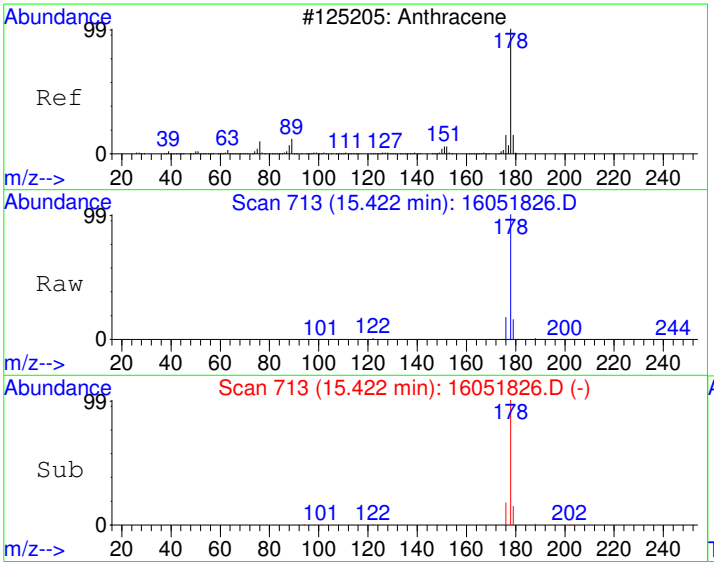


#12
Phenanthrene
Concen: 999.66 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:178 Resp: 381575

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.9
176	18.1	0.0	48.5

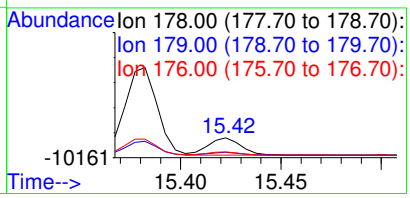


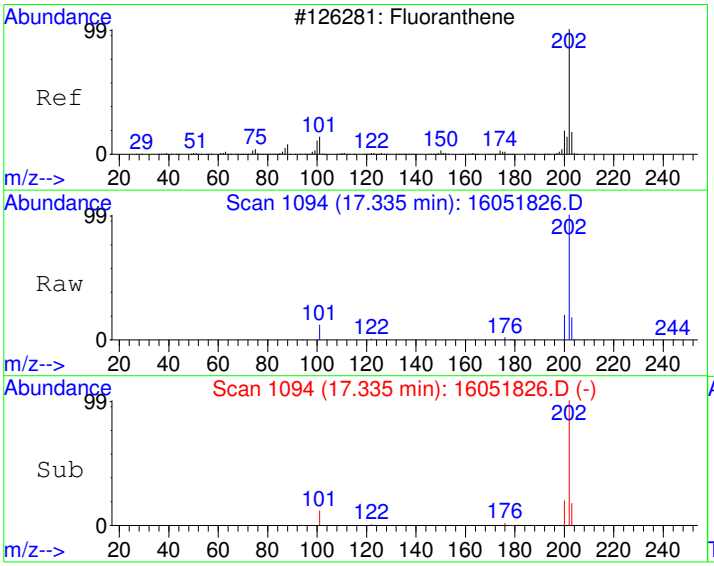


#13
Anthracene
Concen: 205.98 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:178 Resp: 74418

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.7	0.0	48.2

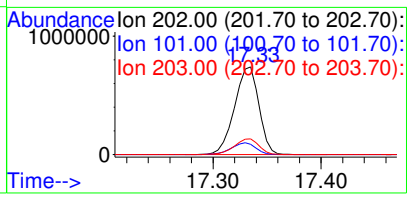


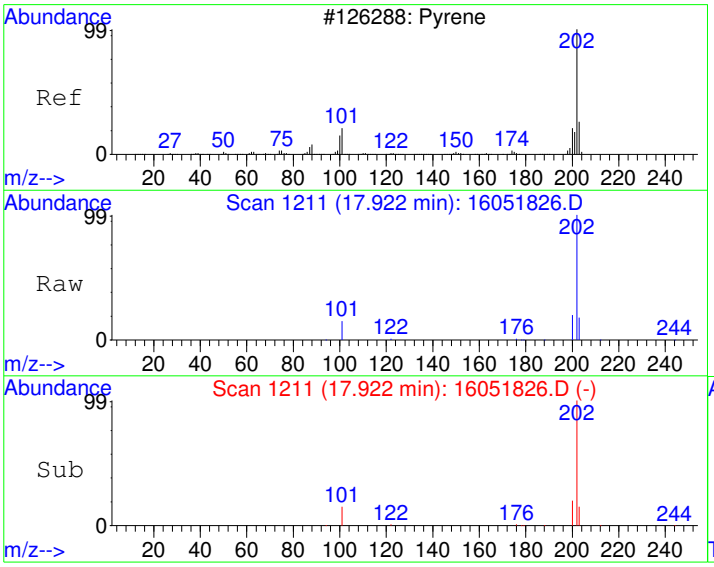


#14
Fluoranthene
Concen: 2930.23 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:202 Resp: 1157441

Ion	Ratio	Lower	Upper
202	100		
101	11.8	0.0	43.0
203	18.0	0.0	47.9

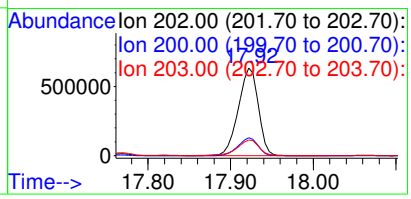


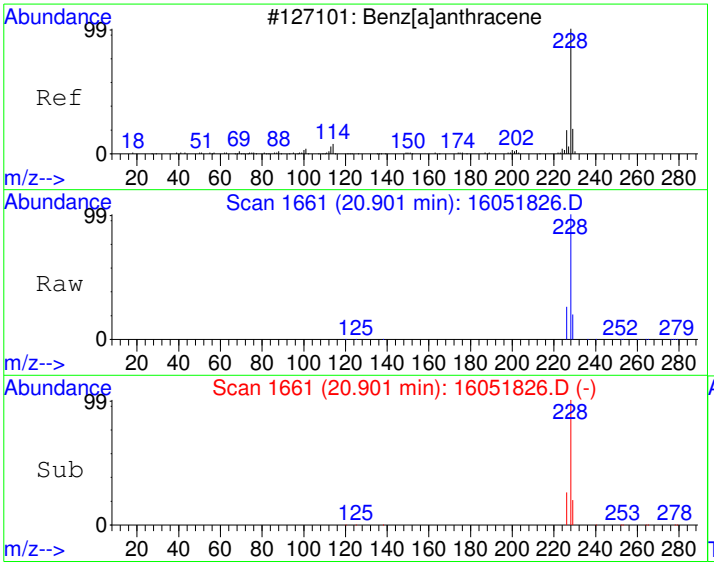


#15
Pyrene
Concen: 2583.25 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:202 Resp: 1059957

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	17.9	0.0	48.0

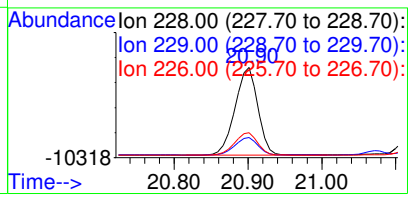


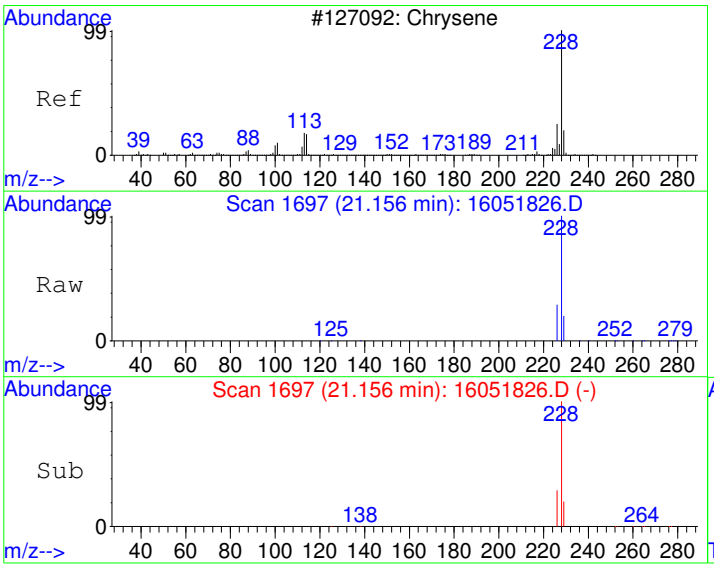


#18
Benzo[a]anthracene
Concen: 1987.62 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:228 Resp: 733898

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.1
226	25.5	0.0	55.2

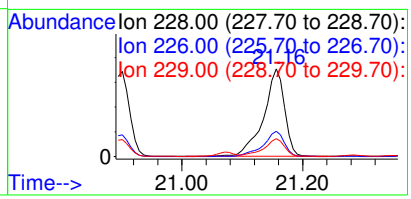


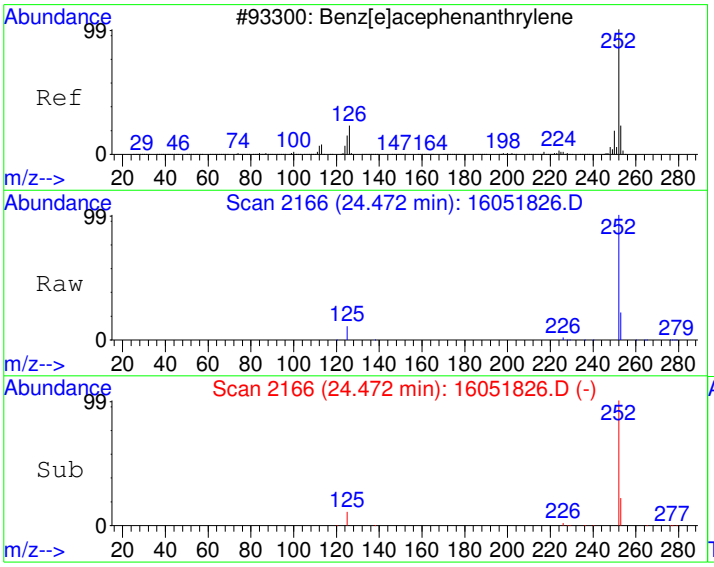


#19
Chrysene
Concen: 2395.63 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:228 Resp: 854650

Ion	Ratio	Lower	Upper
228	100		
226	28.9	0.0	58.1
229	20.2	0.0	50.1

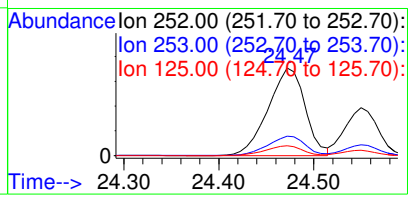


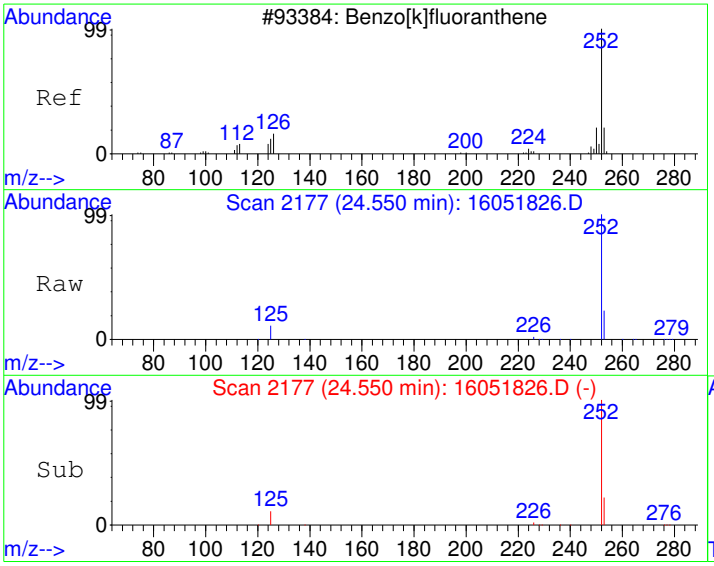


#21
Benzo[b]fluoranthene
Concen: 2501.88 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:252 Resp: 955338

Ion	Ratio	Lower	Upper
252	100		
253	22.2	0.0	52.2
125	11.1	0.0	41.0

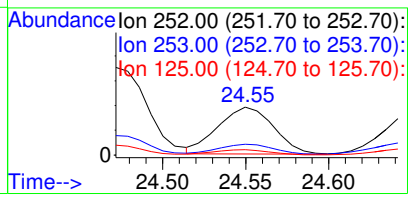


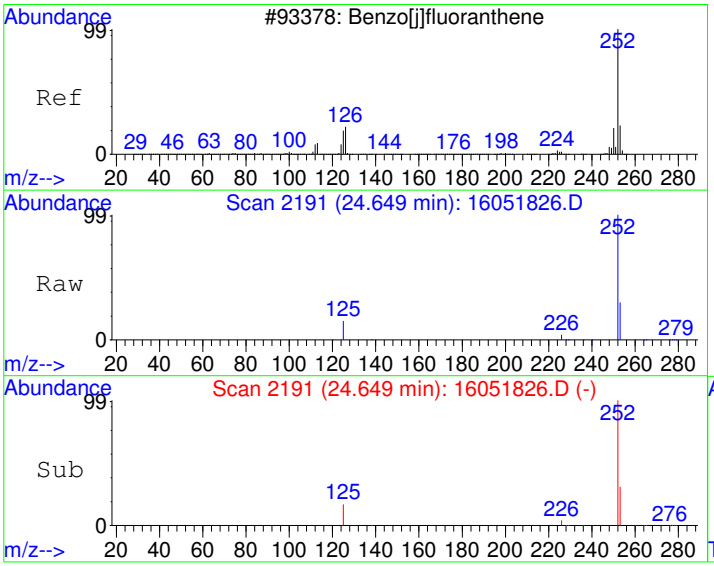


#22
Benzo[k]fluoranthene
Concen: 1224.79 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:252 Resp: 438732

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.1	42.1
125	10.9	0.0	31.3

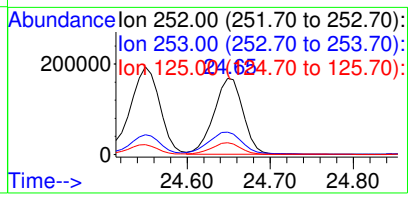


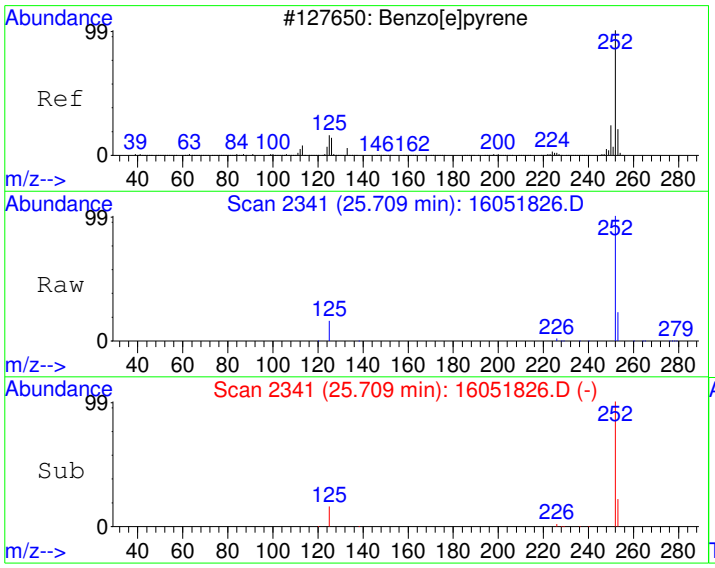


#23
Benzo(j)fluoranthene
Concen: 1284.04 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:252 Resp: 409722

Ion	Ratio	Lower	Upper
252	100		
253	29.1	2.1	42.1
125	15.3	0.0	34.4

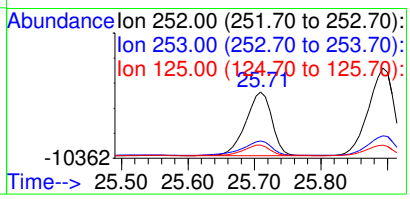


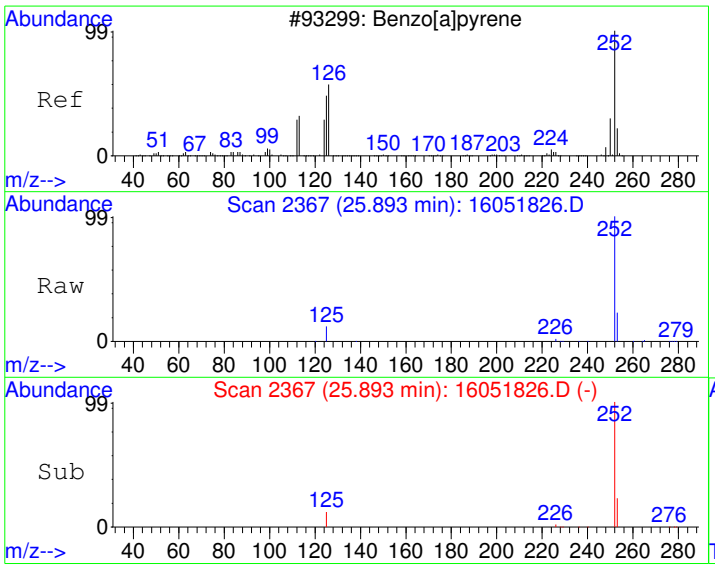


#24
Benzo[e]pyrene
Concen: 1992.32 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:252 Resp: 681305

Ion	Ratio	Lower	Upper
252	100		
253	22.6	2.2	42.2
125	16.2	0.0	36.1

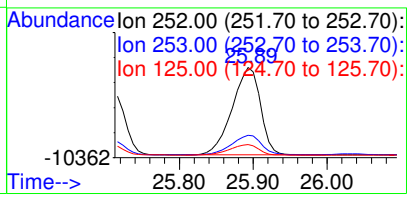


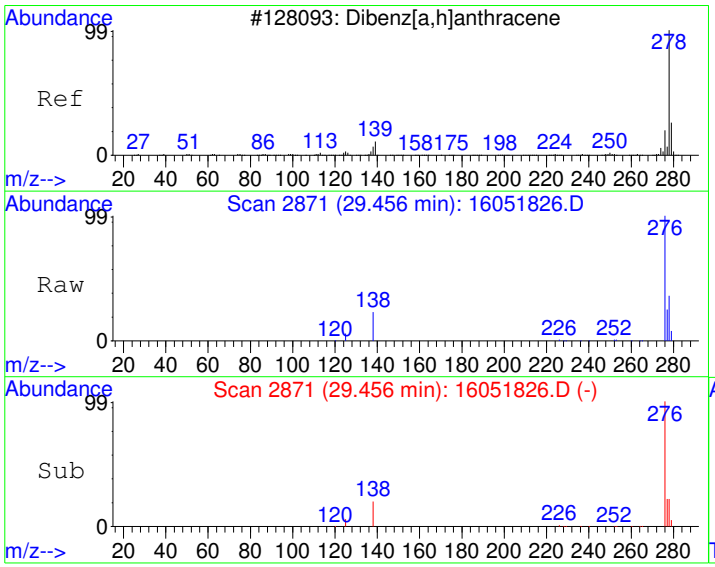


#25
Benzo[a]pyrene
Concen: 2622.86 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:252 Resp: 916555

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	11.9	0.0	31.7

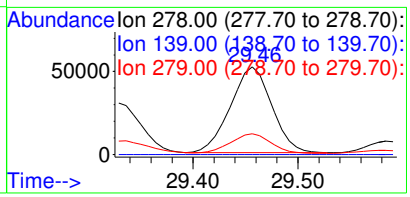


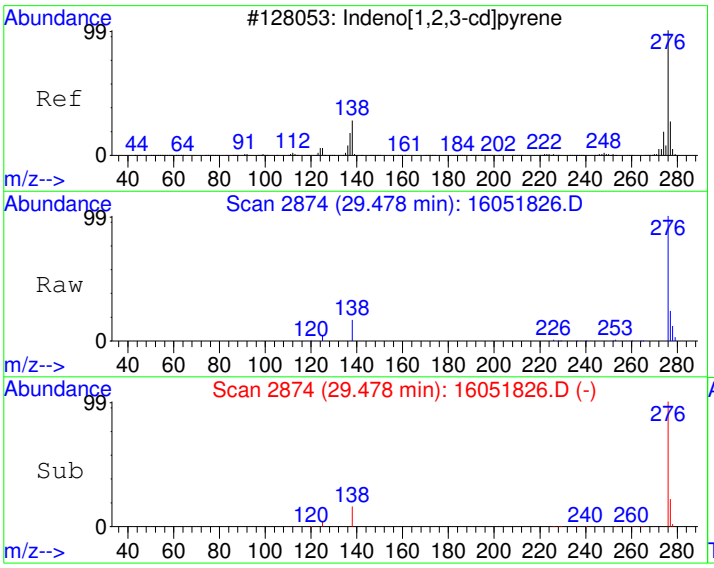


#26
Dibenz[a,h]anthracene
Concen: 443.48 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:278 Resp: 141140

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.9	4.2	44.2

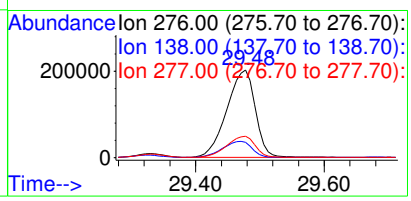


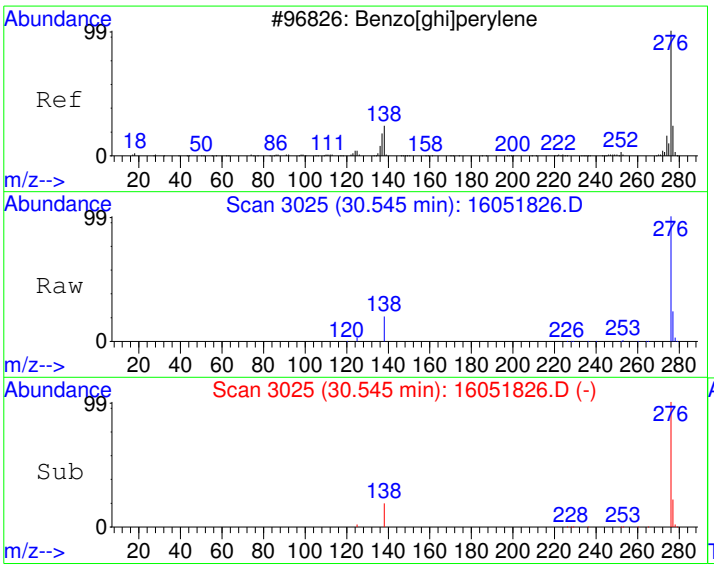


#27
Indeno[1,2,3-cd]pyrene
Concen: 1635.66 ug/kg
RT: 29.48 min Scan# 2874
Delta R.T. 0.00 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:276 Resp: 621003

Ion	Ratio	Lower	Upper
276	100		
138	17.3	6.7	46.7
277	24.1	5.8	45.8

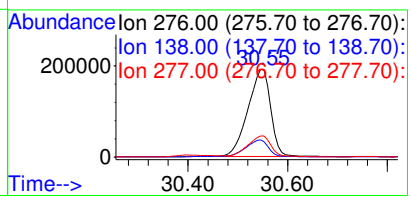




#28
Benzo[g,h,i]perylene
Concen: 2059.41 ug/kg
RT: 30.55 min Scan# 3025
Delta R.T. -0.01 min
Lab File: 16051826.D
Acq: 19 May 2016 1:01 am

Tgt Ion:276 Resp: 609694

Ion	Ratio	Lower	Upper
276	100		
138	19.5	0.0	39.1
277	23.9	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051827.D Vial: 27
Acq On : 19 May 2016 1:41 am Operator:
Sample : 1605096-62A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:17 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

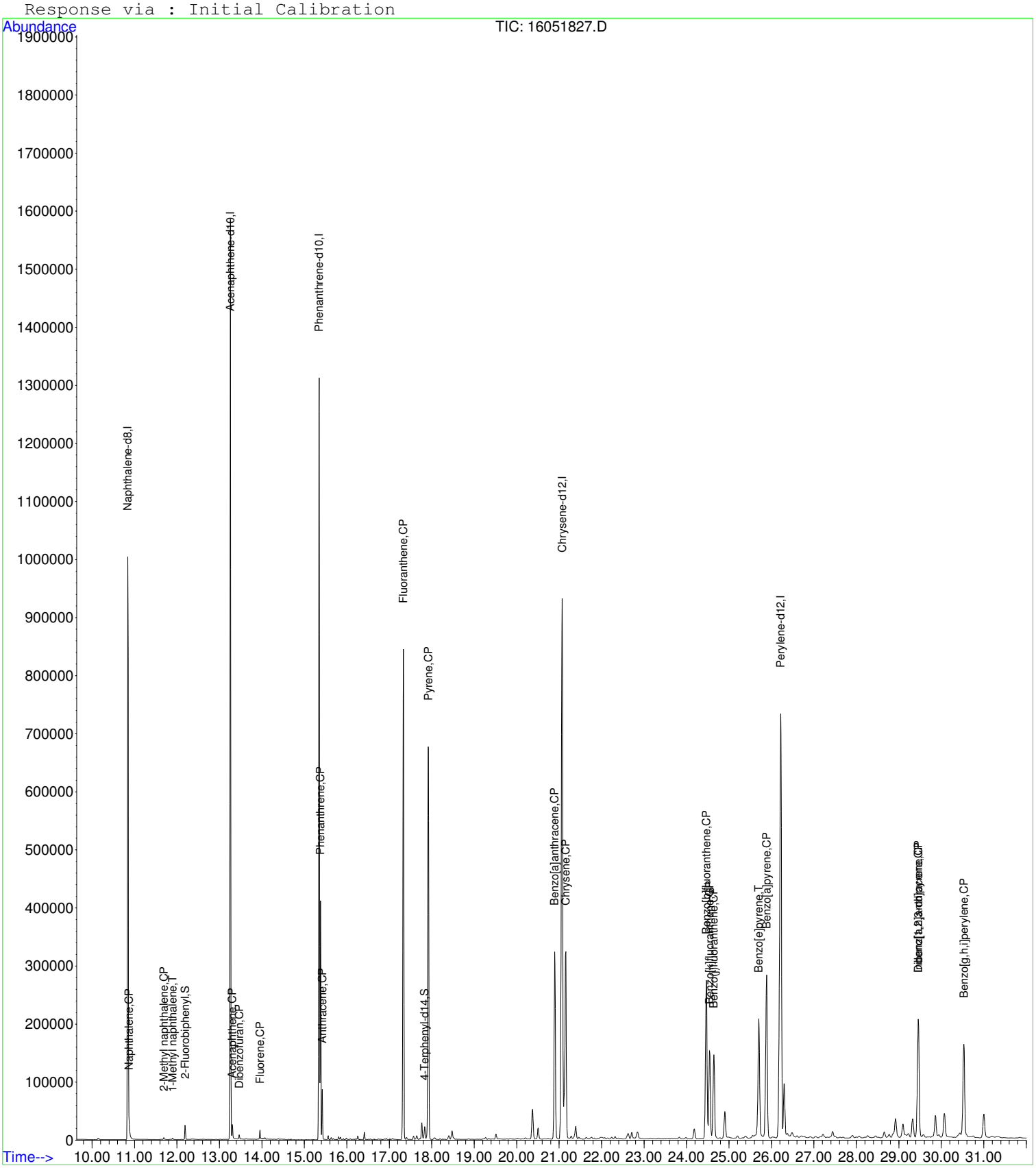
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1294466	4000.00	ug/kg	112
5) Acenaphthene-d10	13.26	164	830274	4000.00	ug/kg	72
11) Phenanthrene-d10	15.35	188	1447814	4000.00	ug/kg	71
17) Chrysene-d12	21.07	240	1563380	4000.00	ug/kg	69
20) Perylene-d12	26.22	264	1460409	4000.00	ug/kg	71
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19992	82.54	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.06%#		
16) 4-Terphenyl-d14	17.83	244	26360	70.37	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.76%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	9580	29.59	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	2114	7.39	ug/kg	97
4) 1-Methyl naphthalene	11.90	142	1514	5.78	ug/kg	96
6) Dibenzofuran	13.47	168	6419	20.63	ug/kg	100
9) Acenaphthene	13.30	154	10396	46.84	ug/kg	97
10) Fluorene	13.96	166	8201	30.43	ug/kg	98
12) Phenanthrene	15.38	178	351234	922.48	ug/kg	99
13) Anthracene	15.42	178	71556	198.55	ug/kg	99
14) Fluoranthene	17.33	202	851603	2161.36	ug/kg	100
15) Pyrene	17.92	202	745552	1821.56	ug/kg	100
18) Benzo[a]anthracene	20.89	228	468405	1278.88	ug/kg	99
19) Chrysene	21.16	228	526405	1487.52	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	534393	1388.35	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	259025	717.35	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	239222	743.73	ug/kg	90
24) Benzo[e]pyrene	25.70	252	380379	1103.47	ug/kg	100
25) Benzo[a]pyrene	25.89	252	529772	1503.95	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	77624	241.96	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	334841	874.92	ug/kg	91
28) Benzo[g,h,i]perylene	30.53	276	316736	1061.34	ug/kg	99

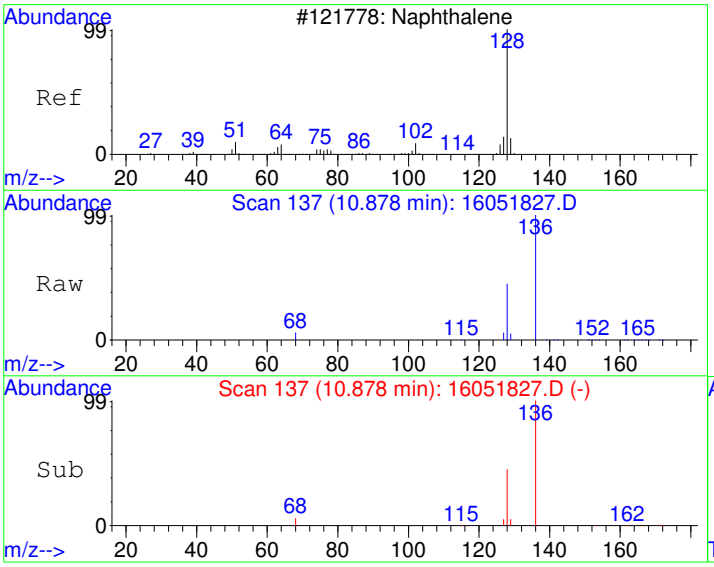
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051827.D Vial: 27
Acq On : 19 May 2016 1:41 am Operator:
Sample : 1605096-62A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:17 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

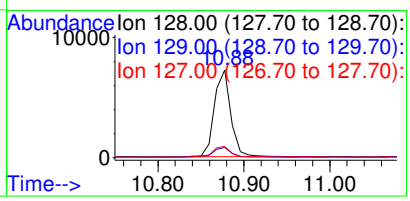


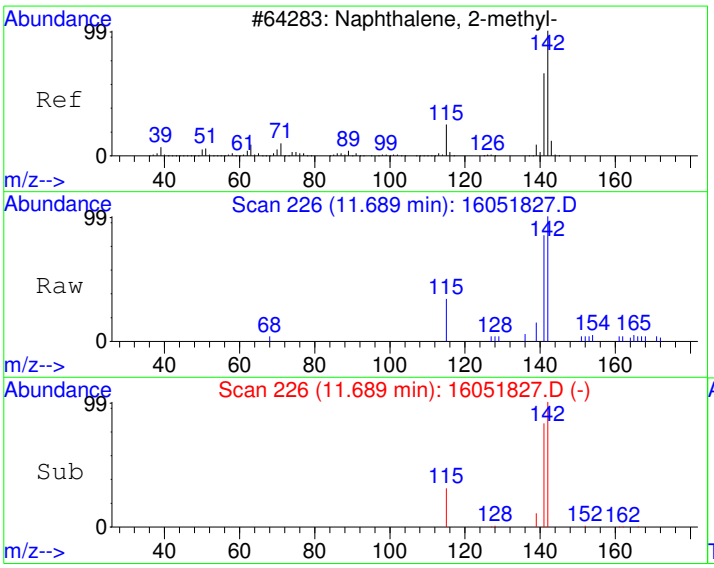


#2
Naphthalene
Concen: 29.59 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:128 Resp: 9580

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	41.1
127	12.0	0.0	42.4

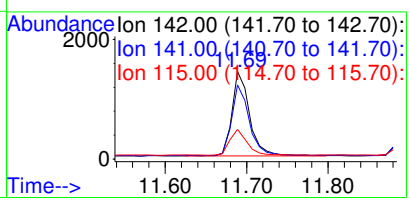


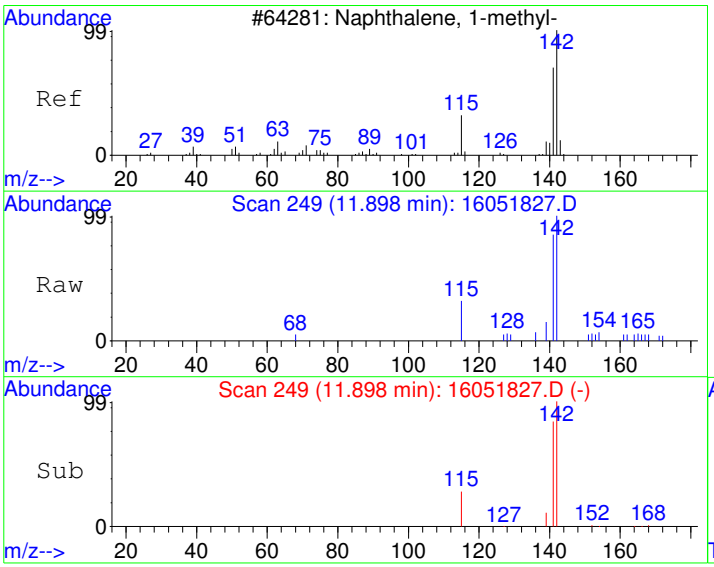


#3
2-Methyl naphthalene
Concen: 7.39 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:142 Resp: 2114

Ion	Ratio	Lower	Upper
142	100		
141	83.6	54.4	114.4
115	30.5	0.0	56.0

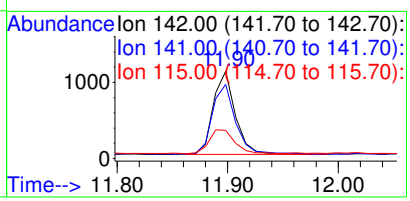


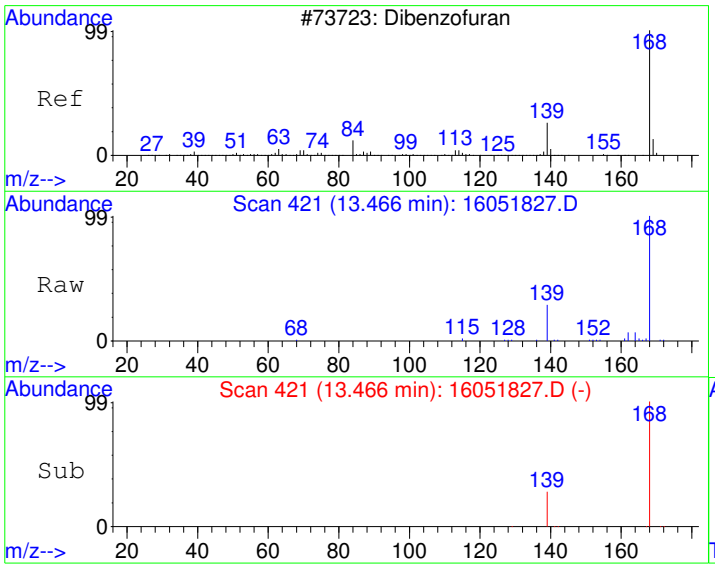


#4
1-Methyl naphthalene
Concen: 5.78 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. -0.00 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:142 Resp: 1514

Ion	Ratio	Lower	Upper
142	100		
141	83.3	56.5	116.5
115	28.0	0.0	55.0

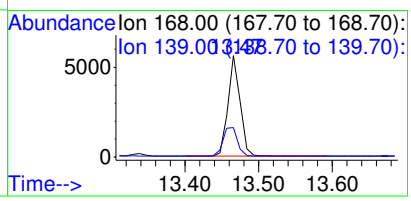


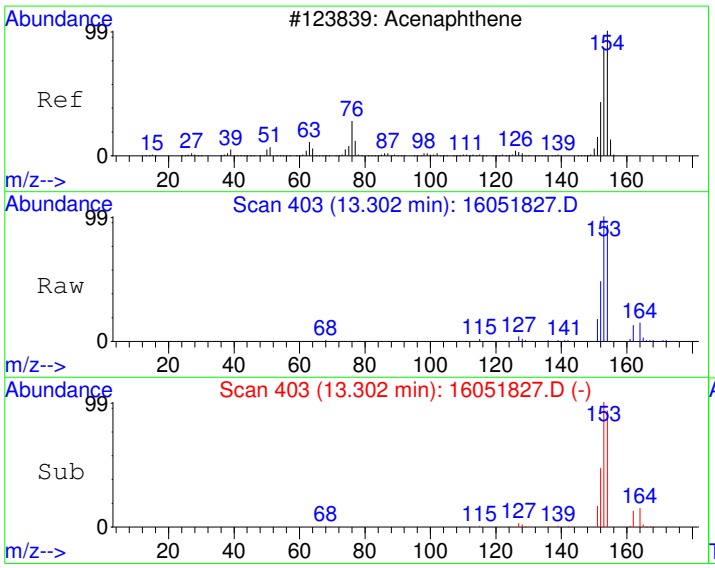


#6
Dibenzofuran
Concen: 20.63 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:168 Resp: 6419

Ion	Ratio	Lower	Upper
168	100		
139	33.8	27.0	40.4

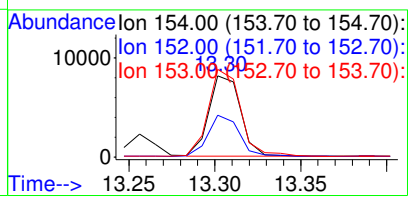


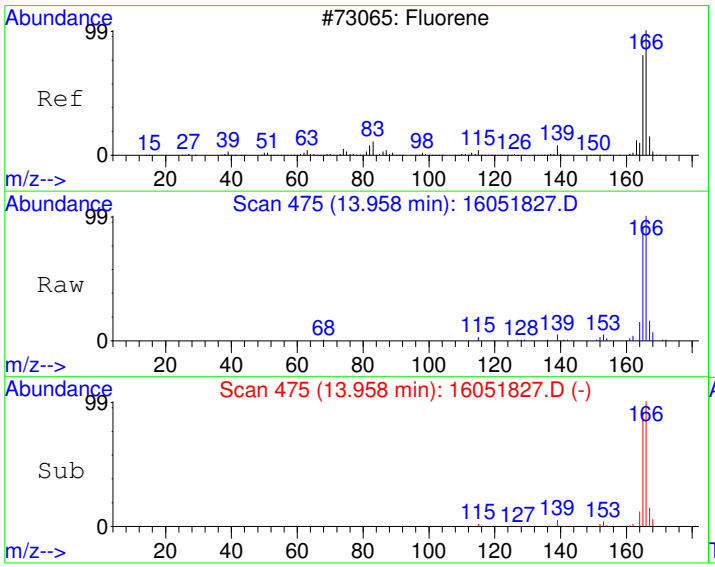


#9
Acenaphthene
Concen: 46.84 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:154 Resp: 10396

Ion	Ratio	Lower	Upper
154	100		
152	51.0	18.9	78.9
153	107.8	75.2	135.2

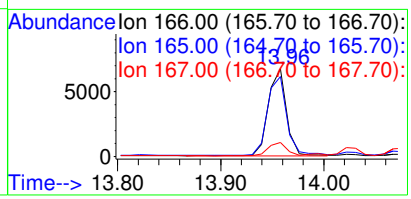


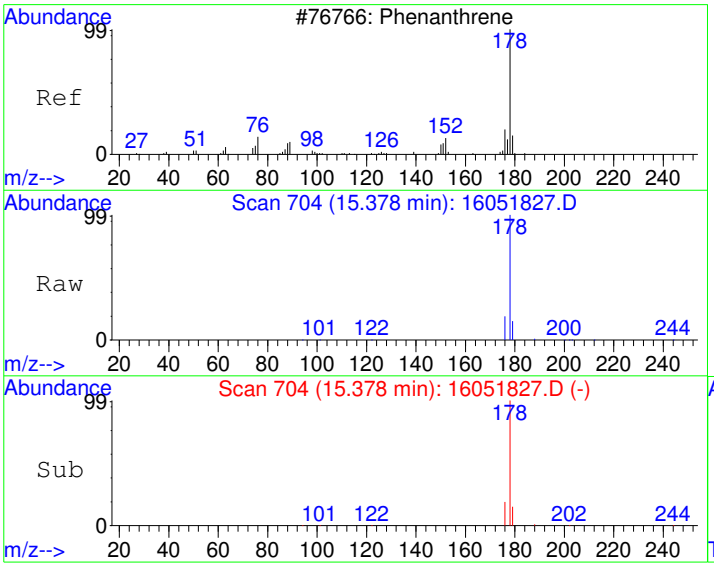


#10
Fluorene
Concen: 30.43 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:166 Resp: 8201

Ion	Ratio	Lower	Upper
166	100		
165	90.4	61.8	121.8
167	15.1	0.0	43.6

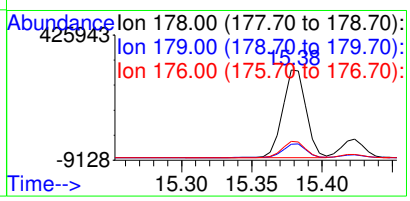


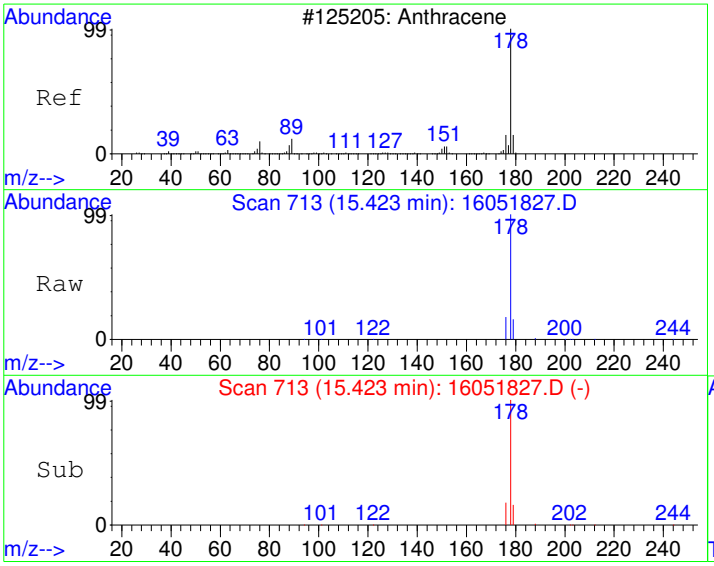


#12
Phenanthrene
Concen: 922.48 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:178 Resp: 351234

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.9
176	18.7	0.0	48.5

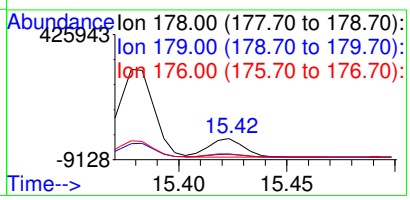


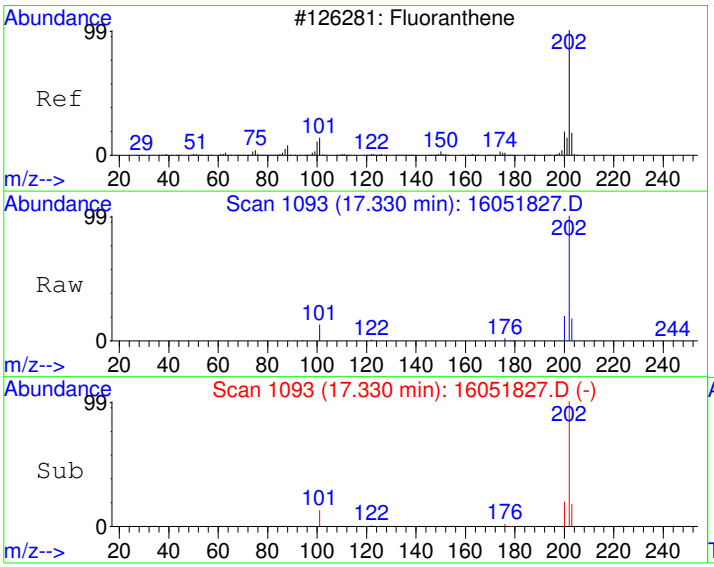


#13
Anthracene
Concen: 198.55 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:178 Resp: 71556

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	45.9
176	17.7	0.0	48.2

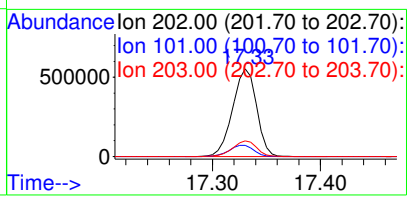


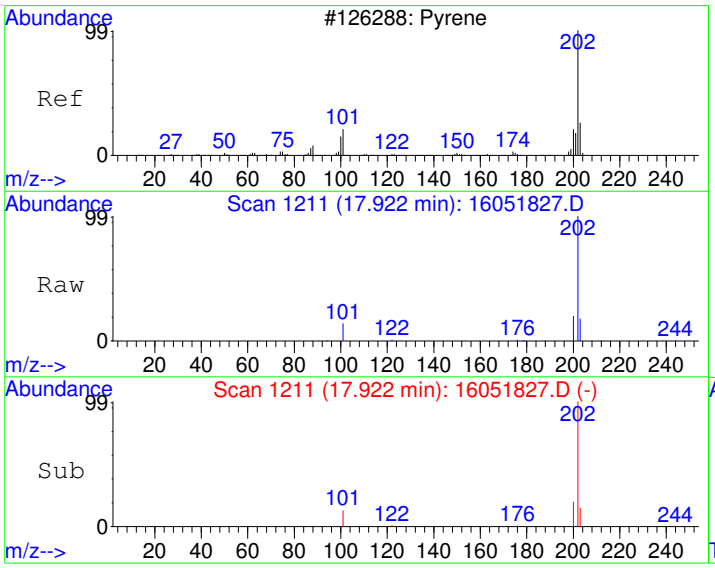


#14
Fluoranthene
Concen: 2161.36 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:202 Resp: 851603

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	43.0
203	17.7	0.0	47.9

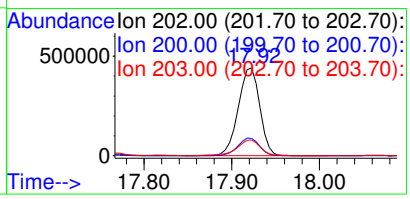


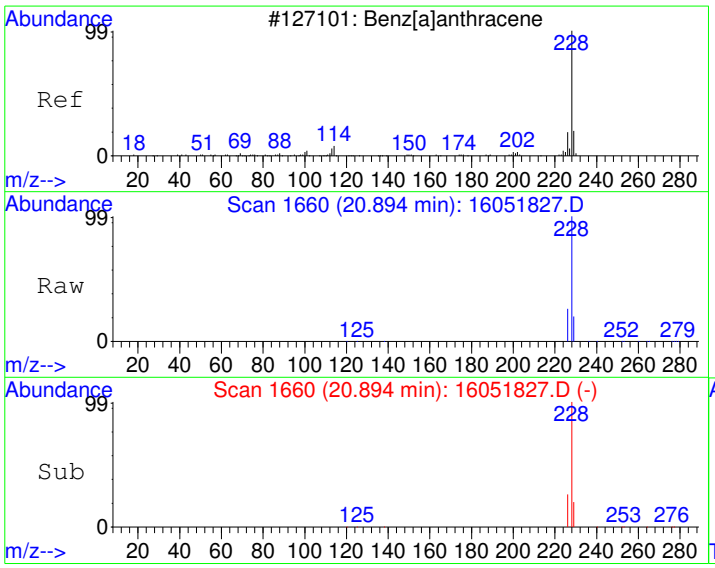


#15
Pyrene
Concen: 1821.56 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:202 Resp: 745552

Ion	Ratio	Lower	Upper
202	100		
200	19.8	0.0	50.0
203	17.9	0.0	48.0

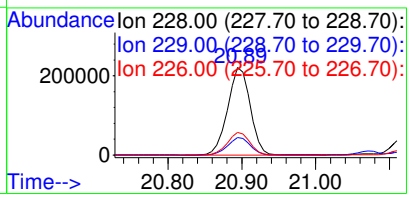


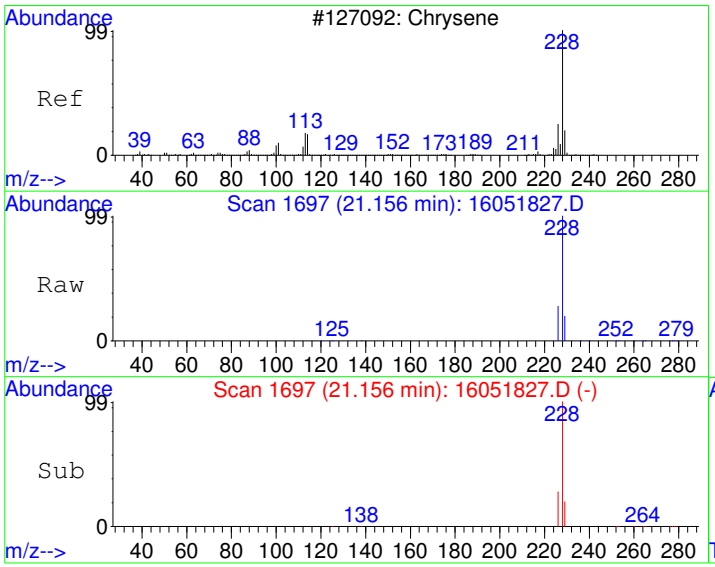


#18
Benzo[a]anthracene
Concen: 1278.88 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:228 Resp: 468405

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	26.0	0.0	55.2

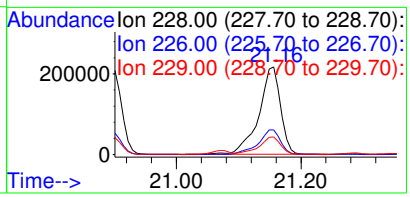


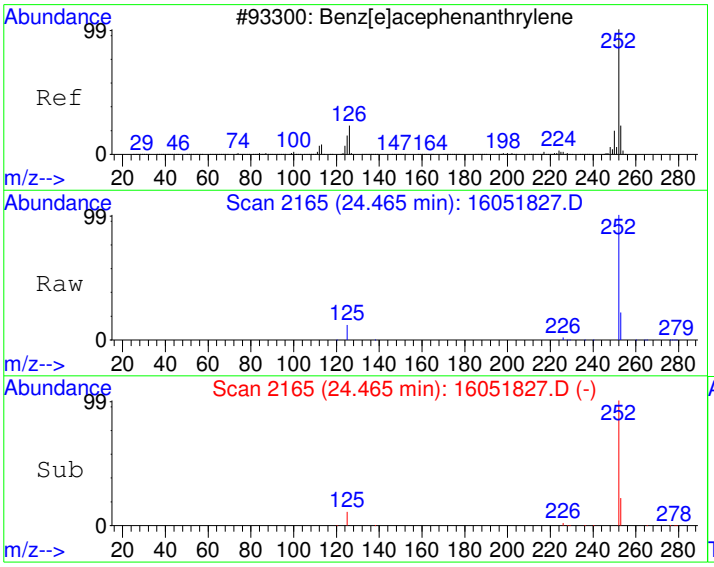


#19
Chrysene
Concen: 1487.52 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:228 Resp: 526405

Ion	Ratio	Lower	Upper
228	100		
226	28.2	0.0	58.1
229	19.8	0.0	50.1

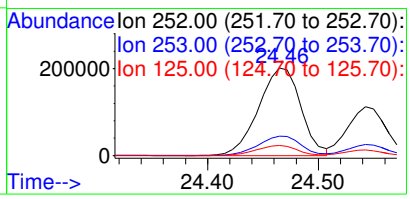


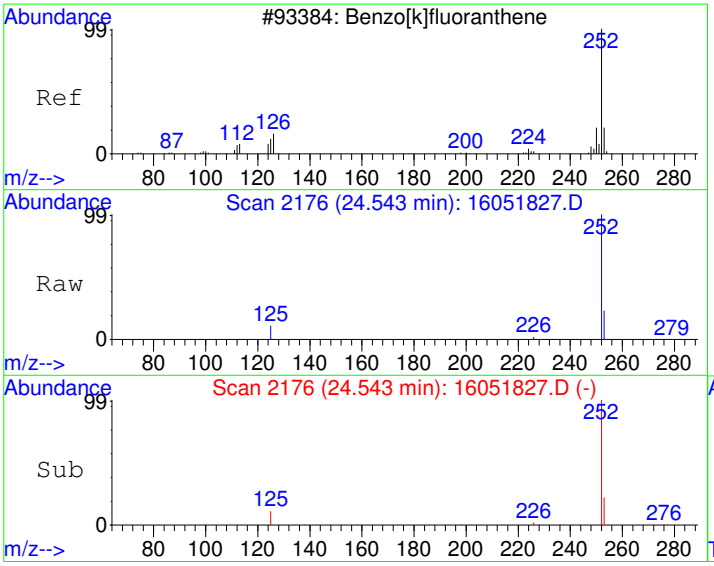


#21
Benzo[b]fluoranthene
Concen: 1388.35 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:252 Resp: 534393

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	11.5	0.0	41.0

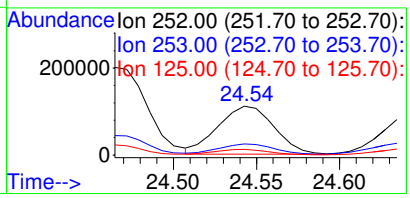


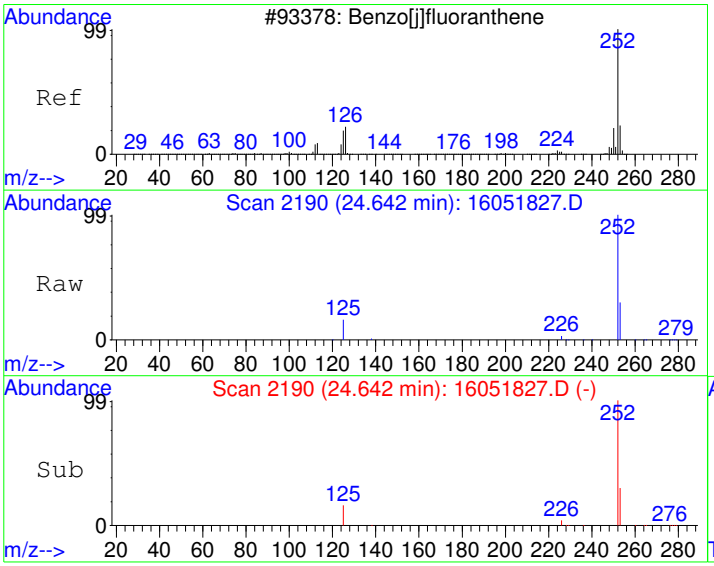


#22
Benzo[k]fluoranthene
Concen: 717.35 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:252 Resp: 259025

Ion	Ratio	Lower	Upper
252	100		
253	21.1	2.1	42.1
125	11.1	0.0	31.3

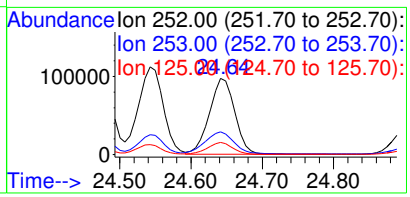


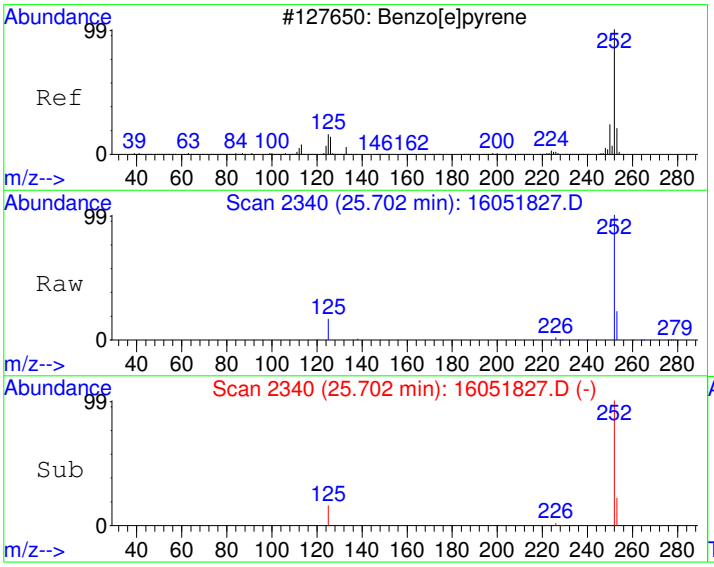


#23
Benzo(j)fluoranthene
Concen: 743.73 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:252 Resp: 239222

Ion	Ratio	Lower	Upper
252	100		
253	29.1	2.1	42.1
125	15.6	0.0	34.4

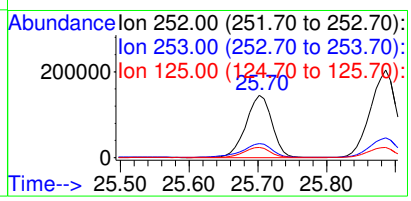


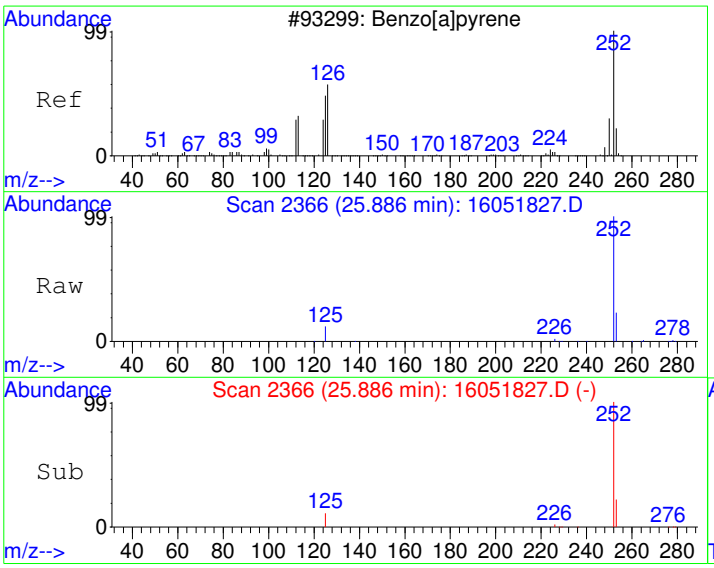


#24
Benzo[e]pyrene
Concen: 1103.47 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:252 Resp: 380379

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	16.4	0.0	36.1

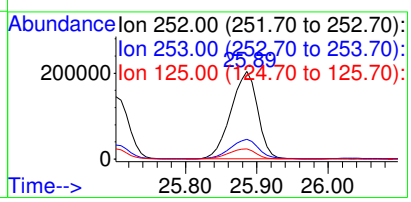


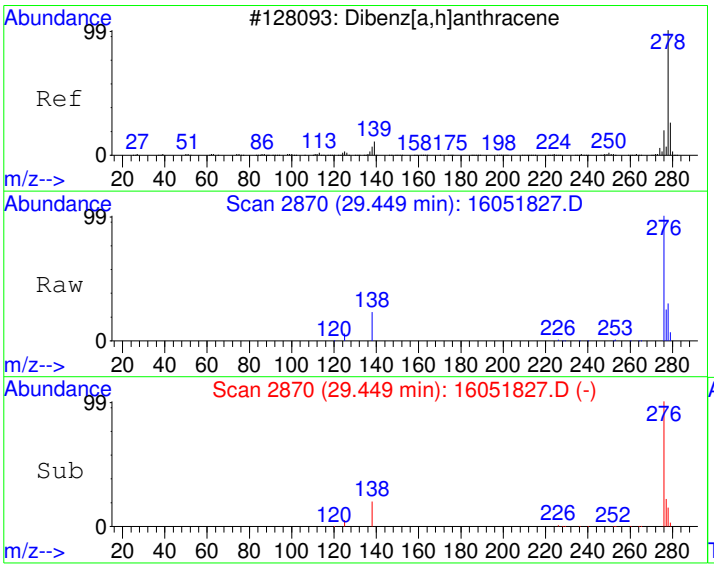


#25
Benzo[a]pyrene
Concen: 1503.95 ug/kg
RT: 25.89 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:252 Resp: 529772

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.5	0.0	31.7

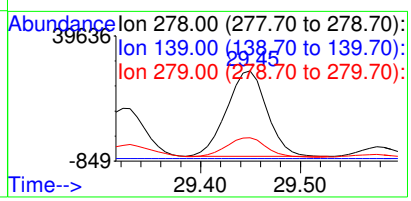


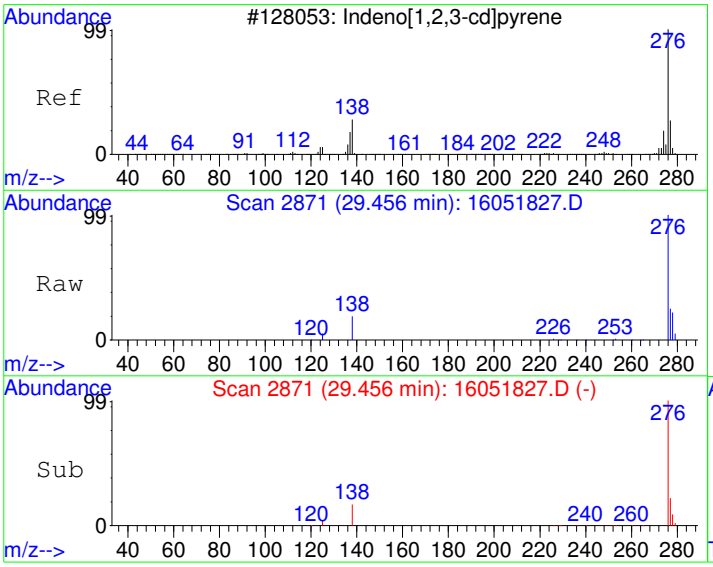


#26
Dibenz[a,h]anthracene
Concen: 241.96 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:278 Resp: 77624

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.7	4.2	44.2

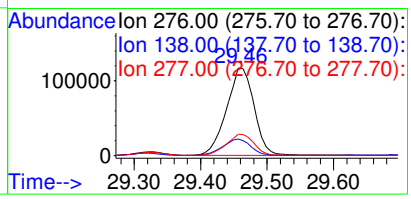


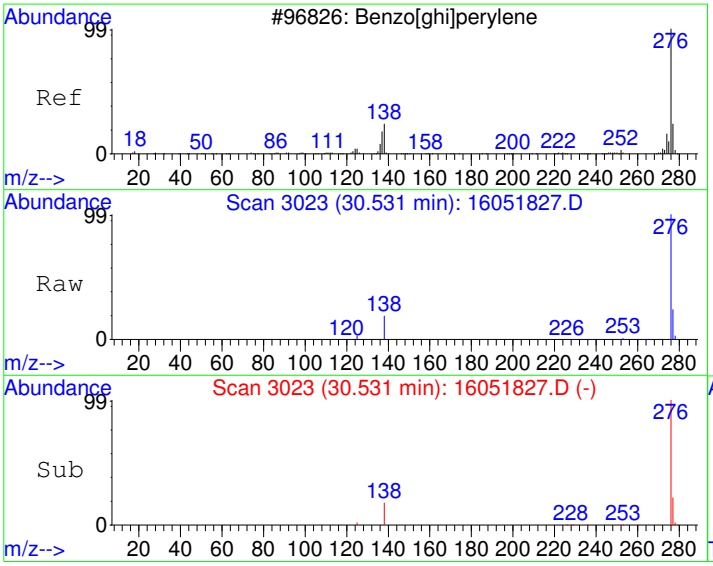


#27
Indeno[1,2,3-cd]pyrene
Concen: 874.92 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:276 Resp: 334841

Ion	Ratio	Lower	Upper
276	100		
138	18.7	6.7	46.7
277	24.3	5.8	45.8

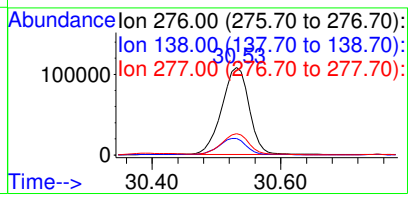




#28
Benzo[g,h,i]perylene
Concen: 1061.34 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051827.D
Acq: 19 May 2016 1:41 am

Tgt Ion:276 Resp: 316736

Ion	Ratio	Lower	Upper
276	100		
138	18.7	0.0	39.1
277	24.1	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051828.D Vial: 28
Acq On : 19 May 2016 2:21 am Operator:
Sample : 1605096-65A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:17 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

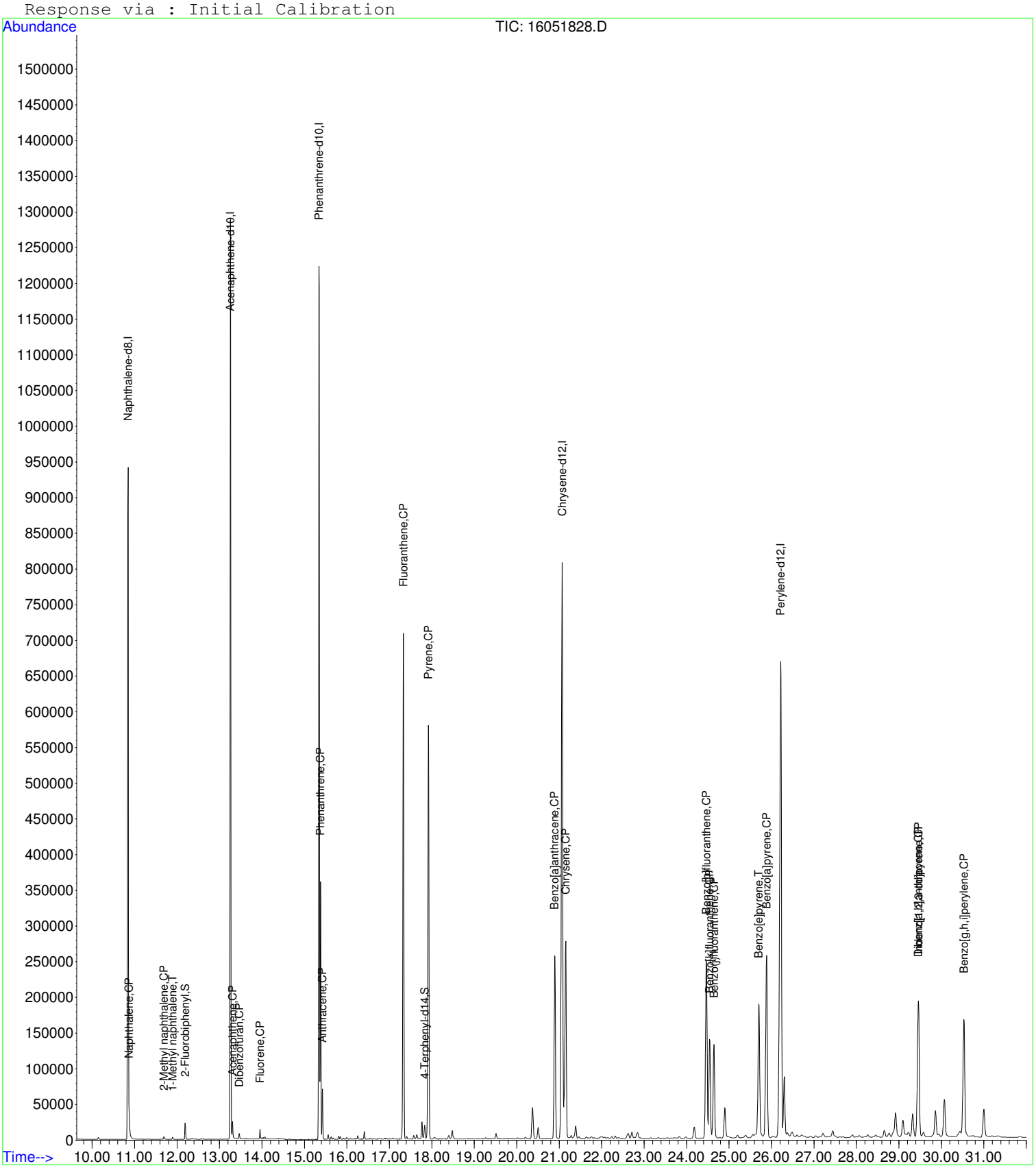
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1259161	4000.00	ug/kg	109
5) Acenaphthene-d10	13.25	164	762128	4000.00	ug/kg	66
11) Phenanthrene-d10	15.34	188	1340260	4000.00	ug/kg	66
17) Chrysene-d12	21.07	240	1337071	4000.00	ug/kg	59
20) Perylene-d12	26.22	264	1317906	4000.00	ug/kg	64
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19116	85.98	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#		
16) 4-Terphenyl-d14	17.83	244	23607	68.08	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.70%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	11996	38.09	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	2385	8.57	ug/kg	96
4) 1-Methyl naphthalene	11.90	142	1620	6.36	ug/kg	96
6) Dibenzofuran	13.46	168	6299	22.05	ug/kg	98
9) Acenaphthene	13.31	154	10226	50.20	ug/kg	98
10) Fluorene	13.96	166	6396	25.85	ug/kg	98
12) Phenanthrene	15.38	178	302688	858.77	ug/kg	99
13) Anthracene	15.42	178	59810	179.28	ug/kg	98
14) Fluoranthene	17.33	202	703316	1928.25	ug/kg	99
15) Pyrene	17.92	202	621549	1640.45	ug/kg	100
18) Benzo[a]anthracene	20.89	228	387194	1236.08	ug/kg	99
19) Chrysene	21.15	228	442675	1462.64	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	489597	1409.50	ug/kg	100
22) Benzo[k]fluoranthene	24.54	252	240645	738.51	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	223151	768.78	ug/kg	93
24) Benzo[e]pyrene	25.70	252	356790	1146.96	ug/kg	99
25) Benzo[a]pyrene	25.88	252	489548	1540.03	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	77253	266.85	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.46	276	332118	961.64	ug/kg	90
28) Benzo[g,h,i]perylene	30.53	276	321487	1193.75	ug/kg	100

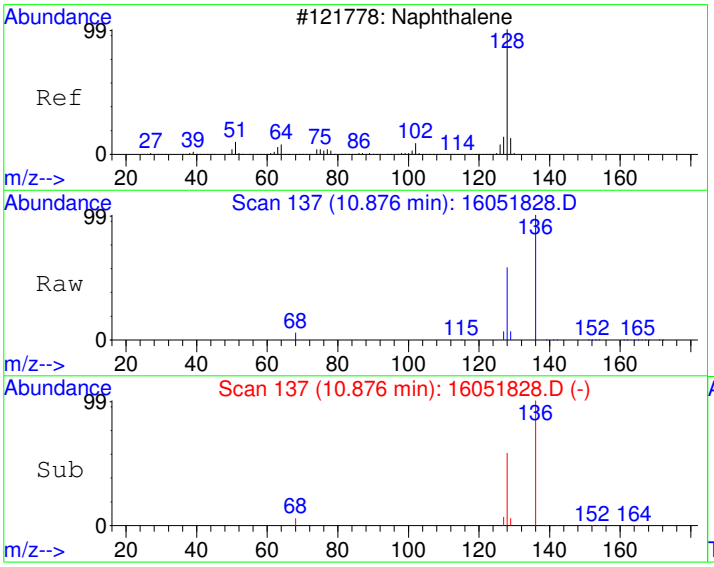
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051828.D Vial: 28
Acq On : 19 May 2016 2:21 am Operator:
Sample : 1605096-65A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:17 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

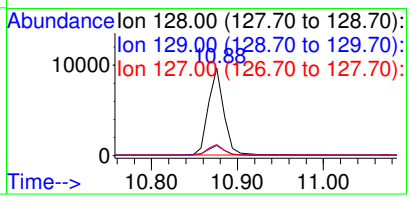


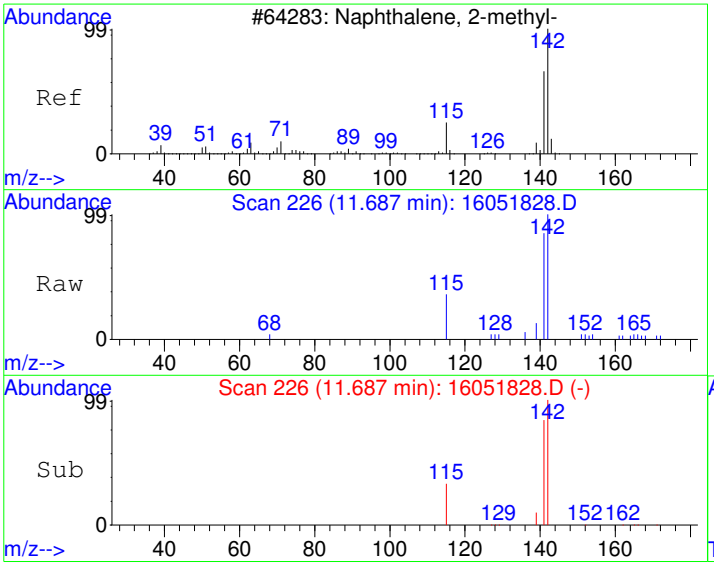


#2
Naphthalene
Concen: 38.09 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:128 Resp: 11996

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	41.1
127	12.2	0.0	42.4

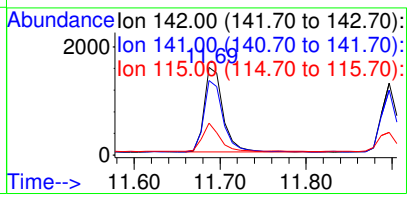


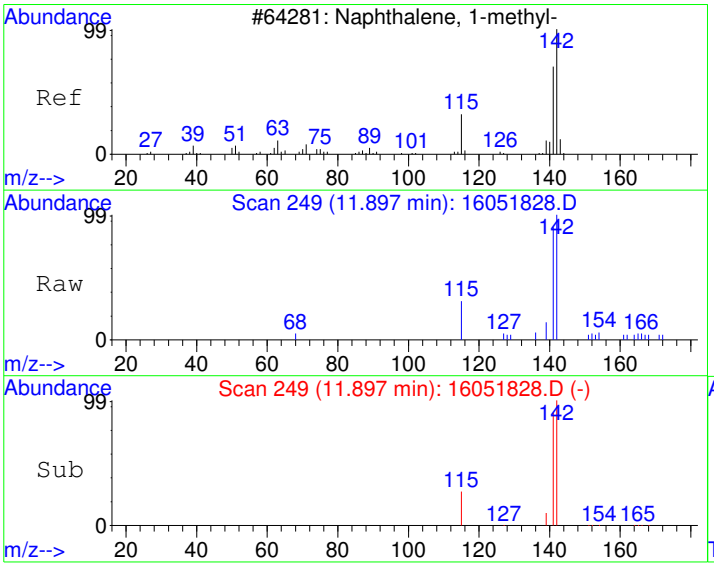


#3
2-Methyl naphthalene
Concen: 8.57 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:142 Resp: 2385

Ion	Ratio	Lower	Upper
142	100		
141	84.3	54.4	114.4
115	33.5	0.0	56.0

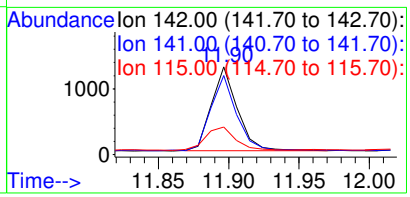


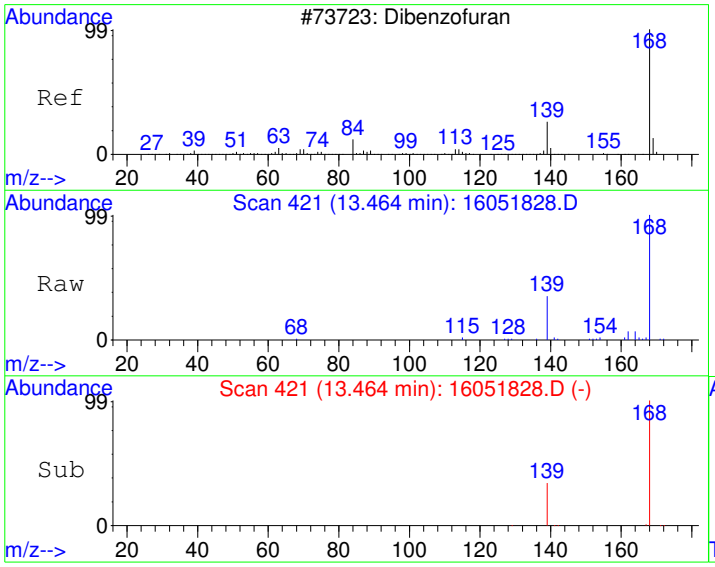


#4
1-Methyl naphthalene
Concen: 6.36 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. -0.00 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:142 Resp: 1620

Ion	Ratio	Lower	Upper
142	100		
141	89.9	56.5	116.5
115	27.1	0.0	55.0

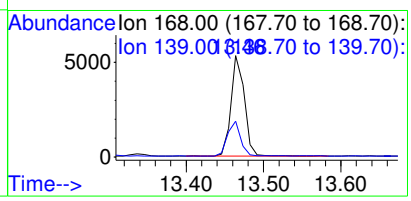


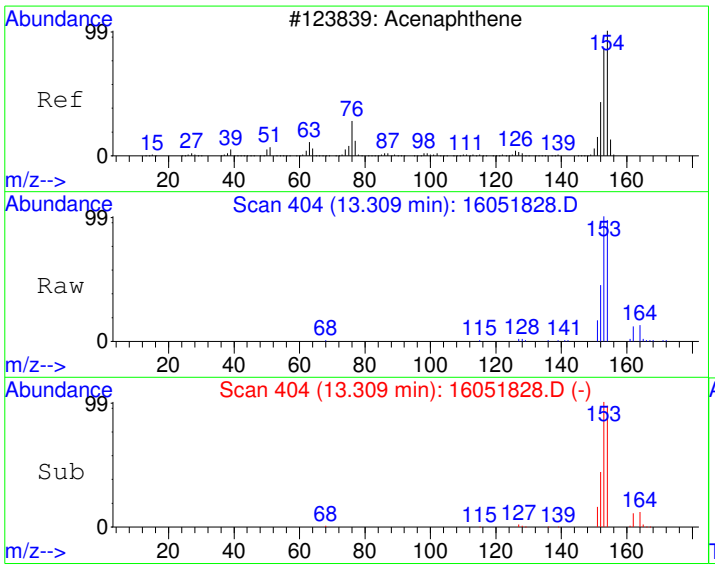


#6
Dibenzofuran
Concen: 22.05 ug/kg
RT: 13.46 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:168 Resp: 6299

Ion	Ratio	Lower	Upper
168	100		
139	35.1	27.0	40.4

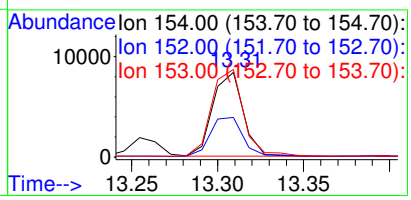


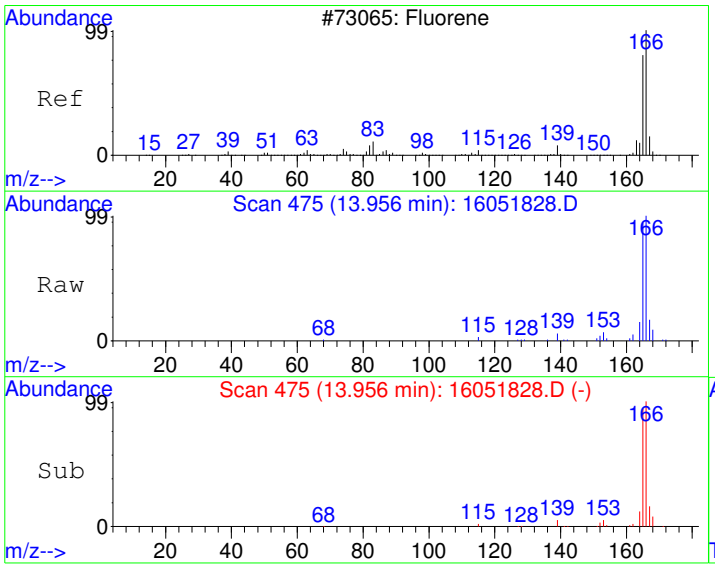


#9
Acenaphthene
Concen: 50.20 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:154 Resp: 10226

Ion	Ratio	Lower	Upper
154	100		
152	46.5	18.9	78.9
153	103.5	75.2	135.2

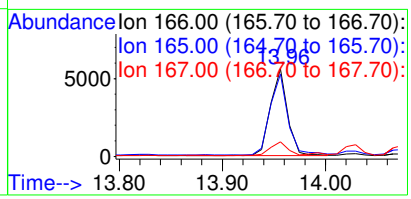


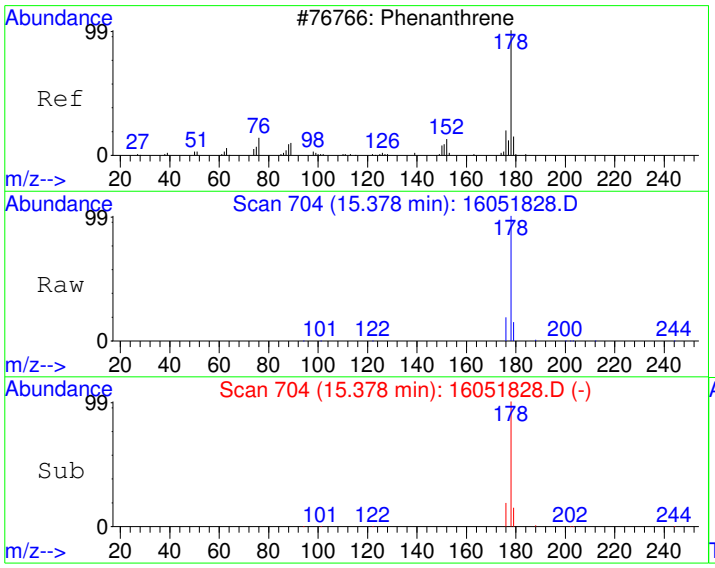


#10
Fluorene
Concen: 25.85 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:166 Resp: 6396

Ion	Ratio	Lower	Upper
166	100		
165	93.4	61.8	121.8
167	15.5	0.0	43.6

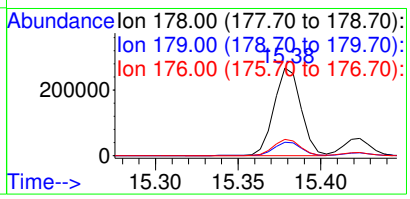


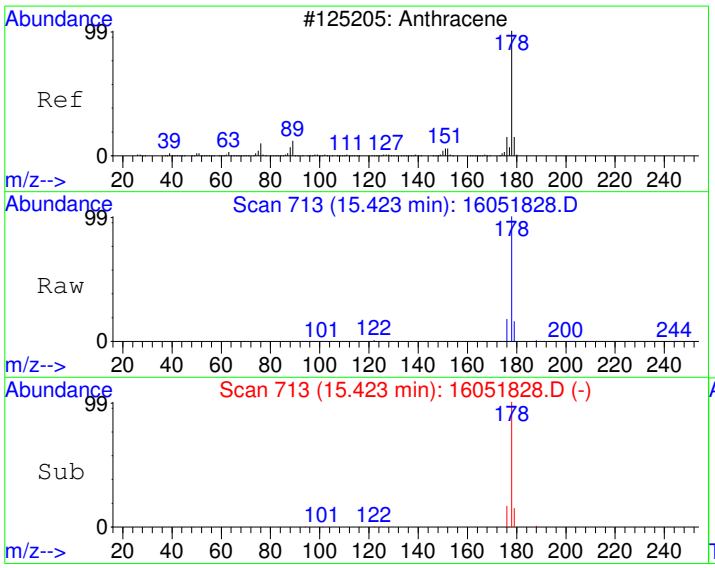


#12
Phenanthrene
Concen: 858.77 ug/kg
RT: 15.38 min Scan# 704
Delta R.T. -0.02 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:178 Resp: 302688

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.6	0.0	48.5

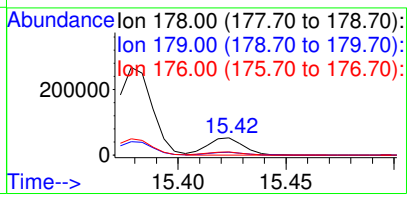


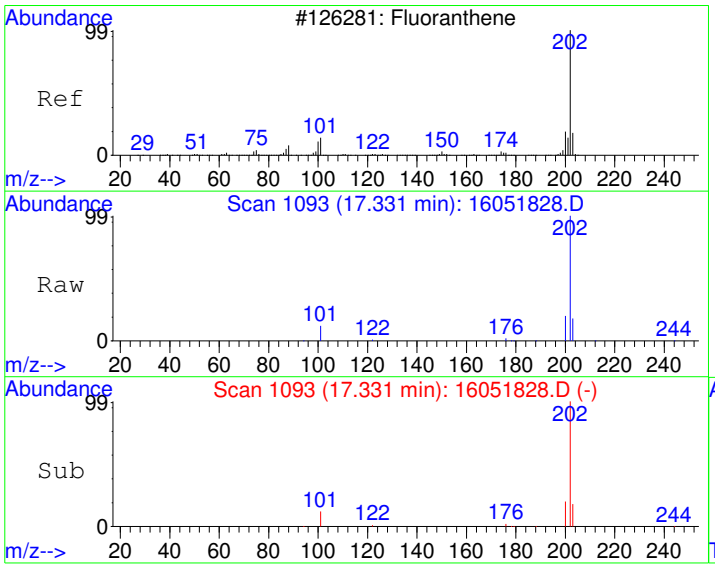


#13
Anthracene
Concen: 179.28 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:178 Resp: 59810

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	45.9
176	17.4	0.0	48.2

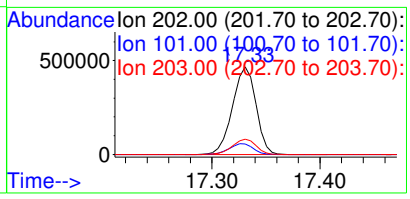


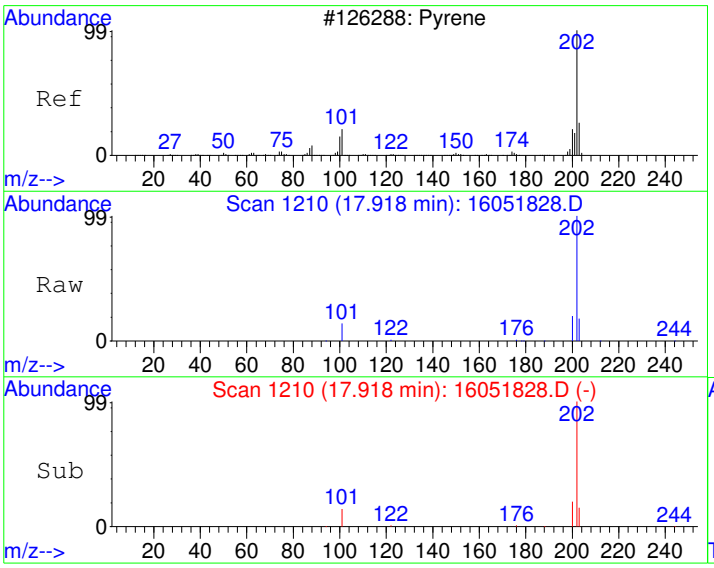


#14
Fluoranthene
Concen: 1928.25 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:202 Resp: 703316

Ion	Ratio	Lower	Upper
202	100		
101	12.1	0.0	43.0
203	17.6	0.0	47.9

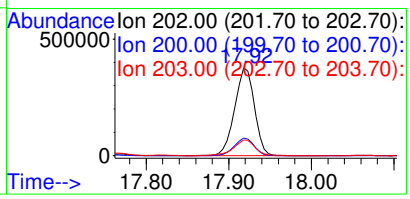


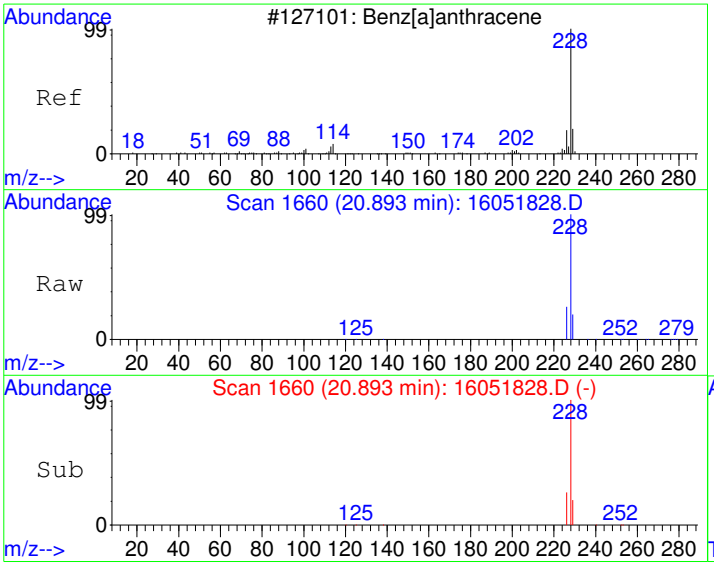


#15
Pyrene
Concen: 1640.45 ug/kg
RT: 17.92 min Scan# 1210
Delta R.T. -0.02 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:202 Resp: 621549

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	50.0
203	17.8	0.0	48.0

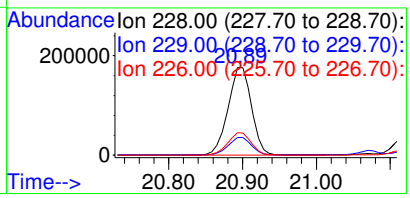


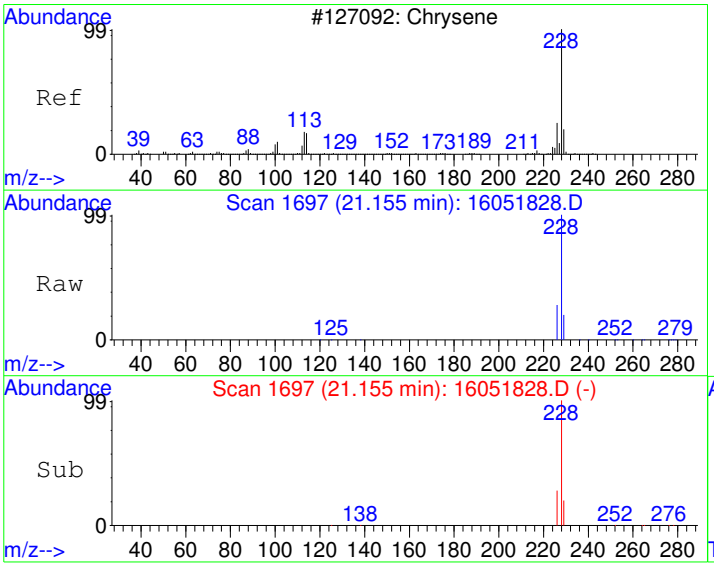


#18
Benzo[a]anthracene
Concen: 1236.08 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:228 Resp: 387194

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

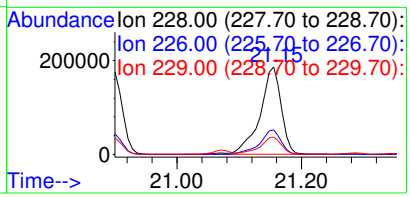


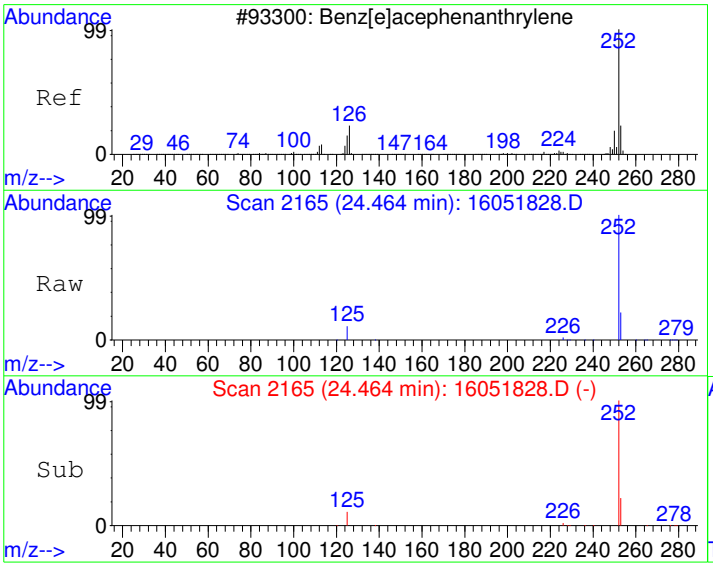


#19
Chrysene
Concen: 1462.64 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:228 Resp: 442675

Ion	Ratio	Lower	Upper
228	100		
226	28.0	0.0	58.1
229	20.0	0.0	50.1

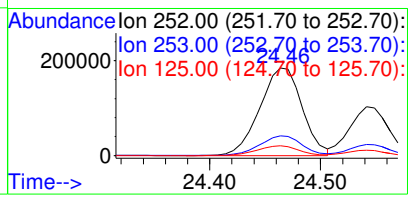


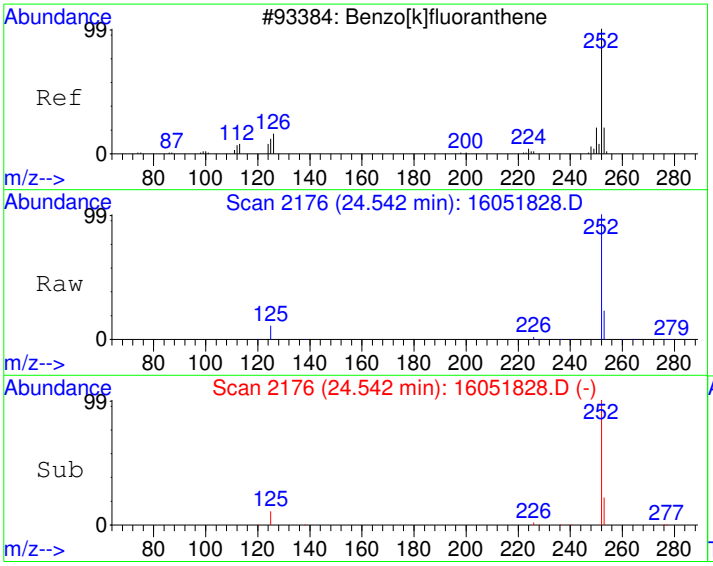


#21
Benzo[b]fluoranthene
Concen: 1409.50 ug/kg
RT: 24.46 min Scan# 2165
Delta R.T. -0.02 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:252 Resp: 489597

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.0	0.0	41.0

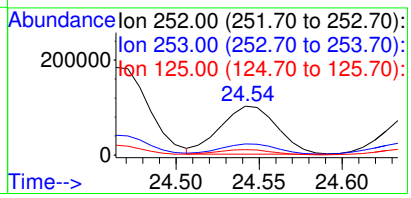


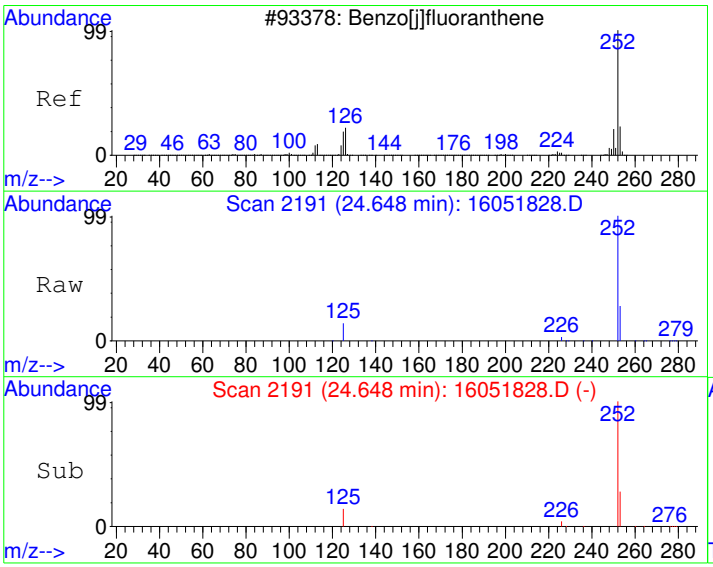


#22
Benzo[k]fluoranthene
Concen: 738.51 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:252 Resp: 240645

Ion	Ratio	Lower	Upper
252	100		
253	21.3	2.1	42.1
125	10.8	0.0	31.3

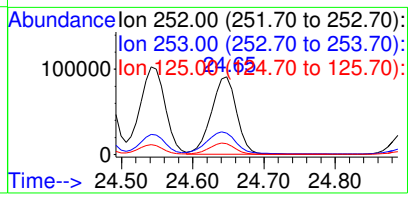


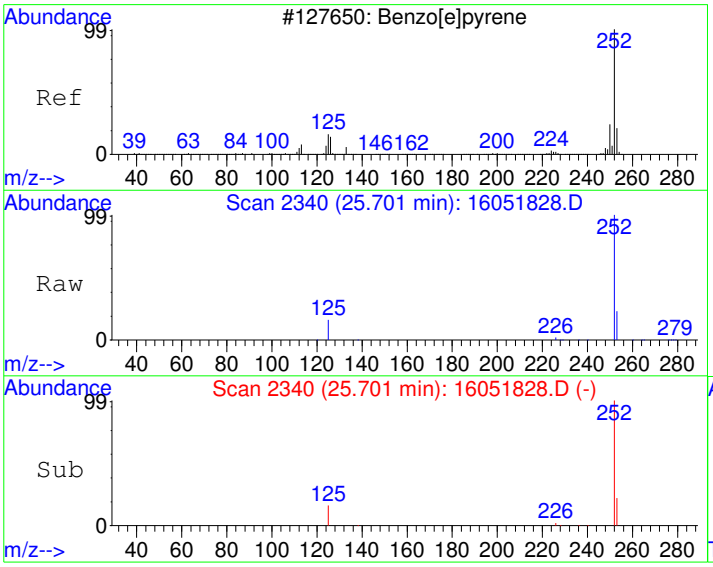


#23
Benzo(j)fluoranthene
Concen: 768.78 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:252 Resp: 223151

Ion	Ratio	Lower	Upper
252	100		
253	27.1	2.1	42.1
125	13.9	0.0	34.4

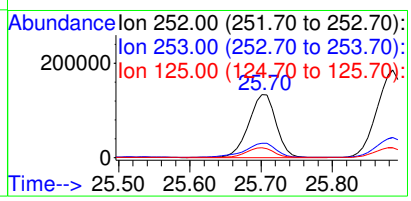


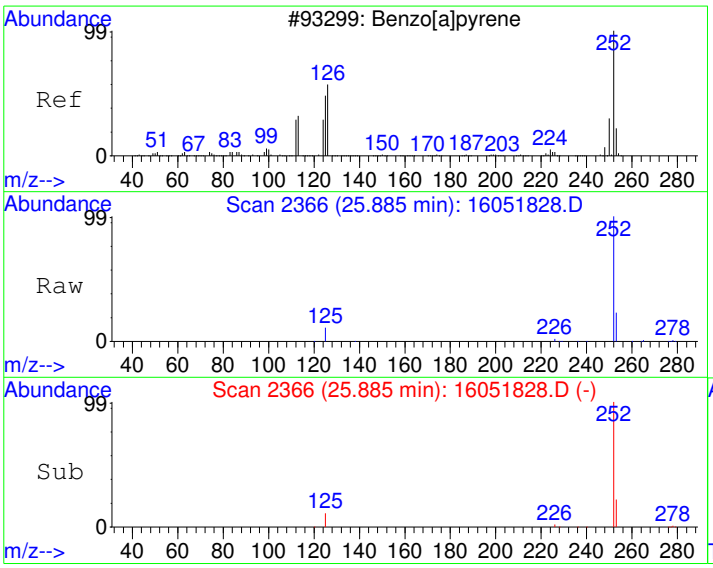


#24
Benzo[e]pyrene
Concen: 1146.96 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:252 Resp: 356790

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	15.6	0.0	36.1

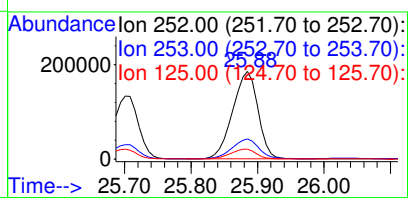


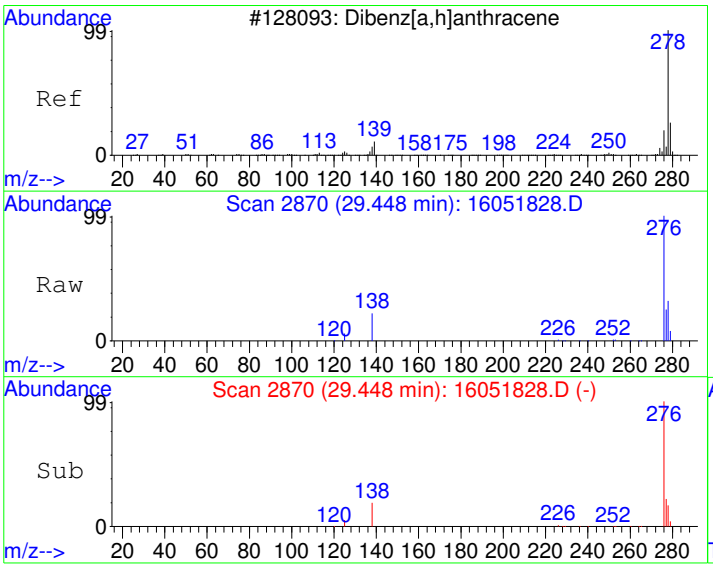


#25
Benzo[a]pyrene
Concen: 1540.03 ug/kg
RT: 25.88 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:252 Resp: 489548

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	11.1	0.0	31.7

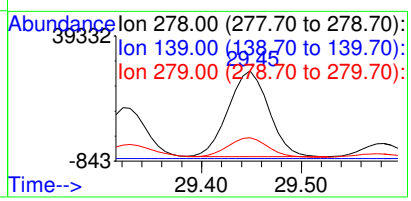


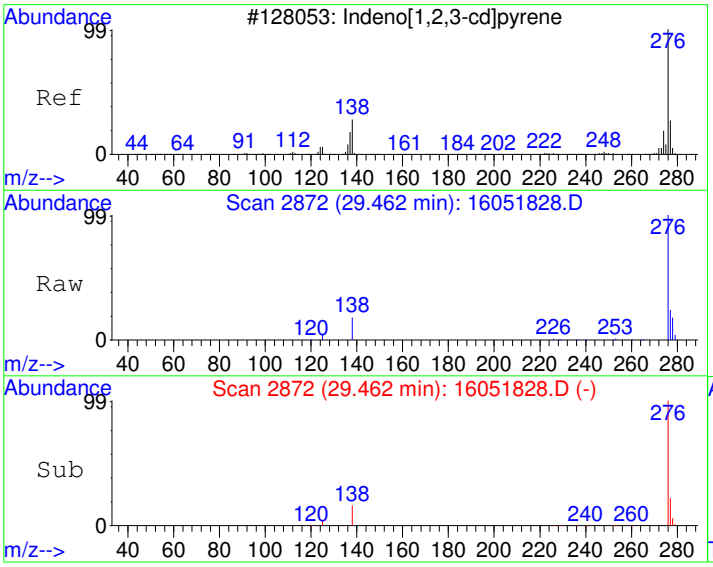


#26
Dibenz[a,h]anthracene
Concen: 266.85 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:278 Resp: 77253

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.8	4.2	44.2

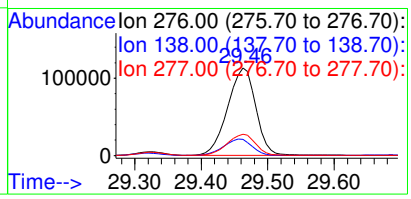


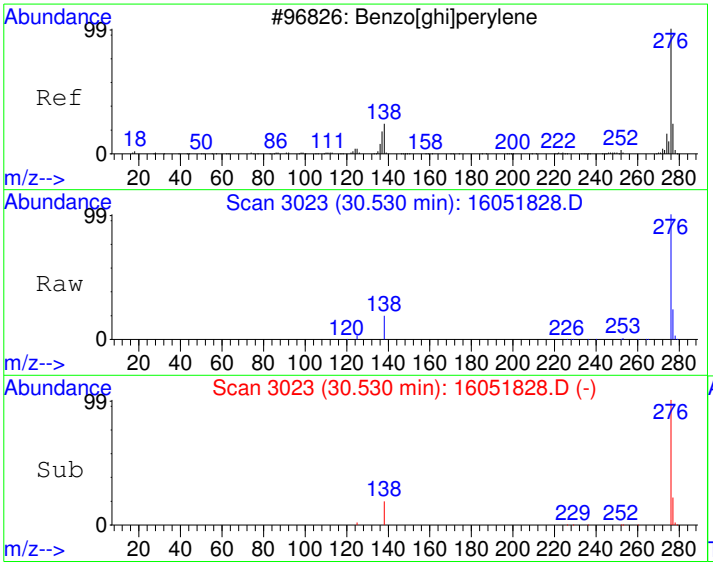


#27
Indeno[1,2,3-cd]pyrene
Concen: 961.64 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:276 Resp: 332118

Ion	Ratio	Lower	Upper
276	100		
138	18.2	6.7	46.7
277	24.2	5.8	45.8

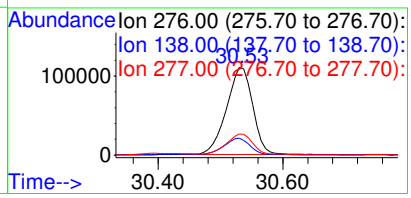




#28
Benzo[g,h,i]perylene
Concen: 1193.75 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051828.D
Acq: 19 May 2016 2:21 am

Tgt Ion:276 Resp: 321487

Ion	Ratio	Lower	Upper
276	100		
138	19.1	0.0	39.1
277	24.0	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051829.D Vial: 29
Acq On : 19 May 2016 3:00 am Operator:
Sample : 1605096-66A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:18 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

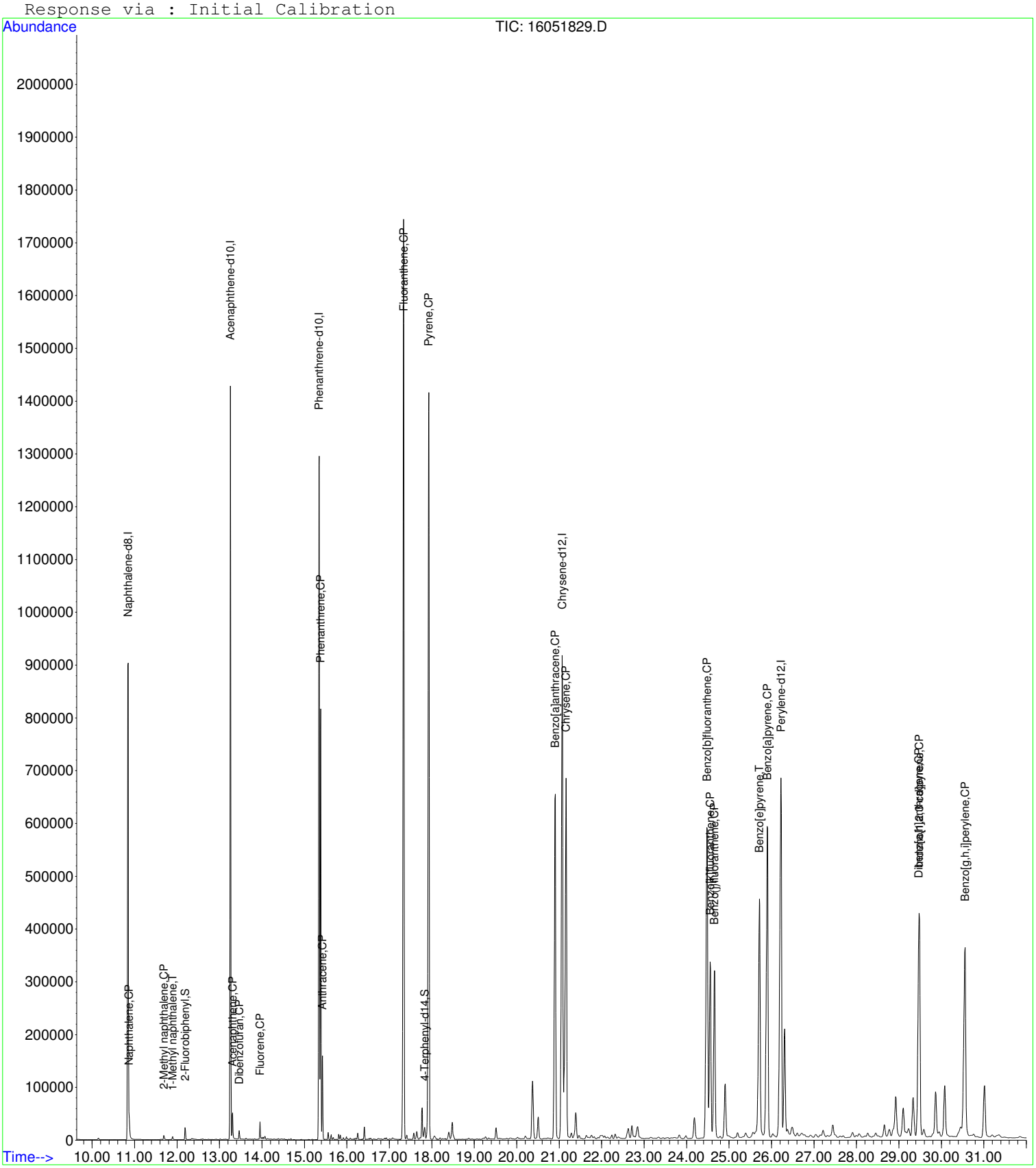
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1245381	4000.00	ug/kg	107
5) Acenaphthene-d10	13.25	164	785233	4000.00	ug/kg	68
11) Phenanthrene-d10	15.35	188	1449015	4000.00	ug/kg	71
17) Chrysene-d12	21.07	240	1507745	4000.00	ug/kg	66
20) Perylene-d12	26.22	264	1380520	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	18986	82.89	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
16) 4-Terphenyl-d14	17.83	244	25818	68.87	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.72%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	24119	77.42	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	4729	17.19	ug/kg	94
4) 1-Methyl naphthalene	11.90	142	3346	13.28	ug/kg	96
6) Dibenzofuran	13.46	168	14033	47.68	ug/kg	98
9) Acenaphthene	13.31	154	22125	105.41	ug/kg	97
10) Fluorene	13.96	166	15160	59.47	ug/kg	99
12) Phenanthrene	15.38	178	683867	1794.61	ug/kg	99
13) Anthracene	15.42	178	133754	370.83	ug/kg	99
14) Fluoranthene	17.34	202	1769734	4487.85	ug/kg	99
15) Pyrene	17.93	202	1569571	3831.65	ug/kg	99
18) Benzo[a]anthracene	20.91	228	1004582	2844.01	ug/kg	99
19) Chrysene	21.16	228	1144211	3352.62	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	1240593	3409.56	ug/kg	100
22) Benzo[k]fluoranthene	24.56	252	576291	1688.36	ug/kg	98
23) Benzo(j)fluoranthene	24.66	252	536678	1765.06	ug/kg	93
24) Benzo[e]pyrene	25.71	252	880001	2700.59	ug/kg	100
25) Benzo[a]pyrene	25.91	252	1188978	3570.66	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	182177	600.73	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.48	276	795737	2199.53	ug/kg	90
28) Benzo[g,h,i]perylene	30.56	276	784079	2779.39	ug/kg	99

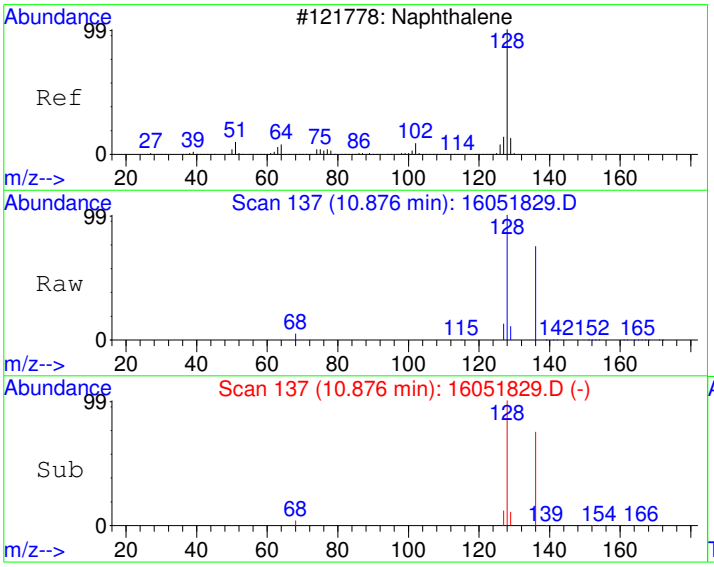
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051829.D Vial: 29
Acq On : 19 May 2016 3:00 am Operator:
Sample : 1605096-66A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:18 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

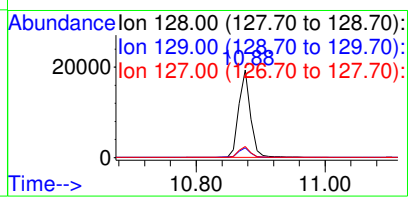


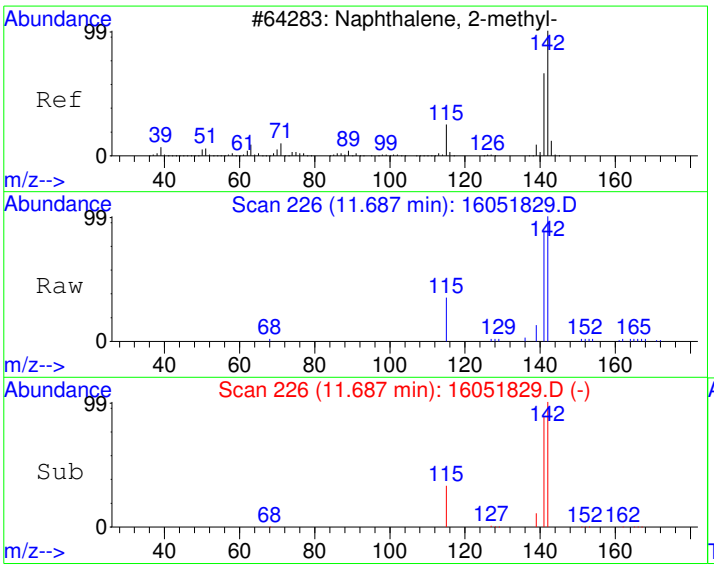


#2
Naphthalene
Concen: 77.42 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:128 Resp: 24119

Ion	Ratio	Lower	Upper
128	100		
129	10.9	0.0	41.1
127	12.5	0.0	42.4

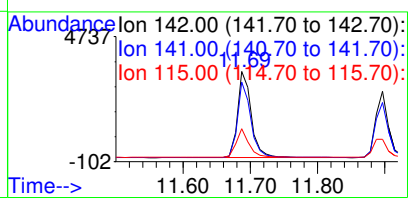


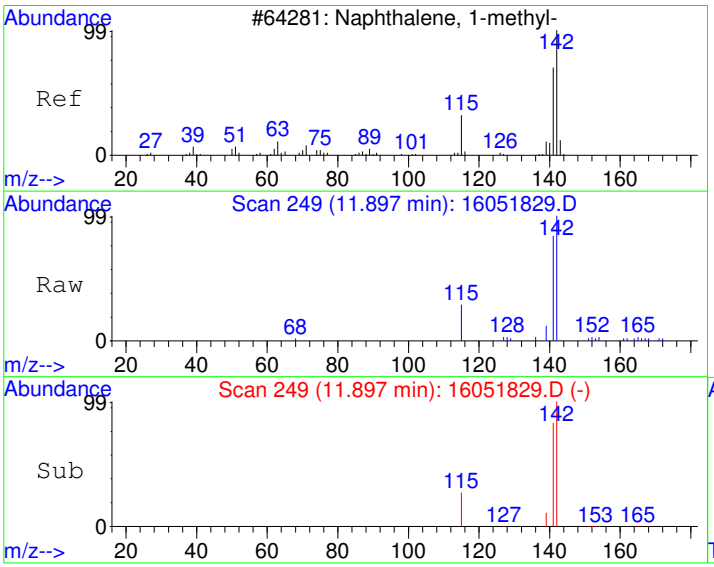


#3
2-Methyl naphthalene
Concen: 17.19 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:142 Resp: 4729

Ion	Ratio	Lower	Upper
142	100		
141	87.4	54.4	114.4
115	32.9	0.0	56.0

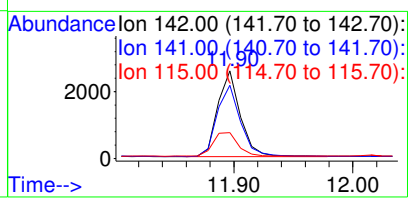


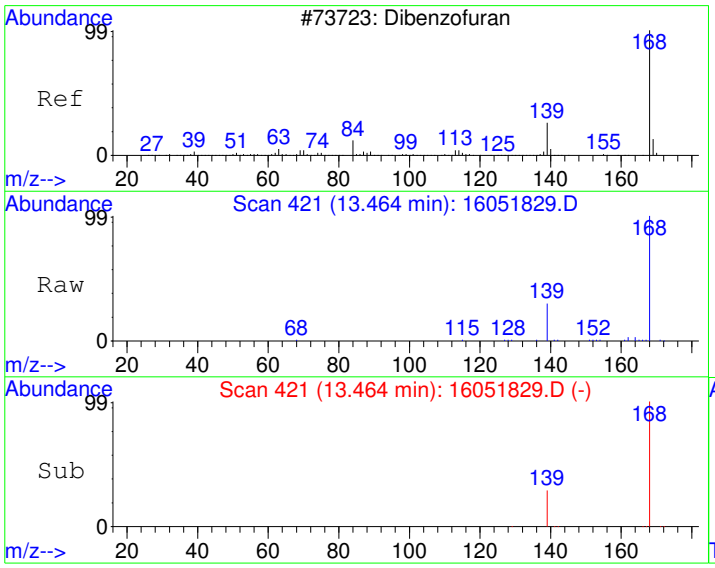


#4
1-Methyl naphthalene
Concen: 13.28 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. -0.00 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:142 Resp: 3346

Ion	Ratio	Lower	Upper
142	100		
141	83.4	56.5	116.5
115	27.2	0.0	55.0

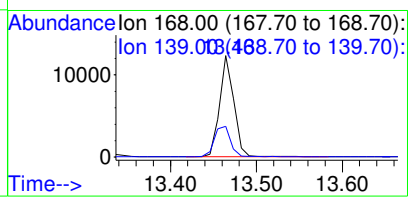


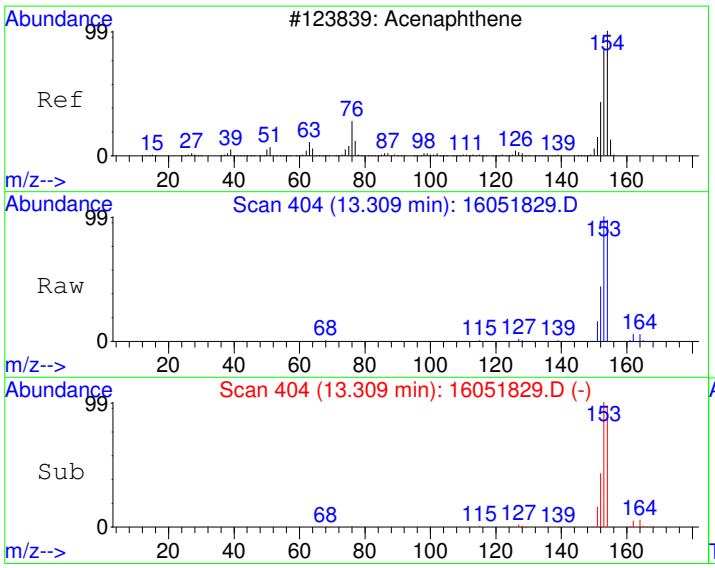


#6
Dibenzofuran
Concen: 47.68 ug/kg
RT: 13.46 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:168 Resp: 14033

Ion	Ratio	Lower	Upper
168	100		
139	34.9	27.0	40.4

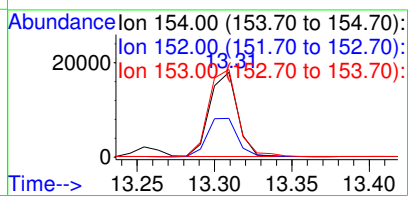


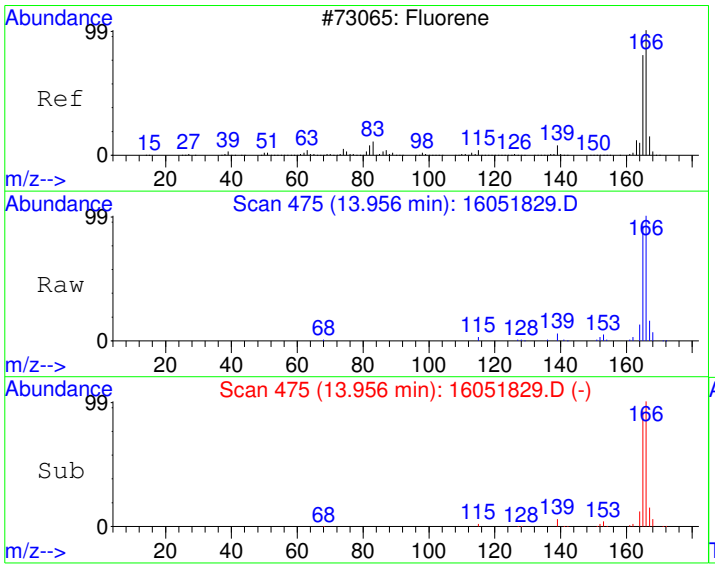


#9
Acenaphthene
Concen: 105.41 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:154 Resp: 22125

Ion	Ratio	Lower	Upper
154	100		
152	45.6	18.9	78.9
153	103.3	75.2	135.2

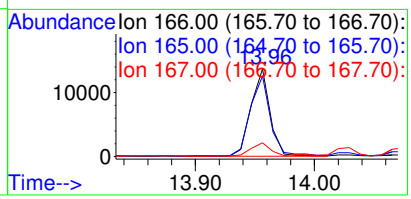


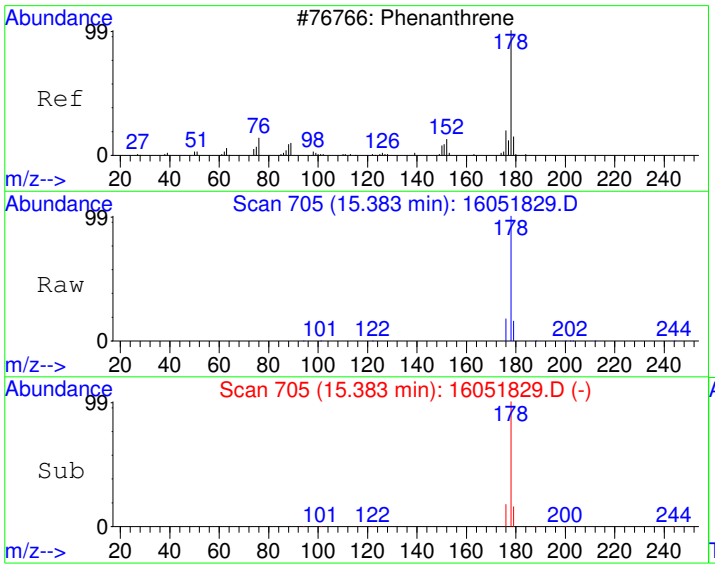


#10
Fluorene
Concen: 59.47 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:166 Resp: 15160

Ion	Ratio	Lower	Upper
166	100		
165	91.9	61.8	121.8
167	15.4	0.0	43.6

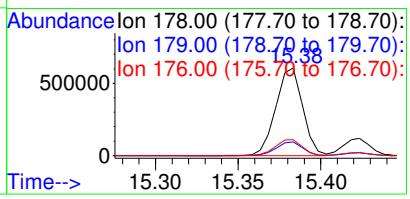


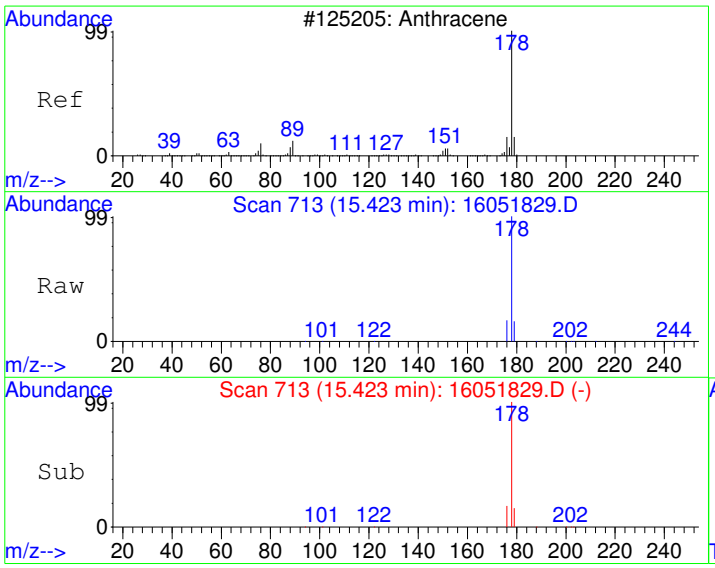


#12
Phenanthrene
Concen: 1794.61 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:178 Resp: 683867

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	45.9
176	18.1	0.0	48.5

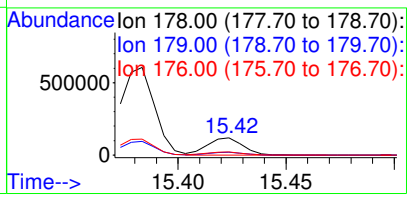


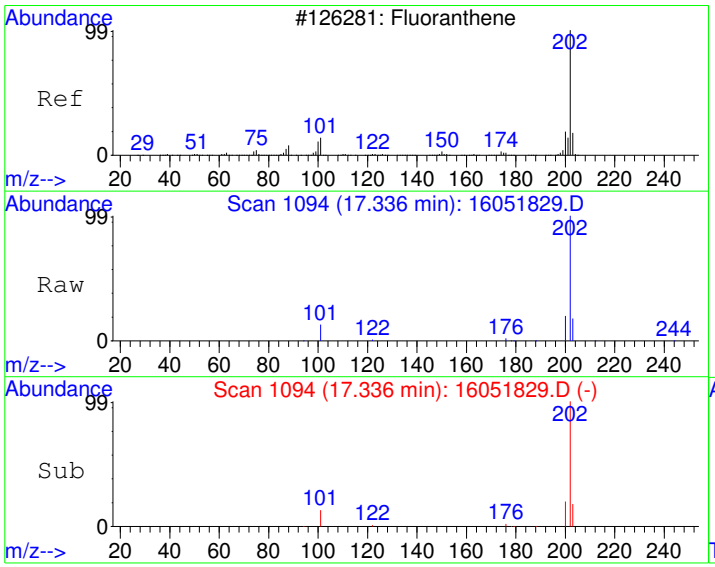


#13
Anthracene
Concen: 370.83 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:178 Resp: 133754

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	17.4	0.0	48.2

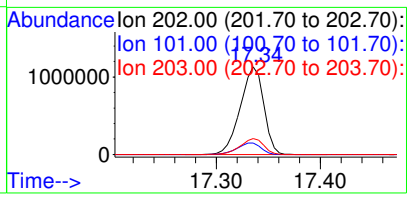


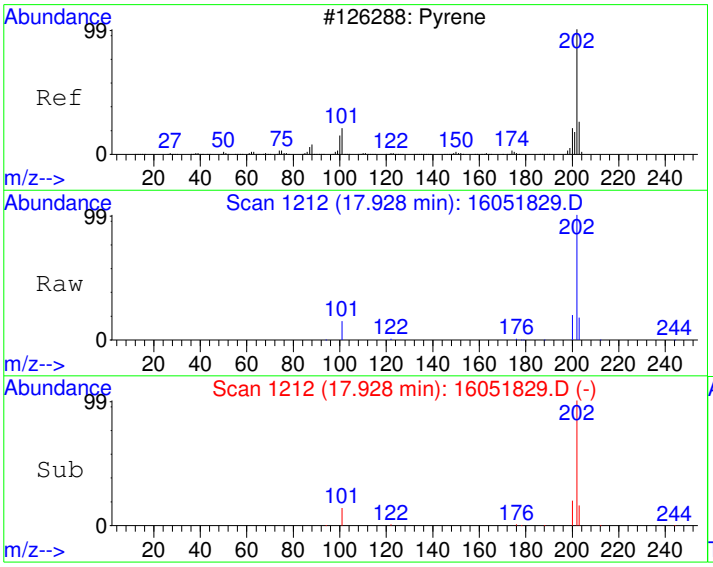


#14
Fluoranthene
Concen: 4487.85 ug/kg
RT: 17.34 min Scan# 1094
Delta R.T. -0.00 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:202 Resp: 1769734

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	43.0
203	18.1	0.0	47.9

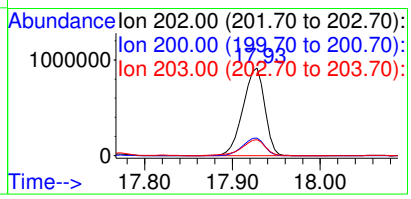


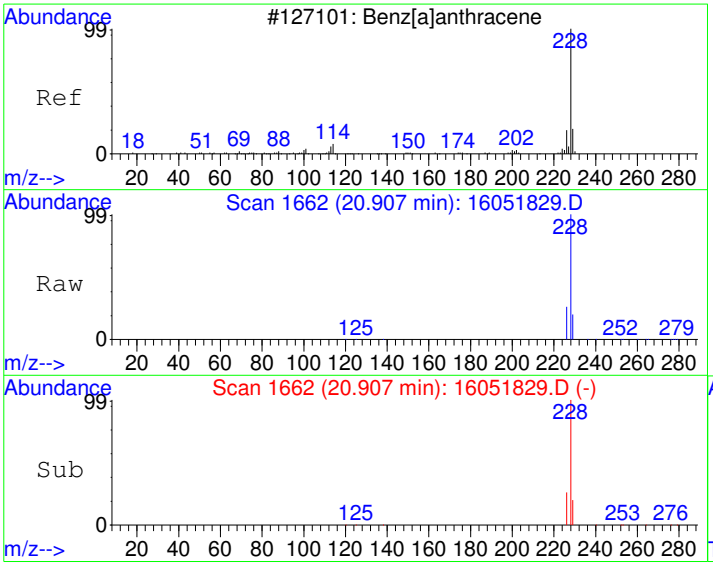


#15
Pyrene
Concen: 3831.65 ug/kg
RT: 17.93 min Scan# 1212
Delta R.T. -0.00 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:202 Resp: 1569571

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.0
203	18.2	0.0	48.0

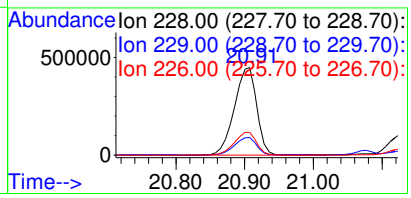


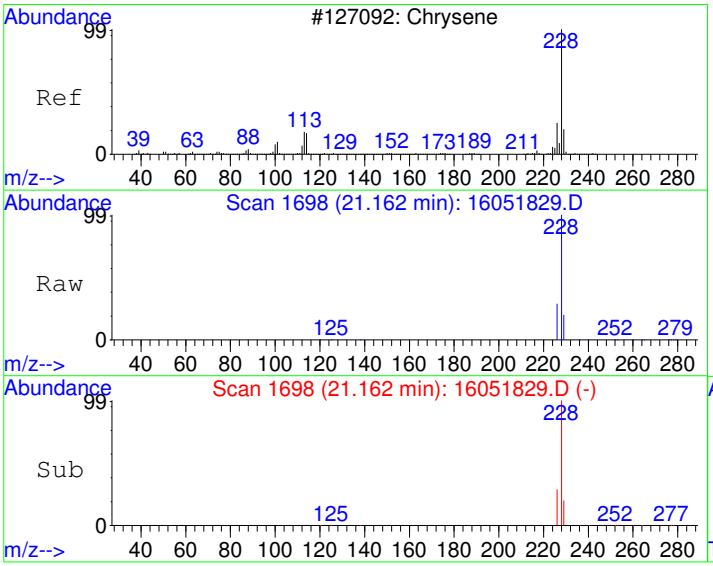


#18
Benzo[a]anthracene
Concen: 2844.01 ug/kg
RT: 20.91 min Scan# 1662
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:228 Resp: 1004582

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.1
226	25.7	0.0	55.2

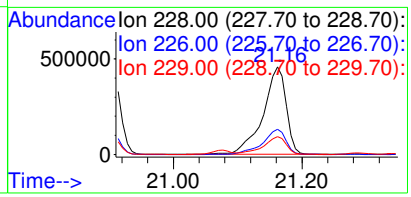


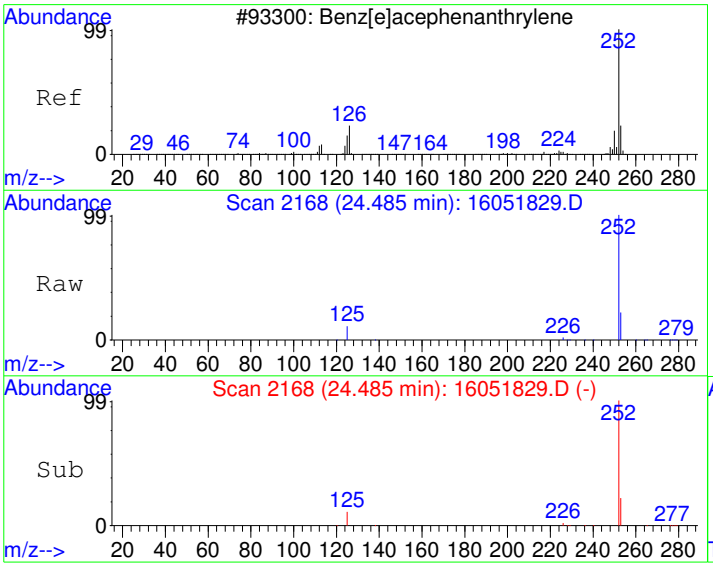


#19
Chrysene
Concen: 3352.62 ug/kg
RT: 21.16 min Scan# 1698
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:228 Resp: 1144211

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	20.2	0.0	50.1

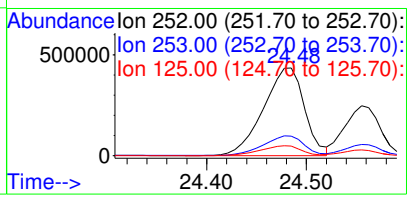


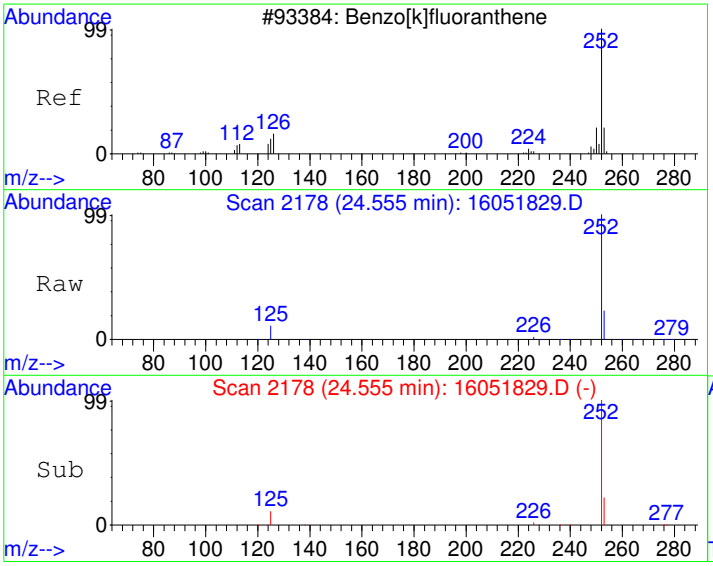


#21
Benzo[b]fluoranthene
Concen: 3409.56 ug/kg
RT: 24.48 min Scan# 2168
Delta R.T. -0.00 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:252 Resp: 1240593

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.2
125	10.8	0.0	41.0

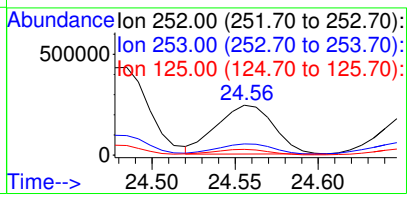


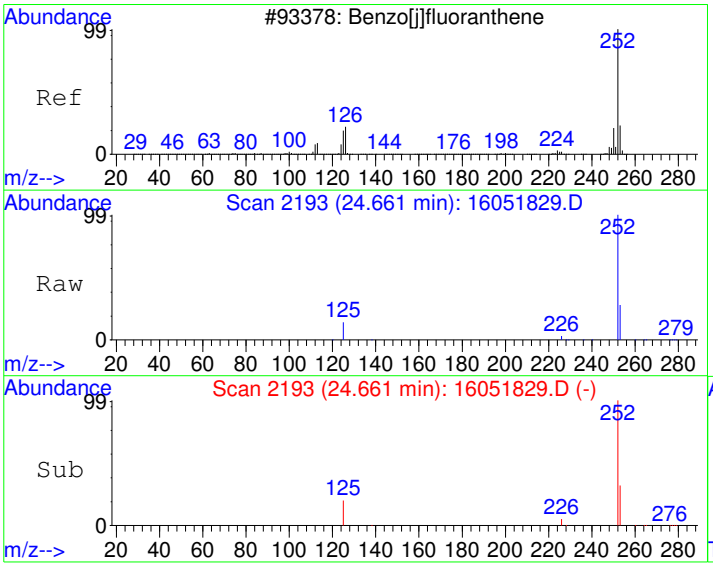


#22
Benzo[k]fluoranthene
Concen: 1688.36 ug/kg
RT: 24.56 min Scan# 2178
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:252 Resp: 576291

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.1	42.1
125	11.0	0.0	31.3

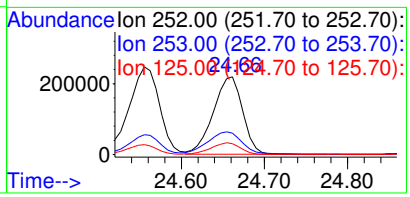


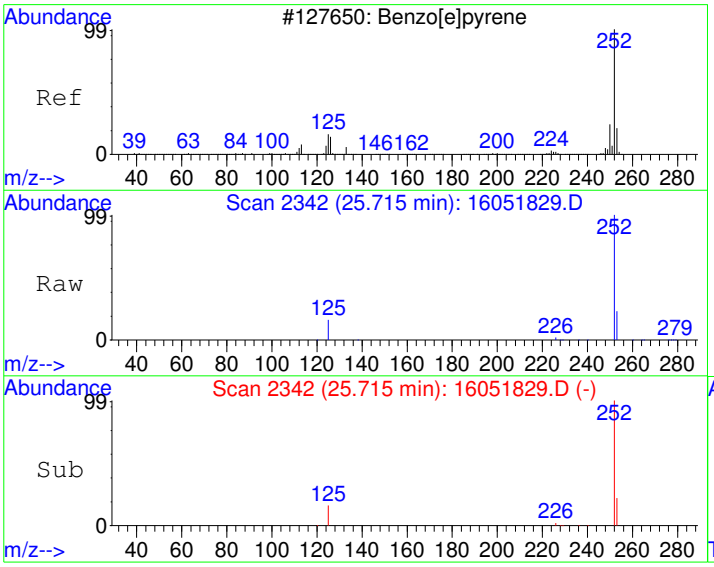


#23
Benzo(j)fluoranthene
Concen: 1765.06 ug/kg
RT: 24.66 min Scan# 2193
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:252 Resp: 536678

Ion	Ratio	Lower	Upper
252	100		
253	27.2	2.1	42.1
125	14.0	0.0	34.4

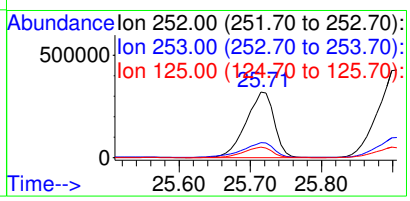


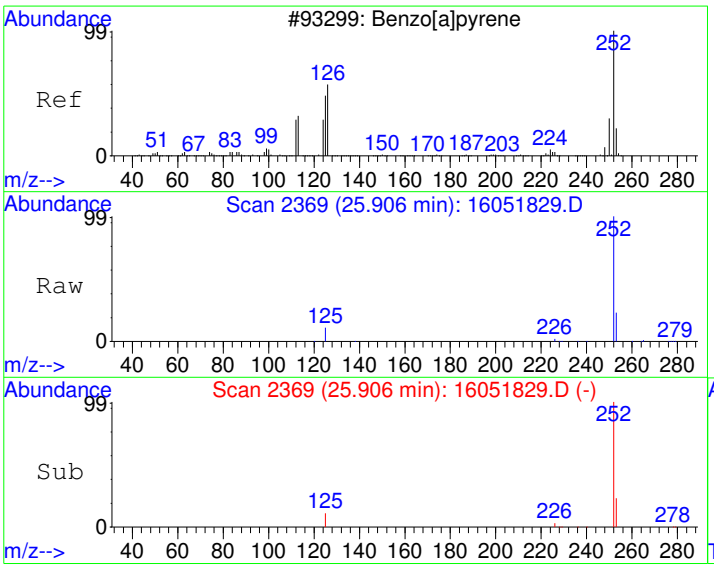


#24
Benzo[e]pyrene
Concen: 2700.59 ug/kg
RT: 25.71 min Scan# 2342
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:252 Resp: 880001

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.2	42.2
125	16.1	0.0	36.1

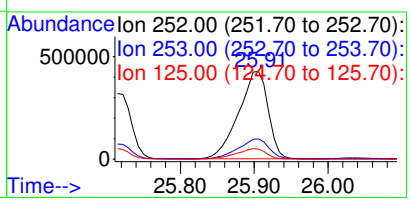


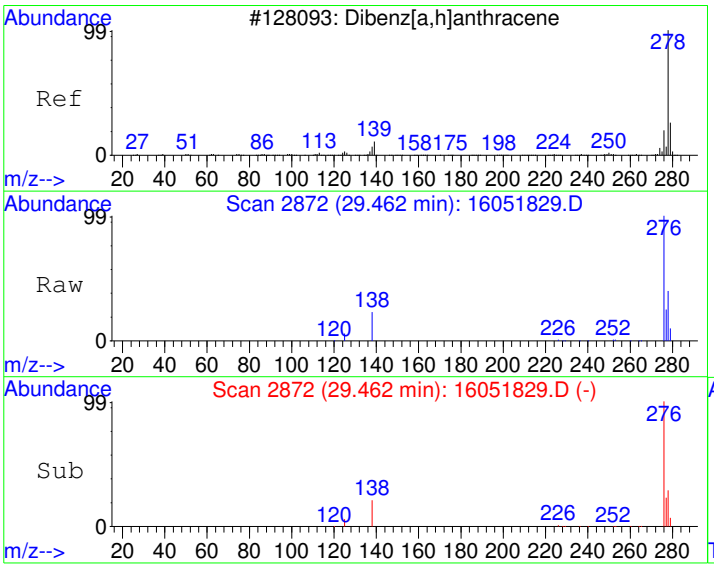


#25
Benzo[a]pyrene
Concen: 3570.66 ug/kg
RT: 25.91 min Scan# 2369
Delta R.T. 0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:252 Resp: 1188978

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.9	41.9
125	11.3	0.0	31.7

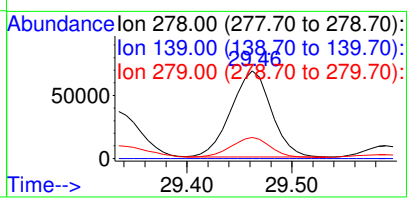


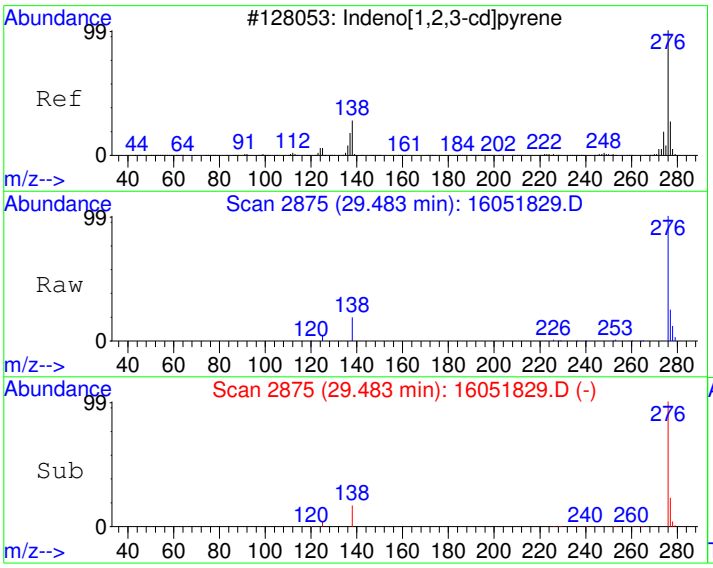


#26
Dibenz[a,h]anthracene
Concen: 600.73 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:278 Resp: 182177

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	23.3	4.2	44.2

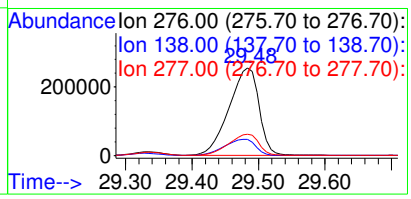


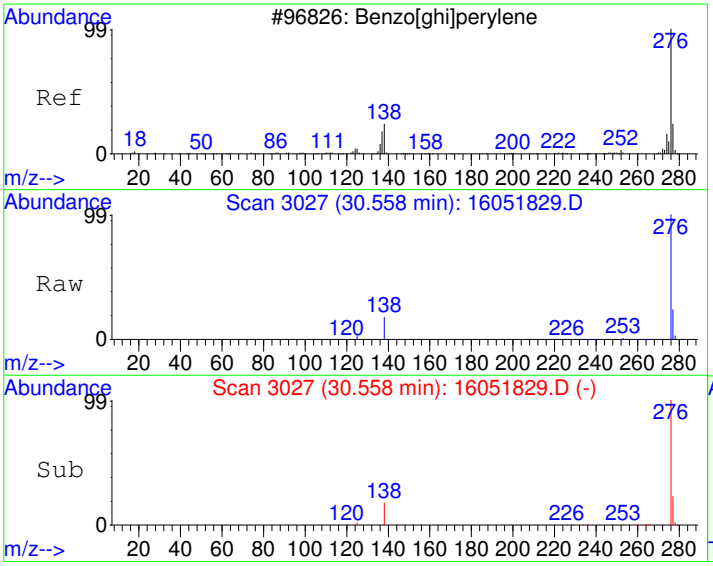


#27
Indeno[1,2,3-cd]pyrene
Concen: 2199.53 ug/kg
RT: 29.48 min Scan# 2875
Delta R.T. 0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:276 Resp: 795737

Ion	Ratio	Lower	Upper
276	100		
138	18.4	6.7	46.7
277	24.3	5.8	45.8

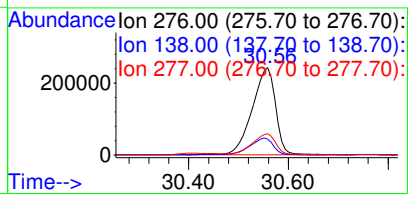




#28
Benzo[g,h,i]perylene
Concen: 2779.39 ug/kg
RT: 30.56 min Scan# 3027
Delta R.T. 0.01 min
Lab File: 16051829.D
Acq: 19 May 2016 3:00 am

Tgt Ion:276 Resp: 784079

Ion	Ratio	Lower	Upper
276	100		
138	18.0	0.0	39.1
277	24.1	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160518\16051830.D Vial: 30
Acq On : 19 May 2016 3:40 am Operator:
Sample : CCV-160518 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

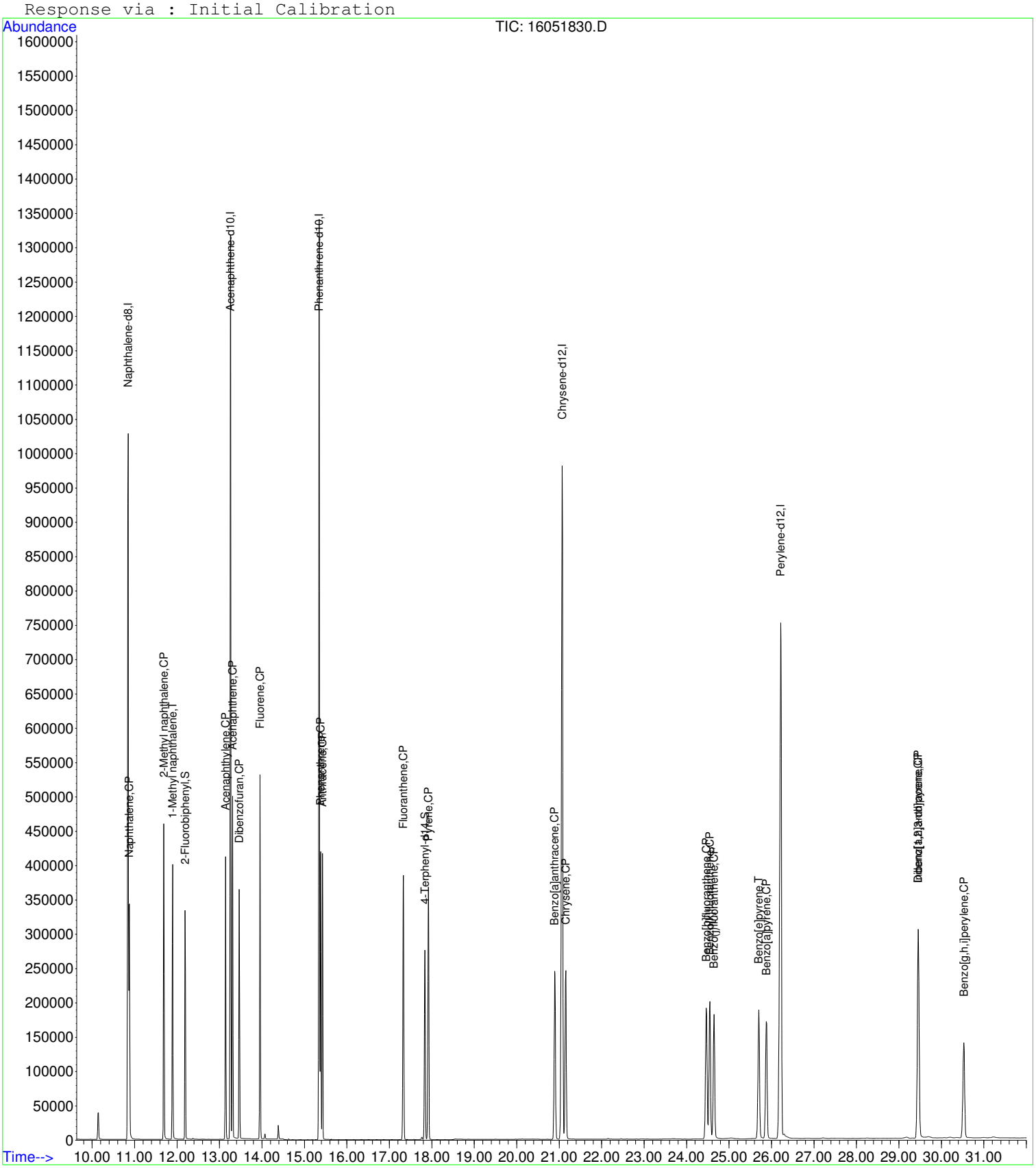
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1345851	4000.00	ug/kg	116
5) Acenaphthene-d10	13.26	164	816458	4000.00	ug/kg	71
11) Phenanthrene-d10	15.35	188	1443553	4000.00	ug/kg	71
17) Chrysene-d12	21.07	240	1630951	4000.00	ug/kg	72
20) Perylene-d12	26.22	264	1487722	4000.00	ug/kg	72
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	259222	1088.40	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 27.21%#			
16) 4-Terphenyl-d14	17.84	244	349409	935.57	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.39%#			
Target Compounds						Qvalue
2) Naphthalene	10.88	128	320604	952.34	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	229337	771.22	ug/kg	97
4) 1-Methyl naphthalene	11.90	142	204757	751.82	ug/kg	99
6) Dibenzofuran	13.46	168	302992	990.17	ug/kg	99
8) Acenaphthylene	13.15	152	356270	1013.24	ug/kg	99
9) Acenaphthene	13.31	154	203712	933.42	ug/kg	99
10) Fluorene	13.96	166	252475	952.57	ug/kg	99
12) Phenanthrene	15.38	178	352331	928.09	ug/kg	99
13) Anthracene	15.42	178	345993	962.90	ug/kg	99
14) Fluoranthene	17.33	202	383433	976.02	ug/kg	99
15) Pyrene	17.92	202	382646	937.65	ug/kg	99
18) Benzo[a]anthracene	20.89	228	365433	956.40	ug/kg	99
19) Chrysene	21.15	228	332594	900.91	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	370404	944.64	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	345399	939.00	ug/kg	99
23) Benzo(j)fluoranthene	24.65	252	314736	960.54	ug/kg	99
24) Benzo[e]pyrene	25.70	252	334974	953.91	ug/kg	100
25) Benzo[a]pyrene	25.88	252	329646	918.64	ug/kg	100
26) Dibenz[a,h]anthracene	29.46	278	287515	879.77	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.46	276	332920	853.93	ug/kg	94
28) Benzo[g,h,i]perylene	30.53	276	272099	895.03	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160518\16051830.D Vial: 30
Acq On : 19 May 2016 3:40 am Operator:
Sample : CCV-160518 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 8:11 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



GCMS6_160519A
For

DHL Work Order
1605096

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

Project Number(s): SEE RUN LOG.	**Run ID: GCMS6_160519A**
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	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard	X			
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality				
1. Are all non-conformances included and noted?				X	x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

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

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

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

General Comments and Impact on Data:

Analyst: Karyn Lane Date: 5/20/2016 11:49

Second-Level Review: Janice Whitt Date: 5/27/2016

REVIEWED BY
By Janice Whitt at 4:03:13 PM, 5/27/2016

DHL Analytical, Inc.

Run ID: GCMS6_160519A **Run No.:** 85896

Analytical Run Date: 5/19/2016 **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-160519	1	PAH_LL_SDOD1	TUNE	R85896	5/19/2016 8:26:00 AM		
ICV-160519	1	PAH_LL_SDOD1	ICV	R85896	5/19/2016 9:03:00 AM		
LCS-75161	1	PAH_LL_SDOD1	LCS	75161	5/19/2016 9:43:00 AM		
MB-75161	1	PAH_LL_SDOD1	MBLK	75161	5/19/2016 10:27:00 AM		
1605096-68A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 11:07:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
1605096-69A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 11:47:00 AM		
1605096-70A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 12:26:00 PM		
1605096-71A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 1:06:00 PM		
1605096-72A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 1:47:00 PM		
1605096-73A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 2:27:00 PM		
1605096-74A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 3:08:00 PM		
1605097-01A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 3:47:00 PM		
1605097-02A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 4:27:00 PM		
1605097-03A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 5:07:00 PM		
1605097-03AMS	10	PAH_LL_SDOD1	MS	75161	5/19/2016 5:47:00 PM		
1605097-03AMSD	10	PAH_LL_SDOD1	MSD	75161	5/19/2016 6:27:00 PM		
DFTPP2-160519	1	PAH_LL_SDOD1	TUNE	R85896	5/19/2016 7:07:00 PM		
ICV2-160519	1	PAH_LL_SDOD1	ICV	R85896	5/19/2016 7:44:00 PM		
SB-160519	1	PAH_LL_SDOD1	SBLK	75161	5/19/2016 9:04:00 PM		
1605097-04A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 9:43:00 PM		
1605097-05A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 10:23:00 PM		
1605097-06A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 11:04:00 PM		
1605097-07A	10	PAH_LL_SDOD1	SAMP	75161	5/19/2016 11:44:00 PM		
1605097-08A	10	PAH_LL_SDOD1	SAMP	75161	5/20/2016 12:23:00 AM		
1605097-09A	10	PAH_LL_SDOD1	SAMP	75161	5/20/2016 1:03:00 AM		
1605097-10A	10	PAH_LL_SDOD1	SAMP	75161	5/20/2016 1:42:00 AM		
1605097-11A	10	PAH_LL_SDOD1	SAMP	75161	5/20/2016 2:23:00 AM		
1605097-12A	10	PAH_LL_SDOD1	SAMP	75161	5/20/2016 3:03:00 AM		
1605097-13A	10	PAH_LL_SDOD1	SAMP	75161	5/20/2016 3:43:00 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

DHL Analytical, Inc.

Run ID: GCMS6_160519A **Run No.:** 85896

CCV1-160519	1	PAH_LL_SDOD1	CCV	R85896	5/20/2016 4:23:00 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:\HPCHEM\1\SEQUENCE\160519.S
Comment:
Operator:
Data Path: C:\HPCHEM\1\DATA\160519\
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	16051901	DFTPPPAH	DFTPP-160519
2	Sample	2	16051902	PP160421	ICV-160519
3	Sample	3	16051903	PP160421	LCS-75161
4	Sample	4	16051904	PP160421	MB-75161
5	Sample	5	16051905	PP160421	1605096-68A
6	Sample	6	16051906	PP160421	1605096-69A
7	Sample	7	16051907	PP160421	1605096-70A
8	Sample	8	16051908	PP160421	1605096-71A
9	Sample	9	16051909	PP160421	1605096-72A
10	Sample	10	16051910	PP160421	1605096-73A
11	Sample	11	16051911	PP160421	1605096-74A
12	Sample	12	16051912	PP160421	1605097-01A
13	Sample	13	16051913	PP160421	1605097-02A
14	Sample	14	16051914	PP160421	1605097-03A
15	Sample	15	16051915	PP160421	1605097-03AMS
16	Sample	16	16051916	PP160421	1605097-03AMSD
17	Sample	17	16051917	DFTPPPAH	DFTPP2-160519
18	Sample	18	16051918	PP160421	ICV2-160519
19	Sample	19	16051919	PP160421	SBLK
20	Sample	20	16051920	PP160421	SB-160519
21	Sample	21	16051921	PP160421	1605097-04A
22	Sample	22	16051922	PP160421	1605097-05A
23	Sample	23	16051923	PP160421	1605097-06A
24	Sample	24	16051924	PP160421	1605097-07A
25	Sample	25	16051925	PP160421	1605097-08A
26	Sample	26	16051926	PP160421	1605097-09A
27	Sample	27	16051927	PP160421	1605097-10A
28	Sample	28	16051928	PP160421	1605097-11A
29	Sample	29	16051929	PP160421	1605097-12A
30	Sample	30	16051930	PP160421	1605097-13A
31	Sample	31	16051931	PP160421	CCV1-160519

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/15/2016 11:31:55 AM**
Digestion:
Prep End Date: **5/16/5016 10:00:00 AM**

Prep Batch **75161** 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
1605096-68A	Soil		10.12	10	0.988	1 of 1	
1605096-69A	Soil		10.49	10	0.953	1 of 1	
1605096-70A	Soil		10.65	10	0.939	1 of 1	
1605096-71A	Soil		10.28	10	0.973	1 of 1	
1605096-72A	Soil		10.36	10	0.965	1 of 1	
1605096-73A	Soil		10.27	10	0.974	1 of 1	
1605096-74A	Soil		10.73	10	0.932	1 of 1	
1605097-01A	Soil		10.08	10	0.992	1 of 1	
1605097-02A	Soil		10.2	10	0.980	1 of 1	
1605097-03A	Soil		10.13	10	0.987	of 3	
1605097-03AMS	Soil		10.24	10	0.977	of	
Spiked with PAHPREP160516							
1605097-03AMSD	Soil		10.58	10	0.945	of	
Spiked with PAHPREP160516							
1605097-04A	Soil		10.07	10	0.993	1 of 1	
1605097-05A	Soil		10.31	10	0.970	1 of 1	
1605097-06A	Soil		10.1	10	0.990	1 of 1	
1605097-07A	Soil		10.17	10	0.983	1 of 1	
1605097-08A	Soil		10.03	10	0.997	1 of 1	
1605097-09A	Soil		10.72	10	0.933	1 of 1	
1605097-10A	Soil		10.64	10	0.940	1 of 1	
1605097-11A	Soil		10.32	10	0.969	1 of 1	
1605097-12A	Soil		10.39	10	0.962	1 of 1	
1605097-13A	Soil		10.04	10	0.996	1 of 1	
LCS-75161	Soil		10	10	1.000	of	
MB-75161	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED BY
By Janice Whitt at 3:45:52 PM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/15/2016 11:31:55 AM**
Digestion:
Prep End Date: 5/16/2016 10.00 AM

Prep Batch **75161** 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
1605096-68A	Soil		10 .12	10	1.000	1 of 1	
1605096-69A	Soil		10 .49	10	1.000	1 of 1	
1605096-70A	Soil		10 .65	10	1.000	1 of 1	
1605096-71A	Soil		10 .23	10	1.000	1 of 1	
1605096-72A	Soil		10 .36	10	1.000	1 of 1	
1605096-73A	Soil		10 .27	10	1.000	1 of 1	
1605096-74A	Soil		10 .73	10	1.000	1 of 1	
1605097-01A	Soil		10 .08	10	1.000	1 of 1	
1605097-02A	Soil		10 .20	10	1.000	1 of 1	
1605097-03A	Soil		10 .13	10	1.000	1 of 3	
1605097-03AMS	Soil		10 .24	10	1.000	1 of 3	SPIKED WITH ~~PAHPREP~~ PAHPREP160516 5/16/16
1605097-03AMSD	Soil		10 .58	10	1.000	1 of 3	" "
1605097-04A	Soil		10 .07	10	1.000	1 of 1	
1605097-05A	Soil		10 .31	10	1.000	1 of 1	
1605097-06A	Soil		10 .10	10	1.000	1 of 1	
1605097-07A	Soil		10 .17	10	1.000	1 of 1	
1605097-08A	Soil		10 .03	10	1.000	1 of 1	
1605097-09A	Soil		10 .72	10	1.000	1 of 1	
1605097-10A	Soil		10 .64	10	1.000	1 of 1	
1605097-11A	Soil		10 .32	10	1.000	1 of 1	
1605097-12A	Soil		10 .39	10	1.000	1 of 1	
1605097-13A	Soil		10 .04	10	1.000	1 of 1	
LCS-75161	Soil		10	10	1.000	of	
MB-75161	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. D
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED BY
By Janice Whitt at 3:45:50 PM, 5/27/2016

LG 5/16/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-56A	Soil		0	0	#Num!	1 of 1	
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 3:44:29 PM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/11/2016 2:00:20 PM**
Digestion: **Start: 5/11/2016 2:30:00 PM / Stop: 5/13/2016 11:00:00 AM**
Prep End Date: **5/13/2016 3:00:00 PM**

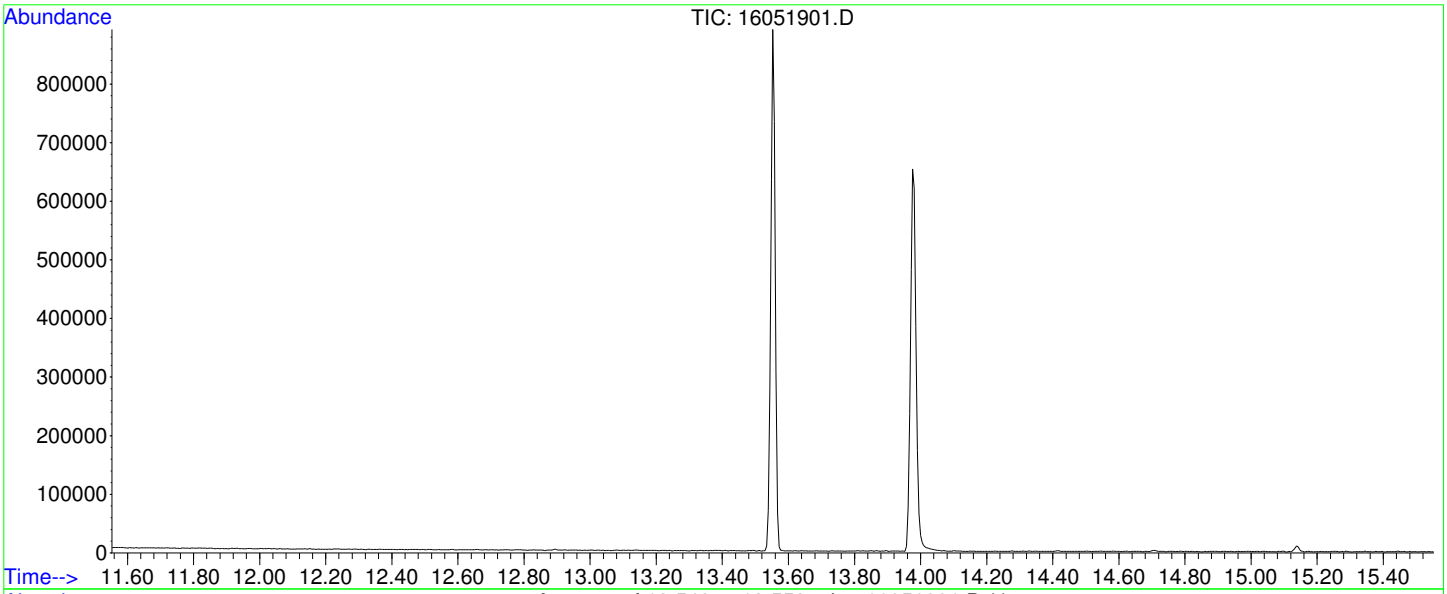
Prep Batch **75116** Prep Code: **ISM2MM_PREP** Technician: **Scott Schroeder**

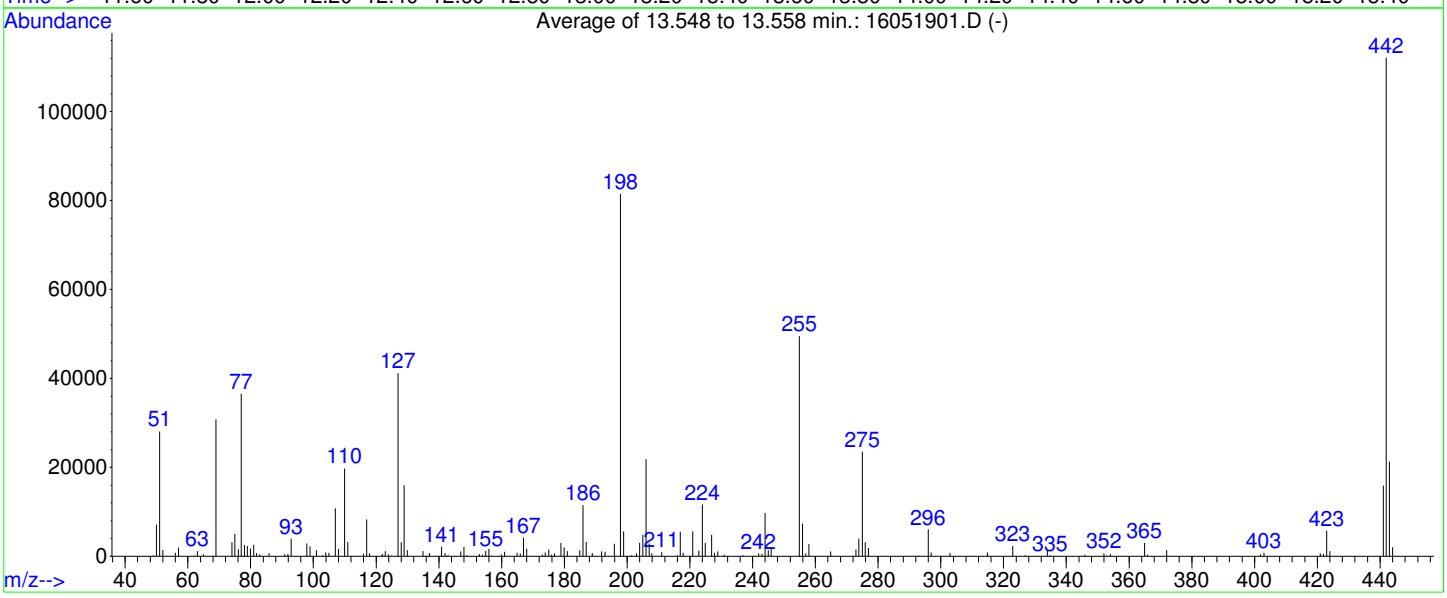
Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605097-01A	Soil		0	0	#Num!	1 of 1	
1605097-02A	Soil		0	0	#Num!	1 of 1	
1605097-03A	Soil		0	0	#Num!	of 3	
	Extra sub sampled for MS/MSD						
1605097-04A	Soil		0	0	#Num!	1 of 1	
1605097-05A	Soil		0	0	#Num!	1 of 1	
1605097-06A	Soil		0	0	#Num!	1 of 1	
1605097-07A	Soil		0	0	#Num!	1 of 1	
1605097-08A	Soil		0	0	#Num!	1 of 1	
1605097-09A	Soil		0	0	#Num!	1 of 1	
1605097-10A	Soil		0	0	#Num!	1 of 1	
1605097-11A	Soil		0	0	#Num!	1 of 1	
1605097-12A	Soil		0	0	#Num!	1 of 1	
1605097-13A	Soil		0	0	#Num!	1 of 1	
1605097-14A	Soil		0	0	#Num!	1 of 1	
1605097-15A	Soil		0	0	#Num!	1 of 1	
1605097-31A	Soil		0	0	#Num!	1 of 1	
1605097-32A	Soil		0	0	#Num!	1 of 1	
1605097-33A	Soil		0	0	#Num!	1 of 1	
1605097-34A	Soil		0	0	#Num!	1 of 1	
1605097-35A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 3:44:33 PM, 5/27/2016

Data File : C:\HPCHEM\1\DATA\160519\16051901.D Vial: 1
Acq On : 19 May 2016 8:26 am Operator:
Sample : DFTPP-160519 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



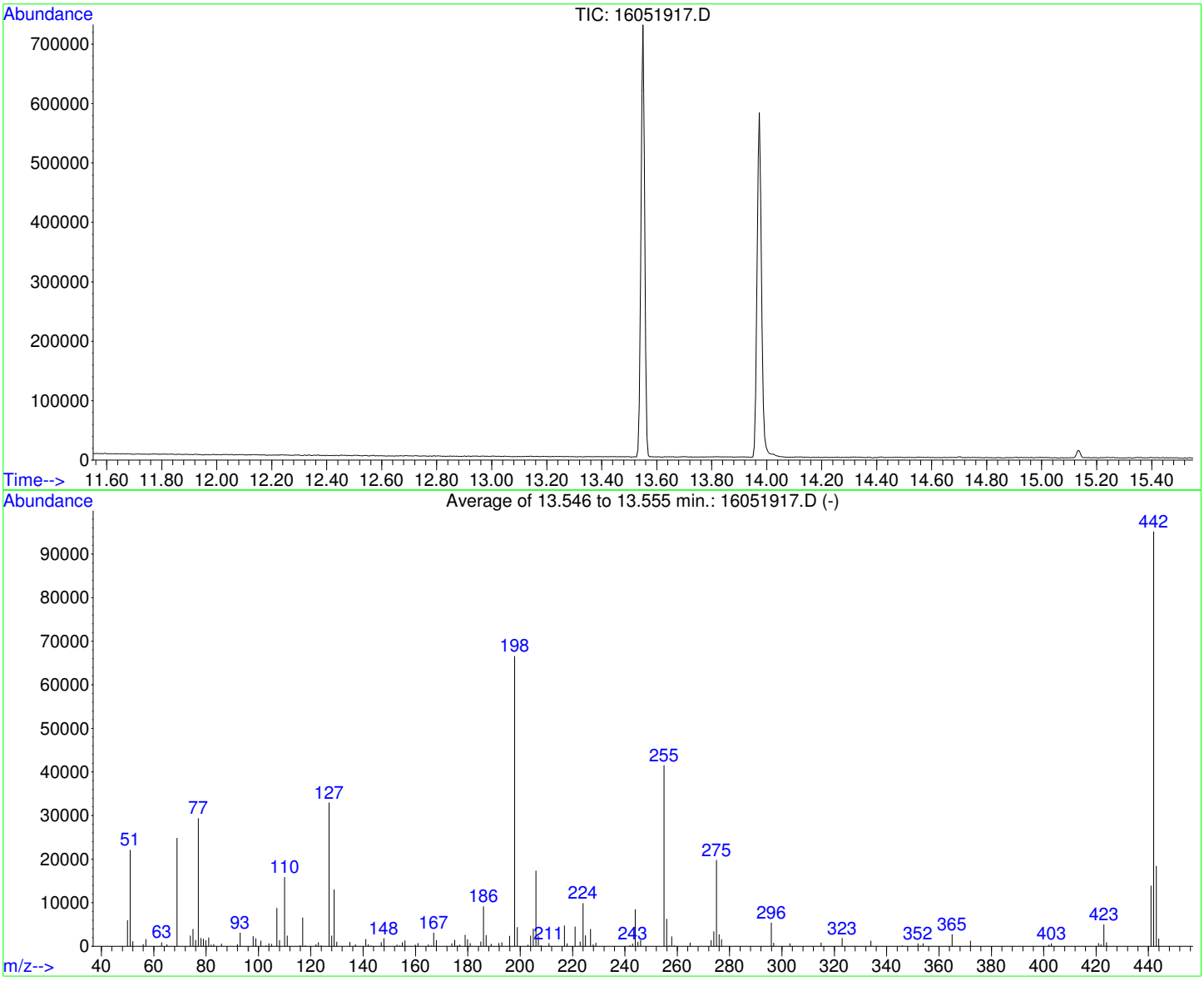


AutoFind: Scans 1586, 1587, 1588; Background Corrected with Scan 1580

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.5	28075	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.8	30829	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.5	41128	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	81451	PASS
199	198	5	9	6.9	5619	PASS
275	198	10	60	28.9	23557	PASS
365	198	1	200	3.7	3031	PASS
441	442	0.01	24	14.2	15884	PASS
442	198	50	400	137.7	112123	PASS
443	442	15	24	19.0	21329	PASS

REVIEWED BY
By Janice Whitt at 3:44:35 PM, 5/27/2016

Data File : C:\HPCHEM\1\DATA\160519\16051917.D Vial: 17
Acq On : 19 May 2016 7:07 pm Operator:
Sample : DFTPP2-160519 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 1586, 1587, 1588; Background Corrected with Scan 1580

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	33.2	22127	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.3	24851	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.5	32971	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	66619	PASS
199	198	5	9	6.6	4413	PASS
275	198	10	60	29.7	19781	PASS
365	198	1	200	4.1	2737	PASS
441	442	0.01	24	14.7	13962	PASS
442	198	50	400	142.9	95197	PASS
443	442	15	24	19.4	18473	PASS

REVIEWED BY
By Janice Whitt at 3:45:58 PM, 5/27/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051902.D Vial: 2
Acq On : 19 May 2016 9:03 am Operator:
Sample : ICV-160519 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:26 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

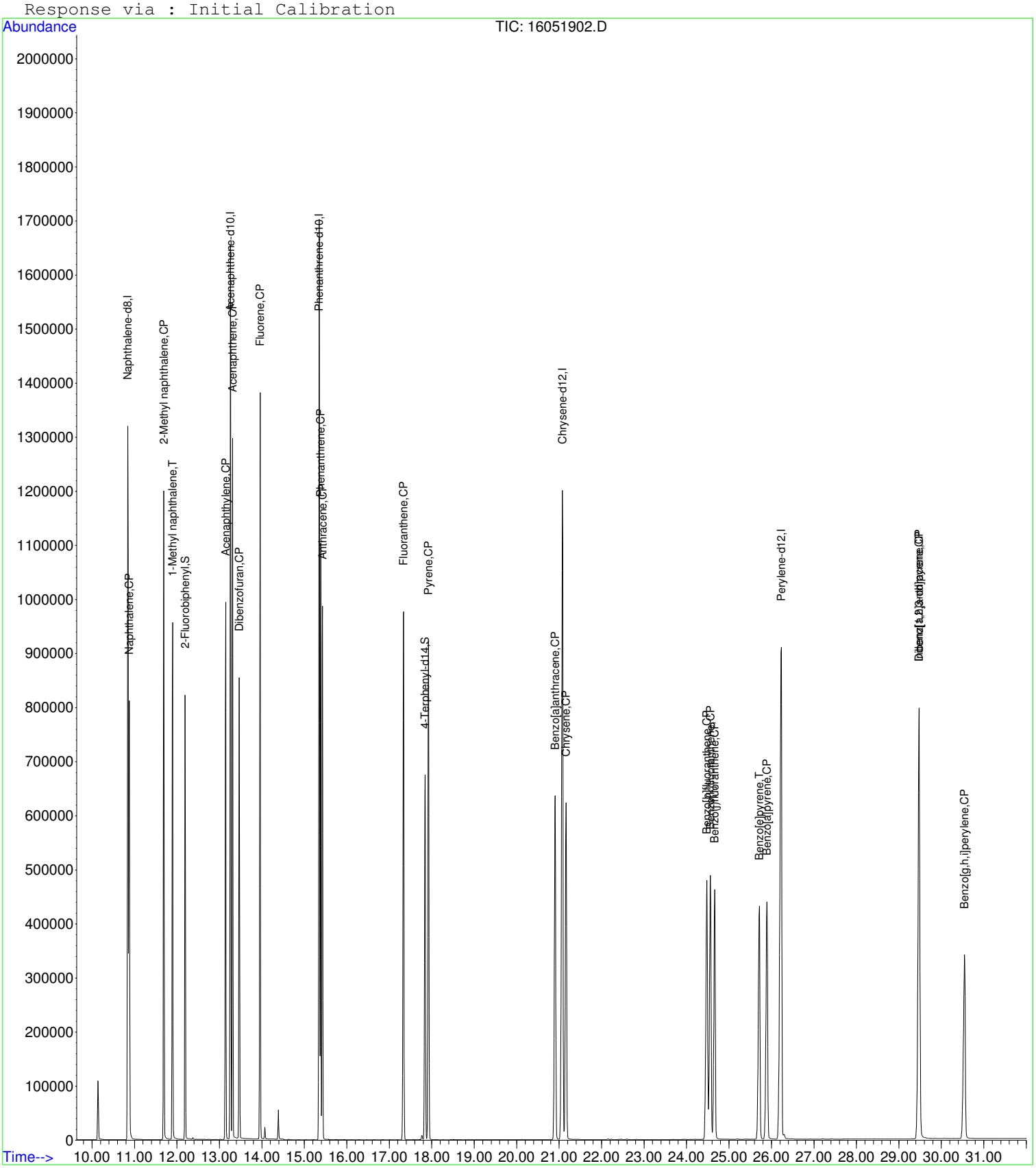
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1677320	4000.00	ug/kg	145
5) Acenaphthene-d10	13.26	164	1005196	4000.00	ug/kg	87
11) Phenanthrene-d10	15.35	188	1855983	4000.00	ug/kg	91
17) Chrysene-d12	21.08	240	2083434	4000.00	ug/kg	92
20) Perylene-d12	26.23	264	1889608	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	608187	2074.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.85%		
16) 4-Terphenyl-d14	17.84	244	891704	1857.04	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	46.43%		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	804931	1918.51	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	584764	1577.85	ug/kg	98
4) 1-Methyl naphthalene	11.90	142	519512	1530.56	ug/kg	99
6) Dibenzofuran	13.47	168	730659	1939.44	ug/kg	98
8) Acenaphthylene	13.15	152	904454	2089.30	ug/kg	99
9) Acenaphthene	13.31	154	526263	1958.59	ug/kg	98
10) Fluorene	13.96	166	657903	2016.14	ug/kg	99
12) Phenanthrene	15.38	178	917003	1878.75	ug/kg	99
13) Anthracene	15.43	178	846051	1831.34	ug/kg	100
14) Fluoranthene	17.34	202	984079	1948.31	ug/kg	99
15) Pyrene	17.92	202	992704	1892.01	ug/kg	99
18) Benzo[a]anthracene	20.91	228	955901	1958.42	ug/kg	99
19) Chrysene	21.16	228	867614	1839.73	ug/kg	100
21) Benzo[b]fluoranthene	24.48	252	967036	1941.70	ug/kg	100
22) Benzo[k]fluoranthene	24.56	252	898916	1924.03	ug/kg	100
23) Benzo(j)fluoranthene	24.66	252	791282	1901.29	ug/kg	99
24) Benzo[e]pyrene	25.72	252	826949	1854.07	ug/kg	100
25) Benzo[a]pyrene	25.89	252	863815	1895.25	ug/kg	100
26) Dibenz[a,h]anthracene	29.48	278	760092	1831.15	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.48	276	878679	1774.44	ug/kg	97
28) Benzo[g,h,i]perylene	30.54	276	707526	1832.33	ug/kg	100

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051902.D Vial: 2
Acq On : 19 May 2016 9:03 am Operator:
Sample : ICV-160519 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:26 2016 Quant Results File: PP160421.RES

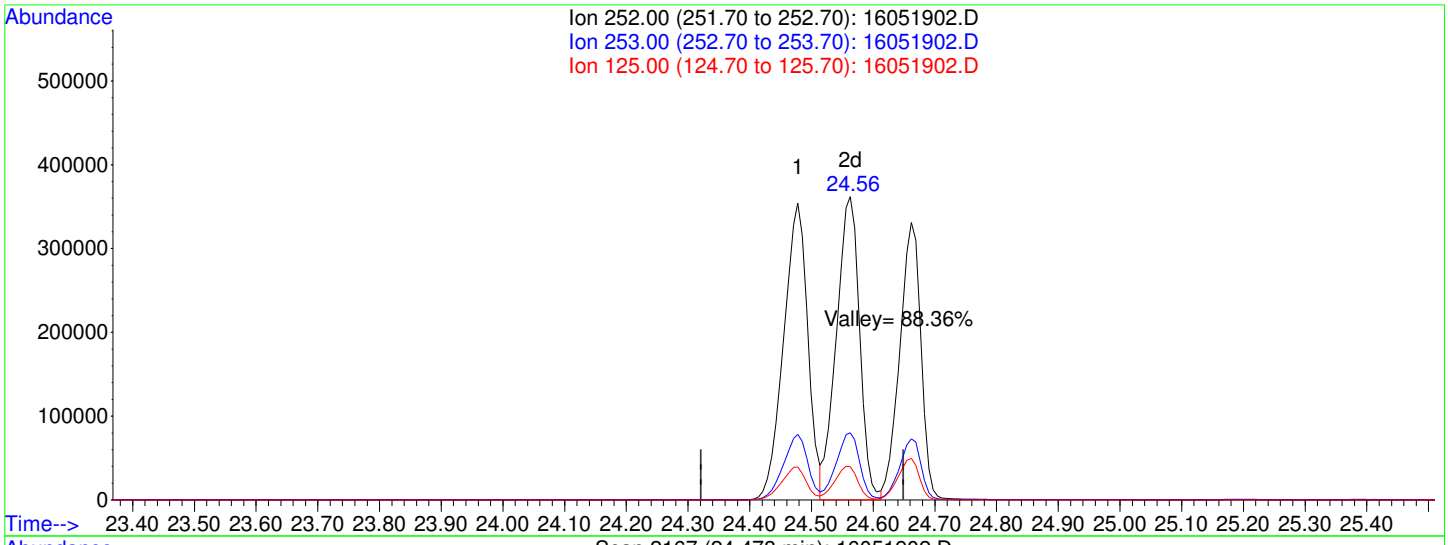
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

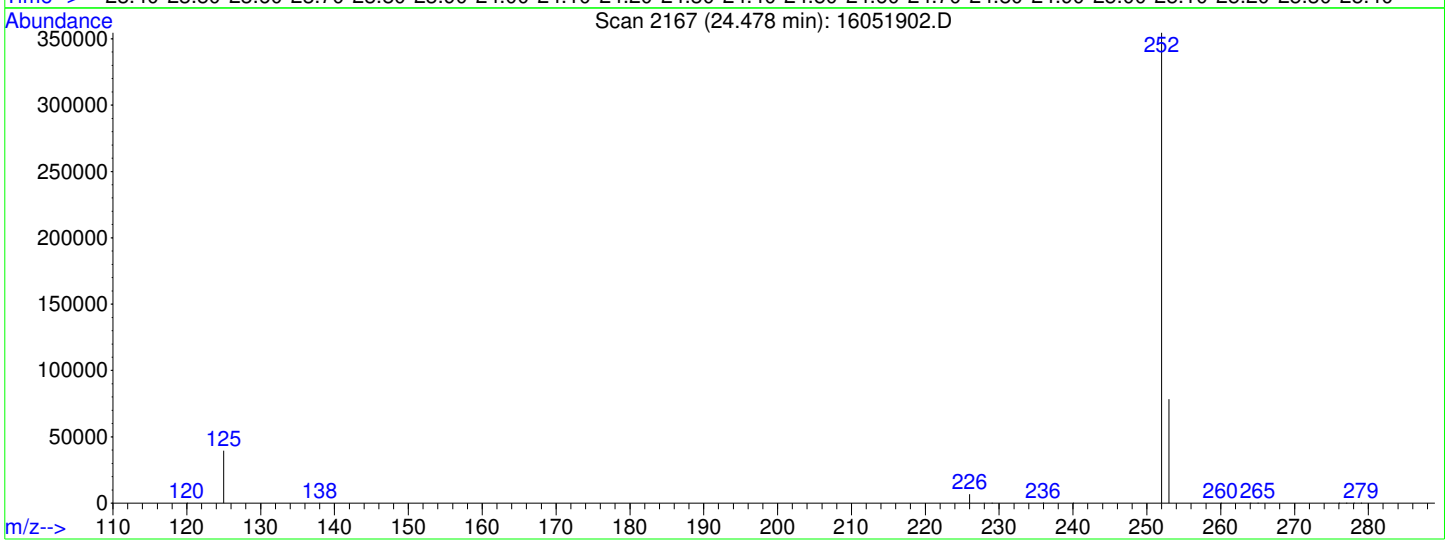


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160519\16051902.D Vial: 2
Acq On : 19 May 2016 9:03 am Operator:
Sample : ICV-160519 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 9:35 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051902.D

(21) Benzo[b]fluoranthene (CP)

24.48min 1941.70ug/kg

response 967036

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	22.00
125.00	11.00	11.13
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051903.D Vial: 3
Acq On : 19 May 2016 9:43 am Operator:
Sample : LCS-75161 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:26 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

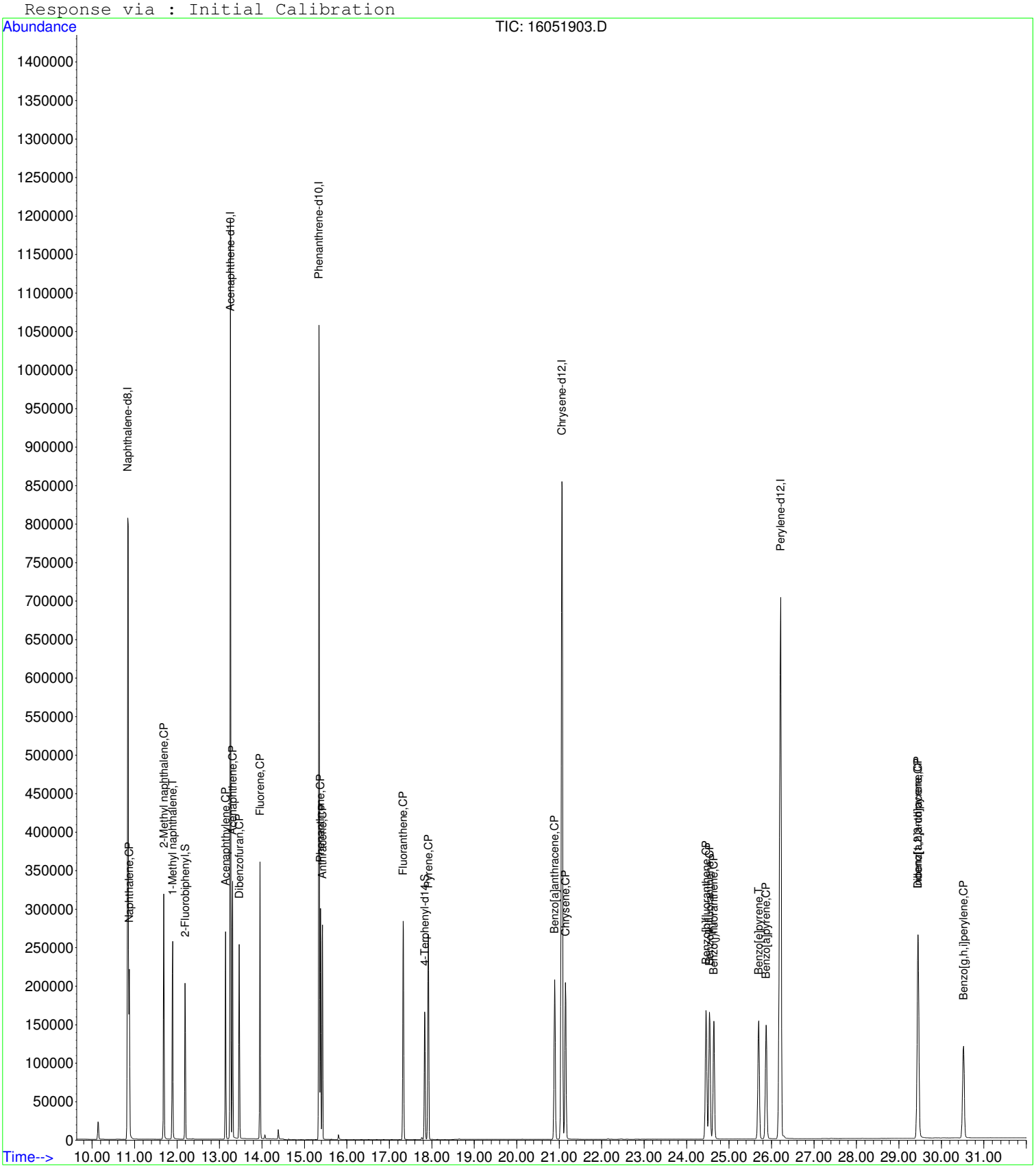
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1157322	4000.00	ug/kg	100
5) Acenaphthene-d10	13.25	164	668607	4000.00	ug/kg	58
11) Phenanthrene-d10	15.34	188	1121260	4000.00	ug/kg	55
17) Chrysene-d12	21.07	240	1425278	4000.00	ug/kg	63
20) Perylene-d12	26.22	264	1381184	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	159318	816.86	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.42%#			
16) 4-Terphenyl-d14	17.83	244	212928	734.01	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.35%#			
Target Compounds						Qvalue
2) Naphthalene	10.88	128	220416	761.40	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	163361	638.85	ug/kg	98
4) 1-Methyl naphthalene	11.90	142	144880	618.62	ug/kg	100
6) Dibenzofuran	13.46	168	211523	844.11	ug/kg	99
8) Acenaphthylene	13.15	152	246825	857.20	ug/kg	99
9) Acenaphthene	13.31	154	144811	810.26	ug/kg	98
10) Fluorene	13.96	166	176571	813.50	ug/kg	99
12) Phenanthrene	15.38	178	243636	826.24	ug/kg	99
13) Anthracene	15.42	178	236241	846.44	ug/kg	99
14) Fluoranthene	17.33	202	282979	927.37	ug/kg	99
15) Pyrene	17.92	202	286420	903.60	ug/kg	99
18) Benzo[a]anthracene	20.89	228	298623	894.33	ug/kg	99
19) Chrysene	21.15	228	275712	854.60	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	316012	868.09	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	300077	878.71	ug/kg	100
23) Benzo(j)fluoranthene	24.64	252	264483	869.43	ug/kg	98
24) Benzo[e]pyrene	25.70	252	285722	876.42	ug/kg	99
25) Benzo[a]pyrene	25.88	252	276692	830.54	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	247525	815.82	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.46	276	287274	793.68	ug/kg	94
28) Benzo[g,h,i]perylene	30.52	276	236725	838.74	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051903.D Vial: 3
Acq On : 19 May 2016 9:43 am Operator:
Sample : LCS-75161 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:26 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051904.D Vial: 4
Acq On : 19 May 2016 10:27 am Operator:
Sample : MB-75161 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

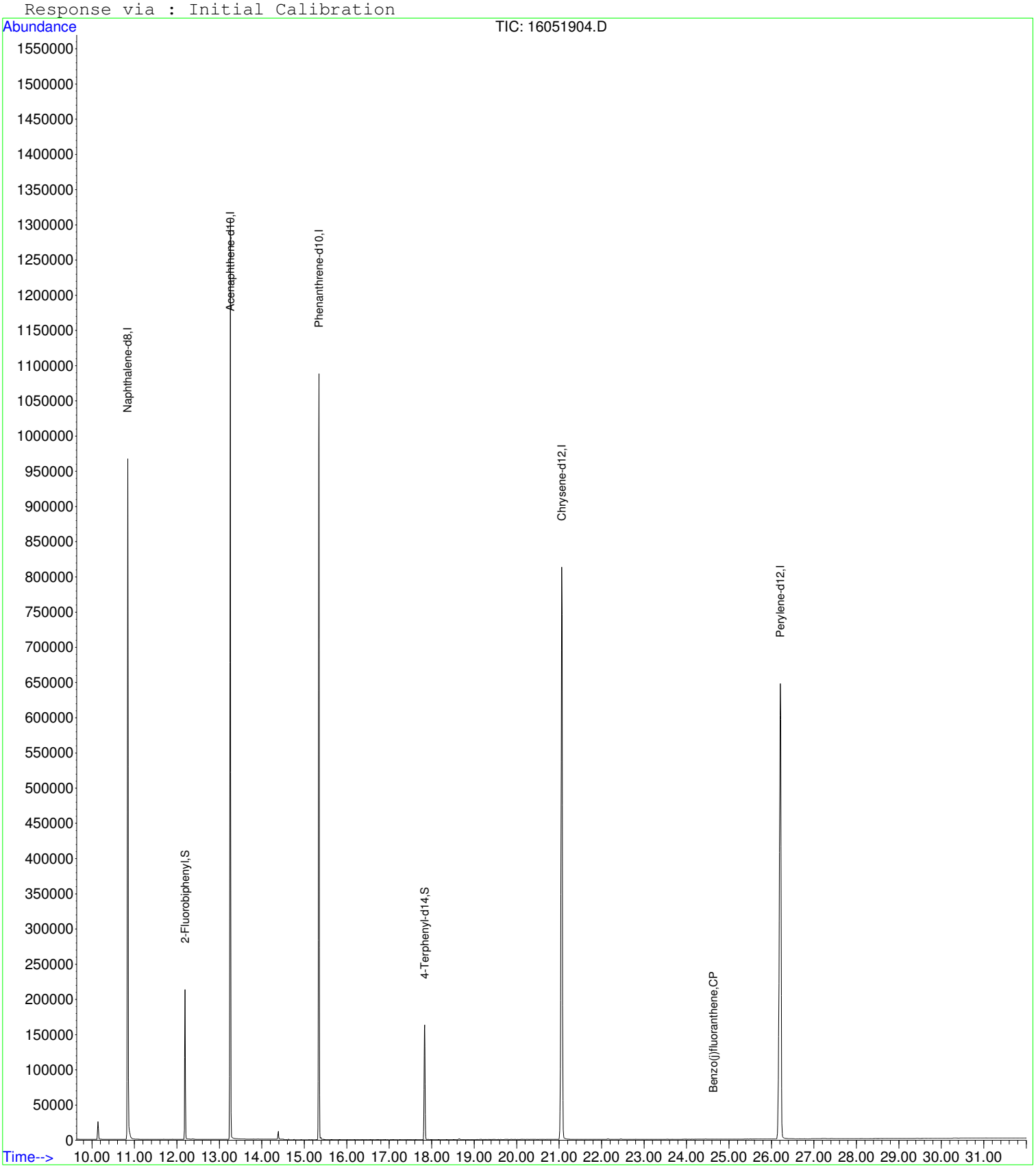
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1129556	4000.00	ug/kg	97
5) Acenaphthene-d10	13.26	164	662017	4000.00	ug/kg	58
11) Phenanthrene-d10	15.35	188	1130851	4000.00	ug/kg	55
17) Chrysene-d12	21.06	240	1333696	4000.00	ug/kg	59
20) Perylene-d12	26.21	264	1250949	4000.00	ug/kg	61
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	157028	813.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.33%#			
16) 4-Terphenyl-d14	17.84	244	209995	717.76	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 17.94%#			
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.63	252	215	0.78	ug/kg#	44

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051904.D Vial: 4
Acq On : 19 May 2016 10:27 am Operator:
Sample : MB-75161 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051905.D Vial: 5
Acq On : 19 May 2016 11:07 am Operator:
Sample : 1605096-68A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:32 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

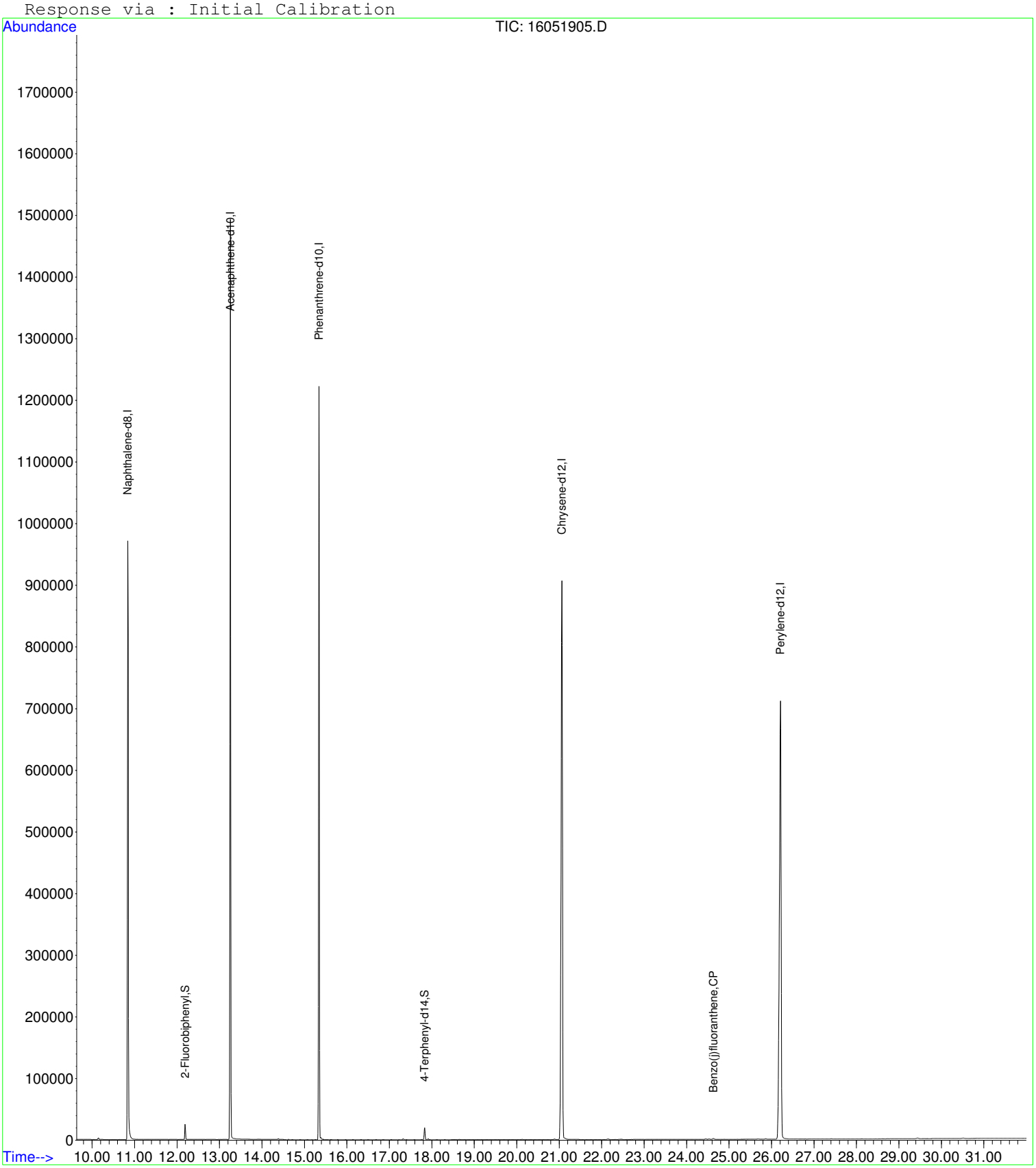
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1270526	4000.00	ug/kg	110
5) Acenaphthene-d10	13.26	164	778432	4000.00	ug/kg	68
11) Phenanthrene-d10	15.34	188	1293902	4000.00	ug/kg	63
17) Chrysene-d12	21.06	240	1501921	4000.00	ug/kg	66
20) Perylene-d12	26.21	264	1395430	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19825	87.31	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.18%#			
16) 4-Terphenyl-d14	17.83	244	25235	75.38	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.88%#			
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.63	252	2259	7.35	ug/kg	96

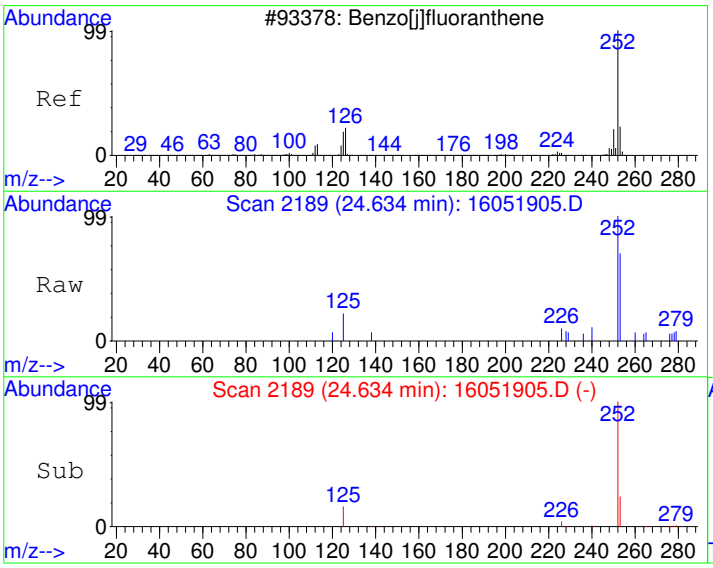
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051905.D Vial: 5
Acq On : 19 May 2016 11:07 am Operator:
Sample : 1605096-68A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:32 2016 Quant Results File: PP160421.RES

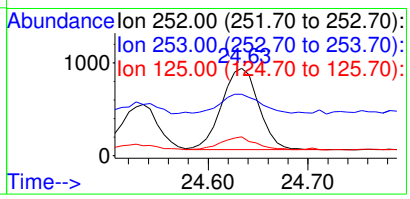
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration





#23
Benzo(j)fluoranthene
Concen: 7.35 ug/kg
RT: 24.63 min Scan# 2189
Delta R.T. -0.04 min
Lab File: 16051905.D
Acq: 19 May 2016 11:07 am

Tgt Ion:252	Resp:	2259	
Ion	Ratio	Lower	Upper
252	100		
253	24.3	2.1	42.1
125	16.1	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051906.D Vial: 6
Acq On : 19 May 2016 11:47 am Operator:
Sample : 1605096-69A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:32 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

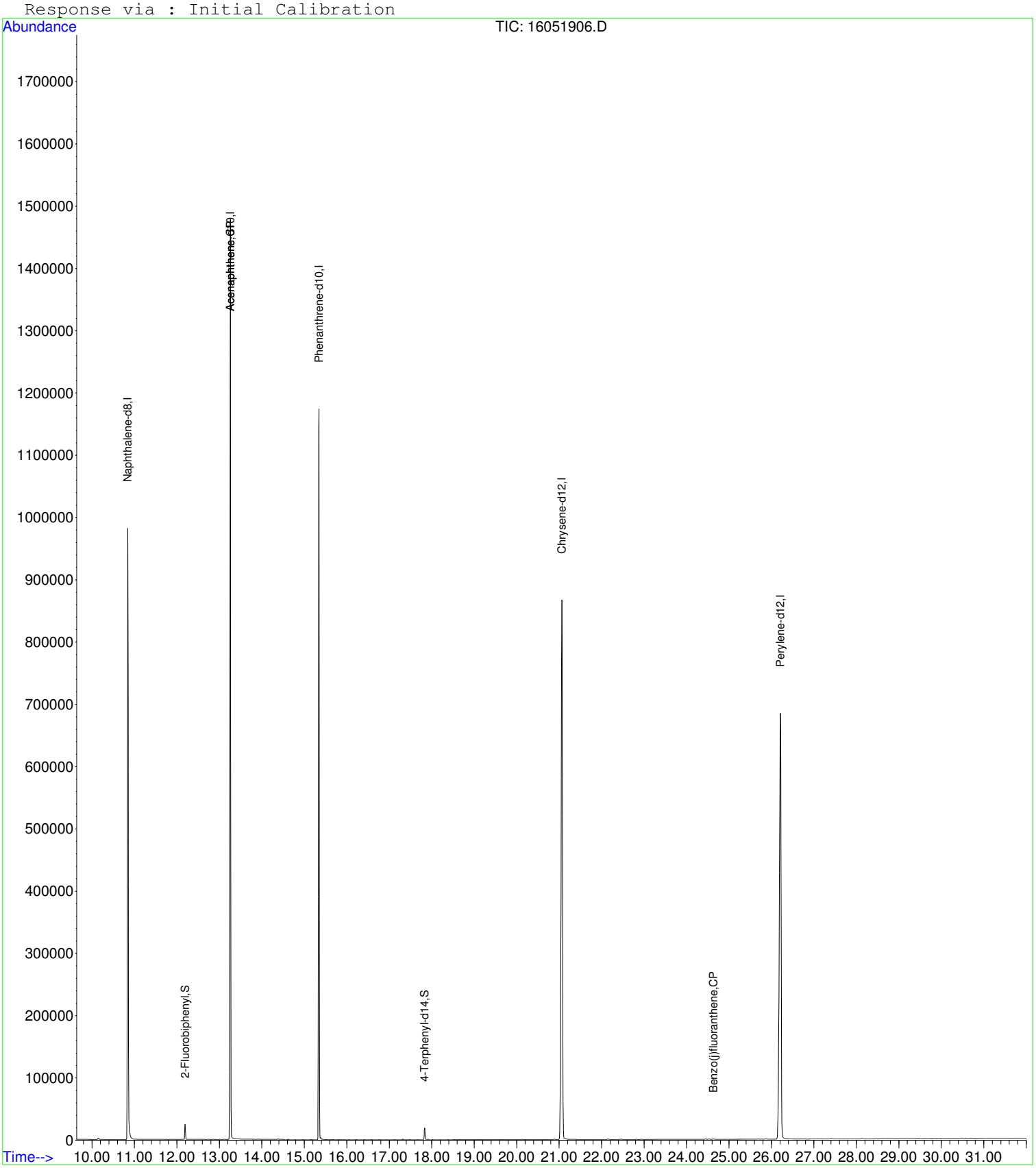
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1224422	4000.00	ug/kg	106
5) Acenaphthene-d10	13.26	164	765117	4000.00	ug/kg	66
11) Phenanthrene-d10	15.35	188	1279040	4000.00	ug/kg	63
17) Chrysene-d12	21.06	240	1460534	4000.00	ug/kg	64
20) Perylene-d12	26.21	264	1349734	4000.00	ug/kg	66
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	19406	86.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.17%#		
16) 4-Terphenyl-d14	17.84	244	24473	73.96	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#		
Target Compounds						Qvalue
9) Acenaphthene	13.26	154	2289	11.19	ug/kg#	8
23) Benzo(j)fluoranthene	24.63	252	953	3.21	ug/kg	89

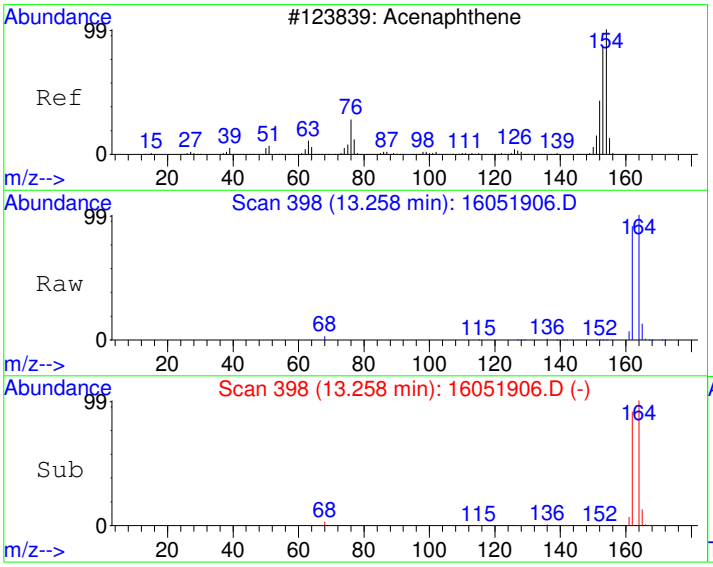
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051906.D Vial: 6
Acq On : 19 May 2016 11:47 am Operator:
Sample : 1605096-69A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:32 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

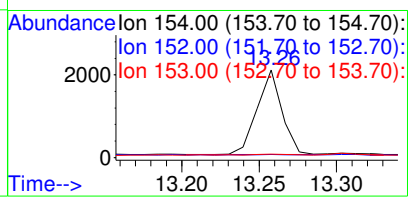


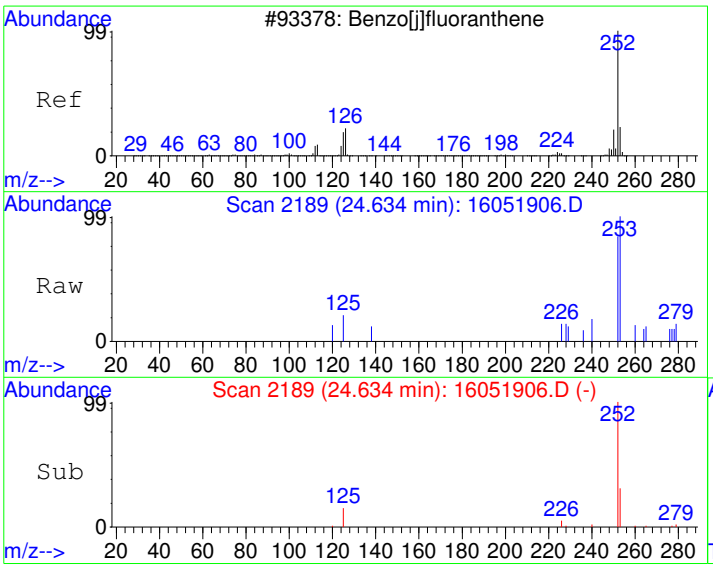


#9
Acenaphthene
Concen: 11.19 ug/kg
RT: 13.26 min Scan# 398
Delta R.T. -0.06 min
Lab File: 16051906.D
Acq: 19 May 2016 11:47 am

Tgt Ion:154 Resp: 2289

Ion	Ratio	Lower	Upper
154	100		
152	0.5	18.9	78.9#
153	1.2	75.2	135.2#

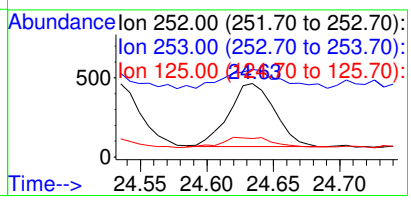




#23
Benzo(j)fluoranthene
Concen: 3.21 ug/kg
RT: 24.63 min Scan# 2189
Delta R.T. -0.04 min
Lab File: 16051906.D
Acq: 19 May 2016 11:47 am

Tgt Ion:252 Resp: 953

Ion	Ratio	Lower	Upper
252	100		
253	30.0	2.1	42.1
125	13.9	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051907.D Vial: 7
Acq On : 19 May 2016 12:26 pm Operator:
Sample : 1605096-70A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:32 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

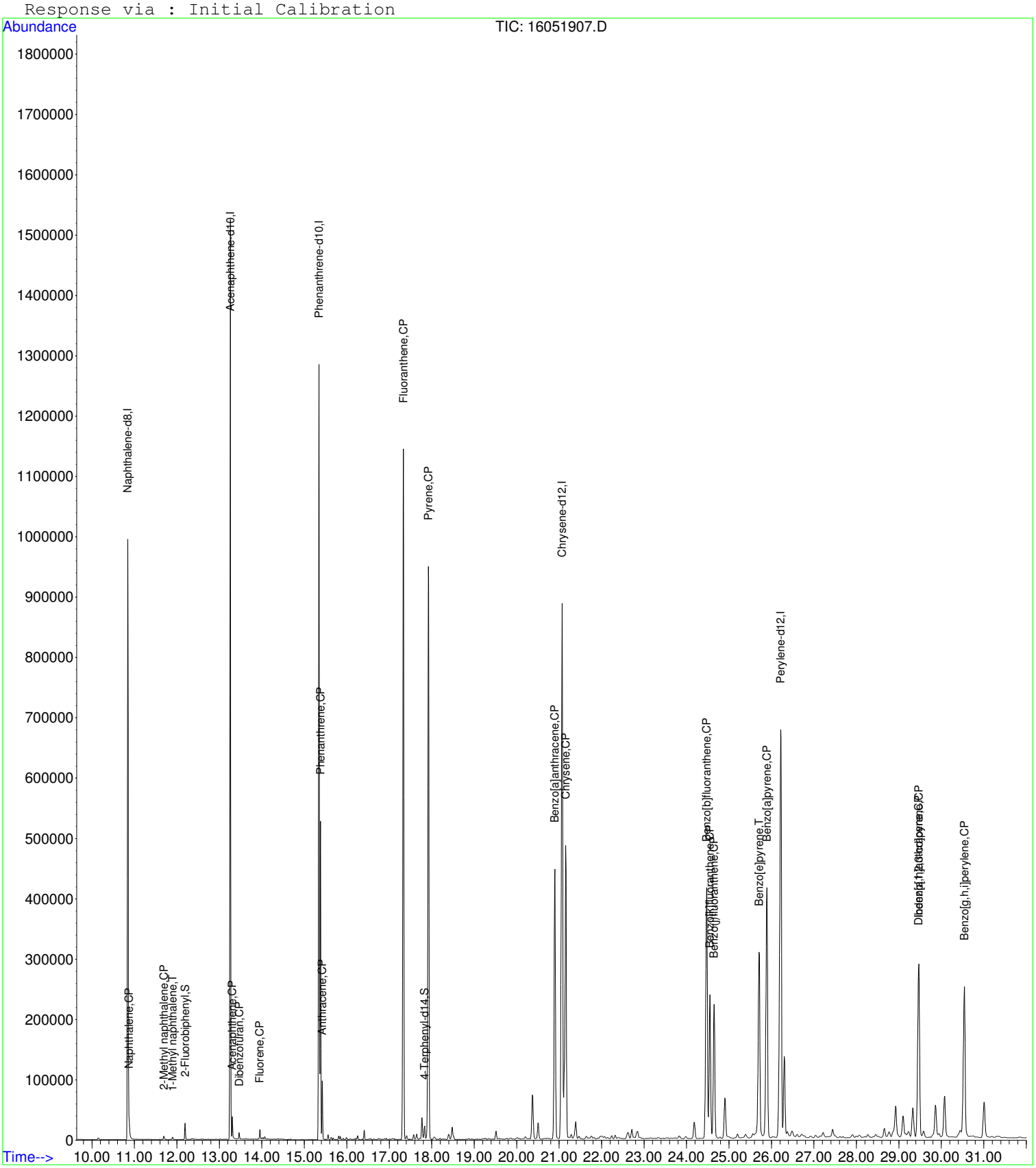
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1222889	4000.00	ug/kg	105
5) Acenaphthene-d10	13.26	164	768929	4000.00	ug/kg	67
11) Phenanthrene-d10	15.35	188	1359584	4000.00	ug/kg	67
17) Chrysene-d12	21.07	240	1452068	4000.00	ug/kg	64
20) Perylene-d12	26.22	264	1328900	4000.00	ug/kg	65
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	20259	90.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.26%#		
16) 4-Terphenyl-d14	17.84	244	27356	77.77	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	16202	52.97	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	3429	12.69	ug/kg	95
4) 1-Methyl naphthalene	11.90	142	2409	9.73	ug/kg	98
6) Dibenzofuran	13.47	168	9513	33.01	ug/kg	99
9) Acenaphthene	13.30	154	14336	69.75	ug/kg	97
10) Fluorene	13.95	166	8085	32.39	ug/kg	95
12) Phenanthrene	15.38	178	429107	1200.14	ug/kg	99
13) Anthracene	15.42	178	81443	240.65	ug/kg	99
14) Fluoranthene	17.33	202	1136211	3070.83	ug/kg	100
15) Pyrene	17.92	202	1019281	2651.95	ug/kg	100
18) Benzo[a]anthracene	20.90	228	660301	1941.01	ug/kg	99
19) Chrysene	21.16	228	771743	2347.97	ug/kg	99
21) Benzo[b]fluoranthene	24.48	252	836050	2386.99	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	390419	1188.24	ug/kg	99
23) Benzo(j)fluoranthene	24.65	252	361435	1234.89	ug/kg	91
24) Benzo[e]pyrene	25.71	252	593730	1892.85	ug/kg	100
25) Benzo[a]pyrene	25.89	252	786845	2454.79	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	118715	406.67	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.47	276	517416	1485.76	ug/kg	90
28) Benzo[g,h,i]perylene	30.54	276	507719	1869.67	ug/kg	98

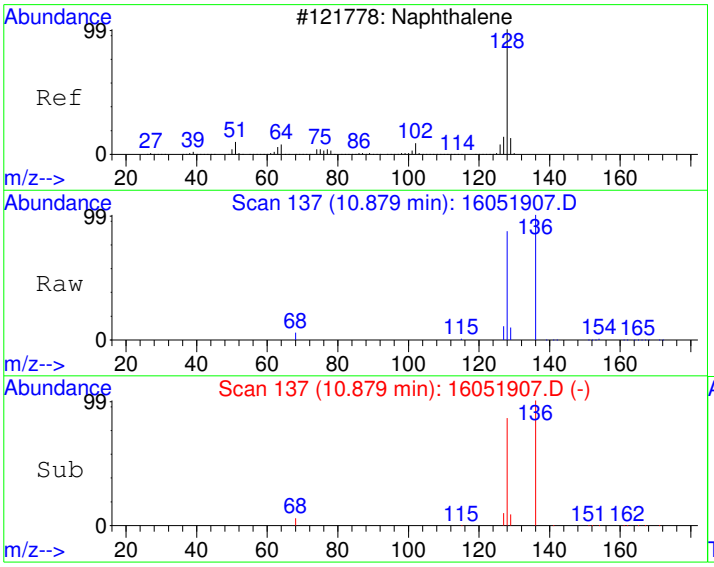
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051907.D Vial: 7
Acq On : 19 May 2016 12:26 pm Operator:
Sample : 1605096-70A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:32 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

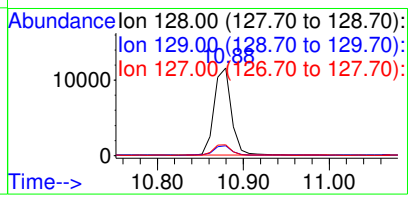


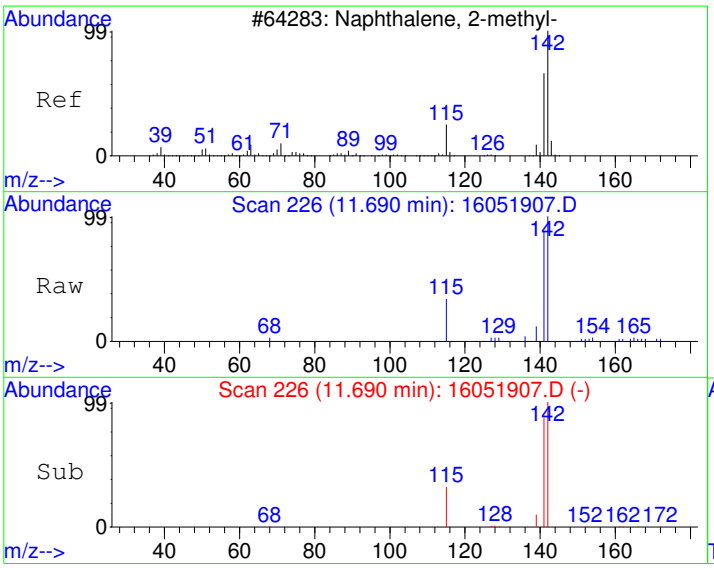


#2
Naphthalene
Concen: 52.97 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. 0.00 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:128 Resp: 16202

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	41.1
127	11.9	0.0	42.4

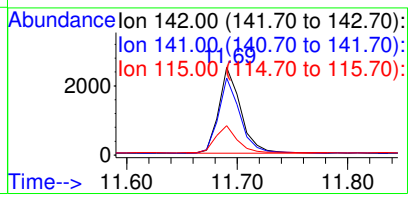


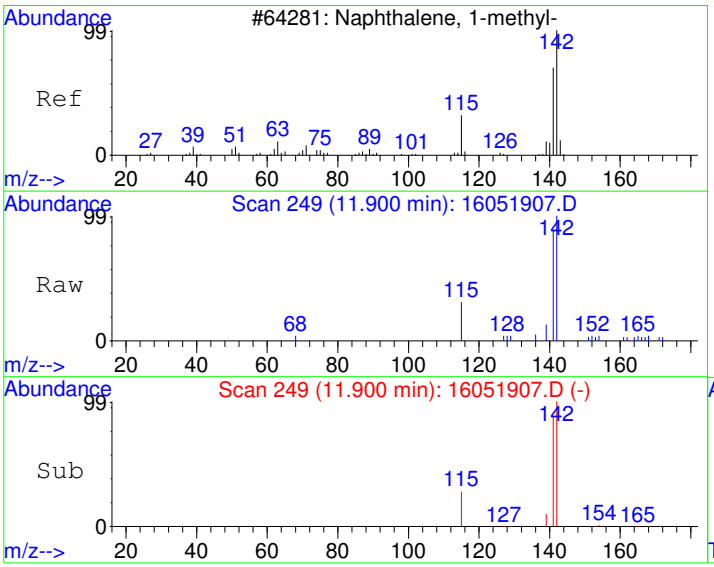


#3
2-Methyl naphthalene
Concen: 12.69 ug/kg
RT: 11.69 min Scan# 226
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:142 Resp: 3429

Ion	Ratio	Lower	Upper
142	100		
141	87.4	54.4	114.4
115	31.5	0.0	56.0

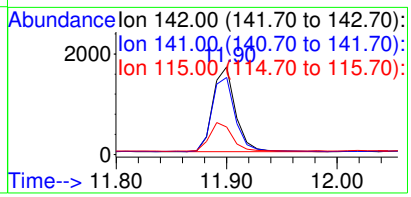


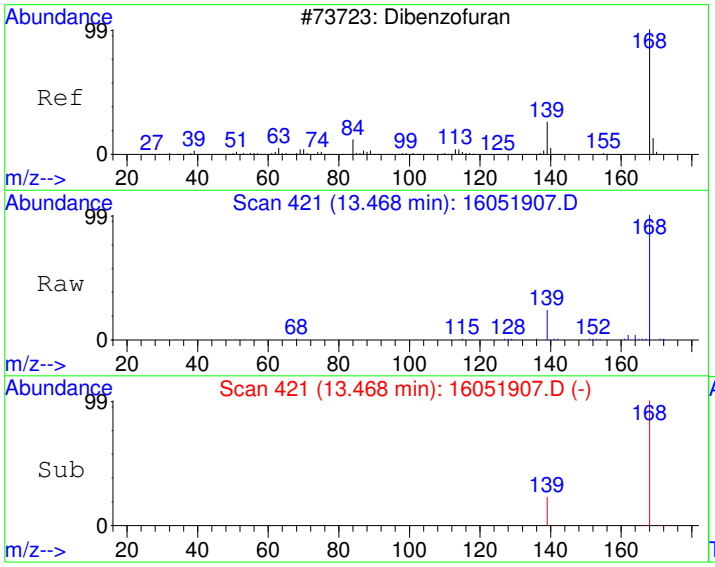


#4
1-Methyl naphthalene
Concen: 9.73 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. 0.00 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:142 Resp: 2409

Ion	Ratio	Lower	Upper
142	100		
141	87.5	56.5	116.5
115	28.5	0.0	55.0

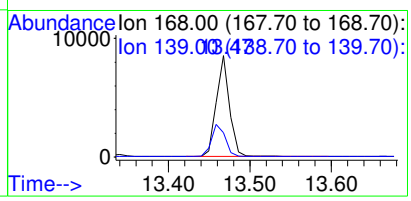


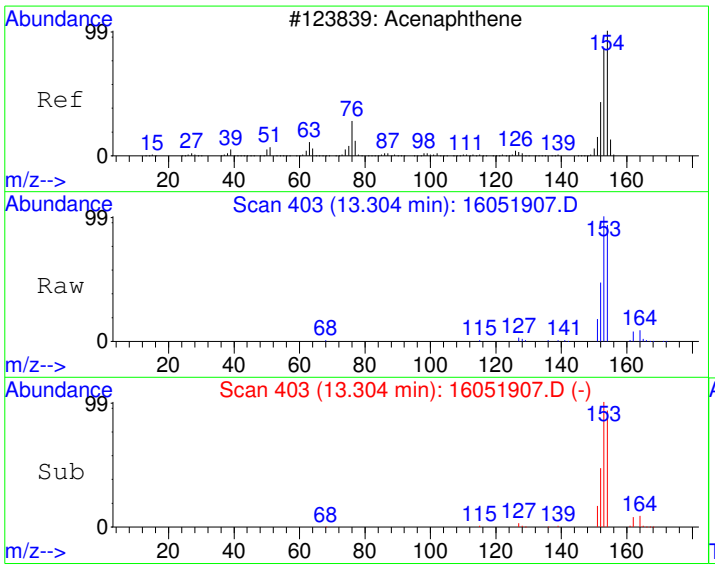


#6
Dibenzofuran
Concen: 33.01 ug/kg
RT: 13.47 min Scan# 421
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:168 Resp: 9513

Ion	Ratio	Lower	Upper
168	100		
139	34.2	27.0	40.4

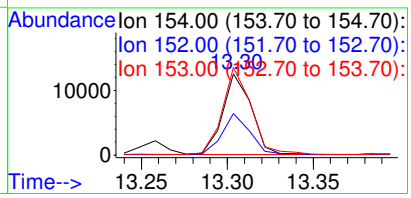


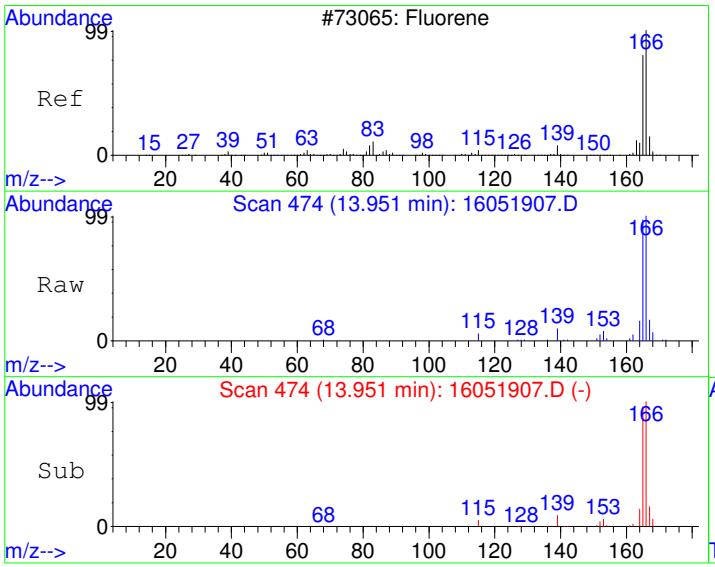


#9
Acenaphthene
Concen: 69.75 ug/kg
RT: 13.30 min Scan# 403
Delta R.T. -0.02 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:154 Resp: 14336

Ion	Ratio	Lower	Upper
154	100		
152	50.8	18.9	78.9
153	107.8	75.2	135.2

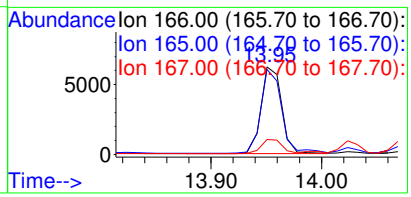


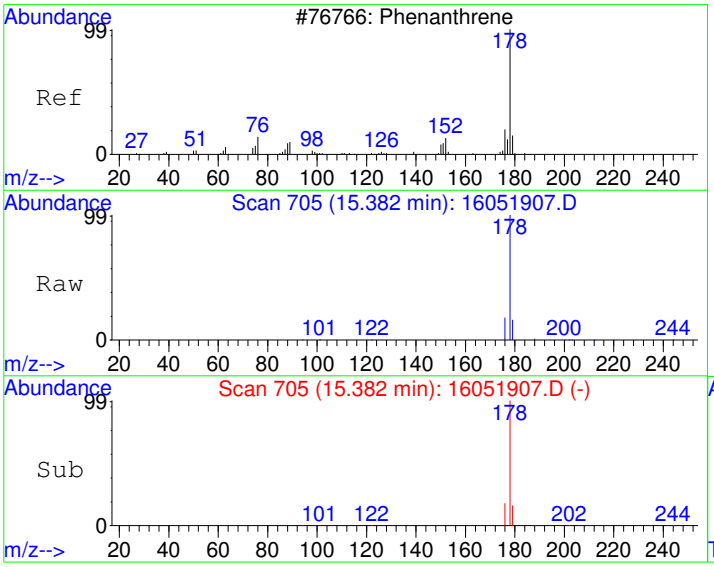


#10
Fluorene
Concen: 32.39 ug/kg
RT: 13.95 min Scan# 474
Delta R.T. -0.02 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:166 Resp: 8085

Ion	Ratio	Lower	Upper
166	100		
165	96.4	61.8	121.8
167	16.1	0.0	43.6

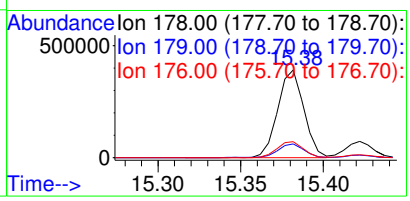


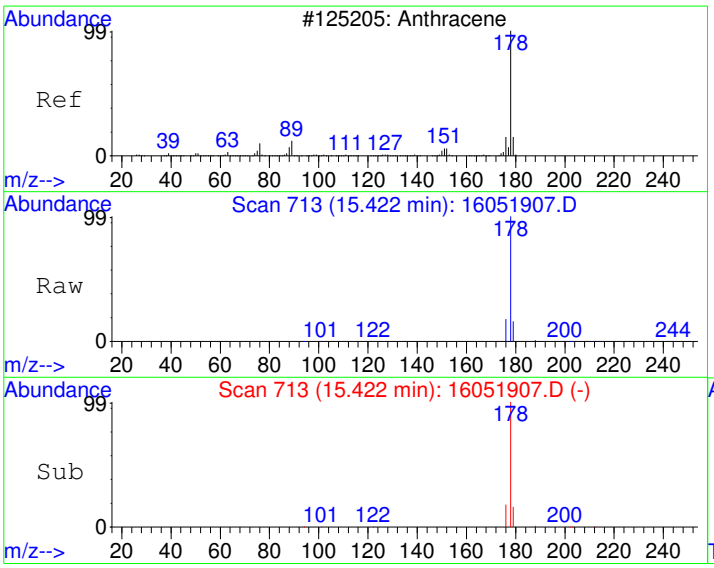


#12
Phenanthrene
Concen: 1200.14 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:178 Resp: 429107

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	45.9
176	18.1	0.0	48.5

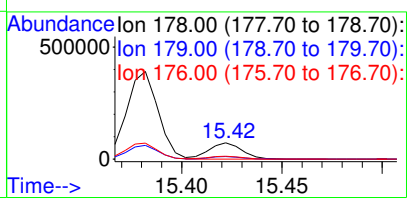


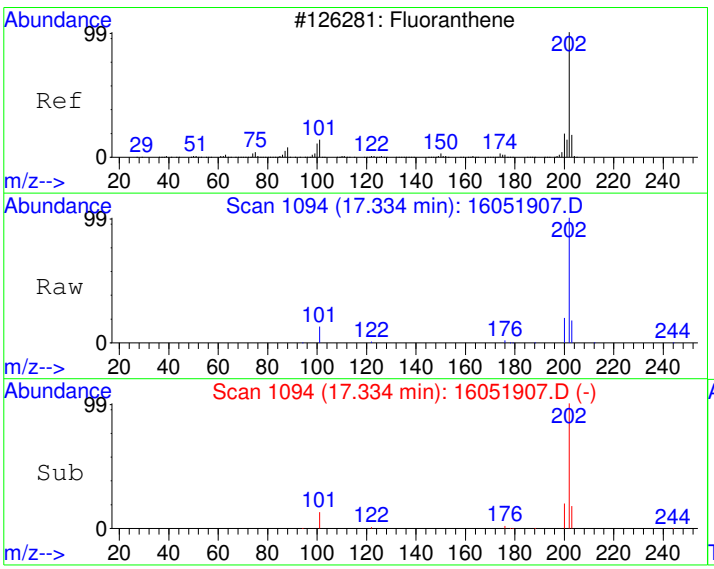


#13
Anthracene
Concen: 240.65 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:178 Resp: 81443

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	45.9
176	17.7	0.0	48.2

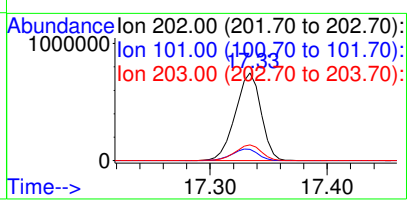


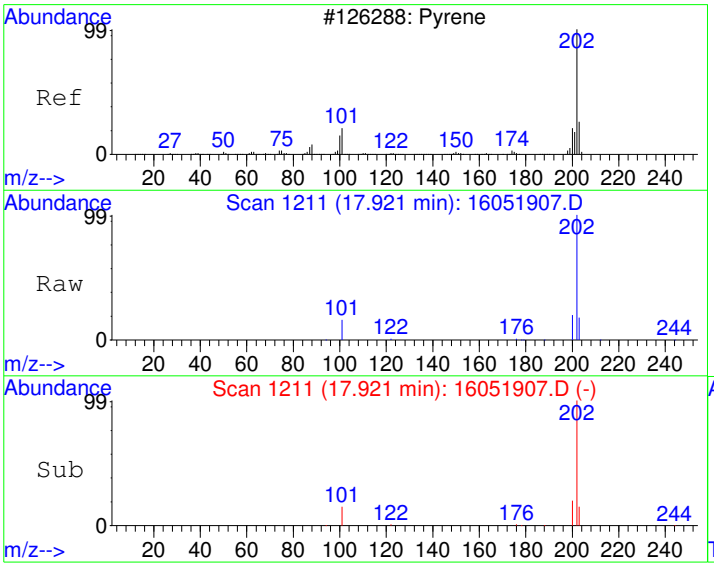


#14
Fluoranthene
Concen: 3070.83 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:202 Resp: 1136211

Ion	Ratio	Lower	Upper
202	100		
101	12.7	0.0	43.0
203	17.9	0.0	47.9

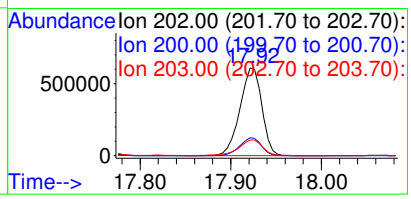


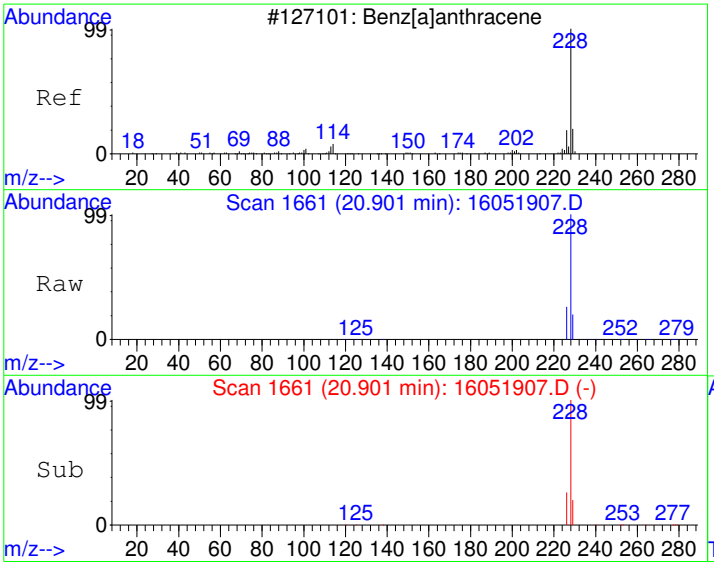


#15
Pyrene
Concen: 2651.95 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:202 Resp: 1019281

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	50.0
203	18.0	0.0	48.0

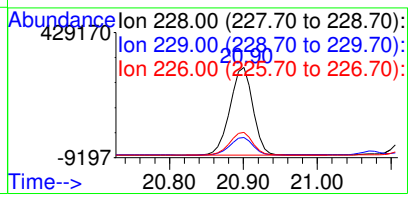


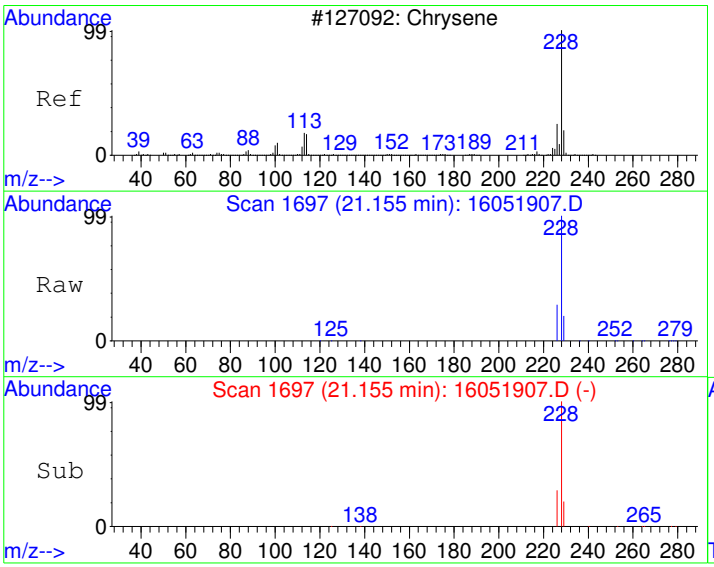


#18
Benzo[a]anthracene
Concen: 1941.01 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:228 Resp: 660301

Ion	Ratio	Lower	Upper
228	100		
229	20.1	0.0	50.1
226	25.7	0.0	55.2

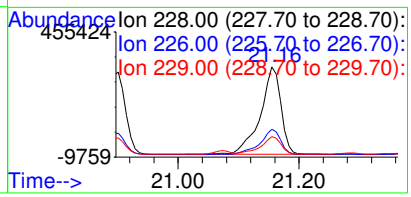


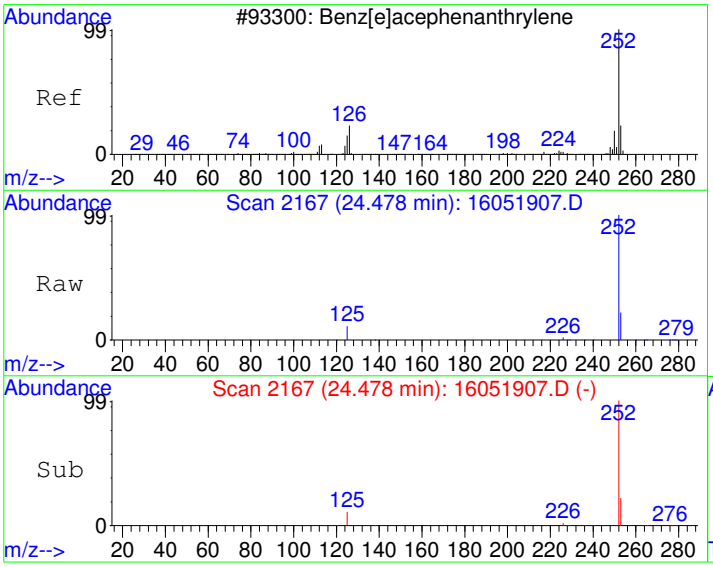


#19
Chrysene
Concen: 2347.97 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:228 Resp: 771743

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	20.2	0.0	50.1

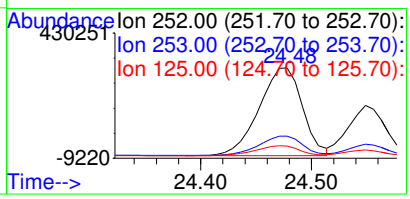


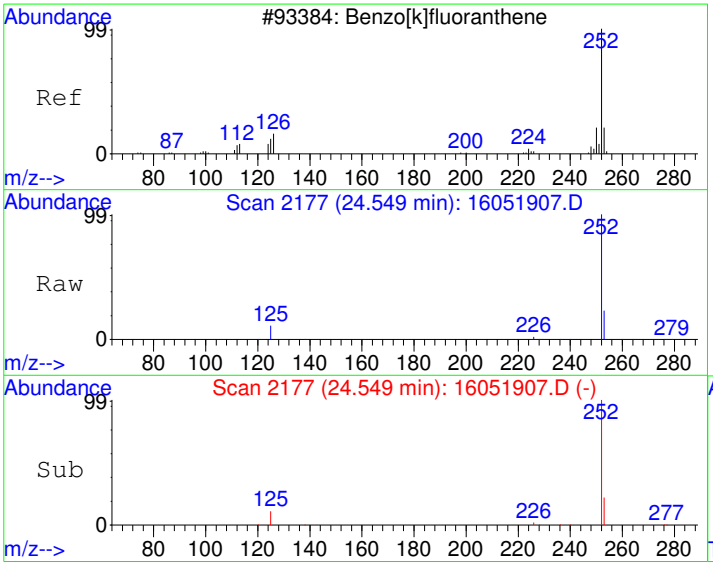


#21
Benzo[b]fluoranthene
Concen: 2386.99 ug/kg
RT: 24.48 min Scan# 2167
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:252 Resp: 836050

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	10.8	0.0	41.0

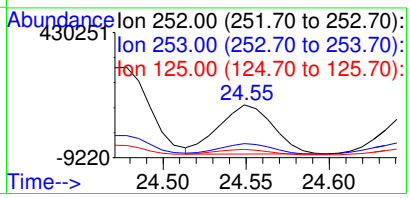


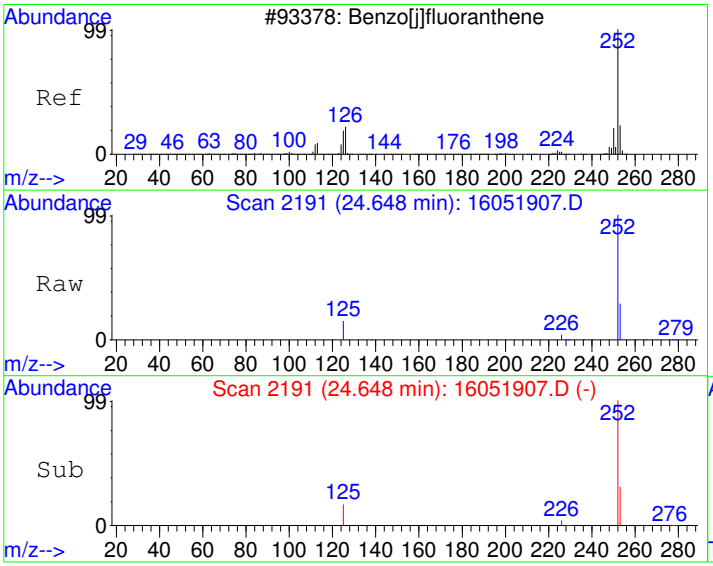


#22
Benzo[k]fluoranthene
Concen: 1188.24 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:252 Resp: 390419

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.1	42.1
125	11.2	0.0	31.3

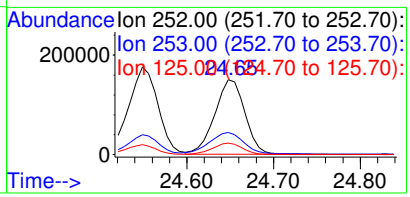


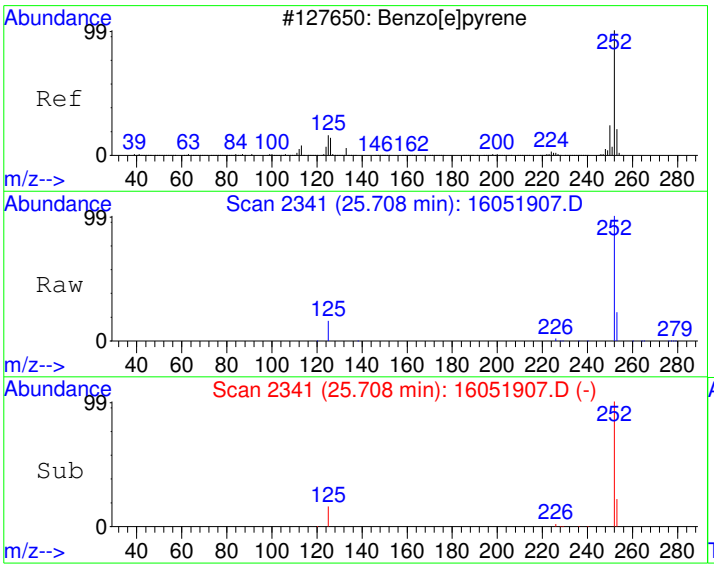


#23
Benzo(j)fluoranthene
Concen: 1234.89 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:252 Resp: 361435

Ion	Ratio	Lower	Upper
252	100		
253	28.9	2.1	42.1
125	15.3	0.0	34.4

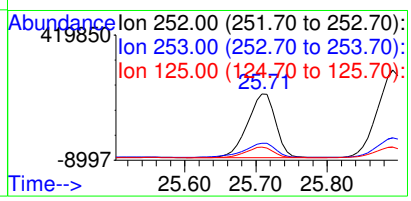


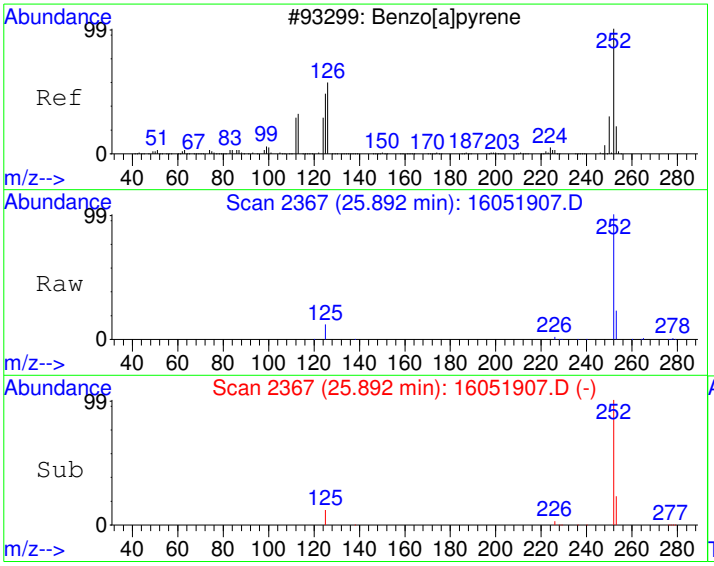


#24
Benzo[e]pyrene
Concen: 1892.85 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:252 Resp: 593730

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	16.4	0.0	36.1

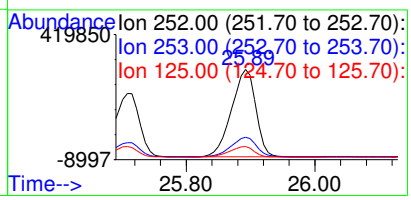


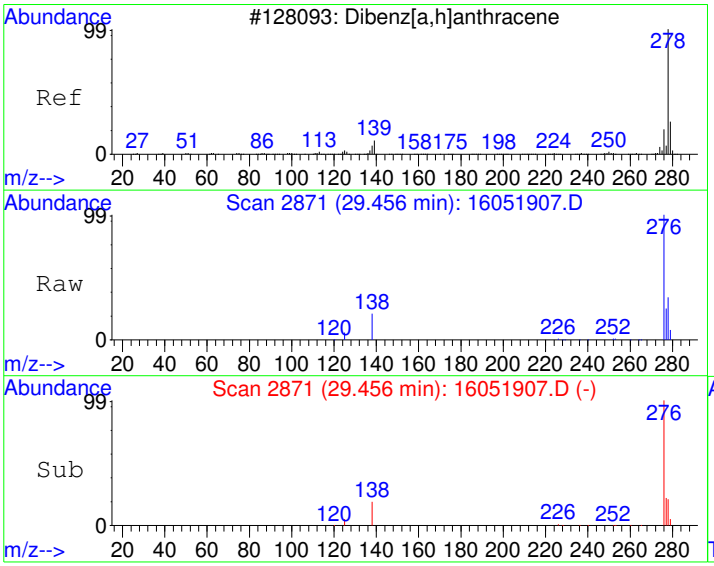


#25
Benzo[a]pyrene
Concen: 2454.79 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:252 Resp: 786845

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	12.0	0.0	31.7

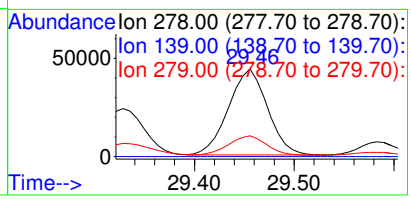


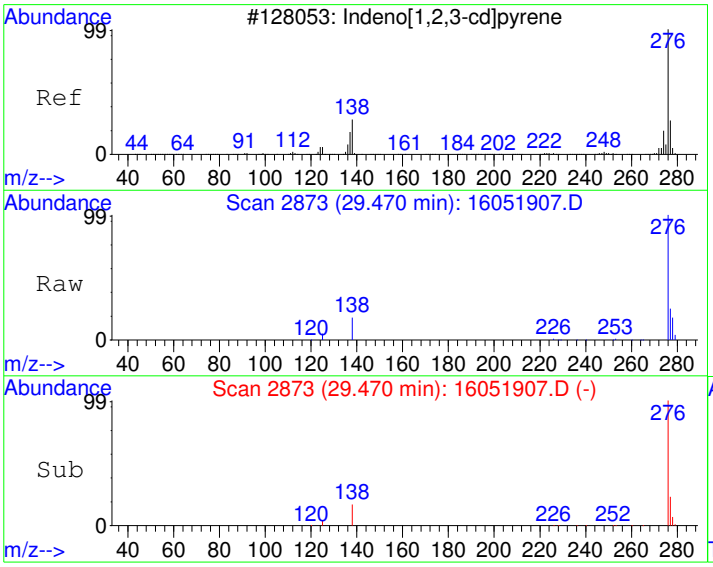


#26
Dibenz[a,h]anthracene
Concen: 406.67 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:278 Resp: 118715

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.8	4.2	44.2

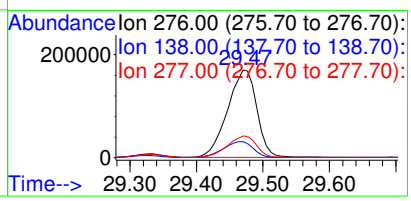


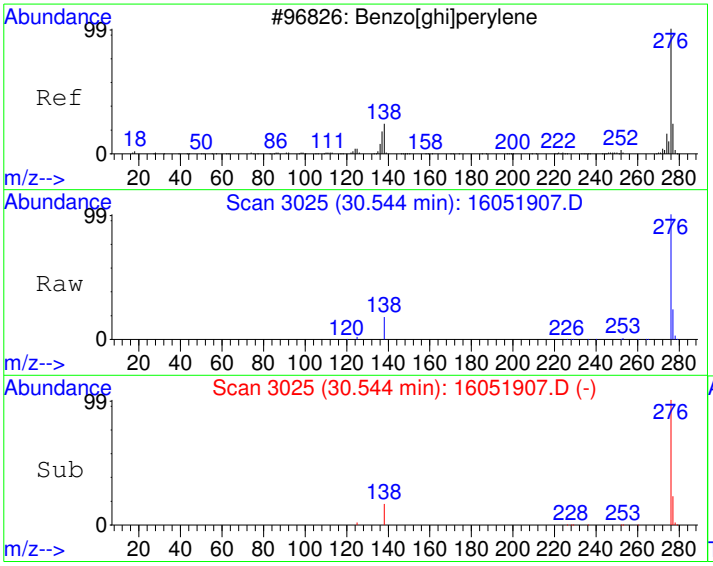


#27
Indeno[1,2,3-cd]pyrene
Concen: 1485.76 ug/kg
RT: 29.47 min Scan# 2873
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:276 Resp: 517416

Ion	Ratio	Lower	Upper
276	100		
138	18.3	6.7	46.7
277	24.5	5.8	45.8

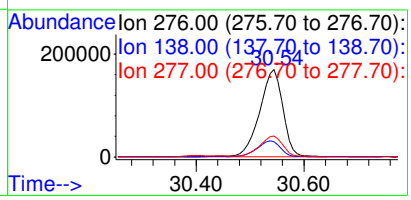




#28
Benzo[g,h,i]perylene
Concen: 1869.67 ug/kg
RT: 30.54 min Scan# 3025
Delta R.T. -0.01 min
Lab File: 16051907.D
Acq: 19 May 2016 12:26 pm

Tgt Ion:276 Resp: 507719

Ion	Ratio	Lower	Upper
276	100		
138	17.3	0.0	39.1
277	23.9	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051908.D Vial: 8
Acq On : 19 May 2016 1:06 pm Operator:
Sample : 1605096-71A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

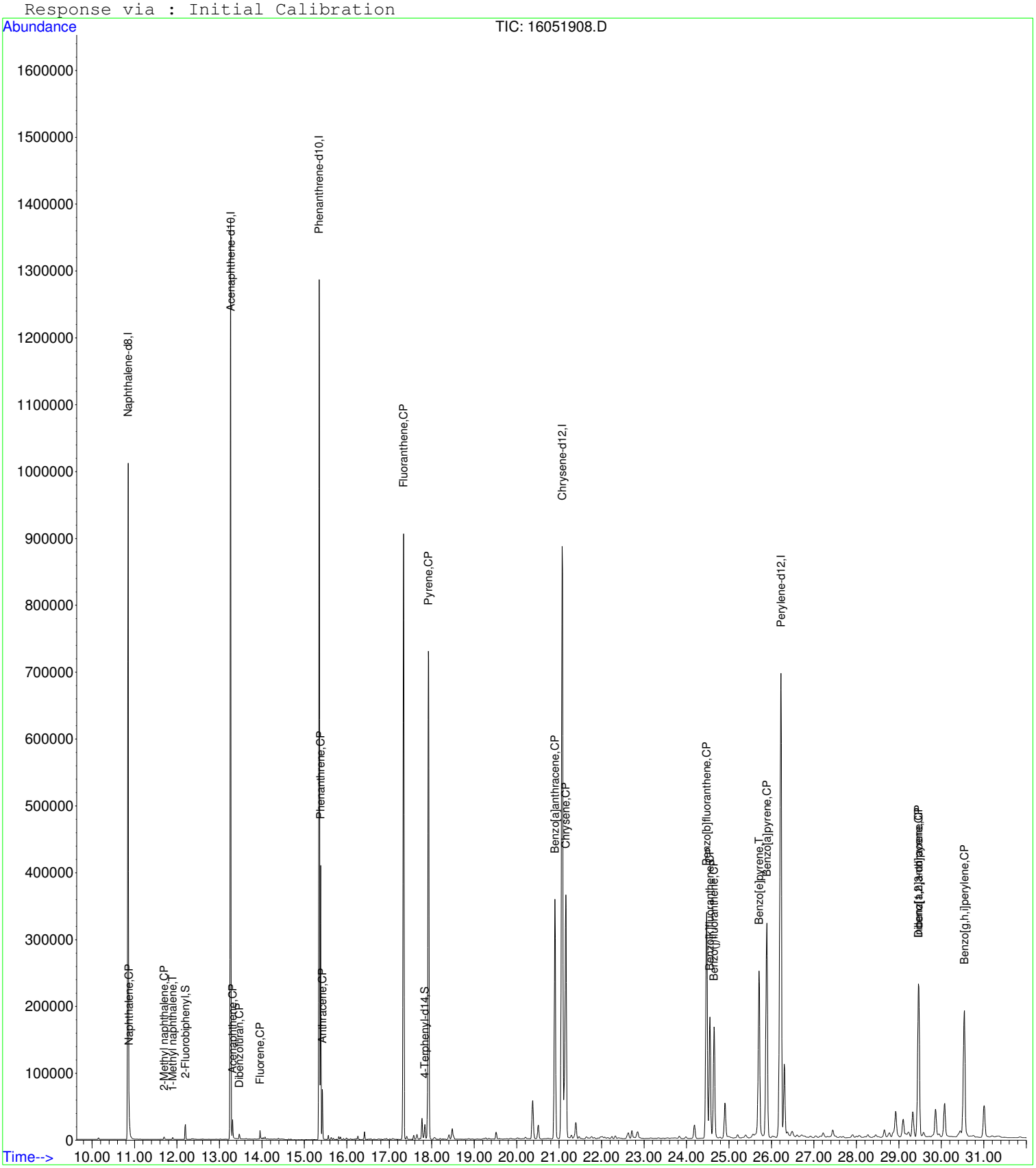
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1240828	4000.00	ug/kg	107
5) Acenaphthene-d10	13.26	164	790122	4000.00	ug/kg	69
11) Phenanthrene-d10	15.35	188	1388271	4000.00	ug/kg	68
17) Chrysene-d12	21.07	240	1495701	4000.00	ug/kg	66
20) Perylene-d12	26.22	264	1364296	4000.00	ug/kg	66
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19515	84.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#		
16) 4-Terphenyl-d14	17.84	244	26771	74.54	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	12723	40.99	ug/kg	99
3) 2-Methyl naphthalene	11.70	142	2444	8.91	ug/kg	99
4) 1-Methyl naphthalene	11.90	142	1738	6.92	ug/kg	91
6) Dibenzofuran	13.47	168	6743	22.77	ug/kg	99
9) Acenaphthene	13.31	154	10947	51.83	ug/kg	97
10) Fluorene	13.96	166	5820	22.69	ug/kg	99
12) Phenanthrene	15.38	178	330880	906.29	ug/kg	99
13) Anthracene	15.42	178	63152	182.75	ug/kg	99
14) Fluoranthene	17.33	202	908657	2405.08	ug/kg	99
15) Pyrene	17.92	202	811464	2067.63	ug/kg	100
18) Benzo[a]anthracene	20.90	228	522901	1492.27	ug/kg	99
19) Chrysene	21.16	228	603707	1783.15	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	645564	1795.32	ug/kg	100
22) Benzo[k]fluoranthene	24.55	252	304033	901.32	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	280114	932.21	ug/kg	90
24) Benzo[e]pyrene	25.71	252	456050	1416.19	ug/kg	100
25) Benzo[a]pyrene	25.89	252	619495	1882.55	ug/kg	99
26) Dibenz[a,h]anthracene	29.46	278	90163	300.85	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.47	276	396960	1110.30	ug/kg	89
28) Benzo[g,h,i]perylene	30.54	276	384726	1379.99	ug/kg	98

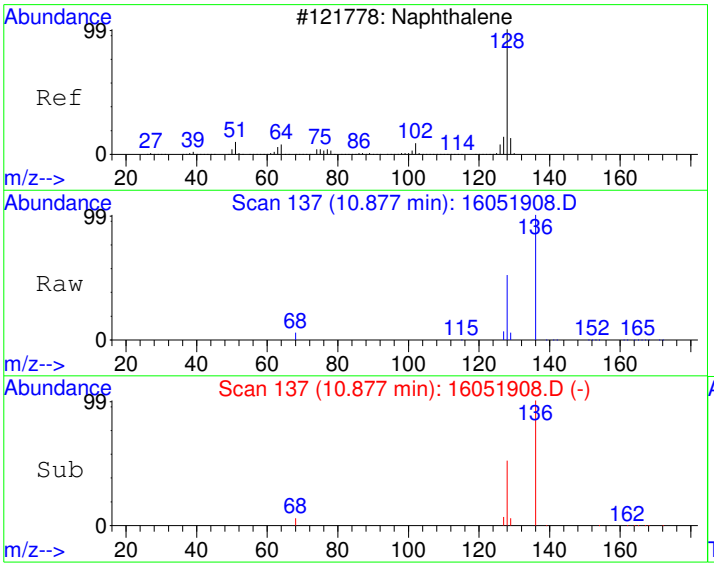
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051908.D Vial: 8
Acq On : 19 May 2016 1:06 pm Operator:
Sample : 1605096-71A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

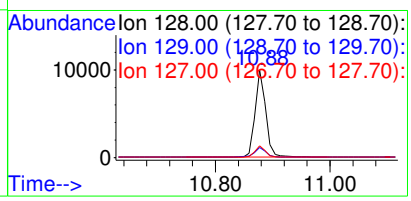


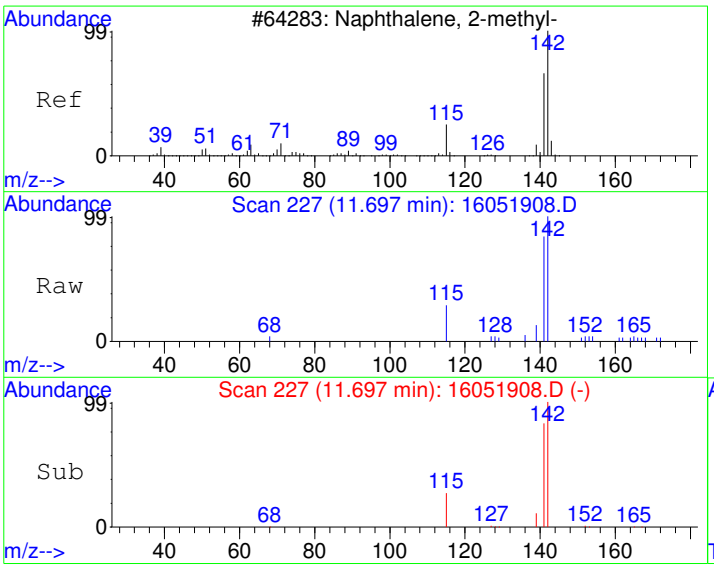


#2
Naphthalene
Concen: 40.99 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:128 Resp: 12723

Ion	Ratio	Lower	Upper
128	100		
129	10.9	0.0	41.1
127	12.8	0.0	42.4

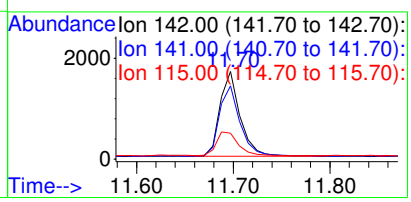


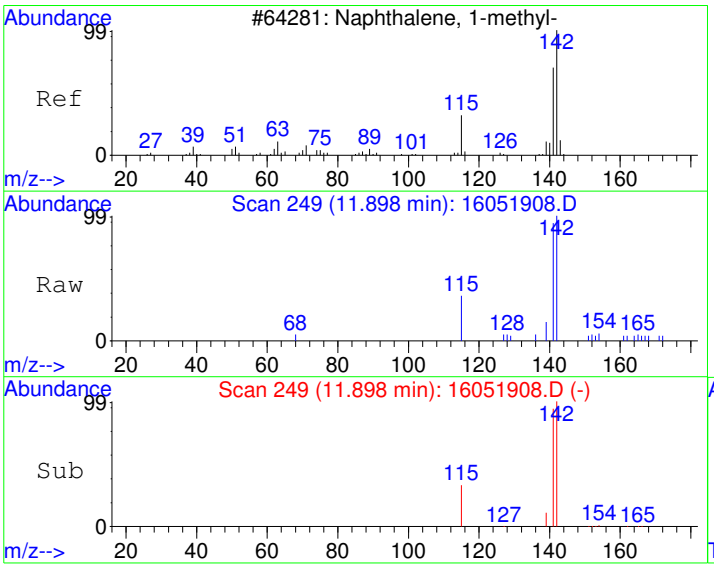


#3
2-Methyl naphthalene
Concen: 8.91 ug/kg
RT: 11.70 min Scan# 227
Delta R.T. -0.00 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:142 Resp: 2444

Ion	Ratio	Lower	Upper
142	100		
141	83.1	54.4	114.4
115	26.2	0.0	56.0

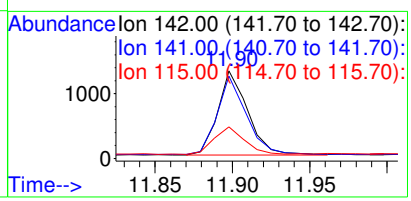


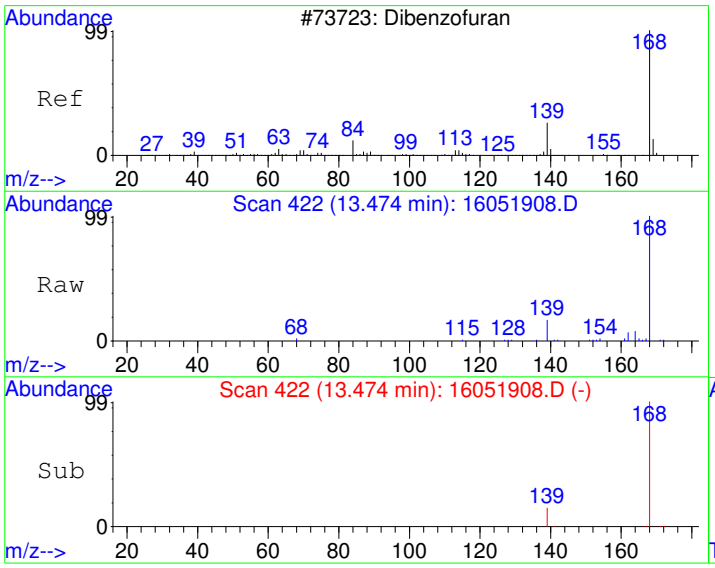


#4
1-Methyl naphthalene
Concen: 6.92 ug/kg
RT: 11.90 min Scan# 249
Delta R.T. -0.00 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:142 Resp: 1738

Ion	Ratio	Lower	Upper
142	100		
141	93.4	56.5	116.5
115	32.7	0.0	55.0

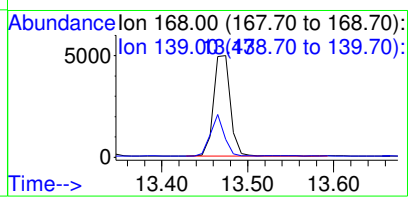


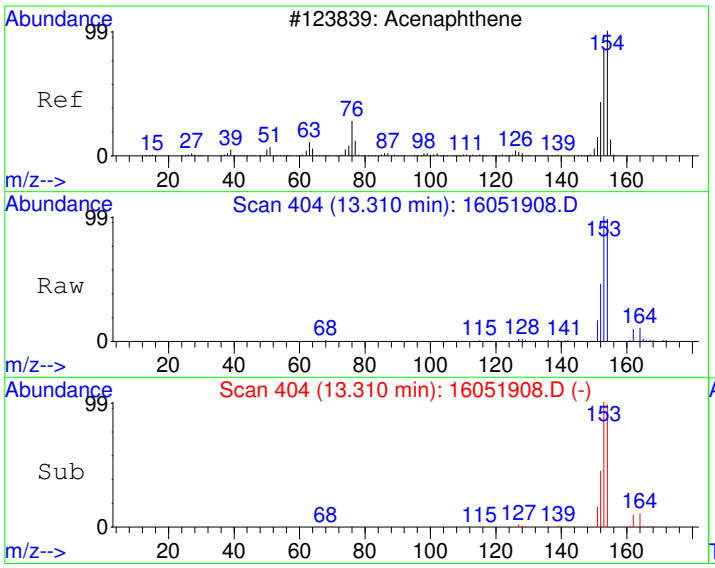


#6
Dibenzofuran
Concen: 22.77 ug/kg
RT: 13.47 min Scan# 422
Delta R.T. -0.00 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:168 Resp: 6743

Ion	Ratio	Lower	Upper
168	100		
139	34.6	27.0	40.4

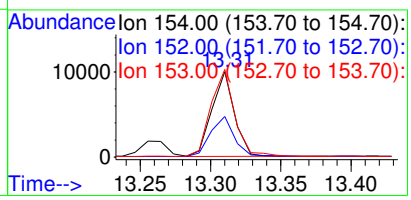


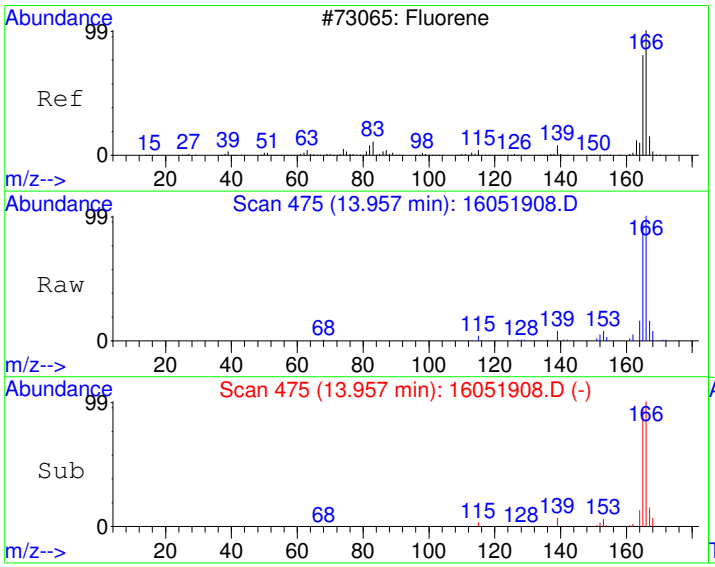


#9
Acenaphthene
Concen: 51.83 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:154 Resp: 10947

Ion	Ratio	Lower	Upper
154	100		
152	47.0	18.9	78.9
153	102.4	75.2	135.2

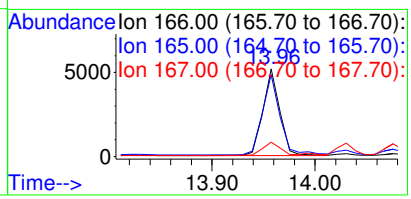


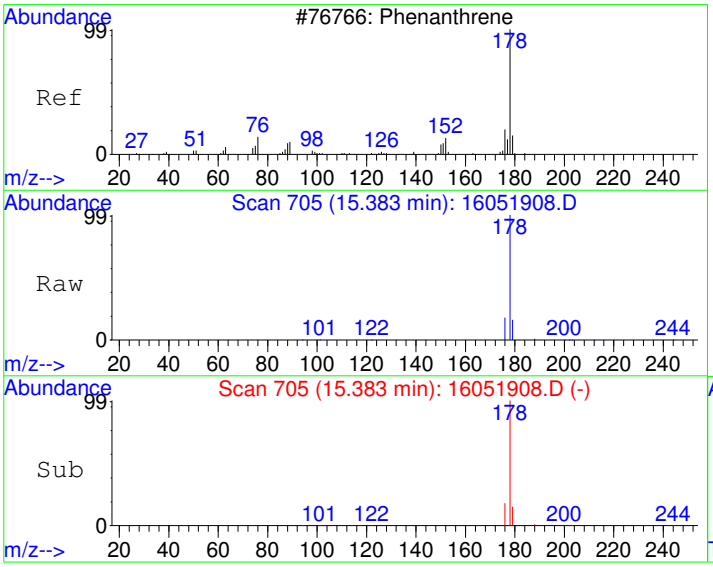


#10
Fluorene
Concen: 22.69 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:166 Resp: 5820

Ion	Ratio	Lower	Upper
166	100		
165	92.5	61.8	121.8
167	15.2	0.0	43.6

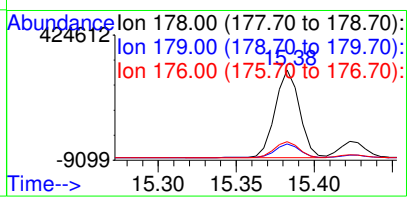


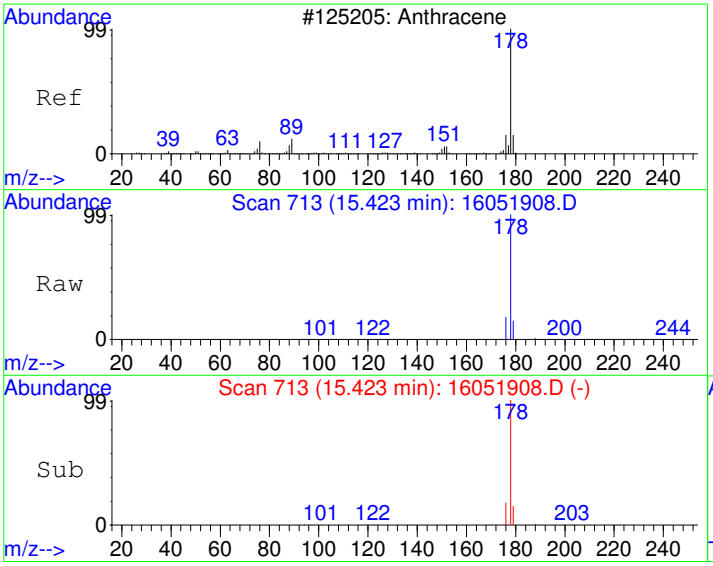


#12
Phenanthrene
Concen: 906.29 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:178 Resp: 330880

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	45.9
176	18.4	0.0	48.5

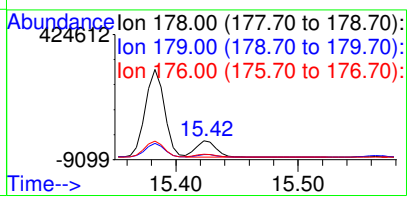


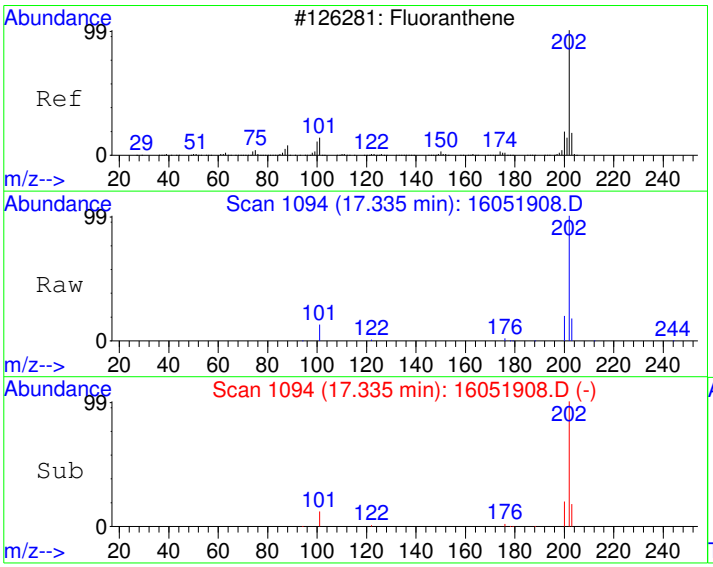


#13
Anthracene
Concen: 182.75 ug/kg
RT: 15.42 min Scan# 713
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:178 Resp: 63152

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.9
176	17.8	0.0	48.2

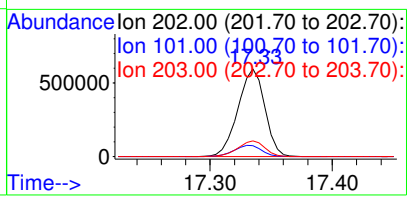


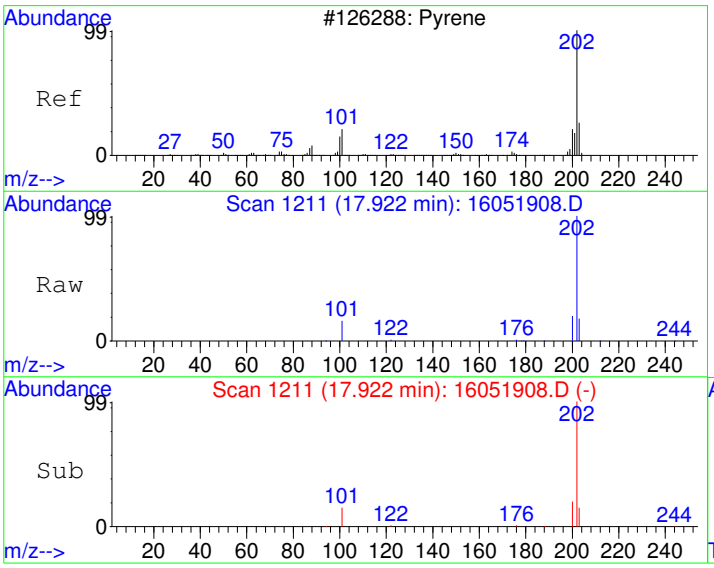


#14
Fluoranthene
Concen: 2405.08 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:202 Resp: 908657

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	43.0
203	17.7	0.0	47.9

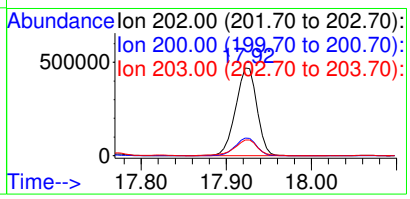


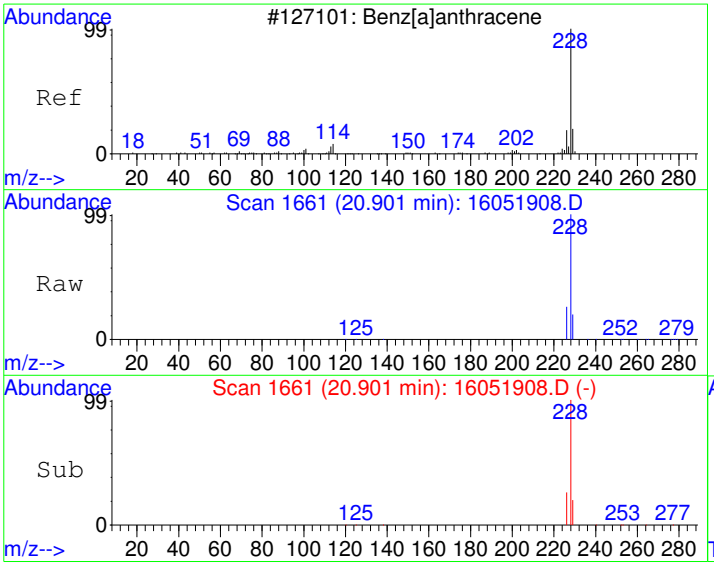


#15
Pyrene
Concen: 2067.63 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:202 Resp: 811464

Ion	Ratio	Lower	Upper
202	100		
200	20.1	0.0	50.0
203	17.8	0.0	48.0

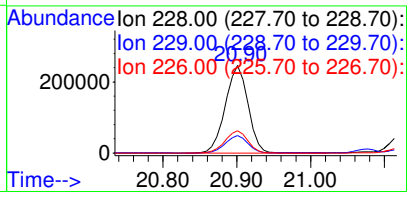


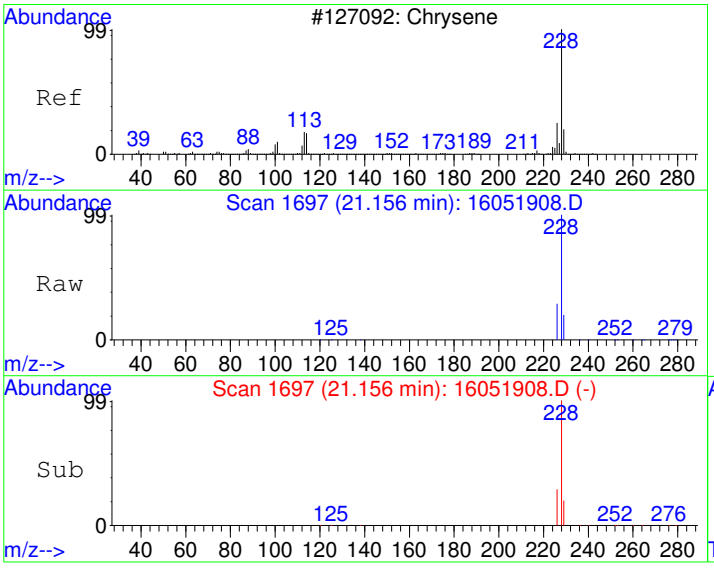


#18
Benzo[a]anthracene
Concen: 1492.27 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:228 Resp: 522901

Ion	Ratio	Lower	Upper
228	100		
229	19.9	0.0	50.1
226	25.7	0.0	55.2

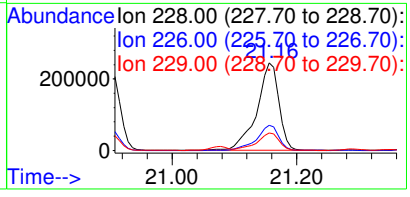


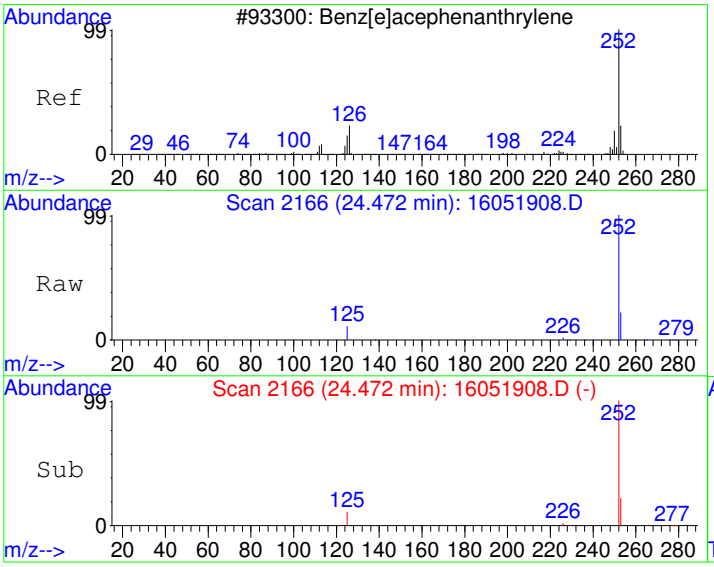


#19
Chrysene
Concen: 1783.15 ug/kg
RT: 21.16 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:228 Resp: 603707

Ion	Ratio	Lower	Upper
228	100		
226	28.8	0.0	58.1
229	19.9	0.0	50.1

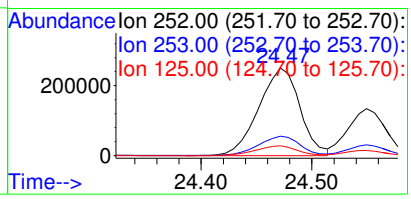


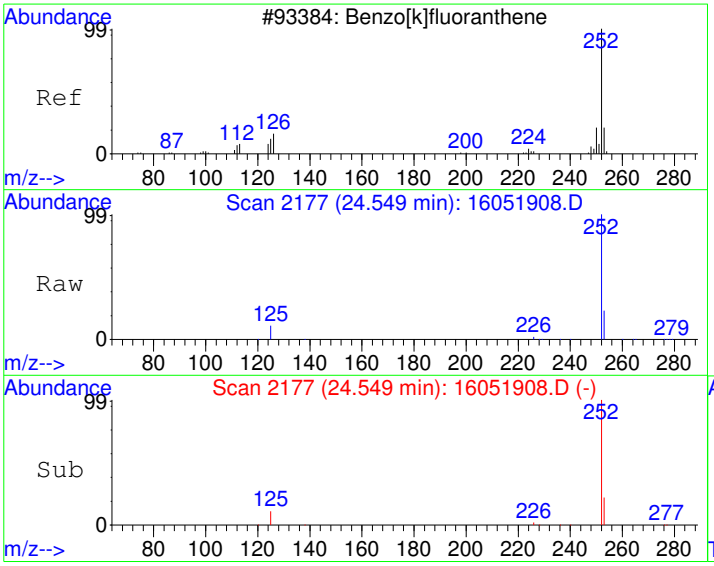


#21
Benzo[b]fluoranthene
Concen: 1795.32 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:252 Resp: 645564

Ion	Ratio	Lower	Upper
252	100		
253	22.1	0.0	52.2
125	11.1	0.0	41.0

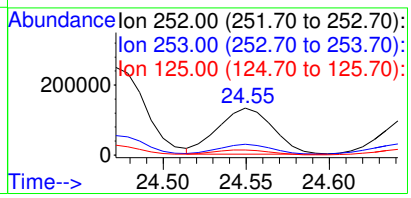


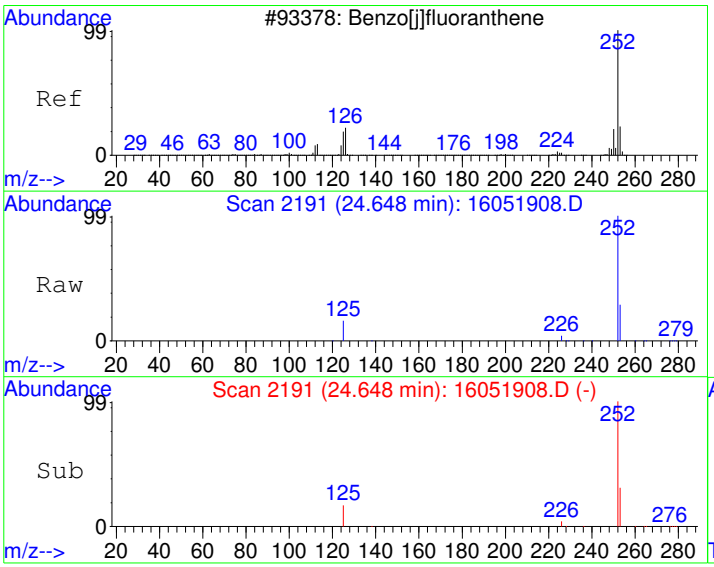


#22
Benzo[k]fluoranthene
Concen: 901.32 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:252 Resp: 304033

Ion	Ratio	Lower	Upper
252	100		
253	21.2	2.1	42.1
125	10.7	0.0	31.3

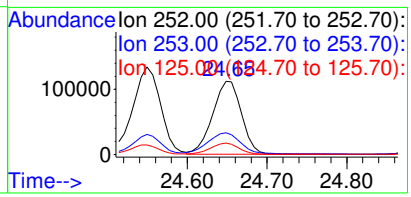


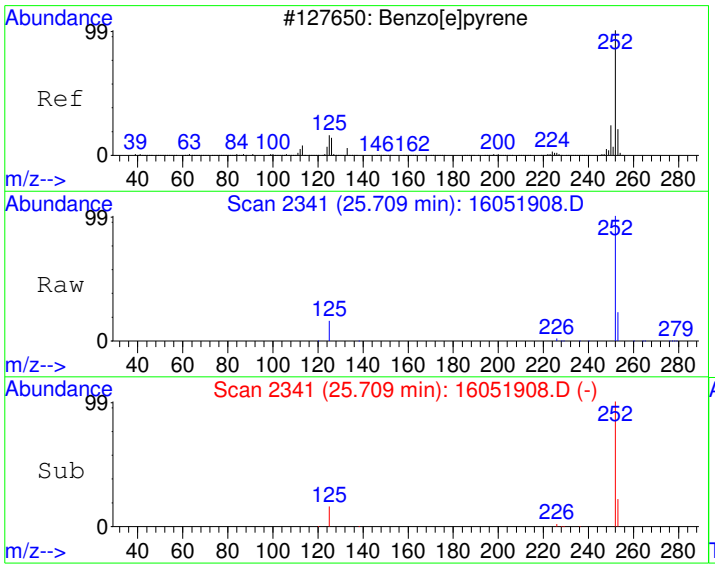


#23
Benzo(j)fluoranthene
Concen: 932.21 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:252 Resp: 280114

Ion	Ratio	Lower	Upper
252	100		
253	28.9	2.1	42.1
125	15.4	0.0	34.4

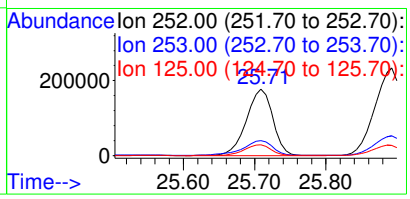


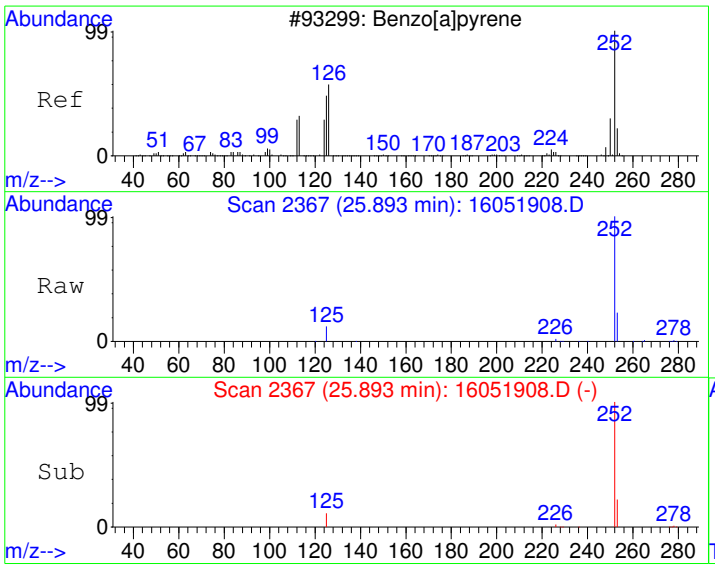


#24
Benzo[e]pyrene
Concen: 1416.19 ug/kg
RT: 25.71 min Scan# 2341
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:252 Resp: 456050

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.2	42.2
125	16.0	0.0	36.1

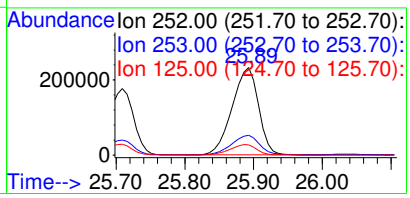


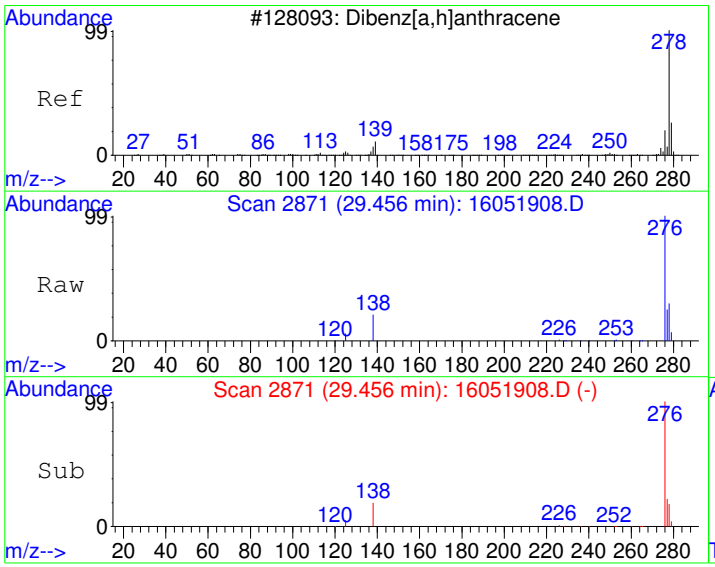


#25
Benzo[a]pyrene
Concen: 1882.55 ug/kg
RT: 25.89 min Scan# 2367
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:252 Resp: 619495

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

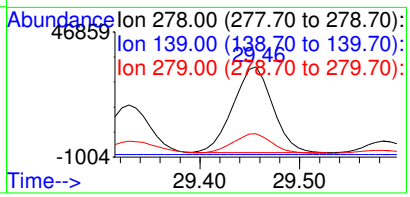


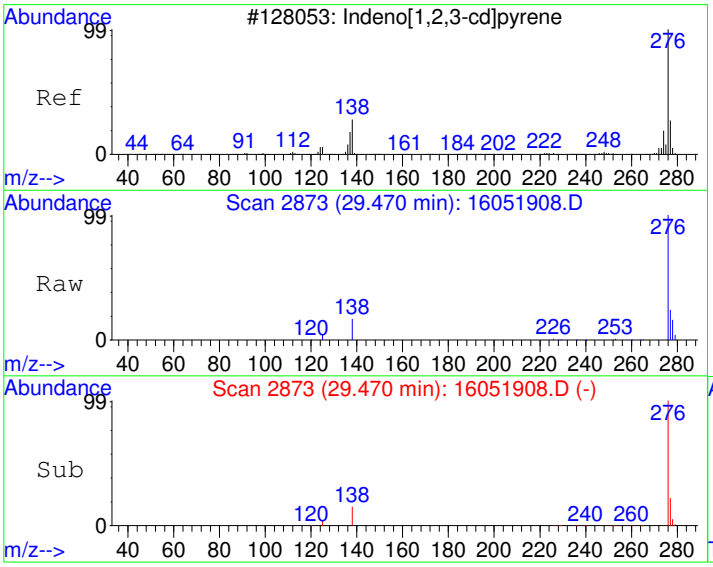


#26
Dibenz[a,h]anthracene
Concen: 300.85 ug/kg
RT: 29.46 min Scan# 2871
Delta R.T. -0.02 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:278 Resp: 90163

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.6	4.2	44.2

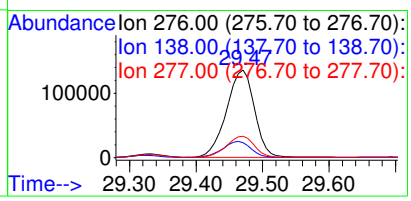


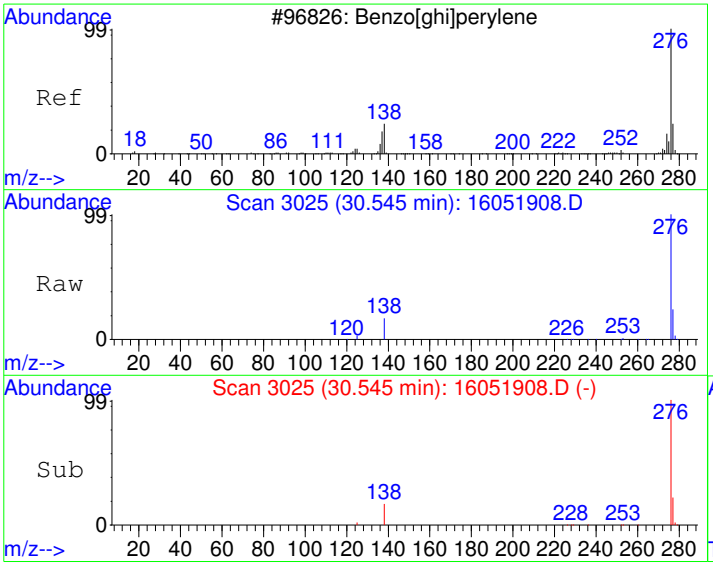


#27
Indeno[1,2,3-cd]pyrene
Concen: 1110.30 ug/kg
RT: 29.47 min Scan# 2873
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:276 Resp: 396960

Ion	Ratio	Lower	Upper
276	100		
138	17.1	6.7	46.7
277	24.2	5.8	45.8

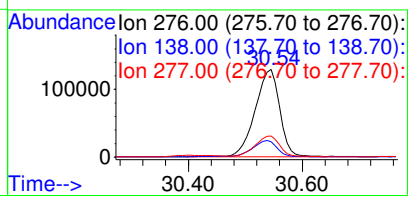




#28
Benzo[g,h,i]perylene
Concen: 1379.99 ug/kg
RT: 30.54 min Scan# 3025
Delta R.T. -0.01 min
Lab File: 16051908.D
Acq: 19 May 2016 1:06 pm

Tgt Ion:276 Resp: 384726

Ion	Ratio	Lower	Upper
276	100		
138	17.1	0.0	39.1
277	23.8	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051909.D Vial: 9
Acq On : 19 May 2016 1:47 pm Operator:
Sample : 1605096-72A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

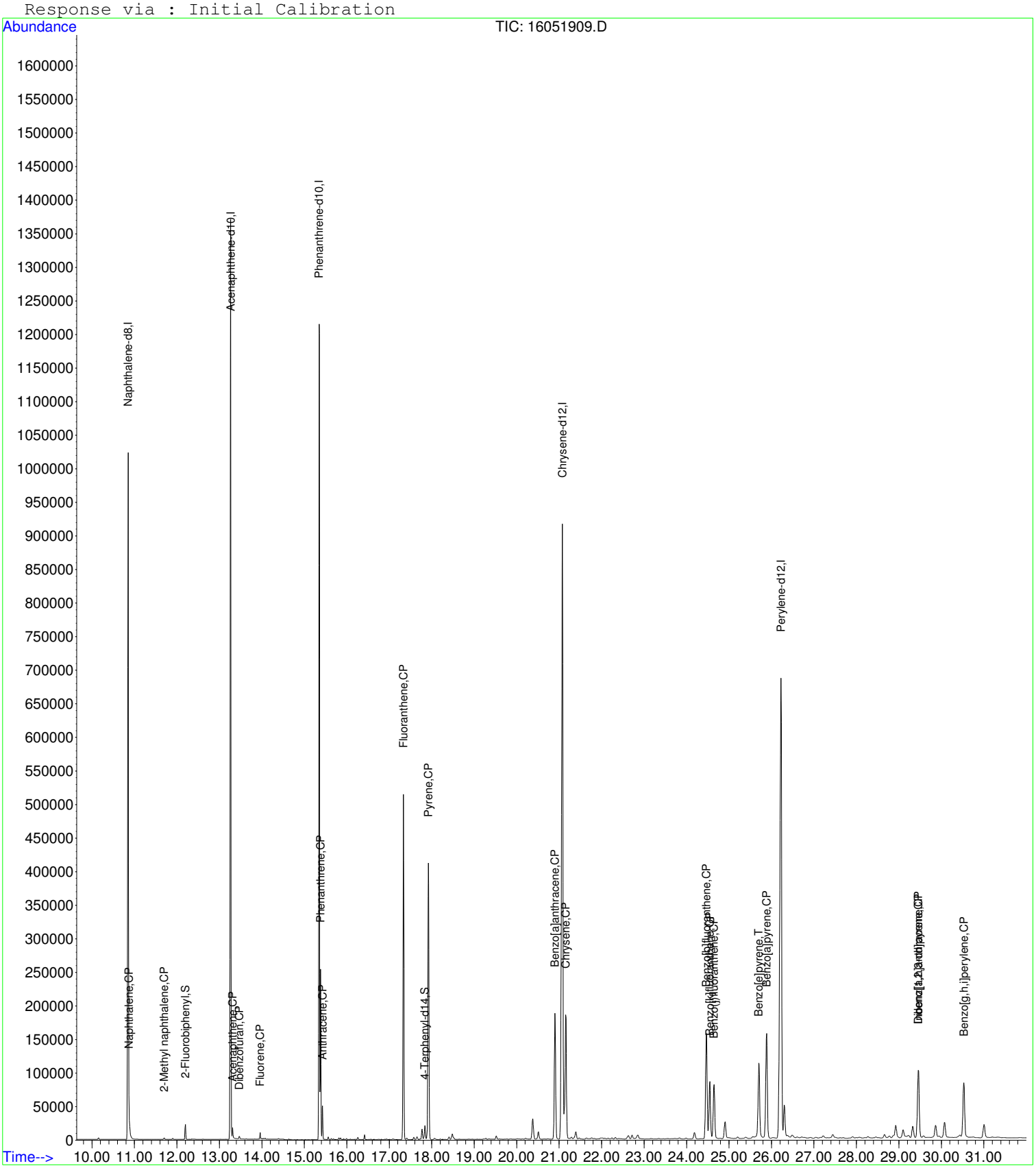
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1247410	4000.00	ug/kg	108
5) Acenaphthene-d10	13.27	164	783138	4000.00	ug/kg	68
11) Phenanthrene-d10	15.35	188	1341539	4000.00	ug/kg	66
17) Chrysene-d12	21.08	240	1508761	4000.00	ug/kg	66
20) Perylene-d12	26.22	264	1377202	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18704	81.87	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
16) 4-Terphenyl-d14	17.84	244	25589	73.73	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.84%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	6470	20.74	ug/kg	98
3) 2-Methyl naphthalene	11.70	142	1448	5.25	ug/kg	99
6) Dibenzofuran	13.48	168	3789	12.91	ug/kg	98
9) Acenaphthene	13.31	154	6047	28.89	ug/kg	98
10) Fluorene	13.96	166	4335	17.05	ug/kg	99
12) Phenanthrene	15.38	178	205718	583.10	ug/kg	99
13) Anthracene	15.43	178	42830	128.26	ug/kg	99
14) Fluoranthene	17.34	202	509275	1394.93	ug/kg	99
15) Pyrene	17.92	202	443119	1168.41	ug/kg	100
18) Benzo[a]anthracene	20.90	228	274091	775.44	ug/kg	99
19) Chrysene	21.15	228	304497	891.60	ug/kg	99
21) Benzo[b]fluoranthene	24.47	252	290026	799.01	ug/kg	99
22) Benzo[k]fluoranthene	24.55	252	148211	435.26	ug/kg	98
23) Benzo(j)fluoranthene	24.65	252	134920	444.80	ug/kg	91
24) Benzo[e]pyrene	25.70	252	205869	633.30	ug/kg	99
25) Benzo[a]pyrene	25.88	252	288634	868.90	ug/kg	99
26) Dibenz[a,h]anthracene	29.45	278	40546	134.02	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.46	276	169590	469.90	ug/kg	89
28) Benzo[g,h,i]perylene	30.53	276	157541	559.79	ug/kg	98

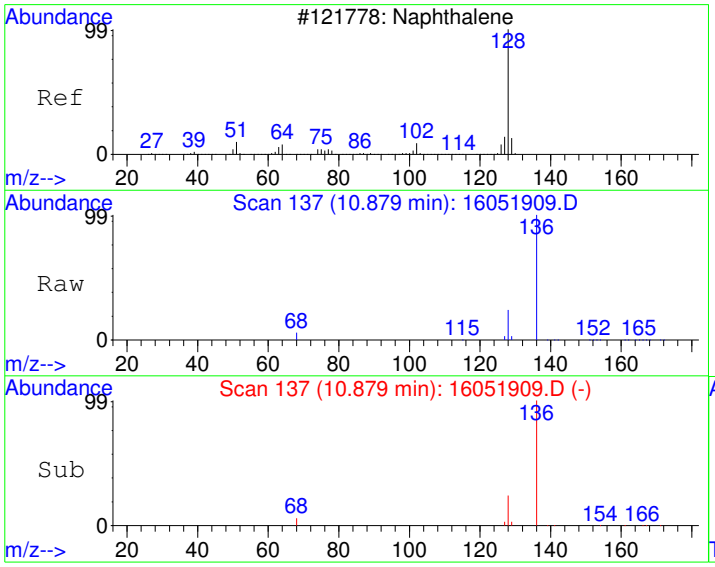
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051909.D Vial: 9
Acq On : 19 May 2016 1:47 pm Operator:
Sample : 1605096-72A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

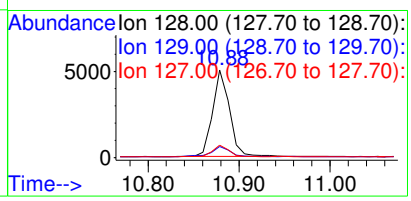


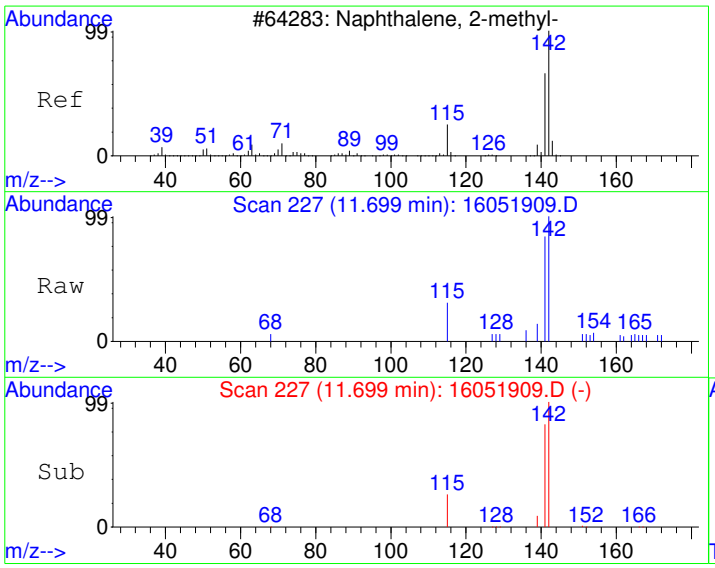


#2
Naphthalene
Concen: 20.74 ug/kg
RT: 10.88 min Scan# 137
Delta R.T. -0.00 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:128 Resp: 6470

Ion	Ratio	Lower	Upper
128	100		
129	11.7	0.0	41.1
127	13.3	0.0	42.4

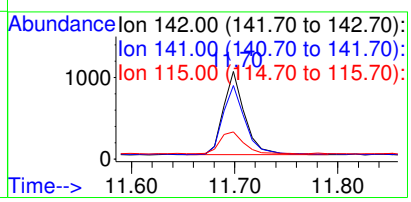


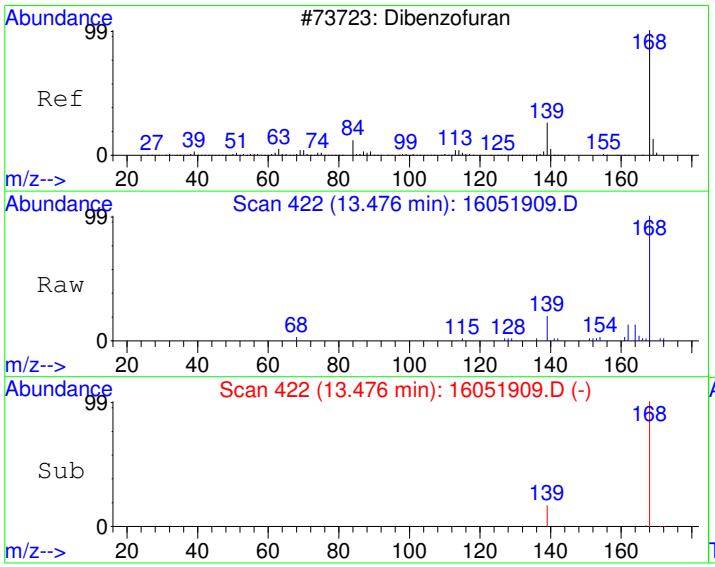


#3
2-Methyl naphthalene
Concen: 5.25 ug/kg
RT: 11.70 min Scan# 227
Delta R.T. -0.00 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:142 Resp: 1448

Ion	Ratio	Lower	Upper
142	100		
141	83.1	54.4	114.4
115	26.2	0.0	56.0

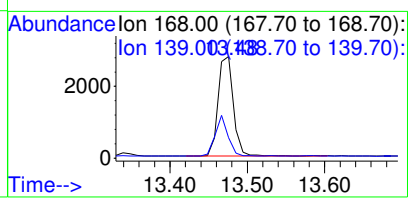


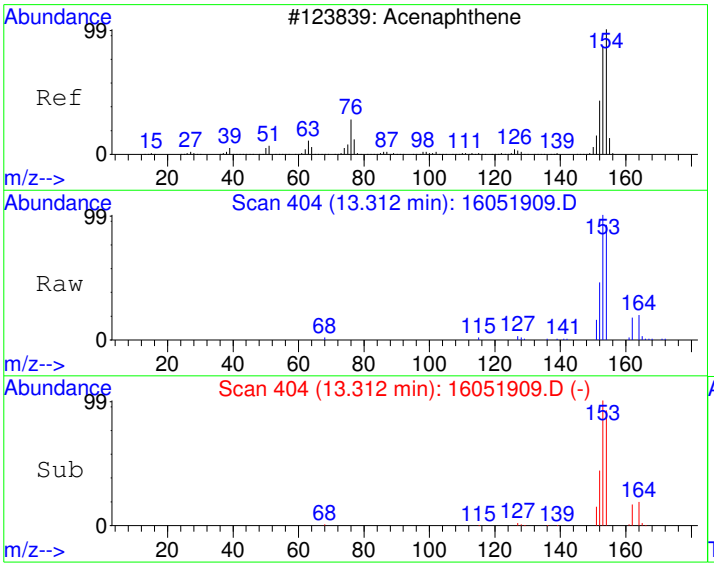


#6
Dibenzofuran
Concen: 12.91 ug/kg
RT: 13.48 min Scan# 422
Delta R.T. -0.00 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:168 Resp: 3789

Ion	Ratio	Lower	Upper
168	100		
139	34.9	27.0	40.4

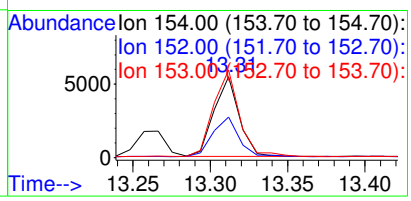


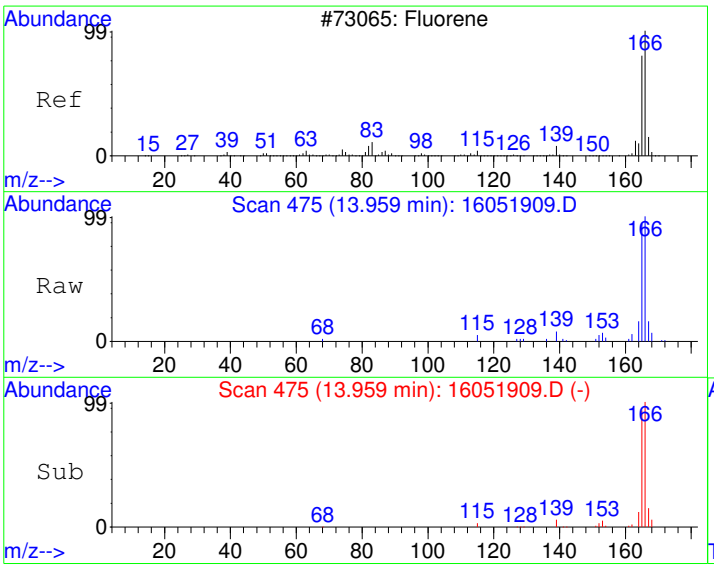


#9
Acenaphthene
Concen: 28.89 ug/kg
RT: 13.31 min Scan# 404
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:154 Resp: 6047

Ion	Ratio	Lower	Upper
154	100		
152	49.4	18.9	78.9
153	108.6	75.2	135.2

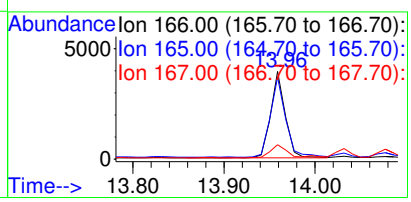


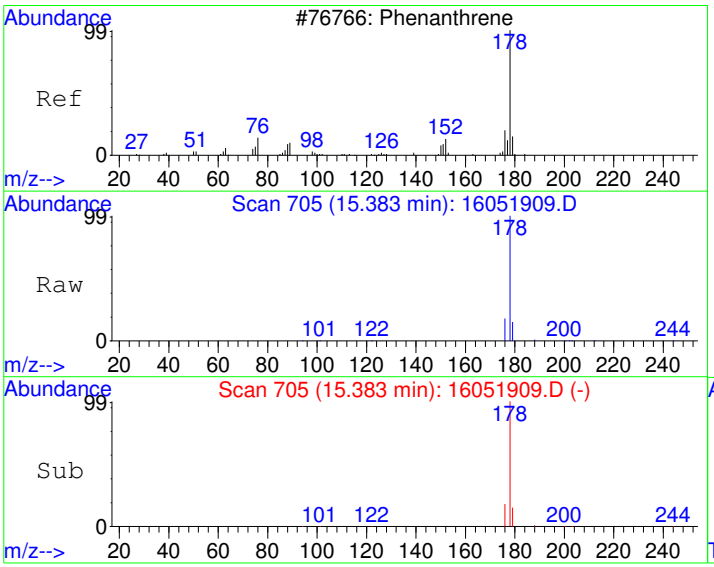


#10
Fluorene
Concen: 17.05 ug/kg
RT: 13.96 min Scan# 475
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:166 Resp: 4335

Ion	Ratio	Lower	Upper
166	100		
165	92.7	61.8	121.8
167	15.3	0.0	43.6

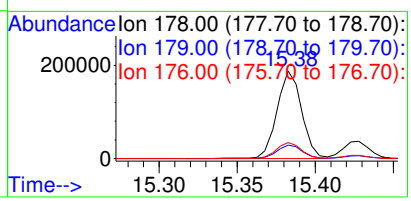


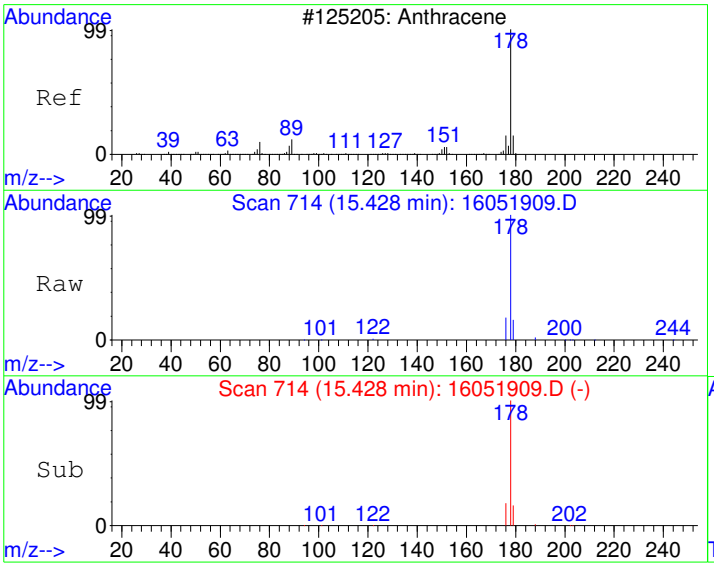


#12
Phenanthrene
Concen: 583.10 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:178 Resp: 205718

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	45.9
176	18.2	0.0	48.5

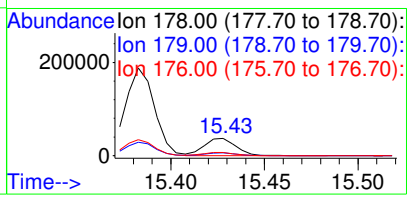


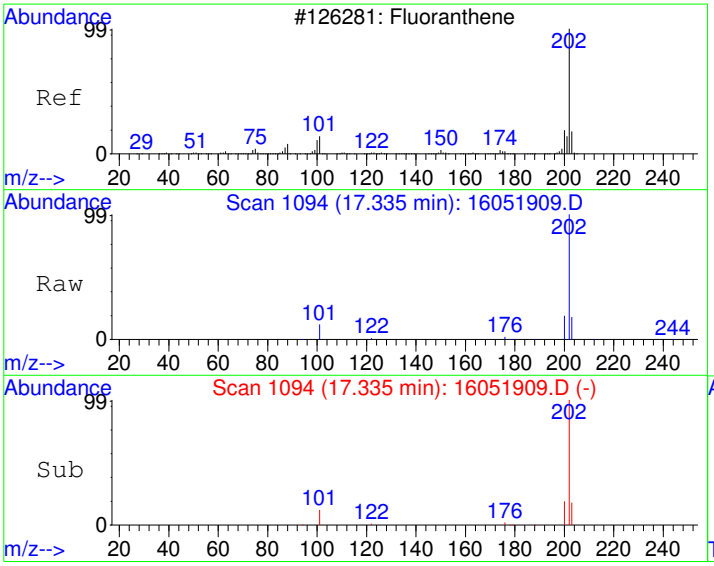


#13
Anthracene
Concen: 128.26 ug/kg
RT: 15.43 min Scan# 714
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:178 Resp: 42830

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	45.9
176	17.8	0.0	48.2

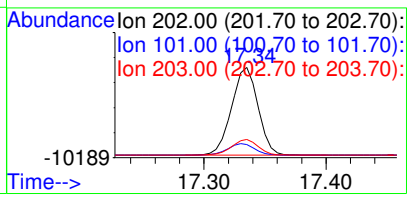


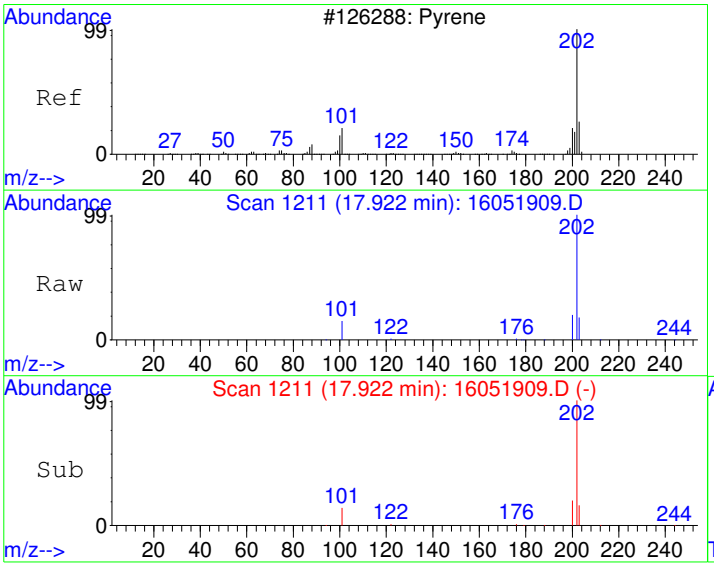


#14
Fluoranthene
Concen: 1394.93 ug/kg
RT: 17.34 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:202 Resp: 509275

Ion	Ratio	Lower	Upper
202	100		
101	12.1	0.0	43.0
203	17.7	0.0	47.9

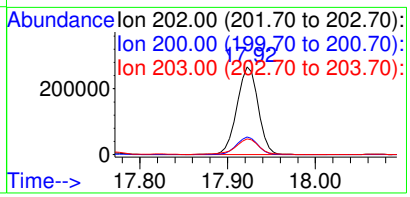


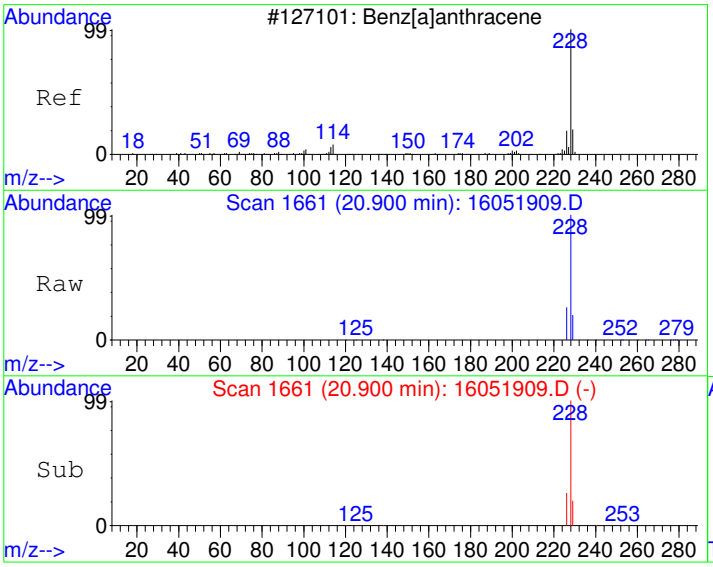


#15
Pyrene
Concen: 1168.41 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:202 Resp: 443119

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.7	0.0	48.0

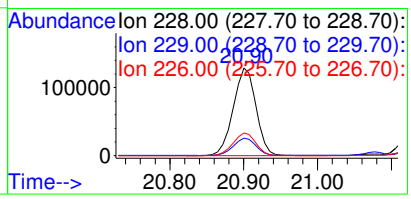


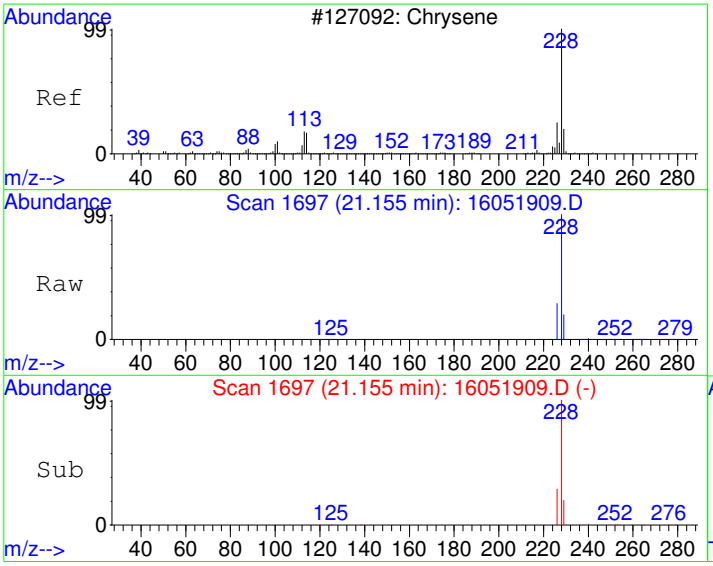


#18
Benzo[a]anthracene
Concen: 775.44 ug/kg
RT: 20.90 min Scan# 1661
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:228 Resp: 274091

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	50.1
226	25.8	0.0	55.2

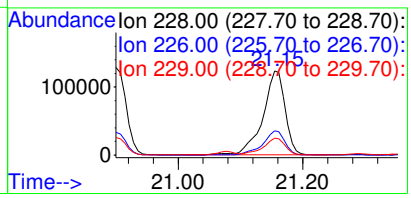


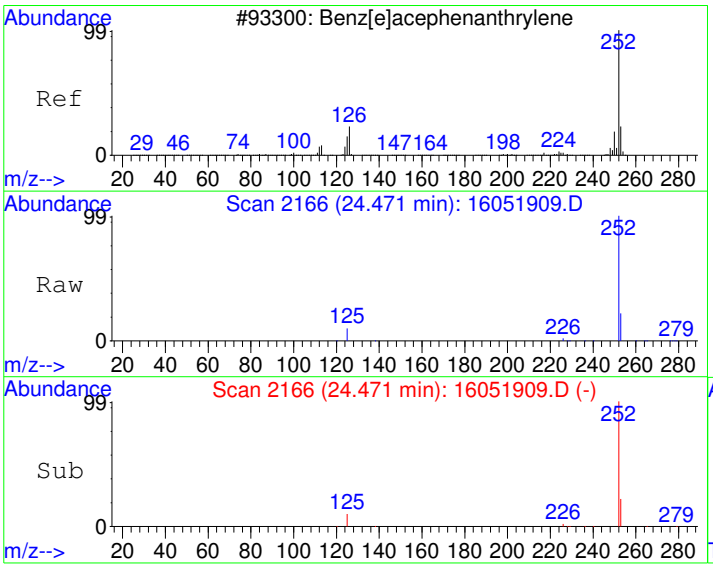


#19
Chrysene
Concen: 891.60 ug/kg
RT: 21.15 min Scan# 1697
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:228 Resp: 304497

Ion	Ratio	Lower	Upper
228	100		
226	28.6	0.0	58.1
229	19.9	0.0	50.1

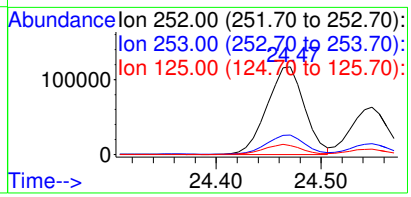


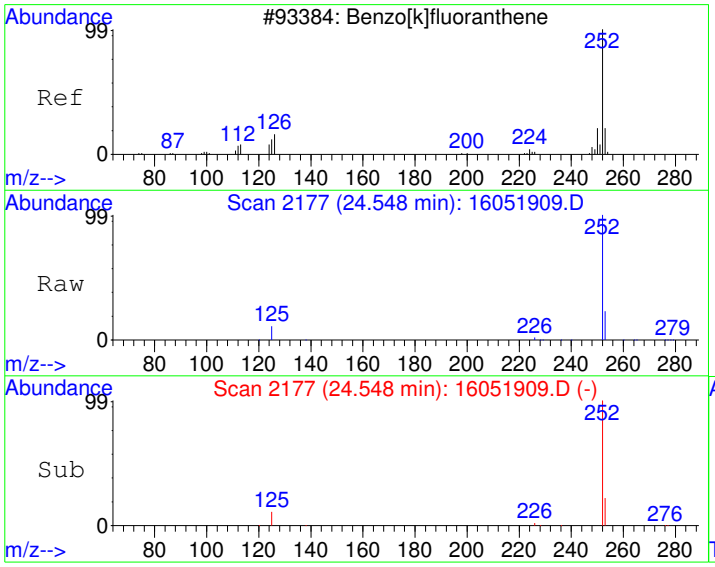


#21
Benzo[b]fluoranthene
Concen: 799.01 ug/kg
RT: 24.47 min Scan# 2166
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:252 Resp: 290026

Ion	Ratio	Lower	Upper
252	100		
253	21.9	0.0	52.2
125	10.3	0.0	41.0

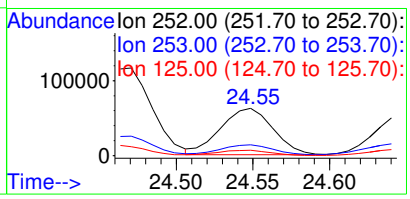


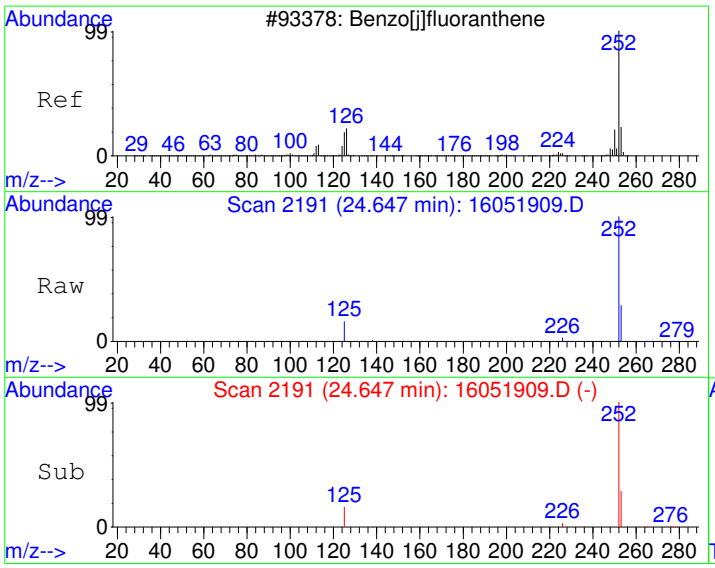


#22
Benzo[k]fluoranthene
Concen: 435.26 ug/kg
RT: 24.55 min Scan# 2177
Delta R.T. -0.02 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:252 Resp: 148211

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.1	42.1
125	10.8	0.0	31.3

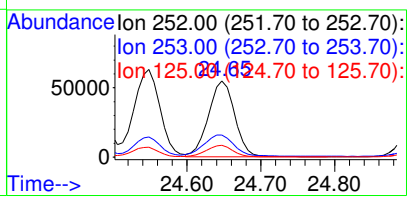


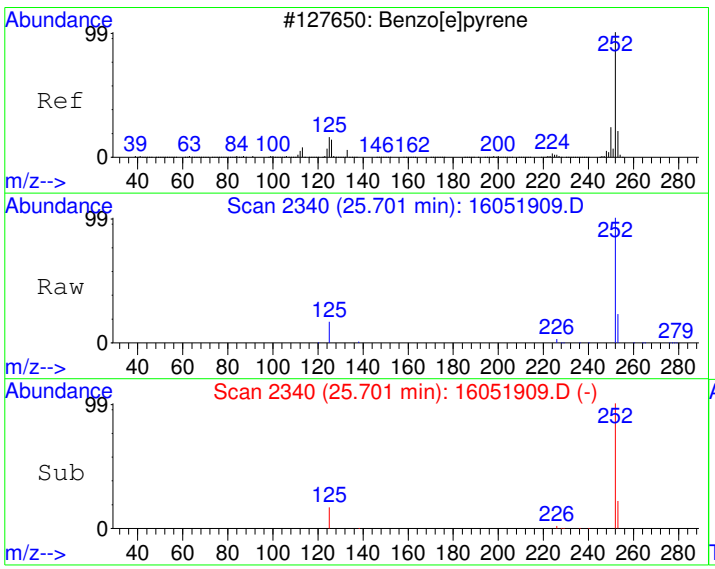


#23
Benzo(j)fluoranthene
Concen: 444.80 ug/kg
RT: 24.65 min Scan# 2191
Delta R.T. -0.02 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:252 Resp: 134920

Ion	Ratio	Lower	Upper
252	100		
253	28.1	2.1	42.1
125	15.4	0.0	34.4

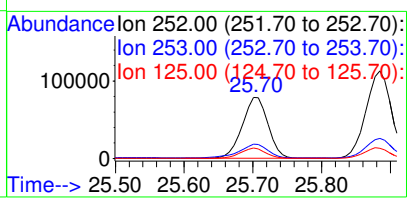


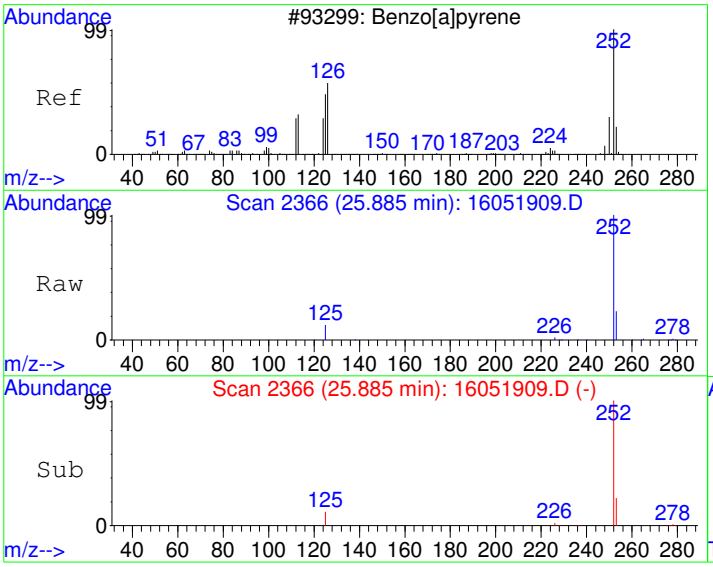


#24
Benzo[e]pyrene
Concen: 633.30 ug/kg
RT: 25.70 min Scan# 2340
Delta R.T. -0.02 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:252 Resp: 205869

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.2	42.2
125	16.8	0.0	36.1

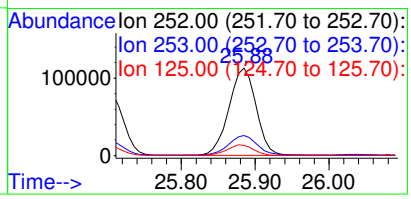


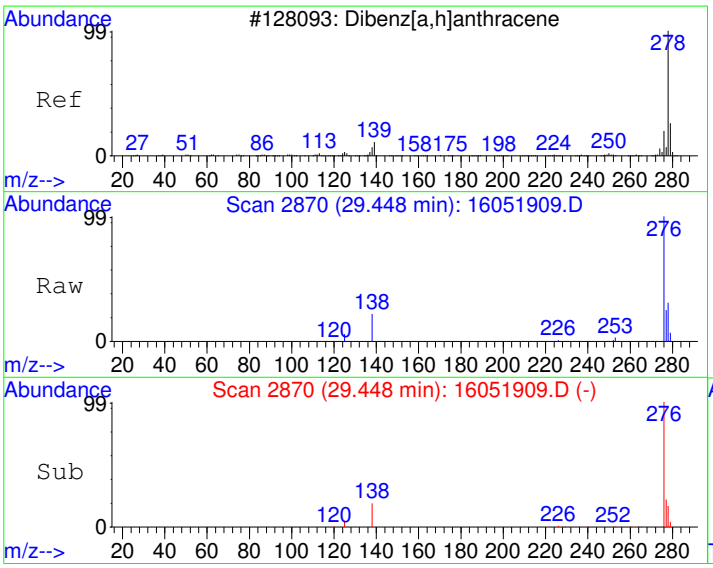


#25
Benzo[a]pyrene
Concen: 868.90 ug/kg
RT: 25.88 min Scan# 2366
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:252 Resp: 288634

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	11.6	0.0	31.7

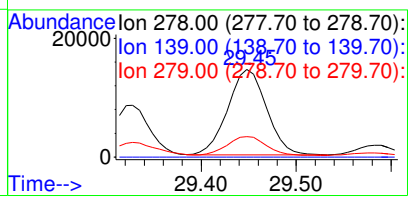


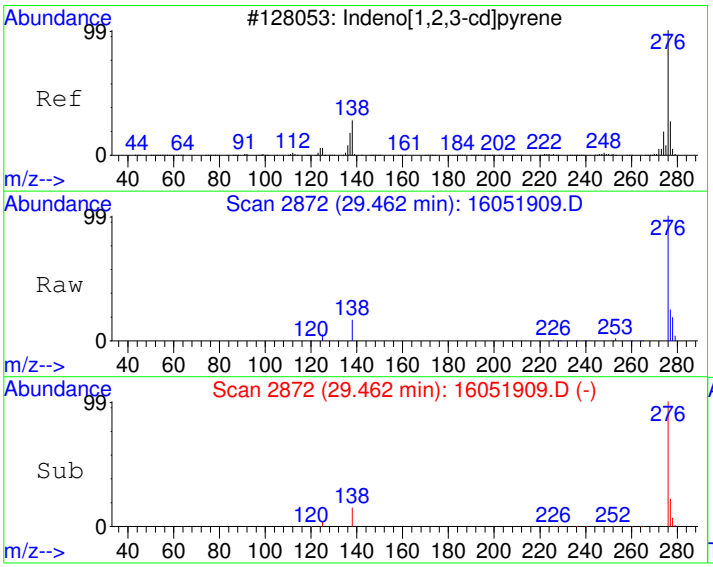


#26
Dibenz[a,h]anthracene
Concen: 134.02 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:278 Resp: 40546

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	20.0
279	22.0	4.2	44.2

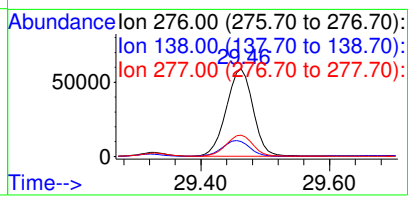


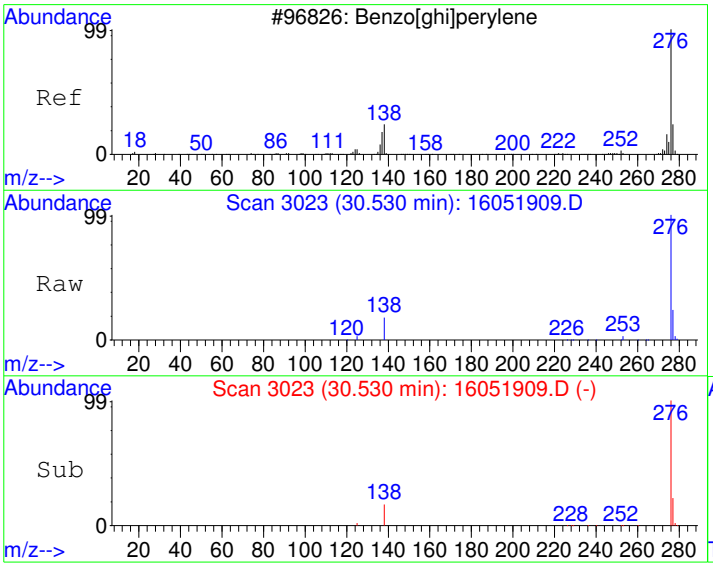


#27
Indeno[1,2,3-cd]pyrene
Concen: 469.90 ug/kg
RT: 29.46 min Scan# 2872
Delta R.T. -0.01 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:276 Resp: 169590

Ion	Ratio	Lower	Upper
276	100		
138	17.0	6.7	46.7
277	24.3	5.8	45.8

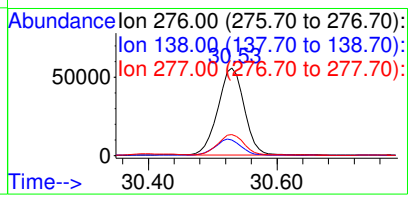




#28
Benzo[g,h,i]perylene
Concen: 559.79 ug/kg
RT: 30.53 min Scan# 3023
Delta R.T. -0.02 min
Lab File: 16051909.D
Acq: 19 May 2016 1:47 pm

Tgt Ion:276 Resp: 157541

Ion	Ratio	Lower	Upper
276	100		
138	17.5	0.0	39.1
277	23.9	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051910.D Vial: 10
Acq On : 19 May 2016 2:27 pm Operator:
Sample : 1605096-73A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:33 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

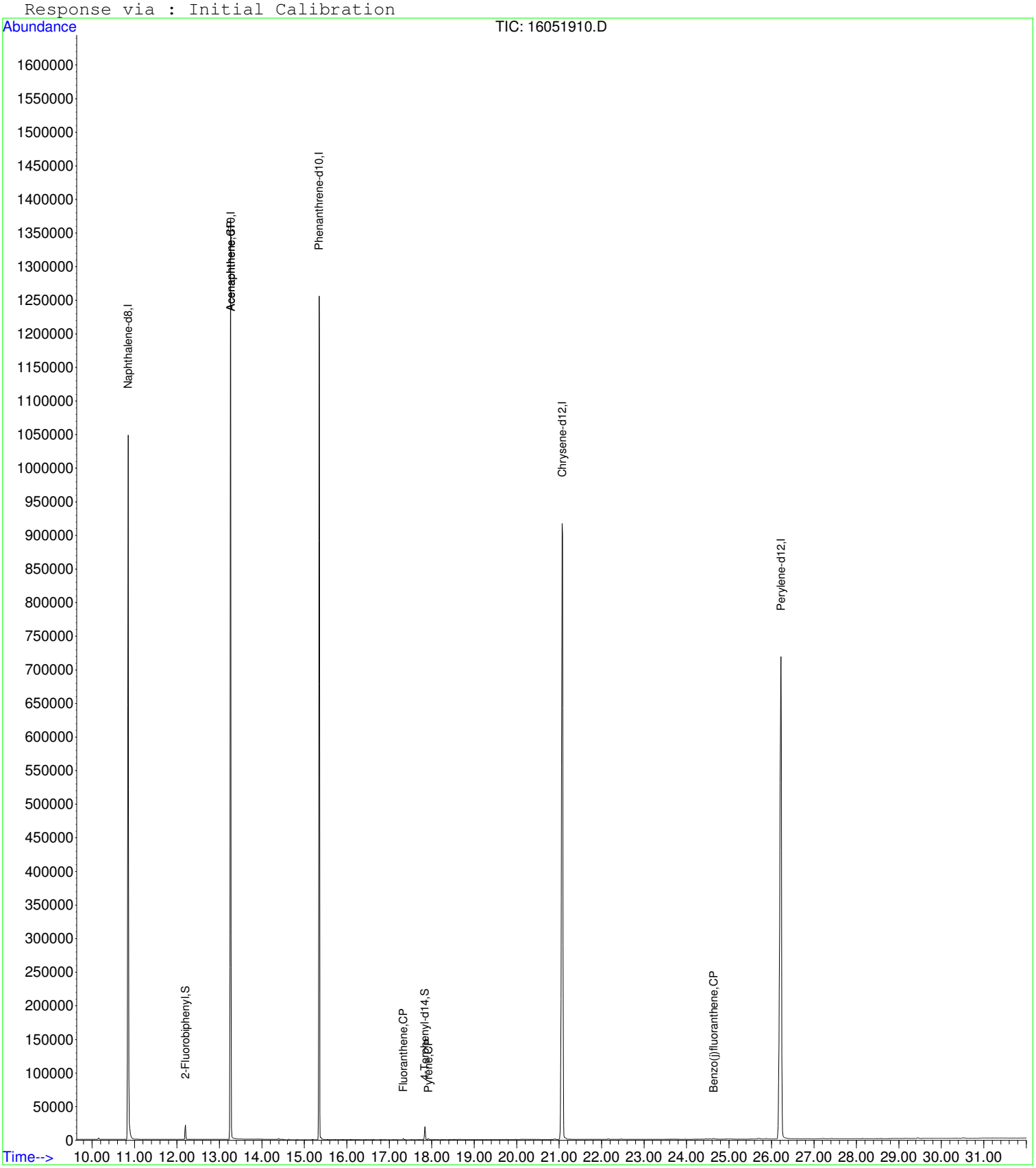
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1287650	4000.00	ug/kg	111
5) Acenaphthene-d10	13.27	164	787182	4000.00	ug/kg	68
11) Phenanthrene-d10	15.35	188	1343915	4000.00	ug/kg	66
17) Chrysene-d12	21.07	240	1545896	4000.00	ug/kg	68
20) Perylene-d12	26.22	264	1418161	4000.00	ug/kg	69
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18129	78.95	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.97%#		
16) 4-Terphenyl-d14	17.84	244	24555	70.62	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.77%#		
Target Compounds						Qvalue
9) Acenaphthene	13.27	154	2347	11.15	ug/kg#	9
14) Fluoranthene	17.33	202	1980	5.41	ug/kg	95
15) Pyrene	17.92	202	1980	5.21	ug/kg	98
23) Benzo(j)fluoranthene	24.64	252	1283	4.11	ug/kg	85

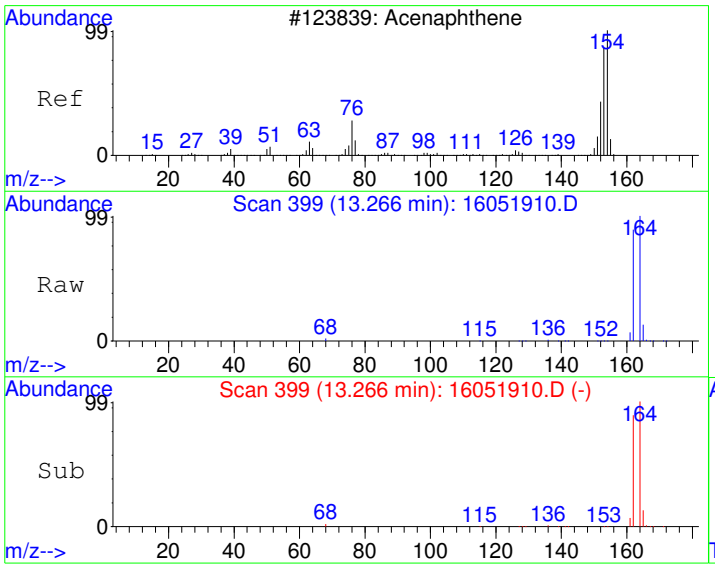
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051910.D Vial: 10
Acq On : 19 May 2016 2:27 pm Operator:
Sample : 1605096-73A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:33 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

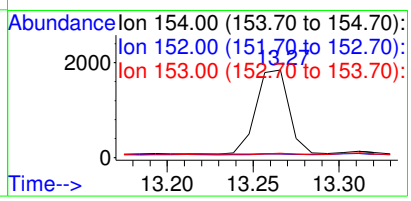


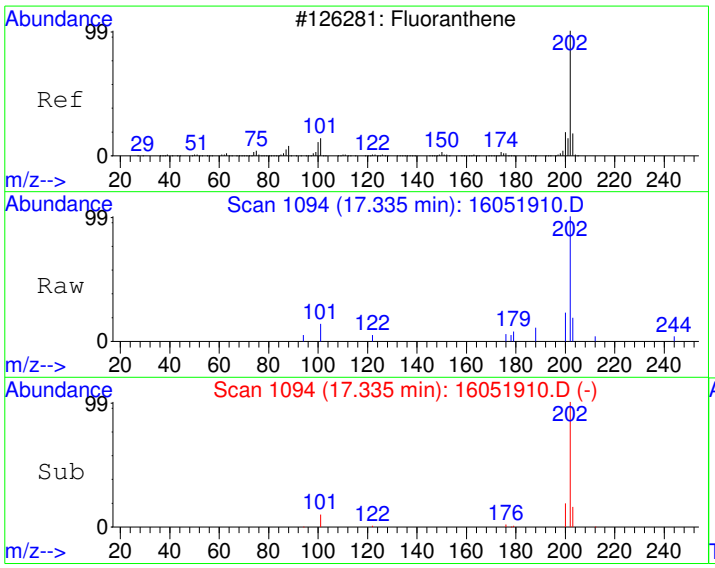


#9
Acenaphthene
Concen: 11.15 ug/kg
RT: 13.27 min Scan# 399
Delta R.T. -0.06 min
Lab File: 16051910.D
Acq: 19 May 2016 2:27 pm

Tgt Ion:154 Resp: 2347

Ion	Ratio	Lower	Upper
154	100		
152	1.0	18.9	78.9#
153	1.8	75.2	135.2#

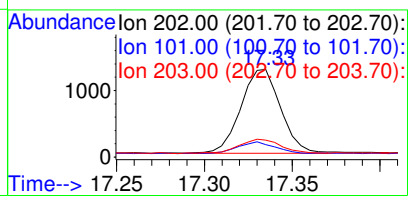


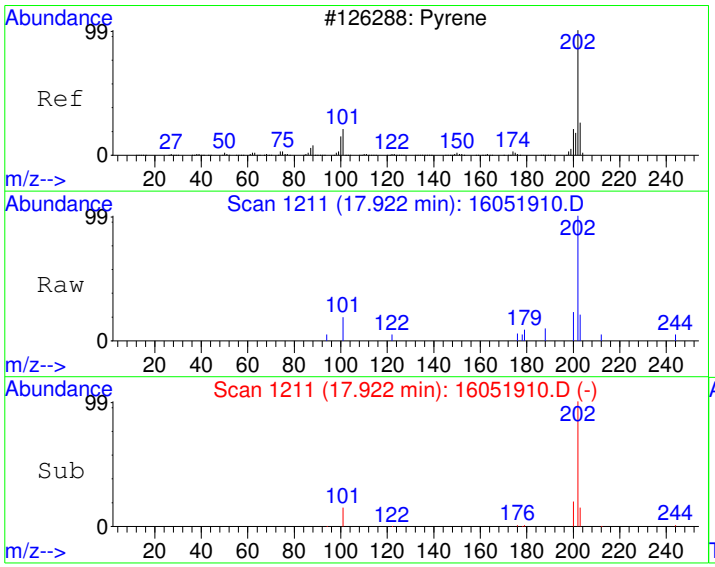


#14
Fluoranthene
Concen: 5.41 ug/kg
RT: 17.33 min Scan# 1094
Delta R.T. -0.01 min
Lab File: 16051910.D
Acq: 19 May 2016 2:27 pm

Tgt Ion:202 Resp: 1980

Ion	Ratio	Lower	Upper
202	100		
101	10.6	0.0	43.0
203	15.7	0.0	47.9

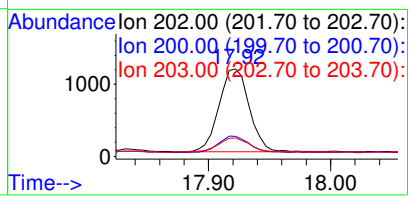


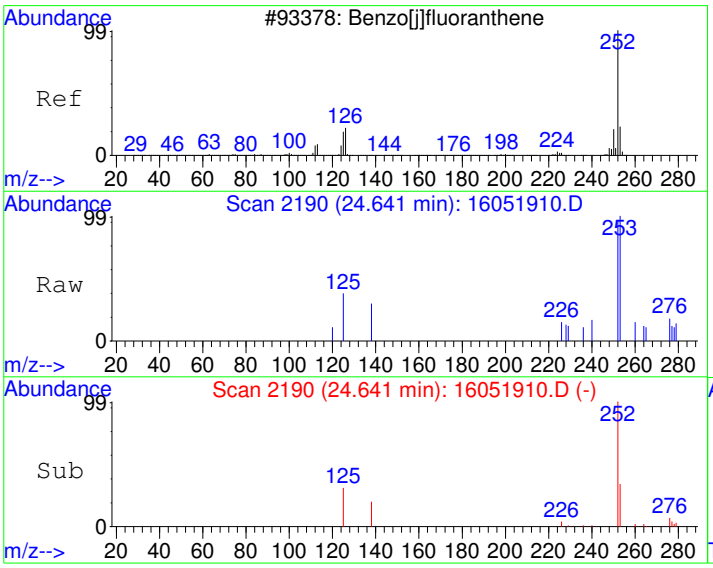


#15
Pyrene
Concen: 5.21 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051910.D
Acq: 19 May 2016 2:27 pm

Tgt Ion:202 Resp: 1980

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	50.0
203	17.1	0.0	48.0

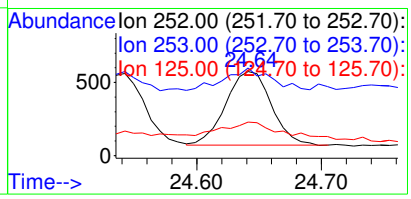




#23
Benzo(j)fluoranthene
Concen: 4.11 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051910.D
Acq: 19 May 2016 2:27 pm

Tgt Ion:252 Resp: 1283

Ion	Ratio	Lower	Upper
252	100		
253	30.2	2.1	42.1
125	19.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051911.D Vial: 11
Acq On : 19 May 2016 3:08 pm Operator:
Sample : 1605096-74A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:34 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

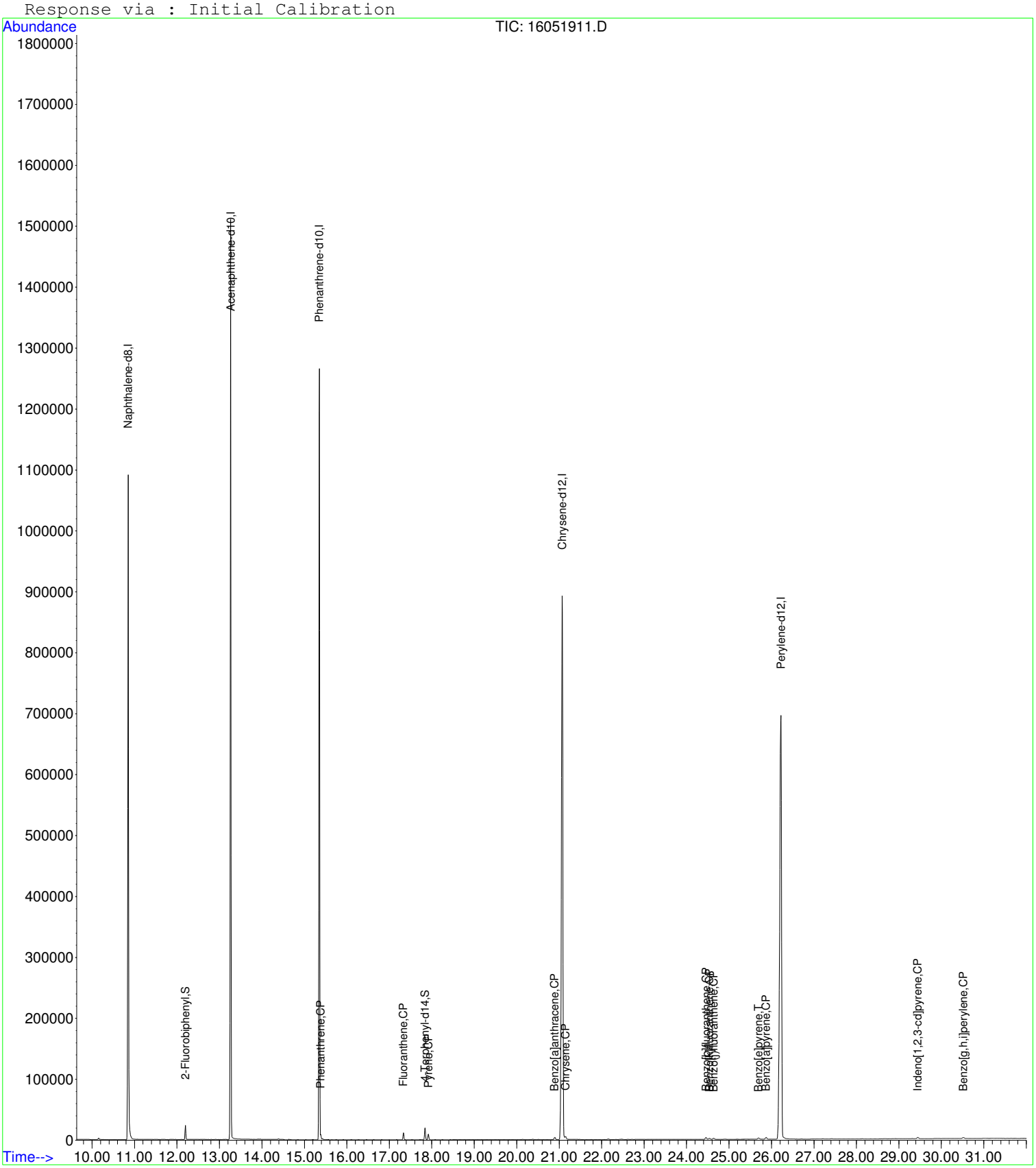
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1314163	4000.00	ug/kg	113
5) Acenaphthene-d10	13.26	164	809392	4000.00	ug/kg	70
11) Phenanthrene-d10	15.35	188	1367023	4000.00	ug/kg	67
17) Chrysene-d12	21.07	240	1566180	4000.00	ug/kg	69
20) Perylene-d12	26.22	264	1448370	4000.00	ug/kg	70
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	18981	80.39	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
16) 4-Terphenyl-d14	17.84	244	25199	71.25	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#		
Target Compounds						Qvalue
12) Phenanthrene	15.38	178	5554	15.45	ug/kg	99
14) Fluoranthene	17.33	202	11825	31.79	ug/kg	99
15) Pyrene	17.92	202	10001	25.88	ug/kg	99
18) Benzo[a]anthracene	20.89	228	5556	15.14	ug/kg	99
19) Chrysene	21.15	228	5983	16.88	ug/kg	98
21) Benzo[b]fluoranthene	24.46	252	5576	14.61	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	3119	8.71	ug/kg	89
23) Benzo(j)fluoranthene	24.64	252	2800	8.78	ug/kg	98
24) Benzo[e]pyrene	25.69	252	4146	12.13	ug/kg	98
25) Benzo[a]pyrene	25.87	252	5787	16.57	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.45	276	3418	9.01	ug/kg	89
28) Benzo[g,h,i]perylene	30.52	276	3329	11.25	ug/kg	98

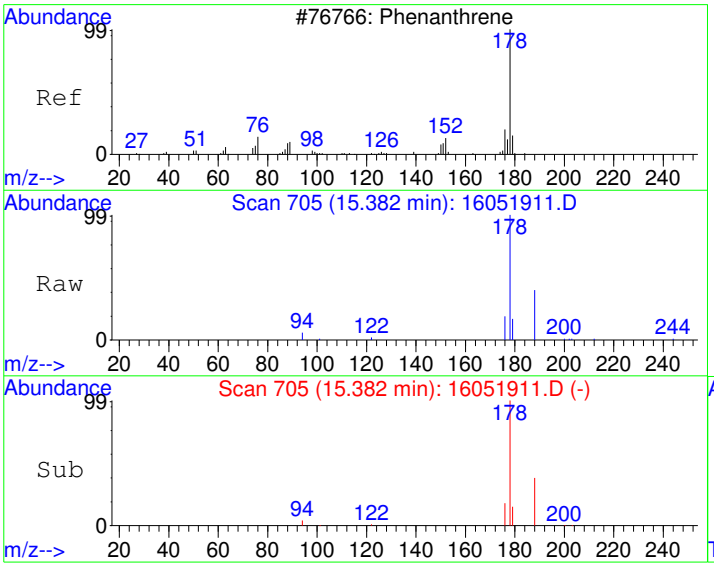
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051911.D Vial: 11
Acq On : 19 May 2016 3:08 pm Operator:
Sample : 1605096-74A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:34 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

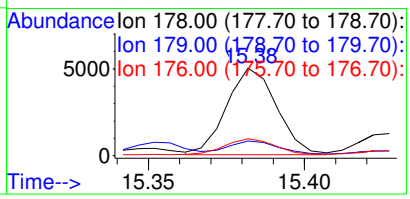


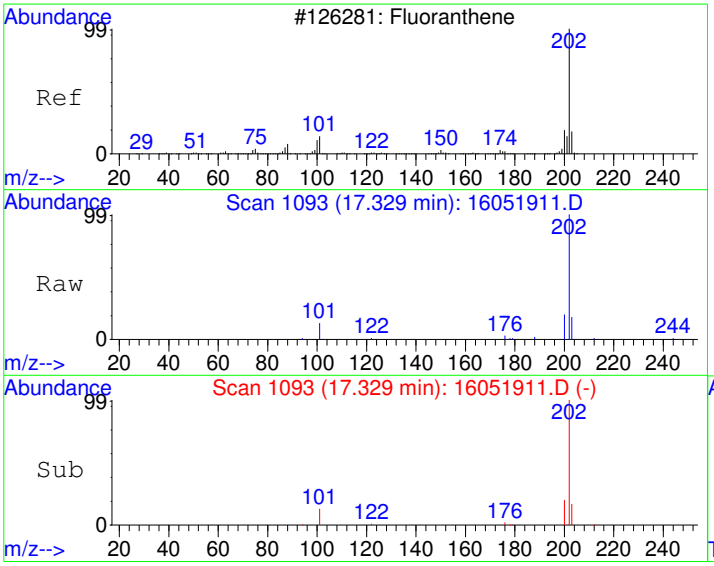


#12
Phenanthrene
Concen: 15.45 ug/kg
RT: 15.38 min Scan# 705
Delta R.T. -0.01 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:178 Resp: 5554

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

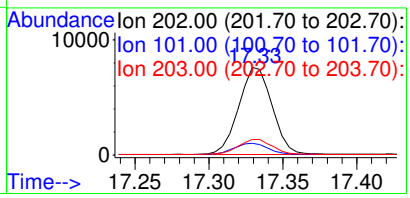


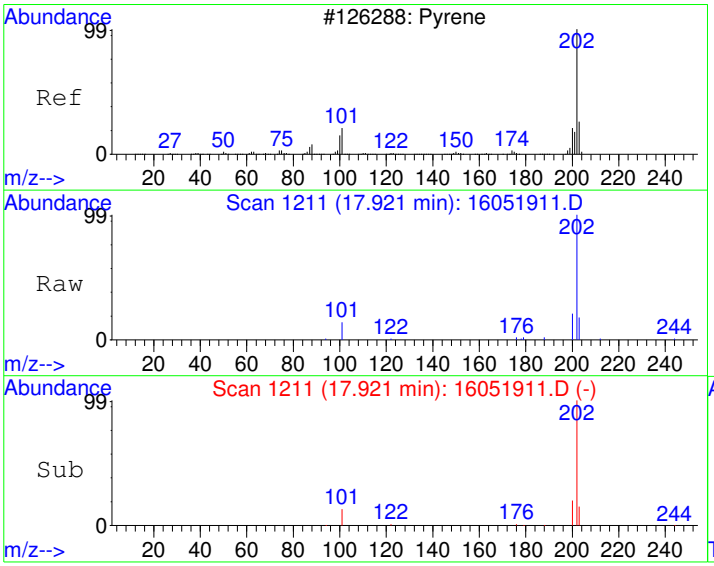


#14
Fluoranthene
Concen: 31.79 ug/kg
RT: 17.33 min Scan# 1093
Delta R.T. -0.01 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:202 Resp: 11825

Ion	Ratio	Lower	Upper
202	100		
101	12.9	0.0	43.0
203	17.3	0.0	47.9

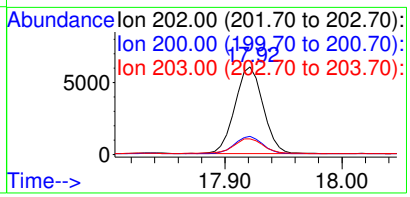


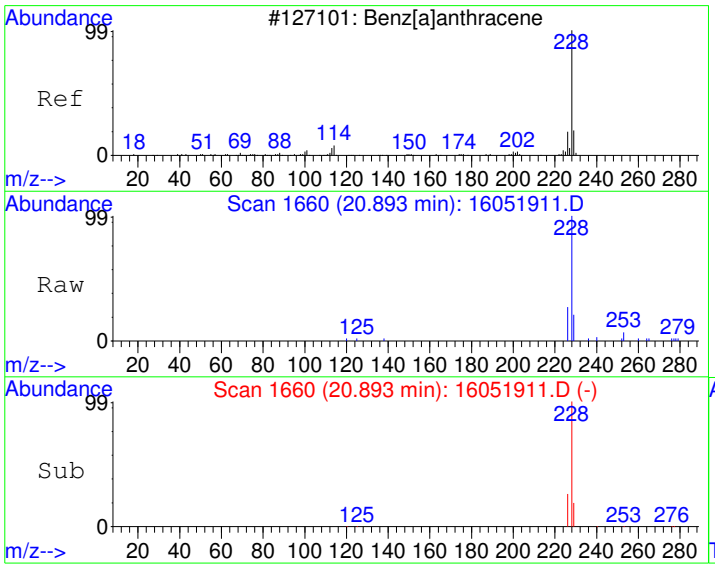


#15
Pyrene
Concen: 25.88 ug/kg
RT: 17.92 min Scan# 1211
Delta R.T. -0.01 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:202 Resp: 10001

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.0
203	17.2	0.0	48.0

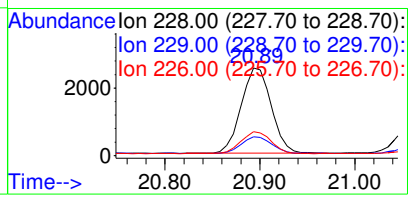


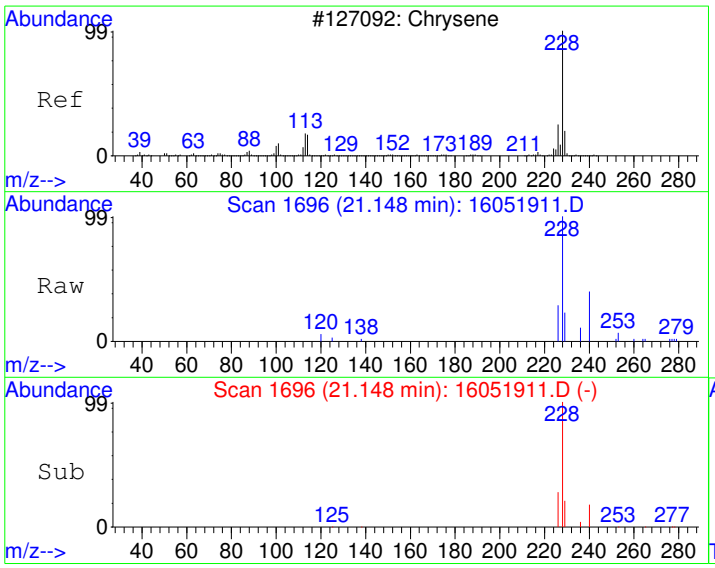


#18
Benzo[a]anthracene
Concen: 15.14 ug/kg
RT: 20.89 min Scan# 1660
Delta R.T. -0.02 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:228 Resp: 5556

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.0	50.1
226	25.6	0.0	55.2

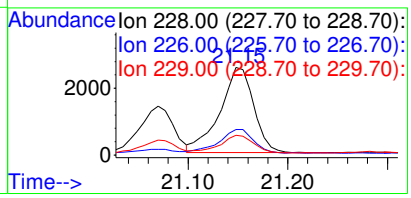


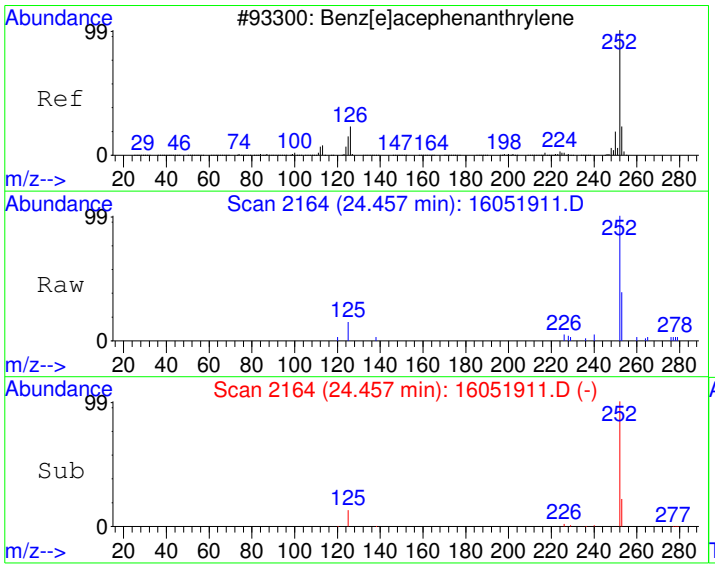


#19
Chrysene
Concen: 16.88 ug/kg
RT: 21.15 min Scan# 1696
Delta R.T. -0.02 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:228 Resp: 5983

Ion	Ratio	Lower	Upper
228	100		
226	27.3	0.0	58.1
229	20.8	0.0	50.1

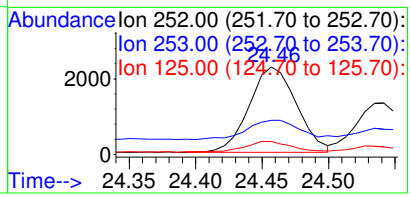


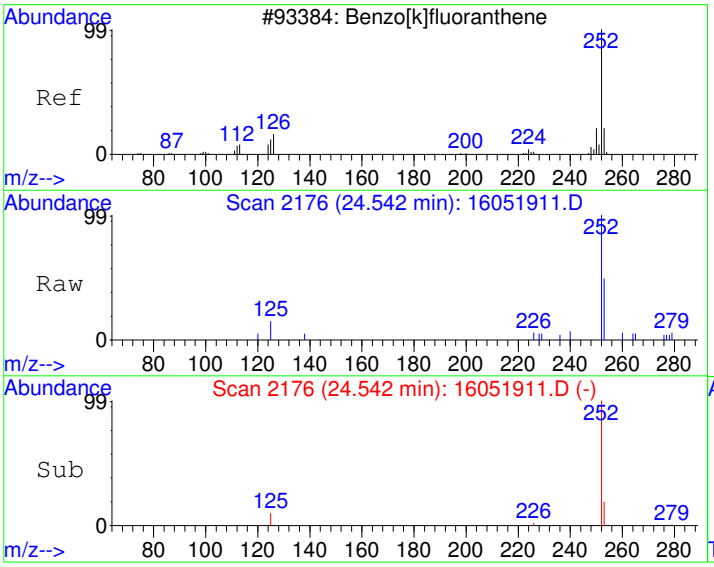


#21
Benzo[b]fluoranthene
Concen: 14.61 ug/kg
RT: 24.46 min Scan# 2164
Delta R.T. -0.03 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:252 Resp: 5576

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	52.2
125	12.2	0.0	41.0

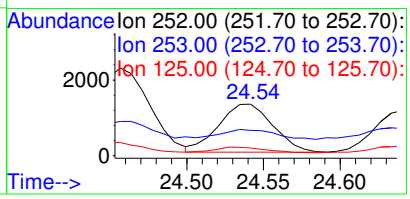


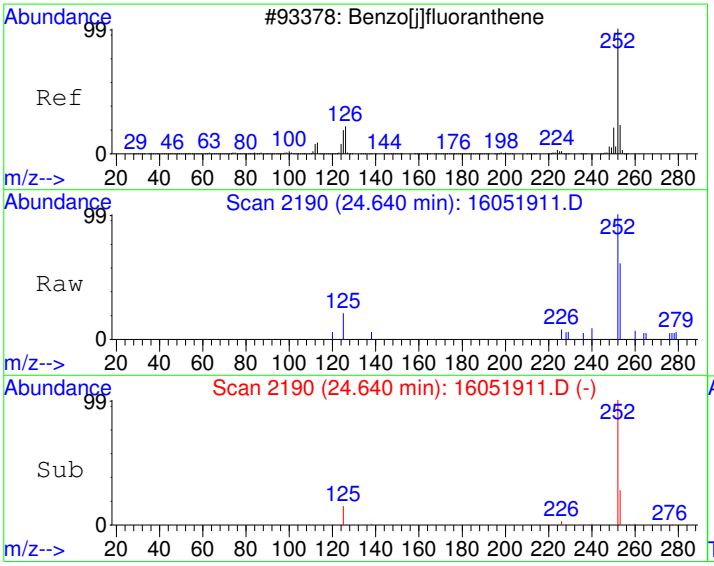


#22
Benzo[k]fluoranthene
Concen: 8.71 ug/kg
RT: 24.54 min Scan# 2176
Delta R.T. -0.03 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:252 Resp: 3119

Ion	Ratio	Lower	Upper
252	100		
253	15.6	2.1	42.1
125	9.5	0.0	31.3

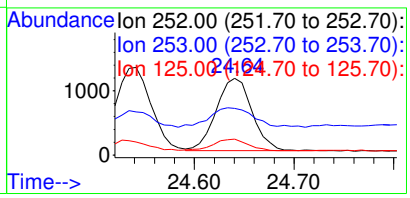


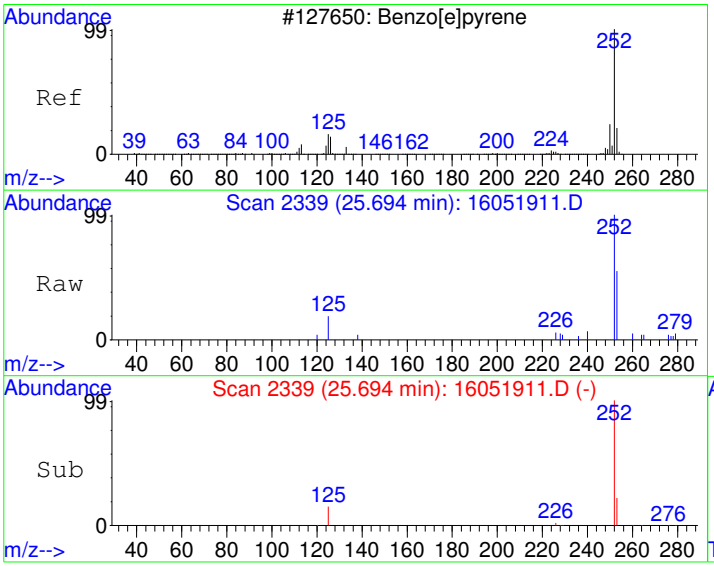


#23
Benzo(j)fluoranthene
Concen: 8.78 ug/kg
RT: 24.64 min Scan# 2190
Delta R.T. -0.03 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:252 Resp: 2800

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.1	42.1
125	15.6	0.0	34.4

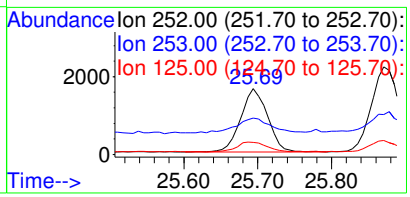


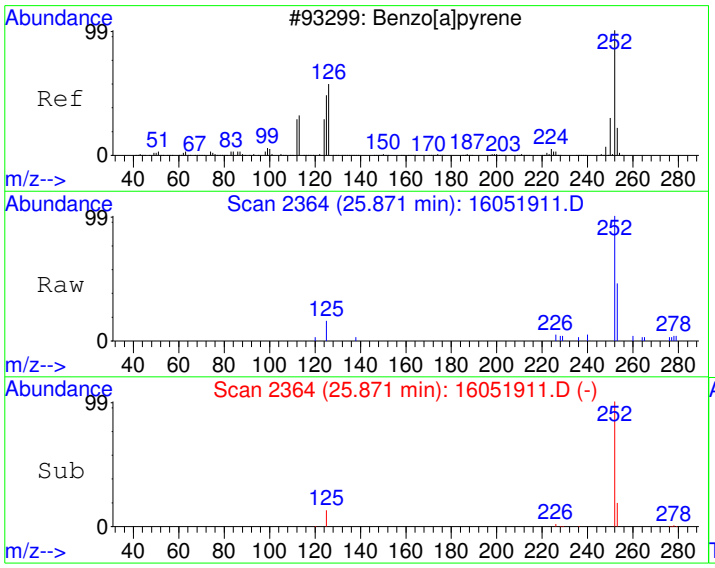


#24
Benzo[e]pyrene
Concen: 12.13 ug/kg
RT: 25.69 min Scan# 2339
Delta R.T. -0.03 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:252 Resp: 4146

Ion	Ratio	Lower	Upper
252	100		
253	23.1	2.2	42.2
125	15.1	0.0	36.1

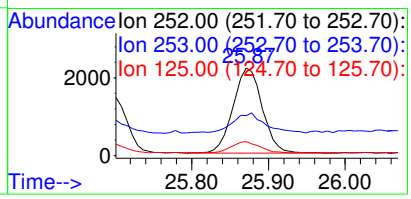


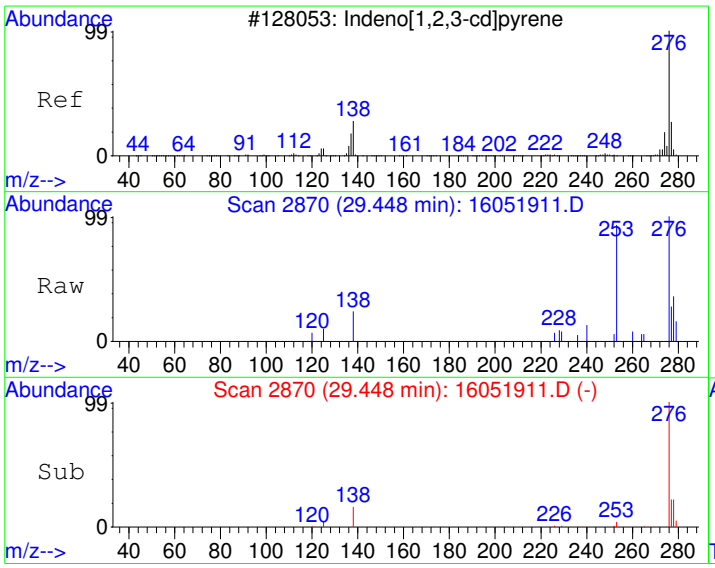


#25
Benzo[a]pyrene
Concen: 16.57 ug/kg
RT: 25.87 min Scan# 2364
Delta R.T. -0.03 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:252 Resp: 5787

Ion	Ratio	Lower	Upper
252	100		
253	20.2	1.9	41.9
125	13.3	0.0	31.7

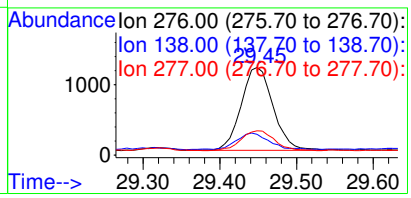


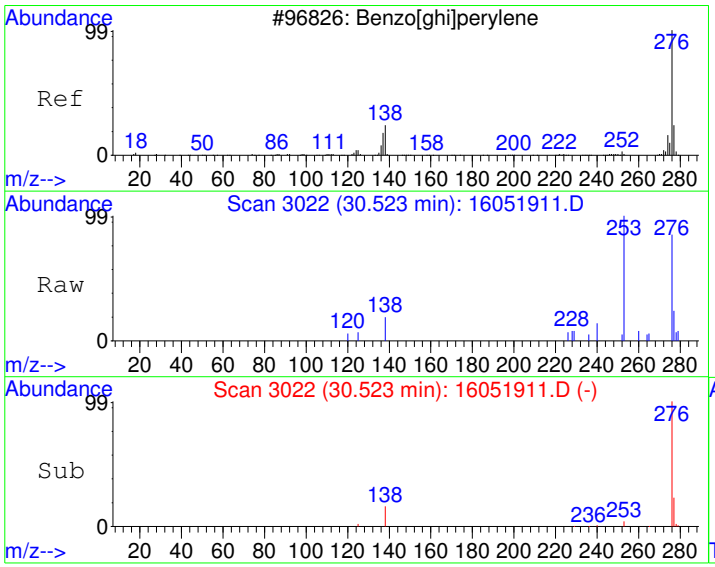


#27
Indeno[1,2,3-cd]pyrene
Concen: 9.01 ug/kg
RT: 29.45 min Scan# 2870
Delta R.T. -0.03 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:276 Resp: 3418

Ion	Ratio	Lower	Upper
276	100		
138	18.2	6.7	46.7
277	23.1	5.8	45.8

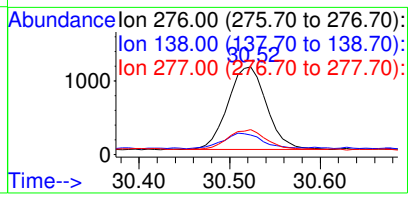




#28
Benzo[g,h,i]perylene
Concen: 11.25 ug/kg
RT: 30.52 min Scan# 3022
Delta R.T. -0.03 min
Lab File: 16051911.D
Acq: 19 May 2016 3:08 pm

Tgt Ion:276 Resp: 3329

Ion	Ratio	Lower	Upper
276	100		
138	16.7	0.0	39.1
277	23.9	4.0	44.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051915.D Vial: 15
Acq On : 19 May 2016 5:47 pm Operator:
Sample : 1605097-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

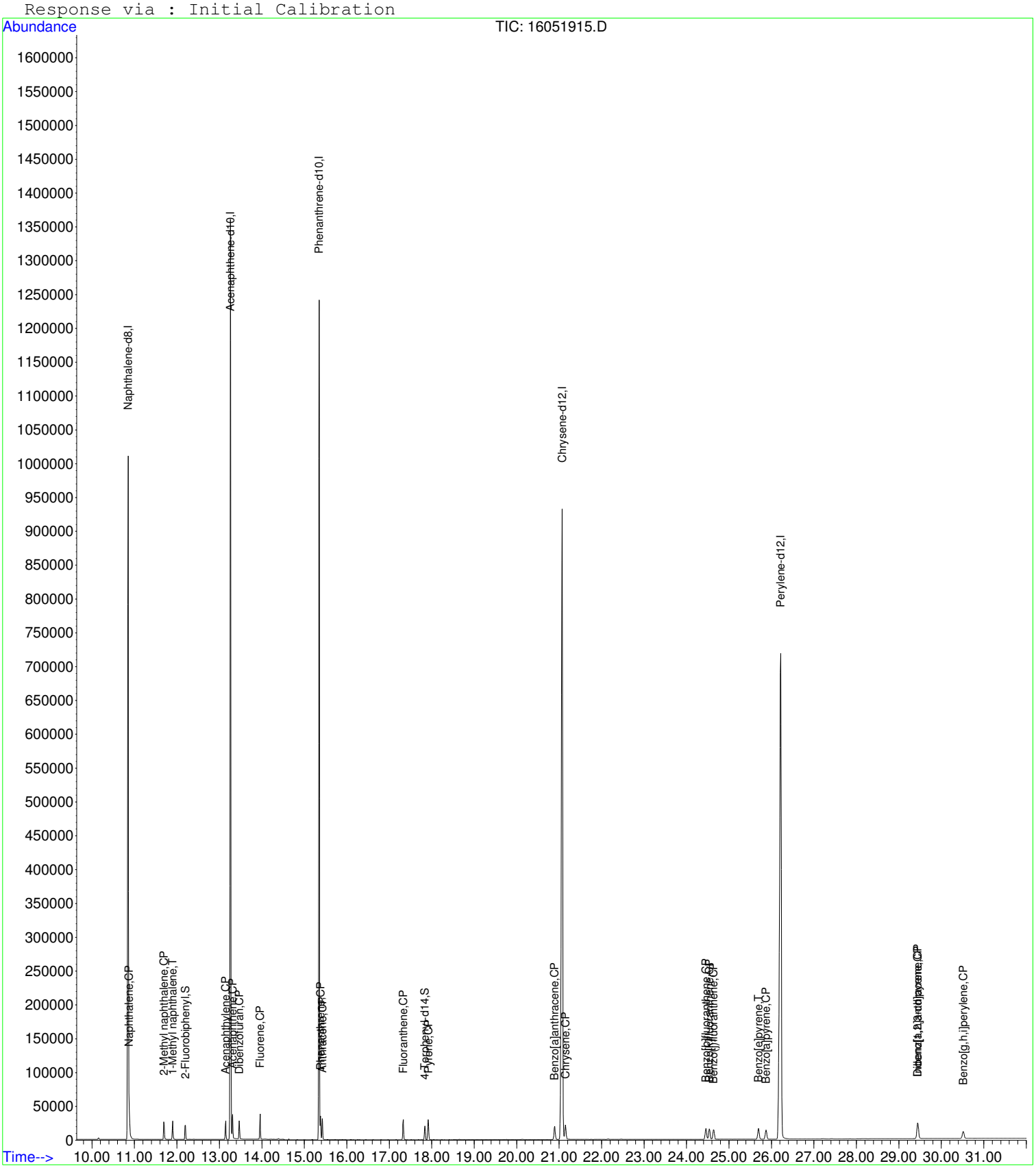
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1275138	4000.00	ug/kg	110
5) Acenaphthene-d10	13.26	164	786628	4000.00	ug/kg	68
11) Phenanthrene-d10	15.35	188	1328899	4000.00	ug/kg	65
17) Chrysene-d12	21.07	240	1530260	4000.00	ug/kg	67
20) Perylene-d12	26.22	264	1393277	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	19514	85.04	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#		
16) 4-Terphenyl-d14	17.84	244	26397	76.78	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.92%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	22058	69.16	ug/kg	99
3) 2-Methyl naphthalene	11.69	142	16304	57.87	ug/kg	94
4) 1-Methyl naphthalene	11.90	142	14753	57.17	ug/kg	97
6) Dibenzofuran	13.47	168	22870	77.57	ug/kg	99
8) Acenaphthylene	13.15	152	25271	74.60	ug/kg	98
9) Acenaphthene	13.31	154	15069	71.67	ug/kg	97
10) Fluorene	13.96	166	18520	72.52	ug/kg	99
12) Phenanthrene	15.38	178	27585	78.93	ug/kg	99
13) Anthracene	15.42	178	26071	78.82	ug/kg	99
14) Fluoranthene	17.33	202	30024	83.02	ug/kg	98
15) Pyrene	17.92	202	31104	82.79	ug/kg	99
18) Benzo[a]anthracene	20.89	228	28428	79.30	ug/kg	99
19) Chrysene	21.15	228	27384	79.06	ug/kg	99
21) Benzo[b]fluoranthene	24.46	252	29482	80.28	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	27584	80.07	ug/kg	100
23) Benzo(j)fluoranthene	24.63	252	26037	84.85	ug/kg	98
24) Benzo[e]pyrene	25.69	252	29219	88.85	ug/kg	99
25) Benzo[a]pyrene	25.87	252	25627	76.26	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	22019	71.94	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.44	276	25981	71.16	ug/kg	94
28) Benzo[g,h,i]perylene	30.52	276	21145	74.27	ug/kg	98

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051915.D Vial: 15
Acq On : 19 May 2016 5:47 pm Operator:
Sample : 1605097-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051916.D Vial: 16
Acq On : 19 May 2016 6:27 pm Operator:
Sample : 1605097-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

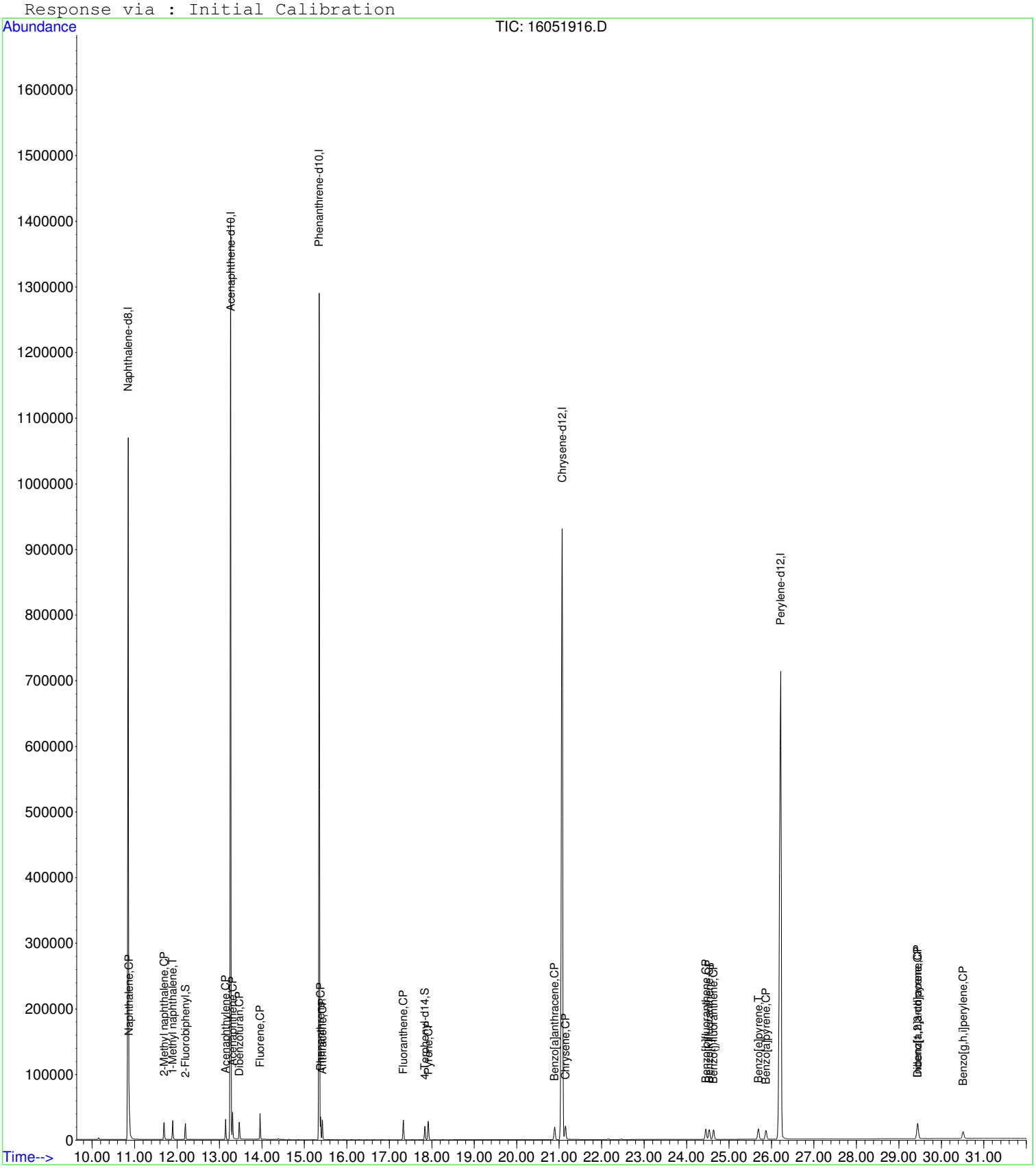
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1287064	4000.00	ug/kg	111
5) Acenaphthene-d10	13.26	164	796125	4000.00	ug/kg	69
11) Phenanthrene-d10	15.35	188	1349486	4000.00	ug/kg	66
17) Chrysene-d12	21.07	240	1527656	4000.00	ug/kg	67
20) Perylene-d12	26.22	264	1398196	4000.00	ug/kg	68
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	20453	88.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.20%#		
16) 4-Terphenyl-d14	17.84	244	25815	73.94	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	22840	70.94	ug/kg	100
3) 2-Methyl naphthalene	11.70	142	16815	59.13	ug/kg	99
4) 1-Methyl naphthalene	11.90	142	15499	59.51	ug/kg	97
6) Dibenzofuran	13.46	168	23281	78.02	ug/kg	99
8) Acenaphthylene	13.15	152	26026	75.91	ug/kg	99
9) Acenaphthene	13.31	154	15494	72.81	ug/kg	99
10) Fluorene	13.96	166	18657	72.19	ug/kg	100
12) Phenanthrene	15.38	178	27381	77.15	ug/kg	99
13) Anthracene	15.42	178	25863	76.99	ug/kg	99
14) Fluoranthene	17.33	202	29537	80.43	ug/kg	98
15) Pyrene	17.92	202	30245	79.28	ug/kg	99
18) Benzo[a]anthracene	20.89	228	28301	79.08	ug/kg	99
19) Chrysene	21.15	228	26849	77.64	ug/kg	100
21) Benzo[b]fluoranthene	24.46	252	28831	78.24	ug/kg	100
22) Benzo[k]fluoranthene	24.53	252	27335	79.07	ug/kg	99
23) Benzo(j)fluoranthene	24.63	252	25783	83.72	ug/kg	98
24) Benzo[e]pyrene	25.69	252	28983	87.82	ug/kg	98
25) Benzo[a]pyrene	25.87	252	25428	75.40	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	21681	70.59	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.44	276	25468	69.51	ug/kg	95
28) Benzo[g,h,i]perylene	30.52	276	20730	72.55	ug/kg	97

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051916.D Vial: 16
Acq On : 19 May 2016 6:27 pm Operator:
Sample : 1605097-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051918.D Vial: 18
Acq On : 19 May 2016 7:44 pm Operator:
Sample : ICV2-160519 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

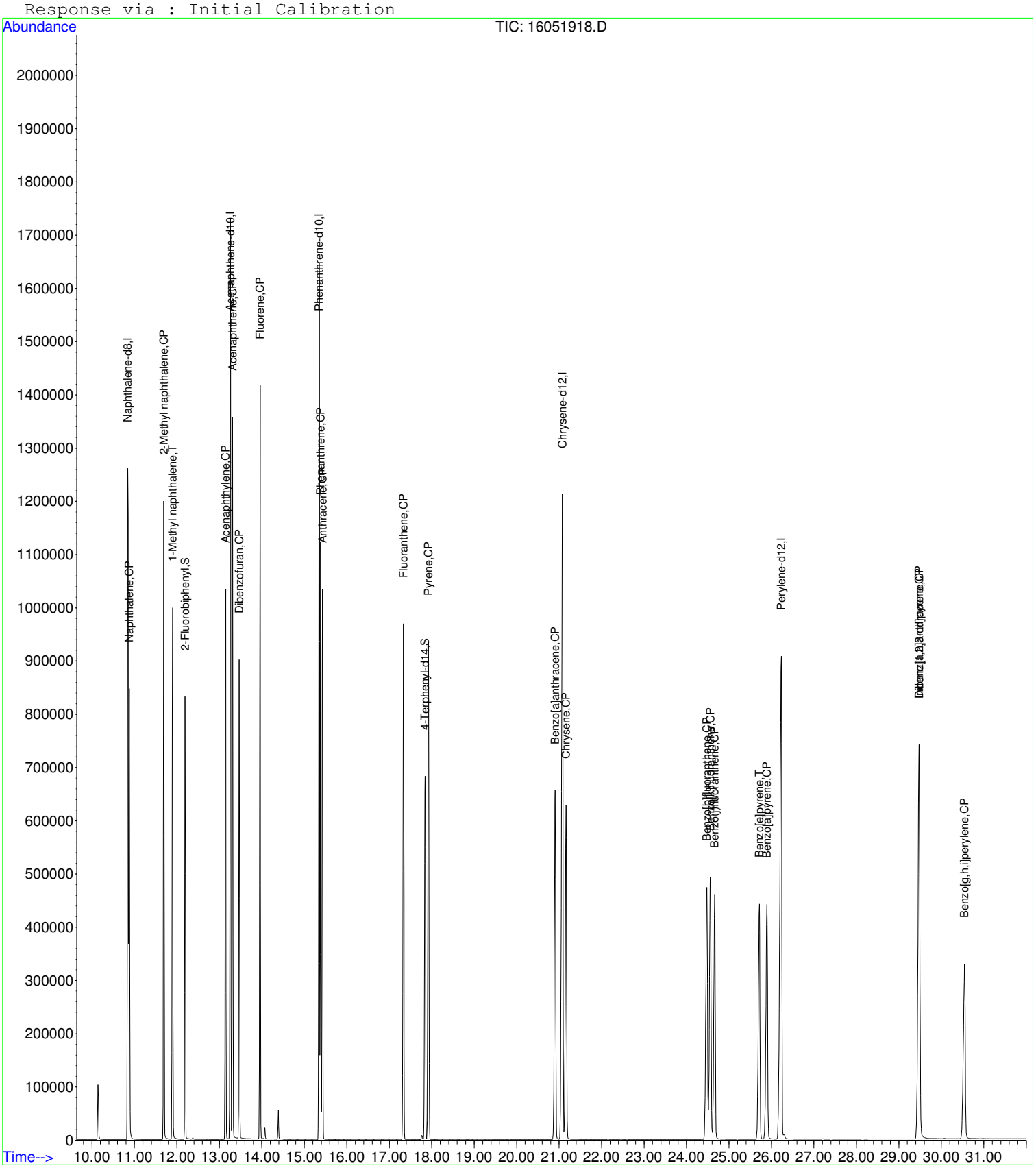
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1665776	4000.00	ug/kg	144
5) Acenaphthene-d10	13.26	164	1040034	4000.00	ug/kg	90
11) Phenanthrene-d10	15.35	188	1903949	4000.00	ug/kg	93
17) Chrysene-d12	21.08	240	2090607	4000.00	ug/kg	92
20) Perylene-d12	26.23	264	1894052	4000.00	ug/kg	92
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	619846	2043.09	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.08%		
16) 4-Terphenyl-d14	17.84	244	908305	1843.96	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	46.10%		
Target Compounds						Qvalue
2) Naphthalene	10.88	128	816854	1960.42	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	591546	1607.21	ug/kg	98
4) 1-Methyl naphthalene	11.90	142	531009	1575.27	ug/kg	99
6) Dibenzofuran	13.47	168	755260	1937.59	ug/kg	98
8) Acenaphthylene	13.15	152	940540	2099.89	ug/kg	99
9) Acenaphthene	13.31	154	540078	1942.68	ug/kg	99
10) Fluorene	13.96	166	679462	2012.46	ug/kg	98
12) Phenanthrene	15.38	178	941682	1880.70	ug/kg	99
13) Anthracene	15.43	178	864304	1823.72	ug/kg	100
14) Fluoranthene	17.34	202	1006998	1943.46	ug/kg	99
15) Pyrene	17.92	202	1005248	1867.65	ug/kg	99
18) Benzo[a]anthracene	20.91	228	967427	1975.24	ug/kg	100
19) Chrysene	21.16	228	878937	1857.34	ug/kg	100
21) Benzo[b]fluoranthene	24.48	252	970811	1944.71	ug/kg	99
22) Benzo[k]fluoranthene	24.56	252	898933	1919.56	ug/kg	100
23) Benzo(j)fluoranthene	24.66	252	793480	1902.10	ug/kg	99
24) Benzo[e]pyrene	25.72	252	839720	1878.28	ug/kg	100
25) Benzo[a]pyrene	25.89	252	863325	1889.73	ug/kg	100
26) Dibenz[a,h]anthracene	29.48	278	745083	1790.78	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.48	276	864543	1741.80	ug/kg	97
28) Benzo[g,h,i]perylene	30.54	276	692412	1788.98	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051918.D Vial: 18
Acq On : 19 May 2016 7:44 pm Operator:
Sample : ICV2-160519 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

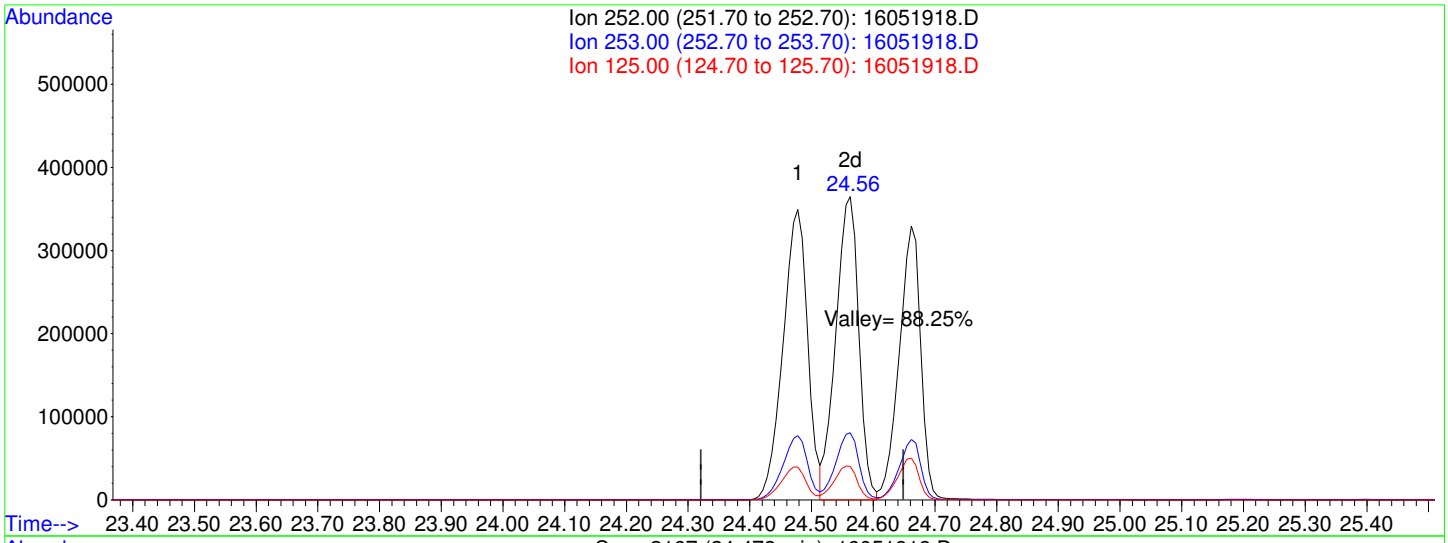
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration

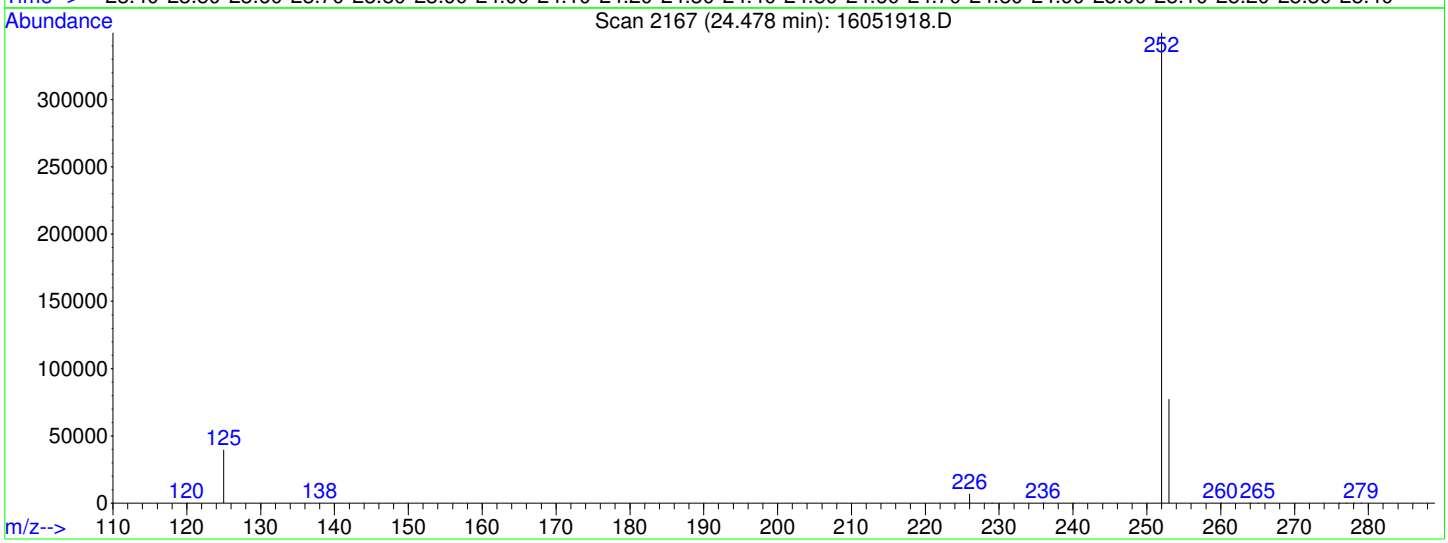


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160519\16051918.D Vial: 18
Acq On : 19 May 2016 7:44 pm Operator:
Sample : ICV2-160519 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 19 20:16 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Multiple Level Calibration





TIC: 16051918.D

(21) Benzo[b]fluoranthene (CP)

24.48min 1944.71ug/kg

response 970811

Ion	Exp%	Act%
252.00	100	100
253.00	22.20	21.98
125.00	11.00	11.32
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051920.D Vial: 20
Acq On : 19 May 2016 9:04 pm Operator:
Sample : SB-160519 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

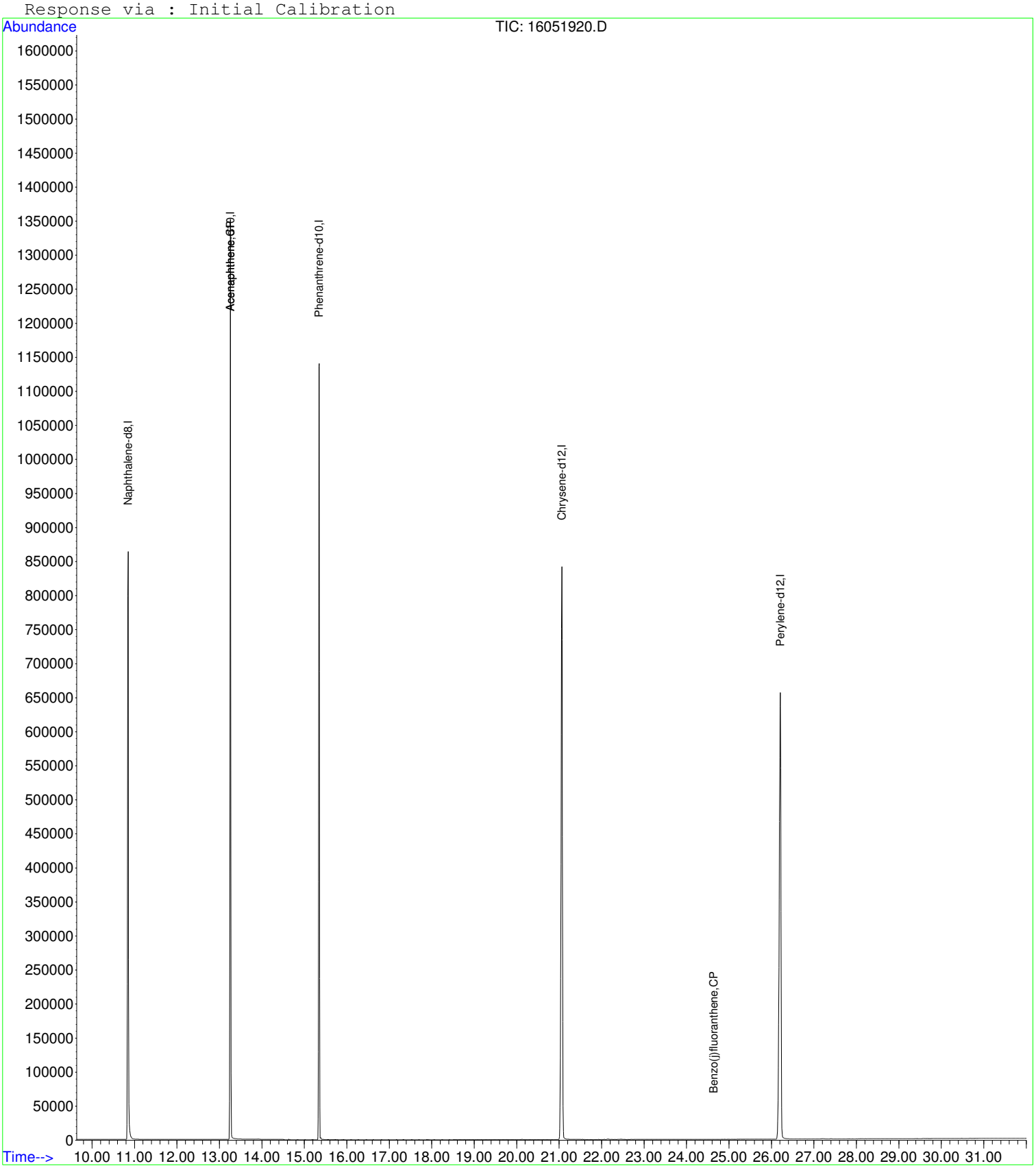
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.85	136	1177486	4000.00	ug/kg	102
5) Acenaphthene-d10	13.26	164	729646	4000.00	ug/kg	63
11) Phenanthrene-d10	15.35	188	1248585	4000.00	ug/kg	61
17) Chrysene-d12	21.06	240	1399671	4000.00	ug/kg	62
20) Perylene-d12	26.21	264	1273280	4000.00	ug/kg	62
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.20	172	52	0.24	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
16) 4-Terphenyl-d14	17.84	244	51	0.16	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.26	154	2175	11.15	ug/kg#	9
23) Benzo(j)fluoranthene	24.63	252	59	0.21	ug/kg#	55

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051920.D Vial: 20
Acq On : 19 May 2016 9:04 pm Operator:
Sample : SB-160519 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160519\16051931.D Vial: 31
Acq On : 20 May 2016 4:23 am Operator:
Sample : CCV1-160519 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration
DataAcq Meth : PP160421

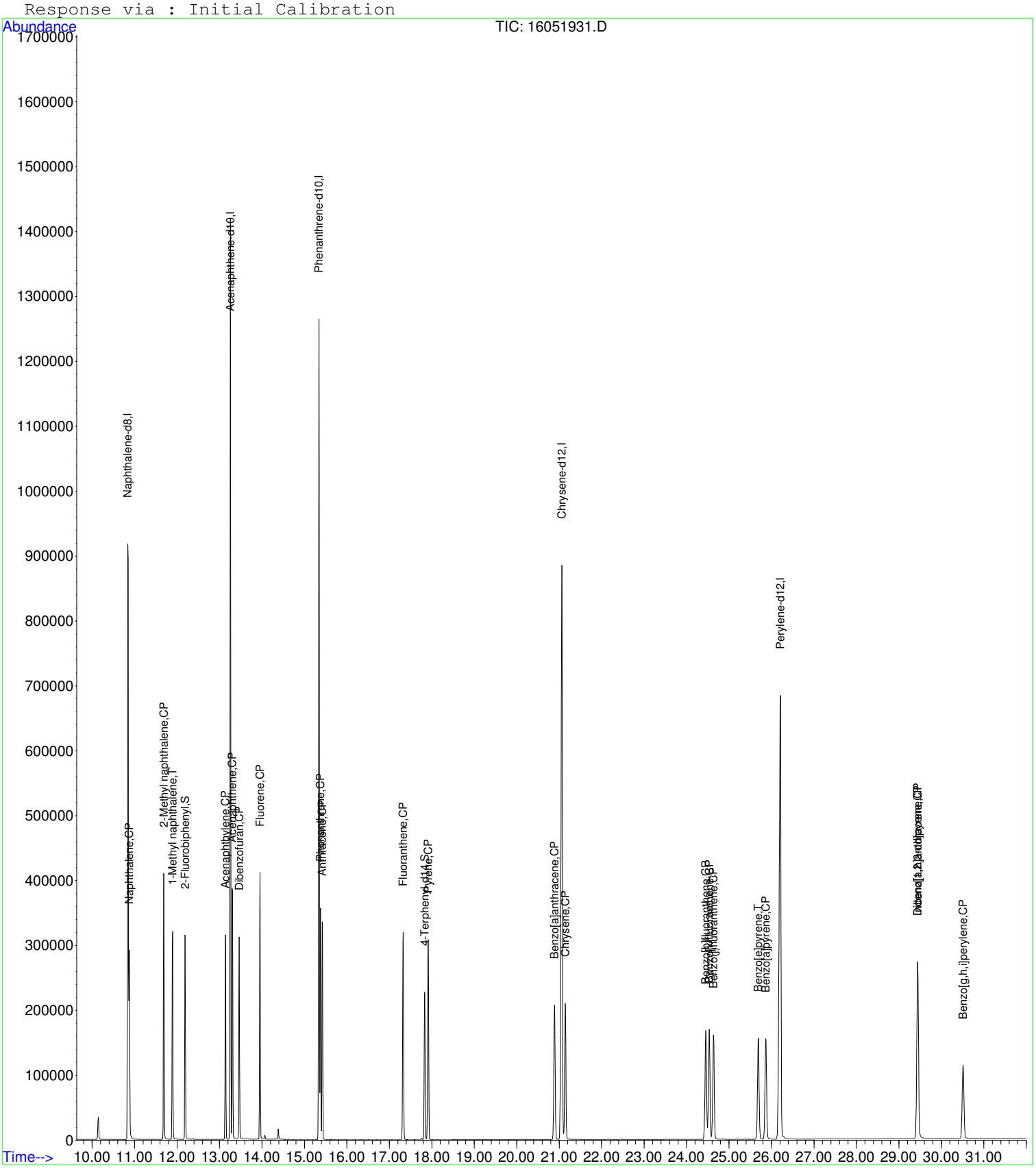
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.84	136	1250771	4000.00	ug/kg	108
5) Acenaphthene-d10	13.25	164	770049	4000.00	ug/kg	67
11) Phenanthrene-d10	15.34	188	1301718	4000.00	ug/kg	64
17) Chrysene-d12	21.06	240	1482195	4000.00	ug/kg	65
20) Perylene-d12	26.21	264	1372359	4000.00	ug/kg	67
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.19	172	231409	1030.18	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.75%#			
16) 4-Terphenyl-d14	17.83	244	291426	865.34	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 21.63%#			
Target Compounds						Qvalue
2) Naphthalene	10.88	128	278051	888.73	ug/kg	100
3) 2-Methyl naphthalene	11.69	142	202955	734.38	ug/kg	98
4) 1-Methyl naphthalene	11.90	142	181839	718.42	ug/kg	100
6) Dibenzofuran	13.46	168	262596	909.88	ug/kg	99
8) Acenaphthylene	13.14	152	312679	942.86	ug/kg	99
9) Acenaphthene	13.31	154	179296	871.05	ug/kg	96
10) Fluorene	13.96	166	217136	868.61	ug/kg	98
12) Phenanthrene	15.38	178	289910	846.87	ug/kg	99
13) Anthracene	15.42	178	292913	904.00	ug/kg	99
14) Fluoranthene	17.33	202	317081	895.07	ug/kg	98
15) Pyrene	17.91	202	322598	876.64	ug/kg	99
18) Benzo[a]anthracene	20.89	228	314524	905.78	ug/kg	99
19) Chrysene	21.14	228	289248	862.13	ug/kg	100
21) Benzo[b]fluoranthene	24.45	252	317271	877.15	ug/kg	99
22) Benzo[k]fluoranthene	24.54	252	302059	890.20	ug/kg	100
23) Benzo(j)fluoranthene	24.63	252	276985	916.39	ug/kg	99
24) Benzo[e]pyrene	25.69	252	293081	904.77	ug/kg	99
25) Benzo[a]pyrene	25.86	252	288918	872.82	ug/kg	99
26) Dibenz[a,h]anthracene	29.44	278	250723	831.68	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.44	276	291351	810.12	ug/kg	97
28) Benzo[g,h,i]perylene	30.52	276	227135	809.93	ug/kg	99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160519\16051931.D Vial: 31
Acq On : 20 May 2016 4:23 am Operator:
Sample : CCV1-160519 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 8:27 2016 Quant Results File: PP160421.RES

Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Mon May 16 11:20:24 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1605096

CAL ID: 651

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

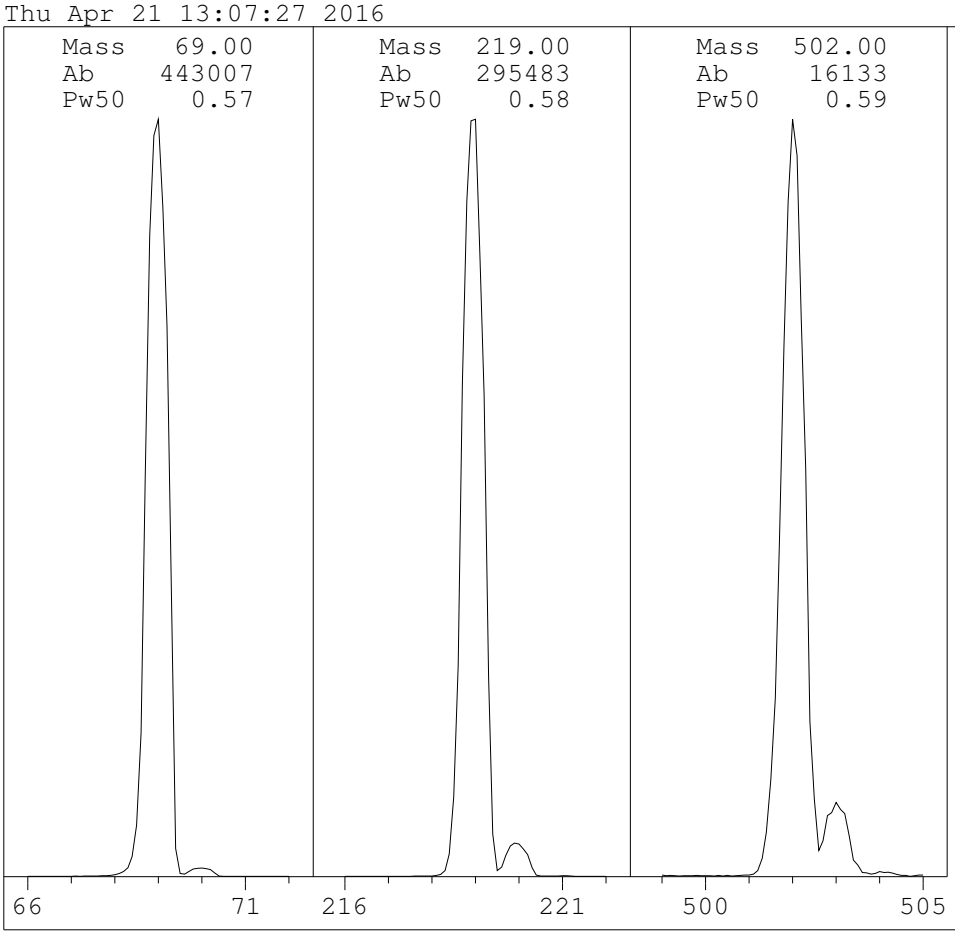
Analyst: Karyn Lane Date: 04/22/16

Second-Level Review: Date: 04/22/2016

HP5973

Instrument: GC/MS #6

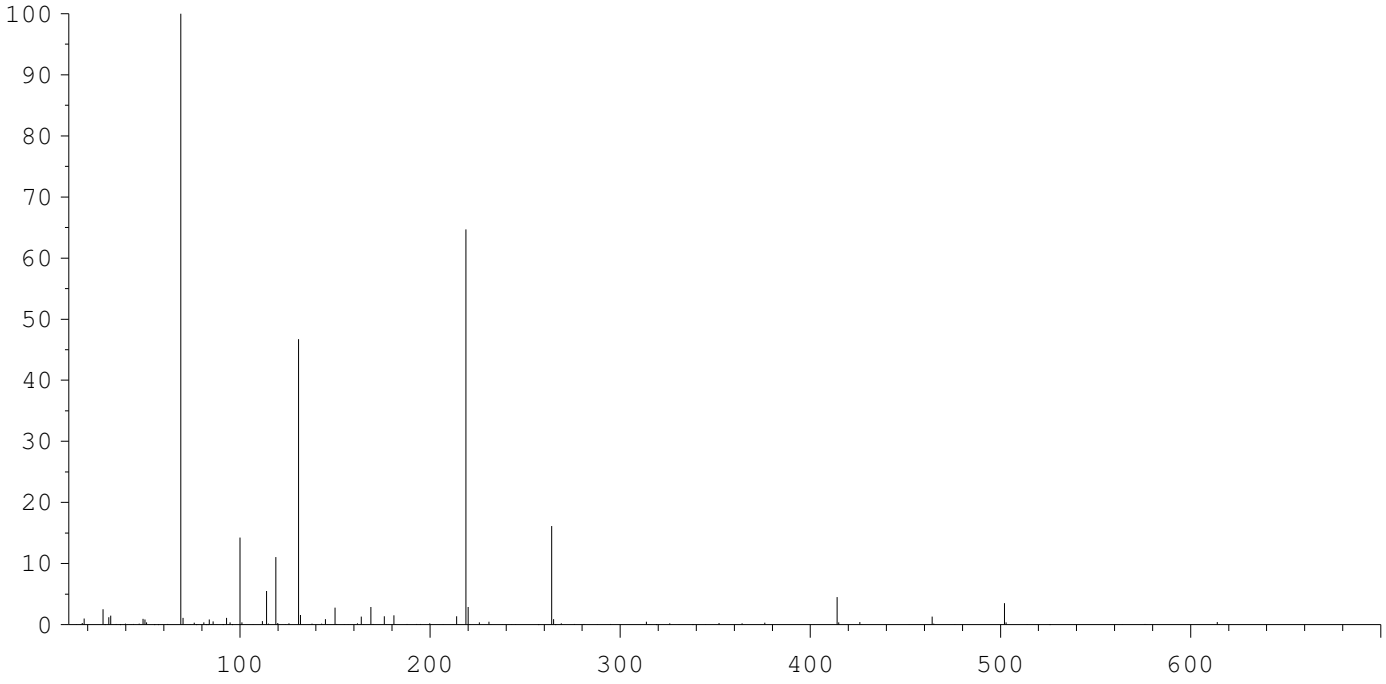
Thu Apr 21 13:07:27 2016 C:\HPCHEM\1\5973\ATUNE.U



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	64.7	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

Response Factor Report GC/MS #6

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

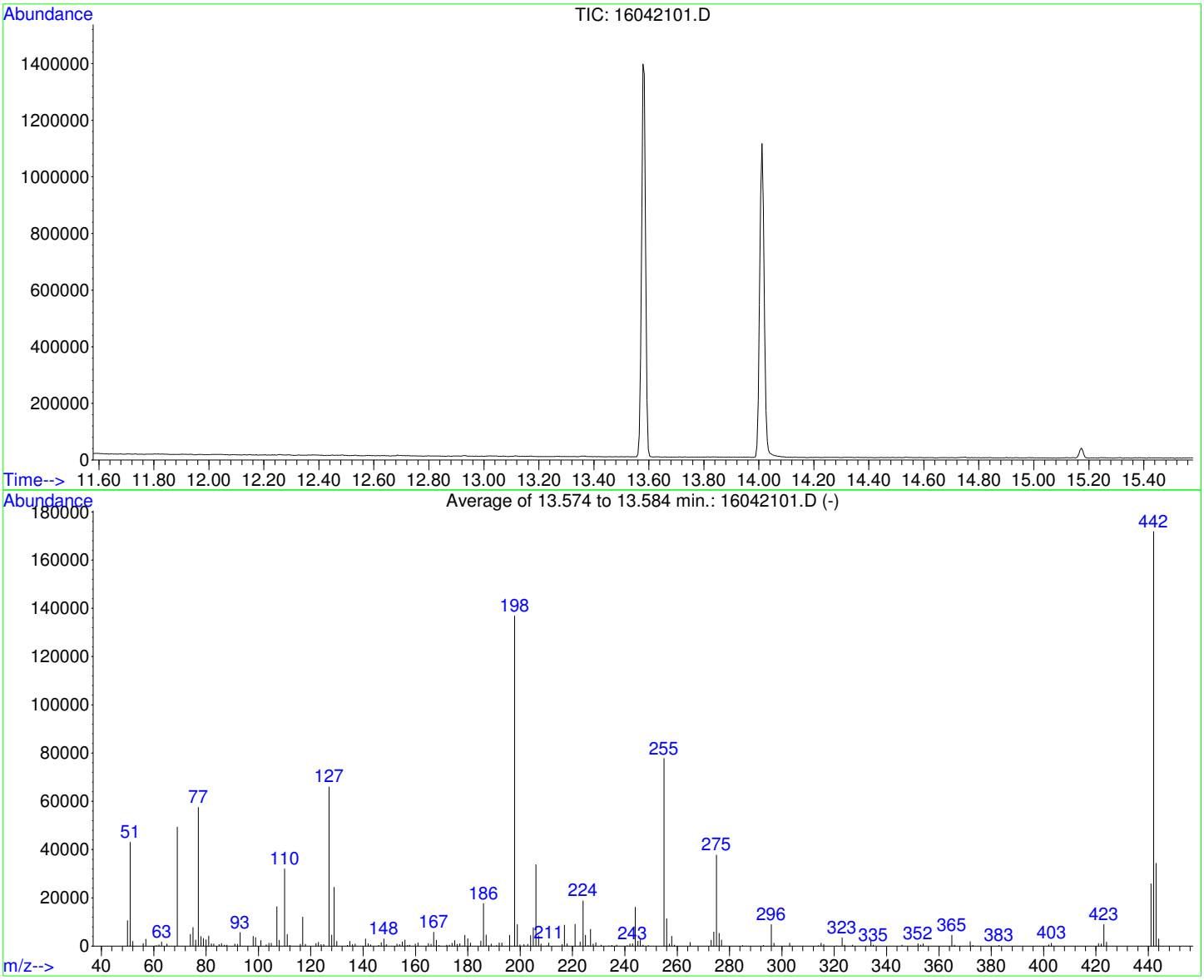
REVIEWED/APPROVED
By Sherri Herschmann at 9:42:37 AM, 4/28/2016

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

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
DataAcq Meth : PP160322

Reprocessed low point.

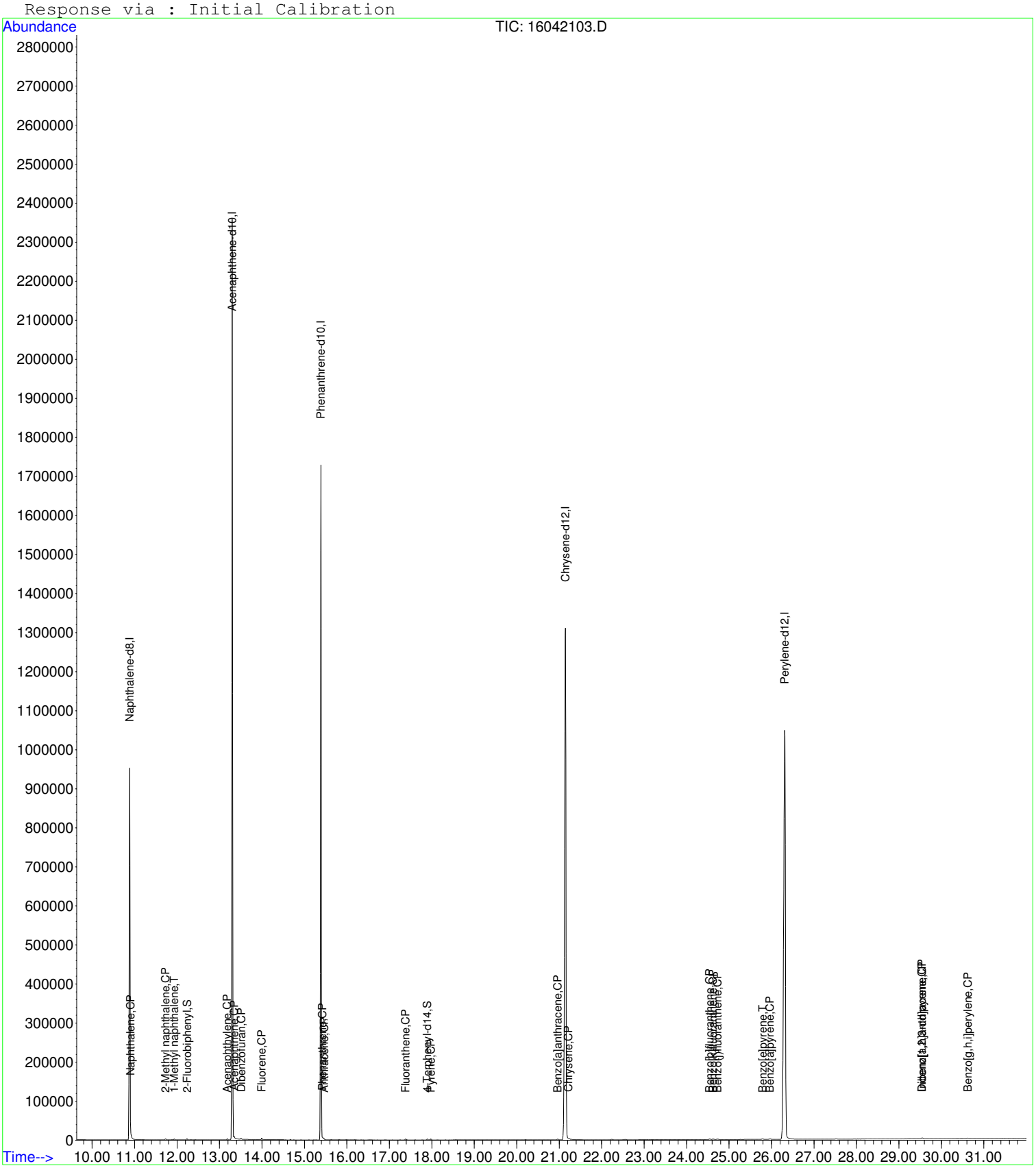
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1142778	4000.00	ug/kg	99
5) Acenaphthene-d10	13.30	164	1244911	4000.00	ug/kg	108
11) Phenanthrene-d10	15.39	188	1877690	4000.00	ug/kg	92
17) Chrysene-d12	21.15	240	2186100	4000.00	ug/kg	96
20) Perylene-d12	26.31	264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



Quantitation Report (Not Reviewed)

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

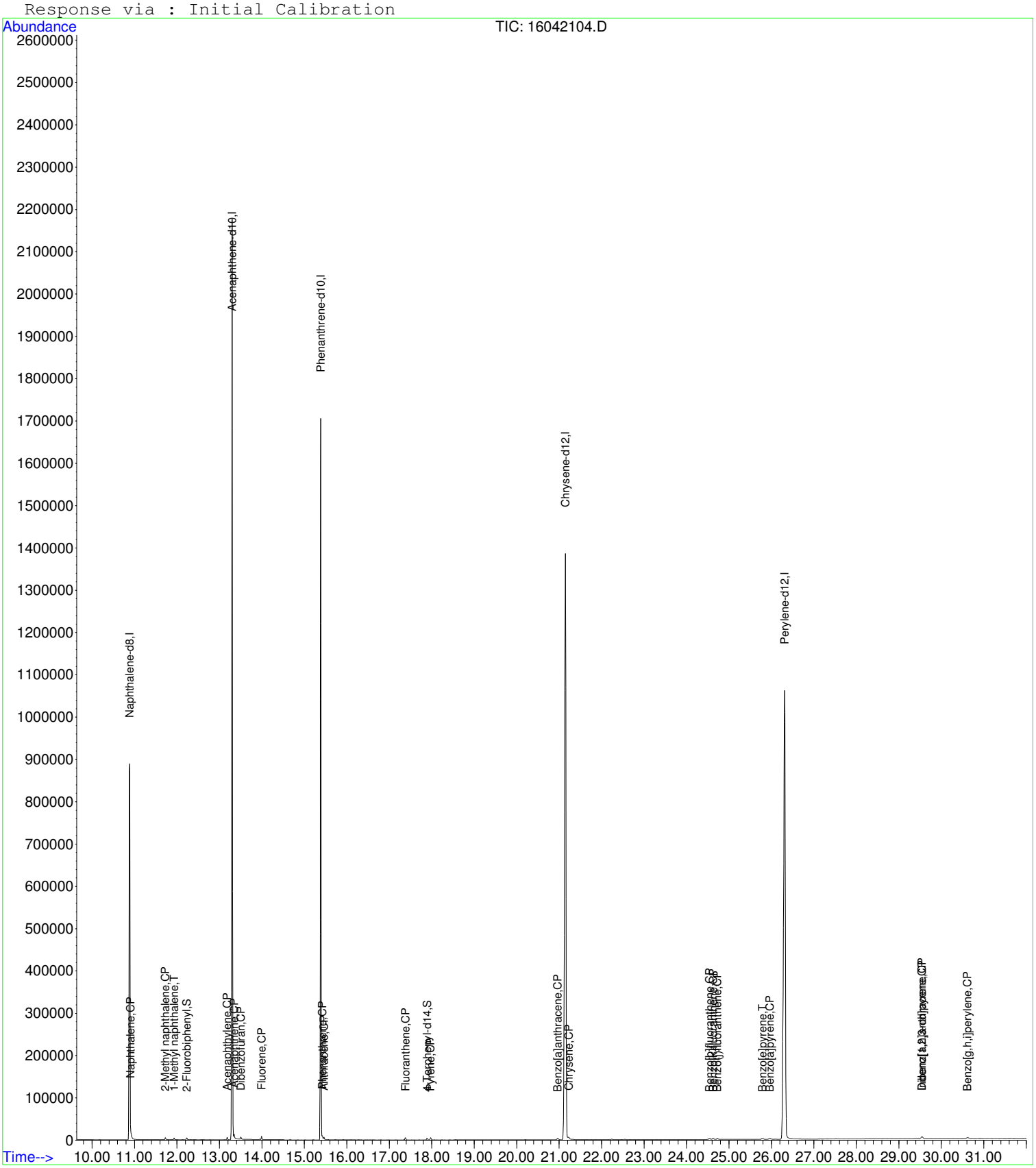
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.89	136	1199002	4000.00	ug/kg	103
5) Acenaphthene-d10	13.30	164	1222079	4000.00	ug/kg	106
11) Phenanthrene-d10	15.39	188	1882400	4000.00	ug/kg	92
17) Chrysene-d12	21.15	240	2305426	4000.00	ug/kg	101
20) Perylene-d12	26.31	264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

Quantitation Report

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

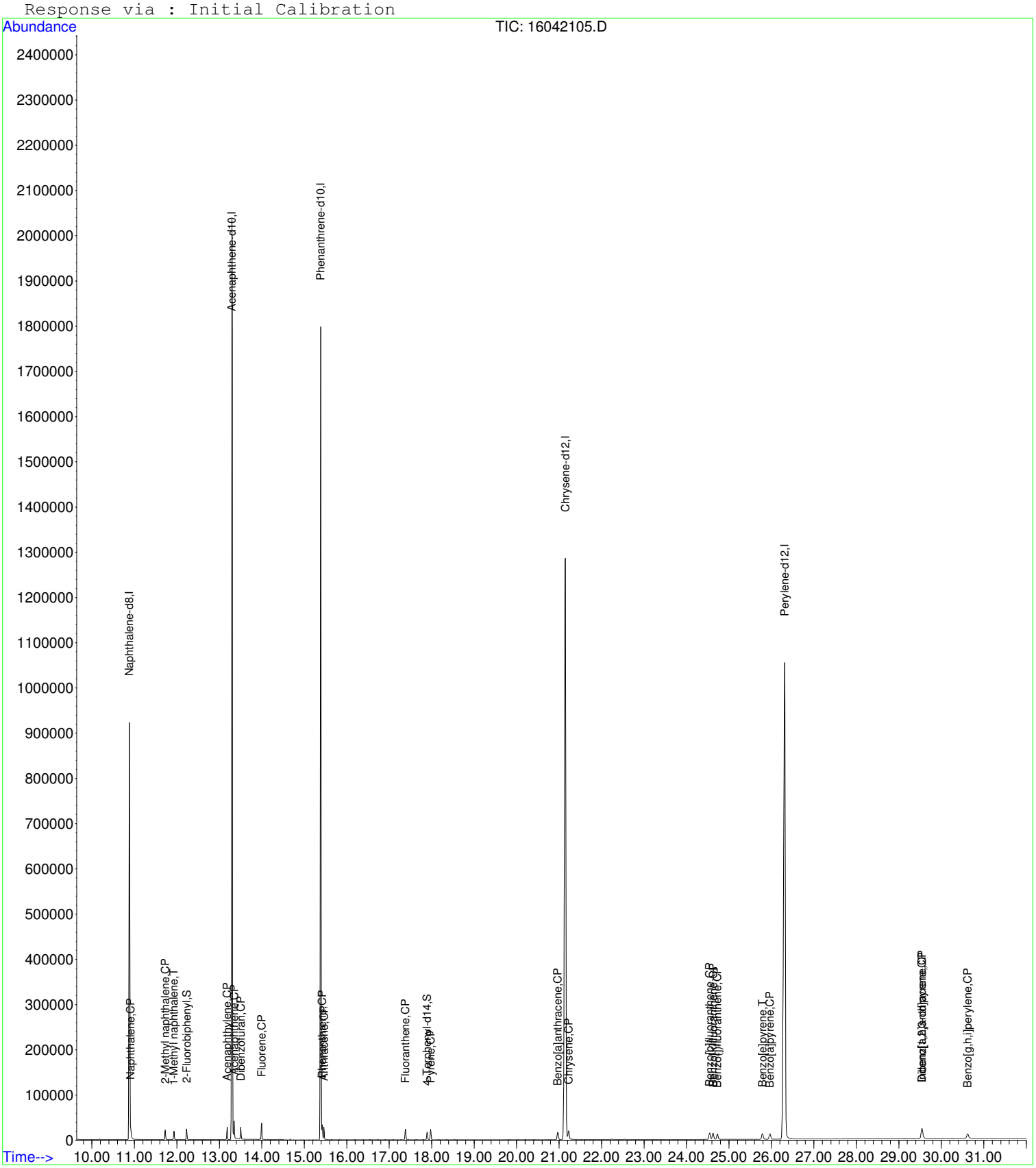
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1080570	4000.00	ug/kg	93
5) Acenaphthene-d10	13.30	164	1201613	4000.00	ug/kg	104
11) Phenanthrene-d10	15.39	188	1885707	4000.00	ug/kg	92
17) Chrysene-d12	21.15	240	2199366	4000.00	ug/kg	97
20) Perylene-d12	26.31	264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

Quantitation Report

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

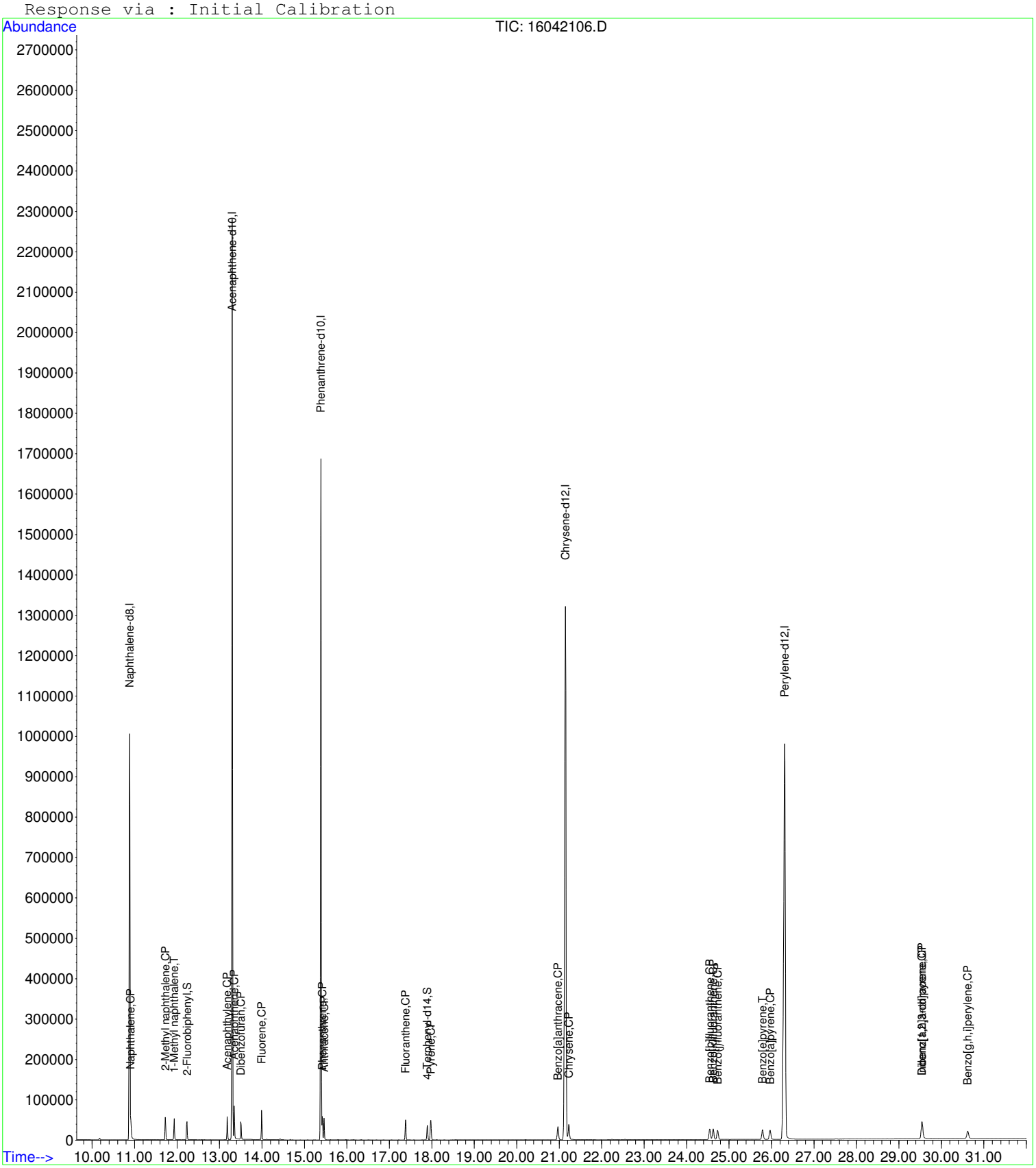
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.89	136	1270878	4000.00	ug/kg	110
5) Acenaphthene-d10	13.30	164	1176698	4000.00	ug/kg	102
11) Phenanthrene-d10	15.39	188	1800254	4000.00	ug/kg	88
17) Chrysene-d12	21.15	240	2173217	4000.00	ug/kg	96
20) Perylene-d12	26.31	264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

Quantitation Report

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



Quantitation Report (Not Reviewed)

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

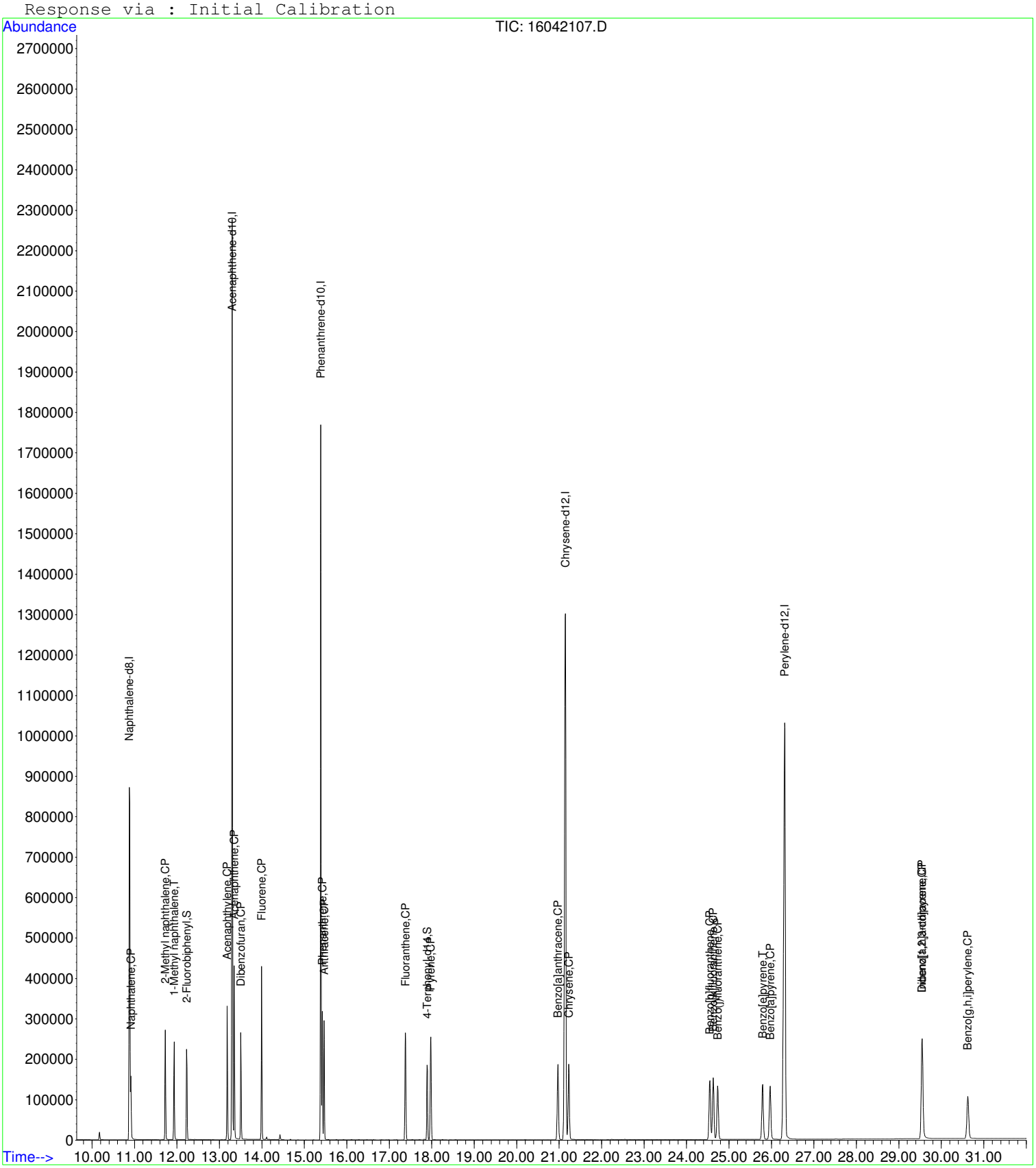
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1148191	4000.00	ug/kg	99
5) Acenaphthene-d10	13.30	164	1212423	4000.00	ug/kg	105
11) Phenanthrene-d10	15.39	188	1918468	4000.00	ug/kg	94
17) Chrysene-d12	21.15	240	2190661	4000.00	ug/kg	96
20) Perylene-d12	26.31	264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

Quantitation Report

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



Quantitation Report (Not Reviewed)

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

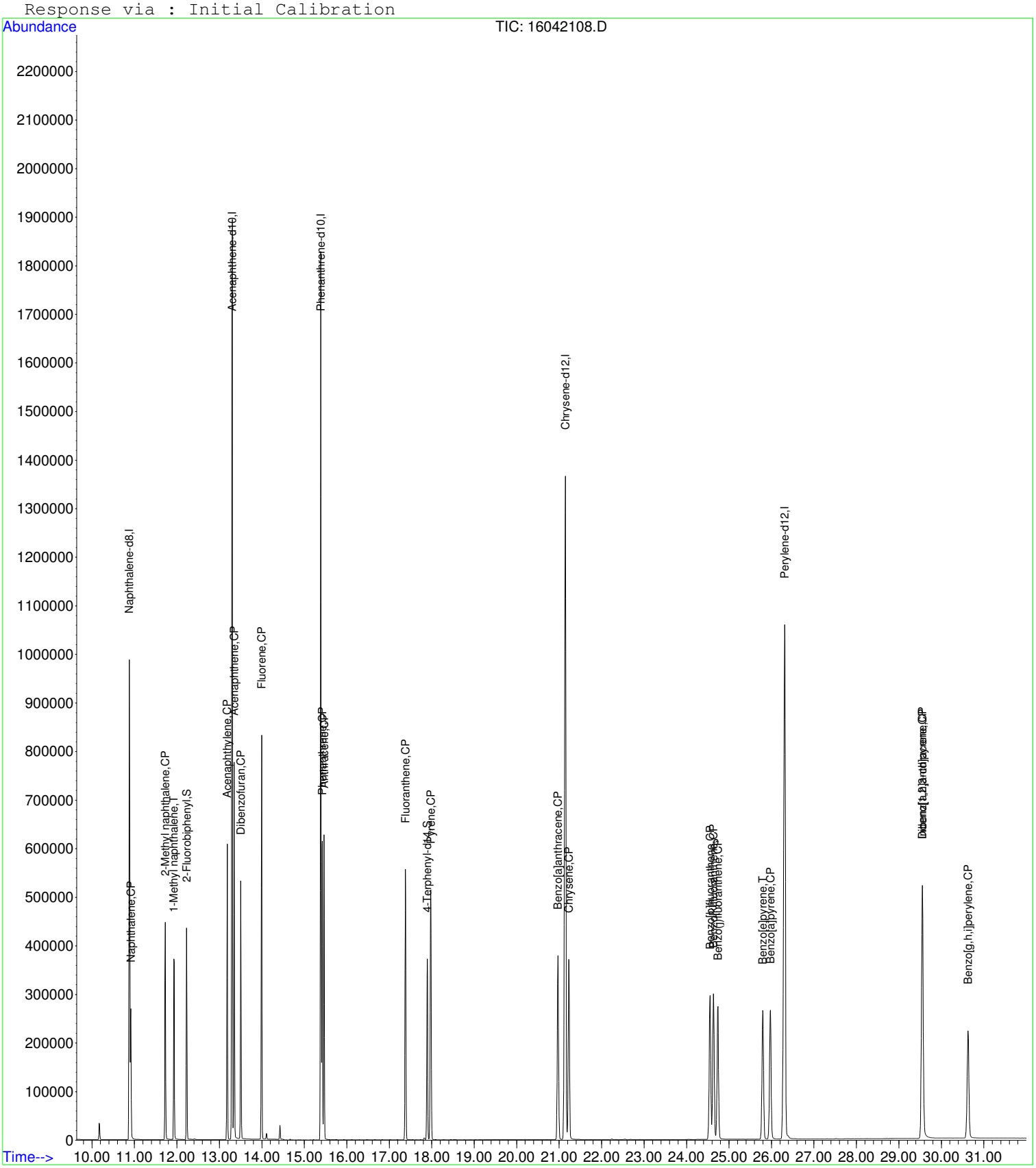
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1136496	4000.00	ug/kg	98
5) Acenaphthene-d10	13.30	164	1155470	4000.00	ug/kg	100
11) Phenanthrene-d10	15.39	188	2018968	4000.00	ug/kg	99
17) Chrysene-d12	21.15	240	2284860	4000.00	ug/kg	101
20) Perylene-d12	26.31	264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

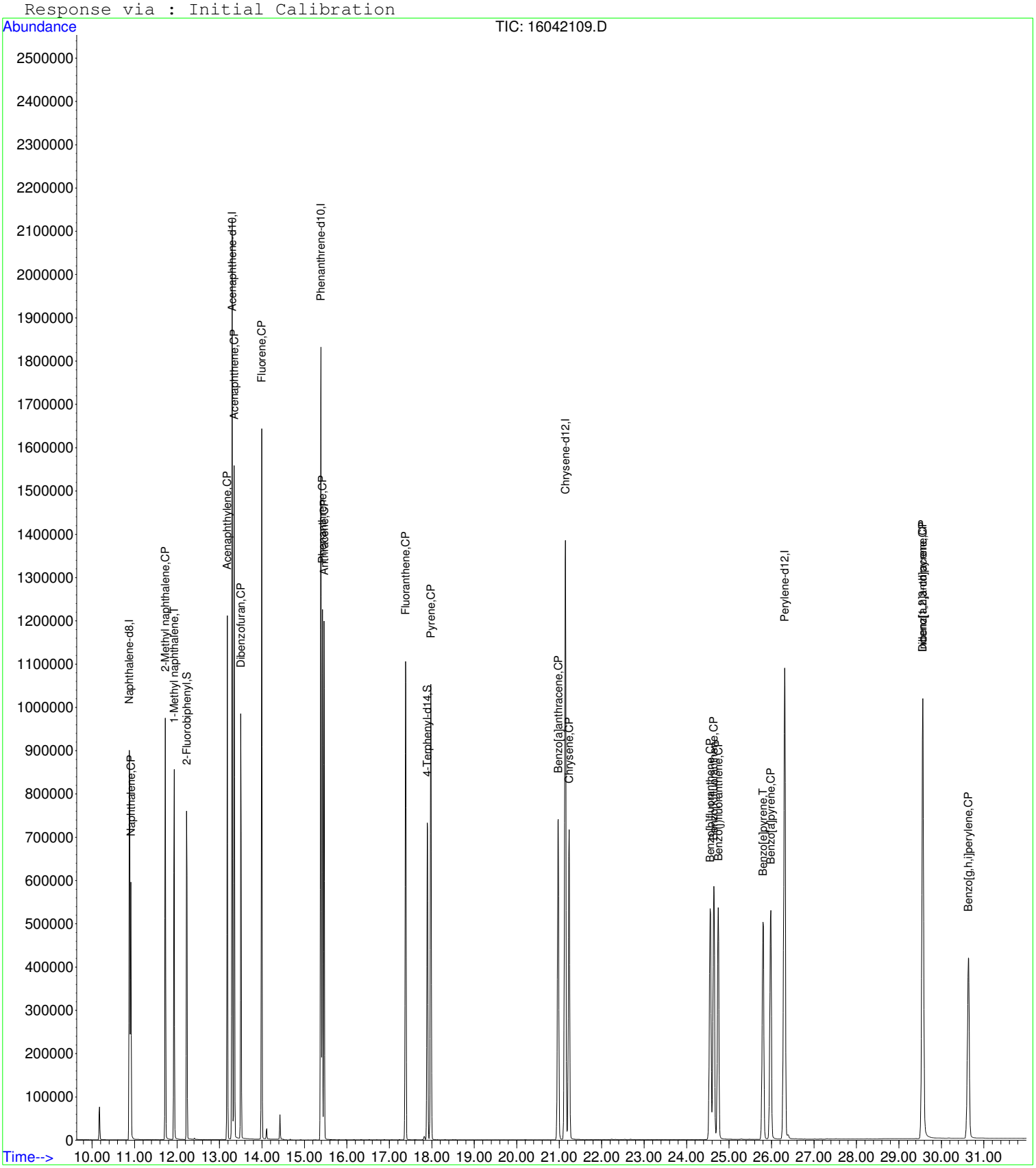
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1159180	4000.00	ug/kg	100
5) Acenaphthene-d10	13.30	164	1151209	4000.00	ug/kg	100
11) Phenanthrene-d10	15.39	188	2042352	4000.00	ug/kg	100
17) Chrysene-d12	21.15	240	2271514	4000.00	ug/kg	100
20) Perylene-d12	26.31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

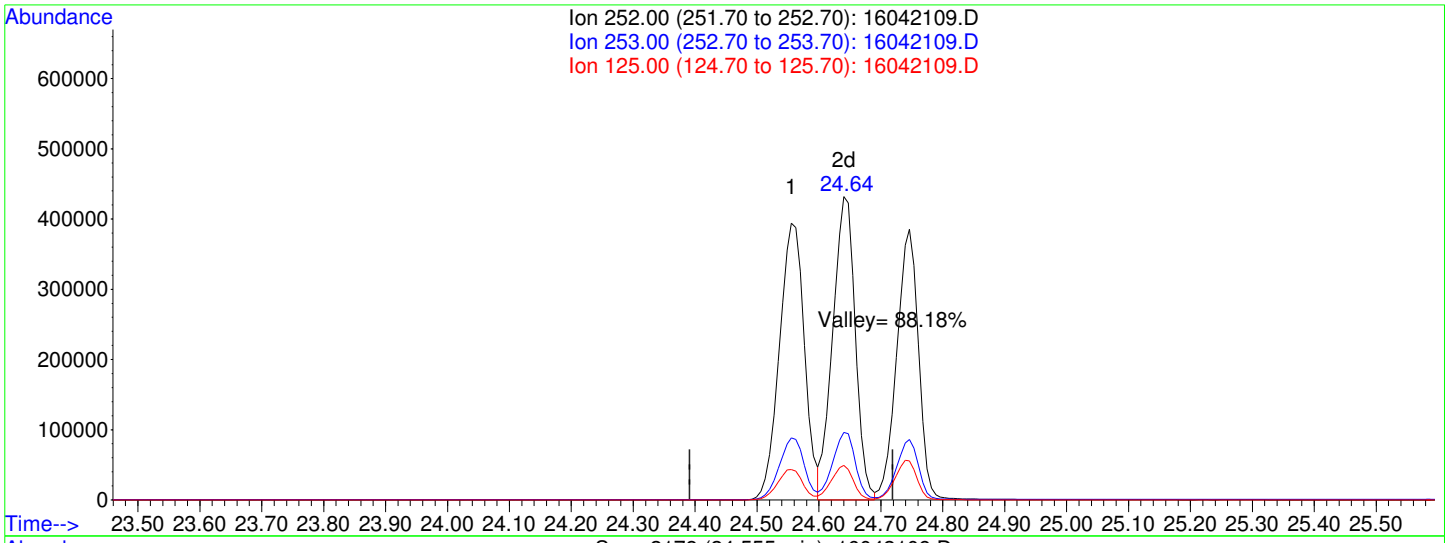
Method : C:\HPCHEM\1\METHODS\PP160421.M (RTE Integrator)
Title : PAH Calibration
Last Update : Fri Apr 22 11:43:43 2016
Response via : Initial Calibration

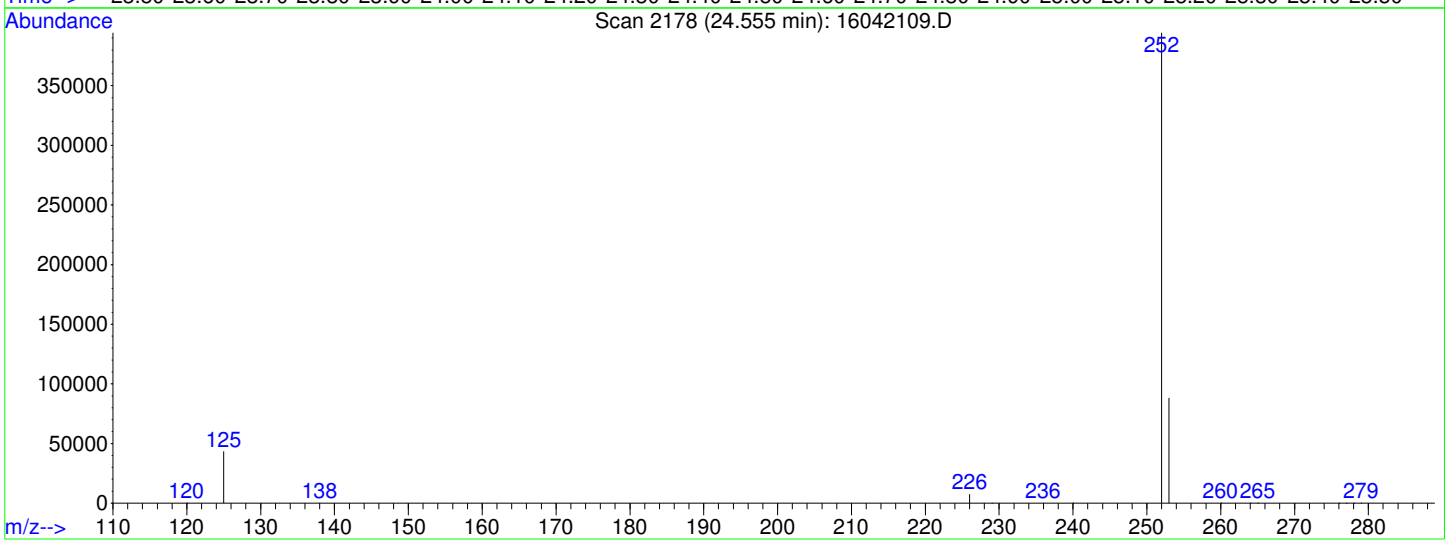


Quantitation Report (Qedit)

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

Quantitation Report (Not Reviewed)

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

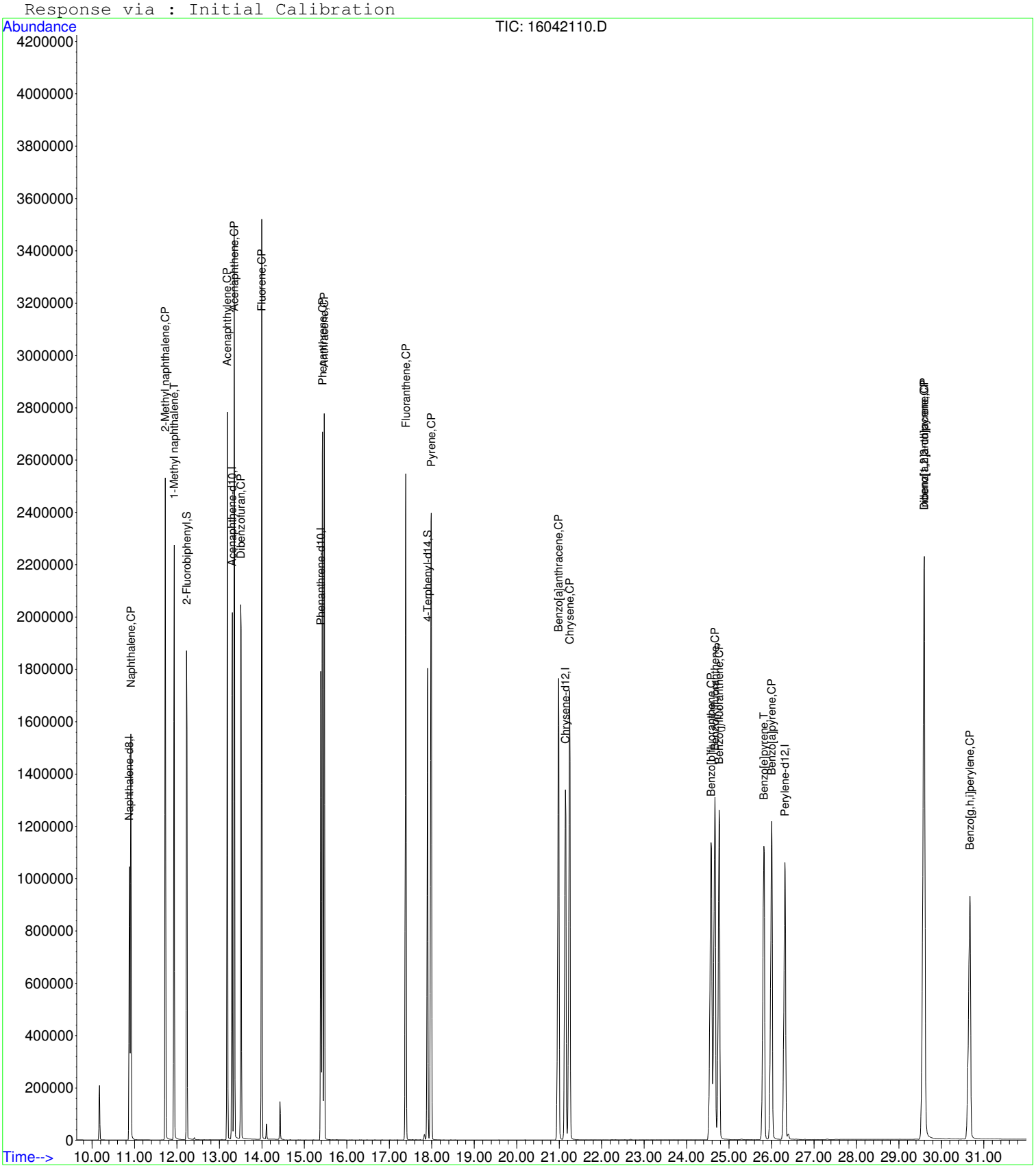
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1267887	4000.00	ug/kg	109
5) Acenaphthene-d10	13.30	164	1170622	4000.00	ug/kg	102
11) Phenanthrene-d10	15.39	188	2026803	4000.00	ug/kg	99
17) Chrysene-d12	21.15	240	2321115	4000.00	ug/kg	102
20) Perylene-d12	26.32	264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

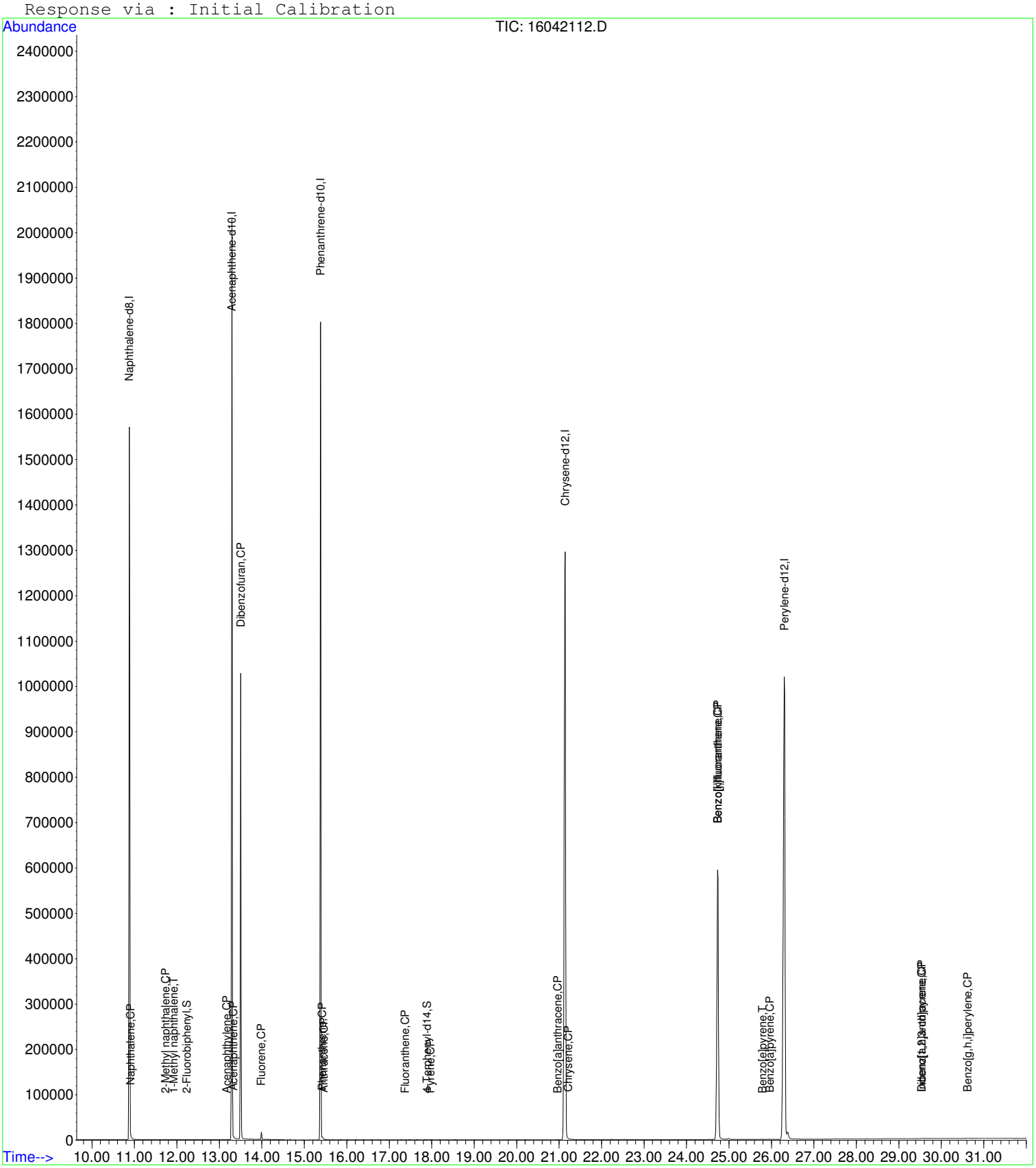
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)	
1) Naphthalene-d8	10.88	136	1773814	4000.00	ug/kg	153	
5) Acenaphthene-d10	13.29	164	1073271	4000.00	ug/kg	93	
11) Phenanthrene-d10	15.38	188	1966702	4000.00	ug/kg	96	
17) Chrysene-d12	21.14	240	2203847	4000.00	ug/kg	97	
20) Perylene-d12	26.30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



Quantitation Report (Not Reviewed)

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

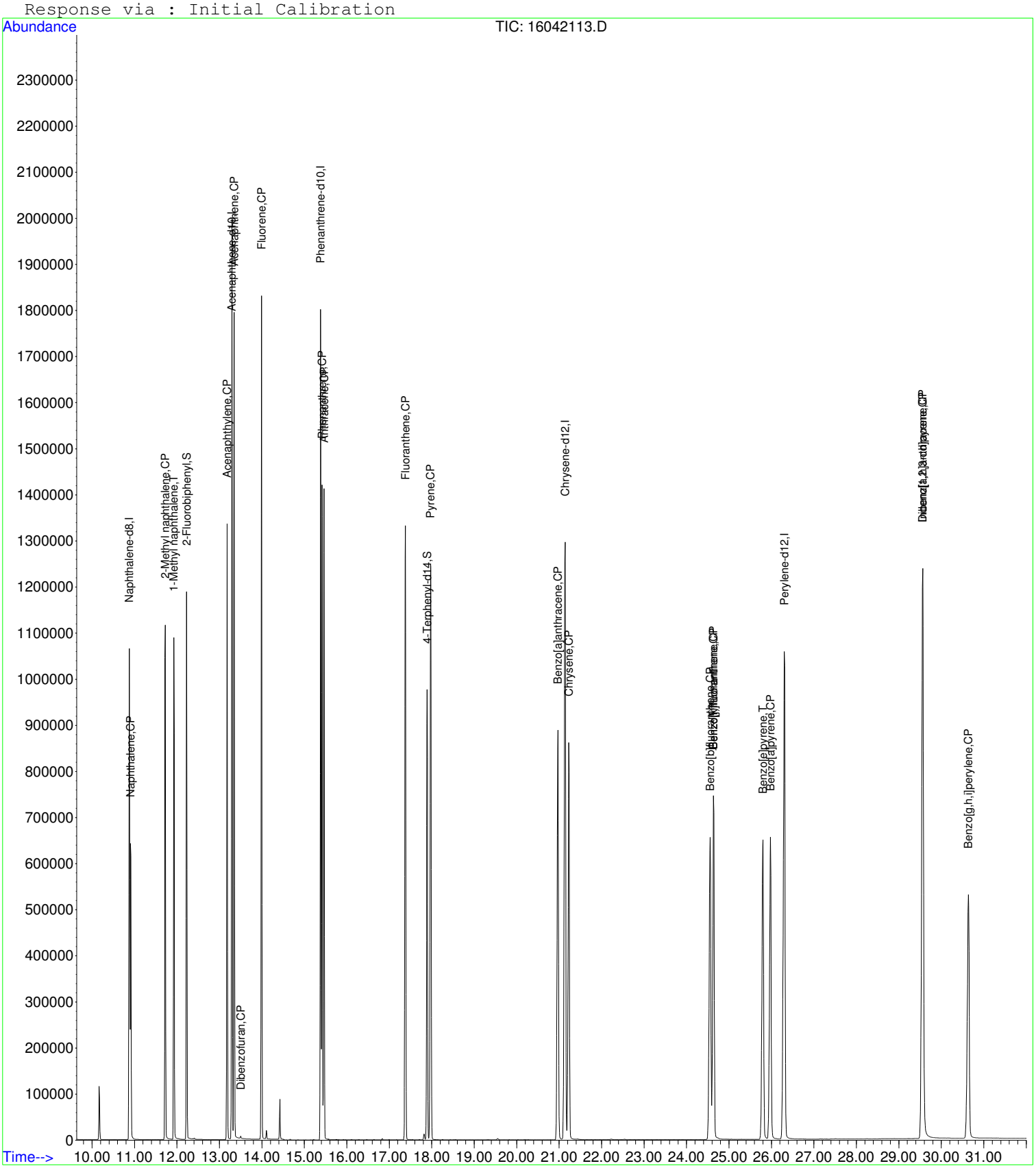
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.88	136	1207407	4000.00	ug/kg	104
5) Acenaphthene-d10	13.29	164	1125201	4000.00	ug/kg	98
11) Phenanthrene-d10	15.38	188	2006052	4000.00	ug/kg	98
17) Chrysene-d12	21.14	240	2214439	4000.00	ug/kg	97
20) Perylene-d12	26.30	264	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						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
1605096

GCMS8_160513A
For

DHL Work Order
1605096

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

Project Number(s): SEE RUN LOG.	**Run ID: GCMS8_160513A**
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	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	X
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard	X			
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			X
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			X
2. Are all corrective actions included?		X			
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X		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)	X High Levels of target analytes	___ Verify H2O/reagents are clean
X RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	X Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	X Other (describe below)	___ Accept data
___ Other (describe below)		

___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.**

RPD out of limits for 9 analytes in batch MS/MSD (75101).

ICV3 functions as CCV for this analytical run. This run did not meet ICV criteria, the rest of the batch 75151 will be rerun

1605071-25AMSD: % RPD out of limits for 9 analytes due to matrix. Recoveries ok for all target analytes. RPD is very low for surrogates and analytes with low results in the sample.

Analyst: Karyn Lane Date: 5/16/2016 9:44

Second-Level Review: Date: ***REVIEWED/APPROVED*** **05/16/2016**

By Sherri Herschmann at 2:57:11 PM, 5/16/2016

DHL Analytical, Inc.

Run ID: GCMS8_160513A **Run No.:** 85824

Analytical Run Date: 5/13/2016 **InstrumentID:** GCMS8

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

Calibration ID: 658 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160510.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160513	1	PAH_LL_SDOD1	TUNE	R85824	5/13/2016 1:38:00 PM		
ICV-160513	1	PAH_LL_SDOD1	ICV	R85824	5/13/2016 2:14:00 PM		
LCS-75101	1	PAH_LL_SDOD1	LCS	75101	5/13/2016 2:52:00 PM		
MB-75101	1	PAH_LL_SDOD1	MBLK	75101	5/13/2016 3:29:00 PM		
1605071-24A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 4:06:00 PM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
1605071-25A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 4:43:00 PM		
1605071-26A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 5:20:00 PM		
1605071-27A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 5:57:00 PM		
1605071-30A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 6:33:00 PM		
1605071-40A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 7:10:00 PM		
1605071-41A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 7:47:00 PM		
1605071-42A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 8:24:00 PM		
1605071-43A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 9:00:00 PM		
1605071-44A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 9:37:00 PM		
1605071-45A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 10:13:00 PM		
1605071-46A	10	PAH_LL_SDOD1	SAMP	75101	5/13/2016 10:50:00 PM		
1605071-25AMS	10	PAH_LL_SDOD1	MS	75101	5/13/2016 11:27:00 PM		
1605071-25AMSD	10	PAH_LL_SDOD1	MSD	75101	5/14/2016 12:03:00 AM		% RPD out of limits for 9 analytes due to matrix. Recoveries ok for all target analytes. RPD is very low for surrogates and analytes with low results in the sample.
DFTPP2-160513	1	PAH_LL_SDOD1	TUNE	R85824	5/14/2016 12:40:00 AM		
ICV2-160513	1	PAH_LL_SDOD1	ICV	R85824	5/14/2016 1:17:00 AM		
SBLK-160513	1	PAH_LL_SDOD1	SBLK	75101	5/14/2016 1:54:00 AM		
1605071-47A	10	PAH_LL_SDOD1	SAMP	75101	5/14/2016 2:31:00 AM		
1605071-48A	10	PAH_LL_SDOD1	SAMP	75101	5/14/2016 3:08:00 AM		
1605071-49A	10	PAH_LL_SDOD1	SAMP	75101	5/14/2016 3:45:00 AM		
LCS-75151	1	PAH_LL_SDOD1	LCS	75151	5/14/2016 4:22:00 AM		
MB-75151	1	PAH_LL_SDOD1	MBLK	75151	5/14/2016 5:00:00 AM		

REVIEWED/APPROVED

By Sherri Herschmann at 3:01:23 PM, 5/16/2016

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

DHL Analytical, Inc.

Run ID: GCMS8_160513A **Run No.:** 85824

1605097-21A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 5:36:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
1605097-23A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 6:13:00 AM		
1605098-31A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 6:51:00 AM		
1605098-34A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 7:28:00 AM		
1605098-37A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 8:05:00 AM		
1605096-23A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 8:43:00 AM		
1605096-24A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 9:20:00 AM		
1605096-14A	10	PAH_LL_SDOD1	SAMP	75151	5/14/2016 9:57:00 AM		
1605096-14AMS	10	PAH_LL_SDOD1	MS	75151	5/14/2016 10:33:00 AM		
1605096-14AMSD	10	PAH_LL_SDOD1	MSD	75151	5/14/2016 11:10:00 AM		
DFTPP3-160513	1	PAH_LL_SDOD1	TUNE	R85824	5/14/2016 11:47:00 AM		
ICV3-160513	1	PAH_LL_SDOD1	CCV	R85824	5/14/2016 12:24:00 PM		Does not meet ICV criteria - imported as a CCV to close out the batch. The rest of batch 75151 will be rerun.

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 3:01:48 PM, 5/16/2016

Sequence Name: C:\msdchem\1\sequence\160513.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160513\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

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

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

Line			Sample Name/Misc Info		
1)	Sample	1	16051301	DFTPPPAH	DFTPP-160513
2)	Sample	2	16051302	PAH160510	ICV-160513
3)	Sample	1	16051303	PAH160510	SBLK
4)	Sample	2	16051304	DFTPPPAH	DFTPP-160513
5)	Sample	3	16051305	PAH160510	ICV-160513
6)	Sample	4	16051306	PAH160510	LCS-75101
7)	Sample	5	16051307	PAH160510	MB-75101
8)	Sample	6	16051308	PAH160510	1605071-24A
9)	Sample	7	16051309	PAH160510	1605071-25A
10)	Sample	8	16051310	PAH160510	1605071-26A
11)	Sample	9	16051311	PAH160510	1605071-27A
12)	Sample	10	16051312	PAH160510	1605071-30A
13)	Sample	11	16051313	PAH160510	1605071-40A
14)	Sample	12	16051314	PAH160510	1605171-41A
15)	Sample	13	16051315	PAH160510	1605071-42A
16)	Sample	14	16051316	PAH160510	1605071-43A
17)	Sample	15	16051317	PAH160510	1605071-44A
18)	Sample	16	16051318	PAH160510	1605071-45A
19)	Sample	17	16051319	PAH160510	1605071-46A
20)	Sample	18	16051320	PAH160510	1605071-25AMS
21)	Sample	19	16051321	PAH160510	1605071-25AMSD
22)	Sample	20	16051322	DFTPPPAH	DFTPP2-160513
23)	Sample	21	16051323	PAH160510	ICV2-160513
24)	Sample	22	16051324	PAH160510	SBLK-160513
25)	Sample	23	16051325	PAH160510	1605071-47A
26)	Sample	24	16051326	PAH160510	1605071-48A
27)	Sample	25	16051327	PAH160510	1605071-49A
28)	Sample	26	16051328	PAH160510	LCS-75151
29)	Sample	27	16051329	PAH160510	MB-75151
30)	Sample	28	16051330	PAH160510	1605097-21A
31)	Sample	29	16051331	PAH160510	1605097-23A
32)	Sample	30	16051332	PAH160510	1605098-31A
33)	Sample	31	16051333	PAH160510	1605098-34A
34)	Sample	32	16051334	PAH160510	1605098-37A
35)	Sample	33	16051335	PAH160510	1605096-23A
36)	Sample	34	16051336	PAH160510	1605096-24A
37)	Sample	35	16051337	PAH160510	1605096-14A
38)	Sample	36	16051338	PAH160510	1605096-14AMS
39)	Sample	37	16051339	PAH160510	1605096-14AMSD
40)	Sample	20	16051340	DFTPPPAH	DFTPP3-160513
41)	Sample	21	16051341	PAH160510	ICV3-160513
~~42)~~	~~Sample~~	~~22~~	~~16051342~~	~~PAH160510~~	~~SBLK-160513~~
~~43)~~	~~Sample~~	~~38~~	~~16051343~~	~~PAH160510~~	~~1605096-01A~~

Remainder of sequence will be rerun. ICV3 does not meet ICV specifications and if imported as a CCV.

Sequence Name: C:\msdchem\1\sequence\160513.S

	Line	Type	Vial	DataFile	Method	Sample Name
44)		Sample	39	16051344	PAH160510	1605096-02A
45)		Sample	40	16051345	PAH160510	1605096-03A
46)		Sample	41	16051346	PAH160510	1605096-13A
47)		Sample	42	16051347	PAH160510	1605096-15A
48)		Sample	43	16051348	PAH160510	1605096-16A
49)		Sample	44	16051349	PAH160510	1605096-17A
50)		Sample	45	16051350	PAH160510	1605096-18A
51)		Sample	46	16051351	PAH160510	1605096-19A
52)		Sample	47	16051352	PAH160510	1605096-20A
53)		Sample	48	16051353	PAH160510	1605096-21A
54)		Sample	49	16051354	PAH160510	1605096-22A
55)		Sample	50	16051355	PAH160510	CCV-160513

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 10:10:34 AM**
Digestion:
Prep End Date: **5/13/2016 2:30:00 PM**

Prep Batch **75151** 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
1605096-01A	Soil		10.05	10	0.995	1 of 1	
1605096-02A	Soil		10.05	10	0.995	1 of 1	
1605096-03A	Soil		10.04	10	0.996	1 of 1	
1605096-13A	Soil		10.24	10	0.977	1 of 1	
1605096-14A	Soil		10.07	10	0.993	1 of 3	
1605096-14AMS	Soil		10.23	10	0.978	1 of	
1605096-14AMSD	Soil		10.25	10	0.976	12 of	
1605096-15A	Soil		10	10	1.000	1 of 1	
1605096-16A	Soil		10.02	10	0.998	1 of 1	
1605096-17A	Soil		10.09	10	0.991	1 of 1	
1605096-18A	Soil		10.11	10	0.989	1 of 1	
1605096-19A	Soil		10.11	10	0.989	1 of 1	
1605096-20A	Soil		10.2	10	0.980	1 of 1	
1605096-21A	Soil		10.11	10	0.989	1 of 1	
1605096-22A	Soil		10.59	10	0.944	1 of 1	
1605096-23A	Soil		10.06	10	0.994	1 of 1	
1605096-24A	Soil		10.15	10	0.985	1 of 1	
1605097-21A	Soil		10.44	10	0.958	1 of 1	
1605097-23A	Soil		10.06	10	0.994	1 of 1	
1605098-31A	Soil		10.05	10	0.995	1 of 1	
1605098-34A	Soil		10.08	10	0.992	1 of 1	
1605098-37A	Soil		10.09	10	0.991	1 of 1	
LCS-75151	Soil		10	10	1.000	of	
MB-75151	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED/APPROVED

By Sherri Herschmann at 3:13:11 PM, 5/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 10:10:34 AM**
Digestion:
Prep End Date: 5/13/16 CMS 5/13/16 12:24PM 2:30PM

Prep Batch **75151** Prep Code: **3550_PAHDOD** Technician: **ADMIN**

Prep Factor Units: **mL/g**

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-01A	Soil		10	10.05	1.000	1 of 1	
1605096-02A	Soil		10	10.05	1.000	1 of 1	
1605096-03A	Soil		10	10.04	1.000	1 of 1	
1605096-13A	Soil		10	10.24	1.000	1 of 1	
1605096-14A	Soil		10	10.07	1.000	1 of 3	
1605096-14AMS	Soil		10	10.23	1.000	1 of	
1605096-14AMSD	Soil		10	10.25	1.000	1,2 of	
1605096-15A	Soil		10	10.00	1.000	1 of 1	
1605096-16A	Soil		10	10.02	1.000	1 of 1	
1605096-17A	Soil		10	10.09	1.000	1 of 1	
1605096-18A	Soil		10	10.11	1.000	1 of 1	
1605096-19A	Soil		10	10.11	1.000	1 of 1	
1605096-20A	Soil		10	10.20	1.000	1 of 1	
1605096-21A	Soil		10	10.11	1.000	1 of 1	
1605096-22A	Soil		10	10.59	1.000	1 of 1	
1605096-23A	Soil		10	10.06	1.000	1 of 1	
1605096-24A	Soil		10	10.15	1.000	1 of 1	
1605097-21A	Soil		10	10.44	1.000	1 of 1	
1605097-23A	Soil		10	10.00	1.000	1 of 1	
1605098-31A	Soil		10	10.05	1.000	1 of 1	
1605098-34A	Soil		10	10.08	1.000	1 of 1	
1605098-37A	Soil		10	10.09	1.000	1 of 1	
LCS-75151	Soil		10	10	1.000	of	
MB-75151	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED/APPROVED
By Sherri Herschmann at 3:32:25 PM, 5/16/2016

5/13/16 AR 5/13/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:00:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 1:11:38 PM**

Prep Batch **75083** Prep Code: **ISM250_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-01A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-02A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-03A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-13A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-14A	Soil		0	0	#Num!		of	3	
	Sample has grass in it								
1605096-15A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-38A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-39A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-40A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-41A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-42A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-43A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								

REVIEWED/APPROVED

By Sherri Herschmann at 3:13:42 PM, 5/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-16A	Soil		0	0	#Num!	1	of	1	
1605096-17A	Soil		0	0	#Num!	1	of	1	
1605096-18A	Soil		0	0	#Num!	1	of	1	
1605096-19A	Soil		0	0	#Num!	1	of	1	
1605096-20A	Soil		0	0	#Num!	1	of	1	
1605096-21A	Soil		0	0	#Num!	1	of	1	
1605096-22A	Soil		0	0	#Num!	1	of	1	
1605096-23A	Soil		0	0	#Num!	1	of	1	
1605096-24A	Soil		0	0	#Num!	1	of	1	
1605096-25A	Soil		0	0	#Num!	1	of	1	
1605096-26A	Soil		0	0	#Num!	1	of	1	
1605096-27A	Soil		0	0	#Num!	1	of	1	
1605096-28A	Soil		0	0	#Num!	1	of	1	
1605096-29A	Soil		0	0	#Num!	1	of	1	
1605096-30A	Soil		0	0	#Num!	1	of	1	
1605096-45A	Soil		0	0	#Num!	1	of	1	
1605096-46A	Soil		0	0	#Num!	1	of	1	
1605096-47A	Soil		0	0	#Num!	1	of	1	
1605096-48A	Soil		0	0	#Num!	1	of	1	
1605096-49A	Soil		0	0	#Num!	1	of	1	
1605096-50A	Soil		0	0	#Num!	1	of	1	
1605096-51A	Soil		0	0	#Num!	1	of	1	
1605096-52A	Soil		0	0	#Num!		of	3	
1605096-53A	Soil		0	0	#Num!	1	of	1	
1605096-54A	Soil		0	0	#Num!	1	of	1	
1605096-55A	Soil		0	0	#Num!	1	of	1	
1605096-56A	Soil		0	0	#Num!	1	of	1	

REVIEWED/APPROVED

By Sherri Herschmann at 3:13:45 PM, 5/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

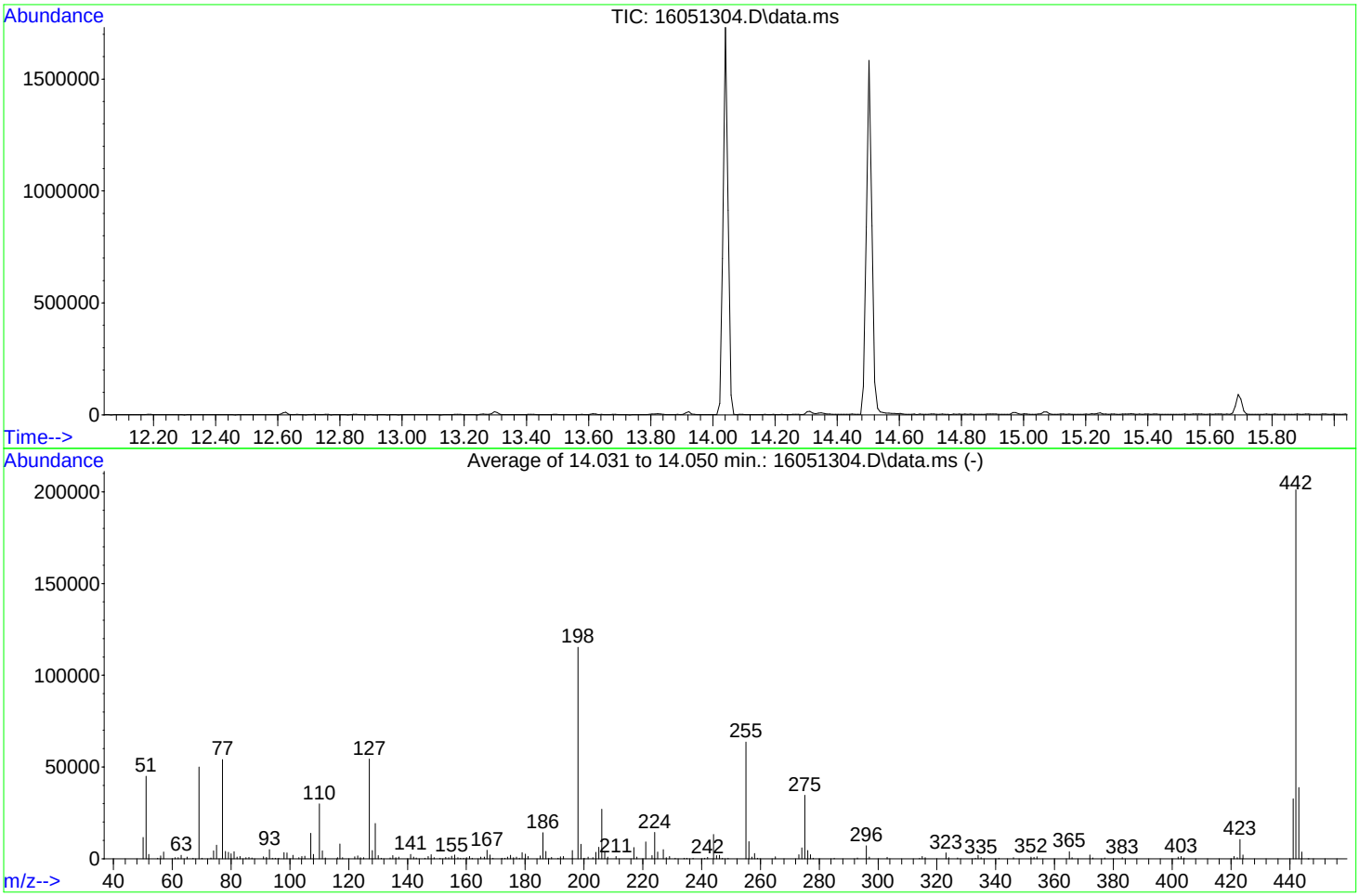
REVIEWED/APPROVED

By Sherri Herschmann at 3:13:47 PM, 5/16/2016

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051304.D
Acq On : 13 May 2016 1:38 pm
Operator :
Sample : DFTPP-160513
Misc : TUNE
ALS Vial : 2 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 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	39.0	44991	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.4	50042	PASS
70	69	0.00	2	0.4	188	PASS
127	198	10	80	47.1	54384	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	115349	PASS
199	198	5	9	6.8	7870	PASS
275	198	10	60	29.9	34527	PASS
365	198	1	200	3.3	3797	PASS
441	442	0.01	24	16.2	32591	PASS
442	198	50	400	174.4	201200	PASS
443	442	15	24	19.3	38843	PASS

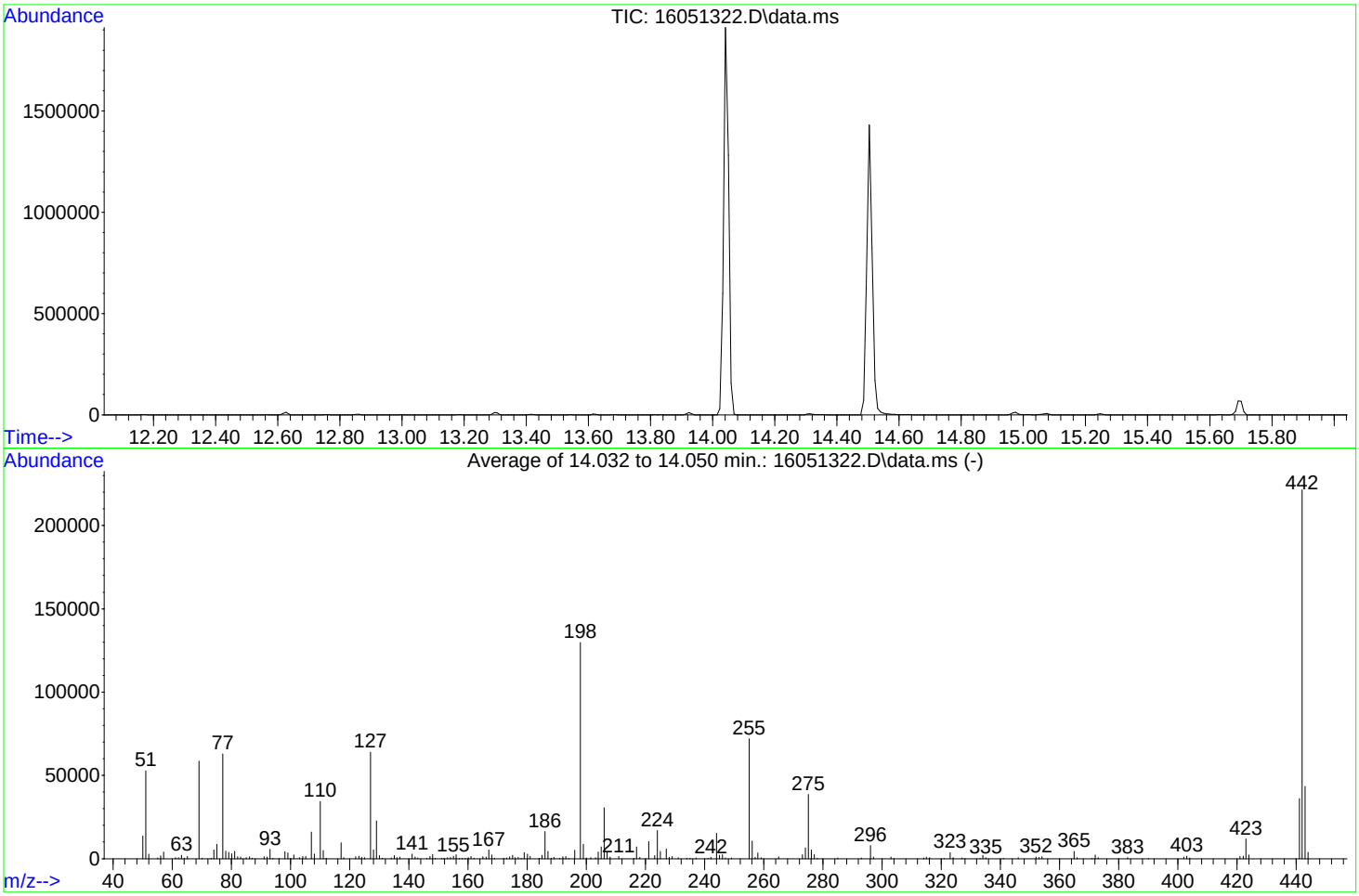
REVIEWED/APPROVED
By Sherri Herschmann at 3:14:07 PM, 5/16/2016

DFTPP

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051322.D
Acq On : 14 May 2016 12:40 am
Operator :
Sample : DFTPP2-160513
Misc : TUNE
ALS Vial : 20 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

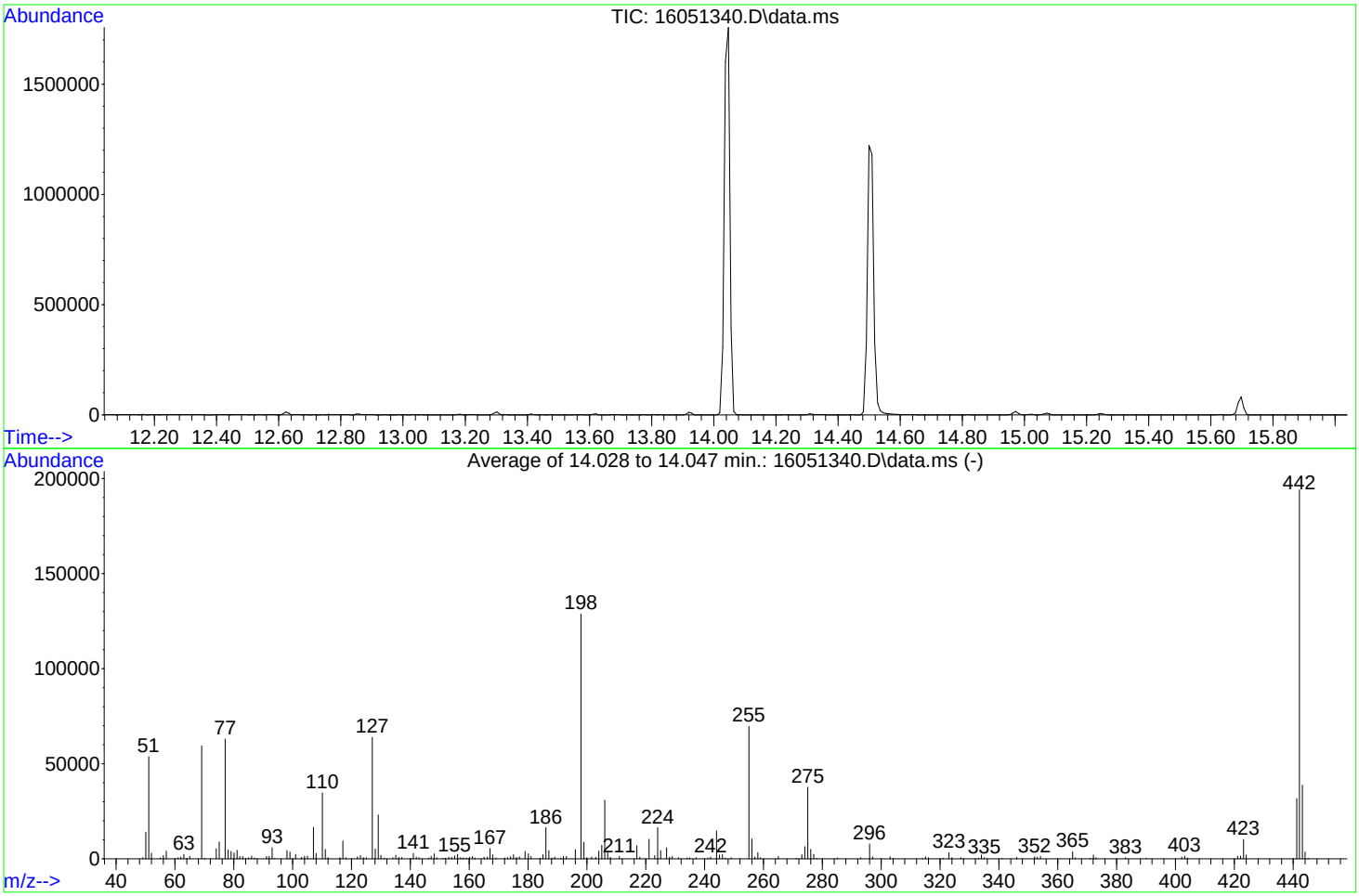
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	40.6	52696	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.2	58605	PASS
70	69	0.00	2	0.3	201	PASS
127	198	10	80	49.3	63933	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	129720	PASS
199	198	5	9	6.7	8696	PASS
275	198	10	60	29.7	38561	PASS
365	198	1	200	3.4	4400	PASS
441	442	0.01	24	16.3	36047	PASS
442	198	50	400	170.8	221517	PASS
443	442	15	24	19.6	43356	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 3:14:17 PM, 5/16/2016

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051340.D
Acq On : 14 May 2016 11:47 am
Operator :
Sample : DFTPP3-160513
Misc : TUNE
ALS Vial : 20 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	41.8	53781	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.1	59410	PASS
70	69	0.00	2	0.3	200	PASS
127	198	10	80	49.6	63829	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	128749	PASS
199	198	5	9	6.7	8671	PASS
275	198	10	60	29.2	37557	PASS
365	198	1	200	2.9	3699	PASS
441	442	0.01	24	16.3	31612	PASS
442	198	50	400	150.8	194201	PASS
443	442	15	24	19.9	38648	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 3:14:19 PM, 5/16/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051305.D
Acq On : 13 May 2016 2:14 pm
Operator :
Sample : ICV-160513
Misc : ICV
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 16 09:01:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

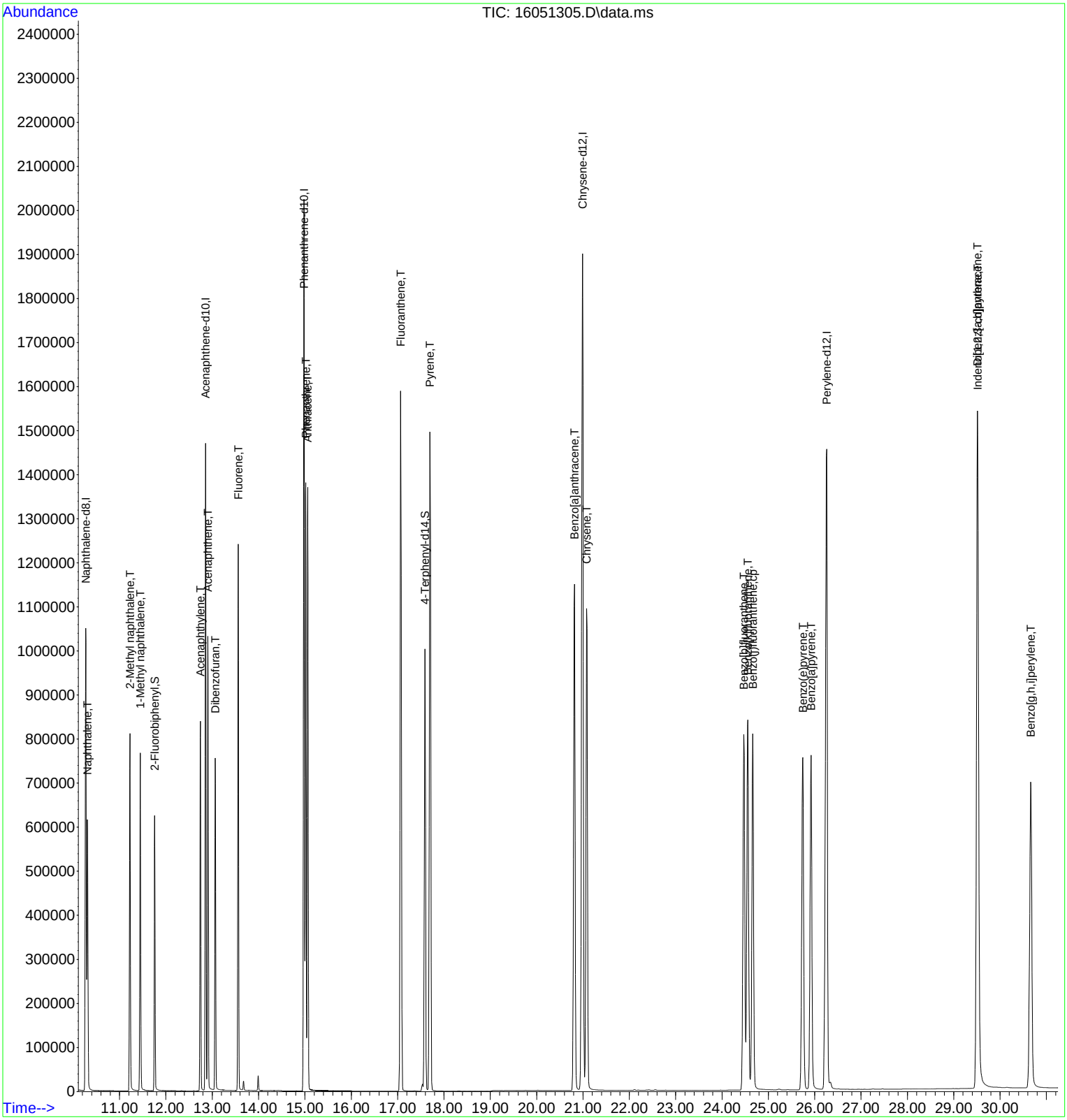
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.269	136	1468119	4000.00	ug/kg	94
6) Acenaphthene-d10	12.857	164	854900	4000.00	ug/kg	87
11) Phenanthrene-d10	14.979	188	2439452	4000.00	ug/kg	79
16) Chrysene-d12	20.992	240	3300716	4000.00	ug/kg	94
20) Perylene-d12	26.259	264	2819826	4000.00	ug/kg	95
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.758	172	560276	1941.76	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.54%			
17) 4-Terphenyl-d14	17.589	244	1467513	1924.25	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 48.11%#			
Target Compounds						Qvalue
2) Naphthalene	10.306	128	704269	1979.40	ug/kg	100
3) 2-Methyl naphthalene	11.223	142	500668	2081.89	ug/kg	99
4) 1-Methyl naphthalene	11.445	142	455417	2039.72	ug/kg	98
7) Acenaphthylene	12.744	152	802733	1998.13	ug/kg	100
8) Acenaphthene	12.906	153	492723	1938.06	ug/kg	99
9) Dibenzofuran	13.064	168	717380	1747.35	ug/kg	88
10) Fluorene	13.560	166	662703	1716.45	ug/kg	99
12) Phenanthrene	15.017	178	1324260	1875.62	ug/kg	99
13) Anthracene	15.059	178	1378662	1802.32	ug/kg	99
14) Fluoranthene	17.066	202	1886532	2041.74	ug/kg	87
15) Pyrene	17.696	202	1920184	2071.94	ug/kg	91
18) Benzo[a]anthracene	20.816	228	1799412	1939.34	ug/kg	100
19) Chrysene	21.080	228	1648971	1941.39	ug/kg	100
21) Benzo[b]fluoranthene	24.471	252	1628703	2028.14	ug/kg	100
22) Benzo[k]fluoranthene	24.559	252	1482736	2302.03	ug/kg	98
23) Benzo(j)fluoranthene	24.662	252	1399385	2149.53	ug/kg	98
24) Benzo(e)pyrene	25.746	252	1492934	1936.92	ug/kg	98
25) Benzo[a]pyrene	25.922	252	1485885	2013.17	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.526	276	1689151	2065.73	ug/kg	94
27) Dibenz[a,h]anthracene	29.511	278	1426131	2139.30	ug/kg	98
28) Benzo[g,h,i]perylene	30.661	276	1444297	2024.19	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051305.D
Acq On : 13 May 2016 2:14 pm
Operator :
Sample : ICV-160513
Misc : ICV
ALS Vial : 3 Sample Multiplier: 1

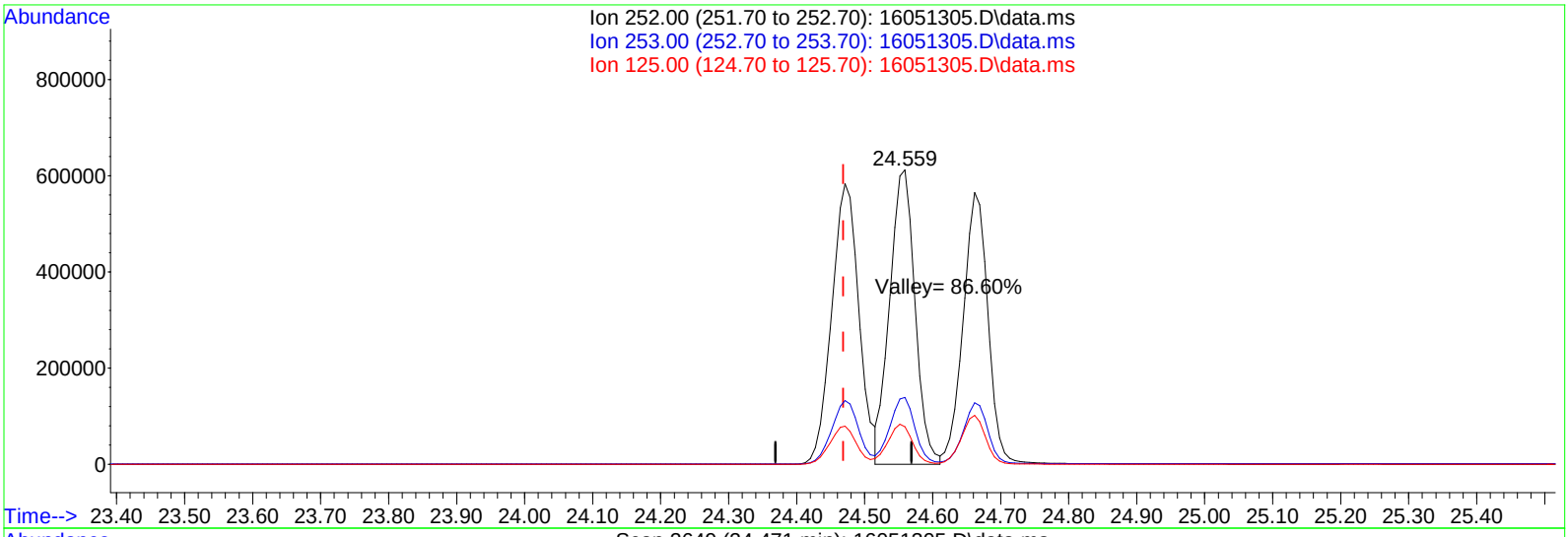
Quant Time: May 16 09:01:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

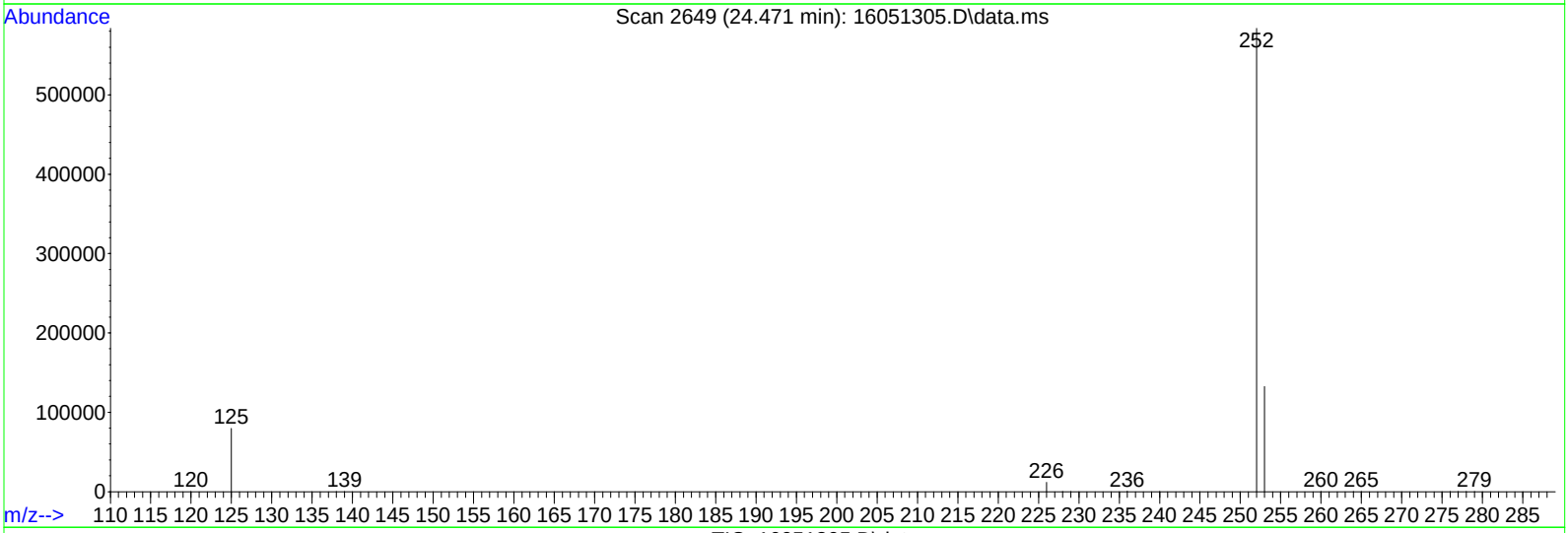


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051305.D
Acq On : 13 May 2016 2:14 pm
Operator :
Sample : ICV-160513
Misc : ICV
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 13 14:46:12 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration





TIC: 16051305.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.471min (+0.002) 2028.14ug/kg

response 1628703

Ion	Exp%	Act%
252.00	100	100
253.00	22.60	22.54
125.00	13.80	13.61
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051306.D
Acq On : 13 May 2016 2:52 pm
Operator :
Sample : LCS-75101
Misc : LCS
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 16 09:01:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

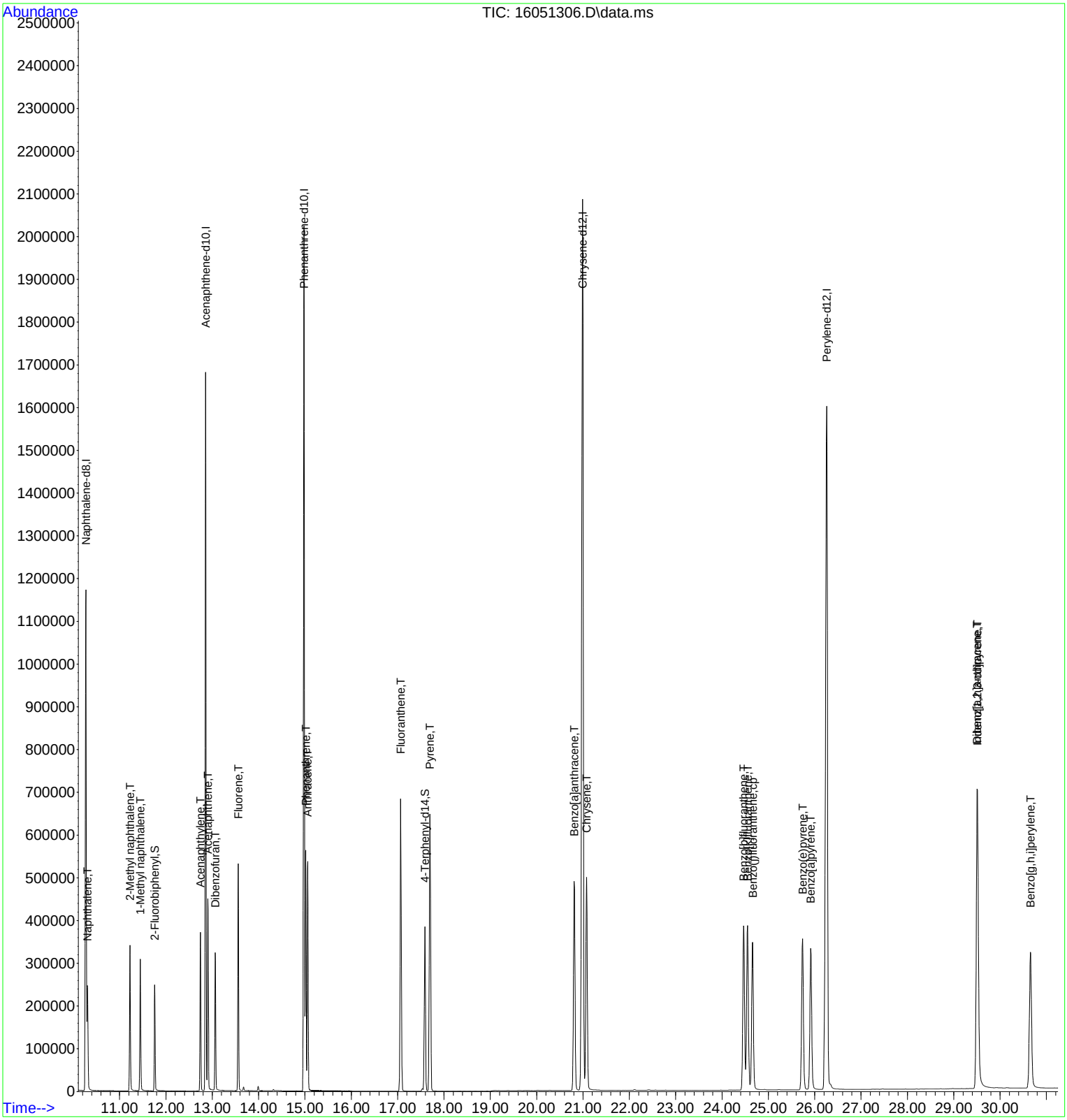
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1631796	4000.00	ug/kg	104
6) Acenaphthene-d10	12.857	164	996350	4000.00	ug/kg	102
11) Phenanthrene-d10	14.979	188	2406531	4000.00	ug/kg	78
16) Chrysene-d12	20.991	240	3501404	4000.00	ug/kg	100
20) Perylene-d12	26.258	264	3189331	4000.00	ug/kg	108
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.757	172	223623	697.28	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 17.43%#			
17) 4-Terphenyl-d14	17.589	244	540141	667.66	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 16.69%#			
Target Compounds						Qvalue
2) Naphthalene	10.305	128	271073	685.45	ug/kg	100
3) 2-Methyl naphthalene	11.222	142	206975	767.94	ug/kg	99
4) 1-Methyl naphthalene	11.449	142	189560	763.84	ug/kg	99
7) Acenaphthylene	12.744	152	351444	750.61	ug/kg	99
8) Acenaphthene	12.906	153	216450	730.51	ug/kg	99
9) Dibenzofuran	13.068	168	311681	651.40	ug/kg	93
10) Fluorene	13.559	166	284422	632.09	ug/kg	100
12) Phenanthrene	15.017	178	536030	769.60	ug/kg	98
13) Anthracene	15.059	178	534240	707.97	ug/kg	98
14) Fluoranthene	17.065	202	785210	861.44	ug/kg	93
15) Pyrene	17.696	202	792472	866.80	ug/kg	95
18) Benzo[a]anthracene	20.808	228	788304	800.91	ug/kg	99
19) Chrysene	21.079	228	730536	810.79	ug/kg	99
21) Benzo[b]fluoranthene	24.463	252	747269	822.73	ug/kg	99
22) Benzo[k]fluoranthene	24.551	252	680817	934.55	ug/kg	97
23) Benzo(j)fluoranthene	24.661	252	624762	848.49	ug/kg	98
24) Benzo(e)pyrene	25.738	252	674235	773.40	ug/kg	98
25) Benzo[a]pyrene	25.914	252	652903	782.11	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.518	276	785880	849.74	ug/kg	92
27) Dibenz[a,h]anthracene	29.503	278	658520	873.38	ug/kg	97
28) Benzo[g,h,i]perylene	30.660	276	666820	826.28	ug/kg	95

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051306.D
Acq On : 13 May 2016 2:52 pm
Operator :
Sample : LCS-75101
Misc : LCS
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 16 09:01:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051307.D
Acq On : 13 May 2016 3:29 pm
Operator :
Sample : MB-75101
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 16 09:01:39 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.274	136	1652863	4000.00	ug/kg	106
6) Acenaphthene-d10	12.857	164	1013401	4000.00	ug/kg	104
11) Phenanthrene-d10	14.979	188	2425991	4000.00	ug/kg	78
16) Chrysene-d12	20.991	240	3674535	4000.00	ug/kg	105
20) Perylene-d12	26.258	264	3217916	4000.00	ug/kg	108

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.758	172	205023	631.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 15.78%#			
17) 4-Terphenyl-d14	17.588	244	535570	630.81	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 15.77%#			

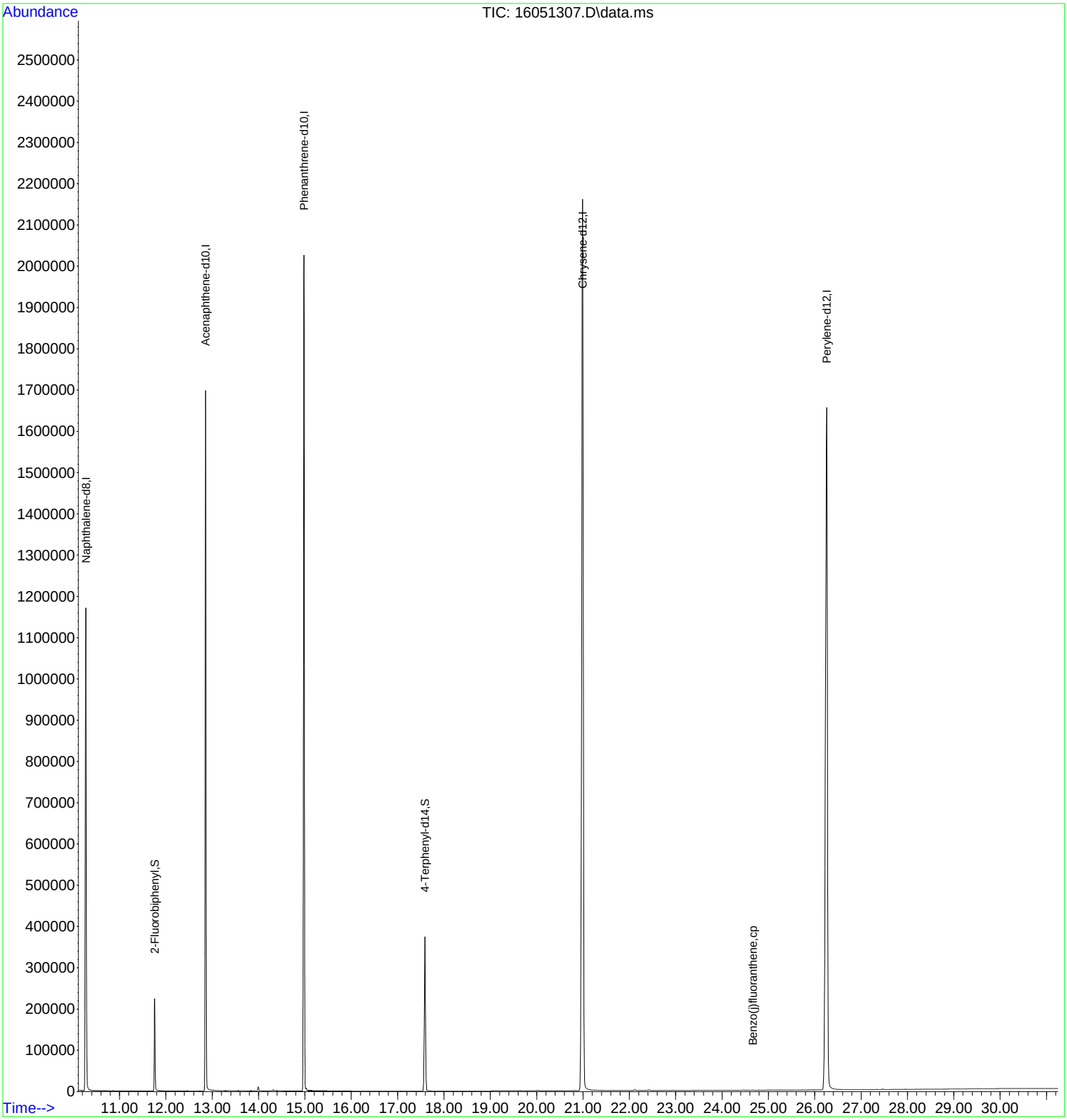
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.661	252	374	0.50	ug/kg#	71

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051307.D
Acq On : 13 May 2016 3:29 pm
Operator :
Sample : MB-75101
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 16 09:01:39 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051320.D
Acq On : 13 May 2016 11:27 pm
Operator :
Sample : 1605071-25AMS
Misc : MS
ALS Vial : 18 Sample Multiplier: 10

Quant Time: May 16 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.271	136	1478096	4000.00	ug/kg	95
6) Acenaphthene-d10	12.856	164	969820	4000.00	ug/kg	99
11) Phenanthrene-d10	14.982	188	2873755	4000.00	ug/kg	93
16) Chrysene-d12	20.990	240	3031059	4000.00	ug/kg	87
20) Perylene-d12	26.257	264	2628780	4000.00	ug/kg	89

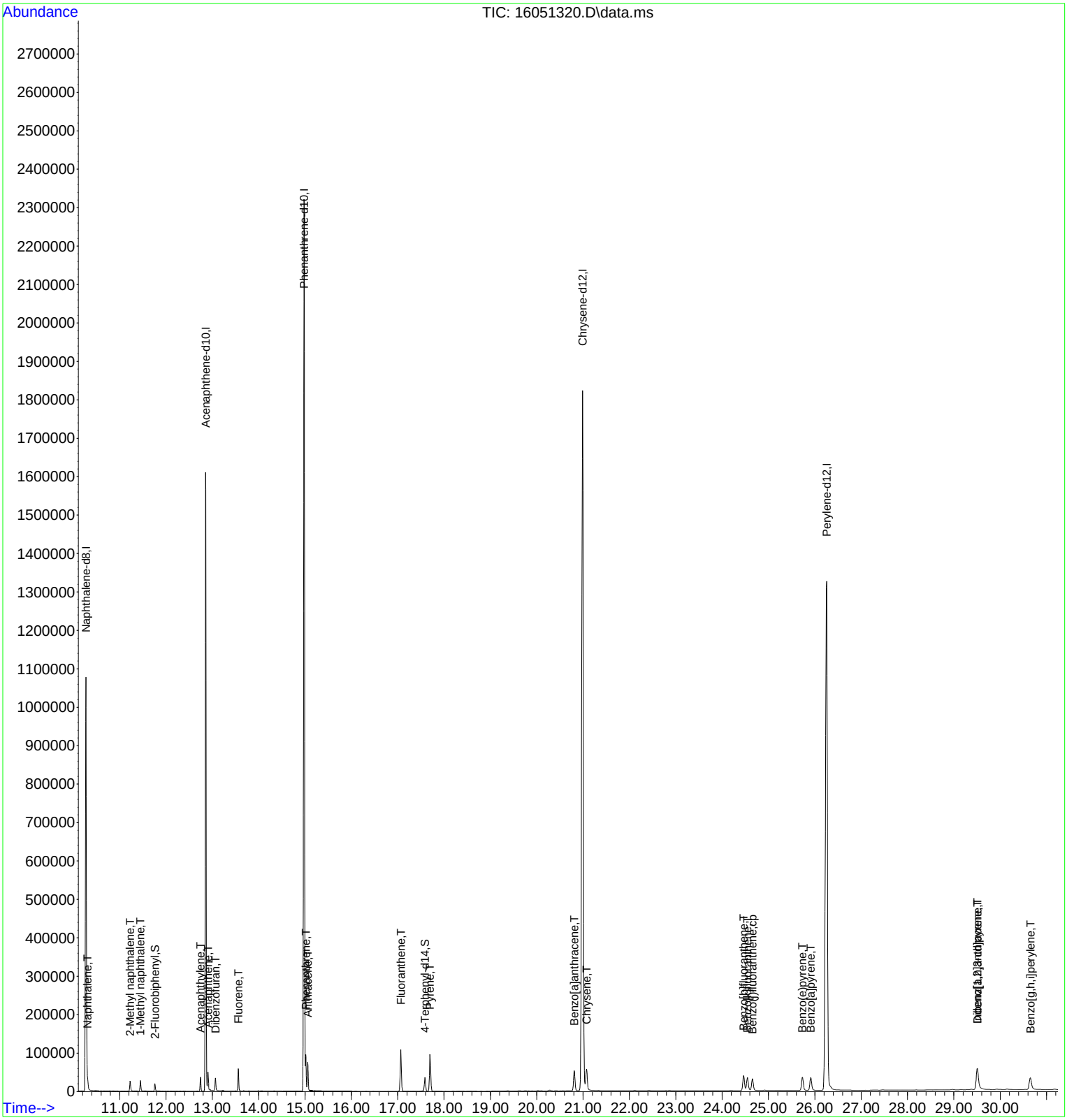
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.760	172	20399	70.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.76%#			
17) 4-Terphenyl-d14	17.588	244	52228	74.58	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 1.86%#			

Target Compounds						Qvalue
2) Naphthalene	10.308	128	25928	72.38	ug/kg	100
3) 2-Methyl naphthalene	11.225	142	18410	78.07	ug/kg	98
4) 1-Methyl naphthalene	11.448	142	17567	78.15	ug/kg	99
7) Acenaphthylene	12.743	152	34710	76.16	ug/kg	99
8) Acenaphthene	12.910	153	21846	75.75	ug/kg	99
9) Dibenzofuran	13.067	168	33530	71.99	ug/kg	96
10) Fluorene	13.558	166	32479	74.15	ug/kg	99
12) Phenanthrene	15.018	178	82196	98.82	ug/kg	96
13) Anthracene	15.060	178	71515	79.36	ug/kg	97
14) Fluoranthene	17.065	202	125694	115.48	ug/kg	93
15) Pyrene	17.696	202	118019	108.10	ug/kg	96
18) Benzo[a]anthracene	20.807	228	83784	98.33	ug/kg	99
19) Chrysene	21.078	228	81153	104.04	ug/kg	98
21) Benzo[b]fluoranthene	24.462	252	76477	102.15	ug/kg	99
22) Benzo[k]fluoranthene	24.543	252	58968	98.20	ug/kg	97
23) Benzo(j)fluoranthene	24.653	252	57265	94.35	ug/kg	97
24) Benzo(e)pyrene	25.737	252	67855	94.43	ug/kg	97
25) Benzo[a]pyrene	25.913	252	71062	103.28	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.517	276	77915	102.21	ug/kg	91
27) Dibenz[a,h]anthracene	29.502	278	55047	88.58	ug/kg	96
28) Benzo[g,h,i]perylene	30.652	276	70315	105.71	ug/kg	97

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

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051320.D
Acq On : 13 May 2016 11:27 pm
Operator :
Sample : 1605071-25AMS
Misc : MS
ALS Vial : 18 Sample Multiplier: 10

Quant Time: May 16 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051321.D
Acq On : 14 May 2016 12:03 am
Operator :
Sample : 1605071-25AMSD
Misc : MSD
ALS Vial : 19 Sample Multiplier: 10

Quant Time: May 16 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1499453	4000.00	ug/kg	96
6) Acenaphthene-d10	12.857	164	997896	4000.00	ug/kg	102
11) Phenanthrene-d10	14.979	188	2914311	4000.00	ug/kg	94
16) Chrysene-d12	20.991	240	3027353	4000.00	ug/kg	87
20) Perylene-d12	26.258	264	2634762	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	20299	68.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.72%#			
17) 4-Terphenyl-d14	17.588	244	49891	71.33	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 1.78%#			

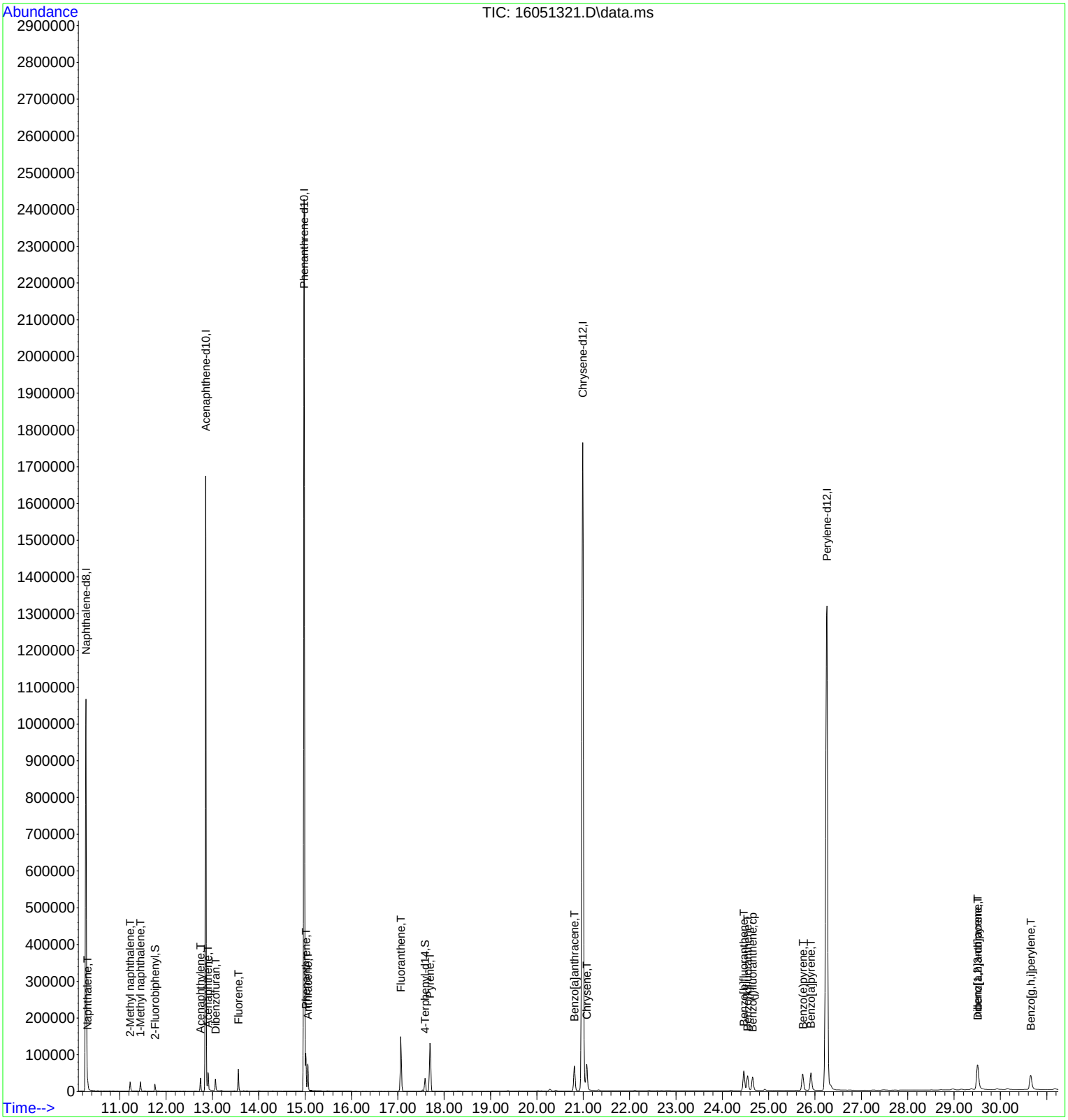
Target Compounds						Qvalue
2) Naphthalene	10.309	128	22697	62.46	ug/kg	99
3) 2-Methyl naphthalene	11.226	142	17149	71.96	ug/kg	98
4) 1-Methyl naphthalene	11.448	142	16368	71.78	ug/kg	99
7) Acenaphthylene	12.744	152	33763	72.00	ug/kg	99
8) Acenaphthene	12.906	153	21631	72.89	ug/kg	100
9) Dibenzofuran	13.068	168	33205	69.29	ug/kg	100
10) Fluorene	13.559	166	32399	71.89	ug/kg	99
12) Phenanthrene	15.017	178	89856	106.53	ug/kg	96
13) Anthracene	15.059	178	71032	77.73	ug/kg	97
14) Fluoranthene	17.065	202	170186	154.18	ug/kg	94
15) Pyrene	17.695	202	158340	143.02	ug/kg	97
18) Benzo[a]anthracene	20.808	228	107382	126.18	ug/kg	99
19) Chrysene	21.079	228	110560	141.92	ug/kg	99
21) Benzo[b]fluoranthene	24.463	252	105022	139.96	ug/kg	99
22) Benzo[k]fluoranthene	24.544	252	70943	117.88	ug/kg	97
23) Benzo(j)fluoranthene	24.653	252	68086	111.93	ug/kg	96
24) Benzo(e)pyrene	25.738	252	88085	122.31	ug/kg	98
25) Benzo[a]pyrene	25.913	252	98131	142.29	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.510	276	97767	127.96	ug/kg	95
27) Dibenz[a,h]anthracene	29.503	278	59327	95.25	ug/kg	96
28) Benzo[g,h,i]perylene	30.653	276	88899	133.34	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051321.D
Acq On : 14 May 2016 12:03 am
Operator :
Sample : 1605071-25AMSD
Misc : MSD
ALS Vial : 19 Sample Multiplier: 10

Quant Time: May 16 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051323.D
Acq On : 14 May 2016 1:17 am
Operator :
Sample : ICV2-160513
Misc : ICV
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 16 09:01:48 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

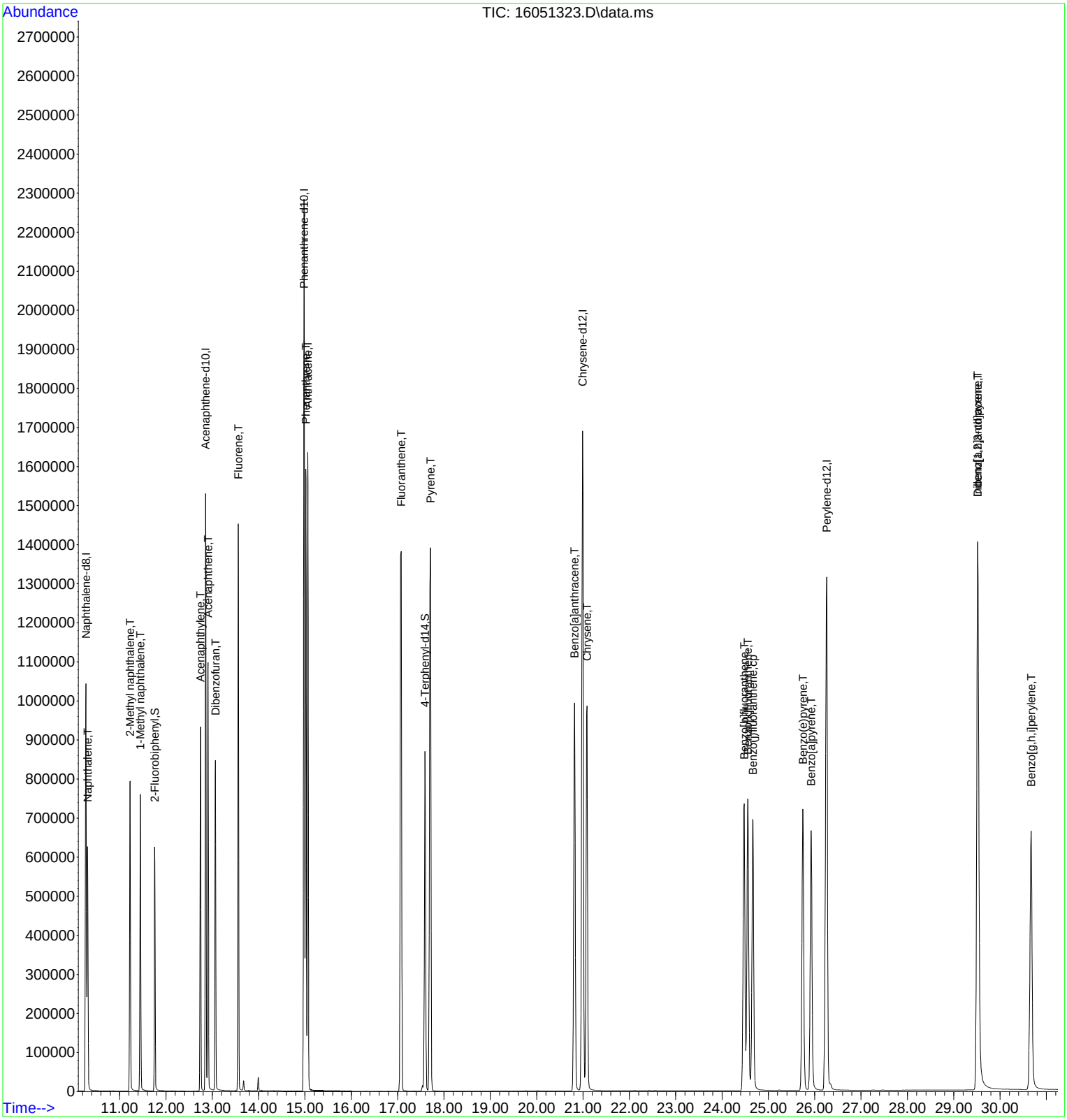
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1441846	4000.00	ug/kg	92
6) Acenaphthene-d10	12.856	164	912357	4000.00	ug/kg	93
11) Phenanthrene-d10	14.981	188	2775672	4000.00	ug/kg	89
16) Chrysene-d12	20.991	240	2907770	4000.00	ug/kg	83
20) Perylene-d12	26.258	264	2554349	4000.00	ug/kg	86
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.757	172	570857	2014.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	50.36%		
17) 4-Terphenyl-d14	17.587	244	1345289	2002.36	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	50.06%#		
Target Compounds						Qvalue
2) Naphthalene	10.309	128	698664	1999.43	ug/kg	100
3) 2-Methyl naphthalene	11.226	142	499170	2114.01	ug/kg	100
4) 1-Methyl naphthalene	11.448	142	455970	2079.41	ug/kg	100
7) Acenaphthylene	12.743	152	867089	2022.40	ug/kg	100
8) Acenaphthene	12.910	153	540524	1992.19	ug/kg	98
9) Dibenzofuran	13.068	168	814621	1859.25	ug/kg	99
10) Fluorene	13.559	166	780831	1895.04	ug/kg	100
12) Phenanthrene	15.019	178	1540126	1917.14	ug/kg	100
13) Anthracene	15.063	178	1585191	1821.30	ug/kg	100
14) Fluoranthene	17.077	202	1844784	1754.71	ug/kg	96
15) Pyrene	17.708	202	1831925	1737.27	ug/kg	93
18) Benzo[a]anthracene	20.815	228	1582135	1935.59	ug/kg	99
19) Chrysene	21.086	228	1464810	1957.62	ug/kg	99
21) Benzo[b]fluoranthene	24.478	252	1448333	1990.98	ug/kg	99
22) Benzo[k]fluoranthene	24.558	252	1306896	2239.91	ug/kg	98
23) Benzo(j)fluoranthene	24.668	252	1252205	2123.36	ug/kg	99
24) Benzo(e)pyrene	25.745	252	1345392	1926.91	ug/kg	99
25) Benzo[a]pyrene	25.921	252	1330830	1990.49	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.525	276	1584981	2139.80	ug/kg	99
27) Dibenz[a,h]anthracene	29.517	278	1323884	2192.32	ug/kg	97
28) Benzo[g,h,i]perylene	30.667	276	1362420	2107.88	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051323.D
Acq On : 14 May 2016 1:17 am
Operator :
Sample : ICV2-160513
Misc : ICV
ALS Vial : 21 Sample Multiplier: 1

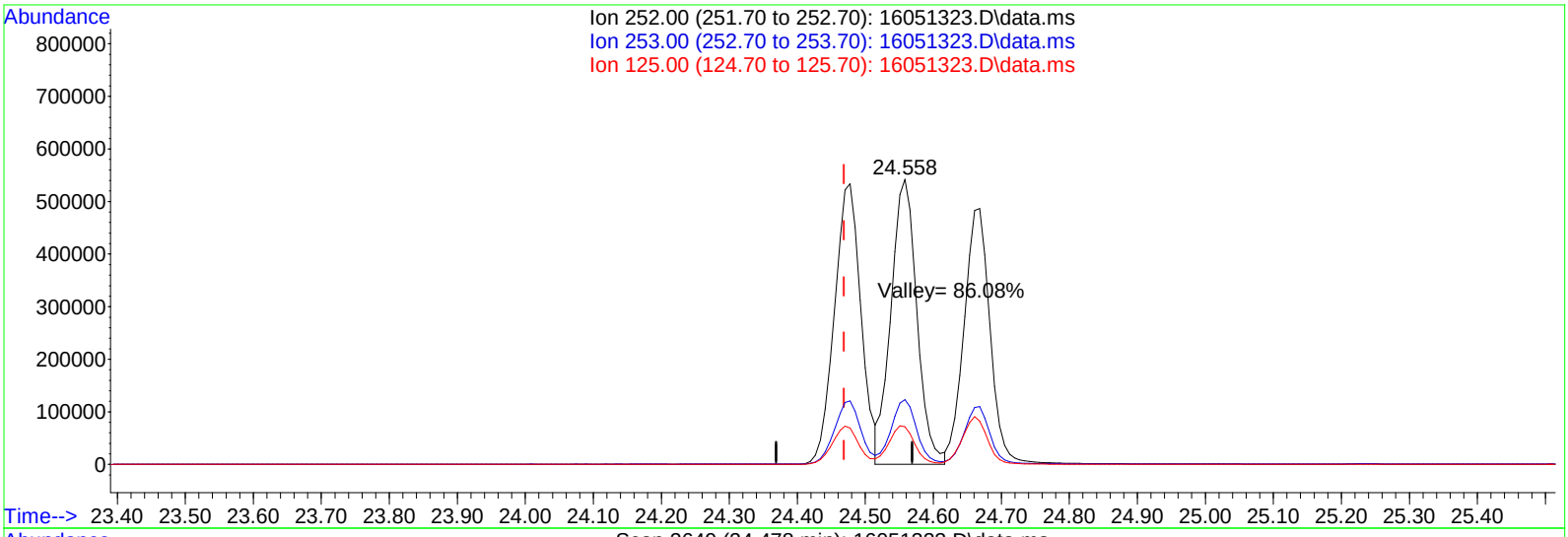
Quant Time: May 16 09:01:48 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

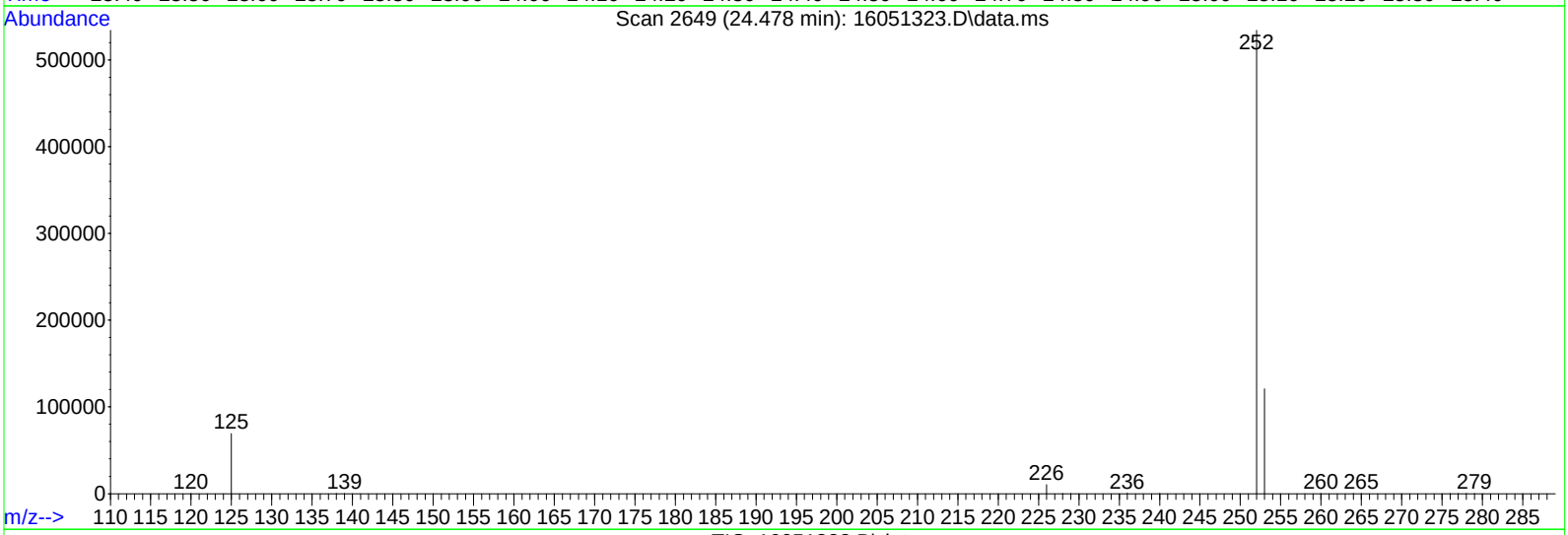


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051323.D
Acq On : 14 May 2016 1:17 am
Operator :
Sample : ICV2-160513
Misc : ICV
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 14 01:48:59 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration





TIC: 16051323.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.478min (+0.009) 1990.98ug/kg

response 1448333

Ion	Exp%	Act%
252.00	100	100
253.00	22.60	22.48
125.00	13.80	12.93
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051324.D
Acq On : 14 May 2016 1:54 am
Operator :
Sample : SBLK-160513
Misc : SBLK
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 16 09:01:52 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1437759	4000.00	ug/kg	92
6) Acenaphthene-d10	12.861	164	963036	4000.00	ug/kg	99
11) Phenanthrene-d10	14.982	188	2871913	4000.00	ug/kg	92
16) Chrysene-d12	20.990	240	2820304	4000.00	ug/kg	81
20) Perylene-d12	26.257	264	2437867	4000.00	ug/kg	82

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	36	0.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.00%#			
17) 4-Terphenyl-d14	17.602	244	445	0.68	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 0.02%#			

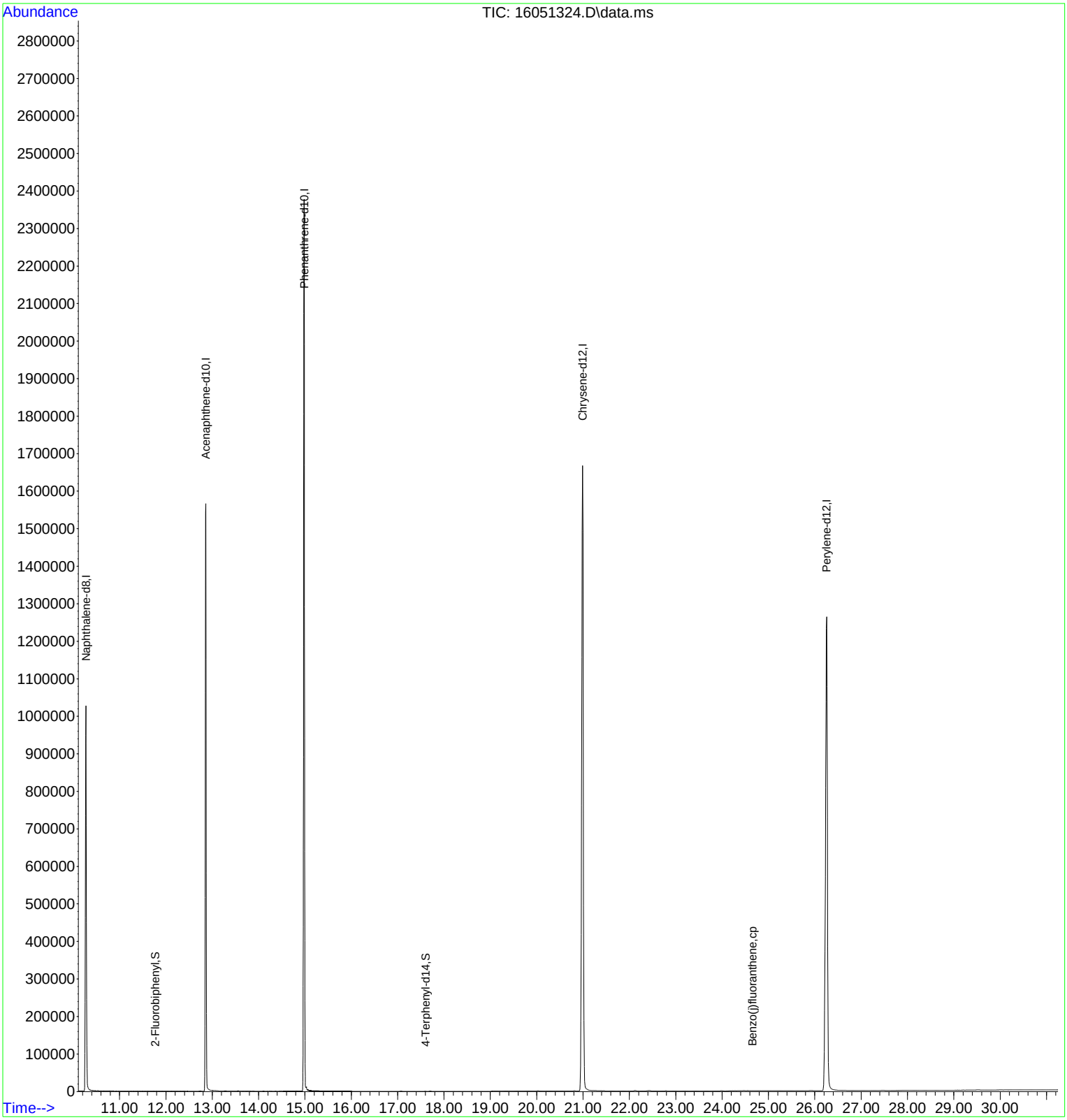
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.653	252	223	0.40	ug/kg	80

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051324.D
Acq On : 14 May 2016 1:54 am
Operator :
Sample : SBLK-160513
Misc : SBLK
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 16 09:01:52 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051328.D
Acq On : 14 May 2016 4:22 am
Operator :
Sample : LCS-75151
Misc : LCS
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 09:01:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.274	136	1629610	4000.00	ug/kg	104
6) Acenaphthene-d10	12.857	164	994443	4000.00	ug/kg	102
11) Phenanthrene-d10	14.981	188	2502142	4000.00	ug/kg	81
16) Chrysene-d12	20.992	240	3035249	4000.00	ug/kg	87
20) Perylene-d12	26.258	264	2727872	4000.00	ug/kg	92

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.759	172	256294	800.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.01%#			
17) 4-Terphenyl-d14	17.589	244	561233	800.27	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 20.01%#			

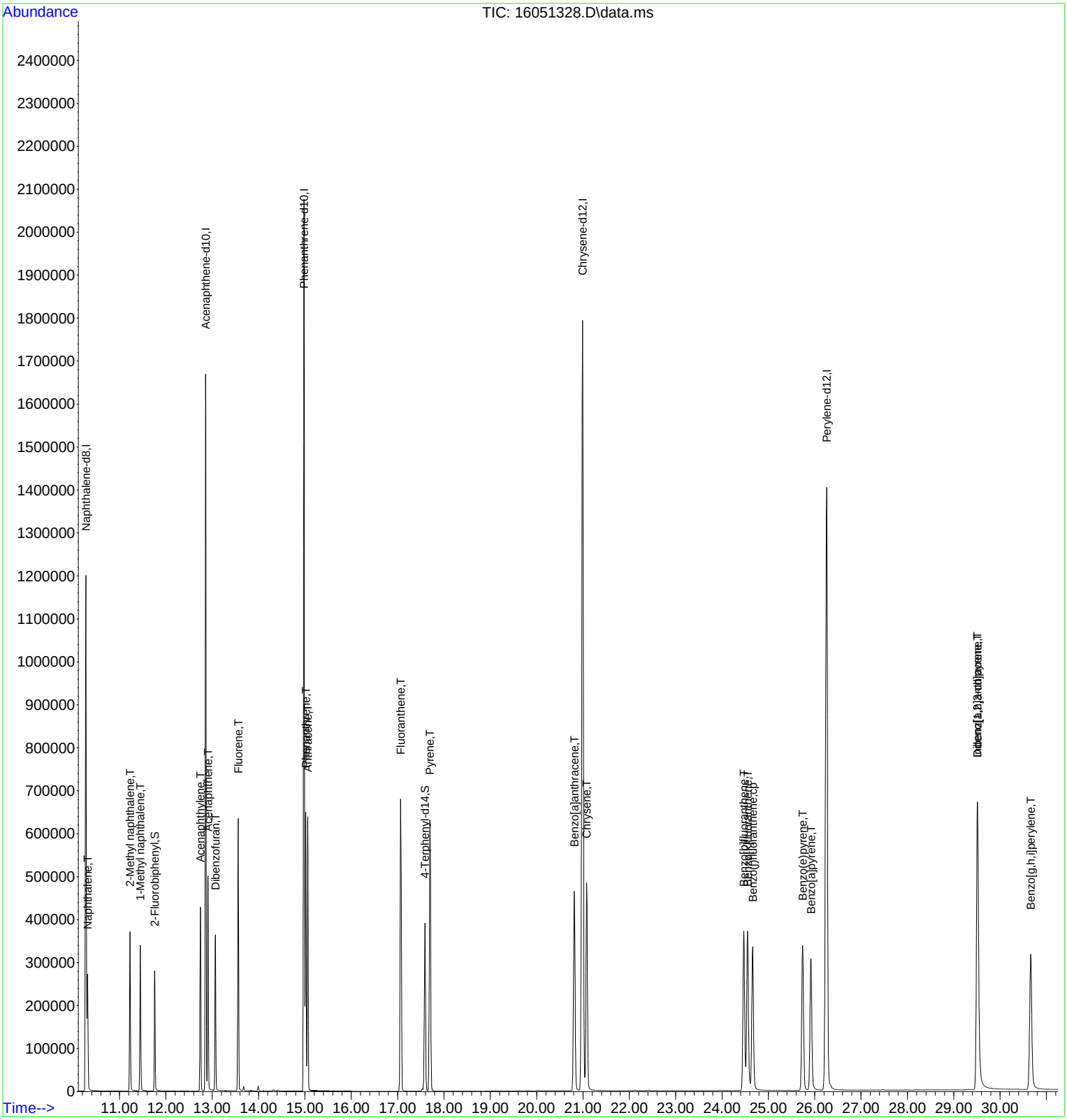
Target Compounds						Qvalue
2) Naphthalene	10.311	128	301940	764.53	ug/kg	99
3) 2-Methyl naphthalene	11.224	142	228727	850.01	ug/kg	97
4) 1-Methyl naphthalene	11.451	142	209606	845.75	ug/kg	99
7) Acenaphthylene	12.744	152	393069	841.12	ug/kg	99
8) Acenaphthene	12.911	153	243076	821.95	ug/kg	98
9) Dibenzofuran	13.069	168	355574	744.55	ug/kg	99
10) Fluorene	13.560	166	331368	737.83	ug/kg	100
12) Phenanthrene	15.017	178	620608	856.98	ug/kg	98
13) Anthracene	15.061	178	622427	793.31	ug/kg	98
14) Fluoranthene	17.066	202	806737	851.23	ug/kg	90
15) Pyrene	17.696	202	801977	843.68	ug/kg	92
18) Benzo[a]anthracene	20.816	228	756404	886.52	ug/kg	99
19) Chrysene	21.079	228	702605	899.55	ug/kg	99
21) Benzo[b]fluoranthene	24.471	252	707841	911.15	ug/kg	99
22) Benzo[k]fluoranthene	24.552	252	648477	1040.73	ug/kg	98
23) Benzo(j)fluoranthene	24.661	252	599026	951.15	ug/kg	98
24) Benzo(e)pyrene	25.738	252	656101	879.91	ug/kg	98
25) Benzo[a]pyrene	25.921	252	629330	881.40	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.518	276	779024	984.82	ug/kg	98
27) Dibenz[a,h]anthracene	29.503	278	648951	1006.29	ug/kg	98
28) Benzo[g,h,i]perylene	30.661	276	665477	964.11	ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051328.D
Acq On : 14 May 2016 4:22 am
Operator :
Sample : LCS-75151
Misc : LCS
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 09:01:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051329.D
Acq On : 14 May 2016 5:00 am
Operator :
Sample : MB-75151
Misc : MBLK
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 09:01:58 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.273	136	1595656	4000.00	ug/kg	102
6) Acenaphthene-d10	12.861	164	981031	4000.00	ug/kg	100
11) Phenanthrene-d10	14.980	188	2451579	4000.00	ug/kg	79
16) Chrysene-d12	20.990	240	3103897	4000.00	ug/kg	89
20) Perylene-d12	26.257	264	2928373	4000.00	ug/kg	99

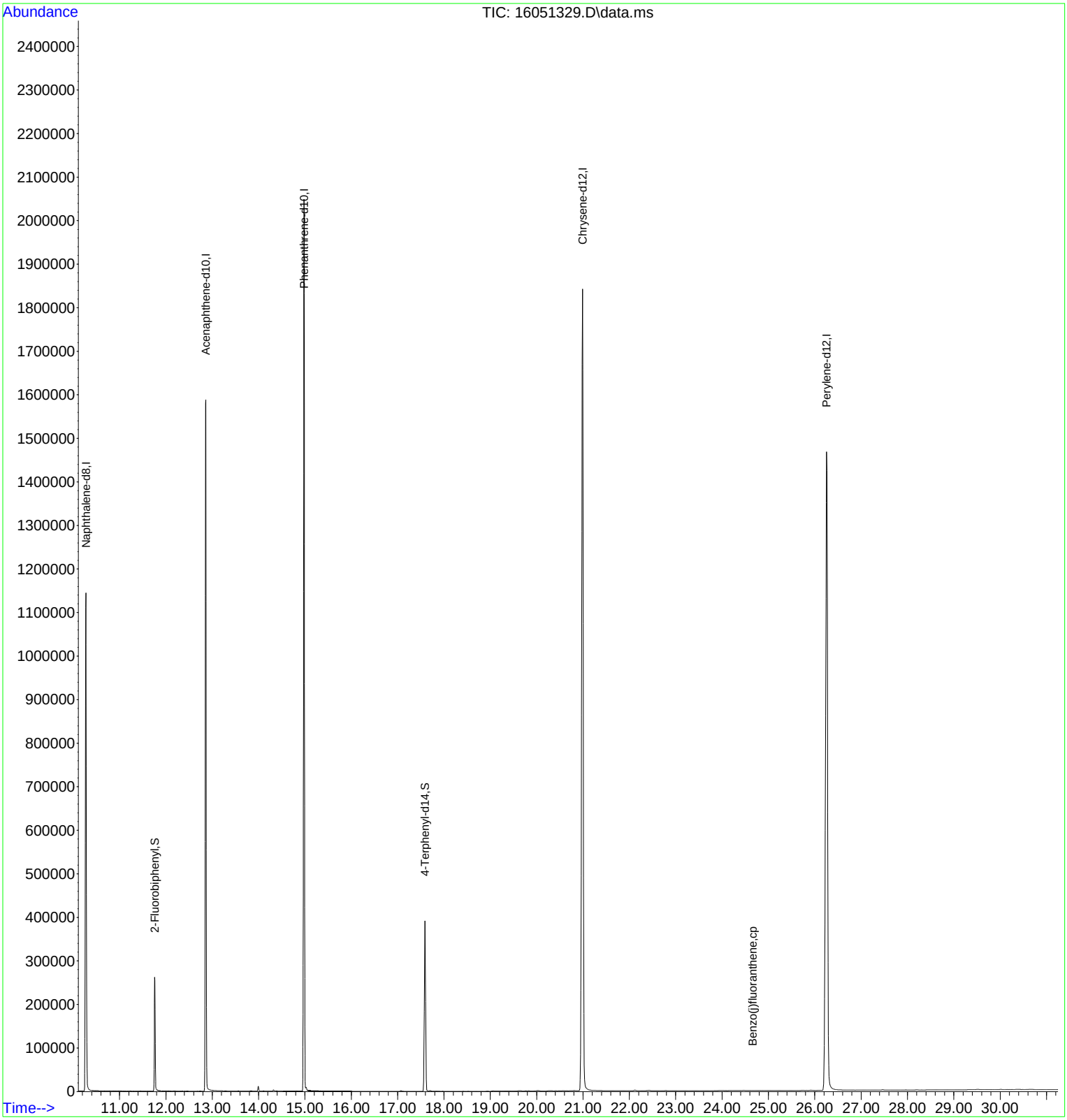
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.758	172	243825	777.49	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 19.44%#			
17) 4-Terphenyl-d14	17.589	244	553063	771.18	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 19.28%#			

Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.660	252	677	1.00	ug/kg	80

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

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051329.D
Acq On : 14 May 2016 5:00 am
Operator :
Sample : MB-75151
Misc : MBLK
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 09:01:58 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051335.D
Acq On : 14 May 2016 8:43 am
Operator :
Sample : 1605096-23A
Misc : SAMP
ALS Vial : 33 Sample Multiplier: 10

Quant Time: May 16 09:04:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1533706	4000.00	ug/kg	98
6) Acenaphthene-d10	12.857	164	1094978	4000.00	ug/kg	112
11) Phenanthrene-d10	14.979	188	2998029	4000.00	ug/kg	97
16) Chrysene-d12	20.984	240	2904787	4000.00	ug/kg	83
20) Perylene-d12	26.251	264	2550792	4000.00	ug/kg	86

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.762	172	26338	87.38	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#		
17) 4-Terphenyl-d14	17.588	244	61191	91.17	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.28%#		

Target Compounds						Qvalue
19) Chrysene	21.072	228	3784	5.06	ug/kg	97
23) Benzo(j)fluoranthene	24.654	252	1177	2.00	ug/kg	91
25) Benzo[a]pyrene	25.914	252	3361	5.03	ug/kg	98

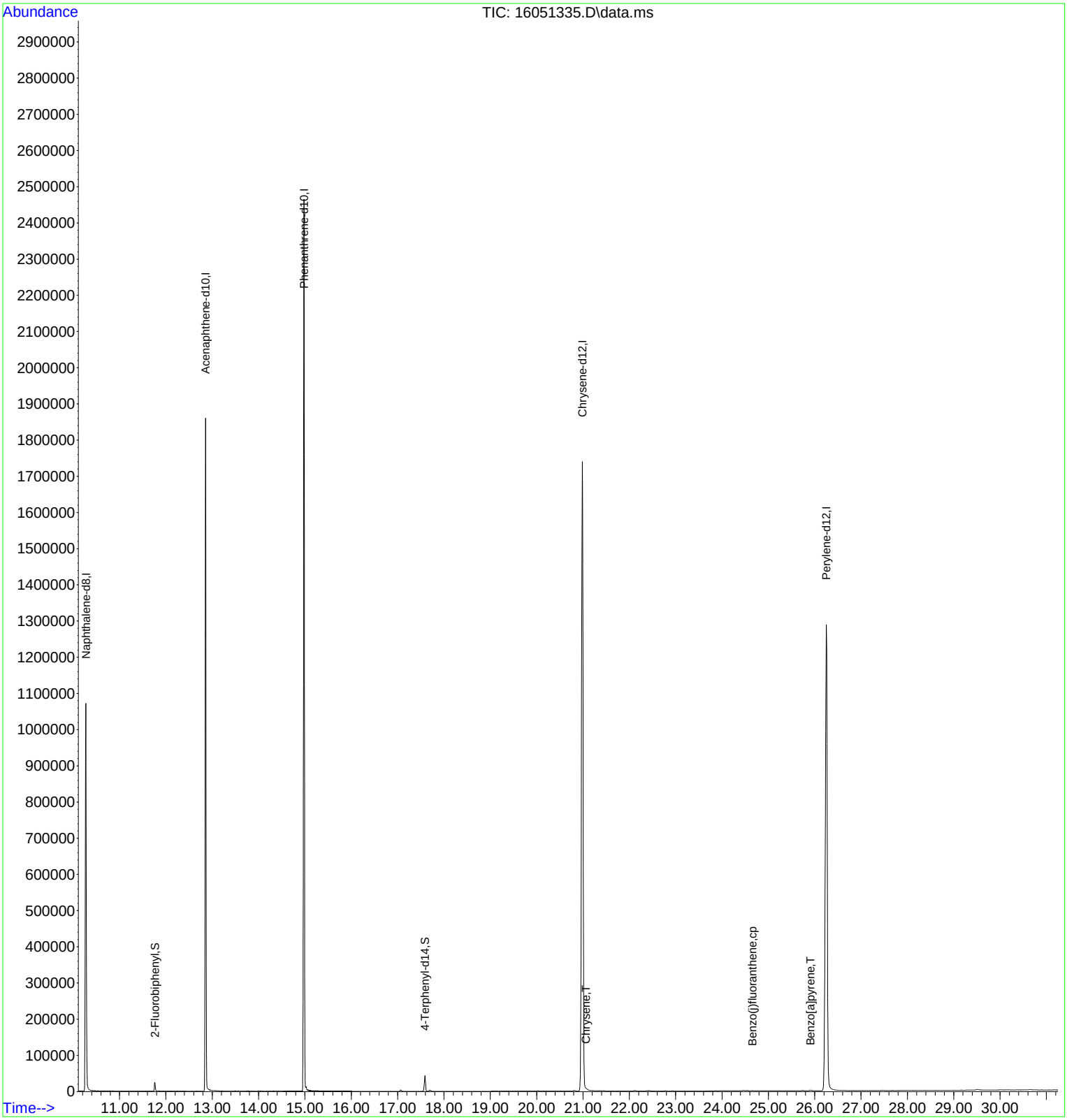
CONFIRMED
By Sherri Herschmann at 3:55:13 PM, 5/16/2016

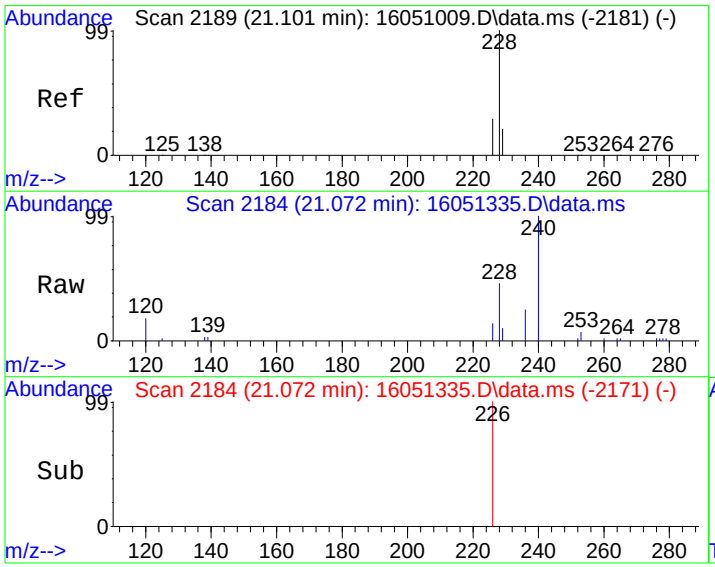
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051335.D
Acq On : 14 May 2016 8:43 am
Operator :
Sample : 1605096-23A
Misc : SAMP
ALS Vial : 33 Sample Multiplier: 10

Quant Time: May 16 09:04:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

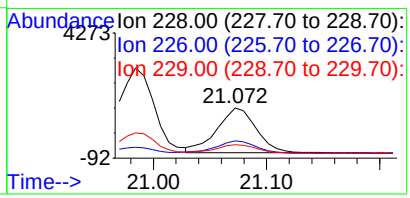


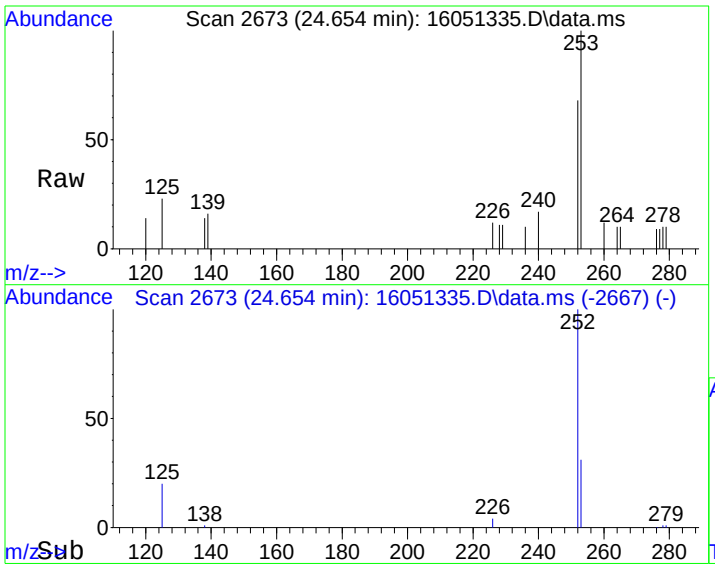


#19
Chrysene
Concen: 5.06 ug/kg
RT: 21.072 min Scan# 2184
Delta R.T. -0.005 min
Lab File: 16051335.D
Acq: 14 May 2016 8:43 am

Tgt Ion:228 Resp: 3784

Ion	Ratio	Lower	Upper
228	100		
226	27.5	8.8	48.8
229	18.8	0.5	40.5

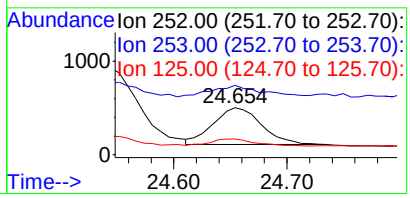


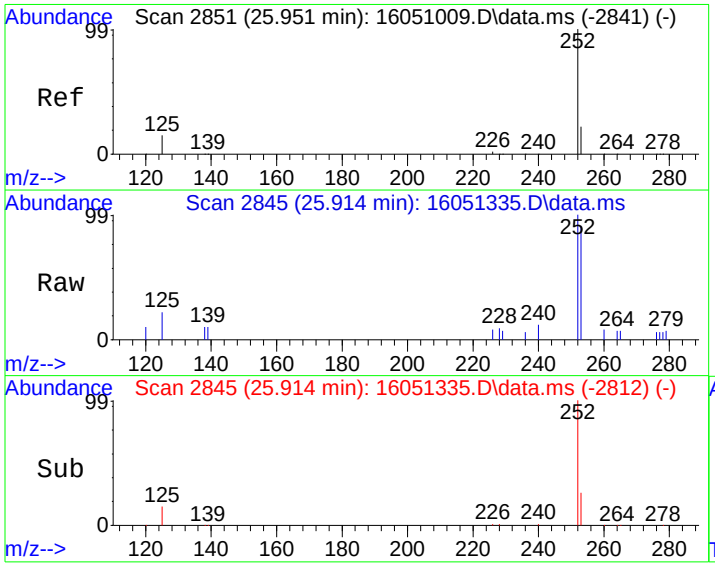


#23
Benzo(j)fluoranthene
Concen: 2.00 ug/kg
RT: 24.654 min Scan# 2673
Delta R.T. -0.005 min
Lab File: 16051335.D
Acq: 14 May 2016 8:43 am

Tgt Ion:252 Resp: 1177

Ion	Ratio	Lower	Upper
252	100		
253	30.0	2.3	42.3
125	18.5	0.0	39.2

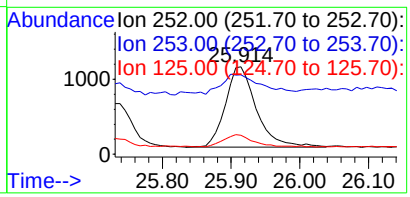




#25
Benzo[a]pyrene
Concen: 5.03 ug/kg
RT: 25.914 min Scan# 2845
Delta R.T. -0.005 min
Lab File: 16051335.D
Acq: 14 May 2016 8:43 am

Tgt Ion:252 Resp: 3361

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.5	42.5
125	14.4	0.0	35.5



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051336.D
Acq On : 14 May 2016 9:20 am
Operator :
Sample : 1605096-24A
Misc : SAMP
ALS Vial : 34 Sample Multiplier: 10

Quant Time: May 16 09:04:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1450782	4000.00	ug/kg	93
6) Acenaphthene-d10	12.857	164	1051985	4000.00	ug/kg	108
11) Phenanthrene-d10	14.979	188	2945897	4000.00	ug/kg	95
16) Chrysene-d12	20.984	240	2726372	4000.00	ug/kg	78
20) Perylene-d12	26.251	264	2437587	4000.00	ug/kg	82

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.757	172	26203	91.90	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.30%#			
17) 4-Terphenyl-d14	17.588	244	61033	96.89	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.42%#			

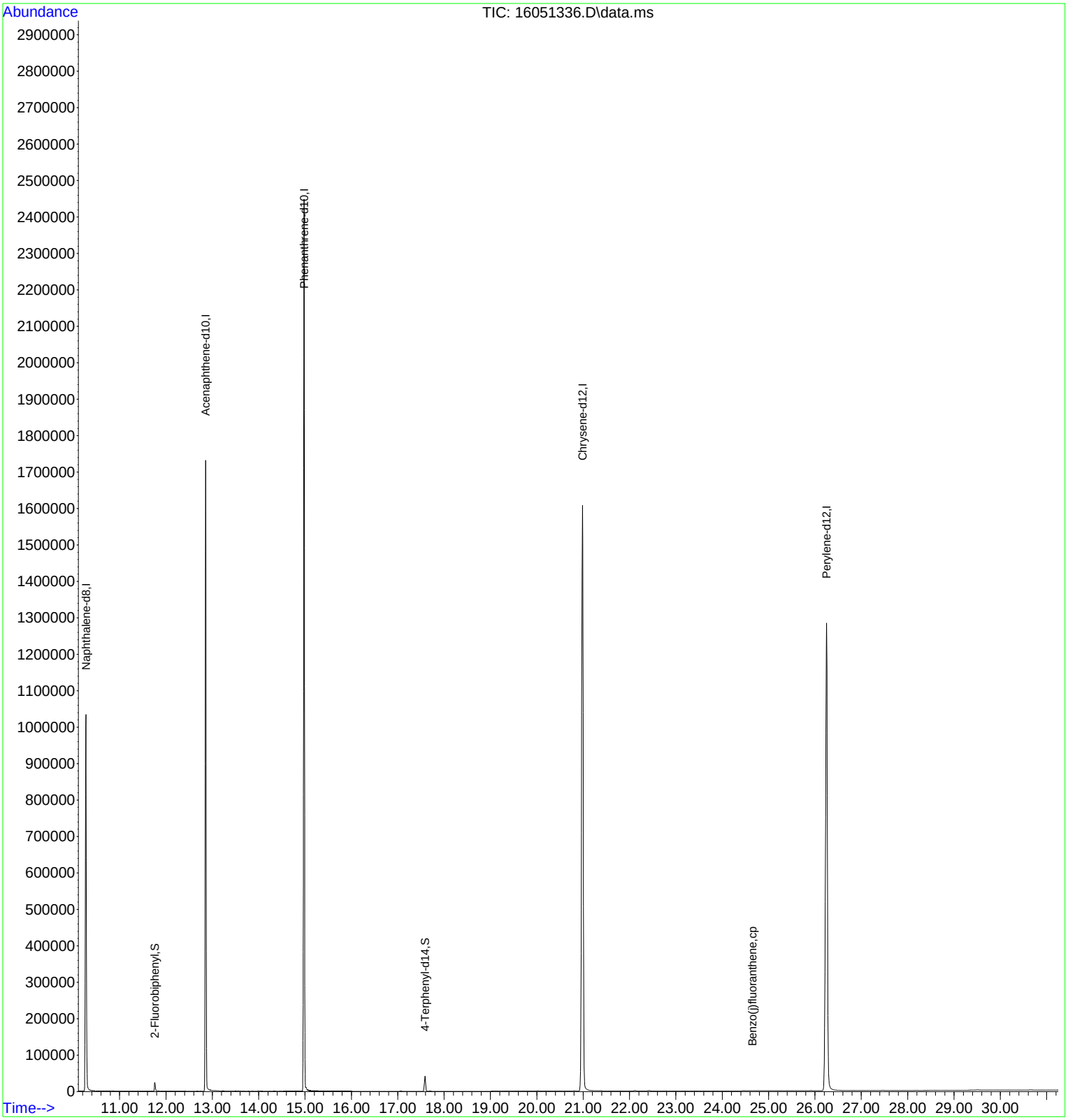
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.647	252	224	0.40	ug/kg	82

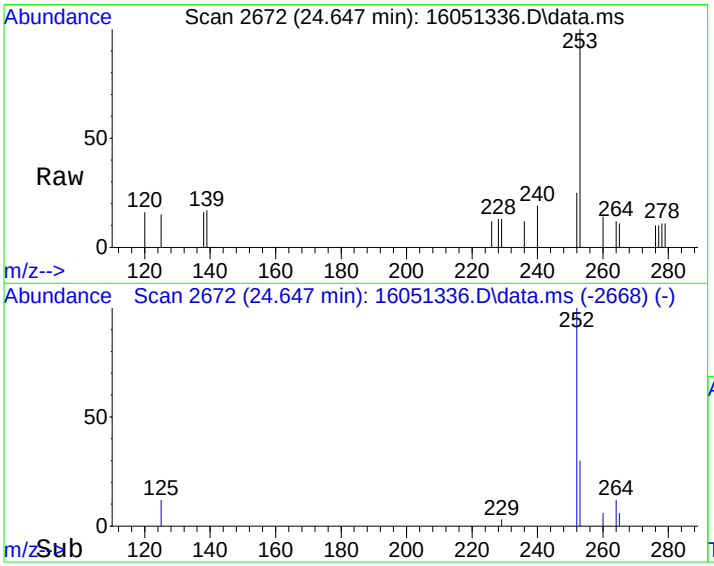
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051336.D
Acq On : 14 May 2016 9:20 am
Operator :
Sample : 1605096-24A
Misc : SAMP
ALS Vial : 34 Sample Multiplier: 10

Quant Time: May 16 09:04:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

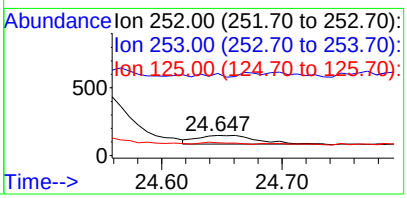




#23
Benzo(j)fluoranthene
Concen: 0.40 ug/kg
RT: 24.647 min Scan# 2672
Delta R.T. -0.013 min
Lab File: 16051336.D
Acq: 14 May 2016 9:20 am

Tgt Ion:252 Resp: 224

Ion	Ratio	Lower	Upper
252	100		
253	11.2	2.3	42.3
125	13.4	0.0	39.2



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051337.D
Acq On : 14 May 2016 9:57 am
Operator :
Sample : 1605096-14A
Misc : SAMP
ALS Vial : 35 Sample Multiplier: 10

Quant Time: May 16 09:04:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1506459	4000.00	ug/kg	96
6) Acenaphthene-d10	12.857	164	1089492	4000.00	ug/kg	111
11) Phenanthrene-d10	14.979	188	2997408	4000.00	ug/kg	97
16) Chrysene-d12	20.984	240	2815459	4000.00	ug/kg	81
20) Perylene-d12	26.251	264	2519564	4000.00	ug/kg	85

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	25881	87.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.19%#		
17) 4-Terphenyl-d14	17.589	244	60997	93.77	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.34%#		

Target Compounds						Qvalue
12) Phenanthrene	15.015	178	24616	28.38	ug/kg	98
13) Anthracene	15.059	178	6090	6.48	ug/kg	96
14) Fluoranthene	17.066	202	75828	66.79	ug/kg	98
15) Pyrene	17.696	202	65665	57.67	ug/kg	99
18) Benzo[a]anthracene	20.808	228	36689	46.36	ug/kg	99
19) Chrysene	21.072	228	43485	60.02	ug/kg	99
21) Benzo[b]fluoranthene	24.463	252	42858	59.73	ug/kg	98
22) Benzo[k]fluoranthene	24.544	252	19940	34.65	ug/kg	94
23) Benzo(j)fluoranthene	24.654	252	17778	30.56	ug/kg	90
24) Benzo(e)pyrene	25.731	252	31683	46.00	ug/kg	95
25) Benzo[a]pyrene	25.914	252	41325	62.66	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.510	276	34947	47.83	ug/kg	90
27) Dibenz[a,h]anthracene	29.503	278	9429	15.83	ug/kg	96
28) Benzo[g,h,i]perylene	30.653	276	36537	57.31	ug/kg	96

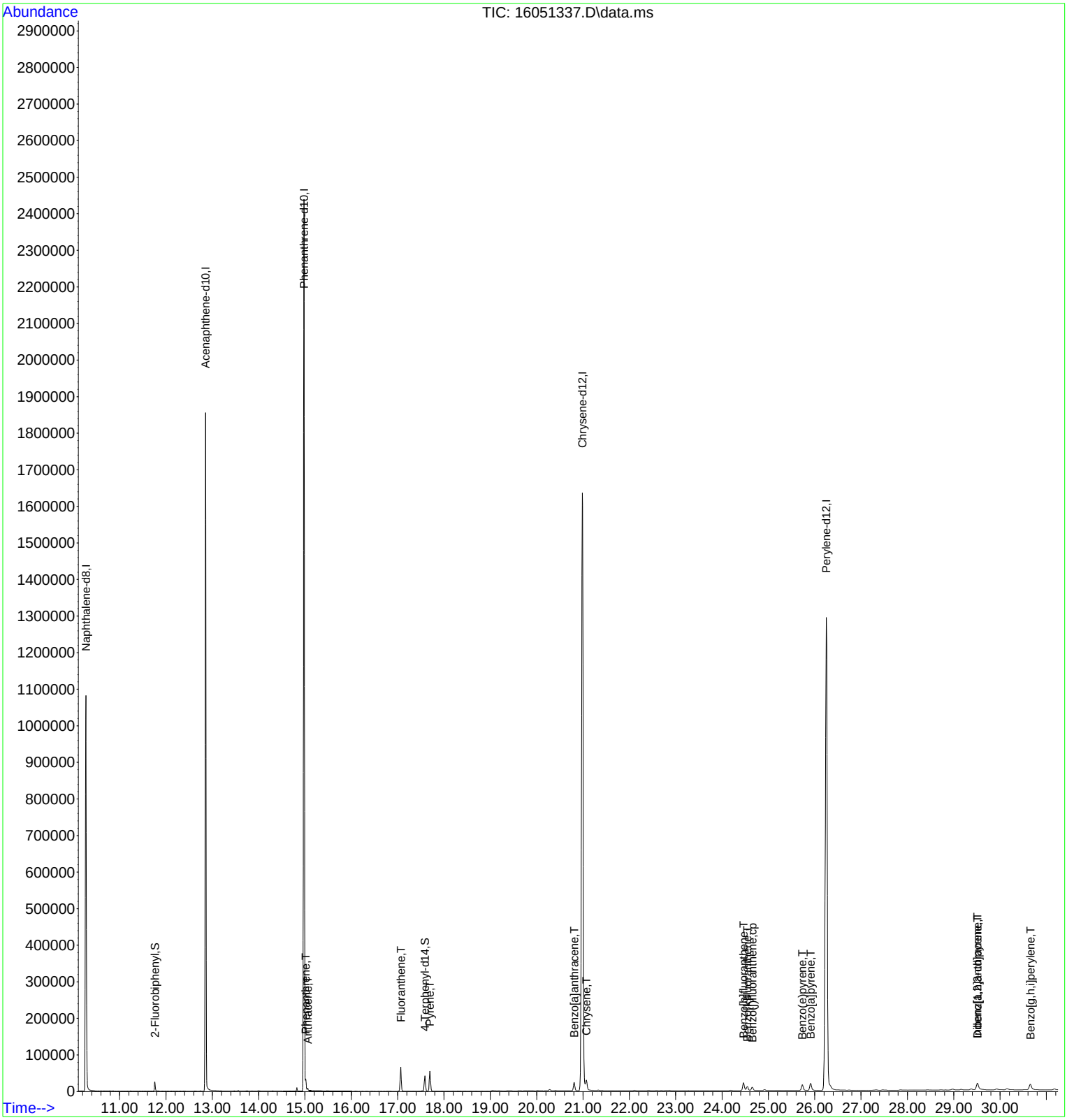
CONFIRMED
By Sherri Herschmann at 3:55:26 PM, 5/16/2016

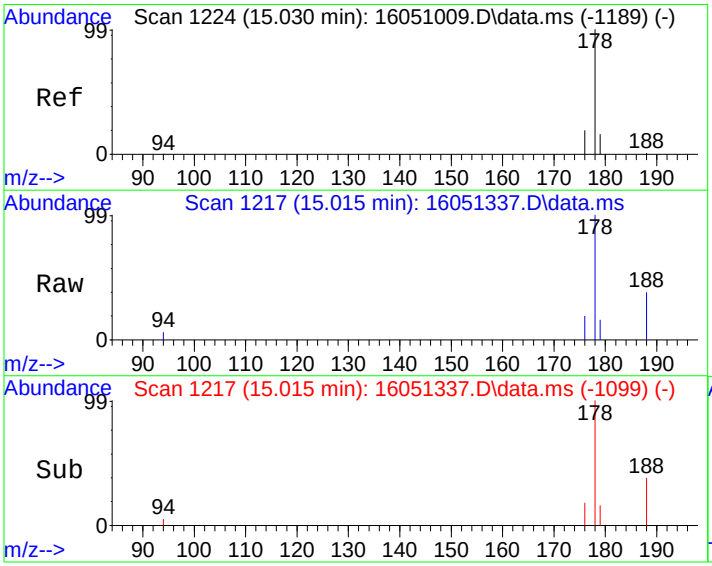
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051337.D
Acq On : 14 May 2016 9:57 am
Operator :
Sample : 1605096-14A
Misc : SAMP
ALS Vial : 35 Sample Multiplier: 10

Quant Time: May 16 09:04:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

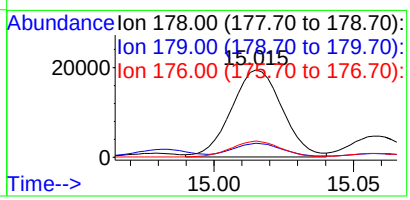


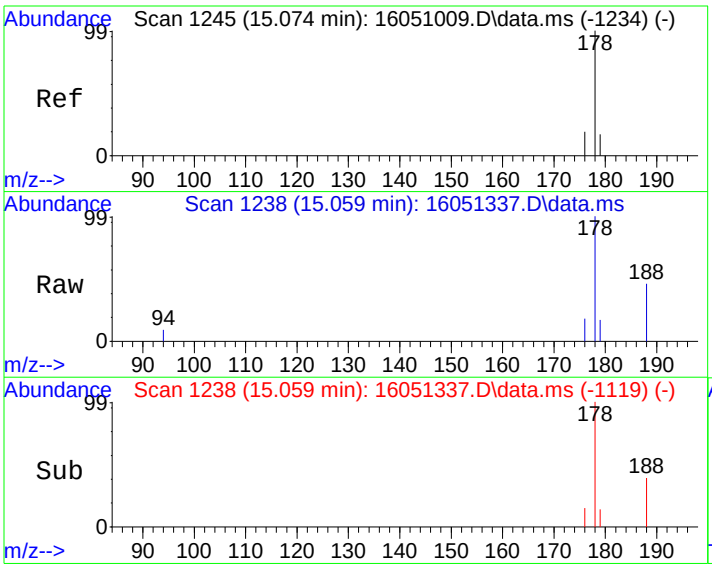


#12
Phenanthrene
Concen: 28.38 ug/kg
RT: 15.015 min Scan# 1217
Delta R.T. -0.001 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:178 Resp: 24616

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	36.4
176	18.6	0.0	39.2

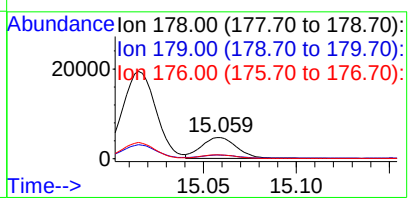


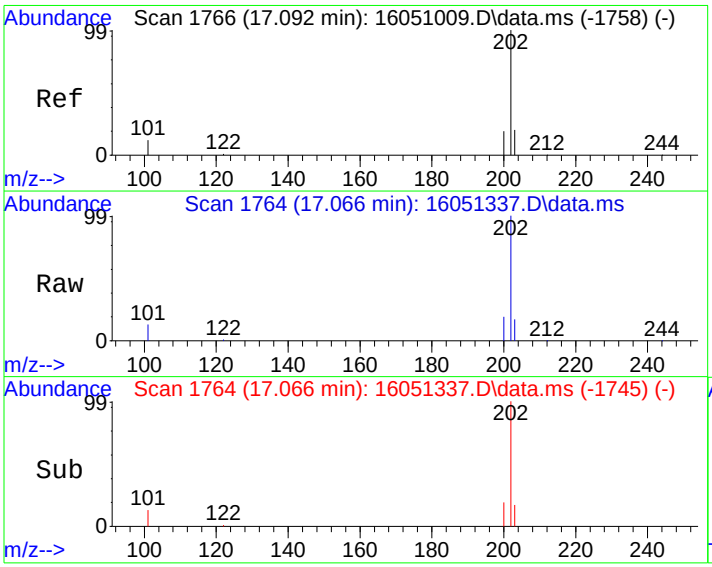


#13
Anthracene
Concen: 6.48 ug/kg
RT: 15.059 min Scan# 1238
Delta R.T. 0.001 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:178 Resp: 6090

Ion	Ratio	Lower	Upper
178	100		
179	14.6	0.0	36.5
176	17.1	0.0	38.6

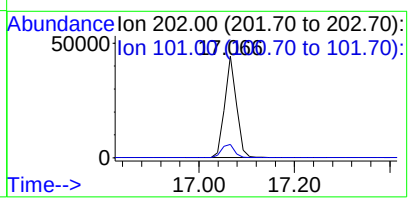


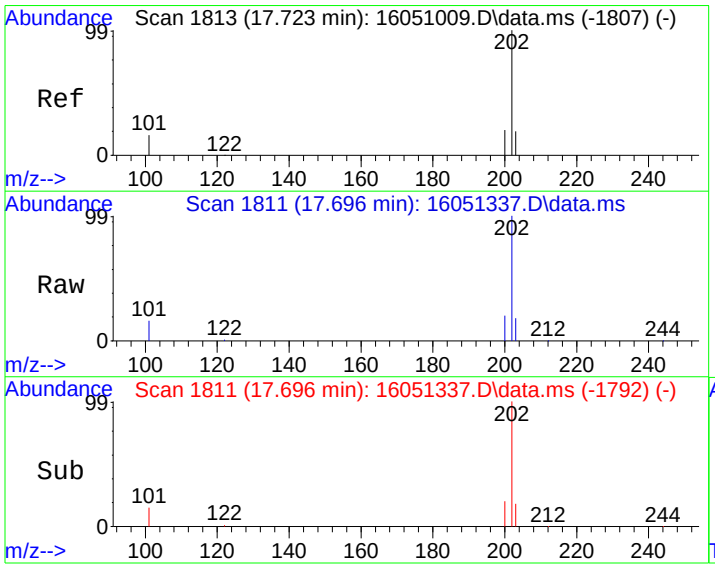


#14
Fluoranthene
Concen: 66.79 ug/kg
RT: 17.066 min Scan# 1764
Delta R.T. 0.001 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:202 Resp: 75828

Ion	Ratio	Lower	Upper
202	100		
101	13.0	0.0	32.0

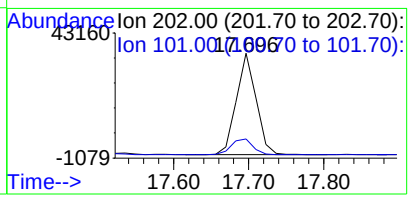


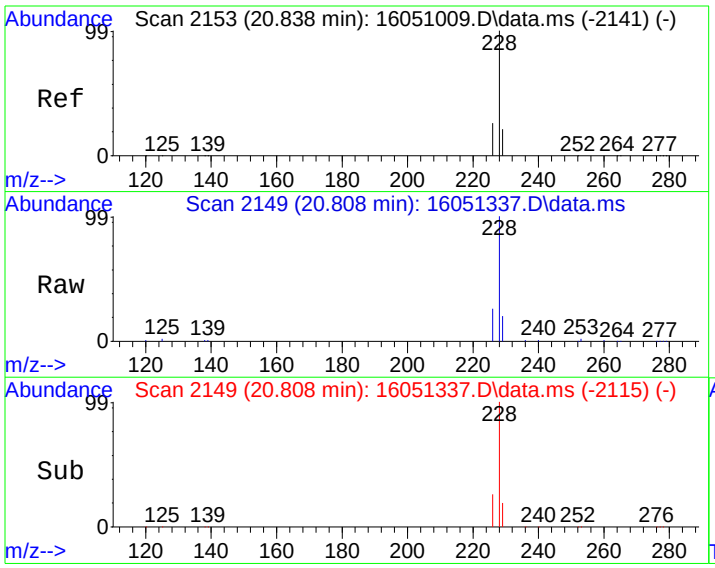


#15
Pyrene
Concen: 57.67 ug/kg
RT: 17.696 min Scan# 1811
Delta R.T. 0.000 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:202 Resp: 65665

Ion	Ratio	Lower	Upper
202	100		
101	15.4	0.0	35.9

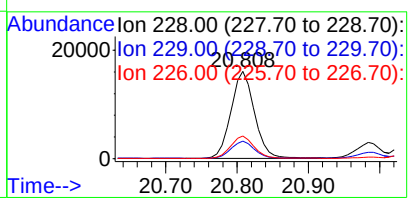


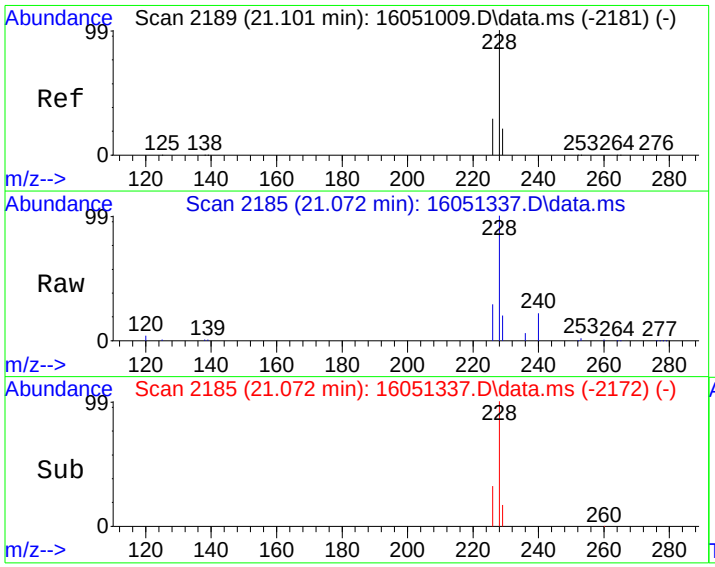


#18
Benzo[a]anthracene
Concen: 46.36 ug/kg
RT: 20.808 min Scan# 2149
Delta R.T. 0.002 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:228 Resp: 36689

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.7	40.7
226	25.6	5.9	45.9

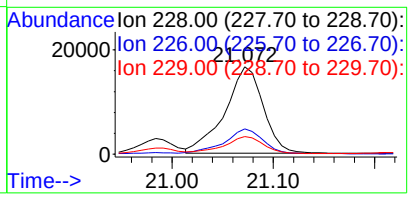


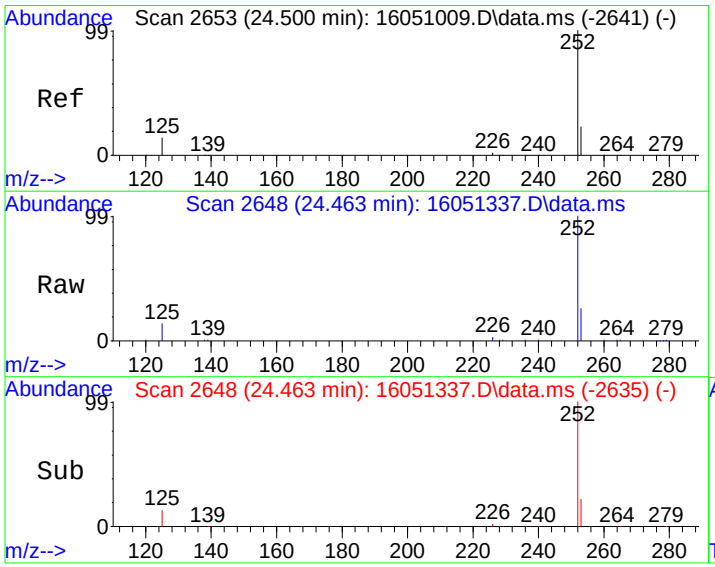


#19
Chrysene
Concen: 60.02 ug/kg
RT: 21.072 min Scan# 2185
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:228 Resp: 43485

Ion	Ratio	Lower	Upper
228	100		
226	28.6	8.8	48.8
229	19.6	0.5	40.5

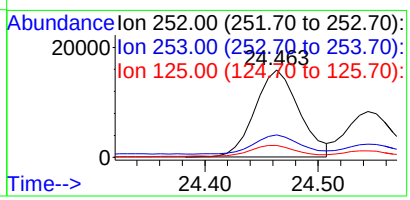


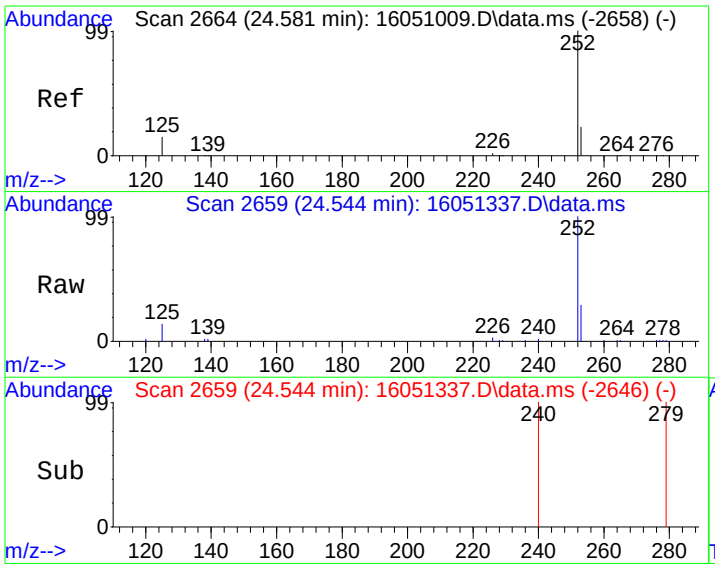


#21
Benzo[b]fluoranthene
Concen: 59.73 ug/kg
RT: 24.463 min Scan# 2648
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:252 Resp: 42858

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.6	42.6
125	12.3	0.0	33.8

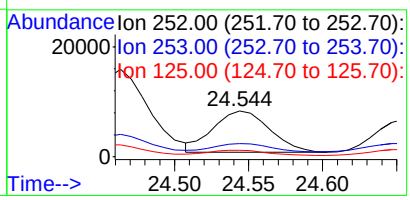


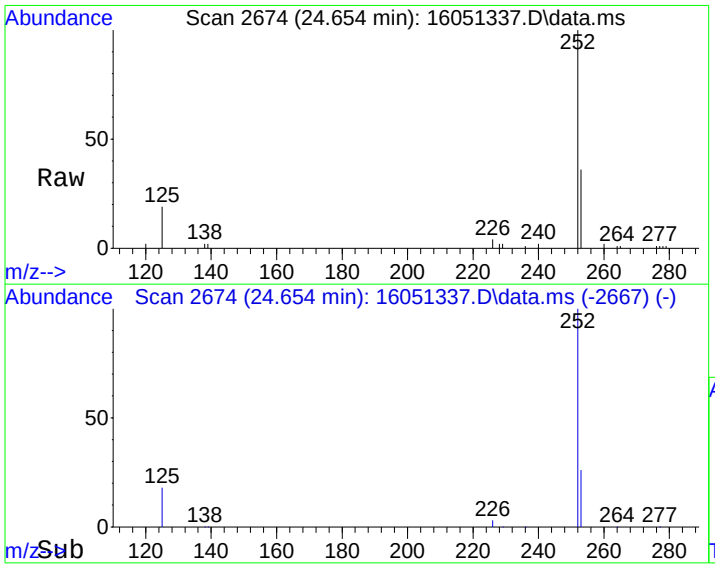


#22
Benzo[k]fluoranthene
Concen: 34.65 ug/kg
RT: 24.544 min Scan# 2659
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:252 Resp: 19940

Ion	Ratio	Lower	Upper
252	100		
253	19.8	2.8	42.8
125	12.7	0.0	34.7

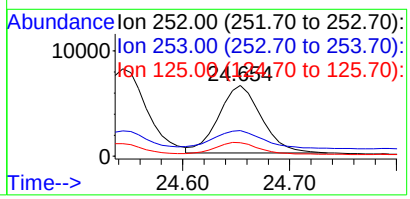


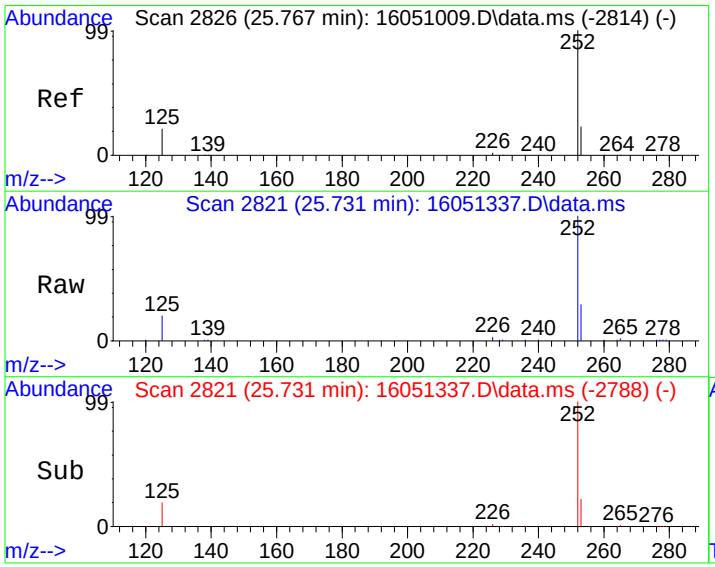


#23
Benzo(j)fluoranthene
Concen: 30.56 ug/kg
RT: 24.654 min Scan# 2674
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:252 Resp: 17778

Ion	Ratio	Lower	Upper
252	100		
253	29.9	2.3	42.3
125	17.9	0.0	39.2

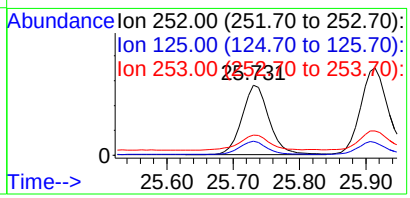


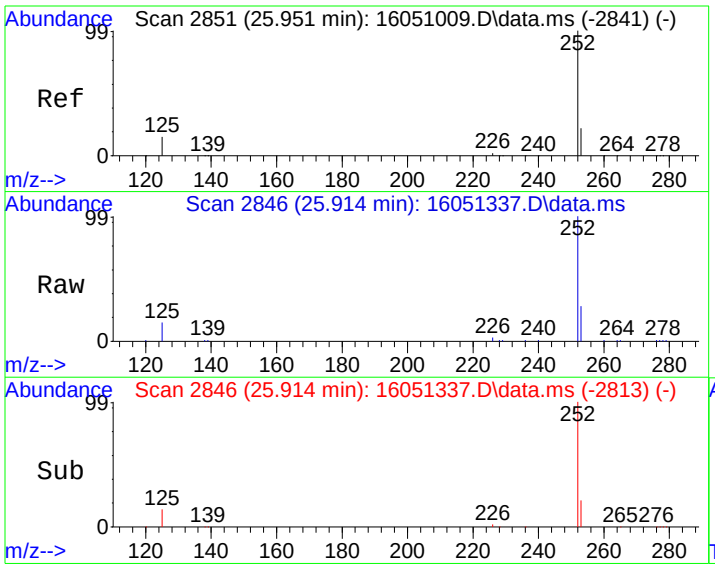


#24
Benzo(e)pyrene
Concen: 46.00 ug/kg
RT: 25.731 min Scan# 2821
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:252 Resp: 31683

Ion	Ratio	Lower	Upper
252	100		
125	19.1	0.8	40.8
253	24.9	2.4	42.4

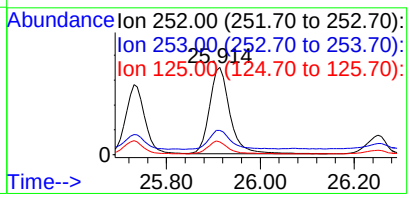


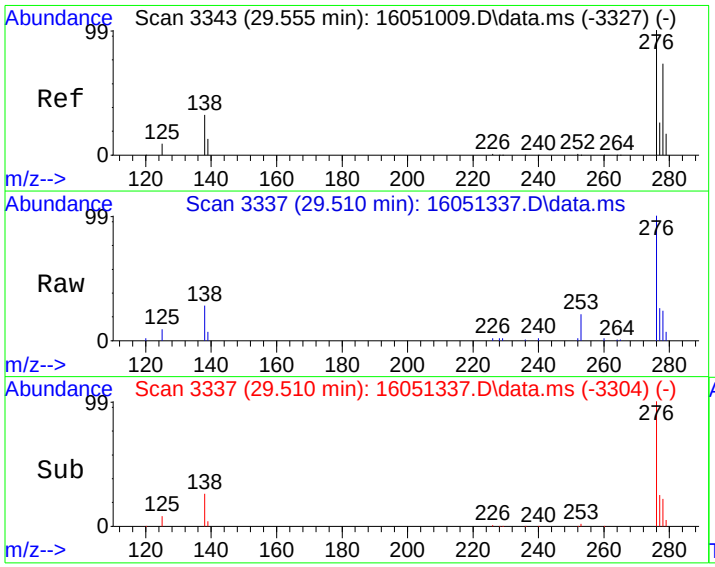


#25
Benzo[a]pyrene
Concen: 62.66 ug/kg
RT: 25.914 min Scan# 2846
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:252 Resp: 41325

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.5	42.5
125	13.8	0.0	35.5

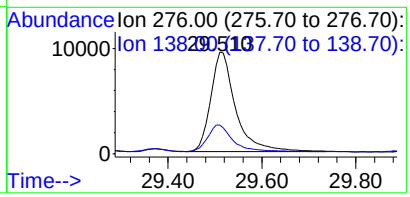


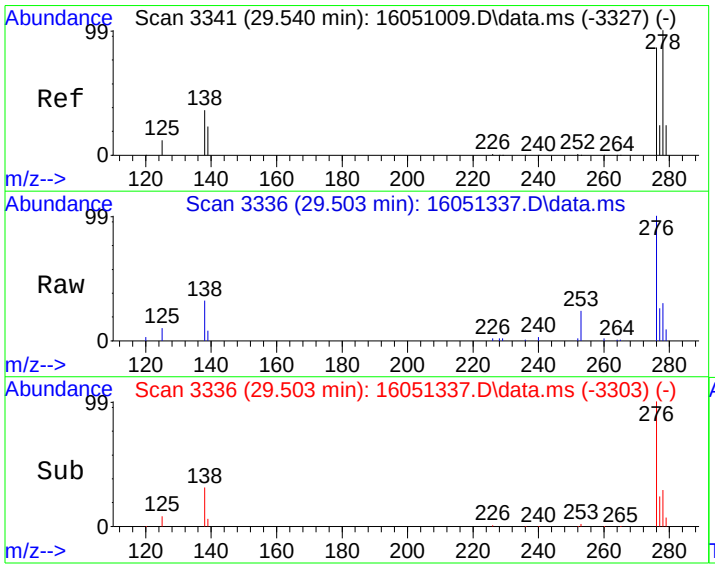


#26
Indeno[1,2,3-cd]pyrene
Concen: 47.83 ug/kg
RT: 29.510 min Scan# 3337
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:276 Resp: 34947

Ion	Ratio	Lower	Upper
276	100		
138	26.5	12.0	52.0

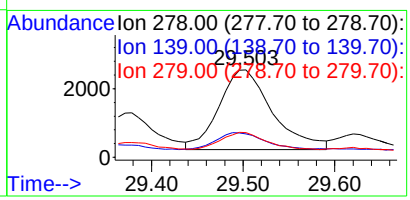


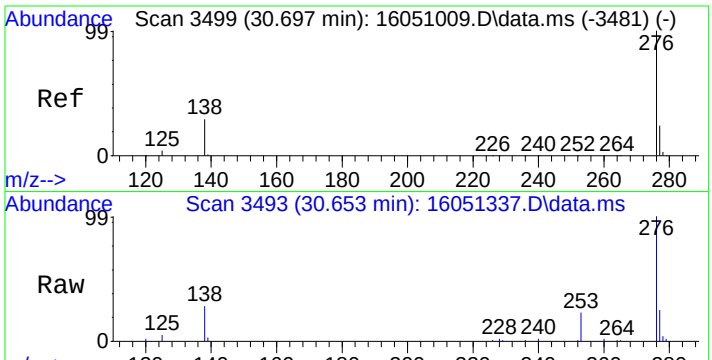


#27
Dibenz[a,h]anthracene
Concen: 15.83 ug/kg
RT: 29.503 min Scan# 3336
Delta R.T. -0.005 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:278 Resp: 9429

Ion	Ratio	Lower	Upper
278	100		
139	21.0	2.9	42.9
279	22.7	4.4	44.4

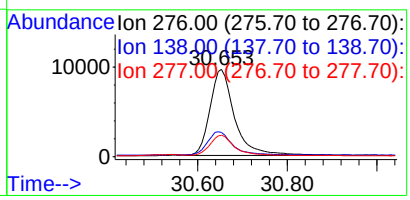




#28
Benzo[g,h,i]perylene
Concen: 57.31 ug/kg
RT: 30.653 min Scan# 3493
Delta R.T. -0.013 min
Lab File: 16051337.D
Acq: 14 May 2016 9:57 am

Tgt Ion:276 Resp: 36537

Ion	Ratio	Lower	Upper
276	100		
138	25.9	9.3	49.3
277	23.5	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051338.D
Acq On : 14 May 2016 10:33 am
Operator :
Sample : 1605096-14AMS
Misc : MS
ALS Vial : 36 Sample Multiplier: 10

Quant Time: May 16 09:02:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.271	136	1507603	4000.00	ug/kg	96
6) Acenaphthene-d10	12.856	164	1100755	4000.00	ug/kg	113
11) Phenanthrene-d10	14.979	188	2986740	4000.00	ug/kg	96
16) Chrysene-d12	20.984	240	2783605	4000.00	ug/kg	80
20) Perylene-d12	26.250	264	2511903	4000.00	ug/kg	85

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.756	172	26210	88.46	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.21%#			
17) 4-Terphenyl-d14	17.587	244	57816	89.89	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.25%#			

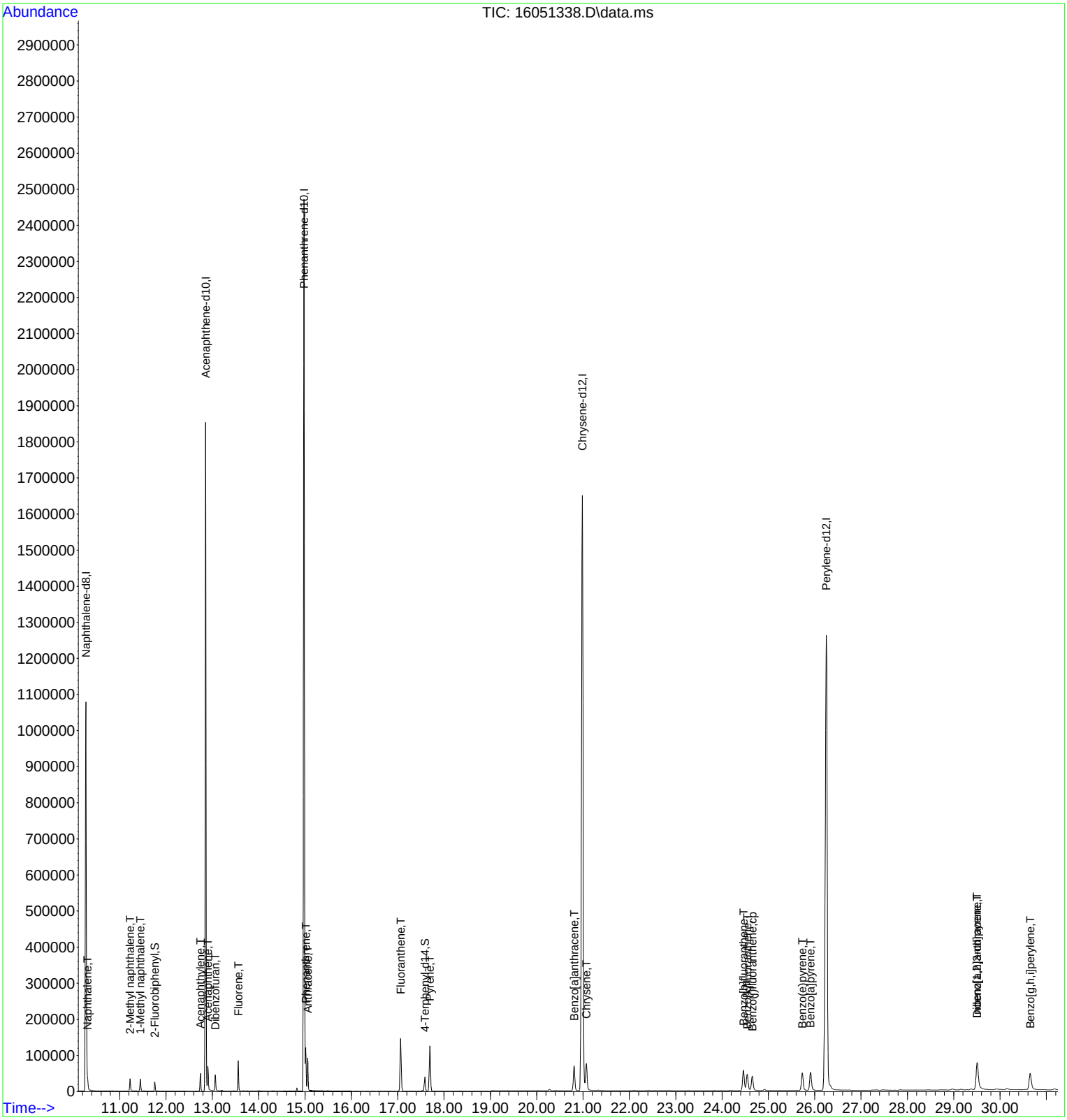
Target Compounds						Qvalue
2) Naphthalene	10.308	128	30719	84.08	ug/kg	99
3) 2-Methyl naphthalene	11.226	142	23312	96.11	ug/kg	99
4) 1-Methyl naphthalene	11.448	142	21853	95.31	ug/kg	99
7) Acenaphthylene	12.743	152	47350	91.54	ug/kg	99
8) Acenaphthene	12.906	153	30141	92.08	ug/kg	99
9) Dibenzofuran	13.068	168	46634	88.22	ug/kg	96
10) Fluorene	13.559	166	45390	91.31	ug/kg	99
12) Phenanthrene	15.015	178	105311	121.83	ug/kg	97
13) Anthracene	15.059	178	87323	93.24	ug/kg	97
14) Fluoranthene	17.064	202	166339	147.04	ug/kg	97
15) Pyrene	17.695	202	152768	134.64	ug/kg	98
18) Benzo[a]anthracene	20.808	228	110528	141.25	ug/kg	99
19) Chrysene	21.072	228	110606	154.41	ug/kg	99
21) Benzo[b]fluoranthene	24.463	252	113090	158.09	ug/kg	98
22) Benzo[k]fluoranthene	24.544	252	78525	136.86	ug/kg	96
23) Benzo(j)fluoranthene	24.654	252	74257	128.05	ug/kg	97
24) Benzo(e)pyrene	25.730	252	94991	138.35	ug/kg	97
25) Benzo[a]pyrene	25.913	252	104882	159.52	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.510	276	111060	152.47	ug/kg	93
27) Dibenz[a,h]anthracene	29.495	278	70099	118.04	ug/kg	98
28) Benzo[g,h,i]perylene	30.653	276	102832	161.79	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051338.D
Acq On : 14 May 2016 10:33 am
Operator :
Sample : 1605096-14AMS
Misc : MS
ALS Vial : 36 Sample Multiplier: 10

Quant Time: May 16 09:02:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051339.D
Acq On : 14 May 2016 11:10 am
Operator :
Sample : 1605096-14AMSD
Misc : MSD
ALS Vial : 37 Sample Multiplier: 10

Quant Time: May 16 09:02:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.271	136	1529462	4000.00	ug/kg	98
6) Acenaphthene-d10	12.857	164	1118986	4000.00	ug/kg	115
11) Phenanthrene-d10	14.979	188	2989296	4000.00	ug/kg	96
16) Chrysene-d12	20.984	240	2817619	4000.00	ug/kg	81
20) Perylene-d12	26.250	264	2541193	4000.00	ug/kg	86

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.760	172	26820	89.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.23%#			
17) 4-Terphenyl-d14	17.588	244	57456	88.26	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.21%#			

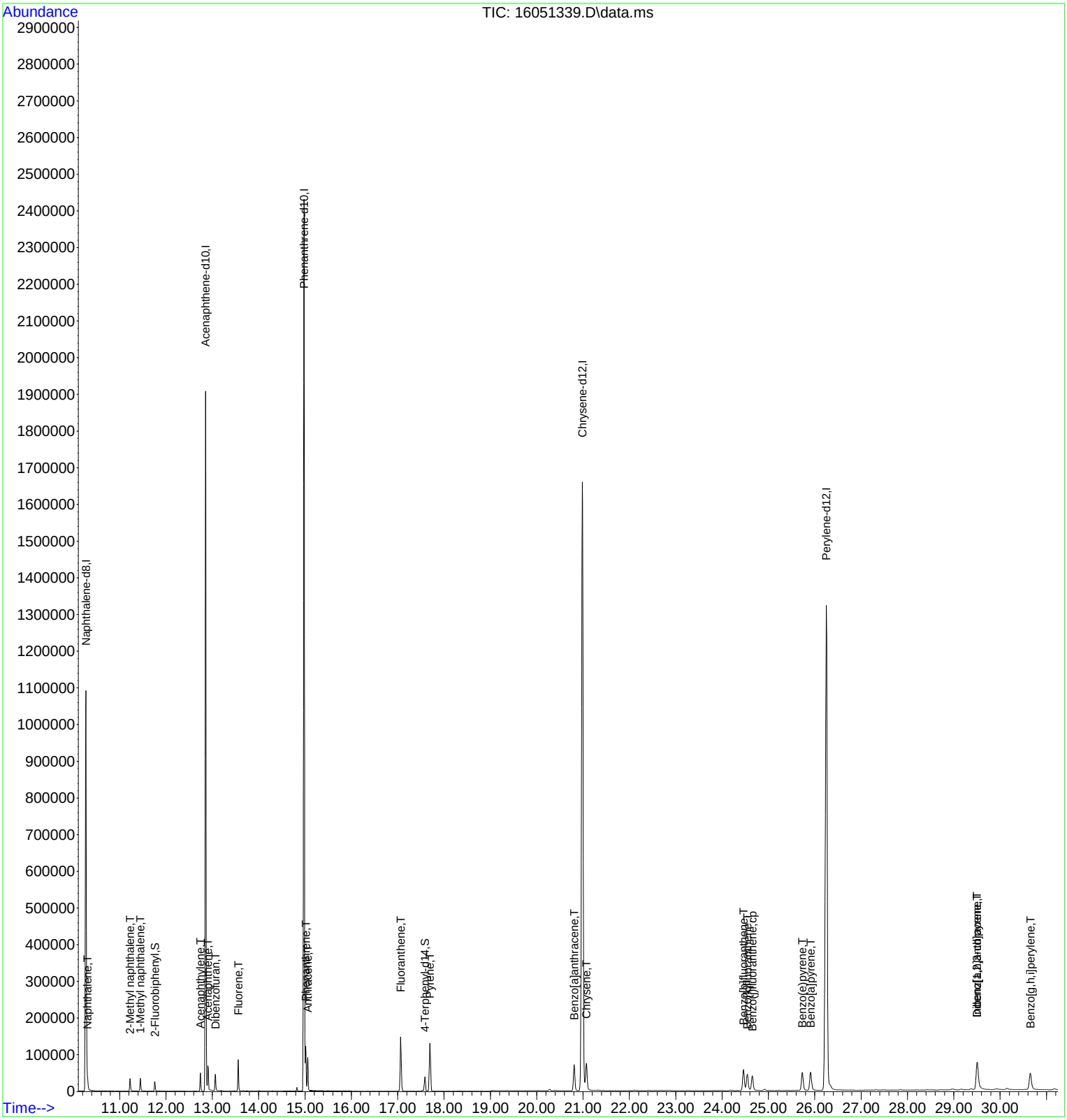
Target Compounds						Qvalue
2) Naphthalene	10.308	128	31040	83.74	ug/kg	99
3) 2-Methyl naphthalene	11.226	142	23489	95.47	ug/kg	99
4) 1-Methyl naphthalene	11.448	142	21942	94.33	ug/kg	99
7) Acenaphthylene	12.744	152	47794	90.89	ug/kg	99
8) Acenaphthene	12.906	153	30317	91.11	ug/kg	99
9) Dibenzofuran	13.068	168	46427	86.40	ug/kg	97
10) Fluorene	13.559	166	45263	89.57	ug/kg	99
12) Phenanthrene	15.016	178	106392	122.97	ug/kg	96
13) Anthracene	15.059	178	86586	92.37	ug/kg	98
14) Fluoranthene	17.065	202	170530	150.61	ug/kg	94
15) Pyrene	17.695	202	157001	138.25	ug/kg	97
18) Benzo[a]anthracene	20.808	228	111552	140.84	ug/kg	98
19) Chrysene	21.072	228	112802	155.58	ug/kg	99
21) Benzo[b]fluoranthene	24.463	252	113007	156.15	ug/kg	98
22) Benzo[k]fluoranthene	24.544	252	78601	135.41	ug/kg	97
23) Benzo(j)fluoranthene	24.653	252	74653	127.24	ug/kg	96
24) Benzo(e)pyrene	25.730	252	94798	136.48	ug/kg	97
25) Benzo[a]pyrene	25.913	252	105067	157.96	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.510	276	110154	149.48	ug/kg	94
27) Dibenz[a,h]anthracene	29.495	278	69559	115.78	ug/kg	97
28) Benzo[g,h,i]perylene	30.653	276	101816	158.34	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051339.D
Acq On : 14 May 2016 11:10 am
Operator :
Sample : 1605096-14AMSD
Misc : MSD
ALS Vial : 37 Sample Multiplier: 10

Quant Time: May 16 09:02:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051341.D
Acq On : 14 May 2016 12:24 pm
Operator :
Sample : ICV3-160513
Misc : ICV
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 16 09:02:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

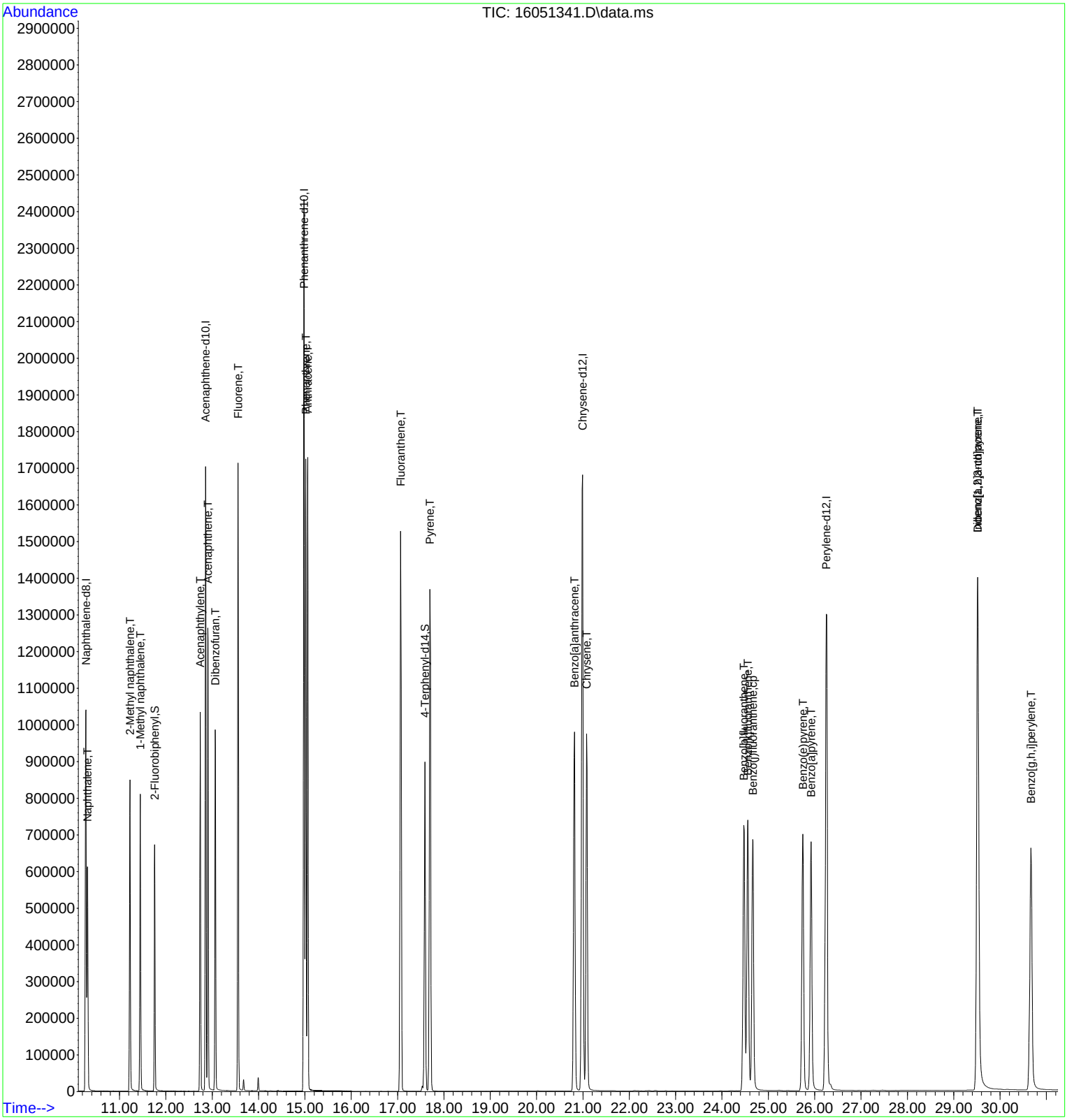
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.274	136	1450577	4000.00	ug/kg	93
6) Acenaphthene-d10	12.856	164	1026002	4000.00	ug/kg	105
11) Phenanthrene-d10	14.980	188	2972526	4000.00	ug/kg	96
16) Chrysene-d12	20.991	240	2832657	4000.00	ug/kg	81
20) Perylene-d12	26.258	264	2537523	4000.00	ug/kg	86
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.758	172	604792	2121.38	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 53.03%			
17) 4-Terphenyl-d14	17.588	244	1311494	2003.82	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 50.10%#			
Target Compounds						Qvalue
2) Naphthalene	10.311	128	708132	2014.33	ug/kg	100
3) 2-Methyl naphthalene	11.224	142	515155	2169.51	ug/kg	98
4) 1-Methyl naphthalene	11.446	142	478801	2170.39	ug/kg	99
7) Acenaphthylene	12.743	152	973810	2019.73	ug/kg	100
8) Acenaphthene	12.905	153	613130	2009.49	ug/kg	99
9) Dibenzofuran	13.067	168	940579	1908.95	ug/kg	96
10) Fluorene	13.559	166	901263	1945.05	ug/kg	99
12) Phenanthrene	15.018	178	1658855	1928.18	ug/kg	100
13) Anthracene	15.060	178	1677822	1800.06	ug/kg	100
14) Fluoranthene	17.065	202	1810671	1608.21	ug/kg	87
15) Pyrene	17.695	202	1770337	1567.68	ug/kg	89
18) Benzo[a]anthracene	20.815	228	1553445	1950.89	ug/kg	100
19) Chrysene	21.079	228	1433597	1966.71	ug/kg	100
21) Benzo[b]fluoranthene	24.470	252	1443152	1997.01	ug/kg	100
22) Benzo[k]fluoranthene	24.558	252	1293627	2231.87	ug/kg	98
23) Benzo(j)fluoranthene	24.668	252	1238229	2113.59	ug/kg	99
24) Benzo(e)pyrene	25.745	252	1351056	1947.86	ug/kg	99
25) Benzo[a]pyrene	25.921	252	1330941	2003.86	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.525	276	1615795	2195.86	ug/kg	98
27) Dibenz[a,h]anthracene	29.510	278	1345426	2242.77	ug/kg	99
28) Benzo[g,h,i]perylene	30.667	276	1391591	2167.29	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051341.D
Acq On : 14 May 2016 12:24 pm
Operator :
Sample : ICV3-160513
Misc : ICV
ALS Vial : 21 Sample Multiplier: 1

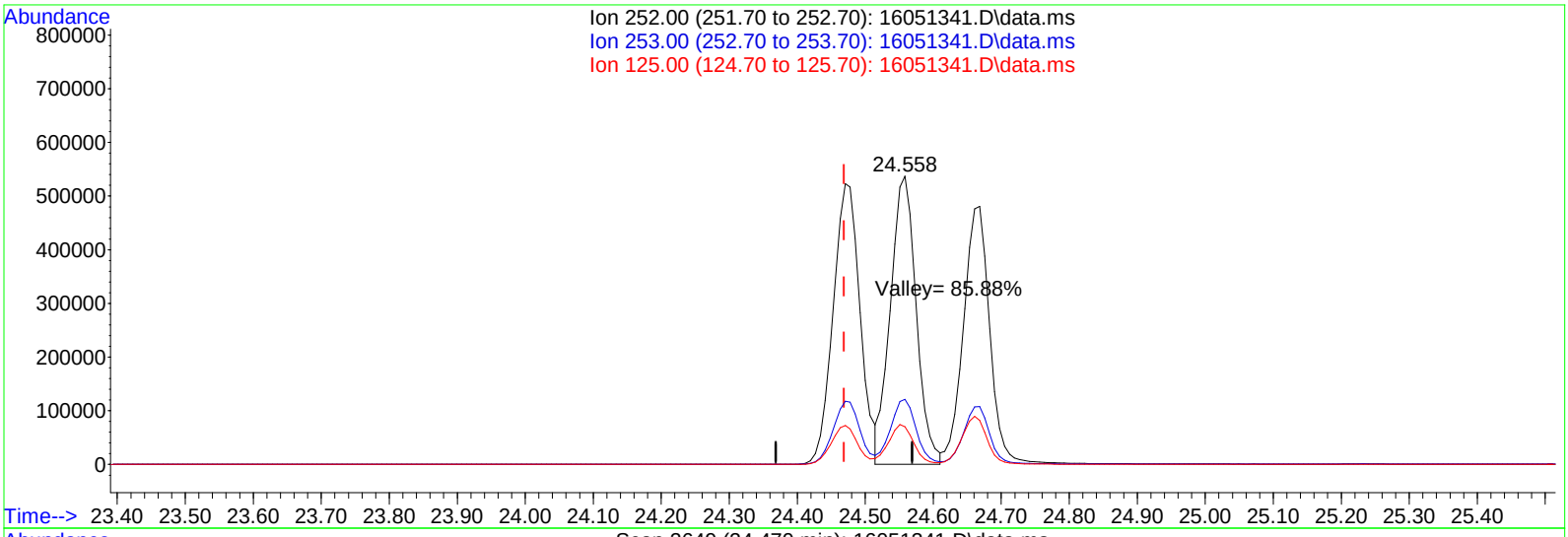
Quant Time: May 16 09:02:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

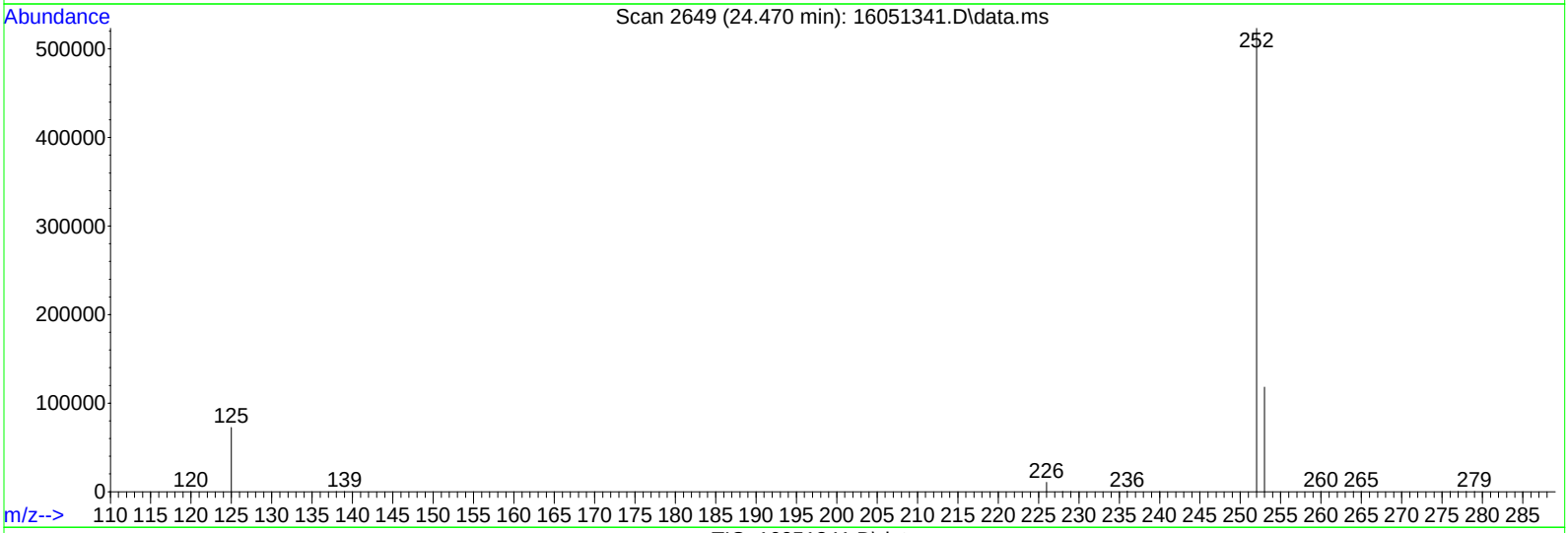


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160513\
Data File : 16051341.D
Acq On : 14 May 2016 12:24 pm
Operator :
Sample : ICV3-160513
Misc : ICV
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 14 12:55:38 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration





TIC: 16051341.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.470min (+0.002) 1997.01ug/kg

response 1443152

Ion	Exp%	Act%
252.00	100	100
253.00	22.60	22.45
125.00	13.80	13.86
0.00	0.00	0.00

GCMS8_160516A
For

DHL Work Order
1605096

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

Project Number(s): SEE RUN LOG.	**Run ID: GCMS8_160516A**
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	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard	X			
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

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: Karyn Lane Date: 5/17/2016 10:16

Second-Level Review: Janice Whitt Date: 5/26/2016

REVIEWED BY
By Janice Whitt at 3:09:34 PM, 5/26/2016

DHL Analytical, Inc.

Run ID: GCMS8_160516A **Run No.:** 85841

Analytical Run Date: 5/16/2016 **InstrumentID:** GCMS8

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

Calibration ID: 658 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160510.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160516	1	PAH_LL_SDOD1	TUNE	R85841	5/16/2016 1:07:00 PM		
ICV-160516	1	PAH_LL_SDOD1	ICV	R85841	5/16/2016 1:44:00 PM		
SBLK-160516	1	PAH_LL_SDOD1	SBLK	75151	5/16/2016 3:35:00 PM		
1605096-18A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 4:12:00 PM		
1605096-19A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 4:48:00 PM		
1605096-20A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 5:25:00 PM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
1605096-21A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 6:02:00 PM		
1605096-01A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 6:39:00 PM		
1605096-02A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 7:15:00 PM		
1605096-03A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 7:52:00 PM		
1605096-13A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 8:29:00 PM		
1605096-22A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 9:05:00 PM		
1605096-15A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 9:42:00 PM		
1605096-16A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 10:19:00 PM		
1605096-17A	10	PAH_LL_SDOD1	SAMP	75151	5/16/2016 10:56:00 PM		
CCV-160516	1	PAH_LL_SDOD1	CCV	R85841	5/16/2016 11:33:00 PM		
DFTPP2-160516	1	PAH_LL_SDOD1	TUNE	R85841	5/17/2016 12:09:00 AM		
ICV2-160516	1	PAH_LL_SDOD1	ICV	R85841	5/17/2016 12:46:00 AM		Reporting Indeno(1,2,3-cd)pyrene only - original run in GCMS6_160515A.
SBLK2-160516	1	PAH_LL_SDOD1	SBLK	75113	5/17/2016 1:23:00 AM		
1605074-07A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 2:00:00 AM		
1605074-08A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 2:37:00 AM		
1605074-09A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 3:14:00 AM		
1605074-10A	20	PAH_LL_SDOD1	SAMP	75113	5/17/2016 3:50:00 AM		
1605074-11A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 4:28:00 AM		
1605074-12A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 5:05:00 AM		
1605074-14A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 5:42:00 AM		
1605074-15A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 6:18:00 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
SVI150810-08	4000 PPM INTERNAL STANDAR	ALL	07/21/2016

DHL Analytical, Inc.

Run ID: GCMS8_160516A **Run No.:** 85841

1605074-16A	10	PAH_LL_SDOD1	SAMP	75113	5/17/2016 6:55:00 AM		
CCV2-160516	1	PAH_LL_SDOD1	CCV	R85841	5/17/2016 7:32:00 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

Sequence Name: C:\msdchem\1\sequence\160516.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160516\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

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

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

Line			Sample Name/Misc Info		
1)	Sample	1	16051601	DFTPPPAH	DFTPP-160516
2)	Sample	2	16051602	PAH160510	ICV-160516
3)	Sample	3	16051603	PAH160510	MB-75746
4)	Sample	4	16051604	PAH160510	1605098-42B
5)	Sample	5	16051605	PAH160510	SBLK-160516
6)	Sample	6	16051606	PAH160510	1605096-18A
7)	Sample	7	16051607	PAH160510	1605096-19A
8)	Sample	8	16051608	PAH160510	1605096-20A
9)	Sample	9	16051609	PAH160510	1605096-21A
10)	Sample	10	16051610	PAH160510	1605096-01A
11)	Sample	11	16051611	PAH160510	1605096-02A
12)	Sample	12	16051612	PAH160510	1605096-03A
13)	Sample	13	16051613	PAH160510	1605096-13A
14)	Sample	14	16051614	PAH160510	1605096-22A
15)	Sample	15	16051615	PAH160510	1605096-15A
16)	Sample	16	16051616	PAH160510	1605096-16A
17)	Sample	17	16051617	PAH160510	1605096-17A
18)	Sample	18	16051618	PAH160510	CCV-160516
19)	Sample	19	16051619	DFTPPPAH	DFTPP2-160516
20)	Sample	20	16051620	PAH160510	ICV2-160516
21)	Sample	21	16051621	PAH160510	SBLK2-160516
22)	Sample	22	16051622	PAH160510	1605074-07A
23)	Sample	23	16051623	PAH160510	1605074-08A
24)	Sample	24	16051624	PAH160510	1605074-09A
25)	Sample	25	16051625	PAH160510	1605074-10A
26)	Sample	26	16051626	PAH160510	1605074-11A
27)	Sample	27	16051627	PAH160510	1605074-12A
28)	Sample	28	16051628	PAH160510	1605074-14A
29)	Sample	29	16051629	PAH160510	1605074-15A
30)	Sample	30	16051630	PAH160510	1605074-16A
31)	Sample	18	16051631	PAH160510	CCV2-160516

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 10:10:34 AM**
Digestion:
Prep End Date: **5/13/2016 2:30:00 PM**

Prep Batch **75151** 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
1605096-01A	Soil		10.05	10	0.995	1 of 1	
1605096-02A	Soil		10.05	10	0.995	1 of 1	
1605096-03A	Soil		10.04	10	0.996	1 of 1	
1605096-13A	Soil		10.24	10	0.977	1 of 1	
1605096-14A	Soil		10.07	10	0.993	1 of 3	
1605096-14AMS	Soil		10.23	10	0.978	1 of	
1605096-14AMSD	Soil		10.25	10	0.976	12 of	
1605096-15A	Soil		10	10	1.000	1 of 1	
1605096-16A	Soil		10.02	10	0.998	1 of 1	
1605096-17A	Soil		10.09	10	0.991	1 of 1	
1605096-18A	Soil		10.11	10	0.989	1 of 1	
1605096-19A	Soil		10.11	10	0.989	1 of 1	
1605096-20A	Soil		10.2	10	0.980	1 of 1	
1605096-21A	Soil		10.11	10	0.989	1 of 1	
1605096-22A	Soil		10.59	10	0.944	1 of 1	
1605096-23A	Soil		10.06	10	0.994	1 of 1	
1605096-24A	Soil		10.15	10	0.985	1 of 1	
1605097-21A	Soil		10.44	10	0.958	1 of 1	
1605097-23A	Soil		10.06	10	0.994	1 of 1	
1605098-31A	Soil		10.05	10	0.995	1 of 1	
1605098-34A	Soil		10.08	10	0.992	1 of 1	
1605098-37A	Soil		10.09	10	0.991	1 of 1	
LCS-75151	Soil		10	10	1.000	of	
MB-75151	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED/APPROVED

By Sherri Herschmann at 3:13:11 PM, 5/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/13/2016 10:10:34 AM**
Digestion:
Prep End Date: 5/13/16 ~~12:24 PM~~ 2:30PM

Prep Batch **75151** Prep Code: **3550_PAHDOD** Technician: **ADMIN**

Prep Factor Units: **mL/g**

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

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-01A	Soil		10	10.05	1.000	1 of 1	
1605096-02A	Soil		10	10.05	1.000	1 of 1	
1605096-03A	Soil		10	10.04	1.000	1 of 1	
1605096-13A	Soil		10	10.24	1.000	1 of 1	
1605096-14A	Soil		10	10.07	1.000	1 of 3	
1605096-14AMS	Soil		10	10.23	1.000	1 of	
1605096-14AMSD	Soil		10	10.25	1.000	1,2 of	
1605096-15A	Soil		10	10.00	1.000	1 of 1	
1605096-16A	Soil		10	10.02	1.000	1 of 1	
1605096-17A	Soil		10	10.09	1.000	1 of 1	
1605096-18A	Soil		10	10.11	1.000	1 of 1	
1605096-19A	Soil		10	10.11	1.000	1 of 1	
1605096-20A	Soil		10	10.20	1.000	1 of 1	
1605096-21A	Soil		10	10.11	1.000	1 of 1	
1605096-22A	Soil		10	10.59	1.000	1 of 1	
1605096-23A	Soil		10	10.06	1.000	1 of 1	
1605096-24A	Soil		10	10.15	1.000	1 of 1	
1605097-21A	Soil		10	10.44	1.000	1 of 1	
1605097-23A	Soil		10	10.00	1.000	1 of 1	
1605098-31A	Soil		10	10.05	1.000	1 of 1	
1605098-34A	Soil		10	10.08	1.000	1 of 1	
1605098-37A	Soil		10	10.09	1.000	1 of 1	
LCS-75151	Soil		10	10	1.000	of	
MB-75151	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
9927	purified sodium sulfate	10	g	07/04/2016
10169	Methylene Chloride	8	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026
10343	1:1 MeCl2/Acetone	120	ml	05/09/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160509	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	11/07/2016
SVPREP160510	40 PPM Surrogate Standard	ALL	0.25	08/08/2016

REVIEWED/APPROVED
By Sherri Herschmann at 3:32:25 PM, 5/16/2016

5/13/16 AR 5/13/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:00:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 1:11:38 PM**

Prep Batch **75083** Prep Code: **ISM250_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-01A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-02A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-03A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-13A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-14A	Soil		0	0	#Num!		of	3	
	Sample has grass in it								
1605096-15A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-38A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-39A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-40A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-41A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-42A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								
1605096-43A	Soil		0	0	#Num!	1	of	1	
	Sample has grass in it								

REVIEWED/APPROVED

By Sherri Herschmann at 3:13:42 PM, 5/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-16A	Soil		0	0	#Num!	1	of	1	
1605096-17A	Soil		0	0	#Num!	1	of	1	
1605096-18A	Soil		0	0	#Num!	1	of	1	
1605096-19A	Soil		0	0	#Num!	1	of	1	
1605096-20A	Soil		0	0	#Num!	1	of	1	
1605096-21A	Soil		0	0	#Num!	1	of	1	
1605096-22A	Soil		0	0	#Num!	1	of	1	
1605096-23A	Soil		0	0	#Num!	1	of	1	
1605096-24A	Soil		0	0	#Num!	1	of	1	
1605096-25A	Soil		0	0	#Num!	1	of	1	
1605096-26A	Soil		0	0	#Num!	1	of	1	
1605096-27A	Soil		0	0	#Num!	1	of	1	
1605096-28A	Soil		0	0	#Num!	1	of	1	
1605096-29A	Soil		0	0	#Num!	1	of	1	
1605096-30A	Soil		0	0	#Num!	1	of	1	
1605096-45A	Soil		0	0	#Num!	1	of	1	
1605096-46A	Soil		0	0	#Num!	1	of	1	
1605096-47A	Soil		0	0	#Num!	1	of	1	
1605096-48A	Soil		0	0	#Num!	1	of	1	
1605096-49A	Soil		0	0	#Num!	1	of	1	
1605096-50A	Soil		0	0	#Num!	1	of	1	
1605096-51A	Soil		0	0	#Num!	1	of	1	
1605096-52A	Soil		0	0	#Num!		of	3	
1605096-53A	Soil		0	0	#Num!	1	of	1	
1605096-54A	Soil		0	0	#Num!	1	of	1	
1605096-55A	Soil		0	0	#Num!	1	of	1	
1605096-56A	Soil		0	0	#Num!	1	of	1	

REVIEWED/APPROVED

By Sherri Herschmann at 3:13:45 PM, 5/16/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Factor Units: **mL/**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

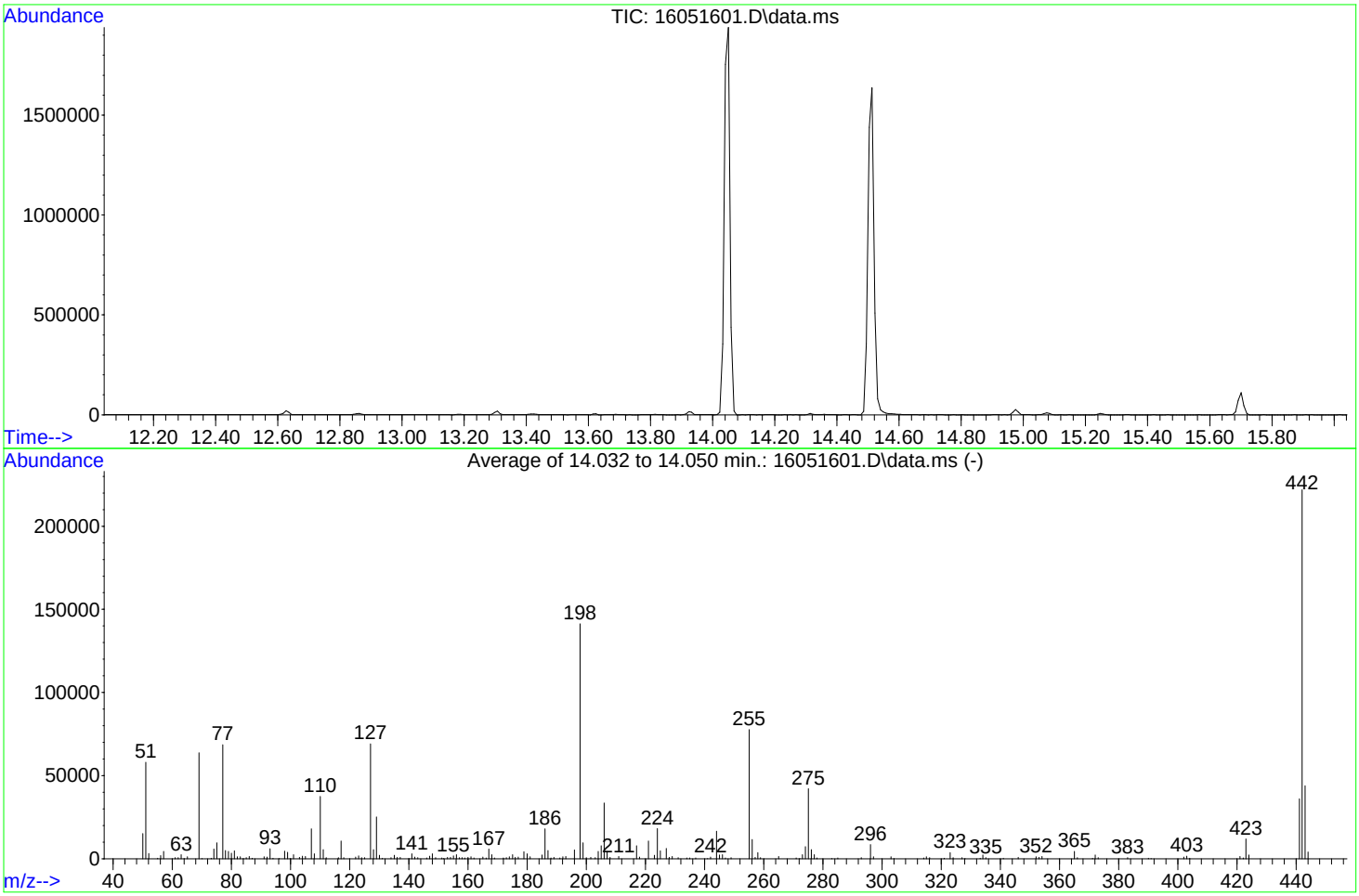
REVIEWED/APPROVED

By Sherri Herschmann at 3:13:47 PM, 5/16/2016

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051601.D
Acq On : 16 May 2016 1:07 pm
Operator :
Sample : DFTPP-160516
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



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

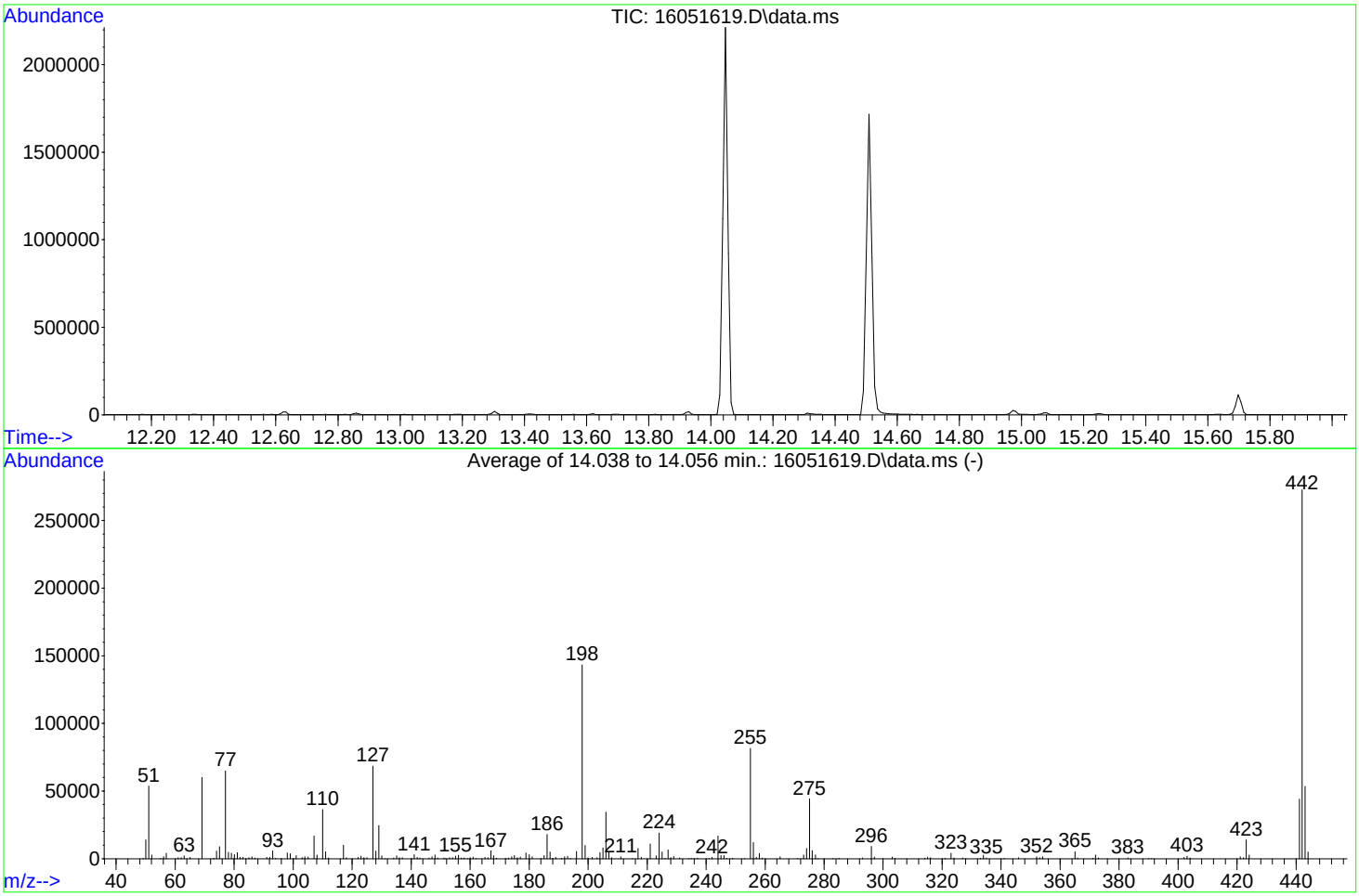
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.0	58034	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.1	63736	PASS
70	69	0.00	2	0.3	178	PASS
127	198	10	80	48.8	69072	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	141400	PASS
199	198	5	9	6.8	9662	PASS
275	198	10	60	29.7	42024	PASS
365	198	1	200	3.1	4343	PASS
441	442	0.01	24	16.3	36105	PASS
442	198	50	400	157.0	222008	PASS
443	442	15	24	19.8	43922	PASS

REVIEWED BY
By Janice Whitt at 2:44:34 PM, 5/26/2016

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051619.D
Acq On : 17 May 2016 12:09 am
Operator :
Sample : DFTPP2-160516
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 436, 437, 438; Background Corrected with Scan 432

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	37.4	53699	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	41.9	60058	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	47.7	68376	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	143421	PASS
199	198	5	9	6.8	9693	PASS
275	198	10	60	30.9	44277	PASS
365	198	1	200	3.6	5209	PASS
441	442	0.01	24	16.1	43968	PASS
442	198	50	400	190.2	272802	PASS
443	442	15	24	19.6	53457	PASS

REVIEWED BY
By Janice Whitt at 2:44:39 PM, 5/26/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051602.D
Acq On : 16 May 2016 1:44 pm
Operator :
Sample : ICV-160516
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 17 08:36:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.276	136	1732028	4000.00	ug/kg	111
6) Acenaphthene-d10	12.862	164	1079431	4000.00	ug/kg	110
11) Phenanthrene-d10	14.986	188	2964091	4000.00	ug/kg	95
16) Chrysene-d12	20.999	240	3113513	4000.00	ug/kg	89
20) Perylene-d12	26.266	264	2763281	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	666722	1958.59	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.96%			
17) 4-Terphenyl-d14	17.602	244	1340515	1863.41	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 46.59%#			

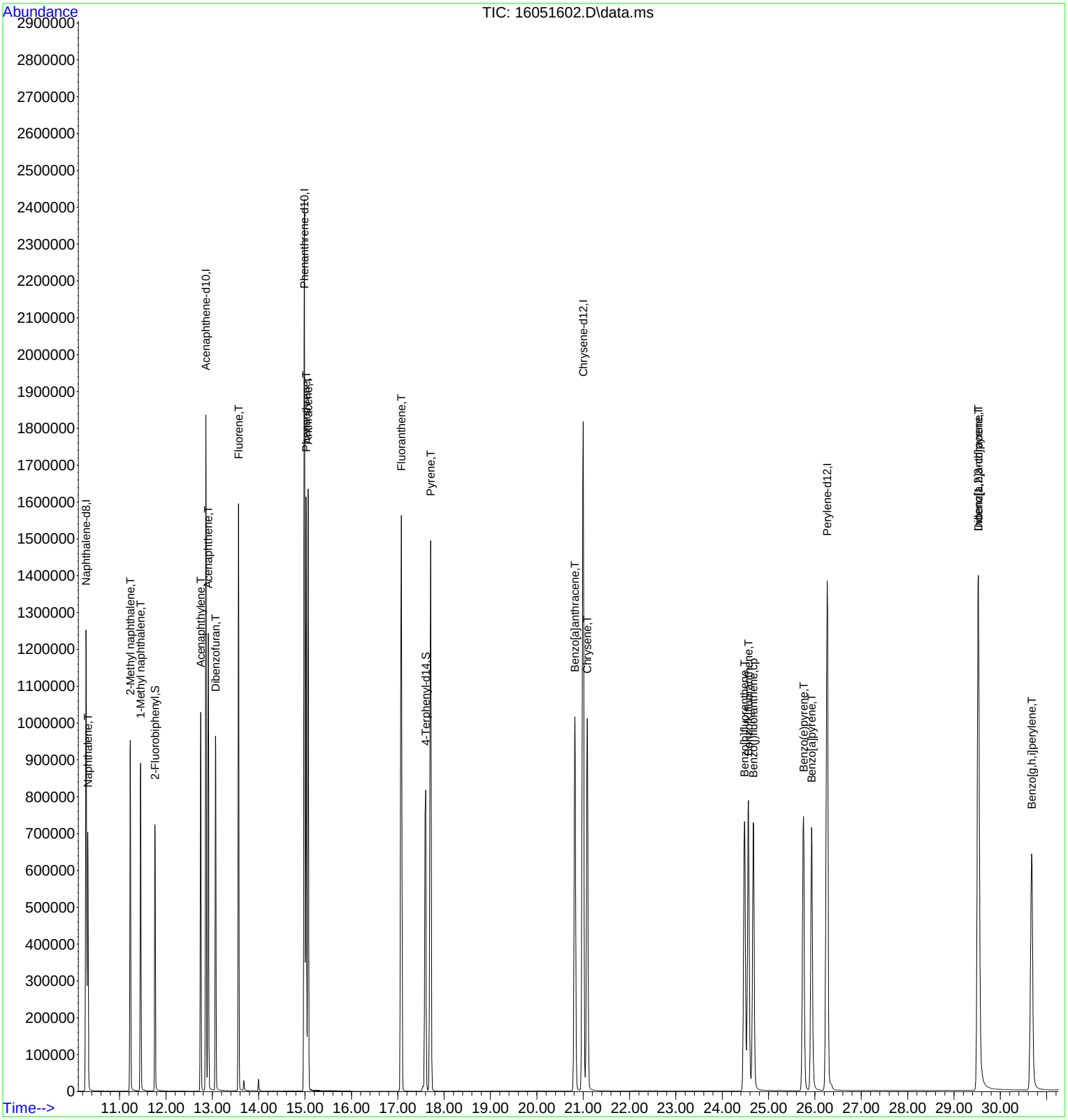
Target Compounds						Qvalue
2) Naphthalene	10.313	128	796962	1898.62	ug/kg	100
3) 2-Methyl naphthalene	11.231	142	578469	2038.21	ug/kg	100
4) 1-Methyl naphthalene	11.453	142	532365	2021.05	ug/kg	100
7) Acenaphthylene	12.749	152	977941	1927.91	ug/kg	100
8) Acenaphthene	12.911	153	605777	1887.12	ug/kg	100
9) Dibenzofuran	13.073	168	923904	1782.29	ug/kg	96
10) Fluorene	13.564	166	856266	1756.47	ug/kg	100
12) Phenanthrene	15.024	178	1564393	1823.56	ug/kg	100
13) Anthracene	15.066	178	1596137	1717.30	ug/kg	100
14) Fluoranthene	17.078	202	1832257	1632.01	ug/kg	99
15) Pyrene	17.709	202	1805590	1603.45	ug/kg	99
18) Benzo[a]anthracene	20.823	228	1658387	1894.81	ug/kg	100
19) Chrysene	21.087	228	1513214	1888.68	ug/kg	100
21) Benzo[b]fluoranthene	24.486	252	1516297	1926.80	ug/kg	99
22) Benzo[k]fluoranthene	24.566	252	1368434	2168.05	ug/kg	98
23) Benzo(j)fluoranthene	24.676	252	1312150	2056.78	ug/kg	98
24) Benzo(e)pyrene	25.753	252	1417814	1877.10	ug/kg	98
25) Benzo[a]pyrene	25.929	252	1393350	1926.43	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.532	276	1624076	2026.79	ug/kg	97
27) Dibenz[a,h]anthracene	29.518	278	1359288	2080.75	ug/kg	99
28) Benzo[g,h,i]perylene	30.675	276	1383596	1978.79	ug/kg	98

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051602.D
Acq On : 16 May 2016 1:44 pm
Operator :
Sample : ICV-160516
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

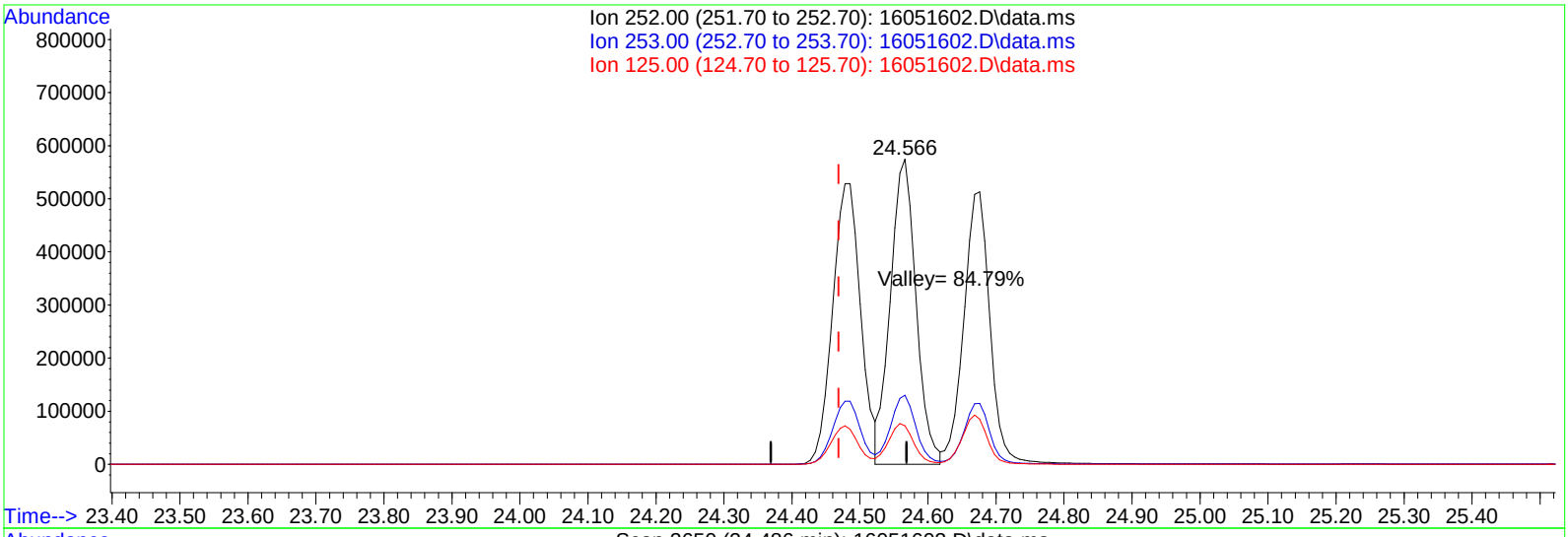
Quant Time: May 17 08:36:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

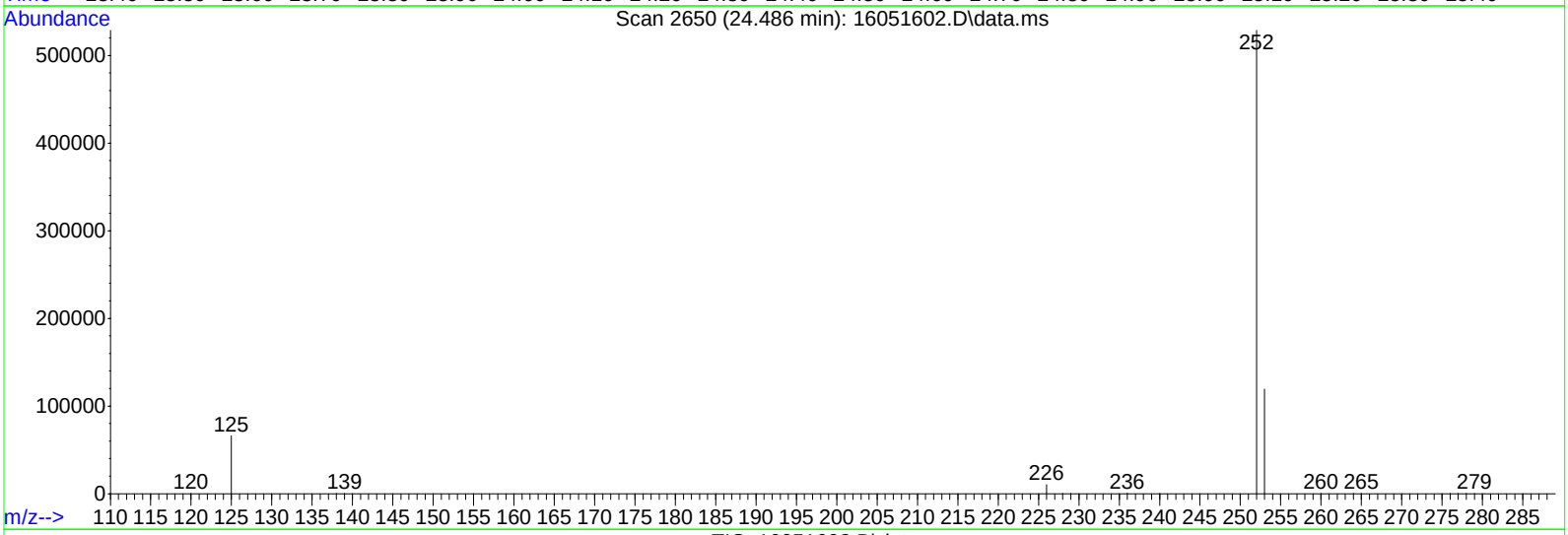


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051602.D
Acq On : 16 May 2016 1:44 pm
Operator :
Sample : ICV-160516
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 16 14:15:56 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration





TIC: 16051602.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.486min (+0.017) 1926.80ug/kg

response 1516297

Ion	Exp%	Act%
252.00	100	100
253.00	22.60	22.44
125.00	13.80	12.50
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051605.D
Acq On : 16 May 2016 3:35 pm
Operator :
Sample : SBLK-160516
Misc : SBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 17 08:36:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.281	136	1699828	4000.00	ug/kg	109
6) Acenaphthene-d10	12.865	164	1198296	4000.00	ug/kg	123
11) Phenanthrene-d10	14.988	188	3057557	4000.00	ug/kg	98
16) Chrysene-d12	20.999	240	3051188	4000.00	ug/kg	87
20) Perylene-d12	26.266	264	2642779	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.774	172	69	0.21	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#			
17) 4-Terphenyl-d14	17.602	244	490	0.70	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 0.02%#			

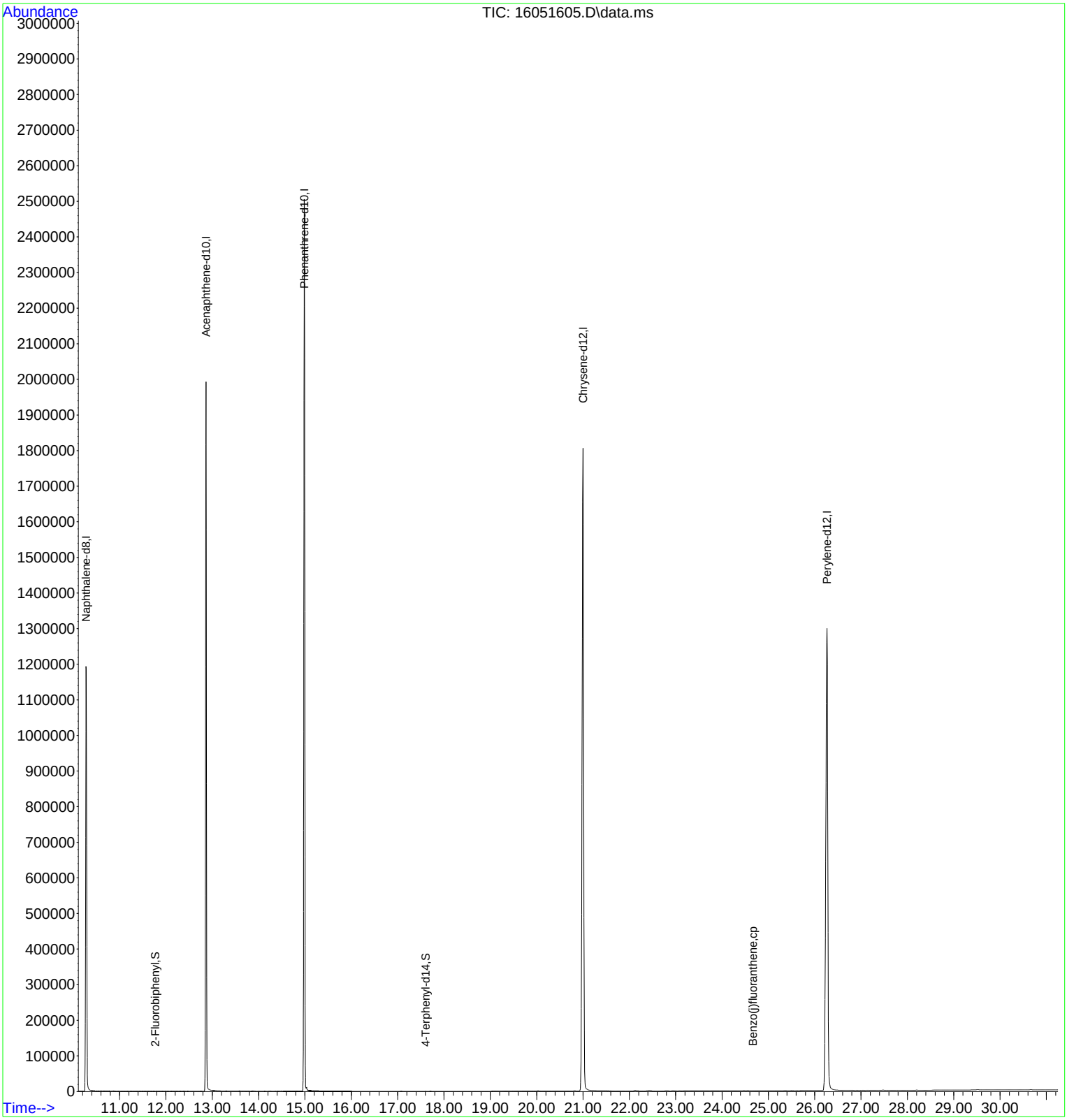
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.662	252	386	0.63	ug/kg#	69

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051605.D
Acq On : 16 May 2016 3:35 pm
Operator :
Sample : SBLK-160516
Misc : SBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 17 08:36:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051606.D
Acq On : 16 May 2016 4:12 pm
Operator :
Sample : 1605096-18A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: May 17 08:36:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.278	136	1627361	4000.00	ug/kg	104
6) Acenaphthene-d10	12.867	164	1038413	4000.00	ug/kg	106
11) Phenanthrene-d10	14.987	188	2850935	4000.00	ug/kg	92
16) Chrysene-d12	20.999	240	2947011	4000.00	ug/kg	84
20) Perylene-d12	26.265	264	2548169	4000.00	ug/kg	86

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.767	172	28186	88.13	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.20%#			
17) 4-Terphenyl-d14	17.602	244	62743	92.14	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.30%#			

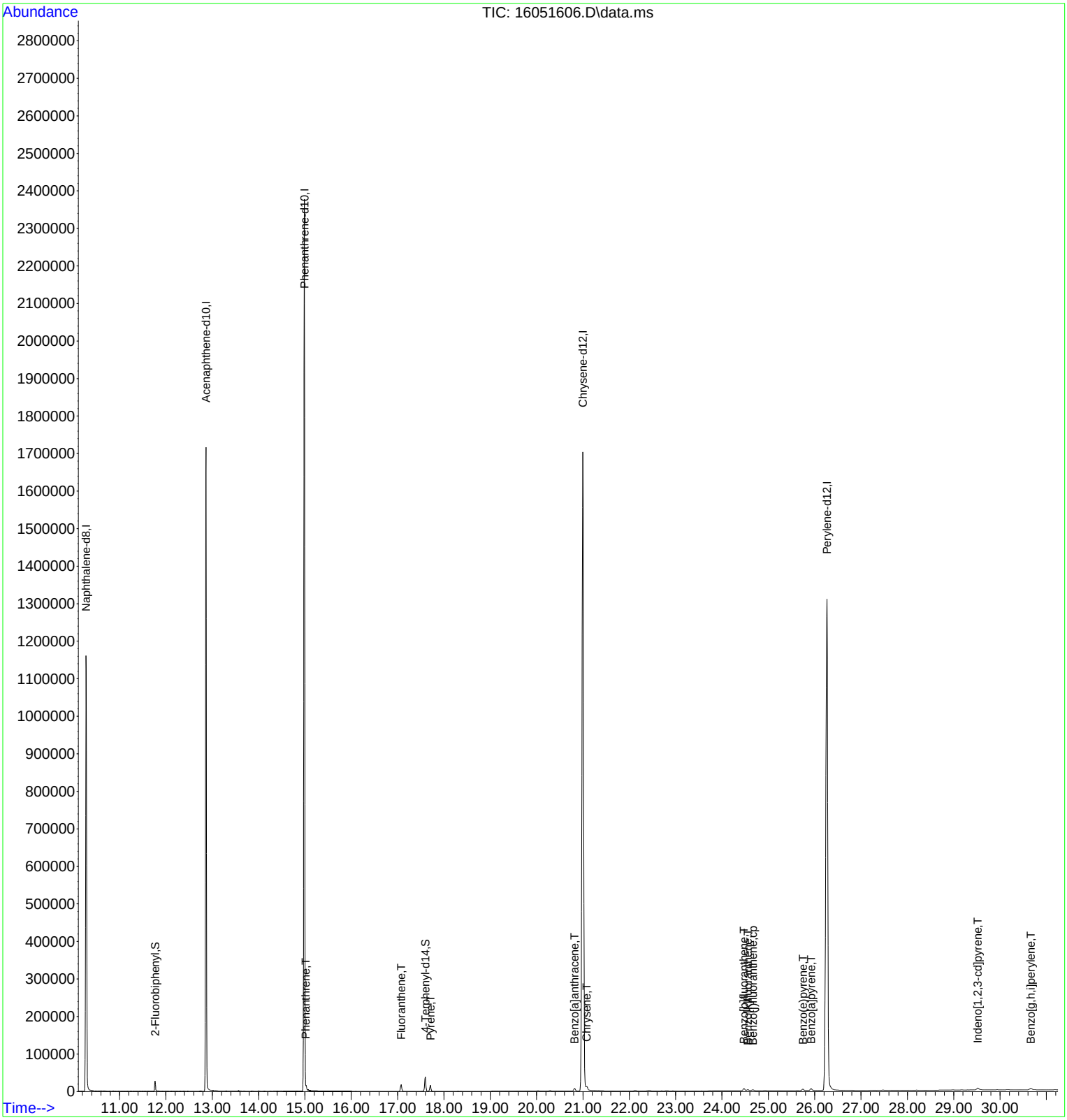
Target Compounds						Qvalue
12) Phenanthrene	15.023	178	7230	8.76	ug/kg	98
14) Fluoranthene	17.079	202	22580	20.91	ug/kg	96
15) Pyrene	17.709	202	20040	18.50	ug/kg	95
18) Benzo[a]anthracene	20.815	228	11420	13.79	ug/kg	99
19) Chrysene	21.086	228	13787	18.18	ug/kg	99
21) Benzo[b]fluoranthene	24.471	252	12785	17.62	ug/kg	97
22) Benzo[k]fluoranthene	24.559	252	5887	10.11	ug/kg	95
23) Benzo(j)fluoranthene	24.661	252	4954	8.42	ug/kg	89
24) Benzo(e)pyrene	25.745	252	8527	12.24	ug/kg	97
25) Benzo[a]pyrene	25.921	252	11716	17.57	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.525	276	9687	13.11	ug/kg	87
28) Benzo[g,h,i]perylene	30.668	276	9941	15.42	ug/kg	95

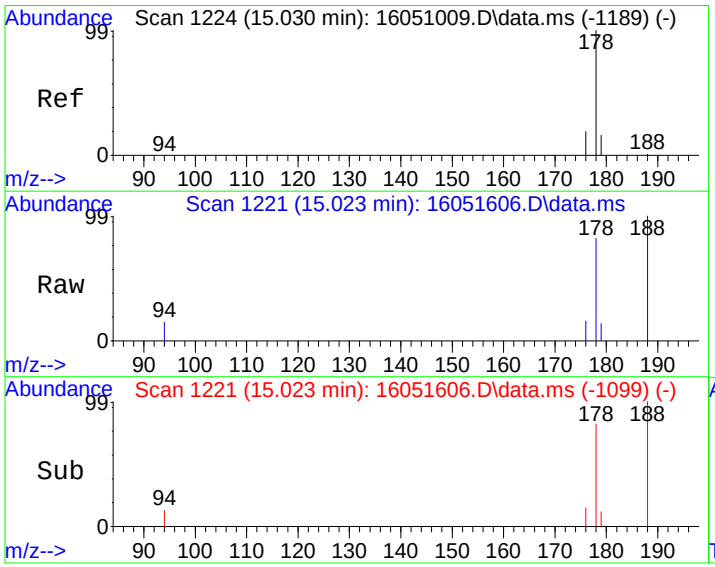
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051606.D
Acq On : 16 May 2016 4:12 pm
Operator :
Sample : 1605096-18A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: May 17 08:36:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

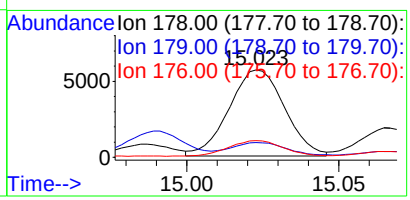


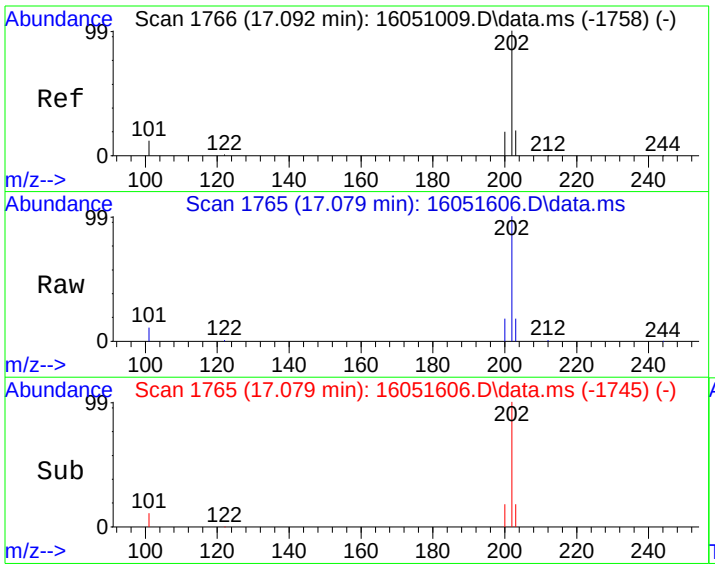


#12
Phenanthrene
Concen: 8.76 ug/kg
RT: 15.023 min Scan# 1221
Delta R.T. 0.007 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:178 Resp: 7230

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	36.4
176	18.7	0.0	39.2

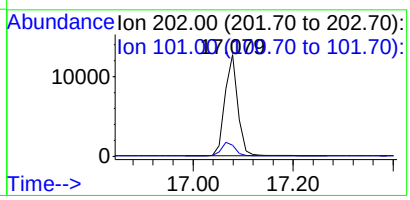


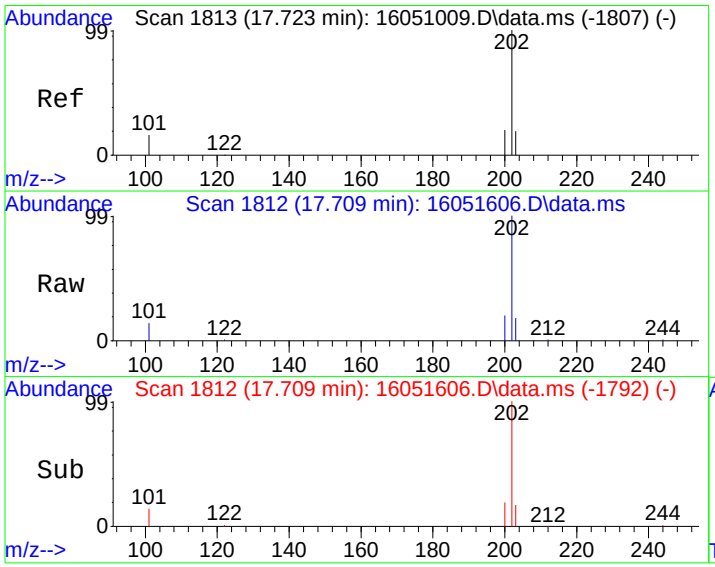


#14
Fluoranthene
Concen: 20.91 ug/kg
RT: 17.079 min Scan# 1765
Delta R.T. 0.014 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:202 Resp: 22580

Ion	Ratio	Lower	Upper
202	100		
101	10.6	0.0	32.0

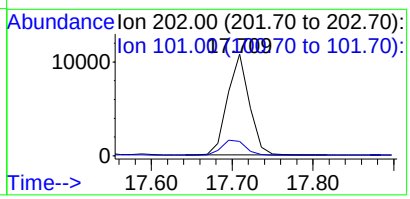


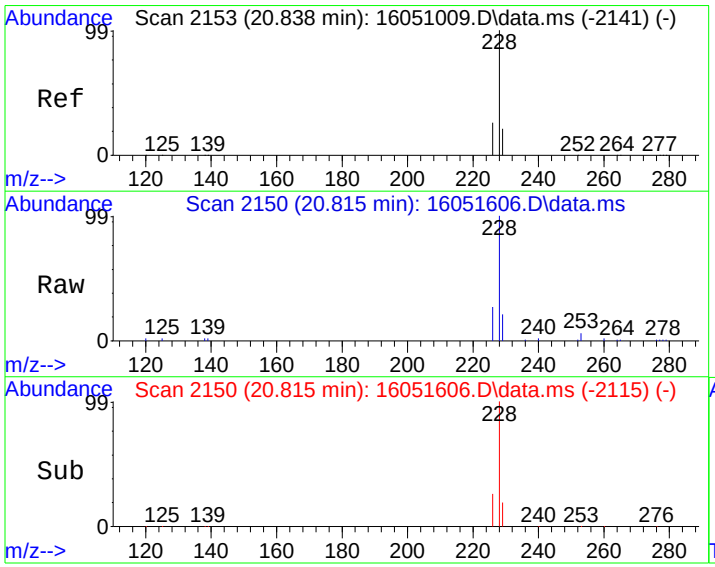


#15
Pyrene
Concen: 18.50 ug/kg
RT: 17.709 min Scan# 1812
Delta R.T. 0.014 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:202 Resp: 20040

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	35.9

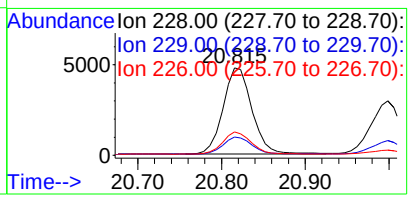


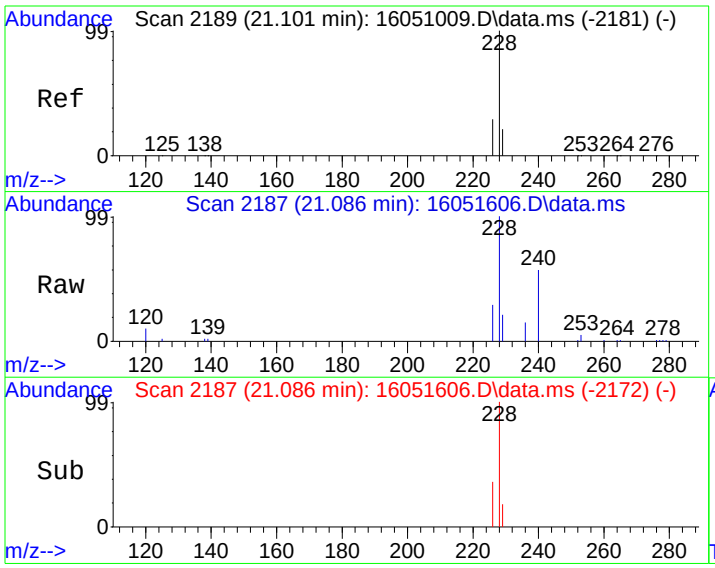


#18
Benzo[a]anthracene
Concen: 13.79 ug/kg
RT: 20.815 min Scan# 2150
Delta R.T. 0.009 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:228 Resp: 11420

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.7	40.7
226	25.8	5.9	45.9

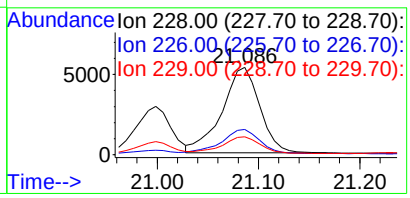


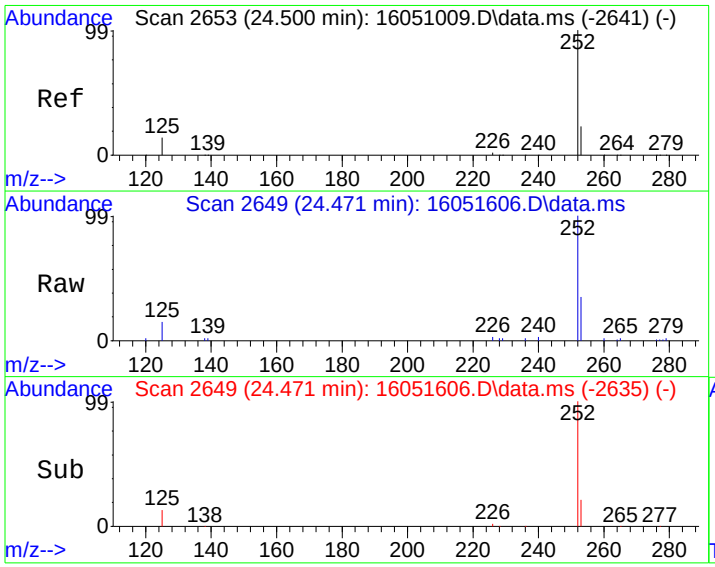


#19
Chrysene
Concen: 18.18 ug/kg
RT: 21.086 min Scan# 2187
Delta R.T. 0.009 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:228 Resp: 13787

Ion	Ratio	Lower	Upper
228	100		
226	28.3	8.8	48.8
229	19.6	0.5	40.5

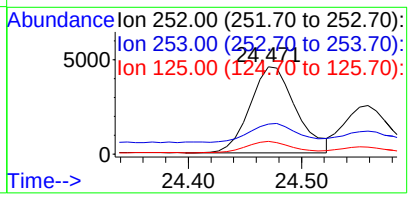


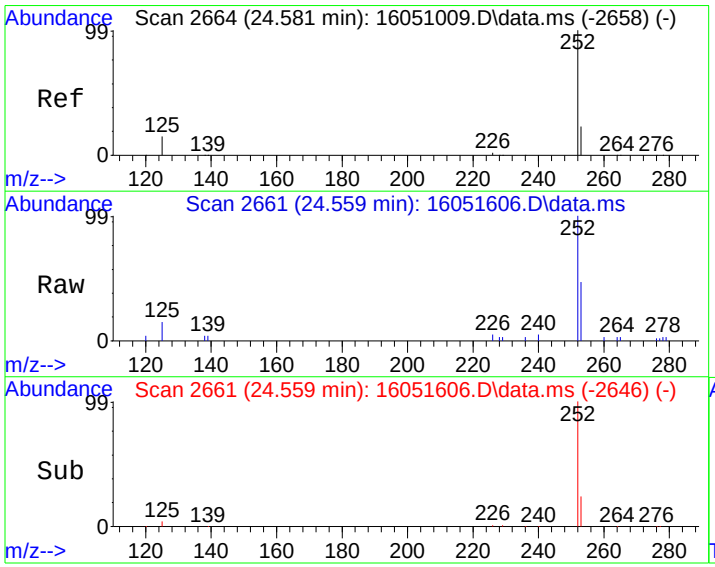


#21
Benzo[b]fluoranthene
Concen: 17.62 ug/kg
RT: 24.471 min Scan# 2649
Delta R.T. 0.002 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:252 Resp: 12785

Ion	Ratio	Lower	Upper
252	100		
253	20.8	2.6	42.6
125	13.2	0.0	33.8

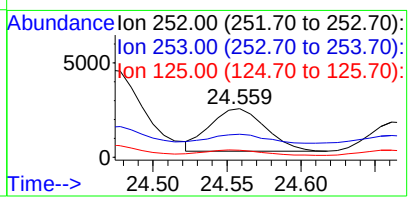


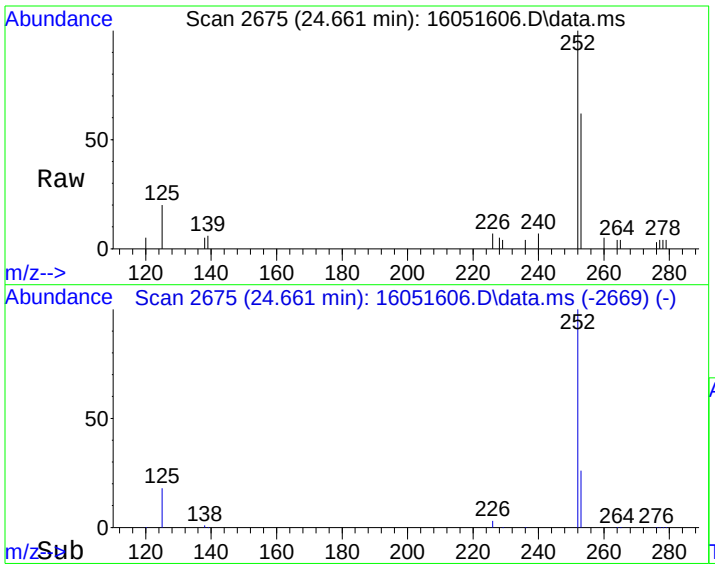


#22
Benzo[k]fluoranthene
Concen: 10.11 ug/kg
RT: 24.559 min Scan# 2661
Delta R.T. 0.009 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:252 Resp: 5887

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.8	42.8
125	12.4	0.0	34.7

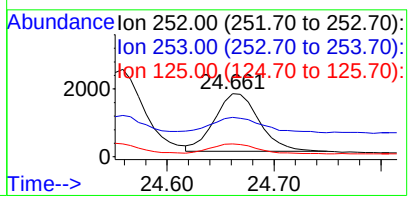


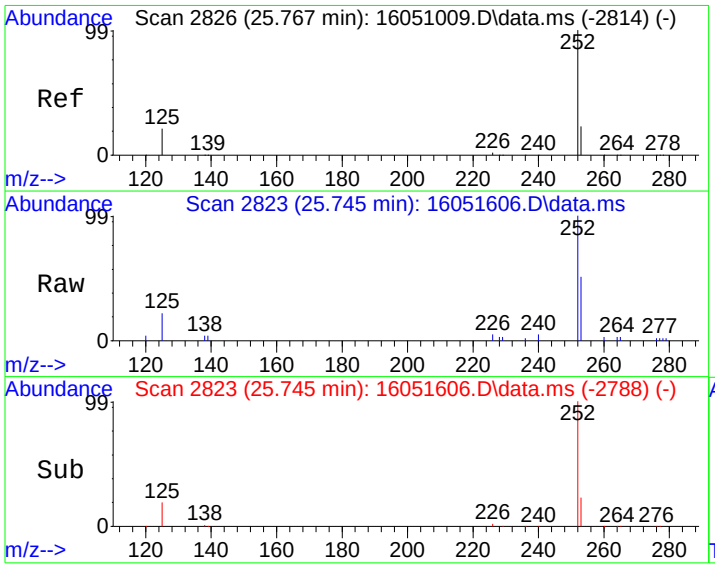


#23
Benzo(j)fluoranthene
Concen: 8.42 ug/kg
RT: 24.661 min Scan# 2675
Delta R.T. 0.002 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:252 Resp: 4954

Ion	Ratio	Lower	Upper
252	100		
253	30.7	2.3	42.3
125	17.4	0.0	39.2

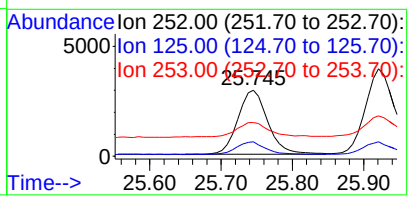


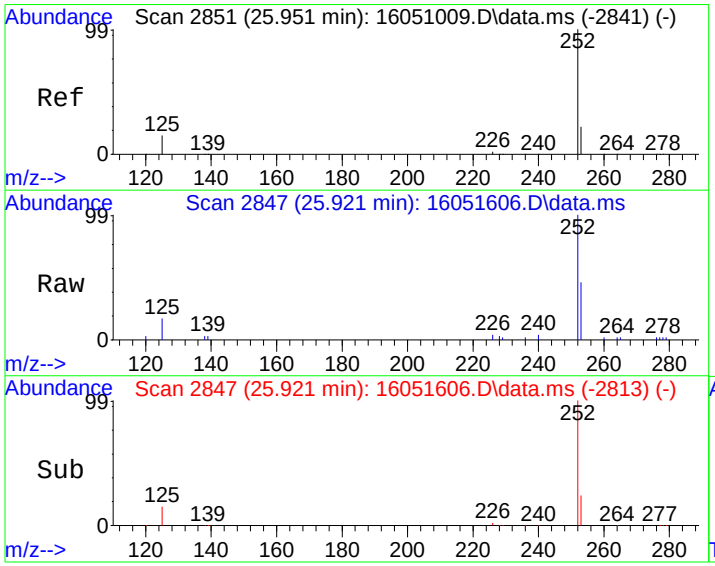


#24
Benzo(e)pyrene
Concen: 12.24 ug/kg
RT: 25.745 min Scan# 2823
Delta R.T. 0.009 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:252 Resp: 8527

Ion	Ratio	Lower	Upper
252	100		
125	19.2	0.8	40.8
253	23.8	2.4	42.4

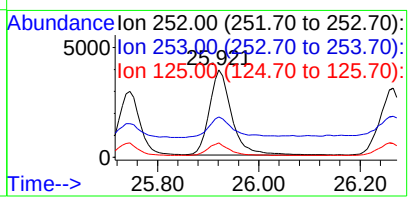


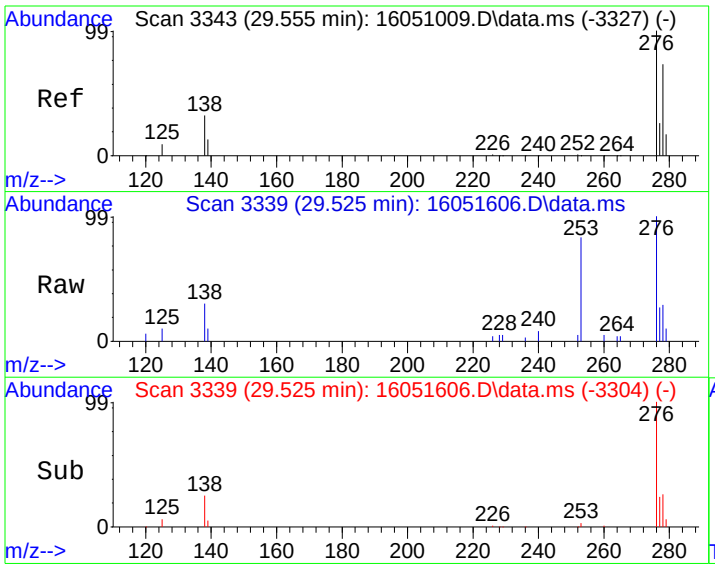


#25
Benzo[a]pyrene
Concen: 17.57 ug/kg
RT: 25.921 min Scan# 2847
Delta R.T. 0.002 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:252 Resp: 11716

Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.5	42.5
125	14.6	0.0	35.5

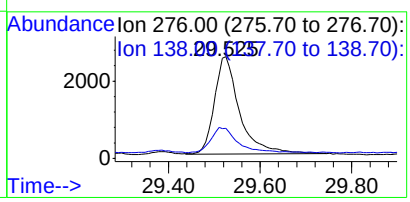


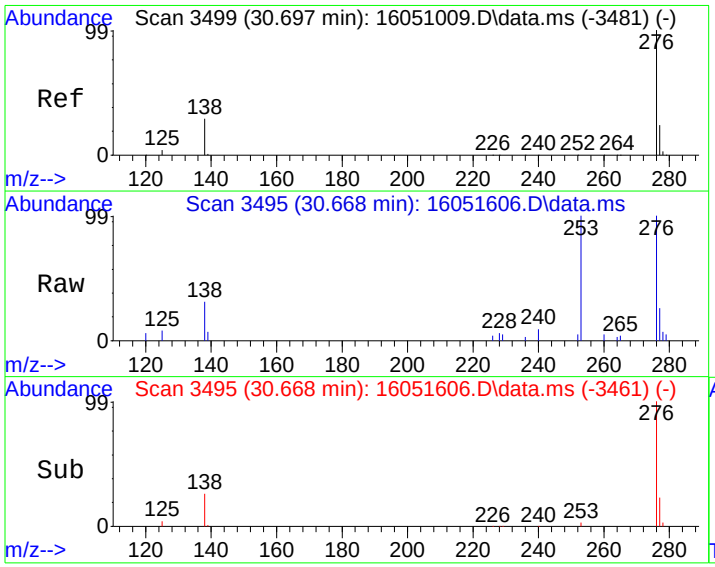


#26
Indeno[1,2,3-cd]pyrene
Concen: 13.11 ug/kg
RT: 29.525 min Scan# 3339
Delta R.T. 0.009 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:276 Resp: 9687

Ion	Ratio	Lower	Upper
276	100		
138	24.9	12.0	52.0

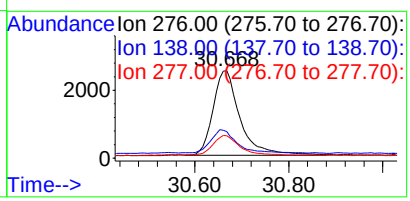




#28
Benzo[g,h,i]perylene
Concen: 15.42 ug/kg
RT: 30.668 min Scan# 3495
Delta R.T. 0.002 min
Lab File: 16051606.D
Acq: 16 May 2016 4:12 pm

Tgt Ion:276 Resp: 9941

Ion	Ratio	Lower	Upper
276	100		
138	25.7	9.3	49.3
277	23.0	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051607.D
Acq On : 16 May 2016 4:48 pm
Operator :
Sample : 1605096-19A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: May 17 08:37:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1694820	4000.00	ug/kg	108
6) Acenaphthene-d10	12.862	164	1143512	4000.00	ug/kg	117
11) Phenanthrene-d10	14.987	188	2950125	4000.00	ug/kg	95
16) Chrysene-d12	20.999	240	3061201	4000.00	ug/kg	88
20) Perylene-d12	26.265	264	2700794	4000.00	ug/kg	91

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	30360	91.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.28%#		
17) 4-Terphenyl-d14	17.602	244	62704	88.65	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.22%#		

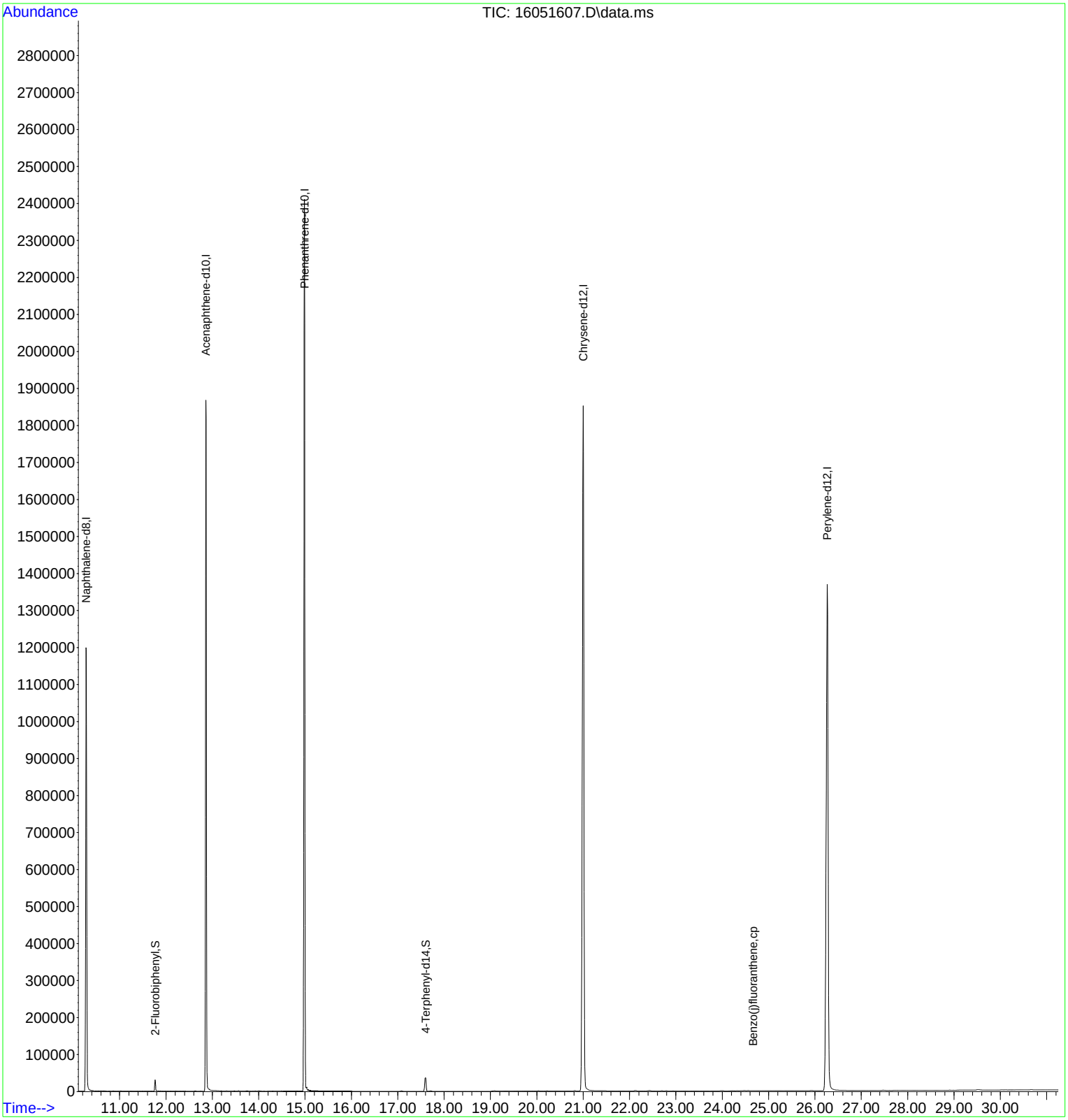
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.661	252	241	0.39	ug/kg	83

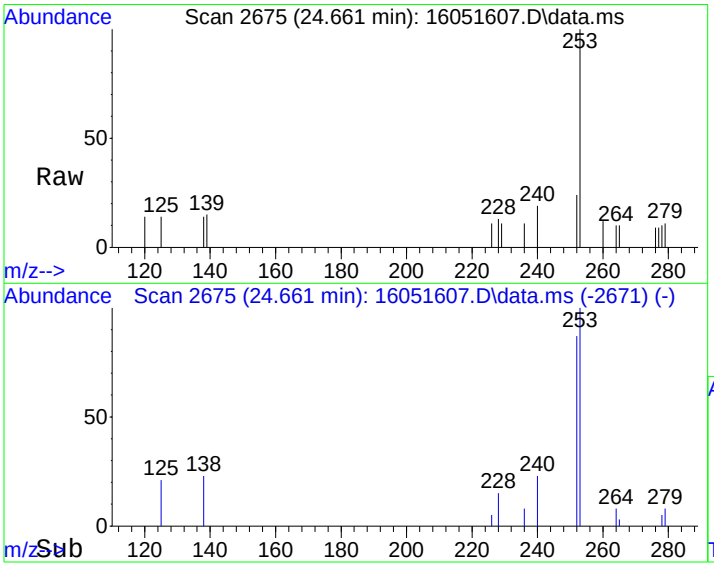
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051607.D
Acq On : 16 May 2016 4:48 pm
Operator :
Sample : 1605096-19A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: May 17 08:37:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

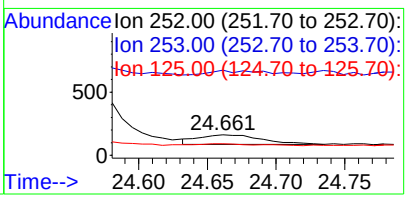




#23
Benzo(j)fluoranthene
Concen: 0.39 ug/kg
RT: 24.661 min Scan# 2675
Delta R.T. 0.002 min
Lab File: 16051607.D
Acq: 16 May 2016 4:48 pm

Tgt Ion:252 Resp: 241

Ion	Ratio	Lower	Upper
252	100		
253	17.8	2.3	42.3
125	7.9	0.0	39.2



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051608.D
Acq On : 16 May 2016 5:25 pm
Operator :
Sample : 1605096-20A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: May 17 08:37:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1735585	4000.00	ug/kg	111
6) Acenaphthene-d10	12.866	164	1188758	4000.00	ug/kg	122
11) Phenanthrene-d10	14.987	188	3025764	4000.00	ug/kg	97
16) Chrysene-d12	20.999	240	3122524	4000.00	ug/kg	89
20) Perylene-d12	26.265	264	2710269	4000.00	ug/kg	91

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	31456	92.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.31%#			
17) 4-Terphenyl-d14	17.601	244	64609	89.55	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.24%#			

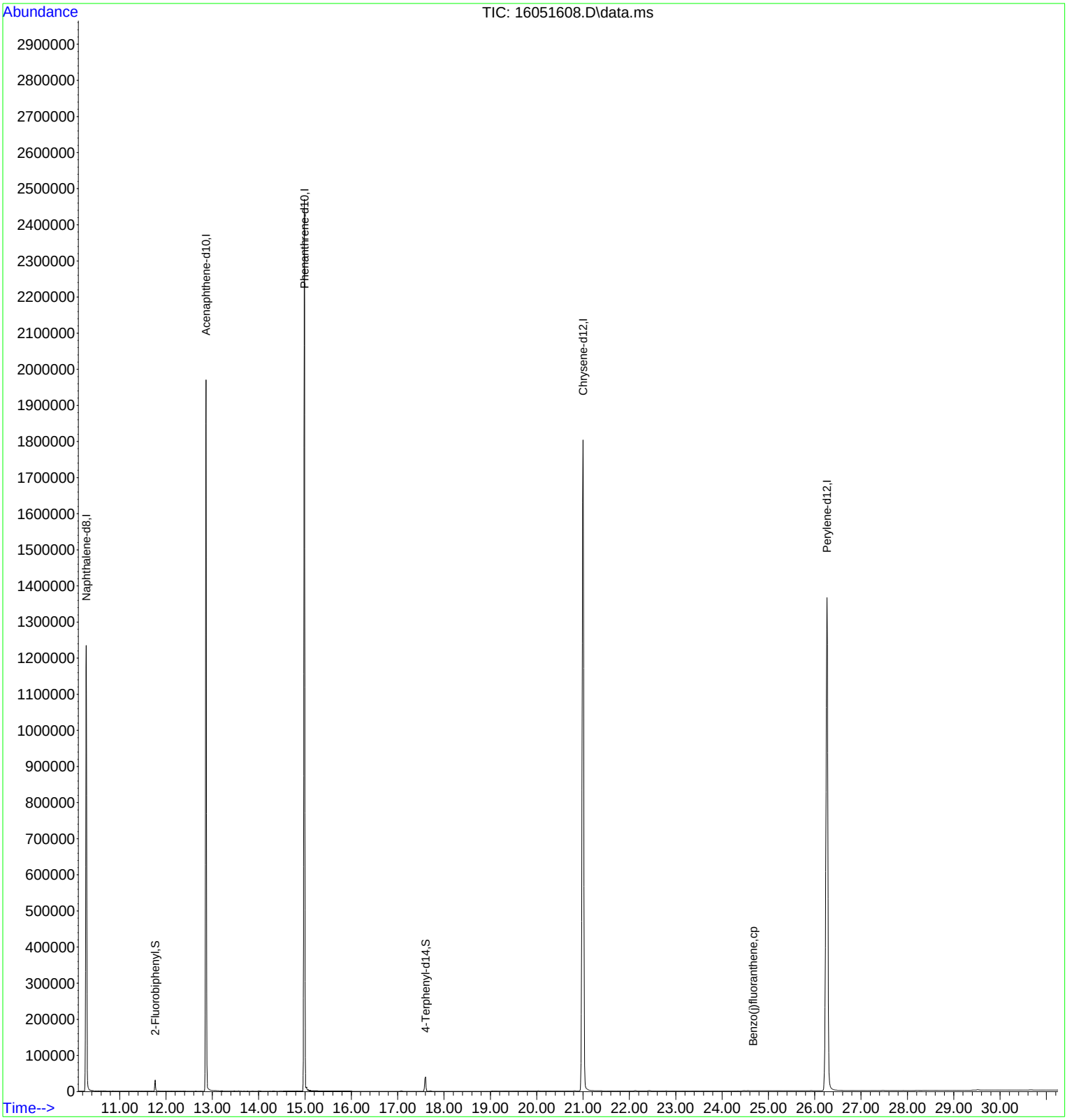
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.668	252	166	0.27	ug/kg	78

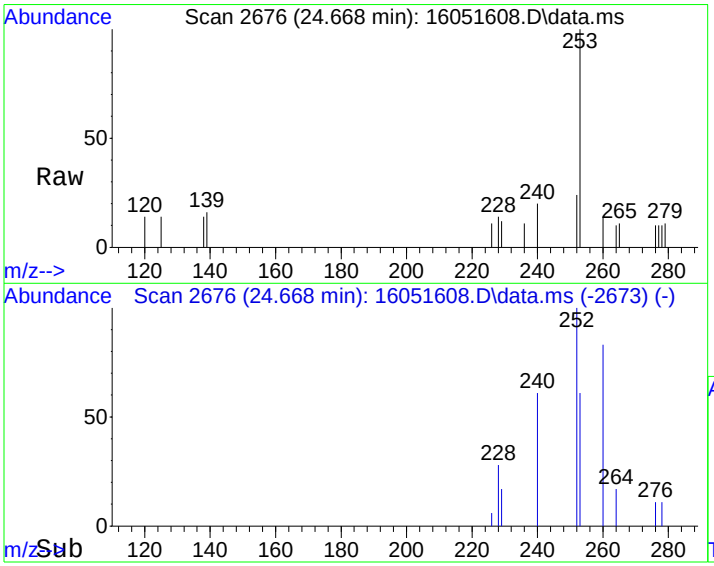
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051608.D
Acq On : 16 May 2016 5:25 pm
Operator :
Sample : 1605096-20A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: May 17 08:37:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

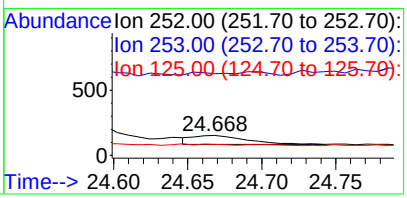




#23
Benzo(j)fluoranthene
Concen: 0.27 ug/kg
RT: 24.668 min Scan# 2676
Delta R.T. 0.009 min
Lab File: 16051608.D
Acq: 16 May 2016 5:25 pm

Tgt Ion:252 Resp: 166

Ion	Ratio	Lower	Upper
252	100		
253	13.9	2.3	42.3
125	6.6	0.0	39.2



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051609.D
Acq On : 16 May 2016 6:02 pm
Operator :
Sample : 1605096-21A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: May 17 08:37:09 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.279	136	1813753	4000.00	ug/kg	116
6) Acenaphthene-d10	12.866	164	1226044	4000.00	ug/kg	125
11) Phenanthrene-d10	14.988	188	3106456	4000.00	ug/kg	100
16) Chrysene-d12	21.005	240	3223989	4000.00	ug/kg	92
20) Perylene-d12	26.271	264	2893595	4000.00	ug/kg	98

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.768	172	31795	89.19	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.23%#		
17) 4-Terphenyl-d14	17.603	244	68146	91.48	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.29%#		

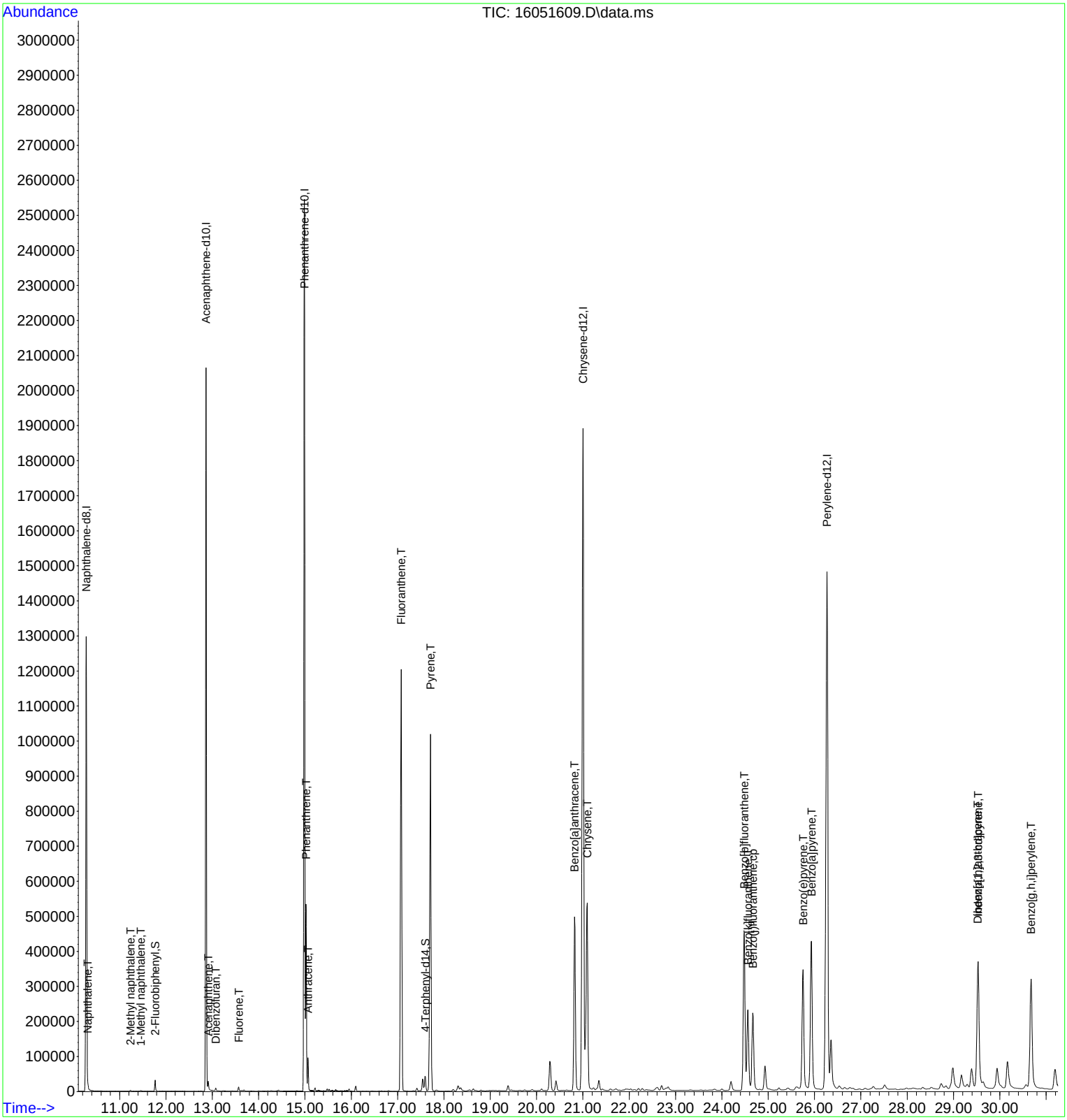
Target Compounds						Qvalue
2) Naphthalene	10.316	128	8863	20.16	ug/kg	99
3) 2-Methyl naphthalene	11.234	142	2065	10.25	ug/kg	99
4) 1-Methyl naphthalene	11.456	142	1381	5.01	ug/kg	96
8) Acenaphthene	12.915	153	10836	29.72	ug/kg	99
9) Dibenzofuran	13.077	168	7768	13.19	ug/kg	98
10) Fluorene	13.568	166	5892	10.64	ug/kg	99
12) Phenanthrene	15.024	178	502816	559.25	ug/kg	98
13) Anthracene	15.066	178	90955	93.37	ug/kg	98
14) Fluoranthene	17.079	202	1409640	1198.04	ug/kg	99
15) Pyrene	17.710	202	1243851	1053.97	ug/kg	98
18) Benzo[a]anthracene	20.821	228	776719	857.04	ug/kg	99
19) Chrysene	21.092	228	914446	1102.23	ug/kg	99
21) Benzo[b]fluoranthene	24.484	252	869702	1055.39	ug/kg	98
22) Benzo[k]fluoranthene	24.565	252	410265	620.72	ug/kg	96
23) Benzo(j)fluoranthene	24.667	252	388288	581.23	ug/kg	88
24) Benzo(e)pyrene	25.751	252	654159	827.06	ug/kg	97
25) Benzo[a]pyrene	25.934	252	857991	1132.83	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.531	276	645350	769.11	ug/kg	89
27) Dibenz[a,h]anthracene	29.516	278	142529	208.35	ug/kg	97
28) Benzo[g,h,i]perylene	30.674	276	648797	886.11	ug/kg	98

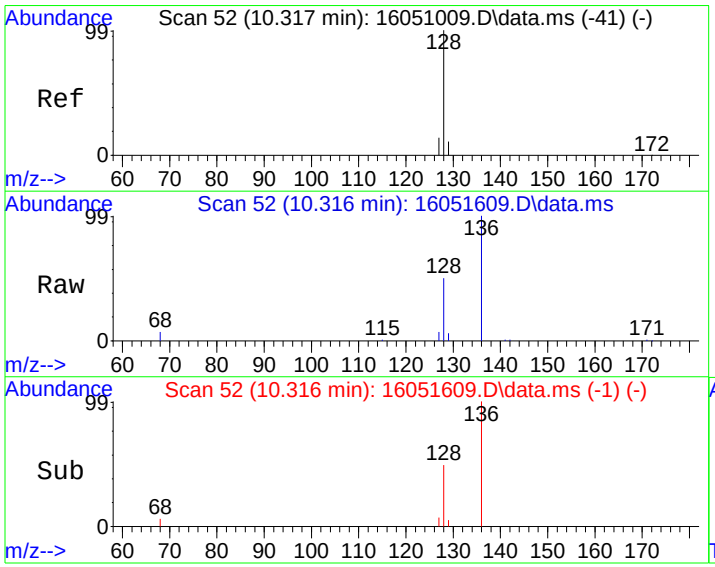
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051609.D
Acq On : 16 May 2016 6:02 pm
Operator :
Sample : 1605096-21A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: May 17 08:37:09 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

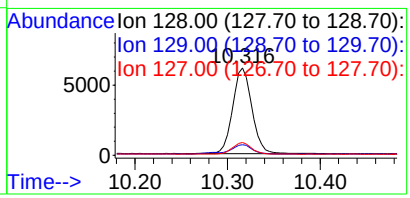


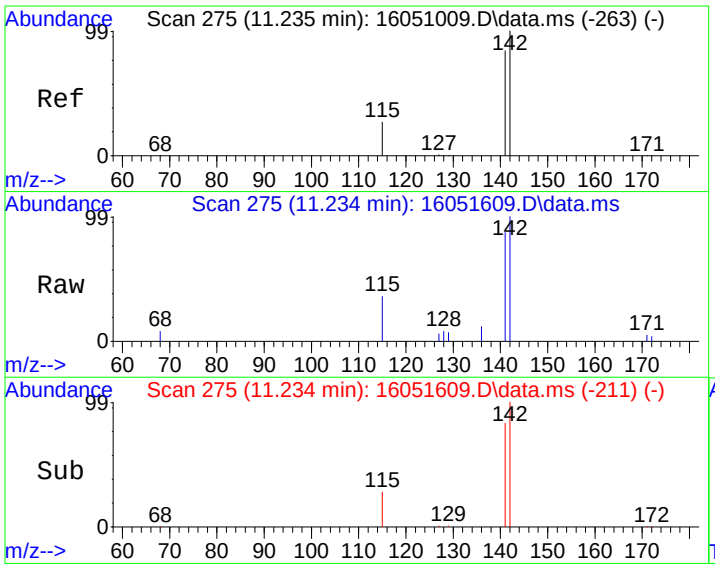


#2
Naphthalene
Concen: 20.16 ug/kg
RT: 10.316 min Scan# 52
Delta R.T. 0.012 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:128 Resp: 8863

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	31.3
127	13.6	0.0	33.5

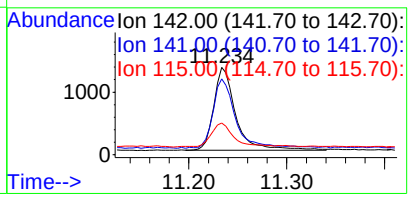


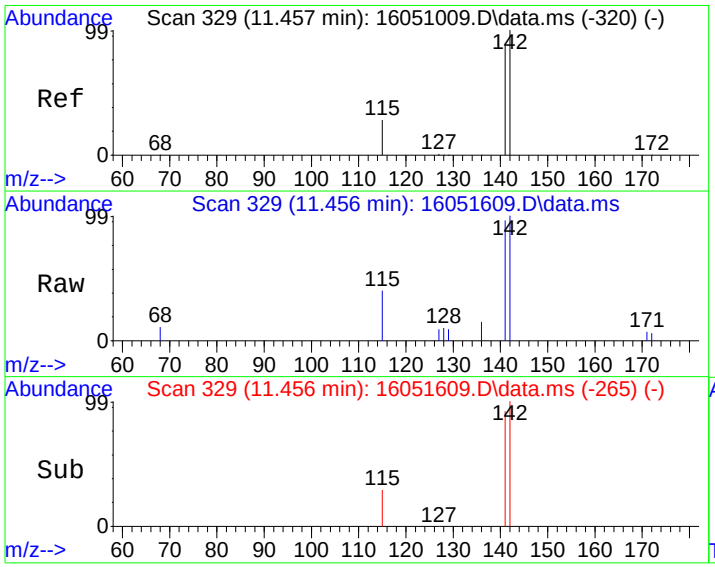


#3
2-Methyl naphthalene
Concen: 10.25 ug/kg
RT: 11.234 min Scan# 275
Delta R.T. 0.012 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:142 Resp: 2065

Ion	Ratio	Lower	Upper
142	100		
141	83.9	63.9	103.9
115	28.4	6.7	46.7

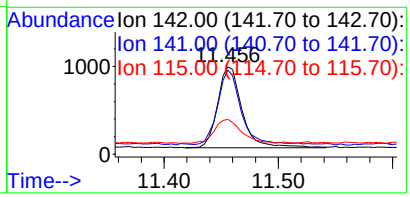


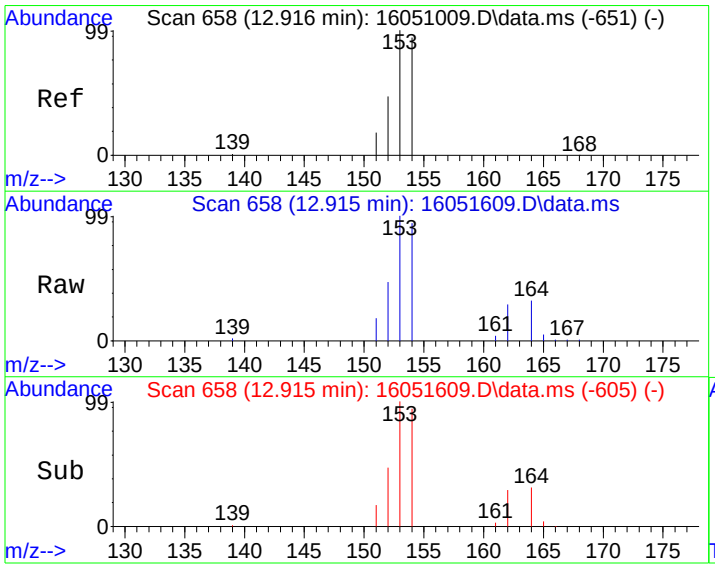


#4
1-Methyl naphthalene
Concen: 5.01 ug/kg
RT: 11.456 min Scan# 329
Delta R.T. 0.012 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:142 Resp: 1381

Ion	Ratio	Lower	Upper
142	100		
141	91.2	67.6	107.6
115	29.5	8.0	48.0

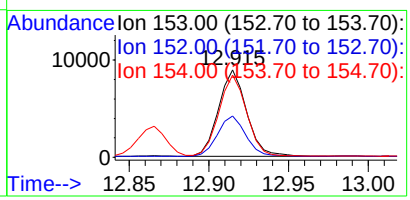


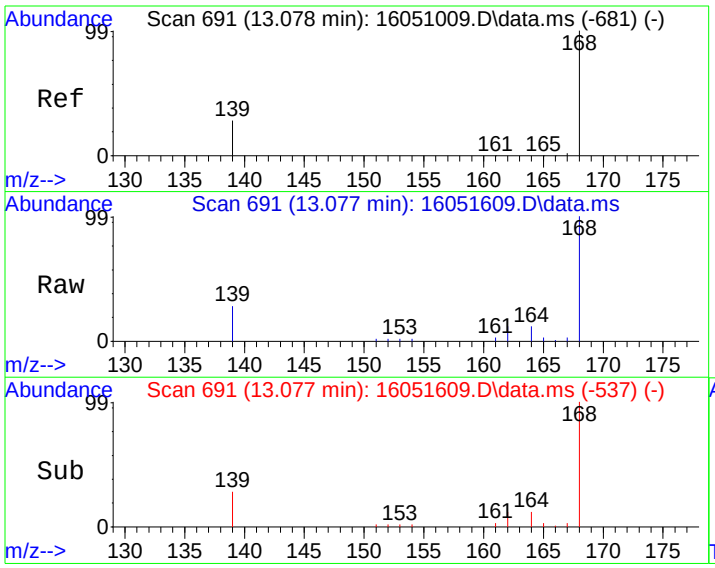


#8
Acenaphthene
Concen: 29.72 ug/kg
RT: 12.915 min Scan# 658
Delta R.T. 0.010 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:153 Resp: 10836

Ion	Ratio	Lower	Upper
153	100		
152	46.7	27.2	67.2
154	93.6	74.3	114.3

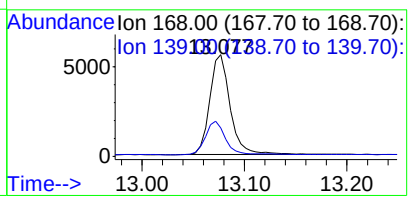


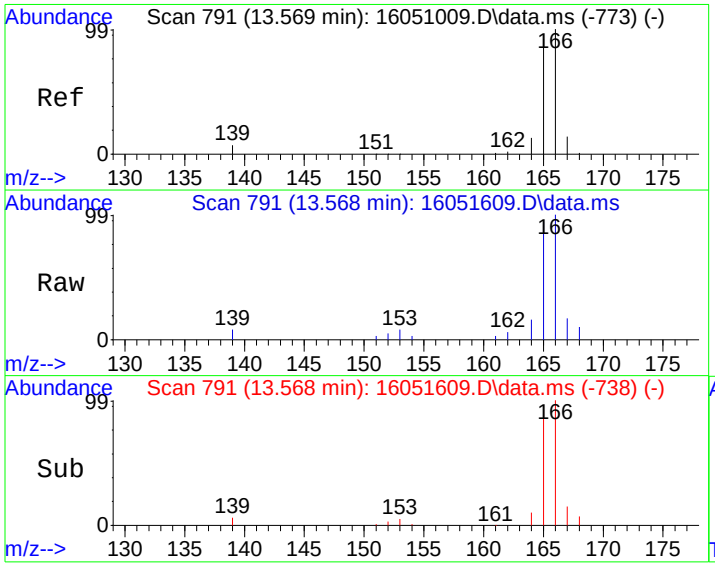


#9
Dibenzofuran
Concen: 13.19 ug/kg
RT: 13.077 min Scan# 691
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:168 Resp: 7768

Ion	Ratio	Lower	Upper
168	100		
139	26.9	7.8	47.8

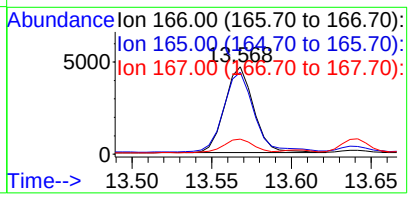


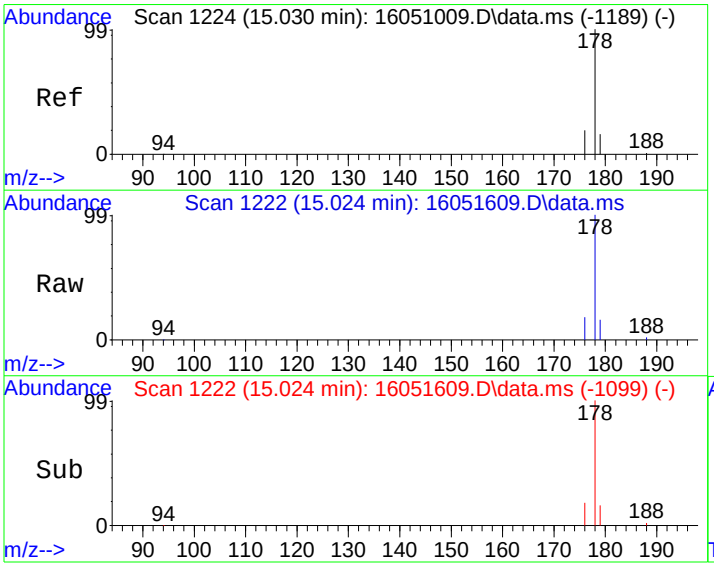


#10
Fluorene
Concen: 10.64 ug/kg
RT: 13.568 min Scan# 791
Delta R.T. 0.010 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:166 Resp: 5892

Ion	Ratio	Lower	Upper
166	100		
165	92.5	71.9	111.9
167	15.8	0.0	33.8

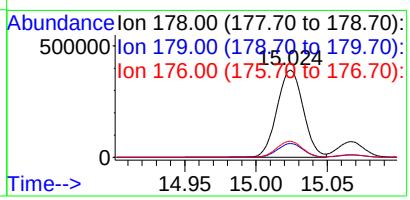


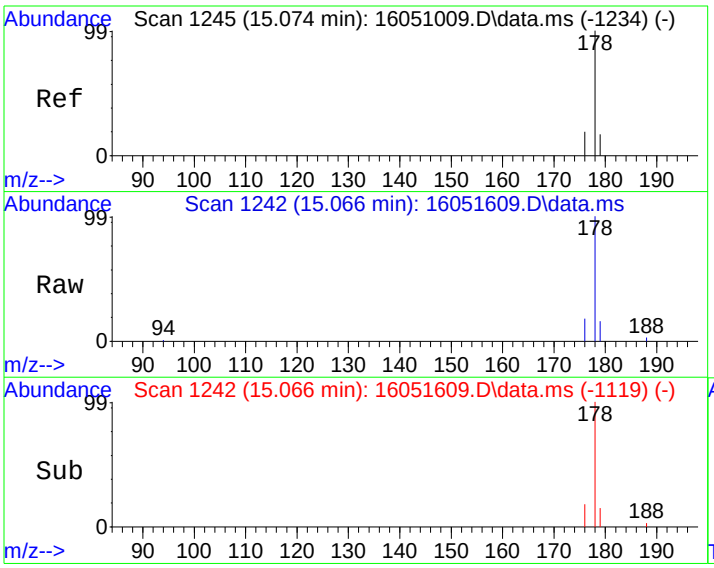


#12
Phenanthrene
Concen: 559.25 ug/kg
RT: 15.024 min Scan# 1222
Delta R.T. 0.008 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:178 Resp: 502816

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	36.4
176	18.4	0.0	39.2

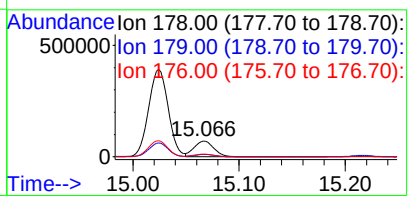


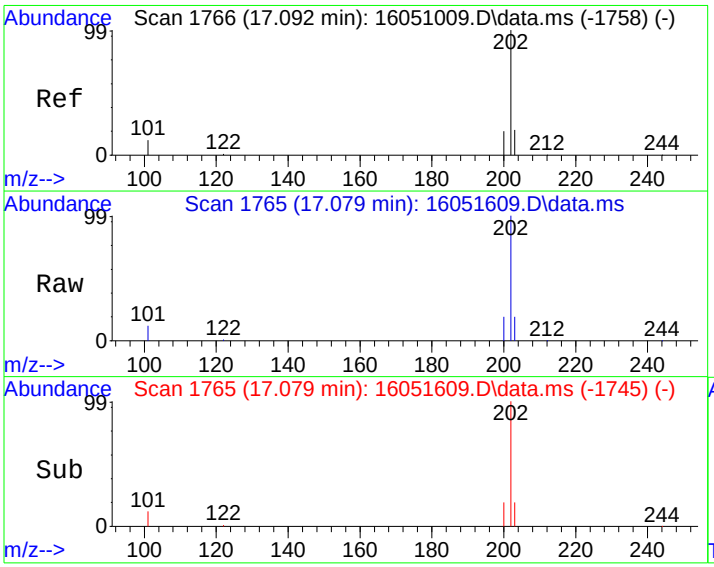


#13
Anthracene
Concen: 93.37 ug/kg
RT: 15.066 min Scan# 1242
Delta R.T. 0.008 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:178 Resp: 90955

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	36.5
176	17.6	0.0	38.6

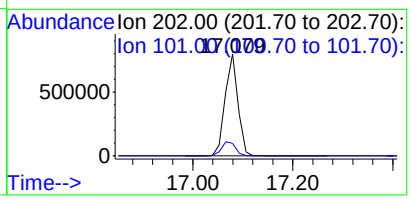


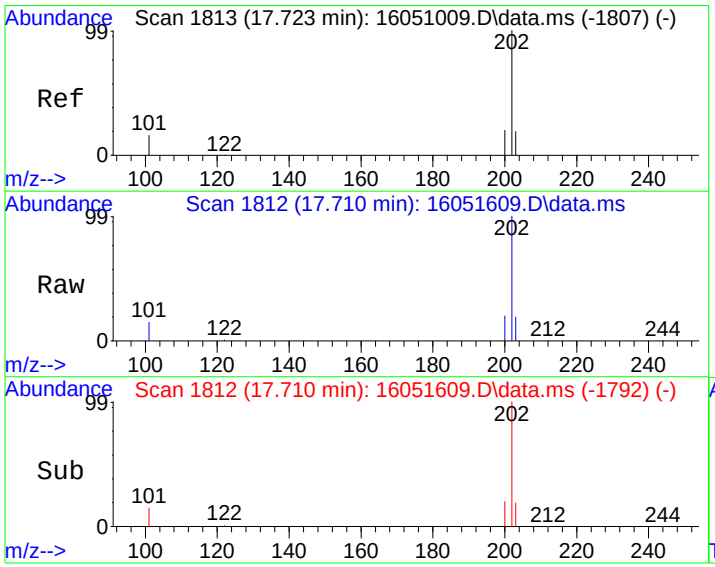


#14
Fluoranthene
Concen: 1198.04 ug/kg
RT: 17.079 min Scan# 1765
Delta R.T. 0.014 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:202 Resp: 1409640

Ion	Ratio	Lower	Upper
202	100		
101	12.2	0.0	32.0

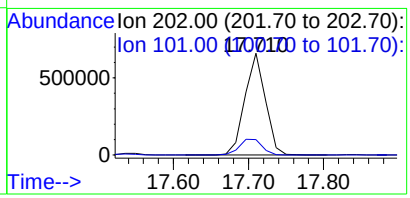


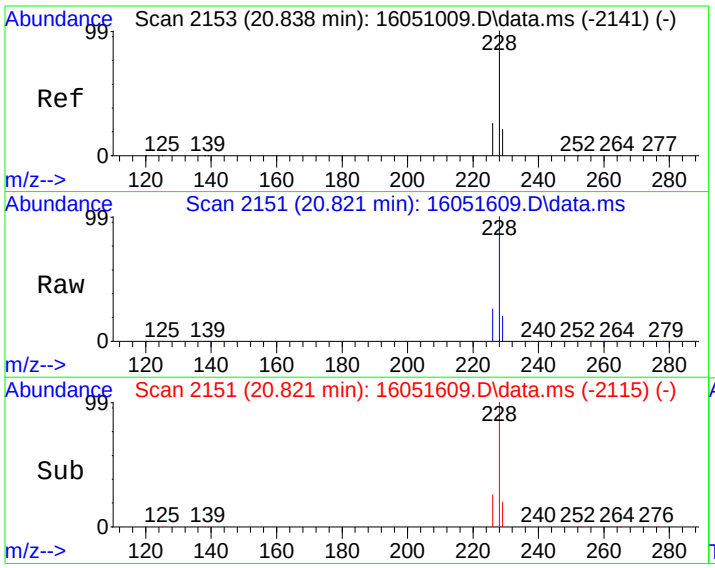


#15
Pyrene
Concen: 1053.97 ug/kg
RT: 17.710 min Scan# 1812
Delta R.T. 0.014 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:202 Resp: 1243851

Ion	Ratio	Lower	Upper
202	100		
101	15.2	0.0	35.9

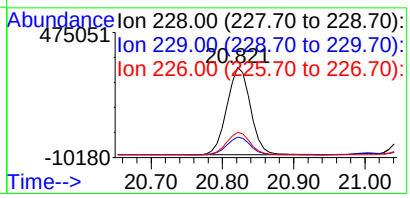


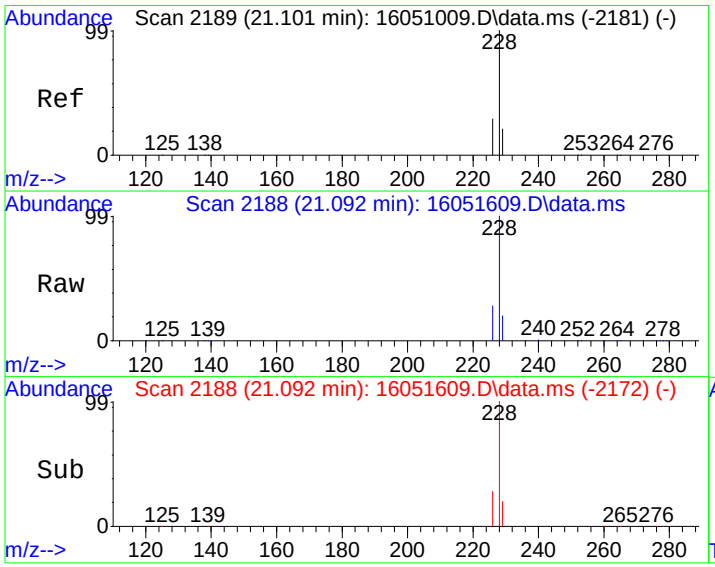


#18
Benzo[a]anthracene
Concen: 857.04 ug/kg
RT: 20.821 min Scan# 2151
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:228 Resp: 776719

Ion	Ratio	Lower	Upper
228	100		
229	20.1	0.7	40.7
226	25.8	5.9	45.9

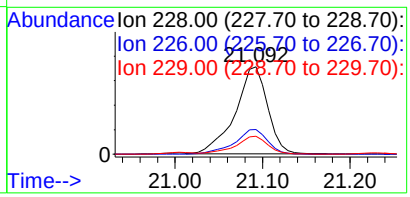


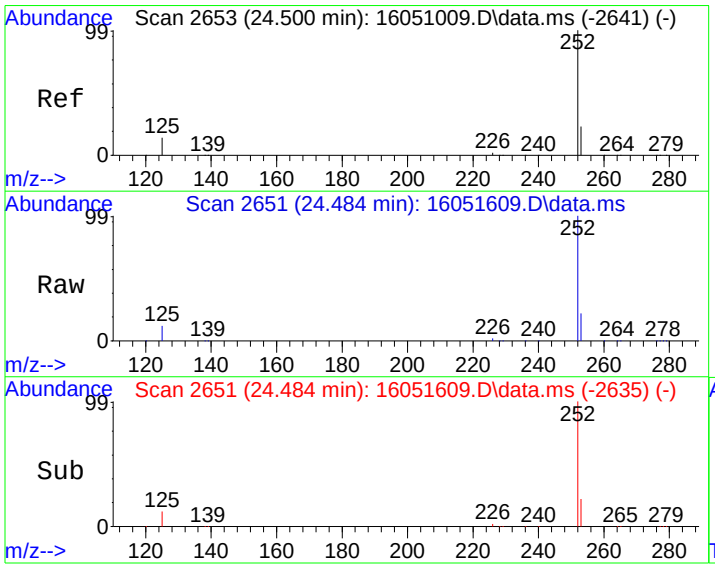


#19
Chrysene
Concen: 1102.23 ug/kg
RT: 21.092 min Scan# 2188
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:228 Resp: 914446

Ion	Ratio	Lower	Upper
228	100		
226	28.3	8.8	48.8
229	20.4	0.5	40.5

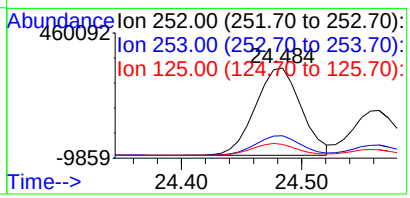


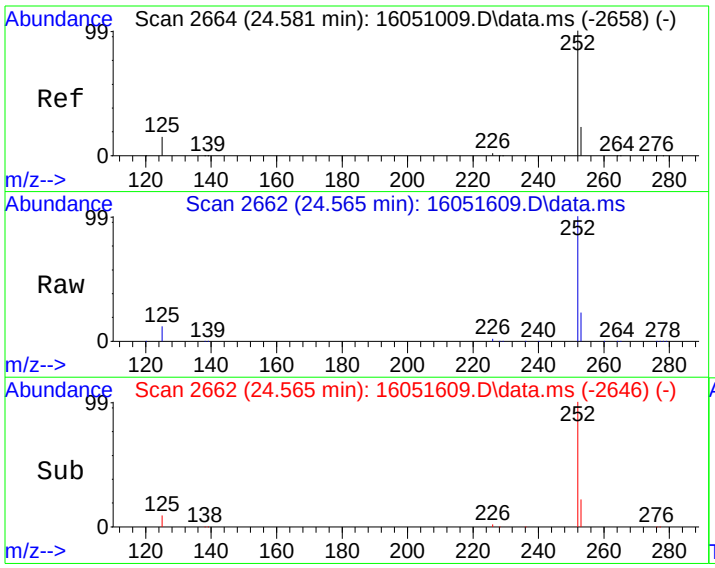


#21
Benzo[b]fluoranthene
Concen: 1055.39 ug/kg
RT: 24.484 min Scan# 2651
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:252 Resp: 869702

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.6	42.6
125	12.4	0.0	33.8

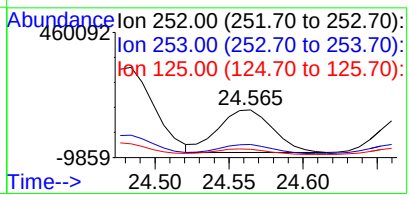


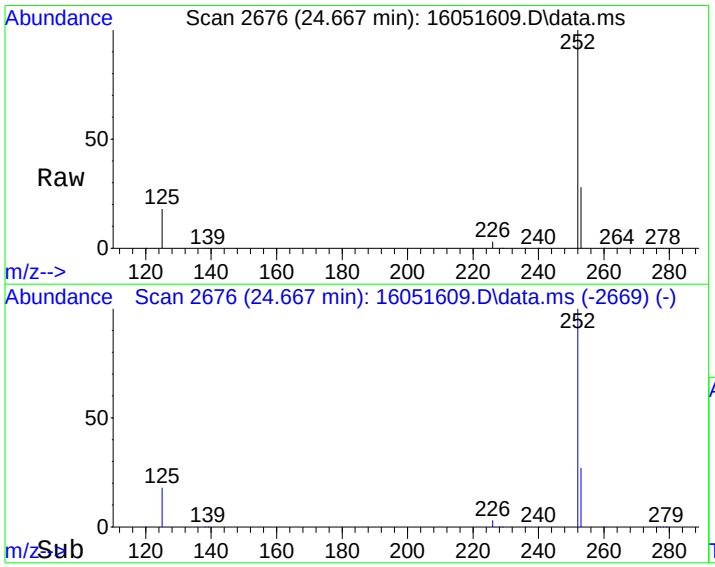


#22
Benzo[k]fluoranthene
Concen: 620.72 ug/kg
RT: 24.565 min Scan# 2662
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:252 Resp: 410265

Ion	Ratio	Lower	Upper
252	100		
253	21.4	2.8	42.8
125	12.1	0.0	34.7

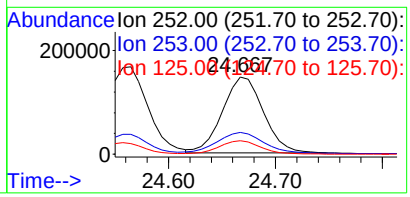


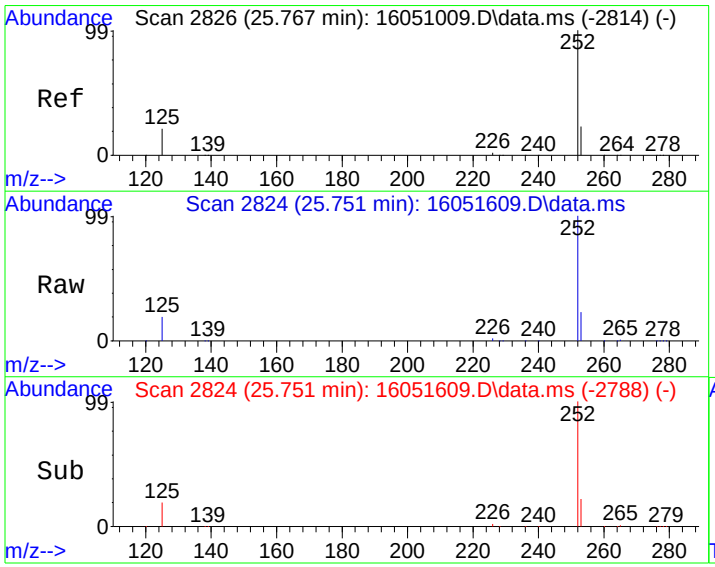


#23
Benzo(j)fluoranthene
Concen: 581.23 ug/kg
RT: 24.667 min Scan# 2676
Delta R.T. 0.008 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:252 Resp: 388288

Ion	Ratio	Lower	Upper
252	100		
253	30.9	2.3	42.3
125	17.2	0.0	39.2

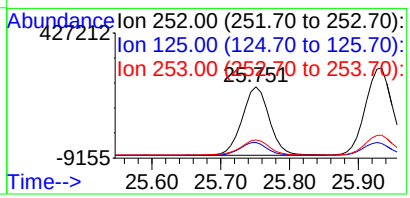


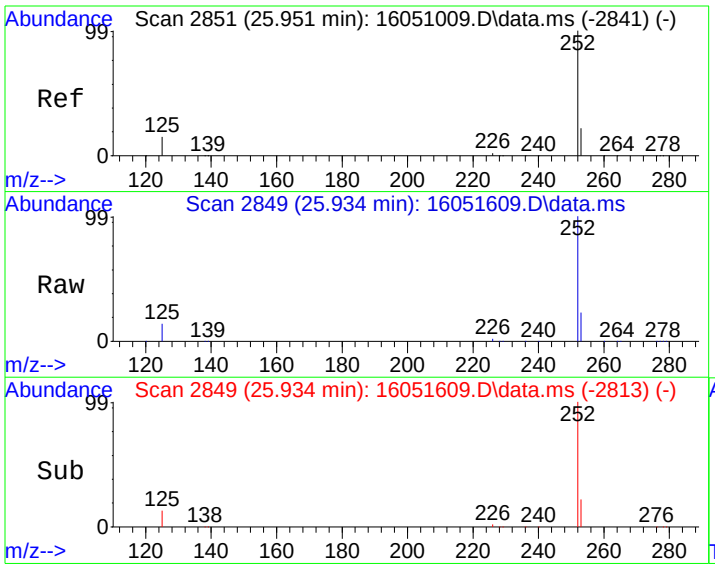


#24
Benzo(e)pyrene
Concen: 827.06 ug/kg
RT: 25.751 min Scan# 2824
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:252 Resp: 654159

Ion	Ratio	Lower	Upper
252	100		
125	18.8	0.8	40.8
253	23.4	2.4	42.4

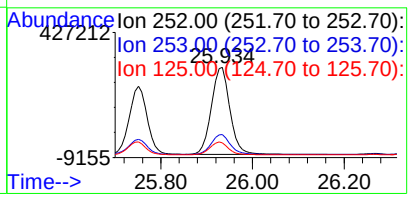


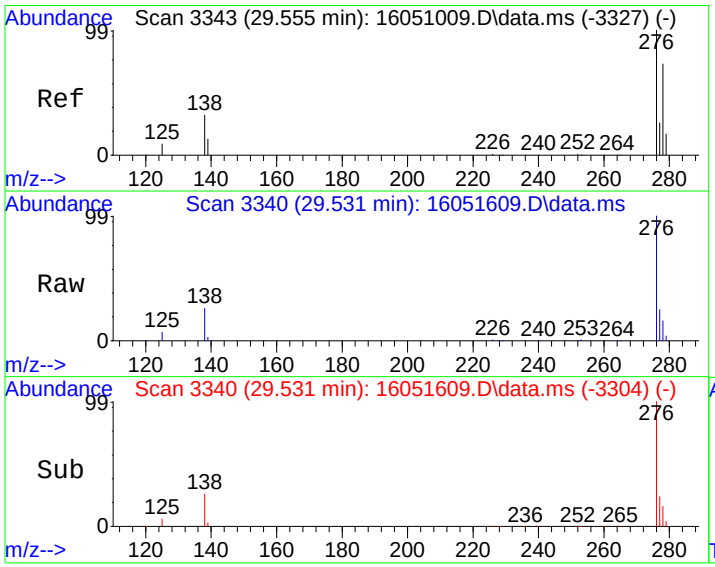


#25
Benzo[a]pyrene
Concen: 1132.83 ug/kg
RT: 25.934 min Scan# 2849
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:252 Resp: 857991

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.5	42.5
125	13.5	0.0	35.5

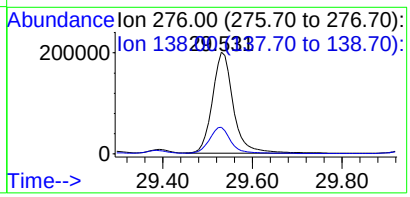


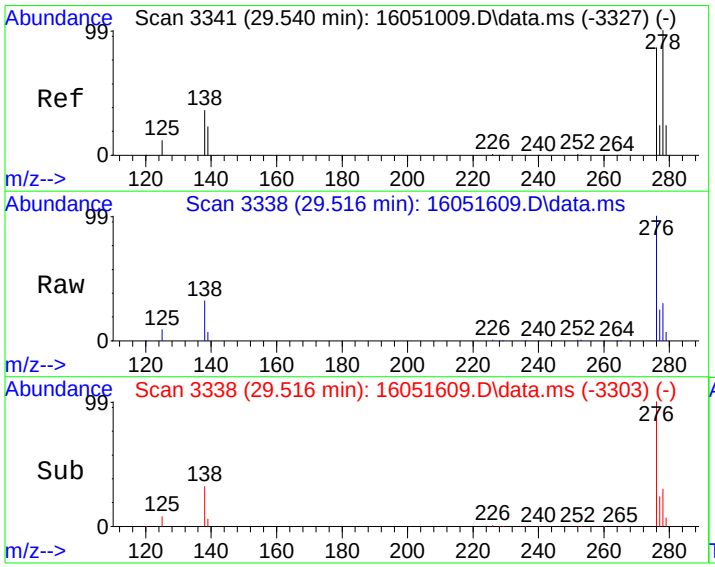


#26
Indeno[1,2,3-cd]pyrene
Concen: 769.11 ug/kg
RT: 29.531 min Scan# 3340
Delta R.T. 0.015 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:276 Resp: 645350

Ion	Ratio	Lower	Upper
276	100		
138	26.1	12.0	52.0

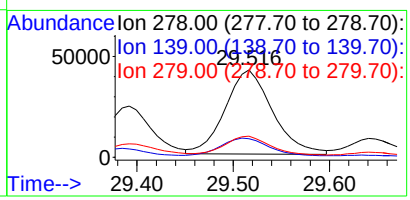


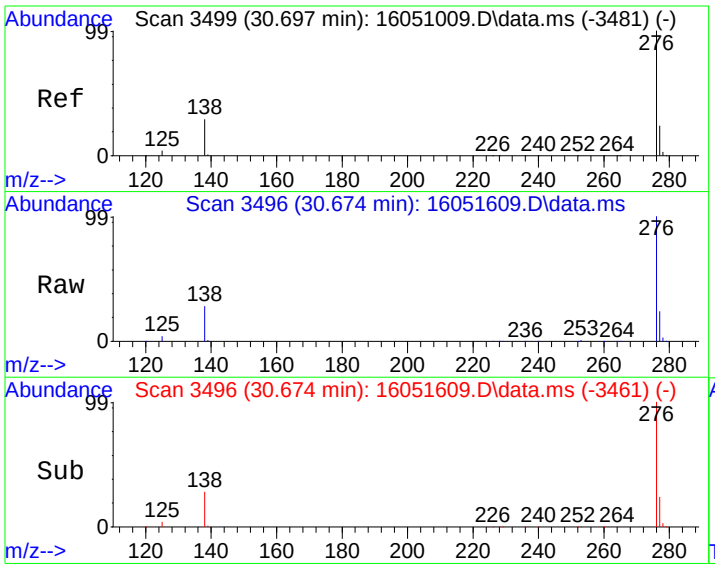


#27
Dibenz[a,h]anthracene
Concen: 208.35 ug/kg
RT: 29.516 min Scan# 3338
Delta R.T. 0.008 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:278 Resp: 142529

Ion	Ratio	Lower	Upper
278	100		
139	21.2	2.9	42.9
279	23.3	4.4	44.4

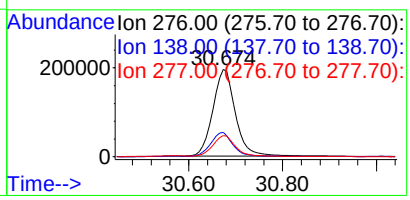




#28
Benzo[g,h,i]perylene
Concen: 886.11 ug/kg
RT: 30.674 min Scan# 3496
Delta R.T. 0.008 min
Lab File: 16051609.D
Acq: 16 May 2016 6:02 pm

Tgt Ion:276 Resp: 648797

Ion	Ratio	Lower	Upper
276	100		
138	27.6	9.3	49.3
277	24.0	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051610.D
Acq On : 16 May 2016 6:39 pm
Operator :
Sample : 1605096-01A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: May 17 08:37:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1806318	4000.00	ug/kg	116
6) Acenaphthene-d10	12.866	164	1202140	4000.00	ug/kg	123
11) Phenanthrene-d10	14.987	188	3034021	4000.00	ug/kg	98
16) Chrysene-d12	21.005	240	3220666	4000.00	ug/kg	92
20) Perylene-d12	26.271	264	2877873	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	32340	91.10	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.28%#			
17) 4-Terphenyl-d14	17.603	244	66933	89.95	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.25%#			

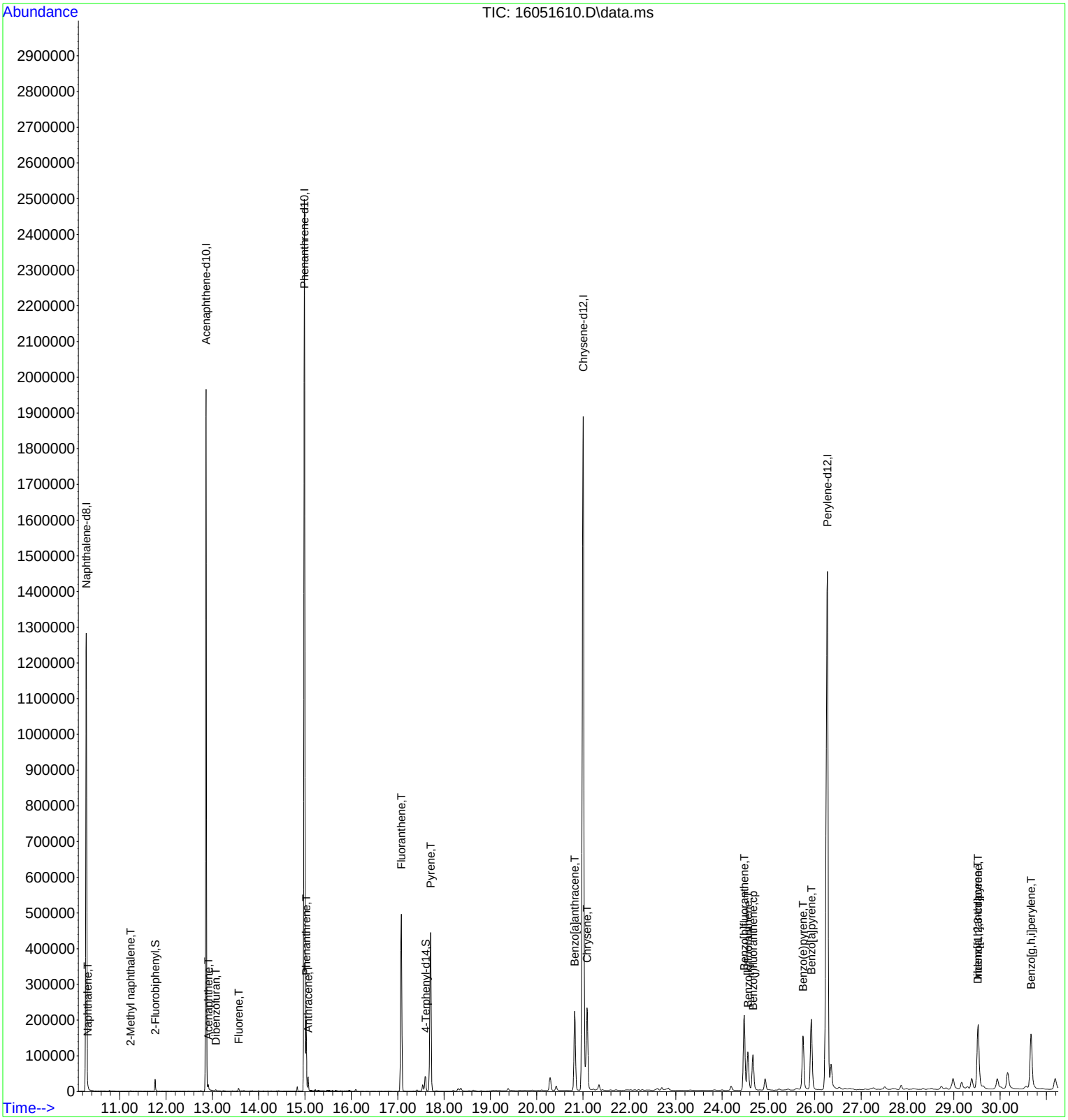
Target Compounds						Qvalue
2) Naphthalene	10.317	128	3840	8.77	ug/kg	100
3) 2-Methyl naphthalene	11.234	142	915	6.46	ug/kg	98
8) Acenaphthene	12.915	153	6384	17.86	ug/kg	99
9) Dibenzofuran	13.072	168	2967	5.14	ug/kg	92
10) Fluorene	13.568	166	4284	7.89	ug/kg	98
12) Phenanthrene	15.022	178	180204	205.22	ug/kg	97
13) Anthracene	15.067	178	36533	38.40	ug/kg	97
14) Fluoranthene	17.079	202	607468	528.61	ug/kg	97
15) Pyrene	17.710	202	539837	468.35	ug/kg	95
18) Benzo[a]anthracene	20.821	228	346374	382.59	ug/kg	99
19) Chrysene	21.085	228	397410	479.51	ug/kg	99
21) Benzo[b]fluoranthene	24.477	252	405204	494.40	ug/kg	98
22) Benzo[k]fluoranthene	24.557	252	189252	287.90	ug/kg	96
23) Benzo(j)fluoranthene	24.667	252	178717	268.98	ug/kg	88
24) Benzo(e)pyrene	25.751	252	298414	379.35	ug/kg	96
25) Benzo[a]pyrene	25.927	252	403959	536.27	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.524	276	318660	381.84	ug/kg	90
27) Dibenz[a,h]anthracene	29.509	278	72652	106.78	ug/kg	98
28) Benzo[g,h,i]perylene	30.666	276	325530	447.03	ug/kg	98

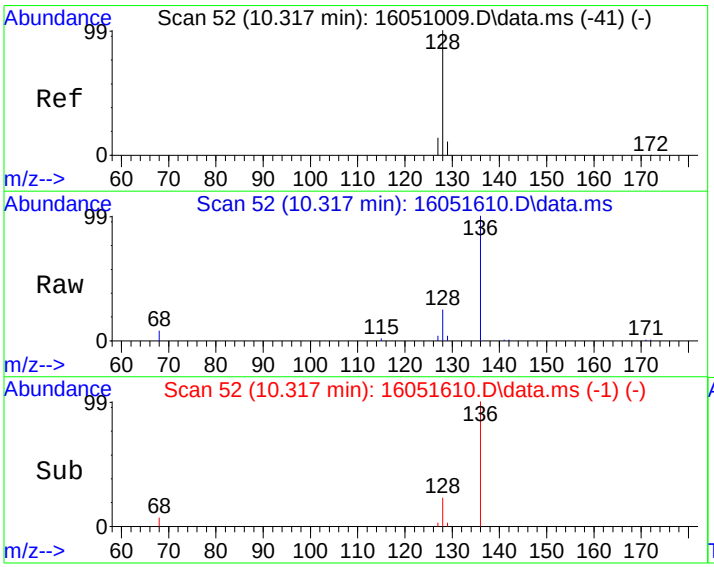
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051610.D
Acq On : 16 May 2016 6:39 pm
Operator :
Sample : 1605096-01A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: May 17 08:37:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

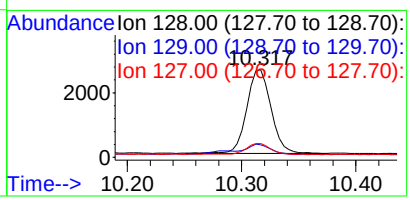


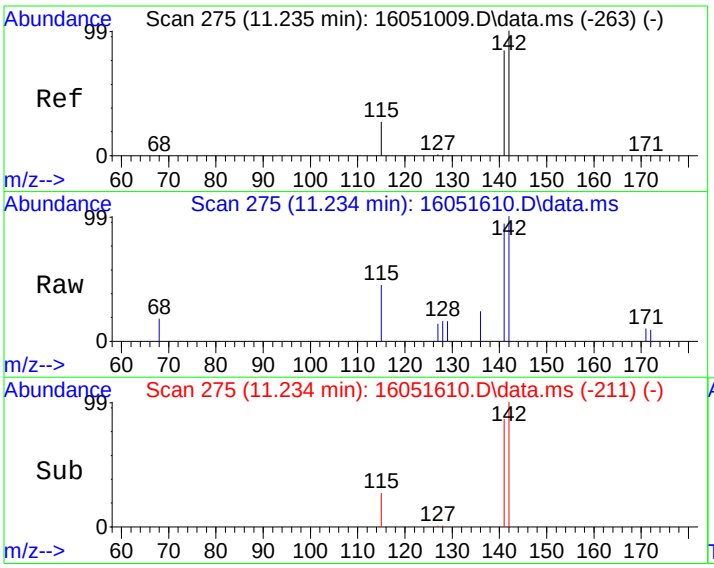


#2
Naphthalene
Concen: 8.77 ug/kg
RT: 10.317 min Scan# 52
Delta R.T. 0.013 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:128 Resp: 3840

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	31.3
127	13.4	0.0	33.5

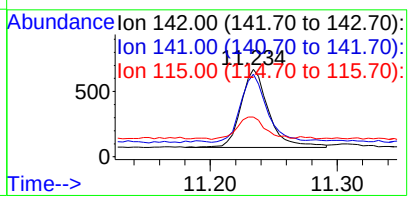


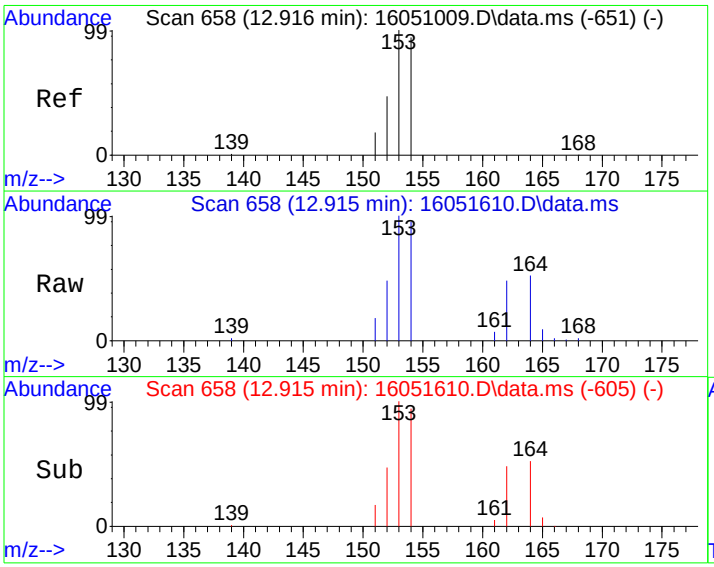


#3
2-Methyl naphthalene
Concen: 6.46 ug/kg
RT: 11.234 min Scan# 275
Delta R.T. 0.013 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:142 Resp: 915

Ion	Ratio	Lower	Upper
142	100		
141	85.6	63.9	103.9
115	27.9	6.7	46.7

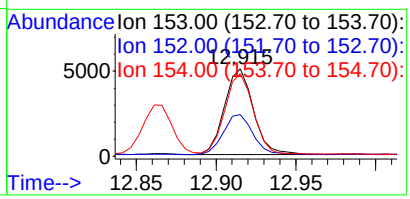


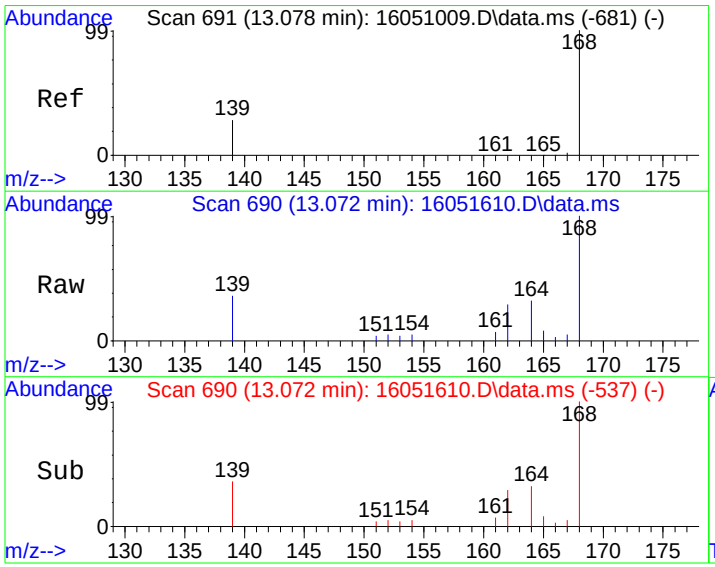


#8
Acenaphthene
Concen: 17.86 ug/kg
RT: 12.915 min Scan# 658
Delta R.T. 0.010 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:153 Resp: 6384

Ion	Ratio	Lower	Upper
153	100		
152	46.7	27.2	67.2
154	93.9	74.3	114.3

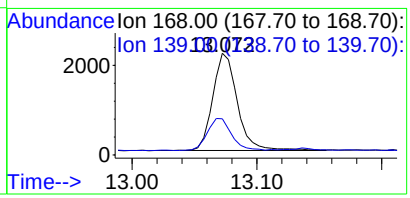


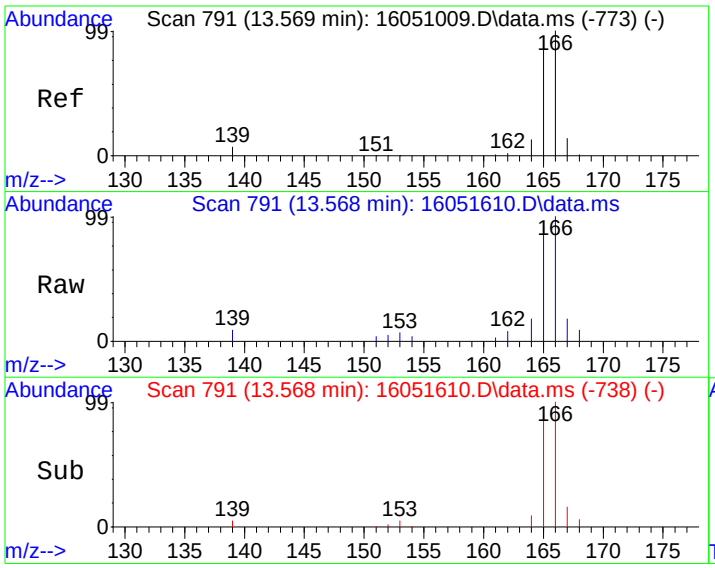


#9
Dibenzofuran
Concen: 5.14 ug/kg
RT: 13.072 min Scan# 690
Delta R.T. 0.010 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:168 Resp: 2967

Ion	Ratio	Lower	Upper
168	100		
139	32.2	7.8	47.8

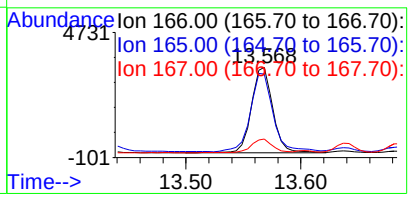


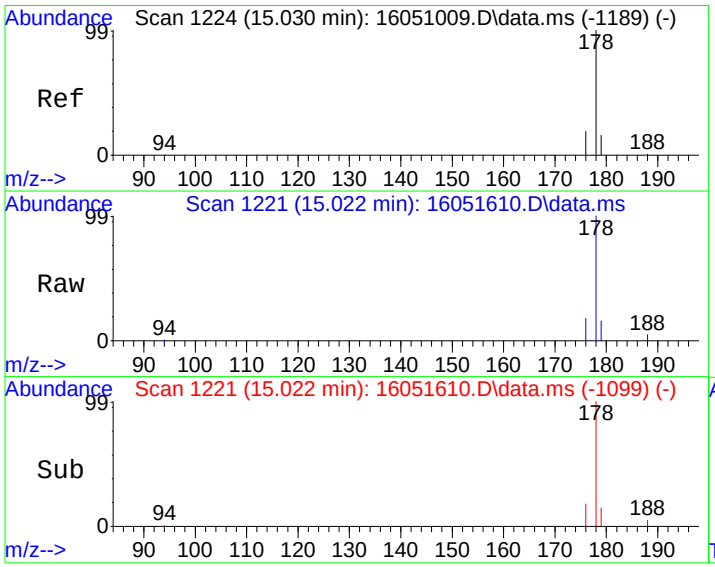


#10
Fluorene
Concen: 7.89 ug/kg
RT: 13.568 min Scan# 791
Delta R.T. 0.010 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:166 Resp: 4284

Ion	Ratio	Lower	Upper
166	100		
165	90.5	71.9	111.9
167	16.0	0.0	33.8

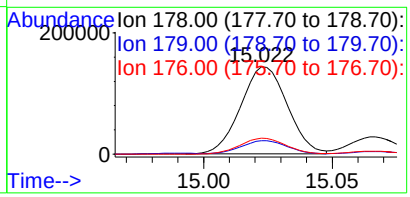


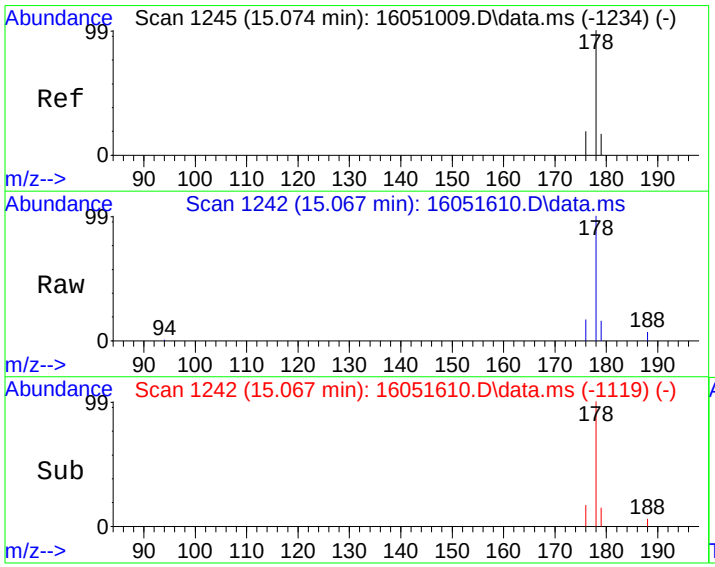


#12
Phenanthrene
Concen: 205.22 ug/kg
RT: 15.022 min Scan# 1221
Delta R.T. 0.006 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:178 Resp: 180204

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	36.4
176	18.3	0.0	39.2

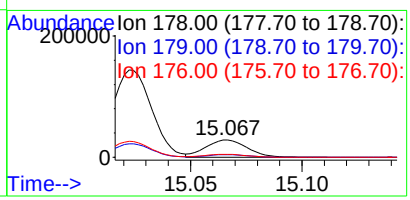


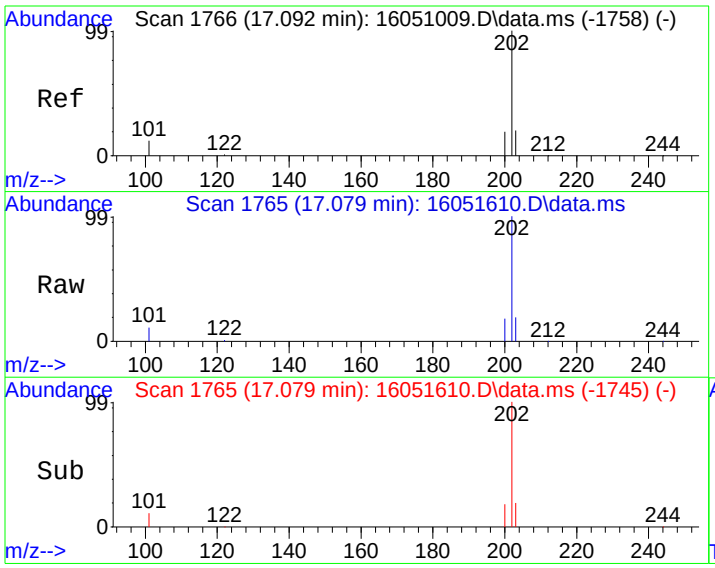


#13
Anthracene
Concen: 38.40 ug/kg
RT: 15.067 min Scan# 1242
Delta R.T. 0.009 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:178 Resp: 36533

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	36.5
176	17.2	0.0	38.6

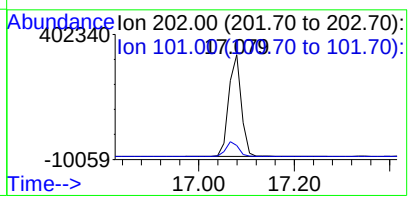


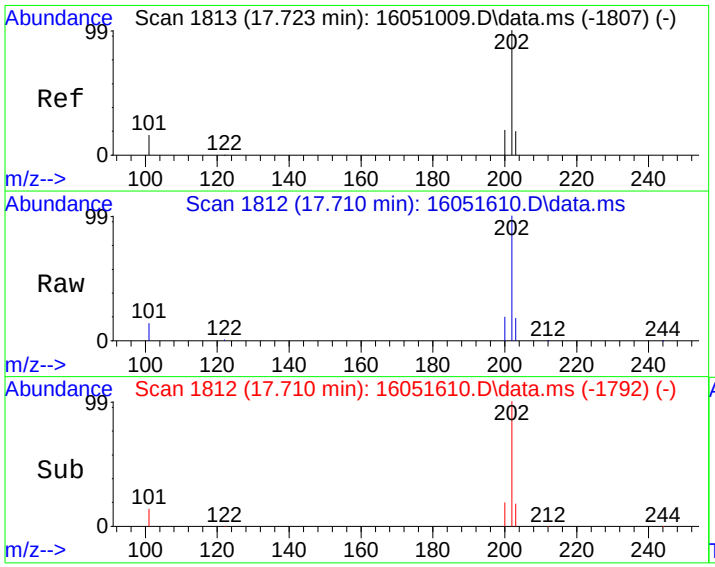


#14
Fluoranthene
Concen: 528.61 ug/kg
RT: 17.079 min Scan# 1765
Delta R.T. 0.014 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:202 Resp: 607468

Ion	Ratio	Lower	Upper
202	100		
101	10.7	0.0	32.0

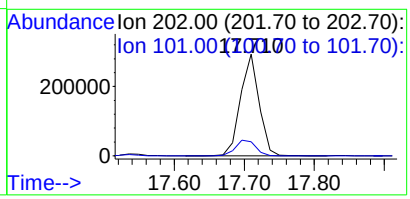


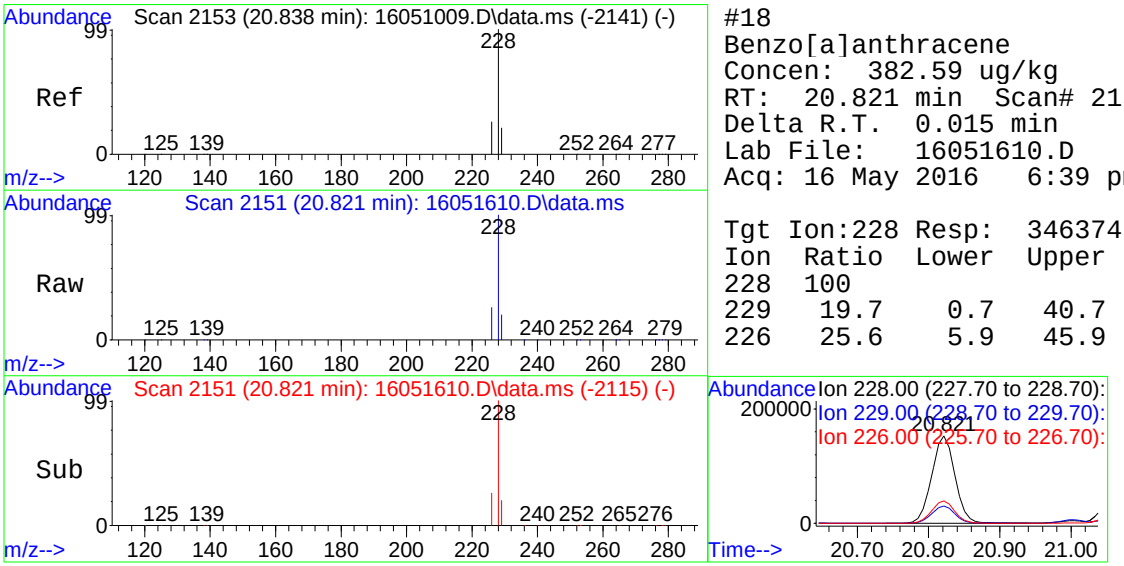


#15
Pyrene
Concen: 468.35 ug/kg
RT: 17.710 min Scan# 1812
Delta R.T. 0.014 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:202 Resp: 539837

Ion	Ratio	Lower	Upper
202	100		
101	13.7	0.0	35.9

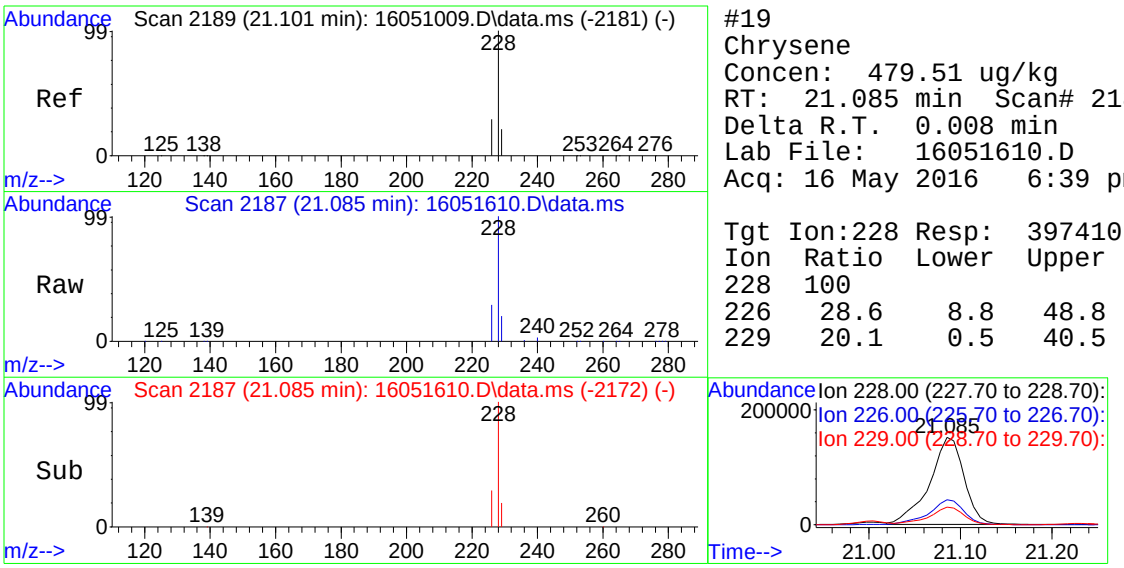




#18
Benzo[a]anthracene
Concen: 382.59 ug/kg
RT: 20.821 min Scan# 2151
Delta R.T. 0.015 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:228 Resp: 346374

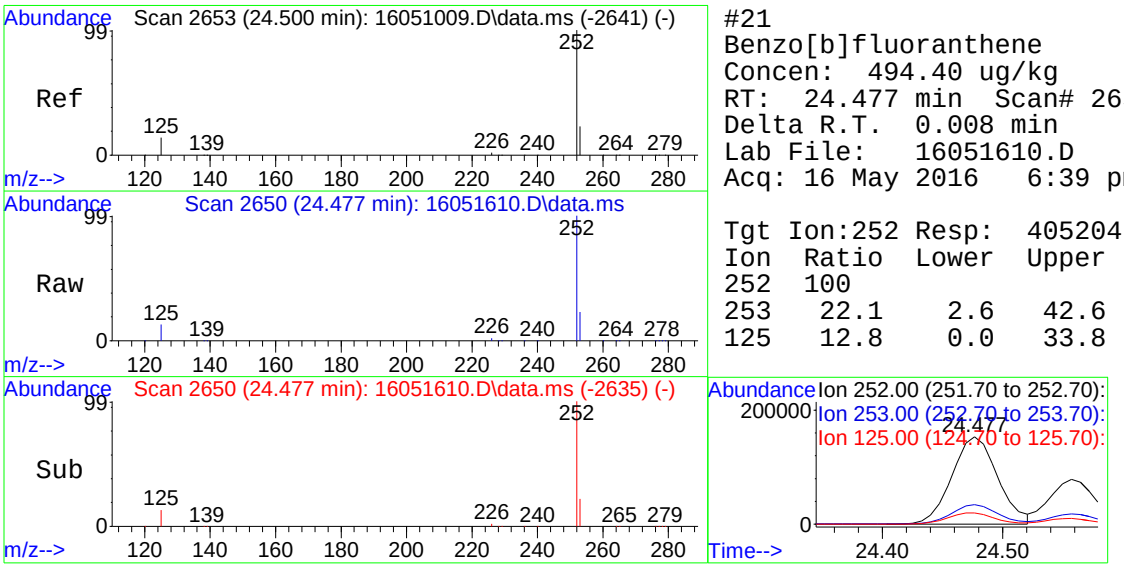
Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.7	40.7
226	25.6	5.9	45.9



#19
Chrysene
Concen: 479.51 ug/kg
RT: 21.085 min Scan# 2187
Delta R.T. 0.008 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:228 Resp: 397410

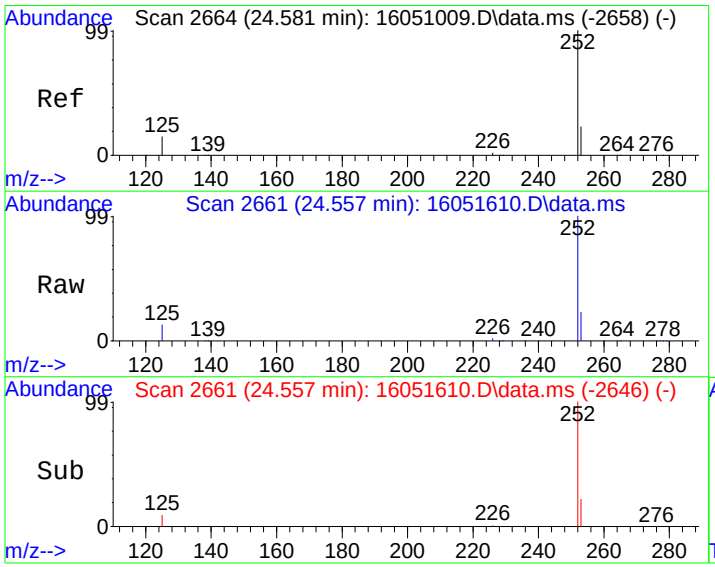
Ion	Ratio	Lower	Upper
228	100		
226	28.6	8.8	48.8
229	20.1	0.5	40.5



#21
Benzo[b]fluoranthene
Concen: 494.40 ug/kg
RT: 24.477 min Scan# 2650
Delta R.T. 0.008 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:252 Resp: 405204

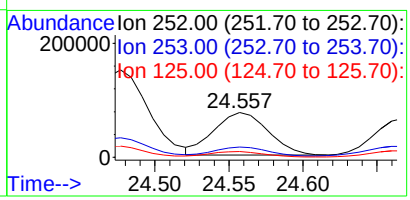
Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.6	42.6
125	12.8	0.0	33.8

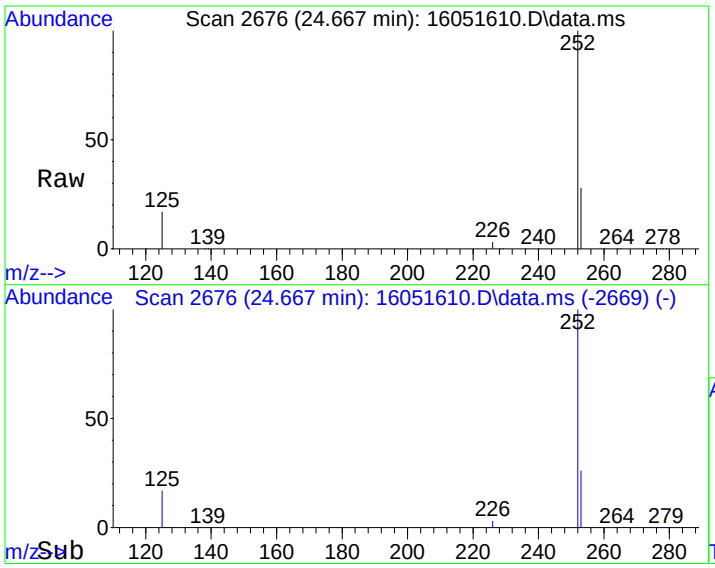


#22
Benzo[k]fluoranthene
Concen: 287.90 ug/kg
RT: 24.557 min Scan# 2661
Delta R.T. 0.008 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:252 Resp: 189252

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.8	42.8
125	12.9	0.0	34.7

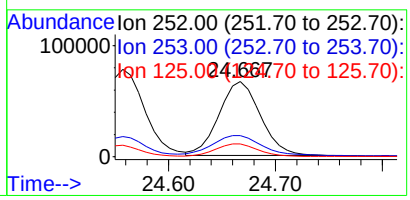


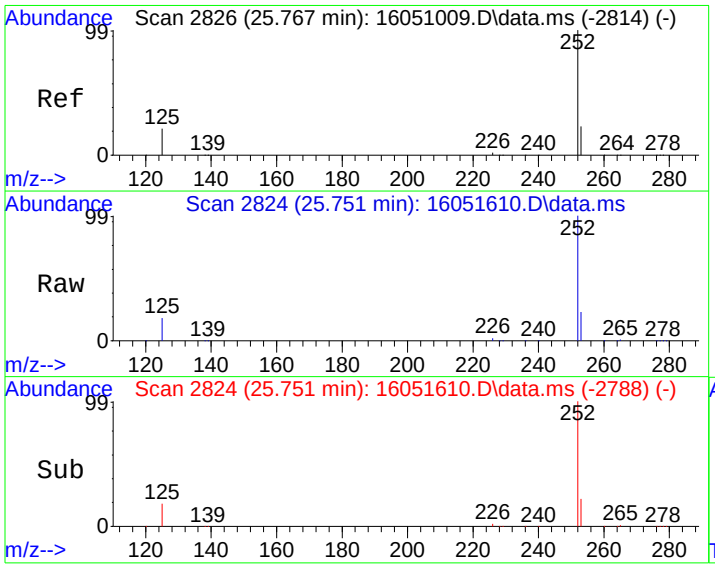


#23
Benzo(j)fluoranthene
Concen: 268.98 ug/kg
RT: 24.667 min Scan# 2676
Delta R.T. 0.008 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:252 Resp: 178717

Ion	Ratio	Lower	Upper
252	100		
253	31.3	2.3	42.3
125	17.4	0.0	39.2

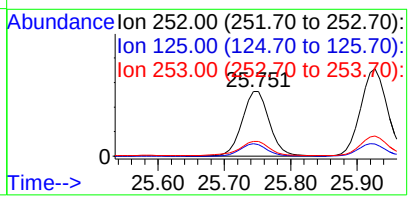


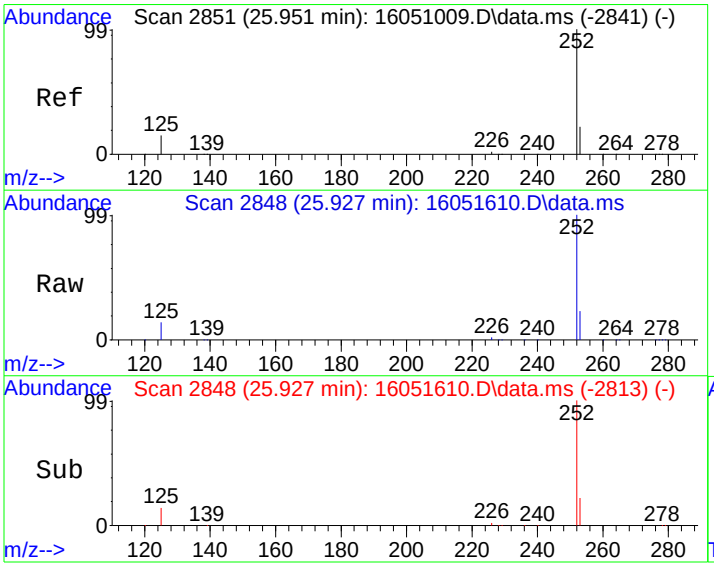


#24
Benzo(e)pyrene
Concen: 379.35 ug/kg
RT: 25.751 min Scan# 2824
Delta R.T. 0.015 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:252 Resp: 298414

Ion	Ratio	Lower	Upper
252	100		
125	18.8	0.8	40.8
253	24.3	2.4	42.4

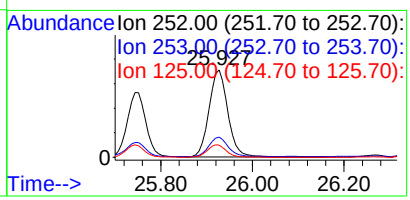


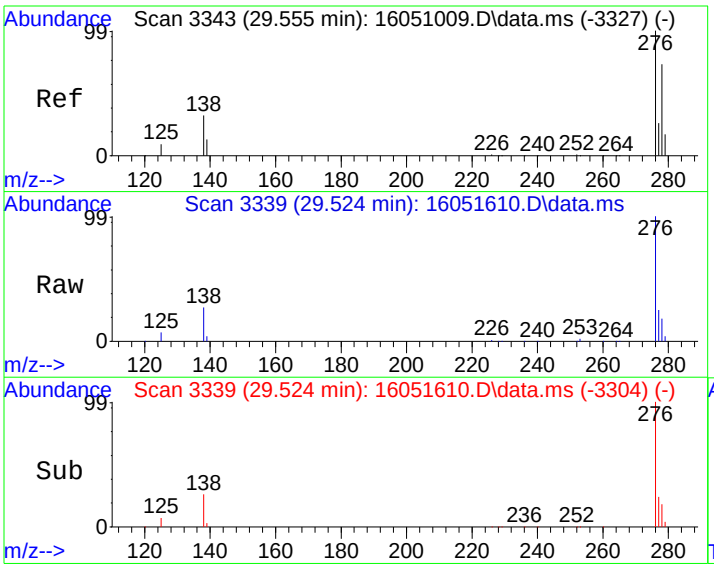


#25
Benzo[a]pyrene
Concen: 536.27 ug/kg
RT: 25.927 min Scan# 2848
Delta R.T. 0.008 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:252 Resp: 403959

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.5	42.5
125	13.9	0.0	35.5

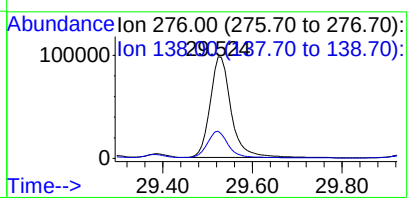


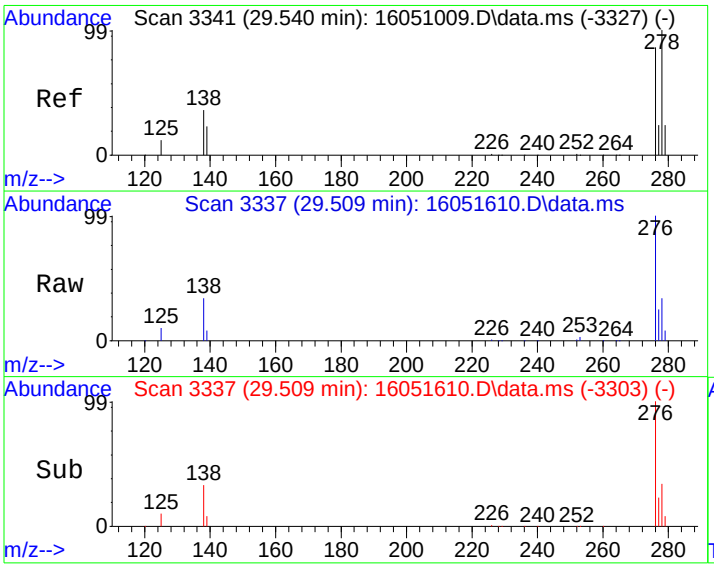


#26
Indeno[1,2,3-cd]pyrene
Concen: 381.84 ug/kg
RT: 29.524 min Scan# 3339
Delta R.T. 0.008 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:276 Resp: 318660

Ion	Ratio	Lower	Upper
276	100		
138	26.3	12.0	52.0

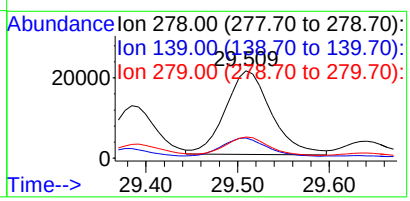


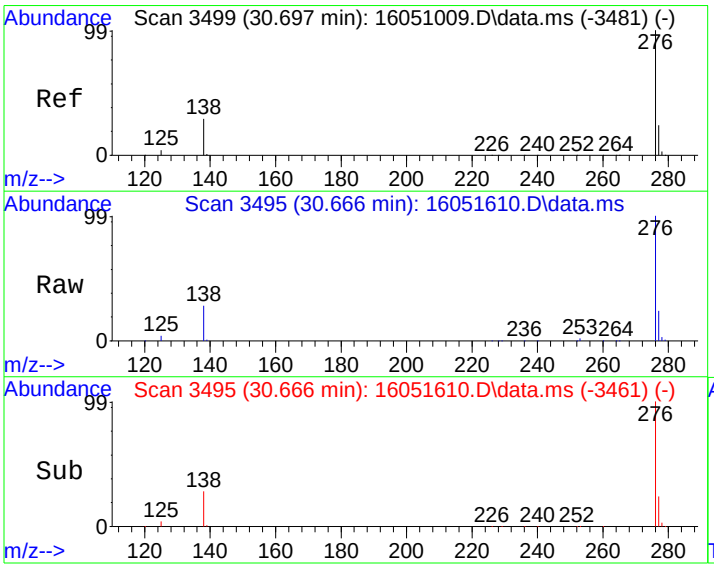


#27
Dibenz[a,h]anthracene
Concen: 106.78 ug/kg
RT: 29.509 min Scan# 3337
Delta R.T. 0.000 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:278 Resp: 72652

Ion	Ratio	Lower	Upper
278	100		
139	22.4	2.9	42.9
279	22.9	4.4	44.4

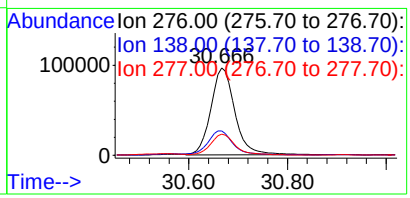




#28
Benzo[g,h,i]perylene
Concen: 447.03 ug/kg
RT: 30.666 min Scan# 3495
Delta R.T. 0.000 min
Lab File: 16051610.D
Acq: 16 May 2016 6:39 pm

Tgt Ion:276 Resp: 325530

Ion	Ratio	Lower	Upper
276	100		
138	27.5	9.3	49.3
277	24.1	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051611.D
Acq On : 16 May 2016 7:15 pm
Operator :
Sample : 1605096-02A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: May 17 08:37:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1754114	4000.00	ug/kg	112
6) Acenaphthene-d10	12.866	164	1185295	4000.00	ug/kg	121
11) Phenanthrene-d10	14.987	188	2983952	4000.00	ug/kg	96
16) Chrysene-d12	20.998	240	3078506	4000.00	ug/kg	88
20) Perylene-d12	26.272	264	2770217	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	31278	90.73	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.27%#			
17) 4-Terphenyl-d14	17.601	244	62466	87.82	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.20%#			

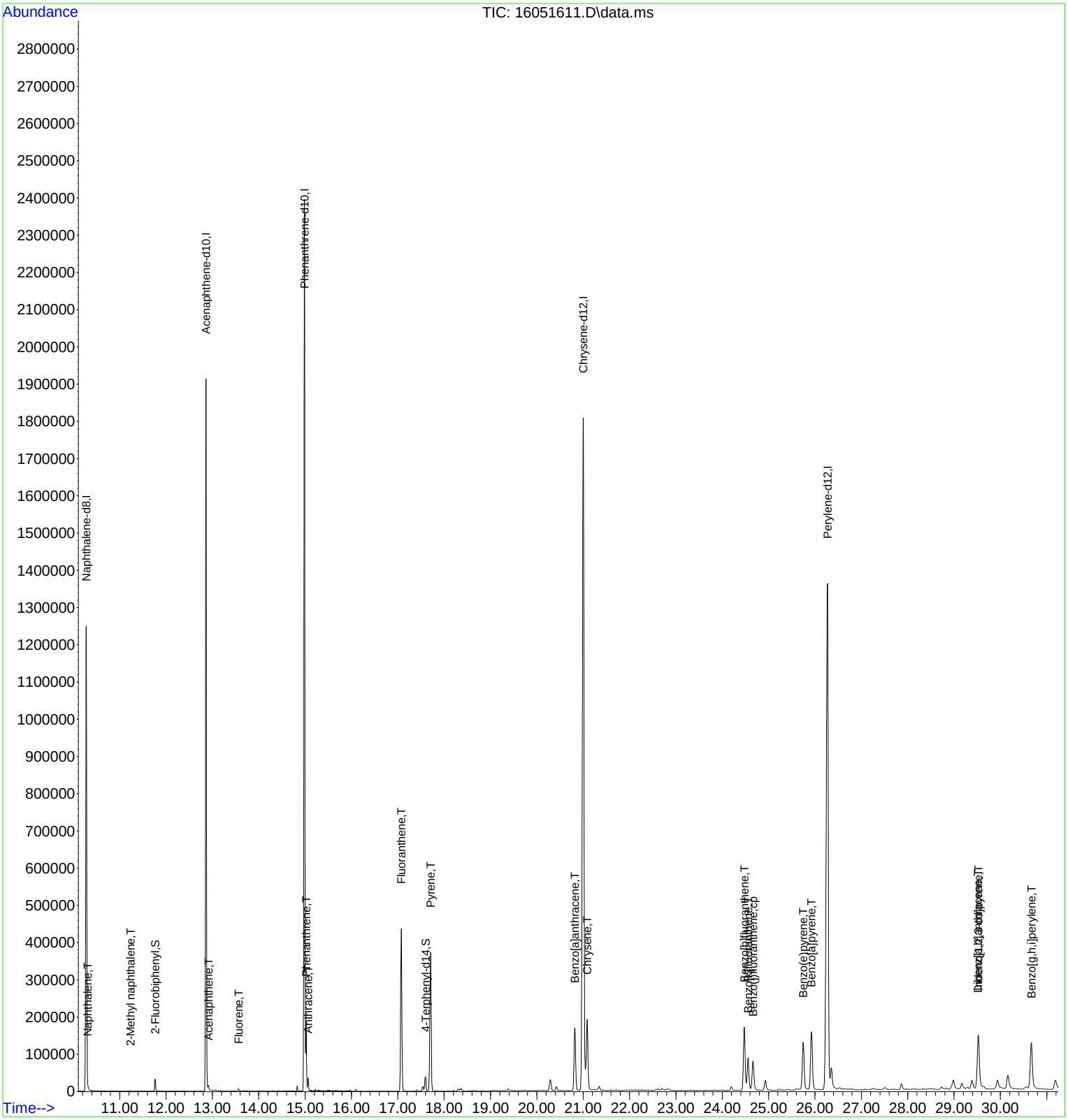
Target Compounds						Qvalue
2) Naphthalene	10.317	128	2795	6.57	ug/kg	99
3) 2-Methyl naphthalene	11.234	142	704	5.83	ug/kg	97
8) Acenaphthene	12.916	153	5050	14.33	ug/kg	98
10) Fluorene	13.564	166	3350	6.26	ug/kg	97
12) Phenanthrene	15.023	178	164624	190.62	ug/kg	97
13) Anthracene	15.065	178	32719	34.97	ug/kg	98
14) Fluoranthene	17.078	202	510558	451.73	ug/kg	98
15) Pyrene	17.709	202	451148	397.97	ug/kg	96
18) Benzo[a]anthracene	20.823	228	277984	321.23	ug/kg	98
19) Chrysene	21.086	228	319441	403.24	ug/kg	99
21) Benzo[b]fluoranthene	24.478	252	329309	417.42	ug/kg	98
22) Benzo[k]fluoranthene	24.558	252	150006	237.06	ug/kg	94
23) Benzo(j)fluoranthene	24.661	252	143317	224.09	ug/kg	88
24) Benzo(e)pyrene	25.745	252	243038	320.96	ug/kg	96
25) Benzo[a]pyrene	25.928	252	321259	443.06	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.525	276	259492	323.03	ug/kg	89
27) Dibenz[a,h]anthracene	29.510	278	59066	90.19	ug/kg	97
28) Benzo[g,h,i]perylene	30.667	276	264512	377.35	ug/kg	97

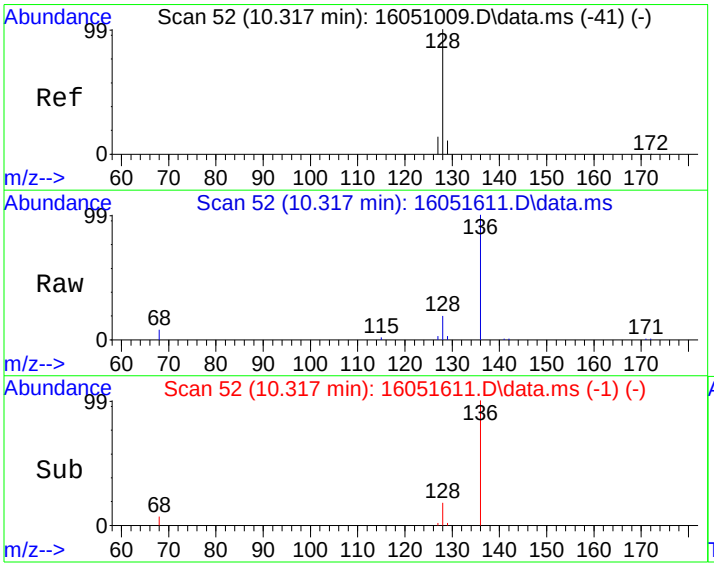
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051611.D
Acq On : 16 May 2016 7:15 pm
Operator :
Sample : 1605096-02A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: May 17 08:37:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

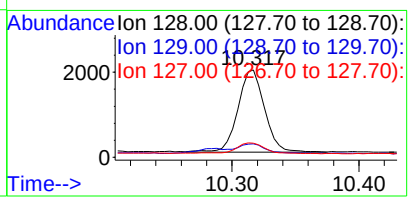


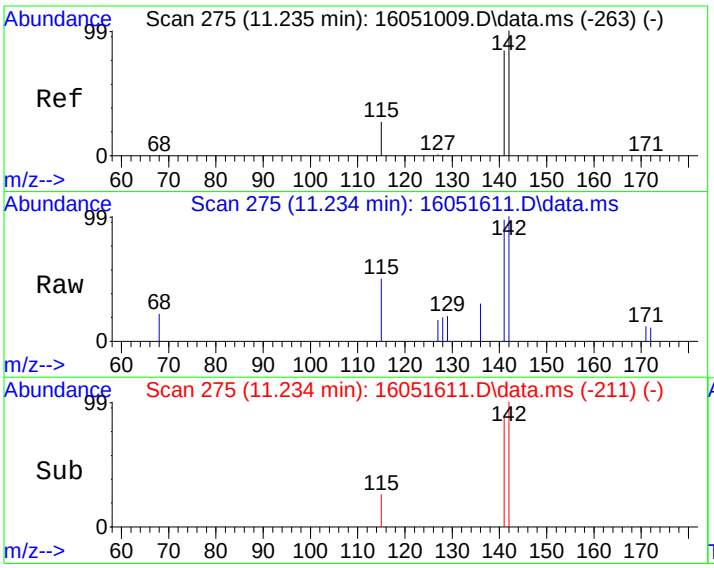


#2
Naphthalene
Concen: 6.57 ug/kg
RT: 10.317 min Scan# 52
Delta R.T. 0.013 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:128 Resp: 2795

Ion	Ratio	Lower	Upper
128	100		
129	11.7	0.0	31.3
127	12.8	0.0	33.5

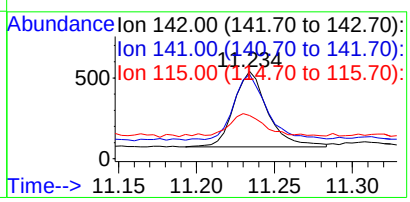


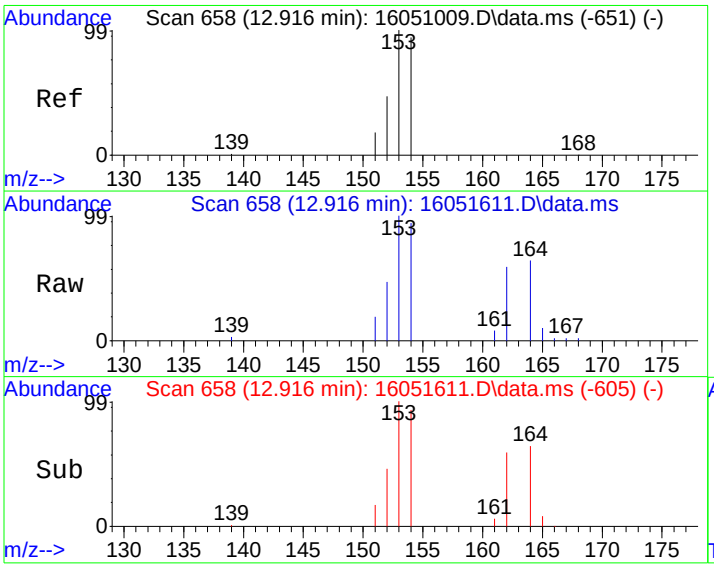


#3
2-Methyl naphthalene
Concen: 5.83 ug/kg
RT: 11.234 min Scan# 275
Delta R.T. 0.013 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:142 Resp: 704

Ion	Ratio	Lower	Upper
142	100		
141	87.6	63.9	103.9
115	27.0	6.7	46.7

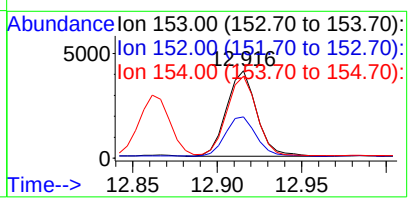


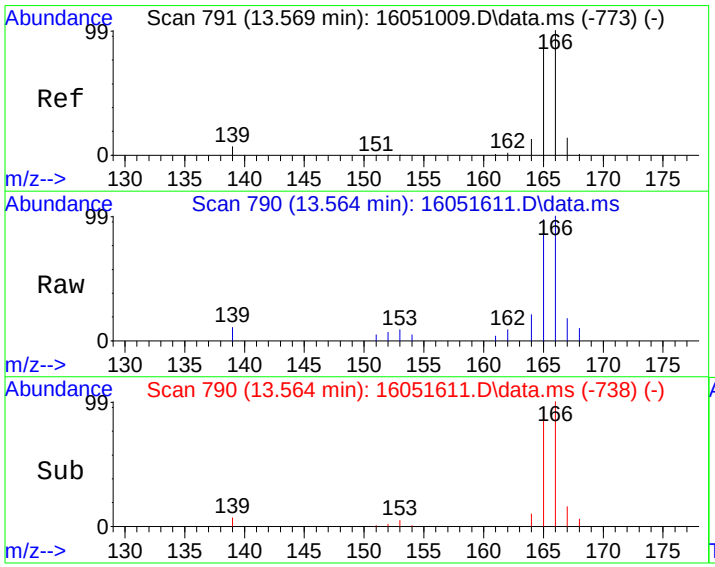


#8
Acenaphthene
Concen: 14.33 ug/kg
RT: 12.916 min Scan# 658
Delta R.T. 0.011 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:153 Resp: 5050

Ion	Ratio	Lower	Upper
153	100		
152	45.9	27.2	67.2
154	92.9	74.3	114.3

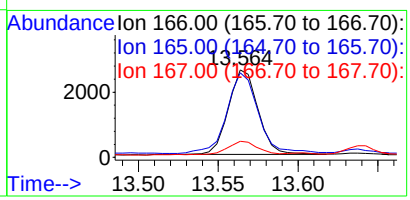


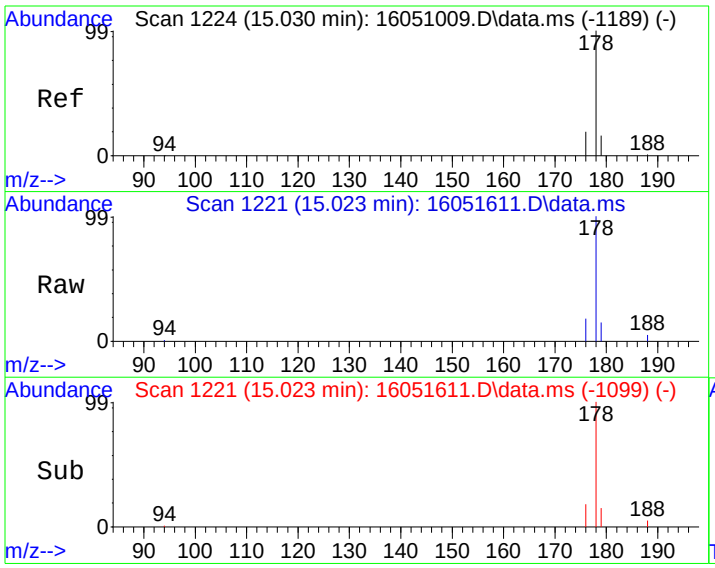


#10
Fluorene
Concen: 6.26 ug/kg
RT: 13.564 min Scan# 790
Delta R.T. 0.006 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:166 Resp: 3350

Ion	Ratio	Lower	Upper
166	100		
165	94.5	71.9	111.9
167	15.7	0.0	33.8

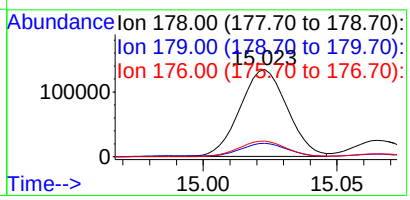


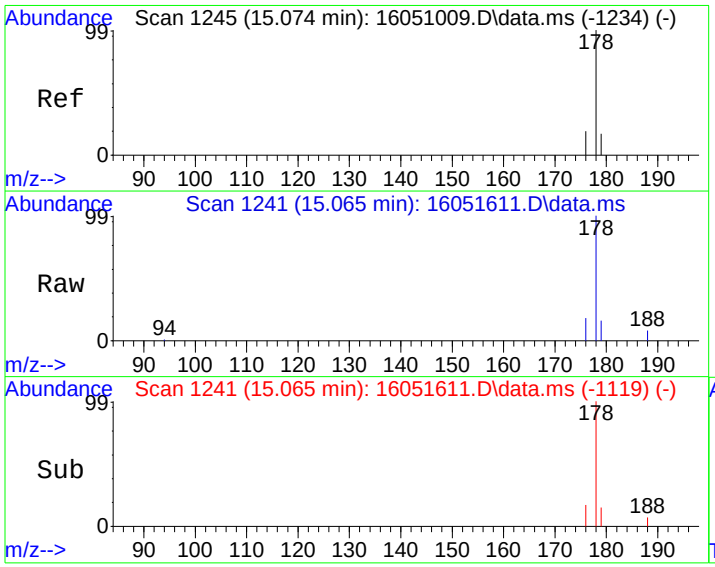


#12
Phenanthrene
Concen: 190.62 ug/kg
RT: 15.023 min Scan# 1221
Delta R.T. 0.007 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:178 Resp: 164624

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	36.4
176	18.1	0.0	39.2

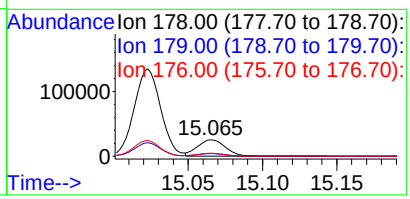


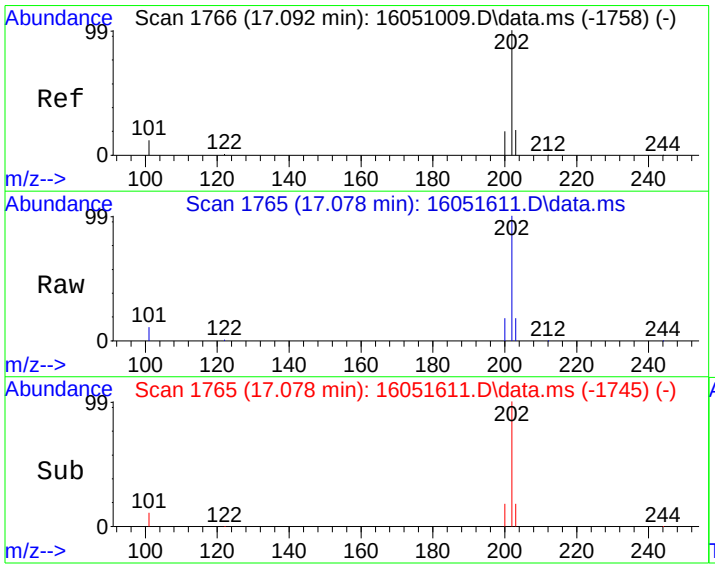


#13
Anthracene
Concen: 34.97 ug/kg
RT: 15.065 min Scan# 1241
Delta R.T. 0.007 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:178 Resp: 32719

Ion	Ratio	Lower	Upper
178	100		
179	15.6	0.0	36.5
176	17.4	0.0	38.6

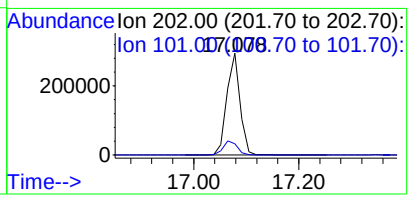


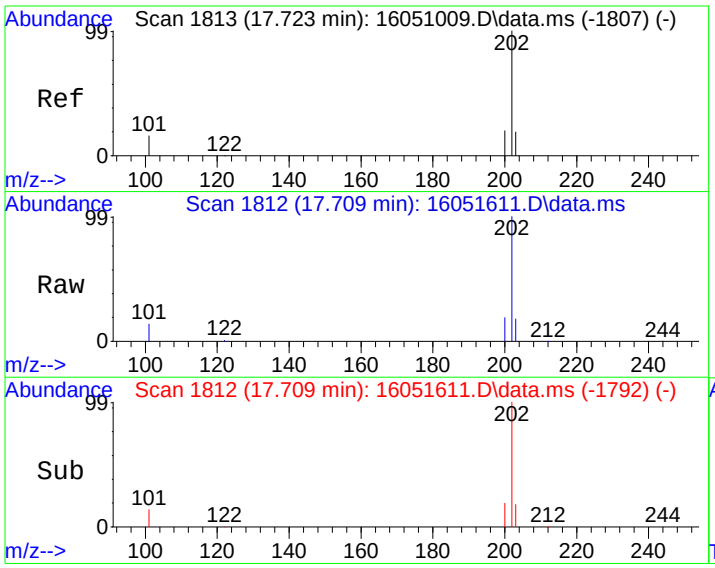


#14
Fluoranthene
Concen: 451.73 ug/kg
RT: 17.078 min Scan# 1765
Delta R.T. 0.013 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:202 Resp: 510558

Ion	Ratio	Lower	Upper
202	100		
101	11.1	0.0	32.0

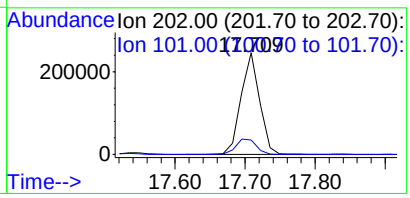


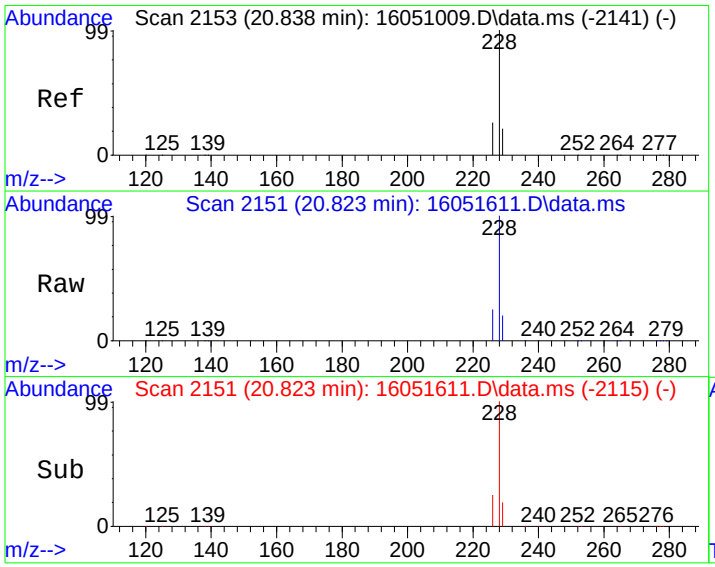


#15
Pyrene
Concen: 397.97 ug/kg
RT: 17.709 min Scan# 1812
Delta R.T. 0.013 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:202 Resp: 451148

Ion	Ratio	Lower	Upper
202	100		
101	14.1	0.0	35.9

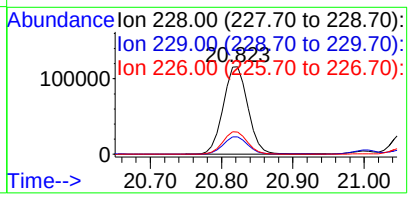


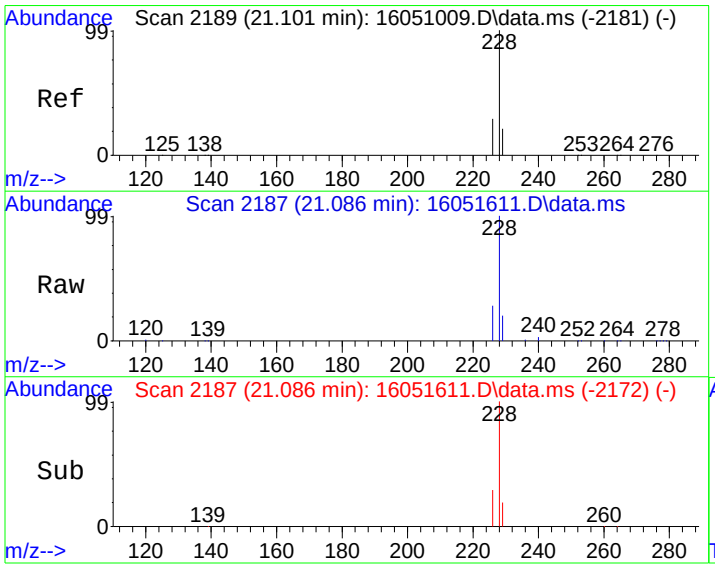


#18
Benzo[a]anthracene
Concen: 321.23 ug/kg
RT: 20.823 min Scan# 2151
Delta R.T. 0.016 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:228 Resp: 277984

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.7	40.7
226	25.4	5.9	45.9

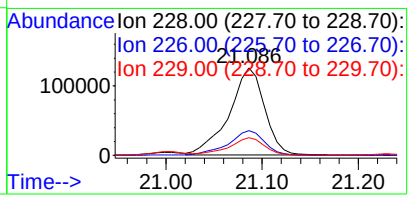


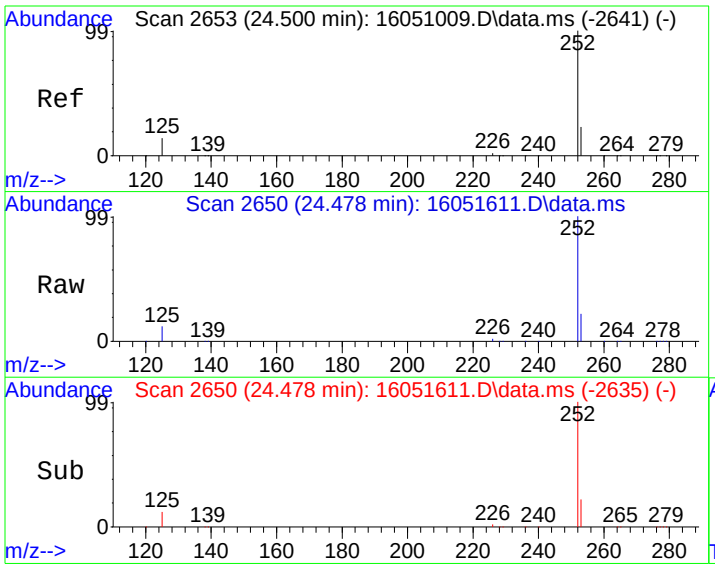


#19
Chrysene
Concen: 403.24 ug/kg
RT: 21.086 min Scan# 2187
Delta R.T. 0.009 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:228 Resp: 319441

Ion	Ratio	Lower	Upper
228	100		
226	28.4	8.8	48.8
229	20.0	0.5	40.5

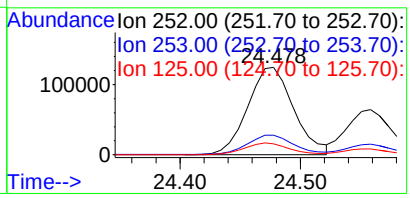


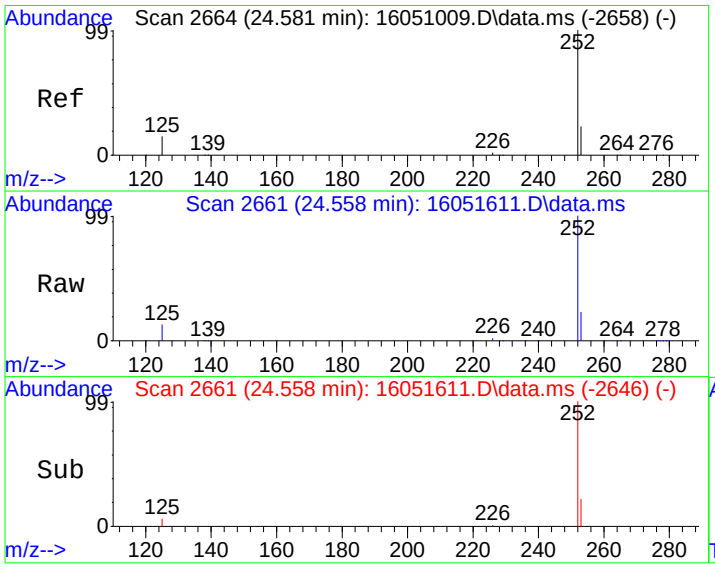


#21
Benzo[b]fluoranthene
Concen: 417.42 ug/kg
RT: 24.478 min Scan# 2650
Delta R.T. 0.009 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:252 Resp: 329309

Ion	Ratio	Lower	Upper
252	100		
253	21.9	2.6	42.6
125	12.2	0.0	33.8

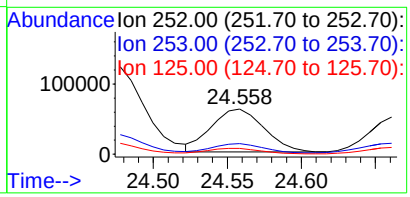


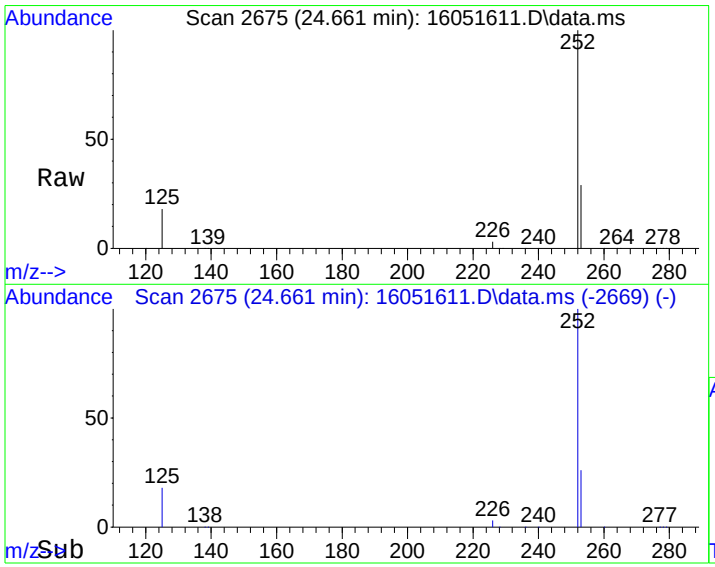


#22
Benzo[k]fluoranthene
Concen: 237.06 ug/kg
RT: 24.558 min Scan# 2661
Delta R.T. 0.009 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:252 Resp: 150006

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.8	42.8
125	12.1	0.0	34.7

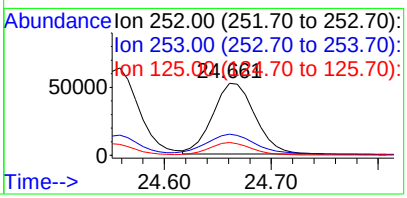


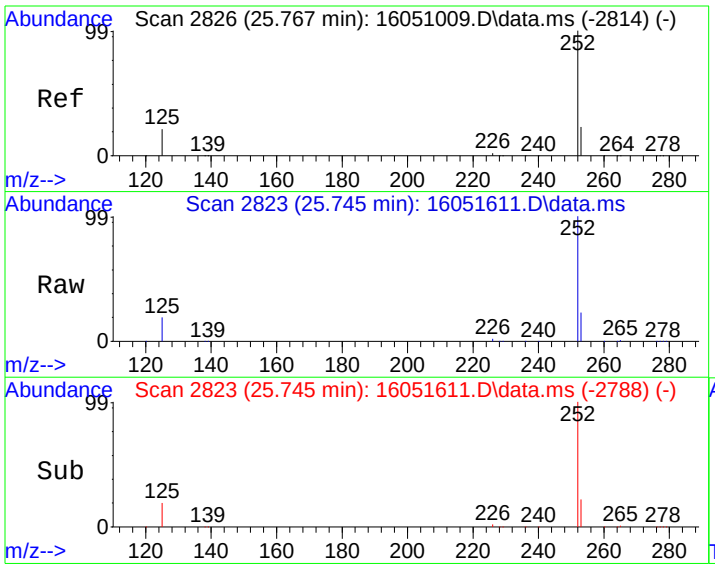


#23
Benzo(j)fluoranthene
Concen: 224.09 ug/kg
RT: 24.661 min Scan# 2675
Delta R.T. 0.002 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:252 Resp: 143317

Ion	Ratio	Lower	Upper
252	100		
253	31.4	2.3	42.3
125	17.4	0.0	39.2

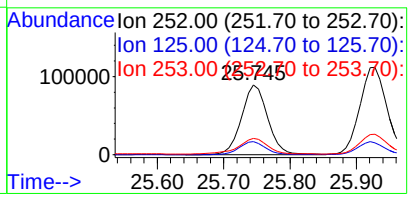


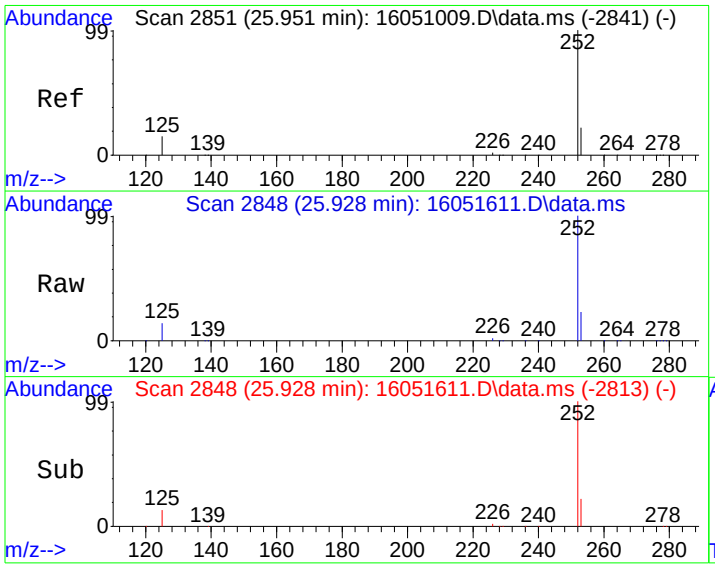


#24
Benzo(e)pyrene
Concen: 320.96 ug/kg
RT: 25.745 min Scan# 2823
Delta R.T. 0.009 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:252 Resp: 243038

Ion	Ratio	Lower	Upper
252	100		
125	18.7	0.8	40.8
253	24.6	2.4	42.4

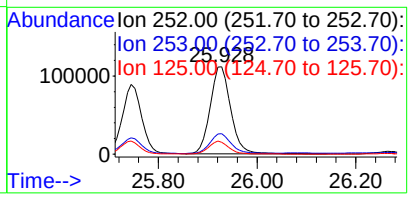


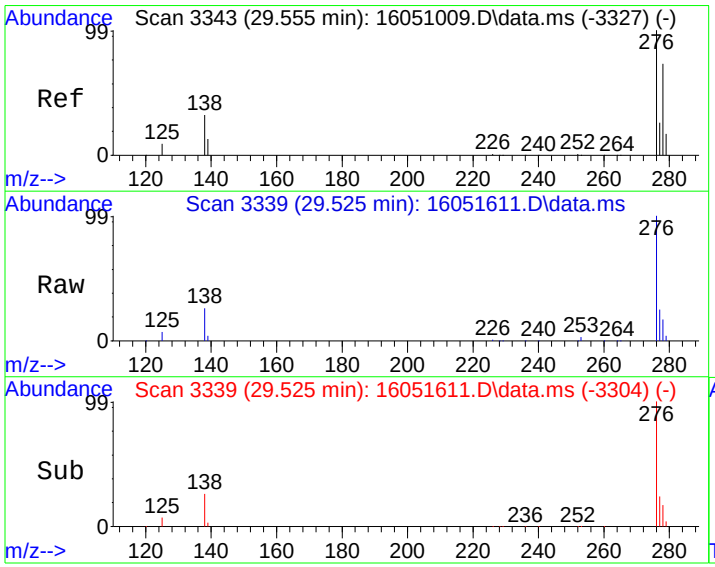


#25
Benzo[a]pyrene
Concen: 443.06 ug/kg
RT: 25.928 min Scan# 2848
Delta R.T. 0.009 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:252 Resp: 321259

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.5	42.5
125	13.5	0.0	35.5

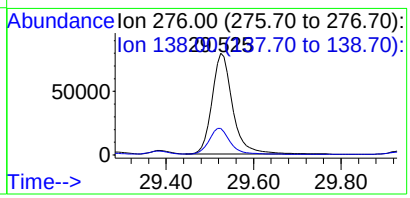


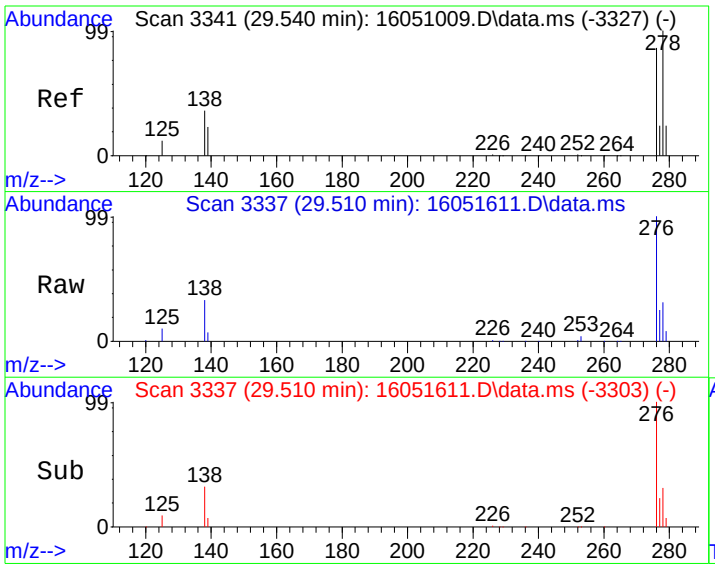


#26
Indeno[1,2,3-cd]pyrene
Concen: 323.03 ug/kg
RT: 29.525 min Scan# 3339
Delta R.T. 0.009 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:276 Resp: 259492

Ion	Ratio	Lower	Upper
276	100		
138	25.8	12.0	52.0

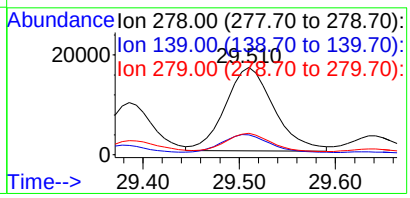


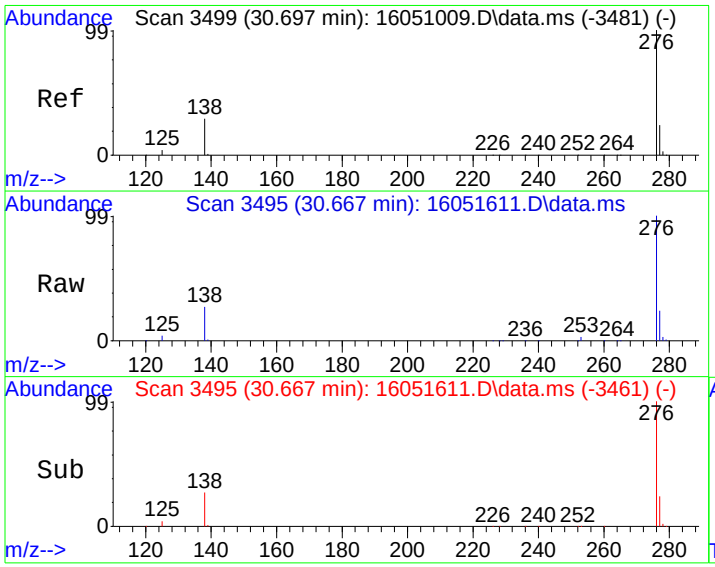


#27
Dibenz[a,h]anthracene
Concen: 90.19 ug/kg
RT: 29.510 min Scan# 3337
Delta R.T. 0.002 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:278 Resp: 59066

Ion	Ratio	Lower	Upper
278	100		
139	21.7	2.9	42.9
279	23.0	4.4	44.4

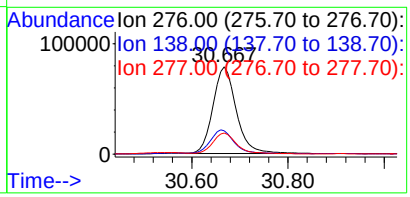




#28
Benzo[g,h,i]perylene
Concen: 377.35 ug/kg
RT: 30.667 min Scan# 3495
Delta R.T. 0.002 min
Lab File: 16051611.D
Acq: 16 May 2016 7:15 pm

Tgt Ion:276 Resp: 264512

Ion	Ratio	Lower	Upper
276	100		
138	26.4	9.3	49.3
277	23.9	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051612.D
Acq On : 16 May 2016 7:52 pm
Operator :
Sample : 1605096-03A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: May 17 08:37:36 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1676912	4000.00	ug/kg	107
6) Acenaphthene-d10	12.866	164	1142792	4000.00	ug/kg	117
11) Phenanthrene-d10	14.987	188	2923437	4000.00	ug/kg	94
16) Chrysene-d12	20.999	240	2968707	4000.00	ug/kg	85
20) Perylene-d12	26.265	264	2626220	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	30396	92.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.31%#		
17) 4-Terphenyl-d14	17.602	244	61777	90.06	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.25%#		

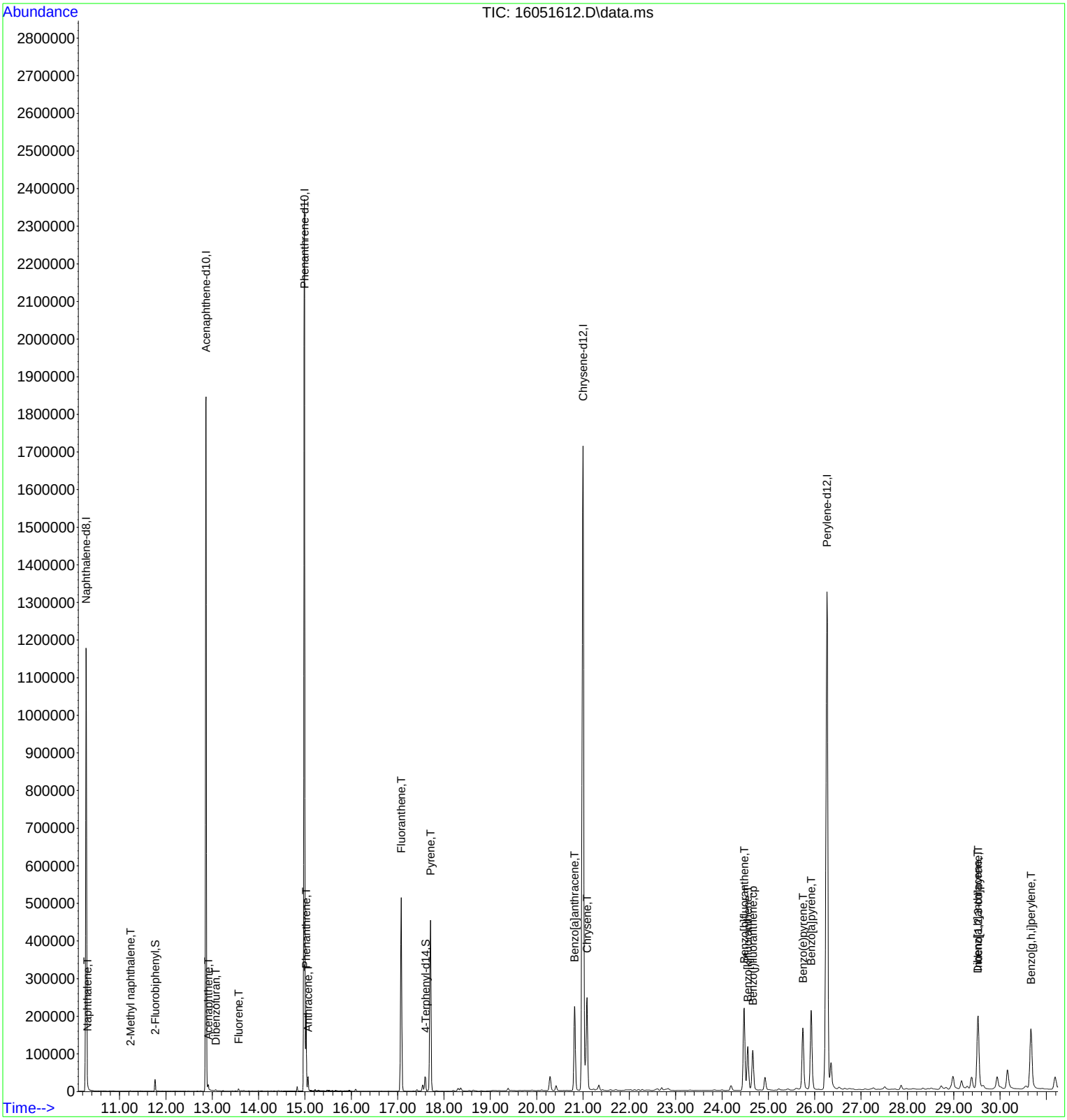
Target Compounds						Qvalue
2) Naphthalene	10.313	128	3022	7.44	ug/kg	99
3) 2-Methyl naphthalene	11.235	142	796	6.27	ug/kg	96
8) Acenaphthene	12.916	153	5855	17.23	ug/kg	99
9) Dibenzofuran	13.073	168	2835	5.17	ug/kg	94
10) Fluorene	13.564	166	3049	5.91	ug/kg	96
12) Phenanthrene	15.023	178	188269	222.51	ug/kg	97
13) Anthracene	15.065	178	34876	38.05	ug/kg	97
14) Fluoranthene	17.079	202	620839	560.68	ug/kg	98
15) Pyrene	17.710	202	552037	497.05	ug/kg	95
18) Benzo[a]anthracene	20.815	228	352711	422.65	ug/kg	99
19) Chrysene	21.086	228	409972	536.65	ug/kg	99
21) Benzo[b]fluoranthene	24.478	252	430438	575.52	ug/kg	98
22) Benzo[k]fluoranthene	24.559	252	196057	326.83	ug/kg	96
23) Benzo(j)fluoranthene	24.661	252	187549	309.32	ug/kg	87
24) Benzo(e)pyrene	25.745	252	316816	441.34	ug/kg	96
25) Benzo[a]pyrene	25.921	252	417003	606.63	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.525	276	342034	449.12	ug/kg	88
27) Dibenz[a,h]anthracene	29.510	278	76913	123.88	ug/kg	97
28) Benzo[g,h,i]perylene	30.668	276	348691	524.72	ug/kg	97

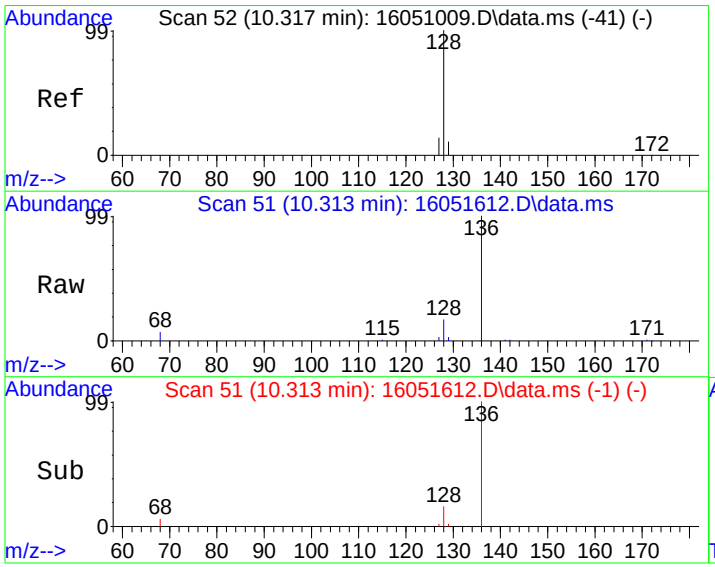
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051612.D
Acq On : 16 May 2016 7:52 pm
Operator :
Sample : 1605096-03A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: May 17 08:37:36 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

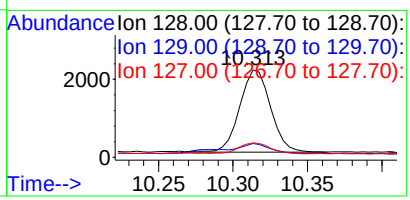


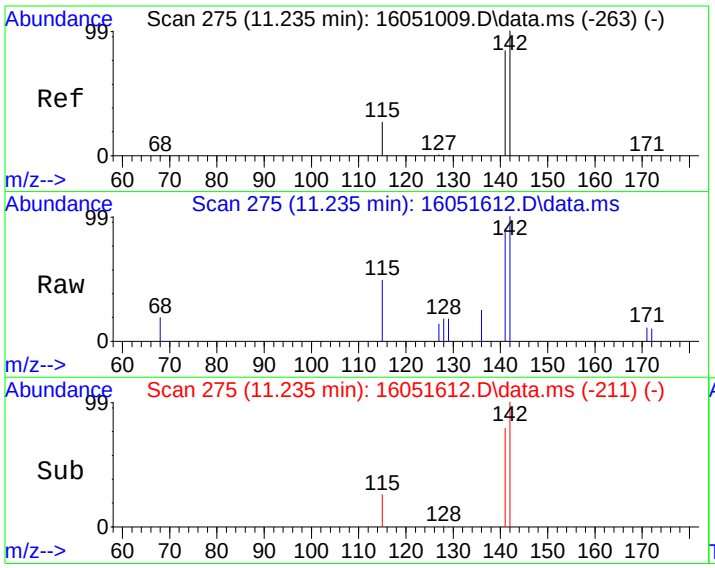


#2
Naphthalene
Concen: 7.44 ug/kg
RT: 10.313 min Scan# 51
Delta R.T. 0.009 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:128 Resp: 3022

Ion	Ratio	Lower	Upper
128	100		
129	12.0	0.0	31.3
127	13.2	0.0	33.5

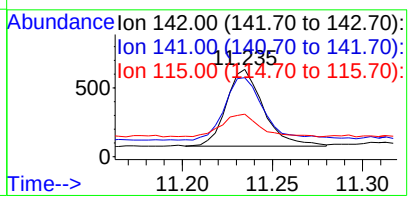


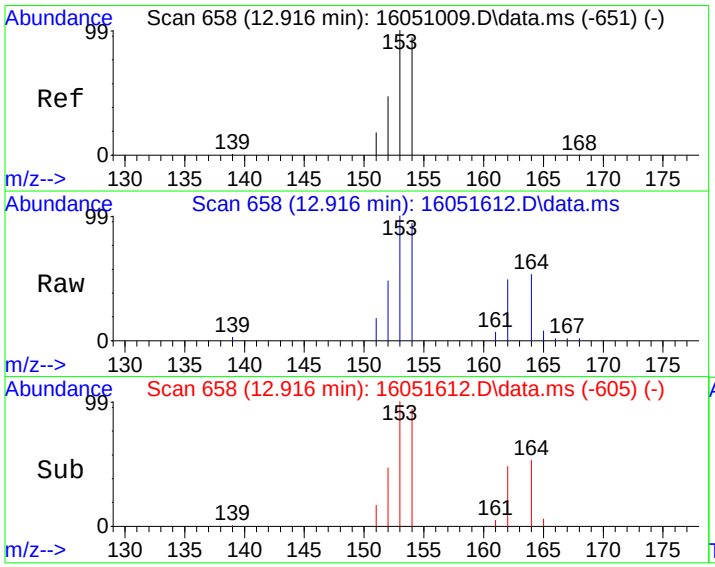


#3
2-Methyl naphthalene
Concen: 6.27 ug/kg
RT: 11.235 min Scan# 275
Delta R.T. 0.014 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:142 Resp: 796

Ion	Ratio	Lower	Upper
142	100		
141	80.6	63.9	103.9
115	28.7	6.7	46.7

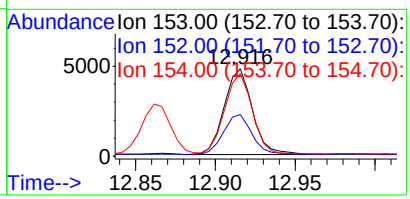


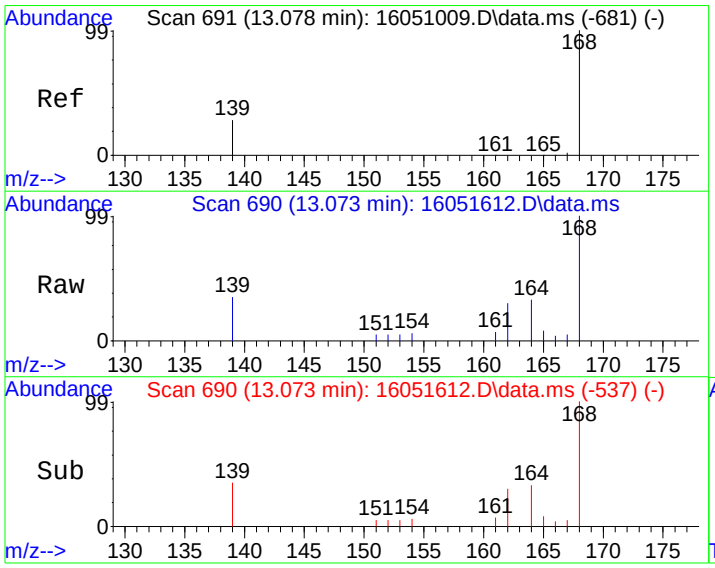


#8
Acenaphthene
Concen: 17.23 ug/kg
RT: 12.916 min Scan# 658
Delta R.T. 0.011 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:153 Resp: 5855

Ion	Ratio	Lower	Upper
153	100		
152	46.6	27.2	67.2
154	93.7	74.3	114.3

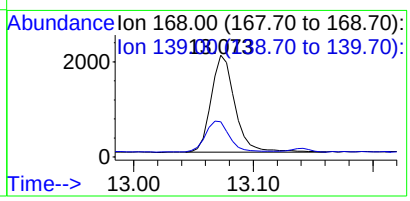


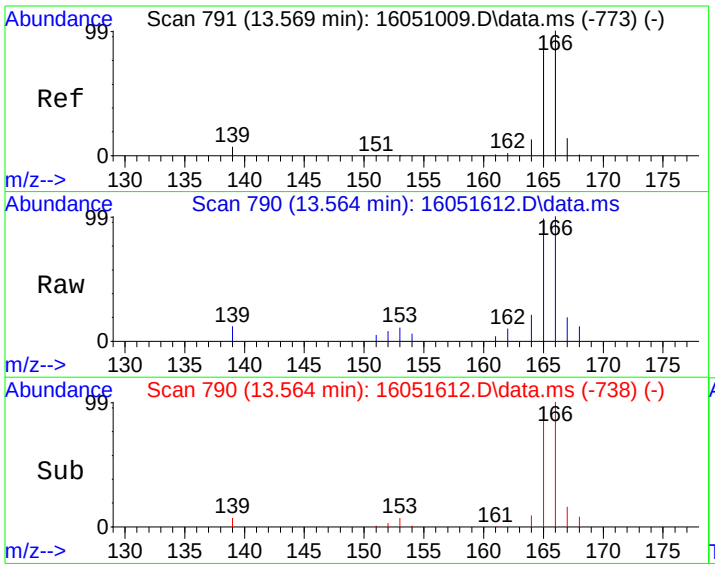


#9
Dibenzofuran
Concen: 5.17 ug/kg
RT: 13.073 min Scan# 690
Delta R.T. 0.011 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:168 Resp: 2835

Ion	Ratio	Lower	Upper
168	100		
139	31.2	7.8	47.8

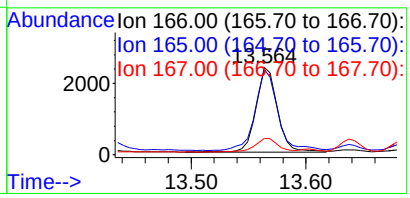


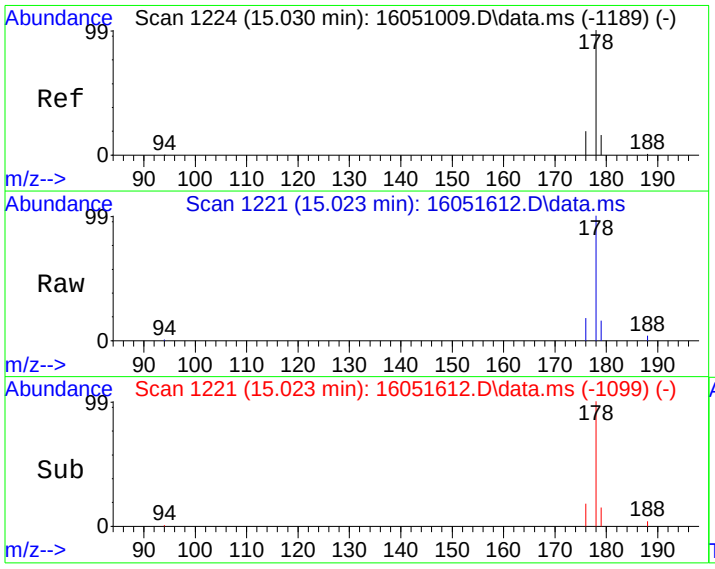


#10
Fluorene
Concen: 5.91 ug/kg
RT: 13.564 min Scan# 790
Delta R.T. 0.006 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:166 Resp: 3049

Ion	Ratio	Lower	Upper
166	100		
165	95.4	71.9	111.9
167	15.9	0.0	33.8

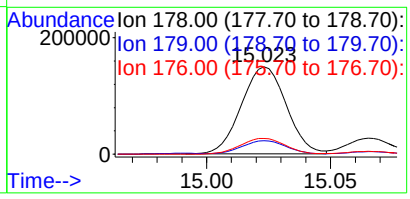


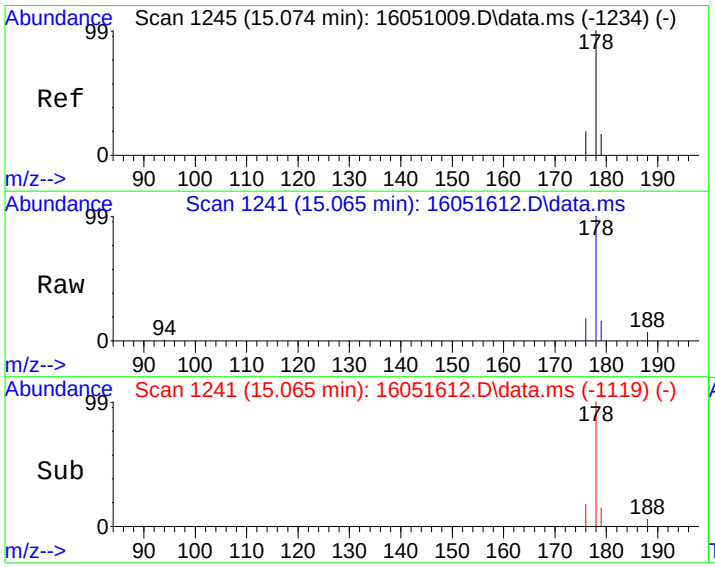


#12
Phenanthrene
Concen: 222.51 ug/kg
RT: 15.023 min Scan# 1221
Delta R.T. 0.007 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:178 Resp: 188269

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	36.4
176	18.2	0.0	39.2

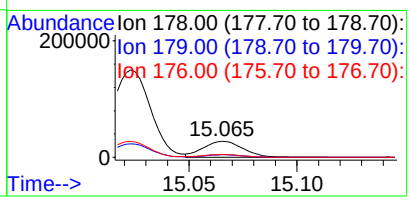


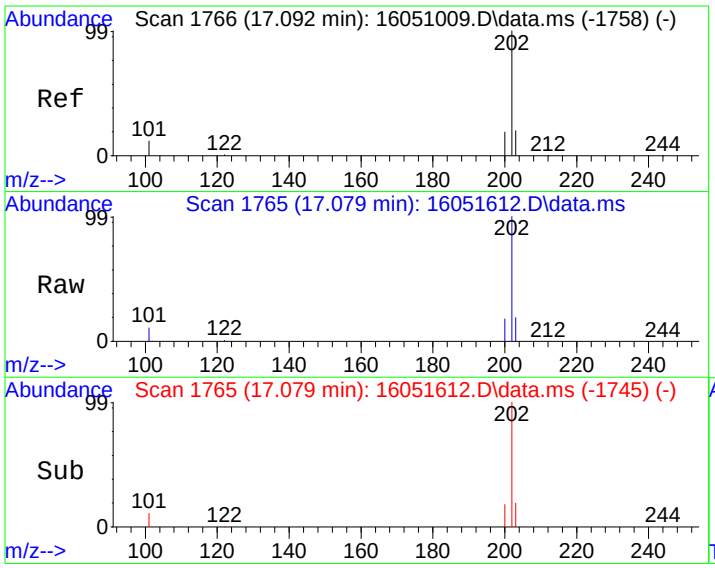


#13
Anthracene
Concen: 38.05 ug/kg
RT: 15.065 min Scan# 1241
Delta R.T. 0.007 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:178 Resp: 34876

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	36.5
176	17.6	0.0	38.6

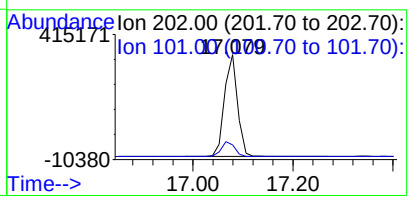


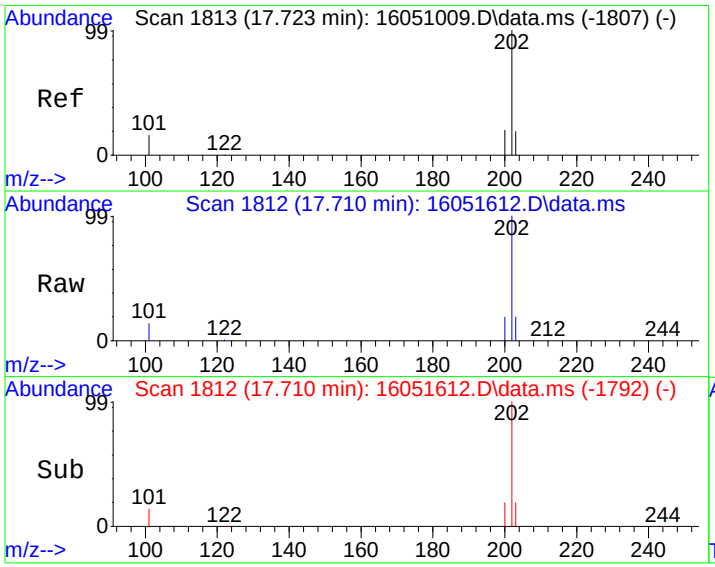


#14
Fluoranthene
Concen: 560.68 ug/kg
RT: 17.079 min Scan# 1765
Delta R.T. 0.014 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:202 Resp: 620839

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	32.0

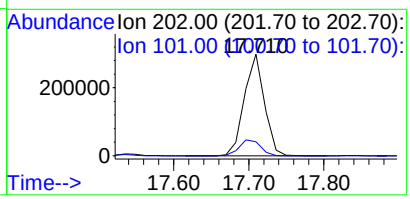


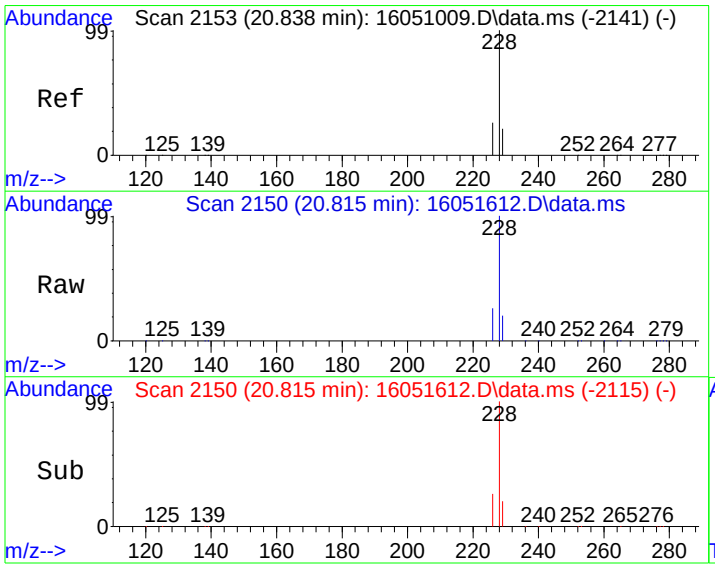


#15
Pyrene
Concen: 497.05 ug/kg
RT: 17.710 min Scan# 1812
Delta R.T. 0.014 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:202 Resp: 552037

Ion	Ratio	Lower	Upper
202	100		
101	13.8	0.0	35.9

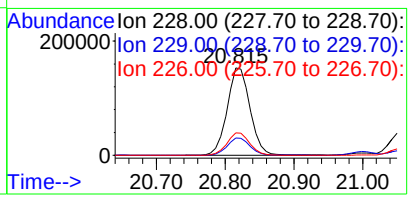


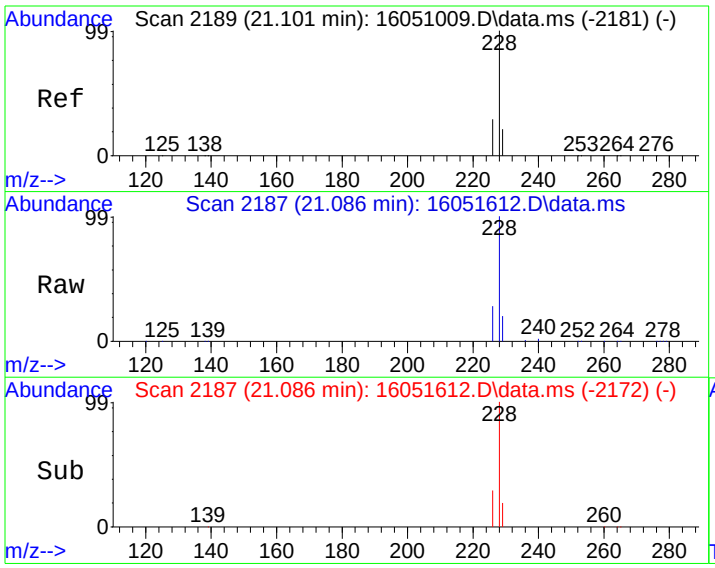


#18
Benzo[a]anthracene
Concen: 422.65 ug/kg
RT: 20.815 min Scan# 2150
Delta R.T. 0.009 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:228 Resp: 352711

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.7	40.7
226	25.8	5.9	45.9

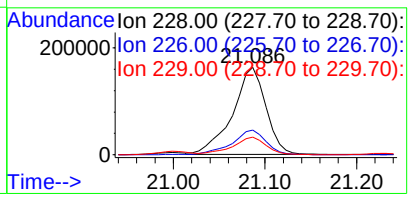


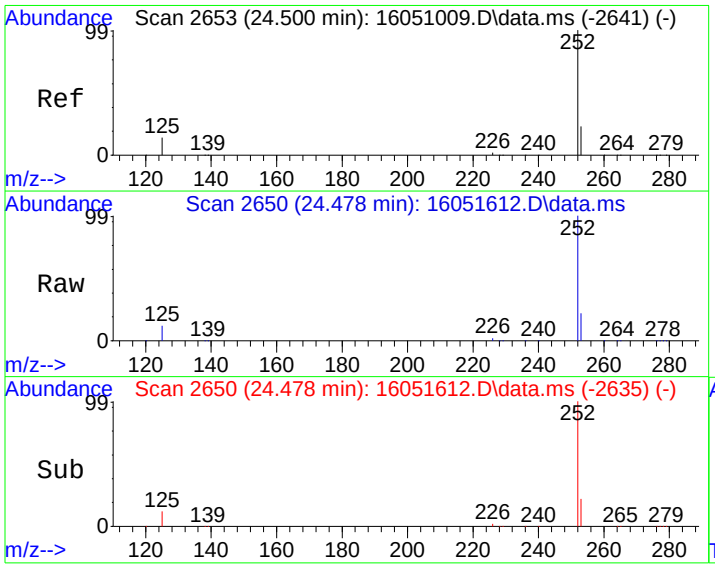


#19
Chrysene
Concen: 536.65 ug/kg
RT: 21.086 min Scan# 2187
Delta R.T. 0.009 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:228 Resp: 409972

Ion	Ratio	Lower	Upper
228	100		
226	28.3	8.8	48.8
229	20.0	0.5	40.5

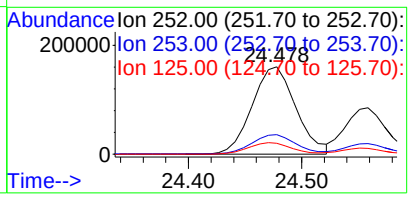


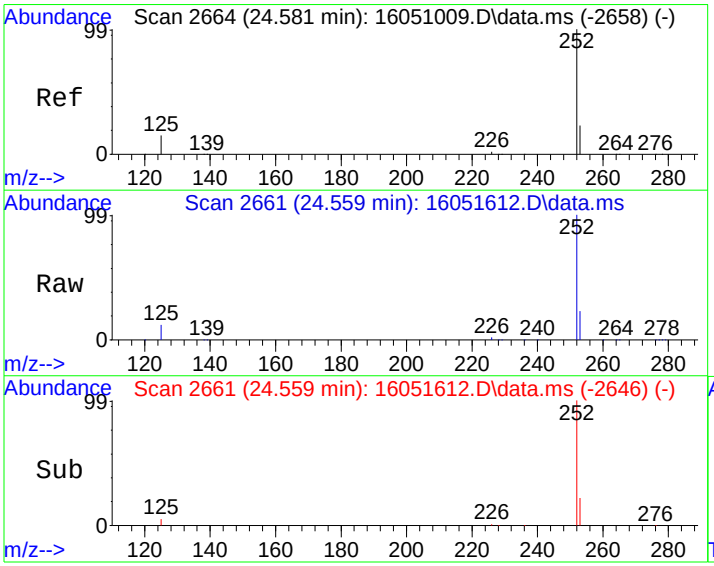


#21
Benzo[b]fluoranthene
Concen: 575.52 ug/kg
RT: 24.478 min Scan# 2650
Delta R.T. 0.009 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:252 Resp: 430438

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.6	42.6
125	12.3	0.0	33.8

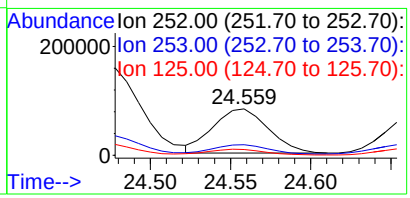


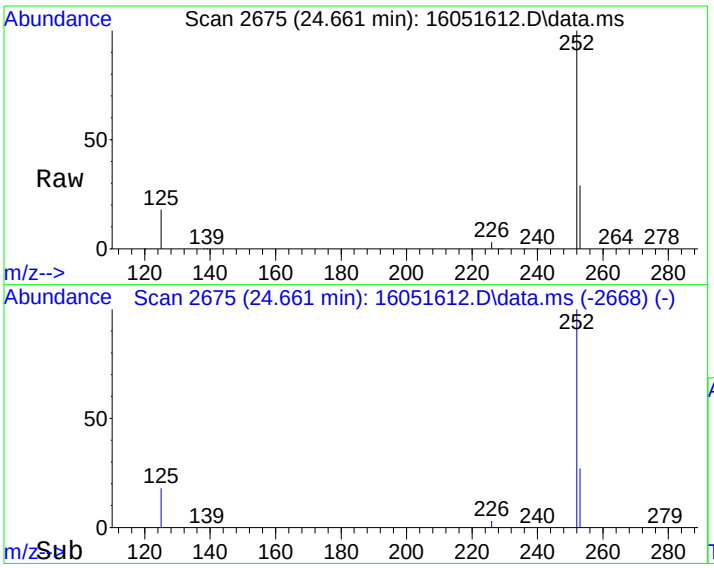


#22
Benzo[k]fluoranthene
Concen: 326.83 ug/kg
RT: 24.559 min Scan# 2661
Delta R.T. 0.009 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:252 Resp: 196057

Ion	Ratio	Lower	Upper
252	100		
253	21.3	2.8	42.8
125	12.1	0.0	34.7

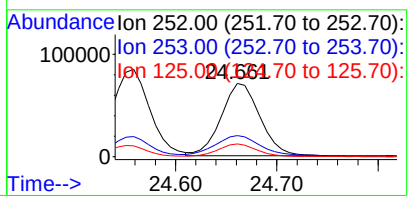


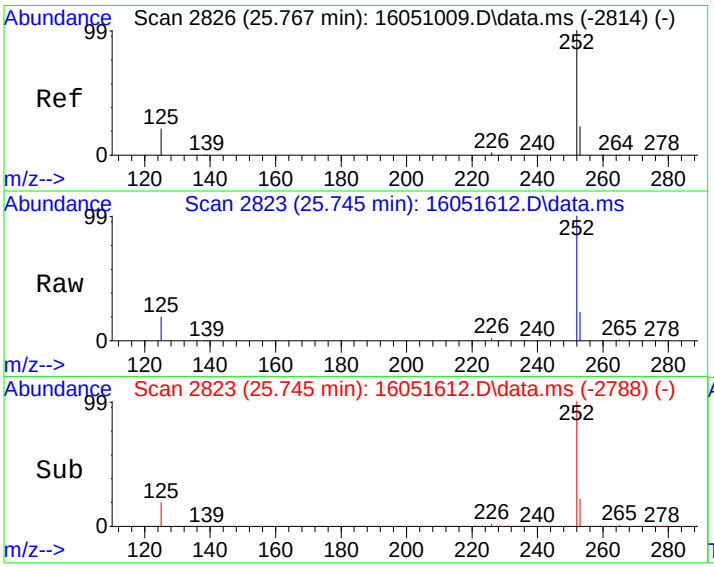


#23
Benzo(j)fluoranthene
Concen: 309.32 ug/kg
RT: 24.661 min Scan# 2675
Delta R.T. 0.002 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:252 Resp: 187549

Ion	Ratio	Lower	Upper
252	100		
253	31.9	2.3	42.3
125	17.2	0.0	39.2

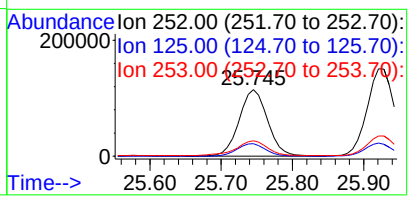


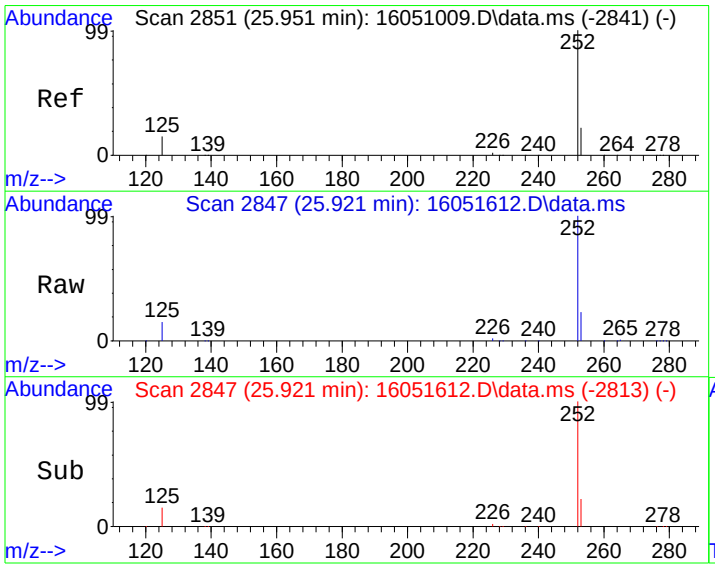


#24
Benzo(e)pyrene
Concen: 441.34 ug/kg
RT: 25.745 min Scan# 2823
Delta R.T. 0.009 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:252 Resp: 316816

Ion	Ratio	Lower	Upper
252	100		
125	18.8	0.8	40.8
253	24.6	2.4	42.4

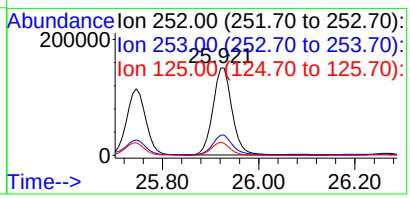


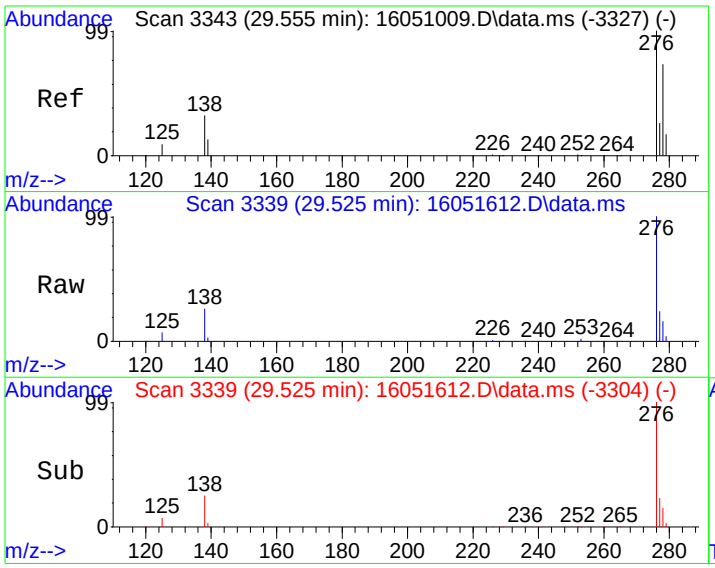


#25
Benzo[a]pyrene
Concen: 606.63 ug/kg
RT: 25.921 min Scan# 2847
Delta R.T. 0.002 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:252 Resp: 417003

Ion	Ratio	Lower	Upper
252	100		
253	22.5	2.5	42.5
125	14.9	0.0	35.5

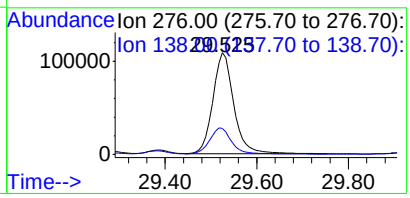


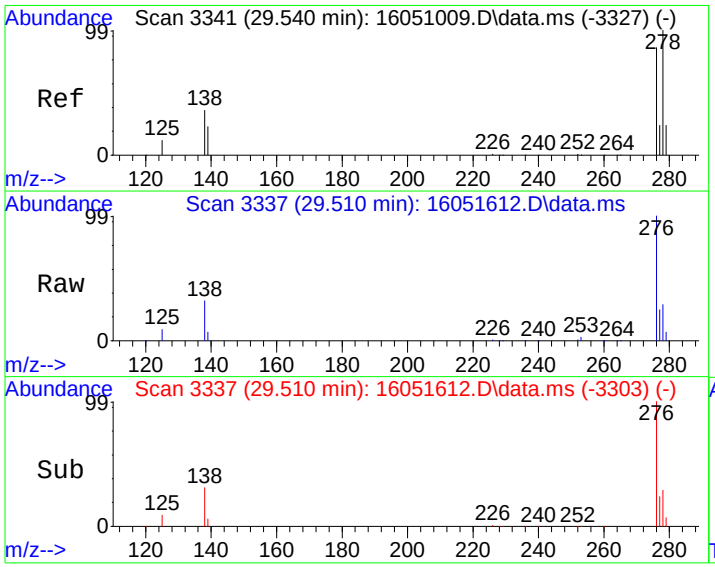


#26
Indeno[1,2,3-cd]pyrene
Concen: 449.12 ug/kg
RT: 29.525 min Scan# 3339
Delta R.T. 0.009 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:276 Resp: 342034

Ion	Ratio	Lower	Upper
276	100		
138	25.3	12.0	52.0

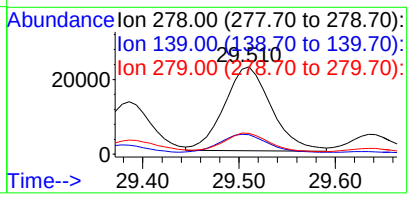


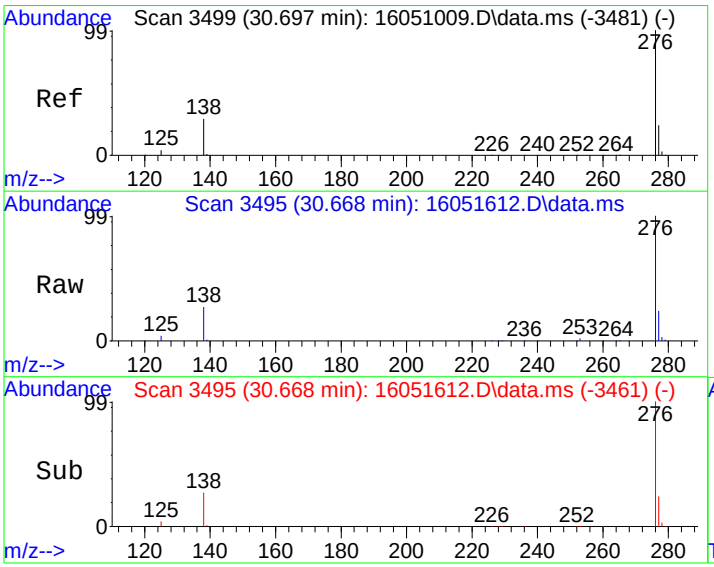


#27
Dibenz[a,h]anthracene
Concen: 123.88 ug/kg
RT: 29.510 min Scan# 3337
Delta R.T. 0.002 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:278 Resp: 76913

Ion	Ratio	Lower	Upper
278	100		
139	21.6	2.9	42.9
279	22.7	4.4	44.4

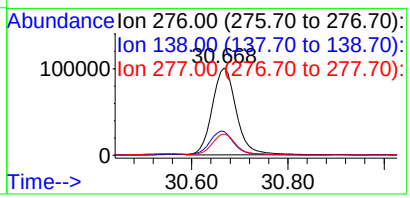




#28
Benzo[g,h,i]perylene
Concen: 524.72 ug/kg
RT: 30.668 min Scan# 3495
Delta R.T. 0.002 min
Lab File: 16051612.D
Acq: 16 May 2016 7:52 pm

Tgt Ion:276 Resp: 348691

Ion	Ratio	Lower	Upper
276	100		
138	26.7	9.3	49.3
277	23.9	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051613.D
Acq On : 16 May 2016 8:29 pm
Operator :
Sample : 1605096-13A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: May 17 08:37:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.277	136	1749710	4000.00	ug/kg	112
6) Acenaphthene-d10	12.865	164	1199972	4000.00	ug/kg	123
11) Phenanthrene-d10	14.986	188	2950434	4000.00	ug/kg	95
16) Chrysene-d12	20.999	240	3089991	4000.00	ug/kg	88
20) Perylene-d12	26.266	264	2778340	4000.00	ug/kg	94

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.766	172	32228	93.72	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.34%#			
17) 4-Terphenyl-d14	17.602	244	63877	89.47	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.24%#			

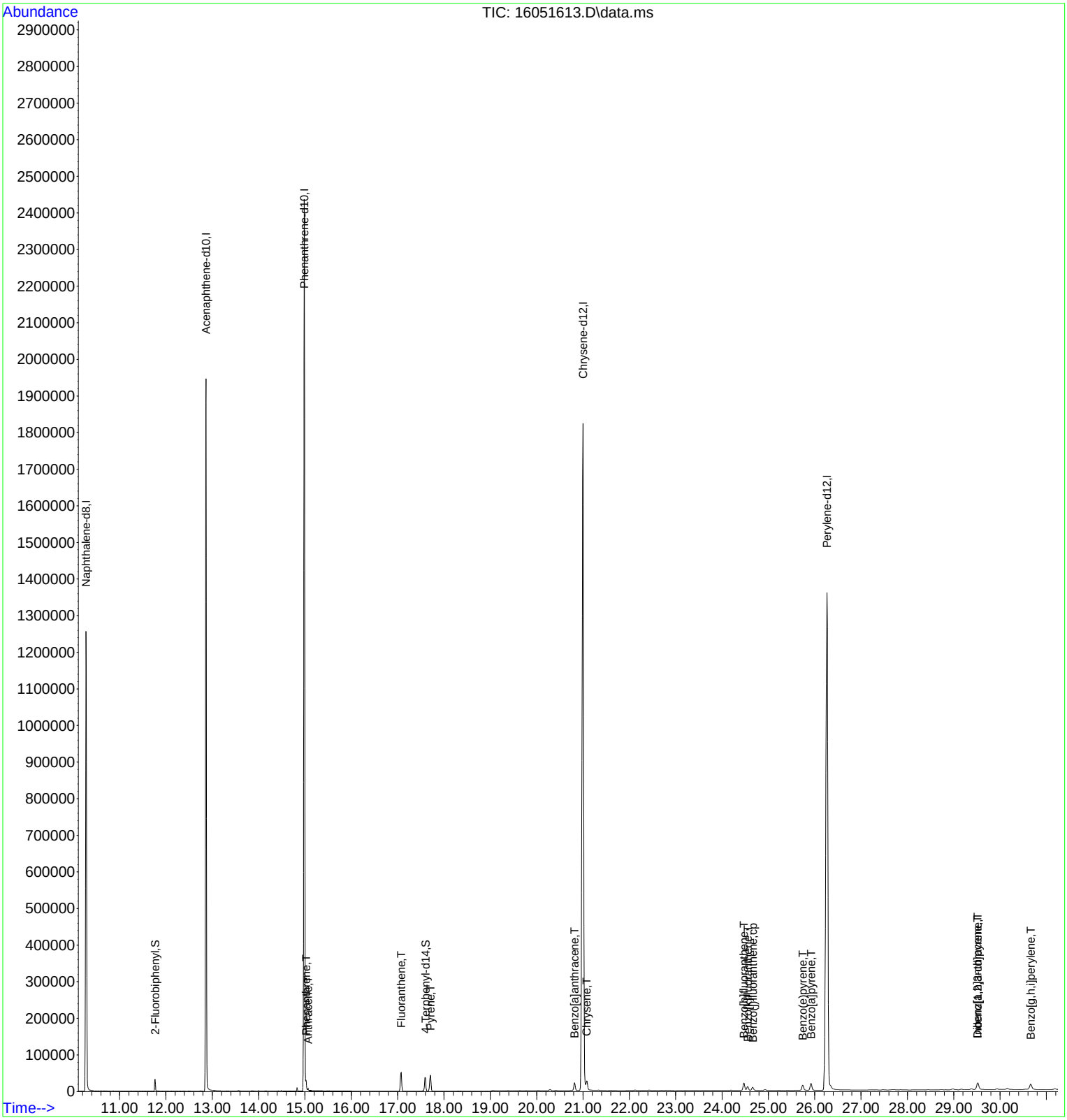
Target Compounds						Qvalue
12) Phenanthrene	15.022	178	21595	25.29	ug/kg	98
13) Anthracene	15.066	178	5619	6.07	ug/kg	96
14) Fluoranthene	17.079	202	65345	58.47	ug/kg	95
15) Pyrene	17.709	202	56719	50.60	ug/kg	93
18) Benzo[a]anthracene	20.816	228	33587	38.67	ug/kg	99
19) Chrysene	21.087	228	39969	50.27	ug/kg	99
21) Benzo[b]fluoranthene	24.471	252	40341	50.98	ug/kg	97
22) Benzo[k]fluoranthene	24.552	252	19686	31.02	ug/kg	95
23) Benzo(j)fluoranthene	24.661	252	16460	25.66	ug/kg	89
24) Benzo(e)pyrene	25.746	252	28400	37.40	ug/kg	94
25) Benzo[a]pyrene	25.921	252	38193	52.52	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.518	276	33036	41.00	ug/kg	90
27) Dibenz[a,h]anthracene	29.503	278	10450	15.91	ug/kg	97
28) Benzo[g,h,i]perylene	30.661	276	34458	49.01	ug/kg	99

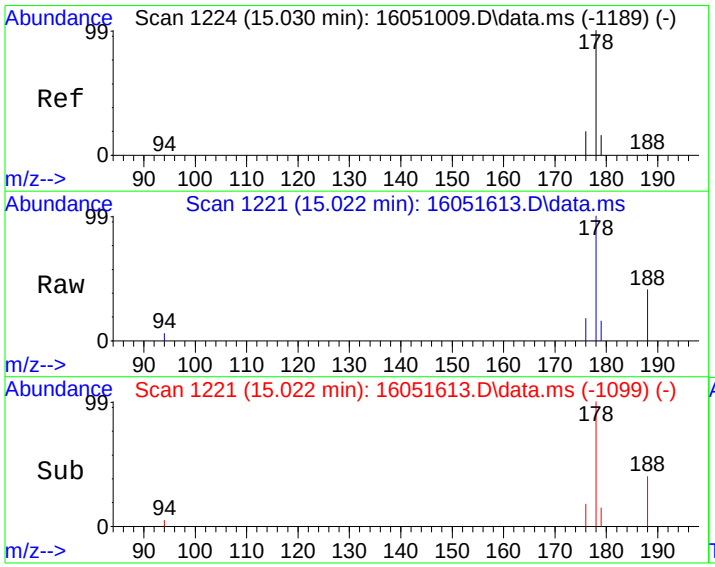
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051613.D
Acq On : 16 May 2016 8:29 pm
Operator :
Sample : 1605096-13A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: May 17 08:37:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

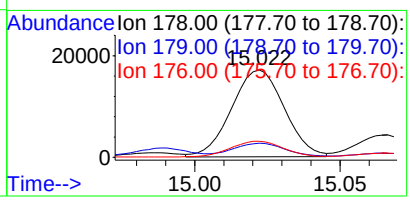


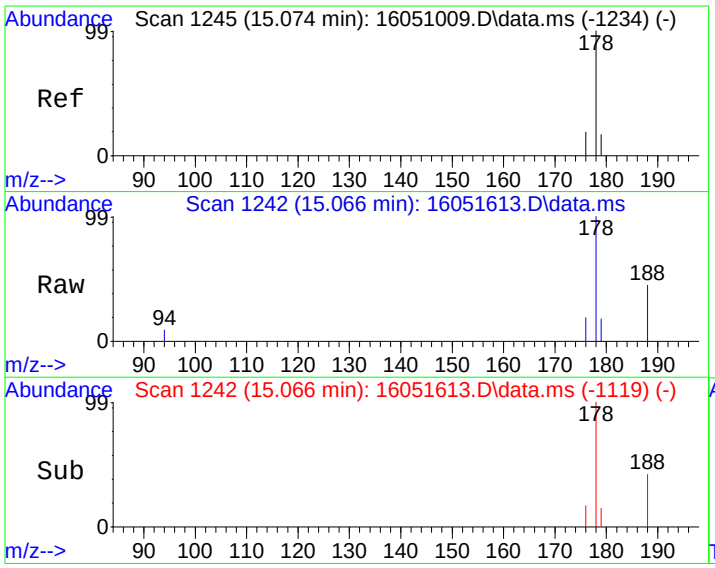


#12
Phenanthrene
Concen: 25.29 ug/kg
RT: 15.022 min Scan# 1221
Delta R.T. 0.006 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:178 Resp: 21595

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	36.4
176	18.3	0.0	39.2

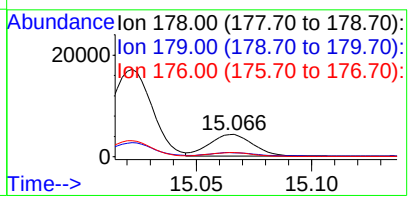


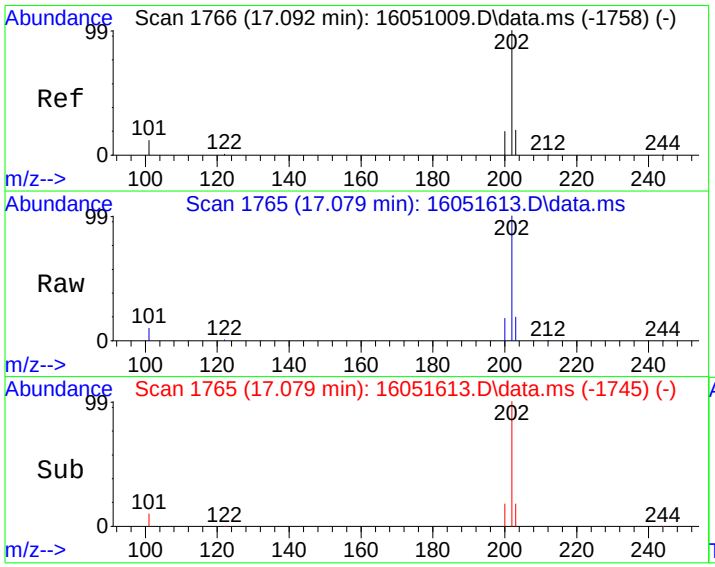


#13
Anthracene
Concen: 6.07 ug/kg
RT: 15.066 min Scan# 1242
Delta R.T. 0.008 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:178 Resp: 5619

Ion	Ratio	Lower	Upper
178	100		
179	14.6	0.0	36.5
176	17.1	0.0	38.6

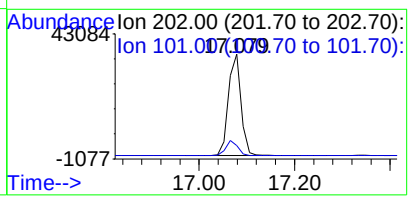


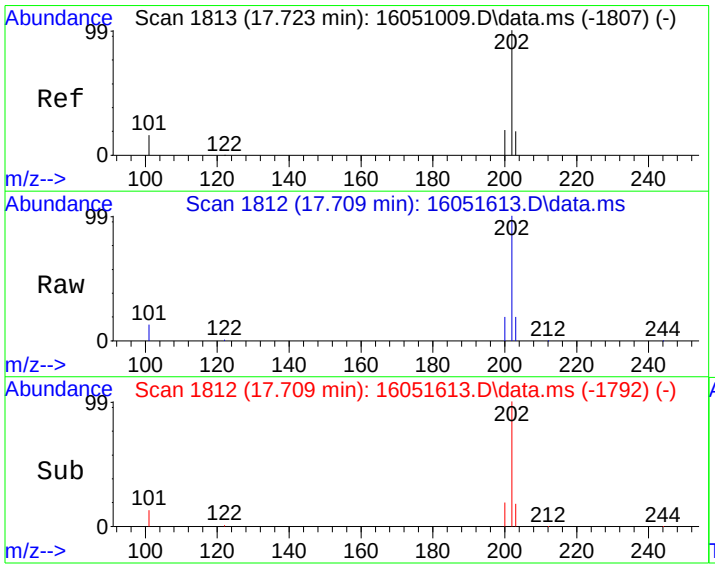


#14
Fluoranthene
Concen: 58.47 ug/kg
RT: 17.079 min Scan# 1765
Delta R.T. 0.014 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:202 Resp: 65345

Ion	Ratio	Lower	Upper
202	100		
101	9.9	0.0	32.0

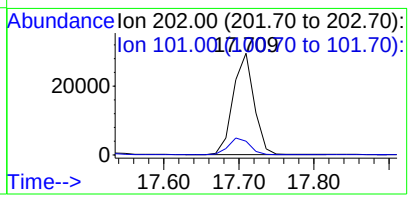


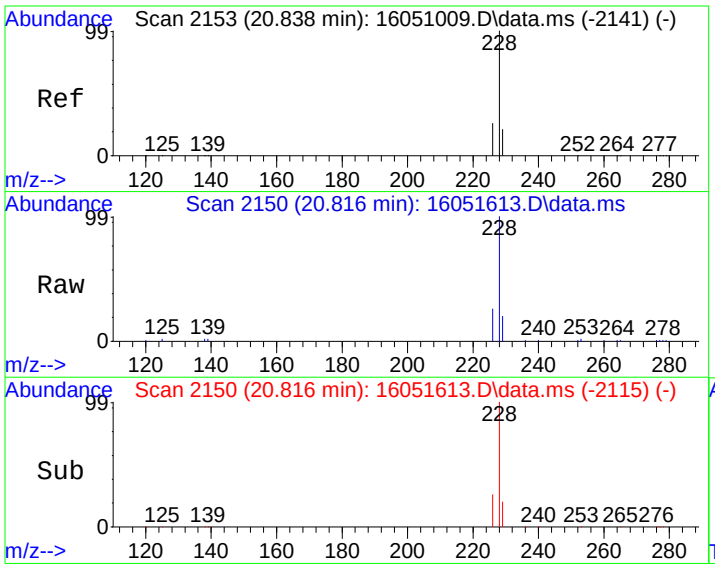


#15
Pyrene
Concen: 50.60 ug/kg
RT: 17.709 min Scan# 1812
Delta R.T. 0.014 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:202 Resp: 56719

Ion	Ratio	Lower	Upper
202	100		
101	13.1	0.0	35.9

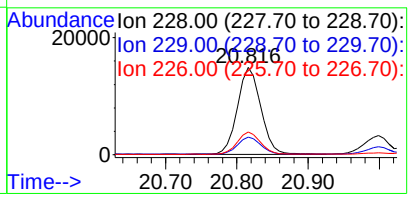


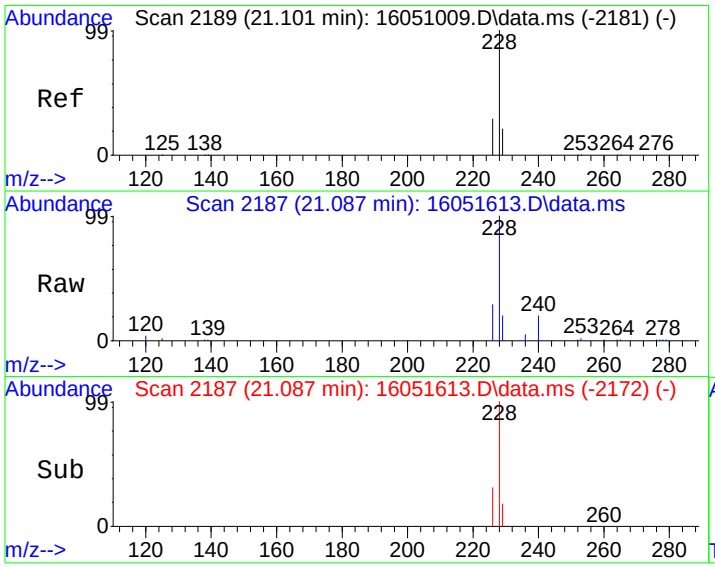


#18
Benzo[a]anthracene
Concen: 38.67 ug/kg
RT: 20.816 min Scan# 2150
Delta R.T. 0.009 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:228 Resp: 33587

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.7	40.7
226	25.8	5.9	45.9

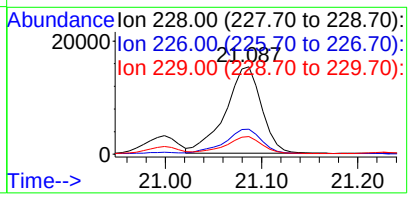


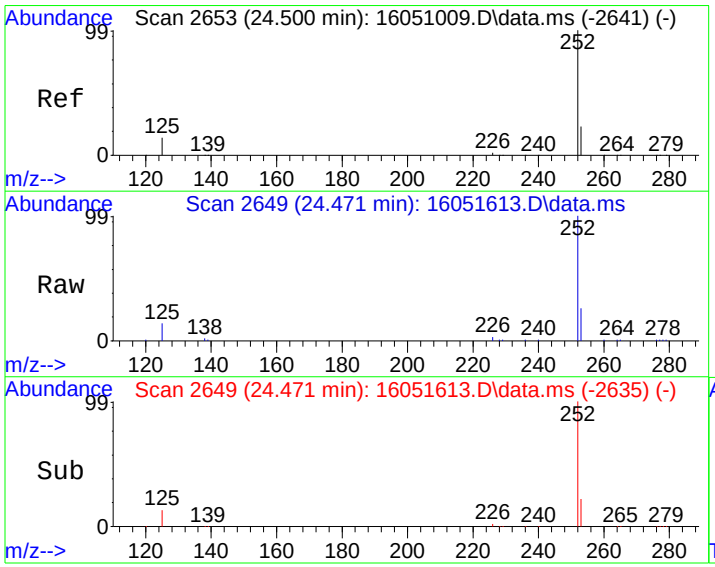


#19
Chrysene
Concen: 50.27 ug/kg
RT: 21.087 min Scan# 2187
Delta R.T. 0.009 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:228 Resp: 39969

Ion	Ratio	Lower	Upper
228	100		
226	28.2	8.8	48.8
229	19.6	0.5	40.5

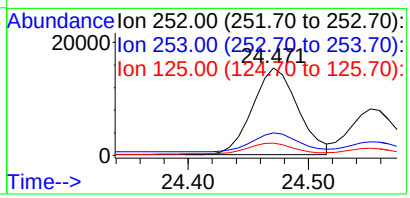


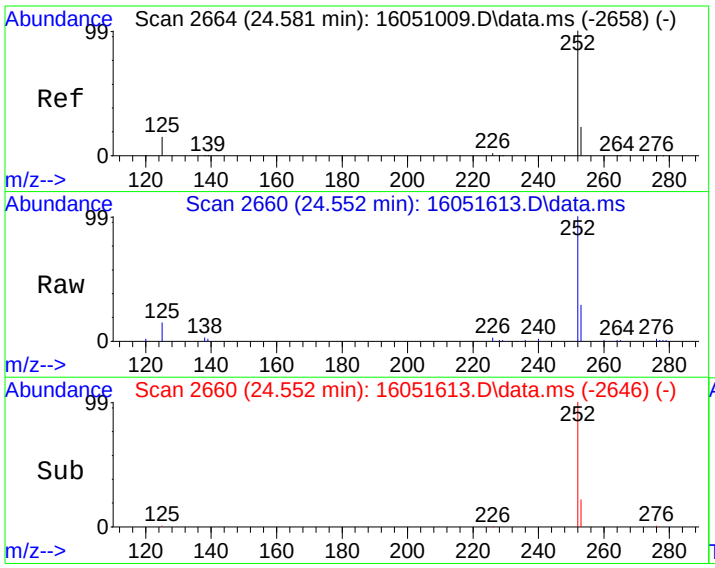


#21
Benzo[b]fluoranthene
Concen: 50.98 ug/kg
RT: 24.471 min Scan# 2649
Delta R.T. 0.002 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:252 Resp: 40341

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.6	42.6
125	12.4	0.0	33.8

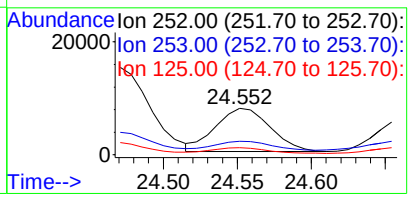


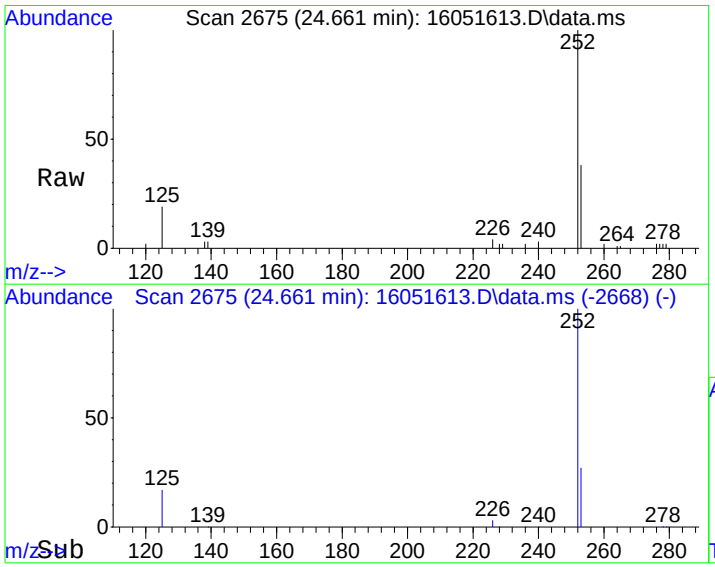


#22
Benzo[k]fluoranthene
Concen: 31.02 ug/kg
RT: 24.552 min Scan# 2660
Delta R.T. 0.002 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:252 Resp: 19686

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.8	42.8
125	13.0	0.0	34.7

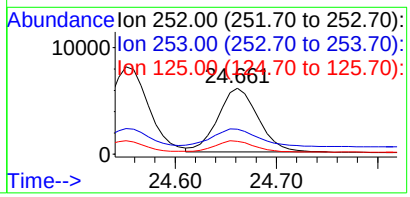


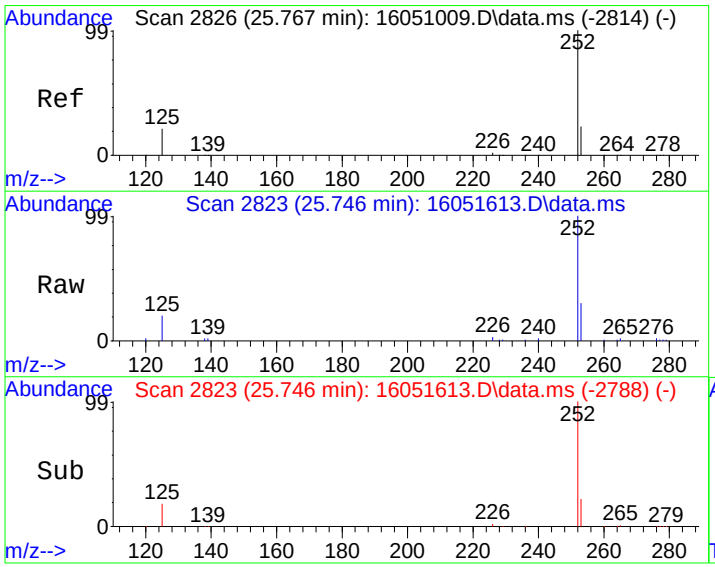


#23
Benzo(j)fluoranthene
Concen: 25.66 ug/kg
RT: 24.661 min Scan# 2675
Delta R.T. 0.002 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:252 Resp: 16460

Ion	Ratio	Lower	Upper
252	100		
253	30.7	2.3	42.3
125	17.2	0.0	39.2

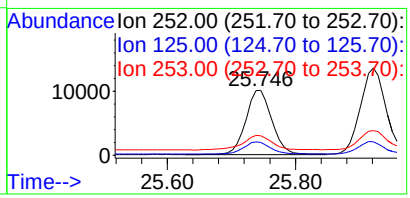


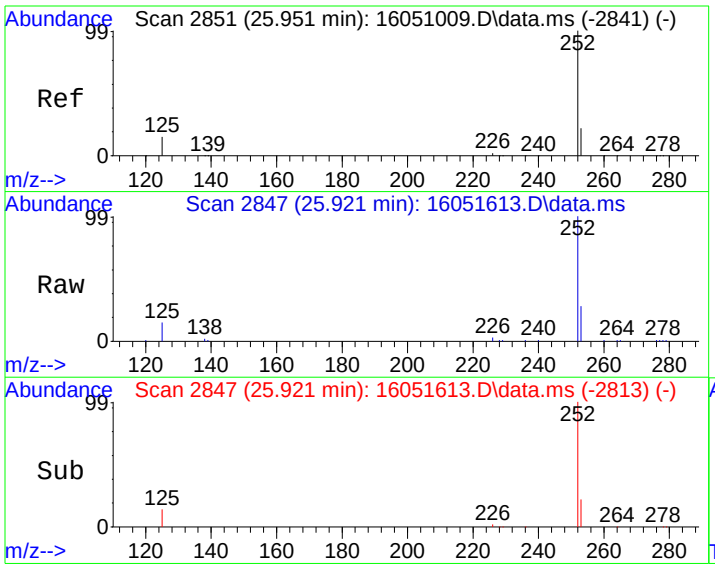


#24
Benzo(e)pyrene
Concen: 37.40 ug/kg
RT: 25.746 min Scan# 2823
Delta R.T. 0.009 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:252 Resp: 28400

Ion	Ratio	Lower	Upper
252	100		
125	19.0	0.8	40.8
253	26.4	2.4	42.4

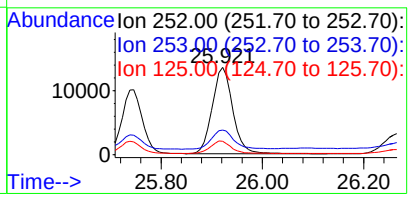


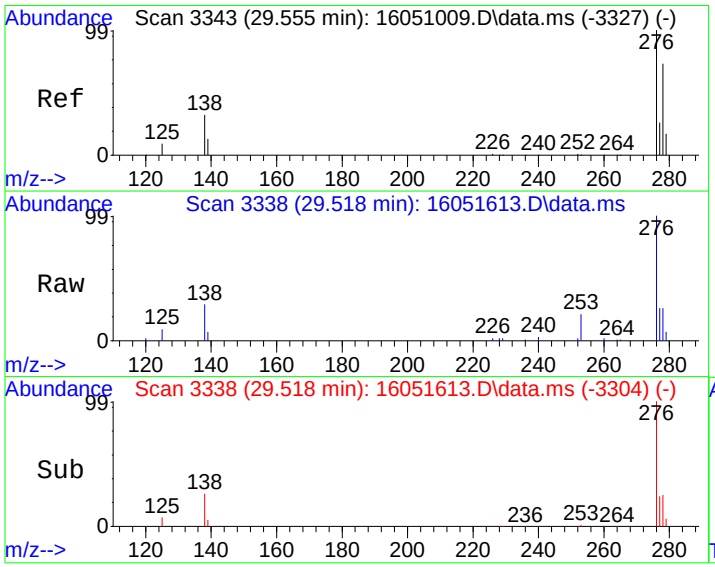


#25
Benzo[a]pyrene
Concen: 52.52 ug/kg
RT: 25.921 min Scan# 2847
Delta R.T. 0.002 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:252 Resp: 38193

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.5	42.5
125	14.0	0.0	35.5

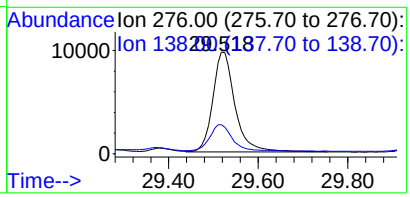


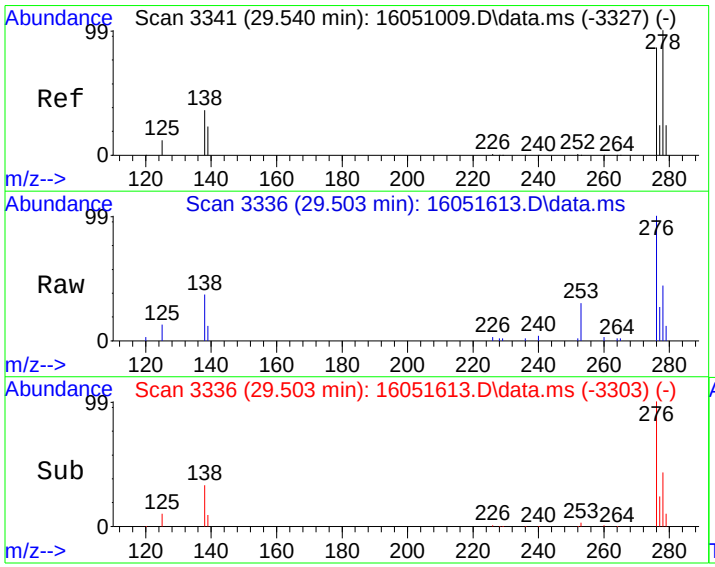


#26
Indeno[1,2,3-cd]pyrene
Concen: 41.00 ug/kg
RT: 29.518 min Scan# 3338
Delta R.T. 0.002 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:276 Resp: 33036

Ion	Ratio	Lower	Upper
276	100		
138	26.5	12.0	52.0

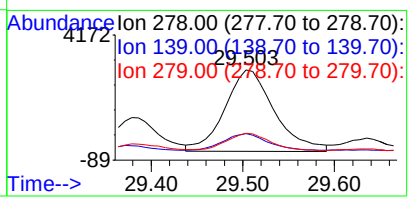


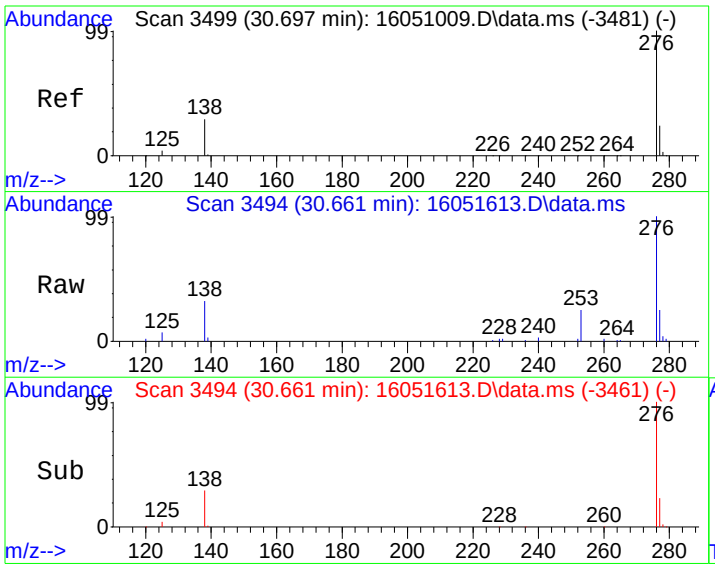


#27
Dibenz[a,h]anthracene
Concen: 15.91 ug/kg
RT: 29.503 min Scan# 3336
Delta R.T. -0.005 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:278 Resp: 10450

Ion	Ratio	Lower	Upper
278	100		
139	22.0	2.9	42.9
279	22.7	4.4	44.4

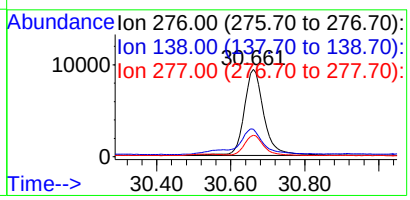




#28
Benzo[g,h,i]perylene
Concen: 49.01 ug/kg
RT: 30.661 min Scan# 3494
Delta R.T. -0.005 min
Lab File: 16051613.D
Acq: 16 May 2016 8:29 pm

Tgt Ion:276 Resp: 34458

Ion	Ratio	Lower	Upper
276	100		
138	29.0	9.3	49.3
277	23.4	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051614.D
Acq On : 16 May 2016 9:05 pm
Operator :
Sample : 1605096-22A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: May 17 08:37:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
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6) Acenaphthene-d10	12.862	164	1219789	4000.00	ug/kg	125
11) Phenanthrene-d10	14.985	188	2960087	4000.00	ug/kg	95
16) Chrysene-d12	20.999	240	2960915	4000.00	ug/kg	85
20) Perylene-d12	26.265	264	2657582	4000.00	ug/kg	90

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	34918	103.31	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.58%#		
17) 4-Terphenyl-d14	17.601	244	65595	95.88	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.40%#		

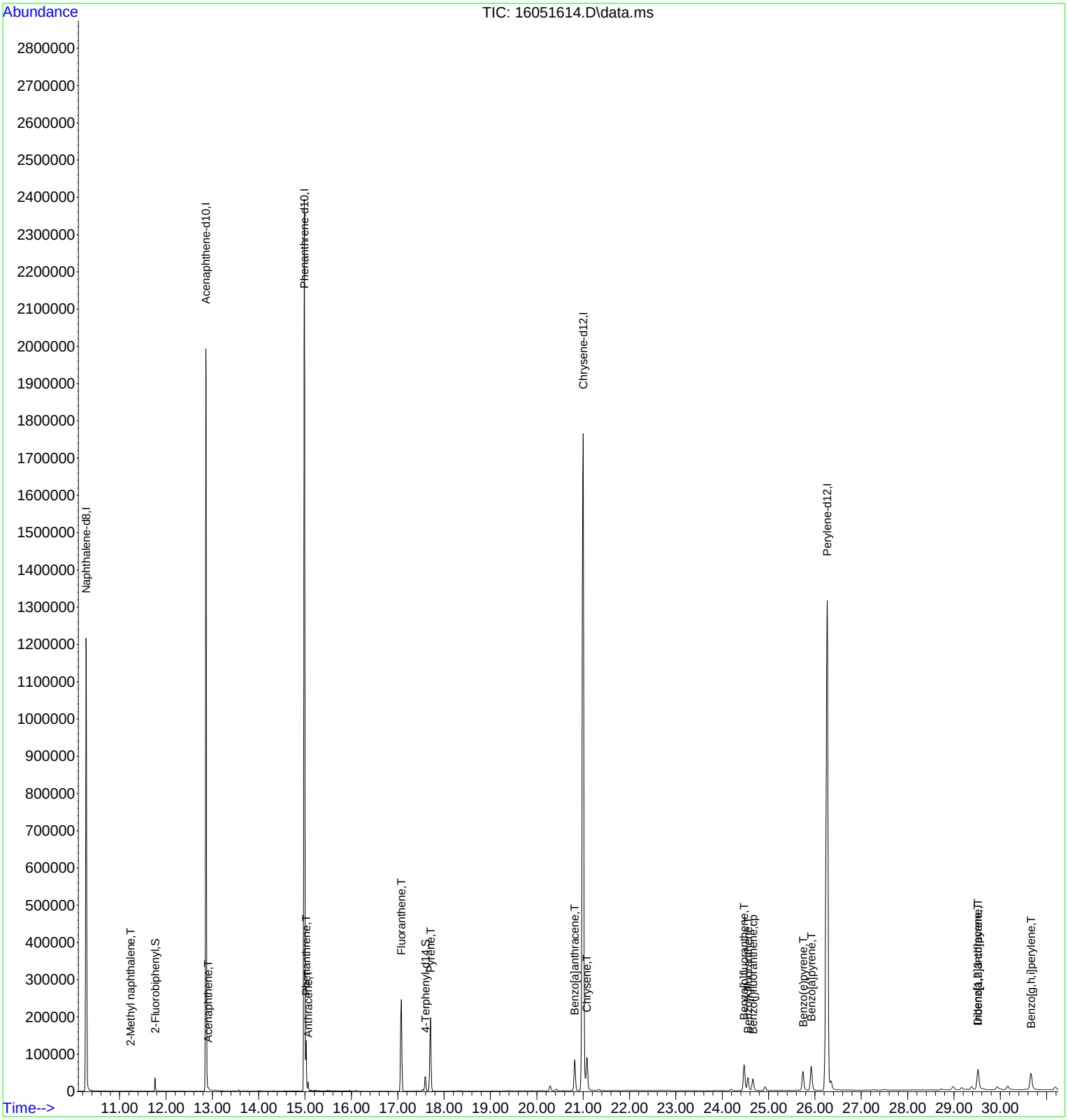
Target Compounds						Qvalue
3) 2-Methyl naphthalene	11.234	142	553	5.35	ug/kg	97
8) Acenaphthene	12.916	153	2152	5.93	ug/kg	99
12) Phenanthrene	15.021	178	120813	141.02	ug/kg	97
13) Anthracene	15.066	178	22447	24.18	ug/kg	97
14) Fluoranthene	17.078	202	297010	264.91	ug/kg	96
15) Pyrene	17.708	202	248262	220.77	ug/kg	94
18) Benzo[a]anthracene	20.816	228	131294	157.74	ug/kg	99
19) Chrysene	21.079	228	150418	197.42	ug/kg	99
21) Benzo[b]fluoranthene	24.471	252	134842	178.16	ug/kg	98
22) Benzo[k]fluoranthene	24.551	252	62571	103.08	ug/kg	96
23) Benzo(j)fluoranthene	24.661	252	59007	96.17	ug/kg	89
24) Benzo(e)pyrene	25.745	252	99930	137.56	ug/kg	97
25) Benzo[a]pyrene	25.921	252	128359	184.53	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.518	276	96643	125.40	ug/kg	89
27) Dibenz[a,h]anthracene	29.503	278	22702	36.13	ug/kg	97
28) Benzo[g,h,i]perylene	30.661	276	97996	145.73	ug/kg	97

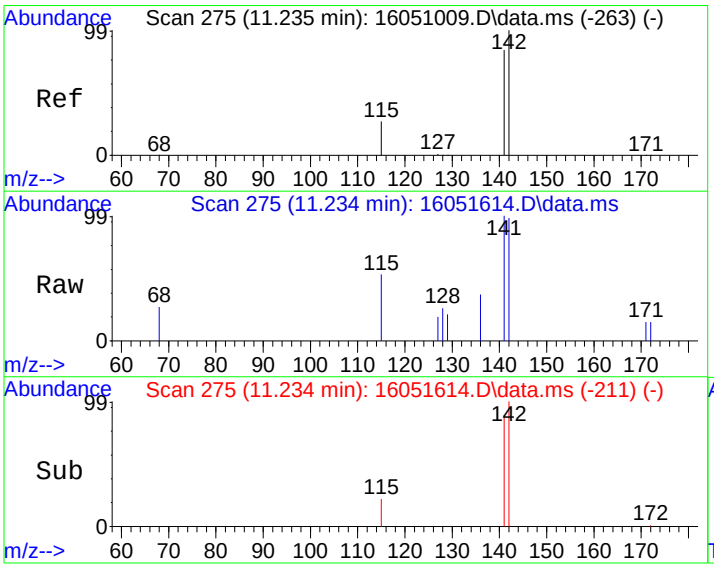
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051614.D
Acq On : 16 May 2016 9:05 pm
Operator :
Sample : 1605096-22A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: May 17 08:37:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

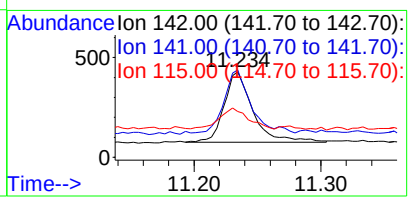


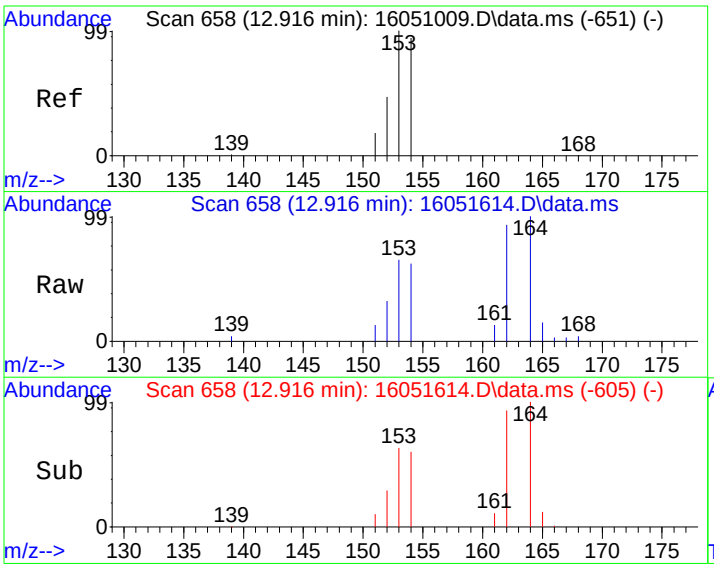


#3
2-Methyl naphthalene
Concen: 5.35 ug/kg
RT: 11.234 min Scan# 275
Delta R.T. 0.013 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:142 Resp: 553

Ion	Ratio	Lower	Upper
142	100		
141	87.8	63.9	103.9
115	26.4	6.7	46.7

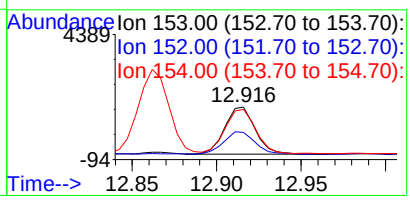


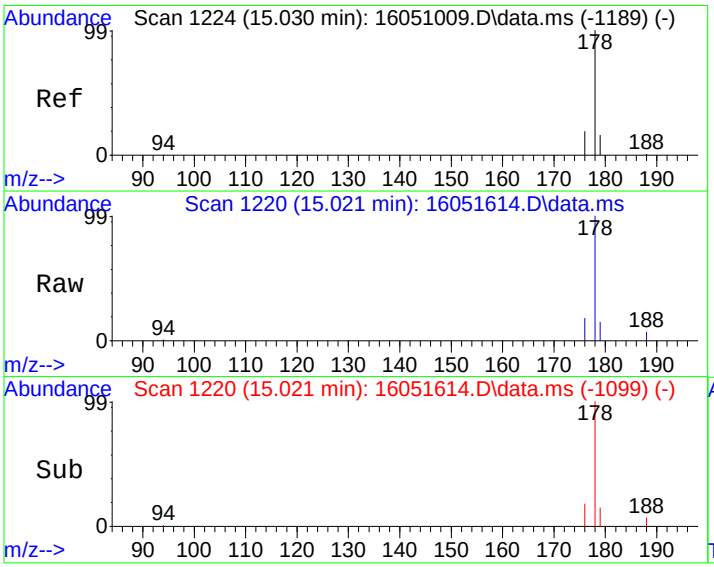


#8
Acenaphthene
Concen: 5.93 ug/kg
RT: 12.916 min Scan# 658
Delta R.T. 0.011 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:153 Resp: 2152

Ion	Ratio	Lower	Upper
153	100		
152	46.1	27.2	67.2
154	94.4	74.3	114.3

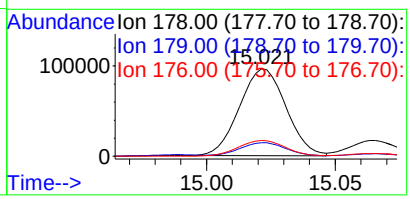


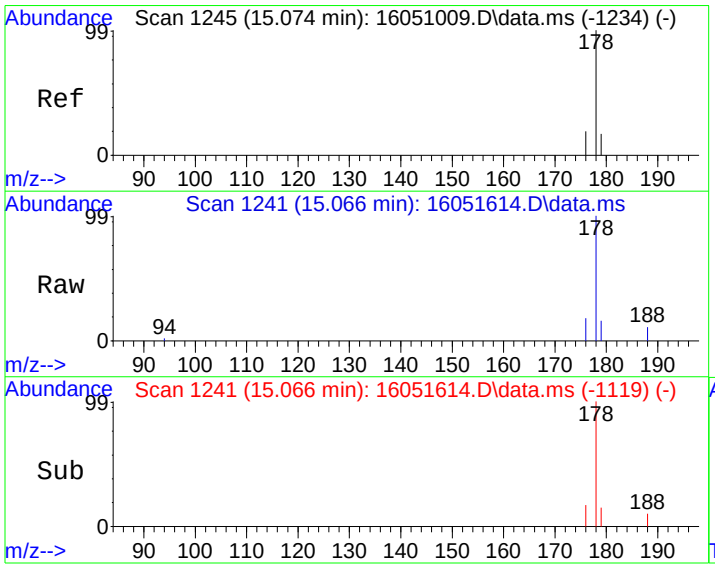


#12
Phenanthrene
Concen: 141.02 ug/kg
RT: 15.021 min Scan# 1220
Delta R.T. 0.005 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:178 Resp: 120813

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	36.4
176	18.3	0.0	39.2

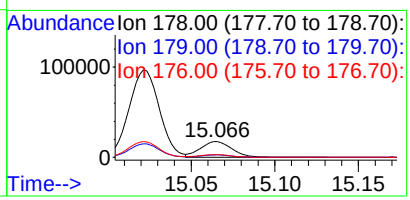


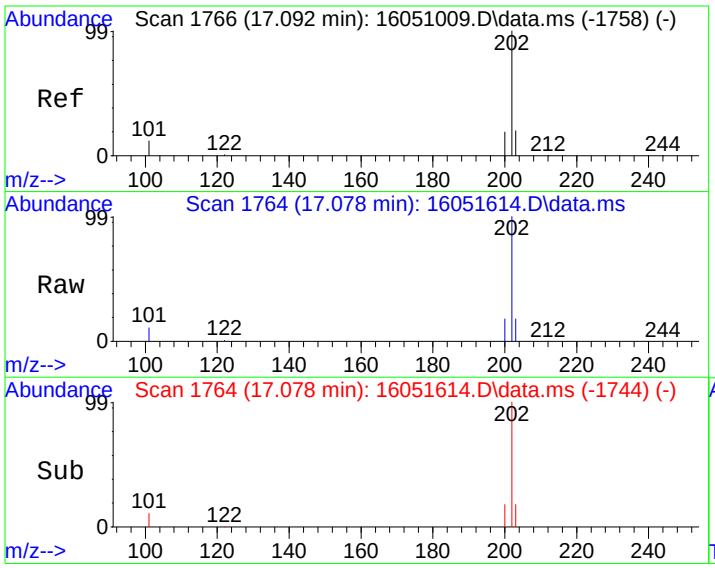


#13
Anthracene
Concen: 24.18 ug/kg
RT: 15.066 min Scan# 1241
Delta R.T. 0.007 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:178 Resp: 22447

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	36.5
176	17.3	0.0	38.6

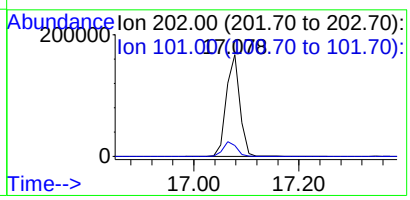


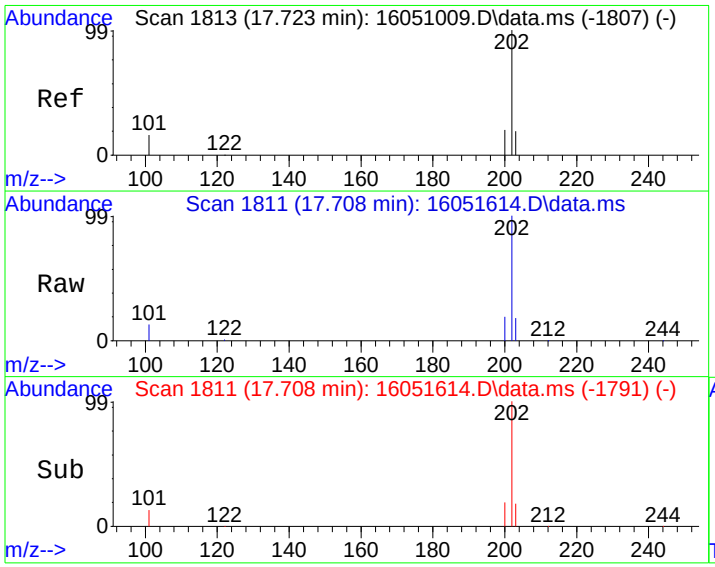


#14
Fluoranthene
Concen: 264.91 ug/kg
RT: 17.078 min Scan# 1764
Delta R.T. 0.013 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:202 Resp: 297010

Ion	Ratio	Lower	Upper
202	100		
101	10.6	0.0	32.0

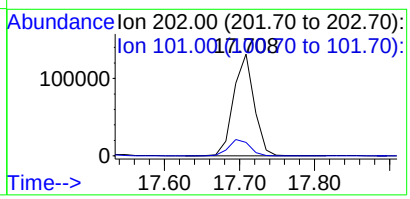


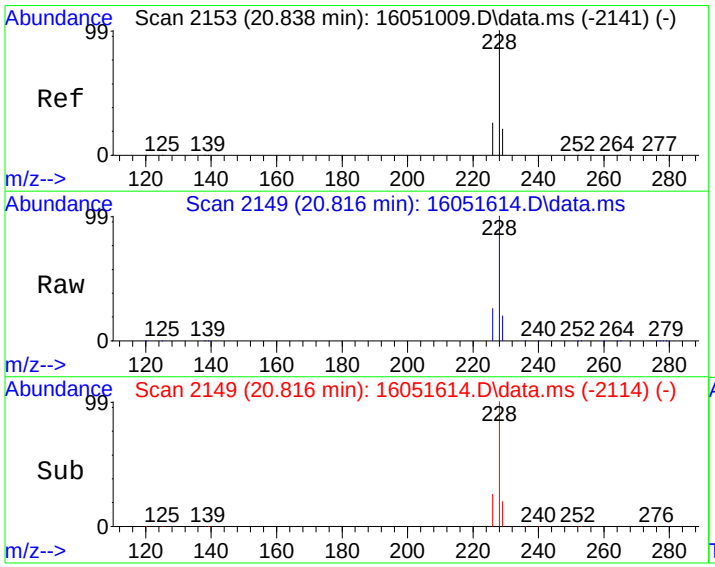


#15
Pyrene
Concen: 220.77 ug/kg
RT: 17.708 min Scan# 1811
Delta R.T. 0.013 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:202 Resp: 248262

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	35.9

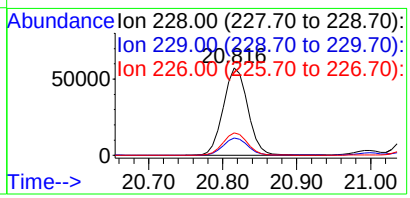


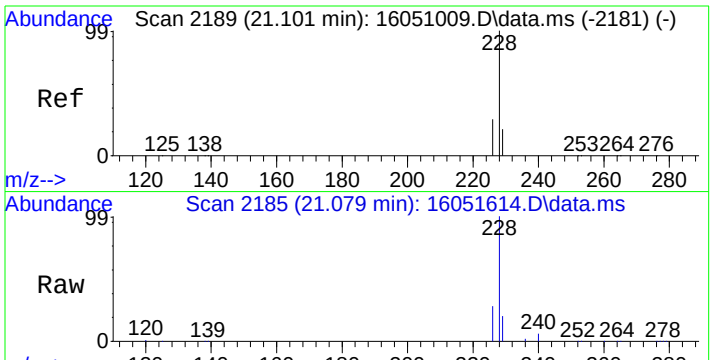


#18
Benzo[a]anthracene
Concen: 157.74 ug/kg
RT: 20.816 min Scan# 2149
Delta R.T. 0.009 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:228 Resp: 131294

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.7	40.7
226	25.7	5.9	45.9

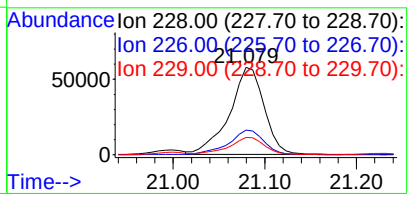


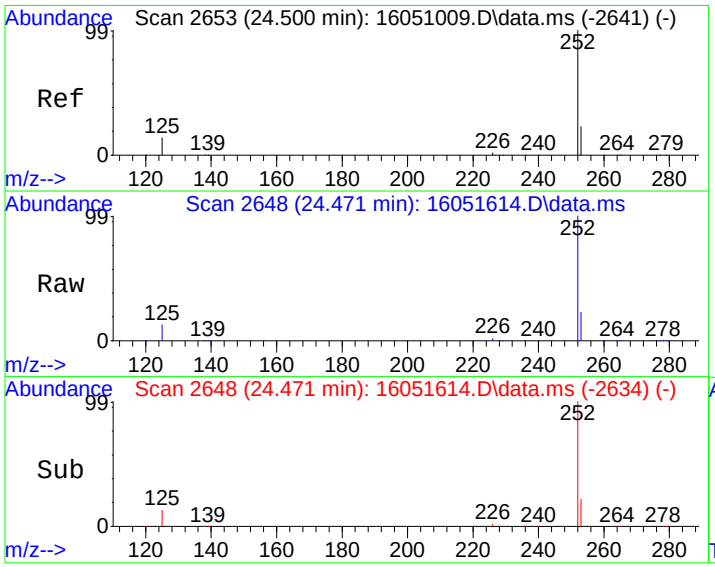


#19
Chrysene
Concen: 197.42 ug/kg
RT: 21.079 min Scan# 2185
Delta R.T. 0.002 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:228 Resp: 150418

Ion	Ratio	Lower	Upper
228	100		
226	28.3	8.8	48.8
229	19.7	0.5	40.5

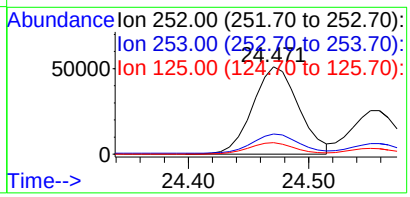


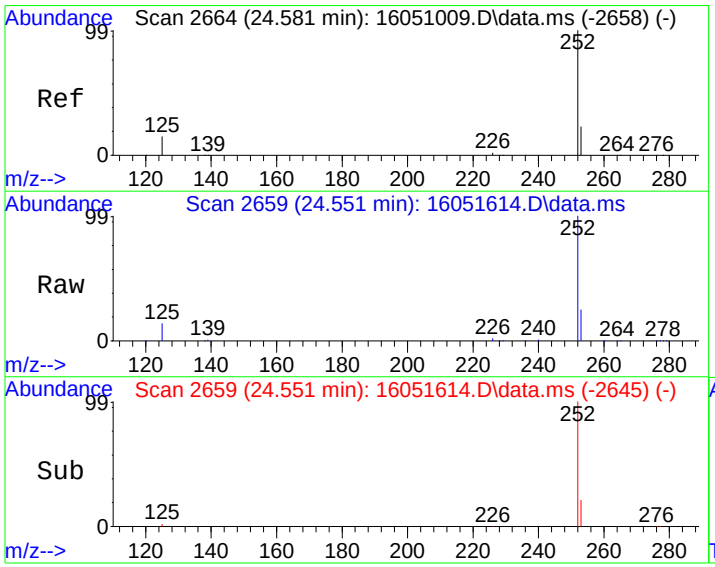


#21
Benzo[b]fluoranthene
Concen: 178.16 ug/kg
RT: 24.471 min Scan# 2648
Delta R.T. 0.002 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:252 Resp: 134842

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.6	42.6
125	13.0	0.0	33.8

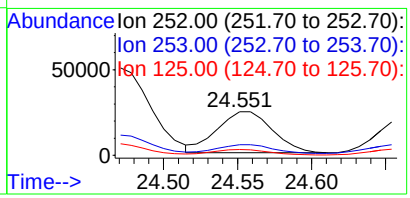


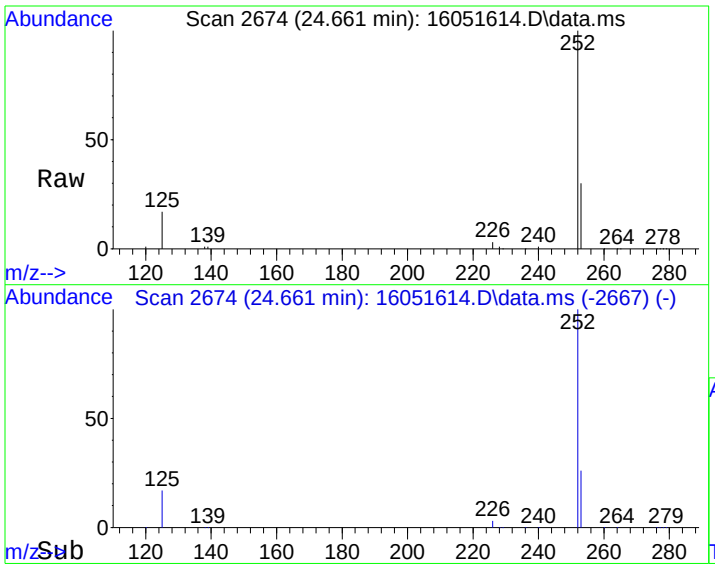


#22
Benzo[k]fluoranthene
Concen: 103.08 ug/kg
RT: 24.551 min Scan# 2659
Delta R.T. 0.002 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:252 Resp: 62571

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.8	42.8
125	13.2	0.0	34.7

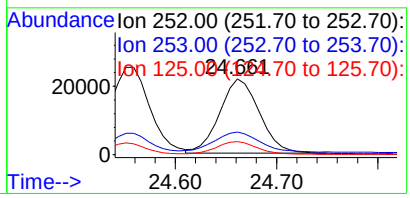


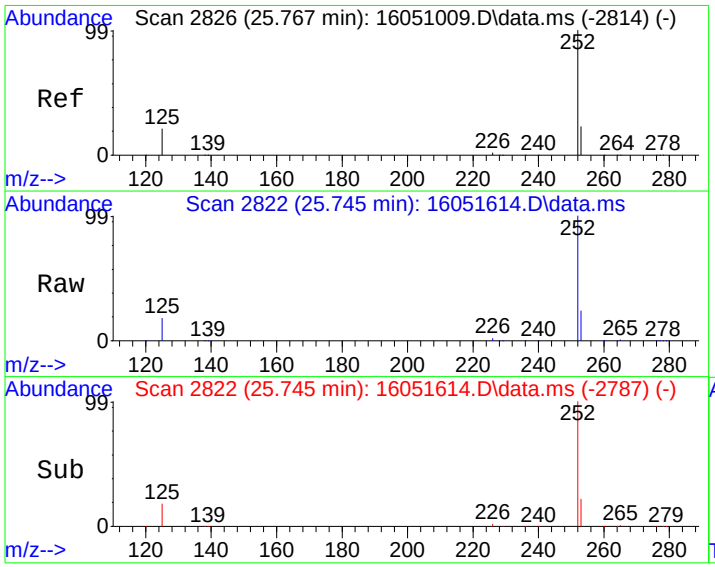


#23
Benzo(j)fluoranthene
Concen: 96.17 ug/kg
RT: 24.661 min Scan# 2674
Delta R.T. 0.002 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:252 Resp: 59007

Ion	Ratio	Lower	Upper
252	100		
253	30.5	2.3	42.3
125	17.3	0.0	39.2

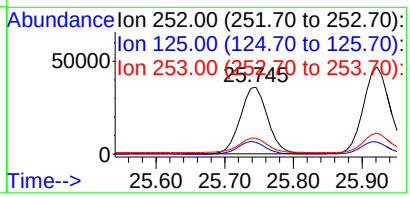


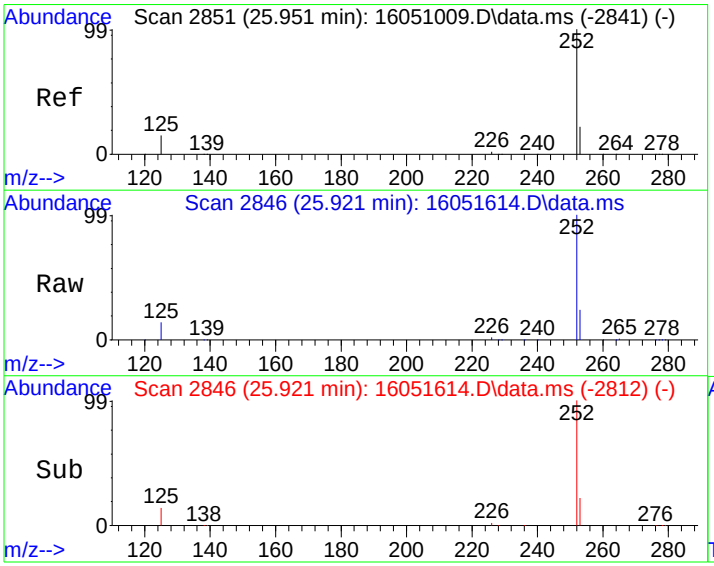


#24
Benzo(e)pyrene
Concen: 137.56 ug/kg
RT: 25.745 min Scan# 2822
Delta R.T. 0.009 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:252 Resp: 99930

Ion	Ratio	Lower	Upper
252	100		
125	18.7	0.8	40.8
253	23.5	2.4	42.4

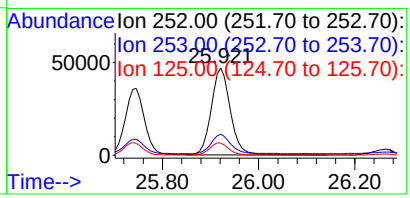


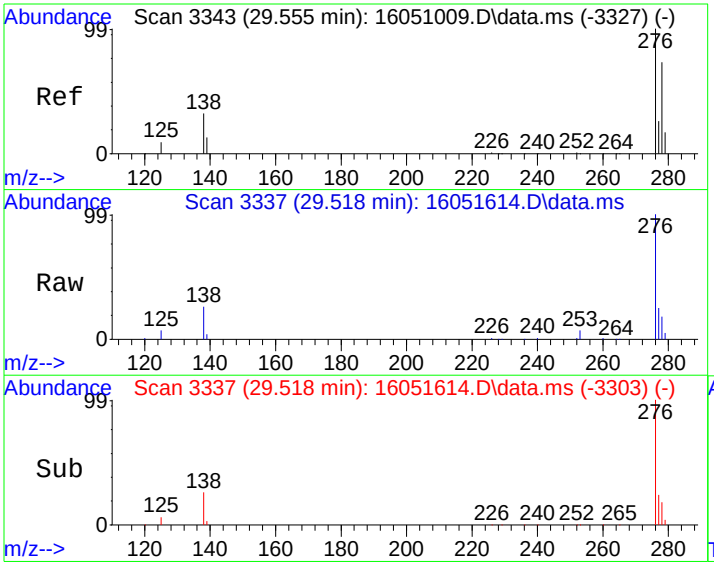


#25
Benzo[a]pyrene
Concen: 184.53 ug/kg
RT: 25.921 min Scan# 2846
Delta R.T. 0.002 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:252 Resp: 128359

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.5	42.5
125	13.9	0.0	35.5

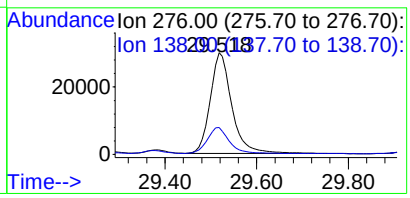


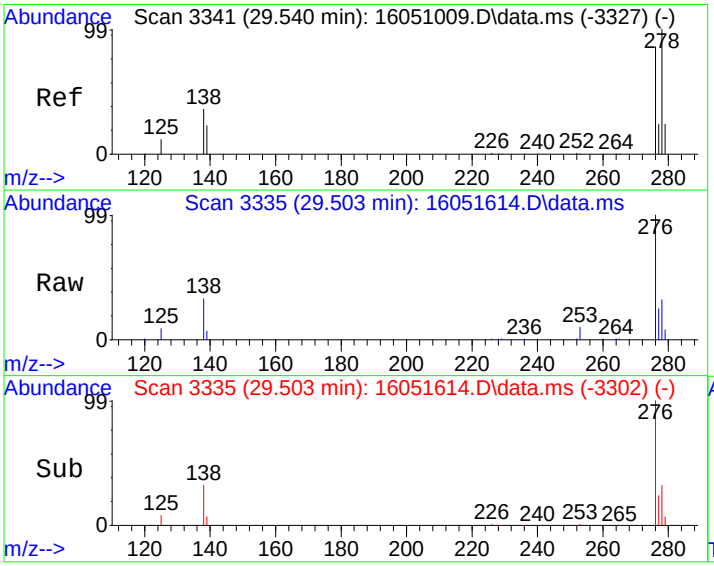


#26
Indeno[1,2,3-cd]pyrene
Concen: 125.40 ug/kg
RT: 29.518 min Scan# 3337
Delta R.T. 0.002 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:276 Resp: 96643

Ion	Ratio	Lower	Upper
276	100		
138	25.7	12.0	52.0

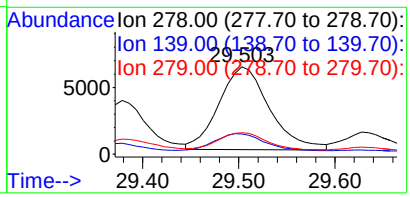


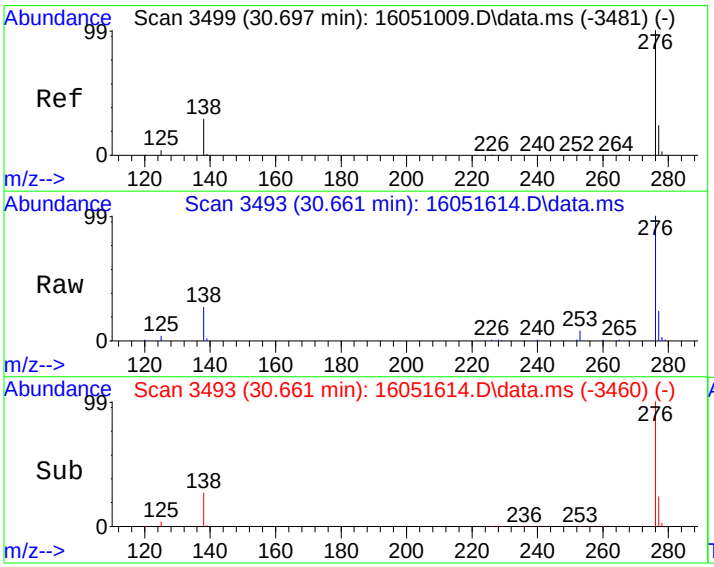


#27
Dibenz[a,h]anthracene
Concen: 36.13 ug/kg
RT: 29.503 min Scan# 3335
Delta R.T. -0.005 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:278 Resp: 22702

Ion	Ratio	Lower	Upper
278	100		
139	21.6	2.9	42.9
279	22.4	4.4	44.4

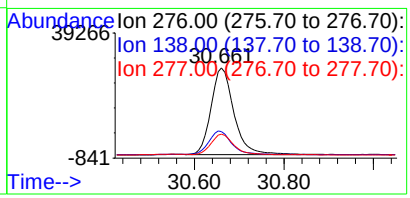




#28
Benzo[g,h,i]perylene
Concen: 145.73 ug/kg
RT: 30.661 min Scan# 3493
Delta R.T. -0.005 min
Lab File: 16051614.D
Acq: 16 May 2016 9:05 pm

Tgt Ion:276 Resp: 97996

Ion	Ratio	Lower	Upper
276	100		
138	26.4	9.3	49.3
277	23.8	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051615.D
Acq On : 16 May 2016 9:42 pm
Operator :
Sample : 1605096-15A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: May 17 08:38:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.276	136	1778830	4000.00	ug/kg	114
6) Acenaphthene-d10	12.862	164	1235654	4000.00	ug/kg	126
11) Phenanthrene-d10	14.985	188	2993079	4000.00	ug/kg	96
16) Chrysene-d12	20.998	240	3076279	4000.00	ug/kg	88
20) Perylene-d12	26.265	264	2785748	4000.00	ug/kg	94

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	32954	94.26	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.36%#			
17) 4-Terphenyl-d14	17.601	244	63767	89.71	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.24%#			

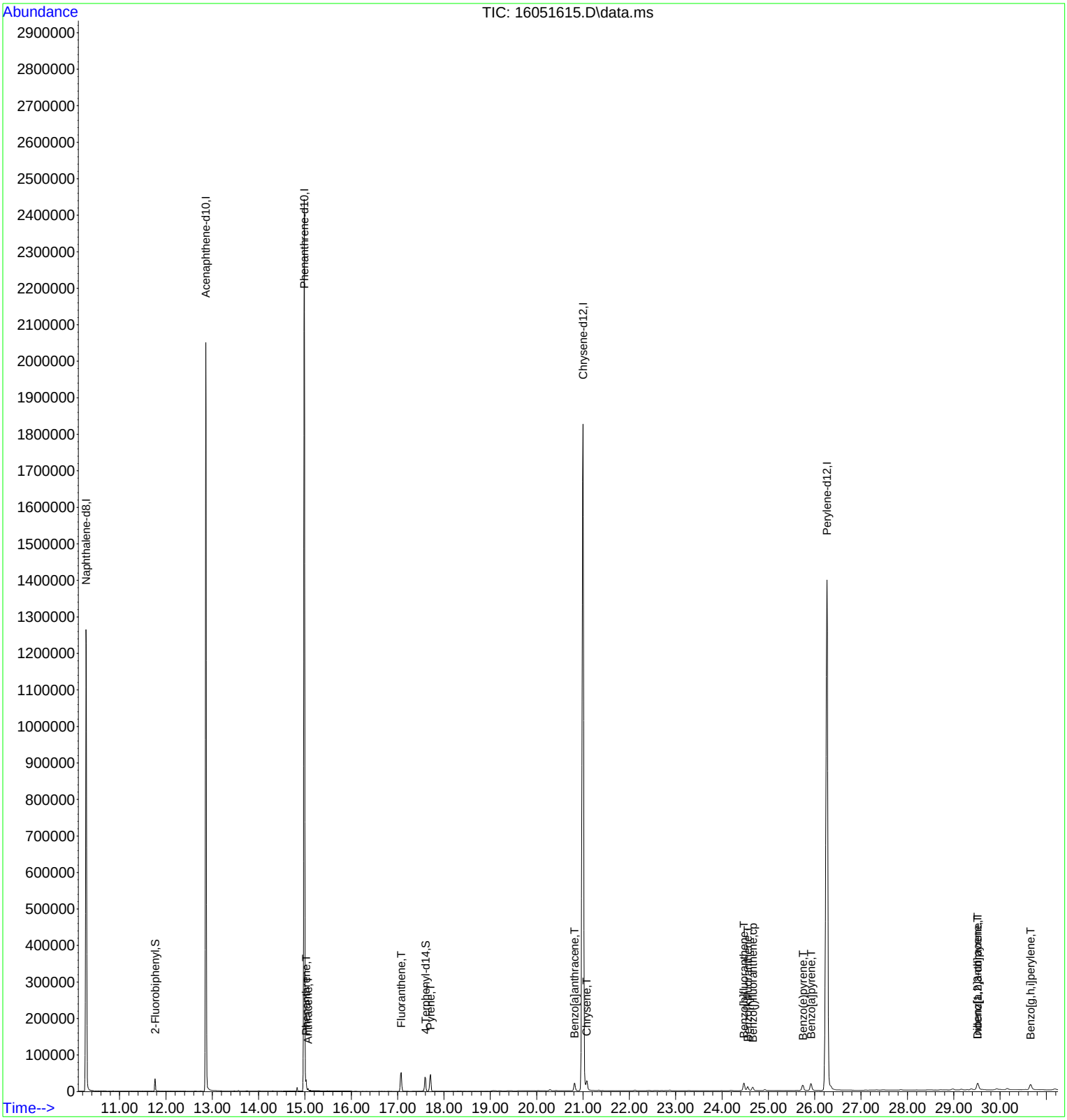
Target Compounds						Qvalue
12) Phenanthrene	15.021	178	22005	25.40	ug/kg	98
13) Anthracene	15.063	178	5266	5.61	ug/kg	97
14) Fluoranthene	17.078	202	66874	58.99	ug/kg	94
15) Pyrene	17.708	202	58671	51.60	ug/kg	92
18) Benzo[a]anthracene	20.815	228	34460	39.85	ug/kg	99
19) Chrysene	21.086	228	41047	51.85	ug/kg	99
21) Benzo[b]fluoranthene	24.470	252	40906	51.56	ug/kg	98
22) Benzo[k]fluoranthene	24.551	252	19632	30.85	ug/kg	95
23) Benzo(j)fluoranthene	24.661	252	17383	27.03	ug/kg	89
24) Benzo(e)pyrene	25.745	252	29753	39.07	ug/kg	95
25) Benzo[a]pyrene	25.921	252	39380	54.01	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.517	276	32918	40.75	ug/kg	89
27) Dibenz[a,h]anthracene	29.503	278	9565	14.52	ug/kg	98
28) Benzo[g,h,i]perylene	30.660	276	33231	47.14	ug/kg	96

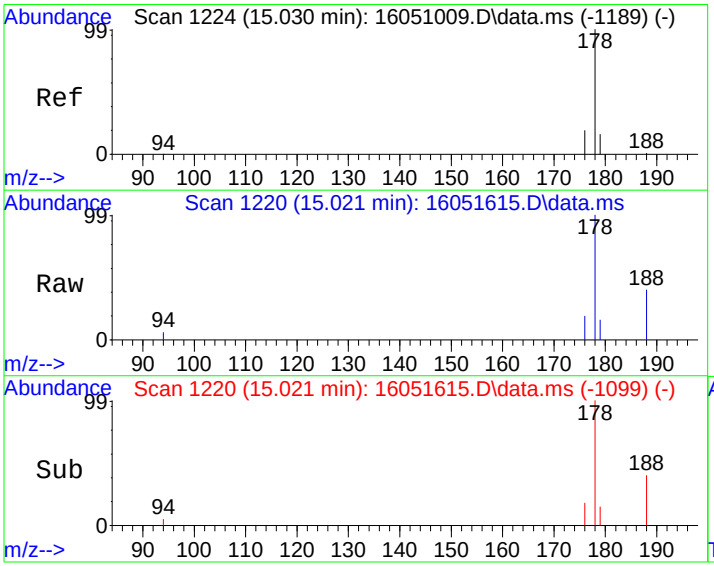
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051615.D
Acq On : 16 May 2016 9:42 pm
Operator :
Sample : 1605096-15A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: May 17 08:38:04 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

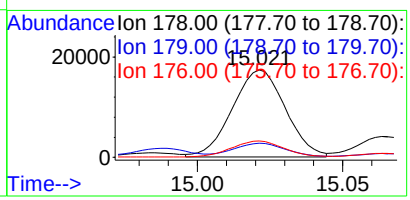


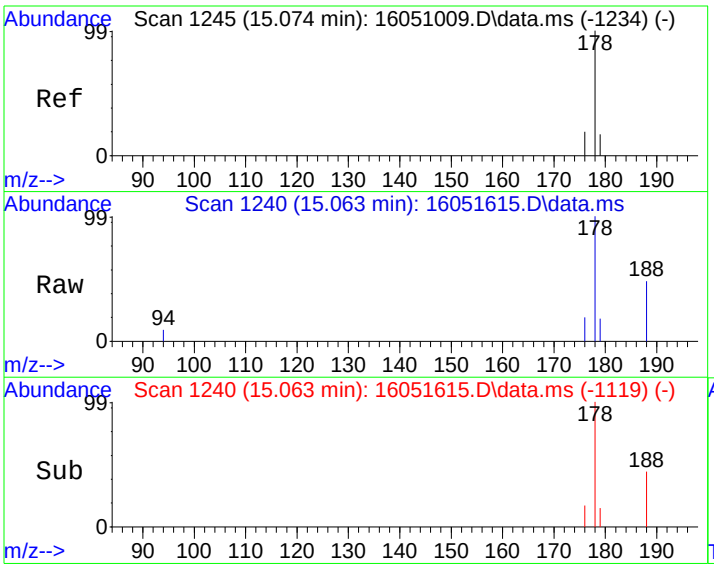


#12
Phenanthrene
Concen: 25.40 ug/kg
RT: 15.021 min Scan# 1220
Delta R.T. 0.005 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:178 Resp: 22005

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	36.4
176	18.6	0.0	39.2

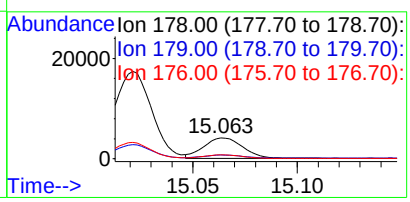


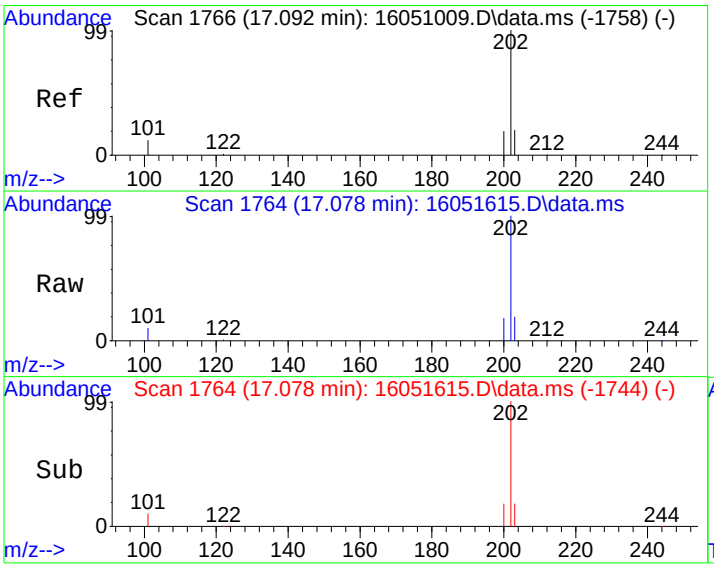


#13
Anthracene
Concen: 5.61 ug/kg
RT: 15.063 min Scan# 1240
Delta R.T. 0.005 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:178 Resp: 5266

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	36.5
176	17.4	0.0	38.6

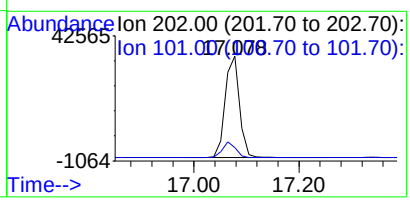


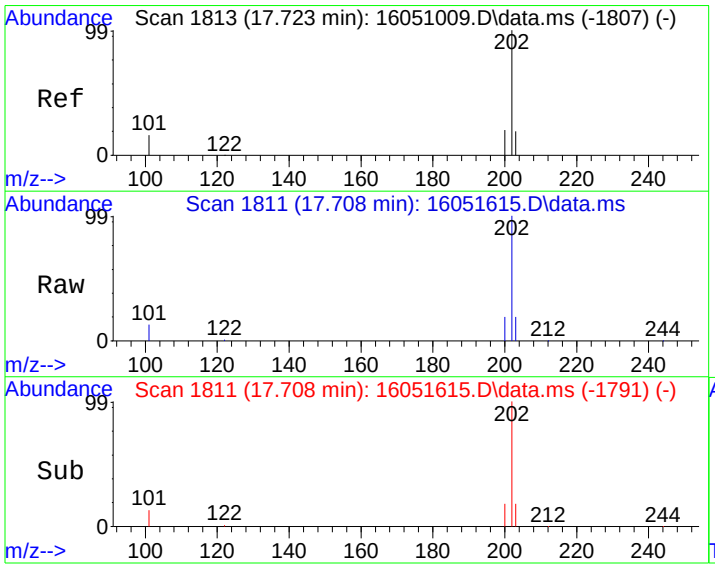


#14
Fluoranthene
Concen: 58.99 ug/kg
RT: 17.078 min Scan# 1764
Delta R.T. 0.013 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:202 Resp: 66874

Ion	Ratio	Lower	Upper
202	100		
101	9.7	0.0	32.0

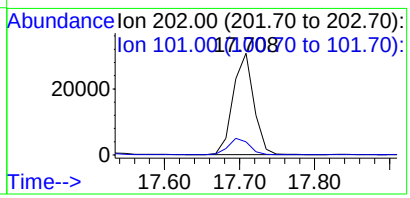


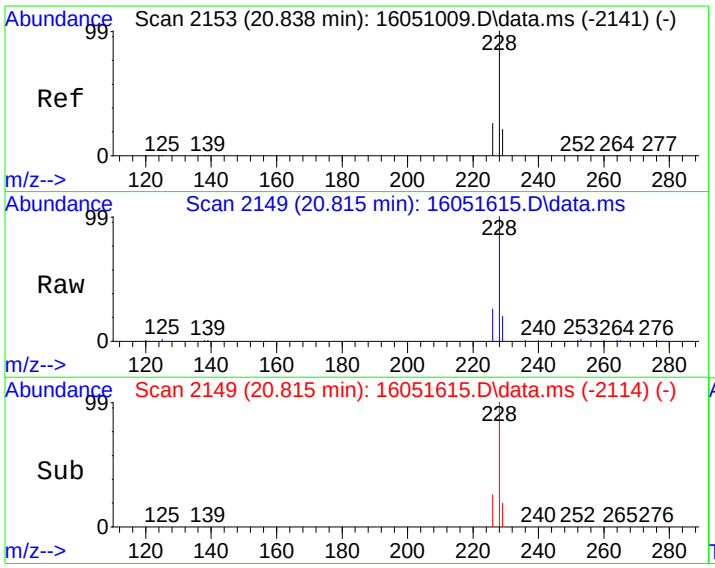


#15
Pyrene
Concen: 51.60 ug/kg
RT: 17.708 min Scan# 1811
Delta R.T. 0.013 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:202 Resp: 58671

Ion	Ratio	Lower	Upper
202	100		
101	12.6	0.0	35.9

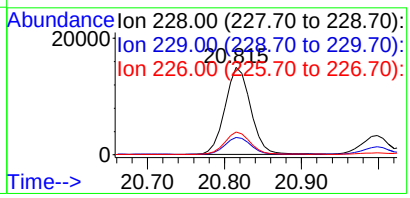


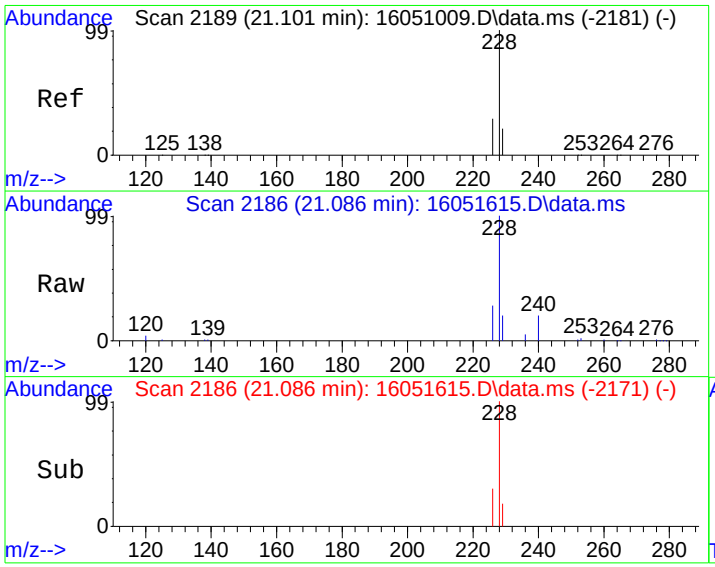


#18
Benzo[a]anthracene
Concen: 39.85 ug/kg
RT: 20.815 min Scan# 2149
Delta R.T. 0.009 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:228 Resp: 34460

Ion	Ratio	Lower	Upper
228	100		
229	19.5	0.7	40.7
226	25.6	5.9	45.9

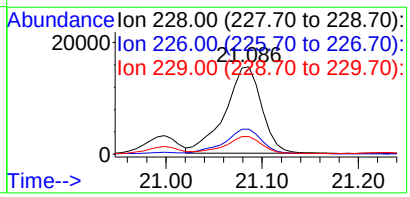


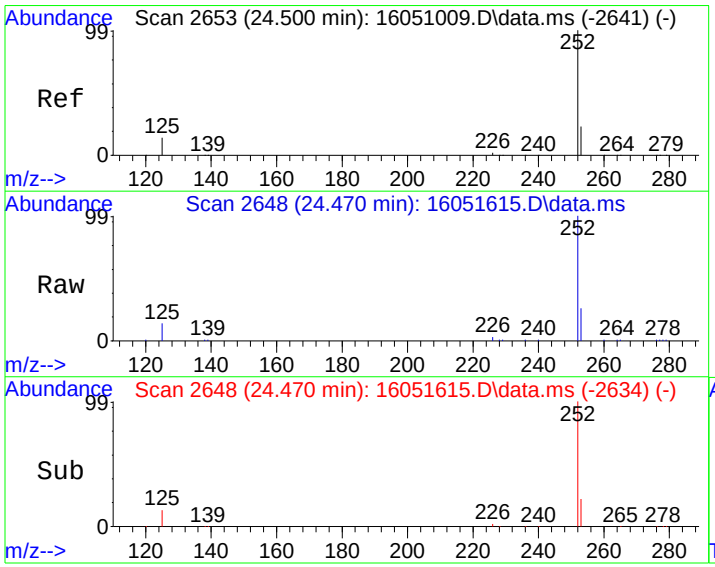


#19
Chrysene
Concen: 51.85 ug/kg
RT: 21.086 min Scan# 2186
Delta R.T. 0.009 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:228 Resp: 41047

Ion	Ratio	Lower	Upper
228	100		
226	28.1	8.8	48.8
229	19.8	0.5	40.5

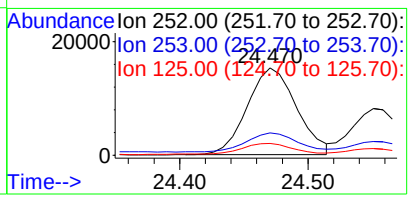


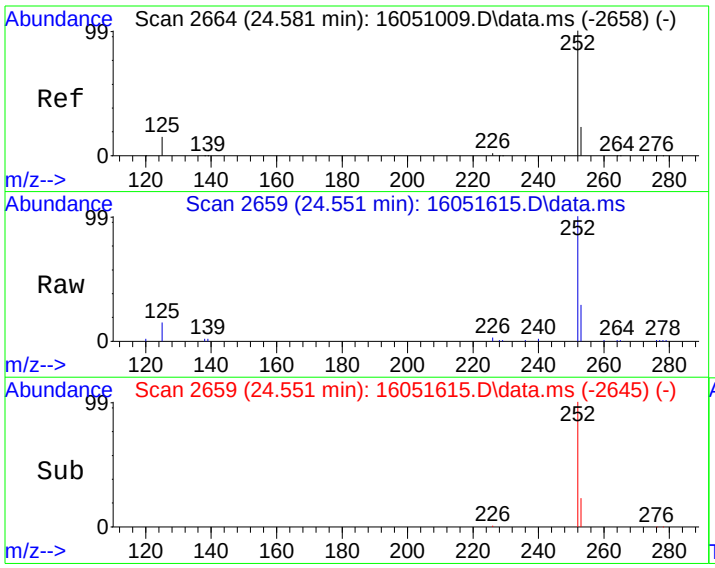


#21
Benzo[b]fluoranthene
Concen: 51.56 ug/kg
RT: 24.470 min Scan# 2648
Delta R.T. 0.002 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:252 Resp: 40906

Ion	Ratio	Lower	Upper
252	100		
253	21.8	2.6	42.6
125	12.3	0.0	33.8

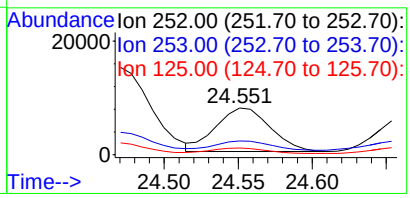


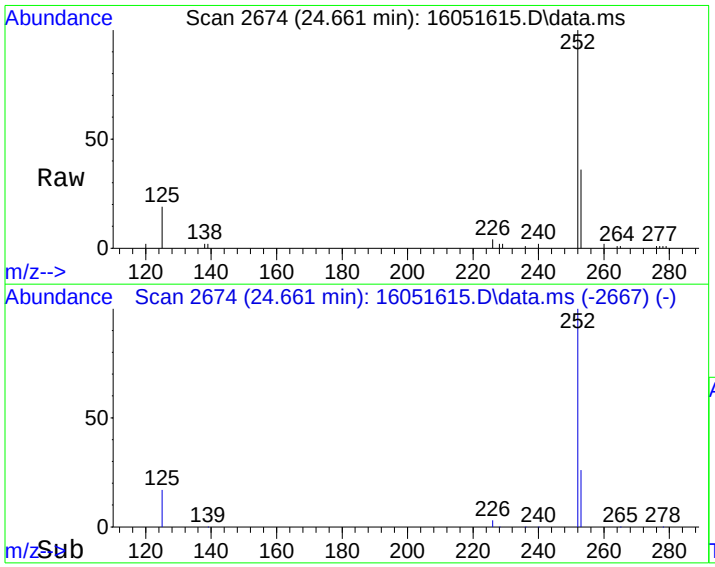


#22
Benzo[k]fluoranthene
Concen: 30.85 ug/kg
RT: 24.551 min Scan# 2659
Delta R.T. 0.002 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:252 Resp: 19632

Ion	Ratio	Lower	Upper
252	100		
253	20.7	2.8	42.8
125	12.6	0.0	34.7

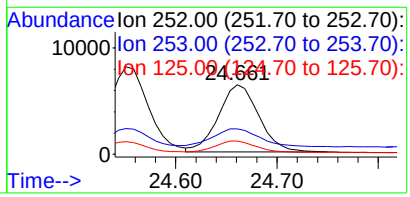


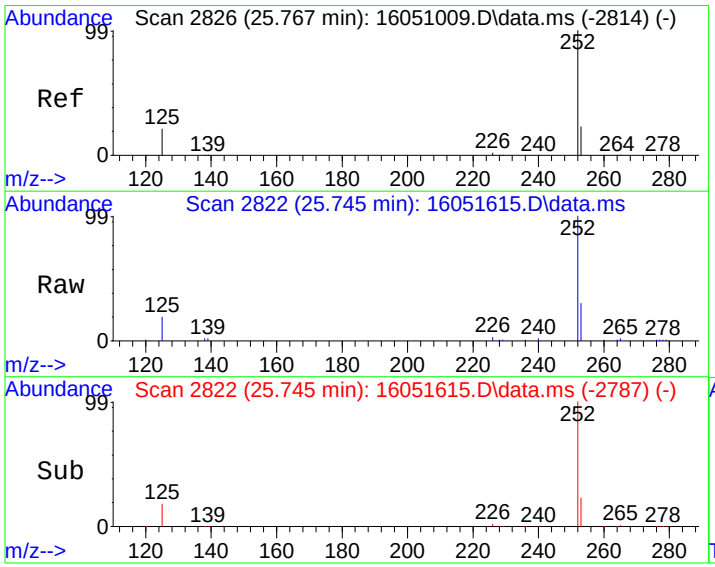


#23
Benzo(j)fluoranthene
Concen: 27.03 ug/kg
RT: 24.661 min Scan# 2674
Delta R.T. 0.002 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:252 Resp: 17383

Ion	Ratio	Lower	Upper
252	100		
253	30.4	2.3	42.3
125	17.0	0.0	39.2

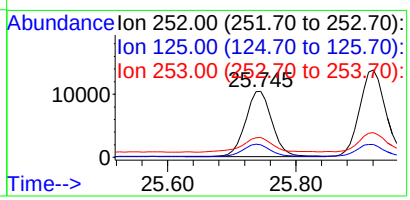


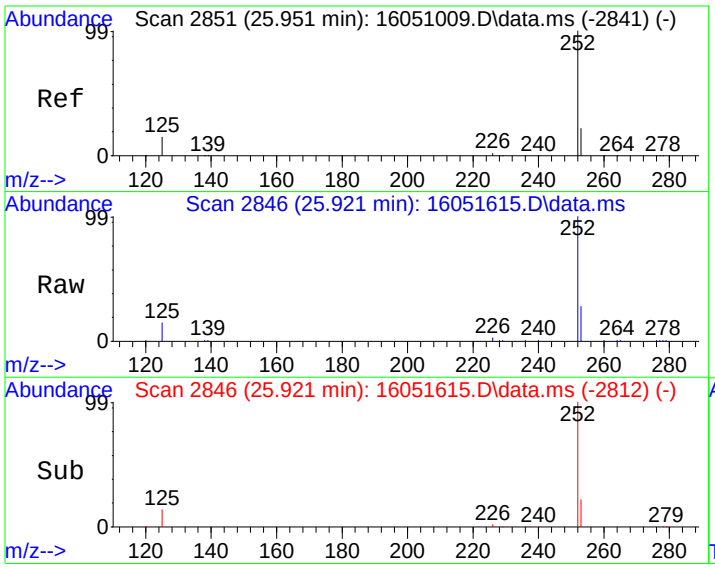


#24
Benzo(e)pyrene
Concen: 39.07 ug/kg
RT: 25.745 min Scan# 2822
Delta R.T. 0.009 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:252 Resp: 29753

Ion	Ratio	Lower	Upper
252	100		
125	19.1	0.8	40.8
253	25.1	2.4	42.4

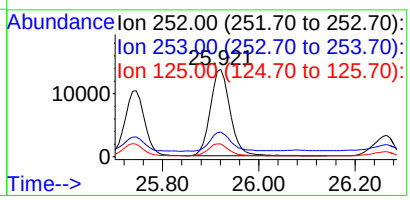


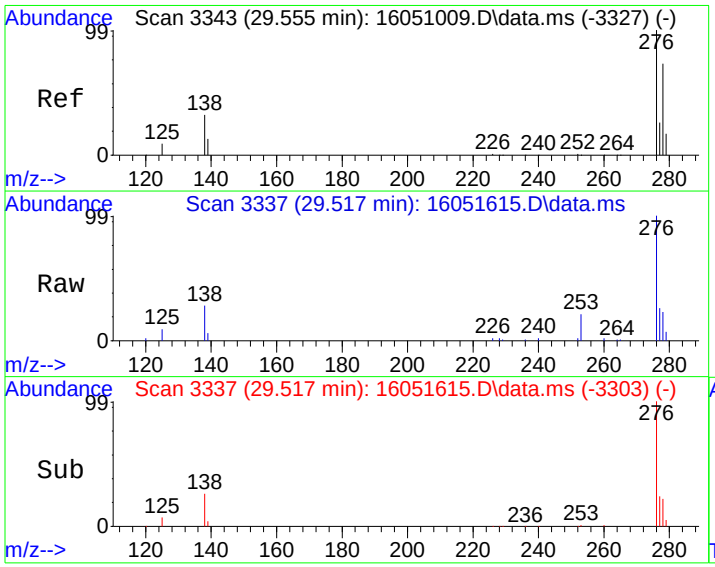


#25
Benzo[a]pyrene
Concen: 54.01 ug/kg
RT: 25.921 min Scan# 2846
Delta R.T. 0.002 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:252 Resp: 39380

Ion	Ratio	Lower	Upper
252	100		
253	22.1	2.5	42.5
125	13.5	0.0	35.5

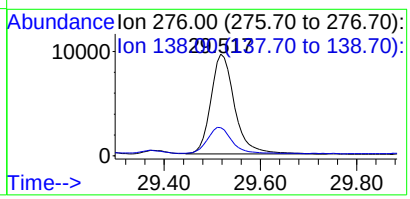


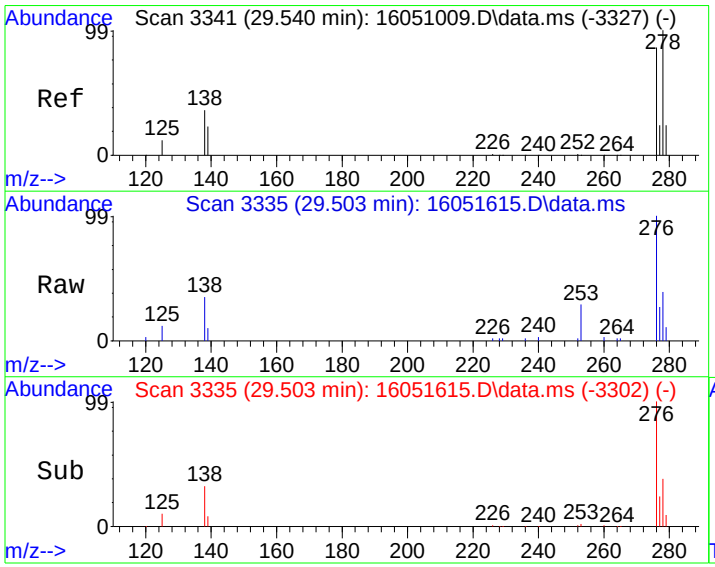


#26
Indeno[1,2,3-cd]pyrene
Concen: 40.75 ug/kg
RT: 29.517 min Scan# 3337
Delta R.T. 0.002 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:276 Resp: 32918

Ion	Ratio	Lower	Upper
276	100		
138	25.9	12.0	52.0

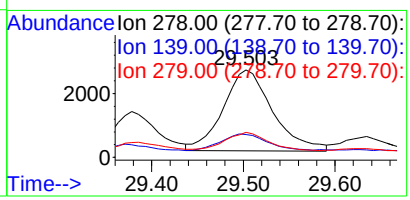


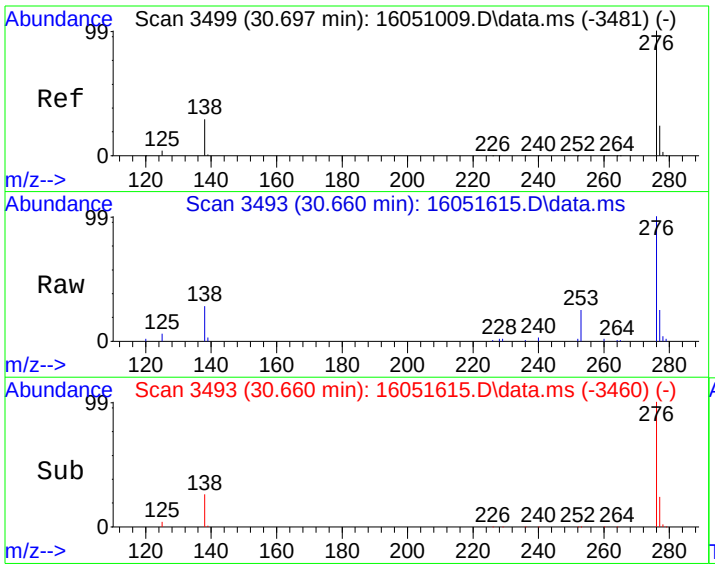


#27
Dibenz[a,h]anthracene
Concen: 14.52 ug/kg
RT: 29.503 min Scan# 3335
Delta R.T. -0.006 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:278 Resp: 9565

Ion	Ratio	Lower	Upper
278	100		
139	21.4	2.9	42.9
279	23.6	4.4	44.4

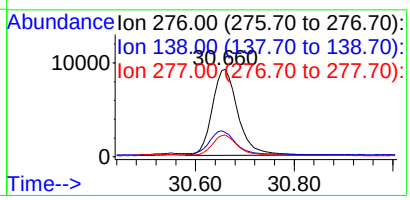




#28
Benzo[g,h,i]perylene
Concen: 47.14 ug/kg
RT: 30.660 min Scan# 3493
Delta R.T. -0.006 min
Lab File: 16051615.D
Acq: 16 May 2016 9:42 pm

Tgt Ion:276 Resp: 33231

Ion	Ratio	Lower	Upper
276	100		
138	26.1	9.3	49.3
277	24.0	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051616.D
Acq On : 16 May 2016 10:19 pm
Operator :
Sample : 1605096-16A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: May 17 08:38:12 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.277	136	1622215	4000.00	ug/kg	104
6) Acenaphthene-d10	12.861	164	1046297	4000.00	ug/kg	107
11) Phenanthrene-d10	14.984	188	2703867	4000.00	ug/kg	87
16) Chrysene-d12	20.999	240	2807561	4000.00	ug/kg	80
20) Perylene-d12	26.266	264	2535177	4000.00	ug/kg	85

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.766	172	27355	85.80	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#		
17) 4-Terphenyl-d14	17.589	244	56673	87.36	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	2.18%#		

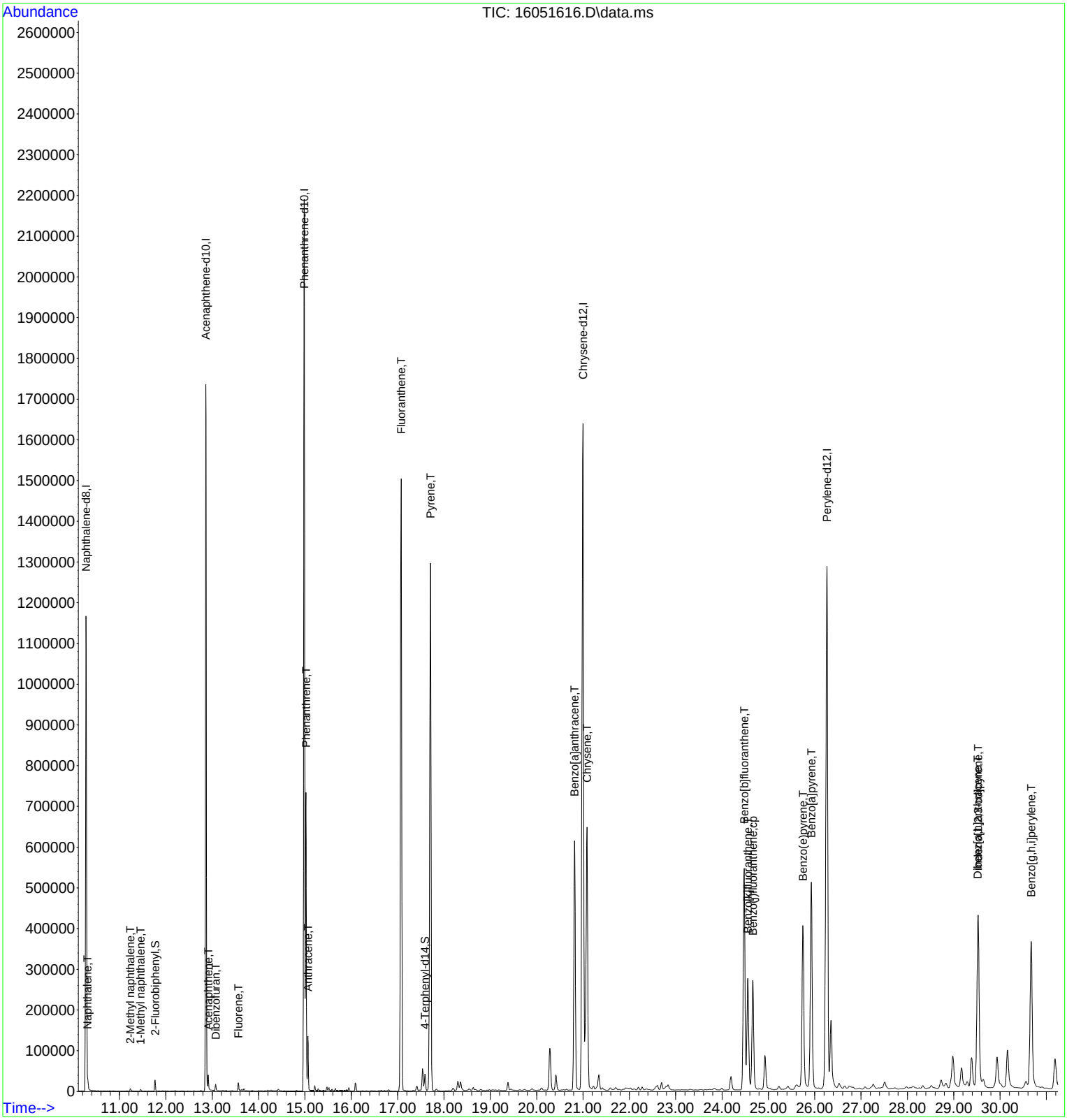
Target Compounds						Qvalue
2) Naphthalene	10.314	128	20954	53.30	ug/kg	99
3) 2-Methyl naphthalene	11.231	142	4202	18.94	ug/kg	98
4) 1-Methyl naphthalene	11.453	142	2773	11.24	ug/kg	97
8) Acenaphthene	12.915	153	17420	55.99	ug/kg	99
9) Dibenzofuran	13.072	168	15614	31.07	ug/kg	97
10) Fluorene	13.563	166	10295	21.79	ug/kg	97
12) Phenanthrene	15.020	178	703234	898.63	ug/kg	99
13) Anthracene	15.064	178	129394	152.61	ug/kg	97
14) Fluoranthene	17.079	202	1838865	1795.53	ug/kg	98
15) Pyrene	17.709	202	1584751	1542.78	ug/kg	98
18) Benzo[a]anthracene	20.816	228	962449	1219.49	ug/kg	99
19) Chrysene	21.087	228	1110252	1536.74	ug/kg	100
21) Benzo[b]fluoranthene	24.478	252	1056124	1462.80	ug/kg	99
22) Benzo[k]fluoranthene	24.559	252	476308	822.52	ug/kg	96
23) Benzo(j)fluoranthene	24.669	252	465269	794.92	ug/kg	87
24) Benzo(e)pyrene	25.746	252	760305	1097.17	ug/kg	96
25) Benzo[a]pyrene	25.929	252	999667	1506.49	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.525	276	756336	1028.81	ug/kg	90
27) Dibenz[a,h]anthracene	29.511	278	170789	284.96	ug/kg	97
28) Benzo[g,h,i]perylene	30.675	276	754723	1176.51	ug/kg	96

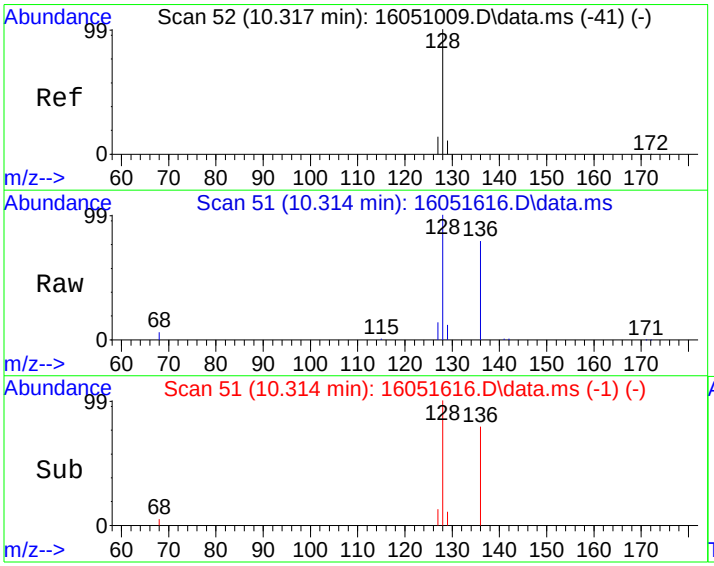
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051616.D
Acq On : 16 May 2016 10:19 pm
Operator :
Sample : 1605096-16A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: May 17 08:38:12 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

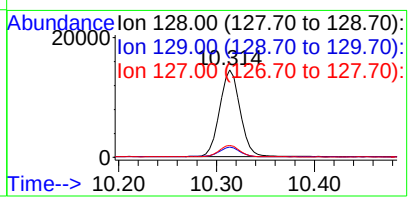


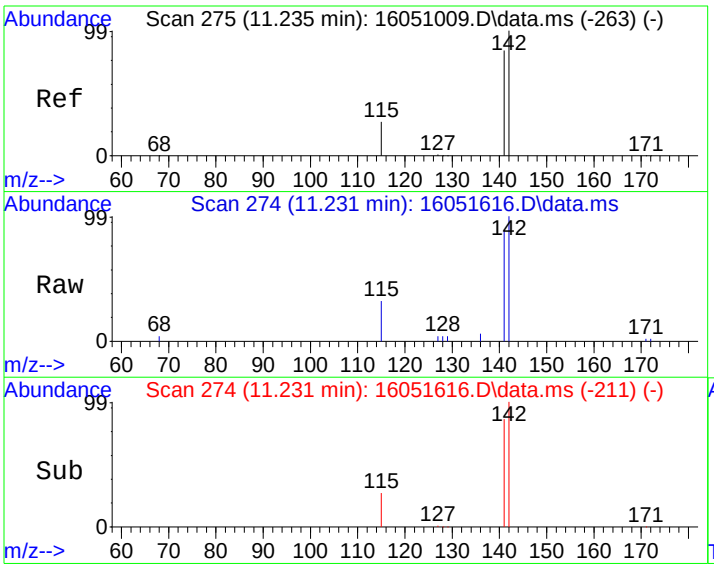


#2
Naphthalene
Concen: 53.30 ug/kg
RT: 10.314 min Scan# 51
Delta R.T. 0.010 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:128 Resp: 20954

Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	31.3
127	13.2	0.0	33.5

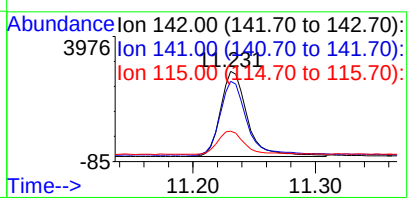


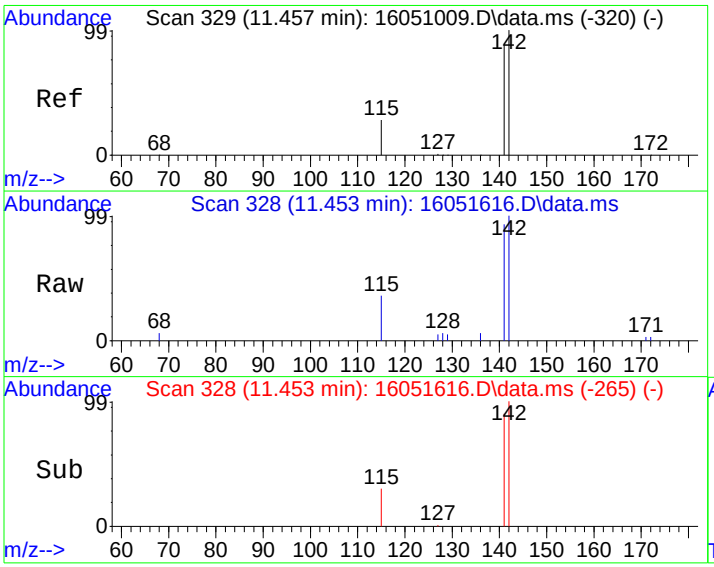


#3
2-Methyl naphthalene
Concen: 18.94 ug/kg
RT: 11.231 min Scan# 274
Delta R.T. 0.010 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:142 Resp: 4202

Ion	Ratio	Lower	Upper
142	100		
141	86.6	63.9	103.9
115	27.2	6.7	46.7

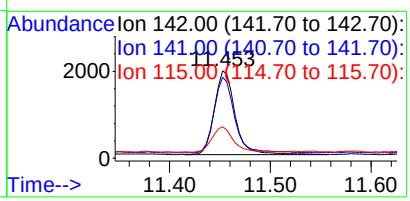


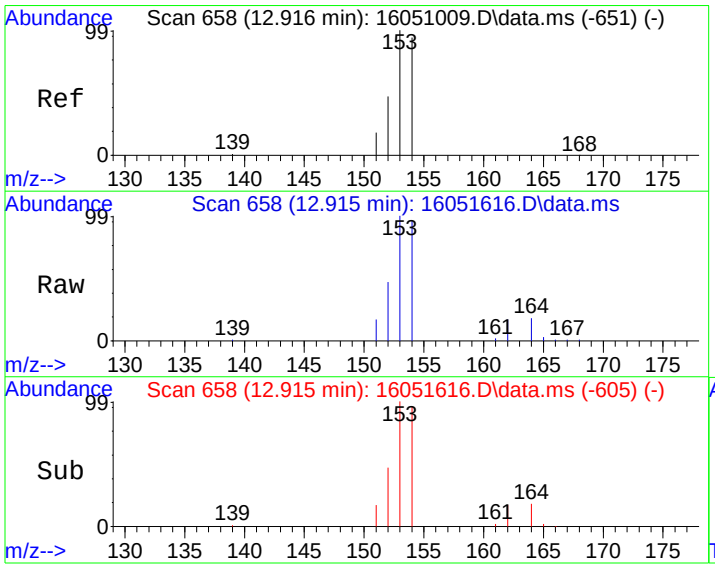


#4
1-Methyl naphthalene
Concen: 11.24 ug/kg
RT: 11.453 min Scan# 328
Delta R.T. 0.010 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:142 Resp: 2773

Ion	Ratio	Lower	Upper
142	100		
141	90.0	67.6	107.6
115	29.9	8.0	48.0

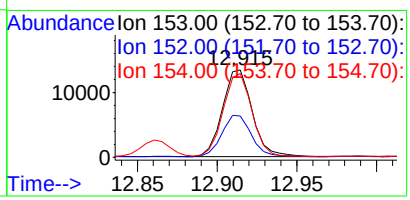


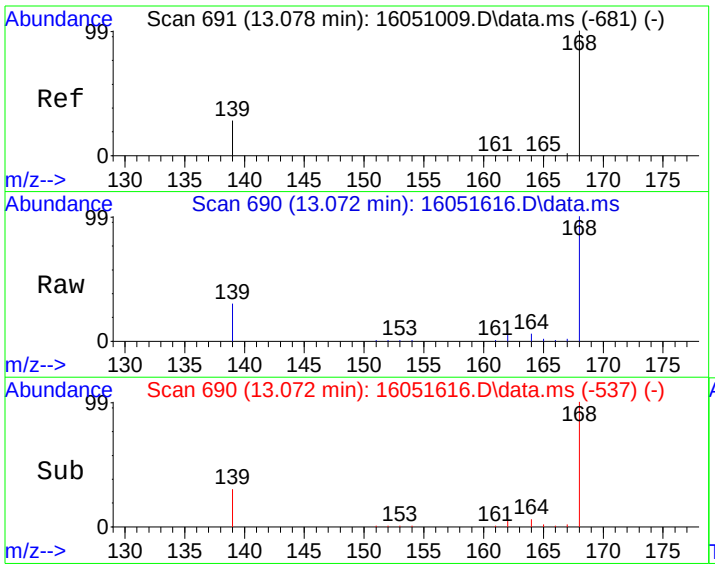


#8
Acenaphthene
Concen: 55.99 ug/kg
RT: 12.915 min Scan# 658
Delta R.T. 0.010 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:153 Resp: 17420

Ion	Ratio	Lower	Upper
153	100		
152	46.9	27.2	67.2
154	95.5	74.3	114.3

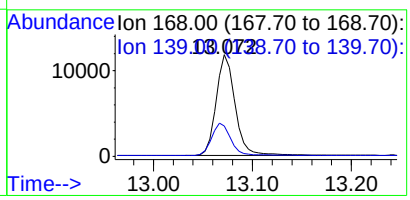


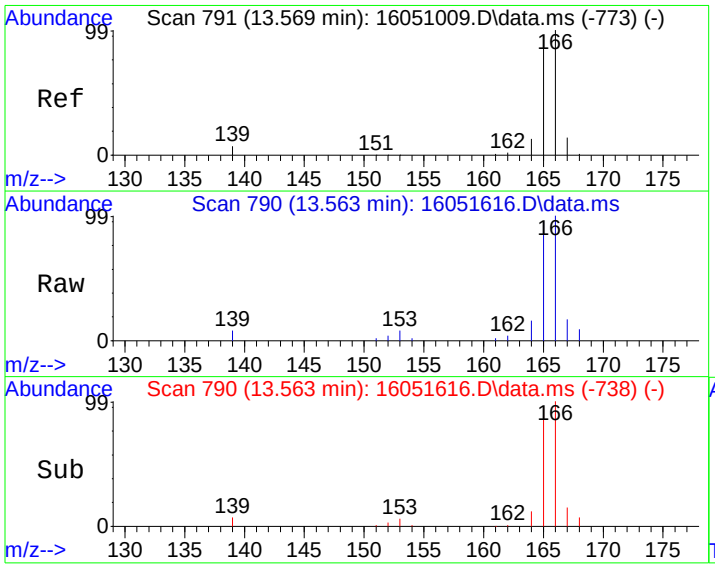


#9
Dibenzofuran
Concen: 31.07 ug/kg
RT: 13.072 min Scan# 690
Delta R.T. 0.010 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:168 Resp: 15614

Ion	Ratio	Lower	Upper
168	100		
139	29.3	7.8	47.8

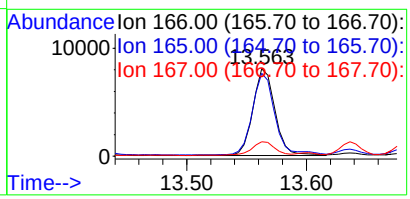


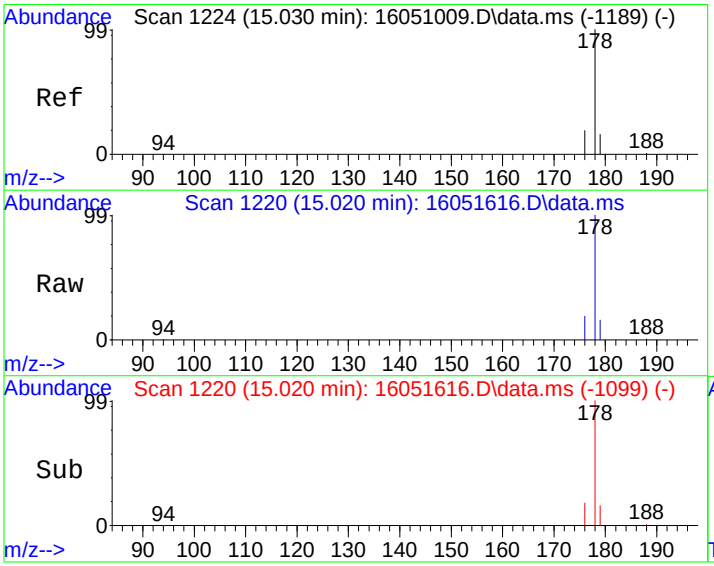


#10
Fluorene
Concen: 21.79 ug/kg
RT: 13.563 min Scan# 790
Delta R.T. 0.005 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:166 Resp: 10295

Ion	Ratio	Lower	Upper
166	100		
165	94.1	71.9	111.9
167	15.7	0.0	33.8

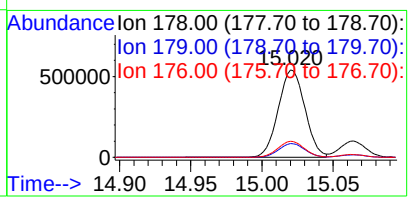


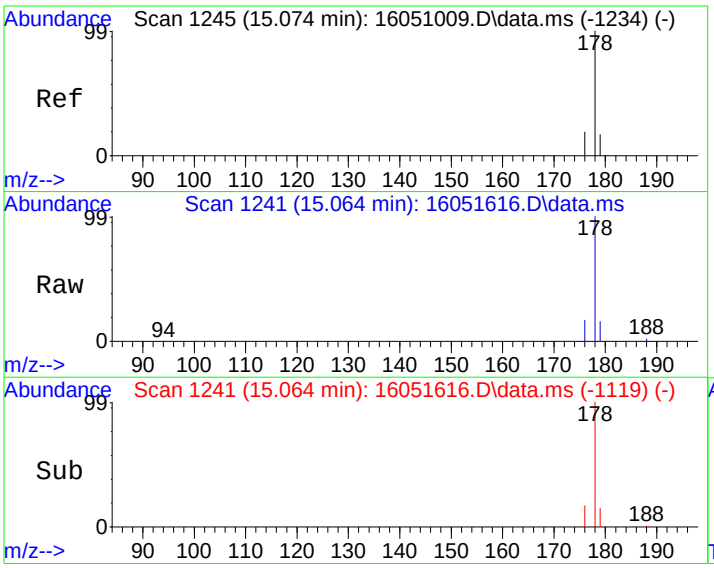


#12
Phenanthrene
Concen: 898.63 ug/kg
RT: 15.020 min Scan# 1220
Delta R.T. 0.004 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:178 Resp: 703234

Ion	Ratio	Lower	Upper
178	100		
179	15.8	0.0	36.4
176	18.5	0.0	39.2

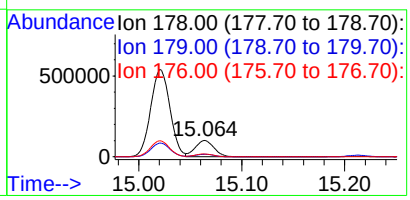


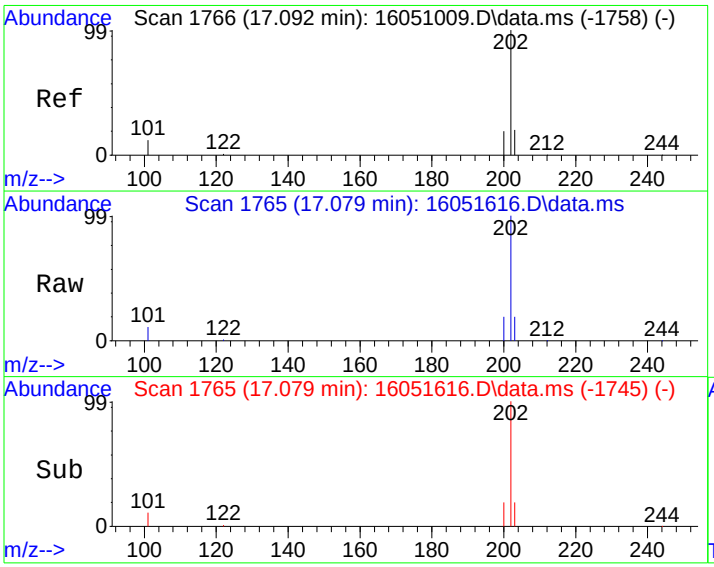


#13
Anthracene
Concen: 152.61 ug/kg
RT: 15.064 min Scan# 1241
Delta R.T. 0.006 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:178 Resp: 129394

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	36.5
176	17.3	0.0	38.6

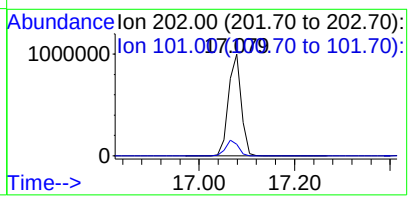


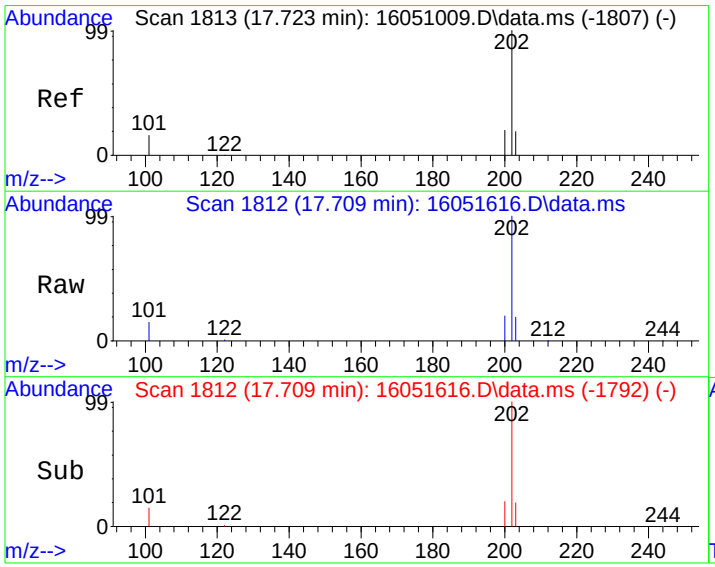


#14
Fluoranthene
Concen: 1795.53 ug/kg
RT: 17.079 min Scan# 1765
Delta R.T. 0.014 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:202 Resp: 1838865

Ion	Ratio	Lower	Upper
202	100		
101	11.4	0.0	32.0

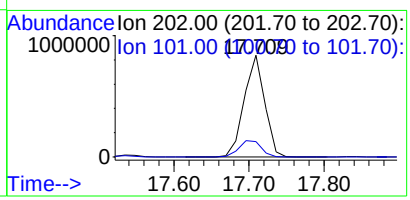


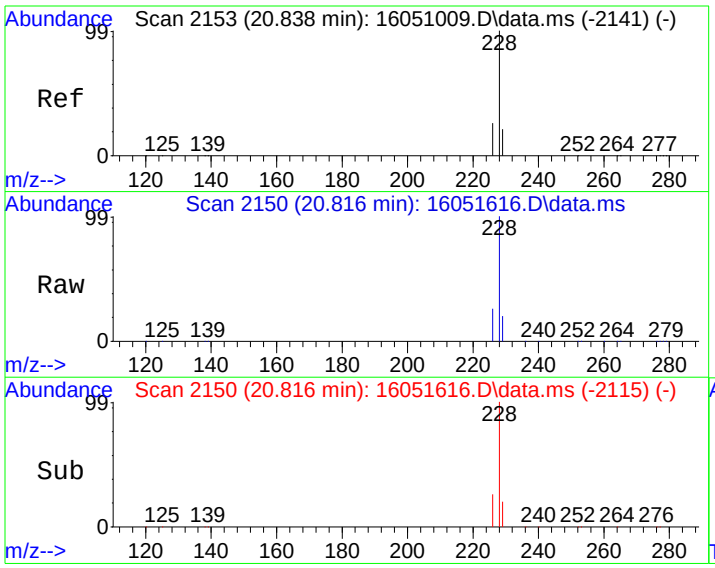


#15
Pyrene
Concen: 1542.78 ug/kg
RT: 17.709 min Scan# 1812
Delta R.T. 0.014 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:202 Resp: 1584751

Ion	Ratio	Lower	Upper
202	100		
101	15.0	0.0	35.9

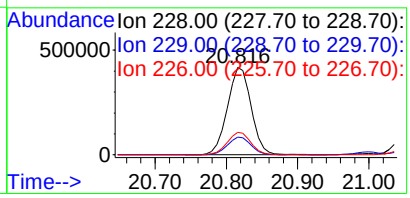


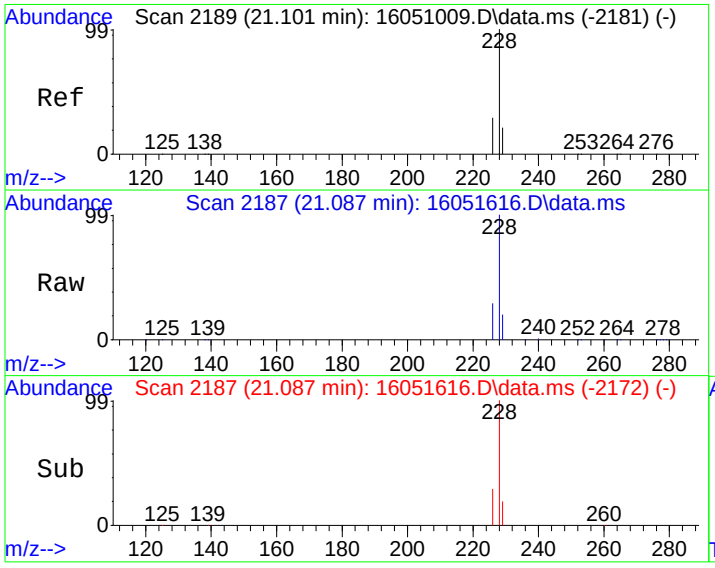


#18
Benzo[a]anthracene
Concen: 1219.49 ug/kg
RT: 20.816 min Scan# 2150
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:228 Resp: 962449

Ion	Ratio	Lower	Upper
228	100		
229	20.2	0.7	40.7
226	25.8	5.9	45.9

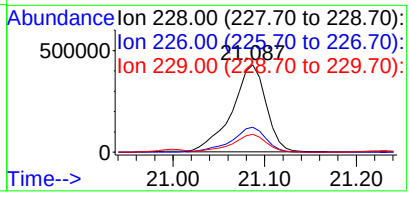


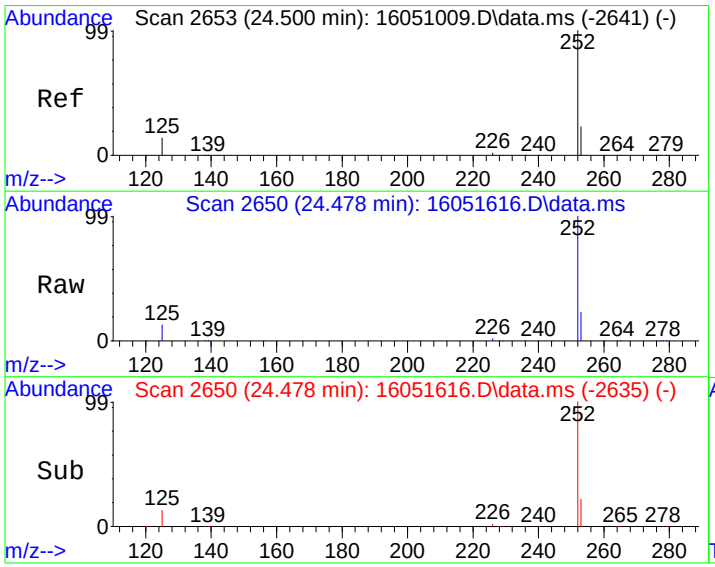


#19
Chrysene
Concen: 1536.74 ug/kg
RT: 21.087 min Scan# 2187
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:228 Resp: 1110252

Ion	Ratio	Lower	Upper
228	100		
226	28.6	8.8	48.8
229	20.4	0.5	40.5

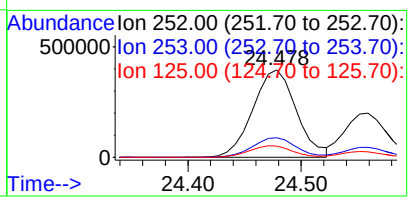


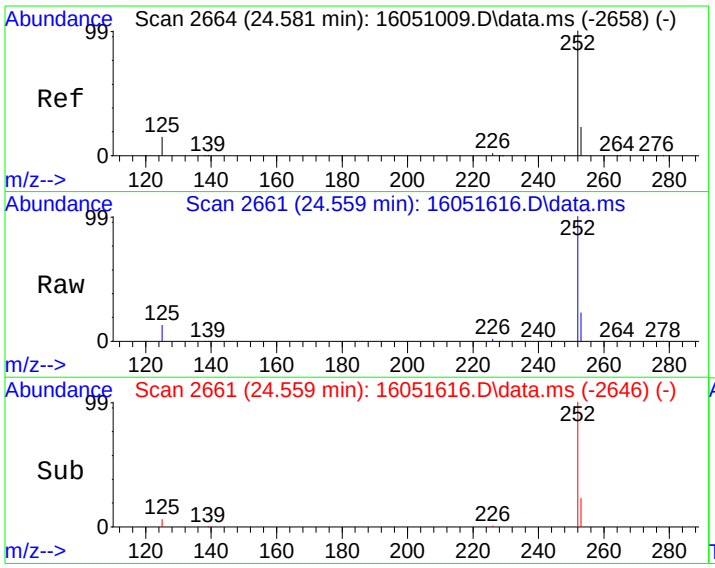


#21
Benzo[b]fluoranthene
Concen: 1462.80 ug/kg
RT: 24.478 min Scan# 2650
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:252 Resp: 1056124

Ion	Ratio	Lower	Upper
252	100		
253	22.4	2.6	42.6
125	12.9	0.0	33.8

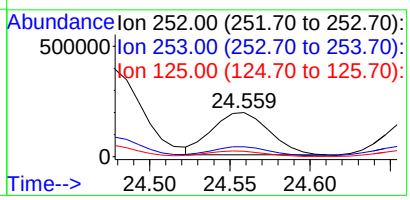


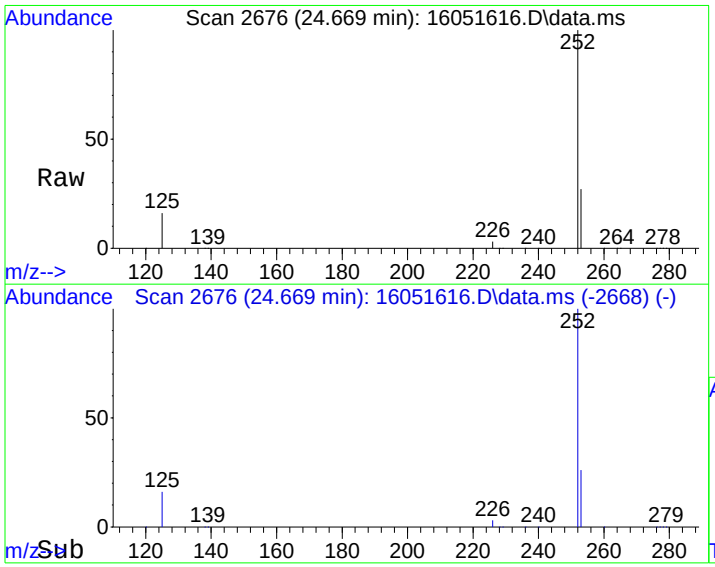


#22
Benzo[k]fluoranthene
Concen: 822.52 ug/kg
RT: 24.559 min Scan# 2661
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:252 Resp: 476308

Ion	Ratio	Lower	Upper
252	100		
253	21.6	2.8	42.8
125	12.4	0.0	34.7

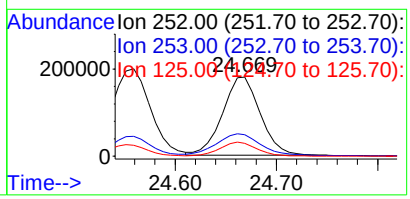


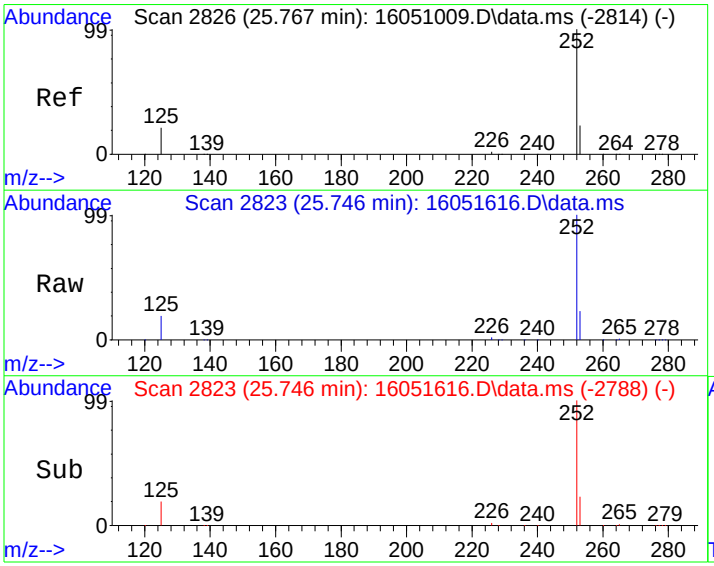


#23
Benzo(j)fluoranthene
Concen: 794.92 ug/kg
RT: 24.669 min Scan# 2676
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:252 Resp: 465269

Ion	Ratio	Lower	Upper
252	100		
253	32.0	2.3	42.3
125	17.3	0.0	39.2

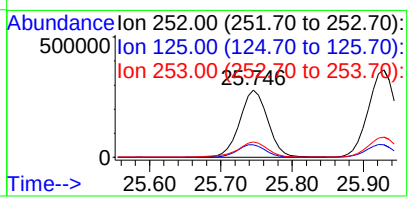


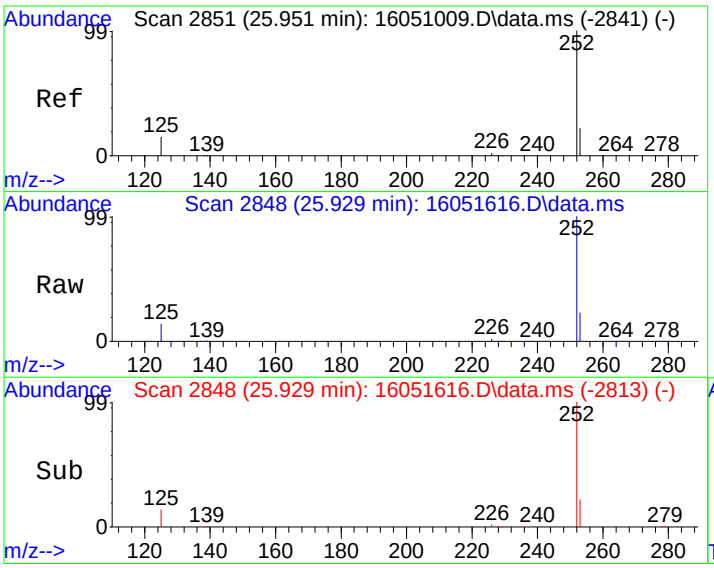


#24
Benzo(e)pyrene
Concen: 1097.17 ug/kg
RT: 25.746 min Scan# 2823
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:252 Resp: 760305

Ion	Ratio	Lower	Upper
252	100		
125	18.9	0.8	40.8
253	24.2	2.4	42.4

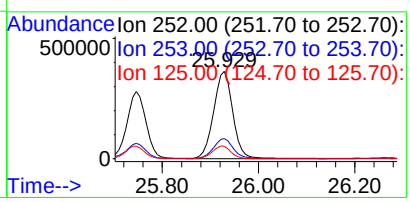


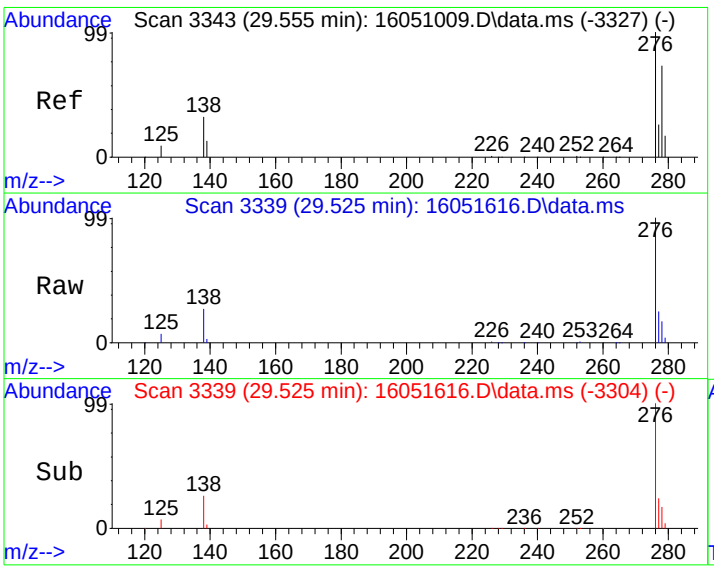


#25
Benzo[a]pyrene
Concen: 1506.49 ug/kg
RT: 25.929 min Scan# 2848
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:252 Resp: 999667

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.5	42.5
125	14.3	0.0	35.5

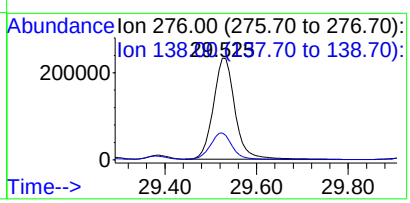


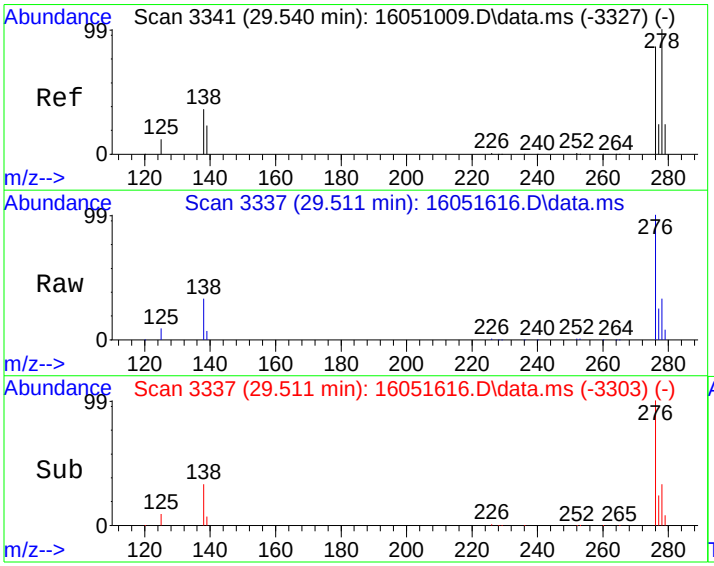


#26
Indeno[1,2,3-cd]pyrene
Concen: 1028.81 ug/kg
RT: 29.525 min Scan# 3339
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:276 Resp: 756336

Ion	Ratio	Lower	Upper
276	100		
138	26.4	12.0	52.0

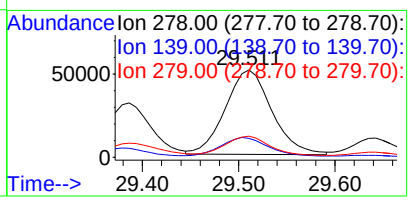


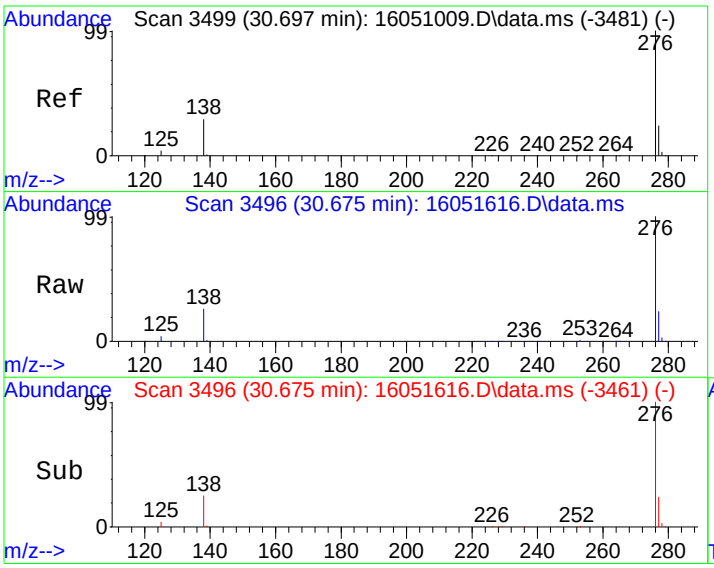


#27
Dibenz[a,h]anthracene
Concen: 284.96 ug/kg
RT: 29.511 min Scan# 3337
Delta R.T. 0.002 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:278 Resp: 170789

Ion	Ratio	Lower	Upper
278	100		
139	21.5	2.9	42.9
279	23.2	4.4	44.4

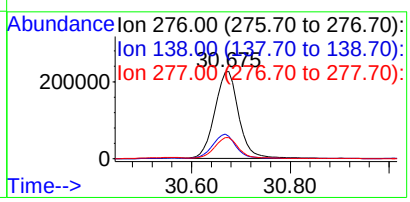




#28
Benzo[g,h,i]perylene
Concen: 1176.51 ug/kg
RT: 30.675 min Scan# 3496
Delta R.T. 0.009 min
Lab File: 16051616.D
Acq: 16 May 2016 10:19 pm

Tgt Ion:276 Resp: 754723

Ion	Ratio	Lower	Upper
276	100		
138	25.5	9.3	49.3
277	24.1	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051617.D
Acq On : 16 May 2016 10:56 pm
Operator :
Sample : 1605096-17A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: May 17 08:38:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.277	136	1729041	4000.00	ug/kg	111
6) Acenaphthene-d10	12.861	164	1225938	4000.00	ug/kg	125
11) Phenanthrene-d10	14.984	188	2929469	4000.00	ug/kg	94
16) Chrysene-d12	20.999	240	2920116	4000.00	ug/kg	84
20) Perylene-d12	26.266	264	2632364	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.762	172	32061	94.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.36%#			
17) 4-Terphenyl-d14	17.589	244	62068	91.99	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.30%#			

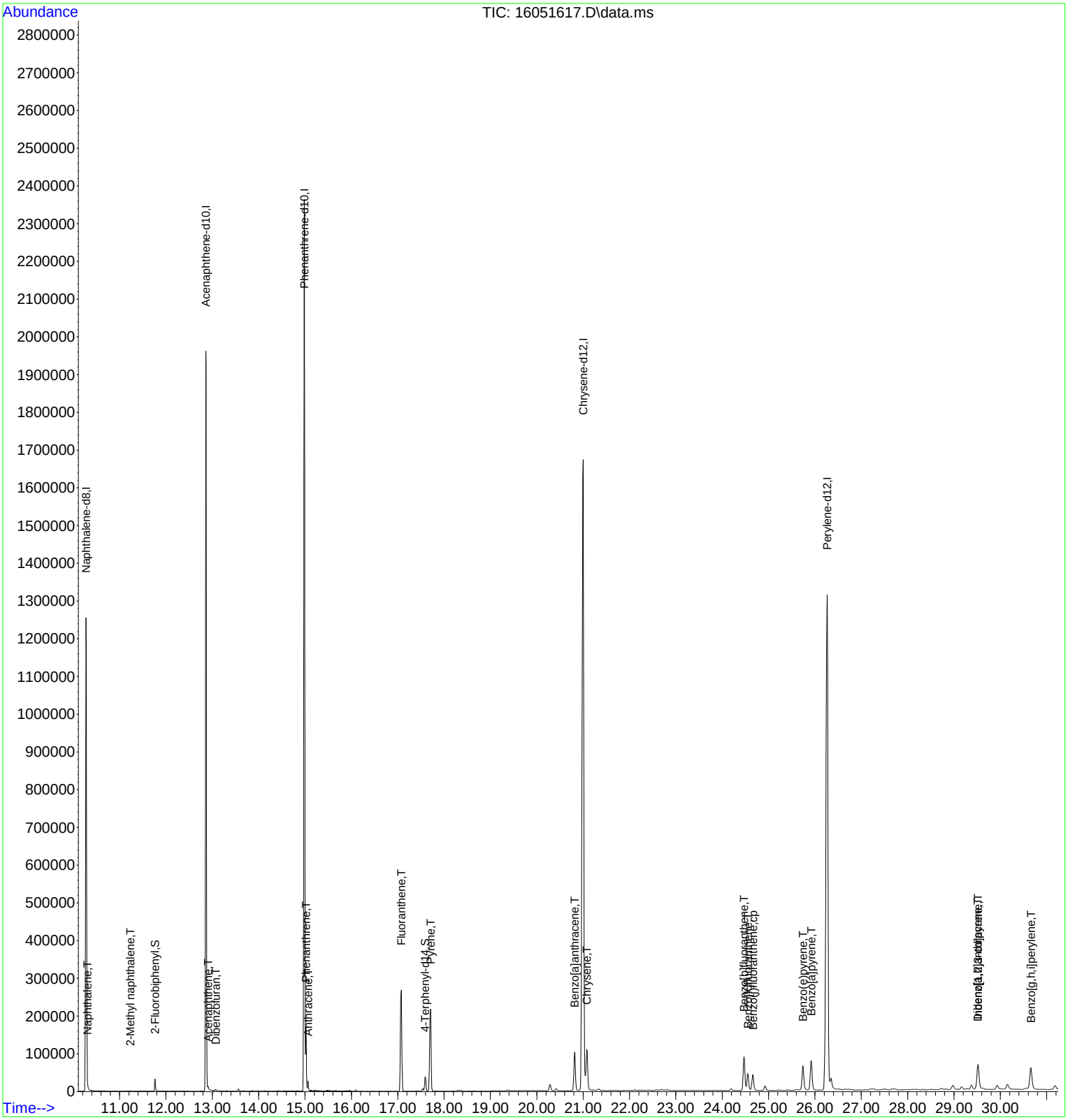
Target Compounds						Qvalue
2) Naphthalene	10.314	128	3465	8.27	ug/kg	99
3) 2-Methyl naphthalene	11.235	142	997	6.88	ug/kg	97
8) Acenaphthene	12.915	153	3496	9.59	ug/kg	98
9) Dibenzofuran	13.072	168	3866	6.57	ug/kg	95
12) Phenanthrene	15.020	178	151362	178.52	ug/kg	97
13) Anthracene	15.064	178	25222	27.46	ug/kg	97
14) Fluoranthene	17.079	202	349993	315.43	ug/kg	94
15) Pyrene	17.709	202	291173	261.63	ug/kg	92
18) Benzo[a]anthracene	20.816	228	160944	196.07	ug/kg	99
19) Chrysene	21.080	228	186285	247.91	ug/kg	99
21) Benzo[b]fluoranthene	24.471	252	172569	230.19	ug/kg	98
22) Benzo[k]fluoranthene	24.552	252	79627	132.43	ug/kg	96
23) Benzo(j)fluoranthene	24.661	252	74768	123.03	ug/kg	89
24) Benzo(e)pyrene	25.738	252	124876	173.55	ug/kg	97
25) Benzo[a]pyrene	25.921	252	160602	233.09	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.518	276	120584	157.97	ug/kg	89
27) Dibenz[a,h]anthracene	29.503	278	28929	46.49	ug/kg	97
28) Benzo[g,h,i]perylene	30.661	276	124785	187.34	ug/kg	97

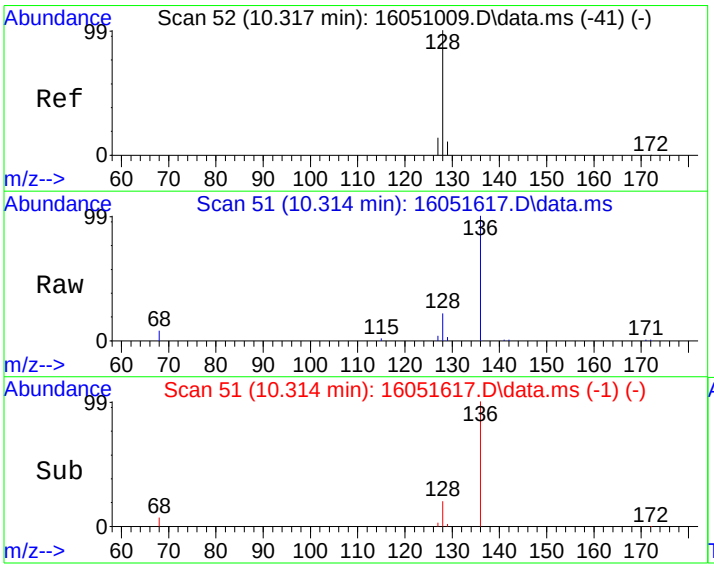
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051617.D
Acq On : 16 May 2016 10:56 pm
Operator :
Sample : 1605096-17A
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 10

Quant Time: May 17 08:38:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

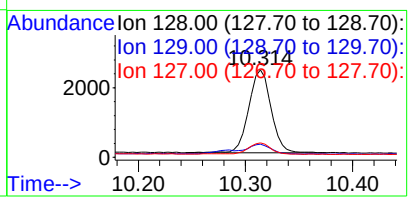


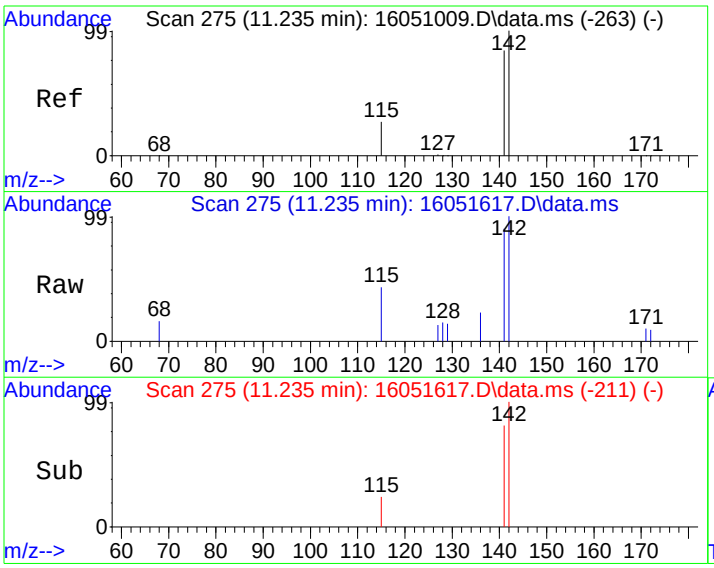


#2
Naphthalene
Concen: 8.27 ug/kg
RT: 10.314 min Scan# 51
Delta R.T. 0.010 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:128 Resp: 3465

Ion	Ratio	Lower	Upper
128	100		
129	11.8	0.0	31.3
127	13.7	0.0	33.5

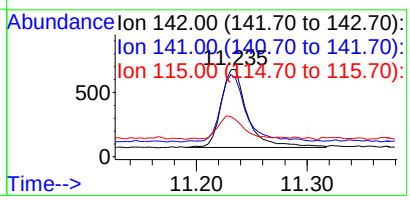


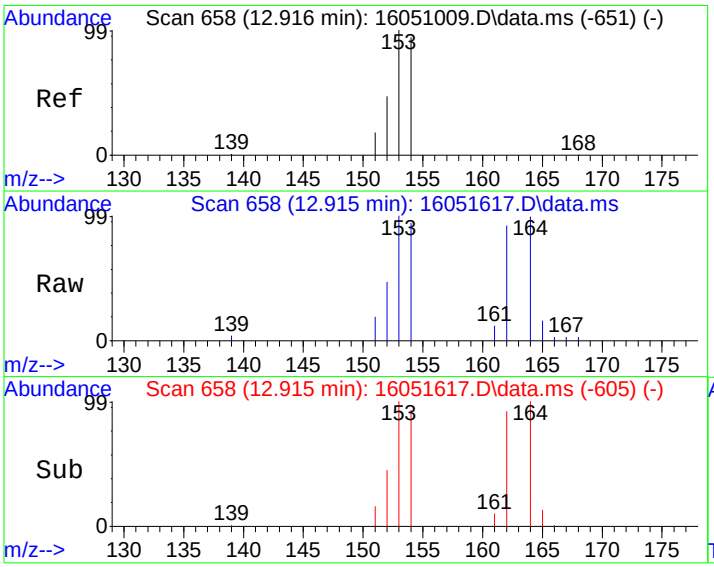


#3
2-Methyl naphthalene
Concen: 6.88 ug/kg
RT: 11.235 min Scan# 275
Delta R.T. 0.014 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:142 Resp: 997

Ion	Ratio	Lower	Upper
142	100		
141	80.9	63.9	103.9
115	25.4	6.7	46.7

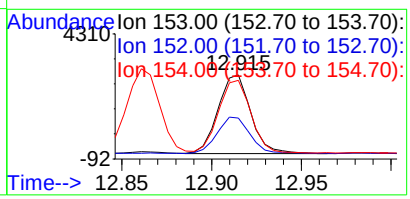


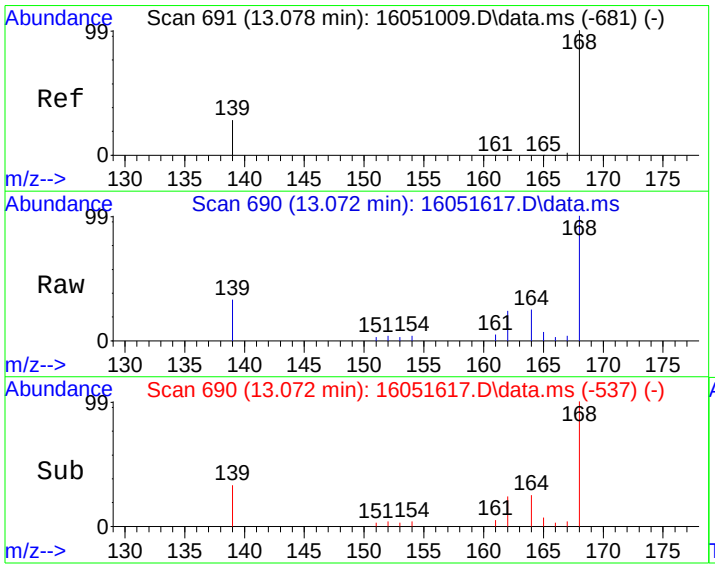


#8
Acenaphthene
Concen: 9.59 ug/kg
RT: 12.915 min Scan# 658
Delta R.T. 0.010 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:153 Resp: 3496

Ion	Ratio	Lower	Upper
153	100		
152	45.1	27.2	67.2
154	92.3	74.3	114.3

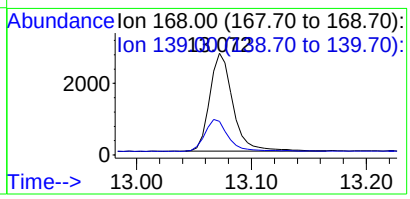


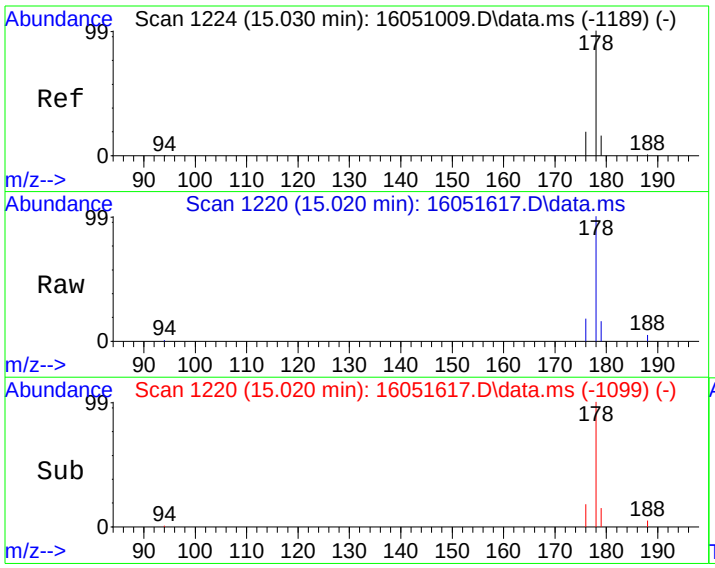


#9
Dibenzofuran
Concen: 6.57 ug/kg
RT: 13.072 min Scan# 690
Delta R.T. 0.010 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:168 Resp: 3866

Ion	Ratio	Lower	Upper
168	100		
139	30.4	7.8	47.8

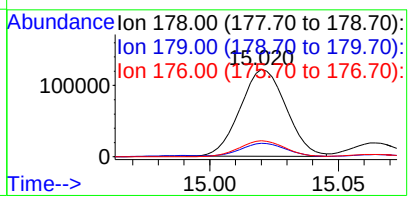


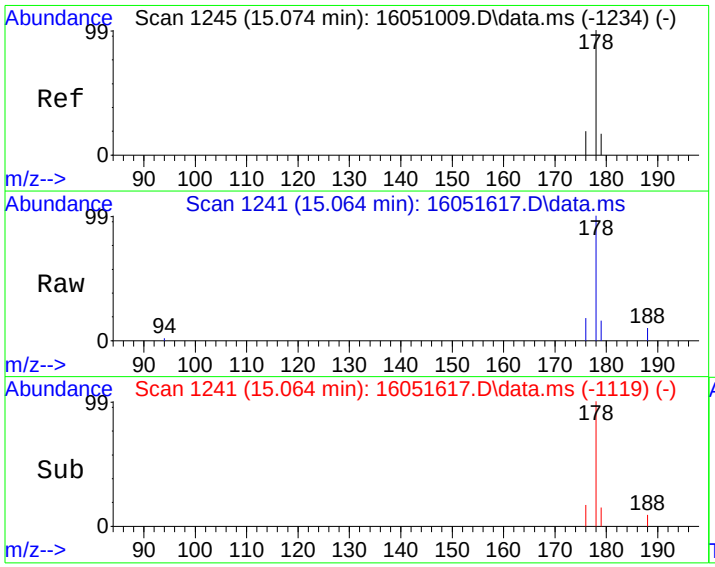


#12
Phenanthrene
Concen: 178.52 ug/kg
RT: 15.020 min Scan# 1220
Delta R.T. 0.004 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:178 Resp: 151362

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	36.4
176	18.3	0.0	39.2

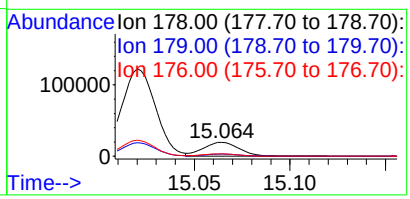


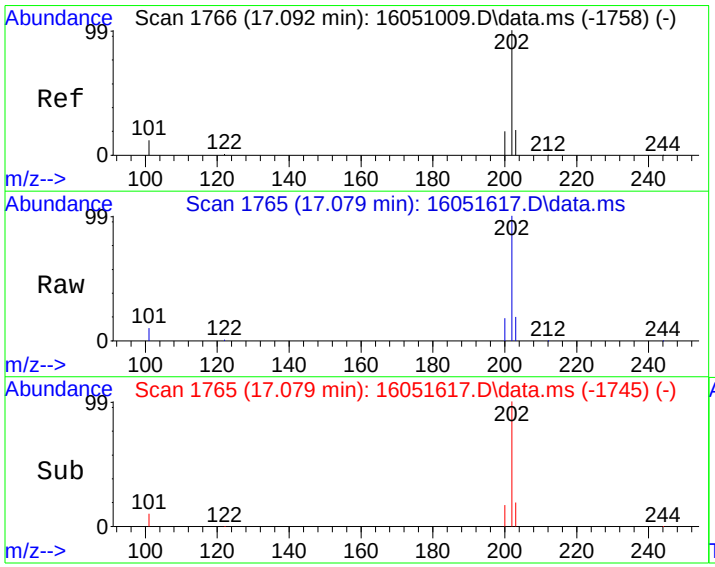


#13
Anthracene
Concen: 27.46 ug/kg
RT: 15.064 min Scan# 1241
Delta R.T. 0.006 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:178 Resp: 25222

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	36.5
176	17.3	0.0	38.6

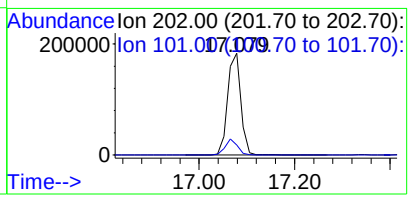


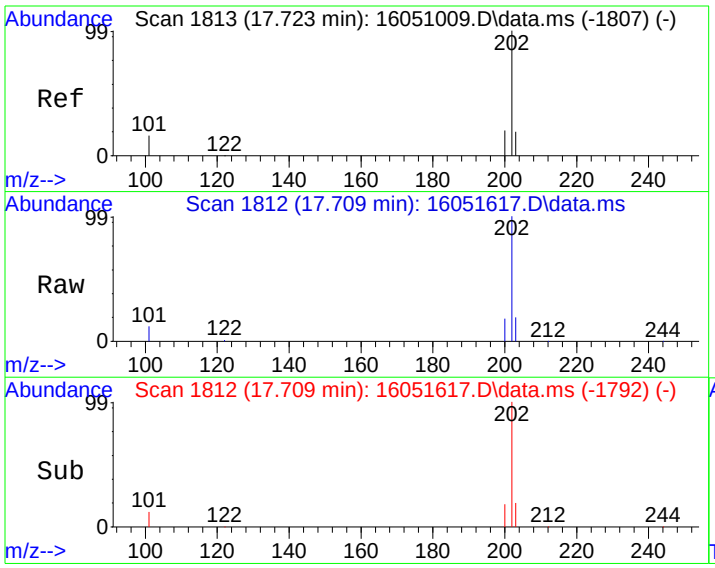


#14
Fluoranthene
Concen: 315.43 ug/kg
RT: 17.079 min Scan# 1765
Delta R.T. 0.014 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:202 Resp: 349993

Ion	Ratio	Lower	Upper
202	100		
101	9.8	0.0	32.0

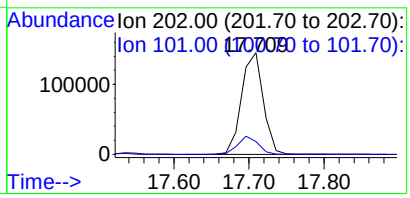


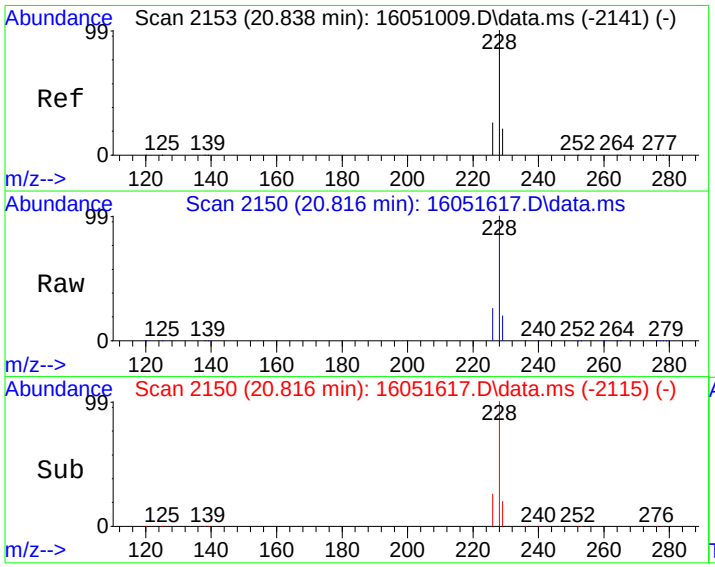


#15
Pyrene
Concen: 261.63 ug/kg
RT: 17.709 min Scan# 1812
Delta R.T. 0.014 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:202 Resp: 291173

Ion	Ratio	Lower	Upper
202	100		
101	12.4	0.0	35.9

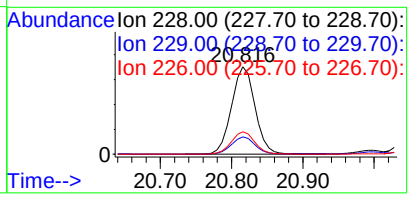


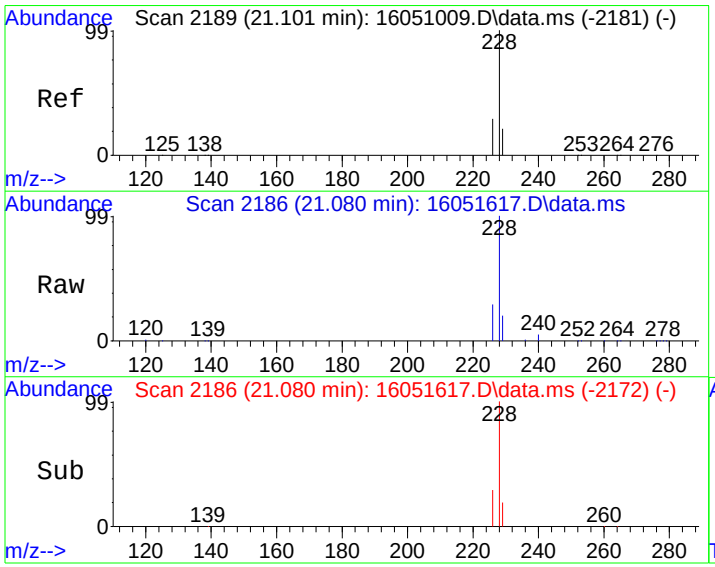


#18
Benzo[a]anthracene
Concen: 196.07 ug/kg
RT: 20.816 min Scan# 2150
Delta R.T. 0.010 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:228 Resp: 160944

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.7	40.7
226	25.6	5.9	45.9

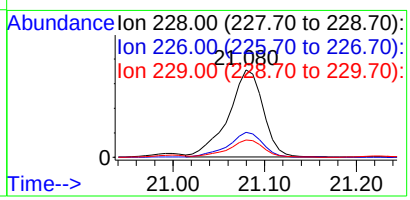


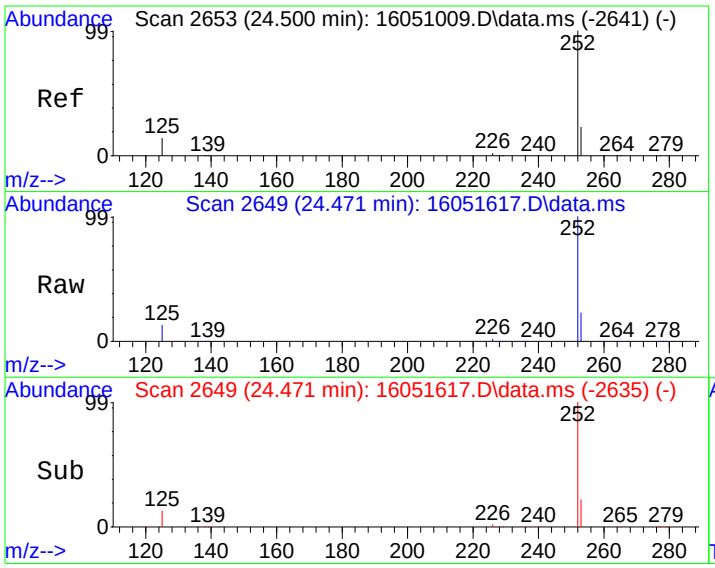


#19
Chrysene
Concen: 247.91 ug/kg
RT: 21.080 min Scan# 2186
Delta R.T. 0.002 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:228 Resp: 186285

Ion	Ratio	Lower	Upper
228	100		
226	28.5	8.8	48.8
229	19.8	0.5	40.5

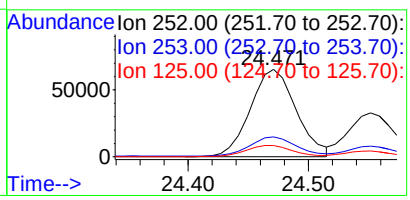


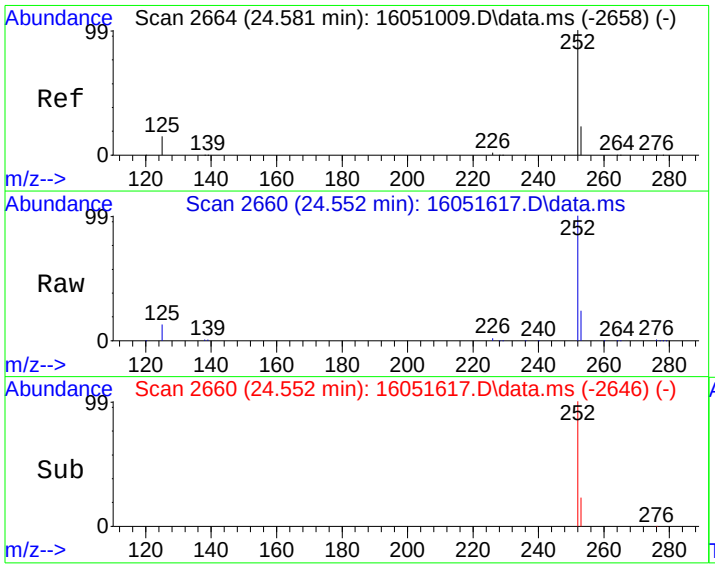


#21
Benzo[b]fluoranthene
Concen: 230.19 ug/kg
RT: 24.471 min Scan# 2649
Delta R.T. 0.002 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:252 Resp: 172569

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.6	42.6
125	12.6	0.0	33.8

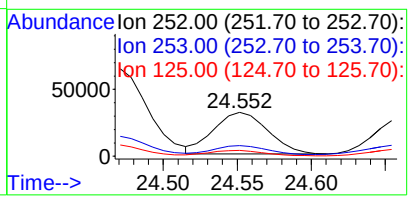


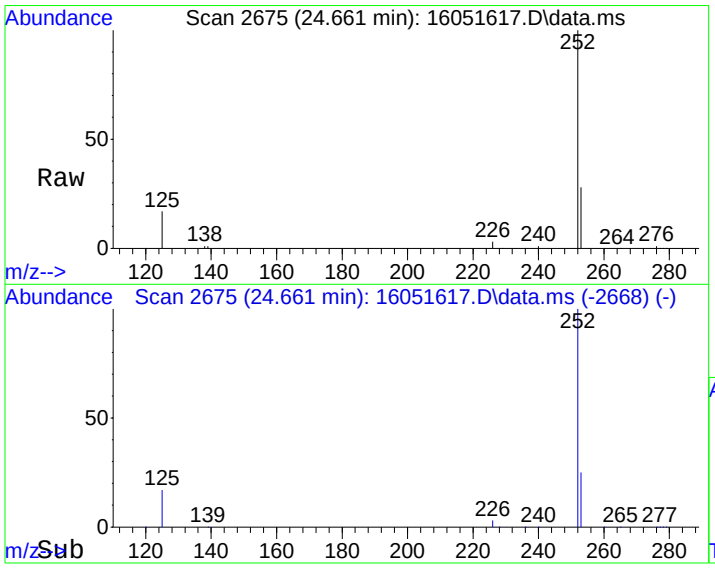


#22
Benzo[k]fluoranthene
Concen: 132.43 ug/kg
RT: 24.552 min Scan# 2660
Delta R.T. 0.002 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:252 Resp: 79627

Ion	Ratio	Lower	Upper
252	100		
253	20.6	2.8	42.8
125	12.9	0.0	34.7

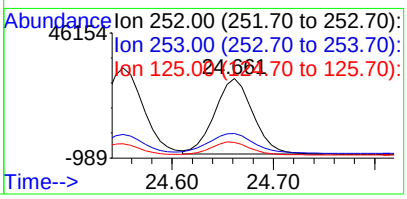


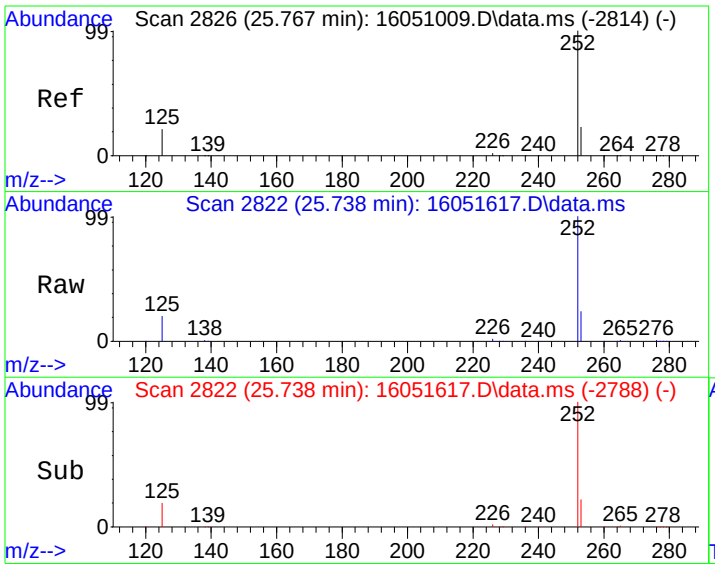


#23
Benzo(j)fluoranthene
Concen: 123.03 ug/kg
RT: 24.661 min Scan# 2675
Delta R.T. 0.002 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:252 Resp: 74768

Ion	Ratio	Lower	Upper
252	100		
253	30.7	2.3	42.3
125	17.4	0.0	39.2

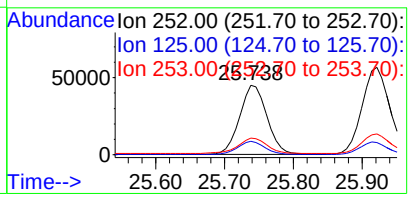


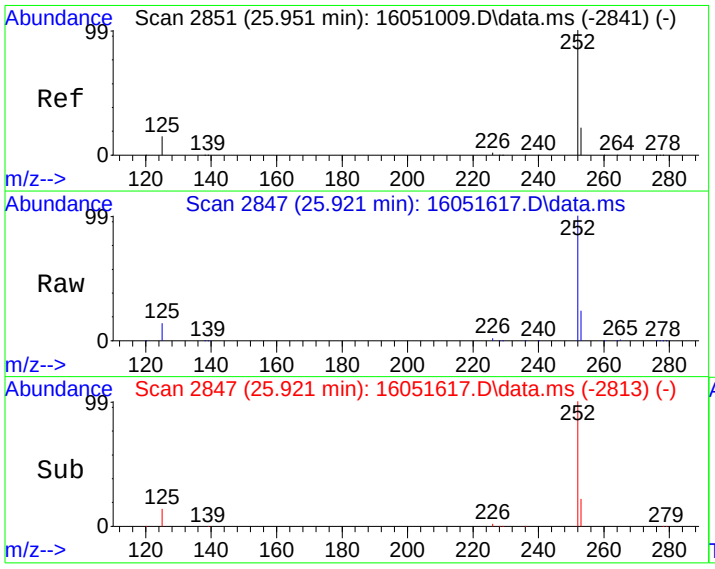


#24
Benzo(e)pyrene
Concen: 173.55 ug/kg
RT: 25.738 min Scan# 2822
Delta R.T. 0.002 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:252 Resp: 124876

Ion	Ratio	Lower	Upper
252	100		
125	18.7	0.8	40.8
253	23.4	2.4	42.4

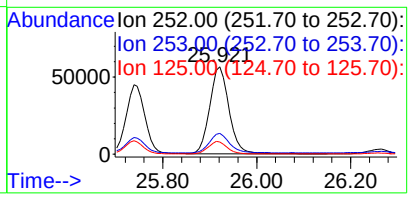


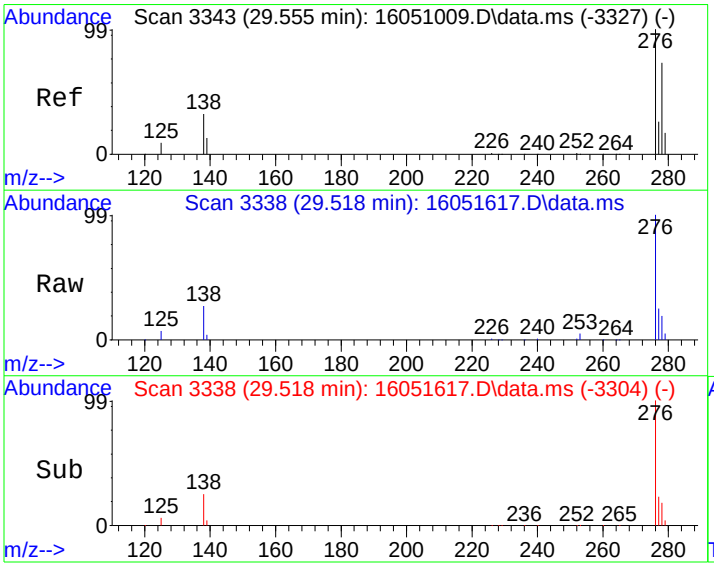


#25
Benzo[a]pyrene
Concen: 233.09 ug/kg
RT: 25.921 min Scan# 2847
Delta R.T. 0.002 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:252 Resp: 160602

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.5	42.5
125	13.9	0.0	35.5

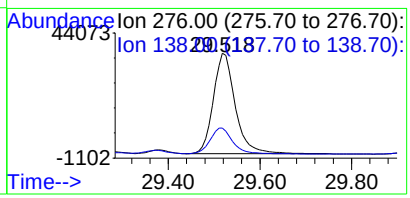


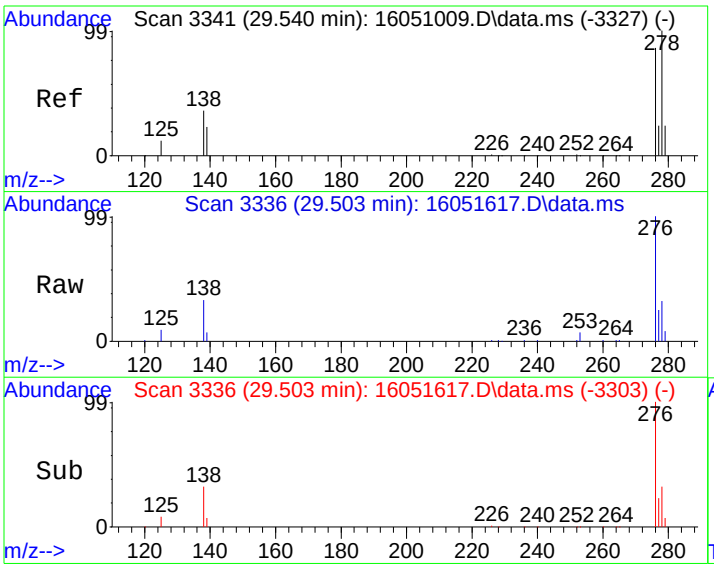


#26
Indeno[1,2,3-cd]pyrene
Concen: 157.97 ug/kg
RT: 29.518 min Scan# 3338
Delta R.T. 0.002 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:276 Resp: 120584

Ion	Ratio	Lower	Upper
276	100		
138	25.9	12.0	52.0

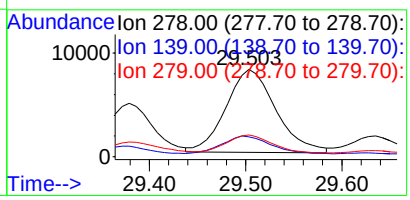


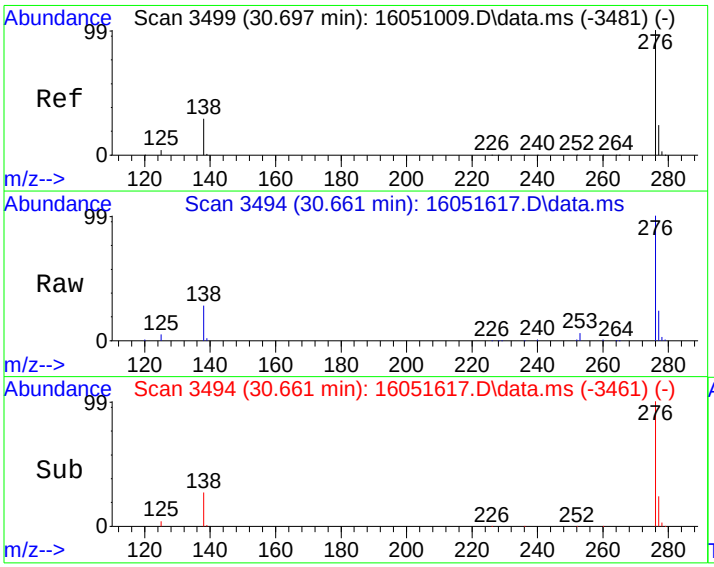


#27
Dibenz[a,h]anthracene
Concen: 46.49 ug/kg
RT: 29.503 min Scan# 3336
Delta R.T. -0.005 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:278 Resp: 28929

Ion	Ratio	Lower	Upper
278	100		
139	21.4	2.9	42.9
279	22.7	4.4	44.4

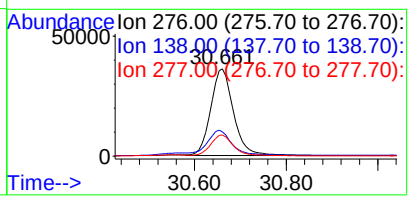




#28
Benzo[g,h,i]perylene
Concen: 187.34 ug/kg
RT: 30.661 min Scan# 3494
Delta R.T. -0.005 min
Lab File: 16051617.D
Acq: 16 May 2016 10:56 pm

Tgt Ion:276 Resp: 124785

Ion	Ratio	Lower	Upper
276	100		
138	26.8	9.3	49.3
277	23.9	4.3	44.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051618.D
Acq On : 16 May 2016 11:33 pm
Operator :
Sample : CCV-160516
Misc : CCV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 17 08:36:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.276	136	1680985	4000.00	ug/kg	108
6) Acenaphthene-d10	12.861	164	1154925	4000.00	ug/kg	118
11) Phenanthrene-d10	14.985	188	2979977	4000.00	ug/kg	96
16) Chrysene-d12	20.998	240	2990290	4000.00	ug/kg	86
20) Perylene-d12	26.265	264	2678084	4000.00	ug/kg	90

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	368814	1116.34	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	27.91%#		
17) 4-Terphenyl-d14	17.601	244	702763	1017.14	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	25.43%#		

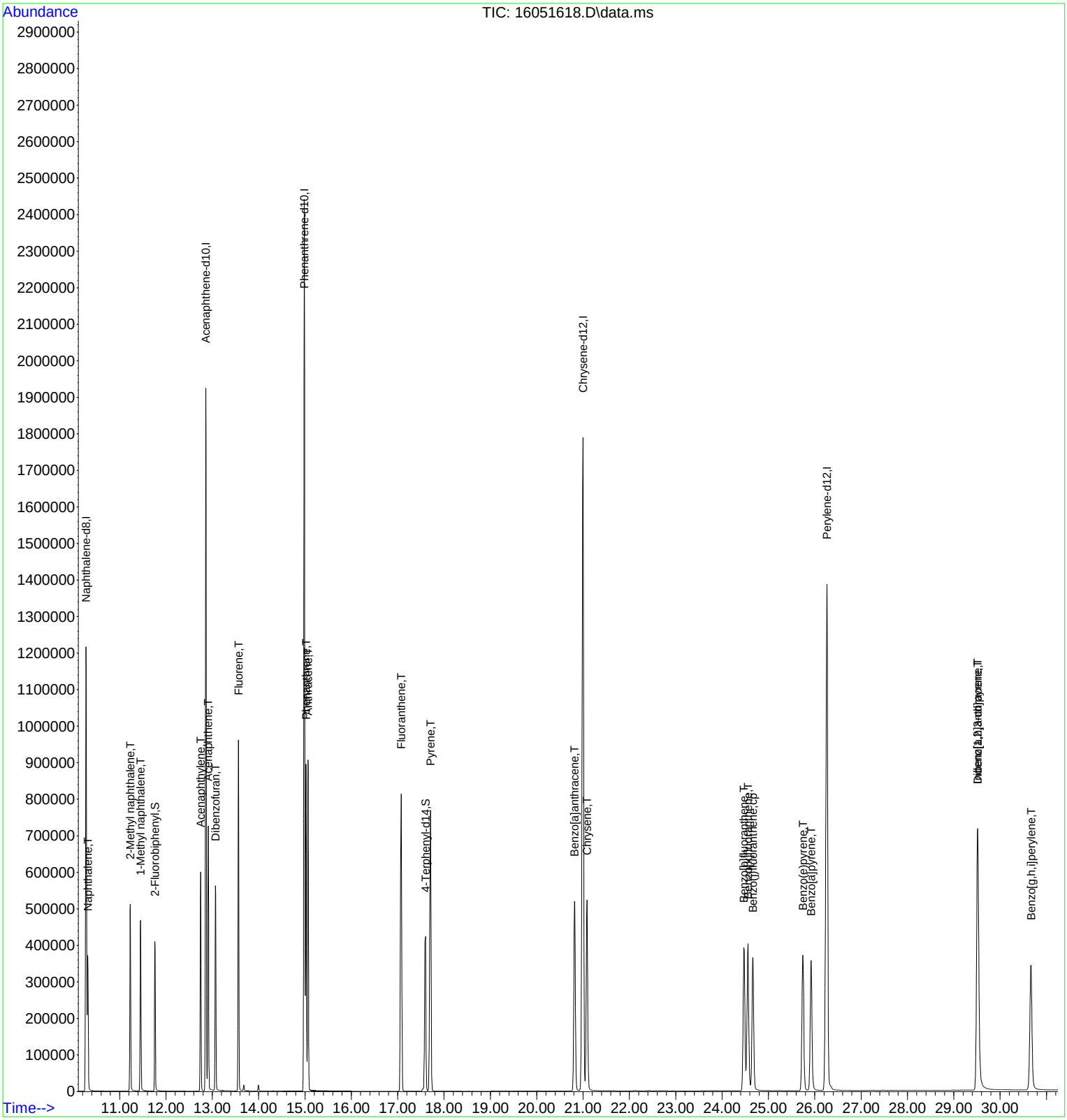
Target Compounds						Qvalue
2) Naphthalene	10.313	128	418987	1028.47	ug/kg	100
3) 2-Methyl naphthalene	11.230	142	312505	1127.36	ug/kg	99
4) 1-Methyl naphthalene	11.452	142	284886	1114.37	ug/kg	100
7) Acenaphthylene	12.748	152	565512	1041.97	ug/kg	99
8) Acenaphthene	12.910	153	350949	1021.81	ug/kg	99
9) Dibenzofuran	13.073	168	541312	975.98	ug/kg	95
10) Fluorene	13.564	166	504416	967.08	ug/kg	99
12) Phenanthrene	15.023	178	859790	996.88	ug/kg	99
13) Anthracene	15.065	178	875467	936.90	ug/kg	99
14) Fluoranthene	17.078	202	972630	861.71	ug/kg	98
15) Pyrene	17.708	202	946262	835.84	ug/kg	97
18) Benzo[a]anthracene	20.815	228	836016	994.56	ug/kg	99
19) Chrysene	21.086	228	766247	995.78	ug/kg	99
21) Benzo[b]fluoranthene	24.470	252	771957	1012.16	ug/kg	99
22) Benzo[k]fluoranthene	24.558	252	698349	1141.61	ug/kg	97
23) Benzo(j)fluoranthene	24.668	252	665905	1077.00	ug/kg	98
24) Benzo(e)pyrene	25.745	252	718926	982.09	ug/kg	98
25) Benzo[a]pyrene	25.921	252	703897	1004.16	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.525	276	844505	1087.44	ug/kg	94
27) Dibenz[a,h]anthracene	29.510	278	707987	1118.24	ug/kg	97
28) Benzo[g,h,i]perylene	30.667	276	718345	1060.05	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051618.D
Acq On : 16 May 2016 11:33 pm
Operator :
Sample : CCV-160516
Misc : CCV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 17 08:36:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051620.D
Acq On : 17 May 2016 12:46 am
Operator :
Sample : ICV2-160516
Misc : ICV
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 17 08:36:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.277	136	1681575	4000.00	ug/kg	108
6) Acenaphthene-d10	12.862	164	1074547	4000.00	ug/kg	110
11) Phenanthrene-d10	14.986	188	2914003	4000.00	ug/kg	94
16) Chrysene-d12	20.998	240	3021910	4000.00	ug/kg	86
20) Perylene-d12	26.265	264	2676560	4000.00	ug/kg	90

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.762	172	646994	1957.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	48.94%		
17) 4-Terphenyl-d14	17.601	244	1292696	1851.41	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	46.29%#		

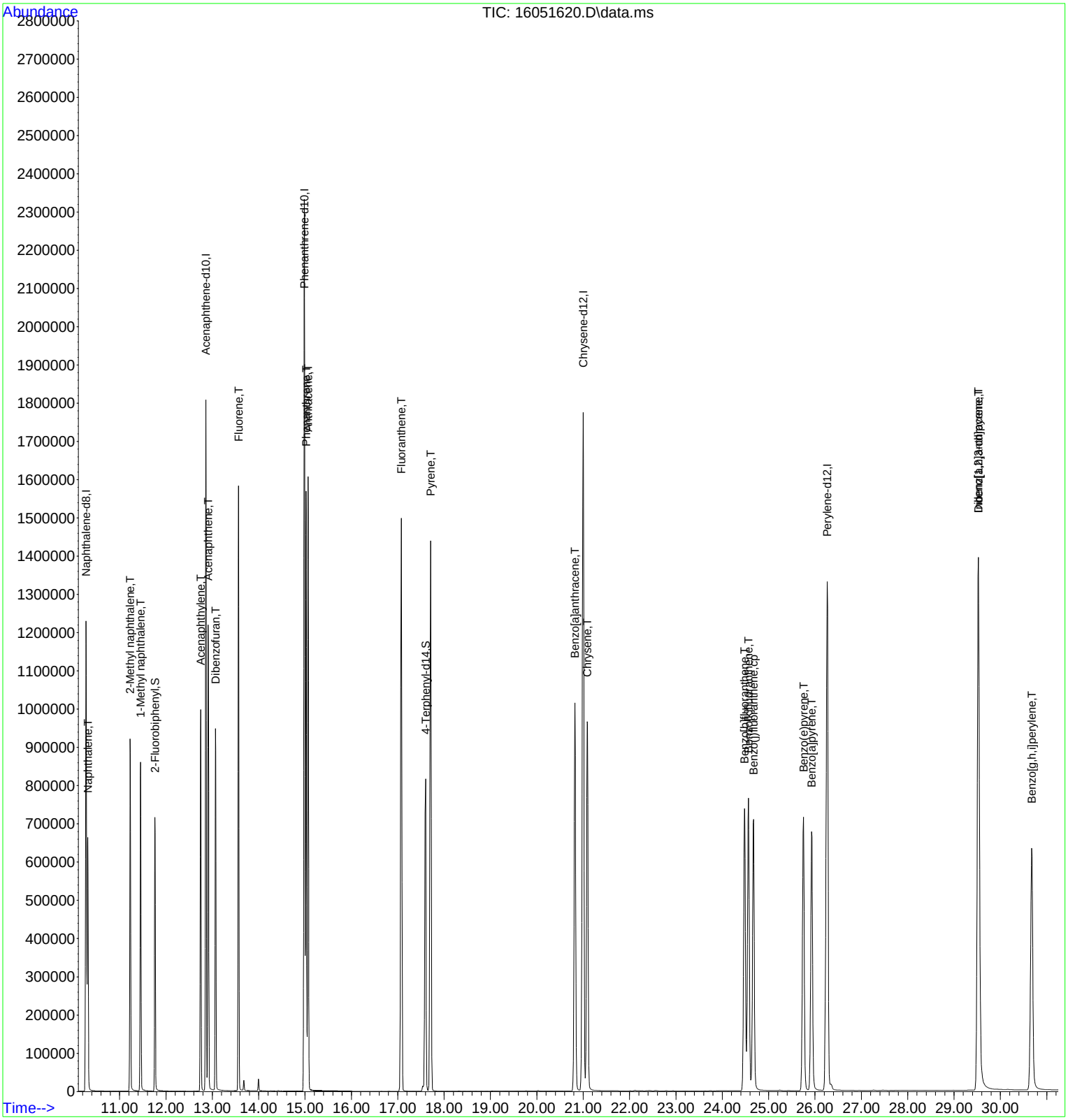
Target Compounds						Qvalue
2) Naphthalene	10.314	128	771200	1892.37	ug/kg	100
3) 2-Methyl naphthalene	11.227	142	562879	2042.86	ug/kg	97
4) 1-Methyl naphthalene	11.453	142	517085	2021.94	ug/kg	100
7) Acenaphthylene	12.749	152	968219	1917.42	ug/kg	100
8) Acenaphthene	12.911	153	597261	1869.04	ug/kg	100
9) Dibenzofuran	13.073	168	911689	1766.72	ug/kg	96
10) Fluorene	13.564	166	845841	1742.97	ug/kg	99
12) Phenanthrene	15.024	178	1529676	1813.74	ug/kg	100
13) Anthracene	15.066	178	1561652	1709.08	ug/kg	100
14) Fluoranthene	17.078	202	1766800	1600.76	ug/kg	99
15) Pyrene	17.709	202	1747538	1578.57	ug/kg	100
18) Benzo[a]anthracene	20.822	228	1600074	1883.60	ug/kg	100
19) Chrysene	21.086	228	1462953	1881.29	ug/kg	100
21) Benzo[b]fluoranthene	24.485	252	1482377	1944.73	ug/kg	99
22) Benzo[k]fluoranthene	24.565	252	1337296	2187.36	ug/kg	98
23) Benzo(j)fluoranthene	24.675	252	1274362	2062.27	ug/kg	98
24) Benzo(e)pyrene	25.752	252	1379006	1884.87	ug/kg	98
25) Benzo[a]pyrene	25.928	252	1351638	1929.31	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.532	276	1602528	2064.70	ug/kg	99
27) Dibenz[a,h]anthracene	29.524	278	1342041	2120.91	ug/kg	96
28) Benzo[g,h,i]perylene	30.675	276	1360602	2008.96	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051620.D
Acq On : 17 May 2016 12:46 am
Operator :
Sample : ICV2-160516
Misc : ICV
ALS Vial : 20 Sample Multiplier: 1

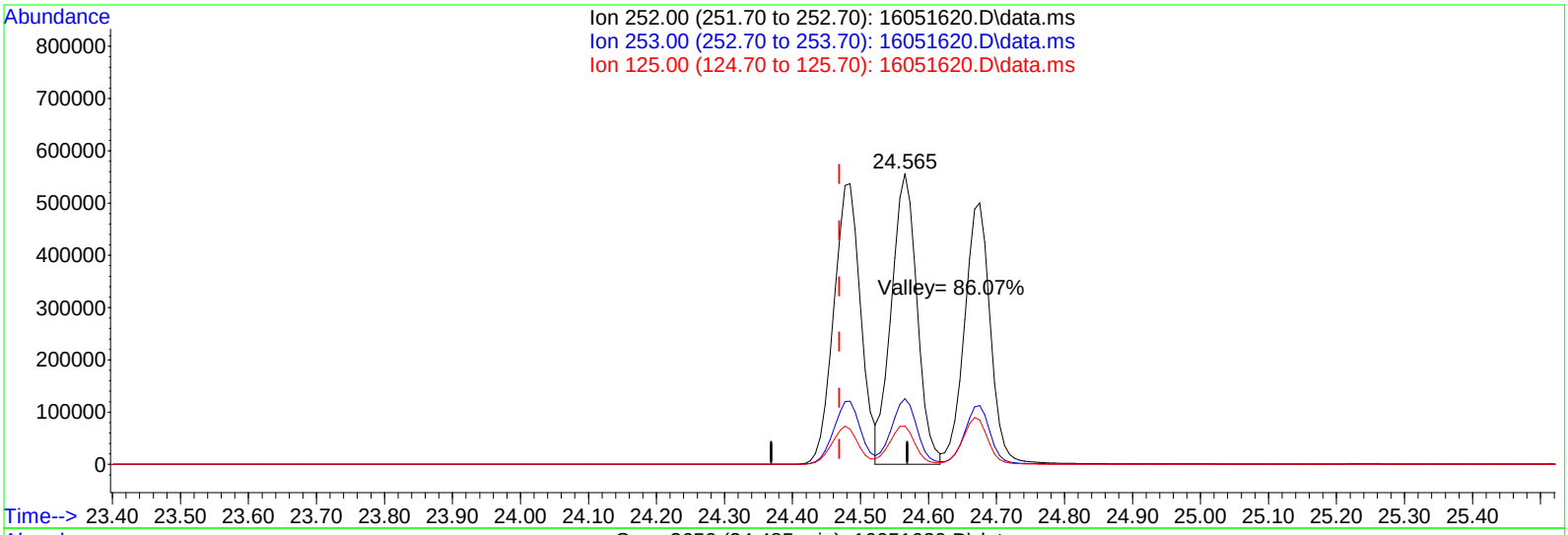
Quant Time: May 17 08:36:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

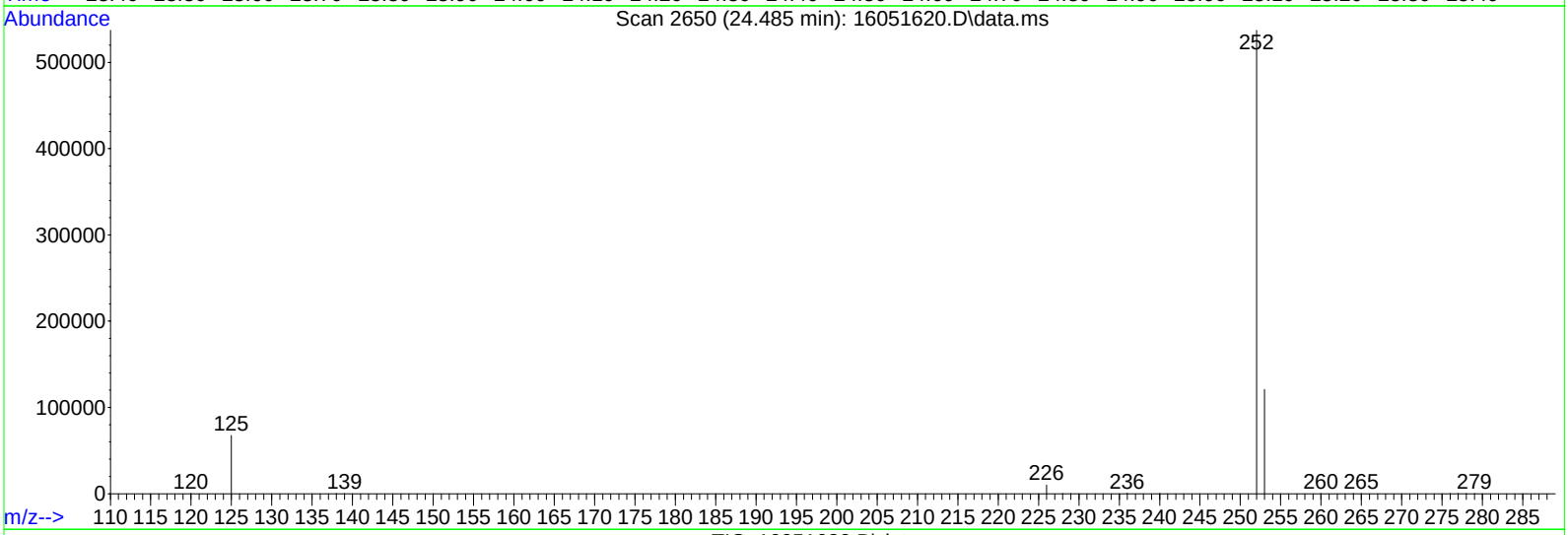


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051620.D
Acq On : 17 May 2016 12:46 am
Operator :
Sample : ICV2-160516
Misc : ICV
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 17 01:18:06 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration





TIC: 16051620.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.485min (+0.016) 1944.73ug/kg

response 1482377

Ion	Exp%	Act%
252.00	100	100
253.00	22.60	22.36
125.00	13.80	12.55
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051621.D
Acq On : 17 May 2016 1:23 am
Operator :
Sample : SBLK2-160516
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 17 08:36:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.276	136	1606387	4000.00	ug/kg	103
6) Acenaphthene-d10	12.862	164	1206965	4000.00	ug/kg	124
11) Phenanthrene-d10	14.985	188	2880922	4000.00	ug/kg	93
16) Chrysene-d12	20.998	240	2880483	4000.00	ug/kg	82
20) Perylene-d12	26.265	264	2589845	4000.00	ug/kg	87

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.769	172	32	0.10	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.00%#			
17) 4-Terphenyl-d14	17.602	244	149	0.22	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 0.01%#			

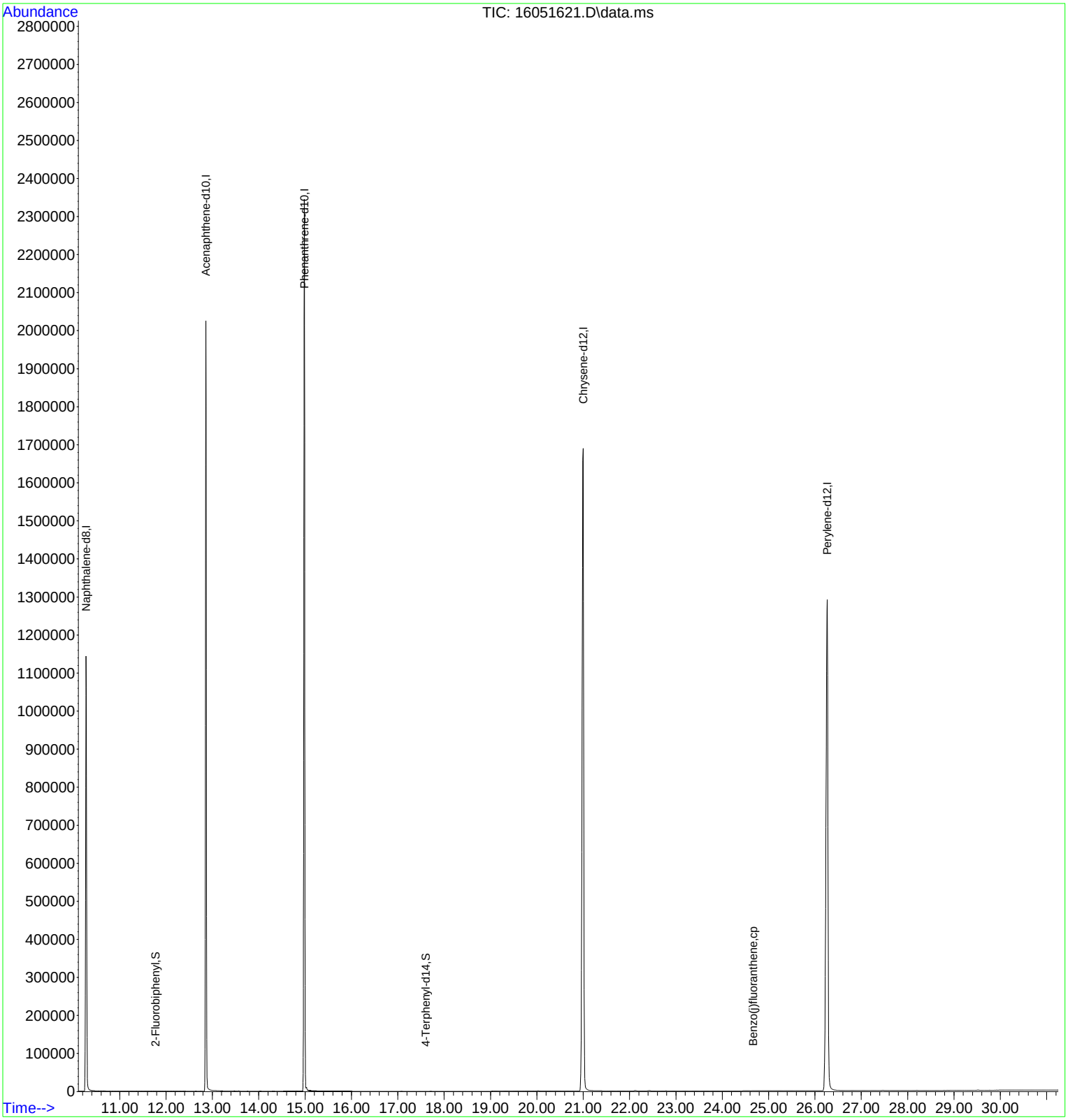
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	24.661	252	856	1.43	ug/kg	86

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051621.D
Acq On : 17 May 2016 1:23 am
Operator :
Sample : SBLK2-160516
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 17 08:36:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051631.D
Acq On : 17 May 2016 7:32 am
Operator :
Sample : CCV2-160516
Misc : CCV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 17 08:36:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration

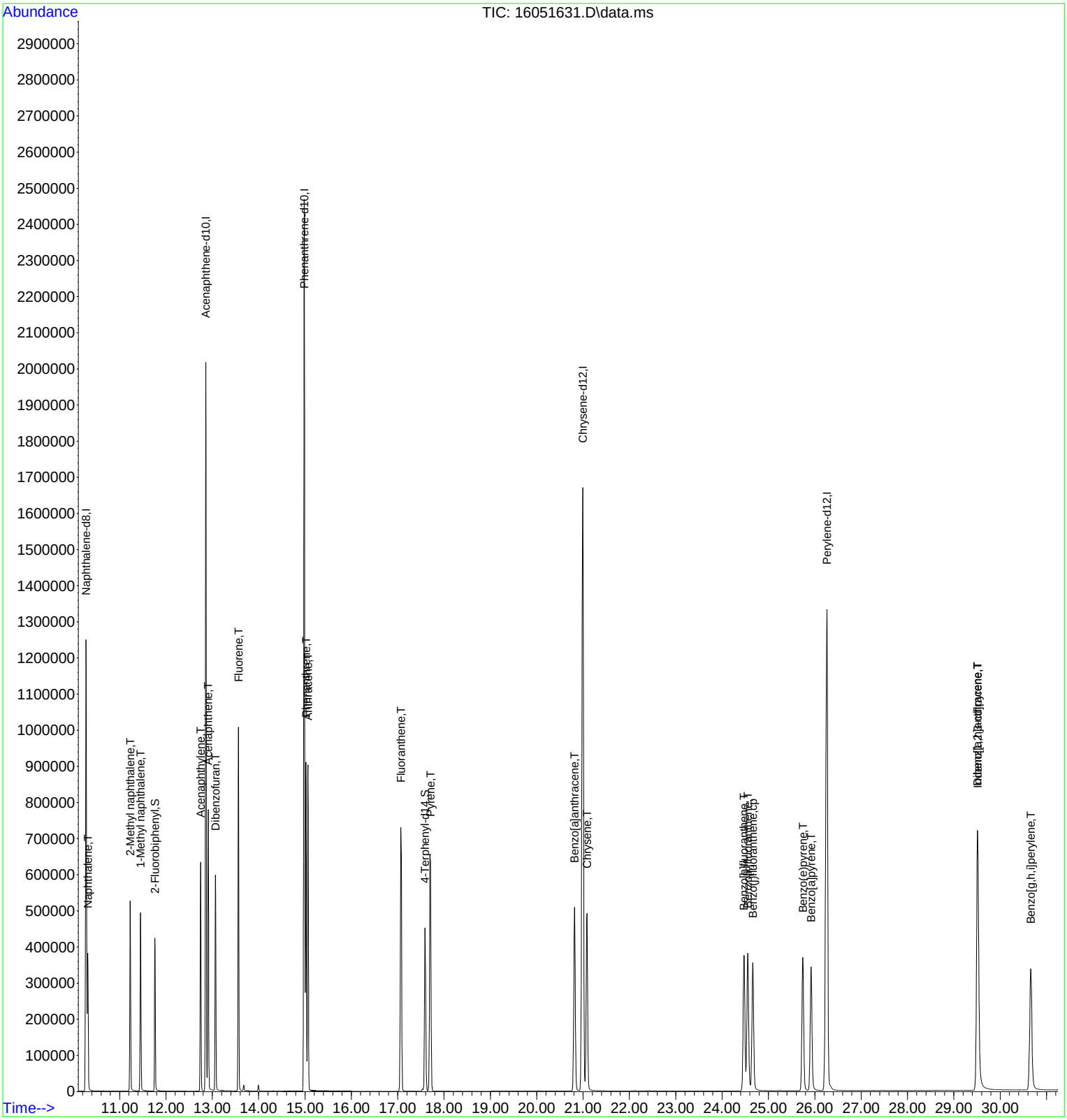
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.275	136	1728083	4000.00	ug/kg	111
6) Acenaphthene-d10	12.861	164	1203861	4000.00	ug/kg	123
11) Phenanthrene-d10	14.984	188	3015405	4000.00	ug/kg	97
16) Chrysene-d12	20.997	240	2853119	4000.00	ug/kg	82
20) Perylene-d12	26.264	264	2647268	4000.00	ug/kg	89
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.760	172	381290	1122.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	28.07%#		
17) 4-Terphenyl-d14	17.589	244	665311	1009.23	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	25.23%#		
Target Compounds						Qvalue
2) Naphthalene	10.312	128	429206	1024.84	ug/kg	100
3) 2-Methyl naphthalene	11.229	142	323278	1134.49	ug/kg	99
4) 1-Methyl naphthalene	11.451	142	296367	1127.69	ug/kg	100
7) Acenaphthylene	12.748	152	593588	1049.24	ug/kg	99
8) Acenaphthene	12.910	153	368649	1029.72	ug/kg	99
9) Dibenzofuran	13.067	168	571004	987.66	ug/kg	89
10) Fluorene	13.563	166	531793	978.12	ug/kg	99
12) Phenanthrene	15.020	178	872221	999.42	ug/kg	99
13) Anthracene	15.064	178	884311	935.25	ug/kg	98
14) Fluoranthene	17.066	202	920424	805.88	ug/kg	87
15) Pyrene	17.710	202	893797	780.23	ug/kg	90
18) Benzo[a]anthracene	20.814	228	788551	983.20	ug/kg	99
19) Chrysene	21.085	228	727388	990.73	ug/kg	99
21) Benzo[b]fluoranthene	24.476	252	748263	992.51	ug/kg	98
22) Benzo[k]fluoranthene	24.557	252	669400	1107.02	ug/kg	97
23) Benzo(j)fluoranthene	24.659	252	646388	1057.61	ug/kg	98
24) Benzo(e)pyrene	25.743	252	701813	969.88	ug/kg	98
25) Benzo[a]pyrene	25.919	252	685054	988.66	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.523	276	845881	1101.89	ug/kg	93
27) Dibenz[a,h]anthracene	29.509	278	704627	1125.89	ug/kg	96
28) Benzo[g,h,i]perylene	30.666	276	724838	1082.08	ug/kg	96

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160516\
Data File : 16051631.D
Acq On : 17 May 2016 7:32 am
Operator :
Sample : CCV2-160516
Misc : CCV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 17 08:36:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Fri May 13 12:50:28 2016
Response via : Initial Calibration



GCMS8_160518B
For

DHL Work Order
1605096

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			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

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

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

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

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

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

Approved by: Date:

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

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

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS __LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	X Flag data / Case narrative
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: ***REVIEWED/APPROVED*** 5/19/2016

Second-Level Review: Date: ***By Sherri Herschmann at 4:06:35 PM, 5/23/2016*** **05/23/2016**

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
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) 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	~~358.0~~ 538.0 - 214.4 = 323.6
1605096-36B	Equip Blank		500	1	0.002	1 of	543.3 - 213.4 = 329.9
1605096-37B	Equip Blank		500	1	0.002	1 of 1	538.9 - 213.0 = 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 = ~~325.1~~ 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~~ 5/13/16	Aqueous		500	1	0.002	of	Insufficient Sample for MS/D 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

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

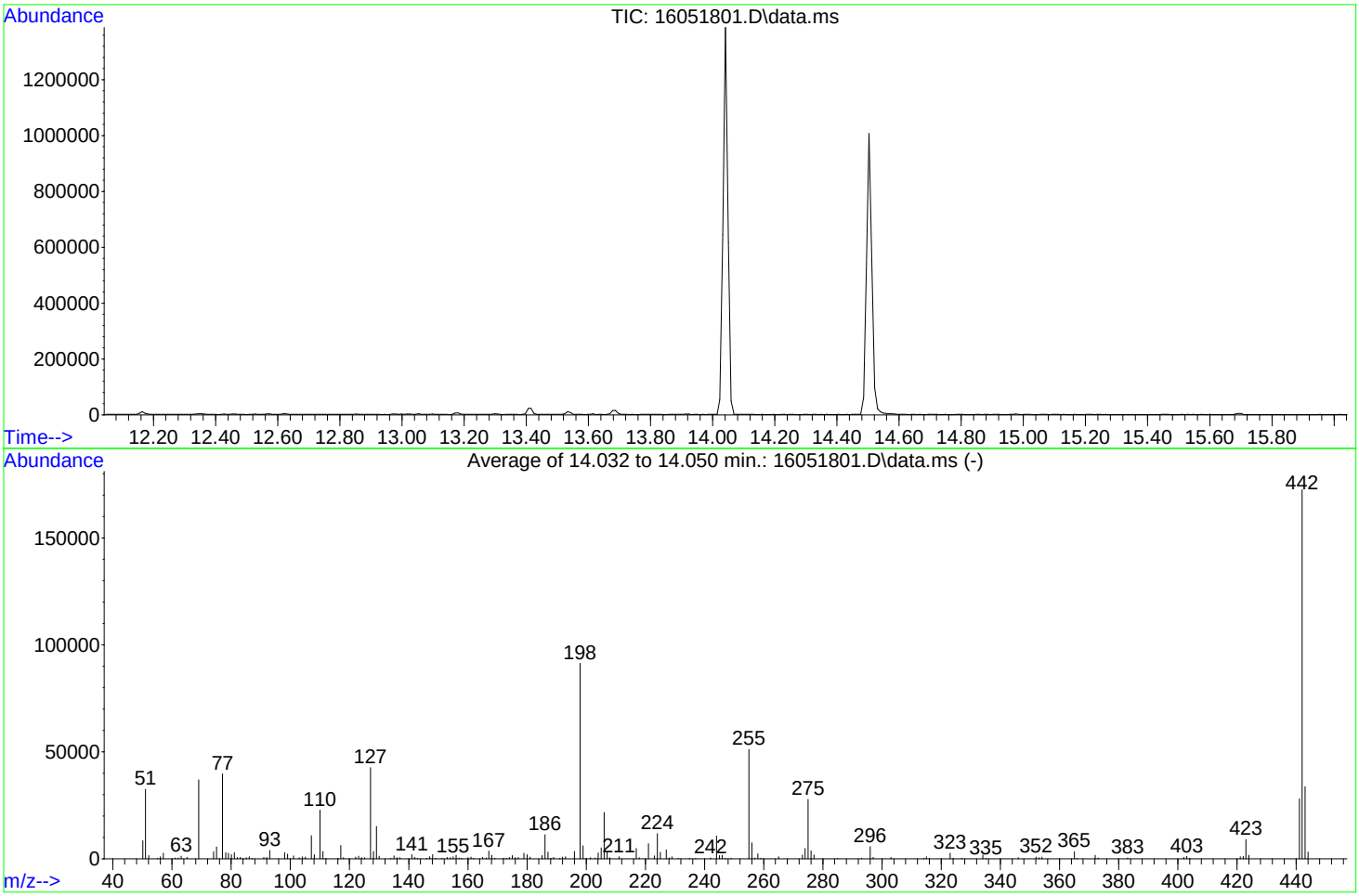
Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
9927	Purified Sodium Sulfate	10	g	07/04/2016
10169	Methylene Chloride	120	ml	03/15/2026
10214	Whatman 41 Filter	1	filter	03/30/2026

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



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

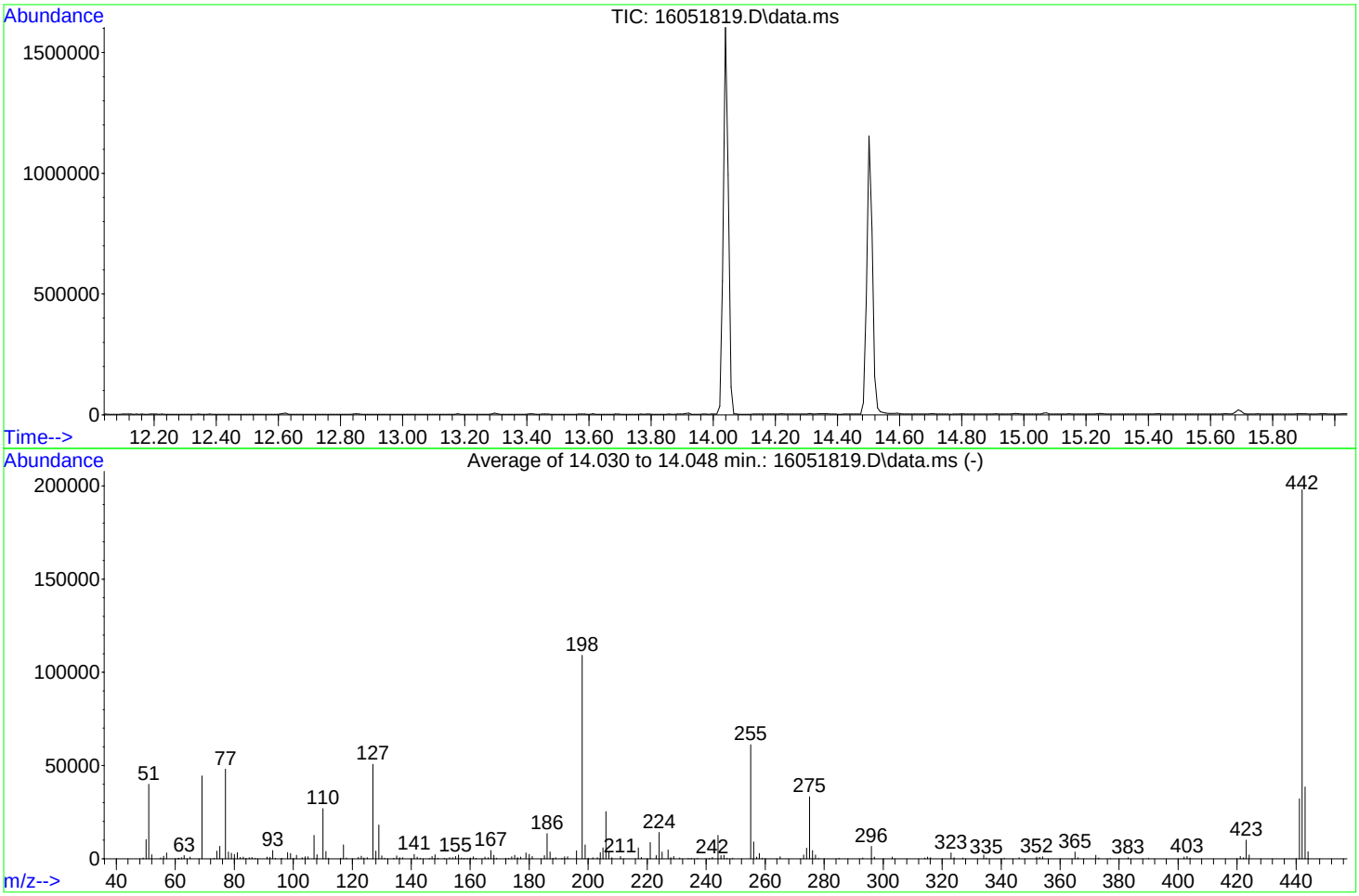
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.6	32471	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.5	36940	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	46.7	42606	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	91320	PASS
199	198	5	9	6.7	6088	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

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

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%#			

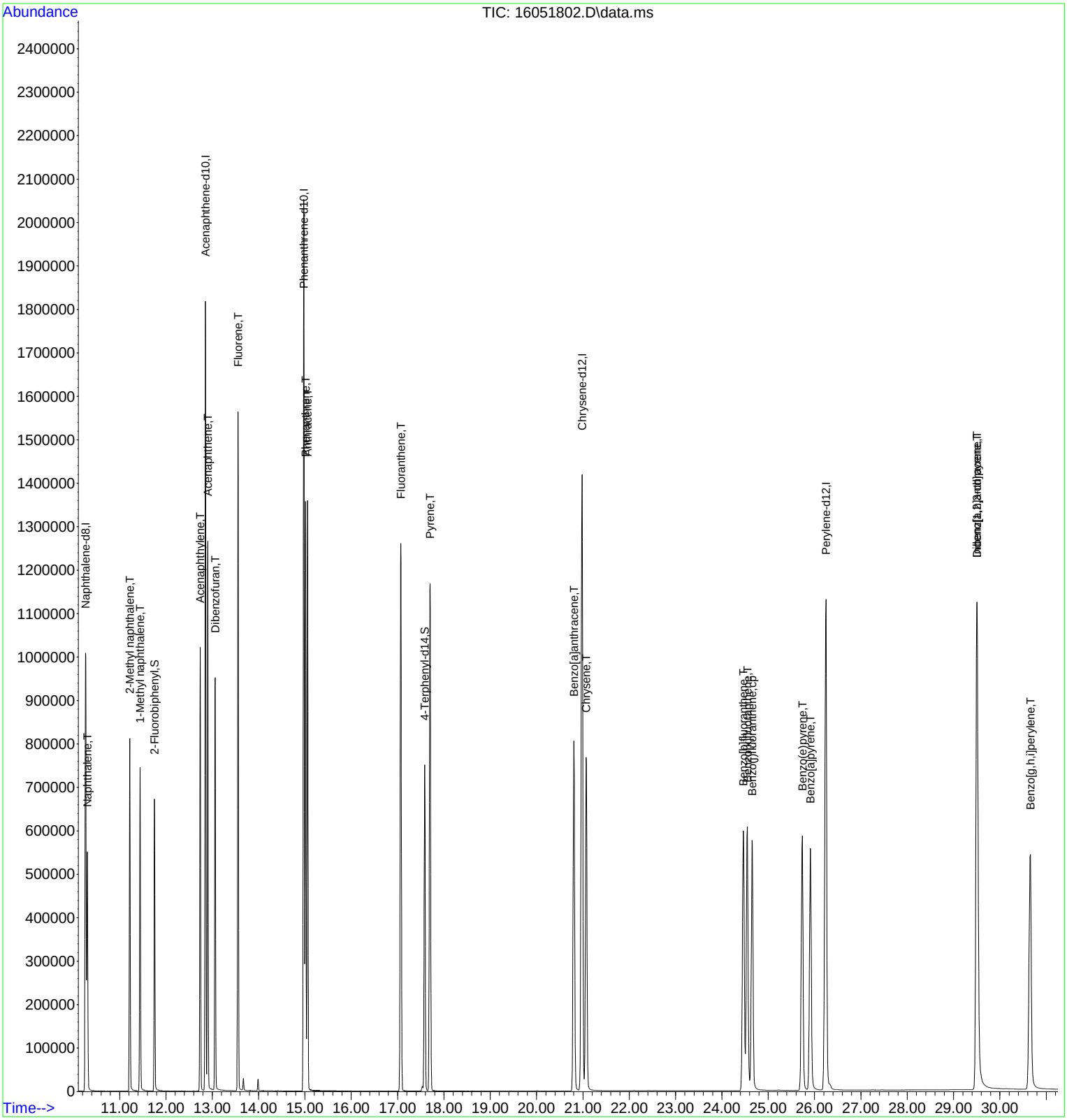
Target Compounds						Qvalue
2) Naphthalene	10.300	128	645598	2002.26	ug/kg	100
3) 2-Methyl naphthalene	11.217	142	500194	1995.54	ug/kg	98
4) 1-Methyl naphthalene	11.444	142	460727	1942.42	ug/kg	99
7) Acenaphthylene	12.738	152	964211	2011.33	ug/kg	100
8) Acenaphthene	12.905	153	609340	2014.36	ug/kg	100
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

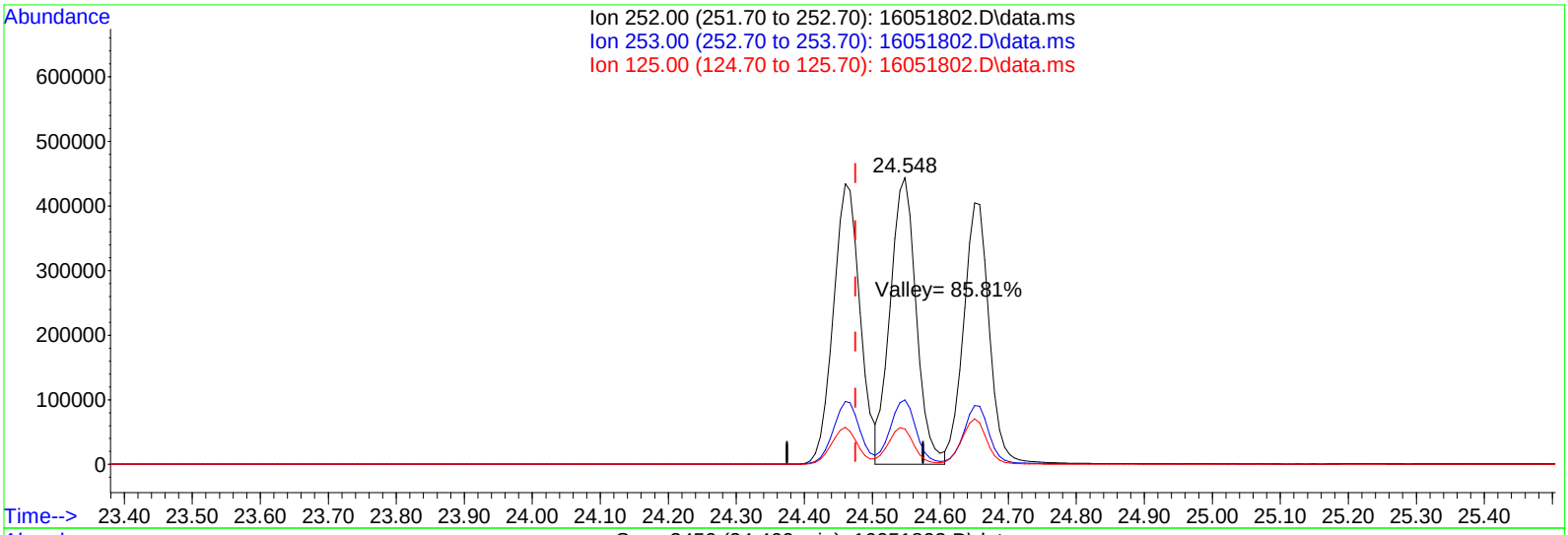
Quant Time: May 18 11:42:31 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

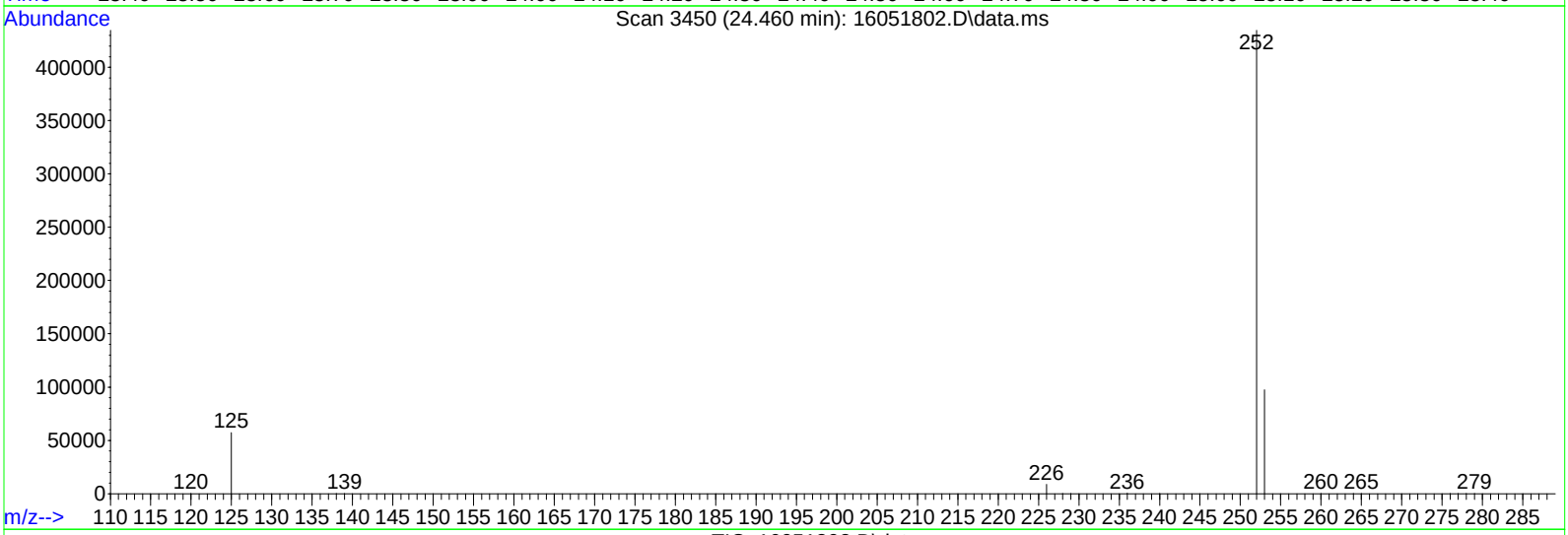


Quantitation Report (Qedit)

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

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

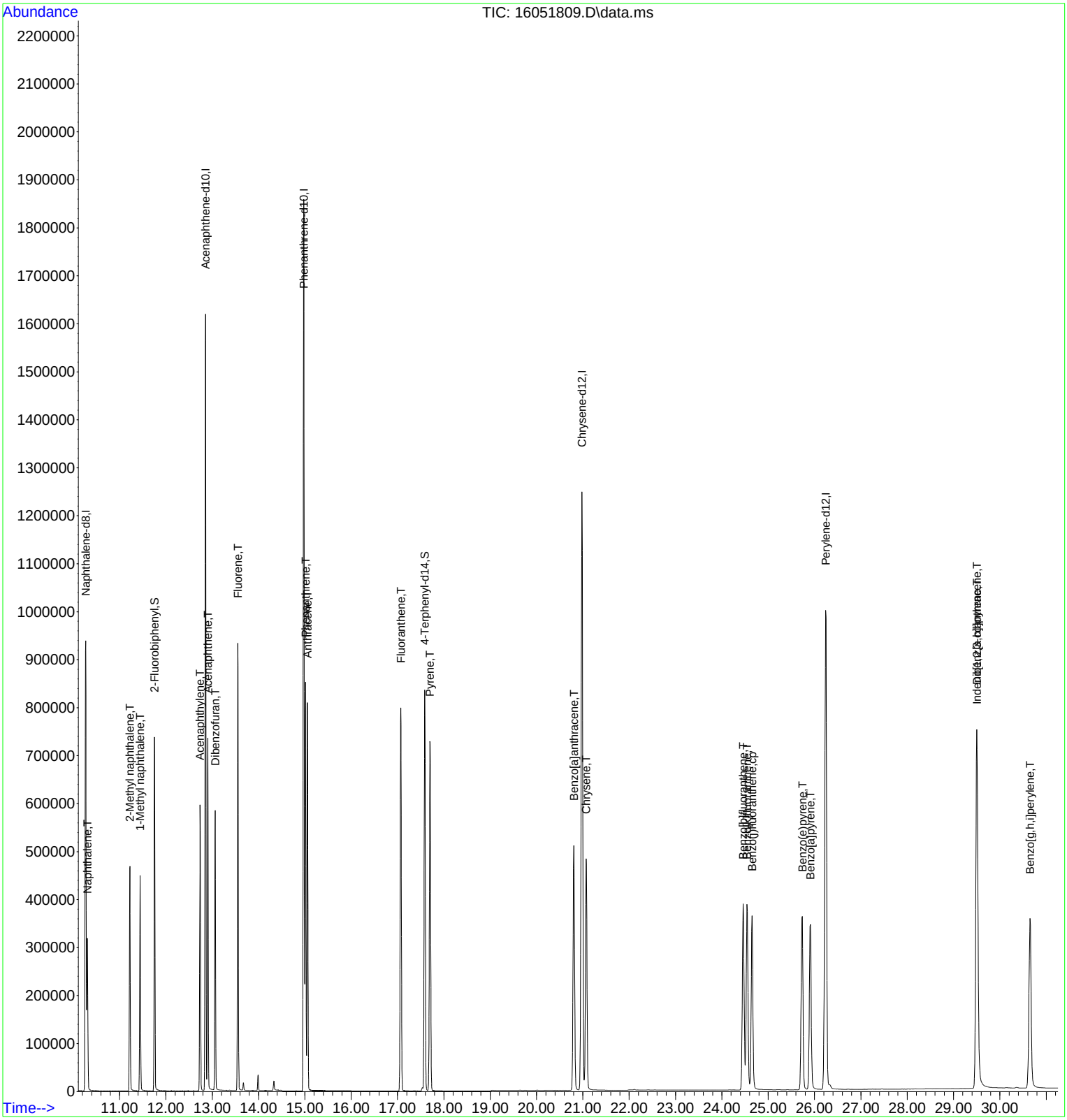
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.269	136	1319910	4000.00	ug/kg	81
6) Acenaphthene-d10	12.857	164	979132	4000.00	ug/kg	78
11) Phenanthrene-d10	14.977	188	2285148	4000.00	ug/kg	78
16) Chrysene-d12	20.981	240	2110098	4000.00	ug/kg	78
20) Perylene-d12	26.241	264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



Quantitation Report (Not Reviewed)

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%		

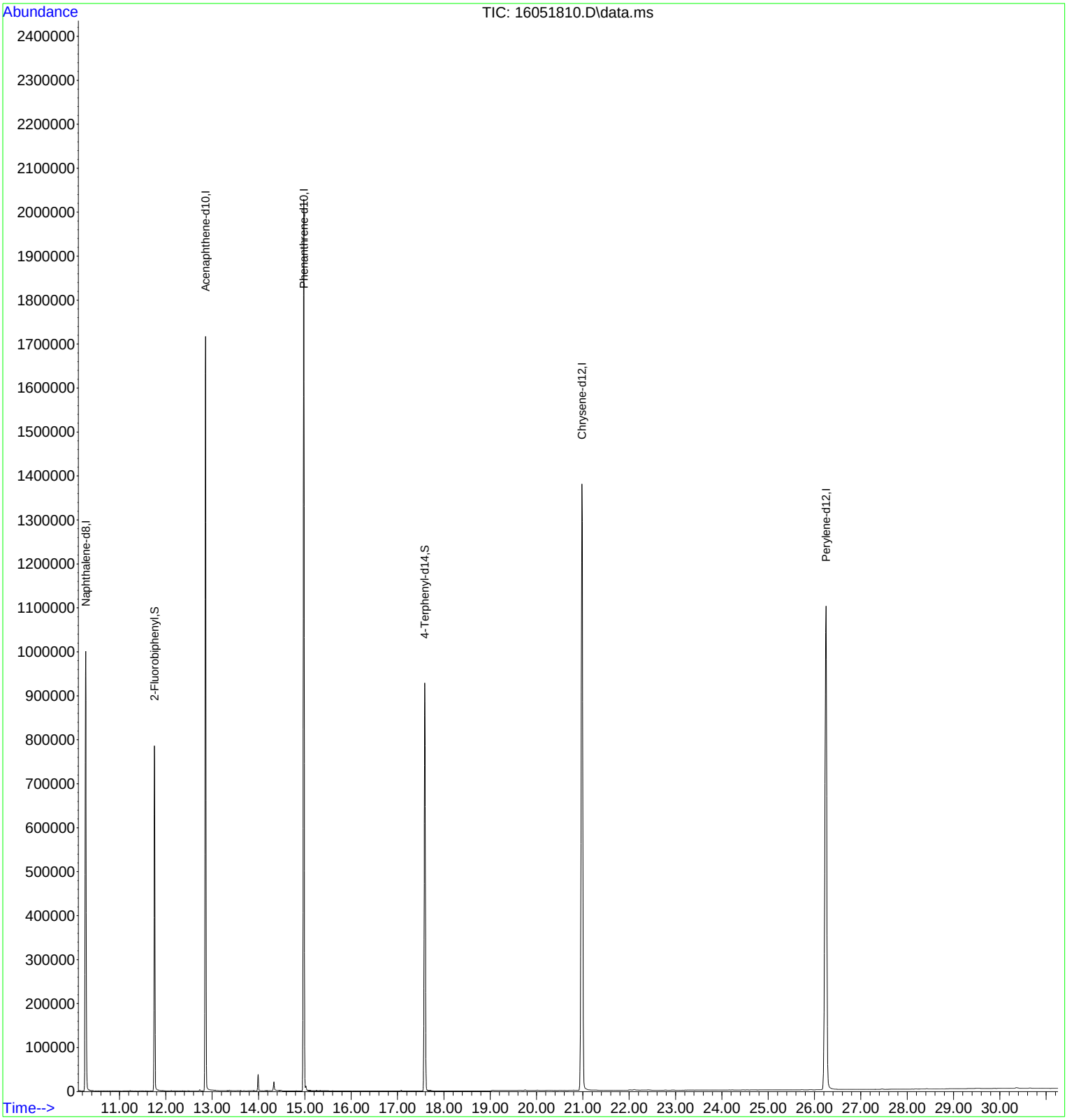
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

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 : 16051814.D
Acq On : 18 May 2016 5:07 pm
Operator :
Sample : 1605096-36B
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 19 09:18:11 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	10.270	136	1433886	4000.00	ug/kg	88
6) Acenaphthene-d10	12.857	164	1053227	4000.00	ug/kg	84
11) Phenanthrene-d10	14.977	188	2536719	4000.00	ug/kg	87
16) Chrysene-d12	20.981	240	2415427	4000.00	ug/kg	89
20) Perylene-d12	26.247	264	2180973	4000.00	ug/kg	88

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.755	172	808324	2531.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 63.30%			
17) 4-Terphenyl-d14	17.589	244	1427066	2791.32	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 69.78%			

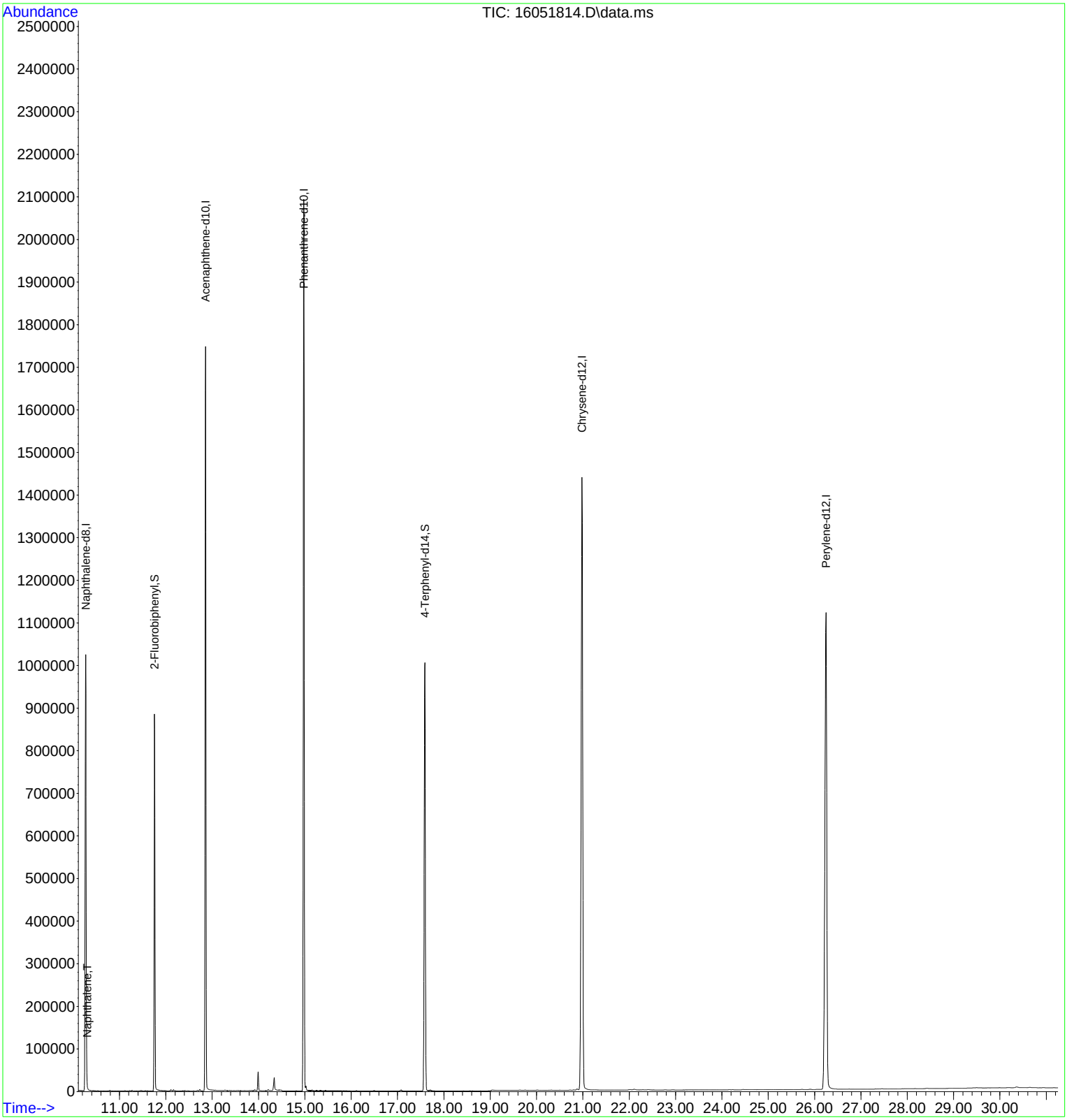
Target Compounds						Qvalue
2) Naphthalene	10.307	128	3667	11.42	ug/kg	94

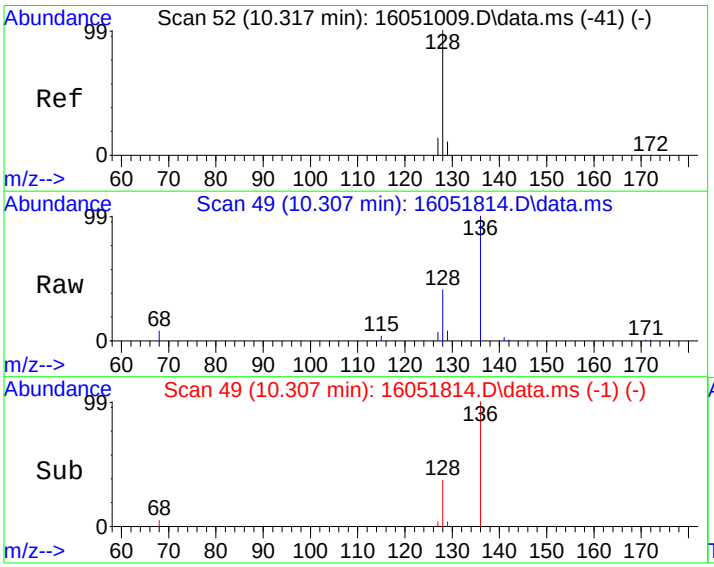
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051814.D
Acq On : 18 May 2016 5:07 pm
Operator :
Sample : 1605096-36B
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 19 09:18:11 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

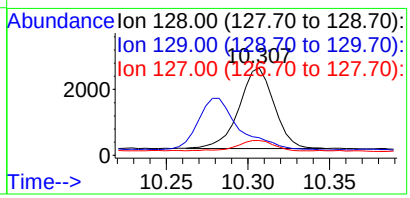




#2
Naphthalene
Concen: 11.42 ug/kg
RT: 10.307 min Scan# 49
Delta R.T. -0.003 min
Lab File: 16051814.D
Acq: 18 May 2016 5:07 pm

Tgt Ion:128 Resp: 3667

Ion	Ratio	Lower	Upper
128	100		
129	15.2	0.0	31.3
127	12.7	0.0	33.6



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051815.D
Acq On : 18 May 2016 5:44 pm
Operator :
Sample : 1605096-37B
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 19 09:18:15 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	10.269	136	1487390	4000.00	ug/kg	91
6) Acenaphthene-d10	12.856	164	1147549	4000.00	ug/kg	92
11) Phenanthrene-d10	14.978	188	2561264	4000.00	ug/kg	88
16) Chrysene-d12	20.980	240	2437354	4000.00	ug/kg	90
20) Perylene-d12	26.247	264	2218429	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.758	172	850851	2569.23	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 64.23%			
17) 4-Terphenyl-d14	17.590	244	1286381	2493.51	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 62.34%			

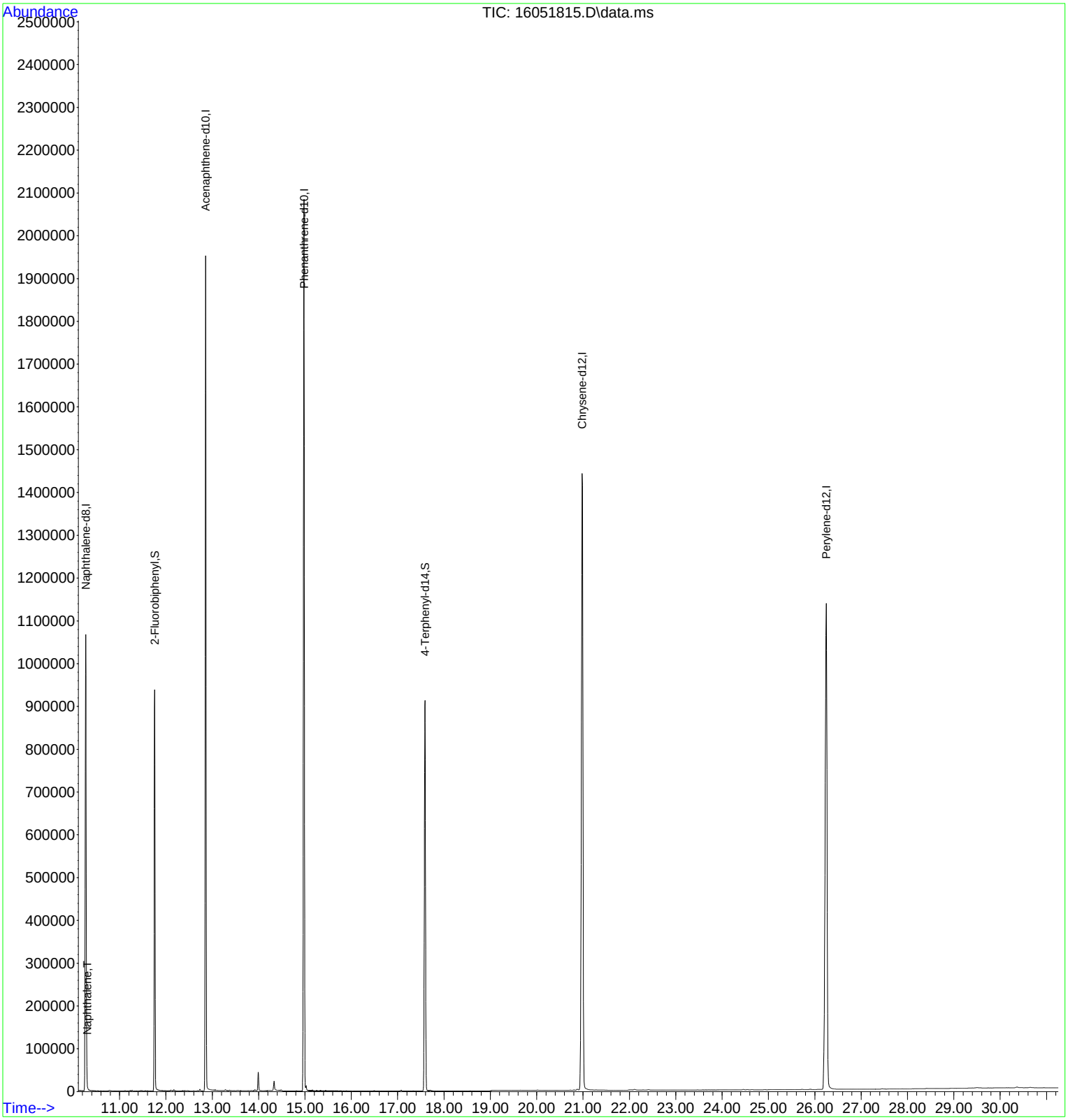
Target Compounds						Qvalue
2) Naphthalene	10.306	128	3828	11.49	ug/kg	95

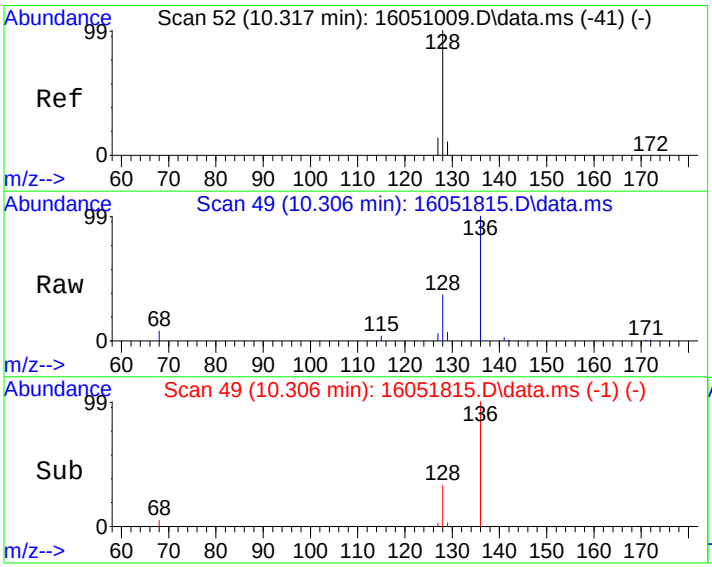
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051815.D
Acq On : 18 May 2016 5:44 pm
Operator :
Sample : 1605096-37B
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 19 09:18:15 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

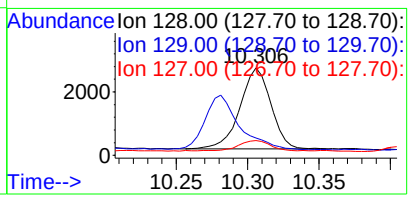




#2
Naphthalene
Concen: 11.49 ug/kg
RT: 10.306 min Scan# 49
Delta R.T. -0.004 min
Lab File: 16051815.D
Acq: 18 May 2016 5:44 pm

Tgt Ion:128 Resp: 3828

Ion	Ratio	Lower	Upper
128	100		
129	14.0	0.0	31.3
127	12.5	0.0	33.6



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051816.D
Acq On : 18 May 2016 6:21 pm
Operator :
Sample : 1605096-44B
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 19 09:18:18 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	10.268	136	1457825	4000.00	ug/kg	89
6) Acenaphthene-d10	12.857	164	1141196	4000.00	ug/kg	91
11) Phenanthrene-d10	14.977	188	2539089	4000.00	ug/kg	87
16) Chrysene-d12	20.981	240	2401527	4000.00	ug/kg	89
20) Perylene-d12	26.247	264	2195322	4000.00	ug/kg	88

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.757	172	883912	2723.19	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	68.08%		
17) 4-Terphenyl-d14	17.590	244	1359418	2674.39	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	66.86%		

Target Compounds						Qvalue
2) Naphthalene	10.305	128	3121	9.56	ug/kg	93
14) Fluoranthene	17.068	202	12439	15.62	ug/kg	99
15) Pyrene	17.700	202	12031	15.29	ug/kg	97
18) Benzo[a]anthracene	20.805	228	14291	21.13	ug/kg	100
19) Chrysene	21.069	228	17996	28.59	ug/kg	99
21) Benzo[b]fluoranthene	24.460	252	19145	31.04	ug/kg	99
22) Benzo[k]fluoranthene	24.541	252	8899	15.81	ug/kg	98
23) Benzo(j)fluoranthene	24.650	252	8613	13.83	ug/kg	90
24) Benzo(e)pyrene	25.727	252	13966	22.76	ug/kg	92
25) Benzo[a]pyrene	25.910	252	16380	28.07	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.507	276	13861	17.81	ug/kg	94
28) Benzo[g,h,i]perylene	30.642	276	13410	20.18	ug/kg	98

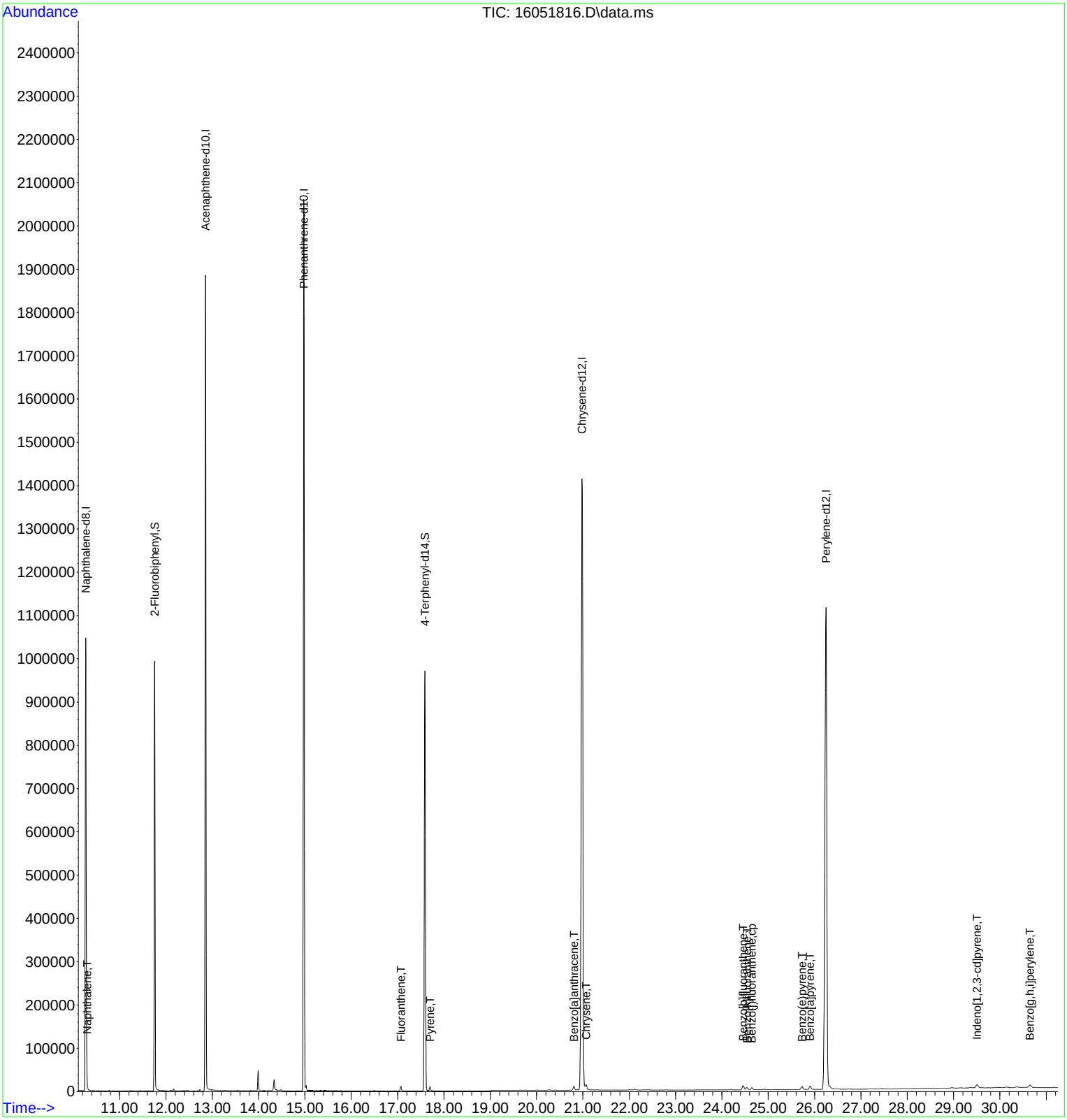
CONFIRMED
By Sherri Herschmann at 4:19:10 PM, 5/23/2016

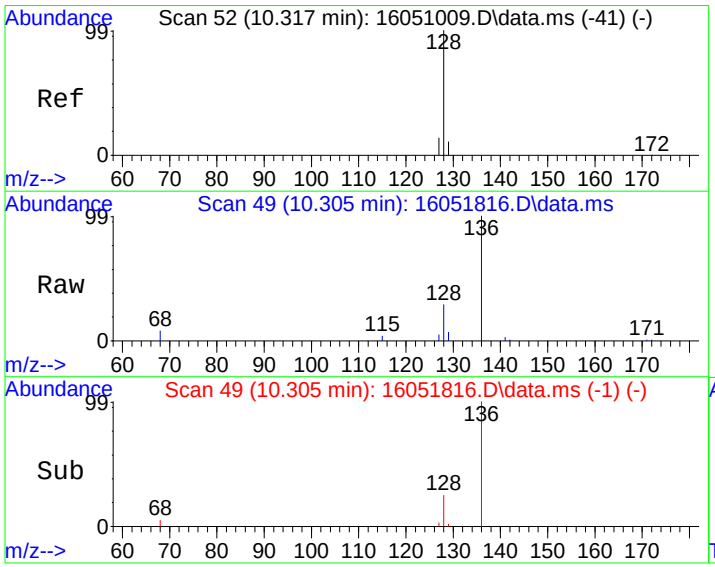
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160518\
Data File : 16051816.D
Acq On : 18 May 2016 6:21 pm
Operator :
Sample : 1605096-44B
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 19 09:18:18 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

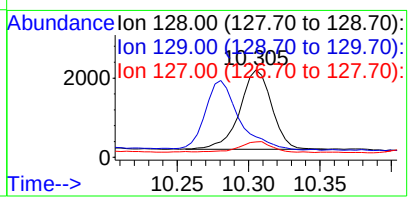


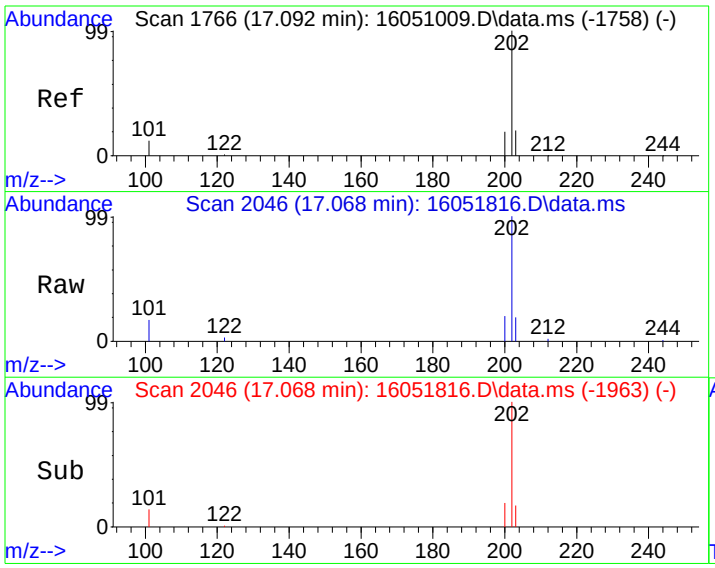


#2
Naphthalene
Concen: 9.56 ug/kg
RT: 10.305 min Scan# 49
Delta R.T. -0.004 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:128 Resp: 3121

Ion	Ratio	Lower	Upper
128	100		
129	16.4	0.0	31.3
127	12.9	0.0	33.6

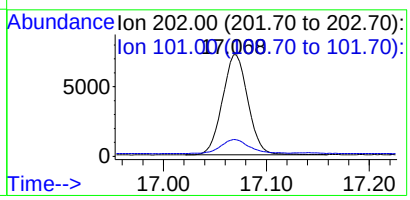


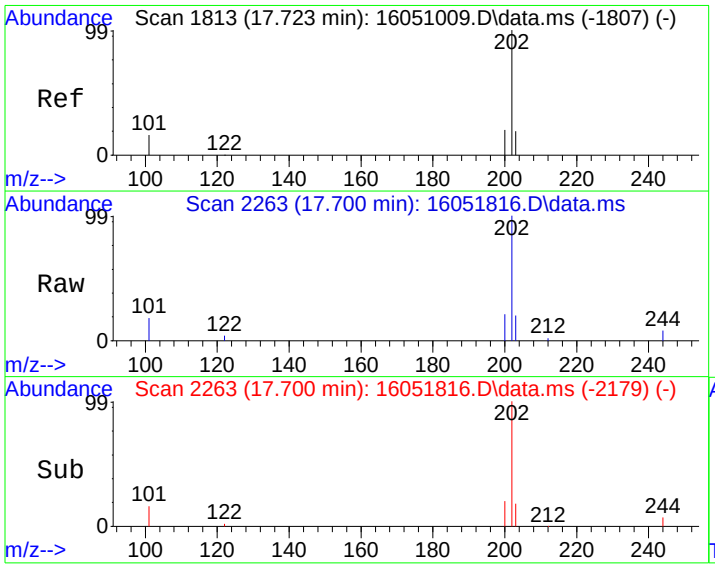


#14
Fluoranthene
Concen: 15.62 ug/kg
RT: 17.068 min Scan# 2046
Delta R.T. -0.008 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:202 Resp: 12439

Ion	Ratio	Lower	Upper
202	100		
101	14.0	0.0	34.4

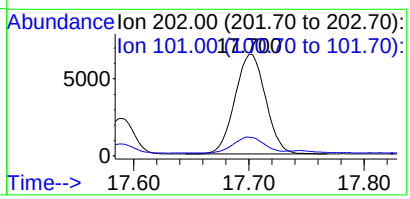


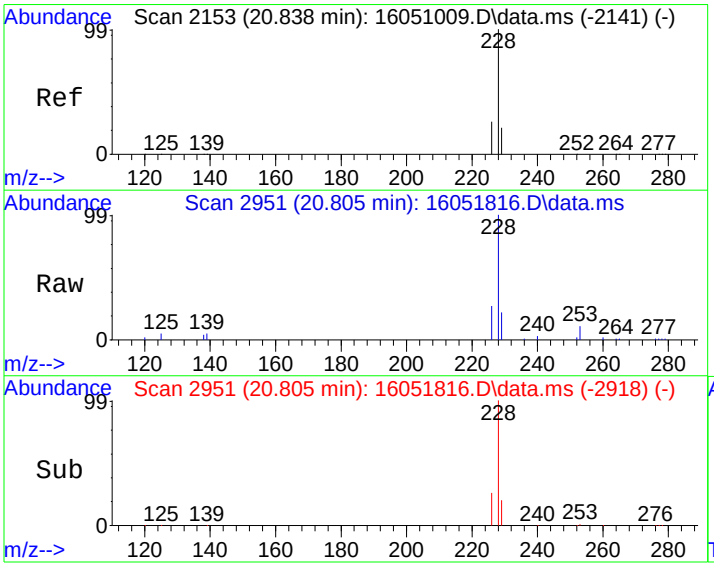


#15
Pyrene
Concen: 15.29 ug/kg
RT: 17.700 min Scan# 2263
Delta R.T. -0.006 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:202 Resp: 12031

Ion	Ratio	Lower	Upper
202	100		
101	16.0	0.0	37.3

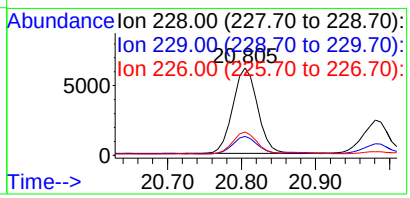


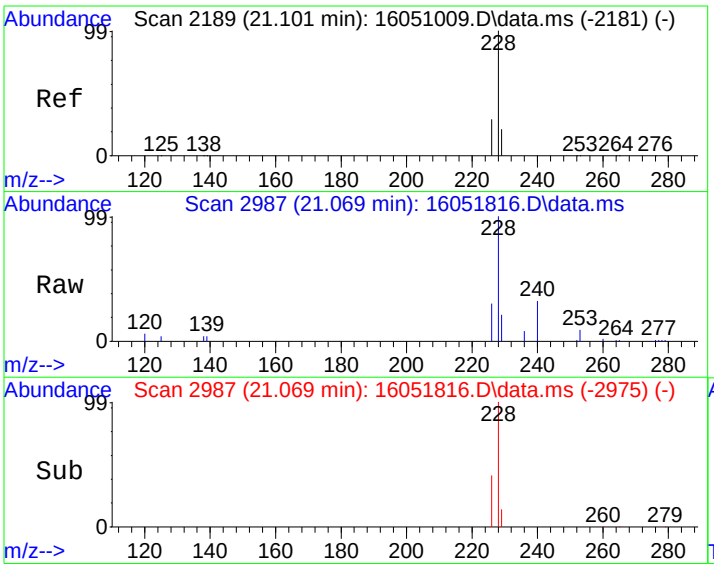


#18
Benzo[a]anthracene
Concen: 21.13 ug/kg
RT: 20.805 min Scan# 2951
Delta R.T. -0.007 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:228 Resp: 14291

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.3	40.3
226	25.7	5.7	45.7

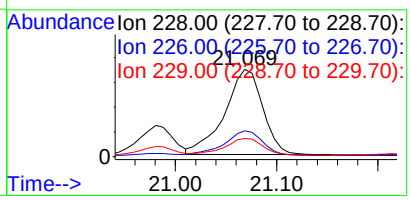


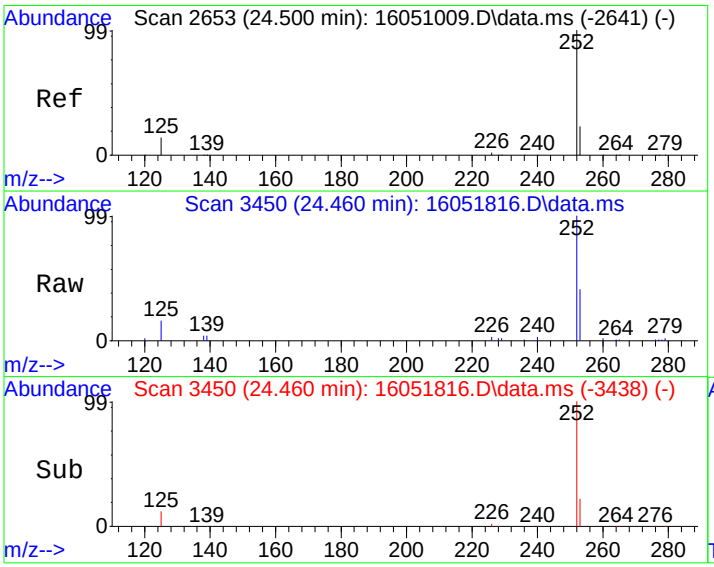


#19
Chrysene
Concen: 28.59 ug/kg
RT: 21.069 min Scan# 2987
Delta R.T. -0.014 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:228 Resp: 17996

Ion	Ratio	Lower	Upper
228	100		
226	28.9	8.2	48.2
229	19.8	0.3	40.3

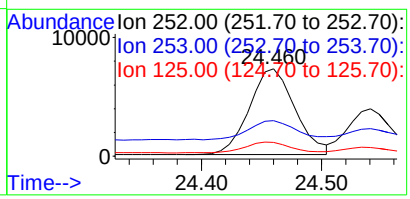


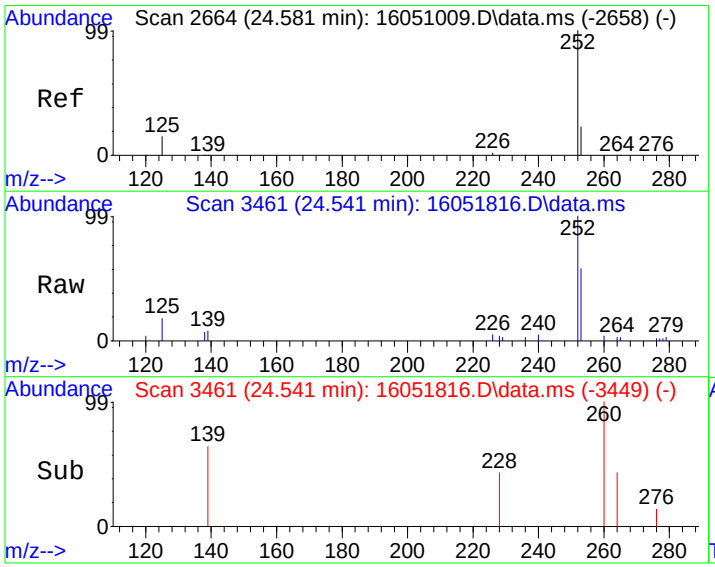


#21
Benzo[b]fluoranthene
Concen: 31.04 ug/kg
RT: 24.460 min Scan# 3450
Delta R.T. -0.015 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:252 Resp: 19145

Ion	Ratio	Lower	Upper
252	100		
253	21.7	2.3	42.3
125	11.9	0.0	32.2

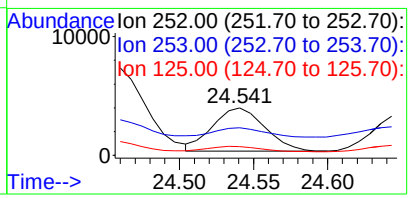


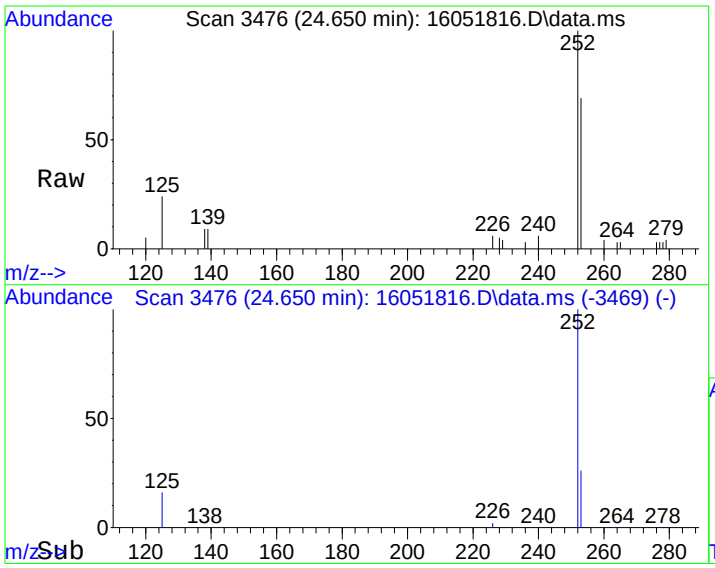


#22
Benzo[k]fluoranthene
Concen: 15.81 ug/kg
RT: 24.541 min Scan# 3461
Delta R.T. -0.014 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:252 Resp: 8899

Ion	Ratio	Lower	Upper
252	100		
253	21.3	2.5	42.5
125	11.7	0.0	32.6

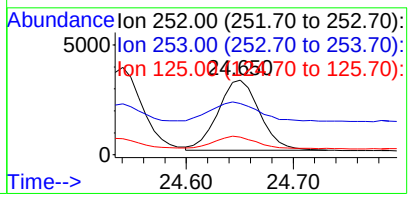


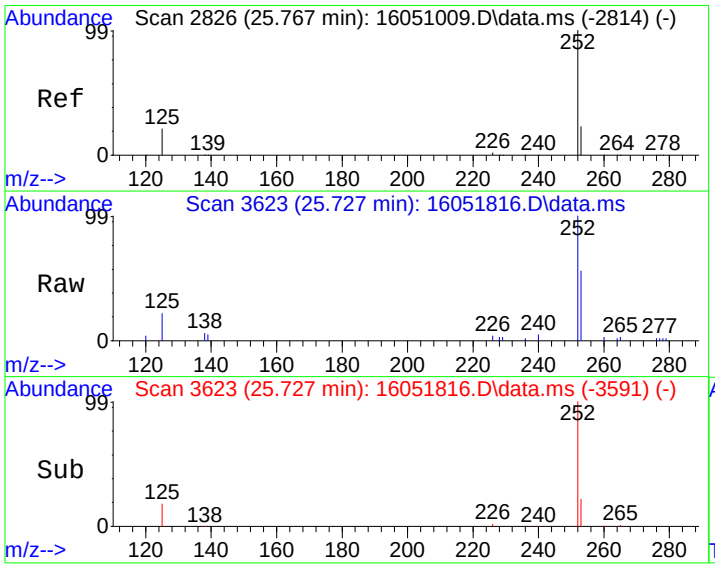


#23
Benzo(j)fluoranthene
Concen: 13.83 ug/kg
RT: 24.650 min Scan# 3476
Delta R.T. -0.015 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:252 Resp: 8613

Ion	Ratio	Lower	Upper
252	100		
253	30.4	2.2	42.2
125	17.4	0.0	37.3

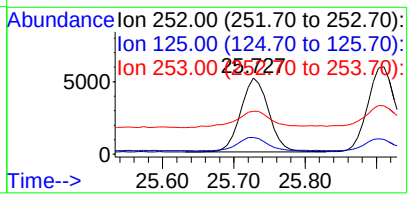


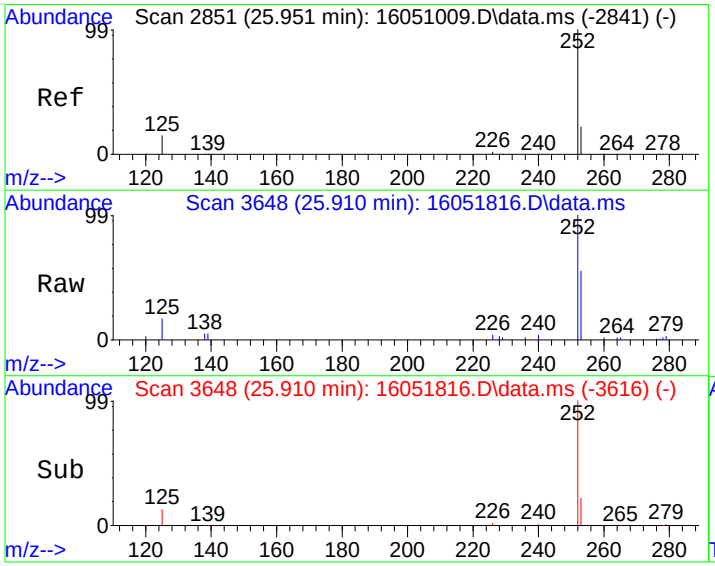


#24
Benzo(e)pyrene
Concen: 22.76 ug/kg
RT: 25.727 min Scan# 3623
Delta R.T. -0.015 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:252 Resp: 13966

Ion	Ratio	Lower	Upper
252	100		
125	20.0	0.0	38.7
253	28.4	2.3	42.3

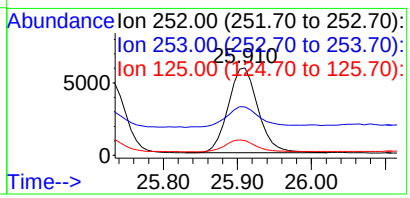


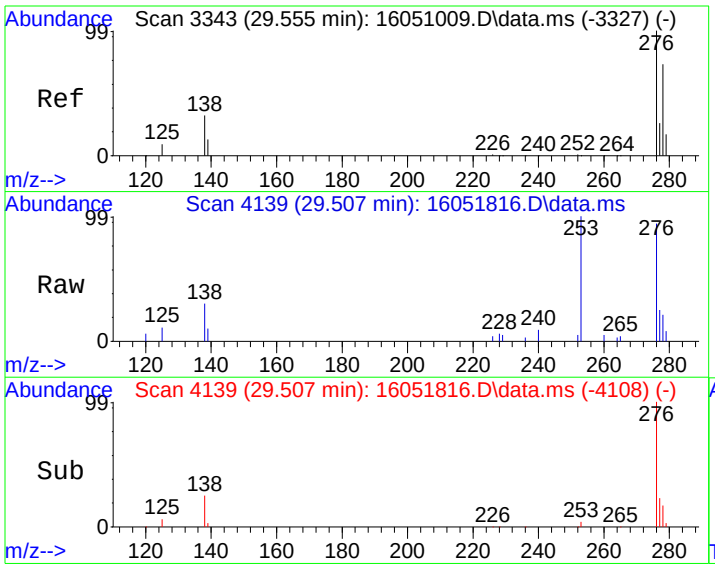


#25
Benzo[a]pyrene
Concen: 28.07 ug/kg
RT: 25.910 min Scan# 3648
Delta R.T. -0.015 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:252 Resp: 16380

Ion	Ratio	Lower	Upper
252	100		
253	24.1	2.3	42.3
125	13.3	0.0	33.5

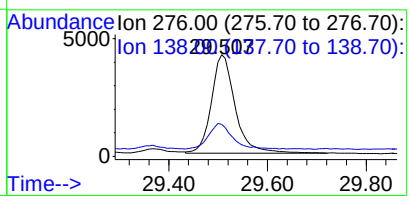


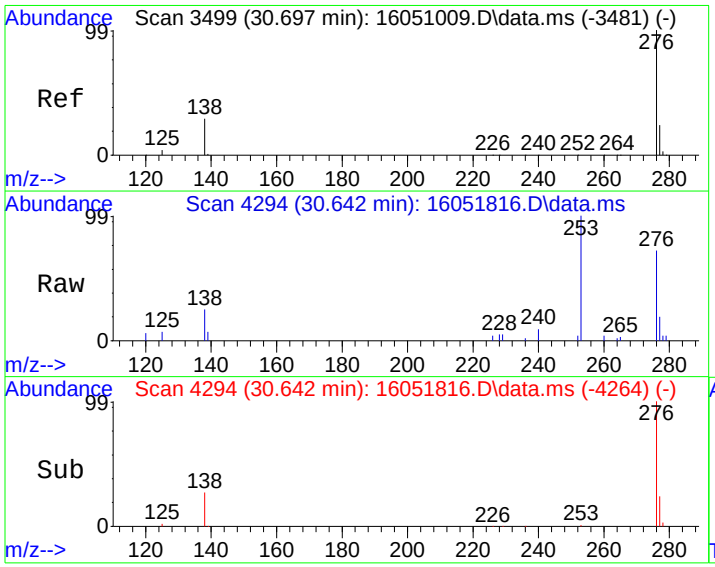


#26
Indeno[1,2,3-cd]pyrene
Concen: 17.81 ug/kg
RT: 29.507 min Scan# 4139
Delta R.T. -0.022 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:276 Resp: 13861

Ion	Ratio	Lower	Upper
276	100		
138	25.0	8.3	48.3

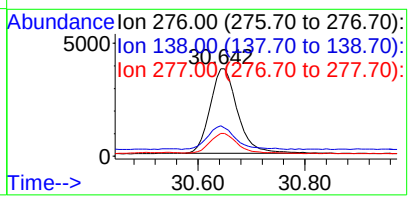




#28
Benzo[g,h,i]perylene
Concen: 20.18 ug/kg
RT: 30.642 min Scan# 4294
Delta R.T. -0.030 min
Lab File: 16051816.D
Acq: 18 May 2016 6:21 pm

Tgt Ion:276 Resp: 13410

Ion	Ratio	Lower	Upper
276	100		
138	27.3	5.8	45.8
277	23.6	4.4	44.4



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

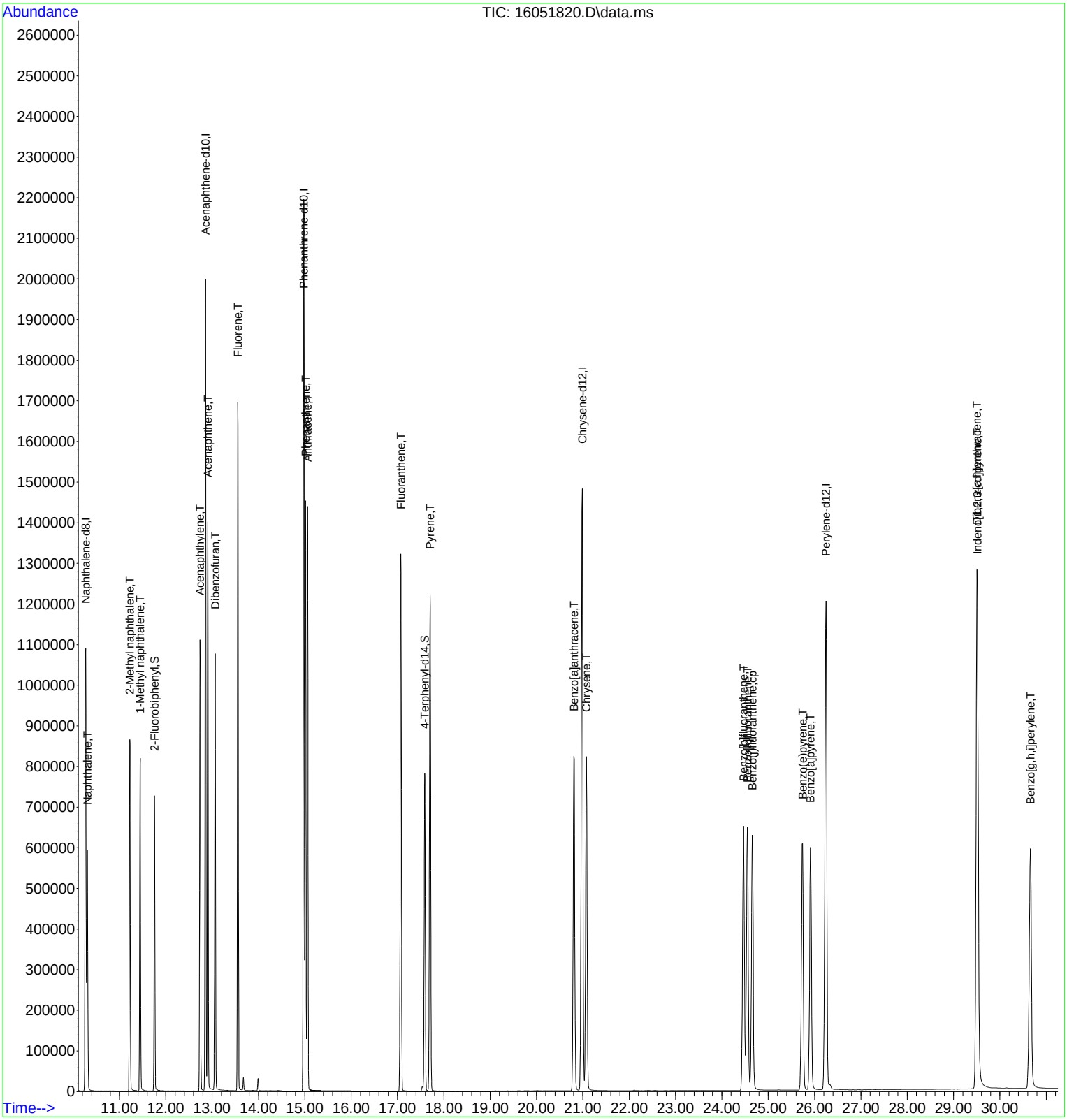
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.270	136	1541947	4000.00	ug/kg	95
6) Acenaphthene-d10	12.857	164	1207997	4000.00	ug/kg	96
11) Phenanthrene-d10	14.979	188	2731012	4000.00	ug/kg	93
16) Chrysene-d12	20.989	240	2535151	4000.00	ug/kg	94
20) Perylene-d12	26.248	264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

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

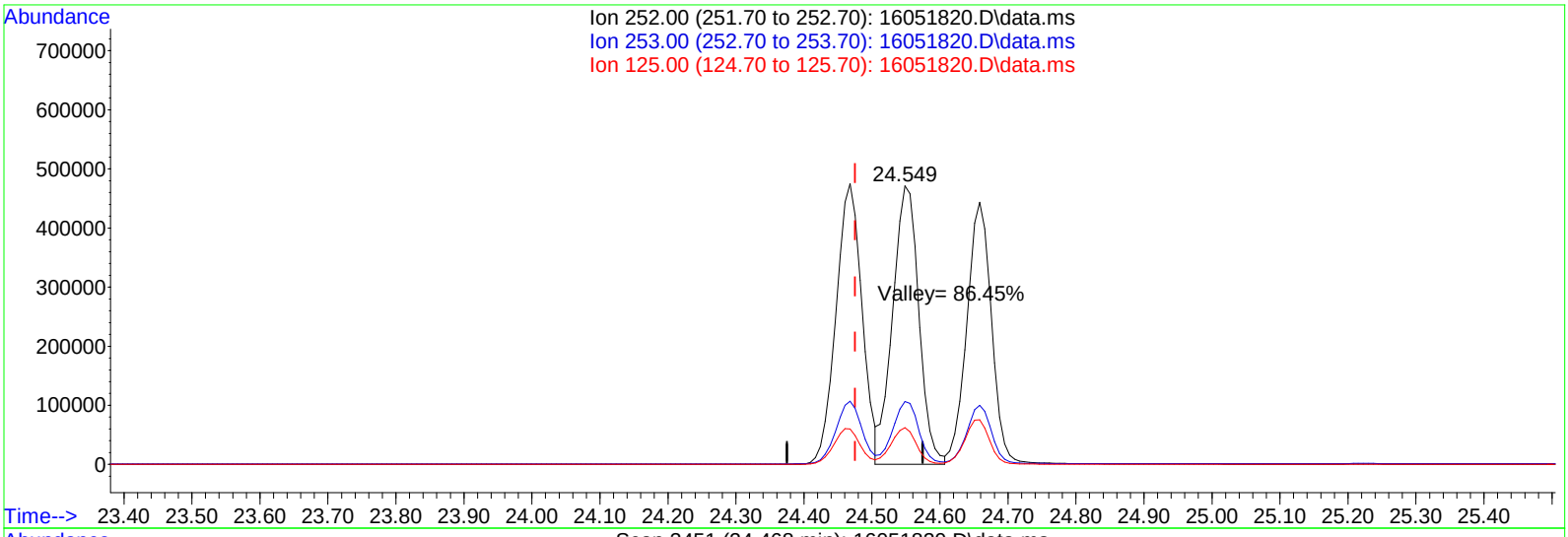
Quant Time: May 19 09:16:25 2016
Quant Method : C:\msdchem\1\METHODS\PAH160517.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 18 08:55:04 2016
Response via : Initial Calibration

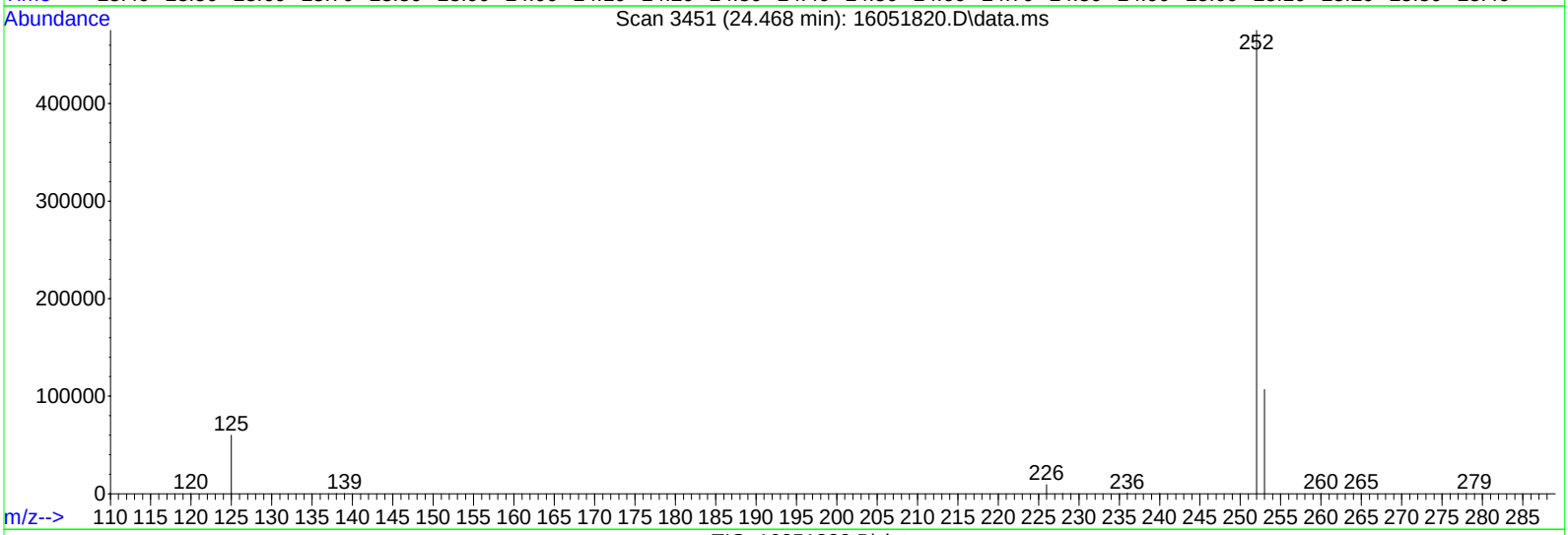


Quantitation Report (Qedit)

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

Quantitation Report (Not Reviewed)

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%#			

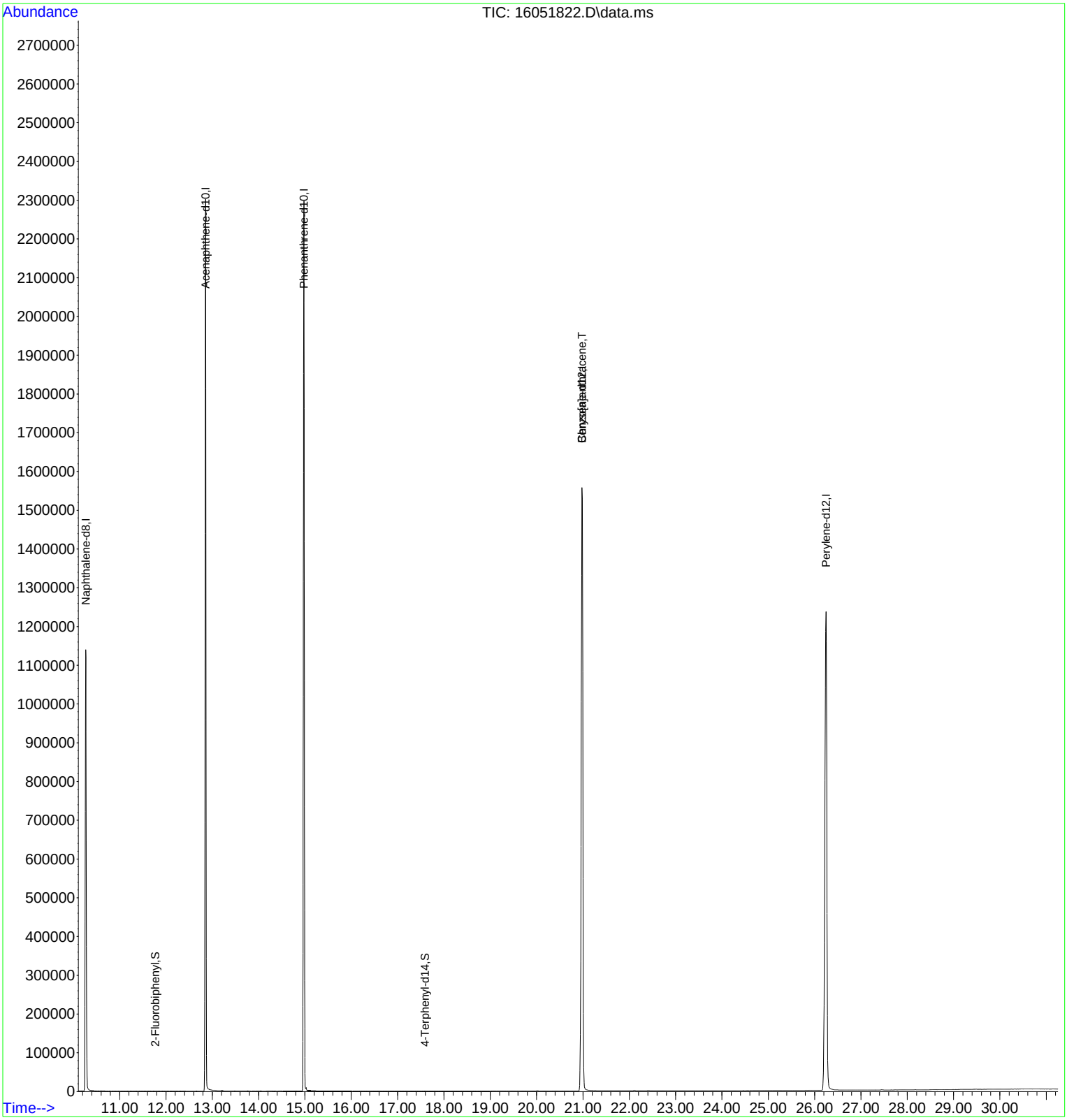
Target Compounds						Qvalue
18) Benzo[a]anthracene	20.980	228	6062	6.97	ug/kg	77

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

Quantitation Report (Not Reviewed)

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 : 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%#			

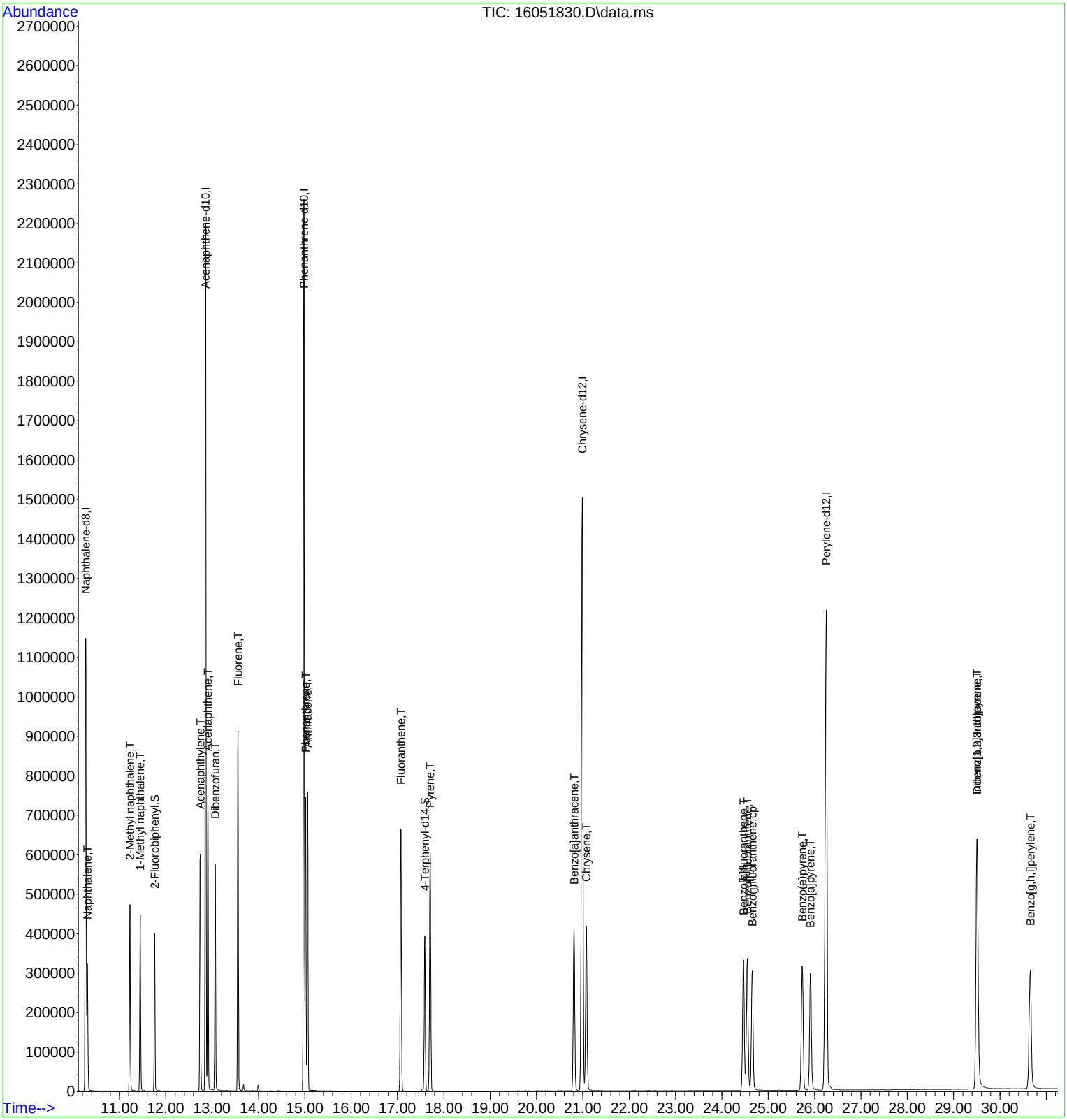
Target Compounds						Qvalue
2) Naphthalene	10.307	128	357903	979.07	ug/kg	100
3) 2-Methyl naphthalene	11.224	142	290768	1023.19	ug/kg	100
4) 1-Methyl naphthalene	11.446	142	267657	995.33	ug/kg	100
7) Acenaphthylene	12.744	152	575333	997.67	ug/kg	99
8) Acenaphthene	12.906	153	360034	989.41	ug/kg	98
9) 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
Calibration Curve
For

DHL Work Order
1605096

CAL ID: 658

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #8 **Calibration File Name:** PP160510.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

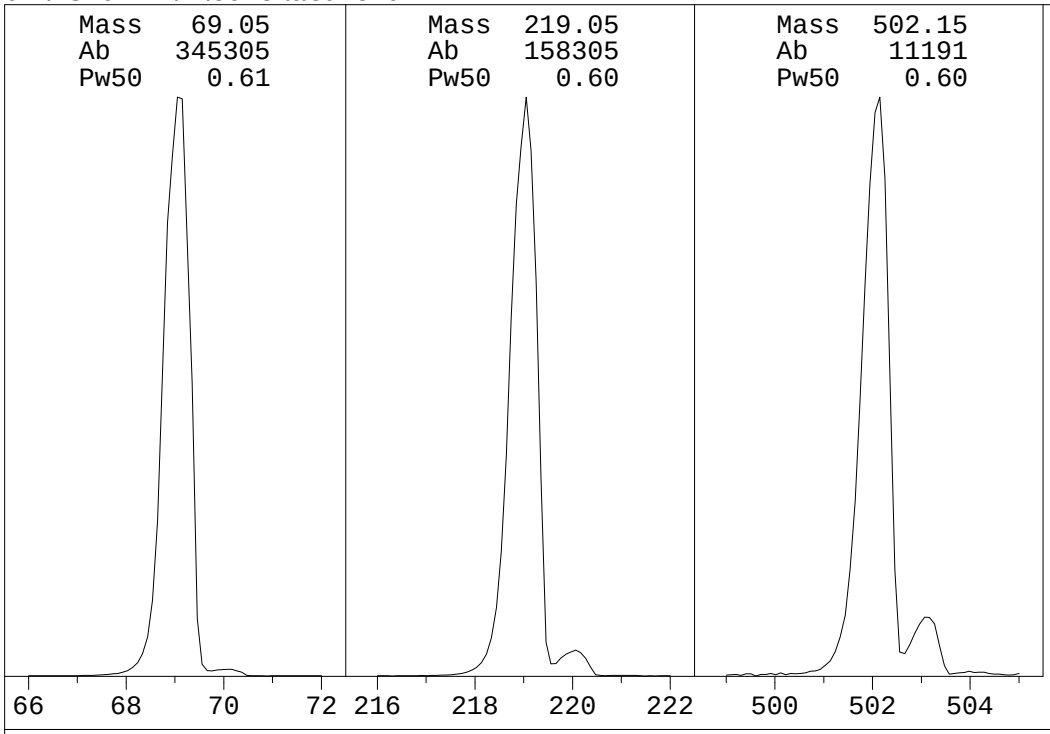
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160510**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160510-1**
		5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160510-2**

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: Don Winston Date: 05/11/16

Second-Level Review: Date: 05/13/16

Tue May 10 17:43:08 2016 Instrument: GCMS #8
C:\MSDCHEM\1\5973\atune.u

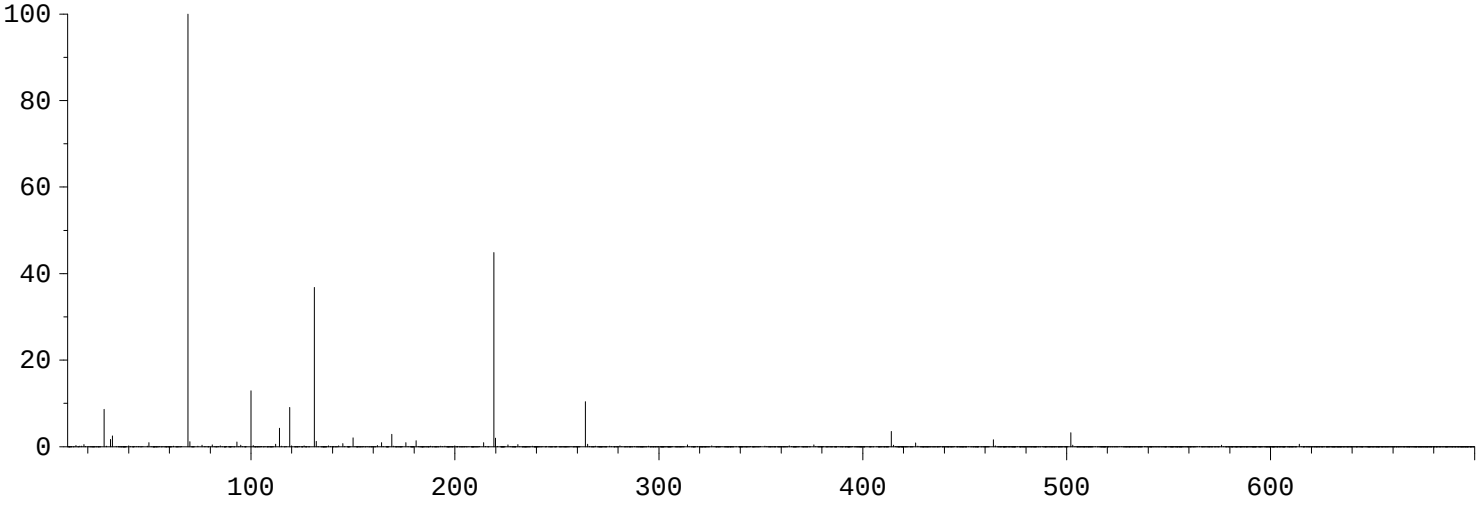


Ion Pol	POS	MassGain	48
		MassOffs	-11
Emission	34.6	AmuGain	2098
EIEnrgy	69.9	AmuOffs	132
Filament	2	Wid219	-0.001
		DC Pol	NEG
Repeller	37.83		
IonFcus	95.9	HEDEnab	ON
EntLens	12.0	EMVolts	1129
EntOffs	19.33		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	42
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1104 peaks Base: 69.05 Abundance: 313856



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	313856	100.00	70.05	3636	1.16
219.05	140864	44.88	219.95	6244	4.43
502.05	10193	3.25	503.05	1021	10.02

Air/Water Check: H20~0.52% N2~8.62% O2~2.46% CO2~0.08% N2/H2O~1654.80%

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

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 4120
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

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160510.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Wed May 11 10:43:33 2016
Response Via : Initial Calibration

Calibration Files
1 =16051003.D 2 =16051004.D 3 =16051005.D 4 =16051006.D 5 =16051007.D 6 =16051008.D 7 =16051009.D
8 =16051010.D

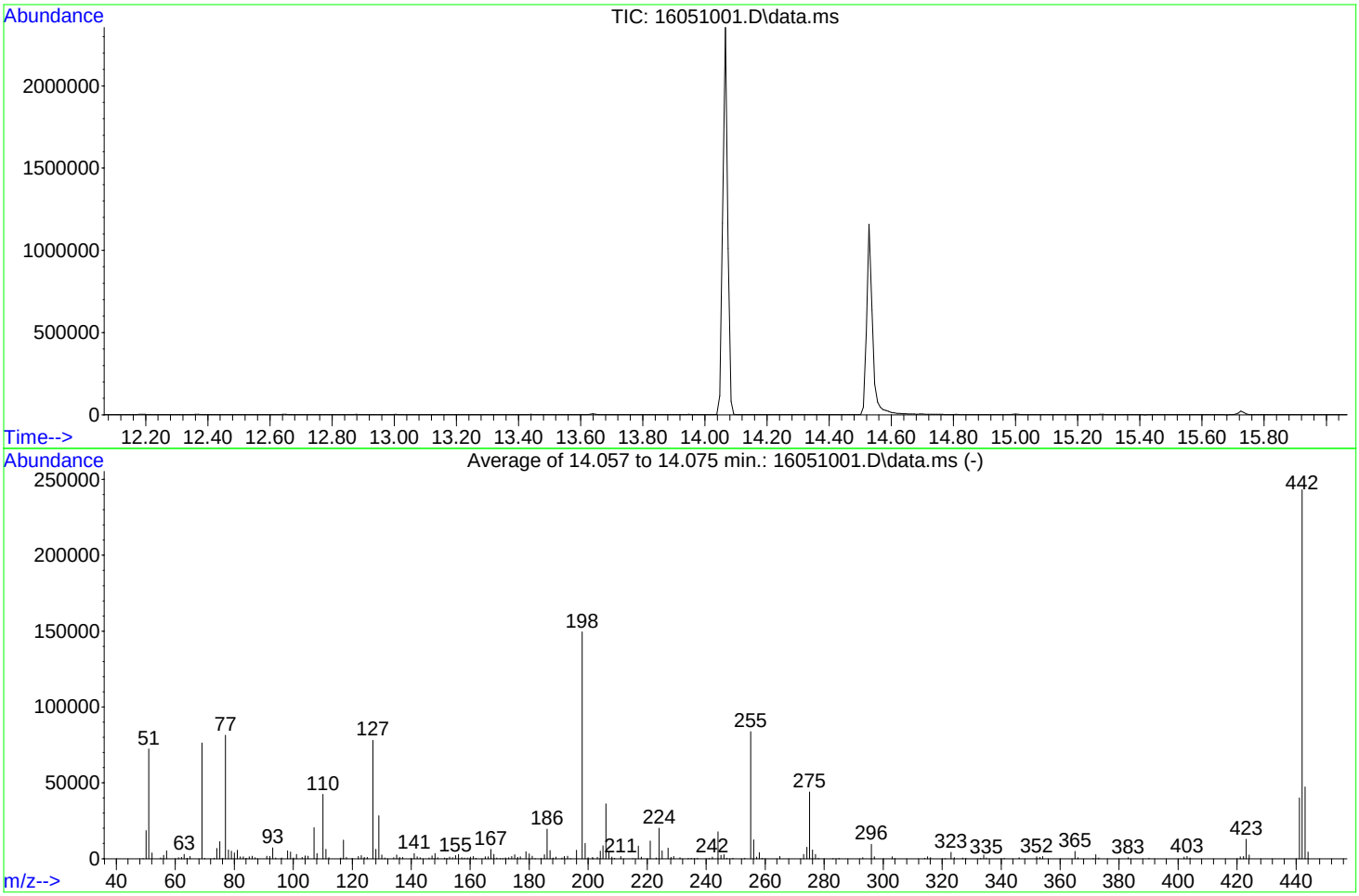
		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	0.990	0.957	0.981	0.991	0.980	0.983	0.972	0.901	0.969	3.05	A	0.0305	0.0000	0.9694	0.0000
3)	T	2-Methyl napht...	0.422	0.448	0.511	0.539	0.631	0.672	0.671	0.637	0.566	17.63	*Q	0.9991	-0.0006	0.6679	-0.0223
4)	T	1-Methyl napht...	0.579	0.555	0.575	0.595	0.665	0.661	0.642	0.594	0.608	6.89	A	0.0689	0.0000	0.6083	0.0000
5)	S	2-Fluorobiphenyl	0.801	0.710	0.768	0.789	0.820	0.840	0.809	0.752	0.786	5.28	A	0.0528	0.0000	0.7862	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.977	1.879	1.907	1.925	1.894	1.889	1.874	1.694	1.880	4.37	A	0.0437	0.0000	1.8797	0.0000
8)	T	Acenaphthene	1.251	1.184	1.210	1.217	1.191	1.200	1.179	1.085	1.190	4.04	A	0.0404	0.0000	1.1895	0.0000
9)	T	Dibenzofuran	2.007	1.939	1.988	1.985	1.943	1.925	1.867	1.713	1.921	4.94	A	0.0494	0.0000	1.9209	0.0000
10)	T	Fluorene	1.915	1.810	1.845	1.817	1.805	1.821	1.760	1.680	1.806	3.73	A	0.0373	0.0000	1.8065	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.345	1.221	1.191	1.165	1.134	1.129	1.104	0.971	1.158	9.20	A	0.0920	0.0000	1.1577	0.0000
13)	T	Anthracene	1.456	1.302	1.300	1.290	1.248	1.211	1.197	1.032	1.254	9.57	A	0.0957	0.0000	1.2543	0.0000
14)	T	Fluoranthene	1.832	1.581	1.558	1.594	1.510	1.453	1.427	1.165	1.515	12.40	A	0.1240	0.0000	1.5151	0.0000
15)	T	Pyrene	1.863	1.601	1.565	1.586	1.498	1.446	1.422	1.176	1.520	12.79	A	0.1279	0.0000	1.5196	0.0000
16)	I	Chrysene-d12	----------ISTD----------														
17)	S	4-Terphenyl-d14	1.049	0.947	0.949	0.924	0.908	0.894	0.798	0.924	8.11	A	0.0811	0.0000	0.9242	0.0000	
18)	T	Benzo[a]anthra...	1.301	1.142	1.093	1.121	1.113	1.121	1.111	0.994	1.124	7.50	A	0.0750	0.0000	1.1244	0.0000
19)	T	Chrysene	1.199	1.032	1.009	1.027	1.021	1.020	1.013	0.913	1.029	7.60	A	0.0760	0.0000	1.0293	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.383	1.128	1.060	1.095	1.118	1.152	1.129	1.048	1.139	9.20	A	0.0920	0.0000	1.1392	0.0000
22)	T	Benzo[k]fluora...	0.881	0.783	0.823	0.900	0.988	1.003	1.014	0.917	0.914	9.26	A	0.0926	0.0000	0.9137	0.0000
23)	cp	Benzo(j)fluora...	0.888	0.814	0.891	0.945	0.980	0.988	0.984	0.897	0.923	6.69	A	0.0669	0.0000	0.9235	0.0000
24)	T	Benzo(e)pyrene	1.226	1.103	1.074	1.100	1.096	1.095	1.071	0.982	1.093	6.08	A	0.0608	0.0000	1.0934	0.0000
25)	T	Benzo[a]pyrene	1.183	1.057	1.005	1.025	1.036	1.053	1.045	0.972	1.047	5.91	A	0.0591	0.0000	1.0470	0.0000
26)	T	Indeno[1,2,3-c...	1.307	1.133	1.106	1.126	1.150	1.176	1.172	1.108	1.160	5.60	A	0.0560	0.0000	1.1599	0.0000
27)	T	Dibenz[a,h]ant...	0.964	1.011	0.896	0.907	0.935	0.968	0.973	0.911	0.946	4.23	A	0.0423	0.0000	0.9456	0.0000
28)	T	Benzo[g,h,i]pe...	1.171	1.003	0.975	0.985	0.988	1.008	1.006	0.962	1.012	6.54	A	0.0654	0.0000	1.0121	0.0000

(#) = Out of Range

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051001.D
Acq On : 10 May 2016 6:03 pm
Operator :
Sample : DFTPP-160510
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



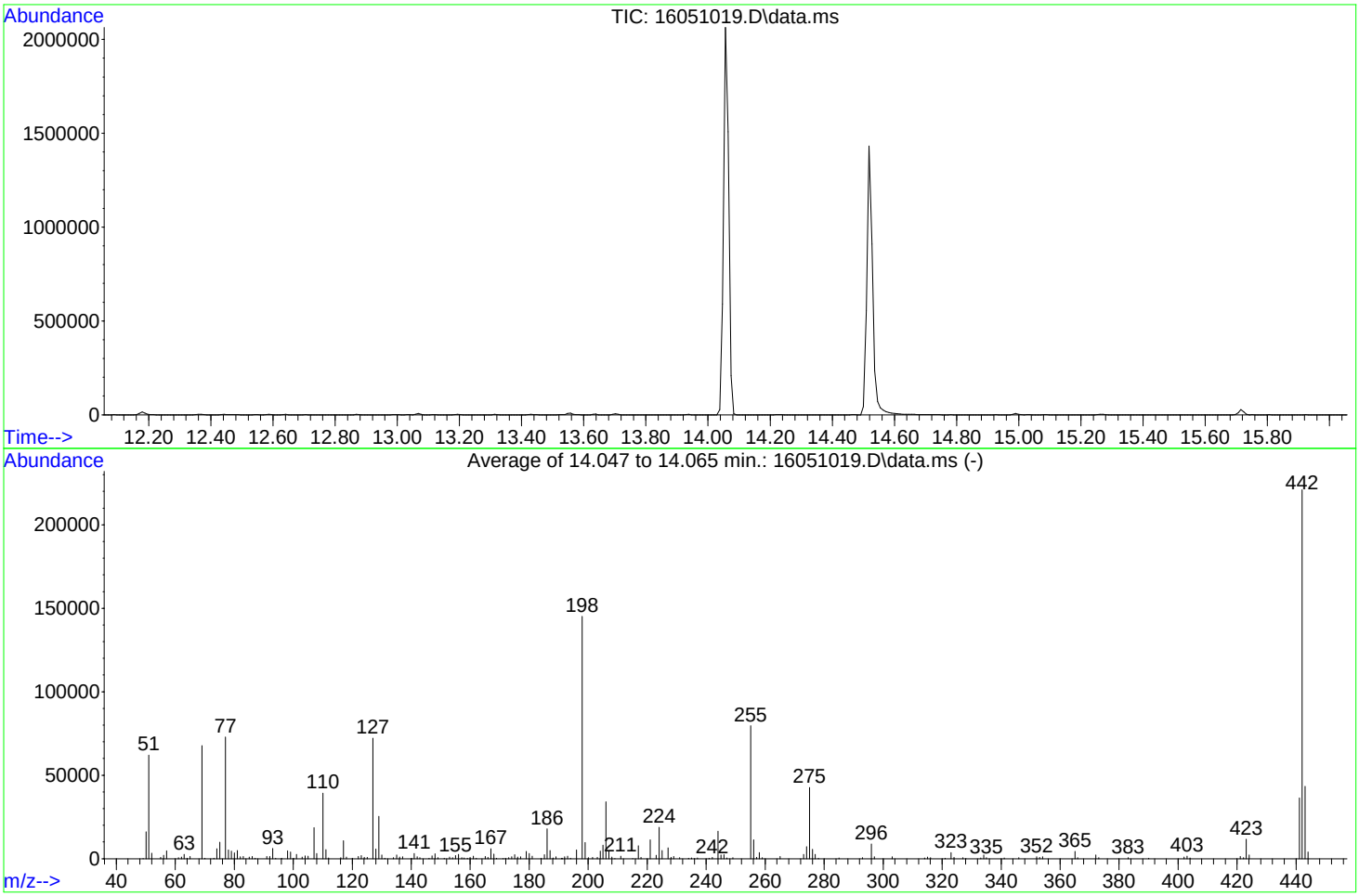
AutoFind: Scans 438, 439, 440; Background Corrected with Scan 434

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	48.3	72280	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	50.9	76210	PASS
70	69	0.00	2	0.3	215	PASS
127	198	10	80	52.2	78125	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	149602	PASS
199	198	5	9	6.7	10041	PASS
275	198	10	60	29.4	43976	PASS
365	198	1	200	3.3	4880	PASS
441	442	0.01	24	16.5	40030	PASS
442	198	50	400	162.6	243242	PASS
443	442	15	24	19.5	47348	PASS

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051019.D
Acq On : 11 May 2016 8:41 am
Operator :
Sample : DFTPP-160511
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 437, 438, 439; Background Corrected with Scan 433

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	42.7	61954	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.7	67805	PASS
70	69	0.00	2	0.3	205	PASS
127	198	10	80	49.8	72253	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	145138	PASS
199	198	5	9	6.6	9630	PASS
275	198	10	60	29.3	42553	PASS
365	198	1	200	3.0	4358	PASS
441	442	0.01	24	16.4	36333	PASS
442	198	50	400	152.3	221042	PASS
443	442	15	24	19.6	43414	PASS

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051003.D
Acq On : 10 May 2016 7:16 pm
Operator :
Sample : PAH1-160510 5ppb
Misc : CAL1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 11 10:44:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.293	136	1579654	4000.00	ug/kg	98
6) Acenaphthene-d10	12.876	164	1063753	4000.00	ug/kg	102
11) Phenanthrene-d10	15.002	188	3341261	4000.00	ug/kg	99
16) Chrysene-d12	21.028	240	3890154	4000.00	ug/kg	104
20) Perylene-d12	26.302	264	3253488	4000.00	ug/kg	103

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.786	172	1581	5.09	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.13%#			
17) 4-Terphenyl-d14	17.628	244	6680	7.43	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 0.19%#			

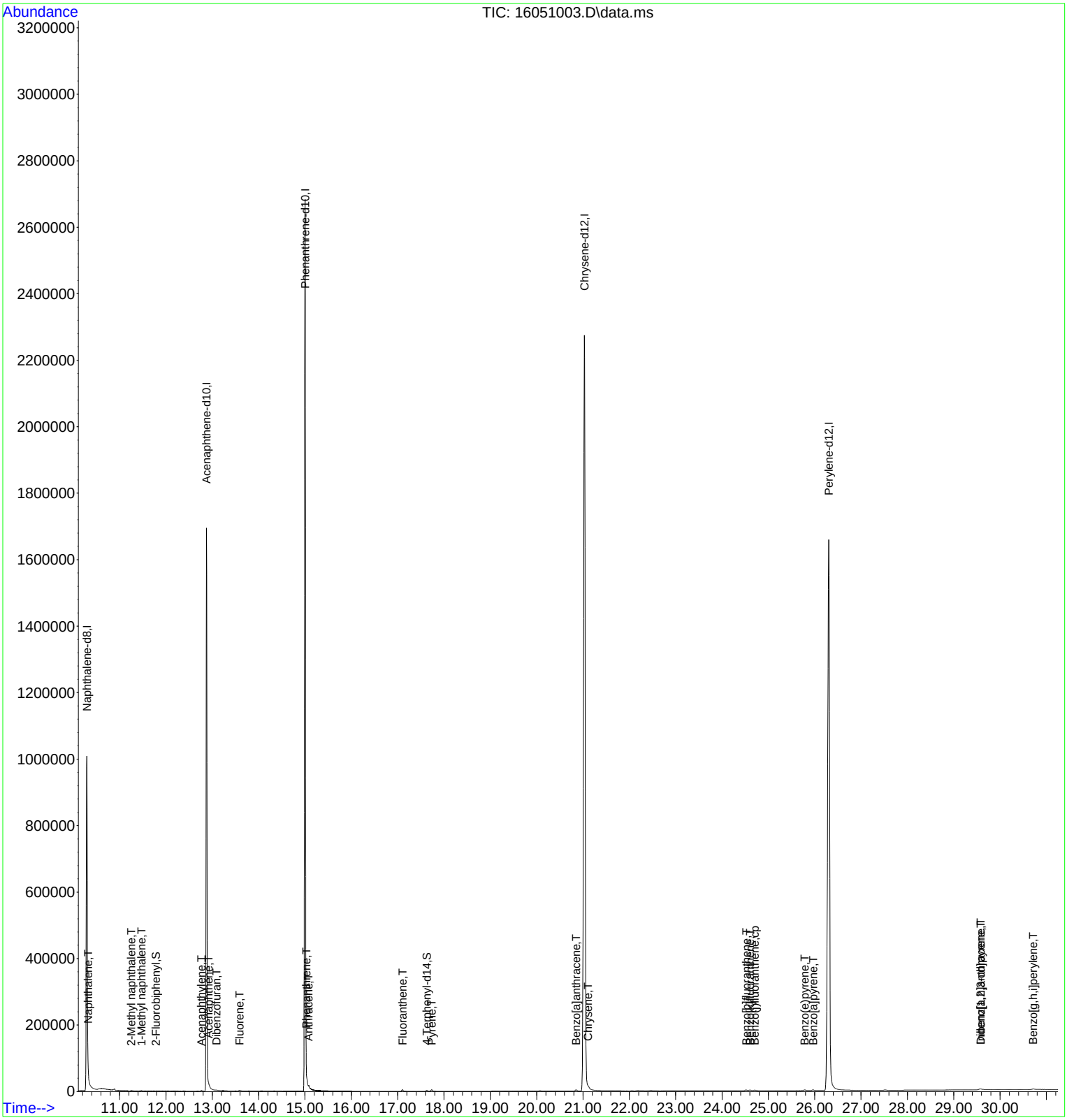
Target Compounds						Qvalue
2) Naphthalene	10.330	128	1955	5.11	ug/kg	98
3) 2-Methyl naphthalene	11.251	142	834	6.59	ug/kg	93
4) 1-Methyl naphthalene	11.469	142	1143	4.76	ug/kg	93
7) Acenaphthylene	12.763	152	2629	5.26	ug/kg	98
8) Acenaphthene	12.930	153	1663	5.26	ug/kg	98
9) Dibenzofuran	13.097	168	2669	5.22	ug/kg	94
10) Fluorene	13.588	166	2546	5.30	ug/kg	99
12) Phenanthrene	15.040	178	5619	5.81	ug/kg	98
13) Anthracene	15.084	178	6080	5.80	ug/kg	95
14) Fluoranthene	17.105	202	7652	6.05	ug/kg	97
15) Pyrene	17.736	202	7780	6.13	ug/kg	99
18) Benzo[a]anthracene	20.852	228	6326	5.78	ug/kg	99
19) Chrysene	21.116	228	5828	5.82	ug/kg	97
21) Benzo[b]fluoranthene	24.522	252	5625	6.07	ug/kg	97
22) Benzo[k]fluoranthene	24.603	252	3581	4.82	ug/kg	98
23) Benzo(j)fluoranthene	24.705	252	3612	4.81	ug/kg	97
24) Benzo(e)pyrene	25.782	252	4985	5.61	ug/kg	90
25) Benzo[a]pyrene	25.965	252	4812	5.65	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.576	276	5315	5.63	ug/kg	95
27) Dibenz[a,h]anthracene	29.569	278	3919	5.10	ug/kg	99
28) Benzo[g,h,i]perylene	30.719	276	4763	5.79	ug/kg	93

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051003.D
Acq On : 10 May 2016 7:16 pm
Operator :
Sample : PAH1-160510 5ppb
Misc : CAL1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 11 10:44:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051004.D
Acq On : 10 May 2016 7:53 pm
Operator :
Sample : PAH2-160510 10ppb
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 11 10:45:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

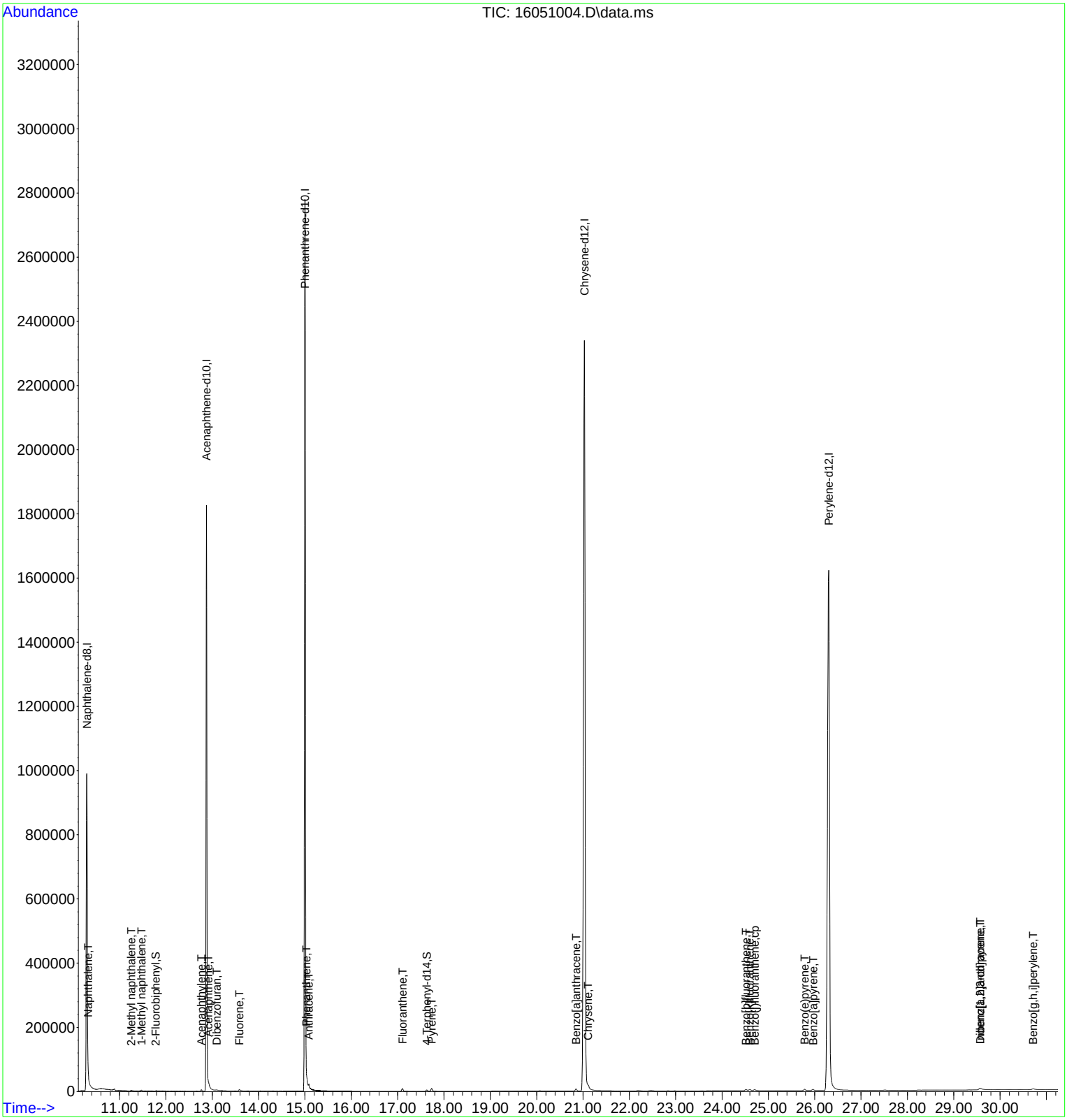
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.293	136	1604398	4000.00	ug/kg	100
6) Acenaphthene-d10	12.877	164	1120203	4000.00	ug/kg	107
11) Phenanthrene-d10	15.002	188	3513300	4000.00	ug/kg	104
16) Chrysene-d12	21.028	240	3960265	4000.00	ug/kg	105
20) Perylene-d12	26.302	264	3295886	4000.00	ug/kg	104
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.782	172	2849	9.04	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.23%#			
17) 4-Terphenyl-d14	17.629	244	10384	11.35	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 0.28%#			
Target Compounds						Qvalue
2) Naphthalene	10.326	128	3839	9.87	ug/kg	99
3) 2-Methyl naphthalene	11.247	142	1798	10.14	ug/kg	97
4) 1-Methyl naphthalene	11.469	142	2228	9.13	ug/kg	99
7) Acenaphthylene	12.764	152	5262	10.00	ug/kg	98
8) Acenaphthene	12.926	153	3315	9.95	ug/kg	95
9) Dibenzofuran	13.093	168	5430	10.09	ug/kg	91
10) Fluorene	13.584	166	5068	10.02	ug/kg	97
12) Phenanthrene	15.038	178	10725	10.55	ug/kg	96
13) Anthracene	15.083	178	11433	10.38	ug/kg	98
14) Fluoranthene	17.106	202	13885	10.43	ug/kg	98
15) Pyrene	17.737	202	14059	10.53	ug/kg	97
18) Benzo[a]anthracene	20.852	228	11307	10.16	ug/kg	99
19) Chrysene	21.116	228	10216	10.02	ug/kg	99
21) Benzo[b]fluoranthene	24.515	252	9296	9.90	ug/kg	99
22) Benzo[k]fluoranthene	24.596	252	6454	8.57	ug/kg	97
23) Benzo(j)fluoranthene	24.705	252	6705	8.81	ug/kg	98
24) Benzo(e)pyrene	25.782	252	9085	10.08	ug/kg	95
25) Benzo[a]pyrene	25.965	252	8709	10.10	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.577	276	9338	9.77	ug/kg	96
27) Dibenz[a,h]anthracene	29.569	278	8277	10.62	ug/kg	95
28) Benzo[g,h,i]perylene	30.712	276	8261	9.91	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051004.D
Acq On : 10 May 2016 7:53 pm
Operator :
Sample : PAH2-160510 10ppb
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 11 10:45:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051005.D
Acq On : 10 May 2016 8:30 pm
Operator :
Sample : PAH3-160510 50ppb
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 11 10:45:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.290	136	1587879	4000.00	ug/kg	99
6) Acenaphthene-d10	12.876	164	1079979	4000.00	ug/kg	103
11) Phenanthrene-d10	15.000	188	3384980	4000.00	ug/kg	101
16) Chrysene-d12	21.027	240	3907046	4000.00	ug/kg	104
20) Perylene-d12	26.302	264	3287870	4000.00	ug/kg	104

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.779	172	15251	48.87	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.22%#			
17) 4-Terphenyl-d14	17.628	244	46251	51.23	ug/kg	0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery = 1.28%#			

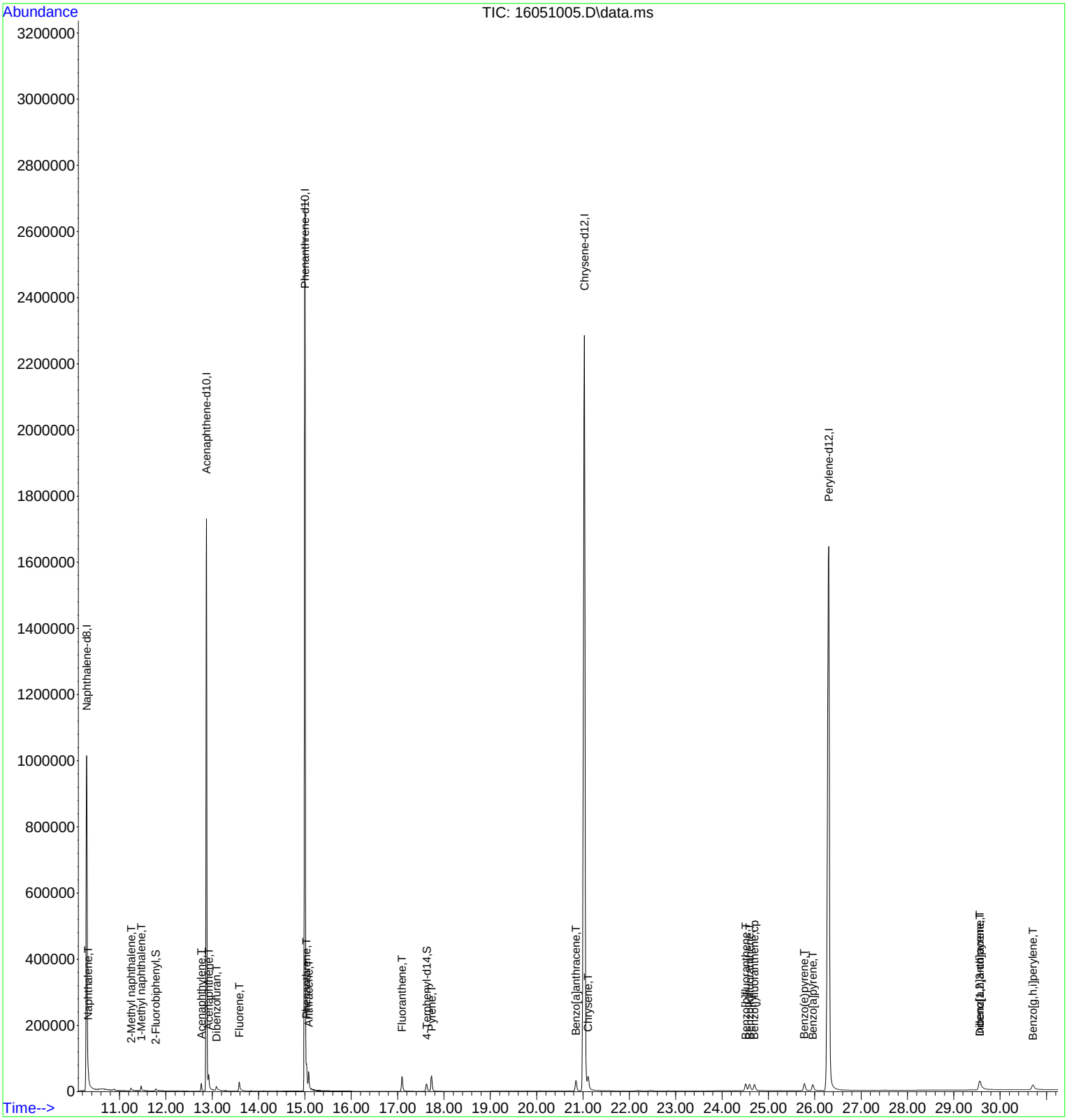
Target Compounds						Qvalue
2) Naphthalene	10.327	128	19480	50.62	ug/kg	99
3) 2-Methyl naphthalene	11.248	142	10141	41.69	ug/kg	98
4) 1-Methyl naphthalene	11.466	142	11421	47.29	ug/kg	98
7) Acenaphthylene	12.763	152	25743	50.72	ug/kg	98
8) Acenaphthene	12.925	153	16337	50.87	ug/kg	99
9) Dibenzofuran	13.088	168	26835	51.74	ug/kg	91
10) Fluorene	13.584	166	24907	51.07	ug/kg	99
12) Phenanthrene	15.036	178	50392	51.44	ug/kg	97
13) Anthracene	15.080	178	54990	51.81	ug/kg	98
14) Fluoranthene	17.091	202	65928	51.42	ug/kg	85
15) Pyrene	17.735	202	66234	51.51	ug/kg	96
18) Benzo[a]anthracene	20.844	228	53356	48.58	ug/kg	98
19) Chrysene	21.115	228	49286	49.02	ug/kg	98
21) Benzo[b]fluoranthene	24.507	252	43553	46.51	ug/kg	99
22) Benzo[k]fluoranthene	24.595	252	33838	45.06	ug/kg	98
23) Benzo(j)fluoranthene	24.697	252	36600	48.22	ug/kg	99
24) Benzo(e)pyrene	25.774	252	44132	49.11	ug/kg	100
25) Benzo[a]pyrene	25.957	252	41286	47.97	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.569	276	45459	47.68	ug/kg	99
27) Dibenz[a,h]anthracene	29.561	278	36685	47.20	ug/kg	98
28) Benzo[g,h,i]perylene	30.704	276	40076	48.17	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051005.D
Acq On : 10 May 2016 8:30 pm
Operator :
Sample : PAH3-160510 50ppb
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 11 10:45:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051006.D
Acq On : 10 May 2016 9:07 pm
Operator :
Sample : PAH4-160510 100ppb
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 11 10:45:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

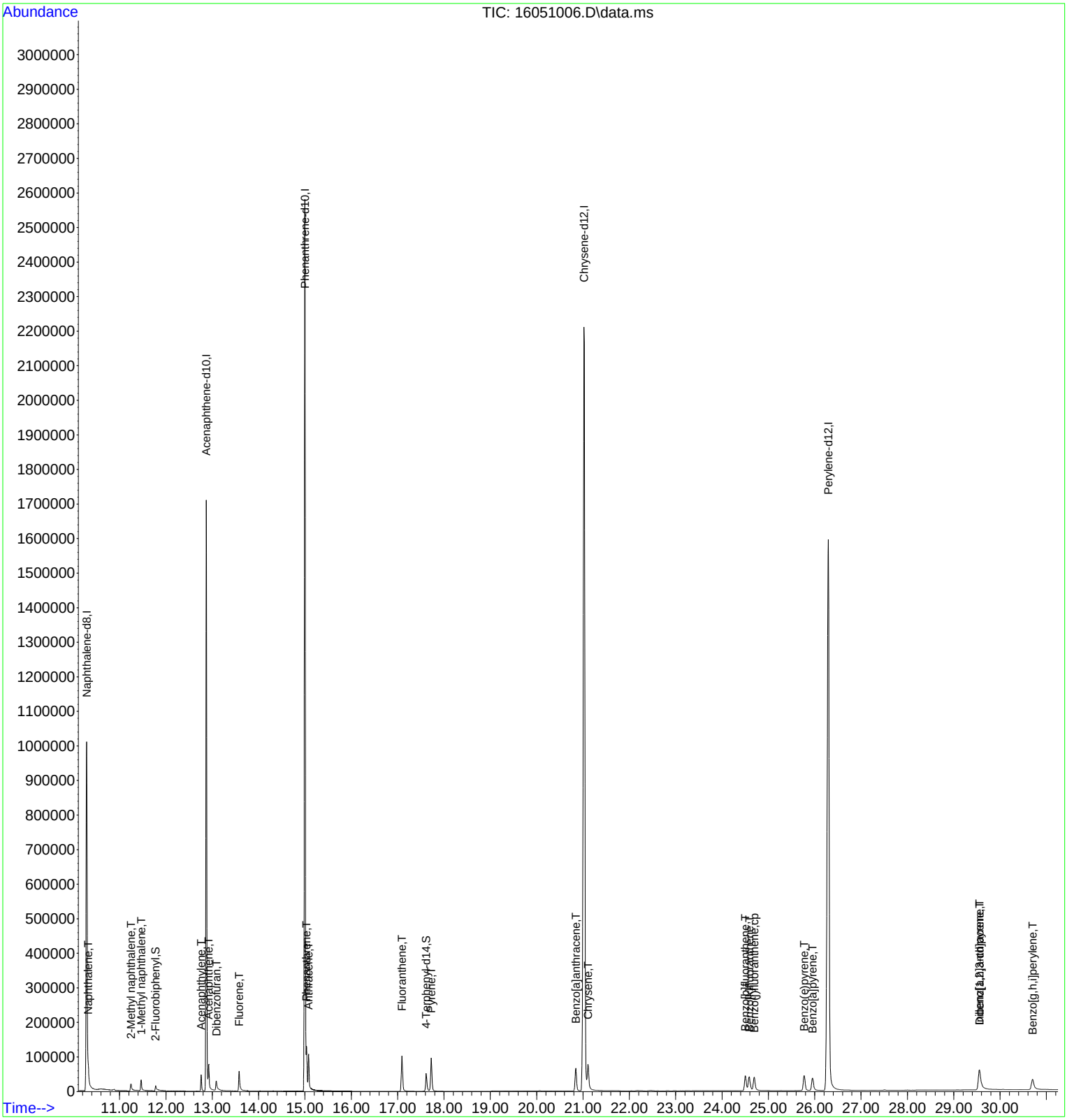
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.288	136	1574320	4000.00	ug/kg	98
6) Acenaphthene-d10	12.871	164	1055323	4000.00	ug/kg	101
11) Phenanthrene-d10	14.998	188	3251486	4000.00	ug/kg	97
16) Chrysene-d12	21.020	240	3827236	4000.00	ug/kg	102
20) Perylene-d12	26.294	264	3182996	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.777	172	31039	100.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.51%#			
17) 4-Terphenyl-d14	17.615	244	90784	102.66	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 2.57%#			
Target Compounds						Qvalue
2) Naphthalene	10.325	128	39007	102.24	ug/kg	99
3) 2-Methyl naphthalene	11.243	142	21207	84.16	ug/kg	98
4) 1-Methyl naphthalene	11.465	142	23413	97.79	ug/kg	99
7) Acenaphthylene	12.759	152	50778	102.39	ug/kg	99
8) Acenaphthene	12.925	153	32099	102.28	ug/kg	99
9) Dibenzofuran	13.088	168	52376	103.35	ug/kg	98
10) Fluorene	13.579	166	47934	100.57	ug/kg	99
12) Phenanthrene	15.034	178	94723	100.66	ug/kg	97
13) Anthracene	15.078	178	104836	102.82	ug/kg	98
14) Fluoranthene	17.092	202	129587	105.22	ug/kg	93
15) Pyrene	17.722	202	128916	104.36	ug/kg	93
18) Benzo[a]anthracene	20.844	228	107249	99.69	ug/kg	98
19) Chrysene	21.108	228	98309	99.82	ug/kg	99
21) Benzo[b]fluoranthene	24.500	252	87156	96.15	ug/kg	99
22) Benzo[k]fluoranthene	24.588	252	71623	98.51	ug/kg	98
23) Benzo(j)fluoranthene	24.697	252	73967	100.65	ug/kg	99
24) Benzo(e)pyrene	25.774	252	87538	100.61	ug/kg	99
25) Benzo[a]pyrene	25.950	252	81560	97.89	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.561	276	89633	97.11	ug/kg	99
27) Dibenz[a,h]anthracene	29.547	278	72155	95.89	ug/kg	98
28) Benzo[g,h,i]perylene	30.704	276	78373	97.31	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051006.D
Acq On : 10 May 2016 9:07 pm
Operator :
Sample : PAH4-160510 100ppb
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 11 10:45:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051007.D
Acq On : 10 May 2016 9:44 pm
Operator :
Sample : PAH5-160510 500ppb
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 11 10:45:12 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

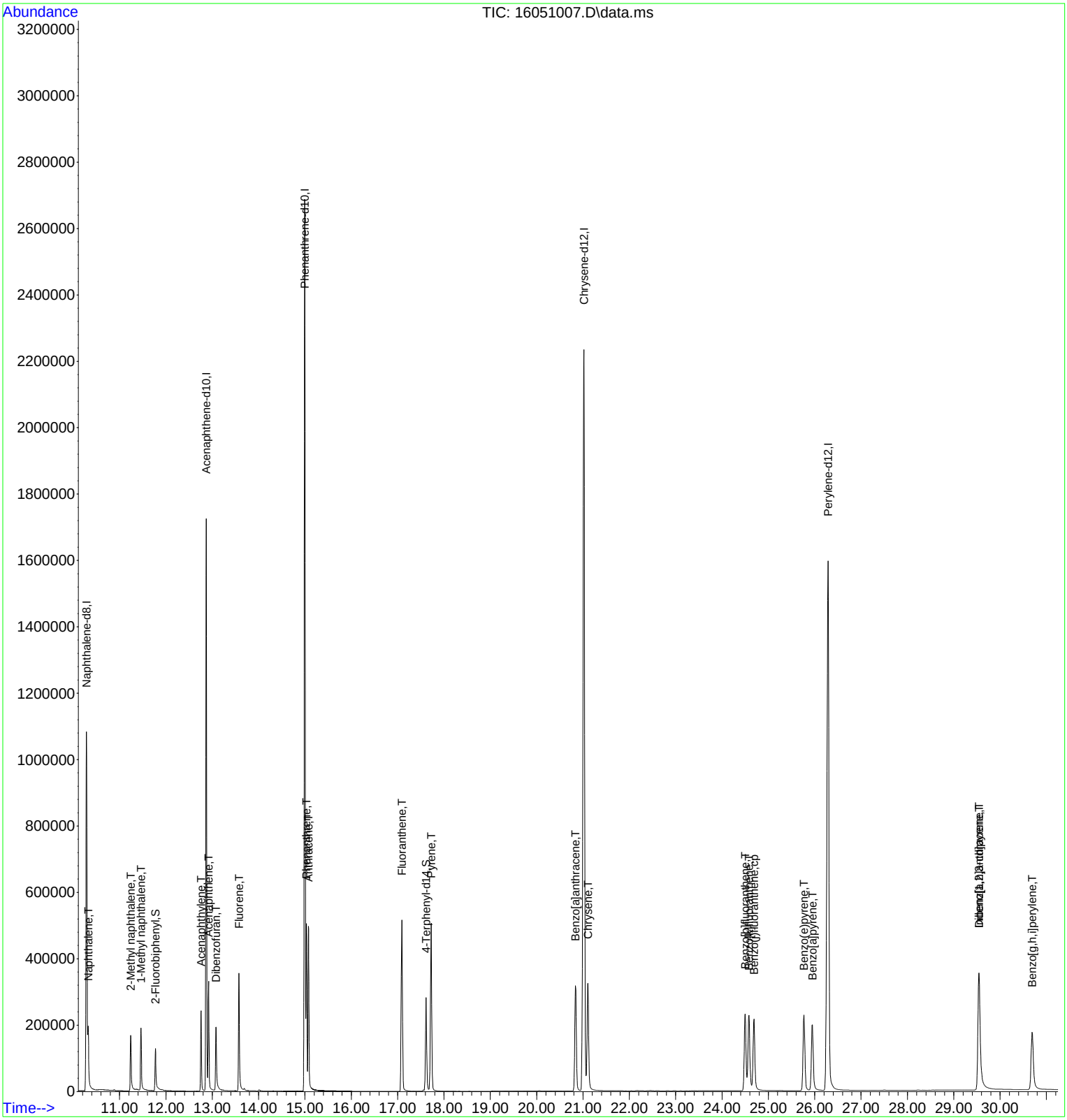
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.284	136	1616531	4000.00	ug/kg	100
6) Acenaphthene-d10	12.871	164	1052604	4000.00	ug/kg	101
11) Phenanthrene-d10	14.996	188	3326988	4000.00	ug/kg	99
16) Chrysene-d12	21.020	240	3820943	4000.00	ug/kg	102
20) Perylene-d12	26.287	264	3197705	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.773	172	165670	521.45	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 13.04%#			
17) 4-Terphenyl-d14	17.615	244	441296	499.86	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 12.50%#			
Target Compounds						Qvalue
2) Naphthalene	10.321	128	197925	505.21	ug/kg	100
3) 2-Methyl naphthalene	11.239	142	127484	477.61	ug/kg	99
4) 1-Methyl naphthalene	11.461	142	134372	546.57	ug/kg	99
7) Acenaphthylene	12.759	152	249148	503.69	ug/kg	99
8) Acenaphthene	12.921	153	156678	500.52	ug/kg	99
9) Dibenzofuran	13.083	168	255650	505.74	ug/kg	98
10) Fluorene	13.574	166	237488	499.58	ug/kg	100
12) Phenanthrene	15.032	178	471774	489.95	ug/kg	98
13) Anthracene	15.076	178	518768	497.27	ug/kg	98
14) Fluoranthene	17.092	202	627904	498.28	ug/kg	98
15) Pyrene	17.722	202	622926	492.85	ug/kg	98
18) Benzo[a]anthracene	20.837	228	531791	495.11	ug/kg	99
19) Chrysene	21.108	228	487688	496.00	ug/kg	98
21) Benzo[b]fluoranthene	24.500	252	446872	490.71	ug/kg	99
22) Benzo[k]fluoranthene	24.580	252	394934	540.70	ug/kg	98
23) Benzo(j)fluoranthene	24.690	252	391806	530.72	ug/kg	99
24) Benzo(e)pyrene	25.767	252	438198	501.33	ug/kg	99
25) Benzo[a]pyrene	25.950	252	414276	494.96	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.547	276	459506	495.54	ug/kg	97
27) Dibenz[a,h]anthracene	29.539	278	373713	494.35	ug/kg	98
28) Benzo[g,h,i]perylene	30.689	276	394763	487.88	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051007.D
Acq On : 10 May 2016 9:44 pm
Operator :
Sample : PAH5-160510 500ppb
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 11 10:45:12 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051008.D
Acq On : 10 May 2016 10:21 pm
Operator :
Sample : PAH6-160510 1000ppb
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 11 10:45:15 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.281	136	1609199	4000.00	ug/kg	100
6) Acenaphthene-d10	12.866	164	1043592	4000.00	ug/kg	100
11) Phenanthrene-d10	14.993	188	3366458	4000.00	ug/kg	100
16) Chrysene-d12	21.013	240	3758565	4000.00	ug/kg	100
20) Perylene-d12	26.280	264	3167827	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.771	172	338103	1069.04	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.73%#			
17) 4-Terphenyl-d14	17.615	244	853490	982.80	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 24.57%#			

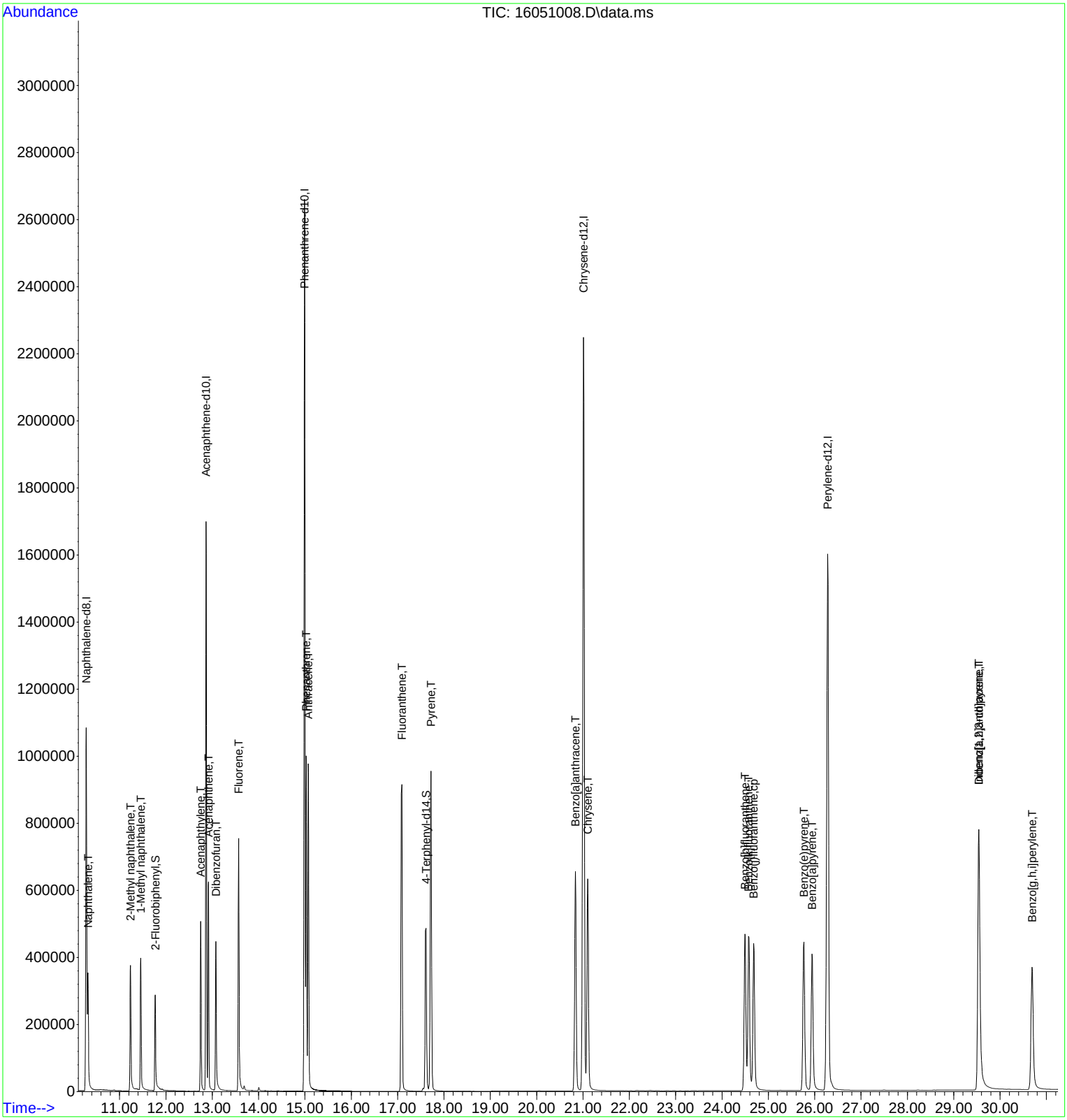
Target Compounds						Qvalue
2) Naphthalene	10.319	128	395299	1013.61	ug/kg	100
3) 2-Methyl naphthalene	11.236	142	270515	1018.82	ug/kg	99
4) 1-Methyl naphthalene	11.458	142	265900	1086.50	ug/kg	100
7) Acenaphthylene	12.753	152	492825	1004.92	ug/kg	99
8) Acenaphthene	12.920	153	313128	1008.96	ug/kg	99
9) Dibenzofuran	13.077	168	502264	1002.18	ug/kg	96
10) Fluorene	13.573	166	475116	1008.08	ug/kg	98
12) Phenanthrene	15.029	178	950311	975.34	ug/kg	99
13) Anthracene	15.073	178	1019159	965.46	ug/kg	99
14) Fluoranthene	17.092	202	1223282	959.36	ug/kg	98
15) Pyrene	17.723	202	1217297	951.81	ug/kg	98
18) Benzo[a]anthracene	20.837	228	1052978	996.62	ug/kg	99
19) Chrysene	21.101	228	958443	990.95	ug/kg	99
21) Benzo[b]fluoranthene	24.500	252	912278	1011.22	ug/kg	99
22) Benzo[k]fluoranthene	24.580	252	794172	1097.55	ug/kg	99
23) Benzo(j)fluoranthene	24.683	252	782779	1070.30	ug/kg	99
24) Benzo(e)pyrene	25.767	252	867399	1001.73	ug/kg	99
25) Benzo[a]pyrene	25.943	252	834302	1006.19	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.547	276	931689	1014.23	ug/kg	99
27) Dibenz[a,h]anthracene	29.539	278	766967	1024.12	ug/kg	98
28) Benzo[g,h,i]perylene	30.690	276	797908	995.42	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051008.D
Acq On : 10 May 2016 10:21 pm
Operator :
Sample : PAH6-160510 1000ppb
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 11 10:45:15 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051009.D
Acq On : 10 May 2016 10:58 pm
Operator :
Sample : PAH7-160510 2000ppb
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 11 10:45:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1562362	4000.00	ug/kg	97
6) Acenaphthene-d10	12.867	164	977263	4000.00	ug/kg	94
11) Phenanthrene-d10	14.992	188	3104845	4000.00	ug/kg	92
16) Chrysene-d12	21.013	240	3495950	4000.00	ug/kg	93
20) Perylene-d12	26.280	264	2966012	4000.00	ug/kg	94

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.769	172	632072	2058.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	51.46%		
17) 4-Terphenyl-d14	17.615	244	1563267	1935.33	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	48.38%#		

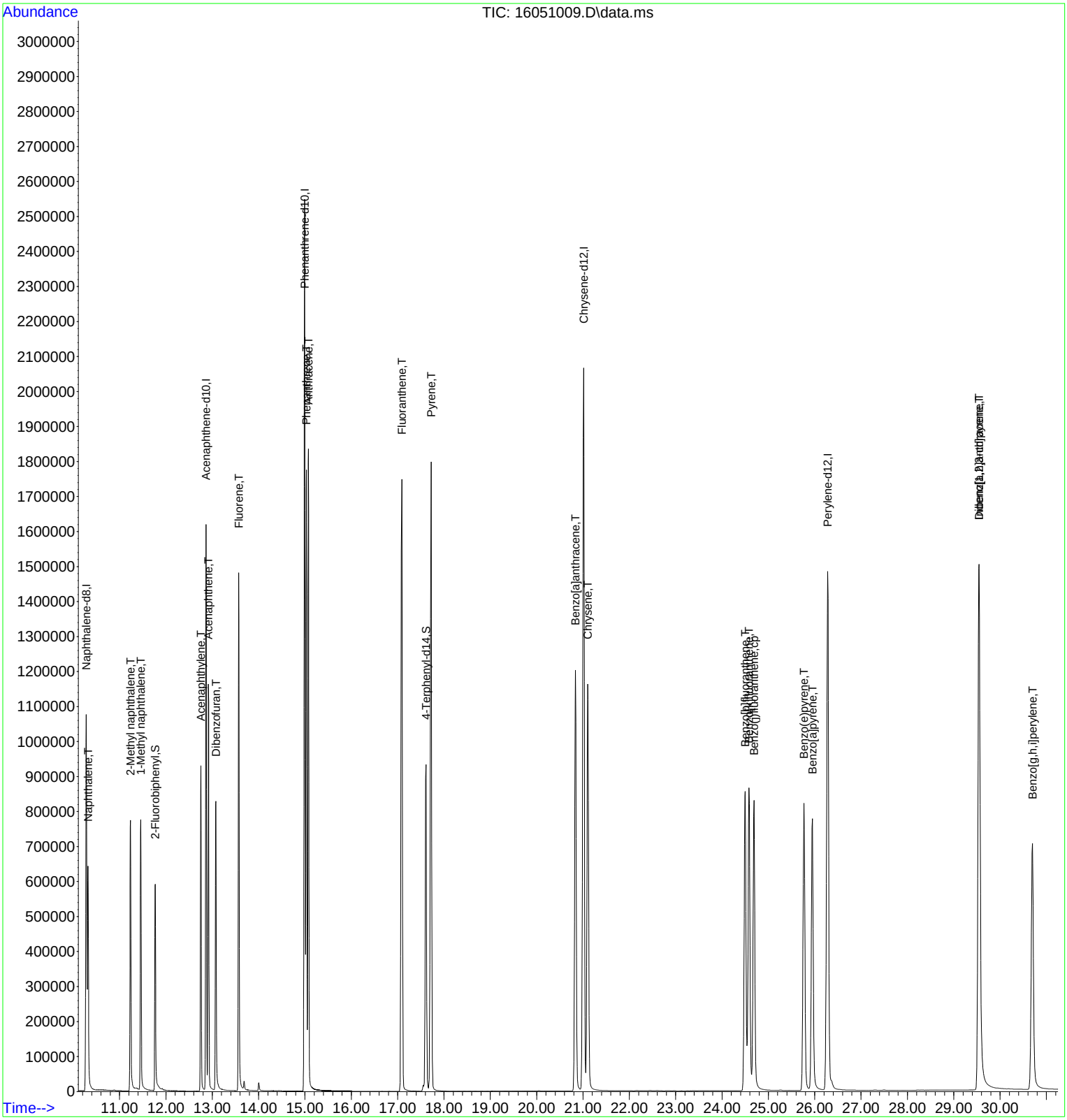
Target Compounds						Qvalue
2) Naphthalene	10.317	128	759401	2005.61	ug/kg	100
3) 2-Methyl naphthalene	11.235	142	523991	2046.89	ug/kg	100
4) 1-Methyl naphthalene	11.457	142	501831	2112.02	ug/kg	100
7) Acenaphthylene	12.754	152	915681	1993.89	ug/kg	100
8) Acenaphthene	12.916	153	576336	1983.10	ug/kg	100
9) Dibenzofuran	13.078	168	912453	1944.22	ug/kg	100
10) Fluorene	13.569	166	859915	1948.37	ug/kg	100
12) Phenanthrene	15.030	178	1714290	1907.70	ug/kg	100
13) Anthracene	15.074	178	1858022	1908.44	ug/kg	100
14) Fluoranthene	17.092	202	2215471	1883.89	ug/kg	100
15) Pyrene	17.723	202	2207662	1871.63	ug/kg	100
18) Benzo[a]anthracene	20.838	228	1941914	1976.04	ug/kg	100
19) Chrysene	21.101	228	1770777	1968.37	ug/kg	100
21) Benzo[b]fluoranthene	24.500	252	1673798	1981.57	ug/kg	100
22) Benzo[k]fluoranthene	24.581	252	1504300	2220.40	ug/kg	100
23) Benzo(j)fluoranthene	24.691	252	1459957	2132.04	ug/kg	100
24) Benzo(e)pyrene	25.767	252	1588413	1959.22	ug/kg	100
25) Benzo[a]pyrene	25.951	252	1549020	1995.27	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.555	276	1738697	2021.53	ug/kg	100
27) Dibenz[a,h]anthracene	29.540	278	1443267	2058.30	ug/kg	100
28) Benzo[g,h,i]perylene	30.697	276	1492122	1988.14	ug/kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051009.D
Acq On : 10 May 2016 10:58 pm
Operator :
Sample : PAH7-160510 2000ppb
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 11 10:45:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051010.D
Acq On : 10 May 2016 11:34 pm
Operator :
Sample : PAH8-160510 5000ppb
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 11 10:45:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

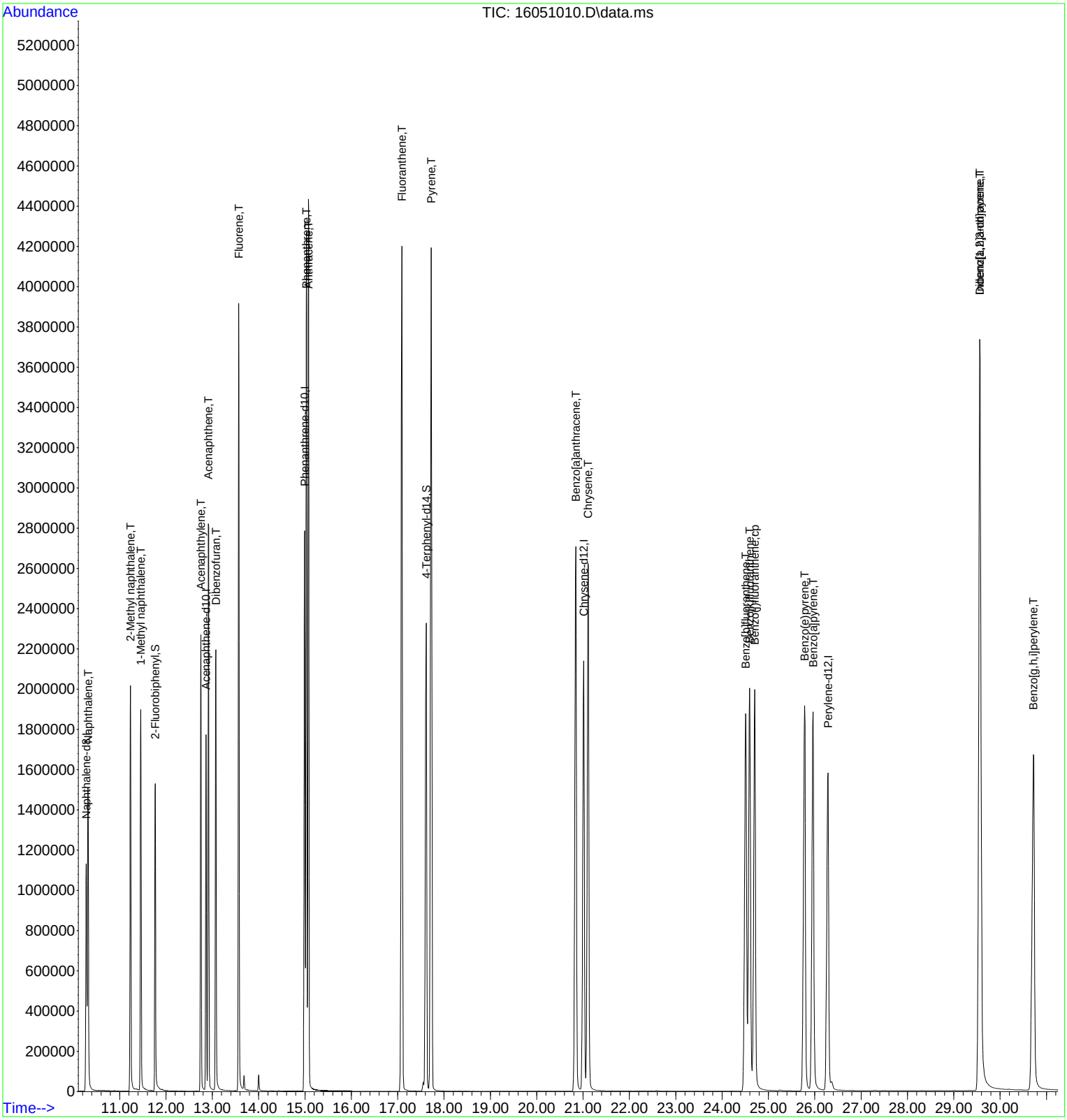
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.279	136	1607500	4000.00	ug/kg	100
6) Acenaphthene-d10	12.866	164	1048910	4000.00	ug/kg	101
11) Phenanthrene-d10	14.991	188	3489646	4000.00	ug/kg	104
16) Chrysene-d12	21.012	240	3642647	4000.00	ug/kg	97
20) Perylene-d12	26.286	264	3135775	4000.00	ug/kg	99
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.769	172	1510643	4781.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 119.54%			
17) 4-Terphenyl-d14	17.616	244	3633740	4317.42	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 107.94%			
Target Compounds						Qvalue
2) Naphthalene	10.317	128	1810982	4648.57	ug/kg	99
3) 2-Methyl naphthalene	11.234	142	1280055	4979.05	ug/kg	99
4) 1-Methyl naphthalene	11.456	142	1192892	4879.47	ug/kg	99
7) Acenaphthylene	12.753	152	2220480	4504.81	ug/kg	98
8) Acenaphthene	12.915	153	1422129	4559.13	ug/kg	99
9) Dibenzofuran	13.077	168	2245752	4458.31	ug/kg	98
10) Fluorene	13.568	166	2202341	4649.14	ug/kg	99
12) Phenanthrene	15.031	178	4235828	4193.94	ug/kg	96
13) Anthracene	15.075	178	4500062	4112.49	ug/kg	96
14) Fluoranthene	17.093	202	5080861	3844.01	ug/kg	94
15) Pyrene	17.723	202	5128610	3868.52	ug/kg	90
18) Benzo[a]anthracene	20.844	228	4526014	4420.07	ug/kg	97
19) Chrysene	21.107	228	4159232	4437.15	ug/kg	98
21) Benzo[b]fluoranthene	24.513	252	4109167	4601.37	ug/kg	98
22) Benzo[k]fluoranthene	24.594	252	3594211	5017.97	ug/kg	98
23) Benzo(j)fluoranthene	24.704	252	3516896	4857.85	ug/kg	98
24) Benzo(e)pyrene	25.781	252	3849551	4491.16	ug/kg	98
25) Benzo[a]pyrene	25.964	252	3809209	4640.96	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.568	276	4344207	4777.43	ug/kg	88
27) Dibenz[a,h]anthracene	29.560	278	3568930	4814.24	ug/kg	97
28) Benzo[g,h,i]perylene	30.725	276	3771267	4752.90	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051010.D
Acq On : 10 May 2016 11:34 pm
Operator :
Sample : PAH8-160510 5000ppb
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 11 10:45:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051012.D
Acq On : 11 May 2016 12:49 am
Operator :
Sample : SSCV-160510 2500ppb
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 11 10:45:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1855821	4000.00	ug/kg	115
6) Acenaphthene-d10	12.867	164	1123330	4000.00	ug/kg	108
11) Phenanthrene-d10	14.987	188	2598636	4000.00	ug/kg	77
16) Chrysene-d12	21.006	240	3825814	4000.00	ug/kg	102
20) Perylene-d12	26.280	264	3299401	4000.00	ug/kg	104

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.765	172	1675854	4594.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 114.87%			
17) 4-Terphenyl-d14	17.615	244	3374351	3817.28	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 95.43%			

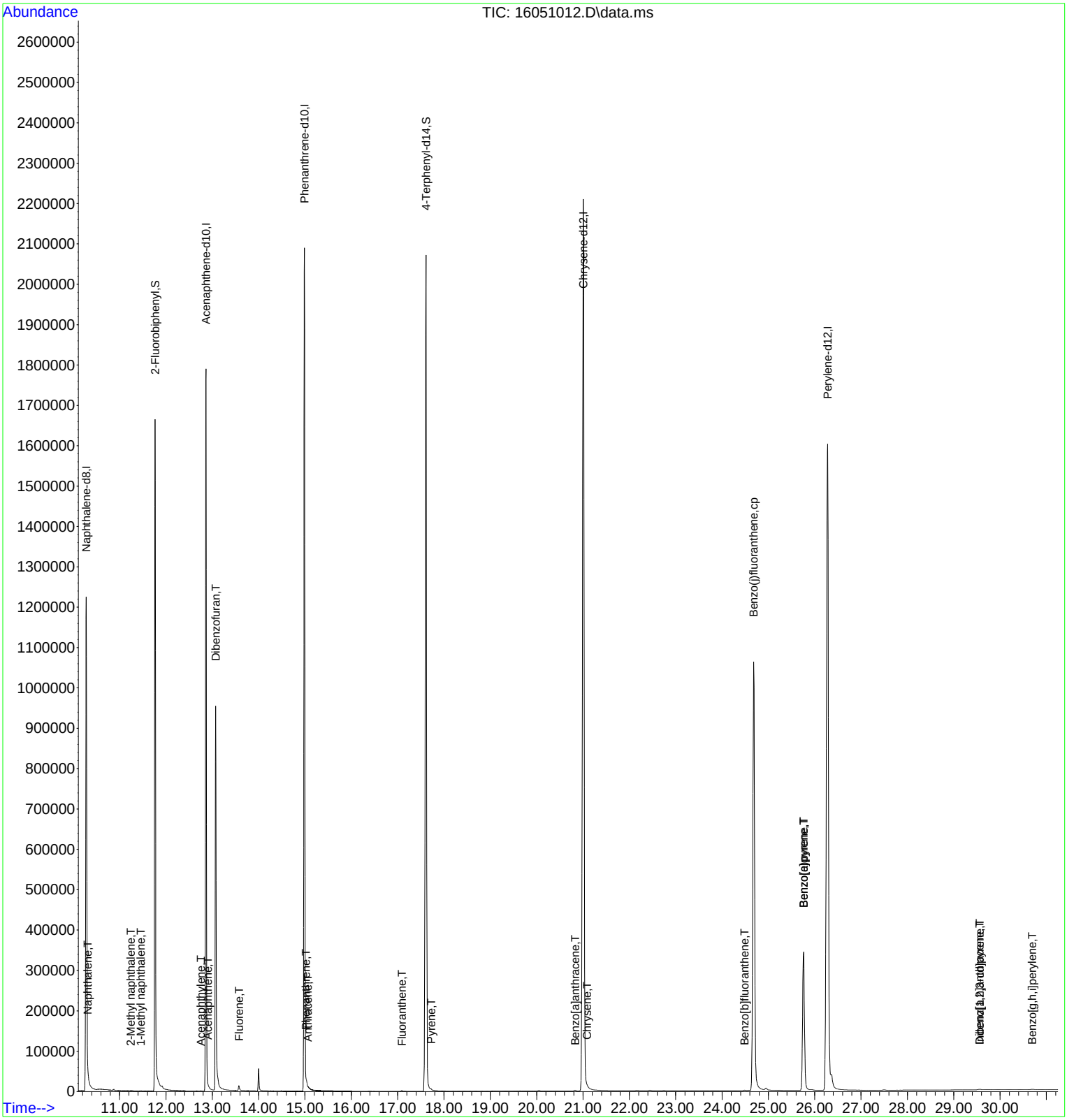
Target Compounds						Qvalue	
2) Naphthalene	10.317	128	953	2.12	ug/kg	76	
3) 2-Methyl naphthalene	11.239	142	531	5.14	ug/kg	93	
4) 1-Methyl naphthalene	11.457	142	562	1.99	ug/kg	95	
7) Acenaphthylene	12.754	152	1045	1.98	ug/kg	96	
8) Acenaphthene	12.916	153	751	2.25	ug/kg	97	
9) Dibenzofuran	13.073	168	1056592	1958.60	ug/kg	93	See rerun for dibenzofuran.
10) Fluorene	13.574	166	10421	20.54	ug/kg	99	
12) Phenanthrene	15.025	178	1893	2.52	ug/kg	97	
13) Anthracene	15.070	178	1817	2.23	ug/kg	100	
14) Fluoranthene	17.092	202	2752	2.80	ug/kg	99	
15) Pyrene	17.723	202	3178	3.22	ug/kg	96	
18) Benzo[a]anthracene	20.830	228	3027	2.81	ug/kg	99	
19) Chrysene	21.094	228	2819	2.86	ug/kg	97	
21) Benzo[b]fluoranthene	24.493	252	2910	3.10	ug/kg	100	
22) Benzo[k]fluoranthene	0.000	252	0	N.D.			
23) Benzo(j)fluoranthene	24.683	252	1990617	2613.26	ug/kg	100	
24) Benzo(e)pyrene	25.760	252	664023	736.28	ug/kg	99	
25) Benzo[a]pyrene	25.760	252	641359	742.65	ug/kg	95	
26) Indeno[1,2,3-cd]pyrene	29.562	276	2706	2.83	ug/kg	98	
27) Dibenz[a,h]anthracene	29.547	278	2621	3.36	ug/kg	95	
28) Benzo[g,h,i]perylene	30.682	276	2447	2.93	ug/kg	96	

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051012.D
Acq On : 11 May 2016 12:49 am
Operator :
Sample : SSCV-160510 2500ppb
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 11 10:45:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051013.D
Acq On : 11 May 2016 1:26 am
Operator :
Sample : SSCV-160510 2500ppb
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 11 10:45:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

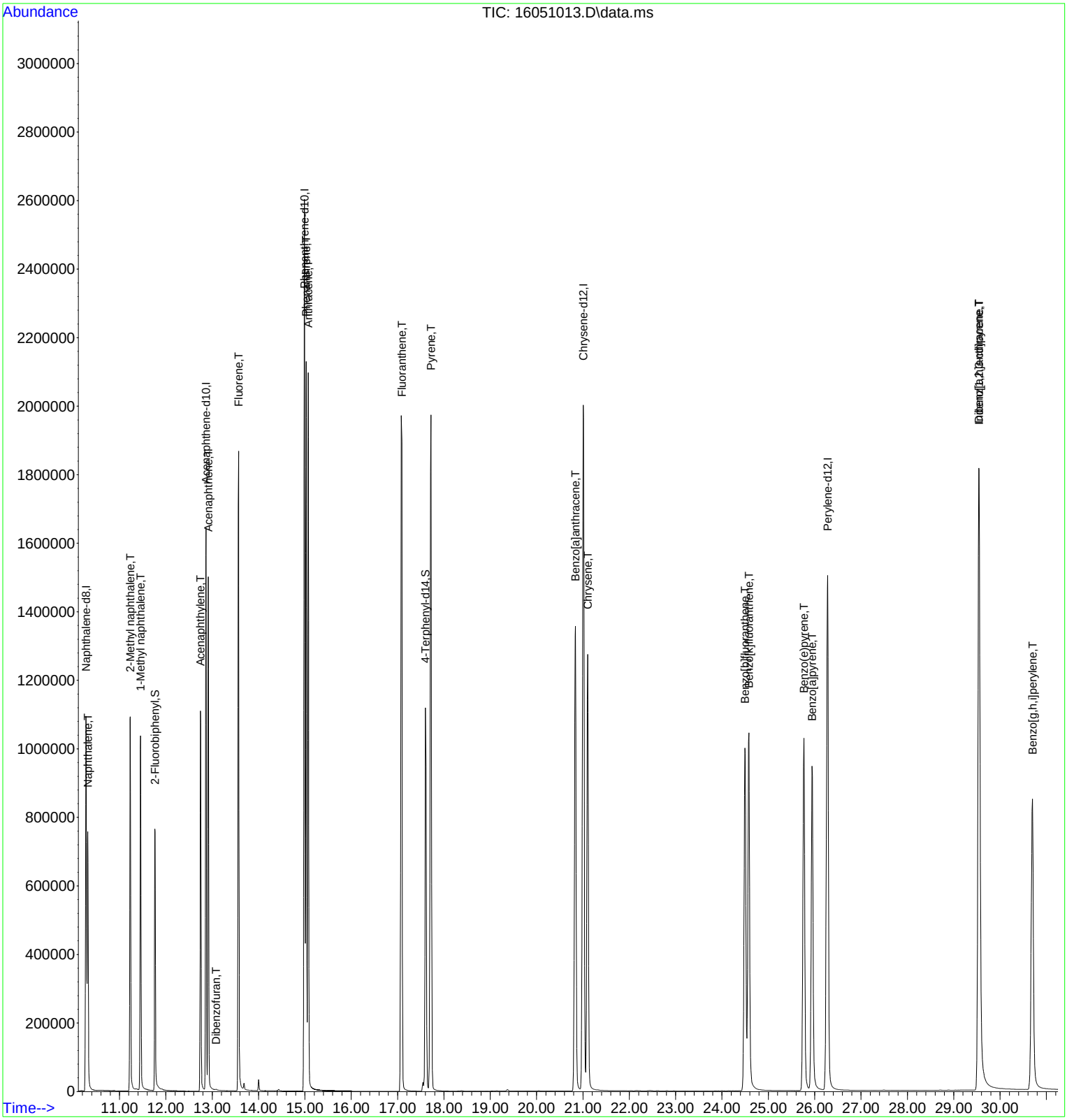
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.278	136	1554639	4000.00	ug/kg	97
6) Acenaphthene-d10	12.866	164	1006608	4000.00	ug/kg	96
11) Phenanthrene-d10	14.989	188	3157008	4000.00	ug/kg	94
16) Chrysene-d12	21.006	240	3463869	4000.00	ug/kg	92
20) Perylene-d12	26.280	264	2950519	4000.00	ug/kg	93
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.763	172	779363	2550.73	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	63.77%		
17) 4-Terphenyl-d14	17.602	244	1768654	2209.88	ug/kg	-0.01
Spiked Amount 4000.000	Range 51 - 135		Recovery =	55.25%		
Target Compounds						Qvalue
2) Naphthalene	10.315	128	894398	2373.87	ug/kg	100
3) 2-Methyl naphthalene	11.232	142	717289	2833.51	ug/kg	100
4) 1-Methyl naphthalene	11.454	142	656912	2778.44	ug/kg	100
7) Acenaphthylene	12.748	152	1098072	2321.34	ug/kg	100
8) Acenaphthene	12.915	153	729094	2435.59	ug/kg	99
9) Dibenzofuran	13.082	168	3308	6.84	ug/kg	93
10) Fluorene	13.568	166	1095429	2409.63	ug/kg	98
12) Phenanthrene	15.027	178	2064186	2259.11	ug/kg	99
13) Anthracene	15.071	178	2115711	2137.21	ug/kg	99
14) Fluoranthene	17.092	202	2598569	2173.14	ug/kg	97
15) Pyrene	17.722	202	2593276	2162.22	ug/kg	97
18) Benzo[a]anthracene	20.837	228	2215618	2275.43	ug/kg	100
19) Chrysene	21.101	228	1891125	2121.62	ug/kg	100
21) Benzo[b]fluoranthene	24.493	252	1991808	2370.43	ug/kg	99
22) Benzo[k]fluoranthene	24.581	252	1882427	2793.12	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	25.767	252	1976951	2451.27	ug/kg	100
25) Benzo[a]pyrene	25.943	252	1884992	2440.78	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.554	276	2091753	2444.78	ug/kg	100
27) Dibenz[a,h]anthracene	29.540	278	1738477	2492.33	ug/kg	100
28) Benzo[g,h,i]perylene	30.697	276	1798976	2409.59	ug/kg	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051013.D
Acq On : 11 May 2016 1:26 am
Operator :
Sample : SSCV-160510 2500ppb
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 11 10:45:28 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051020.D
Acq On : 11 May 2016 9:18 am
Operator :
Sample : SSCV-160511
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 11 10:45:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration

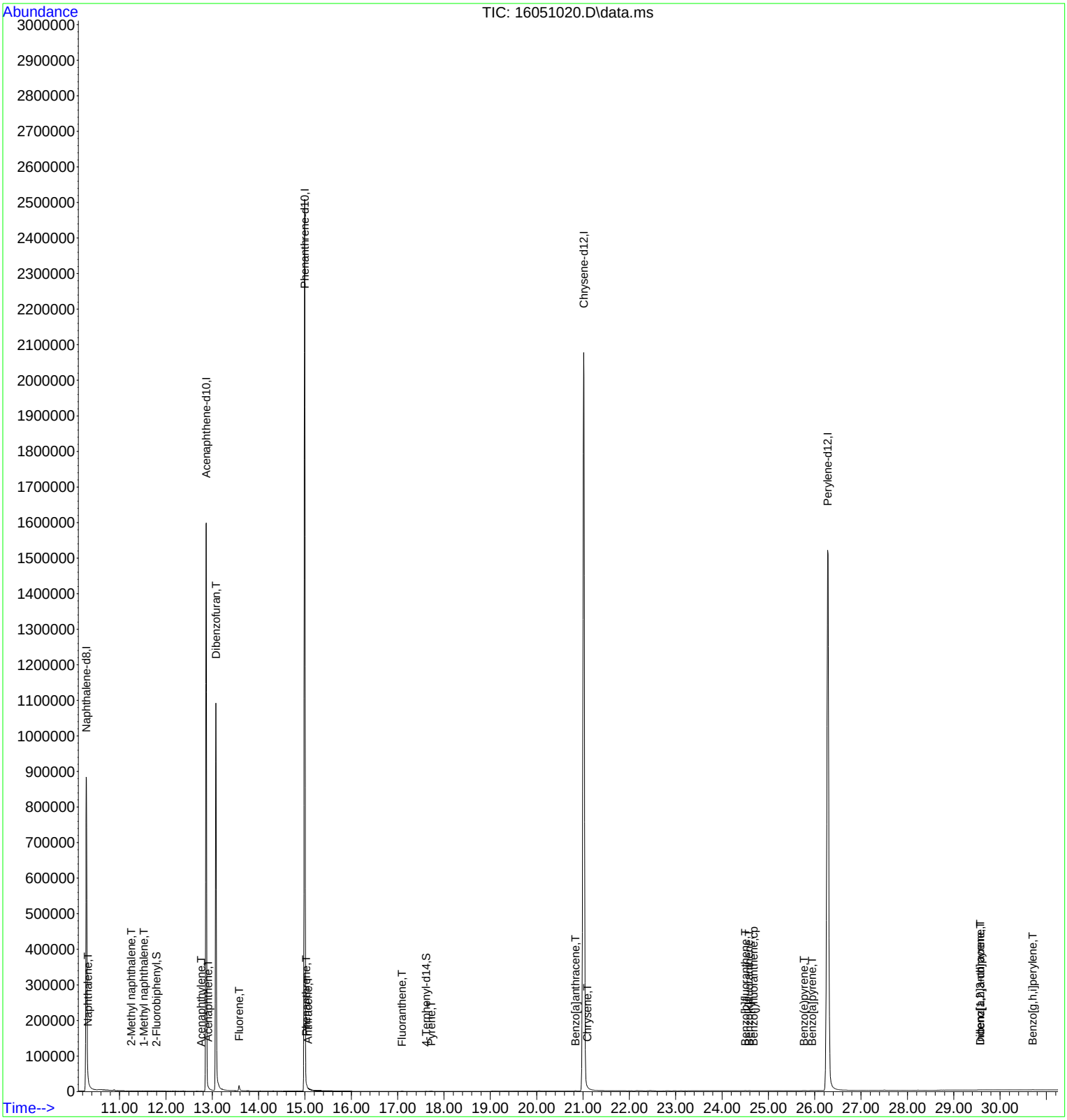
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.280	136	1399599	4000.00	ug/kg	87
6) Acenaphthene-d10	12.872	164	1004361	4000.00	ug/kg	96
11) Phenanthrene-d10	14.994	188	3100424	4000.00	ug/kg	92
16) Chrysene-d12	21.013	240	3551246	4000.00	ug/kg	94
20) Perylene-d12	26.280	264	2998619	4000.00	ug/kg	95
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.790	172	161	0.59	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
17) 4-Terphenyl-d14	17.615	244	1074	1.31	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery =	0.03%#		
Target Compounds						Qvalue
2) Naphthalene	10.321	128	189	0.56	ug/kg	80
3) 2-Methyl naphthalene	11.243	142	73	3.74	ug/kg#	71
4) 1-Methyl naphthalene	11.527	142	17	0.08	ug/kg	96
7) Acenaphthylene	12.759	152	258	0.55	ug/kg	97
8) Acenaphthene	12.921	153	264	0.88	ug/kg	90
9) Dibenzofuran	13.078	168	1144093	2372.02	ug/kg	92
10) Fluorene	13.579	166	11574	25.52	ug/kg	99
12) Phenanthrene	15.032	178	1088	1.21	ug/kg	98
13) Anthracene	15.076	178	957	0.98	ug/kg	96
14) Fluoranthene	17.092	202	1237	1.05	ug/kg	91
15) Pyrene	17.722	202	1577	1.34	ug/kg	95
18) Benzo[a]anthracene	20.838	228	1390	1.39	ug/kg	97
19) Chrysene	21.101	228	1149	1.26	ug/kg	97
21) Benzo[b]fluoranthene	24.500	252	1334	1.56	ug/kg	97
22) Benzo[k]fluoranthene	24.581	252	806	1.18	ug/kg	99
23) Benzo(j)fluoranthene	24.683	252	177	0.26	ug/kg	72
24) Benzo(e)pyrene	25.767	252	510	0.62	ug/kg	94
25) Benzo[a]pyrene	25.943	252	1108	1.41	ug/kg	93
26) Indeno[1,2,3-cd]pyrene	29.569	276	1222	1.41	ug/kg	95
27) Dibenz[a,h]anthracene	29.576	278	1493	2.11	ug/kg	90
28) Benzo[g,h,i]perylene	30.704	276	997	1.31	ug/kg	97

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

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160510\
Data File : 16051020.D
Acq On : 11 May 2016 9:18 am
Operator :
Sample : SSCV-160511
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 11 10:45:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160510.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed May 11 10:43:33 2016
Response via : Initial Calibration



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

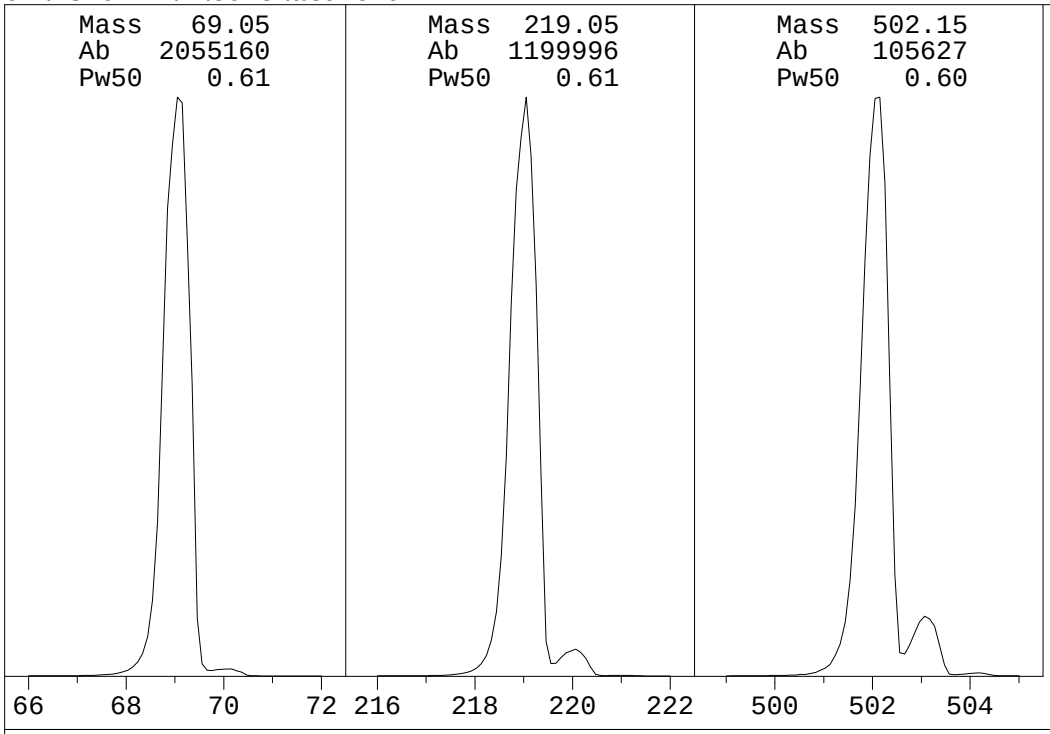
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160510**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160510-1**
		5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160510-2**

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: Date: 05/19/2016

Tue May 17 15:37:19 2016 Instrument: GCMS #8
C:\MSDCHEM\1\5973\atune.u

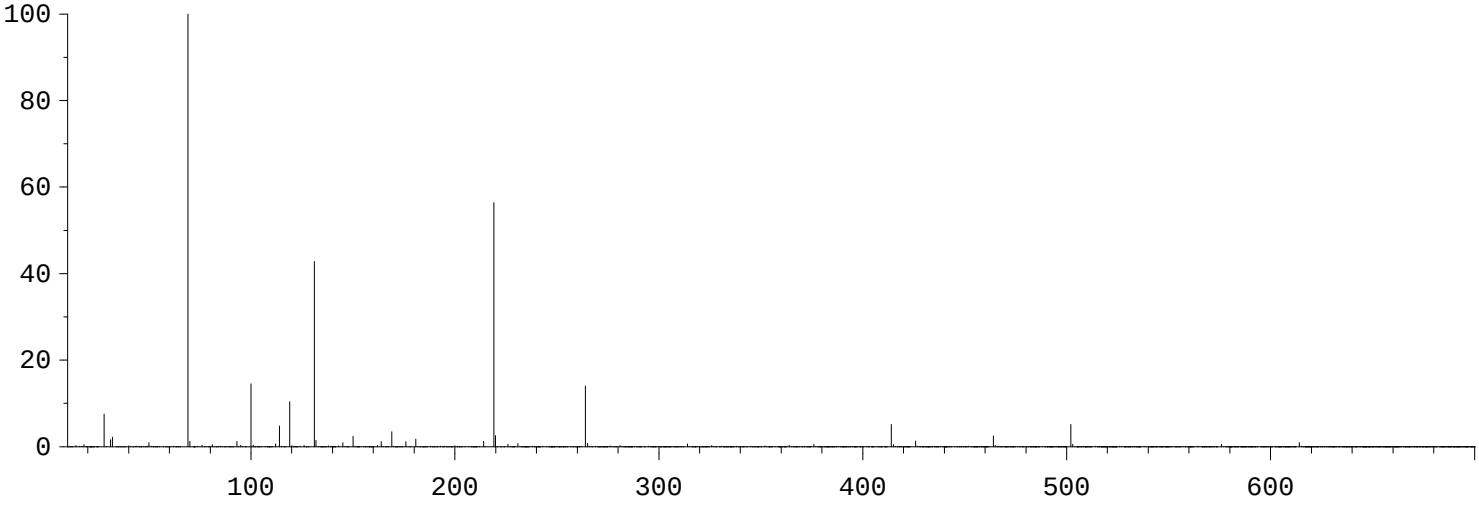


Ion Pol	POS	MassGain	48
		MassOffs	-11
Emission	34.6	AmuGain	2098
EIEnrgy	69.9	AmuOffs	132
Filament	2	Wid219	-0.001
		DC Pol	NEG
Repeller	37.83		
IonFcus	95.9	HEDEnab	ON
EntLens	12.0	EMVolts	1506
EntOffs	19.33		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

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

Response Factor Report GCMS #8

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

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
(X) Full Method
( ) Reprocessing Only

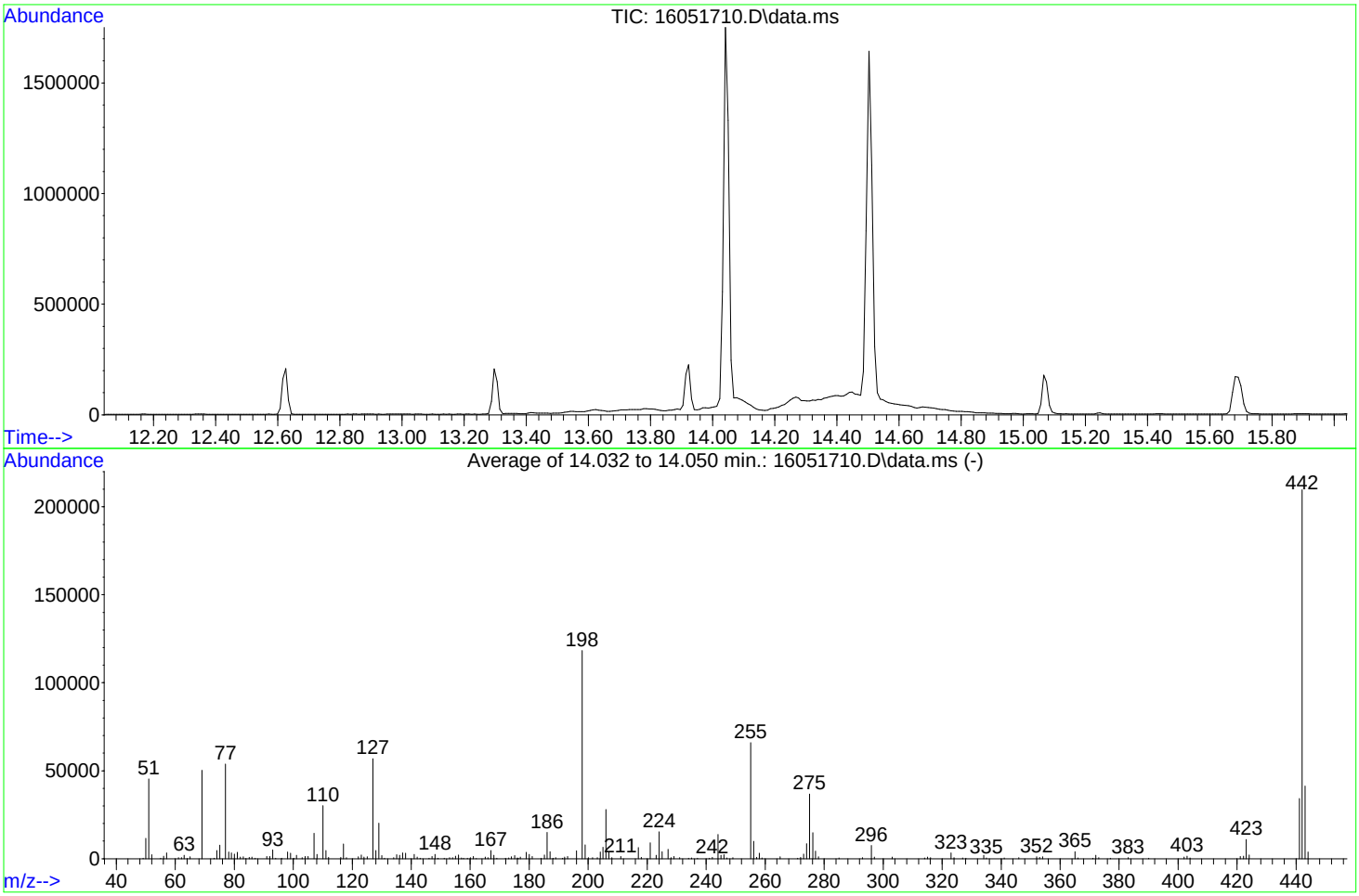
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

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

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



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

Quantitation Report (Not Reviewed)

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						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%#			

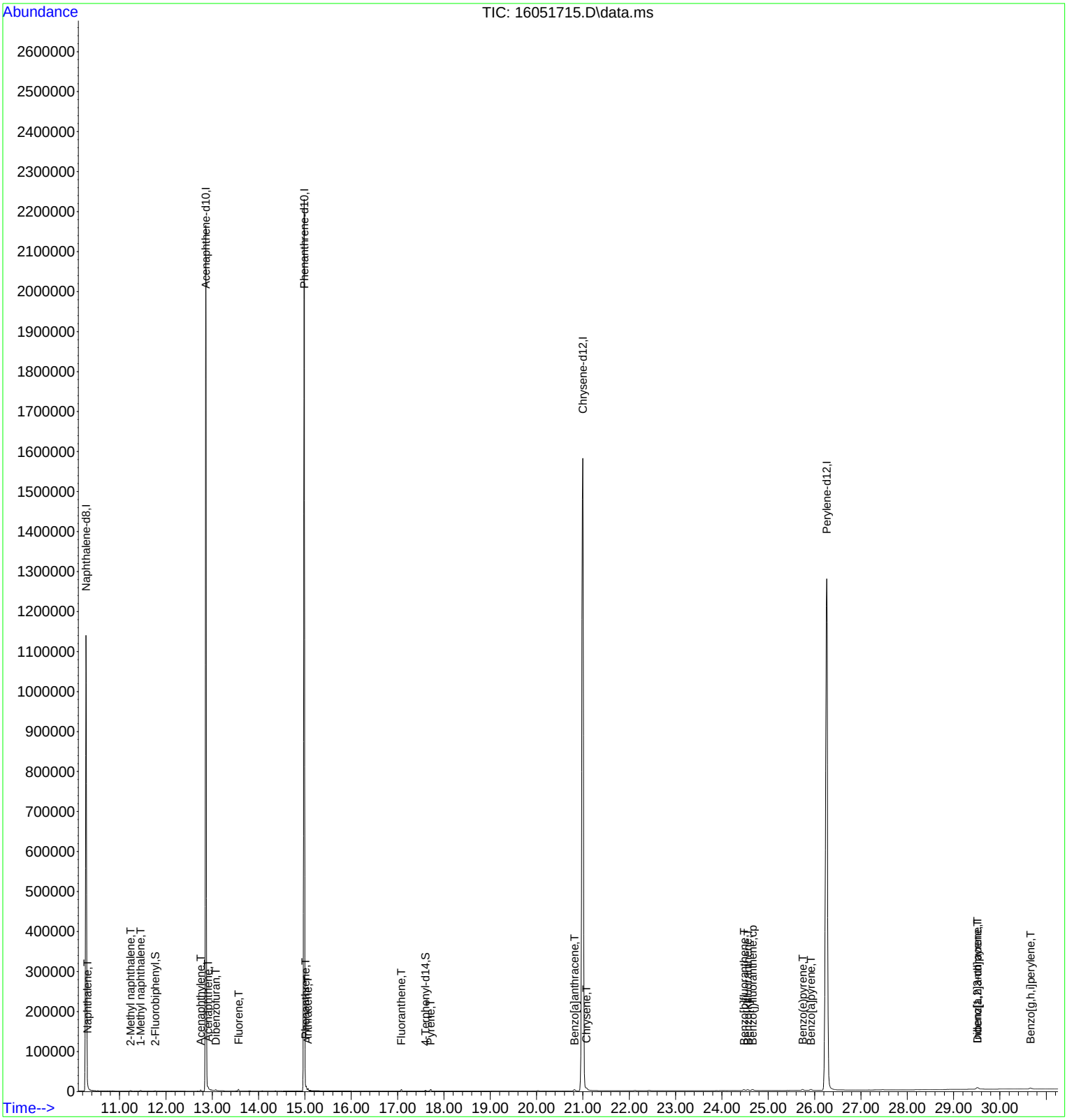
Target Compounds						Qvalue
2) Naphthalene	10.313	128	1960	5.42	ug/kg	99
3) 2-Methyl naphthalene	11.234	142	1349	4.80	ug/kg	100
4) 1-Methyl naphthalene	11.457	142	1407	5.29	ug/kg	95
7) Acenaphthylene	12.749	152	3043	5.36	ug/kg	98
8) Acenaphthene	12.911	153	1895	5.29	ug/kg	96
9) Dibenzofuran	13.073	168	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)

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



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

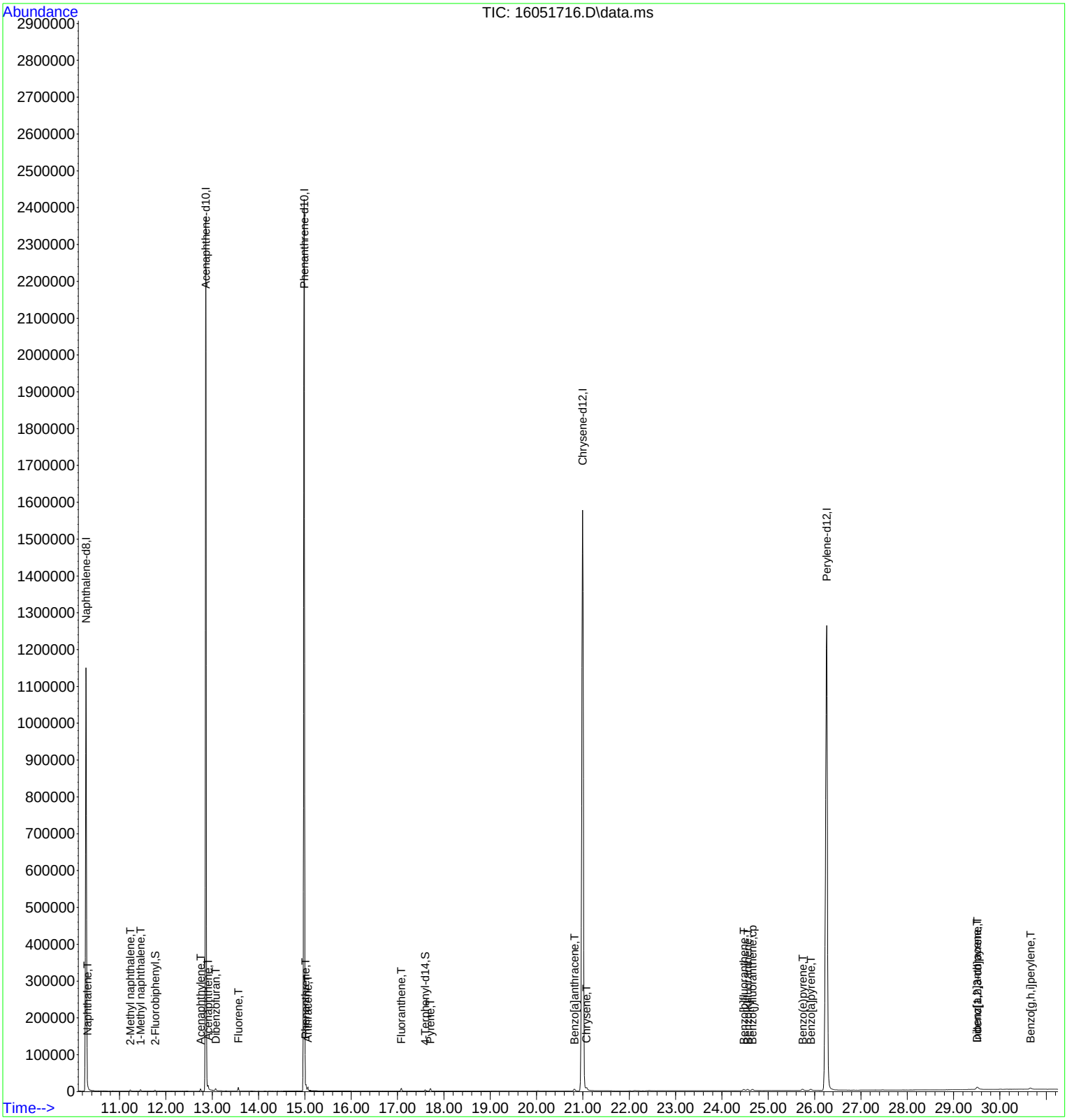
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.277	136	1669821	4000.00	ug/kg	102
6) Acenaphthene-d10	12.862	164	1410989	4000.00	ug/kg	113
11) Phenanthrene-d10	14.983	188	2926710	4000.00	ug/kg	100
16) Chrysene-d12	20.995	240	2655348	4000.00	ug/kg	98
20) Perylene-d12	26.262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



Quantitation Report (Not Reviewed)

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

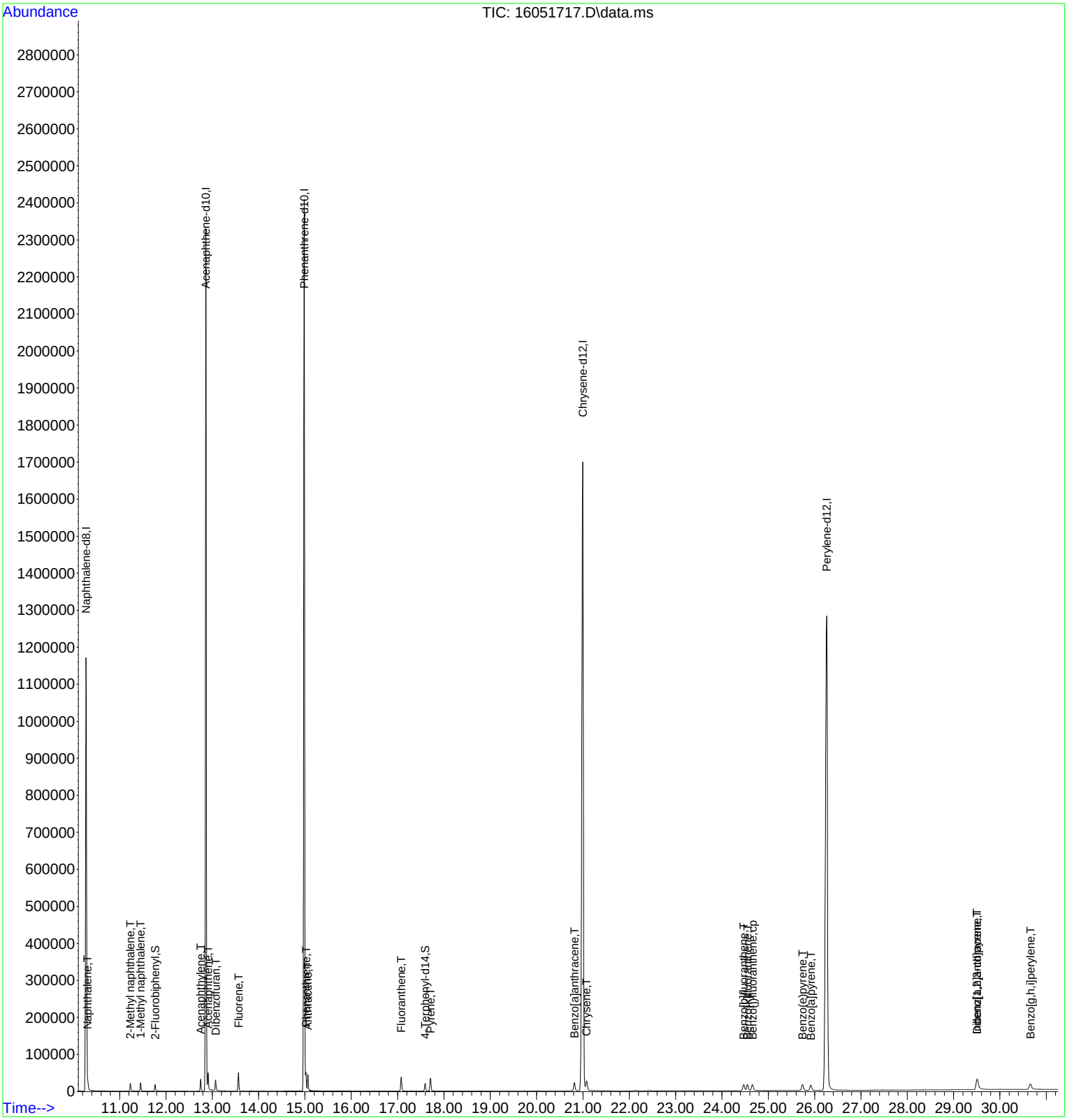
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.275	136	1691963	4000.00	ug/kg	104
6) Acenaphthene-d10	12.861	164	1420682	4000.00	ug/kg	113
11) Phenanthrene-d10	14.984	188	2974690	4000.00	ug/kg	102
16) Chrysene-d12	20.995	240	2826915	4000.00	ug/kg	104
20) Perylene-d12	26.262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

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



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

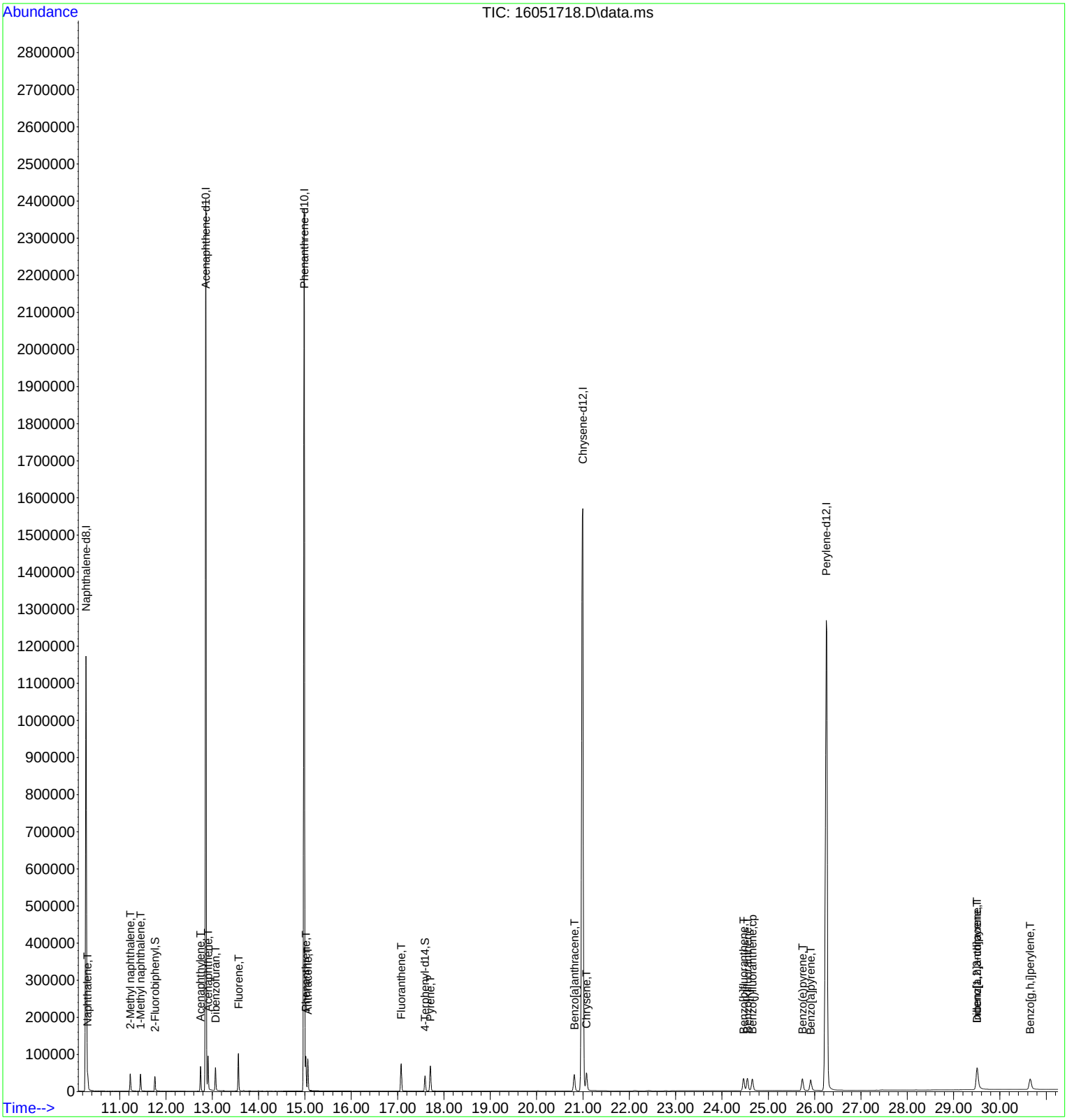
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.276	136	1693906	4000.00	ug/kg	104
6) Acenaphthene-d10	12.861	164	1440728	4000.00	ug/kg	115
11) Phenanthrene-d10	14.983	188	2966427	4000.00	ug/kg	101
16) Chrysene-d12	20.994	240	2706021	4000.00	ug/kg	100
20) Perylene-d12	26.254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



Quantitation Report (Not Reviewed)

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

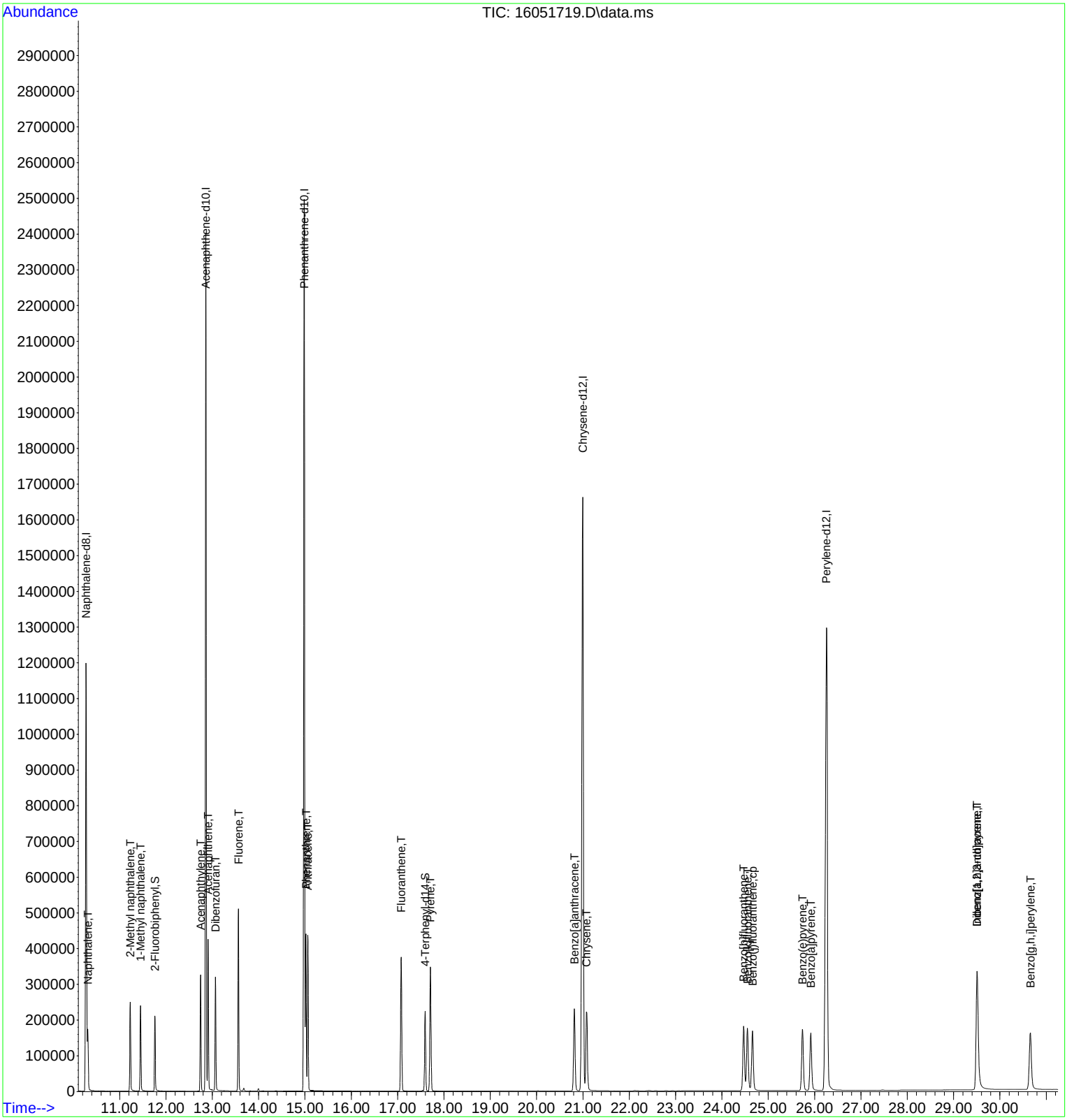
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.275	136	1716888	4000.00	ug/kg	105
6) Acenaphthene-d10	12.861	164	1420427	4000.00	ug/kg	113
11) Phenanthrene-d10	14.984	188	3065132	4000.00	ug/kg	105
16) Chrysene-d12	20.996	240	2806740	4000.00	ug/kg	104
20) Perylene-d12	26.255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

Quantitation Report (Not Reviewed)

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

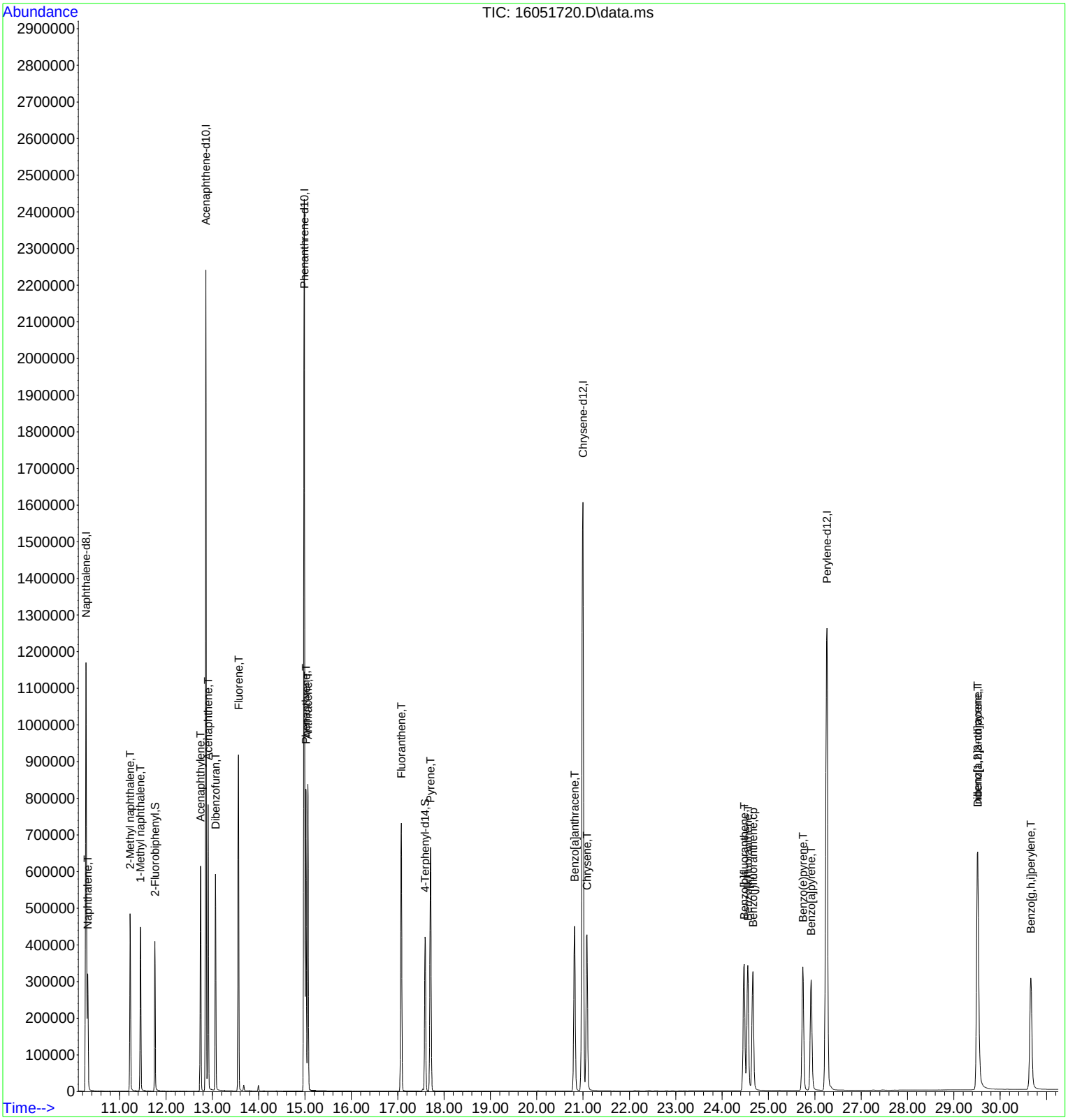
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.276	136	1672746	4000.00	ug/kg	103
6) Acenaphthene-d10	12.862	164	1335900	4000.00	ug/kg	107
11) Phenanthrene-d10	14.983	188	3005081	4000.00	ug/kg	103
16) Chrysene-d12	20.996	240	2748497	4000.00	ug/kg	101
20) Perylene-d12	26.263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



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

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						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%#			

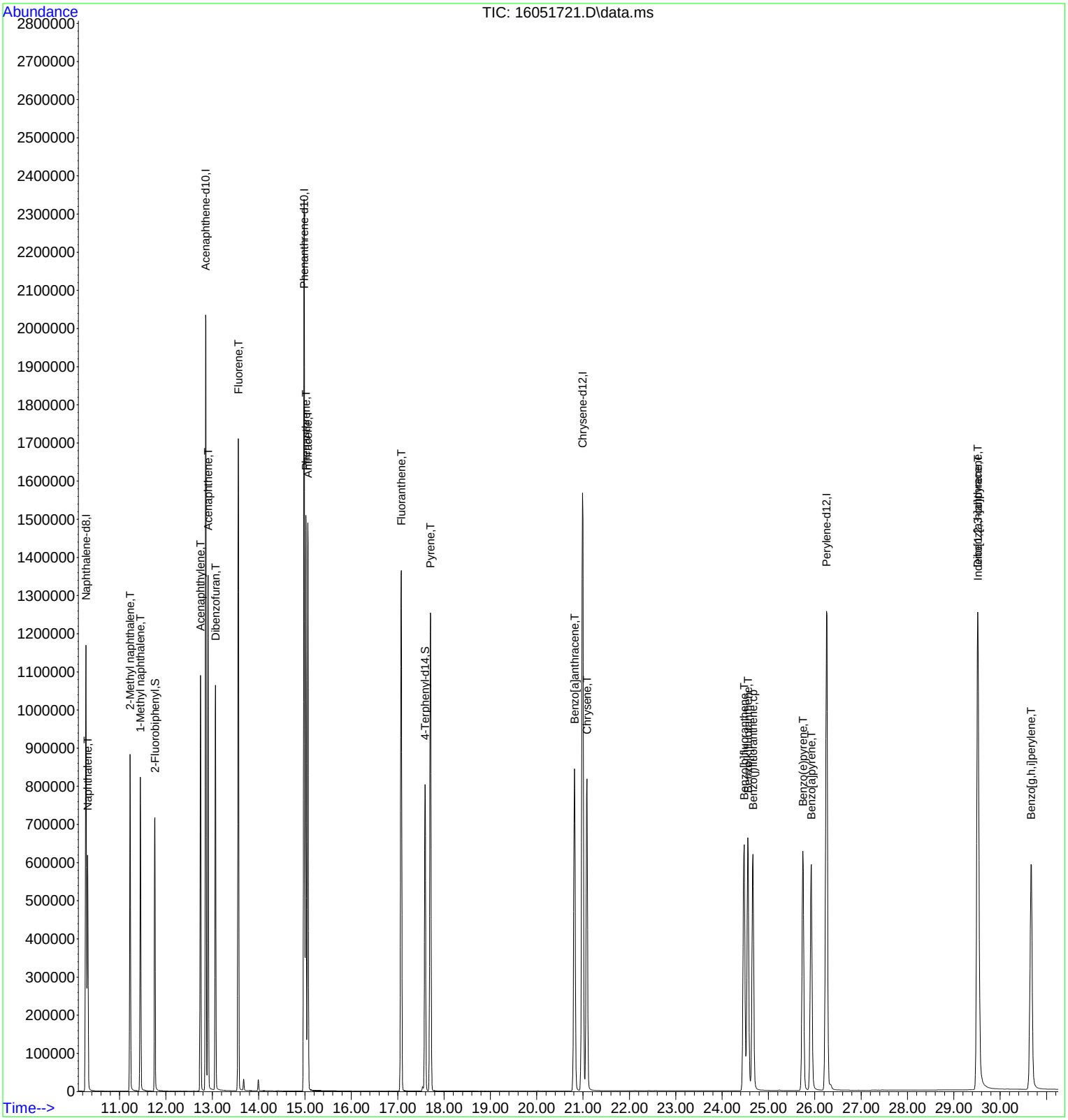
Target Compounds						Qvalue
2) Naphthalene	10.310	128	695769	1905.31	ug/kg	100
3) 2-Methyl naphthalene	11.227	142	538753	1897.81	ug/kg	100
4) 1-Methyl naphthalene	11.449	142	497158	1850.70	ug/kg	100
7) Acenaphthylene	12.744	152	1039945	1897.17	ug/kg	100
8) Acenaphthene	12.911	153	659005	1905.25	ug/kg	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

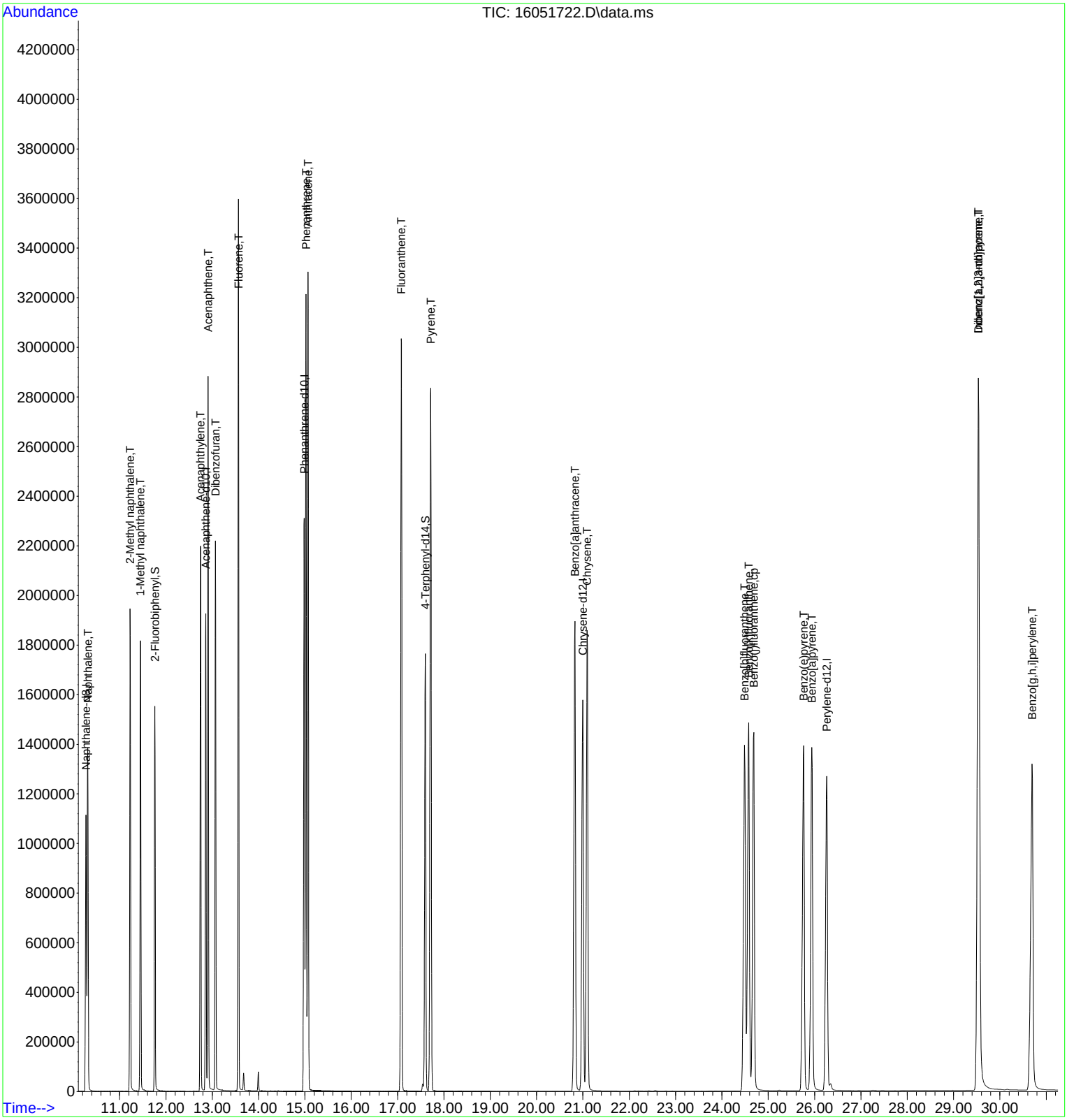
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	11.761	172	1413417	3993.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 99.85%			
17) 4-Terphenyl-d14	17.598	244	2558145	4450.75	ug/kg	0.00
Spiked Amount 4000.000	Range 51 - 135		Recovery = 111.27%			

Target Compounds						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

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)

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%#			

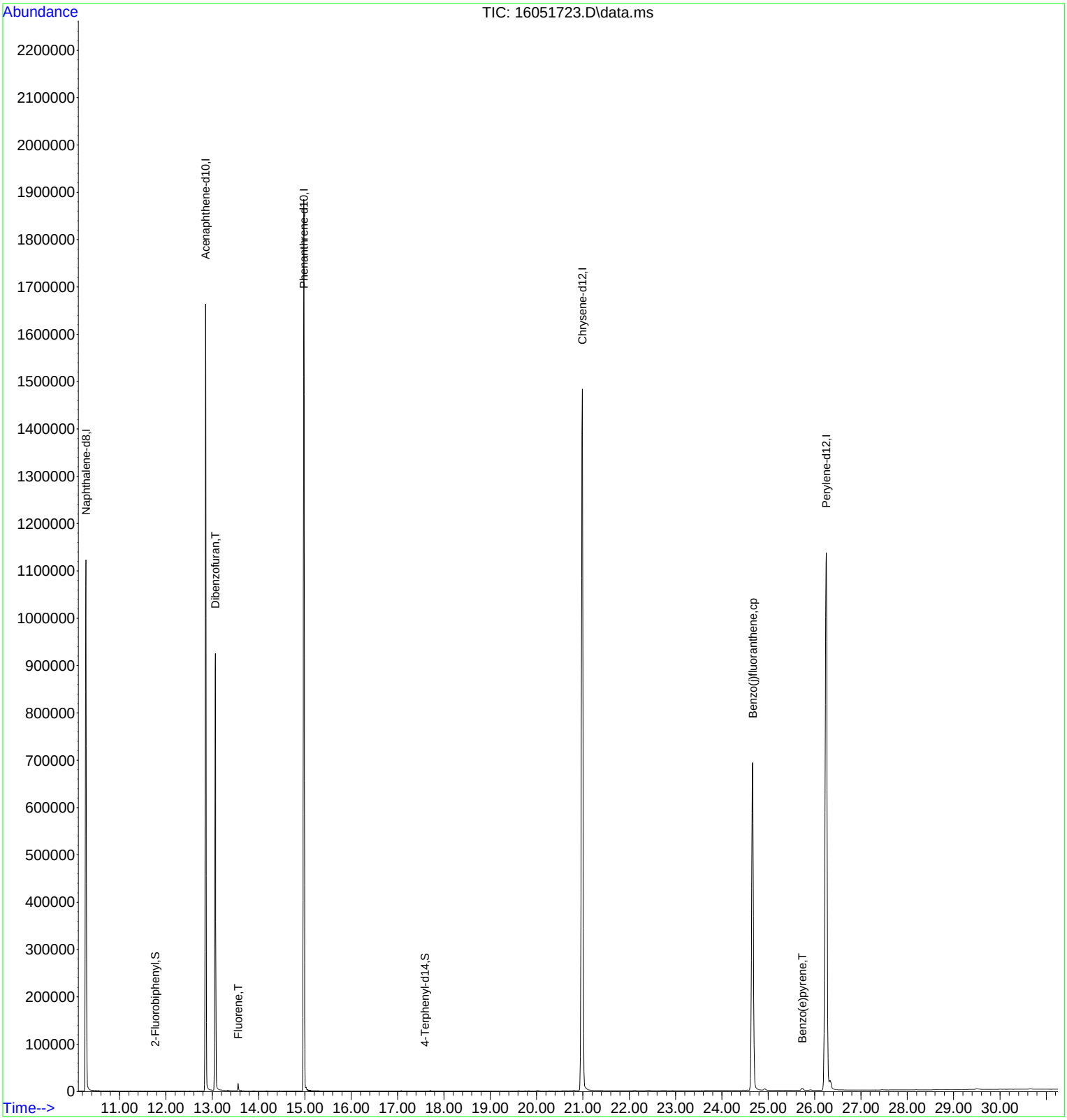
Target Compounds						Qvalue
9) Dibenzofuran	13.067	168	911536	2137.91	ug/kg	99
10) Fluorene	13.558	166	9200	23.78	ug/kg	98
23) Benzo(j)fluoranthene	24.664	252	1314135	2624.66	ug/kg	100
24) Benzo(e)pyrene	25.734	252	9708	14.36	ug/kg	97

(#) = 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

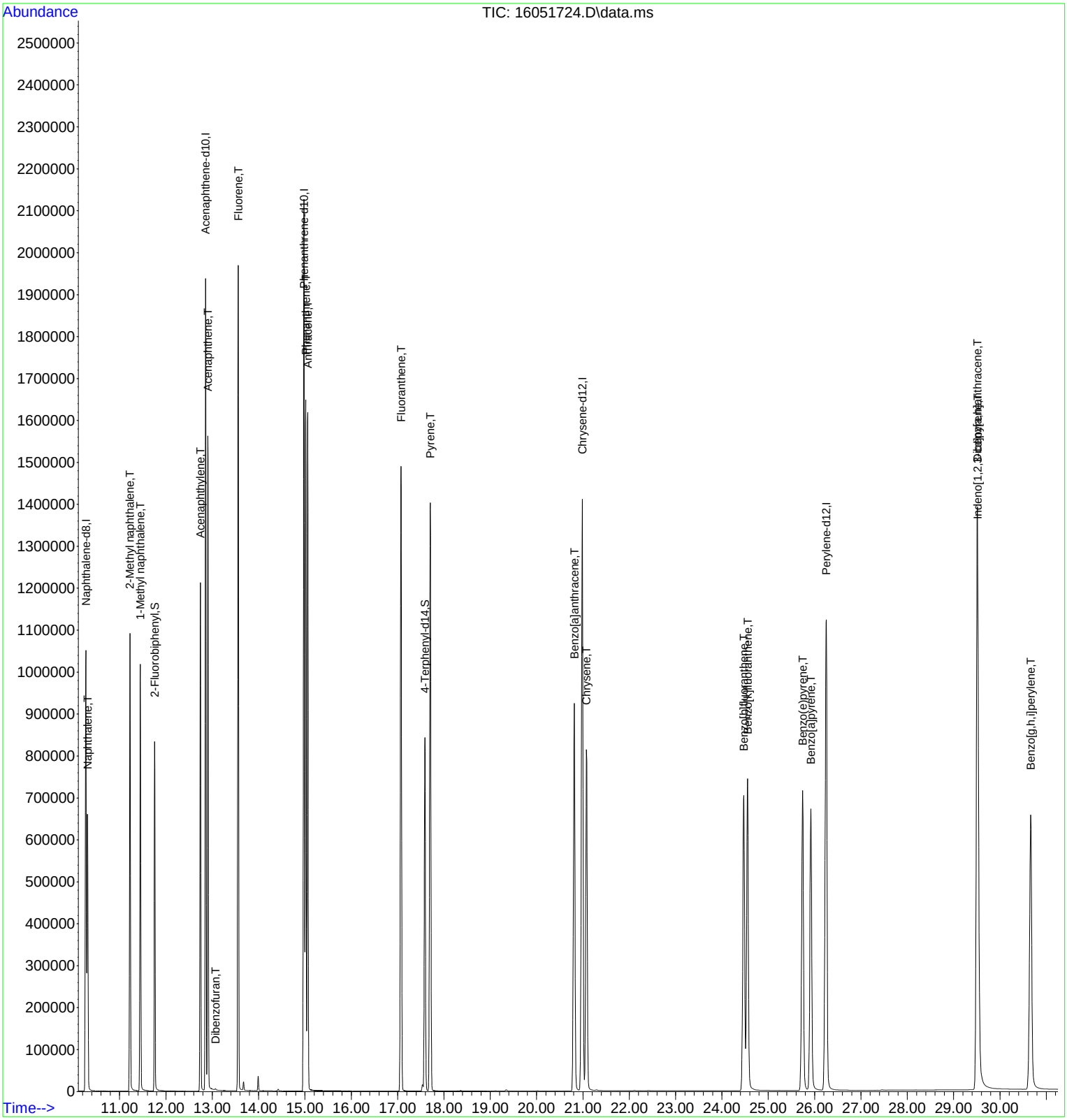
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.272	136	1465767	4000.00	ug/kg	90
6) Acenaphthene-d10	12.857	164	1139119	4000.00	ug/kg	91
11) Phenanthrene-d10	14.979	188	2615766	4000.00	ug/kg	89
16) Chrysene-d12	20.988	240	2355864	4000.00	ug/kg	87
20) Perylene-d12	26.254	264	2172980	4000.00	ug/kg	88
System Monitoring Compounds						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						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
1605096

ICP-MS3_160519A
For

DHL Work Order
1605096

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_160519A 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	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:

Analyst: Karyn Lane Date of Completion: 05/20/2016

Second-Level Review: Janice Whitt Date Stamp: 5/26/2016

REVIEWED BY
By Janice Whitt at 1:08:06 PM, 5/26/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160519A** **Run No.:** 85905

Analytical Run Date: 5/19/2016 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 11:40:00 AM		
L2-160519	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 11:46:00 AM		
L-160519	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 11:52:00 AM		
10X-160519	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 11:58:00 AM		
5X-160519	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 12:05:00 PM		
2X-160519	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 12:11:00 PM		
H-160519	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 12:16:00 PM		
H2-160519	1	ICPMS_TWDOD	CAL	R85905	5/19/2016 12:22:00 PM		
ICSA-160519	1	ICPMS_TWDOD	ICSA	R85905	5/19/2016 12:40:00 PM		
ICSAB-160519	1	ICPMS_TWDOD	ICSB	R85905	5/19/2016 12:46:00 PM		
ICV1-160519	1	ICPMS_TWDOD	ICV	R85905	5/19/2016 1:04:00 PM		
ILCVL-160519	1	ICPMS_TWDOD	LCVL	R85905	5/19/2016 1:16:00 PM		
ICB1-160519	1	ICPMS_TWDOD	ICB	R85905	5/19/2016 1:22:00 PM		
MB-75132	5	ICPMS_TSDOD1	MBLK	75132	5/19/2016 1:28:00 PM		
LCS-75132	5	ICPMS_TSDOD1	LCS	75132	5/19/2016 1:35:00 PM		
LCSD-75132	5	ICPMS_TSDOD1	LCSD	75132	5/19/2016 1:40:00 PM		
1605074-39A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 1:53:00 PM		
1605074-39A SD	25	ICPMS_TSDOD1	SD	75132	5/19/2016 1:59:00 PM		
1605074-25A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:05:00 PM		
1605074-26A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:11:00 PM		
1605074-27A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:16:00 PM		
1605074-28A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:22:00 PM		
1605074-29A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:28:00 PM		
1605074-30A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:34:00 PM		
1605074-31A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:40:00 PM		
1605074-32A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:46:00 PM		
1605074-36A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 2:52:00 PM		
1605074-39A PDS	5	ICPMS_TSDOD1	PDS	75132	5/19/2016 2:58:00 PM		
1605074-39A MS	5	ICPMS_TSDOD1	MS	75132	5/19/2016 3:04:00 PM		
1605074-39A MSD	5	ICPMS_TSDOD1	MSD	75132	5/19/2016 3:10:00 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

Run ID: ICP-MS3_160519A **Run No.:** 85905

CCV1-160519	1	ICPMS_TWDOD	CCV	R85905	5/19/2016 3:16:00 PM		
CCB1-160519	1	ICPMS_TWDOD	CCB	R85905	5/19/2016 3:22:00 PM		
LCVL1-160519	1	ICPMS_TWDOD	LCVL	R85905	5/19/2016 3:28:00 PM		
1605074-37A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 3:34:00 PM		
1605074-38A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 3:40:00 PM		
1605074-42A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 3:46:00 PM		
1605074-43A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 3:52:00 PM		
1605074-44A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 3:58:00 PM		
1605074-45A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 4:04:00 PM		
1605074-46A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 4:10:00 PM		
1605074-47A	5	ICPMS_TSDOD1	SAMP	75132	5/19/2016 4:16:00 PM		
CCV2-160519	1	ICPMS_TWDOD	CCV	R85905	5/19/2016 4:22:00 PM		
CCB2-160519	1	ICPMS_TWDOD	CCB	R85905	5/19/2016 4:28:00 PM		
LCVL2-160519	1	ICPMS_TWDOD	LCVL	R85905	5/19/2016 4:34:00 PM		
MB-75169	5	ICPMS_TSDOD1	MBLK	75169	5/19/2016 4:40:00 PM		
LCSD-75169	5	ICPMS_TSDOD1	LCSD	75169	5/19/2016 4:52:00 PM		
LCS-75169	5	ICPMS_TSDOD1	LCS	75169	5/19/2016 5:04:00 PM		
1605096-70A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:10:00 PM		
1605096-70A SD	25	ICPMS_TSDOD1	SD	75169	5/19/2016 5:16:00 PM		
1605096-62A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:22:00 PM		
1605096-63A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:28:00 PM		
1605096-64A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:34:00 PM		
1605096-65A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:40:00 PM		
1605096-66A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:46:00 PM		
1605096-67A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:52:00 PM		
1605096-68A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 5:58:00 PM		
1605096-69A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 6:04:00 PM		
1605096-71A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 6:10:00 PM		
1605096-70A PDS	5	ICPMS_TSDOD1	PDS	75169	5/19/2016 6:15:00 PM		
1605096-70A MS	5	ICPMS_TSDOD1	MS	75169	5/19/2016 6:21:00 PM		
1605096-70A MSD	5	ICPMS_TSDOD1	MSD	75169	5/19/2016 6:27:00 PM		Pb low. RPD ok.
CCV3-160519	1	ICPMS_TWDOD	CCV	R85905	5/19/2016 6:39:00 PM		
LCVL3-160519	1	ICPMS_TWDOD	LCVL	R85905	5/19/2016 6:57:00 PM		
CCB3-160519	1	ICPMS_TWDOD	CCB	R85905	5/19/2016 7:04:00 PM		
1605096-72A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:10:00 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

Run ID: ICP-MS3_160519A **Run No.:** 85905

1605096-73A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:16:00 PM		
1605096-74A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:22:00 PM		
1605097-01A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:28:00 PM		
1605097-02A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:33:00 PM		
1605097-03A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:39:00 PM		
1605097-04A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:45:00 PM		
1605097-05A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:51:00 PM		
1605097-06A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 7:57:00 PM		
1605097-07A	5	ICPMS_TSDOD1	SAMP	75169	5/19/2016 8:03:00 PM		
CCV4-160519	1	ICPMS_TWDOD	CCV	R85905	5/19/2016 8:09:00 PM		
LCVL4-160519	1	ICPMS_TWDOD	LCVL	R85905	5/19/2016 8:21:00 PM		
CCB4-160519	1	ICPMS_TWDOD	CCB	R85905	5/19/2016 8:28:00 PM		
MB-75168	5	ICPMS_TSDOD1	MBLK	75168	5/19/2016 8:34:00 PM		
LCS-75168	5	ICPMS_TSDOD1	LCS	75168	5/19/2016 8:40:00 PM		
LCSD-75168	5	ICPMS_TSDOD1	LCSD	75168	5/19/2016 8:46:00 PM		
1605096-42A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 8:58:00 PM		
1605096-42A SD	25	ICPMS_TSDOD1	SD	75168	5/19/2016 9:04:00 PM		
1605096-41A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:10:00 PM		
1605096-43A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:16:00 PM		
1605096-45A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:22:00 PM		
1605096-46A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:28:00 PM		
1605096-47A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:34:00 PM		
1605096-48A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:40:00 PM		
1605096-49A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:46:00 PM		
1605096-50A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:52:00 PM		
1605096-51A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 9:58:00 PM		
1605096-42A PDS	5	ICPMS_TSDOD1	PDS	75168	5/19/2016 10:04:00 PM		
1605096-42A MS	5	ICPMS_TSDOD1	MS	75168	5/19/2016 10:10:00 PM		
1605096-42A MSD	5	ICPMS_TSDOD1	MSD	75168	5/19/2016 10:16:00 PM		
CCV5-160519	1	ICPMS_TWDOD	CCV	R85905	5/19/2016 10:28:00 PM		
LCVL5-160519	1	ICPMS_TWDOD	LCVL	R85905	5/19/2016 10:40:00 PM		
CCB5-160519	1	ICPMS_TWDOD	CCB	R85905	5/19/2016 10:46:00 PM		
1605096-52A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 10:52:00 PM		
1605096-53A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 10:58:00 PM		
1605096-54A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:04:00 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_160519A **Run No.:** 85905

1605096-55A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:10:00 PM		
1605096-56A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:16:00 PM		
1605096-57A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:22:00 PM		
1605096-58A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:28:00 PM		
1605096-59A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:34:00 PM		
1605096-60A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:40:00 PM		
1605096-61A	5	ICPMS_TSDOD1	SAMP	75168	5/19/2016 11:46:00 PM		
CCV6-160519	1	ICPMS_TWDOD	CCV	R85905	5/19/2016 11:52:00 PM		
LCVL6-160519	1	ICPMS_TWDOD	LCVL	R85905	5/20/2016 12:04:00 AM		
CCB6-160519	1	ICPMS_TWDOD	CCB	R85905	5/20/2016 12:10:00 AM		

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

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30
TEST DATE:	05/19/2016	**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	3.9903	3.9823	99.56	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		3.9934	3.9854	99.64		
3		3.9972	3.9892	99.73		
AVERAGE (MEAN)		3.994	3.986	99.64		0.087
						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	0.9982	0.9962	99.62	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.9987	0.9967	99.67		
3		0.9992	0.9972	99.72		
AVERAGE (MEAN)		0.999	0.997	99.67		0.050
						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	0.4983	0.4973	99.46	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.4994	0.4984	99.68		
3		0.5007	0.4997	99.94		
AVERAGE (MEAN)		0.499	0.498	99.69		0.241
						PASS

Karyn Lane 5/20/2016

Analyst / Date

REVIEWED BY
By Janice Whitt at 12:36:19 PM, 5/26/2016

Review and Approved / Date

	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		L2-160519	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160519	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160519	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160519	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160519	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160519	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160519	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-160519	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160519	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		ICV1-160519	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		ICB1-160519	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160519	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-160519	ICB ICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-75132	MBLKICPMS_TSDOD	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-75132	LCS ICPMS_TSDOD	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-75132	LCSDICPMS_TSDOD	5.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1605074-39A	SAMPICPMS_TSDOD	5.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1605074-39A SD	SD ICPMS_TSDOD	25.00				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1605074-25A	SAMPICPMS_TSDOD	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1605074-26A	SAMPICPMS_TSDOD	5.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1605074-27A	SAMPICPMS_TSDOD	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1605074-28A	SAMPICPMS_TSDOD	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1605074-29A	SAMPICPMS_TSDOD	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1605074-30A	SAMPICPMS_TSDOD	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1605074-31A	SAMPICPMS_TSDOD	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1605074-32A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1605074-36A	SAMPICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1605074-39A PDS	PDS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1605074-39A MS	MS ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1605074-39A MSD	MSD ICPMS_TSDOD1	5.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160519	CCV ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160519	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	LCVL5	2512		LCVL1-160519	LCVLICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1605074-37A	SAMPICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1605074-38A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1605074-42A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1605074-43A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1605074-44A	SAMPICPMS_TSDOD1	5.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1605074-45A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1605074-46A	SAMPICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1605074-47A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160519	CCV ICPMS_TW	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160519	CCB ICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-160519	LCVLICPMS_TW	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-75169	MBLKICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-75169	LCS ICPMS_TSDOD1	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-75169	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	LCS	2501		LCS-75169	LCS ICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1605096-70A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1605096-70A SD	SD ICPMS_TSDOD1	25.00				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1605096-62A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1605096-63A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1605096-64A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1605096-65A	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	3110		1605096-66A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1605096-67A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1605096-68A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1605096-69A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1605096-71A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1605096-70A PDS	PDS ICPMS_TSDOD1	5.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1605096-70A MS	MS_ICPMS_TSDOD1	5.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1605096-70A MSD	MSD ICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160519	CCV ICPMS_TW	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-160519	CCB ICPMS_TW	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160519	CCB ICPMS_TW	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160519	LCVLICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160519	CCB ICPMS_TW	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1605096-72A	SAMPICPMS_TSDOD1	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1605096-73A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1605096-74A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3304		1605097-01A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1605097-02A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1605097-03A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3307		1605097-04A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1605097-05A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1605097-06A	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	3310		1605097-07A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160519	CCV ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160519	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160519	LCVLICPMS_TW	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160519	CCB ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-75168	MBLKICPMS_TSDOD1	5.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-75168	LCS ICPMS_TSDOD1	5.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-75168	LCSDICPMS_TSDOD1	5.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1605096-42A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1605096-42A SD	SD ICPMS_TSDOD1	25.00				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1605096-41A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1605096-43A	SAMPICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1605096-45A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1605096-46A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1605096-47A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1605096-48A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1605096-49A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1605096-50A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1605096-51A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1605096-42A PDS	PDS ICPMS_TSDOD1	5.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1605096-42A MS	MS ICPMS_TSDOD1	5.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1605096-42A MSD	MSD ICPMS_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	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160519	CCV ICPMS_TW	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-160519	CCB ICPMS_TW	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-160519	LCVLICPMS_TW	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160519	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4101		1605096-52A	SAMPICPMS_TSDOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4102		1605096-53A	SAMPICPMS_TSDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4103		1605096-54A	SAMPICPMS_TSDOD1	5.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4104		1605096-55A	SAMPICPMS_TSDOD1	5.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4105		1605096-56A	SAMPICPMS_TSDOD1	5.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4106		1605096-57A	SAMPICPMS_TSDOD1	5.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4107		1605096-58A	SAMPICPMS_TSDOD1	5.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4108		1605096-59A	SAMPICPMS_TSDOD1	5.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4109		1605096-60A	SAMPICPMS_TSDOD1	5.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4110		1605096-61A	SAMPICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160519	CCV ICPMS_TW	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160519	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160519	LCVLICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160519	CCB ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		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	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
145		Keyword		StandBy							
146		Keyword		SMPLEND	End of SMPL						
147		Keyword		End	End of Sequence						
148		Keyword		CCVBEG	Start of CCV						
149		Keyword		CCVEND	End of CCV						
150		Keyword		BLKBEG	Start of BLANK						
151		Keyword		BLKEND	End of BLANK						
152		Keyword		ERRBEG	Start of ERRTERM						
153		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/16/2016 8:58:45 AM**
Digestion:
Prep End Date:

Prep Batch **75168** Prep Code: **3050_IDOD** Technician: **Will Boston**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #23
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-41A	Soil		1.11	50	50.000	1 of 1	
1605096-42A	Soil		1.16	50	50.000	1 of 1	
1605096-43A	Soil		1.01	50	50.000	1 of 1	
1605096-45A	Soil		1.03	50	50.000	1 of 1	
1605096-46A	Soil		1.10	50	50.000	1 of 1	
1605096-47A	Soil		1.04	50	50.000	1 of 1	
1605096-48A	Soil		1.05	50	50.000	1 of 1	
1605096-49A	Soil		1.15	50	50.000	1 of 1	
1605096-50A	Soil		1.14	50	50.000	1 of 1	
1605096-51A	Soil		1.09	50	50.000	1 of 1	
1605096-52A	Soil		1.17	50	50.000	3 of 3	
1605096-53A	Soil		1.05	50	50.000	1 of 1	
1605096-54A	Soil		1.15	50	50.000	1 of 1	
1605096-55A	Soil		1.03	50	50.000	1 of 1	
1605096-56A	Soil		1.07	50	50.000	1 of 1	
1605096-57A	Soil		1.12	50	50.000	1 of 1	
1605096-58A	Soil		1.17	50	50.000	1 of 1	
1605096-59A	Soil		1.09	50	50.000	1 of 1	
1605096-60A	Soil		1.06	50	50.000	1 of 1	
1605096-61A	Soil		1.08	50	50.000	1 of 1	
LCS-75168	Soil		1	50	50.000	of	
LCSD-75168	Soil		1	50	50.000	of	
MB-75168	Soil		1	50	50.000	of	
MS - 1605096-42A			1.10				
MSD - 1605096-42A			1.04				

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-160406-1	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

11:02 - 11:12
11:34 - 13:34
14:00 - 16:00
16:21 - 16:36

WWBoston 05/16/16

REVIEWED BY
By Janice Whitt at 12:48:23 PM, 5/26/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-16A	Soil		0	0	#Num!	1 of 1	
1605096-17A	Soil		0	0	#Num!	1 of 1	
1605096-18A	Soil		0	0	#Num!	1 of 1	
1605096-19A	Soil		0	0	#Num!	1 of 1	
	Sieved only - no subsampling hard clay						
1605096-20A	Soil		0	0	#Num!	1 of 1	
1605096-21A	Soil		0	0	#Num!	1 of 1	
1605096-22A	Soil		0	0	#Num!	1 of 1	
1605096-23A	Soil		0	0	#Num!	1 of 1	
1605096-24A	Soil		0	0	#Num!	1 of 1	
1605096-25A	Soil		0	0	#Num!	1 of 1	
1605096-26A	Soil		0	0	#Num!	1 of 1	
1605096-27A	Soil		0	0	#Num!	1 of 1	
1605096-28A	Soil		0	0	#Num!	1 of 1	
1605096-29A	Soil		0	0	#Num!	1 of 1	
1605096-30A	Soil		0	0	#Num!	1 of 1	
1605096-45A	Soil		0	0	#Num!	1 of 1	
1605096-46A	Soil		0	0	#Num!	1 of 1	
1605096-47A	Soil		0	0	#Num!	1 of 1	
1605096-48A	Soil		0	0	#Num!	1 of 1	
1605096-49A	Soil		0	0	#Num!	1 of 1	
1605096-50A	Soil		0	0	#Num!	1 of 1	
1605096-51A	Soil		0	0	#Num!	1 of 1	
1605096-52A	Soil		0	0	#Num!	of 3	
1605096-53A	Soil		0	0	#Num!	1 of 1	
1605096-54A	Soil		0	0	#Num!	1 of 1	
1605096-55A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:37:35 PM, 5/26/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-56A	Soil		0	0	#Num!	1 of 1	
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:37:40 PM, 5/26/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	26	
TEST DATE:	05/16/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

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

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0017	4.9917	99.83	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0020	4.9920	99.84		
3		5.0029	4.9929	99.86		
AVERAGE (MEAN)		**5.002**	**4.992**	**99.84**		**0.012**
						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	0.2015	0.2011	100.55	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2017	0.2013	100.65		
3		0.2015	0.2011	100.55		
AVERAGE (MEAN)		**0.202**	**0.201**	**100.58**		**0.057**
						PASS

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

Analyst / Date 5/16/16

REVIEWED BY
By Janice Whitt at 12:37:59 PM, 5/26/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/16/2016 9:01:32 AM**
Digestion:
Prep End Date:

Prep Batch **75169** Prep Code: **3050_IDOD** Technician: **Will Boston**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #23
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-62A	Soil		1.10	50	50.000	1 of 1	
1605096-63A	Soil		1.11	50	50.000	1 of 1	
1605096-64A	Soil		1.03	50	50.000	1 of 1	
1605096-65A	Soil		1.05	50	50.000	1 of 1	
1605096-66A	Soil		1.17	50	50.000	1 of 1	
1605096-67A	Soil		1.12	50	50.000	1 of 1	
1605096-68A	Soil		1.03	50	50.000	1 of 1	
1605096-69A	Soil		1.04	50	50.000	1 of 1	
1605096-70A	Soil		1.08	50	50.000	1 of 1	
1605096-71A	Soil		1.04	50	50.000	1 of 1	
1605096-72A	Soil		1.08	50	50.000	1 of 1	
1605096-73A	Soil		1.08	50	50.000	1 of 1	
1605096-74A	Soil		1.06	50	50.000	1 of 1	
1605097-01A	Soil		1.12	50	50.000	1 of 1	
1605097-02A	Soil		1.05	50	50.000	1 of 1	
1605097-03A	Soil		1.04	50	50.000	2 of 3	
1605097-04A	Soil		1.10	50	50.000	1 of 1	
1605097-05A	Soil		1.04	50	50.000	1 of 1	
1605097-06A	Soil		1.13	50	50.000	1 of 1	
1605097-07A	Soil		1.16	50	50.000	1 of 1	
LCS-75169	Soil		1	50	50.000	of	
LCSD-75169	Soil		1	50	50.000	of	
MB-75169	Soil		1	50	50.000	of	
MS 1605096-70			1.10				
MSD 1605096-70			1.03				

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

11:02 - 11:12
11:34 - 13:34
14:00 - 16:00
16:21 - 16:36

REVIEWED BY
By Janice Whitt at 12:49:38 PM, 5/26/2016

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-160406-1	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

05/16/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-16A	Soil		0	0	#Num!	1 of 1	
1605096-17A	Soil		0	0	#Num!	1 of 1	
1605096-18A	Soil		0	0	#Num!	1 of 1	
1605096-19A	Soil		0	0	#Num!	1 of 1	
Sieved only - no subsampling hard clay							
1605096-20A	Soil		0	0	#Num!	1 of 1	
1605096-21A	Soil		0	0	#Num!	1 of 1	
1605096-22A	Soil		0	0	#Num!	1 of 1	
1605096-23A	Soil		0	0	#Num!	1 of 1	
1605096-24A	Soil		0	0	#Num!	1 of 1	
1605096-25A	Soil		0	0	#Num!	1 of 1	
1605096-26A	Soil		0	0	#Num!	1 of 1	
1605096-27A	Soil		0	0	#Num!	1 of 1	
1605096-28A	Soil		0	0	#Num!	1 of 1	
1605096-29A	Soil		0	0	#Num!	1 of 1	
1605096-30A	Soil		0	0	#Num!	1 of 1	
1605096-45A	Soil		0	0	#Num!	1 of 1	
1605096-46A	Soil		0	0	#Num!	1 of 1	
1605096-47A	Soil		0	0	#Num!	1 of 1	
1605096-48A	Soil		0	0	#Num!	1 of 1	
1605096-49A	Soil		0	0	#Num!	1 of 1	
1605096-50A	Soil		0	0	#Num!	1 of 1	
1605096-51A	Soil		0	0	#Num!	1 of 1	
1605096-52A	Soil		0	0	#Num!	of 3	
1605096-53A	Soil		0	0	#Num!	1 of 1	
1605096-54A	Soil		0	0	#Num!	1 of 1	
1605096-55A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:42:37 PM, 5/26/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-56A	Soil		0	0	#Num!	1 of 1	
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:42:39 PM, 5/26/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/11/2016 2:00:20 PM**
Digestion: **Start: 5/11/2016 2:30:00 PM / Stop: 5/13/2016 11:00:00 AM**
Prep End Date: **5/13/2016 3:00:00 PM**

Prep Batch **75116** Prep Code: **ISM2MM_PREP** Technician: **Scott Schroeder**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605097-01A	Soil		0	0	#Num!	1 of 1	
1605097-02A	Soil		0	0	#Num!	1 of 1	
1605097-03A	Soil		0	0	#Num!	of 3	
	Extra sub sampled for MS/MSD						
1605097-04A	Soil		0	0	#Num!	1 of 1	
1605097-05A	Soil		0	0	#Num!	1 of 1	
1605097-06A	Soil		0	0	#Num!	1 of 1	
1605097-07A	Soil		0	0	#Num!	1 of 1	
1605097-08A	Soil		0	0	#Num!	1 of 1	
1605097-09A	Soil		0	0	#Num!	1 of 1	
1605097-10A	Soil		0	0	#Num!	1 of 1	
1605097-11A	Soil		0	0	#Num!	1 of 1	
1605097-12A	Soil		0	0	#Num!	1 of 1	
1605097-13A	Soil		0	0	#Num!	1 of 1	
1605097-14A	Soil		0	0	#Num!	1 of 1	
1605097-15A	Soil		0	0	#Num!	1 of 1	
1605097-31A	Soil		0	0	#Num!	1 of 1	
1605097-32A	Soil		0	0	#Num!	1 of 1	
1605097-33A	Soil		0	0	#Num!	1 of 1	
1605097-34A	Soil		0	0	#Num!	1 of 1	
1605097-35A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 12:43:14 PM, 5/26/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	26	
TEST DATE:	05/16/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

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

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0017	4.9917	99.83	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0020	4.9920	99.84		
3		5.0029	4.9929	99.86		
AVERAGE (MEAN)		5.002	4.992	99.84		0.012
						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	0.2015	0.2011	100.55	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2017	0.2013	100.65		
3		0.2015	0.2011	100.55		
AVERAGE (MEAN)		0.202	0.201	100.58		0.057
						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. V. Ogle 5/16/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 12:43:17 PM, 5/26/2016
Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: May 19 2016 02:38 pm
Cal Type: Y=aX+[blank]

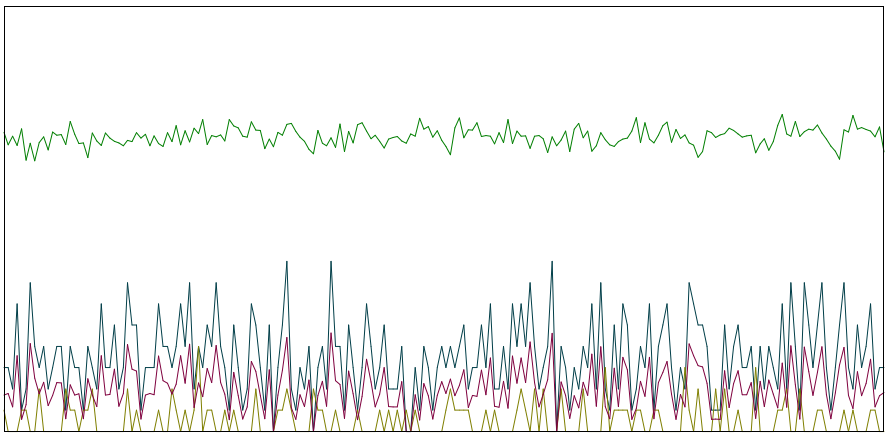
Standard	Date Acquired	File
BLANK STD 1	May 19 2016 11:40 am	c:\icpchem\1\data\16e19l00.b\006calb.d\
L2-160519	May 19 2016 11:46 am	c:\icpchem\1\data\16e19l00.b\007cals.d\
L-160519	May 19 2016 11:52 am	c:\icpchem\1\data\16e19l00.b\008cals.d\
10X-160519	May 19 2016 11:58 am	c:\icpchem\1\data\16e19l00.b\009cals.d\
5X-160519	May 19 2016 12:05 pm	c:\icpchem\1\data\16e19l00.b\010cals.d\
2X-160519	May 19 2016 12:11 pm	c:\icpchem\1\data\16e19l00.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	0.4454	0.02551	1.05	257	514		1995	
Be	0.9998	0.1135	0.0005782	1.03	256	496	99%	--------	######
B	0.9999	0.09747	0.1508	0.71	257	531	106%	1,991	100%
Na	0.9999	0.3258	5.606	21.32	5,248	10,290	103%	24,830	99%
Mg	0.9998	0.1457	0.2757	20.95	5,055	10,440	104%	24,810	99%
Al	1.0000	0.03283	0.1165	19.99	4,929	10,030	100%	--------	######
K	1.0000	0.06764	2.424	16.91	4,878	9,810	98%	25,100	100%
Ca	0.9999	0.008613	0.1366	19.41	4,853	10,340	103%	24,900	100%
Ti	1.0000	0.02952	0.002394	0.75	244	499	100%	2,001	100%
V	1.0000	1.317	0.09675	1.03	248	498	100%	2,001	100%
Cr	1.0000	1.784	0.138	1.06	255	511	102%	1,996	100%
Mn	1.0000	0.6597	0.08752	0.97	244	491	98%	2,003	100%
Fe	1.0000	2.331	4.064	20.15	4,979	9,994	100%	--------	######
Co	0.9999	5.769	0.1508	1.01	256	521	104%	1,994	100%
Ni	1.0000	1.753	0.2109	1.01	250	494	99%	2,001	100%
Cu	0.9999	4.789	0.5514	1.09	261	529	106%	1,991	100%
Zn	1.0000	0.4321	0.1889	1.08	261	509	102%	1,996	100%
As	1.0000	0.2198	0.01329	1.02	252	501	100%	2,000	100%
Se	1.0000	0.0109	0.003273	1.09	253	501	100%	1,999	100%
Sr	1.0000	0.279	0.01352	1.01	254	505	101%	1,998	100%
Mo	0.9999	0.05561	0.001281	0.96	233	481	96%	2,007	100%
Ag	0.9999	0.1575	0.0006788	1.03	243	503	101%	--------	######
Cd	0.9999	0.03464	3.73E-006	1.00	239	481	96%	2,006	100%
Sn	1.0000	0.09328	0.007928	0.97	239	513	103%	1,998	100%
Sb	0.9996	0.113	0.003021	1.02	238	507	101%	--------	######
Ba	0.9999	0.04313	0.001018	0.93	233	476	95%	2,008	100%
Tl	1.0000	0.3323	0.003012	0.97	248	498	100%	2,001	100%
Pb	1.0000	0.4481	0.008759	0.97	246	510	102%	1,998	100%

REVIEWED BY
By Janice Whitt at 12:43:22 PM, 5/26/2016

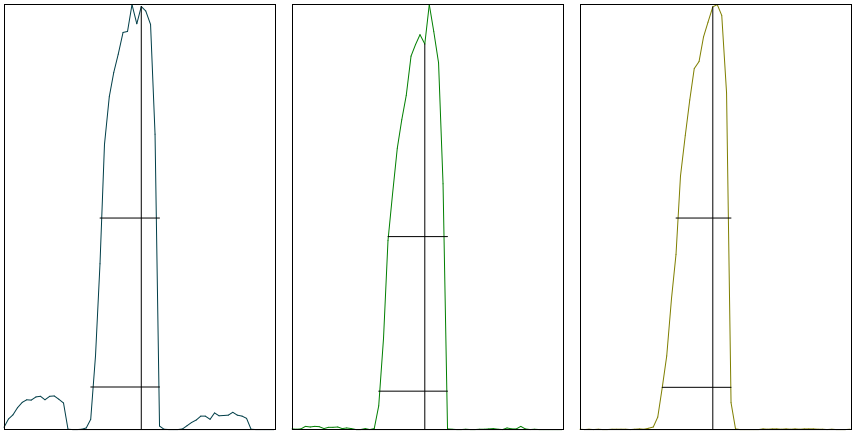
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.278%
Doubly Charged:	70/140	3.268%

m/z	Range	Count	Mean	RSD%	Background
51	20	3.0	3.5	51.40	0.60
59	5,000	3288.0	3466.5	3.07	0.60
75	20	0.0	0.5	145.18	0.80
51/59	1	0.091%	0.101%	51.61	



m/z:	59	89	205
Height:	3,541	1,199	3,827
Axis:	59.05	89.00	205.00
W-50%:	0.65	0.65	0.60
W-10%:	0.7500	0.7500	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : May 19, 2016 10:51:25
Printed : May 19, 2016 10:51:27

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	:	-120	V	AMU Offset	:	121	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-24	V	Axis Gain	:	0.9993	
Torch-H	:	-0.1	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				

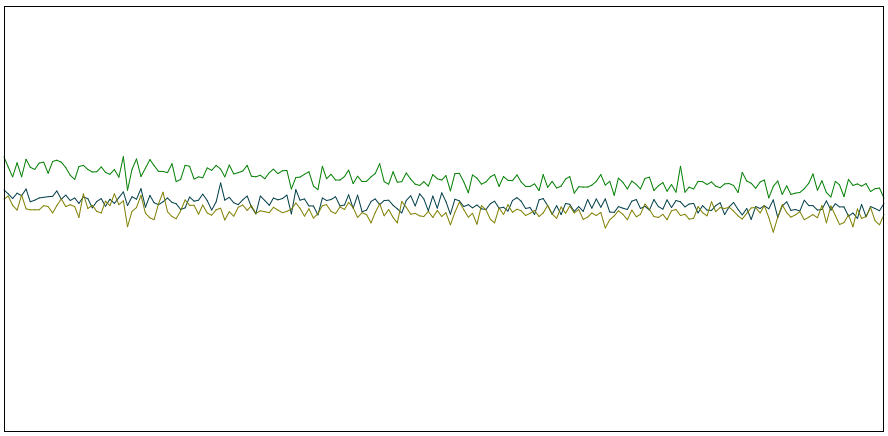
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	5	mL/min	Optional Gas	:	---	%

Generated : May 19, 2016 10:51:25
Printed : May 19, 2016 10:51:29

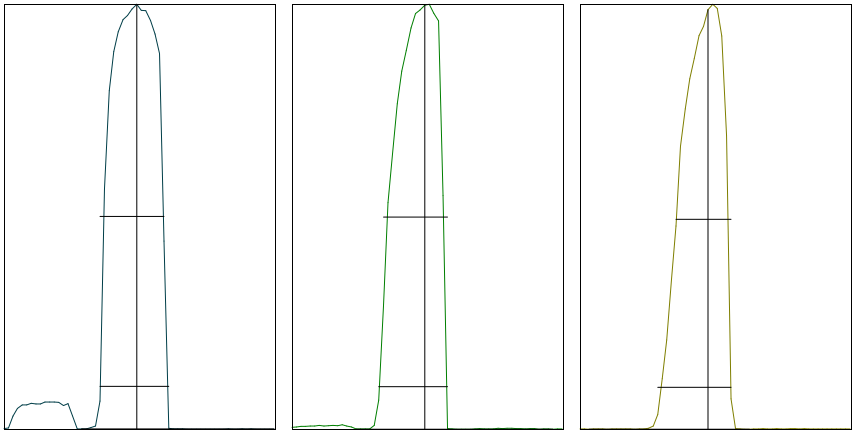
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	0.970%
Doubly Charged:	70/140	1.213%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	10732.0	10715.3	2.80	1.80
89	20,000	10966.0	11886.5	3.57	4.30
205	20,000	10200.0	10338.2	3.03	10.70
156/140	2	0.750%	0.897%	12.37	
70/140	2	0.809%	0.985%	12.72	
63	500	215.0	249.4	8.02	2.90
23	20,000	16964.0	17972.9	3.37	1.40



m/z:	7	89	205
Height:	10,458	11,384	9,926
Axis:	7.00	89.00	204.95
W-50%:	0.70	0.70	0.60
W-10%:	0.7500	0.7500	0.800

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : May 19, 2016 10:44:13
Printed : May 19, 2016 10:44:15

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	:	-120	V	AMU Offset	:	121	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-18	V	Axis Gain	:	0.9993	
Torch-H	:	-0.1	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	:	---	%

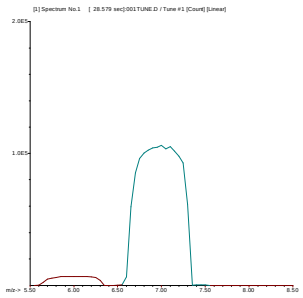
Generated : May 19, 2016 10:44:13
Printed : May 19, 2016 10:44:18

6020 QC Tune Report

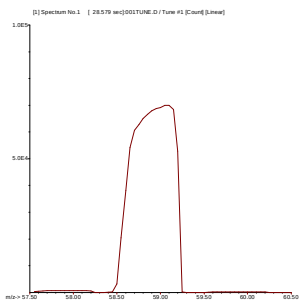
Data File: C:\ICPCHEM\1\DATA\16E19k00.B\001TUNE.D
Date Acquired: May 19 2016 10:59 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.16	5.00	
59 Co	4.96	5.00	
115 In	3.33	5.00	
205 Tl	1.42	5.00	

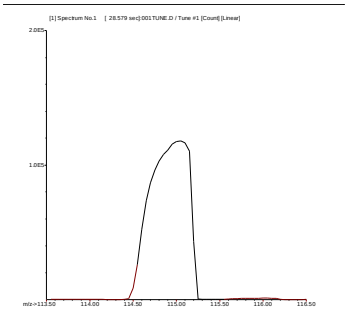


7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



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 12:43:39 PM, 5/26/2016



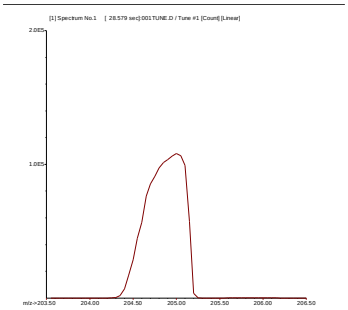
115 In

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:	204.95	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 12:43:44 PM, 5/26/2016

P/A Factor Tuning Report

Acquired:May 19 2016 10:56 am

Mass[amu]	Element	P/A Factor
6	Li	0.073200
23	Na	0.089186
24	Mg	0.093944
27	Al	0.097741
39	K	0.098985
44	Ca	Sensitivity too low
45	Sc	0.099490
47	Ti	Sensitivity too low
51	V	0.102517
52	Cr	0.105648
55	Mn	0.107129
59	Co	0.111371
60	Ni	0.114387
63	Cu	0.116786
66	Zn	0.115916
72	Ge	0.114615
75	As	0.113650
78	Se	Sensitivity too low
88	Sr	0.114659
95	Mo	0.113429
106	(Cd)	0.121228
107	Ag	Sensitivity too low
108	(Cd)	0.121584
111	Cd	0.123186
115	In	0.122271
118	Sn	0.122032
121	Sb	0.121669
137	Ba	Sensitivity too low
205	Tl	0.133360
206	(Pb)	0.133130
207	(Pb)	0.133347
208	Pb	0.133532
209	Bi	0.133174
238		0.132412

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1740 V
       Pulse HV: 1460 V

REVIEWED BY
By Janice Whitt at 12:43:59 PM, 5/26/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: May 19 2016 11:44 am
Date Acquired: May 19 2016 11:40 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	50.17	P	7.35	14.66
7	Li	2	45	540.03	P	21.86	4.05
9	Be	2	45	12.22	P	3.85	31.49
11	B	2	45	3192.76	P	33.40	1.05
23	Na	1	45	5175.71	P	116.50	2.25
24	Mg	1	45	254.46	P	47.18	18.54
27	Al	1	45	107.56	P	9.83	9.14
39	K	1	45	2238.08	P	51.04	2.28
44	Ca	2	45	2891.56	P	42.21	1.46
45	Sc	1	---	184662.30	P	1795.00	0.97
45	Sc	2	---	4233596.00	A	28910.00	0.68
47	Ti	1	45	2.22	P	2.04	91.66
51	V	1	45	89.34	P	2.31	2.58
51	V	2	---		P		
52	Cr	1	45	127.56	P	21.68	17.00
55	Mn	1	45	80.89	P	13.88	17.16
56	Fe	1	72	2254.47	P	93.89	4.16
59	Co	1	72	83.56	P	6.84	8.19
60	Ni	1	72	116.90	P	25.53	21.84
60	Ni	2	---		P		
63	Cu	1	72	305.79	P	16.78	5.49
63	Cu	2	---		P		
66	Zn	1	72	104.89	P	20.67	19.71
66	Zn	2	---		P		
72	Ge	1	---	110938.60	P	1536.00	1.38
72	Ge	2	---		P		
75	As	1	72	7.37	P	0.46	6.28
78	Se	1	72	1.81	P	0.06	3.53
88	Sr	2	###	397.80	P	28.35	7.13
95	Mo	2	###	37.78	P	10.72	28.38
107	Ag	2	###	20.00	P	3.33	16.66
111	Cd	2	###	0.00	P	17.70	5100400.00
115	In	2	---	5887647.00	A	55270.00	0.94
118	Sn	2	###	233.35	P	33.83	14.50
121	Sb	2	###	88.89	P	18.36	20.65
137	Ba	2	###	30.00	P	6.67	22.22
205	Tl	2	###	94.45	P	10.71	11.34
208	Pb	2	###	274.46	P	22.19	8.09
209	Bi	2	---	6267449.00	A	49990.00	0.80

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160519
Operator: KL Instrument: ICPMS3
Date Acquired: May 19 2016 11:46 am
Last Cal. Update: May 19 2016 11:44 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-367.23	P	30.78	8.38	ISFail
7	Li	2	45	10400.21	P	200.00	1.92	
9	Be	2	45	2472.56	P	50.49	2.04	
11	B	2	45	4629.92	P	60.05	1.30	
23	Na	1	45	11415.64	P	172.00	1.51	
24	Mg	1	45	3026.04	P	61.70	2.04	
27	Al	1	45	702.70	P	28.88	4.11	
39	K	1	45	3243.90	P	53.67	1.65	
44	Ca	2	45	6381.90	P	278.90	4.37	
45	Sc	1	---	181860.41	P	635.50	0.35	
45	Sc	2	---	4201410.00	A	51230.00	1.22	
47	Ti	1	45	22.22	P	8.57	38.57	
51	V	1	45	1316.09	P	38.12	2.90	
51	V	2	---		P			
52	Cr	1	45	1837.06	P	24.67	1.34	
55	Mn	1	45	660.92	P	10.01	1.51	
56	Fe	1	72	27899.27	P	334.90	1.20	
59	Co	1	72	3256.93	P	147.40	4.53	
60	Ni	1	72	1084.06	P	15.03	1.39	
60	Ni	2	---		P			
63	Cu	1	72	3144.54	P	163.00	5.18	
63	Cu	2	---		P			
66	Zn	1	72	357.34	P	7.42	2.08	
66	Zn	2	---		P			
72	Ge	1	---	109335.30	P	854.00	0.78	
72	Ge	2	---		P			
75	As	1	72	130.22	P	1.84	1.41	
78	Se	1	72	8.30	P	0.23	2.79	
88	Sr	2	115	8672.36	P	160.90	1.86	
95	Mo	2	115	1602.39	P	51.90	3.24	
107	Ag	2	115	4780.05	P	70.28	1.47	
111	Cd	2	115	1015.01	P	40.09	3.95	
115	In	2	---	5860602.00	A	94410.00	1.61	
118	Sn	2	115	2891.59	P	67.71	2.34	
121	Sb	2	115	3450.64	P	181.50	5.26	
137	Ba	2	115	1202.33	P	18.96	1.58	
205	Tl	2	209	10137.17	P	95.32	0.94	
208	Pb	2	209	13741.63	P	182.00	1.32	
209	Bi	2	---	6215751.00	A	22810.00	0.37	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-367.23	8.38	50.17	-732.0	70 - 120	ISFail
45	Sc	1	181860.44	0.35	184662.30	98.5	70 - 120	
45	Sc	2	4201409.50	1.22	4233596.00	99.2	70 - 120	
72	Ge	1	109335.28	0.78	110938.56	98.6	70 - 120	
115	In	2	5860602.00	1.61	5887647.50	99.5	70 - 120	
209	Bi	2	6215751.50	0.37	6267448.50	99.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160519
Operator: KL Instrument: ICPMS3
Date Acquired: May 19 2016 11:52 am
Last Cal. Update: May 19 2016 11:50 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3795.22	P	199.70	5.26	ISFail
7	Li	2	45	98827.93	P	1416.00	1.43	Fail
9	Be	2	45	24347.53	P	563.30	2.31	Fail
11	B	2	45	23411.44	P	580.30	2.48	Fail
23	Na	1	45	67085.26	P	1585.00	2.36	Fail
24	Mg	1	45	27143.60	P	260.80	0.96	Fail
27	Al	1	45	6050.89	P	82.35	1.36	Fail
39	K	1	45	14176.37	P	294.30	2.08	Fail
44	Ca	2	45	38515.23	P	643.60	1.67	Fail
45	Sc	1	---	182811.70	P	1655.00	0.91	
45	Sc	2	---	4237054.00	A	80980.00	1.91	
47	Ti	1	45	291.56	P	20.24	6.94	Fail
51	V	1	45	11920.13	P	267.10	2.24	Fail
51	V	2	---		P			
52	Cr	1	45	17023.47	P	182.70	1.07	Fail
55	Mn	1	45	6083.83	P	92.73	1.52	Fail
56	Fe	1	72	256728.80	P	1409.00	0.55	Fail
59	Co	1	72	32007.61	P	300.00	0.94	Fail
60	Ni	1	72	9722.21	P	134.40	1.38	Fail
60	Ni	2	---		P			
63	Cu	1	72	27512.81	P	60.12	0.22	Fail
63	Cu	2	---		P			
66	Zn	1	72	2614.54	P	26.95	1.03	Fail
66	Zn	2	---		P			
72	Ge	1	---	109647.70	P	477.00	0.44	
72	Ge	2	---		P			
75	As	1	72	1220.62	P	13.77	1.13	Fail
78	Se	1	72	67.00	P	0.59	0.88	Fail
88	Sr	2	115	81022.56	P	1044.00	1.29	Fail
95	Mo	2	115	15416.02	P	145.70	0.95	Fail
107	Ag	2	115	45628.22	P	862.60	1.89	Fail
111	Cd	2	115	9841.50	P	190.30	1.93	
115	In	2	---	5868897.00	A	100400.00	1.71	
118	Sn	2	115	26287.75	P	414.20	1.58	Fail
121	Sb	2	115	32087.59	P	463.30	1.44	Fail
137	Ba	2	115	11828.63	P	320.60	2.71	Fail
205	Tl	2	209	97101.83	P	2597.00	2.67	Fail
208	Pb	2	209	133260.50	P	1357.00	1.02	Fail
209	Bi	2	---	6205193.00	A	20610.00	0.33	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3795.22	5.26	50.17	-7565.3	70 - 120	ISFail
45	Sc	1	182811.70	0.91	184662.30	99.0	70 - 120	
45	Sc	2	4237053.50	1.91	4233596.00	100.1	70 - 120	
72	Ge	1	109647.71	0.44	110938.56	98.8	70 - 120	
115	In	2	5868897.00	1.71	5887647.50	99.7	70 - 120	
209	Bi	2	6205193.00	0.33	6267448.50	99.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160519
Operator: KL Instrument: ICPMS3
Date Acquired: May 19 2016 11:58 am
Last Cal. Update: May 19 2016 11:56 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-19640.14	P	250.10	1.27	ISFail
7	Li	2	45	491327.19	P	7715.00	1.57	Fail
9	Be	2	45	121091.90	P	1922.00	1.59	Fail
11	B	2	45	105045.30	P	2272.00	2.16	Fail
23	Na	1	45	315007.09	P	3805.00	1.21	Fail
24	Mg	1	45	137256.50	P	1406.00	1.02	Fail
27	Al	1	45	30511.52	P	520.60	1.71	Fail
39	K	1	45	63259.75	P	630.20	1.00	Fail
44	Ca	2	45	177127.30	P	2949.00	1.66	Fail
45	Sc	1	---	184557.41	P	971.30	0.53	
45	Sc	2	---	4190687.00	A	64930.00	1.55	
47	Ti	1	45	1381.43	P	20.18	1.46	Fail
51	V	1	45	59826.46	P	1042.00	1.74	Fail
51	V	2	---		P			
52	Cr	1	45	83605.37	P	1465.00	1.75	Fail
55	Mn	1	45	30282.71	P	82.63	0.27	Fail
56	Fe	1	72	1317320.00	A	12690.00	0.96	
59	Co	1	72	159989.70	P	772.10	0.48	
60	Ni	1	72	48115.69	P	179.80	0.37	Fail
60	Ni	2	---		P			
63	Cu	1	72	135726.09	P	1504.00	1.11	Fail
63	Cu	2	---		P			
66	Zn	1	72	12571.05	P	208.90	1.66	Fail
66	Zn	2	---		P			
72	Ge	1	---	108838.00	P	638.50	0.59	
72	Ge	2	---		P			
75	As	1	72	6075.65	P	20.88	0.34	
78	Se	1	72	306.08	P	4.08	1.33	Fail
88	Sr	2	115	397010.81	P	6170.00	1.55	Fail
95	Mo	2	115	75844.34	P	1285.00	1.69	Fail
107	Ag	2	115	225042.70	P	4897.00	2.18	Fail
111	Cd	2	115	48289.60	P	813.00	1.68	
115	In	2	---	5816359.00	A	111700.00	1.92	
118	Sn	2	115	129883.80	P	1907.00	1.47	Fail
121	Sb	2	115	158420.59	P	2852.00	1.80	Fail
137	Ba	2	115	58865.62	P	1305.00	2.22	Fail
205	Tl	2	209	485109.91	P	5938.00	1.22	Fail
208	Pb	2	209	658999.13	P	13210.00	2.00	Fail
209	Bi	2	---	6107293.00	A	106700.00	1.75	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19640.15	1.27	50.17	-39150.3	70 - 120	ISFail
45	Sc	1	184557.36	0.53	184662.30	99.9	70 - 120	
45	Sc	2	4190687.00	1.55	4233596.00	99.0	70 - 120	
72	Ge	1	108837.99	0.59	110938.56	98.1	70 - 120	
115	In	2	5816358.50	1.92	5887647.50	98.8	70 - 120	
209	Bi	2	6107293.00	1.75	6267448.50	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160519
Operator: KL Instrument: ICPMS3
Date Acquired: May 19 2016 12:05 pm
Last Cal. Update: May 19 2016 12:02 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-41728.60	P	1301.00	3.12	ISFail
7	Li	2	45	1032837.00	A	14410.00	1.40	Fail
9	Be	2	45	254560.50	P	6231.00	2.45	Fail
11	B	2	45	225505.00	P	4050.00	1.80	Fail
23	Na	1	45	654517.31	P	5495.00	0.84	Fail
24	Mg	1	45	289008.09	P	2416.00	0.84	
27	Al	1	45	64230.26	P	604.90	0.94	Fail
39	K	1	45	131741.30	P	856.00	0.65	Fail
44	Ca	2	45	367856.59	P	7316.00	1.99	Fail
45	Sc	1	---	191011.59	P	1022.00	0.54	
45	Sc	2	---	4289797.00	A	38500.00	0.90	
47	Ti	1	45	2747.02	P	60.99	2.22	
51	V	1	45	125351.50	P	672.90	0.54	
51	V	2	---		P			
52	Cr	1	45	175475.80	P	2113.00	1.20	
55	Mn	1	45	62844.83	P	664.50	1.06	Fail
56	Fe	1	72	2713470.00	A	29000.00	1.07	
59	Co	1	72	334495.31	P	1532.00	0.46	
60	Ni	1	72	99644.73	P	785.70	0.79	
60	Ni	2	---		P			
63	Cu	1	72	284655.31	P	302.20	0.11	
63	Cu	2	---		P			
66	Zn	1	72	25871.44	P	211.10	0.82	Fail
66	Zn	2	---		P			
72	Ge	1	---	112617.60	P	177.30	0.16	
72	Ge	2	---		P			
75	As	1	72	12564.75	P	27.79	0.22	
78	Se	1	72	639.54	P	7.67	1.20	Fail
88	Sr	2	115	821127.88	P	19650.00	2.39	Fail
95	Mo	2	115	156934.59	P	3320.00	2.12	Fail
107	Ag	2	115	470237.41	P	11560.00	2.46	Fail
111	Cd	2	115	101013.20	P	2493.00	2.47	
115	In	2	---	5926274.00	A	79950.00	1.35	
118	Sn	2	115	268088.91	P	4804.00	1.79	Fail
121	Sb	2	115	324893.31	P	8114.00	2.50	Fail
137	Ba	2	115	121508.00	P	3090.00	2.54	Fail
205	Tl	2	209	1023104.00	P	18570.00	1.82	Fail
208	Pb	2	209	1387943.00	P	21320.00	1.54	Fail
209	Bi	2	---	6376738.00	A	57880.00	0.91	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-41728.61	3.12	50.17	-83181.0	70 - 120	ISFail
45	Sc	1	191011.64	0.54	184662.30	103.4	70 - 120	
45	Sc	2	4289796.50	0.90	4233596.00	101.3	70 - 120	
72	Ge	1	112617.56	0.16	110938.56	101.5	70 - 120	
115	In	2	5926273.50	1.35	5887647.50	100.7	70 - 120	
209	Bi	2	6376738.00	0.91	6267448.50	101.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160519
Operator: KL Instrument: ICPMS3
Date Acquired: May 19 2016 12:11 pm
Last Cal. Update: May 19 2016 12:08 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-91462.32	P	1912.00	2.09	ISFail
7	Li	2	45	2346925.00	A	27090.00	1.15	Fail
9	Be	2	45	596099.63	P	6352.00	1.07	
11	B	2	45	515258.09	P	14920.00	2.90	Fail
23	Na	1	45	1530312.00	A	3394.00	0.22	Fail
24	Mg	1	45	657384.63	P	8044.00	1.22	
27	Al	1	45	144473.80	P	2263.00	1.57	
39	K	1	45	296487.91	P	2560.00	0.86	Fail
44	Ca	2	45	858975.38	P	17330.00	2.02	Fail
45	Sc	1	---	178423.09	P	192.90	0.11	
45	Sc	2	---	4096621.00	A	81360.00	1.99	
47	Ti	1	45	6440.44	P	37.82	0.59	
51	V	1	45	290848.41	P	2373.00	0.82	
51	V	2	---		A			
52	Cr	1	45	406324.19	P	2661.00	0.65	
55	Mn	1	45	143836.80	P	1259.00	0.88	
56	Fe	1	72	6101551.00	A	90000.00	1.48	
59	Co	1	72	774466.88	P	10960.00	1.42	
60	Ni	1	72	230510.30	P	2182.00	0.95	
60	Ni	2	---		P			
63	Cu	1	72	657424.88	P	3596.00	0.55	
63	Cu	2	---		P			
66	Zn	1	72	59244.68	P	578.20	0.98	
66	Zn	2	---		P			
72	Ge	1	---	105080.00	P	95.26	0.09	
72	Ge	2	---		P			
75	As	1	72	29065.41	P	111.10	0.38	
78	Se	1	72	1448.01	P	18.34	1.27	
88	Sr	2	115	2018750.00	A	47330.00	2.34	Fail
95	Mo	2	115	370505.81	P	7668.00	2.07	Fail
107	Ag	2	115	1092935.00	M	31350.00	2.87	
111	Cd	2	115	236263.30	P	6006.00	2.54	
115	In	2	---	5707549.00	A	101900.00	1.79	
118	Sn	2	115	636472.00	P	17090.00	2.69	Fail
121	Sb	2	115	768790.19	P	15180.00	1.97	Fail
137	Ba	2	115	286479.00	P	6286.00	2.19	Fail
205	Tl	2	209	2487613.00	A	44480.00	1.79	Fail
208	Pb	2	209	3316910.00	A	74990.00	2.26	Fail
209	Bi	2	---	6030239.00	A	89860.00	1.49	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-91462.33	2.09	50.17	-182319.3	70 - 120	ISFail
45	Sc	1	178423.13	0.11	184662.30	96.6	70 - 120	
45	Sc	2	4096621.30	1.99	4233596.00	96.8	70 - 120	
72	Ge	1	105079.96	0.09	110938.56	94.7	70 - 120	
115	In	2	5707548.50	1.79	5887647.50	96.9	70 - 120	
209	Bi	2	6030238.50	1.49	6267448.50	96.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160519
Operator: KL Instrument: ICPMS3
Date Acquired: May 19 2016 12:16 pm
Last Cal. Update: May 19 2016 12:14 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-176333.80	P	779.80	0.44	ISFail
7	Li	2	45	4575132.00	A	18150.00	0.40	Fail
9	Be	2	45	1124346.00	A	11730.00	1.04	
11	B	2	45	1036106.00	A	10050.00	0.97	Fail
23	Na	1	45	2955688.00	A	27900.00	0.94	Fail
24	Mg	1	45	1339387.00	A	11910.00	0.89	
27	Al	1	45	289882.50	P	4438.00	1.53	
39	K	1	45	586304.50	P	5369.00	0.92	Fail
44	Ca	2	45	1780991.00	A	27640.00	1.55	Fail
45	Sc	1	---	176072.00	P	979.70	0.56	
45	Sc	2	---	3994192.00	A	42480.00	1.06	
47	Ti	1	45	12960.73	P	139.80	1.08	
51	V	1	45	576946.00	P	5424.00	0.94	
51	V	2	---		A			
52	Cr	1	45	803267.69	P	8291.00	1.03	
55	Mn	1	45	285432.41	P	2043.00	0.72	
56	Fe	1	72	12016680.00	A	148500.00	1.24	
59	Co	1	72	1549085.00	A	13560.00	0.88	
60	Ni	1	72	447071.81	P	183.80	0.04	
60	Ni	2	---		P			
63	Cu	1	72	1305925.00	A	4474.00	0.34	
63	Cu	2	---		A			
66	Zn	1	72	113454.30	P	1410.00	1.24	
66	Zn	2	---		P			
72	Ge	1	---	103130.30	P	552.80	0.54	
72	Ge	2	---		P			
75	As	1	72	56725.41	P	250.40	0.44	
78	Se	1	72	2816.85	P	13.35	0.47	
88	Sr	2	115	3900043.00	A	40860.00	1.05	Fail
95	Mo	2	115	739748.81	P	11950.00	1.62	Fail
107	Ag	2	115	2192262.00	A	39230.00	1.79	
111	Cd	2	115	460458.91	P	5517.00	1.20	
115	In	2	---	5532077.00	A	78810.00	1.42	
118	Sn	2	115	1324473.00	A	17330.00	1.31	Fail
121	Sb	2	115	1583755.00	A	25910.00	1.64	Fail
137	Ba	2	115	567883.88	P	12800.00	2.25	Fail
205	Tl	2	209	4780758.00	A	52190.00	1.09	
208	Pb	2	209	6604395.00	A	15600.00	0.24	Fail
209	Bi	2	---	5779166.00	A	24330.00	0.42	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-176333.84	0.44	50.17	-351500.6	70 - 120	ISFail
45	Sc	1	176071.95	0.56	184662.30	95.3	70 - 120	
45	Sc	2	3994191.80	1.06	4233596.00	94.3	70 - 120	
72	Ge	1	103130.26	0.54	110938.56	93.0	70 - 120	
115	In	2	5532077.50	1.42	5887647.50	94.0	70 - 120	
209	Bi	2	5779166.00	0.42	6267448.50	92.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160519
Operator: KL Instrument: ICPMS3
Date Acquired: May 19 2016 12:22 pm
Last Cal. Update: May 19 2016 12:20 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-657717.50	A	21210.00	3.22	ISFail
7	Li	2	45	18014540.00	A	218000.00	1.21	
9	Be	2	45	4302085.00	A	34700.00	0.81	
11	B	2	45	3937437.00	A	65840.00	1.67	Fail
23	Na	1	45	7336196.00	A	144600.00	1.97	
24	Mg	1	45	3276086.00	A	79340.00	2.42	
27	Al	1	45	496.46	P	18.68	3.76	Fail
39	K	1	45	1540788.00	A	25360.00	1.65	Fail
44	Ca	2	45	4349529.00	A	39710.00	0.91	Fail
45	Sc	1	---	181248.70	P	3254.00	1.80	
45	Sc	2	---	4054037.00	A	18120.00	0.45	
47	Ti	1	45	53547.43	P	1019.00	1.90	
51	V	1	45	2388427.00	A	49770.00	2.08	
51	V	2	---		A			
52	Cr	1	45	3228333.00	A	76100.00	2.36	
55	Mn	1	45	1197536.00	A	25010.00	2.09	
56	Fe	1	72	15055.53	P	595.80	3.96	Fail
59	Co	1	72	5991754.00	A	146200.00	2.44	
60	Ni	1	72	1828119.00	A	45910.00	2.51	
60	Ni	2	---		A			
63	Cu	1	72	4967561.00	A	132300.00	2.66	
63	Cu	2	---		A			
66	Zn	1	72	449376.41	P	9863.00	2.19	
66	Zn	2	---		A			
72	Ge	1	---	104176.10	P	1352.00	1.30	
72	Ge	2	---		P			
75	As	1	72	228925.50	P	3747.00	1.64	
78	Se	1	72	11349.06	P	197.70	1.74	
88	Sr	2	115	15583430.00	A	126400.00	0.81	
95	Mo	2	115	3119907.00	A	48490.00	1.55	
107	Ag	2	115	1704.70	P	520.60	30.54	Fail
111	Cd	2	115	1942370.00	A	9783.00	0.50	
115	In	2	---	5589848.00	A	4621.00	0.08	
118	Sn	2	115	5210208.00	A	34670.00	0.67	Fail
121	Sb	2	115	1966.95	P	495.30	25.18	Fail
137	Ba	2	115	2420938.00	A	21450.00	0.89	
205	Tl	2	209	19088950.00	A	108500.00	0.57	
208	Pb	2	209	25704420.00	A	239500.00	0.93	
209	Bi	2	---	5741174.00	A	28170.00	0.49	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-657717.63	3.22	50.17	#########	70 - 120	ISFail
45	Sc	1	181248.73	1.80	184662.30	98.2	70 - 120	
45	Sc	2	4054037.00	0.45	4233596.00	95.8	70 - 120	
72	Ge	1	104176.09	1.30	110938.56	93.9	70 - 120	
115	In	2	5589848.50	0.08	5887647.50	94.9	70 - 120	
209	Bi	2	5741174.50	0.49	6267448.50	91.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\016ICSA.D\016ICSA.D#

Date Acquired:	May 19 2016 12:40 pm	Sample Name:	**ICSA-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.601	ppb	6.11	8.00	5.00	
9	Be	2	45	0.315	ppb	14.36	0.32	0.80	
11	B	2	45	10.170	ppb	4.01	30.00	30.00	
23	Na	1	45	99850.000	ppb	0.92	#######	#######	
24	Mg	1	45	96120.000	ppb	0.96	#######	#######	
27	Al	1	45	102000.000	ppb	1.64	#######	#######	
39	K	1	45	97330.000	ppb	0.88	#######	#######	
44	Ca	2	45	94590.000	ppb	4.94	#######	#######	
47	Ti	1	45	2058.000	ppb	0.88	10.00	10.00	
51	V	1	45	0.276	ppb	11.93	10.00	10.00	
52	Cr	1	45	0.673	ppb	0.71	8.00	5.00	
55	Mn	1	45	1.700	ppb	2.76	8.00	10.00	
56	Fe	1	72	98240.000	ppb	1.92	#######	#######	
59	Co	1	72	0.805	ppb	2.73	8.00	10.00	
60	Ni	1	72	0.674	ppb	5.85	8.00	10.00	
63	Cu	1	72	0.756	ppb	2.13	8.00	10.00	
66	Zn	1	72	1.587	ppb	4.79	10.00	5.00	
75	As	1	72	0.964	ppb	2.74	4.00	5.00	
78	Se	1	72	0.523	ppb	14.25	2.00	5.00	
88	Sr	2	115	1.767	ppb	2.88	10.00	10.00	
95	Mo	2	115	1978.000	ppb	4.12	8.00	5.00	
107	Ag	2	115	0.190	ppb	4.64	0.80	2.00	
111	Cd	2	115	0.570	ppb	9.08	1.20	1.00	
118	Sn	2	115	0.794	ppb	9.44	10.00	10.00	
121	Sb	2	115	0.431	ppb	5.80	4.00	2.50	
137	Ba	2	115	0.703	ppb	6.64	8.00	10.00	
205	Tl	2	209	0.476	ppb	5.03	4.00	1.50	
208	Pb	2	209	0.646	ppb	4.00	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-123.80	29.07	50.17	-246.8	70 - 120	ISFail
45	Sc	1	168177.30	0.17	184662.30	91.1	70 - 120	
45	Sc	2	3644262.30	2.20	4233596.00	86.1	70 - 120	
72	Ge	1	95825.34	0.34	110938.56	86.4	70 - 120	
115	In	2	5029298.00	2.11	5887647.50	85.4	70 - 120	
209	Bi	2	5005062.00	0.51	6267448.50	79.9	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\017ICSB.D\017ICSB.D#

Date Acquired:	May 19 2016 12:46 pm	Sample Name:	**ICSAB-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.42	ppb	2.50	---	80 -		120	
9	Be	2	45	0.11	ppb	13.11	---	80 -		120	
11	B	2	45	6.57	ppb	6.50	---	80 -		120	
23	Na	1	45	101400.00	ppb	1.33	100000.00	80 -		120	
24	Mg	1	45	95940.00	ppb	1.20	100000.00	80 -		120	
27	Al	1	45	101700.00	ppb	0.66	100000.00	80 -		120	
39	K	1	45	97540.00	ppb	0.82	100000.00	80 -		120	
44	Ca	2	45	95590.00	ppb	4.53	100000.00	80 -		120	
47	Ti	1	45	2065.00	ppb	0.14	---	80 -		120	
51	V	1	45	41.87	ppb	1.16	40.00	80 -		120	
52	Cr	1	45	22.30	ppb	0.74	20.00	80 -		120	
55	Mn	1	45	21.14	ppb	1.34	20.00	80 -		120	
56	Fe	1	72	98290.00	ppb	0.28	100000.00	80 -		120	
59	Co	1	72	42.59	ppb	0.92	40.00	80 -		120	
60	Ni	1	72	38.38	ppb	1.11	40.00	80 -		120	
63	Cu	1	72	22.20	ppb	1.74	20.00	80 -		120	
66	Zn	1	72	19.71	ppb	1.65	20.00	80 -		120	
75	As	1	72	20.61	ppb	0.66	20.00	80 -		120	
78	Se	1	72	19.11	ppb	1.16	20.00	80 -		120	
88	Sr	2	115	1.16	ppb	2.43	---	80 -		120	
95	Mo	2	115	1964.00	ppb	2.98	---	80 -		120	
107	Ag	2	115	17.48	ppb	3.39	20.00	80 -		120	
111	Cd	2	115	9.36	ppb	0.83	10.00	80 -		120	
118	Sn	2	115	0.69	ppb	8.25	---	80 -		120	
121	Sb	2	115	0.06	ppb	7.26	---	80 -		120	
137	Ba	2	115	0.55	ppb	1.24	---	80 -		120	
205	Tl	2	209	0.17	ppb	6.07	---	80 -		120	
208	Pb	2	209	0.36	ppb	3.54	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-24.37	92.66	50.17	-48.6	70 -		120	ISFail
45	Sc	1	161569.11	0.65	184662.30	87.5	70 -		120	
45	Sc	2	3077160.30	3.79	4233596.00	72.7	70 -		120	
72	Ge	1	92298.93	0.20	110938.56	83.2	70 -		120	
115	In	2	4539527.00	2.78	5887647.50	77.1	70 -		120	
209	Bi	2	4786043.50	1.33	6267448.50	76.4	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\020ICV.D\020ICV.D#

Date Acquired:	May 19 2016 01:04 pm	Sample Name:	**ICV1-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	145.20	ppb	1.57	100.00	90 -	110	145.2	Fail
9	Be	2	45	126.10	ppb	2.48	100.00	90 -	110	126.1	Fail
11	B	2	45	118.10	ppb	2.08	100.00	90 -	110	118.1	Fail
23	Na	1	45	2790.00	ppb	0.19	2500.00	90 -	110	111.6	Fail
24	Mg	1	45	2688.00	ppb	1.24	2500.00	90 -	110	107.5	
27	Al	1	45	2475.00	ppb	0.98	2500.00	90 -	110	99.0	
39	K	1	45	2513.00	ppb	1.58	2500.00	90 -	110	100.5	
44	Ca	2	45	2399.00	ppb	2.10	2500.00	90 -	110	96.0	
47	Ti	1	45	101.30	ppb	1.53	100.00	90 -	110	101.3	
51	V	1	45	105.00	ppb	0.62	100.00	90 -	110	105.0	
52	Cr	1	45	110.20	ppb	1.23	100.00	90 -	110	110.2	Fail
55	Mn	1	45	96.60	ppb	1.05	100.00	90 -	110	96.6	
56	Fe	1	72	2569.00	ppb	0.70	2500.00	90 -	110	102.8	
59	Co	1	72	108.10	ppb	0.96	100.00	90 -	110	108.1	
60	Ni	1	72	105.30	ppb	0.49	100.00	90 -	110	105.3	
63	Cu	1	72	107.60	ppb	0.58	100.00	90 -	110	107.6	
66	Zn	1	72	103.50	ppb	1.42	100.00	90 -	110	103.5	
75	As	1	72	101.40	ppb	0.79	100.00	90 -	110	101.4	
78	Se	1	72	98.23	ppb	1.55	100.00	90 -	110	98.2	
88	Sr	2	115	96.83	ppb	2.12	100.00	90 -	110	96.8	
95	Mo	2	115	90.43	ppb	3.01	100.00	90 -	110	90.4	
107	Ag	2	115	93.79	ppb	1.28	100.00	90 -	110	93.8	
111	Cd	2	115	95.30	ppb	2.03	100.00	90 -	110	95.3	
118	Sn	2	115	100.90	ppb	1.88	100.00	90 -	110	100.9	
121	Sb	2	115	97.60	ppb	1.93	100.00	90 -	110	97.6	
137	Ba	2	115	97.25	ppb	2.64	100.00	90 -	110	97.3	
205	Tl	2	209	96.68	ppb	1.24	100.00	90 -	110	96.7	
208	Pb	2	209	98.43	ppb	1.77	100.00	90 -	110	98.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-16445.44	4.77	50.17	-32782.0	70 -	120		ISFail
45	Sc	1	167136.28	0.11	184662.30	90.5	70 -	120		
45	Sc	2	2842477.00	1.69	4233596.00	67.1	70 -	120		ISFail
72	Ge	1	98968.03	0.16	110938.56	89.2	70 -	120		
115	In	2	4588444.50	1.80	5887647.50	77.9	70 -	120		
209	Bi	2	5511763.50	0.79	6267448.50	87.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\022LCVL.D\022LCVL.D#

Date Acquired:	May 19 2016 01:16 pm	Sample Name:	**ILCVL-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	14.56	ppb	0.48	5.00	70 -	130	291.2	Fail
9	Be	2	45	1.33	ppb	5.74	1.00	70 -	130	133.0	Fail
11	B	2	45	24.37	ppb	2.40	20.00	70 -	130	121.9	
23	Na	1	45	114.10	ppb	1.10	100.00	70 -	130	114.1	
24	Mg	1	45	107.70	ppb	1.96	100.00	70 -	130	107.7	
27	Al	1	45	103.00	ppb	1.26	100.00	70 -	130	103.0	
39	K	1	45	100.90	ppb	5.05	100.00	70 -	130	100.9	
44	Ca	2	45	95.23	ppb	3.16	100.00	70 -	130	95.2	
47	Ti	1	45	5.02	ppb	7.43	5.00	70 -	130	100.4	
51	V	1	45	1.00	ppb	0.35	1.00	70 -	130	99.7	
52	Cr	1	45	5.45	ppb	2.21	5.00	70 -	130	108.9	
55	Mn	1	45	4.92	ppb	2.42	5.00	70 -	130	98.4	
56	Fe	1	72	104.00	ppb	1.37	100.00	70 -	130	104.0	
59	Co	1	72	5.27	ppb	1.51	5.00	70 -	130	105.3	
60	Ni	1	72	5.73	ppb	2.79	5.00	70 -	130	114.6	
63	Cu	1	72	5.46	ppb	0.20	5.00	70 -	130	109.3	
66	Zn	1	72	5.32	ppb	4.50	5.00	70 -	130	106.5	
75	As	1	72	5.06	ppb	0.95	5.00	70 -	130	101.2	
78	Se	1	72	5.01	ppb	11.11	5.00	70 -	130	100.2	
88	Sr	2	115	4.76	ppb	2.48	5.00	70 -	130	95.1	
95	Mo	2	115	4.57	ppb	2.41	5.00	70 -	130	91.4	
107	Ag	2	115	1.87	ppb	3.28	2.00	70 -	130	93.5	
111	Cd	2	115	0.91	ppb	17.54	1.00	70 -	130	90.8	
118	Sn	2	115	4.93	ppb	3.64	5.00	70 -	130	98.7	
121	Sb	2	115	1.94	ppb	4.54	2.00	70 -	130	96.8	
137	Ba	2	115	4.78	ppb	3.83	5.00	70 -	130	95.6	
205	Tl	2	209	0.99	ppb	0.84	1.00	70 -	130	98.9	
208	Pb	2	209	0.99	ppb	1.10	1.00	70 -	130	99.3	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-1481.13	10.01	50.17	-2952.5	70 -	120	ISFail
45	Sc	1		171717.02	1.16	184662.30	93.0	70 -	120	
45	Sc	2		2912580.80	1.37	4233596.00	68.8	70 -	120	ISFail
72	Ge	1		103580.53	0.25	110938.56	93.4	70 -	120	
115	In	2		4682498.50	1.94	5887647.50	79.5	70 -	120	
209	Bi	2		5652002.50	0.97	6267448.50	90.2	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\023_ICB.D\023_ICB.D#

Date Acquired:	May 19 2016 01:22 pm	Sample Name:	**ICB1-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 Li 2 45	0.17 ppb	7.18	2.00	
9 Be 2 45	0.03 ppb	9.17	0.40	
11 B 2 45	1.56 ppb	2.89	10.00	
23 Na 1 45	5.57 ppb	1.52	50.00	
24 Mg 1 45	0.86 ppb	24.87	50.00	
27 Al 1 45	2.57 ppb	7.05	50.00	
39 K 1 45	1.99 ppb	2.89	50.00	
44 Ca 2 45	1.33 ppb	0.63	50.00	
47 Ti 1 45	0.08 ppb	66.67	4.00	
51 V 1 45	0.03 ppb	16.55	4.00	
52 Cr 1 45	0.04 ppb	10.72	2.00	
55 Mn 1 45	-0.02 ppb	2.34	2.00	
56 Fe 1 72	2.28 ppb	3.86	50.00	
59 Co 1 72	0.01 ppb	18.36	2.00	
60 Ni 1 72	-0.02 ppb	8.92	2.00	
63 Cu 1 72	0.06 ppb	3.32	2.00	
66 Zn 1 72	1.21 ppb	10.23	4.00	
75 As 1 72	0.04 ppb	2.39	2.00	
78 Se 1 72	0.05 ppb	29.05	0.60	
88 Sr 2 115	0.03 ppb	14.58	4.00	
95 Mo 2 115	0.09 ppb	8.74	2.00	
107 Ag 2 115	0.02 ppb	18.90	0.40	
111 Cd 2 115	0.02 ppb	13.04	0.40	
118 Sn 2 115	0.15 ppb	3.20	20.00	
121 Sb 2 115	0.01 ppb	9.35	2.00	
137 Ba 2 115	0.05 ppb	20.76	2.00	
205 Tl 2 209	0.05 ppb	13.63	2.00	
208 Pb 2 209	0.04 ppb	8.15	0.40	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2 RHig	9.65	######	50.17	19.2	70 - 120	ISFail
45 Sc 1	172613.33	0.09	184662.30	93.5	70 - 120	
45 Sc 2	2957685.80	0.93	4233596.00	69.9	70 - 120	ISFail
72 Ge 1	103479.73	0.36	110938.56	93.3	70 - 120	
115 In 2	4707830.00	0.54	5887647.50	80.0	70 - 120	
209 Bi 2	5641473.00	0.49	6267448.50	90.0	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\024__PB.D\024__PB.D#

Date Acquired:	May 19 2016 01:28 pm	Sample Name:	**MB-75132**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.117	ppb	4.38	2.0	8.00	
9	Be	2	45	0.010	ppb	41.91	0.4	1.20	
11	B	2	45	1.835	ppb	5.44	10.0	30.00	
23	Na	1	45	9.447	ppb	1.33	50.0	#####	
24	Mg	1	45	2.590	ppb	7.92	50.0	#####	
27	Al	1	45	5.686	ppb	6.64	50.0	#####	
39	K	1	45	6.905	ppb	1.24	50.0	#####	
44	Ca	2	45	35.240	ppb	2.41	50.0	#####	
47	Ti	1	45	0.133	ppb	48.05	4.0	10.00	
51	V	1	45	0.010	ppb	13.50	4.0	10.00	
52	Cr	1	45	0.188	ppb	6.03	2.0	8.00	
55	Mn	1	45	0.041	ppb	12.86	2.0	8.00	
56	Fe	1	72	22.860	ppb	1.51	50.0	#####	
59	Co	1	72	-0.001	ppb	25.10	2.0	8.00	
60	Ni	1	72	0.150	ppb	1.56	2.0	8.00	
63	Cu	1	72	0.122	ppb	1.63	2.0	8.00	
66	Zn	1	72	1.714	ppb	4.65	4.0	10.00	
75	As	1	72	0.031	ppb	8.90	2.0	4.00	
78	Se	1	72	-0.012	ppb	48.95	0.6	2.00	
88	Sr	2	115	0.081	ppb	8.76	4.0	10.00	
95	Mo	2	115	0.097	ppb	15.41	2.0	8.00	
107	Ag	2	115	0.006	ppb	33.32	0.4	0.80	
111	Cd	2	115	0.022	ppb	87.80	0.4	1.20	
118	Sn	2	115	4.367	ppb	1.39	20.0	40.00	
121	Sb	2	115	0.000	ppb	27.65	2.0	4.00	
137	Ba	2	115	0.059	ppb	3.85	2.0	8.00	
205	Tl	2	209	0.034	ppb	5.86	2.0	4.00	
208	Pb	2	209	0.058	ppb	2.77	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	20.76	45.17	50.17	41.4	70 - 120	ISFail
45	Sc	1		182682.58	0.82	184662.30	98.9	70 - 120	
45	Sc	2		3089697.30	1.41	4233596.00	73.0	70 - 120	
72	Ge	1		108196.10	1.03	110938.56	97.5	70 - 120	
115	In	2		4879067.50	0.24	5887647.50	82.9	70 - 120	
209	Bi	2		5754028.00	1.02	6267448.50	91.8	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\025_LCS.D\025_LCS.D#

Date Acquired:	May 19 2016 01:35 pm	Sample Name:	**LCS-75132**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	284.80	ppb	0.86	200.00	80 -	120	142.4	Fail
9	Be	2	45	241.60	ppb	0.77	200.00	80 -	120	120.8	Fail
11	B	2	45	233.50	ppb	1.32	200.00	80 -	120	116.8	
23	Na	1	45	5662.00	ppb	0.39	1000.00	80 -	120	566.2	Fail
24	Mg	1	45	5415.00	ppb	0.73	1000.00	80 -	120	541.5	Fail
27	Al	1	45	1018.00	ppb	1.03	1000.00	80 -	120	101.8	
39	K	1	45	5158.00	ppb	0.96	1000.00	80 -	120	515.8	Fail
44	Ca	2	45	4947.00	ppb	1.41	1000.00	80 -	120	494.7	Fail
47	Ti	1	45	200.50	ppb	2.46	200.00	80 -	120	100.3	
51	V	1	45	205.40	ppb	1.17	200.00	80 -	120	102.7	
52	Cr	1	45	210.60	ppb	0.49	200.00	80 -	120	105.3	
55	Mn	1	45	196.00	ppb	0.79	200.00	80 -	120	98.0	
56	Fe	1	72	1070.00	ppb	1.31	1000.00	80 -	120	107.0	
59	Co	1	72	212.60	ppb	1.19	200.00	80 -	120	106.3	
60	Ni	1	72	206.60	ppb	0.68	200.00	80 -	120	103.3	
63	Cu	1	72	212.70	ppb	0.34	200.00	80 -	120	106.4	
66	Zn	1	72	197.80	ppb	0.86	200.00	80 -	120	98.9	
75	As	1	72	196.10	ppb	0.48	200.00	80 -	120	98.1	
78	Se	1	72	186.20	ppb	0.72	200.00	80 -	120	93.1	
88	Sr	2	115	205.00	ppb	2.94	200.00	80 -	120	102.5	
95	Mo	2	115	186.50	ppb	1.62	200.00	80 -	120	93.3	
107	Ag	2	115	196.00	ppb	1.52	200.00	80 -	120	98.0	
111	Cd	2	115	190.50	ppb	2.25	200.00	80 -	120	95.3	
118	Sn	2	115	204.50	ppb	2.02	200.00	80 -	120	102.3	
121	Sb	2	115	193.40	ppb	1.36	200.00	80 -	120	96.7	
137	Ba	2	115	195.80	ppb	1.89	200.00	80 -	120	97.9	
205	Tl	2	209	209.00	ppb	2.05	200.00	80 -	120	104.5	
208	Pb	2	209	205.60	ppb	0.77	200.00	80 -	120	102.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-72847.74	1.58	50.17	-145213.3	70 -	120	ISFail
45	Sc	1	184134.67	0.23	184662.30	99.7	70 -	120	
45	Sc	2	3040653.30	1.11	4233596.00	71.8	70 -	120	
72	Ge	1	107297.72	0.57	110938.56	96.7	70 -	120	
115	In	2	4715236.00	1.75	5887647.50	80.1	70 -	120	
209	Bi	2	5539503.50	0.96	6267448.50	88.4	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\026_LCS.D\026_LCS.D#

Date Acquired:	May 19 2016 01:40 pm	Sample Name:	**LCSD-75132**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	283.30	ppb	1.89	200.00	80 -	120	141.7	Fail
9	Be	2	45	239.10	ppb	1.21	200.00	80 -	120	119.6	
11	B	2	45	233.60	ppb	1.03	200.00	80 -	120	116.8	
23	Na	1	45	5685.00	ppb	1.14	1000.00	80 -	120	568.5	Fail
24	Mg	1	45	5378.00	ppb	0.40	1000.00	80 -	120	537.8	Fail
27	Al	1	45	1017.00	ppb	0.32	1000.00	80 -	120	101.7	
39	K	1	45	5152.00	ppb	1.28	1000.00	80 -	120	515.2	Fail
44	Ca	2	45	4979.00	ppb	1.94	1000.00	80 -	120	497.9	Fail
47	Ti	1	45	203.40	ppb	1.79	200.00	80 -	120	101.7	
51	V	1	45	206.10	ppb	1.40	200.00	80 -	120	103.1	
52	Cr	1	45	213.10	ppb	1.21	200.00	80 -	120	106.6	
55	Mn	1	45	197.60	ppb	0.33	200.00	80 -	120	98.8	
56	Fe	1	72	1068.00	ppb	0.24	1000.00	80 -	120	106.8	
59	Co	1	72	215.20	ppb	0.97	200.00	80 -	120	107.6	
60	Ni	1	72	208.60	ppb	0.63	200.00	80 -	120	104.3	
63	Cu	1	72	215.80	ppb	0.36	200.00	80 -	120	107.9	
66	Zn	1	72	198.80	ppb	0.51	200.00	80 -	120	99.4	
75	As	1	72	196.00	ppb	0.16	200.00	80 -	120	98.0	
78	Se	1	72	184.90	ppb	1.00	200.00	80 -	120	92.5	
88	Sr	2	115	204.40	ppb	1.33	200.00	80 -	120	102.2	
95	Mo	2	115	185.50	ppb	1.31	200.00	80 -	120	92.8	
107	Ag	2	115	194.60	ppb	1.86	200.00	80 -	120	97.3	
111	Cd	2	115	187.80	ppb	1.73	200.00	80 -	120	93.9	
118	Sn	2	115	202.90	ppb	1.21	200.00	80 -	120	101.5	
121	Sb	2	115	191.70	ppb	1.76	200.00	80 -	120	95.9	
137	Ba	2	115	194.20	ppb	2.44	200.00	80 -	120	97.1	
205	Tl	2	209	207.50	ppb	1.52	200.00	80 -	120	103.8	
208	Pb	2	209	203.10	ppb	1.23	200.00	80 -	120	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-76038.02	2.25	50.17	-151572.8	70 -	120	ISFail
45	Sc	1	184124.63	0.23	184662.30	99.7	70 -	120	
45	Sc	2	3151463.00	1.28	4233596.00	74.4	70 -	120	
72	Ge	1	107167.97	0.07	110938.56	96.6	70 -	120	
115	In	2	4913403.50	0.31	5887647.50	83.5	70 -	120	
209	Bi	2	5710293.00	0.39	6267448.50	91.1	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\029DT1.D\029DT1.D#

Date Acquired:	May 19 2016 01:59 pm	Sample Name:	**1605074-39A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	25.48	ppb	1.75	-1576.62	90 - 110	-8.1	
9	Be	2	45	0.82	ppb	5.46	3.67	90 - 110	111.8	
11	B	2	45	36.25	ppb	1.13	153.30	90 - 110	118.2	
23	Na	1	45	1272.00	ppb	0.50	6011.00	90 - 110	105.8	GOOD
24	Mg	1	45	3441.00	ppb	1.01	16180.00	90 - 110	106.3	GOOD
27	Al	1	45	11470.00	ppb	1.41	55860.00	90 - 110	102.7	GOOD
39	K	1	45	3825.00	ppb	0.33	19050.00	90 - 110	100.4	GOOD
44	Ca	2	45	40520.00	ppb	1.58	191300.00	90 - 110	105.9	GOOD
47	Ti	1	45	51.61	ppb	1.16	238.30	90 - 110	108.3	GOOD
51	V	1	45	16.70	ppb	1.29	79.18	90 - 110	105.5	GOOD
52	Cr	1	45	15.71	ppb	1.94	74.86	90 - 110	104.9	GOOD
55	Mn	1	45	44.67	ppb	0.35	209.70	90 - 110	106.5	GOOD
56	Fe	1	72	17100.00	ppb	1.07	81770.00	90 - 110	104.6	GOOD
59	Co	1	72	5.60	ppb	0.92	26.58	90 - 110	105.3	GOOD
60	Ni	1	72	8.36	ppb	2.85	42.03	90 - 110	99.5	GOOD
63	Cu	1	72	1.63	ppb	1.42	7.46	90 - 110	109.3	GOOD
66	Zn	1	72	47.56	ppb	2.20	214.00	90 - 110	111.1	
75	As	1	72	4.54	ppb	2.27	20.28	90 - 110	111.9	
78	Se	1	72	4.82	ppb	5.81	22.34	90 - 110	107.9	GOOD
88	Sr	2	115	558.30	ppb	1.37	2725.00	90 - 110	102.4	GOOD
95	Mo	2	115	0.39	ppb	4.28	2.10	90 - 110	92.5	GOOD
107	Ag	2	115	0.04	ppb	4.90	0.16	90 - 110	138.5	
111	Cd	2	115	0.13	ppb	12.17	0.52	90 - 110	126.1	
118	Sn	2	115	1.22	ppb	1.81	5.67	90 - 110	107.9	GOOD
121	Sb	2	115	0.06	ppb	16.95	0.25	90 - 110	119.9	
137	Ba	2	115	21.37	ppb	1.47	104.20	90 - 110	102.5	GOOD
205	Tl	2	209	0.11	ppb	2.28	0.42	90 - 110	134.9	
208	Pb	2	209	4.11	ppb	0.91	20.54	90 - 110	100.0	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1576.62	25.82	50.17	-3142.8	70 -	120	ISFail
45	Sc	1		176203.27	0.55	184662.30	95.4	70 -	120	
45	Sc	2		2858255.00	0.69	4233596.00	67.5	70 -	120	ISFail
72	Ge	1		104591.41	0.19	110938.56	94.3	70 -	120	
115	In	2		4547017.50	1.24	5887647.50	77.2	70 -	120	
209	Bi	2		5466515.00	0.57	6267448.50	87.2	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\039_PDS.D\039_PDS.D#

Date Acquired:	May 19 2016 02:58 pm	Sample Name:	**1605074-39A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	378.20	ppb	0.28	-33588.88	200	75-125	######	Fail
9	Be	2	45	222.20	ppb	0.81	3.67	200	75-125	109.3	
11	B	2	45	349.00	ppb	1.51	153.30	200	75-125	97.9	
23	Na	1	45	11360.00	ppb	1.57	6011.00	5000	75-125	107.0	
24	Mg	1	45	21390.00	ppb	1.18	16180.00	5000	75-125	104.2	
27	Al	1	45	61390.00	ppb	2.49	55860.00	5000	75-125	110.6	
39	K	1	45	24380.00	ppb	1.86	19050.00	5000	75-125	106.6	
44	Ca	2	45	199800.00	ppb	1.03	191300.00	5000	75-125	170.0	Fail
47	Ti	1	45	446.60	ppb	2.93	238.30	200	75-125	104.2	
51	V	1	45	283.60	ppb	0.90	79.18	200	75-125	102.2	
52	Cr	1	45	277.00	ppb	1.42	74.86	200	75-125	101.1	
55	Mn	1	45	405.40	ppb	1.19	209.70	200	75-125	97.9	
56	Fe	1	72	90130.00	ppb	0.87	81770.00	5000	75-125	167.2	Fail
59	Co	1	72	232.30	ppb	1.09	26.58	200	75-125	102.9	
60	Ni	1	72	226.70	ppb	1.02	42.03	200	75-125	92.3	
63	Cu	1	72	200.50	ppb	0.69	7.46	200	75-125	96.5	
66	Zn	1	72	357.40	ppb	0.70	214.00	200	75-125	71.7	Fail
75	As	1	72	220.40	ppb	0.59	20.28	200	75-125	100.1	
78	Se	1	72	211.50	ppb	1.15	22.34	200	75-125	94.6	
88	Sr	2	115	2955.00	ppb	0.76	2725.00	200	75-125	115.0	
95	Mo	2	115	185.10	ppb	1.09	2.10	200	75-125	91.5	
107	Ag	2	115	164.30	ppb	0.92	0.16	200	75-125	82.1	
111	Cd	2	115	179.70	ppb	1.01	0.52	200	75-125	89.6	
118	Sn	2	115	208.80	ppb	0.75	5.67	200	75-125	101.6	
121	Sb	2	115	194.50	ppb	0.71	0.25	200	75-125	97.1	
137	Ba	2	115	306.20	ppb	0.82	104.20	200	75-125	101.0	
205	Tl	2	209	213.50	ppb	0.75	0.42	200	75-125	106.5	
208	Pb	2	209	229.00	ppb	0.41	20.54	200	75-125	104.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-33588.88	2.95	50.17	-66955.4	70 - 120	ISFail
45	Sc	1	170831.47	1.25	184662.30	92.5	70 - 120	
45	Sc	2	2728591.80	1.40	4233596.00	64.5	70 - 120	ISFail
72	Ge	1	97168.71	0.51	110938.56	87.6	70 - 120	
115	In	2	4400645.50	0.87	5887647.50	74.7	70 - 120	
209	Bi	2	4909842.00	0.36	6267448.50	78.3	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\040_MS.D\040_MS.D#

Date Acquired:	May 19 2016 03:04 pm	Sample Name:	**1605074-39A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	394.30	ppb	1.45	########	200	80-120	######	Fail
9	Be	2	45	224.50	ppb	2.14	3.67	200	80-120	110.4	
11	B	2	45	355.20	ppb	2.75	153.30	200	80-120	101.0	
23	Na	1	45	11290.00	ppb	2.51	6011.00	1000	80-120	527.9	Fail
24	Mg	1	45	21860.00	ppb	3.24	16180.00	1000	80-120	568.0	Fail
27	Al	1	45	60560.00	ppb	2.82	55860.00	1000	80-120	470.0	Fail
39	K	1	45	25550.00	ppb	2.96	19050.00	1000	80-120	650.0	Fail
44	Ca	2	45	196200.00	ppb	2.99	########	1000	80-120	490.0	Fail
47	Ti	1	45	453.70	ppb	4.48	238.30	200	80-120	107.7	
51	V	1	45	285.10	ppb	2.64	79.18	200	80-120	103.0	
52	Cr	1	45	274.60	ppb	3.80	74.86	200	80-120	99.9	
55	Mn	1	45	397.60	ppb	3.88	209.70	200	80-120	94.0	
56	Fe	1	72	86530.00	ppb	2.50	81770.00	1000	80-120	476.0	Fail
59	Co	1	72	227.10	ppb	2.50	26.58	200	80-120	100.3	
60	Ni	1	72	225.80	ppb	2.46	42.03	200	80-120	91.9	
63	Cu	1	72	198.10	ppb	3.41	7.46	200	80-120	95.3	
66	Zn	1	72	351.60	ppb	2.11	214.00	200	80-120	68.8	Fail
75	As	1	72	215.30	ppb	2.78	20.28	200	80-120	97.5	
78	Se	1	72	203.60	ppb	2.46	22.34	200	80-120	90.6	
88	Sr	2	115	3137.00	ppb	1.68	2725.00	200	80-120	206.0	Fail
95	Mo	2	115	177.00	ppb	2.23	2.10	200	80-120	87.5	
107	Ag	2	115	172.30	ppb	1.88	0.16	200	80-120	86.1	
111	Cd	2	115	178.80	ppb	2.21	0.52	200	80-120	89.1	
118	Sn	2	115	200.10	ppb	2.40	5.67	200	80-120	97.2	
121	Sb	2	115	59.39	ppb	2.62	0.25	200	80-120	29.6	Fail
137	Ba	2	115	339.70	ppb	2.63	104.20	200	80-120	117.8	
205	Tl	2	209	212.40	ppb	1.62	0.42	200	80-120	106.0	
208	Pb	2	209	228.50	ppb	1.64	20.54	200	80-120	104.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-67191.34	2.11	50.17	########	70	-	120	ISFail
45	Sc	1	168291.80	2.97	184662.30	91.1	70	-	120	
45	Sc	2	2703767.50	2.27	4233596.00	63.9	70	-	120	ISFail
72	Ge	1	96489.41	2.45	110938.56	87.0	70	-	120	
115	In	2	4500477.50	2.27	5887647.50	76.4	70	-	120	
209	Bi	2	5059484.50	2.03	6267448.50	80.7	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\041_MS.D\041_MS.D#

Date Acquired:	May 19 2016 03:10 pm	Sample Name:	**1605074-39A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	416.10	ppb	1.76	########	200	80-120	######	Fail
9	Be	2	45	226.30	ppb	2.77	3.67	200	80-120	111.3	
11	B	2	45	365.40	ppb	3.57	153.30	200	80-120	106.1	
23	Na	1	45	11260.00	ppb	2.55	6011.00	1000	80-120	524.9	Fail
24	Mg	1	45	21490.00	ppb	1.68	16180.00	1000	80-120	531.0	Fail
27	Al	1	45	60330.00	ppb	2.25	55860.00	1000	80-120	447.0	Fail
39	K	1	45	25180.00	ppb	0.88	19050.00	1000	80-120	613.0	Fail
44	Ca	2	45	212000.00	ppb	4.34	########	1000	80-120	2070.0	Fail
47	Ti	1	45	459.30	ppb	2.28	238.30	200	80-120	110.5	
51	V	1	45	276.00	ppb	2.71	79.18	200	80-120	98.4	
52	Cr	1	45	265.30	ppb	2.90	74.86	200	80-120	95.2	
55	Mn	1	45	380.10	ppb	1.87	209.70	200	80-120	85.2	
56	Fe	1	72	87410.00	ppb	1.51	81770.00	1000	80-120	564.0	Fail
59	Co	1	72	221.90	ppb	1.94	26.58	200	80-120	97.7	
60	Ni	1	72	221.00	ppb	2.64	42.03	200	80-120	89.5	
63	Cu	1	72	193.70	ppb	1.70	7.46	200	80-120	93.1	
66	Zn	1	72	348.60	ppb	1.13	214.00	200	80-120	67.3	Fail
75	As	1	72	210.80	ppb	1.59	20.28	200	80-120	95.3	
78	Se	1	72	201.40	ppb	2.22	22.34	200	80-120	89.5	
88	Sr	2	115	2946.00	ppb	3.23	2725.00	200	80-120	110.5	
95	Mo	2	115	173.30	ppb	3.34	2.10	200	80-120	85.6	
107	Ag	2	115	171.10	ppb	2.46	0.16	200	80-120	85.5	
111	Cd	2	115	175.30	ppb	2.43	0.52	200	80-120	87.4	
118	Sn	2	115	197.40	ppb	3.15	5.67	200	80-120	95.9	
121	Sb	2	115	59.84	ppb	3.27	0.25	200	80-120	29.8	Fail
137	Ba	2	115	301.40	ppb	3.43	104.20	200	80-120	98.6	
205	Tl	2	209	209.40	ppb	1.72	0.42	200	80-120	104.5	
208	Pb	2	209	223.80	ppb	2.12	20.54	200	80-120	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-72427.56	1.99	50.17	########	70	-	120	ISFail
45	Sc	1	185174.14	1.32	184662.30	100.3	70	-	120	
45	Sc	2	2722951.50	3.72	4233596.00	64.3	70	-	120	ISFail
72	Ge	1	103516.91	1.50	110938.56	93.3	70	-	120	
115	In	2	4675707.00	3.20	5887647.50	79.4	70	-	120	
209	Bi	2	5291683.00	2.61	6267448.50	84.4	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\042CCV1.D\042CCV1.D#

Date Acquired:	May 19 2016 03:16 pm	Sample Name:	**CCV1-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	301.00	ppb	1.22	200.00	90 -	110	150.5	Fail
9	Be	2	45	254.70	ppb	0.79	200.00	90 -	110	127.4	Fail
11	B	2	45	231.00	ppb	1.43	200.00	90 -	110	115.5	Fail
23	Na	1	45	5595.00	ppb	0.45	5000.00	90 -	110	111.9	Fail
24	Mg	1	45	5258.00	ppb	0.54	5000.00	90 -	110	105.2	
27	Al	1	45	4959.00	ppb	1.18	5000.00	90 -	110	99.2	
39	K	1	45	5122.00	ppb	1.65	5000.00	90 -	110	102.4	
44	Ca	2	45	5029.00	ppb	1.81	5000.00	90 -	110	100.6	
47	Ti	1	45	196.40	ppb	0.85	200.00	90 -	110	98.2	
51	V	1	45	205.50	ppb	0.88	200.00	90 -	110	102.8	
52	Cr	1	45	210.80	ppb	0.67	200.00	90 -	110	105.4	
55	Mn	1	45	196.10	ppb	1.21	200.00	90 -	110	98.1	
56	Fe	1	72	4987.00	ppb	0.51	5000.00	90 -	110	99.7	
59	Co	1	72	207.90	ppb	1.07	200.00	90 -	110	104.0	
60	Ni	1	72	203.40	ppb	1.45	200.00	90 -	110	101.7	
63	Cu	1	72	210.10	ppb	0.74	200.00	90 -	110	105.1	
66	Zn	1	72	205.70	ppb	1.30	200.00	90 -	110	102.9	
75	As	1	72	205.30	ppb	0.42	200.00	90 -	110	102.7	
78	Se	1	72	200.30	ppb	1.15	200.00	90 -	110	100.2	
88	Sr	2	115	201.80	ppb	2.08	200.00	90 -	110	100.9	
95	Mo	2	115	180.20	ppb	1.18	200.00	90 -	110	90.1	
107	Ag	2	115	188.80	ppb	1.87	200.00	90 -	110	94.4	
111	Cd	2	115	191.40	ppb	1.36	200.00	90 -	110	95.7	
118	Sn	2	115	194.30	ppb	1.66	200.00	90 -	110	97.2	
121	Sb	2	115	195.40	ppb	1.41	200.00	90 -	110	97.7	
137	Ba	2	115	194.40	ppb	0.97	200.00	90 -	110	97.2	
205	Tl	2	209	204.40	ppb	1.37	200.00	90 -	110	102.2	
208	Pb	2	209	200.20	ppb	1.66	200.00	90 -	110	100.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69885.38	0.45	50.17	-139308.2	70 -	120	ISFail
45	Sc	1	174437.52	0.84	184662.30	94.5	70 -	120	
45	Sc	2	2734995.80	0.40	4233596.00	64.6	70 -	120	ISFail
72	Ge	1	104646.07	0.14	110938.56	94.3	70 -	120	
115	In	2	4635323.00	1.22	5887647.50	78.7	70 -	120	
209	Bi	2	5593313.00	1.29	6267448.50	89.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\043_CCB.D\043_CCB.D#

Date Acquired:	May 19 2016 03:22 pm	Sample Name:	**CCB1-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.564	ppb	7.58	2.00	2.00	
9	Be	2	45	0.243	ppb	12.10	0.40	0.30	
11	B	2	45	5.786	ppb	2.71	10.00	10.00	
23	Na	1	45	11.850	ppb	7.81	50.00	#####	
24	Mg	1	45	12.320	ppb	22.36	50.00	#####	
27	Al	1	45	32.300	ppb	19.26	50.00	10.00	FailAq
39	K	1	45	14.740	ppb	7.89	50.00	#####	
44	Ca	2	45	82.850	ppb	14.32	50.00	#####	Failsoil
47	Ti	1	45	0.225	ppb	16.66	4.00	3.00	
51	V	1	45	0.280	ppb	26.13	4.00	3.00	
52	Cr	1	45	0.285	ppb	22.57	2.00	2.00	
55	Mn	1	45	0.303	ppb	26.78	2.00	3.00	
56	Fe	1	72	43.930	ppb	22.08	50.00	30.00	FailAq
59	Co	1	72	0.243	ppb	28.03	2.00	3.00	
60	Ni	1	72	0.208	ppb	11.93	2.00	3.00	
63	Cu	1	72	0.285	ppb	15.33	2.00	2.00	
66	Zn	1	72	1.411	ppb	4.99	4.00	2.00	
75	As	1	72	0.317	ppb	20.57	2.00	2.00	
78	Se	1	72	0.343	ppb	3.36	0.60	2.00	
88	Sr	2	115	1.186	ppb	11.91	4.00	3.00	
95	Mo	2	115	0.263	ppb	10.42	2.00	2.00	
107	Ag	2	115	0.199	ppb	14.15	0.40	1.00	
111	Cd	2	115	0.187	ppb	28.05	0.40	0.30	
118	Sn	2	115	0.350	ppb	13.08	20.00	3.00	
121	Sb	2	115	0.223	ppb	10.43	2.00	0.80	
137	Ba	2	115	0.270	ppb	16.01	2.00	3.00	
205	Tl	2	209	0.360	ppb	3.56	2.00	0.50	
208	Pb	2	209	0.266	ppb	13.42	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-85.56	10.26	50.17	-170.6	70 - 120	ISFail
45	Sc	1		176984.11	1.72	184662.30	95.8	70 - 120	
45	Sc	2		2940879.30	1.17	4233596.00	69.5	70 - 120	ISFail
72	Ge	1		108754.74	0.69	110938.56	98.0	70 - 120	
115	In	2		4845043.00	0.51	5887647.50	82.3	70 - 120	
209	Bi	2		5782553.00	0.91	6267448.50	92.3	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\044LCVL.D\044LCVL.D#

Date Acquired:	May 19 2016 03:28 pm	Sample Name:	**LCVL1-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.83	ppb	1.69	5.00	70 -	130	276.6	Fail
9	Be	2	45	1.32	ppb	5.48	1.00	70 -	130	131.5	Fail
11	B	2	45	24.02	ppb	2.65	20.00	70 -	130	120.1	
23	Na	1	45	108.30	ppb	0.53	100.00	70 -	130	108.3	
24	Mg	1	45	107.80	ppb	2.13	100.00	70 -	130	107.8	
27	Al	1	45	113.80	ppb	1.32	100.00	70 -	130	113.8	
39	K	1	45	103.10	ppb	2.54	100.00	70 -	130	103.1	
44	Ca	2	45	133.80	ppb	7.53	100.00	70 -	130	133.8	Fail
47	Ti	1	45	5.62	ppb	6.25	5.00	70 -	130	112.3	
51	V	1	45	1.12	ppb	5.24	1.00	70 -	130	111.8	
52	Cr	1	45	5.36	ppb	0.19	5.00	70 -	130	107.1	
55	Mn	1	45	4.99	ppb	1.11	5.00	70 -	130	99.7	
56	Fe	1	72	118.50	ppb	1.83	100.00	70 -	130	118.5	
59	Co	1	72	5.07	ppb	0.86	5.00	70 -	130	101.4	
60	Ni	1	72	4.95	ppb	3.95	5.00	70 -	130	99.0	
63	Cu	1	72	5.22	ppb	1.44	5.00	70 -	130	104.4	
66	Zn	1	72	5.38	ppb	2.58	5.00	70 -	130	107.5	
75	As	1	72	5.22	ppb	1.96	5.00	70 -	130	104.5	
78	Se	1	72	5.34	ppb	11.32	5.00	70 -	130	106.8	
88	Sr	2	115	5.34	ppb	1.78	5.00	70 -	130	106.7	
95	Mo	2	115	4.44	ppb	0.74	5.00	70 -	130	88.7	
107	Ag	2	115	1.94	ppb	1.39	2.00	70 -	130	97.0	
111	Cd	2	115	1.04	ppb	12.41	1.00	70 -	130	104.4	
118	Sn	2	115	5.01	ppb	1.53	5.00	70 -	130	100.1	
121	Sb	2	115	1.96	ppb	3.39	2.00	70 -	130	98.1	
137	Ba	2	115	4.94	ppb	1.93	5.00	70 -	130	98.8	
205	Tl	2	209	1.07	ppb	3.52	1.00	70 -	130	106.9	
208	Pb	2	209	1.08	ppb	1.64	1.00	70 -	130	107.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-1779.51	11.01	50.17	-3547.2	70 -	120	ISFail
45	Sc	1		183403.61	0.31	184662.30	99.3	70 -	120	
45	Sc	2		2993362.00	0.82	4233596.00	70.7	70 -	120	
72	Ge	1		111122.15	1.34	110938.56	100.2	70 -	120	
115	In	2		4852341.50	1.51	5887647.50	82.4	70 -	120	
209	Bi	2		5803227.50	1.03	6267448.50	92.6	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\053CCV1.D\053CCV1.D#

Date Acquired:	May 19 2016 04:22 pm	Sample Name:	**CCV2-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	264.10	ppb	0.47	200.00	90 -	110	132.1	Fail
9	Be	2	45	236.00	ppb	1.14	200.00	90 -	110	118.0	Fail
11	B	2	45	214.70	ppb	0.97	200.00	90 -	110	107.4	
23	Na	1	45	5454.00	ppb	0.35	5000.00	90 -	110	109.1	
24	Mg	1	45	5158.00	ppb	0.77	5000.00	90 -	110	103.2	
27	Al	1	45	5012.00	ppb	2.05	5000.00	90 -	110	100.2	
39	K	1	45	5134.00	ppb	0.20	5000.00	90 -	110	102.7	
44	Ca	2	45	4995.00	ppb	2.11	5000.00	90 -	110	99.9	
47	Ti	1	45	198.40	ppb	1.75	200.00	90 -	110	99.2	
51	V	1	45	203.20	ppb	0.84	200.00	90 -	110	101.6	
52	Cr	1	45	208.80	ppb	0.73	200.00	90 -	110	104.4	
55	Mn	1	45	195.50	ppb	1.09	200.00	90 -	110	97.8	
56	Fe	1	72	5040.00	ppb	1.04	5000.00	90 -	110	100.8	
59	Co	1	72	203.80	ppb	0.51	200.00	90 -	110	101.9	
60	Ni	1	72	199.00	ppb	0.93	200.00	90 -	110	99.5	
63	Cu	1	72	205.00	ppb	0.43	200.00	90 -	110	102.5	
66	Zn	1	72	203.90	ppb	1.39	200.00	90 -	110	102.0	
75	As	1	72	204.90	ppb	0.45	200.00	90 -	110	102.5	
78	Se	1	72	201.10	ppb	1.01	200.00	90 -	110	100.6	
88	Sr	2	115	202.50	ppb	1.67	200.00	90 -	110	101.3	
95	Mo	2	115	182.70	ppb	1.57	200.00	90 -	110	91.4	
107	Ag	2	115	191.60	ppb	1.44	200.00	90 -	110	95.8	
111	Cd	2	115	190.50	ppb	1.65	200.00	90 -	110	95.3	
118	Sn	2	115	196.10	ppb	1.58	200.00	90 -	110	98.1	
121	Sb	2	115	195.30	ppb	1.73	200.00	90 -	110	97.7	
137	Ba	2	115	196.20	ppb	2.12	200.00	90 -	110	98.1	
205	Tl	2	209	202.00	ppb	0.67	200.00	90 -	110	101.0	
208	Pb	2	209	199.80	ppb	0.69	200.00	90 -	110	99.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-68986.17	1.12	50.17	-137515.7	70 -	120		ISFail
45	Sc	1	176986.88	0.62	184662.30	95.8	70 -	120		
45	Sc	2	3045267.30	0.77	4233596.00	71.9	70 -	120		
72	Ge	1	106523.80	0.45	110938.56	96.0	70 -	120		
115	In	2	4934320.00	1.08	5887647.50	83.8	70 -	120		
209	Bi	2	5866481.00	0.40	6267448.50	93.6	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\054_CCB.D\054_CCB.D#

Date Acquired:	May 19 2016 04:28 pm	Sample Name:	**CCB2-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.410	ppb	10.80	2.00	2.00	
9	Be	2	45	0.176	ppb	11.96	0.40	0.30	
11	B	2	45	2.582	ppb	1.08	10.00	10.00	
23	Na	1	45	11.540	ppb	6.95	50.00	#####	
24	Mg	1	45	14.100	ppb	14.20	50.00	#####	
27	Al	1	45	43.140	ppb	12.15	50.00	10.00	FailAq
39	K	1	45	14.470	ppb	4.27	50.00	#####	
44	Ca	2	45	75.210	ppb	14.02	50.00	#####	Failsoil
47	Ti	1	45	0.450	ppb	55.03	4.00	3.00	
51	V	1	45	0.256	ppb	9.72	4.00	3.00	
52	Cr	1	45	0.224	ppb	14.50	2.00	2.00	
55	Mn	1	45	0.361	ppb	16.43	2.00	3.00	
56	Fe	1	72	50.430	ppb	12.10	50.00	30.00	Failsoil
59	Co	1	72	0.200	ppb	13.80	2.00	3.00	
60	Ni	1	72	0.169	ppb	6.70	2.00	3.00	
63	Cu	1	72	0.222	ppb	11.25	2.00	2.00	
66	Zn	1	72	1.292	ppb	7.71	4.00	2.00	
75	As	1	72	0.244	ppb	10.68	2.00	2.00	
78	Se	1	72	0.240	ppb	27.41	0.60	2.00	
88	Sr	2	115	0.435	ppb	12.20	4.00	3.00	
95	Mo	2	115	0.193	ppb	21.05	2.00	2.00	
107	Ag	2	115	0.142	ppb	17.93	0.40	1.00	
111	Cd	2	115	0.152	ppb	34.83	0.40	0.30	
118	Sn	2	115	0.218	ppb	12.05	20.00	3.00	
121	Sb	2	115	0.178	ppb	3.09	2.00	0.80	
137	Ba	2	115	0.399	ppb	13.08	2.00	3.00	
205	Tl	2	209	0.250	ppb	5.67	2.00	0.50	
208	Pb	2	209	0.182	ppb	14.14	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-66.86	24.60	50.17	-133.3	70 - 120	ISFail
45	Sc	1		175235.83	1.57	184662.30	94.9	70 - 120	
45	Sc	2		3086383.00	0.44	4233596.00	72.9	70 - 120	
72	Ge	1		106955.59	0.43	110938.56	96.4	70 - 120	
115	In	2		4930620.00	0.95	5887647.50	83.7	70 - 120	
209	Bi	2		5957716.00	0.95	6267448.50	95.1	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\055LCVL.D\055LCVL.D#

Date Acquired:	May 19 2016 04:34 pm	Sample Name:	**LCVL2-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	12.83	ppb	1.43	5.00	70 -	130	256.6	Fail
9	Be	2	45	1.22	ppb	2.82	1.00	70 -	130	122.1	
11	B	2	45	22.88	ppb	3.05	20.00	70 -	130	114.4	
23	Na	1	45	108.70	ppb	0.93	100.00	70 -	130	108.7	
24	Mg	1	45	109.30	ppb	2.73	100.00	70 -	130	109.3	
27	Al	1	45	120.10	ppb	2.58	100.00	70 -	130	120.1	
39	K	1	45	108.70	ppb	1.15	100.00	70 -	130	108.7	
44	Ca	2	45	137.80	ppb	8.98	100.00	70 -	130	137.8	Fail
47	Ti	1	45	5.36	ppb	9.38	5.00	70 -	130	107.2	
51	V	1	45	1.13	ppb	4.98	1.00	70 -	130	112.8	
52	Cr	1	45	5.49	ppb	1.59	5.00	70 -	130	109.8	
55	Mn	1	45	5.06	ppb	3.96	5.00	70 -	130	101.1	
56	Fe	1	72	124.00	ppb	1.93	100.00	70 -	130	124.0	
59	Co	1	72	5.22	ppb	1.49	5.00	70 -	130	104.3	
60	Ni	1	72	5.10	ppb	2.06	5.00	70 -	130	102.0	
63	Cu	1	72	5.24	ppb	0.94	5.00	70 -	130	104.8	
66	Zn	1	72	5.32	ppb	0.76	5.00	70 -	130	106.3	
75	As	1	72	5.17	ppb	0.40	5.00	70 -	130	103.3	
78	Se	1	72	5.08	ppb	5.48	5.00	70 -	130	101.6	
88	Sr	2	115	5.08	ppb	1.51	5.00	70 -	130	101.6	
95	Mo	2	115	4.55	ppb	5.03	5.00	70 -	130	90.9	
107	Ag	2	115	2.01	ppb	0.64	2.00	70 -	130	100.7	
111	Cd	2	115	1.07	ppb	2.41	1.00	70 -	130	107.3	
118	Sn	2	115	5.01	ppb	1.49	5.00	70 -	130	100.1	
121	Sb	2	115	1.97	ppb	2.69	2.00	70 -	130	98.5	
137	Ba	2	115	5.23	ppb	3.02	5.00	70 -	130	104.7	
205	Tl	2	209	1.06	ppb	4.29	1.00	70 -	130	106.0	
208	Pb	2	209	1.01	ppb	4.30	1.00	70 -	130	101.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1530.75	4.60	50.17	-3051.4	70 -	120	ISFail
45	Sc	1	174175.00	1.56	184662.30	94.3	70 -	120	
45	Sc	2	3143310.30	1.20	4233596.00	74.2	70 -	120	
72	Ge	1	106445.65	0.82	110938.56	96.0	70 -	120	
115	In	2	5019650.00	1.21	5887647.50	85.3	70 -	120	
209	Bi	2	5985461.50	0.93	6267448.50	95.5	70 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\056__PB.D\056__PB.D#

Date Acquired:	May 19 2016 04:40 pm	Sample Name:	MB-75169
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	6.64	2.0	8.00	
9	Be	2	45	0.022	ppb	3.77	0.4	1.20	
11	B	2	45	1.919	ppb	3.53	10.0	30.00	
23	Na	1	45	14.020	ppb	0.85	50.0	#####	
24	Mg	1	45	5.820	ppb	10.66	50.0	#####	
27	Al	1	45	23.360	ppb	4.94	50.0	#####	
39	K	1	45	11.570	ppb	1.71	50.0	#####	
44	Ca	2	45	63.980	ppb	1.92	50.0	#####	J
47	Ti	1	45	0.001	ppb	34.64	4.0	10.00	
51	V	1	45	0.043	ppb	15.18	4.0	10.00	
52	Cr	1	45	0.196	ppb	0.45	2.0	8.00	
55	Mn	1	45	0.480	ppb	2.10	2.0	8.00	
56	Fe	1	72	17.950	ppb	3.60	50.0	#####	
59	Co	1	72	0.015	ppb	8.17	2.0	8.00	
60	Ni	1	72	0.156	ppb	5.21	2.0	8.00	
63	Cu	1	72	0.206	ppb	2.74	2.0	8.00	
66	Zn	1	72	8.267	ppb	2.72	4.0	10.00	J
75	As	1	72	0.045	ppb	9.07	2.0	4.00	
78	Se	1	72	0.053	ppb	55.71	0.6	2.00	
88	Sr	2	115	0.214	ppb	4.99	4.0	10.00	
95	Mo	2	115	0.059	ppb	18.67	2.0	8.00	
107	Ag	2	115	0.031	ppb	25.16	0.4	0.80	
111	Cd	2	115	0.040	ppb	42.36	0.4	1.20	
118	Sn	2	115	3.862	ppb	2.70	20.0	40.00	
121	Sb	2	115	0.019	ppb	9.94	2.0	4.00	
137	Ba	2	115	0.145	ppb	9.28	2.0	8.00	
205	Tl	2	209	0.057	ppb	0.29	2.0	4.00	
208	Pb	2	209	0.077	ppb	6.59	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	13.58	57.57	50.17	27.1	70 - 120	ISFail
45	Sc	1		183828.89	0.89	184662.30	99.5	70 - 120	
45	Sc	2		3315618.30	1.65	4233596.00	78.3	70 - 120	
72	Ge	1		109899.66	0.95	110938.56	99.1	70 - 120	
115	In	2		5221821.00	1.49	5887647.50	88.7	70 - 120	
209	Bi	2		6147371.00	0.38	6267448.50	98.1	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\058_LCS.D\058_LCS.D#

Date Acquired:	May 19 2016 04:52 pm	Sample Name:	**LCSD-75169**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	240.40	ppb	2.31	200.00	80 -	120	120.2	Fail
9	Be	2	45	211.30	ppb	1.12	200.00	80 -	120	105.7	
11	B	2	45	203.30	ppb	1.38	200.00	80 -	120	101.7	
23	Na	1	45	5317.00	ppb	1.25	1000.00	80 -	120	531.7	Fail
24	Mg	1	45	5038.00	ppb	0.50	1000.00	80 -	120	503.8	Fail
27	Al	1	45	1004.00	ppb	1.87	1000.00	80 -	120	100.4	
39	K	1	45	4988.00	ppb	0.27	1000.00	80 -	120	498.8	Fail
44	Ca	2	45	4816.00	ppb	1.67	1000.00	80 -	120	481.6	Fail
47	Ti	1	45	196.60	ppb	2.29	200.00	80 -	120	98.3	
51	V	1	45	196.60	ppb	1.36	200.00	80 -	120	98.3	
52	Cr	1	45	202.30	ppb	0.93	200.00	80 -	120	101.2	
55	Mn	1	45	191.50	ppb	0.62	200.00	80 -	120	95.8	
56	Fe	1	72	1034.00	ppb	1.46	1000.00	80 -	120	103.4	
59	Co	1	72	199.30	ppb	1.87	200.00	80 -	120	99.7	
60	Ni	1	72	193.90	ppb	0.98	200.00	80 -	120	97.0	
63	Cu	1	72	199.70	ppb	1.20	200.00	80 -	120	99.9	
66	Zn	1	72	190.40	ppb	1.75	200.00	80 -	120	95.2	
75	As	1	72	190.40	ppb	0.79	200.00	80 -	120	95.2	
78	Se	1	72	184.00	ppb	0.88	200.00	80 -	120	92.0	
88	Sr	2	115	198.30	ppb	2.05	200.00	80 -	120	99.2	
95	Mo	2	115	178.80	ppb	1.28	200.00	80 -	120	89.4	
107	Ag	2	115	188.20	ppb	1.35	200.00	80 -	120	94.1	
111	Cd	2	115	181.00	ppb	0.96	200.00	80 -	120	90.5	
118	Sn	2	115	195.30	ppb	2.12	200.00	80 -	120	97.7	
121	Sb	2	115	186.20	ppb	1.55	200.00	80 -	120	93.1	
137	Ba	2	115	189.50	ppb	1.71	200.00	80 -	120	94.8	
205	Tl	2	209	200.60	ppb	0.97	200.00	80 -	120	100.3	
208	Pb	2	209	198.20	ppb	1.40	200.00	80 -	120	99.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-66724.61	3.15	50.17	-133007.6	70 -	120	ISFail
45	Sc	1	171354.58	0.15	184662.30	92.8	70 -	120	
45	Sc	2	3181297.00	0.69	4233596.00	75.1	70 -	120	
72	Ge	1	102165.18	0.33	110938.56	92.1	70 -	120	
115	In	2	4942036.00	1.58	5887647.50	83.9	70 -	120	
209	Bi	2	5653811.00	1.32	6267448.50	90.2	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\060_LCS.D\060_LCS.D#

Date Acquired:	May 19 2016 05:04 pm	Sample Name:	**LCS-75169**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	241.00	ppb	0.80	200.00	80 -	120	120.5	Fail
9	Be	2	45	211.30	ppb	1.01	200.00	80 -	120	105.7	
11	B	2	45	203.80	ppb	1.37	200.00	80 -	120	101.9	
23	Na	1	45	5295.00	ppb	1.14	1000.00	80 -	120	529.5	Fail
24	Mg	1	45	5047.00	ppb	1.33	1000.00	80 -	120	504.7	Fail
27	Al	1	45	1002.00	ppb	1.00	1000.00	80 -	120	100.2	
39	K	1	45	5081.00	ppb	0.74	1000.00	80 -	120	508.1	Fail
44	Ca	2	45	4875.00	ppb	1.54	1000.00	80 -	120	487.5	Fail
47	Ti	1	45	193.50	ppb	1.66	200.00	80 -	120	96.8	
51	V	1	45	196.90	ppb	0.41	200.00	80 -	120	98.5	
52	Cr	1	45	200.30	ppb	1.35	200.00	80 -	120	100.2	
55	Mn	1	45	192.90	ppb	2.00	200.00	80 -	120	96.5	
56	Fe	1	72	1025.00	ppb	0.99	1000.00	80 -	120	102.5	
59	Co	1	72	195.50	ppb	0.34	200.00	80 -	120	97.8	
60	Ni	1	72	190.80	ppb	0.59	200.00	80 -	120	95.4	
63	Cu	1	72	197.00	ppb	0.77	200.00	80 -	120	98.5	
66	Zn	1	72	191.50	ppb	0.74	200.00	80 -	120	95.8	
75	As	1	72	189.50	ppb	0.10	200.00	80 -	120	94.8	
78	Se	1	72	184.30	ppb	1.40	200.00	80 -	120	92.2	
88	Sr	2	115	201.00	ppb	0.82	200.00	80 -	120	100.5	
95	Mo	2	115	182.30	ppb	1.90	200.00	80 -	120	91.2	
107	Ag	2	115	193.30	ppb	1.79	200.00	80 -	120	96.7	
111	Cd	2	115	182.70	ppb	1.61	200.00	80 -	120	91.4	
118	Sn	2	115	197.10	ppb	1.87	200.00	80 -	120	98.6	
121	Sb	2	115	190.20	ppb	0.95	200.00	80 -	120	95.1	
137	Ba	2	115	191.80	ppb	1.57	200.00	80 -	120	95.9	
205	Tl	2	209	200.50	ppb	1.56	200.00	80 -	120	100.3	
208	Pb	2	209	195.80	ppb	0.98	200.00	80 -	120	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69869.54	1.14	50.17	-139276.6	70 -	120	ISFail
45	Sc	1	178983.88	0.32	184662.30	96.9	70 -	120	
45	Sc	2	3248231.80	1.40	4233596.00	76.7	70 -	120	
72	Ge	1	106720.27	0.51	110938.56	96.2	70 -	120	
115	In	2	4961031.00	2.32	5887647.50	84.3	70 -	120	
209	Bi	2	5753684.00	1.17	6267448.50	91.8	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\061AREF.D\061AREF.D#

Date Acquired:	May 19 2016 05:10 pm	Sample Name:	**1605096-70A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	68.750	ppb	#REF!	0.98	2000.00	>RL
9	Be	2	45	2.745	ppb	#REF!	2.81	2000.00	>RL
11	B	2	45	67.890	ppb	#REF!	2.62	2000.00	>RL
23	Na	1	45	878.900	ppb	#REF!	0.23	25000.00	>RL
24	Mg	1	45	11660.000	ppb	#REF!	1.14	25000.00	>RL
27	Al	1	45	59430.000	ppb	#REF!	1.38	10000.00	OUTCAL
39	K	1	45	13160.000	ppb	#REF!	0.44	25000.00	>RL
44	Ca	2	45	41470.000	ppb	#REF!	2.43	25000.00	OUTCAL
47	Ti	1	45	158.300	ppb	#REF!	2.63	2000.00	>RL
51	V	1	45	92.360	ppb	#REF!	0.89	2000.00	>RL
52	Cr	1	45	63.490	ppb	#REF!	1.01	2000.00	>RL
55	Mn	1	45	552.200	ppb	#REF!	0.62	2000.00	>RL
56	Fe	1	72	60210.000	ppb	#REF!	1.08	10000.00	OUTCAL
59	Co	1	72	26.090	ppb	#REF!	0.98	2000.00	>RL
60	Ni	1	72	35.690	ppb	#REF!	0.27	2000.00	>RL
63	Cu	1	72	15.100	ppb	#REF!	0.31	2000.00	>RL
66	Zn	1	72	203.000	ppb	#REF!	0.31	2000.00	>RL
75	As	1	72	28.430	ppb	#REF!	0.22	2000.00	>RL
78	Se	1	72	21.430	ppb	#REF!	2.81	2000.00	>RL
88	Sr	2	115	196.600	ppb	#REF!	2.63	2000.00	>RL
95	Mo	2	115	1.300	ppb	#REF!	2.79	2000.00	ND
107	Ag	2	115	0.324	ppb	#REF!	7.29	500.00	ND
111	Cd	2	115	0.824	ppb	#REF!	8.19	2000.00	J
118	Sn	2	115	6.331	ppb	#REF!	2.71	2000.00	J
121	Sb	2	115	10.210	ppb	#REF!	2.27	500.00	>RL
137	Ba	2	115	327.900	ppb	#REF!	1.80	2000.00	>RL
205	Tl	2	209	0.821	ppb	#REF!	2.60	2000.00	ND
208	Pb	2	209	822.400	ppb	#REF!	0.46	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6540.77	7.03	RHigh	50.17	-13038.2	70 - 120	ISFail
45	Sc	1	179734.73	0.44		184662.30	97.3	70 - 120	
45	Sc	2	3400354.80	1.85		4233596.00	80.3	70 - 120	
72	Ge	1	106451.96	0.16		110938.56	96.0	70 - 120	
115	In	2	5060548.00	1.23		5887647.50	86.0	70 - 120	
209	Bi	2	5606830.50	0.95		6267448.50	89.5	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\062DT1.D\062DT1.D#

Date Acquired:	May 19 2016 05:16 pm	Sample Name:	**1605096-70A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	13.56	ppb	1.02	-1479.80	90 - 110	-4.6	
9	Be	2	45	0.56	ppb	5.60	2.74	90 - 110	102.5	GOOD
11	B	2	45	15.76	ppb	1.78	67.89	90 - 110	116.1	
23	Na	1	45	180.30	ppb	0.88	878.90	90 - 110	102.6	GOOD
24	Mg	1	45	2310.00	ppb	1.55	11660.00	90 - 110	99.1	GOOD
27	Al	1	45	11690.00	ppb	1.20	59430.00	90 - 110	98.4	GOOD
39	K	1	45	2647.00	ppb	0.49	13160.00	90 - 110	100.6	GOOD
44	Ca	2	45	8770.00	ppb	2.66	41470.00	90 - 110	105.7	GOOD
47	Ti	1	45	31.28	ppb	8.23	158.30	90 - 110	98.8	GOOD
51	V	1	45	18.85	ppb	1.29	92.36	90 - 110	102.0	GOOD
52	Cr	1	45	13.00	ppb	1.09	63.49	90 - 110	102.4	GOOD
55	Mn	1	45	112.30	ppb	0.80	552.20	90 - 110	101.7	GOOD
56	Fe	1	72	12210.00	ppb	1.53	60210.00	90 - 110	101.4	GOOD
59	Co	1	72	5.38	ppb	1.20	26.09	90 - 110	103.0	GOOD
60	Ni	1	72	7.44	ppb	1.85	35.69	90 - 110	104.2	GOOD
63	Cu	1	72	3.24	ppb	2.89	15.10	90 - 110	107.2	GOOD
66	Zn	1	72	45.98	ppb	1.71	203.00	90 - 110	113.3	
75	As	1	72	6.12	ppb	0.81	28.43	90 - 110	107.5	GOOD
78	Se	1	72	4.18	ppb	1.59	21.43	90 - 110	97.6	GOOD
88	Sr	2	115	36.95	ppb	2.35	196.60	90 - 110	94.0	GOOD
95	Mo	2	115	0.30	ppb	7.75	1.30	90 - 110	115.0	
107	Ag	2	115	0.10	ppb	15.97	0.32	90 - 110	151.4	
111	Cd	2	115	0.21	ppb	16.33	0.82	90 - 110	128.5	
118	Sn	2	115	1.26	ppb	1.96	6.33	90 - 110	99.8	GOOD
121	Sb	2	115	2.13	ppb	1.88	10.21	90 - 110	104.5	GOOD
137	Ba	2	115	65.33	ppb	2.33	327.90	90 - 110	99.6	GOOD
205	Tl	2	209	0.22	ppb	8.15	0.82	90 - 110	132.3	
208	Pb	2	209	156.50	ppb	1.52	822.40	90 - 110	95.1	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1479.80	7.63	50.17	-2949.8	70 -	120	ISFail
45	Sc	1		178728.13	0.73	184662.30	96.8	70 -	120	
45	Sc	2		3534918.80	2.30	4233596.00	83.5	70 -	120	
72	Ge	1		108152.66	0.61	110938.56	97.5	70 -	120	
115	In	2		5314552.00	1.75	5887647.50	90.3	70 -	120	
209	Bi	2		5953641.50	1.13	6267448.50	95.0	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\063SMPL.D\063SMPL.D#

Date Acquired:	May 19 2016 05:22 pm	Sample Name:	**1605096-62A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	131.700	ppb	#REF!	1.52	2000.00	>RL
9	Be	2	45	2.691	ppb	#REF!	2.64	2000.00	>RL
11	B	2	45	139.000	ppb	#REF!	4.02	2000.00	>RL
23	Na	1	45	10780.000	ppb	#REF!	0.97	25000.00	>RL
24	Mg	1	45	12170.000	ppb	#REF!	0.96	25000.00	>RL
27	Al	1	45	53940.000	ppb	#REF!	1.41	10000.00	OUTCAL
39	K	1	45	9010.000	ppb	#REF!	0.35	25000.00	>RL
44	Ca	2	45	186300.000	ppb	#REF!	3.49	25000.00	OUTCAL
47	Ti	1	45	115.500	ppb	#REF!	2.26	2000.00	>RL
51	V	1	45	95.480	ppb	#REF!	0.48	2000.00	>RL
52	Cr	1	45	54.780	ppb	#REF!	0.58	2000.00	>RL
55	Mn	1	45	283.600	ppb	#REF!	1.10	2000.00	>RL
56	Fe	1	72	71930.000	ppb	#REF!	0.57	10000.00	OUTCAL
59	Co	1	72	19.940	ppb	#REF!	0.90	2000.00	>RL
60	Ni	1	72	34.460	ppb	#REF!	0.80	2000.00	>RL
63	Cu	1	72	10.470	ppb	#REF!	0.69	2000.00	>RL
66	Zn	1	72	179.500	ppb	#REF!	1.50	2000.00	>RL
75	As	1	72	23.360	ppb	#REF!	1.02	2000.00	>RL
78	Se	1	72	18.590	ppb	#REF!	1.59	2000.00	>RL
88	Sr	2	115	944.200	ppb	#REF!	3.37	2000.00	>RL
95	Mo	2	115	1.359	ppb	#REF!	1.65	2000.00	ND
107	Ag	2	115	0.107	ppb	#REF!	1.58	500.00	ND
111	Cd	2	115	0.532	ppb	#REF!	10.06	2000.00	J
118	Sn	2	115	5.193	ppb	#REF!	5.74	2000.00	ND
121	Sb	2	115	0.372	ppb	#REF!	5.83	500.00	ND
137	Ba	2	115	352.900	ppb	#REF!	2.68	2000.00	>RL
205	Tl	2	209	0.437	ppb	#REF!	2.60	2000.00	ND
208	Pb	2	209	74.540	ppb	#REF!	2.77	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13224.79	2.26	50.17	-26362.0	70 - 120	ISFail
45	Sc	1	177443.00	0.34	184662.30	96.1	70 - 120	
45	Sc	2	3197350.30	3.12	4233596.00	75.5	70 - 120	
72	Ge	1	102660.47	0.40	110938.56	92.5	70 - 120	
115	In	2	5012032.00	2.10	5887647.50	85.1	70 - 120	
209	Bi	2	5466355.50	1.82	6267448.50	87.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\064SMPL.D\064SMPL.D#

Date Acquired:	May 19 2016 05:28 pm	Sample Name:	**1605096-63A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	135.300	ppb	#REF!	1.23	2000.00	>RL
9	Be	2	45	3.407	ppb	#REF!	1.61	2000.00	>RL
11	B	2	45	168.300	ppb	#REF!	1.35	2000.00	>RL
23	Na	1	45	13240.000	ppb	#REF!	1.56	25000.00	>RL
24	Mg	1	45	10710.000	ppb	#REF!	2.85	25000.00	>RL
27	Al	1	45	53210.000	ppb	#REF!	2.88	10000.00	OUTCAL
39	K	1	45	8955.000	ppb	#REF!	2.55	25000.00	>RL
44	Ca	2	45	151100.000	ppb	#REF!	1.37	25000.00	OUTCAL
47	Ti	1	45	117.400	ppb	#REF!	2.22	2000.00	>RL
51	V	1	45	77.770	ppb	#REF!	2.83	2000.00	>RL
52	Cr	1	45	49.760	ppb	#REF!	2.09	2000.00	>RL
55	Mn	1	45	1539.000	ppb	#REF!	2.95	2000.00	>RL
56	Fe	1	72	70530.000	ppb	#REF!	3.27	10000.00	OUTCAL
59	Co	1	72	104.400	ppb	#REF!	3.06	2000.00	>RL
60	Ni	1	72	72.670	ppb	#REF!	3.31	2000.00	>RL
63	Cu	1	72	9.197	ppb	#REF!	2.64	2000.00	>RL
66	Zn	1	72	242.400	ppb	#REF!	2.79	2000.00	>RL
75	As	1	72	22.260	ppb	#REF!	1.93	2000.00	>RL
78	Se	1	72	14.980	ppb	#REF!	2.67	2000.00	>RL
88	Sr	2	115	1581.000	ppb	#REF!	1.71	2000.00	>RL
95	Mo	2	115	2.145	ppb	#REF!	1.37	2000.00	J
107	Ag	2	115	0.075	ppb	#REF!	5.21	500.00	ND
111	Cd	2	115	0.361	ppb	#REF!	12.52	2000.00	ND
118	Sn	2	115	4.566	ppb	#REF!	0.45	2000.00	ND
121	Sb	2	115	0.184	ppb	#REF!	1.75	500.00	ND
137	Ba	2	115	118.600	ppb	#REF!	2.48	2000.00	>RL
205	Tl	2	209	0.365	ppb	#REF!	2.84	2000.00	ND
208	Pb	2	209	31.430	ppb	#REF!	1.27	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12697.21	11.73	RHigh	50.17	-25310.4	70 - 120	ISFail
45	Sc	1	180016.45	2.15		184662.30	97.5	70 - 120	
45	Sc	2	3193912.00	1.43		4233596.00	75.4	70 - 120	
72	Ge	1	102727.77	1.49		110938.56	92.6	70 - 120	
115	In	2	5148958.00	1.46		5887647.50	87.5	70 - 120	
209	Bi	2	5724473.00	0.93		6267448.50	91.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\065SMPL.D\065SMPL.D#

Date Acquired:	May 19 2016 05:34 pm	Sample Name:	**1605096-64A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	67.930	ppb	#REF!	1.72	2000.00	>RL
9	Be	2	45	1.932	ppb	#REF!	4.13	2000.00	>RL
11	B	2	45	134.600	ppb	#REF!	1.93	2000.00	>RL
23	Na	1	45	11740.000	ppb	#REF!	1.10	25000.00	>RL
24	Mg	1	45	9838.000	ppb	#REF!	0.43	25000.00	>RL
27	Al	1	45	43180.000	ppb	#REF!	1.84	10000.00	OUTCAL
39	K	1	45	8654.000	ppb	#REF!	1.61	25000.00	>RL
44	Ca	2	45	95960.000	ppb	#REF!	3.72	25000.00	OUTCAL
47	Ti	1	45	116.600	ppb	#REF!	2.98	2000.00	>RL
51	V	1	45	77.500	ppb	#REF!	0.89	2000.00	>RL
52	Cr	1	45	53.370	ppb	#REF!	1.60	2000.00	>RL
55	Mn	1	45	115.600	ppb	#REF!	2.01	2000.00	>RL
56	Fe	1	72	64240.000	ppb	#REF!	2.43	10000.00	OUTCAL
59	Co	1	72	15.040	ppb	#REF!	1.46	2000.00	>RL
60	Ni	1	72	21.290	ppb	#REF!	0.81	2000.00	>RL
63	Cu	1	72	7.999	ppb	#REF!	1.44	2000.00	J
66	Zn	1	72	125.500	ppb	#REF!	1.78	2000.00	>RL
75	As	1	72	19.440	ppb	#REF!	2.46	2000.00	>RL
78	Se	1	72	13.740	ppb	#REF!	1.45	2000.00	>RL
88	Sr	2	115	1367.000	ppb	#REF!	2.58	2000.00	>RL
95	Mo	2	115	1.184	ppb	#REF!	5.09	2000.00	ND
107	Ag	2	115	0.066	ppb	#REF!	18.25	500.00	ND
111	Cd	2	115	0.247	ppb	#REF!	28.88	2000.00	ND
118	Sn	2	115	4.953	ppb	#REF!	3.71	2000.00	ND
121	Sb	2	115	0.107	ppb	#REF!	7.85	500.00	ND
137	Ba	2	115	195.700	ppb	#REF!	2.59	2000.00	>RL
205	Tl	2	209	0.288	ppb	#REF!	2.23	2000.00	ND
208	Pb	2	209	29.540	ppb	#REF!	1.43	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5667.53	9.96	RHigh	50.17	-11297.5	70 - 120	ISFail
45	Sc	1	181791.50	0.41		184662.30	98.4	70 - 120	
45	Sc	2	3013995.80	3.01		4233596.00	71.2	70 - 120	
72	Ge	1	105463.16	0.52		110938.56	95.1	70 - 120	
115	In	2	4906124.00	1.91		5887647.50	83.3	70 - 120	
209	Bi	2	5560438.50	0.90		6267448.50	88.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\066SMPL.D\066SMPL.D#

Date Acquired:	May 19 2016 05:40 pm	Sample Name:	**1605096-65A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	85.290	ppb	#REF!	1.82	2000.00	>RL
9	Be	2	45	2.938	ppb	#REF!	1.78	2000.00	>RL
11	B	2	45	78.500	ppb	#REF!	1.55	2000.00	>RL
23	Na	1	45	831.000	ppb	#REF!	1.29	25000.00	>RL
24	Mg	1	45	12580.000	ppb	#REF!	0.84	25000.00	>RL
27	Al	1	45	65060.000	ppb	#REF!	2.87	10000.00	OUTCAL
39	K	1	45	14650.000	ppb	#REF!	0.48	25000.00	>RL
44	Ca	2	45	80860.000	ppb	#REF!	2.87	25000.00	OUTCAL
47	Ti	1	45	180.400	ppb	#REF!	2.03	2000.00	>RL
51	V	1	45	103.200	ppb	#REF!	0.90	2000.00	>RL
52	Cr	1	45	69.650	ppb	#REF!	0.56	2000.00	>RL
55	Mn	1	45	604.800	ppb	#REF!	1.28	2000.00	>RL
56	Fe	1	72	65550.000	ppb	#REF!	2.05	10000.00	OUTCAL
59	Co	1	72	27.220	ppb	#REF!	1.52	2000.00	>RL
60	Ni	1	72	38.040	ppb	#REF!	0.22	2000.00	>RL
63	Cu	1	72	16.880	ppb	#REF!	1.22	2000.00	>RL
66	Zn	1	72	204.200	ppb	#REF!	1.27	2000.00	>RL
75	As	1	72	28.520	ppb	#REF!	1.62	2000.00	>RL
78	Se	1	72	21.320	ppb	#REF!	4.81	2000.00	>RL
88	Sr	2	115	301.700	ppb	#REF!	2.37	2000.00	>RL
95	Mo	2	115	1.466	ppb	#REF!	0.97	2000.00	ND
107	Ag	2	115	0.173	ppb	#REF!	7.76	500.00	ND
111	Cd	2	115	0.858	ppb	#REF!	7.36	2000.00	J
118	Sn	2	115	5.281	ppb	#REF!	4.54	2000.00	ND
121	Sb	2	115	4.525	ppb	#REF!	0.63	500.00	>RL
137	Ba	2	115	359.100	ppb	#REF!	2.39	2000.00	>RL
205	Tl	2	209	0.571	ppb	#REF!	1.23	2000.00	ND
208	Pb	2	209	306.200	ppb	#REF!	1.96	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7415.54	5.80	RHigh	50.17	-14782.0	70 - 120	ISFail
45	Sc	1	180809.33	0.13		184662.30	97.9	70 - 120	
45	Sc	2	3159020.00	2.55		4233596.00	74.6	70 - 120	
72	Ge	1	105766.30	0.58		110938.56	95.3	70 - 120	
115	In	2	5040305.00	2.23		5887647.50	85.6	70 - 120	
209	Bi	2	5631754.50	0.94		6267448.50	89.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\067SMPL.D\067SMPL.D#

Date Acquired:	May 19 2016 05:46 pm	Sample Name:	**1605096-66A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	109.800	ppb	#REF!	0.21	2000.00	>RL
9	Be	2	45	3.182	ppb	#REF!	2.03	2000.00	>RL
11	B	2	45	89.610	ppb	#REF!	2.90	2000.00	>RL
23	Na	1	45	3059.000	ppb	#REF!	0.56	25000.00	>RL
24	Mg	1	45	14840.000	ppb	#REF!	1.13	25000.00	>RL
27	Al	1	45	72420.000	ppb	#REF!	0.98	10000.00	OUTCAL
39	K	1	45	13510.000	ppb	#REF!	0.96	25000.00	>RL
44	Ca	2	45	123700.000	ppb	#REF!	2.13	25000.00	OUTCAL
47	Ti	1	45	153.000	ppb	#REF!	3.74	2000.00	>RL
51	V	1	45	122.500	ppb	#REF!	1.19	2000.00	>RL
52	Cr	1	45	71.410	ppb	#REF!	0.60	2000.00	>RL
55	Mn	1	45	613.000	ppb	#REF!	1.04	2000.00	>RL
56	Fe	1	72	75820.000	ppb	#REF!	1.51	10000.00	OUTCAL
59	Co	1	72	32.700	ppb	#REF!	0.44	2000.00	>RL
60	Ni	1	72	47.580	ppb	#REF!	0.60	2000.00	>RL
63	Cu	1	72	17.290	ppb	#REF!	0.28	2000.00	>RL
66	Zn	1	72	229.500	ppb	#REF!	0.79	2000.00	>RL
75	As	1	72	27.650	ppb	#REF!	0.42	2000.00	>RL
78	Se	1	72	25.070	ppb	#REF!	6.12	2000.00	>RL
88	Sr	2	115	442.100	ppb	#REF!	2.09	2000.00	>RL
95	Mo	2	115	1.185	ppb	#REF!	3.94	2000.00	ND
107	Ag	2	115	0.156	ppb	#REF!	16.39	500.00	ND
111	Cd	2	115	0.804	ppb	#REF!	10.51	2000.00	J
118	Sn	2	115	4.611	ppb	#REF!	2.69	2000.00	ND
121	Sb	2	115	0.964	ppb	#REF!	2.86	500.00	ND
137	Ba	2	115	592.900	ppb	#REF!	2.38	2000.00	>RL
205	Tl	2	209	0.656	ppb	#REF!	3.42	2000.00	ND
208	Pb	2	209	126.700	ppb	#REF!	1.60	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9962.46	5.16	RHigh	50.17	-19859.0	70 - 120	ISFail
45	Sc	1	173538.02	0.26		184662.30	94.0	70 - 120	
45	Sc	2	3027272.80	2.15		4233596.00	71.5	70 - 120	
72	Ge	1	100811.55	0.52		110938.56	90.9	70 - 120	
115	In	2	4788530.00	0.84		5887647.50	81.3	70 - 120	
209	Bi	2	5314988.00	0.72		6267448.50	84.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\068SMPL.D\068SMPL.D#

Date Acquired:	May 19 2016 05:52 pm	Sample Name:	**1605096-67A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	118.500	ppb	#REF!	1.37	2000.00	>RL
9	Be	2	45	2.556	ppb	#REF!	1.85	2000.00	>RL
11	B	2	45	145.100	ppb	#REF!	4.95	2000.00	>RL
23	Na	1	45	9851.000	ppb	#REF!	1.39	25000.00	>RL
24	Mg	1	45	11800.000	ppb	#REF!	0.76	25000.00	>RL
27	Al	1	45	57620.000	ppb	#REF!	0.77	10000.00	OUTCAL
39	K	1	45	8915.000	ppb	#REF!	0.48	25000.00	>RL
44	Ca	2	45	193600.000	ppb	#REF!	4.55	25000.00	OUTCAL
47	Ti	1	45	118.900	ppb	#REF!	0.20	2000.00	>RL
51	V	1	45	96.650	ppb	#REF!	0.21	2000.00	>RL
52	Cr	1	45	59.620	ppb	#REF!	1.35	2000.00	>RL
55	Mn	1	45	131.600	ppb	#REF!	1.25	2000.00	>RL
56	Fe	1	72	68490.000	ppb	#REF!	0.64	10000.00	OUTCAL
59	Co	1	72	14.600	ppb	#REF!	1.46	2000.00	>RL
60	Ni	1	72	24.620	ppb	#REF!	1.51	2000.00	>RL
63	Cu	1	72	9.171	ppb	#REF!	1.70	2000.00	>RL
66	Zn	1	72	122.800	ppb	#REF!	2.19	2000.00	>RL
75	As	1	72	21.230	ppb	#REF!	0.58	2000.00	>RL
78	Se	1	72	13.750	ppb	#REF!	2.46	2000.00	>RL
88	Sr	2	115	1927.000	ppb	#REF!	3.46	2000.00	>RL
95	Mo	2	115	1.617	ppb	#REF!	3.53	2000.00	ND
107	Ag	2	115	0.062	ppb	#REF!	8.50	500.00	ND
111	Cd	2	115	0.359	ppb	#REF!	9.34	2000.00	ND
118	Sn	2	115	5.226	ppb	#REF!	1.98	2000.00	ND
121	Sb	2	115	0.120	ppb	#REF!	3.22	500.00	ND
137	Ba	2	115	170.900	ppb	#REF!	4.57	2000.00	>RL
205	Tl	2	209	0.399	ppb	#REF!	7.96	2000.00	ND
208	Pb	2	209	40.790	ppb	#REF!	3.08	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11291.52	8.07	RHigh	50.17	-22508.3	70 - 120	ISFail
45	Sc	1	169428.56	0.36		184662.30	91.8	70 - 120	
45	Sc	2	3116650.30	3.21		4233596.00	73.6	70 - 120	
72	Ge	1	97332.41	0.40		110938.56	87.7	70 - 120	
115	In	2	5003947.00	3.49		5887647.50	85.0	70 - 120	
209	Bi	2	5592943.00	2.72		6267448.50	89.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\069SMPL.D\069SMPL.D#

Date Acquired:	May 19 2016 05:58 pm	Sample Name:	**1605096-68A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	74.710	ppb	#REF!	1.48	2000.00	>RL
9	Be	2	45	2.056	ppb	#REF!	4.63	2000.00	>RL
11	B	2	45	135.700	ppb	#REF!	1.87	2000.00	>RL
23	Na	1	45	8931.000	ppb	#REF!	2.87	25000.00	>RL
24	Mg	1	45	9000.000	ppb	#REF!	4.96	25000.00	>RL
27	Al	1	45	39250.000	ppb	#REF!	5.02	10000.00	OUTCAL
39	K	1	45	7614.000	ppb	#REF!	4.49	25000.00	>RL
44	Ca	2	45	138100.000	ppb	#REF!	2.93	25000.00	OUTCAL
47	Ti	1	45	112.800	ppb	#REF!	7.18	2000.00	>RL
51	V	1	45	77.740	ppb	#REF!	4.31	2000.00	>RL
52	Cr	1	45	48.160	ppb	#REF!	4.33	2000.00	>RL
55	Mn	1	45	93.400	ppb	#REF!	3.65	2000.00	>RL
56	Fe	1	72	68690.000	ppb	#REF!	4.80	10000.00	OUTCAL
59	Co	1	72	13.000	ppb	#REF!	4.49	2000.00	>RL
60	Ni	1	72	20.550	ppb	#REF!	3.86	2000.00	>RL
63	Cu	1	72	8.357	ppb	#REF!	3.73	2000.00	>RL
66	Zn	1	72	150.000	ppb	#REF!	4.37	2000.00	>RL
75	As	1	72	23.180	ppb	#REF!	4.54	2000.00	>RL
78	Se	1	72	13.810	ppb	#REF!	6.36	2000.00	>RL
88	Sr	2	115	3106.000	ppb	#REF!	2.69	2000.00	OUTCAL
95	Mo	2	115	1.765	ppb	#REF!	5.39	2000.00	ND
107	Ag	2	115	0.051	ppb	#REF!	22.07	500.00	ND
111	Cd	2	115	0.244	ppb	#REF!	23.87	2000.00	ND
118	Sn	2	115	5.111	ppb	#REF!	2.60	2000.00	ND
121	Sb	2	115	0.185	ppb	#REF!	5.40	500.00	ND
137	Ba	2	115	83.170	ppb	#REF!	2.67	2000.00	>RL
205	Tl	2	209	0.270	ppb	#REF!	3.93	2000.00	ND
208	Pb	2	209	25.590	ppb	#REF!	1.42	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5192.00	4.06	50.17	-10349.6	70 - 120	ISFail
45	Sc	1	159030.03	3.58	184662.30	86.1	70 - 120	
45	Sc	2	2617675.80	1.65	4233596.00	61.8	70 - 120	ISFail
72	Ge	1	93305.60	4.09	110938.56	84.1	70 - 120	
115	In	2	4311493.50	1.39	5887647.50	73.2	70 - 120	
209	Bi	2	4950889.00	1.04	6267448.50	79.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\070SMPL.D\070SMPL.D#

Date Acquired:	May 19 2016 06:04 pm	Sample Name:	**1605096-69A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	76.670	ppb	#REF!	0.18	2000.00	>RL
9	Be	2	45	2.224	ppb	#REF!	2.38	2000.00	>RL
11	B	2	45	149.400	ppb	#REF!	0.55	2000.00	>RL
23	Na	1	45	11700.000	ppb	#REF!	1.47	25000.00	>RL
24	Mg	1	45	10710.000	ppb	#REF!	2.58	25000.00	>RL
27	Al	1	45	49680.000	ppb	#REF!	3.78	10000.00	OUTCAL
39	K	1	45	9892.000	ppb	#REF!	1.13	25000.00	>RL
44	Ca	2	45	76720.000	ppb	#REF!	1.30	25000.00	OUTCAL
47	Ti	1	45	128.800	ppb	#REF!	1.41	2000.00	>RL
51	V	1	45	88.520	ppb	#REF!	1.19	2000.00	>RL
52	Cr	1	45	59.700	ppb	#REF!	1.78	2000.00	>RL
55	Mn	1	45	270.300	ppb	#REF!	1.33	2000.00	>RL
56	Fe	1	72	82390.000	ppb	#REF!	1.79	10000.00	OUTCAL
59	Co	1	72	25.890	ppb	#REF!	2.27	2000.00	>RL
60	Ni	1	72	31.290	ppb	#REF!	0.60	2000.00	>RL
63	Cu	1	72	9.531	ppb	#REF!	0.59	2000.00	>RL
66	Zn	1	72	172.200	ppb	#REF!	0.59	2000.00	>RL
75	As	1	72	23.120	ppb	#REF!	1.60	2000.00	>RL
78	Se	1	72	14.840	ppb	#REF!	7.29	2000.00	>RL
88	Sr	2	115	1432.000	ppb	#REF!	0.78	2000.00	>RL
95	Mo	2	115	1.004	ppb	#REF!	2.26	2000.00	ND
107	Ag	2	115	0.050	ppb	#REF!	17.57	500.00	ND
111	Cd	2	115	0.274	ppb	#REF!	9.43	2000.00	ND
118	Sn	2	115	5.334	ppb	#REF!	0.69	2000.00	ND
121	Sb	2	115	0.129	ppb	#REF!	12.98	500.00	ND
137	Ba	2	115	162.300	ppb	#REF!	0.42	2000.00	>RL
205	Tl	2	209	0.282	ppb	#REF!	1.48	2000.00	ND
208	Pb	2	209	36.900	ppb	#REF!	0.69	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6066.39	2.17	50.17	-12092.6	70 - 120	ISFail
45	Sc	1	162343.86	0.64	184662.30	87.9	70 - 120	
45	Sc	2	2880539.80	0.47	4233596.00	68.0	70 - 120	ISFail
72	Ge	1	96194.79	0.65	110938.56	86.7	70 - 120	
115	In	2	4686220.50	0.37	5887647.50	79.6	70 - 120	
209	Bi	2	5387164.50	0.81	6267448.50	86.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\071SMPL.D\071SMPL.D#

Date Acquired:	May 19 2016 06:10 pm	Sample Name:	**1605096-71A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	106.900	ppb	#REF!	0.92	2000.00	>RL
9	Be	2	45	3.184	ppb	#REF!	4.18	2000.00	>RL
11	B	2	45	81.630	ppb	#REF!	1.43	2000.00	>RL
23	Na	1	45	2492.000	ppb	#REF!	0.81	25000.00	>RL
24	Mg	1	45	14000.000	ppb	#REF!	0.44	25000.00	>RL
27	Al	1	45	68830.000	ppb	#REF!	1.52	10000.00	OUTCAL
39	K	1	45	12560.000	ppb	#REF!	0.67	25000.00	>RL
44	Ca	2	45	116400.000	ppb	#REF!	2.19	25000.00	OUTCAL
47	Ti	1	45	152.200	ppb	#REF!	2.08	2000.00	>RL
51	V	1	45	114.400	ppb	#REF!	0.55	2000.00	>RL
52	Cr	1	45	69.710	ppb	#REF!	0.77	2000.00	>RL
55	Mn	1	45	904.400	ppb	#REF!	0.29	2000.00	>RL
56	Fe	1	72	71430.000	ppb	#REF!	1.10	10000.00	OUTCAL
59	Co	1	72	39.770	ppb	#REF!	1.09	2000.00	>RL
60	Ni	1	72	50.040	ppb	#REF!	0.91	2000.00	>RL
63	Cu	1	72	16.080	ppb	#REF!	1.82	2000.00	>RL
66	Zn	1	72	214.300	ppb	#REF!	0.67	2000.00	>RL
75	As	1	72	24.430	ppb	#REF!	1.09	2000.00	>RL
78	Se	1	72	24.240	ppb	#REF!	2.28	2000.00	>RL
88	Sr	2	115	394.100	ppb	#REF!	2.01	2000.00	>RL
95	Mo	2	115	0.869	ppb	#REF!	6.57	2000.00	ND
107	Ag	2	115	0.137	ppb	#REF!	3.67	500.00	ND
111	Cd	2	115	0.754	ppb	#REF!	4.28	2000.00	J
118	Sn	2	115	4.961	ppb	#REF!	3.86	2000.00	ND
121	Sb	2	115	3.230	ppb	#REF!	4.73	500.00	J
137	Ba	2	115	525.100	ppb	#REF!	1.94	2000.00	>RL
205	Tl	2	209	0.550	ppb	#REF!	1.60	2000.00	ND
208	Pb	2	209	184.200	ppb	#REF!	1.05	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8078.42	4.69	50.17	-16103.4	70 - 120	ISFail
45	Sc	1	151265.55	0.06	184662.30	81.9	70 - 120	
45	Sc	2	2713225.80	1.55	4233596.00	64.1	70 - 120	ISFail
72	Ge	1	89667.27	0.78	110938.56	80.8	70 - 120	
115	In	2	4318400.50	1.47	5887647.50	73.3	70 - 120	
209	Bi	2	4912547.00	0.73	6267448.50	78.4	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\072_PDS.D\072_PDS.D#

Date Acquired:	May 19 2016 06:15 pm	Sample Name:	**1605096-70A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	297.10	ppb	1.34	-33519.40	200	75-125	######	Fail
9	Be	2	45	205.50	ppb	1.56	2.74	200	75-125	101.4	
11	B	2	45	249.40	ppb	2.40	67.89	200	75-125	90.8	
23	Na	1	45	6107.00	ppb	0.60	878.90	5000	75-125	104.6	
24	Mg	1	45	16670.00	ppb	1.75	11660.00	5000	75-125	100.2	
27	Al	1	45	63370.00	ppb	0.98	59430.00	5000	75-125	78.8	
39	K	1	45	18380.00	ppb	2.50	13160.00	5000	75-125	104.4	
44	Ca	2	45	46150.00	ppb	2.08	41470.00	5000	75-125	93.6	
47	Ti	1	45	357.40	ppb	1.58	158.30	200	75-125	99.6	
51	V	1	45	294.40	ppb	1.03	92.36	200	75-125	101.0	
52	Cr	1	45	268.50	ppb	0.54	63.49	200	75-125	102.5	
55	Mn	1	45	731.40	ppb	1.17	552.20	200	75-125	89.6	
56	Fe	1	72	65670.00	ppb	1.69	60210.00	5000	75-125	109.2	
59	Co	1	72	225.20	ppb	0.50	26.09	200	75-125	99.6	
60	Ni	1	72	223.70	ppb	0.19	35.69	200	75-125	94.0	
63	Cu	1	72	204.80	ppb	1.02	15.10	200	75-125	94.9	
66	Zn	1	72	388.50	ppb	1.09	203.00	200	75-125	92.8	
75	As	1	72	222.00	ppb	0.84	28.43	200	75-125	96.8	
78	Se	1	72	202.30	ppb	1.76	21.43	200	75-125	90.4	
88	Sr	2	115	395.00	ppb	1.75	196.60	200	75-125	99.2	
95	Mo	2	115	183.10	ppb	1.93	1.30	200	75-125	90.9	
107	Ag	2	115	168.00	ppb	2.04	0.32	200	75-125	83.8	
111	Cd	2	115	177.90	ppb	1.80	0.82	200	75-125	88.5	
118	Sn	2	115	203.10	ppb	2.15	6.33	200	75-125	98.4	
121	Sb	2	115	202.30	ppb	1.71	10.21	200	75-125	96.0	
137	Ba	2	115	521.60	ppb	2.45	327.90	200	75-125	96.9	
205	Tl	2	209	205.90	ppb	1.84	0.82	200	75-125	102.5	
208	Pb	2	209	1033.00	ppb	1.63	822.40	200	75-125	105.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-33519.40	2.20	50.17	-66816.9	70 - 120	ISFail
45	Sc	1	153333.86	0.14	184662.30	83.0	70 - 120	
45	Sc	2	2906345.00	1.84	4233596.00	68.6	70 - 120	ISFail
72	Ge	1	91035.56	0.46	110938.56	82.1	70 - 120	
115	In	2	4522422.00	2.24	5887647.50	76.8	70 - 120	
209	Bi	2	4993793.00	0.76	6267448.50	79.7	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\073_MS.D\073_MS.D#

Date Acquired:	May 19 2016 06:21 pm	Sample Name:	**1605096-70A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	284.60	ppb	1.43	########	200	80-120	######	Fail
9	Be	2	45	190.00	ppb	1.51	2.74	200	80-120	93.6	
11	B	2	45	239.50	ppb	1.55	67.89	200	80-120	85.8	
23	Na	1	45	5772.00	ppb	0.50	878.90	1000	80-120	489.3	Fail
24	Mg	1	45	16960.00	ppb	1.39	11660.00	1000	80-120	530.0	Fail
27	Al	1	45	67290.00	ppb	1.82	59430.00	1000	80-120	786.0	Fail
39	K	1	45	19610.00	ppb	2.01	13160.00	1000	80-120	645.0	Fail
44	Ca	2	45	52570.00	ppb	1.62	41470.00	1000	80-120	1110.0	Fail
47	Ti	1	45	326.80	ppb	2.02	158.30	200	80-120	84.3	
51	V	1	45	289.30	ppb	1.10	92.36	200	80-120	98.5	
52	Cr	1	45	255.90	ppb	1.40	63.49	200	80-120	96.2	
55	Mn	1	45	800.00	ppb	1.35	552.20	200	80-120	123.9	Fail
56	Fe	1	72	70240.00	ppb	1.24	60210.00	1000	80-120	1003.0	Fail
59	Co	1	72	210.20	ppb	0.92	26.09	200	80-120	92.1	
60	Ni	1	72	212.80	ppb	1.15	35.69	200	80-120	88.6	
63	Cu	1	72	194.90	ppb	0.39	15.10	200	80-120	89.9	
66	Zn	1	72	390.80	ppb	0.74	203.00	200	80-120	93.9	
75	As	1	72	209.20	ppb	0.32	28.43	200	80-120	90.4	
78	Se	1	72	189.40	ppb	0.57	21.43	200	80-120	84.0	
88	Sr	2	115	402.40	ppb	1.67	196.60	200	80-120	102.9	
95	Mo	2	115	163.70	ppb	1.71	1.30	200	80-120	81.2	
107	Ag	2	115	175.10	ppb	2.10	0.32	200	80-120	87.4	
111	Cd	2	115	171.00	ppb	1.65	0.82	200	80-120	85.1	
118	Sn	2	115	185.60	ppb	1.73	6.33	200	80-120	89.6	
121	Sb	2	115	74.29	ppb	1.68	10.21	200	80-120	32.0	Fail
137	Ba	2	115	577.40	ppb	1.76	327.90	200	80-120	124.8	Fail
205	Tl	2	209	196.90	ppb	1.35	0.82	200	80-120	98.0	
208	Pb	2	209	1024.00	ppb	0.58	822.40	200	80-120	100.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-59967.92	3.29	50.17	########	70 - 120	ISFail
45	Sc	1	157312.41	0.32	184662.30	85.2	70 - 120	
45	Sc	2	2966361.30	1.87	4233596.00	70.1	70 - 120	
72	Ge	1	92973.45	0.56	110938.56	83.8	70 - 120	
115	In	2	4556903.50	1.83	5887647.50	77.4	70 - 120	
209	Bi	2	5063612.00	0.50	6267448.50	80.8	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\074_MS.D\074_MS.D#

Date Acquired:	May 19 2016 06:27 pm	Sample Name:	**1605096-70A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	242.50	ppb	1.16	########	200	80-120	######	Fail
9	Be	2	45	161.90	ppb	1.26	2.74	200	80-120	79.6	Fail
11	B	2	45	212.40	ppb	1.38	67.89	200	80-120	72.3	Fail
23	Na	1	45	4846.00	ppb	1.17	878.90	1000	80-120	396.7	Fail
24	Mg	1	45	13230.00	ppb	0.99	11660.00	1000	80-120	157.0	Fail
27	Al	1	45	51340.00	ppb	0.81	59430.00	1000	80-120	-809.0	Fail
39	K	1	45	14840.00	ppb	0.73	13160.00	1000	80-120	168.0	Fail
44	Ca	2	45	37690.00	ppb	1.45	41470.00	1000	80-120	-378.0	Fail
47	Ti	1	45	263.90	ppb	2.04	158.30	200	80-120	52.8	Fail
51	V	1	45	233.20	ppb	0.96	92.36	200	80-120	70.4	Fail
52	Cr	1	45	210.50	ppb	0.68	63.49	200	80-120	73.5	Fail
55	Mn	1	45	607.10	ppb	0.93	552.20	200	80-120	27.4	Fail
56	Fe	1	72	52430.00	ppb	1.59	60210.00	1000	80-120	-778.0	Fail
59	Co	1	72	175.20	ppb	0.90	26.09	200	80-120	74.6	Fail
60	Ni	1	72	175.00	ppb	0.83	35.69	200	80-120	69.7	Fail
63	Cu	1	72	164.90	ppb	0.88	15.10	200	80-120	74.9	Fail
66	Zn	1	72	336.80	ppb	0.41	203.00	200	80-120	66.9	Fail
75	As	1	72	178.30	ppb	0.44	28.43	200	80-120	74.9	Fail
78	Se	1	72	167.80	ppb	1.43	21.43	200	80-120	73.2	Fail
88	Sr	2	115	323.90	ppb	0.96	196.60	200	80-120	63.6	Fail
95	Mo	2	115	139.80	ppb	2.18	1.30	200	80-120	69.3	Fail
107	Ag	2	115	168.40	ppb	1.63	0.32	200	80-120	84.0	
111	Cd	2	115	156.40	ppb	1.38	0.82	200	80-120	77.8	Fail
118	Sn	2	115	161.40	ppb	1.46	6.33	200	80-120	77.5	Fail
121	Sb	2	115	61.84	ppb	1.89	10.21	200	80-120	25.8	Fail
137	Ba	2	115	421.30	ppb	1.57	327.90	200	80-120	46.7	Fail
205	Tl	2	209	180.50	ppb	1.11	0.82	200	80-120	89.8	
208	Pb	2	209	889.80	ppb	0.77	822.40	200	80-120	33.7	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-52682.23	1.57	50.17	########	70	-	120	ISFail
45	Sc	1	162591.61	0.17	184662.30	88.0	70	-	120	
45	Sc	2	2960449.00	2.05	4233596.00	69.9	70	-	120	ISFail
72	Ge	1	96623.24	0.35	110938.56	87.1	70	-	120	
115	In	2	4565721.00	1.11	5887647.50	77.5	70	-	120	
209	Bi	2	5189462.00	1.36	6267448.50	82.8	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\076CCV1.D\076CCV1.D#

Date Acquired:	May 19 2016 06:39 pm	Sample Name:	**CCV3-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	233.30	ppb	0.89	200.00	90 -	110	116.7	Fail
9	Be	2	45	217.80	ppb	0.54	200.00	90 -	110	108.9	
11	B	2	45	199.60	ppb	0.98	200.00	90 -	110	99.8	
23	Na	1	45	5350.00	ppb	1.52	5000.00	90 -	110	107.0	
24	Mg	1	45	5099.00	ppb	1.23	5000.00	90 -	110	102.0	
27	Al	1	45	4960.00	ppb	1.24	5000.00	90 -	110	99.2	
39	K	1	45	5135.00	ppb	1.51	5000.00	90 -	110	102.7	
44	Ca	2	45	4931.00	ppb	1.22	5000.00	90 -	110	98.6	
47	Ti	1	45	199.60	ppb	0.78	200.00	90 -	110	99.8	
51	V	1	45	204.10	ppb	0.93	200.00	90 -	110	102.1	
52	Cr	1	45	208.90	ppb	1.65	200.00	90 -	110	104.5	
55	Mn	1	45	196.50	ppb	1.37	200.00	90 -	110	98.3	
56	Fe	1	72	4893.00	ppb	1.68	5000.00	90 -	110	97.9	
59	Co	1	72	201.00	ppb	1.04	200.00	90 -	110	100.5	
60	Ni	1	72	195.60	ppb	1.40	200.00	90 -	110	97.8	
63	Cu	1	72	203.60	ppb	0.53	200.00	90 -	110	101.8	
66	Zn	1	72	204.00	ppb	1.75	200.00	90 -	110	102.0	
75	As	1	72	207.50	ppb	0.40	200.00	90 -	110	103.8	
78	Se	1	72	203.70	ppb	0.69	200.00	90 -	110	101.9	
88	Sr	2	115	203.80	ppb	1.78	200.00	90 -	110	101.9	
95	Mo	2	115	185.70	ppb	1.34	200.00	90 -	110	92.9	
107	Ag	2	115	193.00	ppb	1.95	200.00	90 -	110	96.5	
111	Cd	2	115	191.80	ppb	1.71	200.00	90 -	110	95.9	
118	Sn	2	115	195.00	ppb	1.79	200.00	90 -	110	97.5	
121	Sb	2	115	198.40	ppb	1.20	200.00	90 -	110	99.2	
137	Ba	2	115	196.50	ppb	1.91	200.00	90 -	110	98.3	
205	Tl	2	209	204.10	ppb	1.14	200.00	90 -	110	102.1	
208	Pb	2	209	201.10	ppb	1.65	200.00	90 -	110	100.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-60538.34	2.49	50.17	-120676.0	70 -	120	ISFail
45	Sc	1	153920.53	0.52	184662.30	83.4	70 -	120	
45	Sc	2	2940847.00	1.40	4233596.00	69.5	70 -	120	ISFail
72	Ge	1	94096.41	0.12	110938.56	84.8	70 -	120	
115	In	2	4598399.00	0.90	5887647.50	78.1	70 -	120	
209	Bi	2	5330522.50	0.85	6267448.50	85.1	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\079LCVL.D\079LCVL.D#

Date Acquired:	May 19 2016 06:57 pm	Sample Name:	**LCVL3-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.02	ppb	2.12	5.00	70 -	130	220.4	Fail
9	Be	2	45	1.11	ppb	1.78	1.00	70 -	130	110.5	
11	B	2	45	19.68	ppb	1.31	20.00	70 -	130	98.4	
23	Na	1	45	103.50	ppb	2.45	100.00	70 -	130	103.5	
24	Mg	1	45	101.70	ppb	1.89	100.00	70 -	130	101.7	
27	Al	1	45	100.80	ppb	3.06	100.00	70 -	130	100.8	
39	K	1	45	99.02	ppb	3.20	100.00	70 -	130	99.0	
44	Ca	2	45	95.06	ppb	3.03	100.00	70 -	130	95.1	
47	Ti	1	45	5.07	ppb	16.02	5.00	70 -	130	101.5	
51	V	1	45	1.07	ppb	1.09	1.00	70 -	130	106.6	
52	Cr	1	45	5.27	ppb	1.49	5.00	70 -	130	105.5	
55	Mn	1	45	4.81	ppb	2.27	5.00	70 -	130	96.3	
56	Fe	1	72	99.37	ppb	0.87	100.00	70 -	130	99.4	
59	Co	1	72	4.93	ppb	0.79	5.00	70 -	130	98.7	
60	Ni	1	72	4.82	ppb	1.35	5.00	70 -	130	96.5	
63	Cu	1	72	5.02	ppb	0.44	5.00	70 -	130	100.4	
66	Zn	1	72	5.09	ppb	3.97	5.00	70 -	130	101.8	
75	As	1	72	5.06	ppb	1.74	5.00	70 -	130	101.2	
78	Se	1	72	5.08	ppb	11.99	5.00	70 -	130	101.5	
88	Sr	2	115	4.76	ppb	3.17	5.00	70 -	130	95.2	
95	Mo	2	115	4.52	ppb	4.17	5.00	70 -	130	90.5	
107	Ag	2	115	1.84	ppb	1.32	2.00	70 -	130	92.2	
111	Cd	2	115	0.98	ppb	8.52	1.00	70 -	130	97.8	
118	Sn	2	115	4.83	ppb	1.33	5.00	70 -	130	96.5	
121	Sb	2	115	1.92	ppb	2.25	2.00	70 -	130	95.8	
137	Ba	2	115	4.81	ppb	3.30	5.00	70 -	130	96.2	
205	Tl	2	209	1.01	ppb	0.37	1.00	70 -	130	101.3	
208	Pb	2	209	1.02	ppb	2.21	1.00	70 -	130	102.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1379.12	4.08	50.17	-2749.1	70 -	120	ISFail
45	Sc	1	158255.47	1.48	184662.30	85.7	70 -	120	
45	Sc	2	3171996.80	0.78	4233596.00	74.9	70 -	120	
72	Ge	1	97767.57	0.23	110938.56	88.1	70 -	120	
115	In	2	4914418.50	1.14	5887647.50	83.5	70 -	120	
209	Bi	2	5610710.00	0.40	6267448.50	89.5	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\080_CCB.D\080_CCB.D#

Date Acquired:	May 19 2016 07:04 pm	Sample Name:	**CCB3-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.145	ppb	8.92	2.00	2.00	
9	Be	2	45	0.036	ppb	31.45	0.40	0.30	
11	B	2	45	0.975	ppb	4.34	10.00	10.00	
23	Na	1	45	3.276	ppb	2.68	50.00	#####	
24	Mg	1	45	0.200	ppb	15.23	50.00	#####	
27	Al	1	45	3.169	ppb	4.54	50.00	10.00	
39	K	1	45	4.515	ppb	6.23	50.00	#####	
44	Ca	2	45	3.246	ppb	1.08	50.00	#####	
47	Ti	1	45	-0.007	ppb	43.30	4.00	3.00	
51	V	1	45	0.046	ppb	6.32	4.00	3.00	
52	Cr	1	45	0.022	ppb	20.61	2.00	2.00	
55	Mn	1	45	-0.008	ppb	15.62	2.00	3.00	
56	Fe	1	72	3.061	ppb	4.90	50.00	30.00	
59	Co	1	72	0.019	ppb	7.97	2.00	3.00	
60	Ni	1	72	-0.005	ppb	21.18	2.00	3.00	
63	Cu	1	72	0.026	ppb	9.63	2.00	2.00	
66	Zn	1	72	1.042	ppb	8.63	4.00	2.00	
75	As	1	72	0.056	ppb	14.50	2.00	2.00	
78	Se	1	72	0.047	ppb	36.74	0.60	2.00	
88	Sr	2	115	0.065	ppb	6.84	4.00	3.00	
95	Mo	2	115	0.042	ppb	25.29	2.00	2.00	
107	Ag	2	115	0.037	ppb	23.37	0.40	1.00	
111	Cd	2	115	0.033	ppb	58.71	0.40	0.30	
118	Sn	2	115	0.062	ppb	11.89	20.00	3.00	
121	Sb	2	115	0.046	ppb	5.82	2.00	0.80	
137	Ba	2	115	0.071	ppb	10.29	2.00	3.00	
205	Tl	2	209	0.066	ppb	1.19	2.00	0.50	
208	Pb	2	209	0.074	ppb	6.15	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-8.09	293.57	50.17	-16.1	70 - 120	ISFail
45	Sc	1		162063.92	1.48	184662.30	87.8	70 - 120	
45	Sc	2		3197345.80	1.74	4233596.00	75.5	70 - 120	
72	Ge	1		99819.97	0.93	110938.56	90.0	70 - 120	
115	In	2		4864909.50	0.99	5887647.50	82.6	70 - 120	
209	Bi	2		5670500.50	1.77	6267448.50	90.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\081SMPL.D\081SMPL.D#

Date Acquired:	May 19 2016 07:10 pm	Sample Name:	**1605096-72A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	122.100	ppb	#REF!	1.56	2000.00	>RL
9	Be	2	45	2.393	ppb	#REF!	0.28	2000.00	>RL
11	B	2	45	141.200	ppb	#REF!	0.55	2000.00	>RL
23	Na	1	45	9755.000	ppb	#REF!	1.16	25000.00	>RL
24	Mg	1	45	11900.000	ppb	#REF!	2.09	25000.00	>RL
27	Al	1	45	59890.000	ppb	#REF!	0.80	10000.00	OUTCAL
39	K	1	45	9527.000	ppb	#REF!	1.04	25000.00	>RL
44	Ca	2	45	208800.000	ppb	#REF!	0.44	25000.00	OUTCAL
47	Ti	1	45	121.700	ppb	#REF!	2.06	2000.00	>RL
51	V	1	45	101.600	ppb	#REF!	1.43	2000.00	>RL
52	Cr	1	45	61.270	ppb	#REF!	1.72	2000.00	>RL
55	Mn	1	45	163.100	ppb	#REF!	1.42	2000.00	>RL
56	Fe	1	72	67590.000	ppb	#REF!	2.32	10000.00	OUTCAL
59	Co	1	72	13.000	ppb	#REF!	0.98	2000.00	>RL
60	Ni	1	72	24.440	ppb	#REF!	1.54	2000.00	>RL
63	Cu	1	72	9.132	ppb	#REF!	1.19	2000.00	>RL
66	Zn	1	72	128.200	ppb	#REF!	1.55	2000.00	>RL
75	As	1	72	22.870	ppb	#REF!	1.29	2000.00	>RL
78	Se	1	72	14.580	ppb	#REF!	4.85	2000.00	>RL
88	Sr	2	115	1825.000	ppb	#REF!	0.32	2000.00	>RL
95	Mo	2	115	1.696	ppb	#REF!	1.17	2000.00	ND
107	Ag	2	115	0.083	ppb	#REF!	7.53	500.00	ND
111	Cd	2	115	0.409	ppb	#REF!	12.49	2000.00	J
118	Sn	2	115	5.379	ppb	#REF!	2.10	2000.00	ND
121	Sb	2	115	0.224	ppb	#REF!	8.03	500.00	ND
137	Ba	2	115	297.800	ppb	#REF!	1.00	2000.00	>RL
205	Tl	2	209	0.444	ppb	#REF!	3.02	2000.00	ND
208	Pb	2	209	41.460	ppb	#REF!	0.64	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12748.38	7.43	RHigh	50.17	-25412.4	70 - 120	ISFail
45	Sc	1	168043.00	0.75		184662.30	91.0	70 - 120	
45	Sc	2	3119237.00	0.31		4233596.00	73.7	70 - 120	
72	Ge	1	97354.00	0.90		110938.56	87.8	70 - 120	
115	In	2	4839669.50	1.00		5887647.50	82.2	70 - 120	
209	Bi	2	5263086.00	1.14		6267448.50	84.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\082SMPL.D\082SMPL.D#

Date Acquired:	May 19 2016 07:16 pm	Sample Name:	**1605096-73A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	89.130	ppb	#REF!	1.90	2000.00	>RL
9	Be	2	45	2.115	ppb	#REF!	1.03	2000.00	>RL
11	B	2	45	150.900	ppb	#REF!	3.52	2000.00	>RL
23	Na	1	45	9266.000	ppb	#REF!	1.70	25000.00	>RL
24	Mg	1	45	10080.000	ppb	#REF!	1.74	25000.00	>RL
27	Al	1	45	48990.000	ppb	#REF!	1.61	10000.00	OUTCAL
39	K	1	45	9481.000	ppb	#REF!	2.28	25000.00	>RL
44	Ca	2	45	171900.000	ppb	#REF!	2.92	25000.00	OUTCAL
47	Ti	1	45	115.900	ppb	#REF!	0.89	2000.00	>RL
51	V	1	45	90.410	ppb	#REF!	1.66	2000.00	>RL
52	Cr	1	45	52.570	ppb	#REF!	1.43	2000.00	>RL
55	Mn	1	45	74.100	ppb	#REF!	1.47	2000.00	>RL
56	Fe	1	72	76900.000	ppb	#REF!	0.91	10000.00	OUTCAL
59	Co	1	72	9.029	ppb	#REF!	2.89	2000.00	>RL
60	Ni	1	72	17.930	ppb	#REF!	2.02	2000.00	>RL
63	Cu	1	72	9.632	ppb	#REF!	1.82	2000.00	>RL
66	Zn	1	72	125.400	ppb	#REF!	2.19	2000.00	>RL
75	As	1	72	27.840	ppb	#REF!	1.58	2000.00	>RL
78	Se	1	72	15.360	ppb	#REF!	3.07	2000.00	>RL
88	Sr	2	115	1464.000	ppb	#REF!	3.43	2000.00	>RL
95	Mo	2	115	2.032	ppb	#REF!	3.48	2000.00	J
107	Ag	2	115	0.064	ppb	#REF!	13.18	500.00	ND
111	Cd	2	115	0.287	ppb	#REF!	19.96	2000.00	ND
118	Sn	2	115	5.122	ppb	#REF!	4.89	2000.00	ND
121	Sb	2	115	0.113	ppb	#REF!	2.34	500.00	ND
137	Ba	2	115	102.500	ppb	#REF!	2.72	2000.00	>RL
205	Tl	2	209	0.346	ppb	#REF!	3.85	2000.00	ND
208	Pb	2	209	41.420	ppb	#REF!	1.54	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7601.86	9.50	RHigh	50.17	-15153.4	70 - 120	ISFail
45	Sc	1	168307.16	2.53		184662.30	91.1	70 - 120	
45	Sc	2	2985284.30	2.74		4233596.00	70.5	70 - 120	
72	Ge	1	97165.76	2.18		110938.56	87.6	70 - 120	
115	In	2	4776008.50	2.15		5887647.50	81.1	70 - 120	
209	Bi	2	5393890.50	0.93		6267448.50	86.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\083SMPL.D\083SMPL.D#

Date Acquired:	May 19 2016 07:22 pm	Sample Name:	**1605096-74A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	66.350	ppb	#REF!	1.59	2000.00	>RL
9	Be	2	45	2.098	ppb	#REF!	0.77	2000.00	>RL
11	B	2	45	131.000	ppb	#REF!	2.47	2000.00	>RL
23	Na	1	45	9459.000	ppb	#REF!	1.48	25000.00	>RL
24	Mg	1	45	9837.000	ppb	#REF!	1.84	25000.00	>RL
27	Al	1	45	46960.000	ppb	#REF!	1.64	10000.00	OUTCAL
39	K	1	45	9158.000	ppb	#REF!	2.19	25000.00	>RL
44	Ca	2	45	97770.000	ppb	#REF!	1.71	25000.00	OUTCAL
47	Ti	1	45	125.400	ppb	#REF!	2.07	2000.00	>RL
51	V	1	45	86.180	ppb	#REF!	1.52	2000.00	>RL
52	Cr	1	45	56.400	ppb	#REF!	2.44	2000.00	>RL
55	Mn	1	45	151.600	ppb	#REF!	1.95	2000.00	>RL
56	Fe	1	72	71450.000	ppb	#REF!	1.25	10000.00	OUTCAL
59	Co	1	72	18.730	ppb	#REF!	2.63	2000.00	>RL
60	Ni	1	72	26.340	ppb	#REF!	1.99	2000.00	>RL
63	Cu	1	72	8.924	ppb	#REF!	1.91	2000.00	>RL
66	Zn	1	72	177.000	ppb	#REF!	2.08	2000.00	>RL
75	As	1	72	21.530	ppb	#REF!	2.85	2000.00	>RL
78	Se	1	72	16.530	ppb	#REF!	1.81	2000.00	>RL
88	Sr	2	115	3207.000	ppb	#REF!	1.48	2000.00	OUTCAL
95	Mo	2	115	1.063	ppb	#REF!	7.10	2000.00	ND
107	Ag	2	115	0.046	ppb	#REF!	11.36	500.00	ND
111	Cd	2	115	0.280	ppb	#REF!	26.94	2000.00	ND
118	Sn	2	115	4.996	ppb	#REF!	4.67	2000.00	ND
121	Sb	2	115	0.110	ppb	#REF!	11.28	500.00	ND
137	Ba	2	115	96.210	ppb	#REF!	1.77	2000.00	>RL
205	Tl	2	209	0.293	ppb	#REF!	0.92	2000.00	ND
208	Pb	2	209	30.070	ppb	#REF!	1.13	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4759.65	10.46	RHigh	50.17	-9487.8	70 - 120	ISFail
45	Sc	1	143632.17	2.38		184662.30	77.8	70 - 120	
45	Sc	2	2587367.80	1.53		4233596.00	61.1	70 - 120	ISFail
72	Ge	1	87245.38	2.08		110938.56	78.6	70 - 120	
115	In	2	4140775.30	1.56		5887647.50	70.3	70 - 120	
209	Bi	2	4749034.50	0.76		6267448.50	75.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\091CCV1.D\091CCV1.D#

Date Acquired:	May 19 2016 08:09 pm	Sample Name:	**CCV4-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	241.90	ppb	1.87	200.00	90 -	110	121.0	Fail
9	Be	2	45	219.20	ppb	1.89	200.00	90 -	110	109.6	
11	B	2	45	192.60	ppb	1.95	200.00	90 -	110	96.3	
23	Na	1	45	5348.00	ppb	1.56	5000.00	90 -	110	107.0	
24	Mg	1	45	5055.00	ppb	2.59	5000.00	90 -	110	101.1	
27	Al	1	45	4895.00	ppb	1.82	5000.00	90 -	110	97.9	
39	K	1	45	5099.00	ppb	1.16	5000.00	90 -	110	102.0	
44	Ca	2	45	4936.00	ppb	2.09	5000.00	90 -	110	98.7	
47	Ti	1	45	201.90	ppb	1.77	200.00	90 -	110	101.0	
51	V	1	45	205.60	ppb	1.87	200.00	90 -	110	102.8	
52	Cr	1	45	209.80	ppb	2.12	200.00	90 -	110	104.9	
55	Mn	1	45	196.80	ppb	1.65	200.00	90 -	110	98.4	
56	Fe	1	72	4938.00	ppb	1.73	5000.00	90 -	110	98.8	
59	Co	1	72	200.10	ppb	1.58	200.00	90 -	110	100.1	
60	Ni	1	72	195.40	ppb	2.05	200.00	90 -	110	97.7	
63	Cu	1	72	202.80	ppb	1.20	200.00	90 -	110	101.4	
66	Zn	1	72	204.30	ppb	2.21	200.00	90 -	110	102.2	
75	As	1	72	206.50	ppb	1.63	200.00	90 -	110	103.3	
78	Se	1	72	194.50	ppb	1.32	200.00	90 -	110	97.3	
88	Sr	2	115	201.80	ppb	2.63	200.00	90 -	110	100.9	
95	Mo	2	115	182.70	ppb	2.50	200.00	90 -	110	91.4	
107	Ag	2	115	188.80	ppb	1.80	200.00	90 -	110	94.4	
111	Cd	2	115	187.20	ppb	2.44	200.00	90 -	110	93.6	
118	Sn	2	115	193.10	ppb	2.03	200.00	90 -	110	96.6	
121	Sb	2	115	197.30	ppb	1.82	200.00	90 -	110	98.7	
137	Ba	2	115	197.10	ppb	2.23	200.00	90 -	110	98.6	
205	Tl	2	209	200.40	ppb	2.34	200.00	90 -	110	100.2	
208	Pb	2	209	191.50	ppb	2.42	200.00	90 -	110	95.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-54111.14	2.17	50.17	-107864.1	70 -	120		ISFail
45	Sc	1	140373.03	1.09	184662.30	76.0	70 -	120		
45	Sc	2	2584627.50	1.06	4233596.00	61.1	70 -	120		ISFail
72	Ge	1	87019.67	0.99	110938.56	78.4	70 -	120		
115	In	2	4212062.00	2.08	5887647.50	71.5	70 -	120		
209	Bi	2	5036638.00	1.69	6267448.50	80.4	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\093LCVL.D\093LCVL.D#

Date Acquired:	May 19 2016 08:21 pm	Sample Name:	**LCVL4-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.18	ppb	2.17	5.00	70 -	130	223.6	Fail
9	Be	2	45	1.13	ppb	4.98	1.00	70 -	130	113.2	
11	B	2	45	19.91	ppb	0.90	20.00	70 -	130	99.6	
23	Na	1	45	104.10	ppb	1.00	100.00	70 -	130	104.1	
24	Mg	1	45	100.90	ppb	2.06	100.00	70 -	130	100.9	
27	Al	1	45	113.10	ppb	3.39	100.00	70 -	130	113.1	
39	K	1	45	108.60	ppb	2.63	100.00	70 -	130	108.6	
44	Ca	2	45	119.40	ppb	9.61	100.00	70 -	130	119.4	
47	Ti	1	45	5.21	ppb	10.36	5.00	70 -	130	104.1	
51	V	1	45	1.08	ppb	3.00	1.00	70 -	130	107.7	
52	Cr	1	45	5.22	ppb	3.44	5.00	70 -	130	104.5	
55	Mn	1	45	5.63	ppb	3.98	5.00	70 -	130	112.7	
56	Fe	1	72	132.40	ppb	3.15	100.00	70 -	130	132.4	Fail
59	Co	1	72	4.86	ppb	3.98	5.00	70 -	130	97.2	
60	Ni	1	72	5.26	ppb	1.20	5.00	70 -	130	105.3	
63	Cu	1	72	5.23	ppb	1.49	5.00	70 -	130	104.5	
66	Zn	1	72	5.08	ppb	5.13	5.00	70 -	130	101.6	
75	As	1	72	5.16	ppb	1.80	5.00	70 -	130	103.1	
78	Se	1	72	5.16	ppb	4.95	5.00	70 -	130	103.2	
88	Sr	2	115	4.92	ppb	3.36	5.00	70 -	130	98.4	
95	Mo	2	115	4.42	ppb	3.34	5.00	70 -	130	88.3	
107	Ag	2	115	1.89	ppb	2.03	2.00	70 -	130	94.5	
111	Cd	2	115	0.95	ppb	8.18	1.00	70 -	130	95.2	
118	Sn	2	115	5.53	ppb	4.95	5.00	70 -	130	110.7	
121	Sb	2	115	1.91	ppb	3.34	2.00	70 -	130	95.4	
137	Ba	2	115	4.96	ppb	2.46	5.00	70 -	130	99.2	
205	Tl	2	209	0.99	ppb	3.42	1.00	70 -	130	98.8	
208	Pb	2	209	1.00	ppb	1.37	1.00	70 -	130	100.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-1172.31	12.63	50.17	-2336.9	70 -	120	ISFail
45	Sc	1		144101.22	1.02	184662.30	78.0	70 -	120	
45	Sc	2		2742480.50	0.98	4233596.00	64.8	70 -	120	ISFail
72	Ge	1		89452.73	1.57	110938.56	80.6	70 -	120	
115	In	2		4343227.00	1.58	5887647.50	73.8	70 -	120	
209	Bi	2		5166432.00	0.69	6267448.50	82.4	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\094_CCB.D\094_CCB.D#

Date Acquired:	May 19 2016 08:28 pm	Sample Name:	**CCB4-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.193	ppb	10.90	2.00	2.00	
9	Be	2	45	0.030	ppb	24.99	0.40	0.30	
11	B	2	45	1.072	ppb	1.38	10.00	10.00	
23	Na	1	45	5.902	ppb	3.05	50.00	#####	
24	Mg	1	45	2.114	ppb	15.86	50.00	#####	
27	Al	1	45	10.880	ppb	15.69	50.00	10.00	FailAq
39	K	1	45	6.973	ppb	2.17	50.00	#####	
44	Ca	2	45	13.900	ppb	12.01	50.00	#####	
47	Ti	1	45	0.094	ppb	94.39	4.00	3.00	
51	V	1	45	0.069	ppb	8.44	4.00	3.00	
52	Cr	1	45	0.051	ppb	6.72	2.00	2.00	
55	Mn	1	45	0.125	ppb	11.43	2.00	3.00	
56	Fe	1	72	14.390	ppb	11.49	50.00	30.00	
59	Co	1	72	0.043	ppb	17.78	2.00	3.00	
60	Ni	1	72	0.015	ppb	13.56	2.00	3.00	
63	Cu	1	72	0.050	ppb	11.71	2.00	2.00	
66	Zn	1	72	1.189	ppb	15.17	4.00	2.00	
75	As	1	72	0.087	ppb	6.92	2.00	2.00	
78	Se	1	72	0.132	ppb	8.33	0.60	2.00	
88	Sr	2	115	0.176	ppb	21.38	4.00	3.00	
95	Mo	2	115	0.046	ppb	11.03	2.00	2.00	
107	Ag	2	115	0.032	ppb	5.89	0.40	1.00	
111	Cd	2	115	0.056	ppb	2.57	0.40	0.30	
118	Sn	2	115	0.044	ppb	8.71	20.00	3.00	
121	Sb	2	115	0.042	ppb	25.26	2.00	0.80	
137	Ba	2	115	0.066	ppb	4.17	2.00	3.00	
205	Tl	2	209	0.059	ppb	4.00	2.00	0.50	
208	Pb	2	209	0.055	ppb	5.32	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	6.78	181.23	50.17	13.5	70 - 120	ISFail
45	Sc	1		137767.69	0.64	184662.30	74.6	70 - 120	
45	Sc	2		2656546.80	2.11	4233596.00	62.7	70 - 120	ISFail
72	Ge	1		86469.39	0.70	110938.56	77.9	70 - 120	
115	In	2		4135811.50	1.26	5887647.50	70.2	70 - 120	
209	Bi	2		4906259.50	0.73	6267448.50	78.3	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\095__PB.D\095__PB.D#

Date Acquired:	May 19 2016 08:34 pm	Sample Name:	**MB-75168**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.123	ppb	2.25	2.0	8.00	
9	Be	2	45	0.008	ppb	16.66	0.4	1.20	
11	B	2	45	1.415	ppb	2.82	10.0	30.00	
23	Na	1	45	16.300	ppb	1.09	50.0	#####	
24	Mg	1	45	3.893	ppb	11.76	50.0	#####	
27	Al	1	45	10.960	ppb	12.34	50.0	#####	
39	K	1	45	14.990	ppb	4.68	50.0	#####	
44	Ca	2	45	37.330	ppb	8.58	50.0	#####	
47	Ti	1	45	0.073	ppb	49.50	4.0	10.00	
51	V	1	45	0.015	ppb	17.55	4.0	10.00	
52	Cr	1	45	0.383	ppb	2.03	2.0	8.00	
55	Mn	1	45	0.140	ppb	10.87	2.0	8.00	
56	Fe	1	72	11.080	ppb	15.32	50.0	#####	
59	Co	1	72	0.003	ppb	6.80	2.0	8.00	
60	Ni	1	72	0.348	ppb	6.54	2.0	8.00	
63	Cu	1	72	0.126	ppb	7.10	2.0	8.00	
66	Zn	1	72	3.610	ppb	2.82	4.0	10.00	
75	As	1	72	0.035	ppb	1.90	2.0	4.00	
78	Se	1	72	0.113	ppb	23.31	0.6	2.00	
88	Sr	2	115	0.190	ppb	9.52	4.0	10.00	
95	Mo	2	115	0.012	ppb	29.89	2.0	8.00	
107	Ag	2	115	0.018	ppb	16.95	0.4	0.80	
111	Cd	2	115	0.017	ppb	16.33	0.4	1.20	
118	Sn	2	115	4.019	ppb	1.76	20.0	40.00	
121	Sb	2	115	0.005	ppb	44.12	2.0	4.00	
137	Ba	2	115	0.077	ppb	25.00	2.0	8.00	
205	Tl	2	209	0.027	ppb	11.07	2.0	4.00	
208	Pb	2	209	0.052	ppb	12.53	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-2.03	688.02	50.17	-4.0	70 - 120	ISFail
45	Sc	1		136253.06	1.08	184662.30	73.8	70 - 120	
45	Sc	2		2792198.00	0.48	4233596.00	66.0	70 - 120	ISFail
72	Ge	1		85496.91	0.98	110938.56	77.1	70 - 120	
115	In	2		4301248.00	1.30	5887647.50	73.1	70 - 120	
209	Bi	2		4990732.00	0.54	6267448.50	79.6	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\096_LCS.D\096_LCS.D#

Date Acquired:	May 19 2016 08:40 pm	Sample Name:	**LCS-75168**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	215.50	ppb	0.44	200.00	80 -	120	107.8	
9	Be	2	45	196.70	ppb	1.55	200.00	80 -	120	98.4	
11	B	2	45	182.30	ppb	2.27	200.00	80 -	120	91.2	
23	Na	1	45	5264.00	ppb	1.18	1000.00	80 -	120	526.4	Fail
24	Mg	1	45	5053.00	ppb	1.10	1000.00	80 -	120	505.3	Fail
27	Al	1	45	1001.00	ppb	0.49	1000.00	80 -	120	100.1	
39	K	1	45	5134.00	ppb	0.22	1000.00	80 -	120	513.4	Fail
44	Ca	2	45	4846.00	ppb	1.70	1000.00	80 -	120	484.6	Fail
47	Ti	1	45	201.10	ppb	0.59	200.00	80 -	120	100.6	
51	V	1	45	202.30	ppb	1.76	200.00	80 -	120	101.2	
52	Cr	1	45	206.00	ppb	1.61	200.00	80 -	120	103.0	
55	Mn	1	45	197.60	ppb	1.77	200.00	80 -	120	98.8	
56	Fe	1	72	974.00	ppb	1.97	1000.00	80 -	120	97.4	
59	Co	1	72	195.70	ppb	1.60	200.00	80 -	120	97.9	
60	Ni	1	72	189.50	ppb	1.98	200.00	80 -	120	94.8	
63	Cu	1	72	196.20	ppb	0.95	200.00	80 -	120	98.1	
66	Zn	1	72	193.60	ppb	2.21	200.00	80 -	120	96.8	
75	As	1	72	195.90	ppb	0.95	200.00	80 -	120	98.0	
78	Se	1	72	185.70	ppb	1.48	200.00	80 -	120	92.9	
88	Sr	2	115	203.00	ppb	1.56	200.00	80 -	120	101.5	
95	Mo	2	115	185.30	ppb	1.49	200.00	80 -	120	92.7	
107	Ag	2	115	187.20	ppb	1.25	200.00	80 -	120	93.6	
111	Cd	2	115	182.50	ppb	1.37	200.00	80 -	120	91.3	
118	Sn	2	115	196.30	ppb	2.01	200.00	80 -	120	98.2	
121	Sb	2	115	190.70	ppb	1.94	200.00	80 -	120	95.4	
137	Ba	2	115	194.10	ppb	2.03	200.00	80 -	120	97.1	
205	Tl	2	209	201.10	ppb	1.06	200.00	80 -	120	100.6	
208	Pb	2	209	189.90	ppb	1.44	200.00	80 -	120	95.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-53945.87	2.87	50.17	-107534.7	70 -	120	ISFail
45	Sc	1	137462.33	0.80	184662.30	74.4	70 -	120	
45	Sc	2	2807708.80	1.09	4233596.00	66.3	70 -	120	ISFail
72	Ge	1	84704.94	1.20	110938.56	76.4	70 -	120	
115	In	2	4302853.50	0.55	5887647.50	73.1	70 -	120	
209	Bi	2	4885738.50	0.29	6267448.50	78.0	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\097_LCS.D\097_LCS.D#

Date Acquired:	May 19 2016 08:46 pm	Sample Name:	**LCSD-75168**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	216.20	ppb	1.36	200.00	80 -	120	108.1	
9	Be	2	45	195.90	ppb	1.79	200.00	80 -	120	98.0	
11	B	2	45	185.40	ppb	1.50	200.00	80 -	120	92.7	
23	Na	1	45	5177.00	ppb	1.82	1000.00	80 -	120	517.7	Fail
24	Mg	1	45	4985.00	ppb	1.82	1000.00	80 -	120	498.5	Fail
27	Al	1	45	1002.00	ppb	1.62	1000.00	80 -	120	100.2	
39	K	1	45	5128.00	ppb	1.42	1000.00	80 -	120	512.8	Fail
44	Ca	2	45	4895.00	ppb	2.57	1000.00	80 -	120	489.5	Fail
47	Ti	1	45	200.40	ppb	0.18	200.00	80 -	120	100.2	
51	V	1	45	199.60	ppb	1.26	200.00	80 -	120	99.8	
52	Cr	1	45	203.30	ppb	1.97	200.00	80 -	120	101.7	
55	Mn	1	45	196.90	ppb	1.14	200.00	80 -	120	98.5	
56	Fe	1	72	980.60	ppb	2.24	1000.00	80 -	120	98.1	
59	Co	1	72	194.90	ppb	0.95	200.00	80 -	120	97.5	
60	Ni	1	72	188.30	ppb	1.12	200.00	80 -	120	94.2	
63	Cu	1	72	195.10	ppb	0.14	200.00	80 -	120	97.6	
66	Zn	1	72	192.60	ppb	0.16	200.00	80 -	120	96.3	
75	As	1	72	195.60	ppb	0.63	200.00	80 -	120	97.8	
78	Se	1	72	188.40	ppb	0.77	200.00	80 -	120	94.2	
88	Sr	2	115	204.20	ppb	1.62	200.00	80 -	120	102.1	
95	Mo	2	115	185.70	ppb	1.54	200.00	80 -	120	92.9	
107	Ag	2	115	188.60	ppb	2.28	200.00	80 -	120	94.3	
111	Cd	2	115	180.90	ppb	1.94	200.00	80 -	120	90.5	
118	Sn	2	115	198.10	ppb	1.92	200.00	80 -	120	99.1	
121	Sb	2	115	190.80	ppb	1.74	200.00	80 -	120	95.4	
137	Ba	2	115	194.40	ppb	1.48	200.00	80 -	120	97.2	
205	Tl	2	209	204.40	ppb	2.02	200.00	80 -	120	102.2	
208	Pb	2	209	192.30	ppb	1.56	200.00	80 -	120	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-54686.41	1.35	50.17	-109010.9	70 -	120	ISFail
45	Sc	1	141475.58	0.44	184662.30	76.6	70 -	120	
45	Sc	2	2823139.00	1.42	4233596.00	66.7	70 -	120	ISFail
72	Ge	1	86514.12	0.51	110938.56	78.0	70 -	120	
115	In	2	4329598.00	0.43	5887647.50	73.5	70 -	120	
209	Bi	2	4880613.50	0.59	6267448.50	77.9	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\099AREF.D\099AREF.D#

Date Acquired:	May 19 2016 08:58 pm	Sample Name:	**1605096-42A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	46.410	ppb	#REF!	1.25	2000.00	>RL
9	Be	2	45	1.698	ppb	#REF!	2.95	2000.00	>RL
11	B	2	45	61.250	ppb	#REF!	1.48	2000.00	>RL
23	Na	1	45	616.800	ppb	#REF!	0.16	25000.00	>RL
24	Mg	1	45	9844.000	ppb	#REF!	1.09	25000.00	>RL
27	Al	1	45	43690.000	ppb	#REF!	1.68	10000.00	OUTCAL
39	K	1	45	13360.000	ppb	#REF!	0.49	25000.00	>RL
44	Ca	2	45	48780.000	ppb	#REF!	1.45	25000.00	OUTCAL
47	Ti	1	45	148.400	ppb	#REF!	1.86	2000.00	>RL
51	V	1	45	68.570	ppb	#REF!	1.21	2000.00	>RL
52	Cr	1	45	47.790	ppb	#REF!	1.21	2000.00	>RL
55	Mn	1	45	473.800	ppb	#REF!	1.59	2000.00	>RL
56	Fe	1	72	42400.000	ppb	#REF!	1.86	10000.00	OUTCAL
59	Co	1	72	15.610	ppb	#REF!	1.44	2000.00	>RL
60	Ni	1	72	24.990	ppb	#REF!	0.52	2000.00	>RL
63	Cu	1	72	21.480	ppb	#REF!	0.56	2000.00	>RL
66	Zn	1	72	199.300	ppb	#REF!	2.12	2000.00	>RL
75	As	1	72	20.090	ppb	#REF!	0.54	2000.00	>RL
78	Se	1	72	16.120	ppb	#REF!	4.43	2000.00	>RL
88	Sr	2	115	219.900	ppb	#REF!	1.33	2000.00	>RL
95	Mo	2	115	1.068	ppb	#REF!	3.62	2000.00	ND
107	Ag	2	115	0.173	ppb	#REF!	13.94	500.00	ND
111	Cd	2	115	0.602	ppb	#REF!	4.20	2000.00	J
118	Sn	2	115	4.282	ppb	#REF!	3.55	2000.00	J
121	Sb	2	115	2.253	ppb	#REF!	1.70	500.00	J
137	Ba	2	115	306.500	ppb	#REF!	1.48	2000.00	>RL
205	Tl	2	209	0.459	ppb	#REF!	1.76	2000.00	ND
208	Pb	2	209	123.000	ppb	#REF!	0.81	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3779.83	6.84	RHigh	50.17	-7534.6	70 - 120	ISFail
45	Sc	1	145805.58	0.41		184662.30	79.0	70 - 120	
45	Sc	2	2994734.30	1.62		4233596.00	70.7	70 - 120	
72	Ge	1	88659.03	0.67		110938.56	79.9	70 - 120	
115	In	2	4475501.50	1.29		5887647.50	76.0	70 - 120	
209	Bi	2	4938866.50	0.59		6267448.50	78.8	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\100DT1.D\100DT1.D#

Date Acquired:	May 19 2016 09:04 pm	Sample Name:	**1605096-42A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 19 2016 12:25 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	9.43	ppb	0.88	-803.23	90 - 110	-5.9	
9	Be	2	45	0.35	ppb	5.38	1.70	90 - 110	103.7	GOOD
11	B	2	45	13.99	ppb	3.86	61.25	90 - 110	114.2	
23	Na	1	45	129.70	ppb	0.89	616.80	90 - 110	105.1	GOOD
24	Mg	1	45	1927.00	ppb	0.60	9844.00	90 - 110	97.9	GOOD
27	Al	1	45	8423.00	ppb	0.99	43690.00	90 - 110	96.4	GOOD
39	K	1	45	2708.00	ppb	1.16	13360.00	90 - 110	101.3	GOOD
44	Ca	2	45	10370.00	ppb	1.57	48780.00	90 - 110	106.3	GOOD
47	Ti	1	45	29.09	ppb	2.36	148.40	90 - 110	98.0	GOOD
51	V	1	45	14.06	ppb	2.15	68.57	90 - 110	102.5	GOOD
52	Cr	1	45	9.76	ppb	2.31	47.79	90 - 110	102.1	GOOD
55	Mn	1	45	96.26	ppb	0.79	473.80	90 - 110	101.6	GOOD
56	Fe	1	72	8615.00	ppb	1.76	42400.00	90 - 110	101.6	GOOD
59	Co	1	72	3.17	ppb	1.43	15.61	90 - 110	101.5	GOOD
60	Ni	1	72	5.29	ppb	3.49	24.99	90 - 110	105.8	GOOD
63	Cu	1	72	4.54	ppb	1.81	21.48	90 - 110	105.6	GOOD
66	Zn	1	72	44.14	ppb	1.90	199.30	90 - 110	110.7	
75	As	1	72	4.28	ppb	2.46	20.09	90 - 110	106.4	GOOD
78	Se	1	72	3.02	ppb	3.14	16.12	90 - 110	93.6	GOOD
88	Sr	2	115	41.81	ppb	0.96	219.90	90 - 110	95.1	GOOD
95	Mo	2	115	0.25	ppb	4.19	1.07	90 - 110	116.9	
107	Ag	2	115	0.06	ppb	15.10	0.17	90 - 110	165.4	
111	Cd	2	115	0.17	ppb	15.02	0.60	90 - 110	142.5	
118	Sn	2	115	0.88	ppb	7.76	4.28	90 - 110	102.5	GOOD
121	Sb	2	115	0.46	ppb	6.02	2.25	90 - 110	101.9	GOOD
137	Ba	2	115	61.48	ppb	2.54	306.50	90 - 110	100.3	GOOD
205	Tl	2	209	0.13	ppb	9.85	0.46	90 - 110	146.2	
208	Pb	2	209	24.55	ppb	1.17	123.00	90 - 110	99.8	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-803.23	19.27	50.17	-1601.1	70 -	120	ISFail
45	Sc	1		144501.66	1.00	184662.30	78.3	70 -	120	
45	Sc	2		3056931.00	0.69	4233596.00	72.2	70 -	120	
72	Ge	1		89716.13	0.88	110938.56	80.9	70 -	120	
115	In	2		4573493.50	0.88	5887647.50	77.7	70 -	120	
209	Bi	2		5162660.50	0.47	6267448.50	82.4	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\101SMPL.D\101SMPL.D#

Date Acquired:	May 19 2016 09:10 pm	Sample Name:	**1605096-41A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	44.330	ppb	#REF!	1.62	2000.00	>RL
9	Be	2	45	1.735	ppb	#REF!	3.81	2000.00	>RL
11	B	2	45	59.250	ppb	#REF!	1.56	2000.00	>RL
23	Na	1	45	651.300	ppb	#REF!	0.57	25000.00	>RL
24	Mg	1	45	9823.000	ppb	#REF!	0.60	25000.00	>RL
27	Al	1	45	43610.000	ppb	#REF!	1.89	10000.00	OUTCAL
39	K	1	45	13370.000	ppb	#REF!	0.04	25000.00	>RL
44	Ca	2	45	48830.000	ppb	#REF!	2.52	25000.00	OUTCAL
47	Ti	1	45	149.200	ppb	#REF!	1.45	2000.00	>RL
51	V	1	45	69.560	ppb	#REF!	0.30	2000.00	>RL
52	Cr	1	45	49.480	ppb	#REF!	1.25	2000.00	>RL
55	Mn	1	45	512.800	ppb	#REF!	0.76	2000.00	>RL
56	Fe	1	72	43030.000	ppb	#REF!	0.88	10000.00	OUTCAL
59	Co	1	72	15.640	ppb	#REF!	0.75	2000.00	>RL
60	Ni	1	72	25.760	ppb	#REF!	0.53	2000.00	>RL
63	Cu	1	72	26.040	ppb	#REF!	0.98	2000.00	>RL
66	Zn	1	72	209.000	ppb	#REF!	0.58	2000.00	>RL
75	As	1	72	21.200	ppb	#REF!	0.76	2000.00	>RL
78	Se	1	72	16.450	ppb	#REF!	3.31	2000.00	>RL
88	Sr	2	115	219.600	ppb	#REF!	2.05	2000.00	>RL
95	Mo	2	115	1.091	ppb	#REF!	6.46	2000.00	ND
107	Ag	2	115	0.123	ppb	#REF!	3.37	500.00	ND
111	Cd	2	115	0.596	ppb	#REF!	6.96	2000.00	J
118	Sn	2	115	5.194	ppb	#REF!	3.39	2000.00	ND
121	Sb	2	115	2.564	ppb	#REF!	1.97	500.00	J
137	Ba	2	115	319.100	ppb	#REF!	1.66	2000.00	>RL
205	Tl	2	209	0.378	ppb	#REF!	0.75	2000.00	ND
208	Pb	2	209	144.200	ppb	#REF!	1.43	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4274.81	9.97	RHigh	50.17	-8521.3	70 - 120	ISFail
45	Sc	1	146020.95	0.28		184662.30	79.1	70 - 120	
45	Sc	2	3046816.30	1.67		4233596.00	72.0	70 - 120	
72	Ge	1	88824.19	0.93		110938.56	80.1	70 - 120	
115	In	2	4520161.00	1.18		5887647.50	76.8	70 - 120	
209	Bi	2	4959534.50	0.48		6267448.50	79.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\102SMPL.D\102SMPL.D#

Date Acquired:	May 19 2016 09:16 pm	Sample Name:	**1605096-43A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	46.120	ppb	#REF!	1.21	2000.00	>RL
9	Be	2	45	1.802	ppb	#REF!	2.45	2000.00	>RL
11	B	2	45	59.600	ppb	#REF!	1.41	2000.00	>RL
23	Na	1	45	679.900	ppb	#REF!	0.59	25000.00	>RL
24	Mg	1	45	9882.000	ppb	#REF!	0.77	25000.00	>RL
27	Al	1	45	45750.000	ppb	#REF!	0.82	10000.00	OUTCAL
39	K	1	45	13810.000	ppb	#REF!	0.97	25000.00	>RL
44	Ca	2	45	44790.000	ppb	#REF!	1.85	25000.00	OUTCAL
47	Ti	1	45	158.400	ppb	#REF!	2.86	2000.00	>RL
51	V	1	45	71.010	ppb	#REF!	1.11	2000.00	>RL
52	Cr	1	45	49.410	ppb	#REF!	1.36	2000.00	>RL
55	Mn	1	45	473.700	ppb	#REF!	0.81	2000.00	>RL
56	Fe	1	72	43740.000	ppb	#REF!	0.86	10000.00	OUTCAL
59	Co	1	72	15.630	ppb	#REF!	0.68	2000.00	>RL
60	Ni	1	72	25.420	ppb	#REF!	0.47	2000.00	>RL
63	Cu	1	72	23.440	ppb	#REF!	0.55	2000.00	>RL
66	Zn	1	72	195.600	ppb	#REF!	0.16	2000.00	>RL
75	As	1	72	20.300	ppb	#REF!	0.44	2000.00	>RL
78	Se	1	72	15.930	ppb	#REF!	7.27	2000.00	>RL
88	Sr	2	115	204.500	ppb	#REF!	1.81	2000.00	>RL
95	Mo	2	115	1.057	ppb	#REF!	5.32	2000.00	ND
107	Ag	2	115	0.123	ppb	#REF!	15.87	500.00	ND
111	Cd	2	115	0.532	ppb	#REF!	3.70	2000.00	J
118	Sn	2	115	4.705	ppb	#REF!	2.85	2000.00	ND
121	Sb	2	115	2.654	ppb	#REF!	2.23	500.00	J
137	Ba	2	115	325.100	ppb	#REF!	1.41	2000.00	>RL
205	Tl	2	209	0.365	ppb	#REF!	1.35	2000.00	ND
208	Pb	2	209	152.100	ppb	#REF!	0.95	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4527.42	3.88	50.17	-9024.9	70 - 120	ISFail
45	Sc	1	150292.44	0.58	184662.30	81.4	70 - 120	
45	Sc	2	3094718.80	2.69	4233596.00	73.1	70 - 120	
72	Ge	1	91343.38	0.44	110938.56	82.3	70 - 120	
115	In	2	4605383.50	1.47	5887647.50	78.2	70 - 120	
209	Bi	2	5014864.50	0.40	6267448.50	80.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\103SMPL.D\103SMPL.D#

Date Acquired:	May 19 2016 09:22 pm	Sample Name:	**1605096-45A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	58.860	ppb	#REF!	1.53	2000.00	>RL
9	Be	2	45	2.208	ppb	#REF!	5.56	2000.00	>RL
11	B	2	45	62.890	ppb	#REF!	3.20	2000.00	>RL
23	Na	1	45	983.500	ppb	#REF!	0.56	25000.00	>RL
24	Mg	1	45	11210.000	ppb	#REF!	1.40	25000.00	>RL
27	Al	1	45	58620.000	ppb	#REF!	1.61	10000.00	OUTCAL
39	K	1	45	13340.000	ppb	#REF!	1.26	25000.00	>RL
44	Ca	2	45	81350.000	ppb	#REF!	2.20	25000.00	OUTCAL
47	Ti	1	45	160.500	ppb	#REF!	0.92	2000.00	>RL
51	V	1	45	89.390	ppb	#REF!	0.80	2000.00	>RL
52	Cr	1	45	63.530	ppb	#REF!	1.80	2000.00	>RL
55	Mn	1	45	568.200	ppb	#REF!	0.63	2000.00	>RL
56	Fe	1	72	54270.000	ppb	#REF!	0.84	10000.00	OUTCAL
59	Co	1	72	20.710	ppb	#REF!	0.16	2000.00	>RL
60	Ni	1	72	30.440	ppb	#REF!	1.20	2000.00	>RL
63	Cu	1	72	14.910	ppb	#REF!	1.04	2000.00	>RL
66	Zn	1	72	193.900	ppb	#REF!	0.60	2000.00	>RL
75	As	1	72	23.090	ppb	#REF!	0.85	2000.00	>RL
78	Se	1	72	19.420	ppb	#REF!	3.63	2000.00	>RL
88	Sr	2	115	291.300	ppb	#REF!	2.38	2000.00	>RL
95	Mo	2	115	1.236	ppb	#REF!	1.91	2000.00	ND
107	Ag	2	115	0.134	ppb	#REF!	2.04	500.00	ND
111	Cd	2	115	0.721	ppb	#REF!	10.57	2000.00	J
118	Sn	2	115	5.065	ppb	#REF!	2.72	2000.00	ND
121	Sb	2	115	4.897	ppb	#REF!	2.82	500.00	>RL
137	Ba	2	115	440.700	ppb	#REF!	1.89	2000.00	>RL
205	Tl	2	209	0.497	ppb	#REF!	5.06	2000.00	ND
208	Pb	2	209	423.400	ppb	#REF!	1.28	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5222.61	9.51	RHigh	50.17	-10410.6	70 - 120	ISFail
45	Sc	1	146226.80	0.27		184662.30	79.2	70 - 120	
45	Sc	2	2964007.80	2.27		4233596.00	70.0	70 - 120	
72	Ge	1	88370.94	0.82		110938.56	79.7	70 - 120	
115	In	2	4496445.00	1.24		5887647.50	76.4	70 - 120	
209	Bi	2	4945516.00	0.70		6267448.50	78.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\104SMPL.D\104SMPL.D#

Date Acquired:	May 19 2016 09:28 pm	Sample Name:	**1605096-46A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	69.960	ppb	#REF!	1.38	2000.00	>RL
9	Be	2	45	2.585	ppb	#REF!	4.74	2000.00	>RL
11	B	2	45	63.720	ppb	#REF!	2.46	2000.00	>RL
23	Na	1	45	2216.000	ppb	#REF!	0.62	25000.00	>RL
24	Mg	1	45	12540.000	ppb	#REF!	0.60	25000.00	>RL
27	Al	1	45	65870.000	ppb	#REF!	1.72	10000.00	OUTCAL
39	K	1	45	12970.000	ppb	#REF!	0.59	25000.00	>RL
44	Ca	2	45	64820.000	ppb	#REF!	1.83	25000.00	OUTCAL
47	Ti	1	45	173.300	ppb	#REF!	2.00	2000.00	>RL
51	V	1	45	104.400	ppb	#REF!	1.69	2000.00	>RL
52	Cr	1	45	71.090	ppb	#REF!	1.55	2000.00	>RL
55	Mn	1	45	589.700	ppb	#REF!	0.98	2000.00	>RL
56	Fe	1	72	63990.000	ppb	#REF!	1.66	10000.00	OUTCAL
59	Co	1	72	28.200	ppb	#REF!	0.98	2000.00	>RL
60	Ni	1	72	39.190	ppb	#REF!	1.18	2000.00	>RL
63	Cu	1	72	16.190	ppb	#REF!	0.34	2000.00	>RL
66	Zn	1	72	227.600	ppb	#REF!	0.58	2000.00	>RL
75	As	1	72	26.200	ppb	#REF!	0.26	2000.00	>RL
78	Se	1	72	22.220	ppb	#REF!	3.71	2000.00	>RL
88	Sr	2	115	293.900	ppb	#REF!	1.42	2000.00	>RL
95	Mo	2	115	1.093	ppb	#REF!	4.31	2000.00	ND
107	Ag	2	115	0.150	ppb	#REF!	8.07	500.00	ND
111	Cd	2	115	0.880	ppb	#REF!	4.73	2000.00	J
118	Sn	2	115	5.232	ppb	#REF!	2.93	2000.00	ND
121	Sb	2	115	4.252	ppb	#REF!	3.64	500.00	>RL
137	Ba	2	115	597.900	ppb	#REF!	1.69	2000.00	>RL
205	Tl	2	209	0.629	ppb	#REF!	3.10	2000.00	ND
208	Pb	2	209	429.400	ppb	#REF!	1.70	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6648.04	3.17	50.17	-13252.1	70 - 120	ISFail
45	Sc	1	143485.75	0.10	184662.30	77.7	70 - 120	
45	Sc	2	3022193.00	1.97	4233596.00	71.4	70 - 120	
72	Ge	1	86700.96	0.42	110938.56	78.2	70 - 120	
115	In	2	4494134.50	1.19	5887647.50	76.3	70 - 120	
209	Bi	2	4861020.00	1.14	6267448.50	77.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\105SMPL.D\105SMPL.D#

Date Acquired:	May 19 2016 09:34 pm	Sample Name:	**1605096-47A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	85.660	ppb	#REF!	8.30	2000.00	>RL
9	Be	2	45	2.005	ppb	#REF!	10.15	2000.00	>RL
11	B	2	45	104.500	ppb	#REF!	11.18	2000.00	>RL
23	Na	1	45	9667.000	ppb	#REF!	3.52	25000.00	>RL
24	Mg	1	45	10770.000	ppb	#REF!	3.70	25000.00	>RL
27	Al	1	45	49050.000	ppb	#REF!	3.50	10000.00	OUTCAL
39	K	1	45	8746.000	ppb	#REF!	3.47	25000.00	>RL
44	Ca	2	45	220600.000	ppb	#REF!	10.65	25000.00	OUTCAL
47	Ti	1	45	125.800	ppb	#REF!	4.00	2000.00	>RL
51	V	1	45	83.590	ppb	#REF!	3.02	2000.00	>RL
52	Cr	1	45	53.590	ppb	#REF!	2.78	2000.00	>RL
55	Mn	1	45	227.300	ppb	#REF!	3.57	2000.00	>RL
56	Fe	1	72	58290.000	ppb	#REF!	3.99	10000.00	OUTCAL
59	Co	1	72	16.530	ppb	#REF!	2.43	2000.00	>RL
60	Ni	1	72	25.760	ppb	#REF!	4.01	2000.00	>RL
63	Cu	1	72	8.335	ppb	#REF!	2.85	2000.00	>RL
66	Zn	1	72	121.700	ppb	#REF!	2.57	2000.00	>RL
75	As	1	72	17.620	ppb	#REF!	3.39	2000.00	>RL
78	Se	1	72	14.020	ppb	#REF!	0.74	2000.00	>RL
88	Sr	2	115	1397.000	ppb	#REF!	11.15	2000.00	>RL
95	Mo	2	115	1.568	ppb	#REF!	15.94	2000.00	ND
107	Ag	2	115	0.092	ppb	#REF!	4.95	500.00	ND
111	Cd	2	115	0.466	ppb	#REF!	20.83	2000.00	J
118	Sn	2	115	4.913	ppb	#REF!	10.50	2000.00	ND
121	Sb	2	115	0.192	ppb	#REF!	12.45	500.00	ND
137	Ba	2	115	322.500	ppb	#REF!	9.73	2000.00	>RL
205	Tl	2	209	0.374	ppb	#REF!	7.02	2000.00	ND
208	Pb	2	209	34.390	ppb	#REF!	9.57	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7779.76	9.26	RHigh	50.17	-15508.0	70 - 120	ISFail
45	Sc	1	147692.52	2.89		184662.30	80.0	70 - 120	
45	Sc	2	2900004.00	9.77	RHigh	4233596.00	68.5	70 - 120	ISFail
72	Ge	1	87257.55	2.68		110938.56	78.7	70 - 120	
115	In	2	4463761.00	10.33	RHigh	5887647.50	75.8	70 - 120	
209	Bi	2	4912700.50	8.60	RHigh	6267448.50	78.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\106SMPL.D\106SMPL.D#

Date Acquired:	May 19 2016 09:40 pm	Sample Name:	**1605096-48A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	96.100	ppb	#REF!	2.99	2000.00	>RL
9	Be	2	45	1.642	ppb	#REF!	5.36	2000.00	>RL
11	B	2	45	112.700	ppb	#REF!	4.75	2000.00	>RL
23	Na	1	45	10500.000	ppb	#REF!	0.82	25000.00	>RL
24	Mg	1	45	10010.000	ppb	#REF!	0.36	25000.00	>RL
27	Al	1	45	38950.000	ppb	#REF!	2.32	10000.00	OUTCAL
39	K	1	45	8191.000	ppb	#REF!	0.82	25000.00	>RL
44	Ca	2	45	192900.000	ppb	#REF!	4.77	25000.00	OUTCAL
47	Ti	1	45	119.400	ppb	#REF!	2.70	2000.00	>RL
51	V	1	45	68.540	ppb	#REF!	0.87	2000.00	>RL
52	Cr	1	45	46.270	ppb	#REF!	0.54	2000.00	>RL
55	Mn	1	45	70.670	ppb	#REF!	0.39	2000.00	>RL
56	Fe	1	72	48610.000	ppb	#REF!	0.61	10000.00	OUTCAL
59	Co	1	72	6.876	ppb	#REF!	0.14	2000.00	J
60	Ni	1	72	12.450	ppb	#REF!	1.12	2000.00	>RL
63	Cu	1	72	5.984	ppb	#REF!	0.30	2000.00	J
66	Zn	1	72	72.790	ppb	#REF!	1.41	2000.00	>RL
75	As	1	72	14.720	ppb	#REF!	1.00	2000.00	>RL
78	Se	1	72	8.657	ppb	#REF!	3.83	2000.00	>RL
88	Sr	2	115	2355.000	ppb	#REF!	5.50	2000.00	OUTCAL
95	Mo	2	115	1.161	ppb	#REF!	2.53	2000.00	ND
107	Ag	2	115	0.051	ppb	#REF!	12.55	500.00	ND
111	Cd	2	115	0.185	ppb	#REF!	43.79	2000.00	ND
118	Sn	2	115	4.750	ppb	#REF!	5.01	2000.00	ND
121	Sb	2	115	0.096	ppb	#REF!	12.80	500.00	ND
137	Ba	2	115	181.800	ppb	#REF!	4.42	2000.00	>RL
205	Tl	2	209	0.261	ppb	#REF!	4.63	2000.00	ND
208	Pb	2	209	29.360	ppb	#REF!	4.28	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8169.71	8.26	RHigh	50.17	-16285.4	70 - 120	ISFail
45	Sc	1	140109.95	1.62		184662.30	75.9	70 - 120	
45	Sc	2	2934210.00	4.60		4233596.00	69.3	70 - 120	ISFail
72	Ge	1	83395.48	1.04		110938.56	75.2	70 - 120	
115	In	2	4637611.50	3.87		5887647.50	78.8	70 - 120	
209	Bi	2	5196773.00	2.92		6267448.50	82.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\107SMPL.D\107SMPL.D#

Date Acquired:	May 19 2016 09:46 pm	Sample Name:	**1605096-49A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	62.810	ppb	#REF!	5.21	2000.00	>RL
9	Be	2	45	1.551	ppb	#REF!	4.90	2000.00	>RL
11	B	2	45	118.300	ppb	#REF!	6.54	2000.00	>RL
23	Na	1	45	12610.000	ppb	#REF!	4.97	25000.00	>RL
24	Mg	1	45	9628.000	ppb	#REF!	5.85	25000.00	>RL
27	Al	1	45	46690.000	ppb	#REF!	5.07	10000.00	OUTCAL
39	K	1	45	10200.000	ppb	#REF!	5.37	25000.00	>RL
44	Ca	2	45	167300.000	ppb	#REF!	6.72	25000.00	OUTCAL
47	Ti	1	45	110.600	ppb	#REF!	3.90	2000.00	>RL
51	V	1	45	85.200	ppb	#REF!	4.86	2000.00	>RL
52	Cr	1	45	53.130	ppb	#REF!	5.37	2000.00	>RL
55	Mn	1	45	38.070	ppb	#REF!	5.62	2000.00	>RL
56	Fe	1	72	69500.000	ppb	#REF!	6.42	10000.00	OUTCAL
59	Co	1	72	4.258	ppb	#REF!	4.22	2000.00	J
60	Ni	1	72	10.680	ppb	#REF!	6.30	2000.00	>RL
63	Cu	1	72	9.465	ppb	#REF!	5.74	2000.00	>RL
66	Zn	1	72	69.090	ppb	#REF!	4.68	2000.00	>RL
75	As	1	72	28.120	ppb	#REF!	5.90	2000.00	>RL
78	Se	1	72	11.260	ppb	#REF!	5.80	2000.00	>RL
88	Sr	2	115	2438.000	ppb	#REF!	7.28	2000.00	OUTCAL
95	Mo	2	115	1.500	ppb	#REF!	5.88	2000.00	ND
107	Ag	2	115	0.051	ppb	#REF!	16.03	500.00	ND
111	Cd	2	115	0.221	ppb	#REF!	21.19	2000.00	ND
118	Sn	2	115	5.070	ppb	#REF!	7.30	2000.00	ND
121	Sb	2	115	0.137	ppb	#REF!	8.60	500.00	ND
137	Ba	2	115	435.000	ppb	#REF!	6.07	2000.00	>RL
205	Tl	2	209	0.331	ppb	#REF!	3.10	2000.00	ND
208	Pb	2	209	46.950	ppb	#REF!	6.22	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4220.18	7.48	RHigh	50.17	-8412.4	70 - 120	ISFail
45	Sc	1	144505.81	4.82		184662.30	78.3	70 - 120	
45	Sc	2	2464918.80	6.28	RHigh	4233596.00	58.2	70 - 120	ISFail
72	Ge	1	85489.97	4.18		110938.56	77.1	70 - 120	
115	In	2	4022832.80	5.67	RHigh	5887647.50	68.3	70 - 120	ISFail
209	Bi	2	4607140.00	5.26	RHigh	6267448.50	73.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\108SMPL.D\108SMPL.D#

Date Acquired:	May 19 2016 09:52 pm	Sample Name:	**1605096-50A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	74.610	ppb	#REF!	2.21	2000.00	>RL
9	Be	2	45	2.775	ppb	#REF!	1.89	2000.00	>RL
11	B	2	45	74.290	ppb	#REF!	1.51	2000.00	>RL
23	Na	1	45	973.300	ppb	#REF!	1.37	25000.00	>RL
24	Mg	1	45	13880.000	ppb	#REF!	1.10	25000.00	>RL
27	Al	1	45	64920.000	ppb	#REF!	1.64	10000.00	OUTCAL
39	K	1	45	15590.000	ppb	#REF!	0.60	25000.00	>RL
44	Ca	2	45	107600.000	ppb	#REF!	2.19	25000.00	OUTCAL
47	Ti	1	45	186.600	ppb	#REF!	2.39	2000.00	>RL
51	V	1	45	115.900	ppb	#REF!	0.51	2000.00	>RL
52	Cr	1	45	80.050	ppb	#REF!	1.31	2000.00	>RL
55	Mn	1	45	774.000	ppb	#REF!	0.77	2000.00	>RL
56	Fe	1	72	68120.000	ppb	#REF!	0.96	10000.00	OUTCAL
59	Co	1	72	26.680	ppb	#REF!	0.77	2000.00	>RL
60	Ni	1	72	39.520	ppb	#REF!	0.73	2000.00	>RL
63	Cu	1	72	19.330	ppb	#REF!	1.15	2000.00	>RL
66	Zn	1	72	194.200	ppb	#REF!	1.25	2000.00	>RL
75	As	1	72	33.430	ppb	#REF!	1.32	2000.00	>RL
78	Se	1	72	22.740	ppb	#REF!	3.58	2000.00	>RL
88	Sr	2	115	318.000	ppb	#REF!	1.65	2000.00	>RL
95	Mo	2	115	2.890	ppb	#REF!	2.74	2000.00	J
107	Ag	2	115	0.142	ppb	#REF!	11.88	500.00	ND
111	Cd	2	115	0.840	ppb	#REF!	7.24	2000.00	J
118	Sn	2	115	6.428	ppb	#REF!	2.66	2000.00	ND
121	Sb	2	115	5.667	ppb	#REF!	3.88	500.00	>RL
137	Ba	2	115	462.000	ppb	#REF!	2.51	2000.00	>RL
205	Tl	2	209	0.558	ppb	#REF!	3.71	2000.00	ND
208	Pb	2	209	388.400	ppb	#REF!	0.92	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5482.28	6.22	RHigh	50.17	-10928.3	70 - 120	ISFail
45	Sc	1	143045.89	0.50		184662.30	77.5	70 - 120	
45	Sc	2	2645535.30	1.91		4233596.00	62.5	70 - 120	ISFail
72	Ge	1	86113.09	0.15		110938.56	77.6	70 - 120	
115	In	2	4233934.00	1.04		5887647.50	71.9	70 - 120	
209	Bi	2	4830569.00	1.57		6267448.50	77.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\109SMPL.D\109SMPL.D#

Date Acquired:	May 19 2016 09:58 pm	Sample Name:	**1605096-51A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	70.560	ppb	#REF!	1.47	2000.00	>RL
9	Be	2	45	2.476	ppb	#REF!	5.56	2000.00	>RL
11	B	2	45	67.880	ppb	#REF!	1.87	2000.00	>RL
23	Na	1	45	2836.000	ppb	#REF!	0.83	25000.00	>RL
24	Mg	1	45	11380.000	ppb	#REF!	1.11	25000.00	>RL
27	Al	1	45	63100.000	ppb	#REF!	1.47	10000.00	OUTCAL
39	K	1	45	12360.000	ppb	#REF!	0.29	25000.00	>RL
44	Ca	2	45	64470.000	ppb	#REF!	2.40	25000.00	OUTCAL
47	Ti	1	45	175.300	ppb	#REF!	4.63	2000.00	>RL
51	V	1	45	105.300	ppb	#REF!	1.56	2000.00	>RL
52	Cr	1	45	65.020	ppb	#REF!	1.59	2000.00	>RL
55	Mn	1	45	536.400	ppb	#REF!	0.99	2000.00	>RL
56	Fe	1	72	65770.000	ppb	#REF!	1.01	10000.00	OUTCAL
59	Co	1	72	26.330	ppb	#REF!	0.98	2000.00	>RL
60	Ni	1	72	38.070	ppb	#REF!	0.68	2000.00	>RL
63	Cu	1	72	15.370	ppb	#REF!	0.32	2000.00	>RL
66	Zn	1	72	185.900	ppb	#REF!	1.26	2000.00	>RL
75	As	1	72	28.600	ppb	#REF!	1.08	2000.00	>RL
78	Se	1	72	20.680	ppb	#REF!	6.26	2000.00	>RL
88	Sr	2	115	278.500	ppb	#REF!	1.86	2000.00	>RL
95	Mo	2	115	1.524	ppb	#REF!	3.30	2000.00	ND
107	Ag	2	115	0.109	ppb	#REF!	8.37	500.00	ND
111	Cd	2	115	0.653	ppb	#REF!	7.03	2000.00	J
118	Sn	2	115	5.049	ppb	#REF!	2.87	2000.00	ND
121	Sb	2	115	1.913	ppb	#REF!	2.12	500.00	ND
137	Ba	2	115	842.100	ppb	#REF!	2.10	2000.00	>RL
205	Tl	2	209	0.505	ppb	#REF!	0.52	2000.00	ND
208	Pb	2	209	96.420	ppb	#REF!	1.84	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6348.66	12.98	RHigh	50.17	-12655.3	70 - 120	ISFail
45	Sc	1	145504.11	0.98		184662.30	78.8	70 - 120	
45	Sc	2	2885801.30	2.09		4233596.00	68.2	70 - 120	ISFail
72	Ge	1	88293.48	0.52		110938.56	79.6	70 - 120	
115	In	2	4472139.00	1.70		5887647.50	76.0	70 - 120	
209	Bi	2	5001045.50	1.48		6267448.50	79.8	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\110_PDS.D\110_PDS.D#

Date Acquired:	May 19 2016 10:04 pm	Sample Name:	**1605096-42A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	252.40	ppb	0.94	-28887.75	200	75-125	######	Fail
9	Be	2	45	192.70	ppb	1.15	1.70	200	75-125	95.5	
11	B	2	45	234.20	ppb	1.82	61.25	200	75-125	86.5	
23	Na	1	45	5669.00	ppb	0.70	616.80	5000	75-125	101.0	
24	Mg	1	45	14560.00	ppb	2.07	9844.00	5000	75-125	94.3	
27	Al	1	45	46680.00	ppb	2.72	43690.00	5000	75-125	59.8	Fail
39	K	1	45	18080.00	ppb	1.71	13360.00	5000	75-125	94.4	
44	Ca	2	45	53090.00	ppb	1.32	48780.00	5000	75-125	86.2	
47	Ti	1	45	340.80	ppb	1.66	148.40	200	75-125	96.2	
51	V	1	45	267.20	ppb	0.77	68.57	200	75-125	99.3	
52	Cr	1	45	249.30	ppb	1.03	47.79	200	75-125	100.8	
55	Mn	1	45	647.60	ppb	2.10	473.80	200	75-125	86.9	
56	Fe	1	72	46680.00	ppb	0.62	42400.00	5000	75-125	85.6	
59	Co	1	72	206.20	ppb	0.59	15.61	200	75-125	95.3	
60	Ni	1	72	205.70	ppb	1.30	24.99	200	75-125	90.4	
63	Cu	1	72	205.10	ppb	1.21	21.48	200	75-125	91.8	
66	Zn	1	72	374.10	ppb	1.14	199.30	200	75-125	87.4	
75	As	1	72	213.70	ppb	0.81	20.09	200	75-125	96.8	
78	Se	1	72	200.60	ppb	0.60	16.12	200	75-125	92.2	
88	Sr	2	115	411.80	ppb	0.74	219.90	200	75-125	96.0	
95	Mo	2	115	179.90	ppb	1.39	1.07	200	75-125	89.4	
107	Ag	2	115	166.70	ppb	2.03	0.17	200	75-125	83.3	
111	Cd	2	115	175.10	ppb	1.73	0.60	200	75-125	87.2	
118	Sn	2	115	200.10	ppb	2.28	4.28	200	75-125	97.9	
121	Sb	2	115	195.90	ppb	2.13	2.25	200	75-125	96.8	
137	Ba	2	115	497.10	ppb	1.82	306.50	200	75-125	95.3	
205	Tl	2	209	201.60	ppb	1.29	0.46	200	75-125	100.6	
208	Pb	2	209	322.70	ppb	1.28	123.00	200	75-125	99.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28887.75	1.98	50.17	-57584.3	70	-	120	ISFail
45	Sc	1	145720.95	0.35	184662.30	78.9	70	-	120	
45	Sc	2	2855506.80	1.41	4233596.00	67.4	70	-	120	ISFail
72	Ge	1	88283.45	0.70	110938.56	79.6	70	-	120	
115	In	2	4435971.00	1.29	5887647.50	75.3	70	-	120	
209	Bi	2	5005928.50	1.22	6267448.50	79.9	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\111_MS.D\111_MS.D#

Date Acquired:	May 19 2016 10:10 pm	Sample Name:	**1605096-42A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	243.00	ppb	1.40	########	200	80-120	######	Fail
9	Be	2	45	173.00	ppb	1.87	1.70	200	80-120	85.7	
11	B	2	45	223.00	ppb	1.75	61.25	200	80-120	80.9	
23	Na	1	45	5307.00	ppb	0.86	616.80	1000	80-120	469.0	Fail
24	Mg	1	45	14850.00	ppb	1.09	9844.00	1000	80-120	500.6	Fail
27	Al	1	45	50180.00	ppb	2.26	43690.00	1000	80-120	649.0	Fail
39	K	1	45	19640.00	ppb	0.80	13360.00	1000	80-120	628.0	Fail
44	Ca	2	45	54820.00	ppb	1.75	48780.00	1000	80-120	604.0	Fail
47	Ti	1	45	349.80	ppb	1.09	148.40	200	80-120	100.7	
51	V	1	45	252.00	ppb	1.09	68.57	200	80-120	91.7	
52	Cr	1	45	229.40	ppb	0.95	47.79	200	80-120	90.8	
55	Mn	1	45	661.80	ppb	0.49	473.80	200	80-120	94.0	
56	Fe	1	72	46300.00	ppb	0.53	42400.00	1000	80-120	390.0	Fail
59	Co	1	72	185.50	ppb	0.58	15.61	200	80-120	84.9	
60	Ni	1	72	188.80	ppb	1.08	24.99	200	80-120	81.9	
63	Cu	1	72	191.70	ppb	0.24	21.48	200	80-120	85.1	
66	Zn	1	72	372.80	ppb	0.36	199.30	200	80-120	86.8	
75	As	1	72	194.90	ppb	0.67	20.09	200	80-120	87.4	
78	Se	1	72	180.60	ppb	3.03	16.12	200	80-120	82.2	
88	Sr	2	115	406.70	ppb	2.66	219.90	200	80-120	93.4	
95	Mo	2	115	160.20	ppb	1.65	1.07	200	80-120	79.6	Fail
107	Ag	2	115	172.20	ppb	1.88	0.17	200	80-120	86.0	
111	Cd	2	115	165.00	ppb	2.11	0.60	200	80-120	82.2	
118	Sn	2	115	178.30	ppb	2.66	4.28	200	80-120	87.0	
121	Sb	2	115	68.10	ppb	1.53	2.25	200	80-120	32.9	Fail
137	Ba	2	115	517.20	ppb	2.11	306.50	200	80-120	105.4	
205	Tl	2	209	191.10	ppb	1.07	0.46	200	80-120	95.3	
208	Pb	2	209	313.80	ppb	1.80	123.00	200	80-120	95.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-52280.91	1.20	50.17	########	70 - 120	ISFail
45	Sc	1	146152.11	0.27	184662.30	79.1	70 - 120	
45	Sc	2	2823832.30	1.18	4233596.00	66.7	70 - 120	ISFail
72	Ge	1	88063.51	0.82	110938.56	79.4	70 - 120	
115	In	2	4370260.00	2.10	5887647.50	74.2	70 - 120	
209	Bi	2	4930649.50	0.97	6267448.50	78.7	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\112_MS.D\112_MS.D#

Date Acquired:	May 19 2016 10:16 pm	Sample Name:	**1605096-42A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 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	252.10	ppb	0.59	########	200	80-120	######	Fail
9	Be	2	45	181.00	ppb	1.24	1.70	200	80-120	89.7	
11	B	2	45	231.70	ppb	1.87	61.25	200	80-120	85.2	
23	Na	1	45	5496.00	ppb	0.86	616.80	1000	80-120	487.9	Fail
24	Mg	1	45	15320.00	ppb	1.78	9844.00	1000	80-120	547.6	Fail
27	Al	1	45	51210.00	ppb	1.34	43690.00	1000	80-120	752.0	Fail
39	K	1	45	19960.00	ppb	1.73	13360.00	1000	80-120	660.0	Fail
44	Ca	2	45	55420.00	ppb	1.87	48780.00	1000	80-120	664.0	Fail
47	Ti	1	45	350.80	ppb	1.42	148.40	200	80-120	101.2	
51	V	1	45	261.00	ppb	0.60	68.57	200	80-120	96.2	
52	Cr	1	45	238.00	ppb	1.47	47.79	200	80-120	95.1	
55	Mn	1	45	673.50	ppb	1.04	473.80	200	80-120	99.9	
56	Fe	1	72	46750.00	ppb	1.73	42400.00	1000	80-120	435.0	Fail
59	Co	1	72	194.00	ppb	1.19	15.61	200	80-120	89.2	
60	Ni	1	72	196.40	ppb	0.97	24.99	200	80-120	85.7	
63	Cu	1	72	195.60	ppb	0.64	21.48	200	80-120	87.1	
66	Zn	1	72	378.20	ppb	1.30	199.30	200	80-120	89.5	
75	As	1	72	200.20	ppb	0.58	20.09	200	80-120	90.1	
78	Se	1	72	189.20	ppb	1.08	16.12	200	80-120	86.5	
88	Sr	2	115	416.00	ppb	1.09	219.90	200	80-120	98.1	
95	Mo	2	115	166.20	ppb	1.73	1.07	200	80-120	82.6	
107	Ag	2	115	175.20	ppb	2.00	0.17	200	80-120	87.5	
111	Cd	2	115	171.80	ppb	1.66	0.60	200	80-120	85.6	
118	Sn	2	115	186.00	ppb	1.48	4.28	200	80-120	90.9	
121	Sb	2	115	69.74	ppb	1.94	2.25	200	80-120	33.7	Fail
137	Ba	2	115	504.20	ppb	1.23	306.50	200	80-120	98.9	
205	Tl	2	209	197.70	ppb	1.05	0.46	200	80-120	98.6	
208	Pb	2	209	320.90	ppb	1.29	123.00	200	80-120	99.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-55251.08	3.15	50.17	########	70	-	120	ISFail
45	Sc	1	145649.14	0.33	184662.30	78.9	70	-	120	
45	Sc	2	2824383.00	1.55	4233596.00	66.7	70	-	120	ISFail
72	Ge	1	87906.75	0.46	110938.56	79.2	70	-	120	
115	In	2	4355616.50	1.34	5887647.50	74.0	70	-	120	
209	Bi	2	4926423.50	0.86	6267448.50	78.6	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\114CCV1.D\114CCV1.D#

Date Acquired:	May 19 2016 10:28 pm	Sample Name:	**CCV5-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	217.40	ppb	1.09	200.00	90 -	110	108.7	
9	Be	2	45	204.90	ppb	1.13	200.00	90 -	110	102.5	
11	B	2	45	185.40	ppb	2.36	200.00	90 -	110	92.7	
23	Na	1	45	5277.00	ppb	1.79	5000.00	90 -	110	105.5	
24	Mg	1	45	4958.00	ppb	1.06	5000.00	90 -	110	99.2	
27	Al	1	45	4891.00	ppb	1.58	5000.00	90 -	110	97.8	
39	K	1	45	5086.00	ppb	0.41	5000.00	90 -	110	101.7	
44	Ca	2	45	4872.00	ppb	1.29	5000.00	90 -	110	97.4	
47	Ti	1	45	199.10	ppb	0.47	200.00	90 -	110	99.6	
51	V	1	45	201.90	ppb	0.49	200.00	90 -	110	101.0	
52	Cr	1	45	205.50	ppb	1.65	200.00	90 -	110	102.8	
55	Mn	1	45	196.80	ppb	0.66	200.00	90 -	110	98.4	
56	Fe	1	72	4762.00	ppb	1.07	5000.00	90 -	110	95.2	
59	Co	1	72	194.90	ppb	0.96	200.00	90 -	110	97.5	
60	Ni	1	72	190.20	ppb	1.08	200.00	90 -	110	95.1	
63	Cu	1	72	196.80	ppb	0.74	200.00	90 -	110	98.4	
66	Zn	1	72	201.00	ppb	1.33	200.00	90 -	110	100.5	
75	As	1	72	205.50	ppb	0.47	200.00	90 -	110	102.8	
78	Se	1	72	203.50	ppb	1.25	200.00	90 -	110	101.8	
88	Sr	2	115	205.20	ppb	1.38	200.00	90 -	110	102.6	
95	Mo	2	115	184.70	ppb	1.88	200.00	90 -	110	92.4	
107	Ag	2	115	191.70	ppb	1.12	200.00	90 -	110	95.9	
111	Cd	2	115	188.70	ppb	1.77	200.00	90 -	110	94.4	
118	Sn	2	115	194.00	ppb	1.55	200.00	90 -	110	97.0	
121	Sb	2	115	198.20	ppb	1.01	200.00	90 -	110	99.1	
137	Ba	2	115	199.40	ppb	1.53	200.00	90 -	110	99.7	
205	Tl	2	209	202.00	ppb	0.83	200.00	90 -	110	101.0	
208	Pb	2	209	190.50	ppb	0.96	200.00	90 -	110	95.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-54427.40	1.72	50.17	-108494.6	70 -	120		ISFail
45	Sc	1	138308.77	0.72	184662.30	74.9	70 -	120		
45	Sc	2	2786980.30	0.18	4233596.00	65.8	70 -	120		ISFail
72	Ge	1	85937.93	0.21	110938.56	77.5	70 -	120		
115	In	2	4326333.50	0.95	5887647.50	73.5	70 -	120		
209	Bi	2	5065979.00	0.62	6267448.50	80.8	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\116LCVL.D\116LCVL.D#

Date Acquired:	May 19 2016 10:40 pm	Sample Name:	**LCVL5-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.65	ppb	0.51	5.00	70 -	130	213.0	Fail
9	Be	2	45	1.09	ppb	2.25	1.00	70 -	130	109.4	
11	B	2	45	19.79	ppb	1.75	20.00	70 -	130	99.0	
23	Na	1	45	103.70	ppb	0.47	100.00	70 -	130	103.7	
24	Mg	1	45	101.40	ppb	0.62	100.00	70 -	130	101.4	
27	Al	1	45	110.40	ppb	2.97	100.00	70 -	130	110.4	
39	K	1	45	104.10	ppb	0.86	100.00	70 -	130	104.1	
44	Ca	2	45	101.40	ppb	1.01	100.00	70 -	130	101.4	
47	Ti	1	45	5.23	ppb	3.41	5.00	70 -	130	104.6	
51	V	1	45	1.08	ppb	4.72	1.00	70 -	130	107.5	
52	Cr	1	45	5.32	ppb	2.19	5.00	70 -	130	106.4	
55	Mn	1	45	4.90	ppb	3.52	5.00	70 -	130	98.1	
56	Fe	1	72	102.50	ppb	1.85	100.00	70 -	130	102.5	
59	Co	1	72	4.98	ppb	1.65	5.00	70 -	130	99.7	
60	Ni	1	72	4.82	ppb	1.82	5.00	70 -	130	96.5	
63	Cu	1	72	4.91	ppb	0.65	5.00	70 -	130	98.3	
66	Zn	1	72	4.87	ppb	3.22	5.00	70 -	130	97.4	
75	As	1	72	5.21	ppb	1.57	5.00	70 -	130	104.2	
78	Se	1	72	5.58	ppb	6.36	5.00	70 -	130	111.6	
88	Sr	2	115	4.97	ppb	1.97	5.00	70 -	130	99.3	
95	Mo	2	115	4.63	ppb	1.49	5.00	70 -	130	92.7	
107	Ag	2	115	1.94	ppb	2.62	2.00	70 -	130	96.9	
111	Cd	2	115	0.90	ppb	5.25	1.00	70 -	130	90.3	
118	Sn	2	115	5.01	ppb	2.82	5.00	70 -	130	100.3	
121	Sb	2	115	2.08	ppb	3.32	2.00	70 -	130	104.1	
137	Ba	2	115	5.09	ppb	2.21	5.00	70 -	130	101.8	
205	Tl	2	209	1.06	ppb	2.10	1.00	70 -	130	105.8	
208	Pb	2	209	1.04	ppb	2.02	1.00	70 -	130	104.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1316.12	3.31	50.17	-2623.5	70 -	120		ISFail
45	Sc	1	143933.95	0.50	184662.30	77.9	70 -	120		
45	Sc	2	2852097.80	0.74	4233596.00	67.4	70 -	120		ISFail
72	Ge	1	90296.59	0.71	110938.56	81.4	70 -	120		
115	In	2	4453686.00	0.58	5887647.50	75.6	70 -	120		
209	Bi	2	5221460.50	0.85	6267448.50	83.3	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\117_CCB.D\117_CCB.D#

Date Acquired:	May 19 2016 10:46 pm	Sample Name:	**CCB5-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.175	ppb	8.00	2.00	2.00	
9	Be	2	45	0.041	ppb	9.18	0.40	0.30	
11	B	2	45	0.883	ppb	0.59	10.00	10.00	
23	Na	1	45	4.200	ppb	2.00	50.00	#####	
24	Mg	1	45	0.947	ppb	2.38	50.00	#####	
27	Al	1	45	5.382	ppb	2.68	50.00	10.00	
39	K	1	45	4.648	ppb	1.96	50.00	#####	
44	Ca	2	45	3.986	ppb	4.28	50.00	#####	
47	Ti	1	45	0.047	ppb	49.99	4.00	3.00	
51	V	1	45	0.059	ppb	19.31	4.00	3.00	
52	Cr	1	45	0.065	ppb	2.81	2.00	2.00	
55	Mn	1	45	0.040	ppb	17.42	2.00	3.00	
56	Fe	1	72	4.156	ppb	12.91	50.00	30.00	
59	Co	1	72	0.040	ppb	11.60	2.00	3.00	
60	Ni	1	72	-0.004	ppb	18.69	2.00	3.00	
63	Cu	1	72	0.044	ppb	11.53	2.00	2.00	
66	Zn	1	72	0.987	ppb	5.43	4.00	2.00	
75	As	1	72	0.081	ppb	11.63	2.00	2.00	
78	Se	1	72	0.107	ppb	25.52	0.60	2.00	
88	Sr	2	115	0.082	ppb	3.47	4.00	3.00	
95	Mo	2	115	0.053	ppb	28.75	2.00	2.00	
107	Ag	2	115	0.055	ppb	6.45	0.40	1.00	
111	Cd	2	115	0.026	ppb	14.44	0.40	0.30	
118	Sn	2	115	0.077	ppb	6.40	20.00	3.00	
121	Sb	2	115	0.029	ppb	30.83	2.00	0.80	
137	Ba	2	115	0.095	ppb	9.36	2.00	3.00	
205	Tl	2	209	0.074	ppb	9.60	2.00	0.50	
208	Pb	2	209	0.066	ppb	5.49	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-8.03	23.08	50.17	-16.0	70 - 120	ISFail
45	Sc	1		141314.92	0.56	184662.30	76.5	70 - 120	
45	Sc	2		2862680.00	0.67	4233596.00	67.6	70 - 120	ISFail
72	Ge	1		88302.31	1.11	110938.56	79.6	70 - 120	
115	In	2		4493180.50	0.97	5887647.50	76.3	70 - 120	
209	Bi	2		5209427.00	1.04	6267448.50	83.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\118SMPL.D\118SMPL.D#

Date Acquired:	May 19 2016 10:52 pm	Sample Name:	**1605096-52A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	81.050	ppb	#REF!	2.32	2000.00	>RL
9	Be	2	45	2.135	ppb	#REF!	5.07	2000.00	>RL
11	B	2	45	116.600	ppb	#REF!	3.98	2000.00	>RL
23	Na	1	45	12660.000	ppb	#REF!	1.39	25000.00	>RL
24	Mg	1	45	12280.000	ppb	#REF!	2.59	25000.00	>RL
27	Al	1	45	53290.000	ppb	#REF!	2.86	10000.00	OUTCAL
39	K	1	45	10480.000	ppb	#REF!	1.95	25000.00	>RL
44	Ca	2	45	203900.000	ppb	#REF!	3.67	25000.00	OUTCAL
47	Ti	1	45	131.500	ppb	#REF!	1.62	2000.00	>RL
51	V	1	45	91.340	ppb	#REF!	2.26	2000.00	>RL
52	Cr	1	45	61.510	ppb	#REF!	1.74	2000.00	>RL
55	Mn	1	45	187.300	ppb	#REF!	2.20	2000.00	>RL
56	Fe	1	72	71300.000	ppb	#REF!	2.15	10000.00	OUTCAL
59	Co	1	72	17.090	ppb	#REF!	2.12	2000.00	>RL
60	Ni	1	72	26.840	ppb	#REF!	2.11	2000.00	>RL
63	Cu	1	72	9.522	ppb	#REF!	1.98	2000.00	>RL
66	Zn	1	72	172.000	ppb	#REF!	2.34	2000.00	>RL
75	As	1	72	23.370	ppb	#REF!	2.51	2000.00	>RL
78	Se	1	72	16.230	ppb	#REF!	4.14	2000.00	>RL
88	Sr	2	115	1624.000	ppb	#REF!	3.05	2000.00	>RL
95	Mo	2	115	1.817	ppb	#REF!	4.45	2000.00	ND
107	Ag	2	115	0.097	ppb	#REF!	6.40	500.00	ND
111	Cd	2	115	0.425	ppb	#REF!	1.96	2000.00	J
118	Sn	2	115	5.201	ppb	#REF!	3.57	2000.00	ND
121	Sb	2	115	0.752	ppb	#REF!	5.91	500.00	ND
137	Ba	2	115	251.300	ppb	#REF!	3.64	2000.00	>RL
205	Tl	2	209	0.444	ppb	#REF!	5.89	2000.00	ND
208	Pb	2	209	161.600	ppb	#REF!	2.25	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6942.75	4.12	50.17	-13839.6	70 - 120	ISFail
45	Sc	1	138001.72	1.74	184662.30	74.7	70 - 120	
45	Sc	2	2596188.30	3.16	4233596.00	61.3	70 - 120	ISFail
72	Ge	1	82714.20	1.82	110938.56	74.6	70 - 120	
115	In	2	3978981.30	4.19	5887647.50	67.6	70 - 120	ISFail
209	Bi	2	4447891.50	2.58	6267448.50	71.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\119SMPL.D\119SMPL.D#

Date Acquired:	May 19 2016 10:58 pm	Sample Name:	**1605096-53A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	74.420	ppb	#REF!	1.49	2000.00	>RL
9	Be	2	45	1.440	ppb	#REF!	3.04	2000.00	>RL
11	B	2	45	106.500	ppb	#REF!	2.80	2000.00	>RL
23	Na	1	45	10010.000	ppb	#REF!	3.02	25000.00	>RL
24	Mg	1	45	8548.000	ppb	#REF!	3.19	25000.00	>RL
27	Al	1	45	33920.000	ppb	#REF!	3.39	10000.00	OUTCAL
39	K	1	45	7420.000	ppb	#REF!	3.21	25000.00	>RL
44	Ca	2	45	186300.000	ppb	#REF!	2.49	25000.00	OUTCAL
47	Ti	1	45	118.300	ppb	#REF!	2.41	2000.00	>RL
51	V	1	45	63.870	ppb	#REF!	3.87	2000.00	>RL
52	Cr	1	45	42.270	ppb	#REF!	3.12	2000.00	>RL
55	Mn	1	45	80.950	ppb	#REF!	3.38	2000.00	>RL
56	Fe	1	72	54460.000	ppb	#REF!	3.37	10000.00	OUTCAL
59	Co	1	72	10.350	ppb	#REF!	3.63	2000.00	>RL
60	Ni	1	72	16.140	ppb	#REF!	2.97	2000.00	>RL
63	Cu	1	72	6.183	ppb	#REF!	3.10	2000.00	J
66	Zn	1	72	96.990	ppb	#REF!	4.36	2000.00	>RL
75	As	1	72	16.050	ppb	#REF!	3.49	2000.00	>RL
78	Se	1	72	8.951	ppb	#REF!	4.99	2000.00	>RL
88	Sr	2	115	4697.000	ppb	#REF!	2.33	2000.00	OUTCAL
95	Mo	2	115	1.606	ppb	#REF!	6.83	2000.00	ND
107	Ag	2	115	0.057	ppb	#REF!	19.65	500.00	ND
111	Cd	2	115	0.264	ppb	#REF!	12.60	2000.00	ND
118	Sn	2	115	4.672	ppb	#REF!	0.43	2000.00	ND
121	Sb	2	115	0.157	ppb	#REF!	7.48	500.00	ND
137	Ba	2	115	166.400	ppb	#REF!	1.72	2000.00	>RL
205	Tl	2	209	0.255	ppb	#REF!	3.16	2000.00	ND
208	Pb	2	209	22.970	ppb	#REF!	1.41	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5676.57	1.64	50.17	-11315.6	70 - 120	ISFail
45	Sc	1	130280.10	3.96	184662.30	70.6	70 - 120	
45	Sc	2	2609559.80	2.64	4233596.00	61.6	70 - 120	ISFail
72	Ge	1	78525.68	3.76	110938.56	70.8	70 - 120	
115	In	2	4156395.00	1.87	5887647.50	70.6	70 - 120	
209	Bi	2	4681886.00	1.30	6267448.50	74.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\120SMPL.D\120SMPL.D#

Date Acquired:	May 19 2016 11:04 pm	Sample Name:	**1605096-54A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.370	ppb	#REF!	0.75	2000.00	>RL
9	Be	2	45	1.785	ppb	#REF!	2.96	2000.00	>RL
11	B	2	45	127.400	ppb	#REF!	3.02	2000.00	>RL
23	Na	1	45	13330.000	ppb	#REF!	0.64	25000.00	>RL
24	Mg	1	45	10840.000	ppb	#REF!	1.16	25000.00	>RL
27	Al	1	45	48920.000	ppb	#REF!	2.43	10000.00	OUTCAL
39	K	1	45	10050.000	ppb	#REF!	0.77	25000.00	>RL
44	Ca	2	45	76170.000	ppb	#REF!	2.35	25000.00	OUTCAL
47	Ti	1	45	103.100	ppb	#REF!	1.61	2000.00	>RL
51	V	1	45	92.650	ppb	#REF!	0.41	2000.00	>RL
52	Cr	1	45	60.850	ppb	#REF!	0.36	2000.00	>RL
55	Mn	1	45	37.230	ppb	#REF!	1.33	2000.00	>RL
56	Fe	1	72	64660.000	ppb	#REF!	0.69	10000.00	OUTCAL
59	Co	1	72	4.241	ppb	#REF!	0.84	2000.00	J
60	Ni	1	72	11.410	ppb	#REF!	1.54	2000.00	>RL
63	Cu	1	72	9.655	ppb	#REF!	0.60	2000.00	>RL
66	Zn	1	72	78.680	ppb	#REF!	1.74	2000.00	>RL
75	As	1	72	30.070	ppb	#REF!	0.39	2000.00	>RL
78	Se	1	72	13.120	ppb	#REF!	5.89	2000.00	>RL
88	Sr	2	115	2470.000	ppb	#REF!	1.35	2000.00	OUTCAL
95	Mo	2	115	1.686	ppb	#REF!	3.62	2000.00	ND
107	Ag	2	115	0.055	ppb	#REF!	27.55	500.00	ND
111	Cd	2	115	0.232	ppb	#REF!	34.40	2000.00	ND
118	Sn	2	115	4.934	ppb	#REF!	2.13	2000.00	ND
121	Sb	2	115	0.150	ppb	#REF!	2.34	500.00	ND
137	Ba	2	115	409.700	ppb	#REF!	2.20	2000.00	>RL
205	Tl	2	209	0.367	ppb	#REF!	3.00	2000.00	ND
208	Pb	2	209	42.160	ppb	#REF!	1.30	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3506.98	7.39	RHigh	50.17	-6990.7	70 - 120	ISFail
45	Sc	1	121145.32	0.38		184662.30	65.6	70 - 120	ISFail
45	Sc	2	2250842.80	1.45		4233596.00	53.2	70 - 120	ISFail
72	Ge	1	74449.34	0.24		110938.56	67.1	70 - 120	ISFail
115	In	2	3585739.50	0.47		5887647.50	60.9	70 - 120	ISFail
209	Bi	2	4112445.80	0.71		6267448.50	65.6	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\121SMPL.D\121SMPL.D#

Date Acquired:	May 19 2016 11:10 pm	Sample Name:	**1605096-55A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	66.380	ppb	#REF!	1.03	2000.00	>RL
9	Be	2	45	2.410	ppb	#REF!	3.90	2000.00	>RL
11	B	2	45	64.560	ppb	#REF!	2.00	2000.00	>RL
23	Na	1	45	810.400	ppb	#REF!	0.21	25000.00	>RL
24	Mg	1	45	11920.000	ppb	#REF!	1.12	25000.00	>RL
27	Al	1	45	57420.000	ppb	#REF!	0.60	10000.00	OUTCAL
39	K	1	45	13410.000	ppb	#REF!	0.20	25000.00	>RL
44	Ca	2	45	93080.000	ppb	#REF!	2.14	25000.00	OUTCAL
47	Ti	1	45	185.700	ppb	#REF!	0.30	2000.00	>RL
51	V	1	45	95.410	ppb	#REF!	1.11	2000.00	>RL
52	Cr	1	45	71.790	ppb	#REF!	1.08	2000.00	>RL
55	Mn	1	45	568.700	ppb	#REF!	1.09	2000.00	>RL
56	Fe	1	72	58690.000	ppb	#REF!	1.64	10000.00	OUTCAL
59	Co	1	72	22.760	ppb	#REF!	1.10	2000.00	>RL
60	Ni	1	72	33.660	ppb	#REF!	0.66	2000.00	>RL
63	Cu	1	72	14.860	ppb	#REF!	1.77	2000.00	>RL
66	Zn	1	72	305.200	ppb	#REF!	0.84	2000.00	>RL
75	As	1	72	30.550	ppb	#REF!	0.85	2000.00	>RL
78	Se	1	72	20.490	ppb	#REF!	4.06	2000.00	>RL
88	Sr	2	115	295.600	ppb	#REF!	1.51	2000.00	>RL
95	Mo	2	115	1.351	ppb	#REF!	5.69	2000.00	ND
107	Ag	2	115	0.176	ppb	#REF!	1.51	500.00	ND
111	Cd	2	115	0.900	ppb	#REF!	13.46	2000.00	J
118	Sn	2	115	5.394	ppb	#REF!	1.00	2000.00	ND
121	Sb	2	115	8.113	ppb	#REF!	2.41	500.00	>RL
137	Ba	2	115	475.800	ppb	#REF!	1.96	2000.00	>RL
205	Tl	2	209	0.510	ppb	#REF!	0.91	2000.00	ND
208	Pb	2	209	801.400	ppb	#REF!	0.92	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4261.11	11.82	RHigh	50.17	-8494.0	70 - 120	ISFail
45	Sc	1	131672.47	0.29		184662.30	71.3	70 - 120	
45	Sc	2	2478760.30	2.94		4233596.00	58.5	70 - 120	ISFail
72	Ge	1	79686.45	1.01		110938.56	71.8	70 - 120	
115	In	2	3916912.00	0.69		5887647.50	66.5	70 - 120	ISFail
209	Bi	2	4449501.00	0.81		6267448.50	71.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\122SMPL.D\122SMPL.D#

Date Acquired:	May 19 2016 11:16 pm	Sample Name:	**1605096-56A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	70.140	ppb	#REF!	1.72	2000.00	>RL
9	Be	2	45	2.473	ppb	#REF!	3.94	2000.00	>RL
11	B	2	45	59.090	ppb	#REF!	2.21	2000.00	>RL
23	Na	1	45	2303.000	ppb	#REF!	0.57	25000.00	>RL
24	Mg	1	45	10870.000	ppb	#REF!	1.04	25000.00	>RL
27	Al	1	45	60550.000	ppb	#REF!	0.90	10000.00	OUTCAL
39	K	1	45	11350.000	ppb	#REF!	0.32	25000.00	>RL
44	Ca	2	45	45920.000	ppb	#REF!	2.23	25000.00	OUTCAL
47	Ti	1	45	135.300	ppb	#REF!	3.11	2000.00	>RL
51	V	1	45	99.170	ppb	#REF!	0.89	2000.00	>RL
52	Cr	1	45	63.700	ppb	#REF!	0.70	2000.00	>RL
55	Mn	1	45	514.100	ppb	#REF!	0.68	2000.00	>RL
56	Fe	1	72	63170.000	ppb	#REF!	0.40	10000.00	OUTCAL
59	Co	1	72	26.540	ppb	#REF!	0.10	2000.00	>RL
60	Ni	1	72	37.160	ppb	#REF!	0.74	2000.00	>RL
63	Cu	1	72	13.920	ppb	#REF!	0.53	2000.00	>RL
66	Zn	1	72	200.000	ppb	#REF!	0.87	2000.00	>RL
75	As	1	72	28.930	ppb	#REF!	0.86	2000.00	>RL
78	Se	1	72	19.870	ppb	#REF!	3.54	2000.00	>RL
88	Sr	2	115	234.400	ppb	#REF!	1.78	2000.00	>RL
95	Mo	2	115	0.872	ppb	#REF!	4.74	2000.00	ND
107	Ag	2	115	0.119	ppb	#REF!	10.51	500.00	ND
111	Cd	2	115	0.600	ppb	#REF!	11.77	2000.00	J
118	Sn	2	115	4.453	ppb	#REF!	1.77	2000.00	ND
121	Sb	2	115	2.427	ppb	#REF!	1.39	500.00	J
137	Ba	2	115	363.900	ppb	#REF!	2.22	2000.00	>RL
205	Tl	2	209	0.497	ppb	#REF!	1.10	2000.00	ND
208	Pb	2	209	191.300	ppb	#REF!	1.72	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5442.29	13.13	RHigh	50.17	-10848.6	70 - 120	ISFail
45	Sc	1	125771.29	0.80		184662.30	68.1	70 - 120	ISFail
45	Sc	2	2550863.80	2.17		4233596.00	60.3	70 - 120	ISFail
72	Ge	1	77620.51	0.62		110938.56	70.0	70 - 120	ISFail
115	In	2	3956034.00	1.61		5887647.50	67.2	70 - 120	ISFail
209	Bi	2	4376708.00	0.52		6267448.50	69.8	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\123SMPL.D\123SMPL.D#

Date Acquired:	May 19 2016 11:22 pm	Sample Name:	**1605096-57A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	102.400	ppb	#REF!	2.66	2000.00	>RL
9	Be	2	45	2.084	ppb	#REF!	1.66	2000.00	>RL
11	B	2	45	100.300	ppb	#REF!	4.39	2000.00	>RL
23	Na	1	45	6753.000	ppb	#REF!	2.22	25000.00	>RL
24	Mg	1	45	10130.000	ppb	#REF!	3.60	25000.00	>RL
27	Al	1	45	51820.000	ppb	#REF!	1.68	10000.00	OUTCAL
39	K	1	45	8312.000	ppb	#REF!	2.41	25000.00	>RL
44	Ca	2	45	219500.000	ppb	#REF!	3.56	25000.00	OUTCAL
47	Ti	1	45	125.500	ppb	#REF!	1.88	2000.00	>RL
51	V	1	45	94.320	ppb	#REF!	1.45	2000.00	>RL
52	Cr	1	45	55.940	ppb	#REF!	1.01	2000.00	>RL
55	Mn	1	45	170.700	ppb	#REF!	2.06	2000.00	>RL
56	Fe	1	72	55700.000	ppb	#REF!	1.12	10000.00	OUTCAL
59	Co	1	72	13.960	ppb	#REF!	1.91	2000.00	>RL
60	Ni	1	72	27.870	ppb	#REF!	0.58	2000.00	>RL
63	Cu	1	72	7.673	ppb	#REF!	2.81	2000.00	J
66	Zn	1	72	131.200	ppb	#REF!	2.51	2000.00	>RL
75	As	1	72	19.830	ppb	#REF!	2.04	2000.00	>RL
78	Se	1	72	12.500	ppb	#REF!	0.90	2000.00	>RL
88	Sr	2	115	2468.000	ppb	#REF!	4.18	2000.00	OUTCAL
95	Mo	2	115	1.150	ppb	#REF!	12.26	2000.00	ND
107	Ag	2	115	0.064	ppb	#REF!	14.90	500.00	ND
111	Cd	2	115	0.344	ppb	#REF!	15.92	2000.00	ND
118	Sn	2	115	4.778	ppb	#REF!	1.25	2000.00	ND
121	Sb	2	115	0.144	ppb	#REF!	15.33	500.00	ND
137	Ba	2	115	481.300	ppb	#REF!	3.67	2000.00	>RL
205	Tl	2	209	0.380	ppb	#REF!	3.97	2000.00	ND
208	Pb	2	209	32.590	ppb	#REF!	3.33	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6973.33	4.93	50.17	-13900.5	70 - 120	ISFail
45	Sc	1	118210.84	2.97	184662.30	64.0	70 - 120	ISFail
45	Sc	2	2310573.30	3.27	4233596.00	54.6	70 - 120	ISFail
72	Ge	1	71677.62	1.84	110938.56	64.6	70 - 120	ISFail
115	In	2	3634605.00	3.48	5887647.50	61.7	70 - 120	ISFail
209	Bi	2	4093700.00	1.47	6267448.50	65.3	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\124SMPL.D\124SMPL.D#

Date Acquired:	May 19 2016 11:28 pm	Sample Name:	**1605096-58A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	131.800	ppb	#REF!	0.98	2000.00	>RL
9	Be	2	45	2.244	ppb	#REF!	4.58	2000.00	>RL
11	B	2	45	131.800	ppb	#REF!	1.00	2000.00	>RL
23	Na	1	45	11460.000	ppb	#REF!	2.42	25000.00	>RL
24	Mg	1	45	11760.000	ppb	#REF!	1.00	25000.00	>RL
27	Al	1	45	45190.000	ppb	#REF!	1.85	10000.00	OUTCAL
39	K	1	45	8258.000	ppb	#REF!	1.01	25000.00	>RL
44	Ca	2	45	174900.000	ppb	#REF!	1.17	25000.00	OUTCAL
47	Ti	1	45	121.400	ppb	#REF!	2.14	2000.00	>RL
51	V	1	45	80.380	ppb	#REF!	1.30	2000.00	>RL
52	Cr	1	45	54.720	ppb	#REF!	1.71	2000.00	>RL
55	Mn	1	45	252.100	ppb	#REF!	0.97	2000.00	>RL
56	Fe	1	72	73730.000	ppb	#REF!	1.41	10000.00	OUTCAL
59	Co	1	72	25.340	ppb	#REF!	0.74	2000.00	>RL
60	Ni	1	72	36.550	ppb	#REF!	1.41	2000.00	>RL
63	Cu	1	72	7.358	ppb	#REF!	2.28	2000.00	J
66	Zn	1	72	188.600	ppb	#REF!	2.24	2000.00	>RL
75	As	1	72	19.460	ppb	#REF!	1.39	2000.00	>RL
78	Se	1	72	14.550	ppb	#REF!	2.88	2000.00	>RL
88	Sr	2	115	3657.000	ppb	#REF!	1.03	2000.00	OUTCAL
95	Mo	2	115	1.238	ppb	#REF!	4.31	2000.00	ND
107	Ag	2	115	0.061	ppb	#REF!	12.46	500.00	ND
111	Cd	2	115	0.270	ppb	#REF!	8.17	2000.00	ND
118	Sn	2	115	4.770	ppb	#REF!	3.04	2000.00	ND
121	Sb	2	115	0.119	ppb	#REF!	5.99	500.00	ND
137	Ba	2	115	195.300	ppb	#REF!	1.10	2000.00	>RL
205	Tl	2	209	0.346	ppb	#REF!	1.14	2000.00	ND
208	Pb	2	209	29.340	ppb	#REF!	0.34	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11318.25	3.31	50.17	-22561.6	70 - 120	ISFail
45	Sc	1	141853.16	0.99	184662.30	76.8	70 - 120	
45	Sc	2	2699358.30	1.09	4233596.00	63.8	70 - 120	ISFail
72	Ge	1	84675.15	1.33	110938.56	76.3	70 - 120	
115	In	2	4357433.00	0.68	5887647.50	74.0	70 - 120	
209	Bi	2	4981145.00	1.17	6267448.50	79.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\125SMPL.D\125SMPL.D#

Date Acquired:	May 19 2016 11:34 pm	Sample Name:	**1605096-59A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	81.200	ppb	#REF!	0.42	2000.00	>RL
9	Be	2	45	2.238	ppb	#REF!	5.75	2000.00	>RL
11	B	2	45	121.300	ppb	#REF!	0.95	2000.00	>RL
23	Na	1	45	10520.000	ppb	#REF!	2.86	25000.00	>RL
24	Mg	1	45	11920.000	ppb	#REF!	2.70	25000.00	>RL
27	Al	1	45	49100.000	ppb	#REF!	2.69	10000.00	OUTCAL
39	K	1	45	10030.000	ppb	#REF!	2.78	25000.00	>RL
44	Ca	2	45	110800.000	ppb	#REF!	0.86	25000.00	OUTCAL
47	Ti	1	45	123.000	ppb	#REF!	0.94	2000.00	>RL
51	V	1	45	91.620	ppb	#REF!	2.18	2000.00	>RL
52	Cr	1	45	63.710	ppb	#REF!	2.76	2000.00	>RL
55	Mn	1	45	235.800	ppb	#REF!	2.69	2000.00	>RL
56	Fe	1	72	66150.000	ppb	#REF!	3.31	10000.00	OUTCAL
59	Co	1	72	16.650	ppb	#REF!	3.14	2000.00	>RL
60	Ni	1	72	24.460	ppb	#REF!	2.67	2000.00	>RL
63	Cu	1	72	8.927	ppb	#REF!	1.65	2000.00	>RL
66	Zn	1	72	141.400	ppb	#REF!	2.47	2000.00	>RL
75	As	1	72	24.540	ppb	#REF!	2.97	2000.00	>RL
78	Se	1	72	14.850	ppb	#REF!	1.84	2000.00	>RL
88	Sr	2	115	3158.000	ppb	#REF!	1.55	2000.00	OUTCAL
95	Mo	2	115	1.214	ppb	#REF!	4.68	2000.00	ND
107	Ag	2	115	0.063	ppb	#REF!	0.90	500.00	ND
111	Cd	2	115	0.531	ppb	#REF!	18.19	2000.00	J
118	Sn	2	115	4.955	ppb	#REF!	1.26	2000.00	ND
121	Sb	2	115	0.299	ppb	#REF!	10.11	500.00	ND
137	Ba	2	115	449.200	ppb	#REF!	1.52	2000.00	>RL
205	Tl	2	209	0.367	ppb	#REF!	2.09	2000.00	ND
208	Pb	2	209	69.490	ppb	#REF!	0.31	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5673.30	5.28	RHigh	50.17	-11309.0	70 - 120	ISFail
45	Sc	1	134339.59	3.29		184662.30	72.7	70 - 120	
45	Sc	2	2491743.50	0.97		4233596.00	58.9	70 - 120	ISFail
72	Ge	1	81612.95	2.45		110938.56	73.6	70 - 120	
115	In	2	4063051.30	0.93		5887647.50	69.0	70 - 120	ISFail
209	Bi	2	4696378.50	0.55		6267448.50	74.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\126SMPL.D\126SMPL.D#

Date Acquired:	May 19 2016 11:40 pm	Sample Name:	**1605096-60A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	68.050	ppb	#REF!	1.05	2000.00	>RL
9	Be	2	45	2.507	ppb	#REF!	5.37	2000.00	>RL
11	B	2	45	64.090	ppb	#REF!	1.86	2000.00	>RL
23	Na	1	45	1162.000	ppb	#REF!	0.75	25000.00	>RL
24	Mg	1	45	11990.000	ppb	#REF!	1.38	25000.00	>RL
27	Al	1	45	62470.000	ppb	#REF!	1.26	10000.00	OUTCAL
39	K	1	45	14200.000	ppb	#REF!	0.74	25000.00	>RL
44	Ca	2	45	62710.000	ppb	#REF!	2.16	25000.00	OUTCAL
47	Ti	1	45	152.100	ppb	#REF!	2.16	2000.00	>RL
51	V	1	45	98.580	ppb	#REF!	0.57	2000.00	>RL
52	Cr	1	45	64.760	ppb	#REF!	0.51	2000.00	>RL
55	Mn	1	45	601.700	ppb	#REF!	1.23	2000.00	>RL
56	Fe	1	72	61740.000	ppb	#REF!	0.77	10000.00	OUTCAL
59	Co	1	72	25.310	ppb	#REF!	0.92	2000.00	>RL
60	Ni	1	72	35.400	ppb	#REF!	1.14	2000.00	>RL
63	Cu	1	72	15.640	ppb	#REF!	0.68	2000.00	>RL
66	Zn	1	72	200.300	ppb	#REF!	0.57	2000.00	>RL
75	As	1	72	31.600	ppb	#REF!	0.42	2000.00	>RL
78	Se	1	72	22.400	ppb	#REF!	3.04	2000.00	>RL
88	Sr	2	115	238.900	ppb	#REF!	1.47	2000.00	>RL
95	Mo	2	115	1.140	ppb	#REF!	2.82	2000.00	ND
107	Ag	2	115	0.144	ppb	#REF!	1.51	500.00	ND
111	Cd	2	115	0.701	ppb	#REF!	12.91	2000.00	J
118	Sn	2	115	4.766	ppb	#REF!	1.60	2000.00	ND
121	Sb	2	115	9.992	ppb	#REF!	1.09	500.00	>RL
137	Ba	2	115	372.200	ppb	#REF!	2.81	2000.00	>RL
205	Tl	2	209	0.546	ppb	#REF!	3.58	2000.00	ND
208	Pb	2	209	1042.000	ppb	#REF!	1.52	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5352.00	7.50	RHigh	50.17	-10668.6	70 - 120	ISFail
45	Sc	1	146417.83	0.29		184662.30	79.3	70 - 120	
45	Sc	2	2766056.80	2.17		4233596.00	65.3	70 - 120	ISFail
72	Ge	1	88220.28	0.42		110938.56	79.5	70 - 120	
115	In	2	4370588.00	2.44		5887647.50	74.2	70 - 120	
209	Bi	2	4972595.00	1.66		6267448.50	79.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\127SMPL.D\127SMPL.D#

Date Acquired:	May 19 2016 11:46 pm	Sample Name:	**1605096-61A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	92.250	ppb	#REF!	1.14	2000.00	>RL
9	Be	2	45	3.042	ppb	#REF!	2.26	2000.00	>RL
11	B	2	45	80.290	ppb	#REF!	3.10	2000.00	>RL
23	Na	1	45	5131.000	ppb	#REF!	0.10	25000.00	>RL
24	Mg	1	45	15570.000	ppb	#REF!	0.85	25000.00	>RL
27	Al	1	45	74540.000	ppb	#REF!	1.27	10000.00	OUTCAL
39	K	1	45	13270.000	ppb	#REF!	0.53	25000.00	>RL
44	Ca	2	45	132300.000	ppb	#REF!	2.21	25000.00	OUTCAL
47	Ti	1	45	143.100	ppb	#REF!	3.24	2000.00	>RL
51	V	1	45	124.800	ppb	#REF!	0.69	2000.00	>RL
52	Cr	1	45	73.070	ppb	#REF!	0.28	2000.00	>RL
55	Mn	1	45	597.800	ppb	#REF!	1.14	2000.00	>RL
56	Fe	1	72	73110.000	ppb	#REF!	0.90	10000.00	OUTCAL
59	Co	1	72	31.070	ppb	#REF!	0.80	2000.00	>RL
60	Ni	1	72	46.100	ppb	#REF!	0.91	2000.00	>RL
63	Cu	1	72	17.280	ppb	#REF!	1.01	2000.00	>RL
66	Zn	1	72	220.200	ppb	#REF!	0.41	2000.00	>RL
75	As	1	72	24.790	ppb	#REF!	1.86	2000.00	>RL
78	Se	1	72	24.390	ppb	#REF!	3.02	2000.00	>RL
88	Sr	2	115	469.200	ppb	#REF!	2.71	2000.00	>RL
95	Mo	2	115	0.925	ppb	#REF!	4.58	2000.00	ND
107	Ag	2	115	0.107	ppb	#REF!	5.74	500.00	ND
111	Cd	2	115	0.819	ppb	#REF!	7.90	2000.00	J
118	Sn	2	115	5.074	ppb	#REF!	1.78	2000.00	ND
121	Sb	2	115	1.051	ppb	#REF!	5.50	500.00	ND
137	Ba	2	115	709.600	ppb	#REF!	1.56	2000.00	>RL
205	Tl	2	209	0.613	ppb	#REF!	1.81	2000.00	ND
208	Pb	2	209	95.840	ppb	#REF!	1.17	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7245.47	14.44	RHigh	50.17	-14443.0	70 - 120	ISFail
45	Sc	1	138349.44	0.47		184662.30	74.9	70 - 120	
45	Sc	2	2757163.00	2.23		4233596.00	65.1	70 - 120	ISFail
72	Ge	1	83350.68	0.60		110938.56	75.1	70 - 120	
115	In	2	4320753.00	2.02		5887647.50	73.4	70 - 120	
209	Bi	2	4829307.00	0.82		6267448.50	77.1	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\128CCV1.D\128CCV1.D#

Date Acquired:	May 19 2016 11:52 pm	Sample Name:	**CCV6-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	216.50	ppb	0.68	200.00	90 -	110	108.3	
9	Be	2	45	202.30	ppb	1.21	200.00	90 -	110	101.2	
11	B	2	45	179.30	ppb	1.34	200.00	90 -	110	89.7	Fail
23	Na	1	45	5304.00	ppb	0.88	5000.00	90 -	110	106.1	
24	Mg	1	45	4978.00	ppb	1.67	5000.00	90 -	110	99.6	
27	Al	1	45	4908.00	ppb	1.62	5000.00	90 -	110	98.2	
39	K	1	45	5131.00	ppb	0.95	5000.00	90 -	110	102.6	
44	Ca	2	45	4896.00	ppb	1.46	5000.00	90 -	110	97.9	
47	Ti	1	45	197.60	ppb	0.75	200.00	90 -	110	98.8	
51	V	1	45	203.50	ppb	1.25	200.00	90 -	110	101.8	
52	Cr	1	45	207.10	ppb	1.75	200.00	90 -	110	103.6	
55	Mn	1	45	198.50	ppb	1.10	200.00	90 -	110	99.3	
56	Fe	1	72	4811.00	ppb	0.78	5000.00	90 -	110	96.2	
59	Co	1	72	195.00	ppb	1.16	200.00	90 -	110	97.5	
60	Ni	1	72	189.40	ppb	0.57	200.00	90 -	110	94.7	
63	Cu	1	72	197.60	ppb	0.76	200.00	90 -	110	98.8	
66	Zn	1	72	198.90	ppb	0.66	200.00	90 -	110	99.5	
75	As	1	72	206.30	ppb	1.63	200.00	90 -	110	103.2	
78	Se	1	72	202.60	ppb	2.75	200.00	90 -	110	101.3	
88	Sr	2	115	204.20	ppb	0.60	200.00	90 -	110	102.1	
95	Mo	2	115	182.20	ppb	1.54	200.00	90 -	110	91.1	
107	Ag	2	115	187.80	ppb	1.36	200.00	90 -	110	93.9	
111	Cd	2	115	185.50	ppb	1.93	200.00	90 -	110	92.8	
118	Sn	2	115	191.10	ppb	1.85	200.00	90 -	110	95.6	
121	Sb	2	115	195.20	ppb	1.58	200.00	90 -	110	97.6	
137	Ba	2	115	196.20	ppb	1.26	200.00	90 -	110	98.1	
205	Tl	2	209	203.50	ppb	0.57	200.00	90 -	110	101.8	
208	Pb	2	209	192.30	ppb	2.39	200.00	90 -	110	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-53341.95	0.34	50.17	-106330.8	70 -	120		ISFail
45	Sc	1	135540.59	1.12	184662.30	73.4	70 -	120		
45	Sc	2	2759852.50	0.96	4233596.00	65.2	70 -	120		ISFail
72	Ge	1	84950.10	0.21	110938.56	76.6	70 -	120		
115	In	2	4384624.50	1.17	5887647.50	74.5	70 -	120		
209	Bi	2	5071868.50	1.10	6267448.50	80.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\130LCVL.D\130LCVL.D#

Date Acquired:	May 20 2016 12:04 am	Sample Name:	**LCVL6-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.07	ppb	1.16	5.00	70 -	130	201.4	Fail
9	Be	2	45	1.03	ppb	7.74	1.00	70 -	130	102.9	
11	B	2	45	18.61	ppb	2.10	20.00	70 -	130	93.1	
23	Na	1	45	101.60	ppb	0.87	100.00	70 -	130	101.6	
24	Mg	1	45	98.92	ppb	1.53	100.00	70 -	130	98.9	
27	Al	1	45	112.50	ppb	0.68	100.00	70 -	130	112.5	
39	K	1	45	105.20	ppb	1.85	100.00	70 -	130	105.2	
44	Ca	2	45	118.20	ppb	2.03	100.00	70 -	130	118.2	
47	Ti	1	45	4.16	ppb	17.06	5.00	70 -	130	83.1	
51	V	1	45	1.05	ppb	4.67	1.00	70 -	130	105.4	
52	Cr	1	45	5.10	ppb	0.46	5.00	70 -	130	101.9	
55	Mn	1	45	5.36	ppb	2.06	5.00	70 -	130	107.2	
56	Fe	1	72	130.50	ppb	1.55	100.00	70 -	130	130.5	Fail
59	Co	1	72	4.71	ppb	3.39	5.00	70 -	130	94.3	
60	Ni	1	72	5.23	ppb	1.63	5.00	70 -	130	104.5	
63	Cu	1	72	5.16	ppb	2.24	5.00	70 -	130	103.1	
66	Zn	1	72	4.86	ppb	5.34	5.00	70 -	130	97.2	
75	As	1	72	5.09	ppb	2.33	5.00	70 -	130	101.7	
78	Se	1	72	5.45	ppb	4.63	5.00	70 -	130	109.1	
88	Sr	2	115	4.97	ppb	0.98	5.00	70 -	130	99.4	
95	Mo	2	115	4.51	ppb	3.99	5.00	70 -	130	90.2	
107	Ag	2	115	1.85	ppb	2.49	2.00	70 -	130	92.4	
111	Cd	2	115	0.89	ppb	9.61	1.00	70 -	130	89.0	
118	Sn	2	115	5.67	ppb	0.20	5.00	70 -	130	113.4	
121	Sb	2	115	1.91	ppb	0.87	2.00	70 -	130	95.3	
137	Ba	2	115	4.88	ppb	1.72	5.00	70 -	130	97.6	
205	Tl	2	209	0.97	ppb	2.19	1.00	70 -	130	97.4	
208	Pb	2	209	1.07	ppb	0.42	1.00	70 -	130	106.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-1254.78	10.93	50.17	-2501.2	70 -	120	ISFail
45	Sc	1		150456.14	1.25	184662.30	81.5	70 -	120	
45	Sc	2		3032150.80	1.07	4233596.00	71.6	70 -	120	
72	Ge	1		94466.43	1.59	110938.56	85.2	70 -	120	
115	In	2		4788933.50	0.84	5887647.50	81.3	70 -	120	
209	Bi	2		5560428.00	0.36	6267448.50	88.7	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E19l00.B\131_CCB.D\131_CCB.D#

Date Acquired:	May 20 2016 12:10 am	Sample Name:	**CCB6-160519**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 19 2016 12:25 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.146	ppb	12.77	2.00	2.00	
9	Be	2	45	0.034	ppb	14.20	0.40	0.30	
11	B	2	45	0.701	ppb	10.39	10.00	10.00	
23	Na	1	45	3.600	ppb	1.22	50.00	#####	
24	Mg	1	45	1.658	ppb	9.19	50.00	#####	
27	Al	1	45	10.490	ppb	13.70	50.00	10.00	FailAq
39	K	1	45	4.396	ppb	2.08	50.00	#####	
44	Ca	2	45	13.280	ppb	12.76	50.00	#####	
47	Ti	1	45	0.038	ppb	100.01	4.00	3.00	
51	V	1	45	0.083	ppb	3.95	4.00	3.00	
52	Cr	1	45	0.044	ppb	16.68	2.00	2.00	
55	Mn	1	45	0.059	ppb	4.88	2.00	3.00	
56	Fe	1	72	9.474	ppb	12.39	50.00	30.00	
59	Co	1	72	0.033	ppb	6.01	2.00	3.00	
60	Ni	1	72	0.015	ppb	17.34	2.00	3.00	
63	Cu	1	72	0.050	ppb	6.91	2.00	2.00	
66	Zn	1	72	1.110	ppb	6.38	4.00	2.00	
75	As	1	72	0.076	ppb	11.75	2.00	2.00	
78	Se	1	72	0.033	ppb	33.47	0.60	2.00	
88	Sr	2	115	0.179	ppb	12.40	4.00	3.00	
95	Mo	2	115	0.045	ppb	2.11	2.00	2.00	
107	Ag	2	115	0.037	ppb	22.20	0.40	1.00	
111	Cd	2	115	0.038	ppb	70.02	0.40	0.30	
118	Sn	2	115	0.054	ppb	18.99	20.00	3.00	
121	Sb	2	115	0.040	ppb	24.56	2.00	0.80	
137	Ba	2	115	0.084	ppb	3.46	2.00	3.00	
205	Tl	2	209	0.057	ppb	3.04	2.00	0.50	
208	Pb	2	209	0.099	ppb	15.11	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-12.33	136.76	50.17	-24.6	70 - 120	ISFail
45	Sc	1		149838.34	1.54	184662.30	81.1	70 - 120	
45	Sc	2		3058898.30	0.28	4233596.00	72.3	70 - 120	
72	Ge	1		93800.49	1.27	110938.56	84.6	70 - 120	
115	In	2		4797721.00	0.79	5887647.50	81.5	70 - 120	
209	Bi	2		5520477.00	0.74	6267448.50	88.1	70 - 120	

ICP-MS3_160525A
For

DHL Work Order
1605096

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_160525A 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	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:

See run log.

Analyst: Karyn Lane Date of Completion: 05/26/2016

Second-Level Review: Janice Whitt Date Stamp: 5/27/2016

REVIEWED BY
By Janice Whitt at 1:26:06 PM, 5/27/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	KL	**BALANCE #:**	26
TEST DATE:	05/25/2016	**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**	3.9822	3.9742	**99.36**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		3.9723	3.9644	**99.11**		
3		3.9751	3.9671	**99.18**		
AVERAGE (MEAN)		**3.977**	**3.969**	**99.21**		**0.128**
						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**	0.5007	0.4997	**99.94**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.4996	0.4986	**99.72**		
3		0.4975	0.4965	**99.30**		
AVERAGE (MEAN)		**0.499**	**0.498**	**99.65**		**0.326**
						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**	0.2009	0.2005	**100.25**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.1995	0.1991	**99.55**		
3		0.1995	0.1991	**99.55**		
AVERAGE (MEAN)		**0.200**	**0.200**	**99.78**		**0.404**
						PASS

Karyn Lane 5-26-16

Analyst / Date

REVIEWED BY
By Janice Whitt at 8:41:19 AM, 5/27/2016

Review and Approved / Date

DHL Analytical, Inc.

Run ID: **ICP-MS3_160525A** **Run No.:** 86019

Analytical Run Date: 5/25/2016 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 11:28:00 AM		
L2-160525	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 11:34:00 AM		
L-160525	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 11:40:00 AM		
10X-160525	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 11:47:00 AM		
5X-160525	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 11:53:00 AM		
2X-160525	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 11:59:00 AM		
H-160525	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 12:05:00 PM		
H2-160525	1	ICPMS_TWDOD	CAL	R86019	5/25/2016 12:10:00 PM		
ICSA-160525	1	ICPMS_TWDOD	ICSA	R86019	5/25/2016 12:28:00 PM		
ICSAB-160525	1	ICPMS_TWDOD	ICSB	R86019	5/25/2016 12:34:00 PM		
ICV1-160525	1	ICPMS_TWDOD	ICV	R86019	5/25/2016 12:52:00 PM		
ICB1-160525	1	ICPMS_TWDOD	ICB	R86019	5/25/2016 12:58:00 PM		
ILCVL-160525	1	ICPMS_TWDOD	LCVL	R86019	5/25/2016 1:04:00 PM		
MB-75167	5	ICPMS_TSDOD1	MBLK	75167	5/25/2016 1:13:00 PM		
LCS-75167	5	ICPMS_TSDOD1	LCS	75167	5/25/2016 1:19:00 PM		
LCSD-75167	5	ICPMS_TSDOD1	LCSD	75167	5/25/2016 1:25:00 PM		
1605096-25A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 1:37:00 PM		
1605096-25A SD	25	ICPMS_TSDOD1	SD	75167	5/25/2016 1:43:00 PM		
1605096-19A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 1:49:00 PM		
1605096-20A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 1:55:00 PM		
1605096-21A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 2:01:00 PM		
1605096-22A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 2:07:00 PM		
1605096-23A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 2:12:00 PM		
1605096-24A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 2:18:00 PM		
1605096-26A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 2:24:00 PM		
1605096-27A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 2:30:00 PM		
1605096-28A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 2:36:00 PM		
1605096-25A PDS	5	ICPMS_TSDOD1	PDS	75167	5/25/2016 2:42:00 PM		
1605096-25A MS	5	ICPMS_TSDOD1	MS	75167	5/25/2016 2:48:00 PM		
1605096-25A MSD	5	ICPMS_TSDOD1	MSD	75167	5/25/2016 2:54:00 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

Run ID: ICP-MS3_160525A **Run No.:** 86019

CCV1-160525	1	ICPMS_TWDOD	CCV	R86019	5/25/2016 3:00:00 PM		
CCB1-160525	1	ICPMS_TWDOD	CCB	R86019	5/25/2016 3:06:00 PM		
LCVL1-160525	1	ICPMS_TWDOD	LCVL	R86019	5/25/2016 3:12:00 PM		
1605096-29A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 3:18:00 PM		
1605096-30A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 3:24:00 PM		
1605096-31A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 3:30:00 PM		
1605096-32A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 3:36:00 PM		
1605096-33A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 3:42:00 PM		
1605096-34A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 3:48:00 PM		
1605096-35A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 3:54:00 PM		
1605096-38A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 4:00:00 PM		
1605096-39A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 4:06:00 PM		
1605096-40A	5	ICPMS_TSDOD1	SAMP	75167	5/25/2016 4:12:00 PM		
CCV2-160525	1	ICPMS_TWDOD	CCV	R86019	5/25/2016 4:18:00 PM		
LCVL2-160525	1	ICPMS_TWDOD	LCVL	R86019	5/25/2016 4:30:00 PM		
CCB2-160525	1	ICPMS_TWDOD	CCB	R86019	5/25/2016 4:36:00 PM		
MB-75203	5	ICPMS_TSDOD1	MBLK	75203	5/25/2016 4:42:00 PM		
LCS-75203	5	ICPMS_TSDOD1	LCS	75203	5/25/2016 4:48:00 PM		
LCSD-75203	5	ICPMS_TSDOD1	LCSD	75203	5/25/2016 4:54:00 PM		
1605097-28A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:06:00 PM		
1605097-28A SD	25	ICPMS_TSDOD1	SD	75203	5/25/2016 5:12:00 PM		
1605097-08A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:18:00 PM		
1605097-09A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:24:00 PM		
1605097-10A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:30:00 PM		
1605097-11A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:36:00 PM		
1605097-12A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:42:00 PM		
1605097-13A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:48:00 PM		
1605097-14A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 5:54:00 PM		
1605097-15A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 6:00:00 PM		
1605097-16A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 6:06:00 PM		
1605097-28A PDS	5	ICPMS_TSDOD1	PDS	75203	5/25/2016 6:12:00 PM		
1605097-28A MS	5	ICPMS_TSDOD1	MS	75203	5/25/2016 6:18:00 PM		
1605097-28A MSD	5	ICPMS_TSDOD1	MSD	75203	5/25/2016 6:23:00 PM		
CCV3-160525	1	ICPMS_TWDOD	CCV	R86019	5/25/2016 6:35:00 PM		
LCVL3-160525	1	ICPMS_TWDOD	LCVL	R86019	5/25/2016 6:48:00 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-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

Run ID: ICP-MS3_160525A **Run No.:** 86019

CCB3-160525	1	ICPMS_TWDOD	CCB	R86019	5/25/2016 6:54:00 PM		
1605097-17A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:00:00 PM		
1605097-18A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:06:00 PM		
1605097-19A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:12:00 PM		
1605097-29A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:18:00 PM		
1605097-31A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:24:00 PM		
1605097-32A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:30:00 PM		
1605097-33A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:36:00 PM		
1605097-34A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:42:00 PM		
1605097-35A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:48:00 PM		
1605097-36A	5	ICPMS_TSDOD1	SAMP	75203	5/25/2016 7:54:00 PM		
CCV4-160525	1	ICPMS_TWDOD	CCV	R86019	5/25/2016 8:00:00 PM		
LCVL4-160525	1	ICPMS_TWDOD	LCVL	R86019	5/25/2016 8:12:00 PM		
CCB4-160525	1	ICPMS_TWDOD	CCB	R86019	5/25/2016 8:18:00 PM		
MB-75216	5	ICPMS_TSDOD1	MBLK	75216	5/25/2016 8:24:00 PM		
LCS-75216	5	ICPMS_TSDOD1	LCS	75216	5/25/2016 8:30:00 PM		
LCSD-75216	5	ICPMS_TSDOD1	LCSD	75216	5/25/2016 8:36:00 PM		
1605097-41A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 8:48:00 PM		
1605097-41A SD	25	ICPMS_TSDOD1	SD	75216	5/25/2016 8:54:00 PM		SD RPD fails by <1%. PDS ok.
1605097-37A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:00:00 PM		
1605097-38A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:06:00 PM		
1605097-39A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:12:00 PM		
1605097-40A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:18:00 PM		
1605097-42A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:24:00 PM		
1605097-43A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:30:00 PM		
1605097-44A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:36:00 PM		
1605097-45A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:42:00 PM		
1605098-01A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 9:48:00 PM		
1605097-41A PDS	5	ICPMS_TSDOD1	PDS	75216	5/25/2016 9:54:00 PM		
1605097-41A MS	5	ICPMS_TSDOD1	MS	75216	5/25/2016 10:00:00 PM		
1605097-41A MSD	5	ICPMS_TSDOD1	MSD	75216	5/25/2016 10:06:00 PM		
CCV5-160525	1	ICPMS_TWDOD	CCV	R86019	5/25/2016 10:18:00 PM		
LCVL5-160525	1	ICPMS_TWDOD	LCVL	R86019	5/25/2016 10:30:00 PM		
CCB5-160525	1	ICPMS_TWDOD	CCB	R86019	5/25/2016 10:36:00 PM		
1605098-02A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 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_160525A **Run No.:** 86019

1605098-03A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 10:48:00 PM		
1605098-04A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 10:54:00 PM		
1605098-05A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 11:00:00 PM		
1605098-06A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 11:06:00 PM		
1605098-07A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 11:12:00 PM		
1605098-08A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 11:18:00 PM		
1605098-09A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 11:24:00 PM		
1605098-10A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 11:30:00 PM		
1605098-11A	5	ICPMS_TSDOD1	SAMP	75216	5/25/2016 11:36:00 PM		
CCV6-160525	1	ICPMS_TWDOD	CCV	R86019	5/25/2016 11:42:00 PM		
LCVL6-160525	1	ICPMS_TWDOD	LCVL	R86019	5/25/2016 11:54:00 PM		
CCB6-160525	1	ICPMS_TWDOD	CCB	R86019	5/26/2016		

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		L2-160525	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160525	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160525	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160525	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160525	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160525	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160525	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-160525	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160525	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		ICV1-160525	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		ICB1-160525	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160525	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-75167	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-75167	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-75167	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		1605096-25A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1605096-25A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1605096-19A	SAMPICPMS_TSDOD1	5.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1605096-20A	SAMPICPMS_TSDOD1	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1605096-21A	SAMPICPMS_TSDOD1	5.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1605096-22A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1605096-23A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1605096-24A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1605096-26A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1605096-27A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1605096-28A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1605096-25A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1605096-25A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1605096-25A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160525	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160525	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160525	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		1605096-29A	SAMPICPMS_TSDOD1	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1605096-30A	SAMPICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1605096-31A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1605096-32A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1605096-33A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1605096-34A	SAMPICPMS_TSDOD1	5.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1605096-35A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1605096-38A	SAMPICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1605096-39A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2410		1605096-40A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160525	CCV ICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160525	CCB ICPMS_TW	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-160525	LCVLICPMS_TW	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160525	CCB ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-75203	MBLKICPMS_TSDOD1	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-75203	LCS ICPMS_TSDOD1	5.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-75203	LCSDICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1605097-28A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1605097-28A SD	SD ICPMS_TSDOD1	25.00				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1605097-08A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1605097-09A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1605097-10A	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	3109		1605097-11A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1605097-12A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1605097-13A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1605097-14A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1605097-15A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1605097-16A	SAMPICPMS_TSDOD1	5.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1605097-28A PDS	PDS ICPMS_TSDOD1	5.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1605097-28A MS	MS_ICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1605097-28A MSD	MSD ICPMS_TSDOD1	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160525	CCV ICPMS_TW	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-160525	CCB ICPMS_TW	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160525	LCVLICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160525	CCB ICPMS_TW	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1605097-17A	SAMPICPMS_TSDOD1	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1605097-18A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1605097-19A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3304		1605097-29A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1605097-31A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1605097-32A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3307		1605097-33A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1605097-34A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1605097-35A	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	3310		1605097-36A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160525	CCV ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160525	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160525	LCVLICPMS_TW	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160525	CCB ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-75216	MBLKICPMS_TSDOD1	5.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-75216	LCS ICPMS_TSDOD1	5.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-75216	LCSDICPMS_TSDOD1	5.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1605097-41A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1605097-41A SD	SD ICPMS_TSDOD1	25.00				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1605097-37A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1605097-38A	SAMPICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1605097-39A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1605097-40A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1605097-42A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1605097-43A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1605097-44A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1605097-45A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1605098-01A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1605097-41A PDS	PDS ICPMS_TSDOD1	5.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1605097-41A MS	MS ICPMS_TSDOD1	5.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1605097-41A MSD	MSD ICPMS_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	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160525	CCV ICPMS_TW	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-160525	CCB ICPMS_TW	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-160525	LCVLICPMS_TW	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160525	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4101		1605098-02A	SAMPICPMS_TSDOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4102		1605098-03A	SAMPICPMS_TSDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4103		1605098-04A	SAMPICPMS_TSDOD1	5.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4104		1605098-05A	SAMPICPMS_TSDOD1	5.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4105		1605098-06A	SAMPICPMS_TSDOD1	5.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4106		1605098-07A	SAMPICPMS_TSDOD1	5.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4107		1605098-08A	SAMPICPMS_TSDOD1	5.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4108		1605098-09A	SAMPICPMS_TSDOD1	5.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4109		1605098-10A	SAMPICPMS_TSDOD1	5.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	4110		1605098-11A	SAMPICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160525	CCV ICPMS_TW	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160525	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160525	LCVLICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160525	CCB ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		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	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
145		Keyword		StandBy							
146		Keyword		SMPLEND	End of SMPL						
147		Keyword		End	End of Sequence						
148		Keyword		CCVBEG	Start of CCV						
149		Keyword		CCVEND	End of CCV						
150		Keyword		BLKBEG	Start of BLANK						
151		Keyword		BLKEND	End of BLANK						
152		Keyword		ERRBEG	Start of ERRTERM						
153		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 8:30:00 AM**
Digestion:
Prep End Date:

Prep Batch **75167** 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
1605096-19A	Soil		1.15	50	50.000	1 of 1	
1605096-20A	Soil		1.14	50	50.000	1 of 1	
1605096-21A	Soil		1.00	50	50.000	1 of 1	
1605096-22A	Soil		1.05	50	50.000	1 of 1	
1605096-23A	Soil		1.12	50	50.000	1 of 1	
1605096-24A	Soil		1.03	50	50.000	1 of 1	
1605096-25A	Soil		1.14	50	50.000	1 of 1	
1605096-25A MS	Soil		1.04	50	50.000	of	
1605096-25A MSD	Soil		1.02	50	50.000	of	
1605096-26A	Soil		1.11	50	50.000	1 of 1	
1605096-27A	Soil		1.12	50	50.000	1 of 1	
1605096-28A	Soil		1.19	50	50.000	1 of 1	
1605096-29A	Soil		1.02	50	50.000	1 of 1	
1605096-30A	Soil		1.08	50	50.000	1 of 1	
1605096-31A	Soil		1.04	50	50.000	1 of 1	
1605096-32A	Soil		1.02	50	50.000	1 of 1	
1605096-33A	Soil		1.07	50	50.000	1 of 1	
1605096-34A	Soil		1.07	50	50.000	1 of 1	
1605096-35A	Soil		1.20	50	50.000	1 of 1	
1605096-38A	Soil		1.02	50	50.000	1 of 1	
1605096-39A	Soil		1.07	50	50.000	1 of 1	
1605096-40A	Soil		1.12	50	50.000	1 of 1	
LCS-75167	Soil		1	50	50.000	of	
LCSD-75167	Soil		1	50	50.000	of	
MB-75167	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

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	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

9:15 - 9:25
9:45 - 11:45
12:25 - 14:25
15:14 - 15:29

REVIEWED BY
By Janice Whitt at 8:45:06 AM, 5/27/2016

5/17/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-16A	Soil		0	0	#Num!	1	of	1	
1605096-17A	Soil		0	0	#Num!	1	of	1	
1605096-18A	Soil		0	0	#Num!	1	of	1	
1605096-19A	Soil		0	0	#Num!	1	of	1	
Sieved only - no subsampling hard clay									
1605096-20A	Soil		0	0	#Num!	1	of	1	
1605096-21A	Soil		0	0	#Num!	1	of	1	
1605096-22A	Soil		0	0	#Num!	1	of	1	
1605096-23A	Soil		0	0	#Num!	1	of	1	
1605096-24A	Soil		0	0	#Num!	1	of	1	
1605096-25A	Soil		0	0	#Num!	1	of	1	
1605096-26A	Soil		0	0	#Num!	1	of	1	
1605096-27A	Soil		0	0	#Num!	1	of	1	
1605096-28A	Soil		0	0	#Num!	1	of	1	
1605096-29A	Soil		0	0	#Num!	1	of	1	
1605096-30A	Soil		0	0	#Num!	1	of	1	
1605096-45A	Soil		0	0	#Num!	1	of	1	
1605096-46A	Soil		0	0	#Num!	1	of	1	
1605096-47A	Soil		0	0	#Num!	1	of	1	
1605096-48A	Soil		0	0	#Num!	1	of	1	
1605096-49A	Soil		0	0	#Num!	1	of	1	
1605096-50A	Soil		0	0	#Num!	1	of	1	
1605096-51A	Soil		0	0	#Num!	1	of	1	
1605096-52A	Soil		0	0	#Num!		of	3	
1605096-53A	Soil		0	0	#Num!	1	of	1	
1605096-54A	Soil		0	0	#Num!	1	of	1	
1605096-55A	Soil		0	0	#Num!	1	of	1	

REVIEWED BY
By Janice Whitt at 8:45:26 AM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605096-56A	Soil		0	0	#Num!	1 of 1	
1605096-57A	Soil		0	0	#Num!	1 of 1	
1605096-58A	Soil		0	0	#Num!	1 of 1	
1605096-59A	Soil		0	0	#Num!	1 of 1	
1605096-60A	Soil		0	0	#Num!	1 of 1	
1605096-61A	Soil		0	0	#Num!	1 of 1	
1605096-62A	Soil		0	0	#Num!	1 of 1	
1605096-63A	Soil		0	0	#Num!	1 of 1	
1605096-64A	Soil		0	0	#Num!	1 of 1	
1605096-65A	Soil		0	0	#Num!	1 of 1	
1605096-66A	Soil		0	0	#Num!	1 of 1	
1605096-67A	Soil		0	0	#Num!	1 of 1	
1605096-68A	Soil		0	0	#Num!	1 of 1	
1605096-69A	Soil		0	0	#Num!	1 of 1	
1605096-70A	Soil		0	0	#Num!	1 of 1	
1605096-71A	Soil		0	0	#Num!	1 of 1	
1605096-72A	Soil		0	0	#Num!	1 of 1	
1605096-73A	Soil		0	0	#Num!	1 of 1	
1605096-74A	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 8:45:29 AM, 5/27/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	26	
TEST DATE:	05/17/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

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

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0002	4.9902	99.80	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0123	5.0023	100.05		
3		5.0058	4.9958	99.92		
AVERAGE (MEAN)		**5.006**	**4.996**	**99.92**		**0.121**
						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	0.2001	0.1997	99.85	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2012	0.2008	100.40		
3		0.2012	0.2008	100.40		
AVERAGE (MEAN)		**0.201**	**0.200**	**100.22**		**0.316**
						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)						

5/17/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 8:45:35 AM, 5/27/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 8:30:00 AM**
Digestion: **Start: 5/17/2016 9:15:00 AM / Stop: 5/17/2016 3:29:00 PM**
Prep End Date: **5/17/2016 3:51:03 PM**

Prep Batch **75167** 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
1605096-19A	Soil		1.5	50	33.333	1 of 1	
Weighed out on 5/16/16.							
1605096-20A	Soil		1.14	50	43.860	1 of 1	
1605096-21A	Soil		1	50	50.000	1 of 1	
1605096-22A	Soil		1.05	50	47.619	1 of 1	
1605096-23A	Soil		1.12	50	44.643	1 of 1	
1605096-24A	Soil		1.03	50	48.544	1 of 1	
1605096-25A	Soil		1.14	50	43.860	1 of 1	
1605096-25A MS	Soil		1.04	50	48.077	of	
1605096-25A MSD	Soil		1.02	50	49.020	of	
1605096-25A PDS	Soil		1.14	50	43.860	of	
1605096-25A SD	Soil		1.14	50	43.860	of	
1605096-26A	Soil		1.11	50	45.045	1 of 1	
1605096-27A	Soil		1.12	50	44.643	1 of 1	
1605096-28A	Soil		1.19	50	42.017	1 of 1	
1605096-29A	Soil		1.02	50	49.020	1 of 1	
1605096-30A	Soil		1.08	50	46.296	1 of 1	
1605096-31A	Soil		1.04	50	48.077	1 of 1	
1605096-32A	Soil		1.02	50	49.020	1 of 1	
1605096-33A	Soil		1.07	50	46.729	1 of 1	
1605096-34A	Soil		1.07	50	46.729	1 of 1	
1605096-35A	Soil		1.2	50	41.667	1 of 1	
1605096-38A	Soil		1.02	50	49.020	1 of 1	
1605096-39A	Soil		1.07	50	46.729	1 of 1	
1605096-40A	Soil		1.12	50	44.643	1 of 1	
LCS-75167	Soil		1	50	50.000	of	
LCSD-75167	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-160406-1	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

REVIEWED BY
By Janice Whitt at 8:46:34 AM, 5/27/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 8:30:00 AM**
Digestion: **Start: 5/17/2016 9:15:00 AM / Stop: 5/17/2016 3:29:00 PM**
Prep End Date: **5/17/2016 3:51:03 PM**

Prep Batch **75167** 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
MB-75167	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-160406-1	2500 PPM NATURALS CAL	LCS/MS/MSD	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

REVIEWED BY
By Janice Whitt at 8:46:37 AM, 5/27/2016

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: May 25 2016 12:14 pm
Cal Type: Y=aX+[blank]

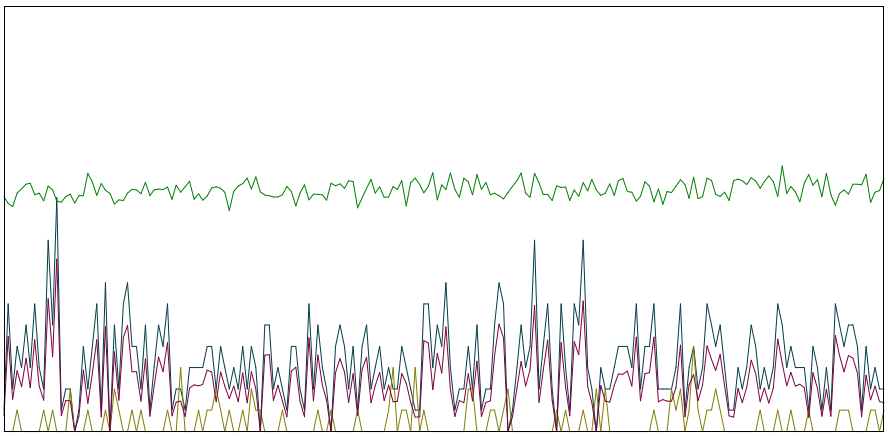
Standard	Date Acquired	File
BLANK STD 1	May 25 2016 11:28 am	c:\icpchem\1\data\16e25k02.b\006calb.d\
L2-160525	May 25 2016 11:34 am	c:\icpchem\1\data\16e25k02.b\007cals.d\
L-160525	May 25 2016 11:40 am	c:\icpchem\1\data\16e25k02.b\008cals.d\
10X-160525	May 25 2016 11:47 am	c:\icpchem\1\data\16e25k02.b\009cals.d\
5X-160525	May 25 2016 11:53 am	c:\icpchem\1\data\16e25k02.b\010cals.d\
2X-160525	May 25 2016 11:59 am	c:\icpchem\1\data\16e25k02.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	0.366	0.03074	1.07	264	513		1995	
Be	0.9995	0.09676	0.001065	1.07	263	493	99%	--------	######
B	0.9998	0.08331	0.128	1.13	265	537	107%	1,989	99%
Na	0.9999	0.321	3.721	20.01	5,191	10,240	102%	24,860	99%
Mg	0.9999	0.1438	0.2978	21.26	5,057	10,270	103%	24,880	100%
Al	1.0000	0.03287	0.2196	20.44	4,996	10,010	100%	--------	######
K	1.0000	0.0687	2.178	22.79	5,023	9,990	100%	25,000	100%
Ca	0.9999	0.008753	0.1812	19.96	5,049	10,220	102%	24,910	100%
Ti	1.0000	0.02966	0	1.09	255	510	102%	1,997	100%
V	1.0000	1.348	0.1088	0.97	245	492	98%	2,003	100%
Cr	1.0000	1.836	0.07661	1.03	246	497	99%	2,001	100%
Mn	1.0000	0.6516	0.04509	1.00	256	513	103%	1,996	100%
Fe	1.0000	2.22	2.739	20.37	5,010	9,979	100%	--------	######
Co	1.0000	5.603	0.108	1.00	251	514	103%	1,996	100%
Ni	1.0000	1.688	0.08941	0.96	246	495	99%	2,002	100%
Cu	1.0000	4.655	0.3349	1.05	254	512	102%	1,996	100%
Zn	1.0000	0.4193	0.3111	1.30	261	514	103%	1,995	100%
As	1.0000	0.2238	0.01653	1.04	254	504	101%	1,998	100%
Se	0.9999	0.01122	0.002569	1.24	264	518	104%	1,994	100%
Sr	1.0000	0.2943	0.03535	0.99	258	507	101%	1,997	100%
Mo	1.0000	0.05592	0.001364	0.92	240	489	98%	2,004	100%
Ag	1.0000	0.158	0.0008843	1.04	251	500	100%	--------	######
Cd	1.0000	0.03364	0.000287	0.96	248	490	98%	2,003	100%
Sn	1.0000	0.09237	0.0124	0.96	248	517	103%	1,996	100%
Sb	0.9999	0.1113	0.005023	0.98	245	503	101%	--------	######
Ba	1.0000	0.04352	0.001615	0.96	242	489	98%	2,004	100%
Tl	1.0000	0.3323	0.003701	0.96	258	507	101%	1,997	100%
Pb	1.0000	0.4487	0.008497	0.99	251	512	102%	1,997	100%

REVIEWED BY
By Janice Whitt at 9:52:56 AM, 5/27/2016

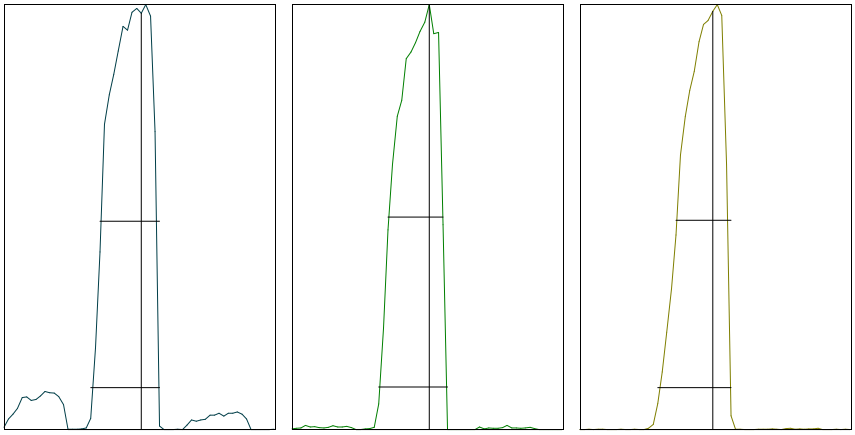
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.383%
Doubly Charged:	70/140	3.259%

m/z	Range	Count	Mean	RSD%	Background
51	20	2.0	3.3	56.70	0.30
59	5,000	2978.0	2842.2	3.43	0.10
75	20	1.0	0.4	169.18	0.40
51/59	1	0.067%	0.117%	56.99	



m/z:	59	89	205
Height:	2,818	1,202	3,098
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.60	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 25, 2016 10:34:20
Printed : May 25, 2016 10:34:22

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	:	0.7	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				

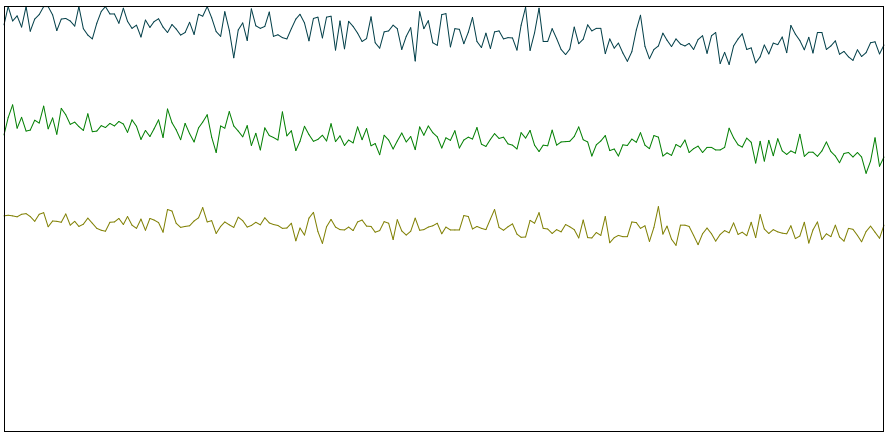
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	5	mL/min	Optional Gas	:	---	%

Generated : May 25, 2016 10:34:20
Printed : May 25, 2016 10:34:24

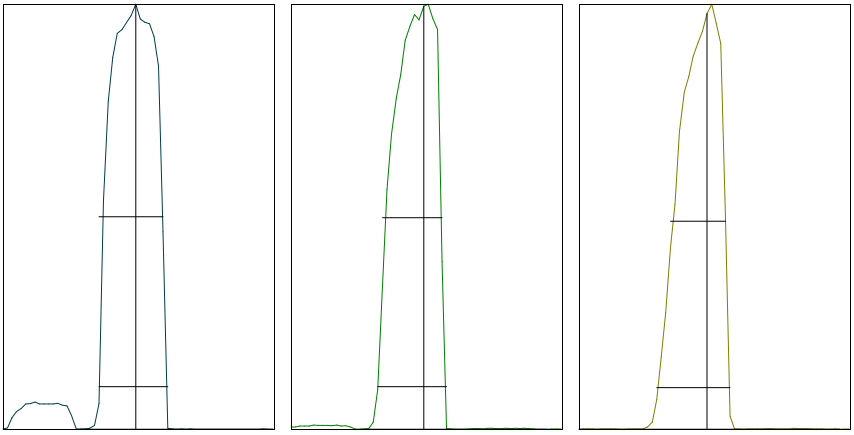
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.016%
Doubly Charged:	70/140	1.495%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	9090.0	9354.8	3.64	1.70
89	20,000	12913.0	13784.7	4.18	3.20
205	20,000	9711.0	9616.0	3.81	10.10
156/140	2	0.845%	0.985%	11.71	
70/140	2	0.993%	1.247%	10.16	
63	1,000	509.0	528.5	6.08	2.20
23	50,000	21417.0	22985.0	4.66	1.90



m/z:	7	89	205
Height:	9,135	13,017	9,243
Axis:	7.00	89.00	204.95
W-50%:	0.70	0.65	0.60
W-10%:	0.7500	0.7500	0.800

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : May 25, 2016 10:30:58
Printed : May 25, 2016 10:31:00

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	:	-18	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1	V	Axis Offset	:	-0.03	
Torch-V	:	0.7	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	:	---	%

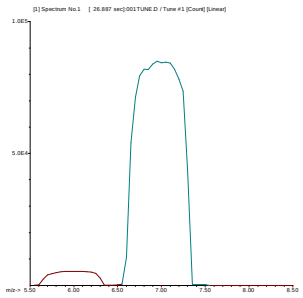
Generated : May 25, 2016 10:30:58
Printed : May 25, 2016 10:31:02

6020 QC Tune Report

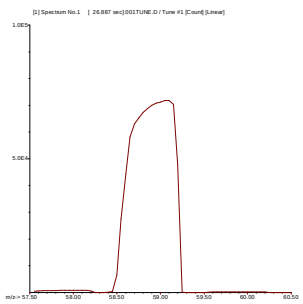
Data File: C:\ICPCHEM\1\DATA\16E25k01.B\001TUNE.D
Date Acquired: May 25 2016 10:48 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.47	5.00	
59 Co	3.32	5.00	
115 In	3.74	5.00	
205 Tl	1.43	5.00	

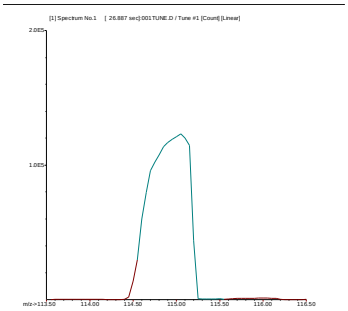


7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



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 9:53:03 AM, 5/27/2016



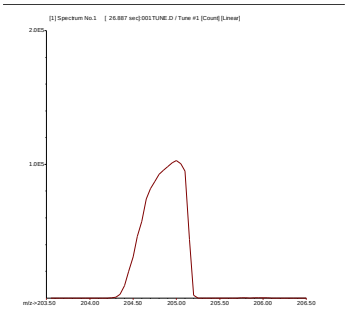
115 In

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:	204.95	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 9:53:08 AM, 5/27/2016

P/A Factor Tuning Report

Acquired:May 25 2016 10:37 am

Mass[amu]	Element	P/A Factor
6	Li	0.072231
23	Na	0.088049
24	Mg	0.092570
27	Al	0.096143
39	K	0.097086
44	Ca	Sensitivity too low
45	Sc	0.097844
47	Ti	Sensitivity too low
51	V	0.100513
52	Cr	0.103528
55	Mn	0.105065
59	Co	0.109030
60	Ni	0.111564
63	Cu	0.113829
66	Zn	0.112970
72	Ge	0.111909
75	As	0.111226
78	Se	Sensitivity too low
88	Sr	0.112101
95	Mo	0.110617
106	(Cd)	0.117821
107	Ag	Sensitivity too low
108	(Cd)	0.118228
111	Cd	0.119577
115	In	0.119323
118	Sn	0.118698
121	Sb	0.118213
137	Ba	Sensitivity too low
205	Tl	0.129465
206	(Pb)	0.128942
207	(Pb)	0.129311
208	Pb	0.129558
209	Bi	0.129136
238		0.128564

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1740 V
Pulse HV: 1460 V

REVIEWED BY
By Janice Whitt at 9:53:10 AM, 5/27/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: May 25 2016 11:32 am
Date Acquired: May 25 2016 11:28 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	35.48	P	14.91	42.02
7	Li	2	45	637.82	P	64.33	10.09
9	Be	2	45	22.22	P	10.18	45.81
11	B	2	45	2658.16	P	10.19	0.38
23	Na	1	45	2568.14	P	60.60	2.36
24	Mg	1	45	205.57	P	18.36	8.93
27	Al	1	45	151.56	P	18.00	11.88
39	K	1	45	1503.48	P	87.38	5.81
44	Ca	2	45	3760.71	P	135.50	3.60
45	Sc	1	---	138057.41	P	627.20	0.45
45	Sc	2	---	4152726.00	A	66850.00	1.61
47	Ti	1	45	0.00	P	0.00	0.00
51	V	1	45	75.11	P	6.30	8.39
51	V	2	---		P		
52	Cr	1	45	52.89	P	2.04	3.85
55	Mn	1	45	31.11	P	5.39	17.32
56	Fe	1	72	1183.63	P	96.32	8.14
59	Co	1	72	46.67	P	4.81	10.30
60	Ni	1	72	38.67	P	2.31	5.97
60	Ni	2	---		P		
63	Cu	1	72	144.89	P	20.06	13.85
63	Cu	2	---		P		
66	Zn	1	72	134.67	P	27.75	20.61
66	Zn	2	---		P		
72	Ge	1	---	86466.48	P	825.70	0.95
72	Ge	2	---		P		
75	As	1	72	7.15	P	0.17	2.37
78	Se	1	72	1.11	P	0.11	10.00
88	Sr	2	###	1070.09	P	42.57	3.98
95	Mo	2	###	41.11	P	19.53	47.50
107	Ag	2	###	26.67	P	8.82	33.07
111	Cd	2	###	8.87	P	18.30	206.32
115	In	2	---	6053544.00	A	97360.00	1.61
118	Sn	2	###	375.58	P	38.64	10.29
121	Sb	2	###	152.23	P	31.68	20.81
137	Ba	2	###	48.89	P	1.93	3.94
205	Tl	2	###	101.12	P	5.09	5.04
208	Pb	2	###	232.23	P	24.12	10.39
209	Bi	2	---	5465339.00	A	35910.00	0.66

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160525
Operator: KL Instrument: ICPMS3
Date Acquired: May 25 2016 11:34 am
Last Cal. Update: May 25 2016 11:32 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-272.88	P	43.39	15.90	ISFail
7	Li	2	45	8721.12	P	217.90	2.50	
9	Be	2	45	2156.94	P	56.98	2.64	
11	B	2	45	4596.57	P	58.25	1.27	
23	Na	1	45	7215.69	P	210.90	2.92	
24	Mg	1	45	2385.88	P	159.10	6.67	
27	Al	1	45	634.25	P	29.59	4.67	
39	K	1	45	2662.63	P	49.17	1.85	
44	Ca	2	45	7365.79	P	40.42	0.55	
45	Sc	1	---	142269.80	P	1494.00	1.05	
45	Sc	2	---	4140339.00	A	56330.00	1.36	
47	Ti	1	45	23.11	P	7.34	31.78	
51	V	1	45	1012.06	P	70.47	6.96	
51	V	2	---		P			
52	Cr	1	45	1404.10	P	31.44	2.24	
55	Mn	1	45	496.02	P	3.53	0.71	
56	Fe	1	72	21155.66	P	319.20	1.51	
59	Co	1	72	2522.07	P	39.66	1.57	
60	Ni	1	72	756.48	P	32.04	4.24	
60	Ni	2	---		P			
63	Cu	1	72	2304.70	P	66.10	2.87	
63	Cu	2	---		P			
66	Zn	1	72	377.79	P	37.39	9.90	
66	Zn	2	---		P			
72	Ge	1	---	88235.95	P	566.30	0.64	
72	Ge	2	---		P			
75	As	1	72	109.89	P	0.48	0.44	
78	Se	1	72	7.26	P	0.93	12.84	
88	Sr	2	115	9914.45	P	341.40	3.44	
95	Mo	2	115	1594.62	P	79.55	4.99	
107	Ag	2	115	4991.26	P	70.99	1.42	
111	Cd	2	115	986.01	P	121.80	12.35	
115	In	2	---	6056323.00	A	74220.00	1.23	
118	Sn	2	115	3058.30	P	104.60	3.42	
121	Sb	2	115	3450.66	P	114.00	3.30	
137	Ba	2	115	1320.13	P	33.84	2.56	
205	Tl	2	209	8724.86	P	91.61	1.05	
208	Pb	2	209	12252.01	P	155.30	1.27	
209	Bi	2	---	5434789.00	A	36290.00	0.67	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-272.88	15.90	35.48	-769.1	70 - 120	ISFail
45	Sc	1	142269.81	1.05	138057.45	103.1	70 - 120	
45	Sc	2	4140339.30	1.36	4152726.00	99.7	70 - 120	
72	Ge	1	88235.95	0.64	86466.48	102.0	70 - 120	
115	In	2	6056323.00	1.23	6053544.50	100.0	70 - 120	
209	Bi	2	5434789.50	0.67	5465338.50	99.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160525
Operator: KL Instrument: ICPMS3
Date Acquired: May 25 2016 11:40 am
Last Cal. Update: May 25 2016 11:38 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3158.91	P	124.40	3.94	ISFail
7	Li	2	45	81444.23	P	803.40	0.99	Fail
9	Be	2	45	20927.95	P	469.40	2.24	Fail
11	B	2	45	20744.39	P	193.80	0.93	Fail
23	Na	1	45	49294.59	P	1168.00	2.37	Fail
24	Mg	1	45	21165.25	P	774.90	3.66	Fail
27	Al	1	45	4839.68	P	57.26	1.18	Fail
39	K	1	45	11641.46	P	10.69	0.09	Fail
44	Ca	2	45	39659.92	P	629.10	1.59	Fail
45	Sc	1	---	143278.80	P	1156.00	0.81	
45	Sc	2	---	4120153.00	A	49370.00	1.20	
47	Ti	1	45	231.12	P	25.17	10.89	
51	V	1	45	9449.51	P	199.80	2.11	Fail
51	V	2	---		P			
52	Cr	1	45	13242.36	P	373.10	2.82	Fail
55	Mn	1	45	4834.80	P	159.30	3.29	Fail
56	Fe	1	72	201192.91	P	3702.00	1.84	Fail
59	Co	1	72	25259.91	P	174.60	0.69	
60	Ni	1	72	7550.88	P	72.09	0.95	Fail
60	Ni	2	---		P			
63	Cu	1	72	21661.08	P	196.60	0.91	Fail
63	Cu	2	---		P			
66	Zn	1	72	2069.54	P	60.69	2.93	Fail
66	Zn	2	---		P			
72	Ge	1	---	88696.46	P	237.30	0.27	
72	Ge	2	---		P			
75	As	1	72	1024.90	P	18.54	1.81	Fail
78	Se	1	72	53.78	P	4.01	7.46	Fail
88	Sr	2	115	89335.27	P	1407.00	1.58	Fail
95	Mo	2	115	16308.35	P	287.20	1.76	Fail
107	Ag	2	115	47737.28	P	786.40	1.65	Fail
111	Cd	2	115	10398.60	P	459.80	4.42	Fail
115	In	2	---	6075602.00	A	104300.00	1.72	
118	Sn	2	115	27836.89	P	477.40	1.72	Fail
121	Sb	2	115	33005.69	P	1040.00	3.15	Fail
137	Ba	2	115	12649.50	P	345.50	2.73	Fail
205	Tl	2	209	87908.60	P	1714.00	1.95	Fail
208	Pb	2	209	120260.00	P	1447.00	1.20	Fail
209	Bi	2	---	5493697.00	A	55050.00	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3158.91	3.94	35.48	-8903.2	70 - 120	ISFail
45	Sc	1	143278.77	0.81	138057.45	103.8	70 - 120	
45	Sc	2	4120152.80	1.20	4152726.00	99.2	70 - 120	
72	Ge	1	88696.46	0.27	86466.48	102.6	70 - 120	
115	In	2	6075602.00	1.72	6053544.50	100.4	70 - 120	
209	Bi	2	5493697.00	1.00	5465338.50	100.5	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160525
Operator: KL Instrument: ICPMS3
Date Acquired: May 25 2016 11:47 am
Last Cal. Update: May 25 2016 11:44 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-16288.08	P	511.60	3.14	ISFail
7	Li	2	45	402368.41	P	3309.00	0.82	Fail
9	Be	2	45	104423.40	P	1276.00	1.22	Fail
11	B	2	45	92644.22	P	1964.00	2.12	Fail
23	Na	1	45	231656.30	P	1302.00	0.56	Fail
24	Mg	1	45	102192.30	P	1498.00	1.47	Fail
27	Al	1	45	23101.92	P	581.50	2.52	Fail
39	K	1	45	50040.59	P	194.10	0.39	Fail
44	Ca	2	45	182260.41	P	3542.00	1.94	Fail
45	Sc	1	---	141135.50	P	450.30	0.32	
45	Sc	2	---	4138519.00	A	72340.00	1.75	
47	Ti	1	45	1055.62	P	23.90	2.26	
51	V	1	45	46600.53	P	455.10	0.98	Fail
51	V	2	---		P			
52	Cr	1	45	64822.04	P	589.70	0.91	
55	Mn	1	45	23763.53	P	163.10	0.69	
56	Fe	1	72	990195.63	P	9009.00	0.91	
59	Co	1	72	125218.50	P	1935.00	1.55	
60	Ni	1	72	37202.06	P	408.50	1.10	
60	Ni	2	---		P			
63	Cu	1	72	105463.50	P	708.10	0.67	
63	Cu	2	---		P			
66	Zn	1	72	9840.09	P	193.30	1.96	Fail
66	Zn	2	---		P			
72	Ge	1	---	86932.00	P	754.00	0.87	
72	Ge	2	---		P			
75	As	1	72	4967.45	P	37.52	0.76	
78	Se	1	72	258.45	P	6.20	2.40	Fail
88	Sr	2	115	443033.31	P	10500.00	2.37	Fail
95	Mo	2	115	81078.38	P	1037.00	1.28	Fail
107	Ag	2	115	237582.70	P	4252.00	1.79	Fail
111	Cd	2	115	50820.08	P	893.70	1.76	Fail
115	In	2	---	6043849.00	A	33930.00	0.56	
118	Sn	2	115	138084.59	P	2546.00	1.84	Fail
121	Sb	2	115	163930.30	P	2776.00	1.69	Fail
137	Ba	2	115	63381.75	P	2040.00	3.22	Fail
205	Tl	2	209	442037.59	P	4299.00	0.97	Fail
208	Pb	2	209	598058.88	P	9443.00	1.58	Fail
209	Bi	2	---	5504946.00	A	49270.00	0.90	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16288.08	3.14	35.48	-45907.1	70 - 120	ISFail
45	Sc	1	141135.45	0.32	138057.45	102.2	70 - 120	
45	Sc	2	4138519.00	1.75	4152726.00	99.7	70 - 120	
72	Ge	1	86932.01	0.87	86466.48	100.5	70 - 120	
115	In	2	6043848.50	0.56	6053544.50	99.8	70 - 120	
209	Bi	2	5504946.00	0.90	5465338.50	100.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160525
Operator: KL Instrument: ICPMS3
Date Acquired: May 25 2016 11:53 am
Last Cal. Update: May 25 2016 11:50 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-32300.18	P	989.90	3.06	ISFail
7	Li	2	45	792643.88	A	12330.00	1.56	Fail
9	Be	2	45	206314.00	P	2797.00	1.36	Fail
11	B	2	45	179068.41	P	3589.00	2.00	Fail
23	Na	1	45	456671.19	P	2489.00	0.55	Fail
24	Mg	1	45	202978.70	P	1794.00	0.88	
27	Al	1	45	45805.44	P	528.80	1.15	Fail
39	K	1	45	97811.58	P	804.40	0.82	Fail
44	Ca	2	45	356890.41	P	7614.00	2.13	Fail
45	Sc	1	---	139844.59	P	317.00	0.23	
45	Sc	2	---	4139387.00	A	61320.00	1.48	
47	Ti	1	45	2048.65	P	54.40	2.66	
51	V	1	45	93011.17	P	1117.00	1.20	
51	V	2	---		P			
52	Cr	1	45	128337.30	P	2310.00	1.80	
55	Mn	1	45	46816.77	P	651.40	1.39	
56	Fe	1	72	1983262.00	A	31950.00	1.61	
59	Co	1	72	246793.00	P	3136.00	1.27	
60	Ni	1	72	73832.64	P	1291.00	1.75	
60	Ni	2	---		P			
63	Cu	1	72	210109.20	P	2059.00	0.98	
63	Cu	2	---		P			
66	Zn	1	72	19530.82	P	53.99	0.28	Fail
66	Zn	2	---		P			
72	Ge	1	---	86387.22	P	767.70	0.89	
72	Ge	2	---		P			
75	As	1	72	9879.90	P	120.10	1.22	
78	Se	1	72	512.05	P	5.95	1.16	
88	Sr	2	115	874582.69	P	19150.00	2.19	Fail
95	Mo	2	115	161433.59	P	2303.00	1.43	Fail
107	Ag	2	115	468556.91	P	7907.00	1.69	Fail
111	Cd	2	115	100303.20	P	1203.00	1.20	Fail
115	In	2	---	6004016.00	A	51360.00	0.86	
118	Sn	2	115	273339.91	P	5241.00	1.92	Fail
121	Sb	2	115	326281.69	P	7200.00	2.21	Fail
137	Ba	2	115	126337.80	P	3084.00	2.44	Fail
205	Tl	2	209	871072.00	P	9232.00	1.06	Fail
208	Pb	2	209	1173651.00	P	20530.00	1.75	Fail
209	Bi	2	---	5392675.00	A	32210.00	0.60	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-32300.18	3.06	35.48	-91036.3	70 - 120	ISFail
45	Sc	1	139844.64	0.23	138057.45	101.3	70 - 120	
45	Sc	2	4139386.80	1.48	4152726.00	99.7	70 - 120	
72	Ge	1	86387.23	0.89	86466.48	99.9	70 - 120	
115	In	2	6004016.00	0.86	6053544.50	99.2	70 - 120	
209	Bi	2	5392675.00	0.60	5465338.50	98.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160525
Operator: KL Instrument: ICPMS3
Date Acquired: May 25 2016 11:59 am
Last Cal. Update: May 25 2016 11:56 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-76509.99	P	180.40	0.24	ISFail
7	Li	2	45	1933272.00	A	9283.00	0.48	Fail
9	Be	2	45	508742.19	P	4856.00	0.95	
11	B	2	45	444105.91	P	5067.00	1.14	Fail
23	Na	1	45	1184068.00	A	9137.00	0.77	Fail
24	Mg	1	45	515642.91	P	3636.00	0.71	
27	Al	1	45	116586.70	P	2038.00	1.75	
39	K	1	45	246218.80	P	1321.00	0.54	Fail
44	Ca	2	45	888133.38	M	34470.00	3.88	Fail
45	Sc	1	---	141806.09	P	185.10	0.13	
45	Sc	2	---	4001920.00	A	40540.00	1.01	
47	Ti	1	45	5365.24	P	120.50	2.25	
51	V	1	45	233931.20	P	2388.00	1.02	
51	V	2	---		A			
52	Cr	1	45	320402.50	P	2792.00	0.87	
55	Mn	1	45	118084.30	P	877.90	0.74	
56	Fe	1	72	4840338.00	A	43880.00	0.91	
59	Co	1	72	612208.31	P	2883.00	0.47	
60	Ni	1	72	180786.41	P	979.70	0.54	
60	Ni	2	---		P			
63	Cu	1	72	514813.41	P	4742.00	0.92	
63	Cu	2	---		P			
66	Zn	1	72	47653.65	P	313.90	0.66	Fail
66	Zn	2	---		P			
72	Ge	1	---	87029.36	P	440.30	0.51	
72	Ge	2	---		P			
75	As	1	72	24700.86	P	129.60	0.52	
78	Se	1	72	1287.77	P	6.35	0.49	
88	Sr	2	115	2245274.00	A	48870.00	2.18	Fail
95	Mo	2	115	397199.50	P	8239.00	2.07	Fail
107	Ag	2	115	1173027.00	A	14630.00	1.25	
111	Cd	2	115	246356.91	P	3214.00	1.30	Fail
115	In	2	---	5918027.00	A	76490.00	1.29	
118	Sn	2	115	678109.69	P	11900.00	1.75	Fail
121	Sb	2	115	805410.50	P	14660.00	1.82	Fail
137	Ba	2	115	311737.31	P	5636.00	1.81	Fail
205	Tl	2	209	2257746.00	A	24770.00	1.10	Fail
208	Pb	2	209	2976292.00	A	34430.00	1.16	Fail
209	Bi	2	---	5277858.00	A	82480.00	1.56	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-76509.99	0.24	35.48	-215639.2	70 - 120	ISFail
45	Sc	1	141806.06	0.13	138057.45	102.7	70 - 120	
45	Sc	2	4001920.30	1.01	4152726.00	96.4	70 - 120	
72	Ge	1	87029.36	0.51	86466.48	100.7	70 - 120	
115	In	2	5918027.00	1.29	6053544.50	97.8	70 - 120	
209	Bi	2	5277858.00	1.56	5465338.50	96.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160525
Operator: KL Instrument: ICPMS3
Date Acquired: May 25 2016 12:05 pm
Last Cal. Update: May 25 2016 12:02 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-146565.41	P	2970.00	2.03	ISFail
7	Li	2	45	3764275.00	A	31320.00	0.83	Fail
9	Be	2	45	955968.63	A	9887.00	1.03	
11	B	2	45	899463.81	A	18700.00	2.08	Fail
23	Na	1	45	2271337.00	A	18240.00	0.80	
24	Mg	1	45	1018896.00	A	3994.00	0.39	
27	Al	1	45	227150.80	P	2005.00	0.88	
39	K	1	45	475184.69	P	2528.00	0.53	Fail
44	Ca	2	45	1796926.00	A	23300.00	1.30	Fail
45	Sc	1	---	138027.09	P	383.10	0.28	
45	Sc	2	---	4009804.00	A	53030.00	1.32	
47	Ti	1	45	10433.44	P	219.50	2.10	
51	V	1	45	457795.69	P	2519.00	0.55	
51	V	2	---		A			
52	Cr	1	45	630315.63	P	7160.00	1.14	
55	Mn	1	45	230678.30	P	2283.00	0.99	
56	Fe	1	72	9324059.00	A	98460.00	1.06	
59	Co	1	72	1212203.00	A	6805.00	0.56	
60	Ni	1	72	351711.59	P	2177.00	0.62	
60	Ni	2	---		P			
63	Cu	1	72	1002285.00	P	6545.00	0.65	
63	Cu	2	---		A			
66	Zn	1	72	90796.41	P	911.50	1.00	
66	Zn	2	---		P			
72	Ge	1	---	84174.54	P	218.10	0.26	
72	Ge	2	---		P			
75	As	1	72	47505.14	P	146.90	0.31	
78	Se	1	72	2446.17	P	5.81	0.24	
88	Sr	2	115	4329264.00	A	16510.00	0.38	Fail
95	Mo	2	115	793385.38	P	7041.00	0.89	Fail
107	Ag	2	115	2292808.00	A	18450.00	0.80	
111	Cd	2	115	478300.81	P	4761.00	1.00	
115	In	2	---	5806672.00	A	83470.00	1.44	
118	Sn	2	115	1385374.00	A	13700.00	0.99	Fail
121	Sb	2	115	1626515.00	A	11050.00	0.68	Fail
137	Ba	2	115	617755.13	P	5973.00	0.97	Fail
205	Tl	2	209	4418658.00	A	26460.00	0.60	
208	Pb	2	209	6017113.00	A	44660.00	0.74	Fail
209	Bi	2	---	5242206.00	A	62730.00	1.20	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-146565.48	2.03	35.48	-413086.7	70 - 120	ISFail
45	Sc	1	138027.08	0.28	138057.45	100.0	70 - 120	
45	Sc	2	4009804.30	1.32	4152726.00	96.6	70 - 120	
72	Ge	1	84174.54	0.26	86466.48	97.3	70 - 120	
115	In	2	5806672.50	1.44	6053544.50	95.9	70 - 120	
209	Bi	2	5242206.00	1.20	5465338.50	95.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160525
Operator: KL Instrument: ICPMS3
Date Acquired: May 25 2016 12:10 pm
Last Cal. Update: May 25 2016 12:08 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-543714.13	P	4760.00	0.88	ISFail
7	Li	2	45	13999000.00	A	104800.00	0.75	
9	Be	2	45	3510109.00	A	25700.00	0.73	
11	B	2	45	3178960.00	A	4170.00	0.13	Fail
23	Na	1	45	5270676.00	A	18920.00	0.36	
24	Mg	1	45	2361325.00	A	20340.00	0.86	
27	Al	1	45	368.46	P	54.72	14.85	Fail
39	K	1	45	1135242.00	A	6457.00	0.57	
44	Ca	2	45	4183497.00	A	54710.00	1.31	Fail
45	Sc	1	---	132029.09	P	725.00	0.55	
45	Sc	2	---	3834505.00	A	36720.00	0.96	
47	Ti	1	45	39105.30	P	320.50	0.82	
51	V	1	45	1782271.00	A	19030.00	1.07	
51	V	2	---		A			
52	Cr	1	45	2425389.00	A	36400.00	1.50	
55	Mn	1	45	858525.19	P	5048.00	0.59	
56	Fe	1	72	11330.67	P	1452.00	12.82	Fail
59	Co	1	72	4495479.00	A	60820.00	1.35	
60	Ni	1	72	1357582.00	A	6819.00	0.50	
60	Ni	2	---		A			
63	Cu	1	72	3734901.00	A	23670.00	0.63	
63	Cu	2	---		A			
66	Zn	1	72	336265.00	P	1247.00	0.37	
66	Zn	2	---		A			
72	Ge	1	---	80382.26	P	523.60	0.65	
72	Ge	2	---		P			
75	As	1	72	179718.50	P	1054.00	0.59	
78	Se	1	72	8990.15	P	2.06	0.02	
88	Sr	2	115	16507970.00	A	174800.00	1.06	Fail
95	Mo	2	115	3146588.00	A	6099.00	0.19	
107	Ag	2	115	1749.15	P	336.90	19.26	Fail
111	Cd	2	115	1891356.00	A	23860.00	1.26	
115	In	2	---	5615400.00	A	91620.00	1.63	
118	Sn	2	115	5176959.00	A	52390.00	1.01	Fail
121	Sb	2	115	1920.27	P	297.10	15.47	Fail
137	Ba	2	115	2448660.00	A	37150.00	1.52	
205	Tl	2	209	16400440.00	A	215200.00	1.31	
208	Pb	2	209	22141960.00	A	91540.00	0.41	
209	Bi	2	---	4941974.00	A	1275.00	0.03	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-543714.13	0.88	35.48	#########	70 - 120	ISFail
45	Sc	1	132029.14	0.55	138057.45	95.6	70 - 120	
45	Sc	2	3834505.00	0.96	4152726.00	92.3	70 - 120	
72	Ge	1	80382.26	0.65	86466.48	93.0	70 - 120	
115	In	2	5615400.50	1.63	6053544.50	92.8	70 - 120	
209	Bi	2	4941974.50	0.03	5465338.50	90.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\016ICSA.D\016ICSA.D#

Date Acquired:	May 25 2016 12:28 pm	Sample Name:	**ICSA-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.475	ppb	15.90	8.00	5.00	
9	Be	2	45	0.187	ppb	36.11	0.32	0.80	
11	B	2	45	7.836	ppb	4.39	30.00	30.00	
23	Na	1	45	97600.000	ppb	0.93	#######	#######	
24	Mg	1	45	93480.000	ppb	0.64	#######	#######	
27	Al	1	45	99390.000	ppb	1.42	#######	#######	
39	K	1	45	97760.000	ppb	0.48	#######	#######	
44	Ca	2	45	95500.000	ppb	2.91	#######	#######	
47	Ti	1	45	2037.000	ppb	1.10	10.00	10.00	
51	V	1	45	0.265	ppb	5.72	10.00	10.00	
52	Cr	1	45	0.601	ppb	2.34	8.00	5.00	
55	Mn	1	45	1.827	ppb	6.34	8.00	10.00	
56	Fe	1	72	97930.000	ppb	1.47	#######	#######	
59	Co	1	72	0.798	ppb	4.18	8.00	10.00	
60	Ni	1	72	0.656	ppb	6.55	8.00	10.00	
63	Cu	1	72	0.742	ppb	6.34	8.00	10.00	
66	Zn	1	72	1.321	ppb	9.19	10.00	5.00	
75	As	1	72	0.944	ppb	6.96	4.00	5.00	
78	Se	1	72	0.496	ppb	12.40	2.00	5.00	
88	Sr	2	115	1.643	ppb	6.86	10.00	10.00	
95	Mo	2	115	2009.000	ppb	3.32	8.00	5.00	
107	Ag	2	115	0.164	ppb	15.22	0.80	2.00	
111	Cd	2	115	0.427	ppb	25.76	1.20	1.00	
118	Sn	2	115	0.719	ppb	10.57	10.00	10.00	
121	Sb	2	115	0.415	ppb	8.04	4.00	2.50	
137	Ba	2	115	0.539	ppb	17.01	8.00	10.00	
205	Tl	2	209	0.322	ppb	24.92	4.00	1.50	
208	Pb	2	209	0.595	ppb	15.61	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-42.17	117.78	35.48	-118.9	70 -	120	ISFail
45	Sc	1	130375.06	0.20	138057.45	94.4	70 -	120	
45	Sc	2	3593776.00	3.03	4152726.00	86.5	70 -	120	
72	Ge	1	77350.31	1.04	86466.48	89.5	70 -	120	
115	In	2	5162998.50	2.55	6053544.50	85.3	70 -	120	
209	Bi	2	4403426.00	1.15	5465338.50	80.6	70 -	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\017ICSB.D\017ICSB.D#

Date Acquired:	May 25 2016 12:34 pm	Sample Name:	**ICSAB-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.34	ppb	7.12	---	80 -		120	
9	Be	2	45	0.09	ppb	35.35	---	80 -		120	
11	B	2	45	6.13	ppb	2.70	---	80 -		120	
23	Na	1	45	99590.00	ppb	0.36	100000.00	80 -		120	
24	Mg	1	45	93100.00	ppb	1.26	100000.00	80 -		120	
27	Al	1	45	97260.00	ppb	2.05	100000.00	80 -		120	
39	K	1	45	96130.00	ppb	1.29	100000.00	80 -		120	
44	Ca	2	45	95850.00	ppb	2.32	100000.00	80 -		120	
47	Ti	1	45	2010.00	ppb	0.85	---	80 -		120	
51	V	1	45	40.76	ppb	1.39	40.00	80 -		120	
52	Cr	1	45	21.45	ppb	1.50	20.00	80 -		120	
55	Mn	1	45	19.86	ppb	1.45	20.00	80 -		120	
56	Fe	1	72	96600.00	ppb	0.32	100000.00	80 -		120	
59	Co	1	72	42.31	ppb	2.15	40.00	80 -		120	
60	Ni	1	72	38.36	ppb	2.21	40.00	80 -		120	
63	Cu	1	72	20.81	ppb	0.59	20.00	80 -		120	
66	Zn	1	72	19.26	ppb	2.18	20.00	80 -		120	
75	As	1	72	20.12	ppb	0.97	20.00	80 -		120	
78	Se	1	72	19.07	ppb	4.07	20.00	80 -		120	
88	Sr	2	115	1.14	ppb	2.68	---	80 -		120	
95	Mo	2	115	2038.00	ppb	2.92	---	80 -		120	
107	Ag	2	115	17.93	ppb	2.43	20.00	80 -		120	
111	Cd	2	115	9.47	ppb	2.98	10.00	80 -		120	
118	Sn	2	115	0.64	ppb	4.29	---	80 -		120	
121	Sb	2	115	0.07	ppb	19.08	---	80 -		120	
137	Ba	2	115	0.56	ppb	4.44	---	80 -		120	
205	Tl	2	209	0.15	ppb	18.24	---	80 -		120	
208	Pb	2	209	0.38	ppb	4.51	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-19.38	119.38	35.48	-54.6	70 -		120	ISFail
45	Sc	1	126240.23	0.47	138057.45	91.4	70 -		120	
45	Sc	2	3338833.80	2.89	4152726.00	80.4	70 -		120	
72	Ge	1	75409.73	0.27	86466.48	87.2	70 -		120	
115	In	2	4891670.50	2.18	6053544.50	80.8	70 -		120	
209	Bi	2	4364433.50	0.75	5465338.50	79.9	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\020ICV.D\020ICV.D#

Date Acquired:	May 25 2016 12:52 pm	Sample Name:	**ICV1-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	132.70	ppb	0.90	100.00	90 -	110	132.7	Fail
9	Be	2	45	117.60	ppb	1.73	100.00	90 -	110	117.6	Fail
11	B	2	45	113.80	ppb	0.81	100.00	90 -	110	113.8	Fail
23	Na	1	45	2726.00	ppb	0.62	2500.00	90 -	110	109.0	
24	Mg	1	45	2647.00	ppb	1.23	2500.00	90 -	110	105.9	
27	Al	1	45	2410.00	ppb	1.04	2500.00	90 -	110	96.4	
39	K	1	45	2505.00	ppb	0.30	2500.00	90 -	110	100.2	
44	Ca	2	45	2412.00	ppb	1.49	2500.00	90 -	110	96.5	
47	Ti	1	45	101.30	ppb	4.66	100.00	90 -	110	101.3	
51	V	1	45	103.90	ppb	0.67	100.00	90 -	110	103.9	
52	Cr	1	45	107.10	ppb	0.93	100.00	90 -	110	107.1	
55	Mn	1	45	99.41	ppb	1.56	100.00	90 -	110	99.4	
56	Fe	1	72	2613.00	ppb	1.97	2500.00	90 -	110	104.5	
59	Co	1	72	108.40	ppb	1.44	100.00	90 -	110	108.4	
60	Ni	1	72	105.80	ppb	1.03	100.00	90 -	110	105.8	
63	Cu	1	72	107.10	ppb	0.88	100.00	90 -	110	107.1	
66	Zn	1	72	106.60	ppb	0.99	100.00	90 -	110	106.6	
75	As	1	72	101.80	ppb	0.93	100.00	90 -	110	101.8	
78	Se	1	72	99.33	ppb	1.67	100.00	90 -	110	99.3	
88	Sr	2	115	98.82	ppb	1.44	100.00	90 -	110	98.8	
95	Mo	2	115	94.32	ppb	1.06	100.00	90 -	110	94.3	
107	Ag	2	115	97.23	ppb	1.35	100.00	90 -	110	97.2	
111	Cd	2	115	98.36	ppb	1.56	100.00	90 -	110	98.4	
118	Sn	2	115	102.30	ppb	1.81	100.00	90 -	110	102.3	
121	Sb	2	115	97.97	ppb	2.15	100.00	90 -	110	98.0	
137	Ba	2	115	98.20	ppb	0.51	100.00	90 -	110	98.2	
205	Tl	2	209	97.27	ppb	2.15	100.00	90 -	110	97.3	
208	Pb	2	209	99.60	ppb	1.33	100.00	90 -	110	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-14810.84	0.66	35.48	-41743.5	70 -	120		ISFail
45	Sc	1	131446.92	1.04	138057.45	95.2	70 -	120		
45	Sc	2	3243742.30	1.16	4152726.00	78.1	70 -	120		
72	Ge	1	81329.92	0.15	86466.48	94.1	70 -	120		
115	In	2	5054618.50	1.10	6053544.50	83.5	70 -	120		
209	Bi	2	5021154.00	0.93	5465338.50	91.9	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\021_ICB.D\021_ICB.D#

Date Acquired:	May 25 2016 12:58 pm	Sample Name:	**ICB1-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.21	ppb	11.50	2.00	
9	Be	2	45	0.07	ppb	30.93	0.40	
11	B	2	45	5.79	ppb	2.54	10.00	
23	Na	1	45	17.37	ppb	3.84	50.00	
24	Mg	1	45	9.39	ppb	12.93	50.00	
27	Al	1	45	19.04	ppb	10.83	50.00	Failaq
39	K	1	45	14.47	ppb	9.67	50.00	
44	Ca	2	45	30.65	ppb	6.42	50.00	
47	Ti	1	45	0.50	ppb	41.66	4.00	
51	V	1	45	0.09	ppb	18.61	4.00	
52	Cr	1	45	0.10	ppb	9.68	2.00	
55	Mn	1	45	0.11	ppb	12.43	2.00	
56	Fe	1	72	9.60	ppb	15.76	50.00	
59	Co	1	72	0.09	ppb	17.22	2.00	
60	Ni	1	72	0.13	ppb	3.23	2.00	
63	Cu	1	72	0.16	ppb	7.81	2.00	
66	Zn	1	72	0.32	ppb	13.44	4.00	
75	As	1	72	0.11	ppb	9.69	2.00	
78	Se	1	72	0.17	ppb	39.95	0.60	
88	Sr	2	115	0.19	ppb	6.69	4.00	
95	Mo	2	115	0.29	ppb	7.31	2.00	
107	Ag	2	115	0.06	ppb	3.62	0.40	
111	Cd	2	115	0.06	ppb	9.17	0.40	
118	Sn	2	115	0.26	ppb	1.17	20.00	
121	Sb	2	115	0.07	ppb	20.81	2.00	
137	Ba	2	115	0.08	ppb	29.87	2.00	
205	Tl	2	209	0.16	ppb	10.66	2.00	
208	Pb	2	209	0.11	ppb	9.75	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-9.17	######	35.48	-25.9	70 - 120	ISFail
45	Sc	1	131168.02	0.78	138057.45	95.0	70 - 120	
45	Sc	2	3224747.80	0.64	4152726.00	77.7	70 - 120	
72	Ge	1	82581.35	0.67	86466.48	95.5	70 - 120	
115	In	2	5056024.00	0.99	6053544.50	83.5	70 - 120	
209	Bi	2	5057645.00	0.63	5465338.50	92.5	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\022LCVL.D\022LCVL.D#

Date Acquired:	May 25 2016 01:04 pm	Sample Name:	**ILCVL-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.42	ppb	0.73	5.00	70 -	130	268.4	Fail
9	Be	2	45	1.19	ppb	0.10	1.00	70 -	130	119.4	
11	B	2	45	24.22	ppb	1.70	20.00	70 -	130	121.1	
23	Na	1	45	114.50	ppb	2.61	100.00	70 -	130	114.5	
24	Mg	1	45	110.80	ppb	0.26	100.00	70 -	130	110.8	
27	Al	1	45	102.40	ppb	2.04	100.00	70 -	130	102.4	
39	K	1	45	106.90	ppb	0.62	100.00	70 -	130	106.9	
44	Ca	2	45	103.10	ppb	2.32	100.00	70 -	130	103.1	
47	Ti	1	45	4.82	ppb	3.46	5.00	70 -	130	96.4	
51	V	1	45	1.06	ppb	0.53	1.00	70 -	130	106.3	
52	Cr	1	45	5.23	ppb	2.32	5.00	70 -	130	104.7	
55	Mn	1	45	4.93	ppb	1.70	5.00	70 -	130	98.5	
56	Fe	1	72	108.20	ppb	1.54	100.00	70 -	130	108.2	
59	Co	1	72	5.27	ppb	2.71	5.00	70 -	130	105.4	
60	Ni	1	72	5.22	ppb	2.38	5.00	70 -	130	104.3	
63	Cu	1	72	5.43	ppb	0.54	5.00	70 -	130	108.6	
66	Zn	1	72	5.05	ppb	1.92	5.00	70 -	130	101.0	
75	As	1	72	5.20	ppb	1.53	5.00	70 -	130	104.0	
78	Se	1	72	5.14	ppb	0.67	5.00	70 -	130	102.8	
88	Sr	2	115	4.87	ppb	2.33	5.00	70 -	130	97.3	
95	Mo	2	115	4.85	ppb	3.97	5.00	70 -	130	97.1	
107	Ag	2	115	1.95	ppb	2.53	2.00	70 -	130	97.6	
111	Cd	2	115	1.01	ppb	7.83	1.00	70 -	130	100.9	
118	Sn	2	115	5.11	ppb	2.58	5.00	70 -	130	102.2	
121	Sb	2	115	1.92	ppb	0.54	2.00	70 -	130	95.9	
137	Ba	2	115	4.92	ppb	1.37	5.00	70 -	130	98.4	
205	Tl	2	209	1.02	ppb	1.68	1.00	70 -	130	101.6	
208	Pb	2	209	1.03	ppb	2.46	1.00	70 -	130	102.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl -1382.16	18.54	35.48	-3895.5	70 -	120	ISFail
45	Sc	1	135459.27	1.56	138057.45	98.1	70 -	120	
45	Sc	2	3244468.30	1.14	4152726.00	78.1	70 -	120	
72	Ge	1	84631.23	0.49	86466.48	97.9	70 -	120	
115	In	2	5076043.50	1.11	6053544.50	83.9	70 -	120	
209	Bi	2	5114711.50	0.82	5465338.50	93.6	70 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\023__PB.D\023__PB.D#

Date Acquired:	May 25 2016 01:13 pm	Sample Name:	MB-75167
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.114	ppb	5.59	2.0	8.00	
9	Be	2	45	0.009	ppb	11.95	0.4	1.20	
11	B	2	45	2.209	ppb	1.34	10.0	30.00	
23	Na	1	45	16.470	ppb	0.70	50.0	#####	
24	Mg	1	45	7.826	ppb	6.38	50.0	#####	
27	Al	1	45	10.940	ppb	2.16	50.0	#####	
39	K	1	45	14.880	ppb	1.74	50.0	#####	
44	Ca	2	45	26.420	ppb	2.15	50.0	#####	
47	Ti	1	45	0.411	ppb	72.93	4.0	10.00	
51	V	1	45	-0.004	ppb	18.75	4.0	10.00	
52	Cr	1	45	0.253	ppb	1.14	2.0	8.00	
55	Mn	1	45	0.106	ppb	8.48	2.0	8.00	
56	Fe	1	72	15.190	ppb	3.28	50.0	#####	
59	Co	1	72	0.021	ppb	7.22	2.0	8.00	
60	Ni	1	72	0.162	ppb	5.70	2.0	8.00	
63	Cu	1	72	0.177	ppb	4.90	2.0	8.00	
66	Zn	1	72	1.672	ppb	3.83	4.0	10.00	
75	As	1	72	0.006	ppb	19.89	2.0	4.00	
78	Se	1	72	0.115	ppb	14.19	0.6	2.00	
88	Sr	2	115	0.081	ppb	2.18	4.0	10.00	
95	Mo	2	115	0.139	ppb	12.49	2.0	8.00	
107	Ag	2	115	0.014	ppb	13.04	0.4	0.80	
111	Cd	2	115	0.047	ppb	25.25	0.4	1.20	
118	Sn	2	115	4.080	ppb	2.17	20.0	40.00	
121	Sb	2	115	-0.019	ppb	12.37	2.0	4.00	
137	Ba	2	115	0.024	ppb	2.71	2.0	8.00	
205	Tl	2	209	0.038	ppb	21.40	2.0	4.00	
208	Pb	2	209	0.099	ppb	1.24	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	15.24	66.41	35.48	42.9	70 - 120	ISFail
45	Sc	1		138950.08	1.31	138057.45	100.6	70 - 120	
45	Sc	2		3379711.00	0.13	4152726.00	81.4	70 - 120	
72	Ge	1		84587.71	0.44	86466.48	97.8	70 - 120	
115	In	2		5306128.00	1.08	6053544.50	87.7	70 - 120	
209	Bi	2		5285196.00	0.95	5465338.50	96.7	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\024_LCS.D\024_LCS.D#

Date Acquired:	May 25 2016 01:19 pm	Sample Name:	**LCS-75167**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	265.50	ppb	1.39	200.00	80 -	120	132.8	Fail
9	Be	2	45	230.30	ppb	1.54	200.00	80 -	120	115.2	
11	B	2	45	218.10	ppb	2.50	200.00	80 -	120	109.1	
23	Na	1	45	5533.00	ppb	0.70	1000.00	80 -	120	553.3	Fail
24	Mg	1	45	5238.00	ppb	1.55	1000.00	80 -	120	523.8	Fail
27	Al	1	45	999.50	ppb	1.92	1000.00	80 -	120	100.0	
39	K	1	45	5086.00	ppb	0.67	1000.00	80 -	120	508.6	Fail
44	Ca	2	45	5038.00	ppb	2.31	1000.00	80 -	120	503.8	Fail
47	Ti	1	45	204.20	ppb	1.05	200.00	80 -	120	102.1	
51	V	1	45	206.00	ppb	0.91	200.00	80 -	120	103.0	
52	Cr	1	45	209.70	ppb	1.37	200.00	80 -	120	104.9	
55	Mn	1	45	204.20	ppb	0.91	200.00	80 -	120	102.1	
56	Fe	1	72	1051.00	ppb	0.49	1000.00	80 -	120	105.1	
59	Co	1	72	217.10	ppb	1.30	200.00	80 -	120	108.6	
60	Ni	1	72	211.20	ppb	0.77	200.00	80 -	120	105.6	
63	Cu	1	72	216.60	ppb	0.69	200.00	80 -	120	108.3	
66	Zn	1	72	201.20	ppb	0.78	200.00	80 -	120	100.6	
75	As	1	72	198.50	ppb	0.79	200.00	80 -	120	99.3	
78	Se	1	72	181.60	ppb	1.57	200.00	80 -	120	90.8	
88	Sr	2	115	207.20	ppb	0.25	200.00	80 -	120	103.6	
95	Mo	2	115	196.20	ppb	1.95	200.00	80 -	120	98.1	
107	Ag	2	115	201.00	ppb	1.97	200.00	80 -	120	100.5	
111	Cd	2	115	195.40	ppb	1.38	200.00	80 -	120	97.7	
118	Sn	2	115	207.70	ppb	2.03	200.00	80 -	120	103.9	
121	Sb	2	115	197.60	ppb	1.42	200.00	80 -	120	98.8	
137	Ba	2	115	201.00	ppb	1.13	200.00	80 -	120	100.5	
205	Tl	2	209	207.40	ppb	0.74	200.00	80 -	120	103.7	
208	Pb	2	209	202.10	ppb	1.58	200.00	80 -	120	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-63648.56	1.20	35.48	-179389.9	70 -	120	ISFail
45	Sc	1	135627.30	0.80	138057.45	98.2	70 -	120	
45	Sc	2	3333592.00	1.65	4152726.00	80.3	70 -	120	
72	Ge	1	82920.67	0.35	86466.48	95.9	70 -	120	
115	In	2	5124735.00	1.45	6053544.50	84.7	70 -	120	
209	Bi	2	4962097.00	0.47	5465338.50	90.8	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\025_LCS.D\025_LCS.D#

Date Acquired:	May 25 2016 01:25 pm	Sample Name:	**LCSD-75167**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	268.80	ppb	1.11	200.00	80 -	120	134.4	Fail
9	Be	2	45	229.90	ppb	0.99	200.00	80 -	120	115.0	
11	B	2	45	222.90	ppb	1.01	200.00	80 -	120	111.5	
23	Na	1	45	5547.00	ppb	1.01	1000.00	80 -	120	554.7	Fail
24	Mg	1	45	5263.00	ppb	0.63	1000.00	80 -	120	526.3	Fail
27	Al	1	45	1003.00	ppb	1.56	1000.00	80 -	120	100.3	
39	K	1	45	5171.00	ppb	0.48	1000.00	80 -	120	517.1	Fail
44	Ca	2	45	5040.00	ppb	1.79	1000.00	80 -	120	504.0	Fail
47	Ti	1	45	203.60	ppb	0.62	200.00	80 -	120	101.8	
51	V	1	45	203.30	ppb	0.89	200.00	80 -	120	101.7	
52	Cr	1	45	207.90	ppb	1.21	200.00	80 -	120	104.0	
55	Mn	1	45	204.40	ppb	1.72	200.00	80 -	120	102.2	
56	Fe	1	72	1067.00	ppb	0.76	1000.00	80 -	120	106.7	
59	Co	1	72	215.70	ppb	1.40	200.00	80 -	120	107.9	
60	Ni	1	72	211.90	ppb	0.78	200.00	80 -	120	106.0	
63	Cu	1	72	217.20	ppb	1.43	200.00	80 -	120	108.6	
66	Zn	1	72	200.20	ppb	0.69	200.00	80 -	120	100.1	
75	As	1	72	199.80	ppb	0.97	200.00	80 -	120	99.9	
78	Se	1	72	187.00	ppb	1.05	200.00	80 -	120	93.5	
88	Sr	2	115	206.70	ppb	0.81	200.00	80 -	120	103.4	
95	Mo	2	115	192.30	ppb	0.22	200.00	80 -	120	96.2	
107	Ag	2	115	198.10	ppb	0.71	200.00	80 -	120	99.1	
111	Cd	2	115	193.60	ppb	1.84	200.00	80 -	120	96.8	
118	Sn	2	115	207.00	ppb	1.61	200.00	80 -	120	103.5	
121	Sb	2	115	195.50	ppb	1.11	200.00	80 -	120	97.8	
137	Ba	2	115	198.90	ppb	0.63	200.00	80 -	120	99.5	
205	Tl	2	209	210.80	ppb	1.04	200.00	80 -	120	105.4	
208	Pb	2	209	204.60	ppb	1.39	200.00	80 -	120	102.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-64219.47	2.09	35.48	-180999.0	70 -	120	ISFail
45	Sc	1	140421.91	0.70	138057.45	101.7	70 -	120	
45	Sc	2	3352217.80	1.16	4152726.00	80.7	70 -	120	
72	Ge	1	84473.22	0.24	86466.48	97.7	70 -	120	
115	In	2	5205467.00	1.89	6053544.50	86.0	70 -	120	
209	Bi	2	5025508.50	0.46	5465338.50	92.0	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\027AREF.D\027AREF.D#

Date Acquired:	May 25 2016 01:37 pm	Sample Name:	**1605096-25A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	62.960	ppb	#REF!	2.38	2000.00	>RL
9	Be	2	45	1.991	ppb	#REF!	4.28	2000.00	>RL
11	B	2	45	164.000	ppb	#REF!	3.62	2000.00	>RL
23	Na	1	45	14910.000	ppb	#REF!	1.39	25000.00	>RL
24	Mg	1	45	11690.000	ppb	#REF!	1.79	25000.00	>RL
27	Al	1	45	58020.000	ppb	#REF!	0.13	10000.00	OUTCAL
39	K	1	45	11410.000	ppb	#REF!	1.06	25000.00	>RL
44	Ca	2	45	128900.000	ppb	#REF!	3.11	25000.00	OUTCAL
47	Ti	1	45	191.200	ppb	#REF!	0.80	2000.00	>RL
51	V	1	45	110.800	ppb	#REF!	1.03	2000.00	>RL
52	Cr	1	45	66.460	ppb	#REF!	1.14	2000.00	>RL
55	Mn	1	45	42.900	ppb	#REF!	0.10	2000.00	>RL
56	Fe	1	72	76410.000	ppb	#REF!	1.28	10000.00	OUTCAL
59	Co	1	72	5.715	ppb	#REF!	0.71	2000.00	J
60	Ni	1	72	13.460	ppb	#REF!	0.82	2000.00	>RL
63	Cu	1	72	11.450	ppb	#REF!	0.59	2000.00	>RL
66	Zn	1	72	64.320	ppb	#REF!	0.75	2000.00	>RL
75	As	1	72	36.300	ppb	#REF!	1.12	2000.00	>RL
78	Se	1	72	19.120	ppb	#REF!	1.22	2000.00	>RL
88	Sr	2	115	5046.000	ppb	#REF!	2.66	2000.00	OUTCAL
95	Mo	2	115	2.025	ppb	#REF!	2.41	2000.00	J
107	Ag	2	115	0.117	ppb	#REF!	19.56	500.00	ND
111	Cd	2	115	0.392	ppb	#REF!	19.66	2000.00	ND
118	Sn	2	115	6.079	ppb	#REF!	2.26	2000.00	J
121	Sb	2	115	0.157	ppb	#REF!	7.23	500.00	ND
137	Ba	2	115	608.500	ppb	#REF!	2.89	2000.00	>RL
205	Tl	2	209	0.528	ppb	#REF!	4.84	2000.00	ND
208	Pb	2	209	50.790	ppb	#REF!	1.90	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4634.56	4.59	35.48	-13062.3	70 - 120	ISFail
45	Sc	1	134474.83	1.23	138057.45	97.4	70 - 120	
45	Sc	2	3191601.80	2.83	4152726.00	76.9	70 - 120	
72	Ge	1	79831.76	0.65	86466.48	92.3	70 - 120	
115	In	2	4955138.50	1.79	6053544.50	81.9	70 - 120	
209	Bi	2	4621836.50	0.69	5465338.50	84.6	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\028DT1.D\028DT1.D#

Date Acquired:	May 25 2016 01:43 pm	Sample Name:	**1605096-25A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	12.82	ppb	2.34	-848.41	90 - 110	-7.6	
9	Be	2	45	0.42	ppb	6.99	1.99	90 - 110	105.8	GOOD
11	B	2	45	36.98	ppb	3.50	164.00	90 - 110	112.7	
23	Na	1	45	2996.00	ppb	0.99	14910.00	90 - 110	100.5	GOOD
24	Mg	1	45	2335.00	ppb	1.43	11690.00	90 - 110	99.9	GOOD
27	Al	1	45	11360.00	ppb	2.04	58020.00	90 - 110	97.9	GOOD
39	K	1	45	2290.00	ppb	2.41	11410.00	90 - 110	100.4	GOOD
44	Ca	2	45	26400.00	ppb	1.42	128900.00	90 - 110	102.4	GOOD
47	Ti	1	45	41.07	ppb	5.37	191.20	90 - 110	107.4	GOOD
51	V	1	45	22.58	ppb	2.48	110.80	90 - 110	101.9	GOOD
52	Cr	1	45	13.60	ppb	1.68	66.46	90 - 110	102.3	GOOD
55	Mn	1	45	8.87	ppb	3.13	42.90	90 - 110	103.3	GOOD
56	Fe	1	72	15180.00	ppb	2.69	76410.00	90 - 110	99.3	GOOD
59	Co	1	72	1.18	ppb	3.95	5.72	90 - 110	103.2	GOOD
60	Ni	1	72	2.77	ppb	1.01	13.46	90 - 110	102.9	GOOD
63	Cu	1	72	2.49	ppb	1.04	11.45	90 - 110	108.7	GOOD
66	Zn	1	72	15.07	ppb	0.81	64.32	90 - 110	117.1	
75	As	1	72	7.56	ppb	0.47	36.30	90 - 110	104.2	GOOD
78	Se	1	72	3.61	ppb	7.98	19.12	90 - 110	94.5	GOOD
88	Sr	2	115	1005.00	ppb	2.71	5046.00	90 - 110	99.6	GOOD
95	Mo	2	115	0.43	ppb	8.73	2.03	90 - 110	105.4	GOOD
107	Ag	2	115	0.04	ppb	10.38	0.12	90 - 110	165.7	
111	Cd	2	115	0.13	ppb	30.79	0.39	90 - 110	165.4	
118	Sn	2	115	1.35	ppb	5.51	6.08	90 - 110	111.0	
121	Sb	2	115	0.04	ppb	7.48	0.16	90 - 110	121.8	
137	Ba	2	115	121.10	ppb	2.99	608.50	90 - 110	99.5	GOOD
205	Tl	2	209	0.14	ppb	3.28	0.53	90 - 110	137.3	
208	Pb	2	209	9.87	ppb	1.92	50.79	90 - 110	97.1	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-848.41	10.62	35.48	-2391.2	70 -	120	ISFail
45	Sc	1		129534.38	1.03	138057.45	93.8	70 -	120	
45	Sc	2		3098517.00	2.81	4152726.00	74.6	70 -	120	
72	Ge	1		80793.95	0.82	86466.48	93.4	70 -	120	
115	In	2		4839998.50	1.41	6053544.50	80.0	70 -	120	
209	Bi	2		4760438.50	1.01	5465338.50	87.1	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\029SMPL.D\029SMPL.D#

Date Acquired:	May 25 2016 01:49 pm	Sample Name:	**1605096-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	104.800	ppb	#REF!	1.93	2000.00	>RL
9	Be	2	45	1.697	ppb	#REF!	2.73	2000.00	>RL
11	B	2	45	158.500	ppb	#REF!	2.51	2000.00	>RL
23	Na	1	45	12990.000	ppb	#REF!	2.49	25000.00	>RL
24	Mg	1	45	11090.000	ppb	#REF!	2.28	25000.00	>RL
27	Al	1	45	49000.000	ppb	#REF!	2.33	10000.00	OUTCAL
39	K	1	45	10190.000	ppb	#REF!	2.90	25000.00	>RL
44	Ca	2	45	249900.000	ppb	#REF!	2.77	25000.00	OUTCAL
47	Ti	1	45	169.700	ppb	#REF!	0.91	2000.00	>RL
51	V	1	45	85.850	ppb	#REF!	2.40	2000.00	>RL
52	Cr	1	45	55.480	ppb	#REF!	3.09	2000.00	>RL
55	Mn	1	45	47.920	ppb	#REF!	2.44	2000.00	>RL
56	Fe	1	72	67710.000	ppb	#REF!	2.82	10000.00	OUTCAL
59	Co	1	72	5.540	ppb	#REF!	3.67	2000.00	J
60	Ni	1	72	13.670	ppb	#REF!	1.40	2000.00	>RL
63	Cu	1	72	8.566	ppb	#REF!	2.49	2000.00	>RL
66	Zn	1	72	66.460	ppb	#REF!	4.01	2000.00	>RL
75	As	1	72	18.670	ppb	#REF!	2.04	2000.00	>RL
78	Se	1	72	11.920	ppb	#REF!	3.85	2000.00	>RL
88	Sr	2	115	1339.000	ppb	#REF!	2.53	2000.00	>RL
95	Mo	2	115	1.512	ppb	#REF!	2.93	2000.00	ND
107	Ag	2	115	0.058	ppb	#REF!	6.47	500.00	ND
111	Cd	2	115	0.266	ppb	#REF!	19.45	2000.00	ND
118	Sn	2	115	5.595	ppb	#REF!	3.36	2000.00	ND
121	Sb	2	115	0.086	ppb	#REF!	7.98	500.00	ND
137	Ba	2	115	253.700	ppb	#REF!	1.99	2000.00	>RL
205	Tl	2	209	0.414	ppb	#REF!	2.41	2000.00	ND
208	Pb	2	209	37.000	ppb	#REF!	1.40	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7276.64	5.08	RHigh	35.48	-20508.8	70 - 120	ISFail
45	Sc	1	141104.86	3.02		138057.45	102.2	70 - 120	
45	Sc	2	2963698.80	1.76		4152726.00	71.4	70 - 120	
72	Ge	1	81193.10	2.60		86466.48	93.9	70 - 120	
115	In	2	4619203.50	2.10		6053544.50	76.3	70 - 120	
209	Bi	2	4315524.50	0.92		5465338.50	79.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\030SMPL.D\030SMPL.D#

Date Acquired:	May 25 2016 01:55 pm	Sample Name:	**1605096-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	61.970	ppb	#REF!	1.23	2000.00	>RL
9	Be	2	45	2.099	ppb	#REF!	1.73	2000.00	>RL
11	B	2	45	174.400	ppb	#REF!	1.10	2000.00	>RL
23	Na	1	45	16300.000	ppb	#REF!	2.57	25000.00	>RL
24	Mg	1	45	12290.000	ppb	#REF!	3.39	25000.00	>RL
27	Al	1	45	59340.000	ppb	#REF!	2.75	10000.00	OUTCAL
39	K	1	45	11820.000	ppb	#REF!	2.26	25000.00	>RL
44	Ca	2	45	118200.000	ppb	#REF!	1.41	25000.00	OUTCAL
47	Ti	1	45	207.800	ppb	#REF!	6.49	2000.00	>RL
51	V	1	45	118.500	ppb	#REF!	2.48	2000.00	>RL
52	Cr	1	45	69.780	ppb	#REF!	2.88	2000.00	>RL
55	Mn	1	45	41.450	ppb	#REF!	1.84	2000.00	>RL
56	Fe	1	72	70670.000	ppb	#REF!	2.49	10000.00	OUTCAL
59	Co	1	72	5.914	ppb	#REF!	2.05	2000.00	J
60	Ni	1	72	14.420	ppb	#REF!	2.79	2000.00	>RL
63	Cu	1	72	11.880	ppb	#REF!	1.97	2000.00	>RL
66	Zn	1	72	73.920	ppb	#REF!	1.81	2000.00	>RL
75	As	1	72	34.760	ppb	#REF!	1.89	2000.00	>RL
78	Se	1	72	19.350	ppb	#REF!	3.23	2000.00	>RL
88	Sr	2	115	27160.000	ppb	#REF!	1.08	2000.00	OUTCAL
95	Mo	2	115	1.419	ppb	#REF!	1.92	2000.00	ND
107	Ag	2	115	0.068	ppb	#REF!	8.43	500.00	ND
111	Cd	2	115	0.407	ppb	#REF!	8.56	2000.00	J
118	Sn	2	115	5.950	ppb	#REF!	2.99	2000.00	ND
121	Sb	2	115	0.107	ppb	#REF!	16.27	500.00	ND
137	Ba	2	115	998.100	ppb	#REF!	1.44	2000.00	>RL
205	Tl	2	209	0.415	ppb	#REF!	4.35	2000.00	ND
208	Pb	2	209	55.260	ppb	#REF!	0.68	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4236.26	8.03	RHigh	35.48	-11939.7	70 - 120	ISFail
45	Sc	1	132489.86	2.26		138057.45	96.0	70 - 120	
45	Sc	2	2976130.00	1.45		4152726.00	71.7	70 - 120	
72	Ge	1	78440.50	1.68		86466.48	90.7	70 - 120	
115	In	2	4739028.00	0.90		6053544.50	78.3	70 - 120	
209	Bi	2	4549084.00	1.08		5465338.50	83.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\031SMPL.D\031SMPL.D#

Date Acquired:	May 25 2016 02:01 pm	Sample Name:	**1605096-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	79.390	ppb	#REF!	1.35	2000.00	>RL
9	Be	2	45	2.830	ppb	#REF!	2.88	2000.00	>RL
11	B	2	45	80.560	ppb	#REF!	1.75	2000.00	>RL
23	Na	1	45	1032.000	ppb	#REF!	0.77	25000.00	>RL
24	Mg	1	45	12640.000	ppb	#REF!	0.90	25000.00	>RL
27	Al	1	45	63420.000	ppb	#REF!	2.29	10000.00	OUTCAL
39	K	1	45	15060.000	ppb	#REF!	0.85	25000.00	>RL
44	Ca	2	45	71890.000	ppb	#REF!	1.78	25000.00	OUTCAL
47	Ti	1	45	296.900	ppb	#REF!	2.43	2000.00	>RL
51	V	1	45	103.000	ppb	#REF!	0.98	2000.00	>RL
52	Cr	1	45	80.050	ppb	#REF!	1.44	2000.00	>RL
55	Mn	1	45	619.400	ppb	#REF!	1.50	2000.00	>RL
56	Fe	1	72	63240.000	ppb	#REF!	1.85	10000.00	OUTCAL
59	Co	1	72	25.410	ppb	#REF!	0.86	2000.00	>RL
60	Ni	1	72	38.280	ppb	#REF!	0.69	2000.00	>RL
63	Cu	1	72	21.750	ppb	#REF!	0.90	2000.00	>RL
66	Zn	1	72	210.500	ppb	#REF!	1.54	2000.00	>RL
75	As	1	72	25.740	ppb	#REF!	0.49	2000.00	>RL
78	Se	1	72	22.390	ppb	#REF!	3.56	2000.00	>RL
88	Sr	2	115	269.400	ppb	#REF!	1.33	2000.00	>RL
95	Mo	2	115	1.355	ppb	#REF!	8.01	2000.00	ND
107	Ag	2	115	0.213	ppb	#REF!	3.34	500.00	ND
111	Cd	2	115	1.039	ppb	#REF!	5.39	2000.00	J
118	Sn	2	115	5.626	ppb	#REF!	1.44	2000.00	ND
121	Sb	2	115	2.774	ppb	#REF!	3.65	500.00	J
137	Ba	2	115	406.400	ppb	#REF!	2.41	2000.00	>RL
205	Tl	2	209	0.567	ppb	#REF!	3.05	2000.00	ND
208	Pb	2	209	202.500	ppb	#REF!	1.44	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5456.42	11.74	RHigh	35.48	-15378.6	70 - 120	ISFail
45	Sc	1	130918.27	0.30		138057.45	94.8	70 - 120	
45	Sc	2	3070999.00	1.21		4152726.00	74.0	70 - 120	
72	Ge	1	78995.17	0.73		86466.48	91.4	70 - 120	
115	In	2	4805859.00	1.23		6053544.50	79.4	70 - 120	
209	Bi	2	4560247.00	1.23		5465338.50	83.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\032SMPL.D\032SMPL.D#

Date Acquired:	May 25 2016 02:07 pm	Sample Name:	**1605096-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	95.100	ppb	#REF!	0.70	2000.00	>RL
9	Be	2	45	3.085	ppb	#REF!	1.79	2000.00	>RL
11	B	2	45	86.310	ppb	#REF!	2.86	2000.00	>RL
23	Na	1	45	2353.000	ppb	#REF!	0.30	25000.00	>RL
24	Mg	1	45	12060.000	ppb	#REF!	0.40	25000.00	>RL
27	Al	1	45	71940.000	ppb	#REF!	1.57	10000.00	OUTCAL
39	K	1	45	13830.000	ppb	#REF!	0.33	25000.00	>RL
44	Ca	2	45	42240.000	ppb	#REF!	2.17	25000.00	OUTCAL
47	Ti	1	45	306.700	ppb	#REF!	1.09	2000.00	>RL
51	V	1	45	115.600	ppb	#REF!	1.14	2000.00	>RL
52	Cr	1	45	71.760	ppb	#REF!	0.75	2000.00	>RL
55	Mn	1	45	652.600	ppb	#REF!	0.51	2000.00	>RL
56	Fe	1	72	71380.000	ppb	#REF!	0.51	10000.00	OUTCAL
59	Co	1	72	32.910	ppb	#REF!	1.28	2000.00	>RL
60	Ni	1	72	46.650	ppb	#REF!	0.49	2000.00	>RL
63	Cu	1	72	18.280	ppb	#REF!	0.98	2000.00	>RL
66	Zn	1	72	209.900	ppb	#REF!	0.75	2000.00	>RL
75	As	1	72	25.210	ppb	#REF!	0.90	2000.00	>RL
78	Se	1	72	25.480	ppb	#REF!	4.40	2000.00	>RL
88	Sr	2	115	269.500	ppb	#REF!	1.50	2000.00	>RL
95	Mo	2	115	0.947	ppb	#REF!	7.14	2000.00	ND
107	Ag	2	115	0.163	ppb	#REF!	8.40	500.00	ND
111	Cd	2	115	0.856	ppb	#REF!	7.23	2000.00	J
118	Sn	2	115	5.503	ppb	#REF!	1.62	2000.00	ND
121	Sb	2	115	1.458	ppb	#REF!	4.13	500.00	ND
137	Ba	2	115	835.500	ppb	#REF!	2.25	2000.00	>RL
205	Tl	2	209	0.585	ppb	#REF!	0.96	2000.00	ND
208	Pb	2	209	94.000	ppb	#REF!	1.59	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7430.04	1.53	35.48	-20941.1	70 - 120	ISFail
45	Sc	1	137853.39	0.39	138057.45	99.9	70 - 120	
45	Sc	2	3240546.30	1.58	4152726.00	78.0	70 - 120	
72	Ge	1	82803.52	0.16	86466.48	95.8	70 - 120	
115	In	2	4988223.00	1.28	6053544.50	82.4	70 - 120	
209	Bi	2	4653731.50	0.91	5465338.50	85.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\033SMPL.D\033SMPL.D#

Date Acquired:	May 25 2016 02:12 pm	Sample Name:	**1605096-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	110.200	ppb	#REF!	2.29	2000.00	>RL
9	Be	2	45	2.028	ppb	#REF!	2.69	2000.00	>RL
11	B	2	45	138.000	ppb	#REF!	1.00	2000.00	>RL
23	Na	1	45	9717.000	ppb	#REF!	1.61	25000.00	>RL
24	Mg	1	45	10490.000	ppb	#REF!	1.00	25000.00	>RL
27	Al	1	45	50540.000	ppb	#REF!	2.07	10000.00	OUTCAL
39	K	1	45	8424.000	ppb	#REF!	0.93	25000.00	>RL
44	Ca	2	45	355500.000	ppb	#REF!	1.27	25000.00	OUTCAL
47	Ti	1	45	235.100	ppb	#REF!	2.34	2000.00	>RL
51	V	1	45	88.320	ppb	#REF!	1.68	2000.00	>RL
52	Cr	1	45	54.880	ppb	#REF!	2.56	2000.00	>RL
55	Mn	1	45	220.500	ppb	#REF!	1.99	2000.00	>RL
56	Fe	1	72	54160.000	ppb	#REF!	2.17	10000.00	OUTCAL
59	Co	1	72	18.090	ppb	#REF!	2.27	2000.00	>RL
60	Ni	1	72	27.430	ppb	#REF!	0.98	2000.00	>RL
63	Cu	1	72	7.292	ppb	#REF!	1.52	2000.00	J
66	Zn	1	72	101.100	ppb	#REF!	1.68	2000.00	>RL
75	As	1	72	15.650	ppb	#REF!	2.08	2000.00	>RL
78	Se	1	72	11.670	ppb	#REF!	4.56	2000.00	>RL
88	Sr	2	115	1518.000	ppb	#REF!	1.09	2000.00	>RL
95	Mo	2	115	1.088	ppb	#REF!	1.62	2000.00	ND
107	Ag	2	115	0.062	ppb	#REF!	4.62	500.00	ND
111	Cd	2	115	0.376	ppb	#REF!	6.47	2000.00	ND
118	Sn	2	115	5.270	ppb	#REF!	2.01	2000.00	ND
121	Sb	2	115	0.073	ppb	#REF!	5.72	500.00	ND
137	Ba	2	115	347.800	ppb	#REF!	1.51	2000.00	>RL
205	Tl	2	209	0.344	ppb	#REF!	1.00	2000.00	ND
208	Pb	2	209	26.900	ppb	#REF!	1.90	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7068.31	1.72	35.48	-19921.7	70 - 120	ISFail
45	Sc	1	135170.48	0.94	138057.45	97.9	70 - 120	
45	Sc	2	3007733.00	1.52	4152726.00	72.4	70 - 120	
72	Ge	1	77513.02	1.04	86466.48	89.6	70 - 120	
115	In	2	4872941.00	1.99	6053544.50	80.5	70 - 120	
209	Bi	2	4428465.50	3.13	5465338.50	81.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\034SMPL.D\034SMPL.D#

Date Acquired:	May 25 2016 02:18 pm	Sample Name:	**1605096-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	119.600	ppb	#REF!	2.03	2000.00	>RL
9	Be	2	45	1.707	ppb	#REF!	1.90	2000.00	>RL
11	B	2	45	159.700	ppb	#REF!	2.07	2000.00	>RL
23	Na	1	45	11510.000	ppb	#REF!	2.63	25000.00	>RL
24	Mg	1	45	10550.000	ppb	#REF!	4.62	25000.00	>RL
27	Al	1	45	44030.000	ppb	#REF!	5.62	10000.00	OUTCAL
39	K	1	45	8725.000	ppb	#REF!	2.91	25000.00	>RL
44	Ca	2	45	251500.000	ppb	#REF!	2.15	25000.00	OUTCAL
47	Ti	1	45	189.000	ppb	#REF!	3.37	2000.00	>RL
51	V	1	45	81.190	ppb	#REF!	3.35	2000.00	>RL
52	Cr	1	45	52.430	ppb	#REF!	2.88	2000.00	>RL
55	Mn	1	45	81.380	ppb	#REF!	2.77	2000.00	>RL
56	Fe	1	72	66170.000	ppb	#REF!	2.79	10000.00	OUTCAL
59	Co	1	72	7.737	ppb	#REF!	1.82	2000.00	J
60	Ni	1	72	15.080	ppb	#REF!	3.90	2000.00	>RL
63	Cu	1	72	8.332	ppb	#REF!	3.02	2000.00	>RL
66	Zn	1	72	80.890	ppb	#REF!	2.25	2000.00	>RL
75	As	1	72	17.550	ppb	#REF!	1.84	2000.00	>RL
78	Se	1	72	10.660	ppb	#REF!	4.23	2000.00	>RL
88	Sr	2	115	3101.000	ppb	#REF!	3.21	2000.00	OUTCAL
95	Mo	2	115	1.466	ppb	#REF!	7.35	2000.00	ND
107	Ag	2	115	0.060	ppb	#REF!	6.49	500.00	ND
111	Cd	2	115	0.390	ppb	#REF!	4.42	2000.00	ND
118	Sn	2	115	5.482	ppb	#REF!	1.84	2000.00	ND
121	Sb	2	115	0.071	ppb	#REF!	15.72	500.00	ND
137	Ba	2	115	284.500	ppb	#REF!	1.94	2000.00	>RL
205	Tl	2	209	0.332	ppb	#REF!	1.22	2000.00	ND
208	Pb	2	209	37.420	ppb	#REF!	1.88	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8956.70	14.99	RHigh	35.48	-25244.0	70 - 120	ISFail
45	Sc	1	132378.80	2.49		138057.45	95.9	70 - 120	
45	Sc	2	3158934.80	2.37		4152726.00	76.1	70 - 120	
72	Ge	1	77247.45	1.41		86466.48	89.3	70 - 120	
115	In	2	5140467.50	1.93		6053544.50	84.9	70 - 120	
209	Bi	2	4713001.00	1.94		5465338.50	86.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\035SMPL.D\035SMPL.D#

Date Acquired:	May 25 2016 02:24 pm	Sample Name:	**1605096-26A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	93.240	ppb	#REF!	0.86	2000.00	>RL
9	Be	2	45	3.106	ppb	#REF!	2.10	2000.00	>RL
11	B	2	45	87.710	ppb	#REF!	2.58	2000.00	>RL
23	Na	1	45	1428.000	ppb	#REF!	0.52	25000.00	>RL
24	Mg	1	45	13840.000	ppb	#REF!	1.33	25000.00	>RL
27	Al	1	45	69790.000	ppb	#REF!	2.46	10000.00	OUTCAL
39	K	1	45	17610.000	ppb	#REF!	0.49	25000.00	>RL
44	Ca	2	45	121000.000	ppb	#REF!	2.34	25000.00	OUTCAL
47	Ti	1	45	365.500	ppb	#REF!	0.81	2000.00	>RL
51	V	1	45	114.200	ppb	#REF!	1.33	2000.00	>RL
52	Cr	1	45	85.510	ppb	#REF!	0.74	2000.00	>RL
55	Mn	1	45	666.900	ppb	#REF!	0.68	2000.00	>RL
56	Fe	1	72	70100.000	ppb	#REF!	0.81	10000.00	OUTCAL
59	Co	1	72	26.910	ppb	#REF!	0.49	2000.00	>RL
60	Ni	1	72	41.660	ppb	#REF!	1.19	2000.00	>RL
63	Cu	1	72	21.680	ppb	#REF!	0.39	2000.00	>RL
66	Zn	1	72	212.900	ppb	#REF!	1.05	2000.00	>RL
75	As	1	72	29.500	ppb	#REF!	0.82	2000.00	>RL
78	Se	1	72	22.940	ppb	#REF!	1.21	2000.00	>RL
88	Sr	2	115	372.500	ppb	#REF!	3.10	2000.00	>RL
95	Mo	2	115	2.361	ppb	#REF!	2.64	2000.00	J
107	Ag	2	115	0.192	ppb	#REF!	2.99	500.00	ND
111	Cd	2	115	1.016	ppb	#REF!	8.28	2000.00	J
118	Sn	2	115	5.760	ppb	#REF!	1.90	2000.00	ND
121	Sb	2	115	2.980	ppb	#REF!	1.82	500.00	J
137	Ba	2	115	479.100	ppb	#REF!	2.24	2000.00	>RL
205	Tl	2	209	0.591	ppb	#REF!	3.84	2000.00	ND
208	Pb	2	209	244.200	ppb	#REF!	2.37	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6472.69	4.86	35.48	-18242.9	70 - 120	ISFail
45	Sc	1	136627.05	0.67	138057.45	99.0	70 - 120	
45	Sc	2	3079709.30	2.07	4152726.00	74.2	70 - 120	
72	Ge	1	82116.06	0.86	86466.48	95.0	70 - 120	
115	In	2	4989305.00	2.11	6053544.50	82.4	70 - 120	
209	Bi	2	4604084.50	2.13	5465338.50	84.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\036SMPL.D\036SMPL.D#

Date Acquired:	May 25 2016 02:30 pm	Sample Name:	**1605096-27A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	91.120	ppb	#REF!	0.19	2000.00	>RL
9	Be	2	45	3.002	ppb	#REF!	1.52	2000.00	>RL
11	B	2	45	83.400	ppb	#REF!	1.31	2000.00	>RL
23	Na	1	45	2694.000	ppb	#REF!	0.24	25000.00	>RL
24	Mg	1	45	12320.000	ppb	#REF!	0.75	25000.00	>RL
27	Al	1	45	68950.000	ppb	#REF!	1.52	10000.00	OUTCAL
39	K	1	45	14440.000	ppb	#REF!	0.74	25000.00	>RL
44	Ca	2	45	56200.000	ppb	#REF!	1.92	25000.00	OUTCAL
47	Ti	1	45	306.600	ppb	#REF!	1.43	2000.00	>RL
51	V	1	45	112.300	ppb	#REF!	0.75	2000.00	>RL
52	Cr	1	45	73.670	ppb	#REF!	1.32	2000.00	>RL
55	Mn	1	45	648.400	ppb	#REF!	0.36	2000.00	>RL
56	Fe	1	72	71210.000	ppb	#REF!	0.20	10000.00	OUTCAL
59	Co	1	72	32.310	ppb	#REF!	1.16	2000.00	>RL
60	Ni	1	72	44.970	ppb	#REF!	1.17	2000.00	>RL
63	Cu	1	72	17.190	ppb	#REF!	0.19	2000.00	>RL
66	Zn	1	72	207.500	ppb	#REF!	0.67	2000.00	>RL
75	As	1	72	26.150	ppb	#REF!	1.67	2000.00	>RL
78	Se	1	72	25.250	ppb	#REF!	1.49	2000.00	>RL
88	Sr	2	115	260.500	ppb	#REF!	1.65	2000.00	>RL
95	Mo	2	115	1.150	ppb	#REF!	8.09	2000.00	ND
107	Ag	2	115	0.155	ppb	#REF!	11.71	500.00	ND
111	Cd	2	115	0.931	ppb	#REF!	15.74	2000.00	J
118	Sn	2	115	5.619	ppb	#REF!	3.04	2000.00	ND
121	Sb	2	115	1.891	ppb	#REF!	2.22	500.00	ND
137	Ba	2	115	453.400	ppb	#REF!	1.88	2000.00	>RL
205	Tl	2	209	0.534	ppb	#REF!	2.61	2000.00	ND
208	Pb	2	209	130.500	ppb	#REF!	1.01	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7049.61	3.03	35.48	-19868.9	70 - 120	ISFail
45	Sc	1	144170.39	0.31	138057.45	104.4	70 - 120	
45	Sc	2	3376357.00	1.36	4152726.00	81.3	70 - 120	
72	Ge	1	86015.90	0.34	86466.48	99.5	70 - 120	
115	In	2	5242581.00	1.44	6053544.50	86.6	70 - 120	
209	Bi	2	4887692.00	1.42	5465338.50	89.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\037SMPL.D\037SMPL.D#

Date Acquired:	May 25 2016 02:36 pm	Sample Name:	**1605096-28A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	117.000	ppb	#REF!	1.35	2000.00	>RL
9	Be	2	45	2.046	ppb	#REF!	2.24	2000.00	>RL
11	B	2	45	133.100	ppb	#REF!	0.99	2000.00	>RL
23	Na	1	45	11660.000	ppb	#REF!	2.15	25000.00	>RL
24	Mg	1	45	11490.000	ppb	#REF!	3.56	25000.00	>RL
27	Al	1	45	52260.000	ppb	#REF!	3.04	10000.00	OUTCAL
39	K	1	45	9065.000	ppb	#REF!	2.72	25000.00	>RL
44	Ca	2	45	245400.000	ppb	#REF!	1.18	25000.00	OUTCAL
47	Ti	1	45	243.800	ppb	#REF!	4.34	2000.00	>RL
51	V	1	45	94.250	ppb	#REF!	3.79	2000.00	>RL
52	Cr	1	45	59.980	ppb	#REF!	3.07	2000.00	>RL
55	Mn	1	45	221.900	ppb	#REF!	3.90	2000.00	>RL
56	Fe	1	72	69360.000	ppb	#REF!	4.07	10000.00	OUTCAL
59	Co	1	72	22.240	ppb	#REF!	4.02	2000.00	>RL
60	Ni	1	72	31.410	ppb	#REF!	3.86	2000.00	>RL
63	Cu	1	72	8.621	ppb	#REF!	3.79	2000.00	>RL
66	Zn	1	72	124.700	ppb	#REF!	3.71	2000.00	>RL
75	As	1	72	18.470	ppb	#REF!	3.15	2000.00	>RL
78	Se	1	72	15.230	ppb	#REF!	2.26	2000.00	>RL
88	Sr	2	115	1200.000	ppb	#REF!	0.51	2000.00	>RL
95	Mo	2	115	1.130	ppb	#REF!	7.96	2000.00	ND
107	Ag	2	115	0.068	ppb	#REF!	10.91	500.00	ND
111	Cd	2	115	0.504	ppb	#REF!	14.60	2000.00	J
118	Sn	2	115	5.370	ppb	#REF!	1.37	2000.00	ND
121	Sb	2	115	0.093	ppb	#REF!	5.52	500.00	ND
137	Ba	2	115	328.600	ppb	#REF!	1.03	2000.00	>RL
205	Tl	2	209	0.362	ppb	#REF!	1.95	2000.00	ND
208	Pb	2	209	24.200	ppb	#REF!	1.27	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9835.10	2.97	35.48	-27719.7	70 - 120	ISFail
45	Sc	1	141711.86	2.54	138057.45	102.6	70 - 120	
45	Sc	2	3372715.80	0.42	4152726.00	81.2	70 - 120	
72	Ge	1	82381.30	2.26	86466.48	95.3	70 - 120	
115	In	2	5356527.00	0.74	6053544.50	88.5	70 - 120	
209	Bi	2	4884027.00	2.48	5465338.50	89.4	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\038_PDS.D\038_PDS.D#

Date Acquired:	May 25 2016 02:42 pm	Sample Name:	**1605096-25A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	292.20	ppb	1.09	-28273.46	200	75-125	######	Fail
9	Be	2	45	199.90	ppb	1.79	1.99	200	75-125	99.0	
11	B	2	45	329.70	ppb	1.97	164.00	200	75-125	82.9	
23	Na	1	45	19190.00	ppb	1.05	14910.00	5000	75-125	85.6	
24	Mg	1	45	16160.00	ppb	1.27	11690.00	5000	75-125	89.4	
27	Al	1	45	61090.00	ppb	1.96	58020.00	5000	75-125	61.4	Fail
39	K	1	45	16090.00	ppb	0.08	11410.00	5000	75-125	93.6	
44	Ca	2	45	131700.00	ppb	2.24	128900.00	5000	75-125	56.0	Fail
47	Ti	1	45	386.80	ppb	1.79	191.20	200	75-125	97.8	
51	V	1	45	308.20	ppb	1.34	110.80	200	75-125	98.7	
52	Cr	1	45	263.90	ppb	0.53	66.46	200	75-125	98.7	
55	Mn	1	45	229.00	ppb	0.80	42.90	200	75-125	93.0	
56	Fe	1	72	79690.00	ppb	1.38	76410.00	5000	75-125	65.6	Fail
59	Co	1	72	211.10	ppb	0.46	5.72	200	75-125	102.7	
60	Ni	1	72	208.40	ppb	0.31	13.46	200	75-125	97.5	
63	Cu	1	72	203.20	ppb	0.75	11.45	200	75-125	95.9	
66	Zn	1	72	243.00	ppb	0.87	64.32	200	75-125	89.3	
75	As	1	72	232.20	ppb	0.41	36.30	200	75-125	98.0	
78	Se	1	72	197.60	ppb	1.10	19.12	200	75-125	89.2	
88	Sr	2	115	5224.00	ppb	2.68	5046.00	200	75-125	89.0	
95	Mo	2	115	188.40	ppb	2.43	2.03	200	75-125	93.2	
107	Ag	2	115	177.20	ppb	2.18	0.12	200	75-125	88.5	
111	Cd	2	115	180.20	ppb	2.88	0.39	200	75-125	89.9	
118	Sn	2	115	204.90	ppb	2.35	6.08	200	75-125	99.4	
121	Sb	2	115	187.10	ppb	2.25	0.16	200	75-125	93.5	
137	Ba	2	115	807.10	ppb	2.41	608.50	200	75-125	99.3	
205	Tl	2	209	207.80	ppb	0.64	0.53	200	75-125	103.6	
208	Pb	2	209	251.80	ppb	1.22	50.79	200	75-125	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-28273.46	2.85	35.48	-79687.2	70 - 120	ISFail
45	Sc	1	138213.80	0.50	138057.45	100.1	70 - 120	
45	Sc	2	3186713.30	2.32	4152726.00	76.7	70 - 120	
72	Ge	1	81909.52	0.28	86466.48	94.7	70 - 120	
115	In	2	5124928.50	2.46	6053544.50	84.7	70 - 120	
209	Bi	2	4698154.00	1.31	5465338.50	86.0	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\039_MS.D\039_MS.D#

Date Acquired:	May 25 2016 02:48 pm	Sample Name:	**1605096-25A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	306.20	ppb	1.47	########	200	80-120	######	Fail
9	Be	2	45	204.90	ppb	1.98	1.99	200	80-120	101.5	
11	B	2	45	326.70	ppb	2.55	164.00	200	80-120	81.4	
23	Na	1	45	18670.00	ppb	3.14	14910.00	1000	80-120	376.0	Fail
24	Mg	1	45	17150.00	ppb	3.98	11690.00	1000	80-120	546.0	Fail
27	Al	1	45	67470.00	ppb	5.08	58020.00	1000	80-120	945.0	Fail
39	K	1	45	16470.00	ppb	4.12	11410.00	1000	80-120	506.0	Fail
44	Ca	2	45	125300.00	ppb	2.42	########	1000	80-120	-360.0	Fail
47	Ti	1	45	309.40	ppb	5.04	191.20	200	80-120	59.1	Fail
51	V	1	45	302.20	ppb	3.61	110.80	200	80-120	95.7	
52	Cr	1	45	265.30	ppb	4.31	66.46	200	80-120	99.4	
55	Mn	1	45	234.20	ppb	4.36	42.90	200	80-120	95.6	
56	Fe	1	72	53960.00	ppb	4.05	76410.00	1000	80-120	######	Fail
59	Co	1	72	212.20	ppb	3.24	5.72	200	80-120	103.2	
60	Ni	1	72	212.60	ppb	3.68	13.46	200	80-120	99.6	
63	Cu	1	72	208.00	ppb	3.43	11.45	200	80-120	98.3	
66	Zn	1	72	241.20	ppb	2.71	64.32	200	80-120	88.4	
75	As	1	72	215.60	ppb	3.22	36.30	200	80-120	89.7	
78	Se	1	72	197.10	ppb	1.90	19.12	200	80-120	89.0	
88	Sr	2	115	3848.00	ppb	2.62	5046.00	200	80-120	-599.0	Fail
95	Mo	2	115	171.20	ppb	1.58	2.03	200	80-120	84.6	
107	Ag	2	115	182.90	ppb	1.37	0.12	200	80-120	91.4	
111	Cd	2	115	187.10	ppb	1.71	0.39	200	80-120	93.4	
118	Sn	2	115	201.40	ppb	2.43	6.08	200	80-120	97.7	
121	Sb	2	115	42.99	ppb	2.08	0.16	200	80-120	21.4	Fail
137	Ba	2	115	786.90	ppb	2.15	608.50	200	80-120	89.2	
205	Tl	2	209	212.60	ppb	1.29	0.53	200	80-120	106.0	
208	Pb	2	209	253.70	ppb	1.54	50.79	200	80-120	101.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-60936.06	2.42	35.48	########	70 - 120	ISFail
45	Sc	1	147209.28	3.34	138057.45	106.6	70 - 120	
45	Sc	2	3330153.00	2.22	4152726.00	80.2	70 - 120	
72	Ge	1	86370.90	3.06	86466.48	99.9	70 - 120	
115	In	2	5348178.50	1.48	6053544.50	88.3	70 - 120	
209	Bi	2	4955914.50	1.00	5465338.50	90.7	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\040_MS.D\040_MS.D#

Date Acquired:	May 25 2016 02:54 pm	Sample Name:	**1605096-25A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	306.10	ppb	0.99	########	200	80-120	######	Fail
9	Be	2	45	202.40	ppb	1.24	1.99	200	80-120	100.2	
11	B	2	45	324.70	ppb	2.14	164.00	200	80-120	80.4	
23	Na	1	45	18310.00	ppb	3.15	14910.00	1000	80-120	340.0	Fail
24	Mg	1	45	16690.00	ppb	2.70	11690.00	1000	80-120	500.0	Fail
27	Al	1	45	65010.00	ppb	2.71	58020.00	1000	80-120	699.0	Fail
39	K	1	45	15950.00	ppb	1.27	11410.00	1000	80-120	454.0	Fail
44	Ca	2	45	135000.00	ppb	2.34	########	1000	80-120	610.0	Fail
47	Ti	1	45	289.50	ppb	2.94	191.20	200	80-120	49.2	Fail
51	V	1	45	301.00	ppb	2.08	110.80	200	80-120	95.1	
52	Cr	1	45	262.20	ppb	2.26	66.46	200	80-120	97.9	
55	Mn	1	45	233.50	ppb	2.50	42.90	200	80-120	95.3	
56	Fe	1	72	54240.00	ppb	3.62	76410.00	1000	80-120	######	Fail
59	Co	1	72	208.00	ppb	2.64	5.72	200	80-120	101.1	
60	Ni	1	72	208.00	ppb	1.78	13.46	200	80-120	97.3	
63	Cu	1	72	203.70	ppb	2.50	11.45	200	80-120	96.1	
66	Zn	1	72	234.90	ppb	1.53	64.32	200	80-120	85.3	
75	As	1	72	214.60	ppb	1.73	36.30	200	80-120	89.2	
78	Se	1	72	191.30	ppb	3.40	19.12	200	80-120	86.1	
88	Sr	2	115	3681.00	ppb	2.07	5046.00	200	80-120	-682.5	Fail
95	Mo	2	115	169.60	ppb	2.42	2.03	200	80-120	83.8	
107	Ag	2	115	182.90	ppb	1.79	0.12	200	80-120	91.4	
111	Cd	2	115	184.30	ppb	2.31	0.39	200	80-120	92.0	
118	Sn	2	115	197.80	ppb	1.58	6.08	200	80-120	95.9	
121	Sb	2	115	47.07	ppb	1.84	0.16	200	80-120	23.5	Fail
137	Ba	2	115	612.20	ppb	1.31	608.50	200	80-120	1.9	Fail
205	Tl	2	209	209.50	ppb	1.36	0.53	200	80-120	104.5	
208	Pb	2	209	249.20	ppb	0.56	50.79	200	80-120	99.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-57666.63	3.82	35.48	########	70 - 120	ISFail
45	Sc	1	135450.27	1.50	138057.45	98.1	70 - 120	
45	Sc	2	3119073.00	2.31	4152726.00	75.1	70 - 120	
72	Ge	1	80387.88	1.58	86466.48	93.0	70 - 120	
115	In	2	4999808.00	1.09	6053544.50	82.6	70 - 120	
209	Bi	2	4706235.00	0.48	5465338.50	86.1	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\041CCV1.D\041CCV1.D#

Date Acquired:	May 25 2016 03:00 pm	Sample Name:	**CCV1-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	257.50	ppb	0.45	200.00	90 -	110	128.8	Fail
9	Be	2	45	230.30	ppb	2.44	200.00	90 -	110	115.2	Fail
11	B	2	45	210.60	ppb	2.71	200.00	90 -	110	105.3	
23	Na	1	45	5402.00	ppb	0.74	5000.00	90 -	110	108.0	
24	Mg	1	45	5092.00	ppb	0.86	5000.00	90 -	110	101.8	
27	Al	1	45	4814.00	ppb	0.34	5000.00	90 -	110	96.3	
39	K	1	45	5125.00	ppb	0.59	5000.00	90 -	110	102.5	
44	Ca	2	45	5132.00	ppb	2.18	5000.00	90 -	110	102.6	
47	Ti	1	45	202.50	ppb	1.72	200.00	90 -	110	101.3	
51	V	1	45	203.10	ppb	0.39	200.00	90 -	110	101.6	
52	Cr	1	45	207.20	ppb	0.80	200.00	90 -	110	103.6	
55	Mn	1	45	202.50	ppb	0.33	200.00	90 -	110	101.3	
56	Fe	1	72	5141.00	ppb	1.27	5000.00	90 -	110	102.8	
59	Co	1	72	212.80	ppb	0.28	200.00	90 -	110	106.4	
60	Ni	1	72	210.40	ppb	0.29	200.00	90 -	110	105.2	
63	Cu	1	72	215.00	ppb	0.83	200.00	90 -	110	107.5	
66	Zn	1	72	212.10	ppb	1.31	200.00	90 -	110	106.1	
75	As	1	72	209.50	ppb	0.46	200.00	90 -	110	104.8	
78	Se	1	72	201.20	ppb	0.93	200.00	90 -	110	100.6	
88	Sr	2	115	208.70	ppb	2.12	200.00	90 -	110	104.4	
95	Mo	2	115	193.00	ppb	1.83	200.00	90 -	110	96.5	
107	Ag	2	115	199.50	ppb	1.62	200.00	90 -	110	99.8	
111	Cd	2	115	200.40	ppb	2.01	200.00	90 -	110	100.2	
118	Sn	2	115	202.00	ppb	2.09	200.00	90 -	110	101.0	
121	Sb	2	115	201.60	ppb	2.05	200.00	90 -	110	100.8	
137	Ba	2	115	203.20	ppb	2.52	200.00	90 -	110	101.6	
205	Tl	2	209	207.80	ppb	1.71	200.00	90 -	110	103.9	
208	Pb	2	209	202.90	ppb	2.08	200.00	90 -	110	101.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-58255.70	2.61	35.48	-164190.4	70 -	120	ISFail
45	Sc	1	139384.48	0.65	138057.45	101.0	70 -	120	
45	Sc	2	3205460.80	2.07	4152726.00	77.2	70 -	120	
72	Ge	1	85838.23	0.58	86466.48	99.3	70 -	120	
115	In	2	5231003.00	2.21	6053544.50	86.4	70 -	120	
209	Bi	2	5123227.00	1.40	5465338.50	93.7	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\042_CCB.D\042_CCB.D#

Date Acquired:	May 25 2016 03:06 pm	Sample Name:	**CCB1-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.433	ppb	10.59	2.00	2.00	
9	Be	2	45	0.210	ppb	6.78	0.40	0.30	
11	B	2	45	8.140	ppb	3.37	10.00	10.00	
23	Na	1	45	18.440	ppb	3.23	50.00	#####	
24	Mg	1	45	10.770	ppb	7.42	50.00	#####	
27	Al	1	45	42.930	ppb	4.75	50.00	10.00	FailAq
39	K	1	45	17.510	ppb	4.30	50.00	#####	
44	Ca	2	45	87.150	ppb	9.51	50.00	#####	Failsoil
47	Ti	1	45	0.409	ppb	24.12	4.00	3.00	
51	V	1	45	0.255	ppb	1.93	4.00	3.00	
52	Cr	1	45	0.271	ppb	4.16	2.00	2.00	
55	Mn	1	45	0.282	ppb	5.83	2.00	3.00	
56	Fe	1	72	32.540	ppb	5.08	50.00	30.00	FailAq
59	Co	1	72	0.248	ppb	5.48	2.00	3.00	
60	Ni	1	72	0.244	ppb	9.64	2.00	3.00	
63	Cu	1	72	0.283	ppb	6.39	2.00	2.00	
66	Zn	1	72	1.976	ppb	7.02	4.00	2.00	
75	As	1	72	0.298	ppb	4.53	2.00	2.00	
78	Se	1	72	0.390	ppb	27.96	0.60	2.00	
88	Sr	2	115	1.779	ppb	10.85	4.00	3.00	
95	Mo	2	115	0.269	ppb	5.92	2.00	2.00	
107	Ag	2	115	0.200	ppb	16.49	0.40	1.00	
111	Cd	2	115	0.165	ppb	4.08	0.40	0.30	
118	Sn	2	115	0.320	ppb	8.34	20.00	3.00	
121	Sb	2	115	0.214	ppb	1.57	2.00	0.80	
137	Ba	2	115	0.409	ppb	17.19	2.00	3.00	
205	Tl	2	209	0.363	ppb	9.75	2.00	0.50	
208	Pb	2	209	0.288	ppb	10.51	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-65.03	9.06	35.48	-183.3	70 - 120	ISFail
45	Sc	1		139664.42	1.41	138057.45	101.2	70 - 120	
45	Sc	2		3457188.00	1.46	4152726.00	83.3	70 - 120	
72	Ge	1		86696.27	1.74	86466.48	100.3	70 - 120	
115	In	2		5560422.00	1.08	6053544.50	91.9	70 - 120	
209	Bi	2		5387535.50	0.59	5465338.50	98.6	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\043LCVL.D\043LCVL.D#

Date Acquired:	May 25 2016 03:12 pm	Sample Name:	**LCVL1-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	12.40	ppb	2.28	5.00	70 -	130	248.0	Fail
9	Be	2	45	1.22	ppb	7.42	1.00	70 -	130	122.1	
11	B	2	45	23.03	ppb	3.21	20.00	70 -	130	115.2	
23	Na	1	45	111.10	ppb	2.30	100.00	70 -	130	111.1	
24	Mg	1	45	104.60	ppb	1.42	100.00	70 -	130	104.6	
27	Al	1	45	114.50	ppb	5.19	100.00	70 -	130	114.5	
39	K	1	45	106.70	ppb	2.79	100.00	70 -	130	106.7	
44	Ca	2	45	133.40	ppb	5.49	100.00	70 -	130	133.4	Fail
47	Ti	1	45	5.17	ppb	15.21	5.00	70 -	130	103.3	
51	V	1	45	1.10	ppb	7.94	1.00	70 -	130	109.8	
52	Cr	1	45	5.35	ppb	0.54	5.00	70 -	130	107.1	
55	Mn	1	45	5.06	ppb	3.50	5.00	70 -	130	101.3	
56	Fe	1	72	117.60	ppb	0.47	100.00	70 -	130	117.6	
59	Co	1	72	5.21	ppb	2.27	5.00	70 -	130	104.2	
60	Ni	1	72	5.31	ppb	1.44	5.00	70 -	130	106.2	
63	Cu	1	72	5.40	ppb	0.49	5.00	70 -	130	107.9	
66	Zn	1	72	6.15	ppb	6.56	5.00	70 -	130	123.1	
75	As	1	72	5.30	ppb	1.29	5.00	70 -	130	106.1	
78	Se	1	72	5.41	ppb	7.33	5.00	70 -	130	108.1	
88	Sr	2	115	5.90	ppb	4.12	5.00	70 -	130	118.0	
95	Mo	2	115	4.86	ppb	5.28	5.00	70 -	130	97.1	
107	Ag	2	115	1.99	ppb	1.99	2.00	70 -	130	99.7	
111	Cd	2	115	1.04	ppb	2.74	1.00	70 -	130	103.6	
118	Sn	2	115	5.06	ppb	2.31	5.00	70 -	130	101.3	
121	Sb	2	115	2.04	ppb	2.42	2.00	70 -	130	101.8	
137	Ba	2	115	5.12	ppb	3.57	5.00	70 -	130	102.5	
205	Tl	2	209	1.09	ppb	5.30	1.00	70 -	130	108.6	
208	Pb	2	209	1.13	ppb	4.50	1.00	70 -	130	112.8	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-1497.45	11.42	35.48	-4220.5	70 -	120	ISFail
45	Sc	1		142045.39	1.34	138057.45	102.9	70 -	120	
45	Sc	2		3463241.30	1.23	4152726.00	83.4	70 -	120	
72	Ge	1		88739.16	0.94	86466.48	102.6	70 -	120	
115	In	2		5506156.00	0.93	6053544.50	91.0	70 -	120	
209	Bi	2		5359035.00	1.62	5465338.50	98.1	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\044SMPL.D\044SMPL.D#

Date Acquired:	May 25 2016 03:18 pm	Sample Name:	**1605096-29A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	105.500	ppb	#REF!	0.31	2000.00	>RL
9	Be	2	45	1.599	ppb	#REF!	2.33	2000.00	>RL
11	B	2	45	138.200	ppb	#REF!	2.84	2000.00	>RL
23	Na	1	45	11360.000	ppb	#REF!	0.32	25000.00	>RL
24	Mg	1	45	10310.000	ppb	#REF!	1.55	25000.00	>RL
27	Al	1	45	42620.000	ppb	#REF!	1.74	10000.00	OUTCAL
39	K	1	45	8922.000	ppb	#REF!	0.91	25000.00	>RL
44	Ca	2	45	246300.000	ppb	#REF!	2.40	25000.00	OUTCAL
47	Ti	1	45	197.500	ppb	#REF!	2.59	2000.00	>RL
51	V	1	45	77.140	ppb	#REF!	2.40	2000.00	>RL
52	Cr	1	45	49.370	ppb	#REF!	1.88	2000.00	>RL
55	Mn	1	45	160.500	ppb	#REF!	1.89	2000.00	>RL
56	Fe	1	72	66560.000	ppb	#REF!	2.35	10000.00	OUTCAL
59	Co	1	72	14.530	ppb	#REF!	1.07	2000.00	>RL
60	Ni	1	72	21.010	ppb	#REF!	1.02	2000.00	>RL
63	Cu	1	72	7.271	ppb	#REF!	1.09	2000.00	J
66	Zn	1	72	89.580	ppb	#REF!	1.63	2000.00	>RL
75	As	1	72	17.170	ppb	#REF!	2.75	2000.00	>RL
78	Se	1	72	10.890	ppb	#REF!	5.46	2000.00	>RL
88	Sr	2	115	2015.000	ppb	#REF!	1.91	2000.00	OUTCAL
95	Mo	2	115	1.311	ppb	#REF!	4.58	2000.00	ND
107	Ag	2	115	0.098	ppb	#REF!	10.53	500.00	ND
111	Cd	2	115	0.368	ppb	#REF!	5.91	2000.00	ND
118	Sn	2	115	5.223	ppb	#REF!	2.77	2000.00	ND
121	Sb	2	115	0.128	ppb	#REF!	2.69	500.00	ND
137	Ba	2	115	195.500	ppb	#REF!	1.18	2000.00	>RL
205	Tl	2	209	0.376	ppb	#REF!	3.38	2000.00	ND
208	Pb	2	209	28.400	ppb	#REF!	0.59	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9257.25	1.49	35.48	-26091.0	70 - 120	ISFail
45	Sc	1	145680.47	1.15	138057.45	105.5	70 - 120	
45	Sc	2	3517526.00	0.72	4152726.00	84.7	70 - 120	
72	Ge	1	84161.98	1.61	86466.48	97.3	70 - 120	
115	In	2	5605380.50	1.16	6053544.50	92.6	70 - 120	
209	Bi	2	5018921.00	1.20	5465338.50	91.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\045SMPL.D\045SMPL.D#

Date Acquired:	May 25 2016 03:24 pm	Sample Name:	**1605096-30A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	61.560	ppb	#REF!	1.80	2000.00	>RL
9	Be	2	45	1.668	ppb	#REF!	5.73	2000.00	>RL
11	B	2	45	144.400	ppb	#REF!	1.09	2000.00	>RL
23	Na	1	45	14680.000	ppb	#REF!	1.31	25000.00	>RL
24	Mg	1	45	10700.000	ppb	#REF!	0.82	25000.00	>RL
27	Al	1	45	50570.000	ppb	#REF!	0.97	10000.00	OUTCAL
39	K	1	45	11040.000	ppb	#REF!	1.70	25000.00	>RL
44	Ca	2	45	168500.000	ppb	#REF!	0.73	25000.00	OUTCAL
47	Ti	1	45	171.800	ppb	#REF!	3.30	2000.00	>RL
51	V	1	45	116.600	ppb	#REF!	1.19	2000.00	>RL
52	Cr	1	45	60.980	ppb	#REF!	2.23	2000.00	>RL
55	Mn	1	45	39.170	ppb	#REF!	2.29	2000.00	>RL
56	Fe	1	72	72270.000	ppb	#REF!	1.17	10000.00	OUTCAL
59	Co	1	72	4.943	ppb	#REF!	0.93	2000.00	J
60	Ni	1	72	11.940	ppb	#REF!	2.91	2000.00	>RL
63	Cu	1	72	10.910	ppb	#REF!	2.36	2000.00	>RL
66	Zn	1	72	64.580	ppb	#REF!	0.71	2000.00	>RL
75	As	1	72	49.360	ppb	#REF!	1.20	2000.00	>RL
78	Se	1	72	16.150	ppb	#REF!	8.86	2000.00	>RL
88	Sr	2	115	3119.000	ppb	#REF!	0.29	2000.00	OUTCAL
95	Mo	2	115	1.494	ppb	#REF!	4.45	2000.00	ND
107	Ag	2	115	0.079	ppb	#REF!	9.98	500.00	ND
111	Cd	2	115	0.401	ppb	#REF!	13.48	2000.00	J
118	Sn	2	115	5.782	ppb	#REF!	2.09	2000.00	ND
121	Sb	2	115	0.118	ppb	#REF!	10.58	500.00	ND
137	Ba	2	115	540.100	ppb	#REF!	0.43	2000.00	>RL
205	Tl	2	209	0.432	ppb	#REF!	3.32	2000.00	ND
208	Pb	2	209	44.390	ppb	#REF!	0.68	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4727.39	11.47	RHigh	35.48	-13323.9	70 - 120	ISFail
45	Sc	1	143855.16	1.51		138057.45	104.2	70 - 120	
45	Sc	2	3423717.80	0.61		4152726.00	82.4	70 - 120	
72	Ge	1	84286.45	1.50		86466.48	97.5	70 - 120	
115	In	2	5513718.50	0.43		6053544.50	91.1	70 - 120	
209	Bi	2	4979098.50	1.11		5465338.50	91.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\046SMPL.D\046SMPL.D#

Date Acquired:	May 25 2016 03:30 pm	Sample Name:	**1605096-31A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	55.010	ppb	#REF!	1.53	2000.00	>RL
9	Be	2	45	2.871	ppb	#REF!	4.08	2000.00	>RL
11	B	2	45	62.950	ppb	#REF!	1.90	2000.00	>RL
23	Na	1	45	499.200	ppb	#REF!	0.95	25000.00	>RL
24	Mg	1	45	13380.000	ppb	#REF!	2.02	25000.00	>RL
27	Al	1	45	74850.000	ppb	#REF!	2.15	10000.00	OUTCAL
39	K	1	45	16700.000	ppb	#REF!	0.87	25000.00	>RL
44	Ca	2	45	148500.000	ppb	#REF!	2.59	25000.00	OUTCAL
47	Ti	1	45	526.200	ppb	#REF!	2.33	2000.00	>RL
51	V	1	45	114.100	ppb	#REF!	1.22	2000.00	>RL
52	Cr	1	45	81.930	ppb	#REF!	0.99	2000.00	>RL
55	Mn	1	45	853.600	ppb	#REF!	1.67	2000.00	>RL
56	Fe	1	72	57270.000	ppb	#REF!	0.85	10000.00	OUTCAL
59	Co	1	72	19.700	ppb	#REF!	1.77	2000.00	>RL
60	Ni	1	72	40.460	ppb	#REF!	1.19	2000.00	>RL
63	Cu	1	72	38.950	ppb	#REF!	0.74	2000.00	>RL
66	Zn	1	72	233.600	ppb	#REF!	0.69	2000.00	>RL
75	As	1	72	20.130	ppb	#REF!	0.94	2000.00	>RL
78	Se	1	72	20.210	ppb	#REF!	1.79	2000.00	>RL
88	Sr	2	115	255.400	ppb	#REF!	1.85	2000.00	>RL
95	Mo	2	115	1.124	ppb	#REF!	6.52	2000.00	ND
107	Ag	2	115	0.264	ppb	#REF!	1.69	500.00	ND
111	Cd	2	115	1.226	ppb	#REF!	7.81	2000.00	>RL
118	Sn	2	115	5.667	ppb	#REF!	2.69	2000.00	ND
121	Sb	2	115	1.296	ppb	#REF!	4.18	500.00	ND
137	Ba	2	115	315.100	ppb	#REF!	1.54	2000.00	>RL
205	Tl	2	209	0.775	ppb	#REF!	3.78	2000.00	ND
208	Pb	2	209	68.610	ppb	#REF!	1.12	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4271.03	13.30	RHigh	35.48	-12037.7	70 - 120	ISFail
45	Sc	1	149147.98	0.39		138057.45	108.0	70 - 120	
45	Sc	2	3405421.80	2.28		4152726.00	82.0	70 - 120	
72	Ge	1	87074.46	0.43		86466.48	100.7	70 - 120	
115	In	2	5452933.00	1.52		6053544.50	90.1	70 - 120	
209	Bi	2	4997299.50	0.95		5465338.50	91.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\047SMPL.D\047SMPL.D#

Date Acquired:	May 25 2016 03:36 pm	Sample Name:	**1605096-32A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	57.760	ppb	#REF!	1.48	2000.00	>RL
9	Be	2	45	2.398	ppb	#REF!	2.70	2000.00	>RL
11	B	2	45	77.470	ppb	#REF!	0.80	2000.00	>RL
23	Na	1	45	1249.000	ppb	#REF!	0.66	25000.00	>RL
24	Mg	1	45	14950.000	ppb	#REF!	1.03	25000.00	>RL
27	Al	1	45	62790.000	ppb	#REF!	1.27	10000.00	OUTCAL
39	K	1	45	14720.000	ppb	#REF!	0.30	25000.00	>RL
44	Ca	2	45	109100.000	ppb	#REF!	1.44	25000.00	OUTCAL
47	Ti	1	45	433.800	ppb	#REF!	2.26	2000.00	>RL
51	V	1	45	100.800	ppb	#REF!	1.24	2000.00	>RL
52	Cr	1	45	66.370	ppb	#REF!	1.46	2000.00	>RL
55	Mn	1	45	698.900	ppb	#REF!	0.74	2000.00	>RL
56	Fe	1	72	55190.000	ppb	#REF!	1.33	10000.00	OUTCAL
59	Co	1	72	19.500	ppb	#REF!	0.26	2000.00	>RL
60	Ni	1	72	35.120	ppb	#REF!	2.28	2000.00	>RL
63	Cu	1	72	46.400	ppb	#REF!	0.58	2000.00	>RL
66	Zn	1	72	263.300	ppb	#REF!	0.81	2000.00	>RL
75	As	1	72	28.460	ppb	#REF!	0.96	2000.00	>RL
78	Se	1	72	19.140	ppb	#REF!	3.44	2000.00	>RL
88	Sr	2	115	304.800	ppb	#REF!	2.37	2000.00	>RL
95	Mo	2	115	1.646	ppb	#REF!	1.01	2000.00	ND
107	Ag	2	115	0.221	ppb	#REF!	5.73	500.00	ND
111	Cd	2	115	1.109	ppb	#REF!	5.10	2000.00	J
118	Sn	2	115	5.675	ppb	#REF!	2.18	2000.00	ND
121	Sb	2	115	3.458	ppb	#REF!	3.67	500.00	J
137	Ba	2	115	366.200	ppb	#REF!	1.72	2000.00	>RL
205	Tl	2	209	0.640	ppb	#REF!	1.29	2000.00	ND
208	Pb	2	209	1337.000	ppb	#REF!	0.51	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5047.53	6.09	RHigh	35.48	-14226.2	70 - 120	ISFail
45	Sc	1	149661.98	0.39		138057.45	108.4	70 - 120	
45	Sc	2	3549795.30	1.94		4152726.00	85.5	70 - 120	
72	Ge	1	88658.31	0.16		86466.48	102.5	70 - 120	
115	In	2	5647231.00	1.43		6053544.50	93.3	70 - 120	
209	Bi	2	5195031.00	0.54		5465338.50	95.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\048SMPL.D\048SMPL.D#

Date Acquired:	May 25 2016 03:42 pm	Sample Name:	**1605096-33A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.550	ppb	#REF!	0.71	2000.00	>RL
9	Be	2	45	2.068	ppb	#REF!	1.17	2000.00	>RL
11	B	2	45	62.250	ppb	#REF!	0.96	2000.00	>RL
23	Na	1	45	378.600	ppb	#REF!	1.04	25000.00	>RL
24	Mg	1	45	10260.000	ppb	#REF!	0.29	25000.00	>RL
27	Al	1	45	56240.000	ppb	#REF!	1.15	10000.00	OUTCAL
39	K	1	45	13730.000	ppb	#REF!	0.79	25000.00	>RL
44	Ca	2	45	32830.000	ppb	#REF!	2.05	25000.00	OUTCAL
47	Ti	1	45	391.300	ppb	#REF!	1.37	2000.00	>RL
51	V	1	45	85.920	ppb	#REF!	1.14	2000.00	>RL
52	Cr	1	45	52.180	ppb	#REF!	0.93	2000.00	>RL
55	Mn	1	45	545.900	ppb	#REF!	0.82	2000.00	>RL
56	Fe	1	72	54350.000	ppb	#REF!	0.90	10000.00	OUTCAL
59	Co	1	72	19.610	ppb	#REF!	1.16	2000.00	>RL
60	Ni	1	72	32.480	ppb	#REF!	0.51	2000.00	>RL
63	Cu	1	72	42.820	ppb	#REF!	0.43	2000.00	>RL
66	Zn	1	72	357.000	ppb	#REF!	0.43	2000.00	>RL
75	As	1	72	25.640	ppb	#REF!	0.48	2000.00	>RL
78	Se	1	72	17.770	ppb	#REF!	2.72	2000.00	>RL
88	Sr	2	115	225.300	ppb	#REF!	1.76	2000.00	>RL
95	Mo	2	115	1.665	ppb	#REF!	1.23	2000.00	ND
107	Ag	2	115	0.225	ppb	#REF!	0.18	500.00	ND
111	Cd	2	115	1.038	ppb	#REF!	6.65	2000.00	J
118	Sn	2	115	5.443	ppb	#REF!	2.11	2000.00	ND
121	Sb	2	115	2.711	ppb	#REF!	0.65	500.00	J
137	Ba	2	115	299.600	ppb	#REF!	1.69	2000.00	>RL
205	Tl	2	209	0.523	ppb	#REF!	2.79	2000.00	ND
208	Pb	2	209	169.900	ppb	#REF!	1.57	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5312.65	6.29	RHigh	35.48	-14973.4	70 - 120	ISFail
45	Sc	1	147667.53	0.26		138057.45	107.0	70 - 120	
45	Sc	2	3772734.00	0.89		4152726.00	90.8	70 - 120	
72	Ge	1	89038.66	0.13		86466.48	103.0	70 - 120	
115	In	2	5843802.00	1.25		6053544.50	96.5	70 - 120	
209	Bi	2	5358682.00	1.29		5465338.50	98.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\049SMPL.D\049SMPL.D#

Date Acquired:	May 25 2016 03:48 pm	Sample Name:	**1605096-34A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	63.590	ppb	#REF!	1.60	2000.00	>RL
9	Be	2	45	2.439	ppb	#REF!	4.36	2000.00	>RL
11	B	2	45	59.230	ppb	#REF!	2.19	2000.00	>RL
23	Na	1	45	639.300	ppb	#REF!	1.20	25000.00	>RL
24	Mg	1	45	11760.000	ppb	#REF!	1.27	25000.00	>RL
27	Al	1	45	65750.000	ppb	#REF!	1.24	10000.00	OUTCAL
39	K	1	45	14340.000	ppb	#REF!	0.07	25000.00	>RL
44	Ca	2	45	31370.000	ppb	#REF!	1.68	25000.00	OUTCAL
47	Ti	1	45	356.200	ppb	#REF!	1.75	2000.00	>RL
51	V	1	45	102.100	ppb	#REF!	0.72	2000.00	>RL
52	Cr	1	45	59.360	ppb	#REF!	1.58	2000.00	>RL
55	Mn	1	45	699.000	ppb	#REF!	1.30	2000.00	>RL
56	Fe	1	72	60090.000	ppb	#REF!	0.91	10000.00	OUTCAL
59	Co	1	72	23.160	ppb	#REF!	0.81	2000.00	>RL
60	Ni	1	72	37.460	ppb	#REF!	1.24	2000.00	>RL
63	Cu	1	72	28.230	ppb	#REF!	0.72	2000.00	>RL
66	Zn	1	72	241.600	ppb	#REF!	0.71	2000.00	>RL
75	As	1	72	23.110	ppb	#REF!	1.27	2000.00	>RL
78	Se	1	72	19.860	ppb	#REF!	1.57	2000.00	>RL
88	Sr	2	115	208.900	ppb	#REF!	2.68	2000.00	>RL
95	Mo	2	115	1.232	ppb	#REF!	6.84	2000.00	ND
107	Ag	2	115	0.183	ppb	#REF!	15.05	500.00	ND
111	Cd	2	115	0.838	ppb	#REF!	8.50	2000.00	J
118	Sn	2	115	5.273	ppb	#REF!	2.21	2000.00	ND
121	Sb	2	115	2.365	ppb	#REF!	2.28	500.00	J
137	Ba	2	115	391.600	ppb	#REF!	1.80	2000.00	>RL
205	Tl	2	209	0.595	ppb	#REF!	2.43	2000.00	ND
208	Pb	2	209	105.200	ppb	#REF!	1.54	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6274.57	10.23	RHigh	35.48	-17684.5	70 - 120	ISFail
45	Sc	1	148164.64	0.51		138057.45	107.3	70 - 120	
45	Sc	2	3797344.80	1.75		4152726.00	91.4	70 - 120	
72	Ge	1	89068.22	0.12		86466.48	103.0	70 - 120	
115	In	2	5907072.00	2.03		6053544.50	97.6	70 - 120	
209	Bi	2	5193415.50	1.59		5465338.50	95.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\050SMPL.D\050SMPL.D#

Date Acquired:	May 25 2016 03:54 pm	Sample Name:	**1605096-35A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	58.650	ppb	#REF!	1.13	2000.00	>RL
9	Be	2	45	2.976	ppb	#REF!	2.85	2000.00	>RL
11	B	2	45	70.200	ppb	#REF!	2.87	2000.00	>RL
23	Na	1	45	598.600	ppb	#REF!	1.46	25000.00	>RL
24	Mg	1	45	14860.000	ppb	#REF!	0.56	25000.00	>RL
27	Al	1	45	82700.000	ppb	#REF!	0.92	10000.00	OUTCAL
39	K	1	45	18790.000	ppb	#REF!	0.93	25000.00	>RL
44	Ca	2	45	168000.000	ppb	#REF!	3.05	25000.00	OUTCAL
47	Ti	1	45	559.000	ppb	#REF!	0.59	2000.00	>RL
51	V	1	45	121.200	ppb	#REF!	0.52	2000.00	>RL
52	Cr	1	45	85.370	ppb	#REF!	0.67	2000.00	>RL
55	Mn	1	45	1005.000	ppb	#REF!	0.53	2000.00	>RL
56	Fe	1	72	63300.000	ppb	#REF!	1.06	10000.00	OUTCAL
59	Co	1	72	23.640	ppb	#REF!	0.45	2000.00	>RL
60	Ni	1	72	48.960	ppb	#REF!	1.42	2000.00	>RL
63	Cu	1	72	48.180	ppb	#REF!	0.41	2000.00	>RL
66	Zn	1	72	290.900	ppb	#REF!	0.34	2000.00	>RL
75	As	1	72	20.560	ppb	#REF!	1.18	2000.00	>RL
78	Se	1	72	23.850	ppb	#REF!	4.88	2000.00	>RL
88	Sr	2	115	307.900	ppb	#REF!	2.35	2000.00	>RL
95	Mo	2	115	1.235	ppb	#REF!	3.96	2000.00	ND
107	Ag	2	115	0.304	ppb	#REF!	12.73	500.00	ND
111	Cd	2	115	1.305	ppb	#REF!	7.05	2000.00	>RL
118	Sn	2	115	6.048	ppb	#REF!	1.90	2000.00	ND
121	Sb	2	115	1.678	ppb	#REF!	4.63	500.00	ND
137	Ba	2	115	380.400	ppb	#REF!	1.97	2000.00	>RL
205	Tl	2	209	0.835	ppb	#REF!	2.03	2000.00	ND
208	Pb	2	209	73.040	ppb	#REF!	1.02	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5448.55	3.95	35.48	-15356.4	70 - 120	ISFail
45	Sc	1	145434.58	0.57	138057.45	105.3	70 - 120	
45	Sc	2	3553075.30	2.44	4152726.00	85.6	70 - 120	
72	Ge	1	85343.26	0.35	86466.48	98.7	70 - 120	
115	In	2	5609167.50	2.50	6053544.50	92.7	70 - 120	
209	Bi	2	4985603.50	0.76	5465338.50	91.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\051SMPL.D\051SMPL.D#

Date Acquired:	May 25 2016 04:00 pm	Sample Name:	**1605096-38A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.120	ppb	#REF!	1.57	2000.00	>RL
9	Be	2	45	2.080	ppb	#REF!	5.10	2000.00	>RL
11	B	2	45	68.480	ppb	#REF!	1.39	2000.00	>RL
23	Na	1	45	615.100	ppb	#REF!	0.48	25000.00	>RL
24	Mg	1	45	10500.000	ppb	#REF!	1.31	25000.00	>RL
27	Al	1	45	50010.000	ppb	#REF!	0.48	10000.00	OUTCAL
39	K	1	45	14780.000	ppb	#REF!	1.08	25000.00	>RL
44	Ca	2	45	64170.000	ppb	#REF!	1.24	25000.00	OUTCAL
47	Ti	1	45	261.100	ppb	#REF!	1.62	2000.00	>RL
51	V	1	45	82.010	ppb	#REF!	0.63	2000.00	>RL
52	Cr	1	45	56.320	ppb	#REF!	1.54	2000.00	>RL
55	Mn	1	45	592.300	ppb	#REF!	1.57	2000.00	>RL
56	Fe	1	72	51160.000	ppb	#REF!	1.77	10000.00	OUTCAL
59	Co	1	72	19.260	ppb	#REF!	1.31	2000.00	>RL
60	Ni	1	72	30.890	ppb	#REF!	0.68	2000.00	>RL
63	Cu	1	72	22.950	ppb	#REF!	0.99	2000.00	>RL
66	Zn	1	72	183.900	ppb	#REF!	0.97	2000.00	>RL
75	As	1	72	21.350	ppb	#REF!	0.94	2000.00	>RL
78	Se	1	72	19.270	ppb	#REF!	4.47	2000.00	>RL
88	Sr	2	115	256.300	ppb	#REF!	1.32	2000.00	>RL
95	Mo	2	115	1.132	ppb	#REF!	3.34	2000.00	ND
107	Ag	2	115	0.121	ppb	#REF!	8.91	500.00	ND
111	Cd	2	115	0.822	ppb	#REF!	3.60	2000.00	J
118	Sn	2	115	4.846	ppb	#REF!	2.79	2000.00	ND
121	Sb	2	115	3.382	ppb	#REF!	1.64	500.00	J
137	Ba	2	115	381.900	ppb	#REF!	1.61	2000.00	>RL
205	Tl	2	209	0.418	ppb	#REF!	2.59	2000.00	ND
208	Pb	2	209	241.200	ppb	#REF!	1.45	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5468.51	5.79	RHigh	35.48	-15412.7	70 - 120	ISFail
45	Sc	1	148140.61	0.13		138057.45	107.3	70 - 120	
45	Sc	2	3751480.80	1.67		4152726.00	90.3	70 - 120	
72	Ge	1	88184.54	0.70		86466.48	102.0	70 - 120	
115	In	2	5916731.00	1.79		6053544.50	97.7	70 - 120	
209	Bi	2	5293520.50	0.91		5465338.50	96.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\052SMPL.D\052SMPL.D#

Date Acquired:	May 25 2016 04:06 pm	Sample Name:	**1605096-39A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	57.910	ppb	#REF!	1.19	2000.00	>RL
9	Be	2	45	2.160	ppb	#REF!	2.20	2000.00	>RL
11	B	2	45	70.980	ppb	#REF!	2.46	2000.00	>RL
23	Na	1	45	650.000	ppb	#REF!	0.52	25000.00	>RL
24	Mg	1	45	11240.000	ppb	#REF!	1.25	25000.00	>RL
27	Al	1	45	53480.000	ppb	#REF!	0.58	10000.00	OUTCAL
39	K	1	45	15680.000	ppb	#REF!	0.25	25000.00	>RL
44	Ca	2	45	58930.000	ppb	#REF!	1.87	25000.00	OUTCAL
47	Ti	1	45	264.000	ppb	#REF!	2.20	2000.00	>RL
51	V	1	45	86.140	ppb	#REF!	0.72	2000.00	>RL
52	Cr	1	45	59.260	ppb	#REF!	1.41	2000.00	>RL
55	Mn	1	45	616.900	ppb	#REF!	1.23	2000.00	>RL
56	Fe	1	72	53760.000	ppb	#REF!	1.55	10000.00	OUTCAL
59	Co	1	72	20.140	ppb	#REF!	0.56	2000.00	>RL
60	Ni	1	72	32.300	ppb	#REF!	1.44	2000.00	>RL
63	Cu	1	72	25.250	ppb	#REF!	0.35	2000.00	>RL
66	Zn	1	72	201.600	ppb	#REF!	0.86	2000.00	>RL
75	As	1	72	22.770	ppb	#REF!	1.51	2000.00	>RL
78	Se	1	72	19.940	ppb	#REF!	0.82	2000.00	>RL
88	Sr	2	115	230.100	ppb	#REF!	1.58	2000.00	>RL
95	Mo	2	115	1.201	ppb	#REF!	5.21	2000.00	ND
107	Ag	2	115	0.145	ppb	#REF!	11.08	500.00	ND
111	Cd	2	115	0.833	ppb	#REF!	6.85	2000.00	J
118	Sn	2	115	4.877	ppb	#REF!	2.76	2000.00	ND
121	Sb	2	115	3.185	ppb	#REF!	2.60	500.00	J
137	Ba	2	115	377.500	ppb	#REF!	1.06	2000.00	>RL
205	Tl	2	209	0.446	ppb	#REF!	1.58	2000.00	ND
208	Pb	2	209	262.500	ppb	#REF!	1.77	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5610.95	5.21	RHigh	35.48	-15814.1	70 - 120	ISFail
45	Sc	1	146825.58	0.77		138057.45	106.4	70 - 120	
45	Sc	2	3716702.30	1.65		4152726.00	89.5	70 - 120	
72	Ge	1	88439.49	0.24		86466.48	102.3	70 - 120	
115	In	2	5846640.50	1.49		6053544.50	96.6	70 - 120	
209	Bi	2	5228164.50	1.20		5465338.50	95.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\053SMPL.D\053SMPL.D#

Date Acquired:	May 25 2016 04:12 pm	Sample Name:	**1605096-40A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	59.880	ppb	#REF!	1.06	2000.00	>RL
9	Be	2	45	2.282	ppb	#REF!	2.86	2000.00	>RL
11	B	2	45	75.650	ppb	#REF!	2.28	2000.00	>RL
23	Na	1	45	683.700	ppb	#REF!	1.21	25000.00	>RL
24	Mg	1	45	11750.000	ppb	#REF!	1.73	25000.00	>RL
27	Al	1	45	55720.000	ppb	#REF!	2.10	10000.00	OUTCAL
39	K	1	45	16110.000	ppb	#REF!	0.83	25000.00	>RL
44	Ca	2	45	67340.000	ppb	#REF!	2.09	25000.00	OUTCAL
47	Ti	1	45	274.000	ppb	#REF!	0.50	2000.00	>RL
51	V	1	45	89.750	ppb	#REF!	1.55	2000.00	>RL
52	Cr	1	45	60.960	ppb	#REF!	1.90	2000.00	>RL
55	Mn	1	45	688.200	ppb	#REF!	1.59	2000.00	>RL
56	Fe	1	72	55750.000	ppb	#REF!	1.62	10000.00	OUTCAL
59	Co	1	72	20.950	ppb	#REF!	1.78	2000.00	>RL
60	Ni	1	72	33.370	ppb	#REF!	2.09	2000.00	>RL
63	Cu	1	72	28.320	ppb	#REF!	1.60	2000.00	>RL
66	Zn	1	72	200.400	ppb	#REF!	1.77	2000.00	>RL
75	As	1	72	24.040	ppb	#REF!	0.82	2000.00	>RL
78	Se	1	72	21.740	ppb	#REF!	6.68	2000.00	>RL
88	Sr	2	115	266.500	ppb	#REF!	2.25	2000.00	>RL
95	Mo	2	115	1.278	ppb	#REF!	5.10	2000.00	ND
107	Ag	2	115	0.150	ppb	#REF!	6.40	500.00	ND
111	Cd	2	115	0.893	ppb	#REF!	8.89	2000.00	J
118	Sn	2	115	5.239	ppb	#REF!	2.19	2000.00	ND
121	Sb	2	115	3.002	ppb	#REF!	1.25	500.00	J
137	Ba	2	115	385.100	ppb	#REF!	1.51	2000.00	>RL
205	Tl	2	209	0.454	ppb	#REF!	2.21	2000.00	ND
208	Pb	2	209	280.600	ppb	#REF!	0.89	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-5966.34	5.09	RHigh	35.48	-16815.8	70 - 120	ISFail
45	Sc	1	147094.55	0.77		138057.45	106.5	70 - 120	
45	Sc	2	3750200.30	2.20		4152726.00	90.3	70 - 120	
72	Ge	1	88751.37	0.98		86466.48	102.6	70 - 120	
115	In	2	5872646.00	2.28		6053544.50	97.0	70 - 120	
209	Bi	2	5302413.50	0.66		5465338.50	97.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\054CCV1.D\054CCV1.D#

Date Acquired:	May 25 2016 04:18 pm	Sample Name:	CCV2-160525
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	225.40	ppb	0.21	200.00	90 -	110	112.7	Fail
9	Be	2	45	211.30	ppb	1.77	200.00	90 -	110	105.7	
11	B	2	45	198.60	ppb	2.38	200.00	90 -	110	99.3	
23	Na	1	45	5226.00	ppb	0.92	5000.00	90 -	110	104.5	
24	Mg	1	45	4977.00	ppb	1.10	5000.00	90 -	110	99.5	
27	Al	1	45	4873.00	ppb	1.46	5000.00	90 -	110	97.5	
39	K	1	45	5113.00	ppb	0.41	5000.00	90 -	110	102.3	
44	Ca	2	45	5051.00	ppb	1.81	5000.00	90 -	110	101.0	
47	Ti	1	45	201.50	ppb	1.99	200.00	90 -	110	100.8	
51	V	1	45	198.70	ppb	1.14	200.00	90 -	110	99.4	
52	Cr	1	45	200.70	ppb	0.78	200.00	90 -	110	100.4	
55	Mn	1	45	202.80	ppb	1.25	200.00	90 -	110	101.4	
56	Fe	1	72	5102.00	ppb	1.59	5000.00	90 -	110	102.0	
59	Co	1	72	209.40	ppb	0.87	200.00	90 -	110	104.7	
60	Ni	1	72	205.50	ppb	1.00	200.00	90 -	110	102.8	
63	Cu	1	72	211.20	ppb	1.15	200.00	90 -	110	105.6	
66	Zn	1	72	206.70	ppb	1.03	200.00	90 -	110	103.4	
75	As	1	72	207.30	ppb	0.29	200.00	90 -	110	103.7	
78	Se	1	72	207.90	ppb	1.46	200.00	90 -	110	104.0	
88	Sr	2	115	206.50	ppb	1.66	200.00	90 -	110	103.3	
95	Mo	2	115	192.20	ppb	1.18	200.00	90 -	110	96.1	
107	Ag	2	115	197.00	ppb	1.23	200.00	90 -	110	98.5	
111	Cd	2	115	197.40	ppb	2.02	200.00	90 -	110	98.7	
118	Sn	2	115	199.90	ppb	0.92	200.00	90 -	110	100.0	
121	Sb	2	115	197.90	ppb	1.46	200.00	90 -	110	99.0	
137	Ba	2	115	203.50	ppb	2.00	200.00	90 -	110	101.8	
205	Tl	2	209	209.70	ppb	1.11	200.00	90 -	110	104.9	
208	Pb	2	209	203.70	ppb	2.03	200.00	90 -	110	101.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-59303.85	1.51	35.48	-167144.6	70 -	120		ISFail
45	Sc	1	144873.81	0.12	138057.45	104.9	70 -	120		
45	Sc	2	3665770.80	1.24	4152726.00	88.3	70 -	120		
72	Ge	1	88156.38	0.14	86466.48	102.0	70 -	120		
115	In	2	5908646.50	1.34	6053544.50	97.6	70 -	120		
209	Bi	2	5578386.00	1.19	5465338.50	102.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\056LCVL.D\056LCVL.D#

Date Acquired:	May 25 2016 04:30 pm	Sample Name:	**LCVL2-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.09	ppb	0.45	5.00	70 -	130	221.8	Fail
9	Be	2	45	1.10	ppb	6.50	1.00	70 -	130	109.7	
11	B	2	45	20.80	ppb	2.69	20.00	70 -	130	104.0	
23	Na	1	45	101.60	ppb	2.22	100.00	70 -	130	101.6	
24	Mg	1	45	103.60	ppb	1.50	100.00	70 -	130	103.6	
27	Al	1	45	116.40	ppb	2.81	100.00	70 -	130	116.4	
39	K	1	45	102.70	ppb	1.45	100.00	70 -	130	102.7	
44	Ca	2	45	119.00	ppb	1.99	100.00	70 -	130	119.0	
47	Ti	1	45	5.30	ppb	14.60	5.00	70 -	130	106.0	
51	V	1	45	1.07	ppb	6.47	1.00	70 -	130	106.7	
52	Cr	1	45	5.08	ppb	2.77	5.00	70 -	130	101.6	
55	Mn	1	45	5.16	ppb	1.97	5.00	70 -	130	103.3	
56	Fe	1	72	119.40	ppb	0.83	100.00	70 -	130	119.4	
59	Co	1	72	5.08	ppb	0.48	5.00	70 -	130	101.6	
60	Ni	1	72	5.09	ppb	3.22	5.00	70 -	130	101.8	
63	Cu	1	72	5.18	ppb	1.83	5.00	70 -	130	103.5	
66	Zn	1	72	5.26	ppb	4.09	5.00	70 -	130	105.2	
75	As	1	72	5.21	ppb	2.67	5.00	70 -	130	104.2	
78	Se	1	72	5.47	ppb	5.73	5.00	70 -	130	109.4	
88	Sr	2	115	4.94	ppb	2.79	5.00	70 -	130	98.7	
95	Mo	2	115	4.52	ppb	0.94	5.00	70 -	130	90.5	
107	Ag	2	115	1.93	ppb	1.90	2.00	70 -	130	96.4	
111	Cd	2	115	1.03	ppb	5.60	1.00	70 -	130	102.5	
118	Sn	2	115	4.85	ppb	4.00	5.00	70 -	130	96.9	
121	Sb	2	115	1.93	ppb	3.99	2.00	70 -	130	96.5	
137	Ba	2	115	5.09	ppb	1.65	5.00	70 -	130	101.8	
205	Tl	2	209	1.02	ppb	2.71	1.00	70 -	130	101.8	
208	Pb	2	209	1.13	ppb	3.93	1.00	70 -	130	112.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1460.79	0.75	35.48	-4117.2	70 -	120	ISFail
45	Sc	1	150917.67	0.48	138057.45	109.3	70 -	120	
45	Sc	2	3788611.30	1.71	4152726.00	91.2	70 -	120	
72	Ge	1	93323.72	1.25	86466.48	107.9	70 -	120	
115	In	2	6153700.50	1.04	6053544.50	101.7	70 -	120	
209	Bi	2	5856716.50	1.29	5465338.50	107.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\057_CCB.D\057_CCB.D#

Date Acquired:	May 25 2016 04:36 pm	Sample Name:	**CCB2-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.114	ppb	8.83	2.00	2.00	
9	Be	2	45	0.026	ppb	15.55	0.40	0.30	
11	B	2	45	3.723	ppb	0.50	10.00	10.00	
23	Na	1	45	4.689	ppb	1.05	50.00	#####	
24	Mg	1	45	3.487	ppb	5.70	50.00	#####	
27	Al	1	45	23.370	ppb	4.47	50.00	10.00	FailAq
39	K	1	45	6.262	ppb	2.69	50.00	#####	
44	Ca	2	45	40.080	ppb	3.91	50.00	#####	
47	Ti	1	45	0.121	ppb	86.59	4.00	3.00	
51	V	1	45	0.057	ppb	2.01	4.00	3.00	
52	Cr	1	45	0.044	ppb	6.31	2.00	2.00	
55	Mn	1	45	0.196	ppb	16.30	2.00	3.00	
56	Fe	1	72	13.720	ppb	2.72	50.00	30.00	
59	Co	1	72	0.024	ppb	25.55	2.00	3.00	
60	Ni	1	72	0.064	ppb	10.29	2.00	3.00	
63	Cu	1	72	0.066	ppb	4.40	2.00	2.00	
66	Zn	1	72	0.107	ppb	8.21	4.00	2.00	
75	As	1	72	0.053	ppb	9.85	2.00	2.00	
78	Se	1	72	0.044	ppb	12.06	0.60	2.00	
88	Sr	2	115	0.283	ppb	2.14	4.00	3.00	
95	Mo	2	115	0.039	ppb	30.52	2.00	2.00	
107	Ag	2	115	0.036	ppb	18.90	0.40	1.00	
111	Cd	2	115	0.028	ppb	63.94	0.40	0.30	
118	Sn	2	115	0.062	ppb	7.28	20.00	3.00	
121	Sb	2	115	0.010	ppb	5.36	2.00	0.80	
137	Ba	2	115	0.139	ppb	9.14	2.00	3.00	
205	Tl	2	209	0.040	ppb	4.45	2.00	0.50	
208	Pb	2	209	0.117	ppb	10.66	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	18.42	181.11	35.48	51.9	70 - 120	ISFail
45	Sc	1		148528.41	0.64	138057.45	107.6	70 - 120	
45	Sc	2		3836923.00	1.21	4152726.00	92.4	70 - 120	
72	Ge	1		91909.60	0.57	86466.48	106.3	70 - 120	
115	In	2		6127724.50	0.47	6053544.50	101.2	70 - 120	
209	Bi	2		5867469.00	1.09	5465338.50	107.4	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\058__PB.D\058__PB.D#

Date Acquired:	May 25 2016 04:42 pm	Sample Name:	MB-75203
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.052	ppb	5.69	2.0	8.00	
9	Be	2	45	0.006	ppb	29.86	0.4	1.20	
11	B	2	45	1.222	ppb	2.33	10.0	30.00	
23	Na	1	45	7.187	ppb	3.90	50.0	#####	
24	Mg	1	45	2.873	ppb	6.86	50.0	#####	
27	Al	1	45	10.570	ppb	15.15	50.0	#####	
39	K	1	45	9.829	ppb	5.31	50.0	#####	
44	Ca	2	45	27.850	ppb	1.96	50.0	#####	
47	Ti	1	45	0.138	ppb	49.50	4.0	10.00	
51	V	1	45	0.027	ppb	10.18	4.0	10.00	
52	Cr	1	45	0.271	ppb	9.95	2.0	8.00	
55	Mn	1	45	0.187	ppb	7.19	2.0	8.00	
56	Fe	1	72	14.690	ppb	2.55	50.0	#####	
59	Co	1	72	0.016	ppb	13.28	2.0	8.00	
60	Ni	1	72	0.193	ppb	2.88	2.0	8.00	
63	Cu	1	72	0.121	ppb	1.58	2.0	8.00	
66	Zn	1	72	2.627	ppb	6.25	4.0	10.00	
75	As	1	72	0.011	ppb	24.64	2.0	4.00	
78	Se	1	72	0.070	ppb	18.90	0.6	2.00	
88	Sr	2	115	0.083	ppb	3.46	4.0	10.00	
95	Mo	2	115	0.026	ppb	5.73	2.0	8.00	
107	Ag	2	115	0.014	ppb	14.53	0.4	0.80	
111	Cd	2	115	0.024	ppb	51.24	0.4	1.20	
118	Sn	2	115	3.856	ppb	2.48	20.0	40.00	
121	Sb	2	115	-0.006	ppb	7.39	2.0	4.00	
137	Ba	2	115	0.100	ppb	8.00	2.0	8.00	
205	Tl	2	209	0.025	ppb	21.94	2.0	4.00	
208	Pb	2	209	0.094	ppb	3.41	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-8.23	156.95	35.48	-23.2	70 - 120	ISFail
45	Sc	1		151404.89	1.26	138057.45	109.7	70 - 120	
45	Sc	2		3947981.80	2.19	4152726.00	95.1	70 - 120	
72	Ge	1		92794.41	0.92	86466.48	107.3	70 - 120	
115	In	2		6311580.00	0.89	6053544.50	104.3	70 - 120	
209	Bi	2		5844232.00	1.05	5465338.50	106.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\059_LCS.D\059_LCS.D#

Date Acquired:	May 25 2016 04:48 pm	Sample Name:	**LCS-75203**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	221.40	ppb	1.68	200.00	80 -	120	110.7	
9	Be	2	45	198.60	ppb	1.74	200.00	80 -	120	99.3	
11	B	2	45	193.10	ppb	1.13	200.00	80 -	120	96.6	
23	Na	1	45	5242.00	ppb	0.82	1000.00	80 -	120	524.2	Fail
24	Mg	1	45	5010.00	ppb	1.14	1000.00	80 -	120	501.0	Fail
27	Al	1	45	1000.00	ppb	2.40	1000.00	80 -	120	100.0	
39	K	1	45	5160.00	ppb	0.99	1000.00	80 -	120	516.0	Fail
44	Ca	2	45	5092.00	ppb	3.30	1000.00	80 -	120	509.2	Fail
47	Ti	1	45	205.30	ppb	3.06	200.00	80 -	120	102.7	
51	V	1	45	195.60	ppb	1.09	200.00	80 -	120	97.8	
52	Cr	1	45	197.60	ppb	1.17	200.00	80 -	120	98.8	
55	Mn	1	45	202.50	ppb	0.88	200.00	80 -	120	101.3	
56	Fe	1	72	14.90	ppb	18.41	1000.00	80 -	120	1.5	Fail
59	Co	1	72	207.00	ppb	1.21	200.00	80 -	120	103.5	
60	Ni	1	72	202.70	ppb	1.39	200.00	80 -	120	101.4	
63	Cu	1	72	206.00	ppb	1.08	200.00	80 -	120	103.0	
66	Zn	1	72	192.30	ppb	1.08	200.00	80 -	120	96.2	
75	As	1	72	195.00	ppb	0.84	200.00	80 -	120	97.5	
78	Se	1	72	187.10	ppb	1.10	200.00	80 -	120	93.6	
88	Sr	2	115	206.20	ppb	2.35	200.00	80 -	120	103.1	
95	Mo	2	115	190.60	ppb	1.83	200.00	80 -	120	95.3	
107	Ag	2	115	195.30	ppb	1.81	200.00	80 -	120	97.7	
111	Cd	2	115	188.00	ppb	1.43	200.00	80 -	120	94.0	
118	Sn	2	115	201.50	ppb	2.31	200.00	80 -	120	100.8	
121	Sb	2	115	192.00	ppb	1.62	200.00	80 -	120	96.0	
137	Ba	2	115	198.80	ppb	1.76	200.00	80 -	120	99.4	
205	Tl	2	209	210.30	ppb	0.80	200.00	80 -	120	105.2	
208	Pb	2	209	202.40	ppb	1.32	200.00	80 -	120	101.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-63158.17	2.44	35.48	-178007.8	70 -	120	ISFail
45	Sc	1	153352.81	0.32	138057.45	111.1	70 -	120	
45	Sc	2	3881132.80	0.82	4152726.00	93.5	70 -	120	
72	Ge	1	92384.76	0.43	86466.48	106.8	70 -	120	
115	In	2	6182055.50	1.66	6053544.50	102.1	70 -	120	
209	Bi	2	5695322.50	0.68	5465338.50	104.2	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\060_LCS.D\060_LCS.D#

Date Acquired:	May 25 2016 04:54 pm	Sample Name:	**LCSD-75203**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	214.70	ppb	0.85	200.00	80 -	120	107.4	
9	Be	2	45	195.10	ppb	1.78	200.00	80 -	120	97.6	
11	B	2	45	192.40	ppb	0.96	200.00	80 -	120	96.2	
23	Na	1	45	5183.00	ppb	1.22	1000.00	80 -	120	518.3	Fail
24	Mg	1	45	4973.00	ppb	0.94	1000.00	80 -	120	497.3	Fail
27	Al	1	45	984.90	ppb	0.67	1000.00	80 -	120	98.5	
39	K	1	45	5084.00	ppb	0.66	1000.00	80 -	120	508.4	Fail
44	Ca	2	45	5039.00	ppb	3.08	1000.00	80 -	120	503.9	Fail
47	Ti	1	45	198.90	ppb	1.04	200.00	80 -	120	99.5	
51	V	1	45	195.20	ppb	0.90	200.00	80 -	120	97.6	
52	Cr	1	45	196.20	ppb	1.21	200.00	80 -	120	98.1	
55	Mn	1	45	200.40	ppb	0.58	200.00	80 -	120	100.2	
56	Fe	1	72	7.12	ppb	2.67	1000.00	80 -	120	0.7	Fail
59	Co	1	72	204.30	ppb	0.58	200.00	80 -	120	102.2	
60	Ni	1	72	201.10	ppb	0.81	200.00	80 -	120	100.6	
63	Cu	1	72	204.40	ppb	0.29	200.00	80 -	120	102.2	
66	Zn	1	72	192.20	ppb	0.54	200.00	80 -	120	96.1	
75	As	1	72	192.40	ppb	0.71	200.00	80 -	120	96.2	
78	Se	1	72	186.50	ppb	0.61	200.00	80 -	120	93.3	
88	Sr	2	115	200.70	ppb	1.28	200.00	80 -	120	100.4	
95	Mo	2	115	186.40	ppb	1.26	200.00	80 -	120	93.2	
107	Ag	2	115	191.80	ppb	1.50	200.00	80 -	120	95.9	
111	Cd	2	115	184.90	ppb	1.28	200.00	80 -	120	92.5	
118	Sn	2	115	198.80	ppb	1.23	200.00	80 -	120	99.4	
121	Sb	2	115	188.40	ppb	1.39	200.00	80 -	120	94.2	
137	Ba	2	115	195.40	ppb	2.14	200.00	80 -	120	97.7	
205	Tl	2	209	204.70	ppb	1.07	200.00	80 -	120	102.4	
208	Pb	2	209	200.90	ppb	1.68	200.00	80 -	120	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-62425.43	2.23	35.48	-175942.6	70 -	120	ISFail
45	Sc	1	152501.11	0.45	138057.45	110.5	70 -	120	
45	Sc	2	3952946.00	0.93	4152726.00	95.2	70 -	120	
72	Ge	1	92354.59	0.31	86466.48	106.8	70 -	120	
115	In	2	6303113.50	1.09	6053544.50	104.1	70 -	120	
209	Bi	2	5781782.50	1.24	5465338.50	105.8	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\063DT1.D\063DT1.D#

Date Acquired:	May 25 2016 05:12 pm	Sample Name:	**1605097-28A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	10.68	ppb	0.31	-1009.98	90 - 110	-5.3	
9	Be	2	45	0.50	ppb	4.56	2.29	90 - 110	108.4	GOOD
11	B	2	45	14.59	ppb	1.96	66.33	90 - 110	110.0	GOOD
23	Na	1	45	550.40	ppb	0.62	2812.00	90 - 110	97.9	GOOD
24	Mg	1	45	2388.00	ppb	1.70	12380.00	90 - 110	96.4	GOOD
27	Al	1	45	11330.00	ppb	2.01	59530.00	90 - 110	95.2	GOOD
39	K	1	45	2808.00	ppb	0.81	14360.00	90 - 110	97.8	GOOD
44	Ca	2	45	18700.00	ppb	0.84	92720.00	90 - 110	100.8	GOOD
47	Ti	1	45	96.33	ppb	4.93	489.50	90 - 110	98.4	GOOD
51	V	1	45	18.26	ppb	0.83	94.15	90 - 110	97.0	GOOD
52	Cr	1	45	12.95	ppb	2.42	65.89	90 - 110	98.3	GOOD
55	Mn	1	45	138.80	ppb	0.88	702.60	90 - 110	98.8	GOOD
56	Fe	1	72	10530.00	ppb	1.55	54530.00	90 - 110	96.6	GOOD
59	Co	1	72	3.62	ppb	2.09	18.42	90 - 110	98.1	GOOD
60	Ni	1	72	7.57	ppb	1.52	37.46	90 - 110	101.0	GOOD
63	Cu	1	72	11.57	ppb	1.48	55.89	90 - 110	103.5	GOOD
66	Zn	1	72	91.25	ppb	1.39	420.00	90 - 110	108.6	GOOD
75	As	1	72	4.02	ppb	2.27	19.83	90 - 110	101.4	GOOD
78	Se	1	72	3.79	ppb	4.59	19.31	90 - 110	98.1	GOOD
88	Sr	2	115	63.06	ppb	1.25	338.30	90 - 110	93.2	GOOD
95	Mo	2	115	0.38	ppb	5.61	1.87	90 - 110	101.9	GOOD
107	Ag	2	115	0.10	ppb	1.12	0.35	90 - 110	144.4	
111	Cd	2	115	0.35	ppb	11.00	1.48	90 - 110	118.0	
118	Sn	2	115	1.38	ppb	3.37	6.70	90 - 110	102.6	GOOD
121	Sb	2	115	0.81	ppb	2.46	4.07	90 - 110	98.9	GOOD
137	Ba	2	115	134.60	ppb	1.51	698.30	90 - 110	96.4	GOOD
205	Tl	2	209	0.17	ppb	4.40	0.69	90 - 110	121.4	
208	Pb	2	209	24.44	ppb	1.42	127.60	90 - 110	95.8	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1009.98	6.08	35.48	-2846.6	70 -	120	ISFail
45	Sc	1		148827.52	0.63	138057.45	107.8	70 -	120	
45	Sc	2		3881641.80	1.01	4152726.00	93.5	70 -	120	
72	Ge	1		91383.96	0.18	86466.48	105.7	70 -	120	
115	In	2		6188540.50	0.88	6053544.50	102.2	70 -	120	
209	Bi	2		5756888.50	1.23	5465338.50	105.3	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\073_PDS.D\073_PDS.D#

Date Acquired:	May 25 2016 06:12 pm	Sample Name:	**1605097-28A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	269.80	ppb	0.73	-29445.26	200	75-125	######	Fail
9	Be	2	45	194.10	ppb	1.32	2.29	200	75-125	95.9	
11	B	2	45	245.00	ppb	1.31	66.33	200	75-125	89.3	
23	Na	1	45	8248.00	ppb	1.07	2812.00	5000	75-125	108.7	
24	Mg	1	45	17640.00	ppb	0.70	12380.00	5000	75-125	105.2	
27	Al	1	45	65200.00	ppb	1.21	59530.00	5000	75-125	113.4	
39	K	1	45	20050.00	ppb	2.45	14360.00	5000	75-125	113.8	
44	Ca	2	45	98350.00	ppb	2.14	92720.00	5000	75-125	112.6	
47	Ti	1	45	707.30	ppb	1.10	489.50	200	75-125	108.9	
51	V	1	45	300.60	ppb	0.10	94.15	200	75-125	103.2	
52	Cr	1	45	271.20	ppb	0.59	65.89	200	75-125	102.7	
55	Mn	1	45	914.00	ppb	0.17	702.60	200	75-125	105.7	
56	Fe	1	72	60660.00	ppb	0.30	54530.00	5000	75-125	122.6	
59	Co	1	72	228.00	ppb	0.35	18.42	200	75-125	104.8	
60	Ni	1	72	236.70	ppb	1.08	37.46	200	75-125	99.6	
63	Cu	1	72	254.70	ppb	0.44	55.89	200	75-125	99.4	
66	Zn	1	72	610.90	ppb	0.24	420.00	200	75-125	95.5	
75	As	1	72	221.90	ppb	0.16	19.83	200	75-125	101.0	
78	Se	1	72	207.40	ppb	0.68	19.31	200	75-125	94.0	
88	Sr	2	115	543.10	ppb	1.51	338.30	200	75-125	102.4	
95	Mo	2	115	193.60	ppb	1.99	1.87	200	75-125	95.9	
107	Ag	2	115	186.70	ppb	2.34	0.35	200	75-125	93.2	
111	Cd	2	115	186.40	ppb	2.38	1.48	200	75-125	92.5	
118	Sn	2	115	212.70	ppb	1.91	6.70	200	75-125	103.0	
121	Sb	2	115	197.20	ppb	1.89	4.07	200	75-125	96.6	
137	Ba	2	115	910.90	ppb	3.72	698.30	200	75-125	106.3	
205	Tl	2	209	215.20	ppb	1.47	0.69	200	75-125	107.3	
208	Pb	2	209	340.20	ppb	1.15	127.60	200	75-125	106.3	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	-29445.26	6.43	35.48	-82989.8	70	-	120	ISFail
45	Sc	1		133346.86	0.23	138057.45	96.6	70	-	120	
45	Sc	2		3319231.30	1.25	4152726.00	79.9	70	-	120	
72	Ge	1		79858.46	0.65	86466.48	92.4	70	-	120	
115	In	2		5342066.00	1.33	6053544.50	88.2	70	-	120	
209	Bi	2		4828942.00	1.01	5465338.50	88.4	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\074_MS.D\074_MS.D#

Date Acquired:	May 25 2016 06:18 pm	Sample Name:	**1605097-28A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	264.30	ppb	1.41	########	200	80-120	######	Fail
9	Be	2	45	187.60	ppb	1.78	2.29	200	80-120	92.7	
11	B	2	45	233.70	ppb	2.27	66.33	200	80-120	83.7	
23	Na	1	45	7959.00	ppb	0.44	2812.00	1000	80-120	514.7	Fail
24	Mg	1	45	17340.00	ppb	0.63	12380.00	1000	80-120	496.0	Fail
27	Al	1	45	62010.00	ppb	0.94	59530.00	1000	80-120	248.0	Fail
39	K	1	45	19400.00	ppb	0.56	14360.00	1000	80-120	504.0	Fail
44	Ca	2	45	97620.00	ppb	1.32	92720.00	1000	80-120	490.0	Fail
47	Ti	1	45	730.70	ppb	0.44	489.50	200	80-120	120.6	Fail
51	V	1	45	289.70	ppb	1.12	94.15	200	80-120	97.8	
52	Cr	1	45	259.80	ppb	1.23	65.89	200	80-120	97.0	
55	Mn	1	45	878.60	ppb	1.28	702.60	200	80-120	88.0	
56	Fe	1	72	54810.00	ppb	1.65	54530.00	1000	80-120	28.0	Fail
59	Co	1	72	217.70	ppb	0.73	18.42	200	80-120	99.6	
60	Ni	1	72	229.40	ppb	0.48	37.46	200	80-120	96.0	
63	Cu	1	72	246.30	ppb	0.77	55.89	200	80-120	95.2	
66	Zn	1	72	585.10	ppb	0.98	420.00	200	80-120	82.6	
75	As	1	72	209.50	ppb	0.42	19.83	200	80-120	94.8	
78	Se	1	72	199.20	ppb	1.77	19.31	200	80-120	89.9	
88	Sr	2	115	542.10	ppb	1.67	338.30	200	80-120	101.9	
95	Mo	2	115	179.40	ppb	1.46	1.87	200	80-120	88.8	
107	Ag	2	115	183.20	ppb	2.02	0.35	200	80-120	91.4	
111	Cd	2	115	182.20	ppb	1.63	1.48	200	80-120	90.4	
118	Sn	2	115	198.50	ppb	2.15	6.70	200	80-120	95.9	
121	Sb	2	115	67.45	ppb	1.96	4.07	200	80-120	31.7	Fail
137	Ba	2	115	969.10	ppb	3.28	698.30	200	80-120	135.4	Fail
205	Tl	2	209	209.70	ppb	1.49	0.69	200	80-120	104.5	
208	Pb	2	209	331.00	ppb	1.38	127.60	200	80-120	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-55032.41	2.41	35.48	########	70	-	120	ISFail
45	Sc	1	131064.13	0.21	138057.45	94.9	70	-	120	
45	Sc	2	3314812.00	1.64	4152726.00	79.8	70	-	120	
72	Ge	1	78394.84	0.19	86466.48	90.7	70	-	120	
115	In	2	5326506.50	1.70	6053544.50	88.0	70	-	120	
209	Bi	2	4825896.00	1.22	5465338.50	88.3	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\075_MS.D\075_MS.D#

Date Acquired:	May 25 2016 06:23 pm	Sample Name:	**1605097-28A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	255.20	ppb	0.17	########	200	80-120	######	Fail
9	Be	2	45	184.30	ppb	1.16	2.29	200	80-120	91.0	
11	B	2	45	225.90	ppb	1.27	66.33	200	80-120	79.8	Fail
23	Na	1	45	7648.00	ppb	0.06	2812.00	1000	80-120	483.6	Fail
24	Mg	1	45	16590.00	ppb	1.05	12380.00	1000	80-120	421.0	Fail
27	Al	1	45	59470.00	ppb	2.08	59530.00	1000	80-120	-6.0	Fail
39	K	1	45	18850.00	ppb	0.59	14360.00	1000	80-120	449.0	Fail
44	Ca	2	45	92930.00	ppb	1.91	92720.00	1000	80-120	21.0	Fail
47	Ti	1	45	730.00	ppb	0.25	489.50	200	80-120	120.3	Fail
51	V	1	45	284.10	ppb	0.99	94.15	200	80-120	95.0	
52	Cr	1	45	252.00	ppb	1.21	65.89	200	80-120	93.1	
55	Mn	1	45	851.20	ppb	0.52	702.60	200	80-120	74.3	Fail
56	Fe	1	72	51850.00	ppb	0.84	54530.00	1000	80-120	-268.0	Fail
59	Co	1	72	212.40	ppb	0.44	18.42	200	80-120	97.0	
60	Ni	1	72	224.80	ppb	0.86	37.46	200	80-120	93.7	
63	Cu	1	72	245.20	ppb	0.62	55.89	200	80-120	94.7	
66	Zn	1	72	563.40	ppb	0.58	420.00	200	80-120	71.7	Fail
75	As	1	72	207.60	ppb	0.29	19.83	200	80-120	93.9	
78	Se	1	72	193.40	ppb	1.75	19.31	200	80-120	87.0	
88	Sr	2	115	523.20	ppb	2.04	338.30	200	80-120	92.5	
95	Mo	2	115	177.20	ppb	2.27	1.87	200	80-120	87.7	
107	Ag	2	115	180.10	ppb	1.84	0.35	200	80-120	89.9	
111	Cd	2	115	180.00	ppb	1.81	1.48	200	80-120	89.3	
118	Sn	2	115	196.50	ppb	1.83	6.70	200	80-120	94.9	
121	Sb	2	115	67.52	ppb	1.96	4.07	200	80-120	31.7	Fail
137	Ba	2	115	914.40	ppb	0.75	698.30	200	80-120	108.1	
205	Tl	2	209	204.10	ppb	0.91	0.69	200	80-120	101.7	
208	Pb	2	209	320.20	ppb	1.28	127.60	200	80-120	96.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-53763.51	1.84	35.48	########	70 - 120	ISFail
45	Sc	1	130317.94	0.29	138057.45	94.4	70 - 120	
45	Sc	2	3323918.00	1.13	4152726.00	80.0	70 - 120	
72	Ge	1	78498.56	0.23	86466.48	90.8	70 - 120	
115	In	2	5302083.00	1.81	6053544.50	87.6	70 - 120	
209	Bi	2	4801700.00	0.56	5465338.50	87.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\077CCV1.D\077CCV1.D#

Date Acquired:	May 25 2016 06:35 pm	Sample Name:	CCV3-160525
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	224.10	ppb	0.51	200.00	90 -	110	112.1	Fail
9	Be	2	45	205.60	ppb	1.26	200.00	90 -	110	102.8	
11	B	2	45	191.60	ppb	1.68	200.00	90 -	110	95.8	
23	Na	1	45	5257.00	ppb	1.66	5000.00	90 -	110	105.1	
24	Mg	1	45	4989.00	ppb	1.41	5000.00	90 -	110	99.8	
27	Al	1	45	4902.00	ppb	1.30	5000.00	90 -	110	98.0	
39	K	1	45	5176.00	ppb	0.77	5000.00	90 -	110	103.5	
44	Ca	2	45	4974.00	ppb	1.20	5000.00	90 -	110	99.5	
47	Ti	1	45	199.80	ppb	1.83	200.00	90 -	110	99.9	
51	V	1	45	198.40	ppb	1.37	200.00	90 -	110	99.2	
52	Cr	1	45	201.00	ppb	1.36	200.00	90 -	110	100.5	
55	Mn	1	45	202.20	ppb	1.49	200.00	90 -	110	101.1	
56	Fe	1	72	5005.00	ppb	1.74	5000.00	90 -	110	100.1	
59	Co	1	72	204.80	ppb	1.90	200.00	90 -	110	102.4	
60	Ni	1	72	202.60	ppb	1.63	200.00	90 -	110	101.3	
63	Cu	1	72	206.10	ppb	1.72	200.00	90 -	110	103.1	
66	Zn	1	72	205.60	ppb	0.69	200.00	90 -	110	102.8	
75	As	1	72	207.60	ppb	0.58	200.00	90 -	110	103.8	
78	Se	1	72	207.20	ppb	0.30	200.00	90 -	110	103.6	
88	Sr	2	115	206.80	ppb	0.81	200.00	90 -	110	103.4	
95	Mo	2	115	189.10	ppb	0.96	200.00	90 -	110	94.6	
107	Ag	2	115	195.20	ppb	1.23	200.00	90 -	110	97.6	
111	Cd	2	115	195.80	ppb	1.47	200.00	90 -	110	97.9	
118	Sn	2	115	197.60	ppb	1.65	200.00	90 -	110	98.8	
121	Sb	2	115	196.20	ppb	1.26	200.00	90 -	110	98.1	
137	Ba	2	115	202.00	ppb	1.10	200.00	90 -	110	101.0	
205	Tl	2	209	208.80	ppb	1.22	200.00	90 -	110	104.4	
208	Pb	2	209	203.20	ppb	2.08	200.00	90 -	110	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-55353.93	0.78	35.48	-156012.0	70 -	120	ISFail
45	Sc	1	132440.27	0.34	138057.45	95.9	70 -	120	
45	Sc	2	3373511.30	0.43	4152726.00	81.2	70 -	120	
72	Ge	1	81496.83	0.51	86466.48	94.3	70 -	120	
115	In	2	5506163.50	1.19	6053544.50	91.0	70 -	120	
209	Bi	2	5191287.50	1.72	5465338.50	95.0	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\079LCVL.D\079LCVL.D#

Date Acquired:	May 25 2016 06:48 pm	Sample Name:	**LCVL3-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.95	ppb	1.32	5.00	70 -	130	219.0	Fail
9	Be	2	45	1.10	ppb	4.19	1.00	70 -	130	110.2	
11	B	2	45	20.36	ppb	2.22	20.00	70 -	130	101.8	
23	Na	1	45	101.30	ppb	2.07	100.00	70 -	130	101.3	
24	Mg	1	45	102.00	ppb	1.40	100.00	70 -	130	102.0	
27	Al	1	45	114.40	ppb	2.00	100.00	70 -	130	114.4	
39	K	1	45	107.10	ppb	1.23	100.00	70 -	130	107.1	
44	Ca	2	45	111.40	ppb	2.39	100.00	70 -	130	111.4	
47	Ti	1	45	4.87	ppb	3.51	5.00	70 -	130	97.5	
51	V	1	45	1.07	ppb	4.78	1.00	70 -	130	107.3	
52	Cr	1	45	5.14	ppb	2.07	5.00	70 -	130	102.8	
55	Mn	1	45	5.09	ppb	1.65	5.00	70 -	130	101.8	
56	Fe	1	72	113.70	ppb	1.23	100.00	70 -	130	113.7	
59	Co	1	72	5.15	ppb	3.81	5.00	70 -	130	103.0	
60	Ni	1	72	5.04	ppb	2.45	5.00	70 -	130	100.7	
63	Cu	1	72	5.10	ppb	1.35	5.00	70 -	130	102.0	
66	Zn	1	72	5.04	ppb	1.70	5.00	70 -	130	100.7	
75	As	1	72	5.24	ppb	1.10	5.00	70 -	130	104.8	
78	Se	1	72	4.84	ppb	4.02	5.00	70 -	130	96.9	
88	Sr	2	115	4.99	ppb	2.27	5.00	70 -	130	99.7	
95	Mo	2	115	4.60	ppb	2.76	5.00	70 -	130	91.9	
107	Ag	2	115	1.98	ppb	1.41	2.00	70 -	130	99.0	
111	Cd	2	115	0.95	ppb	5.15	1.00	70 -	130	95.4	
118	Sn	2	115	5.00	ppb	2.75	5.00	70 -	130	99.9	
121	Sb	2	115	1.99	ppb	2.86	2.00	70 -	130	99.4	
137	Ba	2	115	4.95	ppb	1.39	5.00	70 -	130	98.9	
205	Tl	2	209	1.04	ppb	1.79	1.00	70 -	130	104.4	
208	Pb	2	209	1.08	ppb	3.07	1.00	70 -	130	108.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-1368.58	9.05	35.48	-3857.3	70 -	120	ISFail
45	Sc	1	132194.70	0.57	138057.45	95.8	70 -	120	
45	Sc	2	3373480.80	2.08	4152726.00	81.2	70 -	120	
72	Ge	1	82538.56	0.78	86466.48	95.5	70 -	120	
115	In	2	5528710.50	1.00	6053544.50	91.3	70 -	120	
209	Bi	2	5205336.50	1.37	5465338.50	95.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\080_CCB.D\080_CCB.D#

Date Acquired:	May 25 2016 06:54 pm	Sample Name:	CCB3-160525
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.174	ppb	5.99	2.00	2.00	
9	Be	2	45	0.044	ppb	23.81	0.40	0.30	
11	B	2	45	3.542	ppb	3.33	10.00	10.00	
23	Na	1	45	5.276	ppb	0.48	50.00	#####	
24	Mg	1	45	3.450	ppb	2.79	50.00	#####	
27	Al	1	45	22.670	ppb	3.18	50.00	10.00	FailAq
39	K	1	45	11.050	ppb	5.41	50.00	#####	
44	Ca	2	45	36.660	ppb	4.62	50.00	#####	
47	Ti	1	45	0.320	ppb	32.74	4.00	3.00	
51	V	1	45	0.076	ppb	3.85	4.00	3.00	
52	Cr	1	45	0.073	ppb	6.84	2.00	2.00	
55	Mn	1	45	0.189	ppb	8.75	2.00	3.00	
56	Fe	1	72	12.020	ppb	5.47	50.00	30.00	
59	Co	1	72	0.054	ppb	9.25	2.00	3.00	
60	Ni	1	72	0.073	ppb	12.83	2.00	3.00	
63	Cu	1	72	0.090	ppb	8.33	2.00	2.00	
66	Zn	1	72	0.099	ppb	6.13	4.00	2.00	
75	As	1	72	0.082	ppb	10.49	2.00	2.00	
78	Se	1	72	0.101	ppb	27.71	0.60	2.00	
88	Sr	2	115	0.306	ppb	1.53	4.00	3.00	
95	Mo	2	115	0.053	ppb	28.91	2.00	2.00	
107	Ag	2	115	0.059	ppb	20.67	0.40	1.00	
111	Cd	2	115	0.046	ppb	15.27	0.40	0.30	
118	Sn	2	115	0.094	ppb	8.29	20.00	3.00	
121	Sb	2	115	0.057	ppb	17.69	2.00	0.80	
137	Ba	2	115	0.163	ppb	11.70	2.00	3.00	
205	Tl	2	209	0.073	ppb	12.00	2.00	0.50	
208	Pb	2	209	0.087	ppb	9.06	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-6.73	314.05	35.48	-19.0	70 - 120	ISFail
45	Sc	1		131019.38	1.80	138057.45	94.9	70 - 120	
45	Sc	2		3443980.30	1.36	4152726.00	82.9	70 - 120	
72	Ge	1		82146.60	0.43	86466.48	95.0	70 - 120	
115	In	2		5582825.00	0.97	6053544.50	92.2	70 - 120	
209	Bi	2		5275857.50	0.52	5465338.50	96.5	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\091CCV1.D\091CCV1.D#

Date Acquired:	May 25 2016 08:00 pm	Sample Name:	**CCV4-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	218.10	ppb	0.45	200.00	90 -	110	109.1	
9	Be	2	45	202.80	ppb	1.61	200.00	90 -	110	101.4	
11	B	2	45	186.20	ppb	0.72	200.00	90 -	110	93.1	
23	Na	1	45	5248.00	ppb	0.23	5000.00	90 -	110	105.0	
24	Mg	1	45	4949.00	ppb	1.42	5000.00	90 -	110	99.0	
27	Al	1	45	4907.00	ppb	1.17	5000.00	90 -	110	98.1	
39	K	1	45	5162.00	ppb	0.88	5000.00	90 -	110	103.2	
44	Ca	2	45	5035.00	ppb	1.17	5000.00	90 -	110	100.7	
47	Ti	1	45	197.50	ppb	0.88	200.00	90 -	110	98.8	
51	V	1	45	199.70	ppb	1.30	200.00	90 -	110	99.9	
52	Cr	1	45	200.60	ppb	1.38	200.00	90 -	110	100.3	
55	Mn	1	45	204.40	ppb	0.37	200.00	90 -	110	102.2	
56	Fe	1	72	5115.00	ppb	0.94	5000.00	90 -	110	102.3	
59	Co	1	72	206.60	ppb	0.99	200.00	90 -	110	103.3	
60	Ni	1	72	203.50	ppb	0.77	200.00	90 -	110	101.8	
63	Cu	1	72	206.90	ppb	0.27	200.00	90 -	110	103.5	
66	Zn	1	72	206.20	ppb	0.37	200.00	90 -	110	103.1	
75	As	1	72	210.00	ppb	0.95	200.00	90 -	110	105.0	
78	Se	1	72	206.70	ppb	1.38	200.00	90 -	110	103.4	
88	Sr	2	115	205.50	ppb	1.18	200.00	90 -	110	102.8	
95	Mo	2	115	188.30	ppb	1.03	200.00	90 -	110	94.2	
107	Ag	2	115	192.40	ppb	1.22	200.00	90 -	110	96.2	
111	Cd	2	115	192.60	ppb	1.16	200.00	90 -	110	96.3	
118	Sn	2	115	199.00	ppb	1.50	200.00	90 -	110	99.5	
121	Sb	2	115	197.80	ppb	1.43	200.00	90 -	110	98.9	
137	Ba	2	115	202.90	ppb	1.59	200.00	90 -	110	101.5	
205	Tl	2	209	209.90	ppb	2.26	200.00	90 -	110	105.0	
208	Pb	2	209	201.30	ppb	1.54	200.00	90 -	110	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-52192.45	0.70	35.48	-147101.5	70 -	120	ISFail
45	Sc	1	123775.41	0.53	138057.45	89.7	70 -	120	
45	Sc	2	3241279.00	1.27	4152726.00	78.1	70 -	120	
72	Ge	1	76393.88	0.58	86466.48	88.4	70 -	120	
115	In	2	5457622.50	1.71	6053544.50	90.2	70 -	120	
209	Bi	2	5083478.00	0.94	5465338.50	93.0	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\093LCVL.D\093LCVL.D#

Date Acquired:	May 25 2016 08:12 pm	Sample Name:	**LCVL4-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.71	ppb	0.90	5.00	70 -	130	214.2	Fail
9	Be	2	45	1.01	ppb	2.41	1.00	70 -	130	101.2	
11	B	2	45	19.60	ppb	2.59	20.00	70 -	130	98.0	
23	Na	1	45	98.51	ppb	0.63	100.00	70 -	130	98.5	
24	Mg	1	45	103.20	ppb	1.90	100.00	70 -	130	103.2	
27	Al	1	45	121.20	ppb	0.75	100.00	70 -	130	121.2	
39	K	1	45	109.60	ppb	2.66	100.00	70 -	130	109.6	
44	Ca	2	45	120.00	ppb	3.06	100.00	70 -	130	120.0	
47	Ti	1	45	5.98	ppb	14.77	5.00	70 -	130	119.7	
51	V	1	45	1.06	ppb	6.51	1.00	70 -	130	106.1	
52	Cr	1	45	5.04	ppb	3.79	5.00	70 -	130	100.8	
55	Mn	1	45	5.29	ppb	0.90	5.00	70 -	130	105.9	
56	Fe	1	72	125.50	ppb	2.39	100.00	70 -	130	125.5	
59	Co	1	72	5.05	ppb	2.11	5.00	70 -	130	100.9	
60	Ni	1	72	5.10	ppb	1.07	5.00	70 -	130	101.9	
63	Cu	1	72	5.08	ppb	2.01	5.00	70 -	130	101.6	
66	Zn	1	72	4.87	ppb	3.16	5.00	70 -	130	97.3	
75	As	1	72	5.27	ppb	1.54	5.00	70 -	130	105.4	
78	Se	1	72	5.17	ppb	3.96	5.00	70 -	130	103.4	
88	Sr	2	115	5.02	ppb	1.52	5.00	70 -	130	100.4	
95	Mo	2	115	4.61	ppb	3.99	5.00	70 -	130	92.1	
107	Ag	2	115	1.92	ppb	0.82	2.00	70 -	130	96.2	
111	Cd	2	115	1.01	ppb	10.89	1.00	70 -	130	101.1	
118	Sn	2	115	4.97	ppb	2.31	5.00	70 -	130	99.4	
121	Sb	2	115	1.93	ppb	3.68	2.00	70 -	130	96.6	
137	Ba	2	115	5.23	ppb	4.69	5.00	70 -	130	104.6	
205	Tl	2	209	1.02	ppb	0.65	1.00	70 -	130	102.3	
208	Pb	2	209	1.01	ppb	0.43	1.00	70 -	130	101.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-1383.62	8.79	35.48	-3899.7	70 -	120	ISFail
45	Sc	1	127192.41	1.52	138057.45	92.1	70 -	120	
45	Sc	2	3302091.00	1.63	4152726.00	79.5	70 -	120	
72	Ge	1	79279.07	0.74	86466.48	91.7	70 -	120	
115	In	2	5476371.00	1.17	6053544.50	90.5	70 -	120	
209	Bi	2	5219516.50	0.53	5465338.50	95.5	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\094_CCB.D\094_CCB.D#

Date Acquired:	May 25 2016 08:18 pm	Sample Name:	**CCB4-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.133	ppb	6.28	2.00	2.00	
9	Be	2	45	0.025	ppb	18.54	0.40	0.30	
11	B	2	45	3.193	ppb	2.17	10.00	10.00	
23	Na	1	45	5.372	ppb	5.20	50.00	#####	
24	Mg	1	45	3.716	ppb	6.39	50.00	#####	
27	Al	1	45	23.950	ppb	7.39	50.00	10.00	FailAq
39	K	1	45	9.750	ppb	2.79	50.00	#####	
44	Ca	2	45	38.080	ppb	3.00	50.00	#####	
47	Ti	1	45	0.119	ppb	69.30	4.00	3.00	
51	V	1	45	0.075	ppb	11.65	4.00	3.00	
52	Cr	1	45	0.069	ppb	11.74	2.00	2.00	
55	Mn	1	45	0.176	ppb	3.07	2.00	3.00	
56	Fe	1	72	15.770	ppb	10.37	50.00	30.00	
59	Co	1	72	0.022	ppb	15.43	2.00	3.00	
60	Ni	1	72	0.096	ppb	17.56	2.00	3.00	
63	Cu	1	72	0.085	ppb	19.07	2.00	2.00	
66	Zn	1	72	0.115	ppb	7.88	4.00	2.00	
75	As	1	72	0.055	ppb	4.49	2.00	2.00	
78	Se	1	72	0.125	ppb	14.28	0.60	2.00	
88	Sr	2	115	0.247	ppb	3.23	4.00	3.00	
95	Mo	2	115	0.022	ppb	14.10	2.00	2.00	
107	Ag	2	115	0.038	ppb	23.81	0.40	1.00	
111	Cd	2	115	0.040	ppb	36.53	0.40	0.30	
118	Sn	2	115	0.041	ppb	15.66	20.00	3.00	
121	Sb	2	115	0.010	ppb	14.00	2.00	0.80	
137	Ba	2	115	0.122	ppb	14.11	2.00	3.00	
205	Tl	2	209	0.042	ppb	8.92	2.00	0.50	
208	Pb	2	209	0.054	ppb	6.74	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-7.96	138.90	35.48	-22.4	70 - 120	ISFail
45	Sc	1		125573.63	0.51	138057.45	91.0	70 - 120	
45	Sc	2		3352020.80	1.17	4152726.00	80.7	70 - 120	
72	Ge	1		78407.98	0.54	86466.48	90.7	70 - 120	
115	In	2		5570337.50	1.06	6053544.50	92.0	70 - 120	
209	Bi	2		5268501.00	1.17	5465338.50	96.4	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\095__PB.D\095__PB.D#

Date Acquired:	May 25 2016 08:24 pm	Sample Name:	**MB-75216**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.070	ppb	4.70	2.0	8.00	
9	Be	2	45	0.002	ppb	55.47	0.4	1.20	
11	B	2	45	0.988	ppb	2.50	10.0	30.00	
23	Na	1	45	4.416	ppb	4.22	50.0	#####	
24	Mg	1	45	3.168	ppb	8.21	50.0	#####	
27	Al	1	45	11.340	ppb	8.17	50.0	#####	
39	K	1	45	10.080	ppb	3.70	50.0	#####	
44	Ca	2	45	23.300	ppb	2.99	50.0	#####	
47	Ti	1	45	0.238	ppb	45.83	4.0	10.00	
51	V	1	45	0.028	ppb	15.35	4.0	10.00	
52	Cr	1	45	0.215	ppb	8.16	2.0	8.00	
55	Mn	1	45	0.143	ppb	13.02	2.0	8.00	
56	Fe	1	72	17.000	ppb	6.37	50.0	#####	
59	Co	1	72	0.012	ppb	13.68	2.0	8.00	
60	Ni	1	72	0.154	ppb	12.72	2.0	8.00	
63	Cu	1	72	0.076	ppb	2.62	2.0	8.00	
66	Zn	1	72	0.920	ppb	8.33	4.0	10.00	
75	As	1	72	0.022	ppb	12.28	2.0	4.00	
78	Se	1	72	0.125	ppb	25.75	0.6	2.00	
88	Sr	2	115	0.078	ppb	3.18	4.0	10.00	
95	Mo	2	115	0.018	ppb	17.28	2.0	8.00	
107	Ag	2	115	0.018	ppb	18.75	0.4	0.80	
111	Cd	2	115	0.021	ppb	63.35	0.4	1.20	
118	Sn	2	115	3.891	ppb	2.35	20.0	40.00	
121	Sb	2	115	-0.001	ppb	15.73	2.0	4.00	
137	Ba	2	115	0.075	ppb	10.38	2.0	8.00	
205	Tl	2	209	0.025	ppb	18.73	2.0	4.00	
208	Pb	2	209	0.045	ppb	0.86	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-22.95	21.75	35.48	-64.7	70 - 120	ISFail
45	Sc	1		126317.22	0.72	138057.45	91.5	70 - 120	
45	Sc	2		3500376.00	2.13	4152726.00	84.3	70 - 120	
72	Ge	1		78277.06	1.35	86466.48	90.5	70 - 120	
115	In	2		5718756.00	1.23	6053544.50	94.5	70 - 120	
209	Bi	2		5375578.50	0.98	5465338.50	98.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\096_LCS.D\096_LCS.D#

Date Acquired:	May 25 2016 08:30 pm	Sample Name:	**LCS-75216**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	205.50	ppb	0.51	200.00	80 -	120	102.8	
9	Be	2	45	188.20	ppb	1.44	200.00	80 -	120	94.1	
11	B	2	45	176.10	ppb	1.18	200.00	80 -	120	88.1	
23	Na	1	45	5173.00	ppb	1.12	1000.00	80 -	120	517.3	Fail
24	Mg	1	45	4928.00	ppb	1.19	1000.00	80 -	120	492.8	Fail
27	Al	1	45	991.90	ppb	0.55	1000.00	80 -	120	99.2	
39	K	1	45	5150.00	ppb	0.45	1000.00	80 -	120	515.0	Fail
44	Ca	2	45	4914.00	ppb	1.52	1000.00	80 -	120	491.4	Fail
47	Ti	1	45	200.50	ppb	2.70	200.00	80 -	120	100.3	
51	V	1	45	196.40	ppb	1.13	200.00	80 -	120	98.2	
52	Cr	1	45	197.10	ppb	1.61	200.00	80 -	120	98.6	
55	Mn	1	45	201.70	ppb	1.45	200.00	80 -	120	100.9	
56	Fe	1	72	10.30	ppb	0.81	1000.00	80 -	120	1.0	Fail
59	Co	1	72	201.80	ppb	1.11	200.00	80 -	120	100.9	
60	Ni	1	72	196.10	ppb	0.41	200.00	80 -	120	98.1	
63	Cu	1	72	201.20	ppb	1.17	200.00	80 -	120	100.6	
66	Zn	1	72	189.70	ppb	1.17	200.00	80 -	120	94.9	
75	As	1	72	196.30	ppb	0.76	200.00	80 -	120	98.2	
78	Se	1	72	187.40	ppb	1.34	200.00	80 -	120	93.7	
88	Sr	2	115	205.70	ppb	0.97	200.00	80 -	120	102.9	
95	Mo	2	115	188.50	ppb	1.44	200.00	80 -	120	94.3	
107	Ag	2	115	191.30	ppb	1.78	200.00	80 -	120	95.7	
111	Cd	2	115	186.50	ppb	1.79	200.00	80 -	120	93.3	
118	Sn	2	115	201.20	ppb	2.36	200.00	80 -	120	100.6	
121	Sb	2	115	192.70	ppb	1.93	200.00	80 -	120	96.4	
137	Ba	2	115	198.50	ppb	2.29	200.00	80 -	120	99.3	
205	Tl	2	209	206.20	ppb	2.20	200.00	80 -	120	103.1	
208	Pb	2	209	201.30	ppb	1.54	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-52739.15	0.35	35.48	-148642.4	70 -	120	ISFail
45	Sc	1	126782.71	0.15	138057.45	91.8	70 -	120	
45	Sc	2	3463862.00	1.79	4152726.00	83.4	70 -	120	
72	Ge	1	78198.08	0.52	86466.48	90.4	70 -	120	
115	In	2	5623388.50	1.72	6053544.50	92.9	70 -	120	
209	Bi	2	5141356.00	1.42	5465338.50	94.1	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\097_LCS.D\097_LCS.D#

Date Acquired:	May 25 2016 08:36 pm	Sample Name:	**LCSD-75216**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	209.40	ppb	0.99	200.00	80 -	120	104.7	
9	Be	2	45	189.60	ppb	0.82	200.00	80 -	120	94.8	
11	B	2	45	181.80	ppb	0.76	200.00	80 -	120	90.9	
23	Na	1	45	5246.00	ppb	0.53	1000.00	80 -	120	524.6	Fail
24	Mg	1	45	5021.00	ppb	0.67	1000.00	80 -	120	502.1	Fail
27	Al	1	45	1034.00	ppb	1.79	1000.00	80 -	120	103.4	
39	K	1	45	5296.00	ppb	1.20	1000.00	80 -	120	529.6	Fail
44	Ca	2	45	4975.00	ppb	1.42	1000.00	80 -	120	497.5	Fail
47	Ti	1	45	206.90	ppb	1.92	200.00	80 -	120	103.5	
51	V	1	45	200.50	ppb	0.79	200.00	80 -	120	100.3	
52	Cr	1	45	200.20	ppb	1.25	200.00	80 -	120	100.1	
55	Mn	1	45	207.60	ppb	1.22	200.00	80 -	120	103.8	
56	Fe	1	72	8.36	ppb	1.47	1000.00	80 -	120	0.8	Fail
59	Co	1	72	202.50	ppb	0.71	200.00	80 -	120	101.3	
60	Ni	1	72	198.60	ppb	0.39	200.00	80 -	120	99.3	
63	Cu	1	72	202.00	ppb	0.65	200.00	80 -	120	101.0	
66	Zn	1	72	191.80	ppb	1.21	200.00	80 -	120	95.9	
75	As	1	72	198.60	ppb	0.43	200.00	80 -	120	99.3	
78	Se	1	72	190.70	ppb	0.59	200.00	80 -	120	95.4	
88	Sr	2	115	205.30	ppb	1.12	200.00	80 -	120	102.7	
95	Mo	2	115	188.20	ppb	1.54	200.00	80 -	120	94.1	
107	Ag	2	115	189.40	ppb	1.42	200.00	80 -	120	94.7	
111	Cd	2	115	186.00	ppb	1.88	200.00	80 -	120	93.0	
118	Sn	2	115	199.90	ppb	2.14	200.00	80 -	120	100.0	
121	Sb	2	115	191.50	ppb	1.24	200.00	80 -	120	95.8	
137	Ba	2	115	199.30	ppb	0.67	200.00	80 -	120	99.7	
205	Tl	2	209	209.00	ppb	0.54	200.00	80 -	120	104.5	
208	Pb	2	209	204.60	ppb	1.50	200.00	80 -	120	102.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-53672.47	1.02	35.48	-151272.9	70 -	120	ISFail
45	Sc	1	127889.62	1.19	138057.45	92.6	70 -	120	
45	Sc	2	3469782.80	1.09	4152726.00	83.6	70 -	120	
72	Ge	1	79083.59	0.45	86466.48	91.5	70 -	120	
115	In	2	5679878.00	2.05	6053544.50	93.8	70 -	120	
209	Bi	2	5172574.00	1.38	5465338.50	94.6	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\100DT1.D\100DT1.D#

Date Acquired:	May 25 2016 08:54 pm	Sample Name:	**1605097-41A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	May 25 2016 12:14 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	12.27	ppb	0.57	-1130.01	90 - 110	-5.4	
9	Be	2	45	0.59	ppb	3.56	2.70	90 - 110	108.9	GOOD
11	B	2	45	14.11	ppb	1.63	68.62	90 - 110	102.8	GOOD
23	Na	1	45	177.10	ppb	3.03	1013.00	90 - 110	87.4	
24	Mg	1	45	2502.00	ppb	0.96	14400.00	90 - 110	86.9	
27	Al	1	45	14660.00	ppb	1.89	84070.00	90 - 110	87.2	
39	K	1	45	3403.00	ppb	1.30	19230.00	90 - 110	88.5	
44	Ca	2	45	9516.00	ppb	1.88	49050.00	90 - 110	97.0	GOOD
47	Ti	1	45	65.88	ppb	4.75	378.50	90 - 110	87.0	
51	V	1	45	21.59	ppb	1.89	121.40	90 - 110	88.9	
52	Cr	1	45	13.22	ppb	2.27	73.17	90 - 110	90.3	GOOD
55	Mn	1	45	124.20	ppb	2.14	690.10	90 - 110	90.0	
56	Fe	1	72	13040.00	ppb	1.35	74190.00	90 - 110	87.9	
59	Co	1	72	5.02	ppb	1.10	28.63	90 - 110	87.6	
60	Ni	1	72	7.87	ppb	3.00	42.50	90 - 110	92.5	GOOD
63	Cu	1	72	5.10	ppb	2.22	27.79	90 - 110	91.8	GOOD
66	Zn	1	72	44.88	ppb	2.43	229.20	90 - 110	97.9	GOOD
75	As	1	72	4.85	ppb	2.35	26.24	90 - 110	92.3	GOOD
78	Se	1	72	4.84	ppb	5.91	25.78	90 - 110	93.9	GOOD
88	Sr	2	115	50.41	ppb	0.80	291.00	90 - 110	86.6	
95	Mo	2	115	0.34	ppb	6.71	1.77	90 - 110	94.9	GOOD
107	Ag	2	115	0.08	ppb	6.97	0.26	90 - 110	148.7	
111	Cd	2	115	0.21	ppb	18.97	0.97	90 - 110	109.9	GOOD
118	Sn	2	115	1.07	ppb	4.43	5.87	90 - 110	90.7	GOOD
121	Sb	2	115	0.34	ppb	2.50	1.72	90 - 110	100.6	GOOD
137	Ba	2	115	81.32	ppb	2.19	450.80	90 - 110	90.2	GOOD
205	Tl	2	209	0.20	ppb	3.75	0.80	90 - 110	124.0	
208	Pb	2	209	10.20	ppb	1.33	56.67	90 - 110	90.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1130.01	15.39	35.48	-3184.9	70 -	120	ISFail
45	Sc	1		122021.13	0.44	138057.45	88.4	70 -	120	
45	Sc	2		3421712.80	1.50	4152726.00	82.4	70 -	120	
72	Ge	1		76179.46	1.09	86466.48	88.1	70 -	120	
115	In	2		5566847.00	1.75	6053544.50	92.0	70 -	120	
209	Bi	2		5026028.00	0.88	5465338.50	92.0	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\110_PDS.D\110_PDS.D#

Date Acquired:	May 25 2016 09:54 pm	Sample Name:	**1605097-41A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	248.50	ppb	1.54	-26968.20	200	75-125	######	Fail
9	Be	2	45	174.50	ppb	2.13	2.70	200	75-125	85.9	
11	B	2	45	220.30	ppb	0.91	68.62	200	75-125	75.8	
23	Na	1	45	5882.00	ppb	0.62	1013.00	5000	75-125	97.4	
24	Mg	1	45	17770.00	ppb	1.16	14400.00	5000	75-125	67.4	Fail
27	Al	1	45	80070.00	ppb	1.59	84070.00	5000	75-125	-80.0	Fail
39	K	1	45	21920.00	ppb	0.91	19230.00	5000	75-125	53.8	Fail
44	Ca	2	45	51890.00	ppb	1.73	49050.00	5000	75-125	56.8	Fail
47	Ti	1	45	541.80	ppb	1.23	378.50	200	75-125	81.7	
51	V	1	45	305.30	ppb	1.22	121.40	200	75-125	92.0	
52	Cr	1	45	261.30	ppb	1.64	73.17	200	75-125	94.1	
55	Mn	1	45	811.80	ppb	1.07	690.10	200	75-125	60.9	Fail
56	Fe	1	72	71300.00	ppb	1.47	74190.00	5000	75-125	-57.8	Fail
59	Co	1	72	220.50	ppb	1.37	28.63	200	75-125	95.9	
60	Ni	1	72	224.80	ppb	0.63	42.50	200	75-125	91.2	
63	Cu	1	72	210.20	ppb	1.35	27.79	200	75-125	91.2	
66	Zn	1	72	388.70	ppb	1.12	229.20	200	75-125	79.8	
75	As	1	72	217.00	ppb	0.47	26.24	200	75-125	95.4	
78	Se	1	72	202.40	ppb	1.77	25.78	200	75-125	88.3	
88	Sr	2	115	472.10	ppb	1.56	291.00	200	75-125	90.6	
95	Mo	2	115	185.30	ppb	1.99	1.77	200	75-125	91.8	
107	Ag	2	115	175.00	ppb	2.02	0.26	200	75-125	87.4	
111	Cd	2	115	178.10	ppb	1.41	0.97	200	75-125	88.6	
118	Sn	2	115	202.50	ppb	1.84	5.87	200	75-125	98.3	
121	Sb	2	115	187.90	ppb	1.50	1.72	200	75-125	93.1	
137	Ba	2	115	632.10	ppb	1.81	450.80	200	75-125	90.7	
205	Tl	2	209	206.40	ppb	1.32	0.80	200	75-125	102.8	
208	Pb	2	209	254.60	ppb	0.94	56.67	200	75-125	99.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-26968.20	3.59	35.48	-76008.4	70 - 120	ISFail
45	Sc	1	112479.95	0.48	138057.45	81.5	70 - 120	
45	Sc	2	3149629.30	0.71	4152726.00	75.8	70 - 120	
72	Ge	1	68725.95	0.67	86466.48	79.5	70 - 120	
115	In	2	5207528.00	1.73	6053544.50	86.0	70 - 120	
209	Bi	2	4644441.00	0.81	5465338.50	85.0	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\111_MS.D\111_MS.D#

Date Acquired:	May 25 2016 10:00 pm	Sample Name:	**1605097-41A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	250.20	ppb	1.04	########	200	80-120	######	Fail
9	Be	2	45	171.00	ppb	1.73	2.70	200	80-120	84.1	
11	B	2	45	222.40	ppb	2.19	68.62	200	80-120	76.9	Fail
23	Na	1	45	5947.00	ppb	0.72	1013.00	1000	80-120	493.4	Fail
24	Mg	1	45	18490.00	ppb	0.52	14400.00	1000	80-120	409.0	Fail
27	Al	1	45	85250.00	ppb	0.20	84070.00	1000	80-120	118.0	
39	K	1	45	24330.00	ppb	0.60	19230.00	1000	80-120	510.0	Fail
44	Ca	2	45	47780.00	ppb	1.44	49050.00	1000	80-120	-127.0	Fail
47	Ti	1	45	568.50	ppb	1.03	378.50	200	80-120	95.0	
51	V	1	45	310.00	ppb	0.45	121.40	200	80-120	94.3	
52	Cr	1	45	259.90	ppb	0.75	73.17	200	80-120	93.4	
55	Mn	1	45	859.60	ppb	0.87	690.10	200	80-120	84.8	
56	Fe	1	72	70880.00	ppb	1.32	74190.00	1000	80-120	-331.0	Fail
59	Co	1	72	220.70	ppb	0.75	28.63	200	80-120	96.0	
60	Ni	1	72	227.20	ppb	0.79	42.50	200	80-120	92.4	
63	Cu	1	72	211.80	ppb	0.65	27.79	200	80-120	92.0	
66	Zn	1	72	392.60	ppb	0.22	229.20	200	80-120	81.7	
75	As	1	72	213.90	ppb	0.17	26.24	200	80-120	93.8	
78	Se	1	72	205.20	ppb	0.70	25.78	200	80-120	89.7	
88	Sr	2	115	457.00	ppb	2.34	291.00	200	80-120	83.0	
95	Mo	2	115	169.60	ppb	1.78	1.77	200	80-120	83.9	
107	Ag	2	115	175.70	ppb	2.04	0.26	200	80-120	87.7	
111	Cd	2	115	176.10	ppb	2.55	0.97	200	80-120	87.6	
118	Sn	2	115	193.60	ppb	2.28	5.87	200	80-120	93.9	
121	Sb	2	115	65.07	ppb	1.84	1.72	200	80-120	31.7	Fail
137	Ba	2	115	649.80	ppb	2.98	450.80	200	80-120	99.5	
205	Tl	2	209	212.60	ppb	2.29	0.80	200	80-120	105.9	
208	Pb	2	209	262.50	ppb	0.98	56.67	200	80-120	102.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-49634.36	1.91	35.48	########	70 - 120	ISFail
45	Sc	1	115554.32	0.70	138057.45	83.7	70 - 120	
45	Sc	2	3186061.00	1.30	4152726.00	76.7	70 - 120	
72	Ge	1	70086.66	0.36	86466.48	81.1	70 - 120	
115	In	2	5291176.50	2.03	6053544.50	87.4	70 - 120	
209	Bi	2	4665717.00	1.03	5465338.50	85.4	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\112_MS.D\112_MS.D#

Date Acquired:	May 25 2016 10:06 pm	Sample Name:	**1605097-41A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	May 25 2016 12:14 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	245.30	ppb	1.87	########	200	80-120	######	Fail
9	Be	2	45	166.00	ppb	2.06	2.70	200	80-120	81.6	
11	B	2	45	219.00	ppb	2.04	68.62	200	80-120	75.2	Fail
23	Na	1	45	5778.00	ppb	0.54	1013.00	1000	80-120	476.5	Fail
24	Mg	1	45	18590.00	ppb	0.67	14400.00	1000	80-120	419.0	Fail
27	Al	1	45	84710.00	ppb	1.78	84070.00	1000	80-120	64.0	Fail
39	K	1	45	23710.00	ppb	2.04	19230.00	1000	80-120	448.0	Fail
44	Ca	2	45	48400.00	ppb	1.28	49050.00	1000	80-120	-65.0	Fail
47	Ti	1	45	534.80	ppb	0.62	378.50	200	80-120	78.2	Fail
51	V	1	45	304.90	ppb	1.01	121.40	200	80-120	91.8	
52	Cr	1	45	254.50	ppb	1.16	73.17	200	80-120	90.7	
55	Mn	1	45	833.20	ppb	0.61	690.10	200	80-120	71.6	Fail
56	Fe	1	72	72900.00	ppb	0.71	74190.00	1000	80-120	-129.0	Fail
59	Co	1	72	214.30	ppb	0.89	28.63	200	80-120	92.8	
60	Ni	1	72	221.30	ppb	1.18	42.50	200	80-120	89.4	
63	Cu	1	72	205.40	ppb	0.39	27.79	200	80-120	88.8	
66	Zn	1	72	390.90	ppb	1.30	229.20	200	80-120	80.9	
75	As	1	72	208.20	ppb	0.57	26.24	200	80-120	91.0	
78	Se	1	72	197.10	ppb	1.03	25.78	200	80-120	85.7	
88	Sr	2	115	461.40	ppb	2.79	291.00	200	80-120	85.2	
95	Mo	2	115	168.60	ppb	1.65	1.77	200	80-120	83.4	
107	Ag	2	115	174.40	ppb	2.38	0.26	200	80-120	87.1	
111	Cd	2	115	173.60	ppb	1.98	0.97	200	80-120	86.3	
118	Sn	2	115	192.50	ppb	2.49	5.87	200	80-120	93.3	
121	Sb	2	115	66.22	ppb	1.70	1.72	200	80-120	32.3	Fail
137	Ba	2	115	716.20	ppb	2.52	450.80	200	80-120	132.7	Fail
205	Tl	2	209	205.70	ppb	2.02	0.80	200	80-120	102.5	
208	Pb	2	209	254.30	ppb	1.43	56.67	200	80-120	98.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-48441.43	4.02	35.48	########	70 - 120	ISFail
45	Sc	1	111819.46	0.30	138057.45	81.0	70 - 120	
45	Sc	2	3199715.80	1.76	4152726.00	77.1	70 - 120	
72	Ge	1	67933.56	0.74	86466.48	78.6	70 - 120	
115	In	2	5270491.00	2.11	6053544.50	87.1	70 - 120	
209	Bi	2	4699666.50	1.20	5465338.50	86.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\114CCV1.D\114CCV1.D#

Date Acquired:	May 25 2016 10:18 pm	Sample Name:	**CCV5-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	197.00	ppb	1.12	200.00	90 -	110	98.5	
9	Be	2	45	187.70	ppb	1.80	200.00	90 -	110	93.9	
11	B	2	45	174.30	ppb	0.67	200.00	90 -	110	87.2	Fail
23	Na	1	45	5147.00	ppb	0.53	5000.00	90 -	110	102.9	
24	Mg	1	45	4911.00	ppb	1.74	5000.00	90 -	110	98.2	
27	Al	1	45	4933.00	ppb	2.51	5000.00	90 -	110	98.7	
39	K	1	45	5234.00	ppb	0.52	5000.00	90 -	110	104.7	
44	Ca	2	45	4982.00	ppb	1.66	5000.00	90 -	110	99.6	
47	Ti	1	45	205.10	ppb	2.71	200.00	90 -	110	102.6	
51	V	1	45	198.80	ppb	0.97	200.00	90 -	110	99.4	
52	Cr	1	45	199.70	ppb	1.66	200.00	90 -	110	99.9	
55	Mn	1	45	206.70	ppb	0.97	200.00	90 -	110	103.4	
56	Fe	1	72	5045.00	ppb	2.05	5000.00	90 -	110	100.9	
59	Co	1	72	201.80	ppb	0.75	200.00	90 -	110	100.9	
60	Ni	1	72	197.40	ppb	1.01	200.00	90 -	110	98.7	
63	Cu	1	72	202.00	ppb	0.91	200.00	90 -	110	101.0	
66	Zn	1	72	204.80	ppb	0.85	200.00	90 -	110	102.4	
75	As	1	72	210.60	ppb	1.01	200.00	90 -	110	105.3	
78	Se	1	72	210.60	ppb	3.62	200.00	90 -	110	105.3	
88	Sr	2	115	208.40	ppb	2.16	200.00	90 -	110	104.2	
95	Mo	2	115	187.10	ppb	1.38	200.00	90 -	110	93.6	
107	Ag	2	115	190.40	ppb	1.10	200.00	90 -	110	95.2	
111	Cd	2	115	192.10	ppb	1.43	200.00	90 -	110	96.1	
118	Sn	2	115	198.00	ppb	1.59	200.00	90 -	110	99.0	
121	Sb	2	115	198.80	ppb	1.85	200.00	90 -	110	99.4	
137	Ba	2	115	207.50	ppb	1.61	200.00	90 -	110	103.8	
205	Tl	2	209	212.50	ppb	0.97	200.00	90 -	110	106.3	
208	Pb	2	209	203.50	ppb	1.32	200.00	90 -	110	101.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-46314.04	1.05	35.48	-130533.6	70 -	120		ISFail
45	Sc	1	110748.88	1.03	138057.45	80.2	70 -	120		
45	Sc	2	3152866.00	0.92	4152726.00	75.9	70 -	120		
72	Ge	1	69207.07	0.50	86466.48	80.0	70 -	120		
115	In	2	5332633.00	1.05	6053544.50	88.1	70 -	120		
209	Bi	2	4925184.00	1.52	5465338.50	90.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\116LCVL.D\116LCVL.D#

Date Acquired:	May 25 2016 10:30 pm	Sample Name:	**LCVL5-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.64	ppb	1.95	5.00	70 -	130	192.8	Fail
9	Be	2	45	0.97	ppb	2.01	1.00	70 -	130	97.2	
11	B	2	45	18.31	ppb	1.25	20.00	70 -	130	91.6	
23	Na	1	45	96.59	ppb	1.25	100.00	70 -	130	96.6	
24	Mg	1	45	99.01	ppb	0.20	100.00	70 -	130	99.0	
27	Al	1	45	109.80	ppb	2.83	100.00	70 -	130	109.8	
39	K	1	45	105.90	ppb	5.78	100.00	70 -	130	105.9	
44	Ca	2	45	105.60	ppb	0.22	100.00	70 -	130	105.6	
47	Ti	1	45	4.81	ppb	16.29	5.00	70 -	130	96.2	
51	V	1	45	1.09	ppb	4.18	1.00	70 -	130	108.5	
52	Cr	1	45	5.10	ppb	1.53	5.00	70 -	130	102.0	
55	Mn	1	45	5.26	ppb	2.20	5.00	70 -	130	105.3	
56	Fe	1	72	111.90	ppb	0.93	100.00	70 -	130	111.9	
59	Co	1	72	5.06	ppb	1.60	5.00	70 -	130	101.2	
60	Ni	1	72	4.91	ppb	1.66	5.00	70 -	130	98.1	
63	Cu	1	72	5.02	ppb	1.09	5.00	70 -	130	100.4	
66	Zn	1	72	4.64	ppb	5.57	5.00	70 -	130	92.8	
75	As	1	72	5.10	ppb	2.61	5.00	70 -	130	101.9	
78	Se	1	72	5.21	ppb	4.53	5.00	70 -	130	104.2	
88	Sr	2	115	4.96	ppb	1.31	5.00	70 -	130	99.2	
95	Mo	2	115	4.49	ppb	4.00	5.00	70 -	130	89.7	
107	Ag	2	115	1.87	ppb	3.09	2.00	70 -	130	93.3	
111	Cd	2	115	1.07	ppb	5.45	1.00	70 -	130	106.7	
118	Sn	2	115	4.80	ppb	1.87	5.00	70 -	130	95.9	
121	Sb	2	115	1.93	ppb	1.68	2.00	70 -	130	96.6	
137	Ba	2	115	5.38	ppb	1.20	5.00	70 -	130	107.6	
205	Tl	2	209	1.09	ppb	0.87	1.00	70 -	130	109.2	
208	Pb	2	209	1.03	ppb	1.81	1.00	70 -	130	102.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-1267.46	5.49	35.48	-3572.3	70 -	120	ISFail
45	Sc	1	108932.16	0.52	138057.45	78.9	70 -	120	
45	Sc	2	3162863.30	0.98	4152726.00	76.2	70 -	120	
72	Ge	1	69309.40	1.05	86466.48	80.2	70 -	120	
115	In	2	5446255.00	0.81	6053544.50	90.0	70 -	120	
209	Bi	2	5138521.00	2.04	5465338.50	94.0	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\117_CCB.D\117_CCB.D#

Date Acquired:	May 25 2016 10:36 pm	Sample Name:	**CCB5-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.176	ppb	3.00	2.00	2.00	
9	Be	2	45	0.041	ppb	30.05	0.40	0.30	
11	B	2	45	3.393	ppb	2.05	10.00	10.00	
23	Na	1	45	4.638	ppb	3.36	50.00	#####	
24	Mg	1	45	2.497	ppb	8.92	50.00	#####	
27	Al	1	45	21.330	ppb	1.41	50.00	10.00	FailAq
39	K	1	45	9.270	ppb	6.66	50.00	#####	
44	Ca	2	45	31.930	ppb	1.06	50.00	#####	
47	Ti	1	45	0.276	ppb	45.83	4.00	3.00	
51	V	1	45	0.063	ppb	3.88	4.00	3.00	
52	Cr	1	45	0.070	ppb	3.65	2.00	2.00	
55	Mn	1	45	0.177	ppb	7.70	2.00	3.00	
56	Fe	1	72	12.190	ppb	4.45	50.00	30.00	
59	Co	1	72	0.044	ppb	11.67	2.00	3.00	
60	Ni	1	72	0.082	ppb	7.69	2.00	3.00	
63	Cu	1	72	0.070	ppb	0.90	2.00	2.00	
66	Zn	1	72	0.075	ppb	3.98	4.00	2.00	
75	As	1	72	0.081	ppb	13.06	2.00	2.00	
78	Se	1	72	0.223	ppb	32.76	0.60	2.00	
88	Sr	2	115	0.239	ppb	2.60	4.00	3.00	
95	Mo	2	115	0.063	ppb	13.89	2.00	2.00	
107	Ag	2	115	0.047	ppb	8.70	0.40	1.00	
111	Cd	2	115	0.040	ppb	29.51	0.40	0.30	
118	Sn	2	115	0.084	ppb	10.20	20.00	3.00	
121	Sb	2	115	0.063	ppb	11.78	2.00	0.80	
137	Ba	2	115	0.131	ppb	6.38	2.00	3.00	
205	Tl	2	209	0.094	ppb	2.33	2.00	0.50	
208	Pb	2	209	0.073	ppb	7.41	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-19.20	114.84	35.48	-54.1	70 - 120	ISFail
45	Sc	1		108610.82	1.06	138057.45	78.7	70 - 120	
45	Sc	2		3165561.00	1.22	4152726.00	76.2	70 - 120	
72	Ge	1		68732.01	0.58	86466.48	79.5	70 - 120	
115	In	2		5408195.00	0.98	6053544.50	89.3	70 - 120	
209	Bi	2		5098436.00	1.12	5465338.50	93.3	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\128CCV1.D\128CCV1.D#

Date Acquired:	May 25 2016 11:42 pm	Sample Name:	CCV6-160525
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	200.40	ppb	1.58	200.00	90 -	110	100.2	
9	Be	2	45	185.30	ppb	1.16	200.00	90 -	110	92.7	
11	B	2	45	168.70	ppb	1.35	200.00	90 -	110	84.4	Fail
23	Na	1	45	5083.00	ppb	2.01	5000.00	90 -	110	101.7	
24	Mg	1	45	4869.00	ppb	1.73	5000.00	90 -	110	97.4	
27	Al	1	45	4873.00	ppb	2.60	5000.00	90 -	110	97.5	
39	K	1	45	5179.00	ppb	1.25	5000.00	90 -	110	103.6	
44	Ca	2	45	4980.00	ppb	1.82	5000.00	90 -	110	99.6	
47	Ti	1	45	203.40	ppb	1.47	200.00	90 -	110	101.7	
51	V	1	45	197.70	ppb	2.28	200.00	90 -	110	98.9	
52	Cr	1	45	197.30	ppb	2.22	200.00	90 -	110	98.7	
55	Mn	1	45	200.80	ppb	1.38	200.00	90 -	110	100.4	
56	Fe	1	72	5155.00	ppb	2.47	5000.00	90 -	110	103.1	
59	Co	1	72	199.80	ppb	1.54	200.00	90 -	110	99.9	
60	Ni	1	72	196.80	ppb	1.13	200.00	90 -	110	98.4	
63	Cu	1	72	201.70	ppb	1.44	200.00	90 -	110	100.9	
66	Zn	1	72	199.80	ppb	1.34	200.00	90 -	110	99.9	
75	As	1	72	208.90	ppb	1.23	200.00	90 -	110	104.5	
78	Se	1	72	204.70	ppb	1.99	200.00	90 -	110	102.4	
88	Sr	2	115	204.10	ppb	1.40	200.00	90 -	110	102.1	
95	Mo	2	115	181.20	ppb	1.73	200.00	90 -	110	90.6	
107	Ag	2	115	184.10	ppb	1.85	200.00	90 -	110	92.1	
111	Cd	2	115	186.40	ppb	1.88	200.00	90 -	110	93.2	
118	Sn	2	115	192.60	ppb	2.38	200.00	90 -	110	96.3	
121	Sb	2	115	193.30	ppb	1.98	200.00	90 -	110	96.7	
137	Ba	2	115	204.70	ppb	2.29	200.00	90 -	110	102.4	
205	Tl	2	209	207.30	ppb	1.30	200.00	90 -	110	103.7	
208	Pb	2	209	196.80	ppb	2.13	200.00	90 -	110	98.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-42918.88	2.57	35.48	-120964.5	70 -	120		ISFail
45	Sc	1	102410.13	1.68	138057.45	74.2	70 -	120		
45	Sc	2	2853647.30	1.74	4152726.00	68.7	70 -	120		ISFail
72	Ge	1	63865.52	0.78	86466.48	73.9	70 -	120		
115	In	2	5005018.50	1.35	6053544.50	82.7	70 -	120		
209	Bi	2	4670776.00	2.13	5465338.50	85.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\130LCVL.D\130LCVL.D#

Date Acquired:	May 25 2016 11:54 pm	Sample Name:	**LCVL6-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.32	ppb	3.31	5.00	70 -	130	186.3	Fail
9	Be	2	45	0.92	ppb	0.29	1.00	70 -	130	91.7	
11	B	2	45	17.25	ppb	2.32	20.00	70 -	130	86.3	
23	Na	1	45	97.94	ppb	1.90	100.00	70 -	130	97.9	
24	Mg	1	45	103.80	ppb	1.35	100.00	70 -	130	103.8	
27	Al	1	45	133.70	ppb	0.79	100.00	70 -	130	133.7	Fail
39	K	1	45	118.20	ppb	1.13	100.00	70 -	130	118.2	
44	Ca	2	45	116.00	ppb	3.47	100.00	70 -	130	116.0	
47	Ti	1	45	5.62	ppb	8.25	5.00	70 -	130	112.3	
51	V	1	45	1.12	ppb	1.89	1.00	70 -	130	111.8	
52	Cr	1	45	4.77	ppb	1.73	5.00	70 -	130	95.3	
55	Mn	1	45	4.93	ppb	4.06	5.00	70 -	130	98.5	
56	Fe	1	72	162.30	ppb	2.92	100.00	70 -	130	162.3	Fail
59	Co	1	72	4.79	ppb	1.47	5.00	70 -	130	95.8	
60	Ni	1	72	4.70	ppb	3.36	5.00	70 -	130	94.0	
63	Cu	1	72	4.85	ppb	2.32	5.00	70 -	130	97.0	
66	Zn	1	72	4.46	ppb	3.45	5.00	70 -	130	89.2	
75	As	1	72	5.04	ppb	2.43	5.00	70 -	130	100.8	
78	Se	1	72	5.60	ppb	4.06	5.00	70 -	130	111.9	
88	Sr	2	115	4.79	ppb	2.80	5.00	70 -	130	95.8	
95	Mo	2	115	4.16	ppb	5.94	5.00	70 -	130	83.2	
107	Ag	2	115	1.75	ppb	2.69	2.00	70 -	130	87.5	
111	Cd	2	115	0.89	ppb	5.04	1.00	70 -	130	89.2	
118	Sn	2	115	4.65	ppb	2.58	5.00	70 -	130	93.0	
121	Sb	2	115	1.80	ppb	3.19	2.00	70 -	130	89.8	
137	Ba	2	115	5.09	ppb	4.08	5.00	70 -	130	101.8	
205	Tl	2	209	0.97	ppb	3.13	1.00	70 -	130	97.3	
208	Pb	2	209	0.98	ppb	3.77	1.00	70 -	130	98.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigl	-945.40	16.32	35.48	-2664.6	70 -	120	ISFail
45	Sc	1		100837.95	0.46	138057.45	73.0	70 -	120	
45	Sc	2		2922297.00	0.68	4152726.00	70.4	70 -	120	
72	Ge	1		63381.90	0.99	86466.48	73.3	70 -	120	
115	In	2		5080630.00	0.49	6053544.50	83.9	70 -	120	
209	Bi	2		4998467.50	0.78	5465338.50	91.5	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16E25k02.B\131_CCB.D\131_CCB.D#

Date Acquired:	May 26 2016 12:00 am	Sample Name:	**CCB6-160525**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	May 25 2016 12:14 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.157	ppb	5.80	2.00	2.00	
9	Be	2	45	0.028	ppb	27.61	0.40	0.30	
11	B	2	45	3.100	ppb	3.94	10.00	10.00	
23	Na	1	45	4.803	ppb	2.36	50.00	#####	
24	Mg	1	45	4.184	ppb	15.33	50.00	#####	
27	Al	1	45	28.580	ppb	4.22	50.00	10.00	FailAq
39	K	1	45	12.520	ppb	0.35	50.00	#####	
44	Ca	2	45	36.670	ppb	3.07	50.00	#####	
47	Ti	1	45	0.247	ppb	78.07	4.00	3.00	
51	V	1	45	0.080	ppb	23.07	4.00	3.00	
52	Cr	1	45	0.082	ppb	11.62	2.00	2.00	
55	Mn	1	45	0.121	ppb	9.69	2.00	3.00	
56	Fe	1	72	31.830	ppb	11.92	50.00	30.00	FailAq
59	Co	1	72	0.035	ppb	17.06	2.00	3.00	
60	Ni	1	72	0.072	ppb	9.58	2.00	3.00	
63	Cu	1	72	0.059	ppb	14.27	2.00	2.00	
66	Zn	1	72	0.073	ppb	15.34	4.00	2.00	
75	As	1	72	0.064	ppb	13.72	2.00	2.00	
78	Se	1	72	0.026	ppb	25.00	0.60	2.00	
88	Sr	2	115	0.310	ppb	11.15	4.00	3.00	
95	Mo	2	115	0.031	ppb	32.83	2.00	2.00	
107	Ag	2	115	0.028	ppb	36.98	0.40	1.00	
111	Cd	2	115	0.024	ppb	40.88	0.40	0.30	
118	Sn	2	115	0.055	ppb	4.52	20.00	3.00	
121	Sb	2	115	0.045	ppb	5.44	2.00	0.80	
137	Ba	2	115	0.084	ppb	16.82	2.00	3.00	
205	Tl	2	209	0.057	ppb	14.54	2.00	0.50	
208	Pb	2	209	0.068	ppb	4.36	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-13.32	308.30	35.48	-37.6	70 - 120	ISFail
45	Sc	1		96951.78	1.05	138057.45	70.2	70 - 120	
45	Sc	2		2859048.00	1.46	4152726.00	68.8	70 - 120	ISFail
72	Ge	1		62246.74	0.70	86466.48	72.0	70 - 120	
115	In	2		4955151.00	1.30	6053544.50	81.9	70 - 120	
209	Bi	2		4765777.00	0.11	5465338.50	87.2	70 - 120	

ICP-MS4
For

DHL Work Order
1605096

ICP-MS4_160520C
For

DHL Work Order
1605096

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			
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: 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

#	Sample Type	Sample Name	Comment	Vial#	File Name
20					
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			

Sample List

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

9:54 - 15:33

REVIEWED BY
By Janice Whitt at 2:45:04 PM, 5/23/2016

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-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

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)						

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	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	3.9957	3.9877	99.69	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		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

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

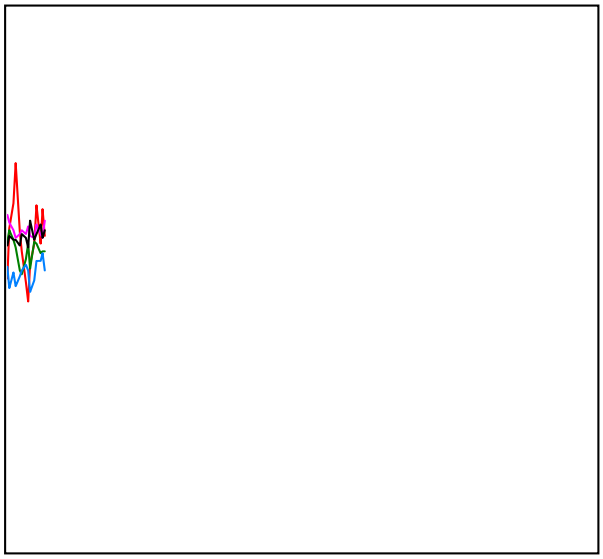
Ele	Conc	Calc	%Rec
As	500	494.27	99
Be	500	507.25	101
B	500	512.43	102
Na	10000	10274.86	103
Mg	10000	10243.18	102
Al	10000	9999.22	100
K	10000	10218.11	102
Ca	10000	9805.32	98
Ti	500	501.17	100
V	500	507.40	101
Cr	500	509.33	102
Mn	500	509.95	102
Fe	10000	9967.53	100
Co	500	512.00	102
Ni	500	505.16	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		

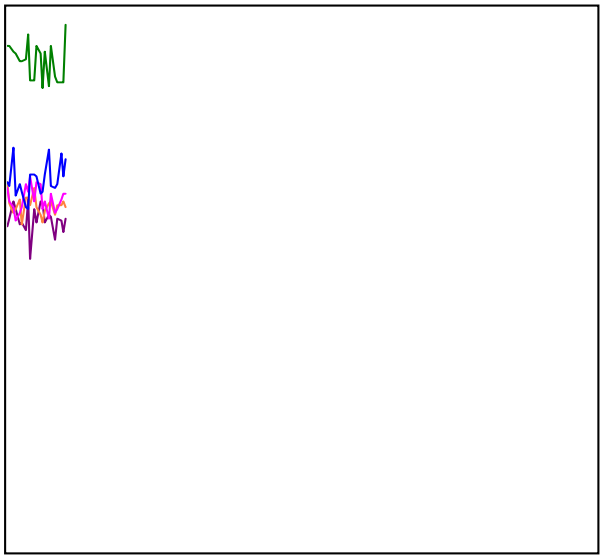
Cell Parameters

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

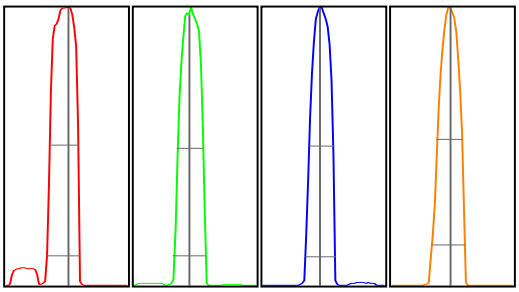
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[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	

Sample Report

Date Acquired	5/20/16 1:50 PM	Sample Name	1605096-36A
Data Batch	160520.b	Comment	SAMPICPMS_TWDOD
Data File Name	084_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.014	12	30.70	2000	
9	Be	45	0.002	4	41.66	2000	
11	B	45	54.672	1202	3.69	2000	>RL
23	Na	45	151.223	145585	0.46	25000	>RL
24	Mg	45	19.184	7792	4.43	25000	
27	Al	45	113.106	14907	0.89	10000	>RL
39	K	45	29.715	54700	0.71	25000	
44	Ca	45	264.983	5488	2.53	25000	>RL
47	Ti	45	0.303	43	13.32	2000	
51	V	45	0.129	3234	3.65	2000	
52	Cr	45	0.630	4415	1.26	2000	
55	Mn	45	0.328	1080	7.91	2000	
56	Fe	45	10.229	54896	0.71	10000	
59	Co	72	0.017	268	21.07	2000	
60	Ni	72	0.732	2229	3.74	2000	
63	Cu	72	0.294	4283	4.74	2000	
66	Zn	72	3.901	4703	0.97	2000	J
75	As	72	0.026	154	12.30	2000	
78	Se	72	0.114	73	8.75	2000	
88	Sr	115	2.096	8855	2.52	2000	
95	Mo	115	0.030	150	17.78	2000	
107	Ag	115	0.005	110	26.94	500	
111	Cd	115	0.000	9	78.08	2000	
118	Sn	115	0.058	641	6.16	2000	
121	Sb	115	0.009	187	40.44	500	
137	Ba	115	0.537	1028	0.50	2000	
205	Tl	209	0.000	44	28.39	2000	
208	Pb	209	0.079	3245	5.81	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	874146	0.64	900744	97.05	70	120	
72	Ge	675828	0.13	691836	97.69	70	120	
115	In	6440039	1.11	6634288	97.07	70	120	
209	Bi	15670858	1.96	16365010	95.76	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 2:08 PM	Sample Name	1605096-37A
Data Batch	160520.b	Comment	SAMPICPMS_TWDOD
Data File Name	092_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.125	19	29.50	2000	
9	Be	45	-0.004	3	105.36	2000	
11	B	45	65.339	1422	3.95	2000	>RL
23	Na	45	160.951	152217	0.68	25000	>RL
24	Mg	45	20.131	8114	1.54	25000	
27	Al	45	142.612	18670	2.27	10000	>RL
39	K	45	40.469	58314	1.60	25000	
44	Ca	45	313.417	6437	3.44	25000	>RL
47	Ti	45	0.296	42	9.12	2000	
51	V	45	0.139	3274	3.09	2000	
52	Cr	45	0.817	5449	3.59	2000	
55	Mn	45	0.377	1225	9.18	2000	
56	Fe	45	10.832	57611	0.74	10000	
59	Co	72	0.025	344	8.06	2000	
60	Ni	72	0.882	2615	6.10	2000	
63	Cu	72	0.351	4691	7.82	2000	
66	Zn	72	5.342	6370	2.49	2000	>RL
75	As	72	0.042	170	12.88	2000	
78	Se	72	0.041	69	15.59	2000	
88	Sr	115	2.437	10253	0.59	2000	
95	Mo	115	0.020	108	11.71	2000	
107	Ag	115	0.014	221	3.79	500	
111	Cd	115	0.003	16	81.11	2000	
118	Sn	115	0.154	1007	9.62	2000	
121	Sb	115	0.087	651	19.36	500	
137	Ba	115	0.483	926	4.90	2000	
205	Tl	209	0.003	127	18.24	2000	
208	Pb	209	0.089	3648	2.23	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	872173	0.51	900744	96.83	70	120	
72	Ge	678490	0.88	691836	98.07	70	120	
115	In	6437345	1.99	6634288	97.03	70	120	
209	Bi	15813601	0.54	16365010	96.63	70	120	

Sample Report

Date Acquired	5/20/16 2:10 PM	Sample Name	1605096-44A
Data Batch	160520.b	Comment	SAMPICPMS_TWDOD
Data File Name	093_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.148	20	33.86	2000	
9	Be	45	0.036	6	26.96	2000	
11	B	45	57.400	1253	7.20	2000	>RL
23	Na	45	175.345	162056	0.65	25000	>RL
24	Mg	45	13.626	5766	6.45	25000	
27	Al	45	149.686	19525	1.35	10000	>RL
39	K	45	24.765	52704	0.42	25000	
44	Ca	45	309.455	6343	4.26	25000	>RL
47	Ti	45	0.288	41	24.77	2000	
51	V	45	0.149	3309	1.83	2000	
52	Cr	45	0.911	5953	4.63	2000	
55	Mn	45	0.411	1321	11.54	2000	
56	Fe	45	12.963	67459	1.75	10000	
59	Co	72	0.026	350	3.30	2000	
60	Ni	72	0.956	2796	1.94	2000	
63	Cu	72	0.120	3089	3.49	2000	
66	Zn	72	3.977	4800	1.83	2000	J
75	As	72	0.059	187	10.88	2000	
78	Se	72	0.140	75	22.49	2000	
88	Sr	115	2.291	9622	0.33	2000	
95	Mo	115	0.027	137	7.32	2000	
107	Ag	115	0.006	128	14.83	500	
111	Cd	115	0.003	14	48.02	2000	
118	Sn	115	0.134	930	5.60	2000	
121	Sb	115	0.075	576	23.67	500	
137	Ba	115	0.505	963	5.57	2000	
205	Tl	209	0.002	103	28.12	2000	
208	Pb	209	0.079	3320	3.72	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	869785	1.02	900744	96.56	70	120	
72	Ge	677333	0.49	691836	97.90	70	120	
115	In	6416958	1.19	6634288	96.72	70	120	
209	Bi	16103104	1.20	16365010	98.40	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_160523F
For

DHL Work Order
1605096

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_160523F 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: _____ Date of Completion: 05/24/2016

Second-Level Review: _____ Date Stamp: 05/24/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:37:09 AM, 5/24/2016

DHL Analytical, Inc.

Run ID: ICP-MS4_160523F **Run No.:** 85956

Analytical Run Date: 5/23/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:41:00 AM		
L2-160523	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:43:00 AM		
L-160523	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:45:00 AM		
10X-160523	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:47:00 AM		
5X-160523	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:49:00 AM		
2X-160523	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:51:00 AM		
H-160523	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:53:00 AM		
H2-160523	1	ICPMS_TWDOD	CAL	R85956	5/23/2016 10:55:00 AM		
ICSA-160523	1	ICPMS_TWDOD	ICSA	R85956	5/23/2016 11:03:00 AM		
ICSAB-160523	1	ICPMS_TWDOD	ICSB	R85956	5/23/2016 11:05:00 AM		
ICV-160523	1	ICPMS_TWDOD	ICV	R85956	5/23/2016 11:13:00 AM		
LCVL-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 11:22:00 AM		
ICB-160523	1	ICPMS_TWDOD	ICB	R85956	5/23/2016 11:30:00 AM		
CCV4-160523	1	ICPMS_TWDOD	CCV	R85956	5/23/2016 3:32:00 PM		
LCVL4-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 3:42:00 PM		
CCB4-160523	1	ICPMS_TWDOD	CCB	R85956	5/23/2016 3:45:00 PM		
MB-75166	5	ICPMS_TSDOD1	MBLK	75166	5/23/2016 3:47:00 PM		
LCS-75166	5	ICPMS_TSDOD1	LCS	75166	5/23/2016 3:49:00 PM		
LCSD-75166	5	ICPMS_TSDOD1	LCSD	75166	5/23/2016 3:51:00 PM		
1605096-14A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 3:55:00 PM		
1605096-14A SD	25	ICPMS_TSDOD1	SD	75166	5/23/2016 3:57:00 PM		
1605074-40A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 3:59:00 PM		
1605074-41A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:01:00 PM		
1605096-01A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:03:00 PM		
1605096-02A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:05:00 PM		
1605096-03A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:07:00 PM		
1605096-04A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:09:00 PM		
1605096-05A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:11:00 PM		
1605096-06A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:13:00 PM		
1605096-07A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:15:00 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

REVIEWED/APPROVED

By Sherri Herschmann at 11:37:25 AM, 5/24/2016

Run ID: ICP-MS4_160523F **Run No.:** 85956

1605096-14A PDS	5	ICPMS_TSDOD1	PDS	75166	5/23/2016 4:17:00 PM		
1605096-14A MS	5	ICPMS_TSDOD1	MS	75166	5/23/2016 4:19:00 PM		
1605096-14A MSD	5	ICPMS_TSDOD1	MSD	75166	5/23/2016 4:21:00 PM		
CCV5-160523	1	ICPMS_TWDOD	CCV	R85956	5/23/2016 4:23:00 PM		
LCVL5-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 4:27:00 PM		
CCB5-160523	1	ICPMS_TWDOD	CCB	R85956	5/23/2016 4:29:00 PM		
1605096-08A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:31:00 PM		
1605096-09A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:33:00 PM		
1605096-10A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:35:00 PM		
1605096-11A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:37:00 PM		
1605096-12A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:39:00 PM		
1605096-13A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:41:00 PM		
1605096-15A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:43:00 PM		
1605096-16A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:45:00 PM		
1605096-17A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:47:00 PM		
1605096-18A	5	ICPMS_TSDOD1	SAMP	75166	5/23/2016 4:49:00 PM		
CCV6-160523	1	ICPMS_TWDOD	CCV	R85956	5/23/2016 4:51:00 PM		
LCVL6-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 4:55:00 PM		
CCB6-160523	1	ICPMS_TWDOD	CCB	R85956	5/23/2016 4:57:00 PM		
MB-75237	5	ICPMS_TSDOD1	MBLK	75237	5/23/2016 5:00:00 PM		
LCS-75237	5	ICPMS_TSDOD1	LCS	75237	5/23/2016 5:02:00 PM		
LCSD-75237	5	ICPMS_TSDOD1	LCSD	75237	5/23/2016 5:04:00 PM		
1605121-01A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:08:00 PM		
1605121-01A SD	25	ICPMS_TSDOD1	SD	75237	5/23/2016 5:10:00 PM		
1605098-30A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:12:00 PM		
1605098-35A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:14:00 PM		
1605098-38A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:16:00 PM		
1605121-02A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:18:00 PM		
1605121-03A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:20:00 PM		
1605121-04A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:22:00 PM		
1605121-05A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:24:00 PM		
1605121-06A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:26:00 PM		
1605121-07A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:28:00 PM		
1605121-01A PDS	5	ICPMS_TSDOD1	PDS	75237	5/23/2016 5:30:00 PM		
1605121-01A MS	5	ICPMS_TSDOD1	MS	75237	5/23/2016 5:32:00 PM		S-flag Pb- Low

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

Run ID: ICP-MS4_160523F **Run No.:** 85956

1605121-01A MSD	5	ICPMS_TSDOD1	MSD	75237	5/23/2016 5:34:00 PM		S-flag Pb- High; R-flag Pb; Rerunning to verify per JD; Data accepted
CCV7-160523	1	ICPMS_TWDOD	CCV	R85956	5/23/2016 5:36:00 PM		
LCVL7-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 5:40:00 PM		
CCB7-160523	1	ICPMS_TWDOD	CCB	R85956	5/23/2016 5:42:00 PM		
1605121-08A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:44:00 PM		
1605121-09A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:46:00 PM		
1605121-10A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:48:00 PM		
1605121-11A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:50:00 PM		
1605121-12A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:52:00 PM		
1605121-13A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:54:00 PM		
1605121-14A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:56:00 PM		
1605121-15A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 5:58:00 PM		
1605121-16A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 6:00:00 PM		
1605121-17A	5	ICPMS_TSDOD1	SAMP	75237	5/23/2016 6:02:00 PM		
CCV8-160523	1	ICPMS_TWDOD	CCV	R85956	5/23/2016 6:04:00 PM		
LCVL8-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 6:08:00 PM		
CCB8-160523	1	ICPMS_TWDOD	CCB	R85956	5/23/2016 6:10:00 PM		
MB-75236	5	ICPMS_TSDOD1	MBLK	75236	5/23/2016 6:12:00 PM		
LCS-75236	5	ICPMS_TSDOD1	LCS	75236	5/23/2016 6:14:00 PM		
LCSD-75236	5	ICPMS_TSDOD1	LCSD	75236	5/23/2016 6:16:00 PM		
1605098-17A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:20:00 PM		
1605098-17A SD	25	ICPMS_TSDOD1	SD	75236	5/23/2016 6:22:00 PM		
1605071-32A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:24:00 PM		
1605071-38A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:26:00 PM		
1605098-12A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:28:00 PM		
1605098-13A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:30:00 PM		
1605098-14A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:32:00 PM		
1605098-15A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:34:00 PM		
1605098-16A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:36:00 PM		
1605098-18A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:38:00 PM		
1605098-19A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:40:00 PM		
1605098-17A PDS	5	ICPMS_TSDOD1	PDS	75236	5/23/2016 6:42:00 PM		
1605098-17A MS	5	ICPMS_TSDOD1	MS	75236	5/23/2016 6:44:00 PM		
1605098-17A MSD	5	ICPMS_TSDOD1	MSD	75236	5/23/2016 6:46:00 PM		
CCV9-160523	1	ICPMS_TWDOD	CCV	R85956	5/23/2016 6:48:00 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

DHL Analytical, Inc.

Run ID: ICP-MS4_160523F **Run No.:** 85956

LCVL9-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 6:52:00 PM		
CCB9-160523	1	ICPMS_TWDOD	CCB	R85956	5/23/2016 6:54:00 PM		
1605098-20A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:56:00 PM		
1605098-21A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 6:58:00 PM		
1605098-22A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:00:00 PM		
1605098-23A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:02:00 PM		
1605098-24A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:04:00 PM		
1605098-25A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:06:00 PM		
1605098-26A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:08:00 PM		
1605098-27A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:10:00 PM		
1605098-28A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:12:00 PM		
1605098-29A	5	ICPMS_TSDOD1	SAMP	75236	5/23/2016 7:14:00 PM		
CCV10-160523	1	ICPMS_TWDOD	CCV	R85956	5/23/2016 7:16:00 PM		
LCVL10-160523	1	ICPMS_TWDOD	LCVL	R85956	5/23/2016 7:20:00 PM		
CCB10-160523	1	ICPMS_TWDOD	CCB	R85956	5/23/2016 7:22:00 PM		

REVIEWED/APPROVED

By Sherri Herschmann at 11:46:09 AM, 5/24/2016

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\160523.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	L2-160523	CAL ICPMS_TW	2102	
14	CalStd	L-160523	CAL ICPMS_TW	2103	
15	CalStd	10X-160523	CAL ICPMS_TW	2104	
16	CalStd	5X-160523	CAL ICPMS_TW	2105	
17	CalStd	2X-160523	CAL ICPMS_TW	2106	
18	CalStd	H-160523	CAL ICPMS_TW	2107	
19	CalStd	H2-160523	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

#	Sample Type	Sample Name	Comment	Vial#	File Name
20					
21	ICB	BLANK	CCB ICPMS_TW	1102	
22	ICB	BLANK	CCB ICPMS_TW	1103	
23	ICSA	ICSA-160523	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160523	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-160523	ICV ICPMS_TW	2111	
29	ICB	BLANK	CCB ICPMS_TW	1102	
30	ICB	BLANK	CCB ICPMS_TW	1103	
31	LLICV	LCVL-160523	LCVLICPMS_TW	2112	
32	ICB	ICB-160523	ICB ICPMS_TW	1102	
33	ICB	ICB-160523	ICB ICPMS_TW	1103	
34	PB_W	MB-75178	MBLKICPMS_TW	2201	
35	LCS_W	LCS-75178	LCS ICPMS_TW	2202	
36	LCS_W	LCSD-75178	LCSDICPMS_TW	2203	
37	CCB	RINSE	CCB ICPMS_TW	1101	
38	AllRef	1605153-03A	SAMPICPMS_TW	2204	
39	SD	1605153-03A SD	SD ICPMS_TW	2205	
40	SAMP_W	1605152-01C	SAMPICPMS_TW	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		100	
39		500	
40		10	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	SAMP_W	1605162-01A	SAMP200.8	2210	
42	SAMP_W	1605149-04A	SAMPICPMS_TW	2211	
43	SAMP_W	1605149-08A	SAMPICPMS_TW	2212	
44	PDS	1605153-03A PDS	PDS ICPMS_TW	2207	
45	MS_W	1605153-03A MS	MS ICPMS_TW	2208	

Sample List

46	MS_W	1605153-03A MSD	MSD ICPMS_TW	2209
47	CCB	RINSE	CCB ICPMS_TW	1101
48	CCB	RINSE	CCB ICPMS_TW	1102
49	CCB	RINSE	CCB ICPMS_TW	1103
50	SAMP_W	1605149-04A	SAMPICPMS_TW	2211
51	CCV	CCV1-160523	CCV ICPMS_TW	1207
52	CCB	CCB1-160523	CCB ICPMS_TW	1102
53	LLCCV	LCVL1-160523	LCVLICPMS_TW	2112
54	CCB	CCB1-160523	CCB ICPMS_TW	1103
55	SAMP_W	1605149-04A	SAMPICPMS_TW	2504
56	PB	MB-75261	MBLK6020A_S	2301
57	LCS_S	LCS-75261	LCS 6020A_S	2302
58	LCS_S	LCSD-75261	LCSD6020A_S	2303
59	CCB	RINSE	CCB ICPMS_TW	1101
60	AllRef	1605185-01A	SAMP6020A_S	2304

#	Level	Dilution	Skip
41		10	
42		1	
43		1	
44		100	
45		100	
46		100	
47			
48			
49			
50		1	
51			
52			
53			
54			
55		1	
56		5	Skip
57		5	Skip
58		5	Skip
59			Skip
60		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	SD	1605185-01A SD	SD 6020A_S	2305	
62	Sample	1605191-01D	SAMP6020A_S	2306	
63	Sample	1605191-02D	SAMP6020A_S	2307	
64	Sample	1605191-03D	SAMP6020A_S	2308	
65	Sample	1605191-04D	SAMP6020A_S	2309	
66	Sample	1605191-05D	SAMP6020A_S	2310	
67	Sample	1605191-06D	SAMP6020A_S	2311	
68	Sample	1605185-02A	SAMP6020A_S	2312	
69	Sample	1605185-03A	SAMP6020A_S	2401	
70	Sample	1605185-04A	SAMP6020A_S	2402	
71	PDS	1605185-01A PDS	PDS 6020A_S	2403	
72	MS_S	1605185-01A MS	MS 6020A_S	2404	
73	MS_S	1605185-01A MSD	MSD 6020A_S	2405	

Sample List

74	CCV	CCV2-160523	CCV ICPMS_TW	1207
75	CCB	CCB2-160523	CCB ICPMS_TW	1102
76	LLCCV	LCVL2-160523	LCVLICPMS_TW	2112
77	CCB	CCB2-160523	CCB ICPMS_TW	1103
78	Sample	1605187-01A	SAMPICPMS_TS	2406
79	Sample	1605187-02A	SAMPICPMS_TS	2407
80	Sample	1605187-03A	SAMPICPMS_TS	2408

#	Level	Dilution	Skip
61		25	Skip
62		5	Skip
63		5	Skip
64		5	Skip
65		5	Skip
66		5	Skip
67		5	Skip
68		5	Skip
69		5	Skip
70		5	Skip
71		5	Skip
72		5	Skip
73		5	Skip
74			Skip
75			Skip
76			Skip
77			Skip
78		5	Skip
79		5	Skip
80		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	Sample	1605187-04A	SAMPICPMS_TS	2409	
82	Sample	1605187-05A	SAMPICPMS_TS	2410	
83	Sample	1605187-06A	SAMPICPMS_TS	2411	
84	Sample	1605187-07A	SAMPICPMS_TS	2412	
85	Sample	1605187-08A	SAMPICPMS_TS	2501	
86	Sample	1605187-09A	SAMPICPMS_TS	2502	
87	Sample	1605187-10A	SAMPICPMS_TS	2503	
88	CCV	CCV3-160523	CCV ICPMS_TW	1207	
89	CCB	CCB3-160523	CCB ICPMS_TW	1102	
90	LLCCV	LCVL3-160523	LCVLICPMS_TW	2512	
91	CCB	CCB3-160523	CCB ICPMS_TW	1103	
92	PB	MB-75256	MBLKICPMS_TS	3101	
93	LCS_S	LCS-75256	LCS ICPMS_TS	3102	
94	LCS_S	LCSD-75256	LCSDICPMS_TS	3103	
95	CCB	RINSE	CCB ICPMS_TW	1101	
96	AllRef	1605186-02A	SAMPICPMS_TS	3104	
97	SD	1605186-02A SD	SD ICPMS_TS	3105	
98	Sample	1605186-01A	SAMPICPMS_TS	3106	
99	PDS	1605186-02A PDS	PDS ICPMS_TS	3107	
100	MS_S	1605186-02A MS	MS ICPMS_TS	3108	

Sample List

#	Level	Dilution	Skip
81		5	Skip
82		5	Skip
83		5	Skip
84		5	Skip
85		5	Skip
86		5	Skip
87		5	Skip
88			Skip
89			Skip
90			Skip
91			Skip
92		5	Skip
93		5	Skip
94		5	Skip
95			Skip
96		5	Skip
97		25	Skip
98		5	Skip
99		5	Skip
100		5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	MS_S	1605186-02A MSD	MSD ICPMS_TS	3109	
102	CCV	CCV4-160523	CCV ICPMS_TW	1207	
103	CCB	CCB4-160523	CCB ICPMS_TW	1102	
104	LLCCV	LCVL4-160523	LCVLICPMS_TW	2512	
105	CCB	CCB4-160523	CCB ICPMS_TW	1103	
106	PB	MB-62609	MBLKICPMS_TSDOD	3401	
107	Sample	PAINT CHIPS AW-13	SAMPICPMS_TSDOD	3402	
108	LCS_S	LCS-62609	LCS ICPMS_TSDOD	3403	
109	LCS_S	LCSD-62609	LCSDICPMS_TSDOD	3404	
110	CCB	RINSE	CCB ICPMS_TW	1101	
111	AllRef	1403264-10A	SAMPICPMS_TSDOD	3405	
112	SD	1403264-10A SD	SD ICPMS_TSDOD	3406	
113	Sample	1403263-08A	SAMPICPMS_TSDOD	3407	
114	Sample	1403263-09A	SAMPICPMS_TSDOD	3408	
115	Sample	1403264-01A	SAMPICPMS_TSDOD	3409	
116	Sample	1403264-02A	SAMPICPMS_TSDOD	3410	
117	Sample	1403264-03A	SAMPICPMS_TSDOD	3411	
118	Sample	1403264-04A	SAMPICPMS_TSDOD	3412	
119	Sample	1403264-05A	SAMPICPMS_TSDOD	3501	
120	Sample	1403264-06A	SAMPICPMS_TSDOD	3502	

#	Level	Dilution	Skip
101		5	Skip
102			Skip
103			Skip
104			Skip
105			Skip
106		5	Skip
107		50	Skip

Sample List

108	5	Skip
109	5	Skip
110		Skip
111	5	Skip
112	25	Skip
113	5	Skip
114	5	Skip
115	5	Skip
116	5	Skip
117	5	Skip
118	5	Skip
119	5	Skip
120	5	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	Sample	1403264-07A	SAMPICPMS_TSDOD	3503	
122	PDS	1403264-10A PDS	PDS ICPMS_TSDOD	3504	
123	MS_S	1403264-10A MS	MS ICPMS_TSDOD	3505	
124	MS_S	1403264-10A MSD	MSD ICPMS_TSDOD	3506	
125	CCV	CCV5-140402	CCV ICPMS_TW	1207	
126	CCB	CCB5-140402	CCB ICPMS_TW	1102	
127	LLCCV	LCVL5-140402	LCVLICPMS_TW	2511	
128	CCB	CCB5-140402	CCB ICPMS_TW	1103	
129	Sample	1403264-08A	SAMPICPMS_TSDOD	3507	
130	Sample	1403264-09A	SAMPICPMS_TSDOD	3508	
131	Sample	1403264-11A	SAMPICPMS_TSDOD	3509	
132	Sample	1403264-12A	SAMPICPMS_TSDOD	3510	
133	Sample	1403264-13A	SAMPICPMS_TSDOD	3511	
134	Sample	1403264-14A	SAMPICPMS_TSDOD	3512	
135	Sample	1403264-15A	SAMPICPMS_TSDOD	3310	
136	Sample	1403264-16A	SAMPICPMS_TSDOD	3311	
137	Sample	1403264-17A	SAMPICPMS_TSDOD	3312	
138	Sample	1403264-12A	SAMPICPMS_TSDOD	3510	
139	CCV	CCV6-140402	CCV ICPMS_TW	1207	
140	CCB	CCB6-140402	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
121		5	Skip
122		5	Skip
123		5	Skip
124		5	Skip
125			Skip
126			Skip
127			Skip
128			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		Skip	
140		Skip	

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	LLCCV	LCVL6-140402	LCVLICPMS_TW	2511	
142	CCB	CCB6-140402	CCB ICPMS_TW	1103	
143	CCB	CCB6-140402	CCB ICPMS_TW	1102	
144	CCB	CCB6-140402	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
141			Skip
142			Skip
143			Skip
144			Skip

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160523.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	L2-160523	CAL ICPMS_TW	2102	
14	CalStd	L-160523	CAL ICPMS_TW	2103	
15	CalStd	10X-160523	CAL ICPMS_TW	2104	
16	CalStd	5X-160523	CAL ICPMS_TW	2105	
17	CalStd	2X-160523	CAL ICPMS_TW	2106	
18	CalStd	H-160523	CAL ICPMS_TW	2107	
19	CalStd	H2-160523	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

20			Skip		

#	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-160523	ICSAICPMS_TW	2109	
24	ICSB	ICSAB-160523	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-160523	ICV ICPMS_TW	2111	
29	ICB	BLANK	CCB ICPMS_TW	1102	
30	ICB	BLANK	CCB ICPMS_TW	1103	
31	LLICV	LCVL-160523	LCVLICPMS_TW	2112	
32	ICB	ICB-160523	ICB ICPMS_TW	1102	
33	ICB	ICB-160523	ICB ICPMS_TW	1103	
34	PB_W	MB-75178	MBLKICPMS_TW	2201	
35	LCS_W	LCS-75178	LCS ICPMS_TW	2202	
36	LCS_W	LCSD-75178	LCSDICPMS_TW	2203	
37	CCB	RINSE	CCB ICPMS_TW	1101	
38	AllRef	1605153-03A	SAMPICPMS_TW	2204	
39	SD	1605153-03A SD	SD ICPMS_TW	2205	
40	SAMP_W	1605152-01C	SAMPICPMS_TW	2206	

#	Level	Dilution	Skip
21			Skip
22			Skip
23			Skip
24			Skip
25			Skip
26			Skip
27			Skip
28			Skip
29			Skip
30			Skip
31			Skip
32			Skip
33			Skip
34		1	Skip
35		1	Skip
36		1	Skip
37			Skip
38		100	Skip
39		500	Skip
40		10	Skip

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	SAMP_W	1605162-01A	SAMP200.8	2210	
42	SAMP_W	1605149-04A	SAMPICPMS_TW	2211	
43	SAMP_W	1605149-08A	SAMPICPMS_TW	2212	
44	PDS	1605153-03A PDS	PDS ICPMS_TW	2207	
45	MS_W	1605153-03A MS	MS ICPMS_TW	2208	

Sample List

46	MS_W	1605153-03A MSD	MSD ICPMS_TW	2209
47	CCB	RINSE	CCB ICPMS_TW	1101
48	CCB	RINSE	CCB ICPMS_TW	1102
49	CCB	RINSE	CCB ICPMS_TW	1103
50	SAMP_W	1605149-04A	SAMPICPMS_TW	2211
51	CCV	CCV1-160523	CCV ICPMS_TW	1207
52	CCB	CCB1-160523	CCB ICPMS_TW	1102
53	LLCCV	LCVL1-160523	LCVLICPMS_TW	2112
54	CCB	CCB1-160523	CCB ICPMS_TW	1103
55	SAMP_W	1605149-04A	SAMPICPMS_TW	2504
56	PB	MB-75261	MBLK6020A_S	2301
57	LCS_S	LCS-75261	LCS 6020A_S	2302
58	LCS_S	LCSD-75261	LCSD6020A_S	2303
59	CCB	RINSE	CCB ICPMS_TW	1101
60	AllRef	1605185-01A	SAMP6020A_S	2304

#	Level	Dilution	Skip
41		10	Skip
42		1	Skip
43		1	Skip
44		100	Skip
45		100	Skip
46		100	Skip
47			Skip
48			Skip
49			Skip
50		1	Skip
51			Skip
52			Skip
53			Skip
54			Skip
55		1	Skip
56		5	
57		5	
58		5	
59			
60		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	SD	1605185-01A SD	SD 6020A_S	2305	
62	Sample	1605191-01D	SAMP6020A_S	2306	
63	Sample	1605191-02D	SAMP6020A_S	2307	
64	Sample	1605191-03D	SAMP6020A_S	2308	
65	Sample	1605191-04D	SAMP6020A_S	2309	
66	Sample	1605191-05D	SAMP6020A_S	2310	
67	Sample	1605191-06D	SAMP6020A_S	2311	
68	Sample	1605185-02A	SAMP6020A_S	2312	
69	Sample	1605185-03A	SAMP6020A_S	2401	
70	Sample	1605185-04A	SAMP6020A_S	2402	
71	PDS	1605185-01A PDS	PDS 6020A_S	2403	
72	MS_S	1605185-01A MS	MS 6020A_S	2404	
73	MS_S	1605185-01A MSD	MSD 6020A_S	2405	

Sample List

74	CCV	CCV2-160523	CCV ICPMS_TW	1207
75	CCB	CCB2-160523	CCB ICPMS_TW	1102
76	CCB	CCB2-160523	CCB ICPMS_TW	1103
77	LLCCV	LCVL2-160523	LCVLICPMS_TW	2112
78	CCB	CCB2-160523	CCB ICPMS_TW	1103
79	Sample	1605187-01A	SAMPICPMS_TS	2406
80	Sample	1605187-02A	SAMPICPMS_TS	2407

#	Level	Dilution	Skip
61		25	
62		5	
63		5	
64		5	
65		5	
66		5	
67		5	
68		5	
69		5	
70		5	
71		5	
72		5	
73		5	
74			
75			
76			
77			
78			
79		5	
80		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	Sample	1605187-03A	SAMPICPMS_TS	2408	
82	Sample	1605187-04A	SAMPICPMS_TS	2409	
83	Sample	1605187-05A	SAMPICPMS_TS	2410	
84	Sample	1605187-06A	SAMPICPMS_TS	2411	
85	Sample	1605187-07A	SAMPICPMS_TS	2412	
86	Sample	1605187-08A	SAMPICPMS_TS	2501	
87	Sample	1605187-09A	SAMPICPMS_TS	2502	
88	Sample	1605187-10A	SAMPICPMS_TS	2503	
89	CCV	CCV3-160523	CCV ICPMS_TW	1207	
90	CCB	CCB3-160523	CCB ICPMS_TW	1102	
91	CCB	CCB3-160523	CCB ICPMS_TW	1102	
92	CCB	CCB3-160523	CCB ICPMS_TW	1103	
93	CCB	CCB3-160523	CCB ICPMS_TW	1103	
94	CCB	CCB3-160523	CCB ICPMS_TW	1103	
95	LLCCV	LCVL3-160523	LCVLICPMS_TW	2512	
96	CCB	CCB3-160523	CCB ICPMS_TW	1103	
97	PB	MB-75256	MBLKICPMS_TS	3101	
98	LCS_S	LCS-75256	LCS ICPMS_TS	3102	
99	LCS_S	LCSD-75256	LCSDICPMS_TS	3103	
100	CCB	RINSE	CCB ICPMS_TW	1101	

Sample List

#	Level	Dilution	Skip
81		5	
82		5	
83		5	
84		5	
85		5	
86		5	
87		5	
88		5	
89			
90			
91			
92			
93			
94			
95			
96			
97		5	
98		5	
99		5	
100			

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	PB	MB-75256	MBLKICPMS_TS	3101	
102	LCS_S	LCS-75256	LCS ICPMS_TS	3102	
103	LCS_S	LCSD-75256	LCSDICPMS_TS	3103	
104	CCB	RINSE	CCB ICPMS_TW	1101	
105	AllRef	1605186-02A	SAMPICPMS_TS	3104	
106	SD	1605186-02A SD	SD ICPMS_TS	3105	
107	Sample	1605186-01A	SAMPICPMS_TS	3106	
108	PDS	1605186-02A PDS	PDS ICPMS_TS	3107	
109	MS_S	1605186-02A MS	MS ICPMS_TS	3108	
110	MS_S	1605186-02A MSD	MSD ICPMS_TS	3109	
111	CCB	CCB4-160523	CCB ICPMS_TW	1102	
112	AllRef	1605186-02A	SAMPICPMS_TS	3501	
113	SD	1605186-02A SD	SD ICPMS_TS	3502	
114	Sample	1605186-01A	SAMPICPMS_TS	3503	
115	PDS	1605186-02A PDS	PDS ICPMS_TS	3504	
116	MS_S	1605186-02A MS	MS ICPMS_TS	3505	
117	MS_S	1605186-02A MSD	MSD ICPMS_TS	3506	
118	SAMP_W	1605152-01C	SAMPICPMS_TW	3507	
119	SAMP_W	1605152-01C	SAMPICPMS_TW	3508	
120	CCB	CCB4-160523	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
101		5	
102		5	
103		5	
104			
105		5000	
106		25000	
107		5000	

Sample List

108		5000
109		5000
110		5000
111		
112		50
113		250
114		50
115		50
116		50
117		50
118		10
119		1
120		

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	CCB	CCB4-160523	CCB ICPMS_TW	1103	
122	PB_W	MB-75255	MBLKTCLP_MET	4101	
123	PB_W	MB-75242-TCLP	MBLKTCLP_MET	4102	
124	LCS_W	LCS-75255	LCS TCLP_MET	4103	
125	LCS_W	LCSD-75255	LCSDTCLP_MET	4104	
126	CCB	RINSE	CCB ICPMS_TW	1101	
127	AllRef	1605186-01A	SAMPTCLP_MET	4105	
128	SD	1605186-01A SD	SD TCLP_MET	4106	
129	SAMP_W	1605186-02A	SAMPTCLP_MET	4107	
130	PDS	1605186-01A PDS	PDS TCLP_MET	4108	
131	MS_W	1605186-01A MS	MS TCLP_MET	4109	
132	MS_W	1605186-01A MSD	MSD TCLP_MET	4110	
133	CCB	CCB4-160523	CCB ICPMS_TW	1102	
134	CCB	CCB4-160523	CCB ICPMS_TW	1103	
135	CCB	CCB4-160523	CCB ICPMS_TW	1103	
136	CCV	CCV4-160523	CCV ICPMS_TW	1207	
137	CCB	CCB4-160523	CCB ICPMS_TW	1102	
138	CCB	CCB4-160523	CCB ICPMS_TW	1103	
139	LLCCV	LCVL4-160523	LCVLICPMS_TW	2512	
140	CCB	CCB4-160523	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
121			
122		1	
123		1	
124		1	
125		1	
126			
127		5	
128		25	
129		5	
130		5	
131		5	
132		5	
133			
134			
135			

Sample List

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	PB	MB-75166	MBLKICPMS_TSDOD1	3201	
142	LCS_S	LCS-75166	LCS ICPMS_TSDOD1	3202	
143	LCS_S	LCSD-75166	LCSDICPMS_TSDOD1	3203	
144	CCB	RINSE	CCB ICPMS_TW	1101	
145	AllRef	1605096-14A	SAMPICPMS_TSDOD1	3204	
146	SD	1605096-14A SD	SD ICPMS_TSDOD1	3205	
147	Sample	1605074-40A	SAMPICPMS_TSDOD1	3206	
148	Sample	1605074-41A	SAMPICPMS_TSDOD1	3207	
149	Sample	1605096-01A	SAMPICPMS_TSDOD1	3208	
150	Sample	1605096-02A	SAMPICPMS_TSDOD1	3209	
151	Sample	1605096-03A	SAMPICPMS_TSDOD1	3210	
152	Sample	1605096-04A	SAMPICPMS_TSDOD1	3211	
153	Sample	1605096-05A	SAMPICPMS_TSDOD1	3212	
154	Sample	1605096-06A	SAMPICPMS_TSDOD1	3301	
155	Sample	1605096-07A	SAMPICPMS_TSDOD1	3302	
156	PDS	1605096-14A PDS	PDS ICPMS_TSDOD1	3303	
157	MS_S	1605096-14A MS	MS ICPMS_TSDOD1	3304	
158	MS_S	1605096-14A MSD	MSD ICPMS_TSDOD1	3305	
159	CCV	CCV5-160523	CCV ICPMS_TW	1207	
160	CCB	CCB5-160523	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
141		5	
142		5	
143		5	
144			
145		5	
146		25	
147		5	
148		5	
149		5	
150		5	
151		5	
152		5	
153		5	
154		5	
155		5	
156		5	
157		5	
158		5	
159			
160			

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	LLCCV	LCVL5-160523	LCVLICPMS_TW	2511	

Sample List

162	CCB	CCB5-160523	CCB ICPMS_TW	1103
163	Sample	1605096-08A	SAMPICPMS_TSDOD1	3306
164	Sample	1605096-09A	SAMPICPMS_TSDOD1	3307
165	Sample	1605096-10A	SAMPICPMS_TSDOD1	3308
166	Sample	1605096-11A	SAMPICPMS_TSDOD1	3309
167	Sample	1605096-12A	SAMPICPMS_TSDOD1	3310
168	Sample	1605096-13A	SAMPICPMS_TSDOD1	3311
169	Sample	1605096-15A	SAMPICPMS_TSDOD1	3312
170	Sample	1605096-16A	SAMPICPMS_TSDOD1	3401
171	Sample	1605096-17A	SAMPICPMS_TSDOD1	3402
172	Sample	1605096-18A	SAMPICPMS_TSDOD1	3403
173	CCV	CCV6-160523	CCV ICPMS_TW	1207
174	CCB	CCB6-160523	CCB ICPMS_TW	1102
175	LLCCV	LCVL6-160523	LCVLICPMS_TW	2511
176	CCB	CCB6-160523	CCB ICPMS_TW	1103
177	PB	MB-75237	MBLKICPMS_TSDOD1	4101
178	LCS_S	LCS-75237	LCS ICPMS_TSDOD1	4102
179	LCS_S	LCSD-75237	LCSDICPMS_TSDOD1	4103
180	CCB	RINSE	CCB ICPMS_TW	1101

#	Level	Dilution	Skip
161			
162			
163		5	
164		5	
165		5	
166		5	
167		5	
168		5	
169		5	
170		5	
171		5	
172		5	
173			
174			
175			
176			
177		5	
178		5	
179		5	
180			

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	AllRef	1605121-01A	SAMPICPMS_TSDOD1	4104	
182	SD	1605121-01A SD	SD ICPMS_TSDOD1	4105	
183	Sample	1605098-30A	SAMPICPMS_TSDOD1	4106	
184	Sample	1605098-35A	SAMPICPMS_TSDOD1	4107	
185	Sample	1605098-38A	SAMPICPMS_TSDOD1	4108	
186	Sample	1605121-02A	SAMPICPMS_TSDOD1	4109	
187	Sample	1605121-03A	SAMPICPMS_TSDOD1	4110	
188	Sample	1605121-04A	SAMPICPMS_TSDOD1	4111	
189	Sample	1605121-05A	SAMPICPMS_TSDOD1	4112	

Sample List

190	Sample	1605121-06A	SAMPICPMS_TSDOD1	4201
191	Sample	1605121-07A	SAMPICPMS_TSDOD1	4202
192	PDS	1605121-01A PDS	PDS ICPMS_TSDOD1	4203
193	MS_S	1605121-01A MS	MS ICPMS_TSDOD1	4204
194	MS_S	1605121-01A MSD	MSD ICPMS_TSDOD1	4205
195	CCV	CCV7-160523	CCV ICPMS_TW	1207
196	CCB	CCB7-160523	CCB ICPMS_TW	1102
197	LLCCV	LCVL7-160523	LCVLICPMS_TW	2511
198	CCB	CCB7-160523	CCB ICPMS_TW	1103
199	Sample	1605121-08A	SAMPICPMS_TSDOD1	4206
200	Sample	1605121-09A	SAMPICPMS_TSDOD1	4207

#	Level	Dilution	Skip
181		5	
182		25	
183		5	
184		5	
185		5	
186		5	
187		5	
188		5	
189		5	
190		5	
191		5	
192		5	
193		5	
194		5	
195			
196			
197			
198			
199		5	
200		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	Sample	1605121-10A	SAMPICPMS_TSDOD1	4208	
202	Sample	1605121-11A	SAMPICPMS_TSDOD1	4209	
203	Sample	1605121-12A	SAMPICPMS_TSDOD1	4210	
204	Sample	1605121-13A	SAMPICPMS_TSDOD1	4211	
205	Sample	1605121-14A	SAMPICPMS_TSDOD1	4212	
206	Sample	1605121-15A	SAMPICPMS_TSDOD1	4301	
207	Sample	1605121-16A	SAMPICPMS_TSDOD1	4302	
208	Sample	1605121-17A	SAMPICPMS_TSDOD1	4303	
209	CCV	CCV8-160523	CCV ICPMS_TW	1207	
210	CCB	CCB8-160523	CCB ICPMS_TW	1102	
211	LLCCV	LCVL8-160523	LCVLICPMS_TW	2510	
212	CCB	CCB8-160523	CCB ICPMS_TW	1103	
213	PB	MB-75236	MBLKICPMS_TSDOD1	4310	
214	LCS_S	LCS-75236	LCS ICPMS_TSDOD1	4311	
215	LCS_S	LCSD-75236	LCSDICPMS_TSDOD1	4312	
216	CCB	RINSE	CCB ICPMS_TW	1101	
217	AllRef	1605098-17A	SAMPICPMS_TSDOD1	4401	

Sample List

218	SD	1605098-17A SD	SD ICPMS_TSDOD1	4402
219	Sample	1605071-32A	SAMPICPMS_TSDOD1	4403
220	Sample	1605071-38A	SAMPICPMS_TSDOD1	4404

#	Level	Dilution	Skip
201		5	
202		5	
203		5	
204		5	
205		5	
206		5	
207		5	
208		5	
209			
210			
211			
212			
213		5	
214		5	
215		5	
216			
217		5	
218		25	
219		5	
220		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
221	Sample	1605098-12A	SAMPICPMS_TSDOD1	4405	
222	Sample	1605098-13A	SAMPICPMS_TSDOD1	4406	
223	Sample	1605098-14A	SAMPICPMS_TSDOD1	4407	
224	Sample	1605098-15A	SAMPICPMS_TSDOD1	4408	
225	Sample	1605098-16A	SAMPICPMS_TSDOD1	4409	
226	Sample	1605098-18A	SAMPICPMS_TSDOD1	4410	
227	Sample	1605098-19A	SAMPICPMS_TSDOD1	4411	
228	PDS	1605098-17A PDS	PDS ICPMS_TSDOD1	4412	
229	MS_S	1605098-17A MS	MS ICPMS_TSDOD1	4501	
230	MS_S	1605098-17A MSD	MSD ICPMS_TSDOD1	4502	
231	CCV	CCV9-160523	CCV ICPMS_TW	1207	
232	CCB	CCB9-160523	CCB ICPMS_TW	1102	
233	LLCCV	LCVL9-160523	LCVLICPMS_TW	2510	
234	CCB	CCB9-160523	CCB ICPMS_TW	1103	
235	Sample	1605098-20A	SAMPICPMS_TSDOD1	4503	
236	Sample	1605098-21A	SAMPICPMS_TSDOD1	4504	
237	Sample	1605098-22A	SAMPICPMS_TSDOD1	4505	
238	Sample	1605098-23A	SAMPICPMS_TSDOD1	4506	
239	Sample	1605098-24A	SAMPICPMS_TSDOD1	4507	
240	Sample	1605098-25A	SAMPICPMS_TSDOD1	4508	

#	Level	Dilution	Skip
221		5	
222		5	
223		5	

Sample List

224		5
225		5
226		5
227		5
228		5
229		5
230		5
231		
232		
233		
234		
235		5
236		5
237		5
238		5
239		5
240		5

#	Sample Type	Sample Name	Comment	Vial#	File Name
241	Sample	1605098-26A	SAMPICPMS_TSDOD1	4509	
242	Sample	1605098-27A	SAMPICPMS_TSDOD1	4510	
243	Sample	1605098-28A	SAMPICPMS_TSDOD1	4511	
244	Sample	1605098-29A	SAMPICPMS_TSDOD1	4512	
245	CCV	CCV10-160523	CCV ICPMS_TW	1207	
246	CCB	CCB10-160523	CCB ICPMS_TW	1102	
247	LLCCV	LCVL10-160523	LCVLICPMS_TW	2509	
248	CCB	CCB10-160523	CCB ICPMS_TW	1102	
249	AllRef	1605186-01A	SAMPTCLP_MET	3404	
250	SD	1605186-01A SD	SD TCLP_MET	3405	
251	SAMP_W	1605186-02A	SAMPTCLP_MET	3406	
252	PDS	1605186-01A PDS	PDS TCLP_MET	3407	
253	MS_W	1605186-01A MS	MS TCLP_MET	3408	
254	MS_W	1605186-01A MSD	MSD TCLP_MET	3409	
255	CCV	CCV11-160523	CCV ICPMS_TW	1207	
256	CCB	CCB11-160523	CCB ICPMS_TW	1102	
257	LLCCV	LCVL11-160523	LCVLICPMS_TW	2509	
258	CCB	CCB11-160523	CCB ICPMS_TW	1102	
259	CCB	CCB11-160523	CCB ICPMS_TW	1102	
260	CCB	CCB11-160523	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
241		5	
242		5	
243		5	
244		5	
245			
246			
247			
248			
249		1	
250		5	
251		1	

Sample List

252	1
253	1
254	1
255	
256	
257	
258	
259	
260	

#	Sample Type	Sample Name	Comment	Vial#	File Name
261	CCB	CCB11-160523	CCB ICPMS_TW	1103	
262	CCB	CCB11-160523	CCB ICPMS_TW	1103	
263	CCB	CCB11-160523	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
261			
262			
263			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 8:30:00 AM**
Digestion:
Prep End Date:

Prep Batch **75166** 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
1605074-40A	Soil		1.05	50	50.000	1 of 1	
1605074-41A	Soil		1.08	50	50.000	1 of 1	
1605096-01A	Soil		1.10	50	50.000	1 of 1	
1605096-02A	Soil		1.07	50	50.000	1 of 1	
1605096-03A	Soil		1.05	50	50.000	1 of 1	
1605096-04A	Soil		1.08	50	50.000	1 of 1	
1605096-05A	Soil		1.04	50	50.000	1 of 1	
1605096-06A	Soil		1.10	50	50.000	1 of 1	
1605096-07A	Soil		1.07	50	50.000	1 of 1	
1605096-08A	Soil		1.08	50	50.000	1 of 1	
1605096-09A	Soil		1.04	50	50.000	1 of 1	
1605096-10A	Soil		1.05	50	50.000	1 of 1	
1605096-11A	Soil		1.07	50	50.000	1 of 1	
1605096-12A	Soil		1.10	50	50.000	1 of 1	
1605096-13A	Soil		1.05	50	50.000	1 of 1	
1605096-14A	Soil		1.13	50	50.000	of 3	
1605096-14A MS	Soil		1.10	50	50.000	of	
1605096-14A MSD	Soil		1.09	50	50.000	of	
1605096-15A	Soil		1.15	50	50.000	1 of 1	
1605096-16A	Soil		1.16	50	50.000	1 of 1	
1605096-17A	Soil		1.05	50	50.000	1 of 1	
1605096-18A	Soil		1.17	50	50.000	1 of 1	
LCS-75166	Soil		1	50	50.000	of	
LCSD-75166	Soil		1	50	50.000	of	
MB-75166	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

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	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

9:15 - 9:25
9:45 - 11:45
12:25 - 14:25
15:14 - 15:29

5/17/16

REVIEWED/APPROVED
By Sherri Herschmann at 11:48:57 AM, 5/24/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/9/2016 9:45:00 AM**
Digestion: **Start: 5/9/2016 11:00:00 AM / Stop: 5/10/2016 10:00:00 AM**
Prep End Date: **5/10/2016 7:00:00 PM**

Prep Batch **75016** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605074-01A	Soil		0	0	#Num!	1 of 1	
1605074-02A	Soil		0	0	#Num!	1 of 1	
1605074-03A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subdampling - hard clay						
1605074-04A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subdampling - hard clay						
1605074-05A	Soil		0	0	#Num!	1 of 1	
1605074-06A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-07A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-08A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-09A	Soil		0	0	#Num!	1 of 1	
1605074-10A	Soil		0	0	#Num!	1 of 1	
1605074-11A	Soil		0	0	#Num!	1 of 1	
	Sieved only no sub sampling - hard clay						
1605074-12A	Soil		0	0	#Num!	1 of 1	
	Sieved only no sub sampling - hard clay						
1605074-13A	Soil		0	0	#Num!	of 3	
	Extra subsampled for MS/MSD						
1605074-14A	Soil		0	0	#Num!	1 of 1	
1605074-15A	Soil		0	0	#Num!	1 of 1	
1605074-16A	Soil		0	0	#Num!	1 of 1	
1605074-17A	Soil		0	0	#Num!	1 of 1	
1605074-18A	Soil		0	0	#Num!	1 of 1	
1605074-19A	Soil		0	0	#Num!	1 of 1	

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/9/2016 9:45:00 AM**
Digestion: **Start: 5/9/2016 11:00:00 AM / Stop: 5/10/2016 10:00:00 AM**
Prep End Date: **5/10/2016 7:00:00 PM**

Prep Batch **75016** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605074-20A	Soil		0	0	#Num!	1 of 1	
1605074-21A	Soil		0	0	#Num!	1 of 1	
1605074-22A	Soil		0	0	#Num!	1 of 1	
1605074-23A	Soil		0	0	#Num!	1 of 1	
1605074-24A	Soil		0	0	#Num!	1 of 1	
1605074-25A	Soil		0	0	#Num!	1 of 1	
1605074-26A	Soil		0	0	#Num!	of 3	
	Extra subsampled for MS/MSD						
1605074-27A	Soil		0	0	#Num!	1 of 1	
1605074-36A	Soil		0	0	#Num!	1 of 1	
1605074-37A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-38A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-39A	Soil		0	0	#Num!	1 of 1	
1605074-40A	Soil		0	0	#Num!	1 of 1	
1605074-41A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-42A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-43A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-44A	Soil		0	0	#Num!	of 3	
	Extra subsampled for MS/MSD						
1605074-45A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/9/2016 9:45:00 AM**
Digestion: **Start: 5/9/2016 11:00:00 AM / Stop: 5/10/2016 10:00:00 AM**
Prep End Date: **5/10/2016 7:00:00 PM**

Prep Batch **75016** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1605074-46A	Soil		0	0	#Num!	1 of 1	
	Sieved only no subsampling - hard clay						
1605074-47A	Soil		0	0	#Num!	1 of 1	

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-16A	Soil		0	0	#Num!	1	of	1	
1605096-17A	Soil		0	0	#Num!	1	of	1	
1605096-18A	Soil		0	0	#Num!	1	of	1	
1605096-19A	Soil		0	0	#Num!	1	of	1	
	Sieved only - no subsampling hard clay								
1605096-20A	Soil		0	0	#Num!	1	of	1	
1605096-21A	Soil		0	0	#Num!	1	of	1	
1605096-22A	Soil		0	0	#Num!	1	of	1	
1605096-23A	Soil		0	0	#Num!	1	of	1	
1605096-24A	Soil		0	0	#Num!	1	of	1	
1605096-25A	Soil		0	0	#Num!	1	of	1	
1605096-26A	Soil		0	0	#Num!	1	of	1	
1605096-27A	Soil		0	0	#Num!	1	of	1	
1605096-28A	Soil		0	0	#Num!	1	of	1	
1605096-29A	Soil		0	0	#Num!	1	of	1	
1605096-30A	Soil		0	0	#Num!	1	of	1	
1605096-45A	Soil		0	0	#Num!	1	of	1	
1605096-46A	Soil		0	0	#Num!	1	of	1	
1605096-47A	Soil		0	0	#Num!	1	of	1	
1605096-48A	Soil		0	0	#Num!	1	of	1	
1605096-49A	Soil		0	0	#Num!	1	of	1	
1605096-50A	Soil		0	0	#Num!	1	of	1	
1605096-51A	Soil		0	0	#Num!	1	of	1	
1605096-52A	Soil		0	0	#Num!		of	3	
1605096-53A	Soil		0	0	#Num!	1	of	1	
1605096-54A	Soil		0	0	#Num!	1	of	1	
1605096-55A	Soil		0	0	#Num!	1	of	1	

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/10/2016 7:00:00 PM**
Digestion: **Start: 5/10/2016 8:30:00 PM / Stop: 5/12/2016 9:00:00 AM**
Prep End Date: **5/12/2016 5:30:00 PM**

Prep Batch **75084** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #			Cleanup
1605096-56A	Soil		0	0	#Num!	1	of	1	
1605096-57A	Soil		0	0	#Num!	1	of	1	
1605096-58A	Soil		0	0	#Num!	1	of	1	
1605096-59A	Soil		0	0	#Num!	1	of	1	
1605096-60A	Soil		0	0	#Num!	1	of	1	
1605096-61A	Soil		0	0	#Num!	1	of	1	
1605096-62A	Soil		0	0	#Num!	1	of	1	
1605096-63A	Soil		0	0	#Num!	1	of	1	
1605096-64A	Soil		0	0	#Num!	1	of	1	
1605096-65A	Soil		0	0	#Num!	1	of	1	
1605096-66A	Soil		0	0	#Num!	1	of	1	
1605096-67A	Soil		0	0	#Num!	1	of	1	
1605096-68A	Soil		0	0	#Num!	1	of	1	
1605096-69A	Soil		0	0	#Num!	1	of	1	
1605096-70A	Soil		0	0	#Num!	1	of	1	
1605096-71A	Soil		0	0	#Num!	1	of	1	
1605096-72A	Soil		0	0	#Num!	1	of	1	
1605096-73A	Soil		0	0	#Num!	1	of	1	
1605096-74A	Soil		0	0	#Num!	1	of	1	

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	26	
TEST DATE:	05/17/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

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

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

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

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

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

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	5.0002	4.9902	99.80	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		5.0123	5.0023	100.05		
3		5.0058	4.9958	99.92		
AVERAGE (MEAN)		**5.006**	**4.996**	**99.92**		**0.121**
						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	0.2001	0.1997	99.85	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2012	0.2008	100.40		
3		0.2012	0.2008	100.40		
AVERAGE (MEAN)		**0.201**	**0.200**	**100.22**		**0.316**
						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)						

[signature] 5/17/16
Analyst / Date

[signature] 05/24/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 8:30:00 AM**
Digestion: **Start: 5/17/2016 9:15:00 AM / Stop: 5/17/2016 3:29:00 PM**
Prep End Date: **5/17/2016 3:50:58 PM**

Prep Batch **75166** 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
1605074-40A	Soil		1.05	50	47.619	1 of 1	
	Weighed out on 5/16/16.						
1605074-41A	Soil		1.08	50	46.296	1 of 1	
1605096-01A	Soil		1.1	50	45.455	1 of 1	
1605096-02A	Soil		1.07	50	46.729	1 of 1	
1605096-03A	Soil		1.05	50	47.619	1 of 1	
1605096-04A	Soil		1.08	50	46.296	1 of 1	
1605096-05A	Soil		1.04	50	48.077	1 of 1	
1605096-06A	Soil		1.1	50	45.455	1 of 1	
1605096-07A	Soil		1.07	50	46.729	1 of 1	
1605096-08A	Soil		1.08	50	46.296	1 of 1	
1605096-09A	Soil		1.04	50	48.077	1 of 1	
1605096-10A	Soil		1.05	50	47.619	1 of 1	
1605096-11A	Soil		1.07	50	46.729	1 of 1	
1605096-12A	Soil		1.1	50	45.455	1 of 1	
1605096-13A	Soil		1.05	50	47.619	1 of 1	
1605096-14A	Soil		1.13	50	44.248	of 3	
1605096-14A MS	Soil		1.1	50	45.455	of	
1605096-14A MSD	Soil		1.09	50	45.872	of	
1605096-14A PDS	Soil		1.13	50	44.248	of	
1605096-14A SD	Soil		1.13	50	44.248	of	
1605096-15A	Soil		1.15	50	43.478	1 of 1	
1605096-16A	Soil		1.16 ~~0.16~~	50	312.500	1 of 1	
1605096-17A	Soil		1.05	50	47.619	1 of 1	
1605096-18A	Soil		1.17	50	42.735	1 of 1	
LCS-75166	Soil		1	50	50.000	of	
LCSD-75166	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

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	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

REVIEWED/APPROVED

By Sherri Herschmann at 11:47:52 AM, 5/24/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/17/2016 8:30:00 AM**
Digestion: **Start: 5/17/2016 9:15:00 AM / Stop: 5/17/2016 3:29:00 PM**
Prep End Date: **5/17/2016 3:50:58 PM**

Prep Batch **75166** 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
MB-75166	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

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	0.5	07/05/2016
MET-SPIKE-160511-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	08/09/2016
MET-SPIKE-160511-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	08/09/2016

Calibration Summary Report

Date Acquired 5/23/2016 10:41
Data Batch 160523.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 + 2.8167E-004
Be	1.0000	y = 5.9114E-005 * x + 2.9353E-006
B	1.0000	y = 2.1736E-005 * x + 1.9548E-004
Na	0.9999	y = 8.0916E-004 * x + 0.0378
Mg	1.0000	y = 4.0716E-004 * x + 0.0022
Al	1.0000	y = 1.5051E-004 * x + 0.0025
K	0.9999	y = 4.1449E-004 * x + 0.0614
Ca	1.0000	y = 2.2383E-005 * x + 0.0011
Ti	1.0000	y = 1.5574E-004 * x + 2.4626E-006
V	1.0000	y = 0.0050 * x + 0.0047
Cr	1.0000	y = 0.0060 * x + 0.0013
Mn	1.0000	y = 0.0034 * x + 2.3576E-004
Fe	1.0000	y = 0.0051 * x + 0.0128
Co	1.0000	y = 0.0130 * x + 1.6569E-004
Ni	1.0000	y = 0.0034 * x + 0.0012
Cu	1.0000	y = 0.0094 * x + 0.0023
Zn	1.0000	y = 0.0016 * x + 5.3931E-004
Se	1.0000	y = 8.2217E-005 * x + 1.3839E-004
Sr	0.9999	y = 6.9275E-004 * x + 1.7507E-004
Mo	1.0000	y = 5.7772E-004 * x + 5.8427E-006
Ag	0.9999	y = 0.0018 * x + 5.0866E-006
Cd	1.0000	y = 2.7114E-004 * x + 5.3819E-007
Sn	1.0000	y = 5.7939E-004 * x + 8.1217E-005
Sb	1.0000	y = 9.0284E-004 * x + 2.1461E-005
Tl	1.0000	y = 0.0017 * x + 3.0027E-006
Ba	1.0000	y = 2.8780E-004 * x + 1.4284E-005
Pb	1.0000	y = 0.0023 * x + 4.2707E-005
Li	1.0000	y = 4.4727E-005 * x + 1.5412E-005

REVIEWED BY
By Janice Whitt at 1:09:12 PM, 5/23/2016

Calibration Summary Report

Level 7 Cal

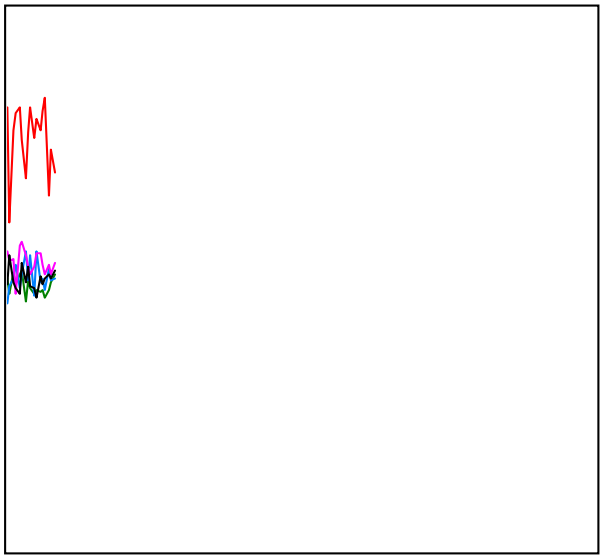
Ele	Conc	Calc	%Rec
As	500	501.58	100
Be	500	509.04	102
B	500	503.43	101
Na	10000	10289.89	103
Mg	10000	10177.23	102
Al	10000	9993.09	100
K	10000	10214.27	102
Ca	10000	9855.94	99
Ti	500	493.20	99
V	500	509.55	102
Cr	500	505.18	101
Mn	500	501.60	100
Fe	10000	9960.71	100
Co	500	504.63	101
Ni	500	509.37	102
Cu	500	516.68	103
Zn	500	510.66	102
Se	500	504.06	101
Sr	500	480.45	96
Mo	500	489.49	98
Ag	500	497.86	100
Cd	500	490.04	98
Sn	500	493.35	99
Sb	500	498.86	100
Tl	500	499.66	100
Ba	500	492.56	99
Pb	500	491.91	98

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	1999.84	100
Be	2000	1997.32	100
B	2000	1999.79	100
Na	25000	24864.22	101
Mg	25000	24911.90	100
K	25000	24898.11	100
Ca	25000	25076.46	100
Ti	2000	2002.16	100
V	2000	1997.60	100
Cr	2000	1998.52	100
Mn	2000	1999.70	100
Co	2000	1998.85	100
Ni	2000	1997.15	100
Cu	2000	1994.95	100
Zn	2000	1996.85	100
Se	2000	1998.41	100
Sr	2000	2005.86	100
Mo	2000	2002.88	100
Cd	2000	2002.48	100
Sn	2000	2001.85	100
Tl	2000	2000.08	100
Ba	2000	2002.16	100
Pb	2000	2002.50	100
Li	2000	1996.24	100

REVIEWED BY
By Janice Whitt at 1:09:17 PM, 5/23/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51	200	139	151.8	8.48
59	2000	1016	977.5	3.51
89	2000	1005	1008.6	5.33
140	5000	2643	2653.6	4.28
205	5000	2588	2500.5	3.98
156/140	1	0.416 %	0.361 %	49.12
75	20	8	6.0	47.51
78	20	9	8.9	46.87
56	5000	3619	3697.9	2.82
31	500	218	204.4	11.07

Integration Time [sec] 0.10

Plasma Parameters

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

Lenses Parameters

Extract 1	0.0	Omega Lens	6.5
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	1.8		

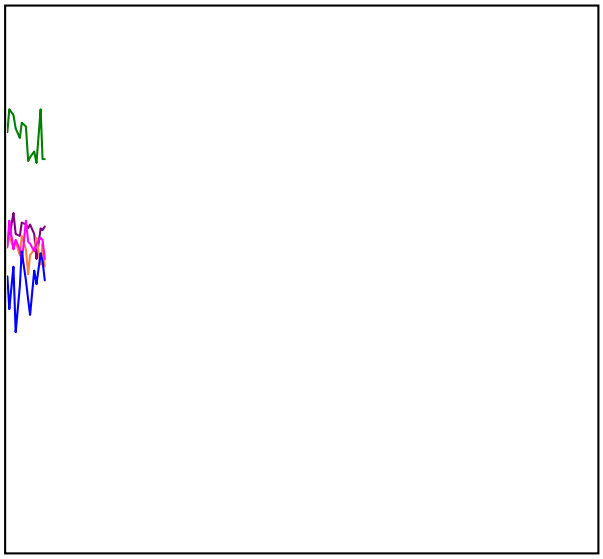
Cell Parameters

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	2.23E+2	Pa	Carrier Gas(BP)	2.57E+2	kPa
Analyzer Press	2.02E-4	Pa	Reflected Power	1	W
Forward Power	1550	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
7	2000	1195	1175.5	3.25
59	2000	1443	1519.8	4.94
89	5000	2607	2765.2	3.91
140	5000	2677	2830.2	3.92
205	5000	1806	1915.5	4.14
156/140	2	1.233 %	1.130 %	16.46
78	5000	2299	2307.8	2.34
63	500	249	246.4	8.79
75	10000	6159	6248.2	1.25
Integration Time [sec]		0.10		

Plasma Parameters

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

Lenses Parameters

Extract 1	0.0	Omega Lens	6.5
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	7.0		

Cell Parameters

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

Meters

IF/BK Press	2.22E+2	Pa	Carrier Gas(BP)	2.56E+2	kPa
Analyzer Press	1.15E-4	Pa	Reflected Power	1	W
Forward Power	1550	W			

US EPA Tune Check Sample Report

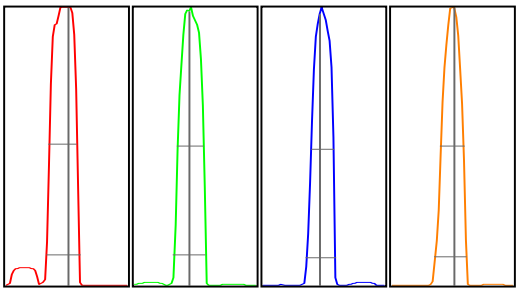
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	679972	0.31	5.00	
59	866598	0.70	5.00	
115	1209526	0.83	5.00	
205	1027821	1.04	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	678094	677691	680079	681628	682370
59	868590	856230	870874	866547	870748
115	1195979	1206736	1215765	1222350	1206798
205	1040280	1013800	1027603	1021630	1035791

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	103908	7.05	6.9 - 7.1		0.803	0.850	
59	144998	58.90	58.9 - 59.1		0.763	0.850	
115	234368	114.95	114.9 - 115.1		0.680	0.850	
205	201934	205.05	204.9 - 205.1		0.762	0.850	

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

Tune Parameters

Plasma Paramters

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

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-90	V	Deflect	7.0	V
Omega Lens	6.5	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 1:09:24 PM, 5/23/2016

P/A Factor Tuning Report

========== Current Sample ==========
Sample Name: CCB1-160523
Data File: 052_CCB.d
Acquired: 05/23/2016 12:15:32

========= Detector Parameters and P/A Factors =========
Discriminator: 4.5 mV
AnalogHV: 1761 V
PulseHV: 1217 V

Acquired: 05/23/2016 10:07:12

Mass[u]	Element	P/A Factor
6	Li	0.097837
9	Be	0.111012
23	Na	0.119192
24	Mg	0.123724
27	Al	0.128077
39	K	0.129771
45	Sc	0.130862
48		0.132135
51	V	0.130933
52	Cr	0.136231
55	Mn	0.137648
59	Co	0.141543
60	Ni	0.142563
63	Cu	0.144932
66	Zn	0.144574
72		0.143658
74	Ge	0.143964
75	As	0.142622
88	Sr	0.143956
89		0.143507
95		0.143591
97	Mo	0.143375
98	Mo	0.143813
99	[Mo]	0.145738
101		0.146466
105		0.148942
111	Cd	0.150174
114	Cd	0.149276
115	In	0.149915
118	Sn	0.149082
121		0.149568
123	Sb	0.149873
135	Ba	0.152643
138		0.150322
175		0.154881
193		0.155592
205	Tl	0.157007
206	[Pb]	0.157788
207	[Pb]	0.157904
208	Pb	0.157038
209	Bi	0.156907
232		0.157055
238	U	0.157339
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low



Calibration Blank Report

Date Acquired	5/23/2016 10:41	Sample Name	BLANK STD 1
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	14	55.79
9	Be	45	3	57.28
11	B	45	177	6.54
23	Na	45	34139	1.60
24	Mg	45	1980	4.08
27	Al	45	2288	3.85
39	K	45	55476	1.42
44	Ca	45	961	7.56
47	Ti	45	2	86.60
51	V	45	4266	2.62
52	Cr	45	1141	7.79
55	Mn	45	213	11.80
56	Fe	45	11561	2.68
59	Co	72	112	20.22
60	Ni	72	821	7.77
63	Cu	72	1579	1.41
66	Zn	72	366	16.95
75	As	72	191	9.42
78	Se	72	94	12.11
88	Sr	115	1100	1.05
95	Mo	115	37	45.45
107	Ag	115	32	56.98
111	Cd	115	3	100.05
118	Sn	115	510	3.92
121	Sb	115	134	16.51
137	Ba	115	90	18.52
205	Tl	209	42	27.72
208	Pb	209	600	8.94

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	904202	1.28
72	Ge	677615	0.38
115	In	6287303	2.85
209	Bi	14081817	3.17

Calibration Standard Report

Date Acquired	5/23/2016 10:43	Sample Name	L2-160523
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	54	30.93
9	Be	45	59	24.19
11	B	45	218	11.69
23	Na	45	49106	0.27
24	Mg	45	9386	3.13
27	Al	45	4806	2.74
39	K	45	62560	0.51
44	Ca	45	1323	4.63
47	Ti	45	147	13.82
51	V	45	8479	3.30
52	Cr	45	6574	2.86
55	Mn	45	3288	2.00
56	Fe	45	102248	1.34
59	Co	72	8973	2.16
60	Ni	72	3143	6.28
63	Cu	72	8237	2.17
66	Zn	72	1521	7.87
75	As	72	1135	3.69
78	Se	72	145	17.13
88	Sr	115	5162	3.36
95	Mo	115	3446	4.72
107	Ag	115	11258	2.34
111	Cd	115	1519	7.20
118	Sn	115	3828	0.96
121	Sb	115	5552	2.01
137	Ba	115	1890	3.23
205	Tl	209	22877	0.82
208	Pb	209	31445	1.13

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	900571	0.45	904202	99.60	70	120	
72	Ge	670627	1.48	677615	98.97	70	120	
115	In	6190956	0.22	6287303	98.47	70	120	
209	Bi	13796768	1.16	14081817	97.98	70	120	

Calibration Standard Report

Date Acquired	5/23/2016 10:45	Sample Name	L-160523
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	422	6.67
9	Be	45	513	4.28
11	B	45	314	7.81
23	Na	45	179567	0.71
24	Mg	45	75498	0.67
27	Al	45	28659	1.69
39	K	45	129305	0.51
44	Ca	45	4762	0.26
47	Ti	45	1509	5.75
51	V	45	48612	0.96
52	Cr	45	54862	0.14
55	Mn	45	30512	2.78
56	Fe	45	906138	0.11
59	Co	72	86261	0.31
60	Ni	72	24301	0.57
63	Cu	72	65859	0.98
66	Zn	72	11289	1.37
75	As	72	9325	1.65
78	Se	72	634	3.42
88	Sr	115	41872	0.51
95	Mo	115	34142	1.36
107	Ag	115	110269	0.50
111	Cd	115	16671	1.71
118	Sn	115	35109	1.10
121	Sb	115	54278	1.52
137	Ba	115	17059	2.93
205	Tl	209	230034	0.72
208	Pb	209	309141	0.69

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	904779	0.88	904202	100.06	70	120	
72	Ge	670882	0.39	677615	99.01	70	120	
115	In	6230915	0.35	6287303	99.10	70	120	
209	Bi	13793986	0.79	14081817	97.96	70	120	

Calibration Standard Report

Date Acquired	5/23/2016 10:47	Sample Name	10X-160523
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1995	3.01
9	Be	45	2601	0.94
11	B	45	1111	3.78
23	Na	45	767294	0.52
24	Mg	45	369675	1.08
27	Al	45	137134	0.22
39	K	45	428254	0.61
44	Ca	45	20275	2.18
47	Ti	45	6760	3.23
51	V	45	227873	1.94
52	Cr	45	268227	0.39
55	Mn	45	151812	0.06
56	Fe	45	4554936	0.43
59	Co	72	437181	0.92
60	Ni	72	119086	0.70
63	Cu	72	322274	0.51
66	Zn	72	55804	0.51
75	As	72	46279	0.92
78	Se	72	2853	2.51
88	Sr	115	205994	0.17
95	Mo	115	174091	0.88
107	Ag	115	553943	0.92
111	Cd	115	82554	0.32
118	Sn	115	174025	0.99
121	Sb	115	274641	0.79
137	Ba	115	85763	0.27
205	Tl	209	1162224	0.27
208	Pb	209	1552470	0.96

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	888520	1.86	904202	98.27	70	120	
72	Ge	663382	1.33	677615	97.90	70	120	
115	In	6119290	1.44	6287303	97.33	70	120	
209	Bi	13721704	3.04	14081817	97.44	70	120	

Calibration Standard Report

Date Acquired	5/23/2016 10:49	Sample Name	5X-160523
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	4022	2.28
9	Be	45	5208	1.03
11	B	45	2090	6.59
23	Na	45	1482695	0.22
24	Mg	45	731448	0.66
27	Al	45	268102	0.93
39	K	45	800264	0.09
44	Ca	45	39793	0.32
47	Ti	45	13629	2.19
51	V	45	450460	0.19
52	Cr	45	529709	0.67
55	Mn	45	301095	0.26
56	Fe	45	9087517	1.57
59	Co	72	867230	0.62
60	Ni	72	232640	0.43
63	Cu	72	637526	0.42
66	Zn	72	111543	1.58
75	As	72	91397	0.61
78	Se	72	5646	0.25
88	Sr	115	405534	0.98
95	Mo	115	344042	1.66
107	Ag	115	1104806	0.81
111	Cd	115	163760	1.13
118	Sn	115	348511	0.44
121	Sb	115	546794	0.64
137	Ba	115	171815	0.48
205	Tl	209	2336598	0.56
208	Pb	209	3097207	0.33

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	879951	0.58	904202	97.32	70	120	
72	Ge	661139	0.69	677615	97.57	70	120	
115	In	6149856	1.42	6287303	97.81	70	120	
209	Bi	13593824	2.28	14081817	96.53	70	120	

Calibration Standard Report

Date Acquired	5/23/2016 10:51	Sample Name	2X-160523
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	10158	2.48
9	Be	45	13366	1.11
11	B	45	4926	3.90
23	Na	45	3700424	0.50
24	Mg	45	1842485	0.20
27	Al	45	674718	1.07
39	K	45	1925190	0.56
44	Ca	45	99227	1.57
47	Ti	45	34276	0.98
51	V	45	1126479	0.23
52	Cr	45	1337611	0.46
55	Mn	45	751245	0.54
56	Fe	45	22912045	0.43
59	Co	72	2147838	0.23
60	Ni	72	579579	1.00
63	Cu	72	1589846	0.57
66	Zn	72	273371	0.47
75	As	72	229135	0.29
78	Se	72	13921	2.74
88	Sr	115	1027359	0.51
95	Mo	115	872922	0.12
107	Ag	115	2766127	0.67
111	Cd	115	411961	0.87
118	Sn	115	876724	0.39
121	Sb	115	1383479	0.63
137	Ba	115	434262	0.39
205	Tl	209	5947641	0.36
208	Pb	209	7903967	0.16

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	891953	0.79	904202	98.65	70	120	
72	Ge	663268	0.23	677615	97.88	70	120	
115	In	6058043	1.31	6287303	96.35	70	120	
209	Bi	13829886	0.53	14081817	98.21	70	120	

Calibration Standard Report

Date Acquired	5/23/2016 10:53	Sample Name	H-160523
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	20339	0.70
9	Be	45	26681	0.80
11	B	45	9875	3.47
23	Na	45	7415179	1.62
24	Mg	45	3675807	0.05
27	Al	45	1335716	1.13
39	K	45	3808036	0.76
44	Ca	45	196537	0.82
47	Ti	45	68103	0.69
51	V	45	2279167	0.43
52	Cr	45	2673841	0.59
55	Mn	45	1505829	0.41
56	Fe	45	44791023	1.36
59	Co	72	4333632	0.07
60	Ni	72	1162385	0.75
63	Cu	72	3202470	0.85
66	Zn	72	551113	0.61
75	As	72	461164	0.32
78	Se	72	27499	1.50
88	Sr	115	2071588	0.38
95	Mo	115	1759082	0.34
107	Ag	115	5562354	1.28
111	Cd	115	826540	0.24
118	Sn	115	1778907	1.25
121	Sb	115	2802214	1.01
137	Ba	115	881929	0.21
205	Tl	209	11933830	1.10
208	Pb	209	15814357	0.88

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	886620	0.63	904202	98.06	70	120	
72	Ge	661371	0.53	677615	97.60	70	120	
115	In	6222293	2.02	6287303	98.97	70	120	
209	Bi	13894584	1.34	14081817	98.67	70	120	

Calibration Standard Report

Date Acquired	5/23/2016 10:55	Sample Name	H2-160523
Data Batch	160523.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	79991	0.83
9	Be	45	105763	0.57
11	B	45	39112	1.45
23	Na	45	18057534	3.58
24	Mg	45	9088289	1.47
27	Al	45	1269	16.03
39	K	45	9298592	1.18
44	Ca	45	503718	0.10
47	Ti	45	279312	0.68
51	V	45	9015007	1.15
52	Cr	45	10684407	2.93
55	Mn	45	6064120	1.50
56	Fe	45	35308	20.24
59	Co	72	17361777	1.84
60	Ni	72	4607152	1.02
63	Cu	72	12501757	0.38
66	Zn	72	2178676	0.19
75	As	72	1859138	0.52
78	Se	72	110000	0.32
88	Sr	115	8401070	0.86
95	Mo	115	6994842	0.76
107	Ag	115	2126	23.63
111	Cd	115	3282273	1.18
118	Sn	115	7011933	0.68
121	Sb	115	4685	3.78
137	Ba	115	3483257	0.41
205	Tl	209	47207017	0.33
208	Pb	209	63612418	1.06

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	895774	0.77	904202	99.07	70	120	
72	Ge	668943	0.70	677615	98.72	70	120	
115	In	6045106	0.72	6287303	96.15	70	120	
209	Bi	13730344	1.07	14081817	97.50	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	5/23/2016 11:03	Sample Name	ICSA-160523
Data Batch	160523.b	Comment	ICSAICPMS_TW
Data File Name	023ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.149	10	10.0	1.2	0.8	
11	B	11.290	376	17.9	30	30	
51	V	-0.180	3253	2.5	10	10	
52	Cr	0.410	3167	4.0	8	5	
55	Mn	1.407	4265	3.6	8	10	
59	Co	0.554	4687	1.5	8	10	
60	Ni	0.586	2057	3.0	8	10	
63	Cu	0.967	7251	2.3	8	10	
66	Zn	1.505	1906	6.7	10	5	
75	As	0.715	812	3.7	4	5	
78	Se	0.189	98	21.9	2	5	
88	Sr	1.411	6641	3.1	10	10	
107	Ag	0.156	1640	6.2	0.8	2	
111	Cd	0.568	891	4.2	1.2	1	
118	Sn	1.490	5444	3.5	10	10	
121	Sb	0.409	2254	3.4	4	2.5	
137	Ba	0.358	677	12.8	8	10	
205	Tl	0.053	1181	6.8	4	1.5	
208	Pb	0.115	3836	3.0	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	853276	1.55	904202	94.37	70	120	
72	Ge	636672	0.65	677615	93.96	70	120	
115	In	5764026	0.57	6287303	91.68	70	120	
209	Bi	12438504	1.71	14081817	88.33	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	5/23/2016 11:05	Sample Name	ICSAB-160523
Data Batch	160523.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	40.430	177045	0.63	40	101.1	80	120	
52	Cr	45	21.277	108980	0.68	20	106.4	80	120	
55	Mn	45	19.721	56943	0.66	20	98.6	80	120	
59	Co	72	39.986	330797	0.91	40	100.0	80	120	
60	Ni	72	38.440	85195	0.48	40	96.1	80	120	
63	Cu	72	21.070	127190	0.48	20	105.3	80	120	
66	Zn	72	20.526	21663	1.72	20	102.6	80	120	
75	As	72	20.358	18198	0.82	20	101.8	80	120	
78	Se	72	19.723	1121	6.78	20	98.6	80	120	
107	Ag	115	19.288	197546	1.17	20	96.4	80	120	
111	Cd	115	10.185	15746	3.02	10	101.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	849875	0.06	904202	93.99	70	120	
72	Ge	636925	0.26	677615	94.00	70	120	
115	In	5701078	0.43	6287303	90.68	70	120	
209	Bi	12549877	1.59	14081817	89.12	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	5/23/2016 11:13	Sample Name	ICV-160523
Data Batch	160523.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	100.423	4248	0.95	100	100.4	90	110	
9	Be	45	101.646	5667	0.58	100	101.6	90	110	
11	B	45	104.978	2336	4.70	100	105.0	90	110	
23	Na	45	2586.060	2008198	0.89	2500	103.4	90	110	
24	Mg	45	2562.125	985387	0.56	2500	102.5	90	110	
27	Al	45	2504.172	357686	0.60	2500	100.2	90	110	
39	K	45	2581.178	1066381	0.58	2500	103.2	90	110	
44	Ca	45	2372.478	51065	1.75	2500	94.9	90	110	
47	Ti	45	101.067	14843	3.44	100	101.1	90	110	
51	V	45	101.914	488235	1.04	100	101.9	90	110	
52	Cr	45	105.134	592568	0.63	100	105.1	90	110	
55	Mn	45	99.716	318433	0.67	100	99.7	90	110	
56	Fe	45	2559.322	12244428	2.69	2500	102.4	90	110	
59	Co	72	102.839	935257	0.89	100	102.8	90	110	
60	Ni	72	103.357	250435	1.06	100	103.4	90	110	
63	Cu	72	103.718	682030	0.10	100	103.7	90	110	
66	Zn	72	102.929	117929	0.21	100	102.9	90	110	
75	As	72	101.739	99208	0.58	100	101.7	90	110	
78	Se	72	102.180	5980	1.29	100	102.2	90	110	
88	Sr	115	97.362	445614	0.82	100	97.4	90	110	
95	Mo	115	96.288	366620	0.97	100	96.3	90	110	
107	Ag	115	97.154	1150101	0.40	100	97.2	90	110	
111	Cd	115	97.549	174298	0.87	100	97.5	90	110	
118	Sn	115	100.644	384806	0.52	100	100.6	90	110	
121	Sb	115	97.820	582167	0.42	100	97.8	90	110	
137	Ba	115	96.935	183943	0.07	100	96.9	90	110	
205	Tl	209	99.429	2451582	0.42	100	99.4	90	110	
208	Pb	209	99.012	3286154	0.32	100	99.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	942688	0.94	904202	104.26	70	120	
72	Ge	700315	0.23	677615	103.35	70	120	
115	In	6591165	1.48	6287303	104.83	70	120	
209	Bi	14342513	0.82	14081817	101.85	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 11:22	Sample Name	LCVL-160523
Data Batch	160523.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	10.463	454	2.11	10	104.6	70	130	
9	Be	45	0.970	57	13.71	1	97.0	70	130	
11	B	45	22.559	644	2.99	20	112.8	70	130	
23	Na	45	102.326	113290	0.57	100	102.3	70	130	
24	Mg	45	98.504	39753	1.29	100	98.5	70	130	
27	Al	45	95.406	15875	0.76	100	95.4	70	130	
39	K	45	102.661	97657	1.50	100	102.7	70	130	
44	Ca	45	93.089	2957	5.50	100	93.1	70	130	
47	Ti	45	4.739	696	11.51	5	94.8	70	130	
51	V	45	0.861	8507	0.92	1	86.1	70	130	
52	Cr	45	5.065	29593	0.96	5	101.3	70	130	
55	Mn	45	4.839	15619	0.36	5	96.8	70	130	
56	Fe	45	98.224	480128	0.60	100	98.2	70	130	
59	Co	72	5.047	45754	0.45	5	100.9	70	130	
60	Ni	72	5.053	12977	1.53	5	101.1	70	130	
63	Cu	72	5.097	34877	1.64	5	101.9	70	130	
66	Zn	72	5.187	6266	2.89	5	103.7	70	130	
75	As	72	4.940	4977	0.92	5	98.8	70	130	
78	Se	72	4.978	381	7.35	5	99.6	70	130	
88	Sr	115	4.774	22733	1.35	5	95.5	70	130	
95	Mo	115	4.671	17652	0.52	5	93.4	70	130	
107	Ag	115	1.890	22183	1.34	2	94.5	70	130	
111	Cd	115	0.877	1557	3.32	1	87.7	70	130	
118	Sn	115	5.050	19637	2.67	5	101.0	70	130	
121	Sb	115	1.932	11526	1.31	2	96.6	70	130	
137	Ba	115	4.760	9034	1.40	5	95.2	70	130	
205	Tl	209	0.998	24095	0.66	1	99.8	70	130	
208	Pb	209	0.970	32076	1.46	1	97.0	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	939860	1.08	904202	103.94	70	120	
72	Ge	696437	0.55	677615	102.78	70	120	
115	In	6530312	2.75	6287303	103.87	70	120	
209	Bi	14025539	1.89	14081817	99.60	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	5/23/2016 11:30	Sample Name	ICB-160523
Data Batch	160523.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	0.142	20	20.5	2	5	
9	Be	45	0.095	8	43.3	0.4	0.3	
11	B	45	0.156	186	12.0	10	10	
23	Na	45	0.367	35489	1.7	50	100	
24	Mg	45	-1.823	1350	1.5	50	100	
27	Al	45	-0.267	2324	8.1	50	10	
39	K	45	3.549	58593	0.4	50	100	
44	Ca	45	-3.802	913	6.2	50	100	
47	Ti	45	0.023	6	91.6	4	3	
51	V	45	-0.106	3902	3.8	4	3	
52	Cr	45	-0.025	1038	4.5	2	2	
55	Mn	45	-0.011	184	26.8	2	3	
56	Fe	45	0.172	12736	2.1	50	50	
59	Co	72	-0.001	102	8.2	2	3	
60	Ni	72	-0.036	758	17.0	2	3	
63	Cu	72	-0.039	1369	4.9	2	2	
66	Zn	72	0.053	437	8.8	4	2	
75	As	72	-0.011	186	9.0	2	2	
78	Se	72	0.056	100	17.9	1	2	
88	Sr	115	0.014	1203	1.7	4	3	
95	Mo	115	0.000	39	32.4	2	2	
107	Ag	115	0.001	40	30.0	0.4	1	
111	Cd	115	0.002	7	50.0	0.4	0.3	
118	Sn	115	0.241	1442	6.2	4	3	
121	Sb	115	0.018	247	80.5	2	0.8	
137	Ba	115	0.002	98	29.0	2	3	
205	Tl	209	0.000	46	34.6	2	0.5	
208	Pb	209	-0.003	510	8.0	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	932628	0.61	904202	103.14	70	120	
72	Ge	697475	0.81	677615	102.93	70	120	
115	In	6523390	0.30	6287303	103.75	70	120	
209	Bi	14176412	0.50	14081817	100.67	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/23/2016 15:32	Sample Name	CCV4-160523
Data Batch	160523.b	Comment	CCV ICPMS_TW
Data File Name	136_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	206.211	8130	1.55	200	103.1	90	110	
9	Be	45	200.287	10422	0.37	200	100.1	90	110	
11	B	45	196.074	3923	2.72	200	98.0	90	110	
23	Na	45	5013.929	3603866	0.91	5000	100.3	90	110	
24	Mg	45	5002.788	1794591	0.40	5000	100.1	90	110	
27	Al	45	4901.565	651487	0.59	5000	98.0	90	110	
39	K	45	5065.739	1901852	0.79	5000	101.3	90	110	
44	Ca	45	4848.345	96442	0.79	5000	97.0	90	110	
47	Ti	45	196.475	26931	0.76	200	98.2	90	110	
51	V	45	198.856	885443	0.36	200	99.4	90	110	
52	Cr	45	200.779	1055489	0.93	200	100.4	90	110	
55	Mn	45	197.918	589894	0.90	200	99.0	90	110	
56	Fe	45	5117.742	22851373	1.10	5000	102.4	90	110	
59	Co	72	196.663	1703424	0.80	200	98.3	90	110	
60	Ni	72	200.192	461256	0.48	200	100.1	90	110	
63	Cu	72	203.120	1270703	0.47	200	101.6	90	110	
66	Zn	72	199.232	217081	0.84	200	99.6	90	110	
75	As	72	195.657	181548	0.49	200	97.8	90	110	
78	Se	72	197.084	10901	0.81	200	98.5	90	110	
88	Sr	115	187.973	805573	0.82	200	94.0	90	110	
95	Mo	115	192.436	686850	0.99	200	96.2	90	110	
107	Ag	115	195.128	2165531	1.08	200	97.6	90	110	
111	Cd	115	191.368	320585	0.37	200	95.7	90	110	
118	Sn	115	192.898	691035	0.67	200	96.4	90	110	
121	Sb	115	195.344	1089773	0.15	200	97.7	90	110	
137	Ba	115	191.701	340951	0.52	200	95.9	90	110	
205	Tl	209	191.912	4608887	0.89	200	96.0	90	110	
208	Pb	209	189.118	6113017	0.40	200	94.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	880099	0.87	904202	97.33	70	120	
72	Ge	667027	0.33	677615	98.44	70	120	
115	In	6178968	1.30	6287303	98.28	70	120	
209	Bi	13969084	0.67	14081817	99.20	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 15:42	Sample Name	LCVL4-160523
Data Batch	160523.b	Comment	LCVLICPMS_TW
Data File Name	139LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.081	407	5.32	10	100.8	70	130	
9	Be	45	1.017	55	6.56	1	101.7	70	130	
11	B	45	18.482	521	11.27	20	92.4	70	130	
23	Na	45	96.215	100875	0.71	100	96.2	70	130	
24	Mg	45	98.412	36876	0.76	100	98.4	70	130	
27	Al	45	95.429	14741	0.66	100	95.4	70	130	
39	K	45	101.075	90095	0.45	100	101.1	70	130	
44	Ca	45	89.228	2670	3.27	100	89.2	70	130	
47	Ti	45	5.274	719	10.34	5	105.5	70	130	
51	V	45	0.821	7723	2.12	1	82.1	70	130	
52	Cr	45	5.156	27952	1.38	5	103.1	70	130	
55	Mn	45	5.008	14997	4.30	5	100.2	70	130	
56	Fe	45	99.341	450729	0.52	100	99.3	70	130	
59	Co	72	5.047	42731	0.74	5	100.9	70	130	
60	Ni	72	4.920	11821	3.13	5	98.4	70	130	
63	Cu	72	5.290	33746	1.14	5	105.8	70	130	
66	Zn	72	5.041	5698	1.12	5	100.8	70	130	
75	As	72	4.963	4669	0.07	5	99.3	70	130	
78	Se	72	5.356	376	9.07	5	107.1	70	130	
88	Sr	115	4.783	21404	0.48	5	95.7	70	130	
95	Mo	115	4.742	16839	2.39	5	94.8	70	130	
107	Ag	115	1.942	21434	0.19	2	97.1	70	130	
111	Cd	115	0.967	1611	5.38	1	96.7	70	130	
118	Sn	115	4.807	17588	1.20	5	96.1	70	130	
121	Sb	115	1.894	10625	1.82	2	94.7	70	130	
137	Ba	115	4.815	8589	0.84	5	96.3	70	130	
205	Tl	209	0.956	22620	1.28	1	95.6	70	130	
208	Pb	209	0.958	31050	0.67	1	95.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	872631	0.93	904202	96.51	70	120	
72	Ge	650398	0.32	677615	95.98	70	120	
115	In	6135820	1.32	6287303	97.59	70	120	
209	Bi	13738911	1.98	14081817	97.56	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/23/2016 15:45	Sample Name	CCB4-160523
Data Batch	160523.b	Comment	CCB ICPMS_TW
Data File Name	140_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.093	17	15.6	2	5	
9	Be	45	0.041	5	24.7	0.4	0.3	
11	B	45	-0.574	159	21.2	10	10	
23	Na	45	-3.383	30413	0.3	50	100	
24	Mg	45	-3.103	804	3.9	50	100	
27	Al	45	-0.333	2155	5.0	50	10	
39	K	45	0.059	53309	0.4	50	100	
44	Ca	45	-4.778	831	3.2	50	100	
47	Ti	45	0.017	4	43.4	4	3	
51	V	45	-0.249	3008	3.2	4	3	
52	Cr	45	-0.041	884	6.8	2	2	
55	Mn	45	-0.021	142	5.4	2	3	
56	Fe	45	0.149	11761	2.1	50	50	
59	Co	72	0.000	106	26.9	2	3	
60	Ni	72	-0.232	269	21.1	2	3	
63	Cu	72	0.265	3137	18.4	2	2	
66	Zn	72	-0.056	292	22.3	4	2	
75	As	72	-0.023	163	10.1	2	2	
78	Se	72	-0.030	89	10.5	1	2	
88	Sr	115	0.014	1123	3.7	4	3	
95	Mo	115	-0.003	23	42.9	2	2	
107	Ag	115	0.020	254	21.3	0.4	1	
111	Cd	115	0.001	6	91.6	0.4	0.3	
118	Sn	115	-0.043	342	14.8	4	3	
121	Sb	115	0.034	313	38.1	2	0.8	
137	Ba	115	0.007	99	19.8	2	3	
205	Tl	209	0.001	71	40.4	2	0.5	
208	Pb	209	0.001	597	13.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	868509	0.24	904202	96.05	70	120	
72	Ge	651469	0.14	677615	96.14	70	120	
115	In	6087959	1.77	6287303	96.83	70	120	
209	Bi	13477598	2.29	14081817	95.71	70	120	

Method Blank Report

Date Acquired	5/23/16 3:47 PM	Sample Name	MB-75166
Data Batch	160523.b	Comment	MBLKICPMS_TSDOD1
Data File Name	141_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.163	20	43.30		
9	Be	45	0.002	3	114.56		
11	B	45	10.893	380	15.52		J
23	Na	45	6.950	38126	0.61		
24	Mg	45	4.890	3674	3.45		
27	Al	45	52.014	9106	1.88		FAIL
39	K	45	7.740	56752	1.89		
44	Ca	45	125.767	3411	9.49		FAIL
47	Ti	45	0.276	40	16.68		
51	V	45	-0.336	2657	6.82		
52	Cr	45	0.309	2730	1.76		
55	Mn	45	0.123	572	8.16		
56	Fe	45	6.677	40994	1.06		
59	Co	72	0.004	143	12.09		
60	Ni	72	0.335	1542	8.73		
63	Cu	72	0.357	3697	1.58		
66	Zn	72	4.293	4913	3.39		J
75	As	72	-0.032	155	2.19		
78	Se	72	0.050	93	27.02		
88	Sr	115	0.897	4933	2.73		
95	Mo	115	0.010	71	21.14		
107	Ag	115	0.019	248	6.77		
111	Cd	115	0.001	4	86.60		
118	Sn	115	3.945	14654	1.79		
121	Sb	115	0.030	299	11.00		
137	Ba	115	0.204	451	2.13		
205	Tl	209	0.003	104	45.29		
208	Pb	209	0.157	5751	0.81		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	878965	1.21	904202	97.21	70	120	
72	Ge	651509	0.79	677615	96.15	70	120	
115	In	6191927	1.98	6287303	98.48	70	120	
209	Bi	14143847	1.85	14081817	100.44	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/23/2016 15:49	Sample Name	LCS-75166
Data Batch	160523.b	Comment	LCS ICPMS_TSDOD1
Data File Name	142_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	207.948	8170	1.78	200	104.0	80	120	
9	Be	45	198.684	10304	1.79	200	99.3	80	120	
11	B	45	192.876	3848	0.55	200	96.4	80	120	
23	Na	45	5155.569	3691614	0.92	1000	515.6	80	120	Fail
24	Mg	45	5111.433	1827066	1.09	1000	511.1	80	120	Fail
27	Al	45	1002.572	134560	0.61	1000	100.3	80	120	
39	K	45	5183.099	1938014	0.56	1000	518.3	80	120	Fail
44	Ca	45	4943.867	97982	0.77	1000	494.4	80	120	Fail
47	Ti	45	201.209	27486	0.97	200	100.6	80	120	
51	V	45	203.634	903493	0.35	200	101.8	80	120	
52	Cr	45	204.347	1070602	0.72	200	102.2	80	120	
55	Mn	45	200.666	596028	0.29	200	100.3	80	120	
56	Fe	45	1017.427	4536062	0.11	1000	101.7	80	120	
59	Co	72	200.799	1720585	0.37	200	100.4	80	120	
60	Ni	72	203.573	464011	0.93	200	101.8	80	120	
63	Cu	72	205.503	1271804	0.59	200	102.8	80	120	
66	Zn	72	203.344	219177	0.62	200	101.7	80	120	
75	As	72	199.647	183258	0.67	200	99.8	80	120	
78	Se	72	200.329	10960	1.59	200	100.2	80	120	
88	Sr	115	192.278	820227	0.71	200	96.1	80	120	
95	Mo	115	196.170	696988	1.00	200	98.1	80	120	
107	Ag	115	197.789	2184878	1.25	200	98.9	80	120	
111	Cd	115	193.418	322517	0.44	200	96.7	80	120	
118	Sn	115	201.701	719190	0.37	200	100.9	80	120	
121	Sb	115	196.893	1093344	0.51	200	98.4	80	120	
137	Ba	115	192.616	340991	0.96	200	96.3	80	120	
205	Tl	209	197.060	4607380	0.67	200	98.5	80	120	
208	Pb	209	196.878	6195669	0.49	200	98.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	877087	0.97	904202	97.00	70	120	
72	Ge	659875	0.44	677615	97.38	70	120	
115	In	6149834	0.40	6287303	97.81	70	120	
209	Bi	13601586	1.61	14081817	96.59	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/23/2016 15:51	Sample Name	LCSD-75166
Data Batch	160523.b	Comment	LCSDICPMS_TSDOD1
Data File Name	143_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	204.335	8193	3.06	200	102.2	80	120	
9	Be	45	201.593	10668	0.65	200	100.8	80	120	
11	B	45	200.198	4069	1.23	200	100.1	80	120	
23	Na	45	5193.381	3794606	0.65	1000	519.3	80	120	Fail
24	Mg	45	5133.228	1872503	0.74	1000	513.3	80	120	Fail
27	Al	45	1016.812	139232	0.29	1000	101.7	80	120	
39	K	45	5227.181	1993943	0.15	1000	522.7	80	120	Fail
44	Ca	45	5003.936	101191	1.10	1000	500.4	80	120	Fail
47	Ti	45	199.178	27765	2.51	200	99.6	80	120	
51	V	45	204.723	926895	0.70	200	102.4	80	120	
52	Cr	45	203.940	1090293	0.08	200	102.0	80	120	
55	Mn	45	201.479	610672	0.45	200	100.7	80	120	
56	Fe	45	1025.796	4666666	0.59	1000	102.6	80	120	
59	Co	72	204.728	1764922	0.88	200	102.4	80	120	
60	Ni	72	206.091	472589	0.66	200	103.0	80	120	
63	Cu	72	208.065	1295444	0.24	200	104.0	80	120	
66	Zn	72	206.512	223936	0.26	200	103.3	80	120	
75	As	72	203.805	188205	0.37	200	101.9	80	120	
78	Se	72	205.283	11296	0.93	200	102.6	80	120	
88	Sr	115	193.396	838582	0.88	200	96.7	80	120	
95	Mo	115	198.635	717296	0.58	200	99.3	80	120	
107	Ag	115	200.953	2256282	0.67	200	100.5	80	120	
111	Cd	115	197.139	334083	0.18	200	98.6	80	120	
118	Sn	115	203.710	738324	1.32	200	101.9	80	120	
121	Sb	115	199.567	1126349	0.51	200	99.8	80	120	
137	Ba	115	194.023	349162	1.37	200	97.0	80	120	
205	Tl	209	198.989	4742396	1.01	200	99.5	80	120	
208	Pb	209	196.007	6287483	0.16	200	98.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	894965	0.48	904202	98.98	70	120	
72	Ge	663891	0.76	677615	97.97	70	120	
115	In	6254886	3.51	6287303	99.48	70	120	
209	Bi	13864773	1.57	14081817	98.46	70	120	

Sample Report

Date Acquired	5/23/16 3:55 PM	Sample Name	1605096-14A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	145_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	52.730	2150	3.16	2000	>RL
9	Be	45	2.210	121	11.12	2000	>RL
11	B	45	73.676	1628	3.07	2000	>RL
23	Na	45	704.048	550280	0.56	25000	>RL
24	Mg	45	12987.505	4792456	1.12	25000	>RL
27	Al	45	48433.391	6605727	1.08	10000	OUTCAL
39	K	45	15746.572	5968314	1.37	25000	>RL
44	Ca	45	115495.242	2342818	0.82	25000	OUTCAL
47	Ti	45	834.811	117775	0.20	2000	>RL
51	V	45	108.798	500589	0.17	2000	>RL
52	Cr	45	62.363	338264	0.55	2000	>RL
55	Mn	45	789.579	2421805	0.92	2000	>RL
56	Fe	45	58641.374	269394700	1.23	10000	OUTCAL
59	Co	72	18.363	159340	1.21	2000	>RL
60	Ni	72	35.600	82785	1.38	2000	>RL
63	Cu	72	82.524	517778	0.70	2000	>RL
66	Zn	72	434.189	473200	0.40	2000	>RL
75	As	72	16.704	15690	1.71	2000	>RL
78	Se	72	4.235	325	9.62	2000	>RL
88	Sr	115	436.118	1891510	0.98	2000	>RL
95	Mo	115	2.173	7891	0.56	2000	>RL
107	Ag	115	0.284	3223	3.85	500	
111	Cd	115	1.172	1991	4.20	2000	>RL
118	Sn	115	8.367	30844	1.37	2000	>RL
121	Sb	115	2.232	12744	1.39	500	>RL
137	Ba	115	616.979	1111089	0.27	2000	>RL
205	Tl	209	0.482	11554	2.92	2000	
208	Pb	209	132.518	4258128	0.21	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	905894	0.58	904202	100.19	70	120	
72	Ge	667788	0.29	677615	98.55	70	120	
115	In	6257441	1.29	6287303	99.53	70	120	
209	Bi	13887775	1.50	14081817	98.62	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/23/2016 15:57	Sample Name	1605096-14A SD
Data Batch	160523.b	Comment	SD ICPMS_TSDOD1
Data File Name	146_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	11.528	497	7.25	52.7	109.3	110	90	Good
9	Be	45	0.577	35	11.66	2.2	130.5	110	90	
11	B	45	15.750	503	8.27	73.7	106.9	110	90	Good
23	Na	45	139.494	140955	1.18	704.0	99.1	110	90	Good
24	Mg	45	2654.984	1013647	1.57	12987.5	102.2	110	90	Good
27	Al	45	9896.037	1396139	0.73	48433.4	102.2	110	90	Good
39	K	45	3111.293	1264171	0.67	15746.6	98.8	110	90	Good
44	Ca	45	23643.837	496219	1.18	115495.2	102.4	110	90	Good
47	Ti	45	171.703	25024	2.55	834.8	102.8	110	90	Good
51	V	45	21.477	105621	0.86	108.8	98.7	110	90	Good
52	Cr	45	12.931	73387	1.23	62.4	103.7	110	90	Good
55	Mn	45	161.802	512817	1.09	789.6	102.5	110	90	Good
56	Fe	45	11960.609	56765791	1.52	58641.4	102.0	110	90	Good
59	Co	72	3.839	34227	1.98	18.4	104.5	110	90	Good
60	Ni	72	7.443	18396	1.62	35.6	104.5	110	90	Good
63	Cu	72	17.759	115451	0.98	82.5	107.6	110	90	Good
66	Zn	72	90.880	101806	0.96	434.2	104.7	110	90	Good
75	As	72	3.391	3418	1.59	16.7	101.5	110	90	Good
78	Se	72	1.081	156	5.99	4.2	127.6	110	90	
88	Sr	115	88.168	396213	1.23	436.1	101.1	110	90	Good
95	Mo	115	0.428	1637	0.20	2.2	98.5	110	90	Good
107	Ag	115	0.079	956	5.36	0.3	140.0	110	90	
111	Cd	115	0.242	428	10.92	1.2	103.2	110	90	Good
118	Sn	115	2.655	10474	2.37	8.4	158.6	110	90	
121	Sb	115	0.501	3066	1.38	2.2	112.3	110	90	
137	Ba	115	124.660	232139	1.22	617.0	101.0	110	90	Good
205	Tl	209	0.097	2505	4.58	0.5	100.2	110	90	Good
208	Pb	209	25.863	886272	0.47	132.5	97.6	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	935754	0.55	904202	103.49	70	120	
72	Ge	684430	0.15	677615	101.01	70	120	
115	In	6468753	1.66	6287303	102.89	70	120	
209	Bi	14800704	1.23	14081817	105.11	70	120	

Sample Report

Date Acquired	5/23/16 4:03 PM	Sample Name	1605096-01A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	149SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	57.413	2313	1.92	2000	>RL
9	Be	45	2.556	138	20.71	2000	>RL
11	B	45	81.638	1763	6.34	2000	>RL
23	Na	45	679.257	525929	0.76	25000	>RL
24	Mg	45	12049.238	4394603	0.28	25000	>RL
27	Al	45	57504.080	7751917	2.02	10000	OUTCAL
39	K	45	17272.724	6464704	2.88	25000	>RL
44	Ca	45	68385.460	1371428	0.46	25000	OUTCAL
47	Ti	45	284.022	39607	1.07	2000	>RL
51	V	45	91.609	417280	0.14	2000	>RL
52	Cr	45	62.561	335396	0.58	2000	>RL
55	Mn	45	692.644	2099870	1.13	2000	>RL
56	Fe	45	57952.021	263136301	1.43	10000	OUTCAL
59	Co	72	21.031	178521	0.65	2000	>RL
60	Ni	72	34.986	79605	1.46	2000	>RL
63	Cu	72	32.438	200030	1.81	2000	>RL
66	Zn	72	271.428	289548	0.66	2000	>RL
75	As	72	20.650	18933	0.21	2000	>RL
78	Se	72	3.988	305	6.08	2000	>RL
88	Sr	115	273.263	1173146	1.70	2000	>RL
95	Mo	115	1.382	4982	7.14	2000	
107	Ag	115	0.121	1376	7.70	500	
111	Cd	115	0.487	821	7.31	2000	>RL
118	Sn	115	5.219	19230	2.60	2000	>RL
121	Sb	115	2.858	16111	0.87	500	>RL
137	Ba	115	397.894	709204	0.81	2000	>RL
205	Tl	209	0.426	9926	5.18	2000	
208	Pb	209	232.207	7249838	0.33	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	895371	0.52	904202	99.02	70	120	
72	Ge	653388	0.79	677615	96.42	70	120	
115	In	6193712	2.01	6287303	98.51	70	120	
209	Bi	13496134	2.10	14081817	95.84	70	120	

Sample Report

Date Acquired	5/23/16 4:05 PM	Sample Name	1605096-02A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	150SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	54.606	2229	0.48	2000	>RL
9	Be	45	2.169	119	8.40	2000	>RL
11	B	45	85.595	1865	1.86	2000	>RL
23	Na	45	729.671	569658	0.02	25000	>RL
24	Mg	45	11527.253	4258357	0.59	25000	>RL
27	Al	45	53633.611	7323805	2.45	10000	OUTCAL
39	K	45	16256.418	6165880	1.50	25000	>RL
44	Ca	45	62369.584	1266951	0.81	25000	OUTCAL
47	Ti	45	259.754	36689	1.68	2000	>RL
51	V	45	87.058	401858	0.89	2000	>RL
52	Cr	45	60.496	328507	1.22	2000	>RL
55	Mn	45	674.981	2072448	0.48	2000	>RL
56	Fe	45	55097.553	253388452	0.82	10000	OUTCAL
59	Co	72	19.335	165231	1.04	2000	>RL
60	Ni	72	33.456	76670	0.60	2000	>RL
63	Cu	72	43.462	269296	1.60	2000	>RL
66	Zn	72	261.979	281345	0.64	2000	>RL
75	As	72	18.617	17200	0.82	2000	>RL
78	Se	72	3.671	290	7.89	2000	>RL
88	Sr	115	258.107	1099064	0.69	2000	>RL
95	Mo	115	1.356	4850	1.94	2000	
107	Ag	115	0.160	1799	0.57	500	
111	Cd	115	0.575	961	6.67	2000	>RL
118	Sn	115	5.158	18850	0.70	2000	>RL
121	Sb	115	2.918	16306	1.84	500	>RL
137	Ba	115	374.005	661099	1.05	2000	>RL
205	Tl	209	0.412	9769	2.16	2000	
208	Pb	209	229.267	7279140	0.46	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	906884	0.83	904202	100.30	70	120	
72	Ge	657699	0.38	677615	97.06	70	120	
115	In	6143419	2.51	6287303	97.71	70	120	
209	Bi	13722301	1.11	14081817	97.45	70	120	

Sample Report

Date Acquired	5/23/16 4:07 PM	Sample Name	1605096-03A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	151SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	53.550	2185	2.54	2000	>RL
9	Be	45	2.077	114	16.94	2000	>RL
11	B	45	80.477	1762	4.84	2000	>RL
23	Na	45	667.794	523921	0.25	25000	>RL
24	Mg	45	11267.335	4159640	0.82	25000	>RL
27	Al	45	54154.997	7388988	0.78	10000	OUTCAL
39	K	45	15961.720	6051685	1.07	25000	>RL
44	Ca	45	59901.959	1216053	0.14	25000	OUTCAL
47	Ti	45	252.860	35693	2.16	2000	>RL
51	V	45	86.510	399085	0.23	2000	>RL
52	Cr	45	58.500	317521	0.38	2000	>RL
55	Mn	45	643.501	1974689	1.41	2000	>RL
56	Fe	45	54969.635	252647519	1.79	10000	OUTCAL
59	Co	72	19.952	169211	0.19	2000	>RL
60	Ni	72	32.936	74923	1.14	2000	>RL
63	Cu	72	34.592	213029	0.42	2000	>RL
66	Zn	72	235.563	251100	0.82	2000	>RL
75	As	72	19.766	18113	0.32	2000	>RL
78	Se	72	3.893	299	11.08	2000	>RL
88	Sr	115	235.416	1009036	1.10	2000	>RL
95	Mo	115	1.280	4606	3.25	2000	
107	Ag	115	0.131	1481	12.81	500	
111	Cd	115	0.479	806	5.51	2000	>RL
118	Sn	115	5.175	19033	1.67	2000	>RL
121	Sb	115	3.298	18537	1.68	500	>RL
137	Ba	115	365.571	650327	1.09	2000	>RL
205	Tl	209	0.409	9610	4.23	2000	
208	Pb	209	264.813	8344787	0.23	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	906294	0.80	904202	100.23	70	120	
72	Ge	652751	0.45	677615	96.33	70	120	
115	In	6180651	0.66	6287303	98.30	70	120	
209	Bi	13619515	1.08	14081817	96.72	70	120	

Sample Report

Date Acquired	5/23/16 4:09 PM	Sample Name	1605096-04A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	152SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	48.980	2007	3.16	2000	>RL
9	Be	45	2.176	120	12.32	2000	>RL
11	B	45	56.199	1289	7.32	2000	>RL
23	Na	45	1003.296	772982	0.20	25000	>RL
24	Mg	45	8503.446	3152076	0.09	25000	>RL
27	Al	45	47481.432	6504207	1.24	10000	OUTCAL
39	K	45	10186.470	3897374	0.62	25000	>RL
44	Ca	45	26731.989	545357	0.60	25000	OUTCAL
47	Ti	45	304.105	43090	1.17	2000	>RL
51	V	45	67.858	315209	0.76	2000	>RL
52	Cr	45	42.341	231033	0.64	2000	>RL
55	Mn	45	505.458	1557168	0.38	2000	>RL
56	Fe	45	48189.572	222344431	0.77	10000	OUTCAL
59	Co	72	18.601	161788	0.99	2000	>RL
60	Ni	72	27.427	64122	0.32	2000	>RL
63	Cu	72	19.192	121913	0.63	2000	>RL
66	Zn	72	191.213	209125	1.21	2000	>RL
75	As	72	14.593	13765	0.65	2000	>RL
78	Se	72	3.490	285	5.02	2000	>RL
88	Sr	115	194.236	826865	0.07	2000	>RL
95	Mo	115	1.709	6097	0.66	2000	
107	Ag	115	0.130	1469	2.63	500	
111	Cd	115	0.448	749	3.40	2000	>RL
118	Sn	115	4.950	18104	3.21	2000	>RL
121	Sb	115	1.559	8773	1.67	500	
137	Ba	115	263.870	466133	0.46	2000	>RL
205	Tl	209	0.415	9728	1.74	2000	
208	Pb	209	43.123	1354519	0.63	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	909847	0.55	904202	100.62	70	120	
72	Ge	669479	1.04	677615	98.80	70	120	
115	In	6137595	1.04	6287303	97.62	70	120	
209	Bi	13569723	0.23	14081817	96.36	70	120	

Sample Report

Date Acquired	5/23/16 4:11 PM	Sample Name	1605096-05A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	153SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	41.431	1708	1.14	2000	>RL
9	Be	45	1.585	88	3.27	2000	>RL
11	B	45	53.037	1232	2.10	2000	>RL
23	Na	45	689.759	544645	1.63	25000	>RL
24	Mg	45	8481.572	3158291	1.37	25000	>RL
27	Al	45	46132.921	6348046	1.42	10000	OUTCAL
39	K	45	9995.420	3842953	1.82	25000	>RL
44	Ca	45	44683.347	914990	0.61	25000	OUTCAL
47	Ti	45	270.221	38464	1.02	2000	>RL
51	V	45	73.258	341473	0.66	2000	>RL
52	Cr	45	43.357	237609	1.24	2000	>RL
55	Mn	45	535.161	1656199	1.49	2000	>RL
56	Fe	45	46649.661	216214396	0.94	10000	OUTCAL
59	Co	72	15.918	137877	2.10	2000	>RL
60	Ni	72	27.409	63796	0.56	2000	>RL
63	Cu	72	31.875	200557	1.21	2000	>RL
66	Zn	72	219.389	238820	1.51	2000	>RL
75	As	72	15.250	14313	2.47	2000	>RL
78	Se	72	3.094	262	6.03	2000	>RL
88	Sr	115	204.103	896554	0.30	2000	>RL
95	Mo	115	1.184	4371	3.95	2000	
107	Ag	115	0.161	1867	3.87	500	
111	Cd	115	0.447	771	8.50	2000	>RL
118	Sn	115	5.032	18978	0.57	2000	>RL
121	Sb	115	1.412	8208	2.73	500	
137	Ba	115	324.904	592254	0.51	2000	>RL
205	Tl	209	0.407	9661	2.65	2000	
208	Pb	209	63.333	2013099	0.38	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	913997	1.38	904202	101.08	70	120	
72	Ge	666482	0.88	677615	98.36	70	120	
115	In	6333468	1.06	6287303	100.73	70	120	
209	Bi	13733796	0.42	14081817	97.53	70	120	

Sample Report

Date Acquired	5/23/16 4:13 PM	Sample Name	1605096-06A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	154SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	47.059	1998	0.83	2000	>RL
9	Be	45	2.283	130	11.49	2000	>RL
11	B	45	55.835	1328	7.88	2000	>RL
23	Na	45	661.755	540322	0.48	25000	>RL
24	Mg	45	11475.959	4406459	0.38	25000	>RL
27	Al	45	58831.235	8348547	1.59	10000	OUTCAL
39	K	45	14346.848	5663189	0.27	25000	>RL
44	Ca	45	30649.755	647665	0.72	25000	OUTCAL
47	Ti	45	366.394	53790	1.67	2000	>RL
51	V	45	77.664	373098	0.61	2000	>RL
52	Cr	45	49.809	281362	0.45	2000	>RL
55	Mn	45	546.375	1743806	0.09	2000	>RL
56	Fe	45	49260.875	235468088	0.63	10000	OUTCAL
59	Co	72	16.780	147985	0.23	2000	>RL
60	Ni	72	28.676	67931	1.27	2000	>RL
63	Cu	72	29.090	186524	1.12	2000	>RL
66	Zn	72	212.788	235887	0.41	2000	>RL
75	As	72	15.156	14484	1.81	2000	>RL
78	Se	72	3.228	274	10.22	2000	>RL
88	Sr	115	196.501	871061	0.26	2000	>RL
95	Mo	115	0.990	3693	5.24	2000	
107	Ag	115	0.113	1335	9.89	500	
111	Cd	115	0.416	724	3.06	2000	>RL
118	Sn	115	4.844	18454	0.72	2000	>RL
121	Sb	115	1.699	9941	1.58	500	
137	Ba	115	261.053	480221	0.67	2000	>RL
205	Tl	209	0.529	12868	1.89	2000	
208	Pb	209	78.190	2552742	0.83	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	942609	0.51	904202	104.25	70	120	
72	Ge	678739	1.01	677615	100.17	70	120	
115	In	6390858	0.51	6287303	101.65	70	120	
209	Bi	14112727	2.91	14081817	100.22	70	120	

Sample Report

Date Acquired	5/23/16 4:15 PM	Sample Name	1605096-07A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	155SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	52.728	2264	5.04	2000	>RL
9	Be	45	2.396	138	12.57	2000	>RL
11	B	45	61.874	1469	5.99	2000	>RL
23	Na	45	767.406	628444	0.72	25000	>RL
24	Mg	45	10311.048	4007184	0.77	25000	>RL
27	Al	45	56956.743	8179688	2.49	10000	OUTCAL
39	K	45	12292.027	4919362	0.11	25000	>RL
44	Ca	45	26239.930	561362	0.79	25000	OUTCAL
47	Ti	45	297.655	44229	1.20	2000	>RL
51	V	45	87.662	425668	0.21	2000	>RL
52	Cr	45	64.730	369719	0.60	2000	>RL
55	Mn	45	462.467	1493913	0.98	2000	>RL
56	Fe	45	52746.909	255164381	1.83	10000	OUTCAL
59	Co	72	18.807	168620	0.75	2000	>RL
60	Ni	72	30.646	73749	1.44	2000	>RL
63	Cu	72	66.387	430708	0.88	2000	>RL
66	Zn	72	251.849	283778	0.90	2000	>RL
75	As	72	16.486	16002	1.20	2000	>RL
78	Se	72	3.519	295	1.76	2000	>RL
88	Sr	115	223.784	1011300	1.01	2000	>RL
95	Mo	115	1.232	4676	4.36	2000	
107	Ag	115	0.420	4953	1.62	500	>RL
111	Cd	115	0.674	1195	5.16	2000	>RL
118	Sn	115	5.839	22574	0.86	2000	>RL
121	Sb	115	3.279	19433	1.46	500	>RL
137	Ba	115	290.312	544556	1.16	2000	>RL
205	Tl	209	0.450	11071	2.14	2000	
208	Pb	209	135.378	4464808	0.57	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	954103	1.04	904202	105.52	70	120	
72	Ge	690080	0.82	677615	101.84	70	120	
115	In	6517305	1.43	6287303	103.66	70	120	
209	Bi	14253296	1.43	14081817	101.22	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/23/2016 16:17	Sample Name	1605096-14A PDS
Data Batch	160523.b	Comment	PDS ICPMS_TSDOD1
Data File Name	156_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	245.404	10228	1.48	52.7	200	96.3	75	125	
9	Be	45	199.517	10977	1.06	2.2	200	98.7	75	125	
11	B	45	270.341	5650	3.22	73.7	200	98.3	75	125	
23	Na	45	5623.265	4269100	0.70	704.0	5000	98.4	75	125	
24	Mg	45	18216.224	6903524	1.37	12987.5	5000	104.6	75	125	
27	Al	45	54404.618	7621995	1.60	48433.4	5000	119.4	75	125	
39	K	45	21486.144	8344396	2.58	15746.6	5000	114.8	75	125	
44	Ca	45	########	2541806	0.68	115495.2	5000	129.9	75	125	Fail
47	Ti	45	1045.654	151532	0.78	834.8	200	105.4	75	125	
51	V	45	309.960	1456838	0.43	108.8	200	100.6	75	125	
52	Cr	45	262.672	1459758	0.81	62.4	200	100.2	75	125	
55	Mn	45	978.589	3083076	0.85	789.6	200	94.5	75	125	
56	Fe	45	63561.735	299932584	0.73	58641.4	5000	98.4	75	125	
59	Co	72	218.049	1899596	0.24	18.4	200	99.8	75	125	
60	Ni	72	234.483	543250	0.41	35.6	200	99.4	75	125	
63	Cu	72	282.575	1777389	0.08	82.5	200	100.0	75	125	
66	Zn	72	642.086	702855	0.91	434.2	200	103.9	75	125	
75	As	72	218.691	204068	0.53	16.7	200	101.0	75	125	
78	Se	72	205.521	11428	1.15	4.2	200	100.6	75	125	
88	Sr	115	637.197	2782051	0.38	436.1	200	100.5	75	125	
95	Mo	115	194.420	707660	0.65	2.2	200	96.1	75	125	
107	Ag	115	188.010	2127744	0.55	0.3	200	93.9	75	125	
111	Cd	115	189.397	323541	0.81	1.2	200	94.1	75	125	
118	Sn	115	209.409	764897	0.42	8.4	200	100.5	75	125	
121	Sb	115	190.568	1084058	1.01	2.2	200	94.2	75	125	
137	Ba	115	823.706	1493582	0.90	617.0	200	103.4	75	125	
205	Tl	209	195.125	4635970	0.82	0.5	200	97.3	75	125	
208	Pb	209	329.933	10550697	0.69	132.5	200	98.7	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	930513	0.23	904202	102.91	70	120	
72	Ge	670917	0.79	677615	99.01	70	120	
115	In	6300237	0.53	6287303	100.21	70	120	
209	Bi	13822083	1.80	14081817	98.16	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/23/2016 16:19	Sample Name	1605096-14A MS
Data Batch	160523.b	Comment	MS ICPMS_TSDOD1
Data File Name	157_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	244.612	10207	0.86	52.7	200	95.9	80	120	
9	Be	45	197.225	10864	1.35	2.2	200	97.5	80	120	
11	B	45	277.450	5800	3.19	73.7	200	101.9	80	120	
23	Na	45	5627.974	4277525	0.16	704.0	1000	492.4	80	120	Fail
24	Mg	45	17714.552	6721221	0.55	12987.5	1000	472.7	80	120	Fail
27	Al	45	52185.867	7319600	1.58	48433.4	1000	375.2	80	120	Fail
39	K	45	20690.666	8046586	1.10	15746.6	1000	494.4	80	120	Fail
44	Ca	45	########	2457009	0.39	115495.2	1000	229.2	80	120	Fail
47	Ti	45	1035.933	150296	0.85	834.8	200	100.6	80	120	
51	V	45	304.698	1433825	0.62	108.8	200	98.0	80	120	
52	Cr	45	255.262	1420215	0.67	62.4	200	96.4	80	120	
55	Mn	45	955.520	3013815	0.32	789.6	200	83.0	80	120	
56	Fe	45	57857.319	273328300	0.76	58641.4	1000	-78.4	80	120	Fail
59	Co	72	217.759	1898829	0.36	18.4	200	99.7	80	120	
60	Ni	72	236.854	549273	0.69	35.6	200	100.6	80	120	
63	Cu	72	298.545	1879542	0.14	82.5	200	108.0	80	120	
66	Zn	72	624.296	684050	0.42	434.2	200	95.1	80	120	
75	As	72	215.625	201404	0.78	16.7	200	99.5	80	120	
78	Se	72	203.708	11339	1.92	4.2	200	99.7	80	120	
88	Sr	115	628.822	2738648	1.11	436.1	200	96.4	80	120	
95	Mo	115	185.280	672701	0.52	2.2	200	91.6	80	120	
107	Ag	115	194.941	2200533	0.80	0.3	200	97.3	80	120	
111	Cd	115	190.934	325338	0.84	1.2	200	94.9	80	120	
118	Sn	115	199.686	727562	0.32	8.4	200	95.7	80	120	
121	Sb	115	59.202	336028	0.36	2.2	200	28.5	80	120	Fail
137	Ba	115	827.551	1496760	0.31	617.0	200	105.3	80	120	
205	Tl	209	194.350	4658196	0.94	0.5	200	96.9	80	120	
208	Pb	209	315.725	10185025	0.58	132.5	200	91.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	931578	0.19	904202	103.03	70	120	
72	Ge	671538	0.51	677615	99.10	70	120	
115	In	6284207	0.40	6287303	99.95	70	120	
209	Bi	13942023	0.58	14081817	99.01	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/23/2016 16:21	Sample Name	1605096-14A MSD
Data Batch	160523.b	Comment	MSD ICPMS_TSDOD1
Data File Name	158_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	247.671	10039	2.56	52.7	200	97.5	80	120	
9	Be	45	197.835	10584	0.75	2.2	200	97.8	80	120	
11	B	45	269.082	5470	3.61	73.7	200	97.7	80	120	
23	Na	45	5697.707	4206117	1.20	704.0	1000	499.4	80	120	Fail
24	Mg	45	17828.561	6570853	1.39	12987.5	1000	484.1	80	120	Fail
27	Al	45	50819.117	6924180	1.86	48433.4	1000	238.6	80	120	Fail
39	K	45	20641.082	7798606	2.79	15746.6	1000	489.5	80	120	Fail
44	Ca	45	########	2361699	1.24	115495.2	1000	106.4	80	120	
47	Ti	45	1020.817	143851	0.32	834.8	200	93.0	80	120	
51	V	45	305.069	1394447	1.80	108.8	200	98.1	80	120	
52	Cr	45	256.723	1387337	0.67	62.4	200	97.2	80	120	
55	Mn	45	972.117	2978112	0.54	789.6	200	91.3	80	120	
56	Fe	45	57321.948	263008416	1.36	58641.4	1000	-131.9	80	120	Fail
59	Co	72	217.109	1862926	0.73	18.4	200	99.4	80	120	
60	Ni	72	232.439	530427	0.97	35.6	200	98.4	80	120	
63	Cu	72	304.967	1889278	0.52	82.5	200	111.2	80	120	
66	Zn	72	619.451	667900	0.54	434.2	200	92.6	80	120	
75	As	72	214.784	197415	0.42	16.7	200	99.0	80	120	
78	Se	72	200.099	10963	0.85	4.2	200	97.9	80	120	
88	Sr	115	609.818	2617789	0.79	436.1	200	86.8	80	120	
95	Mo	115	185.250	663008	1.33	2.2	200	91.5	80	120	
107	Ag	115	192.448	2141521	0.75	0.3	200	96.1	80	120	
111	Cd	115	190.245	319542	0.46	1.2	200	94.5	80	120	
118	Sn	115	199.877	717829	0.96	8.4	200	95.8	80	120	
121	Sb	115	60.891	340674	0.60	2.2	200	29.3	80	120	Fail
137	Ba	115	790.186	1408730	0.92	617.0	200	86.6	80	120	
205	Tl	209	193.716	4542508	0.26	0.5	200	96.6	80	120	
208	Pb	209	317.450	10019560	0.71	132.5	200	92.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	904917	1.27	904202	100.08	70	120	
72	Ge	660807	0.35	677615	97.52	70	120	
115	In	6195299	1.47	6287303	98.54	70	120	
209	Bi	13642424	1.60	14081817	96.88	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/23/2016 16:23	Sample Name	CCV5-160523
Data Batch	160523.b	Comment	CCV ICPMS_TW
Data File Name	159_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	201.797	8150	2.37	200	100.9	90	110	
9	Be	45	196.877	10493	1.23	200	98.4	90	110	
11	B	45	198.177	4059	5.38	200	99.1	90	110	
23	Na	45	4976.757	3663521	0.74	5000	99.5	90	110	
24	Mg	45	4937.444	1813963	0.47	5000	98.7	90	110	
27	Al	45	4819.253	656082	0.90	5000	96.4	90	110	
39	K	45	5027.576	1933611	0.61	5000	100.6	90	110	
44	Ca	45	4805.025	97895	0.37	5000	96.1	90	110	
47	Ti	45	196.909	27644	1.72	200	98.5	90	110	
51	V	45	198.178	903790	1.09	200	99.1	90	110	
52	Cr	45	197.990	1066066	0.68	200	99.0	90	110	
55	Mn	45	195.106	595560	0.64	200	97.6	90	110	
56	Fe	45	5049.359	23088207	1.53	5000	101.0	90	110	
59	Co	72	200.915	1732093	0.53	200	100.5	90	110	
60	Ni	72	203.541	466763	0.17	200	101.8	90	110	
63	Cu	72	207.256	1290479	0.16	200	103.6	90	110	
66	Zn	72	202.683	219802	0.29	200	101.3	90	110	
75	As	72	200.409	185082	0.40	200	100.2	90	110	
78	Se	72	201.384	11084	1.35	200	100.7	90	110	
88	Sr	115	187.014	817186	0.60	200	93.5	90	110	
95	Mo	115	191.483	696865	0.86	200	95.7	90	110	
107	Ag	115	194.689	2202905	1.01	200	97.3	90	110	
111	Cd	115	190.082	324655	0.55	200	95.0	90	110	
118	Sn	115	190.638	696264	1.24	200	95.3	90	110	
121	Sb	115	191.417	1088725	1.11	200	95.7	90	110	
137	Ba	115	188.682	342151	0.42	200	94.3	90	110	
205	Tl	209	193.509	4585568	0.55	200	96.8	90	110	
208	Pb	209	190.469	6075123	0.18	200	95.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	901346	0.71	904202	99.68	70	120	
72	Ge	663913	0.54	677615	97.98	70	120	
115	In	6299760	0.93	6287303	100.20	70	120	
209	Bi	13784027	0.52	14081817	97.89	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 16:27	Sample Name	LCVL5-160523
Data Batch	160523.b	Comment	LCVLICPMS_TW
Data File Name	161LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.724	440	9.97	10	107.2	70	130	
9	Be	45	1.100	60	6.90	1	110.0	70	130	
11	B	45	24.629	649	6.42	20	123.1	70	130	
23	Na	45	102.503	107134	1.32	100	102.5	70	130	
24	Mg	45	97.436	37159	0.90	100	97.4	70	130	
27	Al	45	101.392	15793	1.13	100	101.4	70	130	
39	K	45	109.100	94597	1.57	100	109.1	70	130	
44	Ca	45	92.280	2778	0.81	100	92.3	70	130	
47	Ti	45	5.547	769	1.75	5	110.9	70	130	
51	V	45	0.660	7137	5.42	1	66.0	70	130	Fail
52	Cr	45	5.126	28276	2.20	5	102.5	70	130	
55	Mn	45	4.994	15216	0.46	5	99.9	70	130	
56	Fe	45	101.150	466646	0.69	100	101.1	70	130	
59	Co	72	4.978	43366	1.63	5	99.6	70	130	
60	Ni	72	4.836	11971	1.40	5	96.7	70	130	
63	Cu	72	5.568	36469	2.25	5	111.4	70	130	
66	Zn	72	5.085	5910	3.83	5	101.7	70	130	
75	As	72	4.947	4790	1.29	5	98.9	70	130	
78	Se	72	5.269	383	8.23	5	105.4	70	130	
88	Sr	115	4.825	21939	1.76	5	96.5	70	130	
95	Mo	115	4.719	17039	2.04	5	94.4	70	130	
107	Ag	115	1.962	22013	0.89	2	98.1	70	130	
111	Cd	115	0.947	1605	2.58	1	94.7	70	130	
118	Sn	115	4.865	18086	2.42	5	97.3	70	130	
121	Sb	115	1.992	11353	3.07	2	99.6	70	130	
137	Ba	115	4.821	8743	3.51	5	96.4	70	130	
205	Tl	209	0.988	23107	1.02	1	98.8	70	130	
208	Pb	209	1.036	33130	0.67	1	103.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	887680	0.82	904202	98.17	70	120	
72	Ge	669269	0.79	677615	98.77	70	120	
115	In	6237111	0.26	6287303	99.20	70	120	
209	Bi	13580613	0.47	14081817	96.44	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/23/2016 16:29	Sample Name	CCB5-160523
Data Batch	160523.b	Comment	CCB ICPMS_TW
Data File Name	162_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.296	25	16.4	2	5	
9	Be	45	0.071	6	24.1	0.4	0.3	
11	B	45	2.737	226	12.3	10	10	
23	Na	45	-3.403	30948	1.8	50	100	
24	Mg	45	-2.653	981	5.1	50	100	
27	Al	45	-0.539	2165	9.0	50	10	
39	K	45	4.480	55885	0.7	50	100	
44	Ca	45	-4.459	852	6.1	50	100	
47	Ti	45	0.074	12	110.2	4	3	
51	V	45	-0.363	2555	2.8	4	3	
52	Cr	45	-0.049	857	8.8	2	2	
55	Mn	45	0.013	248	21.0	2	3	
56	Fe	45	1.109	16272	2.2	50	50	
59	Co	72	0.002	128	18.5	2	3	
60	Ni	72	-0.220	302	6.7	2	3	
63	Cu	72	0.415	4162	12.5	2	2	
66	Zn	72	0.024	388	22.3	4	2	
75	As	72	-0.015	175	18.1	2	2	
78	Se	72	0.223	105	14.7	1	2	
88	Sr	115	0.006	1129	8.5	4	3	
95	Mo	115	0.004	51	21.0	2	2	
107	Ag	115	0.050	603	0.6	0.4	1	
111	Cd	115	0.006	14	74.2	0.4	0.3	
118	Sn	115	0.009	544	12.3	4	3	
121	Sb	115	0.082	598	35.5	2	0.8	
137	Ba	115	0.016	120	7.3	2	3	
205	Tl	209	0.005	151	26.5	2	0.5	
208	Pb	209	0.039	1793	9.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	884168	0.99	904202	97.78	70	120	
72	Ge	669545	0.78	677615	98.81	70	120	
115	In	6304397	2.33	6287303	100.27	70	120	
209	Bi	13603427	0.19	14081817	96.60	70	120	

Sample Report

Date Acquired	5/23/16 4:31 PM	Sample Name	1605096-08A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	163SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	62.711	2594	2.22	2000	>RL
9	Be	45	2.530	140	11.59	2000	>RL
11	B	45	74.983	1679	2.89	2000	>RL
23	Na	45	404.586	335848	0.08	25000	>RL
24	Mg	45	12343.625	4624820	0.30	25000	>RL
27	Al	45	61187.800	8473670	1.41	10000	OUTCAL
39	K	45	14916.012	5743018	1.93	25000	>RL
44	Ca	45	51485.454	1060965	0.68	25000	OUTCAL
47	Ti	45	277.170	39706	0.62	2000	>RL
51	V	45	101.224	473196	0.65	2000	>RL
52	Cr	45	66.657	367026	0.70	2000	>RL
55	Mn	45	525.758	1637353	1.19	2000	>RL
56	Fe	45	62859.421	293193339	0.99	10000	OUTCAL
59	Co	72	23.196	199874	0.53	2000	>RL
60	Ni	72	37.814	87284	0.39	2000	>RL
63	Cu	72	82.837	516187	0.64	2000	>RL
66	Zn	72	288.113	311988	0.31	2000	>RL
75	As	72	21.258	19780	0.59	2000	>RL
78	Se	72	4.410	332	6.51	2000	>RL
88	Sr	115	212.672	938476	0.31	2000	>RL
95	Mo	115	1.091	4047	3.05	2000	
107	Ag	115	0.203	2357	1.10	500	
111	Cd	115	0.603	1044	3.41	2000	>RL
118	Sn	115	5.412	20466	1.33	2000	>RL
121	Sb	115	3.243	18764	3.44	500	>RL
137	Ba	115	360.162	659577	0.47	2000	>RL
205	Tl	209	0.501	11816	1.04	2000	
208	Pb	209	548.184	17326582	0.59	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	919826	0.63	904202	101.73	70	120	
72	Ge	663265	0.69	677615	97.88	70	120	
115	In	6362423	0.14	6287303	101.19	70	120	
209	Bi	13660112	0.39	14081817	97.01	70	120	

Sample Report

Date Acquired	5/23/16 4:33 PM	Sample Name	1605096-09A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	164SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.529	2084	4.53	2000	>RL
9	Be	45	2.520	142	14.38	2000	>RL
11	B	45	48.597	1169	9.88	2000	>RL
23	Na	45	270.373	239684	1.19	25000	>RL
24	Mg	45	7794.675	2967324	1.12	25000	>RL
27	Al	45	52131.098	7333317	1.62	10000	OUTCAL
39	K	45	10340.908	4062112	1.33	25000	>RL
44	Ca	45	22790.126	477577	0.13	25000	>RL
47	Ti	45	289.890	42184	1.30	2000	>RL
51	V	45	70.854	337774	1.60	2000	>RL
52	Cr	45	43.984	246417	1.58	2000	>RL
55	Mn	45	430.663	1362510	1.35	2000	>RL
56	Fe	45	52291.938	247752808	0.25	10000	OUTCAL
59	Co	72	19.504	173100	1.18	2000	>RL
60	Ni	72	29.546	70418	1.65	2000	>RL
63	Cu	72	26.998	174334	0.90	2000	>RL
66	Zn	72	235.634	262844	1.04	2000	>RL
75	As	72	16.601	15949	1.08	2000	>RL
78	Se	72	3.605	297	7.94	2000	>RL
88	Sr	115	85.128	380040	0.70	2000	>RL
95	Mo	115	0.969	3634	3.16	2000	
107	Ag	115	0.198	2315	3.20	500	
111	Cd	115	0.422	739	4.07	2000	>RL
118	Sn	115	5.042	19291	2.70	2000	>RL
121	Sb	115	2.280	13364	1.04	500	>RL
137	Ba	115	335.331	620201	0.80	2000	>RL
205	Tl	209	0.411	10056	1.25	2000	
208	Pb	209	51.822	1700056	0.95	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	934316	0.79	904202	103.33	70	120	
72	Ge	683046	0.60	677615	100.80	70	120	
115	In	6425711	0.73	6287303	102.20	70	120	
209	Bi	14176400	2.32	14081817	100.67	70	120	

Sample Report

Date Acquired	5/23/16 4:35 PM	Sample Name	1605096-10A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	165SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	77.008	3241	2.02	2000	>RL
9	Be	45	2.629	148	4.49	2000	>RL
11	B	45	97.044	2159	4.87	2000	>RL
23	Na	45	311.345	271339	0.28	25000	>RL
24	Mg	45	13133.311	5010626	1.60	25000	>RL
27	Al	45	69987.684	9868885	1.65	10000	OUTCAL
39	K	45	14174.050	5560443	0.27	25000	>RL
44	Ca	45	87708.416	1839813	0.33	25000	OUTCAL
47	Ti	45	215.499	31437	0.69	2000	>RL
51	V	45	109.243	519734	0.75	2000	>RL
52	Cr	45	62.924	352900	0.12	2000	>RL
55	Mn	45	412.050	1306867	0.29	2000	>RL
56	Fe	45	71471.407	339507987	1.19	10000	OUTCAL
59	Co	72	21.239	187258	0.33	2000	>RL
60	Ni	72	35.578	84073	0.70	2000	>RL
63	Cu	72	34.342	219891	1.02	2000	>RL
66	Zn	72	234.186	259530	0.39	2000	>RL
75	As	72	19.663	18734	0.51	2000	>RL
78	Se	72	4.063	321	5.14	2000	>RL
88	Sr	115	380.880	1656016	0.84	2000	>RL
95	Mo	115	1.495	5454	2.98	2000	
107	Ag	115	0.135	1553	4.95	500	
111	Cd	115	0.397	678	1.24	2000	
118	Sn	115	5.911	21991	1.09	2000	>RL
121	Sb	115	1.762	10111	1.61	500	
137	Ba	115	538.226	971616	0.66	2000	>RL
205	Tl	209	0.500	11895	0.64	2000	
208	Pb	209	60.045	1915669	0.44	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	936723	0.97	904202	103.60	70	120	
72	Ge	678630	0.63	677615	100.15	70	120	
115	In	6272637	1.61	6287303	99.77	70	120	
209	Bi	13789823	2.50	14081817	97.93	70	120	

Sample Report

Date Acquired	5/23/16 4:37 PM	Sample Name	1605096-11A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	166SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	43.502	1836	1.08	2000	>RL
9	Be	45	2.341	132	4.55	2000	>RL
11	B	45	79.631	1803	8.49	2000	>RL
23	Na	45	388.612	329804	0.08	25000	>RL
24	Mg	45	9033.675	3446268	0.58	25000	>RL
27	Al	45	48088.399	6779595	2.19	10000	OUTCAL
39	K	45	9849.453	3880296	0.62	25000	>RL
44	Ca	45	60837.201	1276089	0.25	25000	OUTCAL
47	Ti	45	240.989	35147	0.52	2000	>RL
51	V	45	79.628	379908	1.90	2000	>RL
52	Cr	45	52.261	293216	0.76	2000	>RL
55	Mn	45	493.793	1565650	0.69	2000	>RL
56	Fe	45	50289.831	238803413	1.37	10000	OUTCAL
59	Co	72	14.616	129629	0.49	2000	>RL
60	Ni	72	31.247	74353	1.00	2000	>RL
63	Cu	72	69.259	444338	1.29	2000	>RL
66	Zn	72	499.705	556486	0.63	2000	>RL
75	As	72	15.930	15300	1.24	2000	>RL
78	Se	72	3.436	287	10.39	2000	>RL
88	Sr	115	356.809	1623444	1.32	2000	>RL
95	Mo	115	1.593	6077	1.22	2000	
107	Ag	115	0.187	2235	4.31	500	
111	Cd	115	1.690	3011	3.29	2000	>RL
118	Sn	115	5.870	22856	2.28	2000	>RL
121	Sb	115	2.134	12787	1.01	500	>RL
137	Ba	115	385.549	728335	1.07	2000	>RL
205	Tl	209	0.392	9582	1.85	2000	
208	Pb	209	109.535	3586161	0.23	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	936407	0.40	904202	103.56	70	120	
72	Ge	682428	0.42	677615	100.71	70	120	
115	In	6563460	0.67	6287303	104.39	70	120	
209	Bi	14148827	1.19	14081817	100.48	70	120	

Sample Report

Date Acquired	5/23/16 4:39 PM	Sample Name	1605096-12A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	167SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	55.041	2348	0.51	2000	>RL
9	Be	45	2.425	139	13.50	2000	>RL
11	B	45	73.961	1709	9.18	2000	>RL
23	Na	45	490.828	412199	0.65	25000	>RL
24	Mg	45	11178.153	4315707	0.28	25000	>RL
27	Al	45	58540.916	8353448	1.63	10000	OUTCAL
39	K	45	11695.999	4652903	0.55	25000	>RL
44	Ca	45	52349.113	1111532	0.30	25000	OUTCAL
47	Ti	45	364.436	53794	1.77	2000	>RL
51	V	45	126.657	608986	0.47	2000	>RL
52	Cr	45	110.689	627234	0.42	2000	>RL
55	Mn	45	1019.281	3270801	0.20	2000	>RL
56	Fe	45	76638.004	368341879	0.71	10000	OUTCAL
59	Co	72	18.749	165688	0.43	2000	>RL
60	Ni	72	45.362	107210	0.46	2000	>RL
63	Cu	72	295.944	1887082	0.21	2000	>RL
66	Zn	72	758.639	841820	0.43	2000	>RL
75	As	72	18.658	17826	0.50	2000	>RL
78	Se	72	3.161	271	3.28	2000	>RL
88	Sr	115	299.174	1343021	0.33	2000	>RL
95	Mo	115	4.318	16187	1.45	2000	>RL
107	Ag	115	0.362	4247	2.00	500	
111	Cd	115	1.456	2559	6.19	2000	>RL
118	Sn	115	21.934	82805	0.70	2000	>RL
121	Sb	115	4.058	23862	1.56	500	>RL
137	Ba	115	372.133	693517	0.06	2000	>RL
205	Tl	209	0.456	10904	1.19	2000	
208	Pb	209	101.398	3250683	0.98	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	947774	0.14	904202	104.82	70	120	
72	Ge	680149	0.38	677615	100.37	70	120	
115	In	6474711	0.40	6287303	102.98	70	120	
209	Bi	13854574	1.67	14081817	98.39	70	120	

Sample Report

Date Acquired	5/23/16 4:41 PM	Sample Name	1605096-13A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	168SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	49.053	2019	0.90	2000	>RL
9	Be	45	1.906	106	6.30	2000	>RL
11	B	45	68.152	1532	8.84	2000	>RL
23	Na	45	820.113	641073	0.74	25000	>RL
24	Mg	45	12232.248	4554490	0.80	25000	>RL
27	Al	45	45457.251	6255800	2.15	10000	OUTCAL
39	K	45	14150.202	5417276	0.21	25000	>RL
44	Ca	45	111182.438	2275723	0.86	25000	OUTCAL
47	Ti	45	911.232	129717	1.16	2000	>RL
51	V	45	108.107	501934	0.24	2000	>RL
52	Cr	45	57.590	315279	0.90	2000	>RL
55	Mn	45	761.124	2355581	0.21	2000	>RL
56	Fe	45	57416.420	266134629	1.61	10000	OUTCAL
59	Co	72	18.238	157594	0.95	2000	>RL
60	Ni	72	34.322	79515	2.00	2000	>RL
63	Cu	72	79.074	494154	1.37	2000	>RL
66	Zn	72	375.139	407210	0.72	2000	>RL
75	As	72	15.990	14965	1.45	2000	>RL
78	Se	72	3.898	305	9.18	2000	>RL
88	Sr	115	411.241	1806387	0.23	2000	>RL
95	Mo	115	1.887	6945	2.12	2000	
107	Ag	115	0.248	2853	2.56	500	
111	Cd	115	1.001	1723	6.80	2000	>RL
118	Sn	115	7.527	28151	1.10	2000	>RL
121	Sb	115	1.750	10148	0.36	500	
137	Ba	115	539.935	984774	0.31	2000	>RL
205	Tl	209	0.441	10402	3.08	2000	
208	Pb	209	106.382	3362135	0.70	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	914079	0.49	904202	101.09	70	120	
72	Ge	665029	0.51	677615	98.14	70	120	
115	In	6336830	0.33	6287303	100.79	70	120	
209	Bi	13658909	1.60	14081817	97.00	70	120	

Sample Report

Date Acquired	5/23/16 4:43 PM	Sample Name	1605096-15A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	169SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	52.001	2133	2.80	2000	>RL
9	Be	45	2.136	118	8.25	2000	>RL
11	B	45	70.333	1571	3.09	2000	>RL
23	Na	45	801.068	625014	0.75	25000	>RL
24	Mg	45	13389.271	4969649	1.25	25000	>RL
27	Al	45	48966.388	6717880	0.20	10000	OUTCAL
39	K	45	15870.149	6049512	1.34	25000	>RL
44	Ca	45	122035.324	2489922	0.82	25000	OUTCAL
47	Ti	45	926.151	131429	1.11	2000	>RL
51	V	45	112.326	519717	0.32	2000	>RL
52	Cr	45	61.651	336371	1.24	2000	>RL
55	Mn	45	839.166	2588849	0.64	2000	>RL
56	Fe	45	60526.449	279649224	2.25	10000	OUTCAL
59	Co	72	19.533	167032	0.87	2000	>RL
60	Ni	72	37.492	85881	0.68	2000	>RL
63	Cu	72	109.816	678565	0.93	2000	>RL
66	Zn	72	471.899	506847	0.84	2000	>RL
75	As	72	17.078	15803	1.86	2000	>RL
78	Se	72	4.320	325	2.60	2000	>RL
88	Sr	115	478.724	2047541	0.42	2000	>RL
95	Mo	115	2.099	7520	1.72	2000	>RL
107	Ag	115	0.310	3470	1.70	500	
111	Cd	115	1.405	2355	1.79	2000	>RL
118	Sn	115	8.028	29202	1.07	2000	>RL
121	Sb	115	2.452	13794	1.75	500	>RL
137	Ba	115	594.797	1056381	0.22	2000	>RL
205	Tl	209	0.480	11447	1.77	2000	
208	Pb	209	141.364	4524839	0.89	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	911217	0.68	904202	100.78	70	120	
72	Ge	658143	0.50	677615	97.13	70	120	
115	In	6171360	1.26	6287303	98.16	70	120	
209	Bi	13832407	0.58	14081817	98.23	70	120	

Sample Report

Date Acquired	5/23/16 4:45 PM	Sample Name	1605096-16A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	170SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	70.985	2896	2.98	2000	>RL
9	Be	45	2.931	160	2.72	2000	>RL
11	B	45	85.341	1861	2.61	2000	>RL
23	Na	45	909.365	702334	0.73	25000	>RL
24	Mg	45	13923.065	5148415	3.13	25000	>RL
27	Al	45	74451.509	10175347	1.02	10000	OUTCAL
39	K	45	17137.905	6503986	2.36	25000	>RL
44	Ca	45	105223.149	2139359	0.73	25000	OUTCAL
47	Ti	45	288.774	40837	1.24	2000	>RL
51	V	45	116.263	535836	0.20	2000	>RL
52	Cr	45	81.119	440641	0.45	2000	>RL
55	Mn	45	726.568	2233458	0.26	2000	>RL
56	Fe	45	73882.875	340113035	2.66	10000	OUTCAL
59	Co	72	28.242	239421	0.55	2000	>RL
60	Ni	72	43.800	99353	0.42	2000	>RL
63	Cu	72	21.492	132908	0.82	2000	>RL
66	Zn	72	235.656	251159	2.18	2000	>RL
75	As	72	24.117	22055	1.11	2000	>RL
78	Se	72	4.864	351	6.15	2000	>RL
88	Sr	115	299.764	1268519	1.34	2000	>RL
95	Mo	115	1.698	6022	1.53	2000	
107	Ag	115	0.168	1872	9.66	500	
111	Cd	115	0.648	1077	4.58	2000	>RL
118	Sn	115	5.711	20689	0.64	2000	>RL
121	Sb	115	3.328	18471	1.55	500	>RL
137	Ba	115	458.819	806024	0.90	2000	>RL
205	Tl	209	0.571	13310	2.56	2000	
208	Pb	209	257.902	8066655	0.95	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	907977	1.13	904202	100.42	70	120	
72	Ge	652608	0.33	677615	96.31	70	120	
115	In	6104561	2.14	6287303	97.09	70	120	
209	Bi	13517504	1.16	14081817	95.99	70	120	

Sample Report

Date Acquired	5/23/16 4:47 PM	Sample Name	1605096-17A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	171SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	82.358	3451	0.28	2000	>RL
9	Be	45	2.948	165	11.51	2000	>RL
11	B	45	88.829	1983	8.00	2000	>RL
23	Na	45	4038.300	3084157	0.70	25000	>RL
24	Mg	45	12445.641	4730265	0.42	25000	>RL
27	Al	45	75797.769	10646976	0.86	10000	OUTCAL
39	K	45	14310.912	5591974	1.24	25000	>RL
44	Ca	45	59021.270	1233595	1.20	25000	OUTCAL
47	Ti	45	245.632	35695	1.03	2000	>RL
51	V	45	119.898	567764	0.48	2000	>RL
52	Cr	45	78.945	440744	1.26	2000	>RL
55	Mn	45	612.311	1934464	0.44	2000	>RL
56	Fe	45	76277.969	360931932	2.35	10000	OUTCAL
59	Co	72	33.759	292043	1.54	2000	>RL
60	Ni	72	48.861	113015	0.95	2000	>RL
63	Cu	72	19.537	123438	1.54	2000	>RL
66	Zn	72	234.705	255274	1.29	2000	>RL
75	As	72	24.982	23309	1.57	2000	>RL
78	Se	72	4.810	356	3.50	2000	>RL
88	Sr	115	308.586	1335028	1.13	2000	>RL
95	Mo	115	1.184	4304	4.24	2000	
107	Ag	115	0.142	1619	4.49	500	
111	Cd	115	0.348	592	10.15	2000	
118	Sn	115	5.378	19951	0.74	2000	>RL
121	Sb	115	1.840	10500	1.92	500	
137	Ba	115	547.207	982837	0.46	2000	>RL
205	Tl	209	0.566	13172	1.90	2000	
208	Pb	209	132.928	4148657	0.80	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	933067	0.42	904202	103.19	70	120	
72	Ge	665983	0.46	677615	98.28	70	120	
115	In	6241004	1.12	6287303	99.26	70	120	
209	Bi	13490736	2.15	14081817	95.80	70	120	

Sample Report

Date Acquired	5/23/16 4:49 PM	Sample Name	1605096-18A
Data Batch	160523.b	Comment	SAMPICPMS_TSDOD1
Data File Name	172SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	99.746	4004	2.08	2000	>RL
9	Be	45	2.081	113	1.36	2000	>RL
11	B	45	156.922	3226	1.50	2000	>RL
23	Na	45	14712.922	10683331	1.51	25000	>RL
24	Mg	45	12327.506	4492104	0.56	25000	>RL
27	Al	45	59410.450	8001433	0.50	10000	OUTCAL
39	K	45	10671.647	4011906	0.88	25000	>RL
44	Ca	45	290356.365	5814400	2.10	25000	OUTCAL
47	Ti	45	204.758	28527	1.80	2000	>RL
51	V	45	100.368	456361	0.47	2000	>RL
52	Cr	45	60.705	325188	0.50	2000	>RL
55	Mn	45	201.289	609830	0.15	2000	>RL
56	Fe	45	63737.342	289155900	1.85	10000	OUTCAL
59	Co	72	16.908	141818	0.58	2000	>RL
60	Ni	72	26.757	60335	0.15	2000	>RL
63	Cu	72	10.637	65824	1.11	2000	>RL
66	Zn	72	109.441	115552	0.72	2000	>RL
75	As	72	17.081	15503	0.83	2000	>RL
78	Se	72	3.546	277	14.34	2000	>RL
88	Sr	115	1358.744	5771138	1.24	2000	>RL
95	Mo	115	1.103	3942	1.78	2000	
107	Ag	115	0.063	728	5.37	500	
111	Cd	115	0.061	104	17.58	2000	
118	Sn	115	5.274	19228	1.11	2000	>RL
121	Sb	115	0.149	954	5.82	500	
137	Ba	115	373.710	659369	0.48	2000	>RL
205	Tl	209	0.414	9637	2.66	2000	
208	Pb	209	35.709	1113659	0.07	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	894575	0.50	904202	98.94	70	120	
72	Ge	645482	0.48	677615	95.26	70	120	
115	In	6130171	0.75	6287303	97.50	70	120	
209	Bi	13472775	1.06	14081817	95.67	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/23/2016 16:51	Sample Name	CCV6-160523
Data Batch	160523.b	Comment	CCV ICPMS_TW
Data File Name	173_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	199.618	7993	0.77	200	99.8	90	110	
9	Be	45	197.514	10436	1.39	200	98.8	90	110	
11	B	45	193.491	3933	2.55	200	96.7	90	110	
23	Na	45	4985.344	3638590	0.29	5000	99.7	90	110	
24	Mg	45	4958.895	1806231	0.81	5000	99.2	90	110	
27	Al	45	4848.782	654436	0.18	5000	97.0	90	110	
39	K	45	5104.316	1945464	0.88	5000	102.1	90	110	
44	Ca	45	4864.857	98262	2.29	5000	97.3	90	110	
47	Ti	45	194.137	27021	0.38	200	97.1	90	110	
51	V	45	197.730	894015	1.00	200	98.9	90	110	
52	Cr	45	198.413	1059176	1.06	200	99.2	90	110	
55	Mn	45	195.173	590712	1.07	200	97.6	90	110	
56	Fe	45	5073.823	23004020	0.79	5000	101.5	90	110	
59	Co	72	198.650	1726060	0.37	200	99.3	90	110	
60	Ni	72	200.741	463981	0.69	200	100.4	90	110	
63	Cu	72	202.712	1272163	0.62	200	101.4	90	110	
66	Zn	72	199.720	218310	1.11	200	99.9	90	110	
75	As	72	199.230	185449	0.76	200	99.6	90	110	
78	Se	72	196.458	10901	1.67	200	98.2	90	110	
88	Sr	115	184.255	808441	0.40	200	92.1	90	110	
95	Mo	115	187.875	686533	0.29	200	93.9	90	110	
107	Ag	115	189.563	2153672	0.11	200	94.8	90	110	
111	Cd	115	186.691	320170	0.58	200	93.3	90	110	
118	Sn	115	188.825	692457	0.30	200	94.4	90	110	
121	Sb	115	189.705	1083421	0.25	200	94.9	90	110	
137	Ba	115	186.481	339530	0.28	200	93.2	90	110	
205	Tl	209	191.435	4485355	0.03	200	95.7	90	110	
208	Pb	209	189.668	5981566	0.61	200	94.8	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	893658	0.59	904202	98.83	70	120	
72	Ge	669154	0.61	677615	98.75	70	120	
115	In	6325246	1.02	6287303	100.60	70	120	
209	Bi	13630363	1.35	14081817	96.79	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 16:55	Sample Name	LCVL6-160523
Data Batch	160523.b	Comment	LCVLICPMS_TW
Data File Name	175LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.353	443	2.69	10	103.5	70	130	
9	Be	45	1.125	64	3.24	1	112.5	70	130	
11	B	45	22.576	636	3.97	20	112.9	70	130	
23	Na	45	98.461	108796	1.06	100	98.5	70	130	
24	Mg	45	96.118	38295	1.83	100	96.1	70	130	
27	Al	45	101.637	16516	1.57	100	101.6	70	130	
39	K	45	112.886	100213	1.19	100	112.9	70	130	
44	Ca	45	95.738	2970	4.49	100	95.7	70	130	
47	Ti	45	4.885	708	15.22	5	97.7	70	130	
51	V	45	0.622	7275	0.42	1	62.2	70	130	Fail
52	Cr	45	5.015	28896	1.97	5	100.3	70	130	
55	Mn	45	4.916	15640	0.90	5	98.3	70	130	
56	Fe	45	100.410	483601	0.30	100	100.4	70	130	
59	Co	72	5.001	45120	0.51	5	100.0	70	130	
60	Ni	72	4.910	12574	1.48	5	98.2	70	130	
63	Cu	72	5.625	38133	1.70	5	112.5	70	130	
66	Zn	72	5.045	6075	5.41	5	100.9	70	130	
75	As	72	4.934	4947	2.73	5	98.7	70	130	
78	Se	72	5.423	405	1.05	5	108.5	70	130	
88	Sr	115	4.820	22620	0.65	5	96.4	70	130	
95	Mo	115	4.763	17748	1.11	5	95.3	70	130	
107	Ag	115	1.957	22651	0.55	2	97.8	70	130	
111	Cd	115	0.960	1678	5.45	1	96.0	70	130	
118	Sn	115	4.829	18535	1.95	5	96.6	70	130	
121	Sb	115	1.950	11471	2.14	2	97.5	70	130	
137	Ba	115	4.887	9143	1.50	5	97.7	70	130	
205	Tl	209	0.944	23160	4.14	1	94.4	70	130	
208	Pb	209	0.979	32848	1.58	1	97.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	926678	1.52	904202	102.49	70	120	
72	Ge	693134	1.02	677615	102.29	70	120	
115	In	6437034	1.57	6287303	102.38	70	120	
209	Bi	14239865	0.96	14081817	101.12	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/23/2016 16:57	Sample Name	CCB6-160523
Data Batch	160523.b	Comment	CCB ICPMS_TW
Data File Name	176_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.114	19	11.9	2	5	
9	Be	45	0.040	5	40.0	0.4	0.3	
11	B	45	2.945	244	13.5	10	10	
23	Na	45	-4.919	31823	1.2	50	100	
24	Mg	45	-2.947	932	11.6	50	100	
27	Al	45	-0.446	2321	5.3	50	10	
39	K	45	6.363	60295	1.3	50	100	
44	Ca	45	-8.640	820	3.1	50	100	
47	Ti	45	0.052	10	100.0	4	3	
51	V	45	-0.367	2705	0.6	4	3	
52	Cr	45	-0.052	899	12.1	2	2	
55	Mn	45	-0.003	213	14.1	2	3	
56	Fe	45	1.484	19135	1.3	50	50	
59	Co	72	-0.001	107	25.6	2	3	
60	Ni	72	-0.247	251	32.0	2	3	
63	Cu	72	0.460	4655	4.3	2	2	
66	Zn	72	-0.021	354	9.7	4	2	
75	As	72	-0.038	160	11.9	2	2	
78	Se	72	-0.002	97	19.7	1	2	
88	Sr	115	0.028	1266	4.1	4	3	
95	Mo	115	0.005	57	21.2	2	2	
107	Ag	115	0.032	407	10.7	0.4	1	
111	Cd	115	0.006	13	86.6	0.4	0.3	
118	Sn	115	-0.010	490	11.8	4	3	
121	Sb	115	0.051	441	21.6	2	0.8	
137	Ba	115	0.008	108	38.7	2	3	
205	Tl	209	0.004	136	24.8	2	0.5	
208	Pb	209	0.020	1290	8.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	942195	0.40	904202	104.20	70	120	
72	Ge	701694	0.97	677615	103.55	70	120	
115	In	6516517	0.53	6287303	103.65	70	120	
209	Bi	14506116	2.14	14081817	103.01	70	120	

Method Blank Report

Date Acquired	5/23/16 5:00 PM	Sample Name	MB-75237
Data Batch	160523.b	Comment	MBLKICPMS_TSDOD1
Data File Name	177_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.070	18	27.92		
9	Be	45	0.021	4	25.00		
11	B	45	2.060	229	13.84		
23	Na	45	0.292	36162	0.92		
24	Mg	45	-0.644	1835	3.95		
27	Al	45	-5.658	1599	5.30		
39	K	45	11.858	63080	0.22		
44	Ca	45	1.972	1055	9.35		
47	Ti	45	0.194	31	43.29		
51	V	45	-0.372	2708	2.10		
52	Cr	45	0.148	2040	4.27		
55	Mn	45	0.112	587	10.97		
56	Fe	45	4.785	35266	0.82		
59	Co	72	-0.001	107	17.40		
60	Ni	72	-0.093	624	6.14		
63	Cu	72	0.461	4662	4.09		
66	Zn	72	2.353	3067	1.07		
75	As	72	-0.038	161	5.82		
78	Se	72	0.274	113	13.16		
88	Sr	115	-0.091	762	7.34		
95	Mo	115	0.015	98	41.24		
107	Ag	115	0.029	390	8.15		
111	Cd	115	0.005	13	25.01		
118	Sn	115	3.668	14964	1.84		
121	Sb	115	0.033	349	3.86		
137	Ba	115	0.046	187	7.79		
205	Tl	209	0.001	81	23.37		
208	Pb	209	0.037	1908	3.04		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	951924	0.92	904202	105.28	70	120	
72	Ge	700783	0.55	677615	103.42	70	120	
115	In	6783979	1.00	6287303	107.90	70	120	
209	Bi	14743945	2.17	14081817	104.70	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/23/2016 17:02	Sample Name	LCS-75237
Data Batch	160523.b	Comment	LCS ICPMS_TSDOD1
Data File Name	178_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.684	8380	0.28	200	98.8	80	120	
9	Be	45	195.117	10915	1.23	200	97.6	80	120	
11	B	45	189.083	4074	2.13	200	94.5	80	120	
23	Na	45	4898.684	3786115	0.77	1000	489.9	80	120	Fail
24	Mg	45	4838.884	1866165	0.57	1000	483.9	80	120	Fail
27	Al	45	994.213	143975	1.02	1000	99.4	80	120	
39	K	45	4995.467	2017164	0.77	1000	499.5	80	120	Fail
44	Ca	45	4728.056	101137	1.34	1000	472.8	80	120	Fail
47	Ti	45	193.443	28508	1.42	200	96.7	80	120	
51	V	45	197.900	947354	0.57	200	98.9	80	120	
52	Cr	45	198.575	1122300	1.18	200	99.3	80	120	
55	Mn	45	195.132	625267	0.12	200	97.6	80	120	
56	Fe	45	980.027	4713976	0.43	1000	98.0	80	120	
59	Co	72	199.184	1797980	0.41	200	99.6	80	120	
60	Ni	72	201.772	484496	0.55	200	100.9	80	120	
63	Cu	72	203.903	1329384	0.21	200	102.0	80	120	
66	Zn	72	200.566	227744	0.87	200	100.3	80	120	
75	As	72	200.551	193929	0.50	200	100.3	80	120	
78	Se	72	197.561	11387	0.80	200	98.8	80	120	
88	Sr	115	186.175	849592	0.14	200	93.1	80	120	
95	Mo	115	189.371	719742	0.33	200	94.7	80	120	
107	Ag	115	189.068	2234183	1.18	200	94.5	80	120	
111	Cd	115	188.859	336866	0.34	200	94.4	80	120	
118	Sn	115	194.139	740501	0.90	200	97.1	80	120	
121	Sb	115	187.458	1113518	0.62	200	93.7	80	120	
137	Ba	115	188.577	357118	0.68	200	94.3	80	120	
205	Tl	209	192.347	4693739	0.92	200	96.2	80	120	
208	Pb	209	190.658	6262261	0.98	200	95.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	946195	0.89	904202	104.64	70	120	
72	Ge	695166	0.52	677615	102.59	70	120	
115	In	6578455	0.11	6287303	104.63	70	120	
209	Bi	14195010	1.46	14081817	100.80	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/23/2016 17:04	Sample Name	LCSD-75237
Data Batch	160523.b	Comment	LCSDICPMS_TSDOD1
Data File Name	179_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	205.014	8412	1.22	200	102.5	80	120	
9	Be	45	202.502	10965	1.43	200	101.3	80	120	
11	B	45	198.287	4126	1.36	200	99.1	80	120	
23	Na	45	5058.340	3783184	1.14	1000	505.8	80	120	Fail
24	Mg	45	4983.481	1860322	0.69	1000	498.3	80	120	Fail
27	Al	45	981.514	137618	1.34	1000	98.2	80	120	
39	K	45	5116.770	1998598	1.02	1000	511.7	80	120	Fail
44	Ca	45	4882.345	101055	0.84	1000	488.2	80	120	Fail
47	Ti	45	198.487	28310	2.31	200	99.2	80	120	
51	V	45	204.500	947497	1.34	200	102.3	80	120	
52	Cr	45	205.194	1122588	0.66	200	102.6	80	120	
55	Mn	45	200.904	623135	0.49	200	100.5	80	120	
56	Fe	45	1011.560	4709606	1.08	1000	101.2	80	120	
59	Co	72	203.289	1810452	1.32	200	101.6	80	120	
60	Ni	72	206.823	489940	1.05	200	103.4	80	120	
63	Cu	72	206.229	1326514	0.27	200	103.1	80	120	
66	Zn	72	203.247	227697	1.08	200	101.6	80	120	
75	As	72	202.174	192880	0.96	200	101.1	80	120	
78	Se	72	198.954	11314	2.14	200	99.5	80	120	
88	Sr	115	191.734	847928	0.12	200	95.9	80	120	
95	Mo	115	194.941	718074	0.81	200	97.5	80	120	
107	Ag	115	194.527	2227737	0.22	200	97.3	80	120	
111	Cd	115	193.868	335118	0.49	200	96.9	80	120	
118	Sn	115	198.437	733478	1.37	200	99.2	80	120	
121	Sb	115	190.688	1097713	0.55	200	95.3	80	120	
137	Ba	115	194.250	356496	0.51	200	97.1	80	120	
205	Tl	209	195.393	4734724	0.06	200	97.7	80	120	
208	Pb	209	193.075	6297376	0.62	200	96.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	915836	0.53	904202	101.29	70	120	
72	Ge	685841	0.26	677615	101.21	70	120	
115	In	6375805	0.96	6287303	101.41	70	120	
209	Bi	14095896	1.05	14081817	100.10	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/23/2016 17:10	Sample Name	1605121-01A SD
Data Batch	160523.b	Comment	SD ICPMS_TSDOD1
Data File Name	182_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	14.407	593	1.70	64.9	111.0	110	90	
9	Be	45	0.583	34	29.30	2.9	100.4	110	90	Good
11	B	45	18.065	529	6.12	82.7	109.2	110	90	Good
23	Na	45	349.949	288598	0.54	1676.6	104.4	110	90	Good
24	Mg	45	3177.964	1165601	0.87	15300.2	103.9	110	90	Good
27	Al	45	14912.538	2020705	0.69	73421.4	101.6	110	90	Good
39	K	45	3592.306	1394193	0.37	17631.4	101.9	110	90	Good
44	Ca	45	13015.089	262931	0.26	62353.6	104.4	110	90	Good
47	Ti	45	45.969	6440	6.54	222.2	103.4	110	90	Good
51	V	45	22.554	106380	0.97	110.2	102.3	110	90	Good
52	Cr	45	15.761	85718	0.51	74.6	105.7	110	90	Good
55	Mn	45	128.072	390134	0.24	611.1	104.8	110	90	Good
56	Fe	45	15053.979	68657837	1.52	71064.7	105.9	110	90	Good
59	Co	72	5.027	43357	1.40	24.3	103.4	110	90	Good
60	Ni	72	8.470	20154	2.17	41.0	103.2	110	90	Good
63	Cu	72	6.325	40803	1.58	29.5	107.2	110	90	Good
66	Zn	72	56.072	60949	1.27	269.0	104.2	110	90	Good
75	As	72	5.713	5447	1.50	28.5	100.3	110	90	Good
78	Se	72	0.879	140	13.04	5.4	81.6	110	90	
88	Sr	115	72.980	322123	0.21	363.0	100.5	110	90	Good
95	Mo	115	0.340	1285	4.64	1.7	101.0	110	90	Good
107	Ag	115	0.067	793	1.11	0.2	151.6	110	90	
111	Cd	115	0.157	273	25.70	0.7	105.2	110	90	Good
118	Sn	115	1.324	5387	3.10	6.9	95.9	110	90	Good
121	Sb	115	1.182	6912	1.39	5.7	104.4	110	90	Good
137	Ba	115	89.683	163972	1.31	443.2	101.2	110	90	Good
205	Tl	209	0.148	3567	2.40	0.7	102.8	110	90	Good
208	Pb	209	112.661	3621068	0.40	574.4	98.1	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	899286	0.33	904202	99.46	70	120	
72	Ge	662611	0.64	677615	97.79	70	120	
115	In	6350181	1.13	6287303	101.00	70	120	
209	Bi	13892011	1.72	14081817	98.65	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/23/2016 17:30	Sample Name	1605121-01A PDS
Data Batch	160523.b	Comment	PDS ICPMS_TSDOD1
Data File Name	192_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	250.371	10252	1.14	64.9	200	92.7	75	125	
9	Be	45	190.876	10319	1.31	2.9	200	94.0	75	125	
11	B	45	263.434	5414	5.34	82.7	200	90.4	75	125	
23	Na	45	6690.865	4984575	0.85	1676.6	5000	100.3	75	125	
24	Mg	45	20301.429	7559486	0.73	15300.2	5000	100.0	75	125	
27	Al	45	78467.483	10801189	2.81	73421.4	5000	100.9	75	125	
39	K	45	22897.094	8733587	2.07	17631.4	5000	105.3	75	125	
44	Ca	45	67589.368	1384181	0.83	62353.6	5000	104.7	75	125	
47	Ti	45	419.378	59717	0.27	222.2	200	98.6	75	125	
51	V	45	307.883	1421904	0.64	110.2	200	98.8	75	125	
52	Cr	45	272.853	1489870	0.96	74.6	200	99.1	75	125	
55	Mn	45	812.264	2514543	0.95	611.1	200	100.6	75	125	
56	Fe	45	77555.459	359588519	0.66	71064.7	5000	129.8	75	125	Fail
59	Co	72	223.719	1915694	0.30	24.3	200	99.7	75	125	
60	Ni	72	238.617	543382	0.45	41.0	200	98.8	75	125	
63	Cu	72	226.603	1401309	0.65	29.5	200	98.5	75	125	
66	Zn	72	464.259	499622	0.43	269.0	200	97.6	75	125	
75	As	72	229.520	210517	0.79	28.5	200	100.5	75	125	
78	Se	72	203.733	11139	2.79	5.4	200	99.2	75	125	
88	Sr	115	572.141	2422056	1.08	363.0	200	104.6	75	125	
95	Mo	115	193.122	681497	0.32	1.7	200	95.7	75	125	
107	Ag	115	187.544	2057554	0.81	0.2	200	93.7	75	125	
111	Cd	115	187.427	310402	0.26	0.7	200	93.3	75	125	
118	Sn	115	205.702	728493	0.85	6.9	200	99.4	75	125	
121	Sb	115	198.740	1096030	0.33	5.7	200	96.5	75	125	
137	Ba	115	647.894	1138984	0.69	443.2	200	102.3	75	125	
205	Tl	209	191.531	4425936	0.17	0.7	200	95.4	75	125	
208	Pb	209	775.727	24126992	0.44	574.4	200	100.7	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	914310	0.55	904202	101.12	70	120	
72	Ge	659473	1.00	677615	97.32	70	120	
115	In	6108533	1.35	6287303	97.16	70	120	
209	Bi	13443224	1.36	14081817	95.47	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/23/2016 17:32	Sample Name	1605121-01A MS
Data Batch	160523.b	Comment	MS ICPMS_TSDOD1
Data File Name	193_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	245.530	9988	1.31	64.9	200	90.3	80	120	
9	Be	45	185.181	9945	1.37	2.9	200	91.1	80	120	
11	B	45	257.388	5259	1.39	82.7	200	87.4	80	120	
23	Na	45	6482.759	4798482	0.43	1676.6	1000	480.6	80	120	Fail
24	Mg	45	19023.362	7036639	0.27	15300.2	1000	372.3	80	120	Fail
27	Al	45	79055.187	10807806	1.86	73421.4	1000	563.4	80	120	Fail
39	K	45	22680.578	8593487	0.93	17631.4	1000	504.9	80	120	Fail
44	Ca	45	62134.861	1264065	0.14	62353.6	1000	-21.9	80	120	Fail
47	Ti	45	378.230	53499	1.80	222.2	200	78.0	80	120	Fail
51	V	45	301.620	1383750	0.79	110.2	200	95.7	80	120	
52	Cr	45	258.709	1403268	0.32	74.6	200	92.1	80	120	
55	Mn	45	774.372	2381227	0.11	611.1	200	81.7	80	120	
56	Fe	45	70964.356	326817898	1.08	71064.7	1000	-10.0	80	120	Fail
59	Co	72	212.809	1797239	0.16	24.3	200	94.3	80	120	
60	Ni	72	231.594	520173	1.00	41.0	200	95.3	80	120	
63	Cu	72	221.182	1349016	0.16	29.5	200	95.8	80	120	
66	Zn	72	447.674	475165	0.23	269.0	200	89.3	80	120	
75	As	72	217.761	196994	0.73	28.5	200	94.6	80	120	
78	Se	72	196.151	10578	0.71	5.4	200	95.4	80	120	
88	Sr	115	466.713	1983091	0.19	363.0	200	51.9	80	120	Fail
95	Mo	115	168.270	595976	0.56	1.7	200	83.3	80	120	
107	Ag	115	179.220	1973573	0.36	0.2	200	89.5	80	120	
111	Cd	115	182.277	302970	0.89	0.7	200	90.8	80	120	
118	Sn	115	185.000	657588	0.41	6.9	200	89.0	80	120	
121	Sb	115	58.004	321165	0.45	5.7	200	26.2	80	120	Fail
137	Ba	115	663.711	1171062	0.16	443.2	200	110.2	80	120	
205	Tl	209	187.566	4228379	1.37	0.7	200	93.4	80	120	
208	Pb	209	714.657	21681898	1.44	574.4	200	70.1	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	908248	0.82	904202	100.45	70	120	
72	Ge	650378	0.29	677615	95.98	70	120	
115	In	6130376	0.44	6287303	97.50	70	120	
209	Bi	13114022	1.89	14081817	93.13	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/23/2016 17:34	Sample Name	1605121-01A MSD
Data Batch	160523.b	Comment	MSD ICPMS_TSDOD1
Data File Name	194_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	248.965	10187	1.60	64.9	200	92.0	80	120	
9	Be	45	192.275	10386	0.20	2.9	200	94.7	80	120	
11	B	45	263.398	5409	0.32	82.7	200	90.4	80	120	
23	Na	45	6335.594	4717629	0.72	1676.6	1000	465.9	80	120	Fail
24	Mg	45	18991.621	7065638	1.89	15300.2	1000	369.1	80	120	Fail
27	Al	45	78375.432	10778392	1.29	73421.4	1000	495.4	80	120	Fail
39	K	45	22694.129	8648579	2.69	17631.4	1000	506.3	80	120	Fail
44	Ca	45	54906.410	1123640	0.80	62353.6	1000	-744.7	80	120	Fail
47	Ti	45	391.795	55742	1.41	222.2	200	84.8	80	120	
51	V	45	314.599	1451600	0.34	110.2	200	102.2	80	120	
52	Cr	45	267.344	1458572	0.26	74.6	200	96.4	80	120	
55	Mn	45	756.133	2338810	0.43	611.1	200	72.5	80	120	Fail
56	Fe	45	76832.812	355941781	0.61	71064.7	1000	576.8	80	120	Fail
59	Co	72	216.293	1878326	0.88	24.3	200	96.0	80	120	
60	Ni	72	236.085	545229	0.64	41.0	200	97.5	80	120	
63	Cu	72	222.469	1395224	0.69	29.5	200	96.5	80	120	
66	Zn	72	457.646	499490	0.93	269.0	200	94.3	80	120	
75	As	72	224.464	208795	0.70	28.5	200	98.0	80	120	
78	Se	72	200.319	11107	1.16	5.4	200	97.5	80	120	
88	Sr	115	468.931	2002292	1.03	363.0	200	53.0	80	120	Fail
95	Mo	115	174.044	619481	0.97	1.7	200	86.2	80	120	
107	Ag	115	182.406	2018592	0.92	0.2	200	91.1	80	120	
111	Cd	115	184.628	308393	0.26	0.7	200	91.9	80	120	
118	Sn	115	193.811	692284	0.47	6.9	200	93.5	80	120	
121	Sb	115	60.606	337219	0.51	5.7	200	27.5	80	120	Fail
137	Ba	115	626.528	1110816	0.90	443.2	200	91.7	80	120	
205	Tl	209	186.907	4318880	0.76	0.7	200	93.1	80	120	
208	Pb	209	825.870	25686421	0.90	574.4	200	125.7	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	913547	0.49	904202	101.03	70	120	
72	Ge	668777	0.36	677615	98.70	70	120	
115	In	6160793	1.09	6287303	97.99	70	120	
209	Bi	13442388	1.27	14081817	95.46	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/23/2016 17:36	Sample Name	CCV7-160523
Data Batch	160523.b	Comment	CCV ICPMS_TW
Data File Name	195_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	200.533	8135	1.35	200	100.3	90	110	
9	Be	45	199.108	10659	1.12	200	99.6	90	110	
11	B	45	192.351	3963	3.77	200	96.2	90	110	
23	Na	45	4958.754	3666930	0.50	5000	99.2	90	110	
24	Mg	45	4934.561	1820986	0.59	5000	98.7	90	110	
27	Al	45	4863.340	665013	0.33	5000	97.3	90	110	
39	K	45	5142.346	1985331	0.49	5000	102.8	90	110	
44	Ca	45	4913.583	100530	0.82	5000	98.3	90	110	
47	Ti	45	195.543	27573	0.57	200	97.8	90	110	
51	V	45	199.689	914689	0.68	200	99.8	90	110	
52	Cr	45	200.365	1083632	0.63	200	100.2	90	110	
55	Mn	45	198.858	609734	0.38	200	99.4	90	110	
56	Fe	45	5118.348	23508307	1.35	5000	102.4	90	110	
59	Co	72	202.096	1755454	0.70	200	101.0	90	110	
60	Ni	72	204.444	472386	0.94	200	102.2	90	110	
63	Cu	72	205.299	1287968	0.19	200	102.6	90	110	
66	Zn	72	202.160	220888	0.44	200	101.1	90	110	
75	As	72	203.496	189349	0.18	200	101.7	90	110	
78	Se	72	200.924	11143	1.52	200	100.5	90	110	
88	Sr	115	189.873	824480	0.82	200	94.9	90	110	
95	Mo	115	191.571	692828	0.63	200	95.8	90	110	
107	Ag	115	195.139	2194474	1.17	200	97.6	90	110	
111	Cd	115	191.169	324505	0.75	200	95.6	90	110	
118	Sn	115	192.695	699498	1.20	200	96.3	90	110	
121	Sb	115	193.824	1095679	0.81	200	96.9	90	110	
137	Ba	115	190.723	343738	1.29	200	95.4	90	110	
205	Tl	209	192.429	4475739	0.68	200	96.2	90	110	
208	Pb	209	191.233	5986998	0.57	200	95.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	905381	0.68	904202	100.13	70	120	
72	Ge	668932	0.50	677615	98.72	70	120	
115	In	6260889	1.44	6287303	99.58	70	120	
209	Bi	13530454	1.12	14081817	96.08	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 17:40	Sample Name	LCVL7-160523
Data Batch	160523.b	Comment	LCVLICPMS_TW
Data File Name	197LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.525	411	5.20	10	95.2	70	130	
9	Be	45	1.010	58	13.09	1	101.0	70	130	
11	B	45	27.411	737	8.16	20	137.1	70	130	Fail
23	Na	45	99.279	109948	0.33	100	99.3	70	130	
24	Mg	45	96.405	38586	1.21	100	96.4	70	130	
27	Al	45	100.886	16494	2.98	100	100.9	70	130	
39	K	45	105.178	97717	0.48	100	105.2	70	130	
44	Ca	45	95.785	2987	2.87	100	95.8	70	130	
47	Ti	45	5.210	758	14.74	5	104.2	70	130	
51	V	45	0.651	7444	1.74	1	65.1	70	130	Fail
52	Cr	45	5.049	29231	1.28	5	101.0	70	130	
55	Mn	45	4.912	15702	2.04	5	98.2	70	130	
56	Fe	45	101.021	488863	0.45	100	101.0	70	130	
59	Co	72	5.041	45273	1.81	5	100.8	70	130	
60	Ni	72	4.925	12553	1.42	5	98.5	70	130	
63	Cu	72	5.413	36589	1.06	5	108.3	70	130	
66	Zn	72	5.143	6159	0.88	5	102.9	70	130	
75	As	72	5.110	5093	0.83	5	102.2	70	130	
78	Se	72	5.069	383	4.84	5	101.4	70	130	
88	Sr	115	4.846	22738	1.54	5	96.9	70	130	
95	Mo	115	4.746	17687	1.19	5	94.9	70	130	
107	Ag	115	1.945	22524	1.18	2	97.3	70	130	
111	Cd	115	1.013	1771	6.23	1	101.3	70	130	
118	Sn	115	4.858	18643	1.67	5	97.2	70	130	
121	Sb	115	1.971	11596	2.29	2	98.5	70	130	
137	Ba	115	4.770	8927	1.02	5	95.4	70	130	
205	Tl	209	0.953	22996	1.20	1	95.3	70	130	
208	Pb	209	1.044	34436	1.03	1	104.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	931071	0.15	904202	102.97	70	120	
72	Ge	689966	0.89	677615	101.82	70	120	
115	In	6438717	1.94	6287303	102.41	70	120	
209	Bi	14003625	0.05	14081817	99.44	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/23/2016 17:42	Sample Name	CCB7-160523
Data Batch	160523.b	Comment	CCB ICPMS_TW
Data File Name	198_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.257	25	16.0	2	5	
9	Be	45	0.041	5	72.1	0.4	0.3	
11	B	45	7.204	331	13.4	10	10	
23	Na	45	-5.112	31610	0.3	50	100	
24	Mg	45	-2.846	969	6.7	50	100	
27	Al	45	-0.042	2374	2.0	50	10	
39	K	45	0.039	57708	0.8	50	100	
44	Ca	45	-6.991	853	9.3	50	100	
47	Ti	45	0.060	11	96.4	4	3	
51	V	45	-0.359	2737	2.5	4	3	
52	Cr	45	-0.056	871	6.7	2	2	
55	Mn	45	0.008	247	16.6	2	3	
56	Fe	45	1.690	20079	1.3	50	50	
59	Co	72	0.002	130	11.8	2	3	
60	Ni	72	-0.225	303	23.8	2	3	
63	Cu	72	0.258	3305	6.6	2	2	
66	Zn	72	-0.015	358	10.3	4	2	
75	As	72	-0.043	154	2.0	2	2	
78	Se	72	0.246	110	9.8	1	2	
88	Sr	115	-0.006	1116	8.7	4	3	
95	Mo	115	0.003	48	14.5	2	2	
107	Ag	115	0.036	457	11.5	0.4	1	
111	Cd	115	0.005	12	56.8	0.4	0.3	
118	Sn	115	-0.003	520	20.3	4	3	
121	Sb	115	0.045	403	15.8	2	0.8	
137	Ba	115	0.019	129	27.2	2	3	
205	Tl	209	0.006	187	6.2	2	0.5	
208	Pb	209	0.048	2167	7.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	940303	0.90	904202	103.99	70	120	
72	Ge	696256	0.65	677615	102.75	70	120	
115	In	6527895	0.17	6287303	103.83	70	120	
209	Bi	14114328	1.27	14081817	100.23	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/23/2016 18:04	Sample Name	CCV8-160523
Data Batch	160523.b	Comment	CCV ICPMS_TW
Data File Name	209_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	196.619	8200	0.94	200	98.3	90	110	
9	Be	45	193.954	10675	1.64	200	97.0	90	110	
11	B	45	196.426	4156	3.40	200	98.2	90	110	
23	Na	45	4985.373	3790081	0.53	5000	99.7	90	110	
24	Mg	45	4916.215	1865289	0.93	5000	98.3	90	110	
27	Al	45	4827.593	678709	0.77	5000	96.6	90	110	
39	K	45	5069.741	2013087	0.89	5000	101.4	90	110	
44	Ca	45	4846.466	101968	1.34	5000	96.9	90	110	
47	Ti	45	199.300	28891	2.25	200	99.6	90	110	
51	V	45	199.575	939912	1.16	200	99.8	90	110	
52	Cr	45	199.990	1112036	0.30	200	100.0	90	110	
55	Mn	45	195.659	616808	0.64	200	97.8	90	110	
56	Fe	45	5053.496	23866316	1.64	5000	101.1	90	110	
59	Co	72	197.553	1785638	0.40	200	98.8	90	110	
60	Ni	72	200.086	481096	0.56	200	100.0	90	110	
63	Cu	72	202.910	1324622	0.68	200	101.5	90	110	
66	Zn	72	200.717	228207	1.16	200	100.4	90	110	
75	As	72	199.459	193135	0.53	200	99.7	90	110	
78	Se	72	198.996	11484	0.95	200	99.5	90	110	
88	Sr	115	186.014	850451	0.83	200	93.0	90	110	
95	Mo	115	187.659	714575	0.94	200	93.8	90	110	
107	Ag	115	189.198	2239947	0.41	200	94.6	90	110	
111	Cd	115	185.175	330921	1.15	200	92.6	90	110	
118	Sn	115	186.781	713795	0.70	200	93.4	90	110	
121	Sb	115	188.452	1121524	0.30	200	94.2	90	110	
137	Ba	115	185.372	351712	1.15	200	92.7	90	110	
205	Tl	209	191.939	4622311	0.91	200	96.0	90	110	
208	Pb	209	188.598	6113177	0.71	200	94.3	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	930836	0.72	904202	102.95	70	120	
72	Ge	696094	0.72	677615	102.73	70	120	
115	In	6590841	0.27	6287303	104.83	70	120	
209	Bi	14009158	1.50	14081817	99.48	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 18:08	Sample Name	LCVL8-160523
Data Batch	160523.b	Comment	LCVLICPMS_TW
Data File Name	211LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.583	408	7.15	10	95.8	70	130	
9	Be	45	0.921	53	17.02	1	92.1	70	130	
11	B	45	21.415	607	3.96	20	107.1	70	130	
23	Na	45	98.054	107458	1.32	100	98.1	70	130	
24	Mg	45	94.890	37461	0.56	100	94.9	70	130	
27	Al	45	98.169	15882	1.72	100	98.2	70	130	
39	K	45	100.572	94560	1.49	100	100.6	70	130	
44	Ca	45	91.518	2857	5.47	100	91.5	70	130	
47	Ti	45	4.973	713	6.92	5	99.5	70	130	
51	V	45	0.656	7362	4.25	1	65.6	70	130	Fail
52	Cr	45	5.129	29239	1.91	5	102.6	70	130	
55	Mn	45	4.870	15344	0.41	5	97.4	70	130	
56	Fe	45	100.305	478474	1.18	100	100.3	70	130	
59	Co	72	5.048	44915	1.46	5	101.0	70	130	
60	Ni	72	4.891	12358	1.78	5	97.8	70	130	
63	Cu	72	5.328	35708	2.45	5	106.6	70	130	
66	Zn	72	5.094	6049	2.68	5	101.9	70	130	
75	As	72	5.087	5024	0.98	5	101.7	70	130	
78	Se	72	5.264	390	8.34	5	105.3	70	130	
88	Sr	115	4.902	22558	1.91	5	98.0	70	130	
95	Mo	115	4.704	17201	2.52	5	94.1	70	130	
107	Ag	115	1.882	21392	0.85	2	94.1	70	130	
111	Cd	115	0.973	1670	5.55	1	97.3	70	130	
118	Sn	115	4.799	18079	1.92	5	96.0	70	130	
121	Sb	115	1.887	10895	1.81	2	94.3	70	130	
137	Ba	115	4.856	8917	1.18	5	97.1	70	130	
205	Tl	209	0.969	22819	0.66	1	96.9	70	130	
208	Pb	209	0.997	32122	2.52	1	99.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	917677	1.29	904202	101.49	70	120	
72	Ge	683624	1.30	677615	100.89	70	120	
115	In	6317245	0.69	6287303	100.48	70	120	
209	Bi	13676535	2.17	14081817	97.12	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/23/2016 18:10	Sample Name	CCB8-160523
Data Batch	160523.b	Comment	CCB ICPMS_TW
Data File Name	212_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.180	21	14.3	2	5	
9	Be	45	0.024	4	109.0	0.4	0.3	
11	B	45	0.402	186	6.8	10	10	
23	Na	45	-4.289	31138	1.8	50	100	
24	Mg	45	-2.680	998	2.8	50	100	
27	Al	45	0.297	2339	2.5	50	10	
39	K	45	-3.035	54589	1.2	50	100	
44	Ca	45	-8.889	785	12.5	50	100	
47	Ti	45	0.047	9	78.1	4	3	
51	V	45	-0.339	2737	1.7	4	3	
52	Cr	45	-0.046	897	2.8	2	2	
55	Mn	45	0.000	216	7.9	2	3	
56	Fe	45	1.769	19760	1.7	50	50	
59	Co	72	-0.002	94	23.5	2	3	
60	Ni	72	-0.248	238	8.2	2	3	
63	Cu	72	0.121	2314	4.0	2	2	
66	Zn	72	-0.044	312	8.2	4	2	
75	As	72	-0.055	138	7.7	2	2	
78	Se	72	0.343	111	10.9	1	2	
88	Sr	115	0.023	1171	6.7	4	3	
95	Mo	115	0.006	56	6.9	2	2	
107	Ag	115	0.029	348	16.3	0.4	1	
111	Cd	115	0.005	12	83.3	0.4	0.3	
118	Sn	115	-0.030	393	8.9	4	3	
121	Sb	115	0.021	247	9.7	2	0.8	
137	Ba	115	0.004	94	32.8	2	3	
205	Tl	209	0.003	110	12.1	2	0.5	
208	Pb	209	0.031	1541	1.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	908326	0.83	904202	100.46	70	120	
72	Ge	668682	0.52	677615	98.68	70	120	
115	In	6133652	1.89	6287303	97.56	70	120	
209	Bi	13536040	1.75	14081817	96.12	70	120	

Method Blank Report

Date Acquired	5/23/16 6:12 PM	Sample Name	MB-75236
Data Batch	160523.b	Comment	MBLKICPMS_TSDOD1
Data File Name	213_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.214	23	35.39		
9	Be	45	0.081	7	14.29		
11	B	45	-0.539	167	21.07		
23	Na	45	3.805	37004	0.31		
24	Mg	45	-0.910	1648	7.95		
27	Al	45	-6.729	1376	7.79		
39	K	45	6.463	58027	0.59		
44	Ca	45	0.214	968	5.97		
47	Ti	45	0.118	19	44.42		
51	V	45	-0.343	2711	2.17		
52	Cr	45	0.288	2701	2.25		
55	Mn	45	0.133	622	1.64		
56	Fe	45	8.538	50818	0.86		
59	Co	72	0.000	111	16.52		
60	Ni	72	0.030	880	11.41		
63	Cu	72	0.184	2708	2.32		
66	Zn	72	2.382	2959	5.40		
75	As	72	-0.055	138	2.29		
78	Se	72	0.165	102	14.96		
88	Sr	115	-0.089	726	8.35		
95	Mo	115	0.011	79	20.84		
107	Ag	115	0.022	283	1.18		
111	Cd	115	0.003	8	24.71		
118	Sn	115	3.706	14241	0.56		
121	Sb	115	0.011	203	8.67		
137	Ba	115	0.049	181	28.59		
205	Tl	209	0.002	89	24.40		
208	Pb	209	0.040	1916	3.13		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	906237	0.83	904202	100.23	70	120	
72	Ge	668810	0.36	677615	98.70	70	120	
115	In	6391144	1.20	6287303	101.65	70	120	
209	Bi	14064996	1.01	14081817	99.88	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/23/2016 18:14	Sample Name	LCS-75236
Data Batch	160523.b	Comment	LCS ICPMS_TSDOD1
Data File Name	214_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	199.993	8046	1.41	200	100.0	80	120	
9	Be	45	196.590	10439	0.39	200	98.3	80	120	
11	B	45	187.313	3832	0.40	200	93.7	80	120	
23	Na	45	4997.556	3665264	1.02	1000	499.8	80	120	Fail
24	Mg	45	4923.568	1802185	1.18	1000	492.4	80	120	Fail
27	Al	45	961.895	132289	0.84	1000	96.2	80	120	
39	K	45	5123.700	1962355	1.14	1000	512.4	80	120	Fail
44	Ca	45	4884.870	99152	1.66	1000	488.5	80	120	Fail
47	Ti	45	201.060	28119	1.21	200	100.5	80	120	
51	V	45	203.952	926469	1.46	200	102.0	80	120	
52	Cr	45	204.635	1097736	0.23	200	102.3	80	120	
55	Mn	45	201.638	613254	0.53	200	100.8	80	120	
56	Fe	45	994.986	4542240	0.68	1000	99.5	80	120	
59	Co	72	201.209	1760874	0.68	200	100.6	80	120	
60	Ni	72	203.383	473436	0.86	200	101.7	80	120	
63	Cu	72	204.951	1295364	1.42	200	102.5	80	120	
66	Zn	72	199.207	219310	0.30	200	99.6	80	120	
75	As	72	203.193	190494	0.90	200	101.6	80	120	
78	Se	72	200.945	11228	0.61	200	100.5	80	120	
88	Sr	115	195.216	837690	1.22	200	97.6	80	120	
95	Mo	115	195.703	699397	0.44	200	97.9	80	120	
107	Ag	115	193.531	2150362	0.33	200	96.8	80	120	
111	Cd	115	191.689	321493	1.12	200	95.8	80	120	
118	Sn	115	197.753	709228	1.22	200	98.9	80	120	
121	Sb	115	190.110	1061881	0.96	200	95.1	80	120	
137	Ba	115	191.294	340654	0.88	200	95.6	80	120	
205	Tl	209	193.455	4413244	0.65	200	96.7	80	120	
208	Pb	209	192.995	5925849	0.65	200	96.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	898078	1.21	904202	99.32	70	120	
72	Ge	673988	0.96	677615	99.46	70	120	
115	In	6187091	2.05	6287303	98.41	70	120	
209	Bi	13270135	0.83	14081817	94.24	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/23/2016 18:16	Sample Name	LCSD-75236
Data Batch	160523.b	Comment	LCSDICPMS_TSDOD1
Data File Name	215_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	197.198	8044	0.39	200	98.6	80	120	
9	Be	45	198.610	10691	1.23	200	99.3	80	120	
11	B	45	194.183	4021	0.79	200	97.1	80	120	
23	Na	45	4955.449	3684851	0.75	1000	495.5	80	120	Fail
24	Mg	45	4900.564	1818479	0.16	1000	490.1	80	120	Fail
27	Al	45	970.236	135244	0.78	1000	97.0	80	120	
39	K	45	5110.019	1984051	0.50	1000	511.0	80	120	Fail
44	Ca	45	4811.949	99017	0.94	1000	481.2	80	120	Fail
47	Ti	45	194.872	27631	0.49	200	97.4	80	120	
51	V	45	201.599	928548	0.48	200	100.8	80	120	
52	Cr	45	201.602	1096423	0.83	200	100.8	80	120	
55	Mn	45	197.532	609048	0.71	200	98.8	80	120	
56	Fe	45	989.604	4580126	0.68	1000	99.0	80	120	
59	Co	72	200.717	1763001	0.71	200	100.4	80	120	
60	Ni	72	201.506	470806	0.47	200	100.8	80	120	
63	Cu	72	203.012	1287911	0.57	200	101.5	80	120	
66	Zn	72	199.012	219898	1.01	200	99.5	80	120	
75	As	72	201.107	189220	0.15	200	100.6	80	120	
78	Se	72	196.361	11013	1.64	200	98.2	80	120	
88	Sr	115	188.578	821737	0.33	200	94.3	80	120	
95	Mo	115	192.374	698205	0.60	200	96.2	80	120	
107	Ag	115	190.324	2147665	0.27	200	95.2	80	120	
111	Cd	115	188.779	321560	1.03	200	94.4	80	120	
118	Sn	115	196.604	716125	1.30	200	98.3	80	120	
121	Sb	115	188.725	1070530	0.54	200	94.4	80	120	
137	Ba	115	189.469	342636	0.39	200	94.7	80	120	
205	Tl	209	188.696	4460744	0.82	200	94.3	80	120	
208	Pb	209	188.369	5993965	0.46	200	94.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	910406	0.73	904202	100.69	70	120	
72	Ge	676429	0.84	677615	99.82	70	120	
115	In	6282139	0.82	6287303	99.92	70	120	
209	Bi	13753054	1.39	14081817	97.67	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/23/2016 18:22	Sample Name	1605098-17A SD
Data Batch	160523.b	Comment	SD ICPMS_TSDOD1
Data File Name	218_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	13.799	587	3.96	63.5	108.6	110	90	Good
9	Be	45	0.534	32	29.81	2.6	102.9	110	90	Good
11	B	45	17.888	542	11.21	80.3	111.4	110	90	
23	Na	45	468.486	386785	0.86	2293.2	102.1	110	90	Good
24	Mg	45	3509.127	1327791	0.66	17067.5	102.8	110	90	Good
27	Al	45	13601.105	1901870	0.47	67547.0	100.7	110	90	Good
39	K	45	2367.075	967294	0.96	11553.0	102.4	110	90	Good
44	Ca	45	100598.663	2090276	0.65	492896.9	102.0	110	90	Good
47	Ti	45	47.319	6840	1.35	226.8	104.3	110	90	Good
51	V	45	25.459	123341	0.22	123.4	103.1	110	90	Good
52	Cr	45	12.326	69426	1.86	58.7	105.1	110	90	Good
55	Mn	45	166.060	521886	0.49	796.8	104.2	110	90	Good
56	Fe	45	12048.287	56703320	0.98	57824.0	104.2	110	90	Good
59	Co	72	5.339	46836	2.00	25.8	103.5	110	90	Good
60	Ni	72	8.908	21519	0.90	43.6	102.1	110	90	Good
63	Cu	72	4.077	27313	0.59	18.7	108.8	110	90	Good
66	Zn	72	33.164	36813	1.07	156.8	105.7	110	90	Good
75	As	72	4.222	4144	1.22	20.6	102.5	110	90	Good
78	Se	72	1.014	149	12.57	4.7	107.0	110	90	Good
88	Sr	115	194.750	860285	0.99	967.8	100.6	110	90	Good
95	Mo	115	0.528	1980	4.37	2.7	99.3	110	90	Good
107	Ag	115	0.050	608	12.87	0.1	222.8	110	90	
111	Cd	115	0.118	208	14.91	0.6	103.9	110	90	Good
118	Sn	115	0.925	3932	4.75	4.8	96.8	110	90	Good
121	Sb	115	0.095	680	3.43	0.4	121.3	110	90	
137	Ba	115	631.673	1157856	0.50	3233.6	97.7	110	90	Good
205	Tl	209	0.114	2763	4.53	0.6	95.5	110	90	Good
208	Pb	209	6.331	204413	0.51	31.9	99.2	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	927907	0.49	904202	102.62	70	120	
72	Ge	673997	0.80	677615	99.47	70	120	
115	In	6370468	1.89	6287303	101.32	70	120	
209	Bi	13917043	2.07	14081817	98.83	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/23/2016 18:42	Sample Name	1605098-17A PDS
Data Batch	160523.b	Comment	PDS ICPMS_TSDOD1
Data File Name	228_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	250.441	10268	2.04	63.5	200	93.4	75	125	
9	Be	45	182.610	9884	0.53	2.6	200	90.0	75	125	
11	B	45	268.982	5531	0.99	80.3	200	94.3	75	125	
23	Na	45	7166.016	5342618	1.09	2293.2	5000	97.5	75	125	
24	Mg	45	22857.111	8521128	0.48	17067.5	5000	115.8	75	125	
27	Al	45	76528.603	10546018	1.02	67547.0	5000	179.6	75	125	Fail
39	K	45	17337.150	6634412	1.52	11553.0	5000	115.7	75	125	
44	Ca	45	########	11043170	1.00	492896.9	5000	921.0	75	125	Fail
47	Ti	45	437.511	62375	0.76	226.8	200	105.3	75	125	
51	V	45	321.051	1484296	1.28	123.4	200	98.8	75	125	
52	Cr	45	250.408	1369018	0.62	58.7	200	95.9	75	125	
55	Mn	45	1032.391	3199760	0.91	796.8	200	117.8	75	125	
56	Fe	45	67599.882	313814459	1.71	57824.0	5000	195.5	75	125	Fail
59	Co	72	214.622	1809809	0.37	25.8	200	94.4	75	125	
60	Ni	72	229.424	514534	0.32	43.6	200	92.9	75	125	
63	Cu	72	200.341	1220203	1.20	18.7	200	90.8	75	125	
66	Zn	72	349.434	370427	0.88	156.8	200	96.3	75	125	
75	As	72	213.534	192884	0.46	20.6	200	96.5	75	125	
78	Se	72	194.954	10499	0.61	4.7	200	95.1	75	125	
88	Sr	115	1217.099	5151980	0.24	967.8	200	124.7	75	125	
95	Mo	115	184.056	649627	0.30	2.7	200	90.7	75	125	
107	Ag	115	182.338	2000952	0.08	0.1	200	91.1	75	125	
111	Cd	115	172.319	285436	0.56	0.6	200	85.9	75	125	
118	Sn	115	190.959	676485	1.12	4.8	200	93.1	75	125	
121	Sb	115	182.331	1005730	0.76	0.4	200	91.0	75	125	
137	Ba	115	3716.544	6533778	1.63	3233.6	200	241.5	75	125	Fail
205	Tl	209	183.543	4071754	0.36	0.6	200	91.5	75	125	
208	Pb	209	216.432	6462462	0.34	31.9	200	92.3	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	915406	0.48	904202	101.24	70	120	
72	Ge	649421	0.69	677615	95.84	70	120	
115	In	6109967	1.43	6287303	97.18	70	120	
209	Bi	12903975	0.27	14081817	91.64	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/23/2016 18:44	Sample Name	1605098-17A MS
Data Batch	160523.b	Comment	MS ICPMS_TSDOD1
Data File Name	229_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	245.407	9912	1.20	63.5	200	90.9	80	120	
9	Be	45	183.756	9797	1.20	2.6	200	90.6	80	120	
11	B	45	264.437	5359	0.41	80.3	200	92.1	80	120	
23	Na	45	7174.420	5268271	1.31	2293.2	1000	488.1	80	120	Fail
24	Mg	45	21578.602	7924281	0.41	17067.5	1000	451.1	80	120	Fail
27	Al	45	73449.687	9971022	1.76	67547.0	1000	590.3	80	120	Fail
39	K	45	17030.683	6420161	0.54	11553.0	1000	547.8	80	120	Fail
44	Ca	45	########	10435537	0.94	492896.9	1000	2415.9	80	120	Fail
47	Ti	45	431.662	60619	0.40	226.8	200	102.4	80	120	
51	V	45	315.470	1436698	0.39	123.4	200	96.0	80	120	
52	Cr	45	240.485	1295166	0.59	58.7	200	90.9	80	120	
55	Mn	45	1028.607	3140090	0.53	796.8	200	115.9	80	120	
56	Fe	45	60916.868	278499953	2.48	57824.0	1000	309.3	80	120	Fail
59	Co	72	211.904	1752673	1.13	25.8	200	93.1	80	120	
60	Ni	72	231.766	509802	0.68	43.6	200	94.1	80	120	
63	Cu	72	202.245	1208133	0.14	18.7	200	91.8	80	120	
66	Zn	72	341.537	355100	0.31	156.8	200	92.3	80	120	
75	As	72	209.593	185692	0.35	20.6	200	94.5	80	120	
78	Se	72	190.555	10068	1.19	4.7	200	92.9	80	120	
88	Sr	115	1235.954	5090343	1.00	967.8	200	134.1	80	120	Fail
95	Mo	115	173.963	597384	0.32	2.7	200	85.7	80	120	
107	Ag	115	177.364	1893683	0.21	0.1	200	88.6	80	120	
111	Cd	115	177.668	286370	1.66	0.6	200	88.5	80	120	
118	Sn	115	182.219	628035	0.57	4.8	200	88.7	80	120	
121	Sb	115	52.580	282292	0.62	0.4	200	26.1	80	120	Fail
137	Ba	115	3769.018	6447260	0.13	3233.6	200	267.7	80	120	Fail
205	Tl	209	185.688	4124882	0.68	0.6	200	92.5	80	120	
208	Pb	209	213.139	6373391	1.01	31.9	200	90.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	901730	0.98	904202	99.73	70	120	
72	Ge	637011	1.51	677615	94.01	70	120	
115	In	5944419	1.29	6287303	94.55	70	120	
209	Bi	12923306	1.48	14081817	91.77	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/23/2016 18:46	Sample Name	1605098-17A MSD
Data Batch	160523.b	Comment	MSD ICPMS_TSDOD1
Data File Name	230_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	235.748	9426	2.47	63.5	200	86.1	80	120	
9	Be	45	174.162	9192	1.49	2.6	200	85.8	80	120	
11	B	45	244.769	4923	5.95	80.3	200	82.2	80	120	
23	Na	45	6707.970	4878545	0.76	2293.2	1000	441.5	80	120	Fail
24	Mg	45	20630.659	7499758	0.80	17067.5	1000	356.3	80	120	Fail
27	Al	45	70563.328	9482179	1.71	67547.0	1000	301.6	80	120	Fail
39	K	45	15891.240	5933911	1.58	11553.0	1000	433.8	80	120	Fail
44	Ca	45	########	9887554	2.83	492896.9	1000	193.9	80	120	Fail
47	Ti	45	398.373	55379	0.41	226.8	200	85.8	80	120	
51	V	45	296.494	1336933	0.95	123.4	200	86.5	80	120	
52	Cr	45	230.456	1228633	0.32	58.7	200	85.9	80	120	
55	Mn	45	1019.155	3079935	0.39	796.8	200	111.2	80	120	
56	Fe	45	56798.007	257094141	1.24	57824.0	1000	-102.6	80	120	Fail
59	Co	72	198.711	1634483	0.29	25.8	200	86.5	80	120	
60	Ni	72	216.566	473791	0.81	43.6	200	86.5	80	120	
63	Cu	72	190.934	1134410	0.57	18.7	200	86.1	80	120	
66	Zn	72	334.563	345946	1.04	156.8	200	88.9	80	120	
75	As	72	197.923	174402	0.44	20.6	200	88.7	80	120	
78	Se	72	183.109	9624	2.82	4.7	200	89.2	80	120	
88	Sr	115	1105.940	4568420	1.02	967.8	200	69.1	80	120	Fail
95	Mo	115	163.600	563463	0.92	2.7	200	80.5	80	120	
107	Ag	115	170.266	1823298	0.48	0.1	200	85.1	80	120	
111	Cd	115	169.122	273383	0.46	0.6	200	84.3	80	120	
118	Sn	115	170.607	589774	0.27	4.8	200	82.9	80	120	
121	Sb	115	49.246	265188	0.24	0.4	200	24.4	80	120	Fail
137	Ba	115	3957.514	6790299	1.34	3233.6	200	361.9	80	120	Fail
205	Tl	209	178.932	3967516	0.57	0.6	200	89.2	80	120	
208	Pb	209	204.691	6108886	0.78	31.9	200	86.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	892585	0.27	904202	98.72	70	120	
72	Ge	633444	0.22	677615	93.48	70	120	
115	In	5962190	1.18	6287303	94.83	70	120	
209	Bi	12897887	0.43	14081817	91.59	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/23/2016 18:48	Sample Name	CCV9-160523
Data Batch	160523.b	Comment	CCV ICPMS_TW
Data File Name	231_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	206.272	8358	0.43	200	103.1	90	110	
9	Be	45	198.307	10605	0.16	200	99.2	90	110	
11	B	45	192.878	3968	5.51	200	96.4	90	110	
23	Na	45	4984.259	3681924	0.64	5000	99.7	90	110	
24	Mg	45	4908.017	1809435	0.34	5000	98.2	90	110	
27	Al	45	4806.497	656618	0.89	5000	96.1	90	110	
39	K	45	5015.976	1935975	0.61	5000	100.3	90	110	
44	Ca	45	4895.834	100076	1.60	5000	97.9	90	110	
47	Ti	45	195.276	27509	1.87	200	97.6	90	110	
51	V	45	199.314	912072	1.39	200	99.7	90	110	
52	Cr	45	199.264	1076615	1.29	200	99.6	90	110	
55	Mn	45	195.545	598977	0.93	200	97.8	90	110	
56	Fe	45	5118.266	23485994	0.67	5000	102.4	90	110	
59	Co	72	199.345	1724754	0.73	200	99.7	90	110	
60	Ni	72	203.818	469075	0.41	200	101.9	90	110	
63	Cu	72	206.283	1289041	0.26	200	103.1	90	110	
66	Zn	72	200.744	218483	0.18	200	100.4	90	110	
75	As	72	198.593	184066	0.43	200	99.3	90	110	
78	Se	72	197.927	10935	0.41	200	99.0	90	110	
88	Sr	115	186.819	808325	0.82	200	93.4	90	110	
95	Mo	115	192.036	691990	0.79	200	96.0	90	110	
107	Ag	115	196.012	2195933	0.93	200	98.0	90	110	
111	Cd	115	189.344	320198	0.48	200	94.7	90	110	
118	Sn	115	189.573	685580	0.37	200	94.8	90	110	
121	Sb	115	190.345	1071956	0.41	200	95.2	90	110	
137	Ba	115	188.102	337728	0.62	200	94.1	90	110	
205	Tl	209	189.098	4483132	0.40	200	94.5	90	110	
208	Pb	209	188.063	6001421	0.85	200	94.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	904470	0.34	904202	100.03	70	120	
72	Ge	666291	0.31	677615	98.33	70	120	
115	In	6237747	1.35	6287303	99.21	70	120	
209	Bi	13791172	1.22	14081817	97.94	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 18:52	Sample Name	LCVL9-160523
Data Batch	160523.b	Comment	LCVLICPMS_TW
Data File Name	233LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.970	442	7.31	10	109.7	70	130	
9	Be	45	1.227	66	5.46	1	122.7	70	130	
11	B	45	22.186	592	12.10	20	110.9	70	130	
23	Na	45	101.676	104966	0.52	100	101.7	70	130	
24	Mg	45	98.160	36865	1.45	100	98.2	70	130	
27	Al	45	98.791	15216	0.97	100	98.8	70	130	
39	K	45	115.035	95354	0.17	100	115.0	70	130	
44	Ca	45	105.226	2991	6.87	100	105.2	70	130	
47	Ti	45	5.132	701	1.80	5	102.6	70	130	
51	V	45	0.595	6748	3.21	1	59.5	70	130	Fail
52	Cr	45	5.155	28004	0.71	5	103.1	70	130	
55	Mn	45	5.017	15062	3.22	5	100.3	70	130	
56	Fe	45	101.292	460378	0.57	100	101.3	70	130	
59	Co	72	5.098	43360	1.41	5	102.0	70	130	
60	Ni	72	4.862	11744	2.90	5	97.2	70	130	
63	Cu	72	5.449	34873	0.92	5	109.0	70	130	
66	Zn	72	5.049	5732	4.30	5	101.0	70	130	
75	As	72	4.979	4705	1.87	5	99.6	70	130	
78	Se	72	5.709	397	7.31	5	114.2	70	130	
88	Sr	115	4.657	21123	1.41	5	93.1	70	130	
95	Mo	115	4.645	16700	2.77	5	92.9	70	130	
107	Ag	115	1.917	21417	2.53	2	95.8	70	130	
111	Cd	115	0.940	1586	5.05	1	94.0	70	130	
118	Sn	115	4.713	17461	1.58	5	94.3	70	130	
121	Sb	115	1.983	11253	3.46	2	99.2	70	130	
137	Ba	115	4.915	8873	2.07	5	98.3	70	130	
205	Tl	209	0.954	22334	0.61	1	95.4	70	130	
208	Pb	209	0.969	31072	1.47	1	96.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	874574	0.97	904202	96.72	70	120	
72	Ge	653380	0.25	677615	96.42	70	120	
115	In	6210096	0.60	6287303	98.77	70	120	
209	Bi	13595194	1.09	14081817	96.54	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/23/2016 18:54	Sample Name	CCB9-160523
Data Batch	160523.b	Comment	CCB ICPMS_TW
Data File Name	234_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.398	29	24.1	2	5	
9	Be	45	0.137	10	74.8	0.4	0.3	
11	B	45	3.282	233	7.1	10	10	
23	Na	45	-1.675	31821	0.9	50	100	
24	Mg	45	-2.805	916	9.0	50	100	
27	Al	45	-0.549	2140	1.8	50	10	
39	K	45	12.717	58243	0.6	50	100	
44	Ca	45	-0.597	918	1.6	50	100	
47	Ti	45	0.050	9	57.3	4	3	
51	V	45	-0.444	2171	7.1	4	3	
52	Cr	45	-0.035	922	12.6	2	2	
55	Mn	45	0.004	219	26.1	2	3	
56	Fe	45	1.857	19415	5.5	50	50	
59	Co	72	0.011	202	20.5	2	3	
60	Ni	72	-0.243	242	5.6	2	3	
63	Cu	72	0.191	2674	8.2	2	2	
66	Zn	72	-0.005	344	6.8	4	2	
75	As	72	-0.051	137	5.6	2	2	
78	Se	72	0.467	115	9.6	1	2	
88	Sr	115	0.032	1209	4.9	4	3	
95	Mo	115	0.005	52	44.8	2	2	
107	Ag	115	0.034	408	5.7	0.4	1	
111	Cd	115	0.012	23	37.8	0.4	0.3	
118	Sn	115	0.008	527	2.9	4	3	
121	Sb	115	0.032	311	25.3	2	0.8	
137	Ba	115	0.057	188	6.7	2	3	
205	Tl	209	0.006	178	10.7	2	0.5	
208	Pb	209	0.024	1327	8.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	874232	0.82	904202	96.69	70	120	
72	Ge	649042	0.16	677615	95.78	70	120	
115	In	6131473	0.40	6287303	97.52	70	120	
209	Bi	13488906	1.01	14081817	95.79	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/23/2016 19:16	Sample Name	CCV10-160523
Data Batch	160523.b	Comment	CCV ICPMS_TW
Data File Name	245_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	199.337	7747	1.28	200	99.7	90	110	
9	Be	45	199.238	10219	0.46	200	99.6	90	110	
11	B	45	195.461	3855	0.92	200	97.7	90	110	
23	Na	45	4945.789	3504126	1.27	5000	98.9	90	110	
24	Mg	45	4916.061	1738188	0.86	5000	98.3	90	110	
27	Al	45	4788.192	627355	0.77	5000	95.8	90	110	
39	K	45	5057.076	1871568	0.46	5000	101.1	90	110	
44	Ca	45	4840.284	94900	0.93	5000	96.8	90	110	
47	Ti	45	195.231	26376	0.70	200	97.6	90	110	
51	V	45	199.312	874761	0.26	200	99.7	90	110	
52	Cr	45	199.590	1034256	0.93	200	99.8	90	110	
55	Mn	45	194.933	572673	0.89	200	97.5	90	110	
56	Fe	45	5120.463	22534128	1.01	5000	102.4	90	110	
59	Co	72	197.828	1657028	1.10	200	98.9	90	110	
60	Ni	72	203.309	453007	1.31	200	101.7	90	110	
63	Cu	72	204.165	1235230	0.28	200	102.1	90	110	
66	Zn	72	198.348	209015	0.47	200	99.2	90	110	
75	As	72	199.585	179099	0.27	200	99.8	90	110	
78	Se	72	195.020	10433	1.72	200	97.5	90	110	
88	Sr	115	188.208	785343	0.72	200	94.1	90	110	
95	Mo	115	190.716	662813	0.37	200	95.4	90	110	
107	Ag	115	193.487	2090714	0.12	200	96.7	90	110	
111	Cd	115	187.318	305519	0.54	200	93.7	90	110	
118	Sn	115	189.434	660717	0.41	200	94.7	90	110	
121	Sb	115	190.865	1036709	0.49	200	95.4	90	110	
137	Ba	115	187.444	324589	0.57	200	93.7	90	110	
205	Tl	209	189.891	4291810	0.41	200	94.9	90	110	
208	Pb	209	188.368	5730060	0.63	200	94.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	867483	0.62	904202	95.94	70	120	
72	Ge	645124	1.02	677615	95.21	70	120	
115	In	6015369	0.06	6287303	95.67	70	120	
209	Bi	13148061	1.32	14081817	93.37	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/23/2016 19:20	Sample Name	LCVL10-160523
Data Batch	160523.b	Comment	LCVLICPMS_TW
Data File Name	247LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.304	403	6.35	10	103.0	70	130	
9	Be	45	1.091	57	10.67	1	109.1	70	130	
11	B	45	21.776	566	10.38	20	108.9	70	130	
23	Na	45	99.894	100221	0.40	100	99.9	70	130	
24	Mg	45	96.772	35149	0.56	100	96.8	70	130	
27	Al	45	99.559	14801	2.40	100	99.6	70	130	
39	K	45	115.922	92466	0.74	100	115.9	70	130	
44	Ca	45	94.122	2681	8.72	100	94.1	70	130	
47	Ti	45	5.082	671	5.07	5	101.6	70	130	
51	V	45	0.539	6280	1.43	1	53.9	70	130	Fail
52	Cr	45	5.025	26408	1.46	5	100.5	70	130	
55	Mn	45	4.868	14130	0.86	5	97.4	70	130	
56	Fe	45	101.373	445253	0.46	100	101.4	70	130	
59	Co	72	5.045	41452	1.85	5	100.9	70	130	
60	Ni	72	5.567	12880	1.45	5	111.3	70	130	
63	Cu	72	5.331	32983	1.93	5	106.6	70	130	
66	Zn	72	5.200	5693	4.43	5	104.0	70	130	
75	As	72	4.980	4544	2.14	5	99.6	70	130	
78	Se	72	5.749	386	1.03	5	115.0	70	130	
88	Sr	115	4.851	20522	1.18	5	97.0	70	130	
95	Mo	115	4.845	16281	0.27	5	96.9	70	130	
107	Ag	115	1.931	20161	0.62	2	96.5	70	130	
111	Cd	115	0.957	1509	3.13	1	95.7	70	130	
118	Sn	115	4.915	17004	1.32	5	98.3	70	130	
121	Sb	115	1.962	10410	3.32	2	98.1	70	130	
137	Ba	115	4.951	8355	0.46	5	99.0	70	130	
205	Tl	209	0.951	21277	2.46	1	95.1	70	130	
208	Pb	209	0.960	29397	2.03	1	96.0	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	845188	0.99	904202	93.47	70	120	
72	Ge	631145	0.98	677615	93.14	70	120	
115	In	5807235	2.47	6287303	92.36	70	120	
209	Bi	12987126	1.24	14081817	92.23	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/23/2016 19:22	Sample Name	CCB10-160523
Data Batch	160523.b	Comment	CCB ICPMS_TW
Data File Name	248_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.289	24	52.0	2	5	
9	Be	45	0.043	5	65.5	0.4	0.3	
11	B	45	2.949	220	12.4	10	10	
23	Na	45	-2.949	29962	1.5	50	100	
24	Mg	45	-3.049	803	2.2	50	100	
27	Al	45	0.085	2155	3.9	50	10	
39	K	45	13.099	56581	1.1	50	100	
44	Ca	45	-3.492	835	8.4	50	100	
47	Ti	45	0.043	8	24.7	4	3	
51	V	45	-0.465	2015	6.5	4	3	
52	Cr	45	-0.061	761	4.6	2	2	
55	Mn	45	0.010	228	10.0	2	3	
56	Fe	45	1.816	18633	2.7	50	50	
59	Co	72	0.002	122	22.9	2	3	
60	Ni	72	-0.239	247	16.2	2	3	
63	Cu	72	0.067	1881	4.9	2	2	
66	Zn	72	-0.046	296	4.7	4	2	
75	As	72	-0.065	122	4.6	2	2	
78	Se	72	0.153	96	8.9	1	2	
88	Sr	115	0.049	1191	2.7	4	3	
95	Mo	115	0.004	48	42.6	2	2	
107	Ag	115	0.032	352	11.8	0.4	1	
111	Cd	115	0.004	10	120.2	0.4	0.3	
118	Sn	115	-0.024	384	12.9	4	3	
121	Sb	115	0.026	254	16.6	2	0.8	
137	Ba	115	0.040	147	11.8	2	3	
205	Tl	209	0.004	123	23.1	2	0.5	
208	Pb	209	0.013	950	10.9	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	847188	0.63	904202	93.69	70	120	
72	Ge	636476	0.11	677615	93.93	70	120	
115	In	5694698	2.98	6287303	90.57	70	120	
209	Bi	13081229	0.74	14081817	92.89	70	120	

Pmoist
For

DHL Work Order
1605096

PMOIST_160511B
For

DHL Work Order
1605096

DHL Analytical, Inc.

Run ID: **PMOIST_160511B** **Run No.:** 85788

Analytical Run Date: 5/11/2016 **InstrumentID:** Pmoist

Analyst: Will Boston

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
1605093-01A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605093-02A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605095-01B	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605095-02B	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605095-03B	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605095-04B	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-04A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-05A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-06A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-07A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-08A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-09A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-10A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-11A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-12A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-31A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-32A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-33A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-34A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-35A	1	PMOIST	SAMP	75103	5/12/2016 9:55:00 AM		
1605096-08A-DUP	1	PMOIST	DUP	75103	5/12/2016 9:55:00 AM		

REVIEWED/APPROVED

By Sherri Herschmann at 3:31:33 PM, 5/13/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/11/2016 10:02:12 AM**
Digestion: **Start: 5/10/2016 5:40:00 PM / Stop: 5/11/2016 9:55:00 AM**
Prep End Date: **5/12/2016 3:19:58 PM**

Prep Batch **75103** 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
1605093-01A	Soil		10	10	1.000	1 of 1	
1605093-02A	Soil		10	10	1.000	1 of 1	
1605095-01B	Soil		10	10	1.000	1 of 1	
1605095-02B	Soil		10	10	1.000	1 of 1	
1605095-03B	Soil		10	10	1.000	1 of 1	
1605095-04B	Soil		10	10	1.000	1 of 1	
1605096-04A	Soil		10	10	1.000	1 of 1	
1605096-05A	Soil		10	10	1.000	1 of 1	
1605096-06A	Soil		10	10	1.000	1 of 1	
1605096-07A	Soil		10	10	1.000	1 of 1	
1605096-08A	Soil		10	10	1.000	1 of 1	
1605096-08A-DUP	Soil		10	10	1.000	of	
1605096-09A	Soil		10	10	1.000	1 of 1	
1605096-10A	Soil		10	10	1.000	1 of 1	
1605096-11A	Soil		10	10	1.000	1 of 1	
1605096-12A	Soil		10	10	1.000	1 of 1	
1605096-31A	Soil		10	10	1.000	1 of 1	
1605096-32A	Soil		10	10	1.000	1 of 1	
1605096-33A	Soil		10	10	1.000	1 of 1	
1605096-34A	Soil		10	10	1.000	1 of 1	
1605096-35A	Soil		10	10	1.000	1 of 1	

REVIEWED/APPROVED

By Sherri Herschmann at 3:31:39 PM, 5/13/2016

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:	160511 PMOIST B				
Date Started:	05/11/2016	Date Ended:	05/12/16	Date Ended:	
Time Started:	17:40	Time Ended:	09:55	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	106.9°C	Final Temperature	108.2°C		

Sample ID	Tare Wt (g)	Tare + Sample (g)	Final Wt (g)	2nd Weight	<0.1% (Y/N)
Sample ID					
1605093-01A	1.01	13.31	10.49		
1605093-02A	1.00	12.59	10.36		
1605095-01B	1.02	12.24	11.25		
1605095-02B	1.01	13.77	12.57		
1605095-03B	1.02	14.51	13.27		
1605095-04B	1.00	16.85	15.31		
1605096-04A	1.01	13.52	11.19		
1605096-05A	1.01	14.13	10.98		
1605096-06A	1.01	13.20	11.75		
1605096-07A	1.00	12.55	9.86		
1605096-08A	0.98	12.38	11.70		
1605096-09A	1.01	13.50	12.18		
1605096-10A	1.00	12.58	11.96		
1605096-11A	1.00	12.45	11.23		
1605096-12A	1.01	13.25	11.67		
1605096-31A	1.01	12.59	9.65		
1605096-32A	1.00	12.36	10.06		
1605096-33A	1.08	12.07	10.09		
1605096-34A	0.99	12.65	11.33		
1605096-35A	1.00	14.23	10.90		
1605096-08A DUP	1.01	12.97	12.39		

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	X
2. Is the Run Log included?	Test Code, Sample Type Batch ID, and Analysis Date/Time	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: WB Date: 05/12/16

Second-Level Review: Sherri Herschmann Date: 05/13/2016

REVIEWED/APPROVED

By Sherri Herschmann at 3:31:44 PM, 5/13/2016

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01 01 6	160 0 8		0 /08/2016					
01 01 6 8	160 0		0 /08/2016					
01 01 8 10	160 0 0		0 /08/2016					
01 01 0 2	160 0 1		0 /08/2016					
01 01 2	160 0 2		0 /08/2016					
01 01 6	160 0		0 /08/2016					
01 01 6 8	160 0		0 /08/2016					
01 01 8 10	160 0		0 /08/2016					

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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

№ 70022

CHAIN-OF-CUSTODY

CLIENT: Arcadis
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913 645 3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Erika.Dinkelberger@arcadis.com

DATE: May 8, 2016 PAGE 1 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1605097
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: C. Ferguson

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 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 ☐ 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	BTEX	TPH 1005	GRO (METHOD 8015)	VOC 8260	SVOC 8270	8270 PEST	8270 O-P PEST	8321 HERB	METALS 6020	RCRA	PH	CHLORIDE	TCLP-SVOC	TCLP-METALS	RCI	TDS	FIELD NOTES
SGR-DU004(0-2)-A	01	5-8-16	1100	S	Bag	1				X					X					X								
SGR-DU004(2-4)-A	02	5-8-16	1103	S	Bag	1				X					X					X								
SGR-DU004(4-6)-A	03	5-8-16	1105	S	Bag	1				X					X					X								
SGR-DU004(6-8)-A	04	5-8-16	1107	S	Bag	1				X					X					X								
SGR-DU004(8-10)-A	05	5-8-16	1108	S	Bag	1				X					X					X								
SGR-DU004(0-2)-B	06	5-8-16	1110	S	Bag	1				X					X					X								
SGR-DU004(2-4)-B	07	5-8-16	1113	S	Bag	1				X					X					X								
SGR-DU004(4-6)-B	08	5-8-16	1114	S	Bag	1				X					X					X								
SGR-DU004(6-8)-B	09	5-8-16	1116	S	Bag	1				X					X					X								
SGR-DU004(8-10)-B	10	5-8-16	1118	S	Bag	1				X					X					X								
SGR-DU004(0-2)-C	11	5-8-16	1120	S	Bag	1				X					X					X								
SGR-DU004(2-4)-C	12	5-8-16	1121	S	Bag	1				X					X					X								
SGR-DU004(4-6)-C	13	5-8-16	1122	S	Bag	1				X					X					X								
SGR-DU004(6-8)-C	14	5-8-16	1123	S	Bag	1				X					X					X								
SGR-DU004(8-10)-C	15	5-8-16	1124	S	Bag	1				X					X					X								

RELINQUISHED BY: (Signature) DATE/TIME 5-9-16/1900 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 5/10/16 RECEIVED BY: (Signature) 10:00 Howan
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

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

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4 THERM #: 790
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.9°C / 0.7°C / 2.5°C / 0.6°C
☐ HAND DELIVERED 1.6°C / 2.3°C / 1.1°C / 1.3°C / 1.8°C
0.5°C / 2.2°C / 3.0°C / 1.5°C / 1.6°C / 1.0°C / 3.5°C / 4.0

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

CHAIN-OF-CUSTODY

№ 70078

CLIENT: Arcadis
ADDRESS: 8725 Rosehill Suite 350, Lenexa, KS 66215
PHONE: 913 645 3203 FAX/E-MAIL: Alex.walker@arcadis.com
DATA REPORTED TO: Alex Walker
ADDITIONAL REPORT COPIES TO: Erika.Ankenbauer@arcadis.com

DATE: May 8, 2016 PAGE 2 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1605097
PROJECT LOCATION OR NAME: Laredo Sign
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: C. Ferguson

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ TPHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ LEAD | RCRA ☐ TX11 ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU191-STRAT 1	16	5-8-16	1200	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
SGR-DU191-STRAT 2	17	5-8-16	1205	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
SGR-DU191-STRAT 3	18	5-8-16	1210	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
SGR-DU191-STRAT 4	19	5-8-16	1215	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
SGR-DU191-STRAT 5	20	5-8-16	1220	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
ROW-10 (0-0.5)	21	5-8-16	1005	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
ROW-10 (0.5-2.0)	22	5-8-16	1020	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	extract + hold
ROW-11 (0-0.5)	23	5-8-16	1040	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
ROW-11 (0.5-2.0)	24	5-8-16	1050	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	extract + hold
ROW-11 (2-4)	25	5-8-16	1100	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	extract + hold
DUP04(20160508)	~~26~~ 26 (sic)	5-8-16	1030	S	4oz Jar	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
EB12(20160508)	27	5-8-16	1230	W	Glass/Poly	2		X		X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
SGR-DU023-A	28	5-8-16	1430	S	Bag	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
SGR-DU023-B	29	5-8-16	1450	S	Bag	1				X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	
EB13(20160508)	30	5-8-16	1630	W	Glass/Poly	2		X		X		BTEX, RCRA, METALS 6020, 8270 PEST, PH, TCLP-METALS	

Alex Walker OK 5/11/16

RELINQUISHED BY: (Signature) DATE/TIME 5-9-16/1800 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
Fedex 5/10/16 10:00 (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

4

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

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

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 70077

CHAIN-OF-CUSTODY

CLIENT: Arcadis
ADDRESS: 8725 Rosehill, Suite 350 Lenexa, KS 66215
PHONE: 913 6453203 FAX/E-MAIL: Alex.Walker@arcadis.com
DATA REPORTED TO: Alex Walker
ADDITIONAL REPORT COPIES TO: Erika.Denkenberger@arcadis.com

DATE: May 8, 2016 PAGE 3 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1605097
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: G Ferguson

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT
P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ X | RCRA ☐ TX11 ☐ LEAD | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU019-01(0-2)-A	31	5-8-16	1548	S	Bag	1				X		X X	
SGR-DU019-01(2-4)-A	32	5-8-16	1550	S	Bag	1				X		X X	
SGR-DU019-01(4-6)-A	33	5-8-16	1552	S	Bag	1				X		X X	
SGR-DU019-01(6-8)-A	34	5-8-16	1553	S	Bag	1				X		X X	
SGR-DU019-01(8-10)-A	35	5-8-16	1556	S	Bag	1				X		X X	
SGR-DU019-01(0-2)-B	36	5-8-16	1537	S	Bag	1				X		X X	
SGR-DU019-01(2-4)-B	37	5-8-16	1539	S	Bag	1				X		X X	
SGR-DU019-01(4-6)-B	38	5-8-16	1543	S	Bag	1				X		X X	
SGR-DU019-01(6-8)-B	39	5-8-16	1545	S	Bag	1				X		X X	
SGR-DU019-01(8-10)-B	40	5-8-16	1546	S	Bag	1				X		X X	
SGR-DU019-01(0-2)-C	41	5-8-16	1557	S	Bag	1				X		X X	
SGR-DU019-01(2-4)-C	44	5-8-16	1558	S	Bag	1				X		X X	
SGR-DU019-01(4-6)-C	45	5-8-16	1559	S	Bag	1				X		X X	
SGR-DU019-01(6-8)-C	46	5-8-16	1600	S	Bag	1				X		X X	
SGR-DU019-01(8-10)-C	47	5-8-16	1601	S	Bag	1				X		X X	

RELINQUISHED BY: (Signature) DATE/TIME 5-9-16 1800 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 5/10/16 10:00 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

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

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

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Arcadis | Date Received: 5/10/2016

Work Order Number 1605097 | Received by JT

Checklist completed by:  5/11/2016 (Signature / Date) | Reviewed by JS 5/11/2016 (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 ☐	1.4 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? _____		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 _____

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1605097-01
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:00 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	14.2	0.0893	0.268	0.134		mg/Kg-dry	5	05/19/16 07:28 PM
IS: Bismuth	75.2	0	30-120	0		%REC	5	05/19/16 07:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/19/16 03:47 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/19/16 03:47 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/19/16 03:47 PM
Benzo[a]anthracene	0.136	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Benzo[a]pyrene	0.181	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Benzo[b]fluoranthene	0.175	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Benzo[e]pyrene	0.149	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Benzo[g,h,i]perylene	0.145	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Benzo[j]fluoranthene	0.0996	0.0496	0.0992	0.0744	N	mg/Kg-dry	10	05/19/16 03:47 PM
Benzo[k]fluoranthene	0.0987	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	05/19/16 03:47 PM
Chrysene	0.167	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/19/16 03:47 PM
Fluoranthene	0.207	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/19/16 03:47 PM
Indeno[1,2,3-cd]pyrene	0.114	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
Phenanthrene	0.0741	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	05/19/16 03:47 PM
Pyrene	0.188	0.0496	0.0992	0.0744		mg/Kg-dry	10	05/19/16 03:47 PM
IS: Acenaphthene-d10	69.1	0	50-200	0		%REC	10	05/19/16 03:47 PM
IS: Chrysene-d12	67.3	0	50-200	0		%REC	10	05/19/16 03:47 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	05/19/16 03:47 PM
IS: Perylene-d12	68.7	0	50-200	0		%REC	10	05/19/16 03:47 PM
IS: Phenanthrene-d10	65.6	0	50-200	0		%REC	10	05/19/16 03:47 PM
Surr: 2-Fluorobiphenyl	84.2	0	46-115	0		%REC	10	05/19/16 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-DU004(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1605097-01
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:00 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	71.0	0	58-133	0		%REC	10	05/19/16 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-DU004(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1605097-02
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:03 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	11.5	0.0971	0.291	0.146		mg/Kg-dry	5	05/19/16 07:33 PM
IS: Bismuth	77.9	0	30-120	0		%REC	5	05/19/16 07:33 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	05/19/16 04:27 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	05/19/16 04:27 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	05/19/16 04:27 PM
Benzo[a]anthracene	0.0963	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	05/19/16 04:27 PM
Benzo[a]pyrene	0.119	0.0490	0.0980	0.0735		mg/Kg-dry	10	05/19/16 04:27 PM
Benzo[b]fluoranthene	0.107	0.0490	0.0980	0.0735		mg/Kg-dry	10	05/19/16 04:27 PM
Benzo[e]pyrene	0.0957	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	05/19/16 04:27 PM
Benzo[g,h,i]perylene	0.0918	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	05/19/16 04:27 PM
Benzo[j]fluoranthene	0.0789	0.0490	0.0980	0.0735	JN	mg/Kg-dry	10	05/19/16 04:27 PM
Benzo[k]fluoranthene	0.0680	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	05/19/16 04:27 PM
Chrysene	0.115	0.0490	0.0980	0.0735		mg/Kg-dry	10	05/19/16 04:27 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	05/19/16 04:27 PM
Fluoranthene	0.146	0.0490	0.0980	0.0735		mg/Kg-dry	10	05/19/16 04:27 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	05/19/16 04:27 PM
Indeno[1,2,3-cd]pyrene	0.0725	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	05/19/16 04:27 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	05/19/16 04:27 PM
Pyrene	0.138	0.0490	0.0980	0.0735		mg/Kg-dry	10	05/19/16 04:27 PM
IS: Acenaphthene-d10	70.3	0	50-200	0		%REC	10	05/19/16 04:27 PM
IS: Chrysene-d12	67.9	0	50-200	0		%REC	10	05/19/16 04:27 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	05/19/16 04:27 PM
IS: Perylene-d12	69.7	0	50-200	0		%REC	10	05/19/16 04:27 PM
IS: Phenanthrene-d10	65.0	0	50-200	0		%REC	10	05/19/16 04:27 PM
Surr: 2-Fluorobiphenyl	79.7	0	46-115	0		%REC	10	05/19/16 04:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1605097-02
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:03 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	70.4	0	58-133	0		%REC	10	05/19/16 04:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1605097-03
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:05 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.21	0.0962	0.288	0.144		mg/Kg-dry	5	05/19/16 07:39 PM
IS: Bismuth	81.7	0	30-120	0		%REC	5	05/19/16 07:39 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	05/19/16 05:07 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
Pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/19/16 05:07 PM
IS: Acenaphthene-d10	68.4	0	50-200	0		%REC	10	05/19/16 05:07 PM
IS: Chrysene-d12	67.5	0	50-200	0		%REC	10	05/19/16 05:07 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/19/16 05:07 PM
IS: Perylene-d12	68.0	0	50-200	0		%REC	10	05/19/16 05:07 PM
IS: Phenanthrene-d10	65.2	0	50-200	0		%REC	10	05/19/16 05:07 PM
Surr: 2-Fluorobiphenyl	80.6	0	46-115	0		%REC	10	05/19/16 05:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1605097-03
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:05 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	69.9	0	58-133	0		%REC	10	05/19/16 05:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1605097-04
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:07 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.80	0.0909	0.273	0.136		mg/Kg-dry	5	05/19/16 07:45 PM
IS: Bismuth	81.8	0	30-120	0		%REC	5	05/19/16 07:45 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Acenaphthylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Benzo[a]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Benzo[a]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Benzo[b]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Benzo[e]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Benzo[g,h,i]perylene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Benzo[j]fluoranthene	0.0745	0.0497	0.0993	0.0745	NU	mg/Kg-dry	10	05/19/16 09:43 PM
Benzo[k]fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Chrysene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Dibenz[a,h]anthracene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Fluoranthene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Fluorene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Indeno[1,2,3-cd]pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Phenanthrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
Pyrene	0.0745	0.0497	0.0993	0.0745	U	mg/Kg-dry	10	05/19/16 09:43 PM
IS: Acenaphthene-d10	67.0	0	50-200	0		%REC	10	05/19/16 09:43 PM
IS: Chrysene-d12	65.2	0	50-200	0		%REC	10	05/19/16 09:43 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	05/19/16 09:43 PM
IS: Perylene-d12	66.3	0	50-200	0		%REC	10	05/19/16 09:43 PM
IS: Phenanthrene-d10	62.6	0	50-200	0		%REC	10	05/19/16 09:43 PM
Surr: 2-Fluorobiphenyl	82.7	0	46-115	0		%REC	10	05/19/16 09:43 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1605097-04
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:07 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	69.1	0	58-133	0		%REC	10	05/19/16 09:43 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1605097-05
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:08 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.04	0.0962	0.288	0.144		mg/Kg-dry	5	05/19/16 07:51 PM
IS: Bismuth	84.1	0	30-120	0		%REC	5	05/19/16 07:51 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Acenaphthylene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Benzo[a]anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Benzo[a]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Benzo[b]fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Benzo[e]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Benzo[g,h,i]perylene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Benzo[j]fluoranthene	0.0727	0.0485	0.0970	0.0727	NU	mg/Kg-dry	10	05/19/16 10:23 PM
Benzo[k]fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Chrysene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Dibenz[a,h]anthracene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Fluoranthene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Fluorene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Phenanthrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
Pyrene	0.0727	0.0485	0.0970	0.0727	U	mg/Kg-dry	10	05/19/16 10:23 PM
IS: Acenaphthene-d10	67.2	0	50-200	0		%REC	10	05/19/16 10:23 PM
IS: Chrysene-d12	67.5	0	50-200	0		%REC	10	05/19/16 10:23 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	05/19/16 10:23 PM
IS: Perylene-d12	68.1	0	50-200	0		%REC	10	05/19/16 10:23 PM
IS: Phenanthrene-d10	65.2	0	50-200	0		%REC	10	05/19/16 10:23 PM
Surr: 2-Fluorobiphenyl	82.9	0	46-115	0		%REC	10	05/19/16 10:23 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1605097-05
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:08 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	69.3	0	58-133	0		%REC	10	05/19/16 10:23 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1605097-06
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:10 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	12.7	0.0885	0.265	0.133		mg/Kg-dry	5	05/19/16 07:57 PM
IS: Bismuth	80.4	0	30-120	0		%REC	5	05/19/16 07:57 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	05/19/16 11:04 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	05/19/16 11:04 PM
Anthracene	0.0971	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	05/19/16 11:04 PM
Benzo[a]anthracene	0.352	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Benzo[a]pyrene	0.323	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Benzo[b]fluoranthene	0.288	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Benzo[e]pyrene	0.240	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Benzo[g,h,i]perylene	0.193	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Benzo[j]fluoranthene	0.182	0.0495	0.0990	0.0743	N	mg/Kg-dry	10	05/19/16 11:04 PM
Benzo[k]fluoranthene	0.175	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Chrysene	0.382	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Dibenz[a,h]anthracene	0.0632	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	05/19/16 11:04 PM
Fluoranthene	0.730	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	05/19/16 11:04 PM
Indeno[1,2,3-cd]pyrene	0.168	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Phenanthrene	0.434	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
Pyrene	0.616	0.0495	0.0990	0.0743		mg/Kg-dry	10	05/19/16 11:04 PM
IS: Acenaphthene-d10	64.1	0	50-200	0		%REC	10	05/19/16 11:04 PM
IS: Chrysene-d12	64.6	0	50-200	0		%REC	10	05/19/16 11:04 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	05/19/16 11:04 PM
IS: Perylene-d12	65.2	0	50-200	0		%REC	10	05/19/16 11:04 PM
IS: Phenanthrene-d10	63.1	0	50-200	0		%REC	10	05/19/16 11:04 PM
Surr: 2-Fluorobiphenyl	86.4	0	46-115	0		%REC	10	05/19/16 11:04 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		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1605097-06
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:10 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	73.6	0	58-133	0		%REC	10	05/19/16 11:04 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1605097-07
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:13 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.2	0.0862	0.259	0.129		mg/Kg-dry	5	05/19/16 08:03 PM
IS: Bismuth	82.3	0	30-120	0		%REC	5	05/19/16 08:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	05/19/16 11:44 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	05/19/16 11:44 PM
IS: Acenaphthene-d10	69.1	0	50-200	0		%REC	10	05/19/16 11:44 PM
IS: Chrysene-d12	66.3	0	50-200	0		%REC	10	05/19/16 11:44 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/19/16 11:44 PM
IS: Perylene-d12	67.9	0	50-200	0		%REC	10	05/19/16 11:44 PM
IS: Phenanthrene-d10	65.5	0	50-200	0		%REC	10	05/19/16 11:44 PM
Surr: 2-Fluorobiphenyl	83.9	0	46-115	0		%REC	10	05/19/16 11:44 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-DU004(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1605097-07
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:13 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	71.4	0	58-133	0		%REC	10	05/19/16 11:44 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1605097-08
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:14 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.21	0.0885	0.265	0.133		mg/Kg-dry	5	05/25/16 05:18 PM
IS: Bismuth	96.3	0	30-120	0		%REC	5	05/25/16 05:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	05/20/16 12:23 AM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 12:23 AM
IS: Acenaphthene-d10	68.1	0	50-200	0		%REC	10	05/20/16 12:23 AM
IS: Chrysene-d12	65.6	0	50-200	0		%REC	10	05/20/16 12:23 AM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	05/20/16 12:23 AM
IS: Perylene-d12	67.6	0	50-200	0		%REC	10	05/20/16 12:23 AM
IS: Phenanthrene-d10	63.3	0	50-200	0		%REC	10	05/20/16 12:23 AM
Surr: 2-Fluorobiphenyl	83.6	0	46-115	0		%REC	10	05/20/16 12:23 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-DU004(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1605097-08
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:14 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	70.3	0	58-133	0		%REC	10	05/20/16 12:23 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1605097-09
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:16 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.32	0.0980	0.294	0.147		mg/Kg-dry	5	05/25/16 05:24 PM
IS: Bismuth	93.7	0	30-120	0		%REC	5	05/25/16 05:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Acenaphthylene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Benzo[a]anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Benzo[a]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Benzo[b]fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Benzo[e]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Benzo[g,h,i]perylene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Benzo[j]fluoranthene	0.0700	0.0466	0.0933	0.0700	NU	mg/Kg-dry	10	05/20/16 01:03 AM
Benzo[k]fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Chrysene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Dibenz[a,h]anthracene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Fluoranthene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Fluorene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Indeno[1,2,3-cd]pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Phenanthrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
Pyrene	0.0700	0.0466	0.0933	0.0700	U	mg/Kg-dry	10	05/20/16 01:03 AM
IS: Acenaphthene-d10	63.4	0	50-200	0		%REC	10	05/20/16 01:03 AM
IS: Chrysene-d12	62.6	0	50-200	0		%REC	10	05/20/16 01:03 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	05/20/16 01:03 AM
IS: Perylene-d12	63.6	0	50-200	0		%REC	10	05/20/16 01:03 AM
IS: Phenanthrene-d10	60.7	0	50-200	0		%REC	10	05/20/16 01:03 AM
Surr: 2-Fluorobiphenyl	82.5	0	46-115	0		%REC	10	05/20/16 01:03 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-DU004(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1605097-09
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:16 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	69.0	0	58-133	0		%REC	10	05/20/16 01:03 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-DU004(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1605097-10
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:18 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.86	0.0980	0.294	0.147		mg/Kg-dry	5	05/25/16 05:30 PM
IS: Bismuth	91.4	0	30-120	0		%REC	5	05/25/16 05:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Acenaphthylene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Benzo[a]anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Benzo[a]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Benzo[b]fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Benzo[e]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Benzo[g,h,i]perylene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Benzo[j]fluoranthene	0.0705	0.0470	0.0940	0.0705	NU	mg/Kg-dry	10	05/20/16 01:42 AM
Benzo[k]fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Chrysene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Dibenz[a,h]anthracene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Fluoranthene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Fluorene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Indeno[1,2,3-cd]pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Phenanthrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
Pyrene	0.0705	0.0470	0.0940	0.0705	U	mg/Kg-dry	10	05/20/16 01:42 AM
IS: Acenaphthene-d10	68.0	0	50-200	0		%REC	10	05/20/16 01:42 AM
IS: Chrysene-d12	65.1	0	50-200	0		%REC	10	05/20/16 01:42 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/20/16 01:42 AM
IS: Perylene-d12	66.5	0	50-200	0		%REC	10	05/20/16 01:42 AM
IS: Phenanthrene-d10	63.7	0	50-200	0		%REC	10	05/20/16 01:42 AM
Surr: 2-Fluorobiphenyl	88.0	0	46-115	0		%REC	10	05/20/16 01:42 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-DU004(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1605097-10
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:18 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	73.5	0	58-133	0		%REC	10	05/20/16 01:42 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-DU004(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1605097-11
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:20 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	11.1	0.0885	0.265	0.133		mg/Kg-dry	5	05/25/16 05:36 PM
IS: Bismuth	95.0	0	30-120	0		%REC	5	05/25/16 05:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 02:23 AM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 02:23 AM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 02:23 AM
Benzo[a]anthracene	0.0704	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Benzo[a]pyrene	0.0897	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Benzo[b]fluoranthene	0.0857	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Benzo[e]pyrene	0.0750	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Benzo[g,h,i]perylene	0.0726	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	05/20/16 02:23 AM
Benzo[k]fluoranthene	0.0521	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Chrysene	0.0869	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 02:23 AM
Fluoranthene	0.108	0.0484	0.0969	0.0727		mg/Kg-dry	10	05/20/16 02:23 AM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 02:23 AM
Indeno[1,2,3-cd]pyrene	0.0603	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	05/20/16 02:23 AM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 02:23 AM
Pyrene	0.0984	0.0484	0.0969	0.0727		mg/Kg-dry	10	05/20/16 02:23 AM
IS: Acenaphthene-d10	64.4	0	50-200	0		%REC	10	05/20/16 02:23 AM
IS: Chrysene-d12	62.7	0	50-200	0		%REC	10	05/20/16 02:23 AM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	05/20/16 02:23 AM
IS: Perylene-d12	63.3	0	50-200	0		%REC	10	05/20/16 02:23 AM
IS: Phenanthrene-d10	64.0	0	50-200	0		%REC	10	05/20/16 02:23 AM
Surr: 2-Fluorobiphenyl	81.8	0	46-115	0		%REC	10	05/20/16 02:23 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-DU004(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1605097-11
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:20 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	70.6	0	58-133	0		%REC	10	05/20/16 02:23 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1605097-12
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:21 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.1	0.0943	0.283	0.142		mg/Kg-dry	5	05/25/16 05:42 PM
IS: Bismuth	89.5	0	30-120	0		%REC	5	05/25/16 05:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Acenaphthylene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Anthracene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Benzo[a]anthracene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Benzo[a]pyrene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Benzo[b]fluoranthene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Benzo[e]pyrene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Benzo[g,h,i]perylene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Benzo[j]fluoranthene	0.0722	0.0481	0.0962	0.0722	NU	mg/Kg-dry	10	05/20/16 03:03 AM
Benzo[k]fluoranthene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Chrysene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Dibenz[a,h]anthracene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Fluoranthene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Fluorene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Indeno[1,2,3-cd]pyrene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Phenanthrene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
Pyrene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 03:03 AM
IS: Acenaphthene-d10	67.5	0	50-200	0		%REC	10	05/20/16 03:03 AM
IS: Chrysene-d12	67.9	0	50-200	0		%REC	10	05/20/16 03:03 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	05/20/16 03:03 AM
IS: Perylene-d12	68.0	0	50-200	0		%REC	10	05/20/16 03:03 AM
IS: Phenanthrene-d10	65.3	0	50-200	0		%REC	10	05/20/16 03:03 AM
Surr: 2-Fluorobiphenyl	82.8	0	46-115	0		%REC	10	05/20/16 03:03 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-DU004(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1605097-12
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:21 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	72.8	0	58-133	0		%REC	10	05/20/16 03:03 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-DU004(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1605097-13
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:22 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.92	0.0971	0.291	0.146		mg/Kg-dry	5	05/25/16 05:48 PM
IS: Bismuth	92.0	0	30-120	0		%REC	5	05/25/16 05:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Benzo[a]pyrene	0.0511	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	05/20/16 03:43 AM
Benzo[b]fluoranthene	0.0507	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	05/20/16 03:43 AM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	05/20/16 03:43 AM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Chrysene	0.0533	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	05/20/16 03:43 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Fluoranthene	0.0688	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	05/20/16 03:43 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 03:43 AM
Pyrene	0.0635	0.0498	0.0996	0.0747	J	mg/Kg-dry	10	05/20/16 03:43 AM
IS: Acenaphthene-d10	64.9	0	50-200	0		%REC	10	05/20/16 03:43 AM
IS: Chrysene-d12	63.8	0	50-200	0		%REC	10	05/20/16 03:43 AM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	05/20/16 03:43 AM
IS: Perylene-d12	64.1	0	50-200	0		%REC	10	05/20/16 03:43 AM
IS: Phenanthrene-d10	62.7	0	50-200	0		%REC	10	05/20/16 03:43 AM
Surr: 2-Fluorobiphenyl	79.8	0	46-115	0		%REC	10	05/20/16 03:43 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-DU004(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1605097-13
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:22 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	67.6	0	58-133	0		%REC	10	05/20/16 03:43 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU004(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1605097-14
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:23 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.93	0.0862	0.259	0.129		mg/Kg-dry	5	05/25/16 05:54 PM
IS: Bismuth	88.1	0	30-120	0		%REC	5	05/25/16 05:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	05/20/16 11:01 AM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	05/20/16 11:01 AM
IS: Acenaphthene-d10	67.1	0	50-200	0		%REC	10	05/20/16 11:01 AM
IS: Chrysene-d12	70.8	0	50-200	0		%REC	10	05/20/16 11:01 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	05/20/16 11:01 AM
IS: Perylene-d12	72.3	0	50-200	0		%REC	10	05/20/16 11:01 AM
IS: Phenanthrene-d10	62.5	0	50-200	0		%REC	10	05/20/16 11:01 AM
Surr: 2-Fluorobiphenyl	80.7	0	46-115	0		%REC	10	05/20/16 11:01 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-DU004(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1605097-14
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:23 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	69.2	0	58-133	0		%REC	10	05/20/16 11:01 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-DU004(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1605097-15
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:24 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.65	0.0952	0.286	0.143		mg/Kg-dry	5	05/25/16 06:00 PM
IS: Bismuth	89.6	0	30-120	0		%REC	5	05/25/16 06:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	05/20/16 11:40 AM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/20/16 11:40 AM
IS: Acenaphthene-d10	66.9	0	50-200	0		%REC	10	05/20/16 11:40 AM
IS: Chrysene-d12	65.5	0	50-200	0		%REC	10	05/20/16 11:40 AM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	05/20/16 11:40 AM
IS: Perylene-d12	66.1	0	50-200	0		%REC	10	05/20/16 11:40 AM
IS: Phenanthrene-d10	62.8	0	50-200	0		%REC	10	05/20/16 11:40 AM
Surr: 2-Fluorobiphenyl	82.7	0	46-115	0		%REC	10	05/20/16 11:40 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-DU004(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1605097-15
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 11:24 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.0	0	58-133	0		%REC	10	05/20/16 11:40 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU191-STRAT1
Project:	Laredo SGR	**Lab ID:**	1605097-16
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:00 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.6	0.111	0.333	0.166		mg/Kg-dry	5	05/25/16 06:06 PM
IS: Bismuth	91.5	0	30-120	0		%REC	5	05/25/16 06:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Acenaphthylene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Anthracene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Benzo[a]anthracene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Benzo[a]pyrene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Benzo[b]fluoranthene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Benzo[e]pyrene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Benzo[g,h,i]perylene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Benzo[j]fluoranthene	0.0885	0.0590	0.118	0.0885	NU	mg/Kg-dry	10	05/20/16 12:57 PM
Benzo[k]fluoranthene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Chrysene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Dibenz[a,h]anthracene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Fluoranthene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Fluorene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Indeno[1,2,3-cd]pyrene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Phenanthrene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
Pyrene	0.0885	0.0590	0.118	0.0885	U	mg/Kg-dry	10	05/20/16 12:57 PM
IS: Acenaphthene-d10	96.4	0	50-200	0		%REC	10	05/20/16 12:57 PM
IS: Chrysene-d12	85.0	0	50-200	0		%REC	10	05/20/16 12:57 PM
IS: Naphthalene-d8	93.8	0	50-200	0		%REC	10	05/20/16 12:57 PM
IS: Perylene-d12	87.7	0	50-200	0		%REC	10	05/20/16 12:57 PM
IS: Phenanthrene-d10	76.8	0	50-200	0		%REC	10	05/20/16 12:57 PM
Surr: 2-Fluorobiphenyl	84.3	0	46-115	0		%REC	10	05/20/16 12:57 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU191-STRAT1
Project:	Laredo SGR	**Lab ID:**	1605097-16
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:00 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	73.3	0	58-133	0		%REC	10	05/20/16 12:57 PM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	19.6	0	0	0		WT%	1	05/13/16 12:52 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU191-STRAT2
Project:	Laredo SGR	**Lab ID:**	1605097-17
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:05 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	42.6	0.105	0.316	0.158		mg/Kg-dry	5	05/25/16 07:00 PM
IS: Bismuth	88.5	0	30-120	0		%REC	5	05/25/16 07:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Acenaphthylene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Anthracene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Benzo[a]anthracene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Benzo[a]pyrene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Benzo[b]fluoranthene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Benzo[e]pyrene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Benzo[g,h,i]perylene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Benzo[j]fluoranthene	0.0774	0.0516	0.103	0.0774	NU	mg/Kg-dry	10	05/20/16 01:34 PM
Benzo[k]fluoranthene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Chrysene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Dibenz[a,h]anthracene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Fluoranthene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Fluorene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Indeno[1,2,3-cd]pyrene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Phenanthrene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
Pyrene	0.0774	0.0516	0.103	0.0774	U	mg/Kg-dry	10	05/20/16 01:34 PM
IS: Acenaphthene-d10	98.9	0	50-200	0		%REC	10	05/20/16 01:34 PM
IS: Chrysene-d12	85.2	0	50-200	0		%REC	10	05/20/16 01:34 PM
IS: Naphthalene-d8	94.0	0	50-200	0		%REC	10	05/20/16 01:34 PM
IS: Perylene-d12	87.6	0	50-200	0		%REC	10	05/20/16 01:34 PM
IS: Phenanthrene-d10	78.7	0	50-200	0		%REC	10	05/20/16 01:34 PM
Surr: 2-Fluorobiphenyl	86.5	0	46-115	0		%REC	10	05/20/16 01:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU191-STRAT2
Project:	Laredo SGR	**Lab ID:**	1605097-17
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:05 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.0	0	58-133	0		%REC	10	05/20/16 01:34 PM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	10.6	0	0	0		WT%	1	05/13/16 12:52 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-DU191-STRAT3
Project:	Laredo SGR	**Lab ID:**	1605097-18
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:10 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.1	0.105	0.315	0.158		mg/Kg-dry	5	05/25/16 07:06 PM
IS: Bismuth	89.7	0	30-120	0		%REC	5	05/25/16 07:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Acenaphthylene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Anthracene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Benzo[a]anthracene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Benzo[a]pyrene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Benzo[b]fluoranthene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Benzo[e]pyrene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Benzo[g,h,i]perylene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Benzo[j]fluoranthene	0.0763	0.0508	0.102	0.0763	NU	mg/Kg-dry	10	05/20/16 02:11 PM
Benzo[k]fluoranthene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Chrysene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Dibenz[a,h]anthracene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Fluoranthene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Fluorene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Indeno[1,2,3-cd]pyrene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Phenanthrene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
Pyrene	0.0763	0.0508	0.102	0.0763	U	mg/Kg-dry	10	05/20/16 02:11 PM
IS: Acenaphthene-d10	98.2	0	50-200	0		%REC	10	05/20/16 02:11 PM
IS: Chrysene-d12	84.7	0	50-200	0		%REC	10	05/20/16 02:11 PM
IS: Naphthalene-d8	95.5	0	50-200	0		%REC	10	05/20/16 02:11 PM
IS: Perylene-d12	88.1	0	50-200	0		%REC	10	05/20/16 02:11 PM
IS: Phenanthrene-d10	77.3	0	50-200	0		%REC	10	05/20/16 02:11 PM
Surr: 2-Fluorobiphenyl	86.0	0	46-115	0		%REC	10	05/20/16 02:11 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU191-STRAT3
Project:	Laredo SGR	**Lab ID:**	1605097-18
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:10 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	75.6	0	58-133	0		%REC	10	05/20/16 02:11 PM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	6.69	0	0	0		WT%	1	05/13/16 12:52 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-DU191-STRAT4
Project:	Laredo SGR	**Lab ID:**	1605097-19
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:15 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	22.2	0.0920	0.276	0.138		mg/Kg-dry	5	05/25/16 07:12 PM
IS: Bismuth	85.3	0	30-120	0		%REC	5	05/25/16 07:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Acenaphthylene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Anthracene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Benzo[a]anthracene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Benzo[a]pyrene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Benzo[b]fluoranthene	0.0616	0.0547	0.109	0.0821	J	mg/Kg-dry	10	05/20/16 02:48 PM
Benzo[e]pyrene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Benzo[g,h,i]perylene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Benzo[j]fluoranthene	0.0821	0.0547	0.109	0.0821	NU	mg/Kg-dry	10	05/20/16 02:48 PM
Benzo[k]fluoranthene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Chrysene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Dibenz[a,h]anthracene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Fluoranthene	0.0690	0.0547	0.109	0.0821	J	mg/Kg-dry	10	05/20/16 02:48 PM
Fluorene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Indeno[1,2,3-cd]pyrene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Phenanthrene	0.0821	0.0547	0.109	0.0821	U	mg/Kg-dry	10	05/20/16 02:48 PM
Pyrene	0.0627	0.0547	0.109	0.0821	J	mg/Kg-dry	10	05/20/16 02:48 PM
IS: Acenaphthene-d10	97.2	0	50-200	0		%REC	10	05/20/16 02:48 PM
IS: Chrysene-d12	85.3	0	50-200	0		%REC	10	05/20/16 02:48 PM
IS: Naphthalene-d8	93.7	0	50-200	0		%REC	10	05/20/16 02:48 PM
IS: Perylene-d12	86.5	0	50-200	0		%REC	10	05/20/16 02:48 PM
IS: Phenanthrene-d10	76.0	0	50-200	0		%REC	10	05/20/16 02:48 PM
Surr: 2-Fluorobiphenyl	87.4	0	46-115	0		%REC	10	05/20/16 02:48 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-DU191-STRAT4
Project:	Laredo SGR	**Lab ID:**	1605097-19
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:15 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	75.2	0	58-133	0		%REC	10	05/20/16 02:48 PM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	8.70	0	0	0		WT%	1	05/13/16 12:52 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU191-STRAT5
Project:	Laredo SGR	**Lab ID:**	1605097-20
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:20 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	11.0	0.103	0.308	0.154		mg/Kg-dry	5	05/16/16 03:57 PM
IS: Bismuth	86.3	0	30-120	0		%REC	5	05/16/16 03:57 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Acenaphthylene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Anthracene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Benzo[a]anthracene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Benzo[a]pyrene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Benzo[b]fluoranthene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Benzo[e]pyrene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Benzo[g,h,i]perylene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Benzo[j]fluoranthene	0.0843	0.0562	0.112	0.0843	NU	mg/Kg-dry	10	05/20/16 03:24 PM
Benzo[k]fluoranthene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Chrysene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Dibenz[a,h]anthracene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Fluoranthene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Fluorene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Indeno[1,2,3-cd]pyrene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Phenanthrene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
Pyrene	0.0843	0.0562	0.112	0.0843	U	mg/Kg-dry	10	05/20/16 03:24 PM
IS: Acenaphthene-d10	102	0	50-200	0		%REC	10	05/20/16 03:24 PM
IS: Chrysene-d12	84.0	0	50-200	0		%REC	10	05/20/16 03:24 PM
IS: Naphthalene-d8	96.9	0	50-200	0		%REC	10	05/20/16 03:24 PM
IS: Perylene-d12	86.9	0	50-200	0		%REC	10	05/20/16 03:24 PM
IS: Phenanthrene-d10	81.1	0	50-200	0		%REC	10	05/20/16 03:24 PM
Surr: 2-Fluorobiphenyl	86.7	0	46-115	0		%REC	10	05/20/16 03:24 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU191-STRAT5
Project:	Laredo SGR	**Lab ID:**	1605097-20
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:20 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	77.2	0	58-133	0		%REC	10	05/20/16 03:24 PM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	13.0	0	0	0		WT%	1	05/13/16 12:52 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:**	ROW-10(0-0.5)
Project:	Laredo SGR	**Lab ID:**	1605097-21
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 10:05 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.27	0.104	0.313	0.157		mg/Kg-dry	5	05/16/16 03:59 PM
IS: Bismuth	86.5	0	30-120	0		%REC	5	05/16/16 03:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Acenaphthylene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Anthracene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Benzo[a]anthracene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Benzo[a]pyrene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Benzo[b]fluoranthene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Benzo[e]pyrene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Benzo[g,h,i]perylene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Benzo[j]fluoranthene	0.0817	0.0545	0.109	0.0817	NU	mg/Kg-dry	10	05/14/16 05:36 AM
Benzo[k]fluoranthene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Chrysene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Dibenz[a,h]anthracene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Fluoranthene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Fluorene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Indeno[1,2,3-cd]pyrene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Phenanthrene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
Pyrene	0.0817	0.0545	0.109	0.0817	U	mg/Kg-dry	10	05/14/16 05:36 AM
IS: Acenaphthene-d10	101	0	50-200	0		%REC	10	05/14/16 05:36 AM
IS: Chrysene-d12	84.9	0	50-200	0		%REC	10	05/14/16 05:36 AM
IS: Naphthalene-d8	94.9	0	50-200	0		%REC	10	05/14/16 05:36 AM
IS: Perylene-d12	85.7	0	50-200	0		%REC	10	05/14/16 05:36 AM
IS: Phenanthrene-d10	91.9	0	50-200	0		%REC	10	05/14/16 05:36 AM
Surr: 2-Fluorobiphenyl	82.9	0	46-115	0		%REC	10	05/14/16 05:36 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:**	ROW-10(0-0.5)
Project:	Laredo SGR	**Lab ID:**	1605097-21
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 10:05 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	87.7	0	58-133	0		%REC	10	05/14/16 05:36 AM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	12.1	0	0	0		WT%	1	05/13/16 12:52 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:**	ROW-11(0-0.5)
Project:	Laredo SGR	**Lab ID:**	1605097-23
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 10:40 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	24.1	0.114	0.341	0.171		mg/Kg-dry	5	05/16/16 04:01 PM
IS: Bismuth	93.5	0	30-120	0		%REC	5	05/16/16 04:01 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Acenaphthylene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Anthracene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Benzo[a]anthracene	0.0637	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
Benzo[a]pyrene	0.0769	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
Benzo[b]fluoranthene	0.0756	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
Benzo[e]pyrene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Benzo[g,h,i]perylene	0.0742	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
Benzo[j]fluoranthene	0.0874	0.0583	0.117	0.0874	NU	mg/Kg-dry	10	05/14/16 06:13 AM
Benzo[k]fluoranthene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Chrysene	0.0811	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
Dibenz[a,h]anthracene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Fluoranthene	0.0880	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
Fluorene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Indeno[1,2,3-cd]pyrene	0.0607	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
Phenanthrene	0.0874	0.0583	0.117	0.0874	U	mg/Kg-dry	10	05/14/16 06:13 AM
Pyrene	0.0811	0.0583	0.117	0.0874	J	mg/Kg-dry	10	05/14/16 06:13 AM
IS: Acenaphthene-d10	104	0	50-200	0		%REC	10	05/14/16 06:13 AM
IS: Chrysene-d12	83.3	0	50-200	0		%REC	10	05/14/16 06:13 AM
IS: Naphthalene-d8	96.3	0	50-200	0		%REC	10	05/14/16 06:13 AM
IS: Perylene-d12	86.5	0	50-200	0		%REC	10	05/14/16 06:13 AM
IS: Phenanthrene-d10	94.8	0	50-200	0		%REC	10	05/14/16 06:13 AM
Surr: 2-Fluorobiphenyl	84.4	0	46-115	0		%REC	10	05/14/16 06:13 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	ROW-11(0-0.5)
Project:	Laredo SGR	**Lab ID:**	1605097-23
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 10:40 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	88.2	0	58-133	0		%REC	10	05/14/16 06:13 AM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	14.7	0	0	0		WT%	1	05/13/16 12:52 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:**	DUP04(20160508)
Project:	Laredo SGR	**Lab ID:**	1605097-26
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 10:30 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.80	0.110	0.331	0.165		mg/Kg-dry	5	05/16/16 04:03 PM
IS: Bismuth	93.9	0	30-120	0		%REC	5	05/16/16 04:03 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Acenaphthylene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Anthracene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Benzo[a]anthracene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Benzo[a]pyrene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Benzo[b]fluoranthene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Benzo[e]pyrene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Benzo[g,h,i]perylene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Benzo[j]fluoranthene	0.0851	0.0568	0.114	0.0851	NU	mg/Kg-dry	10	05/20/16 04:02 PM
Benzo[k]fluoranthene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Chrysene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Dibenz[a,h]anthracene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Fluoranthene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Fluorene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Indeno[1,2,3-cd]pyrene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Phenanthrene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
Pyrene	0.0851	0.0568	0.114	0.0851	U	mg/Kg-dry	10	05/20/16 04:02 PM
IS: Acenaphthene-d10	100	0	50-200	0		%REC	10	05/20/16 04:02 PM
IS: Chrysene-d12	84.4	0	50-200	0		%REC	10	05/20/16 04:02 PM
IS: Naphthalene-d8	95.6	0	50-200	0		%REC	10	05/20/16 04:02 PM
IS: Perylene-d12	86.5	0	50-200	0		%REC	10	05/20/16 04:02 PM
IS: Phenanthrene-d10	77.3	0	50-200	0		%REC	10	05/20/16 04:02 PM
Surr: 2-Fluorobiphenyl	83.2	0	46-115	0		%REC	10	05/20/16 04:02 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	DUP04(20160508)
Project:	Laredo SGR	**Lab ID:**	1605097-26
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 10:30 AM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	74.0	0	58-133	0		%REC	10	05/20/16 04:02 PM
PERCENT MOISTURE			**D2216**					Analyst: **WB**
Percent Moisture	16.0	0	0	0		WT%	1	05/13/16 12:52 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:**	EB12(20160508)
Project:	Laredo SGR	**Lab ID:**	1605097-27
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:30 PM
Lab Order:	1605097	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **RO**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	05/20/16 01:30 PM
IS: Bismuth	97.8	0	30-120	0		%REC	1	05/20/16 01:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Acenaphthylene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Anthracene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Benzo[a]anthracene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Benzo[a]pyrene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Benzo[b]fluoranthene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Benzo[e]pyrene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Benzo[g,h,i]perylene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Benzo[j]fluoranthene	0.0000616	0.0000385	0.0000770	0.0000616	NU	mg/L	1	05/18/16 06:58 PM
Benzo[k]fluoranthene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Chrysene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Dibenz[a,h]anthracene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Fluoranthene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Fluorene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Indeno[1,2,3-cd]pyrene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Phenanthrene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
Pyrene	0.0000616	0.0000385	0.0000770	0.0000616	U	mg/L	1	05/18/16 06:58 PM
IS: Acenaphthene-d10	92.4	0	50-200	0		%REC	1	05/18/16 06:58 PM
IS: Chrysene-d12	95.1	0	50-200	0		%REC	1	05/18/16 06:58 PM
IS: Naphthalene-d8	93.3	0	50-200	0		%REC	1	05/18/16 06:58 PM
IS: Perylene-d12	93.8	0	50-200	0		%REC	1	05/18/16 06:58 PM
IS: Phenanthrene-d10	89.5	0	50-200	0		%REC	1	05/18/16 06:58 PM
Surr: 2-Fluorobiphenyl	59.9	0	53-106	0		%REC	1	05/18/16 06:58 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB12(20160508)
Project:	Laredo SGR	**Lab ID:**	1605097-27
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 12:30 PM
Lab Order:	1605097	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	64.8	0	58-132	0		%REC	1	05/18/16 06:58 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU023-A
Project:	Laredo SGR	**Lab ID:**	1605097-28
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 02:30 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	29.5	0.0926	0.278	0.139		mg/Kg-dry	5	05/25/16 05:06 PM
IS: Bismuth	97.0	0	30-120	0		%REC	5	05/25/16 05:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/20/16 12:21 PM
Acenaphthylene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/20/16 12:21 PM
Anthracene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/20/16 12:21 PM
Benzo[a]anthracene	0.262	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Benzo[a]pyrene	0.348	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Benzo[b]fluoranthene	0.353	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Benzo[e]pyrene	0.289	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Benzo[g,h,i]perylene	0.280	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Benzo[j]fluoranthene	0.188	0.0473	0.0945	0.0709	N	mg/Kg-dry	10	05/20/16 12:21 PM
Benzo[k]fluoranthene	0.179	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Chrysene	0.339	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Dibenz[a,h]anthracene	0.0622	0.0473	0.0945	0.0709	J	mg/Kg-dry	10	05/20/16 12:21 PM
Fluoranthene	0.460	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Fluorene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/20/16 12:21 PM
Indeno[1,2,3-cd]pyrene	0.225	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Phenanthrene	0.154	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
Pyrene	0.407	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/20/16 12:21 PM
IS: Acenaphthene-d10	66.7	0	50-200	0		%REC	10	05/20/16 12:21 PM
IS: Chrysene-d12	63.9	0	50-200	0		%REC	10	05/20/16 12:21 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	05/20/16 12:21 PM
IS: Perylene-d12	65.2	0	50-200	0		%REC	10	05/20/16 12:21 PM
IS: Phenanthrene-d10	64.5	0	50-200	0		%REC	10	05/20/16 12:21 PM
Surr: 2-Fluorobiphenyl	81.9	0	46-115	0		%REC	10	05/20/16 12:21 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU023-A
Project:	Laredo SGR	**Lab ID:**	1605097-28
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 02:30 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.8	0	58-133	0		%REC	10	05/20/16 12:21 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU023-B
Project:	Laredo SGR	**Lab ID:**	1605097-29
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 02:50 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	27.0	0.0862	0.259	0.129		mg/Kg-dry	5	05/25/16 07:18 PM
IS: Bismuth	86.1	0	30-120	0		%REC	5	05/25/16 07:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/20/16 01:00 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/20/16 01:00 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/20/16 01:00 PM
Benzo[a]anthracene	0.238	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Benzo[a]pyrene	0.316	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Benzo[b]fluoranthene	0.326	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Benzo[e]pyrene	0.267	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Benzo[g,h,i]perylene	0.262	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Benzo[j]fluoranthene	0.174	0.0494	0.0987	0.0740	N	mg/Kg-dry	10	05/20/16 01:00 PM
Benzo[k]fluoranthene	0.165	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Chrysene	0.300	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Dibenz[a,h]anthracene	0.0599	0.0494	0.0987	0.0740	J	mg/Kg-dry	10	05/20/16 01:00 PM
Fluoranthene	0.433	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	05/20/16 01:00 PM
Indeno[1,2,3-cd]pyrene	0.204	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Phenanthrene	0.145	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
Pyrene	0.380	0.0494	0.0987	0.0740		mg/Kg-dry	10	05/20/16 01:00 PM
IS: Acenaphthene-d10	68.5	0	50-200	0		%REC	10	05/20/16 01:00 PM
IS: Chrysene-d12	65.5	0	50-200	0		%REC	10	05/20/16 01:00 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	05/20/16 01:00 PM
IS: Perylene-d12	67.2	0	50-200	0		%REC	10	05/20/16 01:00 PM
IS: Phenanthrene-d10	63.7	0	50-200	0		%REC	10	05/20/16 01:00 PM
Surr: 2-Fluorobiphenyl	80.7	0	46-115	0		%REC	10	05/20/16 01:00 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU023-B
Project:	Laredo SGR	**Lab ID:**	1605097-29
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 02:50 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	71.1	0	58-133	0		%REC	10	05/20/16 01:00 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB13(20160508)
Project:	Laredo SGR	**Lab ID:**	1605097-30
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 04:30 PM
Lab Order:	1605097	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **RO**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	05/20/16 02:12 PM
IS: Bismuth	96.1	0	30-120	0		%REC	1	05/20/16 02:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000617	0.0000386	0.0000772	0.0000617	U	mg/L	1	05/18/16 07:34 PM
Acenaphthylene	0.0000617	0.0000386	0.0000772	0.0000617	U	mg/L	1	05/18/16 07:34 PM
Anthracene	0.0000617	0.0000386	0.0000772	0.0000617	U	mg/L	1	05/18/16 07:34 PM
Benzo[a]anthracene	0.0000523	0.0000386	0.0000772	0.0000617	J	mg/L	1	05/18/16 07:34 PM
Benzo[a]pyrene	0.000104	0.0000386	0.0000772	0.0000617		mg/L	1	05/18/16 07:34 PM
Benzo[b]fluoranthene	0.000106	0.0000386	0.0000772	0.0000617		mg/L	1	05/18/16 07:34 PM
Benzo[e]pyrene	0.0000790	0.0000386	0.0000772	0.0000617		mg/L	1	05/18/16 07:34 PM
Benzo[g,h,i]perylene	0.0000913	0.0000386	0.0000772	0.0000617		mg/L	1	05/18/16 07:34 PM
Benzo[j]fluoranthene	0.0000436	0.0000386	0.0000772	0.0000617	JN	mg/L	1	05/18/16 07:34 PM
Benzo[k]fluoranthene	0.0000550	0.0000386	0.0000772	0.0000617	J	mg/L	1	05/18/16 07:34 PM
Chrysene	0.0000761	0.0000386	0.0000772	0.0000617	J	mg/L	1	05/18/16 07:34 PM
Dibenz[a,h]anthracene	0.0000617	0.0000386	0.0000772	0.0000617	U	mg/L	1	05/18/16 07:34 PM
Fluoranthene	0.0000419	0.0000386	0.0000772	0.0000617	J	mg/L	1	05/18/16 07:34 PM
Fluorene	0.0000617	0.0000386	0.0000772	0.0000617	U	mg/L	1	05/18/16 07:34 PM
Indeno[1,2,3-cd]pyrene	0.0000782	0.0000386	0.0000772	0.0000617		mg/L	1	05/18/16 07:34 PM
Phenanthrene	0.0000617	0.0000386	0.0000772	0.0000617	U	mg/L	1	05/18/16 07:34 PM
Pyrene	0.0000617	0.0000386	0.0000772	0.0000617	U	mg/L	1	05/18/16 07:34 PM
IS: Acenaphthene-d10	93.5	0	50-200	0		%REC	1	05/18/16 07:34 PM
IS: Chrysene-d12	93.8	0	50-200	0		%REC	1	05/18/16 07:34 PM
IS: Naphthalene-d8	95.3	0	50-200	0		%REC	1	05/18/16 07:34 PM
IS: Perylene-d12	93.6	0	50-200	0		%REC	1	05/18/16 07:34 PM
IS: Phenanthrene-d10	91.1	0	50-200	0		%REC	1	05/18/16 07:34 PM
Surr: 2-Fluorobiphenyl	64.6	0	53-106	0		%REC	1	05/18/16 07:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB13(20160508)
Project:	Laredo SGR	**Lab ID:**	1605097-30
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 04:30 PM
Lab Order:	1605097	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	68.6	0	58-132	0		%REC	1	05/18/16 07:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1605097-31
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:48 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	16.4	0.0980	0.294	0.147	J	mg/Kg-dry	5	05/25/16 07:24 PM
IS: Bismuth	86.3	0	30-120	0		%REC	5	05/25/16 07:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	05/20/16 01:40 PM
Acenaphthylene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	05/20/16 01:40 PM
Anthracene	0.0923	0.0489	0.0978	0.0734	J	mg/Kg-dry	10	05/20/16 01:40 PM
Benzo[a]anthracene	0.704	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Benzo[a]pyrene	0.826	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Benzo[b]fluoranthene	0.830	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Benzo[e]pyrene	0.664	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Benzo[g,h,i]perylene	0.592	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Benzo[j]fluoranthene	0.445	0.0489	0.0978	0.0734	N	mg/Kg-dry	10	05/20/16 01:40 PM
Benzo[k]fluoranthene	0.417	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Chrysene	0.871	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Dibenz[a,h]anthracene	0.132	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Fluoranthene	1.36	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Fluorene	0.0734	0.0489	0.0978	0.0734	U	mg/Kg-dry	10	05/20/16 01:40 PM
Indeno[1,2,3-cd]pyrene	0.478	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Phenanthrene	0.490	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
Pyrene	1.17	0.0489	0.0978	0.0734		mg/Kg-dry	10	05/20/16 01:40 PM
IS: Acenaphthene-d10	69.1	0	50-200	0		%REC	10	05/20/16 01:40 PM
IS: Chrysene-d12	67.5	0	50-200	0		%REC	10	05/20/16 01:40 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/20/16 01:40 PM
IS: Perylene-d12	68.5	0	50-200	0		%REC	10	05/20/16 01:40 PM
IS: Phenanthrene-d10	64.2	0	50-200	0		%REC	10	05/20/16 01:40 PM
Surr: 2-Fluorobiphenyl	80.2	0	46-115	0		%REC	10	05/20/16 01:40 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-DU019-01(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1605097-31
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:48 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.0	0	58-133	0		%REC	10	05/20/16 01:40 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
Project: Laredo SGR
Project No: 04285081.0000.00044
Lab Order: 1605097

Client Sample ID: SGR-DU019-01(2-4)-A
Lab ID: 1605097-32
Collection Date: 05/08/16 03:50 PM
Matrix: SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.39	0.0952	0.286	0.143	J	mg/Kg-dry	5	05/25/16 07:30 PM
IS: Bismuth	84.4	0	30-120	0		%REC	5	05/25/16 07:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	05/20/16 02:20 PM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Fluoranthene	0.0629	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	05/20/16 02:20 PM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	05/20/16 02:20 PM
Pyrene	0.0600	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	05/20/16 02:20 PM
IS: Acenaphthene-d10	63.2	0	50-200	0		%REC	10	05/20/16 02:20 PM
IS: Chrysene-d12	63.7	0	50-200	0		%REC	10	05/20/16 02:20 PM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	05/20/16 02:20 PM
IS: Perylene-d12	63.7	0	50-200	0		%REC	10	05/20/16 02:20 PM
IS: Phenanthrene-d10	60.0	0	50-200	0		%REC	10	05/20/16 02:20 PM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	05/20/16 02:20 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		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1605097-32
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:50 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.3	0	58-133	0		%REC	10	05/20/16 02:20 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		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1605097-33
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:52 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.59	0.0990	0.297	0.149	J	mg/Kg-dry	5	05/25/16 07:36 PM
IS: Bismuth	86.2	0	30-120	0		%REC	5	05/25/16 07:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Acenaphthylene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Anthracene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Benzo[a]anthracene	0.0486	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
Benzo[a]pyrene	0.0638	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
Benzo[b]fluoranthene	0.0652	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
Benzo[e]pyrene	0.0517	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
Benzo[g,h,i]perylene	0.0508	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
Benzo[j]fluoranthene	0.0704	0.0469	0.0938	0.0704	NU	mg/Kg-dry	10	05/20/16 02:59 PM
Benzo[k]fluoranthene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Chrysene	0.0614	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
Dibenz[a,h]anthracene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Fluoranthene	0.0811	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
Fluorene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Indeno[1,2,3-cd]pyrene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Phenanthrene	0.0704	0.0469	0.0938	0.0704	U	mg/Kg-dry	10	05/20/16 02:59 PM
Pyrene	0.0754	0.0469	0.0938	0.0704	J	mg/Kg-dry	10	05/20/16 02:59 PM
IS: Acenaphthene-d10	69.4	0	50-200	0		%REC	10	05/20/16 02:59 PM
IS: Chrysene-d12	68.4	0	50-200	0		%REC	10	05/20/16 02:59 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/20/16 02:59 PM
IS: Perylene-d12	69.1	0	50-200	0		%REC	10	05/20/16 02:59 PM
IS: Phenanthrene-d10	65.0	0	50-200	0		%REC	10	05/20/16 02:59 PM
Surr: 2-Fluorobiphenyl	79.7	0	46-115	0		%REC	10	05/20/16 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-DU019-01(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1605097-33
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:52 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	69.0	0	58-133	0		%REC	10	05/20/16 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1605097-34
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:53 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.87	0.0901	0.270	0.135	J	mg/Kg-dry	5	05/25/16 07:42 PM
IS: Bismuth	81.9	0	30-120	0		%REC	5	05/25/16 07:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	05/20/16 03:39 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	05/20/16 03:39 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	05/20/16 03:39 PM
Benzo[a]anthracene	0.0904	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	05/20/16 03:39 PM
Benzo[a]pyrene	0.117	0.0499	0.0998	0.0749		mg/Kg-dry	10	05/20/16 03:39 PM
Benzo[b]fluoranthene	0.116	0.0499	0.0998	0.0749		mg/Kg-dry	10	05/20/16 03:39 PM
Benzo[e]pyrene	0.0935	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	05/20/16 03:39 PM
Benzo[g,h,i]perylene	0.0903	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	05/20/16 03:39 PM
Benzo[j]fluoranthene	0.0653	0.0499	0.0998	0.0749	JN	mg/Kg-dry	10	05/20/16 03:39 PM
Benzo[k]fluoranthene	0.0619	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	05/20/16 03:39 PM
Chrysene	0.122	0.0499	0.0998	0.0749		mg/Kg-dry	10	05/20/16 03:39 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	05/20/16 03:39 PM
Fluoranthene	0.169	0.0499	0.0998	0.0749		mg/Kg-dry	10	05/20/16 03:39 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	05/20/16 03:39 PM
Indeno[1,2,3-cd]pyrene	0.0718	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	05/20/16 03:39 PM
Phenanthrene	0.0572	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	05/20/16 03:39 PM
Pyrene	0.157	0.0499	0.0998	0.0749		mg/Kg-dry	10	05/20/16 03:39 PM
IS: Acenaphthene-d10	68.7	0	50-200	0		%REC	10	05/20/16 03:39 PM
IS: Chrysene-d12	67.8	0	50-200	0		%REC	10	05/20/16 03:39 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	05/20/16 03:39 PM
IS: Perylene-d12	69.0	0	50-200	0		%REC	10	05/20/16 03:39 PM
IS: Phenanthrene-d10	64.8	0	50-200	0		%REC	10	05/20/16 03:39 PM
Surr: 2-Fluorobiphenyl	81.6	0	46-115	0		%REC	10	05/20/16 03:39 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1605097-34
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:53 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.7	0	58-133	0		%REC	10	05/20/16 03:39 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1605097-35
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:56 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	4.31	0.0952	0.286	0.143	J	mg/Kg-dry	5	05/25/16 07:48 PM
IS: Bismuth	88.1	0	30-120	0		%REC	5	05/25/16 07:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Acenaphthylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Benzo[a]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Benzo[a]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Benzo[b]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Benzo[e]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Benzo[g,h,i]perylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Benzo[j]fluoranthene	0.0732	0.0488	0.0976	0.0732	NU	mg/Kg-dry	10	05/20/16 04:18 PM
Benzo[k]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Chrysene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Fluorene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Phenanthrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
Pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	05/20/16 04:18 PM
IS: Acenaphthene-d10	68.0	0	50-200	0		%REC	10	05/20/16 04:18 PM
IS: Chrysene-d12	68.5	0	50-200	0		%REC	10	05/20/16 04:18 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/20/16 04:18 PM
IS: Perylene-d12	70.4	0	50-200	0		%REC	10	05/20/16 04:18 PM
IS: Phenanthrene-d10	64.2	0	50-200	0		%REC	10	05/20/16 04:18 PM
Surr: 2-Fluorobiphenyl	79.5	0	46-115	0		%REC	10	05/20/16 04:18 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-DU019-01(8-10)-A
Project:	Laredo SGR	**Lab ID:**	1605097-35
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:56 PM
Lab Order:	1605097	**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	05/20/16 04:18 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1605097-36
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:37 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	16.2	0.0847	0.254	0.127	J	mg/Kg-dry	5	05/25/16 07:54 PM
IS: Bismuth	89.3	0	30-120	0		%REC	5	05/25/16 07:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	05/20/16 04:58 PM
Acenaphthylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	05/20/16 04:58 PM
Anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	05/20/16 04:58 PM
Benzo[a]anthracene	0.271	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Benzo[a]pyrene	0.346	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Benzo[b]fluoranthene	0.340	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Benzo[e]pyrene	0.278	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Benzo[g,h,i]perylene	0.259	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Benzo[j]fluoranthene	0.185	0.0491	0.0981	0.0736	N	mg/Kg-dry	10	05/20/16 04:58 PM
Benzo[k]fluoranthene	0.174	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Chrysene	0.353	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Dibenz[a,h]anthracene	0.0588	0.0491	0.0981	0.0736	J	mg/Kg-dry	10	05/20/16 04:58 PM
Fluoranthene	0.499	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Fluorene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	05/20/16 04:58 PM
Indeno[1,2,3-cd]pyrene	0.213	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Phenanthrene	0.179	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
Pyrene	0.450	0.0491	0.0981	0.0736		mg/Kg-dry	10	05/20/16 04:58 PM
IS: Acenaphthene-d10	66.8	0	50-200	0		%REC	10	05/20/16 04:58 PM
IS: Chrysene-d12	68.1	0	50-200	0		%REC	10	05/20/16 04:58 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/20/16 04:58 PM
IS: Perylene-d12	69.3	0	50-200	0		%REC	10	05/20/16 04:58 PM
IS: Phenanthrene-d10	63.3	0	50-200	0		%REC	10	05/20/16 04:58 PM
Surr: 2-Fluorobiphenyl	83.3	0	46-115	0		%REC	10	05/20/16 04:58 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1605097-36
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:37 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.5	0	58-133	0		%REC	10	05/20/16 04:58 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1605097-37
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:39 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	10.9	0.0926	0.278	0.139	J	mg/Kg-dry	5	05/25/16 09:00 PM
IS: Bismuth	84.1	0	30-120	0		%REC	5	05/25/16 09:00 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0706	0.0471	0.0942	0.0706	U	mg/Kg-dry	10	05/20/16 10:16 PM
Acenaphthylene	0.0706	0.0471	0.0942	0.0706	U	mg/Kg-dry	10	05/20/16 10:16 PM
Anthracene	0.0706	0.0471	0.0942	0.0706	U	mg/Kg-dry	10	05/20/16 10:16 PM
Benzo[a]anthracene	0.0838	0.0471	0.0942	0.0706	J	mg/Kg-dry	10	05/20/16 10:16 PM
Benzo[a]pyrene	0.113	0.0471	0.0942	0.0706		mg/Kg-dry	10	05/20/16 10:16 PM
Benzo[b]fluoranthene	0.113	0.0471	0.0942	0.0706		mg/Kg-dry	10	05/20/16 10:16 PM
Benzo[e]pyrene	0.0945	0.0471	0.0942	0.0706		mg/Kg-dry	10	05/20/16 10:16 PM
Benzo[g,h,i]perylene	0.0933	0.0471	0.0942	0.0706	J	mg/Kg-dry	10	05/20/16 10:16 PM
Benzo[j]fluoranthene	0.0620	0.0471	0.0942	0.0706	JN	mg/Kg-dry	10	05/20/16 10:16 PM
Benzo[k]fluoranthene	0.0575	0.0471	0.0942	0.0706	J	mg/Kg-dry	10	05/20/16 10:16 PM
Chrysene	0.110	0.0471	0.0942	0.0706		mg/Kg-dry	10	05/20/16 10:16 PM
Dibenz[a,h]anthracene	0.0706	0.0471	0.0942	0.0706	U	mg/Kg-dry	10	05/20/16 10:16 PM
Fluoranthene	0.142	0.0471	0.0942	0.0706		mg/Kg-dry	10	05/20/16 10:16 PM
Fluorene	0.0706	0.0471	0.0942	0.0706	U	mg/Kg-dry	10	05/20/16 10:16 PM
Indeno[1,2,3-cd]pyrene	0.0776	0.0471	0.0942	0.0706	J	mg/Kg-dry	10	05/20/16 10:16 PM
Phenanthrene	0.0706	0.0471	0.0942	0.0706	U	mg/Kg-dry	10	05/20/16 10:16 PM
Pyrene	0.135	0.0471	0.0942	0.0706		mg/Kg-dry	10	05/20/16 10:16 PM
IS: Acenaphthene-d10	64.2	0	50-200	0		%REC	10	05/20/16 10:16 PM
IS: Chrysene-d12	65.2	0	50-200	0		%REC	10	05/20/16 10:16 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	05/20/16 10:16 PM
IS: Perylene-d12	66.4	0	50-200	0		%REC	10	05/20/16 10:16 PM
IS: Phenanthrene-d10	60.9	0	50-200	0		%REC	10	05/20/16 10:16 PM
Surr: 2-Fluorobiphenyl	80.6	0	46-115	0		%REC	10	05/20/16 10:16 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-DU019-01(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1605097-37
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:39 PM
Lab Order:	1605097	**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	05/20/16 10:16 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1605097-38
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:43 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	7.35	0.0862	0.259	0.129	J	mg/Kg-dry	5	05/25/16 09:06 PM
IS: Bismuth	85.4	0	30-120	0		%REC	5	05/25/16 09:06 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Benzo[a]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	05/20/16 10:55 PM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Chrysene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Phenanthrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
Pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	05/20/16 10:55 PM
IS: Acenaphthene-d10	69.9	0	50-200	0		%REC	10	05/20/16 10:55 PM
IS: Chrysene-d12	68.3	0	50-200	0		%REC	10	05/20/16 10:55 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	05/20/16 10:55 PM
IS: Perylene-d12	69.8	0	50-200	0		%REC	10	05/20/16 10:55 PM
IS: Phenanthrene-d10	65.2	0	50-200	0		%REC	10	05/20/16 10:55 PM
Surr: 2-Fluorobiphenyl	80.2	0	46-115	0		%REC	10	05/20/16 10:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1605097-38
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:43 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	68.8	0	58-133	0		%REC	10	05/20/16 10:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT: Arcadis
Project: Laredo SGR
Project No: 04285081.0000.00044
Lab Order: 1605097

Client Sample ID: SGR-DU019-01(6-8)-B
Lab ID: 1605097-39
Collection Date: 05/08/16 03:45 PM
Matrix: SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.27	0.0847	0.254	0.127	J	mg/Kg-dry	5	05/25/16 09:12 PM
IS: Bismuth	84.9	0	30-120	0		%REC	5	05/25/16 09:12 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 05:38 PM
Acenaphthylene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 05:38 PM
Anthracene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 05:38 PM
Benzo[a]anthracene	0.0684	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
Benzo[a]pyrene	0.0982	0.0481	0.0962	0.0722		mg/Kg-dry	10	05/20/16 05:38 PM
Benzo[b]fluoranthene	0.0951	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
Benzo[e]pyrene	0.0775	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
Benzo[g,h,i]perylene	0.0725	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
Benzo[j]fluoranthene	0.0504	0.0481	0.0962	0.0722	JN	mg/Kg-dry	10	05/20/16 05:38 PM
Benzo[k]fluoranthene	0.0487	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
Chrysene	0.0852	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
Dibenz[a,h]anthracene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 05:38 PM
Fluoranthene	0.0977	0.0481	0.0962	0.0722		mg/Kg-dry	10	05/20/16 05:38 PM
Fluorene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 05:38 PM
Indeno[1,2,3-cd]pyrene	0.0616	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
Phenanthrene	0.0722	0.0481	0.0962	0.0722	U	mg/Kg-dry	10	05/20/16 05:38 PM
Pyrene	0.0942	0.0481	0.0962	0.0722	J	mg/Kg-dry	10	05/20/16 05:38 PM
IS: Acenaphthene-d10	67.6	0	50-200	0		%REC	10	05/20/16 05:38 PM
IS: Chrysene-d12	67.3	0	50-200	0		%REC	10	05/20/16 05:38 PM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	05/20/16 05:38 PM
IS: Perylene-d12	68.5	0	50-200	0		%REC	10	05/20/16 05:38 PM
IS: Phenanthrene-d10	64.1	0	50-200	0		%REC	10	05/20/16 05:38 PM
Surr: 2-Fluorobiphenyl	81.4	0	46-115	0		%REC	10	05/20/16 05:38 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level
B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL
MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1605097-39
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:45 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.5	0	58-133	0		%REC	10	05/20/16 05:38 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1605097-40
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:46 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	4.05	0.0862	0.259	0.129	J	mg/Kg-dry	5	05/25/16 09:18 PM
IS: Bismuth	90.3	0	30-120	0		%REC	5	05/25/16 09:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	05/20/16 11:35 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	05/20/16 11:35 PM
IS: Acenaphthene-d10	67.1	0	50-200	0		%REC	10	05/20/16 11:35 PM
IS: Chrysene-d12	67.8	0	50-200	0		%REC	10	05/20/16 11:35 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	05/20/16 11:35 PM
IS: Perylene-d12	69.0	0	50-200	0		%REC	10	05/20/16 11:35 PM
IS: Phenanthrene-d10	63.2	0	50-200	0		%REC	10	05/20/16 11:35 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	05/20/16 11:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(8-10)-B
Project:	Laredo SGR	**Lab ID:**	1605097-40
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:46 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	71.7	0	58-133	0		%REC	10	05/20/16 11:35 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *01-Jun-16*

CLIENT: Arcadis
Project: Laredo SGR
Project No: 04285081.0000.00044
Lab Order: 1605097

Client Sample ID: SGR-DU019-01(0-2)-C
Lab ID: 1605097-41
Collection Date: 05/08/16 03:57 PM
Matrix: SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	13.1	0.0926	0.278	0.139	J	mg/Kg-dry	5	05/25/16 08:48 PM
IS: Bismuth	86.9	0	30-120	0		%REC	5	05/25/16 08:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/21/16 12:15 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/21/16 12:15 AM
Anthracene	0.0601	0.0495	0.0989	0.0742	J	mg/Kg-dry	10	05/21/16 12:15 AM
Benzo[a]anthracene	0.670	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Benzo[a]pyrene	0.847	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Benzo[b]fluoranthene	0.837	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Benzo[e]pyrene	0.682	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Benzo[g,h,i]perylene	0.636	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Benzo[j]fluoranthene	0.438	0.0495	0.0989	0.0742	N	mg/Kg-dry	10	05/21/16 12:15 AM
Benzo[k]fluoranthene	0.421	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Chrysene	0.842	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Dibenz[a,h]anthracene	0.136	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Fluoranthene	1.14	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	05/21/16 12:15 AM
Indeno[1,2,3-cd]pyrene	0.538	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Phenanthrene	0.345	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
Pyrene	1.02	0.0495	0.0989	0.0742		mg/Kg-dry	10	05/21/16 12:15 AM
IS: Acenaphthene-d10	61.5	0	50-200	0		%REC	10	05/21/16 12:15 AM
IS: Chrysene-d12	61.3	0	50-200	0		%REC	10	05/21/16 12:15 AM
IS: Naphthalene-d8	100	0	50-200	0		%REC	10	05/21/16 12:15 AM
IS: Perylene-d12	62.0	0	50-200	0		%REC	10	05/21/16 12:15 AM
IS: Phenanthrene-d10	60.5	0	50-200	0		%REC	10	05/21/16 12:15 AM
Surr: 2-Fluorobiphenyl	80.8	0	46-115	0		%REC	10	05/21/16 12:15 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1605097-41
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:57 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	71.6	0	58-133	0		%REC	10	05/21/16 12:15 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1605097-42
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:58 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	8.74	0.0862	0.259	0.129	J	mg/Kg-dry	5	05/25/16 09:24 PM
IS: Bismuth	86.7	0	30-120	0		%REC	5	05/25/16 09:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/21/16 12:55 AM
Acenaphthylene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/21/16 12:55 AM
Anthracene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/21/16 12:55 AM
Benzo[a]anthracene	0.105	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
Benzo[a]pyrene	0.132	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
Benzo[b]fluoranthene	0.134	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
Benzo[e]pyrene	0.109	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
Benzo[g,h,i]perylene	0.102	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
Benzo[j]fluoranthene	0.0691	0.0473	0.0945	0.0709	JN	mg/Kg-dry	10	05/21/16 12:55 AM
Benzo[k]fluoranthene	0.0702	0.0473	0.0945	0.0709	J	mg/Kg-dry	10	05/21/16 12:55 AM
Chrysene	0.135	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
Dibenz[a,h]anthracene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/21/16 12:55 AM
Fluoranthene	0.180	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
Fluorene	0.0709	0.0473	0.0945	0.0709	U	mg/Kg-dry	10	05/21/16 12:55 AM
Indeno[1,2,3-cd]pyrene	0.0868	0.0473	0.0945	0.0709	J	mg/Kg-dry	10	05/21/16 12:55 AM
Phenanthrene	0.0734	0.0473	0.0945	0.0709	J	mg/Kg-dry	10	05/21/16 12:55 AM
Pyrene	0.163	0.0473	0.0945	0.0709		mg/Kg-dry	10	05/21/16 12:55 AM
IS: Acenaphthene-d10	65.9	0	50-200	0		%REC	10	05/21/16 12:55 AM
IS: Chrysene-d12	65.9	0	50-200	0		%REC	10	05/21/16 12:55 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	05/21/16 12:55 AM
IS: Perylene-d12	66.5	0	50-200	0		%REC	10	05/21/16 12:55 AM
IS: Phenanthrene-d10	66.1	0	50-200	0		%REC	10	05/21/16 12:55 AM
Surr: 2-Fluorobiphenyl	79.4	0	46-115	0		%REC	10	05/21/16 12:55 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-DU019-01(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1605097-42
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:58 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	68.7	0	58-133	0		%REC	10	05/21/16 12:55 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1605097-43
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:59 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	9.16	0.0870	0.261	0.130	J	mg/Kg-dry	5	05/25/16 09:30 PM
IS: Bismuth	85.1	0	30-120	0		%REC	5	05/25/16 09:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	05/21/16 01:35 AM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	05/21/16 01:35 AM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	05/21/16 01:35 AM
Benzo[a]anthracene	0.0863	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	05/21/16 01:35 AM
Benzo[a]pyrene	0.111	0.0487	0.0974	0.0730		mg/Kg-dry	10	05/21/16 01:35 AM
Benzo[b]fluoranthene	0.115	0.0487	0.0974	0.0730		mg/Kg-dry	10	05/21/16 01:35 AM
Benzo[e]pyrene	0.0799	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	05/21/16 01:35 AM
Benzo[g,h,i]perylene	0.0929	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	05/21/16 01:35 AM
Benzo[j]fluoranthene	0.0525	0.0487	0.0974	0.0730	JN	mg/Kg-dry	10	05/21/16 01:35 AM
Benzo[k]fluoranthene	0.0620	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	05/21/16 01:35 AM
Chrysene	0.100	0.0487	0.0974	0.0730		mg/Kg-dry	10	05/21/16 01:35 AM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	05/21/16 01:35 AM
Fluoranthene	0.129	0.0487	0.0974	0.0730		mg/Kg-dry	10	05/21/16 01:35 AM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	05/21/16 01:35 AM
Indeno[1,2,3-cd]pyrene	0.0808	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	05/21/16 01:35 AM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	05/21/16 01:35 AM
Pyrene	0.121	0.0487	0.0974	0.0730		mg/Kg-dry	10	05/21/16 01:35 AM
IS: Acenaphthene-d10	69.2	0	50-200	0		%REC	10	05/21/16 01:35 AM
IS: Chrysene-d12	68.2	0	50-200	0		%REC	10	05/21/16 01:35 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	05/21/16 01:35 AM
IS: Perylene-d12	69.2	0	50-200	0		%REC	10	05/21/16 01:35 AM
IS: Phenanthrene-d10	65.6	0	50-200	0		%REC	10	05/21/16 01:35 AM
Surr: 2-Fluorobiphenyl	79.2	0	46-115	0		%REC	10	05/21/16 01:35 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-DU019-01(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1605097-43
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 03:59 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.0	0	58-133	0		%REC	10	05/21/16 01:35 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1605097-44
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 04:00 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	6.40	0.0943	0.283	0.142	J	mg/Kg-dry	5	05/25/16 09:36 PM
IS: Bismuth	82.2	0	30-120	0		%REC	5	05/25/16 09:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Benzo[a]anthracene	0.0506	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	05/20/16 04:38 PM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Benzo[b]fluoranthene	0.0531	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	05/20/16 04:38 PM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	05/20/16 04:38 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Fluoranthene	0.104	0.0499	0.0997	0.0748		mg/Kg-dry	10	05/20/16 04:38 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	05/20/16 04:38 PM
Phenanthrene	0.0667	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	05/20/16 04:38 PM
Pyrene	0.0813	0.0499	0.0997	0.0748	J	mg/Kg-dry	10	05/20/16 04:38 PM
IS: Acenaphthene-d10	101	0	50-200	0		%REC	10	05/20/16 04:38 PM
IS: Chrysene-d12	82.5	0	50-200	0		%REC	10	05/20/16 04:38 PM
IS: Naphthalene-d8	95.6	0	50-200	0		%REC	10	05/20/16 04:38 PM
IS: Perylene-d12	85.2	0	50-200	0		%REC	10	05/20/16 04:38 PM
IS: Phenanthrene-d10	79.2	0	50-200	0		%REC	10	05/20/16 04:38 PM
Surr: 2-Fluorobiphenyl	87.7	0	46-115	0		%REC	10	05/20/16 04:38 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-DU019-01(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1605097-44
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 04:00 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	77.1	0	58-133	0		%REC	10	05/20/16 04:38 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: *01-Jun-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU019-01(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1605097-45
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 04:01 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **KL**
Lead	5.46	0.0893	0.268	0.134	J	mg/Kg-dry	5	05/25/16 09:42 PM
IS: Bismuth	85.2	0	30-120	0		%REC	5	05/25/16 09:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Acenaphthylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Benzo[a]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Benzo[a]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Benzo[b]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Benzo[e]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Benzo[g,h,i]perylene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Benzo[j]fluoranthene	0.0731	0.0487	0.0975	0.0731	NU	mg/Kg-dry	10	05/20/16 05:16 PM
Benzo[k]fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Chrysene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Dibenz[a,h]anthracene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Fluoranthene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Fluorene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Indeno[1,2,3-cd]pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Phenanthrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
Pyrene	0.0731	0.0487	0.0975	0.0731	U	mg/Kg-dry	10	05/20/16 05:16 PM
IS: Acenaphthene-d10	102	0	50-200	0		%REC	10	05/20/16 05:16 PM
IS: Chrysene-d12	85.9	0	50-200	0		%REC	10	05/20/16 05:16 PM
IS: Naphthalene-d8	97.7	0	50-200	0		%REC	10	05/20/16 05:16 PM
IS: Perylene-d12	87.6	0	50-200	0		%REC	10	05/20/16 05:16 PM
IS: Phenanthrene-d10	79.1	0	50-200	0		%REC	10	05/20/16 05:16 PM
Surr: 2-Fluorobiphenyl	88.7	0	46-115	0		%REC	10	05/20/16 05:16 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-DU019-01(8-10)-C
Project:	Laredo SGR	**Lab ID:**	1605097-45
Project No:	04285081.0000.00044	**Collection Date:**	05/08/16 04:01 PM
Lab Order:	1605097	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	78.0	0	58-133	0		%REC	10	05/20/16 05:16 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		

June 01, 2016

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

Order No.: 1605097

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 45 sample(s) on 5/10/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 5 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-16-16 & DoD-ELAP #L15-426

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GCMS8 Raw Data 399

ICP-MS3 Raw Data 586

ICP-MS4 Raw Data 789

Pmoist Raw Data 949

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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

№ 70022

CHAIN-OF-CUSTODY

CLIENT: Arcadis
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913 645 3203 FAX/E-MAIL: alex.walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO: Erika.Dinkelacker@arcadis.com

DATE: May 8, 2016 PAGE 1 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1605097
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: C. Ferguson

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ 8021 ☐ TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO 8015 ☐ DRO 8015 ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PCB ☐ 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ 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
SGR-DU004 (0-2)-A	01	5-8-16	1100	S	Bag	1				X		X	X
SGR-DU004 (2-4)-A	02	5-8-16	1103	S	Bag	1				X		X	X
SGR-DU004 (4-6)-A	03	5-8-16	1105	S	Bag	1				X		X	X
SGR-DU004 (6-8)-A	04	5-8-16	1107	S	Bag	1				X		X	X
SGR-DU004 (8-10)-A	05	5-8-16	1108	S	Bag	1				X		X	X
SGR-DU004 (0-2)-B	06	5-8-16	1110	S	Bag	1				X		X	X
SGR-DU004 (2-4)-B	07	5-8-16	1113	S	Bag	1				X		X	X
SGR-DU004 (4-6)-B	08	5-8-16	1114	S	Bag	1				X		X	X
SGR-DU004 (6-8)-B	09	5-8-16	1116	S	Bag	1				X		X	X
SGR-DU004 (8-10)-B	10	5-8-16	1118	S	Bag	1				X		X	X
SGR-DU004 (0-2)-C	11	5-8-16	1120	S	Bag	1				X		X	X
SGR-DU004 (2-4)-C	12	5-8-16	1121	S	Bag	1				X		X	X
SGR-DU004 (4-6)-C	13	5-8-16	1122	S	Bag	1				X		X	X
SGR-DU004 (6-8)-C	14	5-8-16	1123	S	Bag	1				X		X	X
SGR-DU004 (8-10)-C	15	5-8-16	1124	S	Bag	1				X		X	X

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RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

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

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4 THERM #: 70
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.9°C / 0.7°C / 2.5°C / 0.6°C
☐ HAND DELIVERED 1.6°C / 2.3°C / 1.1°C / 1.3°C / 1.8°C
0.5°C / 2.2°C / 3.0°C / 1.5°C / 1.6°C / 1.0°C / 3.5°C / 4.0

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

CHAIN-OF-CUSTODY

№ 70078

CLIENT: Arcadis
ADDRESS: 8725 Rosehill Suite 350, Lenexa, KS 66215
PHONE: 913 645 3203 FAX/E-MAIL: Alex.walker@arcadis.com
DATA REPORTED TO: Alex Walker
ADDITIONAL REPORT COPIES TO: Erika.Ankenbauer@arcadis.com

DATE: May 8, 2016 PAGE 2 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1605097
PROJECT LOCATION OR NAME: Laredo Sign
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: C. Ferguson

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT
P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ DISS. METALS ☐	8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 200.8 ☐ LEAD	METALS 6020 ☐ METALS 200.8 ☐	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
SGR-DU191-STRAT 1	16	5-8-16	1200	S	4oz Jar	1				X					X					X								
SGR-DU191-STRAT 2	17	5-8-16	1205	S	4oz Jar	1				X					X					X								
SGR-DU191-STRAT 3	18	5-8-16	1210	S	4oz Jar	1				X					X					X								
SGR-DU191-STRAT 4	19	5-8-16	1215	S	4oz Jar	1				X					X					X								
SGR-DU191-STRAT 5	20	5-8-16	1220	S	4oz Jar	1				X					X					X								
ROW-10 (0-0.5)	21	5-8-16	1005	S	4oz Jar	1				X					X					X								
ROW-10 (0.5-2.0)	22	5-8-16	1020	S	4oz Jar	1				X					X					X								extract + hold
ROW-11 (0-0.5)	23	5-8-16	1040	S	4oz Jar	1				X					X					X								
ROW-11 (0.5-2.0)	24	5-8-16	1050	S	4oz Jar	1				X					X					X								extract + hold
ROW-11 (2-4)	25	5-8-16	1100	S	4oz Jar	1				X					X					X								extract + hold
DUP04 (20160508)	26 (26)	5-8-16	1030	S	4oz Jar	1				X					X					X								Add Akw Out 5/11/16
EB12 (20160508)	27	5-8-16	1230	W	Glass/Poly	2		X		X					X					X								
SGR-DU023-A	28	5-8-16	1430	S	Bag	1				X					X					X								
SGR-DU023-B	29	5-8-16	1450	S	Bag	1				X					X					X								
EB13 (20160508)	30	5-8-16	1630	W	Glass/Poly	2		X		X					X					X								

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4

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

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

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

№ 70077 CHAIN-OF-CUSTODY

CLIENT: Arcadis
ADDRESS: 8725 Rosehill, Suite 350 Lenexa, KS 66215
PHONE: 913 649 3203 FAX/E-MAIL: Alex.walter@arcadis.com
DATA REPORTED TO: alex walter
ADDITIONAL REPORT COPIES TO: Erika.Denkenberger@arcadis.com

DATE: May 8, 2016 PAGE 3 OF 3
PO #: 04285031.0000.00044 DHL WORK ORDER #: 1605097
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285031.0000.00044 COLLECTOR: G Ferguson

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT
P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021)	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ LEAD	PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	CHLORIDE ☐ ANIONS ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ FLASHPOINT ☐ DGAS ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
SGR-DU019-01(0-2)-A	31	5-8-16	1548	S	Bag	1				X					X					X								
SGR-DU019-01(2-4)-A	32	5-8-16	1550	S	Bag	1				X					X					X								
SGR-DU019-01(4-6)-A	33	5-8-16	1552	S	Bag	1				X					X					X								
SGR-DU019-01(6-8)-A	34	5-8-16	1553	S	Bag	1				X					X					X								
SGR-DU019-01(8-10)-A	35	5-8-16	1556	S	Bag	1				X					X					X								
SGR-DU019-01(0-2)-B	36	5-8-16	1537	S	Bag	1				X					X					X								
SGR-DU019-01(2-4)-B	37	5-8-16	1539	S	Bag	1				X					X					X								
SGR-DU019-01(4-6)-B	38	5-8-16	1543	S	Bag	1				X					X					X								
SGR-DU019-01(6-8)-B	39	5-8-16	1545	S	Bag	1				X					X					X								
SGR-DU019-01(8-10)-B	40	5-8-16	1546	S	Bag	1				X					X					X								
SGR-DU019-01(0-2)-C	41	5-8-16	1557	S	Bag	1				X					X					X								
SGR-DU019-01(2-4)-C	44	5-8-16	1558	S	Bag	1				X					X					X								
SGR-DU019-01(4-6)-C	45	5-8-16	1559	S	Bag	1				X					X					X								
SGR-DU019-01(6-8)-C	46	5-8-16	1600	S	Bag	1				X					X					X								
SGR-DU019-01(8-10)-C	47	5-8-16	1601	S	Bag	1				X					X					X								

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
5-9-16/1800 FedEx
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
FedEx 5/10/16 10:00
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

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

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

ORIGIN ID:LRDA (915) 433-1761
GARETT FERGUSON
ARCADIS US, INC.
7010 BOB BULLOCK LOOP

LAREDO, TX 78041
UNITED STATES US

SHIP DATE: 09MAY16
ACTWGT: 70.00 LB
CAD: 1660358/INET3730
DIMS: 24x13x15 IN

BILL SENDER

JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 04285081.0000.00044
INV:
PO: 04285081.0000.00044 DEPT:

540J163231/27F

FedEx Express

10 of 15

TUE - 10 MAY 10:30A
PRIORITY OVERNIGHT

MPS# 0263 7762 9046 7899
Mstr# 7762 9046 7395

0201

78664
TX-US AUS

44 BSMA

QEC
Quality Environmental Containers
800-255-[illegible]50 • 304-255-3900

CUSTODY SEAL
DATE 05/10/16
SIGNATURE

ORIGIN ID:LRDA (915) 433-1761
GARETT FERGUSON
ARCADIS US, INC.
7010 BOB BULLOCK LOOP

LAREDO, TX 78041
UNITED STATES US

SHIP DATE: 09MAY16
ACTWGT: 70.00 LB
CAD: 1660358/INET3730
DIMS: 24x13x15 IN

BILL SENDER

JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 04285081.0000.00044
INV:
PO: 04285081.0000.00044 DEPT:

540J163231/27F

FedEx Express

9 of 15

TUE - 10 MAY 10:30A
PRIORITY OVERNIGHT

MPS# 0263 7762 9046 7237
Mstr# 7762 9046 7395

0201

78664
TX-US AUS

44 BSMA

CUSTODY SEAL
DATE 05/10/16
SIGNATURE

ORIGIN ID:LRDA (915) 433-1761
GARETT FERGUSON
ARCADIS US, INC.
7010 BOB BULLOCK LOOP

LAREDO, TX 78041
UNITED STATES US

SHIP DATE: 09MAY16
ACTWGT: 70.00 LB
CAD: 1660358/INET3730
DIMS: 24x13x15 IN

BILL SENDER

JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 04285081.0000.00044
INV:
PO: 04285081.0000.00044 DEPT:

540J16323/727F

FedEx Express

15 of 15

TUE - 10 MAY 10:30A
PRIORITY OVERNIGHT

MPS# 0263 7762 9046 7730
Mstr# 7762 9046 7395

0201

78664
TX-US AUS

44 BSMA

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

CUSTODY SEAL
DATE 05/09/16
SIGNATURE

ORIGIN ID:LRDA (915) 433-1761
GARETT FERGUSON
ARCADIS US, INC.
7010 BOB BULLOCK LOOP

LAREDO, TX 78041
UNITED STATES US

SHIP DATE: 09MAY16
ACTWGT: 70.00 LB
CAD: 1660358/INET3730
DIMS: 24x13x15 IN

BILL SENDER

JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 04285081.0000.00044
INV:
PO: 04285081.0000.00044 DEPT:

540J16323/727F

FedEx Express

12 of 15

TUE - 10 MAY 10:30A
PRIORITY OVERNIGHT

MPS# 0263 7762 9046 7936
Mstr# 7762 9046 7395

0201

78664
TX-US AUS

44 BSMA

CUSTODY SEAL
DATE 05/09/16
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 433-1761
GARETT FERGUSON
ARCADIS US, INC.
7010 BOB BULLOCK LOOP

LAREDO, TX 78041
UNITED STATES US

SHIP DATE: 09MAY16
ACTWGT: 70.00 LB
CAD: 1660358/INET3730
DIMS: 24x13x15 IN

BILL SENDER

TO JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 04285081.0000.00044
INV:
PO: 04285081.0000.00044 DEPT:

540J163223/727F

FedEx Express

1 of 2
TRK# 0201 7762 9903 5640
MASTER

TUE - 10 MAY 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 05/09/16
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (915) 433-1761
GARETT FERGUSON
ARCADIS US, INC.
7010 BOB BULLOCK LOOP

LAREDO, TX 78041
UNITED STATES US

SHIP DATE: 09MAY16
ACTWGT: 70.00 LB
CAD: 1660358/INET3730
DIMS: 24x13x15 IN

BILL SENDER

JENNIFER BARKER
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF: 04285081.0000.00044
INV:
PO: 04285081.0000.00044 DEPT:

540J163223/727F

FedEx Express

3 of 15
MPS# 0263 7762 9046 7400
Mstr# 7762 9046 7395 0201

TUE - 10 MAY 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 5/9/16
SIGNATURE

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